

Hychogeological lavestigation units the storigological law and the storight and the storigh

Commission Report #149

HYDROGEOLOGICAL INVESTIGATION

OF THE

MOTTOLO HAZARDOUS WASTE SITE

RAYMOND, NEW HAMPSHIRE

Hydrogeological Investigation Unit

New Hampshire Water Supply and Pollution Control Commission

August 1986

EXECUTIVE SUMMARY

The Mottolo Hazardous Waste Site is located in a rural section of the Town of Raymond, New Hampshire. Over 1,600 pails and drums of various hazardous wastes were disposed of in a quarter of an acre open face dump from approximately 1975 thru 1979. The pails, drums and some contaminated soil were excavated and secured in an emergency removal action by the United States Environmental Protection Agency in 1980 and 1981 and were removed from the site in 1981 and 1982.

The NHWS&PCC Hydrogeological Investigation Unit began a hydrogeological investigation of the Mottolo Site in March 1985 to update the previous site information and to better define the area of contamination and the potential receptors at risk. The Unit's hydrogeological investigation included a fracture fabric analysis of the bedrock geology of the area, selected geophysical surveys, a hydrochemical reconnaissance of the site, the installation of ten additional monitoring wells, the measurement of groundwater and surface water elevations and the sampling of monitoring wells, residential wells and nearby surface waters.

The investigation indicated that there are no additional areas of buried metal containers at the site, but that residual contamination emanating from the former drum disposal area is continuing to adversely impact the groundwater and surface waters near the site. A main plume of groundwater contaminated with measurable levels of volatile organic chemicals is emanating from the former drum disposal area and has migrated towards an unnamed tributary of the Exeter River, referred to as Brook A in this report. Volatile organic chemicals have been detected in the overburden and bedrock aquifers and along a reach of Brook A. No

i

impact has been detected to date in nearby residential bedrock and overburden wells or in Brook A at the Randy Lane Culvert approximately 1,800 feet downstream of the site. However, volatile organic chemicals were also detected at a bedrock/overburden monitoring well couplet approximately 230 feet downstream of the main plume of contaminated groundwater, which may be the result of transmission in the bedrock aquifer and subsequent discharge to the overburden aquifer.

Groundwater elevation data indicate that the upland area near the former drum disposal area is a local recharge area and groundwater flow is northeasterly towards Brook A where the overburden and bedrock aquifers discharge to the surface water drainage system of Brook A. Although no impact has been detected to date in any of the residential water supply wells, it should be noted that the water supply wells in the area will be at risk until soil and groundwater contamination at the site is mitigated.

Future studies and remedial cleanup actions at the site should be performed in accordance with the National Contingency Plan.

TABLE OF CONTENTS

.'

.

Page	
------	--

1.0	INTRODUCTION
2.0	SITE FEATURES INVESTIGATION.112.1 Demography.112.2 Land Use.112.3 Natural Resources.132.4 Climatology.13
3.0	HAZARDOUS SUBSTANCES INVESTIGATION
4.0	HYDROGEOLOGICAL INVESTIGATION.184.1Geology.184.1.1Previous Investigations.184.1.2Surficial and Bedrock Geology.204.1.2.1Fracture Fabric Analysis.214.1.2.2Introduction.214.1.2.3Conclusions from the FractureFabric Analysis.224.1.3Geophysical Surveys.244.1.4Proton Precession Magnetometer Profiles.254.1.4.1Introduction and Survey Design.254.1.5Seismic Refraction Survey.274.1.5.1Introduction and Survey Design.274.1.5.2Presentation of Data and Analysis.304.1.6Electrical Resistivity Surveys.334.1.6.1Introduction and Survey Design.334.1.6.2Presentation of Data and Analysis.36
	4.2 Groundwater

TABLE OF CONTENTS (continued)

<u>Page</u>

	4.2.5 Water Quality Analysis63 4.2.6 Water Level Measurements75
5.0	SURFACE WATER INVESTIGATION
6.0	AIR INVESTIGATION
7.0	ENVIRONMENTAL CONCERNS
RFFF	RENCES

iv

LIST	OF	FI	GURES	ŝ
------	----	----	-------	---

•

-

.

. .

-

.

 \sum

	Page
FIGURE 1	Location Map2
FIGURE 2	Site Map 4
FIGURE 3	Area Map12
FIGURE 4	Photolineaments Composite Map23
FIGURE 5	Location Map, Magnetic Lines
FIGURE 6	Magnetic Survey Results - March 8, 198528
FIGURE 7	Magnetic Survey Results - April 16, 1985
FIGURE 8	Geophysical Surveys Location Map
FIGURE 9	Interpreted Seismic Refraction Profiles
FIGURE 10	Comparison of Electrical Resistivity Configuration
FIGURE 11	Resistivity Double Dipole Pseudo Section
FIGURE 12	Electromagnetic Contour Map42
FIGURE 13	Hydrochemical Reconnaissance - Sampling Locations44
FIGURE 14	Schematic of Soil Gas Sampling Method
FIGURE 15	Typical Micropiezometer Installation
FIGURE 16	Hydrochemical Reconnaissance Results
FIGURE 17	Geologic Cross Section
FIGURE 18	Bedrock Surface Contour Map62
FIGURE 19	Areal Extent of Volatile Organic Contamination - August 21-22, 198571
FIGURE 20	Location Map - Residential Wells
FIGURE 21	Overburden Groundwater Elevations - August 22, 198577
FIGURE 22	Bedrock Groundwater Elevations - August 22, 1985
FIGURE 23	Surface Water Samples - Site Locations
FIGURE 24	Off-Site Surface Water Sampling Locations

V -

.

LIST OF TABLES

			<u>Page</u>
TABLE	۱	Interpreted Seismic Velocities	30
TABLE	2	Resistivity Value Interpretations	37
TABLE	3	Summary of Micropiezometer Construction and Comparative Water Level Measurements	50
TABLE	4	Slug Test Results	.58
TABLE	5	Groundwater Quality Summary - Volatile Organic Chemicals	67
TABLE	6	Range of Concentrations - Volatile Organic Chemicals	.70
TABLE	7	Inorganic Analyses Summary – Groundwater and Surface Water,	.73
TABLE	8	Groundwater Velocities and Times of Travel	.79
TABLE	9	Summary of Surface Water Quality Data - Volatile Organic Chemicals	.87

LIST OF APPENDICES

<u>Page</u>

Appendix A	Geophysical Data	A-1 thru A-5	50
Appendix B	Fracture Fabric Analysis Histograms and Aerial Photographs		3
Appendix C	Well and Test Pit Data	C-1 thru C-4	19
Appendix D	Water Quality Data	D-1 thru D-1	25
Appendix E	Slug Test and Water Elevation Data	E-1 thru E-1	7

vii

1.1 SITE BACKGROUND INFORMATION

The Mottolo Site is located on Blueberry Hill Road in the Town of Raymond, New Hampshire, approximately 3.2 miles south of the center of Raymond (Figure 1). The site is located in a rural area characterized by undeveloped wooded land and single family residences.

The site was discovered in April 1979 in response to a complaint from a local official. Initial site reconnaissance revealed a small open face dump, approximately one quarter of an acre in area, being operated for the disposal of drums and pails containing various hazardous wastes. At that time the site consisted of an access road, three buildings used as part of a former piggery operation which was not active at the time of site discovery, a pile of manure and miscellaneous wastes produced from the former piggery operation, two abandoned trucks and the drum disposal area. A leachate seep was observed emanating from the toe of the drum disposal area and flowing northeasterly towards an unnamed brook (1). Surface water was also observed contacting the toe of the dump. The former piggery operation/drum disposal area was located in approximately two acres of open land in the southwest portion of a fifty acre parcel of property owned by Richard Mottolo. In 1979 the primary concerns were the water supply wells of several single family homes located on Blueberry Hill Road to the north and northwest of the site and the potential contamination of the Exeter River which was used to supply drinking water to the Town of Exeter.

More than 1,600 drums and pails were disposed of in the dump area just north of the main piggery building. The wastes were believed to

- 1 -

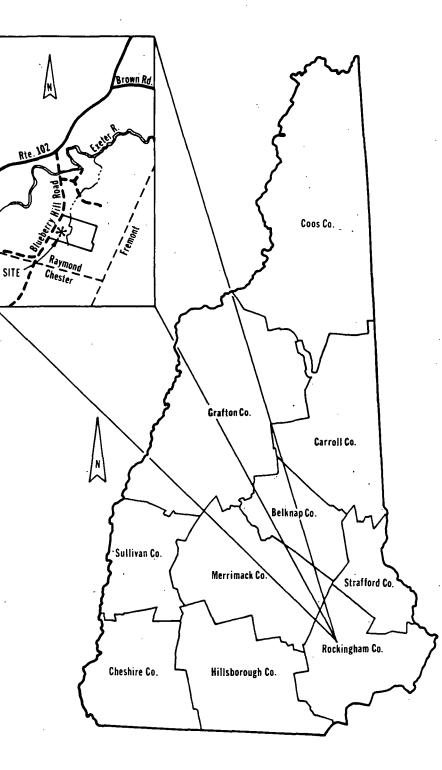


FIGURE 1

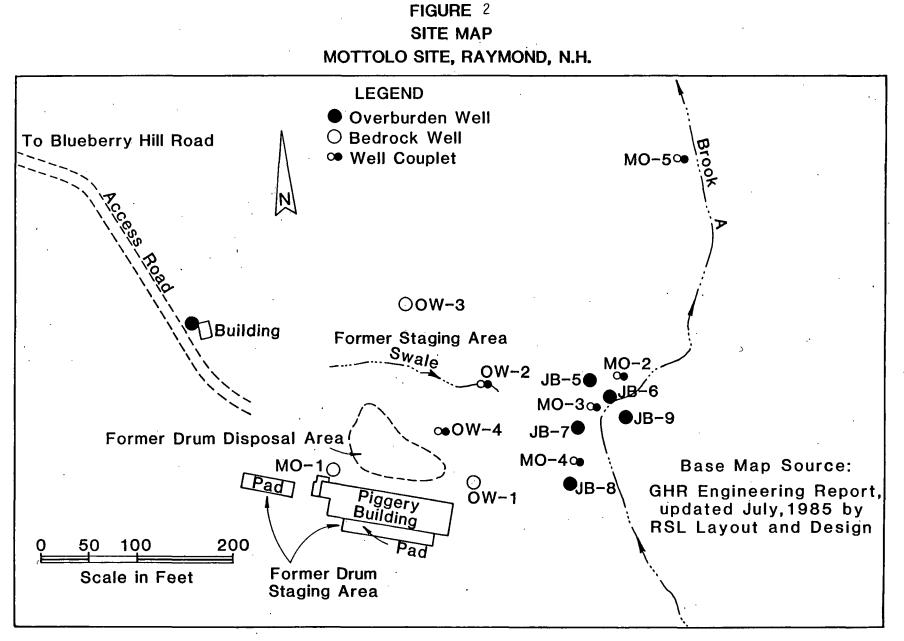
LOCATION MAP - MOTTOLO SITE

RAYMOND, N.H.

have been disposed of during a 4-5 year period prior to 1979, when the disposal operation ceased. The apparent method of disposal was to dump the drums and pails and apply a top layer of soil cover to allow access for subsequent waste disposal at the open face of the dump. In 1980 the United States Environmental Protection Agency (USEPA). Environmental Services Division initiated site activity to excavate and remove the buried wastes. Prior to the excavation of waste the following site preparation actions were taken: 1) surface water was diverted away from the toe of the dump by constructing a diversion swale and a soil berm, 2) an area north of the disposal area was cleared and graded for the temporary staging of excavated materials and 3) a temporary access road was constructed to that staging area. The drums were excavated from the disposal area by USEPA over the time period from September to December · 1980. The drums/pails were temporarily staged at three locations at the site for waste characterization and storage prior to final removal for disposal. The wastes and approximately 160 cubic yards of contaminated soil were removed from the site in December 1981 and January 1982. After the drums were removed the excavated area was filled with soil, roughly graded and seeded to establish vegetative growth. Existing site conditions have changed little since the completion of the drum removal process with the exception that one wooden building located just west of the piggery building was razed and only its concrete floor pad remains (Figure 2).

Sampling results indicate that groundwater and surface water at the site has been adversely affected by contaminants emanating from the for-

- 3 -



י 4 mer drum disposal area, but nearby private water supply wells and the Exeter River have apparently not yet been impacted. Preliminary results obtained from a hydrogeological investigation conducted concurrently with USEPA's drum removal project indicated at that time both surface water and groundwater flow was generally in a northeast direction from the site towards a small unnamed tributary of the Exeter River hereinafter referred to as Brook A. Several orange-brown stained leachate seeps are evident adjacent to the main channel of Brook A.

In April 1985 the New Hampshire Water Supply and Pollution Control Commission (NHWS&PCC) Hydrogeological Investigation Unit was charged with updating the hydrogeological investigation of the site to provide a better assessment of contaminant migration from the site. Field work began in March 1985 and was completed in November 1985.

1.2 NATURE AND EXTENT OF PROBLEM

Residual contamination from the former drum disposal area continues to adversely affect groundwater and surface water at the site. The site area is underlain by a relatively thin layer, less than 20 feet, of a variety of soils ranging from glacial till to stratified sands. The overburden (soil) aquifer is recharging the bedrock aquifer in the upland portion of the site. Groundwater flow is northeasterly toward Brook A. The relationship between the hydraulic gradient in the overburden and bedrock aquifers reverses in the valley of Brook A and groundwater discharges from the bedrock aquifer to the overburden aquifer and subsequently to the surface drainage system of Brook A.

The majority of affected groundwaters and surface waters is in the immediate area of the former drum disposal and the area of visible leach-

- 5 -

ate seeps adjacent to Brook A. However, monitoring wells MO-5S and MO-5D, which were installed approximately 230 feet north in the floodplain of Brook A, indicate that contamination is migrating in the bedrock flow system beyond the area of leachate seeps and is discharging into the overburden aquifer and eventually to Brook A. Sampling of Brook A has indicated that as yet there has been no detectable contamination at Brook A at the Randy Lane culvert, approximately 1,800 feet north of the site.

Regular sampling of the nearby residential wells has indicated that to date there apparently has been no impact on private water supplies near the site.

1.3 HYDROGEOLOGICAL INVESTIGATION

The purpose of the Mottolo Site hydrogeological investigation designed and implemented by NHWS&PCC Hydrogeological Investigation Unit was to provide an update and expand upon the previous assessment of contamination emanating from the site. The scope of work was designed to provide additional information on the hydrogeological setting of the site and identify the potential receptors of the migrating contamination. The following study elements were included as part of the field investigation:

1) Fracture fabric analysis: The fracture fabric analysis was done by BCI Geonetics, Inc. of Laconia, New Hampshire under contract with NHWS&PCC. It was comprised of a comprehensive review of the structural geology of the region, stereoscopic examination of aerial photos, on-site field mapping of jointing trends, computer evaluation of joint data and correlation of significant photolineaments with structural field data. Four sets of photographs were studied and

- 6 -

overlays prepared showing significant lineaments in the area. The imagery analyzed included high altitude color infrared photos (scale 1:127,000), high altitude black and white photos (scale 1:60,000), medium altitude black and white photos (scale 1:24,000) and low altitude large scale black and white photos (scale 1:12,000). Additional information on the photographs, exposure dates and frame numbers, is provided in Appendix B.

- 2) Geophysical surveys: The following geophysical surveys were completed at the site by Dr. J. F. Kick, a consulting geophysicist from Dunstable, Massachusetts under contract with the NHWS&PCC, and the NHWS&PCC staff; electromagnetic lines, total field magnetic profile surveys, seismic refraction profiles and electrical resistivity soundings and sections. A description of each survey follows:
 - A) Proton precession magnetometer profile survey: magnetometer readings were taken with a Geometrics Uni Mag proton precession magnetometer by NHWS&PCC staff. The magnetometer sensing head was on a staff and had a survey accuracy of 1 gamma. The area surveyed included the open area near the piggery building and the valley of Brook A north and northeast of the site. Fifteen lines with readings at 30 foot intervals were completed. A total of 4,740 feet of magnetic profile lines were completed at the site.
 - B) Electromagnetic lines: Seven electromagnetic lines totaling approximately 1,250 feet were run using the Geonics EM-31 unit accurate to +5% at 20 millimhos per meter. The design of the survey was to include readings every 20 to 30 feet. Large

- 7 -

regions of the site exhibited no positive readings so the readings were more widely spaced along these traverse lines. In areas of positive readings, the original survey design was followed.

- C) Seismic refraction surveys: Approximately 620 feet of seismic refraction profiles were conducted utilizing a 12 channel S.I.E. Model RS-4 seismic system with small explosive sources. Geophone spacings ranged from 10 to 20 feet.
- D) Electrical resistivity soundings: Five electrical resistivity soundings utilizing the Schlumberger array were taken in the site area with a Bison 2350B battery powered earth resistivity system. Steel stakes were used for both potential and current electrodes at spacings up to separations of 300 feet.
- E) Electrical resistivity double dipole section. One electrical resistivity double dipole cross section was conducted across the leachate seep area adjacent to Brook A. The section length was 90 feet.
- 3) Monitoring well drilling: Nine monitoring wells were drilled on-site using a truck mounted Acker drilling rig and Mobile drilling rig mounted on a bombardier (Soils Engineering, Inc., Charlestown). One deep bedrock well was installed off-site with a percussion air rotary rig (Tasker's Well Company, Northwood). Six wells were completed in bedrock ranging in depths from 17 to 130 feet and four wells were completed in the overburden materials.
- 4) Hydraulic testing: Slug tests were conducted on seven wells using an Insitu, Inc. SE1000 data collection system to record water level data

- 8 -

over time. The data were analyzed to estimate the hydraulic conducivity of the overburden and bedrock materials. Top of casing elevations were established for all monitoring wells, including the previously installed wells, and several water level measurements were made during the study period to establish groundwater flow directions and gradients.

- 5) Hydrochemical Reconnaissance. A hydrochemical and soil gas reconnaissance of the site was performed by Pine & Swallow Associates (PSA) of Acton, Massachusetts. The reconnaissance work included the analysis of 24 soil gas atmosphere samples and 22 groundwater and surface water samples for selected volatile organic compounds using a Photovac 10A10 gas chromatograph. As part of this field program eleven micropiezometers, one half inch in diameter, were installed along Brook A. Water elevation data were recorded from the micropiezometers in addition to the collection of water quality samples.
- 6) Sampling: Water samples were collected from on-site monitoring wells, selected micropiezometers, surface water locations and residential supply wells for volatile organic chemical analysis and selected inorganic analysis using the NHWS&PCC laboratory facilities.

1.4 OVERVIEW OF REPORT

The remainder of this report describes general and specific characteristics of the Mottolo Site area.

Chapter 2 focuses on general demographic, land use, natural resources and climatology of the area. Available historical information was used for these topics.

- 9 -

Chapter 3 summarizes the available information on the waste types that were present at the site. The information includes 1) chemical analyses compiled as part of the waste characterization efforts conducted during the drum removal and 2) environmental chemistry data.

Chapter 4 describes the hydrogeologic investigation of the NHWS&PCC. This chapter is organized into geologic investigations and groundwater investigations. Design criteria for the field studies are described and raw data appended to this report.

Chapter 5 summarizes the surface water investigations done in conjunction with the hydrogeological study. These investigations are confined to water quality sampling of nearby surface water in Brook A and the seasonally flowing swale located on the upland portion of the site. A discussion of the topographic setting of the site is also included to indicate the primary drainage patterns.

Chapter 6 discusses the air monitoring conducted during this investigation and Chapter 7 summarizes the impact to potential receptors of the defined contamination.

2.0 SITE FEATURES INVESTIGATION

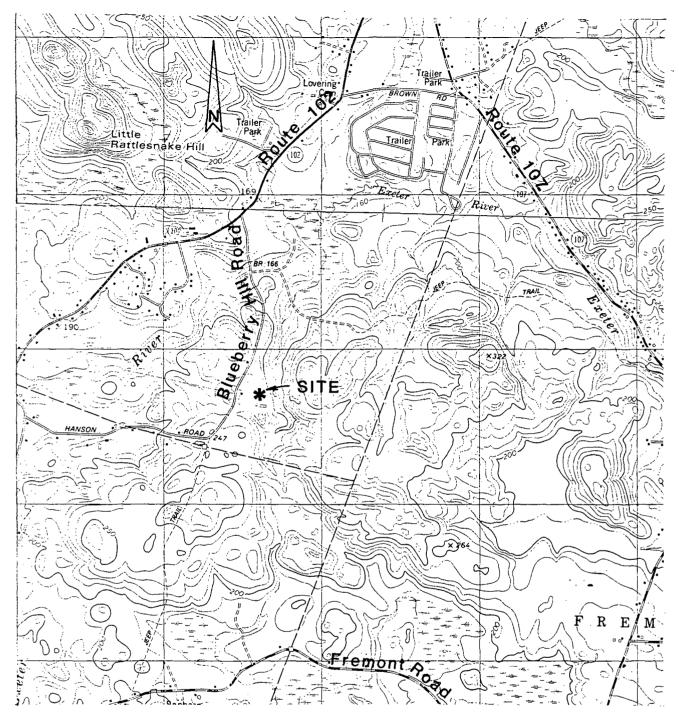
2.1 DEMOGRAPHY

The Town of Raymond is located in Rockingham County in southeastern New Hampshire approximately 15 miles east of the City of Manchester and 11 miles west of the Town of Exeter. The Mottolo Site is situated in the southeast corner of Raymond near the Town's boundary with the Towns of Chester and Fremont. The Town of Raymond, as is most of Rockingham County, is experiencing rapid population growth. The population of Raymond has grown from 3,003 in 1970 to 6,383 in 1983, a 113% increase (2). Raymond is primarily a rural bedroom community with a limited amount of commercial and industrial development. Due to its proximity to the industrial/commercial employment centers of southeastern New Hampshire and northern Massachusetts a significant portion of the community commute to these areas for employment.

2.2 LAND USE

The Mottolo Site is located in a rural portion of Raymond which is largely undeveloped woodland with some recent single family home development. Within the last three years approximately 35 homes have been developed off of Blueberry Hill Road to the north and south of the site. There are plans to continue the development of single family homes on large tracts of the currently undeveloped land immediately abutting the site to the north, east and south of the site. There is no commercial or industrial development in the immediate vicinity of the site. A copy of the U.S.G.S. topographic quadrangle map of the area is presented in Figure 3.

- 11 -



Source:

7.5' U.S.G.S. Quadrangle Maps -Sandown, N.H. and Mt. Pawtuckaway, N.H.

Scale 1:24,000

FIGURE 3 Area Map - Mottolo Site Raymond, N.H.

2.3 NATURAL RESOURCES

The Mottolo Site is located in the watershed of a small unnamed tributary to the Exeter River referred to as Brook A in this report. Brook A flows in a northerly direction towards its confluence with the Exeter River approximately 4,000 feet north of the site. Brook A is situated in a well defined valley for most of its course and large wetland areas border Brook A along several reaches downstream of the site. Along those reaches streamflow is sluggish and the main stream channel is not well defined. Along other sections of Brook A upstream and downstream of the site the gradient is greater and flow is more rapid in well defined channels. The drainage area of Brook A is approximately 0.38 square miles at its confluence with the Exeter River and approximately 0.15 square miles as it flows by the site area.

During the site investigation there was evidence of the presence of a variety of wildlife in the area. No specific wildlife survey was conducted for this study.

Approximately 45 homes in the area rely on groundwater for their water supplies. According to information obtained from a survey of the residential wells and site reconnaissance in the area all but one home derive their water supply from the bedrock aquifer. The remaining home derives its water from a dug overburden (soil) well.

2.4 CLIMATOLOGY

The climate of the region is typical of the climate of New England in that it exhibits four distinct seasonal variations. The climate of the region can vary over a wide range of climatic conditions from hot and humid during the summer months to cold with a significant accumulation of

- 13 -

snowfall during the winter. Generally, the temperature ranges from below $0^{\circ}F$ to above $90^{\circ}F$ during the course of a year, but these temperature extremes do not last for protracted periods of time. There are two long-term, over thirty years of data, National Oceanic and Atmospheric Administration (NOAA) weather reporting stations in the region; one in Durham, about 15 miles northeast of the site, and the other in Nashua, about 23 miles southwest of the site. The average monthly temperature for the two stations ranges from about $23^{\circ}F$ in January to about $70^{\circ}F$ in July with an average annual temperature of about $46.5^{\circ}F$ (3).

The area receives a moderate amount of precipitation distributed relatively evenly during the year. Monthly precipitation averages range from 3.0 inches in June to 4.7 inches in November using the Durham station data, although significant deviations from the average value can occur in any given month. Average annual precipitation is about 43 inches (3). Precipitation occurs in the form of rain, sleet and snow during different times of the year. Snow may be expected to occur in the period from November to early April and typically the ground is snow covered from December thru March.

Climatic conditions are of importance to the site because the infiltration of precipitation through the contaminated soil at the former drum disposal area is the likely source of continuing groundwater contamination. Although the amount of monthly precipitation is relatively evenly distributed throughout the year, the amount of infiltration or recharge can be expected to undergo greater monthly fluctuations because infiltration will occur only during the months when the precipitation input exceeds the losses due to evapotranspiration, runoff and changes in soil moisture content. Generally, the amount of infiltration will be minimal

- 14 -

during the summer months when water losses will exceed the input from precipitation and a majority of the infiltration will occur during the, spring, fall and winter months. Therefore, infiltration of water through the residual contaminated soil at the site will occur at varying rates throughout the year depending on the water budget analysis of inputs versus losses. A rough approximation of the amount of annual infiltration through the former waste disposal area may be made by subtracting the average annual evaporation value (26 inches), using annual lake evaporation data from the Lake Massabesic weather station located in Manchester, from the average annual precipitation value (3). Based on this analysis the estimate of average annual infiltration is approximately 18 inches at the site. Assuming that leachate is generated when this infiltration flows thru the contaminated soil in the 1/4 acre former drum disposal area, then approximately 123,000 gallons of contaminated water are expected to be generated yearly from the site, or about 335 gallons per day. This value represents only an approximate estimate of annual leachate generation. Actual amounts depend on the given time period using actual water input and output variables based on site specific characteristics, such as topography, runoff and soil moisture.

- 15 -

3.0 HAZARDOUS SUBSTANCES INVESTIGATION

3.1 WASTE TYPES

Over 1,600 55-gallon drums and 5-gallon pails containing a variety of liquid, semi-solid and solid wastes were disposed in approximately 1/4 acre dumping area adjacent to the main piggery building. The containers were disposed of in an open face dump with soil fill added to the top as a working surface in order to extend the dumping area. Initial concerns were that the operational method may have damaged the drums and pails, causing a substantial release of their contents, however, the majority of the drums were found to contain a majority of their contents. During the removal some drums were discovered to be leaking and soils were visibly contaminated. USEPA found that 83 55-gallon drums and 7 5-gallon pails were empty at the time of removal. A small unquantified amount of leakage was believed to have occurred through small openings and loose covers.

Analyses of the drum contents were accomplished by USEPA in 1980 during drum excavation and staging operations and again in 1981 and 1982 as part of the off-site removal operation.

The waste characterization results indicated that at least the following types of waste materials were present in the drums and pails removed from the site; toluene, methyl ethyl ketone, alcohols, acetates, chromates, lead, zinc, lacquers, turpentine, animal fats, chlorinated compounds and packaged laboratory chemicals. No evidence of pesticides, herbicides, polychlorinated biphenyls (PCBs) or oils was detected (4).

In addition, detailed GC/MS organic analyses and selected inorganic analyses of the groundwater and surface water samples collected at the

- 16 -

8

site detected a number of the chemicals identified in the waste materials and other compounds which may not be specifically identified within the broad categories of the waste characterization studies performed during the removal operations. With the removal of the containerized waste the remaining source of contamination at the site is residual soil contamination. Contaminants have been detected in the groundwater near the site and in a reach of Brook A as it flows by the site area.

4.0 HYDROGEOLOGICAL INVESTIGATION

Since site discovery in 1979 numerous water quality samples have been collected from the nearby residential wells, surface waters and on-site monitoring wells.

The NHWS&PCC installed three monitoring wells at the site in July 1979 and in 1980 hired GHR Engineering Corporation and Goldberg-Zoino & Associates, Inc. (GHR/GZA) to conduct a site investigation. GHR/GZA installed eight additional monitoring wells as part of their investigation In early 1985 the NHWS&PCC's Hydrogeological Investigation Unit (4). began its hydrogeological investigation and update of the site. The purpose of the hydrogeological investigation was to further evaluate the hydrogeological setting of the Mottolo Site, to better define the extent of contamination emanating from the site and to assess possible pathways and the potential impact on environmental receptors. The scope of work included a fracture fabric analysis of the regional bedrock system, geophysical surveys, a hydrochemical reconnaissance investigation, the installation of bedrock and overburden monitoring wells, the geophysical logging of selected monitoring wells, the measurement of groundwater and surface water elevations, the hydraulic testing of monitoring wells and the chemical analysis of water samples from surface water, the overburden and bedrock aquifers.

4.1 GEOLOGY

4.1.1 Previous Investigations

Previous investigations of the area included state wide geo-

- 18 -

geologic mapping of the bedrock and surficial geology published by the New Hampshire Department of Resources and Economic Development (5, 6), an evaluation of the availability of groundwater in the coastal river basins prepared by the United States Geological Survey (7) and the earlier site investigation conducted by GHR/GZA in 1981 (4). The GHR/GZA report contained site specific information and the other reports were useful to view the site within a regional context. Additionally, a limited site hydrogeological investigation was performed as part of the closure plans for the Raymond Municipal Landfill located approximately 9,500 feet north of the Mottolo Site (8).

Concurrent with the drum removal process the NHWS&PCC hired GHR/GZA to conduct a limited site hydrogeological investigation to characterize the extent of groundwater contamination on a preliminary basis. The site investigation included the installation of eight additional monitoring wells and the excavation of twelve test pits to characterize subsurface conditions. The location of the wells are shown on Figure 2. Two of the eight wells were drilled to replace one of the then three existing wells, OW-1, OW-2 and OW-3, installed by NHWS&PCC in July 1979. The existing bedrock well at OW-2 was replaced by a monitoring well couplet comprised of a Barcad sampling device installed in the bedrock and a companion steel well installed in the overburden soils. A similar monitoring well couplet consisting of a Barcad sampler and steel well was installed at OW-4.

Five shallow monitoring wells, JB-5 to JB-9, were installed adjacent to the valley of Brook A in the area of several visible

- 19 -

leachate seeps. The "JB" series of wells were installed using jet boring methods and penetrated to refusal depths ranging from 4.0 feet to 6.8 feet. Bedrock depths were not confirmed. Geologic conditions at the JB wells were assessed based on the wash water from the jet borings. Water quality analyses and water elevation measurements data were collected during the investigation to make a preliminary assessment of the extent of contamination at the site. The Hydrogeological Investigation Unit made extensive use of the information generated in the GHR/GZA report to design field investigations for this study. The monitoring wells and surface water stations were sampled at the outset of this hydrogeological investigation.

4.1.2 Surficial and Bedrock Geology

As noted in the GHR/GZA report the surficial geologic deposits (overburden material) in the area of the site consisted of two main types, unstratified glacial till and stratified sediments ranging from silty fine sand to medium to coarse sand. In general, the glacial till was located in the higher elevations of the site near the former disposal area. Stratified sands were located in two areas: 1) along the upper swale located between the toe of the former disposal area and an open area used for staging operations during drum excavation and removal and 2) along the valley of Brook A (see Figure 2).

The surficial deposits are shallow across the site area ranging from zero at some locations where the bedrock outcrops to less than 20 feet at its maximum thickness. All surficial deposits were

- 20 -

glacially derived although the deposits along the Brook A may have been reworked by alluvial processes.

The bedrock underlying the Mottolo Site is comprised of deformed meta sediments, primarily biotite-quartz schist, quartz and granite of the Berwick and Merrimack Formations. The site is situated on the southeastern flank of the Massabesic Anticlinorium. The trace of the axial surface of the anticlinorium is approximately seven miles northwest of the site and strikes about 48-52°E through that area. The Flint Hill Fault, which is located less than three miles north-northwest of the site, has a significant influence on the fracture fabric of the area. The region's fracture patterns are of importance to the site because the majority of existing residential water supply wells derive their water from the bedrock aquifer.

4.1.2.1 Fracture Fabric Analysis

A bedrock fracture fabric analysis of the Mottolo Site area was performed by BCI Geonetics, Inc. of Laconia, New Hampshire. The purpose of the analysis was to assess the structural fabric of the bedrock geology in order to evaluate potential fracture systems which could serve as significant contaminant pathways.

4.1.2.2 <u>Introduction</u>

The fracture fabric analysis of the Mottolo Site included a review of the region's structural geologic history, the stereoscopic examination of four sets of aerial photos, field investigation and mapping of joints at several outcrop stations and correlation of field data with the results of

- 21 -

the photointerpretation. The aerial photography examined included black and white and color infrared imagery and ranged from low altitude photos (scale 1:12,000) to high altitude photos (scale 1:127,000).

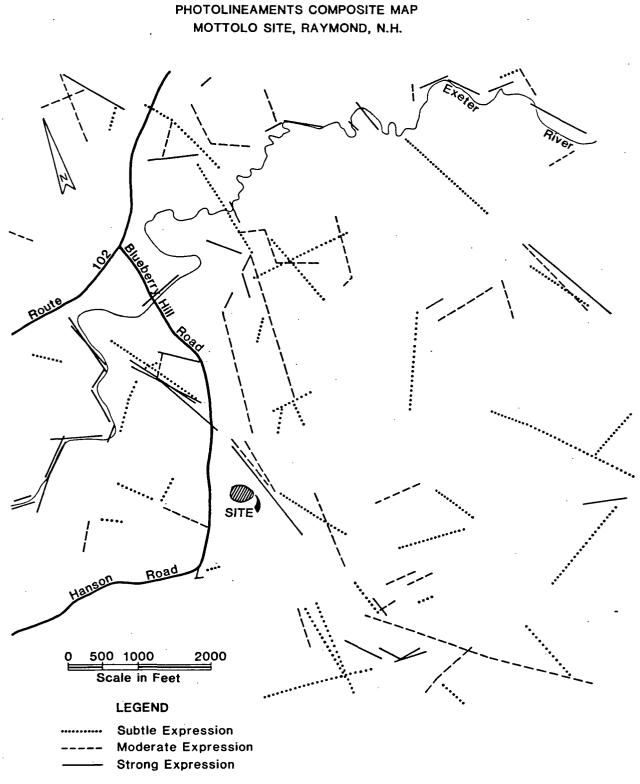
Five bedrock outcrop locations were selected in the region and used for the field measurement of joint patterns. A total of 135 separate measurements were made. The measurements were statistically processed to produce a digitally filtered computer generated histogram which exhibits four prominent peaks; 38-44⁰, 86⁰, 130⁰ and 174⁰ (Appendix B).

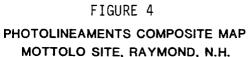
4.1.2.3 <u>Conclusions from the Fracture Fabric Analysis</u>

The results of the field joint mapping correlated well with the occurrence of photolineaments in the area, which was expected considering the shallow depth of overburden. The four major trends in fracture fabric were indicated along the following azimuths: 1) $38-44^{\circ}$, 2) 86° , 3) 130° and 4) 174° . Each grouping of fracture trends was evident in the photoanalysis and the joint mapping and may be of significance for flow in the bedrock aquifer.

No lineaments were identified passing through the site but several were observed near the site. Figure 4 illustrates the composite map for photolineament identification and the lineaments were coded according to their strength of expression. A topographic lineament corresponding to the valley of Brook A was observed east of the site trending approximately $160-170^{\circ}$. A second group of topographic photo-

- 22 -





lineaments are located approximately 1,000-1,500 feet northwest of the site. The projection of this group photolineaments intersects an area just north of the site and is colinear with the $160-170^{\circ}$ fracture fabric trend. Two other lineament groups correlated well with the joint measurement peaks observed throughout the area; 1) one group at 23° to 48° and 2) a second group trending 76° to 100° . Although no lineaments of either group pass directly throughout the site as seen in Figure 4, the photolineaments and associated fractures may be permeable and highly transmissive for groundwater flow.

4.1.3 Geophysical Surveys

Geophysical techniques and field surveys were selected and designed for the Mottolo Site to: 1) provide additional information on subsurface conditions at the site, 2) evaluate structural geological features which may be associated with the findings of the fracture fabric analysis, and 3) guide the location of additional groundwater monitoring wells.

All geophysical surveys were conducted at the site by the Commission's Hydrogeological Investigation Unit and John F. Kick, Ph.D., geophysicist under contract with NHWS&PCC. Field work began in March 1985 and was completed in May 1985. Geophysical surveys performed at the site included proton precession magnetometer profiles, seismic refraction survey, electrical resistivity survey, and electromagnetic survey.

- 24 -

4.1.4 Proton Precession Magnetometer Profiles

4.1.4.1 Introduction and Survey Design

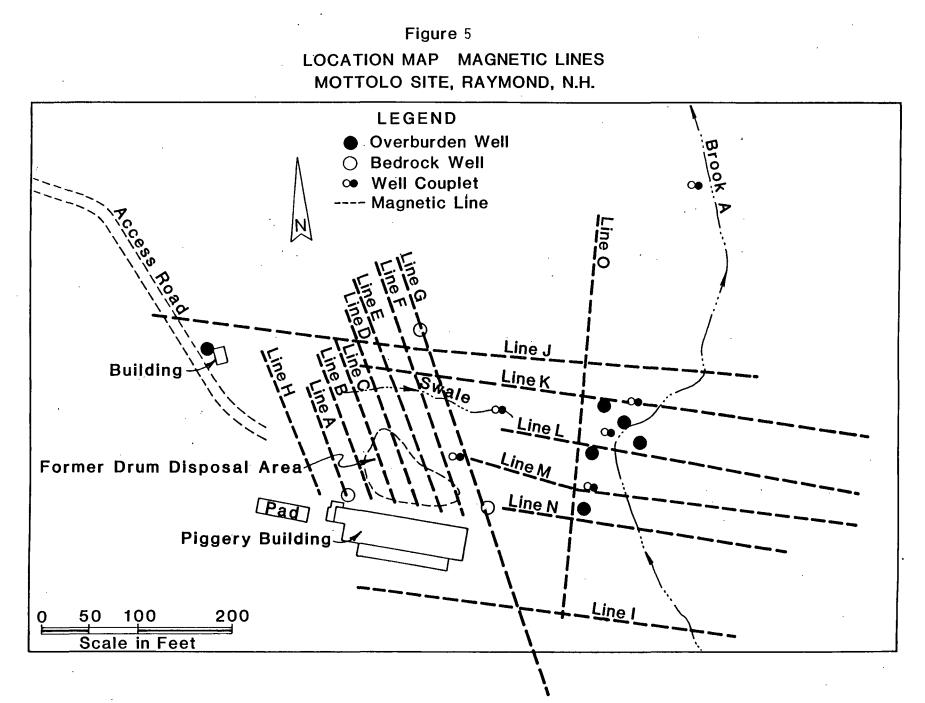
Magnetic methods involve the detection and measurement of the earth's magnetic field caused by the presence of materials with contrasting magnetic susceptibility. The survey may be used to locate buried metallic objects or to identify geological discontinuities such as fracture zones which may be manifested as magnetic anomalies. For the Mottolo Site the technique was used to survey the area near the former piggery building for any areas that may contain substantial quantities of buried metallic objects. Profiles were also run to evaluate the geologic structure near the site, particularly along the lineaments which were identified northeast of the site coincident with the Brook A topographic feature.

The NHWS&PCC conducted the surveys using an EG&G Geometrics Uni-Mag G-846 proton precession magnetometer with a resolution of 1.0 gamma. Fifteen profile lines totaling 4,740 feet were completed at the site over two days. Readings were generally taken at thirty foot intervals. Figure 5 shows the location of the lines. Consistent with the survey objectives most of the lines were concentrated in the open areas near the former drum disposal area and perpendicular to the identified photolineament northeast of the site.

4.1.4.2 Presentation of Data and Analysis

The field data were corrected for the diurnal variations measured at the temporary base station located at the site.

- 25 -



Т

The field measurements, the base station drift curves, and the profiles of the corrected values are presented in Appendix A. Figures 6 and 7 show the contoured data for the surveys completed on March 8, 1985 and April 16, 1985 respectively.

Significant conclusions from the magnetic survey were 1) there were no large magnetic anomalies in the open area near the former piggery building indicating that no areas contain significant buried metallic objects, 2) there are several surface metallic objects which produced localized anomalies, and 3) there was no indication of a structural geologic feature exhibiting a significant magnetic signature in the valley east of the site.

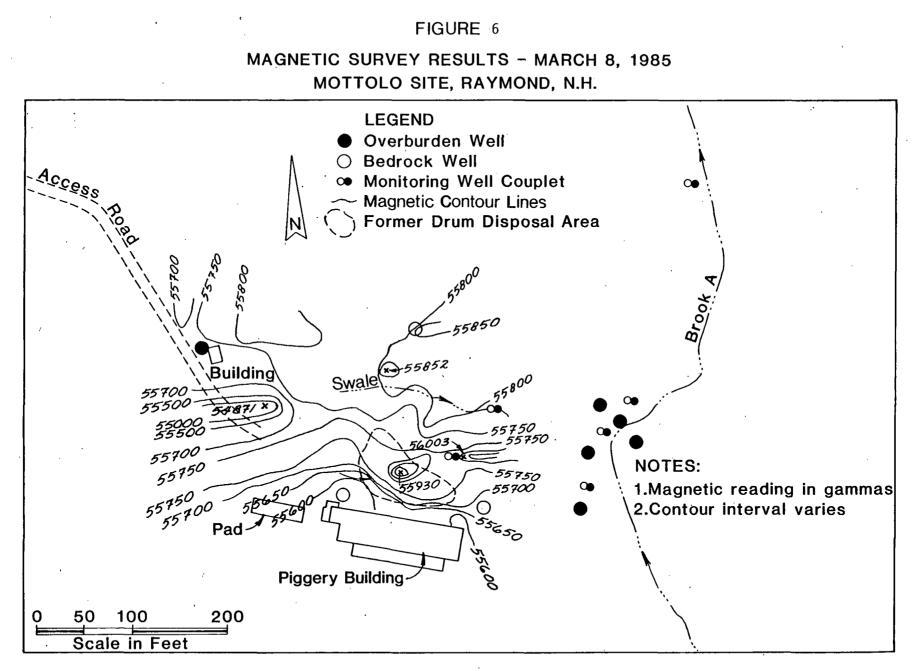
4.1.5 Seismic Refraction Survey

4.1.5.1 Introduction and Survey Design

The seismic refraction method is based upon the fact that seismic waves travel at different velocities in materials that have different elastic properties. In general, the velocity of seismic wave transmission increases as the compactness of the medium increases. The refraction method is only effective in areas where the deeper materials have higher velocities.

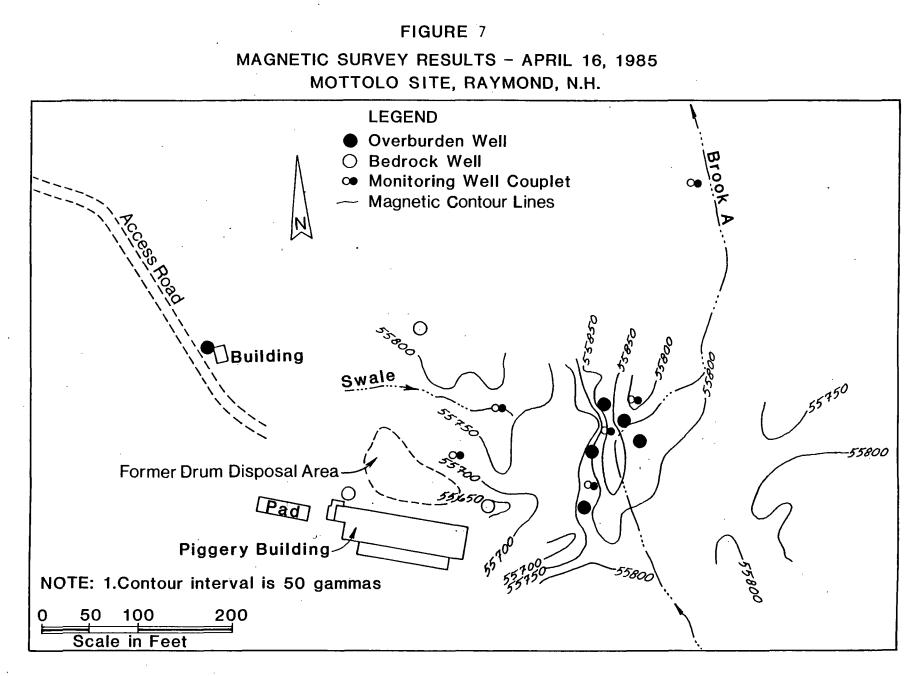
The equipment used was an S.I.E. Model RS-4 12 channel seismic system owned by the Commission's consulting geophysicist, Dr. J. F. Kick. Seismic waves generated by the use of small explosive charges were detected by a string of geophones buried in the ground.

- 27 -



- 28

ω 1



A total of three lines covering approximately 620 feet of linear traverse were run in the Mottolo Site area. The line locations are shown on Figure 8. The survey was designed to further evaluate the thickness and type of overburden materials, and to provide additional information regarding bedrock topography and condition in order to guide the location of additional monitoring wells. Geophone spacings ranged from 10 to 20 feet.

4.1.5.2 Presentation of Data and Analysis

Data interpretation was accomplished using the critical distance method which is based on the analysis of travel time versus distance in combination with formulae based on refraction theory. In general, experience shows that the computed seismic depths at shot holes are within ten percent of the true depth. Accuracy may be somewhat less between shot points or for depths less than 15 feet which was the case at many locations at the Mottolo Site.

Figure 9 shows the interpreted seismic refraction profiles. The interpretation for the seismic refraction velocity variations are given in Table 1.

TABLE 1

INTERPRETED SEISMIC VELOCITIES MOTTOLO SITE, RAYMOND

Material

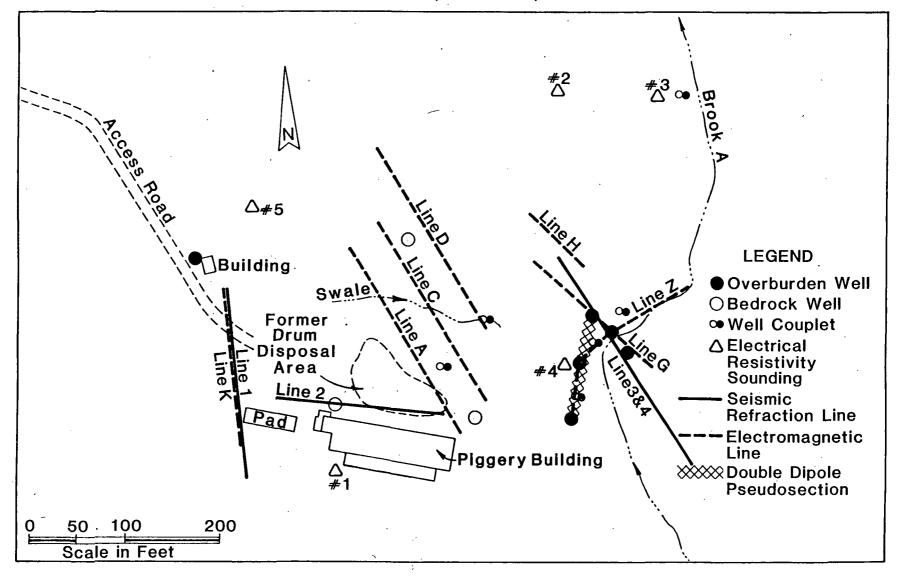
Velocity, ft./sec.

unsaturated sands and glacial till 1,500-2,600 saturated sands 5,000 bedrock 14,400-15,000

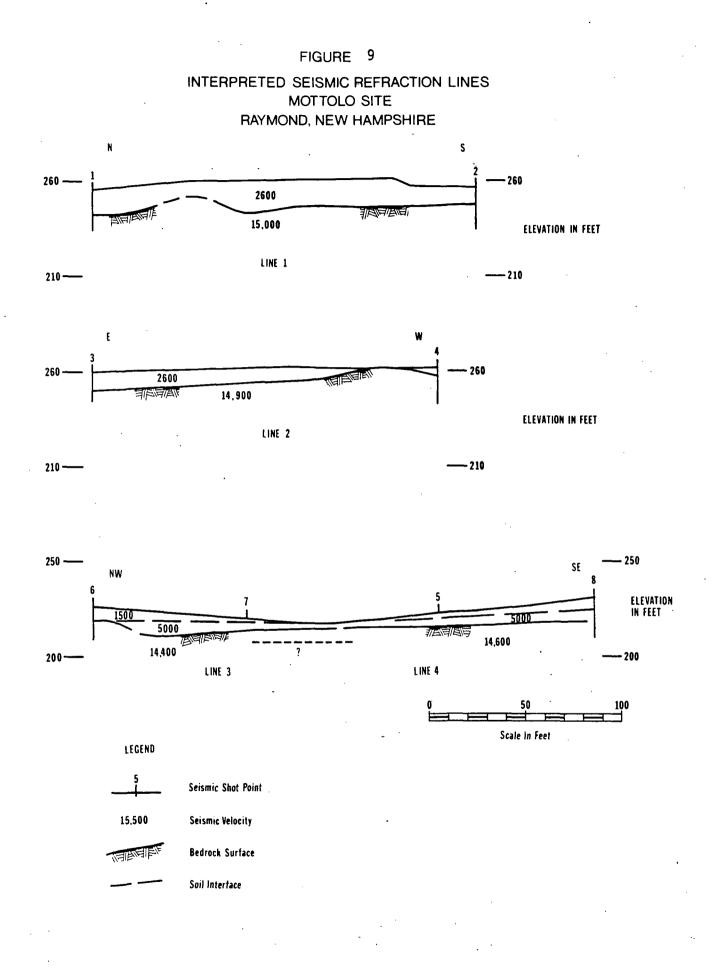
- 30 -



GEOPHYSICAL SURVEY LOCATION MAP MOTTOLO SITE, RAYMOND, N.H.



-31 -



- 32 -

UL

The results of the seismic refraction survey indicate that the area in the vicinity of the former disposal area and piggery building is comprised of a relatively thin layer, less than 20 feet, of overburden soil overlying the bedrock surface. A divide in the bedrock topography is indicated near the northwest corner of the former piggery building where bedrock outcrops. The results also indicate the overburden soil along the valley of Brook A is of relatively shallow depths, less than 20 feet. The seismic data were used with additional geophysical information and data from the well installations and previous test pits to estimate the topography of the bedrock surface. Further discussion of the bedrock topography occurs in Section 4.2.4.3.

4.1.6 Electrical Resistivity Surveys

4.1.6.1 Introduction and Survey Design

Electrical resistivity survey techniques involve applying an electric current to the ground through electrodes placed in strategic locations and measuring the returning current at potential electrodes. The resistivity of the soils or rock can then be calculated. Differences in the texture of the subsurface materials, their degree of saturation and the quality of water with which they are saturated all affect the resistance to the applied current. Based upon background knowledge of a site and the configuration of the survey, interpretations may be made concerning local stratigraphy and water quality variations. Clay and other compact, fine grained sediments have low resistivities whereas coarse

- 33 -

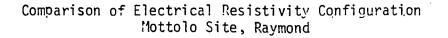
grained materials saturated with clean groundwater and most bedrock types common in New England have high resistivity. Generally, the groundwater quality has a much more pronounced effect on the resistivity than grain size alone.

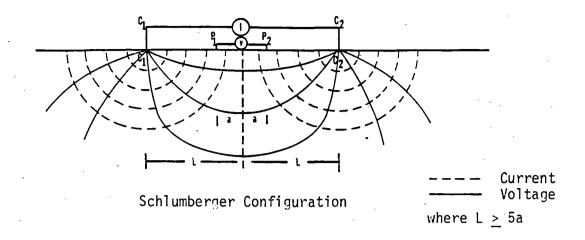
Electrical resistivity surveys were conducted by Dr. Kick at the Mottolo Site using a Bison 2350B battery powered earth resistivity system. Steel stakes were used for both potential and current electrodes. The surveys were conducted using two different electrode configurations, the Schlumberger and double dipole section. The Schlumberger sounding configuration used various electrode spacings to obtain electrical resistivity data for different depths at a given sounding location. Figure 10 illustrates a schematic of the Schlumberger sounding technique versus the double dipole technique. Five Schlumberger soundings were completed at the site.

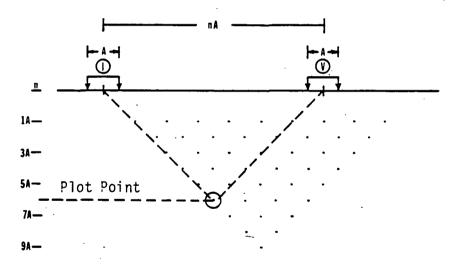
The double dipole survey was also used to help identify areas of contaminated groundwater. This technique generates a resistivity sounding that provides a detailed section of apparent resistivity values versus distance and depth. As shown on Figure 10 the current electrodes are maintained at a constant separation (A) and the potential electrodes, which are also kept a constant distance apart, are situated outside the current electrode spread. The potential electrodes are used to measure the ground surface potential at distance intervals (NA) along a straight line passing through all four electrodes. The apparent resistivity (a) is plotted at a

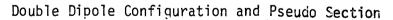
- 34 -

FIGURE 10









① Current Electrode

- ⑦ Potential Electrode
- Plot Point on Psuedosection

- 35 -

relative position representing depth as shown in the representative diagram on Figure 10. The diagram is called a pseudo section because the vertical dimension is not easily determined. The actual depth penetrated would have to be determined by further detailed interpretation and modeling.

The main objectives of the survey were to 1) further investigate the nature of the overburden materials, 2) evaluate the bedrock surface, and 3) assess possible water quality variations and assist in plume identification. These results were used with the other geophysical information and previous hydrogeological data to provide the rationale for selecting the locations of the additional monitoring wells.

Figure 8 shows the locations of the soundings and double dipole section. Spread distances were designed to provide electrical penetration to bedrock. All field data are presented in Appendix A.

Soundings 1 and 5 were selected to provide information representative of the "background" geoelectrical responses of the area. Sounding 4 and the double dipole section were located in the area of several leachate seeps adjacent to Brook A. Soundings 2 and 3 were selected to provide data on areas that may be potentially downgradient of the site along the valley of Brook A.

4.1.6.2 Presentation of Data and Analysis

Field data obtained from the Schlumberger soundings were tabulated and plotted as curves of apparent resistivity versus electrode spacing on logarithmic graph paper. The curves

- 36 -

are presented in Appendix A along with the interpreted layered models. A USGS computer program was used to model the soundings for up to 10 horizontal layers. The model results are generated in an iterative fashion. An initial theoretical sounding curve is calculated by assuming a model made up of a sequence of layers and corresponding resistivities. The initial assumptions are derived from field curve values, well logs and knowledge of the geology of the area. The calculated curve is compared to the observed curve and differences are noted. A second theoretical curve is then calculated using model parameters that are likely to minimize the differences. The process is repeated until the calculated curve is sufficiently close to the observed sounding curve. The resulting model is interpreted in terms of the local geologic structure, materials and water quality.

Table 2 shows the ranges of resistivities encountered at the Mottolo Site and representative stratigraphic interpretations.

TABLE 2

RESISTIVITY VALUE INTERPRETATIONS MOTTOLO SITE, RAYMOND

<u>Resistivity (ohm ft.)</u>	Inte
<1,000	saturated s containing leachate
1,800-4,000	saturated s
10,000-17,000	unsaturated

>3,500

<u>Interpretation</u>

saturated stratified sands, containing high conductivity leachate

saturated stratified sands

unsaturated sands/glacial till

bedrock

- 37 -

A 100 foot double dipole pseudo section was completed in the leachate seep area adjacent to Brook A. The results are shown in Figure 11. Significant findings were that 1) resistivity values were lower with depth in the area between JB-5 and JB-7 suggesting the presence of contaminated groundwater which would contribute to reduced resistivity values and 2) there were lower resistivity values close to the ground surface near JB-7 which may be due to contaminated runoff draining from the upper swale of the site. These findings were used with other geophysical and chemical data to finalize the location and construction of additional monitoring wells.

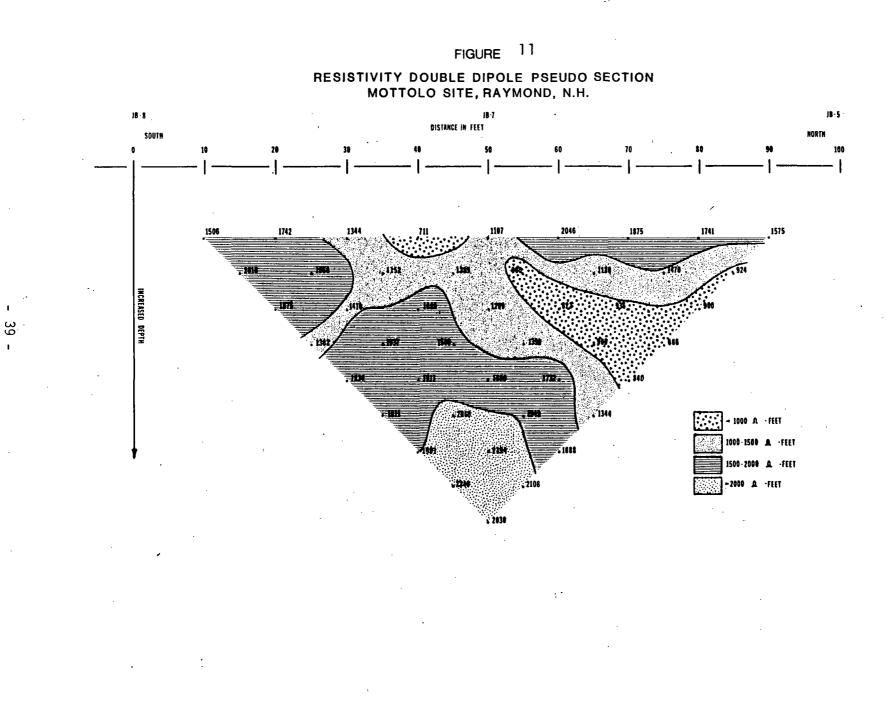
4.2 GROUNDWATER

4.2.1 Previous Investigations

Previous investigations of the groundwater in the vicinity of the Mottolo Site have been conducted by the NHWS&PCC and GHR Engineering Corporation (GHR) in cooperation with Goldberg-Zoino & Associates, Inc. (GZA). The NHWS&PCC began monitoring nearby residential water supply wells in 1979. Additionally, NHWS&PCC installed three monitoring wells at the site in July 1979. The NHWS&PCC has continued to periodically sample the monitoring wells and residential wells in the area.

GHR/GZA conducted an initial hydrogeological investigation of the site for the NHWS&PCC and USEPA in 1981. The investigation included the excavation of 12 test pits, installation of 2 monitoring well couplets, the installation of five shallow wells using a jet

- 38 -



boring method, the measurement of groundwater levels and the collection of water quality samples. The data and findings of the GHR/GZA Investigation are summarized in a two volume report published in 1981 (4).

4.2.2 Electromagnetic Survey

4.2.2.1 Introduction and Survey Design

Electromagnetic Surveying (EM) is a technique used to measure the electrical conductivity of subsurface soil or rock and groundwater. Electrical conductivity is a function of the type of subsurface materials, the porosity of the subsurface strata, and the fluids that occupy the pore spaces. Often the conductivity and/or presence of the pore fluid has the dominant influence on the measured values, although stratigraphic factors may have a significant effect.

The electromagnetic instrument operates by radiating an electromagnetic field into the subsurface material which induces eddy currents in the subsurface material. The eddy currents produce a second electromagnetic field which is a function of the composition of the subsurface material and is detected on a receiver coil. Generally, the absolute values are not as critical as the patterns of relative values.

A Geonics EM-31 instrument supplied and operated by Dr. Kick was utilized to conduct the traverses. The depth of penetration was approximately 18 feet which was sufficient to evaluate and estimate near surface leachate migration in the shallow overburden materials. The upper materials of the subsurface have the greatest effect on the measured values.

- 40 -

The electromagnetic survey in the vicinity of the Mottolo Site was designed to examine the near surface groundwater quality variations to better define the areal extent of contamination. The data were collected in profiles to determine the conductivity variations along lines parallel with the seismic refraction surveys and into areas of unknown leachate migration.

Seven electromagnetic traverse lines totaling approximately 1,250 feet were run. Figure 8 shows the locations of the traverses.

4.2.2.2 Presentation of Data and Analysis

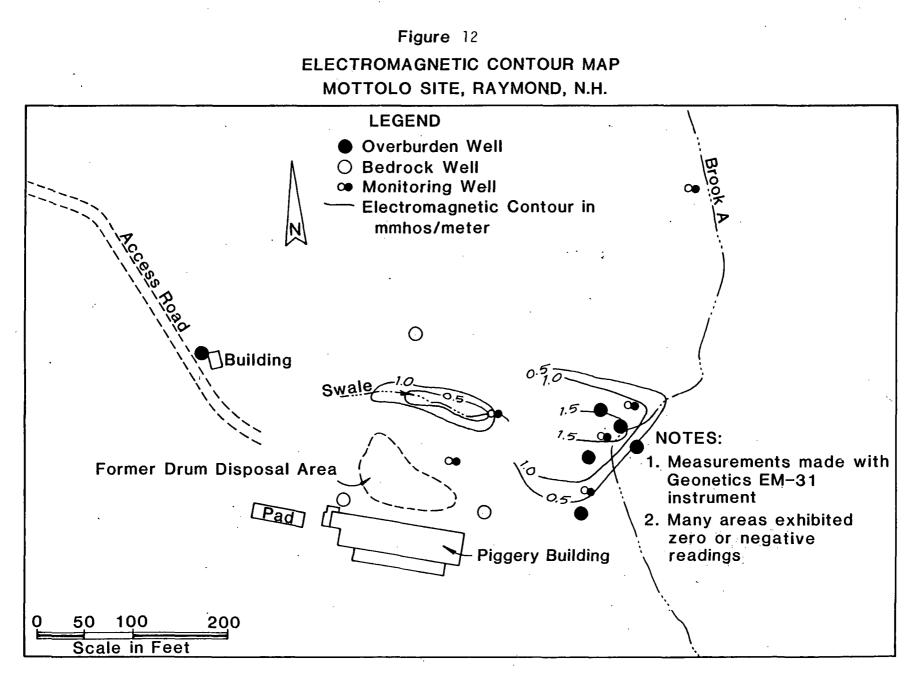
The electromagnetic data were plotted in profiles and illustrated on a contour map (Figure 12). Traverses were completed across the former disposal area and in the leachate seep area adjacent to Brook A. Much of the area surveyed exhibited negative or zero readings. This is believed to have resulted from the shallow depth of soil over a low conductivity bedrock. The survey did indicate relative conductivity changes by positive readings in certain areas of the site which may be associated with groundwater quality changes. 4.2.3 Hydrochemical Reconnaissance

215 Hydrochemred Reconnutssance

4.2.3.1 Introduction and Survey Design

A hydrochemical reconnaissance of the Mottolo Site was performed for NHWS&PCC by Pine and Swallow Associates (PSA) in May 1985. The objective of the hydrochemical reconnaissance was to use field techniques that utilized the chemical properties of the groundwater and surface water to 1) better

- 41 -



42 -

1

define the areas of contamination, 2) provide further justification for the location of additional groundwater monitoring wells, and 3) evaluate the area for other plumes of contaminated groundwater not previously detected. The hydrochemical reconnaissance for the Mottolo Site consisted of three phases; 1) soil gas survey, 2) surface water quality sampling program, and 3) the installation and sampling of micropiezometers.

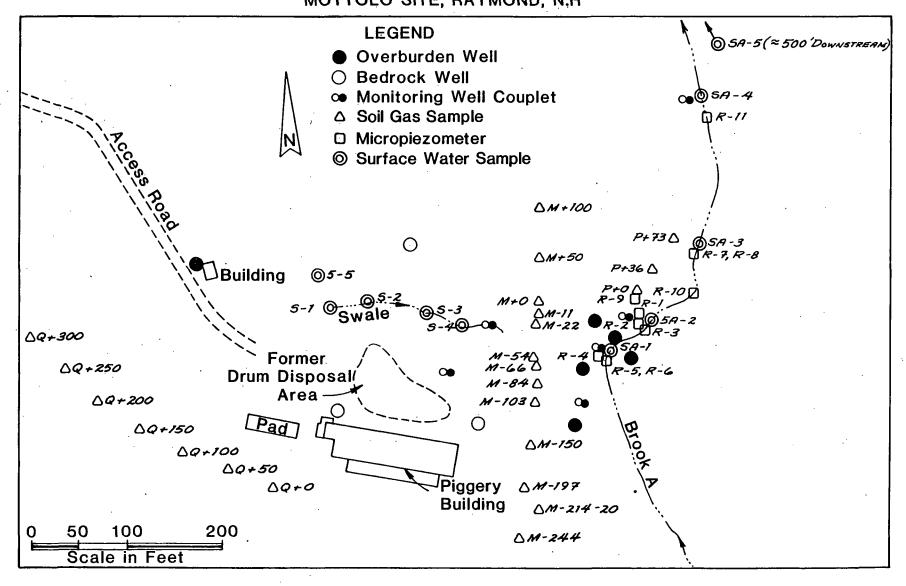
4.2.3.2 Soil Gas Sampling

Previous water quality data indicated that the groundwater and surface waters were contaminated with volatile organic chemicals (VOC). The soil gas reconnaissance technique is based on the principle that VOCs contained in a groundwater plume will diffuse from the groundwater to a vapor (gaseous) phase leaving a chemical "fingerprint" in the unsaturated soil pores above the water table. The concentration present in the soil vapor will be dependent on the types and concentrations of VOCs in the groundwater below and the interactions of the physical, chemical and biological processes operating in the soil. Generally, the absolute values of soil gas concentrations are not as significant as the relative concentrations over an areal extent which can be used to predict the dimensions of a subsurface plume.

A total of twenty-three soil gas sample locations were completed at the Mottolo Site (Figure 13). A clean chromesteel hand auger was used to construct the test holes of approximately one inch in diameter which varied between 18 and 32 inches deep. A wooden plug equipped with a feed through

- 43 -

FIGURE 13 HYDROCHEMICAL RECONNAISSANCE - SAMPLING LOCATIONS MOTTOLO SITE, RAYMOND, N.H



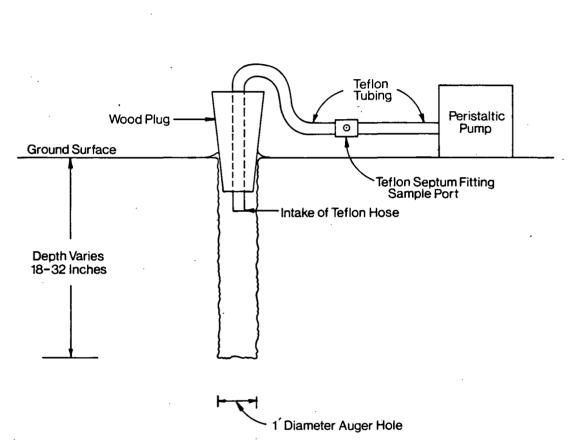
- 44

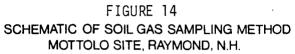
teflon tube, used as the intake, was firmly set into the hole. A peristaltic pump was used to evacuate ten to twenty auger hole air volumes prior to collecting the sample. Samples were collected with a clean hypodermic needle by inserting the needle into a teflon septum fitting located upstream of the peristaltic pump. Figure 14 is a schematic of the soil gas sampling procedure.

The sample filled syringe was immediately injected into a Photovac 10A10 GC for analysis. The soil auger and wood plug were wiped free of soil debris between each sample location. Blanks were run before each sample to ensure syringe cleanliness. Identification of the peaks in the chromatogram was made by comparison with standards made from reagent compounds of chemicals matched to known contaminants in the area. The column used for analysis was a four foot by oneeighth inch 5% SE-30 on Chromosorb G 60/80.

A total of twenty-three soil gas samples were collected along three traverse lines as shown on Figure 13. The M line was completed perpendicular to the movement of contaminated groundwater as indicated in the earlier site assessment; the P line was completed adjacent to Brook A and north of the area with leachate seeps. The Q line was conducted southwest of the bedrock divide near western extent the former disposal area to evaluate the potential for contaminant migration in the southwesterly direction. Additionally, a soil gas sample was collected from micropiezometer R-1 because there was an insufficient quantity of water within the micropiezometer to collect a water sample.

- 45 -





4.2.3.3 Micropiezometers

The soil gas technique could not be used in areas where groundwater is close to the ground surface, particularly in the leachate seep area adjacent to Brook A. In order to evaluate this area of the site micropiezometers were installed in the overburden as part of the hydrochemical reconnaissance. Eleven micropiezometers were installed in the leachate seep area and further downstream adjacent to Brook A, see Figure 13. The piezometers were utilized to collect groundwater samples for analysis and to establish hydraulic relationships between the groundwater and Brook A.

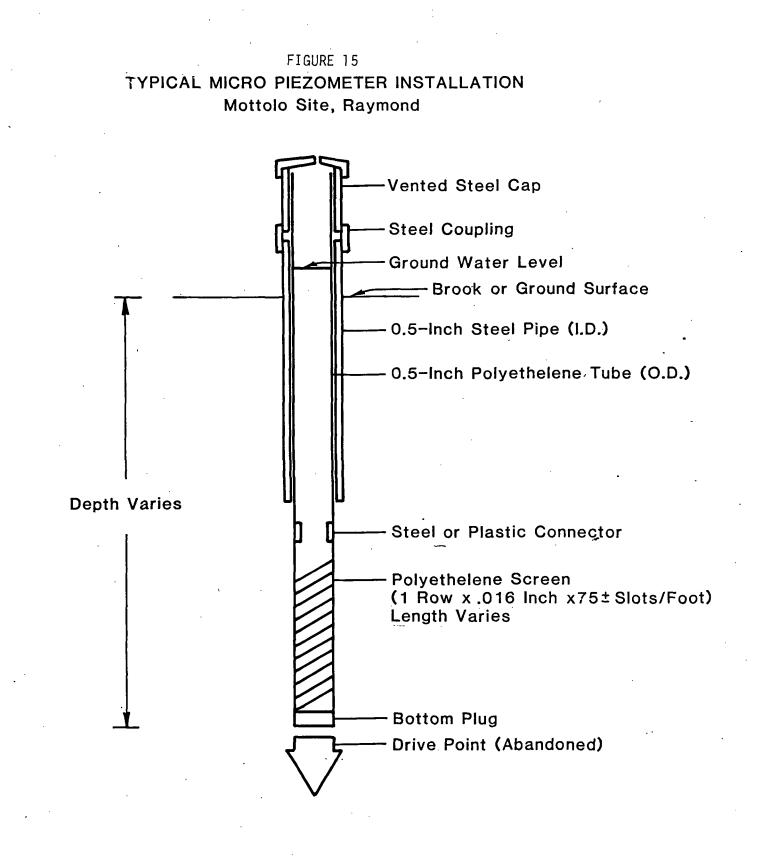
The micropiezometer installation method was as follows:

- 0.5 inch, inside diameter, steel pipe was driven to refusal with an electric rotary hammer drill.
- 0.5 inch, outside diameter, polyethylene tubing with a slotted polyethylene screen was inserted inside the steel casing.
- The steel casing was pulled back out of the ground exposing the slotted polyethylene screening.
- The micropiezometer was developed by pumping and surging with a peristaltic pump.
- A cap was placed on the steel casing to protect the polyethylene well tubing.

Figure 15 illustrates a schematic of a typical micropiezometer installation.

The steel pipe casing was steam cleaned prior to use at the site. In most cases locations of the steel casing was

- 47 -



- 48 -

advanced to refusal, however, in two locations (R-6 and R-7) a second micropiezometer was completed at a shallower depth to evaluate vertical hydraulic gradients. Micropiezometers R-5 and an unmarked piezometer near R-3 were completed without the polyethylene tubing or screen. The unmarked piezometer near R-3 was the result of an earlier unsuccessful attempt to install R-3. The well construction could not be completed, nor could the steel casing be removed so it was left in place. Micropiezometer R-5 developed a soil plug inside the steel casing as the aluminum drive point apparently became dislodged during the driving process. Although well construction for these two micropiezometers, R-5 and open micropiezometer near R-3, could not be completed to enable a water sample to be collected, they were utilized for hydraulic gradient information. A summary of the micropiezometer construction details and elevation data is presented in Table 3.

Samples were collected in 40 milliliter VOA vials from the micropiezometers using a peristaltic pump. Prior to GC analysis ten milliliters of the sample were withdrawn and replaced with ten milliliters of air drawn through an activated carbon syringe. Each water sample was shaken vigorously and allowed to equilibrate for a minimum of ten minutes at which time a sample of the head space was directly injected into the Photovac 10A10 GC for analysis. Selected reference standards were also injected at appropriate intervals for qualitative and quantitative standardization.

- 49 -

TABLE 3

Summary of Micropiezometer Construction and Comparative Water Level Measurements Hydrochemical Reconnaissance, Mottolo Site, Raymond May 30, 1985

Loca- <u>tion</u>	Approx. Depth to Refusal (feet)	Length of Well Screen <u>(feet)</u>	Length of Screen and Riser <u>(feet)</u>	Bottom of Screen below Datum* (feet)	Well Water Level Above Stream Surface <u>(inches)</u>	<u>Comment</u>	
R-1	5.9	2.0	7.5	5.5 BGL	NA		
R-2	6.5	2.0	8.3	6.0 BGL	+0.5	Located in con- taminated bank seep.	
R-3	4.9	2.0	NM	4.5 BSL	+0.5	Located in stream bank seep.	
R-4	6.5 NR	2.0	9.5	6.5 BGL	0	Located in con- taminated seep.	
R-5	6.5 NR	No well	screen.	5.5 BSL	+5.0	Open-ended steel pipe, adjacent to R-6.	
R-6	9.3	2.0	11.6	9.3 BSL	+6.75		
R-7	6.0	1.7	8.8	5.9 BSL	+3.5	R-7 and R-8 are a dual-level pair.	
R8		1.0	3.5	2.8 BSL	+1.5		
R-9	6.6	2.0	NM	5.9 BGL	NA	Depth to water 4.9 ft. below top of tube.	
R-10	6.7 NR	2.0	8.7	6.7 BSL	+1.25	Hand-driven.	
R-11	9.7	2.0	9.8	9.5 BSL	+1.25	Only 0.5 feet of screen exposed to formation.	

<u>Notes</u>:

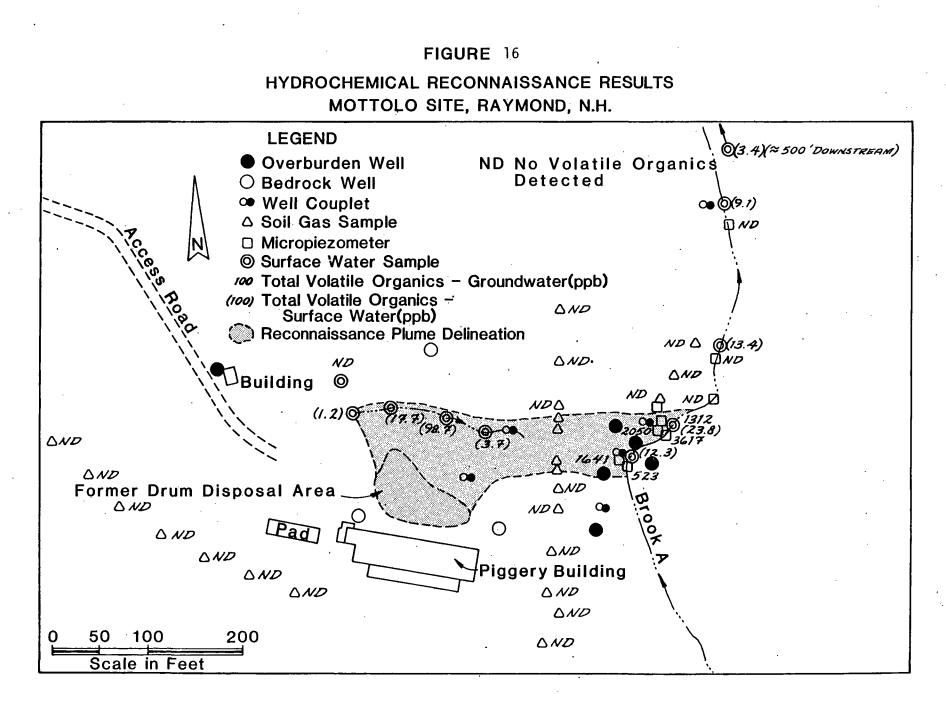
NA indicates piezometer not located in stream channel
 NR indicates no refusal of drive pipe
 NM indicates not measured
 *BGL indicates below ground level datum
 *BSL indicates below stream surface datum

4.2.3.4 <u>Surface Water Samples</u>

The hydrochemical reconnaissance also included the collection and analysis of water samples from the swale containing an intermittently flowing brook located at the toe of the former disposal area and from Brook A. Five locations were sampled along the upper swale and five locations were sampled along Brook A. The water samples were analyzed on the Photovac GC using the head space method as previously described. 4.2.3.5 <u>Presentation of Data and Analysis</u>

The results of the soil gas phase are presented in Appendix C. As noted earlier the results of the soil gas phase are presented in relative concentrations and not in standard units such as parts per billion. The results from the M transect suggested that the overburden plume of volatile organic compounds was limited to a narrow area of 75 to 100 feet in width from groundwater moving through the embankment from the upper swale and former drum disposal area towards Brook A, see Figure 16. Along the Q soil gas transect, which was located to the southwest of the former disposal area in a potential groundwater flow direction, no VOCs were detected. No VOCs were detected along the P soil gas transect although a soil gas sample at micropiezometer R-1, which was located five feet upslope of station P+O did show levels of cisdichloroethylene. These results suggest that at least one narrow plume exists which is confined to the immediate area of the leachate seeps.

- 51 -



-.52 As illustrated in Figure 16 analysis of water samples collected from the micropiezometers correlate well with the soil gas sampling information in that the water data corroborated the soil gas phase conclusion that a narrow plume of contaminated groundwater was discharging to Brook A. Figure 15 shows that significant levels of contamination were detected in the area from micropiezometers R-6 to R-1. Micropiezometers located downstream of the leachate seep area did not show any evidence of the VOC plume contaminants. A compilation of the micropiezometer water quality data is included in Appendix D.

Surface water sample results from the upper swale indicated the swale received VOC contaminated groundwater seepage along its length. It should be noted that the upper swale dried up and did not contain water during the summer and fall.

Surface water sampling of Brook A revealed a pattern of decreasing contamination downstream of the leachate seeps. Low concentrations of two VOCs were detected approximately 800 feet downstream of the site. A summary of the results is presented in Appendix D.

Initial hydraulic gradient information was also obtained from the micropiezometers installed in the streambed of Brook A. Measurements of the groundwater elevation in the micropiezometer were made relative to the elevation of Brook A. The measurements determined that there was an upward vertical component to the groundwater flow and consequently that groundwater was discharging into Brook A. Table 3 contains a

- 53 -

summary of the hydraulic gradient data for May 30, 1985. The micropiezometers were tied into the site elevation datum at a later date.

Chemical and hydraulic information from the hydrochemical reconnaissance of the site was evaluated with the geophysical data and previous site data to finalize the specifications for the monitoring well drilling program.

4.2.4 Monitoring Well Program

4.2.4.1 Siting, Design and Installation

The ten additional monitoring wells at the Mottolo Site were sited using 1) the previous site data compiled during the GHR/GZA site investigation, 2) the geophysical data of this study and 3) the hydrochemical reconnaissance data compiled as part of this investigation. Monitoring wells were constructed in both the overburden and bedrock aquifers. The rationale for the selected well locations were as follows:

MO-1 A bedrock well constructed immediately upgradient of the former drum disposal area. No companion overburden monitoring well couplet was constructed because the bedrock was thinly covered with dry fill. The well was located near an indicated bedrock divide based on the geophysical data.

MO-2S An overburden well constructed at the northern end of the main contamination plume suggested by previous data. The purpose of construction was to obtain information on the overburden soils, hydraulic gradient and water chemistry data.

- 54 -

- MO-2D A bedrock well constructed as a companion well to MO-2S to obtain water quality and hydraulic head information for the bedrock aquifer.
- MO-3S Two monitoring wells constructed in the middle of and MO-3D the main plume of contamination as indicated by previous sampling and the geophysical information. The purpose of the well couplet was to provide geologic control, determine water quality of the bedrock and overburden aquifers and evaluate the hydraulic heads of both aquifers.

MO-4S Two monitoring wells constructed along the southern and MO-4D extent of the main plume of contamination as defined by previous sampling data. The purpose of this well couplet is similar to the purpose stated for MO-3S and MO-3D.

MO-5S C Two monitoring wells constructed downstream of the and MO-5D main contamination plume as defined by previously collected data. The purpose of the well couplet was to confirm the hydrochemical reconnaissance results, evaluate the potential for migration away from the main leachate seep area, provide hydraulic gradient and geologic information.

MO-6 A deep bedrock well located off-site in the valley of Brook A downgradient of the site and south of the housing development. The well was intended to provide geologic data and water quality at a greater depth.

- 55 -

The nine additional on-site wells were drilled and constructed by Soils Engineering, Inc. of Charlestown, New Hampshire under the supervision of the Commission staff. MO-1was drilled with a truck mounted Acker drilling rig. MO-2S. MO-2D, MO-3S, MO-3D, MO-4S, MO-4D, MO-5S and MO-5D were drilled using a Mobile Drill B-47 drilling rig mounted on a tracked bombardier vehicle. The bombardier vehicle was used because of the difficulty in accessing these locations due to steep slopes, wet ground and tight maneuvering room amongst the trees and boulders. Hollow stem or solid stem auger was used to advance the borings to bedrock refusal or the selected depth. Soil samples were collected at five foot intervals with a 1 3/8 inch diameter split spoon sampler, classified and stored in glass jars which have been retained by NHWS&PCC. Grain size analyses were performed on selected samples to verify field classification. The grain size gradation curves are included in Appendix C.

A diamond bit core barrel or a tricone roller bit was used to advance the boring into bedrock. The on-site bedrock wells were advanced five to twelve feet into bedrock. The tricone roller bit was used for wells MO-2D, MO-4D and MO-5D after initial attempts to core were hindered as bedrock fragments became lodged in the tip of core barrel, thus impeding the advancement of core barrel. The bedrock core samples were retained by the NHWS&PCC and a description of the cores is included in Appendix C.

The wells were constructed of 1 1/2 inch inside diameter

- 56 -

schedule 40 polyvinyl chloride (PVC) pipe with threaded flush joints. No solvent glues were used in the well construction. The well screens were constructed of machine slotted PVC with a 0.01 inch slot size. An Ottawa sand pack was placed around the well screens. A bentonite clay seal was constructed above the sand pack using bentonite pellets or a bentonite tremie grout seal. A steel protective casing with locking cap was set in a surface cement seal. The well construction details are shown on the boring logs contained in Appendix C.

Monitoring Well MO-6 is located on the southern boundary of a single family home development project. It is a six inch diameter bedrock well similar in construction to a typical residential bedrock well. The well was installed by Tasker Well Company of Northwood, New Hampshire using a Porta Drill percussion air rotary rig.

An 8 3/4 inch diameter tricone roller bit in conjunction with a bentonite slurry was used to drill through the overburden materials into the top surface of the bedrock. A six inch diameter steel casing was seated and sealed at least ten feet into bedrock. Bedrock chips were collected from the wash water during the drilling process and placed into plastic bags retained by NHWS&PCC. MO-6 was completed to a depth of 130 feet. It yielded approximately 20 to 30 gallons a minute and was under flowing artesian conditions. Well MO-6 was also equipped with a locking cap and the well log is presented in Appendix C.

- 57 -

4.2.4.2 Hydraulic Testing

Seven of the NHWS&PCC installed monitoring wells were utilized for hydraulic testing to obtain data on the hydraulic conductivity of various types of overburden materials and bedrock. The slug test method was used where water was added to the well and the changes in water level with time were recorded. An Insitu, Inc. SE1000 data collection system connected to a downhole pressure transducer was used to record the water level/time data. Analysis of the data was based on Hvorslev method of analysis for a point piezometer (9). Table 4 contains a summary of the slug test data and the slug test curves are contained in Appendix E.

TABLE 4

SLUG TEST RESULTS MOTTOLO SITE, RAYMOND

<u>Well #</u>	Screen <u>Interval</u>	Subsurface Material	· · ·		c Conductivity <u>cm/sec</u>	
MO-1	12-17'	bedrock	1.5"	0.56 0.47	1.98×10 ⁻⁴ 1.66×10 ⁻⁴	
M0-2S	4-9'	fine and medium sand	1.5"	9.1–9.3 9.1–9.7	3.21-3.28x10 ⁻³ 3.21-3.42x10 ⁻³	
M0-20	14-19'	bedrock	1.5"	2.5 2.7	8.82×10 ⁻⁴ 9.52×10 ⁻⁴	
M0-3D	11–13'	bedrock	1.5"	1.39 1.35	4.90x10-4 4.76x10-4	
MO-35	3'-10"-8'10"	sand, some fines	1.5"	1.45 1.46	5.12x10-4 5.15x10-4	
MO-45	4'7"-9'7"	fine and medium sand	1.5"	3.04 2.59	1.07×10 ⁻³ 9.14×10 ⁻⁴	
Mo-40	16'10"-18'10"	bedrock	1.5"	0.31	1.09×10-4 1.06×10-4	

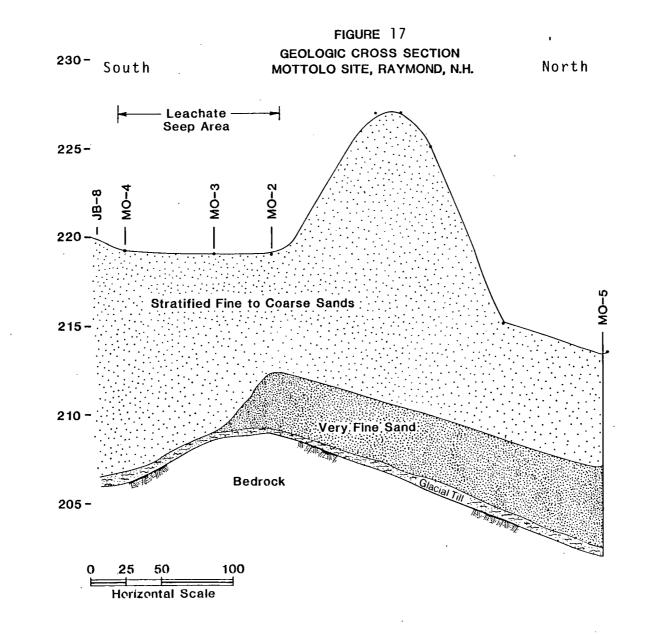
4.2.4.3 Overburden and Bedrock Aquifer

The overburden aquifer at the site is comprised of glacial till and stratified sands ranging from medium sand to silty sand. Glacial till occurs over most of the upland portions of the site except for the area near the former drum disposal area where sandy soil fill was deposited as part of the drum removal. A manure/miscellaneous piggery operation waste pile is located off the embankment east of the former piggery building and a narrow band of stratified sands underlies the swale.

A major objective of the well installation program was to obtain better information on the subsurface material in the lower area adjacent to Brook A. Previous information for this area was based on jet boring wash water compiled from a limited extent of the vertical profile. Soil samples collected from four well couplets indicated that the subsurface materials along the valley of Brook A were comprised of stratified sands ranging from silty very fine sand to a medium to coarse sand. A thin layer of glacial till was observed in some locations between the stratified sand and bedrock. As previously mentioned gradation curves for selected samples are contained in Appendix C.

The depth to bedrock ranged from 9 feet to 13 feet in the four couplet locations. Figure 17 shows a cross sectional representation of the materials encountered. Because topography of the bedrock surface is likely to have a significant influence on flow in the overburden aquifer. Figure

- 59 -



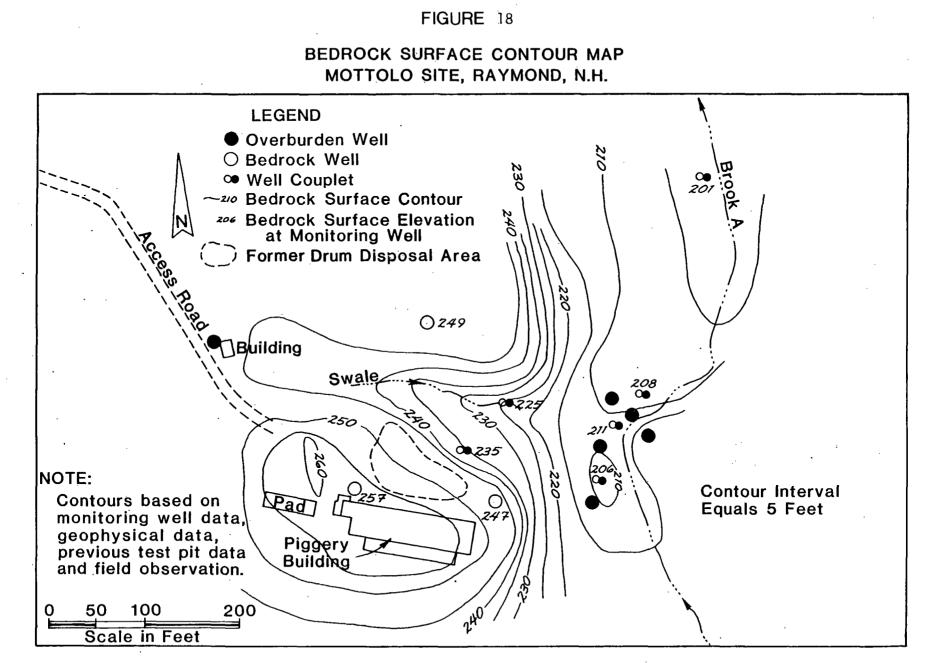
- 60 -

18 shows the elevation of the bedrock surface based on geophysical data, well log data, test pit data and field observations. As shown in Figure 18 the former drum disposal area is located near a bedrock divide in the vicinity of the former piggery building. The bedrock surface slopes from the former drum disposal area northeasterly towards an east-west oriented trough in the bedrock surface and then down to the valley of Brook A. The bedrock topography has a significant influence on the direction of groundwater flow in the overburden aquifer which is discussed later in Section 4.2.6. The elevations of the bedrock surface are referenced to the site vertical datum previously established during the GHR/GZA site investigation.

The bedrock underlying the site is predominantly comprised of biotite schist, quartz and granite. Bedrock samples collected during the installation of the additional groundwater monitoring wells indicated the bedrock is weathered and fractured at various depths at different locations on the site.

Monitoring well MO-6, the off-site monitoring well located off of Randy Lane, yielded approximately 20-30 gallons per minute during a blow test at depths of 124 and 130 feet. No appreciable water was encountered at shallower depths. MO-6 has been an upwardly flowing artesian well since it was drilled. Information obtained from an inventory of residential bedrock wells in the area revealed that the well depths ranged from 90 feet to 300 feet and the yields ranged from 4

- 61 -



- 62

.

gallons per minute to 50 gallons per minute. Consequently, it is evident that portions of the bedrock aquifer in the area are fractured and capable of yielding substantial quantities of water.

4.2.5 Water Quality Analysis

The NHWS&PCC has been collecting groundwater quality samples from the area since the site was discovered in 1979. A detailed site sampling program was conducted as part of the GHR/GZA site investigation (4). Since that time the NHWS&PCC has periodically collected samples from nearby residential wells and selected monitoring wells. Previously collected water quality data are summarized in Appendix D.

The NHWS&PCC Hydrogeological Investigation Unit's field sampling program began in April 1985 with a full round of samples collected from the then existing monitoring well network. Samples were analyzed for volatile organic compounds and several inorganic parameters at selected well sites.

Preliminary conclusions from the April sampling round indicated that 1) volatile organic chemicals were the primary contaminants of concern in the plume and 2) there were elevated concentrations of some metals which would be expected to change the conductivity of the groundwater suggesting that certain geophysical techniques such as EM and electrical resistivity could be useful in mapping the plume. The results from this round of samples were used in the design of subsequent field investigation program elements.

Ten additional monitoring wells were installed in June and July. Two more rounds of groundwater samples were collected on

- 63 -

July 25, 1985 and August 21-22, 1985 and analyzed for volatile organic chemicals.

All monitoring wells were bailed or pumped a minimum of three well water volumes prior to the collection of the samples. Samples were collected in a clean bailer or directly from the discharge line for the two Barcad samplers in OW-2 and OW-4. The bailers were either dedicated to a particular well or field cleaned between wells using a series of rinses in the following sequence: distilled water, methanol and a final distilled water rinse.

Metal samples collected during the April 1985 sample round were filtered in the field using a 0.45 micron pore filter and placed in a sampling container containing nitric acid as a preservative.

Volatile organic chemicals were collected in pre-cleaned 40 milliliter glass vials. 100 microliters of 4 milligram per milliliter solution of mercuric chloride was added to the vials to inhibit microbial activity. All samples were maintained under strict chain-of-custody procedures and documentation from procurement in the field to analysis in the NHWS&PCC laboratory. Laboratory analyses were performed following EPA protocol for each methodology, and strict quality assurance/quality control specific for each analysis was followed. Several samples collected during the July 25, 1985 round were lost due to equipment malfunction resulting from a power failure in the NHWS&PCC laboratory.

The water quality analyses from twenty-one monitoring wells and two micropiezometers indicated that there are substantial levels of volatile organic chemicals present in a relatively discrete main plume leaving the site easterly and discharging into Brook A. VOCs

- 64 -

were detected in both the overburden and bedrock aquifers. A total of eighteen volatile organic chemicals were detected in groundwater samples collected at the site.

Previous hydrochemical reconnaissance and geophysical data on the extent of contamination were confirmed for the main plume of contaminated groundwater. However, the downstream monitoring well couplet, MO-5S and MO-5D, detected contamination in the groundwater approximately 230 feet downstream of the main plume area. Analysis of samples collected on August 21, 1985 from micropiezometers R-8 and R-11 confirmed earlier hydrochemical reconnaissance information which indicated no volatile organic chemicals were detected in the overburden groundwater at those locations between the leachate seeps and wells MO-5S and MO-5D. However, VOCs were detected in significant concentrations in the overburden and bedrock aquifers, MO-5S and MO-5D respectively, just 50 feet downstream of R-11. It appears that contamination is transmitted via fractures in the bedrock aquifer system to this location and the bedrock aquifer is discharging to the overlying overburden aquifer which in turn is discharging to Brook A. Further discussion of the vertical hydraulic gradient patterns will be discussed in Section 4.2.6.

This explanation of contamination at MO-5S and MO-5D is further supported by a comparison of the distribution of volatile organic chemicals which shows that the concentrations found in M®-5S, overburden well, to be an order of magnitude less than the concentrations found in MO-5D, a bedrock well. A discussion of the impacts to Brook A will be discussed in Section 5.1.

- 65 -

A summary of the VOC water quality data analyzed since December 1984 by the NHWS&PCC laboratory using gas chromatograph/mass spectrometer techniques is presented in Table 5. The range of concentrations for each compound is presented in Table 6. A total of eighteen volatile organic chemicals was found in groundwater samples collected at the site since December 1984. A total of twentyone monitoring wells and two micropiezometers was sampled for GC/MS analysis. Volatile organic chemicals were detected in seventeen of the monitoring wells. No volatile organic chemicals were detected in four monitoring wells, the on-site dug well, JB-9, MO-4D, MO-6 and the two micropiezometers, R-8 and R-11.

Figure 19 is a map showing the area of groundwater contamination presented as total volatile organic chemicals based on sampling data collected on August 21 and August 22, 1985. Figure 19 shows two plumes of contaminated groundwater presented in total volatile organic compounds in parts per billion, emanating from the site. The main plume is relatively narrow and discrete showing the migration of contaminants from the former disposal area in both the overburden and bedrock aquifers to the ultimate discharge to Brook A. The well couplets along this reach of Brook A show higher concentrations in the overburden aquifer than in the bedrock aquifer.

The second plume was detected approximately 230 feet downstream of the first plume and is not as well defined because only one monitoring well couplet was located in that area. Micropiezometer R-11 is located approximately 50 feet upstream of MO-5S and because of the discharging conditions along Brook A would be expected to show contamination if the overburden or bedrock aquifers were contami-

- 66 -

Well L and Sa Da		Ethyl Benzene	Toluene	Xylene, Meta	Xylene, Ortho and Para	Acetone	Methyl Ethyl Ketone	1,1 Dichloroethane	Cis and Trans 1,2 Dichloroethylene	. Benzene	1,1,1 Trichloroethane	Tetrahydrofuran	Methyl Isobutyl Ketone	1,2 Dichloroethane	1,1 Dichloroethylene	Tetrachloroethylene	Dichloromethane	Trichloroethylene	Chlorobenzene
Dug	4/11/85	ND	ND	ND	ND.	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
0W-1*																			
OM-5D	4/11/85	585	3059	630.8	527	38.3	15.7	731.4	1065	ND	109.3	265.5	29.6	ND	ND	ND	ND	ND	ND
0₩-2S	1/7/85 1/11/85 4/11/85	ND 169.3 14.4	1590 1202 87.9	126 221 13.1	138 146 <5.0	ND ND ND	nd Nd Nd	194 343 7.7	40 1266 70.5	ND ND ND	ND 116.8 10.7	ND 62.1 <5.0	nd Nd Nd	ND ND ND	nd Nd Nd	nd Nd Nd	nd Nd Nd	nd Nd Nd	nd Nd Nd
OM-3	12/4/84 4/11/85	<5.0 ND	10.4 ND	7.4 ND	7.9 ND	10.2 ND	5.4 ND	nd Nd	ND ND	nd Nd	ND ND	nd Nd	ND ND	ND ND	nd Nd	ND ND	ND ND	nd Nd	nd Nd
ow-4d	4/11/85	ND	17.6	ND	ND	26.2	ND	17.6	13.9	ND	ND	37.4	12.7	ND	ND	ND	151.5	ND	ND

Table5Groundwater Quality Summary - Volatile Organic ChemicalsMottolo Site, Raymond

Results in parts per billion

*OW~1 is a damaged well and was not sampled.

Samples analyzed by NHWS&PCC Laboratory.

- 67 -

and Sa	ocation mpling te	Ethyl Benzene	Toluene	Xylene, Meta	Xylene, Ortho and Para	Acetone	Methyl Ethyl Ketone	1,1 Dichloroethane	Cis and Trans 1,2 Dichloroethylene	Benzene	1,1,1 Trichloroethane	Tetrahydrofuran	Methyl Isobutyl Ketone	1,2 Dichloroethane	1,1 Dichloroethylene	Tetrachloroethylene	Dichloromethane	Trichloroethylene	Chlorobenzene
0W-4S	1/7/85 1/11/85 4/11/84	153 141 96.8	203 174 512.8	538 204 144.7	360 212.3 27.3	ND 22.7 21.9	ND ND 30.3	285 314 3338	38 73.1 2374	ND ND 117.4	ND 24 764.6	ND 69.3 85.4	ND 114.5 85.1	ND ND 14.1	ND ND 35.9	ND ND 121.6	ND ND 228.4	nd Nd Nd	nd Nd Nd
JB5	1/7/85 1/11/85 4/11/85	78 34.53 ND	267 137.4 7.8	74 38.6 ND	87 41.1 11.7	nd Nd Nd	ND ND ND	176 190.2 131.8	43 100.2 47.3	ND ND ND	ND ND 12.2	ND 64.5 6.3	ND 188 ND	ND ND ND	nd Nd Nd	ND ND ND	ND ND ND	ND ND ND	nd Nd Nd
JB6	1/7/85 1/11/85	121 224	897 1372	199 345	130 229	ND 326	ND ND	264 790	130 740	14 ND	ND ND	ND 337	ND 66.7	ND ND	ND ND	nd Nd	ND ND	ND ND	ND ND
JB-7	4/11/85	249.3	2781	318	187.2	220	239.9	1222	1858.6	ND	122	544	309.7	ND	35.7	ND	ND	ND	ND
JB-8	4/11/85	ND	5.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<5.0	<5.0
JB-9	4/11/85	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
M0-1	7/25/85 8/21/85	ND ND	ND ND	NÐ ND	ND ND	ND ND	nd Nd	ND ND	nd Nd	ND ND	ND ND	nd Nd	nd Nd	ND ND	ND ND	ND ND	ND - ND	<5.0 10.3	ND ND
M0-2D	8/21/85	<5.0	<5.0	ND	ND	ND	ND	ND	278	ND	ND	1354	21.5	ND	72.1	ND	ND	19.8	ND
M0-25	8/21/85	196	1366.2	224.6	168.1	ND	ND	550.6	224.1	<5.0	27.6	2389	188.1	ND	ND	ND	ND	<5.0	ND

Results in parts per billion

•

.

Table 5 (continued)

- 68 -

.

•

:

.

R-11	R8	M0-6	MO-5S	M0-5D	MO-45	M0 - 4D	MO-3S	M0-3D	Well L and Sa
8/22/85	8/22/85	7/25/85 8/22/85 2/21/86 5/15/86	7/25/85 8/21/85	7/25/85 8/21/85	8/21/85	8/21/85	8/21/85	8/21/85	l Location Sampling Date
ND	N	<u>8</u> 8 8 8	N N	N N	ND	N	164	10.1	Ethyl Benzene
ND	Ŋ	N N N N	ND ND	8 8	CIN	ND	1290	11	Toluene
ND	N	n n n n	ND ND	n n	ND	ND	194.9	ND	Xylene, Meta
ND	ND	NNNN	N ND	n n	ND	ND	132.7	Ŋ	Xylene, Ortho and Para
ND	ND	8 8 8 8	N ND	N N	ND .	ND	80.4	N	Acetone
ND	ND	N N N N	N N	n n	ND	ND	ND	ND	Methyl Ethyl Ketone
ND	ND	NNSS	ND ND	66.5 ND	ND	ND	461.8	148.6	1,1 Dichloroethane
ND	ND	nd nd nd	42.2 42	241.7 228	ND	Nŋ	232.2	543	Cis and Trans 1,2 Dichloroethylene
ND	ND	n n n n	ND ND	n n	ND	ND	ND	ND	Benzene
ND	ND	n n n	N N	<u>ج، ۵</u>	ND	ND	ND	B	1,1,1 Trichloroethane
N	ND	n n n n	n n	341 445	35	ND	2267	1070	Tetrahydrofuran
Ŋ	ND	n n n n	N N	n n	ND	ND	858.7	191.8	Methyl Isobutyl Ketone
N	ND	8888	N N	n n	N	ND	ND	N	1,2 Dichloroethane
ND	ND	n n n n	ND 40	229.1 ND	ND	ND	ND	ND	1,1 Dichloroethylene
ND	ND	n n n n	N ND	n n	ND	ND	ND	ß	Tetrachloroethylene
ND	ND	n n n n	N N	N N	N	ND	ND	ND	Dichloromethane
NO	ND	n n n	10.5	33.3 29	ND	N	37.5	98.8	Trichloroethylene
ND	ND	8888	n n	NG NG	ND	ND	ND	ND	Chlorobenzene

Results in parts per billion

Table 5 (continued)

- 69 -

Table 6 Range of Concentration of Volatile Organic Chemicals Groundwater Samples Mottolo Site, Raymond Results in parts per billion (ppb)

	<u>Maximum</u>	<u>Minimum</u>	No. of Wells Detected
l. ethyl benzene	585.0	<5.0	11
2. toluene	3,059.0	<5.0	13
3. xylene, meta	630.8	7.4	9
4. xylene, ortho and para	527.0	<5.0	9
5. acetone	326.0	10.2	7
6. methyl ethyl ketone	239.9	5.4	4
7. 1,1 dichloroethane	3,338.0	. 7.7	11
 cis and trans- 1,2-dichloroethylene 	2,374.0	38.0	13
9. benzene	117.4	<5.0	2
10. 1,1,1 trichloroethane	764.6	10.9	7
11. tetrahydrofuran	2,389.0	<5.0	13
12. methyl isobutyl ketone	858.7	12.7	10
13. 1,2 dichloroethane	14.1	14.1	1
14. 1,1 dichloroethylene	229.1	35.7	5
15. tetrachloroethylene	121.6	121.6	١
16. dichloromethane	228.4	151.5	2
17. trichloroethylene	98.8	<5.0	7
18. chlorobenzene	<5.0	<5.0	1

Notes:

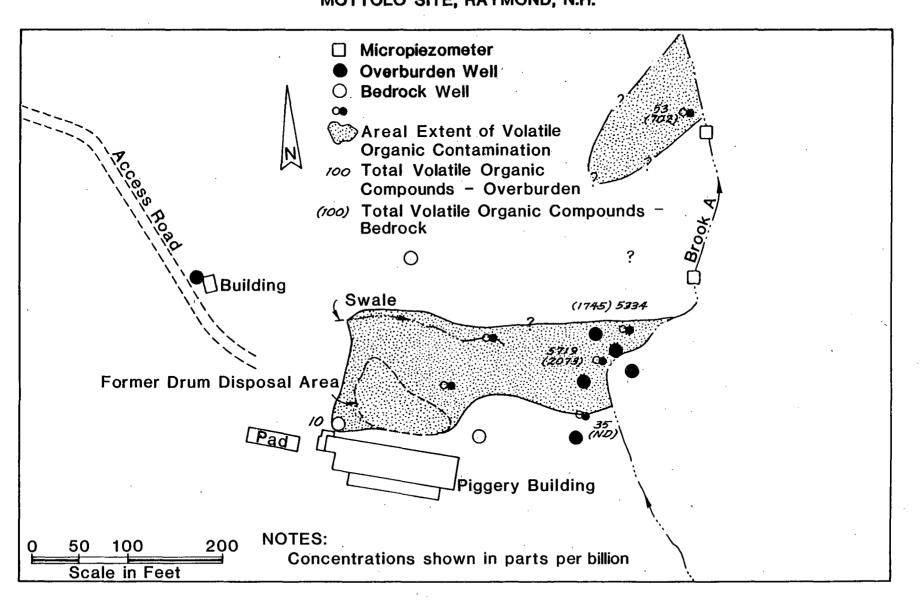
1. Data from 21 wells and 2 piezometers for samples collected since December 1984.

2. Minimum range does not include not detected reported values.

- 70 -

FIGURE 19

AREAL EXTENT OF GROUNDWATER CONTAMINATION - AUGUST 21-22,1985 MOTTOLO SITE, RAYMOND, N.H.



- 71

nated in that upstream area. This suggest that there is a separate second plume. Total volatile organic compound concentrations in this second plume show overburden concentrations of 53 parts per billion compared to 702 parts per billion in the bedrock companion well. This suggests that contamination is being transmitted in a bedrock fracture system recharged from the site and is discharging to the overburden aquifer and ultimately to Brook A. The downstream extent of this plume has not been identified at this time.

The inorganic analytical data compiled from the April 1985 sampling round are summarized in Table 7. As previously stated, the results indicated that downgradient wells, OW-2 and OW-4, showed significant increases in the concentrations of iron and manganese above the upgradient dug well. Slight increases in the concentrations of arsenic, lead and zinc were also seen, although the levels were not above drinking water standards.

Because potential impact on residential water supply wells was of paramount concern, twenty-six residential wells were sampled periodically during the extent of the investigation. Figure 20 shows the location of the residential wells and the off-site monitoring well MO-6. To date, no impact from the site has been detected in any residential wells. Monitoring well MO-6 was installed along Brook A downstream of the site and water quality samples collected from MO-6 have also indicated that no impact has been

In conjunction with the water quality sampling program the NHWS&PCC conducted an inventory of the area's residential wells. Pertinent information from the inventory is summarized in Appendix D.

- 72 -

Table 7 Inorganic Analyses Summary Groundwater and Surface Water Mottolo Site, Raymond

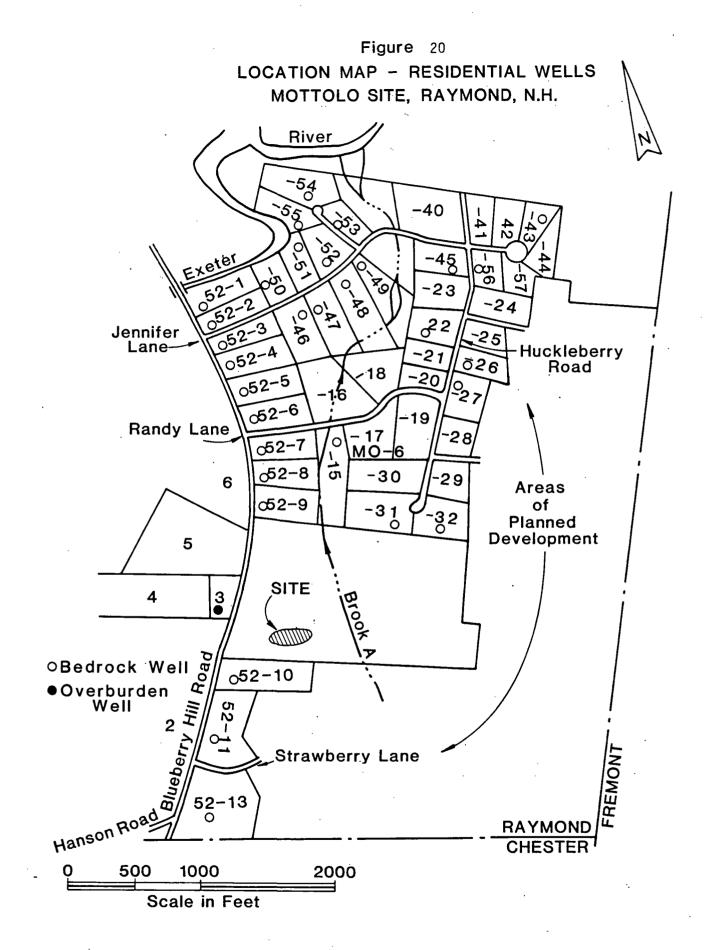
Results in milligrams/liter

Sample Locat and Date	tion	Arsenic	Barium	Cadmium	Chromium	Lead	Selenium	Silver	Zinç	Copper	Iron	Manganese	Total Organic Carbon
DUG WELL	4/11/85	<0.005	<0.5	<0.005	<0.03	<.01	<0.005	<0.001	<0.03	<0.1	0.1	0.07	11.
OW-4 - shallow	4/11/85	0.006	<0.5	<0.005	<0.03	0.03	<0.005	<0.001	2.3	<0.1	190	7.5	90.
S-3	4/11/85	<0.005	<0.5	<0.005	<0.03	<.01	<0.005	<0.001	0.03	<0.1	0.9	0.31	8.
OH-2 - shallow	4/11/85	0.009	<0.5	<0.005	<0.03	<.01	<0.005	<0.001	< 03	<0.1	10	0.63	24.
O₩-2 - deep	4/11/85	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	70.
OW-3	4/11/85	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	16.
JB-5	- 4/11/85	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	33.
JB-7	4/11/85	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	140.
JB9	4/11/85	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	110.
S-1	4/11/85	<0.005	<0.5	<0.005	<0.03	<.01	<0.005	<0.001	<0.03	<0.1	0.2	0.17	9.

Samples analyzed by NHWS&PCC Laboratory.

NA – not analyzed

73 -



- 74 -

4.2.6 Water Level Measurements

Previous water measurement data were collected by GHR/GZA during their site investigation. Preliminary data indicated that flow from the former drum disposal was easterly towards Brook A. At that time, there was no effort to differentiate between the elevation in overburden and bedrock groundwater flow systems. One of the objectives of the additional monitoring well installation program was to better understand the relationship between the overburden and bedrock aquifers and to evaluate the vertical hydraulic gradients.

Preliminary hydraulic gradient information was collected during the installation of the micropiezometers as part of the hydrochemical reconnaissance. The relative elevation difference between the groundwater elevation in each micropiezometer was measured and compared to the water surface elevation of Brook A adjacent to each respective micropiezometer. Table 3 summarizes the data. The data showed that there was an upward vertical gradient to the groundwater flow system in the valley adjacent to Brook A and that the overburden and bedrock groundwater systems were discharging to Brook A. These findings were incorporated into the rationale for designing the monitoring well program.

Subsequent to the installation of the additional monitoring wells the site monitoring wells, micropiezometers and several locations on Brook A were surveyed into the site vertical datum. The site vertical datum was established during the GHR/GZA site investigation and is not related to mean sea level.

Groundwater and surface water levels were measured again on July 25, 1985 and August 21-22, 1985. A summary of the water eleva-

- 75 -

tion data collected during this investigation is included in Appendix E. Figures 21 and 22 show the groundwater elevation contour maps for the overburden and bedrock aquifers as measured on August 22, 1985. In addition, monitoring well MO-6, the monitoring well located off of Randy Lane, was under flowing artesian conditions during this time period.

Several important conclusions may be drawn from the elevation data: 1) groundwater flow in the upland portion of the site has a downward vertical component to the hydraulic gradient and the bedrock aquifer is being recharged by the overlying overburden, 2) flow in the overburden in the upland area is directed towards the bedrock trough beneath the swale and then eastward to Brook A, 3) groundwater flow in the vicinity of Brook A has an upward hydraulic gradient and consequently a component of groundwater flow is from the bedrock aguifer to the overburden aguifer with this component discharging to the Brook A drainage system, 4) groundwater flow and contamination from the site east of Brook A could not be documented although the same upward component of groundwater flow is probable. 5) groundwater flow from the former drum disposal area is migrating easterly towards Brook A, however, contamination was detected approximately 230 feet downstream of the primary plume area, the likely result of migration in a bedrock fracture system recharged from the former drum disposal area, and 6) upwardly flowing artesian conditions at MO-6 are consistent with site data indicating that a portion of the bedrock aguifer is discharging to the Brook A drainage system.

The elevation data may be used in conjunction with the hy-

- 76 -

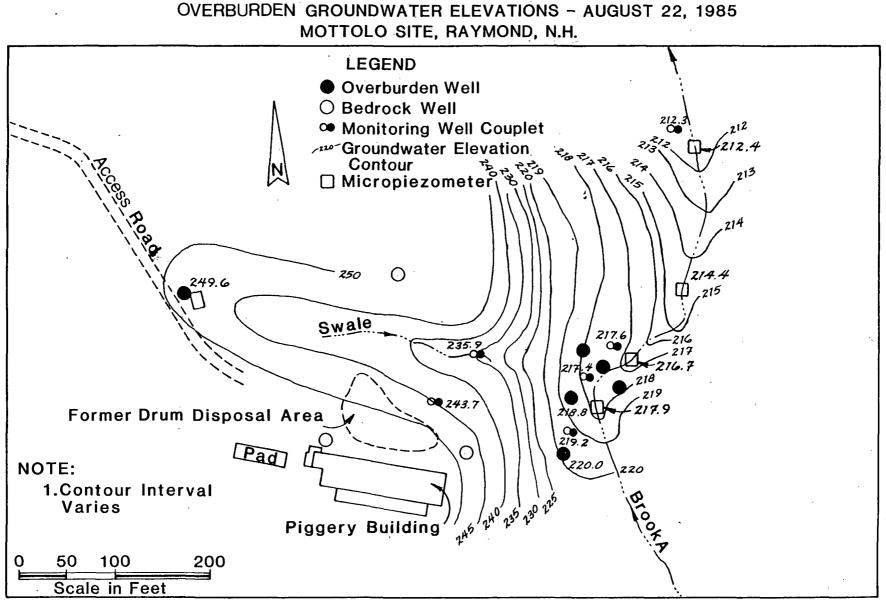
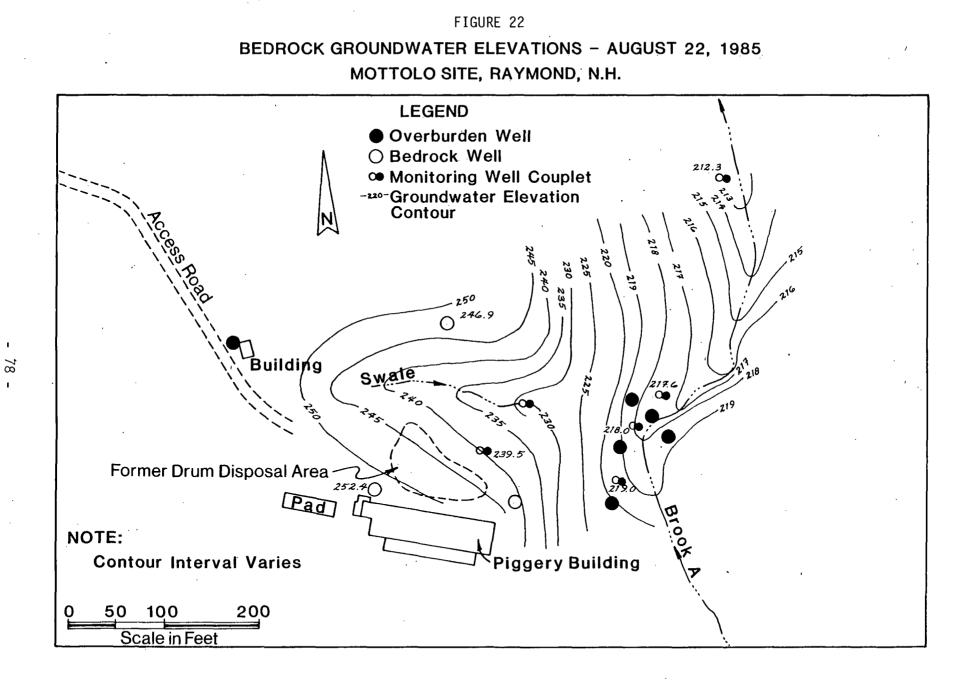


FIGURE 21



draulic testing data to estimate the rate of groundwater flow and the time of travel, the time required for groundwater to flow from one specific location to a second specific location, in the overburden aquifer. The velocity of groundwater flow is calculated using Darcy's Equation;

V = <u>KΙ</u> where V = seepage velocity K = hydraulic conductivity n n = effective porosity I = hydraulic gradient (change in elevation divided by the length)

and the time of travel is calculated using the following formula;

T =	<u>L_</u>	T = time of trave	1
	V	L = length of flow	v path
		V = seepage velo	city

Average hydraulic conductivity values for the overburden aquifer were obtained from the slug test results presented in Table 4. The selected portion of the aquifer of interest was from the former drum disposal area to Brook A. The lengths were taken from the flow paths based on groundwater contour maps presented in Figures 21 and 22 and the hydraulic gradients were calculated from the groundwater elevation data collected on August 22, 1985. Table 8 summarizes the data used for the analysis.

TABLE 8

GROUNDWATER VELOCITIES AND TIMES OF TRAVEL

Hydraulic	Hydraulic	Length	Velocity	Time of
Conductivity	Gradient	L	V	Travel
<u>K (ft./day)</u>	<u>I (ft./ft.)</u>	(feet)	(ft./day)	(days)
Overburden	0 364	200	2 21	100
4.5 (average)	0.154	280	2.31	122
1.45 (minimum)		280	0.74	379
9.4 (maximum)	0.154	280	4.82	58

Using the above values the average velocity of groundwater flow in the overburden aquifer is 2.31 feet per day and the time required for groundwater to flow from the former drum disposal area to Brook A is 122 days.

5.1 SURFACE WATER

The Mottolo Site is located in the surface water drainage system of Brook A, an unnamed tributary of the Exeter River. Surface water drainage from the former drum disposal area at the site is towards a small swale, referred to as the Swale, located north of the former drum disposal area. The Swale was constructed during site preparation for the drum excavation and removal process in order to divert runoff away from the toe of the drum disposal area. Flow in the Swale is easterly towards well OW-2 and over a steep embankment towards Brook A. Surface drainage from part of the site near the southwest corner of the former piggery building is towards the southwest for a short distance and ultimately to Brook A.

During this investigation flowing water was observed in the upland portion of the Swale during the spring runoff period of April and May, but the Swale was dry during the summer and fall months. During periods when there was significant flow in the Swale, the flow would become subsurface near the top of the embankment that leads down to Brook A, just east of OW-2.

Brook A is also an intermittently flowing brook although it contained flowing water during most of the investigative period. Brook A flows northerly in a well defined valley towards its confluence with the Exeter River. The drainage area of Brook A ranges from approximately 0.15 square miles as it flows by the site to approximately 0.38 square miles at its confluence with the Exeter River. Brook A varies several

- 81 -

times along its course from a brook with a well defined channel and with a moderate gradient to a poorly defined stream thread bordered by significant areas of wetlands and flowing under a small gradient. The average slope of Brook A along the reach near the site is about 0.015 feet per feet.

Several prominent leachate seeps were evident adjacent to Brook A along the reach from well MO-2S to micropiezometer R-5. The seeps were characterized by brownish orange precipitate and colonies of similarly stained bacteria. Evidence of leachate staining was also observed in the stream channel bottom of Brook A. The greatest impact to the stream was noticed during periods of low flow; probably due to less surface runoff and a greater proportion of groundwater contribution.

Surface water quality sampling was conducted shortly after site discovery and during the GHR/GZA site investigation. Results from these previous investigations indicated that volatile organic chemicals were detected in the Swale and in Brook A. An initial round of surface water samples were collected for this investigation in April and May 1985 which indicated that low concentrations of VOCs were present in Brook A downstream of the leachate seeps. Additional downstream sampling at the Randy Lane culvert revealed that no VOCs were detected at that location.

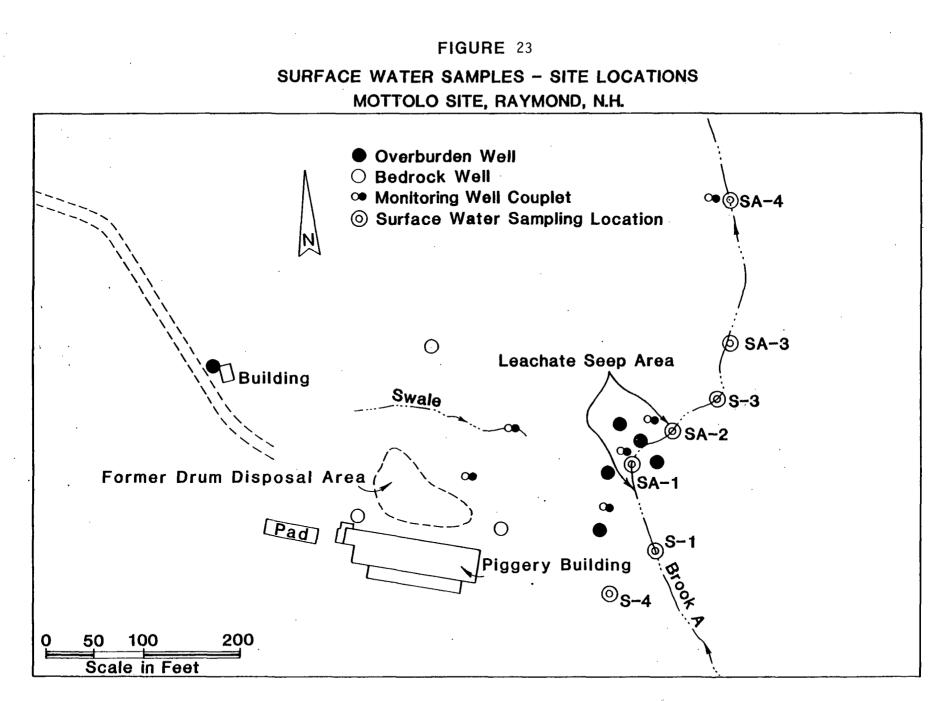
The surface water quality was further evaluated during the hydrochemical reconnaissance program. Samples collected from Brook A and the Swale were analyzed using head space analysis on the Photovac GC as described in the hydrochemical sections. Figure 16 shows the results of this sampling. The results of the surface water sampling phase of the hydrochemical reconnaissance indicated that 1) seepage from the former drum disposal area was being collected by the Swale, 2) Brook A contained

- 82 -

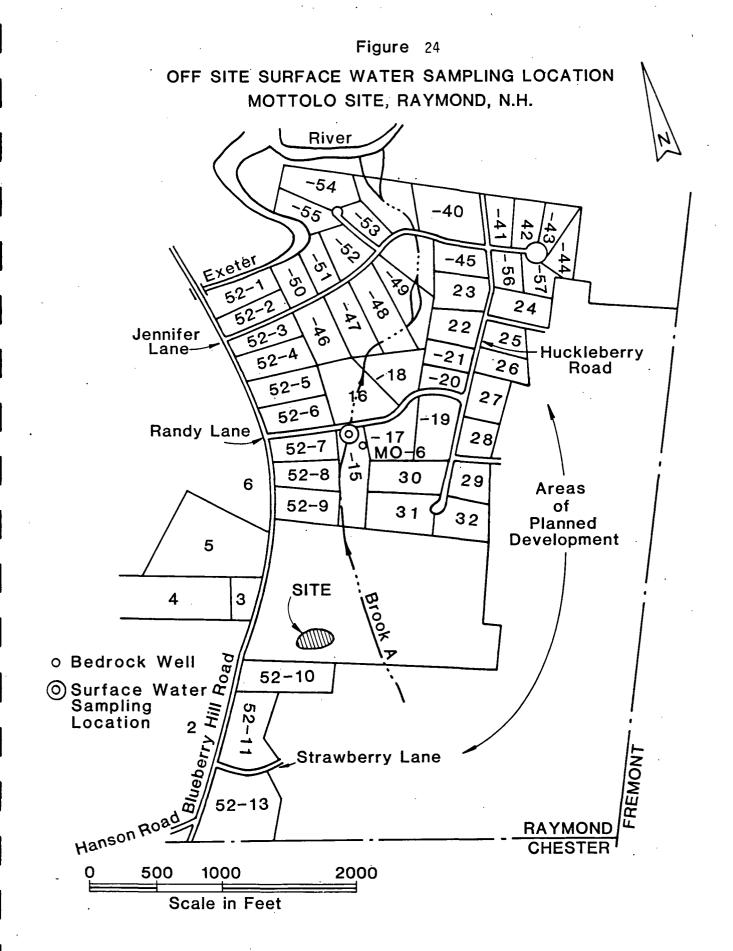
low levels of VOCs from the leachate seep area adjacent to Brook A to approximately 800 feet downstream of the leachate seep area with the levels in the brook showing a gradual but steady decline in the downstream direction.

Subsequent surface water samples were collected on July 25, 1985 and August 21, 1985 and analyzed by the NHWS&PCC laboratory using gas chromatograph/mass spectrometer analytical methods. Figure 23 shows the site surface water sampling locations and Figure 24 shows the off-site sampling locations. The results reflect the influence that the seasonal reduction in the stream flow of Brook A has on the water quality. The samples collected near the leachate seep area show much higher levels of VOCs in August when there was no upstream stream flow to act as dilution. Samples collected in August were more representative of leachate breakouts of contaminated groundwater. Analytical results from the Randy Lane culvert indicated no VOCs were detected. To date, the results have indicated that the surface water has been adversely affected near the site and the amount of impact is dependent on the quantity of stream flow in Brook A (seasonal effects). A downstream sample of Brook A collected in April 1985 during a period of high streamflow showed traces (less than 5 parts per billion) of toluene, 1,1 dichloroethylene, cis and trans 1,2 dichloroethylene and tetrahydrofuran. Analysis of a downstream sample, SA-1, collected in July when the streamflow in Brook A was reduced and nearly stagnant, revealed that 10 compounds were present and the concentration of total volatile organic chemicals was greater than 804 parts per billion. This is consistent with the groundwater analytical and elevation data which showed that a component of contaminated groundwater emanating from the former drum disposal area is discharging into Brook A.

- 83 -



- 84



- 85 -

The sampling data to date also indicate that the levels of VOCs in Brook A are reduced below detection limits by the time Brook A reaches Randy Lane although this may be due to both dilution and volatilization of these types of compounds. Table 9 summarizes the surface water quality data.

Table 9

Summary of Surface Water Quality Data Volatile Organic Chemicals Mottolo Site, Raymond

Results in parts per billion

.

.

1

.

Location a Sampling D		Ethylbenzene	Toluene	Meta, Xylene	Ortho and Para Xylene	Acetone	1,1 Dichloroethane	Cis and Trans 1,2- Dichloroethylene	1,1,1 Trichloroethane	Tetrahydrofuran	Methylisobutyl Ketone	1,1 Dichloroethylene
S-1 Brook A u/s of leachate seeps	4/11/85 8/21/85	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND
S-4 Wet area @ toe of manure waste pile	1/7/85 1/11/85	ND ND	ND ND	ND ND	ND ND	ND 9.6	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND
SA-1 Brook A - in leachate seep area nr R-5	7/25/85	22.5	>200	15.3	29.3	ND	86.1	18.6	<5.0	304.5	10	17.7
SA-2 Brook A - in leachate seep area nr R-3	7/25/85 8/21/85	ND 14.1	104 68.5	12.1 17.4	22.2 12.1	ND ND	85.4 ND	<5.0 ND	ND ND	426.7 337.2	ND ND	<5.0 ND

- 87

Table 9 (continued)

.

Results in parts per billion

۰.

Location a Sampling D		Ethylbenzene	Toluene	Meta, Xylene	Ortho and Para Xylene	Acetone	1,1 Dichloroethane	Cis and Trans 1,2- Dichloroethylene	1,1,1 Trichloroethane	Tetrahydrofuran .	Methylisobutyl Ketone	1,1 Dichloroethylene
SA-3 Brook A - d/s of leachate seep area nr R-7	8/21/85	ND	ND	ND	ND .	ND	ND	7	ND	36	ND	ND
S-3 Brook A - d/s of leachate seep	4/11/85	ND	<5.0	ND	ND	ND	<5.0	<5.0	ND	<5.0	ND	ND
SA-4 Brook A - d/s of leachate seep	7/25/85 8/21/85	ND ND	ND ND	ND ND	ND ND	ND ND	<5.0 ND	ND ND	10.4 ND	14.1 ND	ND ND	NÐ ND
Brook A @ Randy Lane Culvert	5/2/85 7/25/85 2/21/86	ND ND ND	ND ND ND	ND ND ND	ND ND ND	ND ND ND	ND ND ND	ND ND ND	ND ND ND	ND ND ND	ND ND ND	ND ND ND

Samples analyzed by NHWS&PCC Laboratory.

Έ.

ND - none detected

.

6.0 AIR INVESTIGATION

Air sampling conducted at the site consisted of using a portable volatile organic chemical analyzer equipped with a photoionization detector, HNU System, Inc., Model PI 101 to establish personnel safety requirements. The detector was used during the field investigations. No significant readings were detected in the ambient air at the site, as would be expected given that the drums were removed in 1981-1982 and the former drum disposal area was refilled with clean soil.

No detailed air investigations were performed during this investigation.

7.0 ENVIRONMENTAL CONCERNS

7.1 POTENTIAL RECEPTORS

Volatile organic contaminants emanating from residual contamination at the former drum disposal area were detected in surface water and groundwater at the Mottolo Site. Contamination was detected in an 850 foot reach of Brook A, an unnamed tributary of the Exeter River. Brook A flows in a northerly direction through undeveloped wooded land and first reaches developed areas at Randy Lane culvert approximately 1,800 feet north of the site. No contamination has been detected in Brook A at the Randy Lane culvert.

Groundwater, by means of individual water supply wells, is the sole source of potable water for the nearby area. The majority of homes in the area derive their water from the bedrock aquifer. Volatile organic chemical contamination of the overburden and bedrock aquifer has been detected in monitoring wells located on the site. No residential water supplies have been impacted to date. A component of groundwater flow from the site is discharging to Brook A. An off-site bedrock monitoring well, MO-6, located on the nearest downgradient building lot in the valley of Brook A has also shown no VOC contamination. Concern for possible impact on residential well receptors still remains as additional development occurs and the number of wells withdrawing water from the bedrock aquifer and possibly the overburden aquifer increases. Therefore, it is felt that until the site soil contamination is mitigated the residential water supply wells in the area will be at risk.

Additional investigations should be conducted 1) to evaluate the extent of groundwater contamination downgradient of well MO-5D and the

- 90 -

possible transmittal of contamination in other fracture systems to the east and south of the site and 2) assess the feasibility of remedial management and cleanup alternatives which can be taken to remediate the effects of residual contamination at the site and 3) perform an environmental and health risk assessment of the site impact area. Future studies should be conducted in accordance with the requirements of the National Contingency Plan.

REFERENCES

- New Hampshire Bureau of Solid Waste Management, Memo from Tom Roy to the file via Tom Sweeney.
- 2. New Hampshire Office of State Planning, 1983 Population of New Hampshire Cities and Towns, August 1984.
- National Oceanographic and Atmospheric Administration, Climatological Data, Annual Summary, New England. 1983, Vol. 95, No. 13.
- GHR Engineering Corporation and Goldberg-Zoino & Associates, <u>Hazardous Waste Site Investigation, Mottolo Site, Blueberry</u> <u>Hill Road, Raymond, New Hampshire, Volume I - Main Text</u>, December 1981.
- Billings, Marland P., 1980 reprint, The Geology of New Hampshire,
 Part II Bedrock Geology, New Hampshire Department of Resources and Economic Development.
- Goldthwait, James W., Goldthwait, L., and Goldthwait, R. P. The Geology of New Hampshire, Part I - Surficial Geology, 1969. New Hampshire Department of Resources and Economic Development.
- Cotton, John E., 1977. Availability of Groundwater in the Piscataqua River and Other Coastal River Basins, Southeastern New Hampshire. United States Geological Survey.
- B. Dufresne-Henry. Landfill Closure Plan, Town of Raymond, New Hampshire, September 1984.
- Freeze, Allan R. and Cherry, J. A., 1979. <u>Groundwater</u>. Prentice Hall, Inc., Englewood N. J., 600 p.

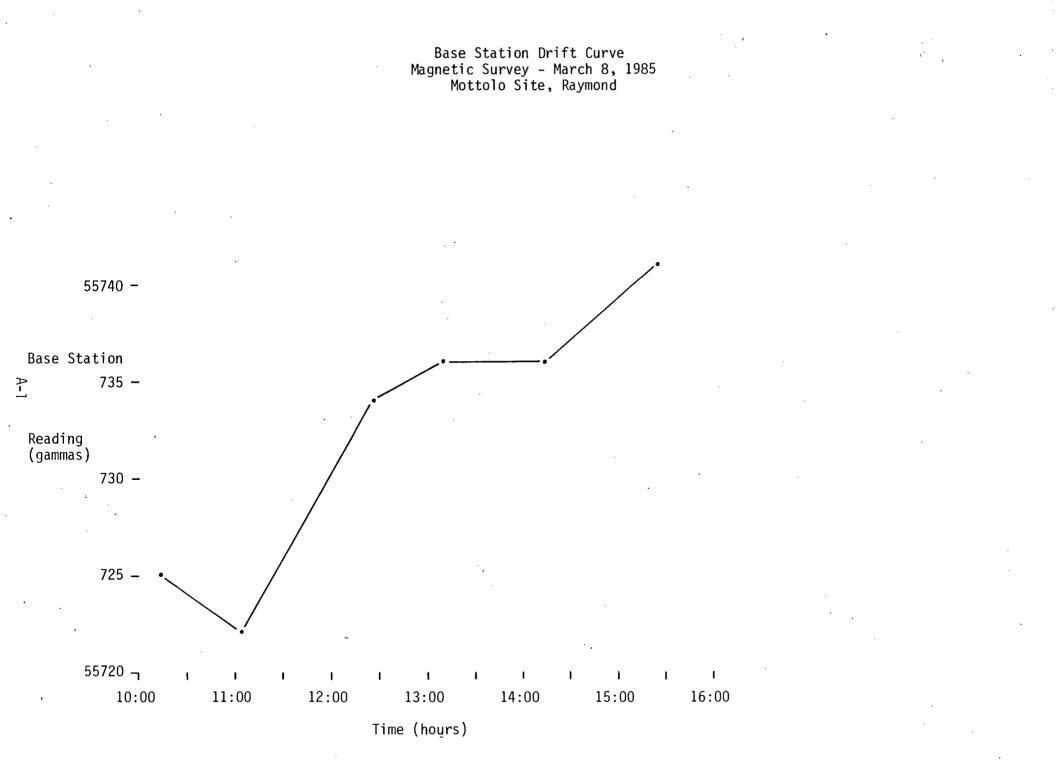
- 92 -

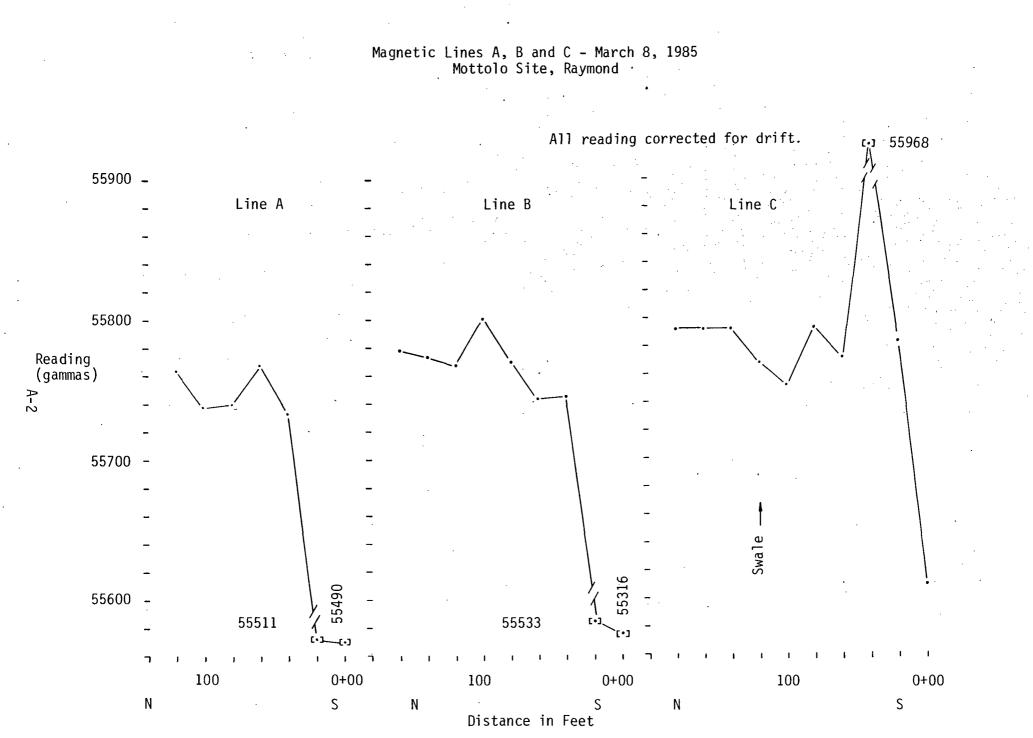
APPENDIX A

1

Geophysical Surveys

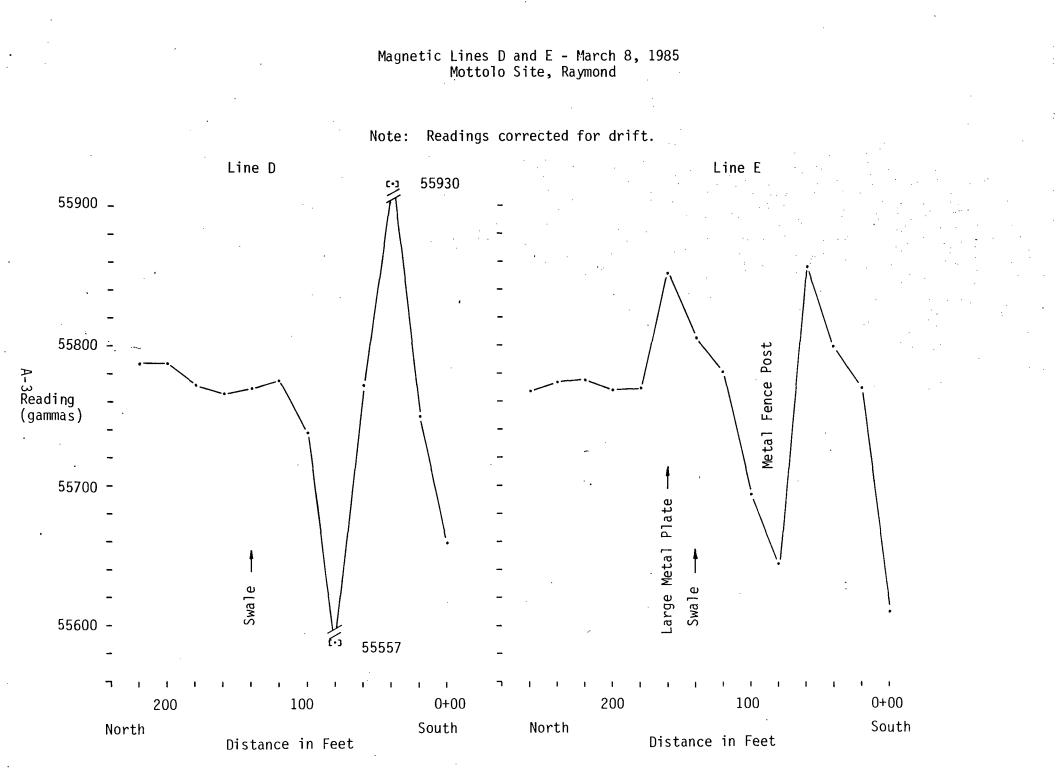
Magnetic Profiles	.A-1 thru A-14
Magnetic Field Data	.A-15 thru A-29
Electrical Resistivity Data Geoelectric Soundings Calculated and Observed Curves Final Model Data	.A-30 thru A-34 .A-35 thru A-37 .A-38 thru A-40
Electromagnetic Data EM-31 Survey Profiles EM-31 Field Readings	
Geophysical Well Logs	.A-48 thru A-50

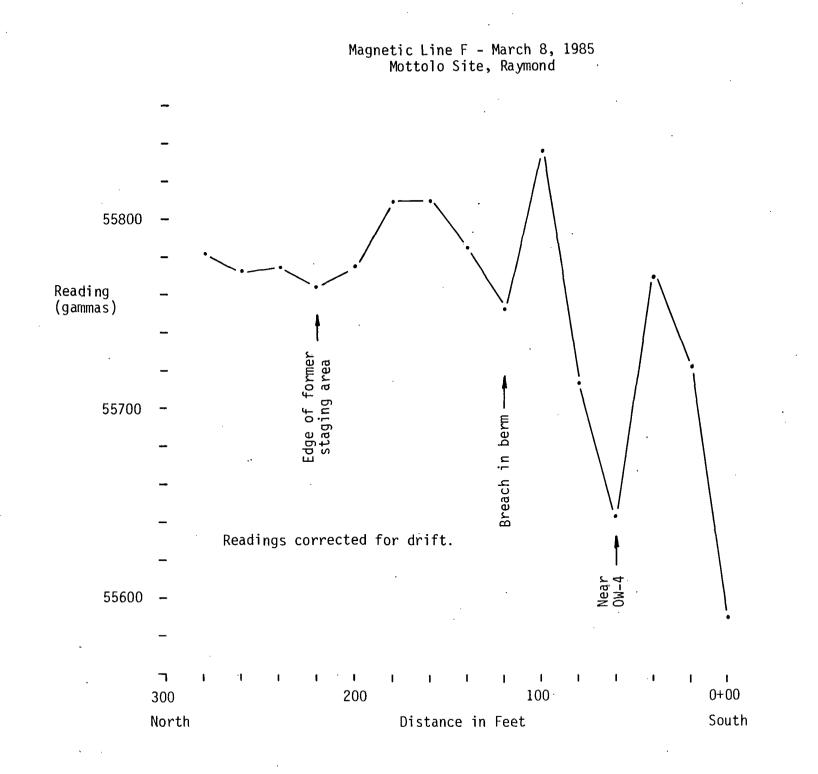




•

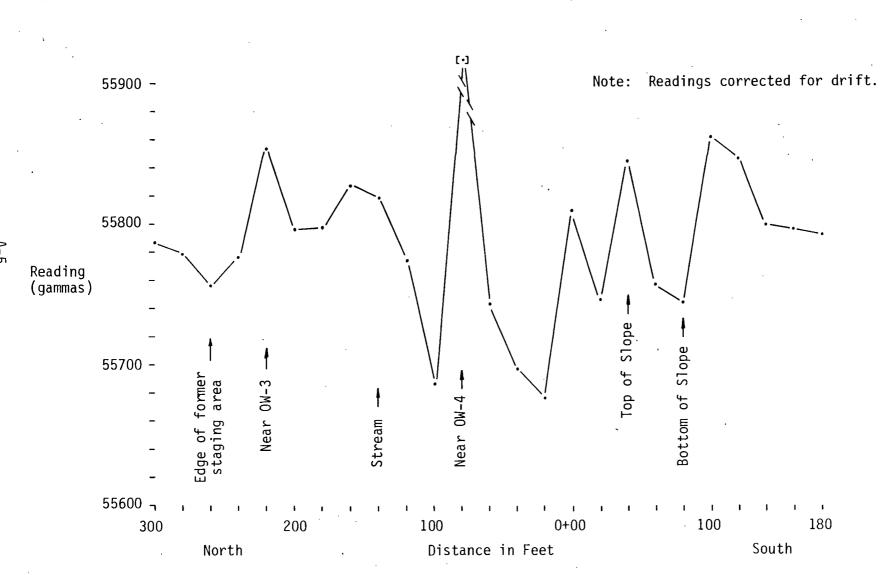
.



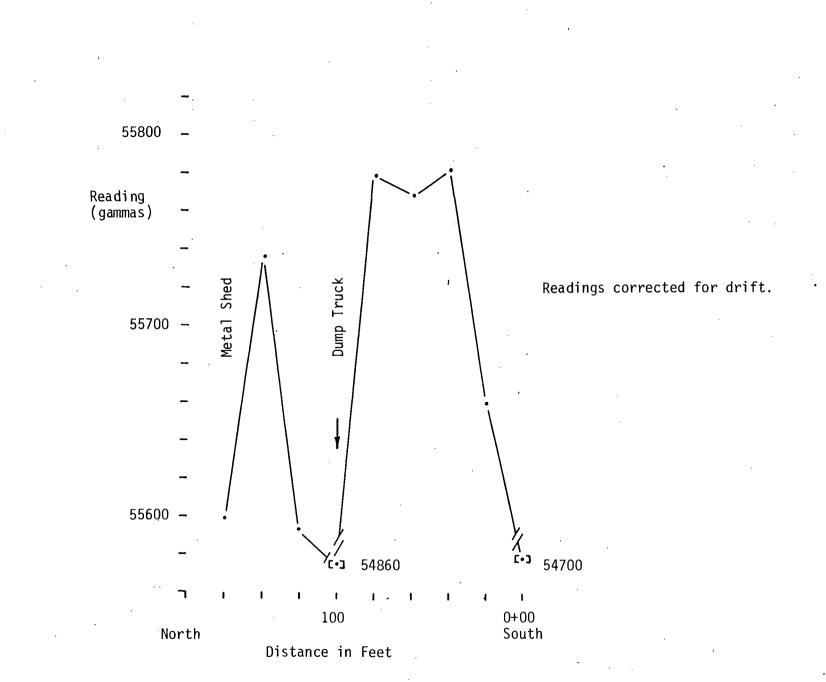


A-4

Magnetic Line G - March 8, 1985 Mottolo Site, Raymond

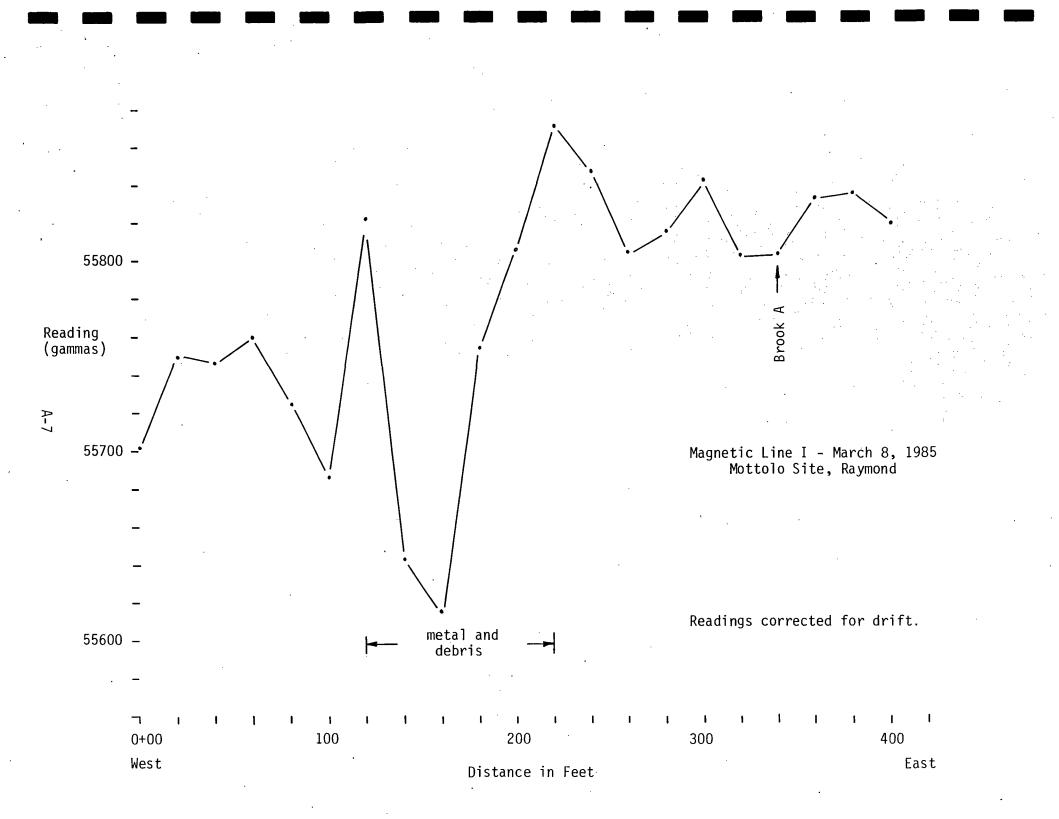


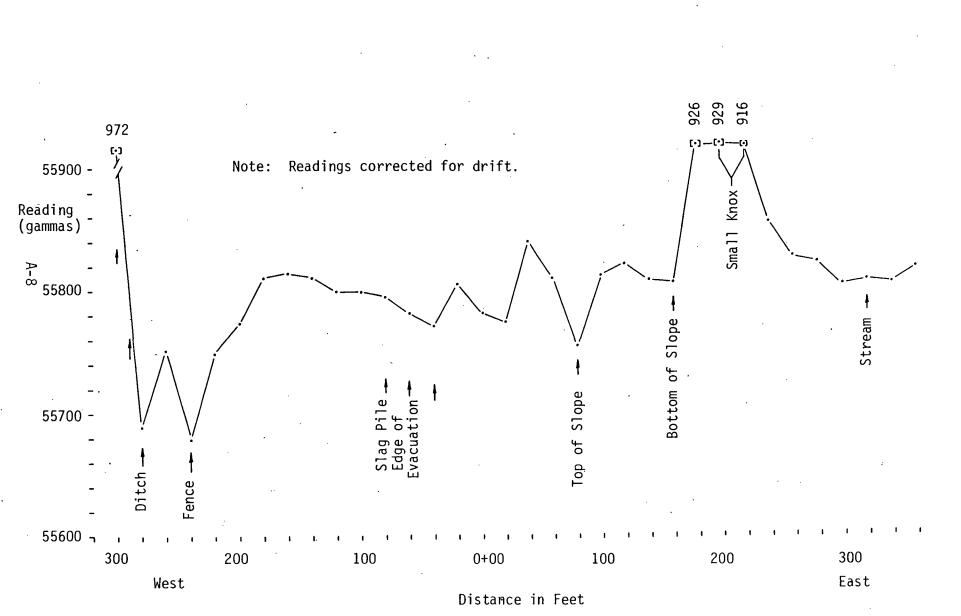
A-5



Magnetic Line H - March 8, 1985 Mottolo Site, Raymond

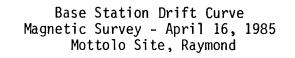
A-6

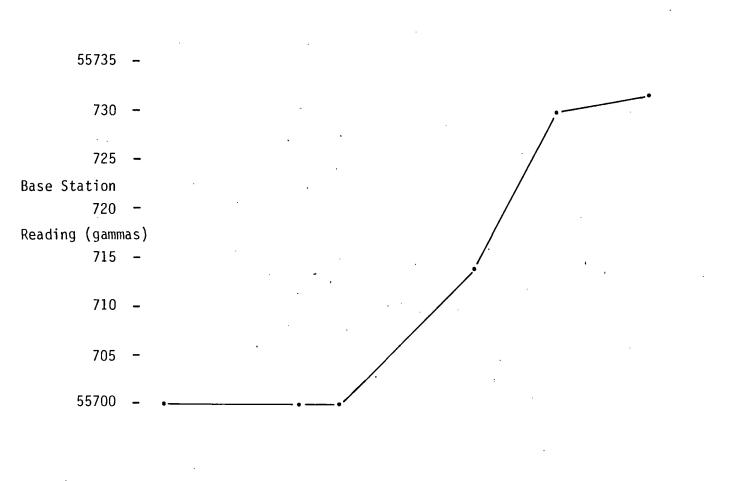




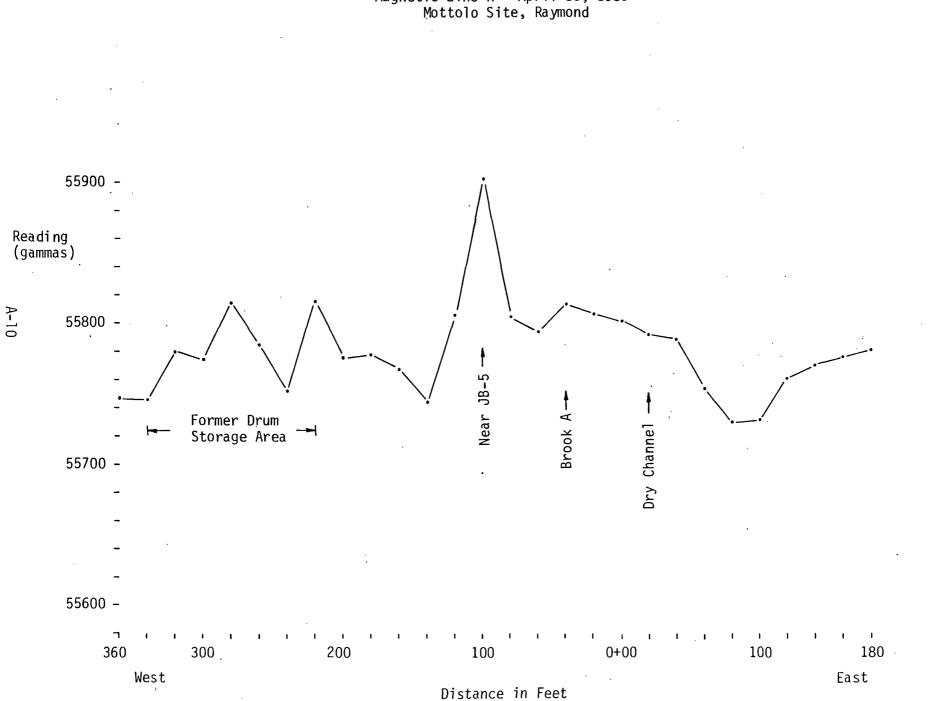
Magnetic Line J - March 8, 1985 Mottolo Site, Raymond

.

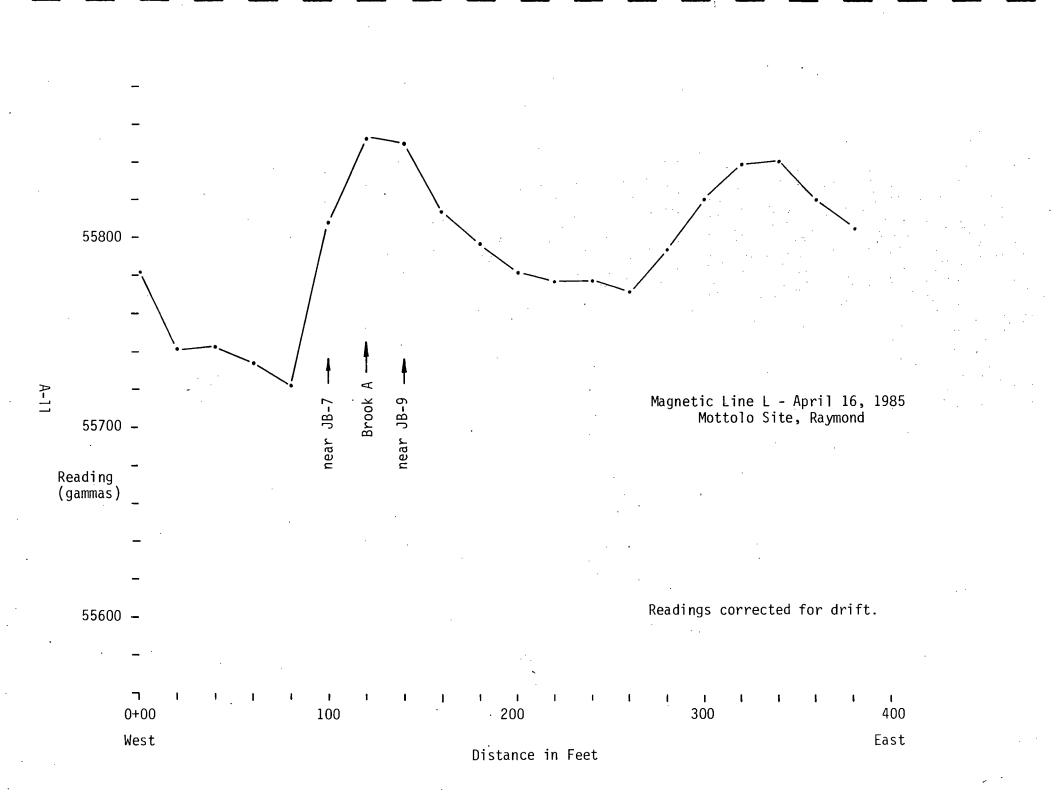


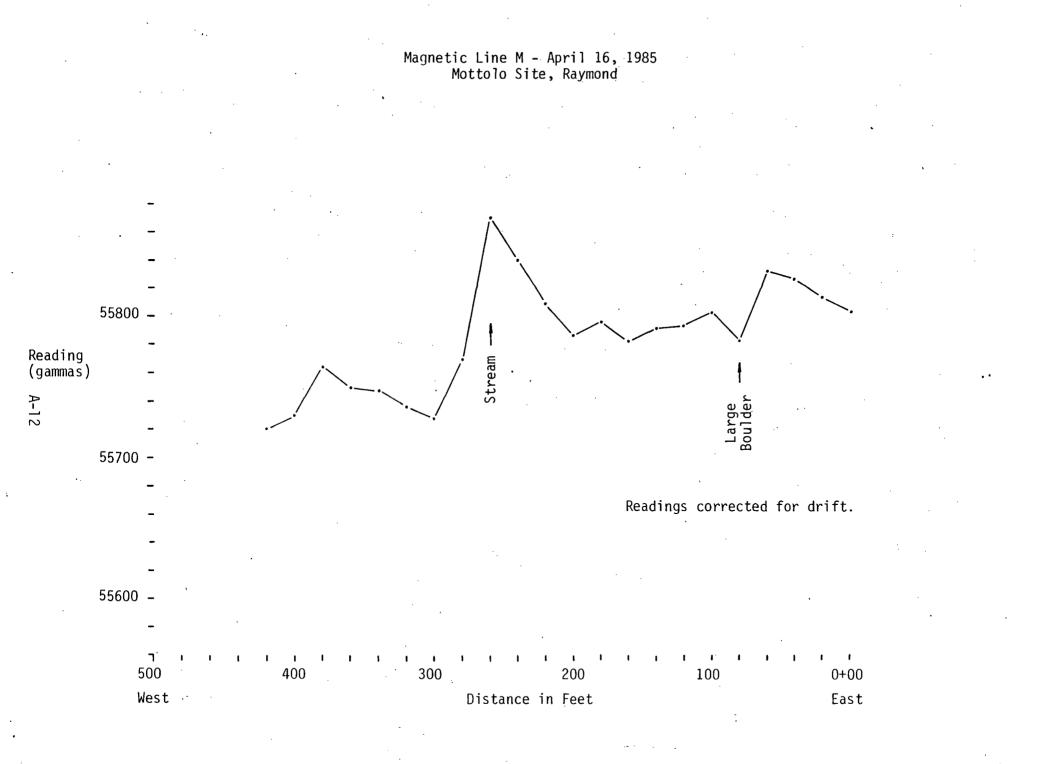


1 1 1 - 1 - F - F t The second secon - I - I 1 1 1 1 1 1 1 10:00 11:00 12:00 13:00 14:00 15:00 16:00 . Time (hours)

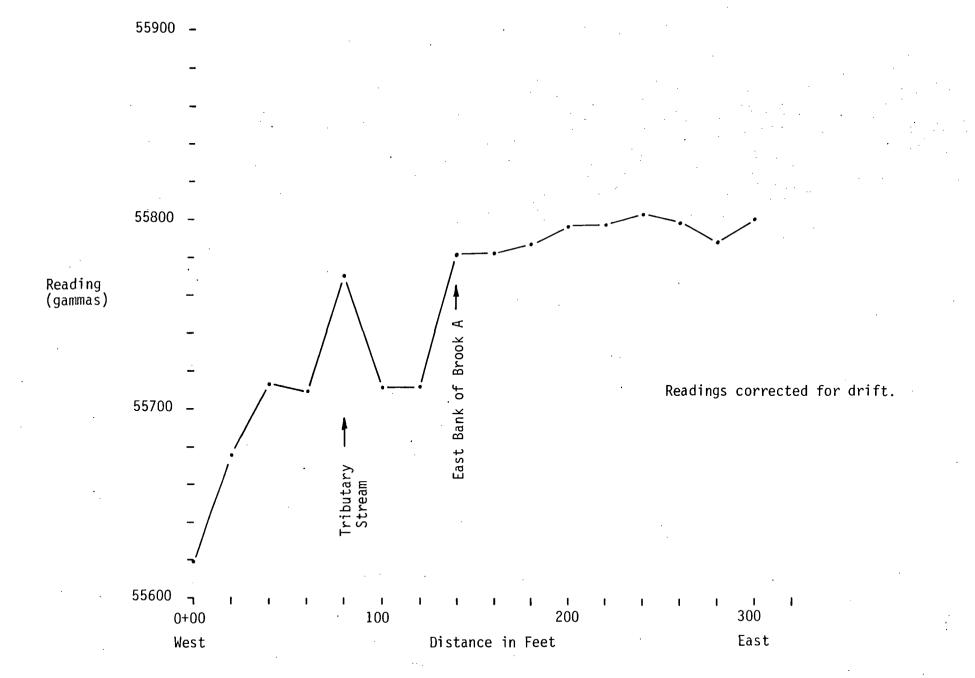


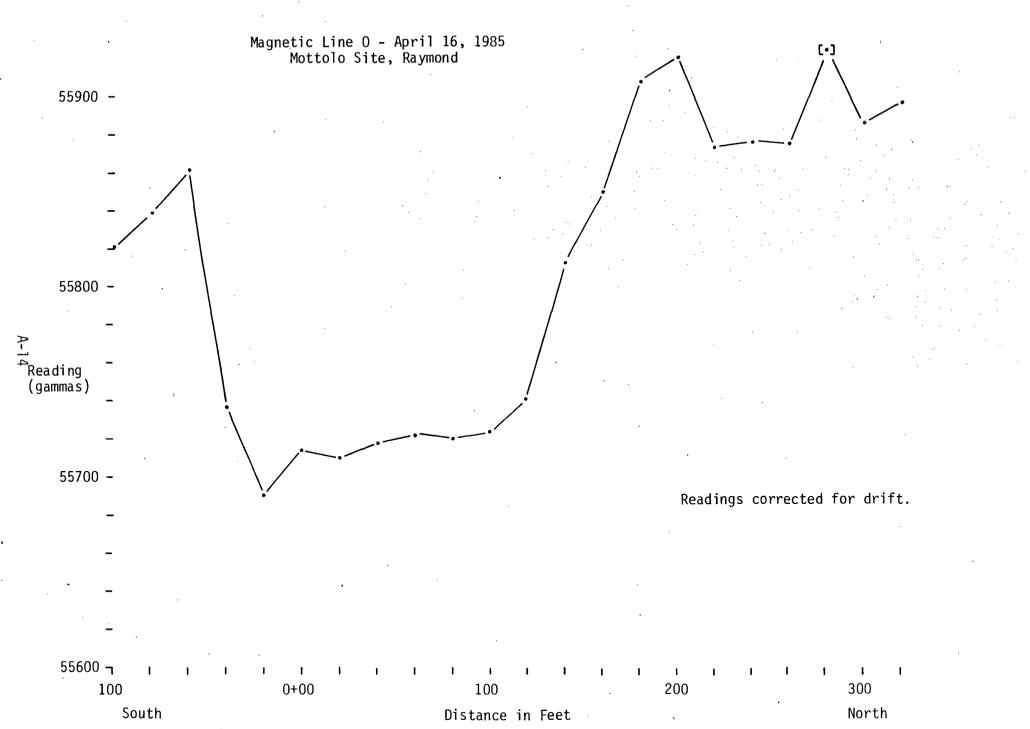
Magnetic Line K - April 16, 1985 Mottolo Site, Raymond











.

,

Magnetic Survey Mottolo Site, Raymond

Base Station Drift Curve - March 8, 1985

<u>Reading (gammas)</u>	<u>Time</u>	<u>∆t (minutes)</u>	<u>AR (gammas)</u>
55725	10:14	0	0
55722	11:04	50	3
55734	12:27	83	12
55736	13:10	43	2
55736	14:15	65	0
55741	15:25	70	5

March 8, 1985 - Mottolo Magnetic Survey

PHASE I

<u>Distanc</u>	<u>e</u>	<u>Reading</u> <u>C</u>	orrection	<u>Time</u>	<u>Comments</u>
Base St	ation	55725		10:14	35' west of entrance fence rock on north side of access road
<u>Line A</u>					•
	0+00	52490 ±10	0	10:21	<pre>10' north of telephone pole @ northwest corner of piggery bldg., wild fluctuation</pre>
	20'N	55511	0	10:24	
	40'N	55733	0	10:25	
	60'N	55768	0	10:26	· ·
	80'N	55740	+1	10:27	edge of woods
	N'001	55738	+1	10:28	in woods
	120'N	55763	+1	10:29	in woods
<u>Line B</u>	- 25'E ale	ong shed wall	; 13' north	of shed wall	
I	0+00	55316	+1	10:35	13' north of shed wall
.1	20'N	55553	+1	10:36:30	
	70'N	55744	+2	10:36	
1	60'N	55743	+2	10:36:30	
:	80'N	55769	+2	10:37	
	N'001	55750 ±3	+2	10:38	
	120'N	55765	+2	10:38:30	
	140'N	55771	+2	10:39	edge of woods
	160'N	55776	+2	10:40	in woods
<u>Line C</u>		-			
(0+00	55605 ±0	+2	10:47	25' east of Line B, 13' north of bldg.

.

				<u>Line C (co</u>	ntinued)	
		20'N	55780 ±4	+2	10:48	
		40'N	55965	+3	10:49	
		60'N	55769	+3	10:50	
		80'N	55790 ±3	+3	10:50	
		אי 100	55749	+3	10:51	
		120'N	55764	+3	10:51	swale
		140'N	55790	+3	10:53	edge of woods
		160'N	55789	+3	10:54	woods
		180'N	55789	+3	10:55	woods
	Base S	tation	55722	+3	11:04	
	<u>Line D</u>	- 25' eas	t of Line C		•	
		0+00	55656	+3	11:06	13' north of bldg.
		20'N	55746 ±3	+3	11:07	
		40'N	55930	+3	11:08	
		60'N	55770	+2	11:08:30	
		80'N	55557 ±3	+2	11:09	
•		N'001	55736	+2	11:10	
		N'021	55773	+2	11:10:30	
		140'N	55768	+2	11:11	swale
		160'N	55764	+2	11:11	
		180'N	55771	+1	11:12	edge of woods
		200'N	55786	+1	11:13	woods
		220'N	55786	+1	11:14	woods
	<u>Line E</u>	- 25' eas	t of Line D			
		0+00	55608 ±2	+1	11:21	13' north of bldg.
		21'N	55768 ±2	+1	11:22	on top of rock
		40'N	55798	+1	11:23	

			<u>Line E (co</u>	ontinued)	
	60'N	55855	+1	11:23:30	
	80'N	55644	+1	11:24	metal fence post @ 90'N
	100'N	55694	0	11:25	
	120'N	55781	0	11:26	low area south of berm
	140'N	55805	0	11:26	swale
	160'N	55852	-1.	11:27	on top of large metal plate
	180'N	55770	-1	11:29	
	200'N	55770	-2	11:29	edge of excavated area
	220'N	55777	-2	11:30	edge of woods
	240'N	55776	-2	11:31	woods
	260'N	55770	-2	11:32	woods
Base S	Station	55728	-3	11:36	· ·
<u>Line f</u>	<u>-</u> 25' eas	st of Line E			
	0+00	55594	-3	11:40	13' north of w <u>o</u> oden bldg.
	20'N	55726	-3	11:41	
	40'N	55778 ±3	-3	11:42	<u>.</u> .
	60'N	55648	-3	11:42	15' west of OW-4
	80'N	55716	-3	11:43	
	N'001	55839	-3	11:43	
	א'20	55757	-4	11:44	@ breach in berm
	140'N	55789	-4	11:45	
	160'N	55815	-4	11:46	
	180'N	55814	-4 ·	11:46	
-	200'N	55779	-4	11:47	
	220 ^{.1} N	55770 ±3	-4	11:48	edge of excavated area
	240'N	55779	-4	11:49	edge of woods

I

		Line F (cor	ntinued)	
260'N	55777	-4	11:50	woods
280'N	55787	-5	11:51	woods
<u>Line G</u> - 25' east	t of Line F (pa	ast edge of	bldgs.)	
0+00	55816	-6	12:01	21' northeast of corner of bldgs.
20'N	55683 ±3	-6	12:02	
40'N	55703	-6	12:03	
60'N	55749	-6	12:03	
80'N	56003	-6	12:04	5' east of OW-4
100'N	55693	-6	12:05	
120'N	55780	-6	12:06	top of berm
140'N	55825	-6	12:06	edge of swale
160'N	55835	-7	12:07	
180'N	55805	-7	12:07	
200'N	55804	-7	12:08	
220'N	55861	-7	12:08	6' west of OW-3
240'N	55783	-7	12:09	
260'N	55763	-7	12:10	edge of excavated area
280' N	55786	-7	12:11	edge of woods
300 ' N	55794	-7	12:12	woods
Base Station	55734	-9	12:27	
Base Station	55736		1:10	
<u>Line H</u> - west of	Line A			· · · ·
0+00	54711 ±3	-11	1:18	10' east of northwest corner of building pad, between piggery bldg. and building pad
20'N	55671	-11	1:19	
40'N	55794	-11	1:20	
	·			

		<u>Line H</u>	(continued)	
60'N	55780	-11	1:20	~
80'N	55690 ·	-11	1:21	
100'N	54871	-11	1:22	4-5' east of dump truck
120'N	55606 ±3	-11	1:23	scattered debris-woods
140'N	55748	-11	1:24	woods
160'N	55710	-11	1:25	25' northeast of metal shed, in woods
<u>Line G</u> - (co	ont.) southern p	ortion of 1	ine	
0+00	55818	-11	1:29	
20'S	55757	-11	1:31	· · ·
40'S	55856	-11	1:32	top of slope
60'S	55767	-11	1:33	mid-slope
80'S	55755	-11	1:34	slope
100'S	55873	-11	1:34	
120'5	55857	-11	1:35	
140'S	55810	-11	1:36	woods
160'S	55808	-11	1:36	near bottom of woods slope
180'S	55803	-11	1:37	woods .
<u>Line I</u> – par	allel to long a	xis of buil	ding	
0+00	55712	-11	1:51	near large boulder (east edge), 41' south of piggery building
20'E	55760	-11	1:52	
40'E	55756	-11	1:52	
60'E	55770	-11	1:53	
80'E	55735	-11	1:53	
100'E	55696	-11	1:54	
120'E	55833	-11	1:54	

			<u>Line I (co</u>	ontinued)	
	140'E	55753	-11	1:55	break in slope
	160'E	55724	-11	1:55	slope
	180'E	55765	-11	1:56	slope, cross Line G
	200'E	55816 ±3	-11	1:58	metal visible on ground
	220'E	55882	-11	1:58	bottom of slope
	240'E	55858	-11	1:59	woods
	260'E	55815	-11	2:00	
	280'E	55826	-11	2:01	
	300'E	55853	-11	2:01	
	320'E	55813	-11	2:04	
	340'E	55814	-11	2:05	
	360'E	55844	-11	2:05	stream
	380'E	55846	-11	2:06	
	400'E	55830	-11	2:07	
Base S	Station	55736	-11	2:15	
<u>Line J</u>	<u>l</u>				
	0+00	55795	-12	2:34	20' south of well #OW-3
	20'E	55786	-12	2:38	
	40'E	55832	-12	2:39	
	60'E	55821	-12	2:40	
	80'E	55766	-12	2:40	edge of woods/top of slope
	100'E	55825	-13	2:43	
	120'E	55834	-13	2:44	
	140'E	55820	-13	2:45	
	160'E	55818	-13	245:30	bottom of slope
	180'E	55939	-13	2:47	• •

			<u>Line J (co</u>	ntinued)	
	200'E	55942	-13	2:48	. •
-	220'E	55929	-13	2:49	top of knoll, ≃20' high
	240'E	55866	-13	2:50	top of knoll, ≃20' high
	260'E	55839	-13	2:51	
	280'E	55834	-13	2:52	
	300'E	55816	-14	2:53	stream bottom
	320'E	55820	-14	2:34	in stream
	340'E	55818	-14	2:55	starting upslope
	360'E	55830	-14	2:56	steep slope
	0+00	35795	-14	3:00	
	20'W	55820	-15	3:10	
	40.'W	55786	-15	3:10	
	60'W	55796	-15	3:11	edge of excavation
	80'W	55810	-15	3:12	slash pile
	100'W	55814	-15	3:13	
	120'W	55814	-15	3:14	
	140'Ŵ	55826	-15	3:15	swampy
	160'W	55830	-15	3:16	swampy
	180'W	55826	-15	3:17	swampy
	200'W	55788	-15	3:18	swampy and boulders
	220'W	55764	-15	3:19	30' north of shed
	240'W	55684	-15	3:21	20' north of chain link fence
		55767	-15	3:21	ditch next to road
		55707	-16	3:22	north edge of access road
		55988 ±5	-16	3:23	south edge of access road
Base S	tation	55741	-16	3:25	

Magnetic Survey

Mottolo Site, Raymond

Base Station Drift Curve - April 16, 1985

Reading (gammas) <u>Time</u> <u>At (minutes)</u> <u>AR (gammas)</u> 10:14 0 0

5570	0	10:14	0	0
5570	0 [.]	11:38	74	0
5570	0	12:06	22	0
5571	4	13:27	81	14
5573	0	14:21	54 ⁻	16
5573	2	15:27	66	2 .

PHASE II

<u> April 16, 1985</u> - <u>Mottolo Magnetic Survey</u>

<u>Distan</u>	<u>ce</u>	Reading	<u>Correction</u>	<u>Time</u>	<u>Comments</u>
	0+00	55700	0	10:14	Base Station, 35' west of entrance fence large rock
<u>Line K</u>					
	0+00	55802	0	10:49	33' from S-3, 12" oak tree
	20'E	55792	0	10:52	small dry channel
	40'E	55789	· 0	10:54	slope
	60'E	55754	0	10:55	slope
	80'E	55730	0	10:56	slope
•	100'E	55731	0.	10:57	slope
	120'E	55761	0	10:58	•
	140'E	55770	0.	10:59	
	160'E	55776	0	11:00	
	180'E	55781	0	11:01	east end station
	0+00	55800	0	11:10	
	20'W	55807	0	11:14	20' N75 ⁰ W from FT #1
	40'W	55814	0	11:15	Brook A
•	60'W	55794	0	11:16	
	80'W	55805	0	11:20	
	W'001	55903	0	11:20	10'N of JB #5
	120'W	55806	0	11:22	
	140'W	55744	0	11:24	
	160'W	55768	0	11:25	toe of slope
	180'W	55778	0	11:27	mid-slope

			<u>Line K (co</u>	<u>ntinued)</u>	
	200'W	55776	0	11:28	near top of slope, east edge of clearing
	220'W	55816	0	11:29	25' north of OW-2
	240'W	55752	0	11:30	clearing former drum storage
	260'W	55805	0	11:31	clearing former drum storage
	280'W	55815	0	11:32	clearing former drum storage area
	300'W	55774	0	11:33	clearing former drum storage area
	320'W	55780 .	0	11:33	noisy, clearing, former drum storage area
	340'W	55745 _.	0	11:34	clearing former drum storage area
	360'W	55747	0	11:35	clearing, 10' from edge of woods
		55700	0	11:38	Base Station
<u>Line L</u>					
		55700		12:06	Base Station
	0+00	55784	-2	12:15	29' from OW-2, next to dead tree, top of slope
	20'E	55743	-2	12:20	slope
	40'E	55745	-2	12:21	slope
	60'E	55736	-2	12:22	
	80'E	55725	-2	12:22	slope
· .	100'E	55813	-3	12:23	16' north of JB-7, flood plain
	120'E	55856	-3	12:24	Brook A
	140'E	55854	-4	12:26	@ JB-9, note: rdg. taken 13' south of actual line

٠

,

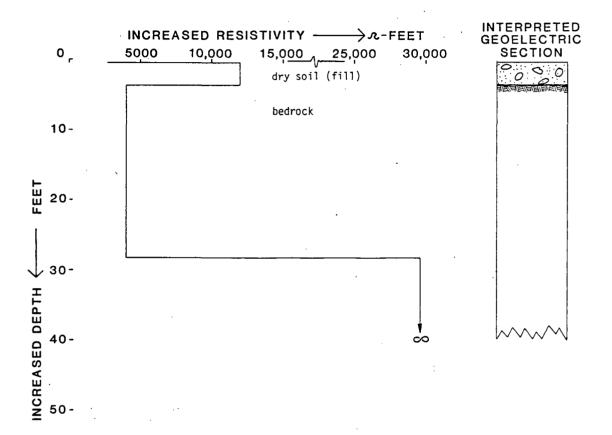
			<u>Line L (co</u>	ontinued)	
	140'E	55720	-4	12:27	@ JB-9, note: rdg. taken 13' north of actual line
	160'E	55818	-4	12:29	flat ground
	180'E	55800	-4	12:30	
	200'E	55786 ·	-4	12:31	flat slope
	220'E	55781	-4	12:32	moderate slope
	240'E	55783	-5	12:33	moderate slope
	260'E	55777	-5	12:33	steep slope
	280'E	55799	-5	12:34	steep slope
	300.' E	55826	-5	12:35	steep slope
	320'E	55845	-6	12:37	steep slope
	340'E	55847	-6	12:38	steep slope
	360'E	55826	-6	12:39	steep slope
	380'E	55811	-6	12:39	steep slope, ≃40' from top of hill stake driven w/flagging
<u>Line M</u>	<u>l</u> .				
	0+00	55810	-7	12:51	30' N8 ⁰ E of end station for Line L
	20'W	55820	-7	12:53	steep slope
	40'W	55833	-7	12:54	
	60'W	55838	-7	12:55	
	80'W	55790	-8	12:56	steep slope near large boulder
	100'W	55810	-8	12:57	moderate slope
	120'W	55801	-8	12:58	moderate slope
	140'W	55801	-9	12:59	flat
	160'W	55791	-9	12:59	

Line M (continued)									
	180'W	55805	-9	13:01	180'				
	200'W	55795	-9	13:02	200 '				
	220'W	55818	-9	13:03	top of bank of Brook A, top of rock				
	240'W	55850	-10	13:04	east edge of Brook A				
	260'W	55880	-10	13:05	near confluence of Brook A and tributary				
	280'W	55780 ·	-11 -	13:12	edge of tributary				
	300'W	55738	-11	13:14	flat slope				
	320'W	55746	-11	13:15	slope change .				
	340'W	55758	-11	13:16	steep slope				
•	360'W	55761	-12	13:17	steep slope				
	380'W	55776	-12	13:19	top of steep slope				
	400'W	55742	-13	13:20	clearing, soil/rock fill				
	420'W	55733	-13	13:21	fill, 18' S75 ⁰ E of OW-4				
		55714	-14	13:21	Base Station				
<u>Line N</u>	1								
	0+00	55636	-17	13:37	20' from OW-1, top of slope, fill				
	20'E	55693	-17	13:38	steep slope, fill				
	40'E	55730	-17	13:39	steep slope, toe of fill				
	60'E	55727	-18	13:40	toe of slope, flat				
	80'E	55788	-18	13:42	east edge of tributary				
	100'E	55829	-18	13:43					
	120'E	55830	-19	13:45					
	140'E	55800	-19	13:47	east bank of Brook A				
	160'E	55802 ±7	-20	13:48	flat				
	180'E	55807	-20	13:49	180', flat				

			Line N (co	ntinued)	
	200 ' E	55818	-21	13:51	200'
	220'E	55818	-21	13:52	
	240'E	55825	-22	13:54	slope change
	260'E	55820	-22	13:55	steep slope
	280'E	55811	-23	13:56	· ·
	300'E	55823	-23	13:57	steep slope, stake and flagged
<u>Line O</u>	- .				
	0+00	55740	-26	14:11	20' S15 ⁰ W of JB-8
	20'S	55716	-26	14:12	
	40'S	55764	-27	14:13	
	60'S	55890	-28	14:14	tributary channel
	80'S	55867	-28	14:15	
	100'S	55850	-29	14:16	marked w/flagging and stake, toe of fill from piggery building
		55730	-30	14:21	Base Station
	20'N	55740	-30.	14:24	
	40'N	55748	-30	14:25	
	60'N	55752	-30	14:26	
	80'N	55750	-30	14:28	flat
	N'001	55754	-30	14:30	flat, near stream
	120'N	55771	-30	14:31	flat, near stream, leachate seep, 22' west of JB-5
	140'N	55843	-30	14:32	southeast of toe of hill
	160'N	55888	-30	14:33	beginning to climb hill
·.	180'N	55939	-30	14:33	
-	200'N	55952	-30	14:34	side of hill

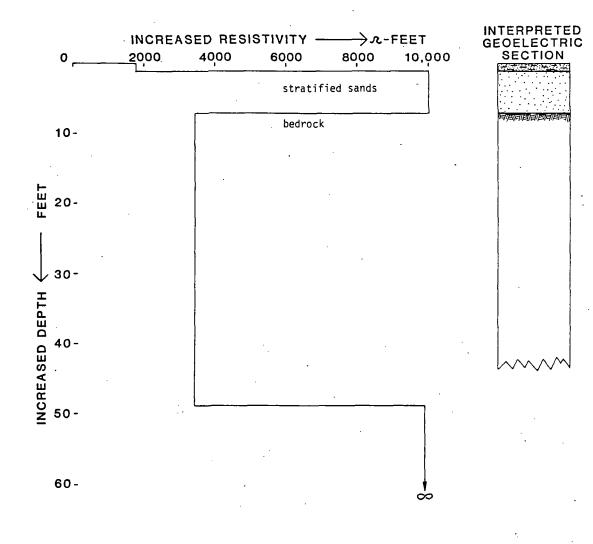
.

		<u>Line O (</u>	<u>continued)</u>	
220'N	55904	-30	14:34	side of hill
240'N	55907	-30	14:35	side of hill
260'N	55906	-30	14:35	side of hill
280'N	55967	-30	14:36	side of hill
300'N	55917	-30	14:36	side of hill
320'N	55928	-30	14:37	low drainage, wet between two hills
•••••	55732	-30	15:27	Base Station

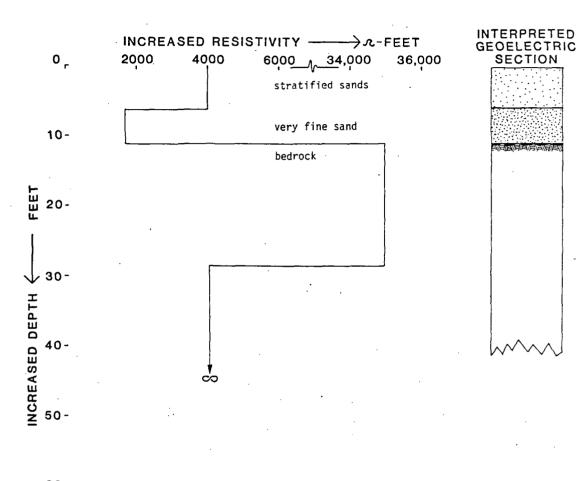


70-

GEOELECTRIC SOUNDING NO.1 SCHLUMBERGER CONFIGURATION MOTTOLO SITE, RAYMOND, N.H.

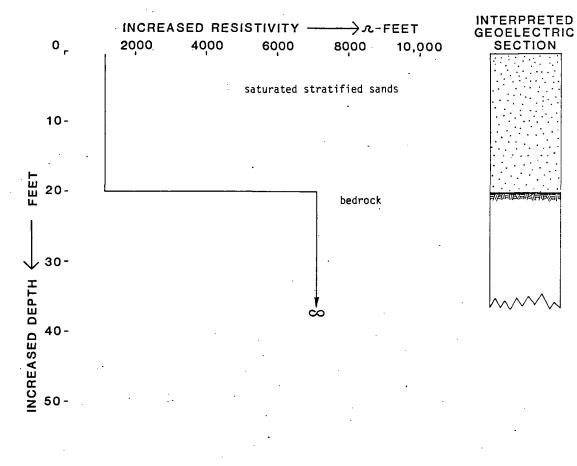


GEOELECTRIC SOUNDING NO.2 SCHLUMBERGER CONFIGURATION MOTTOLO SITE, RAYMOND, N.H.



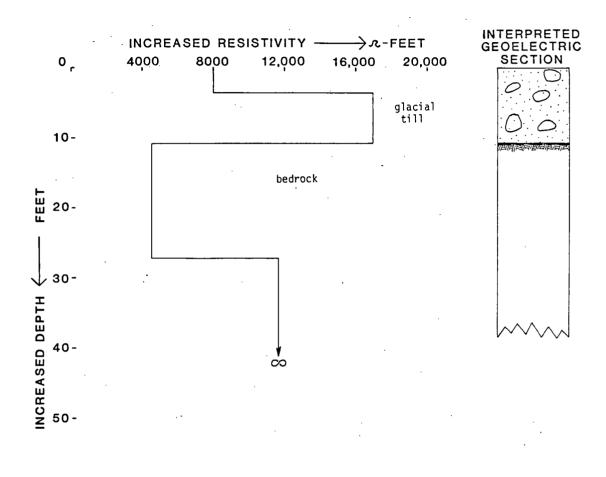
70-

GEOELECTRIC SOUNDING NO.3 SCHLUMBERGER CONFIGURATION MOTTOLO SITE, RAYMOND, N.H.



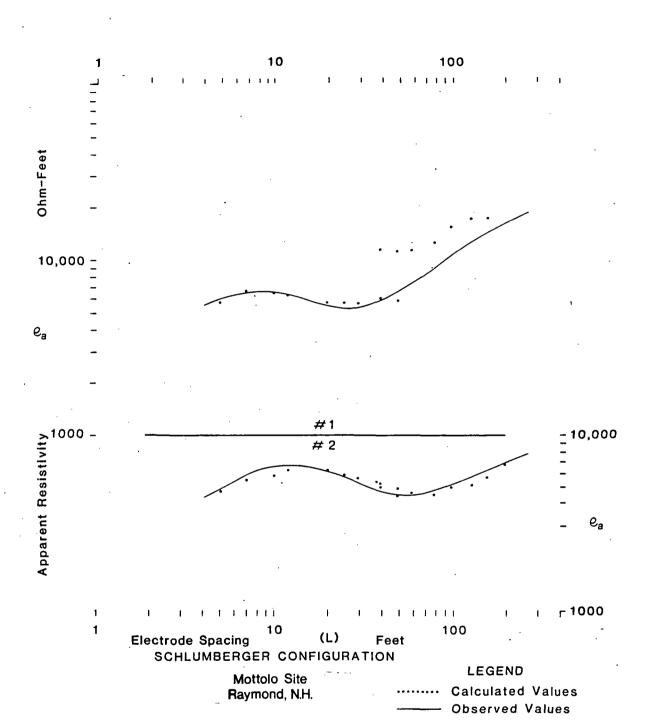
70-

GEOELECTRIC SOUNDING NO. 4 SCHLUMBERGER CONFIGURATION MOTTOLO SITE, RAYMOND, N.H.

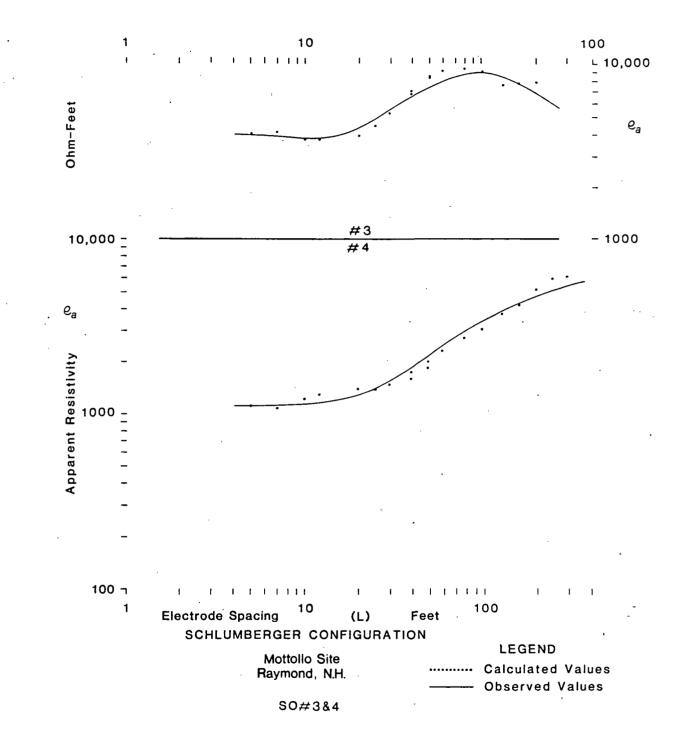


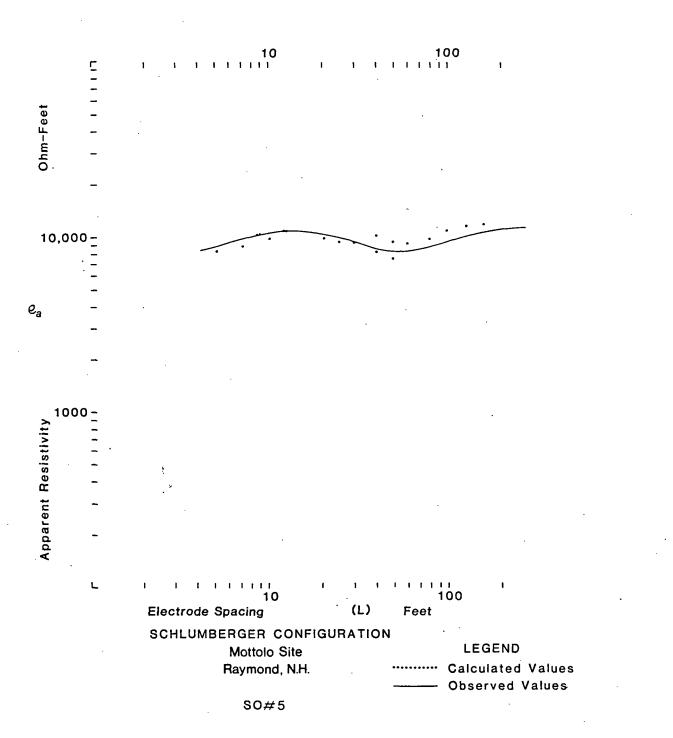
70-

GEOELECTRIC SOUNDING NO.5 SCHLUMBERGER CONFIGURATION MOTTOLO SITE, RAYMOND, N.H.



SO#1&2





Mottolo	Site	Raymond
1.10.10.00		

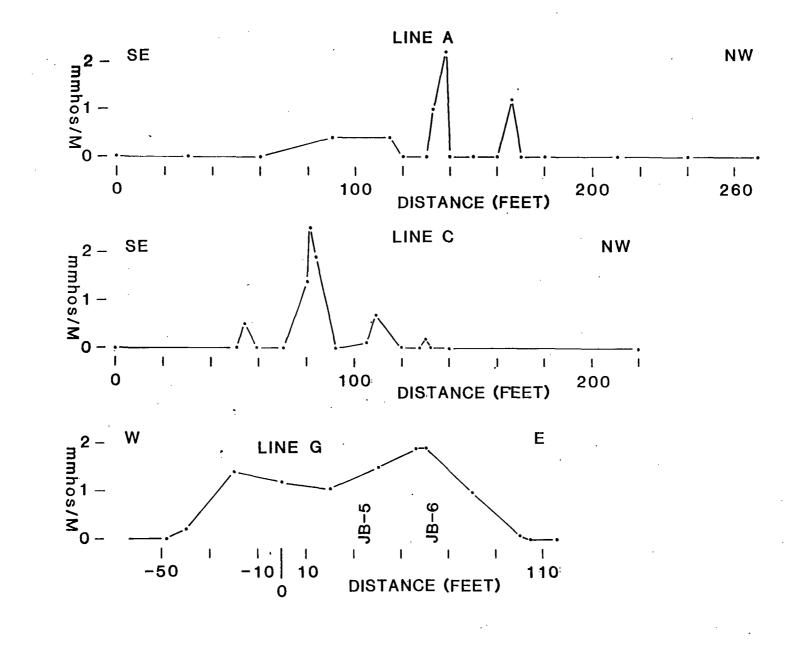
	1	20.00		0			<u> </u>		· · · · · · · · · · · · · · · · · · ·	
	A_	211v/I	L	Ca						
0#1	Z	915	5	5719			Final	Model		
	1	546	7	6655.6		Mo			calc. fie	کا در راه
		_260	10	6500		C	Thickness		Ca	·L
		176.5	12	6354		(s_f_,)	(f_{τ})		12 fr. x103	(fτ.
		57.4	20	5740		2500	1		5.6	4.0
		36.4	25	5687.6		12000	3		6.4	5.9
		25.4	30	5715.0		4000	24		67	8.6
		15.15	.40	0000		30 000	ĸ		. 6.3	12.6
	2	9.4	50	5875					5.7	18.
	10	143.0	40	11440					.5.3	27
		90.25	50	1/281.2					5.8	. 40
		63.6	60	11448					7.3	59
		39.7	80	12704					9.6	56
		31.0	. 100	15500					12.5	127
		20.9	130	17660					15.7	186
	10	13.8_	140	17664				-	19.0	272
3#2	2	775.5	5	4846.9			FINAL	Model		
·····		4 49	. 7	.5500		Mod			CAIC. Field	
		235	10	.5875		C	Thickness		Ca	L
		176	12 .	6366	($(\Omega f_{T.})$			0 6) (ft.
					·	Q42 71. /	(ft.)		Dft. x 10"	
		62.6	20	6260	··· _···	1750	<u> </u>	· ····	4.4	
		62.6 37.4		1		1				
	·····	37.4 25.1	_20	.6260		1750	/	· · · · · · · · · · · · · · · · · · ·	4.4	
		37.4	_20 25	6260 5844		1750 10000		· · · · · · · · · · · · · · · · · · ·	<u> 4. 4 </u>	
	2	37.4 25.1	_20 _25 30	6260 5844 5648	· · · · · · · · · · · · · · · · · · ·	1750 10000 3500	1 7 '42	• • • • • • • • • • • • • • • • • • • •	4.4 5.4 6.2	4 (5 -9 8 (
· · · · · · · · · · · · · · · · · · ·	2	37.4 25.1 12.5 7.16	20 25 30 40	6260 5844 5648 5000		1750 10000 3500	1 7 '42	· · · · · · · · · · · · · · · · · · ·	4.4 5.4 6.2 6.6	4. (5.9 8. (12. (
		37.4 25.1 12.5	20 25 30 40 50	6260 5844 5648 5000 4475		1750 10000 3500	1 7 '42		4 4 5 4 6 2 6 6 6 4	4. (5.9 8. (12. (18.
· · · · · · · · · · · · · · · · · · ·		37.4 25.1 12.5 7.16 65-1	20 25 30 40 50 40	6260 5844 5648 5000 4475 5208		1750 10000 3500	1 7 '42		4 4 5 4 6 2 6 6 6 4 5 6	4.0 5.9 8.0 12.0 18 27
		37.4 25.1 12.5 7.16 65.1 39.3	20 25 30 40 50 40 50	6260 5844 5648 5000 4475 5208 4912		1750 10000 3500	1 7 '42		4 4 5 4 6 2 6 6 6 4 5 6 4 5	4.0 5.9 8.6 12.0 18 27 27
		37.4 25.1 12.5 7.16 65.1 39.3 25.9	20 25 30 40 50 40 50 60	6260 5844 5648 5000 4475 5208 4912 4662		1750 10000 3500	1 7 '42		4 4 5 4 6 2 6 6 6 4 5 6 4 5 4 5	4 0 5 9 8 6 12 0 18 27 40 59
		37.4 25.1 12.5 7.16 65.1 39.3 25.9 14.3	20 25 30 40 50 40 50 60 80	6260 5844 5648 5000 4475 5208 4912 4662 4576		1750 10000 3500	1 7 '42		4.4 5.4 6.2 6.6 6.4 5.6 4.5 4.5 4.5 4.9	4.0 5.9 8.6 12.0 18. 27 40 59 86 127
		37.4 25.1 12.5 7.16 65.1 39.3 25.9 14.3 10.0	20 25 30 40 50 40 50 60 80 (00 130	6260 5844 5648 5000 4475 5208 4912 4662 4576 5000 5104		1750 10000 3500	1 7 '42		4 4 5 4 6 2 6 6 6 4 5 6 4 5 4 5 4 5 5 7 6 7	4 (5 - 9 8 - 6 12 - 6 18 - 27 40 59 59 59 56 125 155
		37.4 25.1 12.5 7.16 65.1 39.3 25.9 14.3 10.0	20 25 30 40 50 40 50 60 80 100	6260 5844 5648 5000 4475 5208 4912 4662 4576 5000		1750 10000 3500	1 7 '42		4 4 5 4 6 2 6 6 6 4 5 6 4 8 4 5 4 9 5 7	4 (5 - 9 8 - 6 12 - 6 18 - 27 40 59 59 59 56 125 155
	10	37.4 25.1 12.5 7.16 65.1 39.3 25.9 14.3 10.0 6.04 4.46	20 25 30 40 50 40 50 60 80 (00 130 160	6260 5844 5648 5000 4475 5208 4912 4662 4576 5000 5104 5709		1750 10000 3500	1 7 '42		4 4 5 4 6 2 6 6 6 4 5 6 4 5 4 5 4 5 5 7 6 7	4.0 5.9 8.6 12.0 18. 27 27 40 59 59

Mo	Holo Si	te, fr	aymond	N.H.					5	a
	A	271V/I	L	Ca						
o#3	2	635	5	3988			FINAL	Model		
		328	7	4018	-	Mo	Ag		CALC Fiel	CURVI
		146.5	10	3662		C	Thickinies		, Ca	L
·		100.5	. 12	3618		(SLfr.)	(fr.)		<u> </u>	ĹfT.
		38.0	20	3800		<u> 4000 </u>	6		3.9	4.0
		28.1	25	4391		1700	5		3.8	5.9
	· ·	23:0	30	5175		35000	17		. 3.7	5.6
• • • • • • • • • •		16.65	40	6660		4000	ĸ		. 3.7	12.4
	2	12.8	50	8000		-			4.1	18.0
	10	_85.05	40	6804					5.1	27
		64.95	. 50	8094					6.5	40
		49.5	60.	8910					7.9	59
			80	9008	· · · · · ·	·			8.6	56
		17.4	100	8700					8.2	127
		8.73	130	7377					7.0	180
		5.06	160	6477]	5.5	27.
	10	3.31	200	6620					l	
	<u> </u>	ļ 			<u> </u>		<u>·</u>		 	
, #4	2	177.5	5	1109			FINIAL	Model		
		\$7.5	7	1076		M	cel		Calc. fiel	CURN
		48.3	10	1208		C	Thickness		Ca	L
		35.75	12	1287		(nf_{τ})	(ft.)		12fr x10-3	(f7.
		13.9	20	1390		1100	. 20		1.1	4.0
		8.85	25	1383		7000	ĸ		1.1	5.9
		6.53	30	1469				•	1.1	8.6
		3.98	40	1592		•••			1.1	12.0
	2	2.93	50	1831		•••••			1.Z	15.
	10	21.5	40	1720	• • • • • • • • • • • • • • • • • • • •				1.4	27
	I T	15.8	50	19.75		· ·			1.8	40
		12.75	60	2295					2.4	59
		8.51	80	2723					3.0	56
		6.05	100	3025						
		4.37	130	3693					3.8 4.6	12
		3.225	, 150						1	180
	1 1 1			4128 5080			- ·		5.3 5.9	27 400
		2.64					r .	1	1 3.7	・サロレ
		2.54	200							
· · · · · · · · · · · · · · · · · · ·	10	2.54 1.90 1.35	250 300	5938 6075	···· · ···	-				

(6 a)

2:1TV/I Ca A L <u>So</u>#5 2 5 Model Final 1315 8219 ... bel Calc.field 7. 8869 724 M CURN C ThickNess Ca 10 . L 390 9750 (ft (f.) (Ω, f_{τ}) 302 12 10872 $(\Omega_{fT \times 10^3})$ 4 98 8.5 20 9800 1000 4.C 5.9 25 9375 7 9.1 17000 16 41.1 30 8.6 9248 10.0 4600 40 8120 κ 10.7 12000 12.6 <u>11. 9</u> 2 50 7438 10.7 18.6 10 126.5 40 9.6 27 10120 74.5 50 9312 40 8.5 .60 9180 59 51.0 8.2 9712 30.35 8.9 86 21.4 100 10700 127 9.8 130 6. 13_ 11492 10.6 186 10 9.1 11.2 272 160 11648 . . .

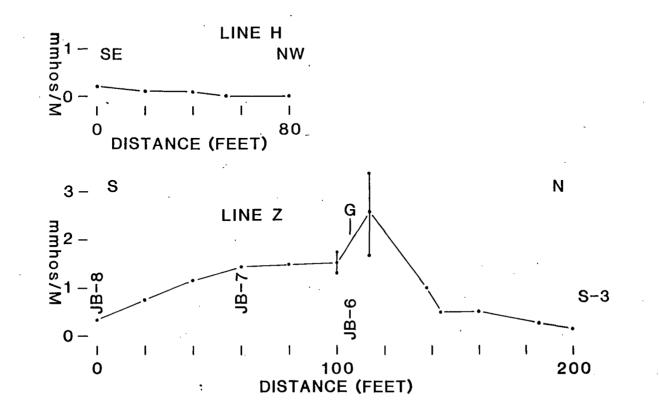
Mottole Site, Raymond N.H



ELECTRICAL CONDUCTIVITY EM-31 SURVEY PROFILES

MOTTOLO SITÉ, RAYMOND, N.H.

A-4]



ELECTRICAL CONDUCTIVITY EM-31 SURVEY PROFILES MOTTOLO SITE, RAYMOND, N.H.

Electrical Conductivity Readings, EM-31 Mottolo Site, Raymond April 22, 1985

. .

• ·

÷

Station (Feet)	Reading (millimho/meter)	Remarks
<u>Line A</u>		·
0	-	some fluctuation, 1.0 perpendicular to traverse
30	-	
60		
90	0.4	
115	0.4	· · · · · · · · · · · · · · · · · · ·
120	•	
130	-	
133	1.0	
138	2.2	
140	•	
150		
160	-	
166	1.2	
170 [°]	-	
180	-	
210	-	
240	-	
270	·	

All readings taken with instrument parallel to traverse line unless otherwise noted.

- Indicates that reading was less than zero.

.

. .

-2-Electrical Conductivity Readings, EM-31 Mottolo Site, Raymond April 22, 1985

Station <u>(Feet)</u>	Reading (millimho/meter)	Remarks
<u>Line C</u>		
0	_	
51	0	
54	0.5	
59	0	fill
70	0	•
80	1.4	
81	2.5	
83	1.9	
92	0	
105	0.1	
111	0.65	centerline of swale
120		
127	0	
130	0.2	
132	0	
140	-	all readings between station 140 and 222 were
222	, _	negative

-3-Electrical Conductivity Readings, EM-31 Mottolo Site, Raymond April 22, 1985

Station <u>(Feet)</u>	Reading (millimho/meter)	Remarks
<u>Line D</u>		
0	0.1	parallel to traverse line
0	0.1	perpendicular to traverse line
20	-	all readings between station 20 and 202 were
202	·	negative
•		
<u>Line G</u>	, ,	
-48	0	
-40	0.2	mid slope
-20	1.4	
0	1.2	
20	1.05	leachate seeps @ 11 and 22 feet
40	1.5	offset by 3 feet to avoid interference from JB-5
56	1.9	offset by one foot to avoid interference from JB-6, perpendicular reading
60	1.9	perpendicular reading
80	1.0	
100	0.06	
105	0	
116	-	

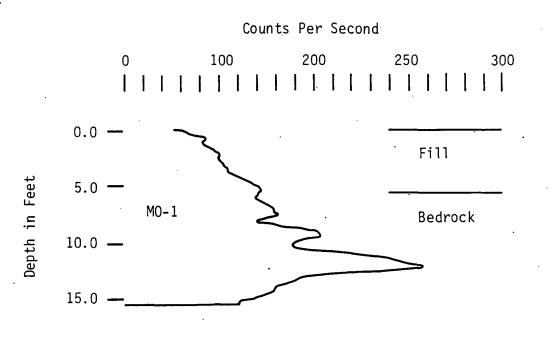
-4-Electrical Conductivity Readings, EM-31 Mottolo Site, Raymond April 22, 1985

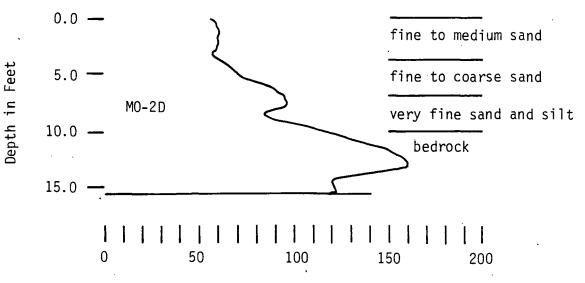
Line H 0 0.20 20 0.1 40 0.1 53 0 60 - 80 - 80 - 31 0 60 - 80 - 10 - 33 0 40 0.8 close to trucks 56 0 60 - 163 - 163 - 163 - 163 - 163 - 163 - 0 0.35 JB-8 20 0.75 40 1.15	Station (Feet)	Reading (millimho/meter)	Remarks
20 0.1 40 0.1 53 0 60 - 80 - 80 - 80 - 30 0 40 0.8 close to trucks 56 0 60 - 163 - 163 - 163 - 0 0.35 30 0.35 30 0.35	<u>Line H</u>		
40 0.1 53 0 60 - 80 - 80 - 10 - 30 0 40 0.8 56 0 60 - 163 - 163 - 0 0.35 20 0.75	0	0.20	
53 0 60 - 80 - 80 - 10 - 30 0 40 0.8 56 0 60 - 163 - 163 - 0 0.35 20 0.75	50	0.1	
60 - 80 - Line K - 0 - 30 0 40 0.8 56 0 60 - 163 - Line Z - 0 0.35 JB-8 20 0.75	40	0.1	
60 - 80 - b - 0 - 30 0 40 0.8 56 0 60 - 163 - 163 - 0 0.35 20 0.75		0	
Line K	60	-	•
0 - 30 0 40 0.8 close to trucks 56 0 60 - 163 - Line Z 0 0 0.35 JB-8 20 0.75	80	-	
0 - 30 0 40 0.8 close to trucks 56 0 60 - 163 - Line Z 0 0 0.35 JB-8 20 0.75			
30 0 40 0.8 close to trucks 56 0 - 60 - all readings between station 60 and 163 were 163 - negative Line Z 0 0.35 20 0.75 JB-8	<u>Line K</u>		
40 0.8 close to trucks 56 0 - 60 - all readings between station 60 and 163 were 163 - negative Line Z 0 0.35 JB-8 20 0.75 JB-8	0	-	
56 0 60 - 163 - 163 - Line Z 0 0 0.35 20 0.75	30	0	
60 - all readings between station 60 and 163 were 163 - negative Line Z 0 0.35 20 0.75 JB-8	40	0.8	close to trucks
163 - negative Line Z	56	0	
Line Z 0 0.35 JB-8 20 0.75	60	-	all readings between station 60 and 163 were
0 0.35 JB-8 20 0.75	163	-	negative
0 0.35 JB-8 20 0.75			
20 0.75	<u>Line Z</u>		
	0	0.35	JB-8
40 1.15	20	0.75	
	40	1.15	

-5-Electrical Conductivity Readings, EM-31 Mottolo Site, Raymond April 22, 1985

Station (Feet)	Reading (millimho/meter)	Remarks
<u>Line Z</u> (cont.)		
60	1.45	
80	1.5	
100	1.3	perpendicular to traverse line
100	1.75	
114	3.4	leachate seep @ 115', end close to well
114	1.7	perpendicular to traverse line
138	1.0	
144	0.5	minor leachate seep
160	0.5	
186	0.25	· · ·
200	0.15	S-3

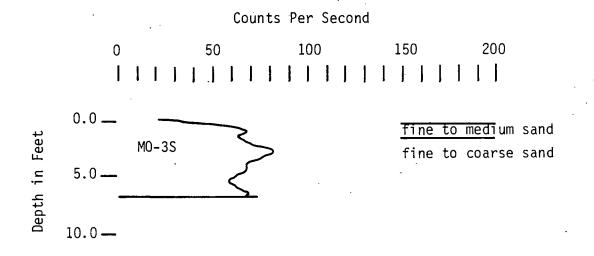
Geophysical Well Logs Gamma Log - MO-1 and MO-2D Mottolo Site, Raymond

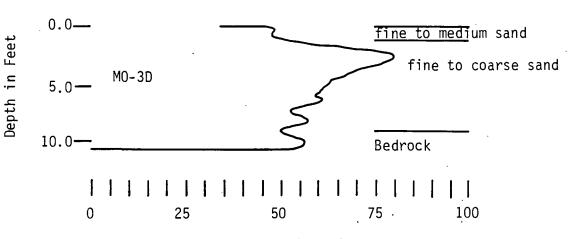






Geophysical Well Logs Gamma Log - MO-3S and MO-3D Mottolo Site, Raymond

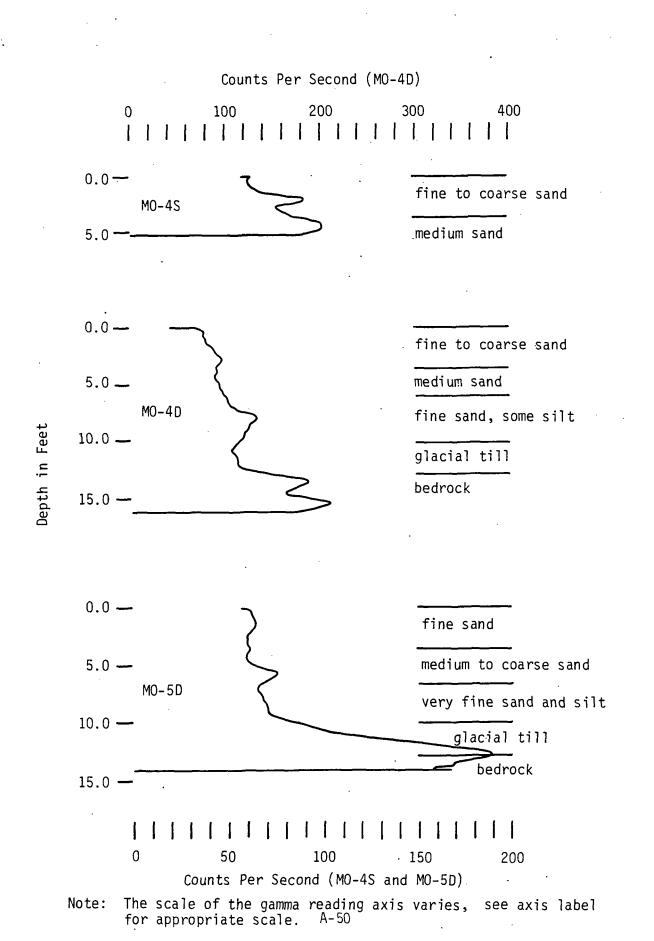




Counts Per Second

A-49

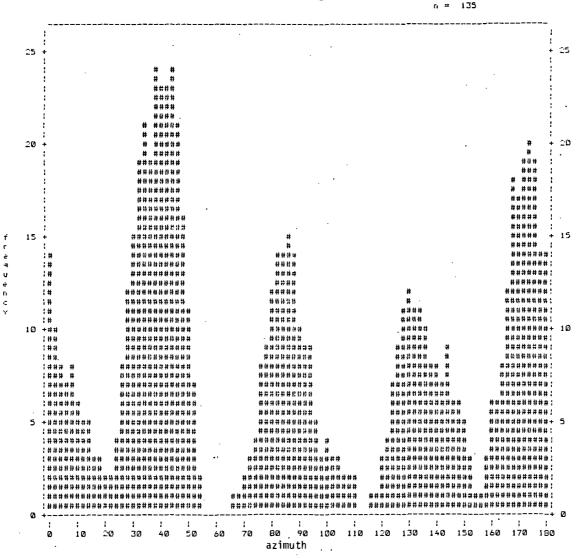
Geophysical Well Logs Gamma Logs - MO-4S, MO-4D, MO-5D Mottolo Site - Raymond



APPENDIX B

Fracture Fabric Analysis Histograms and Aerial Photographs

·	•	<u>Page</u>	
Fracture Fabric Analysis Histograms	B-1	thru	B-2
List of Aerial Photographs	B-3		



FRACTURE TREND HISTOGRAM FOR JOINT STATIONS A THRU E, RAYMOND, N.H.

B-1

azimuth

		1 ·		***														1	
		1		####															
		i		####														:	
	29	+		# # # # # #														+	20

		1		****															
				****														:	

		1		体静静静静静															
		1		****															
~		i.		*****															15
f	15	+		*****													# #		13
r				*****													# #		
÷				*****					1 #								# ##		
7				****					*#								# ##		
u				*****				###									****		
ė		1		****				###									****		
ri		i.		*****				###					# #·				****		
e.		i 		*****				***									***		
7		:#		*****				####					####					****	
		1#		*****				****					***					****	
	10	+#		******				####					####					****	10
		;# 		*****				***					****				****		
		:## :##		####### ########					*****				****				*#####		
		1### 1####		******				*****					*****				****		
		****		******				*****					*****				*****		
		1 # # # # #		*****				****											
		144444		******				*****					##### #####				***** ****		
		1 # # # # #		*****				*****					*****		**		*****		
		; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ;		******				*****					*****				*****		
		+##########		*****				*****					*****						E
	2	*********		*****				******					****				*****	***	2
		:#######	*****					4 4 4 4 4 4 4					*****				*****		
		1 # # # # # # # # #	*****					*****					*****				*****		
		*****						######					****			****			
		**********						*****					***			*****			
		*********						*****					****			****			
		;*********						8844444					****			*****			
		144444444444						****								****			
								*****								******			
	ø	• • • • •									~~#	##### 	·····	****	****	******			ø
	0		: :	١.	:	1	1	;		1	1	;		:	1		1	;	
		0 10	 20 30	40	50	60	70	80	- 90	100	110	120	130	140	150		170	180	
		0 10	-0 -00	40	00	66	10	00	70	100	110	120	130	140	100	190	110	100	

FRACTURE TREND HISTOGRAM FOR JOINT STATIONS A THRUE, RAYMOND, N.H. (E RESAMPLED TO REMOVE BIAS) n=127

1

1

1

+ 25

B-2

.

#

#

1

1

25 +

List of Aerial Photographs Examined For The Fracture Fabric Analysis - Mottolo Site, Raymond, New Hampshire

Type of Photo	Scale	Exposure Date	Frame No.
High Altitude Color Infrared	1:127,00	12/2/73.	6836
High Altitude Black and White	1:60,000	5/5/60 *	6948
Medium Altitude Black and White	1:24,000	11/5/75	106
Low Altitude, Large Scale Black and White	1:1200	4/23/66	3-3

B-3

APPENDIX C

Well and Test Pit Data

<u>Page</u>

NHWS&PCC Data Well LogsC-1 thru C-12 Soil Gradation CurvesC-13 thru C-15 Detailed Description of Bedrock SamplesC-16 thru C-20
GHR/GZA Data Well LogsC-21 thru C-30 Test Pit LogsC-31 thru C-43
Residential Well Data Summary of Well DataC-44 thru C-46 Sample of Residential Well Inventory FormC-47 thru C-49

NHWS		ORIN	G LOG		SI	TE	Boring No: M0-1			
				Мо	ttolo Si	to	Sheet: 1 of: 1			
					ymond		Date: 6/20/85			
	_	6								
	Boring Company: Soils Engineering, Inc. Boring Location: NW Corner of Piggery Bldg.									
Foreman: Myron Dominque Ground/Casing Elevation:										
Geolog	Geologist/Engineer: John Regan Starting Date: 6/20/85 Ending Date: 6/26/85									
Туре	SAN NX Core	IPLE Bar	R rel				Groundwater Readings Depth to Water Ref. Pt. Time/Stabilization	<u>n_</u>		
Hamme	er Wt. <u>N</u>	Α				6/26 6/28	9.5' gr sfc 7:10 9'1 1/2" TOC 14:45			
Fall N	NA						· · · · · · · · · · · · · · · · · · ·			
	Casing	SA	MPLE			· ·	3" steel protective casing]:		
Depth	BI/ft.	No.	Depth	Pen/Rcvy	Blows/6"	LOG	1 1/2" PVC Construction	<u>on</u>		
						000	dry brown medium sand			
		S-1	0-5'6"			1	and gravel, some cob-			
		ļ				- O	bles, little silt (fill)			
5-						0 0				
	RUN 1		5'6"-	37/34						
		 	8'7" 8'7"-	16/20		4	bedrock			
	RUN 2	<u></u>	9'11"			-	biotite schist, quartz			
10-]	and granite			
	RUN 3	ļ	9'11"-	29/26		4				
	RUN 4	<u> </u>	<u>12'4"</u> 12'4"-	27/25						
15-			14'7"	21/25		1				
15-]				
	RUN 5	•	14'7"- 18'8"	49/47		4				
	}		10 0				bottom of hole	L		
20-]				
20		<u> </u>				-				
				<u> </u>		- ·				
]				
25-		<u> </u>				-				
		+				4				
		-								
		<u> </u>]				
30-			· · · · · · · · · · · · · · · · · · ·		<u> </u>	<u> </u>				
KEY:				1	ARKS:					
Gran Bls/f	ular t Desc.		Cohesive Bls./ft De				auger cuttings. slotted well screen, 010 slot size			
0-4		•		soft	sch 40,	14'9" of	1 1/2" sch 40 pvc solid pipe.	• •		
10 - 3	30 m.dense	e 4	4-8 m	edium 3.			from 8'2" to 18'8".			
30-5 >50	50 dense v. dense	; '	15-30 v.s	Stiff	Bentonit seal.	e pellets	from 8'2" to 6'10", cement surfac	e		
			>30 ha	ard						
		-		۱ <i>,</i>						

•

~ ·

. •

.

NHWS	BACC BO	ORIN	g log			SI	TE		Boring No:		
					Mo	<u>ttolo Sit</u>	e		Sheet: 1	of	1
			·			ymond	<u> </u>		Date: 6/2	28/85	
Boring	Compon	4. A							a Saan Ara	- Nor	+h limit
Forema		•	ninque	gineer	ing,			g Elevation	e Seep Area	<u> </u>	
	ist/Engir					· · · · ·	·······	6/28/85	· · · · · · · · · · · · · · · · · · ·	to: 6/2	0/05
Geolog				legan		Start	Ing Date:		Indwater Read		0/03 ·
Type s	SAN ee MO-2I	1PLE	R					Depth to Wa	ter Ref. Pt.	 	Stabilization
Hamme	er Wt.							2'6'' 2'9 ¹ 5''	TOC TOC	15:	the second s
Fall					-			·			
	Cooine	SA	MPLE		-		3"	steel pr	otective ca 15" PV	ising —	-
Depth	Casing BI/ft.	No.	Depth	Pen/f	Rovy	Blows/6"	LOG		Description ·	/C	Construction
							6-1	organic	topsoil		
		 				· · · · · · · · · · · · · · · · · · ·			lark grey fi		
									sand, trace medium to	e silt	
5-									se sand		
		1		<u> </u>				- -			
		<u> </u>						wet tan	very fine	sand	
			<u> </u>	<u> </u>	_						
10-								bottom	of hole		
		<u> </u>	<u> </u>	ļ		<u> </u>	4				
	<u> </u>	+		┼───			1				
15-								1			
10		<u> </u>	<u> </u>				4				
		<u>}</u>	}			+	1				
20-				l			1				
		}	<u> </u>				4				
	•										
			 				╡、				
25-			<u> </u>				1 .				
				<u> </u>			4			•	
		+	<u> </u>			-	4				
30-		1	t	<u> </u>			1				
KEY:			- <u></u>			ARKS:					
Gran			Cohesive						en, 010 macl	nine sl	ots, 6' o
Bls/f 0-4	t Desc. v. loose		Bls./ft De <2 v.:	esc. soft		1½" PVC s 10 1bs of			s, cement :	sfc. se	al.
4 - 10		2	2-4 sc	oft edium					' to 9'0".		
	50 dense	. 8	3−15 st	iff stiff							
- 00	1. 061136			ard		C-2					

..

. •

.

•

•

٠

•

NHWS	&PCC B	ORIN	G LOG		SI	TE		Boring No:	M0-2I)	
				Ma		Sheet: 1 of					
<u>Mottolo Site</u> Baymond											
Raymond											
Boring Company: Soils Engineering, Inc.Boring Location: Leachate Seep Area											
Foreman: Myron Dominque Ground/Casing Elevation:											
Geologist/Engineer: John Regan Starting Date: 6/26/85 Ending Date: 6/26/85											
SAMPLERGroundwater ReadingsType 1 3/8" Split SpoonDateDepth to WaterRef. Pt.Time/Stabilization											
Hommor Wt 140 1bc $6/28 - 2'4''$ TOC 14										14:55 15:06	
Fall	30 inc	hes					M				
		SA	MPLE	•		<u> </u>	3" steel	protective	 casit		
Depth	Casing Bl/ft.	No.	Depth	Pen/Rcvy	Blows/6"	LOG	-	15" Description	PVC	Construction	
		S-1	0'-2'	24/70	2/3/5/6	1919. U.S. 1976	moist e	rey fine to	,,		
		<u> </u>	<u> </u>					sand, trace			
		-	<u> </u>				······································				
5-							wet tar	n medium to			
J -		5-2	5'-7'	24/24	9/14/14/		. coarse	sand			
			<u> </u>				wet tar	n very fine	sand		
		1	<u> </u>		- <u> </u> .						
10-							<u> </u>				
10	RUN 1	<u> </u>	10'- 12'3"	27/27		GIBIGIENAIE	bedrock	c			
·	RUN 2		12'3"-	30/16					-		
	KON 2	1	15'9"			1	biotite schist and quartz				
15-						1	qua	11 CZ			
	RUN 3	<u> </u>	15'9"- 16'1"	4/9		4					
	RUN 4	-	16'1"-	8/8		-					
		+	16'9"			1					
20-		1				1				X	
		<u> </u>	<u> </u>			4		•			
			<u> </u>					<u> </u>			
		-				1	bottom	of hole			
25-]					
						4.					
	· ·					┥					
		1	1			1					
30-						1					
KEY:			- <u></u> .	RE	MARKS						
Gran			Cohesive		NX coreban used from			", 3" tricon	ne rol	10-D1t	
Bls/1 0-4	ft Desc. v. loose		Bls./ft De <2 v.s					010 slots,	sch 4	0 PVC well	
4 10) loose		2-4 so	ft	screen, 10	5' of $1\frac{1}{2}$	" sch 40 :	solid pipe.		•	
30-5	30 m.dens 50 dense		8−15 st	iff 3. 1	Bentonite	grout f	rom 9' to	12', cemen	t surf	ace seal.	
>50) v. dense			stiff ard	C-3						

۰.

. -

I

.

NHWS	APCC B	ORIN	G LOG			SITE		Boring No: 1	MO-35	
			,	٢	Mottolo S			Sheet 1		1
					Raymond			Date: 6/2	8/85	
				•						
Boring (Company	y:Soi	ls Engi	neering				hate Seep Ar	ea	
Forema	n: Myroi	n Dom					ng Elevatio	n:		
Ģeologi	ist/Engi	neer	John	Regan	Sta	arting Date	e:6/28/85	Ending Da	te: 6/	28/85
_		IPLE				- .		ndwater Read	-	
	1 3/8"					 6/28	Depth to Wa	ater Ref. Pt. TOC	 15:	/Stabilization 10
	er Wt. 14		s	· · · · · · · · · · · · · · · · · · ·		_7/1	3'3"	TOC	15:	30
<u>Fall</u>	30 in									
_	Casing		MPLE		_	-	" steel p	rotective ca 1½" PVC	s1 <u>ng.</u>	
Depth	Bl/ft.	<u>No.</u>	Depth 0'-2'	Pen/Rcv 24/18			1	Description		Construction
		5-2	0 -2	24710				ic layer	.	
						_		rey medium t se sand, tra		
_							silt	se sanu, tra		
5-		S-1	5'-7'	24/24		357.				
			<u> </u>		26					
10-								6 1-1-		
			<u> </u>				BOLLOI	m of hole		
									· ·	
			<u> </u>	 						•
15-		-		· · · · · · · · · · · · · · · · · · ·						•
		•								
			 			·				
			·							•
20-		ļ								
				<u></u>						
			<u></u>							
25-		<u> </u>								
			· · · ·							
·										
30-	I	. <u></u>		<u></u>						
KEY: Grani	ulor		Cohesive		EMARKS: Some sto	nes and o	cobbles fr	om 0'-4'.		
	t Desc.		Bls./ft De		5' of 1 ¹	" machine	e slotted,	010 slots,		
0-4 4-10	v. loose) loose		<2 v.s 2-4 so	soft .	well scr	een, 6' o	of $1\frac{1}{2}$ " sch	40 PVC riso to 3', surfa	r pipe	e. Ment seal
10 - 3	30 m.dens 50 dense	e 4	4−8 m	odium 1 ⁹ *			3' to 10'.			actic scal.
>50		e '	15-30 v.	stiff ard	C-4	-				
			- UU 116		t - 4			· .		-
				•	. •			•		

I

≣

NHWS 8	PCC BC	ORIN	g log			SI	TE	-	Boring No: M	10-3D	
					Mot	tolo Sit	۰. ۵	_	Sheet: 1	of	1
						mond	c	<u>[</u>	Date: 7/1/8	35	
Boring	Company	(: So	ils Eng	ineer			a Locati	on: Leachat	e Seep Are	a	
	n: Myron							ng Elevation:			
<u></u>	st/Engir			egan			ing Date		Ending Dat	e	7/2/85
	SAM			<u> </u>					water Readi		
Type 1	NX Core				_		Date	Depth to Water		-	Stabilization
Hamme	r Wt.				_						
Fall						• •		-			
	Casing	SA	MPLE					B" steel pro	tective ca	ising_	→ <u>[</u>]
Depth	BI/ft.	No.	Depth	Pen/	Rcvy	Blows/6"	LOG	De	scription		Construction
			<u> </u>					organic			
				·					medium to trace silt	coars	e e
								, cunu,			000
5-			· · ·								000
											000
	·										
10-			9'-11'9	" 3:	3/33			bedrock			
רָט								basalt			
	·		<u>11'9"-1</u>	3'	15/9			Dasait			
			13'-13'	2 ¹ 2"	$2\frac{1}{2}/1$						
15-		<u></u>	13'2 ¹ 2"-	 	³ ½/10		4	bottom of	t hole		
		. ^	13'11"		5/2/10		1				
]				
					.		· .				
20-].				
							-				
	·						÷ .				
25-							1				
. 20		<u> </u>					-				
		+					4				
]		,		
30-		<u> </u>	<u>l'</u>				l				
KEY:	1		Эльн албай		1 1	ARKS:		al anti	mnlog 2011	00+04	for MO-39
Granı Bls/fl	ular Desc.		Cohesive Bls./ft De	SC.				ed, soil sa slotted, 0			
0-4				soft	w	ell scree	en and l	4' of 1 ¹ ₂ " s	ch 40 PVC	solid	pipe.
10-3	0 m.dense	э.	4-8 m 8-15 st	edium				from 9' to pack 10' to		ace ce	ement
>50			15-30 v.:	stiff ard	S		rca sand	Pack IV LU			
			>30 ha			C-5					
					•			•			

۰.

E

:

•

NHWS	RACC B	ORIN	g log			SI	TE		Boring No: 1	10-4S	
					Mot	tolo Site	2		Sheet: 1	of	1
						mond		· · · ·	Date: 7/3/85		
	C		ila Enc	1-00-			- 1 +	Bet	ween JB-7 an	d IB-8	
	Company n: Myror			Ineer	ing,		<u> </u>	ng Elevation			<u></u>
	ist/Engi			egan			ing Date	- 1- 1	Ending Date	7/3/	85
Geolog						Start	ing Date		ndwater Readir		·
.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	1 3/8" \$		Spoon		_		Date	Depth to Wa		•	Stabilization
Hamme			lbs.		-						
Fall	30 incl				-						
	Casing		MPLE						rotective ca 1'2" PVC		
Depth	BI/ft.	<u>No.</u>	Depth 0'-2'	Pen/l	<u>Rcvy</u> /11	Blows/6" 1/1/3/7	LOG	d-4	Description		
			0 -2	24	/ ـ ـ ـ	1/1/5//		wet gre	y medium to		
		<u> </u>						COarse	, sand ,	1	
5-								wet gre	y medium san	.d	
5-			<u>5'-6'</u> 6'-7'	24	/24	11/15/31	1	<u></u>			
		<u>s-2</u>	6-7			39		Yest -	ey and tan fi	ne	
								sand			
10-		S-3	9'-11'	24	/16	31/45/33	2	wet grey	glacial til	1	
		5-5			710	35					
							1	bottor	n of hole		
15-							1		۰.	[
		•	<u> </u>		. <u></u>	<u> </u>			-		
	<u> </u>						1				
20-						·					
							-				
							1				
			<u> </u>	<u> </u>			4				
25-		+					4		· .		
						<u> </u>					
30-											
KEY:				<u> </u>	REN	ARKS:	,				
Gran			Cohesive		1. 5	of 1 ¹ 2"	machine	slotted,	010 slots, s 40 solid PVC	sch 40 I nipe.	PVC well
Bls/f 0-4	it Desc. v. loose			soft	2. E	Bentonite	pellet	seal 2' t	o 3'. cement	surfac	ce seal.
4-10 10-3) loose 30 m.dens		2-4 so	ft edium	3. S	ilica san	nd pack	from 3' to	o 10'.		
30-6 >50	50 dense		8−15 st	iff stiff							
				ard _		C-6					
		•			I		•				

•

. .

·

NHWS	APCC BO	ORIN	IG LOG			SI	TE	Boring No: MO-4D
					Mot	tolo Site	5	Sheet 1 of 1
						mond		Date: 7/2/85
Boring	Company	/: So	ils Eng	ineeri	.ng,	Inc •Borin	g Locati	on: Between JB-7 and JB-8
orema	n : Myr	on I	Oominque			Grou	nd/Casir	ng Elevation:
Geologi	ist/Engir	neer	John R	egan	•	Start	ing Date	7/2/85 Ending Date: 7/3/85
Туре	SAN NX Co		R Barrel				Date	Groundwater Readings Depth to Water Ref. Pt. Time/Stabilization
Hamme	er Wt.							
all								
	Casing	SA	MPLE					" steel protective casing
Depth	BI/ft.	No.	Depth	Pen/R	сvу	Blows/6"	LOG	3" steel protective casing
								wet grey medium to 000 coarse sand 0000
5-								wet_grey_medium_sand
								wet grey and tan fine of o sand of o
10-	R UN 1		<u>9'6"-</u> 12'8"	38/	<u>'15</u>			<pre>wet grey medium to coarse sand wet grey medium sand wet grey and tan fine sand wet grey fine to coarse sand, some gravel and silt (glacial till)</pre>
15-	RUN 2	A. A.	14'6" 15'6"	12,	/10		77 8 1781/811/9781	bedrock quartz and biotite schist
20-						· · · · · · · · · · · · · · · · · · ·		bottom of hole
						· · · · · · · · · · · · · · · · · · ·		bottom of note
25-								
30-		1		L		L	<u>i </u>	
0-4 4-10 10-3	t Desc. v. loose loose 0 m.dense 50 dense	9	2-4 so 4-8 me 8-15 sti 15-30 v.s	soft ft edium	1. 2. 3. 4.	Run 1 cor from 13' 2' of 1½" well scre Bentonite	ed boul to 14'6 machin en, 19' pellet	lected for MO-4S. ders, used auger to ground bedrock ", roller bit from 15'6" to 19'6". e slotted, OlO slots, sch 40 PVC of sch 40 PVC solid pipe. seal from 13' to 14'5" surface cem from 14'5" to 18'10".

.

۰.

.

.

NHWS 8	PCC B	DRIN	g log		SI	TE	Boring No: M0-5S
				M	ottolo Si	ta	Sheet 1 of 1
					aymond		Date: 7/8/85
— · · ·	_	6	•• •				
				ineering,			on: Downstream of seeps
Forema			minque				ng Elevation:
Geologi	st/Engir		•	<u>Regan</u>	Start	ing Date	: 7/8/85 Ending Date: 7/8/85
Turne		IPLE				Date	Groundwater Readings Depth to Water Ref. Pt. Time/Stabilization
Hamme	L 3/8" S	<u>40</u> 1					
	30 inche						···
<u>raii</u>			MPLE]	
Dooth	Casing BI/ft.	No.	Depth	Pen/Rcvy	Blows/6"	LOG	3" steel protective casing
Depth	BI/ <u>II.</u>	S-1		24/12	0/1/2/3		
							moist grey fine sand,
5-							, wet brown coarse sand
J			5-6'3" 6'3"-7'	24/24	8/10/10/		
		<u>b-2a</u>	0 3-7		13		wet tan fine and very
				0.0.4	10/00/40		fine sand
10-		5-3	9'-11'	24/24	13/32/48/ 42		
							wet grey silty sand lit- tle gravel (glacial till)
					[
15-		*				1	
		<u>-</u>		<u>.</u>			
20-					ļ	1	
			,			-	
						-	
25-		+			<u> </u>	4	
· ·							
						{	
<u>30-</u> KEY:				BEN	ARKS:	· · · · · · · · · · · · · · · · · · ·	
Gran	lar	C	Cohesive	1.	4'9" of 3	1 1/2" n	nachine slotted, O1O slots, sch 40 PV
Bls/fl 0-4	Desc.		Bls./ft De <2 v.s	sc. soft 2	well scre	een, 6'3	3" of sch 40 PVC solid pipes. c seal from 2'9" to 3'9", cement sur-
4 - 10	loose 0 m.densi	2	2-4 so	ft 2.	face sea		sear from 2 9 to 3 9, cement sur-
	0 dense	. 8	3−15 sti				< from 3'9" to 9'.
- 50	v. uense -			rd	C-8		
				I			

•

i

· · ·

.

.

.

	SPCC B					TE		Boring I Sheet:	1	MO-5D of:	
				Mot	tolo Site		<u>-</u>	Date	<u> </u>	7/4/8	<u>1</u> 5
				Ray	mond						
				ineering,	Inc .Borir	ng Locati	on: Down	stream of	E Se	eps	
Forema	n: Myror	n Dom	inque		Grou	nd/Casir	ng Elevatio	on:			
Geolog	ist/Engir	neer	John	Regan .	Star	ting Date	: 7/4/85	Endin	g Da	te: 7/	5/85
· . 	-	IPLE				_		indwater F		-	
	NX Core	Barr	<u>e1</u>			Date	Depth to W	ater Re	<u>f. Pt.</u> C	Time.	<u>/Stabili</u> 3
Hamme							······		<u> </u>		
Fall										1	
Death	Casing		MPLE		Blows/6"	LOG	steel	protectiv 1½" PV Description	ve c. VC	asing	-+-
Depth	BI/ft.	<u>No.</u>	Depth	Pen/Rcvy	BIOWS/0	LOG					Const
]	moist some	grey fine silt	e s.		
		<u> </u>					<u> </u>				
5-							wet br	own coars	se s	and	223
			· · · · · ·		1			n fine a		erv -	00
				· · · · · · · · · · · · · · · · · · ·]		sand, son			Ŕ
		+	<u> </u>								100
10-		-						ey silty			
	RUN 1		12'6" · 13'1"	7/5				e gravel	(g1	acial fill)	
							bedroc	k			
15-		<u>.</u>	<i>c</i> -		+	-	quartz	i			
		-				-					
			<u> </u>			-	bottom	of hole			1.=
20-						-					
						4					
			·			1					
•						-					
25-						- -					
]					
						1	-				
30-		1				1			_		
KEY: Gran . Bls/f 0-4 4-10	t Desc.		2-4 sc	2. esc. soft 3.	MARKS: 1. 2' of 1½' screen; 1 NX core f 13'1" to	' machin 7' of 1 ⁹ From 12'	e slotted 5" sch 40 6" to 13	l, 010 sl) PVC sol '1", 3" t	ots, id p rico	sch 4 ipe. ne rol	0 PVC
	50 dense	e	B−15 st I5−30 v.	:44	to 17'6". Bentonite surface	e pellet		-			

۰.

· · · · ·

NHWS 8	PCC B	EDRC	OCK WE		G	SI	ΓE		Boring No	: MO-6	_	
					Motto	olo Sit	e		Sheet: 2	of	2	
				-	Raymo				Date: 7/	4/85		
				-	_							
	Compan			ell Com	pany		g Locati		of Randy L	ane		
orema			asker	-		· · · · ·		ng Elevation			- / / /	05
jeologi	st/Engi			Regan	· · ·	Start	ing Date		Ending D		7/4/	85
Гуре (SAN Chips s	/PLE		n			Date	Depth to Wa	idwater Rea	t. Tim		oilization
	drilli						7/4	Flowing	TOC	· 1	4:30	
		SA	MPLE					•		······		
Depth A	dvanceme Time		Depth		/Water B		LOG	<u> </u>	Description		Cor	nstructio
		5-12 5-13	124'-1	27'	ater zo	ne					.	
		<u>5-14</u>	128'-1	<u>B0'</u>		··-		_				
120-								bottom	of hole			
						<u> </u>		•				
			· · · · · · ·									
140-							!					
							-					
	.							•				
160-				+		-						
-00-												
					<u></u>							
					· ·							
180-				<u> </u>								
								,				
				<u> </u>								
2 00-				1								
				1								
2:20			_	[
REMAF	RKS:	<u> </u>						·_ · · · · · · · · ·				

2. Blow test at 124' = 30 gpm3. Blow test at 130' = 20 gpm

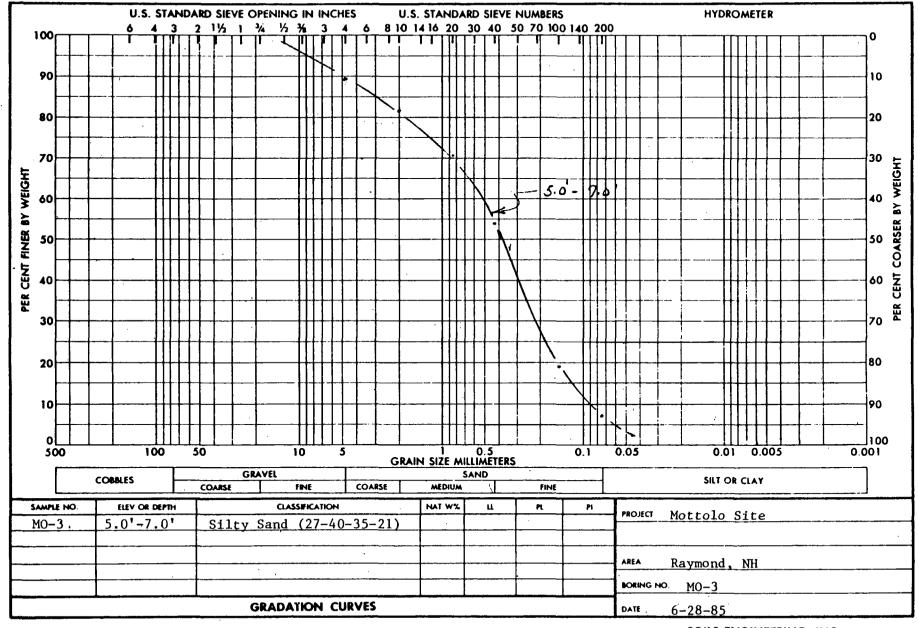
NHWS&PC			LL LOG	SI	TE		Boring	N O: M	10-6		
				Mottolo	Site		Sheet		of	2	
			<u></u>	Raymond			Date:	7/4/8	. 35		
)rilling Com	nanv∈Ta	sker We		ny Borir	na Locati	on: Off	of Randy	/ Lane			
oreman:	Daniel		<u></u>			ng Elevat					
ieologist/E			egan			: 7/4/8		ng Date	- : 7/	4/85	
	SAMPLE		- 8		<u> </u>		undwater			<u> </u>	
	siscreen		L		Date	Depth to		Ref. Pt.	- 	/Stabiliz	ation
dri	lling wa	ter						·			
	SA	MPLE			I						
Advanc Depth Ti	cement me No.	Depth	Fracture/	Nater Bearing?	LOG		Descripti	on		Constr	l uctio
	<u> </u>	1'-3'			$P_{\mathcal{A}}($	Fine s	sand and	silt,	some		
			· · ·			100 1	s (glacia				
						bedroo	ck				
20	5-2	24'-27'			-	Rioti	te schist	-	i	. L	-
	D2			· · · · · · · · · · · · · · · · · · ·		DIOLI		-			I
	<u> </u>	<u>33'-36'</u>		······	4	1 I					[
4.0					-						ļ
4.0											
	6- 4	50'-56'			4				1	 -	
				. <u></u>	4						1
60	S- 5	64'-67'			4					1	
<u> </u>	<u> </u>	04 -07			4						1
		70'-73'									Ì
	S-7	75 '- 78'		<u> </u>	4						
80		80'-82'			1						
		87'-90'									
	<u> </u>	92'-95'			-					1	1
100	S- 9	99'-102	T T		1						1
····) 104'-10	1 ₇ .		4					· .	1
		107'-11		·····.	1					İ	
		1].					Í	i
120	<u> </u>	a 113'-	μ_,	<u> </u>							1

REMARKS

1. Rock chips collected from drilling water using a screen.

2. 20'8" of six inch steel casing with drive shoe installed, 12" of stick-up.

3. Used bentonite slurry drilling through the overburden with tricone rollerbit.

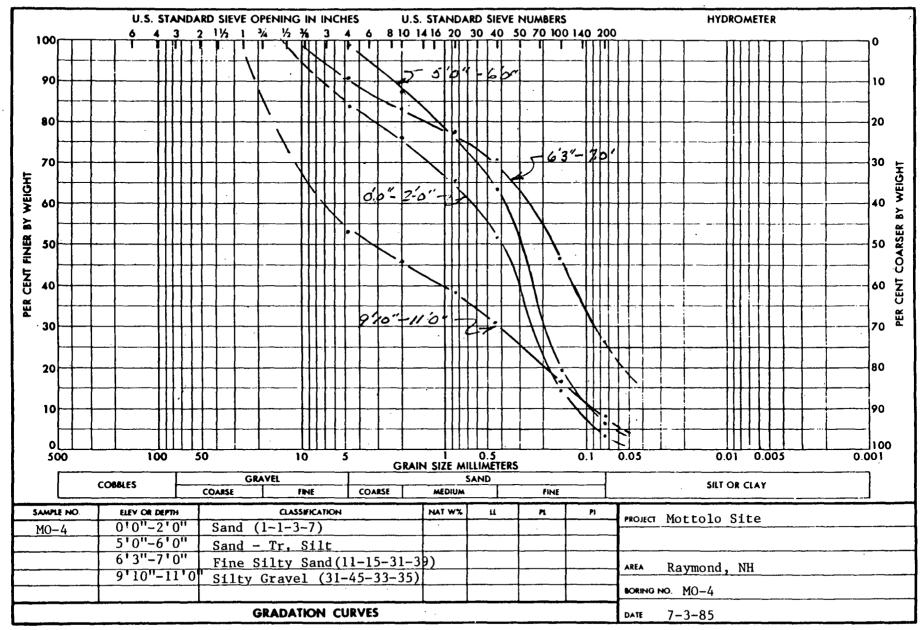


SOILS ENGINEERING, INC. Main Street Charlestown, N. H. 03603 (603) 826-5873

. 7

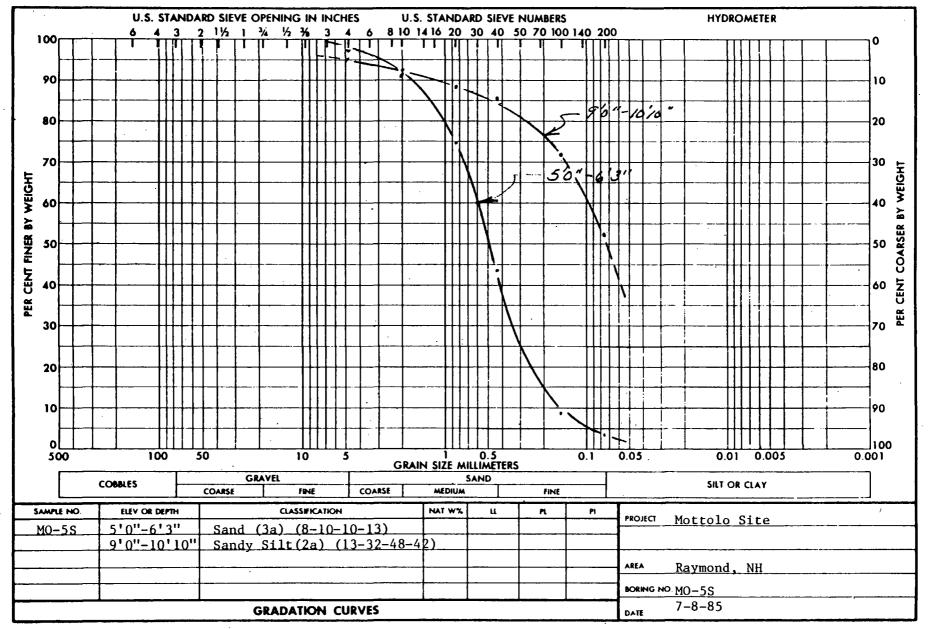
+

C-13



SOILS ENGINEERING, INC. Main Street Charlestown, N. H. 03603 (603) 826-5873

C-14



SOILS ENGINEERING, INC. Main Street Charlestown, N. H. 03603 (603) 826-5873 4

C-15

01

Mottolo Site - Raymond Detailed Description of Bedrock Samples

MO-1 NX Core

<u>Run #1</u> 5.5'-8.7' 34" of recovery

- Fine grained granite, fractures and breakage at 6', intersection of subhorizontal and 45° fractures, both iron stained.
- 6.5' breakage, 45° fracture, along weathered biotite stringer, iron staining on both qtz. and biotite, biotite very weathered. Fracture orientation 50-75°, nearly perpendicular orientation to fracture at 6'.
- 6.75' subhorizontal break, minor iron staining.
- 7' subhorizontal break, minor iron staining, coarser grained qtz., vertical breakage to 7'2".
- 7'2" horizontal break, iron stained, vertical fracture from above continues, but unbroken and cemented to 7'3".
- 7'3" subhorizontal breakage, heavy iron stain smoothed face, possible slickenside, vertical fracture from above continues, less cementing and more iron-rust color from weathering of biotite.
- 7'4" subhorizontal break, iron stain on half of surface.
- 7'4"-7'7" vertical breakage, light iron stain.
- 7'7" horizontal breakage, no iron stain.
- 7'7"-7'9" 2 near vertical intersecting breakages, one stained, one not, ending at subhorizontal break, no iron stain.
- 7'9"-8'7" vertical iron stained, biotite weathered break along fracture ending at horizontal break - no weathering or staining.

Run #2 8'7"-9'11" 20" of recovery.

- 8'7"-8'8" vertical fracture continues to breakage at 8'8", iron stained but biotite not weathered, horizontal break at 8'8".
- 8'8"-9' vertical break continues along weathered and stained fracture to end at horizontal break - light staining, new high angle fracture starts ≃8'10", rough surface, dark staining.
- 9'-9'2" both fractures continue to subhorizontal dark stain and weathered break. Old vertical fracture stops new one, continues on.

9'2"-9'5" dark stain and weak fracture ends at subhorizontal break.

- 9'5"-9'6" core broken into 3 pieces, all with heavy iron stain and weathered biotite.
- 9'6"-9'11" coarse grained granite iron stain surface where pieces are missing from sides of core. Heavy, black stain on high angle fracture beginning at 9'8" continuing to end at clean break.

- 9'11"-10'4" coarse grained granite ending at clean break along biotite zone, no stain or weathering.
- 10'4"-10'10" 45° fracture, stained, slickensided (?), weathered biotite, finer grained granite than above, small garnets in breakage face at 10'11".
- 10'10"-11'2" granite, open fracture at 11'1 1/2" broken open along biotite zone, weathered, iron stained, fractures starts at a 45° angle then changes to horizontal 2/3 of way thru core.
- 11'2"-11'7" iron stained horizontal fracture at beginning, ending in 45° open, weathered and iron stained fracture.
- 11'7"-11'11" Biotite zone, open fractures at 11'9 1/2" and 11'11", stained and weathered, 30⁰ (from horizontal) fracture face at bottom.
- 11'-11"-12'9" fine grained granite ending with 30^o from horizontal iron stained fracture face.
- 12'9"-13'1 1/2" fine grained granite ending with iron and black stained, weathered fracture, 30° from horizontal.
- 13'1 1/2"-13'4" fine grained granite ending with 45° open quartz x-11s, iron stain, ending at 30° from horizontal iron stained fracture.
- 13'4"-13'9" fine grained granite ending with subhorizontal stained fracture.

13'9"-14'1" same as above.

Run #5 14'7"-18'8" Rec 47"

14'1"-14'5 1/2" rough angular break along stained zone, 60^o from horizontal open fracture at 14'2 1/2" partially recemented, ending with 40^o break - no stain.

- 14'5 1/2"-14'9 1/2" coarse grained granite ending with irregular break.
- 14'9 1/2"-16'1/2" fine grained granite with increasing fine grained biotite concentration to depth, ending with 50° angle iron stained fracture completely in biotite zone.
- 16'1/2"-18'3 1/2" fine grained biotite zone, fracture/break at 17'7", no iron stain.

MO-2 NX Core Barrel

- <u>Run #1</u> 10'-12'3", Rec 27"
 - fine grain biotite schist almost gneissic in pattern, 3 equally spaced breaks, no fractures.
- Run #2 Rec 10", 9", 7"
 - fine grained biotite and quartz pieces, 1/2" to 5" in length, all angular in breakage, some with iron staining, coarse grain quartz with rugs, ending in fine grained hornblend (?).

MO-3 NX Core Barrel

- Run #1 Rec 33". 9". 0. 10"
 - basalt, fractured throughout the core, vertical to horizontal fractures, continuous to noncontinuous, iron-like staining and coating, largest intact piece 7 1/2" long, rest are in the l" to 3" range, grades from dark black-grey at top to beige-grey color at bottom of core.

MO-4 NX Core Barrel

Run #1 9'6"-12'8"

9'6"-9'10" fine grained milky quartz with some biotite, hornblend and garnet ending with fracture, 30° from horizontal slightly iron stained.

9'10"-10'1 1/2" same as above ending with horizontal break.

10'1 1/2"-12'8" mscl. fine grained biotite schist pieces ending with a 3" coarse grained milky quartz chunk.

Run #2 14'6"-15'6"

3 pieces of about 8" total of fine grained biotite/quartz mixture, some iron staining on breakage surfaces. -4-

MO-5 NX Core Barrel 12'6"-13'1" 4 pieces, fine to no grain, white to greenish hue quartz, some biotite. MO-6 Drilling Chips depth (ft.) description white to light green, angular coarse chips of quartz, some chlorite, trace amounts garnet. medium to coarse tabular chips of biotite schist, light grey to grey, few qtz. chips, some iron staining on smaller chips. medium size chips, 70% dark biotite schist, 30% qtz. chlorite facing on <10% of chips w/flat (slickensided?) surfaces. white to light green, angular medium chips of gtz. and chlorite, some biotite schist chips. medium size chips, 60% biotite schist, 40% milky qtz. medium size chips, 60% biotite schist, 40% milky to clear qtz. medium to coarse biotite schist chips, iron staining on many of the larger chips (1/2 to 3/4 inch). medium, tabular, biotite schist chips, <5% milky qtz. medium round biotite schist chips, some larger (1/2 inch) tabular chips, no iron staining. fine, 60% milky qtz., 40% biotite schist. 104-107. biotite, qtz., chlorite schist, fine to medium size chips. 107-113 medium to coarse sized biotite schist chips, some tabular chips with iron stained sides, 15% qtz. 113-119 medium to coarse sized biotite schist chips, no iron stains, <5% gtz. 121-129 medium to coarse biotite-chlorite schist, fracture faces with iron staining, <1% milky to pinkish qtz. C-19

24-27

33-36

50-56

64-67

70-73

75-80

80-82

87-90

92-95

99-102

124-127 medium to coarse (>1 inch size chips) of biotite schist, larger chips have chlorite faced slickensided surfaces. Light tan to dark brown-red, large chips of very fine grained material - some of it weathered or altered at the surface. Looks to be a large fracture zone with some secondary mineralization and infilling.

-5-

128-130 medium to coarse biotite schist, some iron staining, <10% qtz.

•		DINO & ASS /GEOHYDROLC	•	MOTTOLO H	ROJECT IAZARDOUS W NEW HAMPSH	
BORING	CO.		/		ORING LOC ROUND ELI	ATION See Location Plan
	SING 2 ¹ / ₂ " 300	ТҮ <u>Ib.</u> на	<u>SAN</u> PEA	MPLER x Core arrel 15	· · · · · · · · · · · · · · · · · · ·	GROUNDWATER READINGS
HL CAS BL JOINT	·	Γ	AMPLE DEPTH	BLOWS/6"	STRTA CHG and GEN DESC	SAMPLE DESCRIPTION
					SAND AND GRAVEL	Brown fine to coarse SAND, and fine to coarse Gravel, some Silt
		,			4.0	- -
5			· · · · · · · · · · · · · · · · · · ·		GLACIAL TILL	Light brown coarse to fine GRAVEL, some fine to coarse Sand, little Silt
15						
20					BEDROCK BIOTITE GNEISS	<pre>Moderately fractured biotite gneiss (1) Packer pressure test (PT-2) attempted from 18'-23'unable to attain seal. (2) Packer pressure test (PT-1) run from 22'-27'. Flow = Flow = 2.2x10⁻⁶cfs at 10 psi (k = 0.2 ft/yr)</pre>
·					27.7	
						Bottom of boring at 27.7.

•

. 1

.

GEC			DINO & ASS		RAYMOND HAZ	ROJECT ARDOUS WAS NEW HAMPS	
FO	RING REMAI	N	R. Smi	ley	G	ROUND EL	CATION <u>See Location Plan</u> EV T5/7/80 DATE END5/7/80
SIZE HAMI FALL	<u>CASII</u> : 2 MER: 3 .: 2	1 <u>2</u> "	<u>ib.</u> HA	PE:Splin	<u>MPLER</u> <u>t spoon</u> отн 40 <u>ь</u> 0"	IER:	GROUNDWATER READINGS DATE DEPTH CASING AT STABILIZATION TIN
рертн	CAS. BL. /FT.	NO.	S PEN/REC.	AMPLE DEPTH	BLOWS/6"	STRTA CHG. and GEN. DESC.	SAMPLE DESCRIPTION
		S-1	18/	0-1.5	1-1-3	FILL 2.0	Brown fine to coarse SAND, some Silt, little Organic Silt, roots, etc. (FILL)
5		S-2	18/	5-6.5	21-33-44	GLACIAL TILL	Gray-brown fine to coarse SAND and coarse to fine GRAVEL, little- Silt, occasional boulders.
10-		<u>C-1</u>	4.2/	8.7-12.9	AX Core		Cored Boulders within Till Matrix.
		C-2	1.2/1,2	12,9-14.1	AX Core	12.9'	Recovery = 100%
15-		C-3	5.0/4.8	14.1-19.1	AX Core	BEDROCK (GNEISS)	Recovery = 96% Very slightly weathered, intact Gneiss with veins of quartzite
20 [.]		<u>C-4</u>	5.0/4.7	19_1-24.1	AX Core	24.1'	Recovery = 94%
25	 		· · · · · · · · · · · · · · · · · · ·				Bottom of boring at 24.1 ft. a) & BarCad 4-2 @ 20.5 ft.
30							b) Tip of 1½" steel wellpoint at 10.0 ft.
RE 2	MARK		15 min	utes at 1	O psi.		co 24.1 feet. Zero flow after
NO	TES: 1) ;	HE STRA	TIFICATION LINES REP	RESENT THE AP	PROXIMATE BOUNDARY THE DRILL HOLES AT	BETWEEN SOIL TY	IS CATTED THE COMPTENENT BE GRADUAL. FR CONDITIONS STATED ON THE BORING LOGS. FLUCTUATIONS IN THE LEVEL T THE TIME MEASUREMENTS WERE MADE.

,†

7

1

BO	ISULTA RING	CO.	GZA		LB	ORING LO	CATION _	See Location P	lan	
FO G-Z	REMÁ -D EN(N Gineë	R <u>C. Lin</u>	idberg	G	ROUND EL	.EV T5/6/	180 DATE END	5/6/80	
IAM	MER:		TY <u>lb.</u> HA FA	'PE:		HER:	DATE 5/7		STABILIZATION	<u></u>
	CAS.			AMPLE		A 0			1	T
DEPTH	BL. /FT.	NO.		·	BLOWS/6"	STRTA CHG. and GEN. DESC.		SAMPLE DESCRI	PTION	
						PEAT 0.5		wn decayed veget anic Silt.	ation mixed	Ţ
.1			· · ·				-			
						4 . 4			、	
2		<u> </u>		<u>}</u>		Silty SAND	Gray find Silt.	e to medium SANE), some	
		<u> </u>				4				
3				 		-				
4										
5				 	·····	5,3'				
						4	Refus	al SAND, GRAV	/EL, SILT	
6							Groundwa	ter observation	well	
		<u> </u>		 			installe 8.1 ft.	d. Total lengt Johnson 1½' 36	h of l놐" pip " steel	e
7				<u> </u>	·····		Stick up	t from 3.0' to = 2.4 ft. Ben	5.7'. tonite	
							surface	seal.		
. 8			÷							
RE	MARK	S:			by jetting examination			l pipe. Sample	description	 S
NO'	TES: 1)	THE STRA WATER LE	TIFICATION LINES REP VEL READINGS HAVI	PRESENT THE AF	PROXIMATE BOUNDARY	BETWEEN SOLL TY	PES AND THE TH	RANSITION MAY BE GRADUAL. ATED ON THE BORING LOGS.		FV

7

FOI	REMA	N				G	ROUND EL	EV.				
	CASI	NG		SAI	MPLER				GRO	UNDWATER R	EADINGS	
¢176-			TY			074	150.	DATE 5/7	<u>рертн</u> 0.75		1 day	<u>.</u> т
					lb.							
		r										
рертн	CAS. BL.		· S	AMPLE	1		STRTA CHG GEN. DESC.		SAMPL	E DESCRIP	TION	
DE	/FT.	NO.	PEN./REC.	DEPTH	BLOWS	′6 "	Resc ³					
							PEAT 0.5'	Decayed Organic	vegeta	tion mixed PEAT.		
1	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>							
					<u> </u>		1			•		
							Silty	Gray an	d brown	fine to m	edium	
2		<u> </u>			 		SAND	SAND, s	ome Silt	t.		
			<u> </u>		<u> </u>							
					<u>}</u>							
3							1					
J	,			ļ	ļ					•		Į
		┠───			<u> </u>							
			<u> </u>		<u> </u>		4.0'					
4							GLACIAL	CAND 0			·····	
		 	ļ		<u> </u>		TILL	SAND, G	RAVEL, a	and SILI ('	very dense)	
_		<u> </u>		<u> </u>			5.0'				•	
5	┝							······	R	efusal		-
6		 	 	 	 							
-		╂]					
		<u> </u>								servation		
7				[pipe =		tal length	14. 21661	
,	 	ļ			<u> </u>			Johnson	1¼" x	36" steel	wellpoint	
-				<u> </u>						Stickup = ace seal.	3.1'	
•	 	<u> </u>	+	<u> </u>				DENLONI	LE SUI L	uce seal.		
8		1										
											<u></u>	
RE	MARK	S:	1. Borina	advanced	by jett	ina	with 3/4"	steel n	ine S	ample desc	riptions	

•

•

.

FO	REMA	N			G	ROUND EL	CATION <u>See Location Plan</u> EV T <u>5/6/80</u> DATE END <u>5/6/80</u>
намі	MER:		TY Ib. HA	MMER	MPLEROTH OTH	IER:	GROUNDWATER READINGS DATE DEPTH CASING AT STABILIZATION 5/7 -0.45 0.W. 1 day (0.45' above G.S.)
РТН	CAS. BL.		S	AMPLE	r	STRTA CHG. GEN. DESC.	SAMPLE DESCRIPTION
	/FT.	NO.	PEN./REC.	DEPTH	BLOWS/6"	E geotia	
	-					PEAT	Dark brown to black PEAT (Decayed vegetation)
1			·			1.0'	
2							
3					······································	SAND and SILT	Gray fine to medium SAND and SILT.
-							
				· · · · · · · · · · · · · · · · · · ·			
5							
5							
_						6.1'.	Fine to coarse SAND, GRAVEL, SILT
6							Refusal
7							Groundwater observation well installed. Total length 1¼" steel
•							pipe = 8.1. Johnson 14" x 36" steel wellpoint 3.4'-6.1'
8							Stickup = 2.0' Bentonite surface seal.
RF	MARK	<u> </u>					
RE	MARK	2.	1. Boring	g advance red from	ed by jettin examination	g with 3/4 of washed	" steel pipe. Sample descriptions

.

• .

.

•

7

во	RING	CO	GZA			BORING LO			Location	Plan	
FOI G-Z	REMA	N Ginee	R <u>C. Li</u>	ndberg	([GROUND EL	.EV5	/6/80	DATE END	5/6/80	
	CASI	NG	· · · · · · · · · · · · · · · · ·	SAI	MPLER		DATE			STABILIZATION	
HAM	/ER:		<u> </u>	MMER	OT <u>Ib</u>	HER:	5/7	0	0.W.	1 day	
PTH	CAS.		S	AMPLE		A Guzzi					
	BL. /.FT.	NO.	PEN./REC.	DEPTH	BLOWS/6"	STRTA CHG. GEN. DESC.		SAMPL	E DESCRIP	TION	
						PEAT 0.5	Dark b	rown PEA	Τ.	—·	
1						-	-				
				•						· .	
						Silty SAND	Gray f	ine SAND	, some Sil	t.	
2			······								
		<u> </u>				3.0					
3						SAND and	Brown fine to coarse SAND, some				
						GRAVEL 4.0	Gravel	•			
4						-	· <u> </u>			·	
		 					Yellow	-brown f	ine SAND a	nd	
5						SAND and	SILT.			•	
						SILT					
6						-					
						6.8'					
7						-		Refusa			
							Groundwater observation well installed. Total length 1½" steel pipe = 8.1. Johnson 1½" x 36"				
8							steel	wellpoir	Johnson 1½" nt 4-6.8' Face seal.	' x 36" Stickup = 1	
RE	MARK	L S: 1	L	<u>advanced</u>	l by jetting	l with 3/4"	steel	oipe. Sa	imple descr	riptions	

FO	REMA	N			G	ROUND EL	EV
НАММ	/ER:		<u>Ib.</u> HA	 PE: MMER	MPLEROTH	IER:	GROUNDWATER READINGS DATE DEPTH CASING AT STABILIZATION T 5/7 0.1 0.W. 1 day
PTH	CAS.		s	AMPLE		A Opz'O	
DEP	BL. /FT.	NO.	PEN./REC.	DEPTH	BLOWS/6"	STRTA CHG and GEN. DESC.	SAMPLE DESCRIPTION
						PEAT	Dark brown PEAT.
1						1.0	
-					· · · · · ·	Silty SAND	Gray fine SAND, some Silt.
2							
- 3			· · · · · · · · · · · · · · · · · · ·			3.0'	
5						TILL	Brown fine to coarse SAND, GRAVEL, SILT (Dense)
4						4.0'	Refusal
			· ·	 			
5-							
6							
7							Groundwater observation well
							installed. Total length 1½" steel pipe = 8.1. Johnson 1½" x 36" steel wellpoint 1.3' - 4.0'
8							Stickup = 4.0' Bentonite surface seal.
	MARK				·		

.

.

	PROJECT	MOT	rolo dump s	SITE		CONCORD, N.H. 03301 603-224-0020
		RAY	MOND, N.H.			HOLE NO. 1
•	DATE STAF	RTED	1/13/	/79	COMPL	ETED 7/13/79 SURF. ELEV.
	GROUNDW	ATER	DRY			JOB NO. 7922
مىر. مەربى	NNO OF BI	Lows	TO DRIVE 2"	SAMPL	.ER 6" W/140 LB	3. WEIGHT FALLING 30"
-	CNO. OF B	LOWS	TO DRIVE		CASING 12" V	W/300 LB. WEIGHT FALLING 24"
						SHEET OF
į	BORING M	ADE	اللاشتين ميناد كشد	V SIE	M AUGER CASI	
	DEPTH	с.	N.	SPL. NO.	SAMPLE DEPTH	DESCRIPTION OF MATERIAL
						Light brown, dry SILT and fine to coarse GRAVEL, COBBLES, trace fine to coarse sand (fill)
•	5.0'		5-9	1	5'-7'	Light brown, dry, medium-dense, fine SAND and SILT, trace fine to medium gravel (clean)
						Top of rock @ 9.0'
_ (10.0		75/0		~	Run #1 9.0' - 11.0' NWL
						Recovery 1.55' - 78% ATF - 4 BIOTITE GNEISS 11.0'
	15.0'				· .	Run #2 11.0' - 16.0' NWL
						Recovery 5.0' - 100% ATF - 5 BIOTITE FELDSPAR GNEISS 16.0'
						Run #3 16.0' - 19.0' NWL
	20.0'					Recovery 3.25' - 108% ATF - 5
			,		· .	BIOTITE FELDSPAR GNEISS 19.0'
					_	BOTTOM OF BORING 19.0'
				+		NOTE: 1. NWL = No water loss
						 ATF = Average time in minutes to drill on²foot of rock
	Į					3. 3' Wellpoint installed in drill
				1		hole with 17' of 14" riscr pipe
,						
-					•	
$\boldsymbol{\zeta}$	1 .			1		
	-		<u> </u>	1		-
		1		1		

C-28

7/16/79

CON-TEC., INC. P.O. BOX 1153 CONCORD, N.H. 03301 603-224-0020

LOCATION RAYMOND, N.H.

£.

PROJECT MOTTOLO DUMP SITE

DATE STARTED 7/13/79 COMPLETED GROUND WATER DEPTH ON COMPLETION - 9.7' HOLE NO. 2 SURF. ELEV.

JOB NO. 7922

C-NO. OF BLOWS TO DRIVE CASING 12" W/300 LB. WEIGHT FALLING 24"

N-NO OF BLOWS TO DRIVE 2" SAMPLER 6" W/140 LB. WEIGHT FALLING 30"

SHEET_1___OF_1___

BORING MADE WITH HOLLOW STEM AUGER CASING

				SPL.	SAMPLE	
	DEPTH	C.	N.	NO.	DEPTH	DESCRIPTION OF MATERIAL
			6-9	1	0-2'	Light brown, dry, medium-dense, fine to coarse
			12-14			SAND and fine to coarse GRAVEL, some silt
				+1		4.0'
	5.0'					CORED COBBLE 5'-5.5'
			100/0	2	5'-5.5'	
						Light brown, wet, very dense, coarse to fine GRAVEL, COBBLES, BOULDERS, some fine to coarse
rr					÷	sand, little silt
	10.0'					
-		ř	<u>17-26</u> 32	3	10'-11.5'	
			<u> </u>			
	15.0'			<u> </u>		
			35-69	4	15'-16.4'	Top of rock @ 16.6'
					-	Drilled into rock with Quarry Bit 15.0'
,			ļ			Run #1 18.0' - 22.0' SIVL
:	20.0'	ŀ				
						Recovery 3.6' - 90% ATF - 4
						BIOTITE GNEISS 22.0'
			<u> </u>	<u> </u>		Run #2 22.0' - 27.0' SWL
	25.0'	<u> </u>		+		Recovery 5.0' - 100% ATF 4-5
•	1				•	BIOTITE GNEISS and green-gray QUARTZ-CHLORITE
			· · · · · · · · · · · · · · · · · · ·	+		PHYLLITE 27.0'
		┝	<u> </u>	+		BOTTOM OF BORING 27.0'
		†		1		NOTE:
			· · · · · · · · · · · · · · · · · · ·			1. SWL = Some water loss @ 21.5*
		 		<u> </u>		2. ATF = Average time in minutes
1.2	1	}	+			to drill one foot of rock
Ľ	· · ·		1	1		3. 3' Wellpoint installed in drill hole with 24.5' of 1'4" riser
			1		1	pipe
			!	<u> </u>	4	
			<u></u>		i	
	<u> </u>	÷				

	•		•		TEST OC						
	•				1531 80			CON-TEC P.O. BOX			
A	PROJECT	MO	TTOLO DUMP	SITE				CONCOR 603-224-0	D, N.H. 03 020	301	
1	LOCATION	RA	YMOND, N.H	•				HOLE NO.	3		
1	DATE STA	RTED	7/1	6/79	COMPL	ETED	7/16/79	SURF. ELE	v.		
ĺ	GROUND	VATER	DRY			.		JOB NO.	7922		
	N-NO OF B	LOWS	TO DRIVE 2"	SAMPL	 ER 6" W/140 LE	B. WEIGHT FALL	LING 30"	•			•
			TO DRIVE				HT FALLING 24				
									OF	<u> </u>	
	BORING	LADE	WITH HOLLO	W STE	AUGER CASI	ING					
-							·				
	DEPTH	с.	N.	SPL. NO.	SAMPLE DEPTH		DESCRIPTION	OF MATERI	AL	•	
			3-6		0-2'	Light brain				C 4 1/D	
ļ			14-21			and SILT,	n, dry, dense little fine (e, fine to to coarse	gravel,	SAND	
	5.0'			$\left[- \right]$		cobbles TOP OF ROCI	•			3.5'	-,
ţ					`	Run #2	3.5' - 8	@	NWL	- 3.5	
2						Recovery			ATF - 4		
((10.0'			+		BIOTITE GNI				8.5'	
						Run #2	8.5' - 1	3.5'	NWL		
				+		Recovery	4.6' - 9	2%	ATF - 5		
1	15.0'	 				BIOTITE GNI	EISS		·	13.5'	.
				+	``	LBOTTOM OF	BORING			13 51	1

÷

	5.0'			<u> </u>		TOP OF ROCK	•	@	3.5'
				+	_	Run ∉2	3.5' - 8.5'	NWL	
						Recovery	5.0' - 100%	ATF - 4	
$\langle (\cdot) \rangle$	10.0'					BIOTITE GNEI	<u>SS</u>		8.5'
			······			Run #2	8.5' - 13.5'	NWL	
	· .					Recovery	4.6' - 92%	ATF - 5	
						BIOTITE GNEI	<u>SS</u>	<u> </u>	13.5'
	15.0'				、	BOTTOM OF BOI	RING		13.5'
						NOTE:			
							= No water loss = Average time t		
						foot	in minutes	o drill one	
		┝──┤					ellpoint install		
						noie	with 9.5' of $1^{1}c$	riser pipe	
		┝╍╼┥		-					
		┣───┤							
						· ·			
				_					
· /·		┝┯┯┥							
Ĺ									
					4				
				1	j				
				1]				

	TE	ST PIT	FIEL	DL	OG			,
GOLDBERG,ZOINO, E ASSOCIATES,INC. GEOTECHNICAL COM		DESCRIPTION	RAYMOND, NE	JS WASTE	<u>SITE</u>		T No. <u>TP</u> <u>A-2761</u> 7/22/80	
GZD ENGINEER	ar, 80 ⁰	EXCAVA CONTRACTOR OPERATOR MAKE1/4	TION EQUIP Marlyn Engir mode 	FI		TIME STAR	EV. 252.3 TED	· · · · · · · · · · · · · · · · · · ·
DEPTH .	SOIL	DESC	RIPTION	1		EXCAV. EFFORT	BOULDER COUNT QTY. CLASS	REMARI No.
I'	Brown fine to Gravel, occas SAND and SILT	ional boulder				D		
— 2' — — 3' —		(Glacial Ti	11)			D		
4 '								
— 5' — — 6' —	BEDROCK	AT 4.3 feet.					· ·	
7'								
8' 9'							· · · · · · · · · · · · · · · · · · ·	
10'								
11'								
13'								
REMARKS:	1. Groundwat 2. Excavatio	er not encou n stopped by	ntered. rock at ⁴ .3	ß ft.				
TEST PIT PL	BOULDER SIZE BANG	COUNT E LETTER ION DESIGNATION A B	SOME (SQ) 2	-) - 10%) - 20%	F - FINE M - MEDIUI C - COARS F/M -FINE F/C - FINE V- VERY GR - GRAY	M TO MEDIUM TO COARSE		RT SY DERATE

	TE	EST PI	T FIEL	DL			··	
GOLDBERG,ZOINC ASSOCIATES,INC GEOTECHNICAL	ONSULTANTS	DESCRIPTIC	PROJECT N <u>HAZARDO</u> RAYMOND, I	DUS WASTI	E <u>SITE</u>	TEST PIT FILE No. DATE	T No. <u>TP</u> <u>A-2671</u> 7/22/80	
GZD ENGINEER WEATHER	ear, 80 ⁰	EXCAV. CONTRACTOR OPERATOR MAKE CAPACITY	MOI	DEL		GROUND ELI TIME START TIME COMP	TED	5
DEPTH	SOIL	DESC	RIPTIO	N		EXCAV. EFFORT	BOULDER COUNT QTY. CLASS.	REMAR No.
— ı' —	Brown fine to (disturbed).	medium SAND	, trace Silt	t		E		
- 2'						E	· · · · · · · · · · · · · · · · · · ·	
- 3'						E		
- 4'						E E		1
- 5' <u>¥</u> 5.2	2 Stratified, o	live brown f	ine SAND and	d SILT.		E		2
- 6 '						E		
- 7'	· · · · · · · · · · · · · · · · · · ·		·····			E		3
- 8	Bedrock	at 7.9 feet						
- 10'								
- 11'								
- 12'					-			
- 13'								
- 14'							·	
REMARKS: 1눌"x30";	2. Jar sampl	er at 5.2 f e obtained er observat teel well po	from 6.3-7.5 ion well ins	ft. for talled i				on
TEST PIT F	BOULDER SIZE RANG	COUNT SE LETTER ION DESIGNATION A B	LITTLE (LI.) SOME (SQ)	<u>D</u> 0 - 10% 10 - 20%	F - FINE M - MEDIUM C - COARS F/M - FINE F/C - FINE V- VERY GR - GRAY	M E TO MEDIUM TO COARSE	LEXCAVA	RT SY DERATE FICULT VATER

C-32

GOLDBERG		DUNNICLIFF &		PROJECT N HAZARDOUS	C MACTE	SITE			No. <u>TF</u> <u>A-2761</u>	
	•	NSULTANTS	DESCRIPTIO LOCATION	RAYMOND, NEW				.E NO. TE	7/22/80	
		C lindhong		TION EQUIPM Marlyn Engine					v. <u>248.2</u>	
GZD ENGI WEATHER		C. Lindberg	OPERATOR					E START		
WEATHER			MAKE	CUINT REACH		ft	TIM	E COMPL	ETED	
DEPTH		SOII	_ DESC	RIPTION				EXCAV. EFFORT	BOULDER COUNT	REMARK No.
	0.9'	Brown fine to	coarse SAND	and GRAVEL, th	race Si	lt.				
		· ·						D		
_ 3'		Brown fine to			ittle	·		D		
a'		Silt, boulders	(GLACIAL TI	LL)				ם		
5 '	▼ 5.1'							D		1
6'	= 6.2'							D		
	0.2	Bottom	of explorati	on at 6.2 ft.						2
8'										
e										<u> </u>
- 10'										
12'										
		1. Groundwate	n flouing in	to hole at 5.	1 <i>f</i> +	·				
REMAR	KS:	2. Excavation	stopped by	large boulder	s or be	edrock	at 6	5.2 ft.		
TEST P	IT PL	AN LEGENO):):	PROPORTIC	<u>NS</u>	ABBRE		TIONS	EXCAVA	TION
	7777	BOULDER		USED	1	F - FINE M - MEDIL			EFFC	
		SIZE RANG CLASSIFICAT 6"-18"	ION DESIGNATION	TRACE (TR.) 0		C - COAR F/M - FINI	е то	COADCE	M MC D DI	DERATE FFICULT
) 1 TH	6 -18 18"-36"	A B		- 35%	F/C - FINI V- VERY GR GRA			GROUND	
VOLUME =		_cu.yd. 36" AND LAF	RGER C	AND 35	- 50%	BN - BRO	WN		TIME TO READING	🛃 G.W.L

·

	TE	ST PIT	FIELD L	OG			
GOLDBERG,ZOINO, ASSOCIATES,INC. GEOTECHNICAL CO	i	DESCRIPTION	RAYMOND, NEW HAM	<u>TE SITE</u> PSHIRE	FILE No. DATE	No. <u>TP</u> <u>A-2761</u> 7/22/80	
GZD ENGINEER _ WEATHER	ar, 80 ⁰	EXCAVAL CONTRACTORM OPERATOR MAKE1/4	ION EQUIPMENT arlyn Engineerin MODEL REACH		GROUND ELI TIME START TIME COMPL		
DEPTH	SOIL	DESCF	IPTION		EXCAV. EFFORT	BOULDER COUNT QTY. CLASS	REMAR No.
	Brown fine to little Silt.	coarse SAND ar	d GRAVEL, some b	oulders,			
	Brown medium t boulders.	o coarse SAND	and GRAVEL, litt	le Silt,	D		
4'	Gray medium to little Silt (and GRAVEL, some	boulders,			
— 6' — — 7' — ▼7.0 7.6'					¥		1
8'	Bottom of	exploration a	t 7.6' (Refusal)				
9' 10'							
11'							
13'			·			· · · · · · · · · · · · · · · · · · ·	
14'							
REMARKS	 Groundwate Excavation 	er flowing int stopped by l	o hole at 7.0 ft arge boulders or	rock at 3	7.6 ft.		
TEST PIT PL	BOULDER SIZE RANG	COUNT E LETTER ON DESIGNATION B	PROPORTIONS USED RACE (TR.) 0 - 10% LITTLE (LI.) 10 - 20% SOME (SQ.) 20-35% AND 35-50%	F - FINE M - MEDIUI G - COARS F/M - FINE F/C - FINE V - VERY GR - GRAY	M E TO MEDIUM TO COARSE	D DIF	RT SY DERAT

GOLDBERG		DUNNICLIFF &	DESCRIPTIO		T IOUS WAST	FSITE			Г No. <u>ТР</u> А-2761	-5
	•	NSULTANTS	LOCATION .	RAYMOND,			FILE No. A-2761 DATE 7/22/80			
GZD ENG WEATHEF		C. Lindberg ear, 80 ⁰	EXCAVA CONTRACTOR OPERATOR MAKE1/2	TION EOU Mariyn Eng cuyd Re			TIN	OUND ELI ME START ME COMPL		I
DEPTH		SOII	DESC					EXCAV. EFFORT	BOULDER COUNT	REMA
- 0	0.6'	Dark brown fin	e to medium S	AND, littl	e Silt -	(TOPSOII)	E		
— I' —	2.1'	Brown fine to	medium SAND,	some Silt.				D		
3'	4.3'	Brown fine to occasional bou			, little	Silt,				
5'	5.6'	Rust brown fir Silt, some bou	e to coarse S Iders (GLACI/	SAND and GI	RAVEL, 1	ittle				
— 6' — — 7' —	7.3'	Brown fine to some boulders			, little	Silt,		¥		1
o'		Bottom c	of Exploration	n at 7.3 f	t	<u> </u>				2
U			·						-	
- 9						·				
- 10'										
11'	2									<u> </u>
- 12'										
13										
14'				*				<u> </u>		<u> </u>
REMAR	KS:	1. Groundwate 2. Excavation	er not encoun n stopped by	large boul	ders or	bedrock	at	7.3 ft.		
		BOULDER SIZE RANG	COUNT GE LETTER TON DESIGNATION A B	PROPOR USE TRACE (TR.) LITTLE (LI.) SOME (SQ) AND	D 0 - 10% 10 - 20%	F - FINE M - MEDIL C - COAR F/M -FINI F/C - FINI V- VERY GR GRA	JM SE E TO E TO Y WN	MEDIUM COARSE	D-DIF	RT SY DERA

ſ,

		٦	rest	PIT	FIEL	D	LOG				
ASSOCIATE	S, INC.	DUNNICLIFF &	DESC		PROJEC HAZARD		STE SITE	Į	ST PI	Τ No Λ-2761	2-6
GEOTECHNI	CAL CO	NSULTANTS	LOCA	TION	RAYMOND,	NEW HAI	MPSHIRE	DAT	ΓΕ	7/22/80	
ZD ENGI VEATHER		C. Lindberg ar, 80 ⁰	E CONTRA OPERATI MAKE CAPACIT	OR	ION EOUI arlyn Eng Guyd RE	DEL	T ng 15ft_	TIME	UND ELI E START E COMPL	TED	
EPTH		SC	DIL D	ESCF	RIPTIO	N			EXCAV.	BOULDER COUNT QTY. CLASS.	REMA No
- 0	0.4'	Dark brown f	ine to m	edium SA	ND, littl	e Silt	-(TOPSOI	[.]	1		
- 1' - 2'	2.8'	Brown fine t some boulder		SAND an	d GRAVEL,	little	e Silt,				· · · · ·
- 3' - 4'	•	Gray-brown f	fine to c	oarse SA	ND and G	RAVEL,	little				
- 5'		Silt, occasi	ional cob	bles (G	LACIAL TI	LL).			D		3
- 7'								-			
- 9'	9.6'								¥		
- 10'	9.0	Bottom	of explo	oration a	t 9.6 ft.	(Refu	sal)				1 2
- 11'			·	•							
- 12'											
- 14'											
REMAR	KS:	2. Excavat	ater not ion stopp olyethyle	bed by la	ered. rge bould pipes er	lers or acounte	bedrock ered at 4	at 9 .1 ft	.6 ft.	, .	- -
TEST F		BOULD SIZE B	ER COUN ANGE LI CATION DES 8" 36"	ETTER IGNATION	PROPORT USE RACE (TR.) ITTLE (LI.) SOME (SQ)	D 0 - 109 10 - 209	F - FINE M- MEDI C - COAF F/M - FIN 6 F/C - FIN 7 V- VERY 6 GR - GR	UM RSE IE TO IE TO XY	MEDIUM COARSE		NSY DERAT

	TE	ST PIT	FIELD	LO	G			
GOLDBERG,ZOINO, ASSOCIATES,INC. GEOTECHNICAL CO		DESCRIPTION	PROJECT HAZARDOUS		<u>SITE</u> Fil		T No. <u>TP</u> <u>A-2761</u> 7/23/80	
GZD ENGINEER _ WEATHER	ar, 80 ⁰		ION EQUIPM larlyn Engine MODEL REACH	ENT	GRO	OUND EL	ev258.	
DЕРТН	SOIL	DESCR	RIPTION			EXCAV. EFFORT	BOULDER COUNT QTY. CLASS	REMAR No.
	Dark brown grad Silt,(TOPSOIL/	ding to yello SUBSOIL.)	w-brown fine	SAND, 1	ittle	E		
- 2						D		
4'	Boulders in a Gravel matrix.		coarse SAND	, some				
— 5' — 5.9'			. <u></u>					
— 7' —	Gray fine to m Gravel, boulde			little				
8'	- - -					¥		
<u> </u>	Bottom of	exploration	at 9.5 ft. (Refusal))	 		
- 11'								
- 13'								
14'								
REMARKS		er not encount n stopped by 1		's or be	drock at	9.5 ft	•	
TEST PIT PL	BOULDER SIZE BANG	COUNT E LETTER ION DESIGNATION A B	<u>PROPORTIC</u> <u>USED</u> TRACE (TR.) O LITTLE (LI.) IO SOME (SQ) 20 AND 35	- 10% F - 20% F - 35% C - 50% E	BBREVIA - FINE - MEDIUM - COARSE - M-FINE TO - C - FINE TO - VERY SR - GRAY NN - BROWN (EL YELLO	MEDIUM		RT SY DERATE

GOLDBERG		DUNNICLIFF &		PROJE					T No. <u>TP</u> A-2761	- 8
	•	NSULTANTS	DESCRIPTI		RDOUS WAS			E No.	7/23/80	
			LOCATION	ATION EQ Marlyn E			DA1		045	
			CONTRACTOR	Marlyn E	ngineerin	g		UND ELI E STAR'	L V	
WEATHER	R	ar, 80°	MAKE		MODEL	5 <u>ft</u>	TIM	E COMP	ETED	
DEPTH			DES				1	EXCAV.	BOULDER COUNT QTY. CLASS.	REMA No.
	0.3'	Dark brown fin	e SAND, lit	tle Silt,	roots etc	. (TOPSO)		Å		
I'		Yellow-brown f	ing SAND 1	i++10 5il+		1)	┢			┼──
2'		Terrow-brown r	ine sand, i		. (300301	L <i>• ;</i>	Ļ	E		ļ
	2.5'				·	<u></u>	<u> </u>			
- 3 -		Light brown fi	ne to mediu	m SAND, ti	ace silt.		F			+
4'	4.0'									
								D		
5		Gray fine SAND					Γ	1		
6		medium to coar (GLACIAL TILL)		in cobbles	and bould	lers	ł			+
- 7'										ļ
8'							ŀ		1	<u> </u>
- 9'							┝			
- 10'	10.0'							Y		
		Bottom d	f explorat	ion at 10,) ft.		·			
<u> </u>							ł	· · ·		+
12'						•	ļ			<u></u>
13'			•				f			+
14'					•		ŀ		}	
14'	KS: 1	. Groundwater	not encount	ered.			ł		<u> </u>	<u>+</u>
- - - -		2. Excavation s	topped by 1	arge bould	iers or be	edrock at	10.	0 ft.		
TEST	PIT PL	AN LEGEND	<u>.</u> .	PROPO	RTIONS	ABBRE	VIA	TIONS	EXCAVA	TIO
<u> </u>		BOULDER	COUNT		ED	F - FINE			EFFO	
		SIZE RANG	E LETTER	יאנ	R.) 0 - 10%	C - COAR	SE	MEDIUM		DERA'
1 (<u> </u>	6 " - t 8"	A	LITTLE (L	1.) 10 - 20%	F/C - FINE			GROUND	FFICUL WATE
	RTH	18"-36"	B GER C	SOME (SO	20-35% 35-50%	GR GRA			ELAPSED	₹⁄ G.¥
VOLUME	=	_cu.yd. 56 AND LAR	GER C	1 -110		YEL YE		u .	(HRS.)	¥_ ``

GOLDBER	G,ZOINO.	DUNNICLIFF &		PROJEC	T		TEST	PIT	T NO. TP	- 9
ASSOCIAT	ES,INC.	-	DESCRIPTIC	ON HAZAR	DOUS WAS	<u>TE SITE</u>	FILE	No.	<u>A-2761</u>	
GEOTECH		NSULTANTS	LOCATION	RAYMOND,	NEW HAM	PSHIRE	DATE		7/23/8	0
GZD ENG	INEER	C. Lindberg	EXCAV	ATION EOU Marlyn En	IPMENT	g	GROUN	DELI	ev253.	3'
WEATHER			OPERATOR				TIME			
			CAPACITY _1/			5 ft	TIME			
DEPTH			DESC			<u></u>		CAV.	BOULDER COUNT QTY CLASS	REMANO
,	0.6'	Dark brown fin	e SAND, litt	tle Silt -(TOPSOIL.)	,	▲		
— r —		Brown fine to a	medium SAND	trace Sil	t occas	ional		M		1
— 2' —		boulders.		, crace shi	t, occas			1		╂───
					-					
	3.7'		·							
- 4'							·			╂
— 5' —		Brown fine to Silt, few boul	nedium SAND ders. (Glac	, some Grav Sial Till)	el, litt	le	-	D		
- 6'										
7'								<u></u>	 	
8'	V				,			Y		1
9'	(S-1) = (W-1)	Bedr	ock at 8.4 1	 ft,						2 3
•					•					
- 10'						-		~ 		+
— II' —										
								·		
12										1
13'							-			╂
····· (4 '										
	L	L								
REMAF	(KS:	 Soil and g Irregular 	r flowing in roundwater s bedrock sur d_of_pit_to	samples obt face encoun	ained fo itered.	or organi Depth to	rock	r an rang	alysis. Jes from 7	7.2
TEST	PIT PL			PROPOR				ONS	EXCAVA	TIO
<u> </u>		BOULDER		USI		F - FINE			EFFO	
		SIZE RANG CLASSIFICAT	E LETTER	NTRACE (TR.)	0 - 10%	M - MEDI	UM RSE IE TO ME	אי ווסי		DOERA
1 1 (C	6"-18"	•		10 - 20%	F/C-FIN	ie to co	ARSE	GROUND	FFICU WATE
	RTH	18"-36"	GER C	SOME (SQ)	20-35% 35-50%	' GR GR/	AY .		EL APSED	₹⁄ G.¥
VOLUME	=	_cu.yd.		•	/0	YEL - Y			(HRS)	-

ľ.

	TE	ST PIT	FIELD	LOG	,			
GOLDBERG,ZOINO, ASSOCIATES,INC. GEOTECHNICAL CO		DESCRIPTION	PROJECT N HAZARDOUS RAYMOND, NEW	WASTE SITE	FIL	ET PI	T No. <u>TP</u> A-2Z61 7/23/80	
GZD ENGINEER	ear, 80 ⁰	EXCAVA CONTRACTOR OPERATOR MAKE1/4	TION EQUIPM Marlyn Engine MODEL			OUND EL AE STAR	TED	2.6'
DEPTH			RIPTION		<u> </u>	EXCAV. EFFORT	BOULDER COUNT	REM
00.5'	Dark brown fin	e SAND, littl	e Silt, roots	s, etc. (TOP	SOIL)			
	Boulders (1-4 medium SAND, 1	ft. in diamet ittle Gravel.	cer) in a ligh trace Silt n	nt brown fin natrix.	e to	D		
						*		
	Bottom o	f exploration	1 at 3.5 ft.	•				+
5'								+
- 6'		• .					 	+
								<u>} -</u>
— 8 — — 9' —								
- 10'								
II'			•					
- 12'								+
								+
14'							<u> </u>	┥
REMARKS	 Groundwate Excavation 	r not encoun stopped by	tered. Large boulder	s at 3.5 ft	•			
TEST PIT P	BOULDER		PROPORTIO USED TRACE (TR.) O LITTLE (LI.) IO SOME (SQ) 20	F - FIN M - MEI - 10% C - COJ F/M - F - 20% F/C - F	E DIUM ARSE INE TO INE TO	MEDIUM) RT ASY DDER

,

GOLDBERG,ZOINO, DUNNICLIFF & ASSOCIATES,INC. PROJECT TEST PIT No. <u>TP-</u> GEOTECHNICAL CONSULTANTS DESCRIPTION <u>HAZARDOUS WASTE SITE</u> DESCRIPTION <u>AAVMOND, NEW HAMPSHIRE</u> DATE	•
WEATHER Clear, 80° OPERATOR Time started MAKE Image: Complete transmission of the started o	<u>10A</u>
DEPTH SOIL DESCRIPTION EXCAV EFFORT count oty class 0 0.7' Dark brown fine SAND, little Silt, roots, etc.(TOPSOIL) 0 -1'- -1'- Broulders (1' to 4' (+) in diameter) in a light brown fine to medium SAND, little Gravel, trace Silt 0 -3'- -4'- 4.4' 0 -5'- Bottom of exploration at 4.4 ft. 0 -7'- -8'- 0 0 -9'- 0 0 0	<u>6'</u>
0.7' Dark brown fine SAND, little Silt, roots, etc.(TOPSOIL) -1' Broulders (1' to 4' (+) in diameter) in a light brown fine to medium SAND, little Gravel, trace Silt -3'	REMAR No.
-2' brown fine to medium SAND, little Gravel, trace Silt -3'	
- 5' Bottom of exploration at 4.4 ft. - 6' - - 7' - - 8' - - 9' -	
-5	3
	3
10'	
- 12'	
- 13'	
REMARKS: 1. Groundwater not encountered.	
2. Excavation stopped by large boulders or bedrock at 4.4 ft.	
TEST PIT PLAN LEGEND: PROPORTIONS ABBREVIATIONS EXCAVA	
BOULDER COUNT USED F-FINE EFFO SIZE RANGE LETTER TRACE (TR.) 0 - 10% C-COARSE CLASSIFICATION DESIGNATION TRACE (TR.) 0 - 10% C-COARSE	
6"-18" A LITTLE (LI.) 10 - 20% F/C - FINE TO COARSE GROUNDW	FICULT
	7 G.W.L

.

GEOTECHN	ES, INC. NCAL CON	DUNNICLIFF & ISULTANTS C. Lindberg Ir, 80 ⁰ SOIL Miscellaneous Brown fine to Dark brown fin	LOCAT E) CONTRACT OPERATOF MAKE CAPACITY DE FILL.		RAYMOND, NE ION EQUIP ariyn Engir cuyd REAC RIPTION	L	TE FIL E DA GRC TIN SL TIN	E NO. TE DUND ELI RE START RE COMPL EXCAV. EXCAV.	ED	O'
WEATHER DEPTH	0.8 0.8	r, 80 ⁰ SOIL Miscellaneous Brown fine to	CAPACITY FILL.	* 	GUYE MODE REAC	L	TIN	E START	ETED BOULDER COUNT	REMA No.
	3.7'	Miscellaneous Brown fine to	FILL.			<u> </u>		EFFORT		
l' 2' 3' 3' 5' 6'	3.7'	Brown fine to		SAND an	d BOULDERS	. (FILL).		. M		
		•	medium	SAND an	d BOULDERS	(FILL).				
3' 5' 6'		Dark brown fin								<u> </u>
4' 5' 6'	4.1'	Dark brown fin						¥		
5' 6' 7'			ne SAND,	some S	ilt, Organ	ics (OLD T	OPSOIL)			╂───
7'		Brown fine to	medium	SAND, f	ew boulder:	5.		M 		
i · •	7.3'							¥		.
9' —	0.71	Brown fine to occasional bou				, some Silt		P		
10'	9.7'	Bottom of ex	colorati	ion at 9).7 ft. (Re	fusal)				2
			·							
- 12'										
13'										+
REMAR	KS:	 Groundwate Excavation 				rs or bedro	ock at	9.7 ft		<u> </u>
		AN LEGEND BOULDER SIZE RANG CLASSIFICAT 6"-18" 18"-36" 36" AND LAR	COUNT GE LET TON DESIG	TTER SNATION T A L B S		F - F M - N - 10% C - C F/M - 20% F/C - 35% V - V GR -		MEDIUM		NRT SY DERAT

•

	TE	EST PIT	FIELD	LOG				
GOLDBERG,ZOI	NO, DUNNICLIFF &	ſ	PROJECT		TE	ST PIT	Г No. <u>ТР</u> А-2761	-12
ASSOCIATES, IN		DESCRIPTIO	N HAZARDOU	S WASTE SITE	FIL	E No.		<u> </u>
GEOTECHNICAL	CONSULTANTS	LOCATION		W HAMPSHIRE	DA	TE	7/23/80	
GZD ENGINEE	RC. Lindberg	EXCAVA	TION EQUIPM Marlyn Engin	eering		OUND ELI		.1'
WEATHER		OPERATOR	MODE			AE START AE COMPL		
		CAPACITY _1/					BOULDER	
DEPTH	SOI	L DESC	RIPTION			EXCAV. EFFORT	COUNT QTY. CLASS.	REMARK No.
I'	Brown fine to and boulders 8'		some Gravel,	with cobbles	and			<u>.</u>
- 2'			·	<u></u>				
- 3'	Gray fine to c Gravel, little (GLACIAL TILL)	- Silt with (
4'		•						•
- 5'				·				
- 6 '	7'							
7'		Bedrock su	urface .			L		1
- 8'	· .	5	• N		8.2'			2
- 9'		•						
- 10'								
- 11'								
- 12'								
- 13'								
_ 10'								
			· · · · · · · · · · · · · · · · · · ·					
REMARKS	Bedrock su		tered. to the north at north end.		of	6.7 ft	. at sout	h
TEST PIT	PLAN LEGENI	<u>):</u>	PROPORTIO	ONS LABBR	EVIA	TIONS	EXCAVA	TION
<u>↓</u> <u>←</u> 12 _	BOULDER	COUNT	USED	F - FINE	1114		EFFO	
3	SIZE RAN CLASSIFICAT	GE LETTER		- 10% C - COAF	RSE			DERATE
T O	6"-18"	A	LITTLE (LI.) 10	- 20% F/C - FIN	E TO		GROUNDY	FICULT
NORTH	18"-36		•	- 35% V- VERY GR GRA - 50% BN BRC	AY .		ELAPSED	7 G.W.L
VOLUME =	CU. yd. 36" AND LAI	RGER C		- 50 % T BN BRC YEL Y		W	(HRS.)	

•

Summary of Residential Well Data Mottolo Site, Raymond, New Hampshire

			•	•
Lot No.	Address	<u>Well Type</u>	Depth <u>(Feet)</u>	Yield <u>(gpm)</u>
52-1	10 Blueberry Hill Road	Bedrock	125	unk.
52-2	12 Blueberry Hill Road	Bedrock	117	unk.
52-3	14 Blueberry Hill Road	Bedrock	200-225	unk.
52-4	16 Blueberry Hill Road	Bedrock	175	7-8
52-5	18 Blueberry Hill Road	Bedrock	unk.	unk.
52-6	20 Blueberry Hill Road	Bedrock	90	6
52-7	22 Blueberry Hill Road	Bedrock	unk.	low
52-8	24 Blueberry Hill Road	Bedrock	NA	NA
52-9	26 Blueberry Hill Road	Bedrock	125	unk.
52-10	40 Blueberry Hill Road	Bedrock	unk.	unk.
52-11	42 Blueberry Hill Road	Bedrock	160	15
52-13	44 Blueberry Hill Road	Bedrock	unk.	unk.
52-15	Monitoring Well MO-6	Bedrock	130	20-30
52-16	No Well on Lot			
52-17	No Well - house under const	truction		
52-18	No Well - house under cons	truction		
52-19	No Well - house under const	truction		
52-20	No Well - house under const	truction		
52-21	No Well on Lot			
52-22	5 Huckleberry Road	Bedrock	136	5
52-23	No information on the well			
52-24	6 Huckleberry Road	Bedrock	162	8

C-44

Summary of Residential Well Data (continued)

Lot No.	Address	Well Type	Depth <u>(Feet)</u>	Yield <u>(gpm)</u>
52-25	No Well - house under cons	struction		
52-26	8 Huckleberry Road - no We	ell information		
52-27	10 Huckleberry Road	Bedrock	250	unk.
52-28	No Well - hoùse under cons	struction	· .	
52-29	Huckleberry Road - no Well	linformation		
52-30	No Well on Lot			
52-31	Huckleberry Road	Bedrock	300	2.5
52-32	16 Huckleberry Road - no W	lell information		
52-40	No Well - house under cons	struction		
52-41	18 Jennifer Lane	Bedrock	263	unk.
52-42	House under construction			
52-43	22 Jennifer Láne	Bedrock	180	6
52-44	House under construction			
52-45	Huckleberry Road	Bedrock	120	10
52-46	5 Jennifer Lane	Bedrock	300	4
52-47	Jennifer Lane	Bedrock	240	10
52-48	9 Jennifer Lane	Bedrock	250	12
52-49	Jennifer Lane	Bedrock	220	8
52-50	6 Jennifer Lane	Bedrock	140	30
52-51	8 Jennifer Lane	Bedrock	240	10
52-52	10 Jennifer Lane	Bedrock	260	16
52-53	1 Peach Tree Ct.	Bedrock	200	5

C-45

Summary of Residential Well Data (continued)

<u>Lot No.</u>	Address	Well Type	Depth <u>(Feet)</u>	Yield <u>(gpm)</u>
52-54	3 Peach Tree Ct.	Bedrock	250	50
52-55	4 Peach Tree Ct.	Bedrock	200	50
3	31 Blueberry Hill Road	Dug Overburden	16	unk.
4	No Well on Lot	· ·		
5	No Well on Lot			
6	No Well on Lot			

Information compiled from residential well inventory, builders records and field notes.

The State of New Hampshire



COMMISSIONERS J. WILLCOX BROWN, Chairman CHARLES'E. BARRY JOHN C. COLLINS, P.E. DELBERT F. DOWNING RUSSELL DUMAIS HERBERT A. FINCHER RICHARD M. FLYNN WILBUR F. LAPAGE JAMES J. PAGE WAYNE L. PATENAUDE DAVID G. SCOTT WILLIAM T. WALLACE., M.D., M.P.H.

WILLIAM A. HEALY, P.E. Executive Director

STAFF

DANIEL COLLINS, P.E. Deputy Executive Director av Chief Engineer

Water Supply and Pollution Control Commission Hazen Drive — P.O. Box 95 Concord, N.H. 03301

March 19, 1985

Dear Homeowner or Resident:

The New Hampshire Water Supply and Pollution Control Commission is conducting a survey of residential wells in the vicinity of the Mottolo waste disposal site located on Blueberry Hill Road. The Commission has sampled many of these wells in the past and will continue to monitor the water quality within the region. To date no contamination has been detected in any of the residential wells.

In order to make the most productive use of the available information we are seeking your assistance as we compile information on area residential wells. The information will help us better understand the hydrogeologic setting and the potential resources which may be at risk (i.e. water supply wells).

Please take some time to locate any written records you may have relating to the drilling or installation of your well. If you do not remember some of the details now, check with others who might have been present at the time of installation. Then answer the items on the enclosed questionnaire as best you can with the information at hand.

Please use the enclosed, self-addressed stamped envelope to return the completed questionnaire. If you have any questions regarding the information requested in the questionnaire, please contact me at 271-3503. Your assistance on this matter is greatly appreciated.

Sincerely,

John M. Regan

John M. Regan Hydrogeologist

JMR/mjh Enclosures

C- 47

RESIDENTIAL WELL SURVEY

Dat	e:	Street Address:	
۱.	Homeowner's	Name:	
2.	Homeowner's	Address:	<u> </u>
	С	ity/Town:	State & Zip:
	Telephon	e Number:	
3.	Your Name (if different):	
5.	Previous Ow	mer's Name:	
6.		your lot on the attached t mate location of your well	tax map for your area and mark with a "w" in a circle.
7.	Well Inform	nation	
		any available records to he nformation.	elp you in providing the
			Depth ft. Depth ft. Depth ft.
	b. Is the If so,	well cased? Screer screen is located between?	ned? ft. and ft.
	c. Year we	ill installed:	
	d. Well in	staller or driller:	
	A	ddress:	
	C	ity/Town:	State & Zip:
	e. Yield o	f well in gallons/minute: _	
	If yiel	d not known, please answer	following:
	Size of	storage tank gal.	
	Has wat	er ever run out or run low?	?
	Docomih	e use (demand) when problem	

C-48

	-2-
	Number of residents adults children Ages of children
	Number and Kinds of Animals
в.	Do you use a water filter, softener, or aerator?
	Describe:
9.	Water Quality
	a. Has your water been analyzed (other than by the State or U. S. EPA)?
	If so, please give dates, results, and laboratories:
	b. Any changes in the taste, odor, or appearance of the water?
	Please describe any changes and when they occurred:
10.	Please mark the approximate location of your septic system leach field on the attached map. Use an "s" in a square to mark the area.
11.	Would you permit your well to be sampled if it was chosen for testin by the NHWS&PCC?
12.	Comments
	·
Ple	ase return to:
	State of New Hampshire Water Supply and Pollution Control Commission Hazen Drive
	P. O. Box 95 Concord New Hampshire 03301
	LODCORD New Hamochiro (1230)

Thank you for your assistance.

APPENDIX D

Water Quality Results

· ·	Page
Hydrochemical Reconnaissance Summary TablesD-1	
NHWS&PCC Data Monitoring WellsD-2 t Summary of Residential Well DataD-73	
GHR/GZA Data Gas Chromatograph/Mass Spectrometer ResultsD-79 Portable Gas Chromatograph ResultsD-94 Inorganic DataD-110	thru D-109

Soil Gas Results - Hydrochemical Reconnaissance Mottolo Site, Raymond

		No VOC Detected	trans- Dichloro- ethylene	cis- Dichloro- ethylene	Trichloro- ethylene	l,l Dichlo- _roethane	l,l,l- Trichloro- ethane	Benzene
M + 10	00	x						
M + 50)	x						
M + 0		x						
M - 11].	x						
M - 22	2		15	11			116	
M - 54	l		1400	6300	70	· A	1800	
M - 66			2	. 22		11	40	
M - 84	l			8	·	6		
M - 10)3							3
M - 15	50	x						
M - 19	7	X						
M - 21	4 - 20	x						
M - 24	14	x						
P + 0		x						
P + 36	ò	x						
P + 73	3	x						
At Wel] R-1			28				
Q + 0		x						
Q + 50)	x						
Q + 10	00	x						
Q + 15	50	x						
Q + 20	00	X						
Q + 25	i0	x						
Q + 30	00	x						
							ι.	

Notes:

D-1

A May be present, but masked by high concentration of trans-dichloroethylene. Results indicative relative concentrations. State of New Hampshire

WATER SUPPLY AND POLLUTION CONTROL COMMISSION HAZARDOUS WASTE AND GROUNDWATER PROTECTION DIVISION Organic Chemical Analysis

SAMPLE NO.:4OWNERS NAME:MOTTOOWNERS ADDRESS:BLUECITY OR TOWNRAYMODATE SAMPLED:08-22PERSON SAMPLING:JOHNDATE SUBMITTED:08-23DATE COMPLETED:08-30

46150 MOTTOLO HAZARDOUS WASTE SITE BLUEBERRY HILL ROAD RAYMOND 08-21-85,11:27 JOHN REGAN 08-23-85,08:22 08-30-85

Comments: MOTTOLO SITE

BROOK A - SA4

Test Name	Result (ug/l)	Test Name	Result (ug/l)
******	*****	******	****
Dichloromethane ND) *	Trichlorofluoromethane	ND
Dichlorobromomethane ND) *		
Tetrachloromethane ND	*	Acetone	ND
Chlorodibromomethane NI) *	Tetrahydrofuran	ND
Chloroethane		Diethyl ether	ND
l,1-Dichloroethane ND		Methyl Ethyl Ketone	ND
1,2-Dichloroethane NI) *	Methyl Isobutyl Keton	ND
1,1,1-Trichloroethane NI) *	1,3-Dichloropropane	ND
1,1,2-Trichloroethane NI		Trichlorotrifluoroeth	ND
Tetrachloroethane NI) *		
l,1-Dichloroethylene NI) *	Tribromomethane	ND
Dichloroethylene (c+t) NI) *	Trichloromethane	ND
Trichloroethylene NI) *	t-1,2-Dichloroethylene	
Tetrachloroethylene NI) *		
1,2-Dichloropropane NI) · *		
1,3-Dichloropropene NI) *		
Benzene NI) *		
Chlorobenzene NI) *		
Dichlorobenzene NI) *		
Ethylbenzene NI) *		
Toluene NI) *		
Xylene, meta isomer NI) *		
Xylenes, (ortho¶) NI) *		
Vinyl chloride	*		
Bromomethane	*		
Chloromethane	*		
ug/l = micrograms per lit		ND = none detected	
> = greater than	*	PR = present	,
<pre>< = less than</pre>	*		
******	*********	*****	******

SAMPLE NO.: 46152 OWNERS NAME: MOTTOLO HAZARDOUS WASTE SITE OWNERS ADDRESS: BLUEBERRY HILL ROAD CITY OR TOWN RAYMOND 08-21-85,11:35 DATE SAMPLED: PERSON SAMPLING: JOHN REGAN DATE SUBMITTED: 08-23-85,08:25 DATE COMPLETED: 10-21-85 .

Comments: MOTTOLO SITE BROOK A - SA3

Test Name	Result (ug/l)	Test Name	Result (ug/l)
• ************************************	*********	*****	****
Dichloromethane N	-	* Trichlorofluoromethane ND	
Dichlorobromomethane N		*	
		* Acetone ND	
Chlorodibromomethane ND		* Tetrahydrofuran	36.0000
Chloroethane		* Diethyl ether ND	
1,1-Dichloroethane N		* Methyl Ethyl Ketone ND	
1,2-Dichloroethane N	D	* Methyl Isobutyl Keton ND	
1,1,1-Trichloroethane N	D	* 1,3-Dichloropropane ND	
1,1,2-Trichloroethane N	D	* Trichlorotrifluoroeth ND	
Tetrachloroethane N	D	*	
l,l-Dichloroethylene N	D	* Tribromomethane ND	
Dichloroethylene (c+t)	7.0000	* Trichloromethane ND	
Trichloroethylene N	D	<pre>* t-1,2-Dichloroethylene</pre>	
Tetrachloroethylene N	D	*	
1,2-Dichloropropane N	D	*	
1,3-Dichloropropene N	D	*	
Benzene N	D	*	
Chlorobenzene N	D	*	
Dichlorobenzene N	D	*	
Ethylbenzene N	D	*	
Toluene N	D	*	
_ Xylene, meta isomer N	D	*	
Xylenes, (ortho¶) N	D	*	
Vinyl chloride		*	
Bromomethane		*	
Chloromethane		*	
ug/l = micrograms per li	ter	* ND = none detected	
> = greater than		* PR = present	
< = less than		*	
*******	*****	*****	****

SAMPLE NO.:46154OWNERS NAME:MOTTOLO HAZARDOUS WASTE SITEOWNERS ADDRESS:BLUEBERRY HILL ROADCITY OR TOWNRAYMONDDATE SAMPLED:08-21-85,11:45PERSON SAMPLING:JOHN REGANDATE SUBMITTED:08-23-85,08:29DATE COMPLETED:09-04-85

Comments: MOTTOLO SITE BROOK A - SA2 REPLICATE

Test Name		Result (ug/l)		Test Name		Result (ug/l)
****	*****	*******	**			*****
Dichloromethane	ND		*	Trichlorofluoromethane	ND	
Dichlorobromomethane	ND		*			
Tetrachloromethane	ND		*	Acetone	ND	
Chlorodibromomethane	ND		*	Tetrahydrofuran		337.2000
Chloroethane			×	Diethyl ether	ND	
1,1-Dichloroethane	ND		*	Methyl Ethyl Ketone	ND	
1,2-Dichloroethane	ND .		*	Methyl Isobutyl Keton	ND	
1,1,1-Trichloroethane	ND			1,3-Dichloropropane	ND	
1,1,2-Trichloroethane	ND	•		Trichlorotrifluoroeth	ND	
Tetrachloroethane	ND		*			
1,1-Dichloroethylene	ND		*	Tribromomethane	ND	
Dichloroethylene (c+t)	ND		*	Trichloromethane	ND	
Trichloroethylene	ND		*	t-1,2-Dichloroethylene		•
Tetrachloroethylene	ND		*	,		
1,2-Dichloropropane	ND		*			
1,3-Dichloropropene	ND		*			
Benzene	ND		*			
Chlorobenzene	ND		*		•	
Dichlorobenzene	ND		*			
Ethylbenzene		14.1000	*			
Toluene		68.5000				
		17.4000				
Xylene, meta isomer		12.1000	÷.			
Xylenes, (ortho¶)		12.1000	Ĵ			
Vinyl chloride			Ĵ			
Bromomethane			Ţ			
Chloromethane			*			
ug/l = micrograms per	liter		.*	ND = none detected		
> = greater than				PR = present		
< = less than			*		•	
	*****	******	• * *	****	*****	****

46156

OWNERS NAME:
OWNERS ADDRESS:
CITY OR TOWN
DATE SAMPLED:
PERSON SAMPLING:
DATE SUBMITTED:
DATE COMPLETED:

SAMPLE NO.:

MOTTOLO HAZARDOUS WASTE SITE BLUEBERRY HILL ROAD RAYMOND 08-21-85,11:55 JOHN REGAN 08-23-85,08:31 09-04-85

Comments: MOTTOLO SITE BROOK A - S-1

Test Name	Result (ug/l)	Test Name	Result (ug/l)
***********************************		<pre>************************************</pre>	**************************************
Chloromethane ug/l = micrograms per lit > = greater than < = less than *********	er ::::::::::::::::::::::::::::::::::::	<pre>* ND = none detected * PR = present * *</pre>	***

SAMPLE NO.:	46142
OWNERS NAME:	MOTTOLO HAZARDOUS WASTE SITE
OWNERS ADDRESS:	BLUEBERRY HILL ROAD
CITY OR TOWN	RAYMOND
DATE SAMPLED:	08-21-85,11:40
PERSON SAMPLING:	JOHN REGAN
DATE SUBMITTED:	08-23-85,08:04
DATE COMPLETED:	08-30-85

Comments: MOTTOLO SITE WELL MO-5S

Test Name		Result (ug/l)		Test Name		Result (ug/l)
****	* * * * *	* * * * * * * * * *	•	* * * * * * * * * * * * * * * * * * * *	******	******
Dichloromethane	ND			Trichlorofluoromethane	ND	
Dichlorobromomethane	ND		*			
Tetrachloromethane	ND		*	Acetone	ND	
Chlorodibromomethane	ND		*	Tetrahydrofuran	ND	
Chloroethane			*	Diethyl ether	ND	
1,1-Dichloroethane	ND		*	Methyl Ethyl Ketone	ND	
1,2-Dichloroethane	ND		*	Methyl Isobutyl Keton	· ND	
1,1,1-Trichloroethane	ND			1,3-Dichloropropane	ND	
1,1,2-Trichloroethane	ND		*	Trichlorotrifluoroeth	ND	
Tetrachloroethane	ND		*			·
1,1-Dichloroethylene	ND		*	Tribromomethane	ND	
Dichloroethylene (c+t)		42.0000	*	Trichloromethane	ND	
Trichloroethylene				t-1,2-Dichloroethylene		
Tetrachloroethylene	ND		*	,,,,,,,,		
1,2-Dichloropropane	ND		*			
1,3-Dichloropropene	ND		*			
Benzene	ND		*			
Chlorobenzene	ND		*			
Dichlorobenzene	ND		*			
Ethylbenzene	ND		*			
Toluene	ND		*			
	ND		4			
Xylene, meta isomer	ND		ĩ			
Xylenes, (ortho¶)	ND		Ţ			
Vinyl chloride			ж 			
Bromomethane			–			
Chloromethane			×			
ug/l = micrograms per > = greater than	lite	 r	 * *	ND = none detected PR = present		
< = less than			*			
*****	* * * *	******	**1	*****	******	*****

SAMPLE NO.: OWNERS NAME: OWNERS ADDRESS: CITY OR TOWN DATE SAMPLED: PERSON SAMPLING: DATE SUBMITTED: DATE COMPLETED: 46144 MOTTOLO HAZARDOUS WASTE SITE BLUEBERRY HILL ROAD RAYMOND 08-21-85,11:45 JOHN REGAN 08-23-85,08:11 08-30-85

Comments: MOTTOLO SITE WELL MO-5D

Test Name	•	Result		Test Name		Result
		(ug/l)				(ug/l)
****	****	********	**:	********	*****	*****
Dichloromethane	ND		*	Trichlorofluoromethane	ND	
Dichlorobromomethane	ND		*			
Tetrachloromethane	ND		*	Acetone	ND	
Chlorodibromomethane	ND		*	restandare		445.0000
Chloroethane				Diethyl ether	ND	
1,1-Dichloroethane	ND			Methyl Ethyl Ketone	ND	
1,2-Dichloroethane	ND		*	Methyl Isobutyl Keton	ND	
1,1,1-Trichloroethane	<	5.0000	*	1,3-Dichloropropane	ND	
1,1,2-Trichloroethane	ND		*	Trichlorotrifluoroeth	ND	
Tetrachloroethane	ND		*			
1,1-Dichloroethylene	ND			Tribromomethane	ND	
Dichloroethylene (c+t)				Trichloromethane	ND	
Trichloroethylene		29.0000	*	t-1,2-Dichloroethylene		
Tetrachloroethylene	ND		*			
1,2-Dichloropropane	ND		*			
1,3-Dichloropropene	ND		*			
Benzene	ND		*	•		
Chlorobenzene	ND		*			
Dichlorobenzene	ND		*			•
Ethylbenzene	ND		×			
Toluene	ND		*			
Xylene, meta isomer	ND		*	•		
Xylenes, (ortho¶)	ND		*			
Vinyl chloride			*			
Bromomethane			*			
Chloromethane			*			
* = = = = = = = = = = = = = = = = = = =						
ug/l = micrograms per	: lit	er	*	ND = none detected		- '
> = greater than			*	PR = present		
< = less than			*			
_ *********	****	*******	* * :	******	*****	*******

SAMPLE NO.:4OWNERS NAME:MOTTOOWNERS ADDRESS:BLUECITY OR TOWNRAYMDATE SAMPLED:08-2PERSON SAMPLING:JOHNDATE SUBMITTED:08-2DATE COMPLETED:08-3

46146 MOTTOLO HAZARDOUS WASTE SITE BLUEBERRY HILL ROAD RAYMOND 08-21-85,12:04 JOHN REGAN 08-23-85,08:14 08-30-85

Comments:

MOTTOLO SITE PIEZOMETER R-8 FIRST TIME SAMPLED

Test Name		Result (ug/l)	Test Name	· ·	Result (ug/l)
*****	* * * * *	******	*****	*****	****
Dichloromethane	ND	*	Trichlorofluoromethane	ND	
Dichlorobromomethane	ND	*			
Tetrachloromethane	ND	*	Acetone	ND	
Chlorodibromomethane	ND	*	Tetrahydrofuran	ND	
Chloroethane			Diethyl ether	ND	
1,1-Dichloroethane	ND		Methyl Ethyl Ketone	ND	
1,2-Dichloroethane	ND	*	Methyl Isobutyl Keton	ND	
1,1,1-Trichloroethane	ND	*	1,3-Dichloropropane	ND	
1,1,2-Trichloroethane	ND	*	Trichlorotrifluoroeth	ND	
Tetrachloroethane	ND	*			
1,1-Dichloroethylene	ND	*	Tribromomethane	ND	
Dichloroethylene (c+t)	ND	*	Trichloromethane	ND	
Trichloroethylene	ND	*	t-1,2-Dichloroethylene		
Tetrachloroethylene	ND	*			
1,2-Dichloropropane	ND	*			
1,3-Dichloropropene	ND	*			
Benzene	ND	*			
Chlorobenzene	ND ·	* *			
Dichlorobenzene	ND	*			
Ethylbenzene	ND.	. *			
Toluene	ND	*			
Xylene, meta isomer	ND	*		•	
Xylenes, (ortho¶)	ND	*			
Vinyl chloride		*			
Bromomethane		*			
Chloromethane		*		-	
ug/l = micrograms per > = greater than < = less than *******		* *	ND = none detected PR = present	*****	****

...

SAMPLE NO.: OWNERS NAME: OWNERS ADDRESS: CITY OR TOWN DATE SAMPLED: PERSON SAMPLING: DATE SUBMITTED: DATE COMPLETED: 46148 MOTTOLO HAZARDOUS WASTE SITE BLUEBERRY HILL ROAD RAYMOND 08-21-85,12:04 JOHN REGAN 08-23-85,08:19 08-30-85

Comments: MOTTOLO SITE

PIEZOMETER R-11 FIRST TIME SAMPLED

Test Name	Result (ug/l)	Test Name	Result (ug/l)		
******	*****	*****	*****		
Dichloromethane	ND	* Trichlorofluoromethane	ND		
Dichlorobromomethane	ND	*			
Tetrachloromethane	ND	* Acetone	ND		
Chlorodibromomethane	ND	* Tetrahydrofuran	ND		
Chloroethane		* Diethyl ether	ND		
1,1-Dichloroethane	ND	* Methyl Ethyl Ketone	ND ·		
1,2-Dichloroethane	ND	* Methyl Isobutyl Keton	ND		
1,1,1-Trichloroethane	ND	* 1,3-Dichloropropane	ND		
1,1,2-Trichloroethane	ND	* Trichlorotrifluoroeth	ND		
Tetrachloroethane	ND .	*			
l,l-Dichloroethylene	ND	* Tribromomethane	ND		
Dichloroethylene (c+t)	ND	* Trichloromethane	ND		
Trichloroethylene	ND	* t-1,2-Dichloroethylene			
Tetrachloroethylene	ND	*			
1,2-Dichloropropane	ND	*			
1,3-Dichloropropene	ND	*			
Benzene	ND	*			
Chlorobenzene	ND	*			
Dichlorobenzene	ND	*			
Ethylbenzene	ND	*			
Toluene	ND	*			
Xylene, meta isomer	ND	*			
Xylenes, (ortho¶)	ND	* ·			
Vinyl chloride		*			
Bromomethane		*			
Chloromethane		*			
ug/l = micrograms per	liter	* ND = none detected			
> = greater than		* PR = present			
<pre>< = less than</pre>	ب ب ب ب ب ب ب ب ب ب ب ب ب ب ب ب ب ب ب	*	یا د. باد. باد. باد. باد. باد. باد. باد.		

SAMPLE NO.: OWNERS NAME: OWNERS ADDRESS: CITY OR TOWN DATE SAMPLED: PERSON SAMPLING: DATE SUBMITTED: 08-23-85,08:36 DATE COMPLETED:

46158 MOTTOLO HAZARDOUS WASTE SITE BLUEBERRY HILL ROAD RAYMOND 08-22-85,14:35 JOHN REGAN 09-04-85

Comments: MOTTOLO SITE WELL MO-1

Test Name	Result (ug/l)	Test Name	Result (ug/l)
**************************************	**************************************	<pre>************************************</pre>	
1,3-Dichloropropene Benzene Chlorobenzene Dichlorobenzene Ethylbenzene Toluene Xylene, meta isomer Xylenes, (ortho¶) Vinyl chloride Bromomethane Chloromethane	ND ND ND ND ND ND ND	* * * * * * *	
<pre>ug/l = micrograms per > = greater than < = less than ************************************</pre>	liter *******	<pre>* ND = none detected * PR = present * **********************************</pre>	* * * * * * * * * * * * * * * *

SAMPLE NO.: 46160 OWNERS NAME: MOTTOLO HAZARDOUS WASTE SITE OWNERS ADDRESS: BLUEBERRY HILL ROAD CITY OR TOWN RAYMOND DATE SAMPLED: 08-22-85,14:15 PERSON SAMPLING: JOHN REGAN DATE SUBMITTED: 08-23-85,08:38 DATE COMPLETED: 09-04-85

Comments: MOTTOLO SITE WELL MO-2D

-

Test Name		Result (ug/l)		Test Name		Result (ug/l)
*****	****	******	* * :	****	*****	*****
Dichloromethane	ND		*	Trichlorofluoromethane	ND	
Dichlorobromomethane	ND		×			
Tetrachloromethane	ND		×	Acetone	ND	
Chlorodibromomethane	ND		*	Tetrahydrofuran		1354.0000
Chloroethane			*	Diethyl ether	ND	
1,1-Dichloroethane		72.1000	*	Methyl Ethyl Ketone	ND	
1,2-Dichloroethane	ND		*	Methyl Isobutyl Keton		21.5000
1,1,1-Trichloroethane	ND		*	1,3-Dichloropropane	ND	
1,1,2-Trichloroethane	ND		*	Trichlorotrifluoroeth	ND	
Tetrachloroethane	ND		*			
1,1-Dichloroethylene	ND		*	Tribromomethane	ND	
Dichloroethylene (c+t)		278.0000	*	Trichloromethane	ND	
Trichloroethylene		19.8000	*	t-1,2-Dichloroethylene		
Tetrachloroethylene	ND		*	· _		
1,2-Dichloropropane	ND		*			
1,3-Dichloropropene	ND		*			
Benzene	ND		*			
Chlorobenzene	ND		*			
Dichlorobenzene	ND		*			
Ethylbenzene	<	5.0000	*			
Toluene	<	5.0000	*	•		
Xylene, meta isomer	ND		*			
Xylenes, (ortho¶)	ND		*			
Vinyl chloride			*			
Bromomethane			*			
Chloromethane			*			
		~~				
ug/l = micrograms per	lite	er	*	ND = none detected		
> = greater than				PR = present		
< = less than			*	F		
_ *******	****	****	* * :	* * * * * * * * * * * * * * * * * * * *	*****	*****

SAMPLE NO.:46162OWNERS NAME:MOTTOLO HAOWNERS ADDRESS:BLUEBERRYCITY OR TOWNRAYMONDDATE SAMPLED:08-22-85,1PERSON SAMPLING:JOHN REGANDATE SUBMITTED:08-23-85,0DATE COMPLETED:09-04-85

MOTTOLO HAZARDOUS WASTE SITE BLUEBERRY HILL ROAD RAYMOND 08-22-85,14:00 JOHN REGAN 08-23-85,08:40 09-04-85

Comments: MOTTOLO SITE WELL MO-2S

Test Name	Result (ug/l)	-	Test Name	Result (ug/l)			
********	*****	***	******	* * * * * * * * * * * * * * * * * *			
Dichloromethane	ND	*	Trichlorofluoromethane	ND			
Dichlorobromomethane	ND	*					
Tetrachloromethane	ND	*	Acetone	ND			
Chlorodibromomethane	ND		Tetrahydrofuran	2389.0000			
Chloroethane			Diethyl ether	ND			
1,1-Dichloroethane			Methyl Ethyl Ketone	ND			
1,2-Dichloroethane	ND		Methyl Isobutyl Keton	188.1000			
1,1,1-Trichloroethane	27.600) *	l,3-Dichloropropane	ND			
1,1,2-Trichloroethane	ND	*	Trichlorotrifluoroeth	ND			
Tetrachloroethane	ND	*		· · ·			
1,1-Dichloroethylene	ND	*	Tribromomethane	ND			
Dichloroethylene (c+t)	244.100) *	Trichloromethane	ND			
Trichloroethylene	< 5.000) *	t-1,2-Dichloroethylene				
Tetrachloroethylene	ND	*					
1,2-Dichloropropane	ND	*					
1,3-Dichloropropene	ND	*					
Benzene	< 5.000) *					
Chlorobenzene	ND	*					
Dichlorobenzene	ND	*					
Ethylbenzene	196.000) *					
Toluene	1366.200) *					
Xylene, meta isomer	224.600) *					
Xylenes, (ortho¶)	168.100) *					
Vinyl chloride		*					
Bromomethane		*	· · · · · · · · · · · · · · · · · · ·				
Chloromethane		*					
ug/l = micrograms per	liter	*	ND = none detected				
> = greater than		*	PR = present				
<pre>< = less than</pre>		*					
****	***************************************						

SAMPLE NO.: OWNERS NAME: OWNERS ADDRESS: CITY OR TOWN DATE SAMPLED: PERSON SAMPLING: DATE SUBMITTED: DATE COMPLETED: 46164 MOTTOLO HAZARDOUS WASTE SITE BLUEBERRY HILL ROAD RAYMOND 08-22-85,13:35 JOHN REGAN 08-23-85,08:43 09-04-85

Comments: MOTTOLO SITE WELL MO-3D

	Test Name		Result (ug/l)		Test Name	-	Result (ug/l)
	*****	* * * * *	*******	***	*******	*****	******
	Dichloromethane	ND		*	Trichlorofluoromethane	ND	
	Dichlorobromomethane	ND		*			
	Tetrachloromethane	ND		*	Acetone	ND	
	Chlorodibromomethane	ND		*	Tetrahydrofuran		1070.0000
	Chloroethane			*	Diethyl ether	ND	
	l,l-Dichloroethane		148.6000		Methyl Ethyl Ketone	ND	
_	1,2-Dichloroethane	ND			Methyl Isobutyl Keton		191.8000
	1,1,1-Trichloroethane	ND		*	1,3-Dichloropropane	ND	
	1,1,2-Trichloroethane	ND		*	Trichlorotrifluoroeth	ND	
	Tetrachloroethane	ND		*			
	l,l-Dichloroethylene	ND		*	Tribromomethane	ND	
	Dichloroethylene (c+t)				Trichloromethane	ND	
	Trichloroethylene		98.8000	*	t-1,2-Dichloroethylene		
_	Tetrachloroethylene	ND		*			
	1,2-Dichloropropane	ND		*			·
	1,3-Dichloropropene	ND		*			
	Benzene	ND		×			
	Chlorobenzene	ND		*			
	Dichlorobenzene	ND		*			
•	Ethylbenzene		10.1000	*			
	Toluene		11.0000	*			•
	Xylene, meta isomer	ND		*			
	Xylenes, (ortho¶)	ND		*			
	Vinyl chloride			*			
1	Bromomethane			*			
	Chloromethane			*	· · ·	•	
	<pre>ug/l = micrograms per > = greater than < = less than ************************************</pre>			* *	ND = none detected PR = present	****	****

SAMPLE NO.: OWNERS NAME: MO OWNERS ADDRESS: BL CITY OR TOWN RA DATE SAMPLED: 08 PERSON SAMPLING: JO DATE SUBMITTED: 08 DATE COMPLETED: 09

46166 MOTTOLO HAZARDOUS WASTE SITE BLUEBERRY HILL ROAD RAYMOND 08-22-85,12:17 JOHN REGAN 08-23-85,08:45 09-04-85

Comments: MOTTOLO SITE WELL MO-3S

DIMETHYL HEPTANONE PRESENT

Test Name	Result (ug/l)	Test Name	Result (ug/l)
Dichloromethane Dichlorobromomethane Tetrachloromethane Chlorodibromomethane Chloroethane L,L-Dichloroethane L,L-Dichloroethane L,L,1-Trichloroethane L,L,2-Trichloroethane E,L,2-Trichloroethane Dichloroethylene Dichloroethylene (c+t) Trichloroethylene L,2-Dichloropropane L,3-Dichloropropane L,3-Dichloropropane L,3-Dichloropropane Ethylbenzene Dichlorobenzene Ethylbenzene Toluene Xylene, meta isomer Xylenes, (ortho¶) Vinyl chloride Bromomethane Chloromethane	ND ND ND ND 232.2000	*	ND 80.4000 2267.0000 ND 858.7000 ND ND ND ND ND
ug/1 = micrograms per > = greater than < = less than ******		<pre>* ND = none detected * PR = present * **********************************</pre>	****

SAMPLE NO.: OWNERS NAME: OWNERS ADDRESS: CITY OR TOWN DATE SAMPLED: PERSON SAMPLING: DATE SUBMITTED: DATE COMPLETED: 46168 MOTTOLO HAZARDOUS WASTE SITE BLUEBERRY HILL ROAD RAYMOND 08-22-85,14:30 JOHN REGAN 08-23-85,08:48 09-04-85

Comments: MOTTOLO SITE WELL MO-4D REPLICATE

Test Name	Result (ug/l)	Test Name	Result (ug/l)
Dichloromethane N	ID 1	* Trichlorofluoromethane	ND
		k	
		* Acetone	ND
	1D ;	* Tetrahydrofuran	ND
Chloroethane	,	* Diethyl ether	ND
1,1-Dichloroethane	1D :	* Methyl Ethyl Ketone	ND
1,2-Dichloroethane N	1D . di	* Methyl Isobutyl Keton	ND
1,1,1-Trichloroethane N	1D :	<pre>* 1,3-Dichloropropane</pre>	ND
1,1,2-Trichloroethane M	1D	* Trichlorotrifluoroeth	ND
Tetrachloroethane	1D :	k l	
1,1-Dichloroethylene N	1D :	* Tribromomethane	ND
Dichloroethylene (c+t)	1D :	* Trichloromethane	ND
Trichloroethylene N	1D :	<pre>* t-1,2-Dichloroethylene</pre>	
Tetrachloroethylene N	1D :	k –	
1,2-Dichloropropane N	1D	*	
1,3-Dichloropropene N	1D :	*	
Benzene N	1D :	k	
Chlorobenzene N	۲D د	*	
Dichlorobenzene N	1D :	*	
Ethylbenzene N	1D	k i i i i i i i i i i i i i i i i i i i	
Toluene	ID :	•	
Xylene, meta isomer N	1D	*	
Xylenes, (ortho¶) N	1D :	*	
Vinyl chloride		k .	
Bromomethane	;	*	
Chloromethane		k	
ug/l = micrograms per li	lter	ND = none detected	
> = greater than	:	* PR = present	
<pre>< = less than</pre>	•	k	
*****	******	******	*****

D-15

SAMPLE NO.: OWNERS NAME: OWNERS ADDRESS: CITY OR TOWN DATE SAMPLED: PERSON SAMPLING: DATE SUBMITTED: DATE COMPLETED: 46170 MOTTOLO HAZARDOUS WASTE SITE BLUEBERRY HILL ROAD RAYMOND 08-22-85,11:45 JOHN REGAN 08-23-85,08:51 09-04-85

Comments: MOTTOLO SITE WELL MO-4S

Test Name	Result (ug/l)	Test Name	Result (ug/l)
	ND	* Trichlorofluoromethane	ND
Dichlorobromomethane	ND	*	
Tetrachloromethane	ND	* Acetone	ND
Chlorodibromomethane N	D	* Tetrahydrofuran	35.0000
Chloroethane		* Diethyl ether	ND
1,1-Dichloroethane	ND	* Methyl Ethyl Ketone	ND
1,2-Dichloroethane	ND	* Methyl Isobutyl Keton	ND
1,1,1-Trichloroethane	ND	* 1,3-Dichloropropane	ND
1,1,2-Trichloroethane	ND	* Trichlorotrifluoroeth	ND
Tetrachloroethane	ND	*	
1,1-Dichloroethylene	ND	* Tribromomethane	ND
Dichloroethylene (c+t)	ND	* Trichloromethane	ND
Trichloroethylene	ND	* t-1,2-Dichloroethylene	
	ND	*	
1,2-Dichloropropane	ND	*	
	ND	*	
Benzene	ND	*	
Chlorobenzene	ND	*	
Dichlorobenzene	ND	*	
Ethylbenzene	ND	*	
	ND	*	
Xylene, meta isomer	ND	*	
	ND	*	
Vinyl chloride		*	
Bromomethane		*	
Chloromethane		*	
ug/l = micrograms per l	iter	* ND = none detected	
> = greater than		* PR = present	
< = less than		*	
*****	********	*****	* * * * * * * * * * * * * * * *

SAMPLE NO.: OWNERS NAME: OWNERS ADDRESS: CITY OR TOWN DATE SAMPLED: PERSON SAMPLING: DATE SUBMITTED: DATE COMPLETED: 46172 MOTTOLO HAZARDOUS WASTE SITE BLUEBERRY HILL ROAD RAYMOND 08-22-85,16:25 JOHN REGAN 08-23-85,08:53 09-04-85

Comments: MOTTOLO SITE WELL MO-6

Test Name	Result		Test Name		Result
iest Name	(ug/l)		Test Name		(ug/l)
****	(49/ 1) ********	***	*****	******	******
Dichloromethane	ND	*	Trichlorofluoromethane	ND	
Dichlorobromomethane	ND	*			
Tetrachloromethane	ND	*	Acetone	ND	
Chlorodibromomethane	ND		Tetrahydrofuran	ND	
Chloroethane			Diethyl ether	ND	
1,1-Dichloroethane	ND		Methyl Ethyl Ketone	ND	
1,2-Dichloroethane	ND	*	Methyl Isobutyl Keton	ND	
1,1,1-Trichloroethane	ND		1,3-Dichloropropane	ND	
1,1,2-Trichloroethane	ND	*	Trichlorotrifluoroeth	ND	
Tetrachloroethane	ND	*			
1,1-Dichloroethylene	ND	*	Tribromomethane	ND	
Dichloroethylene (c+t)	ND	*	Trichloromethane	ND	
Trichloroethylene	ND	*	t-1,2-Dichloroethylene		
Tetrachloroethylene	ND	*	· -		
1,2-Dichloropropane	ND	*			
1,3-Dichloropropene	ND	*			
Benzene	ND	*			
Chlorobenzene	ND	*			
Dichlorobenzene	ND	*			
Ethylbenzene	ND	*			
Toluene	ND	*			
Xylene, meta isomer	ND	*			
Xylenes, (ortho¶)	ND	*			
Vinyl chloride		*			
Bromomethane		*			
Chloromethane		*			

ug/l = micrograms per	liter		ND = none detected		
> = greater than	•	*	PR = present		•
< = less than		*			

46174 SAMPLE NO.: OWNERS NAME: MOTTOLO HAZARDOUS WASTE SITE OWNERS ADDRESS: BLUEBERRY HILL ROAD CITY OR TOWN RAYMOND 08-22-85,16:32 DATE SAMPLED: PERSON SAMPLING: JOHN REGAN DATE SUBMITTED: 08-23-85,08:55 DATE COMPLETED: 09-04-85

Comments:

MOTTOLO SITE BROOK A - U/S OF RANDY LANE CULVERT

Test Name		esult ug/l)	Test Name	Result (ug/l)
<pre>************************************</pre>	****** ND ND ND ND ND ND ND ND ND ND ND ND ND	********* * * * * *	Trichlorofluoromethane Acetone Tetrahydrofuran Diethyl ether Methyl Ethyl Ketone Methyl Isobutyl Keton 1,3-Dichloropropane Trichlorotrifluoroeth Tribromomethane Trichloromethane t-1,2-Dichloroethylene	**************************************
<pre>ug/l = micrograms per > = greater than < = less than ************************************</pre>	 liter *******		ND = none detected PR = present	****

Organic Chemical Analysis

SAMPLE NO .:

44503

OWNERS NAME: OWNERS ADDRESS: CITY OK TOWN MOTTOLO HAZARDOUS WASTE SITE BLUEBERRY HILL ROAD RAYMOND

DATE SAMPLED: PERSON SAMPLING: DATE SUBMITTED: DATE COMPLETED: 07-25-85,16:25 JOHN REGAN 07-26-85,09:48 08-08-85

Comments:

HOTTOLD SITE BROOK A - 35 FEET UPSTREAM OF RANDY LANE CULVERT

Test Nane	Result (ug/l)	Test Nane	Result (ug/1)
<u>*************************************</u>	***********	**************************************	******
Volatile Organics		¥ Volatile Organics (c	ont.)
Volatile Organics Dichloromethane Dichlorobromomethane Tetrachloromethane Chlorodibromomethane Chlorodibromomethane 1,1-Dichloroethane 1,1,2-Dichloroethane 1,1,2-Trichloroethane 1,1,2-Trichloroethane 1,1-Dichloroethylene Tetrachloroethylene (c+t) Trichloroethylene 1,2-Dichloropropane 1,3-Dichloropropane 1,3-Dichloropropane Chlorobenzene Ethylbanzene Dichlorobenzene Ethylbanzene Toluene Xylene, meta isomer Xylenes, (ortho¶) Vinyl chloride		 Volatile Organics (c) Trichlorofluoromethane Acetone Tetrahydrofuran Diethyl ether Methyl Ethyl Ketone Methyl Ethyl Ketone Tichloropropane Trichlorotrifluoroeth Trichloromethane Trichloromethane Trichloromethane * 	ND ND ND ND ND ND ND ND ND
Bronomethane Chloromethane	÷	ki ∘ . ¥	

ug/l = micrograms per liter
) = greater then
(= less then
NU = none detected
NU = none detected

ND PR = Present

Brganic Chemical Analysis

SAMPLE NO .:

44477

-

OWNERS NAME: OWNERS ADDRESS: CITY OR TOWN MOTTOLO HAZARDOUS WASTE SITE BLUEBERRY HILL ROAD RAYMOND

N7-25-85,10:25 JDIN REGAN N7-26-85,09:01 08-08-85 DATE SAMPLED: PERSON SAMPLING: DATE SUBMITTED: DATE COMPLETED:

Comments:

MUTTOLO SITE WELL MO-1 FIRST TIME SAMPLING

Test Name	Result (ug/l)	Test Nane	Kesult (ug/l)
**************************************	*********************	**************************************	**************************************
Dichloromethane Dichloromethane Dichlorobromomethane Tetrachloromethane Chlorodibromomethane Chloroethane 1,1-Dichloroethane 1,2-Dichloroethane 1,1,2-Trichloroethane 1,1,2-Trichloroethane 1,1-Dichloroethylene Chloroethylene 1,2-Dichloroethylene 1,2-Dichloropropane 1,3-Dichloropropane 1,3-Dichloropropane 1,3-Dichloropropane 1,3-Dichloropropane 2,3-Dichloropropane 1,3-Dichloropene Benzene Chlorobenzene Dichlorobenzene Ethylbenzene Tolvene Xylene, meta isomer Xylenes, (orthomethane Bromethane	ND ND ND ND ND ND ND ND ND ND ND ND ND N	Volatile Arganics (c Volatile Arganics (c Volatile Arganics (c Volatile Arganics (c Volatile Arganics (c) Volatile Arganics (c) Vol	ND ND ND ND ND ND ND ND ND ND ND

ug/l = micrograms per liter > = greater then < = less then

= none detected = Present ND PR

************* **************************

Organic Chemical Analysis

SAMPLE NO .:

44487

MOTTOLO HAZARDOUS WASTE SITE BIJUEBERRY HILL ROAD RAYMOND OWNERS NAME: OWNERS ADDRESS: CITY OR TOWN

DATE SAMPLED: PERSON SAMPLING: DATE SUBMITTED: DATE COMPLETED: 07-25-85,14:15 JDHN REGAN 07-26-85,09:20 08-08-85

Comments:

NOTTOLO SITE WELL MO-4S FIRST TIME SAMPLING

Test Nane	Result (ug/l)	Test Name	Result (ug/l)
*****************	********	**************************************	**********
Volatile Organics	4	Volatile Organics (c	ont.)
Dichloromethane Dichlorobromomethane Tetrachloromethane Chlorodibromomethane 1,1-Dichloroethane 1,1-Dichloroethane 1,1-Frichloroethane 1,1-Frichloroethane 1,1-Frichloroethane 1,1-Dichloroethane Tetrachloroethylene Dichloroethylene (c+t) Trichloroethylene 1,2-Dichloropropane 1,3-Dichloropropane 1,3-Dichloropropane 1,3-Dichloropropane Benzene Chlorobenzene Dichlorobenzene Ethylbenzene Toluene Xylene, meta isomer	ND 3	Acetone * Tetrahydrofuran * Diethyl ether * Methyl Ethyl Ketone * Methyl Isobutyl Keton * 1,3-Dichloropropane * Trichlorotrifluoroeth * Tribromomethane * Trichloromethane	ND ND ND ND ND ND ND ND ND ND
Xylenes, (ortho¶) Vinyl chloride Bromomethane	ND I		
Chloromethane		X	

ug/l = micrograms per liter > = greater then < = less then

- = none detected
- ND PR = Present

Organic Chemical Analysis

SAMPLE NO .:

44489

OWNERS NAME: OWNERS ADDRESS: Clty or town MOTTOLO HAZARDOUS WASTE SITE BLUEBERRY HILL ROAD RAYMOND

DATE SAMPLED: PERSON SAMPLING: DATE SUBMITTED: DATE COMPLETED: 07-25-85,15:07 JOHN REGAN 07-26-85,09:24 08-08-85

Comments:

MOTTOLO SITE WELL MO-4D FIRST TIME SAMPLING

Test Name	Result (ug/l)	Test Name	Result (ug/1)
**********************	************	`````````````````````````````````````	
Volatile Organics	1	Volatile Organics (c	ont.)
	ND 4	Trichlorofluoromethane	ND
Dichlorobromomethane		F	
		Acetone	ND
Chlorodibromomethane		E Tetrahydrofuran	ND
Chloroethane	1 10 / 10	E Diethyl ether	ND
1,1-Dichloroethane	ND S	# Methyl Ethyl Ketone	ND
	ND +	r netnyi isodutyi ketan	ND
1,1,1-Trichloroethane	ND .	Methyl Isobutyl Keton # 1,3-Dichloropropane # Trichlorotrifluoroeth	ND
1,1,2-Trichlorsethane	ND I	F IFICNIØFØTFITIUØFØETN	ND
Tetrachloroethane			1/ R
1,1-Dichleroethylene		E Tribromomethane # Trichloromethane	ND ND
Dichloroethylene (c+t)	ND I		iα <i>D</i>
Trichler oethy lene			
Tetrachlorsethylene 1,2-Dichlorspropane	ND I	м 6	
1,3-Dichloropropene			
Benzene	ND a	• •	
Chlorobenzene		K	
	ND 3		
Ethylbenzene			
Toluene	110		
Xylene, meta isomer			
Xylenes, (ortheopara)	ND +	-	
Vinyl chloride	1(2)	-	
Bronenethane	,	ŀ	
Chloromethane			
ON A VI OTIC COURCE	-		

ug/l = micrograms per liter > = greater then < = less then

ND PR = none detected

= Present

************* *****

5 . A. S.

· · · · · ·

1

Organic Chemical Analysis

SAMPLE NO .:

44491

OWNERS NAME: OWNERS ADDRESS: CITY OR TOWN MOTTOLO HAZARDOUS WASTE SITE BLUEBERRY HILL ROAD RAYMOND

DATE SAMPLED: PERSON SAMPLING: DATE SUBMITTED: DATE COMPLETED: 07-25-85,11:10 JOHN REGAN 07-26-85,09:31 08-08-85

Comments:

MOTTOLO SITE WELL MO-59 FIRST TIME SAMPLING

Test Nane		Result (ug/l)	Test Name	Result (ug/l)
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	(****	********	{*************** *********************	****** ** *******
Volatile Organics		1	Volatile Organics (c	ont.)
Dichloromethane Dichlorobromomethane	ND ND		t FTrichlorofluoromethane	ND
Tetrachloromethane Chlorodibromomethane Chloroethane	ND ND	1	Acetone E letrahydrofuran E Diethwl ether	ND ND ND
1,1-Dichloroethane 1,2-Dichleroethane	ND	12.0000	* Methyl Ethyl Ketone F Methyl Isobutyl Keton	ND ND
1,1,1-Trichloroethane 1,1,2-Trichloroethane Tetrachloroethane	ND ND ND		<pre># 1,3-Dichloropropane # Trichlorotrifluoroeth #</pre>	ал НD
1,1-Dichlorsethylene Dichlorsethylene (c+t) Trichlorsethylene			E Tribremomethane # Trichloromethane #	ND ND
Tetrachloroethylene 1,2-Dichloropropane 1,3-Dichloropropene	ND ND ND	ł	e E	
Benzene Chlorobenzene Dichlorobenzene	ND ND ND	•	ŧ ¥	
Ethylbenzene Tolvene		. 4	k F	
Xylene, meta isomer Xylenes, (ortho¶) Vinyl chloride	ND	1	E E	
Bronomethane Chloromethane			f f	

ug/l = micrograms per liter > = greater then < = less then

- ND 🖃 none detected
- PR = Present

Organic Chemical Analysis

SAMPLE NO .:

44493

MOTTOLO HAZARDOUS WASTE SITE BLUEBERRY HILL ROAD RAYMOND OWNERS NAME: OWNERS ADDRESS: Clty or town

DATE SAMPLED: PERSON SAMPLING: DATE SUBMITTED: DATE COMPLETED: 07-25-85,11:15 JOHN REGAN 07-26-85,09:34 18-08-85

Comments:

MOTTOLO SITE WELL NO-50 FIRST TIME SAMPLING

Test Name	Result (ug/l)	Test Nane	Result (øg/l)
**************************************	**********	**************************************	******
Dichloromethane Dichlorobromomethane Tetrachloromethane Chlorodibromomethane Chloroethane	ND ND ND ND	* * * * Trichlorofluoromethane * Acetone * Tetrahydrofuran * Diethyl_ether	ND ND 341.0000 ND
1,1-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane 1,1,2-Trichloroethane Tetrachloroethane 1,1-Dichloroethylene	ND (5.0000 ND ND	* Hethyl Ethyl Ketone * Hethyl Isobutyl Keton * 1,3-Dichloropropane * Irichlorotrifluoroeth * Tribromomethane	ND ND ND ND
Dichloroethylené (c+t) Trichloroethylene Tetrachloroethylene 1,2-Dichloropropane 1,3-Dichloropropane	241.7009 33.3000 ND ND ND	* Trichloromethane	ND
Benzene Chlorobenzene Dichlorobenzene Ethylbenzene Toluene Xylene, meta isomer	ND	* * * *	
Xylenes, (orthodpara) Vinyl chloride Bromomethane Chloromethane	ND	¥ ¥ ¥	

ug/l = micrograms per liter > = greater then < = less then

- ND PR = none detected = Present

******* ******************

D-24[.]

Organic Chemical Analysis

SAMPLE NO .:

44495

OWNERS NAME: OWNERS ADDRESS: CITY OR TOWN MOITOLO HAZARDOUS WASTE SITE BLUEBERRY HILL ROAD RAYMOND

DATE SAMPLED: PERSON SAMPLING: DATE SUBMITTED: 07-25-85,16:15 JOHN REGAN 07-26-85,09:36 08-08-85 DATE COMPLETED:

Comments:

HOTTOLO SITE WELL HO-6 FIRST TIME SAMPLING

Test Name	Resul (ug/l		Result (ug/l)
************************	******		********
Volatile Organics		¥ Volatile Organics (co *	int.)
Dichloromethane	ND	* * Trichlorofluoromethane	ND
Dichlorobronomethane	ND	*	
Tetrachloromethane	ND	# Acetone	ND .
Chlorodibromomethane	ND	¥ [etrahydrofuran	ND
Chloroethane		* Diethyl ether	ND
1,1-Dichloroethane 1,2-Dichloroethane	ND	# Hethyl Ethyl Ketone	ND
1,2-Dichlereethane	ND	* Methyl Isobutyl Keton	ND
1,1,1-frichloroethane	ND	* 1,3-Dichloropropane * Trichlorotrifluoroeth	ND
1,1,2-Trichlorsethane	ND	# Irichioretrifivoroeth	ND
Tetrachieroethane	ND	*	
1,1-Dichlar of thylene	ND	# Tribromomethane	ND
Dichloroethylene (c+t)	ND	# Trichloromethane	ND
Trichloroethylene	ND		
Tetrachloroethylene	ND	*	
1,2-Dichleroprepane	ND	*.	
1,3-Dichleropropene	ND	*	
Benzene	ND	*	
Chlorobenzene	ND.	*	
Dichlorobenzene	ND	*	•
Ethylbenzene	ND	π	
Toluene	ND NO.	1	
Xylene, meta isomer	ND	2	
Xylenes, (ortho¶)	ND	T	
Vinyl chloride		1	
Bronenethane		*	•
Chloromethane		Ŧ	

ug/l = micrograms per liter) = greater then (= less then NO = none detected

- ND Pr
 - = Present

******** ******

Organic Chemical Analysis

SAMPLE	NO.:	44497
نتبد للتمون	110	

OWNERS NAME:MOTTOLO HAZARDOUS WASTE SITEOWNERS ADDRESS:BLUEBERRY HILL ROADCITY OR TOWNRAYMOND

DATE SAMPLED:	07-25-85,15:25
PERSON SAMPLING:	JOHN REGAN
DATE SUBMITTED:	07-26-85,09:40
DATE COMPLETED:	08-09-85

Comments:

MOTTOI	0	SITE			
BROOK	Α	NEAR	R-5	AND	R-6

Test Name		Result (ug/l)		Test Name		Result (ug/l)
*****	****	******	* *	*****	******	******
Volatile Organics			* * *	Volatile Organics	(cont.)	_
			*			
Dichloromethane Dichlorobromomethane	ND ND		*	Trichlorofluoromethane	PR	
Tetrachloromethane	ND		*	Acetone	ND	
Chlorodibromomethane	ND		*	Tetrahydrofuran		304.5000
Chloroethane				Diethyl ether	ND	
1,1-Dichloroethane		86.1000		Methyl Ethyl Ketone	ND	10 0000
1,2-Dichloroethane	ND <	5 0000		Methyl Isobutyl Keton 1,3-Dichloropropane	ND	10.0000
1,1,1-Trichloroethane 1,1,2-Trichloroethane	ND	5.0000	*	Trichlorotrifluoroeth	ND	
Tetrachloroethane	ND		*	111011010011114010001	112	
1,1-Dichloroethylene		17.7000	*	Tribromomethane	ND	
Dichloroethylene (c+t)		18.6000	*	Trichloromethane	ND	
Trichloroethylene	ND		*			
Tetrachloroethylene	ND		*			
1,2-Dichloropropane 1,3-Dichloropropene	ND ND		*		÷	
Benzene	ND		*			
Chlorobenzene	ND		*			
Dichlorobenzene	ND		*			
Ethylbenzene		22.5000				
Toluene	>	200.0000				
Xylene, meta isomer		15.3000				
Xylenes, (ortho¶) Vinyl chloride		29.3000	*			
Bromomethane			*			
Dr omome chane				D-26		

Organic Chemical Analysis .

SAMPLE NO .:

44499 MOTTOLO HAZARDOUS WASTE SITE BLUEBERRY HILL ROAD RAYMOND

-

OWNERS NAME: OWNERS ADDRESS: CITY OR TOWN

DATE SAMPLED: PERSON SAMPLING: DATE SUBMITTED: DATE COMPLETED: 07-25-85,15:35 JOHN REGAN 07-26-85,09:42 08-08-85

Comments:

HTTOLO SITE BRUOK A NEAR R-3

Test Name	Result (vg/l)	Test Name	Result (wa/l)
******		***********************	******
Volatile Organics		Volatile Organics (c	ont.)
Dichloromethane Dichlorobromomethane Tetrachloromethane	ND ND ND	* * Trichlerofluoromethane * * Acetone	ND ND
Chloroethane 1,1-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane	85.4000 ND ND	* [etrahydroføran * Diethyl ether * Hathyl Ethyl Ketone * Hethyl Isobutyl Keton * 1,3-Dichloropropane * Irichlerotrifluoroeth	426.7000 ND ND ND ND ND ND
1,1,2-Trichlorsethane Tetrachloroethane 1,1-Dichloroethylene Dichloroethylene (c+t) Trichloroethylene Tetrachloroethylene 1,2-Dichloropropane 1,3-Dichloropropene	<pre>{ 5.0000 ND ND ND ND ND ND</pre>	* Tribronomethane * Tribronomethane * Trichloromethane *	ND ND
Benzene Chlorobenzene Dichlorobenzene Ethylbenzene Tolvene Xylene, meta isomer Xylenes, (ortho¶) Vinyl chloride Bromomethane	ND N0 104.8000 12.1090 22.2000	H H H H H H H H H H H H H H H H H H H	

I = Micrograms per = greater then = less then = none detected 11 ter š

NU PR

= Present

D-27

Organic Chemical Analysis

SAMPLE NO .: 44501 OWNERS NAME: OWNERS ADDRESS: CITY OR TOWN MOTTOLO HAZARDOUS WASTE SITE BLUEBERRY HILL ROAD RAYMOND DATE SAMPLED: PERSON SAMPLING: DATE SUBMITTED: DATE COMPLETED: 07-25-85,15:45 JDHN REGAN 07-26-85,09:45 08-08-85

Comments:

HOTTOLD SITE BROOK A - 50 FEET UPSTREAM R-11

Test Name		esult ag/l)	Test Nane		Result (ug/l)
**************************************		****** *	*************************	*****	*******
Volatile Organics		×		ont.)	
Dichloromethane Dichlorobromomethane	ND ND	* *	Trichlorofluoromethane	ND	
Tetrachloromethane Chlorodibromomethane	ND ND	ł.	Acetone Tetrahydrofuran	ND	14.1000
Chloroethane 1,1-Dichloroethane	< 5	1.0000 ¥	Diethyl ether Methyl Ethyl Ketone	ND ND	
1,2-Dichleroethane 1,1,1-Trichleroethane 1,1,2-Trichleroethane	ND 10	* 1.4800 *	Methyl Isobutyl Keton 1,3-Dichloropropane Trichlorotrifluoroeth	ND ND	
Tetrachloroethane	ND	×		ND	
1,1-Dichloroethylene Dichloroethylene (c+t) Trichloroethylene	ND ND ND	÷	Tribronomethane Trichloromethane	ND ND	
Tetrachloroethylene 1,2-Dichleroprepane	ND	× X	ł		
1,3-Dichloropropene Benzene	ND	3	I		
Chlorobenzene Dichlorobenzene	ND ND	1	•		
Ethylbenzene Tolvene	ND ND		•		
Xylene, meta isomer Xylenes, (ortha¶)	ND ND) *	E ·		
Vinyl chieride Bromemethane		¥ *	· · ·		
Chloromethane		i			

ug/l = micrograms per liter) = greater then { = less then

ND PR = none detected = Present

D-28

Organic Chemical Analysis

	MPLE NO] .:
--	---------	-------------

44505

OWNERS NAME: OWNERS ADDRESS: CITY OR TOWN MOTTOLO HAZARDOUS WASTE SITE BLUEBERRY HILL ROAD RAYMOND

DATE SAMPLED: PERSON SAMPLING: DATE SUBMITTED: DATE COMPLETED: 07-24-85,16:00 JOHN REGAN 07-26-85,09:51 08-08-85

Comments:

MOTTOLO SITE TRIP BLANK

Test Name	Result (ug/l)	Test Nane	Result (ug/l)
** `****************** *******		**************************************	***********
Volatile Organics		¥ Volatile Organics (c	ent.)
Dichloromethane Dichlorobronomethane	ND ND	# # Trichlorofluoromethane #	DN
Tetrachloromethane Chlorodibromomethane	ND	₩ Acetone ₩ Tetrahydrofuran	ND ND
Chloroethane 1,1-Dichloroethane	ND	* Diethyl ether * Hethyl Ethyl Ketone	ND ND
1,2-Dichleroethane 1,1,1-Trichloroethane 1,1,2-Trichloroethane Tetrachloroethane	ND	# Hethyl Isobuty] Keton # 1,3-Dichloropropane # Trichlorotrif]uoroeth	ND ND ND
1,1-Dichleroethylene	ND S	# # Tribromomethane	ND
Dichloroethylene (c+t) Trichloroethylene Tetrachloroethylene	ND	* Trichloromethane # *	ND
1,2-Dichloropropane 1,3-Dichloropropene	ND	ŧ ¥	
Bénzene Chlorobenzene Dichlorobenzene	ND ND ND	f #	
Ethylbenzene Tolvene	ND ND	r X F	
Xylene, meta isomer Xylenes, (ortho¶)	ND :	te	
Vinyl chloride Brommethane Chloromethane	4	f f	

ag/l = micrograms per liter
> = greater then
< = less then
ND = none detected
P0 = function</pre>

ND PR

= Present

١.	I SAMPLE ID Number		40177 1
-	SHARLE ID ROMDER		
\$	TYPE OF SAMPLE	::: :	IN-HOUSE
•	YOUR NAME	::::	JRECAN
	DATE SAMPLED		05-02-85,09:50
	DATE LOGGED IN	:==	05-03-85,08:37
	DATE COMPLETED	===	05-10-85
	PERSON SAMPLING	22	JOHN REGAN
	DWNERS NAME	=	MOTTOLO SITE AREA
	SAMPLE LOCATION	33	RANDY LANE
	CITY OR TOWN	=	RAYMOND
	DIVISION		HWAGPD
	PHONE NUMBER	=	3744
	MOTTOLO SITE AREA		
	BROOK A - UPSTREAM	1 (OF RANDY LANE CULVERT

ID 🕸	TEST NAME	RESULT	ANALYST	DAIE
85	Methane, dichloro- ug/L NO	ann 1000 1007 - 009 -409 1000 /400 -009 1400 1400 1400 1400 1400 1400 1400 1	CZIBIK	05-08-85
86	Methane, dichlorobromo-ug/L ND		CZIBIK	05-08-85
87	Methane, tribromo- ug/L NO		OZIBIK	05-08-85
88	Methane, trichloro- ug/L ND		CZIBIK	05-08-85
89	Methane, tetrachloro- ug/L NO		CZIBIK	05-08-85
90	Methane, chlorodibromo-ug/L ND		CZIBIK	05-08-85
92	Ethane, 1,1 dichloro ug/L ND		CZIBIK	05-08-65
93	Ethane, 1,2 dichloro ug/L ND		CZIBIK	05-08-85
94	Ethane, 1,1,1trichloro ug/L ND		OZIBCK	05-08-65
95	Ethane, 1,1,2trichloro ug/L ND		CZIBIK	05-08-85
96	fetrachloroethane ug/LND		CZIBIK	05-08-65
97	Ethylene, 1,1 dichloro ug/L ND	•	CZIBIK	05-03-85
99	Ethylene, trichloro Ug/L NO		CZIBIK	05-08-85
100	Ethylene, tetrachloro ug/L ND		CZIBIK	05-08-85
101	Propane, 1,2 dichloro ug/L ND		CZIBIK	05-08-85
102	1,3dichloropropane c+t ug/L ND		CZIBIK	05-08-85
103	Benzene ug/L ND		OZIBIK	05-08-85
104	Benzene, chloro ug/L ND		CZIBIK	05-08-85
105	Benzenes, dichloro ug/L ND		CZIBIK	05-08-85
106	Benzene, ethyl ug/L ND		CZIBIK	05-08-85
107	Toluene ug/L NO		CZIBIK	05-08-85
108	Xylene meta isomen – ug/L ND		CZIBIK	05-08-85
115	Methane, trichlorofluoroug/L NO		CZIBIK	05-08-85
274	Acetone ug/L ND		CZIBIK	05-08-85
275	Tetrahydrofuran ug/L ND		CZIBIK	05-08-65
276	Diethyl ether ug/L ND		CZIBIK	05-08-85
277	- Methyl ethyl ketone – ug/L ND		CZIBIK	05-08-85
278	Methyl isobutyl ketone ug/L ND		CZIBIK	05-08-85
279	Propene 1,3 dimethyl t ug/L ND	•	UZIBIK	05-08-85
280	Xylenes (ortho & para) ug/L ND		CZIBIK	05-08-85
281	Trichlorotrifluoroeth, ug/L ND	D- 30	CZIBIK	05-08-85
282	1,2Dichloroethylene c+tug/L ND			05-08-85

Ċ

Organic Chemical Analysis

.

39435 MOTTOLO BLUEBERR RAYMOND 04-11-85 J. REGAN 04-12-85 05-06-85		SITE	
RAYMOND 04-11-85 J . REGAN		SITE	
J. REGAN			
	Result (ug/l)	Test Name	Result (ua/1)
******	********		********
I (3		Volatile Organics ()	cont.)
ND ND	×	Trichlorofluoromethane	r!D
e ND ND ND ND ND ND ND +t) ND ND	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Acetone Tetrahydrofuran Diethyl ether Methyl Ethyl Ketone Methyl Isobutyl Keton 1,3-Dichloropropane Trichlorotrifluoroeth Tribromomethane Trichloromethane	р р р р р р р р р р р р р р р р р р р
00 20 20 20 20 20 20 20 20 20 20 20 20 2	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3		
	×		, , , , , , , , , , , , , , , , , , ,
> = { = ND ==	greater th less then none detec	ien	
	e ND PR = = = = = = = = = = = = = = = = = = =	(ug/1) ************************************	<pre>(U0/1) ************************************</pre>

Organic Chemical Analysis

215 J.	12.05		5.1.25		
	211-2	1 1-	- 641 1		
		here here	NÜ	٠	

.....

39437

UWNERS NAME: OWNERS ADDRESS: CITY OR TOWN MOTTOLO HAZ, WASTE SITE BLUEBERRY HILL RD. RAYMOND

DATE SAMPLED:	04 - 11 - 85
DATE SUBMITTED:	J. REGAN 04-12-85,10:19 05-02-85
DATE COMPLETED:	05-06-851

Comments:

0W-3 SAMPLED-11:30

Test Name	(ua/1.)	Name	Result (ud/l)
*****		*****	*****
Volatile Organics		olatile Ordanics (c	ont.)
	×		
Dichloromethane ND Dichlorobromomethane ND		lorofluoromethane	аи
Tetrachloromethane ND	* Aceto		ЧĎ
Chlorodibromomethane ND		hydrofuran	ND
Chloroethane ND		yl ether 1 Ethvl Ketone	ND ND
1,2-Dichloroethane ND		l Isobutyl Keton	ND
1.1.1-Trichloroethane ND	* 1.3-D	ichloropropane	ND
1,1,2-Trichloroethane ND	* Trich	lorotrifluoroeth	ND
Tetrachloroethane ND	X V Taina		ND
1,1-Dichloroethylene ND Dichloroethylene (c+t) ND	* Tribr * Trich	omomethane Loromethane	
Trichloroethylene ND	*		
Tetrachloroethvlene ND	×		
1,2-Dichloropropane ND 1,3-Dichloropropene ND	* *		
Benzene ND	*		
Chlorobenzene ND	÷.		
Dichlorobenzene ND	×		
Ethylbenzene ND	*		
Tolvene ND Xvlene meta isomer ND	× *		
	×		
Xvlenes, (ortho¶) ND Vinvl chloride	*		
Bromomethane	*		
Chloromethane	*		
	icrodrams per 1	iter	
	reater then		
	ess then one detected		

ND PR none detected = Present

Organic Chemical Analysis

ι.

	បកម្មងា	nic Guenica	FT HILDER VIELS	
AMPLE ND. :	39439	9		
WNERS NAME: WNERS ADDRESS: TTY OR TOWN	MOTTOLO BLUEBERI RAYMOND	HAZ, WASTE Ry Hill RD.	SITE	
ATE SAMPLED: PERSON SAMPLING: ATE SUBMITTED: DATE COMPLETED:	04-11-8 J. REGA 04-12-8 05-08-8	N		
omments:				
OW-2 SHALLOW . SAMPLED-12:45			· ·	
HIGH CONCENTRATIO	N OF A C	9 KETONE; P	ROBABLY DI-ISOBUTYL KETC	INE .
est Name		Result	Test Name	Result
**************************************	*****		*****	(1 / q)) ***************
Volatile Organ	ics	2 3 3		(cont.)
ichloromethane	ай		Trichlorofluoromethane	ND
)ichlorobromometha etrachloromethane Chlorodibromometha Chloroethane Chloroethane Chloroethane Chloroethane Chloroeth Setrachloroethane	ND ND ND ND	7.7000 ×	Acetone Tetrahvdrofuran Diethvl ether Methvl Ethyl Ketone Methyl Isobutvl Keton 1,3-Dichloropropane Trichlorotrifluoroeth	ND
(1-Dichloroethyle) ichloroethylene (richloroethylene (2-Dichloroethylene ,3-Dichloropropan (3-Dichloropropan	ne ND c+t) ND e ND e ND	70.5000 » ***	Tribromomethane Trichloromethane	ND ND
hlorobenzene hlorobenzene ichlorobenzene oluene vlene, meta isome ylenes, (ortho&pa	ND ND	·>	< < < <	
Ainyl chloride Fromomethane Chloromethane		**************************************	6 6	
) = < =	micrograms greater th less then none detec) en	

Organic Chemical Analysis

			· · · · · · · · · · · · · · · · · · ·		
AMPLE NO.:	3944	1			
WNERS NAME: WNERS ADDRESS: CITY OR TOWN) HAZ, WASTE RRY HILL RD)			
ATE SAMPLED: PERSON SAMPLING: ATE SUBMITTED: DATE COMPLETED:	04-11-8 J. REGA 04-12-8 05-08-8	35 N 35,10:23			
omments: OW-2 DEEP SAMPLED-13:15					
HIGH CONCENTRATIO	DN OF A C	9 KETONE; F	ROBABLY DI-ISOBUTYL KE	TONE.	
est Name		Result (ug/l)	Test Name		Result (ug/l)
		•			
Volatile Organ		(ب بر	•	(Cont.)	
ichloromethane ichlorobromometh	ane NI	, X		e ND	
etrachloromethane hlorodibromometh	e ND	ې ه	Acetone Fetrahydrofuran		38.300 265.500
hloroethane ,l-Dichloroethan	2	731,4000 ⇒	Diethyl ether Methyl Ethyl Ketone	ЛN	15.700
;2-Dichloroethane ;1,1-Trichloroeth ;1;2-Trichloroeth etrachloroethane	nane	109.3000 »	<pre>Methyl Isobutyl Keton 1,3-Dichloropropane Trichlorotrifluoroeth</pre>	ND	29.6000
,1-Dichloroethyle ichloroethylene	ene ND))	Tribromomethane Trichloromethane	ND ND	
richloroethylene etrachloroethyle	ne ND))) >	8 6		
,2-Dichloropropar ,3-Dichloroproper	ne ND) >	۶		
enzene hlorobenzene ichlorobenzene	ם א חא מא) >	ł		
thvlbenzene olvene		585.0000 » 3057.0000 »	\$		
vlene, meta isomo vlenes, (ortho&pa	er	-630.8000 → -527.0000 →	k		
invl chloride romomethane hloromethane		3 .** .**			
) =	• micrograms • greater th	s per liter Sen		
	,	less then			
	= UM	* none detec * Present	ted		

Organic Chemical Analysis

5 e - 1

.

٩

SAMPLE NO.:					
	39443	5			
OWNERS NAME: OWNERS ADDRESS: CITY OR TOWN	MOTTOLO BLUEBERF RAYMOND	HAZ, WASTE Ry Hill RD,	SITE		
DATE SAMPLED: PERSON SAMPLING: DATE SUBMITTED: DATE COMPLETED:	04-11-85 J. REGAN 04-12-85 05-08-85	5 N 5,10:24			
Comments:					
0W-4 SHALLOW SAMPLED-12:15					
HIGH CONCENTRATIO	V OF A CS	KETONE: PE	ROBABLY DI-ISOBUTYL KETO	NF.	
			· · · · · · · · · · · · · · · · · · ·		
Test Name		Result (ua/l)	Test Name		Result (ua/l)
*****	******	**************************************	*****	*****	
Volatile Organ:	ics_	*	<u>Volatile Organics (</u>	cont.)	
Dichloromethane Dichlorobromomethau		×	Trichlorofluoromethane	מא	
Tetrachloromethane Chlorodibromometha Chloroethane 1,1-Dichloroethane		*	Acetone Tetrahvdrofuran Diethvl ether Methvl Ethvl Ketone	ИИ	$21.900 \\ 85.400 \\ 30.300$
1,2-Dichloroethane 1,1,1-Trichloroeth 1,1,2-Trichloroeth	ane ane ND	14.1000 * 764.6000- * *	Methyl Isobutyl Keton 1,3-Dichloropropane Trichlorotrifluoroeth	ND P R	85.100
Tétŕachloroethane 1,1-Dichloroethyle Dichloroethylene () Trichloroethylene	עא ne	× 35,9000 ×	Tribromomethane Trichloromethane	ND ND	
Tetrachloroethylen 1,2-Dichloropropan 1,3-Dichloropropen	e ND	121.6000 * * *			
Bénzene	ND	117.4000-* * *	· · · ·		
Chlorobenzene Dichlorobenzene	QИ	0/ CO00			
	r	96.8000-* 512.8000-* 1.44.2000-* 27.3000-*			

D-35

.

Organic Chemical Analysis

.

SAMPLE NO.: OWNERS NAME: OWNERS ADDRESS: CITY OR TOWN DATE SAMPLED: PERSON SAMPLING: DATE SUBMITTED: DATE COMPLETED: Comments:	39445 MOTTOLO BLUEBERR RAYMOND 04-11-85 J. REGAN 04-12-85 05-06-85	HAZ, WASTE Y HILL RD, ,10:26	SITE	
JB-9 SAMPLED-15:25				
Test Name		Result (ua/1)	Test Name	Result (ug/1)
***************	*****	************ *	*****	*****
Volatile Organ	ics	*		cont.)
Dichloromethane Dichlorobromometha Tetrachloromethane Chlorodibromometha Chloroethane 1,1-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroeth 1,1,2-Trichloroeth Tetrachloroethylene Dichloroethylene Trichloroethylene Tetrachloroethylene Tetrachloropropar 1,3-Dichloropropar 1,3-Dichloropropar 1,3-Dichloroproper Benzene Chlorobenzene Dichlorobenzene Ethylbenzene Toluene Xylene, Meta isome Xylenes, (ortho&pa Vinyl chloride Bromomethane	ND ND ND ND ND ND ND ND ND ND ND ND ND N	* * * * * * *	Trichlorofluoromethane Acetone Tetrahvdrofuran Diethyl ether Methyl Ethyl Ketone Methyl Isobutyl Keton 1,3-Dichloropropane Trichlorotrifluoroeth Tribromomethane Trichloromethane	ND ND ND ND ND ND ND ND ND ND
	> = < = ND =	nicrograms greater th less then none detec Present		· ·
******	****	*******	************************************	**************

.

Organic Chemical Analysis

	or gan.	ie oneniea	T LUIIGTÀDTD	
SAMPLE NO.:	39447			
OWNERS NAME: OWNERS ADDRESS: City or town	MOTTOLO I BLUEBERR RAYMOND	HAZ. WASTE Y HILL RD.	SITE	
DATE SAMPLED: PERSON SAMPLING: DATE SUBMITTED: DATE COMPLETED:	04-11-85 J. REGAN 04-12-85 05-02-85	,10:27		
Comments:		·		
JB-8 SAMPLED-15:55	,			
Test Name		Result	Test Name	Result
****	****		****	(UQ/L) • ************************************
Volatile Organ	ics_	*****	Volatile Organics (6	:ont.)
Dichloromethane Dichlorobromometha Tetrachloromethane Chlorodibromometha Chloroethane 1,1-Dichloroethane 1,1-Dichloroethane 1,1,1-Trichloroeth 1,1,2-Trichloroeth Tetrachloroethylene 1,1-Dichloroethylene 1,1-Dichloroethylene 1,1-Dichloroethylene Tetrachloroethylene Tetrachloroethylene 1,2-Dichloropropan 1,3-Dichloropropan 1,3-Dichloropropan Benzene Chlorobenzene Dichlorobenzene Ethylbenzene Toluene Xylene, meta isome Xylenes, (ortho&pa Vinyl chloride Bromomethane	ne ND ND ane ND ane ND ane ND c+t) ND c+t) ND e ND e ND e ND ND ND ND	* *	Trichlorofluoromethane Acetone Tetrahvdrofuran Diethvl ether Methvl Ethvl Ketone Methvl Isobutyl Keton 1,3-Dichloropropane Trichlorotrifluoroeth Tribromomethane Trichloromethane	ии NB NB NB NB NB NB
		nicroorams preater th less then none detec Present		
*****	*****	<*********	***************************************	*** *** ******

WATER SUPPLY AND POLLUTION CONTROL COMMISSION HAZARDOUS WASTE AND GROUNDWATER PROTECTION DIVISION

Organic Chemical Analysis

SAMPLE NO.:					
	3944	9			
DWNERS NAME: DWNERS ADDRESS: CITY OR TOWN	MOTTOLO BLUEBER RAYMOND	HAZ, WASTE Ry Hill RD	E SITE		
DATE SAMPLED: PERSON SAMPLING: DATE SUBMITTED: DATE COMPLETED:	04-11-8 J. REGA 04-12-8 05-08-8	5 N 5,10:28			
Comments:		·	•		
0W-4 DEEP NO DUPLICATE OBTA SAMPLED-12:00	INED AT	THIS STATIO	ИС		
PRESENCE OF A C9	KETONE;	PROBABLY DI	I-ISOBUTYL KETONE,		
•					
fest Name		Result (ug/l)	Test Name		Result (ud/l)
*****	*****	******	« * * * * * * * * * * * * * * * * * * *	*****	*****
Volatile Organ	ics		<pre>*Yolatile_Organics (*</pre>	cont.)	
)ichloromethane Dichlorobromometha	ne ND	3	<pre>% Trichlorofluoromethane %</pre>	аи	
Tetrachloromethane Chlorodibromometha Chloroethane	ne ND	े अ	<pre>< Acetone < Tetrahydrofuran < Diethyl ether < Methyl Ethyl Ketone</pre>	ND ND	$\frac{26}{37}, \frac{200}{400}$
1,1-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroeth 1,1,2-Trichloroeth	ane ND ane ND	 3 3	« Methýl Isobutyl Keton * 1,3-Dichloropropane « Trichlorotrifluoroeth	ND ND	12.700
Tetrachloroethane 1,1-Dichloroethyle Dichloroethylene (Trichloroethylene	ND ne ND c+t) ND	13,9000	« « Tribromomethane « Trichloromethane «	ND ND	
Tetrachloroethylen 1,2-Dichloropropan 1,3-Dichloropropen	e ND		× < <		
Bénzene Chlorobenzene Dichlorobenzene	ND ND ND ND	ې ئ	¢ X 4		
Ethylbenzene foluene	ND r ND	17.6000	* * *		
(ylene, meta isome (ylenes, (ortho&pa	ra) ND		* *		

Organic Chemical Analysis

SAMPLE NO. :	3945	Ŭ			
OWNERS NAME: OWNERS ADDRESS: CITY OR TOWN	MOTTOLO BLUEBER RAYMOND	HAZ, WASTE RY HILL RD.	E SITE		
DATE SAMPLED: PERSON SAMPLING: DATE SUBMITTED: DATE COMPLETED:	04-11-8 J. REGA 04-12-8 05-08-8	N			
Comments:		,			
JB-5 -SAMPLED-15:05					
Toot Nows		0 mm co 1 m	Tamp Marin		0 mm v 1 t
Test Name		Result (ug/l)	Test Name		Result (ug/l)
		×			******
<u>Volatile Organ</u>	105	ې بې		cont.)	
Dichloromethane Dichlorobromometha	ND Ne ND	× ×	<pre>Trichlorofluoromethane</pre>	ND	
Tetrachloromethane Chlorodibromometha	ne ND	×	Acetone	aи	6,3000
Chloroethane 1,1-Dichloroethane		×	Diethyl ether Methyl Ethyl Ketone	ай Сл	
1,2-Dichloroethane	ND ADE	12.2000 ×	Methyl Isobutyl Keton	ND	
1,1,2-Trichloroeth. Tetrachloroethane	ane ND ND	×	Trichlorotrifluoroeth	an .	
Dichloroethvlene (ne ND c+t)	47,3000 ×		ND ND	
Tetrachloroethylene	e ND	×			
1,2-Dichloropropane 1,3-Dichloropropen	e ND e ND	×			
Benzene Chlorobenzene	ND ND	*			
Dichlorobenzene Ethylbenzene	ND ND	** **			
Toluene Xylene, meta isome	r ND	7.8000 * *	÷		
- Xylenes, (ortho∥ - Vinyl chloride	ra)	11.7000 *			
Bromomethane Chloromethane		* *			
					9 9449 9449 9449 9444 9444 9446 9446 94
•	>` =	micrograms greater th	s per liter Jen		
	ND =	less then none detec	ted		
	PR =	Present			

Organic Chemical Analysis

•			
SAMPLE NO.:	39452		
DWNERS NAME: DWNERS ADDRESS: CITY OR TOWN	MOTTOLO HAZ, WAST BLUEBERRY HILL RD RAYMOND	E SITE	
OATE SAMPLED: PERSON SAMPLING: DATE SUBMITTED: DATE COMPLETED:	04-11-85 J. REGAN 04-12-85,10:31 05-08-85		
Comments:			
JB-7 SAMPLED-15:45			
	ON OF A C9 KETONE PI	RESENT; PROBABLY DI-ISOBU	TYL KETONE.
		-	
est Name	Result (ug/l)	Test Name	Result (ua/l)
`***************	*****	**************************************	-
Volatile Organ	nics	Volatile Organics (C *	cont.)
vichloromethane Dichlorobromometh	ND	× × Trichlorofluoromethane ×	dи
etrachloromethan Chlorodibromometh	e ND ane ND	× Acetone × Tetrahvdrofuran	220.0000 544.0000
hloroethane 1-Dichloroethan	e 1222,0000	* Diethyl ether * Methyl Ethyl Ketone	ND 239.900
,2-Dichloroethan ,1,1-Trichloroet 1.2-Trichloroet	hane 122,0000	* Methyl Isobutyl Keton * 1,3-Dichloropropane * Trichlorotrifluoroeth	309,700(ND ND
,1,2-Trichloroet Tetrachloroethane ,1-Dichloroethyl	ene 35,7000 -	* * Tribromomethane	ND
)ichloroethvlene Trichloroethvlene Tetrachloroethvle	(c+t) 1858.6001 ND ne ND	* Trichloromethane * *	ДИ
2-Dichloropropa ,3-Dichloropropa	ne ND ne ND	* * *	
den zene Chloroben zene	ND	× · · · · · · · · · · · · · · · · · · ·	
ichlorobenzene Ithvlbenzene	249.3000	*	
oluene	er 2781.0000 318.0000		
Kylene, meta 150m		*	
Kylene, meta isom Kylenes, (ortho&p- Vinvl chloride		*	
Kylene, meta isom (ylenes, (ortho&p		* * * *	
Kylene, meta isom Kylenes, (ortho&p Vinvl chloride Kromomethane	ug/l = microgram	× × s per liter	
Kylene, meta isom Kylenes, (ortho&p Vinvl chloride Kromomethane		x x s per liter hen	

1

(

Organic Chemical Analysis

.

e.

(

SAMPLE NO. :	39454		· · ·
OWNERS NAME: OWNERS ADDRESS: CITY OR TOWN	MOTTOLO HAZ. WASTI BLUEBERRY HILL RD RAYMOND	E SITE	
DATE SAMPLED: PERSON SAMPLING: DATE SUBMITTED: DATE COMPLETED:	04-11-85 J. REGAN 04-12-85,10:32 05-06-85		
Comments:			
S-1 SAMPLED-16:10		· ·	
Test Name	Result (ug/1)	Test Name	Result (ug/1)
****	****************	*****	
Volatile Organ:	ics	<pre>% Volatile Organics (c * Volatile Organics (c)</pre>	:ont.)
Dichloromethane Dichlorobromomethan Tetrachloromethane Chlorodibromomethan Chloroethane 1,1-Dichloroethane 1,1-Trichloroethane 1,1,2-Trichloroethylene 1,1-Dichloroethylene 1,1-Dichloroethylene Chloroethylene 1,2-Dichloroethylene Tetrachloroethylene Tetrachloroethylene 1,3-Dichloropropane 1,3-Dichloropropane Chlorobenzene Dichlorobenzene Ethylbenzene Toluene Xylene, meta isomet Xylenes, (ortho&pat Vinyl chloride Bromomethane	ne ND ne ND ne ND ane ND ane ND ane ND ane ND c+t) ND e ND e ND e ND ND ND ND ND ND ND ND ND ND	<pre>X Trichlorofluoromethane X Acetone X Tetrahvdrofuran X Diethyl ether X Methyl Ethyl Keton X 1,3-Dichloropropane X Trichlorotrifluoroeth X Tribromomethane X Trichloromethane X X X X X X X X X X X X X X X X X X X</pre>	ии ND ND ND ND ND ND ND
	ug/l = micrograms > = greater the < = less then ND = none detec PK = Present	nen	
.**********************	****	* * * * * * * * * * * * * * * * * * * 	****

.

ł

Organic Chemical Analysis

SAMPLE NO.: 39456 OWNERS NAME: MOTTOLO D OWNERS ADDRESS: BLUEBERR CITY OR TOWN RAYMOND DATE SAMPLED: 04-11-85 PERSON SAMPLING: J. REGAN DATE SUBMITTED: 04-12-85 DATE COMPLETED: 05-06-85 Comments:	HAZ, WASTE Y Hill RD.	SITE	
S-3 SAMPLED-14:55			
Test Name	Result (ug/l)	Test Name	Result (ug/l) -
******	***************************************	,	*****
Volatile Organics	* *		ont.)
Dichloromethane ND Dichlorobromomethane ND Tetrachloromethane ND Chlorodibromomethane ND Chloroethane ND Chloroethane ND 1,1-Dichloroethane ND 1,1,2-Dichloroethane ND 1,1,2-Trichloroethane ND 1,1,2-Trichloroethane ND 1,1-Dichloroethylene ND Dichloroethylene ND Dichloroethylene ND 1,2-Dichloroethylene ND 1,2-Dichloropropane ND 1,3-Dichloropropane ND 1,3-Dichloropropene ND Benzene ND Chlorobenzene ND Chlorobenzene ND Chlorobenzene ND Toluene (Xylene, meta isomer ND Xylenes, (ortho¶) ND Vinyl chloride Bromomethane	* * * * 5,0000 *	Trichlorofluoromethane Acetone Tetrahvdrofuran Diethvl ether Methvl Ethvl Ketone Methvl Isobutyl Keton 1,3-Dichloropropane Trichlorotrifluoroeth Tribromomethane Trichloromethane	ND { 5.0000 ND ND ND ND ND ND ND
$\begin{array}{c} & & \\$	micrograms greater the less then none detec Present	en	
********************************	*****	*******	*****

Organic Chemical Analysis

SAMPLE NO.:	39458				
OWNERS NAME: OWNERS ADDRESS: CITY OR TOWN	MOTTOLO HAZ BLUEBERRY H RAYMOND	Z. WASTE HILL RD.	SITE		
DATE SAMPLED: PERSON SAMPLING: DATE SUBMITTED: DATE COMPLETED:	04-11-85 J. REGAN 04-12-85,10 05-06-85);35	· · ·		
Comments: LEACHATE SEEP SAMPLED-16:25		· ·			
PRESENCE OF A C9	KETONE; PROE	BABLY DI	-ISOBUTYL KETONE.		
			•		
Test Name	R	lesult (uq∕l)	Test Name		Result (ud/l)
*****			*****	*****	
Volatile Organ	ics	*	Volatile Organics	(cont.)	
Dichloromethane Dichlorobromometha Tetrachloromethane Chlorodibromometha Chloroethane 1.1-Dichloroethane 1.2-Dichloroethane 1.1.1-Trichloroeth Tetrachloroethylene 1.1.2-Trichloroethyle Dichloroethylene Tetrachloroethylene Tetrachloroethylene Lichlorobenzene Chlorobenzene Dichlorobenzene Ethylbenzene Toluene Xylene, meta isome Xylenes, (ortho&pa Vinyl chloride Bromomethane	ND ND ND Ane ND Ane ND Ane ND C+t) 93 C+t) 93 ND C+t) 93 ND ND ND ND ND ND ND ND ND ND ND ND ND	* * * * 7.8000 *	Trichlorofluoromethane Acetone Tetrahvdrofuran Diethvl ether Methvl Ethvl Ketone Methvl Isobutyl Keton 1.3-Dichloropropane Trichlorotrifluoroeth Tribromomethane Trichloromethane	а и а и по по по по по	18.2000
	>" = gre < = 1@s	eater th ss then ne detec			

Organic Chemical Analysis

SAMPLE NO.:	39460
OWNERS NAME:	MOTTOLO HAZ, WASTE SITE
OWNERS ADDRESS:	BLUEBERRY HILL RD,
CITY OR TOWN	Raymond
DATE SAMPLED:	04-11-85
PERSON SAMPLING:	J. REGAN
DATE SUBMITTED:	04-12-85,10:36
DATE COMPLETED:	05-06-85
Comments: TRIP BLANK	

Test Name	Result (ua/l)	Test Name	Result (uo∕l)

Volatile Organics		Volatile Organics (c	ont.)
Dichloromethane NI Dichlorobromomethane NI) X	Trichlorofluoromethane	ND
Tetrachloromethane NI Chlorodibromomethane NI Chloroethane) X	Acetone Tetrahydrofuran Diethyl ether	ND ND ND
1,1~Dichloroethane NI 1,2~Dichloroethane NI 1,1,1-Trichloroethane NI	×	<pre>> Methyl Ethyl Ketone > Methyl Isobutyl Keton > 1.3-Dichloropropane</pre>	DN אט מא
1,1,1-Trichloroethane NI 1,1,2-Trichloroethane NI Tetrachloroethane NI 1,1-Dichloroethylene NI	i X		άй αи
Dichloroethylene (c+t) NI Trichloroethylene NI Tetrachloroethylene NI) · · · · · · · · · · · · · · · · · · ·	Trichloromethane	ă ^c i
1,2-Dichloropropane NI 1,3-Dichloropropene NI Benzene NI) X		
Chlorobenzene NI Dichlorobenzene NI		*	
Ethylbenzene NI Toluene NE Xylene, meta isomer NI	× *		
- Xýleneš, (ortho¶) - NI - Vinyl chloride - Bromomethane	۰ X ۲ ۲	ł	
Chloromethan@	·	* *** ## *** *** *** *** *** *** *** **	
vg/l = } < =	 micrograms greater the less then 		

none detected Present ND P R =

==

Sample No.:	39473
Owners Name:	MOTTOLO HAZARDOUS WASTE SITE
Address:	BLUEBERRY HILL ROAD
City or Town:	RAYMOND
Date sampled:	04-11-85
Person sampling:	J. REGAN
Date Submitted:	04-15-85,11:09
Date Completed:	05-03-85

Comments: DUG WELL SAMPLED-10:35

Test Name	MCL	Result (mg/l)	k -k -	Test Name	MCL	e ske ske i	Result (mg/l)
Primary St	andards		*	Secondary	Standards		
Arsenic Barium Cadmium Chromium Lead Mercury Selenium Silver Nitrate/Nitrit Fluoride, F Coliform Bact Non-Coliform I Iron Bacteria Coliform, Tot	(2.4) /100 ml Bact. MPN/100	< .5000 < .0050 < .0300 < .0100 < .0050 < .0010	* * * * * * * * * * *	Chloride, Cl Copper, Cu Iron, Fe Manganese, Mn Sulfate, SO4 Sodium, Na Turbidity Specific Conducta pH Total Hardness as Calcium Hardness Total Alkalinity TDS (tot. Dis. So C.O.D.	(units CaCO3 as CaCO3 as CaCO3	<	.1000 .1000 .0700
Aluminum, Al Antimony, Sb Molybdenum, Mo Vanadium, Va Zinc, Zn Nickel, Ni ************************************	**************************************	****	* * * * * * * * * * * * * * * * * * * *	T.K.N. NH3 Total Solids T.O.C. Total P Sulfide ************************************	·	***	*****

Sample No.:	39478
Owners Name:	MOTTOLO HAZARDOUS WASTE SITE
Address:	BLUEBERRY HILL ROAD
City or Town:	RAYMOND
Date sampled:	04-11-85
Person sampling:	J. REGAN
Date Submitted:	04-15-85,11:17
Date Completed:	04-19-85

Comments: DUG WELL SAMPLED-10:30

Test Name	MCL	Result (mg/l)	Test Name	MCL	Result (mg/l)
Primary S	tandards	*	Secondary	Standards	
Nitrate/Nitri Fluoride, F Coliform Bact Non-Coliform Iron Bacteria Coliform, Tot	(0.01) (0.05) te(10.0) (2.4) ./100 ml Bact.	* * * * * * * * * * * *	Chloride, Cl Copper, Cu Iron, Fe Manganese, Mn Sulfate, SO4 Sodium, Na Turbidity Specific Conduct pH Total Hardness a Calcium Hardness Total Alkalinity TDS (tot. Dis. Sc C.O.D.	(units	
Aluminum, Al Antimony, Sb Molybdenum, M Vanadium, Va Zinc, Zn Nickel, Ni ************************************	<pre>10 2************************************</pre>	* * * * * * * * * * * * * * * * * * *	T.K.N. NH3 Total Solids T.O.C. Total P Sulfide ************************************		ll.0000 ***********

Sample No.:	39474
Owners Name:	MOTTOLO HAZARDOUS WASTE SITE
Address:	BLUEBERRY HILL ROAD
City or Town:	RAYMOND
Date sampled:	04-11-85
Person sampling:	J. REGAN
Date Submitted:	04-15-85,11:13
Date Completed:	05-03-85

Comments: OW-4 SHALLOW SAMPLED-12:15

Test Name	MCL		esult mg/l)		Test Name	MCL		Result (mg/l)
Primary S	tandards			*	Secondary	Standards		· · · · · ·
Arsenic Barium	(0.05)				Chloride, Cl	(250)		1000
Cadmium	(1.0)	< .			Copper, Cu Iron, Fe	(1.0)		.1000 190.0000
Chromium	(0.010)	< .			Manganese, Mn	(0.05		
Lead	(0.05)				Sulfate, SO4	(250)		7.5000
	(0.002)		.0300		Sodium, Na	(20-250		
Selenium	(0.01)	<	0050		Turbidity	(N.T.U.		
Silver	(0.05)				Specific Conducta			
Nitrate/Nitri		-			pH	(units		
Fluoride, F				*	Total Hardness as	CaCO3		
Coliform Bact				*	Calcium Hardness Total Alkalinity TDS (tot. Dis. So	as CaCO3		
Non-Coliform				*	Total Alkalinity	as CaCO3		
Iron Bacteria				*	TDS (tot. Dis. So	1.) (500)		
Coliform, Tot	. MPN/100			*	C.O.D.	, , ,		
•	avy Metal			*				
				*	T.K.N.			
Aluminum, Al					NH3			
Antimony, Sb				*	Total Solids			
Molybdenum, M	0			*	Т.О.С.			
Vanadium, Va				*	Total P			
Zinc, Zn		2	3000	*	Sulfide			
Nickel, Ni				*				
*****	******	******	*****	***	*****	*****	***	******
mg					: - (otherwise not	.ed)		
>					< = less than			
ND		detected			PR = present			
*****	*******	******	*****	**	*****	******	***	*****

39480

MOTTOLO HAZARDOUS WASTE SITE Owners Name: Address: BLUEBERRY HILL ROAD City or Town: RAYMOND Date sampled: 04-11-85 J. REGAN Person sampling: 04-15-85,11:24 Date Submitted: 04-19-85 Date Completed: . Comments:

OW-4 SHALLOW SAMPLED-12:15

Sample No.:

Test Name	MCL	Result (mg/l)	Test Name	MCL	Result (mg/l)
**************************************	******************** y Standards	**********	**************************************	ry Standards	****
		*			
Arsenic	(0.05)	*	Chloride, Cl	(250)	
Barium	(1.0)	*	Copper, Cu	(1.0)	
Cadmium	(0.010)	*	Iron, Fe	(0.30	
Chromium	(0.05)		Manganese, Mn		
Lead	(0.05)		Sulfate, SO4		
Mercury	(0.002)		Sodium, Na	(20-250	
Selenium	(0.01)	*	Turbidity	(N.T.U.	
Silver	(0.05)	*	Specific Condu	ictance (mhos	
Nitrate/Nit	trite(10.0)		pH	(units	
Fluoride, I	F (2.4)	*	Total Hardness	sas CaCO3	
Coliform Ba	act./100 ml		Calcium Hardne		
Non-Colifor		*	Total Alkalini	ty as CaCO3	
Iron Bacter	ria	*	TDS (tot. Dis.	Sol.) (500)	
Coliform, 5	rot. MPN/100	*	C.O.D.		
Other	Heavy Metal	*			
		*	T.K.N.		
Aluminum, A	Al	*	NH3		
Antimony, S	Sb	*	Total Solids		
Molybdenum	, MO	*	T.O.C.		90.0000
Vanadium, V	Va	*	Total P		
Zinc, Zn		*	Sulfide		
Nickel, Ni		*			
******	*****	******	*****	*****	*****
	mg/l = milligr	ams per lite	r - (otherwise	noted)	
			< = less that		
	ND = none de		PR = present		
*******	*****		*******	*****	*****

(

Sample No.:	39475
Owners Name:	MOTTOLO HAZARDOUS WASTE SITE
Address:	BLUEBERRY HILL ROAD
City or Town:	RAYMOND
Date sampled:	04-11-85
Person sampling:	J. REGAN
Date Submitted:	04-15-85,11:14
Date Completed:	05-03-85
-	

(

Comments: S-3 SAMPLED-14:55

**********			(mg/l)		Test Name	MCL		Result (mg/l)
Primary S	********** tandards	****	* * * * * * * * * *	***	Secondary	********* Standards	***	******
Arsenic	(0.05)	<	.0050	*	Chloride, Cl	(250)		
Bàrium	(1.0)	<	.5000	*	Copper, Cu	(1.0)	<	.1000
Cadmium	(0.010)	<	.0050	*	Iron, Fe	(0.30		.9000
Chromium	(0.05)	<	.0300	×	Manganese, Mn	(0.05		.3100
Lead	(0.05)	<			Sulfate, SO4	(250)		
Mercury	(0.002)			*	Sodium, Na	(20-250		
Selenium	(0.01)	<	.0050		Turbidity	N.T.U.		
Silver	(0.05)	<			Specific Conducta			
Nitrate/Nitri	• •				Ĥq	(units		
Fluoride, F					Total Hardness as	•		
Coliform Bact					Calcium Hardness			
Non-Coliform				*	Total Alkalinity	as CaCO3		
Iron Bacteria				*	TDS (tot. Dis. So	(1.) (500)		
Coliform, Tot					C.O.D.	, (000)		
•	avy Metal			*	010121			
	avy necut			*	T.K.N.			
Aluminum, Al					NH3			
Antimony, Sb					Total Solids			
Molybdenum, M					T.O.C.			
Vanadium, Va	0				Total P			
Zinc, Zn			0300		Sulfide			
Nickel, Ni			.0300	-	Dállige			
NICKEI, NI	الدياد واد واد واد واد واد واد واد واد و	ىلەر بالەر بالەر بالەر	و علو علو علو علو علو علو علو علو		بالدر با	و علو علو علو علو علو علو علو علو علو	له مله مله با	له ماد ماد ماد ماد ماد ماد ماد م
		~~~~	1		r = (othornize)	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		
-					r - (otherwise not	.eu)		
>	-		han		< = less than			
ND	= none	αετε		 	PR = present		L L L I	1

Sample No.:	39483
Owners Name:	MOTTOLO HAZARDOUS WASTE SITE
Address:	BLUEBERRY HILL ROAD
City or Town:	RAYMOND
Date sampled:	04-11-85
Person sampling:	J. REGAN
Date Submitted:	04-15-85,11:27
Date Completed:	04-19-85

## Comments: S-3 SAMPLED-14:55

Test Name	MCL	Result (mg/l)	Test Name	MCL	Result (mg/l)
**************************************	**************************************	* * * * * * * * * * * * *	**************************************	**************************************	*****
FIIMALY	Standarus	*	Becondar	y Scandarus	
Arsenic	(0.05)	*	Chloride, Cl	(250)	
Barium	(1.0)		Copper, Cu	(1.0)	
Cadmium	(0.010)		Iron, Fe	(0.30	
Chromium	(0.05)		Manganese, Mn	(0.05	
Lead	(0.05)		Sulfate, SO4	(250)	
Mercury	(0.002)		Sodium, Na	(20-250	
Selenium	(0.01)		Turbidity	N.T.U.	
Silver	(0.05)	*	Specific Conduc	ctance (mhos	
Nitrate/Nit	rite(10.0)			(units	
Fluoride, F	(2.4)	*	Total Hardness	as CaCO3	
Coliform Ba	ct./100 ml	*	Calcium Hardnes	ss as CaCO3	
Non-Colifor		*	Total Alkalinit	ty as CaCO3	
Iron Bacter	ia	*	TDS (tot. Dis.	Sol.) (500)	
Coliform, T	ot. MPN/100	*	C.O.D.		
	Heavy Metal	*			
		. *	T.K.N.		•
Aluminum, A	.1	*	NH3		
Antimony, S	b	*	Total Solids		
Molybdenum,	Мо	*	Т.О.С.	•	8.0000
Vanadium, V	a	*	Total P		
Zinc, Zn		*	Sulfide		
Nickel, Ni		· *			
******	*****	*****	*****	****	******
	mg/l = milligr	ams per lite	r - (otherwise m	noted)	
	> = greater	than *	< = less than	n	
	ND = none de	tected *	PR = present		
*******	*****	******	****	*****	*****

(

Sample No.:	39476
Owners Name:	MOTTOLO HAZARDOUS WASTE SITE
Address:	BLUEBERRY HILL ROAD
City or Town:	RAYMOND
Date sampled:	04-11-85
Person sampling:	J. REGAN
Date Submitted:	04-15-85,11:15
Date Completed:	05-03-85
-	

{

Comments: MW-2 SHALLOW SAMPLED-15:45

Test	Name	MCL		Result (mg/l)	6 <b>1</b> 6	Test Name	MCL	Result (mg/l)
****	Primary S	tandards	*****	****	· π ·	Secondary	Standards	-
Arse	enic	(0.05)		.0090	*	Chloride, Cl	(250)	-
Bari	um	(1.0)	<	.5000	*	Copper, Cu	(1.0) <	< .100
Cadm	nium	(0.010)	<	.0050	*	Iron, Fe	(0.30	10.000
Chro	mium	(0.05)	<	.0300	*	Manganese, Mn	(0.05	.630
Lead	1	(0.05)	<	.0100	×	Sulfate, SO4	(250)	
Merc	cury	(0.002)			*	Sodium, Na	(20-250	
Sele	enium	(0.01)	<	.0050	*	Turbidity	(N.T.U.	
Silv	ver	(0.05)	<			Specific Conduct		
	ate/Nitri	te(10.0)				Hq	(units	
	oride, F				*	Total Hardness as	s CaCO3	
	form Bact				*	Calcium Hardness Total Alkalinity	as CaCO3	
	-Coliform				*	Total Alkalinity	as CaCO3	
	Bacteria					TDS (tot. Dis. S		
	form, Tot					C.O.D.		
		avy Metal			*			
-					*	T.K.N.		
<u>אונ</u> Γ Δ	ninum, Al					NH3		
	Lmony, Sb					Total Solids		
	ybdenum, M	•				T.O.C.		
	adium, Va	0				Total P		•
	c, Zn		<	0300		Sulfide		
	cel, Ni			.0500	+	Builide		
	*********	نه علم علم علم علم علم علم علم علم علم	لله مايه باي باي باي با	*****	**	*****	*******	***
		/1 1 1		nor lit		r - (otherwise no	+	
						< = less than	Leuj	
	>			an				
• الدياسية					гт. Ч			
****	ND	= none *********		:ted :*******	**	PR = present ****************	*****	***

Sample No.:	39481
Owners Name:	MOTTOLO HAZARDOUS WASTE SITE
Address:	BLUEBERRY HILL ROAD
City or Town:	RAYMOND
Date sampled:	04-11-85
Person sampling:	J. REGAN
Date Submitted:	04-15-85,11:25
Date Completed:	04-19-85
-	

#### Comments: OW-2 SHALLOW SAMPLED-12:45

Test Name	MCL	Result (mg/l)	Test Name	MCL	Result (mg/l)
Primary St	andards	*	Secondar	y Standards	
Selenium Silver Nitrate/Nitria Fluoride, F Coliform Bact Non-Coliform I Iron Bacteria Coliform, Tot	(2.4) ./100 ml Bact.	* * * * * * *	Chloride, Cl Copper, Cu Iron, Fe Manganese, Mn Sulfate, SO4 Sodium, Na Turbidity Specific Conduc pH Total Hardness Calcium Hardness Total Alkalinit TDS (tot. Dis. C.O.D.	tance (mhos (units as CaCO3 s as CaCO3 y as CaCO3	
Aluminum, Al Antimony, Sb Molybdenum, Ma Vanadium, Va Zinc, Zn Nickel, Ni	) ************************************	* * * ************* ams per lite than *	T.K.N. NH3 Total Solids T.O.C. Total P Sulfide ************************************		24.0000 *****

Sample No.:39482Owners Name:MOTTOLO HAZARDOUS WASTE SITEAddress:BLUEBERRY HILL ROADCity or Town:RAYMONDDate sampled:04-11-85Person sampling:J. REGANDate Submitted:04-15-85,11:26Date Completed:04-19-85

#### Comments: OW-2 DEEP SAMPLED-13:35

Я.

Tëst Name	MCL	Result (mg/l)	Test Name	MCL	Result (mg/l)
Primary S	tandards	*************************	Secondary	Standards	*******
Arsenic Barium Cadmium Chromium Lead Mercury Selenium Silver Nitrate/Nitri Fluoride, F Coliform Bact Non-Coliform Iron Bacteria Coliform, Tot	(0.05) (1.0) (0.010) (0.05) (0.05) (0.02) (0.01) (0.05) (0.05) (1te(10.0) (2.4) c./100 ml Bact.	* * * * * * * * *	Chloride, Cl Copper, Cu Iron, Fe Manganese, Mn Sulfate, SO4 Sodium, Na Turbidity Specific Conducts pH Total Hardness as Calcium Hardness Total Alkalinity TDS (tot. Dis. Sc C.O.D.	(250) (1.0) (0.30 (0.05 (250) (20-250 (N.T.U. ance (mhos (units s CaCO3 as CaCO3 as CaCO3	
Aluminum, Al Antimony, Sb Molybdenum, N Vanadium, Va Zinc, Zn Nickel, Ni ******	fo fo g/l = milligra = greater D = none det	* * * ********** ms per lite than * ected *	T.K.N. NH3 Total Solids T.O.C. Total P Sulfide ************************************		70.0000 **********

Sample No.:	39477
Owners Name:	MOTTOLO HAZARDOUS WASTE SITE
Address:	BLUEBERRY HILL ROAD
City or Town:	RAYMOND
Date sampled:	04-11-85
Person sampling:	J. REGAN
Date Submitted:	04-15-85,11:16
Date Completed:	05-03-85

Comments: S-1 BROOK A SAMPLED-16:10

Barium(1.0)<	Test Name	MCL	Result (mg/l)	<b>.</b>	Test Name	MCL	Result (mg/l)
Barium (1.0) < .5000 * Copper, Cu (1.0) < .1000 Cadmium (0.010) < .0050 * Iron, Fe (0.30 .2000 Chromium (0.05) < .0300 * Manganese, Mn (0.05 .1700 Lead (0.05) < .0100 * Sulfate, SO4 (250) Mercury (0.002) * Sodium, Na (20-250 Selenium (0.01) < .0050 * Turbidity (N.T.U. Silver (0.05) < .0010 * Specific Conductance (mhos Nitrate/Nitrite(10.0) * pH (units Fluoride, F (2.4) * Total Hardness as CaC03 Coliform Bact./100 ml * Calcium Hardness as CaC03 Non-Coliform Bact. * Total Alkalinity as CaC03 Non-Coliform Bact. * Total Alkalinity as CaC03 Coliform, Tot. MPN/100 * C.O.D. Other Heavy Metal * 	Primary	Standards	******	* * *	Secondary	y Standards	****
Cadmium       (0.010) < .0050 * Iron, Fe	Arsenic	(0.05)	< .0050	*	Chloride, Cl	(250)	
Chromium       (0.05)        .0300 * Manganese, Mn       (0.05)       .1700         Lead       (0.05)        .0100 * Sulfate, SO4       (250)         Mercury       (0.002)       * Sodium, Na       (20-250         Selenium       (0.01)       .0050 * Turbidity       (N.T.U.         Silver       (0.05)       .0010 * Specific Conductance (mhos         Nitrate/Nitrite(10.0)       * pH       (units         Fluoride, F       (2.4)       * Total Hardness as       CaC03         Coliform Bact./100 ml       * Calcium Hardness as       CaC03         Non-Coliform Bact.       * Total Alkalinity as       CaC03         Iron Bacteria       * TDS (tot. Dis. Sol.) (500)         Coliform, Tot. MPN/100       * C.O.D.         Other Heavy Metal       *	Barium	(1.0)	< .5000	×	Copper, Cu	(1.0) <	.1000
Lead (0.05) < .0100 * Sulfate, SO4 (250) Mercury (0.002) * Sodium, Na (20-250 Selenium (0.01) < .0050 * Turbidity (N.T.U. Silver (0.05) < .0010 * Specific Conductance (mhos Nitrate/Nitrite(10.0) * pH (units Fluoride, F (2.4) * Total Hardness as CaCO3 Coliform Bact./100 ml * Calcium Hardness as CaCO3 Non-Coliform Bact. * Total Alkalinity as CaCO3 Iron Bacteria * TDS (tot. Dis. Sol.) (500) Coliform, Tot. MPN/100 * C.O.D. Other Heavy Metal * 	Cadmium	(0.010)	< .0050	÷.	Iron, Fe	(0.30	.2000
Lead (0.05) < .0100 * Sulfate, SO4 (250) Mercury (0.002) * Sodium, Na (20-250 Selenium (0.01) < .0050 * Turbidity (N.T.U. Silver (0.05) < .0010 * Specific Conductance (mhos Nitrate/Nitrite(10.0) * pH (units Fluoride, F (2.4) * Total Hardness as CaCO3 Coliform Bact./100 ml * Calcium Hardness as CaCO3 Non-Coliform Bact. * Total Alkalinity as CaCO3 Iron Bacteria * TDS (tot. Dis. Sol.) (500) Coliform, Tot. MPN/100 * C.O.D. Other Heavy Metal * 	Chromium	(0.05)	< .0300	*	Manganese, Mn	(0.05	.1700
<pre>Mercury (0.002) * Sodium, Na (20-250 Selenium (0.01) &lt; .0050 * Turbidity (N.T.U. Silver (0.05) &lt; .0010 * Specific Conductance (mhos Nitrate/Nitrite(10.0) * pH (units Fluoride, F (2.4) * Total Hardness as CaC03 Coliform Bact./100 ml * Calcium Hardness as CaC03 Non-Coliform Bact. * Total Alkalinity as CaC03 Iron Bacteria * TDS (tot. Dis. Sol.) (500) Coliform, Tot. MPN/100 * C.O.D. Other Heavy Metal * </pre>	Lead	(0.05)				(250)	
Silver (0.05) < .0010 * Specific Conductance (mhos Nitrate/Nitrite(10.0) * pH (units Fluoride, F (2.4) * Total Hardness as CaC03 Coliform Bact./100 ml * Calcium Hardness as CaC03 Non-Coliform Bact. * Total Alkalinity as CaC03 Iron Bacteria * TDS (tot. Dis. Sol.) (500) Coliform, Tot. MPN/100 * C.O.D. Other Heavy Metal * * T.K.N. Aluminum, Al * NH3 Antimony, Sb * Total Solids Molybdenum, Mo * T.O.C. Vanadium, Va * Total P Zinc, Zn < .0300 * Sulfide Nickel, Ni * mg/l = milligrams per liter - (otherwise noted) > = greater than * < = less than ND = none detected * PR = present	Mercury	(0.002)				(20-250	
Silver (0.05) < .0010 * Specific Conductance (mhos Nitrate/Nitrite(10.0) * pH (units Fluoride, F (2.4) * Total Hardness as CaC03 Coliform Bact./100 ml * Calcium Hardness as CaC03 Non-Coliform Bact. * Total Alkalinity as CaC03 Iron Bacteria * TDS (tot. Dis. Sol.) (500) Coliform, Tot. MPN/100 * C.O.D. Other Heavy Metal * * T.K.N. Aluminum, Al * NH3 Antimony, Sb * Total Solids Molybdenum, Mo * T.O.C. Vanadium, Va * Total P Zinc, Zn < .0300 * Sulfide Nickel, Ni * mg/l = milligrams per liter - (otherwise noted) > = greater than * < = less than ND = none detected * PR = present	Selenium	• •	< .0050				
<pre>Nitrate/Nitrite(10.0) * pH (units Fluoride, F (2.4) * Total Hardness as CaCO3 Coliform Bact./100 ml * Calcium Hardness as CaCO3 Non-Coliform Bact. * Total Alkalinity as CaCO3 Iron Bacteria * TDS (tot. Dis. Sol.) (500) Coliform, Tot. MPN/100 * C.O.D.     Other Heavy Metal *     * T.K.N. Aluminum, Al * NH3 Antimony, Sb * Total Solids Molybdenum, Mo * T.O.C. Vanadium, Va * Total P Zinc, Zn &lt; .0300 * Sulfide Nickel, Ni * **********************************</pre>	Silver				-		
<pre>Fluoride, F (2.4) * Total Hardness as CaCO3 Coliform Bact./100 ml * Calcium Hardness as CaCO3 Non-Coliform Bact. * Total Alkalinity as CaCO3 Iron Bacteria * TDS (tot. Dis. Sol.) (500) Coliform, Tot. MPN/100 * C.O.D. Other Heavy Metal * * T.K.N. Aluminum, Al * NH3 Antimony, Sb * Total Solids Molybdenum, Mo * T.O.C. Vanadium, Va * Total P Zinc, Zn &lt; .0300 * Sulfide Nickel, Ni * mg/1 = milligrams per liter - (otherwise noted) &gt; = greater than * &lt; = less than ND = none detected * PR = present</pre>		· · ·					
Coliform Bact./100 ml * Calcium Hardness as CaCO3 Non-Coliform Bact. * Total Alkalinity as CaCO3 Iron Bacteria * TDS (tot. Dis. Sol.) (500) Coliform, Tot. MPN/100 * C.O.D. Other Heavy Metal * 			•		-		
<pre>Non-Coliform Bact. * Total Alkalinity as CaCO3 Iron Bacteria * TDS (tot. Dis. Sol.) (500) Coliform, Tot. MPN/100 * C.O.D. Other Heavy Metal *</pre>	•	• •					
<pre>Iron Bacteria * TDS (tot. Dis. Sol.) (500) Coliform, Tot. MPN/100 * C.O.D. Other Heavy Metal *</pre>				*	Total Alkalinity	v as CaCO3	
Coliform, Tot. MPN/100 * C.O.D. Other Heavy Metal * * T.K.N. Aluminum, Al * NH3 Antimony, Sb * Total Solids Molybdenum, Mo * T.O.C. Vanadium, Va * Total P Zinc, Zn < .0300 * Sulfide Nickel, Ni * ***********************************	-			*	TDS (tot. Dis.	501.) (500)	
Other Heavy Metal*Aluminum, Al* T.K.N.Antimony, Sb* Total SolidsMolybdenum, Mo* T.O.C.Vanadium, Va* Total PZinc, Zn< .0300 * Sulfide							
<pre>* T.K.N. Aluminum, Al Antimony, Sb Antimony, Sb * Total Solids * Total Solids Molybdenum, Mo * T.O.C. Vanadium, Va Zinc, Zn &lt; .0300 * Sulfide Nickel, Ni ************************************</pre>	•	•		*			
Aluminum, Al * NH3 Antimony, Sb * Total Solids Molybdenum, Mo * T.O.C. Vanadium, Va * Total P Zinc, Zn < .0300 * Sulfide Nickel, Ni * ***********************************				*	T.K.N		
Antimony, Sb * Total Solids Molybdenum, Mo * T.O.C. Vanadium, Va * Total P Zinc, Zn < .0300 * Sulfide Nickel, Ni * ***********************************	Δ]ມາຫຼ່າວມາຫຼື Δ΄	, 1					
Molybdenum, Mo * T.O.C. Vanadium, Va * Total P Zinc, Zn < .0300 * Sulfide Nickel, Ni * ***********************************							
Vanadium, Va * Total P Zinc, Zn < .0300 * Sulfide Nickel, Ni * mg/l = milligrams per liter - (otherwise noted) > = greater than * < = less than ND = none detected * PR = present	- ·						•
Zinc, Zn < .0300 * Sulfide Nickel, Ni * mg/l = milligrams per liter - (otherwise noted) > = greater than * < = less than ND = none detected * PR = present							
Nickel, Ni ************************************		a	< 0300		-		
<pre>************************************</pre>			0300	÷	aurride .		
> = greater than * < = less than ND = none detected * PR = present	MICKEL, NI	اد عاد عاد عام		++	• • • • • • • • • • • • • • • • • • •	ىلى ىك ىك باب يك يك يك يك يك يك يك يك يك	
> = greater than * < = less than ND = none detected * PR = present		$- \frac{1}{2}$	arong nor li	+ ~	r = (othornison)		
ND = none detected * PR = present						Julea)	
- · · · · · · · · · · · · · · · · · · ·							
		ND = none			-		and the state of the state of the state of the

Sample No.:	39486
Owners Name:	MOTTOLO HAZARDOUS WASTE SITE
Address:	BLUEBERRY HILL ROAD
City or Town:	RAYMOND
Date sampled:	04-11-85
Person sampling:	J. REGAN
Date Submitted:	04-15-85,11:29
Date Completed:	04-19-85

#### Comments: S-1 SAMPLED-16:10

1

Test Name	MCL	(mg/l)	Test Name	MCL	Result (mg/l)
•	**************************************	*	Secondary	Standards	* * * * * * * * * *
		*			
Arsenic	(0.05)	. *	Chloride, Cl	(250)	
Barium	(1.0)	*	Copper, Cu	(1.0)	
Cadmium	(0.010)	*	Iron, Fe	(0.30	
Chromium	(0.05)		Manganese, Mn	(0.05	
Lead	(0.05)	*	Sulfate, SO4	(250)	
Mercury	(0.002)	*	Sodium, Na	(20-250	
Selenium	(0.01)	*	Turbidity	(N.T.U.	
	(0.05)	*	Specific Conduct		
Nitrate/Nitr			÷	(units	
Fluoride, F		*	Total Hardness a	s CaCO3	
Coliform Bac			Calcium Hardness		
Non-Coliform			Total Alkalinity		
Iron Bacteri			TDS (tot. Dis. S	ol.) (500)	
Coliform, To	•	*	C.O.D.		
Other H	eavy Metal	*			
		*	T.K.N.		
Aluminum, Al		*	NH3		
Antimony, Sb		*	Total Solids		
Molybdenum,		*	Total Solids T.O.C.		9.0000
Vanadium, Va		*	Total P		
Zinc, Zn		*	Sulfide		
Nickel, Ni		*			
*****	****	*******		*****	****
			r - (otherwise no	ted)	
>			< = less than		
	D = none de		PR = present		
***	****	******	*****	******	******

Sample No.:	39479
Owners Name:	MOTTOLO HAZARDOUS WASTE SITE
Address:	BLUEBERRY HILL ROAD
City or Town:	RAYMOND
Date sampled:	04-11-85
Person sampling:	J. REGAN
Date Submitted:	04-15-85,11:22
Date Completed:	04-19-85

#### Comments: WELL-3 SAMPLED-11:40

Test Name	MCL	Result (mg/l)	Test Name	MCL	Result (mg/l)
Primary S	Standards		Secondar	y Standards	******
Arsenic	(0.05)		Chloride, Cl	(250)	
Barium	(1.0)		Copper, Cu	(1.0)	
Cadmium	(0.010)		Iron, Fe	(0.30	
Chromium	(0.05)		Manganese, Mn	(0.05	
Lead	(0.05)		Sulfate, SO4	(250)	
Mercury	(0.002)		Sodium, Na	(20-250	
Selenium	(0.01)		Turbidity	(N.T.U.	
Silver	(0.05)		Specific Conduct		
Nitrate/Nitr:			pH	(units	
Fluoride, F			Total Hardness		
Coliform Bac			Calcium Hardnes		
Non-Coliform			Total Alkalinit		
Iron Bacteria			TDS (tot. Dis.	Sol.) (500)	
Coliform, To	-	*	C.O.D.		
Other H	eavy Metal	*			
			T.K.N.		
Aluminum, Al			NH3		
Antimony, Sb			Total Solids	•	
Molybdenum, 1		*	T.O.C.		16.0000
Vanadium, Va		*	Total P	•	
Zinc, Zn		*	Sulfide		
Nickel, Ni		*	•		
******	******	*****	*****	*****	******
m	g/l = milligr	ams per lite	er - (otherwise n	oted)	
>	= greater	than *	<pre>&lt; = less than</pre>		
N	D = none de	tected *	PR = present		
*****	*****	*****	*******	****	*****

Owners Name: Address: City or Town: Date sampled: Person sampling: Date Submitted: Date Completed: Comments: 39484 MOTTOLO HAZARDOUS WASTE SITE BLUEBERRY HILL ROAD RAYMOND 04-11-85 J. REGAN 04-15-85,11:28 04-19-85

# Comments: JB-5

Sample No.:

SAMPLED-15:05

Test Name	MCL	Result (mg/l)	Test	Name	MCL .	Result (mg/l)
********	*****	***********	*****	*******	******	*****
Primary	Standards	*		Secondary	Standards	
		*	-			
Arsenic	(0.05)	*	Chlor	ide, Cl	(250)	
Barium	(1.0)	*	Copper	r, Cu	(1.0)	
Cadmium	(0.010)	*	Iron,	Fe	(0.30	
Chromium	(0.05)	*	Mangai	nese, Mn	(0.05	
Lead	(0.05)	*	Sulfat	te, SO4	(250)	
Mercury	(0.002)	*	Sodiu	n, Na	(20-250	
Selenium	(0.01)	*	Turbic	lity	(N.T.U.	
Silver	(0.05)	*	Speci:	fic Conduct	ance (mhos	
Nitrate/Nitr	ite(10.0)	*	pH		(units	
Fluoride, F	(2.4)	*	Total	Hardness a	s CaCO3	
Coliform Bac	t./100 ml	*	Calciu	ım Hardness	as CaCO3	
Non-Coliform	Bact.	*	Total	Alkalinity	as CaCO3	
Iron Bacteri	a	*	TDS (1	tot. Dis. S	ol.) (500)	•
Coliform, To	t. MPN/100	*	C.O.D	•		
Other H	eavy Metal	*				
		*.	T.K.N			
Aluminum, Al		*	NH3			
Antimony, Sb		*	Total	Solids		
Molybdenum,	Мо	*	T.O.C	•		33.0000
Vanadium, Va		*	Total	P		
Zinc, Zn		*	Sulfie	ie .		
Nickel, Ni		*	-			
*****	*****	******	*****	********	*****	****
m	g/l = milligra	ams per liter	<b>-</b> (o	therwise no	ted)	•
				less than	•	
	ID = none det			present		
*****	*****			****	*****	******

Sample No.: 39487 Owners Name: MOTTOLO HAZARDOUS WASTE SITE Address: BLUEBERRY HILL ROAD City or Town: RAYMOND 04-11-85 Date sampled: J. REGAN Person sampling: 04-15-85,11:30 Date Submitted: Date Completed: 04-19-85

#### Comments: JB-9 SAMPLED-11:20

Test Name	MCL	Result (mg/l)	Test	Name	MCL	Result (mg/l)
Primary Sta	Indards	*		Secondary	Standards	
Chromium Lead Mercury	(2.4) /100 ml act. MPN/100	* * * * * * * * * * * * * *	Chlor Coppe Iron, Manga Sulfa Sodiu Turbi Speci pH Total Calci Total	ide, Cl r, Cu Fe nese, Mn te, SO4 m, Na dity fic Conducta Hardness as um Hardness Alkalinity tot. Dis. So	(units s CaCO3 as CaCO3 as CaCO3	
Aluminum, Al Antimony, Sb Molybdenum, Mo Vanadium, Va Zinc, Zn Nickel, Ni ******	**************************************	* * * * * * * * * * * * * * * * * * *	T.O.C Total Sulfi ****** r - (o < = PR =	Solids P de ************* therwise no less than present	•	110.0000 *****
*******	*****	*******	*****	*******	*****	*****

SAMPLE NO.:	36007
OWNERS NAME:	MOTTOLO HAZ. WASTE SITE
OWNERS ADDRESS:	BLUEBERRY HILL ROAD
CITY OR TOWN	RAYMOND
DATE SAMPLED:	01-11-85
PERSON SAMPLING:	R. WICKSON
DATE SUBMITTED:	01-14-85,08:36
DATE COMPLETED:	02-07-85

(

Comments: MONITORING WELL #2

Test Name	Result (ug/l)		Test Name		Result (ug/l)
****	****	* * :	****	*****	****
Dichloromethane	ND	*	Trichlorofluoromethane	ND	
Dichlorobromomethane	ND	*			
Tetrachloromethane	ND	*	Acetone	ND	
Chlorodibromomethane	ND	*	Tetrahydrofuran		62.1000
Chloroethane		*	Diethyl ether	ND	
1,1-Dichloroethane	343.0000	*	Methyl Ethyl Ketone	ND	
1,2-Dichloroethane	ND	*	Methyl Isobutyl Keton	ND	
1,1,1-Trichloroethane	116.8000	*	1,3-Dichloropropane	ND	
1,1,2-Trichloroethane	ND	*	Trichlorotrifluoroeth	ND	
Tetrachloroethane	ND	*			
1,1-Dichloroethylene	ND	*	Tribromomethane	ND	
Dichloroethylene (c+t)	1266.0000	*	Trichloromethane	ND	
Trichloroethylene	ND	*	t-1,2-Dichloroethylene		
Tetrachloroethylene	ND	*	· <b>-</b>		
1,2-Dichloropropane	ND	*			
1,3-Dichloropropene	ND	*			
Benzene	ND	*			
Chlorobenzene	ND	*			
Dichlorobenzene	ND	*			
Ethylbenzene	169.3000	*			
Toluene	1202.0000				
Xylene, meta isomer	221.0000				
Xylenes, (ortho¶)	146.0000				·
Vinyl chloride	14010000	*	•		
Bromomethane	•	*			
Chloromethane	-	*			
ug/l = micrograms per	litor	*	ND = none detected		
> = greater than	TICET		PR = present		
<pre>&gt; = greater than &lt; = less than</pre>		*	IV - Presenc		
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	*********	**	*****	*****	****

(

SAMPLE NO.:	36008
OWNERS NAME:	MOTTOLO HAZ. WASTE SITE
OWNERS ADDRESS:	BLUEBERRY HILL ROAD
CITY OR TOWN	RAYMOND
DATE SAMPLED:	01-11-85
PERSON SAMPLING:	R. WICKSON
DATE SUBMITTED:	01-14-85,08:41
DATE COMPLETED:	02-07-85

# Comments:

MONITORING WELL #4

Test Name		Result		Test Name		Result
		(ug/l)				(ug/l)
****	****	****	**:	******		*******
Dichloromethane	ND		*	Trichlorofluoromethane	ND	
Dichlorobromomethane	ND		*			
Tetrachloromethane	ND	•	*	Acetone		22.7000
Chlorodibromomethane	ND		*	Tetrahydrofuran		69.3000
Chloroethane				Diethyl ether	ND	
1,1-Dichloroethane		314.0000		Methyl Ethyl Ketone	ND	
1,2-Dichloroethane	ND			Methyl Isobutyl Keton		114.5000
1,1,1-Trichloroethane		24.0000		1,3-Dichloropropane	ND	
1,1,2-Trichloroethane	ND		*	Trichlorotrifluoroeth	ND	
Tetrachloroethane	ND		*			
1,1-Dichloroethylene	ND		*	Tribromomethane	ND	
Dichloroethylene (c+t)		73.1000	*	Trichloromethane	ND	
Trichloroethylene	ND		*	t-1,2-Dichloroethylene		
Tetrachloroethylene	ND		*			
1,2-Dichloropropane	ND		*			
1,3-Dichloropropene	ND		*			
Benzene	ND		*			
Chlorobenzene	ND		*			
Dichlorobenzene	ND		*			
Ethylbenzene		141.0000	*			
Toluene		174.0000	*	· ·		
Xylene, meta isomer		204.0000	*			
Xylenes, (ortho¶)		212.3000				
Vinyl chloride			*			
Bromomethane			*			
Chloromethane			*	<i>t</i>		
	 			ND - seve detected		
ug/l = micrograms per > = greater than	TTC	er		ND = none detected PR = present		
<pre>&gt; = greater than &lt; = less than</pre>			÷	rk - present		
			т. Т. Т.	* * * * * * * * * * * * * * * * * * * *	ا، بار بار بار بار بار	الدارج علم علم علم علم علم علم

SAMPLE NO.: OWNERS NAME: OWNERS ADDRESS: CITY OR TOWN DATE SAMPLED: PERSON SAMPLING: DATE SUBMITTED: DATE COMPLETED: 36009 MOTTOLO HAZ. WASTE SITE BLUEBERRY HILL ROAD RAYMOND 01-11-85 R. WICKSON 01-14-85,08:44 02-07-85

#### Comments: JB#5

Test Name		Result (ug/l)		Test Name		Result (ug/l)
*****	* * * * *	*******	**:	* * * * * * * * * * * * * * * * * * * *	*****	******
Dichloromethane	ND		*	Trichlorofluoromethane	ND	
Dichlorobromomethane	ND		*	· .		
Tetrachloromethane	ND		*	Acetone	· ND	
Chlorodibromomethane	ND		*	Tetrahydrofuran		64.5000
Chloroethane				Diethyl ether	ND	
1,1-Dichloroethane		190.2000	*	Methyl Ethyl Ketone	ND	
1,2-Dichloroethane	ND			Methyl Isobutyl Keton		-188.0000
1,1,1-Trichloroethane	ND			1,3-Dichloropropane	ND	
1,1,2-Trichloroethane	ND			Trichlorotrifluoroeth	ND	
Tetrachloroethane	ND		*	· · · · · · · · · · · · · · · · · · ·		
1,1-Dichloroethylene	ND		*	Tribromomethane	ND	
Dichloroethylene (c+t)		100.2000		Trichloromethane	ND	
Trichloroethylene	ND		*	t-1,2-Dichloroethylene	•••=	
Tetrachloroethylene	ND		*			
1,2-Dichloropropane	ND		*			
1,3-Dichloropropene	ND		*			
Benzene	ND		*			
Chlorobenzene	ND		*			
Dichlorobenzene	ND		*		•	
Ethylbenzene		34.5300	*			
Toluene		137.4000			,	
Xylene, meta isomer		38.6000				
Xylenes, (ortho¶)		41.1000		•		
Vinyl chloride		41.1000	*			
Bromomethane			4			
			4			
ug/l = micrograms per	1i+4		*	ND = none detected		
<pre>&gt; = greater than</pre>		er 44		PR = present		
<pre>&lt; = greater than &lt; = less than</pre>			*			
<pre></pre>	***	*****	**:	****	*****	*****

D-61

SAMPLE NO.:	36010
OWNERS NAME:	MOTTOLO HAZ. WASTE SITE
OWNERS ADDRESS:	BLUEBERRY HILL ROAD
CITY OR TOWN	RAYMOND
DATE SAMPLED:	01-11-85
PERSON SAMPLING:	R. WICKSON
DATE SUBMITTED:	01-14-85,08:46
DATE COMPLETED:	02-07-85

Comments: JB#6

Test Name	Result		Test Name		Result
	(ug/l)				.(ug/l)
*****		**	*****	*****	*****
Dichloromethane	ND	*	Trichlorofluoromethane	ND	
Dichlorobromomethane	ND	*			
Tetrachloromethane	ND	*	Acetone	•	326.0000
Chlorodibromomethane	ND	*	Tetrahydrofuran		337.0000
Chloroethane			Diethyl ether	ND	
1,1-Dichloroethane			Methyl Ethyl Ketone	ND	
1,2-Dichloroethane	ND		Methyl Isobutyl Keton	•	66.7000
1,1,1-Trichloroethane	ND	*	1,3-Dichloropropane	ND	
1,1,2-Trichloroethane	ND	*	Trichlorotrifluoroeth	ND	
Tetrachloroethane	ND	*			
1,1-Dichloroethylene	ND	*	Tribromomethane	ND	
Dichloroethylene (c+t)	740.0000	*	Trichloromethane	ND	
Trichloroethylene	ND	*	t-1,2-Dichloroethylene		
Tetrachloroethylene	ND	*			
1,2-Dichloropropane	ND	*	ı		
1,3-Dichloropropene	ND	*			
Benzene	ND	*			
Chlorobenzene	ND	*			
Dichlorobenzene	ND	*			
Ethylbenzene	224.0000				
Toluene	1372.0000				
Xylene, meta isomer	345.0000	*			
Xylenes, (ortho¶)	229.0000	*			. •
Vinyl chloride		*			•
Bromomethane		*			
Chloromethane		*			
ug/l = micrograms per	liter	*	ND = none detected		
<pre>&gt; = greater than</pre>		*	PR = present		
< = less than		*			
· ************************************	*******	**	*****	*****	******

SAMPLE NO.:36011OWNERS NAME:MOTTOLO HAOWNERS ADDRESS:BLUEBERRYCITY OR TOWNRAYMONDDATE SAMPLED:01-11-85PERSON SAMPLING:R. WICKSONDATE SUBMITTED:01-14-85,0DATE COMPLETED:04-08-85

36011 MOTTOLO HAZ. WASTE SITE BLUEBERRY HILL ROAD RAYMOND 01-11-85 R. WICKSON 01-14-85,08:46 04-08-85

#### Comments: S: #4

5. #4

Test Name	Resul (ug/l	• •	Test Name		Result (ug/l)
*****	*****	***	******	* * * * * * *	*****
Dichloromethane	ND	*	Trichlorofluoromethane	ND	
Dichlorobromomethane	ND	*	· ·		
Tetrachloromethane	ND	*	Acetone		9.6000
Chlorodibromomethane	ND	*	Tetrahydrofuran	ND	
Chloroethane		*	Diethyl ether	ND	
1,1-Dichloroethane	ND	*	Methyl Ethyl Ketone	ND	
1,2-Dichloroethane	ND	*	Methyl Isobutyl Keton	ND	
1,1,1-Trichloroethane	ND	*	1,3-Dichloropropane	ND	
1,1,2-Trichloroethane	ND	*	Trichlorotrifluoroeth	ND	
Tetrachloroethane	ND	*			
1,1-Dichloroethylene	ND	. *	Tribromomethane	ND	
Dichloroethylene (c+t)	ND	*	Trichloromethane	ND	•
Trichloroethylene	ND	*	t-1,2-Dichloroethylene		
Tetrachloroethylene	ND	*	, <b>-</b>		
1,2-Dichloropropane	ND	*			
1,3-Dichloropropene	ND	*			
Benzene	ND	*			
Chlorobenzene	ND	*			
Dichlorobenzene	ND	*			
Ethylbenzene	ND	*			
Toluene	ND	*			
Xylene, meta isomer	ND	*		•	•
Xylenes, (ortho¶)	ND	*			
Vinyl chloride		· *			
Bromomethane		*	·		
Chloromethane		*			
ug/l = micrograms per	liter	*	ND = none detected		
> = greater than		*	PR = present		•
<pre>&lt; = less than</pre>		*	-		
*****	******	****	*****	******	*******

SAMPLE NO.: OWNERS NAME: OWNERS ADDRESS: CITY OR TOWN DATE SAMPLED: PERSON SAMPLING: DATE SUBMITTED: DATE COMPLETED: 36012 MOTTOLO HAZ. WASTE SITE BLUEBERRY HILL ROAD RAYMOND 01-11-85 R. WICKSON 01-14-85,08:47 02-07-85

Comments: TRIP BLANK

Test Name .	Result (ug/l)		Test Name		Result (ug/l)
******	*******	***	*****	*****	******
Dichloromethane	ND	*	Trichlorofluoromethane	ND	
Dichlorobromomethane	ND	*			
Tetrachloromethane	ND		Acetone	ND	
Chlorodibromomethane	ND		Tetrahydrofuran	ND	
Chloroethane			Diethyl ether	ND	•
1,1-Dichloroethane	ND		Methyl Ethyl Ketone	ND	
1,2-Dichloroethane	ND		Methyl Isobutyl Keton	ND	
1,1,1-Trichloroethane	ND		1,3-Dichloropropane	ND	
1,1,2-Trichloroethane	ND	*	Trichlorotrifluoroeth	ND	
Tetrachloroethane	ND	*			
1,1-Dichloroethylene	ND	*	Tribromomethane	ND	
Dichloroethylene (c+t)	ND	*	Trichloromethane	ND	
Trichloroethylene	ND	*	t-1,2-Dichloroethylene		
Tetrachloroethylene	ND	*			
1,2-Dichloropropane	ND	*			
1,3-Dichloropropene	ND	×			
Benzene	ND	×			
Chlorobenzene	ND	*			
Dichlorobenzene	ND	*			
Ethylbenzene	ND	*			
Toluene	ND	*			
Xylene, meta isomer	ND	*			
Xylenes, (ortho¶)	ND	*			
Vinyl chloride		*			
Bromomethane		*			
Chloromethane		*			
ug/l = micrograms per	liter	*	ND = none detected		
> = greater than		*	PR = present		
< = less than		*			

SAMPLE NO.:35OWNERS NAME:MOTTOOWNERS ADDRESS:BLUERCITY OR TOWNRAYMODATE SAMPLED:01-07PERSON SAMPLING:R. WIDATE SUBMITTED:01-08DATE COMPLETED:01-24

35890 MOTTOLO HAZ. WASTE SITE BLUEBERRYHILL RD. RAYMOND 01-07-85 R. WICKSON 01-08-85,14:17 01-24-85

#### Comments:

MONITORING WELL #2 WELL EVACUATED PRIOR TO SAMPLING SAMPLING METHOD:STAINLESS/TEFLON BAILER

Test Name	Result Te: (ug/l)	st Name	Result (ug/l)
*****	*****	*****	*****
Dichloromethane	* Trie	chlorofluoromethane	
Dichlorobromomethane	*	-	
Tetrachloromethane	* Ace	lone	
Chlorodibromomethane	* Tet:	rahydrofuran	
Chloroethane	* Die	thylether	
1,1-Dichloroethane		nyl Ethyl Ketone	
1,2-Dichloroethane		nyl Isobutyl Keton	
1,1,1-Trichloroethane	* 1,3	-Dichloropropane	
1,1,2-Trichloroethane	* Tri	chlorotrifluoroeth	
Tetrachloroethane	*		
1,1-Dichloroethylene	* Tril	oromomethane	
Dichloroethylene (c+t)	* Trie	chloromethane	
Trichloroethylene	* t-1	,2-Dichloroethylene	
Tetrachloroethylene	*		
1,2-Dichloropropane	*		
1,3-Dichloropropene	*		
Benzene	*		
Chlorobenzene	*		
Dichlorobenzene	*		
Ethylbenzene	· 🖈		
Toluene	· *	· · · · ·	
Xylene, meta isomer	*		
Xylenes, (ortho¶)	*		
Vinyl chloride	· *		
Bromomethane	*		
Chloromethane	*		
7 			
ug/l = micrograms per lit	er * ND :	= none detected	
> = greater than		= present	
< = less than	*	- ,	
****	****	*****	*****

SAMPLE NO.: 35891 OWNERS NAME: MOTTOLO HAZ. WASTE SITE BLUEBERRYHILL RD. OWNERS ADDRESS: CITY OR TOWN RAYMOND DATE SAMPLED: 01-07-85 R. WICKSON PERSON SAMPLING: DATE SUBMITTED: 01-08-85,14:20 DATE COMPLETED: 01-14-84

Comments: MONITOR WELL #2 DUPLICATE SAMPLE GC SCREEN ANALYSIS-UNITS ARE PPB

Test Name	. <b></b> .	Result (ug/l)	k - ++ -	Test Name	*****	Result (ug/1)
Dichloromethane	ND	~~~~~~	*	Trichlorofluoromethane	ND	
Dichlorobromomethane	ND		*	IIICHIOIUIU0IOmechane	пD	
Tetrachloromethane	ND		*	Acetone	PR	
Chlorodibromomethane	ND		*	Tetrahydrofuran	ND	
Chloroethane	nD		*	Diethyl ether	ND	
1,1-Dichloroethane		194.0000		Methyl Ethyl Ketone	ND	
1,2-Dichloroethane	ND	19.100000	*	Methyl Isobutyl Keton	ND	
1,1,1-Trichloroethane	ND			1,3-Dichloropropane	ND	
1,1,2-Trichloroethane	ND			Trichlorotrifluoroeth	ND	
Tetrachloroethane	ND		*			
1,1-Dichloroethylene	ND		*	Tribromomethane	ND	
Dichloroethylene (c+t)		40.0000	*	Trichloromethane	ND	
Trichloroethylene	ND			t-1,2-Dichloroethylene		
Tetrachloroethylene	ND		*	_,		
1,2-Dichloropropane	ND		*			
1,3-Dichloropropene	ND		*			
Benzene	ND		*			
Chlorobenzene	ND		*			
Dichlorobenzene	ND		*			
Ethylbenzene	ND		*			
Toluene	נ	590.0000	*			
Xylene, meta isomer		126.0000	*			
Xylenes, (ortho¶)		138.0000	*			
Vinyl chloride			*			
Bromomethane			*			
Chloromethane			*			
ug/l = micrograms per	lite	er	*	ND = none detected		
> = greater than			*	PR = present		
< = less than			*	-		

D-66

SAMPLE NO.: 35892 OWNERS NAME: MOTTOLO HAZ. WASTE SITE OWNERS ADDRESS: BLUEBERRYHILL RD. CITY OR TOWN RAYMOND DATE SAMPLED: 01-07-85 PERSON SAMPLING: R. WICKSON DATE SUBMITTED: DATE COMPLETED:

01-08-85,14:22 01-14-84 Comments:

MONITORING WELL #4 GC SCREEN ANALYSIS- UNITS ARE PPB

			•				
	Test Name		Result (ug/l)		Test Name		Result (ug/l)
	******	****	********	**;	******	******	******
1	Dichloromethane	ND		*	Trichlorofluoromethane	ND	
	Dichlorobromomethane	ND		*			
	Tetrachloromethane	ND		*	Acetone	PR	
	Chlorodibromomethane	ND		*	Tetrahydrofuran	ND	
l	Chloroethane			*	Diethyl ether	ND	
	1,1-Dichloroethane		285.0000		Methyl Ethyl Ketone	ND	
	1,2-Dichloroethane	ND			Methyl Isobutyl Keton	ND	
	1,1,1-Trichloroethane	ND			1,3-Dichloropropane	ND	
	1,1,2-Trichloroethane	ND			Trichlorotrifluoroeth	ND	
	Tetrachloroethane	ND		*			
_	1,1-Dichloroethylene	ND		*	Tribromomethane	ND	
	Dichloroethylene (c+t)		38.0000	*	Trichloromethane	ND	
	Trichloroethylene	ND			t-1,2-Dichloroethylene		
	Tetrachloroethylene	ND		*			
	1,2-Dichloropropane	ND		*			
	1,3-Dichloropropene	ND		*			
	Benzene	ND		*			
	Chlorobenzene	ND		*			
	Dichlorobenzene	ND		*			
	Ethylbenzene		153.0000	*			
	Toluene		203.0000		· ·		
	Xylene, meta isomer		538.0000				
	Xylenes, (ortho¶)		360.0000				
-	Vinyl chloride			*			
	Bromomethane			*			
	Chloromethane			*			
	ug/l = micrograms per	lite	er	*	ND = none detected		
	> = greater than				PR = present		
ļ	< = less than		·	*			
	***************************************	***	****	**	*****	******	******

.

SAMPLE NO.: 35893 OWNERS NAME: MOTTOLO HAZ. WASTE SITE OWNERS ADDRESS: BLUEBERRYHILL RD. CITY OR TOWN RAYMOND DATE SAMPLED: 01-07-85 PERSON SAMPLING: R. WICKSON 01-08-85,14:23 DATE SUBMITTED: DATE COMPLETED: 01-14-84

#### Comments:

JB-5 GC SCREEN ANALYSIS-UNITS ARE PPB

Test Name		Result (ug/l)		Test Name		Result (ug/l)
*****	* * * *	******	**:	* * * * * * * * * * * * * * * * * * * *	******	******
Dichloromethane	ND		*	Trichlorofluoromethane	ND	
Dichlorobromomethane	ND		*			
Tetrachloromethane	ND		*	Acetone	PR	
Chlorodibromomethane	ND	•	*	Tetrahydrofuran	ND	
Chloroethane	·		*	Diethyl ether	ND	
l,l-Dichloroethane		176.0000	*	Methyl Ethyl Ketone	ND	
1,2-Dichloroethane	ND		*	Methyl Isobutyl Keton	ND	
1,1,1-Trichloroethane	ND		*	1,3-Dichloropropane	ND	
1,1,2-Trichloroethane	ND		*	Trichlorotrifluoroeth	ND	
Tetrachloroethane	ND		*			
l,l-Dichloroethylene	ND		*	Tribromomethane	ND	
Dichloroethylene (c+t)		43.0000	*	Trichloromethane	ND	
Trichloroethylene	ND		*	t-1,2-Dichloroethylene		
Tetrachloroethylene	ND		*			
1,2-Dichloropropane	ND		*			
1,3-Dichloropropene	ND		*			
Benzene	ND		×			
Chlorobenzene	ND		*			
Dichlorobenzene	ND		*			
Ethylbenzene		78.0000	*			
Toluene		267.0000	*			
Xylene, meta isomer		74.0000	*			
Xylenes, (ortho¶)	•	87.0000	*		•	
Vinyl chloride			*			
Bromomethane			*			
Chloromethane			*			
ug/l = micrograms per	lit	er		ND = none detected		
> = greater than < = less than			*	PR = present		
	***	****	**	*****	******	******

•

SAMPLE NO.: 35894 MOTTOLO HAZ. WASTE SITE OWNERS NAME: OWNERS ADDRESS: BLUEBERRYHILL RD. . RAYMOND CITY OR TOWN DATE SAMPLED: 01-07-85 PERSON SAMPLING: R. WICKSON DATE SUBMITTED: 01-08-85,14:24 DATE COMPLETED: 01-14-84

#### Comments:

JB-6 GC SCREEN ANALYSIS UNITS ARE PPB

			•	
Test Name	Result (ug/l)	Test	: Name	Result (ug/l)
, *********	********	******	* * * * * * * * * * * * * * * * * * * *	****
Dichloromethane N	ID	* Tric	nlorofluoromethane	ND
	ID	*		
	ID	* Aceto	one	PR
	ID		ahydrofuran	ND
Chloroethane			nyl ether	ND
1,1-Dichloroethane	264.0000		yl Ethyl Ketone	ND
	ID		yl Isobutyl Keton	ND
•	ID		Dichloropropane	ND
	ID		nlorotrifluoroeth	ND
Tetrachloroethane N	ID	*		
1,1-Dichloroethylene N	ID .	* Trib	romomethane	ND
Dichloroethylene (c+t)	130.0000	* Tricl	nloromethane	ND
· · · ·	ID	* t-1,2	2-Dichloroethylene	
Tetrachloroethylene N	ID	*	-	
1,2-Dichloropropane N	ID	*		
1,3-Dichloropropene N	ID	*		
Benzene	14.0000	*		
Chlorobenzene N	ID	*		
Dichlorobenzene N	ID	*		
Ethylbenzene	121.0000	*		
Toluene	897.0000	*		
Xylene, meta isomer	199.0000	*		
Xylenes, (ortho¶)	130.0000	*		
Vinyl chloride		*	•	
Bromomethane		*		
Chloromethane		*		
•				
ug/l = micrograms per li	lter	* ND =	none detected	
> = greater than		* PR =	present	•
<pre>&lt; = less than</pre>		*		
*****	********	******	******	*****

SAMPLE NO.: OWNERS NAME: OWNERS ADDRESS: CITY OR TOWN DATE SAMPLED: PERSON SAMPLING: DATE SUBMITTED: DATE COMPLETED: 35895 MOTTOLO HAZ. WASTE SITE BLUEBERRYHILL RD. RAYMOND Ol-07-85 R. WICKSON Ol-08-85,14:26 Ol-14-84

#### Comments:

S-4 STREAM SAMPLE

GC SCREEN ANALYSIS

Test Name	Result (ug/l)	Test Name	Result (ug/l)
*****	*******	****	*****
Dichloromethane ND	*	Trichlorofluoromethane	ND
Dichlorobromomethane ND	. *		
Tetrachloromethane ND		Acetone	ND
Chlorodibromomethane ND		Tetrahydrofuran	ND
Chloroethane		Diethyl ether	ND
1,1-Dichloroethane ND		Methyl Ethyl Ketone	ND
1,2-Dichloroethane ND		Methyl Isobutyl Keton	ND
1,1,1-Trichloroethane ND		1,3-Dichloropropane	ND
1,1,2-Trichloroethane ND	*	Trichlorotrifluoroeth	ND
Tetrachloroethane ND	*		
1,1-Dichloroethylene ND		Tribromomethane	ND
Dichloroethylene (c+t) ND	*	Trichloromethane	ND
Trichloroethylene ND	*	t-1,2-Dichloroethylene	
Tetrachloroethylene ND	*		
1,2-Dichloropropane ND	*		
1,3-Dichloropropene ND	*		
Benzene ND	*		
Chlorobenzene ND	*		
Dichlorobenzene ND	*		
Ethylbenzene ND	*		
Toluene ND	*		
Xylene, meta isomer ND	*		
Xylenes, (ortho¶) ND	*		
Vinyl chloride	. *		
Bromomethane	*		
Chloromethane	*		
ug/l = micrograms per liter		ND = none detected	<b></b> ,
> = greater than		PR = present	
< = ĺess than	*	_	
*****	******	* * * * * * * * * * * * * * * * * * * *	******

.

SAMPLE NO.:	35896
OWNERS NAME:	MOTTOLO HAZ. WASTE SITE
OWNERS ADDRESS:	BLUEBERRYHILL RD.
CITY OR TOWN	RAYMOND
DATE SAMPLED:	01-07-85
PERSON SAMPLING:	R. WICKSON
DATE SUBMITTED:	01-08-85,14:27
DATE COMPLETED:	01-14-84

Comments: TRIP BLANK

GC: SCREEN ANALYSIS

Test Name	Result (ug/l)	Test Name	Result (ug/l)
*****	****	******	**********
	ND	* Trichlorofluoromethane	ND
	ND	*	
	ND	* Acetone	ND
	ND	<ul> <li>Tetrahydrofuran</li> </ul>	ND
Chloroethane		* Diethyl ether	ND
	ND	* Methyl Ethyl Ketone	ND
		* Methyl Isobutyl Keton	ND
	ND	* 1,3-Dichloropropane	ND
	ND	* Trichlorotrifluoroeth	ND
	ND	*	
· · ·	ND	* Tribromomethane	ND
<b>_</b> \ /	ND	<ul> <li>Trichloromethane</li> </ul>	ND
▲ ·	ND	<pre>* t-1,2-Dichloroethylene</pre>	
	ND	*	
	ND	*	
1,3-Dichloropropene	ND	*	
Benzene	ND	* .	
Chlorobenzene	ND	*	
Dichlorobenzene	ND	*	
Ethylbenzene	ND	* '	
Toluene	ND	*	
Xylene, meta isomer	ND	*	
Xylenes, (ortho¶)	ND	*	
Vinyl chloride		*	
Bromomethane		*	
Chloromethane		*	
ug/l = micrograms per l	iter	* ND = none detected	·
> = greater than		* PR = present	
<pre>&lt; = less than</pre>		*	•
*****	*****	*****	*****

D-71

SAMPLE NO.: 35005 OWNERS NAME: MOTTOLO HAZARDOUS WASTE SITE BLUEBERRY HILL ROAD OWNERS ADDRESS: CITY OR TOWN RAYMOND . . 12-04-84 DATE SAMPLED: PERSON SAMPLING: R. WICKSON DATE SUBMITTED: 12-07-84,15:32 DATE COMPLETED: 12-13-84

#### Comments:

MONITORING WELL # 3 - MOTTOLO SITE SAMPLE TAKEN WITH STAINLESS STEEL/TEFLON BAILER - PRESENCE OF DIMETHYL SULFIDE

	Test Name		Result (ug/l)		Test Name	·	Result (ug/l)
	*****	*****	******	**	******	*****	******
	Dichloromethane	ND		*	Trichlorofluoromethane	ND	
	Dichlorobromomethane	ND		*			
-		ND		*	Acetone		10.2000
	Chlorodibromomethane	ND		*	Tetrahydrofuran	ND	
	Chloroethane			*	Diethyl ether	ND	
	1,1-Dichloroethane	ND		*	Methyl Ethyl Ketone		5.4000
	1,2-Dichloroethane	ND		*	Methyl Isobutyl Keton	ND	
	1,1,1-Trichloroethane	ND		*	1,3-Dichloropropane	ND	
	1,1,2-Trichloroethane	ND		*	Trichlorotrifluoroeth	ND	
	Tetrachloroethane	ND	•	*	•		
	1,1-Dichloroethylene	ND		*	Tribromomethane	ND	
	Dichloroethylene (c+t)	ND		*	Trichloromethane	ND	
	Trichloroethylene	ND		*	t-1,2-Dichloroethylene		
	Tetrachloroethylene	ND		*	, <b>-</b>		
	1,2-Dichloropropane	ND		*			
	1,3-Dichloropropene	ND		*			
	Benzene	ND		*			
	Chlorobenzene	ND		*			
	Dichlorobenzene	ND		*			
	Ethylbenzene	<	5.0000	*			
	Toluene	-	10.4000				
	Xylene, meta isomer		7.4000				
	Xylenes, (ortho¶)		7.9000				
	Vinyl chloride		,	*			
	Bromomethane		•	*			
	Chloromethane			*			
_	ug/l = micrograms per	liter		*	ND = none detected		
	> = greater than				PR = present	•	
	< = less than			*			
	*****	*****	******	**>	*****	*****	*****

# Summary of Residential Water Quality Data – Organic Analyses Mottolo Site, Raymond, New Hampshire

	Location and Name	Well Type	Instrument	Compound	• .			<u>Results in </u>	parts per b	illion
	Carey	NA	IR GC OVA GC/MS	Alphatic Hydrocarbons	Date: Sample #:	5/2/79 91240 ND ND	10/18/79 01754 Present ND		2/16/82 43687 - - ND	12/13/82 06571 - - ND
	Dalbec	NA	IR/GC IR/GC/ECD		Date: Sample #:	5/2/79 91235 NA	5/29/79 92436 - ND	10/18/79 01748 ND -	10/18/79 01747 ND -	
D-73	Desantis	NA	IR GC	Hydrocarbons	Date: Sample #:	5/3/79 91276 Trace ND				·
	Francis	NA	IR/GC		Date: Sample #:	5/14/79 91814 ND				
	Nesci	NA	IR/GC		Date: Sample #:	10/18/79 01749 ND				
	McNeil	NA	OVA GC/MS		Date: Sample #:	2/16/82 43685 ND	12/13/82 6570  ND .	2/9/84 22884  ND		
	Calder	Bedrock	gc/ms		Date: Sample #:	2/16/82 43679 ND				

.

Location and Name	Well Type	Instrument	Compound			R	<u>esults in p</u>	arts per bi	llion		
Lot #2	NA	IR/GC OVA GC/MS		Date: Sample #:	10/18/79 01752 ND -	2/10/82 43686 - ND -	2/13/82 6573 - - ND				
Lot #3 (Blessor)	Dug .	GC/MS		Date: Sample #:	1/31/86 52534 ND						
Lot #16	NA	IR GC	Carbon Tetrachloride Chloroform	Date: Sample #:	10/18/79 01751 ND 1.5 6.7						
Lot #52–1 (Papamichael)	Bedrock	GC/MS GC/MS		Date: Sample #:	2/16/82 43678 ND -	12/13/82 06575  ND	2/9/84 22889  ND				
Lot #52-2 (McDermott)	Bedrock	IR/GC GC/MS GC/MS		Date: Sample #:	10/18/79 01750 ND	2/16/82 43677  ND 	2/9/84 22883 - ND	2/9/84 22882  ND			
Lot #52–3 (Stracke)	Bedrock	GC/MS		Date: Sample #:	12/13/82 6568 ND	12/13/82 6569 ND	4/26/85 39959 . ND	2/21/86 53410 ND			
Lot #52–4 (Annis)	Bedrock	IR/GC IR GC GC/MS	Aliphatic Hydrocarbons	Date: Sample #:	5/2/79 91236 ND - -	10/18/79 01755  Present ND -	2/13/82 6574  ND	2/16/82 43680 - - -	2/9/84 22886   	4/26/85 39958  - - ND	1/31/86 52538 - - - NN

Location and Name	Well Type	<u>Instrument</u>	Compound			R	esults in p	arts per bil	lion		
Lot #52–5 (Choumitsky) Lot #52–6	Bedrock Bedrock	GC/MS		Date: Sample #: Date:	2/16/82 43681 ND 5/2/79	4/26/85 39957 ND 10/18/79	5/15/86 57196 ND 2/16/82	3/21/84	4/26/85	5/15/86	
(DeFlumeri)		<b>TD (00</b>		Sample #:	91238	01757	43682	24481	39956	57195	
		IR/GC IR	Aliphatic Hydrocarbons		ND _	Present	_	- - ·	-	-	
		GC OVA GC/MS				ND -	ND	 	~	- ' -	
		GC7 M3			-	-	- ·	ND	ND	ND	
Lot #52-7 (Jewett)	Bedrock			Date: Sample #:	5/2/79 91237	2/16/82 43683	2/9/84 22885	4/4/85 39119	9/6/85 56758	2/21/86 53406	
		IR/GC OVA GC/MS			<b>ND</b>	- ND -	- - ND	  ND	  ND	  ND	
Lot #52-8 (Sullivan)	Bedrock			Date: Sample #:	5/2/79 92139	10/18/79 01756	2/16/82 43684	12/13/82 6572 .	4/4/85 39118	9/6/85 46757	2/21/86 53405
		IR/GC IR	Aliphatic Hydrocarbons		ND 	- Present		-		-	-
		GC OVA	Carbon Tetrachloride			1	, 		-	-	-
· ·		GC/MS			-	-	ND -	- ND	ND	- ND	 ND
Lot #52-9 (Britt)	Bedrock			Date: Sample #:	2/9/84 22888	2/9/84 22887	4/4/85 39117	9/6/85 46756	5/15/86 5719 <b>4</b>		
		GC/MS		·	ND	ND	ND	ND	ND		
Lot #52-10 (McLaughlin)	Bedrock			Date: Sample #:	3/9/85 38859	2/21/86 53404			• <b>.</b>	•	
		GC/MS			ND	ND					
Lot #52-11 (Stewart)	Bedrock			Date: Sample #:	3/29/85 38858	1/31/86 52532					
		GC/MS			ND	ND					

D-75

Location <u>and Name</u>	Well Type	Instrument	Compound				<u>Results in parts per billion</u>	
Lot #52–13 (Brimicombe)	Bedrock	GC/MS		Date: Sample #:	4/4/85 39116 ND	-5/15/86 57193 ND		
Lot #52-22 (Cadoret)	Bedrock	gc/ms		Date: Sample #:				
Lot #52-26 (Varney)	Bedrock	gc/ms		Date: Sample #:	5/15/86 57202 ND			
Lot #52-27 (Graves)	Bedrock	GC/MS		Date: Sample #:	5/15/86 57201 ND			
Lot #52-31 (Sensale)	<u>Bedrock</u>	gc/ms		Date: Sample #:	5/15/86 57199 ND			
Lot #52-32 (Clauson)	Bedrock	GC/MS		Date: Sample #:	5/15/86 57200 ND		•	
Lot #52-43 (Banarer)	Bedrock	GC/MS		Date: Sample #:	3/29/85 38860 ND			
Lot #52-45 (Sayers)	Bedrock	GC/MS		Date: Sample #:	9/6/85 46760 ND			
Lot #52-46 (Warden)	Bedrock	GC/MS		Date: Sample #:	4/4/85 39120 ND			

Location	Well							•	
and Name	<u>Type</u>	<u>Instrument</u>	Compound			<u> </u>	lesults in	parts per b	illion
Lot #52–47 (Iverson)	•	GC/MS		Date: Sample #:	3/29/85 38862 ND		-		
Lot #52-48 (Panageotos)	Bedrock	GC/MS		Date: Sample #:	4/26/85 39962 ND	2/21/86 53409 ND			
Lot #52–49 (Wilkinson)	Bedrock	GC/MS		Date: Sample #:	4/26/85 39963 ND				
Lot #52–50 (Robinson)	Bedrock	GC/MS		Date: Sample #:	4/22/85 39751 ND	4/22/85 39751 ND	9/6/85 46763 ND	9/6/85 46762 ND	
Lot #52–51 (Loos– Campbell)	Bedrock	GC/MS		Date: Sample #:	4/26/85 39960 ND	1/31/86 52542 ND			
Lot #52-53 (Fongeallaz)	Bedrock	GC/MS		Date: Sample #:	4/26/85 39964 ND				
Lot #52–56 (Chiechomsky)	Bedrock	OVA GC/MS		Date: Sample #:	2/16/82 43681 ND	4/26/85 39957  ND	9/6/85 46761  ND		
ND - No compou NA - No inform IR - Infrared GC - Gas chrom ECD - Electron OVA - Organic GC/MS - Gas Ch	ation avai analysis atograph a Capture D Vapor Anal	ed. lable. nalysis etector	ter						

Residential Wells - Summary of Inorganic Analyses Mottolo Site, Raymond, New Hampshire (Results in milligram/liter unless otherwise noted)

															•							
	Name	Date	Nitrate and Nitrite	Ch loride	pH (units)	Color (15 appar- ent units)	Arsenic	Barium	Cadmium	Chromium .	Iron	Lead	Manganese	Selenium	Copper	Mercury	Alkalinity (as CaCO ₃ )	Flouride	Sodium	Turbidity ( (NTU's)	Silver	Hardness (as CaCO ₃ )
	Carey	5/2/79 10/18/79	.05 .11	12.5 24	7.4 7.3	0 0	0.01 <0.01	<0.1 <0.1	<0.005 <0.005	<0.01 <0.01	0.1 0.1	<0.01 <0.05	0.23 0.31	<0.01 <0.01	<0.1 <0.1	<0.001 <0.001	55 86	0.26 0.36	5.2 5.2	<1.0 - ·	<0.01 <0.01	130
	Bill .	5/2/79 10/18/79	0.25 2.11	27 28	6.8 6.6	. 0 0	<0.01 <0.01	<0.1 <0.1	<0.005 <0.005	0.01 <0.01	<0.1 0.1	<0.01 <0.05	<0.01 0.01	<0.01 <0.01	· 0.1 <0.1	<0.001 <0.001	25 39	<0, 10 <0, 10	9.1 11.4	<1.0 -	0.02 <0.01	80
D- 78	Lot 52–6 Deflumeri	5/2/79	<0.10 <0.05	<10 <10	7.3 7.1	5 0	0.02 <0.01	<0.} <0.1	<0.005 <0.005	0.01 <0.01	1.9 1.5	≪0.01 ≪0.05	0.23 0.22	<0.01 <0.01	0.1 ≪0.1	<0.001 <0.001	53 50	<0.10 0.18	4.9 4.9	32 -	<0.01 <0.01	60
	Lot 52-7 Jewett	5/2/79	0.05	12	7.3	0	<0.01	<0.1	<0.005	0.01	0.1	<0.01	0.08	<0.01	0.1	<0.001	53	<0.10	4.9	<1.0	<0.01	
	Slye	5/2/79 10/18/79	0.40 1.12	<10 11	6.4 6.9	0 0	<0.01 <0.01	<0.1 <0.1	<0.005 <0.005	0.02 <0.01	<0.1 <0.1	≪0.01 ≪0.05	<0.01 0.02	<0.01 <0.01	0.2 <0.1	<0.001 <0.001	20 25	<0.10 <0.10	4.4 7.7	<1.0	0.01 <0.01	48
	Dalbec	5/2/79 10/18/79	0.10 <0.05	10.5 14	6.9 6.5	5 0	0.04 0.01	<0.1 <0.1	<0.005 <0.005	<0.01 • 0.01	14 16.5	<0.01 <0.05	22.4 18.6	<0.01 <0.01	0.1 ≪0.1	<0.001 <0.001	78 70	<0.10 <0.10	4.0 6.4	96	<0.01 <0.01	74
	Mitchell	10/18/79	. 12	<10	7.1	0	<0.01	<0.1	<0.005	0.01	<0.1	<0.05	0.02	<0.01	0.1	<0.001	22	<0.10	8.5		<0.01	30
	Lot 52-2 McDermott	10/18/79	0.08	22.5	7.1	0	<0.01	<0.1	<0.005	0.01	0.2	<0.05	0.09	<0.01	0.1	<0.001	22	0.19	8.9		<0.01	<b>52</b>
	Matteau	10/18/79	. 17	<10	7.1	0	<0.01	<0.1	<0.005	0.01	<0.1	<0.05	0.02	<0.01	0.1	<0.001	22	<0.10	8.5		0.02	30
	NESCI	10/18/79	.27	<10	7.3	0	<0.01	<0.1	<0.005	0.01	0.1	<0.05	0.10	<0.01	<0.1	<0.001	71	0.37	4.7		<0.01	86

# Table C.1-1

# Page 1 of 1

# WATER QUALITY MONITORING DATA

VOLATILE ORGANICS

1

Site: Mottolo Location: Raymond, NH Sampling Station:

<u>OW-1</u>

Laboratory         NHWS         EPA           Analysis by         GC         GC         GC           COMPOUNDS         Sampling of 8/79         10/79         4/80         10/79           1. Chloromethane         10/79         4/80         10/79         10/79           2. Bromomethane         10/79         4/80         10/79         10/79           3. Dichloromethane         10/79         4/80         10/79         10/79           4. Vinyl chloride         10/79         4/80         10/79         10/79           5. Chloroethane         10/79         10/79         10/79         10/79           6. Methylene chlorofla         10/79         10/79         10/79         10/79           7. Acrylonitrile         10/79         10/79         10/79         10/79           10. 1.1-dichloroethylene         10/79         10/79         10/79         10/79           11. Trans-1.2-dichloroethylene         10/79         10/79         10/79         10/79           12. Chlorofram         10/79         10/79         10/79         10/79         10/79           13. 1.2-dichloroethane         10/79         10/79         10/79         10/79         10/79           14. 1.1					·····		+	·····	·····	<del> </del>	
COMPOUNDS         Sampling of         8/79         10/79         4/80           1. Chloromethane							ļ	ļ	L	L	L]
1. Chloromethane			Analysis by		GC	GC		<u> </u>	<u> </u>		
2. Bromomethane				8/79	10/79	4/80_		1	<u> </u>		
3. Dichlorodifluoromethane	1.	Chloromethar	ne		<u> </u>		<u> </u>	<u> </u>		<u> </u>	
4. Vinyl chloride	2.	Bromomethane	•!		<u> </u>			1			
5. Chloroethane	3.	Dichlorodifi	uoromethane		L	<u> </u>	L	<u> </u>	<u> </u>		
6. Methylene chloride	4.	Vinyl chlori	iđe		1		<u> </u>		1		
7. Acrylonitrile	_							<u> </u>	l		
6. Trichlorofluoromethane	_			<u> </u>	<u> </u>		<u> </u>		<u> </u>	<u> </u>	
9. 1,1-dichloroethylene	7.	Acrylonitril	e ·				<u> </u>		<u> </u>		
10. 1,1-dichloroethane       11. Trans-1,2-dichloroethylene         11. Trans-1,2-dichloroethylene       12. Chloroform         12. Chloroform       13. 1,2-dichloroethane         13. 1,2-dichloroethane       12. Chloroethane         14. 1,1,1-trichloroethane       12. Chloroethane         15. Carbon tetrachloride       ~ 1         16. Bromodichloromethane       12. Chloropropane         17. 1,2-dichloropropylene       13. 1,2-dichloropropylene         18. Trans-1,3-dichloropropylene       13. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	٤.	Trichloroflu	oromethane	<u> </u>	<u> </u>		L		<u> </u>	<u> </u>	<u></u>
11. Trans-1, 2-dichloroethylene       Image: chloroform in the second seco	9.	1,1-dichlord	bethylene	L			<u> </u>		1	1	
12. Chloroform       13. 1,2-dichloroethane         13. 1,2-dichloroethane       1         14. 1,1,1-trichloroethane       1         15. Carbon tetrachloride       ~ 1         16. Bromodichloromethane       1         17. 1,2-dichloropropane       1         18. Trans-1,3-dichloropropylene       1         19. Trichloroethylene       3.8         20. Benzene       1         21. Dibromochloromethane       1         22. Cis-1,3-dichloropropylene       1         23. 1,1,2-trichloroethane       1         24. Bromoform       1         25. 1,1,2,2-tetrachloroethane       1	10.	1,1-dichlord	bethane				L	<u> </u>	<u> </u>	<u> </u>	
13. 1,2-dichloroethane       14. 1,1,1-trichloroethane         14. 1,1,1-trichloroethane       1         15. Carbon tetrachloride       ~ 1         16. Bromodichloromethane       1         17. 1,2-dichloropropane       1         18. Trans-1,3-dichloropropylene       1         19. Trichloroethylene       3.8         20. Benzene       1         21. Dibromochloromethane       1         22. Cis-1,3-dichloropropylene       1         23. 1,1,2-trichloroethane       1         24. Bromoform       1         25. 1,1,2,2-tetrachloroethane       1	11.	Trans-1,2-di	chloroethylene			_		· ·	<u> </u>	L	
14. 1,1,1-trichloroethane	12.	Chloroform					<u> </u>	<u> </u>	<u> </u>	<u> </u>	
15. Carbon tetrachloride       ~ 1 <td>13.</td> <td>1,2-dichlord</td> <td>oethane</td> <td></td> <td></td> <td></td> <td></td> <td><u> </u></td> <td><u> </u></td> <td></td> <td> </td>	13.	1,2-dichlord	oethane					<u> </u>	<u> </u>		
16. Bromodichloromethane       17. 1,2-dichloropropane         17. 1,2-dichloropropane       1         18. Trans-1,3-dichloropropylene       1         19. Trichloroethylene       3.8         20. Benzene       1         21. Dibromochloromethane       1         22. Cis-1,3-dichloropropylene       1         23. 1,1,2-trichloroethane       1         24. Bromoform       1         25. 1,1,2,2-tetrachloroethane       1	14.	1,1,1-trichl	oroethane					ļ	l		1
17. 1,2-dichloropropane	15.	Carbon tetra	chloride	~ 1	1		L	1	<u> </u>	L	
18. Trans-1,3-dichloropropylene       3.8           19. Trichloroethylene       3.8           20. Benzene             21. Dibromochloromethane              22. Cis-1,3-dichloropropylene                23. 1,1,2-trichloroethane                                                                                          <	16.	Bromodichlor	omethane		<u> </u>				L	<u> </u>	
19. Trichloroethylene     3.8								L	1		
20. Benzene       21. Dibromochloromethane       21. Dibromochloromethane       22. Cis-1,3-dichloropropylene       23. 1,1,2-trichloroethane       23. 1,1,2-trichloroethane       24. Bromoform       25. 1,1,2,2-tetrachloroethane       25. 1,2,2-tetrachloroethane <td< td=""><td>18.</td><td>Trans-1,3-di</td><td>chloropropylene</td><td></td><td></td><td></td><td><u> </u></td><td>L</td><td>l</td><td></td><td></td></td<>	18.	Trans-1,3-di	chloropropylene				<u> </u>	L	l		
21. Dibromochloromethane	19.	Trichloroeth	ylene		3.8		<u> </u>	<u> </u>		[	l
22. Cis-1,3-dichloropropylene	_						<u> </u>	<u> </u>	<u> </u>	<u> </u>	
23. 1,1,2-trichloroethane	21.	Dibromochlor	omethane				<u> </u>	<u> </u>	<u> </u>	L	
24. Bromoform	22.	Cis-1,3-dich	loropropylene				1	<u> </u>		<u> </u>	
25. 1,1,2,2-tetrachloroethane			oroethane				<u> </u>		<u> </u>	l	-
	24.	Bromoform					<u> </u>	<u> </u>		1	
26. Tetrachloroethylene	25.	1,1,2,2-tetr	achloroethane					1		<u> </u>	
	26.	Tetrachloroe	thylene							·	
27. Toluene <10	27.	Toluene				< 10	<u> </u>				<u> </u> ]
28. Chlorobenzene	28.	Chlorobenzen	e								
29. Ethyl benzene	29.	Ethyl benzen	e							1	
30. Bis-chloromethyl ether	30.	Bis-chlorome	thyl ether					1			
31. 2-chloroethyl vinyl ether	31.	2-chloroethy	1 vinyl ether						1		
32. Acrolein	32.	Acrolein									

#### ADDITIONAL COMPOUNDS

		 		-	
			 _		
· ·					
	·	 	 	 	 
	_ <u>_</u>	 	 	 	

# Table _____2

## WATER QUALITY MONITORING DATA

#### VOLATILE ORGANICS

Site: Mottolo Location: Raymond, NH Sampling Station:

OW-2-1

	· · · · · · · · · · · · · · · · · · ·								
	Laboratory	NHWS	NHWS	NHWS	EPA	ERCO	ERCO ^a	ERCO ^a	
	Analvsis by	GC	GC	GC	GC/MS	GC/MS	GC/MS	GC/MS	
COMPOUNDS	Sampling of	8/79	10/79	11/79	4/80	7/80	10/80	12/80	
1. Chlorometha									
2. Bromomethan	e								
3. Dichlorodif	luoromethane								
4. Vinyl chlor	ide							1	
5. Chloroethan								·	
6. Methylene c	hloride			3				<u> </u>	
7. Acrylonitri	1e								]
<ol> <li>Trichlorof1</li> </ol>	uoromethane						<u> </u>		
9. 1,1-dichlor	oethylene					1,200	<u> </u>	<u> </u>	
10. 1,1-dichlor						200		l	
	ichloroethylene				10,000	4,400	8,500	2,800	
12. Chloroform				1.3		24			
13. 1,2-dichlor					<u> </u>	23			
14. 1,1,1-trich	loroethane		15		2,000	3,100	12,000	2,200	
15. Carbon tetr	achloride	~ 1		<b>~</b> 1					
16. Bromodichlo	romethane						<u> </u>		
17. 1,2-dichlor						<u>1 to 9</u>	·		
18. Trans-1,3-d	ichloropropylene								
19. Trichloroet	hylene	100	340		200	130		ļi	
20. Benzene			L	<u> </u>	<u> </u>			<u> </u>	
21. Dibromochlo	romethane							·	
22. Cis-1,3-dic			·						
23. 1,1,2-trich	loroethane		L					ļ ļ	
24. Bromoform									·
25. 1,1,2,2-tet									
26. Tetrachloro	ethylene	~ 1	6.5	<u> </u>	<u> </u>	12			
27. Toluene					3,000	760	5,500	2,600	
28. Chlorobenze				· · <u></u>	<u> </u>	<u>1 to 9</u>			
29. Ethyl benzer						160			
30. Bis-chlorom								· · ·	
31. 2-chloroeth	yl vinyl ether							ļ	
32. Acrolein					L			1	

#### ADDITIONAL COMPOUNDS

Xylenes .			
Tetrahydrofuran	Present		
Methyl Ethyl Ketone	Present		
Methyl Isobutyl Ketone	Present		
Acetone	Present		
Hexanol	Present		

a. Duplicate sample also analyzed by EPA. See Appendix

, Quality Control Program.

All Results in ug/l (ppb) unless noted

# Table C.1-3

# WATER QUALITY MONITORING DATA

VOLATILE ORGANICS

Site: <u>Mottolo</u> Location: <u>Raymond</u>, NH

### Sampling Station:

<u>OW-2-2</u>

Page 1 of 1

									·	
		Laboratory	ERCO	EPA				L	ļ	
	-	Analvsis by		GC/MS				<u> </u>		<u> </u>
	COMPOUNDS	Sampling of	7/80	10/80	<u> </u>			<u> </u>	<u> </u>	1
1.	Chlorometha	ne			<u> </u>					<u> </u>
2.	Bromomethan	e		l	· ·				<u> </u>	
3.	Dichlorodif:	luoromethane	İ	<u> </u>			1	I	<u> </u>	
4.	Vinyl chlor:	ide						<u>                                      </u>	1	
5.	Chloroethan	•		l				L		
_6.	Methylene cl	nloride	~ 2.000	1.000		<u> </u>				1
7	Acrylonitri:	le	l					l	<u> </u>	
ε.	Trichlorofly	uoromethane	L	L				<u> </u>	I	L
9.	1,1-dichlord	bethylene	1		L	<u></u>				
	1,1-dichlor			500		<u></u>				<u> </u>
11.	Trans-1,2-d:	ichloroethylene	!	10,000		<u> </u>		l	1	
12.	Chloroform						<u> </u>	!		I
13.	1,2-dichloro	bethane			<u> </u>	<u> </u>		<u> </u>	[	<u>!</u>
	1,1,1-trich		!	3,000	ļ	1	·			<u> </u>
15.	15. Carbon tetrachloride		<u> </u>	<u> </u>						<u> </u>
	Bromodichlor		l		1	<u> </u>		<u> </u>	<u> </u>	ļ
	1,2-dichlord		l			<u> </u>		1		·
18.	Trans-1,3-di	ichloropropylene			l	<u> </u>	<u> </u>	<u> </u>		·
19.	Trichloroeth	nylene		l	<u> </u>		1	<u> </u>		L
	Benzene		ļ		ļ	<u> </u>		<u> </u>	<u> </u>	
21.	Dibromochlor	romethane	·		<u> </u>	1			·	<u> </u>
		loropropylene			l	<u> </u>	1			<u> </u>
	1,1,2-trich]	loroethane			<u> </u>	<u> </u>	<u> </u>	ļ		<b>-</b>
	Bromoform				ļ <u>.</u>	<u> </u>	ļ	l		
25.	1,1,2,2-tetr	achloroethane			<u> </u>	<u>_</u>				L
26.	Tetrachloroe	thylene			<u> </u>		<u></u>			·
27.	Toluene		15,000	4,000	l		<u> </u>			
28.	Chlorobenzer	ne			1	ļ		<u> </u>		
29.	Ethyl benzer	e		_ 400						L
30.	Bis-chlorome	thyl ether					<u> </u>	l		
31.	2-chloroethy	vl vinyl ether					ļ			
32.	Acrolein						<u> </u>	<u> </u>		L

#### ADDITIONAL COMPOUNDS

Xylenes .	√25,000ª	600				
Tetrahydrofuran	41,000	10,000				
Isopropanol	37,000	Present	•			
Acetone	14,000	Present				
Dimethyl Formanide	140,000					
Methyl Isobutyl Ketone	28,000 ^b	Present		1		
Butanol		Present				
Hexanol		Present				
Other Unidentified 🖌	400,000					1

a. Compound identification uncertain.

^{D.} Eluted close to Dioxane.

ł

•

.

# Table C.1-4

# Page 1 of 1

# WATER QUALITY MONITORING DATA

VOLATILE ORGANICS

Site: Mottolo Location: Raymond, NH Sampling Station:

OW-3

		NHWS	NHWS	T	+			T
	Laboratory	GC	GC	EPA GC	<u> </u>			<u> </u>
	<u>Analvsis by</u>				<u> </u>			
COMPOUNDS		8/79	10/79	4/80	<u></u>			
	1. Chloromethane							
2. Bromometh					· <u> </u>			·
	ifluoromethane							
4. Vinyl chl				<u> </u>	+			┦╌────┥
5. Chloroeth				<u> </u>				+
6. Methylene				<u> </u>	+		· · · · · · · · · · · · · · · · · · ·	<u> </u>
7. Acrylonit			+	<u> </u>	<u> </u>	<u> </u>		
	fluoromethane			<u> </u>	+			╀┥
9. 1,1-dichl				ļ	┼───┼──			┼────┤
10. 1,1-dich10		<u> </u>	+	<u> </u>		<u> </u>		<u> </u>
	-dichloroethylene			<u> </u>	<u> </u>			
12. Chloroform			<u>↓·</u>	ļ	<u> </u>	1		
13. 1,2-dichlo			+	ļ				<u> </u>
	14. 1,1,1-trichloroethane			<u> </u>	+			
	15. Carbon tetrachloride				<u> </u>	·····		
16. Bromodich					<u> </u>			
17. 1,2-dichlo					<u>↓</u>			
	-dichloropropylene		1		+			
19. Trichloro	thylene		15.6	<b>&lt;</b> 10	<u> </u>			<u> </u>
20. Benzene			+	Į		<u>i</u>	<u></u>	
21. Dibromoch.				<u> </u>		<u> </u>		
	ichloropropylene				· · ·		· · · · · · · · · · · · · · · · · · ·	<u> </u>
23. 1,1,2-tric	chloroethane	<u>-</u>		ļ				
24. Bromoform			<u> </u>	<u> </u>	<u> </u>		· · · · · · · · · · · · · · · · · · ·	
	etrachloroethane			<u> </u>	<u> </u>			ļ
26. Tetrachlos	roethylene		+	<u> </u>	<u> </u>			
27. Toluene				< 10	<u> </u>			
	28. Chlorobenzene			ļ	┼───┤───			<u> </u>
	29. Ethyl benzene		<u> </u>	<u> </u>	<u> </u>			
30. Bis-chlora		· ·	+	<u> </u>	<u> </u>	<u> </u>	<u></u>	ļ
	thyl vinyl ether		1	<u> </u>	<u> </u>			ļ
32. Acrolein			1	I			<u> </u>	<u></u> _

ADDITIONAL COMPOUNDS

,	T		·'		<u>,                                     </u>	<u> </u>	
	1		· · · · · · · · · · · · · · · · · · ·		L	· · · · · · · · · · · · · · · · · · ·	
)	[]	<u> </u>	Ĺ'		//	<u> </u>	
 I	ļ	<u>ا</u> ــــــــــــــــــــــــــــــــــــ	<b>ا</b>	L	·	<u> </u>	
 ţţ	L'	<u> </u>	<u>                                     </u>		<u> </u>	<u> </u> '	
,	,				· · ·	1	
1	1		<u> </u>		· · · · · · · · · · · · · · · · · · ·	······································	
	1		· · · · · · · · · · · · · · · · · · ·	1. 1	· · · · · · · · · · · · · · · · · · ·	·'	
	·'		<u> </u>		'		

# All Results in ug/l (ppb) unless noted D-82

## Table C.1-5

## WATER QUALITY MONITORING DATA

VOLATILE ORGANICS

Site: Mottolo Location: Raymond, NH Sampling Station:

OW-4-1

		Laboratory	ERCO	ERCO	ERCO ^a					
		Analvsis by	GC	GC/MS	GC/MS		I			
	COMPOUNDS	Sampling of	7/80	10/80	12/80		<u> </u>	<u> </u>		
1.	Chloromethan	ne					<u> </u>	l 		
2.	Bromomethane	•							1	
3.	Dichlorodif	uoromethane							1	ļ
4.	Vinyl chlori	ide						1		
5.	Chloroethane						<u> </u>	<u> </u>	<u> </u>	
6.	Methylene ch	loride	<u> </u>		· · ·			1	<u> </u>	<u> </u>
7.	Acrylonitri	le		<u> </u>			l	<u>i</u>		
٤.	Trichloroflu	oromethane					<u> </u>	<u> </u>	<u> </u>	l
	1,1-dichlord		l				l	<u> </u>		·
10.	1,1-dichlord	bethane			2,000	<u> </u>			<u> </u>	
11.	Trans-1,2-di	chloroethylene			3,000	-	<u> </u>	l		
12.	Chloroform						<u> </u>			
13.	1,2-dichlord	bethane					1	!		:
14.	1,1,1-trich]	oroethane		3,100	3,100	·		l		
15.	Carbon tetra	chloride				·				
16.	Bromodichlor	omethane						<u> </u>	<u> </u>	
	1,2-dichlord							<u> </u>	<u> </u>	
18.	Trans-1,3-di	chloropropylene					<u> </u>	<u> </u>	<u> </u>	
19.	Trichloroeth	ylene		650			<u> </u>			
20.	Benzene						i	i		
21.	Dibromochlor	omethane						<u> </u>		
22.	Cis-1,3-dict	loropropylene						l		
23.	1,1,2-trich1	oroethane			<u> </u>		<u> </u>			
24.	Bromoform				<u> </u>		l	l		
		achloroethane						l		
26.	Tetrachloroe			<u> </u>				1		
27.	Toluene		100-1,000	500	790			<u> </u>	······································	
28.	Chlorobenzen	e						l		
29.	Ethyl benzen	e	Τ							
30.	Bis-chlorome	thyl ether								
31.	2-chloroethy	'l vinyl ether								
32.	Acrolein									

#### ADDITIONAL COMPOUNDS

Xylenes	1,000				1	
Tetrahydrofuran	8,000	100,000	-			·
Methyl Ethyl Ketone	18,000 10,000		<u> </u>			
Methyl Isobutyl Ketone	10,000					
Acetone	1,000					
Methyl Propyl Ketone	9,000					 
Other Unidentified	~30,000					

a. Duplicate sample also analyzed by EPA. See Appendix , Quality Control Program.

Compound identification uncertan.

c. Co-eluted with Chloroform.

••• Eluted close to Dioxane.

All Results in ug/l (ppb) unless noted

## Table ______

## Page <u>1</u> of <u>1</u>

## WATER QUALITY MONITORING DATA

VOLATILE ORGANICS

· · -

Site: Mottolo Location: Raymond, NH Sampling Station:

OW-4-2

		Laboratory	ERCO							
		Analvsis by	GC							
	COMPOUNDS	Sampling of	7/80		<u> </u>		İ	1		•
1.	Chloromethar	ne			<u> </u>		<u> </u>			
2.	Bromomethane						l		1	!
3.	Dichlorodifl	uoromethane					L			
4.	Vinyl chlori	de						1	9 1	
5.	Chloroethane							i		
6.	Methylene ch	loride			· · · · ·		<u>i</u>		1	1
7.	Acrylonitril	.e			1			i	[	
ε.	Trichloroflu	oromethane		•						
9.	1,1-dichloro	ethylene						<u> </u>	1	
10.	1,1-dichloro	ethane								
11.	Trans-1,2-di	chloroethylene					·			
12.	Chloroform	· · ·	NO					1		
13.	1,2-dichloro	ethane	COMPOUND\$					! .	l .	
14.	1,1,1-trichl	oroethane	DETECTED				1	1		•
15.	Carbon tetra	chloride	AT OR		_			<u> </u>		
16.	Bromodichlor	omethane	ABOVE				1			
	1,2-dichloro		1 ppm					1		
18.	Trans-1,3-di	chloropropylene	(by vol.)					1		()
19.	Trichloroeth	ylene								1
20.	Benzene					Γ	ļ			<u> </u>
21.	Dibromochlor	omethane						<u> </u>		
22.	Cis-1,3-dich	loropropylene					1	İ	!	1
23.	1,1,2-trichl	oroethane				1				
24.	Bromoform					1				
25.	1,1,2,2-tetr	achloroethane								
26.	Tetrachloroe	thylene					1			
27.	Toluene					1				
28.	Chlorobenzen	e				i				
29.	Ethyl benzen	e								
30.	Bis-chlorome	thyl ether								
31.	2-chloroethy	l vinyl ether			1					
	Acrolein	······			1					[]
			· · · · · · · · · · · · · · · · · · ·		<u> </u>	<u></u>				

#### ADDITIONAL COMPOUNDS

Ľ

		I	<u> </u>			
		Τ				
		<u> </u>	l		ł	
	 	L		L		
	· ·				1	
					,	
· · · · · · · · · · · · · · · · · · ·						

.

## Table _____

## Page 1 of 1

## WATER QUALITY MONITORING DATA

VOLATILE ORGANICS

... ...

- -

a.

.

#### Mottolo Site: Location: Raymond, NH

## Sampling Station:

### JB-5

					· · · · · · · · · · · · · · · · · · ·					
		Laboratory	ERCO			]				
		Analvsis by	GC/MS							
		Sampling of	12/80				1	1		1
1.	Chloromethan	ne								
2.	Bromomethane						l			1
3.	Dichlorodifi	luoromethane								
4.	Vinyl chlori	ide						I		
5.	Chloroethane	•								
6.	Methylene ch	loride						1		
7.	Acrylonitril	e								
	Trichloroflu		-			·			•	
9.	1,1-dichloro	pethylene								
10.	1,1-dichlord	bethane	990							
11.	Trans-1,2-di	chloroethylene	9,600							
12.	Chloroform	•								
13.	1,2-dichlord	bethane								
14.	1,1,1-trichl	oroethane								
15.	Carbon tetra	chloride								
16.	Bromodichlor	omethane								
17.	1,2-dichloro	propane								
18.	Trans-1,3-di	chloropropylene								
19.	Trichloroeth	ylene								
20.	Benzene									
21.	Dibromochlor	omethane		•						
22.	Cis-1,3-dich	loropropylene								
23.	1,1,2-trich1	oroethane								~
24.	Bromoform									
25.	1,1,2,2-tetr	achloroethane								
26.	Tetrachloroe	thylene		•						
27.	Toluene		2,900		1					
28.	Chlorobenzen	e			1	1				
29.	Ethyl benzen	e			1					
30.	Bis-chlorome	thyl ether			1					
31.	2-chloroethy	1 vinyl ether		· · · · · · · · · · · · · ·						
	Acrolein				1				-	
						· · · · · · · · · · · · · · · · · · ·			۰	

ADDITIONAL COMPOUNDS

Duplicate sample also analyzed by EPA. See Appendix

, Quality Control Program.

.

.

## Table <u>C.1-8</u>

## Page 1 of 1

## WATER QUALITY MONITORING DATA

VOLATILE ORGANICS

. . . .

Site: Mottolo Location: Raymond, NH Sampling Station: JB-7

· · · · · · · · · · · · · · · · · · ·			··		<u> </u>	<u> </u>	
Laboratory	ERCO	ERCO					1
<u>Analvsis by</u>		GC/MS					
COMPOUNDS Sampling of	7/80	10/80					1
1. Chloromethane							1
2. Bromomethane						1	
3. Dichlorodifluoromethane				l			
4. Vinyl chloride							1
5. Chloroethane							
6. Methylene chloride			<u>                                      </u>			1	<u> </u>
7. Acrylonitrile					<u> </u>		l
S. Trichlorofluoromethane				1	· · · ·	1	
9. 1,1-dichloroethylene	1				1		1
10. 1,1-dichloroethane		200		<u> </u>		L	
11. Trans-1,2-dichloroethylene		620 ⁻					
12. Chloroform				<u> </u>	· · · · ·		
13. 1,2-dichloroethane		1			1	<u>i</u>	i
14. 1,1,1-trichloroethane					·		!
15. Carbon tetrachloride						<u> </u>	<u> </u>
16. Bromodichloromethane					i		
17. 1,2-dichloropropane					<u> </u>	L	
18. Trans-1, 3-dichloropropylene	•						
19. Trichloroethylene		1					-
20. Benzene							
21. Dibromochloromethane			<u>   </u>				
22. Cis-1,3-dichloropropylene				<u> </u>			l
23. 1,1,2-trichloroethane						· ·	l <u> </u>
24. Bromoform					<u> </u>	1	
25. 1,1,2,2-tetrachloroethane		1					
26. Tetrachloroethylene							
27. Toluene		10					
28. Chlorobenzene							
29. Ethyl benzene		28					
30. Bis-chloromethyl ether							
31. 2-chloroethyl vinyl ether							
32. Acrolein			1				

#### ADDITIONAL COMPOUNDS

Xylenes						
Tetrahydrofuran	11,000	-28,000		{	1	
Methyl Ethyl Ketone	28,000 ^ª					
Methyl Isobutyl Ketone	6,000					
Acetone	8,000					
Other Unidentified	14,000					
7						

a. Co-eluted with Chloroform.

Eluted close to Dioxane.

## Table ______

## WATER QUALITY MONITORING DATA

VOLATILE ORGANICS

Site: Mottolo Location: Raymond, NH

#### Sampling Station:

Surface Drainage Behind Shed Near Access

						•		Denting .	Sheu hear	Access
		Laboratory	EPA							
		Analysis by	GC							<u> </u>
	COMPOUNDS	Sampling of					1			1
1.	Chloromethan	ne					1			
2.	Bromomethane	2					!			
3.	Dichlorodif	luoromethane					۱ <u> </u>			
4.	Vinyl chlor:	ide								
5.	Chloroethane						<u> </u>	1		<u> </u>
	Methylene ch				· · · · · · · · · · · · · · · · · · ·	<u> </u>	1		1.	1
7.	Acrylonitri	le	<u> </u>				l	i		1
	Trichloroflu		1			<u> </u>	l	<u> </u>		1
_	1,1-dichloro	the second second second second second second second second second second second second second second second s				l		<u> </u>		<u> </u>
10.	1,1-dichloro	oethane			l	L	<u> </u>			
		ichloroethylene	۱ <u> </u>				<u> </u>	1		1
	Chloroform		NO	. <u> </u>	·	L	[			1
	1,2-dichloro	· · · · · · · · · · · · · · · · · · ·	OMPOUNDS			<u> </u>	l			<u> </u>
	1,1,1-trich1		DETECTED				ļ			!
	Carbon tetra					ļ		<u> </u>		
	Bromodichlor				ļ	l			<u> </u>	
	1,2-dichlord				<u> </u>	·		<u> </u>		L
		ichloropropylene				ļ	· · · · · · · · · · · · · · · · · · ·			·
	Trichloroeth	nylene			ļ					<u> </u>
	Benzene						<u>i</u>		_ <u>_</u>	
	Dibromochlor				<u> </u>	ļ				<u> </u>
		nloropropylene			l	!	<u> </u>		<u></u>	<u> </u>
_	1,1,2-trich]	loroethane					<u> </u>			<u> </u>
·	Bromoform					<u> </u>				<u> </u>
		achloroethane								
	Tetrachloroe	thylene								
	Toluene									
-	Chlorobenzen									
	Ethyl benzen		ļ [						<u> </u>	
-	Bis-chlorome	the second second second second second second second second second second second second second second second se	· · · · · · · · · · · · · · · · · · ·							<u> </u>
		l vinyl ether								
32.	Acrolein			·	L	L	l		_ <u>_</u>	L

ADDITIONAL COMPOUNDS

All Results in ug/l (ppb) unless noted

.

Page 1 of 1

## Table <u>C.1-1</u>0

### WATER QUALITY MONITORING DATA

VOLATILE ORGANICS

Site: Mottolo Location: Raymond, NH

#### Sampling Station:

Surface Drainage Upgradient of OW-2

				•	_	upgra	dient of	0W-2
	Laboratory	EPA						
	Analysis by							
COMPOUNDS	Sampling of	4/80	 	<u> </u>	1	l		
1. Chlorometha	ane			1	<u> </u>	i I		
2. Bromomethan	ne		 1			1		
3. Dichlorodii	fluoromethane	i		Í				
4. Vinyl chlor	ride					i		
5. Chloroethan				L	L	l		
6. Methylene d	chloride		 · · · · ·	<u> </u>	· · · · · · · · · · · · · · · · · · ·	l	<u> </u>	
7. Acrylonitri		l			I	i		
6. Trichlorof	uoromethane	l	 	<u> </u>	<u> </u>	!		1
9. 1,1-dichlos	oethylene	1		<u> </u>		1	<u> </u>	
10. 1,1-dichlor	oethane	<u> </u>	 	ļ	<u> </u>	<u> </u>	L	
11. Trans-1,2-d	lichloroethylene	100			<u> </u>	<u> </u>		
12. Chloroform				<u>  · · · · · · · · · · · · · · · · · · ·</u>		i		· · · ·
13. 1,2-dichlor				<u> </u>	<u> </u>	ľ		· ·
14. 1,1,1-trict			· ·	<u> </u>	·		ļ	l
15. Carbon tetr	achloride				·	í		
16. Bromodichle					<u> </u>		ļ	
17. 1,2-dichlor			 	ļ	<u>                                     </u>		ļ	·
	lichloropropylene	L	 	<u> </u>	<u> </u>		<u> </u>	
19. Trichloroet	hylene	8	 		<u> </u>		<u> </u>	ļ
20. Benzene			 	1	<u>i</u>	<u> </u>	<u> </u>	
21. Dibromochlo			<u> </u>	<u> </u>				
22. Cis-1,3-dic			<u> </u>	<u> </u>	1	<u> </u>		
23. 1,1,2-trich	loroethane		 1	<u> </u>	1	-		
24. Bromoform				<u> </u>				
25. 1,1,2,2-tet	rachloroethane		 <u> </u>	<u> </u>	1			
26. Tetrachloro	ethylene		 <u> </u>	<u> </u>				
27. Toluene		20	 	<u> .</u>				
28. Chlorobenze	ne	· · · ·	 ļ	L			<u> </u>	
29. Ethyl benze			 1					
30. Bis-chlorom	ethyl ether							
31. 2-chloroeth	yl vinyl ether			· · · · ·				
32. Acrolein				1				

#### ADDITIONAL COMPOUNDS

Acetone ·	Present					
Tetrahydrofuran	Present					
Methyl Ethyl Ketone Methyl Isobutyl Ketone	Present				1	1
Methyl Isobutyl Ketone	Present				1	1
2-Butanol	Present					
					İ	
		1				}

#### Table C.1-11

## Page <u>1</u> of <u>1</u>

#### WATER QUALITY MONITORING DATA

VOLATILE ORGANICS

#### Site: Mottolo Location: Raymond, NH

Sampling Station: Surface Pool Downgradie:

of Buried Drums EPA Laboratory Analvsis by GC/MS COMPOUNDS Sampling of | 4/80 1. Chloromethane 2. Bromomethane 3. Dichlorodifluoromethane 4. Vinyl chloride 5. Chloroethane 6. Methylene chloride 100 7. Acrylonitrile S. Trichlorofluoromethane 9. 1,1-dichloroethylene 10. 1,1-dichloroethane 11. Trans-1,2-dichloroethylene 60 12. Chloroform 13. 1,2-dichloroethane 14. 1,1,1-trichloroethane 15. Carbon tetrachloride 16. Bromodichloromethane 17. 1,2-dichloropropane 18. Trans-1, 3-dichloropropylene 19. Trichloroethylene 300 20. Benzene 21. Dibromochloromethane 22. Cis-1,3-dichloropropylene 23. 1,1,2-trichloroethane 24. Bromoform 25. 1,1,2,2-tetrachloroethane 26. Tetrachloroethylene 300 27. Toluene 28. Chlorobenzene 29. Ethyl benzene 30. Bis-chloromethyl ether 31. 2-chloroethyl vinyl ether 32. Acrolein

#### ADDITIONAL COMPOUNDS

Acetone	Present			_		
Isopropyl Alcohol	Present					
Tetrahydrofuran	Present					
Methyl Ethyl Ketone	Present					
Methyl Isobutyl Ketone	Present					
2-Butan ol	Present			_		
Hexanol	Present					
		_	1			

### Table <u>C.1-12</u>

#### WATER QUALITY MONITORING DATA

VOLATILE ORGANICS

Site: <u>Mottolo</u> Location: Raymond, NH

#### Sampling Station:

Surface Pools at Base

of Slope Near JB-5 EPA Laboratory Analvsis by GC/MS 4780 COMPOUNDS Sampling of | 1. Chloromethane 2. Bromomethane 3. Dichlorodifluoromethane 4. Vinyl chloride 5. Chloroethane 6. Methylene chloride 7. Acrylonitrile S. Trichlorofluoromethane 9. 1,1-dichloroethylene 10. 1,1-dichloroethane 11. Trans-1,2-dichloroethylene 2,000 12. Chloroform 13. 1,2-dichloroethane 14. 1,1,1-trichloroethane 15. Carbon tetrachloride 16. Bromodichloromethane 17. 1,2-dichloropropane 18. Trans-1, 3-dichloropropylene 19. Trichloroethylene 200 20. Benzene 21. Dibromochloromethane 22. Cis-1,3-dichloropropylene 23. 1,1,2-trichloroethane 24. Bromoform 25. 1,1,2,2-tetrachloroethane 26. Tetrachloroethylene 27. Toluene 400 28. Chlorobenzene 29. Ethyl benzene 30. Bis-chloromethyl ether 31. 2-chloroethyl vinyl ether 32. Acrolein

#### ADDITIONAL COMPOUNDS

Acetone	Present		<u> </u>	<u> </u> '	<u>1 · </u> '	<u> </u>	<u> </u>	1
Tetrahydrofuran	Present			<u> </u>	1	1	í'	
Methyl Ethyl Ketone	Present		1	1	('	1/		
Methyl Isobutyl Ketone	Present		·'	·'	L'	· · · · · · · · · · · · · · · · · · ·		
			· · · · · · · · · · · · · · · · · · ·	1	1 '	1	1	
			1	1 +	1	·	1	
		+	+	1 1	1	· · · · · · · · · · · · · · · · · · ·	·	· · · · · · · · · · · · · · · · · · ·
	++-	+	ı ————————————————————————————————————	· · · · · · · · · · · · · · · · · · ·	;	· · · · · · · · · · · · · · · · · · ·		
		+	·		1	· · · · · · · · · · · · · · · · · · ·		

## Table <u>C.1-13</u>

#### WATER QUALITY MONITORING DATA

VOLATILE ORGANICS

Site: <u>Mottolo</u> Location: <u>Raymond</u>, NH

### Sampling Station:

Brook Upstream Near JB-8

							JB-8	
Laboratory	EPA						-	
Analvsis by	GC		ļ		1			
COMPOUNDS Sampling of	4/80		1		1			
1. Chloromethane					1	-		
2. Bromomethane					1			
3. Dichlorodifluoromethane					1	ł		
4. Vinyl chloride								
5. Chloroethane				I	!			
6. Methylene chloride			1	Ī			l	ī
7. Acrylonitrile						İ		<u> </u>
<ol> <li>Trichlorofluoromethane</li> </ol>					1	•	1	
9. 1,1-dichloroethylene	1		1	1	1	j	· ·	<u> </u>
10. 1,1-dichloroethane	NO			<u> </u>		 <u> </u>	1	
11. Trans-1,2-dichloroethylene	COMPOUNDS					I		·
12. Chloroform	DETECTED			I	1	l		
13. 1,2-dichloroethane					1	<u> </u>		
14. 1,1,1-trichloroethane								
15. Carbon tetrachloride				<u> </u>				
16. Bromodichloromethane				I		j	<u> </u>	
17. 1,2-dichloropropane						l		
18. Trans-1, 3-dichloropropylene				1	l	ļ		
19. Trichloroethylene						I		-
20. Benzene				<u> </u>	<u> </u>	1		<u> </u>
21. Dibromochloromethane				<u> </u>		l,		
22. Cis-1,3-dichloropropylene				l				
23. 1,1,2-trichloroethane		i		l	<u> </u>	1		
24. Bromoform					<u> </u>	l <u> </u>		
25. 1,1,2,2-tetrachloroethane	ł			l		l		
26. Tetrachloroethylene				<u> </u>		l		
27. Toluene				<u> </u>				
28. Chlorobenzene								
29. Ethyl benzene								
30. Bis-chloromethyl ether								
31. 2-chloroethyl vinyl ether								
32. Acrolein								
<ol> <li>19. Trichloroethylene</li> <li>20. Benzene</li> <li>21. Dibromochloromethane</li> <li>22. Cis-1, 3-dichloropropylene</li> <li>23. 1,1,2-trichloroethane</li> <li>24. Bromoform</li> <li>25. 1,1,2,2-tetrachloroethane</li> <li>26. Tetrachloroethylene</li> <li>27. Toluene</li> <li>28. Chlorobenzene</li> <li>29. Ethyl benzene</li> <li>30. Bis-chloromethyl ether</li> <li>31. 2-chloroethyl vinyl ether</li> </ol>								

#### ADDITIONAL COMPOUNDS

	· · · · · · · · · · · · · · · · · · ·	1	·)	1?	1		i
 <u> </u>	·'				1	[]	
 ļļ	,)	· · · · · · · · · · · · · · · · · · ·		1			i
 	<u>ا</u> ــــــــــــــــــــــــــــــــــــ	<u> </u>	·'	ļ!			
<u></u> t	<u>ا'</u>	1!	( [!]	!	i		I
 ,i	,	1 1	,	[]			
	( <u> </u>	1	·	·····	[		
,	1	[]			ī — — — — — — — — — — — — — — — — — — —	[]	
 	, <del></del> ,	1	T	[]	ſ,		

#### All Results in ug/l (ppb) unless noted

### Table <u>C.1-14</u>

## WATER QUALITY MONITORING DATA

VOLATILE ORGANICS

Site: Mottolo Location: Raymond, NH

## Page 1 of 1

Sampling Station: Brook Near JB-6

		Laboratory	EPA							
		Analvsis by	GC/MS		1					1
	COMPOUNDS	Sampling of	4/80				<u> </u>	1		
1.	Chlorometha	ne	1				1			•
2.	Bromomethan	2					·		1	
_3.	Dichlorodif	luoromethane					<u> </u>			
4.	Vinyl chlor	ide				1				
	Chloroethan						1	i	ļ	
_6.	Methylene c	nloride						<u> </u>	<u>l</u>	
7.	Acrylonitri	le					4	ł		
6.	Trichlorofl	uoromethane			· ·	1	}	1		}
9.	1,1-dichlor	pethylene				1				
10.	1,1-dichlor	bethane				1	1		l	
11.	Trans-1,2-d	ichloroethylene	40							
12.	Chloroform						i	1		
13.	1,2-dichlor	bethane		· · ·		1	1	<u> </u>		<u> </u>
14.	1,1,1-trich	loroethane •					L			
15.	Carbon tetra	achloride -		<u> </u>			<u> </u>	Ì		
16.	Bromodichlo	romethane		<u> </u>		<u> </u>	<u> </u>	<u> </u>	l	
17.	1,2-dichlor	propane				<u> </u>	l	<u> </u>		<u> </u>
18.	Trans-1,3-d	ichloropropylene					l	l	l	
19.	Trichloroeth	nylene .	40	l			ł	ļ		
20.	Benzene					I	í	l		
21.	Dipromochlor	romethane		l		i	ſ <u>·</u>			
22.	Cis-1,3-dic	loropropylene		[		<u> </u>	l	1		
	1,1,2-trich	orbethane -					<u> </u>	1		·
	Bromoform						l	<u> </u>		i
_		achloroethane				l	<u> </u>			
26.	Tetrachloroe	thylene				<u>ا</u>	l	<u> </u>		
27.	Toluene		1					<u> </u>		
28.	Chlorobenzer	le						{		
29.	Ethyl benzer	e								
30.	Bis-chlorome	thyl ether				!				
31.	2-chloroethy	1 vinyl ether				1		1		
32.	Acrolein									

#### ADDITIONAL COMPOUNDS

Acetone	Present	1		[		
Tetrahydrofuran	Present	 1			1	
Methyl Ethyl Ketone	Present	1		1	1	
Methyl Isobutyl Ketone	Present	1	1	[	Ī	
		1				
		 1	<b></b>		+	
		 4	•	[	<u> </u>	
	+	 1			<u> </u>	1
		 t <u> </u>		ļ		<u></u>

All Results in ug/l (ppb) unless noted

.

.

.

## Table <u>C.1-15</u>

### WATER QUALITY MONITORING DATA

VOLATILE ORGANICS

Site: Mottolo

#### Sampling Station:

Brook Downstream

	,	·••		<b></b>	- <b></b>	<b></b>	at	Abandone	d Road
	Laboratory	EPA							
	Analysis by	GC							
COMPOUNDS	Sampling of	4/80				1	1		
1. Chlorometha						1			
2. Bromomethan	he							1	
3. Dichlorodif	fluoromethane					1			
4. Vinyl chlor	ride								
5. Chloroethan				Ī			<u> </u>		
6. Methylene c									
7. Acrylonitri	le						<u> </u>		
6. Trichlorofl	uoromethane	1					<u> </u>	1	
9. 1,1-dichlor	oethylene							1	
10. 1,1-dichlor	:oethane					<u> </u>			
	dichloroethylene	!				1	1		
12. Chloroform			-						i
13. 1,2-dichlor	oethane	I				ļ			-
14. 1,1,1-trich	loroethane					L	•	!	
15. Carbon tetr	achloride					· ·	· · · · · · · · · · · · · · · · · · ·	<u> </u>	
16. Bromodichlo	promethane	1					1i		
17. 1,2-dichlor						1	<u> </u>	<u> </u>	
	dichloropropylene				'		[		·
19. Trichloroet	hylene	<b>∠</b> 10				1	<u> </u>	<u> </u>	
20. Benzene					<u> </u>	<u> </u>		l	
21. Dibromochlo	romethane	(			<u> </u>	i			
22. Cis-1,3-dic		·				1	<u> </u>		
23. 1,1,2-trich	loroethane	·			<u> </u>	<u>  · </u>			
24. Bromoform		'			<u> </u>	<u> </u>	<u> </u>		
25. 1,1,2,2-tet		()			<u>                                     </u>	<u> </u>			1
26. Tetrachloro	ethylene	·			<u> </u>			<u></u>	
27. Toluene		; 			<u> </u> '	<u> </u> '	<u> </u>		
28. Chlorobenze	ine	·			<u> </u>			·	
29. Ethyl benze		í <u> </u>			<u> </u> '				
30. Bis-chlorom	ethyl ether	/ <u></u> /			<u> </u>				
31. 2-chloroeth	yl vinyl ether	·							
32. Acrolein		i'	1		ſ'				

#### ADDITIONAL COMPOUNDS

		[ ]	 			
•						
		┝ <u></u>	 		 	 
_			 		 	 
_	·		 		 	 
			 ·			
	· · ·	i		u		1

All Results in ug/l (ppb) unless noted

Location: Raymond, NH

#### Page 1 of 1

#### WATER QUALITY MONITORING DATA

PORTABLE	GC	SCREENING		Site:	Mottolo
		•	•	Location:	Raymond, NH

Sampling Station:

OW-1

	Laboratory	GZA	GZA	GZA			[		
	Analysis by	Port.GC*	Port.GC*	Port.GC					·
COMPOUNDS	Sampling of	5/5/80	7/22/80	10/9/80			· · · · · · · · · · · · · · · · · · ·		·
1. Chlorometha									
2. Bromomethan	•								
3. Dichlorodif	luoromethane								
4. Vinyl chlor	ide								
5. Chloroethan									
6. Methylene c									
7. Acrylonitri	1e	l				l	)		
6. Trichlorofl		ļ				· ·	}		<u> </u>
9. 1,1-dichlor		ļ			L	L	<u>  ·</u>	<u> </u>	ļ]
10. 1,1-dichlor	and the second second second second second second second second second second second second second second second	l				ļ	·	L	
11. Trans-1,2-d	ichloroethylene	ļ	L			ļ	!	L	l
12. Chloroform		ļ	· · · · · · · · · · · · · · · · · · ·			ļ	l		ļ
13. 1,2-dichlor		ļ				[			
14. 1,1,1-trich	·	<u> </u>	ļ		·	L			i
15. Carbon tetr						ļ	ļ		
16. Bromodichlo		<u> </u>							
17. 1,2-dichlor		ļ							
	ichloropropylene	<u> </u>		<u>                                     </u>					
19. Trichloroet	hylene	<u> </u>				ļ	l		
20. Benzene		<u> </u>	·			L	l		
21. Dibromochlo									
22. Cis-1,3-dic		<u> </u>				l			<b>f</b>
23. 1,1,2-trich 24. Bromoform		ļ			<u></u>				
	and the second second second second second second second second second second second second second second second								
25. 1,1,2,2-tet 26. Tetrachloro									d
27. Toluene	etnylene	<u> </u>					l		
28. Chlorobenze		<u> </u>							
							1		
29. Ethyl benze 30. Bis-chlorom	the second second second second second second second second second second second second second second second s								
31. 2-chloroeth		¦					1		
32. Acrolein	yi vinyi echet		<u> </u>				I		
		L	1	i		I,	1	1	LJ
ADDITIONAL									·
Total Organ	ic Vapor			•				_	
Content, p		1.2	0.4						
Methane									
Unidentifi	ed Compounds				-				
									<u> </u>
								·	i
		<b> </b>	<u> </u>				<u> </u>		<u> </u>
		L					L	L	

NOTES:

ALL RESULTS IN mg/l (ppm) UNLESS NOTED

(1) Total organic vapor contents based on 3 cc injections of headspace gas from water samples. A Century Systems OVA-128 with flame ionization detector was employed. Results expressed in ppm referenced to a methane in air standard.

(2) Compound identifications are tentative only and were based on matching peak elution times with retention times of known compounds.

(3) All reported concentrations were based on single point calibration standards and should be considered approximate only. D-94

(4) / indicates compound detected but concentrations not quantified.

## Table _____C.2-2

#### Page 1 of 1

## WATER QUALITY MONITORING DATA

PORTABLE GC	SCREENING	Site: Locat:	Mot ion: Ray	tolo mond, NH		. •	Sampling S OW-2-1	tation:
	Laboratory	GZA	GZA	GZA	GZA	GZA		1
	Analysis by	Port GC	Port GC	Port CC				
COMPOUNDS	Sampling of							<u> </u>
1. Chlorometha								1.
2. Bromomethan	e	· · · · · · · · · · · · · · · · · · ·		1		[		
3. Dichlorodif	luoromethane	[		1				<u>+</u>
4. Vinyl chlor	ide				l			<u> </u>
5. Chloroethan	and the second second second second second second second second second second second second second second secon				i			1
6. Methylene c	hloride							1
7. Acrylonitri	1e	1						1
S. Trichlorofl	uoromethane		· · · · · · · · · · · · · · · · · · ·			· · ·		1
9. 1,1-dichlor	oethylene	1	· · · · · · · · · · · · · · · · · · ·	1	· · · · · · · · · · · · · · · · · · ·	1		1
10. 1,1-dichlor	oethane	1			-	J ·	1	1
11. Trans-1,2-d	ichloroethylene	7		>l pom	1 ppm	2-3 ppm		1
12. Chloroform		1			i	1		1
13. 1,2-dichlor	oethane				1	1		1
14. 1,1,1-trich	loroethane	7	7	>1.ppm	naa 01	2-3 ppm		
15. Carbon tetr	achloride		i		1			1
16. Bromodichlo:	romethane		[	1	1			1
17. 1,2-dichlor	opropane			1	[			
18. Trans-1,3-d	ichloropropylene		1	T	1	1 1		•
19. Trichloroet		7			<lpre>&gt;&gt; &lt;1 ppm</lpre>	mag 1>		i
20. Benzene								1.
21. Dibromochlo	romethane				<b>.</b>			
22. Cis-1,3-dic	hloropropylene				l	T T		
23: 1,1,2-trich	loroethane							
24. Bromoform								
25. 1,1,2,2-tet	rachloroethane						1	1
26. Tetrachloro	ethylene							
17. Toluene			√	3-4 ppm	9 ppm	2-3_ppm		
28. Chlorobenzer	ne							
29. Ethyl benzer	ne							]
30. Bis-chlorom								
31. 2-chloroeth	yl vinyl ether							
32. Acrolein								
ADDITIONAL		·						
	ic Vapor				·	<del>,,,</del>		

Total Organic Vapor			••				
Content, ppm	210	37	280				
Methane	$\checkmark$		$\checkmark$	$\checkmark$			
					L		
Unidentified Compounds	√(2)	√(2)	√(3)	√(4)	√(2)		

NOTES:

ALL RESULTS IN mg/l (ppm) UNLESS NOTED

(1) Total organic vapor contents based on 3 cc injections of headspace gas from water samples. A Century Systems OVA-128 with flame ionization detector was employed. Results expressed in ppm referenced to a methane in air standard.

(2) Compound identifications are tentative only and were based on matching peak elution times with retention times of known compounds.

(3) All reported concentrations were based on single point calibration standards and should be considered approximate only.
D-95

(4) / indicates compound detected but concentrations not quantified.

### Page 1 of 1

### WATER QUALITY MONITORING DATA

PORTABLE GC	SCREENING	Site:		tolo		Sampling Station:				
		Locat	ion: Ray	mond, NH				OW-2-2		
•	Laboratory	GZA	GZA	GZA						
	Analysis by	Port.GC	Port.GC	Port.GC						
COMPOUNDS	Sampling of						1			
1. Chlorometha				T			[			
2. Bromomethan	t						[			
3. Dichlorodif:	luoromethane						[	ļ		
4. Vinyl chlor	ide	1	· ·	1	1					
5. Chloroethan	e									
6. Methylene cl	hloride	1	1			1	[	1		
7. Acrylonitri	le	1	l	1			1	1		
5. Trichlorofl	uoromethane									
9. 1,1-dichlor	oethylene	1				1	l	· · · · · · · · · · · · · · · · · · ·		
10. 1,1-dichlore	oethane			1	~	i	1	ļ	-	
11. Trans-1,2-d	ichloroethylene			5-6 ррл			· · ·		1	
12. Chloroform		1		1		Í	[	1		
13. 1,2-dichlor	oethane		1	1		1	1	[		
14. 1,1,1-trich	loroethane			1		ł	[			
15. Carbon tetr.	achloride	1	1				[			
16. Bromodichlo:	romethane	1	1				1			
17. 1,2-dichlors	opropane		1	·				1		
18. Trans-1,3-d	ichloropropylene			1			1	[	· ·	
19. Trichloroet	hylene	1	1	<1 ppm			r	T	i	
20. Benzene									1	
21. Dibromochlo	comethane							1		
22. Cis-1,3-dic	hloropropylene						T	1		
23. 1,1,2-trich	loroethane			1		1	1	1	· · · · · ·	
24. Bromoform		1		1		1		1		
25. 1,1,2,2-teti	rachloroethane	1		1			1	1	1	
26. Tetrachloroe	ethylene		1							
27. Toluene				maa 9-8			1			
28. Chlorobenzes	he	<b></b>		<u> </u>			1	[		
29. Ethyl benzer			<u> </u>				 	·		
30. Bis-chlorome		1	i	<u> </u>				1		
31. 2-chloroethy		i	<u></u>		· · · · · · ·					
32. Acrolein		<u> </u>	<u> </u>	1			1	i	t	

#### ADDITIONAL

Total Organic Vapor		T	· .				-	
Content, ppm	940	600						
Methane								
Unidentified Compounds	√(2)	√(3)	√(2)		+			
			┨─────	<u> </u>				
		<u></u>						
			1					

NOTES:

ALL RESULTS IN mg/l (ppm) UNLESS NOTED

(1) Total organic vapor contents based on 3 cc injections of headspace gas from water samples. A Century Systems OVA-128 with flame ionization detector was employed. Results expressed in ppm referenced to a methane in air standard.

(2) Compound identifications are tentative only and were based on matching peak elution times with retention times of known compounds.

(3) All reported concentrations were based on single point calibration standards and should be considered approximate only. D-96

(4) ✓ indicates compound detected but concentrations not quantified.

## Table _____C.2-4

## Page 1 of 1

### WATER QUALITY MONITORING DATA

PORTABLE GC SCREENING

÷۲

. (

Site: Mottolo Location: Raymond, NH Sampling Station:

OW-3

			_			•			
	Laboratory	GZA	GZA	GZA	GZA		T	1	1
	Analysis by		Port CC*		Port.GC		<u> </u>	+	
COMPOUNDS	Sampling of						<u></u>	<u> </u>	
1. Chloromethau		4/20/00		1/22/80	10/9/80	·····	·	<u> </u>	
2. Bromomethane						- <u></u>	<u> </u>		
J. Dichlorodif	· · · · · · · · · · · · · · · · · · ·					· · · · ·	<u> </u>	┼	<u>+-</u>
4. Vinyl chlor:							1	<u> </u>	
5. Chloroethan							<u> </u>	<u> </u>	<u> </u>
				· · · · ·			<u> </u>	<u> </u>	<u></u>
6. Methylene ch							<u> </u>	<u> </u>	<u> </u>
7. Acrylonitri							<u> </u>	<b> </b>	[
5. Trichlorofle					!	•	<u> </u>	<u> </u>	ļ
9. 1,1-dichloro							<u> </u>	<u> </u>	· · · · · · · · · · · · · · · · · · ·
10. 1,1-dichlor								<u> </u>	!
11. Trans-1,2-d	ichloroethylene						<u> </u>		
12. Chloroform									}
13. 1,2-dichlore	bethane						1		
14. 1,1,1-trich	loroethane						1		
15. Carbon tetra	chloride								1
16. Bromodichlos	romethane						1		1
17. 1,2-dichlord	opropane					········		1	1
18. Trans-1,3-d:	ichloropropylene						1	[·····	
19. Trichloroeth								i	1
20. Benzene				i	h	·	<u></u>	<u> </u>	l
21. Dibromochlos	omethane						; 1	1	1
22. Cis-1,3-dict							<u> </u>		·
23. 1,1,2-trich							<u> </u>		, 
24. Bromoform	lordernane							<u> </u>	
25. 1,1,2,2-tett							<u> </u>	<u> </u>	· · · · · · · · · · · · · · · · · · ·
						<u> </u>		· · · · · · · · · · · · · · · · · · ·	<u> </u>
26. Tetrachloroe	thylene						1	<u>}</u>	
27. Toluene								ļ	
28. Chlorobenzer							1	<u> </u>	<u> </u>
29. Ethyl benzer							<u></u>		
30. Bis-chlorome							<u>}</u>	<u> </u>	ļ
31. 2-chloroethy	l vinyl ether						L		L
32. Acrolein				L	L		L	<u> </u>	[
ADDITIONAL							<del>_</del>	<del></del>	
Total Organ:		L		· ·			!		L
Content, pr		0	0	1.6	LI				
Methane				$\overline{}$					
	_								· · · ·
Unidentifie	ed Compounds	· · · · ·						1	
									{
							<u> </u>	+	<u> </u>
				l				<u> </u>	
						<u> </u>	<b></b>	<u> </u>	ļ
					L		L	1	L
ples. A expresse (2) Compound	rganic vapor A Century Sys ed in ppm ref 1 identificat ith retention	contents tems OVA erenced f ions are	based or -128 with to a meth tentativ	n 3 cc in n flame in nane in a ve only a	onizatio air stand and were	of head n detect ard.	or was e	mployed.	Results
(3) All repo be cons:	orted concent idered approx	rations v imate on	were base ly.	ed on sin D-97	ngle poin		•	andards a	and shoul
(4) ✓ indic:	tes compound	dotecte	- but cor	contrat.	ione not	anantifi	~d		

/ indicates compound detected but concentrations not quantified. (4)

#### Page 1 of 1

#### WATER QUALITY MONITORING DATA

PORTABLE GC SCREENING

Site: <u>Mottolo</u> Location: Raymond, NH Sampling Station:

OW-4-1

								·•	
	Laboratory	GZA *	GZA	GZA	GZA				
	Analysis by		Port.GC	Port GC	Port.GC				
COMPOUNDS	Sampling of	5/7/80	7/22/80	10/9/80	12/11/80	)			
1. Chlorometha	ne								
2. Bromomethan	t								
3. Dichlorodif	luoromethane								
4. Vinyl chlor	ide						I		
5. Chloroethan	e						1		
6. Methylene c	hloride						1		
7. Acrylonitri	1e								{
5. Trichlorofl	uoromethane						!		
9. 1,1-dichlor	oethylene						1		
10. 1,1-dichlor	oethane						1		
11. Trans-1,2-d	ichloroethylene				$\checkmark$				
12. Chloroform									
13. 1,2-dichlor	oethane						{		
14. 1,1,1-trich	loroethane			2-3 ppm	2-3 ppm				
15. Carbon tetr	schloride		l						}
16. Bromodichlo	romethane		<u> </u>				I		
17. 1,2-dichlor	opropane						L		
18. Trans-1,3-d	ichloropropylene						L		<u>.</u>
19. Trichloroet	hylene		/		/		l		<u> </u>
20. Benzene			<u> </u>				l		<u> </u>
21. Dibromochlo:	romethane						<u> </u>		l
22. Cis-1.3-dic	hloropropylene								
23. 1,1,2-trich	loroethane								<u> </u>
24. Bromoform									
25. 1,1,2,2-tet	rachloroethane		L						L
26. Tetrachloro	thylene		l						
27. Toluene				mqa [>	maa l>		L		
28. Chlorobenzei	ne						1		
29. Ethyl benzer	ne								
30. Bis-chlorom	thyl ether								
31. 2-chloroethy	yl vinyl ether						1		
32. Acrolein									

#### ADDITIONAL

Cotal Organic Vapor			· .					
Content, ppm	0.4	40						
Methane					}			
Unidentified Compounds		√(5)	√(4)	√(4)				
			ļ	<u></u>		·	<u> </u>	
			<u> </u>	+	╂╼────╁		<u> </u>	<u> </u>
		· · ·	T	1	1			<u> </u>

NOTES:

ALL RESULTS IN mg/l (ppm) UNLESS NOTED.

(1) Total organic vapor contents based on 3 cc injections of headspace gas from water samples. A Century Systems OVA-128 with flame ionization detector was employed. Results expressed in ppm referenced to a methane in air standard.

(2) Compound identifications are tentative only and were based on matching peak elution times with retention times of known compounds.

(3) All reported concentrations were based on single point calibration standards and should be considered approximate only. D-98

(4) ✓ indicates compound detected but concentrations not quantified.
 * Organic vapor content analysis analysis

### Page 1 of 1

#### WATER QUALITY MONITORING DATA

PORTABLE	GC	SCREENING
----------	----	-----------

Site: Mottolo Location: Raymond, NH Sampling Station:

OW-4-2

				·						
		Laboratory	GZA \star	GZA	GZA					
		Analysis by	Port.GC	Port.GC	Port.GC					
		Sampling of	5/7/80	7/22/80	10/9/80					
1. Ch1	loromethan	•								
_	omomethane									L
3. Dic	chlorodifl	voromethane								
	nyl chlori									
	loroethane									
	thylene ch									
and the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second s	rylonitril									·
_		oromethane						L	·	
	l-dichloro							· ·		ļ
	l-dichloro	the second second second second second second second second second second second second second second second s				-				!
		chloroethylene		<<1 ppm	<<1 ppm					
	loroform			· · · · · · · · · · · · · · · · · · ·				L		
	2-dichloro									
	1,1 ⁻ trichl			<<1 ppm	<<1 ppm					
15. Cár	rbon tetra	chloride								
16. Brc	omodichlor	omethane								
	2-dichloro									
		chloropropylene								· .
	ichloroeth	ylene								l
20. Ben		· · · · · · · · · · · · · · · · · · ·			·					
	promochlor				L					
		loropropylene						· · · · · · · · · · · · · · · · · · ·		
	,2-trichl	oroethane								
	moform .									
		achloroethane								· · · · ·
	rachloroe	thylene			L		 			
27. Tol				< <l ppm<="" th=""><th>&lt;&lt;1 ppm</th><th></th><th></th><th></th><th></th><th>·</th></l>	<<1 ppm					·
28. Ch1	lorobenzen	•								
	yl benzen									
30. Bis	-chlorome	thyl ether						l		
31. 2-0	hloroethy	l vinyl ether						l		
32. Acr	olein									

#### ADDITIONAL

Total Organic Vapor			•				-	
Content, ppm	0	54			1			
Methane								
Unidentified Compounds		√(2)	√(1)					
			ļ	<u></u>	Į			
			+		<u> </u>			<b> </b>
			1		<u> </u>			

NOTES:

ALL RESULTS IN mg/l (ppm) UNLESS NOTED

Total organic vapor contents based on 3 cc injections of headspace gas from water samples. A Century Systems OVA-128 with flame ionization detector was employed. Results expressed in ppm referenced to a methane in air standard.

(2) Compound identifications are tentative only and were based on matching peak elution times with retention times of known compounds.

(3) All reported concentrations were based on single point calibration standards and should be considered approximate only. D-99

(4) ✓ indicates compound detected but concentrations not quantified.

* Araphia manar contant - - - -

### Page <u>1</u> of <u>1</u>

#### WATER QUALITY MONITORING DATA

PORTABLE GC SCREENING

÷.,

Site: <u>Mottolo</u> Location: <u>Raymond</u>, NH Sampling Station:

OW-5

				•	·····		····	····
	Laboratory	GZA	GZA	GZA	GZA			
	Analysis by	Port.GC	Port.GC	Port.GC	Port.GC			
COMPOUNDS	Sampling of	5/7/80	7/22/80	10/9/80	12/11/80			
1. Chlorometha	ne							
2. Bromomethan	t							
3. Dichlorodif	luoromethane							
4. Vinyl chlor	ide				}			
5. Chloroethan	e							
6. Methylene c	hloride							
7. Acrylonitri	1e							
S. Trichlorofl	uoromethane							
9. 1,1-dichlor	oethylene					I.		
10. 1,1-dichlor	oethane							
11. Trans-1,2-d	ichloroethylene	. /		6-700m	9-10ppm			
12. Chloroform								
13. 1,2-dichlor	oethane			1				
14. 1,1,1-trich	loroethane		$\checkmark$		<1 pom			
15. Carbon tetr	achloride							
16. Bromodichlo	romethane		1	1				ł
17. 1,2-dichlor	opropane	[						
18. Trans-1,3-d	ichloropropylene							•
19. Trichloroet	hylene			7				
20. Benzene								1
21. Dibromochlo	romethane				•			
22. Cis-1,3-dic	hloropropylene							
23. 1,1,2-trich	loroethane			1				
24. Bromoform								
25. 1,1,2,2-tet	rachloroethane							
26. Tetrachloro	ethylene							
27. Toluene		$\checkmark$	$\checkmark$	1-2 ppm	2-3 ppm			
28. Chlorobenzes	ne							
29. Ethyl benzer	ne				1			
30. Bis-chlorom	ethyl ether		<u> </u>		1 1		1	
31. 2-chloroethy				1	11			
32. Acrolein					<u>†</u> †			
			L		- است.			L

#### ADDITIONAL

Total Organic Vapor				T			
Content, ppm	190	>1000					
Methane		<b>↓</b>		/	 		
Unidentified Compounds	√(1)	√(3)	√(3)	/(1)	 	<u> </u>	
		ļ	<u> </u>		 <u> </u>	¦ 	ļ
		1		-			
· ·		1	1	1		T	

NOTES:

ALL RESULTS IN mg/l (ppm) UNLESS NOTED

 Total organic vapor contents based on 3 cc injections of headspace gas from water samples. A Century Systems OVA-128 with flame ionization detector was employed. Results expressed in ppm referenced to a methane in air standard.

(2) Compound identifications are tentative only and were based on matching peak elution times with retention times of known compounds.

(3) All reported concentrations were based on single point calibration standards and should be considered approximate only. D-100

(4) ✓ indicates compound detected but concentrations not quantified.

## Page 1 of 1

### WATER QUALITY MONITORING DATA

PORTABLE GC	SCREENING	Site:		tolo	<u> </u>		Sar	mpling St	ation:
		Locat	ion: Ray	mond, NH				OW-6	
		<b></b>		<del></del>	<u> </u>	· <u> </u>		<u>.                                    </u>	<b>.</b>
	Laboratory	GZA	GZA *				ļ		
	Analysis by	Port.GC	Port.GC	Port.GC		ļ	l		
COMPOUNDS	Sampling of	5/7/80	7/22/80	10/9/80		<u> </u>	ļ		<u> </u>
1. Chlorometha		l				<u> </u>	L		L
2. Bromomethan		ļ	ļ						L
3. Dichlorodif	luoromethane	l	ļ		<u>.</u>	<u> </u>		L	
4. Vinyl chlor	ide	<b>L</b>	<u> </u>				<u>l</u>	ļ	
5. Chloroethan	and the second second second second second second second second second second second second second second second	ļ				ļ	l		
6. Methylene c	and the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second se	<u> </u>	L					L	<u> </u>
7. Acrylonitri	1e					<u> </u>	<u> </u>	<u>}</u>	<u> </u>
6. Trichlorofl	uoromethane		ļ			ļ	1	L	l
9. 1,1-dichlor	oethylene		1				1	<u> </u>	l
10. 1,1-dichlor	oethane				-		<u> </u>	1	
11. Trans-1,2-d	ichloroethylene			4-5 ppm			· · ·		
12. Chloroform									
13. 1,2-dichlor	oethane					1	1		
14. 1,1,1-trich	loroethane			1-2 ppm		1			
15. Carbon tetr	achloride								
16. Bromodichlo	romethane						1		
17. 1,2-dichlor	opropane								
18. Trans-1,3-d	ichloropropylene						1		
19. Trichloroet	hylene		1			T			
20. Benzene	,						i		
21. Dibromochlo	romethane					1	1		
22. Cis-1,3-dic.	hloropropylene	1	l				1		
23. 1,1,2-trich	loroethane	· · · · · · · · · · · · · · · · · · ·				1			
24. Bromoform		1					1		
25. 1,1,2,2-tet	rachloroethane		1			1	.	1	
26. Tetrachloro	ethylene 🎽		I	[		1			
27. Toluene		$\checkmark$	1	2-3 ppm		1	1	1	
28. Chlorobenze:	ne	1	1			1	1	[	
29. Ethyl benze:	ne			I		1		1	
30. Bis-chlorom		i	1	1	·	1	1	l	
31. 2-chloroeth;		i	<u> </u> -	1		1	1	<u> </u>	
32. Acrolein		<u> </u>		1		1	1	1	
		1		<u> </u>		-l	<u> </u>	*	L
ADDITIONAL							1		
Total Organ	ic Vapor	r	l	· ·		1	r	T	
		L	+			+	÷	÷	

Content, ppm	4.2	240						
Methane			<u> </u>	ļ	<u> </u>			
Unidentified Compounds	 √(2)				+		<u> </u>	
i								
			<u> </u>				ļ	
			<u> </u>		+	<u> </u>		
					I	L	<u> </u>	l

NOTES:

ALL RESULTS IN mg/l (ppm) UNLESS NOTED

 Total organic vapor contents based on 3 cc injections of headspace gas from water samples. A Century Systems OVA-128 with flame ionization detector was employed. Results expressed in ppm referenced to a methane in air standard.

(2) Compound identifications are tentative only and were based on matching peak elution times with retention times of known compounds.

(3) All reported concentrations were based on single point calibration standards and should be considered approximate only. D-101

(4) v indicates compound detected but concentrations not quantified.

т <u>с</u>

#### Page 1 of 1

#### WATER QUALITY MONITORING DATA

PORTABLE GC SCREENING

.7

Site: Mottolo Location: Raymond, NH Sampling Station:

<u>OW-7</u>

			<u> </u>	<b></b>	<b></b>			r	·····	
		Laboratory	GZA	GZA	GZA			l	L	ļ
		Analysis by	Port.GC	Port.GC	Port.GC			<u> </u>	<b></b>	
	COMPOUNDS	Sampling of	5/7/80	7/22/80	10/9/80			ļ		L
	hloromethan									<u> </u>
_	romomethane			ļ			L		<u> </u>	L
		luoromethane		L				<u> </u>	ļ	
	inyl chlori		L	·	·			L		
	hloroethane		ļ		· · · ·		·		ļ	
	lethylene ch		ļ	ļ						
	crylonitril			<b> </b>				<u> </u>	ļ	!
	Trichlorofly		ļ	ļ			·		1	<u> </u>
	,1-dichlord		ļ	<u> </u>			<u> </u>	!	1	
	,1-dichlord		· · · · · · · · · · · · · · · · · · ·	Ļ			L		[	l 
		chloroethylene			1-2 ppm			<u> </u>	<u> </u>	
_	hloroform		L	ļ			L	<u> </u>	<u> </u>	
	,2-dichlord		<u></u>	ļ						
	.1,1-trichl	the second second second second second second second second second second second second second second second s	<u> </u>	Ļ			<u>                                     </u>			
	arbon tetra		ļ	<u></u>					ļ	·
	romodichlor			<u> </u>	<u> </u>	<u> </u>			L	
	,2-dichloro		[					<u> </u>		
		chloropropylene		ļ					l	·
	richloroeth	nylene		ļ	L			ļ	ļ	
	enzene			<b> </b>					l	
	libromochlor			ļ			·			
the second second second second second second second second second second second second second second second s		loropropylene		ļ			<u>}</u>	l	<u> </u>	
_	,1,2-trichl	oroethane	ļ					l		
	romoform .	<u> </u>		ļ				L		
		achloroethane	ļ	ļ					ļ	
	etrachloroe	thylene	ļ	L	ļ	<u> </u>		L		
-	oluene			/	mag l>			L		
	hlorobenzen			L	ļ			<u> </u>	<b> </b>	
	thyl benzen		· · · · · · · · · · · · · · · · · · ·	<u> </u>				ļ		
	is-chlorome		l				l	1		
_		l vinyl ether						L		
32. A	crolein			L	1	L	l		1	]

ADDITIONAL

Total Organic Vapor								
Content, ppm	63	75						[
Methane	/			Į				
Unidentified Compounds	√(2)	√(3)	√(2)				· · · · ·	
		<u> </u>		ļ				
	<u>.</u>	<u> </u>	+	+	+	<u> </u>	<b></b>	
		1	1	1			<u> </u>	

NOTES:

ALL RESULTS IN mg/l (ppm) UNLESS NOTED

 Total organic vapor contents based on 3 cc injections of headspace gas from water samples. A Century Systems OVA-128 with flame ionization detector was employed. Results expressed in ppm referenced to a methane in air standard.

(2) Compound identifications are tentative only and were based on matching peak elution times with retention times of known compounds.

(3) All reported concentrations were based on single point calibration standards and should be considered approximate only. D-102

(4) ✓ indicates compound detected but concentrations not quantified.

#### Page <u>1</u> of <u>1</u>

#### WATER QUALITY MONITORING DATA

Site: <u>Mottolo</u> Location: <u>Raymond</u>, NH Sampling Station:

0W-8

	<b></b>			677			г	1	<u> </u>
	Laboratory	GZA	GZA	GZA				[	
	Analysis by	Port.GC	Port.GC	Port.GC			<u> </u>		
COMPOUNDS	Sampling of	5/7/80	7/22/80	10/9/80					
1. Chlorometha		[							ļ
2. Bromomethan		L							L
3. Dichlorodif							<u> </u>		
4. Vinyl chlor		· · · · · · · · · · · · · · · · · · ·	l	L			L		· · · · · · · · · · · · · · · · · · ·
5. Chloroethan		[		· · ·					
6. Methylene c		l	ļ					· · ·	
7. Acrylonitri	1e								<u> </u>
6. Trichlorofl	uoromethane								l
9. 1,1-dichlor	oethylene		1				l	<u> </u>	ļ
10. 1,1-dichlor	oethane				-			I	<u> </u>
11. Trans-1,2-d	ichloroethylene								
12. Chloroform									
13. 1,2-dichlor	oethane								
14. 1.1.1-trich	lordethane								
15. Carbon tetr	achloride		1						
16. Bromodichlo	romethane	1							
17. 1,2-dichlor	opropane								
18. Trans-1,3-d	ichloropropylene								
19. Trichloroet	hylene			1					
20. Benzene			1						1
21. Dibromochlo	romethane								
22. Cis-1,3-dic	hloropropylene								
23. 1,1,2-trich	loroethane								
24. Bromoform									
25. 1,1,2,2-tet:	rachloroethane		<u> </u>						1
26. Tetrachloro	ethylene								
27. Toluene	·								
28. Chlorobenzes	ne		1	1					
29. Ethyl benzen	ne		1	1					
30. Bis-chlorom	ethyl ether		1						
31. 2-chloroethy							· · · · · · · · · · · · · · · · · · ·	l	
32. Acrolein		<u> </u>	t				·	<u> </u>	
		L	1	1		L	· .	L	·

#### ADDITIONAL

Total Organic Vapor Content, ppm						_	
Content, ppm	46	5.2			1		
Methane	/			[	<u> </u>	 	
Unidentified Compounds							
				L	Ļ	 	
			<del> </del>	<u> </u>	<u> </u>	 <u> </u>	
			<u>+</u>			 	

NOTES:

ALL RESULTS IN mg/l (ppm) UNLESS NOTED

 Total organic vapor contents based on 3 cc injections of headspace gas from water samples. A Century Systems OVA-128 with flame ionization detector was employed. Results expressed in ppm referenced to a methane in air standard.

(2) Compound identifications are tentative only and were based on matching peak elution times with retention times of known compounds.

(3) All reported concentrations were based on single point calibration standards and should be considered approximate only. D-103

(4) 🖌 indicates compound detected but concentrations not quantified.

#### Page <u>1</u> of <u>1</u>

#### WATER QUALITY MONITORING DATA

PORTABLE GC SCREENING

Site: <u>Mottolo</u> Location: Raymond, NH Sampling Station:

OW-9

	Laboratory	GZA *	GZA*	GZA	GZA				
	Analysis by	Port.GC	Port.GC	Port.GC	Port.GC				
<u>COMPC</u>		5/7/80	7/22/80	10/9/80	12/11/80		1		
	omethane	L		L					
2. Bronc	methane	L							
	orodifluoromethane								
	chloride		•				1		
5. Chlor			L				l	i	
6. Methy	lene chloride	L					l		
7. Acryl	onitrile								
6. Trich	lorofluoromethane								
9. 1,1-0	ichloroethylene	1					<u>ا</u>		
10. 1,1-0	lichloroethane				-				
11. Trans	-1,2-dichloroethylene								
12. Chlor	oform								
13. 1,2-6	ichloroethane								
14. 1,1,1	-trichloroethane								
15. Carbo	n tetrachloride					· · · ·			
16. Bromo	dichloromethane								
	ichloropropane								
	-1,3-dichloropropylene								
19. Trich	loroethylene			L					
20. Benze	ne								
21. Dibro	mochloromethane	1		·			L	· · · ·	
22. Cis-1	,3-dichloropropylene		•						
23. 1,1,2	-trichloroethane				_				I
24. Bromo	form								
25. 1,1,2	,2-tetrachloroethane								
26. Tetra	chloroethylene								
27. Tolue	ne				•				
28. Chlor	obenzene								
29. Ethyl	benzene	]							· · ·
30. Bis-c	hloromethyl ether								
31. 2-ch1	oroethyl vinyl ether	1							
32. Acrol	ein			1					

#### ADDITIONAL

350		· · · · · · · · · · · · · · · · · · ·	· · · · ·			
	+		+	<u></u>	<u> </u>	<u>↓</u>
1	1			·		
			+	l	ļ	ļ
			+	ļ	<b> </b>	<u> </u>

NOTES:

ALL RESULTS IN mg/l (ppm) UNLESS NOTED

(1) Total organic vapor contents based on 3 cc injections of headspace gas from water samples. A Century Systems OVA-128 with flame ionization detector was employed. Results expressed in ppm referenced to a methane in air standard.

(2) Compound identifications are tentative only and were based on matching peak elution times with retention times of known compounds.

(3) All reported concentrations were based on single point calibration standards and should be considered approximate only. D-104
 (4) ✓ indicates compound detected but concentrations not quantified.

/ indicates compound detected but concentrations not quantified.
* Organic waper analysis and we

## Table _____C.2-12

#### Page 1 of 1

### WATER QUALITY MONITORING DATA

P	ORTABL	E GC	SCREENING	
---	--------	------	-----------	--

Site: Mottolo Location: Raymond, NH Sampling Station:

TP-2(OW)

	Laboratory	GZA	GZA						
	Analysis by	Port GC	Port GC				·		
COMPOUNDS	Sampling of	7/22/80				_	1		
1. Chiorometha	ne						1		
2. Bromomethan	•								
3. Dichlorodif	luoromethane								
4. Vinyl chlor	ide				l	l	1		
5. Chloroethan	•								
6. Methylene c	hloride								
7. Acrylonitri	1•	1							
S. Trichlorofl	uoromethane						1		
9. 1,1-dichlor	oethylene					1	1	1	
10. 1,1-dichlor	oethane				-	·			
11. Trans-1,2-d	ichloroethylene		$\checkmark$				· · ·		
12. Chloroform									
13. 1,2-dichlor	oethane								
14. 1,1,1-trich	loroethane				· · · ·				
15. Carbon tetr	achloride								
16. Bromodichlo	romethane								
17. 1,2-dichlor	opropane								
18. Trans-1,3-d	ichloropropylene								
19. Trichloroet	hylene								
20. Benzene						•			
21. Dibromochlo	romethane				l				
22. Cis-1,3-dic	hloropropylene	·							•
23. 1,1,2-trich	loroethane								
24. Bromoform						l			
25. 1,1,2,2-tet	rachloroethane								
26. Tetrachloro	ethylene								_
27. Toluene							L		
28. Chlorobenze	ne								
29. Ethyl benze							4		
30. Bis-chlorom	ethyl ether								
31. 2-chloroeth	yl vinyl ether								
32. Acrolein									
ADDITIONAL									
Total Organ	ic Vapor			•			1		
Content, p						· · · · · · · · · · · · · · · · · · ·	l		
	•			·		·	1	<u> </u>	
Methane			····· / ····	~~					
	· · · · · ·				<b>†</b>		f	<u> </u>	
	1 0 1	/			<u> </u>	<u> </u>	}	ļ	<b> </b>
<u>Unidentified</u>	1 Compounds	√(4)	√ (1)					<u> </u>	
							<b> </b>		
					r				

NOTES:

ALL RESULTS IN mg/1 (ppm) UNLESS NOTED

(1) Total organic vapor contents based on 3 cc injections of headspace gas from water samples. A Century Systems OVA-128 with flame ionization detector was employed. Results expressed in ppm referenced to a methane in air standard.

(2) Compound identifications are tentative only and were based on matching peak elution times with retention times of known compounds.

(3) All reported concentrations were based on single point calibration standards and should be considered approximate only. D-105

(4)  $\checkmark$  indicates compound detected but concentrations not qualified.

#### Page 1 of 1

#### WATER QUALITY MONITORING DATA

PORTABLE GC SCREENING

Site: Mottolo Location: Raymond, NH Sampling Station:

S-1

		0.7.1	074	074	<u> </u>	·····		 ·
	Laboratory	GZA	GZA	GZA	<u> </u>			 
	Analysis by	POPE GUS	POIL GU	FOFL GC				 
COMPOUNDS		15/5/80	//22/80	12/11/80				 
1. Chloromet								 ·
2. Bromometh		ļ						 
	lifluoromethane	<u> </u>						 
4. Vinyl chl			·					 ····
5. Chloroeth								 
6. Methylene	والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والمحاجب والم	ļ	· · · · · · · · · · · · · · · · · · ·	!				 
7. Acrylonit		·						 
	fluoromethane	ļ	ļ			·		 
9. 1,1-dich1		ļ	[	Į				 
10. 1,1-dich1		I						 
and the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second se	-dichloroethylene	!						 
12. Chlorofor		L						 
13. 1,2-dich1	water and the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state of the second state	L						 
14. 1,1,1-tri				:				 
15. Carbon te	trachloride			·				 
16. Bromodich								 
17. 1,2-dich1				<u> </u>				 
	-dichloropropylene			<u> </u>				 · · · · · · · · · · · · · · · · · · ·
19. Trichloro	ethylene				ļ			 
20. Benzene			l	ļ		·		 
21. Dibromoch	loromethane							 
	ichloropropylene							
23. 1,1,2-tri		l			<u> </u>			 
24. Bromoform	·			<u> </u>	<u> </u>			 
25. 1,1,2,2-t	etrachloroethane							
26. Tetrachlo	roethylene	l						 
27. Toluene								
28. Chloroben	IERE	L						
29. Ethyl ben	zene							
	omethyl ether							
31. 2-chloroe	thyl vinyl ether							
32. Acrolein							1	

#### ADDITIONAL

Total Organic Vapor			•			1	-	1
Total Organic Vapor Content, ppm	0.0	1.8						
Methane							+	
				ļ				
		<u> </u>				<u> </u>		
		+	+	+	+	+		<u> </u>

NOTES:

ALL RESULTS IN mg/1 (ppm) UNLESS NOTED

(1) Total organic vapor contents based on 3 cc injections of headspace gas from water samples. A Century Systems OVA-128 with flame ionization detector was employed. Results expressed in ppm referenced to a methane in air standard.

(2) Compound identifications are tentative only and were based on matching peak elution times with retention times of known compounds.

(3) All reported concentrations were based on single point calibration standards and should be considered approximate only. D-106

(4)  $\checkmark$  indicates compound detected but concentrations not qualified.

## 

### Page <u>1</u> of <u>1</u>

#### WATER QUALITY MONITORING DATA

PORTABLE GC SCREENING

Mottolo Site: Location: Raymond, NH Sampling Station:

S-2

...

<b></b>		074	0.7.1					·
Laboratory	GZA	GZA	GZA					
Analysis by	Port GC	Port GC'	Port GC					
COMPOUNDS Sampling of	5/5/80	//22/80	12/11/80		L			
1. Chloromethane								
2. Bromomethane								L
3. Dichlorodifluoromethane					i		·	
4. Vinyl chloride		· _ · _ ·						
5. Chloroethane		· · · · ·	· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·			
6. Methylene chloride		·	l					
7. Acrylonitrile								
S. Trichlorofluoromethane								
9. 1,1-dichloroethylene						l		
10. 1,1-dichloroethane								
11. Trans-1,2-dichloroethylene								
12. Chloroform								
13. 1,2-dichloroethane								
14. 1,1,1-trichloroethane								
15. Carbon tetrachloride								
16. Bromodichloromethane								
17. 1,2-dichloropropane								
18. Trans-1, 3-dichloropropylene								•
19. Trichloroethylene			1					
20. Benzene								
21. Dibromochloromethane								
22. Cis-1,3-dichloropropylene								
23. 1,1,2-trichloroethane								
24. Bromoform					1			
25. 1,1,2,2-tetrachloroethane								
26. Tetrachloroethylene								
27. foluene								
28. Chlorobenzene					1			
29. Ethyl benzene					1			
30. Bis-chloromethyl ether							······	
31. 2-chloroethyl vinyl ether				·····	<u> </u>	<u>.</u>		
32. Acrolein					t		i	
		L	L	L	L	╘─────	·	L

#### ADDITIONAL

Total Organic Vapor			· ·					1
Content, ppm	0.6	- 400	<u> </u>					
Methane		<u> </u>				<b> </b>	<u> </u>	<u> </u>
			·			[		
······································			<u> </u>			·		ļ
		┼────	+	╂	+	<u> </u>	<u> </u>	<u> </u>
NOTES ·			I = 1	(00m) ID	ILESS NOTE	L	<u> </u>	<u> </u>

ALL RESULTS IN mg/1 (ppm) UNLESS NOTED

(1) Total organic vapor contents based on 3 cc injections of headspace gas from water samples. A Century Systems OVA-128 with flame ionization detector was employed. Results expressed in ppm referenced to a methane in air standard.

(2) Compound identifications are tentative only and were based on matching peak elution times with retention times of known compounds.

(3) All reported concentrations were based on single point calibration standards and should be considered approximate only. D-107

(4)  $\checkmark$  indicates compound detected but concentrations not qualified.

#### Page 1 of 1

#### WATER QUALITY MONITORING DATA

PORTABLE GC SCREENING

-

Site: Mottolo Location: Raymond, NH Sampling Station:

S-3

	Laboratory	GZA	GZA			1	{	ł	[
	Analysis by					+			
COMPOUNDS	Sampling of	5/5/80	7/22/80			<u> </u>	<u></u>	<u> </u>	<u> </u>
L. Chlorometha	Sampling of	1 3/ 3/ 80	1122100			f		<u> </u>	
2. Bromomethan		<b></b>			<u> </u>	<u> </u>	<u> </u>	<b> </b>	<u> </u>
3. Dichlorodif		<u> </u>					<u> </u>	<u> </u>	┣━━━━━
		<u> </u>			<u> </u>	<u> </u>	1		
. Vinyl chlor		<u>+</u>	<u> </u>		· · · · · · · · · · · · · · · · · · ·		<u> ·</u>		
5. Chloroethan 5. Methylene c	the second second second second second second second second second second second second second second second s					<u>}</u>		<u>}</u>	1
						<u> </u>		<u></u>	<u> </u>
7. Acrylonitri 5. Trichlorofl		<u> </u>				<u> </u>	<u> </u>	<u> </u>	
		<u> </u>			<b>↓</b>	<u> </u>	<u> </u>	<b> </b>	
. 1,1-dichlor		<u> </u>				<b></b>		<u>!</u>	<b> </b>
0. 1.1-dichlor		ļ				+		{	
	ichloroethylene	<u> </u>	< <u>1 ppm</u>					<u>}</u>	┠
2. Chloroform		<b> </b>	<b>.</b>		ļ	<u> </u>		<u> </u>	
1,2-dichlor		<u> </u>				<u> </u>		ļ	[
1.1.1.1-trich		<u> </u>	<u>&lt;1 ppm</u>		<u> </u>	+	<b> </b>	<u> </u>	<b> </b>
. Carbon tetr		<u> </u>	<b> </b>			<u> </u>		<b> </b>	<u> </u>
. Bromodichlo		<u> </u>			ļ	{	<u> </u>	Į	<u> </u>
1. 1.2-dichlor		ļ			ļ	<u> </u>	<u> </u>	ļ	·
the second second second second second second second second second second second second second second second s	ichloropropylene	<u> </u>				<b></b>	<u> </u>		
. Trichloroet	hylene		<u>&lt;1 ppm</u>			<u> </u>	ļ	[	l
. Benzene		L			L	<u> </u>		<u> </u>	 
. Dibromochlo	romethane						<u></u>		
2. Cis-1,3-dic	hloropropylene				·	ļ	L		1
1,1,2-trich	loroethane					<u> </u>	<u> </u>		
Bronoform		1				1	1	·	
i. 1,1,2,2-tet	rachlorgethane					1	l	<u> </u>	
. Tetrachloro	ethylene					L	I		
. Toluene		1	<1 ppm				1	1	
. Chlorobenze:	ne								
. Ethyl benzer	n#								
. Bis-chlorom	thyl ether	1					1		
. 2-chloroeth	1 vinyl ether	1							
. Acrolein		1					1	1	
ADDITIONAL	•.			-					
otal Organ	ic Vapor	<u> </u>		•		T	1	Υ <u></u>	T
Content, p		0.6	160			1	1	† <b>-</b>	<b> </b>
			<u> </u>		<u> </u>	†	1	<u> </u>	<u> </u>
lethane					· · · · ·	1	1	†	t
		<u> </u>	<b> '</b>			1	1	†	1
		<u> </u>	·····		<u> </u>	<u> </u>	ł	ļ	┼───
Inidentified	<u>Compounds</u>	l	√(2)			<b></b>	ļ	1	<b></b>
		l			L	<b>_</b>	L	L	L
		-					1		
OTES:		ALL R	ESULTS I	N mg/1 (	ppm) UN	LESS NOT	ED		
	rganic vapor							s from w	ater s
T) TOLAT O									

(2) Compound identifications are tentative only and were based on matching peak elution times with retention times of known compounds.

(3) All reported concentrations were based on single point calibration standards and should be considered approximate only. D-108

(4)  $\checkmark$  indicates compound detected but concentrations not qualified.

#### Page 1 of 1

#### WATER QUALITY MONITORING DATA

PORTABLE GC SCREENING

Site: <u>Mottolo</u> Location: <u>Raymond</u>, NH Sampling Station:

S-4

	Laboratory	GZA			T				
	Analysis by			{	<b> </b>				
COMPOUNDS	Analysis by	5/5/80	<u> </u>	<u>i</u>					
1. Chlorometha	Sampling of	001010			<b>[</b>				
2. Bromomethan									
3. Dichlorodif					<u> </u>			<u> </u>	
4. Vinyl chlor					· · · ·			·	
5. Chloroethar									
6. Methylene d									
7. Acrylonitri					<u> </u>		-		
8. Trichlorof	and the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second se								
9. 1,1-dichlor				<u> </u>	<u> </u>	i			
0. 1.1-dichlor					<u> </u>				
	lichloroethylene			<u> </u>	<u> </u>				
2. Chloroform					<u> </u>			· · · · · ·	
3. 1,2-dichlor	oethane			<u> </u>	<u>├</u> ────	·			
4. 1.1.1-trich					<del> </del>				
5. Carbon tets			····						
6. Bromodichlo	romethane			<u> </u>					
7. 1,2-dichlor									
8. Trans-1,3-0	lichloropropylene			1					•
9. Trichloroet	hylene			1	[				
0. Benzene									
1. Dibromochlo	romethane					1			
22. Cis-1,3-dic	hloropropylene			1					
13. 1,1,2-trich	loroethane			1	i	1			
4. Bromoform						1			
15. 1,1,2,2-tet	rachloroethane				1	j			
16. Tetrachloro	ethylene								
17. Toluene							1		
18. Chlorobenze	ne	[]							
9. Ethyl benze	ne								
0. Bis-chlorom	ethyl ether	i		1	1	1	i		
1. 2-chloroeth	yl vinyl ether						1		
2. Acrolein	····								
ADDITIONAL									

Total Organic Vapor	T		. :	·			
Content, ppm	0.0	·					
					· ·		
			•				
						-	
		i	1	L	1		l
NOTES:	ALL F	ESULTS I	N mg/1 (	ppm) UN	LESS NOTE	D	 

(1) Total organic vapor contents based on 3 cc injections of headspace gas from water samples. A Century Systems OVA-128 with flame ionization detector was employed. Results expressed in ppm referenced to a methane in air standard.

- (2) Compound identifications are tentative only and were based on matching peak elution times with retention times of known compounds.
- (3) All reported concentrations were based on single point calibration standards and should be considered approximate only.
- (4)  $\checkmark$  indicates compound detected but concentrations not qualified.

## Table <u>C.3-1</u>

## WATER QUALITY MONITORING DATA

INORGANIC C	OMPOUNDS ARAMETERS	Site: Locat:		tolo mond. NH			Sa	mpling St	tation:
			<u></u>					OW-1	
	Laboratory_	NHWS	NHWS	NHWS					1
	Analysis by							1	T
ompounds	Sampling on	8/79	10/79	11/79		1	1	1	
			1			T	I .	T	1
Arsenic		<.05		<b>&lt;</b> .01				1	1
Barium		.11							·
Cadmium		.013		.007					1
Chromium		.05		.03					
Copper				<.1		<u> </u>	<u> </u>		
Iron		144				L			
Lead		.06							
langanese		5.4					1		
lercury							·		
Nickel				< <u>.1</u>					
Selenium		.01							
				5					
Zinc Silver						1			
				L	<u></u>	[		[ <u> </u>	
ditional H	Parameters	6.5	6.2	5.8	<u> </u>	· · ·	· · ·		
pH units				74		<u> </u>			 
	ictance, uMHOs	141	104	/4 /		<u> </u>		<u> </u>	
<u> </u>		<u>10</u> 72	<u>2</u> 55	32		<u> </u>	<u> </u>	<u> </u>	<u>}</u>
				32			· · · · · -	<u> </u>	<u> </u>
Phenolics		1.71		<u> </u>	<u> </u>		i	!	
$\frac{102 + 103}{3}$		1.11		<u> </u>		·	·	l	
Thloride		1	1			<u> </u>	<u></u>	<u> </u>	
Sulfate		4					1		
Total Solid		31					1		
Color	15	<u></u> 5					1	, <u> </u>	
	· · · ·	ر					<u> </u>		
			<u> </u>				·	<u> </u>	· · · · · · · · · · · · · · · · · · ·
			<u>├ _ </u>	<u>}                                    </u>		<u> </u>	1	·	
	· · · · · · · · · · · · · · · · · · ·			LL		· · · · · · · · · · · · · · · · · · ·	<u> </u>	L	l
						•			
			[	I I				· · ·	
							1 .		
				1			·		
	······································			11		•			
				F			[	<u> </u>	
			<u></u>	┠		<u> </u>		1	
	·			<u>├</u>		L		÷	<b>├</b> ──-
·	· · · · · · · · · · · · · · · · · · ·			<b>├</b>				<b> </b>	
					<u> </u>			ļ	

All Results in mg/l (ppm) unless noted

.

-

#### Table C.3-2

#### WATER QUALITY MONITORING DATA

INORGANIC COMPOUNDS AND OTHER PARAMETERS Site: <u>Mottolo</u> Location: <u>Raymond</u>, NH

### Page <u>1</u> of <u>1</u>

Sampling Station: OW-2-1

Laboratory NHWS NHWS NHWS NHWS NHWS NHWS Analvsis by Compounds Sampling on 8/79 10/79 11/79 7/80 10/80 12/80 <.005 .37 1.73 .18 **<**.05 Arsenic .5 •2 < .01 .15 Barium <.005 **~**.01 <.005 <.005 Cadmium .05 .08 .02 .02 .02 .09 Chromium • 8 .1 .1 Copper 84 140 245 310 130 Iron < .05 .02 Lead 23.5 50 73 1.7 90 Manganese <.001 Mercury <u>Nickel</u> .1 .2 <.01 <.01 < .005 Selenium .77 .21 .64 Zinc .87 Silver 4.01 Additional Parameters 6.8 6.4 6.3 6.3 pH units 235 1,010 1,200 7,600 Spec. Conductance, uMHOs 100^a. 1,300 <u>TOC</u> 27 660 167 1,336 1,560 1,730 COD **~**.15 . Phenol ics .09  $NO_7 + NO_7$ 16 Chloride Sulfate 10 Total Solids 213 975 Color

a. Approximate from dilution.

.

ί

### All Results in mg/1 (ppm) unless noted

## Table <u>C.3-3</u>

## Page 1 of 1

## WATER QUALITY MONITORING DATA

· ·

.

NORGANIC COND OTHER P.		Site: Locat	ion: Ray	tolo mond, NH	<u>`</u>	Sampling Station: OW-2-2				
								0w-2-	·	
	Laboratory	NHWS	NHWS .	T		T	<u> </u>		1	
	Analysis by		1							
ompounds	Sampling on	7/80	10/80							
·		.23	1.6			ļ			<u> </u>	
Arsenic		.05	1.0	<u> </u>		· · · · · · · · · · · · · · · · · · ·			┿	
Barium		<.005		<u> </u>			<u> </u>		+	
<u>Cadmium</u>	······	.01	.01		· _ ·				<del> </del>	
Chromium		<.1	.01			<u> </u>	<u> </u>		1	
Copper		220	200			<u> </u>		<u> </u>	<u> </u>	
Iron			200			<u> </u>	<u> </u>		<u> </u>	
Lead		<.01 59.5	49				·	<u> </u>		
Manganese			49			<u> </u>	<u> </u>	1	<u> </u>	
Mercury		< .001	+	<u> </u>		<u> </u>		<u> </u>	<u> </u>	
Nickel		.1	<u> </u>	·		<u> </u>	l I			
<u>Selenium</u>		< .005	<u> </u>	ļ		<u> </u>	1		<u> </u>	
Zinc		.11	.06	<u> </u>		<u> </u>	· .	ļ	<u>}</u>	
Silver		<b>4</b> .01	<u> </u>	<b> </b>		ļ	ļ		Ļ	
<u>iditional P</u>	lo nomo to no									
	arameters		1	ŀ	· · ·					
pH units		6.6		L		<u> </u>				
Spec. Condu	ctance, uMHOs	1.022				l	1	<u> </u>		
TOC _			1.200		·					
COD		2,150				<u> </u>	<u> </u>	<u> </u>		
Phenolics							1			
$NO_2 + NO_3$								1		
2			}							
Chloride										
Sulfate				l			l			
Total Solid	S		·				1			
Color										
						1	1			
			1				İ			
			1				1			
				······································		<u> </u>	<u> </u>	· · · · · · · · · · · · · · · · · · ·	• <u></u>	
, 	·····		<del></del>	·		·······		·	<b></b>	
			ļ	<b></b>		·	1			
			ļ	· · · · ·				· · · · · · · · · · · · · · · · · · ·		
			<u></u>	ļ	· · · · · · · · · · · · · · · · · · ·		·	ļ	<u> </u>	
				<b></b>						
		· ·	1				-			
		<u> </u>				·				
			<u> </u>					┝	<u> </u>	
		1	1			1	I	1	ł	
			1							

All Results in mg/l (ppm) unless noted

•

## Table C, 3-4

## Page <u>1</u> of <u>1</u>

## WATER QUALITY MONITORING DATA

**r**:

Ç

ς.

..

NO OTHER P.	OMPOUNDS ARAMETERS	Site: Locat		tolo mond, NH				mpling S: OW-3	
	•						·		
	Laboratory	NHWS	NHWS	NHWS	GZA				
_	Analysis by						<u> </u>		
ompounds	Sampling on	8/79	10/79	11/79	5/80	<u> </u>	<u> </u>	<u> </u>	
Arsenic		<b>~</b> .05		<.01		+	+	+	
Barium		< .01	1	1		1		1	<u>†                                    </u>
Cadmium		< .01		<b>&lt;</b> .005			· ·	1	1
Chromium		.02		<.01					
Copper				<.1			1		\
Iron		98	<u> </u>				l		
Lead		< .05					1	ļ	<u> </u>
Manganese	· · · · · · · · · · · · · · · · · · ·	.51		<u> </u>			<u> </u>	<u> </u>	<u> </u>
Mercury		ļ		<u> </u>		·	<u> </u>	<u> </u>	ļ
Nickel			ļ			<u> </u>	<u> </u>	ļ	ļ
Selenium		< .01	· ·	<u> </u>	ļ	1	<u> </u>	<u> </u>	<u> </u>
Zinc			<u> </u>	11.2	ļ			<u> </u>	<u> </u>
Silver					 		<u> </u>	<u> </u>	<b> </b>
ditional F		8.4	6.6	5.7	6.4		· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	· ·
	ictance, uMHOs		38	23	55	1	1	l	1
TOC		6	1			1	1		1
COD		48	157	72			1		
Phenolics					•		1		
$NO_2 + NO_3$		.08				+	<u></u>	<u> </u>	ļ
		<u> </u>	<u> </u>						<b></b>
<u>Chloride</u> Sulfate		8	2		<u> </u>	<u> </u>	<u> </u>	<u> </u>	
<u>Sulfate</u> Total Solid		6	<u> </u>			+	<u> </u>		
Color		<u>139</u> 10	<u>†                                    </u>			+	1		
00101		<u> </u>	† ·	· · ·		1	1		<u> </u>
				1	·	†	<u> </u>	<u> </u>	<u></u>
		<u> </u>	<u>†</u>		L	1	1	†	
	· · ·	L	L			·	<b>.</b>	<u>.</u>	• •
			1				<u> </u>		
				L		<u> </u>	ļ		
	· · ·							i I	
						1			†
			t			1	<u> </u>	<u> </u>	<u> </u> -
			1	1				1	

## All Results in mg/l (ppm) unless noted

•

D-113

. •

#### Table C.3-5

#### WATER QUALITY MONITORING DATA

Sampling Station: INORGANIC COMPOUNDS Site: Mottolo Location: Raymond, NH AND OTHER PARAMETERS OW-4-1 NHWS NHWS GZA NHWS Laboratory Analysis by Compounds 10/80 12/80 7/80 Sampling on | 5/80 .02 ∠.01 .035 Arsenic .11 Barium Cadmium .006 .03 .02 Chromium .05 Copper .1 40 220 85 Iron Lead .07 015 19 23.5 Manganese 14.5 < .001 Mercury Nickel 2 < Selenium .005 31.5 38 1. 7.7 Zinc Silver .02 Additional Parameters 7.0 pH units 6.3 Spec. Conductance, uMHOs 120 238 200a. TOC 200 COD 193 Phenolics .132 NO, + NO, Chloride Sulfate Total Solids Color . а. Approximate from dilution.

All Results in mg/1 (ppm) unless noted

## 14010 <u>C.3-6</u>

## Page <u>1</u> of <u>1</u>

•

## WATER QUALITY MONITORING DATA

	OMPOUNDS ARAMETERS	Locat	<u>Mot</u> ion: Ray	mond, NH			mpling St	
			<u>-</u>	-			JB-5	
	Laboratory	NHWS	NHWS	NHWS	·····		}	1
	Analysis by						1	1
ompounds	Sampling on	7/80	10/80	12/80			1	<u>+</u>
<u></u>								T
Arsenic		.29	.14	.15				
Barium		.13						
Cadmium		.008	<u> </u>	<u> </u>				
<u>Chromium</u>		.11	.02	.04			<u>}</u>	1
Copper		.2					·	ļ
Iron		180	130	150			<u> </u>	ļ
Lead		1.1		+			+	<b> </b>
anganese		39.4	29.5	38			<u> </u>	
lercury	<u> </u>	< .001	<b> </b>	╪┈━━─┼╼╼			+	<u> </u>
Nickel		.2	<u> </u>	<u> </u>			+	
<u>Selenium</u>		< .005		+		<u> </u>	+	<b> </b>
Zinc		1.96	.81		<u>ł</u>		+	<u> </u>
Silver		01`	<u> </u>	┼╾╍╾┼╼╼╴		-+	+	<u> </u>
		6.4 500	<u> </u>				<u></u>	<u> </u>
pH units Spec. Condu	ictance, uMHOs	6.4 500	 				<u> </u>	
Spec. Condu TOC	uctance, uMHOs	500	300	100 ^a .			<u> </u>	
<u>Spec. Condu TOC</u> COD			300					
Spec. Condu TOC COD Phenolics		500	300	100 ^a ·1				
Spec. Condu TOC COD Phenolics		500	300					
Spec. Condu TOC COD Phenolics NO ₂ + NO ₃		500	300					
Spec. Condu TOC COD Phenolics $NO_2 + NO_3$ Chloride		500	300					
Spec. Condu TOC COD Phenolics NO ₂ + NO ₃ Chloride Sulfate		500	300					
Spec. Condu TOC COD Phenolics NO ₂ + NO ₃ Chloride Sulfate Total Solid		500	300					
Spec. Condu TOC COD Phenolics NO ₂ + NO ₃ Chloride Sulfate Total Solid		500	300	.106				
Spec. Condu TOC COD Phenolics YO ₂ + NO ₃ Chloride Sulfate Total Solid		500	300	.106				
Spec. Condu TOC COD Phenolics MO ₂ + NO ₃ Chloride Sulfate Total Solid		500	300	.106				
Spec. Condu TOC COD Phenolics MO ₂ + NO ₃ Chloride Sulfate Total Solid		500	300	.106				
Spec. Condu TOC COD Phenolics YO ₂ + NO ₃ Chloride Sulfate Total Solid		500	300	.106				
Spec. Condu TOC COD Phenolics YO ₂ + NO ₃ Chloride Sulfate Total Solid		500	300	.106				
Spec. Condu TOC COD Phenolics MO ₂ + NO ₃ Chloride Sulfate Total Solid		500	300	.106				
Spec. Condu FOC COD Phenolics Phenolics 2 Sulfate Sulfate Fotal Solid		500	300	.106				
Spec. Condu FOC COD Phenolics Phenolics 2 Sulfate Sulfate Fotal Solid		500	300	.106				
Spec. Condu TOC COD Phenolics YO ₂ + NO ₃ Chloride Sulfate Total Solid		500	300	.106				
Spec. Condu TOC COD Phenolics YO ₂ + NO ₃ Chloride Sulfate Total Solid		500	300	.106				
Spec. Condu TOC COD Phenolics NO ₂ + NO ₃ Chloride Sulfate		500	300	.106				
Spec. Condu TOC COD Phenolics NO ₂ + NO ₃ Chloride Sulfate Total Solid		500	300	.106				

ť

Ķ

٦,

<u>(</u>

Ċ

All Results in mg/1 (ppm) unless noted

.

-

.

. •

#### Table <u>C.3-7</u>

## Page _1 of 1

#### WATER QUALITY MONITORING DATA

Sampling Station: Site: Mottolo INORGANIC COMPOUNDS Location: Raymond, NH AND OTHER PARAMETERS JB-6 NHWS Laboratory Analysis by Sampling on | 7/80 Compounds .14 Arsenic Barium .22 <.005 Cadmium .21 Chromium .2 Copper 105 Iron .13 Lead Manganese 9 <.001 Mercury . .1 Nickel <.005 Selenium 47 . Zinc .01 Silver Additional Parameters 6.4 pH units 153 Spec. Conductance, uMHOs TOC 834 COD Phenolics  $NO_2 + NO_3$ Chloride Sulfate Total Solids Color .

### All Results in mg/l (ppm) unless noted

## Table <u>C.3-8</u>

## Page <u>1</u> of <u>1</u>

## WATER QUALITY MONITORING DATA

· . . ·

(

**\$**.

Ç,

Ç.

•

•

.

NORGANIC C ND OTHER P	ARAMETERS	Site: Locat	ion: Ray	tolo mond, NH		•		<pre>upling `St </pre>	
	•		÷		· · · · ·	•		<u> </u>	7
	Laboratory	NHWS	NHWS	Ţ	1	- <u></u>	1	T	Γ
	Analysis by		<u>├</u> ──		1		1	1	1
ompounds	Sampling on	7/80	10/80	1			1	1	+
· · · · · · · · · · · · · · · · · · ·						1	1		1
Arsenic		.6	.19		1	1	1	1	<u> </u>
Barium		.11	1			1		1	<u>†                                    </u>
Cadmium		.007					1		+
Chromium	· ·	.05	.03	i	1		1	1	1
Copper		.3		· · · ·			1		
Iron		175	105			1	1	1	1
Lead	······	3.2	.575			1	1	1	1
Manganese		23.5	19.5		1	1	1	1	1
Mercury		<.001	1		1	1	1	1	· ·
Nickel		.2				1	T	T	1
Selenium		<.005		<u> </u>	1	1	T	T	1
Zinc		16	4.5	1	1	1	· ·	T	[
Silver		<.01							
									1
	•								
dditional H	Parameters		1	r	<u></u>		1	T	<u> </u>
			{ 	<u>·</u>		_ <u></u>	<u> </u>	····	
oH units		6.4	<b> </b>	<u> </u>			<u> </u>	<u> </u>	<u> </u>
	ictance, uMHOs	220	100	<u> </u>	<u> </u>		<u> </u>	1	<u> </u>
TOC	······································		_100	1	<u> </u>		1	<u> </u>	
		154		ļ		<u> </u>	· · · · · · · · · · · · · · · · · · ·	۱ ۱	
Phenolics				<b> </b>	 	<u> </u>	<u> </u>	ļ	 
$NO_2 + NO_3$				<b> </b>	<u> </u>	<u> </u>	<u> </u>	L	<u> </u>
				<b> </b>		<u> </u>		· · · · · · · · · · · · · · · · · · ·	ļ
Chloride	·						Ļ	<u> </u>	<b>}</b>
Sulfate					<u> </u>		<u> </u>	<b> </b>	ļ
Total Solid	ls		· · · · · · · · · · · · · · · · · · ·	ļ~	<u> </u>	+	<u> </u>	<u> </u>	<b> </b>
Color			ļ	ļ	ļ	<u> </u>		<u>}</u>	<u> </u>
			ļ	<u> </u>	<u> </u>	<u> </u>	1	<u> </u>	ļ
			ļ	<u> </u>	<u> </u>	+	<u> </u>		ļ
	·		L	I	<u> </u>	<u> </u>	l	l	1
			I		<del></del>	<del></del>	r	r	<u> </u>
<u></u>	· · · · · · · · · · · · · · · · · · ·		<b> </b>	<u> </u>	<u> </u>	+	l I	· · · · · · · · · · · · · · · · · · ·	<b> </b>
				<u> </u>	<b> </b>	+	<u> </u>	ļ	<u> </u>
			ļ		<u> </u>	+		¦	
				ļ	┥───	<u> </u>	<u> </u>		
			<u> </u>	L	L	<u> </u>		l	
	•							; !	
			<u> </u>			1			
					<u> </u>				
				<u>├──</u> ──		+	t		
		L	i	l	L	. <u>1</u>	4	k	·

All Results in mg/1 (ppm) unless noted

.

• .

#### LADIE C.J J

## WATER QUALITY MONITORING DATA

ŀ

	OMPOUNDS						<b>J</b> A	mpling S	cacrou.
ND OTHER P.	ARAMETERS	Locat	10n: <u>kay</u>	mona, NH	·			JB-8	·
	Laboratory	G7,A	NHWS				1		
	Analvsis by						1		
ompounds	Sampling on	5/80	7/80				1		1
						1			
Arsenic			.17						
Barium		•	.3		·				
Cadmium			<.005	1					
Chromium			.05				<u> </u>		
Copper			1	<u> </u>	L	1	1	<u> </u>	1
Iron			60		<u> </u>	1	<u> </u>	<u> </u>	<u> </u>
Lead			.01	<u> </u>		<u> </u>	1	<u> </u>	<u> </u>
Manganese			1.89	ļ	<u> </u>		!		
Mercury			<.001	<u> </u>	L	<u> </u>	1		<u> </u>
Nickel			1	ļ	L	ļ	<u> </u>	ļ	<u> </u>
Selenium -		·	< .005	ļ	L	<u> </u>	!	<u> </u>	ļ
Zinc ·	· · · · · · · · · · · · · · · · · · ·		19	Ļ	ļ	<u> </u>		L	
Silver			.01	ļ	Į	ļ		<u></u>	
			1			<u> </u>	<u> </u>	}	<u> </u>
dditional F	arameters		<u> </u>	1		1	1	1	T
pH units		6.8		†		1	1	1	1
Spec. Condu	ictance, uMHOs	151	1	1	1	1	1	1	1
TOC				1	1	1		1	
COD		38.5	1	1	1	1	1	1	
Phenol ics			1	1	1	1			
$NO_2 + NO_3$				1	T				
2					Ī			<u>l</u> .	
Chloride						<u> </u>	L	<u> </u>	1
Sulfate				1	· · ·	·			<u> </u>
Total Solid	s				T		l	<u> </u>	L
Color							1	L	
						]	1		
				<u> </u>		1	l	<u> </u>	<u> </u>
					I		L	l	
	1				T				
					1				
					1				
	······		<u> </u>	<u> </u>	<u> </u>	t .			t
				<u> </u>	+	<u> </u>	<u> </u>		
			<b> _</b>	<u>}</u>	<del>}</del>	<u>}</u>		<u> </u>	·
	·····		<u> </u>	╁╼╼╼╼──	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
			l	L	1	L	L	L	i
	۰.							-	

# All Results in mg/l (ppm) unless noted D-118

•

.

#### LADIE C.J-LU

-

• ·

### WATER QUALITY MONITORING DATA

•

1

i. T

INORGANIC COMPOUNDS	Site:	Mot	tolo		. •	Sat	Sampling Station:			
AND OTHER PARAMETER		Location: Raymond, NH					JB-9			
							J	·		
Labora	tory NHWS	1		1	1	1	T	T		
Analvs		1		1		1	1	<u>†                                    </u>		
Compounds Sampli			1		<u> </u>	1				
					1			1		
Arsenic	.032				I			1		
Barium								1		
Cadmium								1		
Chromium	.08		1				1			
Copper			i							
Iron	55									
Lead		1	1		1	\				
Manganese	2.21			L		1	1			
Mercury	· · ·						1			
Nickel					1	1	· · ·	1		
Selenium		1		·	Ī		1			
Zinc	23.5		1		Ţ		1			
Silver		1	1	1	Ī	1	1	1		
		1				1				
Additional Parameter pH units		· ·					[ [			
Spec. Conductance.				i	+					
TOC	20	<u></u>	·	<u></u>	<del> </del>	1	1	j		
COD			i	<u>.</u>	<u> </u>	1	<u> </u>			
Phenolics	<b>4</b> .005	<u> </u>	†	·	i		Í	i		
		<u> </u>		[	I		İ			
$NO_2 + NO_3$		<u> </u>		1		i	l			
Chloride				[	<u></u>					
Sulfate			1							
Total Solids			1	<u> </u>	1	<u></u>				
Color						<u>.</u>				
		1			[ 					
			1		[	·				
			i		1	i	1			
		L_, _,,-	<b>-</b>	<u> </u>	·	<u> </u>	·	<u></u>		
		<u></u>	[	[	[	[	[ · · · · · · · · · · · · · · · · · · ·			
		<u> </u>			¦	<u></u>	<u> </u>			
•··	<u>_</u>		¦	L			<u>├</u>			
<u> </u>		<u> </u>	<u> </u>		<u>├</u> ─		├			
		<b>}</b>	<u>}</u>		<u>├</u>					
	·	<u> </u>	<u> </u>	}	<u> </u>		<u> </u>			
		1								
					Ĺ					
		·	1		L		L= = =	· · ·		

-

#### 1a01e (.3-11

#### WATER QUALITY MONITORING DATA

Sampling Station: INORGANIC COMPOUNDS Site: Mottolo AND OTHER PARAMETERS Location: Raymond, NH Brook S-1 (Upstream) GZA NHWS Laboratory Analysis by Sampling on Compounds 5/80 7/80 .01 Arsenic .1 Barium Cadmium <.005 .02 Chromium .1 Copper 25 Iron .16 Lead 24 Manganese < .001 Mercury .1 <u>Nickel</u> < .005 Selenium .21 Zinc < .01 Silver Additional Parameters 5.4 6.8 pH units Spec. Conductance, uMHOs 50 77.7 TOC COD 2,000 Phenolics  $NO_2 + NO_3$ <u>Chloride</u> Sulfate Total Solids Color

#### All Results in mg/1 (ppm) unless noted

### iable (.3-12

# Page 1 of 1

.

# WATER QUALITY MONITORING DATA

Ì

.

1

5

AND OTHER PARAMETERS	Locat		tolo mond, NH		Sampling Station Brook S-2			
							(Near JB	
Laboratory	GZA	1	1	1	Ţ	1	T	<u> </u>
Analysis by		<u>}</u>	+	<u> </u>	+	<u> </u>	·	+
ompounds Sampling on	5/80	1	1	1	<u> </u>	1	1	+
		1		<u> </u>	1	1	1	1
Arsenic		1	1	1	1	1	1	·
Barium		1	+		1	1	1	†
Cadmium	·	1	1	1	1	1	1	1
Chromium		1	1				1	1
Copper						1	1	I
Iron								
Lead	•							
Manganese						<u> </u>	1	
Mercury							1	
Nickel								
Selenium	· · · · ·							
Zinc								
Silver					<u> </u>		1	
		1	T					
pH units Spec. Conductance, uMHOs	5.71 210						l	
TOC		<u> </u>	+	<u>.</u>	<u>†</u>	1	I	<u>.</u>
COD		İ	1	i		1		
Phenolics		1 .		1	1			1
$NO_2 + NO_3$		1	1		1	1		1
2 3		1	1			1	1	
Chloride					1			
Sulfate					L		<u> </u>	· ·
Total Solids				1				
Color						l	<u> </u>	ļ
			}		1	1	<u> </u>	}
			1			<u> </u>	<u> </u>	<u>}</u>
					<u> </u>	1	L	l
	·····	1	1	[		T	· · · · · · · · · · · · · · · · · · ·	
		+	+		1	]	1	<u> </u>
		1	1		·		1	1
			+		1	1		
			<u> </u>				· · · · · · · · · · · · · · · · · · ·	
					 		· · · · · · · · · · · · · · · · · · ·	

All Results in mg/1 (ppm) unless noted

•

#### 12010 U. 3-13

#### WATER QUALITY MONITORING DATA

Sampling Station: INORGANIC COMPOUNDS Site: Mottolo AND OTHER PARAMETERS Location: Raymond, NH Brook S-3 (Downstream) GZA NHWS Laboratory Analysis by Sampling on | 5/80 7/80 Compounds .023 Arsenic .2 Barium <.005 Cadmium .01 Chromium_ <.1 Copper 15 Iron .025 Lead 15.5 Manganese <.001 Mercury <.1_ <u>Nickel</u> < .005 Selenium .11 Zinc < .01 Silver Additional Parameters 5.91 6.8 pH units 70 21.5 Spec. Conductance, uMHOs TOC COD 385 Phenolics___  $NO_2 + NO_3$ Chloride Sulfate Total Solids . Color .

# All Results in mg/1 (ppm) unless noted

### Table $\underline{\bigcirc}, \underline{\bigcirc}, \underline{]} = 4$

#### WATER QUALITY MONITORING DATA

INORGANIC COMPOUNDS AND OTHER PARAMETERS

----

_C

Ĭ.

Site: Mottolo Location: Raymond, NH

### Sampling Station:

Brook S-	-4	
(Upstream	Near	JB-8)

			¥ · · · · · · · · · · · · · · · · · · ·		+		<u> </u>	<u>SLIEAN N</u>	ear Jb-o
	Laboratory	GZA							
	Analysis by		1			1	1		1
Compounds	Sampling on	5/80							1
Arsenic						1			
Barium					1	<u> </u>			
Cadmium							·		
Chromium			1			<u> </u>	i		1
Copper	· · · · ·	L			1	<u> </u>	1		1
Iron		·	<u> </u>		<u> </u>		i	l	<u> </u>
Lead		-				<u> </u>	<u> </u>		
Manganese					1	1	l	<u> </u>	
Mercurv					ļ	1	<u> </u>		
Nickel					· · ·	1	1		
Selenium									
Zinc					1	!	[	L	l
Silver					L	1	l	l	· ·
			1	1			l		
pH units		6.06				 	1		
Spec. Condu	ictance, uMHOs	115			<u> </u>	i	l	1	<u> </u>
TOC			1		1	L	<u> </u>		
COD					<u> </u>	<u> </u>	l		ļ
Phenolics						<u> </u>	l		L
$NO_2 + NO_3$					<u> </u>	L			
					<u> </u>	<u> </u>	·	·	L
Chloride					<u> </u>		l		l
<u>Sulfate</u>							l		
Total Solid	ls						l		
Color									
			•	•		·			
			1		1				
_									
			1		1				

. **'** 

.

.

•

# rable <u>C.3-1</u>5

# WATER QUALITY MONITORING DATA

Labora AnalvsCompoundsSamplinArsenicBariumCadmiumCadmiumCadmiumChromiumCopperIronLeadManganeseMercuryNickelSeleniumZincSilverSilverAdditional ParameterpH unitsSpec. Conductance.TOCCODPhenolicsNO2 + NO32ChlorideSulfateTotal SolidsColor	is by is by ng on 2 2 2 2 2 2 2 2 2 2 2 2 2	NHWS 8/79 05 1 01 01 01 05 .01	NHWS 10/79 <.01 <.1 <.005 <.01 .49 .1 .04 .04 .04 .01					ell in Sh ccess Roa	
Analys ompounds Sampli Arsenic Barium Cadmium Cadmium Chromium Copper Iron Lead Manganese Mercury Nickel Selenium Zinc Silver dditional Parameter pH units Spec. Conductance. TOC COD Phenolics NO ₂ + NO ₃ Chloride Sulfate Total Solids	is by is by ng on 2 2 2 2 2 2 2 2 2 2 2 2 2	8/79 05 1 01 01 01 1 05 .01	10/79 <.01 <.1 <.005 <.01 .49 .1 .04						
Analys Compounds Sampli Arsenic Barium Cadmium Cadmium Chromium Copper Iron Lead Manganese Mercury Nickel Selenium Zinc Silver dditional Parameter pH units Spec. Conductance. TOC COD Phenolics NO ₂ + NO ₃ Chloride Sulfate Total Solids	is by is by ng on 2 2 2 2 2 2 2 2 2 2 2 2 2	8/79 05 1 01 01 01 1 05 .01	10/79 <.01 <.1 <.005 <.01 .49 .1 .04						
CompoundsSamplinArsenicBariumCadmiumCadmiumCadmiumChromiumCopperIronLeadManganeseMercurvNickelSeleniumSeleniumZincSilverdditional ParameterpH unitsSpec. Conductance.TOCCODPhenolicsNO2 + NO3ChlorideSulfateTotal Solids		05 1 01 01 01 05 01	<pre>&lt;.01 &lt;.1 &lt;.005 &lt;.01 .49 .1 .04 .04</pre>						
Arsenic Barium Cadmium Chromium Copper Iron Lead Manganese Mercurv Nickel Selenium Zinc Silver dditional Parameter pH units Spec. Conductance. TOC COD Phenolics NO ₂ + NO ₃ Chloride Sulfate Total Solids		05 1 01 01 01 05 01	<pre>&lt;.01 &lt;.1 &lt;.005 &lt;.01 .49 .1 .04 .04</pre>						
Barium Cadmium Chromium Copper Iron Lead Manganese Mercury Nickel Selenium Zinc Silver dditional Parameter pH units Spec. Conductance, TOC COD Phenolics NO ₂ + NO ₃ Chloride Sulfate Total Solids		1 01 01 05 05 01	<.1 <.005 <.01 .49 .1 .04						
Barium Cadmium Chromium Copper Iron Lead Manganese Mercury Nickel Selenium Zinc Silver dditional Parameter pH units Spec. Conductance, TOC COD Phenolics NO_+ NO_2 Chloride Sulfate Total Solids		1 01 01 05 05 01	<.1 <.005 <.01 .49 .1 .04						
Cadmium Chromium Copper Iron Lead Manganese Mercury Nickel Selenium Zinc Silver dditional Parameter pH units Spec. Conductance. TOC COD Phenolics NO ₂ + NO ₃ Chloride Sulfate Total Solids		01 01 1 05 01	<.005 <.01 .49 .1 .04						
Chromium Copper Iron Lead Manganese Mercury Nickel Selenium Zinc Silver dditional Parameter pH units Spec. Conductance. TOC COD Phenolics NO ₂ + NO ₃ Chloride Sulfate Total Solids		.01 .1 .05 .01	<.01 .49 .1 .04						
Copper Iron Lead Manganese Mercury Nickel Selenium Zinc Silver dditional Parameter pH units Spec. Conductance. TOC COD Phenolics NO ₂ + NO ₃ Chloride Sulfate Total Solids		.1 .05 .01	.49 .1 .04						
Iron Lead Manganese Mercurv Nickel Selenium Zinc Silver dditional Parameter pH units Spec. Conductance. TOC COD Phenolics NO ₂ + NO ₃ Chloride Sulfate Total Solids	<	.05	.1						
Lead Manganese Mercurv Nickel Selenium Zinc Silver dditional Parameter pH units Spec. Conductance. TOC COD Phenolics NO ₂ + NO ₃ Chloride Sulfate Total Solids	<	.05	.04						
Manganese Mercury Nickel Selenium Zinc Silver dditional Parameter pH units Spec. Conductance. TOC COD Phenolics NO ₂ + NO ₃ Chloride Sulfate Total Solids	<	.01							
Mercury Nickel Selenium Zinc Silver dditional Parameter pH units Spec. Conductance. TOC COD Phenolics NO ₂ + NO ₃ Chloride Sulfate Total Solids									
Nickel Selenium Zinc Silver dditional Parameter pH units Spec. Conductance. TOC COD Phenolics NO ₂ + NO ₃ Chloride Sulfate Total Solids		.01	<.01			<u> </u>			
Selenium Zinc Silver dditional Parameter pH units Spec. Conductance. TOC COD Phenolics NO ₂ + NO ₃ Chloride Sulfate Total Solids		.01	<.01			<u> </u>			L
Zinc Silver dditional Parameter pH units Spec. Conductance. TOC COD Phenolics NO ₂ + NO ₃ Chloride Sulfate Total Solids						<u> </u>	<u> </u>		,
Silver dditional Parameter pH units Spec. Conductance. TOC COD Phenolics NO ₂ + NO ₃ Chloride Sulfate Total Solids	<u>rs</u>				<u> </u>	1	1		
dditional Parameter pH units Spec. Conductance. TOC COD Phenolics NO ₂ + NO ₃ Chloride Sulfate Total Solids	rs		1	<u> </u>	1				
pH units Spec. Conductance. TOC COD Phenolics NO ₂ + NO ₃ Chloride Sulfate Total Solids	<u>rs</u>		1	1	+	+			
pH units Spec. Conductance. TOC COD Phenolics NO ₂ + NO ₃ Chloride Sulfate Total Solids	rs			·	J	<u> </u>	<u> </u>	L	
Spec. Conductance, TOC COD Phenolics NO ₂ + NO ₃ Chloride Sulfate Total Solids		6.5	6.6		<u> </u>	·····			
TOC COD Phenolics NO ₂ + NO ₃ Chloride Sulfate Total Solids		85	125			+			<u> </u>
COD Phenolics NO ₂ + NO ₃ Chloride Sulfate Total Solids	_umhusi	4	1		1 .	+			
Phenolics NO ₂ + NO ₃ Chloride Sulfate Total Solids		12	2	<u>+</u>		+	· · · · · · · · · · · · · · · · · · ·		
NO ₂ + NO ₃ Chloride Sulfate Total Solids					1	<u> </u>	<u> </u>		
Chloride Sulfate Total Solids	<u> </u>	.31	.24			1		····	
<u>Sulfate</u> Total Solids			1	<u> </u>	1	<u></u>	· · · · · · · · · · · · · · · · · · ·		- <u></u>
<u>Sulfate</u> Total Solids		< 1	1 1	<del> </del>		1	· · · · · · · · · · · · · · · · · · ·		
Total Solids		5	+	<u> </u>					
		74	87		<u> </u>				<u></u>
				<del>\</del>					
		10	+	<u> </u>	+				
			+	<u> </u>		<u> </u>			
			+	<u></u>					
				J			L		
			T			1	·····		
	<u>+</u>		+		+	·			
		÷	+		1				
			+	<del> </del>	<u> </u>	<del> </del>			
			+	<u>├</u>	+	<u></u> }			
			<b></b>	<u> </u>	<b></b>	ļ			
			<u> </u>		L	1			
						1			
			1		1	r 1			

Ĭ.

All Results in mg/1 (ppm) unless noted

D-124

.

# Table <u>C.3-16</u>

# Page _1 of 1

### WATER QUALITY MONITORING DATA

	MPOUNDS ARAMETERS			tolo mond, NH				mpling S Surface R	
								lear OW-2	
	Laboratory	NHWS	NHWS	Γ	r	1	T		T
	Analysis by		I IIIWO			+		<del> </del>	<u> </u>
ompounds			11/79				<u> </u>		
Sinpounds	Sampling on	0//9	11//9			<u> </u>	1		1
Arsenic .		<.05	<.01		<u> </u>	+		<u> </u>	
Barium		< .1				1	1	<u></u>	+
Cadmium		< .01	< .005		·			<u> </u>	+
Chromium	· · · · · · · · · · · · · · · · · · ·	< .01	1 < .01	İ			1	1	1
Copper			1			1	1	1 .	1
Iron		.3					1	1	1
Lead		<b>&lt;</b> .05	T _			1			1
Manganese		.1					1		1
Mercury						1		1	1
Nickel			.1						1
Selenium		< .01	1			1			
Zinc			.01			1			1
Silver	·· ··						·		
				[		1	1	1	
oH units		5.4	5.6			<u> </u>	ļ	 	
	ctance, uMHOs	34	32			<u> </u>	<u> </u>	1	
TOC		11					<u> </u>	[	
COD	·	28	56			1	<u> </u>	!	[
Phenolics				<u> </u>		<u> </u>	1	<u> </u>	<u>}</u>
$NO_2 + NO_3 - $	·	.06			:	<u> </u>		1 I	l
Chloride		1		·		<u> </u>	<u> </u>	<u> </u>	! 
<u>Sulfate</u>		80				<u> </u>	<u> </u>	i	
<u>Total Solid</u>	e	56					1		
Color	3	70					<u>'</u>	I	
			+						i
						<u> </u>	<u>.</u>		 I
			1			†	<u> </u>	· · · · ·	i
<u></u>				L	<u> </u>	·	<u>ha</u>	4 <u></u>	l
			1			<u>r`</u>	1		
			÷ <del> </del>			1 1	<u> </u>		
			+			<u>├</u>			
						<del> </del>	!		
							<u> </u>	ł	
	·		+				<u> </u>	<u> </u>	
	· .					L	L		
						L			
						1	1		

All Results in mg/1 (ppm) unless noted

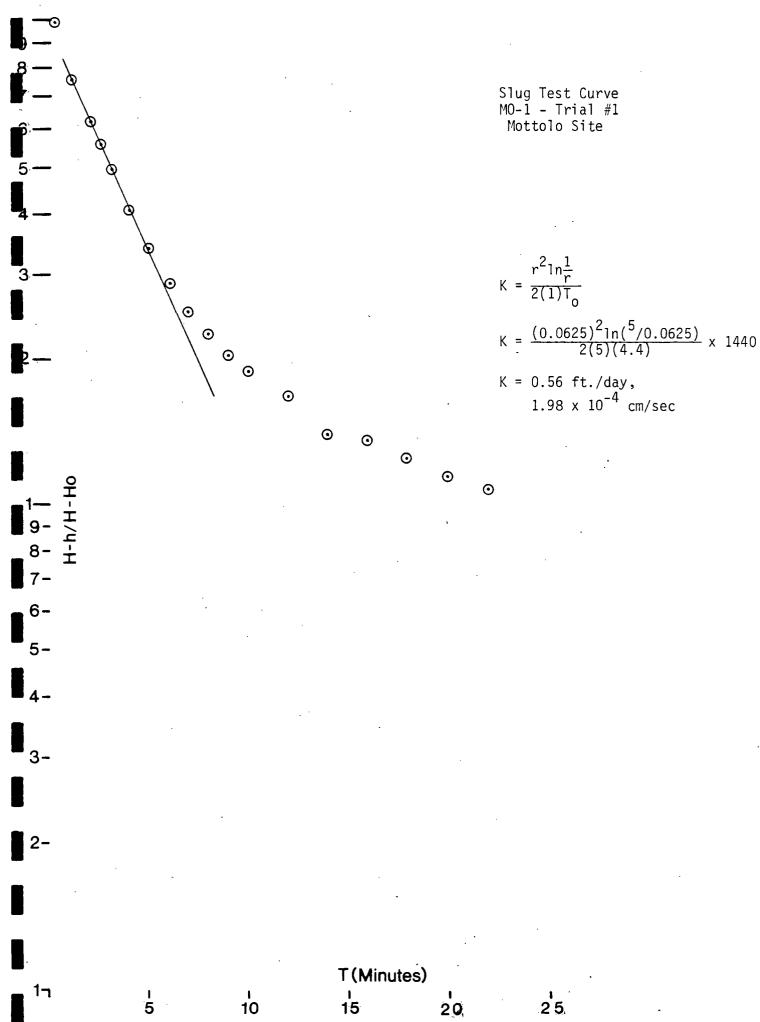
.

# APPENDIX E

.

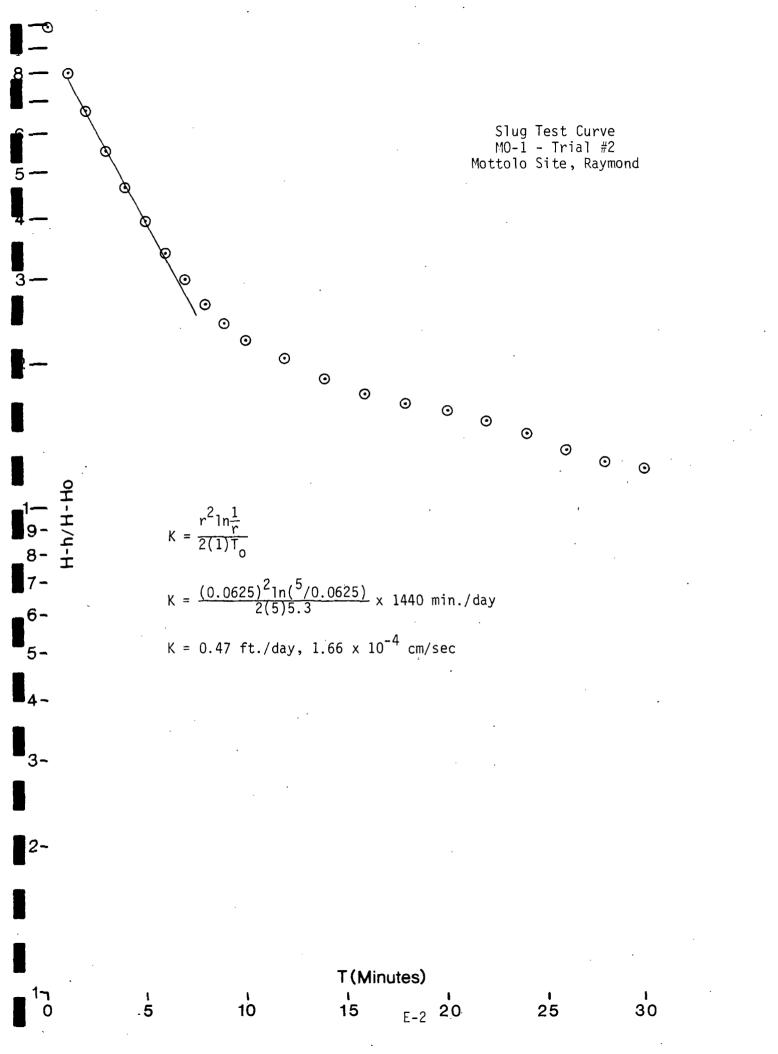
# Slug Test and Water Elevation Data

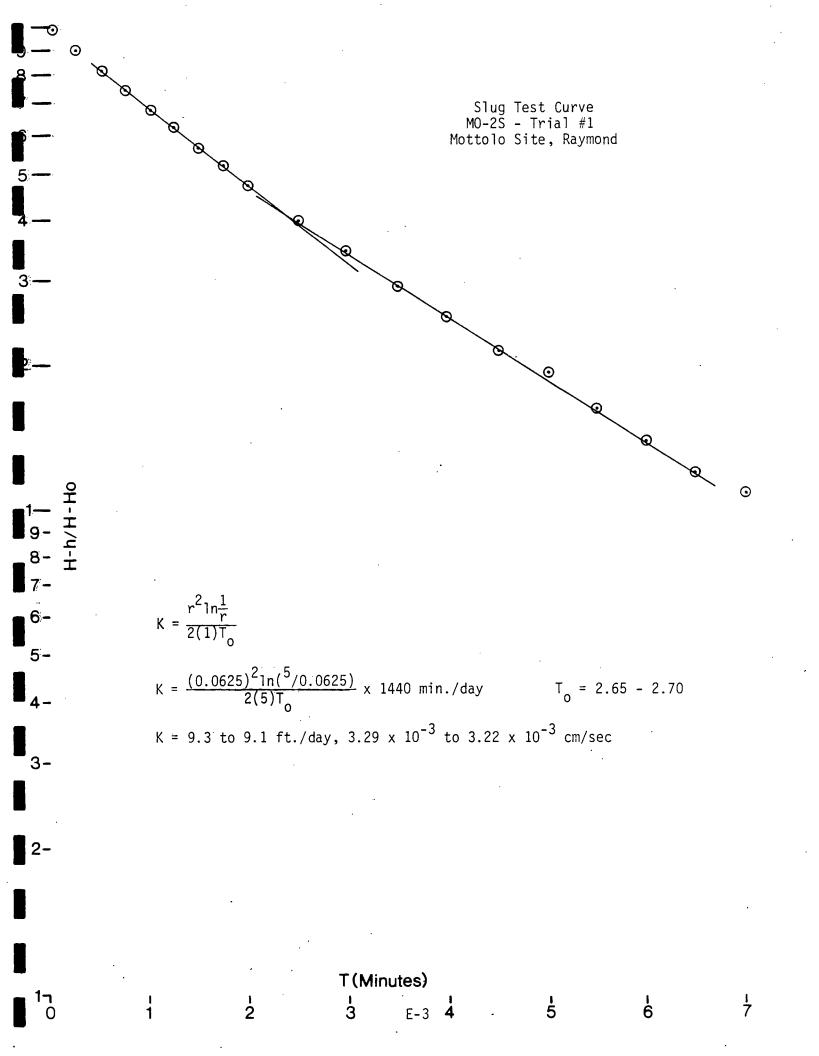
	Page
Slug Test CurvesE-1 -	thru E-14
Water Elevation SummaryE-15	thru E-17

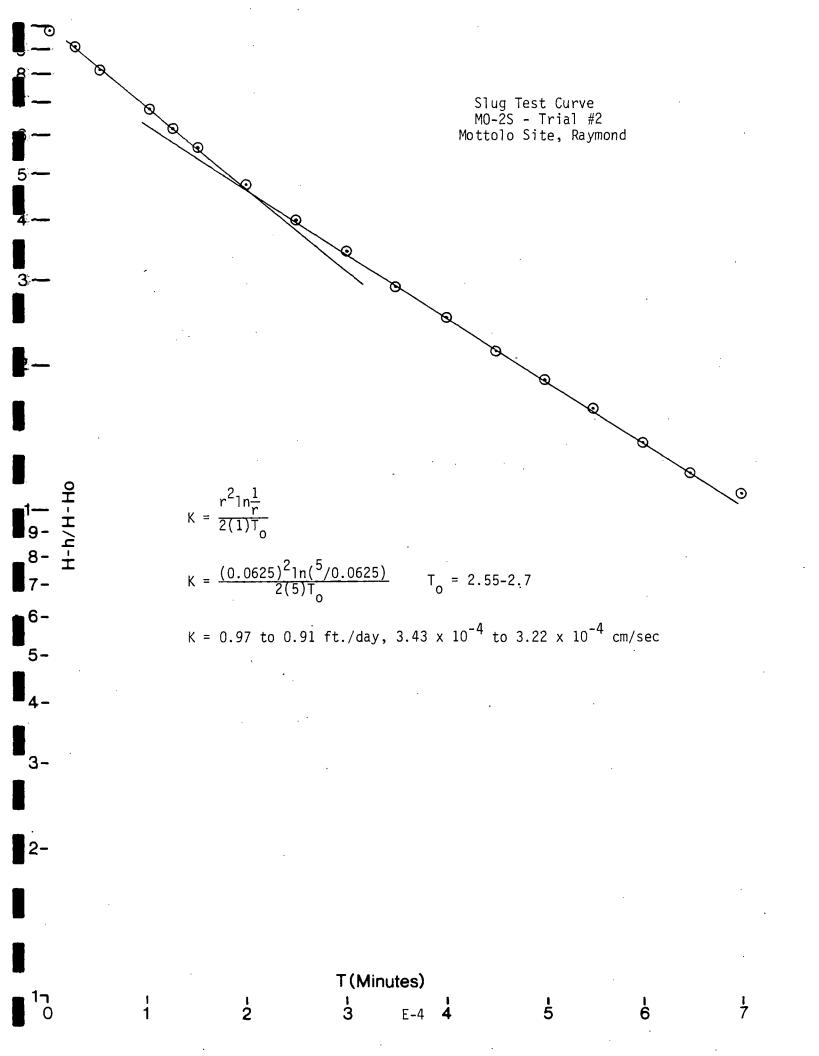


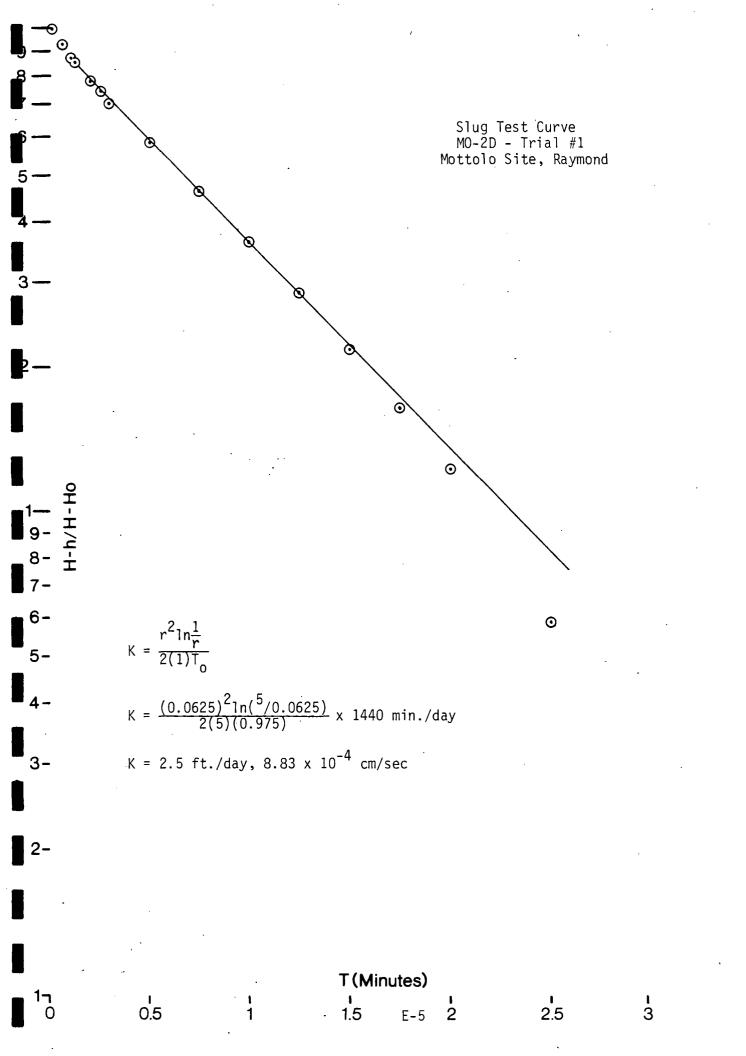
E-1

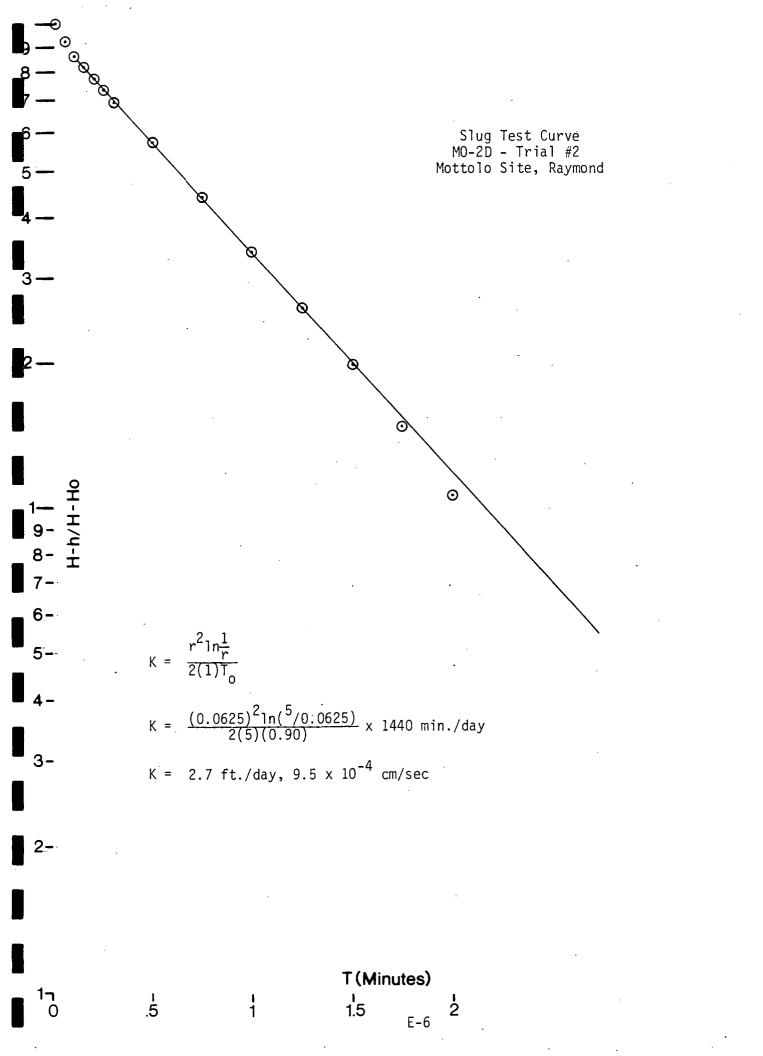
.

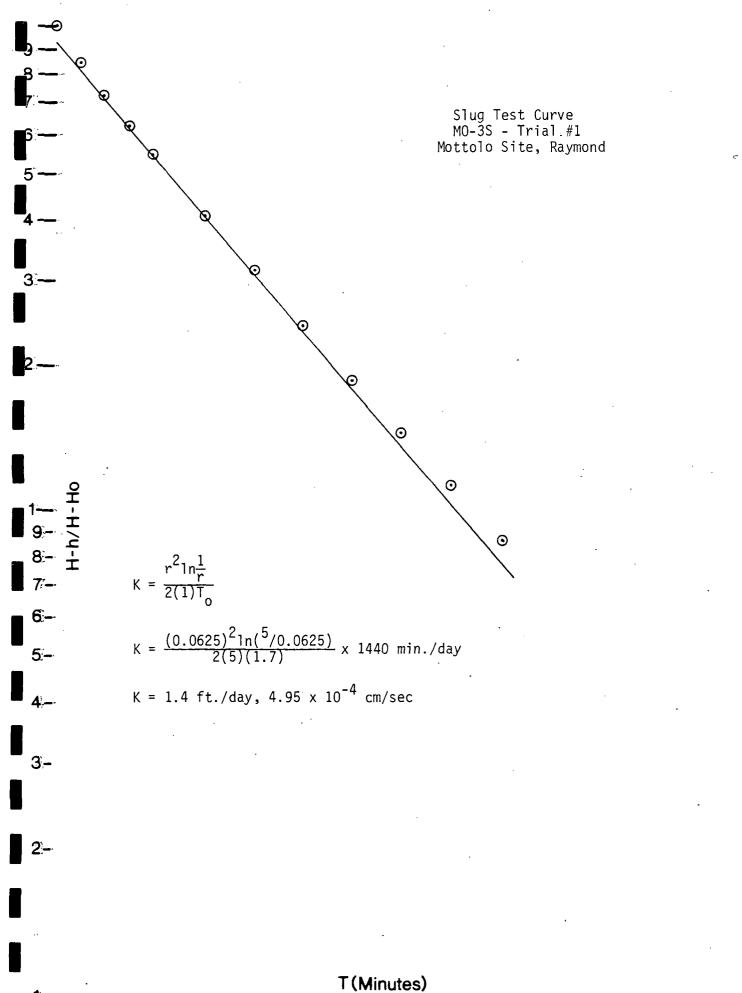








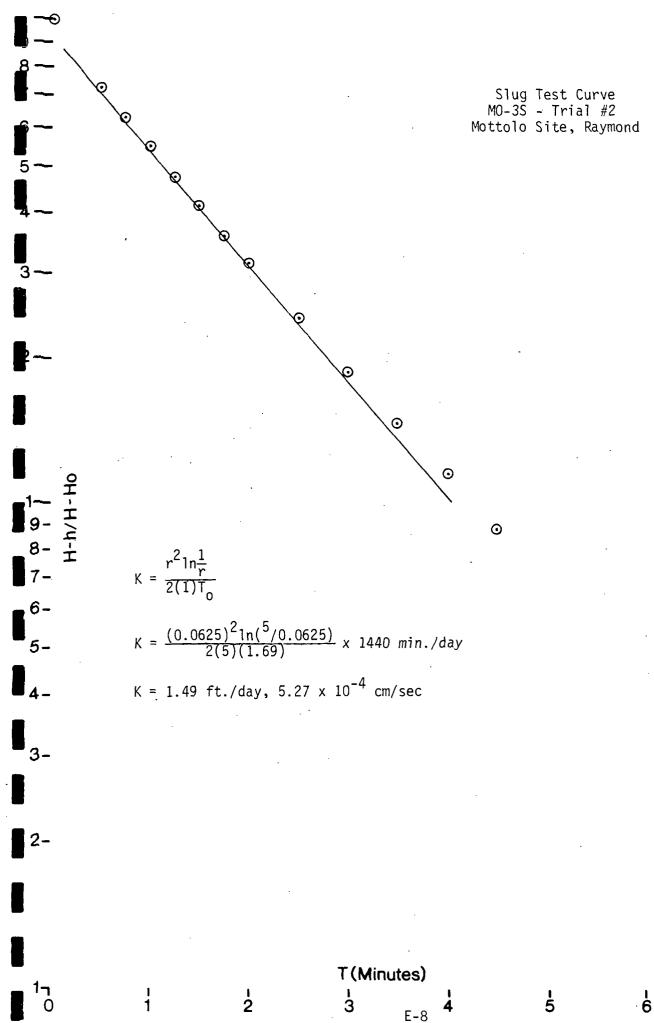




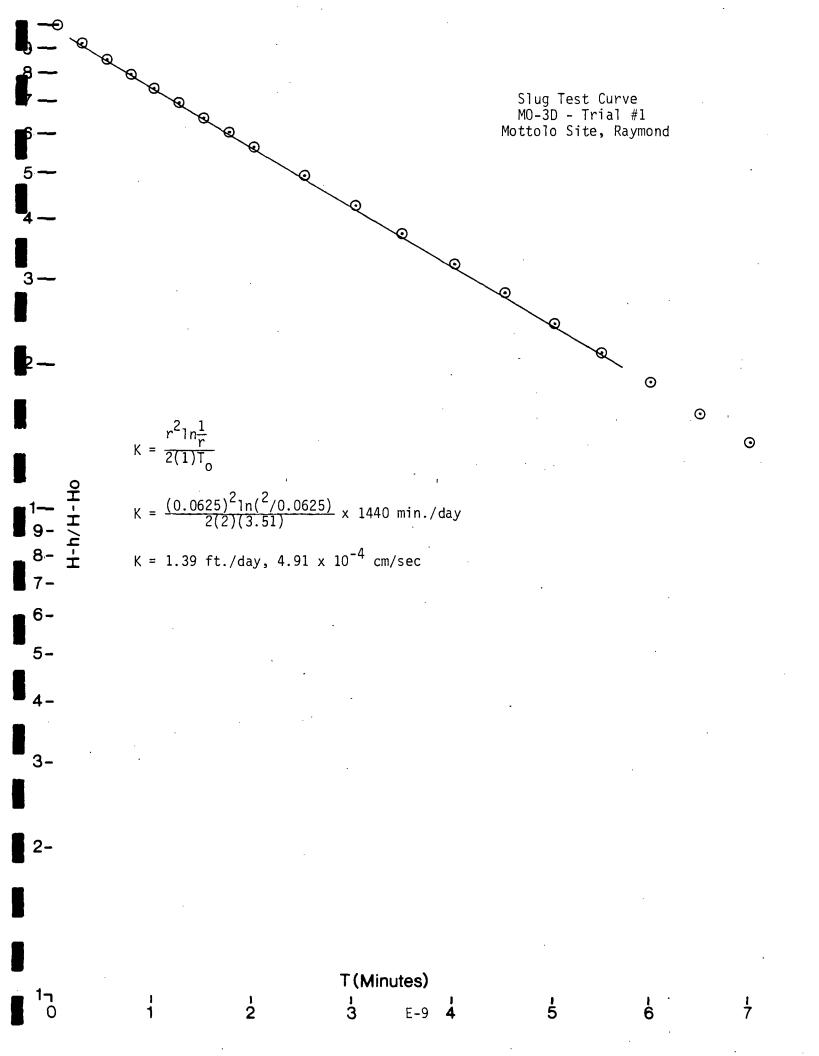
1.

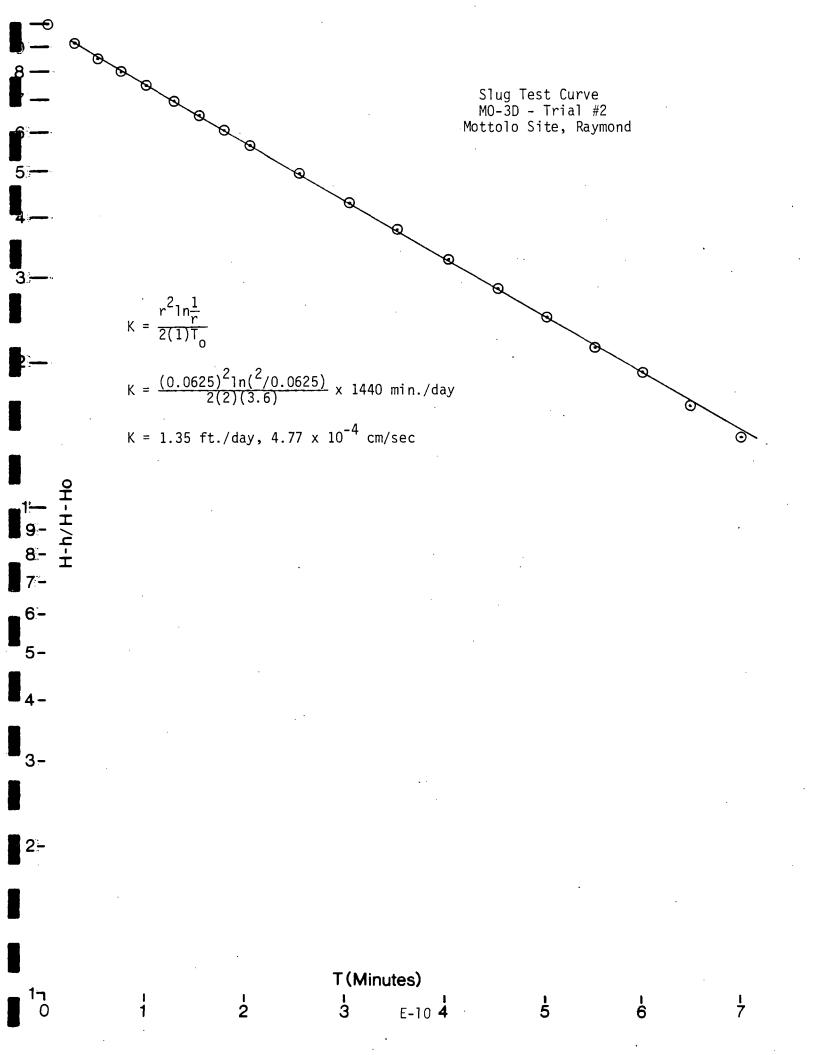
E-7

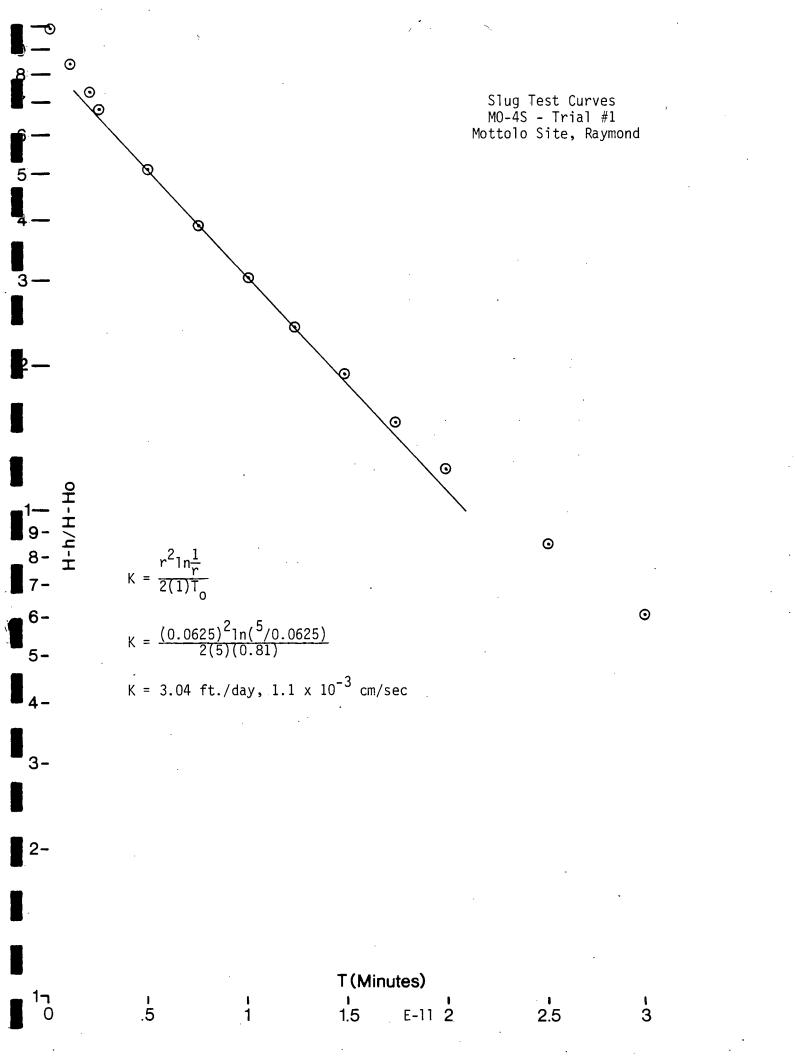
<del>1</del> 

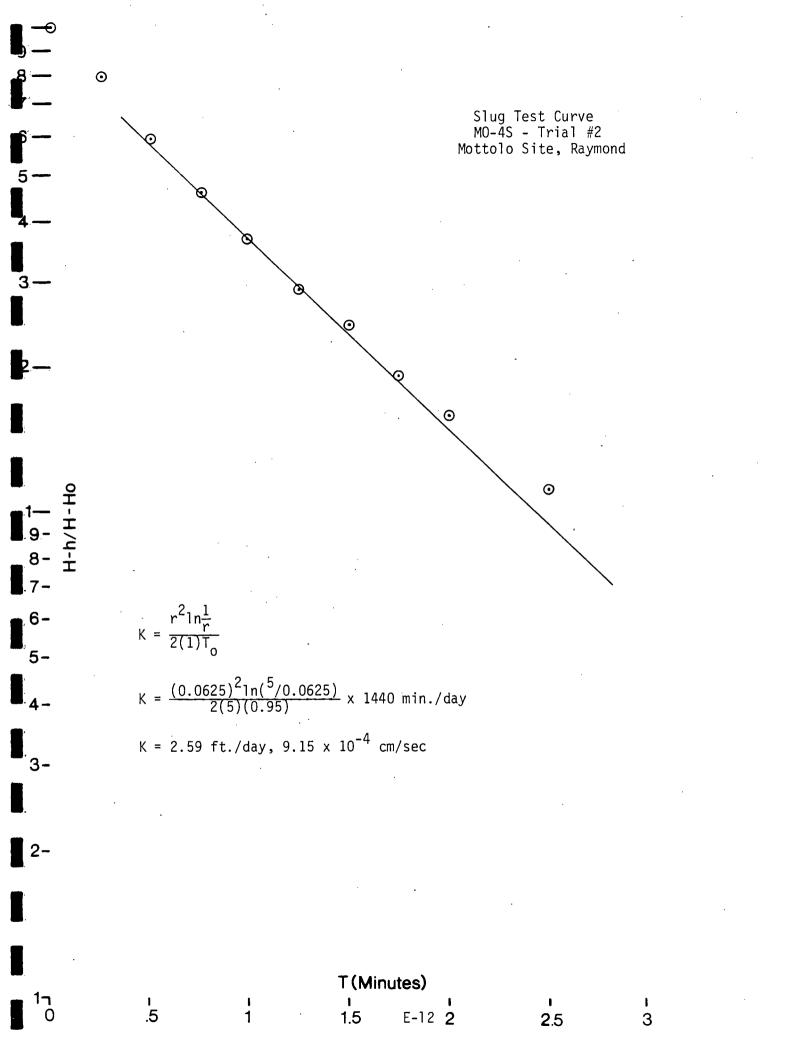


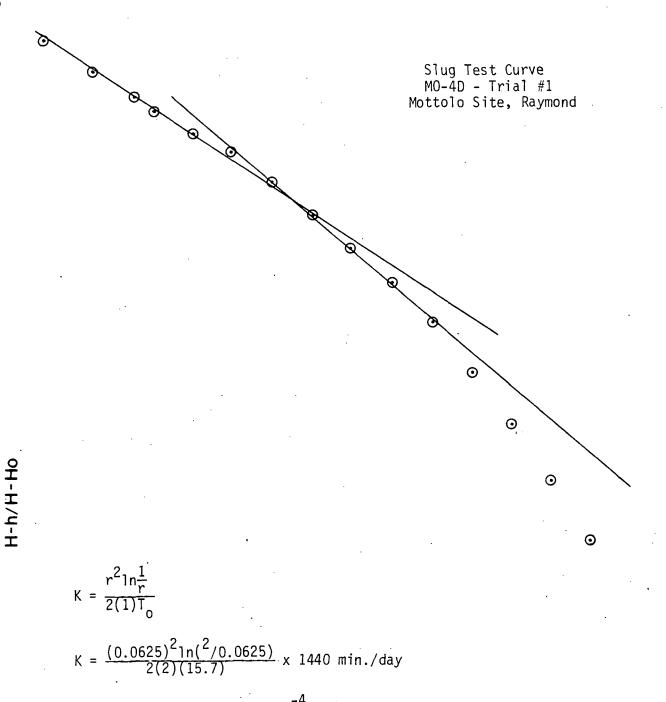
<mark>|</mark>7











 $K = 0.31 \text{ ft./day}, 1.10 \times 10^{-4} \text{ cm/sec}$ 

**_**−⊙

8 — -

5-4-

8-

7-

6-

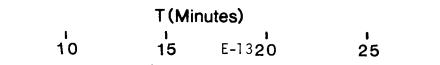
5-

3-

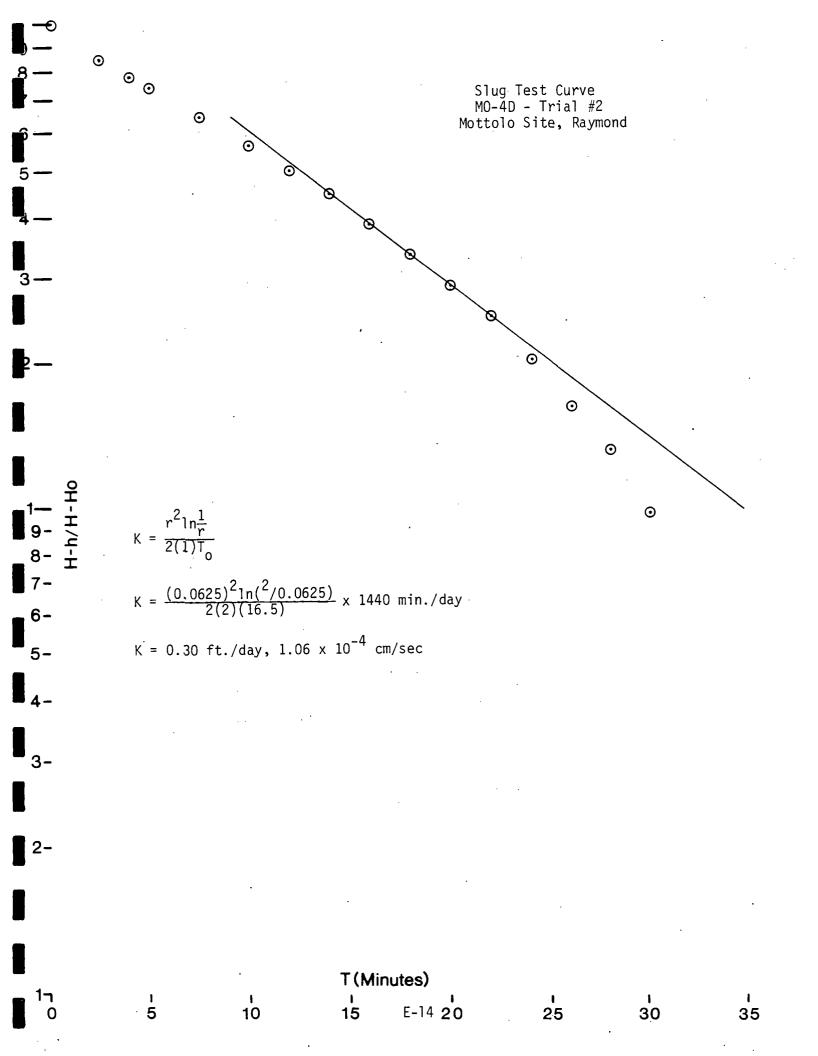
2-

ר1 0

ו 5



і 30



### Groundwater Elevation Summary Mottolo Site, Raymond, New Hampshire

Well Location	Reference Elevation	April <u>Depth</u>	10, 1985 <u>Elevation</u>	July <u>Depth</u>	3, 1985 <u>Elevation</u>	July <u>Depth</u>	5, 1985 <u>Elevation</u>	July 3 <u>Depth</u>	25, 1985 <u>Elevation</u>	August <u>Depth</u>	22, 1985 <u>Elevation</u>
MO-1	264.75 (pvc)					11.38	253.37	12.04	252.71	12.32	252.43
M0-25	220.51 (pvc)			2.75	217.76	2.92	217.59	2.88	217.63	2.89	217.62
MO-2D	220.34 (pvc)			2.53	217.81	2.58	217.76	2.73	217.61	2.73	217.61
MO-3S	220.98 (steel)					3.58	217.40	3.56	217.42	3.54	217.44
MO-3D	221.36 (pvc)					3.21	218.15	3.40	217.96	3.41	217.95
MO-4S	221.25 (pvc)					1.92	219.33	2.04	219.21	2.04	219.21
MO-40	221.77 (pvc)					2.04	219.73	2.16	219.61	2.27	219.50
MO-55	215.30 (pvc)							3.62	211.68	3.00	212.30
MO-5D	215.12 (pvc)			· .				3.17	211.95	2.79	212.33
MO-6	202.04 (steel)							flowing	+202.04	flowing	+202.04
Dug Well	258.26	5.35	252.91	· .				7.10	251.16	8.68	249.58
04-1	256.78 (steel)	12.35*	244.43					- not me	asured –	- not me	asured -
0 <del>W</del> -2	243.94 (shallow-steel) 243.94 (deep-barcad)	4.60 - not me	239.34 easured -					7.78 - not me	236.16 asured -	8.01 - not me	235.93 asured
OM-3	255.10	5.90	249.20					7.85	247.25	8.16	246.94
<b>0₩-4</b>	251.01 (shallow-steel) 251.22 (deep-barcad)	4.75 - not me	246.26 easured					7.33 - not me	243.68 asured -	7.35 11.70	243.66 239.52
JB-5	223.46 (top of riser)	3.67	219.79		_			- not me	asured -	- not me	asured –
JB-6	221.96 (top of riser)	3.93	218.03					- not me	asúred -	- not me	asured –

E-15

Ň

#### Groundwater Elevation Summary (continued)

	Well Location	Reference Elevation ¹	April <u>Depth</u>	10, 1985 <u>Elevation</u>	July <u>Depth</u>	3, 1985 <u>Elevation</u>	July <u>Depth</u>	5, 1985 <u>Elevation</u>	July <u>Depth</u>	25, 1985 <u>Elevation</u>	August <u>Depth</u>	22, 1985 <u>Elevation</u>
	JB-7	221.24 (top of riser)	2.16	219.08							2.42	218.82
	JB- <b>8</b>	222.07 (top of riser)	1.92	220.15						•	2.08	219.99
	JB-9	222.26 (top of riser)	4.65	217.61								
	R-1	221.23 (top of tubing)									4.18	217.05
	R-2	218.78 (top of tubing)									2.15	216.63
	R-3	218.81 (top of tubing)									2.16	216.65
1	Open Piezo- meter nr R-3	220.79			3.83	216.96					4.06	216.73
1	R-4	221.60 (top of tubing)									3.53	218.07
	R-5	219.12			0.92	218.20					1.17	217.95
	R6	220.10 (top of tubing)						,			2.18	217.92
	R-7	217.43 (top of tubing)						• -			2.69	214.74
	R-8	215.10 (top of tubing)									0.68	214.42
	R-9	222.53 (top of tubing)									dry	-
	R-10	217.14 (top of tubing)									2.21	214.93
	R-11	213.77 (top of tubing)									1.37	212.40

¹Tied to site vertical datum. *Well is bent.

E-16