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SUPPORTING DOCUMENT

1. Total Pages 122

2. Title	3. Number	4. Rev No.
Borehole Completion Data Package for NRDWL Facility Monitoring Wells 699-25-34D and 699-26-34B	WHC-SD-EN-DP-055	0

5. Key Words	6. Author
RCRA, Monitoring Wells, NRDWL, Borehole Completion	Name: F. N. Hodges F. N. Hodges Signature Organization/Charge Code 81232/R4GD1

APPROVED FOR PUBLIC RELEASE

3/22/93 N. Solis

7. Abstract

This document contains information pertaining to the drilling and construction of groundwater monitoring wells 699-25-34D and 699-26-34B. Geologic logs and hydrologic test data are included for each of the wells.

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CONTENTS

1.0 INTRODUCTION 1

2.0 WELL 699-25-34D 3
- 2.1 DRILLING 3
- 2.2 WELL COMPLETION 3
- 2.3 WELL DEVELOPMENT AND SAMPLE PUMP INSTALLATION 4
- 2.4 AQUIFER TESTING 4
- 2.5 TEST ANALYSIS 4
- 2.6 VADOSE GAS ANALYSES 4

3.0 WELL 699-26-34B 5
- 3.1 DRILLING 5
- 3.2 WELL COMPLETION 5
- 3.3 WELL DEVELOPMENT AND SAMPLE PUMP INSTALLATION 6
- 3.4 AQUIFER TESTING 6
- 3.5 TEST ANALYSIS 6
- 3.6 VADOSE GAS ANALYSES 6

4.0 REFERENCES 7

APPENDICES

A Drilling and Construction Data A-1
B Sediment Sample Data B-1
C Well Development Logs and Pump Installation Data C-1
D Slug Test Data D-1
E SEAMIST Gas Sample Data C-1

FIGURE

1 Location Map for Wells 699-25-34D and 699-26-34B 2

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1.0 INTRODUCTION

Two new downgradient monitoring wells were installed at the Nonradioactive Dangerous Waste Landfill (NRDWL) during 1992 in support of the *Hanford Federal Facility Agreement and Consent Order* (Ecology et al. 1989b), Milestone M-24-26. This data package presents data on well drilling, well completion, well development, sample pump installation, and aquifer testing for wells 699-25-34D and 699-26-34B. Figure 1 shows the locations of the new wells in relation to the NRDWL and the existing groundwater monitoring network.

The geohydrology of the NRDWL is presented in Weekes et al. (1987). The NRDWL closure plan (DOE-RL 1990) and the groundwater monitoring plan for the NRDWL (WHC 1993) provide guidelines for the locations of and justifications for wells 699-25-34D and 699-26-34B. Generic Well Specification for Project W-017H (WHC 1992a) provides construction requirements for the wells. The wells were constructed in conformance with the State of Washington Department of Ecology requirements (Ecology 1989a, 1989c, 1990).

The NRDWL is in a detection monitoring program in accordance with the Resource Conservation and Recovery Act of 1976 (RCRA) interim-status requirements for establishing a groundwater monitoring program (EPA 1989). Wells 699-25-34D and 699-26-34B are the most recent additions to the NRDWL monitoring network, and are in downgradient locations.

The following information is included in the appendices:

- Appendix A
  - -Well summary sheets
  - -Well Construction reports
  - -Well Survey data
  - -Borehole logs
  - -Geophysical logs
- Appendix B
  - -$CaCO_3$ and moisture content data
  - -Radiation analysis data
- Appendix C
  - -Well development forms
  - -Equipment configuration and wellhead diagrams
  - -Development drawdown/recovery forms and data
  - -Pump installation forms
- Appendix D
  - -Slug test data
- Appendix E
  - -SEAMIST test gas chromatograms

Chain of custody forms, decontamination records, daily field reports, and training records are on file with Westinghouse Hanford Company (WHC).

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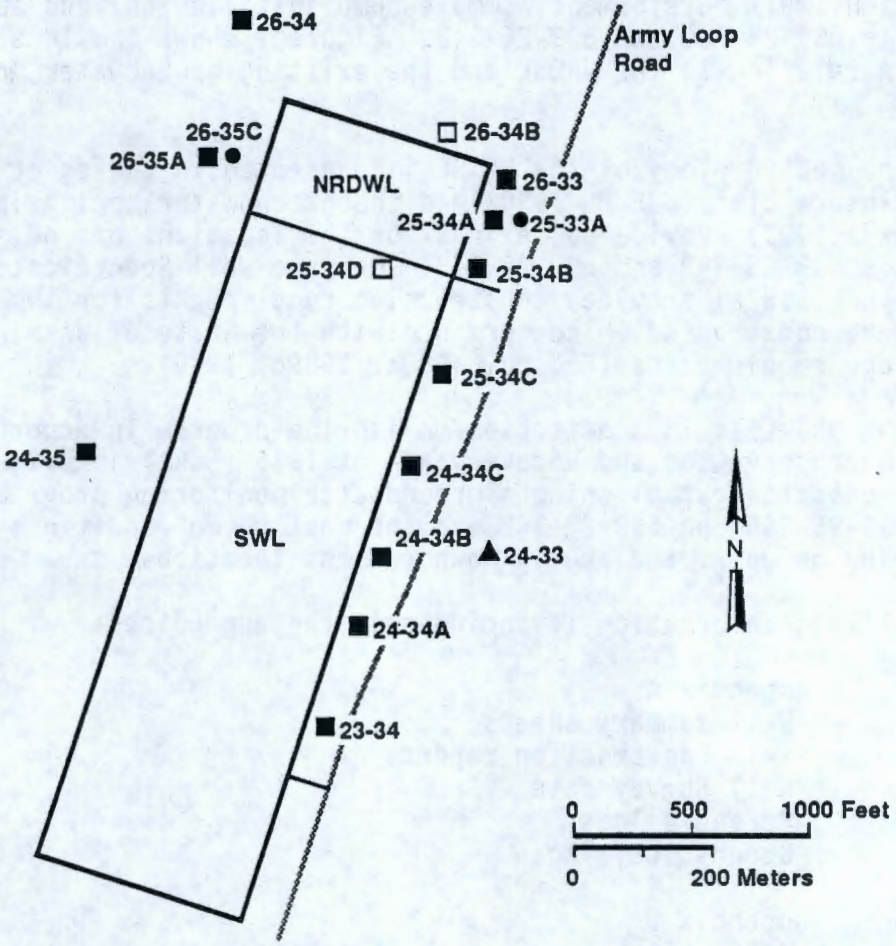

■ Well completed at the top of the unconfined aquifer

● Well completed in the upper Ringold Formation

▲ Well not constructed to RCRA specifications

□ New RCRA wells

NRDWL Nonradioactive Dangerous Waste Landfill

SWL Solid Waste Landfill

All wells prefixed by 699-

H9012007.95

Figure 1. Location Map for Wells 699-25-34D and 699-26-34B.

2.0 WELL 699-25-34D

Well 699-25-34D is a downgradient monitoring located on the south side of the NRDWL, along its boundary with the adjacent Solid Waste Landfill. The well is completed and screened in the top portion of the saturated zone within the Hanford formation.

2.1 DRILLING

Well 699-25-34D was drilled using the ODEX (a trademark of Atlas-Copco, Inc.) air-rotary method. Backhoe excavation of the top 10 ft was carried out on September 9, 1992. Drilling began on September 29, 1992, and ended October 2, 1992, at a total depth of 173 ft below land surface (bls). The top of the water table was measured at a depth of 132.35 ft bls on October 2, 1992.

Water was not added to the well during drilling. All cuttings, slurries, and purgewater from the borehole were contained and handled in accordance with WHC (1988).

Temporary carbon steel casing was used to keep the borehole open during drilling. Total casing lengths of 8.8 ft of 10-in-dia (0 to 8.8 ft), and 171.3 ft of 8-in-dia (1.7 above land surface [als] - 173.0 bls). Samples were collected at approximately 5-ft intervals for lithologic description and for laboratory determination of moisture and calcium carbonate contents. All samples are archived at the Hanford Geotechnical Sample Library in the 2101-M Building.

The SEAMIST (a trademark of Science and engineering Associates, Inc.) gas sampling system was used to collect samples of vadose zone gases at depths of 40, 80, and 120 ft during breaks in drilling. The gas samples were analyzed by gas chromotography.

The well was logged with a natural gamma geophysical probe on October 6, 1992. The logged interval was from 3.4 ft bls to 164.4 ft bls.

2.2 WELL COMPLETION

After reaching total depth at 173 ft bls the temporary casing was pulled and the permanent screen and casing were set in place. A 4-in-dia stainless steel, continuous wrap wire screen, 35.2 ft in length, was set between 126.8 and 162.0 ft bls, and a 4-in-dia stainless steel casing was set from 3.01 als to 126.80 bls.

A filter pack of 20-40 mesh silica sand was emplaced between 123.1 and 166.1 ft bls, coarse enviroplug bentonite was emplaced between 119.4 and 123.1 ft bls, and bentonite crumbles were emplaced between 8.6 and 119.4 ft bls.

The borehole was sealed with a Portland cement grout plug emplaced from 2.0 to 8.6 ft bls and capped with a concrete pad. A 6-in-dia protective casing, locking cap, four protective posts, and a brass marker completed the

surface installation. The well location and elevation were surveyed on January 18, 1993.

2.3 WELL DEVELOPMENT AND PUMP INSTALLATION

Well 699-25-34D was developed on October 16, 1992, with a submersible electric pump and a pressure transducer. Groundwater was pumped at a flow rate of 13.9 gpm. A total of 350 gal of water was removed from the well before reaching a turbidity value of 3.7 nephelometric turbidity unit (NTU).

Following well development the submersible pump was removed from the well and replaced with a Hydrostar (a trademark of Instrumentation Northwest, Inc.) on November 17, 1992. The sampling pump intake was set at 162.3 ft bls, approximately 26.2 ft below the water table.

2.4 AQUIFER TESTING

Following well completion, instantaneous slug injection and withdrawal tests were performed on November 17, 1992, in well 699-25-34D. Slug testing consisted of lowering and withdrawing a 0.13 ft^3 slugging rod from the top of the water table. Water level changes were measured with a transducer and data logger system.

Water level changes were also monitored in well 699-25-34D during well development using a transducer and data logger system. Groundwater was discharged at a constant rate of 13.9 gpm for 25 min, at which time the development criteria of $\leq$5 NTU was achieved and pumping was terminated. Water level recovery was monitored for 20 min.

2.5 TEST ANALYSIS

Aquifer test data were not analyzable for the slug and development testing because of the very small water level changes that occurred. The effects of the slug testing died away in approximately 0.2 min and there was no quantifiable change in water level as a result of pumping during well development.

The observed responses are indicative of high transmissivities at this well. Previous aquifer tests at this site indicate transmissivities ranging from 100,000 to 300,000 ft^2/d (Weekes et al. 1987).

2.6 VADOSE GAS ANALYSIS

Samples of gas were recovered from the vadose zone during well drilling through the use of the SEAMIST membrane system according to WHC (1992b). Samples were collected at natural casing breaks of approximately 40, 80, and 120 ft bls. The samples were analyzed by gas chromotography and analytical results indicate carbon tetrachloride concentrations of approximately 10 ppmv of 83 ft bls and approximately 0.4 ppmv at 122.7 bls.

3.0 WELL 699-26-34B

Well 699-26-34B is a downgradient monitoring located on the north side of the NRDWL. The well is completed and screened in the top portion of the saturated zone within the Hanford formation.

3.1 DRILLING

Well 699-26-34B was drilled using the ODEX air-rotary method. Backhoe excavation of the top 10 ft was carried out on September 9, 1992. Drilling began on October 6, 1992, and ended on October 16, 1992, at a total depth of 164.93 ft bls. The top of the water table was measured at a depth of 123.95 ft bls on October 16, 1992.

Water was not added to the well during drilling. All cuttings, slurries, and purge water from the borehole were contained and handled in accordance with WHC (1988).

Temporary carbon steel casing was used to keep the borehole open during drilling. Total casing lengths of 8.53 ft of 10-in dia (0 to 8.53 ft bls), and 164.48 ft of 8-in-dia (2.5 ft als to 161.98 ft bls).

Samples were collected at approximately 5 ft intervals for lithologic description and for laboratory determination of moisture and calcium carbonate contents. All samples are archived at the Hanford Geotechnical Sample Library in the 2101-M Building.

The SEAMIST gas sampling system was used to collect samples of vadose zone gases at depths of 40, 80, and 120 ft during breaks in drilling. The gas samples were analyzed by gas chromotography.

The well was logged with a natural gamma geophysical probe on October 19, 1992. The logged interval was from 2.6 ft bls to 160.5 ft bls.

3.2 WELL COMPLETION

After reaching total depth at 164.93 bls the temporary casing was pulled and the permanent screen and casing were set in place. A 4-in-dia stainless steel, continuous wrap wire screen, 35.2 ft in length, was set between 118.37 and 153.57 ft bls, and a 4-in-dia stainless steel casing was set from 4.34 als to 118.37 bls.

A filter pack of 20-40 mesh silica sand was emplaced between 115.2 and 161.6 ft bls, coarse enviroplug bentonite was emplaced between 111.0 and 115.2 ft bls, and bentonite crumbles were emplaced between 8.2 and 111.0 ft bls.

The borehole was sealed with a Portland cement grout plug emplaced from 1.5 to 8.2 ft bls and capped with a concrete pad. A 6-in-dia protective casing, locking cap, four protective posts, and a brass marker completed the surface installation. The well location and elevation were surveyed on January 27, 1993.

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3.3 WELL DEVELOPMENT AND PUMP INSTALLATION

Well 699-26-34B was developed on October 16, 1992, with a submersible electric pump and a pressure transducer. Groundwater was pumped at a flow rate of 14.8 gpm. A total of 370 gal of water was removed from the well before reaching a turbidity value of 3.2 NTU.

Following well development the submersible pump was removed from the well and replaced with a Hydrostar on November 17, 1992. The sampling pump intake was set at 153.3 ft bls, approximately 24.9 ft below the water table.

3.4 AQUIFER TESTING

Following well completion, instantaneous slug injection and withdrawal tests were performed on November 16, 1992, in well 699-26-34B. Slug testing consisted of lowering and withdrawing a 0.13 ft^3 slugging rod from the top of the water table. Water level changes were measured with a transducer and data logger system.

Water level changes were also monitored in well 699-25-34B during well development using a transducer and data logger system. Groundwater was discharged at a constant rate of 14.8 gpm for 25 min, at which time the development criteria of $\leq$5 NTU was achieved and pumping was terminated. Water level recovery was monitored for 12 min.

3.5 TEST ANALYSIS

Aquifer test data were not analyzable for the slug and development testing because of the very small water level changes that occurred. The effects of the slug testing died away in approximately 0.2 min and there was no quantifiable change in water level as a result of pumping during well development.

The observed responses are indicative of high transmissivities at this well. Previous aquifer tests at this site indicate transmissivities ranging from 100,000 to 300,000 ft^2/d (Weekes et al. 1987).

3.6 VADOSE GAS ANALYSIS

Samples of gas were recovered from the vadose zone during well drilling through the use of the SEAMIST membrane system according to WHC (1992b). Samples were collected at natural casing breaks of approximately 40, 80, and 120 ft bls. The samples were analyzed by gas chromotography and analytical results indicate carbon tetrachloride concentrations of approximatley 8.9 ppmv at 123 ft bls.

4.0 REFERENCES

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APPENDIX A

DRILLING AND CONSTRUCTION DATA

9313090.0183

CONTENTS

Well 699-25-34D A-1
Well 699-26-34B A-15

9313090.0184

WELL CONSTRUCTION REPORT

VALIDATED KDR 1/22/93 SIGNATURE/DATE

Specification No. WHC-S-014 Rev No. 7

166764

Project W017H / NON-RADIOACTIVE DANGEROUS WASTE LANDFILL (NCAR2K)

Location NORTH OF WRC LANDFILL

Drilling Company JENSEN

Driller SCOTT McKENNON - D MINGO

Other (Companies)

Geologist(s) EDWARD G. RAFOR (WHC). ~~JIM CO~~ 1-18-93 MA SWEENEY - HYDRO BRETT THOMPSON (NACE) Keith J. Swett - NACES J.A. COATES (WHC)

Well No. 699-25-340 Temp. Well No. N/A

Coordinates N: 131,191.16 E: 579,589.97

Casing Elev. 537.91 T.O.C. Ground Elev. 534.47

537.92 Top of hydro stop plate

Drilling Method

Verification Method VISUAL OBSERVATION

Criteria WHC-S-014 5.2 5.3 7.5 EE

			Initials	Date
Rotary	Air 7.8-173	Mud	MOS	10-2-92
Cable Tool	D N/A	H N/A		
Drilling Fluid				
Other	BACKHOE	0-10.0	ECL	09/08/92

Geophysical Logging

Sondes	Interval	Date
Gross Gamma Logging	3.4' - 166.4'	10/6/92

Completion Data

Drilled Depth 173.00

Completed Depth 162.00 Ft

Date Started 9-9-92

Date Completed 10/22/92

Static Water Level/Date 132.35/10-2-92

132.37 on 10-22-92

Aquifer Testing

Type INSTANTANEOUS SLUG

Flow Meter I.D. No. -NA-

Cal. Due Date -NA-

Length of Test 1 HR

Volume Pumped -NA-

Drawdown -NA-

Date of Test 11/17/92

Completion Results

Cleaning

Verification Method VISUAL OBSERVATION & DOC. REVIEW

Criteria WHC-S-014 4.22, 7.6, 7.7 EE 5.4 WHC-CM-7.7-5.4

	Initials	Date
Drilling Tools/Rig	MOS	9/28/92
Temporary Materials	MOS	9/28/92
Permanent Materials	KJS	10-19-92

Screen

Type	Length	Slot Size
4" continuous wire wrap stainless steel	35.20 Ft	.010

Depth(s) 126.80 Ft - 162.00 Ft

Verification Method STEEL TAPE MEASUREMENT

Cr WHC-S-014 4.2.3, 4.2.5 12.2.1, 4.2.1

Initials KJS Date 10-19-92

Material Storage/Packing

Verification Method VISUAL OBSERVATION

Criteria WHC-S-014 4.2.2, 7.3

	Initials	Date
Mtl. Handling/Storage	KJS	10-19-92
Material Packing	KJS	10-19-92

Lubricants/Additives

Verification Method VISUAL OBSERVATION

Criteria WHC-S-014 7.2

	Identify	Initials	Date
Additives	NONE	10-2-92	MOS
Lubricants	WELL CREAMS RN-D ROCK OIL	MOS	9-27-92

Straightness Test

Verification Method VISUAL OBSERVATION

Criteria WHC-S-014 8.2

Initials MOS Date 10-2-92

A-6000-436 (09/90)

WELL CONSTRUCTION REPORT
(continuation sheet)

well # 699-25-34D

Casing (permanent)

Type	Size	Placement
T-304 Stainless Steel	4" D.9	3.01 bgs - 126.80 bgs
		-
		-
		-

Verification Method: measurement w/steel tape

Criteria: WAC-S-014 4.2.1, 42.4, 4.25, 12.2.1

Initials: KJS Date: 10-19-92

Well Protection

Verification Method: visual inspection w/tape

Criteria: WAC-S-014 4.2.10

	Initials	Date
Protective Posts	ECN	12/18/92
Protective Casing	ECN	12/18/92
Site Restored	ECN	12/18/92
Cap, Hasp and Lock	ECN	12/18/92
Surface Pad	ECN	12/18/92

Annular Seal/Filter Pack

Verification Method: measurement w/steel tape Criteria: WAC-S-014 4.2.6, 4.2.7, 4.2.8, 4.2.9

Type	Interval (ft)	Volume (ft³)	Initials	Date
20-40 sand filter pack	123.1 - 166.1	46.48	KJS	10-19-92
coarse Enviroplug Bentonite	119.4 - 123.1	2.07	KJS	10-19-92
Bentonite crumbles	8.6 - 119.4	54.67	KJS	10-19-92
Portland cement Grout	2.0 - 8.6	11.57	KJS	10-19-92

Well Survey/Labeling

Verification Method: Review of Survey Report

Criteria: WAC-S-014

	Initials	Date
Measurement Point/Surveyed	BRT	1-18-93
Protective Casing/Brass Cap Surveyed	BRT	1-18-93
Well Number Stenciled	E.CN	12/8/92
Brass Cap Labeled	ECN	12/8/92

Pump Installation

Verification Method: visual observation

Criteria: WAC-S-014 4.2.11, 4.2.3

	Initials	Date
Pump Decon/Prep	JAC	11/17/92
Installed	JAC	11/17/92
Pump Tested	JAC	11/17/92

Other (initial if performed)

_____ Well Abandonment _____ Downhole TV Inspection KJS Complete As-Built Diagram, Driller's/Geologist's Logs

JAC 11/17/92 Well Development

Comments/Remarks

Reviewed By (Sign/Print Name): K D Reynolds / K D Reynolds Date: 1/22/93

A-6000-436 (09/90)

WELL SUMMARY SHEET

Boring or Well No. 699-25-34D

Sheet 1 of 2

ion NRDWL #1

tion 534.47

Driller D. MINGO, S. MacKinnon

Prepared By Mark D Sweeney / Keith J. Swift (Sign/Print Name) Date 10-19-92 10-24-92

Project W017H

Drilling Contractor JENSEN DRILLING.

Drilling Method and Equipment Air Rotary / CP. 650

Reviewed By Edward C. Rafuse (Sign/Print Name) Date 10/26/92

CONSTRUCTION DATA		Depth in Feet	GEOLOGIC/HYDROLOGIC DATA	
Description	Diagram		Graphic Log	Lithologic Description
2" ID CS CASING SET @		0		0-94 SAND
7.8' NO SHOE		5		"
		10		"
ortland cement grout		15		"
0 Ft to 8.6 Ft		20		"
		25		"
		30		"
		35		"
		40		"
		45		"
		50		"
onite crumbles		55		"
8.6 Ft to 119.4 Ft		60		"
		65		"
		70		"
		75		"
		80		"
		85		
		90		94-101 GRAVEL
		95		"
		100		"
		105		101-103 SAND
10" ID CS CASING SET @		110		"
172.01. 0.89' SHOE		115		"
		120		103-126 GRAVEL
Enviroplug Coarse chunk		125		silty ~~DRT 1-14-93~~ 126-126.5 ~~SILTY~~ Sandy Gravel DRT for MD Sweeny 1-19-93
bentonite 119.4 Ft to 123.1 Ft		130		126.5-161.0 Sandy Gravel
4" stainless steel .010 slot		135		SWL = 132.37 Ft on
continuous wire wrap screen		140		10-22-92 " " "
126.80 Ft to 162.00 Ft.		145		" " "
Bolton centralizer @ 144.5 Ft		150		" " "
20-40 sand filter pack		155		" " "
123.1 Ft to 166.1 Ft		160		

WELL SUMMARY SHEET

Boring or Well No. 699-25-340

Sheet 2 of 2

Location NRDWL #1

Project W017H

Elevation 534.47

Drilling Contractor JENSEN DRILLING

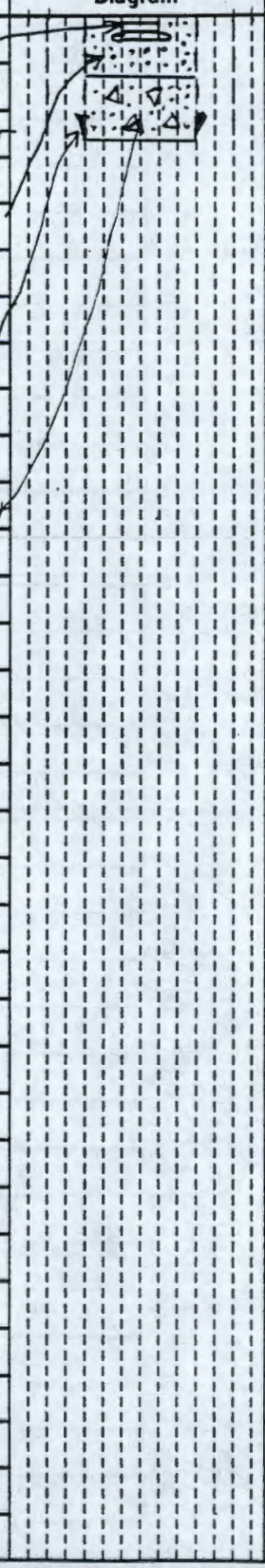
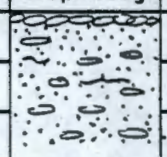
Driller D. MINGO, S. MacKinnon

Drilling Method and Equipment AIR ROTARY / CP-650

Prepared By MARK D SWEENEY / Keith J. Swift (Sign/Print Name) Date 10-19-92

Reviewed By EDWARD C. RAFUSE / EDWARD C. RAFUSE (Sign/Print Name) Date 10/26/92

10-24-92 RSS

CONSTRUCTION DATA		Depth in Feet	GEOLOGIC/HYDROLOGIC DATA	
Description	Diagram		Graphic Log	Lithologic Description
4"ϕ stainless steel .010 slot continuous wire wrap screen 126.80 Ft to 162.00 FT		165		161-173' SILTY SAND & GRAVEL. " " "
20-40 sand filterpack 123.1 Ft to 166.1 Ft		170		
8"ϕ Temporary CS casing set at 172.01 Ft. (w/ shoe)		175		
slough 166.1 Ft to 173.0 Ft				
TD = 173.00 Ft				

KAISER ENGINEERS HANFORD

SURVEY DATA REPORT

Request No. 9 3 1 — 0 5 7

Project/W.O. No.	Title	File No.
W-017H	Nine Odex CM Wells	2 9 9 — E 2 5

Notebook No.	Prepared By	Date	Reviewer	
CR-9752	RL Hackwith	12/30/92	V. Coyne	1 2

DESCRIPTION OF WORK

Horizontal (NAD'83) and vertical (NGVD'29) location of monitoring wells.

ACCEPTABILITY (Within Plan Tolerance)

- Yes [XX]
- No [ ]
- NA [ ]
- TBD by Requestor [ ]

DISTRIBUTION

	OR
Survey File	
Field Project File	1
P Collier	1
L Dietz	1
J Rieger	1
D Weekes	1

SURVEY RESULTS AND COMMENTS

Control Monuments: Landfill Site

F-1 N:131,301.762 E:579,339.132	C.P."D" N:130,947.087 E:579,137.752	NOTE: Horizontal control points used were part of a traverse with a linear closure greater than 1:50,000.

USGS BM MON
W63
EL. 514.864

WELL #	COORDINATES ℄ CASING PLANT	COORDINATES ℄ CASING LAMBERT WCS83S (mtrs)	ELEVATION (feet) NGVD 29 BRASS CAP	HYDROSTAR	TOP OF CASING
199-N-77	100N N: 5521.9 W: 5819.8	N: 149,243.21 E: 571,309.93	455.75	459.45	459.44
699-26-34B	200E N: 25,782.6 W: 33,716.8	N: 131,352.50 E: 579,629.52	526.47	530.29	530.27
699-25-34D	200E N: 25,253.6 W: 33,847.9	N:131,191.16 E:579,589.97	534.47	537.92	537.91

Control Monuments: 100N

100N-1 N: 148,992.908 E: 571,887.337	100N-2 N: 149,644.403 E: 571,811.368	S-324 USC&GS EL.=466.462	NOTE: Horizontal Control points used were part of a traverse with a linear closure greater than 1:48,000.

BOREHOLE LOG

VALIDATED
KDR 11/22/93
SIGNATURE/DATE

Boring or Well No. 699-25-34 B D 9-30-92

Sheet 1 of 4

Location NRDWL #1

Project W017

Elevation 534.47

Drilling Contractor JENSEN

Driller D. MINGO

Drilling Method and Equipment AIR ROTARY / CP650

Prepared By MOSWLEY (Sign/Print Name) Date 9-30-92

Reviewed By EDWARD C. RAFUSE (Sign/Print Name) Date 10/05/92

Depth (0)	Sample Type and No.	Sample Blows or Recovery	Graphic Log	Sample Description: Soil Classification, Particle Size Distribution, Color, Moisture Content, Sorting, Angularity, Mineralogy, Reaction to HCl.	Comments: Depth of Casing, Drilling Rate, Casing Size & Type, Bit Size, Water Level	
	1RAD 5' 2LITH 1CaCO3-H2O	BARE HOLE		0-84' SAND.	5'@1055	9-9-92
				3% GRAVEL 96% SAND 1% SILT		
	1RAD 10' 2LITH 1CaCO3-H2O			FP-100 { CG-50% COLOR WET: 5Y 3/2 DK OLIVE GREY		
				5-20' { MG-30% COLOR DRY: 5Y 6/2 LT OLIVE GREY		
				FG-20%	10'@1100	9-9-92
10	1RAD 15 2LITH 1CaCO3-H2O			MAFIC-60%, FELSIC:30%, QTZ:10% } 5-20'		
				SUBANGULAR. SUBROUNDED.		
	1RAD 20 2LITH 1CaCO3-H2O			MILD RXN HCl.	15'@1230	9-29-92
				20-84' - INCREASING FELSICS (40%)		
20	1RAD 25 2LITH 1CaCO3-H2O			NO-WEAK RXN TO HCl. COLOR WET ~~5Y~~	20'@1314	9-25-92
				5Y 5/4 OLIVE COLOR DRY 5Y 6/4 PALE		
	1RAD 30 2LITH 1CaCO3-H2O			OLIVE. ALSO INCREASE IN QTZ (15%)		
					25'@1355	9-25-92
30	1RAD 35 2LITH 1CaCO3-H2O			MOISTURE FROM 20-60'		
					30'@1358	9-25-92
	1RAD 40 2LITH 1CaCO3-H2O					
					35'@1406	9-25-92
40	1RAD 45 2LITH 1CaCO3-H2O					
					40'@1416	9-25-92
	1RAD 50 2LITH 1CaCO3-H2O					
50	1RAD 55 2LITH 1CaCO3-H2O				45'@1615	9-25-92
					50'@1621	9-25-92
	1RAD 60 2LITH 1CaCO3-H2O					
60	1RAD 65 2LITH 1CaCO3-H2O				55'@1630	9-25-92
					60'@1634	9-25-92
	1RAD 70 2LITH 1CaCO3-H2O				65'@1722	9-25-92
70	1RAD 75 2LITH 1CaCO3-H2O					
					70'@1726	9-25-92
	1RAD 80 2LITH 1CaCO3-H2O				75'@0722	9-30-92

A-6

BOREHOLE LOG

Boring or Well No. 699-25-34D

Sheet 2 of 4

Location NRDWL #1 | Project CW017

Elevation 534.47 | Drilling Contractor JENSEN

Driller D. Minbu | Drilling Method and Equipment AIR ROTARY / CP-650

Prepared By MD SWEENEY (Sign/Print Name) | Date 9-30-92 | Reviewed By EDWARD C. RAFFLE Edward C. Raffle (Sign/Print Name) | Date 10/05/92

Depth (80)	Sample Type and No.	Sample Blows or Recovery	Graphic Log	Sample Description: Soil Classification, Particle Size Distribution, Color, Moisture Content, Sorting, Angularity, Mineralogy, Reaction to HCl.	Comments: Depth of Casing, Drilling Rate, Casing Size & Type, Bit Size, Water Level
	1 Rad 2 Lith 1 Cu, Moist.				80'@ 0812 9-30-92
				Ecl 10/05/92	
85				84'-~~100~~ 101' GRAVEL	85'@ 1345 9-30-92
	1 RAD 2 LITH 1 CaCO3, H2O			GRAVEL: 90 SAND: 9 SILT = 1%	
				CP - 35% CG - 50% COLOR WET: 5Y 3/1 VDK GRAY	
				MP - 30% MG - 40% COLOR DRY: 5Y 2.5/1 BLACK	
				FP - 35% FG - 10%	
90				GRAVEL: MAFIC - 80%, FELSIC: 10%, QTZ: 10%, SAND:	90'@ 1408 9-30-92
	1 RAD 2 LITH 1 CaCO3, H2O			MAFIC: 100%, FELSIC: 30%, QTZ: 10% ANGULAR	
				SUBANGULAR - BOTH GRAVEL & SAND.	
				NO RXN TO HCl.	
95					95'@ 1444 9-30-92
	1 RAD 2 LITH 1 CaCO3, H2O				
100					100'@ 1530 9-30-92
	1 RAD 2 LITH 1 CaCO3 - H2O 100-101'			101' - 103 SAND COLOR DRY: 5Y 5/2, COLOR WET 5Y 6/2 G: 5%, SAND 94%, SLT: 1%	
				GRAVEL: MAFIC: 90%, FELSIC, QTZ: 10% SAND: FG -	101'@ 1532 9-30-92
				VFG, MAFIC: 30%, FELSIC: 40%, QTZ: 30% NO RXN TO HCl.	
				103' - 126' GRAVEL G: 95% S: 4% SLT: 1%	
105				CP - 40% CG: 80% COLOR WET: 5Y 3/1 VDK GRAY	
	1 RAD 2 LITH 1 CaCO3 - H2O			MP - 40% MG: 10% COLOR DRY: 5Y 2.5/1 BLACK	105'@ 1652 9-30-92
				FP - 20% FG: 10%	
				MAFIC: 85%, FELSIC: 10%, QTZ: 5% ANGULAR	
				SUBANGULAR - BOTH SAND + GRAVEL.	
				INCREASE IN PEBBLE SIZE @	
110	1 RAD 2 LITH 1 CaCO3 - H2O			(125-126 (CP 65%) POSSIBLE BOULDER	110'@ 1716 9-30-92
				@ 126. NO RXN TO HCl.	
5					115'@ 0370 10-1-92
	1 RAD 2 LITH 1 CaCO3 - H2O				

AIR ROTARY

BOREHOLE LOG

Boring or Well No. 699-25-34D

Sheet 3 of 4

Location NRDWL #1

Project W017

Elevation 534.47

Drilling Contractor JENSEN

Driller D. MILNER

Drilling Method and Equipment Air Rotary / CP-657

Prepared By [illegible] (Sign/Print Name) Date 10-2-92

Reviewed By EDWARD C. RAFUSE (Sign/Print Name) Date 10/05/92

Depth (120)	Sample Type and No.	Sample Blows or Recovery	Graphic Log	Sample Description: Soil Classification, Particle Size Distribution, Color, Moisture Content, Sorting, Angularity, Mineralogy, Reaction to HCl.	Comments: Depth of Casing, Drilling Rate, Casing Size & Type, Bit Size, Water Level
	1 RAD 2 LITH 1 CaCO3-H2O			126-126.5 SILTY SANDY GRAVEL	120' @ 0809 10-1-92
				GRAVEL: 50%, SAND: 47%, SILT: 3%.	
				CP: 60% CG: 50% COLOR WET.	
				MP: 30% MG: 25% COLOR DRY: 5Y 6/2 LT OLIVE GRAY	
				FP: 10% FG: 25%	
				GRAVEL: MAFIC: 90%, FELSICS: 5%, QTZ: 5%	
				ANGULAR, SUBANGULAR, SUBROUNDED. SAND: MAFIC:	
				60%, FELSIC: 30%, QTZ: 10% ANGULAR	
				NO RXN TO HCl.	
125					
	1 RAD 2 LITH 1 CaCO3-H2O				125 @ 1355 10-1-92
				126.5-161 GRAVEL	
				G: 85 SAND: 14% SILT: 1%.	
				CP: 40% CG: 15% COLOR WET:	
				MP: 40% MG: 60% COLOR DRY:	126 @ 1400 10-1-92
	125 to 126'			FP: 20% FG: 25%	
				GRAVEL: MAFIC: 80%, FELSIC: 15%, QTZ: 5%.	
				ANGULAR, SUBANGULAR SUBROUNDED	
				ROUNDED SAND: MAFIC: 60%, FELSIC: 30%	
				QTZ: 10%, ANGULAR SUBANGULAR	
130					
	1 RAD 2 LITH 1 CaCO3 H2O			NO RXN TO HCl.	130 @ 1415 10-1-92
135					
	1 RAD 2 LITH 1 CaCO3-H2O				135 @ 1441 10-1-92

Air Rotary

BOREHOLE LOG

Boring or Well No. 699-25-34D

Sheet 4 of 4

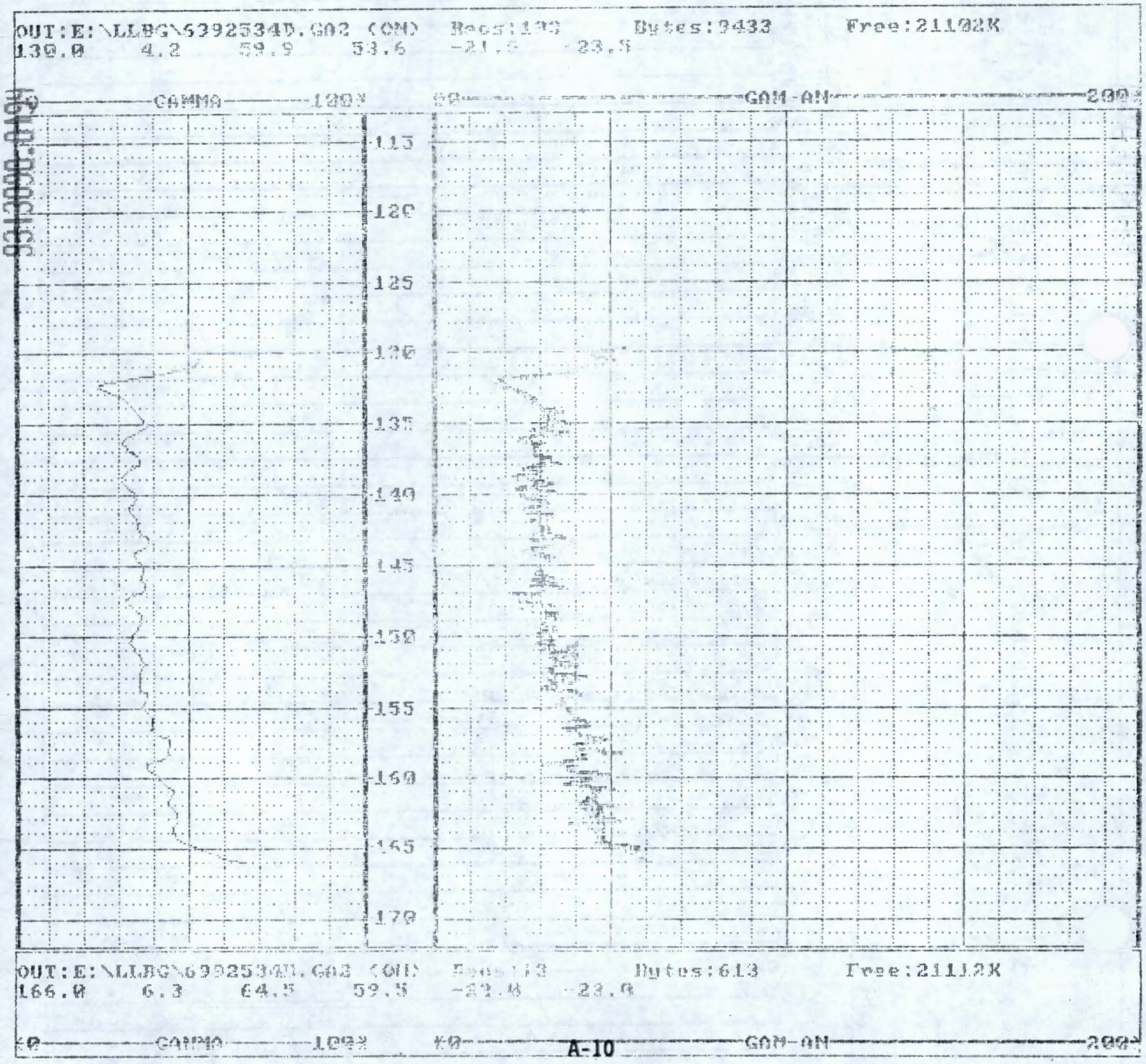
Location NRDWL #1 | Project W017

Elevation 534.97 | Drilling Contractor DENSEN

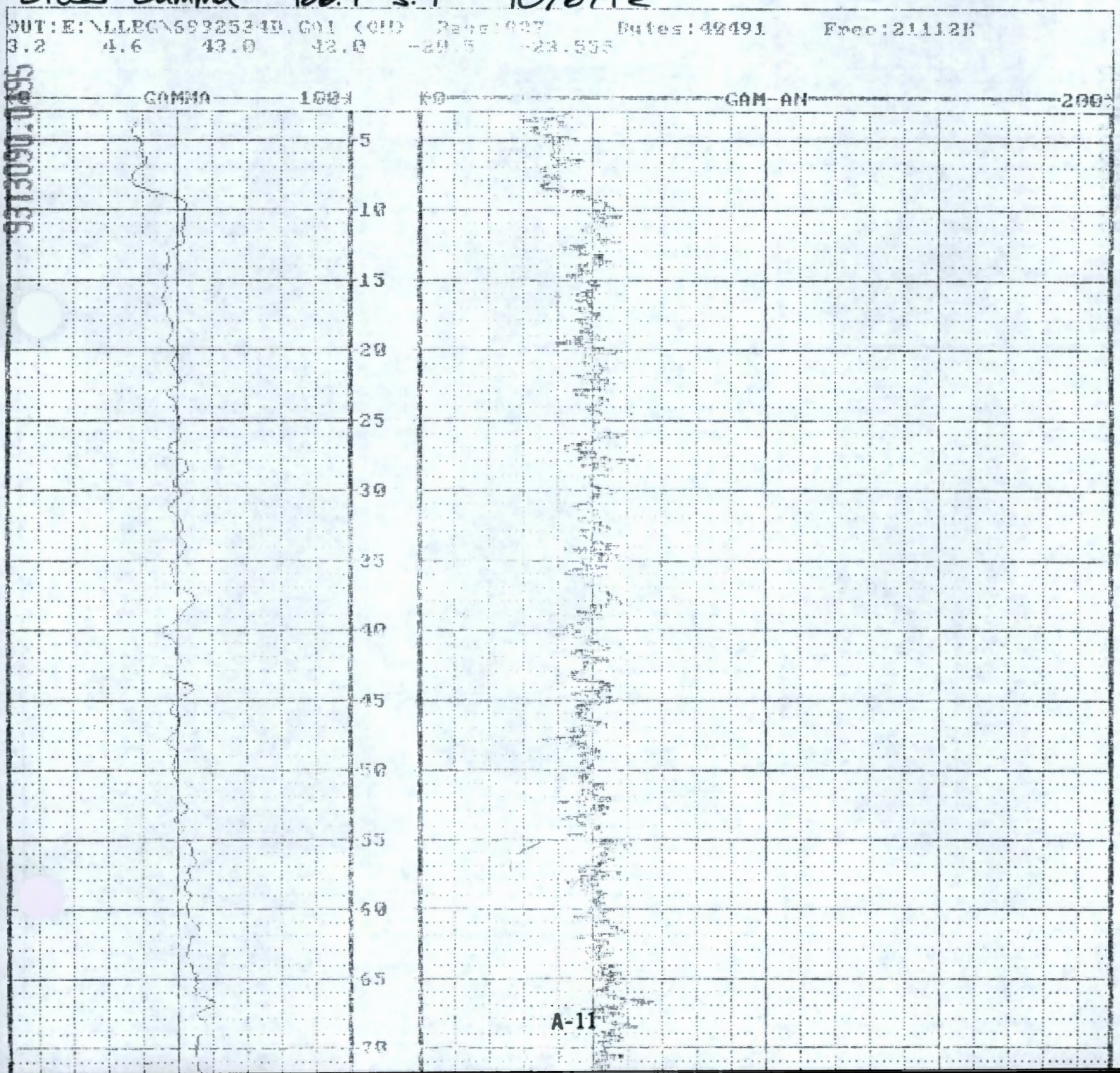
Driller D. MINLO | Drilling Method and Equipment AIR ROTARY / CP 650

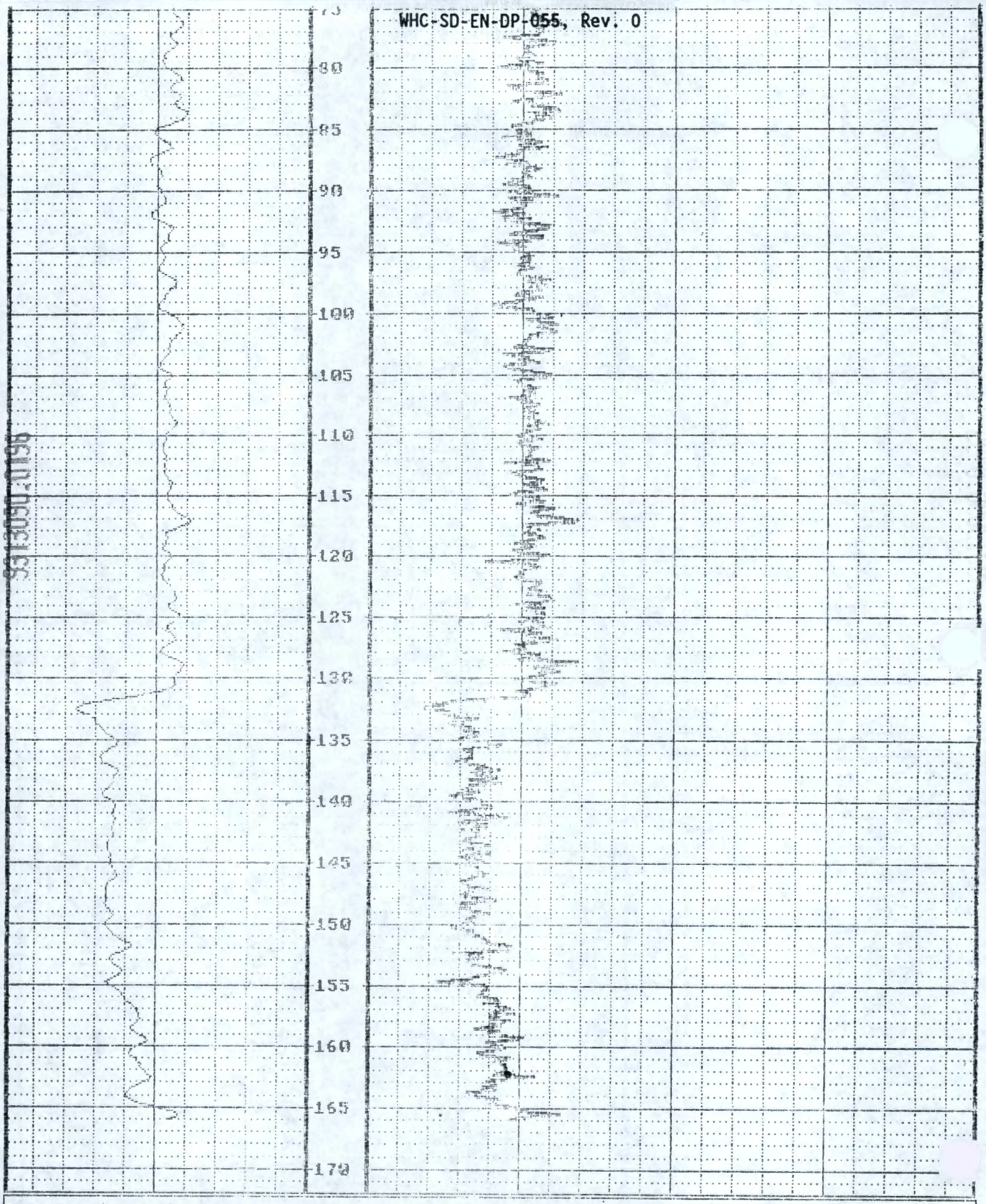
Prepared By MOSWEENEY (Sign/Print Name) | Date 10-2-92 | Reviewed By EDWARD C. RAFUSE Edward C. Rafuse (Sign/Print Name) | Date 10/05/92

Depth (140)	Sample Type and No.	Sample Blows or Recovery	Graphic Log	Sample Description: Soil Classification, Particle Size Distribution, Color, Moisture Content, Sorting, Angularity, Mineralogy, Reaction to HCl.	Comments: Depth of Casing, Drilling Rate, Casing Size & Type, Bit Size, Water Level
	1RAD 2LITH 1CaCO3	AIR ROTARY			140' @ 1627 10-1-92
145	1RAD 2LITH 1CaCO3				145' @ 1714 10-1-92
150	1RAD 2LITH 1CaCO3				150' @ 1717 10-1-92
155	1RAD 2LITH 1CaCO3				155' @ 0720 10-2-92
160	1RAD 2LITH 1CaCO3			161-173' SILTY SANDY GRAVEL	
				G: 35% SND: 62% SLT: 3%	160' @ 0734 10-2-92
				CP-20% CG:10% COLOR WET: 2.5Y 4/3 SLIGHT BROWN.	
				MP-60% MG:30% COLOR DRY: 2.5Y 7/3 PALE YELLOW	162 @ 0736 10-2-92
165				FP-20% FG 60%	
				GRAIN: MAFIC-20%, FELSIC-30%, QTZ:50%	
				ANGULAR, SUBANGULAR SUBROUNDED, ROUNDED.	
				SAND: MAFIC-15%, FELSIC-25%, QTZ:60%	
				ANGULAR, SUBANGULAR, SUBROUNDED.	
170				WEAK REN TO HCL.	
				PALEOMAGNETIC?	TD @ 173.00 10-2-92
					SWL @ 132.35 10-2-92
175					


OUT:E:\LLBG\6392534D.G02 (ON) Recs:170 Bytes:3433 Free:21102K
130.0 4.2 59.9 53.6 -21.6 -23.5
0 GAMMA 100%
0 GAM-AN 200%
115
120
125
130
135
140
145
150
155
160
165
170
OUT:E:\LLBG\6392534M.G03 (ON) Recs:173 Bytes:613 Free:21112K
166.0 6.3 64.5 59.5 -22.0 -23.0
0 GAMMA 100%
0 GAM-AN 200%

Gross Gamma 166.4'-3.4' 10/6/92





OUT:E:\LLBG\69925340.GA1 (ON) Recs:13 Bytes:605 Free:21152K
166.0 7.5 54.4 47.1 -23.0 -24.0

0 GAMMA 100+ PG GAM-AN 200+

9313090.0197

Westinghouse Hanford Company | VALIDATED KDR 1/29/93 SIGNATURE/DATE | WHC-SD-EN-DP-055, Rev. 0 LOG HEADER | Page 1 of 2

Well No. 699-25-34D   Area 600 Area   Date 10/6/92

Log Run #1   Log Type Gross Gamma

Elevation Datum Brass Cap   Elevation 534.47'

Survey Coordinates 131,191.16 N   579,589.97 E

Log Measured From Ground Surface

Location Description WHC Landfill

Ground Surface Elevation 534.47'

Surface Temperature NA   Weather Clear - Cool

BOREHOLE INFORMATION

Driller	
Drill Rig Type ODEx	Bit Type/Diameter Air Hammer / 10"
Borehole Diameter(s)/Depth 12"/~~109.9'~~ 8.8'	10"/173.0'
Depth Driller 173.0'	Depth Logger 166.4'
Liquid Level 132.0'	Liquid ~~Density~~ Appearance Clean
Temperature NA	

CASING RECORD

Type 10" Carbon Steel Sch. 40	Interval 0.0' - ~~109.9'~~ 8.8'
Type 8" Carbon Steel Sch. 40	Interval + 1.7' - 173.0'
Type	Interval
Type	Interval

Well Screen Interval NA

Comments: Return Error = +0.2' high
Centralizer used.

A-13/14   A-6000-520 (05/90)

LOG HEADER   Page 2 of 2

EQUIPMENT DATA

Logging Company PNL

Operator(s) Alan Pearson

Equipment Brand MLS   Equipment Type Analog

Tool Type Gamma Ray   Serial No. CG27A97

Base Calibration Date 5/92   Calibration Reference PNL-8220 UC-606

Calibration/Probe Factor 9.08 x 10^{-2} ppm/cps   Base Calibration Datum (eU): Position 1 315.1 eU   Position 2 65.1 eU

Dead Time 12.3 μsec.   Warm Up Time >15 min

LOGGING INFORMATION

Log Interval From 166.4'   To 3.4'

Rerun(s) 166.4' to 130.0'

Pre Survey Verification: Position 1 318.3 eU   Position 2 65.8 eU   Background 45 cps

Base Calibration Difference: Position 1 3.2 eU   Position 2 0.7 eU

Logging Speed 5 ft./min.   Rerun Scales, CPS/in. 50 CPS/in.

Start Time 0900   Completion Time 1100

Chart Speed(s), ft/in. 10 ft./in.

Chart Recorder Horizontal Scale, CPS/in. 50 CPS/in.   Time Constant(s) TC-1

Post Survey Verification: Position 1 311.4 eU   Position 2 65.4 eU   Background 45 cps

Percent Change: Position 1 2.2%   Position 2 0.6%

Comments Return Error = +0.2' high
Centralizer used

Witnessed and Verified by: (sign and print name) Alan Pearson   Alan Pearson   Date: 10/6/92

WHC-SD-EN-DP-055, Rev. 0

WELL CONSTRUCTION REPORT

VALIDATED KDR 1/25/93 SIGNATURE

Specification No. WHC-S-014 Rev No. 7

ECN 166764

ct RCRA-WOITH/ NON-RADIOACTIVE DANGEROUS WASTE LANDFILL (NRDWL)

Location NORTH OF WHC LANDFILL

Drilling Company JENSEN

Driller SCOTT McKENNON

Other (Companies)

Geologist(s) EDWARD C. RAFFOR (WHC) BRETT THOMPSON (NCE) HAROLD D SWEENEY (HGRCO) S. CAUSEY (HGRCO) J.A. COATES (WHC) K. SWETT (NACES)

Well No. ~~699-26~~ 26 ~~-30~~ 34B Temp. Well No.

Coordinates N: 131,352.50 E: 579,629.52

Casing Elev. 530.27 T.O.C Ground Elev. 526.47

530.29 TOP OF Hydro star plate

Drilling Method

Verification Method VISUAL OBSERVATION

Criteria WHC-S-014, 5.2, 5.3 7.5 ETI

			Initials	Date
Rotary	Air 8.5-164.93	Mud	MAS	10-16-92
Cable Tool	D N/A	H N/A		
Drilling Fluid				
Other	Backhoe	0-10.0	E.C.R	09/09/92

Geophysical Logging

Sondes	Interval	Date
GROSS GAMMA	2.6 - 160.5	10-19-92

Completion Data

Drilled Depth 164.93

Completed Depth ~~153.37~~ 153.57 FT KJS 10-22-92

Date Started 9/9/92

Date Completed 10/22/92

Static Water Level/Date 123.95/10-16-92

124.12 on 10-23-92

Aquifer Testing

Type INSTANTANEOUS SLUG

Flow Meter I.D. No. -NA-

Cal. Due Date -NA-

Length of Test 1 HR

Volume Pumped -NA-

Drawdown -NA-

Date of Test 11-16-92

Completion Results

Cleaning

Verification Method VISUAL OBSERVATION & DOC. REVIEW

Criteria WHC-S-014, 4.22 7.6, 7.7 ETI 5.4 WHC-CM-7.7.5.4

	Initials	Date
Drilling Tools/Rig	MAS	10-5-92
Temporary Materials	MAS	10-5-92
Permanent Materials	KJS	10-21-92

Screen

Type	Length	Slot Size
4"Ø stainless steel cont. wire wrap	35.20 FT	.010

Depth(s) 118.37 FT - 153.57 FT

Verification Method STEEL TAPE MEASUREMENT

Criteria WHC-S-014 4.2.3, 4.2.5 12.2.1, 4.2.1

Initials KJS Date 10-21-92

Material Storage/Packing

Verification Method VISUAL OBSERVATION

Criteria WHC-S-014 4.2.2, 7.3

	Initials	Date
Mtl. Handling/Storage	KJS	10-22-92
Material Packing	KJS	10-22-92

Lubricants/Additives

Verification Method VISUAL OBSERVATION

Criteria WHC-S-014 7.2

	Identify	Initials	Date
Additives	NONE	MAS	10-16-92
Lubricants	NON-DOPE OIL WELL GUARD	MAS	10-6-92

Straightness Test

Verification Method VISUAL OBSERVATION

Criteria WHC-S-014 8.2

Initials MAS Date 10-16-92

A-6000-436 (09/90)

WELL CONSTRUCTION REPORT
(continuation sheet) well # 699-26-34B

Casing (permanent)

Type	Size	Placement
T-304, Sch.5	4"Φ	4.34 BGS - 118.37 BGS
stainless steel		-
		-
		-

Verification Method: MEASUREMENT W/STEEL TAPE

Criteria: WAC-S-014, 4.2.1, 4.2.4, 4.2.5, 12.2.1

Initials: KJS Date: 10-21-92

Well Protection

Verification Method: VISUAL INSPECTION W/TAPE

Criteria: WAC-S-014 4.2.10

	Initials	Date
Protective Posts	ECL	12/18/92
Protective Casing	ECL	12/18/92
Site Restored	ECL	12/18/92
Cap, Hasp and Lock	ECL	12/18/92
Surface Pad	ECL	12/18/92

Annular Seal/Filter Pack

Verification Method: MEASUREMENT W/STEEL TAPE Criteria: WAC-S-014 4.2.6, 4.2.7, 4.2.8, 4.2.9

Type	Interval (Ft)	Volume (Ft³)	Initials	Date
20-40 sand filter pack	115.2 - 161.6	36.68	KJS	10-22-92
Enviroplug coarse chunck Bentonite	111.0 - 115.2	2.07	KJS	10-22-92
Bentonite crumbles	8.2 - 111.0	115.02	KJS	10-22-92
Portland cement Grout	1.5 - 8.2	10.28	KJS	10-22-92

Well Survey/Labeling

Verification Method: REVIEW OF SURVEY REPORT

Criteria: WAC-S-014

	Initials	Date
Measurement Point/Surveyed	BAT	1-27-93
Protective Casing/Brass Cap Surveyed	E.C.L	12/18/92
Well Number Stenciled	ECL	12/18/92
Brass Cap Labeled	ECL	12/18/92

Pump Installation

Verification Method: VISUAL OBSERVATION

Criteria: WAC-S-014, 4.2.1, 4.2.3

	Initials	Date
Pump Decon/Prep	JAC	11-16-92
Installed	JAC	11-16-92
Pump Tested	JAC	11-16-92

Other (initial if performed)

_____ Well Abandonment _____ Downhole TV Inspection KJS Complete As-Built Diagram, Driller's/Geologist's Logs

JAC 11-16-92 Well Development

Comments/Remarks

Reviewed By (Sign/Print Name): K D Reynolds / K D Reynolds Date: 1/25/93

A-6000-436 (09/90)

9313000.0199

BOREHOLE LOG

VALIDATED KDR 1/26/93 SIGNATURE

Boring or Well No. 699-26-34B ~~699-25-34B~~ MOS 11/19/92

Sheet 1 of 5

Location NRDWL #2 | Project WO 17H

Elevation 526.47' | Drilling Contractor JENSEN DRILLING

Driller D. MINGO | Drilling Method and Equipment AIR ROTARY / CP-650

Prepared By MOS WEEMS / [signature] (Sign/Print Name) Date 10-6-92 | Reviewed By EDWARD C. RAFUSE / Edward C. Rafuse (Sign/Print Name) Date 11/20/92

Depth (0)	Sample Type and No.	Sample Blows or Recovery	Graphic Log	Sample Description: Soil Classification, Particle Size Distribution, Color, Moisture Content, Sorting, Angularity, Mineralogy, Reaction to HCl.	Comments: Depth of Casing, Drilling Rate, Casing Size & Type, Bit Size, Water Level
	1 RAD 2 LITH 1 CULTS - H2O	BACK HOE		0-74 SAND	5' @ 1005 9-9-92
				0-10 LOESS + SAND	10' @ 1010 9-9-92
				VFG SAND: 50% FELSIC, 40% QTZ 10% MAFIC	
				MG SAND: 90% MAFIC, 5% QTZ, 5% FELSIC	
10				NO RXN TO HCL. COLOR DRY: 5Y 6/2 LT OLIVE GRAY	15' @ 1604 10-6-92
				COLOR WET: 5Y 6/3 PALE OLIVE.	
				10-15 SAND	20' @ 1608 10-6-92
				MG SAND: 90% MAFIC 5% QTZ, 5% ~~QTZ~~ MAFIC MAFIC 10-HCL	
20				WEAK RXN TO HCL. COLOR DRY: 5Y 4/1 DK GRAY	
				COLOR WET: 5Y 2.5/1 BLACK	25' @ 0755 10-7-92
				15-74 SAND	
				CG: 30-75% COLOR DRY: 5-5/2 OLIVE GRAY	
				MG: 60-65% COLOR WET 5Y 3/2 DK OLIVE GRAY	30' @ 0759 10-7-92
30				FG: 0-10% MOIST 20'-40' MAFIC 10-7-92	
				MAFIC: 80%, FELSIC: 10%, QTZ: 10%.	35' @ 0804 10-7-92
				NO RXN TO HCL.	
					40' @ 0809 10-7-92
40	1 RAD 2 LITH 1 CULTS H2O	AIR ROTARY			45' @ 1130 10-7-92
					50' @ 1136 10-7-92
50					55' @ 1141 10-7-92
					60' @ 1147 10-7-92
60					65' @ 1320 10-7-92
					70' @ 1326 10-7-92
0					
				74-82 GRAVEL COBBLE: 20% PEBBLE: 80%	75' @ 1340 10-7-92
				GRAVEL: 80% - SAND: 20% SILT - TRACE.	
				COLOR WET: 5Y 2.5/1 BLACK.	
				COLOR DRY: 5Y 5/1 GRAY MAFIC: 90%, QTZ: 15%, FELSIC: 5%	

A-6000-382 (04/90)

BOREHOLE LOG

Boring or Well No. 699-26-34B

Sheet 2 of 5

Location NRDWL #2

Project W017H

Elevation 526.47'

Drilling Contractor JENSEN DRILLING

Driller D. MINGO

Drilling Method and Equipment AIR ROTARY / CP-650

Prepared By MAS WEBNER / [signature] (Sign/Print Name) Date 10-8-92

Reviewed By EDWARD C. AYERS / Edward C. Ayers (Sign/Print Name) Date 11/20/92

Depth (BGS)	Sample Type and No.	Sample Blows or Recovery	Graphic Log	Sample Description: Soil Classification, Particle Size Distribution, Color, Moisture Content, Sorting, Angularity, Mineralogy, Reaction to HCl.	Comments: Depth of Casing, Drilling Rate, Casing Size & Type, Bit Size, Water Level
		AIR ROTARY		82-85 SANDY GRAVEL	80' @ 1341 10-7-92
				GRAVEL: 45%, SAND: 55% SILT - TRACE	
				CP-10 CG-40% COLOR WET: 5Y 5/1 GREY	
				MP-70% MG-40% COLOR DRY: 5Y 2.5/1 BLACK	
				FP-20% FG-20%	82' @ 0815 10-8-92
				GRAVEL: 80% MAFIC, 10% QTZ 10% FELSIC	
				SAND: 60% MAFIC 10% QTZ, 30% QTZ SAND +	
				GRAVEL - ANGULAR - SUBANGULAR	
85				85-87 GRAVEL	85' @ 0814 10-8-92
				SAME AS 74-82	
90	1 RAD. 2 LITH 1 CULCS H:0			87-99' GRAVELLY SAND	90' @ 0847 10-8-92
				GRAVEL: 25% SAND 75% SILT - TRACE	
				SAME MINERALOGY	
				AS SANDY GRAVEL	
95					95' @ 0914 10-8-92
				99-102 GRAVEL	
				SAME AS 74-82	

BOREHOLE LOG

Boring or Well No. 699-26-34B

Sheet 3 of 5

Location NADWL #2

Project W017H

Elevation 526.47'

Drilling Contractor JENSEN DRILLING

Driller D. MINGO

Drilling Method and Equipment AIR ROTARY / CP650

Prepared By M.D. SWEENEY (Sign/Print Name) Date 10-13-92

Reviewed By EDWARD C. RAFUSE (Sign/Print Name) Date 11/20/92

Depth (100)	Sample Type and No.	Sample Blows or Recovery	Graphic Log	Sample Description: Soil Classification, Particle Size Distribution, Color, Moisture Content, Sorting, Angularity, Mineralogy, Reaction to HCl.	Comments: Depth of Casing, Drilling Rate, Casing Size & Type, Bit Size, Water Level
					100'@ 1008 10-8-92
				102-108 SANDY GRAVEL. SAME AS 82-85	102'@ 1428 10-8-92
105					105'@ 1436 10-8-92
				108 - 119 SAND	
	1GRO 2LIMA 1CaCO3 H2O	AIR ROTARY		GRAVEL: 4% SAND: 96%	
				CP-2% CG-5% COLOR WET: 5Y 5/1 GREY	
110				MP-65% MG-15% COLOR DRY: 5Y 7/1 LT GREY.	110'@ 1554 10-8-92
				FP: 33% FG-80%	
				GRAVEL: 80% MAFIC, 10% FELSIC, 10% QTZ SAND: 20% MAFIC	
				30% FELSIC, 50% QTZ.	
				(14-119 INCREASING MAFIC (80% GRAVEL	
				40% SAND) INCREASING GRANULAR	
				SIZES (CP 15%, CG-10%, MG-25%)	
115					115'@ 0743 10-9-92

BOREHOLE LOG

Boring or Well No. 699-26-34B

Sheet 4 of 5

Location NORTH OF ~~WEST~~ NRDWL LANDFILL MOS 10-13-92

Project W017 / NRDWL

Elevation 526.47'

Drilling Contractor JENSEN

Driller D. MINGO

Drilling Method and Equipment AIR ROTARY

Prepared By MOSWEENEY / [illegible] (Sign/Print Name)

Date 10-9-92

Reviewed By EDWARD C. RAFUSE / Edward C. Rafuse (Sign/Print Name)

Date 11/20/92

Depth (120)	Sample Type and No.	Sample Blows or Recovery	Graphic Log	Sample Description: Soil Classification, Particle Size Distribution, Color, Moisture Content, Sorting, Angularity, Mineralogy, Reaction to HCl.	Comments: Depth of Casing, Drilling Rate, Casing Size & Type, Bit Size, Water Level
				~~120~~ 119-122 GRAVELLY SAND MOS 10-16-92	120' @ 0820 10-9-92
				SAME AS 87-89	
	1 RAD 2 WITH 1 CaCO3 H2O				
				122-124 SAND	122' @ 1200 10-9-92
				VFG - 80% CLOSE WET	
				FG - 12% CLOSE DRY	
				MG - 10%	
				MAFIC: 50%, FELSIC: 20%, QTZ: 30%	
125				124-127 SANDY GRAVEL	125' @ 1226 10-15-92
				G: 45% S: 55% SILT: TRACE	
				MP 60% CG - 20% WIDE WET	
				FP - 40% MG - 30% CLOSE DRY	
				FG - 5%	
				MAFIC: 50% FELSIC: 30%, QTZ: 20%.	
				127-129 SILTY SANDY GRAVEL	130' @ 1304 10-15-92
				G: 60% S: ~~35~~ 35 SILT: ~~5~~ 5 10-14-92 10-15-92	
				MP - 30% CG - 10% CLOSE WET	
130				MP - 40% MG - 30% CLOSE DRY	
				FP: 30% FG 60%	
				GRAVEL: MAFIC: 45%, FELSIC: 30%, QTZ 25%	
	1 RAD 2 WITH 1 CaCO3			ANGULAR, SUBANGULAR, SAND: MAFIC: 60%	
				FELSIC: 20%, QTZ: 20%, ANGULAR, SUBANGULAR	
135					135' @ 1436 10-15-92

A-6000-382 (04/90)

9313090.0203

BOREHOLE LOG

Boring or Well No. 699-26-34B

Sheet 5 of 5

Location NRDWL #2 | Project W0174

Elevation 526.47' | Drilling Contractor JENSEN DRILLING

Driller D. MINGO | Drilling Method and Equipment AIR ROTARY / CP-650

Prepared By MP SWEENEY / [signature] (Sign/Print Name) Date 10-16-92 Reviewed By EDWARD C. RAFUSE / Edward C. Rafuse (Sign/Print Name) Date 11/20/92

Depth (140)	Sample Type and No.	Sample Blows or Recovery	Graphic Log	Sample Description: Soil Classification, Particle Size Distribution, Color, Moisture Content, Sorting, Angularity, Mineralogy, Reaction to HCl.	Comments: Depth of Casing, Drilling Rate, Casing Size & Type, Bit Size, Water Level
				139-164 PEBBLE COBBLE GRAVEL	140@1524 10-15-92
				G: 85%, SAND: 15% SILT: TRACE.	
				CP: 30% CG: 30% GRANITE:	
				MP: 30% MG: 40% GRAN DIAM:	145@1645 10-15-92
145				FP: 20% FG: 3-5%	
				SC: 20%	
	1RAD 2LITH (COLOR)			MARIC: 20%, FELSIC: 60%, QTZ: 20%	
				ANGULAR, SUBANGULAR, ROUNDED.	
				SUBROUNDED.	
150				PRE MISSOULA	150@1707 10-15-92
		AIR ROTARY			
155					155@724 10-16-92
160					160@746 10-16-92
					TD = 164.92
					SWL = 123.95

KAISER ENGINEERS HANFORD

SURVEY DATA REPORT

Request No. 9 3 1 — 0 5 7

Project/W.O. No.	Title	File No.
W-017H	Nine Odex CM Wells	2 9 9 — E 2 5

KEH Job No.	Prepared By	Date	Reviewer	
CR-9752	RL Hackwith	12/30/92	V. Coyne	1 2

DESCRIPTION OF WORK	ACCEPTABILITY (Within Plan Tolerance)	DISTRIBUTION	
Horizontal (NAD'83) and vertical (NGVD'29) location of monitoring wells.	Yes XX	Survey File	OR
	No	Field Project File	1
	NA	P Collier	1
	TBD by Requestor	L Dietz	1
		J Rieger	1
		D Weekes	1

SURVEY RESULTS AND COMMENTS

Control Monuments: Landfill Site

CP-1
N:131,301.762
E:579,339.132

C.P."D"
N:130,947.087
E:579,137.752

NOTE: Horizontal control points used were part of a traverse with a linear closure greater than 1:50,000.

USGS BM MON
W63
EL. 514.864

WELL #	COORDINATES ℄ CASING PLANT	LAMBERT WCS83S (mtrs)	ELEVATION (feet) NGVD 29 BRASS CAP	HYDROSTAR	TOP OF CASING
199-N-77	100N N: 5521.9 W: 5819.8	N: 149,243.21 E: 571,309.93	455.75	459.45	459.44
699-26-34B	200E N: 25,782.6 W: 33,776.8	N: 131,352.50 E: 579,629.52	526.47	530.29	530.27
699-25-34D	200E N: 25,253.6 W: 33,847.9	N:131,191.16 E:579,589.97	534.47	537.92	537.91

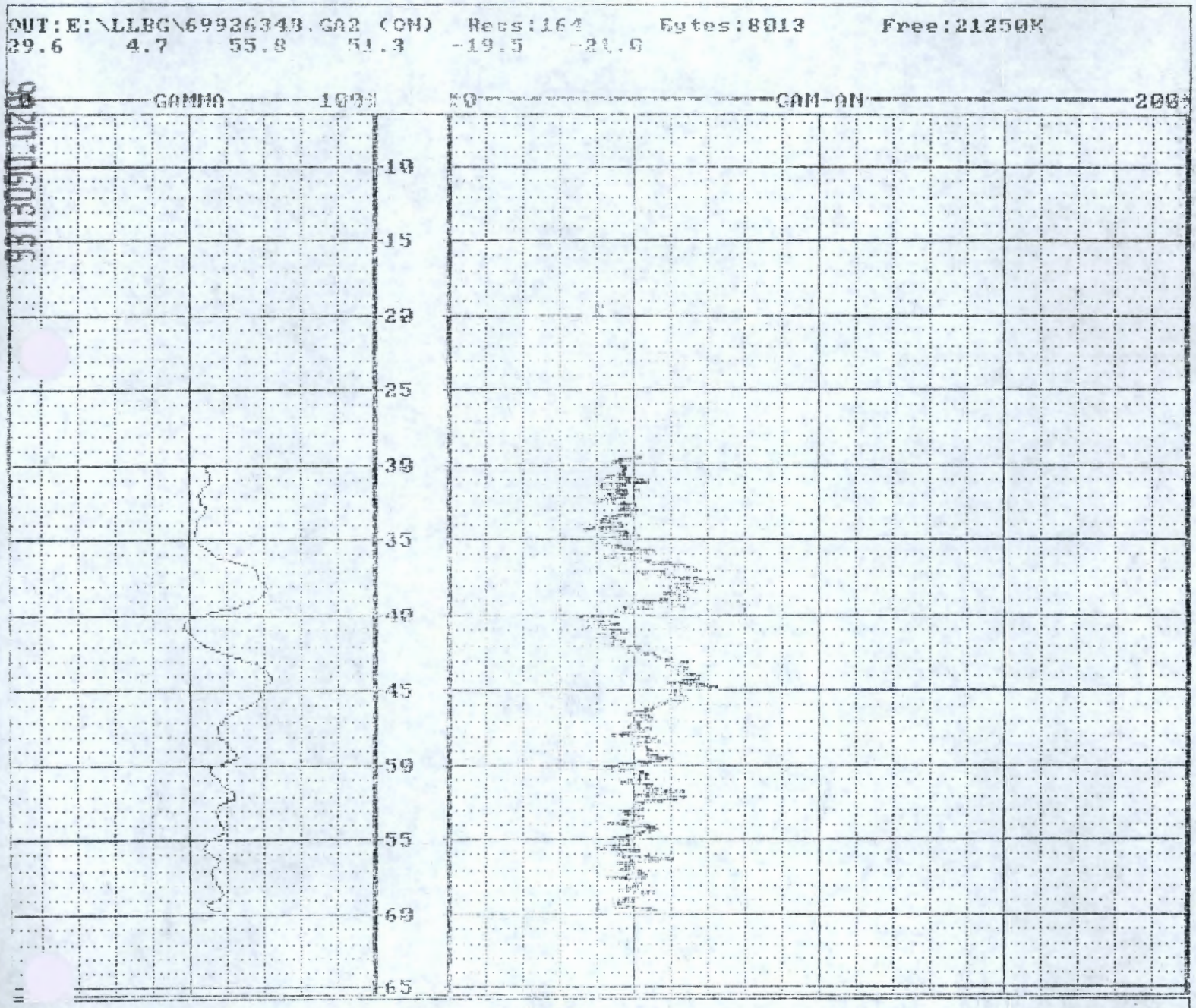
Control Monuments: 100N

100N-1
N: 148,992.908
E: 571,887.337

100N-2
N: 149,644.403
E: 571,811.368

S-324
USC&GS
EL.=466.462

NOTE: Horizontal Control points used were part of a traverse with a linear closure greater than 1:48,000.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29.6 4.7 55.8 51.3 -19.5 -21.0
0 GAMMA 100%
50 GAM-AN 200%
10
15
20
25
30
35
40
45
50
55
60
65
OUT:E:\LLBG\69926348.GA2 (ON) Recs:13 Bytes:614 Free:21258K
69.8 8.0 56.6 54.2 -21.5 -22.5
0 GAMMA 100%
50 GAM-AN 200%

WHC-SD-EN-DP-055, Rev. 0

Westinghouse Hanford Company — VALIDATED KDR 1/20/93 SIGNATURE/DATE — LOG HEADER

Well No. 699-26-34B Area 600 Area Date 10/19/92

Log Run #1 Log Type Gross Gamma

Elevation Datum ~~Ground Surface~~ Brass Cap Elevation 526.47

Survey Coordinates 131,352.50 N 579,629.52 E

Log Measured From Ground Surface

Location Description North Side of WHC Landfill

Ground Surface Elevation 526.47

Surface Temperature NA Weather Partly Cloudy - Cool

BOREHOLE INFORMATION

Driller Scott McKinnon (Jensen Drilling)	
Drill Rig Type ODEX	Bit Type/Diameter Air Hammer /10"
Borehole Diameter(s)/Depth 12"/8.53' 10"/164.93'	
Depth Driller 164.93'	Depth Logger 160.5
Liquid Level 123.95	Liquid ~~Density~~ Appearance Clean
Temperature NA	

CASING RECORD

Type 12" Carbon Steel Sch. 40	Interval 0.0' - 8.53'
Type 10" Carbon Steel Sch. 40	Interval +2.5 - 161.98'
Type	Interval
Type	Interval

Well Screen Interval NA

Comments: Return Error = +0.2' high
Centralizer used.

A-27/28 A-6000-520 (05/90)

9313090.0210

LOG HEADER

EQUIPMENT DATA

Logging Company PNL

Operator(s) Alan Pearson

Equipment Brand MLS Equipment Type Analog

Tool Type Gamma Ray Serial No. CG27A97

Base Calibration Date 5/92 Calibration Reference PNL-8220 UC-606

Calibration/Probe Factor 9.08×10^{-2} PPM/CPS Base Calibration Datum (eU): Position 1 315.1 eU Position 2 65.1 eU

Dead Time 12.3 μsec Warm Up Time >15 min

LOGGING INFORMATION

Log Interval From 160.5' To 2.6'

Rerun(s) 60.0' to 30.0'

Pre Survey Verification: Position 1 314.8 eU Position 2 64.6 eU Background 58 cps

Base Calibration Difference: Position 1 0.3 eU Position 2 0.5 eU

Logging Speed 5 ft./min. Rerun Scales, CPS/in. 50 CPS/in.

Start Time 1030 Completion Time 1235

Chart Speed(s), ft/in. 10 ft./in.

Chart Recorder Horizontal Scale, CPS/in. 50 CPS/in. Time Constant(s) TC-1

Post Survey Verification: Position 1 312.8 eU Position 2 64.9 eU Background 55 cps

Percent Change: Position 1 0.6% Position 2 0.5%

Comments Return Error = +0.2' high
Centralizer used.

Witnessed and Verified by: (sign and print name) Alan Pearson Alan Pearson Date: 10/19/92

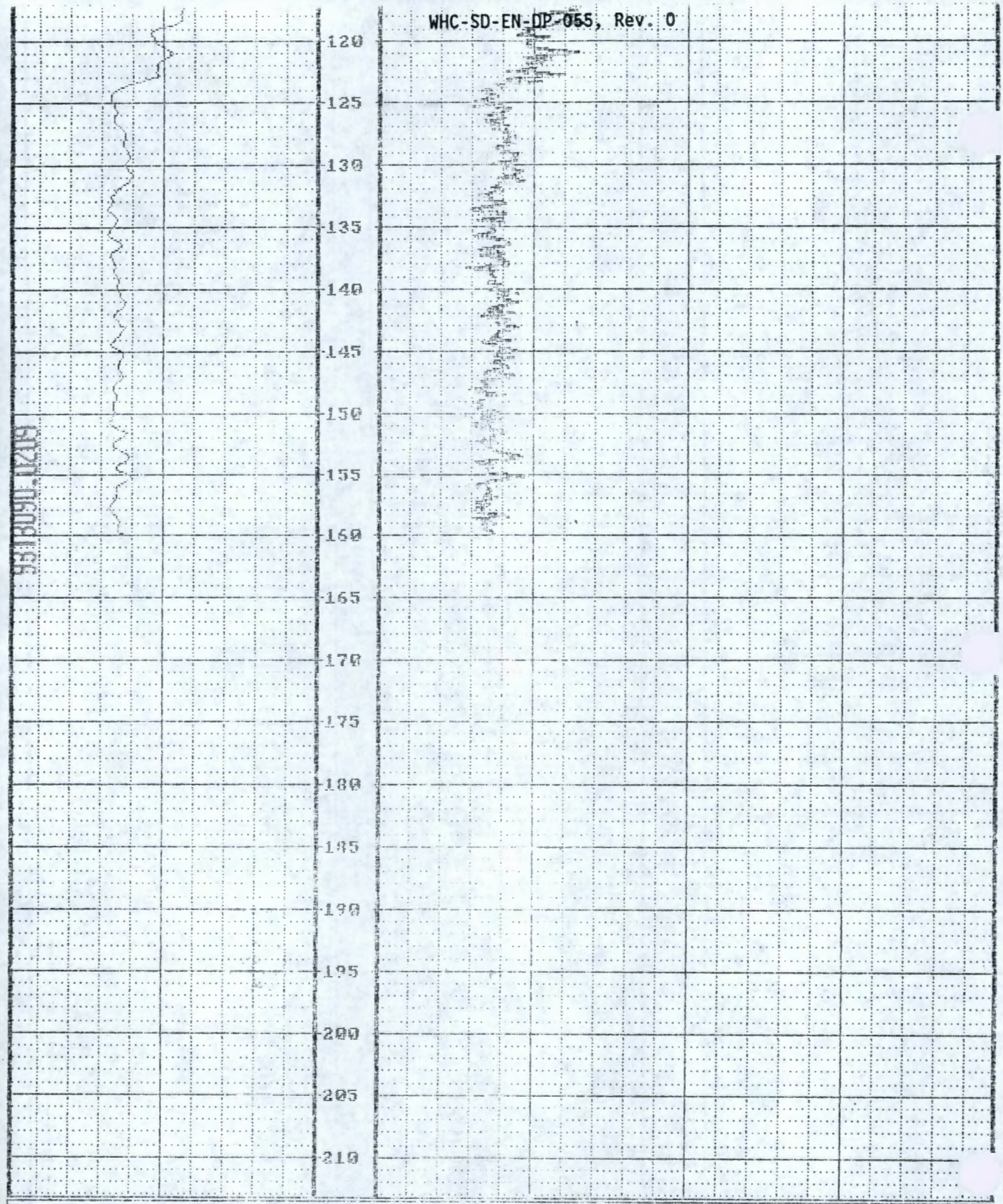
9313090.0207

Gross Gamma 160.5' -2.6' 10/19/92

OUT:E:\LLBG\6992634B.GA1 (ON) Recs:802 Bytes:39267 Free:21258K
2.4 4.5 38.1 33.3 -25.0 -27.005

0 GAMMA 100% 0 GAM-AN 200

10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
105
110
93FB090L.12JB



OUT:E:\LLBG\69926348.GA1 (ON) Recs:14 Bytes:655 Free:21296K
160.0 9.3 37.2 37.0 -35.0 -28.5

0 GAMMA 100 *0 GAM-AN 200*

APPENDIX B

SEDIMENT SAMPLE DATA

9313090.0211

CONTENTS

Well 699-25-34D B-1
Well 699-26-34B B-14

9313090.0212

VALIDATED
KDR 1/22/93
SIGNATURE/DATE

TEST REQUEST COPY

OPERABLE UNIT	RCRA	WELL NO	699-25-34D	DEPTH	N/A
SAMPLE/SPECIMEN NO	3-0518 -> 3-0552	COST CODE/WORK ORDER NUMBER	~~A6CDR~~ R461F		
REQUESTED BY: ORG	81235	PERSON	B. WILLIAMS	PHONE	6-3614
********HEIS********	N/A	MSIN	H6-06	DATE	12/10/92

TEST REQUESTED	# OF SAMPLES	TEST LAB INFORMATION
Calcium Carbonate	35	GEL 19
Moisture Content	35	GEL 14

REMARKS:

ARCHIVE YES ☐ NO ☐

TAPE RELEASE STICKER HERE

NOT APPLICABLE

RECEIVED BY E. R. Walker

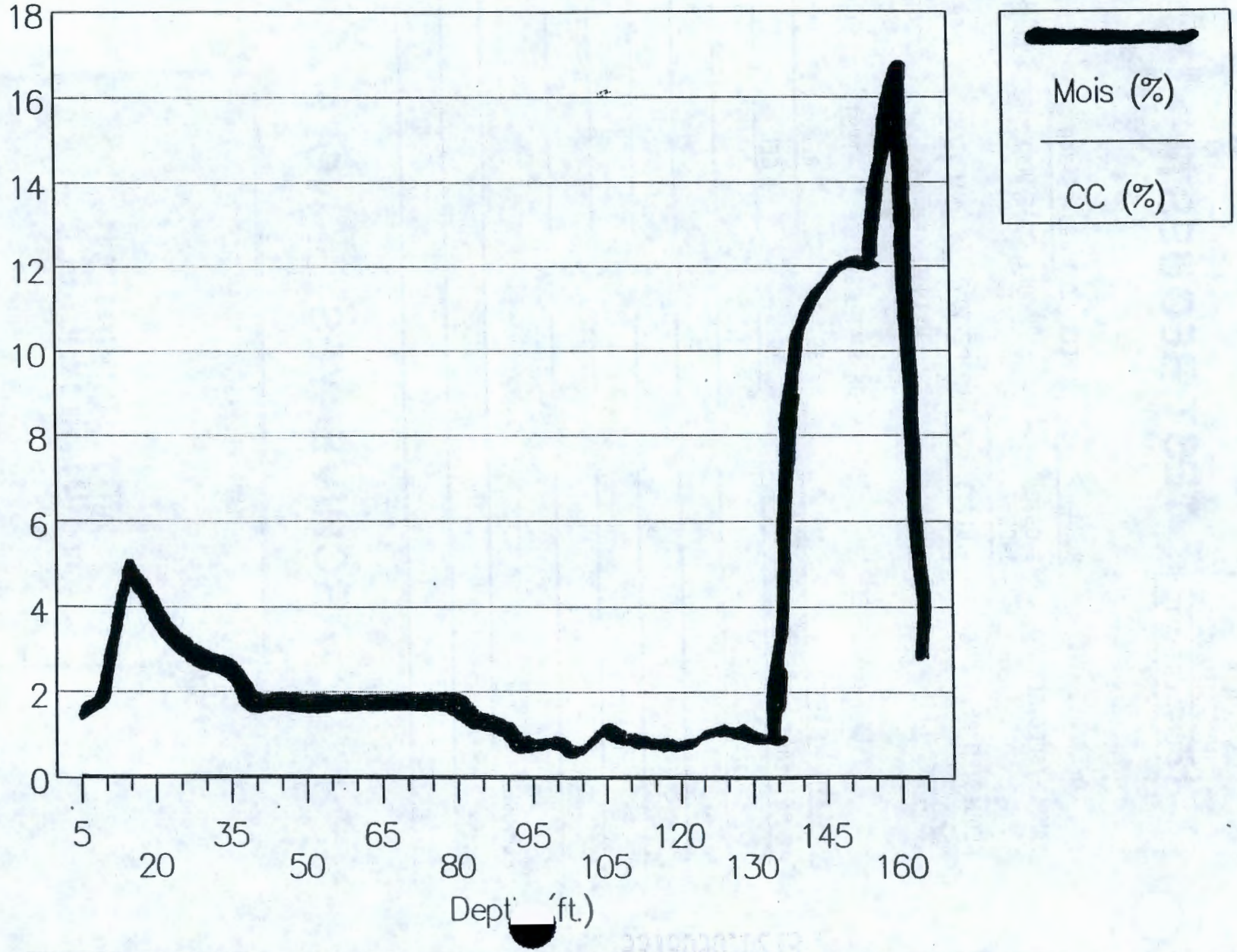
DATE 12/18/92

9313090.0213

9313090.0214

FOR INFORMATION ONLY

WELL 699-25-34D



Elizabeth R. Walker
2-3755/L7-09

1/14/93 WELL 699-25-34D Page 1

Sample No.	Well No.	Operable Unit	Depth	Sat K (cm/s)	SpG/F	SpG/C	SpG/Avg	Mois (%)	Por (%)	Den/D (g/cc)	CC (%)	Notes
3-0518	699-25-34D	RCRA	5					1.58			<1	
3-0519	699-25-34D	RCRA	10					1.76			<1	
3-0520	699-25-34D	RCRA	15					4.93			<1	
3-0521	699-25-34D	RCRA	20					3.81			<1	
3-0522	699-25-34D	RCRA	25					3.23			<1	
3-0523	699-25-34D	RCRA	30					2.63			<1	
3-0524	699-25-34D	RCRA	35					2.47			<1	
3-0525	699-25-34D	RCRA	40					1.70			<1	
3-0526	699-25-34D	RCRA	45					1.73			<1	
3-0527	699-25-34D	RCRA	50					1.76			<1	
3-0528	699-25-34D	RCRA	55					1.79			<1	
3-0529	699-25-34D	RCRA	60					1.80			<1	
3-0530	699-25-34D	RCRA	65					1.78			<1	
3-0531	699-25-34D	RCRA	70					1.76			<1	
3-0532	699-25-34D	RCRA	75					1.77			<1	
3-0533	699-25-34D	RCRA	80					1.75			<1	
3-0534	699-25-34D	RCRA	85					1.17			<1	
3-0535	699-25-34D	RCRA	90					1.11			<1	
3-0536	699-25-34D	RCRA	95					.70			<1	
3-0537	699-25-34D	RCRA	100					.82			<1	
3-0538	699-25-34D	RCRA	101					.56			<1	
3-0539	699-25-34D	RCRA	105					1.09			<1	
3-0540	699-25-34D	RCRA	110					.84			<1	
3-0541	699-25-34D	RCRA	115					.91			<1	
3-0542	699-25-34D	RCRA	120					.76			<1	
3-0543	699-25-34D	RCRA	125					.93			<1	
3-0544	699-25-34D	RCRA	126					1.16			<1	
3-0545	699-25-34D	RCRA	130					.92			<1	
3-0546	699-25-34D	RCRA	135					.83			<1	
3-0547	699-25-34D	RCRA	140					10.52			<1	

B-3

FOR INFORMATION ONLY

Elizabeth R. Walker
2-3755/L7-09

1/14/93 WELL 699-25-34D Page 2

Sample No.	Well No.	Operable Unit	Depth	Sat K (cm/s)	SpG/F	SpG/C	SpG/Avg	Mois (%)	Por (%)	Den/D (g/cc)	CC (%)	Notes
3-0548	699-25-34D	RCRA	145					11.65			<1	
3-0549	699-25-34D	RCRA	150					12.19			<1	
3-0550	699-25-34D	RCRA	155					11.98			<1	
3-0551	699-25-34D	RCRA	160					16.79			<1	
3-0552	699-25-34D	RCRA	162					2.81			<1	

FOR INFORMATION ONLY

GEL 07 ☐ GEL 16 ☐
GEL 09 ☐ GEL 17 ☐
GEL 10 ☐ GEL 19 ☒
GEL 14 ☒ GEL ☐

GEOTECHNICAL ENGINEERING LABORATORY
GEL-14, GEL-19

Sample No(s). 3-0518 7 0535

Page 1 of 2

GEL-14 SOIL MOISTURE

Tested By: JR Payne Balance: 3304 Calibration Due Date: 1-25-93

Date: 1-12-93 Thermometer: 0015 Calibration Due Date:

GEL-19 CALCIUM CARBONATE

Vessel No.:

Sample Wt.: 8.0 (g)

Sample No.	Wet Wt. + Tare	Dry Wt. + Tare	Tare Wt.	Moisture Wt.	Dry Wt. Soil	% Moisture	Sample Pressure (psi)	% $CaCO_3$ (per gram)	Calculated By
3 0518	504.81	497.93	62.38	6.88	434.55	1.58	.5	<1	JRP
3 0519	455.99	449.20	62.63	6.79	385.82	1.76	.4	<1	JRP
3 0520	325.94	313.57	63.12	12.37	250.94	4.93	.5	<1	JRP
3 0521	391.63	379.58	62.74	12.05	316.46	3.81	.4	<1	JRP
3 0522	393.04	382.72	63.33	10.32	319.98	3.23	.4	<1	JRP
3 0523	309.93	303.57	61.30	6.36	242.27	2.63	.4	<1	JRP
3 0524	300.43	294.67	61.66	5.76	233.37	2.47	.4	<1	JRP
3 0525	333.68	329.14	63.19	4.54	267.48	1.70	.5	<1	JRP
3 0526	378.04	372.70	61.26	5.34	309.51	1.73	.4	<1	JRP
3 0527	433.38	426.95	62.67	6.43	365.69	1.76	.4	<1	JRP
3 0528	373.00	367.55	63.08	5.45	304.88	1.79	.4	<1	JRP
3 0529	432.90	426.37	63.11	6.53	363.29	1.80	.4	<1	JRP
0530	433.13	426.66	63.63	6.47	363.55	1.78	.4	<1	JRP
3 0531	399.25	393.46	62.48	5.79	329.83	1.76	.4	<1	JRP
3 0532	448.96	442.22	61.34	6.74	379.74	1.77	.4	<1	JRP
3 0533	293.06	289.08	60.63	3.98	227.74	1.75	.6	<1	JRP
3 0534	439.21	434.83	63.27	4.38	374.20	1.17	.3	<1	JRP
3 0535	445.41	441.22	63.20	4.19	377.95	1.11	.2	<1	JRP

Remarks:

Tests Checked By: R. McCulloch Date 01/12/93

BD-6000-806 (04/92)

GEL 07 ☐ GEL 16 ☐
GEL 09 ☐ GEL 17 ☐
GEL 10 ☐ GEL 19 ☒
GEL 14 ☒ GEL ☐

GEOTECHNICAL ENGINEERING LABORATORY
GEL-14, GEL-19

Sample No(s). 3-0536 > 0552

Page 2 of 2

GEL-14 SOIL MOISTURE

Tested By [signature] Balance: 3304 Calibration Due Date 1-25-93

Date 1-12-93 Thermometer: 0015 Calibration Due Date

GEL-19 CALCIUM CARBONA

Vessel No.

Sample Wt. 8.0 (g)

Sample No.	Wet Wt. + Tare	Dry Wt. + Tare	Tare Wt.	Moisture Wt.	Dry Wt. Soil	% Moisture	Sample Pressure (psi)	% $CaCO_3$ (per gram)	Calculated By
3 0536	348.32	346.34	61.49	1.98	283.14	0.70	.2	<1	[illegible]
3 0537	338.57	336.32	61.36	2.25	274.83	0.82	.2	<1	[illegible]
3 0538	193.34	192.60	63.60	0.74	131.24	0.56	.4	<1	[illegible]
3 0539	404.89	401.21	63.36	3.68	337.61	1.09	.2	<1	[illegible]
3 0540	395.60	392.82	61.08	2.78	329.46	0.84	.2	<1	[illegible]
3 0541	370.13	367.33	62.36	2.80	306.25	0.91	.3	<1	[illegible]
3 0542	389.21	386.75	63.59	2.46	323.16	0.76	.3	<1	[illegible]
3 0543	391.58	388.57	62.11	3.01	324.98	0.93	.3	<1	[illegible]
3 0544	426.16	421.99	63.01	4.17	359.88	1.16	.4	<1	[illegible]
3 0545	407.03	403.90	62.54	3.13	340.89	0.92	.3	<1	[illegible]
3 0546	390.98	388.29	63.14	2.69	325.75	0.83	.2	<1	[illegible]
3 0547	342.71	316.11	62.77	26.60	252.97	10.52	.2	<1	[illegible]
3 0548	368.84	336.90	61.37	31.94	274.13	11.65	.3	<1	[illegible]
3 0549	442.83	401.37	63.20	41.46	340.00	12.19	.2	<1	[illegible]
3 0550	397.36	361.62	61.61	35.74	298.42	11.98	.4	<1	[illegible]
3 0551	188.43	170.20	61.26	18.23	108.59	16.79	.3	<1	[illegible]
3 0552	377.79	369.15	61.13	8.64	307.89	2.81	.3	<1	[illegible]

Remarks:

Tests Checked By: R. T. McCulloch Date 01/12/93

BD-6000-806 (04/92)

RADIATION RELEASE

Bldg. 699-25-34D Expiration Date 12/08/92
Released By TEC
Health Physics
Remarks 3 0518 5
54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-25-34D Expiration Date 12/08/92
Released By TEC
Health Physics
Remarks 3 0519 10
54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-25-34D Expiration Date 12/08/92
Released By TEC
Health Physics
Remarks 3 0520 15
54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-25-34D Expiration Date 12/08/92
Released By TEC
Health Physics
Remarks 3 0521 20
54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-25-34D Expiration Date 12/08/92
Released By TEC
Health Physics
Remarks 3 0522 25
54-3000-022 (01/89)

RADIATION RELEASE

699-25-34D Expiration Date 12/08/92
Released By TEC
Health Physics
Remarks 3 0523 30
54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-25-34D Expiration Date 12/08/92
Released By TEC
Health Physics
Remarks 3 0524 35
54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-25-34D Expiration Date 12/08/92
Released By TEC
Health Physics
Remarks 3 0525 40
54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-25-34D Expiration Date 12/08/92
Released By TEC
Health Physics
Remarks 3 0526 45
54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-25-34D Expiration Date 12/08/92
Released By TEC
Health Physics
Remarks 3 0527 50
54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-25-34D Expiration Date 12/08/92
Released By TEC
Health Physics
Remarks 3 0528 55
54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-25-34D Expiration Date 12/08/92
Released By TEC
Health Physics
Remarks 3 0529 60
54-3000-022 (01/89)

9313090.0219

RADIATION RELEASE

Bldg. 699-25-34D Expiration Date 12/08/92
Released By TEC
Health Physics
Remarks 3 0530 65

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-25-34D Expiration Date 12/08/92
Released By TEC
Health Physics
Remarks 3 0531 70

54-3000-022 (01/89)

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Health Physics
Remarks 3 0532 75

54-3000-022 (01/89)

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Health Physics
Remarks 3 0533 80

54-3000-022 (01/89)

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Health Physics
Remarks 3 0534 85

54-3000-022 (01/89)

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Health Physics
Remarks 3 0535 90

54-3000-022 (01/89)

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Health Physics
Remarks 3 0536 95

54-3000-022 (01/89)

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Health Physics
Remarks 100
3 0537

54-3000-022 (01/89)

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Health Physics
Remarks 101
3 0538

54-3000-022 (01/89)

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Health Physics
Remarks 3 0539 105

54-3000-022 (01/89)

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Health Physics
Remarks 3 0540 110

54-3000-022 (01/89)

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Health Physics
Remarks 3 0541 115

54-3000-022 (01/89)

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Health Physics
Remarks 3 0542 120

54-3000-022 (01/89)

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Health Physics
Remarks 3 0543 125

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Bldg. 699-25-34D Expiration Date 12/08/92
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Health Physics
Remarks 3 0544 126

RADIATION RELEASE

Bldg. 699-25-34D Expiration Date 12/08/92
Released By TEC
Health Physics
Remarks 3 0545 130

RADIATION RELEASE

Bldg. 699-25-34D Expiration Date 12/08/92
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Health Physics
Remarks 3 0[illegible] 135

54-3000-022 (01/89)

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Bldg. 699-25-34D Expiration Date 12/08/92
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Health Physics
Remarks 3 0547 140

54-3000-022 (01/89)

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Bldg. 699-25-34D Expiration Date 12/08/92
Released By TEC
Health Physics
Remarks 3 0543 145

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-25-34D Expiration Date 12/08/92
Released By TEC
Health Physics
Remarks 3 0543 150

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-25-34D Expiration Date 12/08/92
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Health Physics
Remarks 3 0550 155

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-25-34D Expiration Date 12/08/92
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Health Physics
Remarks 3 0551 160

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-25-34D Expiration Date 12/08/92
Released By TEC
Health Physics
Remarks 3 0552 162

54-3000-022 (01/89)

9313090.0221

Westinghouse Hanford Company	GEOTECHNICAL SAMPLE TRANSFER RECORD Cover Sheet	
Procedure No., Revision No., Effective Date OM7-7 FD5.1A Rev 2	Geotechnical Sample Transfer Record No. HGTL-92-050	Page 1 of 2

Type of Geotechnical Sample

Soil Samples for Well # 699-25-34D

Initiated By:

Signature	Date
Edward C. Fritz	WHC
Name (Print)	Group/Organization

Transported By:

Signature	Date
Edward C. Fritz	WHC
Name (Print)	Group/Organization

Received By HGSL:

Signature	12-18-92 Date
MARILYN HARRIS	EAK
Name (Print)	Group/Organization

Authenticated By:

Signature	Date
Edward C. Fritz	WHC
Name (Print)	Group/Organization

DISTRIBUTION: White – EFSG File Custodian Yellow – Manager, Geosciences Pink – EFSG Library Goldenrod – Originator

BC-6000-291 (04/89)

9313090.0222

Westinghouse Hanford Company	GEOTECHNICAL SAMPLE TRANSFER RECORD Attachment Sheet	
Procedure No., Revision No., Effective Date [illegible]	Geotechnical Sample Transfer Record No. [illegible]	Page 2 of 2

BOREHOLE DESIGNATION/ SAMPLE NO.	BOX NO.	DEPTH (ft)	COMMENTS
[illegible]	[illegible]	[illegible]	[illegible]

Distribution: White – EFSG File Custodian; Pink – EFSG Library; Yellow – Manager, Geosciences; Goldenrod – Originator

BC-6000-286 (04/89)

9313090.0223

Westinghouse Hanford Company

GEOTECHNICAL SAMPLE TRANSFER RECORD
Cover Sheet

Procedure No., Revision No., Effective Date 3-30-92: CM7-7 EII 5.7A Rev 3

Geotechnical Sample Transfer Record No.: HGTL-92-050

Page 1 of 2

Type of Geotechnical Sample: Soil Samples for Well # 699-25-34D

Initiated By: Edward C. Rafuse — Signature — 12/18/92 — Date

EDWARD C. RAFUSE — Name (Print) — WHC — Group/Organization

Transported By: Edward C. Rafuse — Signature — 12/18/92 — Date

EDWARD C. RAFUSE — Name (Print) — WHC — Group/Organization

Received By HGSL: Marilyn Harris — Signature — 12-18-92 — Date

MARILYN HARRIS — Name (Print) — EAR — Group/Organization

Authenticated By: Edward C. Rafuse — Signature — 12/18/92 — Date

EDWARD C. RAFUSE — Name (Print) — WHC — Group/Organization

DISTRIBUTION: White – EFSG File Custodian Yellow – Manager, Geosciences Pink – EFSG Library Goldenrod – Originator

BC-6000-291 (04.89)

9313090.0224

Westinghouse Hanford Company

GEOTECHNICAL SAMPLE TRANSFER RECORD
Attachment Sheet

Procedure No., Revision No., Effective Date: CMT-1 EII 5.7A Rev3 3-30-93

Geotechnical Sample Transfer Record No.: HGTL-92-050

BOREHOLE DESIGNATION/ SAMPLE NO.	BOX NO.	DEPTH (ft)	COMMENTS
(AG. 25 34D)	1	5	2 with NO PAO / NO CHROM
	1	10	
	1	15	
	1	20	
	1	25	
	1	30	
	2	35	
	2	40	
	2	45	
	2	50	
	2	55	
	2	60	
	3	65	
	3	70	
	3	75	
	3	80	
	3	85	
	3	90	
	4	95	
	4	100	
	4	101	
	4	105	
	4	110	
	4	115	
	5	120	
	5	125	
	5	126	
	5	130	
	5	135	
	5	140	
	6	145	
	6	150	
	6	155	
	6	160	
	6	162	

Distribution: White – EFSG File Custodian; Pink – EFSG Library; Yellow – Manager, Geosciences; Goldenrod – Originator

BC-6000-286 (04/89)

9313090.0225

VALIDATED
KDR 1/18/93
SIGNATURE/DATE

TEST REQUEST

OPERABLE UNIT	RCRA	WELL NO	699-26-34B	DEPTH	N/A
SAMPLE/SPECIMEN NO	3-0483 -> 3-0517	COST CODE/WORK ORDER NUMBER			A6CDR
REQUESTED BY: ORG	81235	PERSON	B. WILLIAMS	PHONE	6-3614
********HEIS********	N/A	MSIN	H6-06	DATE	12/10/92

TEST REQUESTED	# OF SAMPLES	TEST LAB INFORMATION
Calcium Carbonate	35	GEL 19
Moisture Content	35	GEL 14

REMARKS:

ARCHIVE YES ☐ NO ☐

TAPE RELEASE STICKER HERE

NOT APPLICABLE

RECEIVED BY E. R. Walker

DATE 12/18/92

9313090.0226

GEL 07 ☐	GEL 16 ☐
GEL 09 ☐	GEL 17 ☐
GEL 10 ☐	GEL 19 ☒
GEL 14 ☒	GEL ☐

WHC-SD-EN-DP-055, Rev. 0

GEOTECHNICAL ENGINEERING LABORATORY

GEL-14, GEL-19

Sample No(s). 3-0483 thru 3-0500

Page 1 of 2

GEL-14 SOIL MOISTURE

sted By J. R. Pelfrey Balance: 3304 Calibration Due Date 1-25-93

Date 1-6-93 Thermometer: 0018 Calibration Due Date 7-19-93

GEL-19 CALCIUM CARBONATE

Vessel No. 5650

Sample Wt. 8.0 (g)

	Sample No.	Wet Wt. + Tare	Dry Wt. + Tare	Tare Wt.	Moisture Wt.	Dry Wt. Soil	% Moisture	Sample Pressure (psi)	% $CaCO_3$ (per gram)	Calculated By
5'	3-0483	450.06	441.26	63.68	8.80	377.58	2.33	.7	1	
10'	3-0484	433.20	421.59	61.86	11.61	359.73	3.23	.5	<1	
15'	3-0485	376.38	363.94	63.53	12.44	300.41	4.14	.4	<1	
20'	3-0486	393.72	380.03	61.47	13.69	318.56	4.30	.6	<1	
25'	3-0487	372.70	362.18	62.35	10.52	299.83	3.51	.5	<1	
30'	3-0488	347.08	338.70	61.25	8.38	277.45	3.02	.5	<1	
35'	3-0489	287.22	277.83	62.26	9.39	215.57	4.36	.5	<1	
40'	3-0490	281.97	278.08	62.19	3.89	215.89	1.80	.4	<1	
45'	3-0491	346.35	339.66	62.44	6.69	277.22	2.41	.5	<1	
50'	3-0492	371.36	364.19	62.36	7.17	301.83	2.38	.5	<1	
55'	3-0493	316.49	311.32	61.10	5.17	250.22	2.07	.4	<1	
60'	3-0494	337.31	331.29	63.57	6.02	267.72	2.25	.5	<1	
65'	3-0495	438.48	434.13	62.83	4.35	371.30	1.17	.4	<1	
70'	3-0496	400.79	397.06	62.46	3.73	334.60	1.11	.4	<1	
75'	3-0497	457.59	453.56	61.94	4.03	391.62	1.03	.4	<1	
80'	3-0498	461.69	457.93	62.91	3.76	395.02	0.95	.4	<1	
85'	3-0499	329.74	328.43	62.39	1.31	266.04	0.49	.4	<1	
90'	3-0500	393.76	389.88	62.29	3.88	327.59	1.18	.4	<1	

Remarks:

Tests Checked By: R. T. McCutcheon Date 01/07/93

BD-6000-806 (04/92)

GEL 07 ☐ GEL 16 ☐
GEL 09 ☐ GEL 17 ☐
GEL 10 ☐ GEL 19 ☒
GEL 14 ☒ GEL ☐

WHC-SD-EN-DP-055, Rev. 0

GEOTECHNICAL ENGINEERING LABORATORY

GEL-14, GEL-19

Sample No(s). 3-0501 thru 3-0517

GEL-14 SOIL MOISTURE

Tested By D. Payne Balance: 3304 Calibration Due Date 1-25-93

Date 1-6-93 Thermometer: 0014 Calibration Due Date 2-19-93

GEL-19 CALCIUM CARBON

Vessel No. 5650

Sample Wt. 8.0 (g)

Sample No.	Wet Wt. + Tare	Dry Wt. + Tare	Tare Wt.	Moisture Wt.	Dry Wt. Soil	% Moisture	Sample Pressure (psi)	% $CaCO_3$ (per gram)	Calculated By
3-0501	407.02	403.73	62.35	3.29	341.38	0.96	.4	<1	
3-0502	429.56	427.60	63.07	2.00	364.53	0.55	.3	<1	
3-0503	450.91	448.39	61.61	2.52	386.78	0.65	.3	<1	
3-0504	425.40	423.00	63.12	2.40	359.88	0.67	.3	<1	
3-0505	353.41	351.13	62.35	2.28	288.78	0.79	.2	<1	
3-0506	401.32	399.67	62.25	1.65	337.42	0.49	.4	<1	
3-0507	383.82	381.90	62.16	1.92	319.74	0.60	.3	<1	
3-0508	441.60	439.89	61.20	1.70	378.70	0.45	.3	<1	
3-0509	165.81	165.46	63.13	0.35	102.33	0.34	.4	<1	
3-0510	287.05	281.18	62.70	5.87	218.48	2.69	.4	<1	
3-0511	406.08	403.61	61.57	2.47	342.04	0.72	.3	<1	
3-0512	333.67	309.31	63.20	24.36	246.11	9.90	.3	<1	
3-0513	356.74	331.39	63.52	25.35	267.87	9.46	.4	<1	
3-0514	324.44	299.28	61.53	25.16	237.75	10.58	.3	<1	
3-0515	459.53	415.71	63.53	43.82	352.16	12.44	.4	<1	
3-0516	437.25	391.40	62.85	45.85	328.55	13.96	.3	<1	
3-0517	379.53	347.37	61.83	32.16	285.54	11.26	.2	<1	
~~3-0518~~									

Remarks:

Tests Checked By: R. T. McIntosh Date 01/07/93

BD-6000-806 (04/92)

RADIATION RELEASE

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Health Physics
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54-3000-022 (01/89)

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Bldg. 699-26-34B Expiration Date 12/08/92
Released By TEC
Health Physics
Remarks 3 0484 10
54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-26-34B Expiration Date 12/08/92
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Health Physics
Remarks 3 0485 15
54-3000-022 (01/89)

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Bldg. 699-26-34B Expiration Date 12/08/92
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Health Physics
Remarks 3 0486 20
54-3000-022 (01/89)

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Bldg. 699-26-34B Expiration Date 12/08/92
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Health Physics
Remarks 3 0487 25
54-3000-022 (01/89)

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Health Physics
Remarks 3 0488 30
54-3000-022 (01/89)

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Health Physics
Remarks 3 0489 35
54-3000-022 (01/89)

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Health Physics
Remarks 3 0490 40
54-3000-022 (01/89)

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Bldg. 699-26-34B Expiration Date 12/08/92
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Health Physics
Remarks 3 0491 45
54-3000-022 (01/89)

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Bldg. 699-26-34B Expiration Date 12/08/92
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Health Physics
Remarks 3 0492 50

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Health Physics
Remarks 3 0493 55

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Health Physics
Remarks 3 0494 60

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Health Physics
Remarks 3 0495 65

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Health Physics
Remarks 3 0496 70

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Health Physics
Remarks 3 0497 75

54-3000-022 (01/89)

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Health Physics
Remarks 3 0498 80

54-3000-022 (01/89)

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Health Physics
Remarks 3 0499 82

54-3000-022 (01/89)

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Bldg. 699-26-34B Expiration Date 12/08/92
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Health Physics
Remarks 3 0500 85

54-3000-022 (01/89)

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Bldg. 699-26-34B Expiration Date 12/08/92
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Health Physics
Remarks 3 0501 90

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Health Physics
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54-3000-022 (01/89)

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699-26-34B Expiration Date 12/08/92

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Health Physics

Remarks 100

3 0503

54-3000-022 (01/89)

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Health Physics

Remarks 3 0505 105

54-3000-022 (01/89)

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Health Physics

Remarks 3 0507 115

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Health Physics

Remarks 3 0509 120

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Health Physics

Remarks 102

3 0504

54-3000-022 (01/89)

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Health Physics

Remarks 110

3 0506

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-26-34B Expiration Date 12/08/92

Released By TEC
Health Physics

Remarks 3 0508 120

54-3000-022 (01/89)

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Remarks 125

3 0510

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Health Physics

Remarks 3 0512 135

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Remarks 3 0513 140

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Health Physics

Remarks 3 0514 145

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-26-34B Expiration Date 12/08/92

Released By TEC
Health Physics

Remarks 3 0515 150

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-26-34B Expiration Date 12/08/92

Released By TEC
Health Physics

Remarks 3 0516 155

54-3000-022 (01/89,

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Bldg. 699-26-34B Expiration Date 12/08/92

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Health Physics

Remarks 3 0517 160

54-3000-022 (01/89)

9313090.0232

Westinghouse Hanford Company	GEOTECHNICAL SAMPLE TRANSFER RECORD Cover Sheet	
Procedure No., Revision No., Effective Date 3-30-92 CM 7-7, ETI 5.7A Rev 3	Geotechnical Sample Transfer Record No. HGTL-92-017	Page 1 of 2
Type of Geotechnical Sample 699-44-39B		

Initiated By: Edward C. Rafuse (Signature) — 12/09/92 (Date)

EDWARD C. RAFUSE (Name (Print)) — WHC (Group/Organization)

Transported By: Edward C. Rafuse (Signature) — 12/09/92 (Date)

EDWARD C. RAFUSE (Name (Print)) — WHC (Group/Organization)

Received By HGSL: Marilyn Harris (Signature) — 12-9-92 (Date)

MARILYN HARRIS (Name (Print)) — EAK (Group/Organization)

Authenticated By: Edward C. Rafuse (Signature) — 12/09/92 (Date)

EDWARD C. RAFUSE (Name (Print)) — WHC (Group/Organization)

DISTRIBUTION: White – EFSG File Custodian Yellow – Manager, Geosciences Pink – EFSG Library Goldenrod – Originator

BC-6000-291 (04/89)

9313090.0233

Westinghouse Hanford Company	GEOTECHNICAL SAMPLE TRANSFER RECORD Attachment Sheet

Procedure No., Revision No., Effective Date: CM-7-7, EII 5.7A, 3-30-92
Geotechnical Sample Transfer Record No.: HGTL-92-047
Page 2 of 2

BOREHOLE DESIGNATION/ SAMPLE NO	BOX NO.	DEPTH (ft)	COMMENTS
[illegible]	1	[illegible]	[illegible]
	1	[illegible]	[illegible]
	1	[illegible]	[illegible]
	1	[illegible]	[illegible]
	1	[illegible]	[illegible]
	1	[illegible]	[illegible]
[illegible]	2	[illegible]	[illegible]
	2	[illegible]	[illegible]
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	2	[illegible]	[illegible]
	2	[illegible]	[illegible]
	2	[illegible]	[illegible]
[illegible]	2	[illegible]	
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		90	
		92	
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		160	
		165	
		170	
		175	

9313090.0234

APPENDIX C

WELL DEVELOPMENT AND PUMP INSTALLATION DATA

9313090.0235

CONTENTS

Well 699-25-34D C-1
Well 699-26-34B C-12

9313090.0236

VALIDATED
KDR 1/22/93
SIGNATURE/DATE

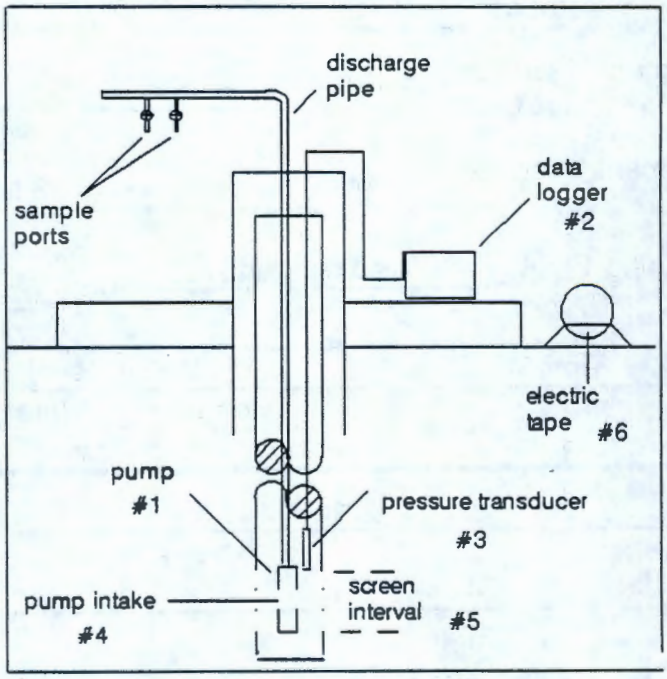
EQUIPMENT CONFIGURATION AND WELL HEAD DIAGRAM

WELL DESIGNATION 699-25-34D DEPTH 165.7' Btoc 6"

Equipment Configuration

Item	Description
#1	1.5 hp. Grundfos submersible
#2	In-Situ datalogger 2K193
#3	In-Situ Inc s/n 1989 (cal. 7-9-93)
#4	164.40' Btoc 6"
#5	165.70'-130.50' Btoc 6"
#6	Solinst s/n: ET-5 (cal. 1-13-93)
#7	
#8	
#9	
#10	

Diagram

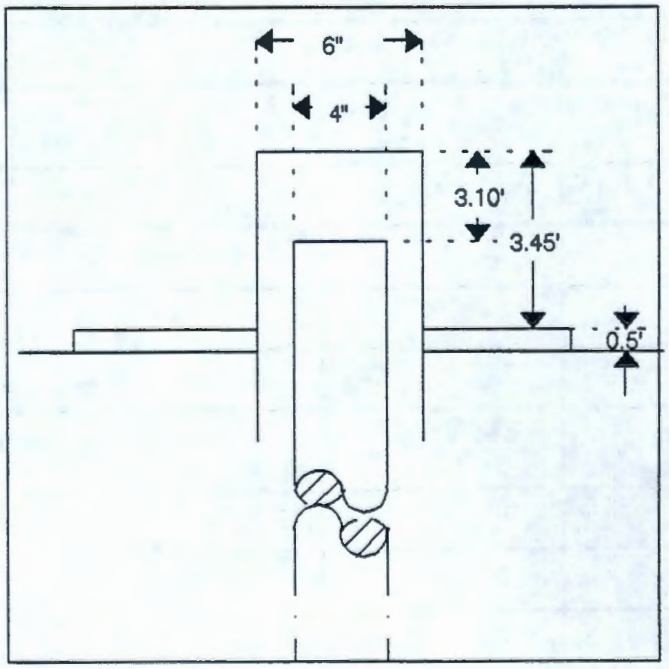


Well Head

Comments

N/A

Diagram



Signature of Recorder James A. Coates James A. Coates Date 12-15-92

A-6000-417 (08/89)

9313090.0237

DRAWDOWN/RECOVERY

Well Designation: 699-25-34D Date: 11-16-92

Well Depth: 165.70' BTOC Screened Interval: 165.70'-130.50'BTOC

Pumping Method: Constant Discharge

Equipment Used to Measure Water Level: E.Tape/Transducer S.N. ET-5/1989 Calibration Due: 1-13-93 /7-9-93

Equipment Used to Measure Flow: N.A. S.N.: N.A. Calibration Due: N.A.

Measuring Point: Top of Casing (6") Pump Start Time: 1345 Pump Stop Time: 1410

Time		Water Level		Discharge
Date	Time	Reading Units:	Water Level Units:	Reading Units:
				Bucket Method: 5gal./21.5sec.
				= 13.9gal/min.
				Total Purge Water= 350gal.
	See Attached Data			
			See Attached Data	

Recorded by: James A. Coates James A. Coates Date: 12-16-92
Sign and Print Name

BD-6000-402(03/90)

9313090.0238

WELL DEVELOPMENT FORM

Well Designation: 699-25-34D Well Depth: 165.70' BTOC

Screened Interval: 165.70'-130.50' BTOC Date Well Devel. Performed: 11-16-92

BAILING

Water Level Prior to Bailing: _____ Time of Measurement: _____

Volume of Bailer: _____ Number of Bails Removed: _____ Gallons: _____

Summary Discription of Water Removed: _____

Water Level After Bailing: _____ Time of Measurement: _____

SURGE BLOCK:

N.A.

Type of Surge Block: _____ Dimensions of Surge Block: _____

TD Before	Stroke Length	Stroke Frequency	Surge Interval	Surge Time	TD After	TD Difference

AIIRLIFT:

N.A.

Depyh to Eductor Pipe: _____ Airlift Start Time: _____

Flow Rate: _____ Accumulated Flow: _____ Airlift Stop Time: _____

Turbidity (NTU): _____

MECHANICAL PUMPING:

Pumping Technique: Constant Discharge Pump Depth: 164.4'BTOC Pump Start Time: 1345

Flow Rate: 13.9gpm Accumulated Flow: 350gals Pump Stop Time: 1425

Turbidity (NTU): 10.1, $\boxed{3.7}$

COMMENTS: N.A.

Recorded by: James A. Coates James A. Coates Date: 11-16-92

Sign and Print Name

A-6000-393 (03/90)

9313090.0239

Page 4 of 8 10

WELL NO. 699-25-34D BASELINE

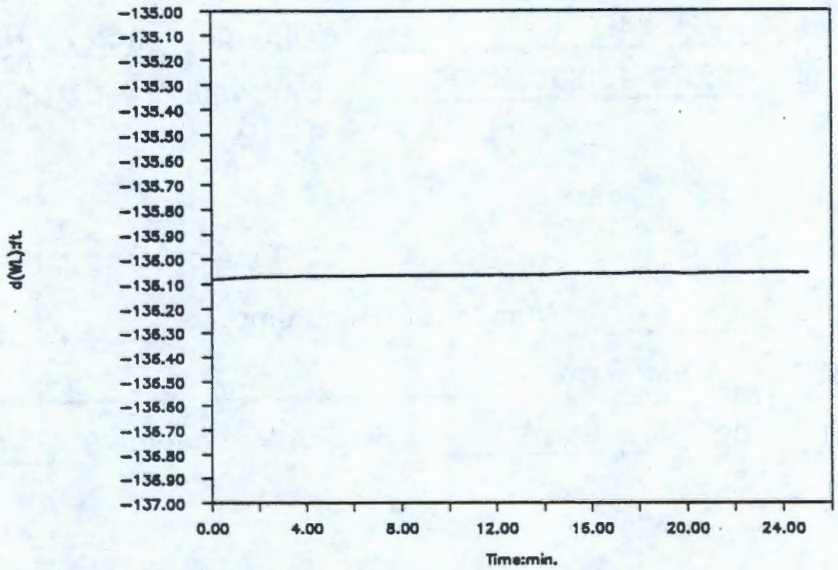
SE2000
Environ mental Logger
11/ 17 08:14

Unit# 19 3 Test 6

INPUT 1: Level (F) TOC

Reference 136.080
SG 1.000
Linearity 0.000
Scale fac tor 10.110
Offset 0.000
Delay mSE C 50.000

Step 0 1 1/16 15:19:16



Time:min	Time:hrs	D-T-W:Ft	d(WL):Ft
0	0.000	136.080	-136.080
1	0.017	136.076	-136.076
2	0.033	136.070	-136.070
3	0.050	136.070	-136.070
4	0.067	136.067	-136.067
5	0.083	136.067	-136.067
6	0.100	136.067	-136.067
7	0.117	136.064	-136.064
8	0.133	136.064	-136.064
9	0.150	136.064	-136.064
10	0.167	136.064	-136.064
11	0.183	136.064	-136.064
12	0.200	136.064	-136.064
13	0.217	136.064	-136.064
14	0.233	136.064	-136.064
15	0.250	136.060	-136.060
16	0.267	136.060	-136.060
17	0.283	136.060	-136.060
18	0.300	136.057	-136.057
19	0.317	136.057	-136.057
20	0.333	136.060	-136.060
21	0.350	136.057	-136.057
22	0.367	136.057	-136.057
23	0.383	136.057	-136.057
24	0.400	136.057	-136.057

Page 5 of 10

25	0.417	136.057	-136.057

9313090.0241

Page 6 of 10

WELL NO. 699-25-34D CONSTANT DISCHARGE Q=13.9 gpm

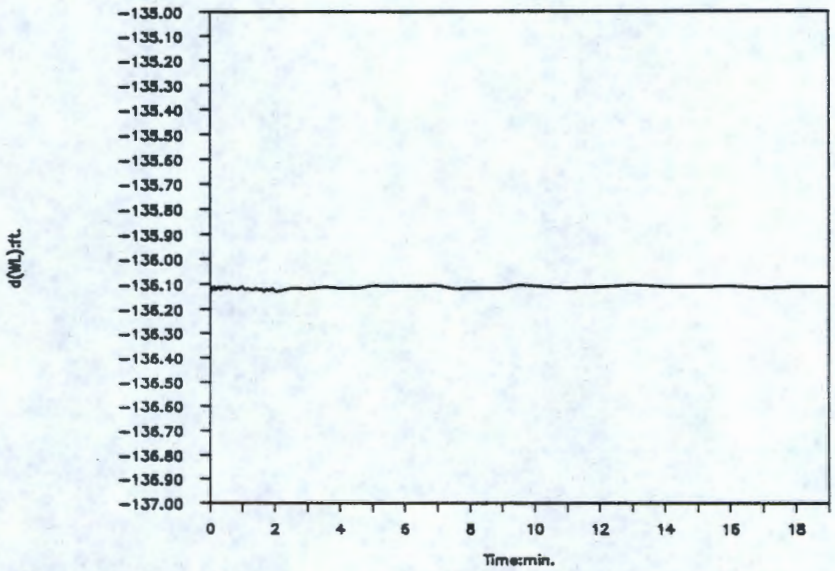
SE2000
Environ mental Logger
11/ 17 08:11

Unit# 19 3 Test 7

INPUT 1: Level (F) TOC

Reference 136.080
SG 1.000
Linearity 0.000
Scale fac tor 10.110
Offset 0.000
Delay mSE C 50.000

Step 0 1 1/16 15:46:51



Time:min	Time:hrs	D-T-W:Ft	d(WL):Ft
0.001	0.0000	136.102	-136.102
0.008	0.0001	136.134	-136.134
0.017	0.0003	136.131	-136.131
0.025	0.0004	136.127	-136.127
0.033	0.0006	136.118	-136.118
0.042	0.0007	136.124	-136.124
0.050	0.0008	136.115	-136.115
0.058	0.0010	136.111	-136.111
0.067	0.0011	136.124	-136.124
0.075	0.0013	136.115	-136.115
0.083	0.0014	136.111	-136.111
0.100	0.0017	136.121	-136.121
0.117	0.0019	136.124	-136.124
0.133	0.0022	136.115	-136.115
0.150	0.0025	136.108	-136.108
0.167	0.0028	136.121	-136.121
0.183	0.0031	136.124	-136.124
0.200	0.0033	136.118	-136.118
0.217	0.0036	136.115	-136.115
0.233	0.0039	136.111	-136.111
0.250	0.0042	136.115	-136.115
0.267	0.0044	136.115	-136.115
0.283	0.0047	136.111	-136.111
0.300	0.0050	136.111	-136.111
0.317	0.0053	136.111	-136.111

33	0.006	136.124	-136.124
17	0.007	136.111	-136.111
0.500	0.008	136.115	-136.115
0.583	0.010	136.108	-136.108
0.667	0.011	136.121	-136.121
0.750	0.013	136.118	-136.118
0.833	0.014	136.121	-136.121
0.917	0.015	136.115	-136.115
1.000	0.017	136.108	-136.108
1.083	0.018	136.124	-136.124
1.167	0.019	136.118	-136.118
1.250	0.021	136.121	-136.121
1.333	0.022	136.124	-136.124
1.417	0.024	136.115	-136.115
1.500	0.025	136.124	-136.124
1.583	0.026	136.118	-136.118
1.667	0.028	136.131	-136.131
1.750	0.029	136.118	-136.118
1.833	0.031	136.127	-136.127
1.917	0.032	136.115	-136.115
2.000	0.033	136.131	-136.131
2.500	0.042	136.115	-136.115
3.000	0.050	136.118	-136.118
00	0.058	136.111	-136.111
4.000	0.067	136.115	-136.115
4.500	0.075	136.115	-136.115
5.000	0.083	136.105	-136.105
5.500	0.092	136.108	-136.108
6.000	0.100	136.108	-136.108
6.500	0.108	136.108	-136.108
7.000	0.117	136.105	-136.105
7.500	0.125	136.118	-136.118
8.000	0.133	136.115	-136.115
8.500	0.142	136.115	-136.115
9.000	0.150	136.115	-136.115
9.500	0.158	136.102	-136.102
10.000	0.167	136.108	-136.108
11.000	0.183	136.115	-136.115
12.000	0.200	136.111	-136.111
13.000	0.217	136.102	-136.102
14.000	0.233	136.111	-136.111
15.000	0.250	136.111	-136.111
16.000	0.267	136.108	-136.108
17.000	0.283	136.115	-136.115
18.000	0.300	136.111	-136.111

9313090.0243

19.000	0.317	136.111	-136.111

9313090.0244

WELL NO. 699-25-34D RECOVERY TEST

Page 9 of 10

SE2000
Environmental Logger
11/17 08:16

Unit# 193 Test 8

INPUT 1: Level (F) TOC

Reference	136.080
SG	1.000
Linearity	0.000
Scale factor	10.110
Offset	0.000
Delay mSEC	50.000

Step 0 11/16 16:06:11

Time:min	Time:hrs	D-T-W:Ft	d(WL):Ft
0.000	0.0000	135.735	-135.735
0.008	0.0001	135.735	-135.735
0.017	0.0003	135.741	-135.741
0.025	0.0004	135.741	-135.741
0.033	0.0006	135.690	-135.690
0.042	0.0007	135.690	-135.690
0.050	0.0008	135.690	-135.690
0.058	0.0010	135.693	-135.693
0.067	0.0011	135.693	-135.693
0.075	0.0013	135.693	-135.693
0.083	0.0014	135.693	-135.693
0.100	0.0017	135.696	-135.696
0.117	0.0019	135.696	-135.696
0.133	0.0022	135.696	-135.696
0.150	0.0025	135.696	-135.696
0.167	0.0028	135.693	-135.693
0.183	0.0031	135.693	-135.693
0.200	0.0033	135.693	-135.693
0.217	0.0036	135.696	-135.696
0.233	0.0039	135.693	-135.693
0.250	0.0042	135.693	-135.693
0.267	0.0044	135.693	-135.693
0.283	0.0047	135.693	-135.693
0.300	0.0050	135.700	-135.700
0.317	0.0053	135.693	-135.693
0.333	0.006	135.693	-135.693
0.417	0.007	135.696	-135.696
0.500	0.008	135.696	-135.696
0.583	0.010	135.693	-135.693
0.667	0.011	135.696	-135.696
0.750	0.013	135.696	-135.696
0.833	0.014	135.693	-135.693
0.917	0.015	135.696	-135.696
1.000	0.017	135.693	-135.693
1.083	0.018	135.693	-135.693
1.167	0.019	135.696	-135.696
1.250	0.021	135.696	-135.696
1.333	0.022	135.696	-135.696
1.417	0.024	135.696	-135.696
1.500	0.025	135.696	-135.696

9313090.0245

Page 10 of 10

1.583	0.026	135.696	-135.696
1.667	0.028	135.696	-135.696
1.750	0.029	135.696	-135.696
1.833	0.031	135.696	-135.696
1.917	0.032	135.696	-135.696
2.000	0.033	135.696	-135.696
2.500	0.042	135.703	-135.703
3.000	0.050	135.700	-135.700
3.500	0.058	135.700	-135.700
4.000	0.067	135.700	-135.700
4.500	0.075	135.700	-135.700
5.000	0.083	135.700	-135.700
5.500	0.092	135.696	-135.696
6.000	0.100	135.696	-135.696
6.500	0.108	135.696	-135.696
7.000	0.117	135.700	-135.700
7.500	0.125	135.700	-135.700
8.000	0.133	135.700	-135.700
8.500	0.142	135.700	-135.700
9.000	0.150	135.696	-135.696
9.500	0.158	135.696	-135.696
10.000	0.167	135.696	-135.696
11.000	0.183	135.696	-135.696
12.000	0.200	135.696	-135.696
13.000	0.217	135.696	-135.696
14.000	0.233	135.696	-135.696
15.000	0.250	135.696	-135.696
16.000	0.267	135.696	-135.696
17.000	0.283	135.696	-135.696
18.000	0.300	135.696	-135.696
19.000	0.317	135.696	-135.696
20.000	0.333	135.942	-135.942

9313090.0246

SAMPLING PUMP INSTALLATION FORM

Project: W017 Well Number: 699-25-34D

Pump Type: Hydrostar Pump Model: 8001

Date Installed: 11/17/92 Installed By: Jensen Drilling

Depth to Water: 136.08 Ft BTOC* Depth to Bottom: 165.7' Ft BTOC

Reported Depth of water: -NA

Screened Interval: 165.7 - 130.5 Ft BTOC

Pump/Riser Pipe Description:

Pipe: 3/4" Stainless steel

Pump Length: 4.3'

Pump Screen Length: 2.0

Material Cleaning: Manufacturer

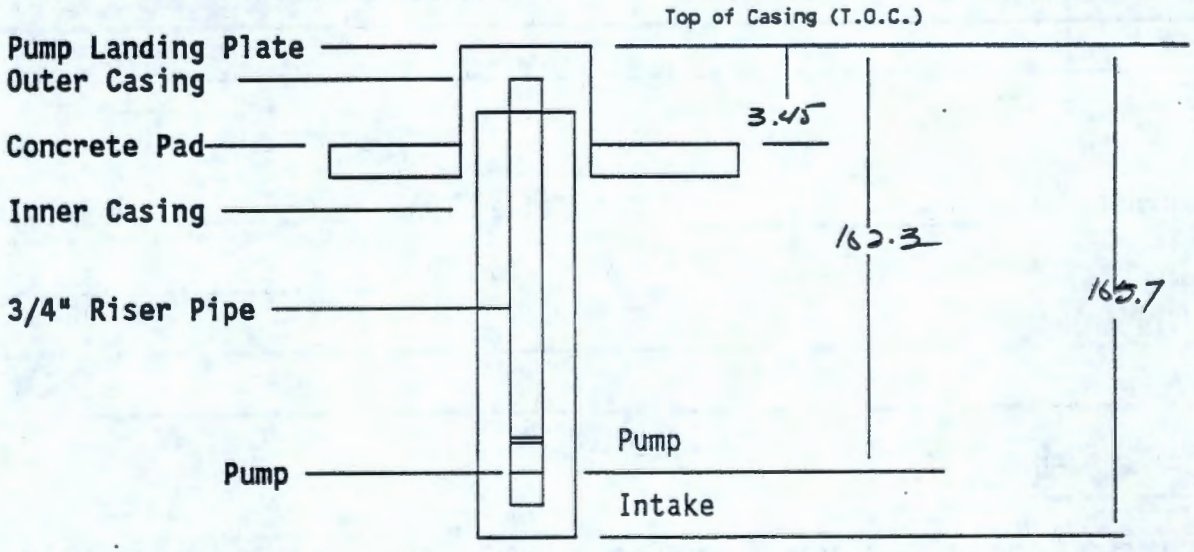
Distance pump off bottom: -NA-

Comments:

FOR INFO ONLY

PUMP INSTALLATION SKETCH

Total Material Length: 164.3' Ft Depth to Pump intake: 162.3' Ft BTOC



Completed By: J.A. Coates Date: 11/17/92

Reviewed By: E.C. LaFuse Date: 11/18/92

* BTOC - Below Top Of Casing

9313090.0247

WELL DEVELOPMENT FORM

VALIDATED KDR 1/26/93 SIGNATURE DATE

page 1 of 8

Well Designation: 699-26-34B Well Depth: 158.00' BTOC

Screened Interval: 158.00'-122.80' BTOC Date Well Devel. Performed: 11-16-92

BAILING

Water Level Prior to Bailing: _____ Time of Measurement: _____

Volume of Bailer: _____ Number of Bails Removed: _____ Gallons: _____

Summary Discription of Water Removed: _____

Water Level After Bailing: _____ Time of Measurement: _____

SURGE BLOCK:

N.A.

Type of Surge Block: _____ Dimensions of Surge Block: _____

TD Before	Stroke Length	Stroke Frequency	Surge Interval	Surge Time	TD After	TD Difference

AIIRLIFT:

N.A.

Depyh to Eductor Pipe: _____ Airlift Start Time: _____

Flow Rate: _____ Accumulated Flow: _____ Airlift Stop Time: _____

Turbidity (NTU): _____

MECHANICAL PUMPING:

Pumping Technique: Constant Discharge Pump Depth: 156.7'BTOC Pump Start Time: 0940

Flow Rate: 14.8gpm Accumulated Flow: 370gals Pump Stop Time: 1005

Turbidity (NTU): 37, 18, 6.2, 3.2

COMMENTS: N.A.

Recorded by: James A. Coates James A. Coates Date: 11-16-92

Sign and Print Name

A-6000-393 (03/90)

9313090.0248

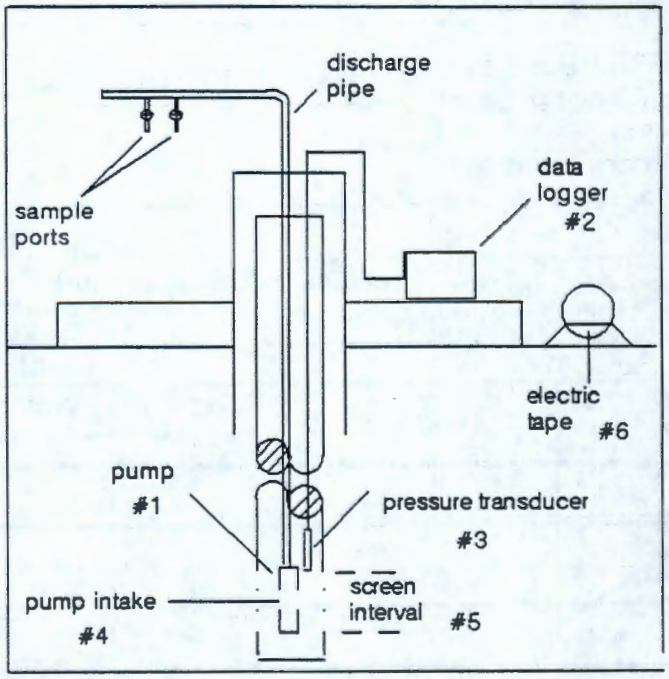
EQUIPMENT CONFIGURATION AND WELL HEAD DIAGRAM

WELL DESIGNATION 699-26-34B DEPTH 158.0' Btoc 6"

Equipment Configuration

Item	Description
#1	1.5 hp. Grundfos submersible
#2	In-Situ datalogger 2K193
#3	In-Situ Inc s/n 1989 (cal. 7-9-93)
#4	156.70' Btoc 6"
#5	158.00'-122.80' Btoc 6"
#6	Solinst s/n: ET-5 (cal. 1-13-93)
#7	
#8	
#9	
#10	

Diagram

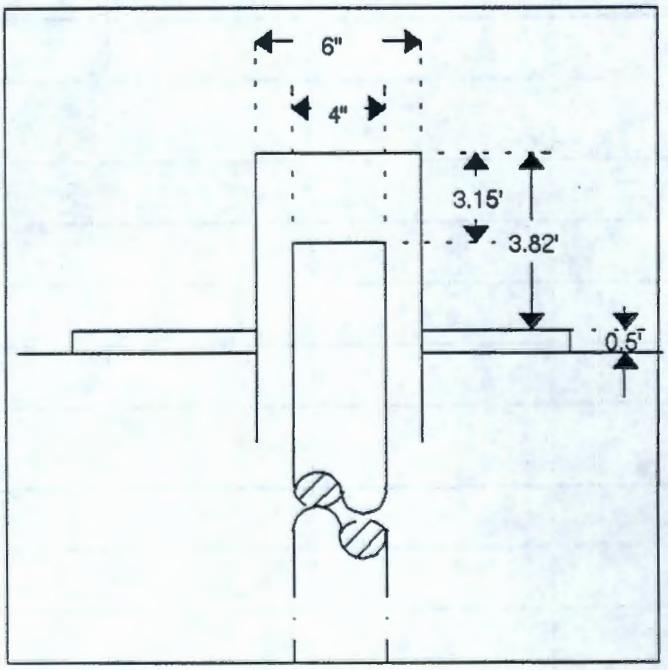


Well Head

Comments

N/A

Diagram



Signature of Recorder James A Coates James A. Coates Date 12-15-92

A-6000-417 (08/89)

9313090.0249

DRAWDOWN/RECOVERY

Well Designation: 699-26-34B Date: 11-16-92

Well Depth: 158.00' BTOC Screened Interval: 158.00'-122.80'BTOC

Pumping Method: Constant Discharge

Equipment Used to Measure Water Level: E.Tape/Transducer S.N. ET-5/1989 Calibration Due: 1-13-93 /7-9-93

Equipment Used to Measure Flow: N.A. S.N.: N.A. Calibration Due: N.A.

Measuring Point: Top of Casing (6") Pump Start Time: 0940 Pump Stop Time: 1005

Time		Water Level		Discharge
Date	Time	Reading Units:	Water Level Units:	Reading Units:
				Bucket Method: 5gal./20.25sec.
				= 14.8gal/min.
				Total Purge Water= 370gal.
	See Attached Data			
			See Attached Data	

Recorded by: James A. Coates James A. Coates Date: 12-16-92
Sign and Print Name

BD-6000-402(03/90)

9313090.0250

Page 4 of 8

WELL NO. 699-26-34B BASELINE

SE2000
Environmental Logger
11/17 09:50

Unit# 193 Test 0

INPUT 1: Level (F) TOC

Reference	128.420
SG	1.000
Linearity	0.000
Scale factor	10.110
Offset	0.000
Delay mSEC	50.000

Step 0 11/16 09:16:53

Time:min	Time:hrs	D-T-W:Ft	d(WL):Ft
0	0.000	128.418	-128.418
1	0.017	128.418	-128.418
2	0.033	128.415	-128.415
3	0.050	128.418	-128.418
4	0.067	128.421	-128.421
5	0.083	128.418	-128.418
6	0.100	128.416	-128.416
7	0.117	128.415	-128.415
8	0.133	128.415	-128.415
9	0.150	128.414	-128.414
10	0.167	128.414	-128.414

9313090.0251

Page 5 of 8

WELL NO 699-26-34B DRAWDOWN: CONSTANT DISC

SE2000
Environmental Logger
11/17 09:48

Unit# 193 Test 1

INPUT 1: Level (F) TOC

Reference	128.420
SG	1.000
Linearity	0.000
Scale factor	10.110
Offset	0.000
Delay mSEC	50.000

Step 0 11/16 09:38:49

Time:min	Time:hrs	D-T-W:Ft	d(WL):Ft
0.000	0.0000	128.420	-128.420
0.008	0.0001	128.423	-128.423
0.017	0.0003	128.429	-128.429
0.025	0.0004	128.429	-128.429
0.033	0.0006	128.429	-128.429
0.042	0.0007	128.420	-128.420
0.050	0.0008	128.432	-128.432
0.058	0.0010	128.432	-128.432
0.067	0.0011	128.432	-128.432
0.075	0.0013	128.435	-128.435
0.083	0.0014	128.432	-128.432
0.100	0.0017	128.435	-128.435
0.117	0.0019	128.435	-128.435
0.133	0.0022	128.435	-128.435
0.150	0.0025	128.435	-128.435
0.167	0.0028	128.435	-128.435
0.183	0.0031	128.435	-128.435
0.200	0.0033	128.435	-128.435
0.217	0.0036	128.439	-128.439
0.233	0.0039	128.435	-128.435
0.250	0.0042	128.435	-128.435
0.267	0.0044	128.435	-128.435
0.283	0.0047	128.435	-128.435
0.300	0.0050	128.435	-128.435
0.317	0.0053	128.432	-128.432
0.333	0.006	128.432	-128.432
0.417	0.007	128.439	-128.439
0.500	0.008	128.435	-128.435
0.583	0.010	128.432	-128.432
0.667	0.011	128.439	-128.439
0.750	0.013	128.432	-128.432
0.833	0.014	128.439	-128.439
0.917	0.015	128.439	-128.439
1.000	0.017	128.439	-128.439
1.083	0.018	128.442	-128.442
1.167	0.019	128.442	-128.442
1.250	0.021	128.442	-128.442
1.333	0.022	128.439	-128.439
1.417	0.024	128.439	-128.439

9313090.0252

Page 6 of 8

1.500	0.025	128.439	-128.439
1.583	0.026	128.439	-128.439
1.667	0.028	128.439	-128.439
1.750	0.029	128.445	-128.445
1.833	0.031	128.442	-128.442
1.917	0.032	128.439	-128.439
2.000	0.033	128.445	-128.445
2.500	0.042	128.439	-128.439
3.000	0.050	128.435	-128.435
3.500	0.058	128.439	-128.439
4.000	0.067	128.439	-128.439
4.500	0.075	128.435	-128.435
5.000	0.083	128.439	-128.439
5.500	0.092	128.439	-128.439
6.000	0.100	128.439	-128.439
6.500	0.108	128.432	-128.432
7.000	0.117	128.432	-128.432
7.500	0.125	128.432	-128.432
8.000	0.133	128.432	-128.432
8.500	0.142	128.435	-128.435
9.000	0.150	128.435	-128.435
9.500	0.158	128.435	-128.435
10.000	0.167	128.435	-128.435
12.000	0.200	128.432	-128.432
14.000	0.233	128.432	-128.432
16.000	0.267	128.432	-128.432
18.000	0.300	128.432	-128.432
20.000	0.333	128.426	-128.426
22.000	0.367	128.426	-128.426
24.000	0.400	128.426	-128.426
26.000	0.433	128.426	-128.426
28.000	0.467	128.429	-128.429

9313090.0259

Page 7 of 8

WELL NO. 699-26-34B RECOVERY:
CONSTANT DISCHARGE TEST

SE2000
Environmental Logger
11/17 09:46

Unit# 193 Test 2

INPUT 1: Level (F) TOC

Reference	128.420
SG	1.000
Linearity	0.000
Scale factor	10.110
Offset	0.000
Delay mSEC	50.000

Step 0 11/16 10:07:20

Time:min	Time:hrs	D-T-W:Ft	d(WL):Ft
0.000	0.0000	128.448	-128.448
0.008	0.0001	128.445	-128.445
0.017	0.0003	128.439	-128.439
0.025	0.0004	128.445	-128.445
0.033	0.0006	128.439	-128.439
0.042	0.0007	128.432	-128.432
0.050	0.0008	128.429	-128.429
0.058	0.0010	128.429	-128.429
0.067	0.0011	128.426	-128.426
0.075	0.0013	128.426	-128.426
0.083	0.0014	128.426	-128.426
0.100	0.0017	128.426	-128.426
0.117	0.0019	128.426	-128.426
0.133	0.0022	128.426	-128.426
0.150	0.0025	128.423	-128.423
0.167	0.0028	128.426	-128.426
0.183	0.0031	128.426	-128.426
0.200	0.0033	128.426	-128.426
0.217	0.0036	128.426	-128.426
0.233	0.0039	128.426	-128.426
0.250	0.0042	128.423	-128.423
0.267	0.0044	128.426	-128.426
0.283	0.0047	128.426	-128.426
0.300	0.0050	128.426	-128.426
0.317	0.0053	128.423	-128.423
0.333	0.006	128.426	-128.426
0.417	0.007	128.423	-128.423
0.500	0.008	128.426	-128.426
0.583	0.010	128.426	-128.426
0.667	0.011	128.426	-128.426
0.750	0.013	128.426	-128.426
0.833	0.014	128.426	-128.426
0.917	0.015	128.426	-128.426
1.000	0.017	128.426	-128.426
1.083	0.018	128.426	-128.426
1.167	0.019	128.426	-128.426
1.250	0.021	128.426	-128.426
1.333	0.022	128.426	-128.426
1.417	0.024	128.426	-128.426
1.500	0.025	128.426	-128.426

9313090.0254

1.583	0.026	128.426	-128.426
1.667	0.028	128.426	-128.426
1.750	0.029	128.429	-128.429
1.833	0.031	128.429	-128.429
1.917	0.032	128.426	-128.426
2.000	0.033	128.426	-128.426
2.500	0.042	128.429	-128.429
3.000	0.050	128.429	-128.429
3.500	0.058	128.429	-128.429
4.000	0.067	128.429	-128.429
4.500	0.075	128.429	-128.429
5.000	0.083	128.429	-128.429
5.500	0.092	128.432	-128.432
6.000	0.100	128.432	-128.432
6.500	0.108	128.429	-128.429
7.000	0.117	128.432	-128.432
7.500	0.125	128.432	-128.432
8.000	0.133	128.432	-128.432
8.500	0.142	128.432	-128.432
9.000	0.150	128.432	-128.432
9.500	0.158	128.429	-128.429
10.000	0.167	128.429	-128.429
12.000	0.200	128.429	-128.429

9313090.0255

SAMPLING PUMP INSTALLATION FORM

("FOR INFO ONLY")

Project: W017

Well Number: 699-26-34B

Pump Type: Hydrostar

Pump Model: 8001

Date Installed: 11-16-92

Installed By: JENSEN DRILLING

Depth to Water: 128.42 Ft BTOC*

Depth to Bottom: 158.0' Ft BTOC

Reported Depth of water: —

Screened Interval: 158.0 - 122.80 Ft BTOC

Pump/Riser Pipe Description:

Pipe: 3/4" Stainless steel

Pump Length: 4.3

Pump Screen Length: 2.0

Material Cleaning: MANUFACTURER

Distance pump off bottom: NA

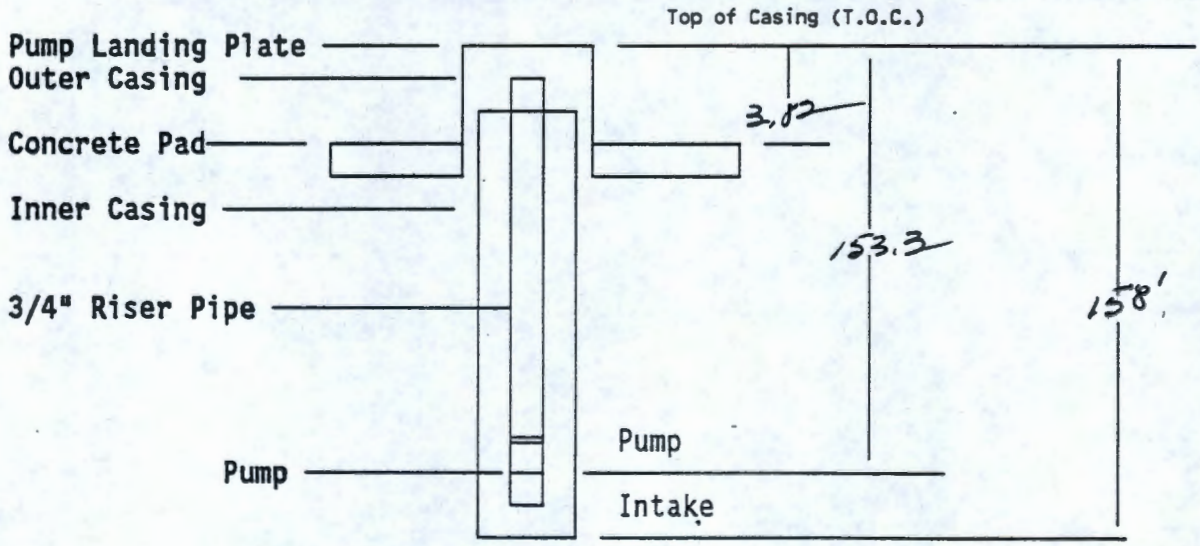
Comments:

9313090.0256

PUMP INSTALLATION SKETCH

Total Material Length: 155.3 Ft

Depth to Pump intake: 153.3' Ft BTOC



Completed By: J.A. COATES

Date: 11/16/92

Reviewed By: E.E. Rafuse

Date: 11/18/92

* BTOC - Below Top Of Casing

APPENDIX D

SLUG TEST DATA

9313090.0257

CONTENTS

Well 699-25-34D D-1
Well 699-26-34B D-14

9313090.0258

FOR INFORMATION ONLY

SAMPLE PUMP INSTALLATION FORM and WELL DEVELOPMENT CHECKLIST

WELL DESIGNATION 699-25-34D DEPTH 165.70'BTOC

PUMP INSTALLATION

Project: WO17H Date: 11-17-92

Pump Type: Hydrostar

Pump Model No.: 8001

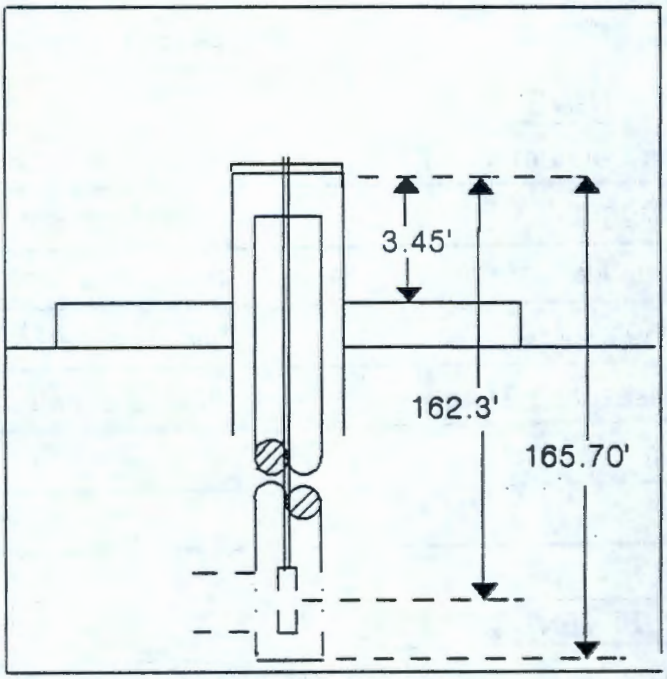
Installed By: S.MacKinnon(JDC)

Depth to Water: 136.08'Btoc

Reported Depth to Water:

Screened Interval: 165.7-130.50'

Depth to Bottom:



PUMP/RISER DISCRIPTION:

Pipe: 3/4"S.S.

Pump Length: 4.3'

Pump Screen Length: 2.0'

Total Material Length: 164.3'

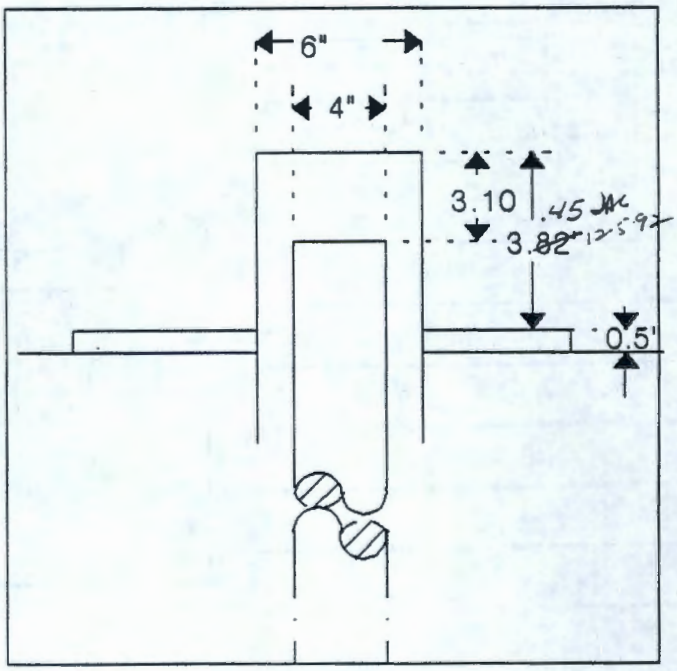
Distance Pump Off Bottom: 1.4'

Pump Intake @: 162.3'

Material Cleaning: Manufacturer

PUMP TEST: 5 GALS/59 Strokes (satisfactory)

COMMENTS:



WELL DEVELOPMENT INFORMATION

Pump Intake @: 164.4'

Transducer @: 14.880'BWL

Date: 11-16-92

Flow Rate (Q): 13.9 gpm

AQUIFER TEST INFORMATION

Slugging Rod Dim: 6'x 2"=.13 cf

Transducer @: 14.536'BWL

Date: 11-17-92

EQUIPMENT INFORMATION:

Data logger: 2K193

E.Tape: ET-5 (1-13-93)

Transducer: 1989 (7-9-93)

Completed By: James A. Coates James A. Coates Date 12-15-92

9313090.0259

VALIDATED
KDR 1/22/92
SIGNATURE/DATE

BOREHOLE TEST INFORMATION

Borehole 699-25-34D Borehole Diameter 4 in. Hanford Coordinates N/A

Interval Tested 165.70'-136.0 Depth Interval (screened) 165.70'-130.5 Test Type: Instantaneous Slug

Borehole Depth: 167.50' BTOC Instruction Used: WHC-CM-7-7 (EII 10.1)

EQUIPMENT

NAME	DESCRIPTION	
Electric Sounder	Solinst s/n: ET-5	Calibration due: 1-13-93
Data Logger	In-Situ Inc. s/n: 2K193	
Pressure Transducer	In-Situ Inc. s/n: 1989	Calibration due: 7-9-93
Slugging Rod	Site Fabricated 72.0"Lx2.0"D	0.13 cu. ft.
Steel Measuring Tape	500' Graduated Steel Tape	

MEASUREMENT DATUM

Control Datum: Top of Casing (TOC) 6"

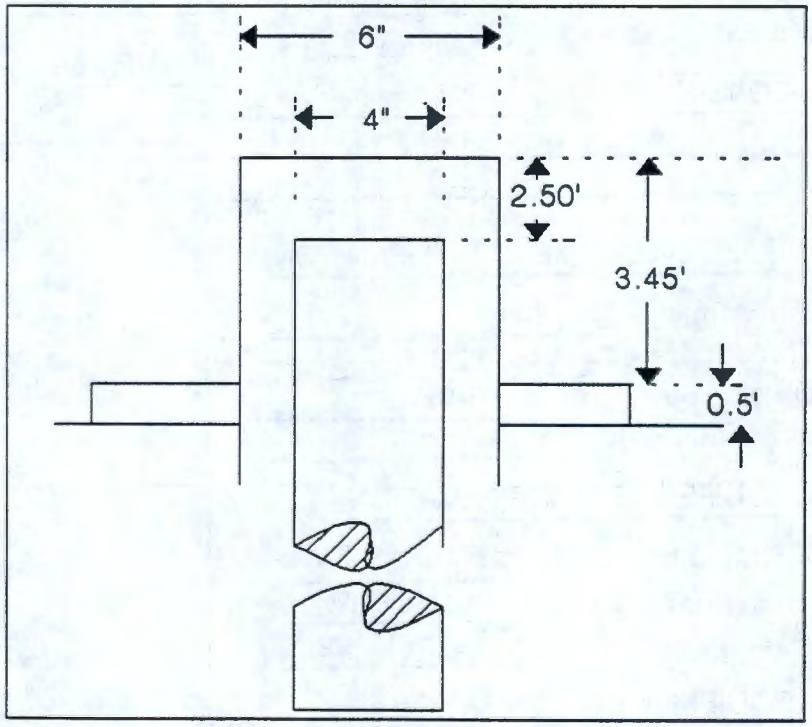
Elevation: N/A

Electric Sounder: TOC 6"

Steel Tape: TOC 6"

Pressure Transducer: TOC 6"

WELL HEAD DIAGRAM



COMMENTS

N.A.

Recorded by: James A. Coates James A. Coates Date: 12-16-92

Sign and Print Name

A-6000-417 (08/89)

9313090.0250

INSTANTANEOUS SLUG TEST DATA SHEET: INJECTION

Borehole: 699-25-34D

Interval Tested: 165.70'-136.08' Btoc 6"

Depth To Water: 136.08' Btoc 6"

Depth to Transducer: 14.536' BWL

Measured by: James A. Coates

Slug Volume: 0.13 cu. ft.

Barometric Reading:

Beginning: N/A End: N/A

Time:	Start	End
Baseline	0800	0820
Injection:	0820	0840

Date: 11-17-92

Initial Pressure (Pi): 136.08'

Slug Level/Pressure (Pmax) 136.060'

Borehole Diameter: 4"

Time		Pressure	Time		Pressure	Time		Pressure
Observed	Elapsed	Trans.Measurement	Observed	Elapsed	Trans.Measurement	Observed	Elapsed	Trans.Measurement
		See Attached Data			See Attached Data			

Recorded by: James A. Coates James A. Coates Date: 12-16-92

Sign and Print Name

BD-6000-293(07/90)

9313090.0261

INSTANTANEOUS SLUG TEST DATA SHEET: WITHDRAWAL

Borehole: 699-25-34D

Interval Tested: 165.70'-136.08' Btoc 6"

Depth To Water: 165.70' Btoc 6"

Depth to Transducer: 14.880' BWL

Measured by: James A. Coates

Slug Volume: 0.13 cu. ft.

Barometric Reading:
Beginning: N/A End: N/A

Time:	Start	End
Baseline	1122	1140
Withdrawal	0845	0858

Date: 11-17-92

Initial Pressure (Pi): 136.08'

Slug Level/Pressure (Pmax) 136.121'

Borehole Diameter: 4"

Time		Pressure	Time		Pressure	Time		Pressure
Observed	Elapsed	Trans.Measurement	Observed	Elapsed	Trans.Measurement	Observed	Elapsed	Trans.Measurement
		See Attached Data			See Attached Data			

Recorded by: James A. Coates James A. Coates Date: 12-16-92
Sign and Print Name

BD-6000-293(07/90)

9313090.0252

Page 4 of 8

WELL NO. 699-25-34 BASELINE: INJECTION

SE2000
Environmental Logger
11/17 08:26

Unit# 193 Test 9

INPUT 1: Level (F) TOC

Reference	136.080
SG	1.000
Linearity	0.000
Scale factor	10.110
Offset	0.000
Delay mSEC	50.000

Step 0 11/17 08:06:04

Time:min	Time:hrs	D-T-W:Ft	d(WL):Ft
0	0.000	136.076	-136.076
1	0.017	136.054	-136.054
2	0.033	136.044	-136.044
3	0.050	136.035	-136.035
4	0.067	136.035	-136.035
5	0.083	136.032	-136.032
6	0.100	136.032	-136.032
7	0.117	136.028	-136.028
8	0.133	136.028	-136.028
9	0.150	136.028	-136.028
10	0.167	136.025	-136.025
11	0.183	136.025	-136.025
12	0.200	136.025	-136.025
13	0.217	136.025	-136.025
14	0.233	136.025	-136.025
15	0.250	136.025	-136.025
16	0.267	136.025	-136.025
17	0.283	136.022	-136.022
18	0.300	136.025	-136.025
19	0.317	136.022	-136.022
20	0.333	136.022	-136.022

9313090.0293

Page 5 of 8

WELL NO. 699-25-34D SLUG INJECTION TEST

SE2000
Environmental Logger
11/17 09:33

Unit# 193 Test 6

INPUT 1: Level (F) TOC

Reference	136.080
SG	1.000
Linearity	0.000
Scale factor	10.110
Offset	0.000
Delay mSEC	50.000

Step 0 11/17 08:29:56

Time:min	Time:hrs	D-T-W:Ft	d(WL):Ft
0.000	0.0000	136.080	-136.080
0.008	0.0001	136.080	-136.080
0.017	0.0003	136.064	-136.064
0.025	0.0004	136.060	-136.060
0.033	0.0006	136.064	-136.064
0.042	0.0007	136.086	-136.086
0.050	0.0008	136.083	-136.083
0.058	0.0010	136.080	-136.080
0.067	0.0011	136.083	-136.083
0.075	0.0013	136.076	-136.076
0.083	0.0014	136.073	-136.073
0.100	0.0017	136.076	-136.076
0.117	0.0019	136.076	-136.076
0.133	0.0022	136.076	-136.076
0.150	0.0025	136.073	-136.073
0.167	0.0028	136.073	-136.073
0.183	0.0031	136.073	-136.073
0.200	0.0033	136.073	-136.073
0.217	0.0036	136.076	-136.076
0.233	0.0039	136.073	-136.073
0.250	0.0042	136.073	-136.073
0.267	0.0044	136.073	-136.073
0.283	0.0047	136.073	-136.073
0.300	0.0050	136.070	-136.070
0.317	0.0053	136.073	-136.073
0.333	0.006	136.073	-136.073
0.417	0.007	136.073	-136.073
0.500	0.008	136.073	-136.073
0.583	0.010	136.073	-136.073
0.667	0.011	136.070	-136.070
0.750	0.013	136.073	-136.073
0.833	0.014	136.070	-136.070
0.917	0.015	136.073	-136.073
1.000	0.017	136.070	-136.070
1.083	0.018	136.070	-136.070
1.167	0.019	136.073	-136.073
1.250	0.021	136.070	-136.070
1.333	0.022	136.073	-136.073
1.417	0.024	136.073	-136.073

9313090.0264

Page 6 of 8

1.500	0.025	136.073	-136.073
1.583	0.026	136.073	-136.073
1.667	0.028	136.073	-136.073
1.750	0.029	136.073	-136.073
1.833	0.031	136.073	-136.073
1.917	0.032	136.073	-136.073
2.000	0.033	136.073	-136.073
2.500	0.042	136.073	-136.073
3.000	0.050	136.070	-136.070
3.500	0.058	136.073	-136.073
4.000	0.067	136.070	-136.070
4.500	0.075	136.070	-136.070
5.000	0.083	136.070	-136.070
5.500	0.092	136.073	-136.073
6.000	0.100	136.073	-136.073
6.500	0.108	136.070	-136.070
7.000	0.117	136.073	-136.073
7.500	0.125	136.070	-136.070
8.000	0.133	136.070	-136.070
8.500	0.142	136.070	-136.070
9.000	0.150	136.070	-136.070
9.500	0.158	136.070	-136.070
10.000	0.167	136.070	-136.070
11.000	0.183	136.070	-136.070
12.000	0.200	136.070	-136.070
13.000	0.217	136.070	-136.070
14.000	0.233	136.070	-136.070
15.000	0.250	136.070	-136.070

9313090.0265

Page 7.28

WELL NO. 699-25-34D SLUG WITHDRAWAL TEST

SE2000
Environmental Logger
11/17 09:30

Unit# 193 Test 7

INPUT 1: Level (F) TOC

Reference	136.080
SG	1.000
Linearity	0.000
Scale factor	10.110
Offset	0.000
Delay mSEC	50.000

Step 0 11/17 08:46:32

Time:min	Time:hrs	D-T-W:Ft	d(WL):Ft
0.000	0.0000	136.080	-136.080
0.008	0.0001	136.080	-136.080
0.017	0.0003	136.102	-136.102
0.025	0.0004	136.121	-136.121
0.033	0.0006	136.115	-136.115
0.042	0.0007	136.092	-136.092
0.050	0.0008	136.086	-136.086
0.058	0.0010	136.080	-136.080
0.067	0.0011	136.095	-136.095
0.075	0.0013	136.102	-136.102
0.083	0.0014	136.095	-136.095
0.100	0.0017	136.086	-136.086
0.117	0.0019	136.083	-136.083
0.133	0.0022	136.086	-136.086
0.150	0.0025	136.086	-136.086
0.167	0.0028	136.083	-136.083
0.183	0.0031	136.083	-136.083
0.200	0.0033	136.083	-136.083
0.217	0.0036	136.080	-136.080
0.233	0.0039	136.083	-136.083
0.250	0.0042	136.083	-136.083
0.267	0.0044	136.080	-136.080
0.283	0.0047	136.083	-136.083
0.300	0.0050	136.080	-136.080
0.317	0.0053	136.083	-136.083
0.333	0.006	136.080	-136.080
0.417	0.007	136.080	-136.080
0.500	0.008	136.080	-136.080
0.583	0.010	136.080	-136.080
0.667	0.011	136.080	-136.080
0.750	0.013	136.080	-136.080
0.833	0.014	136.080	-136.080
0.917	0.015	136.080	-136.080
1.000	0.017	136.080	-136.080
1.083	0.018	136.080	-136.080
1.167	0.019	136.080	-136.080
1.250	0.021	136.080	-136.080
1.333	0.022	136.080	-136.080
1.417	0.024	136.080	-136.080
1.500	0.025	136.080	-136.080

9313090.0266

Page 8 of 8.

1.583	0.026	136.080	-136.080
1.667	0.028	136.080	-136.080
1.750	0.029	136.080	-136.080
1.833	0.031	136.080	-136.080
1.917	0.032	136.080	-136.080
2.000	0.033	136.080	-136.080
2.500	0.042	136.080	-136.080
3.000	0.050	136.080	-136.080
3.500	0.058	136.080	-136.080
4.000	0.067	136.080	-136.080
4.500	0.075	136.080	-136.080
5.000	0.083	136.080	-136.080
5.500	0.092	136.080	-136.080
6.000	0.100	136.080	-136.080
6.500	0.108	136.080	-136.080
7.000	0.117	136.080	-136.080
7.500	0.125	136.080	-136.080
8.000	0.133	136.080	-136.080
8.500	0.142	136.080	-136.080
9.000	0.150	136.076	-136.076
9.500	0.158	136.080	-136.080
10.000	0.167	136.080	-136.080
11.000	0.183	136.076	-136.076
12.000	0.200	136.080	-136.080
13.000	0.217	136.080	-136.080

9313090.0257

SAMPLE PUMP INSTALLATION FORM and WELL DEVELOPMENT CHECKLIST

WELL DESIGNATION 699-26-34B DEPTH 158.00'BTOC

PUMP INSTALLATION

Project: WO17H Date: 11-16-92

Pump Type: Hydrostar

Pump Model No.: 8001

Installed By: S.MacKinnon(JDC)

Depth to Water: 128.42'Btoc

Reported Depth to Water:

Screened Interval: 158.0'-122.80'

Depth to Bottom:

PUMP/RISER DISCRIPTION:

Pipe: 3/4"S.S.

Pump Length: 4.3'

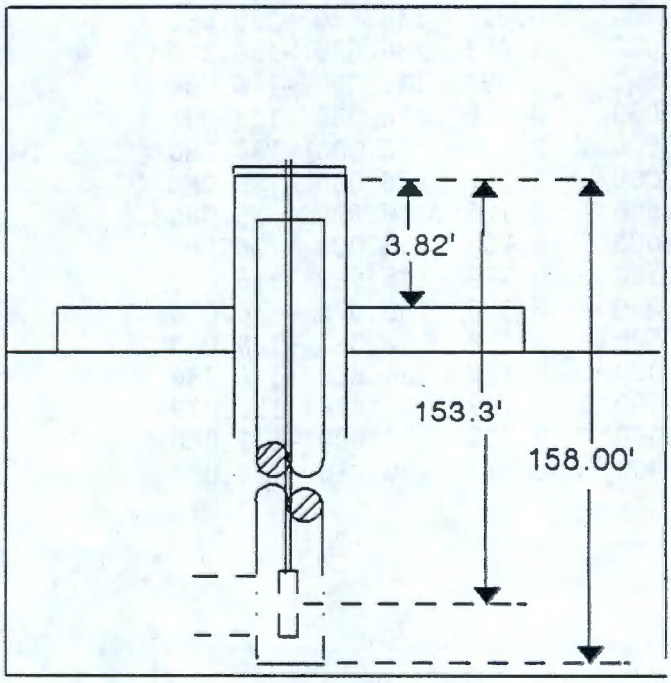
Pump Screen Length: 1.9'

Total Material Length: 155.3'

Distance Pump Off Bottom: 2.8'

Pump Intake @: 153.3'

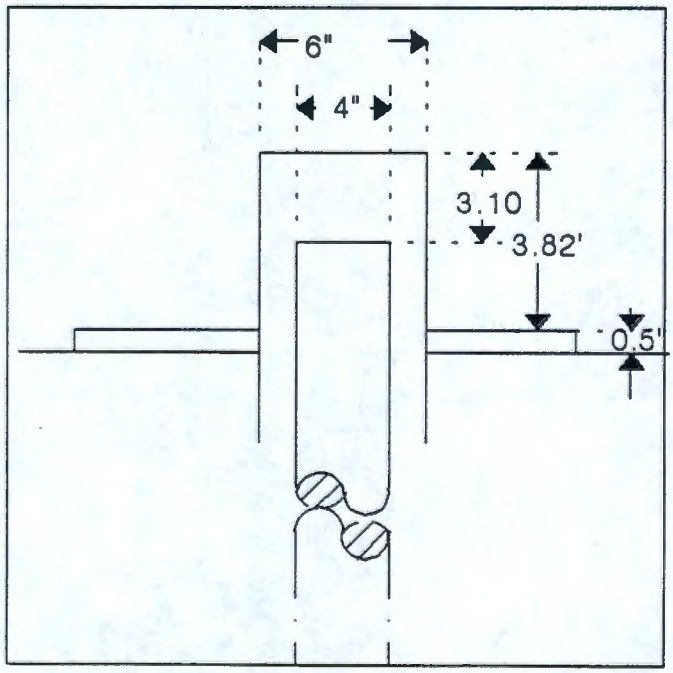
Material Cleaning: Manufacturer



PUMP TEST: 5 GALS/60 Strokes (satisfactory)

COMMENTS:

NO SLUG WITHDRAWAL DATA



WELL DEVELOPMENT INFORMATION

Pump Intake @: 156.7'

Transducer @: 10.303'BWL

Date: 11-16-92

Flow Rate (Q): 14.8 gpm

AQUIFER TEST INFORMATION

Slugging Rod Dim: 6'x 2"=.13 cf

Transducer @: 10.303'BWL

Date: 11-16-92

EQUIPMENT INFORMATION:

Data logger: 2K193

E.Tape: ET-5 (1-13-93)

Transducer: 1989 (7-9-93)

Completed By: James A. Coates James A. Coates Date 12-15-92

9313090.0269

BOREHOLE TEST INFORMATION

KDR 1/26/93 SIGNATURE DATE

page 1 of 6

Borehole 699-26-34B Borehole Diameter 4 in. Hanford Coordinates N/A

Interval Tested 158.00'-128.4 Depth Interval (screened) 158.00'-122.8 Test Type: Instantaneous Slug

Borehole Depth: 158.00' BTOC Instruction Used: WHC-CM-7-7 (EII 10.1)

EQUIPMENT

NAME	DESCRIPTION	
Electric Sounder	Solinst s/n: ET-5	Calibration due: 1-13-93
Data Logger	In-Situ Inc. s/n: 2K193	
Pressure Transducer	In-Situ Inc. s/n: 1989	Calibration due: 7-9-93
Slugging Rod	Site Fabricated 72.0"Lx2.0"D	0.13 cu. ft.
Steel Measuring Tape	500' Graduated Steel Tape	

MEASUREMENT DATUM

Control Datum: Top of Casing (TOC) 6"

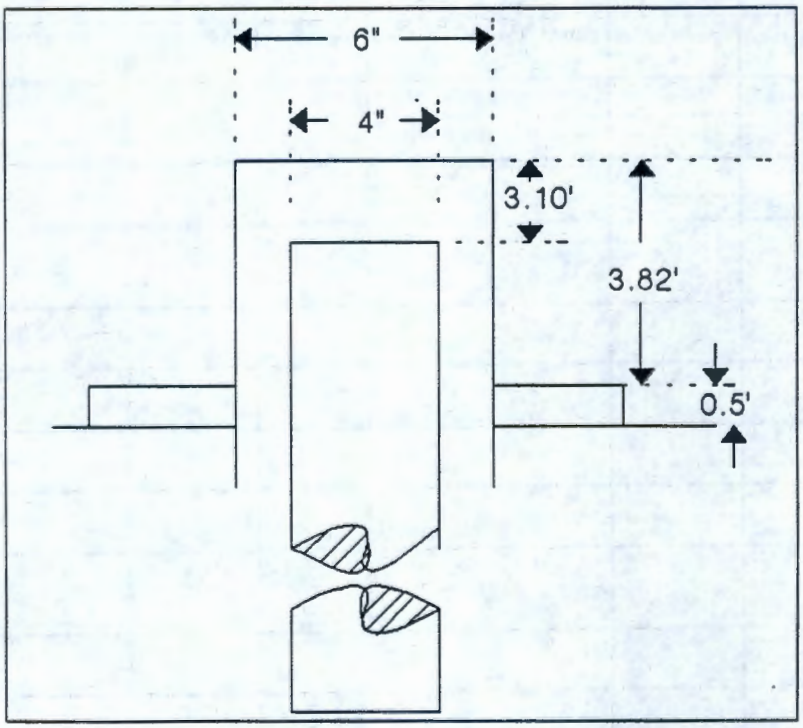
Elevation: N/A

Electric Sounder: TOC 6"

Steel Tape: TOC 6"

Pressure Transducer: TOC 6"

WELL HEAD DIAGRAM



COMMENTS

N.A.

Recorded by: James A. Coates James A. Coates Date: 12-16-92

Sign and Print Name

A-6000-417 (08/89)

9313090.0259

INSTANTANEOUS SLUG TEST DATA SHEET: INJECTION

Borehole: 699-26-34B

Interval Tested: 158.00'-128.42' Btoc 6"

Depth To Water: 128.42' Btoc 6"

Depth to Transducer: 10.303' BWL

Measured by: James A. Coates

Slug Volume: 0.13 cu. ft.

Barometric Reading:

Beginning: N/A End: N/A

Time:	Start	End
Baseline	1145	1155
Injection:	1200	1222

Date: 11-16-92

Initial Pressure (Pi): 128.42'

Slug Level/Pressure (Pmax) 128.110'

Borehole Diameter: 4"

Time		Pressure	Time		Pressure	Time		Pressure
Observed	Elapsed	Trans.Measurement	Observed	Elapsed	Trans.Measurement	Observed	Elapsed	Trans.Measurement
		See Attached Data			See Attached Data			

Recorded by: James A. Coates James A. Coates Date: 12-16-92

Sign and Print Name

BD-6000-293(07/90)

9313090.0270

INSTANTANEOUS SLUG TEST DATA SHEET: WITHDRAWAL

Borehole: 699-26-34B

Interval Tested: 158.11'-128.42' Btoc 6"

Depth To Water: 128.42' Btoc 6"

Depth to Transducer: 10.303' BWL

Measured by: James A. Coates

Slug Volume: 0.13 cu. ft.

Barometric Reading:
Beginning: N/A End: N/A

Time:	Start	End
Baseline	1145	1155
Withdrawal	1200	1222

Date: 11-17-92

Initial Pressure (Pi): 128.42'

Slug Level/Pressure (Pmax)

Borehole Diameter: 4"

Time		Pressure	Time		Pressure	Time		Pressure
Observed	Elapsed	Trans.Measurement	Observed	Elapsed	Trans.Measurement	Observed	Elapsed	Trans.Measurement
		See Attached Data	MISSING SLUG WITHDRAWAL DATA FILE					
					See Attached Data			

Recorded by: James A. Coates (signature) James A. Coates Date: 12-16-92
Sign and Print Name

BD-6000-293(07/90)

9313090.0271

Page 4 of 6

WELL NO. 699-26-34B BASELINE: INJECTION

SE2000
Environmental Logger
11/17 09:44

Unit# 193 Test 3

INPUT 1: Level (F) TOC

Reference	128.420
SG	1.000
Linearity	0.000
Scale factor	10.110
Offset	0.000
Delay mSEC	50.000

Step 0 11/16 11:44:12

Time:min	Time:hrs	D-T-W:Ft	d(WL):Ft
0	0.000	128.420	-128.420
10	0.167	128.391	-128.391

9313090.0222

Page 5 of 1

WELL NO. 699-26-34B SLUG INJECTION TEST

SE2000
Environmental Logger
11/17 09:42

Unit# 193 Test 4

INPUT 1: Level (F) TOC

Reference	128.420
SG	1.000
Linearity	0.000
Scale factor	10.110
Offset	0.000
Delay mSEC	50.000

Step 0 11/16 12:01:41

Time:min	Time:hrs	D-T-W:Ft	d(WL):Ft
0.000	0.0000	128.368	-128.368
0.008	0.0001	128.110	-128.110
0.017	0.0003	128.729	-128.729
0.025	0.0004	128.547	-128.547
0.033	0.0006	128.461	-128.461
0.042	0.0007	128.480	-128.480
0.050	0.0008	128.467	-128.467
0.058	0.0010	128.432	-128.432
0.067	0.0011	128.426	-128.426
0.075	0.0013	128.416	-128.416
0.083	0.0014	128.426	-128.426
0.100	0.0017	128.435	-128.435
0.117	0.0019	128.413	-128.413
0.133	0.0022	128.423	-128.423
0.150	0.0025	128.416	-128.416
0.167	0.0028	128.416	-128.416
0.183	0.0031	128.416	-128.416
0.200	0.0033	128.416	-128.416
0.217	0.0036	128.413	-128.413
0.233	0.0039	128.413	-128.413
0.250	0.0042	128.413	-128.413
0.267	0.0044	128.416	-128.416
0.283	0.0047	128.413	-128.413
0.300	0.0050	128.413	-128.413
0.317	0.0053	128.413	-128.413
0.333	0.006	128.413	-128.413
0.417	0.007	128.413	-128.413
0.500	0.008	128.413	-128.413
0.583	0.010	128.413	-128.413
0.667	0.011	128.413	-128.413
0.750	0.013	128.413	-128.413
0.833	0.014	128.413	-128.413
0.917	0.015	128.413	-128.413
1.000	0.017	128.413	-128.413
1.083	0.018	128.413	-128.413
1.167	0.019	128.413	-128.413
1.250	0.021	128.413	-128.413
1.333	0.022	128.413	-128.413
1.417	0.024	128.413	-128.413

9313090.0223

Page 6 of 6

1.500	0.025	128.413	-128.413
1.583	0.026	128.413	-128.413
1.667	0.028	128.416	-128.416
1.750	0.029	128.413	-128.413
1.833	0.031	128.413	-128.413
1.917	0.032	128.416	-128.416
2.000	0.033	128.413	-128.413
2.500	0.042	128.416	-128.416
3.000	0.050	128.413	-128.413
3.500	0.058	128.416	-128.416
4.000	0.067	128.413	-128.413
4.500	0.075	128.416	-128.416
5.000	0.083	128.413	-128.413
5.500	0.092	128.413	-128.413
6.000	0.100	128.413	-128.413
6.500	0.108	128.413	-128.413
7.000	0.117	128.413	-128.413
7.500	0.125	128.413	-128.413
8.000	0.133	128.413	-128.413
8.500	0.142	128.413	-128.413
9.000	0.150	128.413	-128.413
9.500	0.158	128.413	-128.413
10.000	0.167	128.413	-128.413
11.000	0.183	128.413	-128.413
12.000	0.200	128.413	-128.413
13.000	0.217	128.413	-128.413
14.000	0.233	128.413	-128.413
15.000	0.250	128.413	-128.413
16.000	0.267	128.413	-128.413
17.000	0.283	128.413	-128.413
18.000	0.300	128.413	-128.413
19.000	0.317	128.413	-128.413
20.000	0.333	128.413	-128.413
21.000	0.350	128.413	-128.413
22.000	0.367	128.416	-128.416

9313090.0274

APPENDIX E

SEAMIST GAS SAMPLE DATA

9313090.0225

CONTENTS

Well 699-25-34D E-1
Well 699-26-34B E-7

9313090.0276

SCENTOGRAPH - USER CALIBRATION RECORD

ENTOGRAPH TRACE PRINOUT

TRACE #11 DATE: Tue Sep 29 07:14:30 1992

CHANNEL: 1 NAME: BYRNECC6008

COLUMN: 10%SP1000 DETECTOR: AID

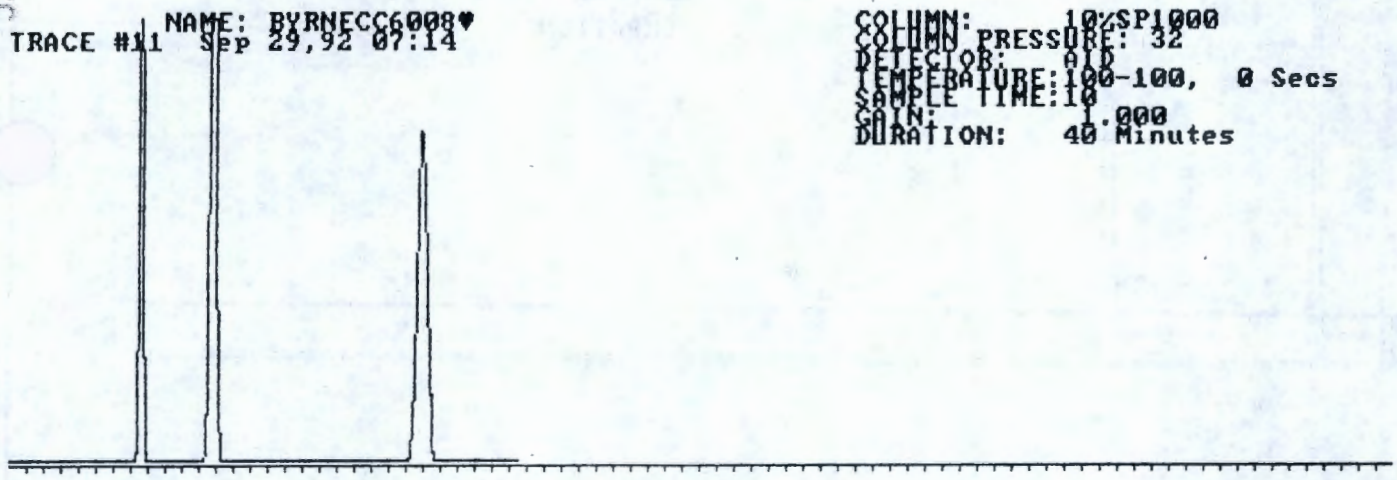
COLUMN PRESSURE: 32

TEMPERATURE: 100 INHIBIT TIME: 25 Seconds

PEAK#	NAME	RT	AREA	CONCENTRATION
1	BENZENE	255	3323166	1.100 PPM
2	TOLUENE	380	7336508	1.000 PPM
3	O-XYLENE	744	5715528	0.900 PPM

TOTAL AREA: 16375202

9313090.0127



Instrument: SENTEX SCENTOGRAPH

Serial No./WA No.: 70K257 Identifier: 060

ration Method: OPERATION MANUAL

Calibration Standard: Benzene (1.10ppm), Toluene (1.0ppm), O-Xylene (0.9ppm), Air (balance)

Calibrator Name: Torry C Webb — Torry C. Webb (Sign/Print) — 9-29-92 (Date)

DISTRIBUTION: White - Field File Custodian Yellow - Equipment Field Files Pink - Project File BC-6000-758 (09/91)

HAZARDOUS WASTE SITE MONITORING - SCENTOGRAPH

Project:

Comment Section		
Instrument	Reading	I.D.
OVM/10.6	0.2 - 0.8	02
OVM/11.8		
HNU/10.2		
HNU/11.7		
OVA		
O_2/LEL		
2001-RCL		

Remarks:

Dillution Ratio: 1:1

SCENTOGRAPH TRACE PRINOUT

TRACE #15 DATE: Tue Sep 29 15:45:12 1992

CHANNEL: 1 NAME: 2534-D/43'

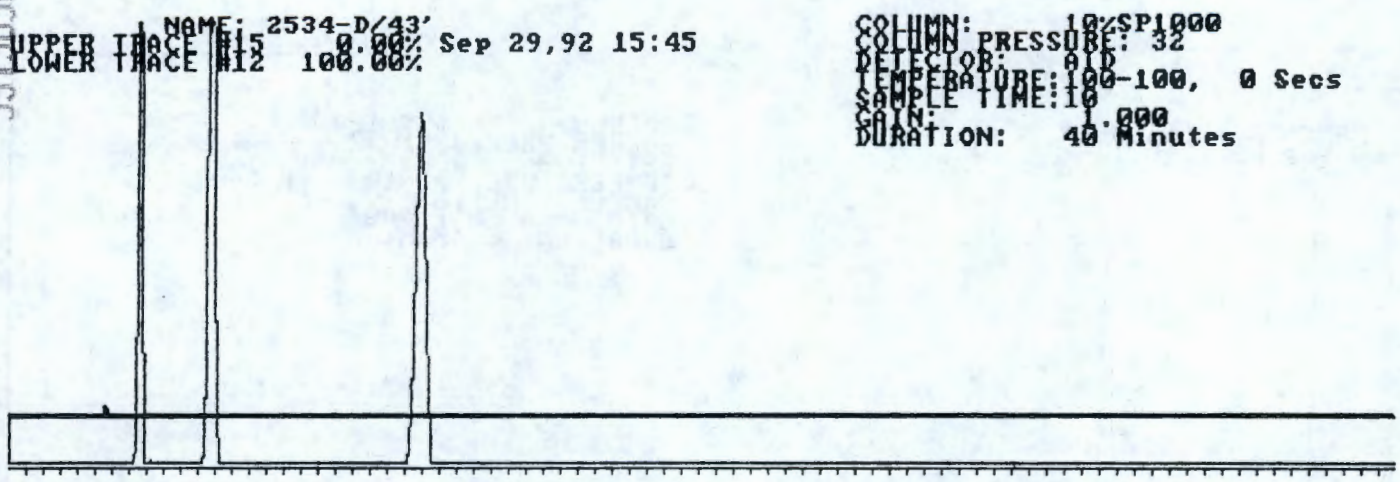
COLUMN: 10%SP1000 DETECTOR: AID

COLUMN PRESSURE: 32

TEMPERATURE: 100 INHIBIT TIME: 25 Seconds

PEAK#	NAME	RT	AREA	CONCENTRATION

TOTAL AREA: 0



NOTE: Last digit in NAME section of scentograph printout will indicate the following:

[1] Exclusion Zone
[2] Outside Zone
[3] Soil Gas
XXX Well Head
[5] Breathing Zone
[6] Soil Surface
[7] Background
[8] Drum
[9] Exhaust Stack
[0] Other (_____)

Instrument: SENTEX SCENTOGRAPH

Serial No./WA No.: 70K257 Identifier: 060

Name: Torry C. Webb (signature) Torry C. Webb 9-29-92

Sign/Print Date

HAZARDOUS WASTE SITE MONITORING - SCENTOGRAPH

Project:

Comment Section		
Instrument	Reading	I.D.
OVM/10.6	0.6	022
OVM/11.8	1 - 3.2	016
HNU/10.2		
HNU/11.7		
OVA		
O_2/LEL		
2001-RCL		

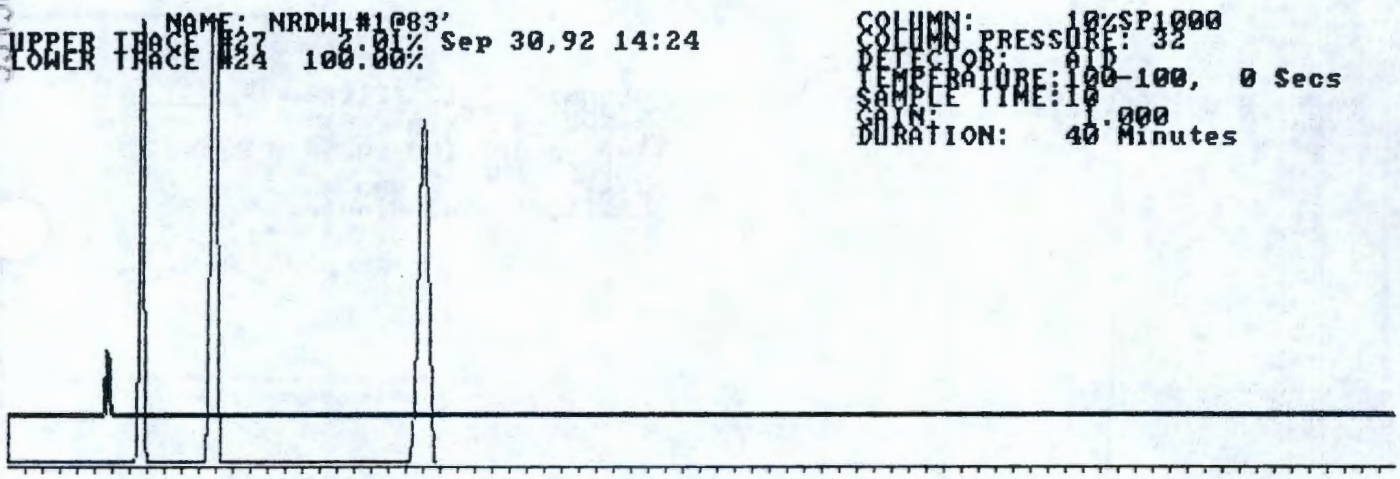
Remarks:
Dillution Ratio: 1:1

SCENTOGRAPH TRACE PRINOUT
TRACE #27 DATE: Wed Sep 30 14:24:20 1992

CHANNEL: 1 NAME: NRDWL#1@83'
COLUMN: 10%SP1000 DETECTOR: AID
COLUMN PRESSURE: 32
TEMPERATURE: 100 INHIBIT TIME: 25 Seconds

PEAK#	NAME	RT	AREA	CONCENTRATION
1	CARB.TET#	200	339382	9.724 PPM

TOTAL AREA: 339382



NOTE: Last digit in NAME section of scentograph printout will indicate the following:

[1] Exclusion Zone
[2] Outside Zone
[3] Soil Gas
X[4]X Well Head
[5] Breathing Zone
[6] Soil Surface
[7] Background
[8] Drum
[9] Exhaust Stack
[0] Other (_____)

Instrument: SENTEX SCENTOGRAPH
I No./WA No.: 70K257 Identifier: 060
Name: Torry C. Webb Torry C. Webb 9-30-92
Sign/Print Date

DISTRIBUTION: White - Field File Custodian Yellow - Equipment Field Files Pink - Project File

BC-6000-757 (02/92)

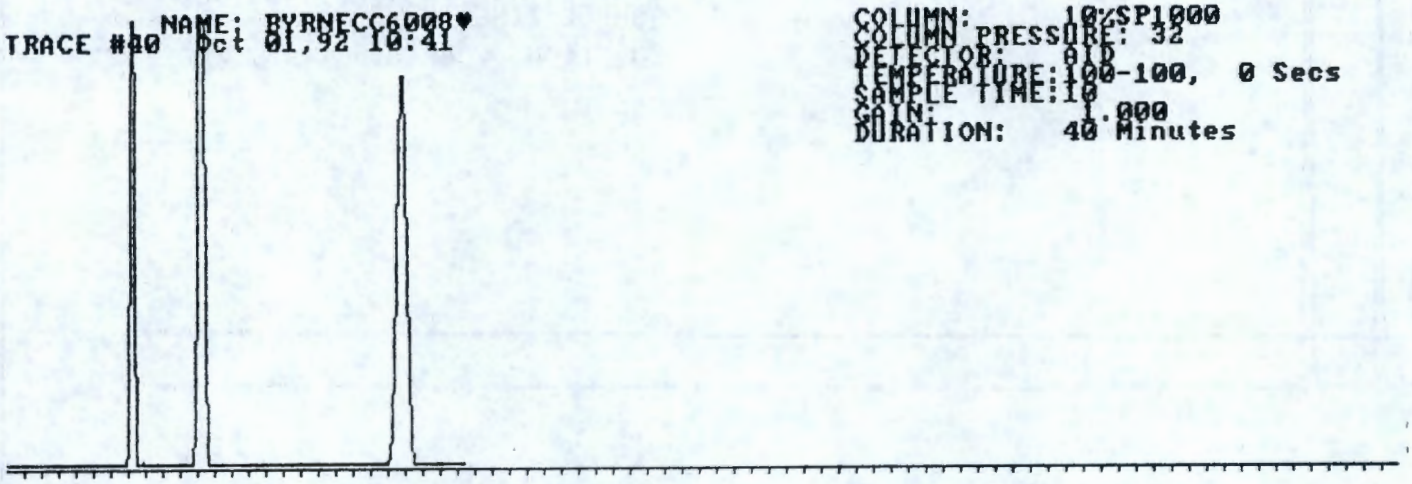
SCENTOGRAPH - USER CALIBRATION RECORD

SCENTOGRAPH TRACE PRINOUT
TRACE #40 DATE: Thu Oct 01 10:41:23 1992

CHANNEL: 1 NAME: BYRNECC6008
COLUMN: 10%SP1000 DETECTOR: AID
COLUMN PRESSURE: 32
TEMPERATURE: 100 INHIBIT TIME: 25 Seconds

PEAK#	NAME	RT	AREA	CONCENTRATION
1	BENZENE	243	3624697	1.100 PPM
2	TOLUENE	362	7913455	1.000 PPM
3	O-XYLENE	711	6551289	0.900 PPM

TOTAL AREA: 18089441



Instrument: SENTEX SCENTOGRAPH
Serial No./WA No.: 70K257 Identifier: 060
Calibration Method: OPERATION MANUAL
Calibration Standard: Benzene (1.10ppm), Toluene (1.0ppm), O-Xylene (0.9ppm), Air (balance)
Calibrator Name: Torry C. Webb 10-1-92
Sign/Print Date

DISTRIBUTION: White - Field File Custodian Yellow - Equipment Field Files Pink - Project File BC-6000-758 (09/91)

HAZARDOUS WASTE SITE MONITORING - SCENTOGRAPH

Project:

Comment Section		
Instrument	Reading	I.D.
OVM/10.6		
OVM/11.8	10.2/10.6	016
HNU/10.2		
HNU/11.7		
OVA		
O2/LEL		
2001-RCL		

Remarks:

Dillution Ratio: 1:1

SCENTOGRAPH TRACE PRINOUT

TRACE #50 DATE: Thu Oct 01 13:01:57 1992

CHANNEL: 1 NAME: 2534-D/122.7

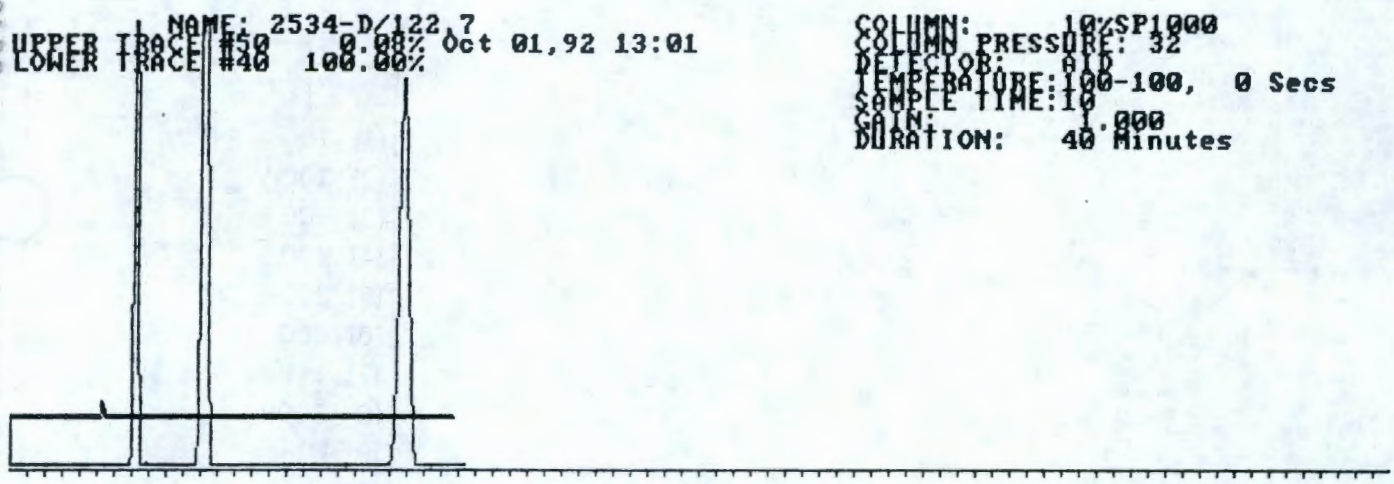
COLUMN: 10%SP1000 DETECTOR: AID

COLUMN PRESSURE: 32

TEMPERATURE: 100 INHIBIT TIME: 25 Seconds

PEAK#	NAME	RT	AREA	CONCENTRATION
1	CARB.TET#	189	13602	0.363 PPM

TOTAL AREA: 13602



NOTE: Last digit in NAME section of scentograph printout will indicate the following:

[1] Exclusion Zone
[2] Outside Zone
[3] Soil Gas
XXXX Well Head
[5] Breathing Zone
[6] Soil Surface
[7] Background
[8] Drum
[9] Exhaust Stack
[0] Other (_____)

Instrument: SENTEX SCENTOGRAPH

I No./WA No.: 70K257 Identifier: 060

Name: Torry C. Webb Torry C. Webb 10-1-92

Sign/Print Date

DISTRIBUTION: White - Field File Custodian Yellow - Equipment Field Files Pink - Project File

BC-6000-757 (02/92)

HAZARDOUS WASTE SITE MONITORING - OVM 580

Project: SEAMIST TESTING - NRD WELL 699-2534D-WL#1

580 VER. 2.2
10/01/92 0728
INSTRUMENT # 000016
USER I.D. # 000083108
OPERATING MODE: CONC. METER, MAX HOLD

	LOC.	PPM	STATUS
10/01/92 0728	100000	0101	Calibration
10/01/92 0944	462534	12.9	Sample reading
10/01/92 1005	462534	40.4	Max reading
10/01/92 1117	760001	01.6	Compressor background check
10/01/92 1158	200000	0103	Challenge

Location code (760001) was the compressor background check at NRD WELL 699-2534D-WL#1. The initial reading of 01.6 fell to less than 0.5ppm after approximately 2 minutes. Both compressor lines were checked.

Tony C. Webb
TONY C. WEBB

LOCATION CODE LEGEND

0 0 0 0 0 0

[1] Calibration
[2] Challenge
[3] Soil Gas
[4] Well Head
[5] Breathing Zone
[6] Soil Surface
[7] Background
[8] Drum
[9] Exhaust Stack
[0] Other (_____)

[1] 100
[2] 200-W
[3] 300
[4] 400
[5] 200-E
[6] 600
[7] 1100
[8] 3000
[9] Other (_____)
[0] N/A

Well Number
Drum Number
Tank Number
Sample Number

NOTE: 0000 indicates NOT APPLICABLE.

Remarks:

RF = 1.0
LAMP = 11.8

SCENTOGRAPH - USER CALIBRATION RECORD

S TOGRAPH TRACE PRINOUT

TRACE #77 DATE: Wed Oct 07 10:59:20 1992

CHANNEL: 1 NAME: BYRNECC6008

COLUMN: 10%SP1000 DETECTOR: AID

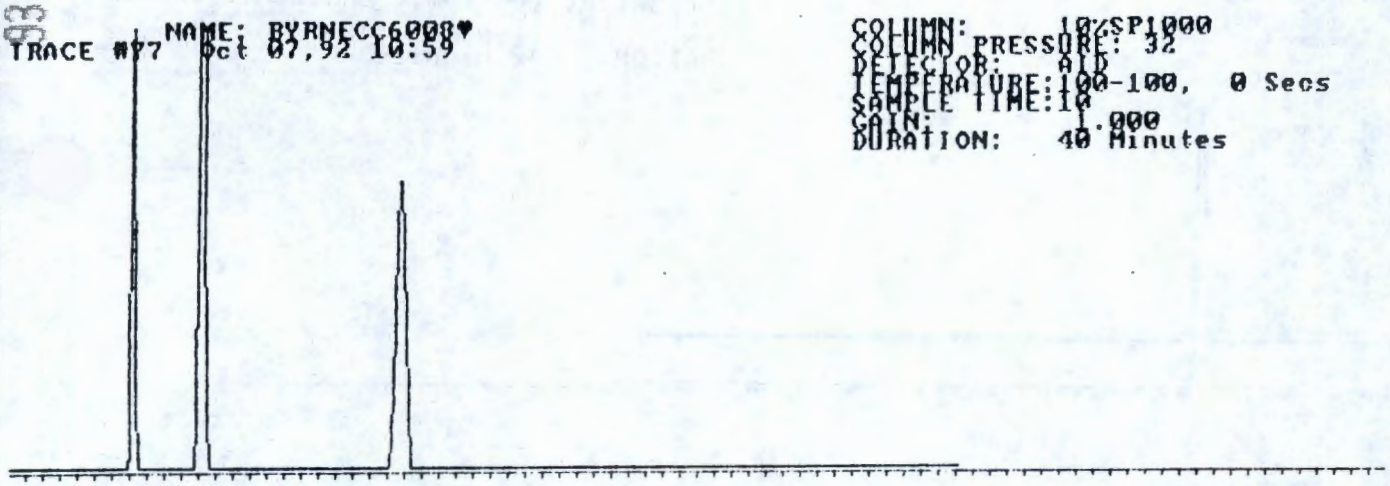
COLUMN PRESSURE: 32

TEMPERATURE: 100 INHIBIT TIME: 25 Seconds

PEAK#	NAME	RT	AREA	CONCENTRATION
1	BENZENE	243	2896661	1.100 PPM
2	TOLUENE	362	6433815	1.000 PPM
3	O-XYLENE	711	4818959	0.900 PPM

TOTAL AREA: 14149435

9313090.0283



Instrument: SENTEX SCENTOGRAPH

Serial No./WA No.: 70K257 Identifier: 060

Calibration Method: OPERATION MANUAL

Calibration Standard: Benzene (1.10), Toluene (1.00), O-Xylene (0.90), Air (balance)

Calibrator Name: Torry C. Webb (Sign/Print) 10-9-92 (Date)

DISTRIBUTION: White - Field File Custodian Yellow - Equipment Field Files Pink - Project File BC-6000-758 (09/91)

HAZARDOUS WASTE SITE MONITORING - SCENTOGRAPH

Project: NRD WELL 2634-B- WL # 2

SCENTOGRAPH TRACE PRINOUT

TRACE #78 DATE: Wed Oct 07 11:42:12 1992

CHANNEL: 1 NAME: 2634-B/43'

COLUMN: 10%SP1000 DETECTOR: AID

COLUMN PRESSURE: 32

TEMPERATURE: 100 INHIBIT TIME: 25 Seconds

PEAK#	NAME	RT	AREA	CONCENTRATION

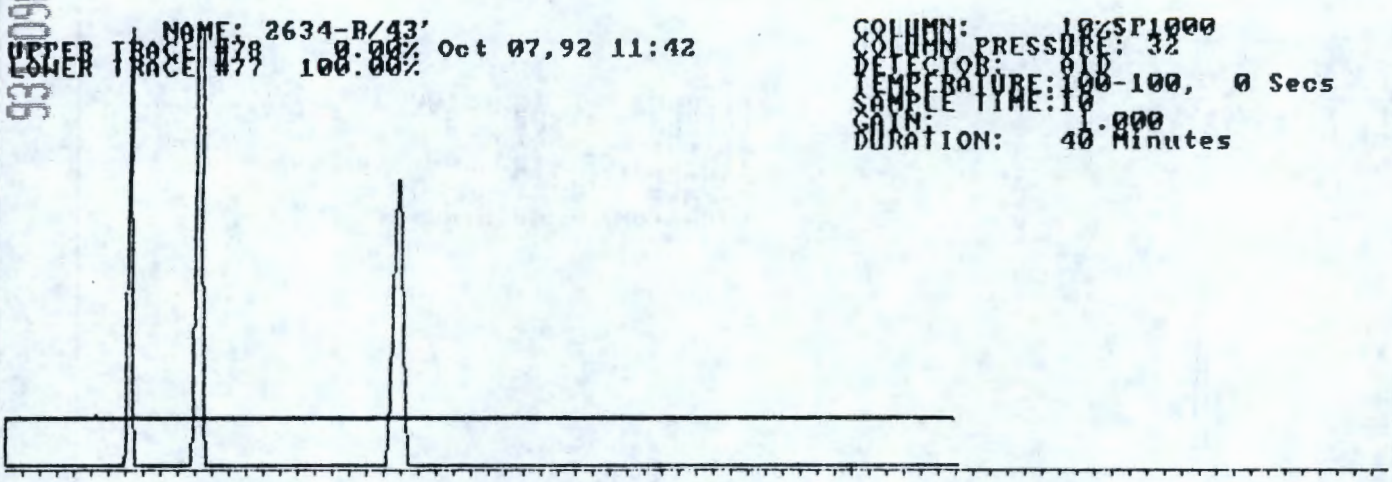
TOTAL AREA: 0

Comment Section

Instrument	Reading	I.D.
OVM/10.6		
OVM/11.8	0.2ppm	024
HNU/10.2		
HNU/11.7		
OVA		
O_2/LEL		
2001-RCL		

Remarks:

Dillution Ratio = 1:1



NOTE: Last digit in NAME section of scentograph printout will indicate the following:

[1] Exclusion Zone
[2] Outside Zone
[3] Soil Gas
[4] Well Head
[5] Breathing Zone
[6] Soil Surface
[7] Background
[8] Drum
[9] Exhaust Stack
[X] Other (SEAMIST)

Instrument: SENTEX SCENTOGRAPH

Serial No./WA No.: 70K257 Identifier: 060

Name: Torry C. Webb (Sign/Print) 10-9-92 (Date)

HAZARDOUS WASTE SITE MONITORING - SCENTOGRAPH

P : NRD WELL 699-2634-B-WL # 2

SCENTOGRAPH TRACE PRINOUT

TRACE #79 DATE: Wed Oct 07 12:11:33 1992

CHANNEL: 1 NAME: 2634-B/43'

COLUMN: 10%SP1000 DETECTOR: AID

COLUMN PRESSURE: 32

TEMPERATURE: 100 INHIBIT TIME: 25 Seconds

PEAK#	NAME	RT	AREA	CONCENTRATION

TOTAL AREA: 0

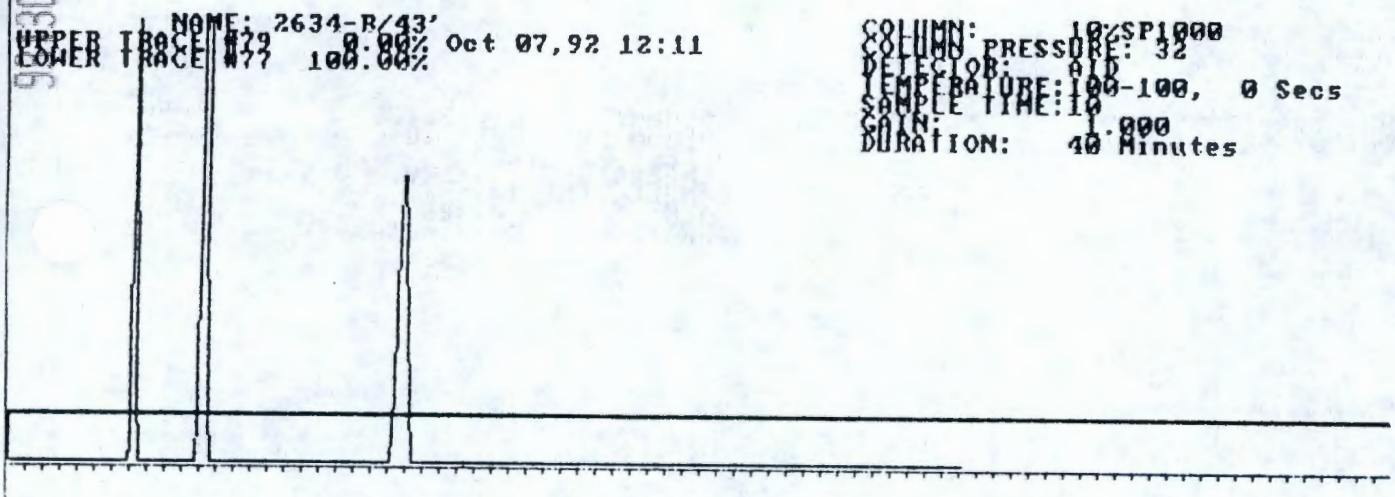
Comment Section

Instrument	Reading	I.D.
OVM/10.6		
OVM/11.8	0.2ppm	024
HNU/10.2		
HNU/11.7		
OVA		
O2/LEL		
2001-RCL		

Remarks:

Dillution Ratio = 1:1

9830090.0285



NOTE: Last digit in NAME section of scentograph printout will indicate the following:

[1] Exclusion Zone
[2] Outside Zone
[3] Soil Gas
XXX Well Head
[5] Breathing Zone
[6] Soil Surface
[7] Background
[8] Drum
[9] Exhaust Stack
XXX Other (SEAMIST)

Instrument: SENTEX SCENTOGRAPH

Serial No./WA No.: 70K257 Identifier: 060

Name: Torry C. Webb

Sign/Print Date

SCENTOGRAPH - USER CALIBRATION RECORD

SCENTOGRAPH TRACE PRINOUT
TRACE #29 DATE: Wed Oct 07 14:35:32 1992

CHANNEL: 1 NAME: BYRNE005563
COLUMN: 21%SP2100 DETECTOR: ECD
COLUMN PRESSURE: 18
TEMPERATURE: 65 INHIBIT TIME: 25 Seconds

PEAK#	NAME	RT	AREA	CONCENTRATION
1	CHLFORM	131	1245145	1.000 PPM
2	CARBTET	191	3693210	0.800 PPM
3	TCE	244	2760787	0.960 PPM

TOTAL AREA: 7699142

9313090.0286

NAME: BYRNE005563*
TRACE #29 Oct 07,92 14:35

COLUMN: 21%SP2100
COLUMN PRESSURE: 18
DETECTOR: ECD
TEMPERATURE: 65-100, 0 Secs
SAMPLE TIME: 30
GAIN: 0.328
DURATION: 40 Minutes

Instrument: SENTEX SCENTOGRAPH
Serial No./WA No.: 70K256 Identifier: 059
Calibration Method: OPERATION MANUAL
Calibration Standard: Chloroform (1.00), CCL4 (0.80), TCE (0.96)
Calibrator Name: Torry C. Webb 10-9-92
Sign/Print Date

DISTRIBUTION: White - Field File Custodian Yellow - Equipment Field Files Pink - Project File BC-6000-758 (09/91)

HAZARDOUS WASTE SITE MONITORING - SCENTOGRAPH

Project: NRD WELL 699-2634-B-WL # 2

Comment Section		
Instrument	Reading	I.D.
OVM/10.6		
OVM/11.8	5.5ppm	024
HNU/10.2		
HNU/11.7		
OVA		
O_2/LEL		
2001-RCL		

SCENTOGRAPH TRACE PRINOUT
TRACE #30 DATE: Wed Oct 07 14:49:12 1992

CHANNEL: 1 NAME: 2634-B/43'
COLUMN: 21%SP2100 DETECTOR: ECD
COLUMN PRESSURE: 18
TEMPERATURE: 65 INHIBIT TIME: 25 Seconds

PEAK#	NAME	RT	AREA	CONCENTRATION
1	UNKNOWN	293	3846789	3.089 PPM

TOTAL AREA: 3846789

Remarks:
Dillution Ratio = 30:1
Actual Conc.: Unknown

NAME: 2634-B/43'
UPPER TRACE #30 49.96% Oct 07,92 14:49
LOWER TRACE #29 100.00%

COLUMN: 21%SP2100
COLUMN PRESSURE: 18
DETECTOR: ECD
TEMPERATURE: 65-100, 0 Secs
SAMPLE TIME: 30
SCIN: 0.262
DURATION: 40 Minutes

NOTE: Last digit in NAME section of scentograph printout will indicate the following:

[1] Exclusion Zone
[2] Outside Zone
[3] Soil Gas
XXX Well Head
[5] Breathing Zone
[6] Soil Surface
[7] Background
[8] Drum
[9] Exhaust Stack
XXX Other (SEAMIST)

Instrument: SENTEX SCENTOGRAPH
Serial No./WA No.: 70K256 Identifier: 059
Name: Torry Webb — Sign/Print: Torry C. Webb Date: 10-9-92

DISTRIBUTION: White - Field File Custodian Yellow - Equipment Field Files Pink - Project File

BC-6000-757 (02/92)

HAZARDOUS WASTE SITE MONITORING - SCENTOGRAPH

Project: NRD WELL 699-2634-B-WL # 2

Comment Section		
Instrument	Reading	I.I
OVM/10.6		
OVM/11.8	5.2ppm	024
HNU/10.2		
HNU/11.7		
OVA		
O_2/LEL		
2001-RCL		

SCENTOGRAPH TRACE PRINOUT

TRACE #31 DATE: Wed Oct 07 15:20:38 1992

CHANNEL: 1 NAME: 2634-B/43'

COLUMN: 21%SP2100 DETECTOR: ECD

COLUMN PRESSURE: 18

TEMPERATURE: 65 INHIBIT TIME: 25 Seconds

PEAK#	NAME	RT	AREA	CONCENTRATION
1	UNKNOWN	294	405826	0.326 PPM

TOTAL AREA: 405826

Remarks:

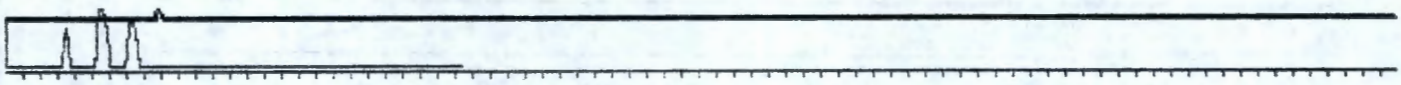
Dillution Ratio = 30:1

Actual Conc.: Unknown

0313090.0288

NAME: 2634-B/43'
UPPER TRACE #31 5.27% Oct 07,92 15:20
LOWER TRACE #29 100.00%

COLUMN: 21%SP2100
COLUMN PRESSURE: 18
DETECTOR: ECD
TEMPERATURE: 65-100, 0 Secs
SAMPLE TIME: 30
GAIN: 0.262
DURATION: 40 Minutes



NOTE: Last digit in NAME section of scentograph printout will indicate the following:

- [1] Exclusion Zone
- [2] Outside Zone
- [3] Soil Gas
- [X] Well Head
- [5] Breathing Zone
- [6] Soil Surface
- [7] Background
- [8] Drum
- [9] Exhaust Stack
- [X] Other (SEAMIST)

Instrument: SENTEX SCENTOGRAPH

Serial No./WA No.: 70K256 Identifier: 059

Name: Torry C. Webb 10-9-92

Sign/Print Date

DISTRIBUTION: White - Field File Custodian Yellow - Equipment Field Files Pink - Project File

BC-6000-757 (02/92)

HAZARDOUS WASTE SITE MONITORING - SCENTOGRAPH

Project: NRD WELL 699-2634-B-WL # 2

Comment Section		
Instrument	Reading	I.D.
OVM/10.6		
OVM/11.8	3.8ppm	024
HNU/10.2		
HNU/11.7		
OVA		
O_2/LEL		
2001-RCL		

Remarks:
Dillution Ratio = 30:1

SCENTOGRAPH TRACE PRINOUT
TRACE #39 DATE: Wed Oct 07 21:32:58 1992

CHANNEL: 1 NAME: 2534-B/83'
COLUMN: 21%SP2100 DETECTOR: ECD
COLUMN PRESSURE: 18
TEMPERATURE: 65 INHIBIT TIME: 25 Seconds

PEAK#	NAME	RT	AREA	CONCENTRATION
1	UNKNOWN	293	1960772	1.579 PPM
2	UNKNOWN	1510	109519	0.088 PPM

TOTAL AREA: 2070291

9313090.0289

NAME: 2534-B/83'
UPPER TRACE #39 26.83% Oct 07,92 21:32
LOWER TRACE #38 100.00%

COLUMN: 21%SP2100
COLUMN PRESSURE: 18
DETECTOR: ECD
TEMPERATURE: 65-100, 0 Secs
SAMPLE TIME: 30
GAIN: 0.328
DURATION: 40 Minutes

NOTE: Last digit in NAME section of scentograph printout will indicate the following:

[1] Exclusion Zone
[2] Outside Zone
[3] Soil Gas
XXX Well Head
[5] Breathing Zone
[6] Soil Surface
[7] Background
[8] Drum
[9] Exhaust Stack
XXX Other (SEAMIST)

ument: SENTEX SCENTOGRAPH
...l No./WA No.: 70K256 Identifier: 059
Name: Torry C. Webb 10-9-92
Sign/Print Date

DISTRIBUTION: White - Field File Custodian Yellow - Equipment Field Files Pink - Project File

BC-6000-757 (02/92)

SCENTOGRAPH - USER CALIBRATION RECORD

SCENTOGRAPH TRACE PRINTOUT

TRACE #126 DATE: Fri Oct 09 18:45:47 1992

CHANNEL: 1 NAME: BYRNECC6008

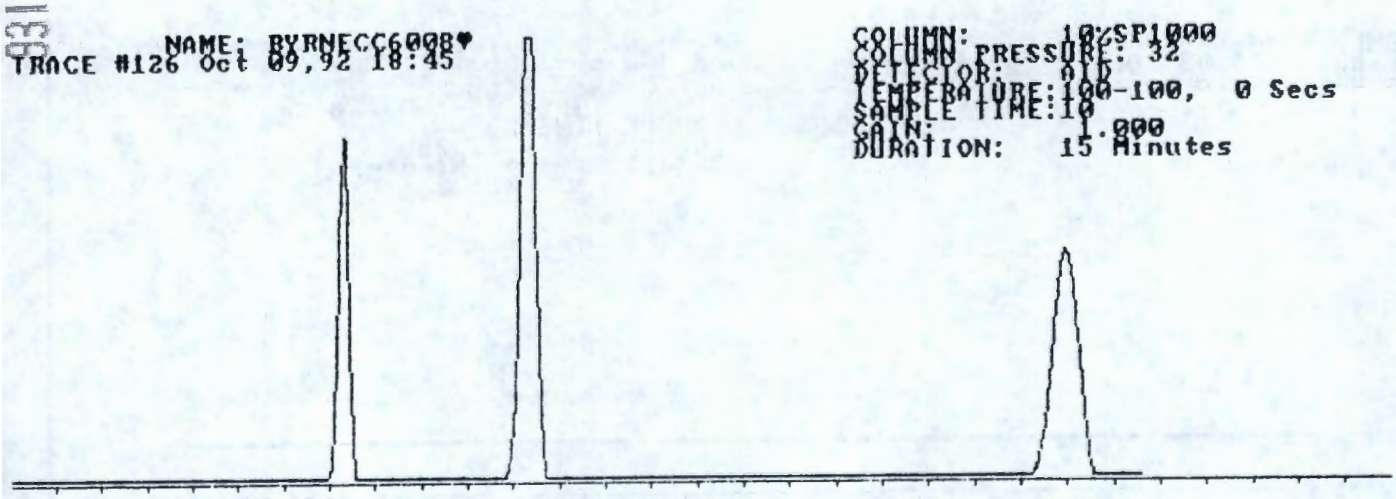
COLUMN: 10%SP1000 DETECTOR: AID

COLUMN PRESSURE: 32

TEMPERATURE: 100 INHIBIT TIME: 25 Seconds

PEAK#	NAME	RT	AREA	CONCENTRATION
1	BENZENE	244	2240593	1.100 PPM
2	TOLUENE	364	4712785	1.000 PPM
3	O-XYLENE	714	3671218	0.900 PPM

TOTAL AREA: 10624596



Instrument: SENTEX SCENTOGRAPH

Serial No./WA No.: 70K257 Identifier: 060

Calibration Method: OPERATION MANUAL

Calibration Standard: Benzene (1.10ppm), Toluene (1.00ppm), O-Xylene (0.9ppm), Air (balance)

Calibrator Name: Torry C. Webb 10-9-92

Sign/Print Date

DISTRIBUTION: White - Field File Custodian Yellow - Equipment Field Files Pink - Project File BC-6000-758 (09/91)

HAZARDOUS WASTE SITE MONITORING - SCENTOGRAPH

Project: NRD WELL 699-2634-B - WL # 2

Comment Section		
Instrument	Reading	I.D.
OVM/10.6		
OVM/11.8	15.3ppm	016
HNU/10.2		
HNU/11.7		
OVA		
O2/LEL		
2001-RCL		

SCENTOGRAPH TRACE PRINOUT

TRACE #128 DATE: Fri Oct 09 19:04:42 1992

CHANNEL: 1 NAME: 2634-B/123'

COLUMN: 10%SP1000 DETECTOR: AID

COLUMN PRESSURE: 32

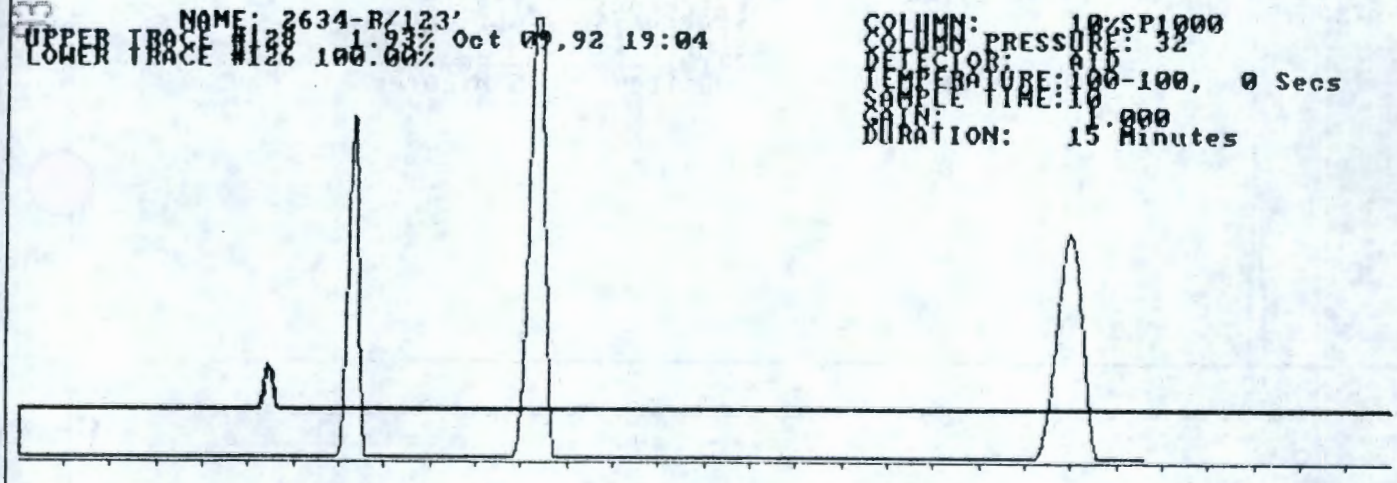
TEMPERATURE: 100 INHIBIT TIME: 25 Seconds

PEAK#	NAME	RT	AREA	CONCENTRATION
1	CARB.TET#	189	205363	8.872 PPM

TOTAL AREA: 205363

Remarks:

Dillution Ratio = 1:1



NOTE: Last digit in NAME section of scentograph printout will indicate the following:

[1] Exclusion Zone
[2] Outside Zone
[3] Soil Gas
XXX Well Head
[5] Breathing Zone
[6] Soil Surface
[7] Background
[8] Drum
[9] Exhaust Stack
[0] Other (SEAMIST)

Instrument: SENTEX SCENTOGRAPH

Serial No./WA No.: 70K257 Identifier: 060

Name: Torry C. Webb 10-9-92

Sign/Print Date

DISTRIBUTION: White - Field File Custodian Yellow - Equipment Field Files Pink - Project File

BC-6000-757 (02/92)

HAZARDOUS WASTE SITE MONITORING - SCENTOGRAPH

Project: NRD WELL 699-2634-B-WL # 2

Comment Section		
Instrument	Reading	I.D.
OVM/10.6		
OVM/11.8	12.0ppm	016
HNU/10.2		
HNU/11.7		
OVA		
O_2/LEL		
2001-RCL		

Remarks:
Second sample.
Dillution Ratio = 1:1

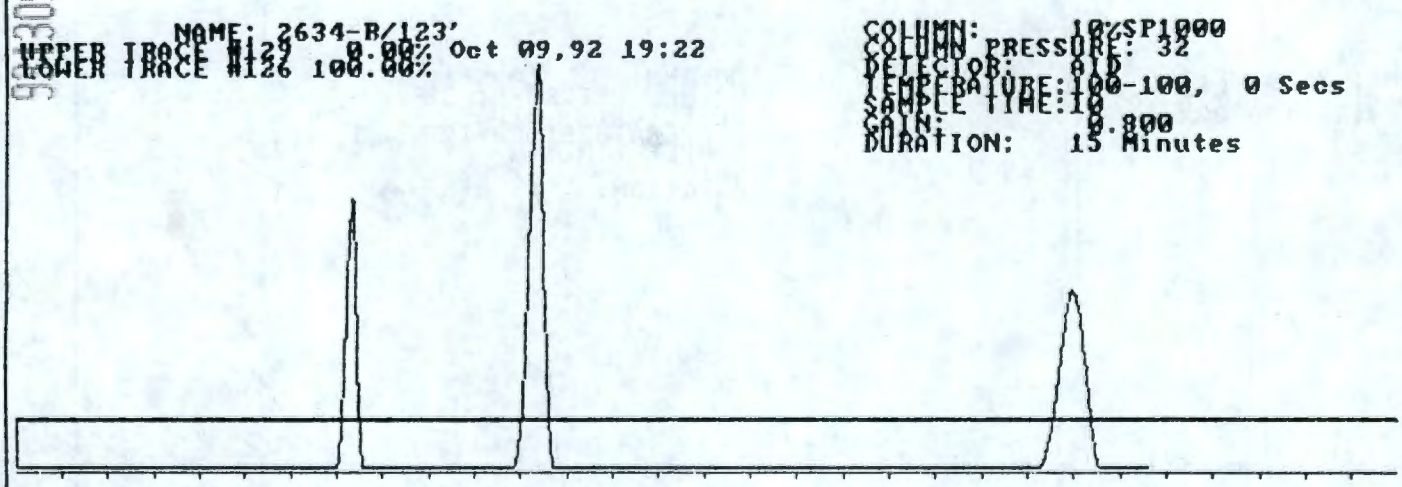
SCENTOGRAPH TRACE PRINOUT
TRACE #129 DATE: Fri Oct 09 19:22:27 1992

CHANNEL: 1 NAME: 2634-B/123'
COLUMN: 10%SP1000 DETECTOR: AID
COLUMN PRESSURE: 32
TEMPERATURE: 100 INHIBIT TIME: 25 Seconds

PEAK#	NAME	RT	AREA	CONCENTRATION

TOTAL AREA: 0

9303090.0292



NOTE: Last digit in NAME section of scentograph printout will indicate the following:

[1] Exclusion Zone
[2] Outside Zone
[3] Soil Gas
XXX [4] Well Head
[5] Breathing Zone
[6] Soil Surface
[7] Background
[8] Drum
[9] Exhaust Stack
XXX Other (SEAMIST)

Instrument: SENTEX SCENTOGRAPH
Serial No./WA No.: 70K257 Identifier: 060
Name: Torry C. Webb 10-9-92
Sign/Print Date

DISTRIBUTION: White - Field File Custodian Yellow - Equipment Field Files Pink - Project File BC-6000-757 (02/92)