



SEP 23 1994

7323-00

September 21, 1994

Mr. Chuck Schwer
Supervisor; Sites Management Section
Vermont Department of Environmental Conservation
103 South Maine Street
Waterbury, Vermont 05671-0404

Dear Mr. Schwer,

Subject: **Initial Site Investigation Report**
SMS Site Number 93-1542
Simpson Paper Company - Centennial Mill Gilman, Vermont

It was my pleasure speaking with you the other day. On behalf of Simpson Paper Company, please find enclosed two copies of the Initial Site Investigation Report for the above reference site. If you need additional copies of the report, please let us know.

If, during your review of the report, any questions arise which I may be of service in answering, please don't hesitate to call me at (207) 775-5401, ext. 3490. I shall call some time next week to confirm your receipt of this package and to inquire regarding your anticipated review schedule.

Sincerely,
ABB Environmental Services, Inc.

Peter H. Thompson
Project Manager

enclosures (2)

copy / spc (3) / file (2)

ABB Environmental Services, Inc.

110 Free Street
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Portland, Maine 04112-7050

Telephone (207) 775-5400

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INITIAL SITE INVESTIGATION

Report of Findings and Recommendations

**Simpson Paper Company
Centennial Mill
P.O. Box 129
Riverside Drive
Gilman, Vermont
05904**

**SMS Site Number : 93-1542
UST Facility ID Number : 8925515**

**A Facility Owned By :
Simpson Paper Company
Riverside Drive
Gilman, Vermont
05904**

**(802) 892-5515
Contact : Mr. Donald Hallee**

Prepared By :

**ABB Environmental Services, Inc.
110 Free Street
Portland, Maine
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**(207) 775-5401
Contact : Peter Thompson
September, 1994**

ABB Environmental Services, Inc.



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Executive Summary

The Simpson Paper Company (Simpson) operates the Centennial Paper Mill located in Gilman, Vermont adjacent to the Connecticut River and New Hampshire border. The Mill employs approximately 180 people for its paper making operations. In the summer and fall of 1993 Simpson Paper Company permitted and constructed a new, secure, above ground storage and transfer facility for diesel and gasoline fuels. The facility replaced three underground storage tanks (USTs); two stored and dispensed diesel fuel (Tanks No. 2 and No. 7) and one gasoline (Tank No.1). On November 22, 1993 the UST No. 2 and No. 1 were removed. On December 10, the new above ground facility began operations and on December 13, 1993 Tank No. 7 was removed. Site assessment reports on the UST removals were submitted to the State of Vermont on November 24 and December 20 respectively.

2 releases
2 deductibles

The site assessments indicated no evidence of fuel releases at the Tank No. 2 site but that releases of fuel had occurred as a result of gradual leaking from a pipe connection below the fuel dispenser at Tank No. 1 and from a pipe connection between the tank and dispenser at Tank No. 7. Shallow soil contamination was confirmed at both locations in test pits excavated at the time of tank removal. As a result, a Site Investigation Workplan was prepared by ABB Environmental Services, Inc., (ABB-ES) and approved by the Sites Management Section (SMS) of the Vermont Department of Environmental Conservation (DEC). The work plan called for the completion of overburden soil borings to define the limit and distribution of soil contamination. Groundwater monitoring wells were to be installed if there was evidence of fuel migration to groundwater. The site investigation field activities began on June 22, 1994 and were completed on June 29, 1994.

Two borings, (T7 SB-1 and T7 SB-2), were completed to below the overburden groundwater table at the Tank No. 7 site. Overburden groundwater at the No. 7 site was encountered in outwash deposits at a depth of approximately 30 feet below ground surface (bgs). Groundwater wells were not installed at this site. At the Tank No. 1 site four soil borings were completed (T1 SB-1 through T1 SB-4) and one upgradient (MW-1) and two down gradient groundwater monitoring wells (MW-2 and MW-3) were installed. Assessment of the degree of soil contamination was conducted in the field with a photoionization detector (PID) and confirmed by laboratory analysis using United States Environmental Protection Agency (EPA) Method 8020 for benzene, toluene, ethylbenzene, and xylenes (BTEX) compounds and Methyl tert-butyl ether (MTBE) and Method

costs for release #2
less than 40 cost/mk

costs for site #1

were costs approved for 6 borings + 3 wells?

418.1 for Total Petroleum Hydrocarbons (TPH).

Field screening results from soil borings at the Tank No. 7 site did not indicate petroleum hydrocarbon contamination requiring corrective action. During the investigation, the Vermont SMS was contacted by ABB-ES regarding these findings and a verbal request was made by ABB-ES to discontinue the soil boring investigation and not install groundwater monitoring wells at that time. In consideration of that request, the SMS requested that additional laboratory samples be submitted to characterize BTEX in addition to TPH for soils near the water table. BTEX was characterized at the watertable and analytical results from these samples indicate the presence of low microgram per kilogram ($\mu\text{g}/\text{kg}$) concentrations of toluene ($1.1 \mu\text{g}/\text{kg}$) and total xylenes ($7.0 \mu\text{g}/\text{kg}$) in the source area boring and concentrations below detection in T7 SB-2 which is located eighteen feet downgradient. No additional investigation activities or corrective measures are recommended at this site. - cost to Site #2

Results of PID field screening and laboratory analysis of soil samples collected from the Tank No.1 site, indicate petroleum hydrocarbon contamination to the groundwater table. Groundwater was encountered approximately 12 feet bgs in the outwash deposits and in the till. BTEX compounds and MTBE were detected at low microgram per liter ($\mu\text{g}/\text{L}$) concentrations in groundwater samples collected from downgradient monitoring wells installed at the site. MW-2 had the highest concentrations and included benzene ($0.5 \mu\text{g}/\text{L}$), toluene ($9.5 \mu\text{g}/\text{L}$), xylenes ($3.3 \mu\text{g}/\text{L}$) and MTBE ($1.5 \mu\text{g}/\text{L}$). Analytical results of a groundwater water sample collected from the upgradient monitoring well was below the detection limit for these compounds. The lateral extent of soil contamination at this site appears to be limited to an area about 15 feet in diameter and approximately 15 feet in depth. No free product was encountered. The shallow overburden groundwater at the site appears to exist under perched conditions in the outwash and upper till. costs approved for 40' wells see Appendix B for actual depths

To some degree, contaminants will continue to leach to groundwater from the gasoline contaminated soils at the No. 1 site. The impact to groundwater does not appear to be extensive. It is recommended that the shallow soils at the source area be excavated to the depth of the gravel and cobble zone in the till and be replaced with clean backfill to mitigate further impacts to groundwater. It is further recommended that monitoring at the site continue on a semi-annual schedule and that the need for further monitoring be evaluated annually. this depth is ?
→ 4 feet
below overburden/
till contact
~ 100 yd³

1.0 Site Information

The Simpson Paper Company Centennial Mill is located adjacent to the Connecticut River in the Town of Gilman, Vermont (Figure 1 in Appendix A). Both sites investigated (Tank No. 1 and Tank No. 7) are contained within the Mill property boundary. The Tank No. 1 site (former gasoline UST) location is identified in Figure 2 and the Tank No. 7 site (former diesel UST) location is identified in Figure 3. The dominant hydrologic feature at the site is the Connecticut River. Overburden groundwater flow is toward the river from these two UST sites. With the exception of the Mill bedrock water supply well, no groundwater users are located between the UST sites and the river and it is assumed that the shallow groundwater discharges to the river. The town of Gilman is on a public water system, the source for which is located several miles upgradient from the Centennial Mill.

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Centennial Mill
Riverside Avenue - P.O. Box 129
Gilman, Vermont 05904
(802) 892-5515

take a sample

2.0 Potential Receptors

Sites No. 1 and No. 7 are located within the Simpson Mill complex in proximity to the Connecticut River. All residences outside of the Mill property are located either upgradient or cross gradient from the former UST sites. These residences are on a public water supply system which would not be affected by releases at the mill. The sole groundwater user in the area is the Mill which has a bedrock water supply well located at the western end of the Mill property near the Mill entrance. The depth to bedrock at this well has been reported by Mill personnel to be approximately 80 feet bgs. Because of the depth of this well, its location with respect to the former UST sites, and the thickness of till separating the overburden and bedrock groundwater systems, it is not likely that this well would be impacted by leaks from the former UST sites. Overburden groundwater appears to be the only potential receptor to former releases from the two UST sites. Groundwater flow is toward the river. The area intervening between the former UST sites and the river is an industrial setting and the future use of this area is not likely to change.

Building basements adjacent to the sites were entered to screen for hydrocarbon vapors but no indication of vapor migration to these structures was noted.

3.0 Site Geology

Explorations were completed to several feet below the groundwater table which occurs in the overburden deposits. Overburden material at the site includes stratified sand and gravel deposits overlying ablation till. According to the Surficial Geologic Map of Vermont (VGS, 1970), the stratified sand and gravel deposits are glaciofluvial in origin and may include outwash gravels and kame deposits. The till may have been deposited as part of a system of terminal moraines. The till is grey in color, and is well graded, being composed of silt, sand and gravel fractions.

Based upon information contained in the Centennial Geologic Map of Vermont (Vermont Geologic Survey, 1961) and a Vermont Geologic Survey Bulletin (Johansson, 1963), bedrock underlying the site is associated with the Albee formation of middle to lower Ordovician age. The Albee formation is composed principally of quartzite, phyllite, slate, and micaceous schist. Within the study area reported on by Johansson (1963), which contained Mill area, these metamorphosed sedimentary rocks are typically interbedded, strike northeasterly, and dip from moderate to steep angles. Bedrock at the site was not encountered in any of the borings conducted as part of this investigation.

4.0 Site Investigation Approach

The site investigation approach, as proposed in the Preliminary Investigation Workplan (ABB-ES, 1994) and approved by the SMS, included drilling of soil borings, collection of soil samples for PID field screening and off-site laboratory analysis of TPH, BTEX and MTBE, and installation of groundwater monitoring wells if indications of fuel migration to groundwater were observed in the soil borings. PID screening was conducted using a headspace technique, whereby the sample is placed a sealed container (sample jar or a zip-lock polyethylene bag) and allowed to reach equilibrium prior to taking the measurement. An ODEX rotary system was proposed and used as the drilling method. Soil sample collection included sample retrieval from a cyclone and collection

of split spoon samples at the water table and at other intervals at the discretion of the on-site project geologist. Specific details of the investigation at each of the two sites is provided in the following subsections.

4.1 Site Conceptual Model

The investigation was designed to evaluate the potential migration pathways of the fuel released and define the distribution of contamination in soil and groundwater. The general site conceptual model of these migration pathways includes the following transport mechanisms :

- Vertical percolation of petroleum hydrocarbons within the unsaturated groundwater zone (vadose zone) with subsequent sorption of the hydrocarbons to the soil matrix. The hydrocarbons would continue to leach to groundwater as a dissolved phase during infiltration events (rain and snowmelt).
- Vertical percolation to the water table of petroleum hydrocarbons as a discrete phase in the vadose zone and the formation of a discrete light non-aqueous phase liquid (LNAPL) on the water table surface. The hydrocarbons would solubilize directly to the groundwater from the LNAPL phase.
- Migration of the LNAPL phase on the surface of the groundwater with subsequent smearing and sorption of the hydrocarbons to the soil matrix within the zone of natural groundwater fluctuation. The hydrocarbons would continue to solubilize directly to groundwater below the groundwater table and leach from above the groundwater table during infiltration events.
- Downgradient transport of groundwater containing dissolved phase hydrocarbons.

4.2 Soil Borings

Soil borings were drilled to assess the vertical and lateral distribution of petroleum hydrocarbons above and below the water table at the source locations. At both sites, a boring was placed as

close as possible to the location of the spill identified during the tank removal. Subsequent borings were placed in proximity to the source area in the inferred downgradient direction of groundwater flow. The probable downgradient direction was estimated based upon topography and the site location relative to the Connecticut river. The exploration locations were chosen to evaluate the relationship between source areas and potential migration pathways at each site.

4.2.2 Tank No. 7 Site

Two soil borings were completed at the No. 7 Diesel site (see Figure 4). The first boring (T7 SB-1) was completed to approximately six feet below the water table at the former location of the fuel dispenser. The water table was encountered between 29 and 30 feet below ground surface. PID screening measurements ranged between 10 and 45 parts per million (ppm) from samples collected above the water table and dropped off from 2 to 8 ppm after the water table was encountered. PID screening results are provided in Table 1 (Appendix B). No sheens or other evidence of LNAPL (e.g., product) at the watertable were apparent. A second boring, T7 SB-2, was drilled adjacent to SB-1, in the probable downgradient direction of groundwater flow. This soil boring encountered indications of hydrocarbon contamination based on PID screening results in the range of 2 to 5 ppm. Boring logs are provided in Appendix C.

After completion of the second boring, the Vermont SMS was contacted by ABB-ES to advise the State of these results and to request that groundwater monitoring wells not be installed at that time and that an additional soil boring not be completed based on the field PID screening results. In consideration of this request, the SMS requested that Simpson Paper Company submit a sample collected at or near the watertable for laboratory analysis for the presence of BTEX. One soil sample was collected at the top of the water table from each boring and submitted for analysis of BTEX. The results of these analyses are provided in Table 2. Laboratory reports are also provided in Appendix D. Toluene and xylenes were detected at 1.1 $\mu\text{g}/\text{kg}$ and 7.0 $\mu\text{g}/\text{kg}$ respectively in soils at the water table (29-30 feet bgs) from the source area boring T7 SB-1. These values correspond to a PID measurement of 27 ppm and a TPH value of 730 milligrams per kilogram (mg/kg). BTEX was not detected in the water table soil sample (29-31 feet bgs) collected from the second boring (T7 SB-2) located eighteen feet down gradient from T7 SB-1. This non-detect result corresponds to a field PID screening value of 2.5 ppm and a TPH value of 51 mg/kg.

The detected concentrations of BTEX compounds and TPH values at the water table do not indicate potential for a significant source of contaminants to groundwater at this site. The TPH value of 730 mg/kg at the watertable in the source area boring, in contrast to the low PID and BTEX values (e.g., volatile compounds), likely indicate the presence of semi-volatile organic compounds (SVOCs), that typically have low solubilities.

4.2.3 Tank No. 1 Site

Four soil borings and three groundwater monitoring wells were completed at the No. 1 Gasoline site. The location of these explorations are shown in Figure 5. Boring logs are provided in Appendix C. Figure 5 also identifies the approximate location of a number of surface, subsurface, and overhead obstructions which affected the placement of explorations during the progress of the investigation. These obstructions include an overhead power and telephone line in the vicinity of the fuel dispenser, numerous high tension power lines located immediately south of the former UST area, railroad tracks and a subsurface storm sewer pipe system immediately to the east and south of the former UST area. To the northwest of the site, large trees and a building (not shown) are present. To the northeast, a liquified petroleum gas storage area is present. The area in which the investigation was conducted is an industrial setting and is covered with bituminous asphalt pavement.

The general stratigraphy identified by these explorations includes a section of coarsely stratified sands and gravel (outwash) from the ground surface to a depth of approximately 12 feet. The basal portion of these outwash deposits is a one to two foot thick zone of coarse sands and gravel with abundant cobbles and boulders. These deposits lie on a dense silty till which also contains a boulder / cobble zone at a depth of about 4 feet below the outwash / till contact. Groundwater occurs within both boulder and cobble zones above and below the till contact and likely exists under perched conditions.

PID screening results for Tank No. 1 site borings are provided in Table 3, and laboratory analytical results are presented in Table 4. Laboratory reports are also provided in Appendix C. Boring T1 SB-1 was completed approximately 8 feet from the fuel dispenser in the direction toward the former UST in an area where soil staining was observed along a buried pipe at the time of the tank

removal. This boring investigated potential contamination to a depth of 26 feet bgs between the former UST and the dispenser. The maximum PID measurement was 12 ppm at 15 feet bgs. PID screening measurements of 2 to 3 ppm were recorded from soils above and below the watertable (approximately 17 feet bgs). Laboratory analysis of TPH from this interval was less than the Practical Quantitation Limit (PQL) of 25 mg/kg. The second boring, T1 SB-2, was drilled approximately twenty feet to the southwest. PID measurements were zero at depths greater than 10 feet bgs. A TPH value of 29 mg/kg, which is just above the sample PQL of 25 mg/kg, was reported from sample T1-SB2 collected at a depth of 11-12 feet bgs. The third soil boring (T1 SB-3) was completed as close as possible to the former dispenser. This boring encountered the vertical profile of fuel contamination associated with the leaky fuel dispenser. A split spoon soil sample was collected from 10-12 feet bgs at the water table and submitted for analysis of BTEX and TPH. PID headspace screening of this sample interval measured values greater than 2,000 ppm. BTEX compounds detected include toluene (46,000 $\mu\text{g}/\text{kg}$), ethylbenzene (2,0000 $\mu\text{g}/\text{kg}$) and xylenes (100,000 $\mu\text{g}/\text{kg}$). The TPH result was 140 mg/kg. A second TPH sample was collected at a depth of 16-18 feet in the boulder / cobble zone in the till. The headspace PID screening measurement for this interval was 94 ppm; the TPH value was 35 mg/kg. The fourth and last soil boring was drilled southeast of T1 SB-3 and completed the delineation of the distribution of soil contamination. PID measurements from this boring ranged from 3 to 11 ppm from the ground surface to a depth of 10 feet and non-detect (0 ppm) from 10 feet to 17 feet bgs. A PID reading of 94 ppm was measured in the 17 to 19 interval feet bgs in the till. TPH analysis from this interval was less than the sample PQL of 25 mg/kg.

Vadose zone soil contamination at the gasoline UST site appears to be restricted to a small area immediately underlying the fuel dispenser. Groundwater encountered above the till may exist under perched conditions. Evidence of free product or LNAPL on the water table or a smear zone in soil associated a former LNAPL phase was not encountered although migration of gasoline to the watertable is apparent. The migration pathways identified include vertical migration to the basal cobble and boulder zone within the outwash deposits with potential lateral migration on top of perched water on top of the till contact and subsequent vertical percolation to the cobble zone contained within the upper portion of the till.

4.3 Groundwater Investigations

One up gradient and two downgradient groundwater monitoring wells were installed at the Tank No. 1 site to investigate impacts to site groundwater. These locations are identified in Figure 5. Down gradient well locations were selected that would most likely intercept groundwater passing through the source area and also be secure from damage from heavy vehicle and train traffic. The heavily industrialized setting of the area limited the possible locations of the groundwater wells. The source area soil borings indicated that groundwater was present in the coarse cobble and boulder zones and that groundwater may occur under perched conditions. Although the suspected occurrence of perched groundwater conditions was not confirmed by installation of well pairs, (which would be required to demonstrate a separation of groundwater tables), the presence of perched conditions is supported from observations made during the advancement of several borings and monitoring wells. These observations include: 1) the presence of dry soil zones in the till at depths below which groundwater was first encountered and 2) the occurrence of groundwater in association with the more transmissive cobble/boulder zones which are underlain by dense, silty till. Groundwater recharge is limited by a laterally extensive area of asphalt pavement which covers the area uphill and down hill (upgradient and downgradient) from the site. To complicate potential groundwater recharge conditions, the storm sewer which transects the site diverts a surface water stream underneath the pavement through the site. The culvert pipe is potentially constructed with an open bottom channel and gravel floor in older portions of the system. The culvert pipe passes between the upgradient and down gradient wells.

The wells were constructed from schedule 40 PVC with a No. 10 slotted screen, ten feet in length, installed across both of the water bearing zones located above and below the outwash /till contact. Following installation of the wells, the wells were developed by surging. Well installation diagrams are provided in Appendix E. A cross section through the site from the upgradient to the downgradient wells is provided in Figure 6. This cross section depicts the source areas and a conceptual model of the migration pathways in relationship to the monitoring points within overburden groundwater at the site.

Prior to demobilizing from the site, water level measurements were taken and groundwater samples were collected for laboratory analysis for BTEX and MTBE by EPA Method 602/8020. Groundwater sampling procedures are described in Appendix F. Groundwater elevation data is

presented in Figure 7. Groundwater analytical results are presented in Table 5 and in Figure 8. The sample collected from the upgradient well MW-1 was below PQLs for all analytes. Analysis of groundwater from MW-2, which is the closest of the two downgradient monitoring wells, had the greater number of analytes detected and at slightly higher concentration than the other downgradient well MW-3. In MW-2 benzene was detected at 0.51 $\mu\text{g/L}$, toluene at 9.5 $\mu\text{g/L}$, xylenes at 3.3 $\mu\text{g/L}$ and MTBE at 1.5 $\mu\text{g/L}$. Toluene was detected in MW-3 at a concentration of 3.2 $\mu\text{g/L}$. All analytes detected in groundwater are below Vermont guidance for action levels for hydrocarbon contaminated groundwater and Federal Safe Drinking Water Act (SDWA) Maximum Contaminant Levels (MCLs).

Because of the perched nature of the groundwater system, it is not possible to conclude with certainty concerning the direction of groundwater flow and gradients within the overburden. Topographically, MW-1, which shows no groundwater impacts, is the upgradient well at the site. However, water level measurements taken at the time of well sampling are at a higher relative elevation in MW-3 which has groundwater impacts. Based on these measurements, MW-2 is down gradient of both MW-1 and MW-3. Perched conditions, combined with potential recharge from the storm sewer to MW-3 may complicate and obscure the true direction of groundwater flow.

5.0 Summary and Recommendations

The following discussion summarizes the findings of the investigations at the Tank No. 7 site and the Tank No. 1 site and provides recommendations with regard to the need for further actions at both sites.

5.1 Tank No. 7 Site

Contamination of soils with petroleum hydrocarbons at the former diesel UST site is limited to the immediate area beneath the point source of leakage and does appear to have contributed to development of a free product phase at the groundwater surface. TPH values at the water table (730 mg/kg) in the source area boring are less than Vermont DEC action level guidance of 1,000 ppm for TPH at diesel fuel sites. BTEX compounds detected include toluene (1 $\mu\text{g/kg}$) and xylenes (7 $\mu\text{g/kg}$). The guidance action level for these compounds in soil is a value twenty times

the Vermont DEC compound specific groundwater enforcement standard. The concentrations of the toluene and xylenes in soil are two to three order of magnitude below the Vermont DEC groundwater enforcement standards. Therefore, the petroleum hydrocarbons in the soil are not expected to act as a source of groundwater contamination that would contribute to contamination levels in excess of Vermont DEC groundwater enforcement standards or Federal MCLs. The site is not in proximity to any downgradient users of groundwater.

Based on these considerations it is recommended that no further actions be taken at this site and this site not proceed to a corrective action.

5.2 Tank No. 1 Site

Contamination of soils by petroleum hydrocarbons at the former gasoline UST site is limited to an area beneath the point source of leakage. Although evidence of free product at the water table was not observed, impacts to groundwater have occurred. Soil concentrations of BTEX compounds exceed 20 times the groundwater enforcement standards for toluene and xylenes. Benzene and MTBE could not be quantified to lower detection limits because of the dilution factors required to quantify other BTEX compounds. It is likely that benzene and possibly MTBE would also exceed this criteria. Groundwater quality down gradient from the site does not exceed MCLs or action levels of the Vermont DEC groundwater enforcement standards.

Shallow overburden groundwater conditions at the site may be perched and complicated by restricted recharge caused by the asphalt paving and the presence line source for recharge under the pavement (e.g., storm sewer). There are no groundwater users immediately down gradient from the site and it is likely that shallow groundwater flows and discharges to the Connecticut River. The spill area is not paved and will be susceptible to infiltration of surface water runoff during rain and snow melt events. Continued leaching of the more soluble components of the fuel to groundwater is expected to occur.

Based on these considerations it is recommended that the source area of contaminated soils be removed and that quarterly groundwater monitoring continue for a minimum of one year to better quantify groundwater fluctuations and the concentration of BTEX and MTBE during seasonal high and low groundwater conditions. At the end of a one year period the monitoring results

should be evaluated with regard to the need to continue site monitoring activities. Source area removal should include excavation of soils to approximately four feet below the overburden / till contact in the immediate vicinity of the spill. The limits of excavation should be identified by field screening of samples with a PID and collection of sidewall soil samples for confirmation by laboratory analysis of BTEX and TPH. The volume of soils is expected to be small (e.g., less than 100 cubic yards). The soils could be stock piled on site, and encapsulated in polyethylene sheeting until volatile organic compounds (VOCs) decrease to non detectable or other acceptable levels.

REFERENCES

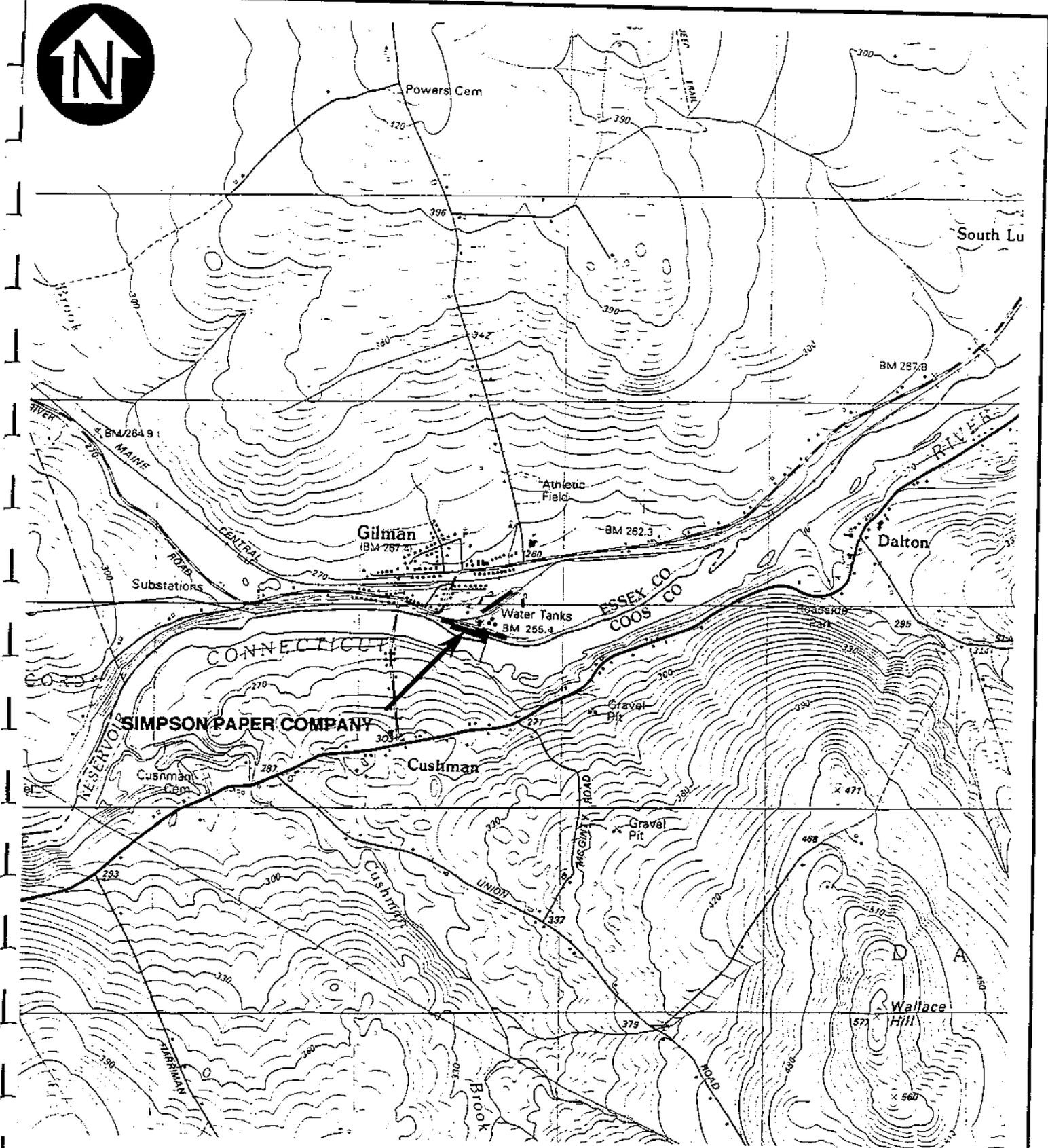
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Centennial Mill. February, 1994

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Published by the Vermont Geological Survey, Montpelier, Vermont

Appendix A
Figures

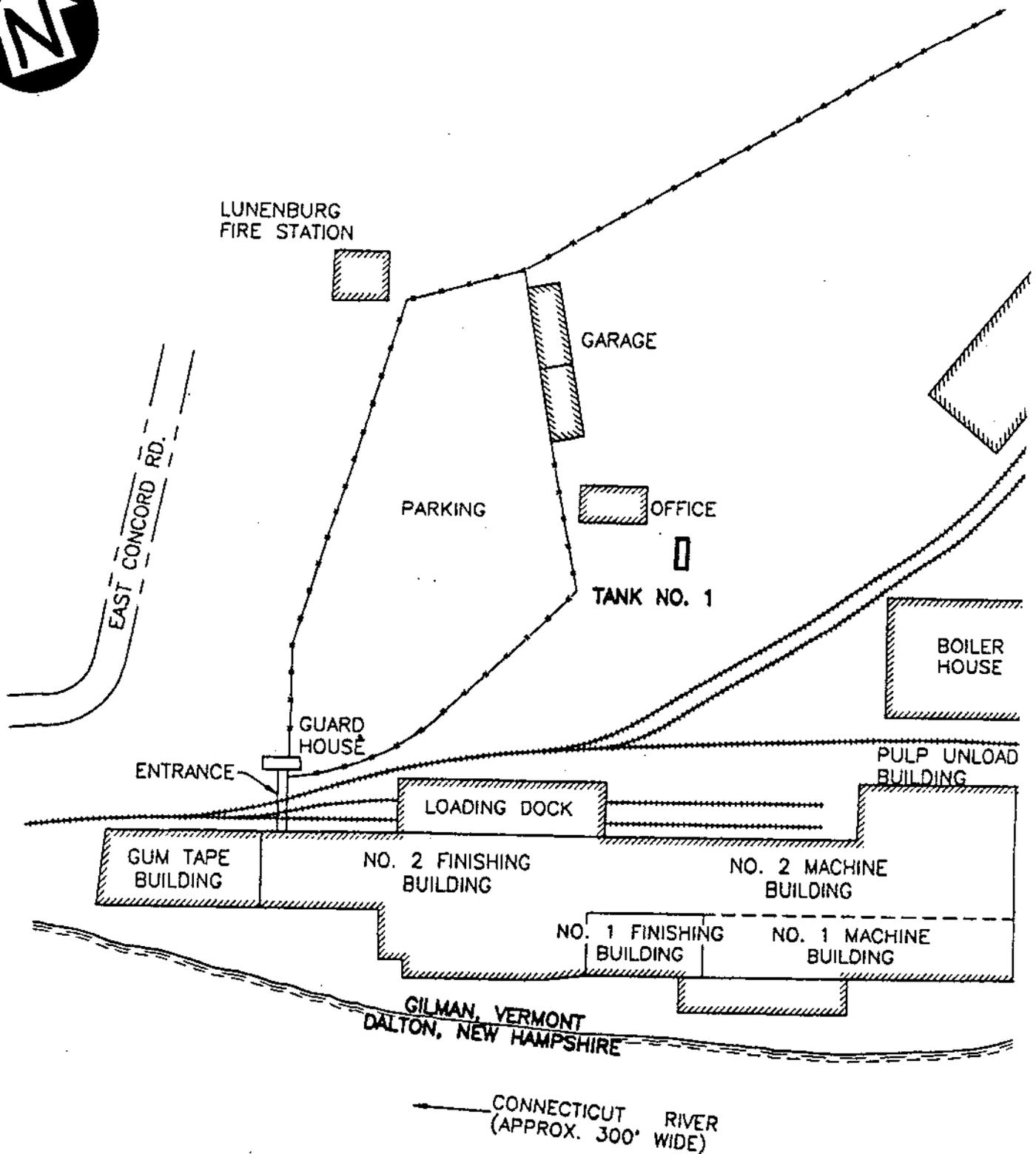


SCALE : 1CM = 250 Meters

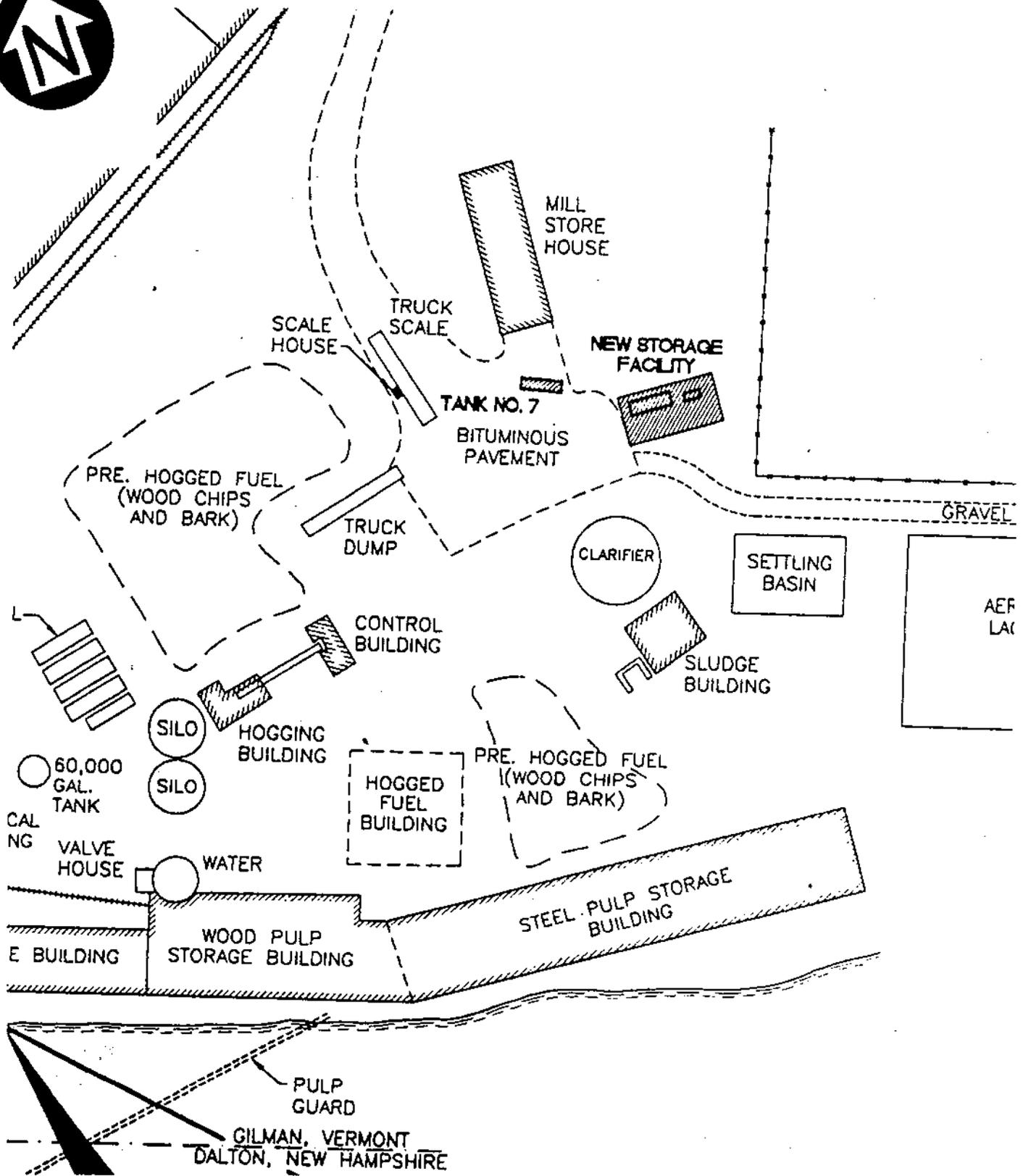
Source: 1:25,000 - Scale metric topographic map of Lancaster New Hampshire - Vermont Quadrangle (7.5 x 15 Minute Quad) 1982

Note : Elevation Data is in meters

PROJ. PRELIMINARY SITE INVESTIGATION		TITLE FIGURE 1	
CLIENT SIMPSON PAPER COMPANY GILMAN, VERMONT		LOCATION OF SIMPSON PAPER COMPANY CENTENNIAL MILL GILMAN, VERMONT	
 ABB Environmental Services Inc.	PROJ. NO. 7323.00	REV. A	
	DWG. NO.		



PROJ. PRELIMINARY SITE INVESTIGATION		TITLE FIGURE 2	
CLIENT SIMPSON PAPER COMPANY GILMAN, VERMONT		LOCATION OF THE TANK NO. 1 SITE (FORMER GASOLINE UST)	
	PROJ. NO. 7323-00		REV. A
	DWG. NO.		



PROJ. PRELIMINARY SITE INVESTIGATION		TITLE FIGURE 3	
CLIENT SIMPSON PAPER COMPANY GILMAN, VERMONT		LOCATION OF THE TANK NO. 7 SITE (FORMER DIESEL UST)	
ABB Environmental Services Inc.	PROJ. NO. 7323-00	REV. A	
	DWG. NO.		



TRUCK SCALE



EDGE OF PAVEMENT



MILL STORE HOUSE

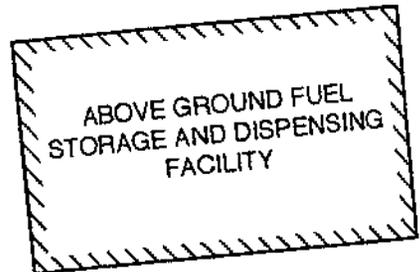
TBM P.K. NAIL
ELEV. 867.75'

FORMER UST

FORMER DISPENSER

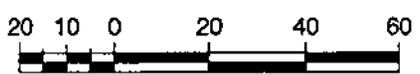
SB-1

SB-2

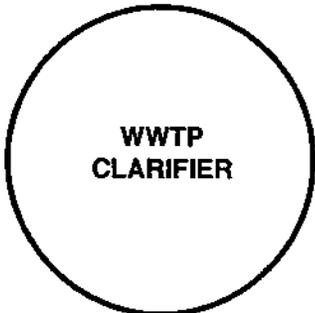


ABOVE GROUND FUEL
STORAGE AND DISPENSING
FACILITY

WOOD CHIP STORAGE AREA
FOR HOG FUEL BOILERS



SCALE IN FEET
1 Inch = 40 feet



WWTP
CLARIFIER



SETTLING BASIN

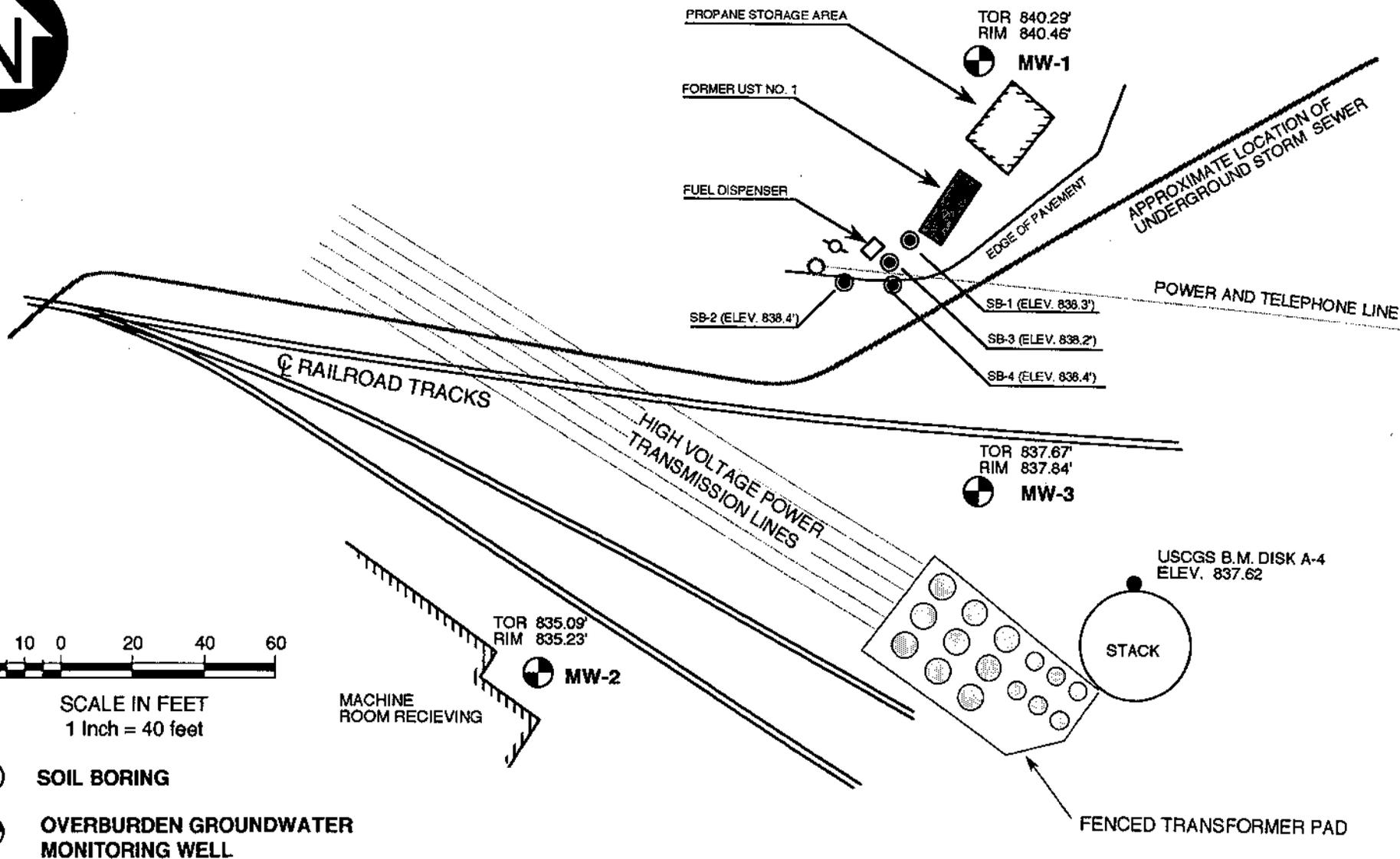


SLUDGE BUILDING

SOIL BORING

GROUND SURVEY OF SOIL BORING LOCATIONS CONDUCTED ON 7-20-94 BY
CARTOGRAPHIC ASSOCIATES, INC, 12 PLEASANT STREET, P.O. BOX 267
LITTLETON, N.H. (SEE APPENDIX A) OTHER SITE FEATURES ARE
APPROXIMATELY LOCATED FROM PRE-EXISTING SITE PLANS INCLUDING SITE
SURVEYS CONDUCTED BY ABB-ES, MAY 1994 FOR DESIGN OF ABOVE GROUND
FUEL STORAGE FACILITY.

PROJ. PRELIMINARY SITE INVESTIGATION		TITLE FIGURE 4	
CLIENT SIMPSON PAPER COMPANY GILMAN, VERMONT		LOCATION OF EXPLORATIONS AT THE TANK NO.7 SITE	
 ABB Environmental Services Inc.	PROJ. NO. 7323.00	REV. A	
	DWG. NO. 7323.00. 04		



- SOIL BORING
- OVERBURDEN GROUNDWATER MONITORING WELL

PROJ. PRELIMINARY SITE INVESTIGATION		TITLE FIGURE 5	
CLIENT SIMPSON PAPER COMPANY GILMAN, VERMONT		LOCATION OF EXPLORATIONS AT THE TANK NO. 1 SITE	
ABB Environmental Services Inc.	PROJ. NO. 7323.00	REV. A	
	DWG. NO. 7323.00. 03		

GROUND SURVEY OF SOIL BORING LOCATIONS CONDUCTED ON 7-20-94 BY CARTOGRAPHIC ASSOCIATES, INC. 12 PLEASANT STREET, P.O. BOX 267 LITTLETON, N.H. (SEE APPENDIX A) ADDITIONAL SITE FEATURES INCLUDING TRANSFORMER AND UNDERGROUND SEWER PIPES LOCATED APPROXIMATELY FROM FACILITY PLANS PROVIDED BY SIMPSON PAPER CO; REV 7/1991

MW-1

T1 SB-3 Projected Location

MW-3

MW-2

PID
READINGS

569 ppm

517 ppm

845 ppm

>2000 ppm

>2000 ppm

>2000 ppm

No
Recovery

50 ppm

Wet

Wet

Dry

Moist

Dry

L
E
G
E
N
D



Red/Brown, Loose, Coarse to Medium Sands and Gravel (Outwash Deposits)



Grey, Hard, Silty Sand with gravel (Till)



Zones With Cobbles and Boulders



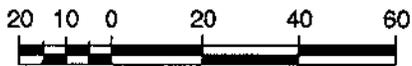
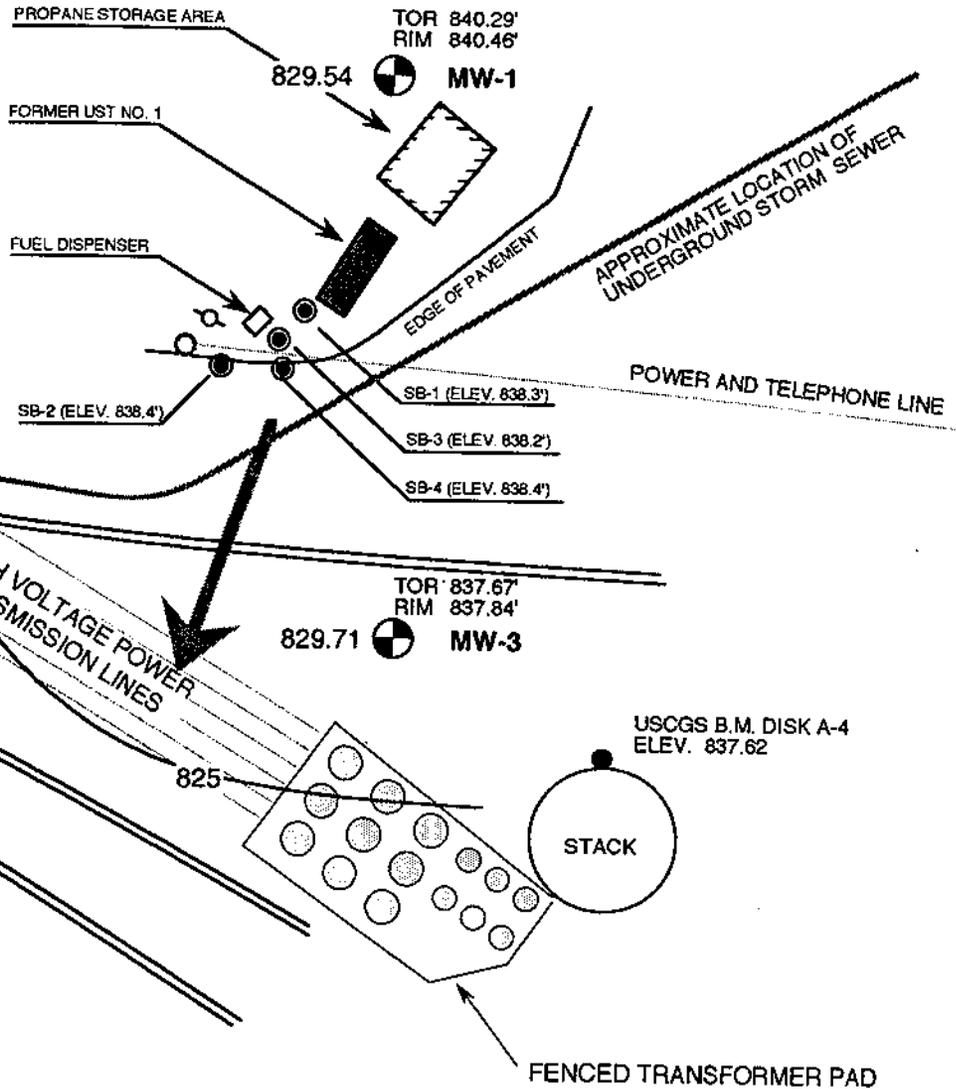
HORIZONTAL SCALE IN FEET
1 inch = 40 feet

SCALE : 1V = 8 H

VERTICAL SCALE 1 inch = 5 feet

GROUND SURVEY OF SOIL BORING LOCATIONS CONDUCTED ON 7-20-94 BY
CARTOGRAPHIC ASSOCIATES, INC. 12 PLEASANT STREET, P.O. BOX 267
LITTLETON, N.H. (SEE APPENDIX A)

PROJ. PRELIMINARY SITE INVESTIGATION	TITLE FIGURE 6	
CLIENT SIMPSON PAPER COMPANY GILMAN, VERMONT	GEOLOGIC SECTION THROUGH GROUNDWATER MONITORING WELL NETWORK AT TANK NO. 1 SITE	
ABB Environmental Services Inc.	PROJ. NO. 7323.00	REV. A
	DWG. NO. 7323.00. 06	



SCALE IN FEET
1 Inch = 40 feet

SOIL BORING

OVERBURDEN GROUNDWATER MONITORING WELL WITH GROUNDWATER ELEVATION

INTERPRETED DIRECTION OF OVERBURDEN GROUNDWATER FLOW

INTERPRETED OVERBURDEN GROUNDWATER CONTOUR

GROUND SURVEY OF SOIL BORING LOCATIONS CONDUCTED ON 7-20-94 BY CARTOGRAPHIC ASSOCIATES, INC, 12 PLEASANT STREET, P.O. BOX 267 LITTLETON, N.H. (SEE APPENDIX A) ADDITIONAL SITE FEATURES INCLUDING TRANSFORMER AND UNDERGROUND SEWER PIPES LOCATED APPROXIMATELY FROM FACILITY PLANS PROVIDED BY SIMPSON PAPER CO; REV 7/1991



ABB Environmental Services Inc.

PROJ. NO. 7323.00

REV. A



RESULTS OF LABORATORY ANALYSIS
FOR GROUNDWATER SAMPLES
JUNE 29, 1994

Monitoring Well	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
MW-1	ND	ND	ND	ND	ND
MW-2	0.51 µg/L	9.5 µg/L	ND	3.3 µg/L	1.5 µg/L
MW-3	ND	3.2 µg/L	ND	ND	ND

ND : Not detected (please refer to Table 3 for sample specific quantitation levels and results of QA/QC samples)

PROPANE STORAGE AREA

TOR 840.29'
RIM 840.46'

MW-1

FORMER UST NO. 1

FUEL DISPENSER

EDGE OF PAVEMENT

APPROXIMATE LOCATION OF UNDERGROUND STORM SEWER

POWER AND TELEPHONE LINE

SB-2 (ELEV. 838.4')

SB-1 (ELEV. 838.3')

SB-3 (ELEV. 838.2')

SB-4 (ELEV. 838.4')

9 µg/L

TOR 837.67'
RIM 837.84'

MW-3

USCGS B.M. DISK A-4
ELEV. 837.62

STACK

FENCED TRANSFORMER PAD

RAILROAD TRACKS

HIGH VOLTAGE POWER TRANSMISSION LINES

TOR 835.09'
RIM 835.23'

MW-2

MACHINE ROOM RECEIVING

3 µg/L



SCALE IN FEET
1 Inch = 40 feet

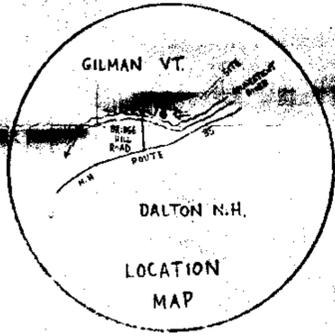
SOIL BORING

OVERBURDEN GROUNDWATER MONITORING WELL

INTERPRETED TOLUENE CONCENTRATION ISOPLETHS

GROUND SURVEY OF SOIL BORING LOCATIONS CONDUCTED ON 7-20-94 BY CARTOGRAPHIC ASSOCIATES, INC, 12 PLEASANT STREET, P.O. BOX 267 LITTLETON, N.H. (SEE APPENDIX A) ADDITIONAL SITE FEATURES INCLUDING TRANSFORMER AND UNDERGROUND SEWER PIPES LOCATED APPROXIMATELY FROM FACILITY PLANS PROVIDED BY SIMPSON PAPER CO.; REV 7/1991

PROJ. PRELIMINARY SITE INVESTIGATION	TITLE FIGURE 8	
CLIENT SIMPSON PAPER COMPANY GILMAN, VERMONT	GROUNDWATER ANALYTICAL DATA TANK NO. 1 SITE	
ABB Environmental Services Inc.	PROJ. NO. 7323.00	REV. A
	DWG. NO.	



1 U.S.T.
GASOLINE

7 U.S.T.
DIESEL

M.W. 1
RIM 840.40
TOP 2" P.V.C. 840.24

S.B. 1
ELEV. 836.3'

S.B. 3
ELEV. 838.2'

S.B. 4
ELEV. 838.4'

M.W. 3
RIM 831.04
TOP 2" P.V.C. 830.01

M.W. 2
RIM 835.23
TOP 2" P.V.C. 835.14

U.S.C.P.S. B.M. DISK A-4
ELEV. 837.62'

MACHINE ROOM RECEIVING

WOOD CHIP STORAGE AREA

CONCRETE CLARIFIER TANK

T.B.M. 24-241
ELEV. 847.75'

S.B. ELEV. 845.4'

S.B. ELEV. 845.1'

CERTIFICATION
THIS SURVEY WAS MADE ON THE GROUND AND REPRESENTS THE EXISTING CONDITIONS OF THE PARCEL AND IS VALID ONLY TO THE PLAN DATE AS SHOWN HEREON. THIS SURVEY WAS PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION.

NOTES
VERTICAL DATUM: N.G.V.D. 1988
THE PURPOSE OF THIS WORKSHEET PLAN IS TO DEPICT LOCATIONS AND ELEVATIONS OF SOIL BORINGS AND MONITORING WELLS LOCATED ON JULY 20, 1994 AND SHOWN HEREON.
SURVEY PERFORMED BY THEODOLITE / E.D. METHODS.

LEGEND
 ○ MONITORING WELL
 ○ MONUMENT FOUND
 ○ MONUMENT SET
 △ CALCULATED POINT
 ○ DECIDUOUS TREE
 * CONIFEROUS TREE
 * SOIL BORING
 ——— EDGE OF P.W.M.T.
 ○○○○○○○ STONEWALL
 — X — FENCE LINE
 - - - - - TRAIL
 831.7 SPOT ELEVATION
 ⚡ UTILITY POLE

CARTOGRAPHIC ASSOC. INC.
 PROFESSIONAL CONSULTANTS
 MUNICIPAL MAPPING - GIS - LAND SURVEYING
 12 PLEASANT STREET, P.O. BOX 287, LITTLETON, NEW HAMPSHIRE 03561
 (603)444-8768 - 1(800)322-4540 - FAX (603)444-1368

SCALE: 1" = 40'
 40 20 0 20 40 80
 SURVEY DATE: 7/20/94
 PLAN DATE: 7/21/94
 JOB FILE: W94045
 PROJECT No.: 94-045
 DRAWN: J.M.B.
 TRACED: J.M.B.
 CHECKED: M.V.M.
 APPROVED: D.A.G.

SIMPSON PAPER COMPANY
 MONITORING WELL & SOIL BORING SURVEY
 GILMAN, VERMONT

WORKSHEET DATING

Appendix B
Tables

TABLE 1
 SUMMARY OF PID HEADSPACE SCREENING DATA
 TANK NO. 7 SITE
 SIMPSON PAPER COMPANY - CENTENNIAL MILL
 GILMAN, VERMONT

SITE NUMBER 93-1542

SAMPLE DEPTH T7 SB-1 (ft bgs)	PID (ppm)
12-14	32
14-16	34
16-18	26
18-20	48
20-20.4	10
22-24	46
24-26	18
26-28	27
29	18
30	14
33	5
35	8
36	2

SAMPLE DEPTH T7 SB-2 (ft bgs)	PID (ppm)
3-4	3
4-5	5
5-6	5
6-7	4
7-8	3
8-9	3
9-10	3
12	4
14	2
16	3.5
20-22	2
23	3
28	2
29	3
30	3

TABLE 2
SUMMARY OF ANALYTICAL RESULTS FOR SOILS
TANK NO. 7 SITE
SIMPSON PAPER COMPANY - CENTENNIAL MILL
GILMAN, VERMONT

SITE NUMBER 93-1542

Sample ID / Depth	Matrix	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	TPH
T7-SB1 / 29'-30'	SOIL	<0.6 µg/kg	1.1 µg/kg	< 1.1 µg/kg	7.0 µg/kg	< 0.6 µg/kg	730 mg/kg
T7-SB2 / 29'-31'	SOIL	<0.6 µg/kg	< 1.1 µg/kg	< 1.1 µg/kg	< 1.7 µg/kg	< 0.6 µg/kg	51 mg/kg

Notes:

- 1) Purgeable Aromatics (BTEX) and MTBE by EPA Method 602/8020. TPH by EPA Method 9071/418.1
- 2) PQL (Practical Quantitation Level) represents laboratory reporting limits and may not represent sample specific limits.
- 3) Sample-specific limits are indicated by results annotated with "<" values
- 4) µg/kg = micrograms per kilogram
- 5) NA = Not analyzed

TABLE 3
 SUMMARY OF PID HEADSPACE SCREENING DATA
 TANK NO. 1 SITE
 SIMPSON PAPER COMPANY - CENTENNIAL MILL
 GILMAN, VERMONT

SITE NUMBER 93-1542

SAMPLE DEPTH T1 SB-1 (ft bgs)	PID (ppm)
6-10	3
10-11	2
11-12	5
13	6
14-15	8
15	12
16	4
16-17	3
18-19	3
19-20	3
22	2
24	2
25	2
25-26	3

SAMPLE DEPTH T1 SB-2 (ft bgs)	PID (ppm)
6	1
6-7	14
7-8	7
8-9	7
9	2
10	1
12-13.5	0
15	0
16	0
16-18	0
19-20	0

SAMPLE DEPTH T1 SB-3 (ft bgs)	PID (ppm)
5-6	569
6-7	517
7-8	845
8-9	>2000
9-10	>2000
10-12	>2000
16-18	50

SAMPLE DEPTH T1 SB-4 (ft bgs)	PID (ppm)
5	6
6	9
7	11
8	9
9-10	3
10-12	0
13	0
13-14.5	0
15-17	0
17-19	94

TABLE 4
SUMMARY OF ANALYTICAL RESULTS FOR SOILS
TANK NO. 1 SITE
SIMPSON PAPER COMPANY - CENTENNIAL MILL
GILMAN, VERMONT

SITE NUMBER 93-1542

Sample ID / Depth	Matrix	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	TPH
T1-SB1 / 14'-16'	SOIL	NA	NA	NA	NA	NA	<25 mg/kg
T1-SB2 / 11'-12'	SOIL	NA	NA	NA	NA	NA	29 mg/kg
T1-SB3 / 10'-12'	SOIL	<700 $\mu\text{g}/\text{kg}$	46000 $\mu\text{g}/\text{kg}$	2000 $\mu\text{g}/\text{kg}$	100000 $\mu\text{g}/\text{kg}$	<700 $\mu\text{g}/\text{kg}$	140 mg/kg
T1-SB3A / 16'-18'	SOIL	NA	NA	NA	NA	NA	35 mg/kg
T1-SB4 / 17'-19'	SOIL	NA	NA	NA	NA	NA	<25 mg/kg
PQL	SOIL	0.50 $\mu\text{g}/\text{kg}$	1.0 $\mu\text{g}/\text{kg}$	1.0 $\mu\text{g}/\text{kg}$	1.5 $\mu\text{g}/\text{kg}$	0.50 $\mu\text{g}/\text{kg}$	25 mg/kg

Notes:

- 1) Purgeable Aromatics (BTEX) and MTBE by EPA Method 602/8020. TPH by EPA Method 9071/418.1
- 2) PQL (Practical Quantitation Level) represents laboratory reporting limits and may not represent sample specific limits.
- 3) Sample-specific limits are indicated by results annotated with "<" values
- 4) Sample Dilution required for quantitation of one or more target analytes for T1-SB (BTEX / MTBE): therefore standard laboratory PQL could not be achieved
- 5) $\mu\text{g}/\text{kg}$ = micrograms per kilogram
- 6) NA = Not analyzed

TABLE 5
SUMMARY OF ANALYTICAL RESULTS FOR GROUNDWATER
TANK NO. 1 SITE
SIMPSON PAPER COMPANY - CENTENNIAL MILL
GILMAN, VERMONT

SITE NUMBER 93-1542

Sample ID	Matrix	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	TPH
MW-1	AQUEOUS	<0.50 µg/L	<1.0 µg/L	<1.0 µg/L	<1.5 µg/L	<0.50 µg/L	NA
MW-2	AQUEOUS	0.51 µg/L	9.5 µg/L	<1.0 µg/L	3.3 µg/L	1.5 µg/L	NA
MW-3	AQUEOUS	<0.50 µg/L	3.2 µg/L	<1.0 µg/L	<1.5 µg/L	<0.50 µg/L	NA
SB-1	AQUEOUS	<0.50 µg/L	<1.0 µg/L	<1.0 µg/L	<1.5 µg/L	<0.50 µg/L	NA
TB-1	AQUEOUS	<0.50 µg/L	<1.0 µg/L	<1.0 µg/L	<1.5 µg/L	<0.50 µg/L	NA
PQL	AQUEOUS	0.50 µg/L	1.0 µg/L	1.0 µg/L	1.5 µg/L	0.50 µg/L	NA

Notes:

- 1) Purgeable Aromatics (BTEX) and MTBE by EPA Method 602/8020
- 2) PQL (Practical Quantitation Level) represents laboratory reporting limits and may not represent sample specific limits.
- 3) Sample-specific limits are indicated by results annotated with "<" values
- 4) µg/L = micrograms per liter
- 5) NA = Not analyzed

QA/QC Samples

SB-1 = sampler blank taken after sampling of MW-3

TB-1 = trip blank

Appendix C
Soil Boring Logs

SOIL BORING LOG

Study Area: Tank 7

Boring No.: SB-1

Client: Simpson Paper

Project No. 7323-00

Protection: D

Contractor: Tri-State

Date Started: 6/22/94

Completed: 6/22/94

Method: Odey

Casing Size:

PI Meter: TE-3

Ground Elev.:

Soil Drilled: 36'

Total Depth: 36'

Logged by: S. Secovch

Checked by: P. Thompson PWT

Below Ground: ~ 28' bgs

Screen: - (ft.)

Riser: - (ft.)

Diam: - (ID)

Material: -

Page 1 of 2

DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	CLP/SCREENING	RECOVERY	PID (ppm)	SOIL/ROCK DESCRIPTION	SOIL CLASS	BLOWS/8-IN.	WELL DATA	LITHOLOGY	ELEVATION (FT.)
0-10'						Brown to tan, fine to c/s sand and gravel well graded, dry. Drilling is very fast, and easy, with very little recovery from cyclone, losing air into the soil.					
10'					0	No sample collected					
12'					-	Brown sand, med to c/s some gravel, dry.					
14'					32	Brown to dark brown, sand, med to c/s little gravel, dry	T. II				
16'					34	slight hydric color AS Above	T. II				
18'					26	Brown sand, f. to c/s, some f. to c/s gravel, well graded	T. II				
20'					47	(Drilling with water)	T. II				

PROPORTIONS

(-) AMOUNT (+)

ABBREVIATIONS

Trace (tr) 0-10%
 Little (ll) 10-20%
 Some (so) 20-35%
 and 35-50%

f = fine gr = gray
 m = medium bn = brown
 c = coarse blk = black

MS = Split Spoon
 BW = Screened Auger
 HP = Hydropunch

SOIL BORING LOG

Study Area: Tank 7

Boring No.: 5B-1

Client: Simpson Paper

Project No. 7323-60

Protection: D

Contractor: Tr.-State

Date Started: 6/22/94

Completed: 6/22/94

Method: Odex

Casing Size:

PI Meter: TE-3

Ground Elev.:

Soil Drilled: 36'

Total Depth: 36'

Logged by: S. Secovich

Checked by: PAK

Below Ground: ~28' bgs

Screen: - (ft.)

Riser: - (ft.)

Diam: - (ID)

Material: -

Page 2 of: 2

DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	CLP/SCREENING	RECOVERY	PID (ppm)	SOIL/ROCK DESCRIPTION	SOIL CLASS	BLOWS/6-IN.	WELL DATA	LITHOLOGY	ELEVATION (FT.)
				1/04	10	Rock fragments					
22						Cobble zone					
						Dark brown gravel, med to crs. trace and rock fragments					
24					45	Cobble zone					
						Dark brown gravel, crs, with bits of rock fragment, hydrocarbon odor					
26					18	Cobbles/Till					
						Dark brown to gray rock fragments (50%) and gravel, med to crs (50%) damp					
28					27	Cobbles/Till					
						Dark brown to gray med to crs gravel and F to crs sand, well graded, trace rock fragments, slight odor (Till)					
30	17 5B-1		X		18	Brown sand, F. to med with large rock fragments, wet.					
				1/04							
32					4	Cobbles/Till					
						Dark brown sand, F to crs, well graded with some med gravel, wet					
34					5	Till					
						Gray, wet soupy, till, well graded sand and trace gravel.					
36					8	Till					
						BOB 36'					

PROPORTIONS

Trace (tr)
Little (ll)
Some (so)
and

(-) AMOUNT (+)

0-10%
10-20%
20-35%
35-50%

ABBREVIATIONS

f = fine gr = gray MS = Split Spoon
m = medium bn = brown BW = Screened Auger
c = coarse blk = black HP = Hydropunch

SOIL BORING LOG

Study Area: Tank 7

Boring No.: SB-2

Client: Simpson Paper

Project No. 7323-00

Protection: D

Contractor: Tri-State

Date Started: 6/23/94

Completed: 6/23/94

Method: Odex

Casing Size:

PI Meter: TE-3

Ground Elev.:

Soil Drilled: 32'

Total Depth: 32'

Logged by: S. Secovich

Checked by: PMS

Below Ground: ~30

Screen: — (ft.)

Riser: — (ft.)

Diam: — (ID)

Material: —

Page 2 of: 2

DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	CLIP/SCREENING	RECOVERY	PID (ppm)	SOIL/ROCK DESCRIPTION	SOIL CLASS	BLOWS/6-IN.	WELL DATA	LITHOLOGY	ELEVATION (FT.)
18					3	As above	T. II				
20					4	As above	T. II				
22			0.9 0.3		2	Gray gravel, med to c/s, 50% rock fragments 50% rock flour dry	T. II / Cobbles				
24					3	22-23' Gravel, grey, med to c/s dry 23' rock flour	T. II / Cobbles				
29					3	No recovery (rock flour)					
30					3	Gray, sand, F. to c/s, well graded, and med to c/s gravel, dry	T. II				
32					-	Gray, sand, F. to c/s, well graded, little c/s gravel, wet rock fragments	T. II				
						BOB 32'					

PROPORTIONS

(-) AMOUNT (+)

ABBREVIATIONS

Trace (tr) 0-10%
Little (ll) 10-20%
Some (so) 20-35%
and 35-50%

f = fine
m = medium
c = coarse

gr = gray
bn = brown
blk = black

MS = Split Spoon
BW = Screened Auger
HP = Hydropunch

SOIL BORING LOG

Study Area: *Tank 7*

Boring No.: *SB-2*

Client: *Simpson Paper*

Project No. *7323-00*

Protection: *D*

Contractor: *Tri-State*

Date Started: *6/23/94*

Completed: *6/23/94*

Method: *Odex*

Casing Size:

PI Meter: *TE-3*

Ground Elev.:

Soil Drilled: *32'*

Total Depth: *32*

Logged by: *S. Secovich*

Checked by: *Pat*

Below Ground: *~30*

Screen: - (ft.)

Riser: - (ft.)

Diam: - (ID)

Material: -

Page *1* of: *2*

DEPTH (FT.)	SAMPLE NUMBER	SAMPLE DEPTH	CLIP/SCREENING	RECOVERY	PID (ppm)	SOIL/ROCK DESCRIPTION	SOIL CLASS	BLOWS/6-IN.	WELL DATA	LITHOLOGY	ELEVATION (FT.)
0						No sample recovery					
3						Gray sand, f. to crs, well graded, med gravel, dry.					
4					3	Gray gravel, med to crs well graded, rock fragments, dry <i>Orange Fill</i>					
5					5	As above <i>Orange Fill</i>					
6					5	As above <i>Orange Fill</i>					
7					4	As above <i>Orange Fill</i>					
8					3	As above <i>Orange Fill</i>					
10					3	As above <i>Orange Fill</i>					
12					4	Brown sand, med to crs and gravel, med to crs, dry <i>Orange Fill</i>					
14					2	Gray sand, f. to crs, well graded and gravel, med to crs, dry <i>Till</i>					
16					4	Gray sand, f. to crs, well graded and gravel, med to crs, dry <i>Till</i>					

PROPORTIONS

(-) AMOUNT (+)

ABBREVIATIONS

Trace (tr) 0-10%
 Little (ll) 10-20%
 Some (so) 20-35%
 and 35-50%

f = fine gr = gray
 m = medium bn = brown
 c = coarse blk = black

MS = Split Spoon
 BW = Screened Auger
 HP = Hydropunch

SOIL BORING LOG

Study Area: Tank 1-

Boring No.: SB-1

Client: Simpson Paper

Project No. 7323-00

Protection: D

Contractor: Tri-State

Date Started: 6/21/94

Completed: 6/24/94

Method: Odex

Casing Size:

PI Meter:

Ground Elev.:

Soil Drilled: 76

Total Depth: 36

Logged by: S. Secovich

Checked by: PBT

Below Ground: 27

Screen: - (ft.)

Riser: - (ft.)

Diam: - (ID)

Material: -

Page 1 of 2

DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	CLP/SCREENING	RECOVERY	PI D (ppm)	SOIL/ROCK DESCRIPTION	SOIL CLASS	BLOWS/6-IN.	WELL DATA	LITHOLOGY	ELEVATION (FT.)
0						Drilling very easy no recovery from cyclone					
6					0	Drilling slightly more d.f.f.cult Dark br. sand f. to c/s well graded, and gravel, med to c/s, damp.					
10					2	Brown sand, f. to c/s, well graded, and gravel, med to c/s damp					
11					5	Brown sand, c/s and med to c/s gravel, damp					
12					5	Cobbles AS above PID 9.4 Breathing Zone					
14					8	Brown sand, med to c/s sand and med to c/s gravel, damp					
16					12	More D.f.f.cult drilling Dark brown to gray med to c/s sand, med to c/s gravel, damp, rock fragments					
17					2	Cobbles / Till					

PROPORTIONS

(-) AMOUNT (+)

ABBREVIATIONS

Trace (tr) 0-10%
 Little (li) 10-20%
 Some (so) 20-35%
 and 35-50%

f = fine gr = gray
 m = medium bn = brown
 c = coarse blk = black

MS = Split Spoon
 BW = Screened Auger
 HP = Hydropunch

SOIL BORING LOG

Client: <i>Simpson Paper</i>		Project No. <i>7323-00</i>		Study Area: <i>Tank 1</i>
Contractor: <i>Tri-State</i>		Date Started: <i>6/24/94</i>		Boring No.: <i>SB-1</i>
Method: <i>Odex</i>		Casing Size:		Protection: <i>D</i>
Ground Elev.:		Soil Drilled: <i>26</i>		Completed: <i>6/24/94</i>
Logged by: <i>S. Secovich</i>		Checked by: <i>PWT</i>		PI Meter:
Screen: - (ft.)		Riser: - (ft.)		Total Depth: <i>26</i>
Diam: - (ID)		Material: -		Below Ground: <i>~ 17'</i>
				Page <i>1</i> of:

DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	CLP/SCREENING	RECOVERY	PID (ppm)	SOIL/ROCK DESCRIPTION	SOIL CLASS	BLOWS/6-IN.	WELL DATA	LITHOLOGY	ELEVATION (FT.)
18					0	Sand, gray, F to CRS, well graded, CRS to med gravel, moist <i>cobbles / T. II</i>					
19					0	As above with more fines <i>cobbles / T. II</i>					
20					0	As above wet <i>cobbles / T. II</i>					
22					2	T. II Sand, gray, F to CRS, well graded, med gravel					
24					2	dry As above T. II					
26					3	T. II					

PROPORTIONS

Trace (tr)
Little (ll)
Some (so)
and

(-) AMOUNT (+)

0-10%
10-20%
20-35%
35-50%

ABBREVIATIONS

f = fine
m = medium
c = coarse
gr = gray
br = brown
blk = black

MS = Split Spoon
BW = Screened Auger
HP = Hydropunch

SOIL BORING LOG

Client: <i>Simpson Paper</i>			Project No. <i>7323-00</i>			Study Area: <i>Tank 1</i>		
Contractor: <i>Tri-State</i>			Date Started: <i>6/24/94</i>			Boring No.: <i>SB-2</i>		
Method: <i>Odex</i>			Casing Size:			Protection: <i>D</i>		
Ground Elev.:			Soil Drilled: <i>20</i>			Completed: <i>6/24/94</i>		
Logged by: <i>S. Secovich</i>			Checked by: <i>Pat</i>			PI Meter:		
Screen: — (ft.)			Riser: — (ft.)			Total Depth: <i>20'</i>		
Diam: — (ID)			Material: —			Below Ground: <i>~12.2</i>		
						Page <i>1</i> of <i>2</i>		

DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	CLP/SCREENING	RECOVERY	PID (ppm)	SOIL/ROCK DESCRIPTION	SOIL CLASS	BLOWS/6-IN.	WELL DATA	LITHOLOGY	ELEVATION (FT.)
6					1	No recovery from cyclone cutting blowing up around outside of bore hole Brown f. to crs sand, well graded, med grad, moist	OUTWASH FH				
8					14	As above cobbles at 8'	OUTWASH FH				
10					7	As above moist at 9'	OUTWASH FH				
11					1	As above moist	OUTWASH FH				
12	<i>SB-2</i>				0	Harder Drilling wet Brown f. to crs sand and gravel, well graded, med. rounded/clumped Till					
14					-	As above (wet at 12') 12-13.5 rock/cobbles 13.5-14 s.lty sand dry; Till Gray f. to crs sand and gravel, damp					
16					0	As above dry	Till				
18					0		Till				

PROPORTIONS
 Trace (tr) 0-10%
 Little (ll) 10-20%
 Some (so) 20-35%
 and 35-50%

(-) AMOUNT (+)
 (-) AMOUNT (+)
 (-) AMOUNT (+)
 (-) AMOUNT (+)

ABBREVIATIONS
 f = fine gr = gray MS = Split Spoon
 m = medium bn = brown BW = Screened Auger
 c = coarse blk = black HP = Hydropunch

SOIL BORING LOG

Client: <i>Simpson Paper</i>				Project No. <i>7323-00</i>		Study Area: <i>Tank 1</i>	
Contractor: <i>Tri-State</i>		Date Started: <i>6/21/94</i>		Protection: <i>D</i>		Boring No.: <i>SB-2</i>	
Method: <i>Odex</i>		Casing Size:		Completed: <i>6/21/94</i>		PI Meter:	
Ground Elev.:		Soil Drilled: <i>20'</i>		Total Depth: <i>20'</i>		Below Ground: <i>~12.2</i>	
Logged by: <i>S. Secovich</i>		Checked by:		Page <i>1</i> of: <i>2</i>			
Screen: — (ft.)	Riser: — (ft.)	Diam: — (ID)	Material: —				

DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	CLP/SCREENING	RECOVERY	PID (ppm)	SOIL/ROCK DESCRIPTION	SOIL CLASS	BLOWS/6-IN.	WELL DATA	LITHOLOGY	ELEVATION (FT.)
						<i>As above</i>					
<i>20</i>					<i>0</i>	<i>BOB 20 T. II</i>					

PROPORTIONS	(-) AMOUNT (+)	ABBREVIATIONS	
Trace (tr)	0-10%	f = fine	gr = gray
Little (ll)	10-20%	m = medium	bn = brown
Some (so)	20-35%	c = coarse	blk = black
and	35-50%	MS = Split Spoon	BW = Screened Auger
			HP = Hydropunch

SOIL BORING LOG

Study Area: *Tank 1*
 Boring No.: *SB3*

Client: <i>Simpson Paper</i>	Project No. <i>7323-00</i>	Protection: <i>D</i>
Contractor: <i>Tri-State</i>	Date Started: <i>6/27/94</i>	Completed: <i>6/27/94</i>
Method: <i>Odex</i>	Casing Size:	PI Meter: <i>TE-3</i>
Ground Elev.:	Soil Drilled: <i>18</i>	Total Depth: <i>18</i>
Logged by: <i>S. Secovich</i>	Checked by: <i>PH</i>	Below Ground: <i>~12</i>
Screen: — (ft.)	Riser: — (ft.)	Diam: — (ID)
Material: —		Page <i>1</i> of <i>2</i>

DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	CLP/SCREENING	RECOVERY	PID (ppm)	SOIL/ROCK DESCRIPTION	SOIL CLASS	BLOWS/6-IN.	WELL DATA	LITHOLOGY	ELEVATION (FT.)
						No recovery from cyclone					
5						Sand, dark brown, f. to c/s well graded, little med to c/s grul, damp, hydrocarbon odor					
6					569	As above					
7					517	Sand, dark brown, f. to c/s well graded, trace med and c/s grul, damp, strong hydrocarbon odor					
8					845	As above					
9					7200	Sand, dark brown, f. to c/s, well graded, damp strong hydrocarbon odor					
10					7200	Sand, brown, s. Hy fine sand matrix with large fragments of IX and med to c/s grul, wet, hydrocarbon odor (T.II)					
12					7200						
14						Cobbles					

PROPORTIONS	(-) AMOUNT (+)	ABBREVIATIONS	
Trace (tr)	0-10%	f = fine	gr = gray
Little (ll)	10-20%	m = medium	bn = brown
Some (so)	20-35%	c = coarse	blk = black
and	35-50%	MS = Split Spoon	BW = Screened Auger
			HP = Hydropunch

SOIL BORING LOG

Study Area: *Tank 1*

Boring No.: *SB-3*

Client: *Simpson Paper* Project No. *7323-00*

Protection: *D*

Contractor: *Tri-State* Date Started: *6/27/94*

Completed: *6/27/94*

Method: *Odex* Casing Size:

PI Meter: *TE-3*

Ground Elev.: Soil Drilled: *18*

Total Depth: *18*

Logged by: *S. Secovich* Checked by:

Below Ground: *n/a*

Screen: — (ft.) Riser: — (ft.) Diam: — (ID) Material: —

Page *1* of: *2*

DEPTH (FT.)	SAMPLE NUMBER	SAMPLE DEPTH	CLP/SCREENING	RECOVERY	PID (ppm)	SOIL/ROCK DESCRIPTION	SOIL CLASS	BLOWS/6-IN.	WELL DATA	LITHOLOGY	ELEVATION (FT.)
16						<i>Cobbles</i> Sand, gray, silty f. sand with some med to coarse sand and gravel, dense, hard, wet.					
18					<i>50</i>	<i>BOB 18</i>					

PROPORTIONS

Trace (tr)
Little (l)
Some (so)
and

(-) AMOUNT (+)

0-10%
10-20%
20-35%
35-50%

ABBREVIATIONS

f = fine
m = medium
c = coarse
gr = gray
bn = brown
blk = black

MS = Split Spoon
BW = Screened Auger
HP = Hydropunch

SOIL BORING LOG

Client: <i>Simpson Paper</i>		Project No. <i>7323-00</i>	Study Area: <i>Tank 1</i>
Contractor: <i>Tri-State</i>		Date Started: <i>6/27/94</i>	Boring No.: <i>SB-4</i>
Method: <i>Odex</i>		Casing Size:	Protection: <i>D</i>
Ground Elev.: <i>19'</i>		Soil Drilled: <i>19'</i>	Completed: <i>6/29/94</i>
Logged by: <i>S. Secovich</i>		Checked by: <i>PK</i>	PI Meter: <i>TE-3</i>
Screen: <i>- (ft.)</i>		Riser: <i>- (ft.)</i>	Total Depth: <i>19</i>
Diam: <i>- (ID)</i>		Material: <i>-</i>	Below Ground: <i>~13.8</i>
Page <i>1</i> of <i>1</i>			

DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	CLP/SCREENING	RECOVERY	PID (ppm)	SOIL/ROCK DESCRIPTION	SOIL CLASS	BLOWS/6-IN.	WELL DATA	LITHOLOGY	ELEVATION (FT.)
4						Easy drilling / no return of cuttings from cyclone					
6					6	sand, dark brown, f. to c.s. well graded and med growth, med st, slight hydrocarbon odor <i>REFRESH F-11</i>					
8					11	As above <i>REFRESH F-11</i>					
10					9	As above <i>REFRESH F-11</i>					
12				1.0 / 0.4		Rock Fragments Cobbles					
14						Rock Fragments Cobbles					
16						14.0-14.5 Rock Fragments 14.5-15 Gray Till 15-16 rock Fragments Cobbles					
17						Cobbles					
19	<i>SB-4</i>				94	Sand, gray, s. lty f. sand matrix and med to c.s. sand, dense, hard, wet <i>BOB 19</i>					

PROPORTIONS	(-) AMOUNT (+)	ABBREVIATIONS		
Trace (tr)	0-10%	f = fine	gr = gray	MS = Split Spoon
Little (ll)	10-20%	m = medium	bn = brown	BW = Screened Auger
Some (so)	20-35%	c = coarse	blk = black	HP = Hydropunch
and	35-50%			

Appendix D
Laboratory Analytical Reports



EXCELLENCE
IN ANALYSIS

COAST-TO-COAST ANALYTICAL SERVICES, INC.

Northeastern Division
340 County Road, No. 5 • P.O. Box 720 • Westbrook, ME 04098

(207) 874-2400
Fax (207) 775-4029

July 21, 1994

Mr. Peter Thompson
ABB Environmental Services
P.O. Box 7050 DTS
Portland, ME 04112

Dear Mr. Thompson:

WORK ORDER NUMBER: WK0864

Please find enclosed the Report of Analysis (ROA) for the samples received by the laboratory on June 30, 1994. This report is being printed on Coast-To-Coast Analytical Services new corporate letter head. All future correspondence will reflect this change. This cover letter is an integral part of the ROA.

Sample results are reported on our Laboratory Information Management System (LIMS) Report of Analysis. Results are presented by sample and by analytical group. PQLs, methods, dilution factors, dates of preparation and analysis as well as any applicable footnotes all appear on the page(s) where the parameter is reported. Samples and associated QC samples were analyzed in accordance with the methods noted on the Report of Analysis and met CCAS internal quality control criteria except as noted on the Report of Analysis. Analytical data were reviewed and approved for final reporting; an approval signature appears on the final page of the Report of Analysis.

If you have any questions or comments concerning this Report of Analysis, please do not hesitate to contact me. We appreciate your continued use of our laboratory for your analytical needs and look forward to working with you in the future.

Sincerely,

Coast-to-Coast Analytical Services, Inc.

Laura J. O'Meara, Supervisor
Client Services

LJO/dmt

Enclosure



COAST-TO-COAST ANALYTICAL SERVICES, INC.

EXCELLENCE
IN ANALYSIS

Northeastern Division
340 County Road, No. 5 • P.O. Box 720 • Westbrook, ME 04098

(207) 874-2400
Fax (207) 775-4029

CLIENT: PETER THOMPSON
ABB ENVIRONMENTAL SERVICES
110 FREE STREET, P.O. BOX 7050 DTS
PORTLAND, ME 04112

Lab Number : WK-0864-1
Report Date: 07/21/94
PO No. : MSA-94-01-257MI

REPORT OF ANALYTICAL RESULTS

Page 1 of 15

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY		SAMPLED DATE RECEIVED			
MW3	Aqueous	S. SECOVICH		06/29/94	06/30/94		
PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED BY	NOTES
Purgeable Aromatics+MTBE							
Benzene	<0.50	µg/L	1.0	0.50	EPA 602/8020	07/09/94	LB
Toluene	3.2	µg/L	1.0	1.0	EPA 602/8020	07/09/94	LB
Ethylbenzene	<1.0	µg/L	1.0	1.0	EPA 602/8020	07/09/94	LB
Xylenes	<1.5	µg/L	1.0	1.5	EPA 602/8020	07/09/94	LB
Methyltertbutyl ether	<0.50	µg/L	1.0	0.50	EPA 602/8020	07/09/94	LB
4-Bromofluorobenzene (% Recovery)	111.	%	1.0		EPA 602/8020	07/09/94	LB

* PQL (Practical Quantitation Level) represents laboratory reporting limits and may not reflect sample-specific reporting limits. Sample-specific limits are indicated by results annotated with '<' values.

07/21/94

LJO/kfgcas/lab/ljo(dw)



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Fax (207) 775-4029

CLIENT: PETER THOMPSON
ABB ENVIRONMENTAL SERVICES
110 FREE STREET, P.O. BOX 7050 DTS
PORTLAND, ME 04112

Lab Number : WK-0864-2
Report Date: 07/21/94
PO No. : MSA-94-01-257MI

REPORT OF ANALYTICAL RESULTS

Page 2 of 15

SAMPLE DESCRIPTION	MATRIX			SAMPLED BY		SAMPLED DATE RECEIVED	
MW-1	Aqueous			S. SECOVICH		06/29/94	06/30/94
PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED BY	NOTES
Purgeable Aromatics+MTBE							
Benzene	<0.50	µg/L	1.0	0.50	EPA 602/8020	07/08/94	LB
Toluene	<1.0	µg/L	1.0	1.0	EPA 602/8020	07/08/94	LB
Ethylbenzene	<1.0	µg/L	1.0	1.0	EPA 602/8020	07/08/94	LB
Xylenes	<1.5	µg/L	1.0	1.5	EPA 602/8020	07/08/94	LB
Methyltertbutyl ether	<0.50	µg/L	1.0	0.50	EPA 602/8020	07/08/94	LB
4-Bromofluorobenzene (% Recovery)	105.	%	1.0		EPA 602/8020	07/08/94	LB

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07/21/94

LJO/kfgcas/lab/ljo (dw)



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CLIENT: PETER THOMPSON
ABB ENVIRONMENTAL SERVICES
110 FREE STREET, P.O. BOX 7050 DTS
PORTLAND, ME 04112

Lab Number : WK-0864-3
Report Date: 07/21/94
PO No. : MSA-94-01-257MI

REPORT OF ANALYTICAL RESULTS

Page 3 of 15

SAMPLE DESCRIPTION	MATRIX			SAMPLED BY		SAMPLED DATE RECEIVED		
MW-2	Aqueous			S. SECOVICH		06/29/94	06/30/94	
PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED	BY	NOTES
Purgeable Aromatics+MTBE								
Benzene	0.51	µg/L	1.0	0.50	EPA 602/8020	07/09/94	LB	
Toluene	9.5	µg/L	1.0	1.0	EPA 602/8020	07/09/94	LB	
Ethylbenzene	<1.0	µg/L	1.0	1.0	EPA 602/8020	07/09/94	LB	
Xylenes	3.3	µg/L	1.0	1.5	EPA 602/8020	07/09/94	LB	
Methyltertbutyl ether	1.5	µg/L	1.0	0.50	EPA 602/8020	07/09/94	LB	
4-Bromofluorobenzene (% Recovery)	98.	%	1.0		EPA 602/8020	07/09/94	LB	

* PQL (Practical Quantitation Level) represents laboratory reporting limits and may not reflect sample-specific reporting limits. Sample-specific limits are indicated by results annotated with '<' values.

07/21/94

LJO/kfgcas/kp/lab/ljo(dw)



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Fax (207) 775-4029

CLIENT: PETER THOMPSON
ABB ENVIRONMENTAL SERVICES
110 FREE STREET, P.O. BOX 7050 DTS
PORTLAND, ME 04112

Lab Number : WK-0864-4
Report Date: 07/21/94
PO No. : MSA-94-01-257MI

REPORT OF ANALYTICAL RESULTS

Page 4 of 15

SAMPLE DESCRIPTION	MATRIX			SAMPLED BY		SAMPLED DATE RECEIVED		
TB-1	Aqueous			S.SECOVICH		06/26/94	06/30/94	
PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED	BY	NOTES
Purgeable Aromatics+MTBE								
Benzene	<0.50	µg/L	1.0	0.50	EPA 602/8020	07/08/94	LB	
Toluene	<1.0	µg/L	1.0	1.0	EPA 602/8020	07/08/94	LB	
Ethylbenzene	<1.0	µg/L	1.0	1.0	EPA 602/8020	07/08/94	LB	
Xylenes	<1.5	µg/L	1.0	1.5	EPA 602/8020	07/08/94	LB	
Methyltertbutyl ether	<0.50	µg/L	1.0	0.50	EPA 602/8020	07/08/94	LB	
4-Bromofluorobenzene (% Recovery)	91.	%	1.0		EPA 602/8020	07/08/94	LB	

* PQL (Practical Quantitation Level) represents laboratory reporting limits and may not reflect sample-specific reporting limits. Sample-specific limits are indicated by results annotated with '<' values.

07/21/94

LJO/kfgcas/lab/ljo(dw)



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CLIENT: PETER THOMPSON
ABB ENVIRONMENTAL SERVICES
110 FREE STREET, P.O. BOX 7050 DTS
PORTLAND, ME 04112

Lab Number : WK-0864-5
Report Date: 07/21/94
PO No. : MSA-94-01-257MI

REPORT OF ANALYTICAL RESULTS

Page 5 of 15

SAMPLE DESCRIPTION	MATRIX			SAMPLED BY		SAMPLED DATE RECEIVED		
SB-1	Aqueous			S. SECOVICH		06/26/94	06/30/94	
PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED	BY	NOTES
Purgeable Aromatics+MTBE								
Benzene	<0.50	µg/L	1.0	0.50	EPA 602/8020	07/08/94	LB	
Toluene	<1.0	µg/L	1.0	1.0	EPA 602/8020	07/08/94	LB	
Ethylbenzene	<1.0	µg/L	1.0	1.0	EPA 602/8020	07/08/94	LB	
Xylenes	<1.5	µg/L	1.0	1.5	EPA 602/8020	07/08/94	LB	
Methyltertbutyl ether	<0.50	µg/L	1.0	0.50	EPA 602/8020	07/08/94	LB	
4-Bromofluorobenzene (% Recovery)	98.	%	1.0		EPA 602/8020	07/08/94	LB	

* PQL (Practical Quantitation Level) represents laboratory reporting limits and may not reflect sample-specific reporting limits. Sample-specific limits are indicated by results annotated with '<' values.

07/21/94

LJO/kfgcas/lab/ljo(dw)



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CLIENT: PETER THOMPSON
ABB ENVIRONMENTAL SERVICES
110 FREE STREET, P.O. BOX 7050 DTS
PORTLAND, ME 04112

Lab Number : WK-0864-6
Report Date: 07/21/94
PO No. : MSA-94-01-257MI

REPORT OF ANALYTICAL RESULTS

Page 6 of 15

SAMPLE DESCRIPTION	MATRIX		SAMPLED BY		SAMPLED DATE RECEIVED		
T7SB1	Solid		S.SECOVICH		06/22/94	06/30/94	
PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED BY	NOTES
Solids-Total Residue (TS)	95.	wt %	1.0	0.10	CLP/CIP SOW	07/11/94 JF	1
Total Petroleum Hydrocarbons (TPH)	730.	mg/kgdrywt	1.0	25	9071/418.1	07/20/94 LD	2

* PQL (Practical Quantitation Level) represents laboratory reporting limits and may not reflect sample-specific reporting limits. Sample-specific limits are indicated by results annotated with '<' values.

- (1) Sample Preparation on 07/07/94 by JF
- (2) Sample Preparation on 07/19/94 by LAD

07/21/94

LJO/gfbljo(dw)/pph



COAST-TO-COAST ANALYTICAL SERVICES, INC.

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IN ANALYSIS

Northeastern Division
340 County Road, No. 5 • P.O. Box 720 • Westbrook, ME 04098

(207) 874-2400
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CLIENT: PETER THOMPSON
ABB ENVIRONMENTAL SERVICES
110 FREE STREET, P.O. BOX 7050 DTS
PORTLAND, ME 04112

Lab Number : WK-0864-6
Report Date: 07/21/94
PO No. : MSA-94-01-257MI

REPORT OF ANALYTICAL RESULTS

Page 7 of 15

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY			SAMPLED DATE RECEIVED		
T7SB1	Solid	S. SECOVICH			06/22/94	06/30/94	
PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED BY	NOTES
Purgeable Aromatics+MTBE							1
Benzene	<0.6	µg/kgdrywt	1.1	0.50	EPA 8020	07/10/94 LB	
Toluene	1.1	µg/kgdrywt	1.1	1.0	EPA 8020	07/10/94 LB	
Ethylbenzene	<1.1	µg/kgdrywt	1.1	1.0	EPA 8020	07/10/94 LB	
Xylenes	7.0	µg/kgdrywt	1.1	1.5	EPA 8020	07/10/94 LB	
Methyltertbutyl ether	<0.6	µg/kgdrywt	1.1	0.50	EPA 8020	07/10/94 LB	
4-Bromofluorobenzene (% Recovery)	87.	%	1.1		EPA 8020	07/10/94 LB	

* PQL (Practical Quantitation Level) represents laboratory reporting limits and may not reflect sample-specific reporting limits. Sample-specific limits are indicated by results annotated with '<' values.
 (1) Due to laboratory error, the analysis was performed 4 days after the expiration of the analytical hold-time for this analysis.

07/21/94

LJO/kfgcas/kp/lab/ljo(dw)



COAST-TO-COAST ANALYTICAL SERVICES, INC.

EXCELLENCE IN ANALYSIS

Northeastern Division 340 County Road, No. 5 • P.O. Box 720 • Westbrook, ME 04098

(207) 874-2400 Fax (207) 775-4029

CLIENT: PETER THOMPSON ABB ENVIRONMENTAL SERVICES 110 FREE STREET, P.O. BOX 7050 DTS PORTLAND, ME 04112

Lab Number : WK-0864-7 Report Date: 07/21/94 PO No. : MSA-94-01-257MI

REPORT OF ANALYTICAL RESULTS

Page 8 of 15

Table with columns: SAMPLE DESCRIPTION, MATRIX, SAMPLED BY, SAMPLED DATE RECEIVED, PARAMETER, RESULT, UNITS, DF, *PQL, METHOD, ANALYZED BY, NOTES. Includes rows for T7SB2 and analysis of Solids and TPH.

* PQL (Practical Quantitation Level) represents laboratory reporting limits and may not reflect sample-specific reporting limits. Sample-specific limits are indicated by results annotated with '<' values. (1) Sample Preparation on 07/07/94 by JF (2) Sample Preparation on 07/19/94 by LAD

07/21/94

LJO/gfbljo(dw)/pph



COAST-TO-COAST ANALYTICAL SERVICES, INC.

EXCELLENCE
IN ANALYSIS

Northeastern Division
340 County Road, No. 5 • P.O. Box 720 • Westbrook, ME 04098

(207) 874-2400
Fax (207) 775-4029

CLIENT: PETER THOMPSON
ABB ENVIRONMENTAL SERVICES
110 FREE STREET, P.O. BOX 7050 DTS
PORTLAND, ME 04112

Lab Number : WK-0864-7
Report Date: 07/21/94
PO No. : MSA-94-01-257MI

REPORT OF ANALYTICAL RESULTS

Page 9 of 15

SAMPLE DESCRIPTION	MATRIX		SAMPLED BY		SAMPLED DATE RECEIVED		
T7SB2	Solid		S.SECOVICH		06/23/94	06/30/94	
PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED BY	NOTES
Purgeable Aromatics+MTBE							
Benzene	<0.6	µg/kgdrywt	1.1	0.50	EPA 8020	07/07/94	LB
Toluene	<1.1	µg/kgdrywt	1.1	1.0	EPA 8020	07/07/94	LB
Ethylbenzene	<1.1	µg/kgdrywt	1.1	1.0	EPA 8020	07/07/94	LB
Xylenes	<1.7	µg/kgdrywt	1.1	1.5	EPA 8020	07/07/94	LB
Methyltertbutyl ether	<0.6	µg/kgdrywt	1.1	0.50	EPA 8020	07/07/94	LB
4-Bromofluorobenzene (% Recovery)	100.	%	1.1		EPA 8020	07/07/94	LB

* PQL (Practical Quantitation Level) represents laboratory reporting limits and may not reflect sample-specific reporting limits. Sample-specific limits are indicated by results annotated with '<' values.

07/21/94

LJO/kfgcas/lab/ljo(dw)



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Fax (207) 775-4029

CLIENT: PETER THOMPSON
ABB ENVIRONMENTAL SERVICES
110 FREE STREET, P.O. BOX 7050 DTS
PORTLAND, ME 04112

Lab Number : WK-0864-8
Report Date: 07/21/94
PO No. : MSA-94-01-257MI

REPORT OF ANALYTICAL RESULTS

Page 10 of 15

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY		SAMPLED DATE RECEIVED				
TL5B3	Solid	S. SECOVICH		06/27/94	06/30/94			
PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED	BY	NOTES
Solids-Total Residue (TS)	89.	wt %	1.0	0.10	CLP/CIP SOW	07/12/94	JF	1
Total Petroleum Hydrocarbons (TPH)	140.	mg/kgdrywt	1.0	25	9071/418.1	07/20/94	LD	2

* PQL (Practical Quantitation Level) represents laboratory reporting limits and may not reflect sample-specific reporting limits. Sample-specific limits are indicated by results annotated with '<' values.

- (1) Sample Preparation on 07/11/94 by JF
- (2) Sample Preparation on 07/19/94 by LAD

07/21/94

LJO/gfbljo(dw)/pph



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340 County Road, No. 5 • P.O. Box 720 • Westbrook, ME 04098

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CLIENT: PETER THOMPSON
ABB ENVIRONMENTAL SERVICES
110 FREE STREET, P.O. BOX 7050 DTS
PORTLAND, ME 04112

Lab Number : WK-0864-8
Report Date: 07/21/94
PO No. : MSA-94-01-257MI

REPORT OF ANALYTICAL RESULTS

Page 11 of 15

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY		SAMPLED DATE RECEIVED			
T1SB3	Solid	S.SECOVICH		06/27/94	06/30/94		
PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED BY	NOTES
Purgeable Aromatics+MTBE							1
Benzene	<700.	µg/kgdrywt	1400	0.50	EPA 8020	07/09/94 LB	
Toluene	46000.	µg/kgdrywt	2800	1.0	EPA 8020	07/09/94 LB	
Ethylbenzene	2000.	µg/kgdrywt	1400	1.0	EPA 8020	07/09/94 LB	
Xylenes	100000.	µg/kgdrywt	1400	1.5	EPA 8020	07/09/94 LB	
Methyltertbutyl ether	<700.	µg/kgdrywt	1400	0.50	EPA 8020	07/09/94 LB	
4-Bromofluorobenzene (% Recovery)	104.	%	1400		EPA 8020	07/09/94 LB	

* PQL (Practical Quantitation Level) represents laboratory reporting limits and may not reflect sample-specific reporting limits. Sample-specific limits are indicated by results annotated with '<' values.
(1) Sample dilution required for quantitation of one or more target analytes; therefore, standard laboratory Practical Quantitation Level (PQL) could not be achieved.

07/21/94

LJO/kfgcas/lab/ljo(dw)



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CLIENT: PETER THOMPSON
ABB ENVIRONMENTAL SERVICES
110 FREE STREET, P.O. BOX 7050 DTS
PORTLAND, ME 04112

Lab Number : WK-0864-10
Report Date: 07/21/94
PO No. : MSA-94-01-257MI

REPORT OF ANALYTICAL RESULTS

Page 12 of 15

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY		SAMPLED DATE RECEIVED			
TL5B1	Solid	S.SECOVICH		06/24/94	06/30/94		
PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED BY	NOTES
Solids-Total Residue (TS)	89.	wt %	1.0	0.10	CLP/CIP SOW	07/11/94 JF	1
Total Petroleum Hydrocarbons (TPH)	<25	mg/kgdrywt	1.0	25	9071/418.1	07/20/94 LD	2

* PQL (Practical Quantitation Level) represents laboratory reporting limits and may not reflect sample-specific reporting limits. Sample-specific limits are indicated by results annotated with '<' values.

- (1) Sample Preparation on 07/07/94 by JF
- (2) Sample Preparation on 07/19/94 by LAD

07/21/94

LJO/gfbljo(dw) /pph



COAST-TO-COAST ANALYTICAL SERVICES, INC.

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Northeastern Division
340 County Road, No. 5 • P.O. Box 720 • Westbrook, ME 04098

(207) 874-2400
Fax (207) 775-4029

CLIENT: PETER THOMPSON
ABB ENVIRONMENTAL SERVICES
110 FREE STREET, P.O. BOX 7050 DTS
PORTLAND, ME 04112

Lab Number : WK-0864-11
Report Date: 07/21/94
PO No. : MSA-94-01-257MI

REPORT OF ANALYTICAL RESULTS

Page 13 of 15

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY		SAMPLED DATE RECEIVED				
T1SB2	Solid	S.SECOVICH		06/24/94	06/30/94			
PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED	BY	NOTES
Solids-Total Residue (TS)	95.	wt %	1.0	0.10	CLP/CIP SOW	07/11/94	JF	1
Total Petroleum Hydrocarbons (TPH)	29.	mg/kgdrywt	1.0	25	9071/418.1	07/20/94	LD	2

* PQL (Practical Quantitation Level) represents laboratory reporting limits and may not reflect sample-specific reporting limits. Sample-specific limits are indicated by results annotated with '<' values.

- (1) Sample Preparation on 07/07/94 by JF
- (2) Sample Preparation on 07/19/94 by LAD

07/21/94

LJO/gfbejn/ljo(dw)/pph



EXCELLENCE
IN ANALYSIS

COAST-TO-COAST ANALYTICAL SERVICES, INC.

Northeastern Division
340 County Road, No. 5 • P.O. Box 720 • Westbrook, ME 04098

(207) 874-2400
Fax (207) 775-4029

CLIENT: PETER THOMPSON
ABB ENVIRONMENTAL SERVICES
110 FREE STREET, P.O. BOX 7050 DTS
PORTLAND, ME 04112

Lab Number : WK-0864-12
Report Date: 07/21/94
PO No. : MSA-94-01-257MI

REPORT OF ANALYTICAL RESULTS

Page 14 of 15

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY		SAMPLED DATE RECEIVED			
TLSE3A	Solid	S.SECOVICH		06/27/94	06/30/94		
PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED BY	NOTES
Solids-Total Residue (TS)	98.	wt %	1.0	0.10	CLP/CIP SOW	07/11/94 JF	1
Total Petroleum Hydrocarbons (TPH)	35.	mg/kgdrywt	1.0	25	9071/418.1	07/20/94 LD	2

* PQL (Practical Quantitation Level) represents laboratory reporting limits and may not reflect sample-specific reporting limits. Sample-specific limits are indicated by results annotated with '<' values.

- (1) Sample Preparation on 07/07/94 by JF
- (2) Sample Preparation on 07/19/94 by LAD

07/21/94

LJO/gfbljo(dw)/pph



COAST-TO-COAST ANALYTICAL SERVICES, INC.

EXCELLENCE
IN ANALYSIS

Northeastern Division
340 County Road, No. 5 • P.O. Box 720 • Westbrook, ME 04098

(207) 874-2400
Fax (207) 775-4029

CLIENT: PETER THOMPSON
ABB ENVIRONMENTAL SERVICES
110 FREE STREET, P.O. BOX 7050 DTS
PORTLAND, ME 04112

Lab Number : WK-0864-9
Report Date: 07/21/94
PO No. : MSA-94-01-257MI

REPORT OF ANALYTICAL RESULTS

Page 15 of 15

SAMPLE DESCRIPTION	MATRIX		SAMPLED BY		SAMPLED DATE RECEIVED		
TISB4	Solid		S.SECOVICH		06/27/94	06/30/94	
PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED BY	NOTES
Solids-Total Residue (TS)	79.	wt %	1.0	0.10	CLP/CIP SOW	07/11/94 JF	1
Total Petroleum Hydrocarbons (TPH)	<25	mg/kgdrywt	1.0	25	9071/418.1	07/20/94 LD	2

* PQL (Practical Quantitation Level) represents laboratory reporting limits and may not reflect sample-specific reporting limits. Sample-specific limits are indicated by results annotated with '<' values.

- (1) Sample Preparation on 07/07/94 by JF
- (2) Sample Preparation on 07/19/94 by LAD

07/21/94

LJO/gfbljo(dw)/pph

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Laura J. O'Meara
Supervisor, Client Services

Coast-to-Coast Analytical Services, Inc.
 Northeastern Division (207) 874-2400
 CONFIRMATION

ORDER NO WK-0864

Project Manager: Laura J. O'Meara

REPORT TO: PETER THOMPSON
 ABB ENVIRONMENTAL SERVICES
 110 FREE STREET, P.O. BOX 7050 DTS
 PORTLAND, ME 04112

ORDER DATE: 07/01/94
 PHONE: 207/775-5401
 FAX: 207/772-4762
 DUE: 21 JUL

INVOICE: LISA OLIVERI
 ABB ENVIRONMENTAL SERVICES, INC
 110 FREE STREET, P.O. BOX 7050 DTS
 PORTLAND, ME 04112

PHONE: 207/775-5400
 PO: MSA-94-01-257MI

SAMPLED BY: S.SECOVICH

DELIVERED BY: CLIENT

DISPOSE: AFTER 31 JUL

ITEM	LOG NUMBER	SAMPLE DESCRIPTION	SAMPLED DATE/TIME	RECEIVED	MATRIX
1	WK0864-1	MW3	29 JUN 1730	30 JUN	AQ

DETERMINATION	METHOD	QTY	PRICE	AMOUNT
Purgeable Aromatics+MTBE	EPA 602/80	1	65.00	65.00
GC Matrix Spike Sample		1	65.00	65.00
GC MS Duplicate Sample		1	65.00	65.00

TOTALS		1	195.00	195.00
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LOG NUMBER	SAMPLE DESCRIPTION	SAMPLED DATE/TIME	RECEIVED	MATRIX
2 WK0864-2	MW-1	29 JUN 1615	30 JUN	AQ
WK0864-3	MW-2	29 JUN 1800		
WK0864-4	TB-1	26 JUN 1200		
WK0864-5	SB-1	26 JUN 1740		

DETERMINATION	METHOD	QTY	PRICE	AMOUNT
Purgeable Aromatics+MTBE	EPA 602/80	4	65.00	260.00

LOG NUMBER	SAMPLE DESCRIPTION	SAMPLED DATE/TIME	RECEIVED	MATRIX
3 WK0864-6	T7SB1	22 JUN 1325	30 JUN	SL
WK0864-7	T7SB2	23 JUN 1240		
WK0864-8	T1SB3	27 JUN 0925		

DETERMINATION	METHOD	QTY	PRICE	AMOUNT
Total Petroleum Hydrocarbons (TPH)	9071/418.1	3	63.00	189.00
Solids-Total Residue (TS)	CLP/CIP SO	3	18.00	54.00
Purgeable Aromatics+MTBE	EPA 8020	3	65.00	195.00

TOTALS		3	146.00	438.00
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J004054

Coast-to-Coast Analytical Services, Inc.
Northeastern Division (207) 874-2400
CONFIRMATION

Page 2

ORDER NO WK-0864

Project Manager: Laura J. O'Meara

REPORT TO: PETER THOMPSON
ABB ENVIRONMENTAL SERVICES
110 FREE STREET, P.O. BOX 7050 DTS
PORTLAND, ME 04112

ORDER DATE: 07/01/94
PHONE: 207/775-5401
FAX: 207/772-4762
DUE: 21 JUL

INVOICE: LISA OLIVERI
ABB ENVIRONMENTAL SERVICES, INC
110 FREE STREET, P.O. BOX 7050 DTS
PORTLAND, ME 04112

PHONE: 207/775-5400
PO: MSA-94-01-257MI

SAMPLED BY: S.SECOVICH

DELIVERED BY: CLIENT

DISPOSE: AFTER 31 JUL

	<u>LOG NUMBER</u>	<u>SAMPLE DESCRIPTION</u>	<u>SAMPLED DATE/TIME</u>	<u>RECEIVED</u>	<u>MATRIX</u>
4	WK0864-10	T1SB1	24 JUN 0947	30 JUN	SL
	WK0864-11	T1SB2	24 JUN 1410		
	WK0864-12	T1SB3A	27 JUN 1013		
	WK0864-9	T1SB4	27 JUN 1337		

<u>DETERMINATION</u>	<u>METHOD</u>	<u>QTY</u>	<u>PRICE</u>	<u>AMOUNT</u>
Total Petroleum Hydrocarbons (TPH)	9071/418.1	4	63.00	252.00
Solids-Total Residue (TS)	CLP/CIP SO	4	18.00	72.00
TOTALS		4	81.00	324.00

ORDER NOTE: SIMPSON QC-III W/O RD

INVOICE: With Report

TOTAL ORDER AMOUNT \$1,217.00
This is NOT an Invoice

JLM/LJO/WEST.LJO(dw)

07-05 Please contact CCAS promptly if you have any questions.

CHAIN OF CUSTODY RECORD

PROJECT NO.		PROJECT NAME				NO. OF CON-TAINERS	SAMPLE TYPE						REMARKS INDICATE SOIL/WATER/AIR SEDIMENT/SLUDGE	
SAMPLERS (SIGNATURE)		DATE	TIME	COMP.	GRAB		STATION LOCATION	40 ml	20Z	40Z				
Sharon J. Newton		Simpson												
2	MW-1	6/29	1615		✓	mw-1	2	2					water	
3	MW-2	6/29	1800		✓	mw-2	2	2					water	
1	mw-3	6/29	1730		✓	mw-23 ⁰⁷⁰⁹⁴	2	2					water	
1	mw-3	6/29	1730		✓	mw-3ms	1	1					water	
1	mw-3	6/29	1730		✓	mw-3msD	1	1					water	
4	TB-1	6/26	1200		✓	Trip Blank	2	2					water	
5	SB-1	6/26	1740		✓	Sampler Blank	2	2					water	
6	T7SB1	6/22	1325		✓	Tank 7 SB-1	2	2					Soil	
2	T7SB2	6/23	1240		✓	Tank 7 SB-2	2	2					Soil	
10	T1SB1	6/24	0947		✓	Tank 1 SB-1	2	2					Soil	
11	T1SB2	6/24	1410		✓	Tank 1 SB-2	2	2					Soil	
18	T1SB3	6/27	0925			Tank 1 SB-3	2	2					Soil	
2	T1SB3A	6/27	1013			Tank 1 SB-3A	2	2	2 imp 075194				Soil	
4	T1SB4	6/27	1337			Tank 1 SB-4	2	2					Soil	

RELINQUISHED BY: (SIGNATURE) <i>Sharon J. Newton</i>	DATE/TIME 6/30/94 1200	RECEIVED BY: (SIGNATURE) <i>Henry Foster</i>	RELINQUISHED BY: (SIGNATURE) <i>Henry Foster</i>	DATE/TIME 6-30-94 1300	RECEIVED BY: (SIGNATURE) <i>Dave S. Kiple</i>
RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED BY: (SIGNATURE)	RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED BY: (SIGNATURE)
RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED FOR DISPOSAL BY: (SIGNATURE)	DATE/TIME	REMARKS	

Client: ABB Environmental Services - Simpson, Work Order: WK0864

ANALYSIS AND QUALITY CONTROL
DOCUMENTATION

Prepared By:

COAST-TO-COAST ANALYTICAL SERVICES, INC.
NORTHEASTERN DIVISION

22-Jul-94

Reviewed and Approved by: C.A. Shelby
Laboratory Quality Assurance

1000001

Coast-To-Coast Analytical Services, Inc.
Northeastern Division
Quality Control Report

LEVEL III REPORT

Level III documentation consists of the following components for specific types of analyses:

Section	Type of Documentation
INORGANIC ANALYSES FOR NON-METALS	
o	METHOD BLANK AND LABORATORY CONTROL SAMPLE RESULTS
o	DUPLICATE AND MATRIX SPIKE/MATRIX SPIKE DUPLICATE RESULTS
o	
ORGANIC ANALYSES BY GC	
o	METHODS, CHRONOLOGY OF ANALYSIS AND METHOD BLANK RESULTS
o	LABORATORY CONTROL SAMPLE RESULTS
o	MATRIX SPIKE/MATRIX SPIKE DUPLICATE RESULTS
o	
CHAIN OF CUSTODY	
o	CONFIRMATION
o	CHAIN OF CUSTODY RECORDS

000002

Coast-To-Coast Analytical Services, Inc.
Northeastern Division
Quality Control Report

Method Blank and Laboratory Control Sample Results

Parameter	Date of Prep	Date of Analysis	Units	METHOD BLANK RESULTS			LABORATORY CONTROL SAMPLE RESULTS						
				Concentration Measured in Blank	Acceptance Range	Practical Quantitation Level**	Units	True Value	Measured Value	Percent Recovered	Acceptance Range (%)	Acceptance Range (mg/kg)	
TS -Total Residue	07-Jul-94	11-Jul-94	wt %	< 0.10	< 0.10	0.10							
	11-Jul-94	12-Jul-94	wt %	< 0.10	< 0.10	0.10							
Total Petroleum Hydrocarbo	19-Jul-94	20-Jul-94	mg/kg	< 25	< 25	25	mg	2.51	3.06	122	57-137	@	
	19-Jul-94	20-Jul-94	mg/kg	< 25	< 25	25	mg	2.51	2.28	90.8	74-129	@	

** Practical quantitation level is the lowest concentration measurable for samples with normal chemical and physical composition during routine laboratory operations.

DATA QUALITY COMMENTS:

Results of all quality control measurements are within the laboratory and method specified acceptance range except as noted.

@ The laboratory uses the internally established statistical 99% confidence range as the acceptance range for this LCS.

000003

Coast-To-Coast Analytical Services, Inc.
Northeastern Division
Quality Control Report

Duplicate and Matrix Spike/Matrix Spike Duplicate Results

DUPLICATE RESULTS

MATRIX SPIKE/MATRIX SPIKE DUPLICATE RESULTS

Parameter	CCAS Sample No.	Sample Measurements						Acceptance	Concentration or Quantity				Matrix Spike Recovery (%)				
		Units	Rep 1	Rep 2	Mean Conc	RPD (%)	Range for RPD (%)	Units	Sample Only	Spike Added	Sample +Spike	Sample +Spike	Sample +Spike	Sample +Spike	Acceptance Range (%)	RPD (%)	Acceptance Range (%)
									Dup 1	Dup 2	Dup 1	Dup 2	Dup 1	Dup 2			
TPH	WK0864-11	mg/kg	29.2	29.0	29.1	0.7	0-20	mg	0.555	12.5	31.5	NA	248 *	NA	75-125	NA	0-20
TS	WK0864-6	wt%	95.0	94.8	94.9	0.2	0-20	MS/MSD Not Applicable for this Parameter									
	WK0864-7	wt%	91.2	91.8	91.5	0.7	0-20	MS/MSD Not Applicable for this Parameter									
	WK0864-8	wt%	89.1	86.8	88.0	2.6	0-20	MS/MSD Not Applicable for this Parameter									
	WK0864-9	wt%	79.3	73.6	76.5	7.5	0-20	MS/MSD Not Applicable for this Parameter									
	WK0864-10	wt%	89.3	89.0	89.2	0.3	0-20	MS/MSD Not Applicable for this Parameter									
	WK0864-11	wt%	94.6	95.0	94.8	0.4	0-20	MS/MSD Not Applicable for this Parameter									
	WK0864-12	wt%	97.8	91.2	94.5	7.0	0-20	MS/MSD Not Applicable for this Parameter									

RPD = Relative percent difference, which is the absolute value of the difference between two replicate results divided by the mean concentration then multiplied by 100%.

NA = Not applicable.

DATA QUALITY COMMENTS:

Results of all quality control measurements are within the laboratory or contract specified acceptance range except as noted. The laboratory does not use the sample duplicate and matrix spike acceptance ranges as acceptance criteria for a specific analysis. Sample duplicate and matrix spike data are used to evaluate method performance in the environmental sample matrix only. Please refer to LCS data for assessment of quality control for each parameter.

* Matrix spike recovery is outside the laboratory's specified acceptance range indicating potential sample matrix interference and potential bias of reported value for this parameter.

400004

Coast-To-Coast Analytical Services, Inc.
Northeastern Division
Quality Control Report

000006

Methods, Chronology of Analysis and Method Blank Results

Volatile Organics by GC Method: 602

Soil/Solid Matrix

CHRONOLOGY

CCAS Sample Nos.	Date Analyzed	Dilution Factor~	CCAS Sample Nos.	Date Analyzed	Dilution Factor~
WK0864-4	08-Jul-94	1.0			
WK0864-5	08-Jul-94	1.0			
WK0864-2	08-Jul-94	1.0			
WK0864-1	09-Jul-94	1.0			
WK0864-3	09-Jul-94	1.0			
WK0864-1MS	09-Jul-94	1.0			
WK0864-1MSD	09-Jul-94	1.0			

METHOD BLANK RESULTS*

Compound	Conc. (ug/kg)

* Only positive hits have been included. The remaining compounds were below the laboratory Practical Quantitation Levels.

~ The Dilution Factor (DF) indicates whether a sample, prepared in accordance with the analytical method protocol, was diluted prior to analysis. The Dilution Factor could also indicate that a smaller aliquot than specified in the method was utilized for sample preparation and analysis. For example, a dilution factor of 5 means that the sample was effectively diluted by a factor of 5 prior to analysis, i.e., the sample was analyzed at 20% its reported concentration. DF does not include the correction factor for conversion to dry weight.

Coast-To-Coast Analytical Services, Inc.
Northeastern Division
Quality Control Report

000008

Methods, Chronology of Analysis and Method Blank Results

Volatile Analysis by GC Method: 602

Soil/Solid Matrix – Medium Level

CHRONOLOGY

CCAS Sample Nos.	Date Extracted	Date Analyzed	Instrument Blank [^]	DF [~]	CCAS Sample Nos.	Date Extracted	Date Analyzed	Instrument Blank [^]	DF [~]
WK0864-8	09-Jul-94	09-Jul-94	3JUH061	1250					

EXTRACTION BLANK RESULTS*

Date of Analysis:

Compound	Conc. (ug/g)

* Blank results listed correspond to the extraction blank prepared with the above samples on date of extraction. Only positive hits have been included; the remaining compounds were not detected below the laboratory Practical Quantitation Levels in the extraction blank.

[^] Instrument blank results are tabulated on a separate form immediately following the volatile soil chronology of analyses.

[~] The Dilution Factor (DF) indicates whether a sample, prepared in accordance with the analytical method protocol, was diluted prior to analysis. The Dilution Factor could also indicate that a smaller aliquot than specified in the method was utilized for sample preparation and analysis. For example, a dilution factor of 5 means that the sample was effectively diluted by a factor of 5 prior to analysis, i.e., the sample was analyzed at 20% its reported concentration. DF does not include the correction factor for conversion to dry weight.

NOTE: All "B" notations on the Report of Analysis correspond to either the extraction method blank results listed above or the instrument blank results listed separately.

Coast-To-Coast Analytical Services, Inc.
Northeastern Division
Quality Control Report

000009

Methods, Chronology of Analysis and Method Blank Results

Volatile Analysis by GC Method: 602

Soil/Solid Matrix - Medium Level

CHRONOLOGY

CCAS Sample Nos.	Date Extracted	Date Analyzed	Instrument Blank [^]	DF [~]	CCAS Sample Nos.	Date Extracted	Date Analyzed	Instrument Blank [^]	DF [~]
WK0864-8	09-Jul-94	10-Jul-94	3JUH098	2500					

EXTRACTION BLANK RESULTS*

Date of Analysis:

Compound	Conc. (ug/g)

* Blank results listed correspond to the extraction blank prepared with the above samples on date of extraction. Only positive hits have been included; the remaining compounds were not detected below the laboratory Practical Quantitation Levels in the extraction blank.

[^] Instrument blank results are tabulated on a separate form immediately following the volatile soil chronology of analyses.

[~] The Dilution Factor (DF) indicates whether a sample, prepared in accordance with the analytical method protocol, was diluted prior to analysis. The Dilution Factor could also indicate that a smaller aliquot than specified in the method was utilized for sample preparation and analysis. For example, a dilution factor of 5 means that the sample was effectively diluted by a factor of 5 prior to analysis, i.e., the sample was analyzed at 20% its reported concentration. DF does not include the correction factor for conversion to dry weight.

NOTE: All "B" notations on the Report of Analysis correspond to either the extraction method blank results listed above or the instrument blank results listed separately.

Coast-To-Coast Analytical Services, Inc.
Northeastern Division
Quality Control Report

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Method Blank Results

Volatile Analysis by GC Method

602

Soil/Solid Matrix

INSTRUMENT BLANK RESULTS**

Instrument Blank: 3JUH098
Date of Analysis: 10-Jul-94

Compound	Conc. (ug/L)

Instrument Blank:
Date of Analysis:

Compound	Conc. (ug/L)

Instrument Blank: 3JUH061
Date of Analysis: 08-Jul-94

Compound	Conc. (ug/L)

Instrument Blank:
Date of Analysis:

Compound	Conc. (ug/L)

Instrument Blank:
Date of Analysis:

Compound	Conc. (ug/L)

Instrument Blank:
Date of Analysis:

Compound	Conc. (ug/L)

Instrument Blank:
Date of Analysis:

Compound	Conc. (ug/L)

Instrument Blank:
Date of Analysis:

Compound	Conc. (ug/L)

** Blank results listed correspond to the instrument blanks analyzed concurrently with the samples listed on the soil chronology forms. Only positive hits have been included; the remaining compounds were below the laboratory Practical Quantitation Level.

Coast-To-Coast Analytical Services, Inc.
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Laboratory Control Sample Results

Volatile Organics by GC Method: 602

Soil/Solid Matrix - Medium Level Analysis

Date of Extraction:
 Date of Analysis: 08-Jul-94

Compound	Units	Spike Conc.	LCS Measured Conc.	LCS Dup. Measured Conc.	LCS % Recovery	LCS Dup. % Recovery	Recovery Acceptance Range (%)*	RPD (%)	RPD Acceptance Range (%)*
Benzene	ug/g	1.25	1.30	1.31	104	105	39-150	0.8	0-25
Ethylbenzene	ug/g	1.25	1.31	1.31	105	105	32-160	0.0	0-25
Chlorobenzene	ug/g	1.25	1.30	1.30	104	104	55-135	0.0	0-25

* The laboratory has established the following acceptance criteria for the laboratory control sample/laboratory control sample duplicate (LCS/LCSD) sets employed for organic analyses. All spike recoveries must be equal to or greater than ten percent, and a minimum of ninety percent of the total number of calculated recoveries plus relative percent differences (RPDs) must be within the specified acceptance ranges.

000011

Coast-To-Coast Analytical Services, Inc.
Northeastern Division
Quality Control Report

Laboratory Control Sample Results

Volatile Organics by GC Method: 602

Soil/Solid Matrix - Medium Level Analysis

Date of Extraction:

Date of Analysis: 10-Jul-94

Compound	Units	Spike Conc.	LCS Measured Conc.	LCS Dup. Measured Conc.	LCS % Recovery	LCS Dup. % Recovery	Recovery Acceptance Range (%)*	RPD (%)	RPD Acceptance Range (%)*
Benzene	ug/g	1.25	1.26	1.26	101	101	39-150	0.0	0-25
Ethylbenzene	ug/g	1.25	1.27	1.27	102	102	32-160	0.0	0-25
Chlorobenzene	ug/g	1.25	1.25	1.26	100	101	55-135	0.8	0-25

* The laboratory has established the following acceptance criteria for the laboratory control sample/laboratory control sample duplicate (LCS/LCSD) sets employed for organic analyses. All spike recoveries must be equal to or greater than ten percent, and a minimum of ninety percent of the total number of calculated recoveries plus relative percent differences (RPDs) must be within the specified acceptance ranges.

000012

Coast-To-Coast Analytical Services, Inc.
Northeastern Division
Quality Control Report

Laboratory Control Sample Results

Volatile Organics by GC Method: 602

Soil/Solid Matrix

Date of Analysis: 09-Jul-94

Compound	Units	Spike Conc.	LCS Measured Conc.	LCS Dup. Measured Conc.	LCS % Recovery	LCS Dup. % Recovery	Recovery Acceptance Range (%)*	RPD (%)	RPD Acceptance Range (%)*
Benzene	ug/kg	25	24.0	25.1	96.0	100	39-150	4.5	0-25
Ethylbenzene	ug/kg	25	24.5	25.7	98.0	103	32-160	4.8	0-25
Chlorobenzene	ug/kg	25	24.4	25.3	97.6	101	55-135	3.6	0-25

* The laboratory has established the following acceptance criteria for the laboratory control sample/laboratory control sample duplicate (LCS/LCSD) sets employed for organic analyses. All spike recoveries must be equal to or greater than ten percent, and a minimum of ninety percent of the total number of calculated recoveries plus relative percent differences (RPDs) must be within the specified acceptance ranges.

00010

Coast-To-Coast Analytical Services, Inc.
Northeastern Division
Quality Control Report

Laboratory Control Sample Results

Volatile Organics by GC Method: 602

Soil/Solid Matrix

Date of Analysis: 07-Jul-94

Compound	Units	Spike Conc.	LCS Measured Conc.	LCS Dup. Measured Conc.	LCS % Recovery	LCS Dup. % Recovery	Recovery Acceptance Range (%)*	RPD (%)	RPD Acceptance Range (%)*
Benzene	ug/kg	25	26.4	25.6	106	102	39-150	3.1	0-25
Ethylbenzene	ug/kg	25	26.4	26.2	106	105	32-160	0.8	0-25
Chlorobenzene	ug/kg	25	26.1	26.1	104	104	55-135	0.0	0-25

* The laboratory has established the following acceptance criteria for the laboratory control sample/laboratory control sample duplicate (LCS/LCSD) sets employed for organic analyses. All spike recoveries must be equal to or greater than ten percent, and a minimum of ninety percent of the total number of calculated recoveries plus relative percent differences (RPDs) must be within the specified acceptance ranges.

000014

Coast-To-Coast Analytical Services, Inc.
Northeastern Division
Quality Control Report

Matrix Spike/Matrix Spike Duplicate Results

Volatile Organics by GC Method: 602

Water Matrix

CCAS Sample No. Spiked: WK0864-1

Compound	Units	Spike Conc.	Sample Conc.	MS Measured Conc.	MSD Measured Conc.	Theoretical Sample Spike Conc.	MS % Recovery	MSD % Recovery	Recovery Acceptance Range (%)*	RPD (%)	RPD Acceptance Range (%)*
Benzene	ug/L	10	<0.5	10.2	10.8	10.0	102	108	39-150	5.7	0-20
Ethylbenzene	ug/L	10	<1.0	10.3	11.0	10.0	103	110	32-160	6.6	0-30
Chlorobenzene	ug/L	10	<0.5	9.89	10.6	10.0	98.9	106	55-135	6.9	0-20

* Acceptance ranges are obtained when available from the applicable US EPA analytical method. These ranges are based upon method performance data generated from the analysis of quality control check samples and not actual environmental samples. The laboratory does not use the MS/MSD acceptance ranges as quality control acceptance criteria; the MS/MSD data are used to evaluate method performance for the environmental sample matrix. Please refer to LCS/LCSD data for assessment of quality control for this method.

NA = Not applicable.

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Coast-To-Coast Analytical Services, Inc.
Northeastern Division
Quality Control Report

Laboratory Control Sample Results

Volatile Organics by GC Method: 602

Water Matrix

Date of Analysis: 08-Jul-94

Compound	Units	Spike Conc.	LCS Measured Conc.	LCS Dup. Measured Conc.	LCS % Recovery	LCS Dup. % Recovery	Recovery Acceptance Range (%)*	RPD (%)	RPD Acceptance Range (%)*
Benzene	ug/l	10	10.4	10.5	104	105	62-132	1.0	0-13
Ethylbenzene	ug/l	10	10.4	10.5	104	105	32-160	1.0	0-25
Chlorobenzene	ug/l	10	10.4	10.4	104	104	58-142	0.0	0-16

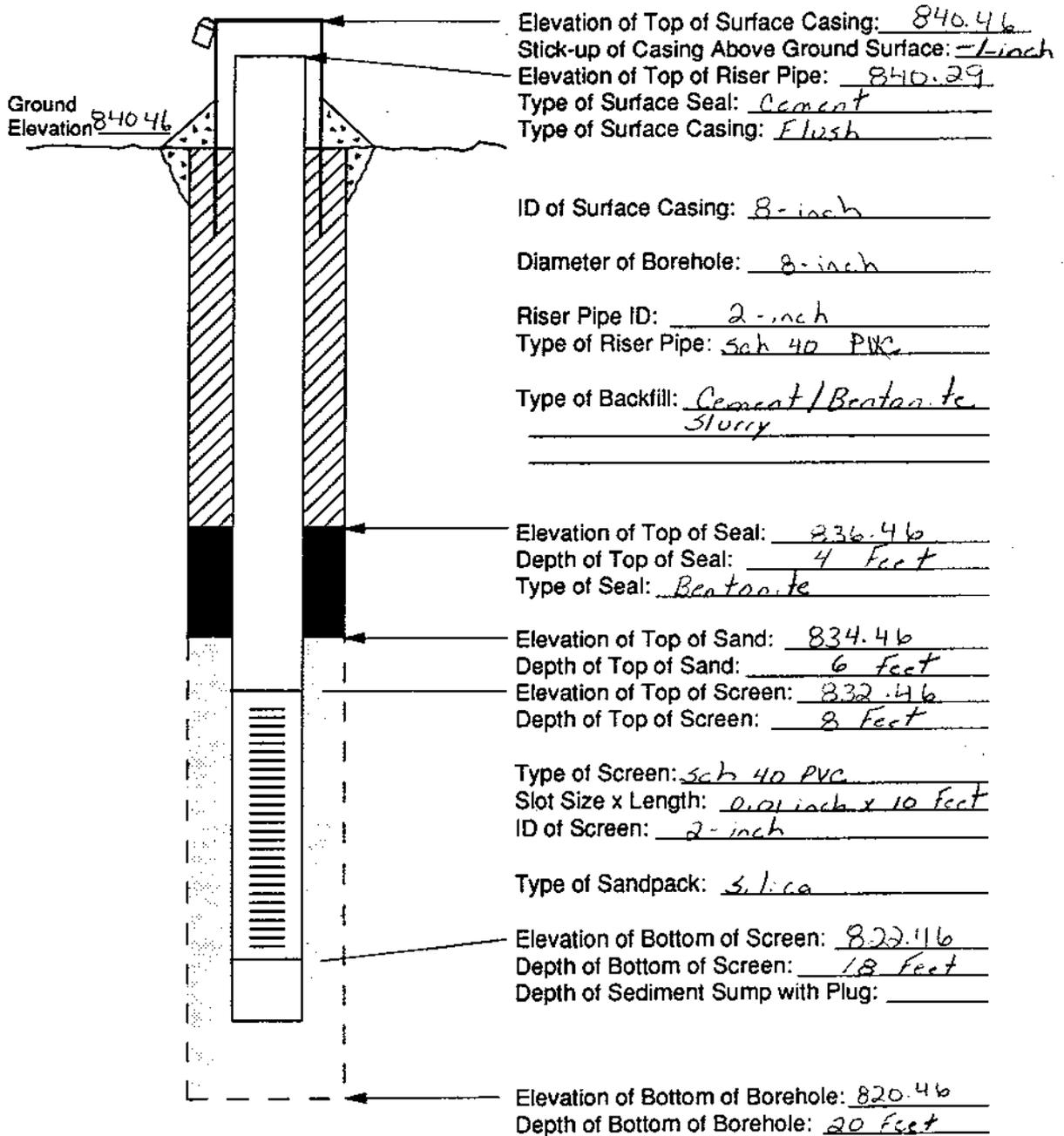
* The laboratory has established the following acceptance criteria for the laboratory control sample/laboratory control sample duplicate (LCS/LCSD) sets employed for organic analyses. All spike recoveries must be equal to or greater than ten percent, and a minimum of ninety percent of the total number of calculated recoveries plus relative percent differences (RPDs) must be within the specified acceptance ranges.

000016

Appendix E
Well Installation Diagrams

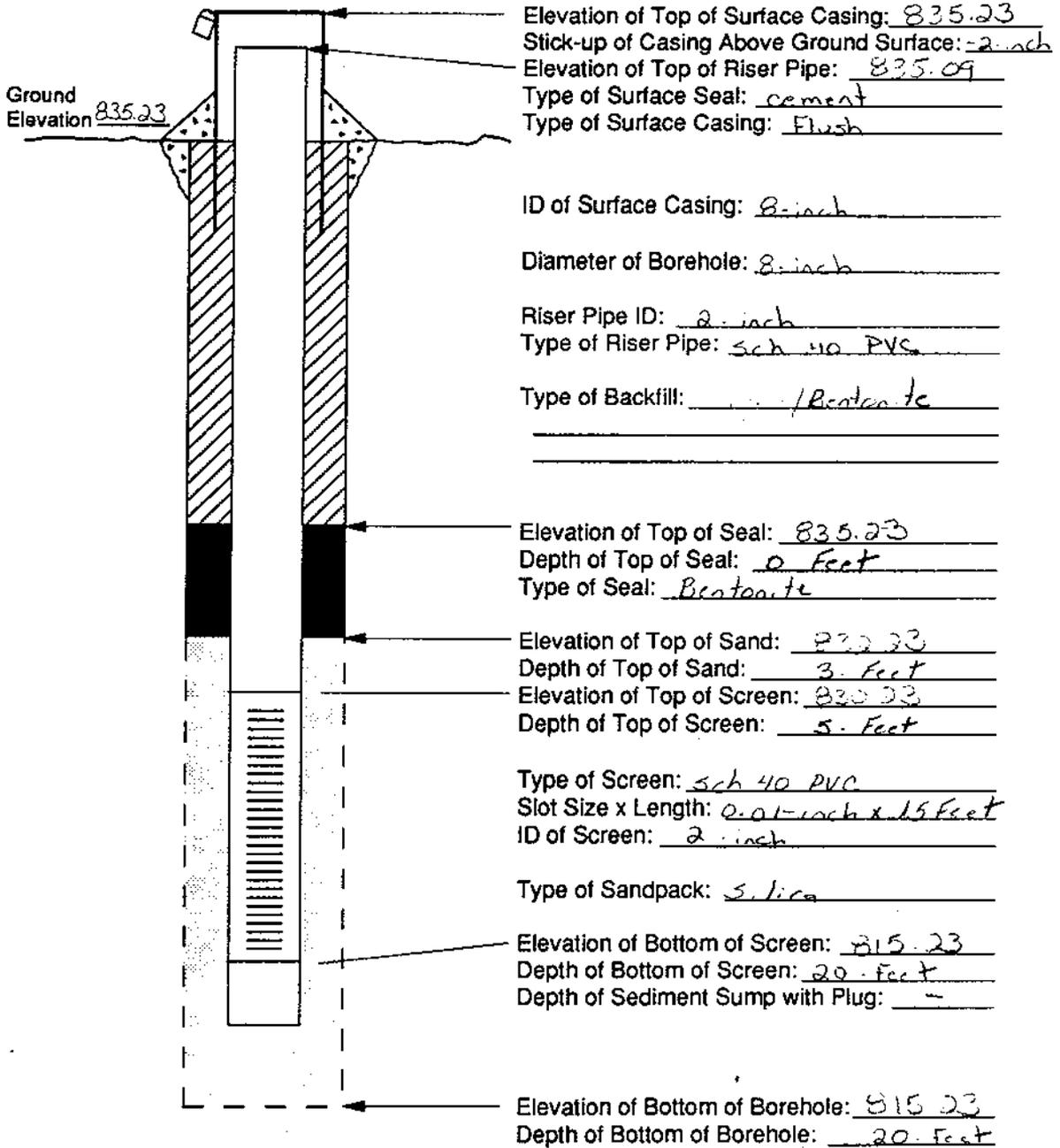
OVERBURDEN MONITORING WELL CONSTRUCTION DIAGRAM

Project Simpson Paper Mill Location Vermont Driller Tn - State
 Project No. 7323-00 Boring No. Enkl - MW-1 Drilling Method Odex
 Date Installed 6/28/94 Development Method Pump and Surge
 Field Geologist Sharon Secovich



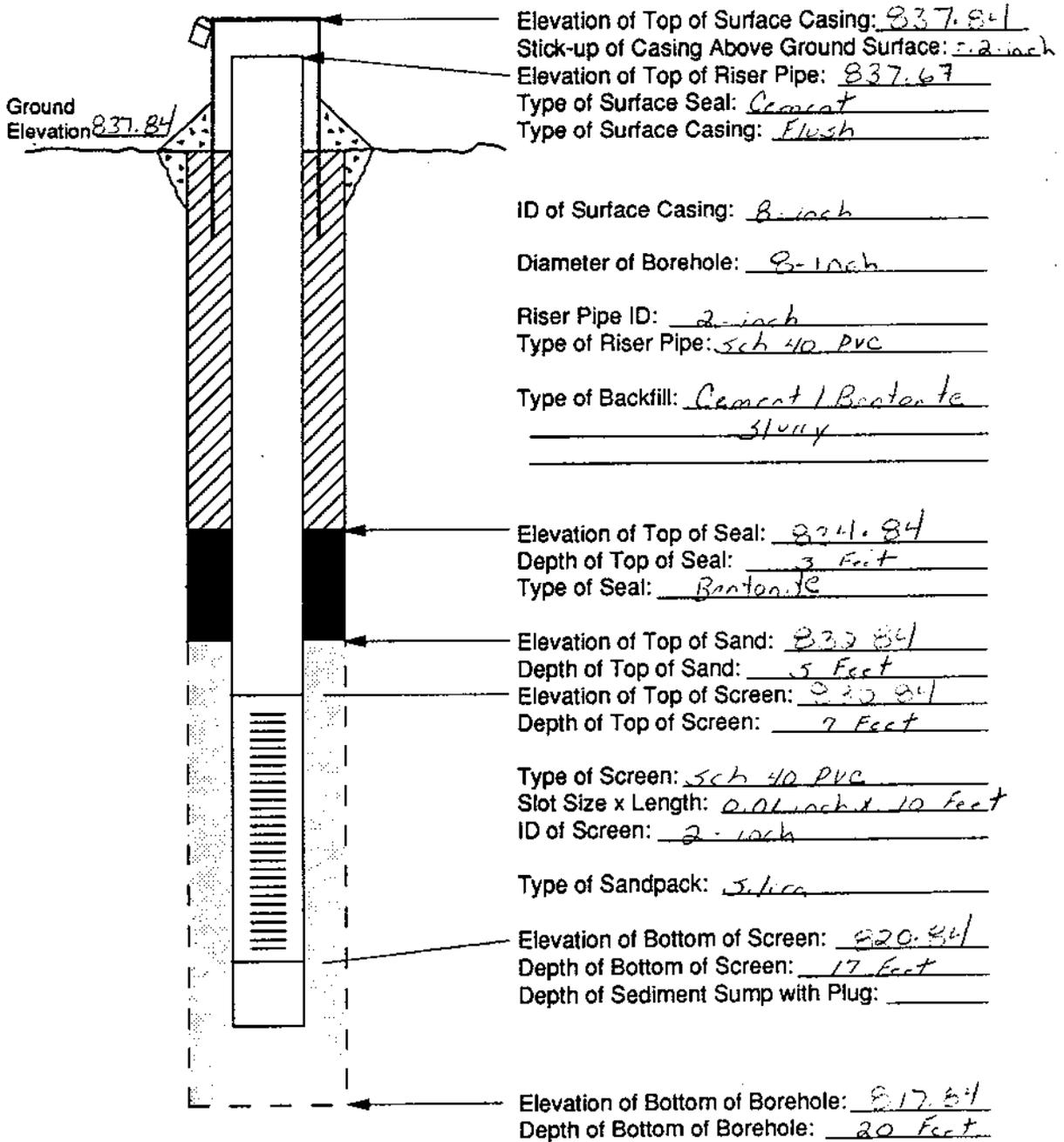
OVERBURDEN MONITORING WELL CONSTRUCTION DIAGRAM

Project Simpson Paper M.II Location Vermont Driller Tc - state
 Project No. 2323-00 Boring No. Task 1 MW-2 Drilling Method Odex
 Date Installed 6/28/92 Development Method Pump and Surge
 Field Geologist Sharon Secauch



OVERBURDEN MONITORING WELL CONSTRUCTION DIAGRAM

Project Simpson Paper Mill Location Vermont Driller Tc-state
 Project No. 7323-00 Boring No. Trak 1 MLK3 Drilling Method Odex
 Date Installed 6/29/94 Development Method Pump and Surge
 Field Geologist Sharon Secor



Appendix F
Sampling Procedures and Records

Sampling Procedures

All samples collected for laboratory analysis were collected in accordance with accepted industry practice. This includes accepted practice for sample collection techniques, sample preservation protocol, chain of custody, and performance of analytical procedures by a qualified analytical laboratory.

Soil samples, were collected from split spoon sampling devices and placed in new, clean 4 oz glass soil sample jars and preserved at 4 °C. All soil sampling equipment was cleaned with Liquinox and DI water followed by a DI water rinse. All drilling equipment and downhole tools were steam cleaned upon mobilization to the site, between borings, and prior to demobilization.

Groundwater monitoring wells MW-1 through MW-3 were sampled for BTEX and MBTE on June 29, 1994. The sampling proceeded from the upgradient well (MW-1) to the downgradient wells (MW-2 and MW-3). All purging and sampling measurements and observations were recorded in the field notebook and on groundwater field sample data records

Using an electronic water level meter, the static water level in each well and the depth to the bottom of the well were measured and recorded. The volume of water in each well was then calculated. Volume in gallons for a 2-inch inside diameter well equals 0.041 times the square of the inside diameter of the well (in inches) times the depth of water (in feet). Each well was then purged of at least three well volumes or until dry using a disposable submersible pump. Temperature, pH, and conductivity were measured and recorded after each well volume was purged.

After purging, the wells were allowed to recharge before collecting the samples. To collect the samples a bailer was lowered to the middle of the screened interval or approximate mid-point of the static water level and allowed to fill. The bailer was then retrieved and the groundwater was carefully transferred from the bailer to two 40 mL glass vials. The samples were kept in cooler with ice at 4 °C until arrival at the laboratory.

The water level meter, temperature, pH and conductivity probes, pump and tubing, and bailer were decontaminated between wells by washing with liquinox and deionized (DI) water followed by a DI water rinse.

GROUNDWATER FIELD SAMPLE DATA RECORD

Project: Simpson Paper Mill Site: Vermont
 Project Number: 7323-00 Date: 6/29/94
 Sample Location ID: Tank 1 MWX3
 Time: Start: 1654 End: 1730 Signature of Sampler: Shannon J. Leonard

Water Level/Well Data

Well Depth 17 Ft. Measured Historical Top of Well Top of Protective Casing
 Well Riser Stick-up -.2 Ft. (from ground) Protective 0.2 Ft. Casing/Well-Difference
 Protective 0 Ft. Casing
 Depth to Water 9.96 Ft. Well Material: PVC SS Well Locked?: Yes No Well Dia. 2 inch 4 inch 6 inch Water Level Equip. Used: Elect. Cond. Probe Float Activated Press. Transducer
 Height of Water Column X .16 Gal/Ft. (2 in.) .65 Gal/Ft. (4 in.) 1.5 Gal/Ft. (6 in.) Gal/Ft. (in.) 1.4 Gal/Vol Total Gal Purged 5 Well Integrity: Prot. Casing Secure Yes No Concrete Collar Intact: Yes No Other: Yes No

Equipment Documentation

Purging/Sampling Equipment Used:

Decontamination Fluids Used:

(if Used For)

Purging	Sampling	Equipment	Equipment ID
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Peristaltic Pump	_____
<input type="checkbox"/>	<input type="checkbox"/>	Submersible Pump	_____
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Bailer	_____
<input checked="" type="checkbox"/>	<input type="checkbox"/>	PVC/Silicon Tubing	_____
<input type="checkbox"/>	<input type="checkbox"/>	Teflon/Silicon Tubing	_____
<input type="checkbox"/>	<input type="checkbox"/>	Airlift	_____
<input type="checkbox"/>	<input type="checkbox"/>	Hand Pump	_____
<input type="checkbox"/>	<input type="checkbox"/>	In-line Filter	_____
<input type="checkbox"/>	<input type="checkbox"/>	Press/Vac Filter	_____

(All That Apply at Location)
 Methanol (100%)
 25% Methanol/75% ASTM Type II water
 Deionized Water
 Liquinox Solution
 Hexane
 HNO₃/D.I. Water Solution
 Potable Water
 None

Field Analysis Data

Ambient Air VOC _____ ppm Well Mouth _____ ppm Field Data Collected In-line In Container Sample Observations: Turbid Clear Cloudy Colored Odor

Purge Data	@ 2 Gal.	@ 4 Gal.	@ 5 Gal.	@ _____ Gal.	@ _____ Gal.
Temperature, Deg. C	<u>15.4</u>	<u>13.9</u>	<u>17.7</u>	_____	_____
pH, units	<u>7.4</u>	<u>7.3</u>	<u>7.3</u>	_____	_____
Specific Conductivity (2000) (umhos/cm. @ 25 Deg. C.)	<u>80</u>	<u>75</u>	<u>102</u>	_____	_____
Oxidation-Reduction, +- mv	_____	_____	_____	_____	_____
Dissolved Oxygen, ppm	_____	_____	_____	_____	_____

Sample Collection Requirements
 If Required at this Location

Analytical Parameter	<input checked="" type="checkbox"/> If Field Filtered	Preservation Method	Volume Required	<input checked="" type="checkbox"/> If Sample Collected	Sample Bottle IDs
<u>BTEX/MNTE</u>	<input type="checkbox"/>	_____	<u>2240ml</u>	<input checked="" type="checkbox"/>	<u>Tank 1 / MWX3</u>
_____	<input type="checkbox"/>	_____	_____	<input type="checkbox"/>	_____
_____	<input type="checkbox"/>	_____	_____	<input type="checkbox"/>	_____
_____	<input type="checkbox"/>	_____	_____	<input type="checkbox"/>	_____
_____	<input type="checkbox"/>	_____	_____	<input type="checkbox"/>	_____

Notes: well dry after ~5 gallons. let recharge then sampled. purge water and sample water slightly salty

GROUNDWATER FIELD SAMPLE DATA RECORD

Project: Simpson Paper M. II Site: Vermont
 Project Number: 7323-00 Date: 6/29/91
 Sample Location ID: Tank 1 Mon-2
 Time: Start: 1700 End: 1830 Signature of Sampler: Sharon J. Seaward

Water Level/Well Data

Well Depth _____ Ft. Measured Historical Top of Well Top of Protective Casing
 Well Riser Stick-up 2 Ft. (from ground) Protective 0.2 Ft. Casing/Well-Difference
 Protective 0 Ft. Casing
 Depth to Water _____ Ft. Well Material: PVC SS Well Locked?: Yes No Well Dia. 2 inch 4 inch 6 inch Water Level Equip. Used: Elect. Cond. Probe Float Activated Press. Transducer
 Height of Water Column X .16 Gal/Ft. (2 in.) .65 Gal/Ft. (4 in.) 1.5 Gal/Ft. (6 in.) Gal/Ft. (in.) = 1 Gal/Vol Well Integrity: Yes No
13.89 Ft. Total Gal Purged 2.5 Prot. Casing Secure Concrete Collar Intact Other _____

Equipment Documentation

Purging/Sampling Equipment Used: **Decontamination Fluids Used:**

<input checked="" type="checkbox"/> If Used For				<input checked="" type="checkbox"/> All That Apply at Location
Purging	Sampling	Equipment	ID	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Peristaltic Pump	_____	<input type="checkbox"/> Methanol (100%)
<input type="checkbox"/>	<input type="checkbox"/>	Submersible Pump	_____	<input type="checkbox"/> 25% Methanol/75% ASTM Type II water
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Bailer	_____	<input checked="" type="checkbox"/> Deionized Water
<input checked="" type="checkbox"/>	<input type="checkbox"/>	PVC/Silicon Tubing	_____	<input checked="" type="checkbox"/> Liquinox Solution
<input type="checkbox"/>	<input type="checkbox"/>	Teflon/Silicon Tubing	_____	<input type="checkbox"/> Hexane
<input type="checkbox"/>	<input type="checkbox"/>	Airlift	_____	<input type="checkbox"/> HNO ₃ /D.I. Water Solution
<input type="checkbox"/>	<input type="checkbox"/>	Hand Pump	_____	<input type="checkbox"/> Potable Water
<input type="checkbox"/>	<input type="checkbox"/>	In-line Filter	_____	<input type="checkbox"/> None
<input type="checkbox"/>	<input type="checkbox"/>	Press/Vac Filter	_____	_____

Field Analysis Data

Ambient Air VOC _____ ppm Well Mouth _____ ppm Field Data Collected In-line In Container Sample Observations: Turbid Clear Cloudy
 Colored Odor

Purge Data	@ <u>1</u> Gal.	@ <u>2</u> Gal.	@ <u>2.5</u> Gal.	@ _____ Gal.	@ _____ Gal.
Temperature, Deg. C	<u>17.4</u>	<u>16.4</u>	<u>15.0</u>	_____	_____
pH, units	<u>6.7</u>	<u>6.7</u>	<u>6.6</u>	_____	_____
Specific Conductivity (2000) X (umhos/cm. @ 25 Deg. C.)	<u>0.6</u>	<u>0.6</u>	<u>1.7</u>	_____	_____
Oxidation-Reduction, +/- mv	_____	_____	_____	_____	_____
Dissolved Oxygen, ppm	_____	_____	_____	_____	_____

Sample Collection Requirements
 If Required at this Location

Analytical Parameter	<input checked="" type="checkbox"/> If Field Filtered	Preservation Method	Volume Required	<input checked="" type="checkbox"/> If Sample Collected	Sample Bottle IDs
<u>BTEX/MPTE</u>	<input type="checkbox"/>	_____	<u>2 x 40 ml</u>	<input checked="" type="checkbox"/>	<u>Tank 1/Mon-2</u>
_____	<input type="checkbox"/>	_____	_____	<input type="checkbox"/>	_____
_____	<input type="checkbox"/>	_____	_____	<input type="checkbox"/>	_____
_____	<input type="checkbox"/>	_____	_____	<input type="checkbox"/>	_____
_____	<input type="checkbox"/>	_____	_____	<input type="checkbox"/>	_____

Notes: well dry after ~2.5 gallons / let recharge then sampled
Very difficult to collect sample vials without bubbles
It took several tries.