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Remedial Design, Phase II Pre-Design Investigation Letter Report

for

Site 1 Former Drum Marshaling Area Naval Weapons Industrial Reserve Plant (NWIRP)

Bethpage, New York

Northern Division
Naval Facilities Engineering Command

Contract Number N62472-90-D-1298
Contract Task Order 0213

July 1995

C F BRAUN ENGINEERING CORPORATION

TABLE OF CONTENTS

SECTION		PAGE
1.0	INTRODUCTION	1-1
1.1	PURPOSE	1-1
1.2	SITE BACKGROUND	1-2
1.2.1	Site Description	1-2
1.2.2	Previous Investigations	1-5
1.3	ORGANIZATION OF REPORT	1-11
2.0	FIELD INVESTIGATION	2-1
2.1	SOIL BORINGS AND SUBSURFACE SOIL SAMPLING	2-1
3.0	INVESTIGATION RESULTS	3-1
3.1	FIELD EVALUATION	3-1
3.1.1	Physical Characteristics	3-1
3.1.2	Chemical Characteristics	3-2
3.2	ANALYTICAL RESULTS	3-2
3.2.1	Geotechnical Results	3-2
3.2.2	Chemical Results	3-10
4.0	CONCLUSIONS AND RECOMMENDATIONS	4-1
REFERENCES		R-1

APPENDICES

A	SOIL BORING LOGS
B	SAMPLE LOG SHEETS
C	CHAIN OF CUSTODY RECORDS
D	DAILY ACTIVITIES RECORD
E	EQUIPMENT CALIBRATION LOGS
F	GEOTECHNICAL ANALYTICAL RESULTS
G	CHEMICAL ANALYSIS RESULTS

TABLES

NUMBER		PAGE
1-1	Remedial Action Levels for Groundwater and Soils at Site 1	1-6
3-1	HNu Readings	3-3
3-2	Geotechnical Analysis	3-8
3-3	Soil Sample Analytical Results, June, 1995 Sampling Event	3-11

FIGURES

NUMBER		PAGE
1-1	Site Layout Map	1-3
1-2	Summary of Significant Soil Contamination Reported in Remedial Investigation	1-7
1-3	Summary of Significant Soil Groundwater Contamination Reported in Remedial Investigation	1-9
1-4	Estimate of Volatile Organic Comtamination in Soil as Reported in Feasibility Study	1-12
2-1	Boring Locations	2-3
3-1	Summary of Soil Sample Locations and Results, Site 1	3-13

1.0 INTRODUCTION

This Letter Report has been prepared under the Comprehensive Long-Term Environmental Action Navy (Clean) Contract No. N6247-90-D-1298, Contract Task Order (CTO) 0213. C F Braun Engineering Corporation (C F Braun) conducted soil sampling activities as part of the Remedial Design, Phase II, for Site 1 at the Naval Weapons Industrial Reserve Plant (NWIRP) in Bethpage, New York. The Remedial Design, Phase II, for Site 1 includes an air sparging/vapor extraction (AS/VE) system for source contamination located in the soils and shallow groundwater beneath the site. To support design activities additional sampling and analysis has been conducted to verify the level of volatile organic compounds (VOC) contamination at the site, in particular under Plant Number 3, and to assist in selecting a location for the installation of a pilot-scale AS/VE system.

The Bethpage NWIRP is located on Long Island, Nassau County, New York. The NWIRP was established in 1933. Since its inception, the primary mission at the facility has been the research, prototyping, testing, design engineering, fabrication, and primary assembly of military aircraft. The NWIRP is a Government-Owned Contractor Operated (GOCO) facility operated by Northrup-Grumman Corporation.

Currently, C F Braun is also performing work under CTO 212. CTO 212 was issued for the design of polychlorinated biphenyls (PCB) and arsenic contaminated soil remediation at Site 1 and Site 2 and is referred to as Remedial Design Sites 1 and 2, Phase I. The CTO 212 design includes the removal and disposal of soils contaminated with PCBs and Arsenic. The soil remediation will be performed by the Remedial Action Contractor (RAC) and is anticipated to begin in late August of 1995 which is the same time in which C F Braun is scheduled to conduct activities for the pilot-scale study as part of CTO 213. Because of the scheduling conflict it will be necessary to select an area to conduct the pilot-scale study which will not interfere with CTO 212 remediation efforts.

1.1 PURPOSE

The purpose of this Letter Report is to summarize the results of the pre-design investigation. Sampling activities were required at Site 1 because the available analytical data for the subsurface soil with in Plant Number 3 were not adequate to conduct the Remedial Design. The objectives of the sampling effort were as follows:

- Verify the levels of VOC contamination at Site 1, primarily beneath and east of Plant Number 3.

- Establish a suitable location for the pilot-scale system which will not interfere with the RAC remediation efforts for Phase I, but be located with in an area of significant VOC contamination.

- Determine subsurface soil conditions with regard to geotechnical information.

This report will summarize the results of the sampling activities, evaluate the new data and existing data with regards to selecting a location for a pilot scale system, and make recommendations for further investigation, as necessary.

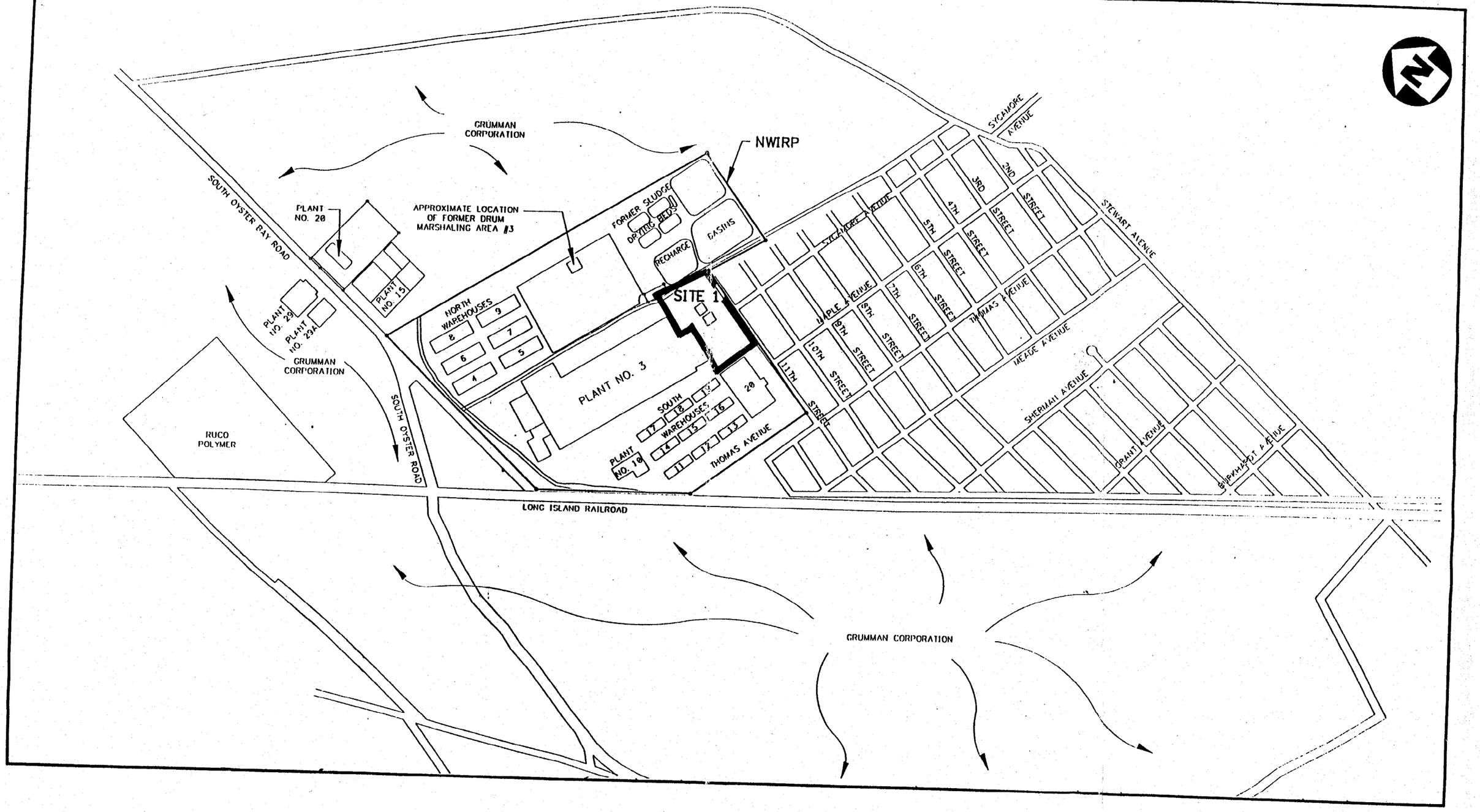
1.2 SITE BACKGROUND

1.2.1 Site Description

Site 1 occupies an area of approximately 4 acres. It is surrounded on three sides by a chain link fence and Plant Number 3 to the west. The site is also bisected by a 6 foot tall wooden fence running north-south. To the west of this fence, the surface consists of concrete and some slightly vegetated areas. To the east of this bisecting fence, the surface is earth, gravel, or grass. The northeastern part of the site is slightly elevated (4 feet), well vegetated and well maintained. A vegetated wind row (pine) and fence are present along the eastern edge of the site to reduce community visibility. A site layout map is provided in Figure 1-1.

From the early 1950's through the late 1970's, drums containing liquid wastes were stored on a cinder-covered area on Site 1. In the late 1970's this drum marshaling area was relocated a few yards south of this cinder-covered site to a 100 foot by 100 foot concrete pad. This concrete pad was uncovered and did not have any spill containment berms. Drum storage on this concrete pad was terminated in 1982, when all waste containers were relocated to the covered Salvage Storage Area (Site 3).

Approximately 200 to 300 drums were stored at Site 1 at any given time between the early 1950's and the early 1980's. Liquid wastes contained in the drums included halogenated and nonhalogenated solvents, and liquids containing high concentrations of cadmium and cyanide.



SITE LAYOUT MAP
NWIRP, BETHPAGE, NEW YORK

0 700 1400
SCALE IN FEET

FIGURE 1-1

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1.2.2 Previous Investigations

Phase I and Phase II Remedial Investigations were conducted at NWIRP by Halliburton NUS Corporation (HNUS) (Halliburton NUS, May 1992 and Halliburton NUS July, 1993). These investigations consisted of collecting soil, groundwater, and soil gas samples. Based on the results of the analysis, it was determined that Site 1 contained soils which had elevated concentrations of VOCs, PCBs, and arsenic. Groundwater was also contaminated with VOCs and metals.

The scope of work associated with this CTO involves only remediation of VOC contamination, therefore only the data associated with VOCs from previous investigations have been identified in this report. It should also be noted that in order to simplify the drawings only sample results which exceeded the Remedial Action Levels have been included. Remedial Action Levels for the groundwater and soils were previously established and are provided in Table 1-1. The PCB and arsenic contamination at Site 1 is being addressed under CTO 212 and is not discussed in this report.

Figure 1-2 summarizes the soil samples which were reported in the Remedial Investigation (RI) and exceed the Remedial Action Levels. This figure also summarizes relevant soil gas results from the Phase I and Phase II Investigations. Analysis was performed on eighteen subsurface soil samples. The results of the analysis indicated that samples analyzed for trichloroethene (TCE) had two positive detections. Of these two, only one positive detection (SB-119) exceeded the Remedial Action Level for TCE. Sixteen samples resulted in a positive tetrachloroethene (PCE) detection, however only one sample (SB-119) had a detection above the Remedial Action Level. One sample had a positive 1,1,1-trichloroethane detection (SB-119). Seven surface samples were collected and submitted for analysis. Analysis of TCE and PCE indicated 3 positive detections and 2 positive detections, respectively. Of these samples only one sample (SS-103) had levels above the Remedial Action Levels for TCE and PCE. Soil gas samples which were collected during the Phase I RI had four significant detections out of the twenty samples collected. Additional soil gas samples collected during the Phase II RI indicated the potential of contamination beneath the Plant Number 3 floor, however no fixed based samples were collected during the RI to confirm that contamination exists.

Figure 1-3 summarizes the VOC contamination present in the shallow aquifer. All contaminants shown are above the Remediation Action Levels. Several of the wells (103, 104, 110, 112, 113, 115, 119, 121, and 123) were temporary wells and were only sampled once. The results of the temporary wells were used to locate the permanent wells. Three permanent wells (HN-27, HN-28, and HN-29) were installed during the Phase I RI. However, during the Phase II RI only HN-29 could be resampled. The other two wells were dry and could not be sampled. The VOC concentrations shown in Well HN-29 decreased significantly from 1991 to 1993, but remained above the Remedial Action Levels.

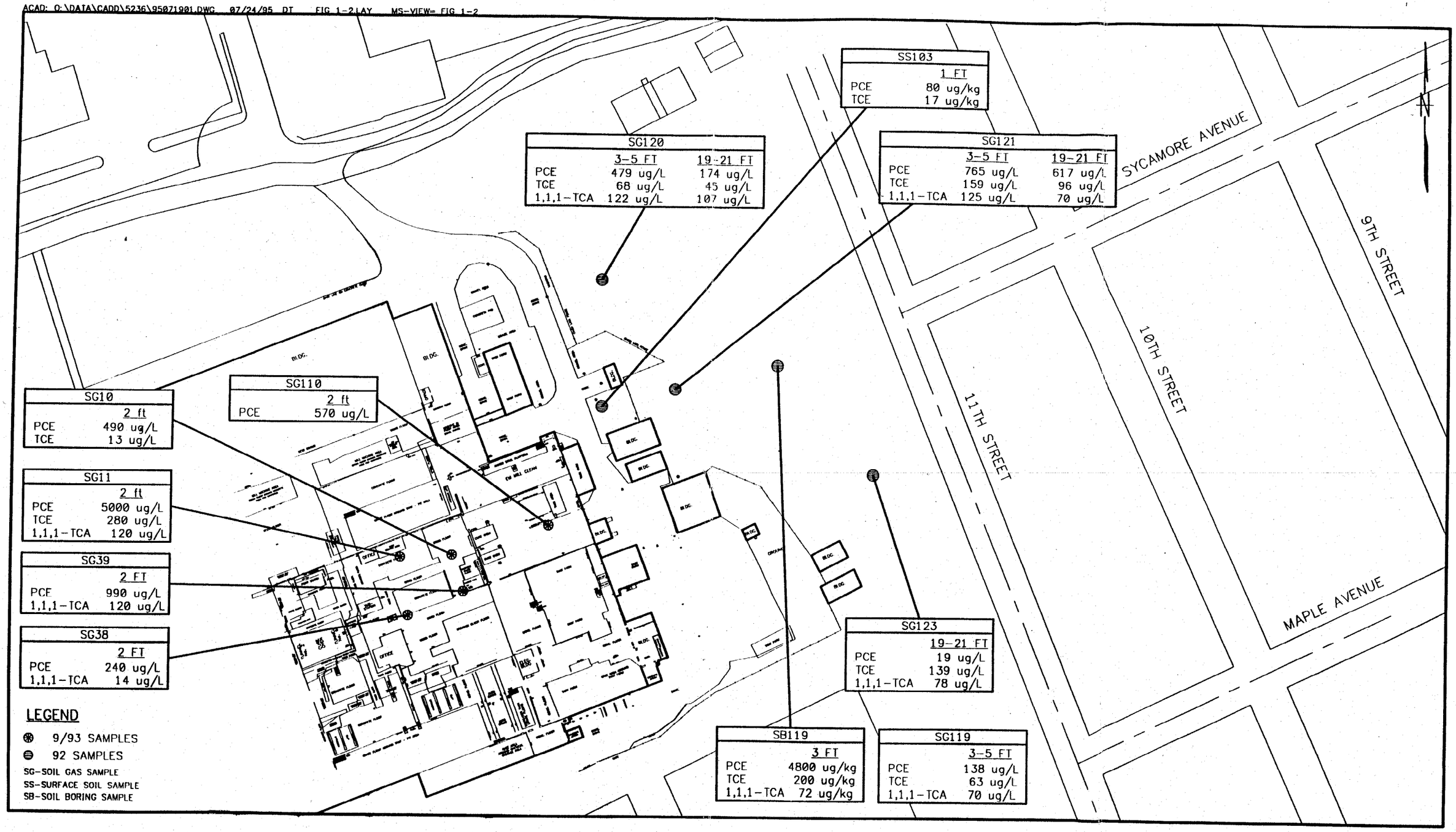
TABLE 1-1

REMEDIAL ACTION LEVELS FOR
GROUNDWATER AND SOILS AT SITE 1
NWIRP BETHPAGE, NEW YORK

Chemical of Concern	New York State Standards for Groundwater (μg/L)	Remedial Action Levels for Soils[1] (μg/kg)
Trichloroethene	5	10
Toluene	5	NA
1,1-Dichloroethane	5	NA
1,2-Dichloroethene	5	NA
1,1,1-Trichloroethane	5	10
Tetrachloroethene	5	27
1,1-Dichloroethene	5	NA
Carbon tetrachloride	5	NA
Xylenes	5	NA
Vinyl chloride	2	NA

(1) Remedial Action Levels developed for the protection of groundwater
NA - Not developed for Site 1

ACAD: O:\DATA\CADD\5236\95071901.DWG 07/24/95 DT FIG 1-2 LAY MS-VIEW= FIG 1-2



SUMMARY OF SIGNIFICANT SOIL CONTAMINATION REPORTED IN REMEDIAL INVESTIGATION SITE 1 NWIRP, BETHPAGE, NEW YORK

0 100 200
SCALE IN FEET

FIGURE 1-2

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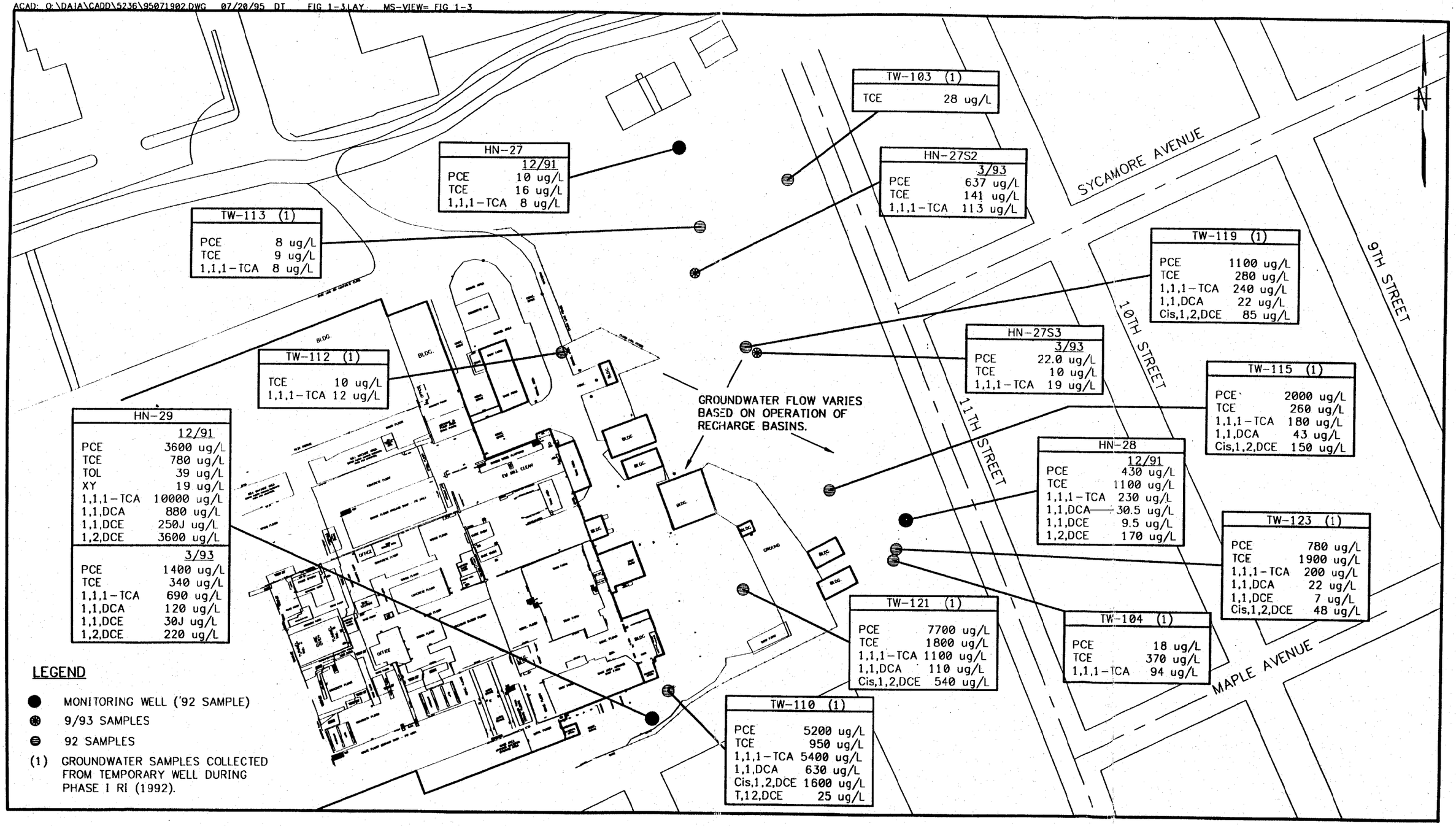
ACAD: Q:\DAIA\CADD\5236\95071902.DWG 07/20/95 DT FIG 1-3.LAY MS-VIEW= FIG 1-3



SUMMARY OF SIGNIFICANT GROUNDWATER CONTAMINATION REPORTED IN REMEDIAL INVESTIGATION SITE 1 NWIRP, BETHPAGE, NEW YORK

0 100 200
SCALE IN FEET

FIGURE 1-3

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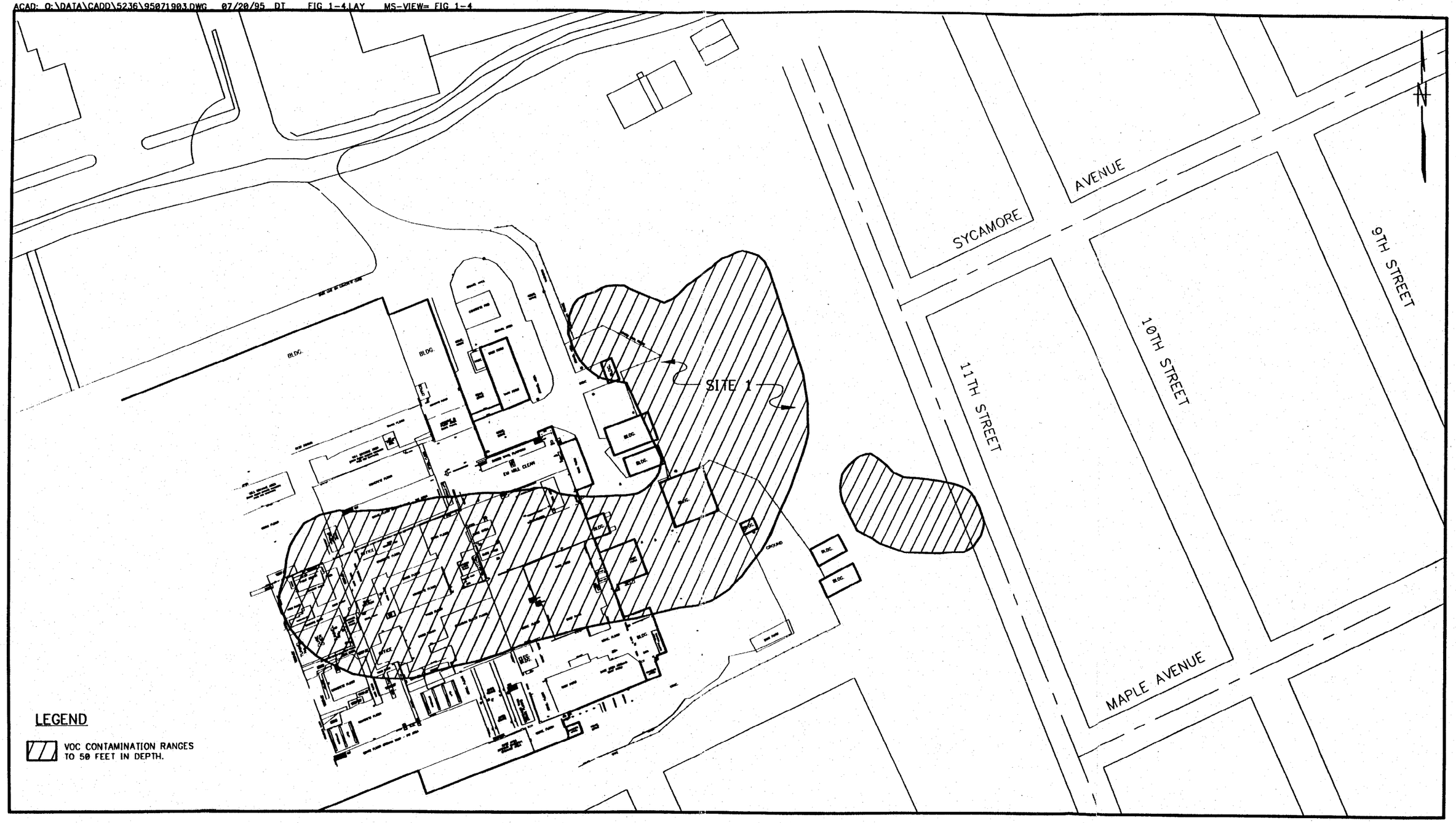
Based on the data shown in Figures 1-2 and 1-3 the VOC contaminated soil remediation volume was determined to be 87,000 cubic yards (Halliburton NUS, 1994). The surface area associated with that volume is shown in Figure 1-4. The volume is based on contamination extending throughout the vadose zone to the surface of the groundwater, which is approximately 50 feet in depth (Halliburton NUS, 1994).

1.3 ORGANIZATION OF REPORT

This report consists of four sections. Section 1.0 consists of this introduction. Section 2.0 describes the field activities. Section 3.0 summarizes the results of the sampling activities. Section 4.0 provides conclusions and recommendations.

ACAD: O:\DATA\CADD\5236\95071903.DWG 07/20/95 DT FIG 1-4.LAY MS-VIEW= FIG 1-4



ESTIMATE OF VOLATILE ORGANIC CONTAMINATION IN SOIL AS REPORTED IN FEASIBILITY STUDY NWIRP, BETHPAGE, NEW YORK

0 100 200
SCALE IN FEET

FIGURE 1-4

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2.0 FIELD INVESTIGATION

This section describes the field investigation activities conducted at Site 1 - Former Drum Marshaling Area, NWIRP, Bethpage, New York. The field investigation activities included the drilling of nine soil borings to groundwater, three soil borings to refusal at six feet deep, and the collection and analysis of 39 subsurface soil samples.

2.1 SOIL BORINGS AND SUBSURFACE SOIL SAMPLING

The soil boring locations for the pre-design investigation are shown in Figure 2-1. The borings locations were selected to verify levels of contamination under Plant Number 3 and in the area to the east of Plant Number 3. The borings within Plant Number 3 were selected to verify soil gas samples collected during the Phase II RI and also to verify the extent of the VOC contamination shown previously in Figure 1-3. The high soil gas reading collected during the Phase II RI were in an area referred to as the former Honeycomb Cleaning Area. This area was decommissioned, backfilled with soil and a concrete floor was installed to match the existing Plant Number 3 floor. This area used a high volume of solvents and is a potential VOC contamination source. Based on this information, boring DSB01 was proposed to be drilled within the former Honeycomb Cleaning Area.

A total of nine soil borings (DSB01 through DSB09) were proposed during this investigation. In the attempt to drill in the locations of boring number 1 (DSB01) and boring number 4 (DSB04), which were located inside of Building Number 3, subsurface concrete was encountered at a depth of approximately six feet. Attempts to penetrate the subsurface concrete were unsuccessful because of the presences of reinforcing steel, therefore new locations for these borings were selected in the field. A soil sample was collected from both of these original locations between the subsurface concrete and the building's concrete floor. DSB01 was located in the area of the former Honeycomb Cleaning Area. The dimensions of the Honeycomb Cleaning Area were approximately 20 feet by 40 feet and could be visually distinguished via breaks in the building floor. The alternate location for the boring (labeled DSB01A) was relocated directly outside and down gradient of the former Honeycomb Cleaning Area. DSB04 was not located in an area expected to have subsurface concrete. An attempt to move the boring three feet from the initial boring attempt also hit subsurface concrete. After the necessary utility clearances were performed the boring was relocated approximately forty five feet down gradient of the original location. This boring, labeled DSB04A, was successfully drilled to the water table.

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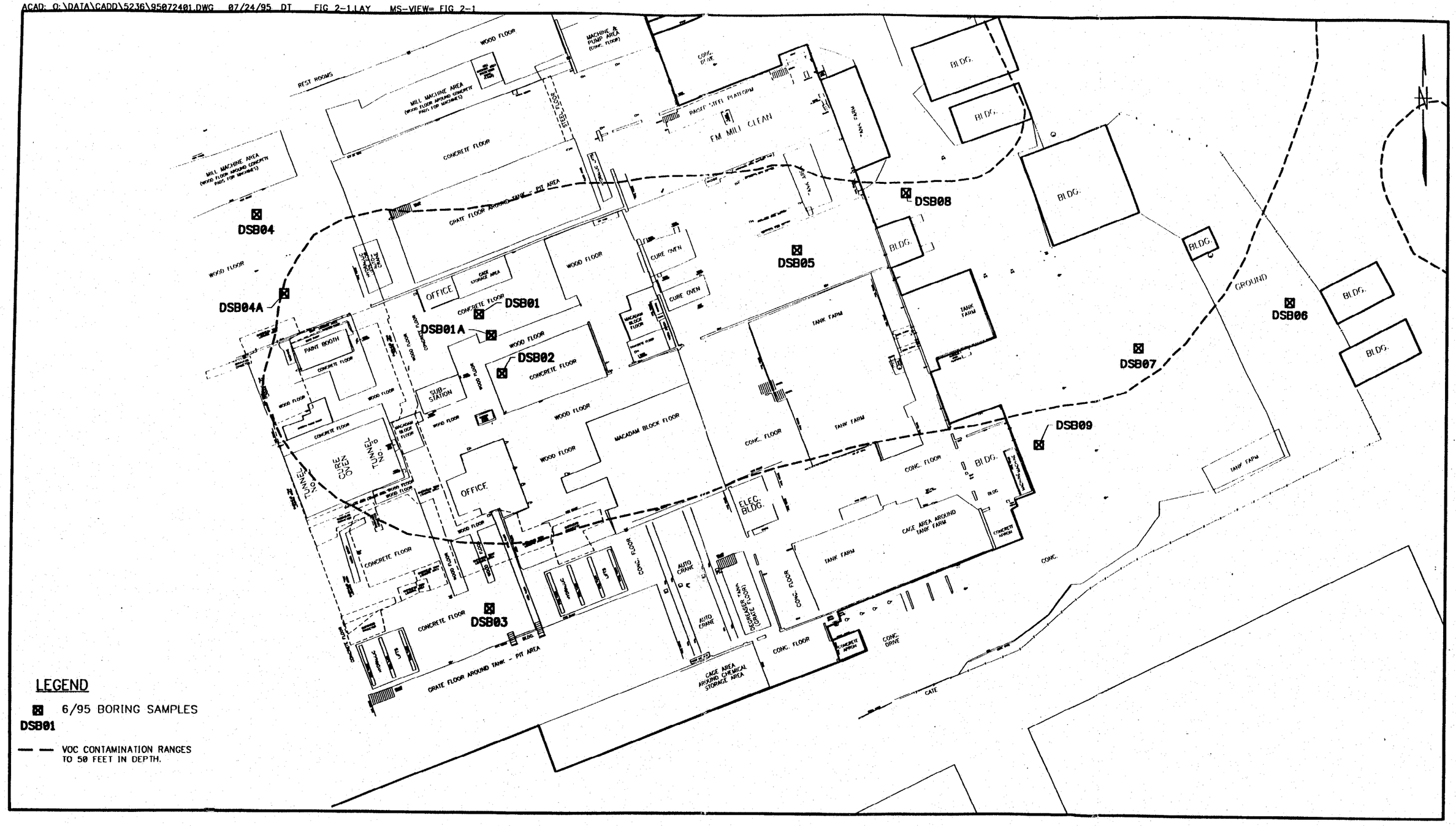
The soil borings were drilled with 3¼-inch inside diameter hollow stem augers. Soil samples were collected at 5-foot intervals with 2-inch outside diameter split-barrel samplers. Physical characteristics (density, color, lithology, and moisture content) of each sample were recorded on boring logs maintained by Halliburton NUS. Boring logs are provided in Appendix A. The headspace from each soil sample was field screened with an HNu organic vapor monitor, and the readings were recorded on the boring logs.

A total of 39 soil samples were collected for analysis. Three soil samples from each soil boring (27 total) were collected and analyzed for Target Compound List (TCL) volatile organic compounds (VOC). One sample was collected from the first two feet below the ground surface and another sample was collected in the middle of each boring in the location which had the highest headspace reading; the third sample from each boring was collected from immediately above the soil/groundwater interface. Three soil samples from four soil borings (12 total) were collected for geotechnical parameters (Soil Classification-ASTM D2487). These samples were selected in order to provide representative data of the subsurface lithology. A record of the samples collected is provided in Appendix B and the chain of custody form associated with these samples are provided in Appendix C.

All down hole drilling equipment and the rear of the drilling rig were decontaminated with pressurized steam prior to drilling, between boreholes, and prior to leaving the site. Decontamination was conducted at a decontamination pad. All sampling equipment (split-barrel samplers and stainless steel trowels) were decontaminated in accordance with the Field and Sampling Plan. All decontamination fluids were collected and disposed on site at the Waste Water Disposal Facility. All boreholes were backfilled with the soil cuttings. Any remaining soil cuttings were containerized in 55-gallon, DOT-approved drums and stored on site. A record of the daily activities were recorded and a copy of these forms are provided in Appendix D.

ACAD: Q:\DATA\CADD\5236\95072401.DWG 07/24/95 DT FIG 2-1.LAY MS-VIEW= FIG 2-1



0 50 100
SCALE IN FEET

FIGURE 2-1

BORING LOCATIONS
NWIRP, BETHPAGE, NEW YORK

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3.0 INVESTIGATION RESULTS

This section provides the results of the field investigation activities and laboratory analyses of the samples collected during the field activities. Results of the investigation includes soil physical characteristics, geotechnical analytical results, field analysis results, and laboratory analysis of the soil.

3.1 FIELD EVALUATION

3.1.1 Physical Characteristics

Split spoons were used to collect samples and evaluate the physical characteristics of the soils. A sample from each split spoon was collected to provide a record of the lithology. This information was recorded on log sheets and is provided in Appendix A. Based on an evaluation of the soils performed in the field and knowledge of regional geological conditions, subsurface soil conditions were able to be classified.

NWIRP lies within the Coastal Plains Physiographic Province and is an glacial outwash plain. The topography of the site is relatively flat and featureless and slopes gently to the south. The site and surrounding area are urbanized, and almost all natural physical features have been altered or destroyed. NWIRP and the surrounding area are underlain by approximately 1,100 feet of unconsolidated sediments overlying crystalline bedrock. The sediments consist of four stratigraphic units: the Upper Glacial Formation, the Magothy Formation, the Raritan Clay Member of the Raritan Formation, and the Lloyd Sand Member of the Raritan Formation. The Upper Glacial Formation consists of sand and gravel of Pleistocene age (Lindner and Reilly, 1983). The Magothy Formation is composed of sand, silt, and clay and is Cretaceous in age. The two members of the Raritan Formation were not encountered during this investigation.

The surficial glacial deposits of the Upper Glacial Formation encountered during this investigation were 25 to 40 feet thick and consisted of well-graded, fine to coarse sand and fine to coarse gravel with varying amounts of silt. The Magothy Formation was encountered below the surficial glacial deposit and consisted of fine to medium, variegated sand with intermittent silt and clay layers. Groundwater elevations were approximately 65 feet (mean sea level). The groundwater was depressed approximately a foot below Plant Number 3.

3.1.2 Chemical Characteristics

Field analysis of the split spoon samples included recording the organic vapor results of the soil immediately after the split spoon was opened and the head space organic vapor results. To assure the information recorded was accurate, the HNu organic vapor monitor was calibrated daily as shown in Appendix E.

HNu organic vapor headspace readings varied from 0 to 50 ppm and are summarized in Table 3-1. The highest readings were encountered at depths of 15 to 27 feet and 55 feet mainly in borings DSB01A and DSB05.

3.2 ANALYTICAL RESULTS

This section summarizes the analytical results of both the geotechnical data and the chemical data performed at fixed base laboratories.

3.2.1 Geotechnical Results

Soil samples were collected from four borings at the upper, middle, and bottom portions of the boring to determine the geotechnical parameters. The soil from the twelve samples were analyzed using the following three ASTM Methods:

- ASTM D2487 ..... Classification
- ASTM D422 ..... Grain size Analysis
- ASTM D4318 ..... Atterberg Limits

The results of the geotechnical testing are summarized in Table 3-2. The complete geotechnical evaluation report is provided in Appendix F.

The soil classification analysis (ASTM D2487) assigns group names to soils in order to identify similar soils and to assign engineering characteristics to each group. The twelve samples provided soil classifications of similar composition, SM - silty sand, SP - poorly graded sand, SW-SM - well graded silty sand. Each group of soil provides general insight to the characteristics of the subsurface soils. A review of the Nassau county Soil Survey indicates the type of soil in the area of Bethpage are well drained sandy loams.

The grain size analysis (ASTM D 422) is used to determine partial size for soil classification. Soil is passed through a series of sieves in order to determine the percentage passing through each sieve. The standard

TABLE 3-1

HNu READINGS FROM JUNE 1995 SAMPLING EVENT
NWIRP BETHPAGE, NEW YORK

Soil Boring	Depth of Sample (feet)	HNu Reading (ppm)	
		Split Spoon	Head Space
DSB01	0.5 to 2.5	6	0
	5.0 to 5.5	16	NR
DSB01A	5.0 to 7.0	12	5
	10 to 12	4	1
	15 to 17	4	4
	20 to 22	8	18
	25 to 27	20	50
	30 to 32	9	7
	35 to 37	3	5
	40 to 42	5	5
	45 to 47	4	4
	50 to 52	3	4
	55 to 57	40	20
	60 to 62	0	0
DSB02	0.5 to 2.5	4	0
	5.0 to 7.0	0	0
	10 to 12	0	0
	15 to 17	0	1
	20 to 22	0	0
	25 to 27	0	1
	30 to 32	1	0
	35 to 37	0	0
	40 to 42	0	0
	45 to 47	0	0
	50 to 52	0	0
	55 to 57	0	0
	60 to 62	0	NR

TABLE 3-1 (Continued)
HNu READINGS FROM JUNE 1995 SAMPLING EVENT
NWIRP BETHPAGE, NEW YORK

Soil Boring	Depth of Sample (feet)	HNu Reading (ppm)	
		Split Spoon	Head Space
DSB03	0.5 to 2.5	0	0
	5.0 to 7.0	0	0
	10 to 12	0	0
	15 to 17	0	1
	20 to 22	0	0
	25 to 27	0	0
	30 to 32	0	0
	35 to 37	2	2
	40 to 42	0	0
	45 to 47	0	0
	50 to 52	0	0
	55 to 57	0	0
	60 to 62	2	NR
DSB04	1.0 to 3.0	0	0
	5.0 to 6.5	0	1
DSB04A	5.0 to 7.0	0	0
	10 to 12	0	1
	15 to 17	0	0
	20 to 22	0	2
	25 to 27	NR	NR
	30 to 32	18	10
	35 to 37	10	7
	40 to 42	2	3
	45 to 47	0	2
	50 to 52	2	4
	55 to 57	4	8
	60 to 62	0	2.5

TABLE 3-1 (Continued)
HNu READINGS FROM JUNE 1995 SAMPLING EVENT
NWIRP BETHPAGE, NEW YORK

Soil Boring	Depth of Sample (feet)	HNu Reading (ppm)	
		Split Spoon	Head Space
DSB05	0 to 2	3	6
	5 to 7	0	1.5
	10 to 12	2	4
	15 to 17	13	24
	20 to 22	10	12
	25 to 27	6	1
	30 to 32	6	0
	35 to 37	6	6
	40 to 42	3	1
	45 to 47	5	4
	50 to 52	3	3
	55 to 57	16	3
	57 to 59	0	NR
	60 to 62	0	NR
DSB06	0 to 2	0	0
	5 to 7	0	1
	10 to 12	0	0
	15 to 17	0	0
	20 to 22	19	20
	25 to 27	1	5
	30 to 32	0	0
	35 to 37	0	0
	40 to 42	0	0
	45 to 47	0	4.8
	50 to 52	0	2
	55 to 57	6	15
	60 to 62	0	NR

TABLE 3-1 (Continued)
HNu READINGS FROM JUNE 1995 SAMPLING EVENT
NWIRP BETHPAGE, NEW YORK

Soil Boring	Depth of Sample (feet)	HNu Reading (ppm)	
		Split Spoon	Head Space
DSB07	1.0 to 2.5	1	0
	5.0 to 7.0	NR	1
	10 to 12	NR	NR
	15 to 17	0	1
	20 to 22	5	25
	26 to 28	1.4	7
	30 to 32	1	5
	35 to 37	5	6
	40 to 42	4	11
	45 to 47	5	6
	50 to 52	7	6
	55 to 57	5	10.6
	60 to 62	0	NR
DSB08	1.0 to 3.0	1	2
	5.0 to 7.0	5	2.5
	10 to 12	1	1
	15 to 17	7	14
	20 to 22	4	3
	25 to 27	1	4
	30 to 32	0	4.6
	35 to 37	0	7
	40 to 42	0	3
	45 to 47	1.8	2.5
	50 to 52	NR	NR
	55 to 57	4	5
	60 to 62	NR	NR

TABLE 3-1 (Continued)
HNu READINGS FROM JUNE 1995 SAMPLING EVENT
NWIRP BETHPAGE, NEW YORK

Soil Boring	Depth of Sample (feet)	HNu Reading (ppm)	
		Split Spoon	Head Space
DSB09	1.3 to 2.8	0	0
	5.0 to 6.5	0	0
	10 to 11.5	0	0
	15 to 16.5	0	0
	20 to 21.5	0	14.5
	25 to 26.5	14	4
	30 to 31.5	1	2
	35 to 36.5	2	10
	40 to 41.5	0.8	1.8
	45 to 46.5	1	6
	50 to 51.5	0	0
	55 to 56.5	3	1
	60 to 61.5	0	NR

NR - No Reading Taken

TABLE 3-2

GEOTECHNICAL ANALYSIS
JUNE 1995 SAMPLING EVENT
NWIRP BETHPAGE, NEW YORK

	DSB09 (1.3' to 2.8')	DSB09 (15' to 16.5')	DSB09 (55' to 56.5')	DSB06 (20 to 22")	DSB06 (40' to 42')	DSB06 (50' to 52')
ASTM D422/Percent Finer:						
1"	100	100	100	100	100	100
3/4"	100	100	100	84	100	100
1/2"	100	100	100	77	100	100
3/8"	95	97	100	72	100	100
#4	92	80	100	54	100	99
#10	83	63	99	40	98	99
#20	67	45	96	28	46	98
#40	42	17	78	16	24	70
#60	28	5	12	8	15	9
#100	24	2	7	5	10	6
#200	23	1	6	4	8	4
ASTM D422/Percent:						
Gravel	8	20	0	46	0	1
Sand	69	79	94	51	92	95
Silt	21	NA	NA	NA	NA	NA
Clay	2	NA	NA	NA	NA	NA
ASTM D4318/Limits:						
Liquid Limit	non-plastic	non-plastic	non-plastic	non-plastic	non-plastic	non-plastic
Plastic Limit	non-plastic	non-plastic	non-plastic	non-plastic	non-plastic	non-plastic
Plasticity Index	non-plastic	non-plastic	non-plastic	non-plastic	non-plastic	non-plastic
ASTM D2487/Classification:	SM	SP	SP-SM	SP	SW-SM	SP

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TABLE 3-2 (Continued)
GEOTECHNICAL ANALYSIS - JUNE 1995 SAMPLING EVENT
NWIRP BETHPAGE, NEW YORK

	DSB02 (15' to 17')	DSB02 (35' to 37')	DSB02 (55' to 57')	DSB03 (15' to 17')	DSB03 (30' to 32')	DSB03 (60' to 62')
ASTM D422/Percent Finer:						
1"	100	100	100	100	100	100
3/4"	100	100	100	100	100	100
1/2"	88	100	100	94	100	100
3/8"	82	100	100	89	100	100
#4	69	100	96	76	100	100
#10	49	100	94	64	100	100
#20	34	99	85	52	98	94
#40	16	94	43	36	53	38
#60	7	38	15	19	13	11
#100	4	17	10	11	7	8
#200	2	13	6	9	5	5
ASTM D422/Percent:						
Gravel	31	0	4	24	0	0
Sand	67	87	90	67	92	95
Silt	NA	6	NA	NA	NA	NA
Clay	NA	7	NA	NA	NA	NA
ASTM D4318/Limits:						
Liquid Limit	non-plastic	non-plastic	non-plastic	non-plastic	non-plastic	non-plastic
Plastic Limit	non-plastic	non-plastic	non-plastic	non-plastic	non-plastic	non-plastic
Plasticity Index	non-plastic	non-plastic	non-plastic	non-plastic	non-plastic	non-plastic
ASTM D2487/Classification:	SP	SM	SP-SM	SP-SM	SW-SM	SP

SM - Silty sand
SP - Poorly graded sand with gravel
SP - SM - Poorly graded sand with silt
SW - SM - Well graded sand with silt
NA - No sample in this range

DRAFT

sieve sizes range from 1 inch openings to the number 200 sieve (0.0029 inch openings). This sieve analysis is used to perform the classification analysis.

- Sand is defined as; particles of rock that pass the No. 4 sieve but are retained on the number 200 sieve. The results indicate medium to fine grained sand.

- Gravel is defined as particles of rock that pass the 3 inch sieve but are retained on a No. 4 sieve. The results of these samples indicate some areas contain fine grained gravel but most do not.

The Atterberg Limits test (ASTM 4318) determines the plasticity of soils. The plasticity of soils is the relationship between water content and soil behavior is defined as the amount of deformation a soil can withstand without breaking. Plastic soils contain fines such as silt and clay which fill the voids between grains. Sandy soils typically break or crack under minor stress and are non-plastic. The results of the tests indicate the soils are non-plastic. This is consistent with sandy soils.

The results of the soil analysis indicate that sandy soil is typical for the Site 1 area and is usually well drained due to the voids present between the grains of sand. The use of air sparging/vapor extraction is well suited to sandy soils, due to these associated void spaces.

3.2.2 Chemical Results

Soil samples were collected from the 11 soil boring locations as shown on Figure 3-1. Two of the locations (DSB01 and DSB04) were only sampled from the top interval due to difficulties in drilling through subsurface concrete. The subsurface concrete contained re-bar and could not be penetrated with the available equipment, therefore the drill rig was relocated down gradient and drilling continued at the new locations. Samples from the two new locations (DSB01A and DSB04A) were collected from the middle and bottom intervals of these borings.

The results of all the chemical testing are provided in Table 3-3. As shown in Table 3-3 there was minimal contamination was found at the locations sampled. Only two borings (DSB05 and DSB08) contained chlorinated organics at concentrations above detection limits. Both samples were collected from the top interval just below the Plant Number 3 Floor. The concentrations detected at these locations are below the Remedial Action Levels identified in Table 1-1. DSB08 and DSB09 detected the presence of acetone in the bottom (55 to 57 feet) interval. Currently, there is no remedial action level for acetone in soil.

TABLE 3-3

SOIL SAMPLE ANALYTICAL RESULTS
JUNE, 1995 SAMPLING EVENT
NWIRP BETHPAGE, NEW YORK

	Acetone	Trichloroethene (TCE)	Tetrachloroethene (PCE)
Soil Boring #1 (DSB01)			
0.5' to 2.5'	BDL	BDL	BDL
Soil Boring #1A (DSB01A)			
25' to 27'	BDL	BDL	BDL
55' to 57'	BDL	BDL	BDL
Soil Boring #2 (DSB02)			
0.5' to 2.5'	BDL	BDL	BDL
15' to 17'	BDL	BDL	BDL
60' to 62'	BDL	BDL	BDL
Soil Boring #3 (DSB03)			
5' to 7'	BDL	BDL	BDL
35' to 37'	BDL	BDL	BDL
55' to 57'	BDL	BDL	BDL
Soil Boring #4 (DSB04)			
1' to 3'	BDL	BDL	BDL
Soil Boring #4A (DSB04A)			
30' to 32'	BDL	BDL	BDL
55' to 57'	BDL	BDL	BDL
Soil Boring #5 (DSB05)			
0' to 2'	BDL	6 μg/Kg	20 μg/Kg
15' to 17'	BDL	BDL	BDL
55' to 57'	BDL	BDL	BDL
Soil Boring #6 (DSB06)			
0' to 2'	BDL	BDL	BDL
20' to 22'	BDL	BDL	BDL
55' to 57'	BDL	BDL	BDL
Soil Boring #7 (DSB07)			
1.0' to 2.5'	BDL	BDL	BDL
20' to 22'	BDL	BDL	BDL
55' to 57'	BDL	BDL	BDL

TABLE 3-3 (Continued)
SOIL SAMPLE ANALYTICAL RESULTS
JUNE, 1995 SAMPLING EVENT
NWIRP BETHPAGE, NEW YORK

	Acetone	Trichloroethene (TCE)	Tetrachloroethene (PCE)
Soil Boring #8 (DSB08)			
1' to 3'	BDL	BDL	19 µg/Kg
15' to 17'	BDL	BDL	BDL
55' to 57'	37 µg/Kg	BDL	BDL
Soil Boring #9 (DSB09)			
1.3' to 2.8'	BDL	BDL	BDL
35' to 37'	BDL	BDL	BDL
55' to 57'	25 J µg/Kg	BDL	BDL

BDL Below Detection Limit
J Estimated Value

The sample for DSB08 was analyzed eight days after collection which is one day over the required holding time for VOCs, according to the New York State Department of Environmental Conservation (NYSDEC) Regulation. The first analysis of the sample had a low internal standard and had to be rerun, therefore the second time the sample was analyzed it was out of compliance. The result of the first analysis with a low internal standard was 41 μg/kg for PCE. The result of the second analysis was 19 μg/kg for PCE. The value of 19 μg/kg would receive a J qualifier if the data was validated and would be considered an estimated value due to the missed holding time. Complete analytical information provided from the laboratory is provided in Appendix G.

During the collection of the samples, field readings using an HNu were recorded (see Table 3-1). Field readings were minimal and correlate with the laboratory data indicating that no major source of contamination was located.

The results of the Site 1, Remedial Design, Phase II sampling effort are summarized on Figure 3-1 along with historic data above action levels. The soil samples collected inside of Plant Number 3 were collected from the general area from which elevated soil gas samples had been collected during previous investigations. The soil samples do not confirm that a VOC source is present in the area. DSB01 was placed within the honeycomb cleaning area where the elevated soil gas readings were obtained. The results of DSB01 were below detection limits for the VOCs. DSB01A was located immediately down gradient of the former honeycomb cleaning area and did not detect any VOC contamination. Additionally, the sample collected at the bottom of DSB01A was collected at the groundwater interface and contained a moisture content of 16 percent. This sample would be expected to contain VOCs if the former Honeycomb cleaning area is a significant source and is impacting the groundwater.

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ACAD: Q:\DATA\CADD\5236\95070701.DWG 07/24/95 DT FIG-A.LAY MS-VIEW= FIG-A

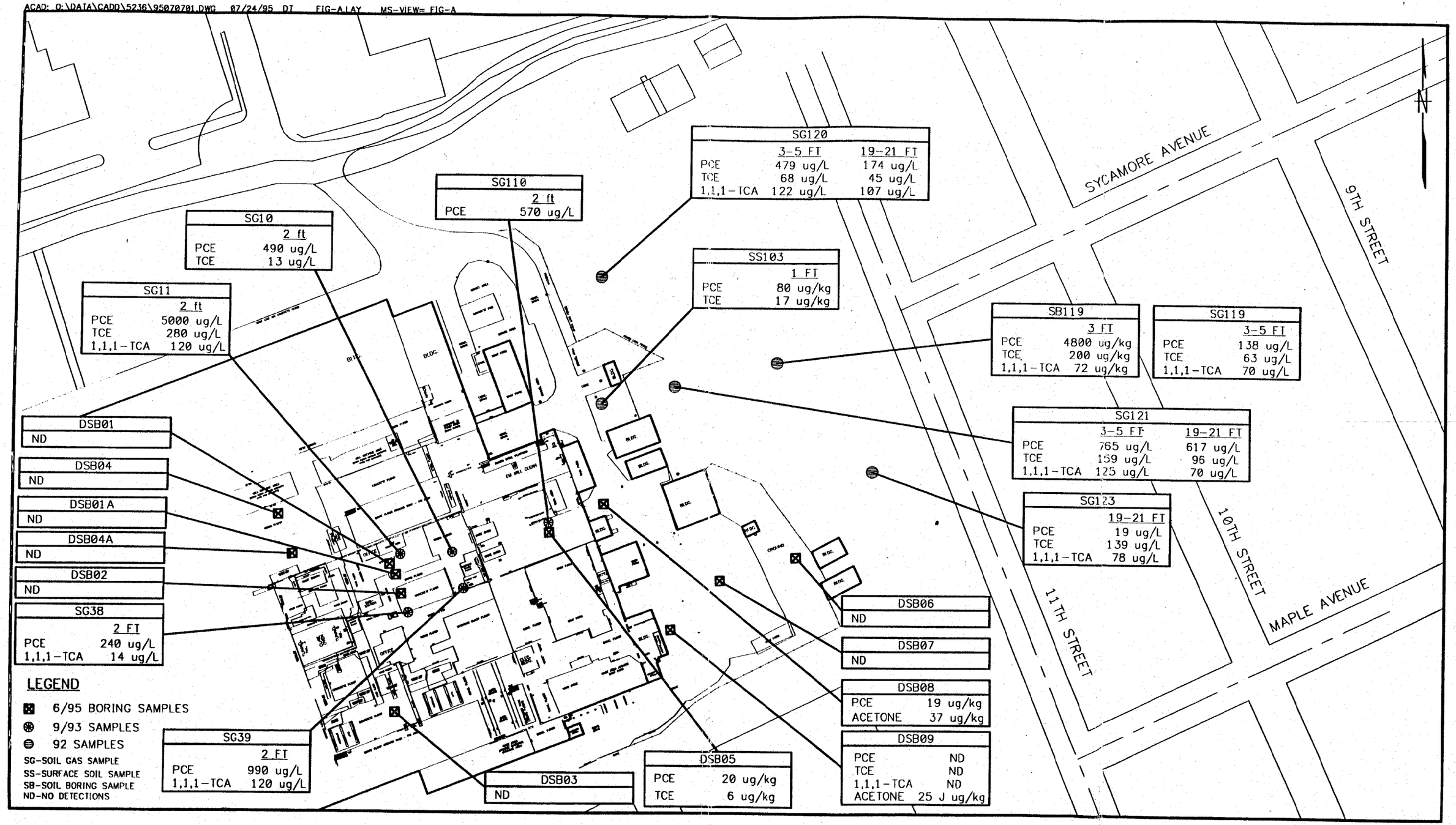


FIGURE 3-1

SUMMARY OF SOIL SAMPLE LOCATIONS AND RESULTS
SITE 1
NWIRP, BETHPAGE, NEW YORK

C.F. BRAUN
ENGINEERING CORP.

079508/P CTO 213

0070B052

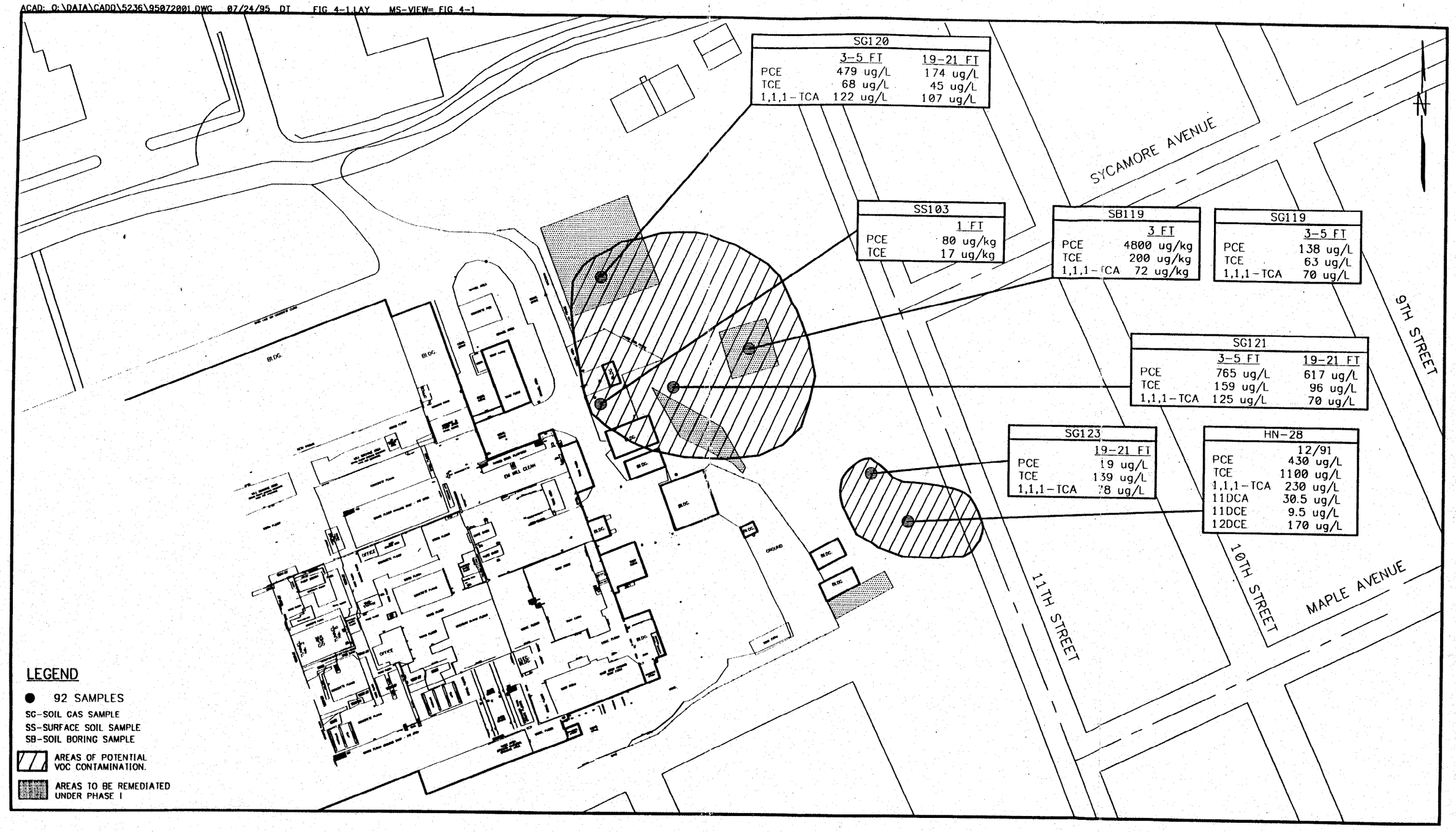
4.0 SUMMARY AND RECOMMENDATIONS

The overall goal of the proposed AS/VE is to protect the groundwater from further impacts and to allow a quicker and less expensive groundwater remediation by eliminating the source of contamination. To accomplish this, the highest concentration of solvents in the soil and in the shallow groundwater aquifer would be remediated. Although groundwater data exists which suggests that Site 1 is/was a significant source of solvent contamination, the soil boring data was more limited.

The pre-design soil testing conducted inside of Plant Number 3 did not verify the presence of VOC contamination at concentrations above the Remedial Action Levels. This finding suggests that either there were no significant sources of VOC contamination present, or the former sources are no longer present. However, because DSB01 did not penetrate the subsurface concrete floor associated with the former Honeycomb Cleaning Pit it is recommended that one additional test pit/soil boring be placed within the Honeycomb Cleaning Pit. Because conventional drilling equipment is unable to penetrate the subsurface concrete it will be necessary to dig a test pit approximately six feet deep to break through the former subsurface concrete floor of the former Honeycomb Cleaning Pit and then install a boring to the water table. If that boring does not locate contamination above the Remedial Action Levels then CF Braun recommends that a full-scale AS/VE system not be installed within Plant Number 3.

The soil contamination at Site 1, as depicted in Figure 1-4, is based on two laboratory samples (Boring SB 119 and surface sample SS 103) which exceeded the action level and several soil gas samples. The sample for SB 119 was collected at a depth of 5 feet which is within the area of proposed excavation for Phase 1 (CTO 212) as shown in Figure 4-1. This location will be remediated, assuming the RAC determines that arsenic contamination is present at concentrations which exceed the RCRA TCLP criteria for a characteristic waste. If the area around SB 119 is excavated, there is minimal analytical data to determine a location for a pilot-scale system and/or a full-scale AS/VE system. Therefore, it is recommended that ten additional soil borings be placed around the area of SB119. Additionally, it is recommended that two soil borings be placed around SG 123 to confirm levels of contamination in that area. The borings should be installed to the water table and three samples (top, middle, and bottom) should be collected from each boring and analyzed for VOC contamination. It is also recommended that this work be conducted after the RAC defines the area of remediation around Boring SB 119 (i.e. this will prevent borings being located in soil which will be removed and disposed).

ACAD: O:\DATA\CADD\5236\95072001.DWG 07/24/95 DT FIG 4-1.LAY MS-VIEW= FIG 4-1



AREAS OF PONTENTIAL SOIL CONTAMINATION
SITE 1
NWIRP, BETHPAGE, NEW YORK

0 100 200
SCALE IN FEET

FIGURE 4-1

C.F. BRAUN
ENGINEERING CORP.

079608/P CTO 213

0070B062

The groundwater results shown in Figure 1-3, indicate a significant decrease in contamination for well HN 29 between 1991 and 1993 data, It is possible that the contamination is migrating away from Site 1 at a significant rate. It is therefore recommended that additional groundwater samples be collected from wells HN-27, HN-27S2, HN-27S3, HN-28, and HN-29 to determine current VOC levels of contamination. It is recommended that the additional groundwater and soil samples be collected prior to selecting a location for a pilot scale system.

REFERENCES

Feasibility Study Report for Naval Weapons Industrial Reserve Plant, Bethpage, New York, HNUS, March 1994.

Final Remedial Investigation Report, NWIRP, Bethpage, New York, HNUS, May 1992.

Final Remedial Investigation Report, Phase II, Bethpage, New York, Halliburton NUS, July, 1993.

Lindner, Julie B. and Thomas E. Reilly, 1983, Analysis of Three Tests of the Unconfined Aquifer in Southern Nassau County, Long Island, New York. Syosset, New York: USGS Water Resources Investigations Report 82-4021.

APPENDIX A

SOIL BORING LOGS

BORING LOG **HALLIBURTON NUS**

PROJECT: NWIRP Bethpage BORING NO.: DSB01
PROJECT NO.: 5253 DATE: 6-9-95 DRILLER: T. Cembarn
ELEVATION: FIELD GEOLOGIST: T. Evans
WATER LEVEL DATA:
(Date, Time & Conditions)

	SAMPLE NO. & TYPE	DEPTH (ft.) OR RUN NO.	BLOWS 6" OR RQD (%)	SAMPLE RECOVERY SAMPLE LENGTH	LITHOLOGY CHANGE (Depth, ft.)	MATERIAL DESCRIPTION* SOIL DENSITY/CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	ROCK BR. OR USCS	REMARKS HNu Head
								concrete		
1340	S-1 0.5-2.5		12 18 17 8	1.1/2.0		M Dense	Brn	gravelly sand <1/4" ø	SW	6 0
6/9 1348 6/10	S-2 5-5.5		50/.5	0.2/.5		V Dense	yellow brn	silty sand	SM	F-Gr 16 — Auger Refusal @ 5.5
								concrete		

REMARKS Davy DK 50
3 1/4" ID, 7 1/2" OD HSA
2" SS, 140# wt, 30" drop, cathead

BORING DSB01

PAGE 1 OF ___

* See Legend on Back

BORING LOG **HALLIBURTON NUS**

PROJECT: NWIRP Bethpage BORING NO.: DSB01A
PROJECT NO.: 5253 DATE: 6-12-95 DRILLER: T. Gembarra
ELEVATION: FIELD GEOLOGIST: T. Evans
WATER LEVEL DATA:
(Date, Time & Conditions)

	SAMPLE NO. & TYPE	DEPTH (ft.) OR RUN NO.	BLOWS 6" OR RQD (%)	SAMPLE RECOVERY / SAMPLE LENGTH	LITHOLOGY CHANGE (Depth, ft.)	MATERIAL DESCRIPTION* SOIL DENSITY/CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	ROCK BR. OR USCS	REMARKS HNu	Head
2200								concrete (reinforced			
		1.0									
		2.0					Brn	Fine to Coarse SAND tr Fine GRAVEL	SW	Log cuttings 0.5 to 5.0	
		3.0									
		4.0									
		5.0									
2237	S-1 5-7		8 8 8 11	1.0/2.0		M Dense	tan brn	Fine to medium SAND tr Fine Gravel	SW	12	5
		10.0									
2254	S-2 10-12		17 28 35 30	0.9/2.0		V Dense	yellow orange	Fine to medium SAND tr Fine GRAVEL	SW	4	1
		15.0									
2300	S-3 15-17		28 32 32 38	0.6/2.0		V Dense	yellow orange	Fine to coarse SAND tr Fine GRAVEL	SW	4	4
		20.0									
2314	S-4 20-22		6 8 9 6	0.8/2.0		M Dense	yellow tan	Fine to coarse SAND tr Fine GRAVEL	SW	8	18
		25.0									

REMARKS Davy DK-50 track-mounted rig
3 1/4" ID 7 1/2" OD HSA
2" SS, 140# wt, 30" Drop, Cat head

BORING DSB01

PAGE 1 L

* See Legend on Back

BORING LOG — **HALLIBURTON NUS**

PROJECT: NWIRP Bethpage — BORING NO.: DSB01A
PROJECT NO.: 5253 — DATE: 6-12-95 — DRILLER: T. Gerberman (ART)
ELEVATION: — FIELD GEOLOGIST: T. Evans
WATER LEVEL DATA:
(Date, Time & Conditions)

	SAMPLE NO. & TYPE	DEPTH (FT.) OR RUN NO.	BLOWS 6" OR RQD (%)	SAMPLE RECOVERY SAMPLE LENGTH	LITHOLOGY CHANGE (Depth, ft.)	MATERIAL DESCRIPTION* SOIL DENSITY: CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	ROCK BR. OR USCS	REMARKS HNu	Lea
2321	S-5 25-27	26.0	9 13 14 11	0.9/2.0		M Dense		Fine to Coarse SAND tr Fine GRAVEL	SW	20	50
										BZ = 0 ppm	
		30.0									
2332	S-6 30-32		W 0 H	0.5/2.0		V Loose	yellow brn	Fine SAND / SILTY SAND tr mica	SP	9	7
		35.0									
2338	S-7 35-37		2 4 4 12	1.3/2.0		M Dense	yellow brn to yellow orange	FINE SILTY SAND tr mica to CLAY / SILT	SM/SP CL/ML	3	5
		40.0									
2350	S-8 40-42		0 7 9 8	1.2/2.0		M Dense	tan to grey	Fine SAND	SP	5	5
		45.0									
6/12 6/13 0006	S-9 45-47		10 7 9 7	1.3/2.0		M Dense	tan to grey	Fine SILTY SAND / Fine SAND	SM/SP	4	4
		50.0									

REMARKS

BORING DSB01

PAGE 2 OF 3

* See Legend on Back

BORING LOG **HALLIBURTON NUS**

PROJECT: NWIRP Bethpage BORING NO.: DSB01A
PROJECT NO.: 5253 DATE: 6-13-95 DRILLER: T Gemborra (ADT)
ELEVATION: FIELD GEOLOGIST: T Evans
WATER LEVEL DATA:
(Date, Time & Conditions)

	SAMPLE NO. & TYPE	DEPTH (ft.) OR RUN NO.	BLOWS 6" OR RQD (%)	SAMPLE RECOVERY / SAMPLE LENGTH	LITHOLOGY CHANGE (Depth, ft.)	MATERIAL DESCRIPTION* SOIL DENSITY/ CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	ROCK BR. OR USCS	REMARKS HNu Head
0020	S-10 50-52	51.0	9 7 9 6	0.9/2.0				medium SAND	SP	3 4
		55.0								
0033	S-11 55-57		13 17 19 16	0.9/2.0		Dense	grey white	fine SAND	SP	40 20
		60.0								
0050	S-12 60-62		6 9 11 9	0.5/2.0	▽ 61	M Dense	grey white	medium SAND	SP	Saturated 0 -1
					TD62					

REMARKS * No litho samples taken (Drillers did not have jars)
* Sample S-5 (DSB01A-25/27) & S-12 (DSB01A-60/62) sent to Pace Labs for TCL VOC
[S-10 sent as per Rob S/Mark S direction]

BORING DSB01A
PAGE 3 c

* See Legend on Back

BORING LOG — **HALLIBURTON NUS**

PROJECT: NWIRP Bethpage — BORING NO.: DSB07
PROJECT NO.: 5253 — DATE: 6-9-95 — DRILLER: T. Gembarra
ELEVATION: — FIELD GEOLOGIST: T. Evans
WATER LEVEL DATA:
(Date, Time & Conditions)

	SAMPLE NO. & TYPE	DEPTH (FT.) OR RUN NO.	BLOWS 6" OR RQD (%)	SAMPLE RECOVERY / SAMPLE LENGTH	LITHOLOGY CHANGE (Depth, ft.)	MATERIAL DESCRIPTION* SOIL DENSITY/ CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	ROCK BR. OR USCS	REMARKS HNu Head
								Concrete		
1411	S-1 0.5-2.5	1.0	6	0.8/2.0		M Dense	Brn	gravelly sand (flour base)	SW	F-C gr 4 <1
		2.0	8 7 9							
		3.0								
		4.0								
		5.0								
1418	S-2 5-7		12 12 13 8	1.5/2.0		M Dense	tan	silty sand tr gravel	SW/SM	from wellhead ← 50 0 dr con in shoe 0 in spoon
		10.0								
1425	S-3 10-12		17 12 16 15	0.7/2.0		M Dense	yellow brn	sand some gravel	SW	F-C gr 0 <1
		15.0								
1445	S-4 15-17		8 10 12 11	0.8/2.0		M Dense	tan	gravelly sand	SW	F-C gr 0 1
		20.0								
1450	S-5 20-22		7 7 8 15	0.7/2.0		M Dense	tan	gravelly sand	SW	F-C gr 0 0
		25.0								

REMARKS: Davy DK 50 truck mounted rig
3¼" ID, 7½" OD HSA
2" SS, 140# wt, 30" drop cat head

BORING DSB07

PAGE 1 OF 3

* See Legend on Back

BORING LOG — **HALLIBURTON NUS**

PROJECT: NWIRP Bethpage — BORING NO.: DSB02
PROJECT NO.: 5253 — DATE: 6-9-95 — DRILLER: T. Genkern
ELEVATION: — FIELD GEOLOGIST: T Evans
WATER LEVEL DATA:
(Date, Time & Conditions)

	SAMPLE NO. & TYPE	DEPTH (ft.) OR RUN NO.	BLOWS 6" OR RQD (%)	SAMPLE RECOVERY / SAMPLE LENGTH	LITHOLOGY CHANGE (Depth, ft.)	MATERIAL DESCRIPTION* SOIL DENSITY/ CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	ROCK BR. OR USCS	REMARKS	HNu	Head
1455	S-6 25-27	26.0	13 17 19 15	0.8/0.0		M Dense	tan	gravelly sand	SW	F-C gr	<1	1
1504	S-7 30-32	30.0	5 8 8 9	1.2/2.0		M Dense	Lt brn	silty sand tr mica (laminated)	SM	F gr	1	0
1512	S-8 35-37	35.0	8 6 6 8	1.8/2.0		M Dense	yellow orange to gray	silty sand tr mica sand tr mica	SM SP	F gr F gr	0	-
1520	S-9 40-42	40.0	10 5 13 18	1.3/2.0		Dense	white/ tan	Sand tr mica	SP	F gr	0	0
1535	S-10 45-47	45.0	8 8 28 27	1.2/2.0		V Dense	yellow-orange	Sand	SP	F-M gr	0	0
		50.0										

REMARKS

BORING DSB02

PAGE 2 0.

* See Legend on Back

BORING LOG — **HALLIBURTON NUS**

PROJECT: NWIRP Bethpage — BORING NO.: DSB02
PROJECT NO.: 5253 — DATE: 6-9-95 — DRILLER: T. Gembarra
ELEVATION: — FIELD GEOLOGIST: T. Evans
WATER LEVEL DATA: —
(Date, Time & Conditions)

	SAMPLE NO. & TYPE	DEPTH (FT.) OR RUN NO.	BLOWS 6" OR RQD (%)	SAMPLE RECOVERY / SAMPLE LENGTH	LITHOLOGY CHANGE (Depth, ft.)	MATERIAL DESCRIPTION* SOIL DENSITY/ CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	ROCK BR. OR USCS	REMARKS HNu	Hcas
1546	S-11 50-52	51.0	6 3 4 9	1.0/2.0		M Dense	White/ yellow orange	Sand carbon layer @ ~51.5	SP	M-gr 0	0
		55.0									
1556	S-12 55-57		25 26 46 25	1.3/2.0		V Dense	yellow-orange	Sand	SP	Mgr 0	0
		60.0									
1610	S-13 60-62		21 4/6 20 27	1.2/2.0	P 61.5	Dense	white/ tan	Sand	SP	wet Mgr 0 saturated	—
								Natural Backfill HSA 0' to 60'			

REMARKS ★ Samples S-1 (DSB02-0.5/1.5), S-4 (DSB02-15/17) & S-12 (DSB02-55/57) sent to Pace Labs for TCL VOC

BORING DSB02

PAGE 3 OF

* See Legend on Back

□ Samples S-1, S-4, & S-8 (DSB02-35/37) sent to Geotesting express for ASTM D2487

BORING LOG — **HALLIBURTON NUS**

PROJECT: NWIRP Bethpage — BORING NO.: DSB03
PROJECT NO.: 5253 — DATE: 6-10-95 — DRILLER: T. Cembara
ELEVATION: — FIELD GEOLOGIST: T. Evans
WATER LEVEL DATA:
(Date, Time & Conditions)

	SAMPLE NO. & TYPE	DEPTH (FT.) OR RUN NO.	BLOWS 6" OR ROD (%)	SAMPLE RECOVERY/SAMPLE LENGTH	LITHOLOGY CHANGE (Depth, ft.)	MATERIAL DESCRIPTION* SOIL DENSITY/CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	ROCK BR. OR USCS	REMARKS HNu	Head
						0.5		Concrete			
		1.0	20								
0950	S-1 0.5-2.5	2.0	30 35 10	1.3/2.0		Dense	gray brn	fine to coarse fine to coarse gravelly sand tr wood	SW	0	0
		3.0									
		4.0									
		5.0									
0959	S-2 5-7		52 32 22 19	1.0/2.0		Dense	tan brn	f-m gr sand tr fine gravel	SW	0	6
								5" concrete @ 6'			
		10.0									
1007	S-3 10-12		16 21 18 12	0.7/2.0		Dense	yellow orange	Fine + Coarse sand tr fine sand	SW	0	-
		15.0									
1015	S-4 15-17		33 9 11 19	1.2/2.0		Dense	yellow brn	Fine to Coarse sand tr fine gravel	SW	0	1
								fine sand	SP		
		20.0									
1030	S-5 20-22		66 15 15 16	1.0/2.0		Dense	tan	Fine to coarse sand some fine gravel	SW	0	<1
		25.0									

REMARKS: Davy DK 50 track-mounted rig
3¼" ID, 7½" OD HSA
2" SS, 140# wt, 30" Drop, cat head

BORING: DSB03

PAGE: 1 of

* See Legend on Back

BORING LOG — **HALLIBURTON NUS**

PROJECT: NWIRP Bethpage — BORING NO.: DSB03
PROJECT NO.: 5253 — DATE: 6-10-95 — DRILLER: T. Cenbam
ELEVATION: — FIELD GEOLOGIST: T. Evans
WATER LEVEL DATA:
(Date, Time & Conditions)

	SAMPLE NO. & TYPE	DEPTH (ft.) OR RUN NO.	BLOWS 6" OR RQD (%)	SAMPLE RECOVERY / SAMPLE LENGTH	LITHOLOGY CHANGE (Depth, ft.)	MATERIAL DESCRIPTION* SOIL DENSITY CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	ROCK BR. OR USCS	REMARKS HNu	REMARKS Head
1038	S-6 25-27	26.0	03 / 18 / 14 / 22	1.1/2.0		Dense	tan to brn	fine to coarse sand + fine gravel + Fe-nodules	SW	0	0
		30.0									
1048	S-7 30-32		67 / 43 / 42 / 33	0.95/2.0		V Dense	yellow orange	fine sand	SP	0	0
		35.0									
1101	S-8 35-37		06 / 23 / 30 / 33	1.4/2.0		V Dense	yellow orange + white	fine sand + coarse gravel frag	SP	2	2
		40.0									
1118	S-9 40-42		82 / 24 / 48 / 52	1.0/2.0		V Dense	white tan	fine sand	SP	0	0
		45.0									
1130	S-10 45-47		67 / 18 / 32 / 34	1.2/2.0		V Dense	white tan to salmon	fine sand	SP	0	0
		50.0									

REMARKS

BORING DSB03

PAGE 2 OF 3

* See Legend on Back

BORING LOG — **HALLIBURTON NUS**

PROJECT: NWIRP Bethpage — BORING NO.: DSB03
PROJECT NO.: 5253 — DATE: 6-10-95 — DRILLER: T. Semberm
ELEVATION: — FIELD GEOLOGIST: T. Evans
WATER LEVEL DATA: —
(Date, Time & Conditions) —

	SAMPLE NO. & TYPE	DEPTH (ft) OR RUN NO.	BLOWS 6" OR RQD (%)	SAMPLE RECOVERY / SAMPLE LENGTH	LITHOLOGY CHANGE (Depth ft)	MATERIAL DESCRIPTION* SOIL DENSITY CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	ROCK BR. OR USCS	REMARKS HNu	REMARKS Head
1144	S-11 50-52	51.0	40 / 17 / 26 / 24	1.2/2.0		V Dense	tan to white	fine to medium sand	SP	0	0
		55.0									
1203	S-12 55-57		44 / 26 / 88 / 86	1.5/2.0		V Dense	tan to white/tan	Fine to medium SAND	SP	0	<1
		60.0									
1221	S-13 60-62		42 / 19 / 23 / 22	/2.0	▽ 61.0'	Dense	tan/white	Fine to medium sand to satin	SP	2	—
										Saturated	—
					TD 62			Natural Backfill			
								HSA 0' to 60'			

REMARKS * Samples S-1 (DSB03-05/07), S-8 (DSB03-35/37) & S-12 (DSB03-55/57) sent to Pace for TCL VOC analysis

BORING DSB03

PAGE 3

* See Legend on Back

Δ Samples S-4 (DSB03-15/17), S-7 (DSB03-30/32), & S-12 (DSB03-60/62) sent geotesting express for ASTM D2487

BORING LOG **HALLIBURTON NUS**

PROJECT: NWIRP Bethpage BORING NO.: DSBØ4
PROJECT NO.: 5253 DATE: 6-10-95 DRILLER: T Gembara
ELEVATION: FIELD GEOLOGIST: T. Evans
WATER LEVEL DATA:
(Date, Time & Conditions)

	SAMPLE NO. & TYPE	DEPTH (ft.) OR RUN NO.	BLOWS 6" OR RQD (%)	SAMPLE RECOVERY / SAMPLE LENGTH	LITHOLOGY CHANGE (Depth, ft.)	MATERIAL DESCRIPTION* SOIL DENSITY/ CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	ROCK BR. OR USCS	REMARKS HNu He
		1.0						2" wood flooring 6" concrete		
0827	S-1 1-3	2.0	4 3			Loose	Lt Brn	Sand tr Fine gravel	SP	F-MCr 0 < 1
		3.0	4 3							
		4.0								
		5.0								
0832	S-2 5-6.5		2 2 100/.5			V Dense	Lt Brn	sand	SW	wet 0 1 F-C gr Auger Refusal @ 6' Move 3' NE Auger Refusal @ 6' → reinforced Concrete

REMARKS Davy DK 50 track-mounted rig
3¼" ID, 7½" OD HSA
2" SS, 140# wt, 30" Drop, Cathead

BORING DSBØ4

PAGE 1 OF

* See Legend on Back

BORING LOG **HALLIBURTON NUS**

PROJECT: NWIRP Bethpage BORING NO.: DSR Ø4 A
PROJECT NO.: 5253 DATE: 6-12-95 DRILLER: T. Gemberra
ELEVATION: FIELD GEOLOGIST: T. Evans
WATER LEVEL DATA:
(Date, Time & Conditions)

	SAMPLE NO. & TYPE	DEPTH (ft.) OR RUN NO.	BLOWS 6" OR RQD (%)	SAMPLE RECOVERY / SAMPLE LENGTH	LITHOLOGY CHANGE (Depth, ft.)	MATERIAL DESCRIPTION* SOIL DENSITY CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	ROCK BR. OR USCS	REMARKS HNu	Head
1810		1.0						wood flooring concrete			
		2.0					Lt Brn	fine to medium Sand tr fine gravel	SW	log cuttings 1' to 5'	
		3.0									
		4.0									
		5.0									
1856	S-1 5-7		5 10 12 15	1.0/2.0		M Dense	tan	Fine to coarse Sand tr fine gravel	SW	<1	<1
							d brn	→ clayey sand unit @ 6' 3" thick			
		10.0									
1909	S-2 10-12		21 37 36 45	0.3/0.0		V Dense	tan	fine to coarse sand tr fine Gravel	SW	0	1
								- Poor Recovery			
		15.0									
1914	S-3 15-17		5 11 17 13	0.9/0.0		Dense	tan brn	fine to coarse SAND tr fine GRAVEL	SW	0	0
		20.0									
1921	S-4 20-22		10 10 23 21	0.9/2.0		Dense	tan	fine to medium SAND	SP/SW	<1	2
								fine to medium SAND tr fine GRAVEL	SW		
		25.0									

REMARKS Davy DK 50 track-mounted rig
3¼" ID, 7½" OD HSA
2" SS, 140# wt, 30" Drop, cut head

BORING DSBØ4A

PAGE 1 O.

* See Legend on Back

BORING LOG — **HALLIBURTON NUS**

PROJECT: NWIRP Bethpage — BORING NO.: DSB04A
PROJECT NO.: 5253 — DATE: 6-12-95 — DRILLER: T. Gombarra
ELEVATION: — FIELD GEOLOGIST: T Evans
WATER LEVEL DATA: —
(Date, Time & Conditions) —

	SAMPLE NO. & TYPE	DEPTH (ft) OR RUN NO.	BLOWS 6" OR RQD (%)	SAMPLE RECOVERY SAMPLE LENGTH	LITHOLOGY CHANGE (Depth, ft.)	MATERIAL DESCRIPTION* SOIL DENSITY CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	ROCK BR. OR USCS	REMARKS HNu	Hea
1927	S-5 25-27	26.0	11 7 19 28	0.0/2.0		—	—	- No Recovery	—	—	—
		30.0									
1938	S-6 30-32		15 19 21 27	0.7/2.0		Dense	tan	fine to medium SAND tr fine GRAVEL	SW	18	10
		35.0									
1944	S-7 35-37		17 19 23 28	0.9/2.0		V Dense	Lt brn	fine SAND v tr fine GRAVEL to FINE SILTY SAND	SP	10	—
		40.0									
2005	S-8 40-42		7 8 9 7	1.0/2.0		M Dense	tan gray	fine SAND tr muscovite	SP	2 10 max in shoe	3
		45.0									
2019	S-9 45-47		13 16 60 12	1.0/2.0		V Dense	grey white	medium SAND	SP	<1	3
		50.0									

REMARKS —

BORING DSB04

PAGE 2 OF —

* See Legend on Back

BORING LOG **HALLIBURTON NUS**

PROJECT: NWIRP Bethpage BORING NO.: DSB04A
PROJECT NO.: DATE: 6-12-95 DRILLER: T. Gambino
ELEVATION: FIELD GEOLOGIST: T. Evans
WATER LEVEL DATA :
(Date, Time & Conditions)

	SAMPLE NO. & TYPE	DEPTH (ft.) OR RUN NO.	BLOWS 6" OR RQD (%)	SAMPLE RECOVERY SAMPLE LENGTH	LITHOLOGY CHANGE (Depth, ft.)	MATERIAL DESCRIPTION* SOIL DENSITY CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	ROCK BR. OR USCS	REMARKS HNu	Hnu
2024	S-10 50-52	51.0	15 17 17 19	1.2/2.0		Dense	yellow orange	medium SAND	SP	2	4
		55.0									
2033	S-11 55-57		11 9 17 14	0.8/2.0		Dense	white	Fine SAND v poorly graded	SP	4	8
		60.0									
2047	S-12 60-62		7 9 11 13	1.2/2.0		M Dense	tan	medium SAND	SP		
					TD62'					saturated @ $H_2O \approx 60-61'$	
								Natural Backfill HSA 0 to 60'			

REMARKS * NO Litho samples collected (drillers did not have jars)
* samples S-6 (DSB04A-30/32) & S-11 (DSB04A-55/57) sent to Pace Labs for TCL VOC analysis

BORING DSB04

PAGE 3

* See Legend on Back

BORING LOG — **HALLIBURTON NUS**

PROJECT: NWIRP Bethpage — BORING NO.: DSB05
PROJECT NO.: 5253 — DATE: 6-9-95 — DRILLER: T. Gembarra
ELEVATION: — FIELD GEOLOGIST:
WATER LEVEL DATA :
(Date, Time & Conditions)

	SAMPLE NO. & TYPE	DEPTH (FL) OR RUN NO.	BLOWS 6" OR RQD (%)	SAMPLE RECOVERY SAMPLE LENGTH	LITHOLOGY CHANGE (Depth, ft.)	MATERIAL DESCRIPTION* SOIL DENSITY CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	ROCK BR. OR USCS	REMARKS BG<1	HNu	Head
0924	S-1 0-2	1.0	27 26	1.6/2.0		Dense	yellow brn	sand, tr gravel	SW	F-MGr	3	6
		2.0	26 7				D. Brn	clayey sand tr gravel	SC			
		3.0										
		4.0										
		5.0										
0928	S-2 5-7		8 6	0.5/2.0		M Dense	Yellow Brn	sand some gravel <3/4" ø	SW	FM Gr	0	1.5
			4 11							Dry		
		10.0										
0934	S-3 10-12		27 19	0.7/2.0		Dense	yellow orange	sand some gravel <3/4" ø	SW	F-C Gr	2	4
			24 12									
		15.0										
0951	S-4 15-17		19 8	0.7/2.0		Dense	tan	Gravelly sand <3/4" ø	SW	F-M Gr	13	24
			17 31									
		20.0										
1000	S-5 20-22		12 14	0.7/2.0		V Dense	tan	Gravelly Sand <3/4" ø 1" max	SW	F-M Gr	10	12
			27 27									
		25.0										

REMARKS: DAVY DK50 truckmounted rig
3¼" ID, 7" OD HSA
2" SS, 140# wt, 30" Drop, cathead

BORING DSB05

PAGE 1 OF 3

* See Legend on Back

BORING LOG — **HALLIBURTON NUS**

PROJECT: NWIRP Bethpage — BORING NO.: DSBØ5
PROJECT NO.: 5253 — DATE: 6-9-95 — DRILLER: T. Cembarra
ELEVATION: — FIELD GEOLOGIST: T. Evans
WATER LEVEL DATA: —
(Date, Time & Conditions) —

	SAMPLE NO. & TYPE	DEPTH (ft.) OR RUN NO.	BLOWS 6" OR RQD (%)	SAMPLE RECOVERY / SAMPLE LENGTH	LITHOLOGY CHANGE (Depth, ft.)	MATERIAL DESCRIPTION* SOIL DENSITY CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	ROCK BR. OR USCS	REMARKS HNu	REMARKS Head
1015	S-6 25-27	26.0	48 21 19 11	0.8/2.0		M Dense	yellow orange	Sand F-gr	SP	Downhole = 3 ppm; BZ = 0 ppm @ 1009; 6 avg 24 max	1
		30.0									
1020	S-7 30-32		7 7 11 14	1.1/2.0		M Dense	yellow orange w/ tan	Sand F-gr	SP	OH = 6 ppm BZ = 0 ppm	6 0
		35.0									
1030	S-8 35-37		9 6 7	2.0/2.0		M Dense	yellow orange	Sand	SP	F-gr	
							grey to brown	silty sand tr mica (gravel @ ~37-38)	SM	F gr	6 0
		40.0									
1041	S-9 40-42		17 17 14 17	1.3/2.0		Dense	tan	Sand	SP	F-gr	3 1
		45.0									
1051	S-10 45-47		09 24 14 17	1.9/2.0		Dense	Grey	Sand F-Gr w/silt layer	SP		5 4
							lt Brn	Sand F-M-Gr	ML SP		
		4L									

REMARKS —

BORING DSBØ5

PAGE 2 of —

* See Legend on Back

BORING LOG — **HALLIBURTON NUS**

PROJECT: AWIRP Bethpage — BORING NO.: DSB05
PROJECT NO.: 5252 — DATE: 6-9-95 — DRILLER: T Gambaro
ELEVATION: — FIELD GEOLOGIST: T. Evans
WATER LEVEL DATA: —
(Date, Time & Conditions) —

	SAMPLE NO. & TYPE	DEPTH (ft.) OR RUN NO.	BLOWS 6" OR RQD (%)	SAMPLE RECOVERY / SAMPLE LENGTH	LITHOLOGY CHANGE (Depth, ft.)	MATERIAL DESCRIPTION* SOIL DENSITY/ CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	ROCK BR. OR USCS	REMARKS HNu	Head
1103	S-11 50-52	51.0	35 17	1.5/2.0		V Dense	grey	sand w/ silt layer @ 51'	SP	F-Gr	3	3
			24 27				white/ tan	sand	SP	F-mGr		
		55.0										
1119	S-12 55-57		51 31 38 36	0.9/2.0		V Dense	Lt Brn	sand	SP	M-Gr	16	3
		57.0										
	S-13 57-59		32 20 34 47	0.6/2.0		V Dense						
		59.0					white	sand VC Gr to F-M Gr	SP	Moist	0	—
		60.0										
1159	S-14 60-62		14 20 51 54			V Dense	tan	sand M Gr	SP	wet	0	—
					▽ 61.5					saturated in shoe		
					TD 62'							
								Natural Backfill				
								HSA 0 to 60'				

REMARKS ★ Samples S-1 (DSB05-00/02), S-4 (DSB05-15/17) & S-13 (DSB05-55/57) sent to PACE labs for TCL VOC analysis

BORING DSB05

PAGE 3 OF 3

* See Legend on Back

BORING LOG — **HALLIBURTON NUS**

PROJECT: NWIRP Bethpage — BORING NO.: DSB 06
PROJECT NO.: 5053 — DATE: 6-7-95 — DRILLER: S. Wolf
ELEVATION: — FIELD GEOLOGIST: T. Evans
WATER LEVEL DATA:
(Date, Time & Conditions) a.m. rain

	SAMPLE NO. & TYPE	DEPTH (ft.) OR RUN NO.	BLOWS 6" OR RQD (%)	SAMPLE RECOVERY · SAMPLE LENGTH	LITHOLOGY CHANGE (Depth, ft.)	MATERIAL DESCRIPTION* SOIL DENSITY CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	ROCK BR. OR USCS	REMARKS HNu	Head
12:5	S-1 0-2	1.0	6 9 11 14	0.9/2.0		M Dense	D Brn	Silty Sand tr gravel <1/4" ø	SM	F-m gr moist	0 <1
		2.0									
		3.0									
		4.0									
		5.0									
1225	S-2 5-7		5 8 8 14	0.3/2.0		M Dense	tan brn	Silty Sand some <3/4" ø gravel - poor recovery	SM/SW	F-C gr moist	0 1
		10.0									
1234	S-3 10-12		3 5 8 12	1.1/2.0		M Dense	orange brn	sand some gravel <3/4" ø	SW	M-C gr	<1
		15.0									
1239	S-4 15-17		10 10 11 10	1.0/2.0		M Dense	yellow orange	Sand some gravel <1" ø	SW	M-C gr	<1 <1
		20.0									
1247	S-5 20-22		17 15 11 10	1.2/2.0		M Dense	yellow orange	gravelly sand	SW	M-C gr	19 2
		25.0									

REMARKS: Mobile B-61 truck mounted rig
4 1/4" ID 8 1/2" OD HSA
2" SS In-hole hammer

BORING DSB06

PAGE 1

* See Legend on Back

BORING LOG — **HALLIBURTON NUS**

PROJECT: NWIRP Bethpage — BORING NO.: DSB06
PROJECT NO.: 5253 — DATE: 6-7-95 — DRILLER: S. Wolf
ELEVATION: — FIELD GEOLOGIST: T. Evans
WATER LEVEL DATA:
(Date, Time & Conditions)

	SAMPLE NO. & TYPE	DEPTH (ft.) OR RUN NO.	BLOWS 6" OR RQD (%)	SAMPLE RECOVERY/SAMPLE LENGTH	LITHOLOGY CHANGE (Depth, ft.)	MATERIAL DESCRIPTION* SOIL DENSITY/CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	ROCK BR. OR USCS	REMARKS HNu	Head
1253	S-6 25-27	26.0	8 9 14 13	1.1/2.0		M Dense	yellow brn	Sand tr gravel <1/4" ø	SP	E-M Gr 1	5
		30.0									
1258	S-7 30-32		11 16 17 20	1.5/2.0		Dense	tan	Sand v poorly graded	SP	F Gr 0	<1
		35.0									
1304	S-8 35-37		6 9 9 13	2.0/2.0		M Dense	tan	Sand (F gr)	SP	0	0
								silt layer	ML	Wet	
								sand (F-M gr)	SP	(perched)	
		40.0									
1311	S-9 40-42		7 14 15 21	0.9/2.0		Dense	tan	Sand	SP	M-C Gr <1	
		45.0									
1317	S-10 45-47		11 11 14 17	1.3/2.0		M Dense	tan/white	Sand (v poorly Graded) tr qtzite frags <1" ø	SP	M Gr 0	4.8
		50.0									

REMARKS

BORING DSB06

PAGE 2 OF 3

* See Legend on Back

BORING LOG **HALLIBURTON NUS**

PROJECT: NWILP Bethpage BORING NO.: DSB 06
PROJECT NO.: 5253 DATE: 6-7-95 DRILLER: S. Wolf
ELEVATION: FIELD GEOLOGIST: T. Evans
WATER LEVEL DATA:
(Date, Time & Conditions)

	SAMPLE NO. & TYPE	DEPTH (ft.) OR RUN NO.	BLOWS 6" OR RQD (%)	SAMPLE RECOVERY / SAMPLE LENGTH	LITHOLOGY CHANGE (Depth, ft.)	MATERIAL DESCRIPTION* SOIL DENSITY/ CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	ROCK BR. OR USCS	REMARKS HNu Head
1323	S-11 50-52	51.0	11 13 15 15	0.7/2.0		M Dense	tan	Sand (V poorly graded) qtzite frag (1"ø)	SP	F Gr 0 2
		55.0								
1330	S-12 55-57		20 50	1.2/2.0		V Dense	tan	Sand F-gr	SP MLw	Moist 6 15
							v/red brn	silt layer Sand M-gr	SW	
					▽ 58-59 6-7-95					
		60.0								
1336	S-13 60-62		7 10 12 16	1.0/2.0		M Dense	white tan	Sand (F-M Gr)	SP	Saturated 0 -
		62.0			TD 62					
								Natural Backfill		
								HSA 0' to 60'		

REMARKS

BORING DSB06

PAGE 3

* See Legend on Back

BORING LOG — **HALLIBURTON NUS**

PROJECT: NWIRP Bethpage — BORING NO.: DSB 07
PROJECT NO.: 5253 — DATE: 6-6-95 — DRILLER: S Wolf
ELEVATION: — FIELD GEOLOGIST: T. Evans
WATER LEVEL DATA: —
(Date, Time & Conditions) —

	SAMPLE NO. & TYPE	DEPTH (FT.) OR RUN NO.	BLOWS 6" OR RQD (%)	SAMPLE RECOVERY / SAMPLE LENGTH	LITHOLOGY CHANGE (Depth, ft.)	MATERIAL DESCRIPTION* SOIL DENSITY CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	ROCK BR. OR USCS	REMARKS Background Hole Head
		1.0			0.65			Concrete		1 ppm
1215	S-1 1-2.5	2.0	5 5 4	1.3/2.0		V Loose	Black Brn	Sandy Clay Tr Brick	SC	1 <1
		3.0				—	Tan	Gravelly Sand	SW	
		4.0								
		5.0								
1220	S-2 5-7		5 9 10 10	0.4/2.0		Loose	Lt Brn	Medium - Coarse Sand tr gravel <0.25"ø	SP/SW	Moist — 1
		10.0								
1224	S-3 10-12		7 8 10 10	0.1/2.0		Loose	—	Poor Recovery 0.25"ø Qtzite Frag	—	— —
		15.0								
1230	S-4 17-19		17 21 10 10	0.95/2.0		Loose	White to Yellow-orange	Coarse - Fine Sand Tr gravel <1.0"ø	SW	<1 1
		20.0								
1238	S-5 20-22		7 8 10 11	0.6/2.0		Loose	yellow-orange	Gravel & Sand (F-C Gr) <1.5"ø	GW	5 25
		25.0								

REMARKS: Mobile B-61 truck-mounted rig
4¼" ID 8½" OD HSA
2" SS, In-hole hammer

BORING DSB 07

PAGE 1 OF 3

* See Legend on Back

BORING LOG — **HALLIBURTON NUS**

PROJECT: NWIRP Bethpage — BORING NO.: DSB-07
PROJECT NO.: 5253 — DATE: 6-6-95 — DRILLER: S. Wolf
ELEVATION: — FIELD GEOLOGIST: T. Evans
WATER LEVEL DATA:
(Date, Time & Conditions)

	SAMPLE NO. & TYPE	DEPTH (FT.) OR RUN NO.	BLOWS 6" OR RQD (%)	SAMPLE RECOVERY / SAMPLE LENGTH	LITHOLOGY CHANGE (Depth, ft.)	MATERIAL DESCRIPTION* SOIL DENSITY CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	ROCK BR. OR USCS	REMARKS HNu	Head
1245	S-6 26-28	26.0	5 5 9 12	1.6/2.0		M Dense	yellow-orange w/lt brown laminae	Gravelly Sand (F-C Gr)	SW	Damp (Percched H_2O) 1.4	7
		30.0									
1250	S-7 30-32		7 8 11 13	1.5/2.0		M Dense	white-gray	Sand (F-Gr)	SP	1	5
		35.0									
1256	S-8 35-37		7 7 7 8	1.6/2.0		Loose	white-gray w/dk gray laminae	Sand (F-Gr)	SP	5	6
		40.0									
1306	S-9 40-42		9 12 10 13	1.2/2.0		M Dense	yellow-orange	Sand (F-M Gr)	SP	4	11
		45.0									
1316	S-10 45-47		10 14 19 22	1.2/2.0		M Dense	Lt Brown/yellow-Orange	Sand (F-M Gr)	SP	5	6
		50.0									

REMARKS

BORING DSB-07

PAGE 2

* See Legend on Back

BORING LOG — **HALLIBURTON NUS**

PROJECT: NWIRD Bethpage — BORING NO.: DSR 07
PROJECT NO.: 5253 — DATE: 6-6-95 — DRILLER: S. Wolf
ELEVATION: — FIELD GEOLOGIST: T Evans
WATER LEVEL DATA: —
(Date, Time & Conditions)

	SAMPLE NO. & TYPE	DEPTH (FT.) OR RUN NO.	BLOWS 6" OR RQD (%)	SAMPLE RECOVERY SAMPLE LENGTH	LITHOLOGY CHANGE (Depth, ft.)	MATERIAL DESCRIPTION* SOIL DENSITY CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	ROCK BR. OR USCS	REMARKS HNU	Head
1323	S-11 50-52	51.0	11 19 22 14	1.6/2.0		Dense	White/tan	Sand (F-M Gr)	SP	6-8	0
		55.0									
1330	S-12 55-57		6 8 11 15	1.8/2.0	▽ 58' 1359	M Dense	Lt Brn to White/tan	Sand (C Gr F-M Gr)	SP	5	10.
		60.0									
1337	S-13 62-67		9 11 15 23	1.6/2.0	TD 62	Dense	White	Sand (M-F Gr)	SP	Saturated <1	-
								Natural Backfill HSA 0' to 60'			

REMARKS ★ Samples S-1, S-5 & S-12 sent to Pace Labs for TCL VOC analysis

BORING DSR 07

PAGE 3 OF

* See Legend on Back

BORING LOG — **HALLIBURTON NUS**

PROJECT: NWIRP Bethpage — BORING NO.: DSB08
PROJECT NO.: 5253 — DATE: 6-6-95 — DRILLER: S. Wolf
ELEVATION: — FIELD GEOLOGIST: T. Evans
WATER LEVEL DATA:
(Date, Time & Conditions)

	SAMPLE NO. & TYPE	DEPTH (FL) OR RUN NO.	BLOWS 6" OR RQD (%)	SAMPLE RECOVERY / SAMPLE LENGTH	LITHOLOGY CHANGE (Depth, FL)	MATERIAL DESCRIPTION: SOIL DENSITY CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	ROCK BR. OR USCS	REMARKS Background HNU	Head
								Concrete		1 ppm	
		1.0			0.85						
1517	S-1 1-3	2.0	6 9 11	1.5/2.0		M Dense	D Brn to Tan	Silty Sand (C Gr)	SM	1	2
		3.0	15					Sand (F to C Gr) w gravel <0.25"	SW		
		4.0									
		5.0									
1527	S-2 5-7		15 14 14 23	1.2/2.0		Dense	Lt Brn	Sand w gravel <0.25"ø Silt laminae	SW	5	25
		10.0									
1532	S-3 10-12		14 13 12 7	1.25/2.0		Loose	Lt Brn/ yellow orange	Sand Some gravel <1"ø (F-M gr)	SW	1	
		15.0									
1538	S-4 15-17		6 9 11 14	1.1/2.0		M Dense	Lt Brn/ yellow orange	Sand Some gravel <1"ø (F-M gr)	SW	7	14
		20.0									
1543	S-5 20-22		8 12 11 16	1.4/2.0		M Dense	yellow-brange	Sand (F-M Gr)	SW	4	3
								Sandy Gravel <0.25"ø	GW		
		25.0									

REMARKS: Mobile B-61 truck mounted rig
4¼" ID, 8½" OD HSA
2" SS In-Hole hammer

BORING DSB08

PAGE 1 OF

* See Legend on Back

BORING LOG — **HALLIBURTON NUS**

PROJECT: NWIRP Bethpage — BORING NO.: DSB08
PROJECT NO.: 5253 — DATE: 6-6-95 — DRILLER: S. Wolf
ELEVATION: — FIELD GEOLOGIST: T Evans
WATER LEVEL DATA:
(Date, Time & Conditions)

	SAMPLE NO. & TYPE	DEPTH (ft.) OR RUN NO.	BLOWS 6" OR RQD (%)	SAMPLE RECOVERY SAMPLE LENGTH	LITHOLOGY CHANGE (Depth, ft.)	MATERIAL DESCRIPTION* SOIL DENSITY CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	ROCK BR. OR USCS	REMARKS HNu	Head
1548	S-6 25-27	26.0	7 8 12 8	1.6/2.0		M Dense	orange brn	Silty Sand (F-Gr) w/ F-Gr sand (white) laminae	SM	1	4
		30.0									
1552	S-7 30-32		8 8 10 11	1.6/2.0		M Dense	white/ gray & brn	Silty Sand (F-Gr)	SM	<1	4.6
		35.0									
1604	S-8 35-37		10 16 13 14	1.8/2.0		M Dense	orange brn	Silty Sand (F-Gr)	SM	<1	7
		40.0									
1613	S-9 40-42		6 8 10 10	1.4/2.0		M Dense	Yellow-orange	Silty sand (F-Gr)	SM	<1	3
								Silt	ML		
								Silty sand	SM		
		45.0									
1621	S-10 45-47		7 8 7 12	1.8/2.0			white/ Grey & yellow-orange	Silty Sand (F-Gr) / Sand (F-MGr) interbedded	SM/ SW	1.8	2
		50.0									

REMARKS

BORING DSB08

PAGE 2 OF

* See Legend on Back

BORING LOG — **HALLIBURTON NUS**

PROJECT: NWIRP Bethpage — BORING NO.: DSB 08
PROJECT NO.: 5253 — DATE: 6-6-95 — DRILLER: S. Wolf
ELEVATION: — FIELD GEOLOGIST: T. Evans
WATER LEVEL DATA: —
(Date, Time & Conditions) —

	SAMPLE NO. & TYPE	DEPTH (ft) OR RUN NO.	BLOWS 6" OR RQD (%)	SAMPLE RECOVERY - SAMPLE LENGTH	LITHOLOGY CHANGE (Depth, ft.)	MATERIAL DESCRIPTION* SOIL DENSITY CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	ROCK BR. OR USCS	REMARKS HNu	Head
1627	S-11 50-52	51.0	15 17 20 20	0.0/2.0				- No Recovery Gravel Frag 8" Ø		—	—
		55.0									
1633	S-12 55-57		10 11 15 23	1.4/2.0	▽ 59' 1644	Dense	Lt Brn	Sand (M-Gr)	SP	3-5	5
		60.0									
1640	S-13 60-62		10 10 9 15	1.1/2.0	TD 62	M Dense	Tan	Sand (M-Gr) V Poorly Graded	SP	Saturated	
								Natural Backfill HSA 0' to 60'			

REMARKS ★ Samples S-1 (DSB08-01/03), S-4 (DSB08-15/17) & S-12 (DSB08-55/57) sent to PACE Labs for TCL VOC analysis

BORING DSB08

PAGE 3 OF —

* See Legend on Back

BORING LOG **HALLIBURTON NUS**

PROJECT: NWIRP Bethpage BORING NO.: DSB09
PROJECT NO.: 5253 DATE: 6-6-95 DRILLER: S. Wolf
ELEVATION: FIELD GEOLOGIST: T. Evans
WATER LEVEL DATA:
(Date, Time & Conditions)

	SAMPLE NO. & TYPE	DEPTH (ft.) OR RUN NO.	BLOWS 6" OR RQD (%)	SAMPLE RECOVERY / SAMPLE LENGTH	LITHOLOGY CHANGE (Depth, ft.)	MATERIAL DESCRIPTION* SOIL DENSITY/CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	ROCK BR. OR USCS	REMARKS
0835										HNu Head
		1.0			0.4			Concrete		
0850	S-1	2.0	6	1.3/1.5			brk brn	Silty Sand (v Fine) Some Coarse Sand	GM	0 ppm 0 ppm
	1.3-2.8	3.0	8 12			M Dense	orange brn	0.25"ø pebbles		
		4.0								
0857		5.0								
	S-2 5-6.5		2 3 6	0.9/1.5		Loose	orange brn	Silty Sand to Clayey Sand Some pebbles <0.25"ø	GM/GC	0 ppm 0 ppm
		10.0								
0906	S-3 10-11.5		4 6 11	1.0/1.5		M Dense	Lt Gray orange	Silt Medium Sand Tr Coarse Sand	ML SP	Moist 0 ppm 0 pp (perched H_2O)
		15.0								
0912	S-4 15-16.5		6 5 14	1.1/1.5		M Dense	tan	Fine-Med Sand Tr Gravel <0.25"ø pebbles	SW	0 ppm 0 pp
		20.0								
0917	S-5 20-21.5		7 10 10	0.7/1.5		M Dense	Lt Gray	Sandy Gravel	GW	0 14.5
		25.0								

REMARKS Mobile B-61 Truck-mounted rig
4¼" ID, 8½" OD HSA
2" SS, In-hole hammer

BORING DSBs

PAGE 1 OF 3

* See Legend on Back

BORING LOG — **HALLIBURTON NUS**

PROJECT: NWRP Bethpage — BORING NO.: DSB 09
PROJECT NO.: 5253 — DATE: 6-6-95 — DRILLER: S. Wolf
ELEVATION: — FIELD GEOLOGIST: T. Evans
WATER LEVEL DATA: —
(Date, Time & Conditions) —

	SAMPLE NO. & TYPE	DEPTH (Ft.) OR RUN NO.	BLOWS 6" OR RQD (%)	SAMPLE RECOVERY / SAMPLE LENGTH	LITHOLOGY CHANGE (Depth, Ft.)	MATERIAL DESCRIPTION* SOIL DENSITY CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	ROCK BR. OR USCS	REMARKS HNu	REMARKS Head
0924	S-6 25-27.5	26.0	10 / 11 / 15	1.5/1.5		M Dense	Lt Grey / Fe Stain	V Fine - Fine Sand	SP	14	4
		30.0									
0957	S-7 30-31.5		8 / 17 / 19	1.5/1.5		Dense	Lt Grey	V Fine - Fine Sand	SP	1	2
		35.0									
0952	S-8 35-36.5		12 / 19 / 31	1.3/1.5		Dense	Lt Brn / Lt Grey	Medium - Fine Sand	SP	2	"
		40.0									
0957	S-9 40-41.5		8 / 14 / 21	1.0/1.5		Dense	Lt Brn / white / inter bedding	Medium Sand V Poorly Graded	SP	0.8	1.8
		45.0									
1004	S-10 45-46.5		10 / 10 / 14	1.1/1.5		M Dense	Lt Tan / Lt Grey	Medium Sand V Poorly Graded / Silt in Shoe	SP / ML	1	6
		50.0									

REMARKS —

BORING DSB-9

PAGE 2 of

* See Legend on Back

BORING LOG **HALLIBURTON NUS**

PROJECT: NWIRP Bethpage BORING NO.: DSR 09
PROJECT NO.: 5253 DATE: 6-6-95 DRILLER: S Wolf
ELEVATION: FIELD GEOLOGIST: T Evans
WATER LEVEL DATA:
(Date, Time & Conditions)

	SAMPLE NO. & TYPE	DEPTH (ft.) OR RUN NO.	BLOWS 6" OR RQD (%)	SAMPLE RECOVERY / SAMPLE LENGTH	LITHOLOGY CHANGE (Depth ft.)	MATERIAL DESCRIPTION* SOIL DENSITY CONSISTENCY OR ROCK HARDNESS	COLOR	MATERIAL CLASSIFICATION	ROCK BR. OR USCS	REMARKS
1011	S-11 50-51.5	51.0	3 5 17	1.5/1.5		M Dense	White	medium Sand	SP	0 0
								Silty sand in shoe →		wet (Reached H_2O)
		55.0								
1022	S-12 55-56.5		9 14 20	1.2/1.5		M Dense	White	Coarse Sand	SP/	3 1
								to Fine-medium Sand	SP	
					▽ 58'					
		60.0								
1030	S-13 60-61.5		2 5 11	1.5/1.5		M Dense	White	Medium Sand	SP	Saturated 0 —
					TD 61.5'					
								Natural Backfill		
								HSA 0'-60'		

REMARKS ★ Samples S-1 S-8, & S-12 sent to PACE for TCL VOC analysis
▲ samples S-1, S-8 & S-12 sent to Geotesting Express for ASTM D2487

BORING DSR 0

PAGE 3 OF 3

* See Legend on Back

APPENDIX B

SAMPLE LOG SHEETS

HALLIBURTON NUS
Environmental Corporation

SAMPLE LOG SHEET

☐ SURFACE SOIL
☒ SUBSURFACE SOIL
☐ SEDIMENT
☐ LAGOON/POND
☐ OTHER

SAMPLERS SIGNATURE [signature]

SITE NAME NWIRP Bethpage, NY

SITE NUMBER 5253

SAMPLE No.	SAMPLE METHOD	DEPTH (FT)	DATE	TIME	SAMPLED BY	CONCENTRATION (L)LOW (H)HIGH	(G)GRAB (C)COMPOSITE	ANALYSES: 2 oz. glass TCL VOCs	ANALYSES: 4 oz. glass ASTM D2487							No. OF CONT TOTAL	SOIL DESCRIPTION
DSBØ9 - 1.3/2.8	SS	1.3-2.8	6-6-95	0850	TSE	L	G	1	1							2	Silty Sand Some course Sand
DSBØ9 - 15/16.5	SS	15-16.5	6-6-95	0912	TSE	L	G		1							1	Sand trace gravel
DSBØ9 - 35/36.5	SS	35-36.5	6-6-95	0952	TSE	L	G	1								1	sand
DSBØ9 - 55/56.5	SS	55-56.5	6-6-95	~~1022~~ 1011	TSE	L	G	1	1							2	sand
DSBØ7 - Ø1/2.5	SS	1-2.5	6-6-95	1215	TSE	L	G	1								1	sand clay / gravelly sand
DSBØ7 - 2Ø/22	SS	20-22	6-6-95	1238	TSE	L	G	1								1	Sand & gravel
DSBØ7 - 55/57	SS	55-57	6-6-95	1330	TSE	L	G	1								1	sand
DSBØ8 - Ø1/Ø3	SS	1-3	6-6-95	1517	TSE	L	G	1								1	silty sand / sand
DSBØ8 - 15/17	SS	15-17	6-6-95	1538	TSE	L	G	1								1	sand some gravel
DSBØ8 - 55/57	SS	55-57	6-6-95	1633	TSE	L	G	1								1	Sand
DSBØ6 - ØØ/Ø2	SS	ØØ-Ø2	6-7-95	1215	TSE	L	G	1								1	Silty sand tr gravel
DSBØ6 - 2Ø/22	SS	20-22	6-7-95	1247	TSE	L	G	1	1							2	Gravelly sand
DSBØ6 - 4Ø/42	SS	40-42	6-7-95	1311	TSE	L	G		1							1	Sand
DSBØ6 - 5Ø/52	SS	50-52	6-7-95	1323	TSE	L	G		1							1	Sand
DSBØ6 - 55/57	SS	55-57	6-7-95	1330	TSE	L	G	1								1	Sand

REMARKS: SS = 2" split Spoon

LAB:
Chemical analysis → Pace Labs

HALLIBURTON NUS
Environmental Corporation

SAMPLE LOG SHEET

☐ SURFACE SOIL
☒ SUBSURFACE SOIL
☐ SEDIMENT
☐ LAGOON/POND
☐ OTHER

SAMPLERS SIGNATURE [signature]

SITE NAME NWIRP Bethpage, NY

SITE NUMBER 5253

SAMPLE No.	SAMPLE METHOD	DEPTH (FT)	DATE	TIME	SAMPLED BY	CONCENTRATION (L)LOW (H)HIGH	(G)GRAB (C)COMPOSITE	ANALYSES: 2oz glass TCL VOC	ANALYSES: 4oz glass ASTM D2487						No. OF CONT TOTAL	SOIL DESCRIPTION
DSBØ5-ØØ/Ø2	SS	0-2'	6-9-95	0924	TSE	L	G	1							1	sand tr gravel to clayey sand tr gravel
DSBØ5-15/17	SS	15-17	6-9-95	0951	TSE	L	G	1							1	gravelly sand
DSBØ5-55/57	SS	55-57	6-9-95	1119	TSE	L	G	1							1	sand
DSBØ1-0.5/2.5	SS	0.5-2.5	6-9-95	1340	TSE	L	G	1							1	gravelly sand
DSBØ2-0.5/2.5	SS	0.5-2.5	6-9-95	1411	TSE	L	G	1							1	gravelly sand
DSBØ2-15/17	SS	15-17	6-9-95	1445	TSE	L	G	1	1						2	gravelly sand
DSBØ2-35/37	SS	35-37	6-9-95	1512	TSE	L	G		1						1	silty sand tr mica to sand tr mica
DSBØ2-55/57	SS	55-57	6-9-95	1556	TSE	L	G	1	1						2	sand
DSBØ4-Ø1/Ø3	SS	1-3	6-10-95	0827	TSE	L	G	1							1	sand tr gravel
DSBØ3-Ø5/Ø7	SS	5-7	6-10-95	0959	TSE	L	G	1							1	sand tr gravel
DSBØ3-15/17	SS	15-17	6-10-95	1015	TSE	L	G		1						1	sand tr gravel
DSBØ3-3Ø/32	SS	30-32	6-10-95	1048	TSE	L	G		1						1	sand
DSBØ3-35/37	SS	35-37	6-10-95	1101	TSE	L	G	1							1	sand
DSBØ3-55/57	SS	55-57	6-10-95	1203	TSE	L	G	1							1	sand
DSBØ3-6Ø/62	SS	60-62	6-10-95	1221	TSE	✓	G		1						1	sand tr biotite

REMARKS s = 2" split-spoon

AB:
hemical analysis → Pace Inc

HALLIBURTON NUS
Environmental Corporation

SAMPLE LOG SHEET

☐ SURFACE SOIL
☒ SUBSURFACE SOIL
☐ SEDIMENT
☐ LAGOON/POND
☐ OTHER

SAMPLERS SIGNATURE: [illegible]

SITE NAME: NWIRP Bethpage

SITE NUMBER: 5253

SAMPLE No.	SAMPLE METHOD	DEPTH (FT)	DATE	TIME	SAMPLED BY	CONCENTRATION (L)LOW (H)HIGH	(G)GRAB (C)COMPOSITE	ANALYSES: 2 oz glass TCL VOC							No. OF CONT TOTAL	SOIL DESCRIPTION
DSBØ4A-3Ø/32	SS	30-32	6-12-95	1938	TJE	L	G	1							1	sand to gravel
DSBØ4A-55/57	SS	55/57	6-12-95	2033	TJE	L	G	1							1	sand
DSBØ1A-25/27	SS	25-27	6-12-95	2321	TJE	L	G	1							1	sand to gravel
DSBØ1A-6Ø/62	SS	60-62	6-13-95	0050	TJE	L	G	1							1	sand

REMARKS: SS = 2" split spoon

LAB: chemical analysis → Pace Inc

APPENDIX C

CHAIN OF CUSTODY RECORDS

Geotesting Express

CHAIN OF CUSTODY RECORD

PROJECT NO.: 5253

SITE NAME: NWIRP Bethpage

SAMPLERS (SIGNATURE): Timothy SE

STATION NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	4 oz glass ASTM D2487						REMARKS
Plant No. 3	6/6/95	0850		✓	DSBØ9 - 1.3/2.8	1	1						Soil Classification
		0912		✓	DSBØ9 - 15/16.5	1	1						
		1011		✓	DSBØ9 - 55/56.5	1	1						
	6/7/95	1247		✓	DSBØ6 - 2Ø/22	1	1						
		1311		✓	DSBØ6 - 4Ø/42	1	1						
		1323		✓	DSBØ6 - 5Ø/52	1	1						
	6/9/95	1445		✓	DSBØ2 - 15/17	1	1						
		1512		✓	DSBØ2 - 35/37	1	1						
		1554		✓	DSBØ2 - 55/57	1	1						
	6/10/95	1015		✓	DSBØ3 - 15/17	1	1						
		1044		✓	DSBØ3 - 3Ø/32	1	1						
		1221		✓	DSBØ3 - 6Ø/62	1	1						

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
Timothy SE	6.10.95 1600				
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE):	DATE / TIME:	REMARKS: Shipped to Geotesting Express Fed Ex AB # 3217642151	

Order No. 70440 (0693)

PACE Labs

CHAIN OF CUSTODY RECORD

PROJECT NO.: 5253

SITE NAME: NWIRP Bethpage

SAMPLERS (SIGNATURE): Timothy S Eva

STATION NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	2 oz Glass TCL VOAs						REMARKS
Plant No. 3	6/6/95	0830		✓	DSB Ø9 - 1.3/2.8	1	1						
		0952		✓	DSBØ9 - 35/36.5	1	1						
		1011		✓	DSBØ9 - 55/56.5	1	1						
		1215		✓	DSBØ7 - Ø1/2.5	1	1						
		1238		✓	DSBØ7 - 2Ø/22 TBE	1	1						
		1330		✓	DSBØ7 - 55/57	1	1						
	6/6/95	1517		✓	DSBØ8 - Ø1/Ø3	1	1						
		1538		✓	DSBØ8 - 15/17	1	1						
		1637		✓	DSBØ8 - 55/57	1	1						
	6/7/95	1215		✓	DSBØ6 - ØØ/Ø2	1	1						
		1247		✓	DSBØ6 - 2Ø/22	1	1						
		1330		✓	DSBØ6 - 55/57	1	1						

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
Timothy S Eva	6-8-95 0830				
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE):	DATE / TIME:	REMARKS: Shipped to Pace Labs FedEx AB # 3211641252	

Order No. 70440 (0693)

PACE

CHAIN OF CUSTODY RECORD

PROJECT NO.: 5253

SITE NAME: NWIRP Bethpage

SAMPLERS (SIGNATURE): [signature]

STATION NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	2 oz glass TCL VOC						REMARKS
Plant No. 3	6/9/95	0924		✓	DSBØ5 - ØØ / Ø2	1	1						
		0945		✓	DSBØ5 - 15 / 17	1	1						
		1104		✓	DSBØ5 - 55 / 57	1	1						
		1340		✓	DSBØ1 - 0.5 / 2.5	1	1						
		1410		✓	DSBØ2 - 0.5 / 2.5	1	1						
		1445		✓	DSBØ2 - 15 / 17	1	1						
		1556		✓	DSBØ2 - 55 / 57	1	1						
	6/14/95	0827		✓	DSBØ4 - Ø1 / Ø3	1	1						
		0959		✓	DSBØ3 - Ø5 / Ø7	1	1						
		1101		✓	DSBØ3 - 35 / 37	1	1						
		1203		✓	DSBØ3 - 55 / 57	1	1						

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
[signature]	6.10.95 1600				
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE):	DATE / TIME:	REMARKS: Sent to PACE LABS FedEx AB# 3211642136	

Order No. 70440 (0693)

PACE

CHAIN OF CUSTODY RECORD

PROJECT NO.: 5253

SITE NAME: NWIRP Bethpage

SAMPLERS (SIGNATURE): [signature]

STATION NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	2oz glass TCL VOC						REMARKS
Plant No. 3	6/13/95	1938		✓	DSBØ4A-3Ø/32	1	1						
↓	↓	2033		✓	DSBØ4A-55/57	1	1						
↓	↓	2321		✓	DSBØ1A-25/27	1	1						
↓	6/13/95	0050		✓	DSBØ1A-6Ø/62	1	1						

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
[signature]	6/13/95 1400				
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE):	DATE / TIME:	REMARKS: Sent to Pace Inc FedEx AB# 3211642140	

Order No. 70440 (069)

APPENDIX D

DAILY ACTIVITIES RECORD

DAILY ACTIVITIES RECORD

Halliburton NUS CORPORATION

PROJECT	NWIRP BETHPAGE	JOB NO.	5253
CLIENT	NAVY CLEAN	LOCATION	Bethpage, NY
DATE	6-6-95	ARRIVAL TIME	0800
WEATHER	sunny, 80-85°F	DEPARTURE TIME	1730
CONTRACTOR	ADT	DRILLER	S. Wolf / D. Grayon
HNUS REPRESENTATIVE	T. Evans / R. Simcik		

ITEM	QUANTITY ESTIMATE	QUANTITY TODAY	PREVIOUS TOTAL QUANTITY	CUMULATIVE QUANTITY TO DATE
1. Mobilization/Demobilization	1 Lump Sum			
2. Hollow Stem Auger Drilling	450 feet	180	–	180
3. Split-Barrel Sampling	90 samples	39	–	39
4. Drums	10 drums	2	–	2
5. Standby Time	4 hours			
6. Level C Multiplier	–			

COMMENTS	DSB09	DSB07	DSB08		Total
HSA	60	60	60	=	180
2" SS	13	13	13	=	39
Drums	1		1	=	2

APPROVED BY:

HNUS FIELD REPRESENTATIVE

Steve Wolf

DRILLER

DATE 6/6/95

DAILY ACTIVITIES RECORD

Halliburton NUS CORPORATION

PROJECT	NWIRP BETHPAGE	JOB NO.	5253
CLIENT	NAVY CLEAN	LOCATION	Bethpage, NY
DATE	6-7-95	ARRIVAL TIME	0830
WEATHER	AM rain, 65-70°F PM overcast 70-75°F	DEPARTURE TIME	1630
CONTRACTOR	ADT	DRILLER	S. Wolf / D. Craig
HNUS REPRESENTATIVE			

ITEM	QUANTITY ESTIMATE	QUANTITY TODAY	PREVIOUS TOTAL QUANTITY	CUMULATIVE QUANTITY TO DATE
1. Mobilization/Demobilization	1 Lump Sum			—
2. Hollow Stem Auger Drilling	450 feet	61	180	241
3. Split-Barrel Sampling	90 samples	13	39	52
4. Drums	10 drums		2	2
5. Standby Time	4 hours			—
6. Level C Multiplier	–			—

COMMENTS

AM Core concrete @ DSBØ5 & Ø1; HSA 1.0' @ DSBØ4

PM ~~core~~ TBE install DSBØ6 (HSA 60', 13-2" SS)

Core concrete @ DSBØ4, Ø2, & Ø3

APPROVED BY: Timothy S. [illegible]

HNUS FIELD REPRESENTATIVE

Steve Wolf

DRILLER

DATE 6/7/95

DAILY ACTIVITIES RECORD

Halliburton NUS CORPORATION

PROJECT	NWIRP BETHPAGE	JOB NO.	5253
CLIENT	NAVY CLEAN	LOCATION	Bethpage, NY
DATE	6-9-95	ARRIVAL TIME	0830
WEATHER	—	DEPARTURE TIME	1730
CONTRACTOR	ADT	DRILLER	T. Gembara
HNUS REPRESENTATIVE	T. Evans		

ITEM	QUANTITY ESTIMATE	QUANTITY TODAY	PREVIOUS TOTAL QUANTITY	CUMULATIVE QUANTITY TO DATE
1. Mobilization/Demobilization	1 Lump Sum			
2. Hollow Stem Auger Drilling	450 feet	120	241	361
3. Split-Barrel Sampling	90 samples	27	52	79
4. Drums	10 drums	2	2	4
5. Standby Time	4 hours			
6. Level C Multiplier	–			

COMMENTS	HSA	2"SS	Drums	~~Total~~
DSB05	60'	14	1	
DSB02	60'	13	1	
Total =	120	27	2	

APPROVED BY: [signature]

HNUS FIELD REPRESENTATIVE

Anthony Gembara

DRILLER

DATE 6-9-95

DAILY ACTIVITIES RECORD

Halliburton NUS CORPORATION

PROJECT	NWIRP BETHPAGE	JOB NO.	5253
CLIENT	NAVY CLEAN	LOCATION	Bethpage, NY
DATE	6-10-95	ARRIVAL TIME	0630
WEATHER	cool, sunny 65°-70°F	DEPARTURE TIME	1430
CONTRACTOR	ADT	DRILLER	T. Gembara
HNUS REPRESENTATIVE	T. Evans		

ITEM	QUANTITY ESTIMATE	QUANTITY TODAY	PREVIOUS TOTAL QUANTITY	CUMULATIVE QUANTITY TO DATE
1. Mobilization/Demobilization	1 Lump Sum			
2. Hollow Stem Auger Drilling	450 feet	76	361	437
3. Split-Barrel Sampling	90 samples	17	79	96
4. Drums	10 drums	2	4	5
5. Standby Time	4 hours			
6. Level C Multiplier	–			

COMMENTS	HSA	2" SS	Drums
DSBØ1	5	2	
DSBØ3	60	13	1/2
DSBØ4	11	2	1/2
DSBØ7			

APPROVED BY: Timothy S.

HNUS FIELD REPRESENTATIVE

A. Gembara

DRILLER

DATE 6-10-95

DAILY ACTIVITIES RECORD

Halliburton NUS CORPORATION

PROJECT	NWIRP BETHPAGE	JOB NO.	5253
CLIENT	NAVY CLEAN	LOCATION	Bethpage, NY
DATE	6-12/13-95	ARRIVAL TIME	1700
WEATHER	rain 60-65°F	DEPARTURE TIME	0230
CONTRACTOR	ADT	DRILLER	T. Gembarra
HNUS REPRESENTATIVE	T. Evans		

ITEM	QUANTITY ESTIMATE	QUANTITY TODAY	PREVIOUS TOTAL QUANTITY	CUMULATIVE QUANTITY TO DATE
1. Mobilization/Demobilization	1 Lump Sum	1	—	1
2. Hollow Stem Auger Drilling	450 feet	120	437	557
3. Split-Barrel Sampling	90 samples	24	96	120
4. Drums	10 drums	2	6	8
5. Standby Time	4 hours			
6. Level C Multiplier	–			

COMMENTS	DSB04A	DSB01A	Total
HSA	60	60	120
2" SS	12	12	24

APPROVED BY: T. Evans

HNUS FIELD REPRESENTATIVE

A. Gembarra

DRILLER

DATE 6-12-95

Aquifer Drilling & Testing, Inc.

51-41 59th Place • Woodside • New York 11377

DAILY JOB REPORT

DATE 6/5/95 CLIENT Halliburton NUS DRILLER Steve W HELPER Denis C

JOB LOCATION Grumman Bethpage EQUIPMENT: DRILL B61 SUPPORT TRUCK F 450

DESCRIPTION OF WORK

Load Equip
Mobe to Site - Arrive 3pm
Set Up Decon Pad
Steam Clean
Leave Site 5pm.

ITEMIZATION:

Soil Borings: HSA / Mud / Air (Circle One)

Well Construction: HSA / MUD / AIR / DRIVE / WASH (Circle One)

BORING	DEPTH	TOTAL #SPOONS	WELL	SIZE (DIA)	RISER (FT)	SCREEN (FT)	TOTAL DEPTH	SAND (LBS)	PLTS(P) CHIPS(C)	CEMENT (LBS)	BENTONITE (LBS)	MANHOLE (P STANDPIPE(
No.			No.									
No.			No.									
No.			No.									
No.			No.									
No.			No.									
No.			No.									

Surface Casing (Ft)____ Steam Cleaning (Hrs)____ Drum No. ____

Nx Coring (Ft)____ Well Develop (Hrs.)____ Drum Soils (Hrs)____

Drive Wash w/Tripod (Hrs)____ Standby (Hrs)____ Stage Drums (Hrs)____

Concrete Coring (Ft) ____

PERSONNEL	SHOP/HOME	ONSITE	LUNCH	OFFSITE	SHOP/HOME	TOTAL HOURS
Steve	6:30 - 6	3	None	5		11½
Denis	6:30 - 6					11½

Approved [signature] Date 6-5-95

CLIENT REPRESENTATIVE

Print Name: Timothy S Evans

Client Representative to sign Onsite Lunch & Offsite times. NOTE: Actual onsite lunch is to be recorded.

WHITE (Client) YELLOW (Accounting) PINK (Ac

Aquifer Drilling & Testing, Inc.

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DAILY JOB REPORT

DATE 6/6/95 CLIENT Halliburton NUS DRILLER Steve W. HELPER Denis C

JOB LOCATION Grumman Bethpage EQUIPMENT: DRILL 661 SUPPORT TRUCK F450

DESCRIPTION OF WORK

3 Test Borings (4¼ H.S.A)
All to 60
All with 13 Spoons

ITEMIZATION:

Soil Borings: HSA / Mud / Air (Circle One)

Well Construction: HSA / MUD / AIR / DRIVE / WASH (Circle One)

BORING	DEPTH	TOTAL #SPOONS	WELL	SIZE (DIA)	RISER (FT)	SCREEN (FT)	TOTAL DEPTH	SAND (LBS)	PLTS(P) CHIPS(C)	CEMENT (LBS)	BENTONITE (LBS)	MANHOLE (M STANDPIPE(I
No. 1	60	13	No.									
No. 2	60	13	No.									
No. 3	60	13	No.									
No.			No.									
No.			No.									
No.			No.									

Surface Casing (Ft) _____ Steam Cleaning (Hrs) 1½ Drum No. _____

Nx Coring (Ft) _____ Well Develop (Hrs.) _____ Drum Soils (Hrs) 1

Drive Wash w/Tripod (Hrs) _____ Standby (Hrs) _____ Stage Drums (Hrs) _____

Concrete Coring (Ft) _____

PERSONNEL	SHOP/HOME	ONSITE	LUNCH	OFFSITE	SHOP/HOME	TOTAL HOURS
Steve	6:30	8	None	5:30		
Denis	6:30	8				

Approved [signature] Date 6-6-95

CLIENT REPRESENTATIVE

rint Name: Timothy S Evans

Client Representative to sign Onsite Lunch & Offsite times. NOTE: Actual onsite lunch is to be recorded.

WHITE (Client) YELLOW (Accounting) PINK (Ad

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DAILY JOB REPORT

DATE 6/7/95 CLIENT Halliburton NUS DRILLER Steve W. HELPER Denis

JOB LOCATION Grumman Bethpage EQUIPMENT: DRILL B61 SUPPORT TRUCK F450

DESCRIPTION OF WORK

4¼ H.S.A. to 60' 13 Spoons

4¼ Concrete cutter Inside to 1' - (Half Ma

4 Concrete Cores Taken 10" (6", 6", 5", 6"

Cemented 3 Holes - Demob B-61

ITEMIZATION:

Soil Borings: HSA / Mud / Air (Circle One)

Well Construction: HSA / MUD / AIR / DRIVE / WASH (Circle One)

BORING	DEPTH	TOTAL #SPOONS	WELL	SIZE (DIA)	RISER (FT)	SCREEN (FT)	TOTAL DEPTH	SAND (LBS)	PLTS(P) CHIPS(C)	CEMENT (LBS)	BENTONITE (LBS)	MANHOLE (I STANDPIPE(
No. 1	60	13	No.									
No.			No.									
No.			No.									
No.			No.									
No.			No.									
No.			No.									

Surface Casing (Ft)

Nx Coring (Ft)

Drive Wash w/Tripod (Hrs)

Steam Cleaning (Hrs) 1

Well Develop (Hrs.)

Standby (Hrs) 1 Moving Carts for Rig Access

Drum No. 4

Drum Soils (Hrs)

Stage Drums (Hrs)

Concrete Coring (Ft)

PERSONNEL	SHOP/HOME	ONSITE	LUNCH	OFFSITE	SHOP/HOME	TOTAL HOURS
Steve	6:30	8:30	None	4:30		
Denis	6:30					

Approved [signature] Date 6-7-95

CLIENT REPRESENTATIVE

Print Name: Timothy S Evans

Client Representative to sign Onsite, Lunch & Offsite times. NOTE: Actual onsite lunch is to be recorded.

WHITE (Client) YELLOW (Accounting) PINK (Ad

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DAILY JOB REPORT

DATE 6-9-95 CLIENT HALLIBURTON DRILLER TONY G HELPER DENIS

JOB LOCATION GRUMMAN EQUIPMENT: DRILL DCSD SUPPORT TRUCK GMC

DESCRIPTION OF WORK

BORINGS INSIDE BLDG.

(DRUMMED REMAINING SOIL AFTER BACKFILLING)

ITEMIZATION:

Soil Borings: HSA / Mud / Air (Circle One)

Well Construction: HSA / MUD / AIR / DRIVE / WASH (Circle One)

BORING	DEPTH	TOTAL #SPOONS	WELL	SIZE (DIA)	RISER (FT)	SCREEN (FT)	TOTAL DEPTH	SAND (LBS)	PLTS(P) CHIPS(C)	CEMENT (LBS)	BENTONITE (LBS)	MANHOLE (M STANDPIPE(P
No. 1	60'	14	No.									
2	60'	13	No.									
No.			No.									
No.			No.									
No.			No.									
No.			No.									

Surface Casing (Ft)____ Steam Cleaning (Hrs)____ Drum No. 2

Nx Coring (Ft)____ Well Develop (Hrs.)____ Drum Soils (Hrs)____

Drive Wash w/Tripod (Hrs)____ Standby (Hrs)____ Stage Drums (Hrs)____

Concrete Coring (Ft) ____

PERSONNEL	SHOP/HOME	ONSITE	LUNCH	OFFSITE	SHOP/HOME	TOTAL HOURS
TONY G	6:00	8:30	/	5:00		
DENIS	6:00	8:30	/	5:00		

Approved [signature] Date 6-10-95

CLIENT REPRESENTATIVE

rint Name: Tim Evans

Client Representative to sign Onsite Lunch & Offsite times. NOTE: Actual onsite lunch is to be recorded.

WHITE (Client) YELLOW (Accounting)

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DAILY JOB REPORT

DATE 6-10-95 CLIENT HALLIBURTON DRILLER TOM G HELPER DENIS

JOB LOCATION GRUMMAN EQUIPMENT: DRILL DK-50 SUPPORT TRUCK GMC

DESCRIPTION OF WORK

BORINGS

ITEMIZATION:

Soil Borings: HSA / Mud / Air (Circle One)

Well Construction: HSA / MUD / AIR / DRIVE / WASH (Circle One)

BORING	DEPTH	TOTAL #SPOONS	WELL	SIZE (DIA)	RISER (FT)	SCREEN (FT)	TOTAL DEPTH	SAND (LBS)	PLTS(P) CHIPS(C)	CEMENT (LBS)	BENTONITE (LBS)	MANHOLE (STANDPIPE(
No. 3	5'	REF W/CONC HEAD	No.									
No. 4	6'	(1) REF W/CONC HEAD										
No. 4A	6'	REF W/CONC HEAD										
No. 5	60	13	No.									
No.			No.									
No.			No.									

Surface Casing (Ft)

Nx Coring (Ft)

Drive Wash w/Tripod (Hrs)

Steam Cleaning (Hrs) 1hr

Well Develop (Hrs.)

Standby (Hrs)

Drum No. 1

Drum Soils (Hrs)

Stage Drums (Hrs)

Concrete Coring (Ft)

PERSONNEL	SHOP/HOME	ONSITE	LUNCH	OFFSITE	SHOP/HOME	TOTAL HOURS
TOM G	5:30	6:30				
DENIS	5:30	6:30				

Approved [signature] Date 6-10-95

CLIENT REPRESENTATIVE

Print Name: Tim Evans

Client Representative to sign Onsite Lunch & Offsite times. NOTE: Actual onsite lunch is to be recorded.

WHITE (Client) YELLOW (Accounting)

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DAILY JOB REPORT

DATE 6-12-95 CLIENT HALLIBURTON DRILLER TONY G HELPER NELSON

JOB LOCATION GRUMMAN EQUIPMENT: DRILL DL-50 SUPPORT TRUCK GMC

DESCRIPTION OF WORK

(2) BORINGS TO 60' INSIDE BLDG

ITEMIZATION:

Soil Borings: HSA / Mud / Air (Circle One)

Well Construction: HSA / MUD / AIR / DRIVE / WASH (Circle One)

BORING	DEPTH	TOTAL #SPOONS	WELL	SIZE (DIA)	RISER (FT)	SCREEN (FT)	TOTAL DEPTH	SAND (LBS)	PLTS(P) CHIPS(C)	CEMENT (LBS)	BENTONITE (LBS)	MANHOLE (M) STANDPIPE(P)
No 4	60'	12	No.									
5	60	12	No.									
No.			No.									
No.			No.									
No.			No.									
No.			No.									

Surface Casing (Ft)

Nx Coring (Ft)

Drive Wash w/Tripod (Hrs)

Steam Cleaning (Hrs) 1 hr

Well Develop (Hrs.)

Standby (Hrs)

Drum No. 2

Drum Soils (Hrs)

Stage Drums (Hrs)

Concrete Coring (Ft) 2 x 8"

PERSONNEL	SHOP/HOME	ONSITE	LUNCH	OFFSITE	SHOP/HOME	TOTAL HOURS
TONY G	3:00 -	5:00	/	2:30 AM		
NELSON	3:30 -	5:00		2:30 AM		

Approved [signature] Date 6-13-95

CLIENT REPRESENTATIVE

rint Name: TIMOTHY S EVANS

Client Representative to sign Onsite Lunch & Offsite times. NOTE: Actual onsite lunch is to be recorded.

WHITE (Client) YELLOW (Accounting) PINK (Ad

APPENDIX E

EQUIPMENT CALIBRATION LOGS

HALLIBURTON NUS
Environmental Corporation

EQUIPMENT CALIBRATION LOG

Instrument (Name/Model No./Serial No.): HNu / PI 101 / SN

Manufacturer HNU Systems Inc Date Purchased HNUs rental

Calibration Date	Initial Settings	Standard/Gas Used	Procedure	Adjustments Made	Final Settings	Signature	Comments
6-6-95	0.5	Isobutylene 100 ppm	Manual	Set span to 2.50 ~~2.34~~ BE	~~2.34~~ 2.50 BE	Tim	zeroed
6-6-95	2.50	"	"	Set span to 2.34	2.34	BE	–
6-7-95	2.50	"	"	set span to 1.16	1.16	BE	zeroed
6-9-95	1.16	"	"	Set span to 1.12	1.12	BE	zeroed
6-10-95	1.12	"	"	Set span to 0.46	0.46	BE	zeroed
6-12-95	0.46	"	"	set span to 0.02	0.02	BE	zeroed

HALLIBURTON NUS
Environmental Corporation

EQUIPMENT CALIBRATION LOG

Instrument (Name/Model No./Serial No.): Combustible Gas & O_2 Alarm / 260 / SN 12614

Manufacturer MSA Date Purchased NUS rental

Calibration Date	Initial Settings	Standard/Gas Used	Procedure	Adjustments Made	Final Settings	Signature	Comments
6-9-95	—	0.75% Pentane, 15% O_2 in N, 50% LEL	Manual	Set O_2 to 20.9 LEL to 0	—	TBE	
6-9-95	O_2-20.5% LEL-<0%	"	"	"	set LEL to 50%	TBE	
6-10-95	"	"	"	"	"	TBE	
6-12-95	"	"	"	"	"	TBE	

APPENDIX F

GEOTECHNICAL ANALYTICAL RESULTS

GeoTesting Express

Rapid Testing of Soils
for Geotechnical and
Physical Properties

10 Craig Road
Acton, Massachusetts 01720
508-635-0424
FAX 508-635-0266

GeoTesting Express

10 CRAIG ROAD
ACTON, MA 01720
508•635•0424 FAX 508•635•0266

June 21, 1995

Mr. Stuart Bronson
Pace
PO Box 2130
Hampton, NH 03842

RE: NWIRP Bethpage (GTX-799)

Dear Mr. Bronson:

Enclosed are the test results you requested for the above referenced project. We received twelve samples from you on June 12, 1995. You requested a classification (ASTM D2487) for each sample. This method requires a grain size analysis (ASTM D422) and Atterberg limits (ASTM D4318). All samples were determined to be non-plastic and only two samples required the hydrometer portion of the grain size analysis. Also enclosed is a test summary table in Excel format as well as a copy of this table on a diskette. The remainder of these samples will be retained for a period of sixty days and will then be discarded unless otherwise notified by you.

Please call me directly if you have any questions or require additional information. Thank you for using ***GeoTesting Express.*** We look forward to working with you on future projects.

Respectfully yours;

Gary T. Torosian
Laboratory Manager

Totally Automated
Geotechnical Testing

GTX-799
MWIRP Bethpage

Client: Pace						
Project: NWIRP Bethpage						
	DSB09-1.3/2.8	DSB09-15/16.5	DSB09-55/56.5	DSB06-20/22	DSB06-40/42	DSB06-50/52
ASTM D422/Percent Finer:						
1"	100	100	100	100	100	100
3/4"	100	100	100	84	100	100
1/2"	100	100	100	77	100	100
3/8"	95	97	100	72	100	100
#4	92	80	100	54	100	99
#10	83	63	99	40	98	99
#20	67	45	96	28	46	98
#40	42	17	78	16	24	70
#60	28	5	12	8	15	9
#100	24	2	7	5	10	6
#200	23	1	6	4	8	4
ASTM D422/Percent :						
Gravel	8	20	0	46	0	1
Sand	69	79	94	51	92	95
Silt	21	NA	NA	NA	NA	NA
Clay	2	NA	NA	NA	NA	NA
ASTM D4318/Limits:						
Liquid Limit	non-plastic	non-plastic	non-plastic	non-plastic	non-plastic	non-plastic
Plastic Limit	non-plastic	non-plastic	non-plastic	non-plastic	non-plastic	non-plastic
Plasticity Index	non-plastic	non-plastic	non-plastic	non-plastic	non-plastic	non-plastic
ASTM D2487/Classification:	SM	SP	SP-SM	SP	SW-SM	SP

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GTX-799
MWIRP Bethpage

Client: Pace						
Project: NWIRP Bethpage						
	DSB02-15/7	DSB02-35/37	DSB02-55/57	DSB03-15/17	DSB03-30/32	DSB03-60/62
ASTM D422/Percent Finer:						
1"	100	100	100	100	100	100
3/4"	100	100	100	100	100	100
1/2"	88	100	100	94	100	100
3/8"	82	100	100	89	100	100
#4	69	100	96	76	100	100
#10	49	100	94	64	100	100
#20	34	99	85	52	98	94
#40	16	94	43	36	53	38
#60	7	38	15	19	13	11
#100	4	17	10	11	7	8
#200	2	13	6	9	5	5
ASTM D422/Percent :						
Gravel	31	0	4	24	0	0
Sand	67	87	90	67	95	95
Silt	NA	6	NA	NA	NA	NA
Clay	NA	7	NA	NA	NA	NA
ASTM D4318/Limits:						
Liquid Limit	non-plastic	non-plastic	non-plastic	non-plastic	non-plastic	non-plastic
Plastic Limit	non-plastic	non-plastic	non-plastic	non-plastic	non-plastic	non-plastic
Plasticity Index	non-plastic	non-plastic	non-plastic	non-plastic	non-plastic	non-plastic
ASTM D2487/Classification:	SP	SM	SP-SM	SP-SM	SP-SM	SP

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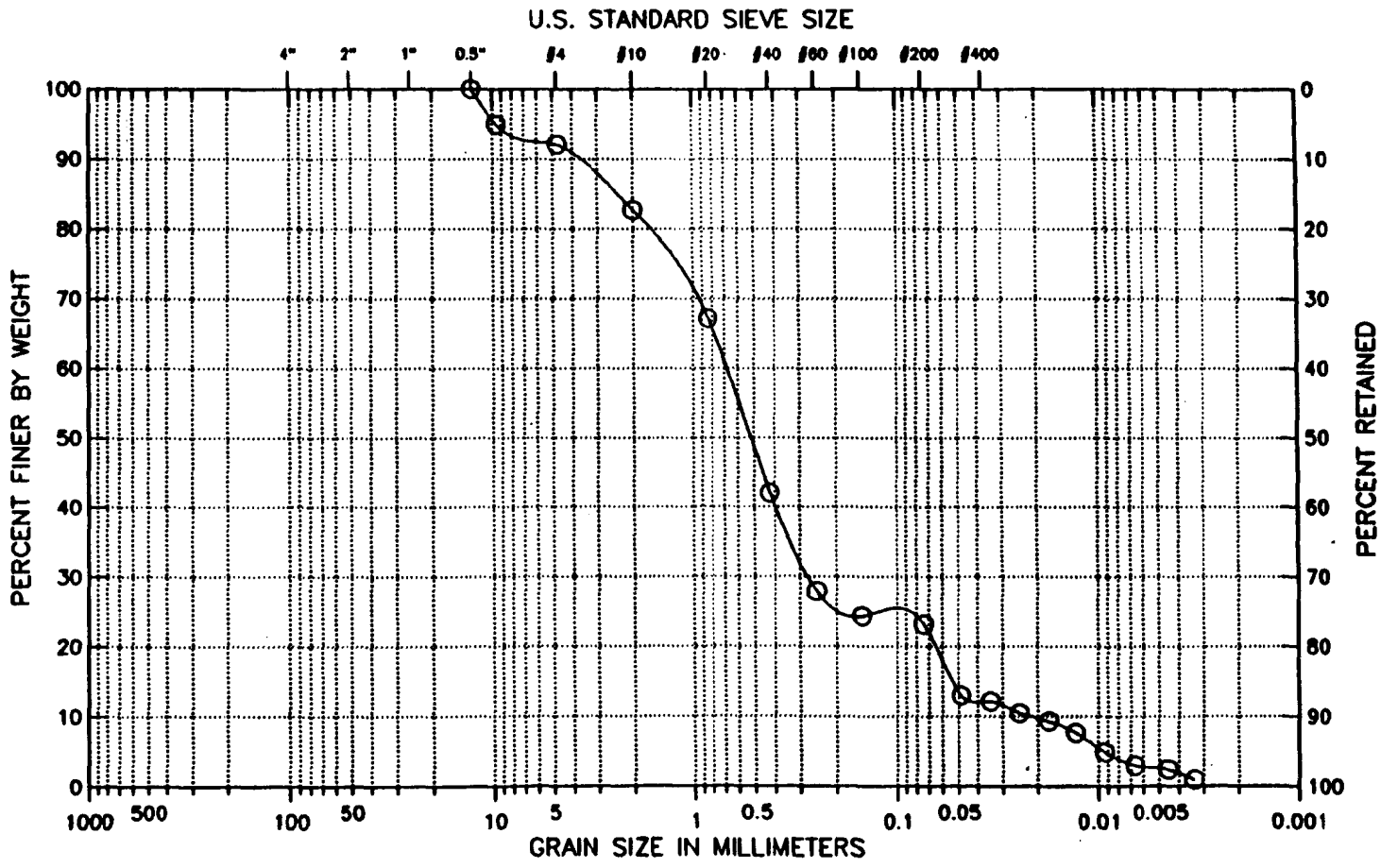
Boring No. : --- Sample No: DSB09-1.3/2.8 Test Method ASTM D422 Filename : 091328	Project : MWIRP Bethpage Project No.: GTX-799 Location: Bethpage, NY Test Date 06/16/95



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

Classification :
(SM) Silty sand

Visual Description :
Brown silty medium-fine sand with gravel

Remarks :
Non-plastic

Figure 1

GEOTECHNICAL LABORATORY TEST DATA

Project : MWIRP Bethpage
Project No. : GTX-799
Boring No. : ---
Sample No. : DSB09-1.3/2.8
Location : Bethpage, NY
Soil Description : Brown silty medium-fine sand with gravel
Remarks : Non-plastic

Depth : 1.3-2.8 ft
Test Date : 06/16/95
Test Method : ASTM D422

Filename : 091328
Elevation : ---
Tested by : jdt
Checked by : gtt

HYDROMETER

Hydrometer ID : hy125
Weight of air-dried soil = 89.48 gm
Specific Gravity = 2.65

Hydroscopic Moisture Content :
Weight of Wet Soil = 0 gm
Weight of Dry Soil = 0 gm
Moisture Content = 0

Elapsed Time (min)	Reading	Temperature (deg. C)	Corrected Reading	Particle Size (mm)	Percent Finer (%)	Adjusted Particle Size
1.00	19.00	21.60	14.06	0.049	13	0.049
2.00	18.10	21.60	13.16	0.035	12	0.035
4.00	16.10	21.80	11.29	0.025	10	0.025
8.00	14.90	21.80	10.09	0.018	9	0.018
15.00	13.10	21.80	8.29	0.013	8	0.013
30.00	10.10	21.80	5.29	0.009	5	0.009
60.00	7.90	22.00	3.22	0.007	3	0.007
130.00	7.10	22.30	2.61	0.005	2	0.005
240.00	5.50	22.30	1.01	0.003	1	0.003

FINE SIEVE SET

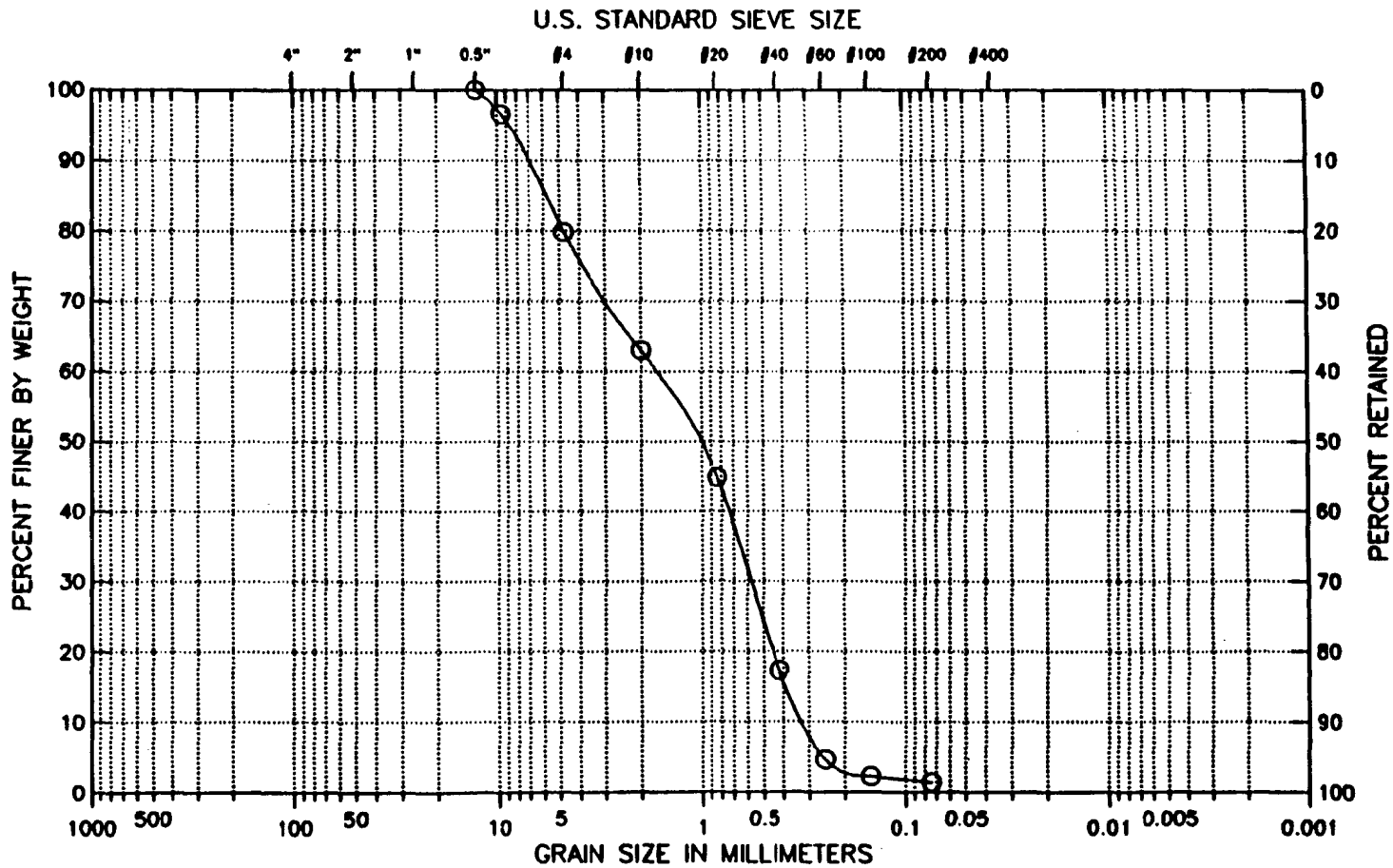
Sieve Mesh	Sieve Openings Inches	Sieve Openings Millimeters	Weight Retained (gm)	Cumulative Weight Retained (gm)	Percent Finer (%)
0.5"	0.500	12.70	0.00	0.00	100
0.375"	0.374	9.51	4.30	4.30	95
#4	0.187	4.75	2.38	6.68	92
#10	0.079	2.00	7.94	14.62	83
#20	0.033	0.84	13.10	27.72	67
#40	0.017	0.42	21.19	48.91	42
#60	0.010	0.25	11.89	60.80	28
#100	0.006	0.15	2.98	63.78	24
#200	0.003	0.07	0.97	64.75	23
Pan			19.59	84.34	0

Total Dry Weight of Sample = 92.44

D85 : 2.4785 mm
D60 : 0.6905 mm
D50 : 0.5238 mm
D30 : 0.2700 mm
D15 : 0.0527 mm
D10 : 0.0215 mm

Soil Classification
ASTM Group Symbol : SM
ASTM Group Name : Silty sand
AASHTO Group Symbol : A-1-b(0)
AASHTO Group Name : Stone Fragments, Gravel and Sand

Boring No. : ---	Project : MWIRP Bethpage
Sample No: DSB09-15/16.5	Project No.: GTX-799
Test Method ASTM D422	Location: Bethpage, NY
Filename : 0915165	Test Date 06/16/95



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

Classification :
(SP) Poorly graded sand with gravel
Visual Description :
Light brown medium sand with gravel

Remarks :
Hydrometer not required, fines < 10%; non-plastic

Figure 2

GEOTECHNICAL LABORATORY TEST DATA

Project : MWIRP Bethpage
Project No. : GTX-799
Boring No. : ---
Sample No. : DSB09-15/16.5
Location : Bethpage, NY
Soil Description : Light brown medium sand with gravel
Remarks : Hydrometer not required, fines < 10%; non-plastic

Depth : 15-16.5 ft
Test Date : 06/16/95
Test Method : ASTM D422

Filename : 0915165
Elevation : ---
Tested by : jdt
Checked by : gtt

FINE SIEVE SET

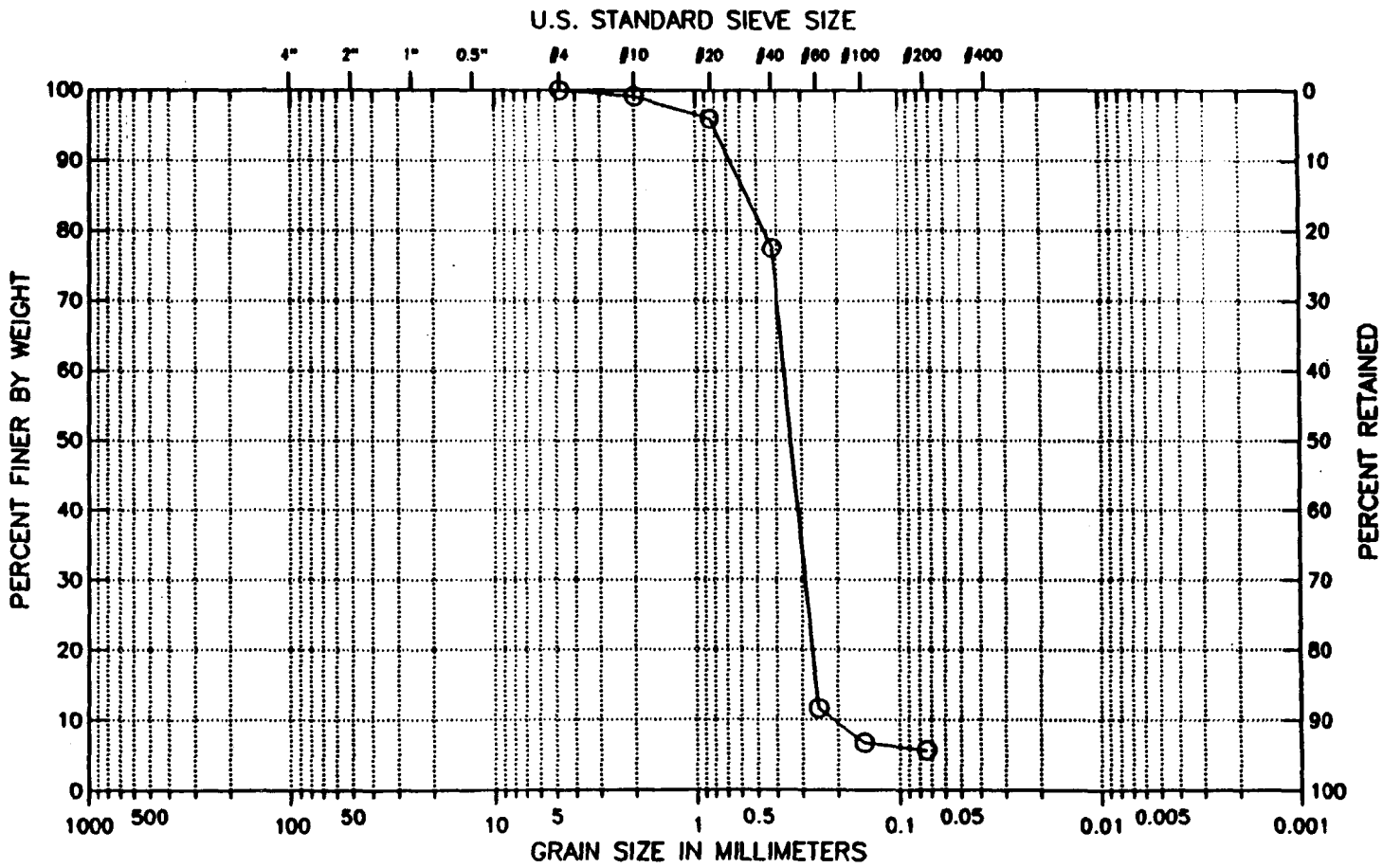
Sieve Mesh	Sieve Openings Inches	Millimeters	Weight Retained (gm)	Cumulative Weight Retained (gm)	Percent Finer (%)
0.5"	0.500	12.70	0.00	0.00	100
0.375"	0.374	9.51	2.34	2.34	97
#4	0.187	4.75	11.42	13.76	80
#10	0.079	2.00	11.46	25.22	63
#20	0.033	0.84	12.32	37.54	45
#40	0.017	0.42	18.75	56.29	17
#60	0.010	0.25	8.64	64.93	5
#100	0.006	0.15	1.60	66.53	2
#200	0.003	0.07	0.58	67.11	1
Pan			0.98	68.09	0

Total Dry Weight of Sample = 76.27

D85 : 5.8928 mm
D60 : 1.7357 mm
D50 : 1.0753 mm
D30 : 0.5781 mm
D15 : 0.3818 mm
D10 : 0.3112 mm

Soil Classification
ASTM Group Symbol : SP
ASTM Group Name : Poorly graded sand with gravel
AASHTO Group Symbol : A-1-b(0)
AASHTO Group Name : Stone Fragments, Gravel and Sand

Boring No. : ---	Project : MWIRP Bethpage
Sample No: DSB09-55/56.5	Project No.: GTX-799
Test Method ASTM D422	Location: Bethpage, NY
Filename : 0955565	Test Date 06/16/95



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

Classification :
(SP-SM) Poorly graded sand with silt

Visual Description :
White, medium-fine sand

Remarks :
Hydrometer not required, fines < 10%; non-plastic

Figure 3

GEOTECHNICAL LABORATORY TEST DATA

Project : MWIRP Bethpage
Project No. : GTX-799
Boring No. : ---
Sample No. : DSB09-55/56.5
Location : Bethpage, NY
Soil Description : White, medium-fine sand
Remarks : Hydrometer not required, fines < 10%: non-plastic

Depth : 55-56.5 ft
Test Date : 06/16/95
Test Method : ASTM D422

Filename : 0955565
Elevation : ---
Tested by : jdt
Checked by : gtt

FINE SIEVE SET

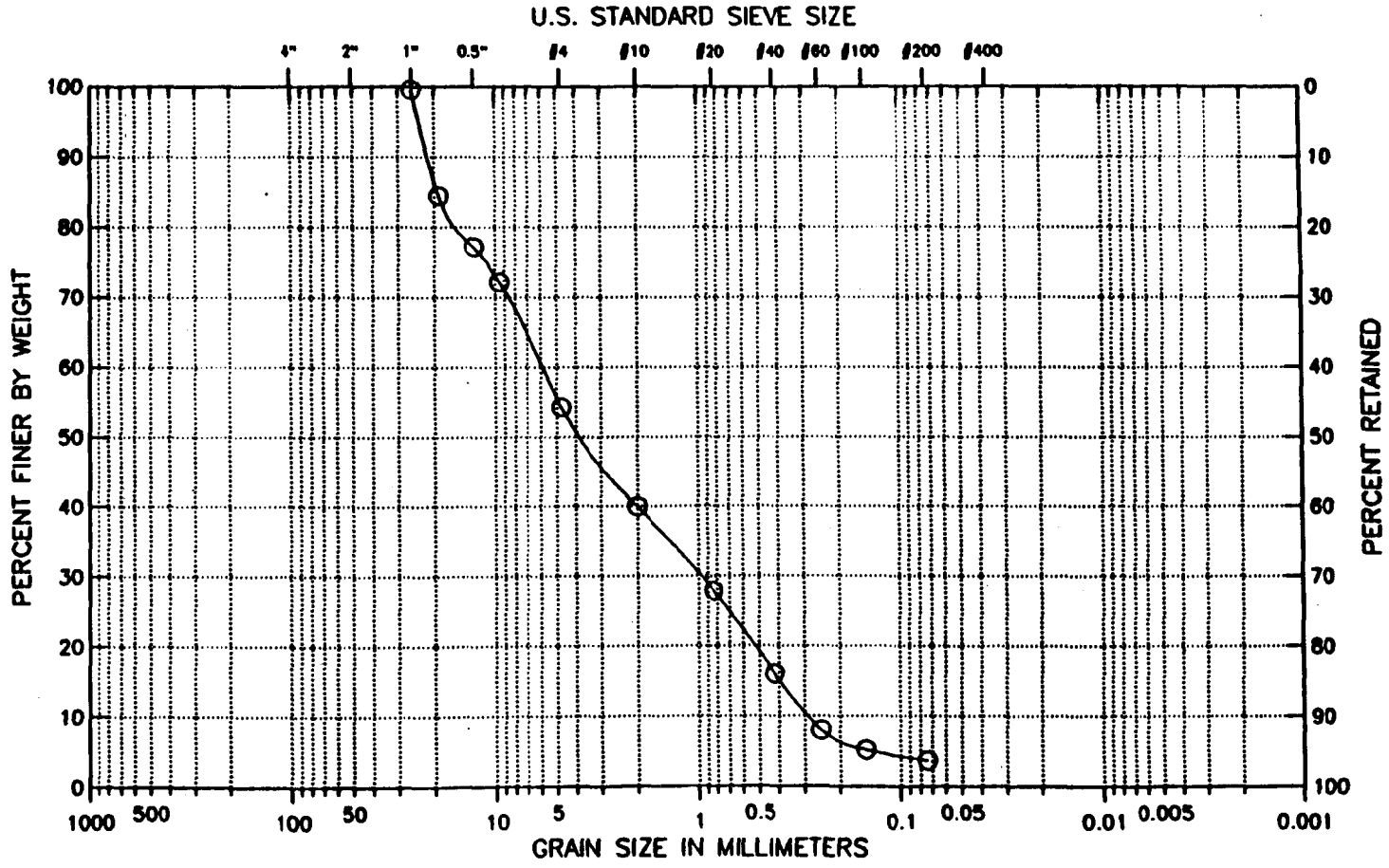
Sieve Mesh	Sieve Openings Inches	Sieve Openings Millimeters	Weight Retained (gm)	Cumulative Weight Retained (gm)	Percent Finer (%)
#4	0.187	4.75	0.00	0.00	100
#10	0.079	2.00	0.80	0.80	99
#20	0.033	0.84	2.92	3.72	96
#40	0.017	0.42	16.92	20.64	78
#60	0.010	0.25	60.45	81.09	12
#100	0.006	0.15	4.46	85.55	7
#200	0.003	0.07	1.01	86.56	6
Pan			5.20	91.76	0

Total Dry Weight of Sample = 101.52

D85 : 0.5569 mm
D60 : 0.3659 mm
D50 : 0.3382 mm
D30 : 0.2889 mm
D15 : 0.2567 mm
D10 : 0.2102 mm

Soil Classification
ASTM Group Symbol : SP-SM
ASTM Group Name : Poorly graded sand with silt
AASHTO Group Symbol : A-3(0)
AASHTO Group Name : Fine Sand

Boring No. : ---	Project : MWIRP Bethpage
Sample No.: DSB06-20/22	Project No.: GTX-799
Test Method ASTM D422	Location: Bethpage, NY
Filename : 062022	Test Date 06/16/95



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

Classification :
(SP) Poorly graded sand with gravel

Visual Description :
Pale yellow medium sand with gravel

Remarks :
Hydrometer not required, fines < 10%; non-plastic

Figure 4

GEOTECHNICAL LABORATORY TEST DATA

Project : MWIRP Bethpage
Project No. : GTX-799
Boring No. : ---
Sample No. : DSB06-20/22
Location : Bethpage, NY

Depth : 20-22 ft
Test Date : 06/16/95
Test Method : ASTM D422

Filename : 062022
Elevation : ---
Tested by : jdt
Checked by : gtt

Soil Description : Pale yellow medium sand with gravel
Remarks : Hydrometer not required, fines < 10%; non-plastic

FINE SIEVE SET

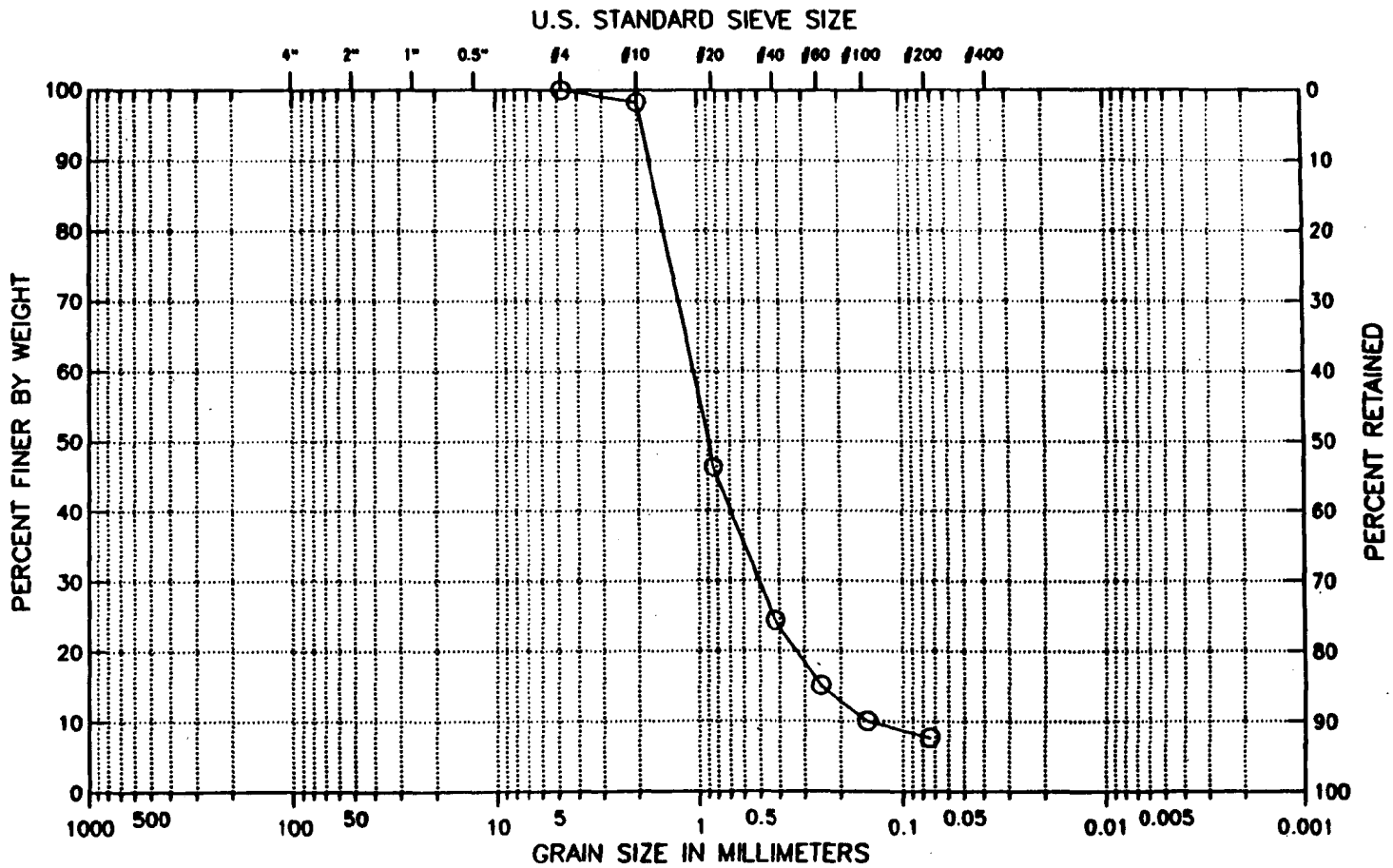
Sieve Mesh	Sieve Openings Inches	Sieve Openings Millimeters	Weight Retained (gm)	Cumulative Weight Retained (gm)	Percent Finer (%)
1"	1.012	25.70	1.00	1.00	100
0.75"	0.748	19.00	34.27	35.27	84
0.5"	0.500	12.70	16.51	51.78	77
0.375"	0.374	9.51	11.38	63.16	72
#4	0.187	4.75	40.57	103.73	54
#10	0.079	2.00	32.34	136.07	40
#20	0.033	0.84	27.40	163.47	28
#40	0.017	0.42	26.86	190.33	16
#60	0.010	0.25	18.18	208.51	8
#100	0.006	0.15	6.28	214.79	5
#200	0.003	0.07	3.55	218.34	4
Pan			8.35	226.69	0

Total Dry Weight of Sample = 235.01

D85 : 19.2133 mm
D60 : 5.9388 mm
D50 : 3.6729 mm
D30 : 0.9784 mm
D15 : 0.3927 mm
D10 : 0.2842 mm

Soil Classification
ASTM Group Symbol : SP
ASTM Group Name : Poorly graded sand with gravel
AASHTO Group Symbol : A-1-a(0)
AASHTO Group Name : Stone Fragments, Gravel and Sand

Boring No. : ---	Project : MWIRP Bethpage
Sample No: DSB06-40/42	Project No.: GTX-799
Test Method ASTM D422	Location: Bethpage, NY
Filename : 064042	Test Date 06/16/95



Classification :
(SW-SM) Well-graded sand with silt

Visual Description :
Pale yellow/white medium-fine sand

Remarks :
Hydrometer not required, fines < 10%; non-plastic

Figure 5

GEOTECHNICAL LABORATORY TEST DATA

Project : MWIRP Bethpage
Project No. : GTX-799
Boring No. : ---
Sample No. : DSB06-40/42
Location : Bethpage, NY
Soil Description : Pale yellow/white medium-fine sand
Remarks : Hydrometer not required, fines < 10%; non-plastic

Depth : 40-42 ft
Test Date : 06/16/95
Test Method : ASTM D422

Filename : 064042
Elevation : ---
Tested by : jdt
Checked by : gtt

FINE SIEVE SET

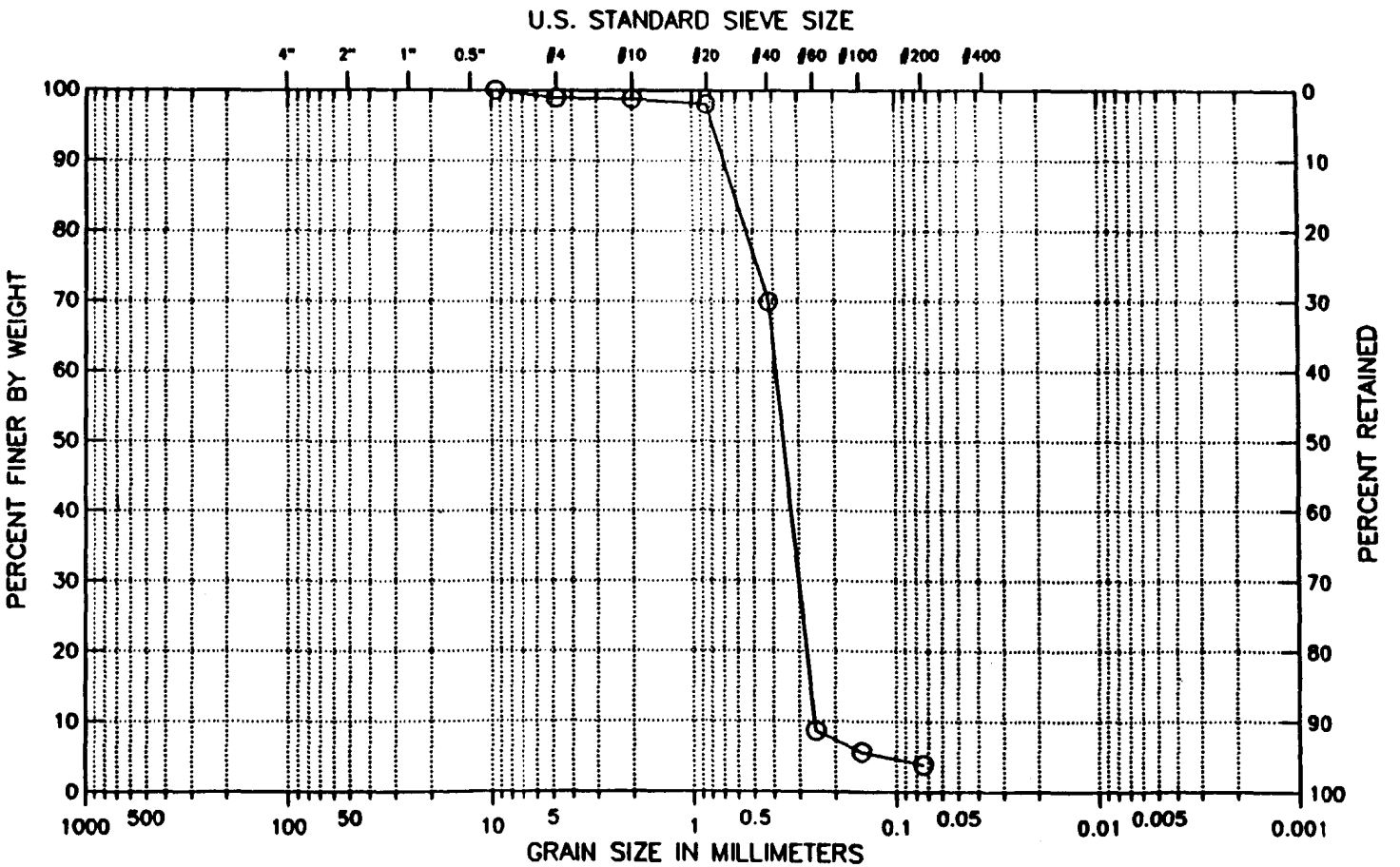
Sieve Mesh	Sieve Openings Inches	Millimeters	Weight Retained (gm)	Cumulative Weight Retained (gm)	Percent Finer (%)
#4	0.187	4.75	0.00	0.00	100
#10	0.079	2.00	1.55	1.55	98
#20	0.033	0.84	45.36	46.91	46
#40	0.017	0.42	19.14	66.05	24
#60	0.010	0.25	8.07	74.12	15
#100	0.006	0.15	4.42	78.54	10
#200	0.003	0.07	2.06	80.60	8
Pan			6.72	87.32	0

Total Dry Weight of Sample = 96.67

D85 : 1.6042 mm
D60 : 1.0573 mm
D50 : 0.8949 mm
D30 : 0.5022 mm
D15 : 0.2470 mm
D10 : 0.1466 mm

Soil Classification
ASTM Group Symbol : SW-SM
ASTM Group Name : Well-graded sand with silt
AASHTO Group Symbol : A-1-b(0)
AASHTO Group Name : Stone Fragments, Gravel and Sand

Boring No. : ---	Project : MWIRP Bethpage
Sample No: DSB06-50/52	Project No.: GTX-799
Test Method ASTM D422	Location: Bethpage, NY
Filename : 065052	Test Date 06/16/95



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

Classification :
(SP) Poorly graded sand

Visual Description :
White fine-medium sand

Remarks :
Hydrometer not required, fines < 10%; non-plastic

Figure 6

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GEOTECHNICAL LABORATORY TEST DATA

Project : MWIRP Bethpage
Project No. : GTX-799
Boring No. : ---
Sample No. : DSB06-50/52
Location : Bethpage, NY
Soil Description : White fine-medium sand
Remarks : Hydrometer not required, fines < 10%: non-plastic

Depth : 50-52 ft
Test Date : 06/16/95
Test Method : ASTM D422

Filename : 065052
Elevation : ---
Tested by : jdt
Checked by : gtt

FINE SIEVE SET

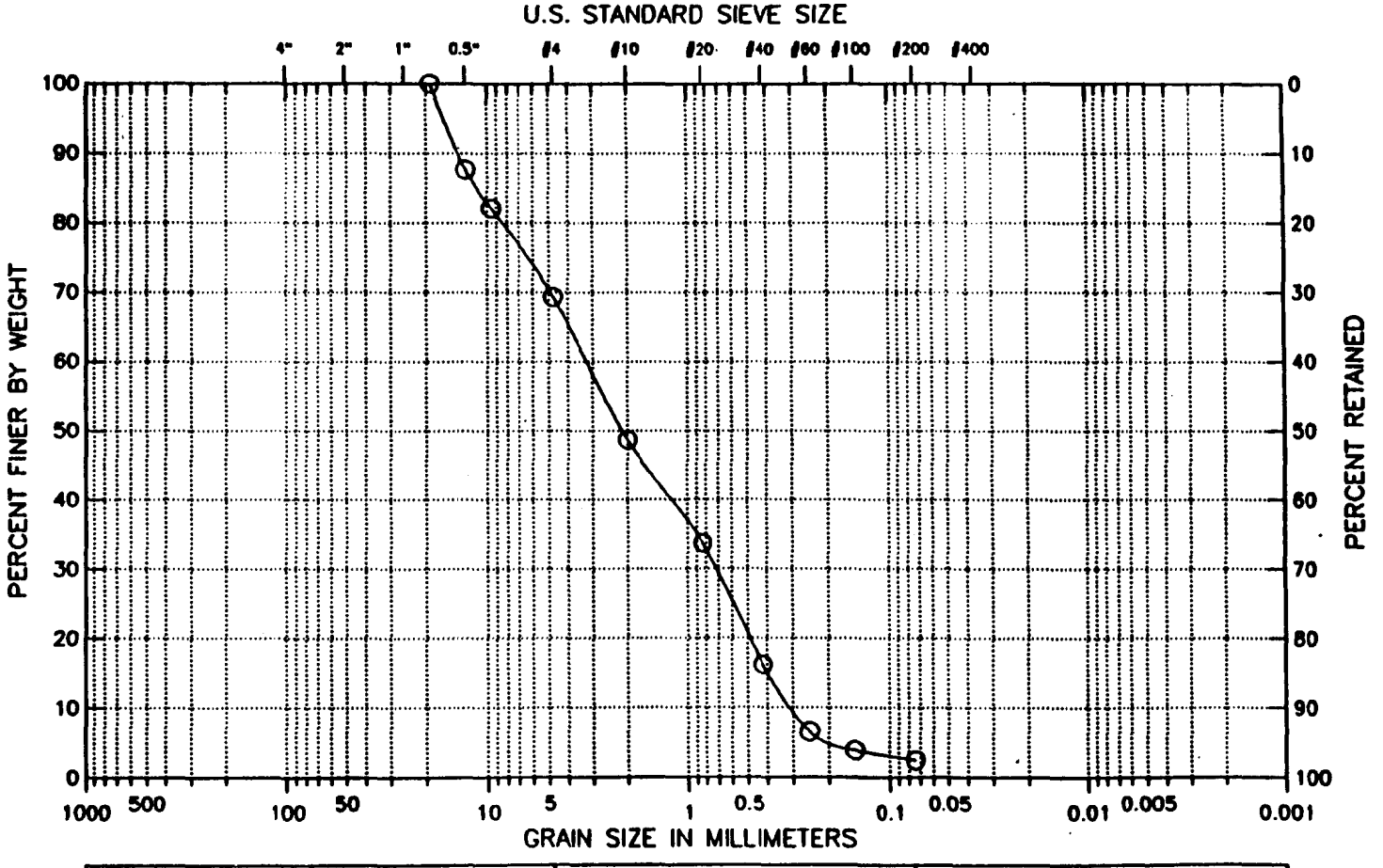
Sieve Mesh	Sieve Openings Inches	Sieve Openings Millimeters	Weight Retained (gm)	Cumulative Weight Retained (gm)	Percent Finer (%)
0.375"	0.374	9.51	0.00	0.00	100
#4	0.187	4.75	0.82	0.82	99
#10	0.079	2.00	0.09	0.91	99
#20	0.033	0.84	0.56	1.47	98
#40	0.017	0.42	21.14	22.61	70
#60	0.010	0.25	45.88	68.49	9
#100	0.006	0.15	2.22	70.71	6
#200	0.003	0.07	1.32	72.03	4
Pan			2.94	74.97	0

Total Dry Weight of Sample = 83.09

D85 : 0.6100 mm
D60 : 0.3864 mm
D50 : 0.3550 mm
D30 : 0.2996 mm
D15 : 0.2638 mm
D10 : 0.2529 mm

Soil Classification
ASTM Group Symbol : SP
ASTM Group Name : Poorly graded sand
AASHTO Group Symbol : A-3(0)
AASHTO Group Name : Fine Sand

Boring No. : ---	Project : MWIRP Bethpage
Sample No: DSB02-15/17	Project No.: GTX-799
Test Method ASTM D422	Location: Bethpage, NY
Filename : 021517	Test Date 06/16/95



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

Classification :
(SP) Poorly graded sand with gravel

Visual Description :
Pale yellow medium sand with gravel

Remarks :
Hydrometer not required, fines < 10%; non-plastic

Figure 7

GEOTECHNICAL LABORATORY TEST DATA

Project : MWIRP Bethpage
Project No. : GTX-799
Boring No. : ---
Sample No. : DSB02-15/17
Location : Bethpage, NY
Soil Description : Pale yellow medium sand with gravel
Remarks : Hydrometer not required, fines < 10%; non-plastic

Depth : 15-17 ft
Test Date : 06/16/95
Test Method : ASTM D422

Filename : 021517
Elevation : ---
Tested by : jdt
Checked by : gtt

FINE SIEVE SET

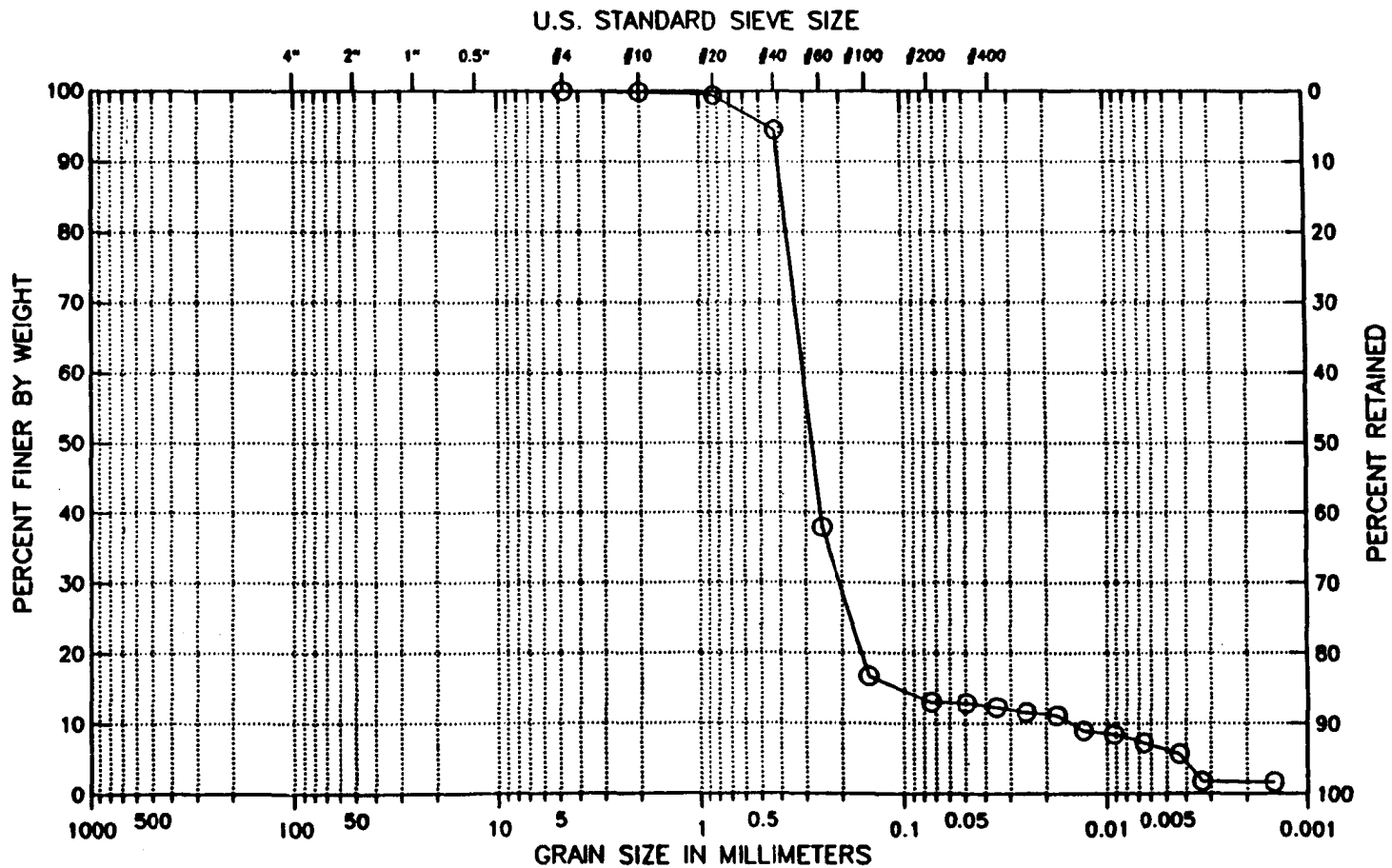
Sieve Mesh	Sieve Openings Inches	Millimeters	Weight Retained (gm)	Cumulative Weight Retained (gm)	Percent Finer (%)
0.75"	0.748	19.00	0.00	0.00	100
0.5"	0.500	12.70	10.59	10.59	88
0.375"	0.374	9.51	4.77	15.36	82
#4	0.187	4.75	10.95	26.31	69
#10	0.079	2.00	17.70	44.01	49
#20	0.033	0.84	12.79	56.80	34
#40	0.017	0.42	15.05	71.85	16
#60	0.010	0.25	8.21	80.06	7
#100	0.006	0.15	2.26	82.32	4
#200	0.003	0.07	1.23	83.55	2
Pan			2.14	85.69	0

Total Dry Weight of Sample = 95.27

D85 : 11.0711 mm
D60 : 3.2183 mm
D50 : 2.1172 mm
D30 : 0.7261 mm
D15 : 0.3946 mm
D10 : 0.3010 mm

Soil Classification
ASTM Group Symbol : SP
ASTM Group Name : Poorly graded sand with gravel
AASHTO Group Symbol : A-1-a(0)
AASHTO Group Name : Stone Fragments, Gravel and Sand

Boring No. : ---	Project : MWIRP Bethpage
Sample No: DSB02-35/37	Project No.: GTX-799
Test Method ASTM D422	Location: Bethpage, NY
Filename : 023537	Test Date 06/16/95



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

Classification :
(SM) Silty sand
Visual Description :
White, silty, fine-medium sand

Remarks :
Non-plastic

Figure 8

GEOTECHNICAL LABORATORY TEST DATA

Project : MWIRP Bethpage
Project No. : GTX-799
Boring No. : ---
Sample No. : DSB02-35/37
Location : Bethpage, NY
Soil Description : White, silty, fine-medium sand
Remarks : Non-plastic

Depth : 35-37 ft
Test Date : 06/16/95
Test Method : ASTM D422

Filename : 023537
Elevation : ---
Tested by : jdt
Checked by : gtt

HYDROMETER

Hydrometer ID : hy125
Weight of air-dried soil = 68.5 gm
Specific Gravity = 2.65

Hydroscopic Moisture Content :
Weight of Wet Soil = 0 gm
Weight of Dry Soil = 0 gm
Moisture Content = 0

Elapsed Time (min)	Reading	Temperature (deg. C)	Corrected Reading	Particle Size (mm)	Percent Finer (%)	Adjusted Particle Size
1.00	13.10	22.70	8.84	0.050	13	0.050
2.00	12.70	22.70	8.44	0.035	12	0.035
4.00	12.20	22.70	7.94	0.025	12	0.025
8.00	11.90	22.70	7.64	0.018	11	0.018
15.00	10.40	22.70	6.14	0.013	9	0.013
30.00	10.00	22.80	5.79	0.009	8	0.009
60.00	9.20	22.80	4.99	0.007	7	0.007
139.00	8.10	22.80	3.89	0.004	6	0.004
240.00	5.40	22.80	1.19	0.003	2	0.003
1226.00	4.90	23.80	1.14	0.001	2	0.001

FINE SIEVE SET

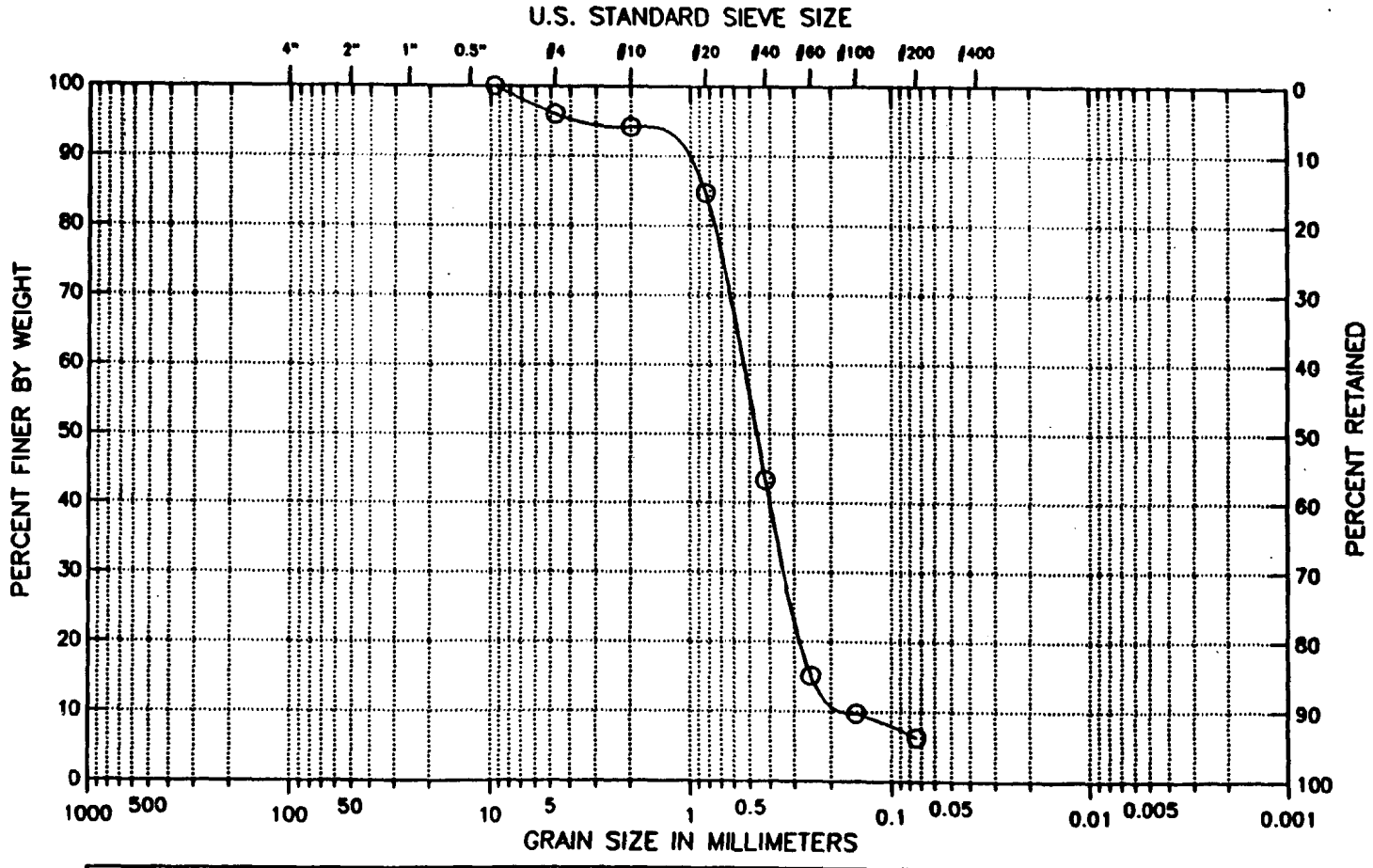
Sieve Mesh	Sieve Openings Inches	Sieve Openings Millimeters	Weight Retained (gm)	Cumulative Weight Retained (gm)	Percent Finer (%)
#4	0.187	4.75	0.00	0.00	100
#10	0.079	2.00	0.09	0.09	100
#20	0.033	0.84	0.26	0.35	99
#40	0.017	0.42	3.14	3.49	94
#60	0.010	0.25	35.74	39.23	38
#100	0.006	0.15	13.39	52.62	17
#200	0.003	0.07	2.32	54.94	13
Pan			8.25	63.19	0

Total Dry Weight of Sample = 72.43

D85 : 0.3850 mm
D60 : 0.3061 mm
D50 : 0.2793 mm
D30 : 0.2060 mm
D15 : 0.1072 mm
D10 : 0.0150 mm

Soil Classification
ASTM Group Symbol : SM
ASTM Group Name : Silty sand
AASHTO Group Symbol : A-2-4(0)
AASHTO Group Name : Silty Gravel and Sand

Boring No. : --- Sample No.: DSB02-55/57 Test Method ASTM D422 Filename : 025557	Project : MWIRP Bethpage Project No.: GTX-799 Location: Bethpage, NY Test Date 06/16/95



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

Classification :
(SP-SM) Poorly graded sand with silt

Visual Description :
Pale yellow medium-fine sand

Remarks :
Hydrometer not required, fines < 10%; non-plastic

Figure 9

GEOTECHNICAL LABORATORY TEST DATA

Project : MWIRP Bethpage
Project No. : GTX-799
Boring No. : ---
Sample No. : DSB02-55/57
Location : Bethpage, NY
Soil Description : Pale yellow medium-fine sand
Remarks : Hydrometer not required, fines < 10%; non-plastic

Depth : 55-57 ft
Test Date : 06/16/95
Test Method : ASTM D422

Filename : 025557
Elevation : ---
Tested by : jdt
Checked by : gtt

FINE SIEVE SET

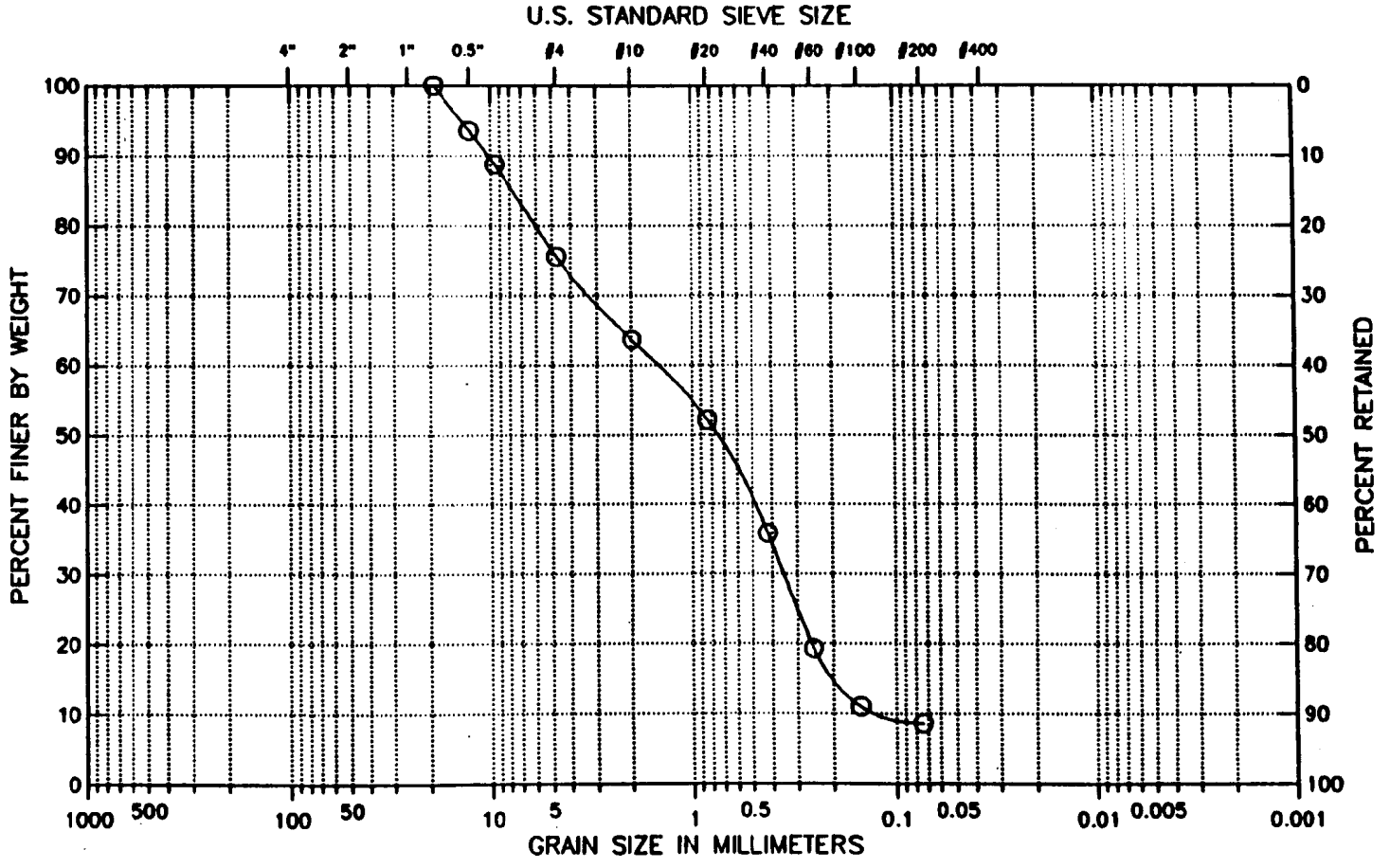
Sieve Mesh	Sieve Openings Inches	Sieve Openings Millimeters	Weight Retained (gm)	Cumulative Weight Retained (gm)	Percent Finer (%)
0.375"	0.374	9.51	0.00	0.00	100
#4	0.187	4.75	3.59	3.59	96
#10	0.079	2.00	1.63	5.22	94
#20	0.033	0.84	8.46	13.68	85
#40	0.017	0.42	37.11	50.79	43
#60	0.010	0.25	25.18	75.97	15
#100	0.006	0.15	4.79	80.76	10
#200	0.003	0.07	3.05	83.81	6
Pan			5.69	89.50	0

Total Dry Weight of Sample = 97.48

D85 : 0.8632 mm
D60 : 0.5560 mm
D50 : 0.4703 mm
D30 : 0.3289 mm
D15 : 0.2472 mm
D10 : 0.1524 mm

Soil Classification
ASTM Group Symbol : SP-SM
ASTM Group Name : Poorly graded sand with silt
AASHTO Group Symbol : A-1-b(0)
AASHTO Group Name : Stone Fragments, Gravel and Sand

Boring No. : --- Sample No: DSB03-15/17 Test Method ASTM D422 Filename : 031517	Project : MWIRP Bethpage Project No.: GTX-799 Location: Bethpage, NY Test Date 06/16/95



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

Classification :
(SP-SM) Poorly graded sand with silt and gravel

Visual Description :
Light yellow brown med-fine sand w/ silt & gravel

Remarks :
Hydrometer not required, fines < 10%; non-plastic

Figure 10

GEOTECHNICAL LABORATORY TEST DATA

Project : MWIRP Bethpage
Project No. : GTX-799
Boring No. : ---
Sample No. : DSB03-15/17
Location : Bethpage, NY

Depth : 15-17 ft
Test Date : 06/16/95
Test Method : ASTM D422

Filename : 031517
Elevation : ---
Tested by : jdt
Checked by : gtt

Soil Description : Light yellow brown med-fine sand w/ silt & gravel
Remarks : Hydrometer not required, fines < 10%; non-plastic

FINE SIEVE SET

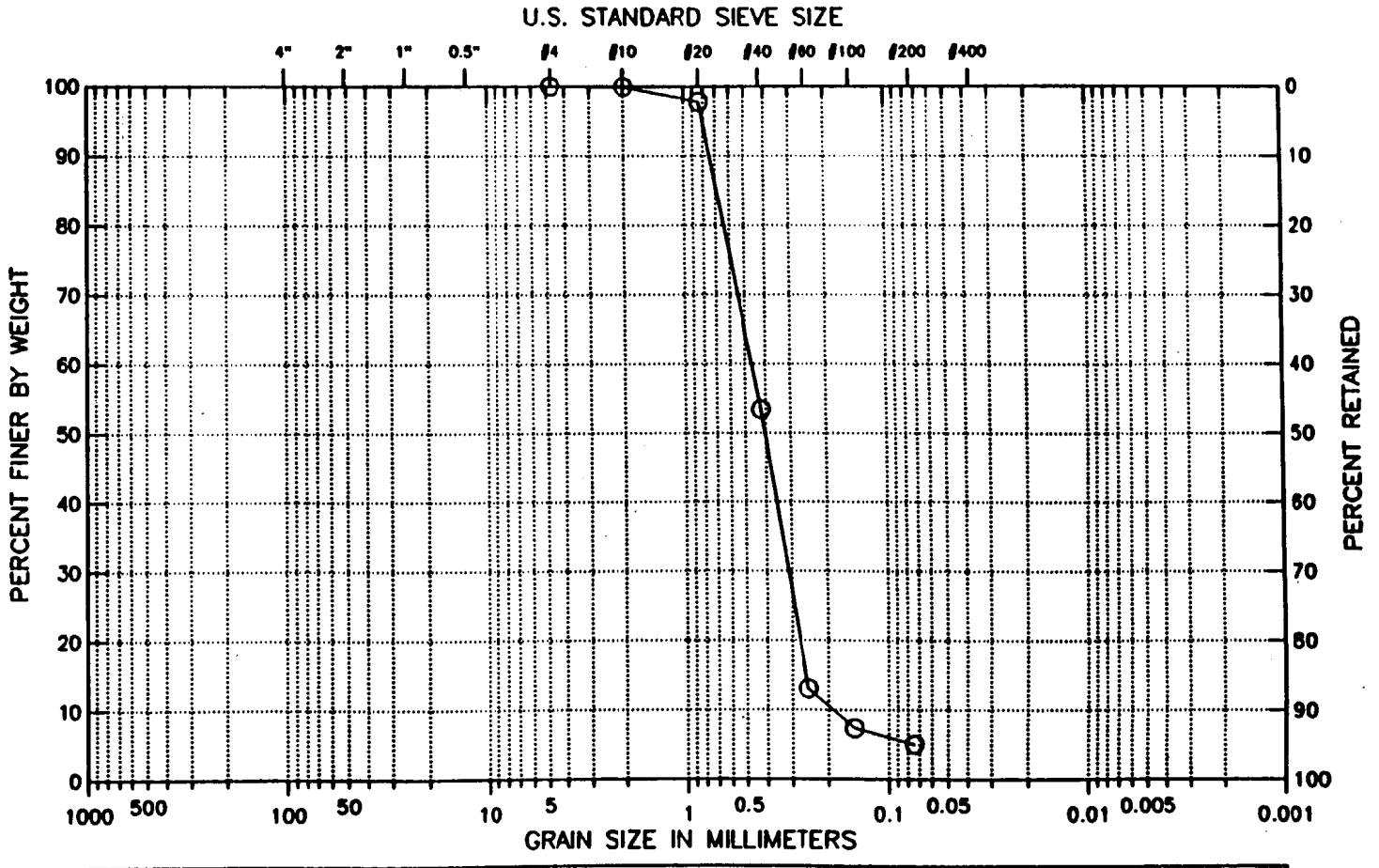
Sieve Mesh	Sieve Openings Inches	Millimeters	Weight Retained (gm)	Cumulative Weight Retained (gm)	Percent Finer (%)
0.75"	0.748	19.00	0.00	0.00	100
0.5"	0.500	12.70	7.82	7.82	94
0.375"	0.374	9.51	5.83	13.65	89
#4	0.187	4.75	15.96	29.61	76
#10	0.079	2.00	14.40	44.01	64
#20	0.033	0.84	13.99	58.00	52
#40	0.017	0.42	19.70	77.70	36
#60	0.010	0.25	20.01	97.71	19
#100	0.006	0.15	9.99	107.70	11
#200	0.003	0.07	2.93	110.63	9
Pan			10.45	121.08	0

Total Dry Weight of Sample = 128.96

D85 : 7.8153 mm
D60 : 1.5209 mm
D50 : 0.7690 mm
D30 : 0.3498 mm
D15 : 0.1909 mm
D10 : 0.1100 mm

Soil Classification
ASTM Group Symbol : SP-SM
ASTM Group Name : Poorly graded sand with silt and gravel
AASHTO Group Symbol : A-1-b(0)
AASHTO Group Name : Stone Fragments, Gravel and Sand

Boring No. : ---	Project : MWIRP Bethpage
Sample No.: DSB03-30/32	Project No.: GTX-799
Test Method ASTM D422	Location: Bethpage, NY
Filename : 033032	Test Date 06/16/95



Classification :
(SP-SM) Poorly graded sand with silt

Visual Description :
Pale yellow medium-fine sand

Remarks :
Hydrometer not required, fines < 10%; non-plastic

Figure 11

GEOTECHNICAL LABORATORY TEST DATA

Project : MWIRP Bethpage
Project No. : GTX-799
Boring No. : ---
Sample No. : DSB03-30/32
Location : Bethpage, NY

Depth : 30-32 ft
Test Date : 06/16/95
Test Method : ASTM D422

Filename : 033032
Elevation : ---
Tested by : jdt
Checked by : gtt

Soil Description : Pale yellow medium-fine sand
Remarks : Hydrometer not required, fines < 10%: non-plastic

FINE SIEVE SET

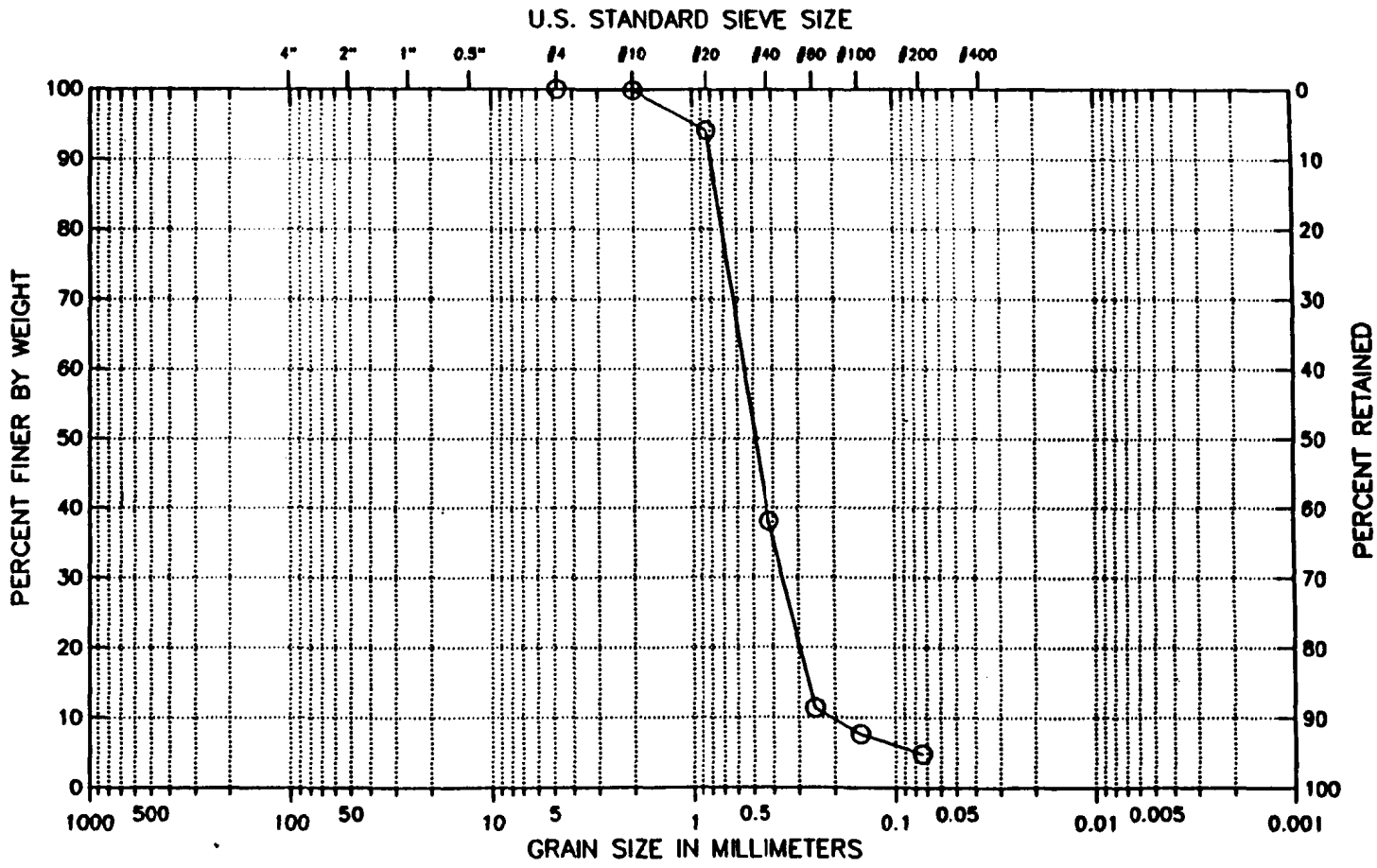
Sieve Mesh	Sieve Openings Inches	Sieve Openings Millimeters	Weight Retained (gm)	Cumulative Weight Retained (gm)	Percent Finer (%)
#4	0.187	4.75	0.00	0.00	100
#10	0.079	2.00	0.08	0.08	100
#20	0.033	0.84	2.15	2.23	98
#40	0.017	0.42	44.18	46.41	53
#60	0.010	0.25	40.08	86.49	13
#100	0.006	0.15	5.68	92.17	7
#200	0.003	0.07	2.32	94.49	5
Pan			5.01	99.50	0

Total Dry Weight of Sample = 107.47

D85 : 0.6889 mm
D60 : 0.4660 mm
D50 : 0.4022 mm
D30 : 0.3109 mm
D15 : 0.2563 mm
D10 : 0.1892 mm

Soil Classification
ASTM Group Symbol : SP-SM
ASTM Group Name : Poorly graded sand with silt
AASHTO Group Symbol : A-3(0)
AASHTO Group Name : Fine Sand

Boring No. : --- Sample No: DSB03-60/62 Test Method ASTM D422 Filename : 036062	Project : MWIRP Bethpage Project No.: GTX-799 Location: Bethpage, NY Test Date 06/16/95



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

Classification :
(SP) Poorly graded sand
Visual Description :
White medium-fine sand

Remarks :
Hydrometer not required, fines < 10%; non-plastic

Figure 12

GEOTECHNICAL LABORATORY TEST DATA

Project : MWIRP Bethpage
Project No. : GTX-799
Boring No. : ---
Sample No. : DSB03-60/62
Location : Bethpage, NY
Soil Description : White medium-fine sand
Remarks : Hydrometer not required, fines < 10%; non-plastic

Depth : 60-62 ft
Test Date : 06/16/95
Test Method : ASTM D422

Filename : 036062
Elevation : ---
Tested by : jdt
Checked by : gtt

FINE SIEVE SET

Sieve Mesh	Sieve Openings Inches	Millimeters	Weight Retained (gm)	Cumulative Weight Retained (gm)	Percent Finer (%)
#4	0.187	4.75	0.00	0.00	100
#10	0.079	2.00	0.15	0.15	100
#20	0.033	0.84	4.27	4.42	94
#40	0.017	0.42	41.87	46.29	38
#60	0.010	0.25	19.96	66.25	11
#100	0.006	0.15	2.79	69.04	8
#200	0.003	0.07	2.08	71.12	5
Pan			3.63	74.75	0

Total Dry Weight of Sample = 84.13

D85 : 0.7514 mm
D60 : 0.5512 mm
D50 : 0.4869 mm
D30 : 0.3590 mm
D15 : 0.2683 mm
D10 : 0.2067 mm

Soil Classification
ASTM Group Symbol : SP
ASTM Group Name : Poorly graded sand
AASHTO Group Symbol : A-1-b(0)
AASHTO Group Name : Stone Fragments, Gravel and Sand

APPENDIX G

CHEMICAL ANALYSIS RESULTS

pace. INCORPORATED
THE ASSURANCE OF QUALITY

REPORT OF LABORATORY ANALYSIS

June 27, 1995

Halliburton NUS Corporation
Mr. Mark Speranza
661 Andersen Drive
Pittsburgh, PA 15220

SAMPLE DELIVERY GROUP NARRATIVE

Project: NWIRP Bethpage, CTO 0213
Laboratory: PACE New England, Inc. of Hampton, NH

Lab Numbers: 44361
Protocol: SW846 Methodologies with NEESA Level C package and LOTUS diskette.

Sample Receipt: Samples were received at PACE, Inc. on 6/14/95. Laboratory sample numbers were assigned for test parameters as listed on the sample table which follows this narrative. Sample shipments were checked for custody seal integrity and cooler temperature. Samples were checked for appropriate preservation and accuracy against the Chains-of-Custody provided. Other than the exceptions noted below, samples were received between 2-6° C and in good condition. In addition, Sample Receipt Condition Reports can be found with the Chains-of-Custody. No spike sample was submitted for analysis.

Shipment received 6/14/95 (44361): One cooler was received with one Chain-of-Custody form. The cooler was received without a temperature blank present. The samples were packed in ice. Custody seals were present and intact.

Volatile Organic Analysis: Samples were analyzed within a project specific holding time of 7 days from sampling as directed by Ms. Kelly Johnson.

Statement of Compliancy and Data Authorization

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Richard L Wellman — 6/27/95

Richard Wellman, Operations Manager
PACE Incorporated, New England-New Hampshire

June 27, 1995

P.O. Box 2130
1 Lafayette Road
Hampton, NH 03842
TEL: 603-926-7777
800-892-0724
FAX: 603-926-7939

An Equal Opportunity Employer

pace INCORPORATED
ENVIRONMENTAL LABORATORIES

NEW ENGLAND - NEW HAMPSHIRE LABORATORY
SAMPLE RECEIPT CONDITION REPORT
Tel. (603) 926-7777
FAX (603) 926-7939

PAGE 1 of 1
COOLER 1 of 1
COC# none
SDG# —
CASE# —

CLIENT Halliburton NUS
DATE/TIME RECEIVED 6/14/95 1020
DELIVERED BY Fed Ex
RECEIVED BY [illegible]

LIMS ENTRY BY bd
TRANSCRIPTION REVIEW BY bd
LIMS REVIEW BY/PM SB

	NA	YES	EXCEPTION	COMMENT	RESOLUTION
1. CUSTODY SEALS PRESENT/INTACT	☐	☑	☐		
2. CHAIN OF CUSTODY PRESENT IN THIS COOLER	☐	☑	☐		
3. CHAIN OF CUSTODY SIGNED	☐	☑	☐		
4. CHAIN OF CUSTODY MATCHES SAMPLES	☐	☑	☐		
5. SAMPLES RECEIVED AT 2° - 6° C Ice/Ice Packs Present? (Y) or N	☐	☐	☑	No temp blk	
6. VOLATILES FREE OF HEAD SPACE	☐	☑	☐		
7. TRIP BLANK PRESENT IN THIS COOLER	☐	☐	☑		
8. PROPER SAMPLE CONTAINERS AND VOLUME	☐	☑	☐		
9. SAMPLES WITHIN HOLD TIME	☐	☑	☐		
10. SAMPLES PROPERLY PRESERVED	☐	☑	☐		

11. ANALYTICAL PROGRAMS (circle one) COMMERCIAL CLP EPA-CLP NYASP NJ ISRA (NEESA) AFCEE Other_____
-C-
12. NUMBER OF PACE FILTRATIONS: _____
13. CORRECTIVE ACTIONS REPORT # _____

Log-in Notes:

SW846 / neesa-c / 7d HT / disk / 14 day H. copy.

Mark Speranza
661 Anderson Dr
Pitts, PA 15220
412 921-7090

CLIENT AUTHORIZATION SIGNATURE _____ DATE _____

SAMPLE TABLE

CLIENT ID.	MATRIX	PACE #	PARAMETERS
DSB04A-30/32	SOLID	44361-001	GC/MS VOA
DSB04A-55/57	SOLID	44361-002	GC/MS VOA
DSB01A-25/27	SOLID	44361-003	GC/MS VOA
DSB01A-60/62	SOLID	44361-004	GC/MS VOA

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THE ASSURANCE OF QUALITY

Laboratory number: 44361-001
Sample Designation: DSB04A-30/32
Date Analyzed: 06/16/95
Matrix: SOLID

Instrument File Name: >C8976

Results are expressed on a dry (103 degrees C) basis.
Moisture content was 3 % , elevating the reporting limits
by a factor of 1.03 .

VOLATILE ORGANICS	CONCENTRATION (ug/Kg)	REPORTING LIMIT (ug/Kg)
Chloromethane	BDL	10
Bromomethane	BDL	10
Vinyl chloride	BDL	10
Chloroethane	BDL	5
Methylene chloride	BDL	10
Acetone	BDL	26
Carbon disulfide	BDL	5
Tetrahydrofuran	BDL	26
Trichlorofluoromethane	BDL	5
1,1-Dichloroethene	BDL	5
1,1-Dichloroethane	BDL	5
1,2-Dichloroethene (total)	BDL	5
Chloroform	BDL	5
1,2-Dichloroethane	BDL	5
2-Butanone	BDL	26
1,1,1-Trichloroethane	BDL	5
Carbon Tetrachloride	BDL	5
Vinyl acetate	BDL	10
Bromodichloromethane	BDL	5
1,2-Dichloropropane	BDL	5
cis-1,3-Dichloropropene	BDL	5
trans-1,3-Dichloropropene	BDL	5
Trichloroethene	BDL	5
Dibromochloromethane	BDL	5
1,1,2-Trichloroethane	BDL	5
Benzene	BDL	5
2-Chloroethyl vinyl ether	BDL	5
Bromoform	BDL	5
4-Methyl-2-Pentanone	BDL	26
2-Hexanone	BDL	26
Tetrachloroethene	BDL	5
1,1,2,2-Tetrachloroethane	BDL	5
Toluene	BDL	5
Chlorobenzene	BDL	5
Ethylbenzene	BDL	5
Styrene	BDL	5
Xylene (total)	BDL	5

METHOD REFERENCE: EPA SW 846, 3rd Edition
METHOD 8240

BDL = Below reporting limit

pace INCORPORATED
THE ASSURANCE OF QUALITY

Laboratory number: 44361-002
Sample Designation: DSB04A-55/57
Date Analyzed: 06/16/95
Matrix: SOLID

Instrument File Name: >C8977

Results are expressed on a dry (103 degrees C) basis.
Moisture content was 4 % , elevating the reporting limits
by a factor of 1.04 .

VOLATILE ORGANICS	CONCENTRATION (ug/Kg)	REPORTING LIMIT (ug/Kg)
Chloromethane	BDL	10
Bromomethane	BDL	10
Vinyl chloride	BDL	10
Chloroethane	BDL	5
Methylene chloride	BDL	10
Acetone	BDL	25
Carbon disulfide	BDL	5
Tetrahydrofuran	BDL	25
Trichlorofluoromethane	BDL	5
1,1-Dichloroethene	BDL	5
1,1-Dichloroethane	BDL	5
1,2-Dichloroethene (total)	BDL	5
Chloroform	BDL	5
1,2-Dichloroethane	BDL	5
2-Butanone	BDL	25
1,1,1-Trichloroethane	BDL	5
Carbon Tetrachloride	BDL	5
Vinyl acetate	BDL	10
Bromodichloromethane	BDL	5
1,2-Dichloropropane	BDL	5
cis-1,3-Dichloropropene	BDL	5
trans-1,3-Dichloropropene	BDL	5
Trichloroethene	BDL	5
Dibromochloromethane	BDL	5
1,1,2-Trichloroethane	BDL	5
Benzene	BDL	5
2-Chloroethyl vinyl ether	BDL	5
Bromoform	BDL	5
4-Methyl-2-Pentanone	BDL	25
2-Hexanone	BDL	25
Tetrachloroethene	BDL	5
1,1,2,2-Tetrachloroethane	BDL	5
Toluene	BDL	5
Chlorobenzene	BDL	5
Ethylbenzene	BDL	5
Styrene	BDL	5
Xylene (total)	BDL	5

METHOD REFERENCE: EPA SW 846, 3rd Edition
METHOD 8240

BDL = Below reporting limit

pace INCORPORATED THE ASSURANCE OF QUALITY

Laboratory number: 44361-003
Sample Designation: DSB01A-25/27
Date Analyzed: 06/16/95
Matrix: SOLID

Instrument File Name: >C8978

Results are expressed on a dry (103 degrees C) basis.
Moisture content was 0 % , elevating the reporting limits
by a factor of 1.0 .

VOLATILE ORGANICS	CONCENTRATION (ug/Kg)	REPORTING LIMIT (ug/Kg)
Chloromethane	BDL	10
Bromomethane	BDL	10
Vinyl chloride	BDL	10
Chloroethane	BDL	5
Methylene chloride	BDL	10
Acetone	BDL	26
Carbon disulfide	BDL	5
Tetrahydrofuran	BDL	26
Trichlorofluoromethane	BDL	5
1,1-Dichloroethene	BDL	5
1,1-Dichloroethane	BDL	5
1,2-Dichloroethene (total)	BDL	5
Chloroform	BDL	5
1,2-Dichloroethane	BDL	5
2-Butanone	BDL	26
1,1,1-Trichloroethane	BDL	5
Carbon Tetrachloride	BDL	5
Vinyl acetate	BDL	10
Bromodichloromethane	BDL	5
1,2-Dichloropropane	BDL	5
cis-1,3-Dichloropropene	BDL	5
trans-1,3-Dichloropropene	BDL	5
Trichloroethene	BDL	5
Dibromochloromethane	BDL	5
1,1,2-Trichloroethane	BDL	5
Benzene	BDL	5
2-Chloroethyl vinyl ether	BDL	5
Bromoform	BDL	5
4-Methyl-2-Pentanone	BDL	26
2-Hexanone	BDL	26
Tetrachloroethene	BDL	5
1,1,2,2-Tetrachloroethane	BDL	5
Toluene	BDL	5
Chlorobenzene	BDL	5
Ethylbenzene	BDL	5
Styrene	BDL	5
Xylene (total)	BDL	5

METHOD REFERENCE: EPA SW 846, 3rd Edition
METHOD 8240

BDL = Below reporting limit

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Laboratory number: 44361-004
Sample Designation: DSB01A-60/62
Date Analyzed: 06/16/95
Matrix: SOLID

Instrument File Name: >C8979

Results are expressed on a dry (103 degrees C) basis.
Moisture content was 16 % , elevating the reporting limits
by a factor of 1.19 .

VOLATILE ORGANICS	CONCENTRATION (ug/Kg)	REPORTING LIMIT (ug/Kg)
Chloromethane	BDL	12
Bromomethane	BDL	12
Vinyl chloride	BDL	12
Chloroethane	BDL	6
Methylene chloride	BDL	12
Acetone	BDL	30
Carbon disulfide	BDL	6
Tetrahydrofuran	BDL	30
Trichlorofluoromethane	BDL	6
1,1-Dichloroethene	BDL	6
1,1-Dichloroethane	BDL	6
1,2-Dichloroethene (total)	BDL	6
Chloroform	BDL	6
1,2-Dichloroethane	BDL	6
2-Butanone	BDL	30
1,1,1-Trichloroethane	BDL	6
Carbon Tetrachloride	BDL	6
Vinyl acetate	BDL	12
Bromodichloromethane	BDL	6
1,2-Dichloropropane	BDL	6
cis-1,3-Dichloropropene	BDL	6
trans-1,3-Dichloropropene	BDL	6
Trichloroethene	BDL	6
Dibromochloromethane	BDL	6
1,1,2-Trichloroethane	BDL	6
Benzene	BDL	6
2-Chloroethyl vinyl ether	BDL	6
Bromoform	BDL	6
4-Methyl-2-Pentanone	BDL	30
2-Hexanone	BDL	30
Tetrachloroethene	BDL	6
1,1,2,2-Tetrachloroethane	BDL	6
Toluene	BDL	6
Chlorobenzene	BDL	6
Ethylbenzene	BDL	6
Styrene	BDL	6
Xylene (total)	BDL	6

METHOD REFERENCE: EPA SW 846, 3rd Edition
METHOD 8240

BDL = Below reporting limit

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2B

SOIL VOLATILES SURROGATE RECOVERY

Client: NUS CORPORATION
Project: NWIRP BETHPAGE
Level: Low Soil

Lab No.: 44361

CLIENT SAMPLE NO.	S1 (TOL) #	S2 (BFB) #	S3 (DCE) #	OTHER	TOT OUT
DSB04A-30/32	102	102	92		0
DSB04A-55/57	100	99	99		0
DSB01A-25/27	98	99	98		0
DSB01A-60/62	101	100	98		0
BC061695A	102	102	95		0

		QC LIMITS
S1	(TOL) = Toluene-d8	86 - 114
S2	(BFB) = Bromofluorobenzene	72 - 132
S3	(DCE) = 1,2-Dichloroethane-d4	70 - 138

Column to be used to flag recovery values with an asterisk
* Values outside of designated QC limits
D Surrogates diluted out

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Laboratory number: BC061695A
Sample Designation: LABORATORY BLANK
Date Analyzed: 06/16/95
Matrix: SOLID

VOLATILE ORGANICS	CONCENTRATION (ug/Kg)	REPORTING LIMIT (ug/Kg)
Chloromethane	BDL	10
Bromomethane	BDL	10
Vinyl chloride	BDL	10
Chloroethane	BDL	5
Methylene chloride	BDL	10
Acetone	BDL	25
Carbon disulfide	BDL	5
1,1-Dichloroethene	BDL	5
Tetrahydrofuran	BDL	25
1,1-Dichloroethane	BDL	5
1,2-Dichloroethene (total)	BDL	5
Chloroform	BDL	5
Methyl ethyl ketone	BDL	25
1,2-Dichloroethane	BDL	5
1,1,1-Trichloroethane	BDL	5
Carbon Tetrachloride	BDL	5
Vinyl acetate	BDL	10
Bromodichloromethane	BDL	5
cis-1,3-Dichloropropene	BDL	5
trans-1,3-Dichloropropene	BDL	5
Trichloroethene	BDL	5
Benzene	BDL	5
Dibromochloromethane	BDL	5
1,1,2-Trichloroethane	BDL	5
1,2-Dichloropropane	BDL	5
2-Chloroethyl vinyl ether	BDL	5
Bromoform	BDL	5
Methyl isobutyl ketone	BDL	25
2-Hexanone	BDL	25
1,1,2,2-Tetrachloroethane	BDL	5
Tetrachloroethene	BDL	5
Toluene	BDL	5
Chlorobenzene	BDL	5
Ethylbenzene	BDL	5
m-Xylene	BDL	5
o,p-Xylene	BDL	5
Styrene	BDL	5

METHOD REFERENCE: EPA SW 846 2ND EDITION
METHOD 8240

BDL = Below detection limit
J = Probable presence below listed detection limit.

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THE ASSURANCE OF QUALITY

MATRIX SPIKE RECOVERY
VOLATILE ORGANIC COMPOUNDS

Laboratory Number: 44361-4 MS/MSD
Sample Designation: DSB01A-60/62 MS/MSD
Date Analyzed: 06/16/95
Matrix: SOLID

COMPOUND	ug/Kg SAMPLE	ug/Kg SPIKE	REPLICATE 1 ug/Kg FOUND	%REC-OVERY	REPLICATE 2 ug/Kg FOUND	%REC-OVERY	REL % DIFF
1,1-DICHLOROETHENE	0	50.00	47.08	94	49.49	99	5
TRICHLOROETHENE	0	50.00	50.92	102	51.69	103	1
BENZENE	0	50.00	48.36	97	49.08	98	1
TOLUENE	0	50.00	48.64	97	49.67	99	2
CHLOROBENZENE	0	50.00	51.05	102	49.71	99	3

METHOD REFERENCE: EPA SW 846, 3RD EDITION
METHOD 8240

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VOLATILE ORGANIC COMPOUNDS
MATRIX SPIKE RECOVERY

Laboratory Number: LCC061695
Field Identification: LABORATORY CONTROL SAMPLE
Date Analyzed: 06/16/95
Matrix: SOLID

COMPOUND	ug/Kg IN SAMPLE	ug/Kg SPIKE	ug/Kg FOUND	%REC-OVERY
1,1-DICHLOROETHENE	0.00	50.00	50.44	101
TRICHLOROETHYLENE	0.00	50.00	52.88	106
BENZENE	0.00	50.00	51.56	103
TOLUENE	0.00	50.00	52.65	105
CHLOROBENZENE	0.00	50.00	55.07	110

METHOD REFERENCE: EPA SW 846, 3RD EDITION METHOD 8240

pace INCORPORATED
THE ASSURANCE OF QUALITY

5A

VOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: PACE New England

Project: NWIRP BETHPAGE

Lab File ID: >C8738 BFB Injection Date: 06/02/95

Instrument ID: CMS BFB Injection Time: 11:02

ION ABUNDANCE CRITERIA for C8738 are reported on a separate sheet.

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS

CLIENT I.D.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	DATE ANALYZED
VSTD200	VSTD200	C8740	06/02/95	12:19
VSTD100	VSTD100	C8741	06/02/95	12:54
VSTD050	VSTD050	C8742	06/02/95	13:29
VSTD020	VSTD020	C8743	06/02/95	14:04
VSTD010	VSTD010	C8744	06/02/95	14:39

JR 6/1/95

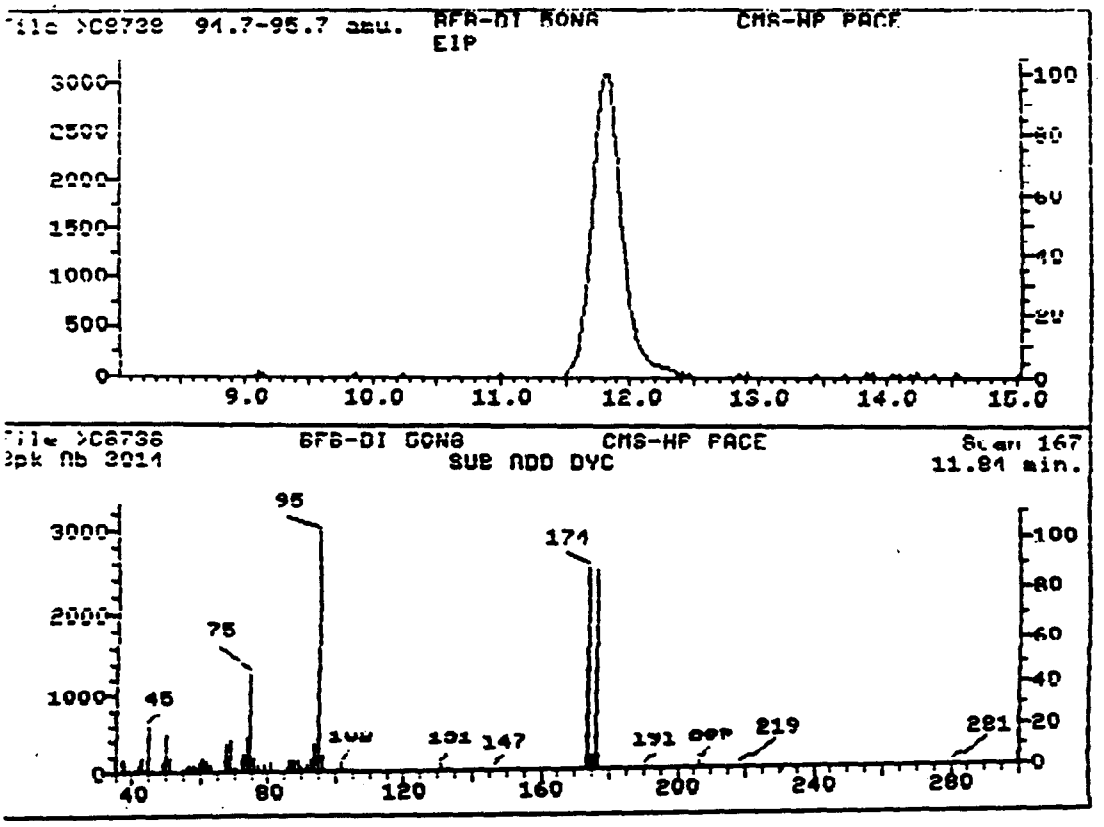
GC/MS PERFORMANCE STANDARD -- 8/91 SOW

Bromofluorobenzene (BFB)

m/z	Ion Abundance Criteria	% Relative Abundance Base Peak	Appropriate Peak	Status
50	8-40% of mass 95	16.95	16.95	Ok
75	30-66% of mass 95	42.60	42.60	Ok
95	Base peak, 100% relative abundance	100.00	100.00	Ok
96	5-9% of mass 95	7.65	7.65	Ok
173	Less than 2% of mass 174	0.00	0.00	Ok
174	50-120% of mass 95	86.12	86.12	Ok
175	4-9% of mass 174	6.72	7.86	Ok
176	93-101% of mass 174	85.00	98.20	Ok
177	5-9% of mass 176	6.48	7.62	Ok

Injection Date: 06/02/95
Injection Time: 11:02
Data File: >C873H
Scan: 167

THIS IS THE RESULT OF AVERAGING 166.00 167.00 168.00
AND SUBTRACTING BACKGROUND SCAN 147.00



5A

VOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: PACE New England

Project: NWIRP BETHPAGE

Lab File ID: >C8966 BFB Injection Date: 06/16/95

Instrument ID: CMS BFB Injection Time: 10:19

ION ABUNDANCE CRITERIA for C8966 are reported on a separate sheet.

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS

CLIENT I.D.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	DATE ANALYZED
VSTD050	VSTD050	C8968	06/16/95	11:47
BC061695A	90102-174	C8969	06/16/95	12:22
LCC061695	90102-174MS	C8970	06/16/95	13:37
DSB04A-30/32	44361-001	C8976	06/16/95	17:39
DSB04A-55/57	44361-002	C8977	06/16/95	18:14
DSB01A-25/27	44361-003	C8978	06/16/95	18:48
DSB01A-60/62	44361-004	C8979	06/16/95	19:23
DSB01A-60/62MS	44361-004MS	C8980	06/16/95	19:58
DSB01A-60/62MSD	44361-004MSD	C8981	06/16/95	20:33

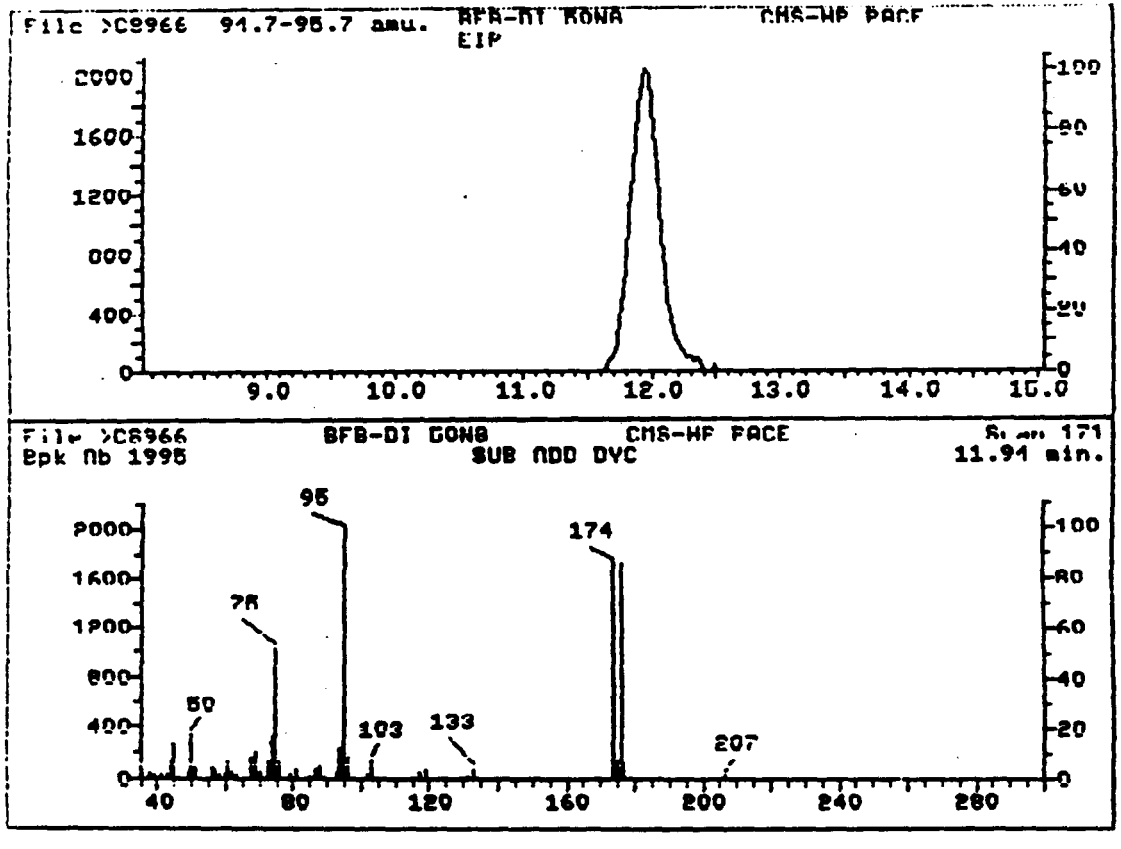
GC/MS PERFORMANCE STANDARD

Bromofluorobenzene (BFB) '88

m/z	Ion Abundance Criteria	% Relative Abundance Base Peak	Appropriate Peak	Status
50	15-40% of mass 95	16.26	16.26	Ok
75	30-60% of mass 95	51.32	51.32	Ok
95	Base peak, 100% relative abundance	100.00	100.00	Ok
96	5-9% of mass 95	8.41	8.41	Ok
173	Less than 2% of mass 174	0.00	0.00	Ok
174	Greater than 50% of mass 95	86.58	86.58	Ok
175	5-9% of mass 174	6.94	8.01	Ok
176	95-101% of mass 174	86.03	99.36	Ok
177	5-9% of mass 176	6.22	7.23	Ok

Injection Date: 06/16/95
Injection Time: 10:19
Data File: >C8966
Scan: 171

THIS IS THE RESULT OF AVERAGING 170.00 171.00 172.00
AND SUBTRACTING BACKGROUND SCAN 151.00



Initial Calibration Data
HSL Compounds

Low Soils
SC0602 / SC0602
ACR 6/2/95

Case No: ---------- Instrument ID: CMS-HP ----------

Contractor: RESAN ---------- Calibration Date: 06/02/95 ----------

Contract No: 68020026 ----------

Minimum $\overline{RF}$ for SPCC is .30 Maximum % RSD for CCC is 30%

Compound	Laboratory ID: >C8744 RF 10.00	>C8743 RF 20.00	>C8742 RF 50.00	>C8741 RF 100.00	>C8740 RF 200.00	$\overline{RRT}$	$\overline{RF}$	% RSD	CCC	SPCC
C010 CHLOROMETHANE	.46202	.40875	.38831	.39423	.37046	.209	.40476	8.606		**
C015 BROMOMETHANE	1.30682	1.17292	1.10568	1.11127	.93564	.286	1.12647	11.891		
C020 VINYL CHLORIDE	.76364	.69416	.67154	.69790	.66126	.344	.69770	5.721	*	
C025 CHLOROETHANE	.44869	.42144	.43191	.45897	.44648	.425	.44150	3.352		
C030 METHYLENE CHLORIDE	1.40797	1.11681	1.03004	1.06025	1.02218	.621	1.12745	14.294		
C035 ACETONE	.75507	.33770	.48016	.39133	.32505	.708	.45786	38.661		
C040 CARBON DISULFIDE	1.82649	1.70918	1.69071	1.80271	1.71416	.821	1.74865	3.512		
C042 TRICHLOROFLUOROMETHANE	2.97935	2.72385	2.55449	2.70401	2.51494	.887	2.69533	6.789		
C045 1,1-DICHLOROETHENE	1.02153	.92358	.88834	.94545	.89060	.970	.93390	5.833	*	
C058 TETRAHYDROFURAN	.18963	.12494	.19213	.17379	.16314	1.130	.16873	16.119		
C050 1,1-DICHLOROETHANE	1.84824	1.76191	1.70496	1.74375	1.66685	1.125	1.74514	3.913		**
C053 1,2-DICHLOROETHENE(total)	1.17718	1.15237	1.07433	1.13629	1.09701	1.220	1.12744	3.689		(Conc=20.0,40.0,100.0,200
C060 CHLOROFORM	2.80854	2.62179	2.47535	2.57078	2.45009	1.284	2.58531	5.530	*	
C110 2-BUTANONE	.93928	.66416	.89284	.73577	.67326	1.399	.78106	16.304		
C065 1,2-DICHLOROETHANE	1.88728	1.66965	1.71681	1.71082	1.65790	1.389	1.72849	5.342		
MTBE	2.54537	2.12953	2.25902	2.24147	2.11967	1.547	2.25901	7.619		
CS15 1,2-DICHLOROETHANE-d4	1.69728	1.60553	1.60448	1.52831	1.51048	1.376	1.58922	4.676		
C115 1,1,1-TRICHLOROETHANE	.78877	.70439	.66875	.73979	.69581	.639	.71950	6.435		
C120 CARBON TETRACHLORIDE	.76635	.68697	.65007	.72404	.67679	.661	.70084	6.452		
C125 VINYL ACETATE	.69319	.48316	.65053	.65642	.64278	.679	.62522	13.073		
C130 BROMODICHLOROMETHANE	.98517	.86655	.87564	.93286	.87250	.685	.90654	5.675		
C140 1,2-DICHLOROPROPANE	.34141	.29659	.30969	.33431	.31451	.769	.31930	5.744	*	
C143 CIS-1,3-DICHLOROPROPENE	.58529	.51788	.53322	.57864	.56108	.781	.55522	5.224		
C150 TRICHLOROETHENE	.50236	.47526	.45507	.49388	.46278	.819	.47787	4.199		
C155 DIBROMOCHLOROMETHANE	.95316	.81059	.85450	.90938	.88007	.840	.88154	6.128		
C160 1,1,2-TRICHLOROETHANE	.43525	.35145	.39597	.39372	.38342	.851	.39196	7.662		
C165 BENZENE	.83854	.74766	.75634	.79836	.74114	.851	.77641	5.316		
C172 TRANS-1,3-DICHLOROPROPENE	.56807	.49037	.53580	.56461	.53495	.855	.53876	5.790		
C176 2-CHLOROETHYLVINYLETHER	.20999	.15965	.21164	.22703	.21930	.921	.20552	12.906		
C180 BROMOFORM	.95985	.73574	.89470	.93856	.89682	.992	.88514	9.943		**

RF - Response Factor (Subscript is amount in ug/Kg)

$\overline{RRT}$ - Average Relative Retention Time (RT Std/RT Istd)

$\overline{RF}$ - Average Response Factor

%RSD - Percent Relative Standard Deviation

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

Initial Calibration Data
HSL Compounds

Case No: _____ Instrument ID: CMS-HP

Contractor: RESAN Calibration Date: 06/02/95

Contract No: 68020026

Minimum $\overline{RF}$ for SPCC is .30 Maximum % RSD for CCC is 30%

Laboratory ID:	>C8744	>C8743	>C8742	>C8741	>C8740					
	RF	RF	RF	RF	RF					
Compound	10.00	20.00	50.00	100.00	200.00	$\overline{RRT}$	$\overline{RF}$	% RSD	CCC	SPCC
C505 TOLUENE-d8	1.16226	1.12469	1.06196	1.02942	1.05032	.950	1.08573	5.121		
C205 4-METHYL-2-PENTANONE	.79795	.44850	.69525	.63502	.61578	.812	.63850	20.007		
C210 2-HEXANONE	.51396	.37403	.56633	.47931	.47503	.883	.48173	14.622		
C220 TETRACHLOROETHENE	.59701	.54025	.51575	.54762	.52111	.896	.54435	5.923		
C225 1,1,2,2-TETRACHLOROETHANE	1.08315	.77648	1.01552	1.00745	.98136	.885	.97279	11.924		**
C230 TOLUENE	1.26400	1.16184	1.10392	1.11008	1.11195	.957	1.15036	5.880	*	
C235 CHLOROBENZENE	1.05918	.96308	.91371	.94774	.93001	1.005	.96274	5.921		**
C240 ETHYLBENZENE	.47920	.44122	.42554	.44720	.43378	1.088	.44539	4.618	*	
C245 STYRENE	1.07808	.95932	.90049	.93885	.89839	1.207	.95503	7.695		
C251 XYLENE	.60507	.55026	.51810	.52425	.49860	1.215	.53925	7.634		
C250 XYLENE (total)	.59927	.55521	.52637	.53740	.51174	1.239	.54600	6.181		(Conc=20.0,40.0,100.0,200
C510 BROMOFLUOROBENZENE	1.16692	1.04937	.98119	.93999	.92395	1.165	1.01228	9.790		

RF - Response Factor (Subscript is amount in ug/Kg)

$\overline{RRT}$ - Average Relative Retention Time (RT Std/RT Istd)

$\overline{RF}$ - Average Response Factor

%RSD - Percent Relative Standard Deviation

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

LC0616

Continuing Calibration Check
HSL Compounds

Case No: | Calibration Date: 06/16/95

Contractor: RESAN | Time: 11:47

Contract No: 68D20026 | Laboratory ID: >CH968

Instrument ID: CMS-HP | Initial Calibration Date: 06/02/95

Minimum $\overline{RF}$ for SPCC is .30 | Maximum % Diff for CCC is 25%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC	
C010 CHLOROMETHANE	.40476	.44363	9.60		**	
C015 BROMOMETHANE	1.12647	1.12507	.13			
C020 VINYL CHLORIDE	.69770	.69178	.97	*		
C025 CHLOROETHANE	.44150	.42880	2.88			
C030 METHYLENE CHLORIDE	1.12745	1.06618	5.43			
C035 ACETONE	.45786	.31547	31.10			
C040 CARBON DISULFIDE	1.74865	2.69099	53.89			
C042 TRICHLOROFLUOROMETHANE	2.69533	2.79175	3.58			
C045 1,1-DICHLOROETHENE	.93390	.93400	.01	*		
C058 TETRAHYDROFURAN	.16873	.12780	24.26			
C050 1,1-DICHLOROETHANE	1.74514	1.67848	3.82		**	
C053 1,2-DICHLOROETHENE(total)	1.12744	1.06232	5.78			(Conc=100.000)
C060 CHLOROFORM	2.58531	2.50191	3.23	*		
C110 2-BUTANONE	.78106	.54086	30.75			
C065 1,2-DICHLOROETHANE	1.72849	1.61640	6.48			
MTBE	2.25901	2.05729	8.93			(Conc=50.000)
CS15 1,2-DICHLOROETHANE-d4	1.58922	1.32188	16.82			
C115 1,1,1-TRICHLOROETHANE	.71950	.66268	7.90			
C120 CARBON TETRACHLORIDE	.70084	.69063	1.46			
C125 VINYL ACETATE	.62522	.57957	7.30			
C130 BROMODICHLOROMETHANE	.90654	.81756	9.82			
C140 1,2-DICHLOROPROPANE	.31930	.28718	10.06	*		
C143 CIS-1,3-DICHLOROPROPENE	.55522	.49321	11.17			(Conc=50.00)
C150 TRICHLOROETHENE	.47282	.45294	4.17			
C155 DIBROMOCHLOROMETHANE	.88154	.83278	5.53			
C160 1,1,2-TRICHLOROETHANE	.39196	.36211	7.62			
C165 BENZENE	.77641	.70172	9.62			
C172 TRANS-1,3-DICHLOROPROPENE	.53826	.47926	11.04			(Conc=50.000)
C176 2-CHLOROETHYL VINYL ETHER	.20552	.18110	11.88			
C180 BROMOFORM	.88514	.84031	5.06		**	
CS05 TOLUENE-d8	1.08573	.88196	18.77			
C205 4-METHYL-2-PENTANONE	.63850	.50159	20.58			

RF - Response Factor from daily standard file at 50.000 ug/Kg

$\overline{RF}$ - Average Response Factor from Initial Calibration Form VI

%Diff - % Difference from original average or curve

Continuing Calibration Check
HSL Compounds

Case No: | Calibration Date: 06/16/95

Contractor: RESAN | Time: 11:47

Contract No: 68020026 | Laboratory ID: >CH96H

Instrument ID: CMS-HP | Initial Calibration Date: 06/07/95

Minimum $\overline{RF}$ for SPCC is .30 | Maximum % Diff for CCC is 25%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC
C210 2-HEXANONE	.48173	.36592	24.04		
C220 TETRACHLOROETHENE	.54435	.54744	.57		
C225 1,1,2,2-TETRACHLOROETHANE	.97279	.84669	12.96		**
C230 TOLUENE	1.15836	1.03164	10.41	*	
C235 CHLOROBENZENE	.96274	.88900	7.66		**
C240 ETHYLBENZENE	.44539	.39453	11.42	*	
C245 STYRENE	.95503	.87206	8.69		
C251 XYLENE	.53925	.48312	10.41		
C250 XYLENE (total)	.54600	.49518	9.31		(Conc=1000.00)
C510 BROMOFLUOROBENZENE	1.01278	.83599	17.61		

RF - Response Factor from daily standard file at 50.000 ug/Kg

$\overline{RF}$ - Average Response Factor from Initial Calibration Form VI

%Diff - % Difference from original average or curve

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

8A

VOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: PACE New England

Project: NWIRP BETHPAGE

Lab File ID (Standard): >C8968 Date Analyzed: 06/16/95

Instrument ID: CMS Time Analyzed: 11:47

	IS1(BCM) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CBZ) AREA #	RT #
12 HOUR STD	60868	7.19	208869	17.60	179517	22.41
UPPER LIMIT	121736	7.69	417738	18.10	359034	22.91
LOWER LIMIT	30434	6.69	104435	17.10	89759	21.91
CLIENT I.D.						
BC061695A	62855	7.18	210951	17.60	178537	22.41
LCC061695	61880	7.16	200374	17.60	172587	22.41
DSB04A-30/32	55180	7.23	180598	17.60	149941	22.43
DSB04A-55/57	49223	7.18	167279	17.60	146819	22.41
DSB01A-25/27	54289	7.25	184712	17.58	160706	22.41
DSB01A-60/62	50499	7.22	171096	17.61	150013	22.42
DSB01A-60/62MS	48812	7.20	168005	17.60	152718	22.41
DSB01A-60/62MSD	46647	7.20	165002	17.58	146238	22.41

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene

UPPER LIMIT = + 100%
of internal standard area.
LOWER LIMIT = - 50%

Column used to flag internal standard area values outside of UPPER and LOWER LIMIT with an asterisk

pace INCORPORATED THE ASSURANCE OF QUALITY

" 5pt. Voltage. 140

PACE New England

05235151R

GCMS/VOA Instr C MS-HP Analyst/Date AW 6/2/95 STD Lot # V-6191B

FRN	Arcv	ID File	Tube	SAMPLE	AMT	COMMENTS	pH	A	R
>C8738	#463	—	—	BFB-DT	50ng	mtl m/c95=50K		y	
				Scan: 166+167		V-6058 ok '58+'91			
				+168-147					
				time 1102					
>C8739		LC0602	1	VSTD200	5mls	Heated Purge			
40			2	VSTD200				y	
41			3	VSTD100		SC0602/LC0602		y	
42			4	VSTD050		Low Soil		y	
43			5	VSTD020				y	
44			6	VSTD010				y	
>C8745	#	—	—	BFB-DT	50ng	mtl m/c95=47k		y	
				Scan: 165+166+167-146		time: 1614 V-6088 ok '58+'91			
>C8746		LC0602	7	VSTD050	5mls			y	
47		LCJU02	8	BC060295A		VBLKCR		y	
>C8748		LCJU02	9	LCC060295	5mls				
49			10	44,063-6	4.9g	WHFCR032 LR M2-C45		y	
50			1	-6ms	4.8g	WHFCR032MS		y	
51			2	-6msd	4.8g	WHFCR032MSD		y	
52			3	HB44063	5mls			y	
53			4	44,165-9	4.8g	(R8240L)		y	✓
54			5	-10	5.0g	↓IS RE		N	
55			6	-11	5.1g			y	✓
56			7	-12	4.9g			y	✓
57			8	-13	4.8g	↓IS #3 RE		N	✓
58			9	-14	5.0g			y	✓
59			10	-15	5.1g			y	✓
60			1	-16	4.8g			y	✓
61			2	-17	4.9g			y	✓
62			3	-1	5.0g			y	✓
63			4	-2	5.0g			y	✓

64 ~~MB~~ BAKE

low Soils Voltage = 1650

PACE New England

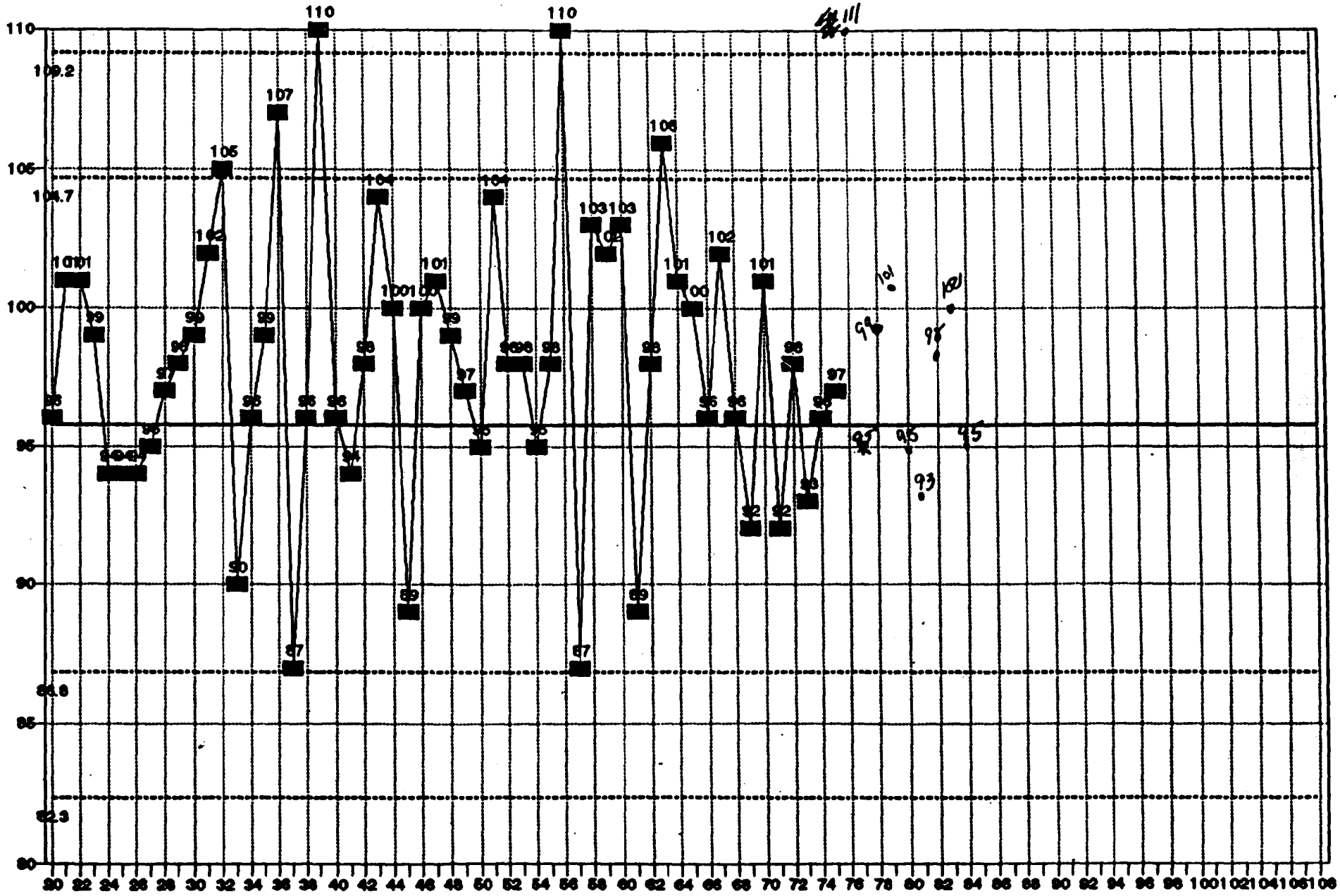
060695CF

GCMS/VOA Instr C MS-HP Analyst/Date AUL 6/15/95 STD Lot # 62332

FRN	Arev	ID File	Tube	SAMPLE	AMT	COMMENTS	pH	A
C8966	$465	—	—	BFB-DI	50ng	MTR1 M/e95 = 32K		y
				Scan: 170+171		OK '88 + '91 V-6088		
				+172-151				
				time: 10:19				
C8967		LC0602	1	VSTD050	5mls	Not used		
68		↓	2	VSTD050	↓			y
69		LC0616	3	BC061595A	↓	VBLKCG		y
C8970		LC0616	4	LCC061695	5mls			
71			5	44,303-1	4.3g	WHPR01 ↓IS		N ✓
72			6	-2	2.9g	WHPR04 Seebelow		y
73			7	-1 ms	4.4g	WHPR01 ms ↓IS		N ✓
74			8	-1 msD	4.4g	WHPR01 msD ↓IS		N ✓
75			9	HB44303	5mls			y ✓
76			10	44,361-1	5.0g	(R8240L) Neesa-CSW846		
77			1	-2	5.1g			y
78			2	-3	4.8g			y
79			3	-4	4.9g			y
80			4	44,361-4ms	4.9g			y
81			5	-4msD	4.9g	m2-C27		y
82			6	44,338-1ms	5.0g			y
83			7	-1msD	4.9g			y
84			8	44,303-2	4.8g	WHPR04		y
85				BAKE				

AUL 6/19/95

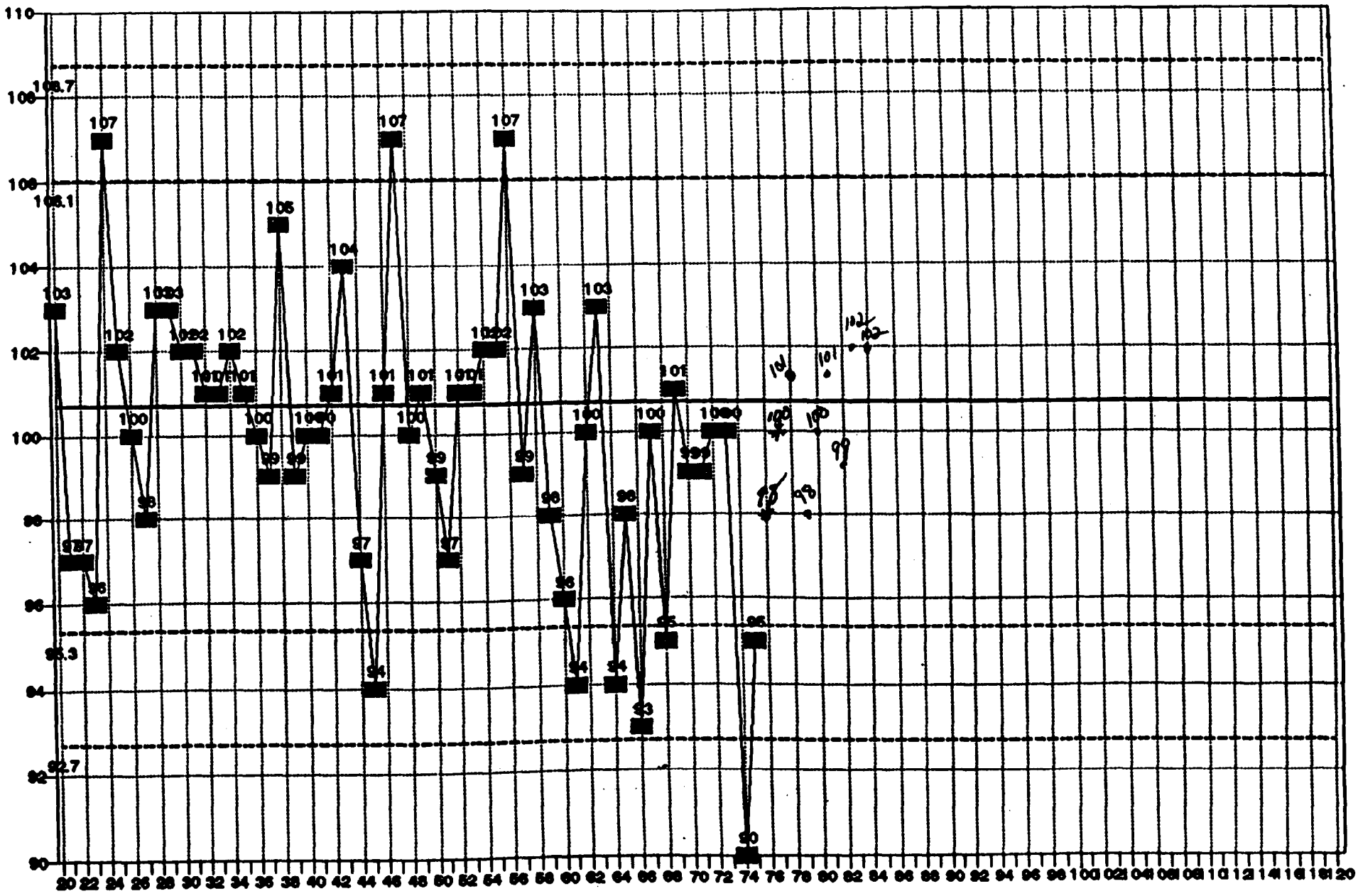
VOA LOW SOLIDS - SURR DCE
EPA SW846 LIMIT SET 9/94



STD DEV = 4.47 MEAN = 95.8

0000023

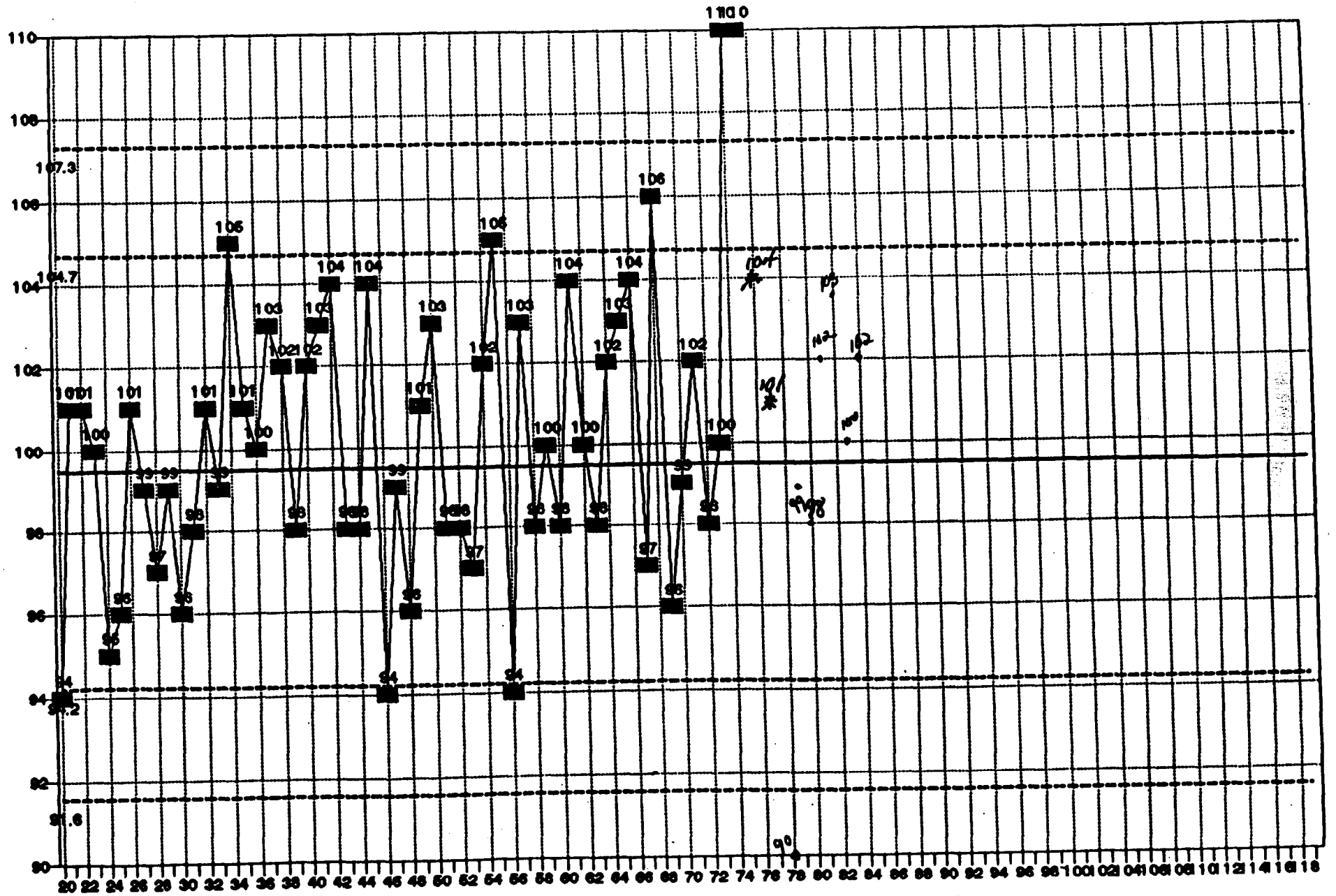
VOA LOW SOLIDS - SURR TOL-D8
EPA SW846 LIMITS SET 9/94



STD DEV = 2.[illegible] MEAN = 100.7

00000024

VOA LOW SOLIDS - SURR BFB
EPA SW846 LIMITS SET 9/94



STD DEV = 2.62 MEAN = 99.4

00000025

SW846 8240 LOW LEVEL SOLIDS

1 BC081794A
2 BC081894A
3 BC082594A
4 BC082694A
5 BC083094A
6 BG081994A
7 BG082394B
8 BG082494A
9 BG082594A
10 BG082694C
11 BG082994A
12 BC083194A
13 BC090194A
14 BC090294A
15 BG083094A
16 BG083194A
17 BG090194A
18 BG090294A
19 BG090694A
20 BG090894A
21 BC090694A
22 BC090894B
23 BC090994A
24 BG090994A
25 BG091294A
26 BG091394A
27 BG091494B
28 BG091594A
29 BG091694A
30 BG091994A
31 BE092094A
32 BE092194A
33 BC092194B
34 BC092294B
35 BC092394B
36 BC092694B
37 BG100794A
38 BE092294A
39 BE092394A
40 BC092794B
41 BC101094A
42 BC101194A
43 BG101194A
44 BC101294A
45 BG101294A
46 BG101394A
47 BE101894A
48 BE101994A
49 BG101994C
50 BC101794A
51 BC101894A
52 BC101994A
53 BG102094A
54 BG102194A
55 BG102494A
56 BG100594D
57 BG100794A
58 BG101194A
59 BG102594A
60 BE101794A
61 BG101294B
62 BG112394C
63 BG120694C
64 BG120794B
65 BG120894B
66 BG120994B
67 BG121494A
68 BG121594A
69 BG121694A
70 BG121994A
71 BG122094B
72 BG122394A
73 BG122794A
74 BG123094B
75 ~~B~~
76 ~~BC021095B~~
77 ~~BC021395A~~
78 BG040695B
79 BG040795B
80 BG040995A
81 BC061395C (93, 101, 102)
82 BC061495C (98, 99, 103)
83 BC061595A (100, 102, 100)
84 BC061695A (95, 102, 102)
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CHAIN OF CUSTODY RECORD

PROJECT NO.: 5253

SITE NAME: NWIRP Bethpage

SAMPLERS (SIGNATURE): [signature]

STATION NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	2 oz glass TCL VOC						REMARKS 4H361
Plant No. 3	6/13/95	1938		✓	DSBØ4A-3Ø/32	1	1						-1
↓	↓	2033		✓	DSBØ4A-55/57	1	1						-2
	↓	2321		✓	DSBØ1A-25/27	1	1						-3
↓	6/13/95	0050		✓	DSBØ1A-6Ø/62	1	1						-4

Final Page

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
[signature]	6/13/95 1400	[signature] 6/14/95 1020			
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE):	DATE / TIME:	REMARKS: Sent to Duce Inc FedEx AB# 3211642140	
		[signature] 6/14/95 1020	6/14/95 1020		

Order No. 70440 (8093)

00000027

June 23, 1995

Halliburton NUS Corporation
Mr. Mark Speranza
661 Andersen Drive
Pittsburgh, PA 15220

SAMPLE DELIVERY GROUP NARRATIVE

Project: NWIRP Bethpage, CTO 0213
Laboratory: PACE New England, Inc. of Hampton, NH

Lab Numbers: 44338
Protocol: SW846 Methodologies with NEESA Level C package and LOTUS diskette.

Sample Receipt: Samples were received at PACE, Inc. on 6/12/95. Laboratory sample numbers were assigned for test parameters as listed on the sample table which follows this narrative. Sample shipments were checked for custody seal integrity and cooler temperature. Samples were checked for appropriate preservation and accuracy against the Chains-of-Custody provided. Other than the exceptions noted below, samples were received between 2-6° C and in good condition. In addition, Sample Receipt Condition Reports can be found with the Chains-of-Custody. No spike sample was submitted for analysis.

Shipment received 6/12/95 (44338): One cooler was received with one Chain-of-Custody form. The cooler was received without a temperature blank present. The samples were packed in ice. Custody seals were present and intact.

Volatile Organic Analysis: Samples were analyzed within a project specific holding time of 7 days from sampling as directed by Ms. Kelly Johnson. The method 8240 blank "BC061595A" contained a low level of methylene chloride. The sample results for this analyte should be used with due consideration.

Soil Classification Analyses: Samples were shipped directly from NUS to Geochemical Express for soil classification analyses. The data report, as supplied by Geochemical Express, is included in this data package.

Statement of Compliancy and Data Authorization

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Richard Wellman, Operations Manager
PACE Incorporated, New England-New Hampshire

6/23/95
June 23, 1995

P.O. Box 2130
1 Lafayette Road
Hampton, NH 03842
TEL: 603-926-7777
800-982-6724
FAX: 603-926-7939

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pace INCORPORATED
ENVIRONMENTAL LABORATORIES

NEW ENGLAND - NEW HAMPSHIRE LABORATORY
SAMPLE RECEIPT CONDITION REPORT
Tel. (603) 926-7777
FAX (603) 926-7939

PAGE 1 of 1
COOLER 1 of 1
COC# 1
SDG# -
CASE# -

CLIENT Halliburton NUS
DATE/TIME RECEIVED 6/12/95 0915
DELIVERED BY Fed Ex
RECEIVED BY KLL

LIMS ENTRY BY KLL
TRANSCRIPTION REVIEW BY DL
LIMS REVIEW BY/PM SB

	NA	YES	EXCEPTION	COMMENT	RESOLUTION
1. CUSTODY SEALS PRESENT/INTACT	☐	☑	☐		
2. CHAIN OF CUSTODY PRESENT IN THIS COOLER	☐	☑	☐		
3. CHAIN OF CUSTODY SIGNED	☐	☑	☐		
4. CHAIN OF CUSTODY MATCHES SAMPLES	☐	☐	☑	See Below	
5. SAMPLES RECEIVED AT 2° - 8° C Ice/Ice Packs Present? (Y) or N	☐	☐	☑	No Temp Blank	
6. VOLATILES FREE OF HEAD SPACE	☐	☑	☐		
7. TRIP BLANK PRESENT IN THIS COOLER	☑	☐	☐		
8. PROPER SAMPLE CONTAINERS AND VOLUME	☐	☑	☐		
9. SAMPLES WITHIN HOLD TIME	☐	☑	☐		
10. SAMPLES PROPERLY PRESERVED	☑	☐	☐		

11. ANALYTICAL PROGRAMS (circle one) COMMERCIAL CLP EPA-CLP NYASP NJ ISRA NEESA AFCEE Other
12. NUMBER OF PACE FILTRATIONS:
13. CORRECTIVE ACTIONS REPORT # ~~7625~~ 4329

Log-in Notes:

COC field ID = DSB05-15/17 label = DSB05-1517

DSB05-55/57 - no time written on label

DSB03-55/57 - label = DSB05-55/57 date = 6/9/95 time = OK (1203)

Hold time = 7 days Sampling

SW846 / NEESA-C

14 d hard-copy

OUT - Geochemical Express

12 Soils for Soil Classifctn. Samples were shipped directly to Geochem Ex by HNUS.

to mark Speranza
661 Anderson Dr
Pitts, PA 15220
412 921-7090

CLIENT AUTHORIZATION SIGNATURE _____ DATE _____

Laboratory number: 44338-001
Sample Designation: DSB05-00/02
Date Analyzed: 06/15/95
Matrix: SOLID

Instrument File Name: >C8954

Results are expressed on a dry (103 degrees C) basis.
Moisture content was 12 % , elevating the reporting limits
by a factor of 1.14 .

VOLATILE ORGANICS	CONCENTRATION (ug/Kg)	REPORTING LIMIT (ug/Kg)
Chloromethane	BDL	11
Bromomethane	BDL	11
Vinyl chloride	BDL	11
Chloroethane	BDL	6
Methylene chloride	BDL	11
Acetone	BDL	28
Carbon disulfide	BDL	6
Tetrahydrofuran	BDL	28
Trichlorofluoromethane	BDL	6
1,1-Dichloroethene	BDL	6
1,1-Dichloroethane	BDL	6
1,2-Dichloroethene (total)	BDL	6
Chloroform	BDL	6
1,2-Dichloroethane	BDL	6
2-Butanone	BDL	28
1,1,1-Trichloroethane	BDL	6
Carbon Tetrachloride	BDL	6
Vinyl acetate	BDL	11
Bromodichloromethane	BDL	6
1,2-Dichloropropane	BDL	6
cis-1,3-Dichloropropene	BDL	6
trans-1,3-Dichloropropene	BDL	6
Trichloroethene	6	6
Dibromochloromethane	BDL	6
1,1,2-Trichloroethane	BDL	6
Benzene	BDL	6
2-Chloroethyl vinyl ether	BDL	6
Bromoform	BDL	6
4-Methyl-2-Pentanone	BDL	28
2-Hexanone	BDL	28
Tetrachloroethene	20	6
1,1,2,2-Tetrachloroethane	BDL	6
Toluene	BDL	6
Chlorobenzene	BDL	6
Ethylbenzene	BDL	6
Styrene	BDL	6
Xylene (total)	BDL	6

METHOD REFERENCE: EPA SW 846, 3rd Edition
METHOD 8240

BDL = Below reporting limit

pace INCORPORATED
THE ASSURANCE OF QUALITY

Laboratory number: 44338-002
Sample Designation: DSB05-15/17
Date Analyzed: 06/15/95
Matrix: SOLID

Instrument File Name: >C8955

Results are expressed on a dry (103 degrees C) basis.
Moisture content was 2 % , elevating the reporting limits
by a factor of 1.02 .

VOLATILE ORGANICS	CONCENTRATION (ug/Kg)		REPORTING LIMIT (ug/Kg)
Chloromethane	BDL		11
Bromomethane	BDL		11
Vinyl chloride	BDL		11
Chloroethane	BDL		5
Methylene chloride	5	JB	11
Acetone	BDL		27
Carbon disulfide	BDL		5
Tetrahydrofuran	BDL		27
Trichlorofluoromethane	BDL		5
1,1-Dichloroethene	BDL		5
1,1-Dichloroethane	BDL		5
1,2-Dichloroethene (total)	BDL		5
Chloroform	BDL		5
1,2-Dichloroethane	BDL		5
2-Butanone	BDL		27
1,1,1-Trichloroethane	BDL		5
Carbon Tetrachloride	BDL		5
Vinyl acetate	BDL		11
Bromodichloromethane	BDL		5
1,2-Dichloropropane	BDL		5
cis-1,3-Dichloropropene	BDL		5
trans-1,3-Dichloropropene	BDL		5
Trichloroethene	BDL		5
Dibromochloromethane	BDL		5
1,1,2-Trichloroethane	BDL		5
Benzene	BDL		5
2-Chloroethyl vinyl ether	BDL		5
Bromoform	BDL		5
4-Methyl-2-Pentanone	BDL		27
2-Hexanone	BDL		27
Tetrachloroethene	BDL		5
1,1,2,2-Tetrachloroethane	BDL		5
Toluene	BDL		5
Chlorobenzene	BDL		5
Ethylbenzene	BDL		5
Styrene	BDL		5
Xylene (total)	BDL		5

METHOD REFERENCE: EPA SW 846, 3rd Edition
METHOD 8240

BDL = Below reporting limit
J = Probable presence below listed detection limit

pace INCORPORATED
THE ASSURANCE OF QUALITY

Laboratory number: 44338-003
Sample Designation: DSB05-55/57
Date Analyzed: 06/15/95
Matrix: SOLID

Instrument File Name: >C8956

Results are expressed on a dry (103 degrees C) basis.
Moisture content was 5 % , elevating the reporting limits
by a factor of 1.05 .

VOLATILE ORGANICS	CONCENTRATION (ug/Kg)		REPORTING LIMIT (ug/Kg)
Chloromethane	BDL		11
Bromomethane	BDL		11
Vinyl chloride	BDL		11
Chloroethane	BDL		5
Methylene chloride	6	JB	11
Acetone	BDL		27
Carbon disulfide	BDL		5
Tetrahydrofuran	BDL		27
Trichlorofluoromethane	BDL		5
1,1-Dichloroethene	BDL		5
1,1-Dichloroethane	BDL		5
1,2-Dichloroethene (total)	BDL		5
Chloroform	BDL		5
1,2-Dichloroethane	BDL		5
2-Butanone	BDL		27
1,1,1-Trichloroethane	BDL		5
Carbon Tetrachloride	BDL		5
Vinyl acetate	BDL		11
Bromodichloromethane	BDL		5
1,2-Dichloropropane	BDL		5
cis-1,3-Dichloropropene	BDL		5
trans-1,3-Dichloropropene	BDL		5
Trichloroethene	BDL		5
Dibromochloromethane	BDL		5
1,1,2-Trichloroethane	BDL		5
Benzene	BDL		5
2-Chloroethyl vinyl ether	BDL		5
Bromoform	BDL		5
4-Methyl-2-Pentanone	BDL		27
2-Hexanone	BDL		27
Tetrachloroethene	BDL		5
1,1,2,2-Tetrachloroethane	BDL		5
Toluene	BDL		5
Chlorobenzene	BDL		5
Ethylbenzene	BDL		5
Styrene	BDL		5
Xylene (total)	BDL		5

METHOD REFERENCE: EPA SW 846, 3rd Edition
METHOD 8240

BDL = Below reporting limit
J = Probable presence below listed detection limit

pace INCORPORATED
THE ASSURANCE OF QUALITY

Laboratory number: 44338-004
Sample Designation: DSB01-0.5/2.5
Date Analyzed: 06/15/95
Matrix: SOLID

Instrument File Name: >C8957

Results are expressed on a dry (103 degrees C) basis.
Moisture content was 4 % , elevating the reporting limits
by a factor of 1.04 .

VOLATILE ORGANICS	CONCENTRATION (ug/Kg)	REPORTING LIMIT (ug/Kg)
Chloromethane	BDL	10
Bromomethane	BDL	10
Vinyl chloride	BDL	10
Chloroethane	BDL	5
Methylene chloride	BDL	10
Acetone	BDL	26
Carbon disulfide	BDL	5
Tetrahydrofuran	BDL	26
Trichlorofluoromethane	BDL	5
1,1-Dichloroethene	BDL	5
1,1-Dichloroethane	BDL	5
1,2-Dichloroethene (total)	BDL	5
Chloroform	BDL	5
1,2-Dichloroethane	BDL	5
2-Butanone	BDL	26
1,1,1-Trichloroethane	BDL	5
Carbon Tetrachloride	BDL	5
Vinyl acetate	BDL	10
Bromodichloromethane	BDL	5
1,2-Dichloropropane	BDL	5
cis-1,3-Dichloropropene	BDL	5
trans-1,3-Dichloropropene	BDL	5
Trichloroethene	BDL	5
Dibromochloromethane	BDL	5
1,1,2-Trichloroethane	BDL	5
Benzene	BDL	5
2-Chloroethyl vinyl ether	BDL	5
Bromoform	BDL	5
4-Methyl-2-Pentanone	BDL	26
2-Hexanone	BDL	26
Tetrachloroethene	BDL	5
1,1,2,2-Tetrachloroethane	BDL	5
Toluene	BDL	5
Chlorobenzene	BDL	5
Ethylbenzene	BDL	5
Styrene	BDL	5
Xylene (total)	BDL	5

METHOD REFERENCE: EPA SW 846, 3rd Edition
METHOD 8240

BDL = Below reporting limit

pace INCORPORATED
THE ASSURANCE OF QUALITY

Laboratory number: 44338-005
Sample Designation: DSB02-0.5/2.5
Date Analyzed: 06/15/95
Matrix: SOLID

Instrument File Name: >C8958

Results are expressed on a dry (103 degrees C) basis.
Moisture content was 4 % , elevating the reporting limits
by a factor of 1.04 .

VOLATILE ORGANICS	CONCENTRATION (ug/Kg)	REPORTING LIMIT (ug/Kg)
Chloromethane	BDL	11
Bromomethane	BDL	11
Vinyl chloride	BDL	11
Chloroethane	BDL	5
Methylene chloride	BDL	11
Acetone	BDL	27
Carbon disulfide	BDL	5
Tetrahydrofuran	BDL	27
Trichlorofluoromethane	BDL	5
1,1-Dichloroethene	BDL	5
1,1-Dichloroethane	BDL	5
1,2-Dichloroethene (total)	BDL	5
Chloroform	BDL	5
1,2-Dichloroethane	BDL	5
2-Butanone	BDL	27
1,1,1-Trichloroethane	BDL	5
Carbon Tetrachloride	BDL	5
Vinyl acetate	BDL	11
Bromodichloromethane	BDL	5
1,2-Dichloropropane	BDL	5
cis-1,3-Dichloropropene	BDL	5
trans-1,3-Dichloropropene	BDL	5
Trichloroethene	BDL	5
Dibromochloromethane	BDL	5
1,1,2-Trichloroethane	BDL	5
Benzene	BDL	5
2-Chloroethyl vinyl ether	BDL	5
Bromoform	BDL	5
4-Methyl-2-Pentanone	BDL	27
2-Hexanone	BDL	27
Tetrachloroethene	BDL	5
1,1,2,2-Tetrachloroethane	BDL	5
Toluene	BDL	5
Chlorobenzene	BDL	5
Ethylbenzene	BDL	5
Styrene	BDL	5
Xylene (total)	BDL	5

METHOD REFERENCE: EPA SW 846, 3rd Edition
METHOD 8240

BDL = Below reporting limit

pace INCORPORATED
THE ASSURANCE OF QUALITY

Laboratory number: 44338-006
Sample Designation: DSB02-15/17
Date Analyzed: 06/15/95
Matrix: SOLID

Instrument File Name: >C8959

Results are expressed on a dry (103 degrees C) basis.
Moisture content was 4 % , elevating the reporting limits
by a factor of 1.04 .

VOLATILE ORGANICS	CONCENTRATION (ug/Kg)		REPORTING LIMIT (ug/Kg)
Chloromethane	BDL		11
Bromomethane	BDL		11
Vinyl chloride	BDL		11
Chloroethane	BDL		5
Methylene chloride	6	JB	11
Acetone	BDL		27
Carbon disulfide	BDL		5
Tetrahydrofuran	BDL		27
Trichlorofluoromethane	BDL		5
1,1-Dichloroethene	BDL		5
1,1-Dichloroethane	BDL		5
1,2-Dichloroethene (total)	BDL		5
Chloroform	BDL		5
1,2-Dichloroethane	BDL		5
2-Butanone	BDL		27
1,1,1-Trichloroethane	BDL		5
Carbon Tetrachloride	BDL		5
Vinyl acetate	BDL		11
Bromodichloromethane	BDL		5
1,2-Dichloropropane	BDL		5
cis-1,3-Dichloropropene	BDL		5
trans-1,3-Dichloropropene	BDL		5
Trichloroethene	BDL		5
Dibromochloromethane	BDL		5
1,1,2-Trichloroethane	BDL		5
Benzene	BDL		5
2-Chloroethyl vinyl ether	BDL		5
Bromoform	BDL		5
4-Methyl-2-Pentanone	BDL		27
2-Hexanone	BDL		27
Tetrachloroethene	BDL		5
1,1,2,2-Tetrachloroethane	BDL		5
Toluene	BDL		5
Chlorobenzene	BDL		5
Ethylbenzene	BDL		5
Styrene	BDL		5
Xylene (total)	BDL		5

METHOD REFERENCE: EPA SW 846, 3rd Edition
METHOD 8240

BDL = Below reporting limit
J = Probable presence below listed detection limit

pace INCORPORATED
THE ASSURANCE OF QUALITY

Laboratory number: 44338-008
Sample Designation: DSB04-01/03
Date Analyzed: 06/15/95
Matrix: SOLID

Instrument File Name: >C8961

Results are expressed on a dry (103 degrees C) basis.
Moisture content was 2 % , elevating the reporting limits
by a factor of 1.02 .

VOLATILE ORGANICS	CONCENTRATION (ug/Kg)	REPORTING LIMIT (ug/Kg)
Chloromethane	BDL	10
Bromomethane	BDL	10
Vinyl chloride	BDL	10
Chloroethane	BDL	5
Methylene chloride	BDL	10
Acetone	BDL	25
Carbon disulfide	BDL	5
Tetrahydrofuran	BDL	25
Trichlorofluoromethane	BDL	5
1,1-Dichloroethene	BDL	5
1,1-Dichloroethane	BDL	5
1,2-Dichloroethene (total)	BDL	5
Chloroform	BDL	5
1,2-Dichloroethane	BDL	5
2-Butanone	BDL	25
1,1,1-Trichloroethane	BDL	5
Carbon Tetrachloride	BDL	5
Vinyl acetate	BDL	10
Bromodichloromethane	BDL	5
1,2-Dichloropropane	BDL	5
cis-1,3-Dichloropropene	BDL	5
trans-1,3-Dichloropropene	BDL	5
Trichloroethene	BDL	5
Dibromochloromethane	BDL	5
1,1,2-Trichloroethane	BDL	5
Benzene	BDL	5
2-Chloroethyl vinyl ether	BDL	5
Bromoform	BDL	5
4-Methyl-2-Pentanone	BDL	25
2-Hexanone	BDL	25
Tetrachloroethene	BDL	5
1,1,2,2-Tetrachloroethane	BDL	5
Toluene	BDL	5
Chlorobenzene	BDL	5
Ethylbenzene	BDL	5
Styrene	BDL	5
Xylene (total)	BDL	5

METHOD REFERENCE: EPA SW 846, 3rd Edition
METHOD 8240

BDL = Below reporting limit

pace INCORPORATED
THE ASSURANCE OF QUALITY

Laboratory number: 44338-009
Sample Designation: DSB03-05/07
Date Analyzed: 06/15/95
Matrix: SOLID

Instrument File Name: >C8962

Results are expressed on a dry (103 degrees C) basis.
Moisture content was 4 % , elevating the reporting limits
by a factor of 1.04 .

VOLATILE ORGANICS	CONCENTRATION (ug/Kg)	REPORTING LIMIT (ug/Kg)
Chloromethane	BDL	11
Bromomethane	BDL	11
Vinyl chloride	BDL	11
Chloroethane	BDL	5
Methylene chloride	BDL	11
Acetone	BDL	27
Carbon disulfide	BDL	5
Tetrahydrofuran	BDL	27
Trichlorofluoromethane	BDL	5
1,1-Dichloroethene	BDL	5
1,1-Dichloroethane	BDL	5
1,2-Dichloroethene (total)	BDL	5
Chloroform	BDL	5
1,2-Dichloroethane	BDL	5
2-Butanone	BDL	27
1,1,1-Trichloroethane	BDL	5
Carbon Tetrachloride	BDL	5
Vinyl acetate	BDL	11
Bromodichloromethane	BDL	5
1,2-Dichloropropane	BDL	5
cis-1,3-Dichloropropene	BDL	5
trans-1,3-Dichloropropene	BDL	5
Trichloroethene	BDL	5
Dibromochloromethane	BDL	5
1,1,2-Trichloroethane	BDL	5
Benzene	BDL	5
2-Chloroethyl vinyl ether	BDL	5
Bromoform	BDL	5
4-Methyl-2-Pentanone	BDL	27
2-Hexanone	BDL	27
Tetrachloroethene	BDL	5
1,1,2,2-Tetrachloroethane	BDL	5
Toluene	BDL	5
Chlorobenzene	BDL	5
Ethylbenzene	BDL	5
Styrene	BDL	5
Xylene (total)	BDL	5

METHOD REFERENCE: EPA SW 846, 3rd Edition
METHOD 8240

BDL = Below reporting limit

pace INCORPORATED
THE ASSURANCE OF QUALITY

Laboratory number: 44338-010
Sample Designation: DSB03-35/37
Date Analyzed: 06/15/95
Matrix: SOLID

Instrument File Name: >C8963

Results are expressed on a dry (103 degrees C) basis.
Moisture content was 2 % , elevating the reporting limits
by a factor of 1.02 .

VOLATILE ORGANICS	CONCENTRATION (ug/Kg)	REPORTING LIMIT (ug/Kg)
Chloromethane	BDL	10
Bromomethane	BDL	10
Vinyl chloride	BDL	10
Chloroethane	BDL	5
Methylene chloride	BDL	10
Acetone	BDL	26
Carbon disulfide	BDL	5
Tetrahydrofuran	BDL	26
Trichlorofluoromethane	BDL	5
1,1-Dichloroethene	BDL	5
1,1-Dichloroethane	BDL	5
1,2-Dichloroethene (total)	BDL	5
Chloroform	BDL	5
1,2-Dichloroethane	BDL	5
2-Butanone	BDL	26
1,1,1-Trichloroethane	BDL	5
Carbon Tetrachloride	BDL	5
Vinyl acetate	BDL	10
Bromodichloromethane	BDL	5
1,2-Dichloropropane	BDL	5
cis-1,3-Dichloropropene	BDL	5
trans-1,3-Dichloropropene	BDL	5
Trichloroethene	BDL	5
Dibromochloromethane	BDL	5
1,1,2-Trichloroethane	BDL	5
Benzene	BDL	5
2-Chloroethyl vinyl ether	BDL	5
Bromoform	BDL	5
4-Methyl-2-Pentanone	BDL	26
2-Hexanone	BDL	26
Tetrachloroethene	BDL	5
1,1,2,2-Tetrachloroethane	BDL	5
Toluene	BDL	5
Chlorobenzene	BDL	5
Ethylbenzene	BDL	5
Styrene	BDL	5
Xylene (total)	BDL	5

METHOD REFERENCE: EPA SW 846, 3rd Edition
METHOD 8240

BDL = Below reporting limit

pace INCORPORATED
THE ASSURANCE OF QUALITY

Laboratory number: 44338-011
Sample Designation: DSB03-55/57
Date Analyzed: 06/15/95
Matrix: SOLID

Instrument File Name: >C8964

Results are expressed on a dry (103 degrees C) basis.
Moisture content was 4 % , elevating the reporting limits
by a factor of 1.04 .

VOLATILE ORGANICS	CONCENTRATION (ug/Kg)	REPORTING LIMIT (ug/Kg)
Chloromethane	BDL	11
Bromomethane	BDL	11
Vinyl chloride	BDL	11
Chloroethane	BDL	5
Methylene chloride	BDL	11
Acetone	BDL	26
Carbon disulfide	BDL	5
Tetrahydrofuran	BDL	26
Trichlorofluoromethane	BDL	5
1,1-Dichloroethene	BDL	5
1,1-Dichloroethane	BDL	5
1,2-Dichloroethene (total)	BDL	5
Chloroform	BDL	5
1,2-Dichloroethane	BDL	5
2-Butanone	BDL	26
1,1,1-Trichloroethane	BDL	5
Carbon Tetrachloride	BDL	5
Vinyl acetate	BDL	11
Bromodichloromethane	BDL	5
1,2-Dichloropropane	BDL	5
cis-1,3-Dichloropropene	BDL	5
trans-1,3-Dichloropropene	BDL	5
Trichloroethene	BDL	5
Dibromochloromethane	BDL	5
1,1,2-Trichloroethane	BDL	5
Benzene	BDL	5
2-Chloroethyl vinyl ether	BDL	5
Bromoform	BDL	5
4-Methyl-2-Pentanone	BDL	26
2-Hexanone	BDL	26
Tetrachloroethene	BDL	5
1,1,2,2-Tetrachloroethane	BDL	5
Toluene	BDL	5
Chlorobenzene	BDL	5
Ethylbenzene	BDL	5
Styrene	BDL	5
Xylene (total)	BDL	5

METHOD REFERENCE: EPA SW 846, 3rd Edition
METHOD 8240

BDL = Below reporting limit

pace INCORPORATED
THE ASSURANCE OF QUALITY

SOIL VOLATILES SURROGATE RECOVERY

Client: NUS CORPORATION
Project: NWIRP BETHPAGE
Level: Low Soil

Lab No.: 44338

CLIENT SAMPLE NO.	S1 (TOL)#	S2 (BFB)#	S3 (DCE)#	OTHER	TOT OUT
DSB05-00/02	105	97	100		0
DSB05-00/02MS	107	96	98		0
DSB05-00/02MSD	108	93	98		0
DSB05-15/17	100	98	102		0
DSB05-55/57	101	102	100		0
DSB01-0.5/2.5	101	96	105		0
DSB02-0.5/2.5	100	100	100		0
DSB02-15/17	103	100	102		0
DSB04-01/03	100	100	101		0
DSB03-05/07	101	97	101		0
DSB03-35/37	100	101	102		0
DSB03-55/57	99	95	100		0
BC061595A	102	100	100		0
BC061695A	102	102	95		0

		QC LIMITS
S1	(TOL) = Toluene-d8	86 - 114
S2	(BFB) = Bromofluorobenzene	72 - 132
S3	(DCE) = 1,2-Dichloroethane-d4	70 - 138

Column to be used to flag recovery values with an asterisk
* Values outside of designated QC limits
D Surrogates diluted out

pace INCORPORATED
THE ASSURANCE OF QUALITY

Laboratory number: BC061595A
Sample Designation: LAB BLANK
Date Analyzed: 06/15/95
Matrix: SOIL

Instrument File Name: >C8952

Results are expressed on a dry (103 degrees C) basis.

VOLATILE ORGANICS	CONCENTRATION (ug/Kg)	REPORTING LIMIT (ug/Kg)
Chloromethane	BDL	10
Bromomethane	BDL	10
Vinyl chloride	BDL	10
Chloroethane	BDL	5
Methylene chloride	4.6 J	10
Acetone	BDL	25
Carbon disulfide	BDL	5
Tetrahydrofuran	BDL	25
Trichlorofluoromethane	BDL	5
1,1-Dichloroethene	BDL	5
1,1-Dichloroethane	BDL	5
1,2-Dichloroethene (total)	BDL	5
Chloroform	BDL	5
1,2-Dichloroethane	BDL	5
2-Butanone	BDL	25
1,1,1-Trichloroethane	BDL	5
Carbon Tetrachloride	BDL	5
Vinyl acetate	BDL	10
Bromodichloromethane	BDL	5
1,2-Dichloropropane	BDL	5
cis-1,3-Dichloropropene	BDL	5
trans-1,3-Dichloropropene	BDL	5
Trichloroethene	BDL	5
Dibromochloromethane	BDL	5
1,1,2-Trichloroethane	BDL	5
Benzene	BDL	5
2-Chloroethyl vinyl ether	BDL	5
Bromoform	BDL	5
4-Methyl-2-Pentanone	BDL	25
2-Hexanone	BDL	25
Tetrachloroethene	BDL	5
1,1,2,2-Tetrachloroethane	BDL	5
Toluene	BDL	5
Chlorobenzene	BDL	5
Ethylbenzene	BDL	5
Styrene	BDL	5
Xylene (total)	BDL	5

METHOD REFERENCE: EPA SW 846, 3rd Edition
METHOD 8240

BDL = Below reporting limit
J = Probable presence below listed detection limit

pace INCORPORATED
THE ASSURANCE OF QUALITY

Laboratory number: BC061695A
Sample Designation: LAB BLANK
Date Analyzed: 06/16/95
Matrix: SOIL

Instrument File Name: >C8969

Results are expressed on a dry (103 degrees C) basis.

VOLATILE ORGANICS	CONCENTRATION (ug/Kg)	REPORTING LIMIT (ug/Kg)
Chloromethane	BDL	10
Bromomethane	BDL	10
Vinyl chloride	BDL	10
Chloroethane	BDL	5
Methylene chloride	BDL	10
Acetone	BDL	25
Carbon disulfide	BDL	5
Tetrahydrofuran	BDL	25
Trichlorofluoromethane	BDL	5
1,1-Dichloroethene	BDL	5
1,1-Dichloroethane	BDL	5
1,2-Dichloroethene (total)	BDL	5
Chloroform	BDL	5
1,2-Dichloroethane	BDL	5
2-Butanone	BDL	25
1,1,1-Trichloroethane	BDL	5
Carbon Tetrachloride	BDL	5
Vinyl acetate	BDL	10
Bromodichloromethane	BDL	5
1,2-Dichloropropane	BDL	5
cis-1,3-Dichloropropene	BDL	5
trans-1,3-Dichloropropene	BDL	5
Trichloroethene	BDL	5
Dibromochloromethane	BDL	5
1,1,2-Trichloroethane	BDL	5
Benzene	BDL	5
2-Chloroethyl vinyl ether	BDL	5
Bromoform	BDL	5
4-Methyl-2-Pentanone	BDL	25
2-Hexanone	BDL	25
Tetrachloroethene	BDL	5
1,1,2,2-Tetrachloroethane	BDL	5
Toluene	BDL	5
Chlorobenzene	BDL	5
Ethylbenzene	BDL	5
Styrene	BDL	5
Xylene (total)	BDL	5

METHOD REFERENCE: EPA SW 846, 3rd Edition
METHOD 8240

BDL = Below reporting limit

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VOLATILE ORGANIC COMPOUNDS
MATRIX SPIKE DUPLICATE RECOVERIES

Field Identification: DSB05-00/02
Matrix: SOLID

Lab Id	Date Analyzed	File name
44338-001	06/15/95 17:10	>C8954
44338-001MS	06/16/95 21:08	>C8982
44338-001MSD	06/16/95 21:42	>C8983

Analyte	Original Amount ug/Kg	Amount Spiked ug/Kg	Replicate1 Found ug/Kg	Replicate1 %Rec %	Replicate2 Found ug/Kg	Replicate2 %Rec %	RPD %	Limits
1,1-Dichloroethene	.00	56.8	54.6	96	56.2	97	1	59-172
Trichloroethene	5.91	56.8	69.2	111	72.7	115	4	62-137
Benzene	.00	56.8	57.4	101	59.8	103	2	66-142
Toluene	.00	56.8	60.2	106	62.7	108	2	59-139
Chlorobenzene	.00	56.8	58.9	104	60.3	104	0	60-133

METHOD REFERENCE: EPA SW 846, 3rd Edition
METHOD 8240

QC limits change periodically. These were set as of 08/04/94.

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VOLATILE ORGANIC COMPOUNDS
BLANK SPIKE RECOVERY REPORT

Matrix: SOIL

Lab Id	Date Analyzed	File name
BC061595A	06/15/95 15:44	>C8952
LCC061595A	06/15/95 16:24	>C8953

Analyte	Original Amount ug/Kg	Amount Spiked ug/Kg	Replicate 1 Found ug/Kg	%Rec %	Limits
1,1-Dichloroethene	.00	50.0	44.6	89	59-172
Trichloroethene	.00	50.0	44.7	89	62-137
Benzene	.00	50.0	44.5	89	66-142
Toluene	.00	50.0	43.7	87	59-139
Chlorobenzene	.00	50.0	44.9	90	60-133

METHOD REFERENCE: EPA SW 846, 3rd Edition
METHOD 8240

QC limits change periodically. These were set as of 08/04/94.

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5A

VOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: PACE New England

Project: NWIRP BETHPAGE

Lab File ID: >C8738 BFB Injection Date: 06/02/95

Instrument ID: CMS BFB Injection Time: 11:02

ION ABUNDANCE CRITERIA for C8738 are reported on a separate sheet.

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS

CLIENT I.D.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	DATE ANALYZED
VSTD200	VSTD200	C8740	06/02/95	12:19
VSTD100	VSTD100	C8741	06/02/95	12:54
VSTD050	VSTD050	C8742	06/02/95	13:29
VSTD020	VSTD020	C8743	06/02/95	14:04
VSTD010	VSTD010	C8744	06/02/95	14:39

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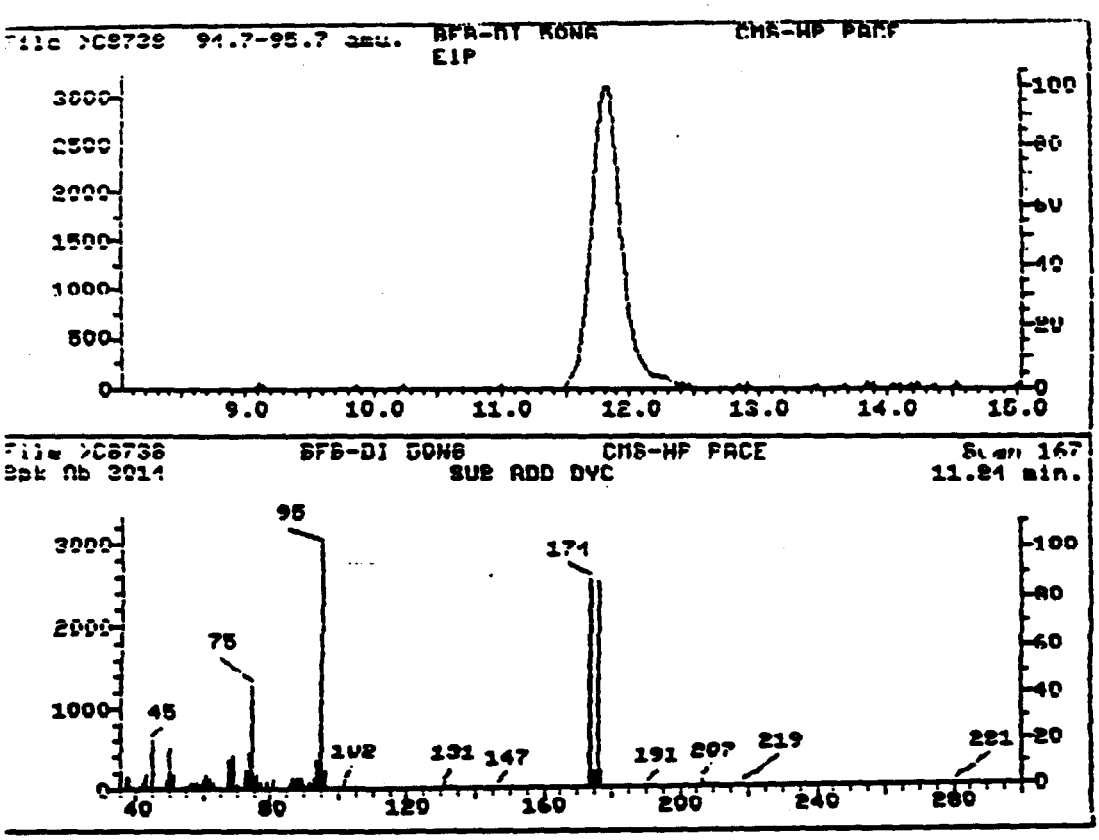
GC/MS PERFORMANCE STANDARD

Bromofluorobenzene (BFB) '88

m/z	Ion Abundance Criteria	% Relative Abundance Base Peak	Appropriate Peak	Status
50	15-40% of mass 95	16.95	16.95	Ok
75	30-60% of mass 95	42.60	42.60	Ok
95	Base peak, 100% relative abundance	100.00	100.00	Ok
96	5-9% of mass 95	7.65	7.65	Ok
173	Less than 2% of mass 174	0.00	0.00	Ok
174	Greater than 50% of mass 95	86.12	86.12	Ok
175	5-9% of mass 174	6.77	7.86	Ok
176	95-101% of mass 174	85.00	98.70	Ok
177	5-9% of mass 176	6.48	7.62	Ok

Injection Date: 06/02/95
Injection Time: 11:02
Data File: >C873H
Scan: 167

THIS IS THE RESULT OF AVERAGING 166.00 167.00 168.00
AND SUBTRACTING BACKGROUND SCAN 147.00



5A

VOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: PACE New England

Project: NWIRP BETHPAGE

Lab File ID: >C8950 BFB Injection Date: 06/15/95

Instrument ID: CMS BFB Injection Time: 14:34

ION ABUNDANCE CRITERIA for C8950 are reported on a separate sheet.

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS

CLIENT I.D.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	DATE ANALYZED
VSTD050	VSTD050	C8951	06/15/95	15:09
BC061595A	90102-173	C8952	06/15/95	15:44
LCC061595	90102-173MS	C8953	06/15/95	16:24
DSB05-00/02	44338-001	C8954	06/15/95	17:10
DSB05-15/17	44338-002	C8955	06/15/95	17:44
DSB05-55/57	44338-003	C8956	06/15/95	18:19
DSB01-0.5/2.5	44338-004	C8957	06/15/95	18:54
DSB02-0.5/2.5	44338-005	C8958	06/15/95	19:29
DSB02-15/17	44338-006	C8959	06/15/95	20:04
GW642X19J	43338-007	C8960	06/15/95	20:39
DSB04-01/03	44338-008	C8961	06/15/95	21:14
DSB03-05/07	44338-009	C8962	06/15/95	21:49
DSB03-35/37	44338-010	C8963	06/15/95	22:24
DSB03-55/57	44338-011	C8964	06/15/95	22:58

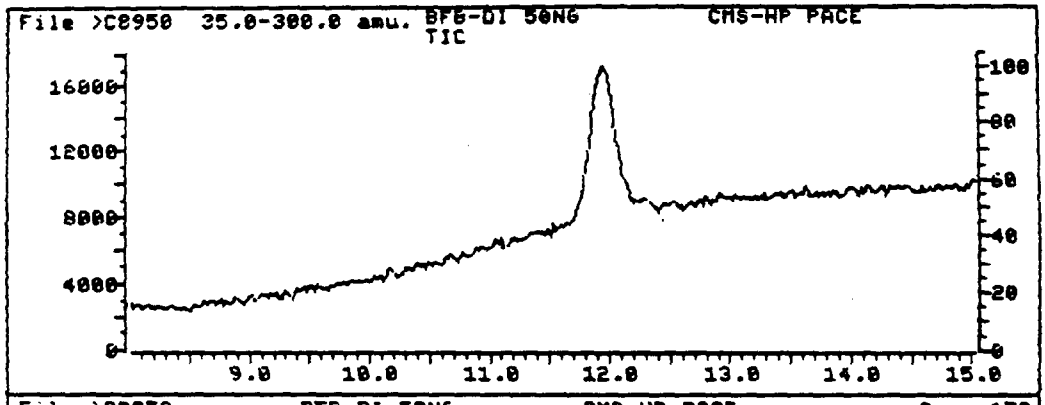
PR
6/22/95

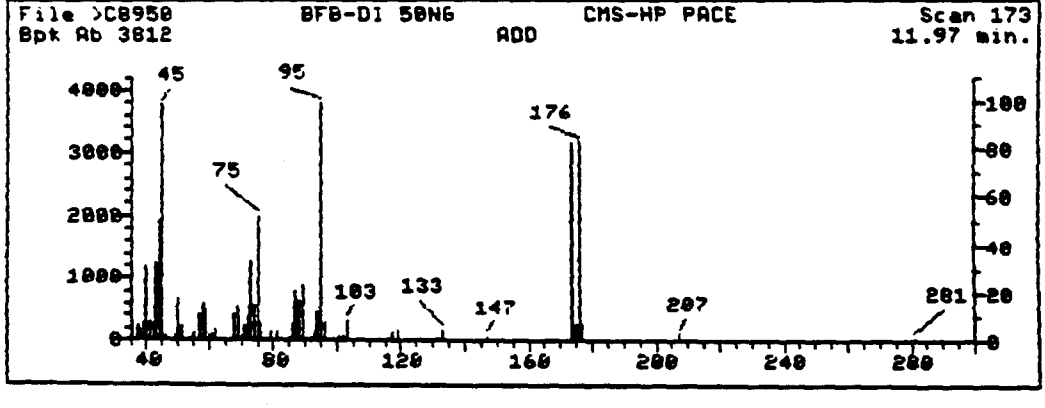
GC/MS PERFORMANCE STANDARD

Bromofluorobenzene (BFB) '88

m/z	Ion Abundance Criteria	% Relative Abundance Base Peak	% Relative Abundance Appropriate Peak	Status
50	15-40% of mass 95	17.34	17.34	Ok
75	30-60% of mass 95	52.41	52.41	Ok
95	Base peak, 100% relative abundance	100.00	100.00	Ok
96	5-9% of mass 95	7.48	7.48	Ok
173	Less than 2% of mass 174	0.00	0.00	Ok
174	Greater than 50% of mass 95	82.76	82.76	Ok
175	5-9% of mass 174	6.30	7.61	Ok
176	95-101% of mass 174	83.47	100.86	Ok
177	5-9% of mass 176	6.40	7.67	Ok

Injection Date: 06/15/95
Injection Time: 14:34
Data File: >C8950
Scan: 173 + 174





5A

VOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: PACE New England

Project: NWIRP BETHPAGE

Lab File ID: >C8966 BFB Injection Date: 06/16/95

Instrument ID: CMS BFB Injection Time: 10:19

ION ABUNDANCE CRITERIA for C8966 are reported on a separate sheet.

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS

CLIENT I.D.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	DATE ANALYZED
VSTD050	VSTD050	C8968	06/16/95	11:47
BC061695A	90102-174	C8969	06/16/95	12:22
DSB05-00/02MS	44338-001MS	C8982	06/16/95	21:08
DSB05-00/02MSD	44338-001MSD	C8983	06/16/95	21:42

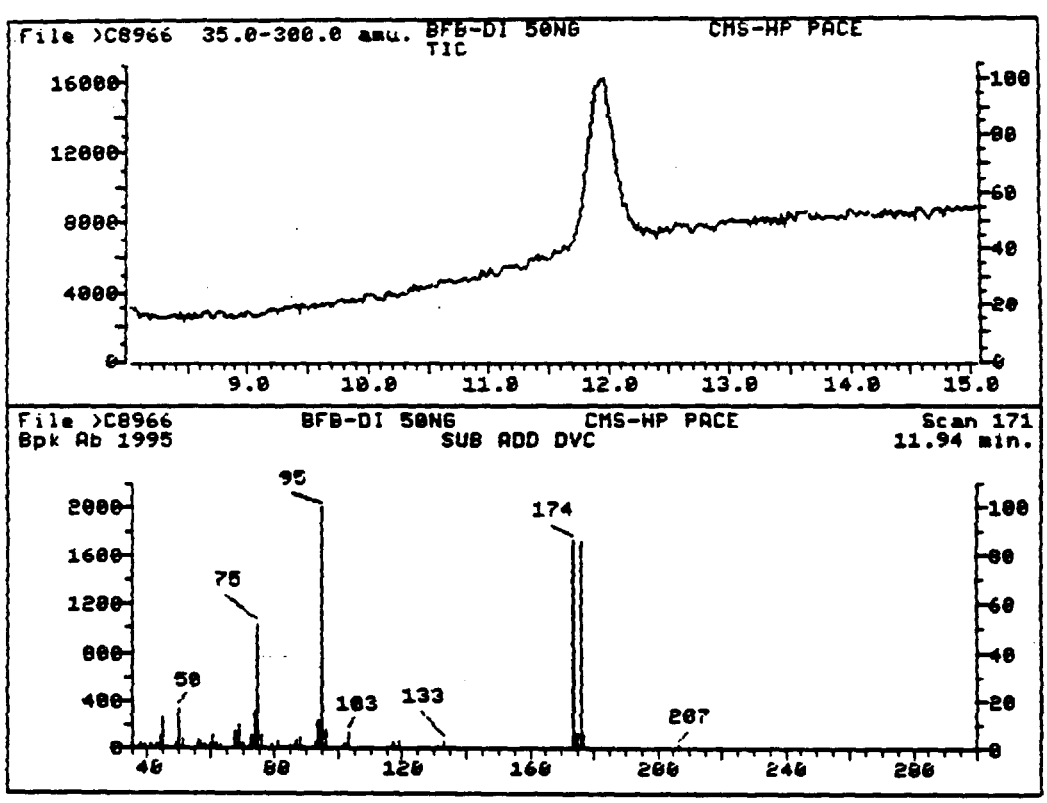
ALR
6/22/95

GC/MS PERFORMANCE STANDARD

Bromofluorobenzene (BFB) '88

m/z	Ion Abundance Criteria	% Relative Abundance Base Peak	% Relative Abundance Appropriate Peak	Status
50	15-40% of mass 95	16.76	16.76	Ok
75	30-60% of mass 95	51.37	51.37	Ok
95	Base peak, 100% relative abundance	100.00	100.00	Ok
96	5-9% of mass 95	8.41	8.41	Ok
173	Less than 2% of mass 174	0.00	0.00	Ok
174	Greater than 50% of mass 95	86.58	86.58	Ok
175	5-9% of mass 174	6.94	8.01	Ok
176	95-101% of mass 174	86.03	99.36	Ok
177	5-9% of mass 176	6.22	7.23	Ok

Injection Date: 06/16/95
Injection Time: 10:19
Data File: >C8966
Scan: 171 + 170+172-151



8A

VOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: PACE New England

Project: NWIRP BETHPAGE

Lab File ID (Standard): >C8951 Date Analyzed: 06/15/95

Instrument ID: CMS Time Analyzed: 15:09

	IS1 (BCM) AREA #	RT #	IS2 (DFB) AREA #	RT #	IS3 (CBZ) AREA #	RT #
12 HOUR STD	60788	7.18	201823	17.58	168070	22.42
UPPER LIMIT	121576	7.68	403646	18.08	336140	22.92
LOWER LIMIT	30394	6.68	100912	17.08	84035	21.92
CLIENT I.D.						
BC061595A	54951	7.17	190807	17.59	159951	22.42
LCC061595	58766	7.18	198850	17.60	170196	22.43
DSB05-00/02	42184	7.21	147877	17.60	120572	22.43
DSB05-15/17	53609	7.22	188789	17.60	163340	22.40
DSB05-55/57	46447	7.21	156207	17.61	135411	22.44
DSB01-0.5/2.5	43847	7.19	154340	17.58	126534	22.44
DSB02-0.5/2.5	50565	7.20	171141	17.58	146169	22.43
DSB02-15/17	49142	7.20	171489	17.60	147488	22.43
GW642X19J	47411	7.19	166212	17.58	140881	22.42
DSB04-01/03	47313	7.18	157743	17.60	136349	22.43
DSB03-05/07	44556	7.16	150607	17.60	130652	22.41
DSB03-35/37	48307	7.21	163042	17.60	139906	22.41
DSB03-55/57	45619	7.18	163247	17.60	141365	22.41

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene

UPPER LIMIT = + 100%
of internal standard area.
LOWER LIMIT = - 50%

Column used to flag internal standard area values outside of UPPER and LOWER LIMIT with an asterisk

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8A

VOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: PACE New England

Project: NWIRP BETHPAGE

Lab File ID (Standard): >C8968 Date Analyzed: 06/16/95

Instrument ID: CMS Time Analyzed: 11:47

	IS1(BCM) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CBZ) AREA #	RT #
12 HOUR STD	60868	7.19	208869	17.60	179517	22.41
UPPER LIMIT	121736	7.69	417738	18.10	359034	22.91
LOWER LIMIT	30434	6.69	104435	17.10	89759	21.91
CLIENT I.D.						
BC061695A	62855	7.18	210951	17.60	178537	22.41
DSB05-00/02MS	46030	7.19	149750	17.59	122586	22.44
DSB05-00/02MSD	43117	7.21	141647	17.60	114209	22.41

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene

UPPER LIMIT = + 100%
of internal standard area.
LOWER LIMIT = - 50%

Column used to flag internal standard area values outside of UPPER and LOWER LIMIT with an asterisk

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Low Soils
5/06/22 / 5/06/22
RK 6/2/95

Initial Calibration Data
HSL Compounds

Case No: _____ Instrument ID: CMS-HP

Contractor: KESAN Calibration Date: 06/02/95

Contract No: 68D20026

Minimum $\overline{RF}$ for SPCC is .30 Maximum % RSD for CCC is 30%

Laboratory ID:	>CB744	>CB743	>CB742	>CB741	>CB740					
	RF	RF	RF	RF	RF					
Compound	10.00	20.00	50.00	100.00	200.00	$\overline{RRT}$	$\overline{RF}$	% RSD	CCC	SPCC
CD10 CHLOROMETHANE	.46202	.40875	.38831	.39423	.37046	.209	.40476	8.606		**
CD15 BROMOMETHANE	1.30682	1.17292	1.10568	1.11127	.93564	.286	1.12647	11.891		
CD20 VINYL CHLORIDE	.76364	.69416	.67154	.69790	.66126	.344	.69770	5.721	*	
CD25 CHLOROETHANE	.44869	.42144	.43191	.45897	.44648	.425	.44150	3.352		
CD30 METHYLENE CHLORIDE	1.40797	1.11681	1.03004	1.06025	1.02218	.621	1.12745	14.294		
CD35 ACETONE	.75507	.33770	.48016	.39133	.32505	.708	.45786	38.661	OC	
CD40 CARBON DISULFIDE	1.82649	1.70918	1.69071	1.80271	1.71416	.821	1.74865	3.512		
CD42 TRICHLOROFLUOROMETHANE	2.97935	2.72385	2.55449	2.70401	2.51494	.887	2.69533	6.789		
CD45 1,1-DICHLOROETHENE	1.02153	.92358	.88834	.94545	.89060	.970	.93390	5.833	*	
CD58 TETRAHYDROFURAN	.18963	.12494	.19213	.17379	.16314	1.130	.16873	16.119		
CD50 1,1-DICHLOROETHANE	1.84824	1.76191	1.70496	1.74375	1.66685	1.125	1.74514	3.913		**
CD53 1,2-DICHLOROETHENE(total)	1.17718	1.15237	1.07433	1.13629	1.09701	1.220	1.12744	3.689		(Conc=20.0,40.0,100.0,200
CD60 CHLOROFORM	2.80854	2.62179	2.47535	2.57078	2.45009	1.284	2.58531	5.530	*	
C110 2-BUTANONE	.93928	.66416	.89284	.73577	.67326	1.399	.78106	16.304		
CD65 1,2-DICHLOROETHANE	1.88728	1.66965	1.71681	1.71082	1.65790	1.389	1.72849	5.342		
MTBE	2.54537	2.12953	2.25902	2.24147	2.11967	1.547	2.25901	7.619		
CS15 1,2-DICHLOROETHANE-d4	1.69728	1.60553	1.60448	1.52831	1.51048	1.376	1.58922	4.676		
C115 1,1,1-TRICHLOROETHANE	.78877	.70439	.66875	.73979	.69581	.639	.71950	6.435		
C120 CARBON TETRACHLORIDE	.76635	.68697	.65007	.72404	.67679	.661	.70084	6.452		
C125 VINYL ACETATE	.69319	.48316	.65053	.65642	.64278	.679	.62522	13.073		
C130 BROMODICHLOROMETHANE	.98517	.86655	.87564	.93286	.87250	.685	.90654	5.675		
C140 1,2-DICHLOROPROPANE	.34141	.29659	.30969	.33431	.31451	.769	.31930	5.744	*	
C143 CIS-1,3-DICHLOROPROPENE	.58529	.51788	.53322	.57864	.56108	.781	.55522	5.224		
C150 TRICHLOROETHENE	.50236	.47526	.45507	.49388	.46278	.819	.47787	4.199		
C155 DIBROMOCHLOROMETHANE	.95316	.81059	.85450	.90938	.88007	.840	.88154	6.128		
C160 1,1,2-TRICHLOROETHANE	.43525	.35145	.39597	.39372	.38342	.851	.39196	7.662		
C165 BENZENE	.83854	.74766	.75634	.79836	.74114	.851	.77641	5.316		
C172 TRANS-1,3-DICHLOROPROPENE	.56807	.49037	.53580	.56461	.53495	.855	.53876	5.790		
C176 2-CHLOROETHYLVINYLETHER	.20999	.15965	.21164	.22703	.21930	.921	.20552	12.906		
C180 BROMOFORM	.95985	.73574	.89470	.93856	.89682	.992	.88514	9.943		**

RF - Response Factor (Subscript is amount in ug/Kg)

$\overline{RRT}$ - Average Relative Retention time (RT Std/RT Istd)

$\overline{RF}$ - Average Response Factor

%RSD - Percent Relative Standard Deviation

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

Initial Calibration Data
HSL Compounds

Case No: _____ Instrument ID: CMS-HP

Contractor: RESAN Calibration Date: 06/02/95

Contract No: 68020026

Minimum $\overline{RF}$ for SPCC is .30 Maximum % RSD for CCC is 30%

Laboratory ID:	>C8744	>C8743	>C8742	>C8741	>C8740					
	RF	RF	RF	RF	RF					
Compound	10.00	20.00	50.00	100.00	200.00	$\overline{RRT}$	$\overline{RF}$	% RSD	CCC	SPCC
CS05 TOLUENE-d8	1.16226	1.12469	1.06196	1.02942	1.05032	.950	1.08573	5.121		
C205 4-METHYL-2-PENTANONE	.79795	.44850	.69525	.63502	.61578	.812	.63850	20.007		
C210 2-HEXANONE	.51396	.37403	.56633	.47931	.47503	.883	.48173	14.622		
C220 TETRACHLOROETHENE	.59701	.54025	.51575	.54762	.52111	.896	.54435	5.923		
C225 1,1,2,2-TETRACHLOROETHANE	1.08315	.77648	1.01552	1.00745	.98136	.885	.97279	11.924		**
C230 TOLUENE	1.26400	1.16184	1.10392	1.11008	1.11195	.957	1.15036	5.880	*	
C235 CHLOROBENZENE	1.05918	.96308	.91371	.94774	.93001	1.005	.96274	5.921		**
C240 ETHYLBENZENE	.47920	.44122	.42554	.44720	.43378	1.088	.44539	4.618	*	
C245 STYRENE	1.07808	.95932	.90049	.93885	.89839	1.207	.95503	7.695		
C251 XYLENE	.60507	.55026	.51810	.52425	.49860	1.215	.53925	7.634		
C250 XYLENE (total)	.59927	.55521	.52637	.53740	.51174	1.239	.54600	6.181		
CS10 BROMOFLUOROBENZENE	1.16692	1.04937	.98119	.93999	.92395	1.165	1.01228	9.790		

<Conc=20.0,40.0,100.0,200

RF - Response Factor (Subscript is amount in ug/Kg)

$\overline{RRT}$ - Average Relative Retention Time (RT Std/RT Istd)

$\overline{RF}$ - Average Response Factor

%RSD - Percent Relative Standard Deviation

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

Continuing Calibration Check
HSL Compounds

Case No: | Calibration Date: 06/15/95

Contractor: RESAN | Time: 15:09

Contract No: 68D20026 | Laboratory ID:)CH951

Instrument ID: CMS-HP | Initial Calibration Date: 06/02/95

Minimum $\overline{RF}$ for SPCC is .30 | Maximum % Diff for CCC is 25%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC	
C010 CHLOROMETHANE	.40476	.45346	12.03		**	
C015 BROMOMETHANE	1.12647	1.21341	7.72			
C020 VINYL CHLORIDE	.69770	.73918	5.94	*		
C025 CHLOROETHANE	.44150	.47235	6.99			
C030 METHYLENE CHLORIDE	1.12745	1.17089	3.85			
C035 ACETONE	.45786	.31024	32.24			
C040 CARBON DISULFIDE	1.74865	2.93949	68.10			
C042 TRICHLOROFLUOROMETHANE	2.69533	2.89665	7.40			
C045 1,1-DICHLOROETHENE	.93390	.99071	6.08	*		
C058 TETRAHYDROFURAN	.16873	.14338	15.02			
C050 1,1-DICHLOROETHANE	1.74514	1.70442	2.33		**	
C053 1,2-DICHLOROETHENE(total)	1.12744	1.11679	.94			(Conc=100.000)
C060 CHLOROFORM	2.58531	2.53390	1.99	*		
C110 2-BUTANONE	.78106	.71323	8.68			
C065 1,2-DICHLOROETHANE	1.77849	1.63787	5.74			
MTBE	2.75981	2.17633	3.66			(Conc=50.000)
CS15 1,2-DICHLOROETHANE-d4	1.58922	1.26525	20.39			
C115 1,1,1-TRICHLOROETHANE	.71950	.77991	1.45			
C120 CARBON TETRACHLORIDE	.70084	.75005	7.07			
C125 VINYL ACETATE	.62522	.65541	4.83			
C130 BROMODICHLOROMETHANE	.90654	.87477	3.56			
C140 1,2-DICHLOROPROPANE	.31930	.31032	2.81	*		
C143 CIS-1,3-DICHLOROPROPENE	.55522	.54167	2.44			(Conc=50.00)
C150 TRICHLOROETHENE	.47787	.50736	6.17			
C155 DIBROMOCHLOROMETHANE	.88154	.87900	.29			
C160 1,1,2-TRICHLOROETHANE	.39196	.38565	1.61			
C165 BENZENE	.77641	.76339	1.68			
C172 TRANS-1,3-DICHLOROPROPENE	.53876	.52344	2.84			(Conc=50.000)
C176 2-CHLOROETHYL VINYL ETHER	.20552	.19533	4.96			
C180 BROMOFORM	.88514	.85545	3.35		**	
CS05 TOLUENE-d8	1.08573	.89544	17.53			
C205 4-METHYL-2-PENTANONE	.63850	.55687	12.78			

RF - Response Factor from daily standard File at 50.00 ug/Kg

$\overline{RF}$ - Average Response Factor from Initial Calibration Form VI

%Diff - % Difference from original average or curve

---- - System Performance Check Compounds (**)

Continuing Calibration Check
HSL Compounds

Case No: | Calibration Date: 06/15/95

Contractor: RESAN | Time: 15:09

Contract No: 6R020026 | Laboratory ID: XCR951

Instrument ID: CMS-HP | Initial Calibration Date: 06/02/95

Minimum $\overline{RF}$ for SPCC is .30 | Maximum % Diff for CCC is 25%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC	
C210 2-HEXANONE	.48173	.44376	7.88			
C220 TETRACHLOROETHENE	.54435	.59331	8.99			
C225 1,1,2,2-TETRACHLOROETHANE	.97279	.89708	7.78		**	
C230 TOLUENE	1.15036	1.15378	.30	*		
C235 CHLOROBENZENE	.96224	.99135	2.97		**	
C240 ETHYLBENZENE	.44539	.44431	.24	*		
C245 STYRENE	.95503	.94804	.73			
C251 XYLENE	.53925	.53036	1.65			
C250 XYLENE (total)	.54600	.55123	.96			(Conc=100.00)
C510 BROMOFLUOROBENZENE	1.01228	.82883	18.12			

RF - Response Factor from daily standard file at 50.00 ug/Kg

$\overline{RF}$ - Average Response Factor from Initial Calibration Form VI

%Diff - % Difference from original average or curve

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

5pt. Voltage: 140

PACE New England

05235951R

GCMS/VOA Instr C MS-HP Analyst/Date AW 6/2/95 STD Lot # V-61770

FRN	Arev	ID File	Tube	SAMPLE	AMT	COMMENTS	pH	A	P
>C8738	$463	—	—	BFB-DT	50ng	mtl m/c95=50K		y	
				Scan: 166+167		V-6088 ok '88+'91			
				+168-147					
				time 1102					
>C8739		LC0602	1	VSTD200	5mls	Heated Purge			
40			2	VSTD200	↓			y	
41			3	VSTD100		SC0602/LC0602		y	
42			4	VSTD050		low Soil		y	
43			5	VSTD020				y	
44			6	VSTD010				y	
>C8745	$	—	—	BFB-DT	50ng	mtl m/c95=47K		y	
				Scan: 165+166+167-146		time: 1614 V-6088 ok '88+'91			
>C8746		LC0602	7	VSTD050	5mls			y	
47		LCJW02	8	BC060295A	↓	VBLKCR		y	
>C8748		LCJW02	9	LCC060295	5mls				
49			10	44,063-6	4.9g	WHFCR032 LR M2-C45		y	
50			1	-6ms	4.8g	WHFCR032MS ↓		y	
51			2	-6msd	4.8g	WHFCR032MSD		y	
52			3	HB44063	5mls			y	
53			4	44,165-9	4.8g	(R8240L)		y	✓
54			5	-10	5.0g	↓IS RE		N	
55			6	-11	5.1g			y	✓
56			7	-12	4.9g			y	✓
57			8	-13	4.8g	↓IS #3 RE		N	✓
58			9	-14	5.0g			y	✓
59			10	-15	5.1g			y	✓
60			1	-16	4.8g			y	✓
61			2	-17	4.9g			y	✓
62			3	-1	5.0g			y	✓
63			4	-2	5.0g			y	

64 ~~HB~~ BAKE

0000030

PACE New England

GCMS/VOA Instr C MS-HP Analyst/Date ALL 6/15/95 STD Lot #

FRN	Arev	ID File	Tube	SAMPLE	AMT	COMMENTS	pH	A	R
>C8948	$1	—	—	BFB-DI	50ng	Mth1 m/e95=		N	
>C8950	$4	—	—	BFB-DI	50ng	Mth1 m/e95=31K		y	
				scan: 173+174		V-6088 OK '88 only			
				time: 1434					
>C8951		LC0602	2	VSTD050	5mls			y	
52		LC0615	3	BC061595A	↓	VBLKCF		y	
53			4	LCC061595	5mls			y	
>C8954		LC0615	5	4 [illegible] 338 -1	5.0g	(R8240L) SW846 Nerda-C		y	✓
55			6	-2	4.8g			y	
56			7	-3	4.9g			y	
57			8	-4	5.1g			y	
58			9	-5	4.8g			y	
59			10	-6	4.9g			y	
60			1	-7	5.0g			y	
61			2	-8	5.1g			y	
62			3	-9	4.8g			y	
63			4	-10	5.0g			y	
64			5	-11	4.9g			y	
65			6	BAKE					

PAL 6/16/95

low Soils Voltage-1650

PACE New England

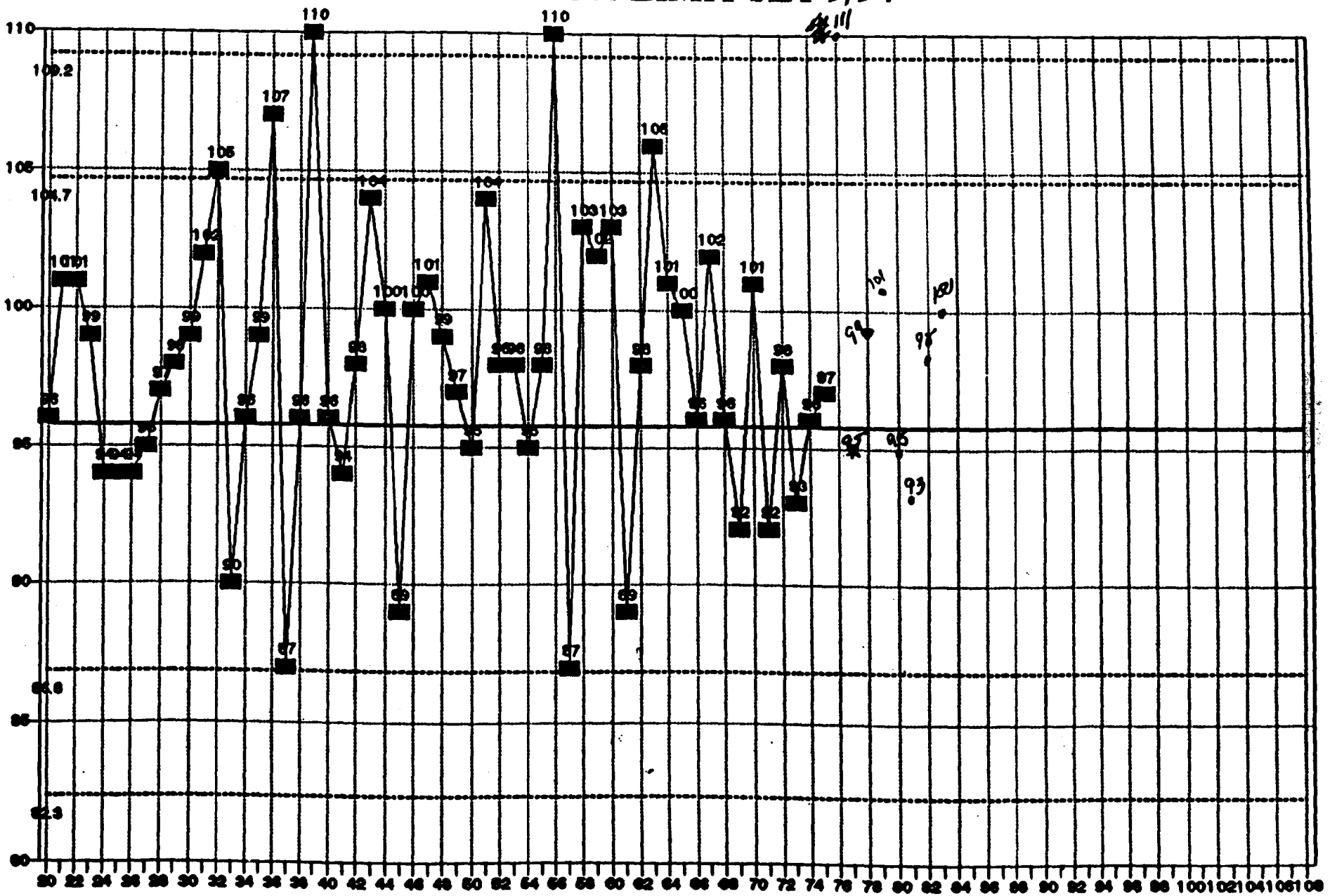
DLOCL9 5C F

GCMS/VOA Instr. CMS-HP Analyst/Date AL 4/16/95 STD Lot # V-623313

FRN	Anov	ID File	Tube	SAMPLE	AMT	COMMENTS	pH	A	
X8966	465	—	—	BFB-DI	50ng	m+/z 1 m/e95 = 32K		y	
				Scan: 170+171		DK 158+191 V-16058		y	
				+172-151					
				time: 10:19					
X8967		LCC602	1	VSTD050	5mls	Not used			
68		↓	2	VSTD050	↓			y	
69		LCC616	3	BCC61695A	↓	VBLKCG		y	
X8970		LCC616	4	LCC061695	5mls				
71			5	44,303-1	4.3g	WHPRO1 JTS		N	✓
72			6	-2	2.9g	WHPRO4 See below		y	
73			7	-1 ms	4.4g	WHPRO1 ms JTS		N	✓
74			8	-1 msD	4.4g	WHPRO1 msD JTS		N	✓
75			9	WB44303	5mls			y	✓
76			10	44,361-1	5.0g	(RS240C) Neesa-C swatte		y	
77			1	-2	5.1g	↓	↓	y	
78			2	-3	4.8g			y	✓
79			3	-4	4.9g			y	✓
80			4	44,361-4ms	4.9g			y	✓
81			5	-4msD	4.9g	m2-c27		y	✓
82			6	44,338-1ms	5.0g			y	✓
83			7	-1msD	4.9g	↓	↓	y	✓
84			8	44,303-2	4.8g	WHPRO4		y	✓
85				BAKE					

4/19/95

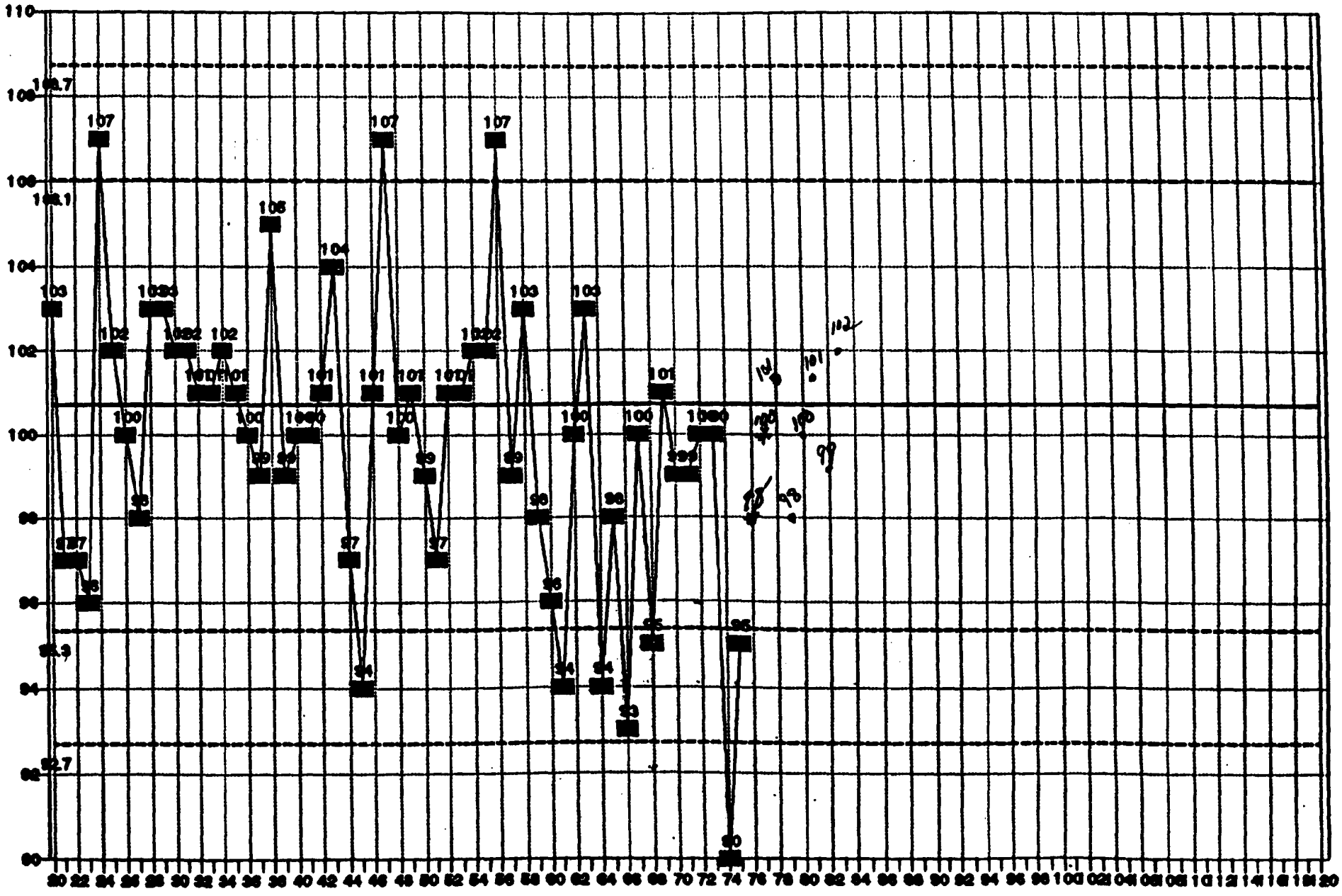
VOA LOW SOLIDS - SURR DCE
EPA SW846 LIMIT SET 9/94



STD DEV = 4.47 MEAN = 95.8

0000033

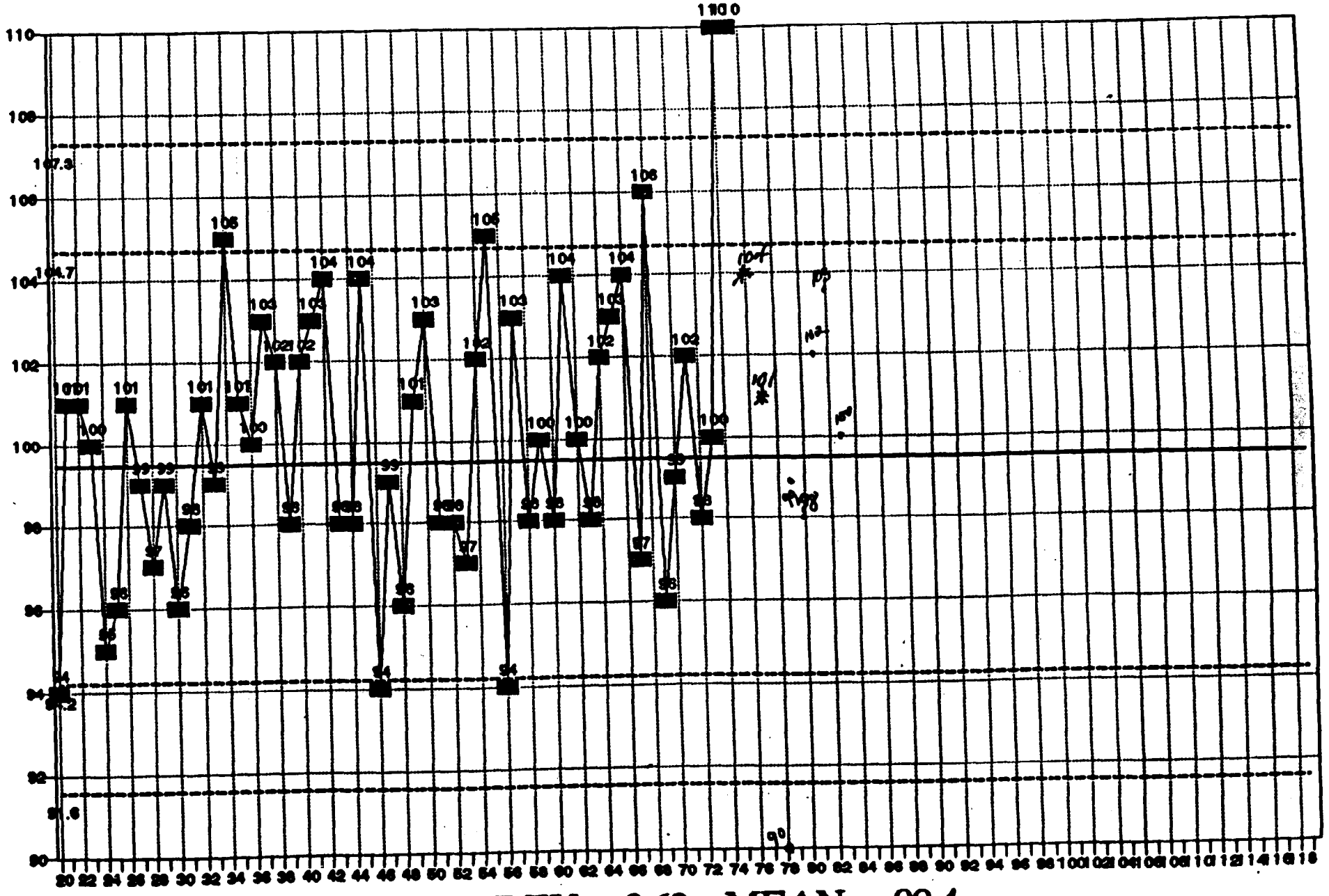
VOA LOW SOLIDS - SURR TOL-D8
EPA SW846 LIMITS SET 9/94



STD DEV = 2.8 MEAN = 100.7

0000034

VOA LOW SOLIDS - SURR BFB
EPA SW846 LIMITS SET 9/94



STD DEV = 2.62 MEAN = 99.4

0000035

9E00000

SW846 8240 LOW LEVEL SOLIDS

1	BC081794A	51	BC101894A
2	BC081894A	52	BC101994A
3	BC082594A	53	BG102094A
4	BC082694A	54	BG102194A
5	BC083094A	55	BG102494A
6	BG081994A	56	BG100594D
7	BG082394B	57	BG100794A
8	BG082494A	58	BG101194A
9	BG082594A	59	BG102594A
10	BG082694C	60	BE101794A
11	BG082994A	61	BG101294B
12	BC083194A	62	BG112394C
13	BC090194A	63	BG120694C
14	BC090294A	64	BG120794B
15	BG083094A	65	BG120894B
16	BG083194A	66	BG120994B
17	BG090194A	67	BG121494A
18	BG090294A	68	BG121594A
19	BG090694A	69	BG121694A
20	BG090894A	70	BG121994A
21	BC090694A	71	BG122094B
22	BC090894B	72	BG122394A
23	BC090994A	73	BG122794A
24	BG090994A	74	BG123094B
25	BG091294A	75	
26	BG091394A	76	BC021095B
27	BG091494B	77	BC021395A
28	BG091594A	78	BG040695B
29	BG091694A	79	BG040795B
30	BG091994A	80	BG040995A
31	BE092094A	81	BC061395C (93, 101, 102)
32	BE092194A	82	BC061495C (98, 99, 103)
33	BC092194B	83	BC061595A (100, 102, 100)
34	BC092294B	84	
35	BC092394B	85	
36	BC092694B	86	
37	BG100794A	87	
38	BE092294A	88	
39	BE092394A	89	
40	BC092794B	90	
41	BC101094A	91	
42	BC101194A	92	
43	BG101194A	93	
44	BC101294A	94	
45	BG101294A	95	
46	BG101394A	96	
47	BE101894A	97	
48	BE101994A	98	
49	BG101994C	99	
50	BC101794A	100	

P E

CHAIN OF CUSTODY RECORD

PROJECT NO.: 5253

SITE NAME: NWIRP Bethpage

SAMPLERS (SIGNATURE): Timothy S

STATION NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	2 oz Glass TCL VOC							REMARKS 14338
Plant No. 3	6/9/95	0934		✓	DSBØ5-ØØ/Ø2	1	1							-1
		0945		✓	DSBØ5-15/17	1	1							-2
		1109		✓	DSBØ5-55/57	1	1							-3
		1340		✓	DSBØ1-0.5/2.5	1	1							-4
		1411		✓	DSBØ2-0.5/2.5	1	1							-5
		1445		✓	DSBØ2-15/17	1	1							-6
		1556		✓	DSBØ2-55/57	1	1							-7
	6/10/95	0827		✓	DSBØ4-Ø1/Ø3	1	1							-8
		0954		✓	DSBØ3-Ø5/Ø7	1	1							-9
		1101		✓	DSBØ3-35/37	1	1							-10
		1203		✓	DSBØ3-55/57	1	1							-11

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
Timothy S		K. Lawson 6/12/95 0915			
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE): K. Lawson	DATE / TIME: 6/12/95 0915	REMARKS: Sent to PACE LABS FedEx AB# 3211642136	

Order No. 70440 (8603)

Final Page

00000037

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REPORT OF LABORATORY ANALYSIS

June 21, 1995

Halliburton NUS Corporation
Mr. Mark Speranza
661 Andersen Drive
Pittsburgh, PA 15220

SAMPLE DELIVERY GROUP NARRATIVE

Project: NWIRP Bethpage, CTO 0213
Laboratory: PACE New England, Inc. of Hampton, NH

Lab Numbers: 44329
Protocol: SW846 Methodologies with NEESA Level C package and LOTUS diskette.

Sample Receipt: Samples were received at PACE, Inc. on 6/09/95. Laboratory sample numbers were assigned for test parameters as listed on the sample table which follows this narrative. Sample shipments were checked for custody seal integrity and cooler temperature. Samples were checked for appropriate preservation and accuracy against the Chains-of-Custody provided. Other than the exceptions noted below, samples were received between 2-6° C and in good condition. In addition, Sample Receipt Condition Reports can be found with the Chains-of-Custody. No spike sample was submitted for analysis.

Shipment received 6/09/95 (44329): One cooler was received with one Chain-of-Custody form. The cooler was received without a temperature blank present. The samples were packed in ice. Custody seals were present and intact.

Volatile Organic Analysis: Samples were analyzed within a project specific holding time of 7 days from sampling as directed by Ms. Kelly Johnson with the following exception:

> The sample designated "DSB08-01/03" (laboratory number 44329-7) was initially run on 06/13/95, however the internal standard areas failed the minimum criteria. Therefore, it was run a second time one day outside of hold time. Both analysis results are being reported.

Statement of Compliancy and Data Authorization

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Richard L Wellman — 6/21/95

Richard Wellman, Operations Manager
PACE Incorporated, New England-New Hampshire

June 21, 1995

P.O. Box 2130
1 Lafayette Road
Hampton, NH 03842
TEL: 603-926-7777
800-982-0724
FAX: 603-926-7939

An Equal Opportunity Employer

pace INCORPORATED
ENVIRONMENTAL LABORATORIES

NEW ENGLAND - NEW HAMPSHIRE LABORATORY
SAMPLE RECEIPT CONDITION REPORT
Tel. (603) 926-7777
FAX (603) 926-7939

PAGE 1 of 1
COOLER 1 of 1
COC#
SDG#
CASE#

CLIENT Halliburton NUS
DATE/TIME RECEIVED 6/9/95 1110
DELIVERED BY Fed Ex
RECEIVED BY
LIMS ENTRY BY
TRANSCRIPTION REVIEW BY
LIMS REVIEW BY/PM SB

	NA	YES	EXCEPTION	COMMENT	RESOLUTION
1. CUSTODY SEALS PRESENT/INTACT	☐	☑	☐		
2. CHAIN OF CUSTODY PRESENT IN THIS COOLER	☐	☑	☐		
3. CHAIN OF CUSTODY SIGNED	☐	☑	☐		
4. CHAIN OF CUSTODY MATCHES SAMPLES	☐	☑	☐		
5. SAMPLES RECEIVED AT 2° - 6° C Ice/Ice Packs Present? Y or N	☐	☐	☑	7. Temp Blank	
6. VOLATILES FREE OF HEAD SPACE	☐	☑	☐		
7. TRIP BLANK PRESENT IN THIS COOLER	☑	☐	☐		
8. PROPER SAMPLE CONTAINERS AND VOLUME	☐	☑	☐		
9. SAMPLES WITHIN HOLD TIME	☐	☑	☐		
10. SAMPLES PROPERLY PRESERVED	☑	☐	☐		

11. ANALYTICAL PROGRAMS (circle one) COMMERCIAL CLP EPA-CLP NYASP NJ ISRA NEESA AFCEE Other
12. NUMBER OF PACE FILTRATIONS:
13. CORRECTIVE ACTIONS REPORT #

Log-in Notes:

Holding time = 7 days from sampling

SW846

NEESA-C.

no MS/MSD

14 day hardcopy

to: Mark Speranza
661 Andersen Dr
Pitts, PA 15220
412 921-7090

CLIENT AUTHORIZATION SIGNATURE DATE 0000002

SAMPLE TABLE

CLIENT ID.	MATRIX	PACE #	PARAMETERS
DSB09-1.3/2.8	SOLID	44329-001	GC/MS VOA
DSB09-35/36.5	SOLID	44329-002	GC/MS VOA
DSB09-55/56.5	SOLID	44329-003	GC/MS VOA
DSB07-01/2.5	SOLID	44329-004	GC/MS VOA
DSB07-20/22	SOLID	44329-005	GC/MS VOA
DSB07-55/57	SOLID	44329-006	GC/MS VOA
DSB08-01/03	SOLID	44329-007	GC/MS VOA
DSB08-15/17	SOLID	44329-008	GC/MS VOA
DSB08-55/57	SOLID	44329-009	GC/MS VOA
DSB06-00/02	SOLID	44329-010	GC/MS VOA
DSB06-20/22	SOLID	44329-011	GC/MS VOA
DSB06-55/57	SOLID	44329-012	GC/MS VOA

Laboratory number: 44329-001
Sample Designation: DSB09-1.3/2.8
Date Analyzed: 06/13/95
Matrix: SOLID

Instrument File Name: >C8905

Results are expressed on a dry (103 degrees C) basis.
Moisture content was 14 % , elevating the reporting limits
by a factor of 1.16 .

VOLATILE ORGANICS	CONCENTRATION (ug/Kg)	REPORTING LIMIT (ug/Kg)
Chloromethane	BDL	11
Bromomethane	BDL	11
Vinyl chloride	BDL	11
Chloroethane	BDL	6
Methylene chloride	BDL	11
Acetone	BDL	27
Carbon disulfide	BDL	6
Tetrahydrofuran	BDL	27
Trichlorofluoromethane	BDL	6
1,1-Dichloroethene	BDL	6
1,1-Dichloroethane	BDL	6
1,2-Dichloroethene (total)	BDL	6
Chloroform	BDL	6
1,2-Dichloroethane	BDL	6
2-Butanone	BDL	27
1,1,1-Trichloroethane	BDL	6
Carbon Tetrachloride	BDL	6
Vinyl acetate	BDL	11
Bromodichloromethane	BDL	6
1,2-Dichloropropane	BDL	6
cis-1,3-Dichloropropene	BDL	6
trans-1,3-Dichloropropene	BDL	6
Trichloroethene	BDL	6
Dibromochloromethane	BDL	6
1,1,2-Trichloroethane	BDL	6
Benzene	BDL	6
2-Chloroethyl vinyl ether	BDL	6
Bromoform	BDL	6
4-Methyl-2-Pentanone	BDL	27
2-Hexanone	BDL	27
Tetrachloroethene	BDL	6
1,1,2,2-Tetrachloroethane	BDL	6
Toluene	BDL	6
Chlorobenzene	BDL	6
Ethylbenzene	BDL	6
Styrene	BDL	6
Xylene (total)	BDL	6

METHOD REFERENCE: EPA SW 846, 3rd Edition
METHOD 8240

BDL = Below reporting limit

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Laboratory number: 44329-002
Sample Designation: DSB09-35/36.5
Date Analyzed: 06/13/95
Matrix: SOLID

Instrument File Name: >C8906

Results are expressed on a dry (103 degrees C) basis.
Moisture content was 2 % , elevating the reporting limits
by a factor of 1.02 .

VOLATILE ORGANICS	CONCENTRATION (ug/Kg)	REPORTING LIMIT (ug/Kg)
Chloromethane	BDL	10
Bromomethane	BDL	10
Vinyl chloride	BDL	10
Chloroethane	BDL	5
Methylene chloride	BDL	10
Acetone	BDL	25
Carbon disulfide	BDL	5
Tetrahydrofuran	BDL	25
Trichlorofluoromethane	BDL	5
1,1-Dichloroethene	BDL	5
1,1-Dichloroethane	BDL	5
1,2-Dichloroethene (total)	BDL	5
Chloroform	BDL	5
1,2-Dichloroethane	BDL	5
2-Butanone	BDL	25
1,1,1-Trichloroethane	BDL	5
Carbon Tetrachloride	BDL	5
Vinyl acetate	BDL	10
Bromodichloromethane	BDL	5
1,2-Dichloropropane	BDL	5
cis-1,3-Dichloropropene	BDL	5
trans-1,3-Dichloropropene	BDL	5
Trichloroethene	BDL	5
Dibromochloromethane	BDL	5
1,1,2-Trichloroethane	BDL	5
Benzene	BDL	5
2-Chloroethyl vinyl ether	BDL	5
Bromoform	BDL	5
4-Methyl-2-Pentanone	BDL	25
2-Hexanone	BDL	25
Tetrachloroethene	BDL	5
1,1,2,2-Tetrachloroethane	BDL	5
Toluene	BDL	5
Chlorobenzene	BDL	5
Ethylbenzene	BDL	5
Styrene	BDL	5
Xylene (total)	BDL	5

METHOD REFERENCE: EPA SW 846, 3rd Edition
METHOD 8240

BDL = Below reporting limit

pace INCORPORATED
THE ASSURANCE OF QUALITY

Laboratory number: 44329-003
Sample Designation: DSB09-55/56.5
Date Analyzed: 06/13/95
Matrix: SOLID

Instrument File Name: >C8907

Results are expressed on a dry (103 degrees C) basis.
Moisture content was 5 % , elevating the reporting limits
by a factor of 1.05 .

VOLATILE ORGANICS	CONCENTRATION (ug/Kg)		REPORTING LIMIT (ug/Kg)
Chloromethane	BDL		11
Bromomethane	BDL		11
Vinyl chloride	BDL		11
Chloroethane	BDL		5
Methylene chloride	BDL		11
Acetone	25	J	26
Carbon disulfide	BDL		5
Tetrahydrofuran	BDL		26
Trichlorofluoromethane	BDL		5
1,1-Dichloroethene	BDL		5
1,1-Dichloroethane	BDL		5
1,2-Dichloroethene (total)	BDL		5
Chloroform	BDL		5
1,2-Dichloroethane	BDL		5
2-Butanone	BDL		26
1,1,1-Trichloroethane	BDL		5
Carbon Tetrachloride	BDL		5
Vinyl acetate	BDL		11
Bromodichloromethane	BDL		5
1,2-Dichloropropane	BDL		5
cis-1,3-Dichloropropene	BDL		5
trans-1,3-Dichloropropene	BDL		5
Trichloroethene	BDL		5
Dibromochloromethane	BDL		5
1,1,2-Trichloroethane	BDL		5
Benzene	BDL		5
2-Chloroethyl vinyl ether	BDL		5
Bromoform	BDL		5
4-Methyl-2-Pentanone	BDL		26
2-Hexanone	BDL		26
Tetrachloroethene	BDL		5
1,1,2,2-Tetrachloroethane	BDL		5
Toluene	BDL		5
Chlorobenzene	BDL		5
Ethylbenzene	BDL		5
Styrene	BDL		5
Xylene (total)	BDL		5

METHOD REFERENCE: EPA SW 846, 3rd Edition
METHOD 8240

BDL = Below reporting limit
J = Probable presence below listed detection limit

pace INCORPORATED
THE ASSURANCE OF QUALITY

Laboratory number: 44329-004
Sample Designation: DSB07-01/2.5
Date Analyzed: 06/13/95
Matrix: SOLID

Instrument File Name: >C8908

Results are expressed on a dry (103 degrees C) basis.
Moisture content was 15 % , elevating the reporting limits
by a factor of 1.17 .

VOLATILE ORGANICS	CONCENTRATION (ug/Kg)	REPORTING LIMIT (ug/Kg)
Chloromethane	BDL	12
Bromomethane	BDL	12
Vinyl chloride	BDL	12
Chloroethane	BDL	6
Methylene chloride	BDL	12
Acetone	BDL	29
Carbon disulfide	BDL	6
Tetrahydrofuran	BDL	29
Trichlorofluoromethane	BDL	6
1,1-Dichloroethene	BDL	6
1,1-Dichloroethane	BDL	6
1,2-Dichloroethene (total)	BDL	6
Chloroform	BDL	6
1,2-Dichloroethane	BDL	6
2-Butanone	BDL	29
1,1,1-Trichloroethane	BDL	6
Carbon Tetrachloride	BDL	6
Vinyl acetate	BDL	12
Bromodichloromethane	BDL	6
1,2-Dichloropropane	BDL	6
cis-1,3-Dichloropropene	BDL	6
trans-1,3-Dichloropropene	BDL	6
Trichloroethene	BDL	6
Dibromochloromethane	BDL	6
1,1,2-Trichloroethane	BDL	6
Benzene	BDL	6
2-Chloroethyl vinyl ether	BDL	6
Bromoform	BDL	6
4-Methyl-2-Pentanone	BDL	29
2-Hexanone	BDL	29
Tetrachloroethene	BDL	6
1,1,2,2-Tetrachloroethane	BDL	6
Toluene	BDL	6
Chlorobenzene	BDL	6
Ethylbenzene	BDL	6
Styrene	BDL	6
Xylene (total)	BDL	6

METHOD REFERENCE: EPA SW 846, 3rd Edition
METHOD 8240

BDL = Below reporting limit
J = Probable presence below listed detection limit

pace INCORPORATED
THE ASSURANCE OF QUALITY

Laboratory number: 44329-005
Sample Designation: DSB07-20/22
Date Analyzed: 06/13/95
Matrix: SOLID

Instrument File Name: >C8909

Results are expressed on a dry (103 degrees C) basis.
Moisture content was 4 % , elevating the reporting limits
by a factor of 1.04 .

VOLATILE ORGANICS	CONCENTRATION (ug/Kg)	REPORTING LIMIT (ug/Kg)
Chloromethane	BDL	10
Bromomethane	BDL	10
Vinyl chloride	BDL	10
Chloroethane	BDL	5
Methylene chloride	BDL	10
Acetone	BDL	26
Carbon disulfide	BDL	5
Tetrahydrofuran	BDL	26
Trichlorofluoromethane	BDL	5
1,1-Dichloroethene	BDL	5
1,1-Dichloroethane	BDL	5
1,2-Dichloroethene (total)	BDL	5
Chloroform	BDL	5
1,2-Dichloroethane	BDL	5
2-Butanone	BDL	26
1,1,1-Trichloroethane	BDL	5
Carbon Tetrachloride	BDL	5
Vinyl acetate	BDL	10
Bromodichloromethane	BDL	5
1,2-Dichloropropane	BDL	5
cis-1,3-Dichloropropene	BDL	5
trans-1,3-Dichloropropene	BDL	5
Trichloroethene	BDL	5
Dibromochloromethane	BDL	5
1,1,2-Trichloroethane	BDL	5
Benzene	BDL	5
2-Chloroethyl vinyl ether	BDL	5
Bromoform	BDL	5
4-Methyl-2-Pentanone	BDL	26
2-Hexanone	BDL	26
Tetrachloroethene	BDL	5
1,1,2,2-Tetrachloroethane	BDL	5
Toluene	BDL	5
Chlorobenzene	BDL	5
Ethylbenzene	BDL	5
Styrene	BDL	5
Xylene (total)	BDL	5

METHOD REFERENCE: EPA SW 846, 3rd Edition
METHOD 8240

BDL = Below reporting limit
J = Probable presence below listed detection limit

pace INCORPORATED
THE ASSURANCE OF QUALITY

Laboratory number: 44329-006
Sample Designation: DSB07-55/57
Date Analyzed: 06/14/95
Matrix: SOLID

Instrument File Name: >C8910

Results are expressed on a dry (103 degrees C) basis.
Moisture content was 5 % , elevating the reporting limits
by a factor of 1.06 .

VOLATILE ORGANICS	CONCENTRATION (ug/Kg)	REPORTING LIMIT (ug/Kg)
Chloromethane	BDL	11
Bromomethane	BDL	11
Vinyl chloride	BDL	11
Chloroethane	BDL	5
Methylene chloride	BDL	11
Acetone	BDL	27
Carbon disulfide	BDL	5
Tetrahydrofuran	BDL	27
Trichlorofluoromethane	BDL	5
1,1-Dichloroethene	BDL	5
1,1-Dichloroethane	BDL	5
1,2-Dichloroethene (total)	BDL	5
Chloroform	BDL	5
1,2-Dichloroethane	BDL	5
2-Butanone	BDL	27
1,1,1-Trichloroethane	BDL	5
Carbon Tetrachloride	BDL	5
Vinyl acetate	BDL	11
Bromodichloromethane	BDL	5
1,2-Dichloropropane	BDL	5
cis-1,3-Dichloropropene	BDL	5
trans-1,3-Dichloropropene	BDL	5
Trichloroethene	BDL	5
Dibromochloromethane	BDL	5
1,1,2-Trichloroethane	BDL	5
Benzene	BDL	5
2-Chloroethyl vinyl ether	BDL	5
Bromoform	BDL	5
4-Methyl-2-Pentanone	BDL	27
2-Hexanone	BDL	27
Tetrachloroethene	BDL	5
1,1,2,2-Tetrachloroethane	BDL	5
Toluene	BDL	5
Chlorobenzene	BDL	5
Ethylbenzene	BDL	5
Styrene	BDL	5
Xylene (total)	BDL	5

METHOD REFERENCE: EPA SW 846, 3rd Edition
METHOD 8240

BDL = Below reporting limit

pace INCORPORATED
THE ASSURANCE OF QUALITY

Laboratory number: 44329-007
Sample Designation: DSB08-01/03
Date Analyzed: 06/14/95
Matrix: SOLID

Instrument File Name: >C8911

Results are expressed on a dry (103 degrees C) basis.
Moisture content was 4 % , elevating the reporting limits
by a factor of 1.04 .

VOLATILE ORGANICS	CONCENTRATION (ug/Kg)	REPORTING LIMIT (ug/Kg)
Chloromethane	BDL	10
Bromomethane	BDL	10
Vinyl chloride	BDL	10
Chloroethane	BDL	5
Methylene chloride	BDL	10
Acetone	BDL	25
Carbon disulfide	BDL	5
Tetrahydrofuran	BDL	25
Trichlorofluoromethane	BDL	5
1,1-Dichloroethene	BDL	5
1,1-Dichloroethane	BDL	5
1,2-Dichloroethene (total)	BDL	5
Chloroform	BDL	5
1,2-Dichloroethane	BDL	5
2-Butanone	BDL	25
1,1,1-Trichloroethane	BDL	5
Carbon Tetrachloride	BDL	5
Vinyl acetate	BDL	10
Bromodichloromethane	BDL	5
1,2-Dichloropropane	BDL	5
cis-1,3-Dichloropropene	BDL	5
trans-1,3-Dichloropropene	BDL	5
Trichloroethene	BDL	5
Dibromochloromethane	BDL	5
1,1,2-Trichloroethane	BDL	5
Benzene	BDL	5
2-Chloroethyl vinyl ether	BDL	5
Bromoform	BDL	5
4-Methyl-2-Pentanone	BDL	25
2-Hexanone	BDL	25
Tetrachloroethene	41	5
1,1,2,2-Tetrachloroethane	BDL	5
Toluene	BDL	5
Chlorobenzene	BDL	5
Ethylbenzene	BDL	5
Styrene	BDL	5
Xylene (total)	BDL	5

METHOD REFERENCE: EPA SW 846, 3rd Edition
METHOD 8240

BDL = Below reporting limit

pace INCORPORATED
THE ASSURANCE OF QUALITY

Laboratory number: 44329-007RE
Sample Designation: DSB08-01/03 RE
Date Analyzed: 06/15/95
Matrix: SOLID

Instrument File Name: >C8940

Results are expressed on a dry (103 degrees C) basis.
Moisture content was 4 % , elevating the reporting limits
by a factor of 1.04 .

VOLATILE ORGANICS	CONCENTRATION (ug/Kg)	REPORTING LIMIT (ug/Kg)
Chloromethane	BDL	11
Bromomethane	BDL	11
Vinyl chloride	BDL	11
Chloroethane	BDL	5
Methylene chloride	BDL	11
Acetone	BDL	27
Carbon disulfide	BDL	5
Tetrahydrofuran	BDL	27
Trichlorofluoromethane	BDL	5
1,1-Dichloroethene	BDL	5
1,1-Dichloroethane	BDL	5
1,2-Dichloroethene (total)	BDL	5
Chloroform	BDL	5
1,2-Dichloroethane	BDL	5
2-Butanone	BDL	27
1,1,1-Trichloroethane	BDL	5
Carbon Tetrachloride	BDL	5
Vinyl acetate	BDL	11
Bromodichloromethane	BDL	5
1,2-Dichloropropane	BDL	5
cis-1,3-Dichloropropene	BDL	5
trans-1,3-Dichloropropene	BDL	5
Trichloroethene	BDL	5
Dibromochloromethane	BDL	5
1,1,2-Trichloroethane	BDL	5
Benzene	BDL	5
2-Chloroethyl vinyl ether	BDL	5
Bromoform	BDL	5
4-Methyl-2-Pentanone	BDL	27
2-Hexanone	BDL	27
Tetrachloroethene	19	5
1,1,2,2-Tetrachloroethane	BDL	5
Toluene	BDL	5
Chlorobenzene	BDL	5
Ethylbenzene	BDL	5
Styrene	BDL	5
Xylene (total)	BDL	5

METHOD REFERENCE: EPA SW 846, 3rd Edition
METHOD 8240

BDL = Below reporting limit

pace INCORPORATED
THE ASSURANCE OF QUALITY

Laboratory number: 44329-008
Sample Designation: DSB08-15/17
Date Analyzed: 06/14/95
Matrix: SOLID

Instrument File Name: >C8912

Results are expressed on a dry (103 degrees C) basis.
Moisture content was 4 % , elevating the reporting limits
by a factor of 1.04 .

VOLATILE ORGANICS	CONCENTRATION (ug/Kg)	REPORTING LIMIT (ug/Kg)
Chloromethane	BDL	11
Bromomethane	BDL	11
Vinyl chloride	BDL	11
Chloroethane	BDL	5
Methylene chloride	BDL	11
Acetone	BDL	27
Carbon disulfide	BDL	5
Tetrahydrofuran	BDL	27
Trichlorofluoromethane	BDL	5
1,1-Dichloroethene	BDL	5
1,1-Dichloroethane	BDL	5
1,2-Dichloroethene (total)	BDL	5
Chloroform	BDL	5
1,2-Dichloroethane	BDL	5
2-Butanone	BDL	27
1,1,1-Trichloroethane	BDL	5
Carbon Tetrachloride	BDL	5
Vinyl acetate	BDL	11
Bromodichloromethane	BDL	5
1,2-Dichloropropane	BDL	5
cis-1,3-Dichloropropene	BDL	5
trans-1,3-Dichloropropene	BDL	5
Trichloroethene	BDL	5
Dibromochloromethane	BDL	5
1,1,2-Trichloroethane	BDL	5
Benzene	BDL	5
2-Chloroethyl vinyl ether	BDL	5
Bromoform	BDL	5
4-Methyl-2-Pentanone	BDL	27
2-Hexanone	BDL	27
Tetrachloroethene	BDL	5
1,1,2,2-Tetrachloroethane	BDL	5
Toluene	BDL	5
Chlorobenzene	BDL	5
Ethylbenzene	BDL	5
Styrene	BDL	5
Xylene (total)	BDL	5

METHOD REFERENCE: EPA SW 846, 3rd Edition
METHOD 8240

BDL = Below reporting limit

pace INCORPORATED
THE ASSURANCE OF QUALITY

Laboratory number: 44329-009
Sample Designation: DSB08-55/57
Date Analyzed: 06/14/95
Matrix: SOLID

Instrument File Name: >C8913

Results are expressed on a dry (103 degrees C) basis.
Moisture content was 4 % , elevating the reporting limits
by a factor of 1.04 .

VOLATILE ORGANICS	CONCENTRATION (ug/Kg)	REPORTING LIMIT (ug/Kg)
Chloromethane	BDL	10
Bromomethane	BDL	10
Vinyl chloride	BDL	10
Chloroethane	BDL	5
Methylene chloride	BDL	10
Acetone	37	26
Carbon disulfide	BDL	5
Tetrahydrofuran	BDL	26
Trichlorofluoromethane	BDL	5
1,1-Dichloroethene	BDL	5
1,1-Dichloroethane	BDL	5
1,2-Dichloroethene (total)	BDL	5
Chloroform	BDL	5
1,2-Dichloroethane	BDL	5
2-Butanone	BDL	26
1,1,1-Trichloroethane	BDL	5
Carbon Tetrachloride	BDL	5
Vinyl acetate	BDL	10
Bromodichloromethane	BDL	5
1,2-Dichloropropane	BDL	5
cis-1,3-Dichloropropene	BDL	5
trans-1,3-Dichloropropene	BDL	5
Trichloroethene	BDL	5
Dibromochloromethane	BDL	5
1,1,2-Trichloroethane	BDL	5
Benzene	BDL	5
2-Chloroethyl vinyl ether	BDL	5
Bromoform	BDL	5
4-Methyl-2-Pentanone	BDL	26
2-Hexanone	BDL	26
Tetrachloroethene	BDL	5
1,1,2,2-Tetrachloroethane	BDL	5
Toluene	BDL	5
Chlorobenzene	BDL	5
Ethylbenzene	BDL	5
Styrene	BDL	5
Xylene (total)	BDL	5

METHOD REFERENCE: EPA SW 846, 3rd Edition
METHOD 8240

BDL = Below reporting limit

pace INCORPORATED
THE ASSURANCE OF QUALITY

Laboratory number: 44329-010
Sample Designation: DSB06-00/02
Date Analyzed: 06/14/95
Matrix: SOLID

Instrument File Name: >C8937

Results are expressed on a dry (103 degrees C) basis.
Moisture content was 12 % , elevating the reporting limits
by a factor of 1.13 .

VOLATILE ORGANICS	CONCENTRATION (ug/Kg)	REPORTING LIMIT (ug/Kg)
Chloromethane	BDL	11
Bromomethane	BDL	11
Vinyl chloride	BDL	11
Chloroethane	BDL	6
Methylene chloride	BDL	11
Acetone	BDL	28
Carbon disulfide	BDL	6
Tetrahydrofuran	BDL	28
Trichlorofluoromethane	BDL	6
1,1-Dichloroethene	BDL	6
1,1-Dichloroethane	BDL	6
1,2-Dichloroethene (total)	BDL	6
Chloroform	BDL	6
1,2-Dichloroethane	BDL	6
2-Butanone	BDL	28
1,1,1-Trichloroethane	BDL	6
Carbon Tetrachloride	BDL	6
Vinyl acetate	BDL	11
Bromodichloromethane	BDL	6
1,2-Dichloropropane	BDL	6
cis-1,3-Dichloropropene	BDL	6
trans-1,3-Dichloropropene	BDL	6
Trichloroethene	BDL	6
Dibromochloromethane	BDL	6
1,1,2-Trichloroethane	BDL	6
Benzene	BDL	6
2-Chloroethyl vinyl ether	BDL	6
Bromoform	BDL	6
4-Methyl-2-Pentanone	BDL	28
2-Hexanone	BDL	28
Tetrachloroethene	BDL	6
1,1,2,2-Tetrachloroethane	BDL	6
Toluene	BDL	6
Chlorobenzene	BDL	6
Ethylbenzene	BDL	6
Styrene	BDL	6
Xylene (total)	BDL	6

METHOD REFERENCE: EPA SW 846, 3rd Edition
METHOD 8240

BDL = Below reporting limit

pace INCORPORATED
THE ASSURANCE OF QUALITY

Laboratory number: 44329-011
Sample Designation: DSB06-20/22
Date Analyzed: 06/15/95
Matrix: SOLID

Instrument File Name: >C8938

Results are expressed on a dry (103 degrees C) basis.
Moisture content was 4 % , elevating the reporting limits
by a factor of 1.04 .

VOLATILE ORGANICS	CONCENTRATION (ug/Kg)	REPORTING LIMIT (ug/Kg)
Chloromethane	BDL	11
Bromomethane	BDL	11
Vinyl chloride	BDL	11
Chloroethane	BDL	5
Methylene chloride	BDL	11
Acetone	BDL	27
Carbon disulfide	BDL	5
Tetrahydrofuran	BDL	27
Trichlorofluoromethane	BDL	5
1,1-Dichloroethene	BDL	5
1,1-Dichloroethane	BDL	5
1,2-Dichloroethene (total)	BDL	5
Chloroform	BDL	5
1,2-Dichloroethane	BDL	5
2-Butanone	BDL	27
1,1,1-Trichloroethane	BDL	5
Carbon Tetrachloride	BDL	5
Vinyl acetate	BDL	11
Bromodichloromethane	BDL	5
1,2-Dichloropropane	BDL	5
cis-1,3-Dichloropropene	BDL	5
trans-1,3-Dichloropropene	BDL	5
Trichloroethene	BDL	5
Dibromochloromethane	BDL	5
1,1,2-Trichloroethane	BDL	5
Benzene	BDL	5
2-Chloroethyl vinyl ether	BDL	5
Bromoform	BDL	5
4-Methyl-2-Pentanone	BDL	27
2-Hexanone	BDL	27
Tetrachloroethene	BDL	5
1,1,2,2-Tetrachloroethane	BDL	5
Toluene	BDL	5
Chlorobenzene	BDL	5
Ethylbenzene	BDL	5
Styrene	BDL	5
Xylene (total)	BDL	5

METHOD REFERENCE: EPA SW 846, 3rd Edition
METHOD 8240

BDL = Below reporting limit

pace INCORPORATED
THE ASSURANCE OF QUALITY

Laboratory number: 44329-012
Sample Designation: DSB06-55/57
Date Analyzed: 06/15/95
Matrix: SOLID

Instrument File Name: >C8939

Results are expressed on a dry (103 degrees C) basis.
Moisture content was 4 % , elevating the reporting limits
by a factor of 1.04 .

VOLATILE ORGANICS	CONCENTRATION (ug/Kg)	REPORTING LIMIT (ug/Kg)
Chloromethane	BDL	11
Bromomethane	BDL	11
Vinyl chloride	BDL	11
Chloroethane	BDL	5
Methylene chloride	BDL	11
Acetone	BDL	27
Carbon disulfide	BDL	5
Tetrahydrofuran	BDL	27
Trichlorofluoromethane	BDL	5
1,1-Dichloroethene	BDL	5
1,1-Dichloroethane	BDL	5
1,2-Dichloroethene (total)	BDL	5
Chloroform	BDL	5
1,2-Dichloroethane	BDL	5
2-Butanone	BDL	27
1,1,1-Trichloroethane	BDL	5
Carbon Tetrachloride	BDL	5
Vinyl acetate	BDL	11
Bromodichloromethane	BDL	5
1,2-Dichloropropane	BDL	5
cis-1,3-Dichloropropene	BDL	5
trans-1,3-Dichloropropene	BDL	5
Trichloroethene	BDL	5
Dibromochloromethane	BDL	5
1,1,2-Trichloroethane	BDL	5
Benzene	BDL	5
2-Chloroethyl vinyl ether	BDL	5
Bromoform	BDL	5
4-Methyl-2-Pentanone	BDL	27
2-Hexanone	BDL	27
Tetrachloroethene	BDL	5
1,1,2,2-Tetrachloroethane	BDL	5
Toluene	BDL	5
Chlorobenzene	BDL	5
Ethylbenzene	BDL	5
Styrene	BDL	5
Xylene (total)	BDL	5

METHOD REFERENCE: EPA SW 846, 3rd Edition
METHOD 8240

BDL = Below reporting limit

pace INCORPORATED
THE ARBITERS OF QUALITY

SOIL VOLATILES SURROGATE RECOVERY

Client: NUS CORPORATION
Project: NWIRP BETHPAGE
Level: Low Soil

Lab No.: 44329

CLIENT SAMPLE NO.	S1 (TOL)#	S2 (BFB)#	S3 (DCE)#	OTHER	TOT OUT
DSB09-1.3/2.8	104	94	97		0
DSB09-35/36.5	100	98	99		0
DSB09-55/56.5	98	98	98		0
DSB07-01/2.5	102	92	96		0
DSB07-20/22	96	98	104		0
DSB07-55/57	100	101	97		0
DSB08-01/03	120*	81	92		1
DSB08-01/03 RE	104	97	94		0
DSB08-15/17	99	98	97		0
DSB08-55/57	97	98	98		0
DSB06-00/02	109	94	99		0
DSB06-20/22	101	102	96		0
DSB06-55/57	101	102	96		0
BC061395C	101	102	93		0
BC061495C	99	103	98		0

		QC LIMITS
S1	(TOL) = Toluene-d8	86 - 114
S2	(BFB) = Bromofluorobenzene	72 - 132
S3	(DCE) = 1,2-Dichloroethane-d4	70 - 138

Column to be used to flag recovery values with an asterisk
* Values outside of designated QC limits
D Surrogates diluted out

pace INCORPORATED
THE ASSURANCE OF QUALITY

Laboratory number: BC061395C
Sample Designation: LAB BLANK
Date Analyzed: 06/13/95
Matrix: SOLID

Instrument File Name: >C8903

Results are expressed on a dry (103 degrees C) basis.

VOLATILE ORGANICS	CONCENTRATION (ug/Kg)	REPORTING LIMIT (ug/Kg)
Chloromethane	BDL	10
Bromomethane	BDL	10
Vinyl chloride	BDL	10
Chloroethane	BDL	5
Methylene chloride	BDL	10
Acetone	BDL	25
Carbon disulfide	BDL	5
Tetrahydrofuran	BDL	25
Trichlorofluoromethane	BDL	5
1,1-Dichloroethene	BDL	5
1,1-Dichloroethane	BDL	5
1,2-Dichloroethene (total)	BDL	5
Chloroform	BDL	5
1,2-Dichloroethane	BDL	5
2-Butanone	BDL	25
1,1,1-Trichloroethane	BDL	5
Carbon Tetrachloride	BDL	5
Vinyl acetate	BDL	10
Bromodichloromethane	BDL	5
1,2-Dichloropropane	BDL	5
cis-1,3-Dichloropropene	BDL	5
trans-1,3-Dichloropropene	BDL	5
Trichloroethene	BDL	5
Dibromochloromethane	BDL	5
1,1,2-Trichloroethane	BDL	5
Benzene	BDL	5
2-Chloroethyl vinyl ether	BDL	5
Bromoform	BDL	5
4-Methyl-2-Pentanone	BDL	25
2-Hexanone	BDL	25
Tetrachloroethene	BDL	5
1,1,2,2-Tetrachloroethane	BDL	5
Toluene	BDL	5
Chlorobenzene	BDL	5
Ethylbenzene	BDL	5
Styrene	BDL	5
Xylene (total)	BDL	5

METHOD REFERENCE: EPA SW 846, 3rd Edition
METHOD 8240

BDL = Below reporting limit

pace INCORPORATED
THE ASSURANCE OF QUALITY

Laboratory number: BC061495C
Sample Designation: LAB BLANK
Date Analyzed: 06/14/95
Matrix: SOLID

Instrument File Name: >C8936

Results are expressed on a dry (103 degrees C) basis.

VOLATILE ORGANICS	CONCENTRATION (ug/Kg)	REPORTING LIMIT (ug/Kg)
Chloromethane	BDL	10
Bromomethane	BDL	10
Vinyl chloride	BDL	10
Chloroethane	BDL	5
Methylene chloride	BDL	10
Acetone	BDL	25
Carbon disulfide	BDL	5
Tetrahydrofuran	BDL	25
Trichlorofluoromethane	BDL	5
1,1-Dichloroethene	BDL	5
1,1-Dichloroethane	BDL	5
1,2-Dichloroethene (total)	BDL	5
Chloroform	BDL	5
1,2-Dichloroethane	BDL	5
2-Butanone	BDL	25
1,1,1-Trichloroethane	BDL	5
Carbon Tetrachloride	BDL	5
Vinyl acetate	BDL	10
Bromodichloromethane	BDL	5
1,2-Dichloropropane	BDL	5
cis-1,3-Dichloropropene	BDL	5
trans-1,3-Dichloropropene	BDL	5
Trichloroethene	BDL	5
Dibromochloromethane	BDL	5
1,1,2-Trichloroethane	BDL	5
Benzene	BDL	5
2-Chloroethyl vinyl ether	BDL	5
Bromoform	BDL	5
4-Methyl-2-Pentanone	BDL	25
2-Hexanone	BDL	25
Tetrachloroethene	BDL	5
1,1,2,2-Tetrachloroethane	BDL	5
Toluene	BDL	5
Chlorobenzene	BDL	5
Ethylbenzene	BDL	5
Styrene	BDL	5
Xylene (total)	BDL	5

METHOD REFERENCE: EPA SW 846, 3rd Edition
METHOD 8240

BDL = Below reporting limit

pace INCORPORATED
THE ASSURANCE OF QUALITY

VOLATILE ORGANIC COMPOUNDS
MATRIX SPIKE DUPLICATE RECOVERY

Laboratory Number: LCC061395
Field Identification: LABORATORY CONTROL SAMPLE
Date Analyzed: 06/13/95
Matrix: SOLID

COMPOUND	ug/Kg IN SAMPLE	ug/Kg SPIKE	ug/Kg FOUND	%REC-OVERY
1,1-DICHLOROETHENE	0.00	50.00	51.39	103
TRICHLOROETHYLENE	0.00	50.00	52.91	86
BENZENE	0.00	50.00	50.91	102
TOLUENE	0.00	50.00	51.58	103
CHLOROBENZENE	0.00	50.00	53.20	106

METHOD REFERENCE: EPA SW 846, 3RD EDITION METHOD 8240

pace INCORPORATED
THE ASSURANCE OF QUALITY

5A

VOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: PACE New England

Project: NWIRP BETHPAGE

Lab File ID: >C8898 BFB Injection Date: 06/13/95

Instrument ID: CMS BFB Injection Time: 15:27

ION ABUNDANCE CRITERIA for C8898 are reported on a separate sheet.

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS

CLIENT I.D.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	DATE ANALYZED
VSTD050	VSTD050	C8900	06/13/95	16:29
BC061395C	90102-171	C8903	06/13/95	20:17
LCC061395	90102-171MS	C8904	06/13/95	20:53
DSB09-1.3/2.8	44329-001	C8905	06/13/95	21:28
DSB09-35/36.5	44329-002	C8906	06/13/95	22:02
DSB09-55/56.5	44329-003	C8907	06/13/95	22:37
DSB07-01/2.5	44329-004	C8908	06/13/95	23:12
DSB07-20/22	44329-005	C8909	06/13/95	23:47
DSB07-55/57	44329-006	C8910	06/14/95	00:22
DSB08-01/03	44329-007	C8911	06/14/95	00:57
DSB08-15/17	44329-008	C8912	06/14/95	01:32
DSB08-55/57	44329-009	C8913	06/14/95	02:07

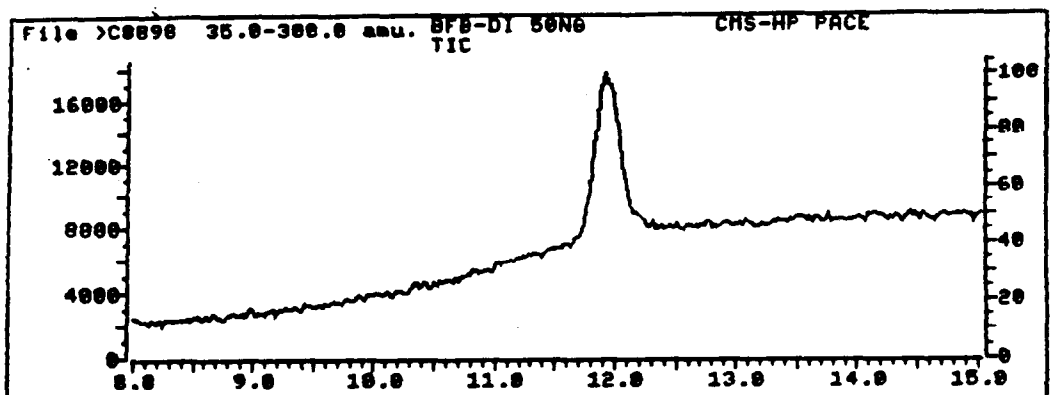
J.R
6/20/95

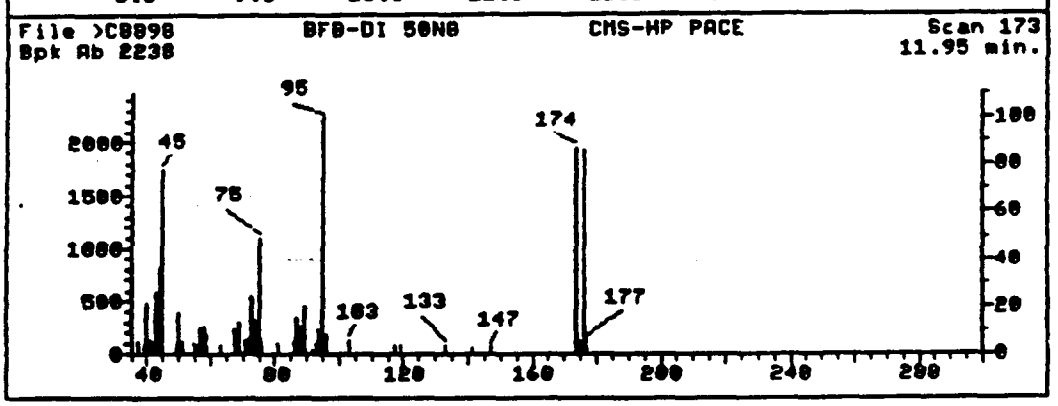
GC/MS PERFORMANCE STANDARD

Bromofluorobenzene (BFB) '88

m/z	Ion Abundance Criteria	% Relative Abundance Base Peak	% Relative Abundance Appropriate Peak	Status
50	15-40% of mass 95	17.20	17.20	Ok
75	30-60% of mass 95	49.02	49.02	Ok
95	Base peak, 100% relative abundance	100.00	100.00	Ok
96	5-9% of mass 95	8.09	8.09	Ok
173	Less than 2% of mass 174	0.00	0.00	Ok
174	Greater than 50% of mass 95	87.09	87.09	Ok
175	5-9% of mass 174	5.32	6.11	Ok
176	95-101% of mass 174	85.61	98.31	Ok
177	5-9% of mass 176	5.72	6.68	Ok

Injection Date: 06/13/95
Injection Time: 15:27
Data File: >C8898
Scan: 173





5A

VOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: PACE New England

Project: NWIRP BETHPAGE

Lab File ID: >C8933 BFB Injection Date: 06/14/95

Instrument ID: CMS BFB Injection Time: 21:09

ION ABUNDANCE CRITERIA for C8933 are reported on a separate sheet.

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS

CLIENT I.D.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	DATE ANALYZED
VSTD050	VSTD050	C8934	06/14/95	21:44
BC061495C	90102-172	C8936	06/14/95	22:54
DSB06-00/02	44329-010	C8937	06/14/95	23:29
DSB06-20/22	44329-011	C8938	06/15/95	00:04
DSB06-55/57	44329-012	C8939	06/15/95	00:38
DSB08-01/03RE	44329-007RE	C8940	06/15/95	01:13

pace INCORPORATED THE ASSURANCE OF QUALITY

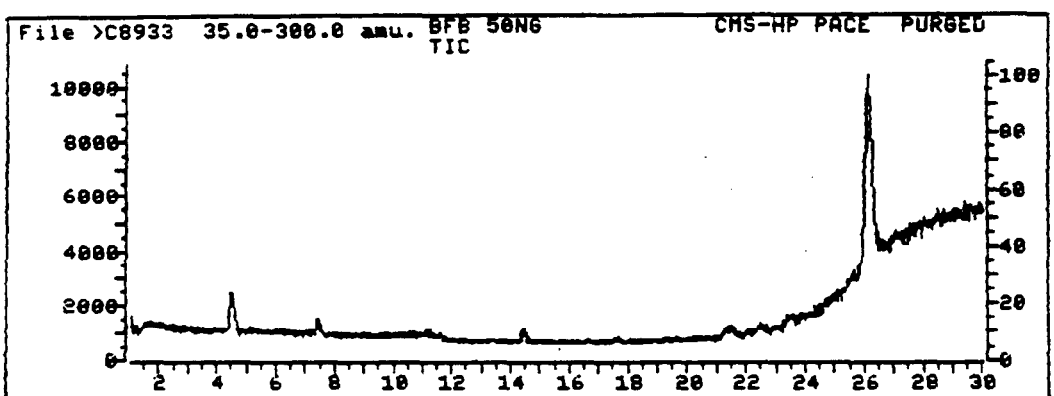
PCR
6/20/95

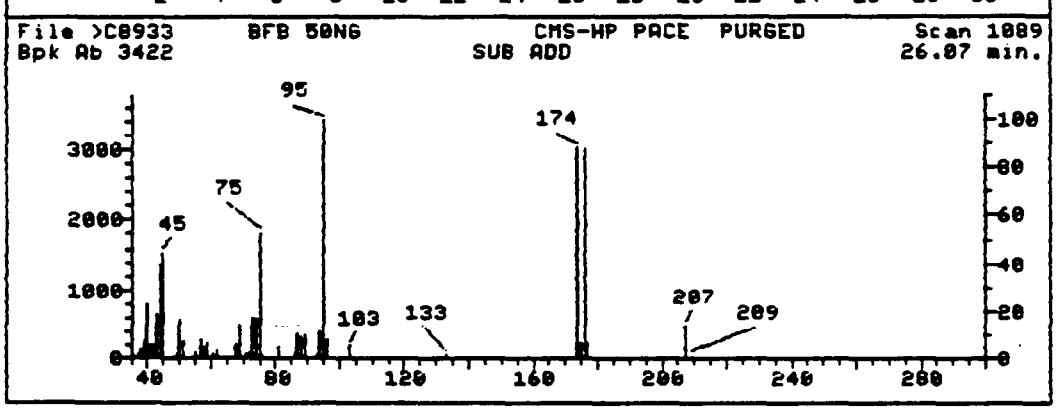
GC/MS PERFORMANCE STANDARD

Bromofluorobenzene (BFB) '88

m/z	Ion Abundance Criteria	% Relative Abundance Base Peak	Appropriate Peak	Status
50	15-40% of mass 95	16.39	16.39	Ok
75	30-60% of mass 95	53.04	53.04	Ok
95	Base peak, 100% relative abundance	100.00	100.00	Ok
96	5-9% of mass 95	8.27	8.27	Ok
173	Less than 2% of mass 174	0.00	0.00	Ok
174	Greater than 50% of mass 95	88.25	88.25	Ok
175	5-9% of mass 174	6.93	7.85	Ok
176	95-101% of mass 174	87.46	99.11	Ok
177	5-9% of mass 176	7.04	8.05	Ok

Injection Date: 06/14/95
Injection Time: 21:09
Data File: >C8933
Scan: 1089 + 1090 + 1091 - 1098 - 1099





Continuing Calibration Check
HSL Compounds

Case No: | Calibration Date: 06/13/95

Contractor: RESAN | Time: 16:29

Contract No: 68020026 | Laboratory ID: >CR900

Instrument ID: CMS-HP | Initial Calibration Date: 06/02/95

Minimum $\overline{RF}$ for SPCC is .30 | Maximum % Diff for CCC is 25%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC	
C010 CHLOROMETHANE	.40476	.47436	17.20		**	
C015 BROMOMETHANE	1.12647	1.22832	9.04			
C020 VINYL CHLORIDE	.69770	.75347	7.99	*		
C025 CHLOROETHANE	.44150	.46670	5.71			
C030 METHYLENE CHLORIDE	1.12745	1.33069	18.03			
C035 ACETONE	.45786	.37734	17.59			
C040 CARBON DISULFIDE	1.74865	2.98278	70.58			
C042 TRICHLOROFLUOROMETHANE	2.69533	1.94860	27.70			
C045 1,1-DICHLOROETHENE	.93390	.97573	4.48	*		
C058 TETRAHYDROFURAN	.16873	.14306	15.21			
C050 1,1-DICHLOROETHANE	1.74514	1.75765	.72		**	
C053 1,2-DICHLOROETHENE(total)	1.12744	1.10584	1.92			(Conc=100.00)
C060 CHLOROFORM	2.58531	2.57551	.38	*		
C110 2-BUTANONE	.78106	.69643	10.84			
C065 1,2-DICHLOROETHANE	1.72849	1.61126	6.78			
MTBE	2.25901	2.22441	1.53			(Conc=50.00)
CS15 1,2-DICHLOROETHANE-d4	1.58922	1.33188	16.19			
C115 1,1,1-TRICHLOROETHANE	.71950	.71127	1.14			
C120 CARBON TETRACHLORIDE	.70084	.68613	2.10			
C125 VINYL ACETATE	.62522	.61257	2.02			
C130 BROMODICHLOROMETHANE	.90654	.79475	12.33			
C140 1,2-DICHLOROPROPANE	.31930	.29036	9.06	*		
C143 CIS-1,3-DICHLOROPROPENE	.55522	.49393	11.04			(Conc=50.00)
C150 TRICHLOROETHENE	.47787	.65506	37.08			
C155 DIBROMOCHLOROMETHANE	.88154	.79987	9.26			
C160 1,1,2-TRICHLOROETHANE	.39196	.36419	7.09			
C165 BENZENE	.77641	.72241	6.95			
C172 TRANS-1,3-DICHLOROPROPENE	.53876	.47506	11.82			(Conc=50.00)
C176 2-CHLOROETHYL VINYLETHER	.20552	.19005	3.15			
C180 BROMOFORM	.88514	.74606	15.71		**	
CS85 TOLUENE-d8	1.08573	.91753	15.49			
C205 4-METHYL-2-PENTANONE	.63850	.54549	14.57			

RF - Response Factor from daily standard file at 50.00 ug/Kg

$\overline{RF}$ - Average Response Factor from Initial Calibration Form VI

%Diff - % Difference from original average or curve

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

Continuing Calibration Check
HSL Compounds

Case No: _____ Calibration Date: 06/13/95

Contractor: RESAN Time: 16:29

Contract No: 68020026 Laboratory ID: >CR900

Instrument ID: CMS-HP Initial Calibration Date: 06/02/95

Minimum $\overline{RF}$ for SPCC is .30 Maximum % Diff for CCC is 25%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC	
C210 2-HEXANONE	.48173	.43197	10.33			
C220 TETRACHLOROETHENE	.54435	.55550	2.05			
C225 1,1,2,2-TETRACHLOROETHANE	.97279	.85682	11.92		**	
C230 TOLUENE	1.15036	1.09384	4.91	*		
C235 CHLOROBENZENE	.96274	.92114	4.32		**	
C240 ETHYLBENZENE	.44539	.42086	5.51	*		
C245 STYRENE	.95503	.87995	7.86			
C251 XYLENE	.53925	.49973	7.33			
C250 XYLENE (total)	.54600	.51870	5.00			(Conc=100.00)
CS10 BROMOFLUOROBENZENE	1.01228	.82875	18.13			

RF - Response Factor from daily standard file at 50.00 ug/Kg

$\overline{RF}$ - Average Response Factor from Initial Calibration Form VI

%Diff - % Difference from original average or curve

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

Continuing Calibration Check
HSL Compounds

Case No: | Calibration Date: 06/14/95

Contractor: RESAN | Time: 21:44

Contract No: 68D20026 | Laboratory ID: 3CR934

Instrument ID: CMS-HP | Initial Calibration Date: 06/07/95

Minimum $\overline{RF}$ for SPCC is .30 | Maximum % Diff for CCC is 25%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC	
C010 CHLOROMETHANE	.40476	.44634	10.27		**	
C015 BROMOMETHANE	1.12647	1.12836	.17			
C020 VINYL CHLORIDE	.69770	.69742	.04	*		
C025 CHLOROETHANE	.44150	.42295	4.20			
C030 METHYLENE CHLORIDE	1.12745	1.07782	4.40			
C035 ACETONE	.45786	.20631	54.94			
C040 CARBON DISULFIDE	1.74865	2.74559	57.01			
C042 TRICHLOROFLUOROMETHANE	2.69533	2.75749	2.31			
C045 1,1-DICHLOROETHENE	.93390	.90690	2.89	*		
C058 TETRAHYDROFURAN	.16873	.05795	65.65			
C050 1,1-DICHLOROETHANE	1.74514	1.62540	6.86		**	
C053 1,2-DICHLOROETHENE(total)	1.12744	1.02836	8.79			(Conc=100.00)
C060 CHLOROFORM	2.58531	2.40712	6.89	*		
C110 2-BUTANONE	.78106	.31720	59.39			
C065 1,2-DICHLOROETHANE	1.22849	1.47957	14.40			
MTBE	2.25901	1.79609	20.49			(Conc=50.00)
CS15 1,2-DICHLOROETHANE-d4	1.58922	1.30520	17.87			
C115 1,1,1-TRICHLOROETHANE	.71950	.63113	12.28			
C120 CARBON TETRACHLORIDE	.70084	.61311	12.52			
C125 VINYL ACETATE	.62522	.44201	29.30			
C130 BROMODICHLOROMETHANE	.90654	.72285	20.26			
C140 1,2-DICHLOROPROPANE	.31930	.27204	14.80	*		
C143 CIS-1,3-DICHLOROPROPENE	.55522	.44706	19.48			(Conc=50.00)
C150 TRICHLOROETHENE	.47787	.45707	4.35			
C155 DIBROMOCHLOROMETHANE	.88154	.68890	21.85			
C160 1,1,2-TRICHLOROETHANE	.39196	.31071	20.73			
C165 BENZENE	.77641	.66514	14.33			
C172 TRANS-1,3-DICHLOROPROPENE	.53876	.43105	19.99			(Conc=50.00)
C176 2-CHLOROETHYLVINYLETHER	.20552	.13510	34.27			
C180 BROMOFORM	.88514	.57693	34.82		**	
CS05 TOLUENE-d8	1.08573	.89074	17.96			
C205 4-METHYL-2-PENTANONE	.63858	.26235	58.91			

RF - Response Factor from daily standard file at 50.00 ug/Kg

$\overline{RF}$ - Average Response Factor from Initial Calibration Form VI

%Diff - % Difference from original average or curve

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

Continuing Calibration Check
HSL Compounds

Case No: | Calibration Date: 06/14/95

Contractor: RESAN | Time: 21:44

Contract No: 68D20026 | Laboratory ID: XCN934

Instrument ID: CMS-HP | Initial Calibration Date: 06/07/95

Minimum $\overline{RF}$ for SPCC is .30 | Maximum % Diff for CCC is 25%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC	
C210 2-HEXANONE	.48173	.18025	62.58			
C220 TETRACHLOROETHENE	.54435	.49006	9.97			
C225 1,1,2,2-TETRACHLOROETHANE	.97279	.56669	41.75		**	
C230 TOLUENE	1.15036	.97373	15.35	*		
C235 CHLOROBENZENE	.96274	.81680	15.16		**	
C240 ETHYLBENZENE	.44539	.39220	11.94	*		
C245 STYRENE	.95503	.82881	13.27			
C251 XYLENE	.53925	.45758	15.15			
C250 XYLENE (total)	.54600	.47395	13.19			(Conc=100.00)
CS10 BROMOFLUOROBENZENE	1.01228	.80529	20.45			

RF - Response Factor from daily standard file at 50.00 ug/Kg

$\overline{RF}$ - Average Response Factor from Initial Calibration Form VI

%Diff - % Difference from original average or curve

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

8A

VOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: PACE New England

Project: NWIRP BETHPAGE

Lab File ID (Standard): >C8900 Date Analyzed: 06/13/95

Instrument ID: CMS Time Analyzed: 16:29

	IS1(BCM) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CBZ) AREA #	RT #
12 HOUR STD	47337	7.14	168407	17.59	137510	22.42
UPPER LIMIT	94674	7.64	336814	18.09	275020	22.92
LOWER LIMIT	23669	6.64	84204	17.09	68755	21.92
CLIENT I.D.						
BC061395C	48889	7.19	163664	17.59	133558	22.40
LCC061395	42793	7.15	149816	17.59	122877	22.43
DSB09-1.3/2.8	33639	7.13	115505	17.62	94223	22.43
DSB09-35/36.5	32660	7.09	114565	17.58	97135	22.44
DSB09-55/56.5	36174	7.19	126156	17.61	108171	22.44
DSB07-01/2.5	31991	7.21	106307	17.58	87988	22.41
DSB07-20/22	35457	7.10	126425	17.59	111549	22.44
DSB07-55/57	35557	7.16	125297	17.58	107542	22.44
DSB08-01/03	11569*	7.26	59299*	17.61	39510*	22.42
DSB08-15/17	37555	7.21	129126	17.61	110089	22.42
DSB08-55/57	35123	7.16	121493	17.60	105844	22.41

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene

UPPER LIMIT = + 100%
of internal standard area.
LOWER LIMIT = - 50%

Column used to flag internal standard area values outside of UPPER and LOWER LIMIT with an asterisk

pace INCORPORATED THE ASSURANCE OF QUALITY

8A

VOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: PACE New England

Project: NWIRP BETHPAGE

Lab File ID (Standard): >C8934 Date Analyzed: 06/14/95

Instrument ID: CMS Time Analyzed: 21:44

	IS1 (BCM) AREA #	RT #	IS2 (DFB) AREA #	RT #	IS3 (CBZ) AREA #	RT #
12 HOUR STD	39669	7.19	146836	17.61	123627	22.40
UPPER LIMIT	79338	7.69	293672	18.11	247254	22.90
LOWER LIMIT	19835	6.69	73418	17.11	61814	21.90
CLIENT I.D.						
BC061495C	43085	7.21	149319	17.63	132582	22.43
DSB06-00/02	29354	7.21	96893	17.60	75179	22.41
DSB06-20/22	40505	7.21	141447	17.60	119387	22.43
DSB06-55/57	35475	7.23	122011	17.58	103982	22.43
DSB08-01/03RE	38524	7.23	126594	17.58	104868	22.42

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene

UPPER LIMIT = + 100%
of internal standard area.
LOWER LIMIT = - 50%

Column used to flag internal standard area values outside of UPPER and LOWER LIMIT with an asterisk

pace INCORPORATED THE ASSURANCE OF QUALITY

Heated Purge
low Soils

Voltage = 1600

PACE New England

0606952F

GCMS/VOA Instr C MS-HP Analyst/Date NK 6/13/95 STD Lot # V-6238

FRN	Arev	ID File	Tube	SAMPLE	AMT	COMMENTS	pH	A	R
>C8896	$	—	—	BFB-DI	50ng	mtr 1 M/C95 = 28K		N	
>C8897	$	—	—	BFB-DI	50ng	mtr 1 M/C95 = 29K		N	
>C8898	$	—	—	BFB-DI	50ng	mtr 1 M/C95 = 36K		y	
				Scan: 173					
				time: 1527					
>C8899		100602	1	VSTD050	5mls	Not used			
>C8900		↓	2	VSTD050	↓			y	
01		100613	3	BC061395A	↓	VBLKCA ↑TCE 11ppb		N	
02			3	BC061395B	5mls	VBLKCB ↑TCE BAKED [illegible]		N	
03			3	BC061395C	5mls	VBLKCC		y	
04			4	LCC061395	5mls			y	
05			5	44,329-1	5.3g	[illegible] confirm (R8240L) H 6/23 SW 846 Neesa-C		y	✓
06			6	-2	5.0g	Confirm TCE + 111-TCA		y	✓
07			7	-3	5.0g			y	✓
08			8	-4	5.1g			y	✓
09			9	-5	5.0g			y	✓
10			10	-6	4.9g			y	✓
11			1	-7	5.1g	↓IS RE		N	✓
12			2	-8	4.9g			y	✓
13			3	-9	5.0g	↓		y	✓
14			4	-10	4.9g	Not loaded out of window			
15			5	-11	5.0g	↓ ↓ H.T. 6/14/95			
16			6	-12	4.8g	↓ ↓			
17			7	BAKE					
			8						

NK 6/13/95

8240 + 1002 Soils

Voltage = 1600

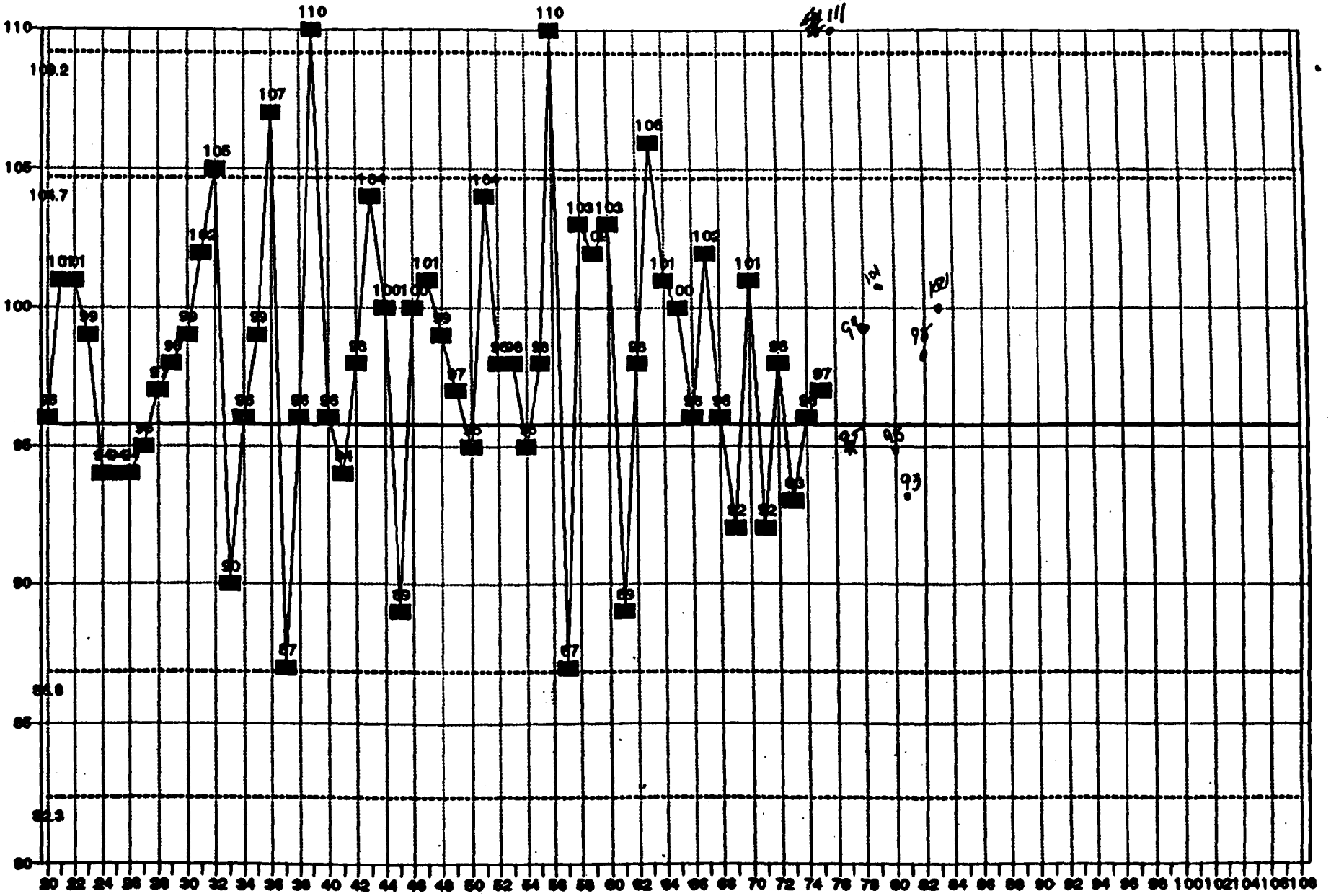
PACE New England

GCMS/VOA

Instr C MS-HP Analyst/Date AP 4/14/95 STD Lot # V-60333B

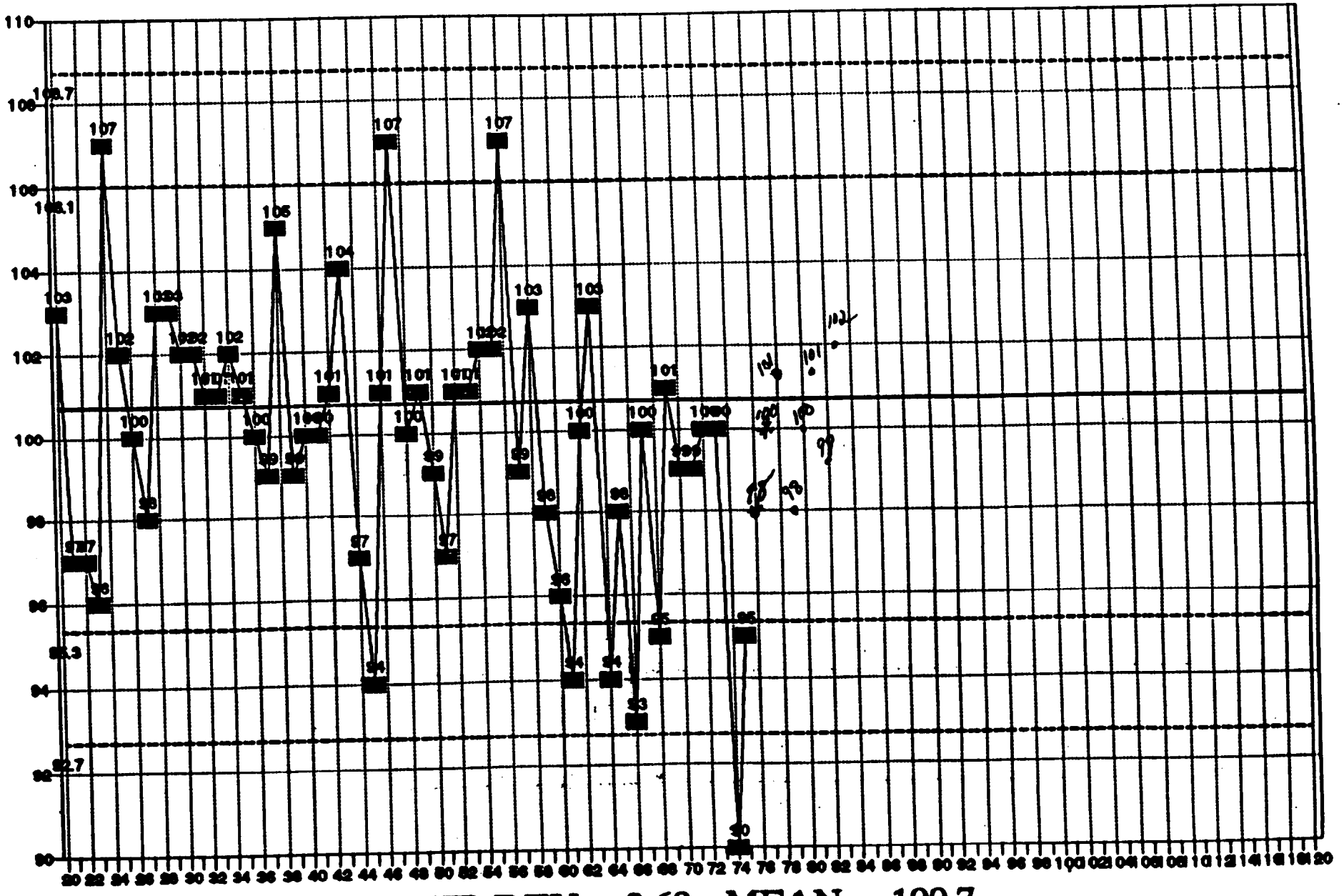
FRN	ANv	ID File	Tube	SAMPLE	AMT	COMMENTS	pH	A
>C8918	4465	—	—	BFB-DT	50ng	MLR1 M/e95=12%		y
				SCAN: 171+172+173-1520		V-60333 OK'SX		
				time 1031				
>C8919		10015	1	VSTD050	5mls	Not used		
21 20		↓	2	VSTD050	↓			y
22 21		10014	3	BC061495A		VBLKCA		y
>C8923			4	LCC061495	5mls			
24			5	44,331-1	1µl	(P8240/Ukin) LR Vorbs 4/14	>2	y ✓
25			6	-2	1ME	(P8240) LR RE ↓ Prelim.		N
26			7	BV1106A	100ME			y
27			8	BV1104B	↓			y
28			9	44,263-2		(P8240MSMTBE)		y ✓
29			10	-3		↓		y ✓
30			1	-4	↓	↓		y
31			2	44,247-1	1.5mls	(P8240(W))	>2	y ✓
32			3	44,261-2	5mls	LR ↓	<2	y ✓
33			4	BFB-Purged	50ng	SCAN: 1089+1090+1091-1099-1098 time 21:09 V-60333 OK'SX		y
34		10002	5	VSTD050	5mls	Heated Purge		y
35		10004	6	BC061495B	↓	VBLKCE		y
37 36			8	BC061495C 44,327-10	5.0g	VBLKCF (P8240L) SMT846 Neena C		y ✓
38 37			9	-11	4.9g			y ✓
39 38			10	-12	4.8g			y ✓
40 39			1	-7 RE	4.9g	out of hold time		y
41 40			2	-1 RE	5.0g	Confirmation ↓		y
42 41			3	-2 RE	4.9g			y
43 42			—	BAKE				

VOA LOW SOLIDS - SURR DCE
EPA SW846 LIMIT SET 9/94



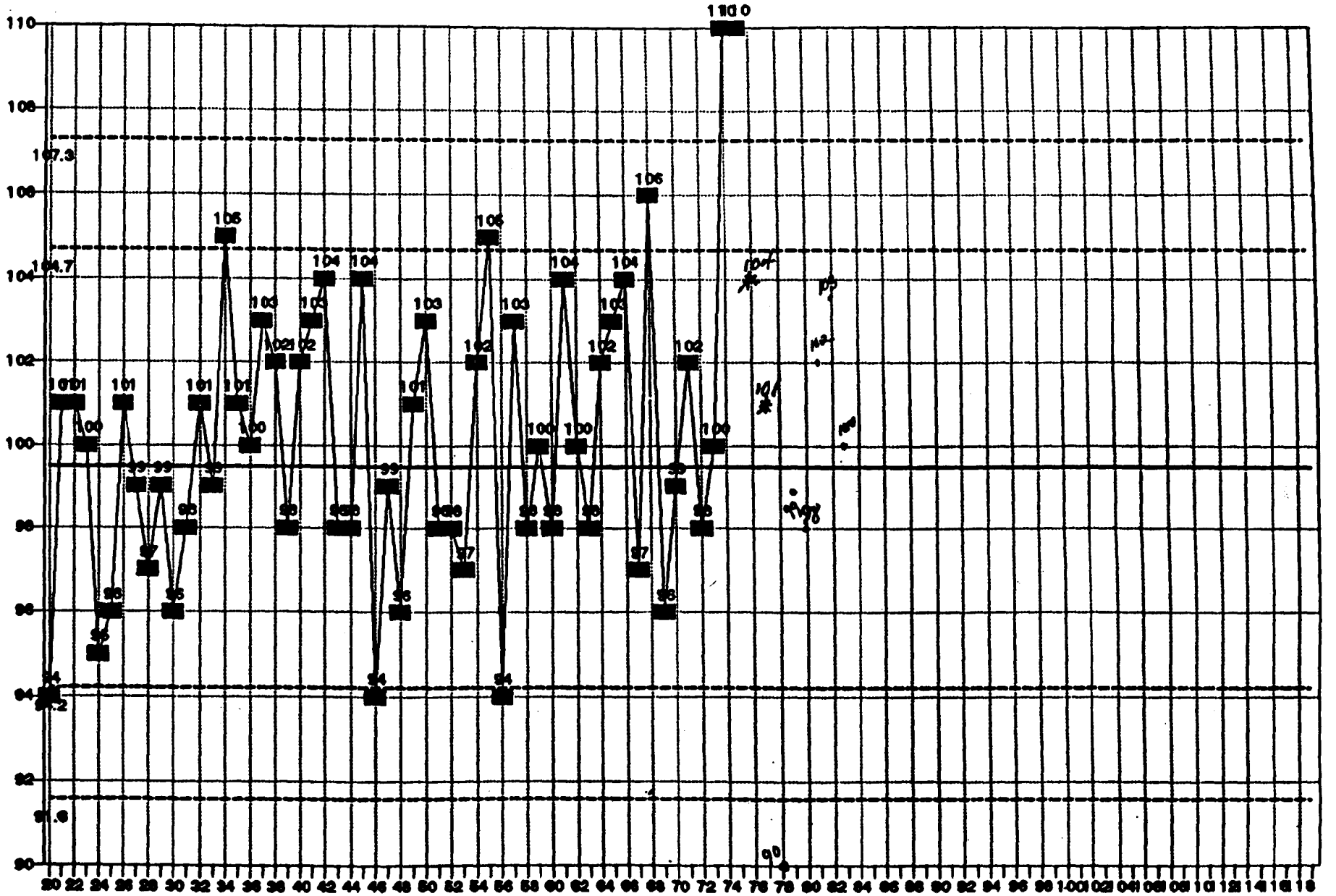
STD DEV = 4.47 MEAN = 95.8

VOA LOW SOLIDS - SURR TOL-D8
EPA SW846 LIMITS SET 9/94



STD DEV = 2.68 MEAN = 100.7

VOA LOW SOLIDS - SURR BFB
EPA SW846 LIMITS SET 9/94



STD DEV = 2.62 MEAN = 99.4

000035

SW846 8240 LOW LEVEL SOLIDS

1	BC081794A	51	BC101894A
2	BC081894A	52	BC101994A
3	BC082594A	53	BG102094A
4	BC082694A	54	BG102194A
5	BC083094A	55	BG102494A
6	BG081994A	56	BG100594D
7	BG082394B	57	BG100794A
8	BG082494A	58	BG101194A
9	BG082594A	59	BG102594A
10	BG082694C	60	BE101794A
11	BG082994A	61	BG101294B
12	BC083194A	62	BG112394C
13	BC090194A	63	BG120694C
14	BC090294A	64	BG120794B
15	BG083094A	65	BG120894B
16	BG083194A	66	BG120994B
17	BG090194A	67	BG121494A
18	BG090294A	68	BG121594A
19	BG090694A	69	BG121694A
20	BG090894A	70	BG121994A
21	BC090694A	71	BG122094B
22	BC090894B	72	BG122394A
23	BC090994A	73	BG122794A
24	BG090994A	74	BG123094B
25	BG091294A	75	[illegible]
26	BG091394A	76	BC021095B
27	BG091494B	77	BC021395A
28	BG091594A	78	BG040695B
29	BG091694A	79	BG040795B
30	BG091994A	80	BG040995A
31	BE092094A	81	BC061395C (93, 101, 102)
32	BE092194A	82	BC061495C (98, 99, 103)
33	BC092194B	83	BC061595A (100, 102, 100)
34	BC092294B	84	
35	BC092394B	85	
36	BC092694B	86	
37	BG100794A	87	
38	BE092294A	88	
39	BE092394A	89	
40	BC092794B	90	
41	BC101094A	91	
42	BC101194A	92	
43	BG101194A	93	
44	BC101294A	94	
45	BG101294A	95	
46	BG101394A	96	
47	BE101894A	97	
48	BE101994A	98	
49	BG101994C	99	
50	BC101794A	100	

F -E Labs

CHAIN OF CUSTODY RECORD

PROJECT NO.: 5253

SITE NAME: NWIRP Bethpage

SAMPLERS (SIGNATURE): Timothy S Evan

STATION NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	2 oz glass TCL VOAs						REMARKS Pace Lab # 44329
Plant No. 3	6/6/95	0850		✓	DSBØ9 - 1.3/2.8	1	1	1					
		0952		✓	DSBØ9 - 35/36.5	1	1	2					
		1011		✓	DSBØ9 - 55/56.5	1	1	3					
		1215		✓	DSBØ7 - Ø1/2.5	1	1	4					
		1238		✓	DSBØ7 - 2Ø/22 TSE	1	1	5					
		1330		✓	DSBØ7 - 55/57	1	1	6					
	6/6/95	1517		✓	DSBØ8 - Ø1/Ø3	1	1	7					
		1538		✓	DSBØ8 - 15/17	1	1	8					
		1633		✓	DSBØ8 - 55/57	1	1	9					
	6/7/95	1215		✓	DSBØ6 - ØØ/Ø2	1	1	10					
		1247		✓	DSBØ6 - 2Ø/22	1	1	11					
		1330		✓	DSBØ6 - 55/57	1	1	12					

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
Timothy S Evan	6-8-95 0950	6/6/95 K. Lawson / Pace NH 1110			
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE):	DATE / TIME:	REMARKS: Shipped to Pace Labs FedEx AB # 3211641252	

Order No. 70440 (8693)

Final Page

0000037

June 23, 1995

Halliburton NUS Corporation
Mr. Mark Speranza
661 Andersen Drive
Pittsburgh, PA 15220

SAMPLE DELIVERY GROUP NARRATIVE

Project: NWIRP Bethpage, CTO 0213
Laboratory: PACE New England, Inc. of Hampton, NH

Lab Numbers: 44338
Protocol: SW846 Methodologies with NEESA Level C package and LOTUS diskette.

Sample Receipt: Samples were received at PACE, Inc. on 6/12/95. Laboratory sample numbers were assigned for test parameters as listed on the sample table which follows this narrative. Sample shipments were checked for custody seal integrity and cooler temperature. Samples were checked for appropriate preservation and accuracy against the Chains-of-Custody provided. Other than the exceptions noted below, samples were received between 2-6° C and in good condition. In addition, Sample Receipt Condition Reports can be found with the Chains-of-Custody. No spike sample was submitted for analysis.

Shipment received 6/12/95 (44338): One cooler was received with one Chain-of-Custody form. The cooler was received without a temperature blank present. The samples were packed in ice. Custody seals were present and intact.

Volatile Organic Analysis: Samples were analyzed within a project specific holding time of 7 days from sampling as directed by Ms. Kelly Johnson. The method 8240 blank "BC061595A" contained a low level of methylene chloride. The sample results for this analyte should be used with due consideration.

Soil Classification Analyses: Samples were shipped directly from NUS to Geochemical Express for soil classification analyses. The data report, as supplied by Geochemical Express, is included in this data package.

These pages are being reissued to report sample 44338-7, because of a typo by the analyst this sample was omitted from the report. As a result the surrogate and IS tables were misidentified. Corrections appear on pages 2A, 8A, 13, 20 and 24. These pages supersede the affected pages of the report of the same number issued on June 23, 1995.

Statement of Compliancy and Data Authorization

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Richard R Wellman — 7/11/95

Richard Wellman, Operations Manager
PACE Incorporated, New England-New Hampshire
Reissued on July 11, 1995

June 23, 1995

P.O. Box 2130
1 Lafayette Road
Hampton, NH 03842
TEL: 603-926-7777
800-992-0724
FAX: 603-926-7939

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SAMPLE TABLE

CLIENT ID.	MATRIX	PACE #	PARAMETERS
DSB05-00/02	SOLID	44338-001	GC/MS VOA
DSB05-15/17	SOLID	44338-002	GC/MS VOA
DSB05-55/57	SOLID	44338-003	GC/MS VOA
DSB01-0.5/2.5	SOLID	44338-004	GC/MS VOA
DSB02-0.5/2.5	SOLID	44338-005	GC/MS VOA
DSB02-15/17	SOLID	44338-006	GC/MS VOA
DSB02-55/57	SOLID	44338-007	GC/MS VOA
DSB04-01/03	SOLID	44338-008	GC/MS VOA
DSB03-05/07	SOLID	44338-009	GC/MS VOA
DSB03-35/37	SOLID	44338-010	GC/MS VOA
DSB03-55/57	SOLID	44338-011	GC/MS VOA

Laboratory number: 44338-007
Sample Designation: DSB02-55/57
Date Analyzed: 06/15/95
Matrix: SOLID

Instrument File Name: >C8960

Results are expressed on a dry (103 degrees C) basis.
Moisture content was 4 % , elevating the reporting limits
by a factor of 1.05 .

VOLATILE ORGANICS	CONCENTRATION (ug/Kg)	REPORTING LIMIT (ug/Kg)
Chloromethane	BDL	10
Bromomethane	BDL	10
Vinyl chloride	BDL	10
Chloroethane	BDL	5
Methylene chloride	BDL	10
Acetone	BDL	26
Carbon disulfide	BDL	5
Tetrahydrofuran	BDL	26
Trichlorofluoromethane	BDL	5
1,1-Dichloroethene	BDL	5
1,1-Dichloroethane	BDL	5
1,2-Dichloroethene (total)	BDL	5
Chloroform	BDL	5
1,2-Dichloroethane	BDL	5
2-Butanone	BDL	26
1,1,1-Trichloroethane	BDL	5
Carbon Tetrachloride	BDL	5
Vinyl acetate	BDL	10
Bromodichloromethane	BDL	5
1,2-Dichloropropane	BDL	5
cis-1,3-Dichloropropene	BDL	5
trans-1,3-Dichloropropene	BDL	5
Trichloroethene	BDL	5
Dibromochloromethane	BDL	5
1,1,2-Trichloroethane	BDL	5
Benzene	BDL	5
2-Chloroethyl vinyl ether	BDL	5
Bromoform	BDL	5
4-Methyl-2-Pentanone	BDL	26
2-Hexanone	BDL	26
Tetrachloroethene	BDL	5
1,1,2,2-Tetrachloroethane	BDL	5
Toluene	BDL	5
Chlorobenzene	BDL	5
Ethylbenzene	BDL	5
Styrene	BDL	5
Xylene (total)	BDL	5

METHOD REFERENCE: EPA SW 846, 3rd Edition
METHOD 8240

BDL = Below reporting limit

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2B

SOIL VOLATILES SURROGATE RECOVERY

Client: NUS CORPORATION
Project: NWIRP BETHPAGE
Level: Low Soil

Lab No.: 44338

CLIENT SAMPLE NO.	S1 (TOL) #	S2 (BFB) #	S3 (DCE) #	OTHER	TOT OUT
DSB05-00/02	105	97	100		0
DSB05-00/02MS	107	96	98		0
DSB05-00/02MSD	108	93	98		0
DSB05-15/17	100	98	102		0
DSB05-55/57	101	102	100		0
DSB01-0.5/2.5	101	96	105		0
DSB02-0.5/2.5	100	100	100		0
DSB02-15/17	103	100	102		0
DSB02-55/57	101	102	102		0
DSB04-01/03	100	100	101		0
DSB03-05/07	101	97	101		0
DSB03-35/37	100	101	102		0
DSB03-55/57	99	95	100		0
BC061595A	102	100	100		0
BC061695A	102	102	95		0

		QC LIMITS
S1	(TOL) = Toluene-d8	86 - 114
S2	(BFB) = Bromofluorobenzene	72 - 132
S3	(DCE) = 1,2-Dichloroethane-d4	70 - 138

Column to be used to flag recovery values with an asterisk
* Values outside of designated QC limits
D Surrogates diluted out

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5A

VOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: PACE New England

Project: NWIRP BETHPAGE

Lab File ID: >C8950 BFB Injection Date: 06/15/95

Instrument ID: CMS BFB Injection Time: 14:34

ION ABUNDANCE CRITERIA for C8950 are reported on a separate sheet.

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS

CLIENT I.D.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	DATE ANALYZED
VSTD050	VSTD050	C8951	06/15/95	15:09
BC061595A	90102-173	C8952	06/15/95	15:44
LCC061595	90102-173MS	C8953	06/15/95	16:24
DSB05-00/02	44338-001	C8954	06/15/95	17:10
DSB05-15/17	44338-002	C8955	06/15/95	17:44
DSB05-55/57	44338-003	C8956	06/15/95	18:19
DSB01-0.5/2.5	44338-004	C8957	06/15/95	18:54
DSB02-0.5/2.5	44338-005	C8958	06/15/95	19:29
DSB02-15/17	44338-006	C8959	06/15/95	20:04
DSB02-55/57	43338-007	C8960	06/15/95	20:39
DSB04-01/03	44338-008	C8961	06/15/95	21:14
DSB03-05/07	44338-009	C8962	06/15/95	21:49
DSB03-35/37	44338-010	C8963	06/15/95	22:24
DSB03-55/57	44338-011	C8964	06/15/95	22:58

8A

VOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: PACE New England

Project: NWIRP BETHPAGE

Lab File ID (Standard): >C8951 Date Analyzed: 06/15/95

Instrument ID: CMS Time Analyzed: 15:09

	IS1(BCM) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CBZ) AREA #	RT #
12 HOUR STD	60788	7.18	201823	17.58	168070	22.42
UPPER LIMIT	121576	7.68	403646	18.08	336140	22.92
LOWER LIMIT	30394	6.68	100912	17.08	84035	21.92
CLIENT I.D.						
BC061595A	54951	7.17	190807	17.59	159951	22.42
LCC061595	58766	7.18	198850	17.60	170196	22.43
DSB05-00/02	42184	7.21	147877	17.60	120572	22.43
DSB05-15/17	53609	7.22	188789	17.60	163340	22.40
DSB05-55/57	46447	7.21	156207	17.61	135411	22.44
DSB01-0.5/2.5	43847	7.19	154340	17.58	126534	22.44
DSB02-0.5/2.5	50565	7.20	171141	17.58	146169	22.43
DSB02-15/17	49142	7.20	171489	17.60	147488	22.43
DSB02-55/57	47411	7.19	166212	17.58	140881	22.42
DSB04-01/03	47313	7.18	157743	17.60	136349	22.43
DSB03-05/07	44556	7.16	150607	17.60	130652	22.41
DSB03-35/37	48307	7.21	163042	17.60	139906	22.41
DSB03-55/57	45619	7.18	163247	17.60	141365	22.41

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene

UPPER LIMIT = + 100%
of internal standard area.
LOWER LIMIT = - 50%

Column used to flag internal standard area values outside of UPPER and LOWER LIMIT with an asterisk

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