WISCONSIN
DEPT. OF NATURAL RESOURCES

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Lake Michigan District Headquarters
Solid Waste Office
1125 N. Military Avenue
P.O. Box 10448
Green Bay, WI 54307-0448
Telephone #: (414)492-5916
Telefax #: (414)492-5859

George E. Meyer, Secretary
William R. Selbig, District Director

June 9, 1994

BOB OVERLY
JAMES RIVER CORPORATION
GREEN BAY MILL
P O BOX 23790
GREEN BAY, WI 54305-3790

RE: Case Closure - James River Train Leak.
ERRP CASE #05-00372

Dear Mr. Overly:

The Department's Remedial Action Closure Review Panel has just completed a review of the above referenced case. This panel reviews environmental remediation cases for compliance with state laws, standards and guidelines to maintain consistency in the closeout of cases. After a careful review, the panel has decided to close this case.

At the present time, it appears that actions have been taken to the extent practical to restore the environment and minimize the harmful effects from this discharge to the air, lands, and waters of the state. The Department is requiring no further remedial action at this time. This case will appear as closed on the Emergency and Remedial Response Program's tracking system.

Please be aware, however, that this letter does not absolve the current, or any future owner of this property from future decisions regarding this site or impacts which may be discovered and/or traced back to past or future activities at this site.

Please be aware that this letter does not represent Department "certification" that any response actions taken at your property, such as site investigation, remedial action or case closure under the ch. NR 700 series, are "approved by the Department," as those terms are used in the "remediated property;purchaser liability" section of the hazardous substance discharge law, s. 144.765, Stats.

Those persons wishing to receive a Department-issued exemption from liability under s. 144.765, Stats., must obtain a separate approval outside those standard approvals granted to sites or facilities as part of the ch. NR 700 response process. Please contact Mark Giesfeldt at (608)267-7562 or Darsi Foss at (608)267-6713 to receive further information of this program. The Department advises persons to contact the Department and receive "pre-approval" for this program at the earliest possible point in the response process, such as before developing the site investigation workplan required by ch. NR 716.

Printed on Recycled Paper

The Department appreciates your efforts to protect and restore the environment at this site. If you have any questions regarding the content of this letter, please contact me at (414) 492-5921.

Sincerely,

Kristin Nell

Kristin Nell
Hydrogeologist
Emergency & Remedial Response Program

cc: Roger Miller; STS Consultants Ltd.
1035 Kepler Drive; Green Bay, WI 54311

CASE # ERRP 05-00372

CASE SUMMARY AND CLOSEOUT

PRELIM. REVIEW: _____

REMEDIAL ACTION COMPLETED
CASE CLOSEOUT
DATE: 5-10-94
ROUTE TO:
☑ URBEN
☑ ROSSBERG
☑ STOLL

PROJECT MANAGER: Robert J. Overly

FIRM OR AGENCY: James River Corporation

DATE: _____

NAME OF SITE: James River Green Bay Mill Locomotive Release Areas

LOCATION: 500 Day St., Green Bay COUNTY: Brown

TYPE OF DISCHARGE: ERP X LUST _____ Other _____

CONTAMINATION TYPE: (list all compounds) Diesel

CONTAMINATION PRESENT IN: Soil X Groundwater _____ Other _____

I. SOIL:

Extent Defined: Yes X No _____ N/A _____

Number of: Lab Analyses 27 Field Analyses 40 No Data 0

Methodology and/or Detection Devices: 27 DRO, 2 PVOC, 2 Flash Point, 2 Corrosivity, 2 PAHs, 2 TCLP Metals, 40 FID Field Screens

Total Number of Sample Points: 40

PRE-REMEDIATION / POST-REMEDIATION

Contaminant	Location	Concentration	Date	Concentration	Date	Applicable. Std
Diesel	Plume No. 1	130-1500 ppm DRO	11/92	<7.2 ppm DRO	7/93	10 ppm DRO
Diesel	Plume No. 2	30-1800 ppm DRO	11/92	<9.3 ppm DRO	8/93	10 ppm DRO

REMEDIAL ACTION TAKEN: Excavated petroleum-impacted soil to the appoximate depth of the water table, removing both plumes.

CLOSURE JUSTIFICATION: No DRO was detected in several soil samples collected from the base and perimeter of each excavation. No DRO was detected in soil samples collected from the approximate depth of the water table.

Soil Remedial Action Completed: Yes X No _____

This recommendation for case closure is based on all the available data as of this date 12/10/93 and

submitted by Robert J. Overly (Name) JAMES RIVER CORP (Firm or Agency) (12/10/93)

II. GROUNDWATER:

Groundwater encountered: Yes X No _____ Depth to Groundwater: 3' - 7' below grade

Groundwater impacted: Yes _____ No _____ Extent Defined: Yes _____ No _____ N/A _____

Number of: Lab Analyses _____ Field Analyses _____ No Data X

Methodology and/or detection devices: _____

GROUNDWATER MONITORING:

Excavation water samples: _____ # Recovery Sumps: _____
NR 141 Monitoring Wells: _____ # NR 141 Temporary Wells: _____
Prv. Water Supply Wells: _____ # Municipal Wells: _____

TOTAL # OF SAMPLE ROUNDS: _____

PRE-REMEDIATION				POST-REMEDIATION		
Contaminant	Location	Concentration	Date	Concentration	Date	Applicable. Std

REMEDIAL ACTION TAKEN:

CLOSURE JUSTIFICATION: No DRO detected in soil samples collected from the approximate depth of the water table.

CASE SUMMARY:

Groundwater Remedial Action Completed: Yes ____ No ____ N/A Has site been remediated to current standards? Yes _____ No _____

This recommendation for case closure is based on all the available data as of this date 12/10/93 and submitted by Robert J Oneeley (Name) of JAMES RIVER CORP (FIRM OR AGENCY) (12/10/93).

COMMITTEE RECOMMENDATION: REMEDIAL ACTION COMPLETED: YES X NO ____

FURTHER WORK NEEDED: _____

Revised: 11/93, closfrm.hc

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

WISCONSIN
DEPT. OF NATURAL RESOURCES

George E. Meyer, Secretary
William R. Selbig, District Director

Lake Michigan District Headquarters
Solid Waste Office
1125 N. Military Avenue
P.O. Box 10448
Green Bay, WI 54307-0448
Telephone #: (414)492-5916
Telefax #: (414)492-5859

COPY

December 23, 1993

Bob Overly
James River Corporation
Green Bay Mill
P.O. Box 23790
Green Bay, WI 54305-3790

SUBJECT: Acknowledgement of Receipt

Facility/Site Name:	James River - Train Leak
Project Number:	19784XF
ERRP Tracking Number:	05-00372
Type of Submittal:	Soil Removal Documentation
Submitted By:	Rodger Miller STS Consultants Ltd.
Date Received:	December 17, 1993
Received By:	Roxanne L. Nelezen, Program Assistant Emergency and Remedial Response Program

Note: The Case Closure Panel will review your application for case closure.

cc: Rodger Miller; STS Consultants Ltd.
1035 Kepler Drive; Green Bay, WI 54311

Printed on Recycled Paper

Received 12-17-93

James River Corporation

Soil Removal Documentation

Locomotive Release Areas
James River Green Bay Mill
Green Bay, Wisconsin

December 16, 1993

RECEIVED
DEC 17 1993
WD SOLID WASTE

Mr. Robert J. Overly
James River Corporation
Green Bay Mill
P.O. Box 23790
Green Bay, Wisconsin 54305-3790

Re: Soil Removal Documentation for Remediation of the Locomotive Release Areas at the James River Green Bay Mill (ERRP Case 05-00372) -- STS Project 19784XF

Dear Mr. Overly:

STS Consultants, Ltd., (STS) is pleased to submit this report which presents the results of the soil removal documentation for remediation of the locomotive release areas at the James River Mill property located at 500 Day Street, Green Bay, Wisconsin. This report was prepared under STS Proposal No. 5582P and authorized under James River Purchase Order No. 214431 dated October 9, 1992, including subsequent verbal authorization for soil removal documentation services. As we discussed, one (1) copy of the final report was also submitted to the Wisconsin Department of Natural Resources (WDNR). The original WDNR Lake Michigan District Case Summary and Closeout Form was included with report submitted to the WDNR.

The attached report presents the procedures and results of soil removal documentation, excavation sampling, and soil laboratory analyses, along with our evaluation of the effectiveness of soil remediation activities. Based on the field and laboratory results, it is our opinion that impacted soil from the two plumes identified was excavated on site. Soil samples tested from the excavation perimeters did not contain detectable diesel range organics (DRO). On September 7 and 8, 1993, impacted soil stockpiled on site was hauled to the Brown County East Landfill for disposal, the low cost soil remediation alternative. We recommend that the WDNR consider this case for closure.

We appreciate this opportunity to provide you with environmental services. If you have any questions regarding this report, please contact us.

Sincerely,

STS CONSULTANTS LTD.

Roger A. Miller

Roger A. Miller
Senior Hydrogeologist

James A. Senger

James A. Senger, CPG
Principal Geologist

RAM/lmh

STS Consultants Ltd.
Consulting Engineers

1035 Kepler Drive
Green Bay, Wisconsin 54311
414.468.1978/Fax 414.468.3312

Copy to:

Ms. Roxanne L. Nelezen (1 copy)
Wisconsin Department of Natural Resources
Lake Michigan District Headquarters
1125 North Military Avenue
P.O. Box 10448
Green Bay, Wisconsin 53407-0448

Report

PROJECT

SOIL REMOVAL DOCUMENTATION
LOCOMOTIVE RELEASE AREAS
JAMES RIVER MILL
GREEN BAY, WISCONSIN

CLIENT

JAMES RIVER CORPORATION
GREEN BAY MILL
P.O. BOX 23790
GREEN BAY, WISCONSIN 54305-3790

Project No. 19784XF

Date DECEMBER 1993

STS Consultants Ltd.
Consulting Engineers
1035 Kepler Drive
Green Bay, Wisconsin 54311
414.468.1978/Fax 414.468.3312

TABLE OF CONTENTS

	Page
1.0 BACKGROUND	1
2.0 PROCEDURES	3
2.1 Site Safety Plan	3
2.2 Field Screening	3
2.3 Laboratory Soil Analyses	4
3.0 RESULTS	5
3.1 Soil Excavation Documentation	5
3.1.1 Plume No. 1	5
3.1.2 Plume No. 2	8
3.2 Soil Disposal	9
4.0 ANALYSIS AND RECOMMENDATIONS	11
5.0 GENERAL QUALIFICATIONS	12
6.0 REFERENCE	13

LIST OF TABLES

Table 1	Soil Field and Laboratory Results	6
Table 2	Scale Tickets for Landfilled Soil	10

LIST OF FIGURES

Figure 1	Site Location Diagram	2
Figure 2	Excavation Sample Locations	7

LIST OF APPENDICES

Appendix A	Photographic Log Excavation Photographs
Appendix B	Laboratory Analytical Reports
Appendix C	Brown County Landfill Disposal Approval Scale Tickets from Brown County For Landfilled Soil
Appendix D	WDNR Lake Michigan District Case Summary and Closeout Form (in pocket)

SOIL REMOVAL DOCUMENTATION
LOCOMOTIVE RELEASE AREAS
JAMES RIVER MILL
GREEN BAY, WISCONSIN

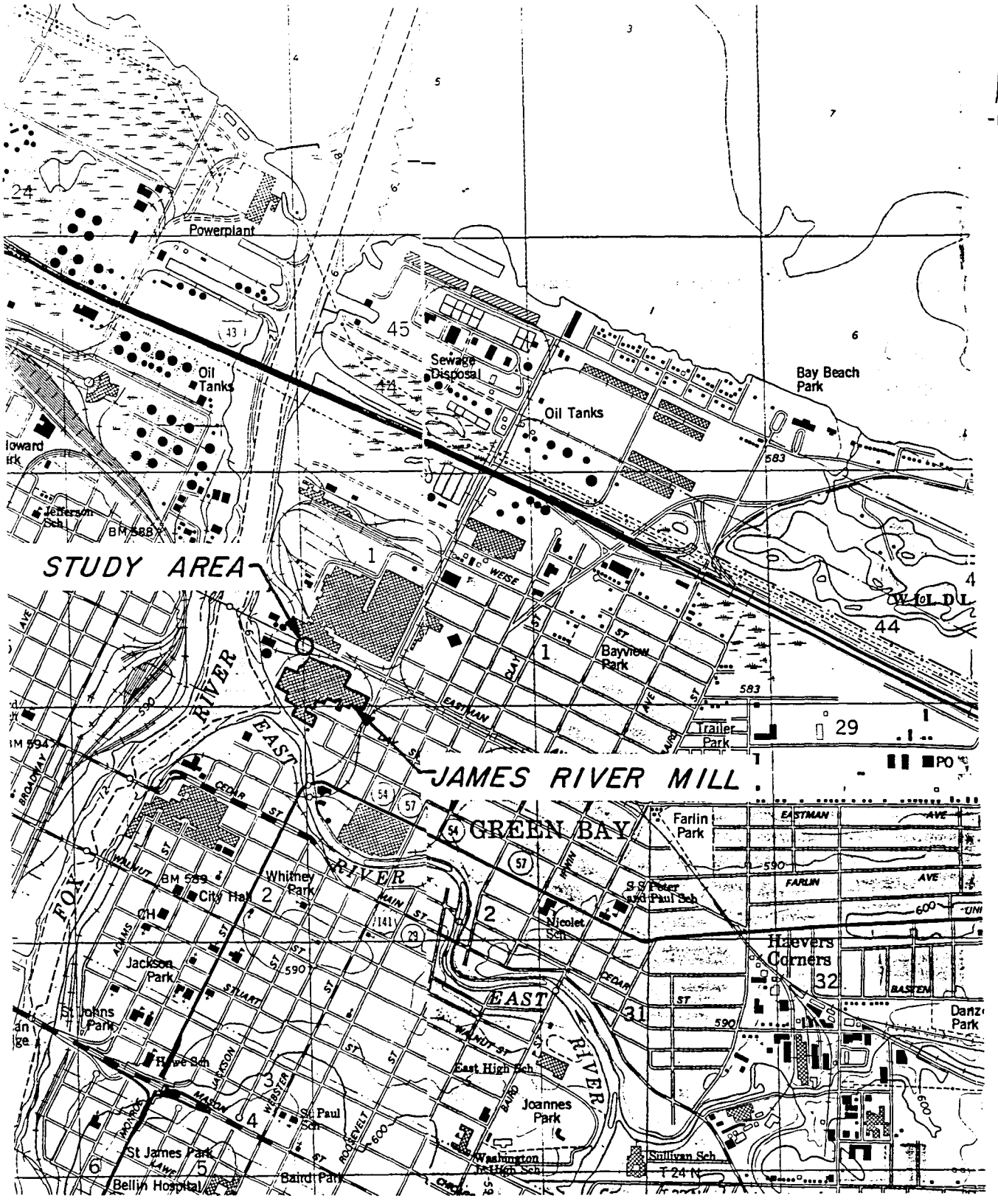
1.0 BACKGROUND

The subject property is located at 500 Day Street between Quincy Street and the Fox River in the City of Green Bay, Wisconsin, and is developed with a paper mill (Figure 1). A railroad yard, which services the mill, is located in the northwestern portion of the property. James River operates one diesel switch locomotive to transport freight on site. James River personnel noted surface staining from apparent release(s) from the locomotive at two locations along Track No. 5 during rail maintenance operations during the summer of 1992.

James River notified the Wisconsin Department of Natural Resources (WDNR) of the apparent surface releases of petroleum products. In a letter from the WDNR dated August 4, 1992, WDNR requested that a Work Plan be prepared and a site investigation be performed at the apparent locomotive release locations.

Results of the subsurface site assessment of the locomotive release areas were summarized in the Subsurface Site Assessment Report dated September 8, 1993. The vertical and lateral extent of zones of petroleum-impacted soil was estimated using test pits and hand augers. Test pits were performed adjacent to the railroad tracks and hand augers were performed through the gravel rail bed to define the extent of petroleum impacts in both release locations. Based on the evaluation of soil remediation alternatives, soil excavation and landfilling was identified as the low cost corrective action. Additional background information, including a discussion of the regional geology and hydrogeology, was presented in the Subsurface Site Assessment Report.

WHEELING REPRODUCTIONS 561873



MAP SOURCE: GREEN BAY EAST & GREEN BAY WEST, WIS. QUADRANGLES, BOTH DATED 1982.

STS Consultants Ltd.
Consulting Engineers

PROJECT/CLIENT

JAMES RIVER CORPORATION
GREEN BAY MILL
GREEN BAY, WI.

SITE LOCATION DIAGRAM

DRAWN BY	P.D.P.	11-26-93
CHECKED BY	RAM	11-30-93
APPROVED BY		
SCALE 1" = 2000'	FIGURE NO. 1	
STS DRAWING NO. 19784XF		

2.0 PROCEDURES

This section presents the field documentation and laboratory testing program implemented to complete the soil removal documentation of the locomotive release areas.

2.1 Site Safety Plan

Prior to the start of field work, STS prepared a site specific health and safety plan for its own employees in accordance with OSHA regulations. The plan provided guidance for STS field personnel as to the potential wastes that may be encountered, personal protective equipment required, and local emergency resources.

2.2 Field Screening

Soil samples from the excavations were collected from the backhoe bucket for field screening. Recovered soil samples were screened in the field using a Sensidyne flame ionization detector (FID) equipped with a hydrogen source flame. Soil samples for FID screening were collected from the backhoe bucket and placed in clean, quart-size glass jars with metal screw-on lids. After one half of the jar was filled with soil, a sheet of aluminum foil was placed over the open end of the jar and the lids securely closed. FID screening of recovered soil samples was accomplished by shaking the soil sample jar for several seconds, followed by inserting the tip of the FID probe a few inches into the jar through the aluminum foil cover. The highest value read off the FID during the first few seconds after inserting the probe tip was recorded as the FID reading for the soil sample.

2.3 Laboratory Soil Analyses

The following laboratory analyses were performed on recovered soil samples: 13 diesel range organics (DRO) and 2 petroleum volatile organic compound (PVOC) tests. Soil samples were collected in appropriate containers and preserved as outlined in WDNR Leaking Underground Storage Tank (LUST) Analytical Guidance Publication SW-130, April 1992. Soil samples were stored on ice in the field and delivered via overnight courier to Hazleton Environmental Services, Inc., of Madison, Wisconsin, for testing.

One (1) soil sample from Plume No. 1 (S-13) and two (2) soil samples from Plume No. 2 (S-1 and S-3) were submitted to BioRenewal Technologies, Inc., of Madison, Wisconsin, for comparative enumeration assays of soil microbes. After the samples were received by the laboratory, serial dilutions of the initial sample were prepared and replicates of each dilution were transferred to two (2) types of media culture plates. One plate contained agar and an unrestrictive growth carbon source. The second plate contained a specific carbon source. For this project, diesel was used for the specific carbon source. After adequate incubation (4-6 weeks), the number of colony forming units (CFUs) was measured for both media and the concentration of CFUs/g of soil was calculated. CFUs for the total and specific degrader populations were reported. Nutrient analysis (% organic matter, phosphorous, potassium, total kjeldahl nitrogen [TKN], ammonium) was also performed on the soil samples submitted for the comparative enumeration assay.

3.0 RESULTS

3.1 Soil Excavation Documentation

The soil removal schedule coincided with track maintenance activities during the summer of 1993. As described in the Subsurface Site Assessment Report dated September 8, 1993, the vertical and lateral extent of zones of petroleum-impacted soil was estimated prior to excavation.

3.1.1 Plume No. 1 - Soil was excavated from Plume No. 1 using a backhoe on July 7, 1993. The excavation for Plume No. 1 was extended to approximate dimensions of 35 by 25 feet with a depth of 7 feet. Soil consisted primarily of silty clay fill containing wood fragments. The apparent water table was encountered at depths of 6 to 7 feet in this excavation. No DRO was detected in seven soil samples tested from this excavation (Table 1). In addition, no PVOCs were detected in Soil Sample S-13 from the center of the excavation. Excavation sample locations are depicted on Figure 2.

One 4-inch diameter PVC sump was installed in the excavation. The sump was constructed of 4-inch diameter Schedule 40 PVC with a 5-foot length of No. 10 slot screen (0.01-inch manufactured slots). The sump was installed such that the screened section extended above the apparent groundwater table on the day of installation. The sump installation was completed with a bentonite surface seal (about 1-foot of hydrated granular bentonite) and a flush-mount protector pipe.

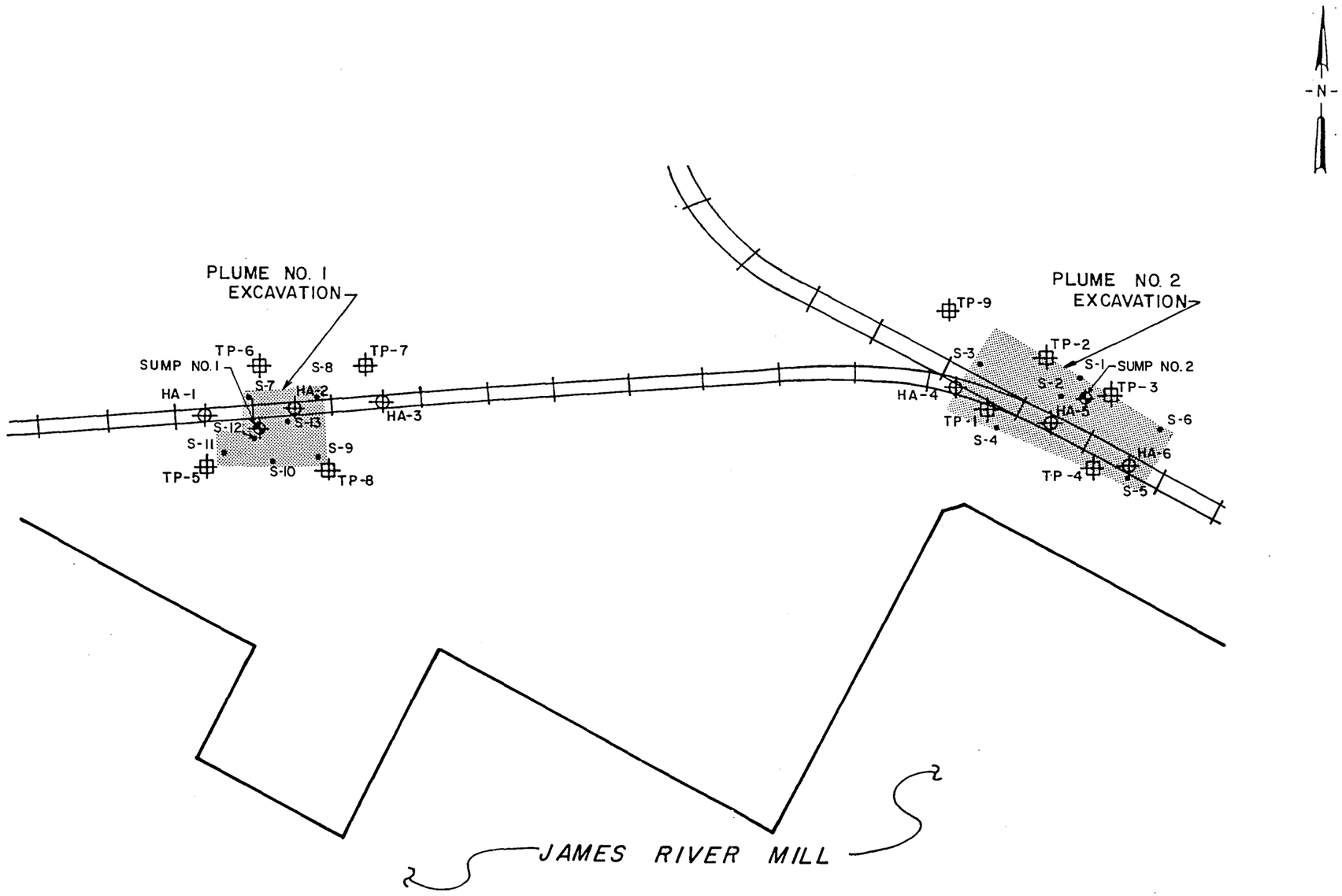
JAMES RIVER GREEN BAY MILL TABLE 1. SOIL FIELD AND LABORATORY RESULTS 19784XF

Sample Location	Sample No.	Sample Depth (ft)	FID Reading	DRO (mg/kg)	Benzene (ug/kg)	Total Microbial Population (CFUs/g)	Specific Degrader Population (CFUs/g)	Organic Matter %	TKN (mg/kg)	C/N
PLUME NO. 1	S-7	6-7	400	<7.2						
	S-8	4-5	50	<8.0						
"	S-9	6	500	<12						
"	S-10	5	50	<7.2						
"	S-11	5	700	<19						
"	S-12	8	1000	<9.1						
"	S-13	7	700	<8.1	<1.2	7.7E+05	6.6E+03	0.2	196	10.2
PLUME NO. 2	S-1	3-4	NA	<14		2.0E+07	3.1E+06	7.9	5592	14.1
	S-2	3-4	NA	<25						
"	S-3	3-4	NA	<9.3	<1.2	1.0E+07	5.3E+05	1.2	1116	10.8
"	S-4	3-4	NA	<13						
"	S-5	3-4	NA	<13						
"	S-6	3-4	NA	<12						

NOTES:

1) FID = Sensidyne Flame Ionization Detector. FID did not function properly when Plume No. 2 samples were collected.
2) DRO = Diesel Range Organics by WDNR Modified DRO Method.
3) TKN = Total Kjeldahl Nitrogen.
4) C/N = Carbon to Nitrogen Ratio expressed as % organic matter (converted to ppm [mg/kg]) divided by TKN.
5) CFUs = Colony Forming Units.

e:\ram\tables\jrloco1.wk1



NOTE:

RESULTS OF TEST PIT AND HAND AUGER SAMPLES WERE PRESENTED IN THE SUBSURFACE SITE ASSESSMENT REPORT DATED SEPT. 8, 1993. (STS PROJECT NO. 19784XF)

LEGEND

- TEST PIT LOCATION
- HAND AUGER LOCATION
- PVC SUMP
- S-1 SOIL SAMPLE LOCATION IN EXCAVATION

DRAWN BY D.T.B.	DATE 10-18-93	
CHECKED BY RAM	DATE 10-18-93	
APPROVED BY	DATE	
CADFILE		

JAMES RIVER CORPORATION
GREEN BAY MILL
LOCOMOTIVE RELEASE AREAS

EXCAVATION SAMPLE LOCATIONS

STS Consultants Ltd.
Consulting Engineers

STS PROJECT NO. 19784XF

STS PROJECT FILE

SCALE 1" = 40'

FIGURE NO. 2

BRUNING. 543602

Sample S-13 from Plume No. 1 was also tested for total and specific-degrader microbial populations. As indicated on Table 1 and in the report from BioRenewal Technologies in Appendix B, a viable population of total bacteria (7.7×10^5 CFU/g) was identified in this sample. Specific carbon degraders were also quantified in this sample (6.6×10^3 CFU/g), but at a relatively low concentration. Although additional corrective actions are not recommended for this project, results of nutrient testing suggest that soil conditions are suitable for passive bioremediation. The carbon/nitrogen (C/N) ratio for this sample was 10.2. C/N ratios of approximately 10 have been reported as an indicator that the nitrogen content is sufficient for aerobic bioremediation. (The C/N ratio is expressed as percent organic matter [converted to ppm] divided by TKN.) In addition, C/N ratios of ≤15 to 30 are recognized in composting literature to represent a range in which nitrogen does not impose a rate limitation in aerobic compost systems (Haug, 1993). Laboratory analytical reports are provided in Appendix B.

3.1.2 Plume No. 2 - Soil was excavated from Plume No. 2 using a backhoe on June 15, 1993. The excavation for Plume No. 2 was extended to dimensions of approximately 68 feet by 28 feet with depths of 4½ to 5½ feet. Several logs were removed from this excavation directly beneath the railroad tracks. Beneath the logs, soil consisted of miscellaneous fill including clay, organic silt, sand, and wood fragments. As summarized on Table 1, no DRO was detected in soil samples collected from the perimeter or base of this excavation. In addition, no PVOCs were detected in Soil Sample S-3.

Groundwater entered this excavation at a depth of 3 to 4 feet below grade. One 4-inch diameter Schedule 40 PVC sump with a flush-mount protector pipe was also installed in this excavation as described above.

Samples S-1 and S-3 from Plume No. 2 were also tested for total and specific-degrader microbial populations. As summarized on Table 1 and in the report from BioRenewal Technologies in Appendix B, viable total and specific-degrader microbial populations (>$1x10^4$ CFUs/g) were reported in samples from this excavation. Although additional corrective actions are not recommended for this project, results of nutrient testing suggest that soil conditions are suitable for passive bioremediation. The carbon/nitrogen (C/N) ratio for these samples ranged from 10.8 (S-3) to 14.1 (S-1).

3.2 Soil Disposal

Soil excavated from the two plumes was temporarily stored on a paved surface area on site, covered with plastic, and bermed with wood chips. Approval to landfill the soil was obtained from the Brown County Solid Waste Department on August 30, 1993 (Appendix C). Petroleum-impacted soil was hauled to the Brown County East Landfill on September 7 and 8, 1993. As indicated on Table 2, a summary of scale tickets from the landfill, 582.77 tons of soil were landfilled for this project. Copies of the scale tickets are also provided in Appendix C.

Table 2

Scale Tickets for Landfilled Soil
James River Locomotive Release Areas
James River Green Bay Mill

Scale Ticket	Net Weight
409429	34840
409430	23180
409431	34240
409434	30200
409455	33620
409458	29440
409459	30260
409460	27200
409471	30840
409475	27660
409474	43220
409477	36460
409496	38260
409500	28460
409501	36960
409502	30200
409518	34320
409519	34500
409522	35680
409530	36620
409536	33400
409541	39400
409545	29140
409552	34360
409561	36220
409568	34700
409570	36580
409583	34080
409585	36080
409588	35040
409590	33480
409609	29960
409610	34120
409616	30660
409617	32160
Total Weight (lbs):	1165540
Total Weight (tons):	582.77

4.0 ANALYSIS AND RECOMMENDATIONS

Based on the field and laboratory results, it is our opinion that petroleum-impacted soil was removed from both locomotive release areas. No DRO was detected in soil samples collected from both excavations at or near the depth of the water table. While additional corrective actions are not recommended, soil nutrient conditions on site appear favorable for passive bioremediation.

The two sumps were not sampled because no DRO was detected in soil samples from the base and perimeter of both excavations. We recommend that the sumps be properly abandoned according to Wisconsin Administrative Code NR 141 and that the WDNR consider this case for closure. A partially completed Lake Michigan District WDNR Case Summary and Closeout Form is provided in Appendix D to facilitate WDNR review of this case for closure.

5.0 GENERAL QUALIFICATIONS

Conclusions presented in this report are based on subsurface conditions as revealed in excavations, surface conditions noted at the time of the study, subcontract laboratory analysis, and our professional interpretation of this information. Variations may exist in both the horizontal and vertical directions away from the limits of excavations. The scope of this report is limited to the specific project and locations described herein.

6.0 REFERENCE

Haug, R.T., 1993, The Practical Handbook of Compost Engineering: Lewis Publishers, Boca Raton, Florida, 717p.

APPENDIX A

Photographic Log
Excavation Photographs

PHOTOGRAPHIC LOG

Soil Removal Documentation
Locomotive Release Areas
James River Corporation
Green Bay Mill

Photo 1 View of Locomotive Release Area No. 1 prior to excavation.

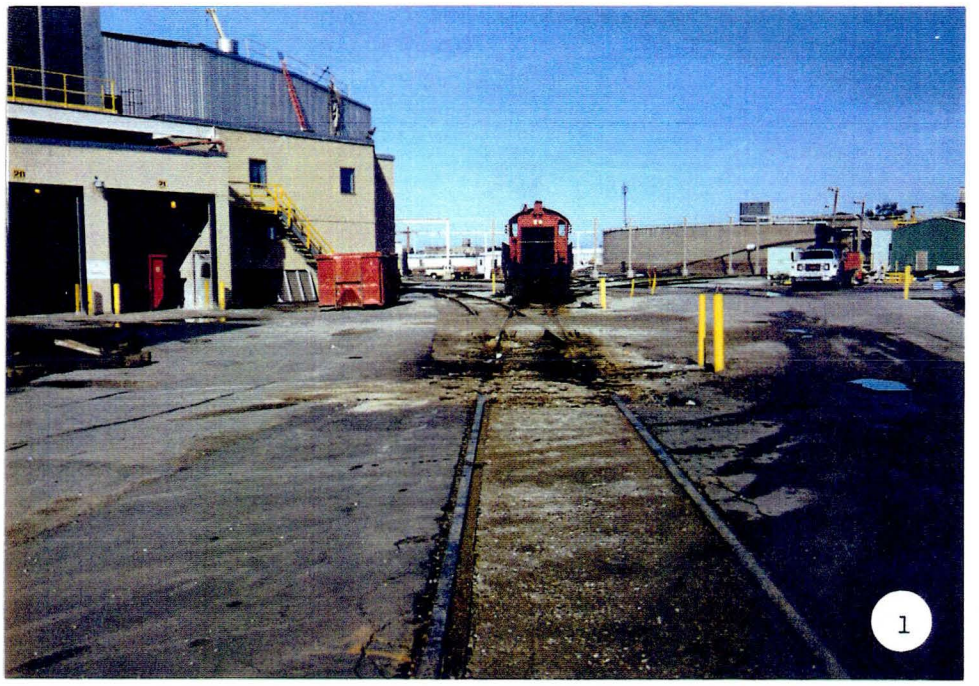
Photo 2 Northern wall of the excavation for Plume No. 1. Light colored fill soils around a storm sewer on site are visible in the center of this photograph. Brown and reddish-brown organic silts and silty clay fill are also visible along the northern wall of the excavation.

Photo 3 The southwest corner of the excavation for Plume No. 1. The apparent water table was intercepted at an approximate depth of 6 to 7 feet below grade in this excavation.

Photo 4 Installation of a 4-inch diameter PVC sump in the excavation for Plume No. 1.

Photo 5 The excavation for Plume No. 2 after removal of petroleum-impacted soil. The water table was intercepted at an approximate depth of 4 feet below grade in this excavation.

Photo 6 Excavation for Plume No. 2 after backfilling was nearly completed. A 4-inch diameter PVC sump was also installed in this excavation. After backfilling was completed, the sump casing was cut off to the ground surface and flush-mounted protector pipes were installed on both sumps.


1

2

3

4

AHW
5

6

APPENDIX B

Laboratory Analytical Reports

Hazleton
Environmental
Services, Inc.
525 SCIENCE DRIVE • MADISON, WISCONSIN 53711

RECEIVED
JUL 14 1993

HES, Inc.

July 14, 1993

Roger Miller
STS Consultants, Ltd.
1035 Kepler Drive
Green Bay, WI 54311

Re: STS Project No. 19784XF
HES, Inc. Batch No. 30600704

Dear Roger:

Enclosed are the analytical results for the soil samples received by HES, Inc. on June 17, 1993 (HES sample numbers 30600704-30600709) from STS Project 19784XF. The original Chain-of-Custody and the DRO chromatograms for these samples are included with this report.

Case Notes:

* DRO Analysis. As discussed previously, the elevated DRO detection limit for sample S2 (HES sample number 30600705) is due to the high moisture content of the sample (60%). This moisture content was verified in duplicate.

* PVOC Analysis. Methyl-tert-butyl ether exceeded the 20% RSD continuing calibration linearity criteria at 24% RSD. This compound was not detected in the sample and is not believed to affect the validity of the results.

If you have questions regarding these results, or would like assistance in any way, please call me at (608) 232-3335.

Sincerely,

Peggy

Peggy Popp
Account Executive

Wisconsin Laboratory Certification Number: 113172950

cc: Central File

Hazleton
Environmental
Services, Inc.
525 SCIENCE DRIVE • MADISON, WISCONSIN 53711

HES, Inc.

STS CONSULTANTS, LTD.

PO NUMBER 19784 XF
LIMS BATCH NUMBER 30600704

	ORGANIC	INORGANIC
		QC BATCH[2] _____
HOLDING TIMES. All holding times meet QC criteria.	(YES) NO* NA	YES NO* NA
INITIAL and CONTINUING CALIBRATIONS. All initial and continuing calibrations meet QC criteria.	YES (NO*) NA	YES NO* NA
METHOD BLANKS. All method blanks meet the specified QC criteria.	(YES) NO* NA	YES NO* NA
SURROGATE RECOVERIES. All surrogate recoveries meet QC criteria.	YES NO* (NA)	NA
MATRIX SPIKE/MATRIX SPIKE DUPLICATE[1]. All MS/MSD meet QC criteria.	YES NO* (NA)	YES NO* NA
DUPLICATE. All relative percent differences (%RPD) meet QC criteria.	(NA)	YES NO* NA
CONTROL SPIKE/CONTROL SPIKE DUPLICATE. All CS meet QC criteria.	(YES) NO* NA	NA
LABORATORY CONTROL SAMPLE. All LCS meet QC criteria.	(NA)	YES NO* NA

Dawn Wheeler
Dawn Wheeler

John Walton

I certify that this data is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above.

Amy R. Austin
QA Supervisor

AUDITED (NONAUDITED)

* If circled, see attached for explaination of deviation.
[1] Matrix Spike for inorganic analysis.
[2] Refers to Matrix Spike and Duplicate.
NA = Not Applicable.

Hazleton Environmental Services, Inc.

HES, Inc.

REPORT OF ANALYSIS

ROGER MILLER
STS CONSULTANTS, LTD
1035 KEPLER DRIVE
GREEN BAY, WI 54311

SAMPLE NUMBER: 30600704

DATE ENTERED: 06/17/93

REPORT PRINTED: 07/13/93

SOIL: S1; 6/15/93
PROJECT NUMBR: 19784XF

PURCHASE ORDER NUMBER: 19784XF

DIESEL RANGE ORGANICS IN SOIL

DIESEL CONCENTRATION	< 14	MG/KG
CONTROL SPIKE	83	% RECOVERY
DUPLICATE CONTROL SPIKE	72	% RECOVERY
DATE RECEIVED	06/17/93	
DATE PRESERVED	06/17/93	
DATE EXTRACTED	06/17/93	
DATE ANALYZED	06/24/93	
TPH STANDARD SOURCE	MACRO SCIENTIFIC LOT NO. ME 1031	

WI DNR LAB CERTIFICATION #: 113172950

WISCONSIN DNR CERTIFICATION NUMBER: 113172950

SIGNED Dawn Wheeler
DAWN WHEELER
SUPERVISOR, GENERAL ORGANICS

METHOD REFERENCES

DIESEL RANGE ORGANICS IN SOIL
WI DEPT. OF NATURAL RESOURCES "METHOD FOR DETERMINING DIESEL RANGE ORGANICS", PUBLICATION SW-141,1992.

WI DNR LAB CERTIFICATION #: 113172950
SIGNATURE BLOCK FOR LUST REQUIREMENT.

Hazleton Environmental Services, Inc.

HES, Inc.

REPORT OF ANALYSIS

ROGER MILLER
STS CONSULTANTS, LTD
1035 KEPLER DRIVE
GREEN BAY, WI 54311

SAMPLE NUMBER: 30600705

DATE ENTERED: 06/17/93

REPORT PRINTED: 07/13/93

SOIL: S2; 6/15/93
PROJECT NUMBR: 19784XF

PURCHASE ORDER NUMBER: 19784XF

DIESEL RANGE ORGANICS IN SOIL

DIESEL CONCENTRATION	< 25	MG/KG
CONTROL SPIKE	83	% RECOVERY
DUPLICATE CONTROL SPIKE	72	% RECOVERY
DATE RECEIVED	06/17/93	
DATE PRESERVED	06/17/93	
DATE EXTRACTED	06/17/93	
DATE ANALYZED	06/24/93	
TPH STANDARD SOURCE	MACRO SCIENTIFIC LOT NO. ME 1031	

WI DNR LAB CERTIFICATION #: 113172950

WISCONSIN DNR CERTIFICATION NUMBER: 113172950

SIGNED Dawn Wheeler
DAWN WHEELER
SUPERVISOR, GENERAL ORGANICS

METHOD REFERENCES

DIESEL RANGE ORGANICS IN SOIL
WI DEPT. OF NATURAL RESOURCES "METHOD FOR DETERMINING DIESEL RANGE ORGANICS", PUBLICATION SW-141,1992.

WI DNR LAB CERTIFICATION #: 113172950
SIGNATURE BLOCK FOR LUST REQUIREMENT.

525 SCIENCE DRIVE • MADISON, WISCONSIN 53711 Phone 608-232-3300 Fax 608-233-0502

Hazleton Environmental Services, Inc.

REPORT OF ANALYSIS

ROGER MILLER
STS CONSULTANTS, LTD
1035 KEPLER DRIVE
GREEN BAY, WI 54311

SAMPLE NUMBER: 30600706

DATE ENTERED: 06/17/93

REPORT PRINTED: 07/13/93

SOIL: S3; 6/15/93
PROJECT NUMBR: 19784XF

PURCHASE ORDER NUMBER: 19784XF

GC VOLATILES (AROMATIC SCREEN)

COMPOUND NAME	DILUTION FACTOR	METHOD DETECTION LIMIT	DRY WEIGHT CONC	UG/KG
METHYL-TERT-BUTYL ETHER	1	6.1	<	6.1
BENZENE	1	1.2	<	1.2
TOLUENE	1	1.2	<	1.2
ETHYLBENZENE	1	1.2	<	1.2
m AND p-XYLENE	1	2.4	<	2.4
o-XYLENE	1	1.2	<	1.2
1,3,5 TRIMETHYL BENZENE	1	1.2	<	1.2
1,2,4 TRIMETHYL BENZENE	1	1.2	<	1.2

DATE ANALYZED	06/29/93
DATE RECEIVED	06/17/93
DATE SAMPLED	06/15/93

DIESEL RANGE ORGANICS IN SOIL

DIESEL CONCENTRATION	< 9.3 MG/KG
CONTROL SPIKE	83 % RECOVERY
DUPLICATE CONTROL SPIKE	72 % RECOVERY
DATE RECEIVED	06/17/93
DATE PRESERVED	06/17/93
DATE EXTRACTED	06/17/93
DATE ANALYZED	06/24/93
TPH STANDARD SOURCE	MACRO SCIENTIFIC LOT NO. ME 1031

Hazleton
Environmental
Services, Inc.

SAMPLE NUMBER: 30600706

SOIL: S3; 6/15/93
PROJECT NUMBR: 19784XF

WI DNR LAB CERTIFICATION #: 113172950

WISCONSIN DNR CERTIFICATION NUMBER: 113172950

SIGNED Dawn Wheeler
DAWN WHEELER
SUPERVISOR, GENERAL ORGANICS

METHOD REFERENCES

GC VOLATILES (AROMATIC SCREEN)
EPA SW-846 METHOD 8021: "VOLATILE ORGANIC COMPOUNDS IN WATER BY PURGE AND TRAP CAPILLARY COLUMN GAS CHROMATOGRAPHY WITH PHOTOINIZATION AND ELECTROLYTIC CONDUCTIVITY DETECTORS IN SERIES."
REV 0, DECEMBER 1987
U.S. EPA METHOD 602 (FEDERAL REGISTER, VOLUME 49, NO. 209, PG. 43261-43271, OCTOBER 26, 1984).
TEST METHODS FOR EVALUATING SOLID WASTE, EPA PUBLICATION NO. SW-846, SECOND EDITION, METHODS, 8020, 5030, U.S. EPA, WASHINGTON, DC (REVISED APRIL, 1984).

DIESEL RANGE ORGANICS IN SOIL
WI DEPT. OF NATURAL RESOURCES "METHOD FOR DETERMINING DIESEL RANGE ORGANICS", PUBLICATION SW-141,1992.

WI DNR LAB CERTIFICATION #: 113172950
SIGNATURE BLOCK FOR LUST REQUIREMENT.

525 SCIENCE DRIVE • MADISON, WISCONSIN 53711 Phone 608-232-3300 Fax 608-233-0502

Hazleton
Environmental
Services, Inc.

REPORT OF ANALYSIS

ROGER MILLER
STS CONSULTANTS, LTD
1035 KEPLER DRIVE
GREEN BAY, WI 54311

SAMPLE NUMBER: 30600707

DATE ENTERED: 06/17/93

REPORT PRINTED: 07/13/93

SOIL: S4; 6/15/93
PROJECT NUMBR: 19784XF

PURCHASE ORDER NUMBER: 19784XF

DIESEL RANGE ORGANICS IN SOIL

DIESEL CONCENTRATION	< 13	MG/KG
CONTROL SPIKE	83	% RECOVERY
DUPLICATE CONTROL SPIKE	72	% RECOVERY
DATE RECEIVED	06/17/93	
DATE PRESERVED	06/17/93	
DATE EXTRACTED	06/17/93	
DATE ANALYZED	06/24/93	
TPH STANDARD SOURCE	MACRO SCIENTIFIC LOT NO. ME 1031	

WI DNR LAB CERTIFICATION #: 113172950

WISCONSIN DNR CERTIFICATION NUMBER: 113172950

SIGNED Dawn Wheeler
DAWN WHEELER
SUPERVISOR, GENERAL ORGANICS

METHOD REFERENCES

DIESEL RANGE ORGANICS IN SOIL
WI DEPT. OF NATURAL RESOURCES "METHOD FOR DETERMINING DIESEL RANGE ORGANICS", PUBLICATION SW-141,1992.

WI DNR LAB CERTIFICATION #: 113172950
SIGNATURE BLOCK FOR LUST REQUIREMENT.

Hazleton Environmental Services, Inc.

HES, Inc.

REPORT OF ANALYSIS

ROGER MILLER
STS CONSULTANTS, LTD
1035 KEPLER DRIVE
GREEN BAY, WI 54311

SAMPLE NUMBER: 30600708

DATE ENTERED: 06/17/93

REPORT PRINTED: 07/13/93

SOIL: S5; 6/15/93
PROJECT NUMBR: 19784XF

PURCHASE ORDER NUMBER: 19784XF

DIESEL RANGE ORGANICS IN SOIL

DIESEL CONCENTRATION	< 13	MG/KG
CONTROL SPIKE	83	% RECOVERY
DUPLICATE CONTROL SPIKE	72	% RECOVERY
DATE RECEIVED	06/17/93	
DATE PRESERVED	06/17/93	
DATE EXTRACTED	06/17/93	
DATE ANALYZED	06/24/93	
TPH STANDARD SOURCE	MACRO SCIENTIFIC LOT NO. ME 1031	

WI DNR LAB CERTIFICATION #: 113172950

WISCONSIN DNR CERTIFICATION NUMBER: 113172950

SIGNED Dawn Wheeler
DAWN WHEELER
SUPERVISOR, GENERAL ORGANICS

METHOD REFERENCES

DIESEL RANGE ORGANICS IN SOIL
WI DEPT. OF NATURAL RESOURCES "METHOD FOR DETERMINING DIESEL RANGE ORGANICS", PUBLICATION SW-141,1992.

WI DNR LAB CERTIFICATION #: 113172950
SIGNATURE BLOCK FOR LUST REQUIREMENT.

Hazleton Environmental Services, Inc.

HES, Inc.

REPORT OF ANALYSIS

ROGER MILLER
STS CONSULTANTS, LTD
1035 KEPLER DRIVE
GREEN BAY, WI 54311

SAMPLE NUMBER: 30600709

DATE ENTERED: 06/17/93

REPORT PRINTED: 07/13/93

SOIL: S6; 6/15/93
PROJECT NUMBR: 19784XF

PURCHASE ORDER NUMBER: 19784XF

DIESEL RANGE ORGANICS IN SOIL

DIESEL CONCENTRATION	< 12	MG/KG
CONTROL SPIKE	83	% RECOVERY
DUPLICATE CONTROL SPIKE	72	% RECOVERY
DATE RECEIVED	06/17/93	
DATE PRESERVED	06/17/93	
DATE EXTRACTED	06/17/93	
DATE ANALYZED	06/24/93	
TPH STANDARD SOURCE	MACRO SCIENTIFIC LOT NO. ME 1031	

WI DNR LAB CERTIFICATION #: 113172950

WISCONSIN DNR CERTIFICATION NUMBER: 113172950

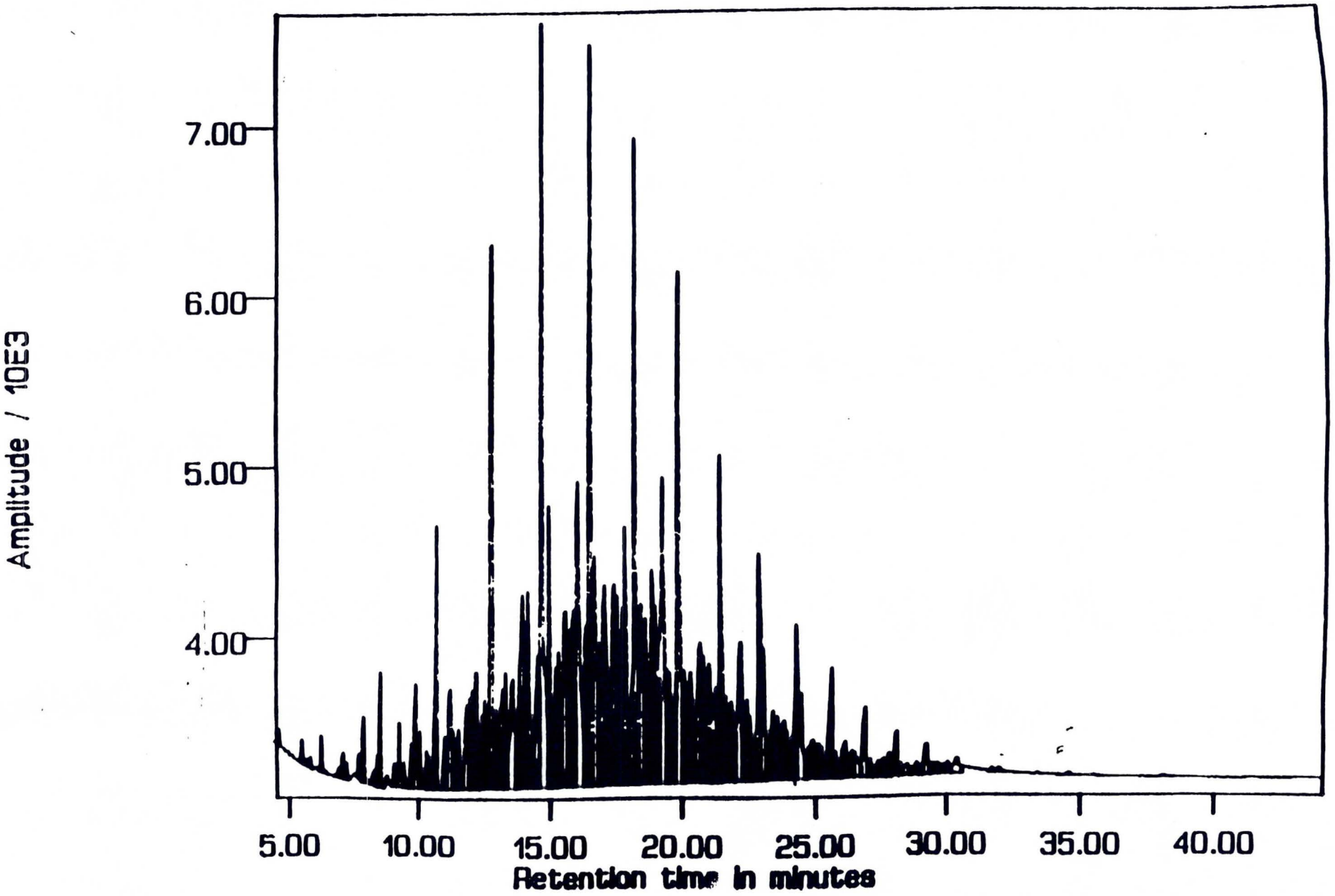
SIGNED Dawn Wheeler
DAWN WHEELER
SUPERVISOR, GENERAL ORGANICS

METHOD REFERENCES

DIESEL RANGE ORGANICS IN SOIL
WI DEPT. OF NATURAL RESOURCES "METHOD FOR DETERMINING DIESEL RANGE ORGANICS", PUBLICATION SW-141,1992.

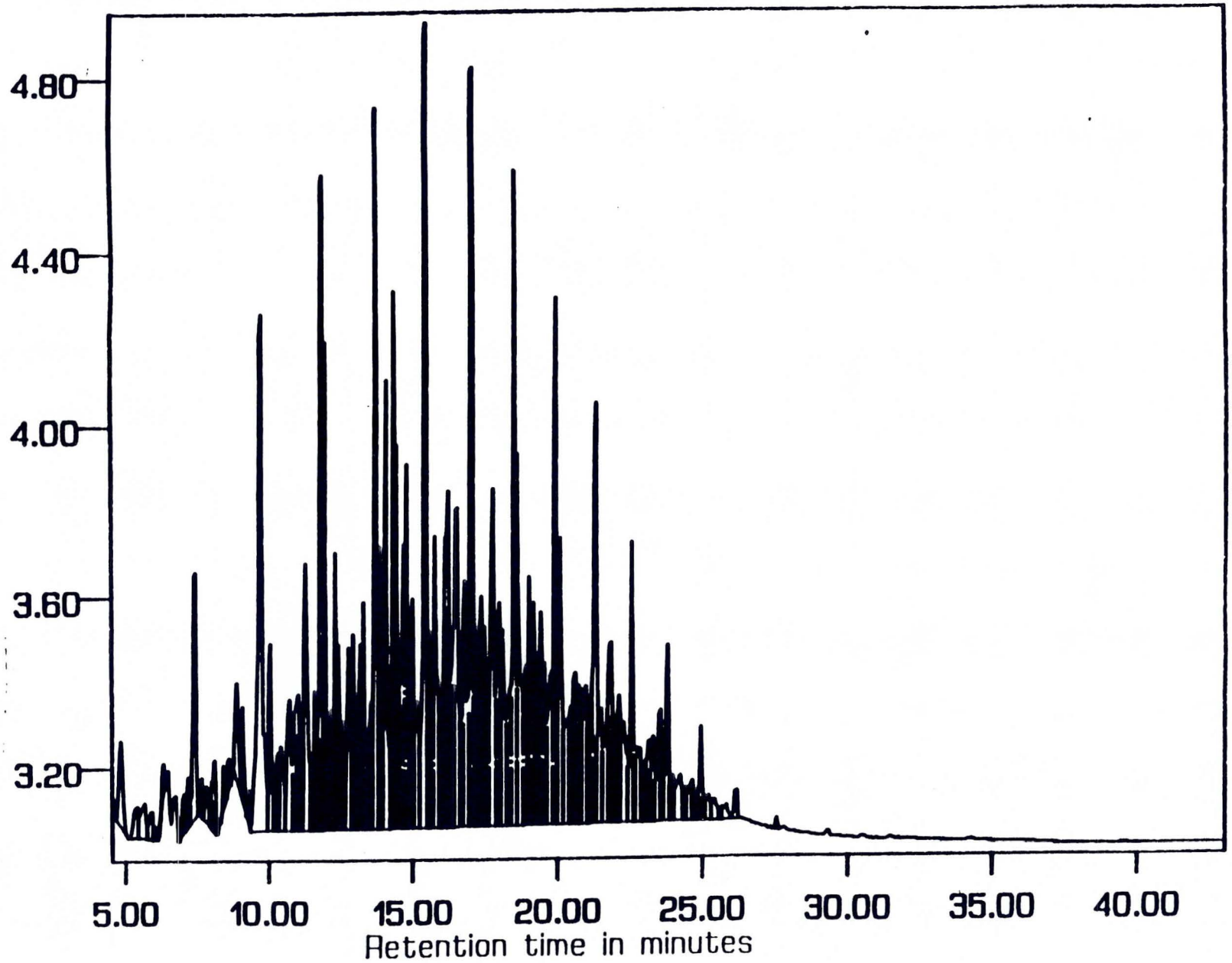
WI DNR LAB CERTIFICATION #: 113172950
SIGNATURE BLOCK FOR LUST REQUIREMENT.

DIESEL FUEL STANDARD



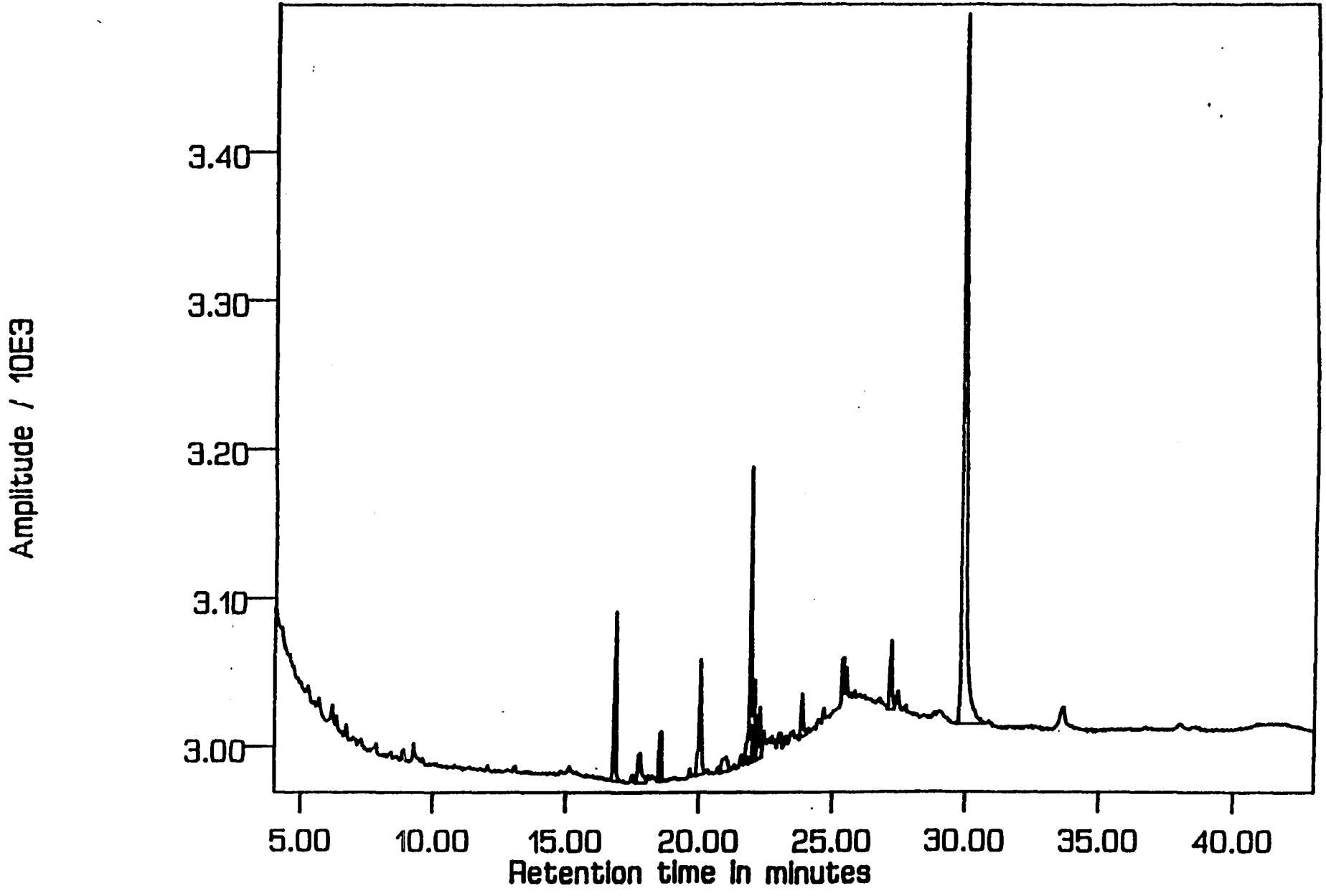
Result : CH08TPH1024 Method : CH08DIESEL3

Sample : 1000 PPM DIESEL STD Injected : SAT NOV 7, 1992 7:32:13 AM



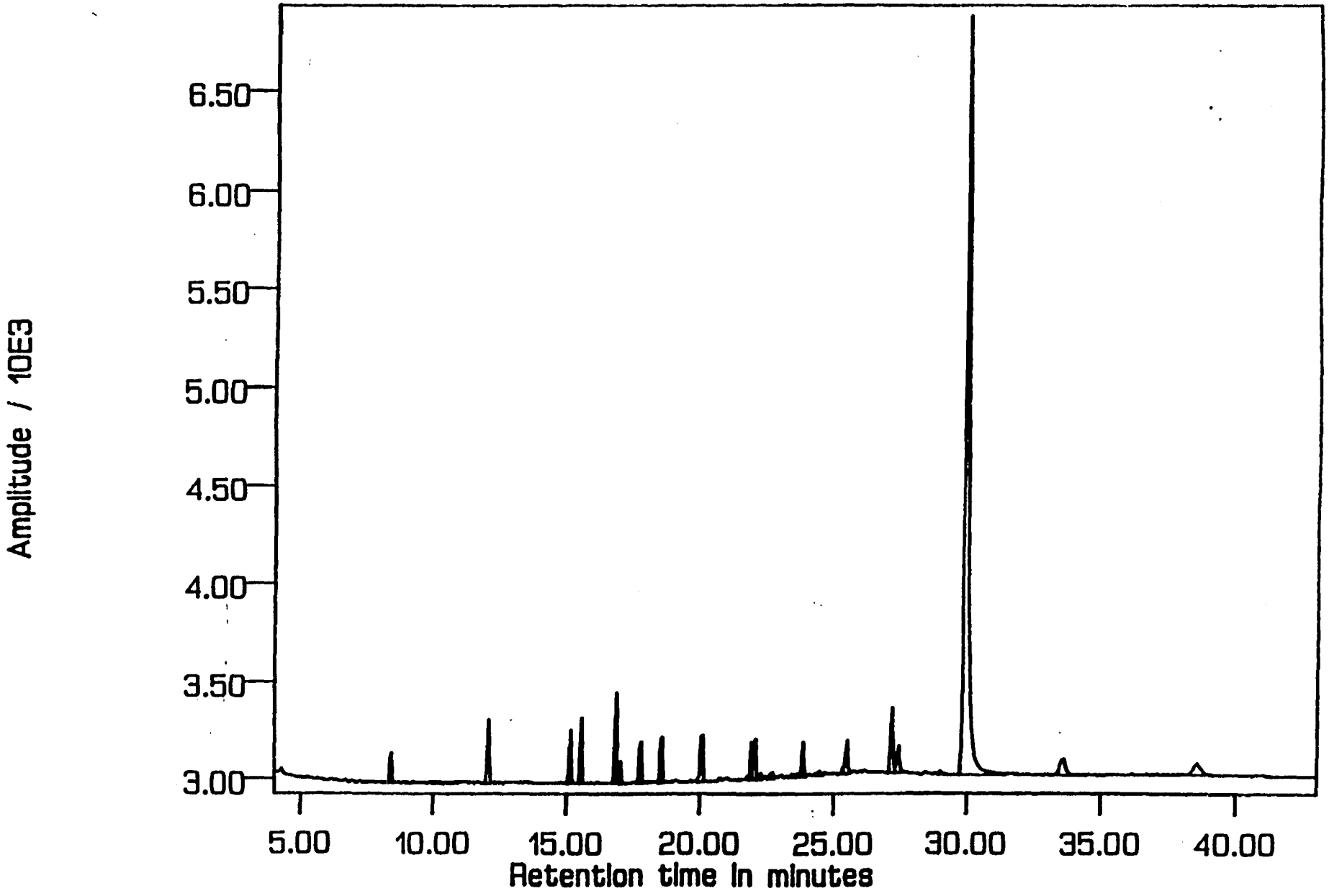
Result : CH08TPH2023 Method : CH08DIESEL3

Sample : 30600704 Injected : THU JUN 24, 1993 2:40:51 PM



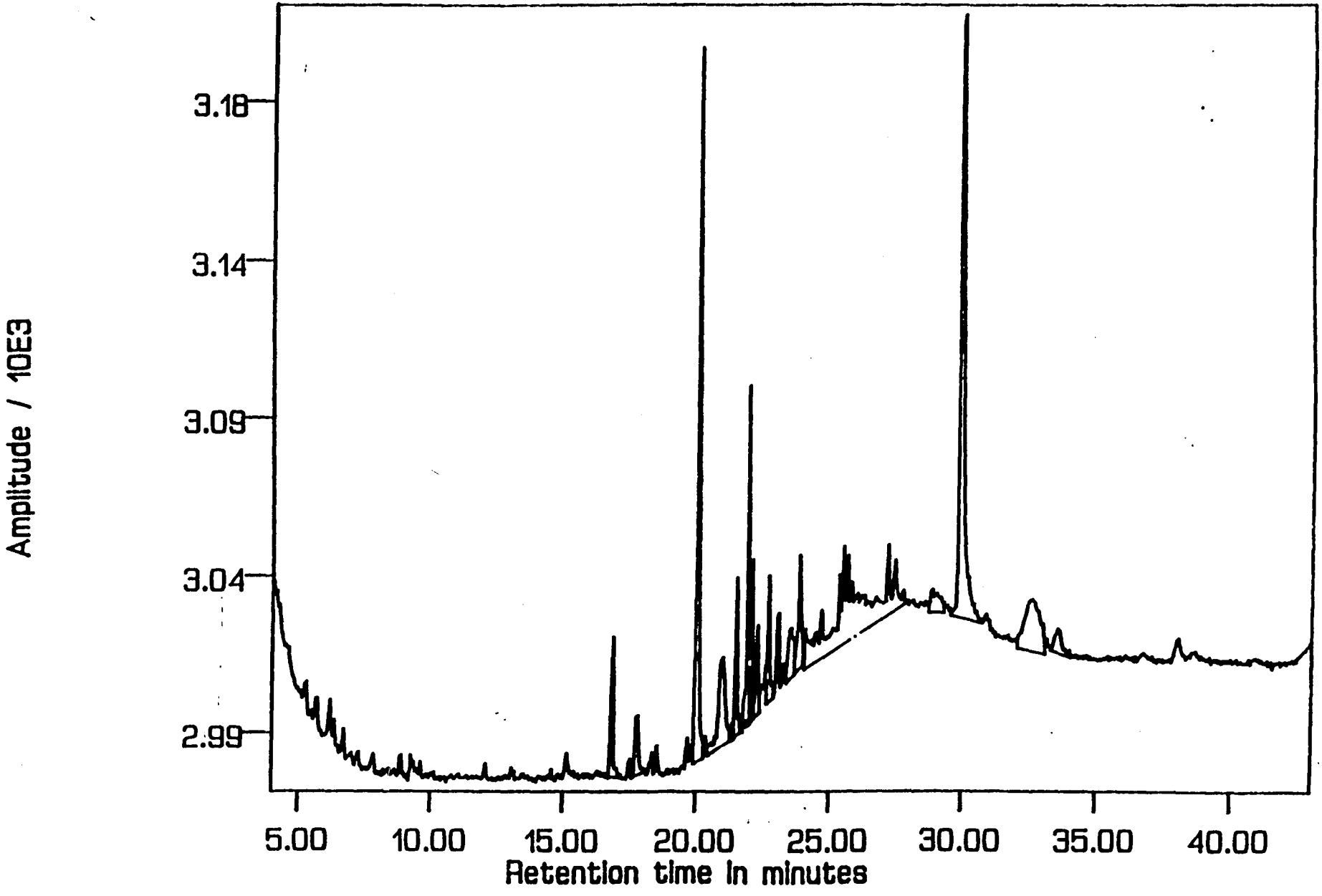
Result : CH08TPH6033 Method : CH08AARON

Sample : 30600705 Injected : THU JUN 24, 1993 3:30:44 PM



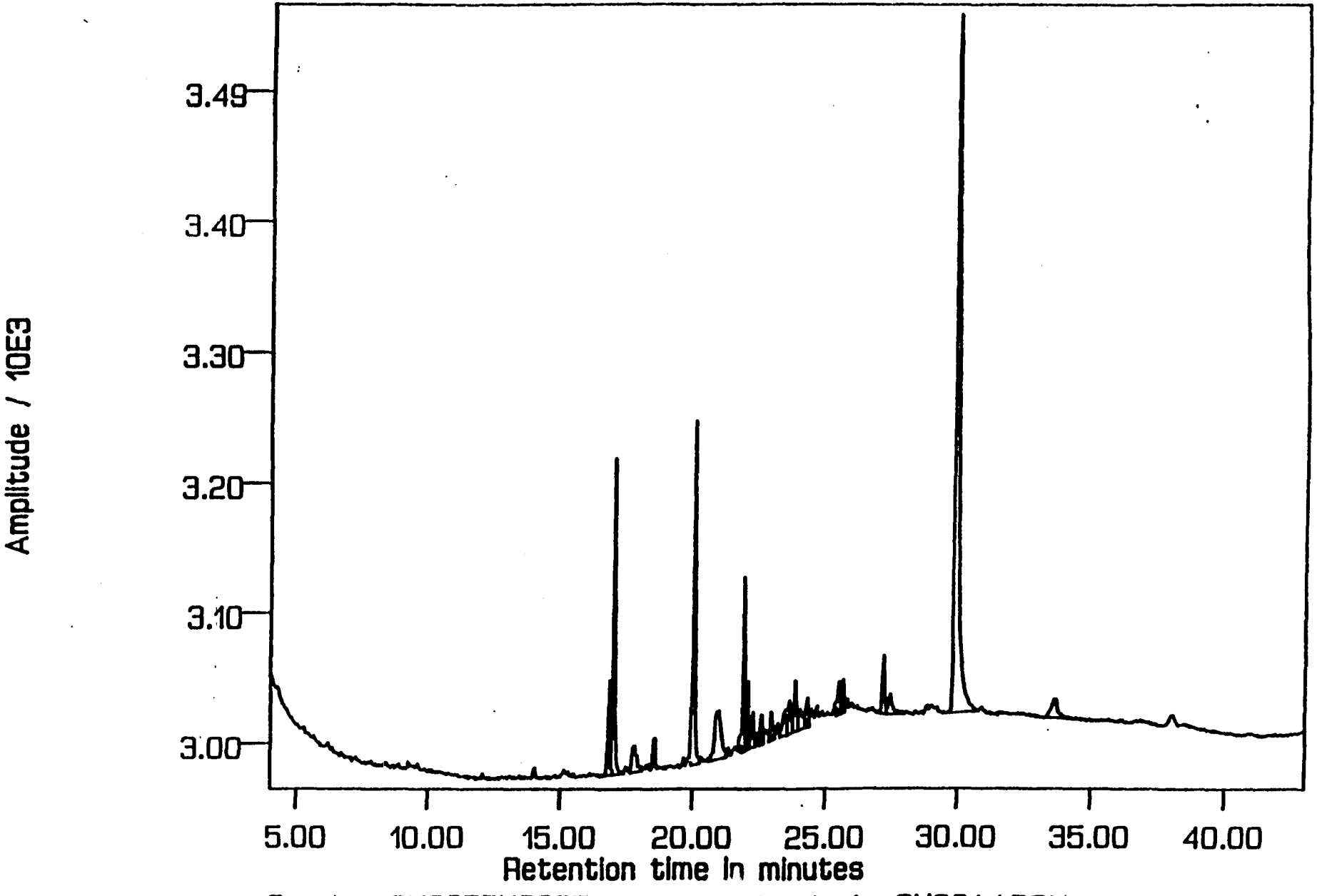
Result : CH08TPH6034 Method : CH08AARON

Sample : 30600706 Injected : THU JUN 24, 1993 5:10:29 PM



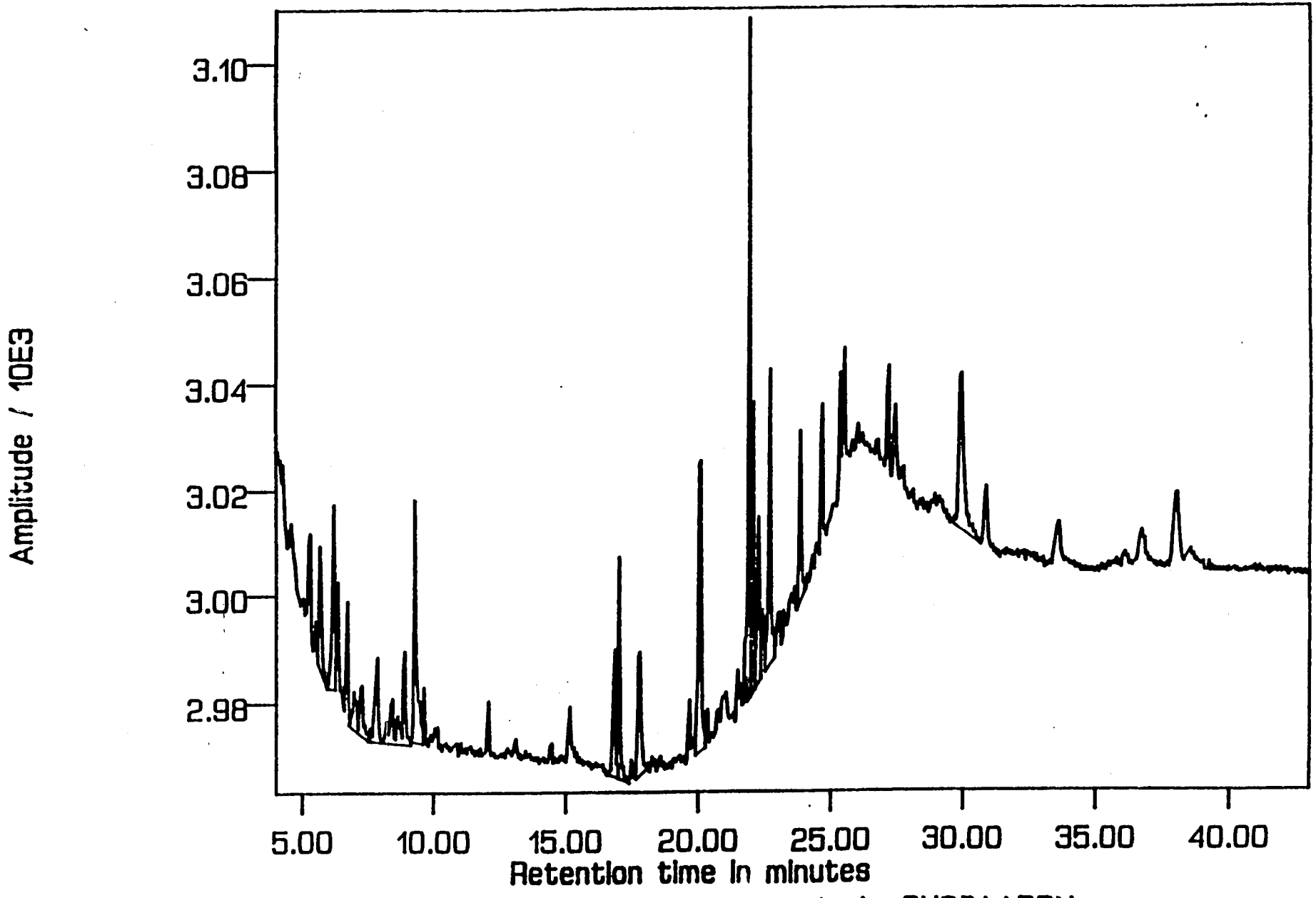
Result : CH08TPH6036 Method : CH08AARON

Sample : 30600707 Injected : THU JUN 24, 1993 6:00:18 PM



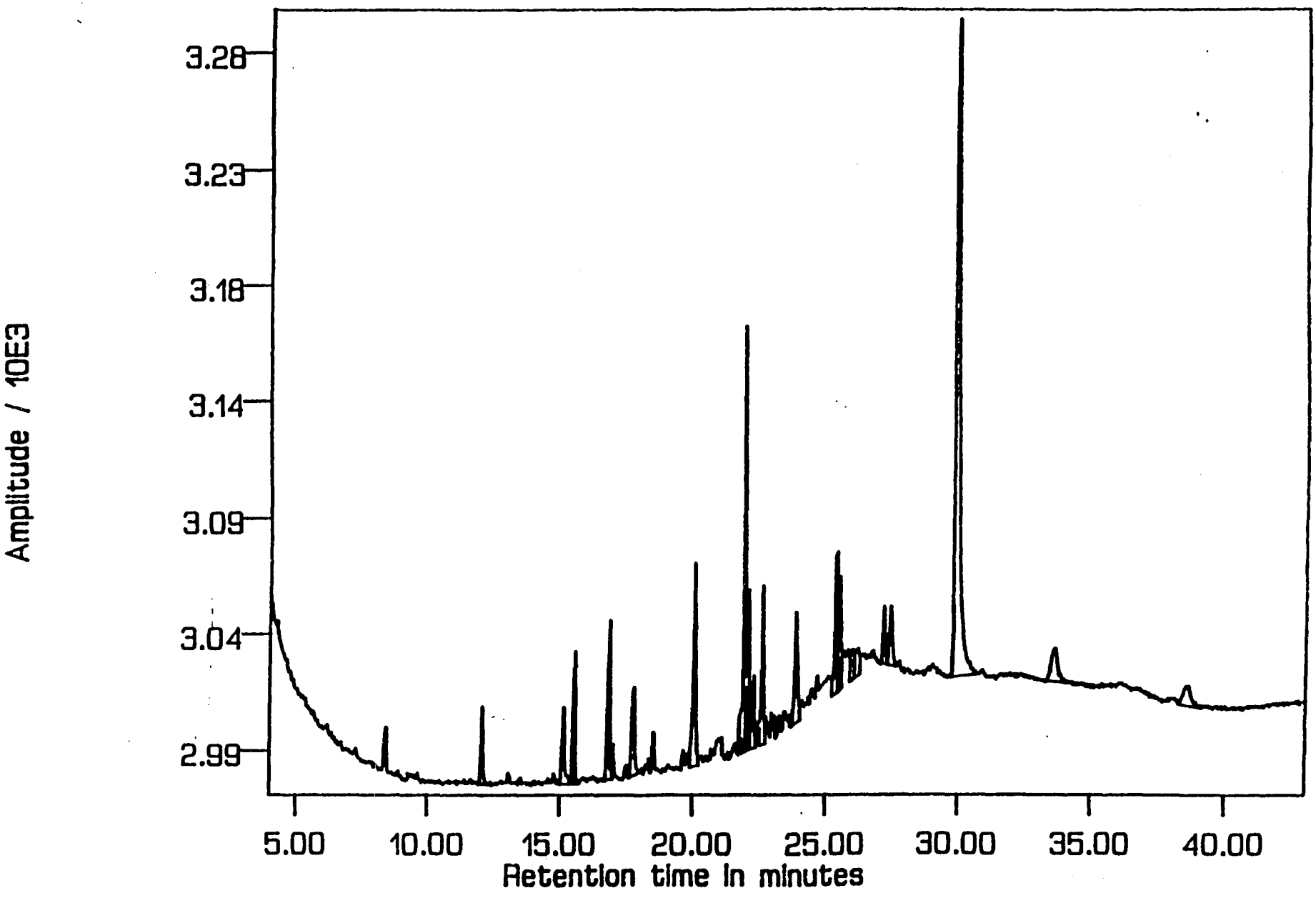
Result : CH08TPH6037 Method : CH08AARON

Sample : 30600708 Injected : THU JUN 24, 1993 6:50:09 PM



Result : CH08TPH6038 Method : CH08AARON

Sample : 30600709 Injected : THU JUN 24, 1993 7:39:59 PM



Result : CH08TPH6039 Method : CH08AARON

STS CHAIN OF CUSTODY RECORD

№ 19696 RECORD NO. _____ THROUGH _____

Contact Person: ROGER MILLER
Phone No.: 414/468-1978
Project No.: 19784 X6 PO No.:
STS Office: GREEN BAY

SPECIAL HANDLING REQUEST
☐ RUSH
☐ VERBAL
☐ OTHER

Laboratory: HES, INC.
Contact Person: PEGGY PAPP
Phone No.:
Results Due: CHROMATOGRAMS WITH 14 DAYS
Condition: Cold Storage:
Acct. #: Abbrev.:

Sampl Rec'd JUN 17 1993 Init. KAB
Date Entered 6-17-93 Init. KAB
LIMS #:

Sample I.D.	Date	Time	Grab	Composite	No. of Containers	Sample Type (Water, soil, air, sludge, etc.)	Preservation Y	Preservation N	Field Data PID/FID Ambient	Field Data PID/FID Sample	Field Data PH	Field Data Spec. Cond.	Analysis Request	Comments on Sample (Include Major Contaminants)
S1	6/15/93		✓		3	SOIL							DRO	AS WE DISCUSSED,
S2	6/15/93		✓		4	"							DRO	SEND PRELIM. RESULTS
S3	6/15/93		✓		3	"							DRO, PVOCs	WITH CHROMATOGRAMS
S4	6/15/93		✓		4	"							DRO	IN ≤ 2 WEEKS. MAY
S5	6/15/93		✓		4	"							DRO	REQUIRE M.S. LIBRARY
S6	6/15/93		✓		4	"							DRO	DETERMINATION OF
														PEAKS FOR SOME OF
														THESE SAMPLES

Collected by: Joseph M. Ard	Date	Time	Delivery by:	Date	Time
Received by:	Date	Time	Relinquished by:	Date	Time
Received by:	Date	Time	Relinquished by:	Date	Time
Received by: Kristie Bekoman	Date	Time	Relinquished by:	Date	Time
Received for lab by: Kristie Bekoman	Date 6-17-93	Time	Relinquished by:	Date	Time

Laboratory Comments Only: Seals Intact Upon Receipt ☒ Yes ☐ No ☐ N/A

Final disposition:

Comments (Weather Conditions, Precautions, Hazards): Samples rec'd on ice & in good condition. KAB
APPARENT NATURAL ORGANICS (Leaves, Twigs.)
IN SOIL SAMPLES.

Distribution: Original and Green – Laboratory Yellow – As needed Pink – Transporter Goldenrod – STS Project File

Instruction to Laboratory: Forward completed original to STS with analytical results. Retain green copy.

11/90 FORM 038

Hazleton
Environmental
Services, Inc.
525 SCIENCE DRIVE • MADISON, WISCONSIN 53711

HES, Inc.

July 22, 1993

RECEIVED
JUL 23 1993

Roger Miller
STS Consultants, Ltd.
1035 Kepler Drive
Green Bay, WI 54311

Re: STS Project No. 19784XF
HES, Inc. Batch No. 30700243

Dear Roger:

Enclosed are the analytical results for the soil samples received by HES, Inc. on July 8, 1993 (HES sample numbers 30700243-30700249) from STS Project 19784XF. The original Chain-of-Custody for these samples is included with this report.

Case Notes:

* DRO Analysis. The spike recoveries for the control spike, duplicate, and matrix spike were below HES internal QC limits. The low recovery was traced to a single ampoule of spike solution, however there was extra sample available for re-extraction. We believe the reported data is valid.

If you have any questions regarding these results, or if I can be of assistance in any way, please call me at (608) 232-3335.

Sincerely,

Peggy

Peggy Popp
Account Executive

Wisconsin Laboratory Certification Number: 113172950

cc: Central File

Hazleton
Environmental
Services, Inc.

REPORT OF ANALYSIS

ROGER MILLER
STS CONSULTANTS, LTD
1035 KEPLER DRIVE
GREEN BAY, WI 54311

SAMPLE NUMBER: 30700248

DATE ENTERED: 07/08/93

REPORT PRINTED: 07/22/93

SOIL: S-12; 7/7/93; 11:30
PROJECT NUMBER: 19784XF

PURCHASE ORDER NUMBER: 19784XF

DIESEL RANGE ORGANICS IN SOIL

DIESEL	CONCENTRATION	DETECTION LIMIT
DRY WEIGHT	< 9.1 MG/KG	9.1 MG/KG
CONTROL SPIKE	64 % RECOVERY	
DUPLICATE CONTROL SPIKE	61 % RECOVERY	
DILUTION FACTOR	1	
DATE RECEIVED	07/08/93	
DATE PRESERVED	07/08/93	
DATE EXTRACTED	07/08/93	
DATE ANALYZED	07/13/93	
DRO STANDARD SOURCE	MACRO SCIENTIFIC- WI DRO LOT NO. ME 1031	

WI DNR LAB CERTIFICATION #: 113172950

WISCONSIN DNR CERTIFICATION NUMBER: 113172950

SIGNED Dawn Wheeler
DAWN WHEELER
SUPERVISOR, GENERAL ORGANICS

METHOD REFERENCES

DIESEL RANGE ORGANICS IN SOIL
WI DEPT. OF NATURAL RESOURCES "METHOD FOR DETERMINING DIESEL RANGE ORGANICS", PUBLICATION SW-141,1992.

Hazleton
Environmental
Services, Inc.

REPORT OF ANALYSIS

ROGER MILLER
STS CONSULTANTS, LTD
1035 KEPLER DRIVE
GREEN BAY, WI 54311

SAMPLE NUMBER: 30700249

DATE ENTERED: 07/08/93

REPORT PRINTED: 07/22/93

SOIL: S-13; 7/7/93; 12:00
PROJECT NUMBER: 19784XF

PURCHASE ORDER NUMBER: 19784XF

GC VOLATILES (AROMATIC SCREEN)

COMPOUND NAME	DILUTION FACTOR	DETECTION LIMIT	DRY WEIGHT CONC	UG/KG
METHYL-TERT-BUTYL ETHER	1	5.9	<	5.9
BENZENE	1	1.2	<	1.2
TOLUENE	1	1.2	<	1.2
ETHYLBENZENE	1	1.2	<	1.2
m AND p-XYLENE	1	2.4	<	2.4
o-XYLENE	1	1.2	<	1.2
1,3,5 TRIMETHYL BENZENE	1	1.2	<	1.2
1,2,4 TRIMETHYL BENZENE	1	1.2	<	1.2

DATE ANALYZED	07/14/93
DATE RECEIVED	07/08/93

DIESEL RANGE ORGANICS IN SOIL

DIESEL	CONCENTRATION		DETECTION LIMIT	
DRY WEIGHT	< 8.1	MG/KG	8.1	MG/KG

CONTROL SPIKE	64	% RECOVERY
DUPLICATE CONTROL SPIKE	61	% RECOVERY

DILUTION FACTOR	1
DATE RECEIVED	07/08/93
DATE PRESERVED	07/08/93
DATE EXTRACTED	07/08/93
DATE ANALYZED	07/13/93

DRO STANDARD SOURCE	MACRO SCIENTIFIC- WI DRO LOT NO. ME 1031

Hazleton Environmental Services, Inc.

SAMPLE NUMBER: 30700249

SOIL: S-13; 7/7/93; 12:00
PROJECT NUMBER: 19784XF

WI DNR LAB CERTIFICATION #: 113172950

WISCONSIN DNR CERTIFICATION NUMBER: 113172950

SIGNED Dawn Wheeler
DAWN WHEELER
SUPERVISOR, GENERAL ORGANICS

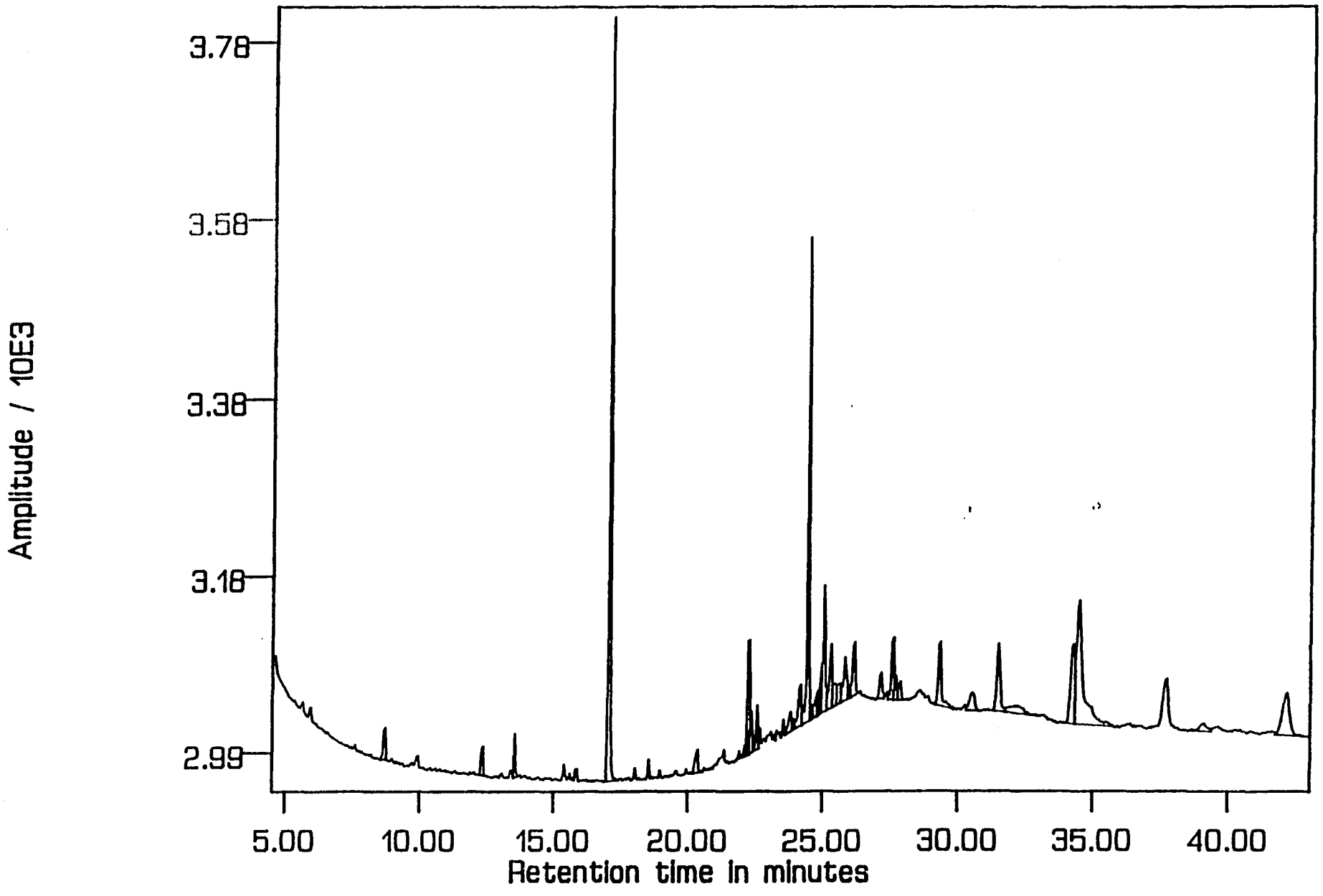
METHOD REFERENCES

GC VOLATILES (AROMATIC SCREEN)
EPA SW-846 METHOD 8021: "VOLATILE ORGANIC COMPOUNDS IN WATER BY PURGE AND TRAP CAPILLARY COLUMN GAS CHROMATOGRAPHY WITH PHOTOINIZATION AND ELECTROLYTIC CONDUCTIVITY DETECTORS IN SERIES."
REV 0, DECEMBER 1987
U.S. EPA METHOD 602 (FEDERAL REGISTER, VOLUME 49, NO. 209, PG. 43261-43271, OCTOBER 26, 1984).
TEST METHODS FOR EVALUATING SOLID WASTE, EPA PUBLICATION NO. SW-846, SECOND EDITION, METHODS, 8020, 5030, U.S. EPA, WASHINGTON, DC (REVISED APRIL, 1984).

DIESEL RANGE ORGANICS IN SOIL
WI DEPT. OF NATURAL RESOURCES "METHOD FOR DETERMINING DIESEL RANGE ORGANICS", PUBLICATION SW-141,1992.

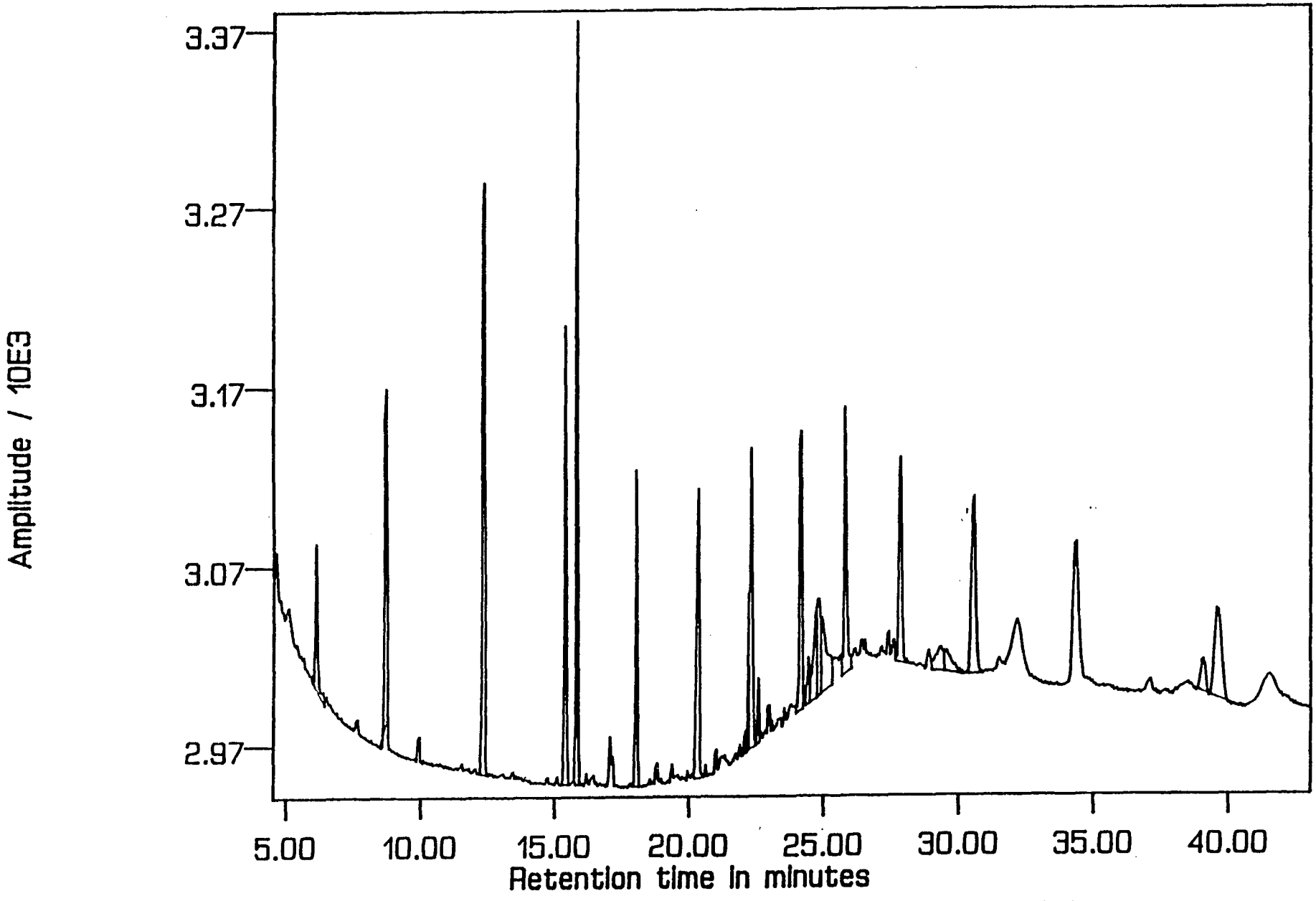
WI DNR LAB CERTIFICATION #: 113172950
SIGNATURE BLOCK FOR LUST REQUIREMENT.

Sample : 30700240 Injected : TUE JUL 13, 1993 12:38:32 AM



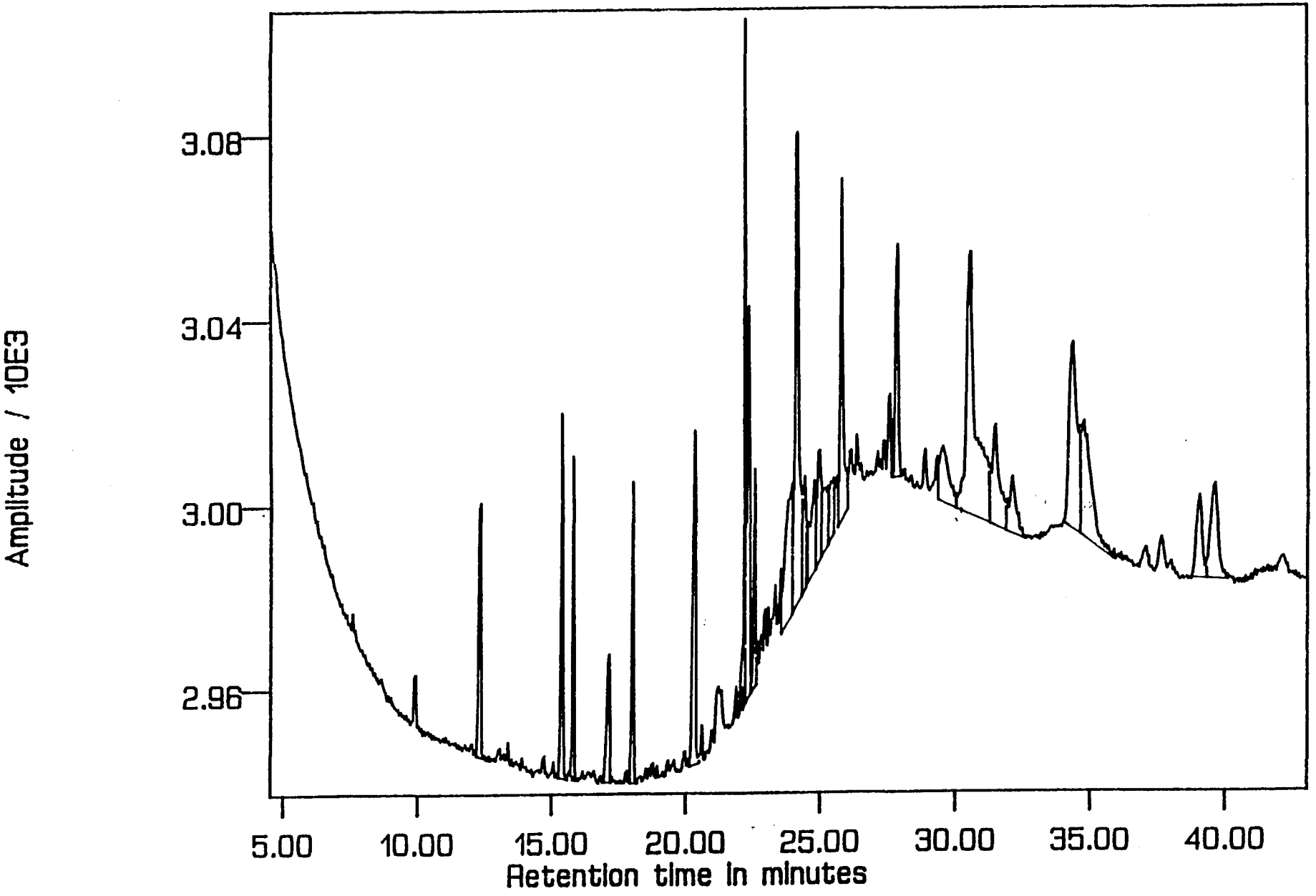
Result : CH08TPH8025 Method : CH08AARON

Sample : 30700243 Injected : TUE JUL 13, 1993 1:28:31 AM



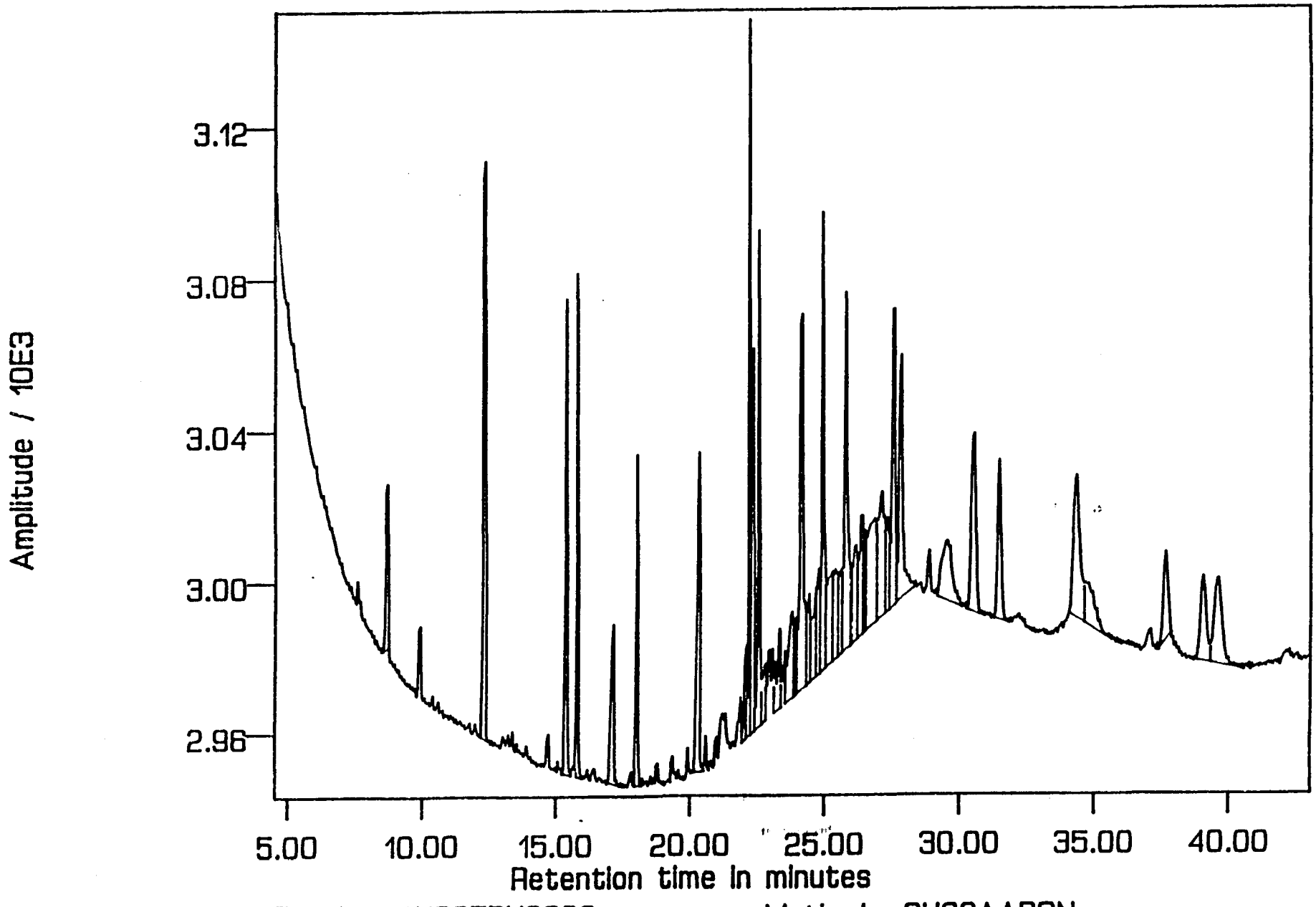
Result : CH08TPH8026 Method : CH08AARON

Sample : 30700244 Injected : TUE JUL 13, 1993 2:18:27 AM



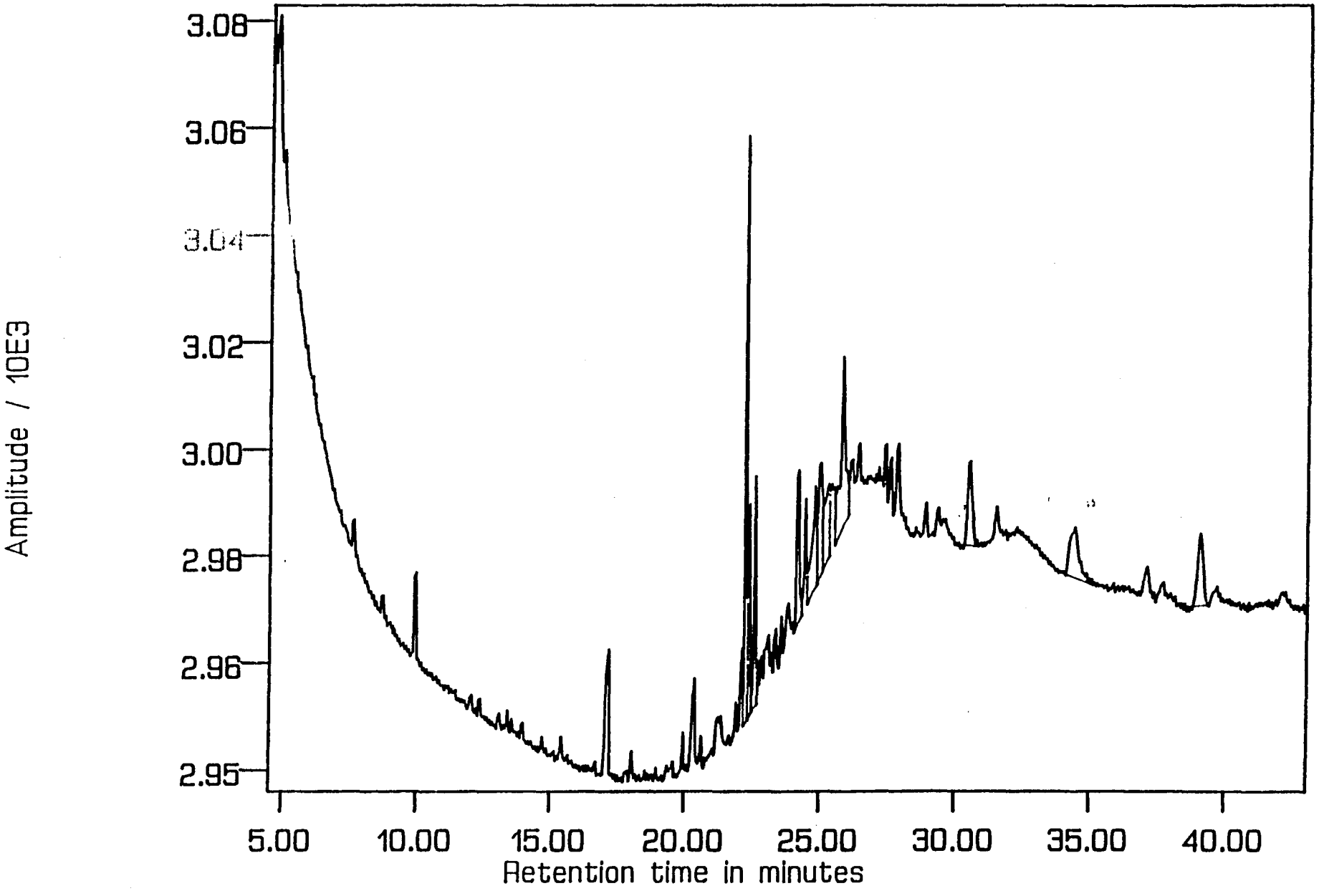
Result : CH08TPH8027 Method : CH08AARON

Sample : 30700245 Injected : TUE JUL 13, 1993 3:08:18 AM



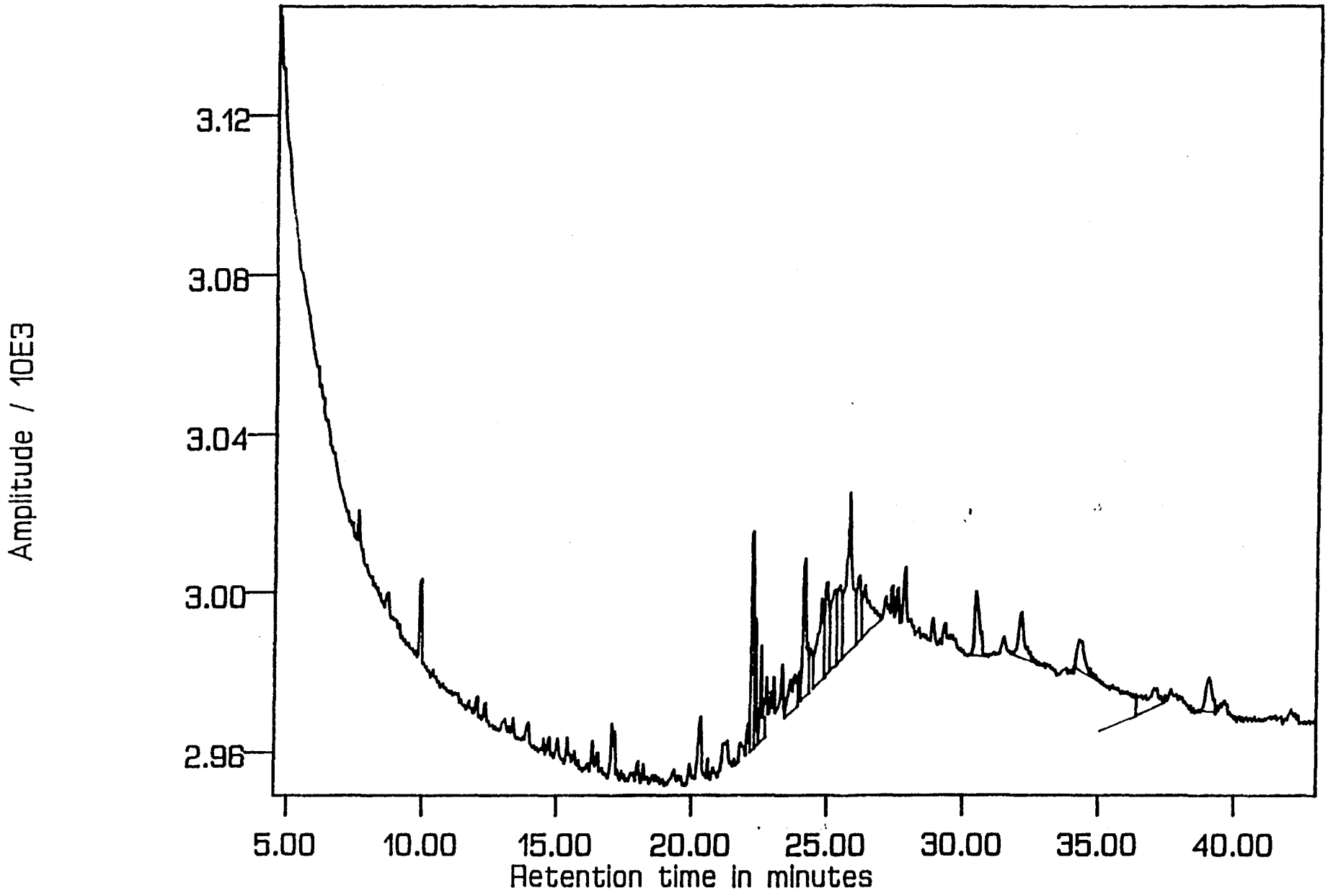
Result : CH08TPH8028 Method : CH08AARON

Sample : 30700246 Injected : TUE JUL 13, 1993 4:48:04 AM



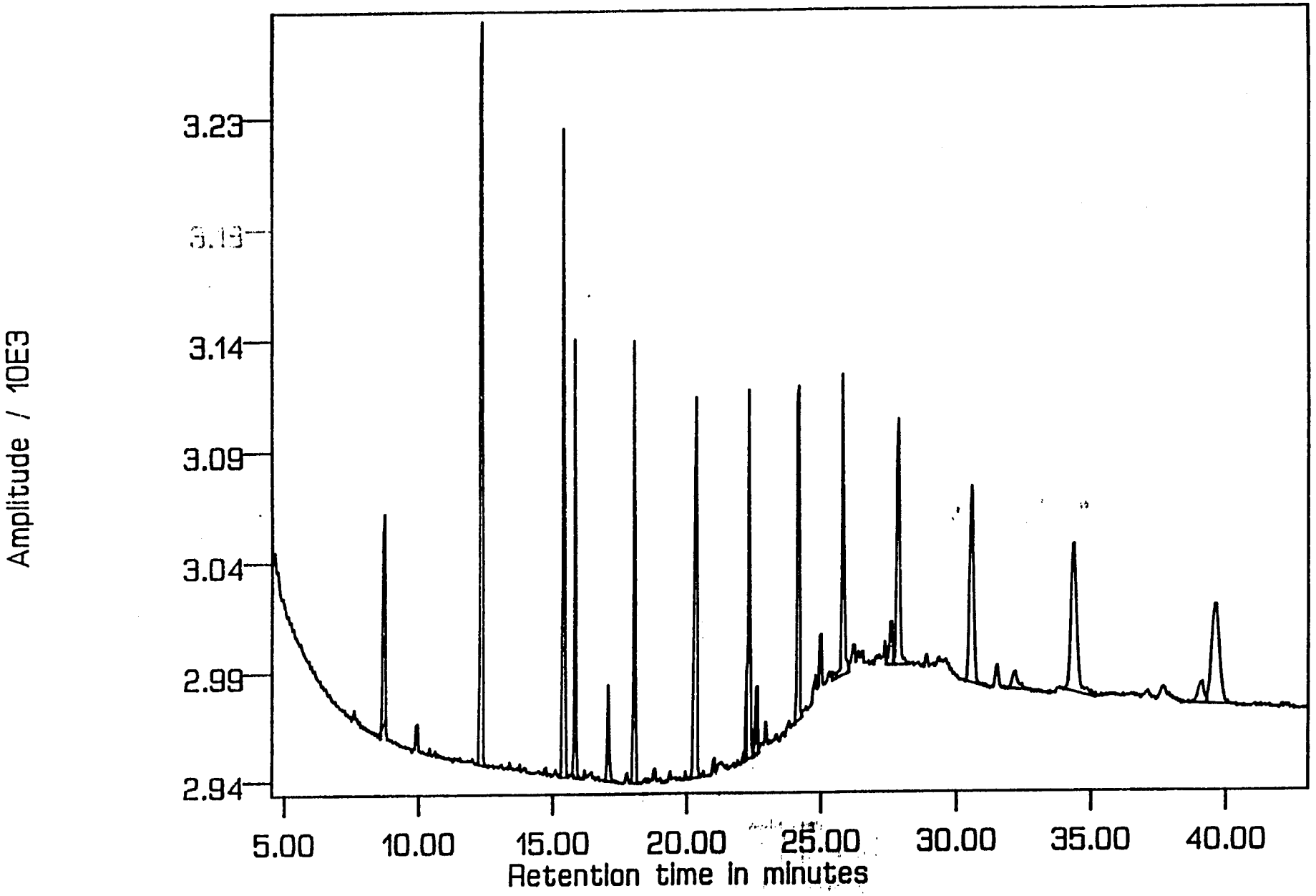
Result : CH08TPH8030 Method : CH08AARON

Sample : 30700247 Injected : TUE JUL 13, 1993 5:37:55 AM



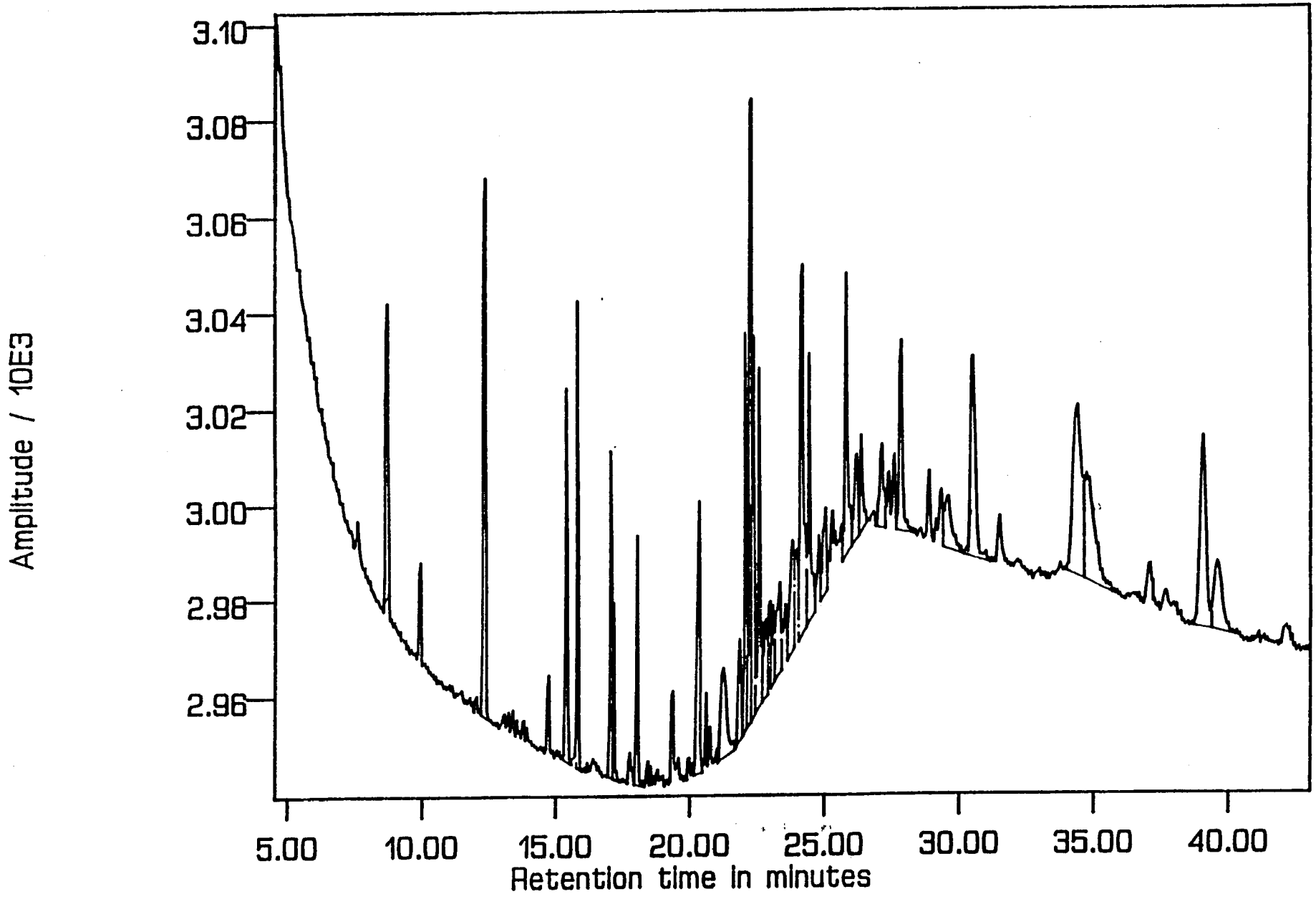
Result : CH08TPH8031 Method : CH08AARON

Sample : 30700248 Injected : TUE JUL 13, 1993 6:27:47 AM



Result : CH08TPH8032 Method : CH08AARON

Sample : 30700249 Injected : TUE JUL 13, 1993 7:17:36 AM



Result : CH08TPH8033 Method : CH08AARON

STS CHAIN OF CUSTODY RECORD

№ 19699 RECORD NO. _____ THROUGH _____

Contact Person: ROBER A MILLER
Phone No. 414/465-1778
Project No. 147644.F PO No. _____
STS Office GREEN BAY

SPECIAL HANDLING REQUEST
☐ RUSH
☐ VERBAL
☐ OTHER

Laboratory: HES, INC.
Contact Person: PEGGY POPP
Phone No. _____
Results Due: PRELIM. < 14 DAYS

Sample I.D.	Date	Time	Grab	Composite	No. of Containers	Sample Type (Water, soil, air, sludge, etc.)	Preservation Y	Preservation N	Field Data PID/FID Ambient	Field Data PID/FID Sample	Field Data PH	Field Data Spec. Cond.	Analysis Request	Comments on Sample (Include Major Contaminants)
S-7	7/7/93	9:00	✓			SOIL							DRO	IF PRELIMINARY RESULTS
S-8	"	9:30	✓			"							DRO	INDICATE DETECTABLE DRO
S-9	"	10:00	✓			"							DRO	IN SOME SAMPLES, WE
S-10	"	10:30	✓			"							DRO	MAY WANT TO DO
S-11	"	11:00	✓			"							DRO	A COUPLE M.S. LIBRARY
S-12	"	11:30	✓			"							DRO	SCANS. PLEASE CONTACT
S-13	"	12:00	✓			"							DRO + PVOCs	W/ PRELIMINARY RESULTS
														EITHER WAY

Collected by: Roger A Miller	Date 7/7/93	Time	Delivery by:	Date	Time
Received by:	Date	Time	Relinquished by:	Date	Time
Received by:	Date	Time	Relinquished by:	Date	Time
Received by:	Date	Time	Relinquished by:	Date	Time
Received for lab by: Kristie Brenemark	Date 7.8.93	Time 9:45A	Relinquished by:	Date	Time

Laboratory Comments Only: Seals Intact Upon Receipt ☒ Yes ☐ No ☐ N/A

Final disposition: Condition: Cold Storage: WIR
Acct. # _____ Abbrev.: STSG
KAB
Smpl Rec'd JUL 06 1993 Init. KAB
Date Entered 7.8.93
LIMS # 30100243

Samples rec'd on melted ice and in good condition - cold. KAB

Comments (Weather Conditions, Precautions, Hazards):
PLEASE INCLUDE JAMES RIVER DIRECTIONS.
CALL FOR BILLING ADDRESS THANKS
Roger A Miller

Distribution: Original and Green – Laboratory Yellow – As needed Pink – Transporter Goldenrod – STS Project File

Instruction to Laboratory: Forward completed original to STS with analytical results. Retain green copy.

11/90 FORM 038

BioRenewal Technologies, Inc.

Facsimile Cover Sheet

To: Roger Miller
Company: STS Consultants
Phone: 414/468-1978
Fax: 414/468-3312

RECEIVED
AUG 2 1993
STS CONSULTANTS
GREEN BAY, WI.

From: M. Lynn Haugh
Company: Biorenewal Technologies, Inc.
Phone: 608/ 276-8980
Fax: 608/ 273-6989

Date: July 29, 1993
Pages including this cover page: 3

If there is a problem with this transmission, please call (608) 276-8980

Comments:

(CONFIRMATION COPY TO FOLLOW VIA MAIL)

Dear Roger,

Here are the results from our comparative enumeration assays and nutrient analyses for the soil and manure samples you sent us in connection with Project Number 19784XF. Sorry for the delay in getting these to you. I just got the nutrient results from the lab that does these tests for us this week. I will enclose the invoice and chain of custody for this job with the mailed confirmation copy.

Please give me a call if you wish to further discuss these results or have other questions. Thank you for retaining BTI for this project. We look forward to working with you further in the future.

Sincerely,

M. Lynn Haugh
Microbial Services Manager

Enclosures: Analytical results
Invoice
Chain of custody

The Faraday Center ♦ 2800 South Fish Hatchery Road ♦ Madison, Wisconsin 53711 ♦ (608)276-8980 ♦ Fax: (608)273-6989

COMPARATIVE MICROBIOLOGICAL ENUMERATION ASSAY AND NUTRIENT ANALYSIS

REPORT OF RESULTS

Client	STS Consultants	Cl. contact	Roger Miller
Date of Order	6/17/93	Project #	19784XF
Address		P.O. No.	
Street	1035 Kepler Drive	Date rec'd	6/17/93 & 6/23/93
City	Green Bay	Date rept'd	7/16/93
State	WI	BTI Rep	M. Lynn Haugh
Zip	54311	Growth Conditions:	
Site Information:		Specific Carbon Source:	Diesel Fuel
Identification:			1.0% v/v
Contaminants:	Diesel Fuel	Incubation Temperature:	22 degree C

Sample ID	S3	S1	Dry Manure	Paunch Manure
CEA Results				
Total Population				
Rep 1	1.0E+07	2.0E+07	NR	NR
2	1.1E+07	2.1E+07	NR	NR
3	9.4E+06	2.1E+07	NR	NR
4	1.2E+07	1.8E+07	NR	NR
5	9.7E+06	1.9E+07	NR	NR
Mean	1.0E+07	2.0E+07	NR	NR
Std Dev	1.0E+06	1.3E+06	NR	NR
Coefficient of Variation	9.7%	6.6%	NR	NR
Degrader Population				
Rep 1	5.9E+05	4.1E+06	NR	NR
2	4.7E+05	2.5E+06	NR	NR
3	4.7E+05	2.5E+06	NR	NR
4	5.9E+05	4.4E+06	NR	NR
5	#N/A	2.0E+06	NR	NR
Mean	5.3E+05	3.1E+06	NR	NR
Std Dev	6.8E+04	1.1E+06	NR	NR
Coefficient of Variation	12.8%	35.8%	NR	NR
Nutrient Analysis				
pH	7.9	7.3	8.8	9.2
Organic Matter (%)	1.2	7.9	75.3	72.9
Available P (ppm)	9	6	5800*	3600*
Available K (ppm)	70	85	5000*	24400*
TKN (ppm)	1116	5592	11800	17200
Ammonium-N (ppm)	1.5	16.5	32.0	57.0
Solids (%)	81.5	62.6	37.9	17.5
Nitrate-N (ppm)	NR	NR	17.0	16.5
Ca (ppm)	NR	NR	NR	NR
Mg (ppm)	NR	NR	NR	NR
Cation Ex. (meq/100g)	NR	NR	NR	NR
%Sand:%Silt:%Clay	NR	NR	NR	NR
Soil Texture	NR	NR	NR	NR

Remarks:

Enumeration data is reported in colony forming units (cfu's) / gram of dry weight soil or cfu's / ml groundwater. Five replicates were plated from each sample. #N/A represents data not available.

The standard limit of detection for this assay (using five replicates) is 1% for hydrocarbon degraders relative to the complete media population.

The soil data reported by the lab as 'ppm' can also be expressed as the same value with mg/kg units.

*Represents values from a 'total' mineral analysis not 'available' P & K.

NR represents data not requested.

Reviewed and approved by:
M. Lynn Haugh
Microbial Services Manager

COMPARATIVE MICROBIOLOGICAL ENUMERATION ASSAY AND NUTRIENT ANALYSIS

REPORT OF RESULTS

Client	STS Consultants	Cl. contact	Roger Miller
Date of Order	6/17/93	Project #	19784XF
Address		P.O. No.	
Street	1035 Kepler Drive	Date rec'd	6/17/93 & 6/23/93
City	Green Bay	Date rept'd	7/16/93
State	WI	BTI Rep	M. Lynn Haugh
Zip	54311	Growth Conditions:	
Site Information:		Specific Carbon Source:	Diesel Fuel
Identification:			1.0% v/v
Contaminants:	Diesel Fuel	Incubation Temperature:	22 degree C

Sample ID	Dry Manure	Paunch Manure
Nutrient Analysis – Total Mineral Report		
Phosphorus (%)	0.58	0.36
Potassium (%)	0.50	2.44
Calcium (%)	0.86	0.62
Magnesium (%)	0.10	0.31
Sulfur (%)	0.15	0.24
Zinc (ppm)	58.41	39.26
Boron (ppm)	-0.32	0.08
Manganese (ppm)	58.90	100.50
Iron (ppm)	801.3	1549
Copper (ppm)	10.30	11.91
Aluminum (ppm)	223.7	2119
Sodium (ppm)	16598	318.6

STS CHAIN OF CUSTODY RECORD

№ 19697 RECORD NO. _____ THROUGH _____

Contact Person: ROGER MILLER
Phone No.: 414/469-1175
Project No.: 15784XE PO No.: _____
STS Office: GREEN BAY

SPECIAL HANDLING REQUEST
☐ RUSH
☐ VERBAL
☐ OTHER

Laboratory: ALAN BETTERMANN
Contact Person: BIOREMEDIAL TECH.
Phone No.: _____
Results Due: _____

Sample I.D.	Date	Time	Grab	Composite	No. of Containers	Sample Type (Water, soil, air, sludge, etc.)	Preservation Y	Preservation N	Field Data PID/FID Ambient	Field Data PID/FID Sample	Field Data PH	Field Data Spec. Cond.	Analysis Request	Comments on Sample (Include Major Contaminants)	Lab ID
S 3	6/15/93		✓		1	SOIL							ENUMERATION + DIESEL	SPECIFIC DEGRADERS	DI01
S 1	6/15/93		✓		1	SOIL							"	"	DI02
													→ ALSO DO NUTRIENT TESTS IF SUFFICIENT SAMPLE		

Collected by: Jacqueline M. Ford	Date	Time	Delivery by:	Date	Time
Received by: Marilyn Haugh	Date 6/17	Time 11:20am	Relinquished by:	Date	Time
Received by:	Date	Time	Relinquished by:	Date	Time
Received by:	Date	Time	Relinquished by:	Date	Time
Received for lab by:	Date	Time	Relinquished by:	Date	Time

Laboratory Comments Only: Seals Intact Upon Receipt ☐ Yes ☐ No ☐ N/A

Final disposition:

Comments (Weather Conditions, Precautions, Hazards):

CALL ROGER MILLER ABOUT NUTRIENT TESTING.

Distribution: Original and Green – Laboratory Yellow – As needed Pink – Transporter Goldenrod – STS Project File

Instruction to Laboratory: Forward completed original to STS with analytical results. Retain green copy.

11/90 FORM 038

STS CHAIN OF CUSTODY RECORD

№ 19698 RECORD NO. _____ THROUGH _____

Contact Person: ROGER A. MILLER
Phone No.: 414/408-1978
Project No.: 9784XF PO No.: _____
STS Office: GREEN BAY

SPECIAL HANDLING REQUEST
- ☐ RUSH
- ☐ VERBAL
- ☐ OTHER

Laboratory: BIOREMEDIA TECHNOLOGY
Contact Person: ALLEN DINTS
Phone No.: 608/276-8980
Results Due: 2 WEEKS

Sample I.D.	Date	Time	Grab	Composite	No. of Containers	Sample Type (Water, soil, air, sludge, etc.)	Preservation Y	Preservation N	Field Data PID/FID Ambient	Field Data PID/FID Sample	Field Data PH	Field Data Spec. Cond.	Analysis Request	Comments on Sample (Include Major Contaminants)
DRY MANURE	6/22/93	2:15	✓		2	MANURE							SOIL NUTRIENTS	SAMPLE CONTAINS SAWDUST
														LAB ID: DI03
LAUNCH MANURE	6/22/93	2:15	✓		2	"							SOIL NUTRIENTS	PARTIALLY DIGESTED FEED
														LAB ID: DI04

Collected by: Roger A. Miller	Date 6/22/93	Time 2:15	Delivery by:	Date	Time
Received by: Megan Haugh	Date 6/23/93	Time	Relinquished by:	Date	Time
Received by:	Date	Time	Relinquished by:	Date	Time
Received by:	Date	Time	Relinquished by:	Date	Time
Received for lab by:	Date	Time	Relinquished by:	Date	Time

Laboratory Comments Only: Seals Intact Upon Receipt ☐ Yes ☐ No ☐ N/A

Final disposition:

Comments (Weather Conditions, Precautions, Hazards):

Add nitrate to standard soil nutrient tests

Distribution: Original and Green – Laboratory Yellow – As needed Pink – Transporter Goldenrod – STS Project File

Instruction to Laboratory: Forward completed original to STS with analytical results. Retain green copy.

11/90 FORM 038

Hazleton
Environmental
Services, Inc.
525 SCIENCE DRIVE • MADISON, WISCONSIN 53711

HES, Inc.

STS CONSULTANTS, LTD.

PROJECT NUMBER 19784XF
LIMS BATCH NUMBER 30700243

	ORGANIC			INORGANIC		
				QC BATCH[2] _____		
HOLDING TIMES. All holding times meet QC criteria.	YES	NO*	NA	YES	NO*	NA
INITIAL and CONTINUING CALIBRATIONS. All initial and continuing calibrations meet QC criteria.	YES	NO*	NA	YES	NO*	NA
METHOD BLANKS. All method blanks meet the specified QC criteria.	YES	NO*	NA	YES	NO*	NA
SURROGATE RECOVERIES. All surrogate recoveries meet QC criteria.	YES	NO*	NA		NA	
MATRIX SPIKE/MATRIX SPIKE DUPLICATE[1]. All MS/MSD meet QC criteria.	YES	NO*	NA	YES	NO*	NA
DUPLICATE. All relative percent differences (%RPD) meet QC criteria.		NA		YES	NO*	NA
CONTROL SPIKE/CONTROL SPIKE DUPLICATE. All CS meet QC criteria.	YES	NO* DRD	NA		NA	
LABORATORY CONTROL SAMPLE. All LCS meet QC criteria.		NA		YES	NO*	NA

Dawn Wheeler
Dawn Wheeler

John Walton

I certify that this data is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above.

QA Supervisor

AUDITED NONAUDITED

* If circled, see attached for explanation of deviation.
[1] Matrix Spike for inorganic analysis.
[2] Refers to Matrix Spike and Duplicate.
NA = Not Applicable.

PMP 7/22/93

Hazleton Environmental Services, Inc.

HES, Inc.

REPORT OF ANALYSIS

ROGER MILLER
STS CONSULTANTS, LTD
1035 KEPLER DRIVE
GREEN BAY, WI 54311

SAMPLE NUMBER: 30700243

DATE ENTERED: 07/08/93

REPORT PRINTED: 07/22/93

SOIL: S-7; 7/7/93; 9:00
PROJECT NUMBER: 19784XF

PURCHASE ORDER NUMBER: 19784XF

DIESEL RANGE ORGANICS IN SOIL

DIESEL	CONCENTRATION	DETECTION LIMIT
DRY WEIGHT	< 7.2 MG/KG	7.2 MG/KG
CONTROL SPIKE	64 % RECOVERY	
DUPLICATE CONTROL SPIKE	61 % RECOVERY	
DILUTION FACTOR	1	
DATE RECEIVED	07/08/93	
DATE PRESERVED	07/08/93	
DATE EXTRACTED	07/08/93	
DATE ANALYZED	07/13/93	
DRO STANDARD SOURCE	MACRO SCIENTIFIC- WI DRO LOT NO. ME 1031	

WI DNR LAB CERTIFICATION #: 113172950

WISCONSIN DNR CERTIFICATION NUMBER: 113172950

SIGNED Dawn Wheeler
DAWN WHEELER
SUPERVISOR, GENERAL ORGANICS

METHOD REFERENCES

DIESEL RANGE ORGANICS IN SOIL
WI DEPT. OF NATURAL RESOURCES "METHOD FOR DETERMINING DIESEL RANGE ORGANICS", PUBLICATION SW-141,1992.

Hazleton Environmental Services, Inc.

HES, Inc.

REPORT OF ANALYSIS

ROGER MILLER
STS CONSULTANTS, LTD
1035 KEPLER DRIVE
GREEN BAY, WI 54311

SAMPLE NUMBER: 30700244

DATE ENTERED: 07/08/93

REPORT PRINTED: 07/22/93

SOIL: S-8; 7/7/93; 9:30
PROJECT NUMBER: 19784XF

PURCHASE ORDER NUMBER: 19784XF

DIESEL RANGE ORGANICS IN SOIL

DIESEL	CONCENTRATION	DETECTION LIMIT
DRY WEIGHT	< 8.0 MG/KG	8.0 MG/KG
CONTROL SPIKE	64 % RECOVERY	
DUPLICATE CONTROL SPIKE	61 % RECOVERY	
DILUTION FACTOR	1	
DATE RECEIVED	07/08/93	
DATE PRESERVED	07/08/93	
DATE EXTRACTED	07/08/93	
DATE ANALYZED	07/13/93	
DRO STANDARD SOURCE	MACRO SCIENTIFIC- WI DRO LOT NO. ME 1031	

WI DNR LAB CERTIFICATION #: 113172950

WISCONSIN DNR CERTIFICATION NUMBER: 113172950

SIGNED Dawn Wheeler
DAWN WHEELER
SUPERVISOR, GENERAL ORGANICS

METHOD REFERENCES

DIESEL RANGE ORGANICS IN SOIL
WI DEPT. OF NATURAL RESOURCES "METHOD FOR DETERMINING DIESEL RANGE ORGANICS", PUBLICATION SW-141,1992.

Hazleton Environmental Services, Inc.

HES, Inc.

REPORT OF ANALYSIS

ROGER MILLER
STS CONSULTANTS, LTD
1035 KEPLER DRIVE
GREEN BAY, WI 54311

SAMPLE NUMBER: 30700245

DATE ENTERED: 07/08/93

REPORT PRINTED: 07/22/93

SOIL: S-9; 7/7/93; 10:30
PROJECT NUMBER: 19784XF

PURCHASE ORDER NUMBER: 19784XF

DIESEL RANGE ORGANICS IN SOIL

DIESEL	CONCENTRATION		DETECTION LIMIT	
DRY WEIGHT	< 12	MG/KG	12	MG/KG
CONTROL SPIKE	64	% RECOVERY		
DUPLICATE CONTROL SPIKE	61	% RECOVERY		
DILUTION FACTOR	1			
DATE RECEIVED	07/08/93			
DATE PRESERVED	07/08/93			
DATE EXTRACTED	07/08/93			
DATE ANALYZED	07/13/93			
DRO STANDARD SOURCE	MACRO SCIENTIFIC- WI DRO LOT NO. ME 1031			

WI DNR LAB CERTIFICATION #: 113172950

WISCONSIN DNR CERTIFICATION NUMBER: 113172950

SIGNED Dawn Wheeler
DAWN WHEELER
SUPERVISOR, GENERAL ORGANICS

METHOD REFERENCES

DIESEL RANGE ORGANICS IN SOIL
WI DEPT. OF NATURAL RESOURCES "METHOD FOR DETERMINING DIESEL RANGE ORGANICS", PUBLICATION SW-141,1992.

Hazleton Environmental Services, Inc.

HES, Inc.

REPORT OF ANALYSIS

ROGER MILLER
STS CONSULTANTS, LTD
1035 KEPLER DRIVE
GREEN BAY, WI 54311

SAMPLE NUMBER: 30700246

DATE ENTERED: 07/08/93

REPORT PRINTED: 07/22/93

SOIL: S-10; 7/7/93; 10:30
PROJECT NUMBER: 19784XF

PURCHASE ORDER NUMBER: 19784XF

DIESEL RANGE ORGANICS IN SOIL

DIESEL	CONCENTRATION	DETECTION LIMIT
DRY WEIGHT	< 7.2 MG/KG	7.2 MG/KG
CONTROL SPIKE	64 % RECOVERY	
DUPLICATE CONTROL SPIKE	61 % RECOVERY	
DILUTION FACTOR	1	
DATE RECEIVED	07/08/93	
DATE PRESERVED	07/08/93	
DATE EXTRACTED	07/08/93	
DATE ANALYZED	07/13/93	
DRO STANDARD SOURCE	MACRO SCIENTIFIC- WI DRO LOT NO. ME 1031	

WI DNR LAB CERTIFICATION #: 113172950

WISCONSIN DNR CERTIFICATION NUMBER: 113172950

SIGNED Dawn Wheeler
DAWN WHEELER
SUPERVISOR, GENERAL ORGANICS

METHOD REFERENCES

DIESEL RANGE ORGANICS IN SOIL
WI DEPT. OF NATURAL RESOURCES "METHOD FOR DETERMINING DIESEL RANGE ORGANICS", PUBLICATION SW-141,1992.

Hazleton
Environmental
Services, Inc.

REPORT OF ANALYSIS

ROGER MILLER
STS CONSULTANTS, LTD
1035 KEPLER DRIVE
GREEN BAY, WI 54311

SAMPLE NUMBER: 30700247
DATE ENTERED: 07/08/93
REPORT PRINTED: 07/22/93

SOIL: S-11; 7/7/93; 11:00
PROJECT NUMBER: 19784XF

PURCHASE ORDER NUMBER: 19784XF

DIESEL RANGE ORGANICS IN SOIL

DIESEL DRY WEIGHT	CONCENTRATION		DETECTION LIMIT	
	< 19	MG/KG	19	MG/KG
CONTROL SPIKE	64	% RECOVERY		
DUPLICATE CONTROL SPIKE	61	% RECOVERY		
DILUTION FACTOR	1			
DATE RECEIVED	07/08/93			
DATE PRESERVED	07/08/93			
DATE EXTRACTED	07/08/93			
DATE ANALYZED	07/13/93			
DRO STANDARD SOURCE	MACRO SCIENTIFIC- WI DRO LOT NO. ME 1031			

WI DNR LAB CERTIFICATION #: 113172950

WISCONSIN DNR CERTIFICATION NUMBER: 113172950

SIGNED Dawn Wheeler
DAWN WHEELER
SUPERVISOR, GENERAL ORGANICS

METHOD REFERENCES

DIESEL RANGE ORGANICS IN SOIL
WI DEPT. OF NATURAL RESOURCES "METHOD FOR DETERMINING DIESEL RANGE ORGANICS", PUBLICATION SW-141,1992.

BioRenewal Technologies, Inc.

Facsimile Cover Sheet

To: Roger Miller
Company: STS Consultants
Phone: 414/468-1978
Fax: 414/468-3312

RECEIVED
AUG 9 1993

From: M. Lynn Haugh
Company: Biorenewal Technologies, Inc.
Phone: 608/276-8980
Fax: 608/273-6989

Date: August 5, 1993
Pages including this cover page: 2

If there is a problem with this transmission, please call (608) 276-8980

Comments:

(CONFIRMATION COPY TO FOLLOW VIA MAIL)

Dear Roger,

Here are the results from our comparative enumeration assays and soil analysis for the soil sample you sent us in connection with Project # 19784XF. I will enclose the chain of custody and an invoice for this project with the confirmation copy.

Please give me a call if you wish to further discuss these results or have other questions. Thank you for retaining BTI for this project. We look forward to working with you further in the future.

Sincerely,

M. Lynn Haugh
Microbial Services Manager

The Faraday Center ♦ 2800 South Fish Hatchery Road ♦ Madison, Wisconsin 53711 ♦ (608)276-8980 ♦ Fax: (608)273-6989

COMPARATIVE MICROBIOLOGICAL ENUMERATION ASSAY AND NUTRIENT ANALYSIS

REPORT OF RESULTS

Client	STS Consultants	Cl. contact	Roger Miller
Date of Order	7/8/93	Project #	19784XF
Address		P.O. No.	
Street	1035 Kepler Drive	Date rec'd	7/8/93
City	Green Bay	Date rept'd	8/4/93
State	WI	BTI Rep	M. Lynn Haugh
Zip	54311	Growth Conditions:	
Site Information:		Specific Carbon Source:	Diesel fuel
Identification:	James River		1.0% v/v
Contaminants:	Diesel Fuel	Incubation Temperature:	22 degree C

Sample ID	S-13
CEA Results	
Total Population	
Rep 1	7.4E+05
2	6.7E+05
3	8.3E+05
4	7.5E+05
5	8.5E+05
Mean	7.7E+05
Std Dev	7.4E+04
Coefficient of Variation	9.6%
Degrader Population	
Rep 1	5.7E+03
2	6.8E+03
3	5.7E+03
4	4.6E+03
5	1.0E+04
Mean	6.6E+03
Std Dev	2.2E+03
Coefficient of Variation	33.2%

Nutrient Analysis	
pH	8.7
Organic Matter (%)	0.2
P (ppm)	10
K (ppm)	60
TKN (ppm)	196
Ammonium-N (ppm)	2.0
Solids (%)	85.8
Ca (ppm)	1450
Mg (ppm)	240
Cation Ex. (meq/100g)	9
%Sand:%Silt:%Clay	71:16:13
Soil Texture	Sandy loam

Remarks:

Enumeration data is reported in colony forming units (cfu's) / gram of dry weight soil. Five replicates were plated from each sample. #N/A represents data not available.

The standard limit of detection for this assay (using five replicates) is 1% for hydrocarbon degraders relative to the complete media population.

The soil data reported by the lab as 'ppm' can also be expressed as the same value with mg/kg units.

Reviewed and approved by:
M. Lynn Haugh
Microbial Services Manager

STS CHAIN OF CUSTODY RECORD

№ 19700 RECORD NO. _____ THROUGH _____

Contact Person: ROGER A MILLER
Phone No.: 414/468-1978
Project No.: 19 '34XF PO No.:
STS Office: GREEN BAY

SPECIAL HANDLING REQUEST
☐ RUSH
☐ VERBAL
☐ OTHER

Laboratory: BIORENEWAL TECHNOLOGIES
Contact Person: ALAN BETTERMANN
Phone No.: 608/267-3753
Results Due: NORMAL TURNAROUND

Sample I.D.	Date	Time	Grab	Composite	No. of Containers	Sample Type (Water, soil, air, sludge, etc.)	Preservation Y	Preservation N	Field Data PID/FID Ambient	Field Data PID/FID Sample	Field Data PH	Field Data Spec. Cond.	Analysis Request	Comments on Sample (Include Major Contaminants)
S-13	7/7/93	12:00	✓			SOIL							ENUMERATION WITH	DIESEL FOR
8A						SOIL.								SPECIFIC DEGRADERS
														ALSO DO BSO
														NUTRIENT PANEL

Collected by: [signature]	Date 7/7/93	Time	Delivery by:	Date	Time
Received by: Lynn Haugh	Date 7/8/93	Time	Relinquished by:	Date	Time
Received by:	Date	Time	Relinquished by:	Date	Time
Received by:	Date	Time	Relinquished by:	Date	Time
Received for lab by:	Date	Time	Relinquished by:	Date	Time

Laboratory Comments Only: Seals Intact Upon Receipt ☐ Yes ☐ No ☐ N/A

Final disposition:

Comments (Weather Conditions, Precautions, Hazards):

INVOICE JAMES RIVER DIRECTLY.
PLEASE [illegible] FOR ADDRESS.
THANKS.
[signature]

Distribution: Original and Green – Laboratory Yellow – As needed Pink – Transporter Goldenrod – STS Project File

Instruction to Laboratory: Forward completed original to STS with analytical results. Retain green copy.

1/90 FORM 038

APPENDIX C

Brown County Landfill Disposal Approval
Scale Tickets from Brown County For Landfilled Soil

SOLID WASTE DEPAR..MENT

Brown County

305 EAST WALNUT
P.O. BOX 23600
GREEN BAY, WISCONSIN 54305-3600

PHONE (414) 448-4475 FAX (414) 448-4036

CHARLES J. LARSCHEID
DIRECTOR

AUG 31 1993

BROWN COUNTY LANDFILL DISPOSAL APPROVAL

PROJECT: James River Corporation

ADDRESS: 500 Day Street
P.O. Box 23790
Green Bay, WI 54305-3790

OWNER/CONTACT NAME: Robert J. Overly

WASTE: Petroleum Contaminated Soil

AMOUNT: 500 Cubic Yards

LANDFILL: Brown County East

Under this approval the owner may dispose the noted waste in the designated Brown County landfill. This approval covers only the project and waste amount described in this approval letter.

Roxanne Nelezen

Roxanne Nelezen

August 30, 1993
Date Authorized

RN:nl

cc: Rodger A. Miller-STS Consultants

aprvl.pri

409429

SCALE TICKET

BROWN COUNTY

SOLID WASTE BOARD

PRINTED ON RECYCLED PAPER

DATE	TIME	ACCOUNT NAME	ACCOUNT NO.
09/07/93	08:03	JAMES RIVER	01090

TRUCK NUMBER	11	GROSS WEIGHT	60260	RATE PER TON	21.50
CONTAINER NUMBER	0	EMPTY WEIGHT	25420 (K)	AMOUNT OWED	374.53
WASTE CODE	32	NET WEIGHT	34840	AMOUNT PAID	0.00
					SITE: 1
					ORIGIN: 000

SPECIAL DATA:

VANDEN AVOND

REMARKS:

OPTIONAL DRIVER'S SIGNATURE

CASH RECEIVED BY

No E021969

409430

SCALE TICKET

BROWN COUNTY

SOLID WASTE BOARD

PRINTED ON RECYCLED PAPER

DATE	TIME	ACCOUNT NAME	ACCOUNT NO.
09/07/93	08:04	JAMES RIVER	01090

TRUCK NUMBER	6	GROSS WEIGHT	49680	RATE PER TON	21.50
CONTAINER NUMBER	0	EMPTY WEIGHT	26500 (K)	AMOUNT OWED	249.18
WASTE CODE	32	NET WEIGHT	23180	AMOUNT PAID	0.00
					SITE: 1
					ORIGIN: 000

SPECIAL DATA:

EBELING

REMARKS:

OPTIONAL DRIVER'S SIGNATURE

CASH RECEIVED BY

No E021970

409431

SCALE TICKET

BROWN COUNTY

SOLID WASTE BOARD

PRINTED ON RECYCLED PAPER

DATE	TIME	ACCOUNT NAME	ACCOUNT NO.
09/07/93	08:06	JAMES RIVER	01090

TRUCK NUMBER	13	GROSS WEIGHT	60020	RATE PER TON	21.50
CONTAINER NUMBER	0	EMPTY WEIGHT	25780 (K)	AMOUNT OWED	368.08
WASTE CODE	32	NET WEIGHT	34240	AMOUNT PAID	0.00
					SITE: 1
					ORIGIN: 000

SPECIAL DATA:

PHILLIPS

REMARKS:

OPTIONAL DRIVER'S SIGNATURE

CASH RECEIVED BY

No E021971

409434

SCALE TICKET

BROWN COUNTY

SOLID WASTE BOARD

PRINTED ON RECYCLED PAPER

DATE	TIME	ACCOUNT NAME	ACCOUNT NO.
09/07/93	08:10	JAMES RIVER	01090

TRUCK NUMBER	4	GROSS WEIGHT	56420	RATE PER TON	21.50
CONTAINER NUMBER	0	EMPTY WEIGHT	26220 (K)	AMOUNT OWED	324.65
WASTE CODE	32	NET WEIGHT	30200	AMOUNT PAID	0.00

SITE: 1
ORIGIN: 000

SPECIAL DATA: PHILLIPS

REMARKS:

OPTIONAL DRIVER'S SIGNATURE

CASH RECEIVED BY

No E021974

409455

SCALE TICKET

BROWN COUNTY

SOLID WASTE BOARD

PRINTED ON RECYCLED PAPER

DATE	TIME	ACCOUNT NAME	ACCOUNT NO.
09/07/93	09:14	JAMES RIVER	01090

TRUCK NUMBER	11	GROSS WEIGHT	59040	RATE PER TON	21.50
CONTAINER NUMBER	0	EMPTY WEIGHT	25420 (K)	AMOUNT OWED	361.42
WASTE CODE	32	NET WEIGHT	33620	AMOUNT PAID	0.00

SITE: 1
ORIGIN: 000

SPECIAL DATA: VANDEN AVOND

REMARKS:

OPTIONAL DRIVER'S SIGNATURE

CASH RECEIVED BY

No E021994

409458

SCALE TICKET

BROWN COUNTY

SOLID WASTE BOARD

PRINTED ON RECYCLED PAPER

DATE	TIME	ACCOUNT NAME	ACCOUNT NO.
09/07/93	09:22	JAMES RIVER	01090

TRUCK NUMBER	13	GROSS WEIGHT	55220	RATE PER TON	21.50
CONTAINER NUMBER	0	EMPTY WEIGHT	25780 (K)	AMOUNT OWED	316.48
WASTE CODE	32	NET WEIGHT	29440	AMOUNT PAID	0.00

SITE: 1
ORIGIN: 000

SPECIAL DATA: PHILLIPS

REMARKS:

OPTIONAL DRIVER'S SIGNATURE

CASH RECEIVED BY

No E021997

409459

SCALE TICKET

BROWN COUNTY
SOLID WASTE BOARD

PRINTED ON RECYCLED PAPER

DATE	TIME	ACCOUNT NAME	ACCOUNT NO.
09/07/93	09:33	JAMES RIVER	01090

TRUCK NUMBER	6	GROSS WEIGHT	56760	RATE PER TON	21.50
CONTAINER NUMBER	0	EMPTY WEIGHT	26500 (K)	AMOUNT OWED	325.30
WASTE CODE	32	NET WEIGHT	30260	AMOUNT PAID	0.00
				SITE:	1
				ORIGIN:	000

SPECIAL DATA: EBELING

REMARKS:

OPTIONAL DRIVER'S SIGNATURE

CASH RECEIVED BY

No.E021998

409460

SCALE TICKET

BROWN COUNTY
SOLID WASTE BOARD

PRINTED ON RECYCLED PAPER

DATE	TIME	ACCOUNT NAME	ACCOUNT NO.
09/07/93	09:29	JAMES RIVER	01090

TRUCK NUMBER	4	GROSS WEIGHT	53420	RATE PER TON	21.50
CONTAINER NUMBER	0	EMPTY WEIGHT	26220 (K)	AMOUNT OWED	292.40
WASTE CODE	32	NET WEIGHT	27200	AMOUNT PAID	0.00
				SITE:	1
				ORIGIN:	000

SPECIAL DATA: PHILLIPS

REMARKS:

OPTIONAL DRIVER'S SIGNATURE

CASH RECEIVED BY

No.E021999

409471

SCALE TICKET

BROWN COUNTY
SOLID WASTE BOARD

PRINTED ON RECYCLED PAPER

DATE	TIME	ACCOUNT NAME	ACCOUNT NO.
09/07/93	10:09	JAMES RIVER	01090

TRUCK NUMBER	11	GROSS WEIGHT	56260	RATE PER TON	21.50
CONTAINER NUMBER	0	EMPTY WEIGHT	25420 (K)	AMOUNT OWED	331.53
WASTE CODE	32	NET WEIGHT	30840	AMOUNT PAID	0.00
				SITE:	1
				ORIGIN:	000

SPECIAL DATA: VANDEN AVOND

REMARKS:

OPTIONAL DRIVER'S SIGNATURE

CASH RECEIVED BY

No.E022009

409475

SCALE TICKET

BROWN COUNTY
SOLID WASTE BOARD

PRINTED ON RECYCLED PAPER

DATE	TIME	ACCOUNT NAME	ACCOUNT NO.
09/07/93	10:21	JAMES RIVER	01090

TRUCK NUMBER	6	GROSS WEIGHT	54160	RATE PER TON	35.00
CONTAINER NUMBER	0	EMPTY WEIGHT	26500 (K)	AMOUNT OWED	484.05
WASTE CODE	32	NET WEIGHT	27660	AMOUNT PAID	0.00
				SITE:	1
				ORIGIN:	000

SPECIAL DATA: EBELING

REMARKS:

OPTIONAL DRIVER'S SIGNATURE

CASH RECEIVED BY

No E022013

409474

SCALE TICKET

BROWN COUNTY
SOLID WASTE BOARD

PRINTED ON RECYCLED PAPER

DATE	TIME	ACCOUNT NAME	ACCOUNT NO.
09/07/93	10:21	JAMES RIVER	01090

TRUCK NUMBER	13	GROSS WEIGHT	69000	RATE PER TON	21.50
CONTAINER NUMBER	0	EMPTY WEIGHT	25780 (K)	AMOUNT OWED	464.61
WASTE CODE	32	NET WEIGHT	43220	AMOUNT PAID	0.00
				SITE:	1
				ORIGIN:	000

SPECIAL DATA: PHILLIPS

REMARKS:

OPTIONAL DRIVER'S SIGNATURE

CASH RECEIVED BY

No E022012

409477

SCALE TICKET

BROWN COUNTY
SOLID WASTE BOARD

PRINTED ON RECYCLED PAPER

DATE	TIME	ACCOUNT NAME	ACCOUNT NO.
09/07/93	10:28	JAMES RIVER	01090

TRUCK NUMBER	4	GROSS WEIGHT	62680	RATE PER TON	35.00
CONTAINER NUMBER	0	EMPTY WEIGHT	26220 (K)	AMOUNT OWED	638.05
WASTE CODE	32	NET WEIGHT	36460	AMOUNT PAID	0.00
				SITE:	1
				ORIGIN:	000

SPECIAL DATA: PHILLIPS

REMARKS:

OPTIONAL DRIVER'S SIGNATURE

CASH RECEIVED BY

No E022015

409496

SCALE TICKET

BROWN COUNTY
SOLID WASTE BOARD

PRINTED ON RECYCLED PAPER

DATE	TIME	ACCOUNT NAME	ACCOUNT NO.
09/07/93	11:14	JAMES RIVER	01090

TRUCK NUMBER	11	GROSS WEIGHT	63680	RATE PER TON	35.00
CONTAINER NUMBER	0	EMPTY WEIGHT	25420 (K)	AMOUNT OWED	669.55
WASTE CODE	32	NET WEIGHT	38260	AMOUNT PAID	0.00
					SITE: 1
					ORIGIN: 000

SPECIAL DATA: VANDEN AVOND

REMARKS:

OPTIONAL DRIVER'S SIGNATURE

CASH RECEIVED BY

No E022034

409500

SCALE TICKET

BROWN COUNTY
SOLID WASTE BOARD

PRINTED ON RECYCLED PAPER

DATE	TIME	ACCOUNT NAME	ACCOUNT NO.
09/07/93	11:19	JAMES RIVER	01090

TRUCK NUMBER	13	GROSS WEIGHT	54240	RATE PER TON	35.00
CONTAINER NUMBER	0	EMPTY WEIGHT	25780 (S)	AMOUNT OWED	498.05
WASTE CODE	32	NET WEIGHT	28460	AMOUNT PAID	0.00
					SITE: 1
					ORIGIN: 000

SPECIAL DATA: PHILLIPS

REMARKS:

OPTIONAL DRIVER'S SIGNATURE

CASH RECEIVED BY

No E022038

409501

SCALE TICKET

BROWN COUNTY
SOLID WASTE BOARD

PRINTED ON RECYCLED PAPER

DATE	TIME	ACCOUNT NAME	ACCOUNT NO.
09/07/93	11:29	JAMES RIVER	01090

TRUCK NUMBER	6	GROSS WEIGHT	63460	RATE PER TON	35.00
CONTAINER NUMBER	0	EMPTY WEIGHT	26500 (S)	AMOUNT OWED	646.80
WASTE CODE	32	NET WEIGHT	36960	AMOUNT PAID	0.00
					SITE: 1
					ORIGIN: 000

SPECIAL DATA: EBELING

REMARKS:

OPTIONAL DRIVER'S SIGNATURE

CASH RECEIVED BY

No E022039

409502

SCALE TICKET

BROWN COUNTY
SOLID WASTE BOARD

PRINTED ON RECYCLED PAPER

DATE	TIME	ACCOUNT NAME	ACCOUNT NO.
09/07/93	11:30	JAMES RIVER	01090

TRUCK NUMBER	4	GROSS WEIGHT	56420	RATE PER TON	35.00
CONTAINER NUMBER	0	EMPTY WEIGHT	26220 (S)	AMOUNT OWED	528.50
WASTE CODE	32	NET WEIGHT	30200	AMOUNT PAID	0.00
				SITE:	1
				ORIGIN:	000

SPECIAL DATA: PHILLIPS

REMARKS:

OPTIONAL DRIVER'S SIGNATURE

CASH RECEIVED BY

No. E022040

409518

SCALE TICKET

BROWN COUNTY
SOLID WASTE BOARD

PRINTED ON RECYCLED PAPER

DATE	TIME	ACCOUNT NAME	ACCOUNT NO.
09/07/93	12:25	JAMES RIVER	01090

TRUCK NUMBER	13	GROSS WEIGHT	60100	RATE PER TON	35.00
CONTAINER NUMBER	0	EMPTY WEIGHT	25780 (S)	AMOUNT OWED	600.60
WASTE CODE	32	NET WEIGHT	34320	AMOUNT PAID	0.00
				SITE:	1
				ORIGIN:	000

SPECIAL DATA: PHILLIPS

REMARKS:

OPTIONAL DRIVER'S SIGNATURE

CASH RECEIVED BY

No. E022054

409519

SCALE TICKET

BROWN COUNTY
SOLID WASTE BOARD

PRINTED ON RECYCLED PAPER

DATE	TIME	ACCOUNT NAME	ACCOUNT NO.
09/07/93	12:26	JAMES RIVER	01090

TRUCK NUMBER	11	GROSS WEIGHT	59920	RATE PER TON	35.00
CONTAINER NUMBER	0	EMPTY WEIGHT	25420 (S)	AMOUNT OWED	603.75
WASTE CODE	32	NET WEIGHT	34500	AMOUNT PAID	0.00
				SITE:	1
				ORIGIN:	000

SPECIAL DATA: VANDEN AVOND

REMARKS:

OPTIONAL DRIVER'S SIGNATURE

CASH RECEIVED BY

No. E022055

409522

SCALE TICKET

BROWN COUNTY

SOLID WASTE BOARD

PRINTED ON RECYCLED PAPER

DATE	TIME	ACCOUNT NAME	ACCOUNT NO.
09/07/93	12:30	JAMES RIVER	01090

TRUCK NUMBER	4	GROSS WEIGHT	61900	RATE PER TON	35.00
CONTAINER NUMBER	0	EMPTY WEIGHT	26220 (S)	AMOUNT OWED	624.40
WASTE CODE	32	NET WEIGHT	35680	AMOUNT PAID	0.00
				SITE:	1
				ORIGIN:	000

SPECIAL DATA: PHILLIPS

REMARKS:

OPTIONAL DRIVER'S SIGNATURE

CASH RECEIVED BY

No.E022058

409530

SCALE TICKET

BROWN COUNTY

SOLID WASTE BOARD

PRINTED ON RECYCLED PAPER

DATE	TIME	ACCOUNT NAME	ACCOUNT NO.
09/07/93	13:07	JAMES RIVER	01090

TRUCK NUMBER	6	GROSS WEIGHT	63120	RATE PER TON	35.00
CONTAINER NUMBER	0	EMPTY WEIGHT	26500 (S)	AMOUNT OWED	640.85
WASTE CODE	32	NET WEIGHT	36620	AMOUNT PAID	0.00
				SITE:	1
				ORIGIN:	000

SPECIAL DATA: EBELING

REMARKS:

OPTIONAL DRIVER'S SIGNATURE

CASH RECEIVED BY

No.E022065

409536

SCALE TICKET

BROWN COUNTY

SOLID WASTE BOARD

PRINTED ON RECYCLED PAPER

DATE	TIME	ACCOUNT NAME	ACCOUNT NO.
09/07/93	13:25	JAMES RIVER	01090

TRUCK NUMBER	11	GROSS WEIGHT	58820	RATE PER TON	35.00
CONTAINER NUMBER	0	EMPTY WEIGHT	25420 (S)	AMOUNT OWED	584.50
WASTE CODE	32	NET WEIGHT	33400	AMOUNT PAID	0.00
				SITE:	1
				ORIGIN:	000

SPECIAL DATA: VANDEN AVOND

REMARKS:

OPTIONAL DRIVER'S SIGNATURE

CASH RECEIVED BY

No.E022071

409541

SCALE TICKET

BROWN COUNTY
SOLID WASTE BOARD

PRINTED ON RECYCLED PAPER

DATE	TIME	ACCOUNT NAME	ACCOUNT NO.
09/07/93	13:30	JAMES RIVER	01090

TRUCK NUMBER	13	GROSS WEIGHT	65180	RATE PER TON	35.00
CONTAINER NUMBER	0	EMPTY WEIGHT	25780 (S)	AMOUNT OWED	689.50
WASTE CODE	32	NET WEIGHT	39400	AMOUNT PAID	0.00
					SITE: 1
					ORIGIN: 000

SPECIAL DATA: PHILLIPS

REMARKS:

OPTIONAL DRIVER'S SIGNATURE

CASH RECEIVED BY

No.E022074

409545

SCALE TICKET

BROWN COUNTY
SOLID WASTE BOARD

PRINTED ON RECYCLED PAPER

DATE	TIME	ACCOUNT NAME	ACCOUNT NO.
09/07/93	13:33	JAMES RIVER	01090

TRUCK NUMBER	4	GROSS WEIGHT	55360	RATE PER TON	35.00
CONTAINER NUMBER	0	EMPTY WEIGHT	26220 (S)	AMOUNT OWED	509.95
WASTE CODE	32	NET WEIGHT	29140	AMOUNT PAID	0.00
					SITE: 1
					ORIGIN: 000

SPECIAL DATA: PHILLIPS

REMARKS:

OPTIONAL DRIVER'S SIGNATURE

CASH RECEIVED BY

No.E022078

409552

SCALE TICKET

BROWN COUNTY
SOLID WASTE BOARD

CORRECTION MADE

PRINTED ON RECYCLED PAPER

DATE	TIME	ACCOUNT NAME	ACCOUNT NO.
09/07/93	14:03	JAMES RIVER	01090

TRUCK NUMBER	6	GROSS WEIGHT	60860	RATE PER TON	~~21.50~~ 35.00
CONTAINER NUMBER	0	EMPTY WEIGHT	26500 (S)	AMOUNT OWED	~~369.37~~ 601.30
WASTE CODE	32	NET WEIGHT	34360	AMOUNT PAID	0.00
					SITE: 1
					ORIGIN: 000

SPECIAL DATA: EBELING

REMARKS:

OPTIONAL DRIVER'S SIGNATURE

CASH RECEIVED BY

No.E022085

409561

SCALE TICKET

BROWN COUNTY
SOLID WASTE BOARD

PRINTED ON RECYCLED PAPER

DATE	TIME	ACCOUNT NAME	ACCOUNT NO.
09/07/93	14:18	JAMES RIVER	01090

TRUCK NUMBER	11	GROSS WEIGHT	61640	RATE PER TON	35.00
CONTAINER NUMBER	0	EMPTY WEIGHT	25420 (S)	AMOUNT OWED	633.85
WASTE CODE	32	NET WEIGHT	36220	AMOUNT PAID	0.00
				SITE:	1
				ORIGIN:	000

SPECIAL DATA: VANDEN AVOND

REMARKS:

OPTIONAL DRIVER'S SIGNATURE

CASH RECEIVED BY

No.E022094

409568

SCALE TICKET

BROWN COUNTY
SOLID WASTE BOARD

PRINTED ON RECYCLED PAPER

DATE	TIME	ACCOUNT NAME	ACCOUNT NO.
09/07/93	14:27	JAMES RIVER	01090

TRUCK NUMBER	13	GROSS WEIGHT	60480	RATE PER TON	35.00
CONTAINER NUMBER	0	EMPTY WEIGHT	25780 (S)	AMOUNT OWED	607.25
WASTE CODE	32	NET WEIGHT	34700	AMOUNT PAID	0.00
				SITE:	1
				ORIGIN:	000

SPECIAL DATA: PHILLIPS

REMARKS:

OPTIONAL DRIVER'S SIGNATURE

CASH RECEIVED BY

No.E022100

409570

SCALE TICKET

BROWN COUNTY
SOLID WASTE BOARD

PRINTED ON RECYCLED PAPER

DATE	TIME	ACCOUNT NAME	ACCOUNT NO.
09/07/93	14:31	JAMES RIVER	01090

TRUCK NUMBER	4	GROSS WEIGHT	62800	RATE PER TON	35.00
CONTAINER NUMBER	0	EMPTY WEIGHT	26220 (S)	AMOUNT OWED	640.15
WASTE CODE	32	NET WEIGHT	36580	AMOUNT PAID	0.00
				SITE:	1
				ORIGIN:	000

SPECIAL DATA: PHILLIPS

REMARKS:

OPTIONAL DRIVER'S SIGNATURE

CASH RECEIVED BY

No.E022102

409583

SCALE TICKET

BROWN COUNTY
SOLID WASTE BOARD

PRINTED ON RECYCLED PAPER

DATE	TIME	ACCOUNT NAME	ACCOUNT NO.
09/07/93	15:07	JAMES RIVER	01090

TRUCK NUMBER	6	GROSS WEIGHT	60580	RATE PER TON	35.00
CONTAINER NUMBER	0	EMPTY WEIGHT	26500 (S)	AMOUNT OWED	596.40
WASTE CODE	32	NET WEIGHT	34080	AMOUNT PAID	0.00
				SITE:	1
				ORIGIN:	000

SPECIAL DATA: EBELING

REMARKS:

OPTIONAL DRIVER'S SIGNATURE

CASH RECEIVED BY

No.E022113

409585

SCALE TICKET

BROWN COUNTY
SOLID WASTE BOARD

PRINTED ON RECYCLED PAPER

DATE	TIME	ACCOUNT NAME	ACCOUNT NO.
09/07/93	15:13	JAMES RIVER	01090

TRUCK NUMBER	11	GROSS WEIGHT	61500	RATE PER TON	21.50
CONTAINER NUMBER	0	EMPTY WEIGHT	25420 (S)	AMOUNT OWED	387.86
WASTE CODE	32	NET WEIGHT	36080	AMOUNT PAID	0.00
				SITE:	1
				ORIGIN:	000

SPECIAL DATA: VANDEN AVOND

REMARKS:

OPTIONAL DRIVER'S SIGNATURE

CASH RECEIVED BY

No.E022115

409588

SCALE TICKET

BROWN COUNTY
SOLID WASTE BOARD

PRINTED ON RECYCLED PAPER

DATE	TIME	ACCOUNT NAME	ACCOUNT NO.
09/07/93	15:25	JAMES RIVER	01090

TRUCK NUMBER	13	GROSS WEIGHT	60820	RATE PER TON	35.00
CONTAINER NUMBER	0	EMPTY WEIGHT	25780 (S)	AMOUNT OWED	613.20
WASTE CODE	32	NET WEIGHT	35040	AMOUNT PAID	0.00
				SITE:	1
				ORIGIN:	000

SPECIAL DATA: PHILLIPS

REMARKS:

OPTIONAL DRIVER'S SIGNATURE

CASH RECEIVED BY

No.E022118

409590

SCALE TICKET

BROWN COUNTY
SOLID WASTE BOARD

PRINTED ON RECYCLED PAPER

DATE	TIME	ACCOUNT NAME	ACCOUNT NO.
09/07/93	15:27	JAMES RIVER	01090

TRUCK NUMBER	4	GROSS WEIGHT	59700	RATE PER TON	35.00
CONTAINER NUMBER	0	EMPTY WEIGHT	26220 (S)	AMOUNT OWED	585.90
WASTE CODE	32	NET WEIGHT	33480	AMOUNT PAID	0.00
				SITE:	1
				ORIGIN:	000

SPECIAL DATA: PHILLIPS

REMARKS:

OPTIONAL DRIVER'S SIGNATURE

CASH RECEIVED BY

No. E022120

409609

SCALE TICKET

BROWN COUNTY
SOLID WASTE BOARD

PRINTED ON RECYCLED PAPER

DATE	TIME	ACCOUNT NAME	ACCOUNT NO.
09/08/93	08:00	JAMES RIVER	01090

TRUCK NUMBER	11	GROSS WEIGHT	55380	RATE PER TON	35.00
CONTAINER NUMBER	0	EMPTY WEIGHT	25420 (S)	AMOUNT OWED	524.30
WASTE CODE	32	NET WEIGHT	29960	AMOUNT PAID	0.00
				SITE:	1
				ORIGIN:	000

SPECIAL DATA:

REMARKS:

OPTIONAL DRIVER'S SIGNATURE

CASH RECEIVED BY

No. E022135

409610

SCALE TICKET

BROWN COUNTY
SOLID WASTE BOARD

PRINTED ON RECYCLED PAPER

DATE	TIME	ACCOUNT NAME	ACCOUNT NO.
09/08/93	08:01	JAMES RIVER	01090

TRUCK NUMBER	4	GROSS WEIGHT	60340 ~~55420~~	RATE PER TON	35.00
CONTAINER NUMBER	0	EMPTY WEIGHT	26220 (S)	AMOUNT OWED	~~489.50~~ 597.10
WASTE CODE	32	NET WEIGHT	~~29400~~ 34120	AMOUNT PAID	0.00
				SITE:	1
				ORIGIN:	000

SPECIAL DATA: **CORRECTION MADE**

REMARKS:

OPTIONAL DRIVER'S SIGNATURE

CASH RECEIVED BY

No. E022136

409616

SCALE TICKET

BROWN COUNTY

SOLID WASTE BOARD

PRINTED ON RECYCLED PAPER

DATE	TIME	ACCOUNT NAME	ACCOUNT NO.
[illegible]/08/93	08:13	JAMES RIVER	01090

TRUCK NUMBER	[illegible]	GROSS WEIGHT	57160	RATE PER TON	35.00
CONTAINER NUMBER	[illegible]	EMPTY WEIGHT	26500 (S)	AMOUNT OWED	536.55
WASTE CODE	32	NET WEIGHT	30660	AMOUNT PAID	0.00
					SITE: 1
					ORIGIN: 000

SPECIAL DATA: EBELING

REMARKS:

OPTIONAL DRIVER'S SIGNATURE

CASH RECEIVED BY

No E022142

409617

SCALE TICKET

BROWN COUNTY

SOLID WASTE BOARD

PRINTED ON RECYCLED PAPER

DATE	TIME	ACCOUNT NAME	ACCOUNT NO.
19/08/93	08:14	JAMES RIVER	01090

TRUCK NUMBER	13	GROSS WEIGHT	57940	RATE PER TON	35.00
CONTAINER NUMBER	0	EMPTY WEIGHT	25780 (S)	AMOUNT OWED	562.80
WASTE CODE	32	NET WEIGHT	32160	AMOUNT PAID	0.00
					SITE: 1
					ORIGIN: 000

SPECIAL DATA: PHILLIPS

REMARKS:

OPTIONAL DRIVER'S SIGNATURE

CASH RECEIVED BY

No E022143

APPENDIX D

WDNR Lake Michigan District Case Summary and Closeout Form

WISCONSIN
DEPT. OF NATURAL RESOURCES

George E. Meyer
Secretary

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Lake Michigan District Headquarters
1125 N. Military Avenue
P.O. Box 10448
Green Bay, Wisconsin 54307-0448
TELEPHONE: (414)492-5916
TELEFAX: (414)492-5859

COPY

October 27, 1993

James River Corporation
Bob Overly
500 Day Street
Green Bay, WI 54305

RE: Acknowledgement of Receipt
ERRP Case 05-00372: James River - Tank Leak.
STS Project # 19784XF

Dear Mr. Overly:

The Department has received the *Subsurface Site Assessment of the Locomotive Areas at the James River Green Bay Mill* prepared and submitted by STS Consultants, LDT.

No project manager has been assigned to this case for oversight based on the priority ranking and Department caseload. This letter will serve as your "Notice to Proceed" with the Remediation Plan. Please be aware that you are required to comply with all applicable statutes and administrative rules including hazardous waste management and wastewater discharges.

Before case closure can be considered, one of the following must be submitted. You will need to provide pre- and post-remedial sample analytical results indicating that the remedial alternative has been successful in restoring the environment. You will need to submit copies of scale tickets if the contaminated soil is excavated and landfilled.

If you have questions regarding this matter, please call me at the number listed above.

Sincerely,

Roxanne L. Nelezen

Roxanne L. Nelezen
Program Assistant
Emergency and Remedial Response Program

cc: Roger Miller; STS Consultants, LTD; 1035 Kepler Drive; Green Bay, WI 54311

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James River Corporation

Subsurface Site Assessment

Locomotive Release Areas
James River Green Bay Mill
Green Bay, Wisconsin

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September 8, 1993

Mr. Robert J. Overly
James River Corporation
Green Bay Mill
P.O. Box 23790
Green Bay, Wisconsin 54305-3790

Re: Subsurface Site Assessment of the Locomotive Release Areas at the James River Green Bay Mill -- STS Project 19784XF

Dear Mr. Overly:

STS Consultants, Ltd., (STS) is pleased to submit this report, which presents the results of the subsurface site assessment of the locomotive release areas conducted at the James River Mill property located at 500 Day Street, Green Bay, Wisconsin. This report was prepared under STS Proposal No. 5582P and authorized under James River Purchase Order No. 214431 dated October 9, 1992. One (1) copy of this report is also being submitted to Ms. Wava Kay Quandt of the Wisconsin Department of Natural Resources (WDNR).

The Work Plan for the subsurface site assessment was submitted to Ms. Wava Kay Quandt on January 14, 1993. Mr. Bruce Urben (WDNR) reviewed the scope of work for this project at a meeting with Bruce Robertson (James River) and Roger Miller (STS) at the WDNR Office on Ridge Road, Green Bay, Wisconsin, on October 20, 1992. As discussed at this meeting, the WDNR provided notice to proceed for the site assessment and did not require receipt of the Work Plan prior to field work.

The attached draft report presents the procedures and results of the locomotive drip pan sampling, test pits, and soil and product laboratory analyses, along with our evaluation of corrective action alternatives for remediating petroleum-impacted soil.

Based on the results of the subsurface site assessment, impacted soil from the two (2) areas identified was excavated and stockpiled on site in June and July 1993. Soil samples tested from the excavation perimeters did not contain detectable diesel range organics (DRO). On September 7 and 8, 1993, impacted soil stockpiled on site (approximately 750 tons) was hauled to Brown County Landfill for disposal, the low cost soil remediation alternative. Documentation of soil remediation including field and laboratory results will be submitted under separate cover.

STS Consultants Ltd.
Consulting Engineers

1035 Kepler Drive
Green Bay, Wisconsin 54311
414.468.1978/Fax 414.468.3312

We appreciate this opportunity to provide you with environmental services. If you have any questions regarding this draft report, please contact us.

Sincerely,

STS CONSULTANTS LTD.

Roger A. Miller
Senior Hydrogeologist

James A. Senger, CPG
Principal Geologist

RAM/lmh

cc: Ms. Wava Kay Quandt (1 copy)
Wisconsin Department of Natural Resources
Lake Michigan District Headquarters
1125 North Military Avenue
P.O. Box 10448
Green Bay, Wisconsin 54307-0448

Report

PROJECT

SUBSURFACE SITE ASSESSMENT
LOCOMOTIVE RELEASE AREAS
JAMES RIVER MILL
GREEN BAY, WISCONSIN

CLIENT

JAMES RIVER CORPORATION
GREEN BAY MILL
P.O. BOX 23790
GREEN BAY, WISCONSIN 54305-3790

Project No. 19784XF

Date SEPTEMBER 1993

STS Consultants Ltd.
Consulting Engineers
1035 Kepler Drive
Green Bay, Wisconsin 54311
414.468.1978/Fax 414.468.3312

TABLE OF CONTENTS

		Page
1.0	**INTRODUCTION AND OBJECTIVES**	1
2.0	**BACKGROUND**	3
2.1	Underground Storage Tank Removal	3
2.2	Regional Geology and Hydrogeology	4
3.0	**PROCEDURES**	6
3.1	Site Safety Plan	6
3.2	Locomotive Drip Pan Sampling and Analysis	6
3.3	Test Pits	7
3.4	Hand Augers	9
3.5	Laboratory Soil Analyses	9
3.6	Soil Classification	10
3.7	Surveying	10
4.0	**RESULTS**	11
4.1	Locomotive Drip Pan Product Testing	11
4.2	Soil Conditions	11
4.2.1	Field Screening Results	12
4.2.2	Soil Analytical Results	12
5.0	**ANALYSIS AND RECOMMENDATIONS**	17
5.1	Soil Conditions	17
5.2	Soil Remediation Alternatives	18
5.2.1	Brown County Landfill	18
5.2.2	Asphalt Batching	20
5.2.3	On Site Thermal Oxidation	20
5.2.4	On Site Bioremediation	21
5.2.5	Opinion of Cost	23
5.2.6	Recommended Corrective Action Alternative	23
6.0	**GENERAL QUALIFICATIONS**	25
7.0	**REFERENCES**	26

LIST OF FIGURES

			Page
Figure 1	-	Site Location Diagram	2
Figure 2	-	Test Pit and Hand Auger Locations	8
Figure 3	-	Diesel Range Organics Soil Concentrations	15

LIST OF TABLES

Table 1	-	Soil Field and Laboratory Results	13
Table 2	-	Estimated Costs for Soil Remediation Alternatives	24

LIST OF APPENDICES

Appendix A	Laboratory Analytical Reports
Appendix B	Hand Auger And Test Pit Logs
Appendix C	Soil Volume Calculations
Appendix D	Brown County Solid Waste Department Landfilling Guidance
Appendix E	Well Construction Reports
Appendix F	Detailed Cost Summaries for Biotreatment Cells

SUBSURFACE SITE ASSESSMENT
LOCOMOTIVE RELEASE AREAS
JAMES RIVER MILL
GREEN BAY, WISCONSIN

1.0 INTRODUCTION AND OBJECTIVES

STS Consultants, Ltd., was retained by James River Corporation to conduct a subsurface site assessment of apparent locomotive release areas at the James River Mill, 500 Day Street, Green Bay, Wisconsin (Figure 1). The subsurface site assessment of the two apparent locomotive release areas was completed using test pits and hand augers to further define the extent of soil impacts. Test pits were performed adjacent to the railroad tracks. Hand augers were performed between the ties to evaluate soil conditions along the gravel rail bed. The objectives of the subsurface site assessment were to:

1. Characterize the type and degree of petroleum contamination;

2. Define the lateral and vertical extent of petroleum impacts to enable the evaluation of remedial action alternatives;

3. Recommend remedial action alternatives for impacted soil.

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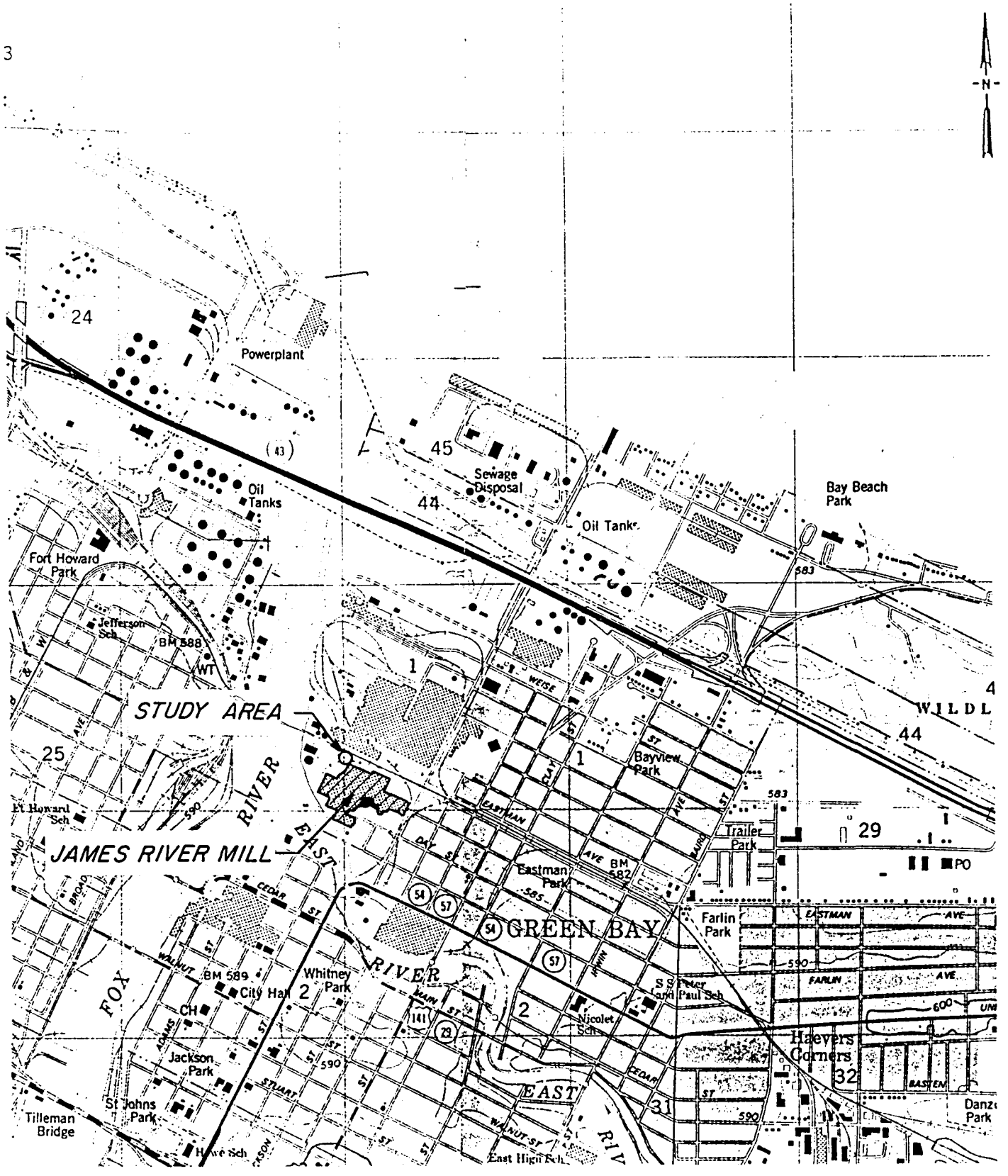


MAP SOURCE: GREEN BAY EAST & GREEN BAY WEST, WIS. QUADRANGLES, BOTH DATED 1982.

STS Consultants Ltd.
Consulting Engineers

PROJECT/CLIENT

JAMES RIVER CORPORATION
GREEN BAY MILL
GREEN BAY, WI.

SITE LOCATION DIAGRAM

DRAWN BY	P.D.P.	8-26-92
CHECKED BY	PAM	9-11-92
APPROVED BY		
SCALE 1" = 2000'	FIGURE NO. 1	
STS DRAWING NO. 19784XF		

2.0 BACKGROUND

The subject property is located at 500 Day Street between Quincy Avenue and the Fox River in the City of Green Bay, Wisconsin, and is developed with a paper mill. A railroad yard which services the mill, is located in the northwestern portion of the property. James River operates one diesel switch locomotive to transport freight on site. When not in use, the locomotive is stored on Track No. 5 located adjacent to the northwestern corner of the mill. James River personnel noted surface staining from apparent release(s) from the locomotive at two locations along Track No. 5 during rail maintenance operations during the summer of 1992.

James River notified the WDNR of the apparent surface releases of petroleum products. In a letter from the WDNR dated August 24, 1992, the WDNR requested that a Work Plan be prepared and a site investigation be performed at the apparent locomotive release location at the James River Green Bay Mill.

2.1 Underground Storage Tank Removal

In 1990, STS documented the decommissioning by removal of one 1,000-gallon diesel underground storage tank (UST), formerly located approximately 100 feet southwest of Track No. 5 (60 feet east of the northwest corner of the mill [Building No. 46] along the north wall). Approximately 90 yards of diesel-impacted soil were removed from the 12- by 24-foot excavation during tank removal operations on September 24 and 25, 1990. Impacted soil in the vicinity of the diesel tank was removed and disposed of at the Brown County East Landfill. No volatile organic compounds (VOCs) were detected in a groundwater sample collected from the

sump installed in the backfilled excavation. Results of the field and laboratory work were presented in the Underground Storage Tank Removal Documentation Report dated December 26, 1990. In a letter from Andrew Alles of the WDNR dated June 18, 1993, the WDNR formally closed this leaking underground storage tank (LUST) case (WDNR LUST Case #05-00592).

2.2 Regional Geology and Hydrogeology

Subsurface soils at the James River Green Bay Mill are primarily composed of silty clay glacial deposits (Need, 1985), although fill has been identified at the surface on site (Link, 1974). Based on field observations of the tank excavations, several feet of silty sandy fill and/or lacustrine deposits overlie the clayey glacial deposits. Based on STS drilling experience in the vicinity of the site, we estimate that approximately 100 feet of glacial deposits are present above the bedrock surface. On a cross-section of the Pleistocene Geology of Brown County, Need (1985) identified approximately 75 feet of clayey glacial deposits above the bedrock surface in the vicinity of the subject property. These deposits include stratified silty clay offshore sediments and silty clay till (Kewaunee formation). Krohelski (1986) estimated the thickness of unconsolidated deposits in the vicinity of the site range from 100 to 120 feet.

Bedrock underlying glacial deposits on site has been identified as the Sinnipee Group which consists of Ordovician dolomite with some sandstone and shale. The Sinnipee Group has a thickness of approximately 125 feet under the subject property and is considered a confining bed for the deeper sandstone aquifer (Krohelski, 1986). Underlying the Sinnipee Group is approximately 600 feet of Cambrian sandstone (Krohelski, 1986). Industrial wells in downtown Green Bay derive most of their water from the deeper sandstone aquifer.

Copies of Well Construction Reports for private wells installed in the vicinity of the subject property were obtained from the Wisconsin Geological and Natural History Survey (WGNHS). The Well Construction Report for the municipal well installed on Farlin Avenue (adjacent to Farlin Park) identifies 132 feet of predominantly clayey glacial deposits overlying dolomite bedrock (Sinnipee Group). This well is located approximately one mile east-southwest of the site, is cased into the dolomite bedrock at a depth of 151 feet, and extends to a termination depth of 956 feet. According to the Green Bay Water Utility, this well is no longer in service. The Well Construction Report for Bay Beach Wildlife Sanctuary Well No. 3, located approximately 1.75 miles east-northeast of the site, identifies 30 feet of beach deposits (sand and silt) overlying glacial clay extending to a depth of 160 feet. Dolomite bedrock (Sinnipee Group) was encountered at a depth of 160 feet. Copies of the above Well Construction Reports are provided in Appendix E.

Because the mill property is underlain by approximately 100 feet of clayey glacial deposits, the potential for downward migration of contaminants is limited. Groundwater likely flows west toward the Fox River across the site. Because horizontal hydraulic gradients in the vicinity of the site are low, it is likely that groundwater flows slowly across the site.

3.0 PROCEDURES

This section presents the exploration and laboratory testing program implemented to complete the subsurface site assessment of the James River property. The exploration and laboratory testing program was performed in two phases. The first phase involved sampling the locomotive drip pan to characterize the petroleum product. The second phase included excavation and sampling of test pits and hand auger borings. Results of the product testing were used to recommend analytes for laboratory soil testing.

3.1 Site Safety Plan

Prior to the start of field work, STS prepared a site specific health and safety plan for its own employees in accordance with OSHA regulations. The plan provided guidance for STS field personnel as to potential wastes that may be encountered, personal protective equipment required, and local emergency resources.

3.2 Locomotive Drip Pan Sampling and Analysis

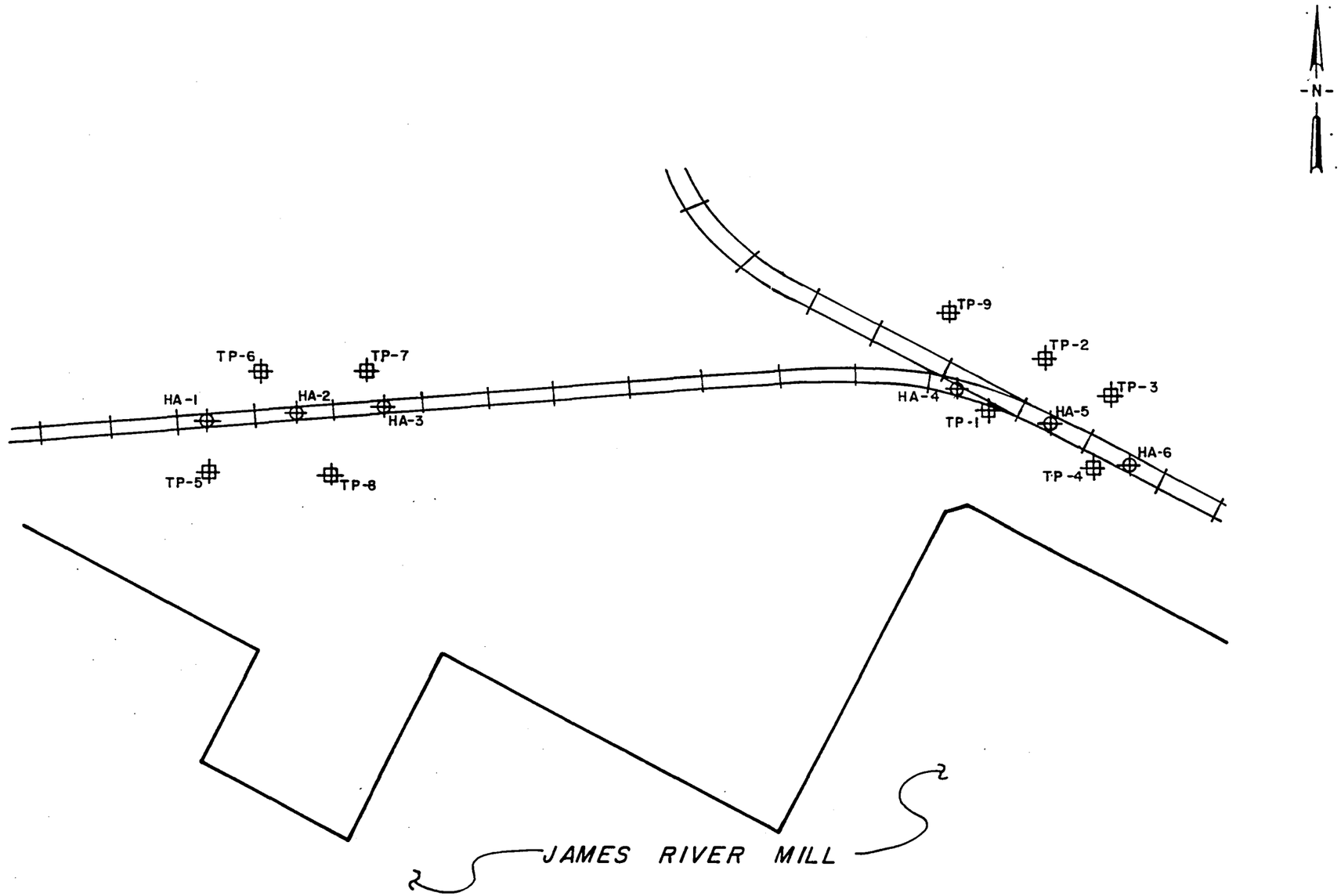
Prior to soil sample collection, we submitted one product sample from the locomotive drip pan for laboratory testing. A drip pan was installed on the locomotive to collect customary leaks from this vintage engine. Spills from the drip pan are suspected to have caused the surface staining observed on site. The purpose of the product testing was to characterize the type of petroleum product(s) present in the source material. The product sample was analyzed for diesel range organics (DRO), lead, and cadmium.

3.3 Test Pits

As depicted on Figure 2, nine (9) backhoe test pits were performed to provide visual and analytic information to further define the extent of petroleum impacts. Four (4) test pits were excavated adjacent to the western release area and five (5) test pits were performed near the eastern release area.

Test pits were excavated with general dimensions of 10 feet in length by 5 feet in depth (to below the water table). Soil samples were collected at 2-foot intervals for field screening and classification to the termination depth of the test pits. Following completion, each test pit was backfilled with material originally removed from the excavation.

Recovered soil samples were screened in the field using a Sensidyne flame ionization detector (FID) equipped with a hydrogen source flame. FIDs are particularly useful for detecting aromatic VOCs in air. Soil samples for FID screening were collected from excavated backhoe buckets and placed in clean, quart-size glass jars with metal screw-on lids. After one half of the jar was filled with soil, a sheet of aluminum foil was placed over the open end of the jar and the lid securely closed. Headspace screening was performed after allowing soil samples to reach a temperature between 50°F and 70°F. The FID screening of recovered soil samples was accomplished by shaking the soil sample jar for several seconds, which increases the surface area of soil particles exposed to air inside the jar, followed by inserting the tip of the FID probe a few inches into the jar through the aluminum foil cover. The highest value read off the FID during the first few seconds after inserting the probe tip was recorded as the FID reading for the soil sample.



LEGEND

TEST PIT LOCATION

HAND AUGER LOCATION

DRAWN BY P. D. P.	DATE 3-16-93
CHECKED BY	DATE
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CADFILE	

JAMES RIVER CORPORATION
GREEN BAY MILL
LOCOMOTIVE RELEASE AREAS

TEST PIT AND HAND AUGER LOCATIONS

STS Consultants Ltd.
Consulting Engineers

STS PROJECT NO. 19784 XF

STS PROJECT FILE

SCALE 1" = 40'

FIGURE NO. 2

BRUNING 343502

3.4 Hand Augers

Three (3) hand auger borings were performed between the railroad ties in each of the apparent release areas at the locations depicted on Figure 2. Soil samples were collected at 2-foot intervals to an approximate termination depth of four (4) feet. Soil samples were screened using the FID as described in Section 3.3 - Test Pits.

One (1) soil sample from each hand auger above the water table was collected for possible laboratory analyses. A total of three soil samples from the hand augers were submitted for laboratory analysis. Soil samples for laboratory analysis were collected in appropriate containers and preserved as outlined in WDNR LUST Analytical Guidance (Publication SW-130, April 1992) for testing as described in Section 3.5 - Laboratory Soil Analyses.

3.5 Laboratory Soil Analyses

The following laboratory analyses were performed on recovered soil samples: 13 DRO, 2 total recoverable petroleum hydrocarbon (TRPH), 2 lead and cadmium, 2 VOCs, 2 flash point, 2 corrosivity, 2 polynuclear aromatic hydrocarbons (PAHs), and 2 toxic characteristic leach procedure (TCLP) metals analyses. The DRO and VOC tests assisted in identifying the type and extent of petroleum contamination. Lead and cadmium tests served for characterization of potential used oil impacts. Flash point, corrosivity, and TCLP metals were performed to identify whether soils may be considered characteristic hazardous waste. Soil samples were collected in appropriate containers and preserved as outlined in WDNR Leaking Underground Storage Tank (LUST) Analytical Guidance (Publication SW-130, April 1992).

3.6 Soil Classification

Soil samples were returned to the STS laboratory in Green Bay, Wisconsin, for visual classification according to the Unified Soil Classification System (ASTM D 2488). Soil texture, depth, moisture content, odor, color, and apparent origin were documented on the test pit and hand auger logs.

3.7 Surveying

The locations and elevations of the test pits and hand auger borings were surveyed by the STS Environmental Technician. Elevations were measured relative to an arbitrary site datum. The survey data was used to prepare the site plan depicting the two apparent locomotive release areas relative to the northwest corner of the mill.

4.0 RESULTS

4.1 Locomotive Drip Pan Product Testing

One (1) product sample from the locomotive drip pan was collected on November 5, 1992, and submitted to Robert E. Lee and Associates of Green Bay, Wisconsin, for DRO, lead, and cadmium testing. The sample contained 140,000 milligrams per liter (mg/l) DRO and 60 micrograms per liter (ug/l) cadmium. No lead was detected in the sample. The laboratory analytical report for product testing is provided in Appendix A.

4.2 Soil Conditions

In general, the site is underlain by silty sand and clayey sand fill often containing wood fragments and cinders to a depth of 6 feet below the ground surface. Fill material also contained bricks and concrete in Test Pits TP-5 and TP-7 performed near the western locomotive release area. Apparent natural soils including brown silty clay, peat, and silty and clayey sand were encountered in Test Pit TP-7 from 2 feet to the termination depth of 7 feet.

Silty sand and gravel fill was encountered in each of the hand augers. Soil samples from Hand Augers HA-1 and HA-2 located in the western apparent locomotive release area contained wood fragments and bark. Clayey fill was encountered in Hand Augers HA-2 and HA-3.

The apparent water table was encountered at depths from 6.0 to 7.0 feet in the western locomotive release area. In the eastern locomotive release area the apparent water table was observed at depths from 3.5 to 4.5 feet.

Soil field and laboratory results including field FID readings, soil type, odor, DRO, TRPH, benzene, total VOCs, total PAHs, cadmium, and lead data are summarized on Table 1. Test pit and hand auger logs are provided in Appendix B.

4.2.1 Field Screening Results - Test pit and hand auger samples were screened in the field using an FID to estimate the relative concentrations of volatile hydrocarbons in the headspace of the quart jar samples. Because the FID also detects naturally occurring organic compounds, organic soils may positively bias the FID readings.

FID readings of 1000 were detected in TP-6 and HA-2, but no DRO was detected. FID readings above 100 were detected in TP-2 and TP-7; however, only the sample from TP-2 emitted an obvious petroleum odor and contained detectable DRO (1800 mg/kg). FID readings are summarized on Table 1.

4.2.2 Soil Analytical Results - Based on the laboratory soil analyses, petroleum-impacted soil extends south of the railroad tracks in the western apparent locomotive release area (Area No. 1). DRO concentrations ranged from <4.7 mg/kg to 1500 mg/kg in this portion of the site. In the eastern apparent locomotive release area (Area No. 2), petroleum-impacted soil extends north and south of the railroad tracks. DRO concentrations ranged from <4.7 mg/kg to 1800 mg/kg in this portion of the site. DRO concentrations and estimated areas of petroleum-impacted soil are plotted on Figure 3.

A small stockpile (<10 cyd) of petroleum-impacted soil was generated during rail maintenance activities last summer. A grab sample from the stockpile contained 34,000 mg/kg DRO and 230,000 mg/kg TRPH.

TABLE 1. SOIL FIELD AND LABORATORY RESULTS

SAMPLE LOCATION	SAMPLE NO.	SAMPLE DEPTH ft	FID READING	SOIL TYPE	ODOR	DRO mg/kg	TRPH mg/kg	BENZENE ug/kg	TOTAL VOCs ug/kg	TOTAL PAHs ug/kg	CADMIUM mg/kg	LEAD mg/kg
TP-1	S-1	0.0-2.0	30	Fill: silty sand, gravel, wood	None							
(W 4.1')	S-2	2.0-4.0	80	Fill: silty sand, gravel, wood	None	110	NA	NA	NA	NA	NA	NA
TP-2	S-1	0.0-2.0	15	Fill: Black silty sand and wood	Petroleum							
(W 4.5')	S-2	2.0-4.0	200	Fill: Black silty sand and wood	Petroleum	1800	1800	<1.3	47.3	ND	0.34	88.6
TP-3	S-1	0.0-2.0	3	Fill: Black silty sand, wood	None							
(W 4.0')	S-2	2.0-4.0	3	Fill: Black silty sand, wood	None	30	NA	NA	NA	NA	NA	NA
TP-4	S-1	0.0-2.0	3	Fill: Silty sand, wood, cinders	None							
(W 4.5')	S-2	2.0-4.5	20	Fill: Silty sand, wood, cinders	None	53	NA	NA	NA	NA	NA	NA
TP-5	S-1	0.0-2.0	2	Fill: Black silty gravel, organics	None	1500	NA	NA	NA	NA	NA	NA
		2.0-4.0		Fill: Bricks, concrete, wood	None							
TP-6	S-1	0.0-2.0	2	Fill: Clayey sand, wood, cinders	None							
	S-2	2.0-4.0	50	Fill: Clayey sand, wood, cinders	None							
(W 7.0')	S-3	4.0-6.0	1000	Fill: Clayey sand, wood, cinders	Faint Petrol	<4.7	NA	NA	NA	NA	NA	NA
TP-7	S-1	0.0-2.0	250	Fill: Clayey sand, wood, cinders	None	<4.7	NA	NA	NA	NA	NA	NA
	S-2	2.0-4.0	30	Brown silty clay (CL)	None							
	S-3	4.0-6.0	4	Peat (PT)	None							
(W 7.0')		6.0-7.0		Gray silty, clayey sand (SM/SC)								
TP-8	S-1	0.0-2.0	<1	Fill: Clayey sand, wood, cinders	None							
	S-2	2.0-4.0	<1	Fill: Clayey sand, wood, cinders	None							
(W 6.0')	S-3	4.0-6.0	1000	Fill: Clayey sand, wood, cinders	None	130	NA	NA	NA	NA	NA	NA
TP-9	S-1	0.0-2.0	20	Fill: Clayey sand, wood, cinders	None	<4.7	NA	NA	NA	NA	NA	NA
(W 3.5')	S-2	2.0-4.0	40	Fill: Clayey sand, wood, cinders	None							
HA-1	S-1	2.0-2.5	1	Fill: Black silt, wood, bark	None							
	S-2	3.7-4.0	30	Fill: Black silt, wood, bark	None							
	S-3	4.0-4.3	15	Fill: Black silt, wood, bark	None							
HA-2	S-1	2.0-2.5	1000	Fill: Black silt, wood, bark	Diesel							
	S-2	3.7-4.0	900	Fill: Black silt, wood, bark	Faint Diesel	<4.7	NA	NA	NA	NA	NA	NA
	S-3	4.0-4.3	1000	Poss. Fill: Brown Silty Clay	Faint Diesel							
HA-3	S-1	2.0-2.5	60	Poss. Fill: Brown Silty Clay	Faint Diesel							
	S-2	3.7-4.0	15	Poss. Fill: Brown Silty Clay	Faint Diesel							
	S-3	4.0-4.3	40	Poss. Fill: Brown Silty Clay	Faint Diesel	<4.7	NA	NA	NA	NA	NA	NA
HA-4	S-1	W2.5-3.0	5	Fill: Brown silty sand and gravel	None							
HA-5	S-1	0.5-1.0	15	Fill: Brown silty sand and gravel	Faint Diesel							
	S-2	2.0-2.5	2	Fill: Brown silty sand and gravel	None	<4.7	NA	NA	NA	NA	NA	NA

SAMPLE LOCATION	SAMPLE NO.	SAMPLE DEPTH ft	FID READING	SOIL TYPE	ODOR	DRO mg/kg	TRPH mg/kg	BENZENE ug/kg	TOTAL VOCs ug/kg	TOTAL PAHs ug/kg	CADMIUM mg/kg	LEAD mg/kg
HA-6	S-1	1.5-2.0	<1	Fill: Brown silty sand and gravel	None	50	NA	NA	NA	NA	NA	NA
STOCKPILE				Fill	Diesel	34000	230000	5690	648690	559500	36	809

NOTES:

1) W = Depth to apparent water table in Test Pit (TP).

2) DRO = Diesel Range Organics by the Wisconsin DNR modified DRO Method.

3) TRPH = Total Recoverable Petroleum Hydrocarbons by Wisconsin DNR modified Version of EPA Draft Method 9073.

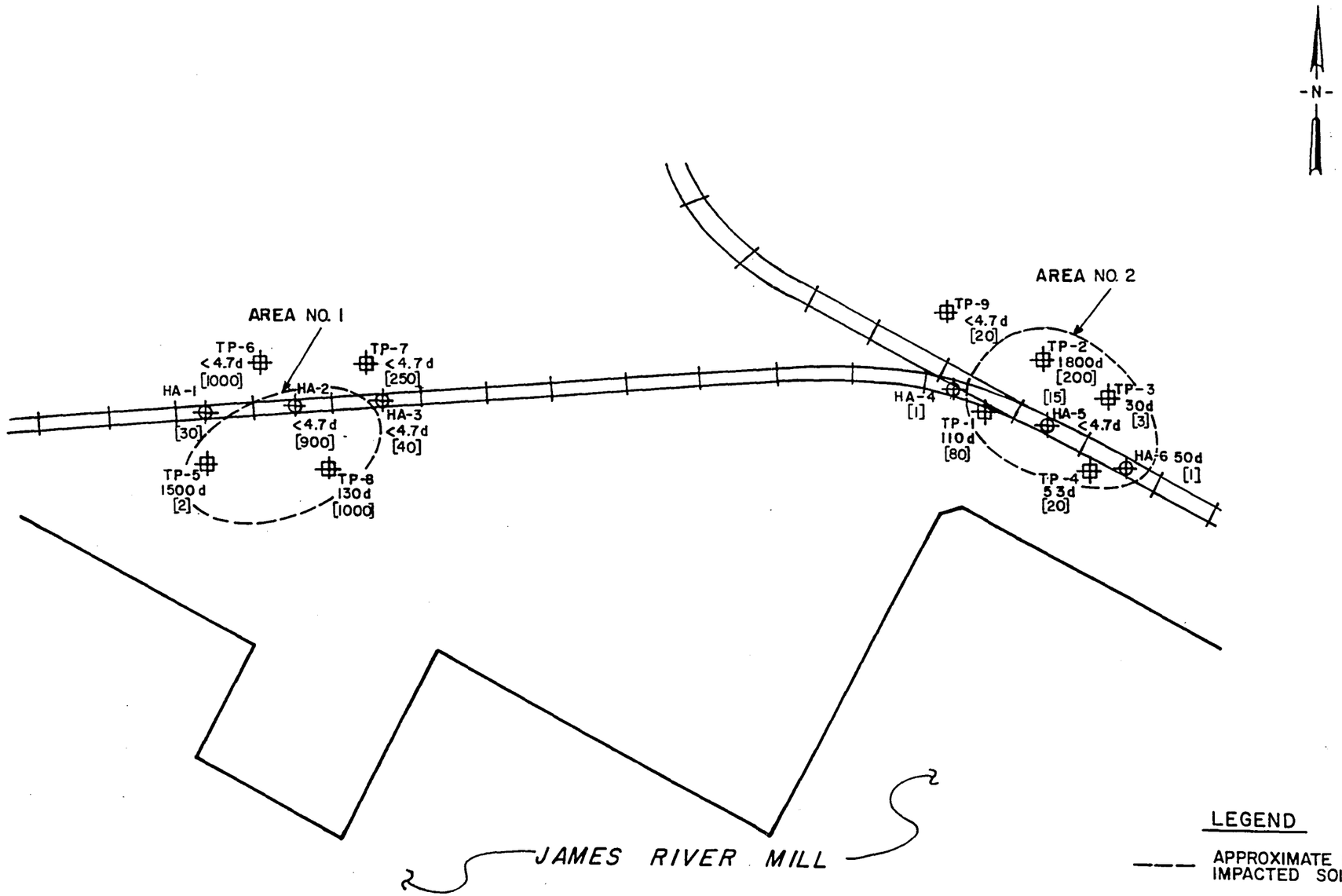
4) VOC = Volatile Orgnic Compounds analyzed by EPA Method 8021. Total VOC values exclude spurious methylene chloride detections attributed to laboratory contamination.

5) PAH = Polynuclear Aromatic Hydrocarbons by EPA Method 8310.

6) Toxic Characteristic Leach Procedure (TCLP) Cadmium and Lead were also performed on samples from TP-2 and the stockpile. No cadmium or lead was detected in the TCLP extract from TP-2. 26 ug/l cadmium and 450 ug/l lead were reported for the TCLP extract from the stockpile sample. TCLP results were below RCRA limits for cadmium (1.0 mg/l) and lead (5.0 mg/l).

7) PAHs detected in the stockpile sample consisted of Naphthalene (54800 ug/kg), 2-Methlynaphthalene (457000 ug/kg) and Fluorene (47700 ug/kg).

8) Soil samples were analyzed by Robert E. Lee and Associates, Green Bay, Wisconsin.



LEGEND

- — — APPROXIMATE EXTENT OF PETROLEUM IMPACTED SOIL
- [20] FLAME IONIZATION DETECTOR (FID) READING
- TEST PIT LOCATION
- HAND AUGER LOCATION
- 30d DIESEL RANGE ORGANICS SOIL CONCENTRATION (MG/KG)

DRAWN BY P. D. P.	DATE 3-16-93		
CHECKED BY	DATE		
APPROVED BY	DATE		
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JAMES RIVER CORPORATION
GREEN BAY MILL
LOCOMOTIVE RELEASE AREAS

DIESEL RANGE ORGANICS
SOIL CONCENTRATIONS

STS Consultants Ltd.
Consulting Engineers

STS PROJECT NO. 19784 XF

STS PROJECT FILE

SCALE 1" = 40'

FIGURE NO. 3

BRUNING. 543602

TCLP lead and cadmium analyses were performed on soil samples from TP-2 and the stockpile. No lead or cadmium was detected in the TCLP extract from the TP-2 sample. Lead (450 ug/l) and cadmium (26 ug/l) were detected in the TCLP extract from the stockpile sample. TCLP results were below RCRA limits for lead (5.0 mg/l) and cadmium (5.0 mg/l) by one order of magnitude or more.

PAH analysis was also performed on soil samples from TP-2 and the stockpile. No PAHs were detected in the sample from TP-2. Naphthalene (54,800 ug/kg), 2-methlynaphthalene (457,000 ug/kg) and fluorene (47,700 ug/kg) were reported for the stockpile sample. Because no PAHs were detected in TP-2, it is possible that the reported DRO concentration for this test pit was positively biased by natural organics. The laboratory analytical report for soil testing is provided in Appendix A.

5.0 ANALYSIS AND RECOMMENDATIONS

5.1 Soil Conditions

Based on field and laboratory results, petroleum-impacted soil was identified south of the railroad tracks in Area No. 1 and north and south of the railroad tracks in Area No. 2 (Figure 3). Laterally, Area Nos. 1 and 2 occupy approximately 2200 ft^2 and 2800 ft^2, respectively. During soil excavation for track maintenance in June and July 1993, approximately 170 cyd of impacted soil was removed from Area No. 1 and 325 cyd of impacted soil was removed from Area No. 2. Soil samples tested from the excavation perimeters did not contain detectable DRO. Soil volume calculations are provided in Appendix C. Documentation of soil remediation including field and laboratory results will be submitted under separate cover.

Soil samples analyzed from within Area No. 1 contained up to 1500 mg/kg DRO in TP-5. While no DRO was detected in sample S-2 (3.7-4.0 feet) from Hand Auger HA-2, obvious diesel odor and an FID reading of 1000 was detected in sample S-1 (2.0-2.5 feet) at this location. Accordingly, HA-2 was included within the estimated lateral limits of this impacted area. Petroleum impacts were detected near the ground surface in TP-5 and near the depth of the apparent water table in TP-8, but continuous impacts from the ground surface to the depth of the apparent water table were not observed in the western impacted area. No DRO was detected above the depth of the apparent water table in Hand Augers HA-2 and HA-3 performed in this impacted area. Elevated FID readings in TP-6 and TP-7 did not correlate with detectable DRO or obvious petroleum odors.

In Area No. 2, petroleum-impacted soil was detected from the ground surface to the depth of the apparent water table in TP-1 and TP-2 (about 5 feet). In TP-2 sample S-2 (2.0-4.0 ft), obvious diesel odor and an FID reading of 200 corresponded with a laboratory DRO concentration of 1800 mg/kg. No DRO was detected above the water table in Hand Auger HA-5. Hand Auger HA-6 (Sample S-1, 1.5-2.0 ft) was reported to contain 50 mg/kg DRO, although no petroleum odor or FID reading were detected at this location.

Chromatograms for soil samples from the stockpile and HA-6 were reported to be characteristic of diesel fuel. These samples were collected beneath or within the rail bed. Chromatograms for soil samples collected within several feet of the railroad tracks appeared to contain aged diesel or heavier petroleum products. Samples collected away from the tracks may represent older release(s) which have naturally degraded and no longer contain lighter petroleum fractions.

5.2 Soil Remediation Alternatives

Results of the subsurface site assessment suggest that soil remediation will be necessary to limit subsurface degradation in the locomotive release areas. Alternatives considered for corrective action include: 1) soil excavation and landfilling, 2) asphalt batching, 3) on site thermal oxidation, and 4) on site biotreatment cells.

For each of the alternatives, an opinion of cost for engineering and construction is provided. Based on our discussions, it is likely that James River would provide labor and equipment to perform some of the remediation tasks.

5.2.1 Brown County Landfill - The first remedial alternative consists of impacted soil excavation and landfilling. According to guidelines prepared by the Brown County Solid Waste Department dated February 12, 1993, petroleum-impacted soil may be accepted for disposal at one of the Brown County landfills under the following conditions:

1) Petroleum-impacted soil is generated in Brown County;
2) Petroleum-impacted soil contains less than 1 part per million (ppm) benzene per 300 cyd landfilled;
3) Total quantity landfilled is less than 2000 tons (1500 cyd);
4) DRO and benzene testing is performed for each 300 cyd portion of soil;
5) Soil contains no free liquids;
6) Prepayment of $1,000 per 100 tons of soil as well as $100 application review fee;
7) Provide copies of analytical laboratory analyses and a diagram of sample locations;
8) Complete WDNR From 4400-120 and submit to Brown County Solid Waste Department and WDNR;
9) Complete a Brown County Soil Waste Department Application for Disposal of Petroleum Contaminated soil.

Although the DRO concentration of the small initial stockpile (5 cyd) exceeded the landfill acceptance level of 2000 ppm, it is likely that soil from the locomotive storage areas would be accepted for landfilling because the other DRO tests were below the acceptance level.

The current tipping fee for Brown County landfills is $21.50/ton for the first 100 tons and $35/ton thereafter, to a maximum amount of 2000 tons. Current Brown County Solid Waste Department Guidelines for accepting petroleum-impacted soil including the County landfilling application are provided in Appendix D.

5.2.2 Asphalt Batching - The second remedial alternative consists of excavating and removing soil from above the apparent water table and treating the soil by asphalt incorporation. Northeast Asphalt (Mr. Mark Wolf), located on Bay Port Drive in Green Bay, Wisconsin, was contacted to discuss asphalt batching criteria and treatment costs. The Green Bay plant is permitted by the WDNR to treat petroleum-impacted soil by asphalt batching. The tipping fee at the batch plant typically ranges from $55/ton to $60/ton. The higher rates often apply to soil containing a significant percentage (greater than about 10%) of fine-grained material or organics.

5.2.3 On Site Thermal Oxidation - For the third remedial alternative, impacted soil would be excavated and treated in a portable incineration unit set up on site. Such units typically include a rotary oven operating at high temperatures (600°F) to volatilize hydrocarbons which are destroyed by thermal oxidation. After treatment, the soil should contain little or no detectable petroleum hydrocarbons (less than 10 mg/kg DRO). Feed rates, which typically range from 50 to 80 tons per hour, are contingent on the amount of fine-grained soils (silts and clays), petroleum hydrocarbon concentrations, and moisture content.

Advantages of on-site thermal oxidation include potential reuse of treated soil for fill, no off-site trucking costs, and limited design work. Disadvantages include higher total estimated cost. For projects totalling less than about 5000 cyd of soil, typical treatment cost ranges from $35 to $40 per ton. The higher rates apply to soil containing a significant percentage of fine-grained or organic material.

5.2.4 On Site Bioremediation - For the fourth remediation alternative, soil is excavated and placed in aboveground treatment cells constructed on site. Once in the treatment cell, soil is remediated by a combination of bioremediation and vapor extraction. Because petroleum hydrocarbons present are characteristic of aged diesel, bioremediation via composting should provide greater petroleum hydrocarbon degradation.

Composting is implemented by mixing petroleum-impacted soil with a bulking agent (straw, wood chips) and a carbonaceous nutrient source (manure, sludge). The bulking agent loosens the soil and permits greater air and water flow through the treatment cell. Addition of a carbonaceous nutrient source increases the bioactivity and temperature within the treatment cell. At higher temperatures (above 40°C), thermophilic bacteria become active and increase the organic degradation rate (USEPA, 1993). Because water is evaporated during composting, moisture may need to be added.

The base of the treatment cell may be constructed of a geomembrane liner or paved surface over which an aggregate drainage layer and leachate collection system is installed. Soil is screened to remove large particles (>1 inch), mixed with a bulking agent and a carbonaceous nutrient source, and placed in the cell to a depth of 2 to 3 feet. On top of the soil layer, vapor extraction piping is installed followed by a second lift of processed soil. Soil vapor and temperature probes can be installed during soil placement to permit monitoring of soil gas and heat generated by compositing reactions. Leachate circulation piping is installed across the final lift of processed soil and the cell is covered with a geomembrane. Biotreatment cells have typical widths ranging from 10 to 25 feet thus allowing for filling of a cell without requiring heavy equipment to enter the cell and compact the soil.

Before utilizing biotreatment cells to remediate impacted soil, it is recommended that test cells be constructed to develop bulking agent, carbonaceous amendment, and nutrient requirements for effective treatment of soil from this site. Test cells would allow for evaluation of system performance at the field scale. Such information would be of more value than laboratory treatability data because it would apply to relevant quantities of soil.

It is recommended that three (3) small test cells (20 cyd each) be constructed to evaluate soil treatability using successive percentages of bulking agent and manure. As we have discussed, dry and paunch manure samples have been submitted for nutrient testing. Saw dust bedding material (bulking agent) is included in the dry manure sample from the cattle barn at the packing plant. Addition of fertilizer may be needed to maintain appropriate nutrient ratios for carbon, nitrogen, and phosphorous.

During composting, soil vapor, pile temperature, moisture content, petroleum concentrations, and air emissions are monitored. Soil vapor measurements include FID screening for ionizable hydrocarbons, carbon dioxide, and oxygen. Moisture is monitored to maintain moisture levels between 40% and 75% (about 80% field capacity). Degradation of petroleum hydrocarbons may be monitored by collecting soil samples for DRO testing at intervals during treatment. To comply with Wisconsin Administrative Code NR 419, Control of Organic Compound Emissions, monitoring of air emissions from the soil remediation systems for benzene and total VOCs (as FID reading) is required.

Given an impacted soil volume of approximately 500 cyd, a compost pile height of 5 feet, and 200 cyd of bulking material and carbonaceous nutrients, two (2) parallel compost cells measuring approximately 30 by 130 feet could be constructed in the paved area south of the main guard house. The amount of bulking material and carbonaceous amendments used should be based upon field treatability testing.

5.2.5 Opinion of Cost - Table 2 is a comparative summary of estimated costs required to implement soil remediation alternatives. A detailed cost summary for Alternative 4, on site biotreatment cells, including a separate summary for test biotreatment cells is provided in Appendix F. Costs summarized in this section are based on our understanding of site conditions, previous experience with similar remediation at other sites, and discussions with local contractors, material suppliers, and equipment manufacturers. Costs associated with soil excavation, transportation, treatment, and backfilling are based on an anticipated volume of 500 cyd or about 750 tons.

5.2.6 Recommended Corrective Action Alternative - Several corrective action alternatives have been presented along with an opinion of costs for implementing each alternative. Based on costs presented in this report, it appears that the most cost-effective alternative includes excavation of impacted soil and landfilling.

TABLE 2. ESTIMATED COSTS FOR SOIL REMEDIATION ALTERNATIVES

ALTERNATIVE 1 - BROWN COUNTY LANDFILL	ESTMATED COST
Soil Excavation and Transportation (750 tons @ $6.00/ton)	$4,500
Excavation Backfilling (500 cyd @ $3/cyd)	$1,500
Excavation Laboratory Testing	$1,500
Tipping Fee (100 tons @ $21.50/ton)	$2,150
Tipping Fee (650 tons @ 35/ton)	$22,750
Permitting and Brown Co. Review Fee	$500
Free Liquids Testing	$50
Field Documentation (2 days @ $500/day)	$1,000
Bid Documents and Administration	$2,000
Project Management and Reporting	$3,000
Contingency (15%)	$5,843
EST. COST OPTION 1	$44,793

ALTERNATIVE 2 - ASPHALT BATCHING	
Soil Excavation and Transportation (750 tons @ $5/ton)	$3,750
Excavation Backfilling (500 cyd @ $3/cyd)	$1,500
Excavation Laboratory Testing	$1,500
Asphalt Incorporation Fee (750 tons @ $60/ton)	$45,000
Permitting	$500
Waste Characterization Testing	$50
Field Documentation (2 days @ $500/day)	$1,000
Bid Documents and Administration	$2,000
Project Management and Reporting	$3,000
Contingency (15%)	$8,745
EST. COST OPTION 2	$67,045

ALTERNATIVE 3 - ON SITE THERMAL OXIDATION	
Soil Excavation and Transportation (750 tons @ $4/ton)	$3,000
Excavation Backfilling (500 cyd @ $3/cyd)	$1,500
Excavation Laboratory Testing	$1,500
Thermal Oxidation Fee (750 tons @ $40/ton)	$30,000
Permitting	$500
Waste Characterization Testing	$50
Field Documentation (4 days @ $500/day)	$2,000
Bid Documents and Administration	$2,000
Project Management and Reporting	$3,000
Contingency (15%)	$6,533
EST. COST OPTION 3	$50,083

ALTERNATIVE 4 - ON SITE BIOTREATMENT CELLS (see separate breakdown)	1 YEAR	2 YEAR
Soil Excavation and Backfilling	$5,800 -	$5,800
Pilot Test Biotreatment Cells	$16,000 -	$16,000
Biotreatment Cells Contruction and Testing	$23,500 -	$27,700
Consulting Services	$16,500 -	$24,200
EST. COST OPTION 4	$61,800 -	$73,700

SOILTREATCOST.W20

6.0 GENERAL QUALIFICATIONS

Conclusions presented in this report are based on subsurface conditions as revealed in test pits and hand auger borings; surface conditions noted at the time of the study, subcontract laboratory analysis, and our professional interpretation of this information. Stratification lines on the test pit logs and hand auger boring logs represent the approximate boundary between soil types. Variations may exist in both the horizontal and vertical directions between borings and away from the limits of excavations. Additionally, seasonal and annual fluctuations of the groundwater table may influence the distribution of dissolved compounds causing variations in groundwater quality. Corrective action alternatives presented in this report are intended to be conceptual and are not expected to be used for construction purposes. Volume estimates for impacted soil were derived from the results and assumptions described in this report. Because variations may exist in the soil between test pit or hand auger locations, the actual volume of impacted soil may differ from the estimate provided in this report. The scope of this report is limited to the specific project and locations described herein.

7.0 REFERENCES

Krohelski, J.T., 1986, Hydrogeology and Ground-Water Use and Quality, Brown County, Wisconsin: USGS and University of Wisconsin - Extension Geological and Natural History Survey Information Circular No. 57, Madison, Wisconsin, 42 p.

Link, E.G., 1974, Soil Survey of Brown County, Wisconsin: USDA Soil Conservation Service, Washington, D.C., 119 p.

Need, E.A., 1985, Pleistocene Geology of Brown County, Wisconsin: USGS and University of Wisconsin - Extension Geological and Natural History Survey Information Circular No. 48, Madison, Wisconsin, 19 p.

USEPA, 1993, Seminar on Bioremediation of Hazardous Waste Sites: Practical Approaches to Implementation (May 20-21, 1993--Atlanta, GA): Office of Research and Development USEPA, Washington D.C.

APPENDIX A

Laboratory Analytical Reports

Robert E. Lee & Associates, Inc.
Engineering, Surveying, Laboratory Services

Wisconsin Certification No: 405043870

2825 S. Webster Ave.
P.O. Box 2100
Green Bay, WI 54306-2100
414/336-6338
FAX 414/336-9141

RECEIVED
NOV 23 1992
STS - CONSULTANTS
GREEN BAY, WI

REPORT DATE===> 11/19/92

JOB NUMBER====> 1012699

CUSTOMER======> 008751

STS Consultants, LTD.
1035 Kepler Drive
Green Bay, WI 54311

(414) 468-1978

CONTACT=======> Roger A. Miller

PROJECT=======> 19784XF

RECEIVED======> 11/05/92

SAMPLED=======> 11/05/92

COMMENTS:

ATTEST:

ROBERT E. LEE & ASSOCIATES, INC.
LABORATORY SERVICES
2825 S. WEBSTER AVE. P.O. BOX 2100
GREEN BAY, WIS 54306
TELEPHONE NUMBER: (414) 336 - 6338
WISCONSIN CERTIFICATION NUMBER: 405043870

CLIENT: STS CONSULTANTS, LTD.
DATE RECEIVED: 11/05/92
DATE OF SAMPLES: 11/05/92
REPORT DATE: 11/19/92
STS PROJECT: LOCOMOTIVE
STS PROJECT NUMBER: 19784XF
REL JOB NUMBER: 1012699

THE FOLLOWING DATA HAS BEEN REVIEWED AND MEETS THE QA/QC REQUIREMENTS FOR BLANKS, STANDARDS, DUPLICATE ANALYSES AND SPIKED SAMPLES.

TEST PARAMETER	CADMIUM	LEAD	DRO
MDL	0.003	850	120
DATE ANALYZED	11/18/92	11/18/92	11/15/92
ANALYZED BY	E. WEID	E. WEID	R. GRAHN
ANALYTICAL METHOD	7130*	7420*	MODIFIED
SAMPLE	RESULT UG/L	RESULT UG/L	RESULT UG/L
LOCOMOTIVE ,	60	ND	140,000,000

COMMENTS:
ND=COMPOUND NOT DETECTED
MDL=METHOD DETECTION LIMIT WITH NO DILUTION
D=DETECTED BUT BELOW MDL
EXTRACTION DATE/DIESEL: 11/06/92

ANALYTICAL METHODS
* TEST METHODS FOR EVALUATING SOLID WASTE, SW-846
** METHODS OF CHEMICAL ANALYSIS OF WATER AND WASTES

ATTEST

ROBERT E. LEE & ASSOCIATES, INC.

CLIENT:	STS Consultants, Ltd.
PROJECT:	19784XF
REL JOB NUMBER:	1012699

NARRATIVE

This set consisted of 1 liquid sample. The sample was collected and received on November 5, 1992. The sample was diluted to a 2000 mL final volume with methylene chloride on November 6, 1992.

A 1 to 100 dilution of the sample was analyzed for diesel range organics on November 15, 1992 following the Wisconsin Modified DRO Method.

The following is a summary of the Quality Control results accompanying this set of samples and a description of any problems encountered during analysis:

1. The method blank was free of contamination.
2. The duplicate was within method limits.
3. The water matrix spikes were within method limits.
4. The initial calibration curve was within quality control limits for the DRO standard.
5. The check standards met the quality control criteria for the DRO standards.

Sheldon Stone
Laboratory Manager
11/17/92 rcg

10/26/94

STS CHAIN OF CUSTODY RECORD

№ 20053 RECORD NO. _____ THROUGH _____

Contact Person: ROGER A. MILLER
Phone No.: (414) 468-1978
Project No.: 19784XF PO No.:
STS Office: GREEN BAY

SPECIAL HANDLING REQUEST
☐ RUSH
☐ VERBAL
☐ OTHER

Laboratory: ROBERT E. LEE
Contact Person: SHELDON STONE
Phone No.: (414) 336-6338
Results Due: WITHIN 2 WEEK HOLD TIME

Sample I.D.	Date	Time	Grab	Composite	No. of Containers	Sample Type (Water, soil, air, sludge, etc.)	Preservation Y	Preservation N	Field Data PID/FID Ambient	Field Data PID/FID Sample	Field Data PH	Field Data Spec. Cond.	Analysis Request	Comments on Sample (Include Major Contaminants)
LOCOMOTIVE	11/5/92	2:00pm	✓		2	PRODUCT		✓					DRO, LEAD + CADMIUM	PROVIDE INTERPRETATION OF CHROMATOGRAM
														Product from locomotive

Collected by: K.J. Ot	Date 11/5/92	Time	Delivery by: K.J. Ot	Date 11/5/92	Time 2:40 p.m.
Received by:	Date	Time	Relinquished by:	Date	Time
Received by:	Date	Time	Relinquished by:	Date	Time
Received by:	Date	Time	Relinquished by:	Date	Time
Received for lab by: Julie Grow	Date 11-5-92	Time 2:45	Relinquished by:	Date	Time

Laboratory Comments Only: Seals Intact Upon Receipt ☐ Yes ☐ No ☐ N/A

Final disposition:

CC: Metals, SH
CJ, SS

Comments (Weather Conditions, Precautions, Hazards):

Provide separate invoice for Tower Ring

Distribution: Original and Green – Laboratory Yellow – As needed Pink – Transporter Goldenrod – STS Project File

Instruction to Laboratory: Forward completed original to STS with analytical results. Retain green copy.

1/90 FORM 036

Robert E. Lee & Associates, Inc.
Engineering, Surveying, Laboratory Services

Wisconsin Certification No: 405043870

2825 S. Webster Ave.
P.O. Box 2100
Green Bay, WI 54306-2100
414/336-6338
FAX 414/336-9141

RECEIVED
DEC 16 1992
- CONSULTANTS

REPORT DATE===> 12/11/92

JOB NUMBER====> 1013067

CUSTOMER======> 008751

STS Consultants, LTD.
1035 Kepler Drive
Green Bay, WI 54311

(414) 468-1978

CONTACT=======> Roger Miller

PROJECT=======> 19784XF

RECEIVED======> 11/24/92

SAMPLED=======> 11/19/92

COMMENTS:

ATTEST:

ROBERT E. LEE & ASSOCIATES, INC.

CLIENT:	STS Consultants, Ltd.
PROJECT:	19784XF
REL JOB NUMBER:	1013067

NARRATIVE

This set consisted of 12 solid samples. The samples were collected on November 19, 1992 and received on November 24, 1992. The samples were extracted on December 1, 1992.

The samples were analyzed for diesel range organics on December 2, 1992 following the Wisconsin Modified DRO Method. Peaks were observed after the integration window of samples TP1-S2, TP3-S2, TP5-S1, TP8-S3, and HA6-S1. A raise in the baseline was observed in the second half of the integration window of samples TP1-S2, TP3-S2, and TP8-S3. A raise in the baseline in the second half of the integration and after the integration window were observed in the chromatogram of sample HA6-S1. The extract of sample TP5-S1 was diluted before analysis due to the dark and oily nature of the extract.

The following is a summary of the Quality Control results accompanying this set of samples and a description of any problems encountered during analysis:

1. The method blank was free of contamination.
2. The duplicate was within method limits.
3. The water matrix spikes were above method limits.
4. The soil matrix spike was within method limits.
5. The initial calibration curve was within quality control limits for the DRO standard.
6. The final check standard was above the quality control criteria for the DRO standards.

Sheldon Stone
Laboratory Manager
12/07/92 rcg

ROBERT E. LEE & ASSOCIATES, INC.

CLIENT:	STS Consultants, Ltd.
PROJECT:	19784XF
REL JOB NUMBER:	1013067

NARRATIVE

This set consisted of 1 solid sample, Stockpile. The sample was collected on November 19, 1992 and received on November 24, 1992. The sample was extracted on November 25, 1992.

The samples were analyzed for total recoverable petroleum hydrocarbons on December 4, 1992 following the Wisconsin DNR Modified Version of EPA Draft Method 9073. The sample was diluted for analysis.

The following is a summary of the Quality Control results accompanying this set of samples and a description of any problems encountered during analysis:

1. The method blank was not free of contamination.
2. The duplicate was not within method limits.
3. The water matrix spikes were below method limits.
4. The soil matrix spike was within method limits.
5. The initial calibration curve was within quality control limits for the TRPH standard.
6. The check standards met the quality control criteria for TRPH standards.

Sheldon Stone
Laboratory Manager
12/04/92 rcg

ROBERT E. LEE & ASSOCIATES, INC.

CLIENT:	STS Consultants, Ltd.
PROJECT:	19784XF
REL JOB NUMBER:	1013067

NARRATIVE

This set consisted of 1 solid sample, TP2-S2. The sample was collected on November 19, 1992 and received on November 24, 1992. The sample was extracted on November 25, 1992.

The samples were analyzed for total recoverable petroleum hydrocarbons on December 1, 1992 following the Wisconsin DNR Modified Version of EPA Draft Method 9073. The sample was re-analyzed and confirmed on December 3, 1992.

The following is a summary of the Quality Control results accompanying this set of samples and a description of any problems encountered during analysis:

1. The method blank was not free of contamination.
2. The duplicate was not within method limits.
3. The water matrix spikes were below method limits.
4. The soil matrix spike was within method limits.
5. The initial calibration curve was within quality control limits for the TRPH standard.
6. The check standards met the quality control criteria for TRPH standards.

Sheldon Stone
Laboratory Manager
12/04/92 rcg

ROBERT E. LEE & ASSOCIATES, INC.

CLIENT:	STS Consultants, Ltd.
PROJECT:	19784XF
REL JOB NUMBER:	1013067

NARRATIVE

This set consisted of 2 solid samples: TP2-S2 and Stockpile. The samples were collected on November 19, 1992 and received on November 24, 1992. The samples were extracted on November 30, 1992.

The samples were analyzed for diesel range organics on December 1, 1992 following the Wisconsin Modified DRO Method. A raise in the baseline was observed throughout the second half of the integration window of sample TP2-S2. Peaks were observed after the integration window of sample TP2-S2. A steady raise in the baseline throughout the integration window was observed, along with a significant raise before and after the end of the integration window of sample Stockpile. Peaks were also observed after the integration window of sample Stockpile. Sample TP2-S2 and Stockpile were diluted and re-analyzed on December 7, 1992.

The following is a summary of the Quality Control results accompanying this set of samples and a description of any problems encountered during analysis:

1. The method blank was free of contamination.
2. The duplicate was within method limits.
3. The water matrix spikes were within method limits.
4. The soil matrix spike was within method limits.
5. The initial calibration curve was within quality control limits for the DRO standard.
6. The check standards met the quality control criteria for the DRO standards.

Sheldon Stone
Laboratory Manager

ROBERT E. LEE & ASSOCIATES
LABORATORY SERVICES
BOX 2100 2825 S. WEBSTER AVE.
GREEN BAY, WI 54306-2100
TEL NO: (414) 336-6338
FAX NO: (414) 336-9141
Wisconsin Certification No: 405043870

Client: STS Consultants, LTD.
Date Received: 11/24/92
Date of Samples: 11/19/92
Report Date: 12/11/92
Client Project:
Client Project Number: 19784XF
REL Job Number: 1013067 Batch: 1

THE FOLLOWING DATA HAS BEEN REVIEWED AND MEETS THE QA/QC REQUIREMENTS FOR BLANKS, STANDARDS, DUPLICATE ANALYSES AND SPIKED SAMPLES.

TEST PARAMETER	CADMIUM		CORROSIVITY		FLASHPOINT		LEAD	
MDL	0.34 mg/kg		Yes/No		NA °F		5.71 mg/kg	
WDNR NUMBER	61527		None		None		61503	
ANALYZED BY	E. Weid		D. Notl		P. Mommarts		E. Weid	
ANALYTICAL METHOD	200.7 [2]		9040 [2]		1010 [1]		200.7 [1]	
EXTRACTED/DIGESTED								
SAMPLE NAME	RESULT mg/kg	DATE ANALYZED	RESULT	DATE ANALYZED	RESULT °F	DATE ANALYZED	RESULT mg/kg	DATE ANALYZED
TP2-S2	0.34	12/08/92	NO	11/25/92	>210	12/01/92	88.6	12/08/92
Stockpile	36.0	12/08/92	NO	11/25/92	>210	12/01/92	809	12/08/92

COMMENTS:

ND = COMPOUND NOT DETECTED
MDL = METHOD DETECTION LIMIT WITH NO DILUTION
D = DETECTED BUT BELOW MDL
* = MDL CHANGED DUE TO DILUTION

ANALYTICAL METHODS

[1] TEST METHODS FOR EVALUATING SOLID WASTE, SW-846
[2] METHODS OF CHEMICAL ANALYSIS OF WATER AND WASTES
[3] STANDARD METHODS, FOR THE EXAMINATION OF WATER & WASTES, 16th Ed.

ATTEST _____

ROBERT E. LEE & ASSOCIATES
LABORATORY SERVICES
BOX 2100 2825 S. WEBSTER AVE.
GREEN BAY, WI 54306-2100
TEL NO: (414) 336-6338
FAX NO: (414) 336-9141
Wisconsin Certification No: 405043870

Client: STS Consultants, LTD.
Date Received: 11/24/92
Date of Samples: 11/19/92
Report Date: 12/11/92
Client Project:
Client Project Number: 19784XF
REL Job Number: 1013067 Batch: 1

THE FOLLOWING DATA HAS BEEN REVIEWED AND MEETS THE QA/QC REQUIREMENTS FOR BLANKS, STANDARDS, DUPLICATE ANALYSES AND SPIKED SAMPLES.

TEST PARAMETER	MODIFIED DRO SOLIDS		PAH-HPLC (UST)		TOTAL SOLIDS		TRPH	
MDL	4.7 mg/kg		Attached ug/kg		0.01 %		3.0 mg/kg	
WDNR NUMBER	None		None		85207		None	
ANALYZED BY	R. Grahn		T. Trainor		S. Wood		R. Grahn	
ANALYTICAL METHOD	WDNR MODIFIED		8310 [1]		209E [3]		WDNR MODIFIED	
EXTRACTED/DIGESTED	11/30/92		11/30/92				11/25/92	
SAMPLE NAME	RESULT mg/kg	DATE ANALYZED	RESULT ug/kg	DATE ANALYZED	RESULT %	DATE ANALYZED	RESULT mg/kg	DATE ANALYZED
TP2-S2	1800	12/07/92	Attached	11/30/92	43.8	11/25/92	270	12/01/92
Stockpile	34000	12/07/92	Attached	11/30/92	52.0	11/25/92	230000	12/01/92

COMMENTS:

ND = COMPOUND NOT DETECTED
MDL = METHOD DETECTION LIMIT WITH NO DILUTION
D = DETECTED BUT BELOW MDL
* = MDL CHANGED DUE TO DILUTION

ANALYTICAL METHODS

[1] TEST METHODS FOR EVALUATING SOLID WASTE, SW-846
[2] METHODS OF CHEMICAL ANALYSIS OF WATER AND WASTES
[3] STANDARD METHODS, FOR THE EXAMINATION OF WATER & WASTES, 16th Ed.

ATTEST _____

ROBERT E. LEE & ASSOCIATES
LABORATORY SERVICES
BOX 2100 2825 S. WEBSTER AVE.
GREEN BAY, WI 54306-2100
TEL NO: (414) 336-6338
FAX NO: (414) 336-9141
Wisconsin Certification No: 405043870

Client: STS Consultants, LTD.
Date Received: 11/24/92
Date of Samples: 11/19/92
Report Date: 12/11/92
Client Project:
Client Project Number: 19784XF
REL Job Number: 1013067 Batch: 1

THE FOLLOWING DATA HAS BEEN REVIEWED AND MEETS THE QA/QC REQUIREMENTS FOR BLANKS, STANDARDS, DUPLICATE ANALYSES AND SPIKED SAMPLES.

TEST PARAMETER	VOC-SOLID (UST)
MDL	Attached ug/kg
WDNR NUMBER	
ANALYZED BY	T. O'Connor
ANALYTICAL METHOD	8021 [1]
EXTRACTED/DIGESTED	

SAMPLE NAME	RESULT ug/kg	DATE ANALYZED	RESULT	DATE ANALYZED	RESULT	DATE ANALYZED	RESULT	DATE ANALYZED
TP2-S2	Attached	12/03/92						
Stockpile	Attached	12/03/92						

COMMENTS:

ND = COMPOUND NOT DETECTED
MDL = METHOD DETECTION LIMIT WITH NO DILUTION
D = DETECTED BUT BELOW MDL
* = MDL CHANGED DUE TO DILUTION

ANALYTICAL METHODS

[1] TEST METHODS FOR EVALUATING SOLID WASTE, SW-846
[2] METHODS OF CHEMICAL ANALYSIS OF WATER AND WASTES
[3] STANDARD METHODS, FOR THE EXAMINATION OF WATER & WASTES, 16th Ed.

ATTEST _____

ROBERT E. LEE & ASSOCIATES
LABORATORY SERVICES
BOX 2100 2825 S. WEBSTER AVE.
GREEN BAY, WI 54306-2100
TEL NO: (414) 336-6338
FAX NO: (414) 336-9141
Wisconsin Certification No: 405043870

Client: STS Consultants, LTD.
Date Received: 11/24/92
Date of Samples: 11/19/92
Report Date: 12/11/92
Client Project:
Client Project Number: 19784XF
REL Job Number: 1013067 Batch: 2

THE FOLLOWING DATA HAS BEEN REVIEWED AND MEETS THE QA/QC REQUIREMENTS FOR BLANKS, STANDARDS, DUPLICATE ANALYSES AND SPIKED SAMPLES.

TEST PARAMETER	CADMIUM		LEAD		TCLP-METALS			
MDL	3 ug/l		30 ug/l					
WDNR NUMBER	312		00240		None			
ANALYZED BY	E. Weid		E. Weid		C. Reinhard			
ANALYTICAL METHOD	200.7 [1]		200.7 [1]					
EXTRACTED/DIGESTED								
SAMPLE NAME	RESULT ug/l	DATE ANALYZED	RESULT ug/l	DATE ANALYZED	RESULT	DATE ANALYZED	RESULT	DATE ANALYZED
TP2-S2	ND	12/03/92	ND	12/03/92	Date	11/25/92		
Stockpile	26	12/03/92	450	12/03/92	Date	11/25/92		

COMMENTS:

ND = COMPOUND NOT DETECTED
MDL = METHOD DETECTION LIMIT WITH NO DILUTION
D = DETECTED BUT BELOW MDL
* = MDL CHANGED DUE TO DILUTION

ANALYTICAL METHODS

[1] TEST METHODS FOR EVALUATING SOLID WASTE, SW-846
[2] METHODS OF CHEMICAL ANALYSIS OF WATER AND WASTES
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ATTEST _____

ROBERT E. LEE & ASSOCIATES
LABORATORY SERVICES
BOX 2100 2825 S. WEBSTER AVE.
GREEN BAY, WI 54306-2100
TEL NO: (414) 336-6338
FAX NO: (414) 336-9141
Wisconsin Certification No: 405043870

Client: STS Consultants, LTD.
Date Received: 11/24/92
Date of Samples: 11/19/92
Report Date: 12/11/92
Client Project:
Client Project Number: 19784XF
REL Job Number: 1013067 Batch: 3

THE FOLLOWING DATA HAS BEEN REVIEWED AND MEETS THE QA/QC REQUIREMENTS FOR BLANKS, STANDARDS, DUPLICATE ANALYSES AND SPIKED SAMPLES.

TEST PARAMETER	MODIFIED DRO SOLIDS	TOTAL SOLIDS
MDL	4.7 mg/kg	0.01 %
WDNR NUMBER	None	85207
ANALYZED BY	R. Grahn	S. Wood
ANALYTICAL METHOD	WDNR MODIFIED	209E [3]
EXTRACTED/DIGESTED	12/01/92	

SAMPLE NAME	RESULT mg/kg	DATE ANALYZED	RESULT %	DATE ANALYZED	RESULT	DATE ANALYZED	RESULT	DATE ANALYZED
TP1-S2	110	12/02/92	47.3	11/25/92				
TP3-S2	30	12/02/92	71.4	11/25/92				
TP4-S2	53	12/02/92	40.5	11/25/92				
TP5-S1	1500	12/02/92	76.9	11/25/92				
TP6-S3	ND	12/02/92	37.0	11/25/92				
TP7-S1	ND	12/02/92	84.1	11/25/92				
TP8-S3	130	12/02/92	53.4	11/25/92				
TP9-S1	ND	12/02/92	68.7	11/25/92				
HA2-S2	ND	12/02/92	79.6	11/25/92				
HA3-S3	ND	12/02/92	81.1	11/25/92				
HA5-S2	ND	12/02/92	93.3	11/25/92				
HA6-S1	50	12/02/92	94.4	11/25/92				

COMMENTS:

ND = COMPOUND NOT DETECTED
MDL = METHOD DETECTION LIMIT WITH NO DILUTION
D = DETECTED BUT BELOW MDL
* = MDL CHANGED DUE TO DILUTION

ANALYTICAL METHODS

[1] TEST METHODS FOR EVALUATING SOLID WASTE, SW-846
[2] METHODS OF CHEMICAL ANALYSIS OF WATER AND WASTES
[3] STANDARD METHODS, FOR THE EXAMINATION OF WATER & WASTES, 16th Ed.

ATTEST _____

ROBERT E. LEE & ASSOCIATES, INC.

CLIENT:	STS Consultants, Ltd.
PROJECT:	19784XF
REL JOB NUMBER:	1013067

NARRATIVE

This set consisted of two solid samples. The samples were collected on November 19, and received on November 24, 1992. The samples were extracted on November 30, 1992.

The samples were analyzed for polynuclear aromatic compounds on November 30, and a dilution was analyzed on December 1, 1992 following SW-846 Method 8310.

The following is a summary of the Quality Control results accompanying this set of samples and a description of any problems encountered during analysis:

1. The method blank was free of contamination.

2. The duplicate was above laboratory limits for all analytes except acenaphthylene, 2-methylnaphthalene, benzo(k)fluoranthene, benzo(a)pyrene, benzo(ghi)perylene, and indeno(123-cd)pyrene. Most of the duplicates were above laboratory limits because the second spike had high recoveries, most likely due to interference peaks from the samples.

3. The surrogate was above laboratory limits for both samples due to co-eluting interference peaks from the samples.

4. The matrix spike was within laboratory limits for all analytes except, fluoranthrene (149%), and dibenzo(ah)anthracene (192%).

5. The initial calibration curve was within quality control limits for all analytes.

6. The check standards met the quality control criteria for all detected analytes.

Sheldon Stone
Laboratory Manager
12/07/92tjt

ROBERT E. LEE & ASSOCIATES, INC.
LABORATORY SERVICES
2825 S. WEBSTER AVE. P.O. BOX 2100
GREEN BAY, WIS 54306
TELEPHONE NUMBER: (414) 336 - 6338
WISCONSIN CERTIFICATION NUMBER: 405043870

CLIENT:	STS Consultants, Ltd.
PROJECT:	19784XF
REL JOB NUMBER:	1013067
DATE EXTRACTED:	11/30/92
DATE ANALYZED:	11/30/92, 12/01/92
SAMPLE DILUTION:	1:100
ANALYZED BY:	T. Trainor

PAH METHOD 8310

SAMPLE ID: Stockpile

ANALYTE	MDL ug/kg	RESULT ug/kg
Naphthalene	4500	54800
Acenaphthylene	117	ND
1-Methylnaphthalene	129	ND
2-Methylnaphthalene	4800	457000
Acenaphthene	129	ND
Fluorene	4800	47700
Phenanthrene	62	ND
Anthracene	86	ND
Fluoranthrene	114	ND
Pyrene	86	ND
Benzo(a)anthracene	75	ND
Chrysene	56	ND
Benzo(b)fluoranthene	72	ND
Benzo(k)fluoranthene	59	ND
Benzo(a)pyrene	67	ND
Dibenzo(ah)anthracene	44	ND
Benzo(ghi)perylene	49	ND
Indeno(1,2,3-cd)pyrene	56	ND

ND: COMPOUND NOT DETECTED
MDL: METHOD DETECTION LIMIT
D: DETECTED BUT BELOW MDL

SEE ATTACHED NARRATIVE FOR THE QUALITY CONTROL RESULTS

ATTEST

ROBERT E. LEE & ASSOCIATES, INC.
LABORATORY SERVICES
2825 S. WEBSTER AVE. P.O. BOX 2100
GREEN BAY, WIS 54306
TELEPHONE NUMBER: (414) 336 - 6338
WISCONSIN CERTIFICATION NUMBER: 405043870

CLIENT:	STS Consultants, Ltd.
PROJECT:	19784XF
REL JOB NUMBER:	1013067
DATE EXTRACTED:	11/30/92
DATE ANALYZED:	11/30/92
SAMPLE DILUTION:	None
ANALYZED BY:	T. Trainor

PAH METHOD 8310

SAMPLE ID: TP2-S2

ANALYTE	MDL ug/kg	RESULT ug/kg
Naphthalene	45	ND
Acenaphthylene	117	ND
1-Methylnaphthalene	129	ND
2-Methylnaphthalene	48	ND
Acenaphthene	129	ND
Fluorene	48	ND
Phenanthrene	62	ND
Anthracene	86	ND
Fluoranthrene	114	ND
Pyrene	86	ND
Benzo(a)anthracene	75	ND
Chrysene	56	ND
Benzo(b)fluoranthene	72	ND
Benzo(k)fluoranthene	59	ND
Benzo(a)pyrene	67	ND
Dibenzo(ah)anthracene	44	ND
Benzo(ghi)perylene	49	ND
Indeno(1,2,3-cd)pyrene	56	ND

ND: COMPOUND NOT DETECTED
MDL: METHOD DETECTION LIMIT
D: DETECTED BUT BELOW MDL

SEE ATTACHED NARRATIVE FOR THE QUALITY CONTROL RESULTS

ATTEST

ROBERT E. LEE & ASSOCIATES, INC.

CLIENT:	STS Consultants, LTD.
PROJECT:	19784XF
REL JOB NUMBER:	1013067

NARRATIVE

This set consisted of two solid samples. The samples were collected on November 19, 1992 and were received on November 24, 1992.

The samples were analyzed for volatile organic compounds on November 25, 1992 and were reanalyzed on December 2nd and 3rd, 1992 following SW-846 Method 8021.

The following is a summary of the Quality Control results accompanying this set of samples and a description of any problems encountered during analysis:

1. The method blank contained 4.4 ug/l methylene chloride.

2. The twenty nine duplicate compounds were within laboratory limits except for bromomethane and chloroethane.

3. The surrogates were within laboratory limits.

4. The twenty nine matrix spike compounds were within laboratory limits except for dichlorodifluoromethane and tetrachloroethene.

5. The initial calibration curve was within quality control limits for all analytes except n-butylbenzene and methylene chloride.

6. The check standard met the quality control criteria for all detected analytes except for methylene chloride, n-butylbenzene and naphthalene.

7. Methylene chloride was beyond the range of the calibraion curve for sample TP2-S2.

8. The elevated methylene chloride result for sample Stockpile is due to the dilution of the sample and the subsequent calculaion using this dilution factor.

Sheldon Stone
Laboratory Manager
12/07/92to

ROBERT E LEE & ASSOCIATES, INC.
LABORATORY SERVICES
2825 S. WEBSTER AVE. P.O. BOX 2100
GREEN BAY, WIS 54306
TELEPHONE NUMBER: (414) 336 - 6338
WISCONSIN CERTIFICATION NUMBER: 405043870

METHOD 8021. VOLATILE ORGANIC COMPOUNDS IN WATER BY PURGE AND TRAP CAPILLARY COLUMN GAS CHROMATOGRAPHY WITH PHOTOIONIZATION AND ELECTROLYTIC CONDUCTIVITY DETECTORS IN SERIES.

CLIENT: STS Consultants, LTD.
DATE SAMPLED: 11/19/92
DATE ANALYZED: 12/03/92
REPORT DATE: 12/04/92 TO
ANALYZED BY: TO

PROJECT: Unknown
PROJECT NUMBER: 19784XF
REL JOB NUMBER: 1013067
SAMPLE: TP2-S2

ANALYTE	MDL UG/KG	RESULT UG/KG
BENZENE	1.3	ND
BROMOBENZENE	8.9	ND
BROMODICHLOROMETHANE	2.2	ND
n-BUTYLBENZENE	7.8	ND
sec-BUTYLBENZENE	8.5	ND
tert-BUTYLBENZENE	12.9	ND
CARBON TETRACHLORIDE	2.9	ND
CHLOROBENZENE	8.2	ND
CHLOROETHANE	6.2	ND
CHLOROFORM	3.8	4.0
CHLOROMETHANE	6.5	ND
2-CHLOROTOLUENE	6.5	ND
4-CHLOROTOLUENE	8.2	ND
DIBROMOCHLOROMETHANE	2.7	ND
1,2-DIBROMO-3-CHLOROPROPANE	6.2	ND
1,2-DIBROMOETHANE (EDB)	5.4	ND
1,2-DICHLOROBENZENE	6.5	ND
1,3-DICHLOROBENZENE	7.8	ND
1,4-DICHLOROBENZENE	7.1	ND
DICHLORODIFLUOROMETHANE	6.0	ND
1,1-DICHLOROETHANE	3.8	ND
1,2-DICHLOROETHANE	4.9	ND
1,1-DICHLOROETHENE	4.2	ND
cis-1,2-DICHLOROETHENE	4.5	ND
trans-1,2-DICHLOROETHENE	5.4	ND
1,2-DICHLOROPROPANE	8.2	ND

ANALYTE	MDL UG/KG	RESULT UG/KG
1,3-DICHLOROPROPANE	7.4	ND
2,2-DICHLOROPROPANE	4.9	ND
DI-ISOPROPYL ETHER	2.2	ND
ETHYLBENZENE	3.3	3.1 D
HEXACHLOROBUTADIENE	3.8	ND
ISOPROPYLBENZENE	8.0	ND
p-ISOPROPYLTOLUENE	8.0	24
METHYLENE CHLORIDE	3.3	278
METHYL-TERT-BUTYL-ETHER	2.0	ND
NAPHTHALENE	10.5	ND
n-PROPYLBENZENE	7.6	ND
1,1,2,2-TETRACHLOROETHANE	5.4	ND
TETRACHLOROETHENE	4.0	ND
TOLUENE	4.5	7.4
1,2,3-TRICHLOROBENZENE	7.8	ND
1,2,4-TRICHLOROBENZENE	2.9	ND
1,1,1-TRICHLOROETHANE	3.1	ND
1,1,2-TRICHLOROETHANE	6.9	ND
TRICHLOROETHENE	6.9	ND
TRICHLOROFLUOROMETHANE	3.3	5.6
1,2,4-TRIMETHYLBENZENE	7.8	ND
1,3,5-TRIMETHYLBENZENE	7.8	ND
VINYL CHLORIDE	5.1	ND
m,p-XYLENE	3.3	6.3
o-XYLENE	2.2	ND

* 2-BROMO-1-CHLOROPROPANE SURROGATE RECOVERY (%)..... 87
* 1,4-DICHLOROBUTANE SURROGATE RECOVERY (%)..... 63

ND = COMPOUND NOT DETECTED
MDL = METHOD DETECTION LIMIT

D = COMPOUND DETECTED BUT BELOW MDL
* SURROGATE STANDARD PERCENT RECOVERY

ATTEST

ROBERT E LEE & ASSOCIATES, INC.
LABORATORY SERVICES
2825 S. WEBSTER AVE. P.O. BOX 2100
GREEN BAY, WIS 54306
TELEPHONE NUMBER: (414) 336 - 6338
WISCONSIN CERTIFICATION NUMBER: 405043870

METHOD 8021. VOLATILE ORGANIC COMPOUNDS IN WATER BY PURGE AND TRAP CAPILLARY COLUMN GAS CHROMATOGRAPHY WITH PHOTOIONIZATION AND ELECTROLYTIC CONDUCTIVITY DETECTORS IN SERIES.

CLIENT: STS Consultants, LTD.
DATE SAMPLED: 11/19/92
DATE ANALYZED: 12/03/92
REPORT DATE: 12/04/92 TO
ANALYZED BY: TO

PROJECT: Unknown
PROJECT NUMBER: 19784XF
REL JOB NUMBER: 1013067
SAMPLE: Stockpile

ANALYTE	MDL UG/KG	RESULT UG/KG
BENZENE	2671	5690
BROMOBENZENE	17806	ND
BROMODICHLOROMETHANE	4452	ND
n-BUTYLBENZENE	15580	86100
sec-BUTYLBENZENE	16916	25600
tert-BUTYLBENZENE	25819	ND
CARBON TETRACHLORIDE	5787	ND
CHLOROBENZENE	16471	ND
CHLOROETHANE	12464	ND
CHLOROFORM	7568	ND
CHLOROMETHANE	12910	ND
2-CHLOROTOLUENE	12910	ND
4-CHLOROTOLUENE	16471	ND
DIBROMOCHLOROMETHANE	5342	ND
1,2-DIBROMO-3-CHLOROPROPANE	12464	ND
1,2-DIBROMOETHANE (EDB)	10684	ND
1,2-DICHLOROBENZENE	12910	ND
1,3-DICHLOROBENZENE	15580	ND
1,4-DICHLOROBENZENE	14245	ND
DICHLORODIFLUOROMETHANE	12019	ND
1,1-DICHLOROETHANE	7568	ND
1,2-DICHLOROETHANE	9793	ND
1,1-DICHLOROETHENE	8458	ND
cis-1,2-DICHLOROETHENE	8903	ND
trans-1,2-DICHLOROETHENE	10684	ND
1,2-DICHLOROPROPANE	16471	ND

ANALYTE	MDL UG/KG	RESULT UG/KG
1,3-DICHLOROPROPANE	14690	ND
2,2-DICHLOROPROPANE	9793	ND
DI-ISOPROPYL ETHER	4452	ND
ETHYLBENZENE	6677	43700
HEXACHLOROBUTADIENE	7568	ND
ISOPROPYLBENZENE	16026	4800 D
p-ISOPROPYLTOLUENE	16026	20700
METHYLENE CHLORIDE	6677	61300
METHYL-TERT-BUTYL-ETHER	4006	ND
NAPHTHALENE	20922	143000
n-PROPYLBENZENE	15135	45000
1,1,2,2-TETRACHLOROETHANE	10684	ND
TETRACHLOROETHENE	8013	ND
TOLUENE	8903	78400
1,2,3-TRICHLOROBENZENE	15580	ND
1,2,4-TRICHLOROBENZENE	5787	ND
1,1,1-TRICHLOROETHANE	6232	ND
1,1,2-TRICHLOROETHANE	13800	ND
TRICHLOROETHENE	13800	ND
TRICHLOROFLUOROMETHANE	6677	ND
1,2,4-TRIMETHYLBENZENE	15580	167000
1,3,5-TRIMETHYLBENZENE	15580	54700
VINYL CHLORIDE	10239	ND
m,p-XYLENE	6677	116000
o-XYLENE	4452	52600

* 2-BROMO-1-CHLOROPROPANE SURROGATE RECOVERY (%)..... 119 %
* 1,4-DICHLOROBUTANE SURROGATE RECOVERY (%)..... 128 %

ND = COMPOUND NOT DETECTED
MDL = METHOD DETECTION LIMIT
D = COMPOUND DETECTED BUT BELOW MDL
* SURROGATE STANDARD PERCENT RECOVERY

ATTEST

APPENDIX B

Hand Auger And Test Pit Logs

State of Wisconsin
Department of Natural Resources

Route To:
- ☐ Solid Waste
- ☐ Emergency Response
- ☐ Wastewater
- ☐ Haz. Waste
- ☐ Underground Tanks
- ☐ Water Resources
- ☐ Other

Soil Boring Log Information

Form 4400-122 7-91

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
Apparent Locomotive Release Areas		HA-1

Boring Drilled By (Firm name and name of crew chief)	Date Drilling Started	Date Drilling Completed	Drilling Method
STS Consultants, Ltd. - P. Plamann - STS 19784XF	11/20/92	11/20/92	Hand Auger

DNR Facility Well No.	WI Unique Well No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
			Feet MSL	Feet MSL	4.0 Inches

Boring Location
State Plane Private Claim No. 1 N, E | Lat ° ' " | Local Grid Location (If applicable) ☐ N ☐ E
1/4 of 1/4 of Section T 24 N,R 21 e | Long ° ' " | Feet ☐ S Feet ☐ W

County	DNR County Code	Civil Town/City/ or Village
Brown	05	Green Bay

Sample Number	Length (in) Recovered	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
1	0.5		1	Fill: Black silt, wood chips, bark - moist to wet				1						
2	0.3		2					30						
3	0.5		3					15						
			4	End of Boring Boring advanced from 0 to 4.5 feet with hand auger Boring backfilled with granular bentonite										

~~I hereby certify that~~ the information on this form is true and correct to the best of my knowledge.

Signature Roger A Milla

Firm STS Consultants, Ltd.
1035 Kepler Drive Green Bay, Wisconsin
Tel: 414-468-1978, Fax: 414-468-3312

This form is authorized by Chapters 144, 147 and 162, Wis. Stats. Completion of this report is mandatory. Penalties: Forfeit not less than $10 nor more than $5,000 for each violation. Fined not less than $10 or more than $100 or imprisoned not less than 30 days, or both for each violation. Each day of continued violation is a separate offense, pursuant to ss 144.99 and 162.06, Wis. Stats.

State of Wisconsin
Department of Natural Resources

Route To:
☐ Solid Waste ☐ Haz. Waste
☐ Emergency Response ☐ Underground Tanks
☐ Wastewater ☐ Water Resources
☐ Other

Soil Boring Log Information

Form 4400-122 7-91

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
Apparent Locomotive Release Areas		HA-2

Boring Drilled By (Firm name and name of crew chief)	Date Drilling Started	Date Drilling Completed	Drilling Method
STS Consultants, Ltd. - P. Plamann - STS 19784XF	11/20/92	11/20/92	Hand Auger

DNR Facility Well No.	WI Unique Well No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
			Feet MSL	Feet MSL	4.0 Inches

Boring Location
State Plane Private Claim No. 1 N, E | Lat ° ' " | Local Grid Location (If applicable) ☐ N ☐ E
1/4 of 1/4 of Section T 24 N,R 21 e | Long ° ' " | Feet ☐ S Feet ☐ W

County	DNR County Code	Civil Town/City/ or Village
Brown	05	Green Bay

Sample Number	Length (in) Recovered	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
1	0.5		1, 2	Fill: Black organic silt, wood, bark - wet - diesel odor				1000						
2	0.3		3, 4	Brown silty clay - trace of gravel - moist - possible fill	CL			900						
3	0.3							1000						
				End of Boring Boring advanced from 0 to 4.3 feet with hand auger Boring backfillled with granular bentonite										

~~I hereby certify that~~ the information on this form is true and correct to the best of my knowledge.

Signature	Firm
Roger A Miller	STS Consultants, Ltd. 1035 Kepler Drive Green Bay, Wisconsin Tel: 414-468-1978, Fax: 414-468-3312

This form is authorized by Chapters 144, 147 and 162, Wis. Stats. Completion of this report is mandatory. Penalties: Forfeit not less than $10 nor more than $5,000 for each violation. Fined not less than $10 or more than $100 or imprisoned not less than 30 days, or both for each violation. Each day of continued violation is a separate offense, pursuant to ss 144.99 and 162.06, Wis. Stats.

State of Wisconsin
Department of Natural Resources

Route To:
☐ Solid Waste ☐ Haz. Waste
☐ Emergency Response ☐ Underground Tanks
☐ Wastewater ☐ Water Resources
☐ Other

Soil Boring Log Information

Form 4400-122 7-91

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
Apparent Locomotive Release Areas		HA-3

Boring Drilled By (Firm name and name of crew chief)	Date Drilling Started	Date Drilling Completed	Drilling Method
STS Consultants, Ltd. - P. Plamann - STS 19784XF	11/20/92	11/20/92	Hand Auger

DNR Facility Well No.	WI Unique Well No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
			Feet MSL	Feet MSL	4.0 Inches

Boring Location
State Plane Private Claim No. 1 N, E | Lat ° ' "
1/4 of 1/4 of Section T 24 N,R 21 E | Long ° ' "

Local Grid Location (If applicable)
☐ N ☐ E
Feet ☐ S Feet ☐ W

County	DNR County Code	Civil Town/City/ or Village
Brown	05	Green Bay

Sample Number	Length (in) Recovered	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
			1											
1	0.5		2	Brown silty clay - trace of gravel - moist - possible fill	CL			60						
			3											
2	0.3		4					15						
3	0.3							40						
				End of Boring Boring advanced from 0 to 4.3 feet with hand auger Boring backfilled with granular bentonite										

~~I hereby certify that~~ the information on this form is true and correct to the best of my knowledge.

Signature Roger A Miller

Firm STS Consultants, Ltd.
1035 Kepler Drive Green Bay, Wisconsin
Tel: 414-468-1978, Fax: 414-468-3312

This form is authorized by Chapters 144, 147 and 162, Wis. Stats. Completion of this report is mandatory. Penalties: Forfeit not less than $10 nor more than $5,000 for each violation. Fined not less than $10 or more than $100 or imprisoned not less than 30 days, or both for each violation. Each day of continued violation is a separate offense, pursuant to ss 144.99 and 162.06, Wis. Stats.

State of Wisconsin
Department of Natural Resources

Route To:
☐ Solid Waste ☐ Haz. Waste
☐ Emergency Response ☐ Underground Tanks
☐ Wastewater ☐ Water Resources
☐ Other

Soil Boring Log Information

Form 4400-122 7-91

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
Apparent Locomotive Release Areas		HA-4

Boring Drilled By (Firm name and name of crew chief)	Date Drilling Started	Date Drilling Completed	Drilling Method
STS Consultants, Ltd. - P. Plamann - STS 19784XF	11/20/92	11/20/92	Hand Auger

DNR Facility Well No.	WI Unique Well No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
			Feet MSL	Feet MSL	4.0 Inches

Boring Location
State Plane Private Claim No. 1 N, E | Lat ° ' "
1/4 of 1/4 of Section T 24 N,R 21 E | Long ° ' "

Local Grid Location (If applicable)
☐ N ☐ E
Feet ☐ S Feet ☐ W

County	DNR County Code	Civil Town/City/ or Village
Brown	05	Green Bay

Sample Number	Length (in) Recovered	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
1	0.5		1 2 3	Fill: Brown silty sand and gravel - wet				1						
				End of Boring Boring advanced from 0 to 3.0 feet with hand auger Boring backfilled with granular bentonite										

~~I hereby certify that~~ the information on this form is true and correct to the best of my knowledge.

Signature Roger A Miller

Firm STS Consultants, Ltd.
1035 Kepler Drive Green Bay, Wisconsin
Tel: 414-468-1978, Fax: 414-468-3312

This form is authorized by Chapters 144, 147 and 162, Wis. Stats. Completion of this report is mandatory. Penalties: Forfeit not less than $10 nor more than $5,000 for each violation. Fined not less than $10 or more than $100 or imprisoned not less than 30 days, or both for each violation. Each day of continued violation is a separate offense, pursuant to ss 144.99 and 162.06, Wis. Stats.

State of Wisconsin
Department of Natural Resources

Route To:
☐ Solid Waste ☐ Haz. Waste
☐ Emergency Response ☐ Underground Tanks
☐ Wastewater ☐ Water Resources
☐ Other

Soil Boring Log Information

Form 4400-122 7-91

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
Apparent Locomotive Release Areas		HA-5

Boring Drilled By (Firm name and name of crew chief)	Date Drilling Started	Date Drilling Completed	Drilling Method
STS Consultants, Ltd. - P. Plamann - STS 19784XF	11/20/92	11/20/92	Hand Auger

DNR Facility Well No.	WI Unique Well No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
			Feet MSL	Feet MSL	4.0 Inches

Boring Location
State Plane N, E
1/4 of Private Claim No. 1 1/4 of Section T 24 N,R 21 E
Lat ° ' "
Long ° ' "

Local Grid Location (If applicable)
Feet ☐ N ☐ S Feet ☐ E ☐ W

County	DNR County Code	Civil Town/City/ or Village
Brown	05	Green Bay

Sample Number	Length (in) Recovered	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
1	0.5		1	Fill: Dark brown silty sand and gravel - moist				15						
2	0.5		2					2						
				End of Boring Boring advanced from 0 to 2.5 feet with hand auger Boring backfilled with granular bentonite										

~~I hereby certify that~~ the information on this form is true and correct to the best of my knowledge.

Signature Roger A Miller

Firm STS Consultants, Ltd.
1035 Kepler Drive Green Bay, Wisconsin
Tel: 414-468-1978, Fax: 414-468-3312

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State of Wisconsin
Department of Natural Resources

Route To:
☐ Solid Waste ☐ Haz. Waste
☐ Emergency Response ☐ Underground Tanks
☐ Wastewater ☐ Water Resources
☐ Other

Soil Boring Log Information

Form 4400-122 7-91

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
Apparent Locomotive Release Areas		HA-6

Boring Drilled By (Firm name and name of crew chief)	Date Drilling Started	Date Drilling Completed	Drilling Method
STS Consultants, Ltd. - P. Plamann - STS 19784XF	11/20/92	11/20/92	Hand Auger

DNR Facility Well No.	WI Unique Well No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
			Feet MSL	Feet MSL	4.0 Inches

Boring Location
State Plane Private Claim No. 1 N, E | Lat ° ' "
1/4 of 1/4 of Section T 24 N,R 21 E | Long ° ' "

Local Grid Location (If applicable)
☐ N ☐ E
Feet ☐ S Feet ☐ W

County	DNR County Code	Civil Town/City/ or Village
Brown	05	Green Bay

Sample Number	Length (in) Recovered	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
1	0.5		1 2	Fill: Brown silty sand and gravel - moist				<1						
				End of Boring Boring advanced from 0 to 2.0 feet with hand auger Boring backfilled with granular bentonite										

~~I hereby certify that~~ the information on this form is true and correct to the best of my knowledge.

Signature Roger A Miller

Firm STS Consultants, Ltd.
1035 Kepler Drive Green Bay, Wisconsin
Tel: 414-468-1978, Fax: 414-468-3312

This form is authorized by Chapters 144, 147 and 162, Wis. Stats. Completion of this report is mandatory. Penalties: Forfeit not less than $10 nor more than $5,000 for each violation. Fined not less than $10 or more than $100 or imprisoned not less than 30 days, or both for each violation. Each day of continued violation is a separate offense, pursuant to ss 144.99 and 162.06, Wis. Stats.

STS Consultants Ltd.

OWNER	James River Corporation
LOG OF TEST PIT NUMBER	1
PROJECT NAME	Apparent Locomotive Release Areas
ARCHITECT-ENGINEER	STS Consultants, Ltd.
SITE LOCATION	Green Bay, Wisconsin

DEPTH(FT)	ELEVATION(FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY	DESCRIPTION OF MATERIAL	FID READING	UNCONFINED COMPRESSIVE STRENGTH TONS/FT.^{2} (1 2 3 4 5) / PLASTIC LIMIT % / WATER CONTENT % / LIQUID LIMIT % (10 20 30 40 50)
						SURFACE ELEVATION		
						0.5 foot asphalt		
		1				Fill: Black wood, sand, silt, gravel mix - moist	30	
2								
		2					80	
4								
						End of Test Pit Test Pit advanced from 0.0 to 4.0 feet with backhoe		
6								
8								
10								
12								
14								
16								
18								

The stratification lines represent the approximate boundary lines between soil types: in situ, the transition may be gradual.

WL 4.1 ft. WS	TEST PIT STARTED 11/19/92	STS OFFICE	1035 Kepler Drive Green Bay, WI 54311
WL			
WL	TEST PIT COMPLETED 11/19/92	ENTERED BY SMD	SHEET NO. 1 OF 1
WL	EQUIPMENT/CONTRACTOR Backhoe/JMA	APP'D BY PJM	STS JOB NO. 19784XF

STS Consultants Ltd.

OWNER	James River Corporation
LOG OF TEST PIT NUMBER	2
PROJECT NAME	Apparent Locomotive Release Areas
ARCHITECT-ENGINEER	STS Consultants, Ltd.
SITE LOCATION	Green Bay, Wisconsin

DEPTH(FT)	ELEVATION(FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY	DESCRIPTION OF MATERIAL / SURFACE ELEVATION	FID READING
		1				Fill: Black topsoil, wood, sand, silt mix - moist	15
2		2					200
4							
						End of Test Pit Test Pit advanced from 0.0 to 4.0 feet with backhoe	
6							
8							
10							
12							
14							
16							
18							

UNCONFINED COMPRESSIVE STRENGTH TONS/FT.^{2} 1 2 3 4 5

PLASTIC LIMIT % — WATER CONTENT % — LIQUID LIMIT % 10 20 30 40 50

The stratification lines represent the approximate boundary lines between soil types: in situ, the transition may be gradual.

WL 4.5 ft. WS	TEST PIT STARTED 11/19/92	STS OFFICE	1035 Kepler Drive Green Bay, WI 54311
WL			
WL	TEST PIT COMPLETED 11/19/92	ENTERED BY SMD	SHEET NO. 1 OF 1
WL	EQUIPMENT/CONTRACTOR Backhoe/JMA	APP'D BY PJM	STS JOB NO. 19784XF

STS Consultants Ltd.

OWNER	James River Corporation
LOG OF TEST PIT NUMBER	3
PROJECT NAME	Apparent Locomotive Release Areas
ARCHITECT-ENGINEER	STS Consultants, Ltd.
SITE LOCATION	Green Bay, Wisconsin

DEPTH(FT)	ELEVATION(FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY	DESCRIPTION OF MATERIAL			FID READING	UNCONFINED COMPRESSIVE STRENGTH TONS/FT² (1, 2, 3, 4, 5)	PLASTIC LIMIT % / WATER CONTENT % / LIQUID LIMIT % (10, 20, 30, 40, 50)
						SURFACE ELEVATION					
2		1				Fill: Black topsoil, cinders, sand, gravel, wood mix - moist			3		
4		2							3		
6						End of Test Pit Test Pit advanced from 0.0 to 4.0 feet with backhoe					
8											
10											
12											
14											
16											
18											

The stratification lines represent the approximate boundary lines between soil types: in situ, the transition may be gradual.

WL 4.0 ft. WS	TEST PIT STARTED 11/19/92	STS OFFICE	1035 Kepler Drive Green Bay, WI 54311
WL			
WL	TEST PIT COMPLETED 11/19/92	ENTERED BY SMD	SHEET NO. 1 OF 1
WL	EQUIPMENT/CONTRACTOR Backhoe/JMA	APP'D BY PJM	STS JOB NO. 19784XF

STS Consultants Ltd.

OWNER	James River Corporation
LOG OF TEST PIT NUMBER	4
PROJECT NAME	Apparent Locomotive Release Areas
ARCHITECT-ENGINEER	STS Consultants, Ltd.
SITE LOCATION	Green Bay, Wisconsin

DEPTH(FT)	ELEVATION(FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY	DESCRIPTION OF MATERIAL / SURFACE ELEVATION	FID READING
		1				1.0 foot base course	3
2		2				Fill: Cinders, topsoil, sand, silt, wood mix - gravel - moist	20
4							
6						End of Test Pit Test Pit advanced from 0.0 to 4.5 feet with backhoe	
8							
10							
12							
14							
16							
18							

UNCONFINED COMPRESSIVE STRENGTH TONS/FT.^{2} 1 2 3 4 5

PLASTIC LIMIT % — WATER CONTENT % — LIQUID LIMIT % 10 20 30 40 50

The stratification lines represent the approximate boundary lines between soil types: in situ, the transition may be gradual.

WL 4.5 ft. WS	TEST PIT STARTED 11/19/92	STS OFFICE	1035 Kepler Drive Green Bay, WI 54311
WL			
WL	TEST PIT COMPLETED 11/19/92	ENTERED BY SMD	SHEET NO. 1 OF 1
WL	EQUIPMENT/CONTRACTOR Backhoe/JMA	APP'D BY PJM	STS JOB NO. 19784XF

STS Consultants Ltd.

OWNER	James River Corporation
LOG OF TEST PIT NUMBER	5
PROJECT NAME	Apparent Locomotive Release Areas
ARCHITECT-ENGINEER	STS Consultants, Ltd.
SITE LOCATION	Green Bay, Wisconsin

DEPTH(FT)	ELEVATION(FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY	DESCRIPTION OF MATERIAL	FID READING
						SURFACE ELEVATION	
						0.5 foot base course	
		1				Fill: Black cinders, gravel, organics, silt - moist (bricks, concrete, and wood 2.0-4.0 feet)	2
2							
		2					NA
4							
						End of Test Pit Test Pit advanced from 0.0 to 4.0 feet with backhoe	
6							
8							
10							
12							
14							
16							
18							

UNCONFINED COMPRESSIVE STRENGTH TONS/FT.^{2} 1 2 3 4 5

PLASTIC LIMIT % — WATER CONTENT % — LIQUID LIMIT % 10 20 30 40 50

The stratification lines represent the approximate boundary lines between soil types: in situ, the transition may be gradual.

WL	TEST PIT STARTED 11/19/92	STS OFFICE	1035 Kepler Drive Green Bay, WI 54311
WL			
WL	TEST PIT COMPLETED 11/19/92	ENTERED BY SMD	SHEET NO. 1 OF 1
WL	EQUIPMENT/CONTRACTOR Backhoe/JMA	APP'D BY PJM	STS JOB NO. 19784XF

STS Consultants Ltd.

OWNER	James River Corporation
LOG OF TEST PIT NUMBER	6
PROJECT NAME	Apparent Locomotive Release Areas
ARCHITECT-ENGINEER	STS Consultants, Ltd.
SITE LOCATION	Green Bay, Wisconsin

DEPTH(FT)	ELEVATION(FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY	DESCRIPTION OF MATERIAL	FID READING
						SURFACE ELEVATION	
						0.5 foot base course	
		1					2
2							
		2				Fill: Black cinders, clay, sand, organics, wood mix - moist	50
4							
		3					1000
6							
8						End of Test Pit Test Pit advanced from 0.0 to 7.0 feet with backhoe	
10							
12							
14							
16							
18							

UNCONFINED COMPRESSIVE STRENGTH TONS/FT.^{2} 1 2 3 4 5

PLASTIC LIMIT % — WATER CONTENT % — LIQUID LIMIT % 10 20 30 40 50

The stratification lines represent the approximate boundary lines between soil types: in situ, the transition may be gradual.

WL 7.0 ft. WS	TEST PIT STARTED 11/19/92	STS OFFICE	1035 Kepler Drive Green Bay, WI 54311
WL			
WL	TEST PIT COMPLETED 11/19/92	ENTERED BY SMD	SHEET NO. 1 OF 1
WL	EQUIPMENT/CONTRACTOR Backhoe/JMA	APP'D BY PJM	STS JOB NO. 19784XF

STS Consultants Ltd.

OWNER	LOG OF TEST PIT NUMBER 7
James River Corporation	
PROJECT NAME	ARCHITECT-ENGINEER
Apparent Locomotive Release Areas	STS Consultants, Ltd.

SITE LOCATION
Green Bay, Wisconsin

DEPTH(FT)	ELEVATION(FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY	DESCRIPTION OF MATERIAL / SURFACE ELEVATION	FID READING	UNCONFINED COMPRESSIVE STRENGTH TONS/FT.^{2} (1 2 3 4 5)	PLASTIC LIMIT % / WATER CONTENT % / LIQUID LIMIT % (10 20 30 40 50)
2		1				Fill: Black cinders, wood, clay, sand mix - moist	250		
4		2				Brown silty clay (CL) - moist	30		
6		3				Black organic soil (OL/OH) - moist	4		
		4				Gray silty sand (SM-SC) - trace of gravel - moist	NA		
8, 10, 12, 14, 16, 18						End of Test Pit Test Pit advanced from 0.0 to 7.0 feet with backhoe			

The stratification lines represent the approximate boundary lines between soil types: in situ, the transition may be gradual.

WL 7.0 ft. WS	TEST PIT STARTED 11/19/92	STS OFFICE	1035 Kepler Drive Green Bay, WI 54311
WL	TEST PIT COMPLETED 11/19/92	ENTERED BY SMD	SHEET NO. 1 OF 1
WL			
WL	EQUIPMENT/CONTRACTOR Backhoe/JMA	APP'D BY PJM	STS JOB NO. 19784XF

STS Consultants Ltd.

OWNER	James River Corporation
LOG OF TEST PIT NUMBER	8
PROJECT NAME	Apparent Locomotive Release Areas
ARCHITECT-ENGINEER	STS Consultants, Ltd.
SITE LOCATION	Green Bay, Wisconsin

DEPTH(FT)	ELEVATION(FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY	DESCRIPTION OF MATERIAL / SURFACE ELEVATION	FID READING
		1				Fill: Black cinders, clay, sand, organics, wood mix - moist	<1
2		2					<1
4		3					1000
6						End of Test Pit Test Pit advanced from 0.0 to 6.0 feet with backhoe	
8							
10							
12							
14							
16							
18							

UNCONFINED COMPRESSIVE STRENGTH TONS/FT.^{2} 1 2 3 4 5

PLASTIC LIMIT % — WATER CONTENT % — LIQUID LIMIT % 10 20 30 40 50

The stratification lines represent the approximate boundary lines between soil types: in situ, the transition may be gradual.

WL 6.0 ft. WS	TEST PIT STARTED 11/19/92	STS OFFICE	1035 Kepler Drive Green Bay, WI 54311
WL	TEST PIT COMPLETED 11/19/92	ENTERED BY SMD	SHEET NO. 1 OF 1
WL	EQUIPMENT/CONTRACTOR Backhoe/JMA	APP'D BY PJM	STS JOB NO. 19784XF
WL			

STS Consultants Ltd.

OWNER	James River Corporation
LOG OF TEST PIT NUMBER	9
PROJECT NAME	Apparent Locomotive Release Areas
ARCHITECT-ENGINEER	STS Consultants, Ltd.
SITE LOCATION	Green Bay, Wisconsin

DEPTH(FT)	ELEVATION(FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY	DESCRIPTION OF MATERIAL	FID READING	UNCONFINED COMPRESSIVE STRENGTH TONS/FT.^{2} (1 2 3 4 5)	PLASTIC LIMIT % / WATER CONTENT % / LIQUID LIMIT % (10 20 30 40 50)
						SURFACE ELEVATION			
						0.5 foot base course			
		1				Fill: Black cinders, clay, sand, organics, wood mix - moist	20		
2									
		2					60		
4									
						End of Test Pit Test Pit advanced from 0.0 to 4.0 feet with backhoe			
6									
8									
10									
12									
14									
16									
18									

The stratification lines represent the approximate boundary lines between soil types: in situ, the transition may be gradual.

WL 3.5 ft. WS	TEST PIT STARTED 11/19/92	STS OFFICE	1035 Kepler Drive Green Bay, WI 54311
WL			
WL	TEST PIT COMPLETED 11/19/92	ENTERED BY SMD	SHEET NO. 1 OF 1
WL	EQUIPMENT/CONTRACTOR Backhoe/JMA	APP'D BY PJM	STS JOB NO. 19784XF

APPENDIX C

Soil Volume Calculations

STS CONSULTANTS LTD.

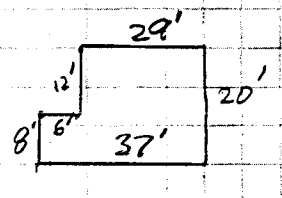
CALCULATION SHEET

PROJECT: JAMES RIVER CORP. LOCOMOTIVE STORAGE AREAS JOB NO.: 19784XF PAGE 1 OF 1

SUBJECT: ESTIMATED EXCAVATED SOIL VOLUME DIVISION

ORIGINATOR: Roger A Mills DATE: 9/7/93 CHECKED BY: MJC DATE: 9/7/93

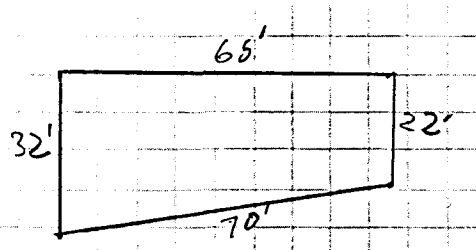
AREA No. 1



$(12' \times 29' \times 7') + (8' \times 37' \times 7') \doteq$ **4500 ft³ OR 170 yd³**

EXCAVATION DEPTH ≈ 7'

AREA No. 2



$(22' \times 65' \times 5') + \frac{1}{2}(10' \times 65' \times 5') \doteq$ **8775 ft³ OR 325 yd³**

EXCAVATION DEPTH ≈ 5'

TOTAL ESTIMATED EXCAVATED VOLUME: $170\ yd^3 + 325\ yd^3 \doteq$ **500 yd³**

8241

APPENDIX D

Brown County Solid Waste Department Landfilling Guidance

SOLID WASTE DEPARTMENT

Brown County

305 EAST WALNUT
P.O. BOX 23600
GREEN BAY, WISCONSIN 54305-3600

PHONE (414) 448-4475 FAX (414) 448-4036

CHARLES J. LARSCHEID

DIRECTOR

RECEIVED
FEB 23 1993

TO: Potential Petroleum Contaminated Soil Disposer

FROM: Timothy C. Gehring
Brown County Landfill Specialist

DATE: February 12, 1993

RE: Policy Changes For Acceptances of Petroleum Contaminated Soils

The following are changes in the Brown County Acceptance Policy for Petroleum Contaminated Soils. These changes will become effective as of February 15, 1993.

1) See Analytical Requirements and Limits for Acceptance of Petroleum Contaminated Soils.

These changes in the policy were made in order to safeguard the health and safety of Brown County employees and to minimize liability involved with accepting petroleum contaminated soils.

If you have any questions or comments concerning these issues, please feel free to contact me at (414) 448-4475.

TCG:nl

Enclosures

ppcsdis.mem

SOLID WASTE DEPARTMENT

Brown County

305 EAST WALNUT
P.O. BOX 23600
GREEN BAY, WISCONSIN 54305-3600

CHARLES J. LARSCHEID

PHONE (414) 448-4475 FAX (414) 448-4036

DIRECTOR

REVISED AS OF FEBRUARY 15, 1993

TO: Potential Petroleum Contaminated Soils Disposers

FROM: Timothy C. Gehring, Brown County Landfill Specialist

SUBJECT: Brown County Policy For Acceptance of Petroleum Contaminated Soils

The following provisions are implemented to safeguard the health and safety of Brown County employees and to minimize liability involved with accepting petroleum contaminated soils.

1. Brown County will accept only the following petroleum contaminated soils for disposal at its landfills:

   A. Contaminated soil originating from Brown County.

   B. Projects totalling 2,000 tons (1,500 yd^3) or <u>less</u>.

   C. Contaminated soils with no free liquids present.

   D. Diesel or gasoline contaminated soils with analysis showing benzene concentrations less than one (1) mg./kg. (ppm) for each 300 cubic yards of soil. Samples for each 300 cubic yard amount may be composites from within the 300 cubic yard amount.

   E. Emergency requests because of a spill or leak and where an immediate hazard exists. No analysis will be required providing a written statement from the Emergency Government Coordinator is forthcoming.

   F. See Analytical Requirements and Limits for Acceptance of Petroleum Contaminated Soils (page 3).

100% Recycled Paper

2. Each request for disposal must be received five (5) days in advance of disposal and must include the following:

   A. A completed "Brown County Application For Disposal of Petroleum Contaminated Soils".

   B. Complete the following laboratory analysis:

      1. See Analytical Requirements and Limits for Acceptance of Petroleum Contaminated Soils (page 3).

   C. A $100 review fee if the volume of soil exceeds 100 cubic yards.

   D. A copy of all laboratory analysis and a sketch of the property showing sample locations.

   E. A credit application (included with this packet) must be submitted to the Brown County Solid Waste Department if an account is to be set up and if one is not already in place. All other transactions will be cash upon delivery of soils at the landfill.

   F. All LUST projects must have Form 4400-120 submitted to the DNR upon completion of the project. This is the responsibility of the owner or the owner's consultant. Upon project completion, the owner or its representative should supply the Brown County Solid Waste Department with the actual soil and benzene remediated amounts. Then the finished form 4400-120 may be submitted for Brown County signature. This signed form will then be returned to the owner or owner's consultant.

   G. Prior to approval a pre-payment of $1,000 per 100 tons of soil is required for all projects.

BROWN COUNTY SOLID WASTE DEPARTMENT

ANALYTICAL REQUIREMENTS AND LIMITS FOR ACCEPTANCE OF PETROLEUM CONTAMINATED SOILS

A. PRIOR TO LANDFILL ACCEPTANCE OF PETROLEUM CONTAMINATED SOIL, THE FOLLOWING ANALYSIS SHALL BE COMPLETED BASED ON KNOWLEDGE OF THE CONTAMINATION. PETROLEUM CONTAMINATED SOIL TO BE LANDFILLED SHOULD ALSO BE WITHIN THE LIMITS ESTABLISHED BELOW.

B.

CONTAMINATION	ANALYTICAL TESTS	CONTAMINATION LIMITS
GASOLINE;	PAINT FILTER	NO FREE LIQUIDS
GRADES 80,100,	GRO (TPH)	LESS THAN 2000 PPM *
100 LL, &	Pb, LEACHABLE	LESS THAN 5 PPM
AVIATION FUEL	BENZENE, LEACHABLE	LESS THAN 1 PPM PER 300 CU. YDS. OF SOIL
DIESEL; JET FUEL;	PAINT FILTER	NO FREE LIQUIDS
NO'S 1,2,4	DRO (TPH)	LESS THAN 2000 PPM *
FUEL OIL	BENZENE, LEACHABLE	LESS THAN 1 PPM PER 300 CU. YDS. OF SOIL
CRUDE OIL; LUB. OIL;	PAINT FILTER	NO FREE LIQUIDS
NO. 6 FUEL OIL	TRPH (TPH)	LESS THAN 2000 PPM *
UNKNOWN	PAINT FILTER	NO FREE LIQUIDS
PETROLEUM	GRO&DRO (TPH)	LESS THAN 2000 PPM COMBINED *
	Pb, LEACHABLE	LESS THAN 5 PPM
	Cd, LEACHABLE	LESS THAN 1 PPM
	CYANIDE, REACTIVE	NON-REACTIVE
	SULFIDE, REACTIVE	NON-REACTIVE
WASTE OIL	PAINT FILTER	NO FREE LIQUIDS
	TRPH (TPH)	LESS THAN 2000 PPM *
	Pb, LEACHABLE	LESS THAN 5 PPM
	Cd, LEACHABLE	LESS THAN 1 PPM
	CYANIDE, REACTIVE	NON-REACTIVE
	SULFIDE, REACTIVE	NON-REACTIVE

* – Less than 2000 ppm TPH for burial or daily cover; higher concentrations may be approved on a case-by-case basis for small quantities(<100 cu. yds.) spill situations, fine grained soils, or thinspreading within the lined landfill area.

C. **ANALYTICAL METHODS AND DISCUSSION OF REQUIREMENTS:**

1. GRO - Total petroleum hydrocarbons by the Wisconsin DNR Modified GRO Method for Gasoline.

2. DRO - Total petroleum hydrocarbons by the Wisconsin DNR Modified DRO Method for diesel fuel.

3. TRPH - Total recoverable petroleum hydrocarbons by Wisconsin DNR Modified EPA Draft Method 9073.

4. Leachable lead (Pb) by the TCLP method. Total Pb may be run first, and if the total is less than 20x the hazardous limit (5 ppm), TCLP for Pb is not required.

5. Leachable cadmium (Cd) by TCLP method. Total Cd may be run first, and if the total is less than the hazardous limit, TCLP for Cd is not required.

6. Reactive cyanide for waste or unknown petroleum products at a facility which has purchased cyanide or performed metal finishing such as heat treating, stripping, or plating.

7. Reactive sulfide for waste or unknown petroleum products at a facility which has purchased metal cutting oils or performed metal finishing.

8. Meeting the minimum testing required by the Brown County Solid Waste Department does not relieve the generators of the responsibility to determine whether their waste is hazardous. Section B provides minimum testing requirements based on general knowledge of likely contaminants. Additional testing is needed if, by knowledge, the soil may contain other hazardous constituents.

If you have any questions or comment concerning this issue please feel free to contact me at (414)448-4475.

Sincerely,

Timothy C. Gehring
Landfill Specialist

TCG:nl

PCSLMT.REQ

BROWN COUNTY SOLID WASTE DEPARTMENT
APPLICATION FOR DISPOSAL OF PETROLEUM CONTAMINATED SOILS
BROWN COUNTY LANDFILL

Application Date: _____

Instructions: For Brown County to determine whether it can dispose of a Petroleum Contaminated Soil at its landfill, it must obtain the information requested in this application. The County reserves the right to request more information if needed to make a determination. Retain a copy of this form for your records and send the original and the approved DNR form 4400-120 to:

Brown County Solid Waste Department
Attention: Timothy C. Gehring
305 E. Walnut Street, Room 315
P. O. Box 23600
Green Bay, WI 54305-3600

Written notification of approval or rejection will be provided.

I. General Information

A. Site Owner _____

_____

Site Owner Address _____

_____

_____

B. Owner Contact Personnel:

General:

_____ _____
(Name) (Telephone)

_____
(Title)

Technical:

_____ _____
(Name) (Telephone)

_____
(Title)

C. Mailing Address: (If Different Than Item A):

_____

_____

_____

D. Consultant(s) Name and Address: _____

_____

_____

E. Name and address form 4400-120 should be sent to:____

_____

II. Disposal Information

A. Soil Characteristics and Delivery

1. Odor

_____ None _____ Mild _____ Strong

2. Hauler That Will Deliver Waste:

Name _____

Address _____

Telephone _____

3. Quantity _____

4. Approximate Date of Disposal _____

B. Analytical Laboratory

Name _____

Address _____

Telephone _____

Wisconsin Lab Cert. No. _____

C. Date of Latest Analysis _____

D. Include the current laboratory analysis results for a representative sample of each 300 cu. yards of the waste that will be delivered for disposal. Have the laboratory manager certify that all analytical data reported were obtained under his/her direction and supervision using sample preparation and analytical methods and analytical equipment specified or approved in the most "Test Methods for the Evaluation of Solid Waste Physical/Chemical Methods," SW-846, USEPA Office of Solid Waste, and that the laboratory follows a quality assurance/quality control program.

III. Fee and Signature

A. Project Billing Information

How will bill be paid? Cash _____

Account _____

If by account, provide account name and number:

_____

_____

If you wish to set up an account, contact the Brown County Solid Waste Department for a credit application form.

B. Application Fee

A check in the amount of $100.00 is submitted along with this form for review of the request for disposal. Make check payable to "Brown County Solid Waste Department". Please note that an additional fee may be required if the nature of your special waste (either quantity or characteristics) is such that an extensive review is required.

C. I hereby certify that all information submitted in this and the attached documents is complete and accurate and that all known or suspected hazards have been disclosed.

_____ _____
(Name) (Title)

_____ _____
(Corporate Authority Signature) (Date)

petrocon.app
Form#2.dis

SOLID WASTE DEPARTMENT

Brown County

305 EAST WALNUT
P.O. BOX 23600
GREEN BAY, WISCONSIN 54305-3600

CHARLES J. LARSCHEID
DIRECTOR

PHONE (414) 448-4475 FAX (414) 448-4036

Date _____

SOLID WASTE DEPT. CREDIT APPLICATION/AGREEMENT

This application must be completed and returned within five days. No application will be processed without the signature of authorized individuals.

1. Legal Name for Billing _____
Phone Number

_____
Name

_____
Street

_____
City State Zip

2. Number of Years in This Business:_____

3. Ownership:____Proprietorship
____Partnership
____Corporation

Company's Legal Name
_____
_____

4. Owner's Name_____

and Address_____

_____

5. Name and Address of All Partners, if Partnership or Registered Agent, if Corporation.

_____
Name

_____
Address

_____
Name

_____
Address

6. Bank Reference: (Give exact street & city address.)

A. Name_____ Address_____
_____

B. Name_____ Address_____
_____

C. Name_____ Address_____
_____

PAYMENT POLICY AND TERMS:

Credit will be extended only to accounts which have a good credit rating as determined by the County. Brown County reserves the right to withdraw credit privileges at any time. Statements will be sent once a month covering the charges and payment incurred during the previous month. PLEASE EITHER INCLUDE THE TEAR STRIP FROM THE BOTTOM OF YOUR STATEMENT ALONG WITH YOUR PAYMENT OR WRITE YOUR ACCOUNT NUMBER ON YOUR CHECK IN ORDER TO INSURE PROPER CREDIT. A 1% per month finance charge will be levied to accounts delinquent over 30 days and landfill use privileges will be suspended. The 60 day count begins with the last day of the month preceding the statement date. The 1% per month finance charge amounts to an annual percentage rate of 12% applied to the previous balance.

Name_____

Address_____

_____
(Authorized Signature)

crdtapp.93
Form#2.dis

APPENDIX E

Well Construction Reports

WISCONSIN GEOLOGICAL and NATURAL HISTORY SURVEY
1117 Mineral Point Road • Madison, WI 53705

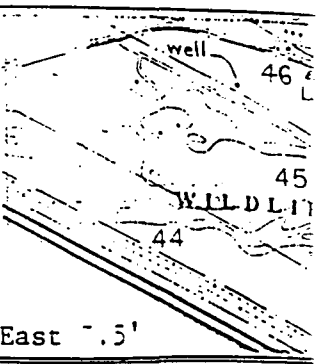
Geologic Log No. N132-Bn-306

Well name: Bay Beach Wildlife Sanctuary Well #3

County: Brown

Owner... City of Green Bay
Address.. 100 N. Jefferson St.
Green Bay, WI 54301
Driller.. Retzlaff Well Drilling, Inc.
Engineer.

Completed... 11/14/83
Field check. MAM-WG&NHS
Altitude.... 583' ETM
Use..... nature center
Static w.l.. 83'
Spec. cap... 0.32 GPM/ft.



Location: Private Claim 46,T24N,R21E

Quad. Green Bay East 7.5'

Drill Hole						Casing & Liner Pipe or Curbing							
Dia.	from	to	Dia.	from	to	Dia.	Wgt.& Kind	from	to	Dia.	Wgt.& Kind	from	to
8"	0	155'				6"	V.S.P. 18.97 per ft. bk. new P.E. ASTM-A-120 1200# P.S.I.	+1'	155'				
6"	155'	300'											

Drilling method: rotary
Samples from 0 to 300' Rec'd: 12/11/83

Grout	from	to
clay slurry	0	155

Studied by: Tom Hanson (0-160')
Kathleen Massie (160'-300')

Published: 6/12/89

Formations: Beach Sediment?, Kewaunee Formation, Sinnipee Group (Galena, Decorah and Platteville Formations).

Remarks: Well tested for 1 hour at 60 GPM with 187 feet of drawdown.
DNR Permanent Well #75508.
Well is located on the north side of the Nature Center building.
Well is located in Private Claim 46 just north of Private Claim 45 about 2,400' WNW of Danz Ave.

LOG OF WELL:

	Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
BEACH	0-5		Sand	Mxd dk bn	Fn/VC	Fn/VC	Much gravel(Gran/M peb). Little silt. Trace clay,soil,organ
	5-10		"	"	"	"	Much gravel(Gran/M peb),silt. Little clay. Trace soil,organ
	10-15		"	"	M	"	Same.
	15-20		"	"	"	"	"
	20-25		Silt	"	—	—	Calcus. Mch gravel(Gran/M peb),sand. Lt clay. Tr soil,orgar
30'	25-30		Sand	"	M	Fn/VC	Much gravel(Gran/M peb),silt. Little clay. Trace soil,organ
KEWAUNEE FORMATION	30-35		Clay	Brown	—	—	Calcareous. Much silt. Trace gravel(Gran/F peb),sand.
	35-40		"	"	—	—	Calcareous. Much silt. Trace sand.
	40-45		"	"	—	—	Calcareous. Much silt. Trace granules,sand.
	45-50		"	"	—	—	Calcareous. Much silt. Trace gravel(Gran/F peb),sand.
	50-55		"	"	—	—	Same.
	55-60		"	"	—	—	Calcareous. Much silt. Trace sand.
	60-65		"	"	—	—	Same.
	65-70		"	"	—	—	"
	70-75		"	"	—	—	"
	75-80		"	Red brown	—	—	Calcareous. Much silt. Trace granules,sand.
	80-85		"	"	—	—	Calcareous. Much silt. Trace sand.
	85-90		"	"	—	—	Same.
	90-95		"	"	—	—	Calcareous. Much silt. Trace gravel(Gran/F peb),sand.
	95-100		"	"	—	—	Calcareous. Much silt. Trace sand.
	100-105		"	"	—	—	Same.
	105-110		"	"	—	—	Calcareous. Much silt. Trace granules,sand.
	110-115		"	"	—	—	Same.
	115-120		"	"	—	—	Calcareous. Much silt. Trace gravel(Gran/F peb),sand.
	120-125		"	"	—	—	Same.
	125-130		"	"	—	—	"
	130-135		"	"	—	—	"
	135-140		"	"	—	—	Calcareous. Much silt. Trace sand.
	140-145		"	"	—	—	Calcareous. Much silt. Trace gravel(Gran/F peb),sand.
	145-150		"	"	—	—	Same.
	150-155		"	"	—	—	"
130'	155-160		"	"	—	—	"

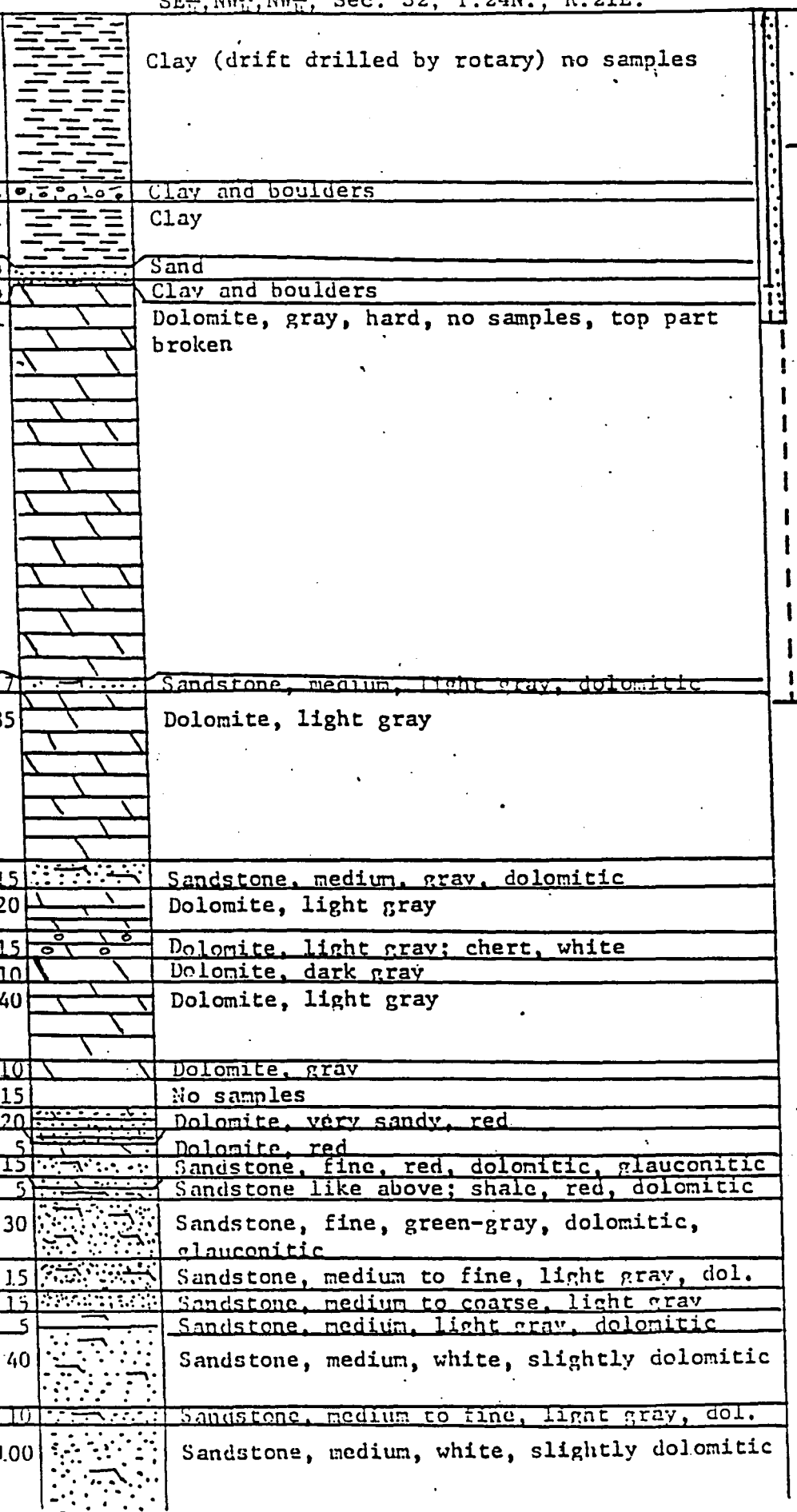
Geologic Log No. N132-Bn-306

Well name: Bay Beach Wildlife Sanctuary Well #3

Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
160-165		Dolomite	Dk bn gray	M	Fn/M	Ltl bl gy to gy sh matx. Tr pyr,fos frags,bk lath fos,dk bn
165-170		"	Gray brown	"	"	Same plus trace cvd rd br clay. sckla,calc,free qtz snd.
170-175		"	"	"	"	Same. fos,dk bn sckla,free qtz snd,dk gy stng from pyr.
175-180		"	"	"	"	Ltl bl gy & gy bn sh matx. Tr pyr,fos frags,wh fos molds,bk lath
180-185		"	"	"	"	Same but trace shale matrix.
185-190		"	"	"	"	Tr sh matx,calc,pyr,chalc,fos frags,bk lath fos,dk bn sckla,free
190-195		"	"	"	"	Same. qtz snd,dk gy stng from pyr,long tab clr gyp xls.
195-200		"	"	"	"	"
200-205		"	"	"	"	Mch dk gn gy sh matx. Many fos frags. Tr pyr,chalc,dk gy stng
205-210		"	Dark gray	"	"	Same but even more fos frags. from pyr,long tab clr gyp xls (3
210-215		"	Gray brown	"	"	Same but slgtly fewer fos frags. X 30 divisions),free qtz snd,
215-220		"	"	"	"	Same. bk lath fos.
220-225		"	"	"	"	"
225-230		"	"	"	"	"
230-235		"	"	"	"	"
235-240		"	"	"	"	"
240-245		"	"	"	"	"
245-250		"	"	"	"	"
250-255		"	"	"	"	"
255-260		"	"	"	"	Same plus trace caved gravel & clay.
260-265		"	Dk gn gy	"	"	Mch dk gn gy sh/sh matx. Many fos frags. Tr pyr,dk gy stng from
265-270		"	V dk gray	"	"	Same. pyr,bk lath fos,long tab gyp xls as abv but most this
270-275		"	"	"	"	" far.
275-280		"	"	"	"	"
280-285		"	Pale brown	"	"	Tr dk bn sh prtg,bk & dk bn lath fos,pyr,dk gy stng from pyr,wh
285-290		"	"	"	"	Same plus trace fossil fragments. cht.
290-295		"	"	"	"	Same.
295-300		"	"	"	"	"

END OF LOG

PARLIN AVENUE WELL, GREEN BAY, WIS.
1618 Parlin Ave. Near G. B. and W. tracks
Layne-Northwest Co., Contractors, 1929 Elevation = 593.5'
Samples examined by F. T. Thwaites, Nos. 83264-83356D
SE¼, NW¼, NW¼, Sec. 32, T.24N., R.21E.



	0-84	84	Clay (drift drilled by rotary) no samples
	84-92	8	Clay and boulders
	92-124	32	Clay
	124-128	4	Sand
132	128-132	4	Clay and boulders
	132-333	201	Dolomite, gray, hard, no samples, top part broken
201	333-340	7	Sandstone, medium, light gray, dolomitic
	340-425	85	Dolomite, light gray
	425-440	15	Sandstone, medium, gray, dolomitic
	440-460	20	Dolomite, light gray
	460-475	15	Dolomite, light gray; chert, white
	475-485	10	Dolomite, dark gray
	485-525	40	Dolomite, light gray
202	525-535	10	Dolomite, gray
	535-550	15	No samples
	550-570	20	Dolomite, very sandy, red
40	570-575	5	Dolomite, red
	575-590	15	Sandstone, fine, red, dolomitic, glauconitic
	590-595	5	Sandstone like above; shale, red, dolomitic
	595-625	30	Sandstone, fine, green-gray, dolomitic, glauconitic
	625-640	15	Sandstone, medium to fine, light gray, dol.
	640-655	15	Sandstone, medium to coarse, light gray
	655-660	5	Sandstone, medium, light gray, dolomitic
	660-700	40	Sandstone, medium, white, slightly dolomitic
135	700-710	10	Sandstone, medium to fine, light gray, dol.
	710-810	100	Sandstone, medium, white, slightly dolomitic

Log No. Bn-2

	810-820	10		Sandstone, medium, light gray, dolomitic
	820-855	30		Sandstone, medium, light gray
	855-895	40		Sandstone, medium to coarse, white to very light pink
	895-945	50		Sandstone, medium to coarse, white
246	945-956	11		Sandstone, coarse to medium, light pink

956'

Drawing corrected, Feb., 1943 from information given by Layne-Northwest Co.
Shot with 10 50 lb. shots between 650 and 925
Tested at 800 g.p.m. specific capacity = 4.0 g.p.m.

APPENDIX F

Detailed Cost Summaries for Biotreatment Cells

ALTERNATIVE 4: SOIL EXCAVATION WITH ON SITE ABOVEGROUND BIOTREATMENT

	ESTIMATED COST	
1.0 SOIL EXCAVATION AND BACKFILLING	**1 YEAR**	**2 YEARS**
Lab Services to Document Excavation Conditions		
DRO Samples (10 @ $60/test)	$600 -	$600
Microbial Enumeration & Nutrients (4 tests @ 190/test)	$760 -	$760
Soil Excavation/Transportation (500 cyd @ $4/cyd)	$2,000 -	$2,000
Excavation Backfilling (500 cyd @ $3/cyd)	$1,500 -	$1,500
Sump Installations (2 @ $100)	$200 -	$200
Contingency (15%)	$759 -	$759
SUBTOTAL 1.0 EST. COST	$5,819 -	$5,819
2.0 PILOT TEST BIOTREATMENT CELLS FOR 60 YD OF SOIL (See Separate Breakdown)	$16,000 -	$16,000
3.0 BIOTREATMENT CELL(S)		
Liner for Base (4000 sqft @ $0.60/sqft)	$2,400 -	$2,400
4" Flexible Vacuum Piping (1200ft @ $0.40/ft)	$480 -	$480
2" Water Supply Manifold (600 ft @ $1/ft)	$600 -	$600
Cover (4250 sqft @ $0.55/sqft)	$2,338 -	$2,338
Electrical Controls (one time cost)	$4,000 -	$4,000
Vacuum Blower (one time cost)	$3,500 -	$3,500
Nutrients (manure)	$500 -	$500
Transport Bulking Agent (Manure & wood chips)	$750 -	$750
Soil Processing (Screening & Mixing) (750 cyd @ $1.50/yd)	$1,125 -	$1,125
Cell Construction - Labor and Equipment (750 yd @ $1.50/yd)	$1,125 -	$1,125
System Monitoring and Operation:		
Vapor Testing (Benzene/PVOC, 5 tests)	$375 -	$750
Soil Oil/Grease Testing ($50/test)	$400 -	$800
Soil DRO Testing	$360 -	$720
Soil PVOC testing	$300 -	$600
Recirculation Water Testing	$250 -	$500
Bacterial Enumeration & Nutrient Testing	$750 -	$1,500
Electrical (12 months @$100)	$1,200 -	$2,400
Contingency (15%)	$3,068 -	$3,613
SUBTOTAL 3.0 EST. COST	$23,520 -	$27,701
4.0 CONSULTING SERVICES		
Plans and Construction Specifications	$3,500 -	$3,500
Construction Documentation (1 week @ $1000/week)	$1,000 -	$1,000
Construction Documentation Report	$1,500 -	$1,500
Remediation Documentation and Field Sampling	$3,000 -	$6,000
Project Management and Annual Remediation Report	$6,000 -	$10,000
Contingency (10%)	$1,500 -	$2,200
SUBTOTAL 4.0 EST. COST	$16,500 -	$24,200
TOTAL ESTIMATED COST	$61,839 -	$73,720

TEST BIOTREATMENT CELLS FOR 60 YD OF SOIL

	ESTIMATED COST
Liner for Base (600 sqft @ $0.60/sqft)	$360
4" Flexible Plastic Manifold (60 ft @ $0.40/ft)	$24
2" Water Supply Manifold (60 ft @ $1/ft)	$60
Cover (700 sqft @ $0.55/sqft)	$385
Equipment Bldg and Electrical Controls	$1,000
Vacuum Blower Rental	$500
Holding Tank and Pump	$1,000
Nutrients	$200
Bulking Agent (wood chips + Manure)	$300
Soil Processing (Mixing & Screening)	$200
Cell Construction - Labor and Equipment	$1,000
Consulting Services:	
Plans and Construction Specifications	$1,000
Construction Documentation	$800
Remediation Documentation and Performance Monitoring	$1,500
Project Management and Remediation Report	$4,000
System Monitoring and Operation:	
Vapor Testing (Benzene/PVOC tests, 8 tests)	$600
Soil Oil/Grease ($50/test)	$450
Soil DRO Testing	$360
Soil VOC testing	$0
Recirculation Water Testing	$0
Microbial Enumeration & Nutrient Testing	$250
Electrical (6 months @$100/mo)	$600
Contingency (10%)	$1,459
TOTAL EST. COST	$16,048

COST-BIOTESTCELL.W20

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

WISCONSIN
DEPT. OF NATURAL RESOURCES

Bruce Braun
Acting Secretary

Lake Michigan District Headquarters
1125 N. Military Avenue
P.O. Box 10448
Green Bay, Wisconsin 54307-0448
TELEPHONE: (414)492-5921
TELEFAX: (414)492-5859

January 21, 1993

COPY

James River Corporation
Bob Overly
500 Day Street
Green Bay, WI 54305

RE: Acknowledgment of Receipt.
ERRP Case 05-00372; James River - Train Leak.
STS Project # 19784XF

Dear Mr. Overly:

The Department has received the *Work Plan for Subsurface Site Assessment* prepared by STS Consultants, LTD.

Currently, no project manager has been assigned to this case for oversight based on the priority ranking and Departmental caseload. This letter will serve as your "Notice to Proceed" with the investigation of this site. Please be aware that you are required to comply with all applicable statutes and administrative rules including hazardous waste management and wastewater discharges.

If you have any questions regarding this matter, please call me at the number listed above.

Sincerely,

Wava K Quandt

Wava Kay Quandt
Environmental Specialist
Emergency and Remedial Response Program

cc: Roger Miller; STS Consultants, LTD; 1035 Kepler Drive; Green Bay, WI 54311

Printed on Recycled Paper

RECEIVED
JAN 19 1993
LMD SOLID WASTE

James River Corporation

Work Plan for Subsurface Site Assessment

Apparent Locomotive Release Areas
James River Green Bay Mill
Green Bay, Wisconsin

January 14, 1992

Ms. Wava Kay Quandt
Wisconsin Department of Natural Resources
Lake Michigan District Headquarters
1125 North Military Avenue
P.O. Box 10448
Green Bay, Wisconsin 54307-0448

Re: Work Plan for Subsurface Site Assessment of Apparent Locomotive Release Areas at the James River Green Bay Mill -- STS Project No. 19784XF

Dear Ms. Quandt:

On behalf of James River Corporation, STS Consultants, Ltd., (STS) is pleased to submit the attached Work Plan for conducting a subsurface site assessment of the two (2) apparent locomotive release areas at the James River Green Bay Mill located at 500 Day Street, Green Bay, Wisconsin. This Work Plan contains background information, a description of the hydrogeology in the vicinity of the site, and a description of the proposed exploration and laboratory testing program including sampling and analytical methods. Mr. Bruce Urben of the Wisconsin Department of Natural Resources (WDNR) reviewed the scope of work for this site assessment at the meeting with Bruce Robertson (James River) and Roger Miller (STS) at the WDNR Office on Ridge Road, Green Bay, Wisconsin, on October 20, 1992. Mr. Urben asked that soil samples exhibiting the greatest degree of petroleum impacts also be analyzed for polynuclear aromatic hydrocarbons (PAHs). Based on our discussion, two (2) soil samples were analyzed for PAHs.

Although the attached Work Plan is written in the future tense, field work was performed during the week of November 16, 1992. As discussed at the above meeting, the WDNR provided notice to proceed for the site assessment and did not require receipt of the Work Plan prior to field work. The Site Assessment Report will be submitted to the WDNR under separate cover.

We appreciate your review of this Work Plan. If you have any questions, please contact Roger Miller at (414) 468-1978.

Sincerely,

STS CONSULTANTS LTD.

Roger A. Miller

Roger A. Miller
Hydrogeologist

James A. Senger

James A. Senger, CPG
Principal Geologist

RAM/lmh

STS Consultants Ltd.
Consulting Engineers

1035 Kepler Drive
Green Bay, Wisconsin 54311
414.468.1978/Fax 414.468.3312

cc: Mr. Robert J. Overly
James River Corporation
Green Bay Mill
P.O. Box 23790
Green Bay, Wisconsin 54305-3790

Report

PROJECT

WORK PLAN FOR SUBSURFACE SITE ASSESSMENT OF APPARENT LOCOMOTIVE RELEASE AREAS JAMES RIVER MILL GREEN BAY, WISCONSIN

CLIENT

JAMES RIVER CORPORATION
GREEN BAY MILL
P.O. BOX 23790
GREEN BAY, WISCONSIN 54305-3790

Project No. 19784XF

Date JANUARY 1993

STS Consultants Ltd.
Consulting Engineers

1035 Kepler Drive
Green Bay, Wisconsin 54311
414.468.1978/Fax 414.468.3312

TABLE OF CONTENTS

		Page
1.0	**INTRODUCTION AND OBJECTIVES**	1
2.0	**BACKGROUND**	3
2.1	Regional Geology and Hydrogeology	4
3.0	**PROCEDURES**	6
3.1	Site Safety Plan	6
3.2	Locomotive Drip Pan Sampling and Analysis	6
3.3	Test Pits	8
3.4	Hand Augers	10
3.5	Laboratory Soil Analyses	10
3.6	Soil Classification	11
3.7	Surveying	11
3.8	Subsurface Site Assessment Report	11
3.9	Schedule for Subsurface Site Assessment	12
4.0	**FIELD QUALITY CONTROL**	13
4.1	Pre-Sampling Preparation	13
4.2	Sampling Documentation	13
4.3	Containers and Labeling	14
4.4	Quality Control	14
4.4.1	Sample Preservation	14
4.4.2	Decontamination Procedures	14
5.0	**REFERENCES**	15

LIST OF FIGURES

Figure 1	-	Site Location Diagram	2
Figure 2	-	Proposed Test Pit Location Diagram	9

LIST OF TABLES

Table 1	-	Summary of Proposed Sampling and Analyses	7

LIST OF APPENDICES

Appendix A - Soil Sampling Checklist
Soil Screening Summary Sheet
Chain of Custody Form

Appendix B - Well Construction Reports

WORK PLAN FOR SUBSURFACE SITE ASSESSMENT
APPARENT LOCOMOTIVE RELEASE AREAS
JAMES RIVER MILL
GREEN BAY, WISCONSIN

1.0 INTRODUCTION AND OBJECTIVES

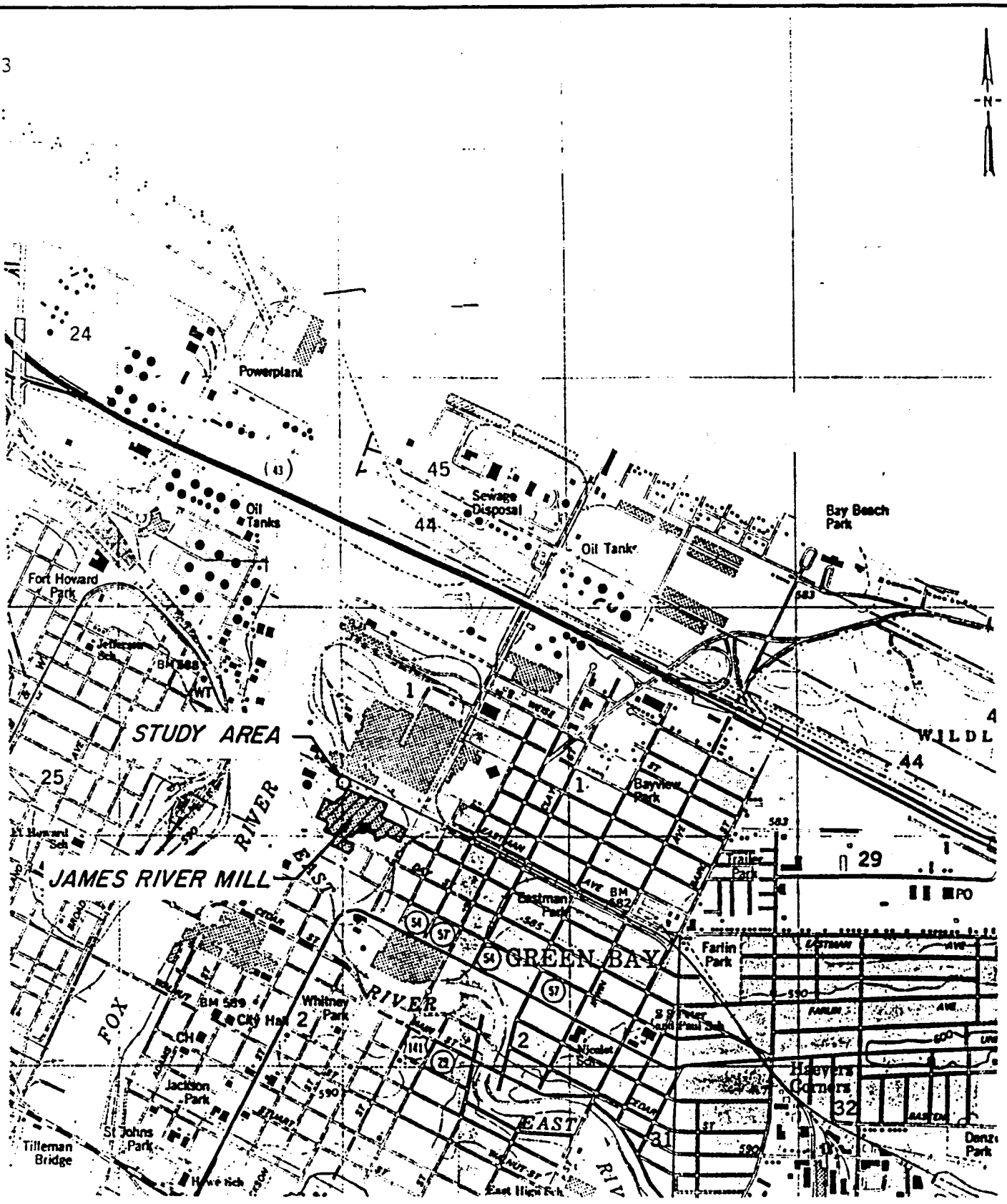
STS Consultants, Ltd., has been retained by James River Corporation to conduct a subsurface site assessment of apparent locomotive release areas at the James River Mill, 500 Day Street, Green Bay, Wisconsin (Figure 1). We propose to complete the subsurface site assessment of the two apparent locomotive release areas using test pits and hand augers to further define the extent of soil impacts. Test pits will be performed adjacent to the railroad tracks. Hand augers will be performed between the ties to evaluate soil conditions along the gravel rail bed. Because it is likely that organic and clayey glacial soils are present beneath the gravel rail bed in the project area, we do not anticipate significant downward migration of leaks from the switch locomotive. For this reason, we have not included groundwater monitoring in the scope of work for this project. The objectives of the subsurface site assessment are to:

1. Characterize the type and degree of petroleum contamination,

2. Define the lateral and vertical extent of petroleum impacts to enable the evaluation of remedial action alternatives, and

3. Recommend remedial action alternatives for impacted soil.

BRUNING 542200



MAP SOURCE: GREEN BAY EAST & GREEN BAY WEST, WIS. QUADRANGLES, BOTH DATED 1982.

STS Consultants Ltd.
Consulting Engineers

PROJECT/CLIENT

JAMES RIVER CORPORATION
GREEN BAY MILL
GREEN BAY, WI.

SITE LOCATION DIAGRAM

DRAWN BY	P.D.P.	8-26-92
CHECKED BY	PAM	9-11-92
APPROVED BY		
SCALE 1" = 2000'	FIGURE NO. 1	
STS DRAWING NO. 19784XF		

2.0 BACKGROUND

The subject property is located at 500 Day Street between Quincy Avenue and the Fox River in the City of Green Bay, Wisconsin, and is developed with a paper mill. A railroad yard which services the mill is located in the northwestern portion of the property. James River operates one diesel switch locomotive to transport freight on site. When not in use, the locomotive is stored on Track No. 5 located adjacent to the northwestern corner of the mill. James River personnel noted surface staining from apparent release(s) from the locomotive at two locations along Track No. 5 during rail maintenance operations last summer.

STS documented the decommissioning by removal of one 1,000-gallon diesel underground storage tank (UST) formerly located approximately 100 feet southwest of Track No. 5 (60 feet east of the northwest corner of the mill [Building No. 46] along the north wall). Approximately 90 yards of diesel-impacted soil were removed from the 12- by 24-foot excavation during tank removal operations on September 24 and 25, 1990. Impacted soil in the vicinity of the diesel tank was removed to the extent feasible and disposed of at the Brown County East Landfill. No volatile organic compounds (VOCs) were detected in a groundwater sample collected from the sump installed in the backfilled excavation. Results of the field and laboratory work was presented in the Underground Storage Tank Removal Documentation Report dated December 26, 1990.

James River notified the WDNR of the apparent surface releases of petroleum products. In a letter from the WDNR dated August 24, 1992, the WDNR requested that a Work Plan be prepared and a site investigation be performed at the apparent locomotive release location at the James River Green Bay Mill.

2.1 Regional Geology and Hydrogeology

Subsurface soils at the James River Green Bay Mill are primarily composed of silty clay glacial deposits (Need, 1983), although fill has been identified at the surface on site (Link, 1974). Based on field observations of the tank excavations, several feet of silty sandy fill and/or lacustrine deposits overlie the clayey glacial deposits. Based on STS drilling experience in the vicinity of the site, we estimate that approximately 100 feet of glacial deposits are present above the bedrock surface. On a cross-section of the Pleistocene Geology of Brown County, Need (1983) identified approximately 75 feet of clayey glacial deposits above the bedrock surface in the vicinity of the subject property. These deposits include stratified silty clay off-shore sediments and silty clay till (Kewaunee formation). Krohelski (1986) estimated the thickness of unconsolidated deposits in the vicinity of the site range from 100 to 120 feet.

Bedrock underlying glacial deposits on site has been identified as the Sinnipee Group which consists of Ordovician dolomite with some sandstone and shale. The Sinnipee Group has a thickness of approximately 125 feet under the subject property and is considered a confining bed for the deeper sandstone aquifer (Krohelski, 1986). Underlying the Sinnipee Group is approximately 600 feet of Cambrian sandstone (Krohelski, 1986). Industrial wells in downtown Green Bay derive most of their water from the deeper sandstone aquifer.

Copies of Well Construction Reports for private wells installed in the vicinity of the subject property were obtained from the Wisconsin Geological and Natural History Survey (WGNHS). The Well Construction Report for the municipal well installed on Farlin Avenue (adjacent to Farlin Park) identifies 132 feet of predominantly clayey glacial deposits overlying dolomite bedrock (Sinnipee Group). This well is located approximately one mile east-southwest of the site, is cased into the dolomite bedrock at a depth of 151 feet, and extends to a termination depth of 956 feet. According to the Green Bay Water Utility, this well is no longer in service. The

Well Construction Report for Bay Beach Wildlife Sanctuary Well No. 3, located approximately 1.75 miles east-northeast of the site, identifies 30 feet of beach deposits (sand and silt) overlying glacial clay extending to a depth of 160 feet. Dolomite bedrock (Sinnipee Group) was encountered at a depth of 160 feet. Copies of the above Well Construction Reports are provided in Appendix C.

Because the mill property is underlain by approximately 100 feet of clayey glacial deposits, the potential for downward migration of contaminants is limited. Groundwater likely flows west toward the Fox River across the site. Because horizontal hydraulic gradients in the vicinity of the site are low, it is likely that groundwater flows slowly across the site.

3.0 PROCEDURES

This section presents the exploration and laboratory testing program to complete the subsurface site assessment of the James River Bulk Plant property. The exploration and laboratory testing program will be performed in two phases. The proposed exploration and laboratory testing program is summarized on Table 1.

3.1 Site Safety Plan

Prior to the start of field work, STS will prepare a site specific health and safety plan for its own employees in accordance with OSHA regulations. The plan will provide guidance for STS field personnel as to potential wastes that may be encountered, personal protective equipment required, and local emergency resources.

3.2 Locomotive Drip Pan Sampling and Analysis

Prior to soil sample collection, we propose to submit one product sample from the locomotive drip pan for laboratory testing. A drip pan was installed on the locomotive to collect diesel fuel and possibly used oil leaks. Spills from the drip pan are suspected to have caused the surface staining observed on site. The purpose of the product testing is to characterize the type of petroleum product(s) present in the source material.

The product sample will be analyzed for diesel range organics (DRO), lead, and cadmium. If the laboratory interprets the product sample chromatogram to be characteristic of diesel fuel and not used oil, the test pit and hand auger soil samples will be analyzed for DRO. If the laboratory reports that the product sample contains diesel fuel and used oil, soil samples will be analyzed for DRO and a subset of soil samples will be analyzed for total recoverable petroleum hydrocarbon (TRPH).

TABLE 1

SUMMARY OF PROPOSED SAMPLING AND ANALYSES
APPARENT LOCOMOTIVE RELEASE AREAS
JAMES RIVER GREEN BAY MILL

Source Number/Type	Sample Number/Type	Analyses
1 LOCOMOTIVE DRIP PAN	1 Product	1 DRO, 1 Lead and Cadmium
8 TEST PITS	8 Subsurface Soil	8 DRO, 2 TRPH
6 HAND AUGERS	4 Subsurface Soil	4 DRO, 4 TRPH, *2 Lead and Cadmium, *2 VOC, *2 Flash Point, *2 Corrosivity, *2 TCLP Metals, and *2 PAH

NOTES:

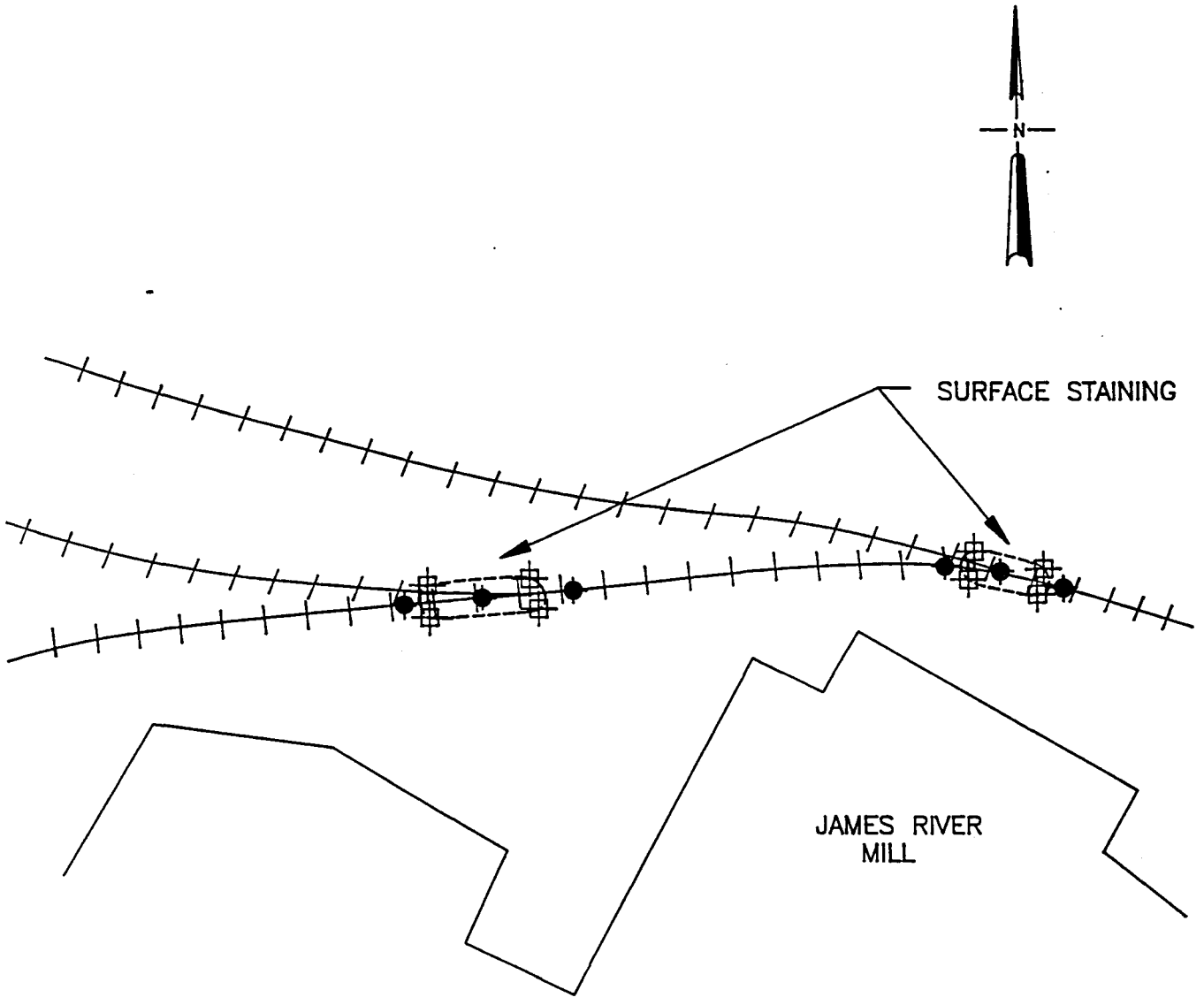
1) DRO = Diesel Range Organics (WDNR Modified DRO Method).
2) TRPH = Total Recoverable Petroleum Hydrocarbons (WDNR Modifed EPA Method 9073). TRPH tests will be performed if the product sample contains used oil. If used oil is not interpreted from the product sample chromatogram, only DRO will be analyzed in the test pit and hand auger soil samples.
3) VOC = Volatile Organic Compounds (EPA Method 8021).
4) * Soil sample exhibiting the greatest degree of petroleum impacts based on field observations from each locomotive storage area will be analyzed for these parameters. Samples may be collected from either test pits or hand augers.
5) If lead and cadmium are not detected in soil samples above their respective Toxic Characteristic Leach Procedure (TCLP) limits, TCLP metals testing will not be performed.

3.3 Test Pits

As depicted on Figure 2, eight (8) backhoe test pits are proposed to provide visual and analytic information to further define the extent of petroleum impacts. Four (4) test pits are proposed to be excavated at each apparent locomotive release location. A total of four test pits will be excavated north of Track No. 5 and four (4) test pits will be excavated south of Track No. 5.

Test pits will be excavated with general dimensions of 10 feet in length by 5 feet in depth (to below the water table). Soil samples will be collected at 2-foot intervals for field screening and classification to the termination depth of the test pits. Following completion, each test pit will be backfilled with material originally removed from the excavation.

Recovered soil samples will be screened in the field using HNU Model 101 photoionization detector (PID) (11.7 eV lamp) or a Sensidyne flame ionization detector (FID) equipped with a hydrogen-source flame. Both meters are particularly useful for detecting aromatic VOCs in air. Soil samples for PID/FID screening will be collected from excavated backhoe buckets and placed in clean, quart-size glass jars with metal screw-on lids. After one-half of the jar is filled with soil, a sheet of aluminum foil will be placed over the open end of the jar and the lid securely closed. Headspace screening will be performed after allowing soil samples to reach a temperature between 50°F and 70°F. The PID/FID screening of recovered soil samples will be accomplished by shaking the soil sample jar for several seconds, which increases the surface area of soil particles exposed to air inside the jar, followed by inserting the tip of the PID/FID probe a few inches into the jar through the aluminum foil cover. The highest value read off the PID/FID during the first few seconds after inserting the probe tip will be recorded as the PID/FID reading for the soil sample.



LEGEND

- PROPOSED TEST PIT
- PROPOSED HAND AUGER

STS Consultants Ltd.
Consulting Engineers

PROJECT/CLIENT

JAMES RIVER CORPORATION
GREEN BAY MILL
GREEN BAY, WISCONSIN

PROPOSED TEST PIT AND HAND AUGER
LOCATION DIAGRAM

DRAWN BY	J.R.L.	11/24/92
CHECKED BY	R.A.M.	11/24/92
APPROVED BY		
SCALE N.T.S.	FIGURE NO. 2	
STS DRAWING NO. 19784XF		

3.4 Hand Augers

We propose to perform three (3) hand auger borings between the railroad ties in each of the apparent release areas. Soil samples will be collected at 2-foot intervals to an approximate termination depth of four (4) feet. The depth of the hand augers may be increased in an attempt to determine the vertical extent of petroleum impacts observed in the field. Soil samples will be screened using the PID/FID as described in Section 3.3 - Test Pits.

One (1) soil sample from each hand auger above the water table will be collected for possible laboratory analyses. A total of three soil samples from the hand augers will be submitted for laboratory analysis. Soil samples for laboratory analysis will be collected in appropriate containers and preserved as outlined in WDNR LUST Analytical Guidance (Publication SW-130, April 1992) for testing as described in Section 3.5 - Laboratory Soil Analyses.

3.5 Laboratory Soil Analyses

We propose to submit 12 soil samples for DRO, 2 soil samples for lead and cadmium, 2 soil samples for VOCs, 2 soil samples for flash point, 2 soil samples for corrsivity, 2 soil samples for PAHs, and 2 soil samples for toxic characteristic leach procedure (TCLP) metals analyses. Two (2) of the soil samples will also be analyzed for TRPH if the product sample from the locomotive drip pan contains used oil. The DRO, TRPH, and VOC tests will assist in identifying the type and extent of petroleum contamination. Lead and cadmium tests serve for characterization of potential used oil impacts. Flash point, corrosivity, and TCLP metals are proposed to identify whether soils may be considered characteristic hazardous waste. If landfilling the soils is

desired, additional testing may be required by the landfill. Such testing may include TCLP volatiles and semi-volatiles analyses. Soil samples will be collected in appropriate containers and preserved as outlined in WDNR Leaking Underground Storage Tank (LUST) Analytical Guidance (Publication SW-130, April 1992).

3.6 Soil Classification - Soil samples will be returned to the STS laboratory in Green Bay, Wisconsin, for visual classification according to the Unified Soil Classification System (ASTM D 2488). Soil texture, depth, moisture content, odor, color, and apparent origin will be documented on the test pit and hand auger logs.

3.7 Surveying

The locations and elevations of the test pits and hand auger borings will be surveyed by the STS Environmental Technician. Elevations will be measured relative to an arbitrary site datum. The survey data will be used to prepare the site plan depicting the two apparent locomotive release areas relative to the northwest corner of the mill.

3.8 Subsurface Site Assessment Report

The Subsurface Site Assessment Report will present the field and laboratory results for the scope of work described above. The report will include the site base map, contaminant plume map, test pit logs, results of field and laboratory testing, and an evaluation of remedial action alternatives for petroleum-impacted soil.

3.9 Schedule for Subsurface Site Assessment

Test pits and hand augers were performed during the week of November 16, 1992. Based on our meeting with the WDNR on October 20, 1992, it was not necessary to submit this Work Plan prior to performing field work. A report will be prepared after receiving the laboratory analytical results.

4.0 FIELD QUALITY CONTROL

To adequately characterize site conditions at the time of sampling, sources of error or sampling bias will be limited to the extent possible. STS sample quality control procedures for reducing the potential of sample alternation during collection and transport to the state certified laboratory are given below and in the attached STS Standard Groundwater Sampling Procedures (Appendix A).

4.1 Pre-Sampling Preparation

STS will review the pre-sampling and media specific check lists (Appendix B) prior to field work. These check lists will be reviewed to ensure that the necessary equipment is available and operational, and that field personnel will be prepared to use the appropriate sample preservation and handling procedures for the parameters of interest.

4.2 Sampling Documentation

The following procedures will be followed for documenting site observations, in-field measurements, and transfer of sample custody to the certified laboratory:

1. General site observations will be recorded in a bound field book. After arriving at the site, possible sources of contamination of the vicinity of the sampling points will be noted.

2. In-field measurements will be recorded on media-specific data summary sheets (Appendix B).

3. Chain of Custody forms (Appendix B) will be completed for samples submitted to the certified laboratory for testing. Each sample shall be listed separately on the form. If possible, the samples will be delivered to the laboratory the day the samples are collected. Laboratory personnel will sign the Chain of Custody form to provide a written record of the sample arrival and to confirm proper holding times.

4.3 Containers and Labeling

Labels will be affixed to sample containers in the field. Containers and labels will be provided by the analytical laboratory for both water and soil samples. Labels will contain the following information: sample or well number, sample depth, date, STS project number, requested analysis, and method of preservation, if any.

4.4 Quality Control

4.4.1 Sample Preservation - All soil samples collected for this project will be placed in an ice-filled cooler for shipment to the analytical laboratory.

4.4.2 Decontamination Procedures - The hand auger and subsample devices will be rinsed and washed between the collection of each split-spoon sample. A phosphate and additive-free soap and clean potable water will be used for washing all equipment.

5.0 REFERENCES

Krohelski, J.T., 1986, Hydrogeology and Ground-Water Use and Quality, Brown County, Wisconsin: USGS and University of Wisconsin - Extension Geological and Natural History Survey Information Circular No. 57, Madison, Wisconsin, 42 p.

Link, E.G., 1974, Soil Survey of Brown County, Wisconsin: USDA Soil Conservation Service, Washington, D.C., 119 p.

Need, E.A., 1985, Pleistocene Geology of Brown County, Wisconsin: USGS and University of Wisconsin - Extension Geological and Natural History Survey Information Circular No. 48, Madison, Wisconsin, 19 p.

APPENDIX A

Soil Sampling Checklist
Soil Screening Summary Sheet
Chain of Custody Form

SOIL SAMPLING CHECKLIST

_____ 1. Subsampling devices.

_____ 2. HNU meter and calibration standard and/or FID.

_____ 3. Heavy-duty aluminum foil.

_____ 4. Quart-sized glass jars.

_____ 5. Four ounce glass jars with screw-on, Teflon-coated septum.

_____ 6. Ziploc brand storage bags.

_____ 7. Two (2) 5-gallon plastic buckets.

_____ 8. Non-phosphate detergent.

_____ 9. Plastic tarps.

_____ 10. Soil sampling instruction forms.

_____ 11. Preservatives, if required.

_____ 12. Site safety equipment.

_____ 13. Soil screening summary forms.

_____ 14. Field instrument calibration logs.

SOIL SCREENING SUMMARY

CLIENT _____ DATE _____

LOCATION _____ STS JOB # _____

INSTRUMENT I.D. # _____ PROBE ID # _____

CALIBRATION DATE _____ LAMP _____ eV SPAN SETTING _____

FACTORY _____ CAL. GAS _____

FIELD _____ TIME _____ CAL. GAS _____

BACKGROUND READING (PRE) _____ (POST) _____

BACKGROUND READING LOCATION _____

SAMPLE READING LOCATION _____

NOTE POSSIBLE INTERFERENCES _____

WEATHER CONDITIONS _____ AMBIENT TEMP. _____ °F

SAMPLE EQUILIBRATION TEMP. _____ °F

SOIL BORING ID _____ OTHER _____

SAMPLE NO.	SAMPLING DEPTH	EQUIL. TIME (SEC)	HIGH STABLE READING	PEAK READING	TIME TO STABLE READING (SEC)	INT. SCALE	NOTES: *

COMMENTS: _____

_____

* -INDICATE IF SUBSAMPLE OR DUPLIC
WAS SENT FOR LAB ANALYSIS.

-RELATIVE SOIL MOISTURE

-SOIL TYPE

-ODOR

OPERATOR: REVIEWED BY

STS CHAIN OF CUSTODY RECORD

NO. 1747 RECORD NO._____ THROUGH_____

Contact person_____
Phone No._____
Project No._____ PO No._____
STS Office_____

SPECIAL HANDLING REQUEST

☐ RUSH ☐ VERBAL ☐ OTHER

Laboratory_____
Contact Person_____
Phone No._____
Results Due_____

Sample I D	Date	Time	Grab	Composite	No. of Containers	Sample Type (Water, soil air, sludge, etc.)	Preservation Y	Preservation N	Field Data PID/FID Ambient	Field Data PID/FID Sample	Field Data PH	Field Data Spec. Cond.	Analysis Request	Comments on Samples (Include Major Contaminants)

Collected by :	Date	Time	Delivery by :	Date	Time
Received by :	Date	Time	Relinquished by :	Date	Time
Received by :	Date	Time	Relinquished by :	Date	Time
Received by :	Date	Time	Relinquished by :	Date	Time
Received for lab by:	Date	Time	Relinquished by :	Date	Time

Laboratory Comments Only : Seals Intact Upon Receipt ☐YES ☐NO ☐N/A

Final disposition :

Comments (Weather Conditions, Precautions, Hazards) :

Distribution: Original and Green - Laboratory Yellow - As needed Pink - Transporter Goldenrod - STS Project File

APPENDIX B

Well Construction Reports

ISCONSIN GEOLOGICAL and NATURAL HISTORY SURVEY
517 Mineral Point Road • Madison, WI 53705

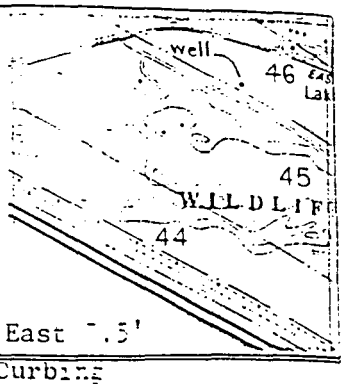
Geologic Log No. M132-Bn-306

Well name: Bay Beach Wildlife Sanctuary Well #3

County: Brown

Completed... 11/14/83
Field check. MAM-WG&NHS
Altitude.... 583' ETM
Use..... nature center
Static w.l.. 83'
Spec. cap... 0.32 GPM/ft.

Owner.... City of Green Bay
Address.. 100 N. Jefferson St.
Green Bay, WI 54301
Driller.. Retzlaff Well Drilling, Inc.
Engineer.



Location: Private Claim 46,T24N,R21E

Quad. Green Bay East 7.5'

Drill Hole						Casing & Liner Pipe or Curbing							
Dia.	from	to	Dia.	from	to	Dia.	Wgt.& Kind	from	to	Dia.	Wgt.& Kind	from	to
8"	0	155'				6"	V.S.P. 18.97 per ft. bk. new P.E. ASTM-A-120 1200# P.S.I.	+1'	155'				
6"	155'	300'											

Grout	from	to
clay slurry	0	155'

Drilling method: rotary
Samples from 0 to 300' Rec'd: 12/11/83

Studied by: Tom Hanson (0-160')
Kathleen Massie (160'-300')

Published: 6/12/89

Formations: Beach Sediment?, Kewaunee Formation, Sinnipee Group (Galena, Decorah and Platteville Formations).

Remarks: Well tested for 1 hour at 60 GPM with 187 feet of drawdown.
DNR Permanent Well #75508.
Well is located on the north side of the Nature Center building.
Well is located in Private Claim 46 just north of Private Claim 45 about 2,400' WNW of Danz Ave.

LOG OF WELL:

	Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
BEACH	0-5		Sand	Mxd dk bn	Fn/VC	Fn/VC	Much gravel(Gran/M peb). Little silt. Trace clay,soil,organics.
	5-10		"	"	"	"	Much gravel(Gran/M peb),silt. Little clay. Trace soil,organics
	10-15		"	"	M	"	Same.
	15-20		"	"	"	"	"
	20-25		Silt	"	—	—	Calcus. Mch gravel(Gran/M peb),sand. Lit clay. Tr soil,organic
30'	25-30		Sand	"	M	Fn/VC	Much gravel(Gran/M peb),silt. Little clay. Trace soil,organics
KEWAUNEE FORMATION	30-35		Clay	Brown	—	—	Calcareous. Much silt. Trace gravel(Gran/S peb),sand.
	35-40		"	"	—	—	Calcareous. Much silt. Trace sand.
	40-45		"	"	—	—	Calcareous. Much silt. Trace granules,sand.
	45-50		"	"	—	—	Calcareous. Much silt. Trace gravel(Gran/S peb),sand.
	50-55		"	"	—	—	Same.
	55-60		"	"	—	—	Calcareous. Much silt. Trace sand.
	60-65		"	"	—	—	Same.
	65-70		"	"	—	—	"
	70-75		"	"	—	—	"
	75-80		"	Red brown	—	—	Calcareous. Much silt. Trace granules,sand.
	80-85		"	"	—	—	Calcareous. Much silt. Trace sand.
	85-90		"	"	—	—	Same.
	90-95		"	"	—	—	Calcareous. Much silt. Trace gravel(Gran/S peb),sand.
	95-100		"	"	—	—	Calcareous. Much silt. Trace sand.
	100-105		"	"	—	—	Same.
	105-110		"	"	—	—	Calcareous. Much silt. Trace granules,sand.
	110-115		"	"	—	—	Same.
	115-120		"	"	—	—	Calcareous. Much silt. Trace gravel(Gran/S peb),sand.
	120-125		"	"	—	—	Same.
	125-130		"	"	—	—	"
	130-135		"	"	—	—	"
	135-140		"	"	—	—	Calcareous. Much silt. Trace sand.
	140-145		"	"	—	—	Calcareous. Much silt. Trace gravel(Gran/S peb),sand.
	145-150		"	"	—	—	Same.
	150-155		"	"	—	—	"
130'	155-160		"	"	—	—	"

Geologic Log No. N132-Bn-306

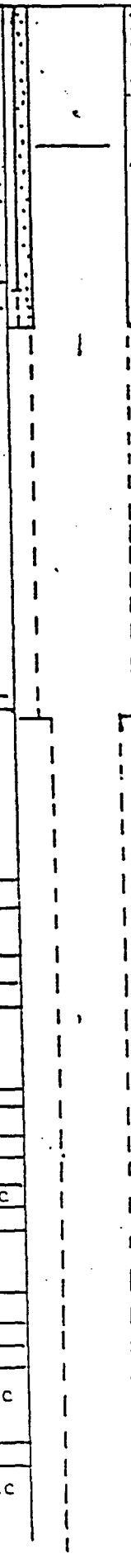
Well name: Bay Beach Wildlife Sanctuary Well #3

Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
160-165		Dolomite	Dk bn gray	M	Fn/M	Ltl bl gy to gy sh matx. Tr pyr,fos fragS,bk lath fos,dk bn
165-170		"	Gray brown	"	"	Same plus trace cvd rd br clay. \ sckla,calc,free qtz snd.
170-175		"	"	"	"	Same. / fos,dk bn sckla,free qtz snd,dk gy stng from pyr.
175-180		"	"	"	"	Ltl bl gy & gy bn sh matx. Tr pyr,fos fragS,wh fos molds,bk lath
180-185		"	"	"	"	Same but trace shale matrix.
185-190		"	"	"	"	Tr sh matx,calc,pyr,chalc,fos fragS,bk lath fos,dk bn spklg,free
190-195		"	"	"	"	Same. \ qtz snd,dk gy stng from pyr,long tab clr gyp xls.
195-200		"	"	"	"	"
200-205		"	"	"	"	Mch dk gn gy sh matx. Mny fos fragS. Tr pyr,chalc,dk gy stng
205-210		"	Dark gray	"	"	Same but even more fos fragS. \ from pyr,long tab clr gyp xls (3
210-215		"	Gray brown	"	"	Same but slgtly fewer fos fragS. \ X 30 divisions),free qtz snd,
215-220		"	"	"	"	Same. \ bk lath fos.
220-225		"	"	"	"	"
225-230		"	"	"	"	"
230-235		"	"	"	"	"
235-240		"	"	"	"	"
240-245		"	"	"	"	"
245-250		"	"	"	"	"
250-255		"	"	"	"	"
255-260		"	"	"	"	Same plus trace caved gravel & clay.
260-265		"	Dk gn gy	"	"	Mch dk gn gy sh/sh matx. Mny fos fragS. Tr pyr,dk gy stng from
265-270		"	V dk gray	"	"	Same. \ pyr,bk lath fos,long tab gyp xls as abv but most this
270-275		"	"	"	"	" \ far.
275-280		"	"	"	"	"
280-285		"	Pale brown	"	"	Tr dk bn sh prtg,bk & dk bn lath fos,pyr,dk gy stng from pyr,wh
285-290		"	"	"	"	Same plus trace fossil fragments. \ cht.
290-295		"	"	"	"	Same.
295-300		"	"	"	"	"

END OF LOG

PARLIN AVENUE WELL, GREEN BAY, WIS.
1618 Parlin Ave. Near C. B. and W. tracks
Layne-Northwest Co., Contractors, 1929 Elevation = 593.5'
Samples examined by F. T. Thwaites, Nos. 83264-83356D
SE¼, NW¼, NW¼, Sec. 32, T.24N., R.21E.

Depth	Interval	Feet	Description
	0-84	84	Clay (drift drilled by rotary) no samples
	84-92	8	Clay and boulders
	92-124	32	Clay
	124-128	4	Sand
132	128-132	4	Clay and boulders
	132-333	201	Dolomite, gray, hard, no samples, top part broken
201	333-340	7	Sandstone, medium, light gray, dolomitic
	340-425	85	Dolomite, light gray
	425-440	15	Sandstone, medium, gray, dolomitic
	440-460	20	Dolomite, light gray
	460-475	15	Dolomite, light gray; chert, white
	475-485	10	Dolomite, dark gray
	485-525	40	Dolomite, light gray
202	525-535	10	Dolomite, gray
	535-550	15	No samples
	550-570	20	Dolomite, very sandy, red
40	570-575	5	Dolomite, red
	575-590	15	Sandstone, fine, red, dolomitic, glauconitic
	590-595	5	Sandstone like above; shale, red, dolomitic
	595-625	30	Sandstone, fine, green-gray, dolomitic, glauconitic
	625-640	15	Sandstone, medium to fine, light gray, dol.
	640-655	15	Sandstone, medium to coarse, light gray
	655-660	5	Sandstone, medium, light gray, dolomitic
	660-700	40	Sandstone, medium, white, slightly dolomitic
135	700-710	10	Sandstone, medium to fine, light gray, dol.
	710-810	100	Sandstone, medium, white, slightly dolomitic



Log No. Bn-2

	810-820	10		Sandstone, medium, light gray, dolomitic
	820-855	30		Sandstone, medium, light gray
	855-895	40		Sandstone, medium to coarse, white to very light pink
	895-945	50		Sandstone, medium to coarse, white
246	945-956	11		Sandstone, coarse to medium, light pink

956'

Drawing corrected, Feb., 1943 from information given by Layne-Northwest Co.
Shot with 10 50 lb. shots between 650 and 925
Tested at 800 g.p.m. specific capacity = 4.0 g.p.m.

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Lake Michigan District Headquarters
1125 N. Military Avenue
P.O. Box 10448
Green Bay, WI 54307-0448
TELEPHONE # (414)492-5921
TELEFAX # (414)492-5859

Carroll D. Besadny
Secretary

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

COPY

August 24, 1992

James River Corporation
Mr. Bob Overly
500 Day Street
Green Bay, WI 54305

RE: ERRP Case #05-00372. James River - Train Leak
NW Corner of Main Mill on Track 5.

Dear Mr. Overly:

The Wisconsin Department of Natural Resources (WDNR) has been notified that a potential for soil and/or groundwater contamination was discovered at the above-referenced location. This case has been currently ranked as an UNKNOWN priority. The purpose of this letter is to inform you of your legal responsibilities to address this situation.

The WDNR proceeds in contamination cases under the authority of s. 144.76, Wisconsin Statutes, commonly referred to as Wisconsin's Hazardous Substance Spill Law. The definition of "hazardous substances" encompasses any waste of a solid, semisolid, liquid, or gaseous form that can cause harm to the environment or human health.

> Wisconsin Statute 144.76(2)(a) states: "A person who possesses or controls a hazardous substance or who causes the discharge of a hazardous substance shall notify the Department immediately of any discharge not exempt under sub. (9)."
>
> Wisconsin Statute 144.76(3) states: "A person who possesses or controls a hazardous substance which is discharged or who causes the discharge of a hazardous substance shall take the actions necessary to restore the environment to the extent practicable and minimize the harmful effects from the discharge to the air, lands, or waters of the state."

Because you possess or control a hazardous substance that has been released to the environment, the Department identifies you as a party responsible for taking the actions necessary to restore the environment. As the responsible party:

1. You will need to hire a qualified environmental, hydrogeologic, or engineering consultant to conduct a remedial investigation of soil and groundwater. A document titled "Selecting an Environmental Consultant" and a Consultant Listing is enclosed for your convenience. Regardless of the priority designation, you are required to proceed with the investigation and clean-up effort.

2. **Within 10 days of receipt of this notice, please provide me with a letter containing the name of the consultant you have retained. The consultant that you hire will have 45 days to submit a workplan. Your consultant should send a map of the site location (legal description), the date the investigation will begin, and immediately identify all drinking water wells within 1200 feet of the site.**

3. The Department must be notified of any additional information you possess that can aid in determining a priority for this site. The general information the Department requires from you to prioritize cases includes: a description of any documented groundwater or surface water contamination, the site status and years of operation, and any investigation or remediation efforts that have occurred at this site.

4. Upon completion of the investigation, a remedial action(s) necessary to clean up contaminated soil and groundwater will be chosen and implemented. You must dispose of or treat all products, soils, wastewater, or sludges in compliance with all applicable federal, state, and local laws and regulations.

Due to the Department's workload, it is necessary to prioritize all contamination cases. The system that is being utilized at this time follows this format:

a. Case identification
b. Priority rank (High, Low, and Unknown)
c. Responsible party notification letter
d. Prescore cases (for potential threat to public health, safety, welfare, and the environment)
e. Responsible party hires a consultant...investigation phase begins
f. Remedial design and remedy selection phase (review of design by DNR if high priority)
g. Remedial action
h. Long term monitoring/maintenance...if necessary
i. Close out...this step can only be attained once all remediation is complete and there is no further contamination of soils, groundwater, surface water and air. It is necessary that sampling show no detection exceeding those laws that are applicable to the situation.

High priority sites have assigned WDNR Project Managers who are actively reviewing and approving investigation and remediation plans. Low priority cases do not always have assigned project managers; <u>however, responsible parties are required to proceed with investigation and clean-up efforts.</u>

Unknown cases are those cases which do not have adequate information to rank. These cases are treated as a HIGH until information is obtained to assign a priority. I will answer any questions that you may have on this case, **however, I am not a project manager for this case**.

If you consider any previous investigation and/or clean-up effort to be sufficiently complete you must provide a detailed report with analytical documentation justifying your position. The Department will make a final determination if close-out of this case can be considered.

Your cooperation in this matter will be appreciated. If you have any question in regard to the contents of this letter, please call me at the number located on the letterhead.

Sincerely,

Wava Kay Quandt

Wava Kay Quandt
Environmental Specialist
Emergency & Remedial Response Program

Enc: Site Investigation Checklist
Selection Criteria
Consultant List

UNITED STATES POSTAL SERVICE

Official Business

RECEIVED
AUG 2 6 1992
LMD SOLID WASTE

REC. DNR
AUG 2 6 1992
GRN BAY

U.S. MAIL

PENALTY FOR PRIVATE USE, $300

Print your name, address and ZIP Code here

W. Quandt

DEPARTMENT OF NATURAL RESOURCES
LAKE MICHIGAN DISTRICT HEADQUARTERS
1125 NORTH MILITARY AVENUE
P.O. BOX 10448
GREEN BAY, WI 54307-0448

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt Fee will provide you the signature of the person delivered to and the date of delivery.

I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

James River Corporation
Mr. Bob Overly
500 Day Street
Green Bay, WI 54305

RE: Train Leak ERRP #05-00372

4a. Article Number

P 884 366 450

4b. Service Type

☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

7. Date of Delivery

5. Signature (Addressee)

Heidi Fo Ronk

6. Signature (Agent)

8/25/92

8. Addressee's Address (Only if requested and fee is paid)

PS Form **3811**, November 1990 ☆U.S. GPO: 1991—287-066 **DOMESTIC RETURN RECEIPT**

P 884 366 450

UNITED STATES POSTAL SERVICE

Certified Mail Receipt

No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

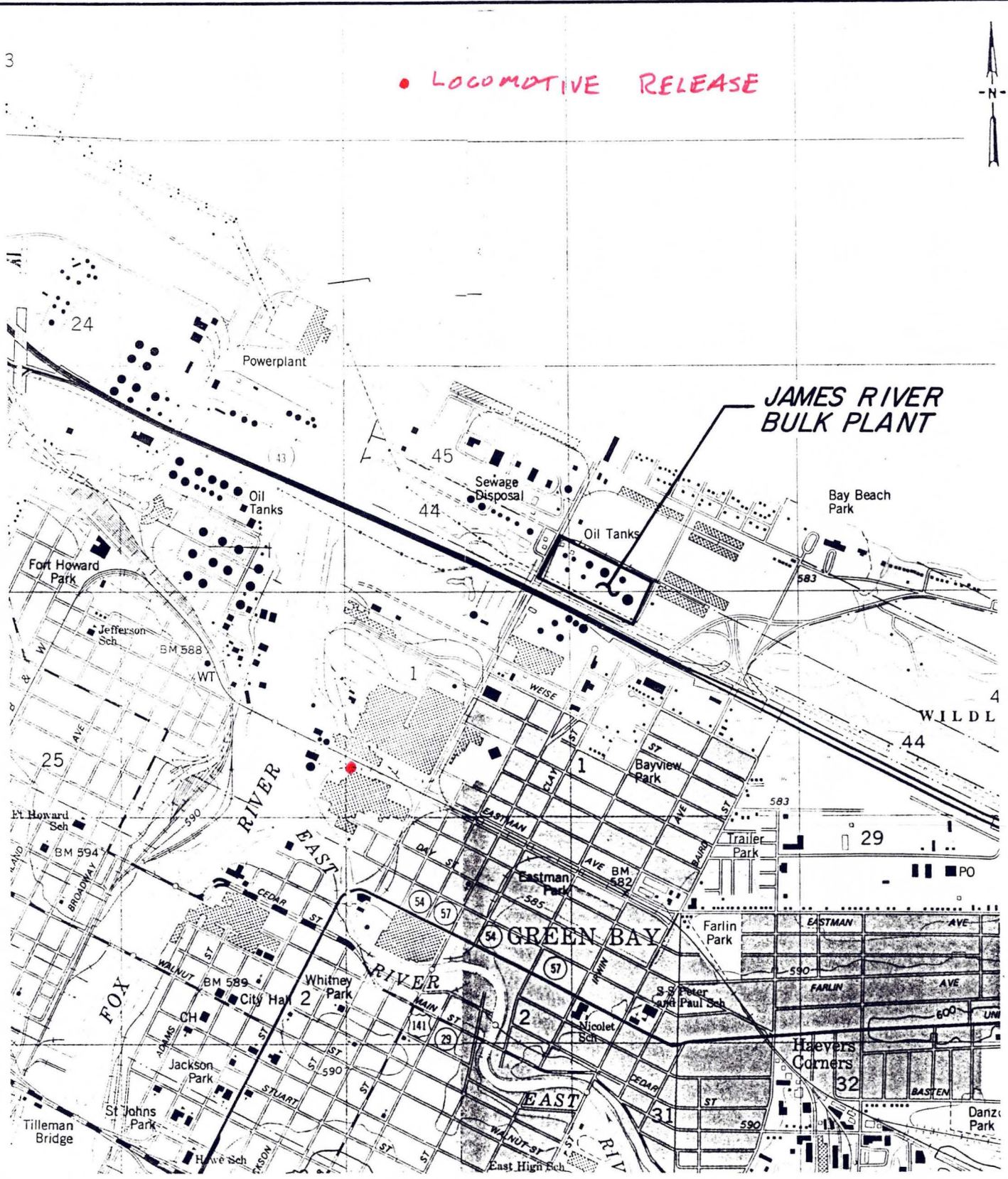
W. Quandt

Sent to Mr. Bob Overly	
Street & No. 500 Day Street	
P.O., State & ZIP Code Green Bay,WI 54305	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Address of Delivery	
TOTAL Postage & Fees	$
Postmark or Date RE: James River ERRP Case #05-00372	

PS Form 3800, June 1990

— James River Locomotive Release Brown Co.

BRUNING 542200



MAP SOURCE: GREEN BAY EAST & GREEN BAY WEST, WIS. QUADRANGLES, BOTH DATED 1982.

STS Consultants Ltd.
Consulting Engineers

PROJECT/CLIENT

JAMES RIVER CORPORATION
GREEN BAY BULK PLANT
GREEN BAY, WI.
SITE LOCATION DIAGRAM

DRAWN BY	P.D.P.	8-26-92
CHECKED BY	RAM	9-11-92
APPROVED BY		
SCALE 1" = 2000'	FIGURE NO. 1	
STS DRAWING NO. 19621XP		

10-20-92
Will Submit Workplan
ASAP, Approve Plan to
Proceed As the same time
As the Terminal Work -
Proceed Letter When workplan is rec'd
BJN.

TABLE 1

SUMMARY OF PROPOSED SAMPLING AND ANALYSES
APPARENT LOCOMOTIVE RELEASE AREAS
JAMES RIVER GREEN BAY MILL

Source Number/Type	Sample Number/Type	Analyses
1 LOCOMOTIVE DRIP PAN	1 Product	1 DRO, 1 Lead and Cadmium
8 TEST PITS	8 Subsurface Soil	8 DRO, 8 TRPH 4 PAH
6 HAND AUGERS	4 Subsurface Soil	4 DRO, 4 TRPH, *2 Lead and Cadmium, *2 VOC, *2 Flash Point, *2 Corrosivity, *2 TCLP Metals

NOTES:

1) DRO = Diesel Range Organics (WDNR Modified DRO Method).
2) TRPH = Total Recoverable Petroleum Hydrocarbons (WDNR Modifed EPA Method 9073). TRPH tests will be performed if the product sample contains used oil. If used oil is not interpreted from the product sample chromatogram, only DRO will be analyzed in the test pit and hand auger soil samples.
3) VOC = Volatile Organic Compounds (EPA Method 8021).
4) * Soil sample exhibiting the greatest degree of petroleum impacts based on field observations from each locomotive storage area will be analyzed for these parameters. Samples may be collected from either test pits or hand augers.
5) If lead and cadmium are not detected in soil samples above their respective Toxic Characteristic Leach Procedure (TCLP) limits, TCLP metals testing will not be performed.

JAMES RIVER CORPORATION
CONSUMER PRODUCTS BUSINESS/GREEN BAY MILL
P.O. Box 23790, Green Bay, WI 54305-3790 (414) 433-6200

August 28, 1992

Ms. Wava Kay Quandt
Wis. Department of Natural Resources
Lake Michigan District
P.O. Box 10448
Green Bay, Wisconsin 54307-0448

Dear Ms. Quandt:

This letter is to inform you that James River Corp has retained STS Consultants Inc. to conduct the remedial investigation regarding the petroleum contamination at the mill site (ERRP Case #05-00372). The source of the contamination has been identified and corrected. A work plan will be developed and submitted to the Department as quickly as possible for remediation.

If you have any questions regarding this matter please contact me at (414) 433-6177.

Sincerely;

Robert J Overly

Robert J. Overly
Senior Environmental Engineer

cc: Charly Warren
Bruce Robertson
Richard Lowe - STS

RECEIVED
SEP 02 1992
LMD SOLID WASTE

State of Wisconsin
Department of Natural Resources

TOXIC AND HAZARDOUS SPILL REPORT

Form 4400-91 Rev. 6-86

State Div. Emergency Gov't. (608) 266-3232
U.S. Nat'l. Response Center (800) 424-8802
Chemtrec/Pesticides/Chlorine (800) 424-9300

Spill ID Number
Y Y M M D D 0-99

Date of Incident: unknown	Day of Week:	Time of Incident: ☐ A.M. ☐ P.M.	Reported By (Name): Rob Overly	Telephone Number: ( ) 433-6177
Date Reported: 8-20-92	Day of Week: Thur	Time Reported: 3:40 ☐ A.M. ☑ P.M.	Agency or Firm Reporting: James River Corp.	Reported thru Div. Emergen. Gov't. ☐ Yes ☐ No
Substance Involved: Fuel oil	Quantity: unknown	Units:	Person or Firm Responsible:	
Substance Involved:	Quantity:	Units:	Contact Name: Same.	Telephone Number: ( ) Same

Physical Characteristics
☐ Solid ☑ Liquid Color ____
☐ Semisolid ☐ Gas Odor ____

Address — Street or Route: 500 Day St.
City, State, Zip Code: Green Bay, Wi 54305

Cause of Incident: Leaking from train engine

Exact Location Description (intersection, mileage, etc.): Northwest Corner of Main Mill on tracks

County Location: Brown

¼¼, ¼, Section, Town, Range: ___, ___, ___, T___N, R___

DNR Dist: 4 DNR Area:

Groundwaters Affected ☐ Yes ☐ No ☑ Potential

Surface Waters Affected ☐ Yes ☑ No ☐ Potential

Name of Surface Water:

Date District Notified: 8-20-92 Day of Week: Thur Time District Notified: 3:40 ☐ A.M. ☑ P.M.

District Person Notified: Telephone Number: ( )

Date Investigated: Day of Week: Time Investigated: ☐ A.M. ☐ P.M.

Person Investigating: Telephone Number: ( )

Action Taken By DNR
☐ No Action Taken ☐ Investigation ☐ Supervise/Conduct Cleanup
☑ Spiller Required To Take Action; Type: investigate, hire consultant
☐ Contractor Hired By DNR; Name ____
☐ Amount Recovered ____
☐ 29.29 Enforcement

Other Agencies on Scene
Local ____
State ____
Federal ____

Action Taken By Spiller
☐ No Action Taken ☐ No Notification ☐ Investigate
☐ Containment; Type ____
☑ Cleanup; Method: Removed some soil & stockpiled
☐ Amount Recovered ____
☐ Monitor ____
☐ Contractor Hired; Name ____
☐ Other Action ____

Spill Location
☑ Industrial Facility/Paper Mill/Chem. Co.
☐ Gas/Service Station/Garage, Auto Dealer, Repair Shop
☐ Ag Coop/Facility/Cheese Factory/Creamery
☐ Other Small Business (bank, grocery, insurance co., etc.)
☐ Public Property (city, county, state, church, school, etc.)
☐ Utility Co., Power Generating/Transfer Facility
☐ Private Property (home/farm)
☐ Pipeline, Terminal, Tank Farm, Oil Jobber/Wholesaler
☐ Transportation Accident, Fuel Supply Tank Spill
☐ Transportation Accident, Load Spill
☐ Construction, Excavation, Wrecking, Quarry, Mine
☐ Other ____

Spilled Substance Destination
☐ Air
☑ Soil
☐ Groundwater
☐ Surface Water
☐ Storm Sewer
☐ Sanitary Sewer
☐ Contained/Recovered
☐ Other ____

Person Filing This Report (print name): R. G. Urben
Signature: R G Urben Date Signed: 8-20-92

Additional Comments:
Found oil contamination while replacing tracks on their property. FR will send RP letter requiring investigation & cleanup!

AREA

Department of Natural Resources

closed 5-10-94

ENVIRONMENTAL REPAIR PROGRAM
CASE TRACKING FORM FOR VER. 2.1
Form 4400-150

I.D. # 372

District: LMD County: 05
Site Name: James River - Train Leak
Address: NW Corner of Main Mill on track
Legal Municipality: 5
Green Bay T V (C)
Date of Discovery: 08 / 20 / 92

Case No.: PMN:
FID:
Proj. Mgr: E. System
Support Person:
Legal Desc: __1/4 __ 1/4 Sec ___, T ___, R ___ E/W
Lat: N ___" ___ . ___' Long: W ___" ___ . ___'
Date of RP Contact: 08 / 24 / 92

PRIORITY SCREENING:
___ 1 = High
___ 3 = Low
✓ 4 = Unknown

PRE-SCORE
___ . ___

FUNDING SOURCE:
✓ 1 = RP
___ 2 = LTF
___ 3 = EF
___ 4 = SF
___ 5 = None
___ 6 = Other (Describe In Comments)
___ 7 = EPA Emergency Resp.

ENFORCEMENT AUTHORITY:
✓ 1 = Spill Law s. 144.76, Wis. Stats.
___ 2 = Envir Repair Law s. 144.442, Wis. Stats.
___ 3 = Hazardous Waste Rules NR 600 Series
___ 4 = Solid Waste Rules NR 500 Series
___ 5 = CERCLA
___ 6 = Abandoned Container s. 144.77, Wis. Stat.
___ 7 = Other (Describe in Comments)

PROGRAMS INVOLVED: (L - LEAD S - SUPPORT)

___ Aban Containers
___ Lust
___ NR 600 Hazardous Waste
___ NR 500 Solid Waste
___ Spills
___ Superfund
___ Water Supply
___ Water Resources Mgt
___ Env. Repair

RESPONSIBLE PARTY:

Business Name: James River
Owner/Mgr.:
Address: 500 Day St
Green Bay 54305
Phone: 414 / 433-6177
Contact Person: Bob Overly

Business Name:
Owner/Mgr.:
Address:
Phone: ___ /
Contact Person:

		KNOWN IMPACTS (X)	POTENTIAL IMPACTS (X)
No Threat			
Fire/Explosion threat	(1)		
Contaminated Private Well	(2)		
Contaminated Public Well	(3)		
Groundwater Contamination	(4)	P	
Soil Contamination	(5)	C	
Direct Contact	(10)		
Contaminated Surface Water	(7)		
Contaminated Air	(8)		
Other _____	(6)		

CONSULTANT INFORMATION:

Company:
Contact Person:
Address:
Phone: ___ /
(List additional on separate sheet & attach.)

Company:
Contact Person:
Address:
Phone: ___ /