SUPPLEMENTAL INVESTIGATION REPORT
SITES CW-1 AND CW-2, CHARLESWOOD AREA
FORT MONMOUTH, NEW JERSEY

Prepared For:

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Under:

Contract DACA31-92-D-0018

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1 INTRODUCTION

As a result of the detection of elevated levels of volatile organic compounds (VOCs) in groundwater, an additional investigation was performed at sites CW-1 and CW-2 at the Charles Wood area of Fort Monmouth. This report describes the additional investigation, contains the results of the investigation, and makes recommendations for further action.

1.1 PREVIOUS INVESTIGATION ACTIVITIES

As described in the *Site Investigation Report* (WESTON,1995), four monitor wells were installed at each of two acid neutralization lime pits (sites CW-1 and CW-2) at the Charles Wood area of Fort Monmouth (see Figure 1). Soil samples were collected during well installation. At site CW-1, VOCs were detected in the groundwater from three of the four monitor wells. The VOC with the highest detected concentration was trichloroethene (TCE) at 885 μg/L at well MW-29 (see Figure 2). At site CW-2, one VOC, tetrachloroethene (PCE), was detected in only one well and at a much lower concentration (4 J μg/L). No VOCs were detected in the soil samples taken immediately above the water table and at 7 to 9 ft below ground surface (ft bgs) at both sites.

In addition, samples from previously installed monitor wells (MW-1 and MW-3) in the vicinity of site CW-1, were analyzed for VOCs (see Figure 2). Compounds of concern were not detected at MW-1. TCE, PCE, and 1,2-dichloroethene, however, were detected in low concentrations at MW-3, which is located east of the Hexagon building (see Figure 2). These compounds also were detected in wells near the lime pit at CW-1.

1.2 CURRENT INVESTIGATION ACTIVITIES

Because TCE and PCE exceeded the New Jersey Department of Environmental Protection (NJDEP) Groundwater Quality Criteria (GWQC) of 1 μg/L, the Fort Monmouth Directorate of Public Works (DPW) initiated an additional investigation at both sites. The

CW1_2.DGN

MW-282 (Newly installed)

MW-291 (Newly installed)

(Newly installed)

MW-28 MW-281 MW-27 MW-29 MW-26

CW-1

MW-1 (Existing Well)

MW-3 (Existing Well)

MW-31 MW-32 MW-30 MW-33

2701

2700

HEXAGON BUILDING

60 50

MH

LEGEND

- Soil Boring/Monitor Well
- Road (paved)
- Road/Trails (unpaved)
- Fence
- Building
- Wooded Area
- Tree/Bush
- Light Pole
- Utility Pole
- Site
- Brook/Creek
- Base Boundary
- Marshy Area
- Approximate Boundary

NOTE: MW-1 and 3 were installed in September and October 1994 respectively. MW-26 - 33 were installed in December 1995. MW-281, 282 and 291 were installed in May 1996.

N

0 100

SCALE IN FEET

96P-2111 6/13/96

Fort Monmouth, Charles Wood

FIGURE 1
ACID NEUTRALIZATION LIME PITS (CW-1 AND CW-2) SAMPLING LOCATIONS

CW1_2.DGN

MW-282 (Newly installed)

MW-291 (Newly installed)

MW-281 (Newly installed)

MW-28

MW-29

MW-27

MW-26

VOC	
TCE	35.5

No Detections

VOC	
1,2-D	235
TCE	885

VOC	
PCE	4.5J

MW-1 (Existing Well)

No Detections

MW-3 (Existing Well)

VOC	
TCE	1.3
PCE	1.9
1,2-D	4

2701

VOC	
PCE	4J

No Detections

MW-31

MW-32

MW-33

MW-30

PCB		
A-1254	.75D	7-9

No Detections

HEXAGON BUILDING

2700

CONTAMINANTS LEGEND

CONTAMINANTS

VOC

1,2-D 1,2-Dichlorethene
TCE Trichloroethene
PCE Tetrachloroethene

PCB

A-1254 Arochlor 1254

GROUNDWATER READING

VOC	
PCE	4.5J

VOC ← Contaminant Group
4.5J ← Concentration (ug/L) J = Estimated Value
PCE ↑ Contaminant

SOIL READING

PCB		
A-1254	.75D	7-9

PCB ← Contaminant Group
7-9 ← Sampling Interval (ft. bgs)
.75D ↑ Concentration (mg/kg) D = See Table 4.3-5
A-1254 ↑ Contaminant

NOTE: Compounds included on figure represent contaminants that exceeded NJDEP criteria and both site-specific and Monmouth County background levels where established. MW-26 through 33 analytical results averaged from February and March 1995 sampling rounds. MW-1 and MW-3 analytical results averaged from May and June 1995 sampling events.

LEGEND

- Monitoring Well
- Road (paved)
- Road/Trails (unpaved)
- Fence
- Building
- Wooded Area
- Tree/Bush
- Light Pole
- Utility Pole
- Site
- Brook/Creek
- Base Boundary
- Marshy Area
- Approximate Boundary

N

0 100

SCALE IN FEET

96P-2112 6/14/96

Fort Monmouth, Charles Wood

FIGURE 2
ACID NEUTRALIZATION LIME PITS (CW-1 AND CW-2) DISTRIBUTION OF CONTAMINANTS IN SITE SOIL AND GROUNDWATER - 1995

additional investigation included a Gore sorber soil gas survey at sites CW-1 and CW-2 and three soil boring/monitor well (MW-281, MW-282 and MW-291) installations and sampling at site CW-1.

The current investigation also included groundwater sampling of previously installed monitor wells (MW-26 through MW-29) and two existing wells (MW-1 and MW-3) at site CW-1. Additional investigations then were performed to evaluate the extent of soil and groundwater contamination at both sites. The soil gas sample analyses targeted the same VOCs, from the previous investigations, which exceeded the NJDEP GWQC.

The soil gas survey and results are discussed in Section 2. The installation and sampling of additional monitor wells at site CW-1 are discussed in Section 3. The conclusions and recommendations for further action are presented in Section 4.

2 SOIL GAS SURVEY

2.1 OBJECTIVE

A soil gas survey was performed at sites CW-1 and CW-2 to evaluate the extent of VOCs in groundwater at the two Charles Wood sites. The direction of groundwater flow was estimated using data collected from previous investigations. Based on this information, the soil gas survey was focused to the north and east of site CW-1 (downgradient). The results of the soil gas survey were used to position additional monitor wells, which were used to confirm both the extent of groundwater contamination and the groundwater gradient.

2.2 IMPLEMENTATION

The soil gas survey was completed in two phases. The first phase was performed to determine if the VOCs detected at low concentrations in the groundwater could be detected with the Gore sorber method. If VOCs were detected with the Gore sorber method, then the direction of contaminant migration could be evaluated. Five soil gas modules were installed at each site (CW-1 and CW-2). The Phase I survey results indicated that the Gore sorber method effectively detected the contaminants and thus the direction of contaminant migration at site CW-1. The targeted compounds were not detected at site CW-2. Subsequently, additional soil gas modules were installed during Phase II sampling, at 28 locations at site CW-1 to evaluate the extent of VOCs downgradient of site CW-1.

The Phase I and II soil gas survey modules were installed and retrieved in accordance with the specifications outlined on the "Installation and Retrieval Information Sheet" provided as Attachment E.

2.3 RESULTS

The Gore sorber results are included in tabular form in Table F-1 and in graphical form in Figure F-1, in Attachment F. The results of the soil gas survey are summarized in Figure 3.

/FORT/CW1_2TRICONT.DGN

MW-282
No Detections

MW-281
VOC	
TCE	20

MW-291
No Detections

MW-28
No Detections

MW-27
No Detections

MW-29
VOC	
1,2-D	7
TCE	170

MW-26
No Detections

MW-1
(Existing Well)
No Detections

MW-3
(Existing Well)
VOC	
TCE	2J
PCE	2J

2700

2701

CONTAMINANTS LEGEND

CONTAMINANTS

VOC

TCE Trichloroethene
1,2-D 1,2-Dichlorethene
PCE Tetrachloroethene

GROUNDWATER READING

VOC	
PCE	4.5J

← Contaminant Group
← Concentration (ug/L) J = Estimated Value
↑ Contaminant

NOTE: Compounds included on figure represent contaminants that exceeded NJDEP criteria and both site-specific and Monmouth County background levels where established. No compounds of concern were detected above NJDEP SCCs for soils.

CONTOUR LEGEND

TCE [ug]
408.857
136.758
45.744
11.636
2.960
0.331
0.064
0.021

LEGEND

- Monitoring Well
- Screening Module Location
- Road (paved)
- Road/Trails (unpaved)
- Fence
- Building
- Wooded Area
- Tree/Bush
- Light Pole
- Utility Pole
- Site
- Brook/Creek
- Base Boundary
- Marshy Area
- Approximate Boundary

0 100
SCALE IN FEET

96P-2110 6/13/96

Fort Monmouth, Charles Wood
FIGURE 3
ACID NEUTRALIZATION LIME PITS (CW-1 AND CW-2)
DISTRIBUTION OF CONTAMINANTS IN SITE GROUNDWATER AND RESULTS OF SOIL GAS SURVEY - MAY 1996

The survey indicated that TCE concentrations extend to the northeast to approximately 100 ft from site CW-1. PCE was also detected, but at much lower concentrations than TCE.

Based on the results of the soil gas survey, additional monitor wells were installed, as discussed in Section 3.

3 INSTALLATION OF SOIL BORINGS/MONITOR WELLS

3.1 OBJECTIVE

The objective of installing additional soil borings/monitor wells at site CW-1 was to confirm the results of the soil gas survey, further characterize the lateral and vertical extent of contaminants near to and downgradient of the site, and provide water level elevation data for calculating groundwater flow direction.

3.2 IMPLEMENTATION

Two soil borings/monitor wells (MW-282 and MW-291) were installed at the downgradient extent of the soil gas plume to more accurately evaluate downgradient soil and groundwater quality. These two borings/monitor wells will also serve as monitoring points if the site is to be remediated in the future. In addition, these two wells were positioned to provide information concerning the possible relationship between groundwater contamination previously detected at site CW-1 and the similar compounds detected at MW-3.

Additionally, a deeper well (i.e., 41 ft bgs at MW-281) was installed at site CW-1 to evaluate the vertical extent of contaminants.

Soil boring and monitor well installations were performed in accordance with the procedures outlined in the Chemical Data Acquisition Plan (CDAP) (December 1994).

3.3 RESULTS

3.3.1 Lithology and Hydrogeologic Summary

The lithologic logs collected during soil boring/monitor well installations are provided in Attachment A. The site CW-1 lithology generally consisted of, in descending order:

- Olive brown medium- to coarse-grained sand with little silt (0 to 17 ft bgs).
- Light iron brown fine-grained sand with some silt (17 to 19 ft bgs).

- Brown organic silt and very fine-grained sand with trace clay (approximately 19 to 25 ft bgs).
- Dark greenish-brown fine- to medium-grained sand with little to some silt and variable trace to little percentages of clay laminae (25 to 41 ft bgs).
- A firm green sandy silt with little clay (41 to 50 ft bgs).

Lithologic depths and percentages of sand/silt/clay varied locally, but were generally consistent throughout the site. Saturation was observed in all three newly installed boreholes at approximately 8 ft bgs.

Figure 4 provides a shallow groundwater potentiometric surface contour map for site CW-1. Based on groundwater elevations collected on 23 May 1996, groundwater flow is easterly towards the Hexagon building (2700). Table B-1 in Attachment B provides survey and groundwater elevation data for the site CW-1 monitor wells.

Total boring depths and sample depths were determined based on lithology and Photoionization Detector (PID) and Flame Ionization Detector (FID) readings. Monitor well MW-281 was drilled to 50 ft bgs. MW-281 was backfilled and completed to a depth of 41 ft bgs. PID/FID readings were not observed below 41 ft bgs. MW-281 was screened from 31 to 41 ft bgs. Soil samples were collected to the interval with the highest PID/FID readings (18.8 to 19.4 ft bgs) and at the interval immediately above the first observed non-detect PID/FID reading (38 to 39.2 ft bgs) (see Attachment A).

Monitor wells MW-282 and MW-291 were drilled to 42 and 34 ft bgs, respectively. PID/FID readings were not observed at both borehole locations. MW-282 and MW-291 were backfilled accordingly and completed to a depth of 16 ft bgs. The monitor wells were screened across the water table. Soil samples were collected at intervals immediately above the saturated zone (6 to 8 ft bgs) and at the bottom of the borehole.

Monitor wells were developed and sampled in accordance to the procedures and specifications outlined in the CDAP.

CW1_2.DGN

MW-282
53.33

MW-291
52.47

MW-28
53.80

MW-281
(Deep Well)

MW-29
53.53

MW-27
53.93

MW-26
53.77

MW-1
51.94

MW-3
46.77

CW-1

HEXAGON BUILDING

2701

2700

MW-31

MW-32

MW-33

MW-30

MH

60

50

47

48

49

50

51

52

53

60

LEGEND

- Soil Boring/Monitoring Well
- 50 — Groundwater Contour Interval 1 Foot Interval - FT/MSL Groundwater levels collected on 23 May 1996.
- Road (paved)
- Road/Trails (unpaved)
- Fence
- Building
- Wooded Area
- Tree/Bush
- Light Pole
- Utility Pole
- Site
- Brook/Creek
- Base Boundary
- Marshy Area
- Approximate Boundary

N

0 100

SCALE IN FEET

96P-2114 6/14/96

Fort Monmouth, Charles Wood

FIGURE 4
ACID NEUTRALIZATION LIME PITS (CW-1 AND CW-2)
SHALLOW GROUNDWATER POTENTIOMETRIC SURFACE MAP - MAY 1996

3.3.2 Soil and Groundwater Quality

The results of the soil and groundwater analyses are presented in Tables 3-1 and 3-2, respectively. Attachment D provides the laboratory analytical results with the corresponding sample identifiers. The compounds detected above both the NJDEP criteria and the established background levels for Charles Wood are summarized in Figure 3.

A total of six VOCs were detected at concentrations above laboratory quantification limits in three soil boring samples (see Table 3-1). Two compounds (acetone and chloroform) are common laboratory contaminants. No compounds, however, were found at concentrations greater than the NJDEP Soil Cleanup Criteria (SCC).

Three VOCs (TCE, PCE, and 1,2-dichloroethene) were detected in groundwater from three monitor well locations (MW-29, MW-281, and MW-3). The VOCs were detected at concentrations exceeding the NJDEP GWQC. TCE and 1,2-dichloroethene were detected at MW-29 (see Table 3-2) at concentrations significantly lower than the two previous sampling rounds performed in February and March 1995. In addition, TCE was detected at a concentration above the NJDEP GWQC in deep monitor well MW-281. The TCE concentrations at depth were lower than the concentrations detected in shallow monitor well MW-29. The VOCs TCE and PCE were detected at low estimated concentrations in monitor well MW-3 (see Figure 3).

VOCs were not detected in the two newly installed shallow monitor wells, MW-282 and MW-291, and in existing well MW-1. This supports the soil gas survey result that the extent of the VOC contaminant plume is limited to less than 100 ft downgradient of site CW-1 (see Figure 3). Because VOC concentrations were not detected in the three downgradient wells (MW-282, MW-291, and MW-1), which intercept groundwater migrating from site CW-1 toward MW-3, the origin of low VOC concentrations detected in monitor well MW-3 is unknown.

Table 3-1
Fort Monmouth - Charles Wood
Summary of Detected Compounds
In Soils at Site CW-1
May 1996

COMPOUND	METHOD DETECTION LIMIT (mg/kg)	RESIDENTIAL DIRECT CONTACT SOIL CLEANUP CRITERIA (mg/kg)	MAXIMUM BACKGROUND CONCENTRATION (mg/kg)	ANALYTICAL RESULTS					
				SB281-A02 5/1/96 18.8-19.4 ft bgs	SB281-A03 5/1/96 38-39.2 ft bgs	SB282-A02 5/2/96 6-8 ft bgs	SB282-A03 5/2/96 38-40 ft bgs	SB291-A02 5/3/96 6-7.3 ft bgs	SB291-A03 5/3/96 32-32.4 ft bgs
VOC's (mg/kg)									
Acetone	0.0069	1000	ND	2.4	ND	ND	0.051	ND	8.6
Carbon Disulfide	0.0044	NLE	ND	0.05	ND	ND	ND	ND	ND
Chloroform	0.0029	19	ND	ND	ND	ND	0.015	ND	ND
Trichloroethene	0.0020	23	ND	7.8	ND	ND	ND	ND	ND
Toluene	0.0027	1000	ND	0.02	ND	ND	ND	ND	ND
Tetrachloroethene	0.0040	4	ND	0.013	ND	ND	ND	ND	ND

NLE - No Level Estabished

ND - Indicates that the compound was not detected at or below the quantification limits

ft bgs - Feet below ground surface

J - Indicates that the concentration value was estimated due to detection at or near the quatification limits

Table 3-2
Fort Monmouth - Charles Wood
Summary of Detected Compounds
In Groundwater at Site CW-1
May 1996

COMPOUND	METHOD DETECTION LIMIT (µg/L)	NJDEP GROUNDWATER QUALITY CRITERIA (µg/L)	MAXIMUM BACKGROUND CONCENTRATION (µg/L)	ANALYTICAL RESULTS (µg/L) SAMPLING DATE								
				MW1 5/23/96	MW3 5/24/96	MW26 5/23/96	MW27 5/23/96	MW28 5/23/96	MW29 5/23/96	MW281 5/23/96	MW282 5/23/96	MW291 5/23/96
VOC's (µg/L)												
Acetone	6.9	700	ND	ND	ND	ND	ND	ND	ND	92	ND	ND
1,2-Dichloroethene (total)	4.4	NLE	ND	ND	ND	ND	ND	ND	7	ND	ND	ND
Trichloroethene (TCE)	2.0**	1	ND	ND	**2 J**	ND	ND	ND	**170**	**20**	ND	ND
Tetrachloroethene (PCE)[1]	4.0**	1*	ND	ND	**2 J**	ND	ND	ND	ND	ND	ND	ND

[1] - Same compound as listed by NJDEP Tetrachloroethylene
Compounds exceding NJDEP groundwater quality criteria are noted by bold numbers.
NJDEP groundwater quality criteria consist of the higher number between the PQL or STANDARD
*PQL - Practical Quantitation Limit -was used as the NJDEP groundwater quality criteria
ND - Indicates that the compound was not detected at the quantitation limit
J - Indicates that the concentration value was estimated due to detection at or near the quantitation limits
NLE - No Level Established
** - Method detection limit exceeds the NJDEP groundwater quality criteria

4. CONCLUSIONS AND RECOMMENDATIONS

A soil gas survey and additional soil boring/monitor well installations were performed to evaluate the extent and depth of soil and groundwater contamination at site CW-1 at Charles Wood. This work is believed to have delineated the lateral extent of downgradient contamination. It was also found that groundwater contamination exists at depth, but to a lesser extent than at shallow depths. There is no evidence, however, to suggest that a separate contaminant phase below 41 ft bgs exists. No positive PID/FID readings were recorded or soil sample compounds of concern detected at depth in any of the newly installed monitor wells. Based on the most recent round of groundwater sampling, the TCE concentration, the contaminant at the highest concentration, is less than the concentrations detected in 1995. To further evaluate variations in contaminant concentration levels, WESTON recommends implementing quarterly groundwater sampling.

ATTACHMENT A

GEOLIS® LITHOLOGIC AND WELL CONSTRUCTION LOGS

BOREHOLE ID : MW-281 PROJECT NAME: FT. MONMOUTH
BEGIN DATE : 05/01/96 END DATE : 05/02/96

LOGGER/COMPANY : P. THOMAS

BOREHOLE COMPLETED IN (<O>verburden <B>edrock) : O

TOTAL DEPTH : 50.00 DEPTH TO BEDROCK : 0.00

BOREHOLE DIAMETER #1: 8.25
INTERVAL: 0.00 ft. to 48.00 ft. BGS
METHOD : HSA FLUID : WATER
BOREHOLE DIAMETER #2: 2.00
INTERVAL: 48.00 ft. to 50.00 ft. BGS
METHOD : HSA FLUID : SPLIT SPOON SAMPLER
BOREHOLE DIAMETER #3:
INTERVAL:
METHOD : FLUID :

DRILLING COMPANY : SUMMIT DRILLING
DRILLER : JOHN VOGT
DRILL RIG TYPE : CME-55

	ESTIMATED	SURVEYED
SURFACE ELEVATION :	0.000	
N. COORDINATE :	0.0000	
E. COORDINATE :	0.0000	

WELL PERMIT.....(Y)es (N)o: Y PERMIT # : NJ 29-35312

HOLE ABANDONED...(Y)es (N)o: N
WELL INSTALLED...(Y)es (N)o: Y
WELL CLUSTER.....(Y)es (N)o: N No. OF WELLS : 0
WELL NEST.....(Y)es (N)o: N No. OF WELLS : 0
PUMPS INSTALLED..(Y)es (N)o: N

	TYPE	DEPTH
PURGE :		0.00
SAMPLE :		0.00

BOREHOLE TESTING
BOREHOLE GEOPHYSICS.....(Y)es (N)o: N
SLUG TESTS.....(Y)es (N)o: N
PACKER TESTS.....(Y)es (N)o: N
PUMPING TESTS.....(Y)es (N)o: N

COMMENTS :
MONITOR WELL WAS BACKFILLED USING NO. 2 MORIE SAND (42-50' BGS) AND BENTONITE SEAL (41-42' BGS). LONGITUDE: 74 DEGREES 05' 17.5". LATITUDE: 40 DEGREES 17' 44.8".

 06/12/96

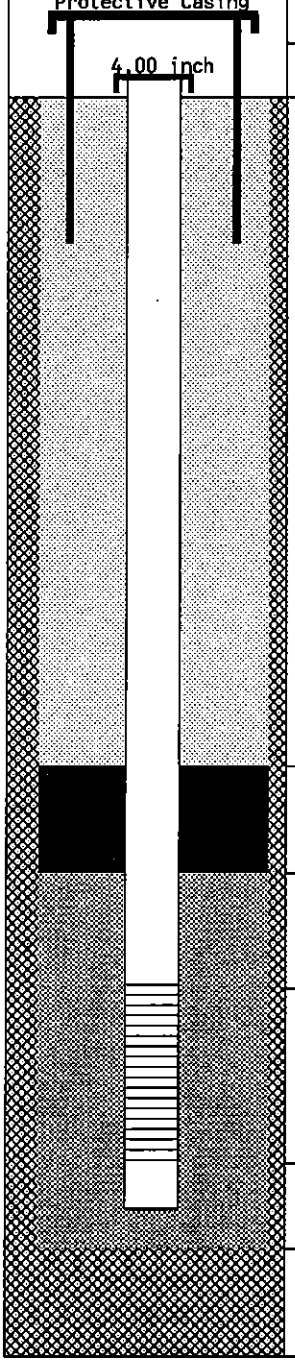
Well Completion Summary

Roy F. WESTON, Inc.

CLIENT	FT. MONMOUTH	***DRILLING FIRM***	SUMMIT DRILLING
SITE NAME	CW-1	***INSPECTOR***	P. THOMAS

WELL ID	MW-281
START DATE	05/01/96
COMPLETION DATE	05/02/96

WATER LEVELS



DEPTH		***ELEV.***
1.98	*TC*	62.56
0.00	*GS*	60.58
25.00	*BN*	35.58
28.00	*SP*	32.58
31.00	*SC*	29.58
41.00	*BS*	19.58
50.00	*TD*	10.58

DRILLING SUMMARY

Driller JOHN VOGT
Drilling Fluid WATER
Well Type SINGLE CASED SCREENED

WELL DESIGN CONSTRUCTION

Casing #1 Diameter: 4.00 ***inch*** ***Interval:*** 0.00 to 31.00 ***ft.***
Type : PVC SCH 40

Stick Up Inner Casing: 1.98 ***ft.*** ***Protective Casing:*** 0.00 ***ft.***

Casing Grout: CEMT/BENT ***Interval:*** 0.00 to 25.00 ***ft.***

Seal Type: BENTONITE ***Interval:*** 25.00 to 28.00 ***ft.***

Sand Pack Type : NO. 2 MORIE ***Interval:*** 28.00 to 31.00 ***ft.***
Grain Size : UNIFORM ***Median Diameter:***
Screen Diameter: 4.00 ***Interval:*** 31.00 to 41.00 ***ft.***
Type : PVC ***Slots:*** 0.020 ***inches***

Silt Trap Interval: 40.85 to 41.00 ***ft.***
Backfill Type : #2 SAND/BENT PL ***Interval:*** 41.00 to 50.00 ***ft.***

WELL DEVELOPMENT

Date 05/06/96
Method OVERPUMP
Yield 2 gpm ***Purged Volume***

COMMENTS

TC = Top of Casing
GS = Ground Surface
BN = Top Seal
SP = Top Sand Pack
SC = Top Screen
BS = Bottom Screen
TD = Total Depth

= Grout
= Seal
= Sand Pack
= Formation

Additional Comments:

NOTE: Well Diagram not to Scale

Elevations are feet above mean sea level

06/12/96

DATE: 06/12/96 **** Roy F. WESTON, Inc. LITHOLOGICAL DATA FOR - CLIENT ID: USAC2 *** PAGE: 1

BOREHOLE /WELL ID	SMP NUM	LTH NUM	LITHOLOGY INT. (FT BGS)		SAMPLING METHOD	SIZE GRAVEL	GRAVEL PCT.	SIZE SAND	SAND PCT	SILT PCT	CLAY PCT	ORGANIC PCT	ROCK TYPE	PLAST	SORT	STRENGTH	MOISTURE	STRAT UNIT
MW-281	1	1	0.00	0.60	SPS		0	MF	80	15	0	5		NA	MOD	LSE	MST	
MW-281	1	2	0.60	2.00	SPS		0		0	0	0	0						
MW-281	2	1	2.00	3.50	SPS		0	MF	90	10	0	0		NA	MOD	LSE	MST	
MW-281	2	2	3.50	4.00	SPS		0		0	0	0	0						
MW-281	3	1	4.00	5.00	SPS		0	MF	90	10	0	0		NA	MOD	LSE	MST	
MW-281	3	2	5.00	6.00	SPS		0		0	0	0	0						
MW-281	4	1	6.00	8.00	SPS		0		0	0	0	0						
MW-281	5	1	8.00	8.70	SPS		0	MFC	90	10	0	0		NA	MOD	SFT	SAT	
MW-281	5	2	8.70	10.00	SPS		0		0	0	0	0						
MW-281	6	1	10.00	11.10	SPS		0	MF	90	10	0	0		NA	MOD	SFT	SAT	
MW-281	6	2	11.10	12.00	SPS		0		0	0	0	0						
MW-281	7	1	12.00	13.80	SPS		0	MFC	90	10	0	0		NA	MOD	LSE	SAT	
MW-281	7	2	13.80	14.00	SPS		0		0	0	0	0						
MW-281	8	1	14.00	14.90	SPS		0	MFC	85	15	0	0		NA	MOD	LSE	SAT	
MW-281	8	2	14.90	16.00	SPS		0		0	0	0	0						
MW-281	9	1	16.00	17.20	SPS		0	MCF	85	15	0	0		NA	MOD	LSE	SAT	
MW-281	9	2	17.20	17.90	SPS		0	F	75	25	0	0		NA	WEL	SFT	SAT	
MW-281	9	3	17.90	18.00	SPS		0		0	0	0	0						
MW-281	10	1	18.00	18.80	SPS		0	FM	70	30	0	0		NA	MOD	SFT	SAT	
MW-281	10	2	18.80	19.40	SPS		0	F	50	45	5	0		NON	MOD	SFT	WET	
MW-281	10	3	19.40	20.00	SPS		0		0	0	0	0						
MW-281	11	1	20.00	21.40	SPS		0	FM	50	45	5	0		NON	MOD	SFT	WET	
MW-281	11	2	21.40	22.00	SPS		0		0	0	0	0						
MW-281	12	1	22.00	23.30	SPS		0	F	60	35	5	0		NON	MOD	SFT	WET	
MW-281	12	2	23.30	24.00	SPS		0		0	0	0	0						
MW-281	13	1	24.00	25.50	SPS		0	FM	60	30	10	0		LOW	MOD	SFT	SAT	
MW-281	13	2	25.50	26.00	SPS		0		0	0	0	0						
MW-281	14	1	26.00	27.70	SPS		0	FM	75	25	0	0		NON	MOD	SFT	SAT	
MW-281	14	2	27.70	28.00	SPS		0		0	0	0	0						
MW-281	15	1	28.00	28.70	SPS		0	FM	80	20	0	0		NON	MOD	SFT	SAT	
MW-281	15	2	28.70	29.50	SPS		0	FM	60	30	10	0		LOW	MOD	FRM	SAT	
MW-281	15	3	29.50	30.00	SPS		0		0	0	0	0						
MW-281	16	1	30.00	32.00	SPS		0	FM	75	20	5	0		NON	MOD	SFT	SAT	
MW-281	17	1	32.00	33.45	SPS		0	FM	65	20	15	0		LOW	MOD	SFT	SAT	
MW-281	17	2	33.45	34.00	SPS		0		0	0	0	0						

BOREHOLE /WELL ID	SMP NUM	LTH NUM	LITHOLOGY INT. (FT BGS)		SAMPLING METHOD	SIZE GRAVEL	GRAVEL PCT.	SIZE SAND	SAND PCT	SILT PCT	CLAY PCT	ORGANIC PCT	ROCK TYPE	PLAST	SORT	STRENGTH	MOISTURE	STRAT UNIT
MW-281	18	1	34.00	35.00	SPS		0	FM	65	20	15	0		NON	MOD	SFT	SAT	
MW-281	18	2	35.00	35.80	SPS		0	MF	75	20	5	0		NON	MOD	SFT	SAT	
MW-281	18	3	35.80	36.00	SPS		0		0	0	0	0						
MW-281	19	1	36.00	36.50	SPS		0	FM	70	25	5	0		NON	MOD	SFT	SAT	
MW-281	19	2	36.50	38.00	SPS		0		0	0	0	0						
MW-281	20	1	38.00	39.20	SPS		0	FM	50	35	15	0		NON	MOD	SFT	SAT	
MW-281	20	2	39.20	40.00	SPS		0		0	0	0	0						
MW-281	21	1	40.00	41.30	SPS		0	MF	55	30	15	0		NON	MOD	SFT	SAT	
MW-281	21	2	41.30	41.50	SPS		0	FM	40	50	10	0		NON	MOD	FRM	MST	
MW-281	21	3	41.50	42.00	SPS		0		0	0	0	0						
MW-281	22	1	42.00	42.60	SPS		0	FM	40	50	10	0		NON	MOD	FRM	MST	
MW-281	22	2	42.60	44.00	SPS		0		0	0	0	0						
MW-281	23	1	44.00	44.30	SPS		0	FM	40	50	10	0		NON	MOD	FRM	MST	
MW-281	23	2	44.30	46.00	SPS		0		0	0	0	0						
MW-281	24	1	46.00	46.75	SPS		0	FM	40	50	10	0		NON	MOD	FRM	MST	
MW-281	24	2	46.75	48.00	SPS		0		0	0	0	0						
MW-281	25	1	48.00	49.00	SPS		0	FM	40	45	15	0		NON	MOD	FRM	WET	
MW-281	25	2	49.00	50.00	SPS		0		0	0	0	0						

Borehole Log — *Roy F. WESTON, Inc.*

PROJECT	:	FT. MONMOUTH	TOTAL DEPTH	:	50.00
SITE NAME	:	CW-1	LOGGER	:	P. THOMAS
BORING ID	:	MW-281	DRILLING COMPANY	:	SUMMIT DRILLING
NORTHING	:	0.0000 estimated	DRILLING RIG	:	CME-55
EASTING	:	0.0000 estimated	DATE STARTED	:	05/01/96
ELEVATION	:	0.000 estimated	DATE COMPLETED	:	05/02/96

ELEVATION	DEPTH	MATERIAL	% RECOVERY	CLASSIFICATION	COLOR	STRENGTH	MOISTURE	BLOW COUNT	FIELD INSTRUMENT READING	COMMENTS
			30	Silty sand, SM	ORANGE BROWN	LSE	MST	5 8 9 7	PID 0.0 FID 0.0	0-0.2' BGS; TOPSOIL.
				No Sample Recovered						
-1	1									
-2	2		75	Poorly graded sand with silt, SP-SM	ORANGE BROWN	LSE	MST	6 4 4 3	PID 0.0 FID 0.0	DARK HEAVY MINERALS.
-3	3									
				No Sample Recovered						
-4	4		50	Poorly graded sand with silt, SP-SM	ORANGE BROWN	LSE	MST	2 5 4 6	PID 2.3 FID 2.7	
-5	5			No Sample Recovered						
-6	6			No Sample Recovered				2 5 2 3		
-7	7									
-8	8		35	Poorly graded sand with silt, SP-SM	OLIVE BROWN	SFT	SAT	3 3 3 4	PID 1.5 FID 2.0	SAT NOTED ~8'BGS; SLIGHTLY COARSER THAN ABOVE INTERVAL.
				No Sample Recovered						
-9	9									
-10	10		55	Poorly graded sand with silt, SP-SM	OLIVE BROWN	SFT	SAT	3 4 10 13	PID 1.5 FID 3.0	DARK HEAVY MINERALS.

PROJECT : FT. MONMOUTH		TOTAL DEPTH : 50.00	
SITE NAME : CW-1		LOGGER : P. THOMAS	
BORING ID : MW-281		DRILLING COMPANY : SUMMIT DRILLING	
NORTHING : 0.0000 estimated		DRILLING RIG : CME-55	
EASTING : 0.0000 estimated		DATE STARTED : 05/01/96	
ELEVATION : 0.000 estimated		DATE COMPLETED : 05/02/96	

ELEVATION	DEPTH	MATERIAL	% RECOVERY	CLASSIFICATION	COLOR	STRENGTH	MOISTURE	BLOW COUNT	FIELD INSTRUMENT READING	COMMENTS
				Poorly graded sand with silt, SP-SM	OLIVE BROWN	SFT	SAT		PID 1.5 FID 3.0	DARK HEAVY MINERALS.
-11	11			No Sample Recovered						
-12	12		90	Poorly graded sand with silt, SP-SM	OLIVE BROWN	LSE	SAT	10 14 11 12	PID 10.7 FID 25.0	
-13	13									
				No Sample Recovered						
-14	14		45	Silty sand, SM	OLV BRN W/FE	LSE	SAT	4 7 9 9	PID 7.0 FID 3.0	OLIVE BROWN SAND WITH IRON STAINED LAMINAE.
-15	15			No Sample Recovered						
-16	16		95	Silty sand, SM	GRAY-BROWN	LSE	SAT	9 11 17 20	PID 5.0 FID 6.0	MILD COLOR CHANGE FROMM PREVIOUS INTERVAL.
-17	17			Silty sand, SM	FE BROWN	SFT	SAT		PID 2.0 FID 3.0	
				No Sample Recovered						
-18	18		70	Silty sand, SM	FE BROWN	SFT	SAT	4 12 17 23	PID 3.0 FID 5.0	FE STAINED LAMINAE THROUGHOUT INTERVAL. TRACE CLAY, SLIGHTLY MICACEOUS.
-19	19			Silty sand, SM	V. DK BROWN	SFT	WET		PID 95.0 FID 45.0	V. DARK BROWN/ORGANIC LAYER - SLIGHTLY MICACEOUS. SAMPLED INTERVAL (CW01-SB281-A02)
				No Sample Recovered						
-20	20		70	Silty sand, SM	V. DK BROWN	SFT	WET	18 21 23 25	PID 92.0 FID 39.0	V. DK BR. ORGANIC LAYER SMALL SAND POCKETS (GRAY) AND LENSES THROUGHOUT. SLIGHTLY COARSER THAN ABV

PROJECT : FT. MONMOUTH		TOTAL DEPTH : 50.00	
SITE NAME : CW-1		LOGGER : P. THOMAS	
BORING ID : MW-281		DRILLING COMPANY : SUMMIT DRILLING	
NORTHING : 0.0000 estimated		DRILLING RIG : CME-55	
EASTING : 0.0000 estimated		DATE STARTED : 05/01/96	
ELEVATION : 0.000 estimated		DATE COMPLETED : 05/02/96	

ELEVATION	DEPTH	MATERIAL	% RECOVERY	CLASSIFICATION	COLOR	STRENGTH	MOISTURE	BLOW COUNT	FIELD INSTRUMENT READING	COMMENTS
				Silty sand, SM	V. DK BROWN	SFT	WET		PID 92.0 FID 39.0	V. DK BR. ORGANIC LAYER SMALL SAND POCKETS (GRAY) AND LENSES THROUGHOUT. SLIGHTLY COARSER THAN ABV
-21	21			No Sample Recovered						
-22	22		65	Silty sand, SM	DK BROWN	SFT	WET	13 12 12 15	PID 65.0 FID 52.0	M. GRAY SAND LAMINAE THROUGHOUT INTERVAL.
-23	23			No Sample Recovered						
-24	24		75	Silty sand, SM	DK BROWN	SFT	SAT	15 12 10 18	PID 21.0 FID 23.0	SLT. MORE CLAYEY THAN ABOVE INTERVAL. NO ODOR OR STAINING DOWN TO 25.5' BGS.
-25	25			No Sample Recovered						
-26	26		85	Silty sand, SM	DK BROWN	SFT	SAT	3 7 11 15	PID 6.0 FID 2.0	SLIGHTLY COARSER THAN ABOVE INTERVAL.
-27	27			No Sample Recovered						
-28	28		75	Silty sand, SM	DK BROWN	SFT	SAT	14 19 29 27	PID 0.5 FID 1.0	
-29	29			Silty sand, SM	V. DK BROWN	FRM	SAT		PID 1.0 FID 1.5	SLIGHTLY MORE CLAYEY THAN ABOVE INTERVAL.
				No Sample Recovered						
-30	30		100	Silty sand, SM	DK GREEN	SFT	SAT	4 13 23 21	PID 2.0 FID 3.0	SILTY SAND W/CLAY LAMINAE

PROJECT : FT. MONMOUTH		TOTAL DEPTH : 50.00	
SITE NAME : CW-1		LOGGER : P. THOMAS	
BORING ID : MW-281		DRILLING COMPANY : SUMMIT DRILLING	
NORTHING : 0.0000 estimated		DRILLING RIG : CME-55	
EASTING : 0.0000 estimated		DATE STARTED : 05/01/96	
ELEVATION : 0.000 estimated		DATE COMPLETED : 05/02/96	

ELEVATION	DEPTH	% RECOVERY	CLASSIFICATION	COLOR	STRENGTH	MOISTURE	BLOW COUNT	FIELD INSTRUMENT READING	COMMENTS
			Silty sand, SM	DK GREEN	SFT	SAT		PID 2.0 FID 3.0	SILTY SAND W/CLAY LAMINAE
-31	31								
-32	32	72	Silty sand, SM	DK GREEN BROWN	SFT	SAT	14 13 24 21	PID 25.0 FID 19.0	SLT MORE FINE/CLAYEY; DK BROWN (GREEN) W/REDDISH CLAY POCKETS AND LAMINAE.
-33	33								
			No Sample Recovered						
-34	34	90	Silty sand, SM	DK GREEN BROWN	SFT	SAT	15 24 23 26	PID 9.0 FID 16.0	MILD CHANGE IN CLAY CONTENT @ APPROX 35' BGS.
-35	35		Silty sand, SM	DK BROWN	SFT	SAT		PID 6.0 FID 12.0	
			No Sample Recovered						
-36	36	25	Silty sand, SM	DK BROWN	SFT	SAT	18 35 100 0	ID 12.0 FID 22.0	
			No Sample Recovered						
-37	37								
-38	38	60	Silty sand, SM	DK GREEN BRN	SFT	SAT	20 55 40 38	PID 1.8 FID 1.4	FINER THAN ABOVE INTERVAL, SAMPLED INTERVAL (CW01-SB281-A03).
-39	39								
			No Sample Recovered						
-40	40	75	Silty sand, SM	DK BROWN	SFT	SAT	23 25 25 30	PID 0.2 FID 0.1	DIFFICULT TO DETERMINE - MAYBE SLOUGH.

PROJECT : FT. MONMOUTH		TOTAL DEPTH : 50.00	
SITE NAME : CW-1		LOGGER : P. THOMAS	
BORING ID : MW-281		DRILLING COMPANY : SUMMIT DRILLING	
NORTHING : 0.0000 estimated		DRILLING RIG : CME-55	
EASTING : 0.0000 estimated		DATE STARTED : 05/01/96	
ELEVATION : 0.000 estimated		DATE COMPLETED : 05/02/96	

ELEVATION	DEPTH	MATERIAL	% RECOVERY	CLASSIFICATION	COLOR	STRENGTH	MOISTURE	BLOW COUNT	FIELD INSTRUMENT READING	COMMENTS
				Silty sand, SM	DK BROWN	SFT	SAT		PID 0.2 FID 0.1	DIFFICULT TO DETERMINE - MAYBE SLOUGH.
-41	41			Sandy silt, ML	GREEN	FRM	MST		PID 0.2 FID 0.1	VERY TIGHT UNIT; SET WELL AT 41' BGS, SCREENED 31-41' BGS.
				No Sample Recovered						
-42	42		30	Sandy silt, ML	OLIVE GREEN	FRM	MST	23 26 28 40	PID 0.1 FID 0.1	VERY TIGHT UNIT.
				No Sample Recovered						
-43	43									
-44	44		15	Sandy silt, ML	OLIVE GREEN	FRM	MST	20 21 22 26	PID 0.2 FID 0.1	VERY TIGHT UNIT.
				No Sample Recovered						
-45	45									
-46	46		37	Sandy silt, ML	(OLIVE) GREEN	FRM	MST	49 50 100 0	PID 0.1 FID 0.1	VERY TIGHT UNIT.
				No Sample Recovered						
-47	47									
-48	48		50	Sandy silt, ML	GREEN	FRM	WET	41 39 39 40	PID 0.0 FID 0.0	SLIGHTLY MORE CLAYEY. VERY TIGHT UNIT.
				No Sample Recovered						
-49	49									
-50	50									

BOREHOLE ID : MW-282 PROJECT NAME: FT. MONMOUTH
BEGIN DATE : 05/02/96 END DATE : 05/03/96

LOGGER/COMPANY : P. THOMAS

BOREHOLE COMPLETED IN (<O>verburden <B>edrock) : O

TOTAL DEPTH : 42.00 DEPTH TO BEDROCK : 0.00

BOREHOLE DIAMETER #1: 6.25
INTERVAL: 0.00 ft. to 16.00 ft. BGS
METHOD : HSA FLUID : NONE
BOREHOLE DIAMETER #2: 4.25
INTERVAL: 16.00 ft. to 40.00 ft. BGS
METHOD : HSA FLUID : NONE
BOREHOLE DIAMETER #3: 2.00
INTERVAL: 40.00 ft. to 42.00 ft. BGS
METHOD : SPLIT SPOON SAMPLER FLUID : NONE

DRILLING COMPANY : SUMMIT DRILLING
DRILLER : JOHN VOGT
DRILL RIG TYPE : CME-55

	ESTIMATED	SURVEYED
SURFACE ELEVATION :	0.000	
N. COORDINATE :	0.0000	
E. COORDINATE :	0.0000	

WELL PERMIT.....(Y)es (N)o: Y PERMIT # : NJ 29-35313

HOLE ABANDONED...(Y)es (N)o: N
WELL INSTALLED...(Y)es (N)o: Y
WELL CLUSTER.....(Y)es (N)o: N No. OF WELLS : 0
WELL NEST.....(Y)es (N)o: N No. OF WELLS : 0
PUMPS INSTALLED..(Y)es (N)o: N

	TYPE	DEPTH
PURGE :		0.00
SAMPLE :		0.00

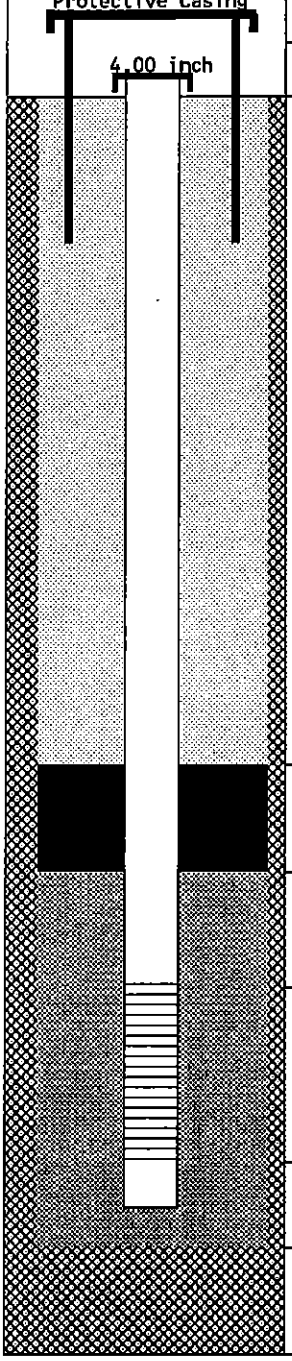
BOREHOLE TESTING
BOREHOLE GEOPHYSICS.....(Y)es (N)o: N
SLUG TESTS.....(Y)es (N)o: N
PACKER TESTS.....(Y)es (N)o: N
PUMPING TESTS.....(Y)es (N)o: N

COMMENTS :
BACKFILLED 16 TO 42' BGS WITH NO. 2 MORIE SAND AND BENTONITE PLUG. LONGITUDE: 74 DEGREES 05' 17.0". LATITUDE: 40 DEGREES 17' 45.8".

Well Completion Summary — *Roy F. WESTON, Inc.*

CLIENT	FT. MONMOUTH	***DRILLING FIRM***	SUMMIT DRILLING
SITE NAME	CW-1	***INSPECTOR***	P. THOMAS

WELL ID	MW-282	***WATER LEVELS***
START DATE	05/02/96	
COMPLETION DATE	05/02/96	



DEPTH		***ELEV.***
1.01	*TC*	61.68
0.00	*GS*	60.67
2.00	*BN*	58.67
4.00	*SP*	56.67
6.00	*SC*	54.67
15.85	*BS*	44.82
42.00	*TD*	18.67

DRILLING SUMMARY

Driller JOHN VOGT
Drilling Fluid NONE
Well Type SINGLE CASED SCREENED

WELL DESIGN CONSTRUCTION

Casing #1 Diameter: 4.00 *inch* ***Interval:*** 0.00 to 6.00 *ft.*
Type : PVC SCH 40

Stick Up Inner Casing: 1.01 *ft.* ***Protective Casing:*** 0.00 *ft.*

Casing Grout: CEMT/BENT ***Interval:*** 0.00 to 2.00 *ft.*

Seal Type: BENTONITE ***Interval:*** 2.00 to 4.00 *ft.*

Sand Pack Type : NO. 2 MORIE ***Interval:*** 4.00 to 16.00 *ft.*
Grain Size : UNIFORM ***Median Diameter:***
Screen Diameter: 4.00 ***Interval:*** 6.00 to 15.85 *ft.*
Type : PVC ***Slots:*** 0.020 *inches*

Silt Trap Interval: 15.85 to 16.00 *ft.*
Backfill Type : #2 SAND/BENT PL ***Interval:*** 16.00 to 42.00 *ft.*

WELL DEVELOPMENT

Date 05/06/96
Method OVERPUMP
Yield <1 gpm ***Purged Volume***

COMMENTS

TC = Top of Casing
GS = Ground Surface
BN = Top Seal
SP = Top Sand Pack
SC = Top Screen
BS = Bottom Screen
TD = Total Depth

= Grout
= Seal
= Sand Pack
= Formation

Additional Comments:

NOTE: Well Diagram not to Scale ***Elevations are feet above mean sea level***

06/12/96

BOREHOLE /WELL ID	SMP NUM	LTH NUM	LITHOLOGY INT. (FT BGS)		SAMPLING METHOD	SIZE GRAVEL	GRAVEL PCT.	SIZE SAND	SAND PCT	SILT PCT	CLAY PCT	ORGANIC PCT	ROCK TYPE	PLAST	SORT	STRENGTH	MOISTURE	STRAT UNIT
MW-282	1	1	0.00	1.00	SPS		0	FM	80	20	0	0		NA	MOD	LSE	MST	
MW-282	1	2	1.00	2.00	SPS		0		0	0	0	0						
MW-282	2	1	2.00	3.40	SPS		0	MF	95	5	0	0		NA	MOD	SFT	MST	
MW-282	2	2	3.40	4.00	SPS		0		0	0	0	0						
MW-282	3	1	4.00	5.80	SPS		0	MF	95	5	0	0		NA	MOD	SFT	MST	
MW-282	3	2	5.80	6.00	SPS		0		0	0	0	0						
MW-282	4	1	6.00	7.70	SPS		0	MF	90	10	0	0		NA	MOD	LSE	WET	
MW-282	4	2	7.70	8.00	SPS		0		0	0	0	0						
MW-282	5	1	8.00	9.60	SPS		0	MF	90	10	0	0		NA	MOD	SFT	SAT	
MW-282	5	2	9.60	10.00	SPS		0		0	0	0	0						
MW-282	6	1	10.00	11.80	SPS		0	MF	85	15	0	0		NA	MOD	SFT	SAT	
MW-282	6	2	11.80	12.00	SPS		0		0	0	0	0						
MW-282	7	1	12.00	13.50	SPS		0	MF	85	15	0	0		NA	MOD	SFT	SAT	
MW-282	7	2	13.50	14.00	SPS		0		0	0	0	0						
MW-282	8	1	14.00	15.40	SPS		0	MF	85	15	0	0		NA	MOD	SFT	SAT	
MW-282	8	2	15.40	16.00	SPS		0		0	0	0	0						
MW-282	9	1	16.00	16.90	SPS		0	FM	80	20	0	0		NA	MOD	SFT	SAT	
MW-282	9	2	16.90	18.00	SPS		0		0	0	0	0						
MW-282	10	1	18.00	18.90	SPS		0	F	65	35	0	0		NA	WEL	SFT	SAT	
MW-282	10	2	18.90	20.00	SPS		0		0	0	0	0						
MW-282	11	1	20.00	20.40	SPS		0	F	55	45	0	0		NA	MOD	SFT	SAT	
MW-282	11	2	20.40	22.00	SPS		0		0	0	0	0						
MW-282	12	1	22.00	22.60	SPS		0	F	55	45	0	0		NON	MOD	SFT	SAT	
MW-282	12	2	22.60	24.00	SPS		0		0	0	0	0						
MW-282	13	1	24.00	24.60	SPS		0	F	55	45	0	0		NON	MOD	SFT	SAT	
MW-282	13	2	24.60	26.00	SPS		0		0	0	0	0						
MW-282	14	1	26.00	26.70	SPS		0	FM	60	40	0	0		NA	MOD	SFT	SAT	
MW-282	14	2	26.70	28.00	SPS		0		0	0	0	0						
MW-282	15	1	28.00	29.00	SPS		0	FM	60	35	5	0		NA	MOD	SFT	SAT	
MW-282	15	2	29.00	30.00	SPS		0		0	0	0	0						
MW-282	16	1	30.00	30.90	SPS		0	FM	60	35	5	0		NON	MOD	SFT	SAT	
MW-282	16	2	30.90	32.00	SPS		0		0	0	0	0						
MW-282	17	1	32.00	32.60	SPS		0	FM	60	30	10	0		LOW	MOD	SFT	WET	
MW-282	17	2	32.60	34.00	SPS		0		0	0	0	0						
MW-282	18	1	34.00	34.90	SPS		0	FM	55	30	15	0		LOW	MOD	FRM	WET	

BOREHOLE /WELL ID	SMP NUM	LTH NUM	LITHOLOGY INT. (FT BGS)		SAMPLING METHOD	SIZE GRAVEL	GRAVEL PCT.	SIZE SAND	SAND PCT	SILT PCT	CLAY PCT	ORGANIC PCT	ROCK TYPE	PLAST	SORT	STRENGTH	MOISTURE	STRAT UNIT
MW-282	18	2	34.90	36.00	SPS		0		0	0	0	0						
MW-282	19	1	36.00	37.20	SPS		0	MF	60	30	10	0		NON	MOD	SFT	SAT	
MW-282	19	2	37.20	38.00	SPS		0		0	0	0	0						
MW-282	20	1	38.00	39.00	SPS		0	MF	60	30	10	0		NON	MOD	SFT	SAT	
MW-282	20	2	39.00	40.00	SPS		0		0	0	0	0						
MW-282	21	1	40.00	40.40	SPS		0	MF	60	30	10	0		NON	MOD	FRM	SAT	
MW-282	21	2	40.40	41.40	SPS		0	FM	40	50	10	0		NON	MOD	FRM	MST	
MW-282	21	3	41.40	42.00	SPS		0		0	0	0	0						

PROJECT : FT. MONMOUTH		TOTAL DEPTH : 42.00	
SITE NAME : CW-1		LOGGER : P. THOMAS	
BORING ID : MW-282		DRILLING COMPANY : SUMMIT DRILLING	
NORTHING : 0.0000 estimated		DRILLING RIG : CME-55	
EASTING : 0.0000 estimated		DATE STARTED : 05/02/96	
ELEVATION : 0.000 estimated		DATE COMPLETED : 05/03/96	

ELEVATION	DEPTH	MATERIAL	% RECOVERY	CLASSIFICATION	COLOR	STRENGTH	MOISTURE	BLOW COUNT	FIELD INSTRUMENT READING	COMMENTS
			50	Silty sand, SM	BROWN	LSE	MST	9 17 15 11	PID 0.0 FID 0.0	TOP OF 0-0.3 TOPSOIL; GLASS FRAGMENTS 0.5', CHARCOAL FRAG. 0.65', SILTY SAND.
-1	1			No Sample Recovered						
-2	2		70	Poorly graded sand, SP	LT BROWN	SFT	MST	13 13 13 14	PID 0.0 FID 0.0	LIGHT IRON STAINED LAMINAE THROUGHOUT.
-3	3			No Sample Recovered						
-4	4		90	Poorly graded sand, SP	LT BROWN	SFT	MST	12 9 7 6	PID 0.0 FID 0.0	WET IN DRILL SHOE.
-5	5									
				No Sample Recovered						
-6	6		85	Poorly graded sand with silt, SP-SM	OLIVE BROWN	LSE	WET	5 4 4 6	PID 0.0 FID 0.0	WET @6'
-7	7									
				No Sample Recovered						
-8	8		80	Poorly graded sand with silt, SP-SM	OLIVE BROWN	SFT	SAT	9 11 14 20	PID 0.0 FID 0.0	
-9	9									
				No Sample Recovered						
-10	10		90	Silty sand, SM	OLIVE BROWN	SFT	SAT	17 16 16 20	PID 0.0 FID 0.0	SLIGHTLY DARKER THAN ABOVE INTERVAL. SLIGHTLY FINER.

PROJECT : FT. MONMOUTH		TOTAL DEPTH : 42.00	
SITE NAME : CW-1		LOGGER : P. THOMAS	
BORING ID : MW-282		DRILLING COMPANY : SUMMIT DRILLING	
NORTHING : 0.0000 estimated		DRILLING RIG : CME-55	
EASTING : 0.0000 estimated		DATE STARTED : 05/02/96	
ELEVATION : 0.000 estimated		DATE COMPLETED : 05/03/96	

ELEVATION	DEPTH	MATERIAL	% RECOVERY	CLASSIFICATION	COLOR	STRENGTH	MOISTURE	BLOW COUNT	FIELD INSTRUMENT READING	COMMENTS
				Silty sand, SM	OLIVE BROWN	SFT	SAT		PID 0.0 FID 0.0	SLIGHTLY DARKER THAN ABOVE INTERVAL. SLIGHTLY FINER.
-11	11									
				No Sample Recovered						
-12	12		75	Silty sand, SM	OLIVE BROWN	SFT	SAT	22 23 26 16	PID 0.0 FID 0.0	
-13	13									
				No Sample Recovered				22 32 26 16		
-14	14		70	Silty sand, SM	OLIVE BROWN	SFT	SAT	18 12 3 6 9	PID 0.0 FID 0.0	SET WELL AT 16' BGS.
-15	15									
				No Sample Recovered						
-16	16		45	Silty sand, SM	IRON BROWN	SFT	SAT	3 12 13 17	PID 0.0 FID 0.0	FE STAINED SILT LAMINAE THROUGHOUT INT. CHANGE IN COLOR AS WELL AS SIZE OF SAND FROM PREVIOUS INT
-17	17			No Sample Recovered						
-18	18		45	Silty sand, SM	FE BRN/OLV BRN	SFT	SAT	10 15 16 19	PID 0.0 FID 0.0	OLIVE BROWN AND IRON STAINED LAMINAE. FINER THAN ABOVE INTERVAL.
-19	19			No Sample Recovered						
-20	20		20	Silty sand, SM	DK GRAY/BROWN	SFT	SAT	10 14 16 20	PID 0.0 FID 0.0	ORGANIC LAYER. VERY MICACEOUS.

PROJECT : FT. MONMOUTH		TOTAL DEPTH : 42.00	
SITE NAME : CW-1		LOGGER : P. THOMAS	
BORING ID : MW-282		DRILLING COMPANY : SUMMIT DRILLING	
NORTHING : 0.0000 estimated		DRILLING RIG : CME-55	
EASTING : 0.0000 estimated		DATE STARTED : 05/02/96	
ELEVATION : 0.000 estimated		DATE COMPLETED : 05/03/96	

ELEVATION	DEPTH	MATERIAL	% RECOVERY	CLASSIFICATION	COLOR	STRENGTH	MOISTURE	BLOW COUNT	FIELD INSTRUMENT READING	COMMENTS
				Silty sand, SM	DK GRAY/BROWN	SFT	SAT		PID 0.0 FID 0.0	ORGANIC LAYER. VERY MICACEOUS.
				No Sample Recovered						
-21	21									
-22	22		30	Silty sand, SM	DK BROWN	SFT	SAT	11 12 16 18	PID 0.0 FID 0.0	
				No Sample Recovered						
-23	23									
-24	24		30	Silty sand, SM	DK GRAY BRN	SFT	SAT	8 10 12 10	PID 0.0 FID 0.0	
				No Sample Recovered						
-25	25									
-26	26		35	Silty sand, SM	DK GRAY/BROWN	SFT	SAT	4 10 14 18	PID 0.0 FID 0.0	
				No Sample Recovered						
-27	27									
-28	28		50	Silty sand, SM	DK GRAY BRN	SFT	SAT	10 14 21 16	PID 0.0 FID 0.0	SLIGHTLY MORE COMPACT THAN ABOVE INTERVAL, STILL SLIGHTLY MICACEOUS.
-29	29			No Sample Recovered						
-30	30		45	Silty sand, SM	DK GRN BRN	SFT	SAT	11 13 13 22	PID 0.0 FID 0.0	

PROJECT : FT. MONMOUTH		TOTAL DEPTH : 42.00	
SITE NAME : CW-1		LOGGER : P. THOMAS	
BORING ID : MW-282		DRILLING COMPANY : SUMMIT DRILLING	
NORTHING : 0.0000 estimated		DRILLING RIG : CME-55	
EASTING : 0.0000 estimated		DATE STARTED : 05/02/96	
ELEVATION : 0.000 estimated		DATE COMPLETED : 05/03/96	

ELEVATION	DEPTH	% RECOVERY	CLASSIFICATION	COLOR	STRENGTH	MOISTURE	BLOW COUNT	FIELD INSTRUMENT READING	COMMENTS
			Silty sand, SM	DK GRN BRN	SFT	SAT		PID 0.0 FID 0.0	
-31	31		No Sample Recovered						
-32	32	30	Silty sand, SM	DK GRN BRN	SFT	WET	11 13 19 22	PID 0.0 FID 0.0	SLIGHTLY MORE CLAYEY; SAND WITH CLAY SILT MATRIX. SPOON SAT.
			No Sample Recovered						
-33	33								
-34	34	45	Silty sand, SM	DK GREEN BROWN	FRM	WET	6 10 13 18	PID 0.0 FID 0.0	SAND WITH CLAY/SILT MATRIX. SLIGHTLY MORE CLAYEY (SPOON SAT.)
-35	35		No Sample Recovered						
-36	36	60	Silty sand, SM	DK BROWN	SFT	SAT	25 53 100 0	PID 0.0 FID 0.0	COARSER THAN ABOVE INTERVAL. SPOON REFUSAL 37.25'.
-37	37		No Sample Recovered						
-38	38	50	Silty sand, SM	DK GREEN BRN	SFT	SAT	54 94 100 0	PID 0.0 FID 0.0	SPOON REFUSAL AT 39.2'.
-39	39		No Sample Recovered						
-40	40	70	Silty sand, SM	DK BROWN	FRM	SAT	52 88 100 0	PID 0.0 FID 0.0	

PROJECT : FT. MONMOUTH		TOTAL DEPTH : 42.00	
SITE NAME : CW-1		LOGGER : P. THOMAS	
BORING ID : MW-282		DRILLING COMPANY : SUMMIT DRILLING	
NORTHING : 0.0000 estimated		DRILLING RIG : CME-55	
EASTING : 0.0000 estimated		DATE STARTED : 05/02/96	
ELEVATION : 0.000 estimated		DATE COMPLETED : 05/03/96	

ELEVATION	DEPTH	MATERIAL	% RECOVERY	CLASSIFICATION	COLOR	STRENGTH	MOISTURE	BLOW COUNT	FIELD INSTRUMENT READING	COMMENTS
				Silty sand, SM	DK BROWN	FRM	SAT		PID 0.0 FID 0.0	
				Sandy silt, ML	DK GREEN BRN	FRM	MST		PID 0.0 FID 0.0	VERY COMPACT, SANDY SILT WITH SOME CLAY.
-41	41									
				No Sample Recovered						
-42	42									
-43	43									
-44	44									
-45	45									
-46	46									
-47	47									
-48	48									
-49	49									
-50	50									

BOREHOLE ID : MW-291 PROJECT NAME: FT. MONMOUTH
BEGIN DATE : 05/03/96 END DATE : 05/03/96

LOGGER/COMPANY : P. THOMAS

BOREHOLE COMPLETED IN (<O>verburden <B>edrock) : O

TOTAL DEPTH : 34.00 DEPTH TO BEDROCK : 0.00

BOREHOLE DIAMETER #1: 6.25
INTERVAL: 0.00 ft. to 16.00 ft. BGS
METHOD : HSA FLUID : NONE
BOREHOLE DIAMETER #2: 4.25
INTERVAL: 16.00 ft. to 32.00 ft. BGS
METHOD : HSA FLUID : NONE
BOREHOLE DIAMETER #3: 2.00
INTERVAL: 32.00 ft. to 34.00 ft. BGS
METHOD : SPLIT SPOON SAMPLER FLUID : NONE

DRILLING COMPANY : SUMMIT DRILLING
DRILLER : JOHN VOGT
DRILL RIG TYPE : CME-55

	ESTIMATED	SURVEYED
SURFACE ELEVATION :	0.000	
N. COORDINATE :	0.0000	
E. COORDINATE :	0.0000	

WELL PERMIT.....(Y)es (N)o: Y PERMIT # : NJ 29-35314

HOLE ABANDONED...(Y)es (N)o: N
WELL INSTALLED...(Y)es (N)o: Y
WELL CLUSTER.....(Y)es (N)o: N No. OF WELLS : 0
WELL NEST.....(Y)es (N)o: N No. OF WELLS : 0
PUMPS INSTALLED..(Y)es (N)o: N TYPE DEPTH
PURGE : 0.00
SAMPLE : 0.00

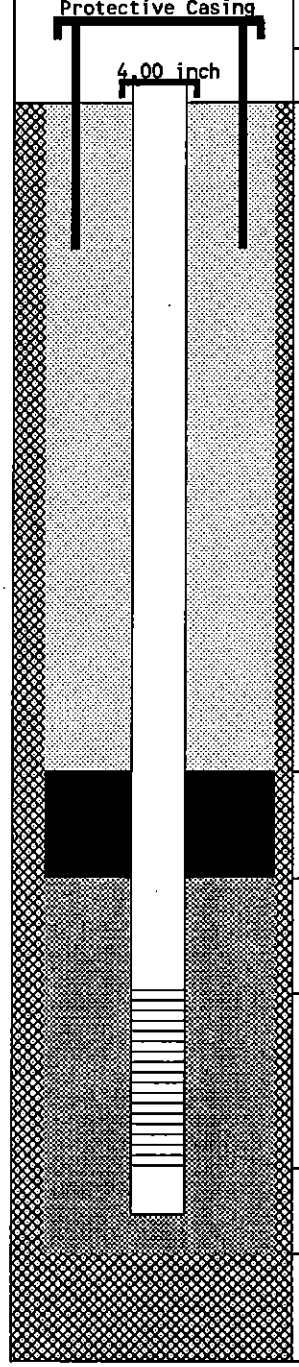
BOREHOLE TESTING
BOREHOLE GEOPHYSICS.....(Y)es (N)o: N
SLUG TESTS.....(Y)es (N)o: N
PACKER TESTS.....(Y)es (N)o: N
PUMPING TESTS.....(Y)es (N)o: N

COMMENTS :
LONGITUDE: 74 DEGREES 05' 16.4".
LATITUDE: 40 DEGREES 17' 45.1".

Well Completion Summary — *Roy F. WESTON, Inc.*

CLIENT	FT. MONMOUTH	***DRILLING FIRM***	SUMMIT DRILLING
SITE NAME	CW-1	***INSPECTOR***	P. THOMAS

WELL ID	MW-291	***WATER LEVELS***
START DATE	05/03/96	
COMPLETION DATE	05/03/96	



DEPTH		***ELEV.***
2.00	*TC*	63.58
0.00	*GS*	61.58
2.00	*BN*	59.58
4.00	*SP*	57.58
6.00	*SC*	55.58
15.85	*BS*	45.73
34.00	*TD*	27.58

DRILLING SUMMARY

Driller JOHN VOGT
Drilling Fluid NONE
Well Type SINGLE CASED SCREENED

WELL DESIGN CONSTRUCTION

Casing #1 Diameter: 4.00 ***inch*** ***Interval:*** 0.00 to 6.00 ***ft.***
Type : PVC SCH 40

Stick Up Inner Casing: 2.00 ***ft.*** ***Protective Casing:*** 0.00 ***ft.***

Casing Grout: CEMT/BENT ***Interval:*** 0.00 to 2.00 ***ft.***

Seal Type: BENTONITE ***Interval:*** 2.00 to 4.00 ***ft.***

Sand Pack Type : NO. 2 MORIE ***Interval:*** 4.00 to 16.00 ***ft.***
Grain Size : UNIFORM ***Median Diameter:***
Screen Diameter: 4.00 ***Interval:*** 6.00 to 15.85 ***ft.***
Type : PVC ***Slots:*** 0.020 ***inches***

Silt Trap Interval: 15.85 to 16.00 ***ft.***
Backfill Type : CAVE-IN ***Interval:*** 16.00 to 34.00 ***ft.***

WELL DEVELOPMENT

Date 05/06/96
Method BAIL/OVERPUMP
Yield 2 gpm ***Purged Volume***

COMMENTS

TC = Top of Casing
GS = Ground Surface
BN = Top Seal
SP = Top Sand Pack
SC = Top Screen
BS = Bottom Screen
TD = Total Depth

= Grout
= Seal
= Sand Pack
= Formation

Additional Comments:

NOTE: Well Diagram not to Scale ***Elevations are feet above mean sea level***

06/12/96

BOREHOLE /WELL ID	SMP NUM	LTH NUM	LITHOLOGY INT. (FT BGS)		SAMPLING METHOD	SIZE GRAVEL	GRAVEL PCT.	SIZE SAND	SAND PCT	SILT PCT	CLAY PCT	ORGANIC PCT	ROCK TYPE	PLAST	SORT	STRENGTH	MOISTURE	STRAT UNIT
MW-291	1	1	0.00	1.70	SPS		0	MF	80	20	0	0		NA	MOD	LSE	MST	
MW-291	1	2	1.70	2.00	SPS		0		0	0	0	0						
MW-291	2	1	2.00	3.00	SPS		0	MF	85	15	0	0		NA	MOD	SFT	WET	
MW-291	2	2	3.00	4.00	SPS		0		0	0	0	0						
MW-291	3	1	4.00	5.10	SPS		0	MF	90	10	0	0		NA	WEL	LSE	MST	
MW-291	3	2	5.10	6.00	SPS		0		0	0	0	0						
MW-291	4	1	6.00	7.30	SPS		0	MF	90	10	0	0		NON	MOD	LSE	MST	
MW-291	4	2	7.30	8.00	SPS		0		0	0	0	0						
MW-291	5	1	8.00	9.20	SPS		0	MF	90	10	0	0		NON	MOD	SFT	SAT	
MW-291	5	2	9.20	10.00	SPS		0		0	0	0	0						
MW-291	6	1	10.00	11.40	SPS		0	MF	80	20	0	0		NON	MOD	SFT	SAT	
MW-291	6	2	11.40	12.00	SPS		0		0	0	0	0						
MW-291	7	1	12.00	13.50	SPS		0	MF	80	20	0	0		NON	MOD	SFT	SAT	
MW-291	7	2	13.50	14.00	SPS		0		0	0	0	0						
MW-291	8	1	14.00	15.20	SPS		0	MF	80	20	0	0		NA	MOD	SFT	SAT	
MW-291	8	2	15.20	16.00	SPS		0		0	0	0	0						
MW-291	9	1	16.00	17.00	SPS		0	MF	80	20	0	0		NA	MOD	SFT	SAT	
MW-291	9	2	17.00	18.00	SPS		0		0	0	0	0						
MW-291	10	1	18.00	20.00	SPS		0		0	0	0	0						
MW-291	11	1	20.00	20.40	SPS		0	F	70	25	5	0		NON	MOD	SFT	SAT	
MW-291	11	2	20.40	22.00	SPS		0		0	0	0	0						
MW-291	12	1	22.00	22.40	SPS		0		50	45	5	0		NA	WEL	SFT	WET	
MW-291	12	2	22.40	24.00	SPS		0		0	0	0	0						
MW-291	13	1	24.00	25.20	SPS		0		55	40	5	0		NON	WEL	SFT	WET	
MW-291	13	2	25.20	26.00	SPS		0		0	0	0	0						
MW-291	14	1	26.00	27.50	SPS		0	F	50	40	10	0		NON	WEL	SFT	MST	
MW-291	14	2	27.50	28.00	SPS		0		0	0	0	0						
MW-291	15	1	28.00	28.40	SPS		0	FM	60	30	10	0		NON	MOD	SFT	WET	
MW-291	15	2	28.40	30.00	SPS		0		0	0	0	0						
MW-291	16	1	30.00	30.40	SPS		0	MF	55	30	15	0		LOW	MOD	SFT	WET	
MW-291	16	2	30.40	32.00	SPS		0		0	0	0	0						
MW-291	17	1	32.00	32.40	SPS		0	FM	50	30	20	0		MOD	MOD	FRM	MST	
MW-291	17	2	32.40	34.00	SPS		0		0	0	0	0						

Borehole Log

Roy F. WESTON, Inc.

PROJECT : FT. MONMOUTH		TOTAL DEPTH : 34.00	
SITE NAME : CW-1		LOGGER : P. THOMAS	
BORING ID : MW-291		DRILLING COMPANY : SUMMIT DRILLING	
NORTHING : 0.0000 estimated		DRILLING RIG : CME-55	
EASTING : 0.0000 estimated		DATE STARTED : 05/03/96	
ELEVATION : 0.000 estimated		DATE COMPLETED : 05/03/96	

ELEVATION	DEPTH	MATERIAL	% RECOVERY	CLASSIFICATION	COLOR	STRENGTH	MOISTURE	BLOW COUNT	FIELD INSTRUMENT READING	COMMENTS
			85	Silty sand, SM	BROWN	LSE	MST	2 6 6 6	PID 0.0 FID 0.0	TOP 0-0.3 TOPSOIL.
-1	1									
				No Sample Recovered						
-2	2		50	Silty sand, SM	DK BROWN	SFT	WET	11 23 20 20	PID 0.0 FID 0.0	
-3	3			No Sample Recovered						
-4	4		55	Poorly graded sand with silt, SP-SM	OLIVE BROWN	LSE	MST	20 16 16 16	PID 0.0 FID 0.0	
-5	5			No Sample Recovered						
-6	6		65	Poorly graded sand with silt, SP-SM	OLIVE BROWN	LSE	MST	16 8 13 11	PID 0.0 FID 0.0	IRON STAINED LAMINAE ~7-7.3 FT.
-7	7			No Sample Recovered						
-8	8		60	Poorly graded sand with silt, SP-SM	OLIVE BROWN	SFT	SAT	8 9 10 13	PID 0.0 FID 0.0	SAT ~8' BGS.
-9	9			No Sample Recovered						
-10	10		70	Silty sand, SM	OLIVE BROWN	SFT	SAT	13 11 18 20	PID 0.0 FID 0.0	

PROJECT : FT. MONMOUTH		TOTAL DEPTH : 34.00	
SITE NAME : CW-1		LOGGER : P. THOMAS	
BORING ID : MW-291		DRILLING COMPANY : SUMMIT DRILLING	
NORTHING : 0.0000 estimated		DRILLING RIG : CME-55	
EASTING : 0.0000 estimated		DATE STARTED : 05/03/96	
ELEVATION : 0.000 estimated		DATE COMPLETED : 05/03/96	

ELEVATION	DEPTH	MATERIAL	% RECOVERY	CLASSIFICATION	COLOR	STRENGTH	MOISTURE	BLOW COUNT	FIELD INSTRUMENT READING	COMMENTS
				Silty sand, SM	OLIVE BROWN	SFT	SAT		PID 0.0 FID 0.0	
-11	11									
				No Sample Recovered						
-12	12		75	Silty sand, SM	OLIVE BROWN	SFT	SAT	27 22 18 16	PID 0.0 FID 0.0	
-13	13									
				No Sample Recovered						
-14	14		60	Silty sand, SM	OLIVE BROWN	SFT	SAT	11 12 13 11	PID 0.0 FID 0.0	
-15	15									
				No Sample Recovered						
-16	16		50	Silty sand, SM	DK OLIVE BROWN	SFT	SAT	13 10 11 12	PID 0.0 FID 0.0	STILL IRON STAINED LAMINAE THROUGHOUT INTERVAL.
-17	17			No Sample Recovered						
-18	18			No Sample Recovered				14 14 16 14		ALL SLOUGH
-19	19									
-20	20		20	Silty sand, SM	FE STAINED	SFT	SAT	2 5 12 19	PID 0.0 FID 0.0	FINE GRAINED SAND.

PROJECT : FT. MONMOUTH		TOTAL DEPTH : 34.00	
SITE NAME : CW-1		LOGGER : P. THOMAS	
BORING ID : MW-291		DRILLING COMPANY : SUMMIT DRILLING	
NORTHING : 0.0000 estimated		DRILLING RIG : CME-55	
EASTING : 0.0000 estimated		DATE STARTED : 05/03/96	
ELEVATION : 0.000 estimated		DATE COMPLETED : 05/03/96	

ELEVATION	DEPTH	MATERIAL	% RECOVERY	CLASSIFICATION	COLOR	STRENGTH	MOISTURE	BLOW COUNT	FIELD INSTRUMENT READING	COMMENTS
				Silty sand, SM	FE STAINED	SFT	SAT		PID 0.0 FID 0.0	FINE GRAINED SAND.
				No Sample Recovered						
-21	21									
-22	22		20	Silty sand, SM	BROWN	SFT	WET	17 16 18 21	PID 0.0 FID 0.0	ORGANIC LAYER.
				No Sample Recovered						
-23	23									
-24	24		70	Silty sand, SM	DK BROWN	SFT	WET	7 13 10 13	PID 0.0 FID 0.0	ORGANIC LAYER, VERY MICACEOUS (PID/FID INSTRUMENT APPEARS TO BE INOPERATIVE).
-25	25			No Sample Recovered						
-26	26		75	Silty sand, SM	BROWN	SFT	MST	8 7 9 14	PID 0.0 FID 0.0	MORE CLAYEY INTERVAL, FINER SLIGHTLY MICACEOUS PID/FID INOPERATIVE. DRILLER NOTED CHANGE ~26'
-27	27			No Sample Recovered						
-28	28		20	Silty sand, SM	DK GREEN BROWN	SFT	WET	6 7 13 17		
				No Sample Recovered						
-29	29									
-30	30		20	Silty sand, SM	DK GREEN BROWN	SFT	WET	10 11 12 14		

PROJECT : FT. MONMOUTH		TOTAL DEPTH	: 34.00
SITE NAME : CW-1		LOGGER	: P. THOMAS
BORING ID : MW-291		DRILLING COMPANY	: SUMMIT DRILLING
NORTHING : 0.0000 estimated		DRILLING RIG	: CME-55
EASTING : 0.0000 estimated		DATE STARTED	: 05/03/96
ELEVATION : 0.000 estimated		DATE COMPLETED	: 05/03/96

ELEVATION	DEPTH	MATERIAL	% RECOVERY	CLASSIFICATION	COLOR	STRENGTH	MOISTURE	BLOW COUNT	FIELD INSTRUMENT READING	COMMENTS
				Silty sand, SM	DK GREEN BROWN	SFT	WET			
				No Sample Recovered						
-31	31									
-32	32		20	Silty sand, SM	DK GREEN BROWN	FRM	MST	16 16 20 24		
				No Sample Recovered						
-33	33									
-34	34									
-35	35									
-36	36									
-37	37									
-38	38									
-39	39									
-40	40									

ATTACHMENT B

MONITOR WELL SURVEY AND GROUNDWATER LEVEL DATA TABLE

Table B-1
Monitoring Well Survey and Groundwater Elevation Data Table
Fort Monmouth, New Jersey

Monitor Well Designation	Outer Casing Elevation	PVC Elevation	Water Level Collected 23-May-96	Groundwater Elevations 23-May-96	Ground Elevation	Point Number
CW1-MW-26	62.62	62.46	8.69	53.77	60.54	119
CW1-MW-27	62.76	62.56	8.63	53.93	60.81	120
CW1-MW-28	63.17	62.89	9.09	53.8	60.73	121
CW1-MW-29	62.73	62.44	8.91	53.53	60.41	118
CW1-MW281	NA	62.56	11.42	51.14	60.58	NA
CW1-MW282	NA	61.68	8.35	53.33	60.67	NA
CW1-MW291	NA	63.58	11.11	52.47	61.58	NA
2700 (MW-1)	NA	62.77	10.83	51.94	NA	NA
2700.2.6 (MW-3)	NA	60.48	13.71	46.77	NA	NA

NA - Not Available

ATTACHMENT C

WELL DEVELOPMENT FORMS

GEOLIS Well Development Form

COMPANY:	Weston	LOCATION ID:	MW-281
CLIENT:	USACE	DATE:	5/6/96
PROJECT:	Fort Monmouth	MEASURED BY:	Thomas Thorne
SITE/AREA:	Charles Wood	SIGNATURE:	P Thorne

ONE WELL VOLUME: 21 gallons WELL TD: 43.58 ft TOC

Well Volume (gallons/foot): 2-inch = 0.16, 4-inch = 0.65 (circled), 6-inch = 1.47, 8-inch = 2.61

TIME	ACTIVITY CODE	DEPTH TO WATER (ft)	PURGE RATE (gpm)	PURGE VOLUME (gal)	FIELD MEASUREMENTS: MPH	MTP	MSC	MEH	TURBIDITY	COMMENTS: PID=BKG/FID=2ppm
0935	O	11.19			ST					STATIC
0940	DBB/DSB									V. Dark green/silty
1005	DBE			20						Cleared to lt green silty
1017	DOB	15.6	2.0		5.78	15.4	.454	-005	>200	
1025		17.4	2.0	16	5.61	15.5	.436	-034	>200	high Turb / cloudy grey
1030		17.95	2.0	10	5.54	15.5	.423	-045	>200	
1033		17.95	2.0	6	5.56	15.4	.431	-041	>200	
1036		18.2	2.0	6	5.44	15.4	.410	-030	>200	
1045		18.53	2.0	18	5.50	15.5	.412	-061	>200	
1056		18.60	2.0	22	5.44	15.4	.386	-072	>200	
1105		21.62	2.0		5.50	15.6	.402	-059	>200	lighter green lighter than the Purge
1110		22.38	2.0	20	5.49	15.5	.405	-060	>200	
1118		22.72	2.0		5.43	15.5	.401	-050	>200	
1135		23.15	2.0		5.41	15.5	.410	-042	>200	
1140	DOB	23.3	2.0		5.41	15.5	.412	-039	>200	Lt. green
~~[illegible]~~										
	FINAL		140							

Margin notes: 43.58 / 11.19 / 32.39; "need purge" (arrow to 1105 row)

FINAL WELL YIELD: 2.0 GPM PUMP RATE - ESTIMATED (circled) CORRESPONDING DRAWDOWN: 12.11 FT

DEVELOPMENT ACTIVITY CODES		FIELD MEASUREMENT CODES	TURBIDITY
DBB - Begin Bailing	DBE - End Bailing	MTP - Temperature	Enter Turbidity Meter Reading (Final should be < 5 NTU)
DOB - Begin Overpumping	DOE - End Overpumping	MSC - Specific Conductance	OR
DRB - Begin Rawhiding	DRE - End Rawhiding	MPD - Photoionizer (e.g., HNu)	Enter Qualitative Observations
DCB - Begin Recirculation	DCE - End Recirculation	MFD - Flame Ionizer (e.g., OVA)	H - High: Opaque/Muddy/Silty
DHB - Begin Hydraulic Jetting	DHE - End Hydraulic Jetting	MDO - Dissolved Oxygen	M - Medium: Translucent/Cloudy
DAB - Begin Air Surging	DAE - End Air Surging	MPH - pH	L - Low: Transparent/Some Silt
DSB - Begin Surge Blocking	DSE - End Surge Blocking	MEH - Eh	N - None: Clear/No Visible Silt
DXB - Begin Other	DXE - End Other	MMC - Imhoff Cone	
Specify other method: ______		MO1 - Other: ______	
FMT - Field Measurements (select from codes at right)		MO2 - Other: ______	

GEOLIS Well Development Form

COMPANY: Weston
CLIENT: USACE
PROJECT: Environmental
SITE/AREA: Charleston Naval
LOCATION ID: MW-282
DATE: 5/10/96
MEASURED BY: P. Thomas/B. Thom
SIGNATURE: Thomas

ONE WELL VOLUME: 6.4 gallons WELL TD: 18.25 ft TOC

Well Volume (gallons/foot): 2-inch = 0.16, 4-inch = 0.65, 6-inch = 1.47, 8-inch = 2.61

TIME	ACTIVITY CODE	DEPTH TO WATER (ft)	PURGE RATE (gpm)	PURGE VOLUME (gal)	FIELD MEASUREMENTS MPH	MSC	MTP	MEH	TURBIDITY	COMMENTS
	DSB									PID/FID: Bkg
1015	DBB	8.43							7200	V. dk brn-sandy
1036	DBE		Bailed	19					2200	Dry - dk brown
1138			Bailed	5	4.57	.226	11.1	013	7200	brown-sandy
1307	DCB	8.7	<1.0		~~4.07~~	.187	11.1	167	7200	cloudy brown
1312		9.11	<1.0	5	4.36	.156	11.1	173	7200	
1314		9.67	<1.0			surge	#1			surge #1
1320		10.88	<1.0		4.30	.172	11.1	178	7200	
1324		11.28	<1.0	10.0	4.30	.207	11.0	176	7200	
1328					surge	#2				surge #2
1331		11.98	<1.0	~~7.0~~ 15.0	4.12	.238	11.1	199	7200	
1340		12.18	<1.0		4.08	.227	11.0	224	7200	
1350		12.32	<1.0		4.08	.229	11.0	241	7200	clearing up
1352		12.36	<1.0	23.0		surge	#3			surge #3
1400		12.42	<1.0	8.0	4.14	.212	10.9	245	clear	
1402					surge	# 4	(1.7)			surge # 4
1407		12.50	<1.0		4.07	.225	10.9	194	clear	Clear
1408	DOE									
	FINAL									

FINAL WELL YIELD: <1 GPM PUMP RATE (ESTIMATED) CORRESPONDING DRAWDOWN: 4.07 FT

DEVELOPMENT ACTIVITY CODES

- DBB - Begin Bailing
- DBE - End Bailing
- DOB - Begin Overpumping
- DOE - End Overpumping
- DRB - Begin Rawhiding
- DRE - End Rawhiding
- DCB - Begin Recirculation
- DCE - End Recirculation
- DHB - Begin Hydraulic Jetting
- DHE - End Hydraulic Jetting
- DAB - Begin Air Surging
- DAE - End Air Surging
- DSB - Begin Surge Blocking
- DSE - End Surge Blocking
- DXB - Begin Other
- DXE - End Other
- Specify other method:
- FMT - Field Measurements (select from codes at right)

FIELD MEASUREMENT CODES

- MTP - Temperature
- MSC - Specific Conductance
- MPD - Photoionizer (e.g., HNu)
- MFD - Flame Ionizer (e.g., OVA)
- MDO - Dissolved Oxygen
- MPH - pH
- MEH - Eh
- MMC - Imhoff Cone
- MO1 - Other:
- MO2 - Other:

TURBIDITY

Enter Turbidity Meter Reading (Final should be < 5 NTU)

OR

Enter Qualitative Observations

- H - High: Opaque/Muddy/Silty
- M - Medium: Translucent/Cloudy
- L - Low: Transparent/Some Silt
- N - None: Clear/No Visible Silt

GEOLIS Well Development Form

COMPANY: Weston | LOCATION ID: MW-291
CLIENT: USACE | DATE: 5/6/96
PROJECT: Portsmouth | MEASURED BY: P.L. / B.L.
SITE/AREA: Charleston WD | SIGNATURE: Thomas

ONE WELL VOLUME: 4.8 gallons WELL TD: 18.51 ft TOC

Well Volume (gallons/foot): 2-inch = 0.16, 4-inch = 0.65, 6-inch = 1.47, 8-inch = 2.61

TIME	ACTIVITY CODE	DEPTH TO WATER (ft)	PURGE RATE (gpm)	PURGE VOLUME (gal)	FIELD MEASUREMENTS				TURBIDITY	COMMENTS
					MPH	MTP	MSC	MEH		
1300	DBB	11.21	BAIL	~~15.0~~	~~4.18~~	~~11.5~~	.295	206	7200	ee B-1 to 15
1318		12.8		15.0	4.18	11.5	.295	206	7200	
1322		12.28	B-1	10.0	4.11	11.5	.298	213	7200	
1328		13.45	B-1	10.0	4.08	11.5	.295	218	7200	
1333		12.61	B-1	10.0	3.97	11.5	.297	225	7200	
1340		13.01	B-1	10.0	4.02	11.4	.295	241	7200	
1347		13.1	B-1	10.0	4.00	11.5	.298	262	7200	clearing up
1352			B-1	10.0	3.90	11.5	.300	274	7200	
1425	DOB	11.94	2.0		3.89	11.5	.302	291	Clear	
1433		12.4	2.0		4.11	11.5	.299	286	Clear	surge #4
1438		12.4	2.0	26.0	4.03	11.5	.300	291	Clear	Clear
1445	DOE	12.4	2.0		4.04	11.5	.300	288	Clear	
	FINAL									

FINAL WELL YIELD: 1.52 GPM PUMP RATE: ESTIMATED CORRESPONDING DRAWDOWN: 1.19 FT

DEVELOPMENT ACTIVITY CODES

- DBB - Begin Bailing
- DOB - Begin Overpumping
- DRB - Begin Rawhiding
- DCB - Begin Recirculation
- DHB - Begin Hydraulic Jetting
- DAB - Begin Air Surging
- DSB - Begin Surge Blocking
- DXB - Begin Other

Specify other method: _____

FMT - Field Measurements (select from codes at right)

- DBE - End Bailing
- DOE - End Overpumping
- DRE - End Rawhiding
- DCE - End Recirculation
- DHE - End Hydraulic Jetting
- DAE - End Air Surging
- DSE - End Surge Blocking
- DXE - End Other

FIELD MEASUREMENT CODES

- MTP - Temperature
- MSC - Specific Conductance
- MPD - Photoionizer (e.g., HNu)
- MFD - Flame Ionizer (e.g., OVA)
- MDO - Dissolved Oxygen
- MPH - pH
- MEH - Eh
- MMC - Imhoff Cone
- MO1 - Other: _____
- MO2 - Other: _____

TURBIDITY

Enter Turbidity Meter Reading (Final should be < 5 NTU)

OR

Enter Qualitative Observations

- H - High: Opaque/Muddy/Silty
- M - Medium: Translucent/Cloudy
- L - Low: Transparent/Some Silt
- N - None: Clear/No Visible Silt

ATTACHMENT D

LABORATORY DATA RESULTS TABLES

Geographical Location	CW1		CW1		CW1		CW1		CW1		CW1		CW1		CW1	
Sample	CW01-SB281-A02		CW01-SB281-A03		CW01-SB281-D02		CW01-SB282-A02		CW01-SB282-A03		CW01-SB291-A02		CW01-SB291-A03		CW01-SB282-D02	
Sample Type	Routine		Routine		Trip Blank		Routine		Routine		Routine		Routine		Trip Blank	
Batch#	9605G003		9605G003		9605G003		9605G061		9605G061		9605G061		9605G061		9605G061	
Prep#	96GVT130		96GVT132		96GVT141		96GVT130		96GVT130		96GVT130		96GVT130		96GVE152	
RFW#	001		002		003		001		002		003		004		005	
Dilution Factor	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
Matrix	soil		soil		water		soil		soil		soil		soil		water	
Units	µg/Kg		µg/Kg		µg/l		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/l	
Sampling Date	5/1/96		5/1/96		5/1/96		5/2/96		5/2/96		5/3/96		5/3/96		5/2/96	
Analysis Date	5/7/96		5/8/96		5/3/96		5/7/96		5/7/96		5/7/96		5/7/96		5/8/96	
Analysis	Analytical Result	CRQL	Analytical Result	CRQL	Analytical Result	CRQL	Analytical Result	CRQL	Analytical Result	CRQL	Analytical Result	CRQL	Analytical Result	CRQL	Analytical Result	CRQL
% Solids	73.2	0.1	84.9	0.1			81.6	0.1	84.3	0.1	87.7	0.1	78.6	0.1		
Chloromethane	14 U	14	12 U	12	10 U	10	12 U	12	12 U	12	11 U	11	13 U	13	10 U	10
Vinyl Chloride	14 U	14	12 U	12	10 U	10	12 U	12	12 U	12	11 U	11	13 U	13	10 U	10
Bromomethane	14 U	14	12 U	12	10 U	10	12 U	12	12 U	12	11 U	11	13 U	13	10 U	10
Chloroethane	14 U	14	12 U	12	10 U	10	12 U	12	12 U	12	11 U	11	13 U	13	10 U	10
1,1-Dichloroethene	7 U	7	6 U	6	5 U	5	6 U	6	6 U	6	6 U	6	6 U	6	5 U	5
Acetone	2400	140 *	12 J	12	10 U	10	12 U	12	51	12	11 U	11	8600	1600 *	10 U	10
Carbon Disulfide	50	7	6 U	6	5 U	5	6 U	6	6 U	6	6 U	6	6 U	6	5 U	5
Methylene Chloride	7 U	7	6 U	6	5 U	5	6 U	6	6 U	6	6 U	6	6 U	6	5 U	5
1,1-Dichloroethane	7 U	7	6 U	6	5 U	5	6 U	6	6 U	6	6 U	6	6 U	6	5 U	5
Vinyl Acetate	14 U	14	12 U	12	10 U	10	12 U	12	12 U	12	11 U	11	13 U	13	10 U	10
2-Butanone	14 U	14	12 U	12	10 U	10	12 U	12	12 U	12	11 U	11	13 U	13	10 U	10
Chloroform	7 U	7	6 U	6	5 U	5	6 U	6	15	6	6 U	6	6 U	6	5 U	5
1,1,1-Trichloroethane	7 U	7	6 U	6	5 U	5	6 U	6	6 U	6	6 U	6	6 U	6	5 U	5
Carbon Tetrachloride	7 U	7	6 U	6	5 U	5	6 U	6	6 U	6	6 U	6	6 U	6	5 U	5
Benzene	7 U	7	6 U	6	5 U	5	6 U	6	6 U	6	6 U	6	6 U	6	5 U	5
1,2-Dichloroethane	7 U	7	6 U	6	5 U	5	6 U	6	6 U	6	6 U	6	6 U	6	5 U	5
Trichloroethene	7800	340 **	6 U	6	5 U	5	6 U	6	6 U	6	6 U	6	6 U	6	5 U	5
1,2-Dichloropropane	7 U	7	6 U	6	5 U	5	6 U	6	6 U	6	6 U	6	6 U	6	5 U	5
Bromodichloromethane	7 U	7	6 U	6	5 U	5	6 U	6	6 U	6	6 U	6	6 U	6	5 U	5
cis-1,3-Dichloropropene	7 U	7	6 U	6	5 U	5	6 U	6	6 U	6	6 U	6	6 U	6	5 U	5
4-Methyl-2-pentanone	14 U	14	12 U	12	10 U	10	12 U	12	12 U	12	11 U	11	13 U	13	10 U	10
Toluene	20	7	6 U	6	5 U	5	6 U	6	6 U	6	6 U	6	6 U	6	5 U	5
trans-1,3-Dichloropropene	7 U	7	6 U	6	5 U	5	6 U	6	6 U	6	6 U	6	6 U	6	5 U	5
1,1,2-Trichloroethane	7 U	7	6 U	6	5 U	5	6 U	6	6 U	6	6 U	6	6 U	6	5 U	5
Tetrachloroethene	13	7	6 U	6	5 U	5	6 U	6	6 U	6	6 U	6	6 U	6	5 U	5
2-Hexanone	14 U	14	12 U	12	10 U	10	12 U	12	12 U	12	11 U	11	13 U	13	10 U	10
Dibromochloromethane	7 U	7	6 U	6	5 U	5	6 U	6	6 U	6	6 U	6	6 U	6	5 U	5
Chlorobenzene	7 U	7	6 U	6	5 U	5	6 U	6	6 U	6	6 U	6	6 U	6	5 U	5
Ethylbenzene	7 U	7	6 U	6	5 U	5	6 U	6	6 U	6	6 U	6	6 U	6	5 U	5
Styrene	7 U	7	6 U	6	5 U	5	6 U	6	6 U	6	6 U	6	6 U	6	5 U	5
Bromoform	7 U	7	6 U	6	5 U	5	6 U	6	6 U	6	6 U	6	6 U	6	5 U	5
1,1,2,2-Tetrachloroethane	7 U	7	6 U	6	5 U	5	6 U	6	6 U	6	6 U	6	6 U	6	5 U	5
Xylene (total)	7 U	7	6 U	6	5 U	5	6 U	6	6 U	6	6 U	6	6 U	6	5 U	5
trans-1,2-Dichloroethene	7 U	7	6 U	6	5 U	5	6 U	6	6 U	6	6 U	6	6 U	6	5 U	5
cis-1,2-Dichloroethene	7 U	7	6 U	6	5 U	5	6 U	6	6 U	6	6 U	6	6 U	6	5 U	5
TIC									7 J				15 J			
Dilution Factor	*-10, **-50												*-125			
Method:TCL Volatiles																

Geographical Location	CW1		CW1		CW1		CW1		CW1		CW1		CW1		CW1	
Sample	CW01-MW3-A03		CW01-MW3-B03		CW01-MW3-D03		CW01-MW3-E03		CW01-MW26-A03		CW01-MW27-A03		CW01-MW28-A03		CW01-MW29-A03	
Sample Type	Routine		Field Duplicate		Trip Blank		Field Blank		Routine		Routine		Routine		Routine	
Batch#	9605G398		9605G398		9605G398		9605G398		9605G386		9605G386		9605G386		9605G386	
Prep#	96GVT154		96GVT154		96GVT154		96GVT154		96GVE174		96GVE174		96GVE174		96GVE174	
RFW#	001		002		003		004		001		002		003		004	
Dilution Factor	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
Matrix	water		water		water		water		water		water		water		water	
Units	µg/l		µg/l		µg/l		µg/l		µg/l		µg/l		µg/l		µg/l	
Sampling Date	5/24/96		5/24/96		5/24/96		5/24/96		5/23/96		5/23/96		5/23/96		5/23/96	
Analysis Date	5/29/96		5/29/96		5/28/96		5/28/96		5/28/96		5/28/96		5/28/96		5/28/96	
Analysis	Analytical Result	CRQL	Analytical Result	CRQL	Analytical Result	CRQL	Analytical Result	CRQL	Analytical Result	CRQL	Analytical Result	CRQL	Analytical Result	CRQL	Analytical Result	CRQL
% Solids																
Chloromethane	10 U	10	10 U	10	10 U	10	10 U	10	10 U	10	10 U	10	10 U	10	10 U	10
Vinyl Chloride	10 U	10	10 U	10	10 U	10	10 U	10	10 U	10	10 U	10	10 U	10	10 U	10
Bromomethane	10 U	10	10 U	10	10 U	10	10 U	10	10 U	10	10 U	10	10 U	10	10 U	10
Chloroethane	10 U	10	10 U	10	10 U	10	10 U	10	10 U	10	10 U	10	10 U	10	10 U	10
1,1-Dichloroethene	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5
Acetone	10 U	10	10 U	10	10 U	10	10 U	10	10 U	10	10 U	10	10 U	10	10 U	10
Carbon Disulfide	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5
Methylene Chloride	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5
1,1-Dichloroethane	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5
Vinyl Acetate	10 U	10	10 U	10	10 U	10	10 U	10	10 U	10	10 U	10	10 U	10	10 U	10
2-Butanone	10 U	10	10 U	10	10 U	10	10 U	10	10 U	10	10 U	10	10 U	10	10 U	10
Chloroform	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5
1,1,1-Trichloroethane	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5
Carbon Tetrachloride	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5
Benzene	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5
1,2-Dichloroethane	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5
Trichloroethene	2 J	5	2 J	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	170	5
1,2-Dichloropropane	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5
Bromodichloromethane	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5
cis-1,3-Dichloropropene	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5
4-Methyl-2-pentanone	10 U	10	10 U	10	10 U	10	10 U	10	10 U	10	10 U	10	10 U	10	10 U	10
Toluene	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5
trans-1,3-Dichloropropene	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5
1,1,2-Trichloroethane	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5
Tetrachloroethene	2 J	5	1 J	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5
2-Hexanone	10 U	10	10 U	10	10 U	10	10 U	10	10 U	10	10 U	10	10 U	10	10 U	10
Dibromochloromethane	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5
Chlorobenzene	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5
Ethylbenzene	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5
Styrene	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5
Bromoform	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5
1,1,2,2-Tetrachloroethane	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5
Xylene (total)	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5
trans-1,2-Dichloroethene	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5
cis-1,2-Dichloroethene	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5	7	5
Method:TCL Volatiles																

Geographical Location	CW1		CW1		CW1		CW1		CW1	
Sample	CW01-MW281-A03		CW01-MW282-A03		CW01-MW291-A03		CW01-MW1-A03		CW01-MW1-D03	
Sample Type	Routine		Routine		Routine		Routine		Trip Blank	
Batch#	9605G386		9605G386		9605G386		9605G386		9605G386	
Prep#	96GVE174		96GVE174		96GVE174		96GVE174		96GVT154	
RFW#	005		006		007		008		009	
Dilution Factor	1.00		1.00		1.00		1.00		1.00	
Matrix	water		water		water		water		water	
Units	µg/l		µg/l		µg/l		µg/l		µg/l	
Sampling Date	5/23/96		5/23/96		5/23/96		5/23/96		5/23/96	
Analysis Date	5/28/96		5/28/96		5/28/96		5/28/96		5/29/96	
Analysis	Analytical Result	CRQL	Analytical Result	CRQL	Analytical Result	CRQL	Analytical Result	CRQL	Analytical Result	CRQL
% Solids										
Chloromethane	10 U	10	10 U	10	10 U	10	10 U	10	10 U	10
Vinyl Chloride	10 U	10	10 U	10	10 U	10	10 U	10	10 U	10
Bromomethane	10 U	10	10 U	10	10 U	10	10 U	10	10 U	10
Chloroethane	10 U	10	10 U	10	10 U	10	10 U	10	10 U	10
1,1-Dichloroethene	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5
Acetone	92	10	10 U	10	10 U	10	10 U	10	10 U	10
Carbon Disulfide	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5
Methylene Chloride	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5
1,1-Dichloroethane	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5
Vinyl Acetate	10 U	10	10 U	10	10 U	10	10 U	10	10 U	10
2-Butanone	10 U	10	10 U	10	10 U	10	10 U	10	10 U	10
Chloroform	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5
1,1,1-Trichloroethane	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5
Carbon Tetrachloride	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5
Benzene	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5
1,2-Dichloroethane	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5
Trichloroethene	20	5	5 U	5	5 U	5	5 U	5	5 U	5
1,2-Dichloropropane	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5
Bromodichloromethane	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5
cis-1,3-Dichloropropene	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5
4-Methyl-2-pentanone	10 U	10	10 U	10	10 U	10	10 U	10	10 U	10
Toluene	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5
trans-1,3-Dichloropropene	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5
1,1,2-Trichloroethane	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5
Tetrachloroethene	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5
2-Hexanone	10 U	10	10 U	10	10 U	10	10 U	10	10 U	10
Dibromochloromethane	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5
Chlorobenzene	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5
Ethylbenzene	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5
Styrene	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5
Bromoform	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5
1,1,2,2-Tetrachloroethane	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5
Xylene (total)	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5
trans-1,2-Dichloroethene	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5
cis-1,2-Dichloroethene	5 U	5	5 U	5	5 U	5	5 U	5	5 U	5
Method:TCL Volatiles										

ATTACHMENT E

SOIL GAS SURVEY INSTALLATION PROCEDURES

INSTALLATION AND RETRIEVAL INFORMATION SHEET

GORE-SORBER® SCREENING MODULES

June 4, 1993

IF YOU HAVE ANY QUESTIONS AFTER YOU HAVE READ THESE INSTRUCTIONS, PLEASE CALL MARK WRIGLEY OR BARBARA KEAVENEY AT (410) 392-3300.

DESCRIPTION: GORE-SORBER Screening Modules are pollution detection sensors, utilizing Gore's patented sorbent containers and apparatus. The heart of our GORE-SORBER Screening Module is GORE-SORBER Passive Sorbent Collection Device ("sorber"), a container constructed of GORE-TEX® expanded polytetrafluoroethylene (ePTFE, similar to Teflon®) tubing. The sorbent mixture has been carefully selected to detect a broad range of volatile and semivolatile organic compounds. Replicate sorbers are housed in the bottom of an outer length of ePTFE tubing and sealed. The outer length of tubing serves as a sensor insertion and retrieval means.

CAUTION: GORE-SORBER Screening Modules are specially cleaned and stored after manufacturing. They must remain sealed in their shipping vials until deployment. **Do not store** or **use** them near cigarette smoke, gasoline, diesel fumes of exhaust, styrofoam peanuts, solvents, insect repellents, sunblocks, hand lotions or any other source of volatile organic compounds.

REQUIRED TOOLS: To date, most GORE-SORBER Screening Modules have been installed in 9/16" to 1" diameter holes, using a slide hammer and tile probe, or an electric rotary hammer auger. Installation depth is site dependent, but 3-4' is normally sufficient. Some of the recommended tools for a GORE-SORBER® Screening Survey are :

- Fluorescent spray paint, flags, or some other reliable means of location marking
- Correctly scaled site map
- Pen, clipboard, field notebook, chain-of-custody form, and this instruction sheet
- Measuring tapes, transit, or other distance measuring device
- Electric rotary hammer with 1" carbide tipped bit (31"-36" long)
- Extension cords
- Electric power source (AC power outlet or generator)
- Slide hammer /Tile probe
- GORE-SORBER Screening Modules & Vials (supplied)
- Corks with screw eyes (supplied)
- Insertion rod (supplied)
- Surgical gloves
- Paper towels and water (de-con of the auger and insertion rod)
- Trash bag
- Knife, scissors, and a pair of needle-nose pliers.

GORE
Creative Technologies Worldwide

W. L. Gore & Associates
101 Lewisville Rd., P.O. Box 1100, Elkton, MD 21922-1100
Phone: 410-392-3300 Fax: 410-996-3325

FIELD DEPLOYMENT / INSTALLATION: Locate and mark all Screening Module locations on the ground using the spray paint and/or flags. Be sure to mark the locations well in order to ease retrieval. Create a narrow diameter hole, using a slide hammer and tile probe, or a rotary electric hammer auger. Wearing surgical gloves, remove the GORE-SORBER Screening Module from its sealed container. Note that each module has a unique serial number recorded on the top of the module and a metal tag attached to the module. Each vial is also individually numbered. **Record this number on the site map immediately!** Insert the stainless steel insertion rod into the pocket in the bottom of the module, and lower it into the hole. Be sure the module goes the entire way down the hole. If a large resistance is felt during insertion, remove the module and re-drill the hole. Re-insert the module. When the module is completely inserted into the hole, press the insertion rod against the side of the hole. Twist the rod and pull it out. Attach the end of the module to the screw eye in a cork. **Do not remove the metal ID tag!** Coil the excess retrieval cord and push it with the metal label into the hole. Cork the hole to prevent the intrusion of rain and atmospheric gasses during exposure. If the cork does not fit snugly into the hole, wrap a short length of the module retrieval cord around the cork and re-insert the cork into the hole. Decontaminate the auger and insertion rod after each use, using standard procedures (i.e. paper towels & clean water). If the surgical gloves become contaminated, replace them before handling any further modules.

GORE-SORBER MODULE RETRIEVAL: Some tools recommended for GORE-SORBER Module retrieval are:

- Cooler(s) with adequate supply of chilled ice packs, or water ice cubes **(required)**
- Original GORE-SORBER Module vials and racks **(required)**
- Site map with module locations **(required)**
- Distance measuring equipment
- Cork screw
- Knife, scissors, needle-nose pliers
- Small shovel
- Patching compound and equipment for concrete and asphalt holes (if required)
- Trash bag
- Surgical gloves.

Remove cork with cork screw. Wearing surgical gloves, wrap retrieval cord once or twice around your hand. Using a slow, steady tension, pull the cord straight up out of the ground. **Double check the Module ID# on the site map!** Cut off the cork and discard. **Put the entire retrieval cord back into the correctly labeled vial, including the metal tag.** Tightly reseal the vial. Using the vial racks and cooler, return the exposed vials and all supplies to the address below via Federal Express Overnight Service {(800) 238-5355}. **DO NOT** use Styrofoam "peanuts" or any other packing material which may contain volatiles or outgas and contaminate sorbers during shipment. Bubble packing is acceptable. Address the cooler to:

SCREENING MODULES LABORATORY
W. L. GORE & ASSOCIATES, INC.
101 LEWISVILLE ROAD
ELKTON, MD 21921
ATTN: NOTIFY LAB IMMEDIATELY UPON DELIVERY!!

ATTACHMENT F

GORE SORBER SCREENING SURVEY FINAL REPORTS

GORE
Creative Technologies Worldwide

W. L. GORE & ASSOCIATES, INC.

101 LEWISVILLE ROAD • P.O. BOX 1100 • ELKTON, MARYLAND 21922-1100 PHONE: 410/392-3300
FAX: 410/996-3325 • TELEX 467637 GORE FB ELKT
ENVIRONMENTAL PRODUCTS GROUP

GORE-SORBER[SM] Screening Survey
Final Report

Charles Wood Area
Fort Monmouth, NJ

January 15, 1996

Prepared For:
Roy F. Weston, Inc.
One Weston Way
West Chester, PA 19380-1499

W.L. Gore & Associates, Inc.
Written/Submitted by

Jay W. Hodny, M.S.
Associate

W.L. Gore & Associates, Inc.
Reviewed/Approved by

John P. Cusick
Product Specialist

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FORM 11R.2
Rev 10/11/95

GORE-SORBER[sm] Screening Survey
Final Report

REPORT DATE: January 15, 1996 **AUTHOR:** JWH

SITE INFORMATION

Site Reference: Charles Wood Area, Fort Monmouth, NJ
Customer Purchase Order Number: 03886-076-037
Gore Production Order Number: 066637 **Gore Site Code:** LL

FIELD PROCEDURES

 # Modules shipped: 12
Installation Date(s): December 7, 1995 **# Modules Installed:** 10
Field work performed by: P. Thomas, B. Pasapane (Roy F. Weston)

Retrieval date(s): December 27, 1995 **Exposure Time:** 20 **[days]**
 # Modules Retrieved: 10 **# Trip Blanks Returned:** 2
 # Modules Lost in Field: 0 **# Unused Modules Returned:** 0

Date/Time Received by Gore: December 28, 1995/12:32pm **By:** JW
Recorded Cooler/Water Temperature Control Blank temperature: 1.6 [°C]
Chain of Custody Form attached: √
Chain of Custody discrepancies: None.
Comments: None.

ANALYTICAL PROCEDURES

NOTE: All data have been archived. Any replicate sorbers not used in the initial analysis will be discarded thirty (30) days from the date of this report.

Laboratory analysis: thermal desorption, gas chromatography, mass selective detection
Quality Assurance Level: 1 (ANA-1)
Instrument ID: # 1,2 **Chemist:** WW **Data Subdirectory:** 066637
Compounds/mixtures requested: Gore GS3; Vinyl chloride plus modified expanded VOCs and SVOCs target list (A4).
Deviations from Standard Method: None.
Comments: Soil vapor analytes and abbreviations are tabulated in the Data Table Key (page 3).

GORE-SORBER[sm] Screening Survey Final Report

DATA TABULATION

 # CONTOUR MAPS ENCLOSED: Three (3) B-sized color contour maps
LIST OF MAPS ENCLOSED:

- cis- & trans-1,2-Dichloroethene (cis- & trans-1,2-DCE)
- Trichloroethene (TCE)
- Tetrachloroethene (PCE)

Compound Name	Low Reporting Limit [µg]	Low Map (gray) Limit [µg]	Highest Detect Level [µg]	Upper Map (purple) Limit [µg]
c,t-1,2-DCE	0.01	0.03*	9.04	9.04
TCE	0.01	0.02*	2113.25	2113.25
PCE	0.01	0.07*	0.88	0.88

* - Method detection limit (MDL)

NOTE: All data values presented in Appendix A represent masses of compound(s) desorbed from the GORE-SORBER Screening Modules received and analyzed by W.L. Gore, as identified in the Chain of Custody (Appendix A). The measurement traceability and instrument performance are reproducible and accurate for the measurement process documented. Semi-quantitation of the compound mass is based on either a single-level (QA Level 1) or three-level (QA Level 2) standard calibration.

Comments:

- The minimum (gray) contour level, for each mapped analyte or group of analytes, is set at the maximum blank level observed or the method detection limit, whichever is greater. The maximum contour level is set at the maximum value observed.
- No data was reported for the compounds requested for mapping in the area sampled by modules #117077 through #117081.

GORE-SORBER[sm] Screening Survey
Final Report

KEY TO DATA TABLE
Charles Wood Area, Fort Monmouth, NJ

UNITS

µg	micrograms (per sorber), reported for compounds for which external standards were analyzed.

ANALYTES

VC	vinyl chloride
MTBE	methyl t-butyl ether
t12DCE	trans-1,2-dichloroethene
11DCA	1,1-dichloroethane
c12DCE	cis-1,2-dichloroethene
ct12DCE	cis- & trans-1,2-dichloroethene
$CHC1_3$	chloroform
111TCA	1,1,1-trichloroethane
12DCA	1,2-dichloroethane
$CC1_4$	carbon tetrachloride
TCE	trichloroethene
TOL	toluene
OCT	octane
PCE	tetrachloroethene
ClBENZ	chlorobenzene
EtBENZ	ethylbenzene
mpXYL	m-, p-xylene
oXYL	o-xylene
PHENOL	phenol
135TMB	1,3,5-trimethylbenzene
124TMB	1,2,4-trimethylbenzene
14DCB	1,4-dichlorobenzene
2MePHENOL	2-methyl phenol
C_{11}/UNDEC	undecane
NAPH	naphthalene
C13/TRIDEC	tridecane
2MeNAPH	2-methyl naphthalene
C15/PENTADEC	pentadecane

BLANKS

TB n	unexposed trip blanks, which traveled with the exposed modules
BLANK n	method blank, retained at Gore

GORE-SORBER SCREENING SURVEY
STANDARD TARGET VOCs/SVOCs (A1)
ARMY CORPS OF ENGINEERS
FORT MONMOUTH, NEW JERSEY - CHARLES WOOD AREA
ROY F. WESTON, INC., WEST CHESTER, PENNSYLVANIA
SITE LL - PRODUCTION ORDER # 066637

MODULE NUMBER	DATE ANALYZED	VC, ug	MTBE, ug	ct12DCE, ug	t12DCE, ug	11DCA, ug	c12DCE, ug	CHCl3, ug	111TCA, ug	12DCA, ug	CCl4, ug	TCE, ug	TOL, ug
117076	12/29/95	0.00	0.00	4.42	0.47	0.00	3.96	1.10	0.07	0.00	0.37	1350.67	0.12
117077	12/29/95	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.00	0.00	0.04
117078	12/29/95	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.03
117079	12/29/95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.02
117080	12/29/95	0.00	0.00	0.00	0.00	0.26	0.00	0.10	0.00	0.00	0.00	0.00	0.11
117081	12/29/95	0.00	0.37	0.00	0.00	1.63	0.00	0.55	0.08	0.00	0.00	0.00	0.16
117084	12/29/95	0.00	0.00	0.11	0.00	0.00	0.11	1.15	0.00	0.00	0.00	147.64	0.01
117085	12/29/95	0.00	0.00	0.19	0.00	0.00	0.19	0.22	0.00	0.00	0.08	803.10	0.01
117086	12/29/95	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.00	3.78	0.00
117087	12/30/95	0.00	0.00	9.04	0.82	0.00	8.22	1.00	0.00	0.00	0.29	2113.25	0.02
trip blank, #117082	12/29/95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
trip blank, #117083	12/30/95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
method blank	12/29/95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		VC, ug	MTBE, ug	ct12DCE, ug	t12DCE, ug	11DCA, ug	c12DCE, ug	CHCl3, ug	111TCA, ug	12DCA, ug	CCl4, ug	TCE, ug	TOL, ug
MAX OBSERVED		0.00	0.37	9.04	0.82	1.63	8.22	1.15	0.08	0.00	0.37	2113.25	0.16

GORE-SORBER SCREENING SURVEY
STANDARD TARGET VOCs/SVOCs (A1)
ARMY CORPS OF ENGINEERS
FORT MONMOUTH, NEW JERSEY - CHARLES WOOD AREA
ROY F. WESTON, INC., WEST CHESTER, PENNSYLVANIA
SITE LL - PRODUCTION ORDER # 066637

MODULE NUMBER	OCT, ug	PCE, ug	CIBENZ, ug	EtBENZ, ug	mpXYL, ug	oXYL, ug	135TMB, ug	PHENOL, ug	124TMB, ug	14DCB, ug	2MePHENOL, ug	UNDEC, ug
117076	0.00	0.88	0.02	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.09
117077	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06
117078	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
117079	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
117080	0.00	0.00	0.00	0.01	0.04	0.02	0.00	0.00	0.01	0.00	0.00	0.03
117081	0.04	0.00	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.02
117084	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
117085	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
117086	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13
117087	0.00	0.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
trip blank, #117082	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
trip blank, #117083	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06
method blank	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
	OCT, ug	PCE, ug	CIBENZ, ug	EtBENZ, ug	mpXYL, ug	oXYL, ug	135TMB, ug	PHENOL, ug	124TMB, ug	14DCB, ug	2MePHENOL, ug	UNDEC, ug
MAX OBSERVED	0.04	0.88	0.02	0.01	0.04	0.02	0.00	0.00	0.01	0.00	0.00	0.13

GORE-SORBER SCREENING SURVEY
STANDARD TARGET VOCs/SVOCs (A1)
ARMY CORPS OF ENGINEERS
FORT MONMOUTH, NEW JERSEY - CHARLES WOOD AREA
ROY F. WESTON, INC., WEST CHESTER, PENNSYLVANIA
SITE LL - PRODUCTION ORDER # 066637

MODULE NUMBER	NAPH, ug	TRIDEC, ug	2MeNAPH, ug	Acenaphthylene, ug	PENTADEC, ug	Acenaphthene, ug	Fluorene, ug
117076	0.00	0.00	0.00	0.00	0.00	0.00	0.00
117077	0.00	0.00	0.00	0.00	0.00	0.00	0.00
117078	0.00	0.00	0.00	0.00	0.00	0.00	0.00
117079	0.00	0.00	0.00	0.00	0.00	0.00	0.00
117080	0.01	0.01	0.00	0.00	0.00	0.00	0.00
117081	0.00	0.00	0.00	0.00	0.00	0.00	0.00
117084	0.00	0.00	0.00	0.00	0.00	0.00	0.00
117085	0.00	0.00	0.00	0.00	0.00	0.00	0.00
117086	0.00	0.00	0.00	0.00	0.00	0.00	0.00
117087	0.00	0.00	0.00	0.00	0.00	0.00	0.00
trip blank, #117082	0.00	0.00	0.00	0.00	0.00	0.00	0.00
trip blank, #117083	0.00	0.00	0.00	0.00	0.00	0.00	0.00
method blank	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NAPH, ug	TRIDEC, ug	2MeNAPH, ug	Acenaphthylene, ug	PENTADEC, ug	Acenaphthene, ug	Fluorene, ug
MAX OBSERVED	0.01	0.01	0.00	0.00	0.00	0.00	0.00

APPENDIX A:

1. CHAIN OF CUSTODY
2. DATA TABLES
3. COLOR CONTOUR MAPS

GORE-SORBER® Screening Survey Chain of Custody

For W.L. Gore & Associates use only
Production Order # 066637.0001

W. L. Gore & Associates, Inc., Environmental Products Group
101 Lewisville Road • Elkton, Maryland 21921 • Tel: (410) 392-3300 • Fax (410) 996-3325

Custody Seals intact upon receipt

Instructions: Customer must complete ALL shaded cells

Customer Name: Roy F. Weston Inc.	Site Name: Army Corp. of Engineers
Address: One Weston Way West Chester, PA 19380-1499	Site Address: Ft. Monmouth, NJ
Phone: 610-701-3000	Project Manager: Gary Whitmer
FAX: 610-701-7401	Customer Project No.:
	Customer P.O. #: 03886-076-037 Quote #: BK 4661

Serial # of Modules Shipped			# of Modules for Installation 10	# of Trip Blanks 2	
# 117076	through	# 117087	Total Modules Shipped: 12		Pieces
#	through	#	Total Modules Received: 12		Pieces
#	through	#	Total Modules Installed: 10		Pieces
#	through	#	Serial # of Trip Blanks (*Client Decides*)		# 117082
#	through	#	# 117083	#	#
#	through	#	#	#	#
#	through	#	#	#	#

Installation Performed By: Name (*please print*): P. THOMAS / B. PASAPANE Company/Affiliation: WESTON	Installation Method(s) (*circle those that apply*): (Slide Hammer) Hammer Drill Auger Other:
Installation Start Date and Time: 12/07/95 10:40	(AM) PM
Installation Complete Date and Time: 12/07/95 14:55	AM (PM)
Retrieval Performed By: Name (*please print*): B. PASAPANE Company/Affiliation: WESTON	Total Modules Retrieved: 10 Pieces Total Modules Lost in Field: 0 Pieces Total Unused Modules Returned: 2 Pieces (TB)
Retrieval Start Date and Time: 12/27/95 11:30	(AM) PM
Retrieval Complete Date and Time: 12/27/95 12:25	(AM) PM
Target Analytes to be Mapped (*Check Options or List as appropriate*):	To Be Determined Pending Completion of Lab Analysis [ ] or write "None", if applicable.
Analyte #1: VOC's	Analyte #2: Analyte #3:
Other Instructions, if any:	

Relinquished By: J. Murphy Affiliation: W.L. Gore & Associates, Inc.	Date: 12/1/95	Time: 15:00	Received By: [illegible] Affiliation: W.L. Gore	Date: 12/28/95	Time: 12:30 pm
Relinquished By: Brett Pasapane Affiliation: WESTON	Date: 12-27-95	Time: 1330	Received By: Affiliation:	Date:	Time:
Relinquished By: Affiliation:	Date:	Time:	Received By: Jim Whetzel Affiliation: W.L. Gore & Associates, Inc.	Date: 12/28/95	Time: 11:15
			Temperature of Samples When Received By Gore		1.6 °C

GORE-SORBER® Screening Survey Installation and Retrieval Log

Page 1 of 1

SITE NAME & LOCATION

ARMY CORPS OF ENGINEERS
FT. MONMOUTH, NJ.
CHARLES WOOD AREA

LINE #	MODULE #	INSTALLATION DATE/TIME	RETRIEVAL DATE/TIME	EVIDENCE OF LIQUID HYDROCARBONS (LPH) or HYDROCARBON ODOR (Check as appropriate)			MODULE IN WATER (check one)		COMMENTS
				LPH	ODOR	NONE	YES	NO	SITE ; COORDINATES
1. ✓	117076	12-7-95 / 1430	12-27-95 / 1210			✓		✓	CW-1 ; 25N/0E
2. ✓	117077	12-7-95 / ~~1445~~ 1451	12-27-95 / 1130			✓		✓	CW-2 ; 50N/25E
3. ✓	117078	12-7-95 / 1115	12-27-95 / 1135			✓		✓	CW-2 ; 25N/50E
4. ✓	117079	12-7-95 / 1102	12-27-95 / 1138			✓		✓	CW-2 ; 12.5N/25E
5. ✓	117080	12-7-95 / 1053	12-27-95 / 1143			✓		✓	CW-2 ; 25N/25E
6. ✓	117081	12-7-95 / 1040	12-27-95 / 1148			✓		✓	CW-2 ; 25N/0E
7. ✓	117082								TRIP BLANK
8. ✓	117083								TRIP BLANK
9. ✓	117084	12-7-95 / 1455	12-27-95 / 1214			✓		✓	CW-1 ; 12.5N/37E
10. ✓	117085	12-7-95 / 1452	12-27-95 / 1216			✓		✓	CW-1 ; 37N/12.5E
11. ✓	117086	12-7-95 / 1445	12-27-95 / 1220			✓		✓	CW-1 ; 0N/25E
12. ✓	117087	12-7-95 / 1440	12-27-95 / 1225			✓		✓	CW-1 ; 25N/25E
13.									
14.									
15.									
16.									
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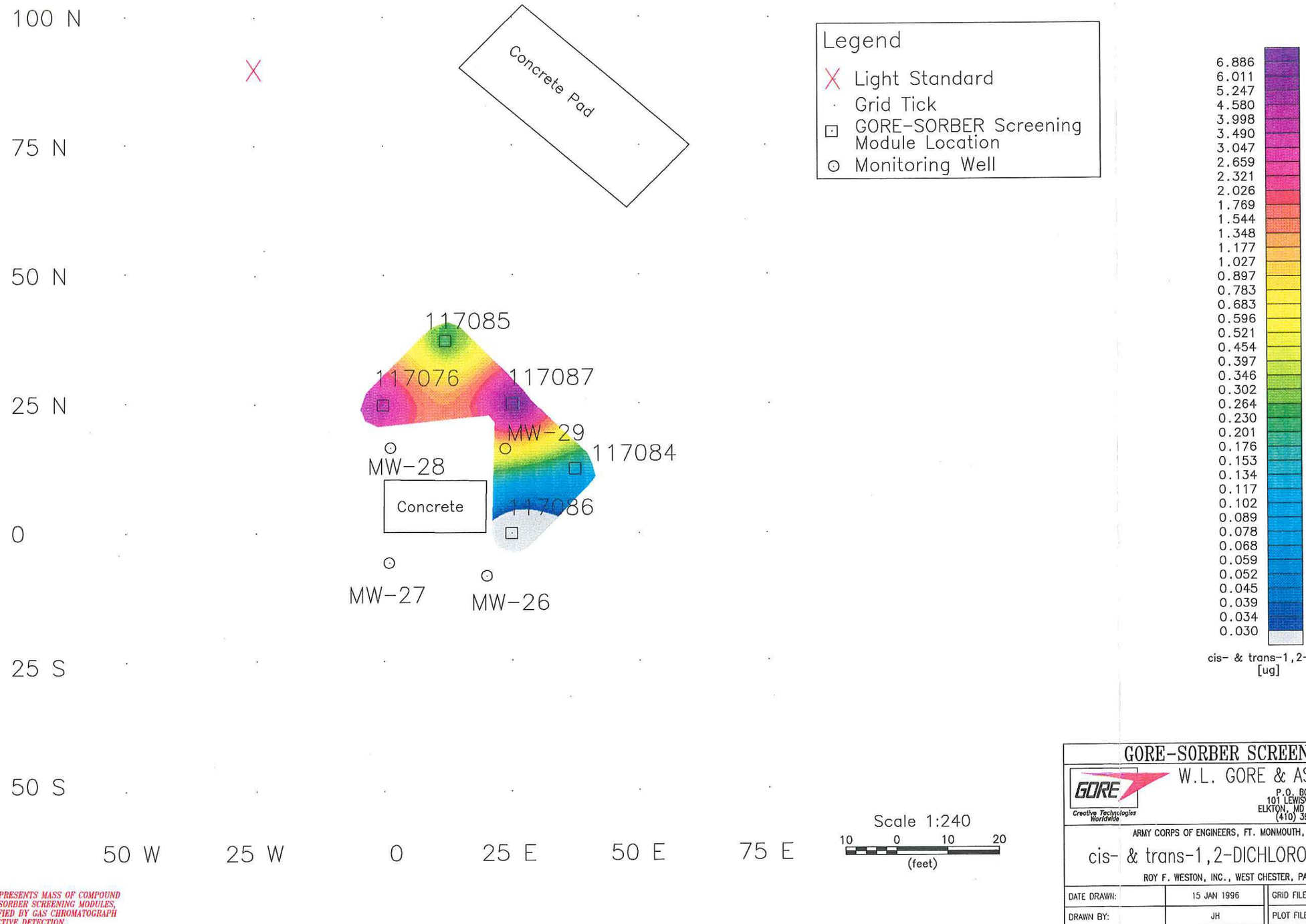
41.									
42.									



NOTE: CONTOUR PLOT REPRESENTS MASS OF COMPOUND DESORBED FROM GORE-SORBER SCREENING MODULES, IDENTIFIED AND QUANTIFIED BY GAS CHROMATOGRAPH MASS SELECTIVE DETECTION.

ORIG. CAD: FILE1.DWG

GORE-SORBER SCREENING SURVEY

W.L. GORE & ASSOCIATES, INC.
P.O. BOX 1100
101 LEWISVILLE ROAD
ELKTON, MD 21922-1100
(410) 392-3300

ARMY CORPS OF ENGINEERS, FT. MONMOUTH, NJ

cis- & trans-1,2-DICHLOROETHENE

ROY F. WESTON, INC., WEST CHESTER, PA

REV. #: 0
REV. DATE:

DATE DRAWN:	15 JAN 1996	GRID FILE:	DC01.GRD
DRAWN BY:	JH	PLOT FILE:	DCC.PLT
DATE GRIDDED:	15 JAN 1996	PROJECT NUMBER:	066637
GRIDDED BY:	JH	SITE CODE:	LL

GORE
Creative Technologies Worldwide

W. L. GORE & ASSOCIATES, INC.
101 LEWISVILLE ROAD • P.O. BOX 1100 • ELKTON, MARYLAND 21922-1100 PHONE: 410/392-3300
FAX: 410/996-3325 • TELEX 467637 GORE FB ELKT
ENVIRONMENTAL PRODUCTS GROUP

March 28, 1996

Mr. Gary Witmer
Roy F. Weston, Inc.
1 Weston Way
West Chester, PA 19380-1499

Site Reference: U.S. Army Corps of Engineers, Fort Monmouth, NJ
Customer Purchase Order Number: 03886076037
Gore Production Order Number: 067523

Dear Mr. Witmer:

Thank you for choosing a GORE-SORBER^{SM} Screening Survey.

The attached deliverables package consists of the following information:

- **Laboratory Report**
- **Chain of Custody record and Laboratory Analytical Summary Data Tables that were used in the preparation of the attached maps (included in Appendix A)**
- **Two (2) "B-sized" contour map (included in Appendix A)**

Please contact our office if you have any questions or comments concerning this report. We appreciate this opportunity to be of service to Roy F. Weston (and the U.S. Army Corps of Engineers), and look forward to working with you again in the future.

Sincerely,
W.L. Gore & Associates, Inc.

Ray Fenstermacher, P.G.
Associate

Attachments
cc: File; George Shaw (W.L. Gore & Associates, Inc.)

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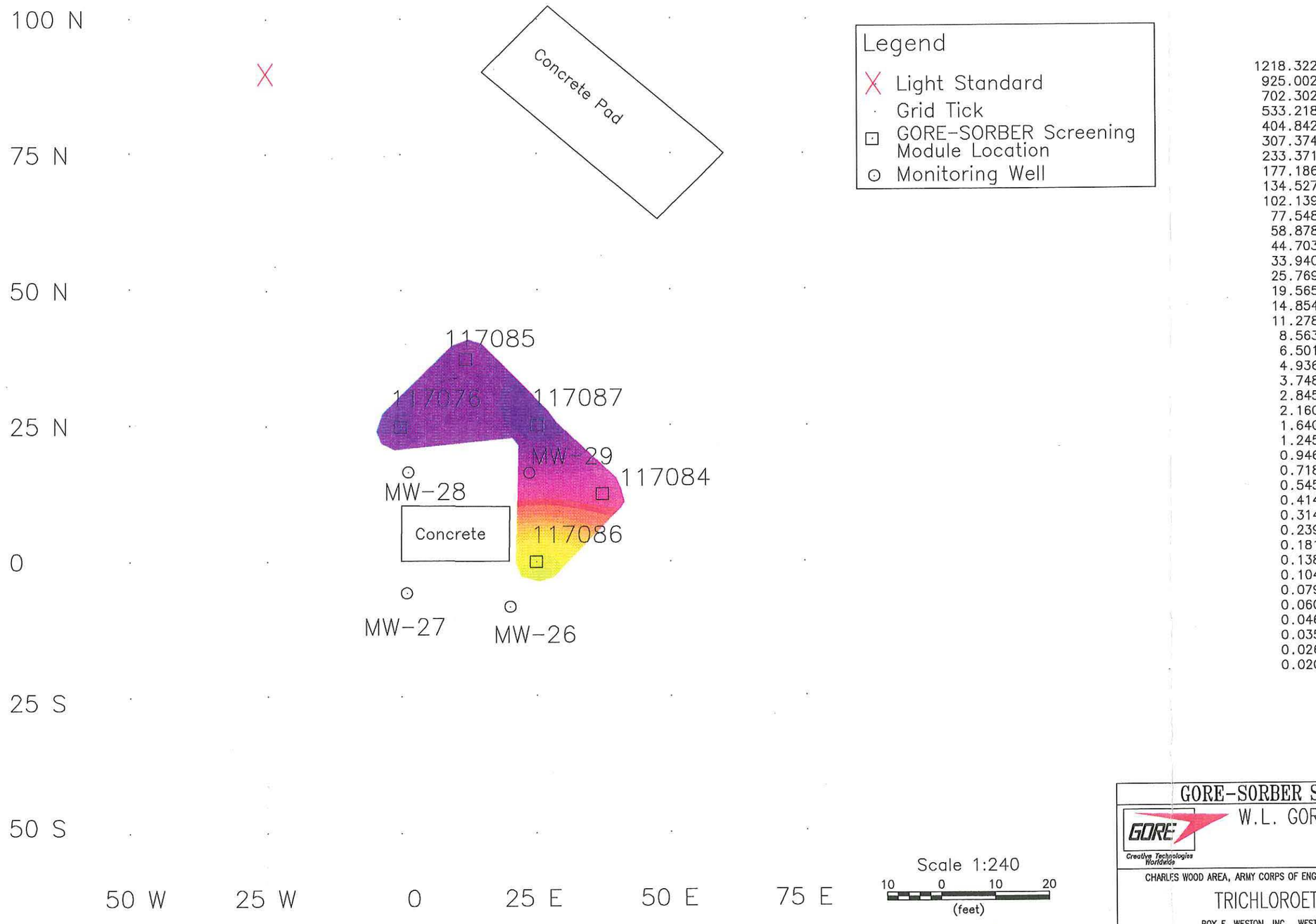


NOTE: CONTOUR PLOT REPRESENTS MASS OF COMPOUND DESORBED FROM GORE-SORBER SCREENING MODULES, IDENTIFIED AND QUANTIFIED BY GAS CHROMATOGRAPH MASS SELECTIVE DETECTION.

ORIG. CAD:	FILE1.DWG

GORE-SORBER IS REG. U.S. PAT. & T.M. OFF.
GORE-SORBER SCREENING SURVEY IS A SERVICE MARK OF W.L. GORE & ASSOCIATES
GORE-SORBER SCREENING MODULE IS A TRADEMARK OF W.L. GORE & ASSOCIATES

GORE-SORBER SCREENING SURVEY

W.L. GORE & ASSOCIATES, INC.
P.O. BOX 1100
101 LEWISVILLE ROAD
ELKTON, MD 21922-1100
(410) 392-3300

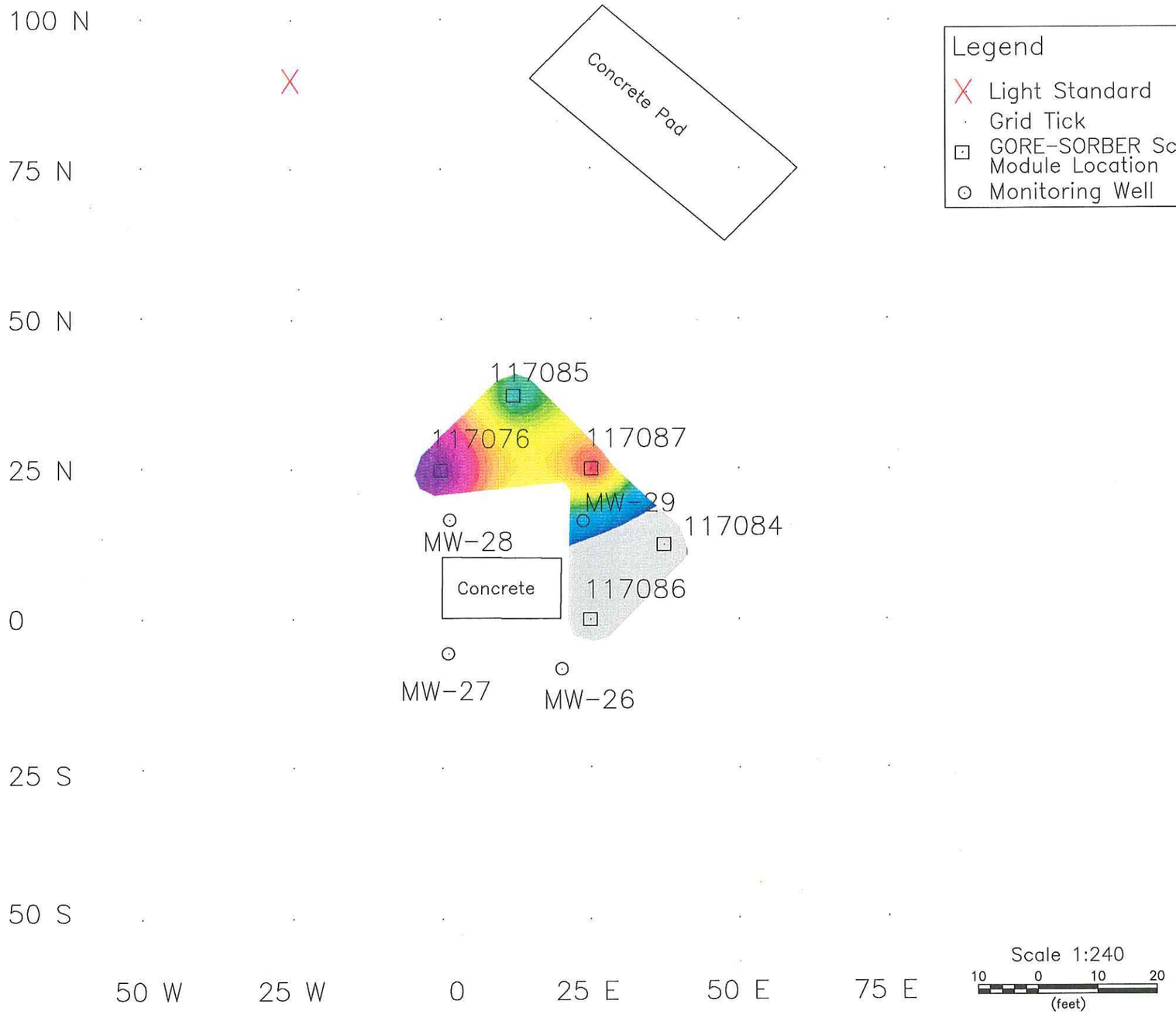
CHARLES WOOD AREA, ARMY CORPS OF ENGINEERS, FT. MONMOUTH, NJ

TRICHLOROETHENE

ROY F. WESTON, INC., WEST CHESTER, PA

REV. #: 0
REV. DATE:

DATE DRAWN:	15 JAN 1996	GRID FILE:	TE01.GRD
DRAWN BY:	JH	PLOT FILE:	TEC.PLT
DATE GRIDDED:	15 JAN 1996	PROJECT NUMBER:	066637
GRIDDED BY:	JH	SITE CODE:	LL



NOTE: CONTOUR PLOT REPRESENTS MASS OF COMPOUND DESORBED FROM GORE-SORBER SCREENING MODULES, IDENTIFIED AND QUANTIFIED BY GAS CHROMATOGRAPH MASS SELECTIVE DETECTION.

ORIG. CAD: FILE1.DWG

GORE-SORBER SCREENING SURVEY

W.L. GORE & ASSOCIATES, INC.
P.O. BOX 1100
101 LEWISVILLE ROAD
ELKTON, MD 21922-1100
(410) 392-3300

CHARLES WOOD AREA, ARMY CORPS OF ENGINEERS, FT. MONMOUTH, NJ

TETRACHLOROETHENE

ROY F. WESTON, INC., WEST CHESTER, PA

REV. #: 0
REV. DATE:

DATE DRAWN:	15 JAN 1996	GRID FILE:	PC01.GRD
DRAWN BY:	JH	PLOT FILE:	PCC.PLT
DATE GRIDDED:	15 JAN 1996	PROJECT NUMBER:	066637
GRIDDED BY:	JH	SITE CODE:	LL

W. L. GORE & ASSOCIATES, INC.
101 LEWISVILLE ROAD • P.O. BOX 1100 • ELKTON, MARYLAND 21922-1100 PHONE: 410/392-3300
FAX: 410/996-3325 • TELEX 467637 GORE FB ELKT
ENVIRONMENTAL PRODUCTS GROUP

GORE-SORBER[SM] Screening Survey
Final Report

U.S. Army Corps of Engineers
Ft. Monmouth, NJ

March 28, 1996

Prepared For:
Roy F. Weston
1 Weston Way
West Chester, PA 19380

W.L. Gore & Associates, Inc.
Written/Submitted by

Ray Fenstermacher, P.G.
Associate

W.L. Gore & Associates, Inc.
Reviewed/Approved by

Jay W. Hodny, M.S.
Associate

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GORE-SORBER[sm] Screening Survey Final Report

REPORT DATE: March 28, 1996 **AUTHOR:** RFF

SITE INFORMATION

Site Reference: U.S. Army Corps of Engineers, Ft. Monmouth, NJ
Customer Purchase Order Number: 03886076037
Gore Production Order Number: 67523 **Gore Site Code:** MU

FIELD PROCEDURES

 # Modules shipped: 30
Installation Date(s): March 6 and 7, 1996 **# Modules Installed:** 28
Field work performed by: P. Thomas and B. Pasapane (Roy F. Weston)

Retrieval date(s): March 21, 1996 **Exposure Time:** 14-15 **[days]**
 # Modules Retrieved: 27 **# Trip Blanks Returned:** 2
 # Modules Lost in Field: 1* **# Unused Modules Returned:** -0-

Date/Time Received by Gore: March 22, 1996 **By:** CJF
Recorded Cooler/Water Temperature Control Blank temperature: 3.0 **[°C]**
Chain of Custody Form attached: √
Chain of Custody discrepancies: * Module #119015 was listed on the installation/retrieval section of the chain of custody; however, this module was not received at Gore
Comments:

ANALYTICAL PROCEDURES

NOTE: All data have been archived. Any replicate sorbers not used in the initial analysis will be discarded thirty (30) days from the date of this report.

Laboratory analysis: thermal desorption, gas chromatography, mass selective detection
Quality Assurance Level: I (ANA-1)
Instrument ID: # 1 **Chemist:** JW **Data Subdirectory:** 067523
Compounds/mixtures requested: Gore GS3; Expanded Target VOCs and SVOCs (A5).
Deviations from Standard Method: None.
Comments: Soil vapor analytes and abbreviations are tabulated in the Data Table Key (page 3).

GORE-SORBER℠ Screening Survey
Final Report

DATA TABULATION

 # CONTOUR MAPS ENCLOSED: Two (2) B-size color contour map.
LIST OF MAPS ENCLOSED:

- Trichloroethene (TCE)
- Tetrachloroethene (PCE)

Compound Name	Low Reporting Limit [µg]	Low Map (gray) Limit [µg]	Highest Detect Level [µg]	Upper Map (purple) Limit [µg]
TCE	0.01	0.02*	50.46	2113.25
PCE	0.01	0.03*	0.26	0.88

* Method Detection Limit (MDL)

NOTE: All data values presented in Appendix A represent masses of compound(s) desorbed from the GORE-SORBER Screening Modules received and analyzed by W.L. Gore, as identified in the Chain of Custody (Appendix A). The measurement traceability and instrument performance are reproducible and accurate for the measurement process documented. Semi-quantitation of the compound mass is based on either a single-level (QA Level 1) or three-level (QA Level 2) standard calibration.

Comments:

- The current soil gas survey is an extension of a prior soil gas survey conducted in December of 1995 (see the report dated January 15, 1996).
- Module #119015 was not found with the other modules upon return to Gore. It's location was plotted on the map.
- The minimum (gray) contour level was set at the maximum blank level observed, or the method detection limit (MDL) whichever is greater. The TCE and PCE data from the prior survey were included in the current maps. The maximum contour level was set at the overall maximum value observed from both PCE and TCE data sets.
- Target hydrocarbon levels reported in the trip blanks are similar to levels reported in the field-exposed modules. This suggests a uniform impact event occurred while the modules where either in transit or storage prior to or following the field exposure.

GORE-SORBER[sm] Screening Survey
Final Report

KEY TO DATA TABLE
U.S. Army Corps of Engineers, Ft. Monmouth, NJ

UNITS

µg	micrograms (per sorber), reported for compounds for which external standards were analyzed.

ANALYTES

BTEX	combined masses of benzene, toluene, ethylbenzene and total xylenes (Gasoline Range Aromatics)
C11,C13&C15	combined masses of undecane, tridecane, and pentadecane (C11+C13+C15) (Diesel Range Alkanes)
MTBE	methyl t-butyl ether
t12DCE	trans-1,2-dichloroethene
11DCA	1,1-dichloroethane
c12DCE	cis-1,2-dichloroethene
ct12DCE	cis- & trans-1,2-dichloroethene
$CHCl_3$	chloroform
111TCA	1,1,1-trichloroethane
12DCA	1,2-dichloroethane
BENZ	benzene
CCl_4	carbon tetrachloride
TCE	trichloroethene
TOL	toluene
OCT	octane
PCE	tetrachloroethene
ClBENZ	chlorobenzene
EtBENZ	ethylbenzene
mpXYL	m-, p-xylene
oXYL	o-xylene
PHENOL	phenol
135TMB	1,3,5-trimethylbenzene
124TMB	1,2,4-trimethylbenzene
TMBs	1,2,4- & 1,3,5-trimethylbenzenes
14DCB	1,4-dichlorobenzene
2MePHENOL	2-methyl phenol
C_{11}/UNDEC	undecane
NAPH	naphthalene
NAPH&2MN	naphthalene & 2-methyl naphthalene
C13/TRIDEC	tridecane
2MeNAPH	2-methyl naphthalene
C15/PENTADEC	pentadecane

BLANKS

TB n	unexposed trip blanks, which traveled with the exposed modules
BLK n	method blank, retained at Gore

APPENDIX A:

1. CHAIN OF CUSTODY
2. DATA TABLE
3. COLOR CONTOUR MAPS

GORE-SORBER® Screening Survey Chain of Custody

For W.L. Gore & Associates use only
Production Order # 67523

W. L. Gore & Associates, Inc., Environmental Products Group
101 Lewisville Road • Elkton, Maryland 21921 • Tel: (410) 392-3300 • Fax (410) 996-3325

Instructions: Customer must complete ALL shaded cells

Customer Name: ROY F. WESTON	Site Name: US ARMY CORPS OF ENGINEERS
Address: ONE WESTON WAY	Site Address:
WEST CHESTER PA 19380-1499	FORT MONMOUTH NJ
	Project Manager: MR PATRICK THOMAS
Phone: 610 701 7578	Customer Project No.:
FAX: 610 430 7401	Customer P.O. #: 03886 074 037 Quote #:

Serial # of Modules Shipped				# of Modules for Installation 28		# of Trip Blanks 2	
# 118990	through	# 119016		Total Modules Shipped: 30 Pieces			
# 119022	through	# 119024		Total Modules Received: 30 Pieces			
#	through	#		Total Modules Installed: 29 Pieces			
#	through	#		Serial # of Trip Blanks (*Client Decides*)		#	
#	through	#		# 119012	#	#	
#	through	#		# 119013	#	#	
#	through	#		#	#	#	

Installation Performed By:	Installation Method(s) (*circle those that apply*):
Name (*please print*): P. Thomas / B. Posapane	Slide Hammer Hammer Drill Auger
Company/Affiliation: Roy F. Weston	Other:
Installation Start Date and Time: 03/06/96 2:40 AM (PM)	
Installation Complete Date and Time: 03/07/96 8:30 (AM) PM	
Retrieval Performed By:	Total Modules Retrieved: 28 Pieces
Name (*please print*): P. Thomas	Total Modules Lost in Field: 0 Pieces
Company/Affiliation: Roy F. Weston	Total Unused Modules Returned: 2 Pieces (TB)
Retrieval Start Date and Time: 03/21/96 8:30 (AM) PM	
Retrieval Complete Date and Time: 03/21/96 10:00 (AM) PM	

Target Analytes to be Mapped (*Check Options or List as appropriate*):	To Be Determined Pending Completion of Lab Analysis [ ] or write "None", if applicable.	
Analyte #1: VOC's	Analyte #2:	Analyte #3:
Other Instructions, if any: same Parameters as before		

Relinquished By CJ Fondren	Date 3/1/96	Time 1500	Received By:	Date	Time
Affiliation: W.L. Gore & Associates, Inc.			Affiliation:		
Relinquished By Pat Thom	Date 03/21/96	Time 1200	Received By:	Date	Time
Affiliation: Roy F. Weston			Affiliation:		
Relinquished By	Date	Time	Received By: CJ Fondren	Date	Time
Affiliation			Affiliation: W.L. Gore & Associates, Inc.	3/22/96	12:30
			Temperature of Samples When Received By Gore	3.0	°C

GORE-SORBER® Screening Survey
Installation and Retrieval Log

Page 1 of 1

SITE NAME & LOCATION
USACE
FT Monmouth, NJ
Charles Wood Area - Site CW-1

LINE #	MODULE #	INSTALLATION DATE/TIME	RETRIEVAL DATE/TIME	EVIDENCE OF LIQUID HYDROCARBONS (LPH) or HYDROCARBON ODOR (Check as appropriate)			MODULE IN WATER (check one)		COMMENTS
				LPH	ODOR	NONE	YES	NO	Coordinate
43.	118990 ✓	03/06/96 - 1548	03/21/96 - 0930			X		X	100W, 0E
44.	118991 ✓	03/06/96 - 1540							75W, 25E
45.	118992 ✓	03/06/96 - 1540							50N, 0E
46.	118993 ✓	03/06/96 - 1535							50N, 25E
47.	118994 ✓	03/06/96 - 1520							50N, 50E
48.	118995 ✓	03/06/96 - 1510							25N, 50E
49.	118996 ✓	03/07/96 - 0800							100N, 50W
50.	118997 ✓	03/07/96 - 0805							75N, 28W
51.	118998 ✓	03/07/96 - 0807							47N, 28W
52.	118999 ✓	03/07/96 - 0810							25N, 28W
53.	119000 ✓	03/07/96 - 0812							0N, 28W
54.	119001 ✓	03/07/96 - 0814							25S, 28W
55.	119002 ✓	03/07/96 - 0817							75N, 0E
56.	119003 ✓	03/07/96 - 0820							100N, 55E
57.	119004 ✓	03/07/96 - 0822							80N, 87E
58.	119005 ✓	03/07/96 - 0825							50N, 75E
59.	119006 ✓	03/07/96 - 0830							50N, 78E
60.	119007 ✓	03/07/96 - 0835							0N, 75E
61.	119008 ✓	03/07/96 - 0837							25S, 75E
62.	119009 ✓	03/07/96 - 0840							13N, 125E
63.	119010 ✓	03/07/96 - 0845							38N, 125E
64.	119011 ✓	03/07/96 - 0850				↓		↓	63N, 125E
65.	119012 ✓								Trip Blank
66.	119013 ✓								Trip Blank
67.	119014 ✓	03/06/96 - 1443				X		X	50E, 50S
68.	119015	03/06/96 - 1505							50E, 0S
69.	119016 ✓	03/06/96 - 1440							50S, 0E
70.	119022 ✓	03/06/96 - 1448							25S, 25E
71.	119023 ✓	03/06/96 - 1445							25S, 0E
72.	119024 ✓	03/06/96 - 1453	↓ 1100			↓		↓	25S, 50E
73.									
74.									
75.	MISSING								
76.									
77.									
78.									
79.									
80.									
81.									
82.									
83.									
84.									
85.									

GORE-SORBER Screening Survey Analytical Results
Roy F. Weston, Inc., West Chester, PA
(A5) Expanded Target VOCs and SVOCs List
US Army Corps of Engineers, Fort Monmouth, NJ
Site MU - Production #067523

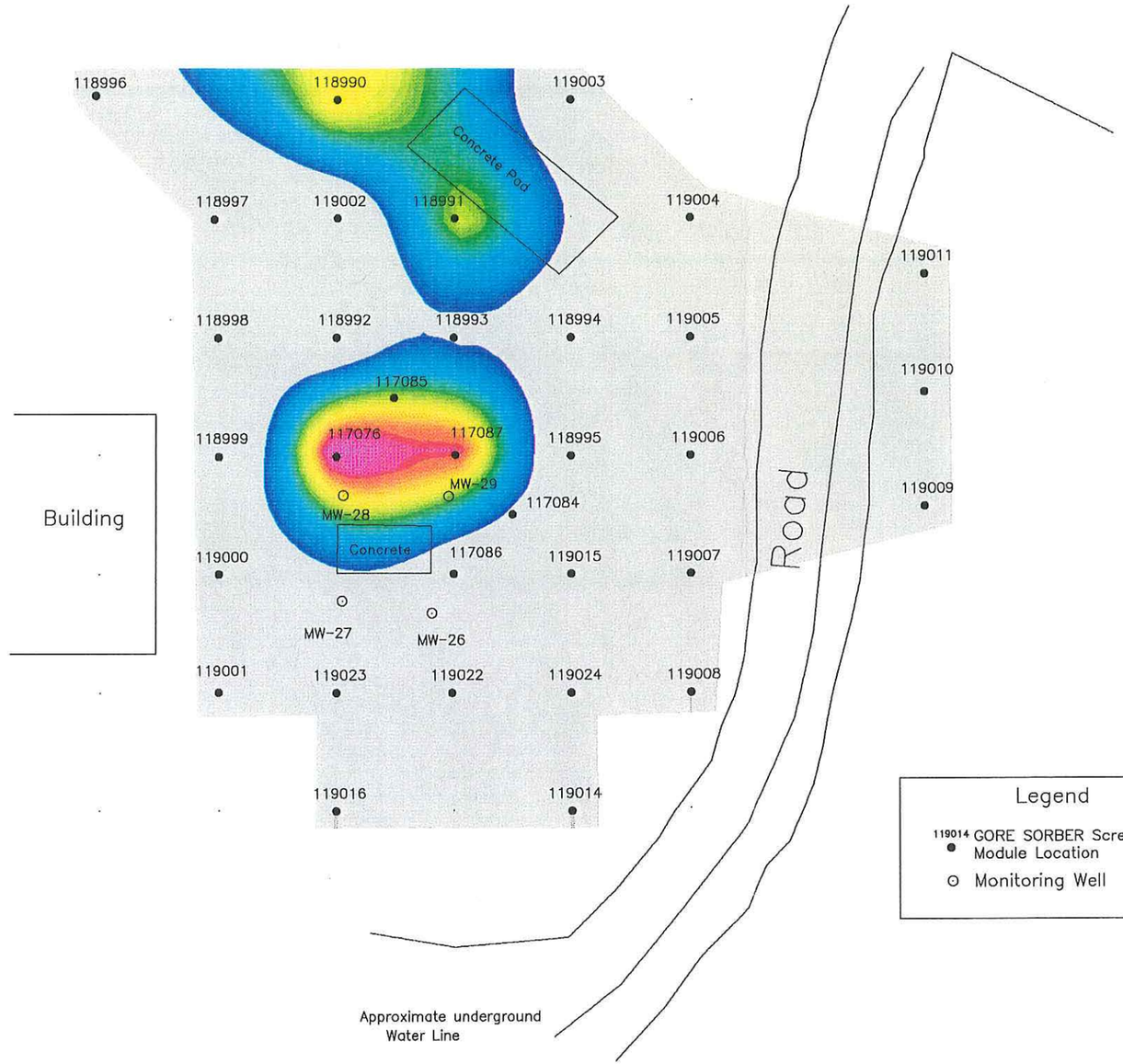
DATE ANALYZED	DATAFILE NAME	BTEX, ug	BENZ, ug	TOL, ug	EtBENZ, ug	mpXYL, ug	oXYL, ug	C11,C13&C15, ug	UNDEC, ug	TRIDEC, ug	PENTADEC, ug	NAPH&2-MN, ug	NAPH, ug	2MeNAPH, ug
	MDL =	0.02	0.03	0.03	0.02	0.02	0.03	0.02	0.04	0.02	0.03	0.03	0.03	0.03
3/23/96	119000	0.48	0.40	0.06	0.00	0.02	0.00	0.27	0.27	0.00	0.00	0.00	0.00	0.00
3/23/96	119001	0.53	0.43	0.07	0.01	0.02	0.00	0.35	0.32	0.02	0.01	0.00	0.00	0.00
3/23/96	119002	0.55	0.46	0.06	0.01	0.02	0.00	0.37	0.34	0.01	0.02	0.00	0.00	0.00
3/23/96	119003	0.58	0.50	0.06	0.00	0.02	0.00	0.25	0.25	0.00	0.00	0.00	0.00	0.00
3/23/96	119004	0.65	0.52	0.08	0.02	0.03	0.00	0.29	0.29	0.00	0.00	0.00	0.00	0.00
3/23/96	119005	0.48	0.37	0.07	0.01	0.03	0.00	0.24	0.24	0.00	0.00	0.00	0.00	0.00
3/23/96	119006	0.43	0.34	0.07	0.00	0.02	0.00	0.19	0.19	0.00	0.00	0.00	0.00	0.00
3/23/96	119007	0.48	0.40	0.06	0.00	0.02	0.00	0.27	0.27	0.00	0.00	0.00	0.00	0.00
3/23/96	119008	0.49	0.42	0.06	0.00	0.01	0.00	0.20	0.20	0.00	0.00	0.00	0.00	0.00
3/23/96	119009	0.48	0.40	0.06	0.01	0.01	0.00	0.21	0.21	0.00	0.00	0.00	0.00	0.00
3/23/96	119010	0.41	0.34	0.05	0.00	0.01	0.00	0.20	0.20	0.00	0.00	0.00	0.00	0.00
3/23/96	119011	0.61	0.47	0.09	0.01	0.03	0.01	0.28	0.28	0.00	0.00	0.00	0.00	0.00
3/23/96	119014	0.28	0.21	0.07	0.00	0.00	0.00	0.16	0.16	0.00	0.00	0.00	0.00	0.00
3/23/96	119016	0.41	0.34	0.05	0.00	0.02	0.00	0.23	0.23	0.00	0.00	0.00	0.00	0.00
3/23/96	119022	0.37	0.30	0.04	0.00	0.02	0.00	0.21	0.21	0.00	0.00	0.00	0.00	0.00
3/23/96	119023	0.59	0.46	0.06	0.01	0.04	0.02	0.25	0.25	0.00	0.00	0.00	0.00	0.00
3/23/96	119024	0.54	0.48	0.05	0.00	0.01	0.00	0.20	0.20	0.00	0.00	0.00	0.00	0.00
3/22/96	118990	0.40	0.35	0.04	0.00	0.00	0.00	0.27	0.27	0.00	0.00	0.00	0.00	0.00
3/22/96	118991	0.38	0.33	0.04	0.00	0.01	0.00	0.21	0.21	0.00	0.00	0.00	0.00	0.00
3/22/96	118992	0.54	0.49	0.04	0.00	0.00	0.00	0.28	0.27	0.01	0.00	0.00	0.00	0.00
3/22/96	118993	0.54	0.48	0.06	0.00	0.01	0.00	0.34	0.33	0.01	0.00	0.00	0.00	0.00
3/22/96	118994	0.42	0.34	0.06	0.00	0.02	0.00	0.26	0.26	0.00	0.00	0.00	0.00	0.00
3/22/96	118995	0.36	0.31	0.04	0.00	0.01	0.00	0.22	0.22	0.00	0.00	0.00	0.00	0.00
3/22/96	118996	0.57	0.43	0.08	0.01	0.03	0.01	0.28	0.28	0.00	0.00	0.00	0.00	0.00
3/22/96	118997	0.42	0.36	0.05	0.00	0.01	0.00	0.18	0.18	0.00	0.00	0.00	0.00	0.00
3/23/96	118998	0.37	0.31	0.04	0.00	0.01	0.00	0.25	0.24	0.00	0.01	0.00	0.00	0.00
3/23/96	118999	0.38	0.33	0.04	0.00	0.01	0.00	0.27	0.27	0.00	0.00	0.00	0.00	0.00
3/23/96	TB 1, 119012	0.40	0.32	0.06	0.00	0.02	0.00	0.40	0.36	0.01	0.02	0.00	0.00	0.00
3/23/96	TB 2, 119013	0.45	0.37	0.06	0.00	0.02	0.00	0.29	0.28	0.00	0.01	0.00	0.00	0.00
3/22/96	BLK 1	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Max Observed	0.65	0.52	0.09	0.02	0.04	0.02	0.37	0.34	0.02	0.02	0.00	0.00	0.00

GORE-SORBER Screening Survey Analytical Results
Roy F. Weston, Inc., West Chester, PA
(A5) Expanded Target VOCs and SVOCs List
US Army Corps of Engineers, Fort Monmouth, NJ
Site MU - Production #067523

DATAFILE NAME	TMBs, ug	135TMB, ug	124TMB, ug	t12DCE, ug	11DCA, ug	c12DCE, ug	CHCl3, ug	PCE, ug	111TCA, ug	12DCA, ug	MTBE, ug	CCl4, ug	TCE, ug	OCT, ug	ClBENZ, ug	PHENOL, ug
MDL =	0.02	0.02	0.02	0.05	0.01	0.02	0.01	0.03	0.02	0.02	0.16	0.04	0.02	0.02	0.02	0.08
119000	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.66	0.08	0.03	0.00
119001	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.94	0.09	0.03	0.00
119002	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.02	0.00
119003	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.04	0.00
119004	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.05	0.00
119005	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.02	0.00
119006	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.00	0.00	0.00	0.00	0.07	0.06	0.01	0.00
119007	0.01	0.00	0.01	0.00	0.00	0.00	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.02	0.00
119008	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.03	0.00
119009	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01	0.00
119010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01	0.00
119011	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.04	0.00
119014	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.04	0.00
119016	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.02	0.00
119022	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.04	0.00
119023	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.79	0.03	0.07	0.00
119024	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.06	0.00
118990	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.26	0.00	0.00	0.00	0.00	0.00	0.04	0.02	0.00
118991	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.17	0.00	0.00	0.00	0.00	0.36	0.07	0.00	0.00
118992	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	32.44	0.06	0.04	0.00
118993	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	50.46	0.07	0.03	0.00
118994	0.01	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	14.02	0.07	0.00	0.00
118995	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	16.73	0.06	0.00	0.00
118996	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.03	0.00
118997	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.37	0.07	0.02	0.00
118998	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.07	0.06	0.00	0.00
118999	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.76	0.08	0.01	0.00
TB 1, 119012	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.03	0.00
TB 2, 119013	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.03	0.00
BLK 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Max Observed	0.01	0.00	0.01	0.00	0.00	0.00	0.60	0.26	0.00	0.00	0.00	0.00	50.46	0.13	0.07	0.00

GORE-SORBER Screening Survey Analytical Results
Roy F. Weston, Inc., West Chester, PA
(A5) Expanded Target VOCs and SVOCs List
US Army Corps of Engineers, Fort Monmouth, NJ
Site MU - Production #067523

DATAFILE NAME	14DCB, ug	2MePHENOL, ug	Acenaphthalene, ug	Acenapthene, ug	Fluorene, ug	Phenanthrene, ug	Anthracene, ug	Fluoranthene, ug	Pyrene, ug
MDL =	0.02	0.04	0.05	0.04	0.07	0.04	0.10	0.17	0.24
119000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
119001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
119002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
119003	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
119004	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
119005	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
119006	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
119007	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
119008	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
119009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
119010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
119011	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
119014	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
119016	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
119022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
119023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
119024	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
118990	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
118991	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
118992	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
118993	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
118994	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
118995	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
118996	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
118997	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
118998	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
118999	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TB 1, 119012	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TB 2, 119013	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BLK 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Max Observed	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00



Legend

119014 ● GORE SORBER Screening Module Location

○ Monitoring Well

0.759
0.692
0.646
0.589
0.550
0.501
0.468
0.427
0.398
0.363
0.339
0.309
0.288
0.263
0.245
0.224
0.209
0.191
0.178
0.166
0.151
0.141
0.129
0.120
0.110
0.102
0.093
0.087
0.079
0.074
0.068
0.063
0.058
0.054
0.049
0.046
0.042
0.039
0.035
0.033
0.030

PCE
[ug]

Scale 1:360

25 0 25

(feet)

NOTE: CONTOUR PLOT REPRESENTS MASS OF COMPOUND DESORBED FROM GORE-SORBER SCREENING MODULES, IDENTIFIED AND QUANTIFIED BY GAS CHROMATOGRAPH MASS SELECTIVE DETECTION.

ORIG. CAD: PRCW-1.DWG

GORE-SORBER IS REG. U.S. PAT. & T.M. OFF.
GORE-SORBER SCREENING SURVEY IS A SERVICE MARK OF W.L. GORE & ASSOCIATES
GORE-SORBER SCREENING MODULE IS A TRADEMARK OF W.L. GORE & ASSOCIATES

GORE-SORBER SCREENING SURVEY

W.L. GORE & ASSOCIATES, INC.
P.O. BOX 1100
101 LEWISVILLE ROAD
ELKTON, MD 21922-1100
(410) 392-3300

US ARMY CORPS OF ENGINEERS, FORT MONMOUTH, NJ

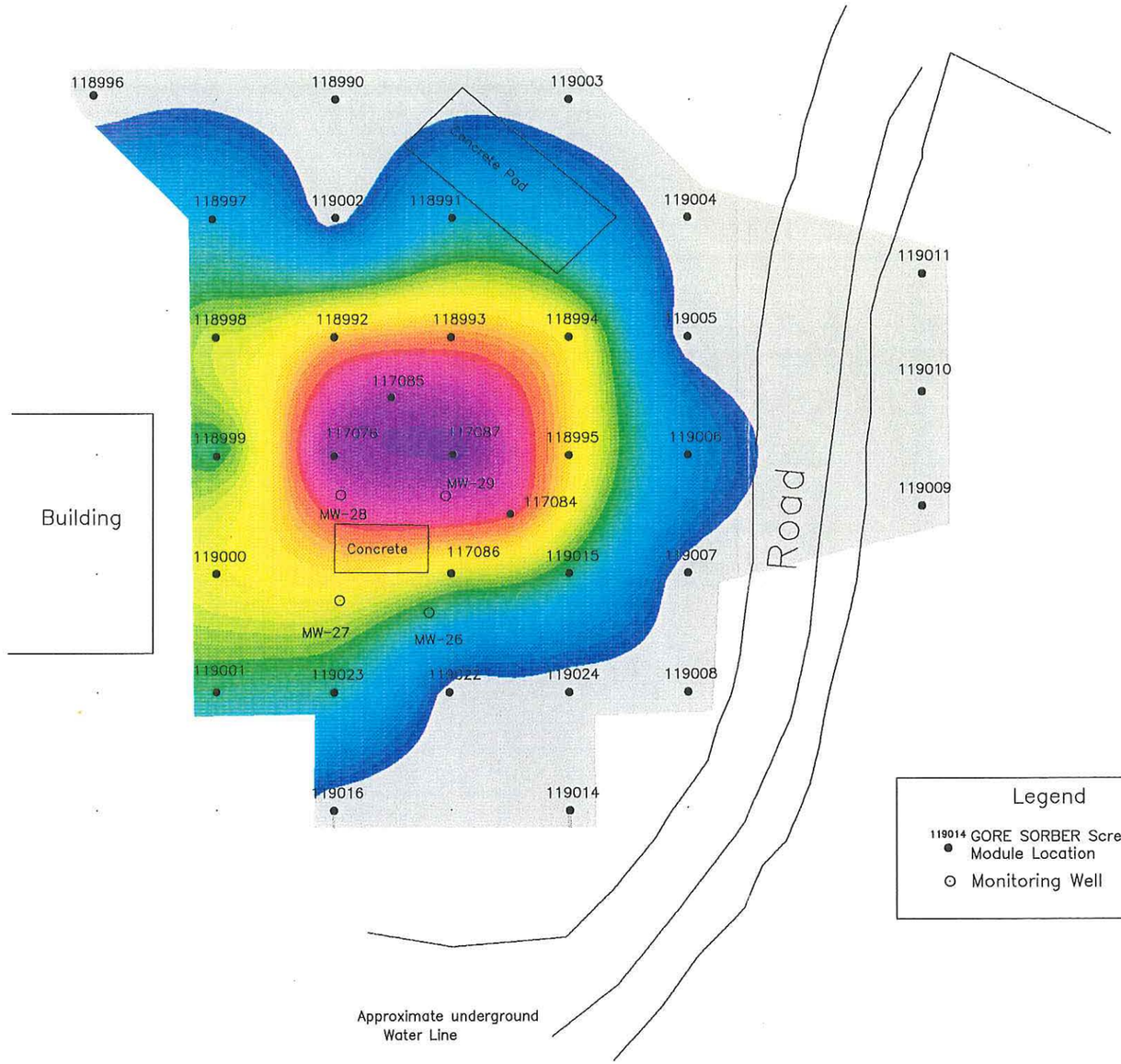
TETRACHLOROETHENE

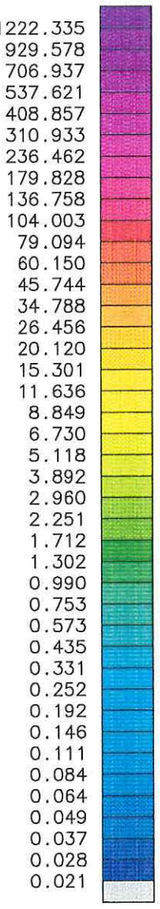
ROY F. WESTON, INC., WEST CHESTER, PA

REV. #: 0

REV. DATE:

DATE DRAWN:	27 MARCH 1996	GRID FILE:	PC01.GRD
DRAWN BY:	RFF	PLOT FILE:	PCC.PLT
DATE GRIDDED:	28 MARCH 1996	PROJECT NUMBER:	067523
GRIDDED BY:	RFF	SITE CODE:	MU





Legend

119014 ● GORE SORBER Screening Module Location

○ Monitoring Well

Scale 1:360

25 0 25

(feet)

NOTE: CONTOUR PLOT REPRESENTS MASS OF COMPOUND DESORBED FROM GORE-SORBER SCREENING MODULES, IDENTIFIED AND QUANTIFIED BY GAS CHROMATOGRAPH MASS SELECTIVE DETECTION.

ORIG. CAD:	PRCW-1.DWG

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US ARMY CORPS OF ENGINEERS, FORT MONMOUTH, NJ

TRICHLOROETHENE

ROY F. WESTON, INC., WEST CHESTER, PA

REV. #: 0

REV. DATE:

DATE DRAWN:	27 MARCH 1996	GRID FILE:	TE01.GRD
DRAWN BY:	RFF	PLOT FILE:	TEC.PLT
DATE GRIDDED:	28 MARCH 1996	PROJECT NUMBER:	067523
GRIDDED BY:	RFF	SITE CODE:	MU