0029773

JUL 28 1993 (11)

Station # 12

ENGINEERING DATA TRANSMITTAL

Page 1 of 1

1. EDT 142079

2. To: (Receiving Organization) Those Listed	3. From: (Originating Organization) M.D. Sweeney -- Geosciences	4. Related EDT No.: N/A
5. Proj./Prog./Dept./Div.: Environmental	6. Cog. Engr.: K.D. Reynolds	7. Purchase Order No.: N/A
8. Originator Remarks: The attached borehole completion data package is submitted for review and approval. Address comments to M.D. Sweeney, H6-06, 2-2333.		9. Equip./Component No.: N/A
		10. System/Bldg./Facility: N/A
11. Receiver Remarks:		12. Major Assm. Dwg. No.: N/A
		13. Permit/Permit Application No.: N/A
		14. Required Response Date: 7/6/93

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15. DATA TRANSMITTED

(A) Item No.	(B) Document/Drawing No.	(C) Sheet No.	(D) Rev. No.	(E) Title or Description of Data Transmitted	(F) Impact Level	(G) Reason for Transmittal	(H) Originator Disposition	(I) Receiver Disposition
1	WHC-SD-EN-DP-068		0	Borehole Completion Data Package for the 200 Areas Treated Effluent Basin - Project W-049H	3Q	~~4~~ 1/2	1	

16. KEY

Impact Level (F)	Reason for Transmittal (G)	Disposition (H) & (I)
1, 2, 3, or 4 (see MRP 5.43)	1. Approval 2. Release 3. Information 4. Review 5. Post-Review 6. Dist. (Receipt Acknow. Required)	1. Approved 2. Approved w/comment 3. Disapproved w/comment 4. Reviewed no/comment 5. Reviewed w/comment 6. Receipt acknowledged

17. SIGNATURE/DISTRIBUTION (See Impact Level for required signatures)

(G) Reason	(H) Disp.	(J) Name	(K) Signature	(L) Date	(M) MSIN	(J) Name	(K) Signature	(L) Date	(M) MSIN	(G) Reason	(H) Disp.
1/2	1	Cog.Eng. K.D. Reynolds	KD Reynolds	7/27/93	H6-06	D.B. Barnett		7-27-93	H6-06	4	
1/2	1/2	Cog. Mgr. R.L. Jackson	RL Jackson	7/27/93	H6-06	M.D. Sweeney	MD Sweeney	6-22-93	H6-06	4	
1/2	1	QA W.R. Thackaberry	W.R. Thackaberry	7-27-93	H4-16	CENTRAL FILES (2)			L8-04	3	
		Safety N/A				EDMC (2)			H6-08	3	
		Env. N/A									
1/2	1	L.C. Swanson	LC Swanson	7/27/93	H6-06						

18. M. D. Sweeney MD Sweeney 6-22-93 Signature of EDT Originator / Date	19. N/A Authorized Representative for Receiving Organization / Date	20. R. L. Jackson RL Jackson 7/27/93 Cognizant/Project Engineer's Manager / Date	21. DOE APPROVAL (if required) Ltr. No. N/A [] Approved [] Approved w/comments [] Disapproved w/comments

BD-7400-172-2 (07/91) GEF097

BD-7400-172-1 (02/89)

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	(H) Disposition	• Enter the code for the disposition (Block 16).
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SUPPORTING DOCUMENT

1. Total Pages 575

2. Title

Borehole Completion Report for the 200 Areas Treated Effluent Disposal Basin - Project W-049H

3. Number

WHC-SD-EN-DP-068

4. Rev No.

0

5. Key Words

BOREHOLE COMPLETION; 200 AREAS TEDB; GROUNDWATER MONITORING

APPROVED FOR PUBLIC RELEASE

7/27/93 N. Solis

6. Author

Name: M.D. Sweeney

Signature

Organization/Charge Code 81235/AC2C1

7. Abstract

Three wells were installed 1992 as RCRA groundwater monitoring wells in the 200 Areas Treated Effluent Disposal Basin Candidate Site of the Hanford Site. The data package includes information on drilling, construction, development, and aquifer testing. Data interpretation is limited to aquifer testing and depths of the Hanford/Ringold contact.

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9. Impact Level 3Q

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Title	Unclassified Category	Impact Level
Borehole Completion Report for the 200 Areas Treated Effluent Basin - Project W-049H	UC-	3Q

New or novel (patentable) subject matter? [X] No [] Yes
If "Yes", has disclosure been submitted by WHC or other company?
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Information conforms to all applicable requirements. The above information is certified to be correct.

	Yes	No
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Transmit to DOE-HQ/Office of Scientific and Technical Information	[]	[X]

Author/Requestor (Printed/Signature) Date
M.D. Sweeney 6/23/93

Intended Audience
[] Internal [] Sponsor [X] External

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R.L. Jackson 6/23/93

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1.0 INTRODUCTION

Three groundwater monitoring wells were installed east of the 200 East Area in an area designated the 200 Areas Treated Effluent Disposal Basin (TEDB) of Project W-049H. The site characterization plan for the 200 Areas TEDB Candidate Site (Delaney 1992), also known as the 049H Area, describes the hydrogeology of the candidate site and provides justification for the characterization borings and their locations. These characterization borings were completed as Resource Conservation and Recovery Act (RCRA) compliant wells constructed to specifications described in WHC (1992).

The wells support initiatives required to meet Tri-Party Agreement milestones M-17-00 generally and M-17-08 specifically. Well 699-42-37 is positioned to be an upgradient well to the proposed facility and wells 699-40-36 and 699-41-35 are positioned to serve as downgradient monitoring wells (Delaney 1992). Selected well locations also serve as RCRA groundwater monitoring downgradient sample points for the 216-B-3 Pond System. The locations of these wells are illustrated in Figure 1. Coordinates and elevations are listed in Table 1.

This document is a compilation of data and information on drilling, lithologic sampling, construction, and development of the new wells. Copies of forms, notes, and diagrams completed in the field comprise the bulk of this document. Few interpretations are included. Lithologic contacts were picked based on the geologist's logs. Aquifer test data were interpreted to estimate aquifer properties. Information related to detailed analysis of chemical constituents will be provided in a subsequent publication.

For each well, the following documents are included in appendices:

Appendix A:
- Well summary sheet
- Well construction report
- Borehole log
- Geophysical log(s)

Appendix B:
- Grain size data for screened interval
- $CaCO_3$ and moisture data
- Specific gravity, sieve analysis, hydraulic conductivity and porosity data

Appendix C:
- Well development record
- Pump installation record

Appendix D:
- Drawdown and recovery data
- Slug test data
- Aquifer test analysis

Other records, such as chain of custody forms, decontamination records, daily field records, and training records are on file with Westinghouse Hanford Company (WHC).

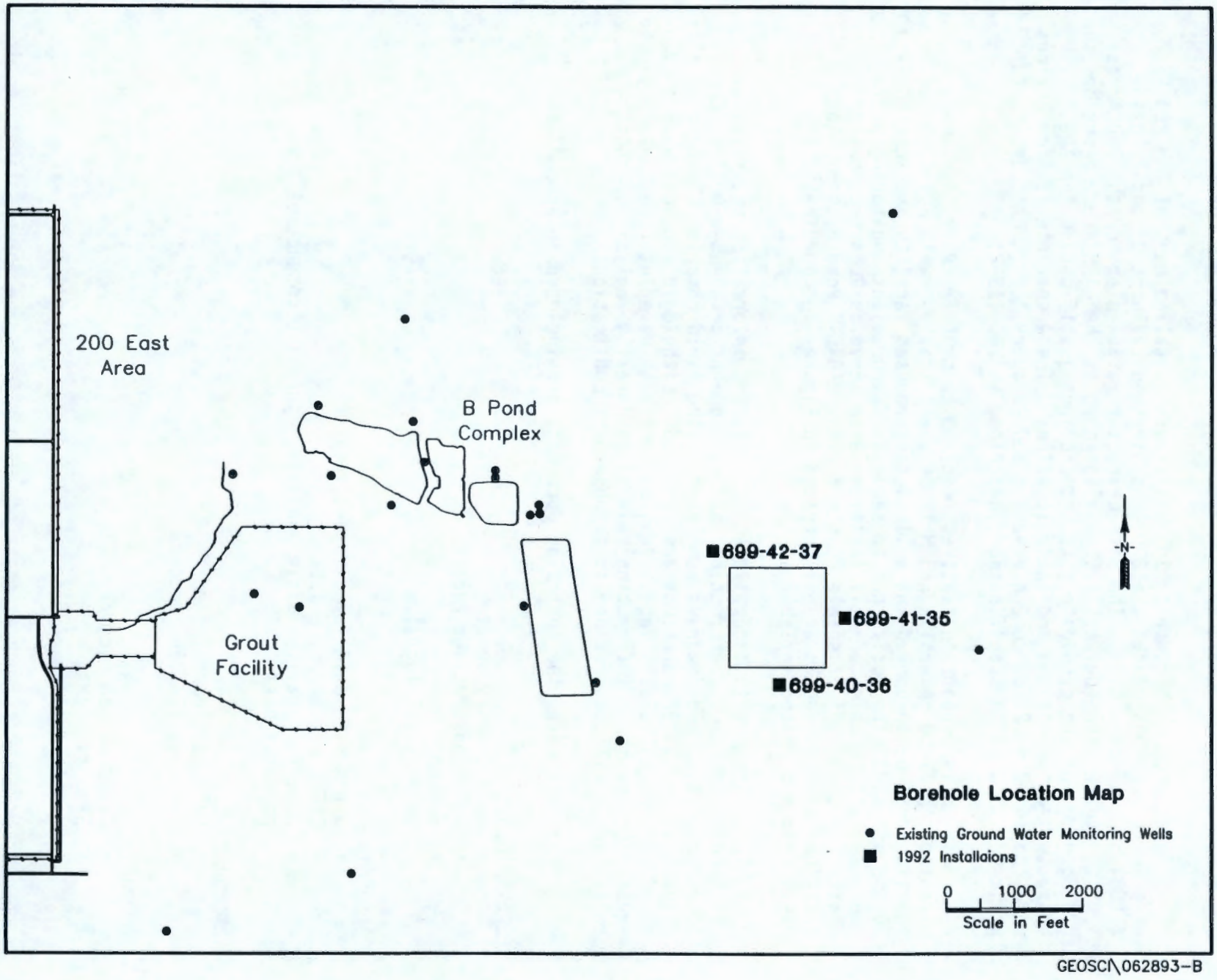


Figure 1. Location of Wells 699-40-36, 699-41-35, and 699-42-37.

Table 1-1. Survey Data for Groundwater Monitoring Wells Installed in the 049H Area in 1992.

Well #	Coordinates center of casing		Elevations- NGVD29(feet)		
	200 E Area (feet)	WCS83S[a] (1991)	Brass cap in concrete	Top of pump baseplate, north side	Top outer casing, north side
699-40-36	N: 39,830 W: 36432	N: 135,633.84 E: 578,789.25	525.79	528.94	528.92
699-41-35	N: 40,856 W: 35,476	N: 135,947.44 W: 579,079.64	517.42	520.39	520.38
699-42-37	N: 41,846 W: 37,451	N: 136,247.24 W: 578,476.75	516.18	519.42	519.40

[a]Lambert WCS83S coordinates in meters. NGVD29 elevations are feet above the National Geodetic Datum of 1929.

2.0 WELL 699-40-36

2.1 DRILLING

Well 699-40-36 was drilled with a cable tool rig. Drilling began on August 18, 1992, and was completed September 10, 1992 at a total depth of 280.0 ft below land surface (bls). Temporary, carbon steel casing was used during drilling: 12-in-dia casing from surface to 22.33 ft bls; 10-in-dia casing from surface to 117.59 ft bls; 8-in-dia casing from surface to 260.89 ft bls. Approximately 1,300 gal of water were added during drilling. Drilling information is compiled in Appendix A.

Sediments are primarily sandy gravel to gravel with significant intervals of clay and silt (see borehole log in Appendix A). The contact between the Hanford and Ringold formations appears to be at approximately 197.5 ft bls. The well was drilled through the Ringold-basalt contact at approximately 272 ft bls.

Samples were collected approximately every 5 ft of depth for calcium carbonate analysis, radiological screening, and lithologic archiving. Some of the sample materials were crushed by hard tool drilling, when a drive barrel could not be used. Moisture samples were collected approximately every five feet above the water table where no water was added during drilling (55 samples). A sample for grain size analysis was collected from the interval to be screened.

Additional physical samples were obtained during drilling using the split-spoon sampling technique. The first 20 ft of Hanford sediments were split-spoon sampled in 5-ft intervals and were analyzed for the chemical properties outlined in Delaney (1992). Subsequent sampling intervals were selected at the discretion of the well-site geologist. The criteria for selection was based on the sampled units broad hydrologic properties and potential infiltration impact to the candidate site. Physical parameters selected for analysis included specific gravity, sieve analysis, hydraulic

conductivity, and porosity. Physical data for sediments samples are contained in Appendix B.

Gross gamma logs were run through the temporary casing during each change in casing diameter at selected intervals:

- September 24, 1992, from 3.8 to 118.2 ft bls
- October 9, 1992, from 85 to 273.2 bls
- October 12, 1992, from 220 to 277.5 bls.

Geophysical logs are in Appendix A.

The borehole and soils were monitored regularly for organic vapors and radioactive contaminants. There was no detectible contamination.

2.2 WELL COMPLETION

Permanent casing and screen were installed in well 699-40-36 between October 16 and 23, 1992. Static water level at that time was 115.2 ft bls. A 10-slot, 4-in-dia stainless steel screen was set from 209.24 to 219.51 ft bls. Permanent casing is 4-in-dia stainless steel with centralizers, from 209.24 ft bls to above land surface. The sand pack is 20-40 mesh silica sand (223.2 to 203.6 ft bls). The annular seal comprises coarse granular bentonite (203.6 to 96 ft bls), bentonite crumbles (96 to 9.8 ft bls), and cement grout (9.8 to 2.0 ft bls). The remaining annulus was filled with concrete when a 4 ft by 4 ft by 6-in. concrete pad was installed at the well head.

A 6-in. protective casing with a locking cap was also installed at the well head. Four protective steel posts were set in concrete around the well. A brass marker stamped with the well number was set into the concrete. The center line of the well was surveyed to Lambert and Washington Coordinate System coordinates. Elevation was surveyed to NGVD29 data. Elevations were established for the top of the Hydrostar (a trademark of Instrumentation Northwest) plate, top of outer casing (north side), and the brass marker set in the concrete pad. Documentation of well completion is compiled in Appendix A.

The only additives during well drilling and completion were water and Well Guard (a trademark of Jet-Lube, Inc.), a non-petroleum-based lubricant used on casing threads and drilling tools.

2.3 WELL DEVELOPMENT AND PUMP INSTALLATION

Well 699-40-36 was developed from November 19 to 30, 1992. A submersible pump was used to remove 1,802 gal water from the well. Final turbidity was 4.6 nephelometric turbidity units (NTU). Drawdown and recovery data were measured with a transducer in the pumping well during development. A well development log is included in Appendix C. Water level data from development and recovery are included in Appendix D.

A dedicated Hydrostar sampling pump was installed in well 699-40-36 on December 2, 1992. Its intake is at 219.18 ft below top of casing. A pump installation form is included in Appendix C.

2.4 AQUIFER TESTING

Instantaneous slug injection and withdrawal aquifer tests were conducted at well 699-40-36 on December 1, 1992. The tests yielded a hydraulic conductivity of 1 ft/day or a transmissivity of 14 ft^2/day over the screened interval. The actual slug test analysis is not contained in this borehole completion report, but is found in Delaney (1993).

Data obtained during aquifer testing were analyzed using the Bouwer and Rice method (1976). Assumptions inherent to Bouwer and Rice include: (1) drawdown of the water table is negligible, (2) vadose zone flow contribution is negligible, (3) head losses due to the well are negligible and (4) the aquifer is homogeneous and isotropic in the area influenced by the test. Although the method assumes a water table aquifer, the method is applicable to situations in which the upper boundary of the aquifer is an impermeable or semi-permeable confining layer.

Water level data were also collected during development, as described in Section 2.3. The data was not used to estimate aquifer properties because the development time was too short to establish radial flow conditions. During development of the well, a flow rate of 0.75 gal/minute was maintained for a period of 100 minutes for a total drawdown of 25 ft. Aquifer test data are included in Appendix D.

3.0 WELL 699-41-35

3.1 DRILLING

Well 699-41-35 was drilled with a cable tool rig. Drilling began on August 24, 1992, and was completed September 24, 1992, at a total depth of 260 ft bls. Temporary, carbon steel casing was used during drilling: 12-in-dia casing from surface to 19.40 ft bls; 10-in-dia casing from surface to 120.56 ft bls; 8-in-dia casing from surface to 246.82 ft bls. Approximately 695 gal of water were added during drilling. Drilling information is compiled in Appendix A.

Sediments are primarily sandy gravel to gravel with significant intervals of clay and silt (see borehole log in Appendix A). The contact between the Hanford and Ringold formations appears to be at approximately 188 ft bls. The well was drilled through the Ringold-basalt contact at approximately 247 ft bls.

Samples were collected approximately every 5 ft of depth for calcium carbonate analysis, radiological screening, and lithologic archiving. Some of the sample materials were crushed by hard tool drilling, when a drive barrel could not be used. Moisture samples were collected approximately every 5 ft above the water table where no water was added during drilling (52 samples).

A sample for grain size analysis was collected from the interval to be screened.

Additional physical samples were obtained during drilling using the split-spoon sampling technique. The first 20 ft of Hanford sediments were split-spoon sampled in 5-ft intervals and were analyzed for the chemical properties outlined in Delaney (1992). Subsequent sampling intervals were selected at the discretion of the well-site geologist. The criteria for selection was based on the sampled units broad hydrologic properties and potential infiltration impact to the candidate site. Physical parameters selected for analysis included specific gravity, sieve analysis, hydraulic conductivity and porosity. Physical data for sediments samples are contained in Appendix B.

A gross gamma log was run on September 24, 1992, from 0.9 ft bls to 259.6 ft bls through the temporary casing. A copy of the log is in Appendix A.

The borehole and soils were monitored regularly for organic vapors and radioactive contaminants. There was no detectible contamination.

3.2 WELL COMPLETION

Permanent materials were installed in well 699-41-35 between September 25, and October 5, 1992. Static water level at that time was 105.75 ft bls. A 10-slot, 4-in-dia stainless steel screen was set from 200.11 to 189.81 ft bls. Permanent casing is 4-in-dia stainless steel with centralizers, from 189.81 ft bls to above land surface. The sand pack is 20-40 mesh silica sand (201.9 to 183.5 ft bls). The annular seal comprises coarse granular bentonite (185.5 to 97.6 ft bls), bentonite crumbles (97.6 to 9.0 ft bls), and cement (9.0 to 2.0 ft bls). The remaining annulus was filled with concrete when a 4 ft by 4 ft by 6-in. concrete pad was installed at the well head. A 6-in protective casing with a locking cap was also installed at the well head. Four protective steel posts were set in concrete around the well. A brass marker stamped with the well number was set into the concrete.

The center line of the well was surveyed to Lambert and Washington Coordinate System coordinates. Elevation was surveyed to NGVD29 data. Elevations were established for the top of the Hydrostar plate, top of outer casing (north side), and the brass marker set in the concrete pad. Documentation of well completion is compiled in Appendix A.

The only additives during well drilling and completion were water and Well Guard, a non-petroleum-based lubricant used on casing threads and drilling tools.

3.3 WELL DEVELOPMENT AND PUMP INSTALLATION

Well 699-41-35 was developed on November 2 and 3, 1992. A temporary submersible pump was used to remove 5,090 gal of water from the well, until the turbidity was 3.1 NTU. Drawdown and recovery data were measured with a transducer in the pumping well during development.

A well development log is included in Appendix C. Water level data from development and recovery are included in Appendix D.

A Hydrostar sampling pump was installed in well 699-41-35 on November 4, 1992. Its intake is at 201.55 ft below top of casing. A pump installation form is included in Appendix C.

3.4 AQUIFER TESTING

Instantaneous slug injection and withdrawal aquifer tests were conducted at well 699-41-35 on November 3, 1992. The tests yielded a hydraulic conductivity of 2 ft/day or a transmissivity of 19 ft^2/day over the screened interval. The actual slug test analysis is not contained in this borehole completion report, but is found in Delaney (1993).

Data obtained during aquifer testing were analyzed using the Bouwer and Rice method (1976). Assumptions inherent to Bouwer and Rice include: (1) drawdown of the water table is negligible, (2) vadose zone flow contribution is negligible, (3) head losses due to the well are negligible and (4) the aquifer is homogeneous and isotropic in the area influenced by the test. Although the method assumes a water table aquifer, the method is applicable to situations in which the upper boundary of the aquifer is an impermeable or semi-permeable confining layer.

Water level data were also collected during development, as described in Section 3.3. The data was not used to estimate aquifer properties because the development time was too short to establish radial flow conditions. During development of the well, a flow rate of 13 gal/minute was maintained for a period of 100 minutes for a total drawdown of 70 ft. Aquifer test data are included in Appendix D.

4.0 WELL 699-42-37

4.1 DRILLING

Well 699-42-37 was drilled with a cable tool rig. Drilling began on August 12, 1992, and was completed September 14, 1992, at a total depth of 268 ft bls. Temporary, carbon steel casing was used during drilling: 12-in-dia casing from surface to 21.69 ft bls; 10-in-dia casing from surface to 121.93 ft bls; 8-in-dia casing from surface to 258.09 ft bls. Approximately 320 gal of water were added during drilling. Drilling information is compiled in Appendix A.

Sediments are primarily sandy gravel to gravel with significant intervals of clay and silt (see borehole log in Appendix A). The contact between the Hanford and Ringold formations appears to be at approximately 191 ft bls. The well was drilled through the Ringold-basalt contact at approximately 248.5 ft bls.

Samples were collected approximately every 5 ft of depth for calcium carbonate analysis, radiological screening, and lithologic archiving. Some of

the sample materials were crushed by hard tool drilling, when a drive barrel could not be used. Moisture samples were collected approximately every 5 ft above the water table where no water was added during drilling (58 samples). A sample for grain size analysis was collected from the interval to be screened.

Additional physical samples were obtained during drilling using the split-spoon sampling technique. The first 20 ft of Hanford sediments were split-spoon sampled in 5-ft intervals and were analyzed for the chemical properties outlined in Delaney (1992). Subsequent sampling intervals were selected at the discretion of the well-site geologist. The criteria for selection was based on the sampled units broad hydrologic properties and potential infiltration impact to the candidate site. Physical parameters selected for analysis included specific gravity, sieve analysis, hydraulic conductivity and porosity. Physical data for sediments samples are contained in Appendix B.

A gross gamma log was run September 21, 1992, from 262.7 to 1.4 ft bls, through the temporary casing. Geophysical logs are in Appendix A.

The borehole and soils were monitored regularly for organic vapors and radioactive contaminants. There was no detectible contamination.

4.2 WELL COMPLETION

Permanent materials were installed in well 699-42-37 on October 8 and 9, 1992. Static water level at this time was 102.1 ft bls. A 10-slot, 4-in-dia stainless steel screen was set from 154.5 to 144.23 ft bls. Permanent casing is 4-in-dia stainless steel with centralizers, from 144.23 ft bls to above land surface. The sand pack is 20-40 mesh silica sand (159.9 to 139.6 ft bls). The annular seal comprises coarse granular bentonite (139.6 to 88.5 ft bls), bentonite crumbles (88.5 to 8.1 ft bls), and cement grout (8.1 to 2.0 ft bls). The remaining annulus was filled with concrete when a 4 ft by 4 ft by 6-in. concrete pad was installed at the well head.

A 6-in. protective casing with a locking cap was also installed at the well head. Four protective steel posts were set in concrete around the well. A brass marker stamped with the well number was set into the concrete. The center line of the well was surveyed to Lambert and Washington Coordinate System coordinates. Elevation was surveyed to NGVD29 data. Elevations were established for the top of the Hydrostar plate, top of outer casing (north side), and the brass marker set in the concrete pad. Documentation of well completion is compiled in Appendix A.

The only additives during well drilling and completion were water and Well Guard, a non-petroleum-based lubricant used on casing threads and drilling tools.

4.3 WELL DEVELOPMENT AND PUMP INSTALLATION

Well 699-42-37 was developed from October 23 to 30, 1992. A temporary submersible pump was used to remove 6,039.5 gal water from the well, until the turbidity was 3.1 NTU. Drawdown and recovery data were measured with a

transducer in the pumping well during development. A well development log is included in Appendix C. Water level data from development and recovery are included in Appendix D.

A Hydrostar sampling pump was installed in well 699-42-37 on November 2, 1992. Its intake is at 154.39 ft below top of casing. A pump installation form is included in Appendix C.

4.4 AQUIFER TESTING

Instantaneous slug injection and withdrawal aquifer tests were conducted at well 699-42-37 on October 30, 1992. The tests yielded a hydraulic conductivity of 2 ft/day or a transmissivity of 23 ft^2/day over the screened interval. The actual slug test analysis is not contained in this borehole completion report, but is found in Delaney (1993).

Data obtained during aquifer testing were analyzed using the Bouwer and Rice method (1976). Assumptions inherent to Bouwer and Rice include: (1) drawdown of the water table is negligible, (2) vadose zone flow contribution is negligible, (3) head losses due to the well are negligible and (4) the aquifer is homogeneous and isotropic in the area influenced by the test. Although the method assumes a water table aquifer, the method is applicable to situations in which the upper boundary of the aquifer is an impermeable or semi-permeable confining layer.

Water level data were also collected during development, as described in Section 4.3. The data was not used to estimate aquifer properties because the development time was too short to establish radial flow conditions. During development of the well, a flow rate of 5.7 gal/minute was maintained for a period of 100 minutes for a total drawdown of 20 ft. Aquifer test data are included in Appendix D.

5.0 REFERENCES

Bouwer and Rice, 1976, *A slug test for determining hydraulic conductivity of unconfined aquifers with completely or partially penetrating wells*, Water Resources Research, v. 12, no. 3, p. 423-428.

Delaney, C. D., 1992, *Site Characterization Work Plan - 200 Areas Treated Effluent Disposal Basin, Project W-049H*, WHC-SD-W049H-WP-001, Westinghouse Hanford Company, Richland, Washington.

Delaney, C. D., 1993, *Hydrologic Test Plan - W-049H 200 Areas Treated Effluent Disposal Facility*, WHC-SD-EN-TP-025, Westinghouse Hanford Company, Richland, Washington.

WHC, 1992, *Generic Specifications-Groundwater Monitoring Wells*, WHC-S-014, Rev. 7, Westinghouse Hanford Company, Richland, Washington.

APPENDIX A

DRILLING AND CONSTRUCTION DATA

This appendix includes the following records for each well:

- well summary sheet
- well construction report
- borehole log
- well construction schedule.

Geophysical logs are provided at the end of the appendix.

CONTENTS

WELL 699-40-36 . . . . . A-1

WELL 699-41-35 . . . . . A-23

WELL 699-42-37 . . . . . A-43

WELL 699-40-36

KAISER ENGINEERS HANFORD	SURVEY DATA REPORT	Request No. — 9 3 1 — 0 5 1
Project/W.O. No. W-049H	Title Three Wells Final Survey	File No. 6 9 9 - — N 4 W3
KEH Job No. CR 9750	Prepared By NP Fastabend / Date 12/30/92	Reviewer / 1 1

DESCRIPTION OF WORK	ACCEPTABILITY (Within Plan Tolerance)	DISTRIBUTION	
Locate wells 699-40-36, 699-41-35, and 699-42-37	Yes ☐	Survey File	OR
for horizontal and vertical position.	No ☐	Field Project File	1
Horizontal datum: WCS83S(1991) and 200E area	NA ☒	S. Imhoff	1
Vertical datum: NGVD29	TBD by Requestor ☐	D. Weekes	1
		J. Rieger	1
		L. Dietz	1

SURVEY RESULTS AND COMMENTS

Control Monuments: [WCS83S(1991)]

	BP-3	BP-4
	N: 136,570.87	N: 136,050.39
	E: 577,596.12	E: 577,104.10

NOTE: A) Horizontal control points used to locate wells were part of a traverse with a linear closure of better than 1:50,000.

B) Vertical control monument used to establish elevations on wells (2E-18) was part of a vertical network with misclosures of all run sections less than 8mm $\sqrt{k}$. Holding USC&GS benchmarks J-317, K-317, & L-317.

Well #	COORDINATES (C/L CASING) 200E Area (feet)	WSC83S (1991) (meters)	ELEVATIONS - NGVD29 (Feet) Brass cap in conc.	Top of pump baseplate, N. side	Top outer casing, N. side
699-40-36	N: 39,830 W: 36,432	N: 135,633.84 E: 578,789.25	525.79	528.94	528.92
699-41-35	N: 40,856 W: 35,476	N: 135,947.44 W: 579,079.64	517.42	520.39	520.38
699-42-37	N: 41,846 W: 37,451	N: 136,247.24 E: 578,476.75	516.18	519.42	519.40

VALIDATED KDR 6/1/93 SIGNATURE/DATE

Page 1 of 4

WELL CONSTRUCTION REPORT

Specification No. WHC-S-014 Rev No. 6 + 7

ECNs 166757, 119402, 166752, 177209, 150132, 164223, 127439, 150138, 150137, 150130, 169857

Project W0494

Location 200 AREAS, TEDB CANDIDATE site

Drilling Company KEH

Driller L. Watkins, K. Olson, M. Wraspir

Other (Companies)

Geologist(s) K. Swett, Jim Coats, S. Causey, E.C. Rafuse (WHC), R. Erington (WHC) & Thompson by L.D. Lockard 4/01/93

Well No. 699-40-36 Temp. Well No.

Coordinates N: 135,633.84 E: 578,789.25

Casing Elev. 528.94 Top of base plate Ground Elev. 525.79'

Drilling Method

Verification Method Visual Observation

Criteria WHC-S-014 5.2, 5.3, 7.5

			Initials	Date
Rotary	Air N/A	Mud N/A	N/A	N/A
Cable Tool	D 0-116' 212-215	H 116-212 215-280	ECL	10/12/92
Drilling Fluid	Raw water		KJS	9-22-92
Other	N/A	N/A	N/A	N/A

Geophysical Logging

Sondes	Interval	Date
Gross Gamma	1182'-3.8'	09/24/92
Gross Gamma	273.2'-25.0'	10/09/92
Gross Gamma	277.5-2200	10/12/92
	-	
	-	

Completion Data

Drilled Depth 280.00 Ft.

Completed Depth ~~277.2~~ 219.51 Ft. ECL 10/24/92

Date Started 8-18-92

Date Completed 12-2-92

Static Water Level/Date 115.4' on 09/29/92

115.2 on 10/23/92

Aquifer Testing

Type Instantaneous S.W.

Flow Meter I.D No. N/A

Cal. Due Date N/A

Length of Test 1 HR

Volume Pumped N/A

Drawdown N/A

Date of Test 12-1-92

Completion Results

Cleaning

Verification Method Visual inspection and observation

Criteria WHC-S-014 7.6, 4.2.2, 7.7

	Initials	Date
Drilling Tools/Rig	KJS/KJS	8-18-92/9-15-92
Temporary Materials	ECL	8-18-92
Permanent Materials	ECL	10-19-92

Material Storage/Packing

Verification Method Visual inspection

Criteria WHC-S-014 4.2.2, 7.3

	Initials	Date
Mtl. Handling/Storage	ECL	10-19-92
Material Packing	E.C.L	10-19-92

Screen

Type	Length	Slot Size
4" S.S. Continuous wire wrap	0.27 including 0.30 End cap	.010

Depth(s) 209.24 Ft. - 219.51 Ft. w/cap

Verification Method Verify by using steel tape

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

Initials E.C.L Date 10/19/92

Lubricants/Additives

Verification Method Visual observation

Criteria WHC-S-014 7.2

	Identify	Initials	Date
Additives	Raw water	KJS	9-22-92
Lubricants	well guard	KJS	8-18-92

Straightness Test

Verification Method Visual observation

Criteria WHC-S-014 8.2

Initials E.C.L Date 10/12/92

WELL CONSTRUCTION REPORT
(continuation sheet)

Well # 699-40-36

Casing (permanent)

Type	Size	Placement
T 304 SS Sch 5	4" DIA.	3.2 AGS - 209.24 ECL 10/25/92
		-
		-
		-

Verification Method: VERIFY USING STEEL TAPE

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

Initials: ECL Date: 10/19/92

Well Protection

Verification Method: VISUAL OBSERVATION

Criteria: WHC-S-014 4.2.9, 4.2.10, 11.0

	Initials	Date
Protective Posts	E.C.L	5/12/93
Protective Casing	E.C.L	5/12/93
Site Restored	E.C.L	5/12/93
Cap, Hasp and Lock	E.C.L	5/12/93
Surface Pad	E.C.L	5/12/93

Annular Seal/Filter Pack

Verification Method: MEASURE with STEEL TAPE Criteria: WHC-S-014 4.2.6 - 4.2.9, 5.3.1

Type	Interval	Volume	Initials	Date
Hole Plug (Coarse) granular Bentonite	223.2 - 278.0	26.91 ft^3	ECL	10/19/92
20-40 Sand Filter Pack	203.6 - 223.2	8.4 ft^3	ECL	10/19/92
Hole Plug	98.0 - 203.6	43.82 ft^3	ECL	10/19/92
Bentonite Crumbles	9.8 - 98.0	ECL ~~45.12~~ 56.09 ft^3	ECL	10/19/92
Cement Grout	20 - 9.8	15.42 ft^3	ECL	10/19/92

Well Survey/Labeling

Verification Method: DOCUMENT REVIEW

Criteria: WHC-S-014 3.4, 4.2.10

	Initials	Date
Measurement Point/Surveyed	BRA	1-11-93
Protective Casing/Brass Cap Surveyed	BRA	1-11-93
Well Number Stenciled	E.C.L	5/12/93
Brass Cap Labeled	E.C.L	5/12/93

Pump Installation

Verification Method: VISUAL OBSERVATION

Criteria: WHC-S-014 4.2.11, 5.3.1

	Initials	Date
Pump Decon/Prep	JAC	12-2-92
Installed	JAC	12-2-92
Pump Tested	JAC	12-2-92

Other (initial if performed)

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

11-30-92 JAC Well Development

Comments/Remarks: * Rev. 7 - Release August 19, 1992

Reviewed By (Sign/Print Name): Kent D Reynolds Date: 6/1/93

A-6000-436 (09/90)

WHC-SD-EN-DP-068, Rev. 0

WELL SUMMARY SHEET

Boring or Well No. 699-40-36

Sheet 1 of 2

Location 200 Areas TEDB candidate site

Project W049H

Elevation 525.79'

Drilling Contractor KEH

Driller M. Wadsworth

Drilling Method and Equipment Cable Tool

Prepared By Keith J. Swett (Sign/Print Name) Date 8/24/92

Reviewed By Edward C. Rafuse (Sign/Print Name) Date 10/25/92

CONSTRUCTION DATA		Depth in Feet	GEOLOGIC/HYDROLOGIC DATA	
Description	Diagram		Graphic Log	Lithologic Description
Cement grout 2.0-9.8 Ft.				0-4' SAND
12" C.S. Temp. Casing				4-7' Silty Sandy GRAVEL
set @ 22.33'		10		GRAVEL
shoe size 1.12' ϕ		20		"
				"
				"
		30		"
				"
		40		"
				"
Bentonite Chumbers		50		"
9.8 - 96.0 Ft				"
		60		"
				"
		70		"
				"
		80		"
				"
		90		"
				"
Hole Plug (Coarse Granular Bentonite) 96.0 - 203.6 Ft.		100		"
				"
SWL @ 115.2 on 10/20/92		110		"
				113' - silty CLAY to Clayey SILT
10" C.S. Temp. Casing		120		120' - Clayey SILT
set @ 117.59'				" "
shoe size 0.95' ϕ		130		" "
				" "
		140		" "
				" "
		150		" "
				Interbedded sand lenses <1' @ ≈
		160		152.5' & 154.0'
				WATER CONTACT 152.5'

A-6

A-6000-384 (04/90)

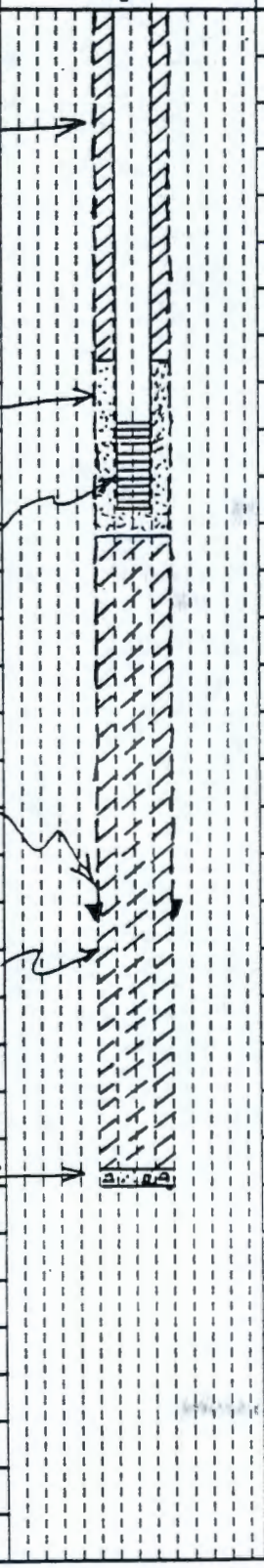
WELL SUMMARY SHEET

Boring or Well No. 699-40-36

Sheet 2 of 2

Location: 200 AREA TEDB Candidate Site
Project: W049H
Elevation: ~~[illegible]~~ 525.29'
Drilling Contractor: KEH
Driller: M. WRASPIR.
Drilling Method and Equipment: Cable Tool B.E. 22W
Prepared By: Stewart Causey / Stewart Causey (Sign/Print Name) Date 10/2/92
Reviewed By: Edward C. Rafuse / Edward C. Rafuse (Sign/Print Name) Date 10/25/92

CONSTRUCTION DATA: Description	Depth in Feet	GEOLOGIC/HYDROLOGIC DATA: Lithologic Description
Hole plug (coarse granular bentonite) 96.0 - 203.6 ft	170	Clayey SILT
		" "
	180	" "
		" "
	190	Silty CLAY
		Slightly Gravelly Silty CLAY
		GRAVEL @≈197.5'
	200	Sandy GRAVEL
20-40 sand filter pack 203.6 - 223.2 ft		" "
	210	" "
		" "
4"Ø .010 slot continuous wire wrap stainless steel screen 209.24 - 219.51 ft.	220	" "
		silty CLAY @ ≈ 227'
	230	" "
		" "
	240	" "
		" "
8" C.S. Temp. Casing set @ 260.89'	250	silty sandy GRAVEL @≈250'
		" " "
	260	Sandy GRAVEL @ ≈ 265'
Hole plug (coarse granular bentonite) 223.2 - 278.0 ft.		" "
	270	272 FT BASALT
	275	"
Slough 280.0 - 278.0	280	T.D. 280'



A-6000-384 (04/90)

BOREHOLE LOG

JKDR 1/12/93

Boring or Well No. 699-40-36

Sheet 1 of 14

Location 200 Areas TEDB Candidate Site

Project W049H

Elevation ~~[illegible]~~ 1-7-93 525.79'

Drilling Contractor KEH

Driller L. Watkins, K. Olson

Drilling Method and Equipment Cable Tool Walker Neer WS-3

Prepared By K.J. Swett (Sign/Print Name) Date 8-20-92

Reviewed By Edward G. Rafka (Sign/Print Name) Date 08/21/92

Depth (Feet)	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
0		Drive Barrel		0-4 Ft SAND (100%)	
				20% vcs-cs Dry: 2.5Y 4/2 (Dk Grayish Brown)	Eolian Sand
				40% ms wet: 2.5Y 3/2 (Vk Dk Grayish Brown)	
				40% fs-vfs	
				Slightly Moist, well sorted,	
				subangular to rounded, subprismoidal	
				to subdiscoidal, 40% Qtz, 40% Basalt	
				20% felsic, some magnetite, no rxn to HCl	
	2 Lith 1 Rad 1 Moist Tin				
5				4 Ft Silty Sandy GRAVEL (msG)	5 Ft Sample 8-18-92 @
				(70% Gravel, 15% sand, 15% silt)	1330
				10% sm. boulder 50% vcs-cs	
				20% lc 25% ms	Boulder @ 6 Ft. 4.5 Hrs
				30% sc 25% fs-vfs	to break w/drive barrel
	Chemical w/1 Rad	Split Spoon 12-52-37-50-40 75% Recov		30% vcp-cp Dry: 2.5Y 4/3 (Lt. Yellow brown)	
				10% mp-vfp wet: 2.5Y 5/3 (Lt. olive brown)	Chemical split spoon
				Dry, poorly sorted, subangular to	6.48 - 8.48 Ft
				subrounded, subprismoidal to subdiscoidal	8-19-92 @ 1035
	2 Lith 1 Rad 1 Moist Tin	Drive Barrel		70% Basalt, 15% Qtz and Qtzite	
10				15% Felsic, some magnetite, v. strong	9.5 Ft sample 8-19-92 @
				rxn to HCl	1200
				7 Ft GRAVEL (90% Gravel, 7% Sand	$CaCO_3$ Rinds on clasts
	Chemical w/1 Rad	Split Spoon 6-18-32-55-39 50% Recov		3% silt) (G)	Chemical split spoon
				10% sm. boulder 50% vcs-cs	9.50 - 11.50 Ft
				20% lc 25% ms	8-19-92 @ 1310
				30% sc 25% fs-vfs	
		Drive Barrel		30% vcp-cp Dry: 2.5Y 7/2 (Lt. Gray)	Chemical split spoon
				10% mp-vfp wet: 2.5Y 5/2 (Grayish Brown)	14.00 - 16.00 Ft.
				Dry, Mod. sorted, subangular to	8-20-92 @ 1010
15 *	Chemical w/1 Rad	Split Spoon 22-15-14-20-16 100% Recov		subrounded, subprismoidal to subdiscoidal	
				70% Basalt, 15% Qtz and Qtzite,	* 15 Ft sample 8-20-92 @
				15% Felsic, some magnetite, v. strong	1045 . Sample obtained
				rxn to HCl	while cleaning out borehole
		Drive Barrel		10 Ft GRAVEL (G) as above,	w/drive barrel after split
				slightly moist	spoon sampling
				15 Ft. GRAVEL (G) as above	Chemical split spoon
					18.85 - 20.85 Ft
	Chem. w/1 Rad	Split Spoon see next page			8-20-92 @ 1320
20					

BOREHOLE LOG

Boring or Well No. 699-40-36

Sheet 2 of 14

Location 200 Areas TEDB candidate site — Project WO 49H

Elevation ~~[illegible]~~ 525.79' — Drilling Contractor KEIT

Driller L. Watkins — Drilling Method and Equipment Cable Tool Walker Mach WS-31

Prepared By [illegible] K.T. Swett (Sign/Print Name) — Date 09/15/92 — Reviewed By Edward C. Rafuse (Sign/Print Name) — Date 10/18/92

Depth (Feet)	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)
20 *	Chem w/1 Rad	split spoon 13-24-26-25-21 100% recov.		20 ft. GRAVEL (G) as above	* 20 ft sample 8-20-92 @ 1325. Sample obtained while cleaning out borehole after split spoon sampling
	physical w/1 Rad	split spoon 16-20-23-25 75% recov.			Physical split spoon 21.60-23.60 ft @ 8-20-92 @ 1400
	1 HPT 2 Lith 1 $CaCO_3$	DB			Note: this physical sample was disturbed and thus discarded
25				25 ft. GRAVEL as above 90% Basalt 15% Qtzite & Qtz 15% Felsic, TR magnetite mod. sorting - subangular to subrounded -	B.O.C. @ 22.33' 1500 9/15/92 (12" casing) 10" carbon steel casing @ 22.33' w/ 8.37' stickup. 1500 9/15/92
	1 HPT 2 Lith 1 $CaCO_3$	DB		Color: wet 2.5Y N3/ (v. dk gray) dry 2.5Y 6/3 (lt yellowish brown) No reaction to HCL	
30				30 ft. GRAVEL as above 90% GRAVEL 8% sand 2% silt GR: 10% sm boulders; 20% lg cobbles 30% sm. cobbles, 40% pebbles Sd: 60% CS; 25% MG; 15% FG	Added 9.18' 10" c.s. casing Bit: 10" Drive Barrel 9/15/92 GSC 9/17/92 cut-off 0.17'; added 9.65' 10" C.S. casing to 40.18' string 9/16/92 0920
	1 HPT 2 Lith 1 $CaCO_3$	DB			
35				35 ft. GRAVEL as above	
	1 HPT 2 Lith 1 $CaCO_3$	DB			Added 9.65' C.S. 10' casing 9/16/92 0920
40					

BOREHOLE LOG

Boring or Well No. 699-40-36

Sheet 3 of 14

Location 200 AREA TEDB Candidate Site Project WO 49H

Elevation ~~[illegible]~~ 525.79' Drilling Contractor KEH

Driller M. Wraspir Drilling Method and Equipment B.E. 22W Cable Tool

Prepared By Stewart Causey/S. Causey (Sign/Print Name) Date 09/16/92 Reviewed By Edward C. Rafuse / Edward C. Rafuse (Sign/Print Name) Date 10/18/92

Depth (Feet)	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
40				GRAVEL AS ABOVE	Added 9.46' c.s. 10"
				40 FT	CASING 9/16/92 @
					1230
	1HPT 2Lith 1CaCO3	DB			
45				45 ft GRAVEL AS ABOVE	hard drilling
				LARGE cobble &	
				boulder -	
				85% GRAVEL 12% SAND 3% silt	
				10% m-sm boulders 20% lg cobbles;	
				30% sm cobbles; 40% pebbles	
				SAND: 70% cs 20% mg; 10% FS	
				60% Basalt; 20% Qtz/Qtzite	
	1HPT 2Lith 1CaCO3	DB		20% felsite - color: wet 2.5Y 4/2	
				tr. magnetite Dry 2.5Y 5/3	Added 9.36' c.s. 10"
50				50ft. GRAVEL AS ABOVE	CASING 9/16/92 @
				mod. sorted, subangular to	1425
				well rounded	
	1HPT 2Lith 1CaCO3	DB			
55				55 ft. GRAVEL AS ABOVE.	
	1HPT 2Lith 1CaCO3	DB			B.O.C. @ 59.00' @ 1500 9/16/92
60					

BOREHOLE LOG

Boring or Well No. 699-40-36

Sheet 4 of 14

Location 200 AREA TEDB Candidate Site Project W049H

Elevation ~~[illegible]~~ 525.79' Drilling Contractor KEH

Driller M. Wrazpir Drilling Method and Equipment B.E.-22W Cable Tool

Prepared By Stewart Ramey (Sign/Print Name) Date 09/17/92 Reviewed By Edward C. Rafuse (Sign/Print Name) Date 10/18/92

Depth (feet)	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
60				60ft. GRAVEL as above slight reduction in fines - large cobbles & boulders	Drilling boulder @ 62.5' 9/17/92 @ 1020
	1HPT 2Lith 1CaCO3				Added 9.55' C.S. 10" Casing 9/17/92 @ 0850
65		DB		65ft GRAVEL as above 90% Gravel 10% sand, tr silt 10% m-sm boulders, 30% lg cobbles 30% sm cobble 30% pebbles mod-well sorted; Sd: 60% cg, 25% mg, 15% fg, 80% Basalt 15% Qtz-Qtzite 5% felsic tr. magnetite sand: 50% cs 30% ms 20% fs Color: wet 2.5Y N3/ dry 2.5Y N4/	
	1HPT 2Lith 1CaCO3	DB			
70				70ft GRAVEL as above no reaction to HCL	
	1HPT 2Lith 1CaCO3			75ft. GRAVEL as above	
75		DB		Increase in Qtz/Qtzite 60% Basalt 20-25% Qtz/Qtzite - large cobbles & boulders	
	1HPT 2Lith 1CaCO3				Added 10.09' C.S. 10" Casing 9/17/92 @ 1430
80		DB			

BOREHOLE LOG

Boring or Well No. 699-40-36

Sheet 5 of 14

Location 200 AREA TEDB Candidate Site

Project W049H

Elevation ~~N/A~~ MSL 525.79'

Drilling Contractor KEH

Driller M. Wrasspir

Drilling Method and Equipment B.E. 22W

Prepared By Stewart Caswell / Stewart Caswell (Sign/Print Name) Date 09/8/92

Reviewed By Edward C. Rogers / Edward C. Rogers (Sign/Print Name) Date 10/12/92

Depth (Feet)	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
80				80 ft. GRAVEL AS ABOVE	BGC (a) 76.68
	1HPT 2Lith 1CaCO3				
85		DB		85 ft. GRAVEL as above still large cobbles & boulders	Hard drilling
	1HPT 2Lith 1CaCO3				
90		DB		90 Ft. GRAVEL AS ABOVE no reaction to HCL decrease in fine some magnetite	10.43' C.S. 10" casing added 1000 9/8/92
	1HPT 2Lith 1CaCO3				
95		DB		95 Ft. GRAVEL as above slight reaction to HCl — some magnetite slight increase in sand fraction still large cobbles & boulders	
	1HPT 1Physical 1CaCO3 1Chem.	Split spoon Glow cts. 22-4.5-23 60-5.8 100 Blow. ST			
	1HPT 2Lith 1CaCO3				
100		DB			

BOREHOLE LOG

Boring or Well No. 699-40-36

Sheet 6 of 14

Location: 200 AREA TEDB Candidate
Project: W049H
Elevation: ~~BRT A/A~~ 525.79'
Drilling Contractor: KEH
Driller: M. Wagspir
Drilling Method and Equipment: B.E. 22W Cable Tool
Prepared By: Stewart Carney / Stewart Carney (Sign/Print Name) Date: 9/21/92
Reviewed By: EDWARD C. RAFICE / Edward C. Rafice (Sign/Print Name) Date: 10/23/92

Depth (feet)	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				100 FT GRAVEL	
				SAME AS 45' SAMPLE	Added 9.37' CS. 10" CASING @ 0700 9/
	1HPT 2Lith 1CaCO3	DB.			
105				105FT GRAVEL	
				REDUCTION IN FINES	
				slightly moist.	Slow drilling @
				TRACE OF CLAY	107.5' drilling on LARGE boulder @ 0940 9/21/92
	1HPT 2Lith 1CaCO3 only	DB			
110				110FT GRAVEL -	still in LARGE
				large chips of	BASALT Boulder
				BASALT from boulder	
	1HPT 2Lith trace	DB			113' Contact w/ silty Clay - Clay Silt.
				Silty CLAY to Cly SILT	
				mod reaction to HCL	
				color	
115	Chemical Sample / Physical Sample Blues 9-24-92 100% Recovery	ST		Color wet 5Y 6/2 Lt. Olive Gray	
				Dry 5Y 7/2 Lt Gray	
				NO REACTION to HCL	Added 5.51' CS. 10" CASING 9/22/92
					Added 3.91' C.S. 10" CASING 9/23/92
	1HPT 2Lith 1CaCO3				O.S.M.
					Took H_2O sample
120		H+			#125 9/23/92

BOREHOLE LOG

Boring or Well No. 699-40-36

Sheet 7 of 14

Location 200 AREA TEDB Candidate
Project W049H
Elevation ~~[illegible]~~ N/A 525.79'
Drilling Contractor ICEH
Driller M. WRASPIR
Drilling Method and Equipment B.E. 22W Cable Tool
Prepared By Stewart Causey / Stewart Causey (Sign/Print Name) Date 9/24/92
Reviewed By Edward C. Rafuse / Edward C. Rafuse (Sign/Print Name) Date 10/23/92

Depth (feet)	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				120 FT Clayey SILT - w/tr. coarse sand & sm pebbles color. wet 5Y 6/2 Olive Gray Dry. 10Y 5/2 gray Brown	
	1 HPT 2 Lith 1 $CaCO_3$	HT		no reaction to HCL	
125'				125 FT SAME AS ABOVE	
					Downsizing casing to 8" C.S.@ 1010 9/24/92 Shoe .76'
	1 HPT 2 Lith 1 $CaCO_3$	HT			
130'				130 FT SAME AS ABOVE	Casing pull completed w/ 131.95' C.S. 8" casing - (3.0' s.u.)
	1 HPT 2 Lith 1 $CaCO_3$	HT			
135'				135 FT SAME AS ABOVE	
	1 HPT 2 Lith 1 $CaCO_3$	HT			
140'					

BOREHOLE LOG

Boring or Well No. 699-40-36

Sheet 8 of 14

Location 200 AREA TEDB Candidate Site

Project W049H

Elevation ~~NA~~ 525.79'

Drilling Contractor KEH

Driller M. WEASBIR

Drilling Method and Equipment CABLE TOOL - B.E. 22W

Prepared By Stewart Causey / Stewart Causey (Sign/Print Name) Date 9/28/92

Reviewed By EDWARD F. KAFUR / Edward C. Rogers (Sign/Print Name) Date 10/23/92

Depth	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
140				140 FT CLAYEY SILT	
				80% silt	
				20% CLAY	
				TR. SAND	
				Color wet: 10Y 6/3	
				Lt. brush gray	
	1 HPT			Dry: 10Y 6/4	
	2 Lith			Yellowish brown	
	1 $CaCO_3$				
145		HT		145 Ft. SAME AS ABOVE	
	1 HPT				Cut off .05'
	2 Lith				Added 17.22' Cs. 8" casing
	1 $CaCO_3$				@ 1310 9/28/92
150		HT		150 Ft. SAME AS ABOVE	
					EOA of shift 151'
				152.5 FT SAND; well sorted ~~Ang~~-subrounded	These Sds were
				moist 100% SD; TR S/t; Color 10Y 5/6 Dry	Interbedded
	1 HPT			70% Qtz; 30% felsic 10Y 5/6 wet	lenses - areal
	2 Lith			10% CG; 60% med G.; 30% FG	extent unknown
	1 $CaCO_3$			154 FT SAND - AS ABOVE	
155		DB		155 FT slightly sandy CLAYEY SILT	
				w/ interbedded sand stringers	G.S. 10/4/92
				& some vertical sand scours, etc.	~~above~~
				Color wet: 10Y 6/3	Scour or Burrowing
				Pale brown	seen @ 152.5' in Sd.
				Dry: 10Y 6/4	
				Lt. Yellowish Brown	
	1 HPT			Interbedded sand stringer	
	2 Lith			≤6"; scours to ≤6" in length	
	1 $CaCO_3$				
160		DB			

BOREHOLE LOG

Boring or Well No. 699-40-36

Sheet 9 of 14

Location 200 Area TEDB Candidate Site Project W049H

Elevation ~~BPT N/A~~ 525.79' Drilling Contractor KEH

Driller M. Urrasqin Drilling Method and Equipment Cable Tool

Prepared By Stewart Causey / Stewart Causey Date 9/29/92 Reviewed By Edward C. Rafuse / Edward C. Rafuse Date 10/23/92
(Sign/Print Name) (Sign/Print Name)

Depth	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
160				160 FT Clayey SILT Tr. sand. slight reaction w/ HCL color wet: 10y 4/3 Brown to L. Brown Dry: 10y 4/4 Sd. 100% cg	
	1 HPT 2 Lith 1 $CaCO_3$				
		HT		165 FT - SAME AS ABOVE	After going back to HT, drilling rate pick up greatly.
165					
	1 HPT 2 Lith 1 $CaCO_3$	HT		170 FT - SAME AS ABOVE	
170					
	1 HPT 2 Lith 1 $CaCO_3$	HT		175 FT - SAME AS ABOVE	
175					
	1 HPT 2 Lith 1 $CaCO_3$	HT			9/29/92 Shift over
180					

BOREHOLE LOG

Boring or Well No. 699-40-36

Sheet 10 of 14

Location 200 AREA TEDF Auxiliary Site

Project W049H

Elevation ~~DATUM~~ 525.79'

Drilling Contractor KEH

Driller M. WRASPIR

Drilling Method and Equipment Cable Tool - B.E. 22W

Prepared By Stewart Caussy / Stewart Caussy (Sign/Print Name) Date 9/29/92

Reviewed By Edward C. Rafuse / Edward C. Rafuse (Sign/Print Name) Date 10/23/92

Depth	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
180				180 Ft CLAYEY SILT	
				85% silt; 15% clay	
				TR. SAND.	
				COLOR WET: 10Y 6/4	
				lt. yellowish BROWN	
				NO REACTION to HCL	
	1 HPT 2Lith 1 $CaCO_3$				
					cut off .05'
					Added 9.63 C.S.
185'		HT		185 Ft SAME AS ABOVE	8" CASING
				thick slurry	0900 9/30/92
	1 HPT 2Lith 1 $CaCO_3$				
					BOC 186.2' BGS.
190		HT		190 Ft. Silty CLAY	
				w/ tr SAND & GRAVEL	
				30% Basaltic 30% Qtz	
				40% Felsic.	
				sub rounded to subangular	
				mod. sorting.	
				sd: cg-fg	
	1 HPT 2Lith 1 $CaCO_3$				
195'		HT		195 Ft. Slightly Gravelly Silty CLAY	cut off .05'
				90% silty Clay	Added 10.01' c.s.
				10% GRAVEL	8" CASING
				TR - SAND.	@ 1300 9/30/92
				GRAVEL: 30% Qtz, 30%	
				Basalt, 40% Felsic.	
				tr. olivene.	
	1 HPT 2Lith 1 $CaCO_3$			sub rounded to subangular.	10/30/92
				mod. sorted.	Shift Ends 197'
				GRAVEL: fine to md pebble	Hard drilling
200'		HT		SAND: fg to md g.	

BOREHOLE LOG

Boring or Well No. 699-40-36

Sheet 11 of 14

Location 200 AREA TEDB Candidate Site
Project W0491H
Elevation N/A LOL 535.79
Drilling Contractor ICEH
Driller Mr WRASPIR.
Drilling Method and Equipment Cable Tool - B.E. 22
Prepared By Stewart Ransep Date 10/1/92 (Sign/Print Name)
Reviewed By Edward C. Rafuse (Sign/Print Name) Date 10/23/92

Depth	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
200				200 FT sandy GRAVEL	Contact w/ gravel
				40% Qtz; 40% felsic	197.5'; Ringold
	Chemical Sample 300 Blows Split Spoon 75% Rec.	300 Blows 75% Recovery		20% Basalt; TR pyroclastics	cut-off .05'
				Gravel: undifferentiated angular	Added 7.46' c.s. 8"
				Hard tooled chips - to	Casing 0800 10/1/92
		SS		fn pebble & cobble	
	1 HPT			Sand: MG-CG - sub angular -	
	2 Lith			rounded - mod sort.	
	1 Rad			Color: wet - 2.5y 3/2	
205		HT		205 FT same as above 2.5y 6/4	
				Dry 2.5y 4/2	
				2.5y 7/3	
				80% Gravel 20% sand	
				mod. reaction to HCl	
				Sd: 60% cg, 30% mg 10% fg	
	1 HPT				
	2 Lith				
	1 Rad				
210		HT		210 FT same as above	
					cut-off .05'
					Added 12.02' c.s. 8"
					Casing 0715 10/2/92
	1 HPT				
	2 Lith				
	1 $CaCO_3$				Shift end 1500
215		DB		215 FT same as above	10/1/92 @ 214'
	Physical Sample	260 Blows 50% Rec. Physical Sample SS			
					Cut of .05'.
					Added 10.02' c.s.
	1 HPT				8" casing @ 1035
	2 Lith				10/5/92
	1 $CaCO_3$				
220		HT			

BOREHOLE LOG

Boring or Well No. 699-40-36

Sheet 12 of 14

Location: 200 AREA TEDB Candidate
Project: W049H
Elevation: N/A 525.79'
Drilling Contractor: KEH
Driller: M. Urrasair.
Drilling Method and Equipment: Cable Tool - B.E. 22W
Prepared By: Stewart Causey / Stewart Causey (Sign/Print Name) Date: 10/5/92
Reviewed By: Edward C. Rafuse / Edward C. Rafuse (Sign/Print Name) Date: 10/23/92

Depth	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
220				220 FT - Sandy GRAVEL	v. hard - slow drilling
					W.L. 123.9' from G.S. @ 0700 10/5/92
	1HPT 2Lith 1CaCO3				
225		HT		225 FT - SAME AS ABOVE	
					cut off - .05' Added 9.60' C.S. 8" Casing 1440 10/5/92
				227 ft. Silty CLAY w/tr SAND & GRAVEL color: wet 5Y 4/1 Dk Gray Dry 5Y 5/2 O. Gray NO REACTION to HCL	Drilling break @ 227' - Clay-silt. x contact
	1HPT 2Lith 1CaCO3				
230		HT		230 FT - Silty CLAY sd: cg gr: pebble	
					END of shift 10/5/92 1500 @ 231'
	1HPT 2Lith 1CaCO3				
235		HT		235 FT SAME AS ABOVE	
	HPT 2Lith 1CaCO3				
240		HT		240 FT - SAME AS ABOVE	

BOREHOLE LOG

Boring or Well No. 699-40-36

Sheet 13 of 29

Location 200 AREA TEDB (Candidate Site) Project W049H

Elevation ~~BPT-w/A~~ 525.79' Drilling Contractor KEH

Driller M. Wraspir Drilling Method and Equipment Cable Tool - B.E. 22W

Prepared By Stewart Causey (Sign/Print Name) Date 10/6/92 Reviewed By Edward C. Rafuse (Sign/Print Name) Date 10/23/92

Depth	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
240'				240 FT - silty CLAY	
				w/tr sand	Building out bit
				color wet 5y 4/1	to ream hole
				DRY 5y 5/2	
				NO REACTION to HCL	
					B.O.C. 233.01'
	1 HPT				
	2 Lith				cut off .05'
	1 $CaCO_3$				Added 10.03' C.S. 8"
245'		HT		245 Ft. SAME AS ABOVE	CASING 1240 10/6/92
					slow drilling due to
					heaving silt & clay
					1400 10/6/92
					End shift 1500 10/6/92
	1 HPT				@ 249' - turned vi hard
	2 Lith				
	1 $CaCO_3$				
250'		HT		250 Ft. Silty Sandy GRAVEL	Drilling slow
				tr. clay.	
				80% Gravel 15% sand	
				5% Silt	
				30% Basalt; 40% Qtz & Qtzite	poor sample
				25% Felsics; 5% metadastic	quality due to HT
				Fractured from HT	
	1 HPT			NO REACTION to HCL	
	2 Lith			tr. Olivene	
	1 $CaCO_3$			Gr: 10% Cobble 50% sm cobble	
255'		HT		255 FT SAME AS ABOVE	
				40% pebble	
				Sd: 50% cg; 40% mg 10% fg.	
					Hard, slow drilling
	1 HPT				
	2 Lith				
	1 $CaCO_3$				
260'		HT			

BOREHOLE LOG

Boring or Well No. 699-40-36

Sheet 14 of 14

Location 200 AREA TEDB Candidate Site
Project W049H
Elevation ~~BPM/A~~ 525.79'
Drilling Contractor KEH
Driller M. WRASPIR
Drilling Method and Equipment Cable Tool - B.E. 22W
Prepared By Stewart Lowery (Sign/Print Name) Date 10/7/92
Reviewed By Edward C. Rohrer (Sign/Print Name) Date 10/23/92

Depth	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
260				260 FT SAME AS ABOVE	
					Building out bit slow & hard drilling
	1 HPT 2 Lith 1 $CaCO_3$				End Shift 1500 10/7/92 @ 264'
265'		HT		265 FT Sandy GRAVEL	
				80% Grave 20% sand	v. hard drilling
				40% Basalt	Poor sample quality
				30% Qtz/Qtzite	have to build out
				25% Felsics	bit again.
				5% Pyroclastics	
				No reaction to HCL	Changed to
	1 HPT 2 Lith 1 $CaCO_3$			V. Fractured HT sample	Button Bit.
270'		HT		270 FT - SAME AS ABOVE	
					Shift Ends 1500 10/8/92 @ 273'
				BASALT CONTACT ≈ 272'	
	1 HPT 2 Lith 1 $CaCO_3$ 1 X-ray Def.				
275'		BB		275 FT BASALT	
				mod. weathered;	
				vesicular;	
				fresh fractures from	
				HT; tr. gray green	
				clay	
	1 HPT 2 Lith 1 $CaCO_3$ 1 X-ray				T.D. @ 280' on 10/09/92
280'		BR			

WELL 699-41-35

VALIDATED KDK 6/1/93 SIGNATURE/DATE

Page 1 of 4

WELL CONSTRUCTION REPORT

Specification No. WHC-S-014 Rev No. 6 (1)

ECNs 166757, 119402, 166752, 177209, 150132, 164223, 127439, 150138, 150137, 150130, 169851

Project W049H

Location 200 Areas TEDB Candidate Site

Drilling Company KEH

Driller L. Watkins

Other (Companies)

Geologist(s) K. Swett
E. Rafuse (WHC)
RS Edlington (WHC)
B Thompson by L.D. Lockard 6/1/93

Well No. 699-41-35 Temp. Well No.

Coordinates N 135,947.44, W 579,079.64

Casing Elev. 520.39' Ground Elev. 517.42'

Drilling Method

Verification Method visual observation

Criteria WHC-S-014 5.2, 5.3, 7.5

			Initials	Date
Rotary	Air N/A	Mud N/A	N/A	N/A
Cable Tool	D 0 - 102.7	H 102.7 - 260.0	KJS	9-24-92
Drilling Fluid	N/A	Raw water	KJS	9-3-92
Other	N/A	N/A	N/A	N/A

Geophysical Logging

Sondes	Interval	Date
Gross Gamma	0.9' - 258.6	9-24-92
Spectral Gamma	-	10-8-92
	-	
	-	
	-	

Completion Data

Drilled Depth 260.00 Ft

Completed Depth 200.11 Ft

Date Started 8-24-92

Date Completed 10-5-92 / ~~11-24-92~~ 4 PA 2-19-93

Static Water Level/Date 105.75 on 10-5-92

Aquifer Testing

Type Instantaneous Slug

Flow Meter I.D. No. N/A

Cal. Due Date N/A

Length of Test 1 hr.

Volume Pumped N/A

Drawdown N/A

Date of Test 11/03/92

Completion Results

Cleaning

Verification Method visual Inspection and observation

Criteria WHC-S-014 7.6, 4.2.2, 7.7

	Initials	Date
Drilling Tools/Rig	KJS	8-21-92
Temporary Materials	KJS	9-24-92
Permanent Materials	KJS	10-5-92

Screen

Type	Length	Slot Size
4"ϕ SS continuous wire wrap	10.30 including 0.30' End Cap	.010

Depth(s) 189.81 Ft - 200.11 Ft w/0.3' End Cap

Verification Method verify by using steel tape

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

Initials KJS Date 10-5-92

Material Storage/Packing

Verification Method visual inspection

Criteria WHC-S-014 7.2

	Initials	Date
Mtl. Handling/Storage	KJS	10-5-92
Material Packing	KJS	10-5-92

Lubricants/Additives

Verification Method visual observation

Criteria WHC-S-014 7.2

	Identify	Initials	Date
Additives	Raw water	KJS	9-3-92
Lubricants	well guard	KJS	8-24-92

Straightness Test

Verification Method visual observation

Criteria WHC-S-014 8.2

Initials KJS Date 9-24-92

A-6000-436 (09/90)

WELL CONSTRUCTION REPORT
(continuation sheet)

Casing (permanent)

Type	Size	Placement
T304 SS sch.5	4" O.D	2.90 bgs - 184.81 bgs
		-
		-
		-

Verification Method: verify using steel tape

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

Initials: KJS Date: 10-5-92

Well Protection

Verification Method: visual observation

Criteria: WHC-S-014 4.2.9, 4.2.10, 11.0

	Initials	Date
Protective Posts	RJE	11/4/92
Protective Casing	RJE	11/4/92
Site Restored	ECL	05/12/93
Cap, Hasp and Lock	RJE	11/4/92
Surface Pad	RJE	11/4/92

Annular Seal/Filter Pack (2)

Verification Method: Measure with steel tape Criteria: WHC-S-014 4.2.6 - 4.2.9, 5.3.1

Type	Interval	Volume	Initials	Date
Hole Plug (coarse granular bentonite)	201.9 - 256.4	18.98 ft^3	KJS	10-5-92
20-40 Sand filter pack	183.5 - 201.9	10.08 ft^3	KJS	10-5-92
Hole Plug	97.6 - 183.5	54.17 ft^3	KJS	10-5-92
Bentonite crumbles	9.0 - 97.6	58.93 ft^3	KJS	10-5-92
CEMENT grout	2.0 - 9.0	11.57 ft^3	KJS	10-5-92

Well Survey/Labeling

Verification Method: Document Review

Criteria: WHC-S-014 3.4, 4.2.10

	Initials	Date
Measurement Point/Surveyed	BRT	1-12-93
Protective Casing/Brass Cap Surveyed	BRT	1-12-93
Well Number Stenciled	ECL	05/12/93
Brass Cap Labeled	RJE	11/04/92

Pump Installation

Verification Method: visual observation

Criteria: WHC-S-014 4.2.11, 5.3.1

	Initials	Date
Pump Decon/Prep	RJE	11/04/92
Installed	RJE	11/04/92
Pump Tested	RJE	11/04/92

Other (initial if performed)

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

RJE 11/07/92 Well Development

Comments/Remarks: (1) WHC-S-014: Rev. 7 supercedes Rev. 6

(2) cement grout 2.0 - 9.0 11.57 ft^3 KJS 10-5-92

Reviewed By (Sign/Print Name): Kent D Reynolds Date: 6/1/93

WHC-SD-EN-DP-068, Rev. 0

WELL SUMMARY SHEET

Boring or Well No. 699-41-35

Sheet 1 of 2

Location 200 Areas TEDB candidate site

Project W049H

Elevation 517' ground elevation

Drilling Contractor KEH

Driller L. Watkins

Drilling Method and Equipment Cable tool: Bucyrus Erie 22W

Prepared By Keith J. Swett (Sign/Print Name) Date 10/08/92

Reviewed By Edward C. Rafuse (Sign/Print Name) Date 10/16/92

CONSTRUCTION DATA		Depth in Feet	GEOLOGIC/HYDROLOGIC DATA	
Description	Diagram		Graphic Log	Lithologic Description
				0-3' SAND
Cement Grout 2.0 - 9.0 Ft		10		3-7' Silty Sandy GRAVEL
				GRAVEL
12"ϕ Temporary CS casing		20		"
w/drive shoe set at				"
19.40 Ft		30		"
				"
				"
		40		
Bentonite crumbles				Silty Sandy GRAVEL
9.0 - 97.6 Ft		50		"
				Sandy GRAVEL
		60		"
				"
10"ϕ Temporary CS casing		70		"
w/drive shoe set at				"
120.56 Ft		80		Silty Sandy GRAVEL
				Sandy GRAVEL
		90		GRAVEL
				"
SWL @ 105.8 on 10/5/92		100		"
Hole Plug (Coarse Granular				101.3' SILT Potentiometric
Bentonite) 97.6 - 183.5 Ft		110		" surface of confined
				" aquifer @ 105.75 Ft.
		120		"
				SILT w/ increasing CLAY
8"ϕ Temporary CS casing		130		SILT / CLAY
w/drive shoe set at				"
246.82 Ft		140		Clayey silty SAND
				SILT / CLAY
		150		Sandy CLAY / Clayey SAND
				Slightly clayey SAND
		160		Slightly sandy CLAY
				Slightly clayey SAND

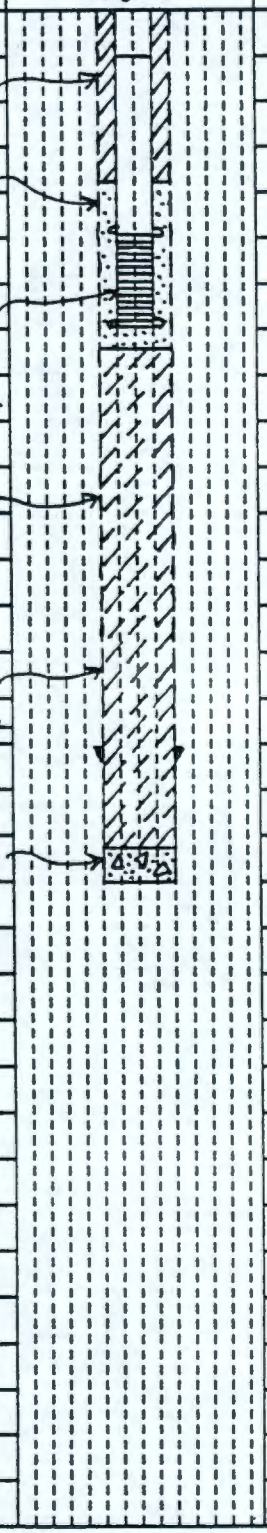
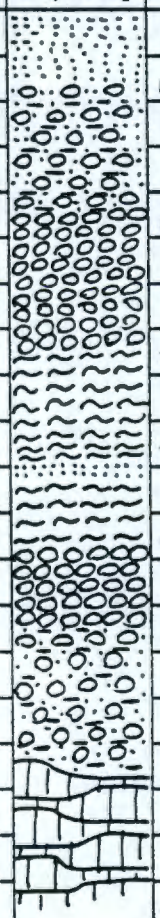
A-6000-384 (04/90)

WELL SUMMARY SHEET

Boring or Well No. 699-41-35

Sheet 2 of 2

Location 200 Areas TEDB Candidate Site
Project WOU9H
Elevation 517' ground elevation
Drilling Contractor KEH
Driller L. Watkins
Drilling Method and Equipment Cable Tool Bucyrus Erie 22W
Prepared By Keith J. Swett (Sign/Print Name) Date 10/8/92
Reviewed By Edward C. Rafuse (Sign/Print Name) Date 10/16/92

CONSTRUCTION DATA		Depth in Feet	GEOLOGIC/HYDROLOGIC DATA	
Description	Diagram		Graphic Log	Lithologic Description
Hole Plug (Coarse Granular Bentonite) 97.6 - 183.5 Ft		170		SAND
				174' Gravelly Silty SAND
		180		Silty Sandy GRAVEL
20-40 Sand Filter Pack 183.5 - 201.9 Ft				"
		190		186' GRAVEL
				"
4"ø .010 slot continuous wire wrap stainless steel screen 189.81 - 203.11 Ft		200		"
				203' CLAY
		210		"
				215'-215.5' SAND
8"ø Temporary CS casing w/drive shoe set at 246.82 Ft		220		CLAY
				223' GRAVEL
		230		"
				Silty Sandy GRAVEL
Hole Plug (Coarse Granular Bentonite) 201.9-256.4 Ft		240		"
				"
		250		247' BASALT
				"
Slough 256.4-260.0 Ft		260		"
				TD = 260.00 Ft

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BOREHOLE LOG

VALIDATED KDR 1/12/93 SIGNATURE/DATE

Boring or Well No. 699-41-35

Sheet 1 of 13

Location 200 Areas TEDB candidate site — Project W049H

Elevation ~~VGHT~~ VGHZ 517' ground surface (g.s.) — Drilling Contractor KEH

Driller L. Watkins — Drilling Method and Equipment Cable Tool BE 22h

Prepared By KJ Swett (Sign/Print Name) — Date 8-25-92 — Reviewed By Edward C. Rafuse (Sign/Print Name) — Date 8/26/92

Depth (Feet)	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
0		Drive / Barrel		0-3 Ft SAND(G) (95% sand, 5% silt)	Eolian sand on silt
				20% VCS-CS Dry: 10YR 5/3 (Brown)	w/ roots, rootlets.
				20% MS Wet: 10YR 3/3 (Dk. Brown)	strong soil bacteria odor
				60% FS-VFS	
				Slightly moist, well sorted,	chemical split spoon @
				subangular to rounded, subprismoidal	4.50 - 6.50 Ft - 8-24-92
				to subdiscoidal, 40% Qtz, 40% Basalt,	@ 1120
				20% felsic, some magnetite, no rxn	
				to HCl	* 5 Ft sample 8-24-92
5 *	Chemical w/ 1 Rad	split spoon 8-24-48-45-46 100% Recov		3 Ft Silty Sandy GRAVEL (MSG)	@ 1145 . obtained
				(70% Gravel, 20% Sand, 10% Silt)	while cleaning out borehole
				10% sm. boulder	after split spoon sampling
				20% SC 50% UCS-CS	2 Lith, 1 Rad, 1 Moist Tin
				30% SC 25% MS	rootlets @ 5 Ft.
				30% UCP-CP 25% FS-VFS	
		Drive / Barrel		10% MP-VFP Dry: 2.5Y 6/3 (Lt. Yellow Br.)	$CaCO_3$ rinds on clasts
				Wet: 2.5Y 5/3 (Lt. olive brown)	
	2 Lith 1 Rad 1 Moist Tin			Dry, Poorly sorted, subangular to	
				subrounded, subprismoidal to subdiscoidal	9.5 Ft sample 8-24-92
10	Chemical w/ 1 Rad	split spoon 7-6-24-26-19 80% Recov		70% Basalt, 15% Qtz + Qtzite,	@ 1340
				15% Felsic, some magnetite, strong	
				rxn to HCl	Chemical split spoon
				7 Ft. GRAVEL (90% Gravel, 7% Sand,	8-24-92 @ 1355
				3% Silt) (G)	9.60 - 11.60 Ft.
		Drive / Barrel		10% sm. boulder 5% UCS-CS	2nd split spoon obtained
				20% SC 25% MS	in same interval (9.60'-11.60')
				30% SC 25% FS-VFS	to require enough material for
	2 Lith 1 Rad 1 Moist Tin			30% UCP-CP Dry: 2.5Y 2/2 (Lt. Gray)	duplicate sample
				10% MP-VFP Wet: 2.5Y 5/2 (Grayish Br)	
15	Chemical w/ 1 Rad	split spoon 5-9-21-23-22 70% Recov		Slightly moist, Mod. sorted,	More sand and silt @
				subangular to subrounded,	13 Ft.
				subprismoidal to subdiscoidal	14.5 Ft sample 8-25-92
				70% Basalt, 20% Qtz + Qtzite,	@ 0935
				10% felsic, some magnetite, v strong	
				rxn to HCl	chemical split spoon
					8-25-92 @ 0950
				10 Ft. GRAVEL (G) as above	14.70 - 16.70 Ft.
				13 Ft. GRAVEL (G) (80% Grav.,	
	2 Lith 1 Rad 1 Moist Tin			15% Sand, 5% Silt) other	
20				characteristics as above	

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BOREHOLE LOG

Boring or Well No. 699-41-35

Sheet 2 of 13

Location 200 Areas TEDB candidate site

Project W049H

Elevation ~~NAD~~ 517' g.s.

Drilling Contractor KEH

Driller L. Watkins

Drilling Method and Equipment Cable tool / BE22h

Prepared By K.J. Shett (Sign/Print Name) Date 8-26-92

Reviewed By EDWARD C. RAFUSE (Sign/Print Name) Date 09/04/92

Depth (Feet)	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
20	20.5 FT sample	Drive Barrel		20 FT. GRAVEL (G) as above	20.5 FT sample 8-25-92 @ 1140
	Chemical w/1 Rad	split spoon 14-41-59-60-50 70% recov.			Chemical split spoon 8-25-92 @ 1310 20.80'-22.80'
	2 Lith. 1 Rad 1 moist Tin	Drive Barrel			
25				25 FT. GRAVEL (G) as above, increasing moisture	25 FT Sample 8-26-92 @ 1010
	2 Lith 1 Rad 1 Moist Tin				
30				30 FT GRAVEL (G) as above	30 FT sample 8-26-92 @ 1030
	2 Lith 1 Rad 1 Moist Tin				
35				35 FT GRAVEL (G) increase in sand and silt content, trace clay	35 FT sample 8-26-92 @ 1330
40	2 Lith 1 Rad 1 Moist Tin				

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BOREHOLE LOG

Boring or Well No. 699-41-35

Sheet 3 of 13

Location: 200 Areas TEDB Candidate Site
Project: W049H
Elevation: N/A MB 517' g.s.
Drilling Contractor: KEH
Driller: L. Watkins
Drilling Method and Equipment: Cable Tool BE 22h
Prepared By: K.J. Swett (Sign/Print Name) Date: 8-27-92
Reviewed By: Edward C. Rafuse (Sign/Print Name) Date: 09/04/92

Depth (Feet)	Sample Type and No.	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
40		Drive / Barrel		40 Ft Silty Sandy GRAVEL (ms G)	40 Ft sample 8-26-92
				60% Gravel, 35% sand, 5%	@ 1410
				silt and clay)	
				10% lc 60% ucs cs	
				20% sc 20% ms	
				40% ucp cp 20% fs-ufs	
				20% mp Dry: 2.5Y 5/2 (Lt. brownish gray)	
				10% ufp-fp wet: 2.5Y 5/2 (Grayish brown)	
	2 Lith 1 Bag 1 Moist Tin			Slightly Moist, poorly sorted,	
45				subangular to subrounded	
				subprismoidal to subdiscoidal	45 Ft sample 8-27-92
				60% Basalt, 20% Qtzite, 20% felsic	@ 0840
				some magnetics mod. rxn to HCl	
				45 Ft Silty Sandy GRAVEL, as	
				above	
	2 Lith 1 Bag 1 Moist Tin				50 Ft sample 8-27-92
50				50 Ft Sandy GRAVEL (SG)	@ 0950
				(60% Gravel, 39% sand, 1% silt +	
				clay)	
				20% sc 60% ucs cs	
				40% ucp cp 20% ms	
				30% mp 20% fs-ufs	
				10% ufp fp Dry: 2.5Y 6/2 (Lt. brownish gr.)	
				wet: 2.5Y 5/2 (Grayish brown)	
	2 Lith 1 Bag 1 Moist Tin			Slightly moist, mod. sorted,	
55				subangular to subrounded,	55 Ft sample 8-27-92
				subprismoidal to subdiscoidal	@ 1245
				70% Basalt, 20% Qtzite, 10% felsic	
				some magnetics, mod rxn to HCl	
				55 Ft. Sandy GRAVEL (SG) as	
				above	
	2 Lith 1 Bag 1 Moist Tin				
60					

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BOREHOLE LOG

Boring or Well No. 699-41-35

Sheet 4 of 13

Location 200 Areas TEDB Candidate Site

Project WOUGH

Elevation 517' g.s.

Drilling Contractor KEH

Driller L. Watkins

Drilling Method and Equipment Cable Tool BE 22h

Prepared By K.J. Scott (Sign/Print Name) Date 9-2-92

Reviewed By Edward C. Rafuse (Sign/Print Name) Date 09/08/92

Depth (Feet)	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
60		Drive Barrel		60 Ft. Sandy GRAVEL(SG)	60 Ft sample 8-27-92
				as above	@1440
	2 Lith 1 Rad 1 Moist Tin				
65				65 Ft. Sandy GRAVEL(SG) (70% gravel	65 Ft sample 9-1-92 @
				20% sand, 20% silt)	1100
				20% SC 50% UCS-CS	
				40% UCP-CP 25% MS	Open framework gravel.
				30% MP 25% FS-VFS	fines coating clasts,
				10% UFP-FP Dry: 2.5Y 5/2 (Lt. brownish Gr)	thickest where clasts
				wet: 2.5Y 5/2 (Grayish brown)	in contact
				Slightly moist, mod. sorted,	
				subangular to subrounded, subplisoidal	Decreasing $CaCO_3$
	2 Lith 1 Rad 1 Moist Tin			to subdiscoidal, 70% basalt, 20%	
70				Quartzite, 10% felsic, some magnetics	70 Ft sample 9-1-92 @
				slight rxn to HCl	1330
				70 Ft. Sandy GRAVEL(SG)	
				as above	
				Increasing moisture @ 73 Ft.	
				Increasing fines	
	2 Lith 1 Rad 1 Moist Tin				
75					75 Ft sample 9-1-92 @
				75 Ft. silty Sandy GRAVEL(MSG)	1400
				75% Gravel, 15% sand, 10% silt &	
				clay)	
				10% LC 50% UCS-CS	
				20% SC 25% MS	
				30% UCP-CP 25% FS-VFS	
				30% MP	
				10% UFP-FP MOIST	
				Increasing fines, other	
80				characteristics as above.	

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BOREHOLE LOG

Boring or Well No. 699-41-35

Sheet 5 of 13

Location 200 Areas TEDB Candidate Site — Project W049H

Elevation 517' g.s. — Drilling Contractor KEH

Driller L. Watkins — Drilling Method and Equipment Cable Tool BE22h

Prepared By K.J. Swett (Sign/Print Name) — Date 9-2-92 — Reviewed By Edward C. Rafuse (Sign/Print Name) — Date 08/04/92

Depth (Feet)	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
80		Drive Barrel		80 Ft. Sandy GRAVEL (SG) 75% Gravel	~~80 Ft~~ split spoon
	physical w/ 2 with, 1 Rad, 1 moist Tin	split spoon 22-33-34-14-26 70% Recov.		23% sand, 2% silt + clay)	sample 80.30-82.30 Ft.
				10% lc 50% vcs-cs	9-2-92 @ 0915
				20% sc 25% fs-ms	
				30% vcp-cp 25% fs-vfs	
				30% mp Dry: 2.5Y 5/2 (Lt. brownish Gr.)	
				10% fp-vfp wet: 2.5Y 5/2 (Grayish Br.)	
				slightly moist, other characteristics	
	2 with 1 Rad 1 moist Tin	Drive Barrel		as above	
85				85 Ft. Sandy GRAVEL (SG) as above	85 Ft sample 9-2-92 @ 1010
	2 with 1 Rad 1 moist Tin				
90				90 Ft GRAVEL (G) (90% gravel, 5% sand, 5% silt and clay)	90 Ft sample 9-2-92 @ 1300
				10% lc 60% vcs-cs	
				20% sc 20% ms	
				30% vcp-cp 20% fs-vfs	decreasing $CaCO_3$
				30% mp Dry: 2.5Y 6/3 (Lt. Yellow. Br)	
				10% fp-vfp wet: 2.5Y 5/3 (Lt. olive Br)	
				Moist, mod. sorted, subangular to round-rd, subprismoidal to subdiscoidal	c. 5 Ft mp-cp bed
	2 with 1 Rad 1 moist Tin			70% Basalt, 15% Qtzite, 15% Felsic	@ 93 Ft.
				some magnetics, weak rxn to HCl	
95				95 Ft. GRAVEL (G) (80% Gravel, 17% sand, 3% silt and clay)	95 Ft sample 9-2-92 @ 1345
				20% lc 60% vcs-cs	
				20% sc 20% ms	
				30% vcp-cp 20% fs-vfs	
				20% mp Dry: 2.5Y 6/2 (Lt. Brownish Gr.)	
				10% fp-vfp wet: 2.5Y 5/2 (Grayish Br.)	
				Moist, mod. sorted, subangular to rnd.	
	2 with 1 Rad 1 moist Tin			subdisc. to subpris. 70% Basalt, 15% Qtzite	
100				15% Felsic, some mag. weak rxn to HCl	

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BOREHOLE LOG

Boring or Well No. 699-41-35

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Location: 200 Areas TEDB Candidate Site
Project: W049H
Elevation: 517' g.s.
Drilling Contractor: KEH
Driller: L. Watkins
Drilling Method and Equipment: Cable Tool BE22W
Prepared By: K.J. Swett (Sign/Print Name) Date: 9-4-92
Reviewed By: Edward C. Rafuse (Sign/Print Name) Date: 09/08/92

Depth (Feet)	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		Drive Barrel		100 Ft GRAVEL (G) as above w/ ± 5% silt and clay	100 Ft sample 9-3-92 @ 0825
	2 Lith 1 Rad 1 Moist Tin			101.3 Ft. SILT (M) (85% silt, 10% clay, 5% sand)	102.7 Ft sample 9-3-92 @ 0940
	Chemical/Physical w/ 1 Rad	Split spoon 22-34-36-45-51 100% Recov.		5% vcs-cs color Dry: 5Y 7/1 (Lt. gray) 5% ms color wet: 5Y 4/2 (olive gray) 90% fs-vfs	Chemical/Physical split spoon 9-3-92 @ 1150: 102.70-104.70 FT
105	2 Lith 1 Rad 1 Moist Tin			Moist, mottled color, very stiff, hackly fracture, some spherical, nodular or clast like plastic clay pockets, no rxn to HCl	some iron oxide rich concretions, clay gouge in fractures
		Hard Tool		105 Ft. SILT (M) as above, logged from hard tool cuttings	105 Ft sample from Hard tool cuttings 9-3-92 @ 1400
	2 Lith 1 Rad 1 Moist Tin				
110				110 Ft. SILT (M) as above.	110 Ft sample 9-3-92 @ 1415
	2 Lith 1 Rad 1 Moist Tin				
115				115 FT SILT (M) as above	115 Ft sample 9-3-92 @ 1440
					Hard, white CALCITE fragments washed from hard tool cuttings @ 115 Ft. v. strong rxn to HCl
	2 Lith 1 Rad 1 Moist Tin				
120					

BOREHOLE LOG

Boring or Well No. 699-41-35

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ation 200 Areas TEDB Candidate Site — Project W049H

Elevation 517' g.s. — Drilling Contractor KEH

Driller L Watkins — Drilling Method and Equipment Cable Tool BE 22h

Prepared By K.J. Swett (Sign/Print Name) — Date 9-9-92 — Reviewed By Edward C. Rafuse (Sign/Print Name) — Date 09/16/92

Depth (Feet)	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		Hard Tool		120 Ft. SILT (M) as above weak rxn to HCl	120 Ft sample 9-9-92 @ 0750
					125 Ft sample 9-9-92 @ 0805
	2 Lith 1 Rad 1 moist Tin				
125				125 FT SILT (M) as above w/ increasing clay	
	Boiled w/no sample taken				130 Ft sample 9-9-92 @ 0850
	2 Lith 1 Rad 1 moist Tin				Hard, white caliche fragments washed from hard tool cuttings 130-140 Ft.
130				130 FT SILT (M) / CLAY with increasing sand (20%) strong rxn to HCl	
					135 Ft sample 9-9-92 @ 0900
	2 Lith 1 Rad 1 moist Tin			135 Ft SILT (M) / CLAY, as above	Yields water @ 138 Ft. water rises to potentiometric surface @ 107.91 Ft (E-tape reading 9-9-92 @ 1100)
135				138 Ft Clayey Silty SAND (70% sand, 30% silt + clay *) 5% vcs Dry: 2.5Y 7/2 (Lt gray) 40% cs wet: 2.5Y 4/3 (Olive Brown) 40% ms 15% fs-vfs saturated, mod. sorted, subrounded, subdiscoidal to subprismoidal, 80% Qtz, 15% felsic, 5% Basalt true magnetic, weak rxn to HCl	* may be less silt + clay than this, this may reflect silt/clay mixed in hard tool cuttings from 135-138 Ft.
	2 Lith 1 Rad 1 moist Tin				140 Ft sample 9-9-92 @ 0915
140					

BOREHOLE LOG

Boring or Well No. 699-41-35

Sheet 8 of 13

Location: 200 Areas TEDB Candidate Site
Project: W049H
Elevation: 517' g.s.
Drilling Contractor: KEH
Driller: L. Watkins
Drilling Method and Equipment: Cable Tool BE22W
Prepared By: K.J. Swett (Sign/Print Name) Date: 9-10-92
Reviewed By: Edward C. Rafuse (Sign/Print Name) Date: 09/16/92

Depth (Feet)	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
140				140 Ft Clayey Silty SAND, as above	
	Bailed w/no sample taken	Hard Tool			
				143 Ft SILT(M) / CLAY, as at 130-138 Ft	Interbedded clays, sands, clayey sands, sandy clays; cleaner sands are water bearing
	2 with 1 Rad 1 moist Tin			145 Ft SILT(M) / CLAY, as above	
145				145.6-146.1 Sandy CLAY (20% Clay, 30% sand) 20% ms, 80% fs-vfs	145 Ft sample 9-9-92 @ 1340
	Physical w/1 Rad 4 with	split spoon			Physical split spoon 145.60-147.60 Ft 9-9-92 @ 1440
				146.1-147.6 Clayey SAND (60% sand, 40% clay) 5% CS Dry: 2.5Y 7/2 (Lt. Gray) 30% ms Wet: 2.5Y 4/3 (Olive Brown) 65% fs-vfs Saturated, mod. sorted, subrounded subdiscoidal to subprismoidal, 80% Qtz 15% Felsic, 5% Basalt, trace magnetics weak rxn to HCl	
	2 with 1 Rad 1 moist Tin	Hard Tool			150 Ft sample 9-10-92 @ 0820
150					Driller indicates heaving, water bearing sands 150 to 155 Ft
				150 Ft Sandy CLAY, as at 145.6-146.1 Ft	
					155 Ft sample 9-10-92 @ 0844
	2 with 1 Rad 1 moist Tin			155 Ft Slightly Clayey SAND (85% sand, 15% clay) other characteristics as above	
155					
	Bailed w/no sample taken			157 Ft Slightly Sandy CLAY (85% clay, 15% sand)	Hard, white caliche fragments washed from hard tool cuttings 158-160 Ft
	2 with 1 Rad 1 moist Tin			160 Ft Slightly Sandy CLAY, as above strong rxn to HCl	160 Ft Sample 9-10-92 @ 1125
160					

BOREHOLE LOG

Boring or Well No. 699-41-35

Sheet 9 of 13

Location: 200 Areas TEDB Candidate site
Project: W049H
Elevation: 517' g.s.
Drilling Contractor: KEH
Driller: L Watkins
Drilling Method and Equipment: Cable Tool BE22W
Prepared By: K.J. Swett (Sign/Print Name) Date: 9-14-92
Reviewed By: Edward C. Rafuse (Sign/Print Name) Date: 09/23/92

Depth (Feet)	Sample Type and No.	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)
160		Hard Tool		157-160 Ft Slightly Sandy CLAY	
					Caliche fragments washed from hard tool cuttings 160-165 Ft
	2 Lith 1 Rad 1 Moist Tin			165 Ft Slightly Clayey SAND, 95 gt 155 Ft mod. rxn to HCl	165 Ft sample 9-10-92 @ 1135
165					
					Caliche fragments washed from hard tool cuttings 165-170 Ft
	2 Lith 1 Rad 1 Moist Tin			170 Ft SAND (97% Sand, 3% fines) 20% CS Dry: 2.5Y 7/3 (Pale Yellow) 60% MS wet: 2.5Y 4/2 (Dk Gr. Brown) 20% FS-VFS	170 Ft Sample 9-10-92 @ 1145
170	Bailed w/ no sample taken			Saturated, well sorted subrounded subprismaidal to subdiscoidal, some discoidal micas, 80% Qtz, 15% felsic, 5% Basalt, some magnetics mod. rxn to HCl	moderately cemented sands
				174 Ft Gravelly Silty SAND (60% Sand, 20% Gravel, 20% silt/clay)	175 Ft sample 9-11-92 @ 1325
	2 Lith 1 Rad 1 Moist Tin			20% CS-VCS Dry: 60% MS wet: 2.5Y 4/2 (Dk Gr. Brown) 20% FS-VFS	Hard tool cuttings: Gravel sizes cannot be logged (fractured clasts)
175	Bailed w/ no sample taken			Saturated, poorly sorted, subangular to subrounded, subprismaidal to subdiscoidal, some discoidal micas in sand, 33% Qtz + Qtzite, 33% Felsics, 33% Basalt. Some magnetic, mod rxn to HCl	moderately cemented
	2 Lith 1 Rad 1 Moist				180 Ft sample 9-14-92 @ 0800
180					

BOREHOLE LOG

Boring or Well No. 699-41-35

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Location: 200 Areas TEDB Candidate Site
Project: W049H
Elevation: 517' g.s.
Drilling Contractor: KEH
Driller: L. Watkins
Drilling Method and Equipment: Cable Tool BE22W
Prepared By: K.J. Snelt (Sign/Print Name) Date: 9-16-92
Reviewed By: Edward C. Rafuse (Sign/Print Name) Date: 09/22/92

Depth (Feet)	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
180	Bailed w/ no sample taken	Hard Tool		180 Ft Silty Sandy GRAVEL	180' at 0800 Sample
				(60% Gravel, 20% Sand, 20% silt/clay)	BRS for Kirk Snelt 1-1-93
				other characteristics as above	
					185 Ft sample 9-14-92
				185 Ft Silty Sandy GRAVEL	@ 1300
185	2 Lith, 1 Rad 1 Moist Tin			(70% Gravel, 20% Sand, 10% silt/clay)	
				other characteristics as above	
	Bailed w/ no sample taken				Hard, cemented, abrasive
				188 Ft GRAVEL (65% Gravel, 10%	formation. Hard drilling
				Sand, 5% silt and clay)	
				10% lc 20% cs-vcs	
				20% sc 60% ms	
	chemical/1 Rad	split spoon 25-100 60% Recov		40% vcp-cp 20% fs-vfs	Chemical split spoon
				20% mp Dry:	188.00 - 189.00 Ft
	2 Lith 1 Rad 1 Moist Tin			10% fp-vfp wet: 2.5Y 4/2 (Dk gr. Brown)	9-15-92 @ 1030
190				Saturated, poorly sorted, subangular	
	Bailed w/ no sample taken			to rounded, subprismoidal to subdiscoidal	
				some discoidal micas in sand,	190 Ft sample 9-15-92
				33% Qtz and Qtzite, 33% felsic,	@ 1255
				33% Basalt, some magnetic,	
				weak rxn to HCl	
				195 Ft GRAVEL, as above	195 Ft sample 9-15-92
	2 Lith 1 Rad 1 Moist Tin				@ 1400
195					
	Bailed w/ no sample taken				
				200 Ft GRAVEL, as above	200 Ft sample 9-16-92
					@ 1200
	2 Lith 1 Rad 1 Moist Tin				
200					

WHC-SD-EN-DP-068, Rev.

BOREHOLE LOG

Boring or Well No. 699-41-35

Sheet 11 of 13

Location 200 Areas TEDB Candidate Site

Project W049H

Elevation 517' g.s.

Drilling Contractor KEH

Driller L. Watkins

Drilling Method and Equipment Cable Tool BE22W

Prepared By K.J. Sweet (Sign/Print Name) Date 9-17-92

Reviewed By Edward C. Rafuse (Sign/Print Name) Date 09/23/92

Depth (feet)	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
200					
	Bailed w/ no sample taken	Hard Tool			
				203 Ft CLAY (95% clay, 5%	
	2 Lith 1 Rad 1 Moist Tin			u.f. sand (VE xs visible), trace	
				basalt gravel)	205 Ft sample 9-17-92
				wet: 2.5Y 3/2 (v. Dk Grayish Brown)	@ 0830
				Dry: 2.5Y N/6.5 (Lt. Gray)	
205				Saturated, very Hard, fine horizontal	
	Bailed w/ no sample taken			layering, no dilatent reaction, high	
				dry strength, no rxn to HCl.	physical split spoon
				Logged from split spoon sample	206.80 - 208.80 Ft
					9-17-92 @ 0940
	physical w/ 2 Lith, 1 Rad	split spoon 20-15-21-20-20 100% Recov.		205 Ft CLAY, 95 above	
	2 Lith 1 Rad 1 Moist Tin				210 Ft sample 9-17-92
210				210 Ft CLAY, 95 above	@ 1030
	Bailed w/ no sample taken	Hard Tool		215 Ft SAND (90% sand, 10%	
				Fines)	
				70% UCS-CS wet: 2.5Y 3/2 (v. Dk Grayish Br)	
				20% MS Dry: 2.5Y 6.5 (Lt. Gray)	
				10% FS-UFS	
				Saturated, well sorted, subangular	
	2 Lith 1 Rad 1 Moist Tin			to subrounded, subprismoidal to	216 Ft sample 9-17-92
215				subdiscoidal, 70% Qtz, 15% Felsic	@ 1100
				15% Basalt some mashotics. No	
				rxn to HCl	water bearing formation
					w/ heaving sands @ 215 Ft
	Bailed w/ no sample taken			215.5 Ft CLAY, 95 at 203-215 Ft	
					SWL = 110.80 Ft 9-17-92
					@ 1350 (Approx 3 Hrs.
	2 Lith 1 Rad 1 Moist Tin			220 Ft. CLAY, 95 above	after sand lens encountered)
				with increasing basalt gravel	
					220 Ft sample 9-17-92
220					@ 1500

BOREHOLE LOG

Boring or Well No. 699-41-35

Sheet 12 of 13

Location 200 Areas TERB Candidate Site

Project WOUGH

Elevation 517' g.s.

Drilling Contractor KEH

Driller L. Watkins

Drilling Method and Equipment Cable Tool BE22h

Prepared By K.J. Swett (Sign/Print Name) Date 9-22-92

Reviewed By Edward C. Rafuse (Sign/Print Name) Date 09/27/92

Depth (Feet)	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
220	Bailed w/no sample taken	Hard Tool			
				223 Ft GRAVEL (80% Gravel,	
	2Lith 1Rad 1Moist Tin			10% sand, 10% silt and clay)	
				40% vcs-cs Gravel fraction pulverized	
				40% ms wet: 2.5Y 3/2 (Ch Dk Gr. Brown)	225 Ft sample
				20% fs-vfs Dry: 2.5Y 6.5 (Lt. Gray)	9-21-92 @ 0830
225				Saturated, mod. sorted, subangular	
				to subrounded, subprismoidal to	Hard Drilling - cemented
				subdiscoidal, 50% Basalt, 25% tz	
	2Lith			and qtzite, 25% Felsic, some	
				magnetics, weak rxn to HCl	
	1Rad				
				225 Ft GRAVEL, as above	230 Ft sample
	1Moist Tin				9-21-92 @ 1030
230				230 Ft GRAVEL, as above	
				232 Ft Increasing sand	
					SWL = 108.23 Ft
					9-22-92 @ 0730
	Bailed w/no sample taken			235 Ft Silty Sandy GRAVEL	
				(60% Gravel, 30% sand, 10% silt	
				and clay). As above w/	235 Ft sample
	2Lith 1Rad 1Moist Tin			increasing sand	9-22-92 @ 0900
235					
				Sand lens @ 236 Ft.	
	Bailed w/no sample taken				
				240 Ft. Silty Sandy GRAVEL,	
	2Lith 1Rad 1Moist Tin			as at 235 Ft	240-Ft sample
					9-22-92 @ 1115
240					

BOREHOLE LOG

Boring or Well No. 699-41-35

Sheet 13 of 13

Location 200 Areas TEDB Candidate Site

Project W049H

Elevation 517' g.s.

Drilling Contractor KEH

Driller L. Watkins

Drilling Method and Equipment Cable Tool BE22W

Prepared By K.S. Swett (Sign/Print Name) Date 9-24-92

Reviewed By Edward C. Rafuse (Sign/Print Name) Date 9/27/92

Depth (Feet)	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
240	Bailed w/ no sample taken	Hard Tool		Increasing Gravel	
	2 Lith 1 Rad 1 Moist Tin			245 Ft Silty Sandy GRAVEL 75% Gravel, 15% sand, 10% silt and clay Gravel Fraction pulverized 60% vcs-cs	245 Ft sample 9-22-92 @ 1316
245	Bailed w/ no sample taken			30% ms wet: 2.5Y 3/2 (v. Dk. Gr. Brown) 10% vfs-fs Dry: 2.5Y N6.5 (Lt. Gray) Saturated, Mod. Sorted, subangular to subrounded, subprismoidal to subdiscoidal, 50% Basalt, 25% Qtz and Qtzite, 25% Felsics, some magnetics, mod. rxn. to HCl	small $CaCO_3$ fragments in hard tool cuttings. Driller indicates cobbles @ 246 Ft.
	2 Lith 1 Rad 1 Moist Tin	Hard Tool w/ button bit			Very Hard Drilling @ 248 Ft
250	Bailed w/ no sample taken			247 Ft Basalt, vesicular, weathered. Fractured, Blue clay in filling of fractures	250 Ft sample 9-23-92 @ 1216
	2 Lith 1 Rad 1 Moist Tin			250 Ft BASALT, as above	255 Ft sample 9-24-92 @ 0730
255	Bailed w/ no sample taken			255 Ft BASALT, as above	
	2 Lith 1 Rad 1 Moist Tin 1 Basalt XRF			260 Ft BASALT, as above TD = 260.0 Ft	260 Ft sample 9-24-92 @ 0915
260					

WELL 699-42-37

WELL CONSTRUCTION REPORT

Specification No. WHC-S-014 Rev No. ~~6~~ 7 Oct 2-1992

ECNs 166757, 119402, 166752, 172209, 150132, 164223, 127434, 150138, 150137, ~~150133~~, 150130 KJS 8-12-92

Project W049H

Location 200 Areas TEDB Candidate Site

Drilling Company KEH

Driller M. Wraspir, L. Watkins

Other (Companies)

Geologist(s) K. Swett (NACES) E. Refuse (LHC)
B. Thompson (MCG) RS Edrington (LHC)
MD Sweeney (HPCO) ECR 10/26/92
S. Causey (HPCO) ~~E.C. Refuse (WHC)~~

Well No. 699-42-37 Temp. Well No.

Coordinates N: 136,247.29, E: 578,476.75

Casing Elev. 519.40 Top of outer Casing Ground Elev. 516.18

Drilling Method

Verification Method visual observation

Criteria WHC-S-014 5.2, 5.3, 7.5

			Initials	Date
Rotary	Air N/A	Mud N/A	N/A	N/A
Cable Tool	D 0-100' 129-141	H 100-129' 141-268	KJS	9-14-92
Drilling Fluid	Raw H_2O		~~BAT~~	8-20-92
Other	N/A	N/A	N/A	N/A

Geophysical Logging

Sondes	Interval	Date
~~Gross Gamma~~	1.4'-262.7'	09/21/92
	-	
	-	
	-	
	-	

Completion Data

Drilled Depth 268.0

Completed Depth 154.50 Ft.

Date Started 8-12-92

Date Completed 11-2-92

Static Water Level/Date 116.05/9-11-92
111.53/9-18-92
101.92/10-19-92

Aquifer Testing

Type Instantaneous Slug test

Flow Meter I D No. N/A

Cal Due Date N/A

Length of Test 1 hr.

Volume Pumped N/A

Drawdown N/A

Date of Test 10/30/92

Completion Results

Cleaning

Verification Method visual inspection and observation

Criteria WHC-S-014 7.6, 4.2.2, 7.7

	Initials	Date
Drilling Tools/Rig	KJS	8-12-92
Temporary Materials	KJS	8-12-92
Permanent Materials	ECR	10-14-92

Material Storage/Packing

Verification Method visual inspection

Criteria WHC-S-014 4.2.2, 7.3

	Initials	Date
Mtl. Handling/Storage	E.C.R.	10/14/92
Material Packing	E.C.R.	10/14/92

Screen

Type	Length	Slot Size
4" SS continuous wire wrap	10.27 including ~~0.95~~ End Cap	020-010

Depth(s) ~~144.23~~ 144.23 Ft. - 154.50 Ft. w/cap
ECR 10/26/92 -

Verification Method verify using steel tape

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

Initials ECR Date 10/14/92

Lubricants/Additives

Verification Method visual observation

Criteria WHC-S-014 7.2

	Identify	Initials	Date
Additives	Raw water	KJS	9-14-92
Lubricants	well guard	KJS	8-12-92

Straightness Test

Verification Method visual observation

Criteria WHC-S-014 8.2

Initials KJS Date 9-14-92

WELL CONSTRUCTION REPORT
(continuation sheet)

Casing (permanent)

Type	Size	Placement
T 304 STAINLESS STEEL SCH 5	4" Dia.	3.2 Ags - ~~147.57~~ 144.23 ECL 10/28/92
		-
		-
		-

Verification Method: verify using steel tape

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

Initials: E.C.R. Date: 10/14/92

Well Protection

Verification Method: visual and measure w/ tape

Criteria: WHC-S-014 4.2.9, 4.2.10, 11.0

	Initials	Date
Protective Posts	RJE	11/2/92
Protective Casing	RJE	11/2/92
Site Restored	E.C.R.	05/12/93
Cap, Hasp and Lock	RJE	11/2/92
Surface Pad	RJE	11/2/92

Annular Seal/Filter Pack (2)

Verification Method: Measure w/steel tape Criteria: WHC-S-014 4.2.6 — 4.2.9, 5.3.1

Type	Interval	Volume	Initials	Date
Hole Plug (Coarse granular bentonite)	159.9 - 263.5	45.54 Ft^3	E.C.R.	10/14/92
20-40 sand filter pack	139.6 - 159.9	13.44 Ft^3	E.C.R.	10/14/92
Hole Plug (Coarse granular bentonite)	88.5 - 139.6	35.19 Ft^3	E.C.R.	10/14/92
Bentonite crumbles	8.1 - 88.5	44.02 Ft^3	E.C.R.	10/14/92

Well Survey/Labeling

Verification Method: Document Review

Criteria: WHC-S-014 3.4, 4.2.10

	Initials	Date
Measurement Point/Surveyed	BRT	1-11-93
Protective Casing/Brass Cap Surveyed	BRT	1-11-93
Well Number Stenciled	E.C.R.	05/12/93
Brass Cap Labeled	E.C.R.	05/12/93

Pump Installation

Verification Method: Visual Observation

Criteria: WHC-S-014 4.2.11, 5.3.1 M

	Initials	Date
Pump Decon/Prep	RJE	11/2/92
Installed	RJE	11/2/92
Pump Tested	RJE	11/2/92

Other (initial if performed)

_____ Well Abandonment _____ Downhole TV Inspection E.C.R. Complete As-Built Diagram, Driller's/Geologist's Logs

RJE (10/30/92) Well Development

Comments/Remarks

(2) CEMENT GROUT 2.0' - 8.1' 33.41 Ft^3 E.C.R. 10/14/92

Reviewed By (Sign/Print Name): KD Reynolds KD Reynolds Date: 6/1/93

Pg 4

WELL SUMMARY SHEET

Boring or Well No. 699-42-37

Sheet 1 of 2

Location 200 Areas TEDB Candidate Site

Project W049H

Elevation ~~N/A~~ 1-6-93 516.18'

Drilling Contractor KEH

Driller M. Wrasgit

Drilling Method and Equipment Cable Tool: BE22W

Prepared By K.J. Swett (Sign/Print Name) Date 9-1-92 10-24-92

Reviewed By Edward C. Rafuse / Edward C. Rafuse (Sign/Print Name) Date 10/29/92

CONSTRUCTION DATA		Depth in Feet	GEOLOGIC/HYDROLOGIC DATA	
Description	Diagram		Graphic Log	Lithologic Description
				0-2' SAND
CEMENT GROUT 2.0-8.1 ft.		10		2-48.5 GRAVEL
				"
		20		"
12"ϕ Temporary CS casing w/shoe set at 21.69 FT				"
		30		"
				"
		40		"
BENTONITE CHUNKS 8.1 - 88.5 Ft.				"
		50		48.5-92 Silty Sandy GRAVEL
				"
		60		"
				"
		70		"
				"
		80		"
HOLE PLUG (COARSE GRANULAR BENTONITE) 88.5 - 139.6		90		92'-95' (115' BOT 12-9-92) Silt/Clay paleosol
SWL 101.2 Ft. ON 10-19-92		100		95'-(115') Sandy Silt Clay (95'-129') BOT 12-9-92 (BOT 12-9-92)
		110		"
				"
10"ϕ Temporary C.S. Casing w/shoe set at 121.93'		120		"
		130		(129' to 176') Silty Sandy Gravel
				"
20-40 SAND FILTER PACK 139.6'-159.9'		140		"
				"
4" ϕ .010 SLOT CONTINUOUS WIRE WRAP STAINLESS STEEL SCREEN 144.23 - 154.50 Ft.		150		"
				"
		160		"

A-6000-384 (04/90)

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WELL SUMMARY SHEET

Boring or Well No. 699-42-37

Sheet 2 of 2

Location 200 Areas TEDB Candidate Site
Project W049H
Elevation 516.18'
Drilling Contractor KEH
Driller M. Wraspir
Drilling Method and Equipment Cable Tool: BE22h
Prepared By K.J. Swett (Sign/Print Name) Date 12-24-97
Reviewed By Edward C. Rafuse (Sign/Print Name) Date 12/08/98

CONSTRUCTION DATA		Depth in Feet	GEOLOGIC/HYDROLOGIC DATA	
Description	Diagram		Graphic Log	Lithologic Description
8"Ø Temporary CS casing w/shoe set at 258.09 FT		170		(129'-176') silty sandy GRAVEL
				"
		180		(176' to 191') Sandy silty CLAY
				"
				"
		190		(191' to 245') silty sandy GRAVEL
				"
		200		"
				"
		210		"
Hole Plug (coarse granular bentonite) 159.9-263.5'				"
		220		"
				"
		230		"
				"
		240		"
				"
		250		(245'-248.5') Sandy GRAVEL
				(248.5' to 265.5') weathered BASALT
		260		265.5' BASALT
Slough 268.0'-263.5'		270		TD = 268.00 FT

BOREHOLE LOG

KDR 1/12/93

Boring or Well No. 699-42-37

Sheet 1 of 14

Location 200 Areas TEDB Candidate Site

Project W049H

Elevation ~~516.18~~ 516.18'

Drilling Contractor KEH

Driller M. Wraspir

Drilling Method and Equipment Cable Tool BE22W

Prepared By K.S. Swett (Sign/Print Name) Date 8-13-92

Reviewed By Edward C. Rafuse (Sign/Print Name) Date 08/14/92

Depth (feet)	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
0		Drive Barrel		0-2' SAND (90% sand, 5% silt, 5% gravel)(S)	Eolian sand and silt
				50% CP 10% vcs-cs Dry: 10YR5/3 (Brown)	some rootlets, organic
				25% mp 20% ms wet: 10YR3/3 (Dk Brown)	silt, strong soil
				25% cp-cp 70% fs-vfs	bacterial odor
				Dry, well sorted, subangular to rounded	
				subprismaidal to subdiscaidal, 40% Qtz	
				40% Basalt, 20% felsic, some magnetite,	
				No rxn to HCl	5 Ft Sample 8-12-92
	2 Lith 1 Rad 1 Moist Tin				@ 0830
				2 FT GRAVEL (90% Gravel, 7% Sand	Calcite rind on clasts
5				3% silt)(G)	silt coating on sand +
				10% sm. boulder 5% vcs-cs	gravel.
	Chemical w/1 Rad	split spoon 7-26-20-19-13 75% Recov.		20% lc 25% ms	Chemical split spoon
				30% sc 25% fs-cs	5.94 Ft to 7.94 Ft
				30% vcp-cp Dry: 2.5Y7/2 (Lt. Gray)	8-12-92 @ 1020
				10% mp-vcp wet: 2.5Y5/2 (Grayish Brown)	
				Dry, Mod. sorted, subangular to	
	Physical w/1 Rad	split spoon 9-9-27-25-31 50% Recov.		subrounded, subprismaidal to subdiscaidal	Physical split spoon
				70% Basalt, 15% Qtz and Qtzite	8.30 Ft to 10.30 Ft
10 *				15% Felsic, some magnetite, v. strong	8-12-92 @ 1430 1x6" long
				rxn to HCl	stainless steel liner obtained
				5 Ft. GRAVEL (G) as above	from 9.3 to 9.6 Ft.
	Physical + Chemical w/1 Rad	split spoon 50-40-27-22-10 100% Recov.		10 Ft GRAVEL (G), as above, slightly	*
				more silt (±5%) slightly moist	10 Ft Drive barrel sample
					obtained 8-13-92 @ 0720
					while cleaning out borehole
					prior to split spoon. sample
		Drive Barrel			consists of 2 Lith, 1 Rad,
	2 Lith 1 Rad 1 moist tin				1 moisture tin.
15					
				15 Ft GRAVEL (G), as above w/	Physical + Chemical split
				less boulders/cobbles	spoon 10.60-12.60 Ft
					8-13-92 @ 0900 1x6" long stainless
					steel liner obtained for physical
	Physical + chemical w/1 Rad	split spoon 30-38-31-29-54 100% Recov			sample 11.6 - 12.1 Ft.
				Moderately cemented w/ $CaCO_3$ @	15 Ft sample 8-13-92 @ 1130
				19 Ft: silty sand matrix (intact	Physical + Chem split spoon 15.80-
				pieces from drive barrel	17.80 Ft. 8-13-92 @ 1300. 1x6" long
		Drive Barrel			stainless liner obtained for physical
	2 Lith 1 Rad 1 moist tin				
20					sample 16.8 - 17.3 Ft.

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BOREHOLE LOG

Boring or Well No. 699-42-37

Sheet 2 of 14

Location 200 Areas TEDB Candidate Site

Project W049H

Elevation ~~[illegible]~~ 516.18'

Drilling Contractor KEH

Driller M. Wraspir

Drilling Method and Equipment Cable Tool BE22W

Prepared By K.J. Snett (Sign/Print Name) Date 8-17-92

Reviewed By Edward C. Rogers (Sign/Print Name) Date 08/17/92

Depth (Feet)	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
20	Chemical w/1 Rad	split spoon 8-23-69-35-53 100% Recov		20 Ft GRAVEL(G) (70% Gravel, 5% sand,	20 Ft Sample 8-13-92
				5% silt)	@ 1415
				20% lc 50% ucs-cs	Chemical split spoon
				35% sc 25% mS	20.00 - 22.00 Ft. 8-13-92
				35% ucp-cp 25% fs-ufs	@ 1430
		Drive Barrel		10% np-ufp Dry: 2.5Y 7/2 (Lt. Gray)	
				wet: 2.5Y 5/2 (Gr. Brown)	sand/silt matrix moderately
				Moist, Mod. sorted, subangular to	cemented w/ $CaCO_3$
	2 Lith 1 Rad 1 Moist Tin			subrounded, subprismoidal to subdiscoidal	
25				70% Basalt, 15% Qtz + Qtzite, 15% Felsic	
				some magnetite, strong rxn to 10% HCl	
					25 Ft sample 8-14-92
				23-25 Ft. GRAVEL(G) as above	@ 1006
				w/ some large cobbles - sm. boulders	
				decreasing silt	
	2 Lith 1 Rad 1 Moist Tin				
30				30 Ft GRAVEL (G) (90% Gravel, 8% sand,	30 Ft sample 8-14-92
				2% silt)	@ 1036
				10% sm. bldr. 60% ucs-cs	
				30% lc 20% mS	Open framework gravel,
				20% sc 20% fs-ufs	silt collects where clasts
				20% ucp-cp Dry: 2.5Y 7/2 (Lt. Gray)	are in contact
				10% np wet: 2.5Y 5/2 (Gr. Brown)	
				10% fp-ufp	sands are clean: little
	2 Lith 1 Rad 1 Moist Tin			Moist, Mod. sorted, subangular to	silt. silt has coating
35				rounded, subprismoidal to subdiscoidal	on grains
				80% Basalt, 10% Qtz + Qtzite, 10%	
				felsic, some magnetite, strong rxn to HCl	
					35 Ft sample 8-17-92
				35 Ft GRAVEL(G) as above	@ 0800
				weak rxn to HCl	
					little $CaCO_3$
	2 Lith 1 Rad 1 Moist Tin				
40					

A-6000-382 (04/90)

BOREHOLE LOG

Boring or Well No. 699-42-37

Sheet 3 of 14

Location 200 Areas TEDB Candidate Site

Project W049H

Elevation ~~[illegible]~~ 516.18'

Drilling Contractor KEH

Driller M. Wrasplr

Drilling Method and Equipment Cable Tool BE22W

Prepared By K.J. Swett (Sign/Print Name) Date 8/17/92

Reviewed By Edward C. Rafuse (Sign/Print Name) Date 08/20/92

Depth (Feet)	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
40		DB		40 Ft GRAVEL(G)(85% Gravel, 13% sand 2% silt	40 Ft sample 8-17-92 @ 0840
				10% lc 60% vcs-cs	
				30% sc 20% ms	open framework Gravel
				30% vcp-cp 20% fs-vfs	mud coating on clasts
				20% mp Dry: 2.5Y 7/2 (Lt. Gray)	
				10% fp-vfp wet: 2.5Y 5/2 (Grayish Brown)	
				Moist, Mod sorted, subangular to	
	2 Lith 1 Rad 1 Moist Tin			rounded, subprismoidal to subdiscoidal	45 Ft sample 8-17-92
45				70% Basalt, 20% Qtz and Qtzite	@ 1100
				10% felsic, some magnetite, weak	Harder Drilling: More
				rxn to HCl	cobbles
				45 Ft GRAVEL(G) as above	
				w/ more large cobbles	
				48.5 Ft Silty Sandy GRAVEL(ms G)	
				(70% Gravel, 20% sand, 10% silt	
	2 Lith 1 Rad 1 Moist Tin			10% lc 40% vcs-cs	50 Ft sample 8-17-92
50				20% sc 40% ms	@ 1155
				40% vcp-cp 20% fs-vfs	mottled appearance,
				20% mp Dry: 10YR 6/2 (Lt. Brownish Gray)	micaceous sands
				10% fp-vfp wet: 10YR 4/2 (Dk Grayish Br.)	red, weathered basalt
				Moist, poorly sorted, subangular to	clasts
				rounded, subprismoidal to subdiscoidal	
				(w/ discoidal micas) 60% Basalt,	
				20% Qtz and Qtzite, 20% felsics	
				some magnetite, strong rxn to HCl	
	2 Lith 1 Rad 1 Moist Tin				
55				55 Ft. Silty Sandy GRAVEL(ms G)	55 Ft sample
				as above	8-17-92 @ 1455
	1 Rad 2 Lith 1 Clear Tan				
60					

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BOREHOLE LOG

Boring or Well No. 699-42-37

Sheet 4 of 14

Location 200 Areas TEDB Candidate Site

Project WO 49H

Elevation ~~WHARRT~~ 516.18'

Drilling Contractor K.E.H.

Driller M. Wraspir

Drilling Method and Equipment Cable tool B.E. 22W

Prepared By B.R. Thompson / B.R. Thompson (Sign/Print Name)

Date 8-18-92

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

Date 08/20/92

Depth (60')	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
		DB		Silty Sandy Gravel (48.5 – 66.5)	60' at 0838 8-18-92
				Same as the previous page.	B.O.C. ≈ 59' Drillrate N/A
				Lithology has not changed.	10" CS casing, 9" Drive Bucket
				light reaction to HCL.	Vadose Zone. Damp.
				~~Boulder at 61'.~~ BRT 8-18-92 large cobble at (61')	
				~~(62') gradually becoming silt rich.~~ BRT 8-18-92	
				(62') increase in silt.	
	1 HPT 2 lith 1 CaCo3 H2O				
65'				65' at 1348 8-18-92	B.O.C ≈ 64' Drillrate
	1 HPT 2 lith 1 CaCo3 H2O			increasing silt Decrease C. Sand.	Slow Vadose Dry
				~~66.5' Sandy Silty Gravel~~ BRT 8-18-92	66.5' at 1330' 8-18-92
				66.5' Silty Sandy Gravel	Vadose Zone extremily
				~~30% Silt 15% Sand 80% Gravel~~ 8-21-92 BRT	wet almost muddy.
				5-10% silt 10% C.S 20% C.P	
				100% Silt 15% M.S 40% M.P	
	1 HPT 2 lith 1 CaCo3 H2O			75% F.S 40% F.P	
70'				The fine sand is V.F.S. at the edge	
				of the silt Boundary.	70' at 1340' 8-18-92
				Color: wet: 2.5Y 4/3 olive Brown	B.O.C ≈ 69'; 3.5'/10 min
				Dry: 2.5Y 6/2 Dry light Brown Gray	" "
				Moist to very wet or muddy. poor	" "
				sorted Gravells and Sands moderate	Vadose Zone drying.
				to sorted silt and V.F.S. well Round	Cemented. $CaCO_3$ SiO_2
				to subround pebbles in a very fine	
				silty Sand matrix. Angular, Subangular	
				Sand. Mineralogy: Limonite Rust	
75'				staining in the silt and Sand.	
	1 RAD 2 LITH 1 $CaCO_3$ H_2O	DB		30% Basalt 20% Qtz 10% meta-	
				morphic pebbles 40% undifferentiated	
				volcanic pebbles. Sand has the	
				Same Mineralogy except 3% mica.	
				Moderate to strong reaction to HCL	
				Cemented.	
				75' SILTY SANDY GRAVEL	75' @ 0828 8-19-92
				60% COBBLE GRAVEL, 35% SAND, 5% SILT	MOIST SAMPLE.
				SAME DESCRIPTION AS 66.5'	
				25% LC, 5% SC, 30% CP, 15% MP, 25% FP.	

A-6000-382 (04/90)

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BOREHOLE LOG

Boring or Well No. 699-42-37

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tion 200 Area TEDF Candidate Site — Project WO4911

Elevation 516.18' — Drilling Contractor KEI

Driller M. Wraspir — Drilling Method and Equipment Cable Tool - Bucket

Prepared By MD Sweeney / [illegible] (Sign/Print Name) — Date 8-19-92 — Reviewed By Edward C. Rafuse / Edward C. Rafuse (Sign/Print Name) — Date 8/21/92

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
	1RAD 2LITH 1CaCO3 H2O	DB		80' SILTY SANDY GRAVEL SAME AS 75'	80' @ 926 8-19-92
85	1RAD 2LITH 1CaCO3 H2O	DB		85' SILTY SANDY GRAVEL SAME AS ~~75'~~ 75' BUT WITH DECREASING AGGREGATE SIZES (10% LC) AND DECREASING MOISTURE.	85' @ 1135 8-19-92
90	1RAD 2LITH 1CaCO3 H2O	DB		90' SILTY SANDY GRAVEL SAME AS 75' BUT WITH INCREASING SILT, SIZES OF AGGREGATE (15% LP) AND MOISTURE.	90' @ 1250 8-19-92
	1HPT 1 Physical 1 Chemical	Split Spoon H, 40, 50, 46, 63 100% Recov.		92' to 95' SILT/CLAY 98% SILT/CLAY W/2% SAND. SAND IS VFG. MOIST COLOR WET 2.5Y 6/4 LT Yellowish Brown.	92' @ 1310 8-19-92
95	1HPT 2LITH 1CaCO3 H2O	DB		Color Dry: 2.5Y 7/4 Pale Yellow CONTACT @ 91' (91.65'-94.15') silt 100% silt stiff and Crumbely. slightly Damp. color: Dry: 2.5Y 7/2 light grey wet: 10YR 3/2 Dark gray Brown well sorted Angularity N/A mineralogy N/A clay over Bank No reaction to HCl. white rivulets. limonite rivulets Reddish. over Bank or Paleosol.	91.65' split spoon at 0900 8-20-92 95' at 0940 @ 8-20-92
	1HPT 2LITH 1CaCO3 H2O				

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BOREHOLE LOG

Boring or Well No. 699-42-37

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Location 200 AREA - TEDB Candidate site
Project W049H
Elevation 516.18
Drilling Contractor K.E.H.
Driller M. WRASPIR
Drilling Method and Equipment CABLE TOOL · B.E. 22W
Prepared By B.R. Thompson / [illegible] (Sign/Print Name) Date 8-20-92
Reviewed By EDWARD C. RAMAN / Edward C. Raman (Sign/Print Name) Date 08/21/92

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' HT		100' silt Sample at 1038 on 8/20/92	B.O.C. 99' Drillrate N/A
					Slow 10" cs casing
				mild color change Dry: 10YR 6/2	9.5" Drive barrell
				light Brown Wet: 10YR 5/3	Vadose Zone lightly
				gray when Dry to a Dark gray	Damp.
				Brown when wet.	
				occassional F.S and V.F.S. grains.	
	1 HPT 2 lith 1 CaCo3	HT			
105'				105' Sample at 1155 on 8/20/92	" "
				Clay/Silt No change.	9.5" Hard tool
					Vadose Zone adding
					H_2O for Drilling Fluid.
	1 HPT 2 lith 1 CaCo3				
110'		HT		110' Sample at 1305 8/20/92	" "
				Light reaction to HCL	" "
				Behaves like potters Clay	" "
				or eastern montana Gumbo when	
				wet. Grading to a pinkish	
				Hue	
				color: Dry 6/2 7.5YR Pinkish gray	
				wet 7.5YR 4/2 Brown	
	1 HPT 2 lith 1 CaCo3				
115'				Suspecting gradational increase in Sand.	
		HT		115' Sample at 1325 8/20/92	" "
				light reaction to HCL	" "
				~~Clay/Silt Sand~~ Sand, silt/Clay	" "
				80% clay/silt 20% Sand	
				100% clay/silt 80% V.F.S	
				20% F.S	
				moderate to well sorted well round	
				Subround Qtz Sand. color " "	
				mineralogy of the sand: 3% feldspar 1%	
				Basalt 1% mica. 95% Qtz in a clay/silt matrix.	

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BOREHOLE LOG

Boring or Well No. 699-42-37

Sheet 7 of 14

Location 200 Area - TEDB Candidate site | Project W049H

Elevation 516.18' | Drilling Contractor K.E.H

Driller M. Wraspir | Drilling Method and Equipment Cable tool B.E.22W

Prepared By Brett Thompson / Brett Thompson (Sign/Print Name) Date 8-26-92 | Reviewed By Edward C. Rogers / Edward C. Rogers (Sign/Print Name) Date 08/28/92

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 HPT 2 lith 1 CaCo3	HT		121' Sample at 0925 8-21-92	B.O.C 119.58 Drill rate
				Sandy Silty Clay	N/A 10" CS casing 9"
				30% Sand 70% Silt/clay	Hard tool questionable
				3-5% M.S. 100% Silt/clay	Vadose Zone.
				20% F.S. Color: wet 10YR 5/4 Yellow Brown	Cloudy weather
				75% V.F.S. Increase in Sand	
				moderate sorting well Round to sub	Mineralogy: of the sand
				Round	was done with a hand
				mineralogy of the Sand 3% feldspar 5%	lense Sample was washed
125'				Mica 5% magnitite 1.% Redgriaues some	and clay was decanted
	1 HPT 2 lith 1 CaCo3	HT		look like garnets or chert. moderate	off. F.C. 08/28/92
				reaction to HCL.	Note: paleosiol has
				Increasing in fine sand gradations	graded to what looks
				12.5' Sample at 0735 8/25/92	like over bank deposites ?
		Split spoon 126.79 to 129.1 Physical Sample		Notable increase of sand	Paleo Siol Ranges from
				Sandy silty clay	92' - 95' Thick.
				45% Fine sand 55% silt clay	water table ≈ 112.0'
129'				color wet 2.5y 5/4 lite olive brown	Note After 120' we
	2X 1 HPT 129 2-lith 1 CaCo3 130'	DB		Dry 2.5y 6/3 light yellow Brown	Downsized to 8" C.S.
130'				moderate sorting Subrounded	Casing.
				mineralogy 82% Qtz Sand 5% magnitite	127' Change from 7.5"
				5% Mica 5% feldspar 3% Basalt 3%	hard tool to split spoon
		Split spoon 130.8-133.11 Chemical		unkown Redgriaues	split spoon at 0908
				129' CONTACT WITH THE	8-25-92 126.79' to 129.1'
				RINGOLD Gravells at 0950'	175 Blows 100% recovery
				on 8-25-92 Contact is Sharp	
		DB		Silty Sandy Gravell (129'-176')	8" DB
				15% Silt 20% Sand 65% Gravel	
		Split spoon 134.09-136.39 Physical		100% Silt 20% C.S. 55% C.P.	Split spoon at 1108 8-25-
135'	1 HPT 2 lith 1 CaCo3			30% M.S. 20% M.P.	92 130.8 to 133.11
				50% F.S. 10% F.P.	Chemicle Sample 100%
				strong reaction to HCL 15% V.F.P.	recovery 326 Blows
		DB		Color: Dry 5y 6/3 pale olive dry	8" DB
				wet 5y 4/4 olive color was	
				checked in the shade.	Split spoon at 1445
				Poor Sorting. Pebbles are	8-25-92 - 317 Blows
				well round subprismidal to sub	75% recovery 134.09 to 136.39
				disciodal. Angular fine pebble.	8" DB.
				Sand is angular to subround.	water table.
				The finer the grians the more	

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BOREHOLE LOG

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Location 200 Area - TEDB Candidate site
Project W049H
Elevation 516.18'
Drilling Contractor K.E.H.
Driller M. Wraspir
Drilling Method and Equipment Cable tool B.E. 22W
Prepared By Brett Thompson / Brett Thompson (Sign/Print Name) Date 8-26-92
Reviewed By Edward C. Rafuse / Edward C. Rafuse (Sign/Print Name) Date 08/31/92

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
	1 HPT 2 lith 1 CaCO3	DB		Rounded They get.	B.O.C = 139' Drillrate
				Note They are wellcemented	is slow 8" Driv Barrell
		HT		mineralogy of The pebbles:	water table
				60% quartzite pebbles 10% volcanic	Drillers Change out
				5% Granitic 20% metamorphic	to Hard Tool Gravells
				looks like some 7 Devils Rock.	are excessivly Cemented.
				5% Basalt pebble. Granitic stones	Note:
				are desintigrating under diagenisis	138' water pocket
				So are the volcanic pebbles.	or Channel Thru the
145'				limonite staining present	Cemented gravels.
	1 HPT 2 lith 1 CaCO3	HT		mineralogy of The sand: 5%	
				magnitite 7% feldspar 5% mica 3%	
				Basalt 10% undiff volc/metamorphics	
				70% Qtz Sand. long axis of	
				the pebbles appear to have a	
				Horizontal orientation	
				~~140' Sampl~~ 8-26-92	
				140' Sample at 0925 8-26-92	B.O.C = 139'
150'					8" DB, Drillrate slow
	1 HPT 2 lith 1 CaCO3	HT		Increase in medium sized	water table
				Sand Content maybee 5%	
				less silt. Doesn't Appear	
				to be much difference in any	
				Thing else.	
				145' Sample at 1130 8-26-92	B.O.C = 139'
				Hard tool cuttings	7.5" hard too
155'				Doesn't appear to be any	water table
	1 HPT 2 lith 1 CaCO3	HT		note worthy changes.	
				150' Sample at 1345 8-26-92	B.O.C = 139'
				" "	7.5" HT
				10% more silt.	water table
				Hard tool slurry a lot of silt	
				in suspension.	
				155' Sample at 0945 8-27-92	B.O.C = 151' "
					" "

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BOREHOLE LOG

Boring or Well No. 699-42-37

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Location 200 Area - TE DB Candidate site | Project W049H

Elevation 516.18' | Drilling Contractor K.E.H.

Driller M. Wraspir | Drilling Method and Equipment Cable tool B.E. 22W

Prepared By Brett Thompson / Brett R. Thompson (Sign/Print Name) Date 9-27-92 | Reviewed By Edward G. Lafferty / Edward G. Lafferty (Sign/Print Name) Date 09/04/92

Depth (160)	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 HPT 2 lith 1 CaCO3	HT		160' at 1120 9/27/92	B.O.C ≈ 151'
				Silty Sandy Gravel	8" CS Casing, 7.5"
				Hard tool cuttings	Hard Tool water
				~~80% Silt~~ 5% silt 25% Sand 70% Gravel	level at 112 ft
				100% silt 10% C.S 100% Hard tooled	
				50% M.S shattered Gravel.	Driller encounters
				30% F.S	loose sands with in
				Color wet: 5y 6/3 pale olive poorsorted	The Gravel frame work
	1 HPT 2 lith 1 CaCO3	HT		dry: 5y 4/4 olive	Heavings sands.
165'				mineralogy is the same However	Probably a sand lense or
				Their is a 5% increase in mica	Gravell Bar Knape or
				light reaction to HCL	stern.
				165' Sample at 1155 9-1-92	B.O.C ≈ 159.0'
				Same as the last observation	8" C.S Casing 7.5
				except for the mineralogy of	Hard Tool water
				The crushed pebbles.	level at 112 ft
				25% Qtz 25% metamorphic	Sunny warm weather.
	1 HPT 2 lith 1 CaCO3	HT		schist grade 25% undifferentiated	
170'				volcanics 25% Basalt	
				some of the Black grains that	
				appear to be basalt chips are	
				a very dark High grade schist.	
				170' at 1356 Sample 9-1-92	B.O.C = 159.0'
				" "	" "
					" "
					" "
	1 HPT 2 lith 1 CaCO3	HT		175' at 0928 Sample 9-2-92	B.O.C. ≈ 159.0'
175'				" "	" "
					" "
	1 HPT 2 lith 1 CaCO3	HT			" "
				176' at 1056 Sample 9-2-92	B.O.C. ≈ 169.0'
				Sandy Silty Clay (gray Clay)	" "
				~~75% Sand~~ 15% ~~Silt~~ Silt Clay 85%	" "
				20% M.S 100% Clay/and silt	" "
				80% F.S	Sunny weather
				color: wet: 5y 3/1 very Dark gray	
				Dry: 4/4 olive	
				moderate to well sorted Subround Sand	

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BOREHOLE LOG

Boring or Well No. 699-42-37

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Location 200 Area - TEOB Candidate site

Project WO49H

Elevation 516.18'

Drilling Contractor K.E.H.

Driller M. Wraspir

Drilling Method and Equipment Cable tool B.E.22W

Prepared By S. Causey / Brett Thompson / Brett Thompson (Sign/Print Name) Date 9-2-92

Reviewed By Edward C. Rafuse / Edward C. Rafuse (Sign/Print Name) Date 10/13/92

Depth (180')	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 HPT 2 lith 1 CaCO3	HT		mineralogy: of The sand: 95% otz 2% Magnetite 2% feldspar 1% Basalt 1% mica	
				mineralogy of The clay is undifferentiated gray clay.	
				note: gravel fragments are from Bailing uncased interval above	
				The clay layer no reaction to HCL layer interval is (176' to 191')	
185'				180' at 1415 Sample 9-2-92	BOC. ≈ 179.0
	1 HPT 2 lith 1 CaCO3	HT		No Sand slightly silty clay Hackle Texture.	
				185' at 0745 9-3-92 Sample	B.O.C ≈ 179.0
				" "	8" C.S Casing, 7.5"
				" "	H.T, water level at
				Note: Sample has a waxy appearance or luster. of The clay.	112.1 Sunny weather.
	1 HPT 2 lith 1 CaCO3	HT			
190'				190' at 0835 - 9-3-92 Sample	B.O.C ≈ 179.0
				" "	" "
	191 1 HPT 2 lith 1 CaCO3	HT		" "	" "
				color: 5y 4/1 to 3/1 Dark gray to very Dark gray	Drilled through clay @ ≈191'
				191' Silty Sandy GRAVEL HT cuttings 5% silt 25% sand 70% GRAVEL	
195'				195' @ 1330 9/3/92 SAMPLE 100% silt 10% CS 30% SAND 50% MS 30% FS. LL 09/04/92 100% HT'ed Shattered GRAVEL	BOC ≈ 196.2' @ 1500 70% GRAVEL 9/3/92
				Color wet: 5y 6/3 pale olive poor sorting	
				Dry 5y 4/4 olive	
	1 HPT 2 lith 1 CaCO3	HT		No. Reaction to HCL	
200'					200' SAMPLE @ 0810 9/4/92

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BOREHOLE LOG

Boring or Well No. 699-42-37

Sheet 11 of 14

Location 200 AREA - TEDB Candidate Site

Project W049H

Elevation 516.18'

Drilling Contractor KEH

Driller M. WRASPIR

Drilling Method and Equipment Cable Tool - B.E.-22W

Prepared By Stewart Causey (Sign/Print Name) Date 9/4/92

Reviewed By Edward C. Rafuse (Sign/Print Name) Date 10/13/92

Depth (Feet)	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
200'				200 FT. Silty Sandy GRAVEL	
				HT cuttings	
				5% silt 25% Sand	
				70% GRAVEL.	Slow down in
				Sand fraction: 10% C.G.	drilling rate
				50% M.G., 30% F.G.	≈ 1.5'/hr.
	1HPT			Gravel, shattered by H.T.	
	2Lith			Poor sorting	
	1CaCO3	HT		Color wet: 5Y 6/3 pale olive	
205'				Dry: 5Y 4/4 olive	W.L. 118.79' @ 0710
				No reaction to HCL	9/8/92
				205 FT sample - same as above	
				80% Qtz 1% magnatite	
				3% Feldspars; 15% Basalt.	
				<1% mica.	
	1HPT			Clay - undifferentiated	
	2Lith			Light grey clay.	
	1CaCO3	HT			B.O.C. 200.38' @
210'				210 FT. sample as above	1500 9/4/92
				increase in Basalt 30%	
				Qtz 65% - 5% Felsic	
				No reaction to HCL	
	1HPT				
	2Lith				
	1CaCO3	HT			
215'				215 FT sample: same as above	
				@ ≈ 214' <1' stringer of	
				silty sandy CLAY	
				color grey green.	
				Basalt 60% Qtz 35%	
	1HPT				
	2Lith			Blue-green silty sandy CLAY	
	1CaCO3	HT		@ ≈ 219' ≤ 6" stringer	
220'					

BOREHOLE LOG

Boring or Well No. 699-42-37

Sheet 12 of 14

Location 200 AREA - TEDB Candidate Site
Project WD49H
Elevation 516.18'
Drilling Contractor KEH
Driller M. WRASPIR.
Drilling Method and Equipment Cable Tool - B.E.-22W
Prepared By Stewart Cussy / Stewart Cussy (Sign/Print Name) Date 9/8/92
Reviewed By Edward C. Rafuse / Edward C. Rafuse (Sign/Print Name) Date 10/2/92

Depth	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
220'				220' FT SAMPLE - SAME AS ABOVE	
				HT Cuttings	
				5% Silt; 25% Sand; 70% GRAVEL	
				Sand Fraction - poorly sorted	
				10% C.G.; 50% M.G.; 30% F.G.	
				GRAVEL - shattered by H.T.	
	1HPT 2Lith 1CaCO3			Color wet: 5Y 6/3 pale olive	
				Dry: 5Y 4/4 olive	
				NO REACTION to HCL. 9/23/92 GSC	
225'		HT		225 FT - SAMPLE - 60% Qtz 30%	
				Basalt; some Basalt pebbles well	
				Rounded - ≤2%; ≤1% mica.	
				7% 3% Feldspar.	
				Color wet: 2.5Y 4/0	
				Dry: 2.5Y 5/0	
	1HPT 2Lith 1CaCO3				BOC 209.55' @ 1500 9/8/92
230'		HT		230 FT SAMPLE - SAME AS ABOVE	
	1HPT 2Lith 1CaCO3				
235'		HT		235 FT SAMPLE - SAME AS ABOVE	
	1HPT 2Lith 1CaCO3			CONTACT V. WEATHERED	
				VISICULAR BASALT. at 248.5	
240'		HT			

BOREHOLE LOG

Boring or Well No. 699-42-37

Sheet 13 of 14

Location 200 Area TEDB Candidate site Project WOXGH

Elevation 516.18' Drilling Contractor KEH

Driller M. Wrespir Drilling Method and Equipment Cable Tool BFZZW

Prepared By K.J. Swett (Sign/Print Name) Date 10/24/92 Reviewed By Edward C. Rafuse (Sign/Print Name) Date 10/26/92

Depth (Feet)	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
240		Hand Tool		240 Ft silty sandy GRAVEL (70% Grav., 25% Sand, 5% silt) poorly sorted 60% weathered vesicular basalt 35% QTZ, 20% micas, 20% feldspar, 1% magnetite	
	1 Rad 2 with 1 $CaCO_3$				
245				245 Ft sandy GRAVEL (70% Gravel, 30% sand fr. silt) wet: 2.5Y 4/0 Dk Gray. Dry: 2.5Y 5/0 Dk. Gray 70% Basalt, 25% QTZ, 1% magnetite, 2% Feldspar 2% micas	WL 114.44' @ 0800 9-10-92
	1 Rad 2 with 1 $CaCO_3$				BOC 248.39' 9-10-92
250				248.5 Ft BASALT (weathered flow top) 80% weathered, vesicular Basalt, 15% QTZ, arrite sand, 2% felsic, 2% mag ≤1% micas. No rxn to HCl color: ~~wet 2.5Y~~ wet 2.5Y 4/0 Dk Gry Dry 2.5Y 5/0 Gray	WL 116.05 @ 0750 9-11-92
	1 Rad 2 with 1 $CaCO_3$				
255				250 weathered BASALT, as above	
				255 weathered BASALT, as above	
260	1 Rad 2 with 1 $CaCO_3$			260 weathered BASALT, as above	

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BOREHOLE LOG

Boring or Well No. 699-~~40-36~~ BRI 10-279

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Location 200 AREA TEDB Candidate Site

Project W049H

Elevation ~~N/A~~ BRI 516.18'

Drilling Contractor KEH

Driller M. Wrasbir.

Drilling Method and Equipment Cable Tool - B.E. 22W

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

Reviewed By Edward C. Rafuse (Sign/Print Name) Date 10/5/92

Depth	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
260'				260 FT - BASALT - flow top 80% weathered, vesicular basalt 15% Qtz/Qtzite sand; 2% felsic; 2% mag. ≤1% mica. NO RX to HCL	
				Color: wet 2.5Y 4/0	
	1 HPT 2 with 1 $CaCO_3$			DRY 2.5Y 5/0	
				GRAY - D. GRAY	
265'		HT		265 FT SAME AS ABOVE	
				265.5 FT 95% BASALT - fresh fractured, unweathered 5% cavings; angular chips of basalt	
	1 HPT 2 with 1 $CaCO_3$ 1 Archive	B.B		Color wet 5Y 2.5/0 5Y 3/0	T.D. 268'
270'					

APPENDIX B

SEDIMENT SAMPLE DATA

This appendix includes for each well:

- grain size data
- $CaCO_3$ data
- moisture data.

CONTENTS

WELL 699-40-36 . . . . . B-1

WELL 699-41-35 . . . . . B-69

WELL 699-42-37 . . . . . B-135

WELL 699-40-36

ENVIRONMENTAL RESTORATION HEALTH AND SAFETY

VALIDATED
KDR 2/8/93
SIGNATURE/DATE

Requested by:			Phone No.	Well No. 699-40-36		Date:
Sample No. (Depth)	Sample Date	Sample Description	Analysis Date	Lab No.	Results Beta/Gamma (pci/g)	Results Alpha (pci/g)
5'	8-20-92	SOIL	8-20-92	1936-92-29	16	1
6.5'-8.5'	8-20-92		8-20-92	1937-92-30	12	1
9.5'	8-20-92		8-20-92	1938-92-31	14	1
9.5'-11.5'	8-20-92		8-20-92	1939-92-32	13	1
15'	8-21-92		8-21-92	1950-92-43	15	<D
18.85'-20.85'	8-21-92		8-21-92	1951-92-44	10	<D
20'	8-24-92		8-24-92	1952-92-45	12	1
21.6'-23.6'	8-24-92		8-24-92	1953-92-46	12	1
14'-16'	9-4-92		9-9-92	2180-92-44	10	1
25'	9-17-92		9-21-92	2439-92-11	10	<D
30'	9-17-92		9-21-92	2440-92-12	10	1
35'	9-17-92		9-21-92	2441-92-13	9	1
40'	9-17-92		9-21-92	2442-92-14	7	1
45'	9-17-92		9-21-92	2443-92-15	6	<D
50'	9-17-92		9-21-92	2457-92-20	7	<D
55'	9-17-92		9-21-92	2458-92-21	8	1
60'	9-17-92		9-21-92	2459-92-22	7	<D
65'	9-17-92		9-21-92	2460-92-23	9	<D
70'	9-17-92		9-21-92	2461-92-24	9	<D
75'	9-17-92		9-21-92	2462-92-25	10	1
80'	9-25-92		9-25-92	2511-92-18	9.2	0.3
85'	9-25-92		9-25-92	2512-92-19	10.1	0.4
90'	9-25-92		9-25-92	2513-92-20	6.9	0.7

Performed By: [signature] Date: 12/30/92

Supervisor Review: [signature] Date: 2/1/93

Page 1 of 3

A-6000-829 (10/91)

ENVIRONMENTAL RESTORATION HEALTH AND SAFETY

Requested by:			Phone No.	Well No. 699-45-36		Date:

Sample No. (Depth)	Sample Date	Sample Description	Analysis Date	Lab No.	Results Beta/Gamma (pci/g)	Results Alpha (pci/g)
95'	9-25-92	Soil	9-25-92	2514-92-21	11.1	0.6
95'-97'	9-25-92		9-25-92	2515-92-22	9.9	0.5
100'	9-25-92		9-25-92	2516-92-23	11.6	0.4
105'	9-25-92		9-25-92	2517-92-24	5.2	0.2
110'	9-25-92		9-25-92	2518-92-25	5.6	0.5
113'-114'	9-25-92		9-25-92	2519-92-26	15.5	0.3
120'	9-29-92		11-30-92	2630-92-1	16.8	0.9
125'				2631-92-2	26.4	3.9
130'				2632-92-3	14.3	1.0
135'				2633-92-4	15.7	1.3
140'				2634-92-5	11.4	0.3
145'				2635-92-6	15.2	0.3
150'				2636-92-7	10.5	<D
155'				2637-92-8	11.7	<D
160'				2638-92-9	13.6	<D
165'			10/8/92	2558-92-2	11.0	1.1
170'				2559-92-3	13.2	4.1
175'				2560-92-4	7.9	2.3
180'				2600-92-5	18.8	2.2
~~180~~ 185				2601-92-6	12.4	1.3
190'				2602-92-7	14.9	2.2
195'			10/8/92	2603-92-8	14.8	0.4
200'		Soil	12/29/92	2679-92-23	5.4	0.7

Performed By: [signature] Date: 12/30/92

Supervisor Review: [signature] Date: 2/1/93

Page: 2 of 3

A-6000-829 (10/91)

ENVIRONMENTAL RESTORATION HEALTH AND SAFETY

Requested by:			Phone No.	Well No. 699-40-36		Date:
Sample No. (Depth)	**Sample Date**	**Sample Description**	**Analysis Date**	**Lab No.**	**Results Beta/Gamma (pci/g)**	**Results Alpha (pci/g)**
205'		Soil	12/29/92	2680-92-24	8.0	0.6
210'				2681-92-25	5.3	0.1
215'				2682-92-26	8.7	1.6
215'-217'				2683-92-27	6.9	1.7
220'				2684-92-28	5.9	0.2
225'				2685-92-29	4.9	0.7
230'				2842-92-30	12.4	2.6
235'				2843-92-31	12.3	0.7
240'				2844-92-32	10.4	1.6
245'				2845-92-33	16.2	3.0
250'				2846-92-34	8.6	1.0
255'				2847-92-35	5.2	0.6
260'				2848-92-36	6.6	0.7
265'				2869-92-7	5.1	1.1
270'				2870-92-8	5.9	0.5
275'			12/29/92	2871-92-9	3.9	0.2
280'		Soil	12/30/92	2906-92-44	4.1	<D

Performed By: Craig L. Redford Date: 12/30/92

Supervisor Review: [illegible] Date: 2/1/93

Page: 3 of 3

A-6000-829 (10/91)

Page 1 of 12
930004

VALIDATED
KDR 1/12/93
SIGNATURE/DATE

TEST REQUEST

OPERABLE UNIT	RCRA	WELL NO	699-40-36	DEPTH	5.0-280.0
SAMPLE/SPECIMEN NO	3-0096>0150	COST CODE/WORK ORDER NUMBER			R4G1H
REQUESTED BY: ORG	81421	PERSON	B. Williams	PHONE	6-3416
********HEIS********	NA	MSIN	H4-56	DATE	10/27/92

TEST REQUESTED	# OF SAMPLES	TEST LAB INFORMATION
Moisture Content	55	GEL-14 / Rev. 0 / 3-13-92
Calcium Carbonate	55	GEL-19 / Rev. 0 / 9-07-90

REMARKS:

ARCHIVE YES ☐ NO ☑

TAPE RELEASE STICKER HERE

See attached

RECEIVED BY J.C. McGuffey
DATE 10/27/92

GEL-07 ☐ GEL 16 ☐
GEL 09 ☐ GEL 17 ☐
GEL 10 ☐ GEL 19 ☑
GEL 14 ☑ GEL ☐

WHC-SD-EN-DP-068, Rev. 0
GEOTECHNICAL ENGINEERING LABORATORY
GEL-14, GEL-19

Sample No(s). 3-0096 → 0124

Page 1 of 2

GEL-14 SOIL MOISTURE

Tested By _____ Balance: 3304 Calibration Due Date _____

Date _____ Thermometer: _____ Calibration Due Date _____

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
3 0096	466.47	451.18	61.07	15.29	390.11	3.92	.07	1.0	JRP/Comp
3 0097	554.32	535.67	62.05	18.65	473.62	3.94	.06	< 1.0	JRP/Comp
3 0098	543.71	523.10	62.01	20.61 ~~18.77~~	461.09 ~~412.21~~	4.47 ~~16.75~~	.06	< 1.0	JRP/Comp
3 0099	492.76	473.94	61.73	18.82	412.21	4.57	.06	< 1.0	JRP/Comp
3 0100	439.81	420.92	61.25	18.89	359.67	5.25	.04	< 1.0	JRP/Comp
3 0101	404.82	372.82	62.93	32.00	309.89	10.33	.04	< 1.0	JRP/Comp
3 0102	432.26	409.20	63.00	23.06	346.20	6.66	.03	< 1.0	JRP/Comp
3 0103	510.04	479.96	61.15	30.08	418.81	7.18	.04	< 1.0	JRP/Comp
3 0104	529.41	501.99	60.88	27.42	441.11	6.22	.03	< 1.0	JRP/Comp
3 0105	491.90	467.63	61.70	24.27	405.93	5.98	.04	< 1.0	JRP/Comp
3 0106	556.26	534.68	61.67	21.58	473.01	4.56	.03	< 1.0	JRP/Comp
3 0107	521.66	495.48	62.93	26.18	432.55	6.05	.04	< 1.0	JRP/Comp
3 0108	466.68	438.20	63.08	28.48	375.12	7.59	.05	< 1.0	JRP/Comp
3 0109	530.27	509.91	62.42	20.36	447.49	4.55	.07	1.0	JRP/Comp
3 0110	460.14	435.85	62.43	24.29	373.42	6.50	.04	< 1.0	JRP/Comp
3 0111	536.56	516.23	63.98	20.33	452.25	4.50	.04	< 1.0	JRP/Comp
3 0112	500.43	483.54	62.69	16.89	420.85	4.01	.04	< 1.0	JRP/Comp
3 0113	497.90	472.92	63.73	24.98	409.19	6.10	.06	< 1.0	JRP/Comp
3 0114	426.95	399.19	60.35	27.76	338.84	8.19	.03	< 1.0	JRP/Comp
3 0115	495.41	473.91	61.63	21.50	412.28	5.21	.05	< 1.0	JRP/Comp
3 0116	188.55	178.90	63.85	9.65	115.05	8.39	.03	< 1.0	JRP/Comp
3 0117	329.50	300.25	64.18	29.25	236.07	12.39	.03	< 1.0	JRP/Comp
3 0118	358.42	288.17	61.61	70.25	226.56	31.01	.04	< 1.0	JRP/Comp
3 0119	461.77	356.59	62.21	105.18	294.38	35.73	.04	< 1.0	JRP/Comp
3 0120	539.36	342.11	60.33	197.25	281.78	70.00	.04	< 1.0	JRP/Comp
3 0121	292.41	226.02	60.84	66.39	165.18	40.19	.05	< 1.0	JRP/Comp
* 3 0122	501.48	341.21	62.44	160.27	278.77	57.49	1.2	2.2	JRP/Comp
* 3 0123	344.90	254.45	64.13	90.45	190.32	47.53	.07	1.0	JRP/Comp
3 0124	528.81	356.59	63.06	172.22	293.53	58.67	.05	< 1.0	JRP/Comp

Remarks: * STANDING WATER.

Tests Checked By: R. L. McCartney B-7 Date 11/12/92

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). 3-0125 → 0150

Page 2 of 2

GEL-14 SOIL MOISTURE

Tested By _____ Balance: 3304 Calibration Due Date _____

Date _____ Thermometer: _____ Calibration Due Date _____

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 0125	379.53	318.25	62.79	61.28	255.46	23.99	.05	<1.0	JRP/Comp
3 0126	355.17	271.53	63.05	83.64	209.48	39.93	.05	<1.0	JRP/Comp
3 0127	326.76	296.36	63.23	30.40	233.13	13.04	.05	<1.0	JRP/Comp
3 0128	232.63	186.08	61.04	46.55	125.04	37.23	.05	<1.0	JRP/Comp
* 3 0129	437.34	346.78	62.34	90.56	284.44	31.84	.04	<1.0	JRP/Comp
3 0130	228.65	182.58	62.14	46.09	120.42	38.27	.06	<1.0	JRP/Comp
* 3 0131	462.07	324.10	63.06	137.97	261.04	52.85	1.0	1.7	JRP/Comp
3 0132	435.06	345.55	63.09	89.51	282.46	31.69	1.4	2.7	JRP/Comp
3 0133	299.81	225.36	63.75	74.45	161.61	46.07	1.0	1.7	JRP/Comp
3 0134	375.80	313.40	61.19	62.40	252.21	24.74	.04	<1.0	JRP/Comp
3 0135	320.57	267.91	61.37	52.66	206.54	25.50	.04	<1.0	JRP/Comp
3 0136	232.90	209.49	63.61	23.41	145.88	16.05	.03	<1.0	JRP/C.
3 0137	520.44	484.80	61.34	35.64	423.46	8.42	.04	<1.0	JRP/Comp
3 0138	304.73	261.66	61.03	43.07	200.63	21.47	.03	<1.0	JRP/Comp
3 0139	351.29	310.17	62.29	41.12	247.88	16.59	.03	<1.0	JRP/Comp
3 0140	361.39	283.73	63.54	77.66	220.19	35.27	.04	<1.0	JRP/Comp
3 0141	312.14	225.80	61.35	86.34	164.45	52.50	.04	<1.0	JRP/Comp
3 0142	278.66	201.64	61.86	76.52	140.18	54.59	.04	<1.0	JRP/Comp
3 0143	363.70	257.14	63.28	106.56	193.86	54.97	.04	<1.0	JRP/Comp
* 3 0144	495.49	276.50	63.35	218.99	213.15	102.74	.03	<1.0	JRP/Comp
* 3 0145	250.57	208.75	62.23	41.82	146.52	28.54	.03	<1.0	JRP/Comp
3 0146	161.37	143.48	63.27	17.89	80.21	22.30	.01	<1.0	JRP/Comp
3 0147	411.05	346.73	66.32	64.32	281.41	22.86	.01	<1.0	JRP/Comp
3 0148	295.60	274.04	63.11	21.56	210.93	10.22	.03	<1.0	JRP/Comp
3 0149	408.92	341.97	61.76	66.95	280.21	23.89	.03	<1.0	JRP/Comp
3 0150	386.87	328.95	63.35	57.92	265.60	21.81	.03	<1.0	JRP/Comp

Remarks: * STANDING WATER

Tests Checked By: R. T. McCutcheon B-8 Date 11/12/92

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator: Keith J. Swett

Company Contact: Ed Refuse — Telephone: 376-0572

Project Designation/Sampling Locations: WO 49 H, 699-40-36 — Collection Date: see below

Samples @ every 5 Ft. and major lith changes

Ice Chest No.: N/A — Field Logbook No.: N/A

Bill of Lading/Airbill No.: N/A — Offsite Property No.: N/A

Method of Shipment: Govt. vehicle

Shipped to: 2101M

Possible Sample Hazards/Remarks: No Rad or chem contamination detected

Moisture tins for RCRA characterization

Sample Identification

5'	8-18-92 @ 1330	55'	9/17/92 @ 0815
10.5'	8-19-92 @ 1200	60'	" @ 0850
15'	8-20-92 @ 1045	65'	" @ 1045
	" @ 1325	70'	" @ 1155
25'	9/15/92 @ 1445	75'	" @ 1355
30'	9/16/92 @ 0910	80'	" @ 1425
35'	" @ 1120	85'	9/18/92 @ 0855
40'	" @ 1200	90'	" @ ~~1305~~ 0955 GX 10/8/92
45'	" @ 1405	95'	" @ 1305
50'	" @ 1425	~~97'~~	~~" @ 1330~~ E.C.L. 10/27/92

Field Transfer of Custody	CHAIN OF POSSESSION	(Sign and Print Names)
Relinquished by: Stewart Causey Stewart Causey	Received by: E.C. Refuse E.C. Refuse	Date/Time: 1200 9/14/92
Relinquished by: E.C. Refuse E.C. Refuse	Received by: JC McGuffey	Date/Time: 10/27/92 1415
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

Westinghouse Hanford Company

CHAIN OF CUSTODY

Custody Form Initiator: Stewart Causey

Company Contact: Ed Rafuse — Telephone: 376-0542

Project Designation/Sampling Locations: W049H, 699-40-36 — Collection Date: SEE below

SAMPLES EVERY 5 Ft. & MAJOR Lith CHANGES

Ice Chest No.: N/A — Field Logbook No.: N/A

Bill of Lading/Airbill No.: N/A — Offsite Property No.: N/A

Method of Shipment: Government Vehicle

Shipped to: 2101 M

Possible Sample Hazards/Remarks: NO Rad or Chem contamination detected
Moisture tins for RCRA Characterization

Sample Identification

100'	9/18/92	@ 1420	
105'	9/21/92	@ 0900	
110'	"	@ 1320	
~~114'~~	~~"~~	~~@ 1345~~	GSC 10/14/92
120'	9/23/92	@ 1450	$CaCO_3$ only
125'	9/24/92	@ 0930	$CaCO_3$ only
130'	9/28/92	@ 1000	$CaCO_3$ only
135'	"	@ 1105	$CaCO_3$ only
140'	"	@ 1130	$CaCO_3$ only
145'	"	@ 1240	$CaCO_3$ only
150	9/28/92	@ 1300	$CaCO_3$ only
155	9/29/92	@ 1020	
160	"	@ 1230	
165	"	@ 1330	$CaCO_3$ only
170	"	@ 1345	$CaCO_3$ only
175	"	@ 1355	$CaCO_3$ only
180	"	@ 1415	$CaCO_3$ only.
185	9/30/92	@ 0855	$CaCO_3$ only
190	"	@ 1220	$CaCO_3$ only
195	"	@ 1245	$CaCO_3$ only

☐ Field Transfer of Custody

CHAIN OF POSSESSION (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
Stewart Causey	E.C. Rafuse	1200 10/14/92
E.C. Rafuse	J.C. McGuffey	10/27/92 1415

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90)

Westinghouse Hanford Company

CHAIN OF CUSTODY

Custody Form Initiator: Stewart Causey

Company Contact: Ed Rafuse — Telephone: 376-0542

Project Designation/Sampling Locations: W049H; 699-40-36 — Collection Date: SEE below

Samples every 5 ft & major lith changes

Ice Chest No.: N/A. — Field Logbook No.: N/A

Bill of Lading/Airbill No.: N/A — Offsite Property No.: N/A

Method of Shipment: Government Vehicle

Shipped to: 2101 M

Possible Sample Hazards/Remarks: No rad or chem contamination detected moisture tins for RCRA characterization.

Sample Identification

200 Ft. 10/1/92 @ 0800 $CaCO_3$ only
205' " @ 1250 $CaCO_3$ only
210' " @ 1410 $CaCO_3$ only
~~215' 10/2/92 @ 0955~~
~~15' 10/2/92 @ 0955~~
220' " @ 1125 $CaCO_3$ only
225' 10/5/92 @ 1015 $CaCO_3$ only
230' " @ 1400 $CaCO_3$ only
235' 10/6/92 @ 0935 $CaCO_3$ only
240' " @ 1025 $CaCO_3$ only
245' " @ 1110 $CaCO_3$ only
250' 10/7/92 @ 0800 $CaCO_3$ only
255' " @ 0950 $CaCO_3$ only
260' " @ 1055 $CaCO_3$ only
265' 10/9/92 @ 0805 $CaCO_3$ only
270' " @ 1430 $CaCO_3$ only
275 10/9/92 @ 0750 $CaCO_3$ only
280 " @ 1400 $CaCO_3$ only

☐ Field Transfer of Custody

CHAIN OF POSSESSION (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
Stewart Causey / Stewart Causey	E.C. Rafuse / E.C. Rafuse	1200 10/14/92
Relinquished by: E.C. Rafuse / E.C. Rafuse	Received by: JC McGuffey	Date/Time: 10/27/92 1415
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90)

RADIATION RELEASE

Bldg. 699-40-36 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 5
3 0096
54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-40-36 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 3 0097 9.5
54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-40-36 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 15
3 0098
54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-40-36 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 20
3 0099
54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-40-36 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 25
3 0100
54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-40-36 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 3 0101 30
54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-40-36 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 3 0102 35
54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-40-36 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 3 0103 40
54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-40-36 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 3 0104 45
54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-40-36 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 3 0105 50
54-3000-022 (01/89)

P. 8 of 12

RADIATION RELEASE

Bldg. 699-40-36 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 3 0106 55

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-40-36 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 3 0107 60

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-40-36 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 3 0108 65

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-40-36 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 3 0109 70

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-40-36 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 3 0110 75

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-40-36 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 3 0111 80

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-40-36 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 3 0112 85

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-40-36 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 3 0113 90

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-40-36 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 3 0114 95

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-40-36 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 3 0115 100

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-40-36 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 3 0116 105

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-40-36 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 3 0117 110

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-40-36 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 3 0118 120

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-40-36 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 3 0119 125

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-40-36 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 3 0120 130

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-40-36 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 3 0121 135

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-40-36 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 3 0122 140

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-40-36 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 3 0123 145

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-40-36 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 3 0124 150

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-40-36 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 3 0125 155

54-3000-022 (01/89)

RADIATION RELEASE

dg. 699-40-36 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 160
3 0126

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-40-36 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 3 0127 165

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-40-36 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 3 0128 170

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-40-36 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 3 0129 175

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-40-36 Expiration Date 10/29/92
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Health Physics
Remarks 3 0130 180

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-40-36 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 3 0131 185

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-40-36 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 3 0132 190

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-40-36 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 3 0133 195

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-40-36 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 3 0134 200

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-40-36 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 3 0135 205

54-3000-022 (01/89)

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RADIATION RELEASE

Bldg. 699-40-36 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 3 0136 210

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-40-36 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 3 0137 215

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-40-36 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 3 0138 220

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-40-36 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 3 0139 225

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-40-36 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 3 0140 230

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-40-36 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 3 0141 235

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-40-36 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 3 0142 240

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-40-36 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 3 0143 245

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-40-36 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 3 0144 250

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-40-36 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 3 0145 255

54-3000-022 (01/89)

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RADIATION RELEASE

Bldg. 699-40-31 Expiration Date 10/29/92

Released By TEC
Health Physics

Remarks 3 0146 260

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-40-31 Expiration Date 10/29/92

Released By TEC
Health Physics

Remarks 3 0147 265

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-40-31 Expiration Date 10/29/92

Released By TEC
Health Physics

Remarks 3 0148 270

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-40-31 Expiration Date 10/29/92

Released By TEC
Health Physics

Remarks 3 0149 275

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-40-31 Expiration Date 10/29/92

Released By TEC
Health Physics

Remarks 3 0150 280

54-3000-022 (01/89)

Physical Data page 1 of 51 Continue

PHYSICAL PROPERTIES DATA SHEET 200 AREAS TREATED EFFLUENT DISPOSAL FACILITY - RCRA BOREHOLES								
Lab-Sample #	Stratigraphic Unit	Sample Depth (ft)	Specific Gravity (g/cm^3)	Moisture (%)	Moisture Retention	Sieve Analysis	Hydraulic Cond. (cm/sec)	Porosity (%)
699-42-37								
2-3088	Hanford formation	11.6-17.3	2.72	6.79	Data available	Sandy Gravel	$1.3x10^{-3}$	28.68
2-3089	Ringold Lower Mud Sequence	91.65-94.0	2.62	19.30	Data available	Silty Sand	$3.2x10^{-7}$	36.32
2-2865	Ringold Lower Mud Sequence	126.8-128.8	2.66	25.82	Data available	Silty Sand	$2.3x10^{-6}$	40.41
2-2864	Ringold Unit A Gravels	130	NR	NR	NR	Sandy Gravel	NR	NR
2-3053	Ringold Unit A Gravels	135.39-136.69	2.63	7.60	NR	Sandy Gravel	$6.4x10^{-7}$	24.38
699-40-36								
3-0001	Hanford formation	95.5-97.0	2.72	6.47	Data available	Silty sandy gravel	$1.8x10^{-4}$	18.32
3-0002	Ringold Lower Mud Sequence	114.5-116.5	2.46	26.52	Data available	Silty sand	$9.3x10^{-8}$	31.32
3-0003	Ringold Unit A	215.0-217.0	2.57	11.02	Data available	Silty sandy gravel	$6.3x10^{-7}$	22.16
699-41-35								
2-3084	Hanford formation	80.8-81.8	2.80	6.46	Data available	Gravel	$1.3x10^{-1}$	33.12
2-3085	Ringold Lower Mud Sequence	102.7-104.7	2.71	20.72	Data available	Silty sand	$1.4x10^{-8}$	38.48
2-3086	Ringold Lower Mud Sequence	146.1-147.6	2.65	15.59	NR	Silty sand	$7.5x10^{-9}$	28.73

PHYSICAL PROPERTIES DATA SHEET 200 AREAS TREATED EFFLUENT DISPOSAL FACILITY - RCRA BOREHOLES								
Lab-Sample #	Stratigraphic Unit	Sample Depth (ft)	Specific Gravity (g/cm^3)	Moisture (%)	Moisture Retention	Sieve Analysis	Hydraulic Cond. (cm/sec)	Porosity (%)
2-3087	Ringold Unit A (second fine grained unit)	207.3-208.8	2.65	45.38	NR	Silty sand	9.2×10^{-9}	55.8

P.3 of 51.

W-049H 200 AREAS TREATED EFFLUENT DISPOSAL FACILITY ELEVATION DATA						
WELL	HANFORD COORDINATES	BRASS CAP (NGVD'29)	CASING	SCREENED INTERVAL	PUMP INTAKE	WATER TABLE DEC 92
699-40-36	N39830 W36432	525.79	528.92	302.59-325.32	219.18*	117.94*
699-41-35	N40856 W35476	517.42	520.38	315.52-333.92	203.81*	108.57*
699-42-37	N41846 W37451	516.18	519.40	356.28-376.58	518.40*	104.35*

*Below Top of Casing

12/18/92 Standard Report 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
3-0001	699-40-36	W-049H	95.5-97.0	1.82E-04	2.71	2.73	2.72	6.47	18.32	2.22	<1.0	GEL-07/17
3-0002	699-40-36	W-049H	114.5-116.5	9.31E-08	2.46	na	2.46	26.52	31.32	1.69	<1.0	GEL-07/17
3-0003	699-40-36	W-049H	215.0-217.0	6.3E-07	2.61	2.52	2.57	11.02	22.16	1.98	<1.0	GEL-07/17

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TEST REQUEST

OPERABLE UNIT	W-049H	WELL NO	699-40-36	DEPTH	95.5-97
SAMPLE/SPECIMEN NO	3-0001	COST CODE/WORK ORDER NUMBER			A6CDR
REQUESTED BY: ORG	82436	PERSON	C. DELANEY	PHONE	6-9235
********HEIS********	NA	MSIN	H4-56	DATE	10/15/92

TEST REQUESTED	# OF SAMPLES	TEST LAB INFORMATION
Sieve/Hydrometer	2	GEL-07 / Rev. 2 / 3-13-92
Hydraulic Conductivity	2	GEL-09 / Rev. 2 / 3-13-92
Specific Gravity	2	GEL-10 / Rev. 1 / 12-1-89
Moisture Content	T	GEL-14 / Rev. 0 / 3-13-92
Bulk Density/Porosity	2	GEL-16 / Rev. 1 / 3-13-92
Moisture Retention	2	GEL-17 / Rev. 0 / 3-13-92
Calcium Carbonate	T	GEL-19 / Rev. 0 / 9-7-90

REMARKS: Normal cut off for hydrometer testing.

ARCHIVE YES ☐ NO ☑

RADIATION RELEASE

Bldg. 699-40-36 Expiration Date 10/15/92

Released By [illegible] Health Physics

Remarks 95.5-96.0

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-40-36 Expiration Date 10/15/92

Released By [illegible] Health Physics

Remarks 96-96.5

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-40-36 Expiration Date 10/15/92

Released By TEC Health Physics

Remarks 95.0-96.0

3-0001

54-3000-022 (01/89)

RECEIVED BY J.C. McGuffey

DATE 10/15/92

P.64 ~~55~~ 51

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

GEOTECHNICAL ENGINEERING LABORATORY
GEL-07 SIEVE AND HYDROMETER ANALYSIS

Sample No. 3-0001

Page 1 of 5

GEL-07 SIEVE ANALYSIS

Date 10/21/92 Calibration Due Date 10-25-92 Balance: 3310

Sample Description SAND & Gravel Sieve Time 10 (min)

Reduced By: ☒ Splitting ☐ Quartering ☐ Stockpile

Sieve Size	Sample Weight	Cumulative Wt. Retained	Cumulative % Retained	Cumulative % Passed	Tested By
~~2~~ 3	~~2375.0~~	~~344.3~~ 0	~~14.5~~ 0	~~85.5~~ 100	LD Bruggeman
1½		437.6	18.4	81.6	
3/4		698.8	29.4	70.6	
3/8		1117.6	47.1	52.9	
4		1412.5	59.5	40.5	
10	176.6	36.4	20.6	32.2	
40		95.5	54.1	18.6	
60		118.7	LDB 10-2 ~~118.~~ 67.2	13.3	
100		130.9	74.1	10.5	
200		143.5	81.3	7.6	

Remarks: Washed Fine Grading

GEL-07 HYDROMETER ANALYSIS

Date

Balance: Calibration Due Date

Thermometer: Calibration Due Date

Hydrometer: Calibration Due Date

WEIGHT OF SAMPLE

Wt. Container + Soil (g) Specific Gravity of Sample

Wt. Container (g) % Passing No. 10 Sieve %

Wt. Soil (g) A = W = K =

COMPOSITE CORRECTION

1st Reading at °C

2nd Reading at °C

Date	Clock Time	Elapsed Time (min)	Hydrometer Reading	Hydrometer with Composite Correction	Temperature (°C)	Soil in Suspension (%)	Particle Diameter (mm)	Tested By
		2.0			N/A			
		5.0						
		15.0						
		30.0						
		60.0						
		250.0						
		1440.0						

Remarks: NA

Tests Checked By Richard T. McCutcheon Date 10/26/92

BD-6000-796 (04/92)

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

GEOTECHNICAL ENGINEERING LABORATORY
GEL-09 HYDRAULIC CONDUCTIVITY DATA SHEET

Sample No. 3-0001

Balance No. 3310 Permeameter No. 2

Test Initiated By LD Bauggemann Date 10/23/92 Procedure GEL 09/Rev 2/3-13-92 Sleeve Type: ☐ Metal ☑ Plastic

Specimen Diameter (D) 9.53 cm

Specimen Length (L) 15.24 cm

$$A = \left(\frac{D}{2}\right)^2 \times 3.1415$$

Specimen Area (A) 71.33 cm^2

Darcy's Law

$$K = \frac{QL}{AH}$$

K = Hydraulic Conductivity (cm/sec)

Q = Flow (cm^3/sec) = Vol. g/Time (sec)

A = Area (cm^2)

H = Hydraulic Head

L = Length (cm)

Date Year 92 (Mo/Day)	Run Time System (Hr:Min)	Run Time System (Hr:Min)	Run Time Time Change	Container Weight (± 0.1 g)	Container Tare (± 0.1 g)	Container Tare & Effluent (± 0.1 g)	Room Temp (°C)	Pressure Pore H_2O (cm)	Effluent Description	Operator Initials	Hydraulic Conductivity (cm/sec)	Calculated By
10/23	07:51	08:17	0:26	86.8	153.5	240.3	22.3	66.1	clear	LDB	1.80E-04	LDB
	08:19	08:54	0:35	115.5	153.5	269.0	22.6	65.8	clear	LDB	1.79E-04	LDB
	08:55	09:25	0:30	99.6	153.5	253.1	22.3	65.7	clear	LDB	1.80E-04	LDB
	09:26	09:49	0:23	77.8	153.5	231.3	22.6	65.4	clear	LDB	1.84E-04	LDB
	09:50	10:21	0:31	104.8	153.5	258.3	22.4	65.7	clear	LDB	1.83E-04	LDB
	10:22	10:58	0:36	121.7	153.5	275.2	22.8	65.6	clear	LDB	1.84E-04	LDB

Average = 1.82^{-04}

Remarks

Test Checked By R. V. McCutcheon Date 11/22/92

B-24

WHC-SD-EN-DP-068, Rev. 0

00-795 (04/92)

GEL 07 ☑	GEL 16 ☑	WHC-SD-EN-DP-068, Rev. 0	Sample No. P 84551
GEL 09 ☑	GEL 17 ☑	GEOTECHNICAL ENGINEERING LABORATORY	3-0001
GEL 10 ☑	GEL 19 ☑	GEL-10 SPECIFIC GRAVITY SOILS FINE/COARSE	Page 4 of 5
GEL 14 ☑	GEL ☐		

GEL-10 SPECIFIC GRAVITY OF SOILS

Date 10-21-92 Tested By L D Bruggeman

Balance: 3304 Calibration Due Date 10-25-92

	DETERMINATION NO.	1	2	3
W_o	Wt. Oven Dry, Soil, g	55.4		
	Pycnometer No.	2555		
	Wt. Pycnometer, g	122.83		
W_a	Wt. Pycnometer + Wetting Agent, g	281.38		
W_b	Wt. Pycnometer + Wetting Agent + Soil, g	416.10		
	Temperature, T_x at W_b, °C	23.5		
G_w	Specific Gravity of Wetting Agent at T_x	1.00		
G_t	Specific Gravity of Soil at T_x	2.71		
G_s	Specific Gravity of Soil at 20 °C	2.71		

Wetting Agent D.I. H_2O

$$C_t = \frac{W_o}{W_o + W_a - W_b}$$

Remarks:

GEL-10 SPECIFIC GRAVITY COARSE AGGREGATES

Date 10-21-92 Tested By: L D Bruggeman

Balance: 3312 Calibration Due Date 10-25-92

	DETERMINATION NO.	1	
	Size fraction	3" → #4	
P_1	Size fraction, wt. % total, g	59.5	
	Tare weight	242.3	
B	Weight sample (SSD), g	1424.9	
C	Weight sample in H_2O, g	909.9	
A	Weight of oven dry sample, g	1408.0	

Bulk Specific Gravity, 23/23 °C = A/(B-C) = 2.73

A = wt. oven dry sample in air, g
B = wt. SSD sample in air, g
C = wt. saturated sample in H_2O, g

Bulk Specific Gravity SSD, 23/23 °C = B/(B-C) = 2.77

Apparent Specific Gravity, 23/23 °C = A/(A-C) = 2.83

*Average Specific Gravity Values, 23/23 °C $\overline{G}$ = 2.72

Remarks:

$$\overline{G} = \frac{1}{\dfrac{P_1 = \%\ \text{coarse}}{G_1 = \text{coarse sp.gr.} \times 100} + \dfrac{P_2 = \%\ \text{fines}}{G_2 = \text{fines sp. gr.} \times 100}}$$

$\overline{G}$ = Ave. Specific Gravity for all forms of Specific Gravity i.e., formula applicable to Bulk, Bulk SSD and Apparent Specific Gravity.

G_1, G_2 = appropriate Specific Gravity values for each size fraction depending on the type of Specific Gravity being averaged.

P_1, P_2 = wt. percentages of each size fraction present in the original sample.

*State type of Specific Gravity Reported i.e., either Bulk, Bulk SSD or Apparent.

Tests Checked By: Richard T. McCutcheon Date 10/27/92

BD-6000-798 (08/92)

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

WHC-SD-EN-DP-068, Rev. 0
GEOTECHNICAL ENGINEERING LABORATORY
GEL-14, GEL-16, GEL-19

Sample No. 3-0001 P.9 of 5

GEL-14 SOIL MOISTURE

Balance: 3304 Calibration Due Date 10-25-92 Tested By LD Bruggeman

Thermometer: 0014 Calibration Due Date 9-21-93

Date	Wet Wt. + Can	Dry Wt. + Can	Tare Wt.	Moisture	Dry Wt. Soil	% Moisture	Calculated By
10/21/92	396.15	375.86	62.25	20.29	313.61	6.47	LD Bruggeman
					N A		

Remarks:

GEL-16 BULK DENSITY-POROSITY

DETERMINATION NO.	1	
Pan No.: Mold: ☑ Plastic ☐ Metal Length:	15.24	
Sample Volume, V, cc	1087.07	
Wt. of Sample & Mold, g	2876.5	
Wt. of Mold, g	305.1	
Wet Wt. of Sample, g	2571.4	
Wet Density of Sample, γ m, g/cc	2.37	
Water Content % Dry Weight	6.47	
Dry Density, g/cc γ d	2.22	
Dry weight of Sample, g, Ws	2415.14	
*Void Ratio, e	.2243	
**Porosity, n, %	18.32	

Tested By LD Bruggeman

$$Ws = \frac{\text{Wet Wt.}}{1 + \%\ \text{Dry Wt.}}$$

$$*\text{Void Ratio, } e = \frac{\text{Avg. Sp. Gr. x Vol.}}{Ws} - 1$$

$$**\text{Porosity, } n, \% = \left(\frac{e}{1+e}\right) 100$$

Remarks:

GEL-19 CALCIUM CARBONATE

Vessel No. 5650 Tested By LD Bruggeman

Balance No. 3304 Date Due 1-25-93

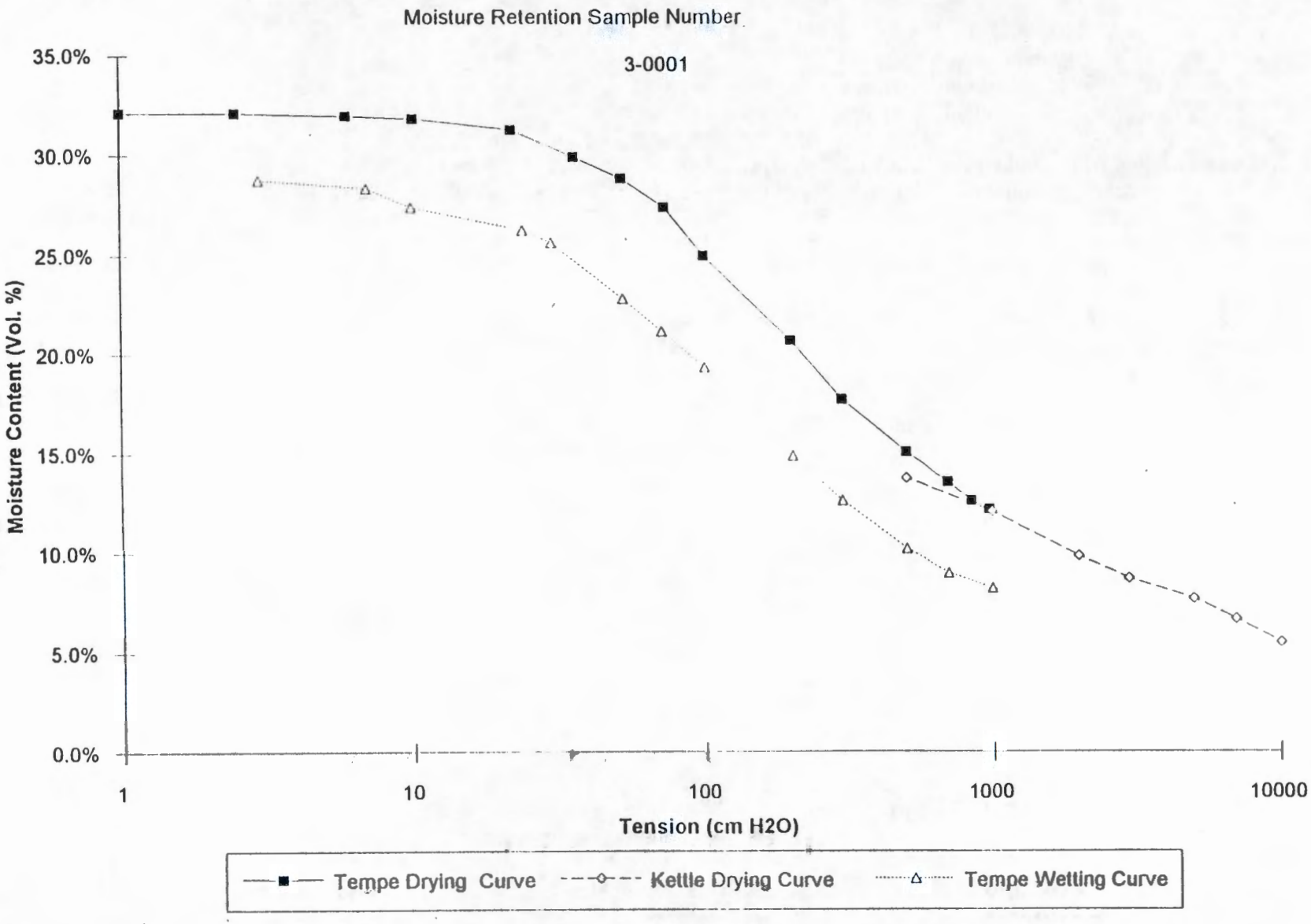
Sample Weight 8.0 (g)

Sample Pressure 0.3 (psi) %$CaCO_3$ < 1 % Per Gram

Remarks:

Tests Checked By: Richard T. McIntosh Date 10/27/92

BD-6000-797 (04/92)


Moisture Retention Sample Number
3-0001
35.0%
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
Moisture Content (Vol. %)
1
10
100
1000
10000
Tension (cm H2O)
Tempe Drying Curve
Kettle Drying Curve
Tempe Wetting Curve

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P. 11 of 25

	3-0001
Contact	C. DELANEY
Well No.	699-40-36
Operable Unit	W-049H
HEIS No.	N/A
Depth	95.5-97.0

TEMPE CELLS	Sample #	3-0001 1 Bar Drying Curve								
tension in cm	N/A	N/A	0	2.5	6	10.2	22	36	52.5	73.5
error in tension value +/-			0	0.5	1	1	2	3	3	4
container number	MC-5	TC-30	TC-30	TC-30	TC-30	TC-30	TC-30	TC-30	TC-30	TC-30
weight of container/ring,+wet sample	187.01	556.99	578.05	578.88	578.79	578.68	578.31	577.39	576.65	575.66
weight of container/ring,+ dry sample	186.73	556.70	556.97	556.97	556.97	556.97	556.97	556.97	556.97	556.97
weight of moisture	0.28	0.29	21.08	21.91	21.82	21.71	21.34	20.42	19.68	18.69
weight of container and ring	60.50	424.03	424.57	424.57	424.57	424.57	424.57	424.57	424.57	424.57
weight of dry sample	126.51	132.67	132.40	132.40	132.40	132.40	132.40	132.40	132.40	132.40
moisture content % by wt.	0.22%		15.92%	16.55%	16.48%	16.40%	16.12%	15.42%	14.86%	14.12%
moisture content % by vol.			30.88%	32.10%	31.97%	31.80%	31.26%	29.92%	28.83%	27.38%
date measured			10/23/92	10/27/92	10/28/92	10/29/92	10/30/92	11/2/92	11/3/92	11/4/92
temperature deg. C			26	25	24	24	24	23	24	23
volume of brass ring, cm^3	68.26									

TEMPE CELLS	Sample #	3-0001 1 Bar Drying Curve								
tension in cm	100.5	200.3	300	500	700	850	980	N/A	N/A	
error in tension value +/-	5	5	20	20	20	20	20			
container number	TC-30	TC-30	TC-30	TC-30	TC-30	TC-30	TC-30	TC-30	MC-5	
weight of container/ring,+wet sample	574	571.09	569.05	567.24	566.22	565.56	565.27	565.20	201.05	
weight of container/ring,+ dry sample	556.97	556.97	556.97	556.97	556.97	556.97	556.97	556.97	192.84	
weight of moisture	17.03	14.12	12.08	10.27	9.25	8.59	8.30	8.23	8.21	
weight of container and ring	424.57	424.57	424.57	424.57	424.57	424.57	424.57	424.57	60.50	
weight of dry sample	132.40	132.40	132.40	132.40	132.40	132.40	132.40	132.40	132.34	
moisture content % by wt.	12.86%	10.66%	9.12%	7.76%	6.99%	6.49%	6.27%	6.22%	6.20%	
moisture content % by vol.	24.95%	20.69%	17.70%	15.05%	13.55%	12.58%	12.16%	12.06%		
date measured	11/5/92	11/6/92	11/9/92	11/10/92	11/11/92	11/12/92	11/13/92	11/13/92	11/14/92	
temperature deg. C	24	24	23	25	24	24	23			
volume of brass ring, cm^3	68.26									

Cell wt. before cleanup = 424.74 grams

Cell wt. after cleanup = 424.94 grams

BULK DENSITY = 1.94

424.57 Average of all 3

TEMPE CELLS	Sample #	3-0001 1 Bar Wetting Curve							
tension in cm	N/A	N/A	1000	1000	1000	1000	1000	1000	1000
error in tension value +/-			20	20	20	20	20	20	20
container number	MC-5	TC-5	TC-5	TC-5	TC-5	TC-5	TC-5	TC-5	TC-5
weight of container/ring,+wet sample	187.01	562.33	568.03	568.12	568.12	568.27	568.34	568.33	568.34
weight of container/ring,+ dry sample	186.73	562.05	562.80	562.80	562.80	562.80	562.80	562.80	562.80
weight of moisture	0.28	0.28	5.23	5.32	5.32	5.47	5.54	5.53	5.54
weight of container and ring	60.50	435.80	436.60	436.60	436.60	436.60	436.60	436.60	436.60
weight of dry sample	126.51	126.25	126.20	126.20	126.20	126.20	126.20	126.20	126.20
moisture content %	0.22%		4.14%	4.22%	4.22%	4.33%	4.39%	4.38%	4.39%
moisture content % by vol.			7.66%	7.79%	7.79%	8.01%	8.12%	8.10%	8.12%
date measured			10/26/92	10/27/92	10/28/92	10/29/92	10/30/92	11/2/92	11/3/92
temperature deg. C			23	25	24	23	24	23	24
volume of brass ring, cm^3	68.26								

TEMPE CELLS	Sample #	3-0001 1 Bar Wetting Curve								
tension in cm	1000	1000	1000	700	500	300	203.2	101	72
error in tension value +/-	20	20	20	20	20	20	5	2	2
container number	TC-5	TC-5	TC-5	TC-5	TC-5	TC-5	TC-5	TC-5	TC-5
weight of container/ring,+wet sample	568.40	568.30	568.41	568.92	569.76	571.41	572.95	576	577.24
weight of container/ring,+ dry sample	562.80	562.80	562.80	562.80	562.80	562.80	562.80	562.80	562.80
weight of moisture	5.60	5.50	5.61	6.12	6.96	8.61	10.15	13.20	14.44
weight of container and ring	436.60	436.60	436.60	436.60	436.60	436.60	436.60	436.60	436.60
weight of dry sample	126.20	126.20	126.20	126.20	126.20	126.20	126.20	126.20	126.20
moisture content %	4.44%	4.36%	4.45%	4.85%	5.52%	6.82%	8.04%	10.46%	11.44%
moisture content % by vol.	8.20%	8.06%	8.22%	8.97%	10.20%	12.61%	14.87%	19.34%	21.15%
date measured	11/4/92	11/5/92	11/6/92	11/9/92	11/10/92	11/11/92	11/12/92	11/13/92	11/16/92
temperature deg. C	23	23	23	23	24	24	23	23	24
volume of brass ring, cm^3	68.26								

Cell wt. before cleanup = 436.60 grams

Cell wt. after cleanup = 435.20 grams

TEMPE CELLS	Sample #	3-0001 1 Bar Wetting Curve					435.87 Average of all three		
tension in cm	52.8	30	24	10	7	3	3	N/A
error in tension value +/-	3	2	2	1	0.5	0.5	0.5	
container number	TC-5	TC-5	TC-5	TC-5	TC-5	TC-5	TC-5	SML-5
weight of container/ring,+wet sample	578.38	580.29	580.72	581.50	582.15	582.37	582.45	208.34
weight of container/ring,+ dry sample	562.80	562.80	562.80	562.80	562.80	562.80	562.80	188.82
weight of moisture	15.58	17.49	17.92	18.70	19.35	19.57	19.65	19.52
weight of container and ring	436.60	436.60	436.60	436.60	436.60	436.60	436.60	62.93
weight of dry sample	126.20	126.20	126.20	126.20	126.20	126.20	126.20	125.89
moisture content %	12.35%	13.86%	14.20%	14.82%	15.33%	15.51%	15.57%	15.51%
moisture content % by vol.	22.82%	25.62%	26.25%	27.40%	28.35%	28.67%	28.79%	
date measured	11/17/92	11/18/92	11/19/92	11/20/92	11/23/92	11/24/92	11/25/92	12/1/92
temperature deg. C	22	23	23	21	24	22	22	25
volume of brass ring, cm^3	68.26		BULK DENSITY =		1.85			

P.13 of 55.51

KETTLES	Sample #	3-0001 15 Bar Drying Curve								
tension in cm	500	500	700	700	1000	1000	2000	2000	3000	3000
error in tension value +/-	20	20	20	20	20	20	20	20	20	20
container number	BA1	BA2	BA1	BA2	BA1	BA2	BB1	BB2	BB1	BB2
weight of container/ring,+wet sample	54.30	57.78	54.03	57.43	53.85	57.20	57.00	58.30	56.68	58.06
weight of container/ring,+ dry sample	52.53	55.99	52.41	55.80	52.31	55.66	55.60	56.82	55.46	56.74
weight of moisture	1.77	1.79	1.62	1.63	1.54	1.54	1.40	1.48	1.22	1.32
weight of container and ring	27.93	30.36	27.93	30.36	27.93	30.36	27.89	27.57	27.89	27.57
weight of dry sample	24.60	25.63	24.48	25.44	24.38	25.30	27.71	29.25	27.57	29.17
moisture content %	7.20%	6.98%	6.62%	6.41%	6.32%	6.09%	5.05%	5.06%	4.43%	4.53%
date measured	11/20/92	11/20/92	11/24/92	11/24/92	12/3/92	12/3/92	11/20/92	11/20/92	11/24/92	11/24/92
temperature deg. C	22	22	25	25	27	27	22	22	25	25

KETTLES								
tension in cm	3000	3000	5000	5000	7000	7000	10000	10000
error in tension value +/-	20	20	100	100	100	100	100	100
container number	BB1	BB2	BB1	BB2	BA1	BA2	BA1	BA2
weight of container/ring,+wet sample	56.62	57.82	53.07	53.64	56.01	59.13	55.73	58.86
weight of container/ring,+ dry sample	55.36	56.60	52.10	52.66	55.09	58.16	54.97	58.07
weight of moisture	1.26	1.22	0.97	0.98	0.92	0.97	0.76	0.79
weight of container and ring	27.89	27.57	27.89	27.57	27.93	30.36	27.93	30.36
weight of dry sample	27.47	29.03	24.21	25.09	27.16	27.80	27.04	27.71
moisture content %	4.59%	4.20%	4.01%	3.91%	3.39%	3.49%	2.81%	2.85%
date measured	12/3/92	11/20/92	12/7/92	12/7/92	11/20/92	11/20/92	11/24/92	11/24/92
temperature deg. C	27	22	24	24	22	22	25	25

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POINTS SELECTED FOR PLOTTING — Sample # 3-0001

container number	TC-30	TC-30	TC-30	TC-30	TC-30	TC-30	TC-30	TC-30	TC-30	TC-30	TC-30
Tension in cm	1	2.5	6	10.2	22	36	52.5	73.5	100.5	200.3	300
Tempe Drying Curve	32.1%	32.1%	32.0%	31.8%	31.3%	29.9%	28.8%	27.4%	24.9%	20.7%	17.7%
Kettle Drying Curve											
Tempe Wetting Curve											
date measured	10/23/92	10/27/92	10/28/92	10/29/92	10/30/92	11/2/92	11/3/92	11/4/92	11/5/92	11/6/92	11/9/92

container number	TC-30	TC-30	TC-30	TC-30	BA1	BA1	BB1	BB1	BB1	BA1	BA1
tension in cm	500	700	850	980	500	1000	2000	3000	5000	7000	10000
Tempe Drying Curve	15.0%	13.6%	12.6%	12.2%							
Kettle Drying Curve					13.8%	12.0%	9.8%	8.7%	7.7%	6.7%	5.5%
Tempe Wetting Curve											
date measured	11/10/92	11/11/92	11/12/92	11/13/92	11/20/92	12/3/92	11/20/92	11/24/92	12/7/92	11/20/92	11/24/92

container number	TC-5	TC-5	TC-5	TC-5	TC-5	TC-5	TC-5	TC-5	TC-5	TC-5	TC-5
tension in cm	1000	700	500	300	203.2	101	72	52.8	30	24	10
Tempe Drying Curve											
Kettle Drying Curve											
Tempe Wetting Curve	8.2%	9.0%	10.2%	12.6%	14.9%	19.3%	21.2%	22.8%	25.6%	26.3%	27.4%
date measured	11/6/92	11/9/92	11/10/92	11/11/92	11/12/92	11/13/92	11/16/92	11/17/92	11/18/92	11/19/92	11/20/92

container number	TC-5	TC-5
tension in cm	7	3
Tempe Drying Curve		
Kettle Drying Curve		
Tempe Wetting Curve	28.3%	28.8%
date measured	11/23/92	11/25/92

Kettle data points were converted from gravimetric to volumetric by multiplying by Bulk Density

Bulk Density = 1.94

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MOISTURE RETENTION DATA SHEET

SAMPLE NO. 3-0001 Page ____ of ____

Tested By:	R. M. Shuiler	Date	10-23-92
Procedure No:	17	Rev. 0	Date Issued 2/25/90
Test Plan No:	N/A	Rev. N/A	Date Issued
Pressure Cell No.	TC-30	Calibration Due Date	N/A
Gauge: GEL -	2032	Calibration Due Date	2-28-93
Thermometer: GEL -	12	Calibration Due Date	N/A
Balance: GEL -	3307	Calibration Due Date	~~9/15/92~~ RR 10-27-92 3-15-93
Gauge: GEL -		Calibration Due Date	
: GEL -		Calibration Due Date	

(1) Tension units = cm	NA	NA	0	2.5	6.0	10.2	22	36	52.5	73.5	100.5	200.3	300
(2) Container/Ring Number	MC-5	TC-30	TC-30	TC-30	TC-30	TC-30	TC-30	TC-30	TC-30	TC-30	TC-30	TC-30	TC-30
(3) Wt. of Container and Wet Sample, g	187.01	556.99	578.05	578.88	578.79	578.68	578.31	577.39	576.65	575.66	574.00	571.09	569.05
(4) Wt. of Container and Dry Sample, g	186.73												
(5) Container Tare Wt., g	60.50	424.03											
(6) Temperature			26	25	24	24	24	23	24	23	24	24	23
(7) Date			10-23-92	10-27-92	10-28-92	10-29-92	10-30-92	11-2-92	11-3-92	11-4-92	11-5-92	11-6-92	11-9-92

(1) Tension units = cm	500	700	850	980	NA	NA							
(2) Container/Ring Number	TC-30	TC-30	TC-30	TC-30	TC-30	MC-5							
(3) Wt. of Container and Wet Sample, g	567.24	566.22	565.56	565.27	565.20	201.05							
(4) Wt. of Container and Dry Sample, g						192.84							
(5) Container Tare Wt., g					424.74	60.50							
(6) Temperature	25	24	24	23									
(7) Date	11-10-92	11-11-92	11-12-92	11-13-92									

REMARKS W-049H

Tempe Drying Curve (0 to 1 Bar)

Cleaned Tare 424.94

All data are acurately and completely recorded. The test operator was trained and used calibrated instruments

Checked By: [signature] Date: 12-11-92

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MOISTURE RETENTION DATA SHEET

SAMPLE NO. 3-0001 Page ____ of ____

Tested By:	R. M. Shailer	Date	10-23-92
Procedure No:	17	Rev.	0 Date Issued 2/25/90
Test Plan No:	N/A	Rev.	N/A Date Issued
Pressure Cell No.	TC-5	Calibration Due Date	N/A
Gauge: GEL -	2033	Calibration Due Date	2-28-93
Thermometer: GEL -	12	Calibration Due Date	N/A
Balance: GEL -	3307	Calibration Due Date	~~9/15/92~~ 10-23-92 3-15-93
Gauge: GEL -		Calibration Due Date	
: GEL -		Calibration Due Date	

(1) Tension units = cm	NA	NA	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	700
(2) Container/Ring Number	MC-5	TC-5	TC-5	TC-5	TC-5	TC-5	TC-5	TC-5	TC-5	TC-5	TC-5	TC-5	TC-5
(3) Wt. of Container and Wet Sample, g	187.01	562.33	568.03	568.12	568.12	568.27	568.34	568.33	568.34	568.40	568.30	568.41	568.92
(4) Wt. of Container and Dry Sample, g	186.73												
(5) Container Tare Wt., g	60.50	435.80											
(6) Temperature			26	25	24	23	24	23	24	23	23	23	23
(7) Date			10-26-92	10-27-92	10-28-92	10-29-92	10-30-92	11-2-92	11-3-92	11-4-92	11-5-92	11-6-92	11-9-92

(1) Tension units = cm	500	300	203.2	101	72	52.8	30	24	10.0	7	3	3	NA
(2) Container/Ring Number	TC-5	TC-5	TC-5	TC-5	TC-5	TC-5	TC-5	TC-5	TC-5	TC-5	TC-5	TC-5	SML-5
(3) Wt. of Container and Wet Sample, g	569.76	571.41	572.95	576.00	577.24	578.38	580.29	580.72	581.50	582.15	582.37	582.45	208.34
(4) Wt. of Container and Dry Sample, g													188.82
(5) Container Tare Wt., g												436.60*	62.93
(6) Temperature	24	24	23	23	24	22	23	23	21	24	22	22	25
(7) Date	11-10-92	11-11-92	11-12-92	11-13-92	11-16-92	11-17-92	11-18-92	11-19-92	11-20-92	11-23-92	11-24-92	11-25-92	12-1-92

REMARKS W-049H

Tempe Wetting Curve (0 to 1 Bar)

*435.20 cleaned up

All data are acurately and completely recorded. The test operator was trained and used calibrated instruments

Checked By: J. A. Relyea Date: 12-11-92

B-33

WHC-SD-EN-DP-068, Rev. 0

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MOISTURE RETENTION DATA SHEET

SAMPLE NO. 3-0001 Page 1 of 3

Tested By:	R.M. SHAILER	Date	11/16/92	
Procedure No:	17	Rev.	0	Date Issu 2/25/90
Test Plan No:	N/A	Rev.	N/A	Date Issu N/A
Pressure Cell No.	GEL - KETTLE PK05-01	Calibration Due Date	N/A	
Gauge:	GEL - 2051	Calibration Due Date	7/2/93	
Thermometer:	GEL - 12	Calibration Due Date	N/A	
Balance:	GEL - 3307	Calibration Due Date	3/15/93	
Gauge:	GEL -	Calibration Due Date		
:	GEL -	Calibration Due Date		

	.5	.5	.5	.5	.7	.7	1	1					
(1) Tension units = Bar	~~1-1~~ ~~A1~~ RMS	~~1-2~~ ~~A2~~ RMS	0.50	0.50	0.70	0.70	1.0	1.0					
(2) Container/Ring Number	1-1 A1	1-2 A2	1-1 BA1	1-2 BA2	1-1 BA1	1-2 BA2	1-1 BA1	1-2 BA2					
(3) Wt. of Container and Wet Sample, g			54.30	57.78	54.03	57.43	53.85	57.20					
(4) Wt. of Container and Dry Sample, g	JTR 11-20-92		52.53	55.99	52.41	55.80	52.31	55.66					
(5) Container Tare Wt., g	15.56	15.48	27.93	30.36	27.93	30.36	27.93	30.36					
(6) Temperature			22	22	25	25	27	27					
(7) Date			11-20-92	11-20-92	11-24-92	11-24-92	12-3-92	12-3-92					

(1) Tension units = Bar													
(2) Container/Ring Number													
(3) Wt. of Container and Wet Sample, g													
(4) Wt. of Container and Dry Sample, g													
(5) Container Tare Wt., g													
(6) Temperature													
(7) Date													

REMARKS

KETTLE DRYING CURVE (0.5 to 1.0 BARs)

W-049H

All data are acurately and completely recorded. The test operator was trained and used calibrated instruments

Checked By: J T Relyea Date: 12-11-92

MOISTURE RETENTI DATA SHEET

SAMPLE NO. 3-0001 Page 2 of 3

Tested By:	R.M. SHAILER	Date	11/16/92	
Procedure No:	17	Rev.	0	Date Issu 2/25/90
Test Plan No:	N/A	Rev.	N/A	Date Issu N/A
Pressure Cell No.	GEL - KETTLE PK05-02	Calibration Due Date		
Gauge:	GEL - 2052	Calibration Due Date	7/2/93	
Thermometer:	GEL - 12	Calibration Due Date	N/A	
Balance:	GEL - 3307	Calibration Due Date	3/15/93	
Gauge:	GEL - 2034	Calibration Due Date	4/3/93	
:	GEL -	Calibration Due Date		

	2	2	2	2	3	3	3	3	5	5			
(1) Tension units = Bar			2.0	2.0	3.0	3.0	3.0	3.0	5.0	5.0			
(2) Container/Ring Number	3-1 B1	3-2 B2	3-1 BB1	3-2 BB2	3-1 BB1	3-2 BB2	3-1 BB1	3-2 BB2	1-1 BB1	1-2 BB2			
(3) Wt. of Container and Wet Sample, g			57.00	58.30	56.68	58.06	56.52	57.82	53.07	53.64			
(4) Wt. of Container and Dry Sample, g	JR	11-20-92	55.60	56.82	55.46	56.74	55.36	56.60	52.10	52.66			
(5) Container Tare Wt., g	15.44	15.32	27.89	27.57	27.89	27.57	27.89	27.57	27.89	27.57			
(6) Temperature			22	22	25	25	27	27	24	24			
(7) Date			11-20-92	11-20-92	11-24-92	11-24-92	12-3-92	12-3-92	12-7-92	12-7-92			

(1) Tension units = Bar													
(2) Container/Ring Number													
(3) Wt. of Container and Wet Sample, g													
(4) Wt. of Container and Dry Sample, g													
(5) Container Tare Wt., g													
(6) Temperature													
(7) Date													

REMARKS

KETTLE DRYING CURVE (2.0 to 5.0 BARs)

All data are acurately and completely recorded. The test operator was trained and used calibrated instruments

Checked By: J. F. Relyea Date: 12-11-92

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MOISTURE RETENTION DATA SHEET

SAMPLE NO. 3-0001 Page 3 of 3

Tested By:	R.M. SHAILER	Date	11/16/92	
Procedure No:	17	Rev.	0	Date Issu 2/25/90
Test Plan No:	N/A	Rev.	N/A	Date Issu N/A
Pressure Cell No.	GEL - KETTLE PK15-02	Calibration Due Date		
Gauge:	GEL - 2035	Calibration Due Date	2/28/93	
Thermometer:	GEL - 12	Calibration Due Date	N/A	
Balance:	GEL - 3307	Calibration Due Date	3/15/93	
Gauge:	GEL -	Calibration Due Date		
:	GEL -	Calibration Due Date		

	7	7	7	7	10	10							
(1) Tension units = Bar			7.0	7.0	10	10							
(2) Container/Ring Number	5-1 C1	5-2 C2	5-1 BA1	5-2 BA2	5-1 BA1	5-2 BA2							
(3) Wt. of Container and Wet Sample, g			56.01	59.13	55.73	58.86							
(4) Wt. of Container and Dry Sample, g	JJR	11-20-92	55.09	58.16	54.97	58.07							
(5) Container Tare Wt., g	15.43	15.40	27.93	30.36	27.93	30.36							
(6) Temperature			22	22	25	25							
(7) Date			11-20-92	11-20-92	11-24-92	11-24-92							

(1) Tension units = Bar													
(2) Container/Ring Number													
(3) Wt. of Container and Wet Sample, g													
(4) Wt. of Container and Dry Sample, g													
(5) Container Tare Wt., g													
(6) Temperature													
(7) Date													

REMARKS

KETTLE DRYING CURVE (7.0 to 15.0 BARs)

All data are acurately and completely recorded. The test operator was trained and used calibrated instruments

Checked By: J.J. Rodgers Date: 12-11-92

TEST REQUEST

OPERABLE UNIT	W-049H	WELL NO	699-40-36	DEPTH	113.0-116.5
SAMPLE/SPECIMEN NO	3-0002	COST CODE/WORK ORDER NUMBER			A6CDR
REQUESTED BY: ORG	82436	PERSON	C. DELANEY	PHONE	6-9235
********HEIS********	NA	MSIN	H4-56	DATE	10/15/92

TEST REQUESTED	# OF SAMPLES	TEST LAB INFORMATION
Sieve/Hydrometer	2	GEL-07 / Rev. 2 / 3-13-92
Hydraulic Conductivity	2	GEL-09 / Rev. 2 / 3-13-92
Specific Gravity	2	GEL-10 / Rev. 1 / 12-1-89
Moisture Content	T	GEL-14 / Rev. 0 / 3-13-92
Bulk Density/Porosity	2	GEL-16 / Rev. 1 / 3-13-92
Moisture Retention	2	GEL-17 / Rev. 0 / 3-13-92
Calcium Carbonate	T	GEL-19 / Rev. 0 / 9-7-90

REMARKS: Normal cut off for hydrometer testing.

ARCHIVE YES ☐ NO ☑

RADIATION RELEASE

Bldg. 699-40-36 Expiration Date 10/15/92

Released By TEC
Health Physics

Remarks 114.5-115.0

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-40-36 Expiration Date 10/15/92

Released By TEC
Health Physics

Remarks 116.0-116.5

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-40-36 Expiration Date 10/15/92

Released By TEC
Health Physics

Remarks 113-114
3-0002

54-3000-022 (01/89)

RECEIVED BY J.C. McGuffey

DATE 10/15/92

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

WHC-SD-EN-DP-068, Rev. 0
GEOTECHNICAL ENGINEERING LABORATORY
GEL-07 SIEVE AND HYDROMETER ANALYSIS

Sample No. 3-0002 P.21 of 55 51

Page 1 of 5

GEL-07 SIEVE ANALYSIS

Date 10-21-92 Calibration Due Date 10-25-92 Balance: 3310

Sample Description Fine silt & clay Sieve Time 10 (min)

Reduced By: ☒ Splitting ☐ Quartering ☐ Stockpile

Sieve Size	Sample Weight	Cumulative Wt. Retained	Cumulative % Retained	Cumulative % Passed	Tested By
10	140-8	0	0	100	LD Bruggeman
40	↓	28.9	20.5	79.5	
60	↓	42.7	30.3	69.7	
100	↓	59.6	42.3	57.7	
200	↓	84.9	60.3	39.7	

Remarks: representative sample ; 140.8 - used mortar and pestle then washed.

GEL-07 HYDROMETER ANALYSIS

Date 10/22/92

Balance: 3310 Calibration Due Date 10-25-92

Thermometer: 0018 Calibration Due Date 9-17-93

Hydrometer: 1007 Calibration Due Date 1-22-93

WEIGHT OF SAMPLE

Wt. Container + Soil 124.7 (g)

Wt. Container 57.1 (g)

Wt. Soil 67.6 (g)

Specific Gravity of Sample 2.46

% Passing No. 10 Sieve 100 %

A = W = K =

COMPOSITE CORRECTION

1st Reading 7 at 22.1 °C

2nd Reading 7 at 22.4 °C

Date	Clock Time	Elapsed Time (min)	Hydrometer Reading	Hydrometer with Composite Correction	Temperature (°C)	Soil in Suspension (%)	Particle Diameter (mm)	Tested By
10/22	07:35	2.0	53	46	22.1	71.45	.028	LD Bruggeman
	07:38	5.0	48	41	22.1	63.68	.018	[redacted]
	07:48	15.0	42	35	22.1	54.36	.011	[redacted]
	08:03	30.0	36	29	22.1	45.04	.008	[redacted]
	08:33	60.0	31	24	22.2	37.28	.006	[redacted]
	11:43	250.0	24	17	22.7	26.41	.003	[redacted]
10/23	07:33	1440.0	15	8	22.3	12.43	.001	[redacted]

Remarks: TUBE "B"

LDB 10/23/92 Tests Checked By [illegible] Date 11/20/92

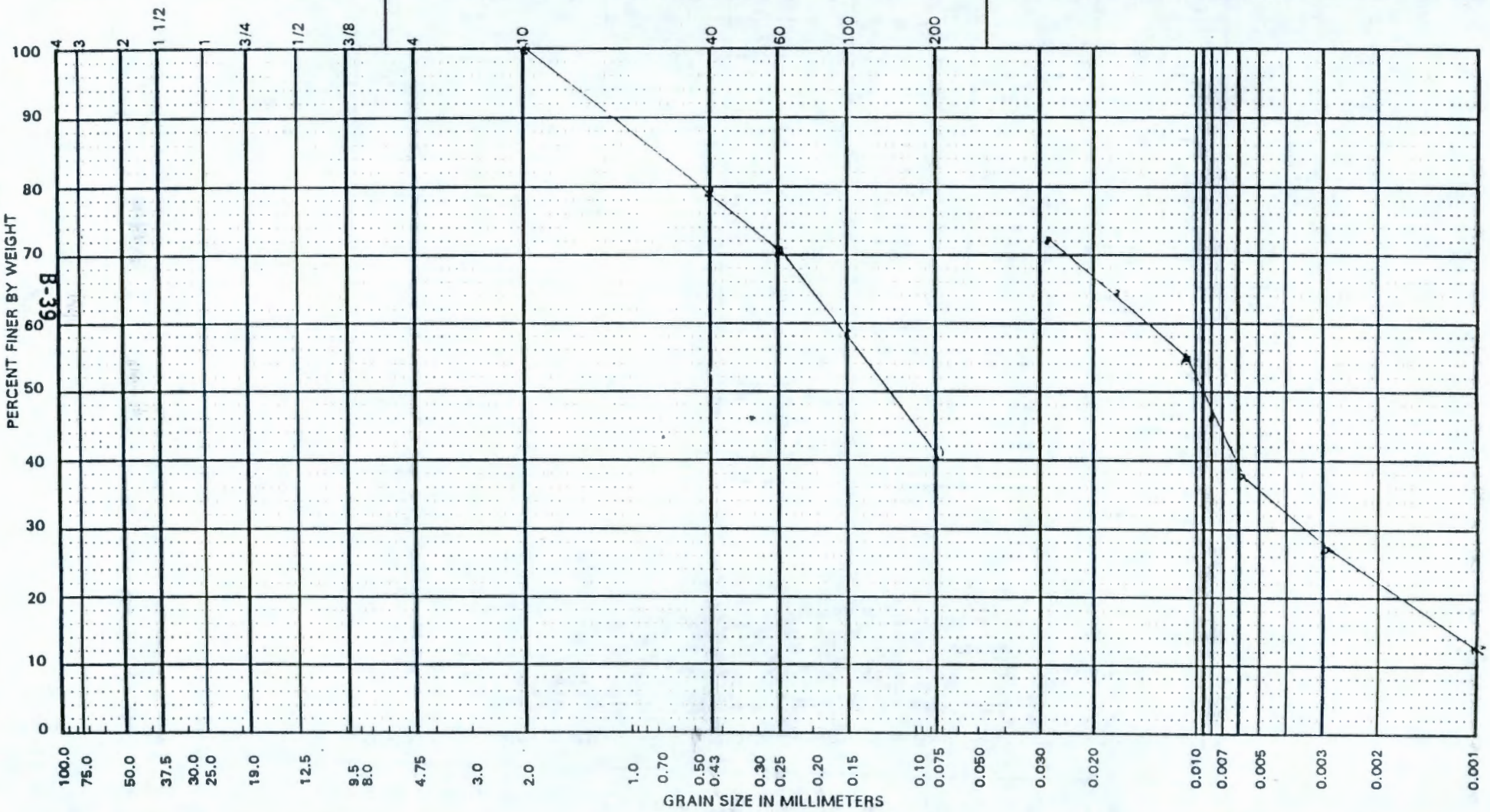
BD-6000-796 (04/92)

GEL-07 GRAIN SIZE ANALYSIS PLOT

Sample No. 3-0002

Page 2 of 5

Remarks 699-40-36 113 - 116.5'



Plotted By LD B Date 10/23/92

Plot Checked By R. M. Stutzman Date 11/2/92

PD 6000 799 (04/92)

B-39

WHC-SD-EN-DP-068, Rev. 0

P. 224-55

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

GEOTECHNICAL ENGINEERING LABORATORY
GEL-09 HYDRAULIC CONDUCTIVITY DATA SHEET

Sample No. 3-0002

Balance No. 3304 / 1-25-93 Permeameter No. 2

Test Initiated By LD Bruggeman Date 11/5/92 Procedure GEL 09 / Rev 2 / 3-13-92 Sleeve Type: ☒ Metal ☐ Plastic

Specimen Diameter (D) 9.83 cm

Specimen Length (L) 15.24 cm

$A = \left(\frac{D}{2}\right)^2 \times 3.1415$

Specimen Area (A) 75.89 cm^2

Darcy's Law

$K = \frac{QL}{AH}$

K = Hydraulic Conductivity (cm/sec)
Q = Flow (cm^3/sec) = Vol. g/Time (sec)
A = Area (cm^2)
H = Hydraulic Head
L = Length (cm)

Date Year 92 (Mo/Day)	Run Time System (Hr:Min)	Run Time System (Hr:Min)	Run Time Time Change	Container Weight (± 0.1 g)	Container Tare (± 0.1 g)	Container Tare & Effluent (± 0.1 g)	Room Temp (°C)	Pressure Pore H_2O (cm)	Effluent Description	Operator Initials	Hydraulic Conductivity (cm/sec)	Calculated By
11/5 – 11/6	7:18	14:22	31:04	7.37	122.16	129.53	25.3	122.0	clear	LDB	1.08E-07	LDB
11/6 – 11/9	14:23	7:58	65:35	13.23	122.16	135.39	22.4	122.0	clear	LDB	9.22E-08	LDB
11/9 – 11/10	7:59	15:09	31:10	6.38	122.16	128.54	24.3	122.0	clear	LDB	9.36E-08	LDB
11/10 – 11/16	15:10	7:03	135:53	23.28	122.16	145.44	23.1	121.8	clear	LDB	7.85E-08	LDB

Remarks $\bar{K}$ = 9.31-08

Checked By R.T. McCulloch Date 11-1-92

GEL 07 ☑ GEL 09 ☑ GEL 10 ☑ GEL 14 ☑ GEL 16 ☑ GEL 17 ☑ GEL 19 ☑ GEL ☐	WHC-SD-EN-DP-068, Rev. 0 GEOTECHNICAL ENGINEERING LABORATORY GEL-10 SPECIFIC GRAVITY SOILS FINE/COARSE	Sample No. 3-0002 Page 4 of 5

GEL-10 SPECIFIC GRAVITY OF SOILS

Date 10-21-92 Tested By LD Bruggeman

Balance: 3304 Calibration Due Date 10-25-92

	DETERMINATION NO.	1	2	3
W_o	Wt. Oven Dry, Soil, g	55.__	.__	.__
	Pycnometer No.	2555		
	Wt. Pycnometer, g	122.83	.__	.__
W_a	Wt. Pycnometer + Wetting Agent, g	381.38	.__	.__
W_b	Wt. Pycnometer + Wetting Agent + Soil, g	414.01	.__	.__
	Temperature, T_x at W_b, °C	23.7		
G_w	Specific Gravity of Wetting Agent at T_x	1.00	.__	.__
G_t	Specific Gravity of Soil at T_x	2.46	.__	.__
G_s	Specific Gravity of Soil at 20 °C	2.46	.__	.__

Wetting Agent D.I. H_2O

$$C_t = \frac{W_o}{W_o + W_a - W_b}$$

Remarks:

GEL-10 SPECIFIC GRAVITY COARSE AGGREGATES

Date Tested By:

Balance: 3312 Calibration Due Date

	DETERMINATION NO.	1	
	Size fraction		
P_1	Size fraction, wt. % total, g		
	Tare weight		
B	Weight sample (SSD), g		.__
C	Weight sample in H_2O, g		.__
A	Weight of oven dry sample, g		.__

Bulk Specific Gravity, 23/23 °C = A/(B-C) = .__

A = wt. oven dry sample in air, g
B = wt. SSD sample in air, g
C = wt. saturated sample in H_2O, g

Bulk Specific Gravity SSD, 23/23 °C = B/(B-C) = .__

Apparent Specific Gravity, 23/23 °C = A/(A-C) = .__

*Average Specific Gravity Values, 23/23 °C $\overline{G}$ = .__

Remarks: NA

$$\overline{G} = \frac{1}{\dfrac{P_1 = \%\ \text{coarse}}{G_1 = \text{coarse sp.gr.} \times 100} + \dfrac{P_2 = \%\ \text{fines}}{G_2 = \text{fines sp. gr.} \times 100}}$$

$\overline{G}$ = Ave. Specific Gravity for all forms of Specific Gravity i.e., formula applicable to Bulk, Bulk SSD and Apparent Specific Gravity.

G_1, G_2 = appropriate Specific Gravity values for each size fraction depending on the type of Specific Gravity being averaged.

P_1, P_2 = wt. percentages of each size fraction present in the original sample.

*State type of Specific Gravity Reported i.e., either Bulk, Bulk SSD or Apparent.

Tests Checked By: R. T. McIntosh Date 11/19/92

BD-6000-798 (08/92)

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GEL 07 ☑ GEL 09 ☑ GEL 10 ☑ GEL 14 ☑	GEL 16 ☑ GEL 17 ☑ GEL 19 ☑ GEL ☐	**GEOTECHNICAL ENGINEERING LABORATORY GEL-14, GEL-16, GEL-19**

Sample No. 3-0002

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GEL-14 SOIL MOISTURE

Balance: 3304 Calibration Due Date 10-25-92 Tested By LD Bruggem

Thermometer: OD14 Calibration Due Date 1-21-92

Date	Wet Wt. + Can	Dry Wt. + Can	Tare Wt.	Moisture	Dry Wt. Soil	% Moisture	Calculated By
10/21/92	401.77	330.54	61.98	71.23	268.56	26.52	LD Bruggem

Remarks:

GEL-16 BULK DENSITY-POROSITY

Tested By LD Bruggem

DETERMINATION NO.	1	
Pan No.: Mold: ☐ Plastic ☒ Metal Length:	15.24	
Sample Volume, V, cc LDB 11/18	1156.56 ~~3215.3~~	
Wt. of Sample & Mold, g	3215.3	
Wt. of Mold, g	743.0	
Wet Wt. of Sample, g	2472.3	
Wet Density of Sample, γ m, g/cc	2.14	
Water Content % Dry Weight	26.52	
Dry Density, g/cc γ d	1.69	
Dry weight of Sample, g, Ws	1954.08	
*Void Ratio, e	0.4560	
**Porosity, n, %	31.32	

$$Ws = \frac{\text{Wet Wt.}}{1 + \%\ \text{Dry Wt.}}$$

$$\text{*Void Ratio, } e = \frac{\text{Avg. Sp. Gr.} \times \text{Vol.}}{Ws} - 1$$

$$\text{**Porosity, } n, \% = \left(\frac{e}{1+e}\right) 100$$

Remarks:

GEL-19 CALCIUM CARBONATE

Vessel No. 5650 Tested By LD Bruggem

Balance No. 3304 Date Due 1-25-93

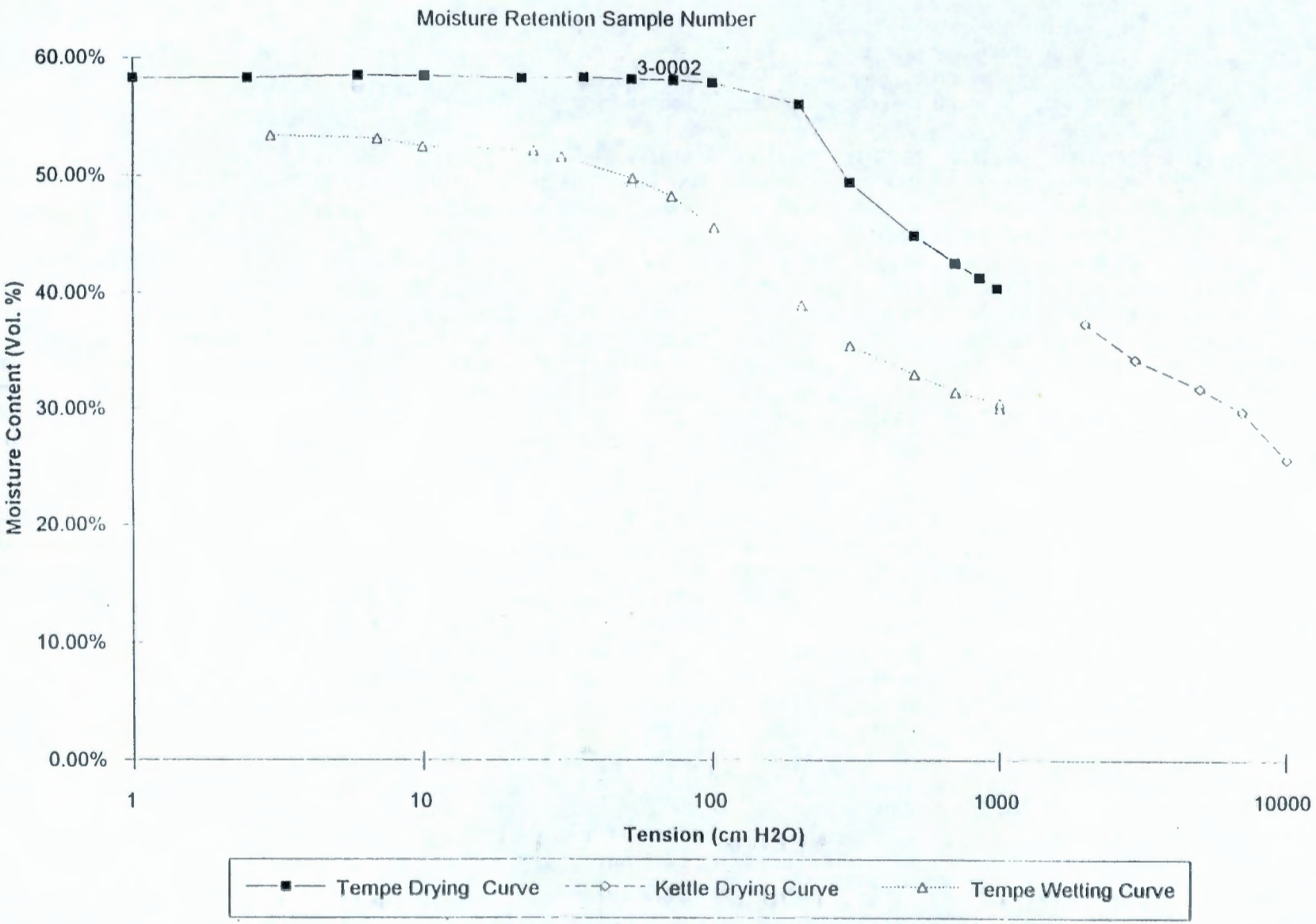
Sample Weight 8.0 (g)

Sample Pressure 0.3 (psi) $\%CaCO_3$ <1 Per Gram

Remarks:

Tests Checked By: M. C. [illegible] Date 11/19/92

BD-6000-797 (04/92)


Moisture Retention Sample Number
3-0002
60.00%
50.00%
40.00%
30.00%
20.00%
10.00%
0.00%
Moisture Content (Vol. %)
1
10
100
1000
10000
Tension (cm H2O)
Tempe Drying Curve
Kettle Drying Curve
Tempe Wetting Curve

	3-0002
Contact	C. DELANEY
Well No.	699-40-36
Operable Unit	W-049H
HEIS No.	N/A
Depth	114.5-116.5

TEMPE CELLS	Sample #	3-0002 1 Bar Drying Curve								
tension in cm	N/A	N/A	0	2.5	6	10.2	22	36	52.5	73.5
error in tension value +/-			0	0.5	1	1	2	3	3	4
container number	MC-6	TC-31	TC-31	TC-31	TC-31	TC-31	TC-31	TC-31	TC-31	TC-31
weight of container/ring,+wet sample	124.90	507.57	545.97	546.01	546.14	546.12	546.01	546.04	545.94	545.89
weight of container/ring,+ dry sample	123.82	506.15	506.19	506.19	506.19	506.19	506.19	506.19	506.19	506.19
weight of moisture	1.08	1.42	39.78	39.82	39.95	39.93	39.82	39.85	39.75	39.70
weight of container and ring	61.06	422.17	422.39	422.39	422.39	422.39	422.39	422.39	422.39	422.39
weight of dry sample	63.84	83.98	83.80	83.80	83.80	83.80	83.80	83.80	83.80	83.80
moisture content % by wt.	1.69%		47.47%	47.52%	47.68%	47.65%	47.52%	47.56%	47.44%	47.38%
moisture content % by vol.			58.28%	58.34%	58.53%	58.50%	58.34%	58.38%	58.24%	58.16%
date measured			10/23/92	10/27/92	10/28/92	10/29/92	10/30/92	11/2/92	11/3/92	11/4/92
temperature deg. C			26	25	24	24	24	23	24	23
volume of brass ring, cm^3	68.26									

TEMPE CELLS	Sample #	3-0002 1 Bar Drying Curve								
tension in cm	100.5	200.3	300	500	700	850	980	N/A	N/A	
error in tension value +/-	5	5	20	20	20	20	20			
container number	TC-31	TC-31	TC-31	TC-31	TC-31	TC-31	TC-31	TC-31	MC-6	
weight of container/ring,+wet sample	545.73	544.49	539.96	536.83	535.25	534.41	533.79	533.77	172.34	
weight of container/ring,+ dry sample	506.19	506.19	506.19	506.19	506.19	506.19	506.19	506.19	144.79	
weight of moisture	39.54	38.30	33.77	30.64	29.06	28.22	27.60	27.58	27.55	
weight of container and ring	422.39	422.39	422.39	422.39	422.39	422.39	422.39	422.39	61.07	
weight of dry sample	83.80	83.80	83.80	83.80	83.80	83.80	83.80	83.80	83.72	
moisture content % by wt.	47.19%	45.71%	40.30%	36.57%	34.68%	33.68%	32.94%	32.92%	32.91%	
moisture content % by vol.	57.93%	56.11%	49.48%	44.89%	42.58%	41.35%	40.44%	40.41%		
date measured	11/5/92	11/6/92	11/9/92	11/10/92	11/11/92	11/12/92	11/13/92	11/13/92	11/14/92	
temperature deg. C	24	24	23	25	24	24	23			
volume of brass ring, cm^3	68.26									

Cell wt. before cleanup = 422.33 grams

Cell wt. after cleanup = 422.66 grams

BULK DENSITY = 1.23 422.39 Average of all 3

TEMPE CELLS	Sample #	3-0002 1 Bar Wetting Curve							
tension in cm	N/A	N/A	1000	1000	1000	1000	1000	1000	1000
error in tension value +/-			20	20	20	20	20	20	20
container number	MC-6	TC-6	TC-6	TC-6	TC-6	TC-6	TC-6	TC-6	TC-6
weight of container/ring,+wet sample	124.90	509.46	528.07	528.48	528.78	529.26	529.46	529.41	529.26
weight of container/ring,+ dry sample	123.82	508.07	508.90	508.90	508.90	508.90	508.90	508.90	508.90
weight of moisture	1.08	1.39	19.17	19.58	19.88	20.36	20.56	20.51	20.36
weight of container and ring	61.06	426.18	427.20	427.20	427.20	427.20	427.20	427.20	427.20
weight of dry sample	63.84	81.89	81.70	81.70	81.70	81.70	81.70	81.70	81.70
moisture content %	1.69%		23.46%	23.97%	24.33%	24.92%	25.17%	25.10%	24.92%
moisture content % by vol.			28.08%	28.68%	29.12%	29.83%	30.12%	30.05%	29.83%
date measured			10/26/92	10/27/92	10/28/92	10/29/92	10/30/92	11/2/92	11/3/92
temperature deg. C			23	25	24	23	24	23	24
volume of brass ring, cm^3	68.26								

TEMPE CELLS	Sample #	3-0002 1 Bar Wetting Curve							
tension in cm	1000	1000	1000	700	500	300	203.2	101	72
error in tension value +/-	20	20	20	20	20	20	5	2	2
container number	TC-6	TC-6	TC-6	TC-6	TC-6	TC-6	TC-6	TC-6	TC-6
weight of container/ring,+wet sample	529.34	529.42	529.73	530.39	531.43	533.13	535.52	540.04	541.85
weight of container/ring,+ dry sample	508.90	508.90	508.90	508.90	508.90	508.90	508.90	508.90	508.90
weight of moisture	20.44	20.52	20.83	21.49	22.53	24.23	26.62	31.14	32.95
weight of container and ring	427.20	427.20	427.20	427.20	427.20	427.20	427.20	427.20	427.20
weight of dry sample	81.70	81.70	81.70	81.70	81.70	81.70	81.70	81.70	81.70
moisture content %	25.02%	25.12%	25.50%	26.30%	27.58%	29.66%	32.58%	38.12%	40.33%
moisture content % by vol.	29.94%	30.06%	30.52%	31.48%	33.01%	35.50%	39.00%	45.62%	48.27%
date measured	11/4/92	11/5/92	11/6/92	11/9/92	11/10/92	11/11/92	11/12/92	11/13/92	11/16/92
temperature deg. C	23	23	23	23	24	24	23	23	24
volume of brass ring, cm^3	68.26								

Cell wt. before cleanup = 427.56 grams

Cell wt. after cleanup = 426.30 grams

TEMPE CELLS	Sample #	3-0002 1 Bar Wetting Curve				426.68 Average of all three		
tension in cm	52.8	30	24	10	7	3	3	N/A
error in tension value +/-	3	2	2	1	0.5	0.5	0.5	
container number	TC-6	TC-6	TC-6	TC-6	TC-6	TC-6	TC-6	SML-6
weight of container/ring,+wet sample	542.90	544.15	544.52	544.76	545.23	545.31	545.39	180.35
weight of container/ring,+ dry sample	508.90	508.90	508.90	508.90	508.90	508.90	508.90	144.16
weight of moisture	34.00	35.25	35.62	35.86	36.33	36.41	36.49	36.19
weight of container and ring	427.20	427.20	427.20	427.20	427.20	427.20	427.20	62.99
weight of dry sample	81.70	81.70	81.70	81.70	81.70	81.70	81.70	81.17
moisture content %	41.62%	43.15%	43.60%	43.89%	44.47%	44.57%	44.66%	44.59%
moisture content % by vol.	49.81%	51.64%	52.18%	52.53%	53.22%	53.34%	53.46%	
date measured	11/17/92	11/18/92	11/19/92	11/20/92	11/23/92	11/24/92	11/25/92	12/1/92
temperature deg. C	22	23	23	21	24	22	22	25
volume of brass ring, cm^3	68.26		BULK DENSITY =		1.20			

KETTLES	Sample #	3-0002 15 Bar Drying Curve								
tension in cm	500	500	700	700	1000	1000	2000	2000	3000	3000
error in tension value +/-	20	20	20	20	20	20	20	20	20	20
container number	BA3	BA4	BA3	BA4	BA3	BA4	BB3	BB4	BB3	BB4
weight of container/ring,+wet sample	51.81	51.89	51.80	51.89	51.38	51.58	51.58	47.93	50.94	47.42
weight of container/ring,+ dry sample	45.32	45.22	45.23	45.11	45.05	45.01	46.00	43.15	45.88	43.05
weight of moisture	6.49	6.67	6.57	6.78	6.33	6.57	5.58	4.78	5.06	4.37
weight of container and ring	28.66	27.84	28.66	27.84	28.66	27.84	27.62	27.51	27.62	27.51
weight of dry sample	16.66	17.38	16.57	17.27	16.39	17.17	18.38	15.64	18.26	15.54
moisture content %	38.96%	38.38%	39.65%	39.26%	38.62%	38.26%	30.36%	30.56%	27.71%	28.12%
date measured	11/20/92	11/20/92	11/24/92	11/24/92	12/3/92	12/3/92	11/20/92	11/20/92	11/24/92	11/24/92
temperature deg. C	22	22	25	25	27	27	22	22	25	25

KETTLES								
tension in cm	3000	3000	5000	5000	7000	7000	10000	10000
error in tension value +/-	20	20	100	100	100	100	100	100
container number	BB3	BB4	BB3	BB4	BA3	BA4	BA3	BA4
weight of container/ring,+wet sample	50.75	47.30	48.00	48.97	50.32	45.53	49.52	44.99
weight of container/ring,+ dry sample	45.68	42.92	43.82	44.55	45.95	42.20	45.89	42.04
weight of moisture	5.07	4.38	4.18	4.42	4.37	3.33	3.63	2.95
weight of container and ring	27.62	27.51	27.62	27.51	28.66	27.84	28.66	27.84
weight of dry sample	18.06	15.41	16.20	17.04	17.29	14.36	17.23	14.20
moisture content %	28.07%	28.42%	25.80%	25.94%	25.27%	23.19%	21.07%	20.77%
date measured	12/3/92	12/3/92	12/7/92	12/7/92	11/20/92	11/20/92	11/24/92	11/24/92
temperature deg. C	27	27	24	24	22	22	25	25

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POINTS SELECTED FOR PLOTTING — Sample # 3-0002

container number	TC-31	TC-31	TC-31	TC-31	TC-31	TC-31	TC-31	TC-31	TC-31	TC-31	TC-31
Tension in cm	1	2.5	6	10.2	22	36	52.5	73.5	100.5	200.3	300
Tempe Drying Curve	58.28%	58.34%	58.53%	58.50%	58.34%	58.38%	58.24%	58.16%	57.93%	56.11%	49.48%
Kettle Drying Curve											
Tempe Wetting Curve											
date measured	10/23/92	10/27/92	10/28/92	10/29/92	10/30/92	11/2/92	11/3/92	11/4/92	11/5/92	11/6/92	11/9/92

container number	TC-31	TC-31	TC-31	TC-31	BB3	BB3	BB3	BA3	BA3	TC-6	TC-6
tension in cm	500	700	850	980	2000	3000	5000	7000	10000	1000	700
Tempe Drying Curve	44.89%	42.58%	41.35%	40.44%							
Kettle Drying Curve					37.40%	34.27%	31.76%	29.75%	25.68%		
Tempe Wetting Curve										30.52%	31.48%
date measured	11/10/92	11/11/92	11/12/92	11/13/92	11/20/92	11/24/92	12/7/92	11/20/92	11/24/92	11/6/92	11/9/92

container number	TC-6	TC-6	TC-6	TC-6	TC-6	TC-6	TC-6	TC-6	TC-6	TC-6	TC-6
tension in cm	500	300	203.2	101	72	52.8	30	24	10	7	3
Tempe Drying Curve											
Kettle Drying Curve											
Tempe Wetting Curve	33.01%	35.50%	39.00%	45.62%	48.27%	49.81%	51.64%	52.18%	52.53%	53.22%	53.46%
date measured	11/10/92	11/11/92	11/12/92	11/13/92	11/16/92	11/17/92	11/18/92	11/19/92	11/20/92	11/23/92	11/25/92

container number	
tension in cm	
Tempe Drying Curve	
Kettle Drying Curve	
Tempe Wetting Curve	
date measured	

Kettle data points were converted from gravimetric to volumetric by multiplying by Bulk Density

Bulk Density = 1.23

MOISTURE RETENTION DATA SHEET

SAMPLE NO. 3-0002 Page ____ of ____

Tested By:	R. M. Shuiler	Date	10-23-92
Procedure No:	17	Rev. 0	Date Issued 2/25/90
Test Plan No:	N/A	Rev. N/A	Date Issued
Pressure Cell No.	TC-31	Calibration Due Date	N/A
Gauge: GEL -	2032	Calibration Due Date	2-28-93
Thermometer: GEL -	12	Calibration Due Date	N/A
Balance: GEL -	3307	Calibration Due Date	~~9/15/92~~ JAR 10-23-92 3-15-93
Gauge: GEL -		Calibration Due Date	
: GEL -		Calibration Due Date	

(1) Tension units = cm	NA	NA	0	2.5	6.0	10.2	22	36	52.5	73.5	100.5	200.3	300
(2) Container/Ring Number	MC-6	TC-31	TC-31	TC-31	TC-31	TC-31	TC-31	TC-31	TC-31	TC-31	TC-31	TC-31	TC-31
(3) Wt. of Container and Wet Sample, g	124.90	507.57 ~~507.75~~ JAR 10-23-92	545.97	546.01	546.14	546.12	546.01	546.04	545.84	545.89	545.73	544.49	539.86
(4) Wt. of Container and Dry Sample, g	123.82												
(5) Container Tare Wt., g	61.06	422.17											
(6) Temperature			26	25	24	24	24	23	24	23	24	24	23
(7) Date			10-23-92	10-27-92	10-28-92	10-29-92	10-30-92	11-2-92	11-3-92	11-4-92	11-5-92	11-6-92	11-9-92

(1) Tension units = cm	500	700	850	980	NA	NA							
(2) Container/Ring Number	TC-31	TC-31	TC-31	TC-31	TC-31	MC-6							
(3) Wt. of Container and Wet Sample, g	536.83	535.25	534.41	533.79	533.77	172.34							
(4) Wt. of Container and Dry Sample, g						144.79							
(5) Container Tare Wt., g					422.33	61.07							
(6) Temperature	25	24	24	23									
(7) Date	11-10-92	11-11-92	11-12-92	11-13-92									

REMARKS W-049H

Tempe Drying Curve (0 to 1 Bar)

422.66 cleaned up

All data are acurately and completely recorded. The test operator was trained and used calibrated instruments

Checked By: J A Relyea Date: 12-11-92

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WHC-SD-EN-DP-068, Rev. 0

P.324-55

MOISTURE RETENTION DATA SHEET

SAMPLE NO. 3-0002 Page ____ of ____

Tested By: R. M. Shailer
Procedure No: 17
Test Plan No: N/A
Pressure Cell No. TC-6
Gauge: GEL - 2033
Thermometer: GEL - 12
Balance: GEL - 3307
Gauge: GEL -
: GEL -

Date 10-23-92
Rev. 0 Date Issued 2/25/90
Rev. N/A Date Issued
Calibration Due Date N/A
Calibration Due Date 2-23-93
Calibration Due Date N/A
Calibration Due Date ~~9/15/92~~ 10-23-92 3-15-93
Calibration Due Date
Calibration Due Date

(1) Tension units = cm	NA	NA	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	700
(2) Container/Ring Number	MC-6	TC-6	TC-6	TC-6	TC-6	TC-6	TC-6	TC-6	TC-6	TC-6	TC-6	TC-6	TC-6
(3) Wt. of Container and Wet Sample, g	124.90	509.46	528.07	528.48	528.78	529.26	529.46	529.41	529.26	528.34	529.42	529.73	530.39
(4) Wt. of Container and Dry Sample, g	123.82												
(5) Container Tare Wt., g	61.06	426.18											
(6) Temperature			23	25	24	23	24	23	24	23	23	23	23
(7) Date			10-26-92	10-27-92	10-28-92	10-29-92	10-30-92	11-2-92	11-3-92	11-4-92	11-5-92	11-6-92	11-9-92

(1) Tension units = cm	500	300	203.2	101	72	52.8	30	24	10.0	7	3	3	NA
(2) Container/Ring Number	TC-6	TC-6	TC-6	TC-6	TC-6	TC-6	TC-6	TC-6	TC-6	TC-6	TC-6	TC-6	SMC-6
(3) Wt. of Container and Wet Sample, g	531.43	533.13	535.52	540.04	541.85	542.90	544.15	544.52	544.76	545.23	545.31	545.39	180.35
(4) Wt. of Container and Dry Sample, g													144.16
(5) Container Tare Wt., g												427.56	62.99
(6) Temperature	24	24	23	23	24	22	23	23	21	24	22	22	25
(7) Date	11-10-92	11-11-92	11-12-92	11-13-92	11-16-92	11-17-92	11-18-92	11-19-92	11-20-92	11-23-92	11-24-92	11-25-92	12-1-92

REMARKS W-049H

Tempe Wetting Curve (0 to 1 Bar)

Cleaned Tare Wt. 426.30

All data are acurately and completely recorded. The test operator was trained and used calibrated instruments

Checked By: J F Relyea Date: 12-11-92

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MOISTURE RETENTION DATA SHEET

SAMPLE NO. 3-0002 Page 1 of 3

Tested By:	R.M. SHAILER	Date 11/16/92		
Procedure No:	17	Rev. 0	Date Issu	2/25/90
Test Plan No:	N/A	Rev. N/A	Date Issu	N/A
Pressure Cell No.	GEL - KETTLE PK05-01	Calibration Due Date	N/A	
Gauge:	GEL - 2051	Calibration Due Date	7/2/93	
Thermometer:	GEL - 12	Calibration Due Date	N/A	
Balance:	GEL - 3307	Calibration Due Date	3/15/93	
Gauge:	GEL -	Calibration Due Date		
:	GEL -	Calibration Due Date		

	.5	.5	.5	.5	.7	.7	1	1					
(1) Tension units = Bar			0.5	0.5	0.70	0.70	1.0	1.0					
(2) Container/Ring Number	1-3 A3	1-4 A4	1-3 BA3	1-4 BA4	1-3 BA3	1-4 BA4	1-3 BA3	1-4 BA4					
(3) Wt. of Container and Wet Sample, g			51.81	51.89	51.80	51.89	51.38	51.58					
(4) Wt. of Container and Dry Sample, g	JTR 11-20-92		45.32	45.22	45.23	45.11	45.05	45.01					
(5) Container Tare Wt., g	15.41	15.55	28.66	27.84	28.66	27.84	28.66	27.84					
(6) Temperature			22	22	25	25	27	27					
(7) Date			11-20-92	11-20-92	11-24-92	11-24-92	12-3-92	12-3-92					

(1) Tension units = Bar													
(2) Container/Ring Number													
(3) Wt. of Container and Wet Sample, g													
(4) Wt. of Container and Dry Sample, g													
(5) Container Tare Wt., g													
(6) Temperature													
(7) Date													

REMARKS

KETTLE DRYING CURVE (0.5 to 1.0 BARs)

W-049H

All data are acurately and completely recorded. The test operator was trained and used calibrated instruments

Checked By: J. T. Rehyer Date: 12-11-92

MOISTURE RETENTIC _ATA SHEET

SAMPLE NO. 3-0002

Tested By:	R.M. SHAILER	Date	11/16/92	
Procedure No:	17	Rev.	0	Date Issu 2/25/90
Test Plan No:	N/A	Rev.	N/A	Date Issu N/A
Pressure Cell No.	GEL - KETTLE PK05-02	Calibration Due Date		
Gauge:	GEL - 2052	Calibration Due Date	7/2/93	
Thermometer:	GEL - 12	Calibration Due Date	N/A	
Balance:	GEL - 3307	Calibration Due Date	3/15/93	
Gauge:	GEL - 2034	Calibration Due Date	4/3/93	
:	GEL -	Calibration Due Date		

	2	2	2	2	3	3	3	3	5	5			
(1) Tension units = Bar			2.0	2.0	3.0	3.0	3.0	3.0	5.0	5.0			
(2) Container/Ring Number	3-3 BB3	3-4 BB4	3-3 BB3	3-4 BB4	3-3 BB3	3-4 BB4	3-3 BB3	3-4 BB4	1-3 BB3	1-4 BB4			
(3) Wt. of Container and Wet Sample, g	JJR		51.58	47.93	50.94	47.42	50.75	47.30	48.00	48.97			
(4) Wt. of Container and Dry Sample, g		11-20-92	46.00	43.15	45.88	43.05	45.68	42.92	43.82	44.55			
(5) Container Tare Wt., g	15.42	15.47	27.62	27.51	27.62	27.51	27.62	27.51	27.62	27.51			
(6) Temperature			22	22	25	25	27	27	24	24			
(7) Date			11-20-92	11-20-92	11-24-92	11-24-92	12-3-92	12-3-92	12-7-92	12-7-92			

(1) Tension units = Bar													
(2) Container/Ring Number													
(3) Wt. of Container and Wet Sample, g													
(4) Wt. of Container and Dry Sample, g													
(5) Container Tare Wt., g													
(6) Temperature													
(7) Date													

REMARKS

KETTLE DRYING CURVE (2.0 to 5.0 BARs)

All data are acurately and completely recorded. The test operator was trained and used calibrated instruments

Checked By: J. J. Pulyen Date: 12-11-92

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MOISTURE RETENTION DATA SHEET

SAMPLE NO. 3-0002

Tested By:	R.M. SHAILER	Date	11/16/92	
Procedure No:	17	Rev.	0	Date Issu 2/25/90
Test Plan No:	N/A	Rev.	N/A	Date Issu N/A
Pressure Cell No.	GEL - KETTLE PK15-02	Calibration Due Date		
Gauge:	GEL - 2035	Calibration Due Date	2/28/93	
Thermometer:	GEL - 12	Calibration Due Date	N/A	
Balance:	GEL - 3307	Calibration Due Date	3/15/93	
Gauge:	GEL -	Calibration Due Date		
:	GEL -	Calibration Due Date		

	7	7	7	7	10	10							
(1) Tension units = Bar			7.0	7.0	10	10							
(2) Container/Ring Number	5-3 C3	5-4 C4	5-3 BA3	5-4 BA4	5-3 BA3	5-4 BA4							
(3) Wt. of Container and Wet Sample, g			50.32	45.53	49.52	44.99							
(4) Wt. of Container and Dry Sample, g	27R	11-20-92	45.95	42.20	45.89	42.04							
(5) Container Tare Wt., g	15.54	15.45	28.66	27.84	28.66	27.84							
(6) Temperature			22	22	25	25							
(7) Date			11-20-92	11-20-92	11-24-92	11-24-92							

(1) Tension units = Bar													
(2) Container/Ring Number													
(3) Wt. of Container and Wet Sample, g													
(4) Wt. of Container and Dry Sample, g													
(5) Container Tare Wt., g													
(6) Temperature													
(7) Date													

REMARKS

KETTLE DRYING CURVE (7.0 to 15.0 BARs)

All data are acurately and completely recorded. The test operator was trained and used calibrated instruments

Checked By: [signature] Date: 12-11-92

TEST REQUEST

OPERABLE UNIT	W-049H	WELL NO	699-40-36	DEPTH	215-217
SAMPLE/SPECIMEN NO	3-0003	COST CODE/WORK ORDER NUMBER			A6CDR
REQUESTED BY: ORG	82436	PERSON	C. DELANEY	PHONE	6-9235
********HEIS********	NA	MSIN	H4-56	DATE	10/15/92

TEST REQUESTED	# OF SAMPLES	TEST LAB INFORMATION
Sieve/Hydrometer	2	GEL-07 / Rev. 2 / 3-13-92
Hydraulic Conductivity	2	GEL-09 / Rev. 2 / 3-13-92
Specific Gravity	2	GEL-10 / Rev. 1 / 12-1-89
Moisture Content	T	GEL-14 / Rev. 0 / 3-13-92
Bulk Density/Porosity	2	GEL-16 / Rev. 1 / 3-13-92
Moisture Retention	2	GEL-17 / Rev. 0 / 3-13-92
Calcium Carbonate	T	GEL-19 / Rev. 0 / 9-7-90

REMARKS: Normal cut off for hydrometer testing.

ARCHIVE YES ☐ NO ☑

RADIATION RELEASE

Bldg. 699-40-36 Expiration Date 10/15/92
Released By TEC
Health Physics
Remarks 216.5-217.0

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-40-36 Expiration Date 10/15/92
Released By TEC
Health Physics
Remarks 215.0-215.5

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-40-36 Expiration Date 10/15/92
Released By TEC
Health Physics
Remarks 3-0003 215

54-3000-022 (01/89)

RECEIVED BY J.C. McGuffey
DATE 10/15/92

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

WHC-SD-EN-DP-068, Rev. 0
GEOTECHNICAL ENGINEERING LABORATORY
GEL-07 SIEVE AND HYDROMETER ANALYSIS

Sample No. 3-0003

Page 1 of 5

GEL-07 SIEVE ANALYSIS

Date 10-21-92 Calibration Due Date 10-25-92 Balance: 3310

Sample Description Sand & Gravel Sieve Time 10 (min)

Reduced By: ☒ Splitting ☐ Quartering ☐ Stockpile

Sieve Size	Sample Weight	Cumulative Wt. Retained	Cumulative % Retained	Cumulative % Passed	Tested By
1 1/2	2125.5	0	0	100	L D Buggem
3/4	↓	587.0	27.6	72.4	
3/8	↓	1066.5	50.2	49.8	
4	↓	1307.7	61.5	38.5	
10	213.1	20.4	9.6	34.8	
40	↓	86.0	40.4	22.9	
60	↓	127.9	60.0	15.4	
100	↓	149.7	70.2	11.4	
200	↓	175.2	82.2	6.8	

Remarks: Washed Fine Grading

GEL-07 HYDROMETER ANALYSIS

Date _____ Balance: _____ Calibration Due Date _____

Thermometer: _____ Calibration Due Date _____

Hydrometer: _____ Calibration Due Date _____

WEIGHT OF SAMPLE

Wt. Container + Soil _____ (g)

Wt. Container _____ (g)

Wt. Soil _____ (g)

Specific Gravity of Sample _____

% Passing No. 10 Sieve _____ %

A = _____ W = _____ K = _____

COMPOSITE CORRECTION

1st Reading _____ at _____ °C

2nd Reading _____ at _____ °C

Date	Clock Time	Elapsed Time (min)	Hydrometer Reading	Hydrometer with Composite Correction	Temperature (°C)	Soil in Suspension (%)	Particle Diameter (mm)	Tested By
		2.0						
		5.0						
		15.0						
		30.0						
		60.0						
		250.0						
		1440.0						

NOT APPLICABLE

Remarks: N/A

Tests Checked By R. T. McIntosh Date 11/20/92

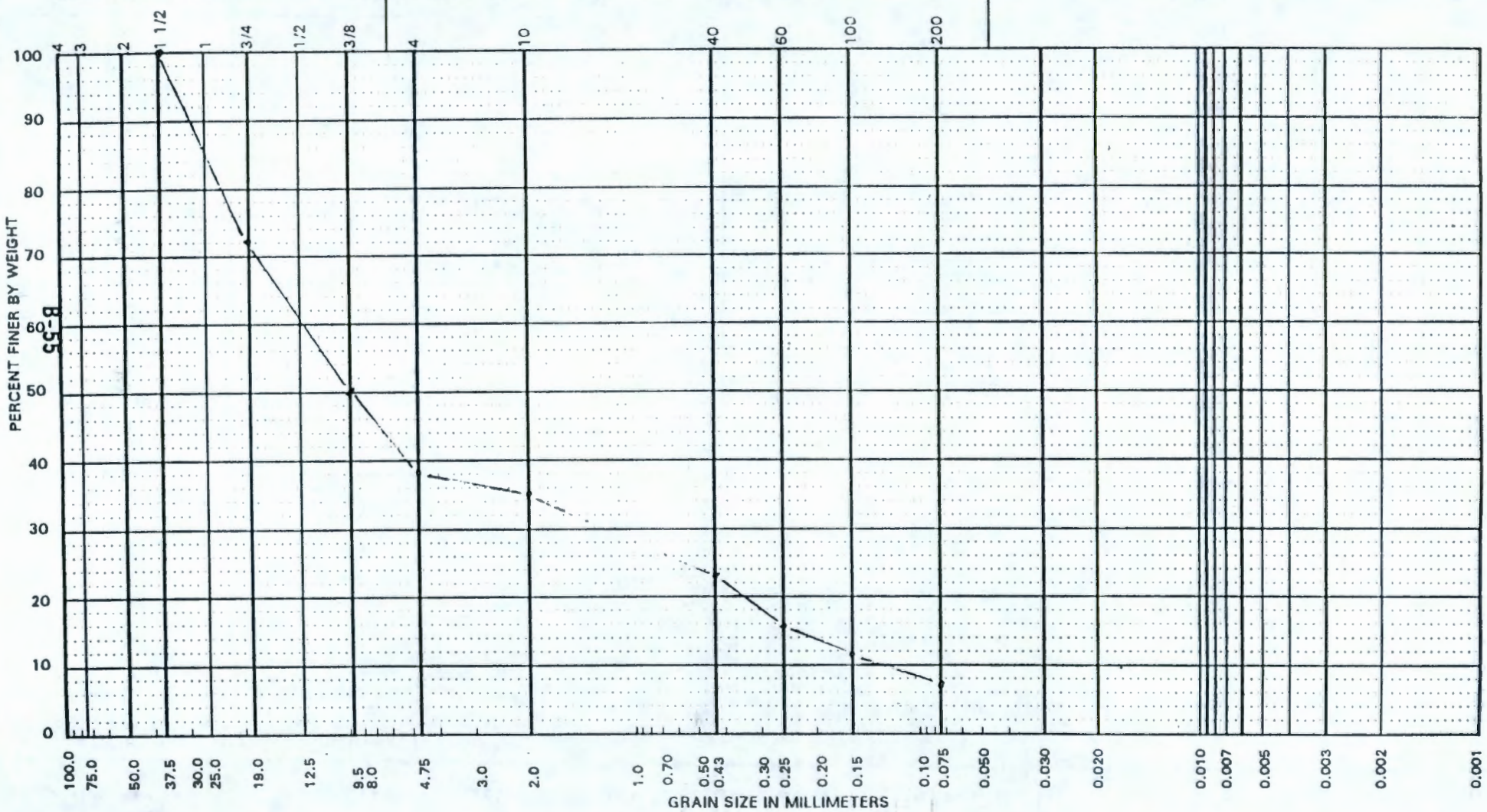
BD-6000-796 (04/92)

GEL-07 GRAIN SIZE ANALYSIS PLOT

Sample No. 3-0003

Page 2 of 5

Remarks 699-40-36 215-217'



Plotted By L D Bruggeman Date 10-21-92

Plot Checked By R. T. McIntosh Date 11/20/92

WHC-SD-EN-DP-068, Rev. 0

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P-38455

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

GEOTECHNICAL ENGINEERING LABORATORY
GEL-09 HYDRAULIC CONDUCTIVITY DATA SHEET

Sample No. 3-0003

Balance No. 3304 / 1-25-93 Permeameter No. 2

Test Initiated By LD Bunggeman Date 11/17/92 Procedure GEL 09/Rev 2 / 3-13-92 Sleeve Type: ☐ Metal ☒ Plastic

Specimen Diameter (D) 9.53 cm

Specimen Length (L) 15.0 cm

$$A = \left(\frac{D}{2}\right)^2 \times 3.1415$$

Specimen Area (A) 71.33 cm^2

Darcy's Law

$$K = \frac{QL}{AH}$$

K = Hydraulic Conductivity (cm/sec)
Q = Flow (cm^3/sec) = Vol. g/Time (sec)
A = Area (cm^2)
H = Hydraulic Head
L = Length (cm)

Date Year 92 (Mo/Day)	Run Time System (Hr:Min)	Run Time System (Hr:Min)	Run Time Time Change	Container Weight (± 0.1 g)	Container Tare (± 0.1 g)	Container Tare & Effluent (± 0.1 g)	Room Temp (°C)	Pressure Pore H_2O (cm)	Effluent Description	Operator Initials	Hydraulic Conductivity (cm/sec)	Calculated By
11/17	07:25	15:03	7:38	11.31	122.16	133.47	23.8	123.3	Clear	LDB	7.02E-07	LDB
11/17 / 11/18	15:05	9:01	17:56	24.47	122.16	146.63	23.7	123.3	clear	LDB	6.46E-07	LDB
11/18	9:05	14:47	5:42	7.13	122.16	129.29	24.5	123.3	clear	LDB	5.93E-07	LDB
11/18 / 11/19	14:48	07:45	16:57	20.7	122.16	142.86	24.3	123.3	clear	LDB	5.79E-07	LDB
				$\bar{K}$ = 6.3 E-07								

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WHC-SD-EN-DP-068, Rev. 0

Remarks

Checked By R. A. McCartney Date 4/1/92

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

GEOTECHNICAL ENGINEERING LABORATORY
GEL-10 SPECIFIC GRAVITY SOILS FINE/COARSE

Sample No. 3-0003

Page 4 of 5

GEL-10 SPECIFIC GRAVITY OF SOILS

Date 10-21-92 Tested By L D Bruggeman

Balance: 3304 Calibration Due Date 10-25-92

	DETERMINATION NO.	1	2	3
W_o	Wt. Oven Dry, Soil, g	55.0		
	Pycnometer No.	2555		
	Wt. Pycnometer, g	122.83		
W_a	Wt. Pycnometer + Wetting Agent, g	381.38		
W_b	Wt. Pycnometer + Wetting Agent + Soil, g	415.33		
	Temperature, T_x at W_b, °C	24.3		
G_w	Specific Gravity of Wetting Agent at T_x	1.00		
G_t	Specific Gravity of Soil at T_x	2.61		
G_s	Specific Gravity of Soil at 20 °C	2.61		

Wetting Agent D.I. H_2O

$$C_t = \frac{W_o}{W_o + W_a - W_b}$$

Remarks:

GEL-10 SPECIFIC GRAVITY COARSE AGGREGATES

Date 10-21-92 Tested By: L D Bruggeman

Balance: 3312 Calibration Due Date 10-25-92

	DETERMINATION NO.	1	
	Size fraction	1½ → #4	
P_1	Size fraction, wt. % total, g	61.5	
	Tare weight	263.2	
B	Weight sample (SSD), g	1144.9	
C	Weight sample in H_2O, g	708.1	
A	Weight of oven dry sample, g	1100.9	

Bulk Specific Gravity, 23/23 °C = A/(B-C) = 2.52

A = wt. oven dry sample in air, g
B = wt. SSD sample in air, g
C = wt. saturated sample in H_2O, g

Bulk Specific Gravity SSD, 23/23 °C = B/(B-C) = 2.62

Apparent Specific Gravity, 23/23 °C = A/(A-C) = 2.80

*Average Specific Gravity Values, 23/23 °C $\overline{G}$ = 2.55

Remarks:

$$\overline{G} = \frac{1}{\frac{P_1 = \%\ \text{coarse}}{G_1 = \text{coarse sp.gr.} \times 100} + \frac{P_2 = \%\ \text{fines}}{G_2 = \text{fines sp. gr.} \times 100}}$$

$\overline{G}$ = Ave. Specific Gravity for all forms of Specific Gravity i.e., formula applicable to Bulk, Bulk SSD and Apparent Specific Gravity.

G_1, G_2 = appropriate Specific Gravity values for each size fraction depending on the type of Specific Gravity being averaged.

P_1, P_2 = wt. percentages of each size fraction present in the original sample.

*State type of Specific Gravity Reported i.e., either Bulk, Bulk SSD or Apparent.

Tests Checked By: R. T. McIntosh Date 11/20/92

BD-6000-798 (08/92)

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GEL 07 ☑ GEL 09 ☑ GEL 10 ☑ GEL 14 ☑	GEL 16 ☑ GEL 17 ☑ GEL 19 ☑ GEL ☐	**GEOTECHNICAL ENGINEERING LABORATORY GEL-14, GEL-16, GEL-19**

Sample No. 3-0003

Page 5 of 5

GEL-14 SOIL MOISTURE

Balance: 3304 Calibration Due Date 10-25-92 Tested By LD Bruggeman

Thermometer: 0014 Calibration Due Date 9-21-93

Date	Wet Wt. + Can	Dry Wt. + Can	Tare Wt.	Moisture	Dry Wt. Soil	% Moisture	Calculated By
10/21/92	446.38	408.40	63.69	37.98	344.71	11.02	LD Bruggeman

Remarks:

GEL-16 BULK DENSITY-POROSITY

DETERMINATION NO.			1	
Pan No.:	Mold: ☒ Plastic ☐ Metal	Length:	15.0	
Sample Volume, V, cc			1069.95	
Wt. of Sample & Mold, g			2676.0	
Wt. of Mold, g			318.20	
Wet Wt. of Sample, g			2357.80	
Wet Density of Sample, γ m, g/cc			2.20	
Water Content % Dry Weight			11.02	
Dry Density, g/cc γ d			1.98	
Dry weight of Sample, g, Ws			2123.76	
*Void Ratio, e			0.2847	
**Porosity, n, %			22.16	

Tested By LD Bruggeman

$$Ws = \frac{\text{Wet Wt.}}{1 + \%\ \text{Dry Wt.}}$$

$$*\text{Void Ratio, } e = \frac{\text{Avg. Sp. Gr. x Vol.}}{Ws} - 1$$

$$**\text{Porosity, } n, \% = \left(\frac{e}{1+e}\right) 100$$

Remarks:

GEL-19 CALCIUM CARBONATE

Vessel No. 5650 Tested By LD Bruggeman

Balance No. 3304 Date Due 1-25-93

Sample Weight 8.0 (g)

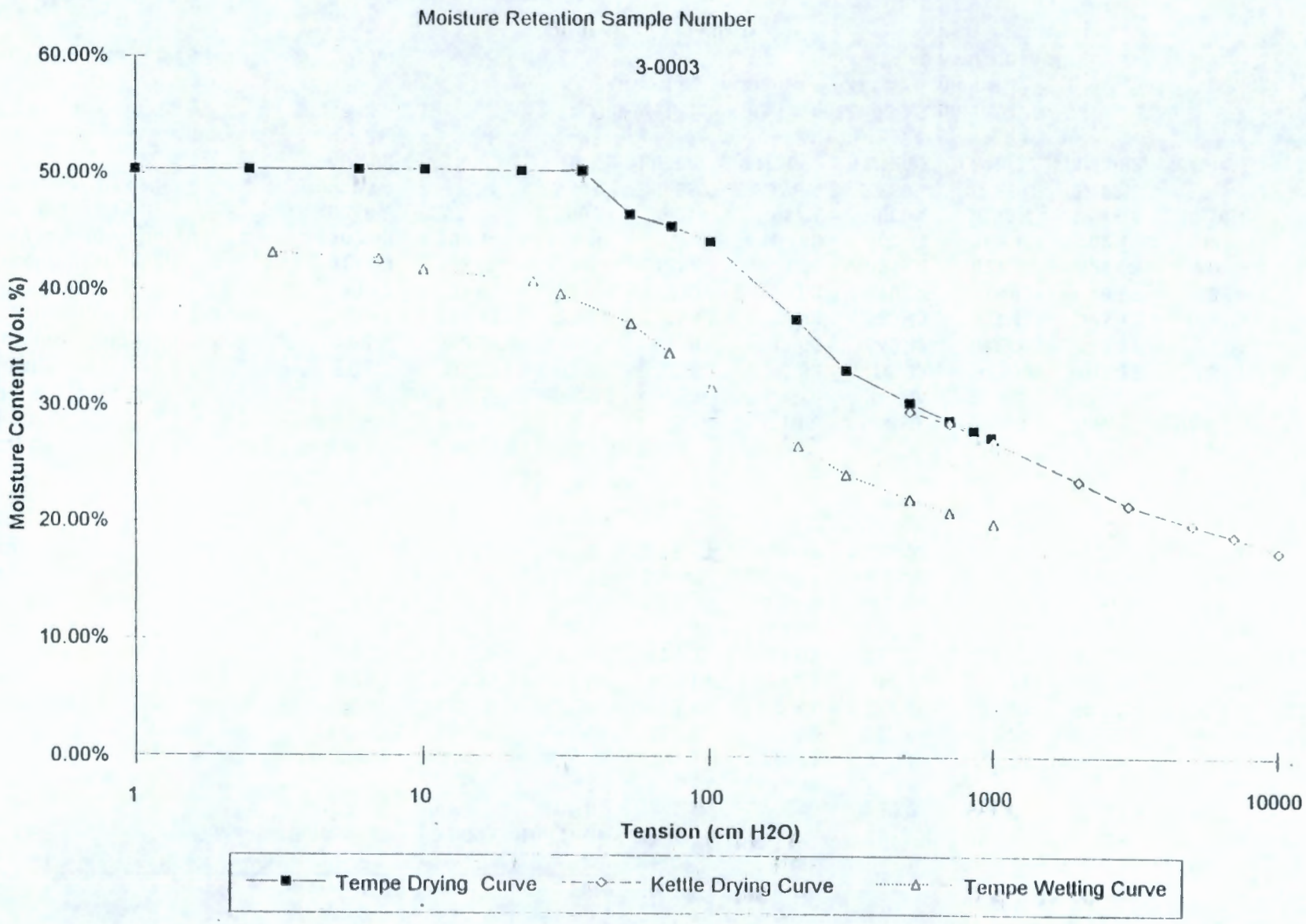
Sample Pressure 0.4 (psi) $\%CaCO_3$ 41.0 Per Gram

Remarks:

Tests Checked By: R. M. Gutosch

Date 11/20/92

BD-6000-797 (04/92)


Moisture Retention Sample Number
3-0003
60.00%
50.00%
40.00%
30.00%
20.00%
10.00%
0.00%
Moisture Content (Vol. %)
1
10
100
1000
10000
Tension (cm H2O)
Tempe Drying Curve
Kettle Drying Curve
Tempe Wetting Curve

P. 43455

	3-0003
Contact	C. DELANEY
Well No.	699-40-36
Operable Unit	W-049H
HEIS No.	N/A
Depth	215.0-217.0

TEMPE CELLS	Sample #	3-0003 1 Bar Drying Curve								
tension in cm	N/A	N/A	0	2.5	6	10.2	22	36	52.5	73.5
error in tension value +/-			0	0.5	1	1	2	3	3	4
container number	MC-7	TC-32	TC-32	TC-32	TC-32	TC-32	TC-32	TC-32	TC-32	TC-32
weight of container/ring,+wet sample	140.00	526.50	556.81	557.59	557.82	557.82	557.74	557.74	555.20	554.51
weight of container/ring,+ dry sample	139.07	525.29	523.43	523.43	523.43	523.43	523.43	523.43	523.43	523.43
weight of moisture	0.93	1.21	33.38	34.16	34.39	34.39	34.31	34.31	31.77	31.08
weight of container and ring	60.75	421.76	421.03	421.03	421.03	421.03	421.03	421.03	421.03	421.03
weight of dry sample	79.25	103.53	102.40	102.40	102.40	102.40	102.40	102.40	102.40	102.40
moisture content % by wt.	1.17%		32.60%	33.36%	33.58%	33.58%	33.51%	33.51%	31.03%	30.35%
moisture content % by vol.			48.90%	50.04%	50.38%	50.38%	50.26%	50.26%	46.54%	45.53%
date measured			10/23/92	10/27/92	10/28/92	10/29/92	10/30/92	11/2/92	11/3/92	11/4/92
temperature deg. C			26	25	24	24	24	23	24	23
volume of brass ring, cm^3	68.26									

TEMPE CELLS	Sample #	3-0003 1 Bar Drying Curve								
tension in cm	100.5	200.3	300	500	700	850	980	N/A	N/A	
error in tension value +/-	5	5	20	20	20	20	20			
container number	TC-32	TC-32	TC-32	TC-32	TC-32	TC-32	TC-32	TC-32	MC-7	
weight of container/ring,+wet sample	553.62	549.04	546.05	544.13	543.06	542.47	542.05	542.01	181.67	
weight of container/ring,+ dry sample	523.43	523.43	523.43	523.43	523.43	523.43	523.43	523.43	163.09	
weight of moisture	30.19	25.61	22.62	20.70	19.63	19.04	18.62	18.58	18.58	
weight of container and ring	421.03	421.03	421.03	421.03	421.03	421.03	421.03	421.03	60.75	
weight of dry sample	102.40	102.40	102.40	102.40	102.40	102.40	102.40	102.40	102.34	
moisture content % by wt.	29.48%	25.01%	22.09%	20.21%	19.17%	18.59%	18.18%	18.14%	18.16%	
moisture content % by vol.	44.23%	37.52%	33.14%	30.33%	28.76%	27.89%	27.28%	27.22%		
date measured	11/5/92	11/6/92	11/9/92	11/10/92	11/11/92	11/12/92	11/13/92	11/13/92	11/14/92	
temperature deg. C	24	24	23	25	24	24	23			
volume of brass ring, cm^3	68.26									

Cell wt. before cleanup = 421.03 grams

Cell wt. after cleanup = 421.65 grams

BULK DENSITY = 1.50 421.48 Average of all 3

TEMPE CELLS	Sample #	3-0003 1 Bar Wetting Curve							
tension in cm	N/A	N/A	1000	1000	1000	1000	1000	1000	1000
error in tension value +/-			20	20	20	20	20	20	20
container number	MC-7	TC-7	TC-7	TC-7	TC-7	TC-7	TC-7	TC-7	TC-7
weight of container/ring,+wet sample	140.00	532.84	539.49	540.51	541.67	542.52	543.22	544.52	544.70
weight of container/ring,+ dry sample	139.07	531.60	531.30	531.30	531.30	531.30	531.30	531.30	531.30
weight of moisture	0.93	1.24	8.19	9.21	10.37	11.22	11.92	13.22	13.40
weight of container and ring	60.75	425.87	426.30	426.30	426.30	426.30	426.30	426.30	426.30
weight of dry sample	79.25	105.73	105.00	105.00	105.00	105.00	105.00	105.00	105.00
moisture content %	1.17%		7.80%	8.77%	9.88%	10.69%	11.35%	12.59%	12.76%
moisture content % by vol.			12.00%	13.49%	15.19%	16.44%	17.46%	19.37%	19.63%
date measured			10/26/92	10/27/92	10/28/92	10/29/92	10/30/92	11/2/92	11/3/92
temperature deg. C			23	25	24	23	24	23	24
volume of brass ring, cm^3	68.26								

TEMPE CELLS	Sample #	3-0003 1 Bar Wetting Curve							
tension in cm	1000	1000	1000	700	500	300	203.2	101	72
error in tension value +/-	20	20	20	20	20	20	5	2	2
container number	TC-7	TC-7	TC-7	TC-7	TC-7	TC-7	TC-7	TC-7	TC-7
weight of container/ring,+wet sample	544.66	544.91	544.90	545.57	546.32	547.76	549.44	552.89	554.92
weight of container/ring,+ dry sample	531.30	531.30	531.30	531.30	531.30	531.30	531.30	531.30	531.30
weight of moisture	13.36	13.61	13.60	14.27	15.02	16.46	18.14	21.59	23.62
weight of container and ring	426.30	426.30	426.30	426.30	426.30	426.30	426.30	426.30	426.30
weight of dry sample	105.00	105.00	105.00	105.00	105.00	105.00	105.00	105.00	105.00
moisture content %	12.72%	12.96%	12.95%	13.59%	14.30%	15.68%	17.28%	20.56%	22.50%
moisture content % by vol.	19.57%	19.94%	19.92%	20.91%	22.00%	24.11%	26.57%	31.63%	34.60%
date measured	11/4/92	11/5/92	11/6/92	11/9/92	11/10/92	11/11/92	11/12/92	11/13/92	11/16/92
temperature deg. C	23	23	23	23	24	24	23	23	24
volume of brass ring, cm^3	68.26								

Cell wt. before cleanup = 426.83 grams

Cell wt. after cleanup = 426.11 grams

TEMPE CELLS	Sample #	3-0003 1 Bar Wetting Curve				426.27 Average of all three		
tension in cm	52.8	30	24	10	7	3	3	N/A
error in tension value +/-	3	2	2	1	0.5	0.5	0.5	
container number	TC-7	TC-7	TC-7	TC-7	TC-7	TC-7	TC-7	SML-7
weight of container/ring,+wet sample	556.66	558.38	559.14	559.82	560.44	560.65	560.77	197.28
weight of container/ring,+ dry sample	531.30	531.30	531.30	531.30	531.30	531.30	531.30	168.04
weight of moisture	25.36	27.08	27.84	28.52	29.14	29.35	29.47	29.24
weight of container and ring	426.30	426.30	426.30	426.30	426.30	426.30	426.30	63.51
weight of dry sample	105.00	105.00	105.00	105.00	105.00	105.00	105.00	104.53
moisture content %	24.15%	25.79%	26.51%	27.16%	27.75%	27.95%	28.07%	27.97%
moisture content % by vol.	37.15%	39.67%	40.79%	41.78%	42.69%	43.00%	43.17%	
date measured	11/17/92	11/18/92	11/19/92	11/20/92	11/23/92	11/24/92	11/25/92	12/1/92
temperature deg. C	22	23	23	21	24	22	22	25
volume of brass ring, cm^3	68.26		BULK DENSITY =		1.54			

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KETTLES	Sample #	3-0003 15 Bar Drying Curve								
tension in cm	500	500	700	700	1000	1000	2000	2000	3000	3000
error in tension value +/-	20	20	20	20	20	20	20	20	20	20
container number	BA5	BA6	BA5	BA6	BA5	BA6	BB5	BB6	BB5	BB6
weight of container/ring,+wet sample	55.11	51.09	54.90	50.90	54.58	50.58	56.34	54.73	55.97	54.36
weight of container/ring,+ dry sample	51.11	47.14	51.06	47.09	50.95	47.02	52.54	51.10	52.49	51.06
weight of moisture	4.00	3.95	3.84	3.81	3.63	3.56	3.80	3.63	3.48	3.30
weight of container and ring	30.37	27.49	30.37	27.49	30.37	27.49	28.41	27.85	28.41	27.85
weight of dry sample	20.74	19.65	20.69	19.60	20.58	19.53	24.13	23.25	24.08	23.21
moisture content %	19.29%	20.10%	18.56%	19.44%	17.64%	18.23%	15.75%	15.61%	14.45%	14.22%
date measured	11/20/92	11/20/92	11/24/92	11/24/92	12/3/92	12/3/92	11/20/92	11/20/92	11/24/92	11/24/92
temperature deg. C	22	22	25	25	27	27	22	22	25	25

KETTLES								
tension in cm	3000	3000	5000	5000	7000	7000	10000	10000
error in tension value +/-	20	20	100	100	100	100	100	100
container number	BB5	BB6	BB5	BB6	BA5	BA6	BA5	BA6
weight of container/ring,+wet sample	55.53	54.21	51.52	49.95	51.52	49.73	51.28	49.51
weight of container/ring,+ dry sample	52.09	50.94	48.91	47.29	49.15	47.26	49.07	47.24
weight of moisture	3.44	3.27	2.61	2.66	2.37	2.47	2.21	2.27
weight of container and ring	28.41	27.85	28.41	27.85	30.37	27.49	30.37	27.49
weight of dry sample	23.68	23.09	20.50	19.44	18.78	19.77	18.70	19.75
moisture content %	14.53%	14.16%	12.73%	13.68%	12.62%	12.49%	11.82%	11.49%
date measured	12/3/92	12/3/92	12/7/92	12/7/92	11/20/92	11/20/92	11/24/92	11/24/92
temperature deg. C	27	27	24	24	22	22	25	25

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POINTS SELECTED FOR PLOTTING — Sample # 3-0003

container number	TC-32	TC-32	TC-32	TC-32	TC-32	TC-32	TC-32	TC-32	TC-32	TC-32	TC-32
Tension in cm	1	2.5	6	10.2	22	36	52.5	73.5	100.5	200.3	300
Tempe Drying Curve	50.38%	50.38%	50.38%	50.38%	50.26%	50.26%	46.54%	45.53%	44.23%	37.52%	33.14%
Kettle Drying Curve											
Tempe Wetting Curve											
date measured	10/23/92	10/27/92	10/28/92	10/29/92	10/30/92	11/2/92	11/3/92	11/4/92	11/5/92	11/6/92	11/9/92

container number	TC-32	TC-32	TC-32	TC-32	BA5	BA5	BA5	BB5	BB5	BB5	BA5
tension in cm	500	700	850	980	500	700	1000	2000	3000	5000	7000
Tempe Drying Curve	30.33%	28.76%	27.89%	27.28%							
Kettle Drying Curve					29.54%	28.50%	26.90%	23.52%	21.50%	19.81%	18.84%
Tempe Wetting Curve											
date measured	11/10/92	11/11/92	11/12/92	11/13/92	11/20/92	11/24/92	12/3/92	11/20/92	11/24/92	12/7/92	11/20/92

container number	BA5	TC-7	TC-7	TC-7	TC-7	TC-7	TC-7	TC-7	TC-7	TC-7	TC-7
tension in cm	10000	1000	700	500	300	203.2	101	72	52.8	30	24
Tempe Drying Curve											
Kettle Drying Curve	17.49%										
Tempe Wetting Curve		19.92%	20.91%	22.00%	24.11%	26.57%	31.63%	34.60%	37.15%	39.67%	40.79%
date measured	11/24/92	11/6/92	11/9/92	11/10/92	11/11/92	11/12/92	11/13/92	11/16/92	11/17/92	11/18/92	11/19/92

container number	TC-7	TC-7	TC-7
tension in cm	10	7	3
Tempe Drying Curve			
Kettle Drying Curve			
Tempe Wetting Curve	41.78%	42.69%	43.17%
date measured	11/20/92	11/23/92	11/25/92

Kettle data points were converted from gravimetric to volumetric by multiplying by Bulk Density

Bulk Density = 1.50

MOISTURE RETENTION DATA SHEET

SAMPLE NO. 3-0003 Page ____ of ____

Tested By:	R. M. Shuiler	Date	10-23-92
Procedure No:	17	Rev. 0	Date Issued 2/25/90
Test Plan No:	N/A	Rev. N/A	Date Issued
Pressure Cell No.	TC-32	Calibration Due Date	N/A
Gauge:	GEL - 2032	Calibration Due Date	2-28-93
Thermometer:	GEL - 12	Calibration Due Date	N/A
Balance:	GEL - 3307	Calibration Due Date	~~9/15/92~~ RMR 10-23-92 3-15-93
Gauge:	GEL -	Calibration Due Date	
:	GEL -	Calibration Due Date	

(1) Tension units = cm	NA	NA	0	2.5	6.0	10.2	22	36	52.5	73.5	100.5	200.3	300
(2) Container/Ring Number	MC-7	TC-32	TC-32	TC-32	TC-32	TC-32	TC-32	TC-32	TC-32	TC-32	TC-32	TC-32	TC-32
(3) Wt. of Container and Wet Sample, g	140.00	526.50	556.81	557.59	557.82	557.82	557.74	557.74	555.20	554.51	553.62	549.04	546.05
(4) Wt. of Container and Dry Sample, g	139.07												
(5) Container Tare Wt., g	60.75	421.76											
(6) Temperature			26	25	24	24	24	23	24	23	24	24	23
(7) Date			10-23-92	10-27-92	10-28-92	10-29-92	10-30-92	11-2-92	11-3-92	11-4-92	11-5-92	11-6-92	11-9-92

(1) Tension units = cm	500	700	850	980*	NA	NA							
(2) Container/Ring Number	TC-32	TC-32	TC-32	TC-32	TC-32	MC-7							
(3) Wt. of Container and Wet Sample, g	544.13	543.06	542.47	542.05	542.01	181.67							
(4) Wt. of Container and Dry Sample, g						163.09							
(5) Container Tare Wt., g					421.03	60.75							
(6) Temperature	25	24	24	23									
(7) Date	11-10-92	11-11-92	11-12-92	11-13-92									

REMARKS W-049H * leaked

Tempe Drying Curve (0 to 1 Bar)

Cleaned Tare 421.65

All data are acurately and completely recorded. The test operator was trained and used calibrated instruments

Checked By: J. A. Relyea Date: 12-11-92

WHC-SD-EN-DP-068, Rev. 0

MOISTURE RETENTION DATA SHEET

SAMPLE NO. 3-0003 Page ____ of ____

Tested By:	R. M. Shailer	Date	10-23-92
Procedure No:	17	Rev. 0	Date Issued 2/25/90
Test Plan No:	N/A	Rev. N/A	Date Issued
Pressure Cell No.	TC-7	Calibration Due Date	N/A
Gauge:	GEL - 2033	Calibration Due Date	2-28-93
Thermometer:	GEL - 12	Calibration Due Date	N/A
Balance:	GEL - 3307	Calibration Due Date	~~8/15/92~~ 10-23-92 3-15-93
Gauge:	GEL -	Calibration Due Date	
:	GEL -	Calibration Due Date	

(1) Tension units = cm	NA	NA	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	700
(2) Container/Ring Number	TC-7	TC-7	TC-7	TC-7	TC-7	TC-7	TC-7	TC-7	TC-7	TC-7	TC-7	TC-7	TC-7
(3) Wt. of Container and Wet Sample, g	140.00	532.84	539.49	540.51	541.67	542.52	543.22	544.52	544.70	544.66	544.91	544.90	545.57
(4) Wt. of Container and Dry Sample, g	139.07												
(5) Container Tare Wt., g	60.75	425.87											
(6) Temperature			23	25	24	23	24	23	24	23	23	23	23
(7) Date			10-26-92	10-27-92	10-28-92	10-29-92	10-30-92	11-2-92	11-3-92	11-4-92	11-5-92	11-6-92	11-9-92

(1) Tension units = cm	500	300	203.2	101	72	52.8	30	24	10.0	7	3	3	NA
(2) Container/Ring Number	TC-7	TC-7	TC-7	TC-7	TC-7	TC-7	TC-7	TC-7	TC-7	TC-7	TC-7	TC-7	SML-7
(3) Wt. of Container and Wet Sample, g	546.32	547.76	549.44	552.89	554.92	556.66	558.38	559.14	559.82	560.44	560.65	560.77	197.28
(4) Wt. of Container and Dry Sample, g													168.04
(5) Container Tare Wt., g												426.83*	63.51
(6) Temperature	24	24	23	23	24	22	23	23	21	24	22	22	N/A
(7) Date	11-10-92	11-11-92	11-12-92	11-13-92	11-16-92	11-17-92	11-18-92	11-19-92	11-20-92	11-23-92	11-24-92	11-25-92	12-1-92

REMARKS W-049H

Tempe Wetting Curve (0 to 1 Bar) * 426.11 cleaned up

All data are acurately and completely recorded. The test operator was trained and used calibrated instruments

Checked By: J A Relyea Date: 12-11-92

WHC-SD-EN-DP-068, Rev. 0

MOISTURE RETENTION DATA SHEET

SAMPLE NO. 3-0003 Page 1 of 3

Tested By:	R.M. SHAILER	Date 11/16/92		
Procedure No:	17	Rev. 0	Date Issu	2/25/90
Test Plan No:	N/A	Rev. N/A	Date Issu	N/A
Pressure Cell No.	GEL - KETTLE PK05-01	Calibration Due Date	N/A	
Gauge:	GEL - 2051	Calibration Due Date	7/2/93	
Thermometer:	GEL - 12	Calibration Due Date	N/A	
Balance:	GEL - 3307	Calibration Due Date	3/15/93	
Gauge:	GEL -	Calibration Due Date		
:	GEL -	Calibration Due Date		

	.5	.5	.5	.5	.7	.7	1	1					
(1) Tension units = Bar			0.5	0.5	0.70	0.70	1.0	1.0					
(2) Container/Ring Number	1-5 A5	1-6 A6	1-5 BA5	1-6 BA6	1-5 BA5	1-6 BA6	1-5 BA5	1-6 BA6					
(3) Wt. of Container and Wet Sample, g			55.11	51.09	54.90	50.90	54.58	50.58					
(4) Wt. of Container and Dry Sample, g	JAB	11-20-92	51.11	47.14	51.06	47.09	50.95	47.02					
(5) Container Tare Wt., g	15.47	15.72	30.37	27.49	30.37	27.49	30.37	27.49					
(6) Temperature			22	22	25	25	27	27					
(7) Date			11-20-92	11-20-92	11-24-92	11-24-92	12-3-92	12-3-92					

(1) Tension units = Bar													
(2) Container/Ring Number													
(3) Wt. of Container and Wet Sample, g													
(4) Wt. of Container and Dry Sample, g													
(5) Container Tare Wt., g													
(6) Temperature													
(7) Date													

REMARKS

KETTLE DRYING CURVE (0.5 to 1.0 BARs)

W-049H

All data are acurately and completely recorded. The test operator was trained and used calibrated instruments

Checked By: J. F. Relyea Date: 12-11-92

MOISTURE RETENTI... DATA SHEET

SAMPLE NO. 3-0003

Tested By:	R.M. SHAILER	Date	11/16/92	
Procedure No:	17	Rev.	0	Date Issu 2/25/90
Test Plan No:	N/A	Rev.	N/A	Date Issu N/A
Pressure Cell No.	GEL - KETTLE PK05-02	Calibration Due Date		
Gauge:	GEL - 2052	Calibration Due Date	7/2/93	
Thermometer:	GEL - 12	Calibration Due Date	N/A	
Balance:	GEL - 3307	Calibration Due Date	3/15/93	
Gauge:	GEL - 2034	Calibration Due Date	4/3/93	
:	GEL -	Calibration Due Date		

	2	2	2	2	3	3	3	3	5	5			
(1) Tension units = Bar			2.0	2.0	3.0	3.0	3.0	3.0	5.0	5.0			
(2) Container/Ring Number	3-5 BS	3-6 BB	3-5 BBS	3-6 BB6	3-5 BBS	3-6 BB6	3-5 BBS	3-6 BB6	1-5 BBS	1-6 BB6			
(3) Wt. of Container and Wet Sample, g			52.54	51.10	55.97	54.36	55.53	54.21	51.52	49.95			
(4) Wt. of Container and Dry Sample, g	JFR	11-20-92	56.34	54.73	52.49	51.06	52.09	50.94	48.91	47.29			
(5) Container Tare Wt., g	15.39	16.00	28.41	27.85	28.41	27.85	28.41	27.85	28.41	27.85			
(6) Temperature			22	22	25	25	27	27	24	24			
(7) Date			11-20-92	11-20-92	11-24-92	11-24-92	12-3-92	12-3-92	12-7-92	12-7-92			

(1) Tension units = Bar													
(2) Container/Ring Number													
(3) Wt. of Container and Wet Sample, g													
(4) Wt. of Container and Dry Sample, g													
(5) Container Tare Wt., g													
(6) Temperature													
(7) Date													

REMARKS

KETTLE DRYING CURVE (2.0 to 5.0 BARs)

All data are acurately and completely recorded. The test operator was trained and used calibrated instruments

Checked By: [signature] Date: 12-11-92

MOISTURE RETENTION DATA SHEET

SAMPLE NO. 3-0003

Tested By:	R.M. SHAILER	Date	11/16/92	
Procedure No:	17	Rev.	0	Date Issu 2/25/90
Test Plan No:	N/A	Rev.	N/A	Date Issu N/A
Pressure Cell No.	GEL - KETTLE PK15-02	Calibration Due Date		
Gauge:	GEL - 2035	Calibration Due Date	2/28/93	
Thermometer:	GEL - 12	Calibration Due Date	N/A	
Balance:	GEL - 3307	Calibration Due Date	3/15/93	
Gauge:	GEL -	Calibration Due Date		
:	GEL -	Calibration Due Date		

	7	7	7	7	10	10							
(1) Tension units = Bar			7.0	7.0	10	10							
(2) Container/Ring Number	5-5 C5	5-6 C6	5-5 BA5	5-6 BA6	5-5 BA5	5-6 BA6							
(3) Wt. of Container and Wet Sample, g			51.52	49.73	51.28	49.51							
(4) Wt. of Container and Dry Sample, g	JAR	11-20-92	49.15	47.26	49.07	47.24							
(5) Container Tare Wt., g	15.65	15.29	30.37	27.49	30.37	27.49							
(6) Temperature			22	22	25	25							
(7) Date			11-20-92	11-20-92	11-24-92	11-24-92							

(1) Tension units = Bar													
(2) Container/Ring Number													
(3) Wt. of Container and Wet Sample, g													
(4) Wt. of Container and Dry Sample, g													
(5) Container Tare Wt., g													
(6) Temperature													
(7) Date													

REMARKS

KETTLE DRYING CURVE (7.0 to 15.0 BARs)

All data are acurately and completely recorded. The test operator was trained and used calibrated instruments

Checked By: J.F. Rodgers Date: 12-11-92

WELL 699-41-35

ENVIRONMENTAL RESTORATION HEALTH AND SAFETY

VALIDATED KDR 2/8/93 SIGNATURE/DATE

Requested by:			Phone No.	Well No. 699-41-35		Date:
Sample No. (Depth)	Sample Date	Sample Description	Analysis Date	Lab No.	Results Beta/Gamma (pci/g)	Results Alpha (pci/g)
4'	8-24-92	SOIL	8-25-92	1960-92-6	16	1
5'	8-24-92		8-25-92	1959-92-5	15	1
9.5'	8-26-92		8-27-92	1992-92-38	11	1
9.6'-11.6'	8-26-92		8-27-92	1993-92-39	11	1
14.5'	8-26-92		8-27-92	1994-92-40	13	<D
14.7'-16.7'	8-26-92		8-27-92	1995-92-41	11	<D
20'	8-26-92		8-27-92	1996-92-42	12	1
20.5'	8-26-92		8-27-92	1997-92-43	13	<D
25'	8-31-92		9-2-92	2033-92-34	7	1
30'	8-31-92		9-2-92	2034-92-35	8	<D
35'	8-31-92		9-2-92	2035-92-36	7	<D
40'	8-31-92		9-2-92	2039-92-40	ca 9-29-92 ~~12~~ 7	<D
45'	8-31-92		9-2-92	2040-92-41	7	1
50'	8-31-92		9-2-92	2041-92-42	7	1
55'	8-31-92		9-2-92	2042-92-43	12	<D
60'	9-2-92		9-3-92	2092-92-46	12	1
65'	9-2-92		9-3-92	2093-92-47	7	<D
70'	9-2-92		9-3-92	2094-92-48	7	<D
75'	9-2-92		9-3-92	2095-92-49	6	<D
81'	9-2-92		9-3-92	2096-92-50	7	1
85'	9-3-92		9-3-92	2097-92-51	8	1
90'	9-3-92		9-3-92	2098-92-5	7	<D
95'	9-3-92		9-4-92	2108-92-15	10	1

Performed By: C. Allessio

Date: 9-4-92

Supervisor Review: [signature]

Date: 2/1/93

Page: 1 of 3

A 6000 829 (10/91)

ENVIRONMENTAL RESTORATION HEALTH AND SAFETY

Requested by:			Phone No.	Well No. 699-41-35		Date:

Sample No. (Depth)	Sample Date	Sample Description	Analysis Date	Lab No.	Results Beta/Gamma (pci/g)	Results Alpha (pci/g)
100'	9-3-92	SOIL	9-4-92	2109-92-16	7	<D
102'	9-3-92		9-4-92	2110-92-17	16	2
102.7'	9-3-92		9-4-92	2111-92-18	8	2
110'	9-3-92		9-4-92	2112-92-19	12	2
115'	9-9-92		9-10-92	2232-92-48	12	1
120'	9-9-92		9-10-92	2233-92-49	14	2
125'	9-9-92		9-10-92	2234-92-50	12	1
130'	9-9-92		9-10-92	2235-92-4	10	1
135'	9-9-92		9-10-92	2236-92-5	10	1
140'	9-9-92		9-10-92	2237-92-6	13	1
145'	9-14-92		9-16-92	2333-92-46	12	<D
145.6'-147.6'	9-14-92		9-16-92	2334-92-47	16	1
150'	9-14-92		9-16-92	2335-92-48	12	1
155'	9-14-92		9-16-92	2336-92-49	13	<D
160'	9-14-92		9-16-92	2337-92-50	14	1
165'	9-14-92		9-16-92	2338-92-4	14	1
170'	9-14-92		9-16-92	2339-92-5	11	<D
175'	9-14-92		9-17-92	2358-92-30	9	1
180'	9-14-92		9-17-92	2357-92-29	11	1
185'	9-14-92		9-17-92	2356-92-28	12	<D
188'-189'	9-15-92		9-17-92	2370-92-31	10	<D
190'	9-~~15~~ 17-92		9-21-92	2436-92-8	12	<D
195'	9-17-92		9-21-92	2437-92-9	12	<D

Performed By: C. Albesia Date: 9-21-92

Supervisor Review: [signature] Date: 2/1/93

Page: 2 of 3

A 6000 829 (10/91)

ENVIRONMENTAL RESTORATION HEALTH AND SAFETY

Requested by:			Phone No.	Well No. 699-41-35		Date:

Sample No. (Depth)	Sample Date	Sample Description	Analysis Date	Lab No.	Results Beta/Gamma (pci/g)	Results Alpha (pci/g)
200'	9-17-92	SOIL	9-21-92	2438-92-10	12	<D
205'	9-17-92		9-21-92	2453-92-16	16	1
206.8'-208.8'	9-17-92		9-21-92	2454-92-17	16	1
210'	9-17-92		9-21-92	2455-92-18	11	2
216'	9-17-92		9-21-92	2456-92-19	11	1
220'	9-21-92		9-22-92	2487-92-46	19	1
225'	9-21-92		9-22-92	2488-92-47	14	1
230'	9-21-92		9-22-92	2489-92-48	10	1
235'	9-25-92		9-25-92	2505-92-15	11.55	<D
240'	9-25-92		9-25-92	2509-92-16	9.9	1.1
245'	9-25-92		9-25-92	2510-92-17	10.3	0.3
250'	9-25-92		9-25-92	2520-92-27	12.7	0.6
255'	9-25-92 ~~9-29-92~~		9-28-92	2522-92-1	10.4	2.9
260'	9-25-92		9-28-92	2523-92-2	5.4	0.2

Performed By: [signature] Date: 9/28/92

Supervisor Review: [signature] Date: 2/1/93

Page: 3 of 3

A-6000-829 (10/91)

WATER SAMPLE RESULTS
ENVIRONMENTAL FIELD SERVICES HEALTH PHYSICS

Requested by:	Phone No.	Well#/Location	Date:
		699-41-35	

Sample No. (local)	Sample Date	Sample volume	Analysis Date	Lab No.	Results Beta/Gamma (pCi/ml)	Results Alpha (pCi/ml)
105'	2-10-93	Soil	2-10-93	0063-93-19	.7	3

Performed By: [illegible] Date: 2-11-93

Supervisor Review: [illegible] Date: 2/11/93

Page: 1 of 1

Page 1 of 12
930003

TEST REQUEST

VALIDATED
KDR 1/12/93
SIGNATURE/DATE

OPERABLE UNIT	RCRA	WELL NO	699-41-35	DEPTH	5.0-260.0
SAMPLE/SPECIMEN NO	3-0043>0095	COST CODE/WORK ORDER NUMBER			R4G1H
REQUESTED BY: ORG	81421	PERSON	B. Williams	PHONE	6-3416
********HEIS********	NA	MSIN	H4-56	DATE	10/27/92

TEST REQUESTED	# OF SAMPLES	TEST LAB INFORMATION
Moisture Content	5~~3~~2 Jm	GEL-14 / Rev. 0 / 3-13-92
Calcium Carbonate	5~~3~~2 Jm	GEL-19 / Rev. 0 / 9-07-90

REMARKS:

ARCHIVE YES ☐ NO ☑

TAPE RELEASE STICKER HERE

see attached

RECEIVED BY J.C. McGuffey

DATE 10/27/92

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

WHC-SD-EN-DP-068, Rev. 0

GEOTECHNICAL ENGINEERING LABORATORY
GEL-14, GEL-19

Sample No(s). 3-0043 → 0071

Page 1 of 2

GEL-14 SOIL MOISTURE | **GEL-19 CALCIUM CARBON**

Tested By LDB [illegible] Balance: 3304 Calibration Due Date 1-25-93 Vessel No. 5650

Date 11/3/92 Thermometer: 0014 Calibration Due Date 9-21-93 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 0043	507.38	492.84	62.46	14.54	430.38	3.38	0.4	<1.0	LDB/computer
3 0044	498.43	478.06	63.48	20.37	414.58	4.91	0.5		
3 0045	521.93	497.81	62.02	24.12 ~~43~~ LDB/[illegible]	435.79	5.53	0.5		
3 0046	552.85	532.93	62.30	19.92	470.63	4.23	0.3		
3 0047	482.19	454.74	62.29	27.45	392.45	6.99	0.3		
3 0048	451.54	427.07	61.43	24.47	365.64	6.69	0.4		
3 0049	390.44	367.22	62.96	23.22	304.26	7.63	0.4		
3 0050	473.47	451.31	61.69	22.16	389.62	5.69	0.4		
3 0051	490.76	471.59	63.34	19.17	408.25	4.70	0.3		
3 0052	455.71	436.08	61.73	19.63	374.35	5.24	0.4		
3 0053	445.57	424.93	62.25	20.64	362.68	5.69	0.3		
3 0054	436.73	409.09	63.18	27.64	345.91	7.99	0.5		
3 0055	500.25	470.85	62.15	29.40	408.70	7.19	0.3		
3 0056	494.12	471.89	64.18	22.23	407.71	5.45	0.4		
3 0057	439.76	418.45	63.78	21.31	354.67	6.01	0.3		
3 0058	—	—	—	NO SAMPLE	—	—	—	—	—
3 0059	410.65	390.54	61.74	20.11	328.80	6.12	0.3		
3 0060	367.85	346.01	61.42	21.84	284.59	7.67	0.3		
3 0061	414.02	393.74	63.28	20.28	330.46	6.14	0.3		
3 0062	460.15	437.39	61.94	22.76	375.45	6.06	0.3		
3 0063	395.77	337.08	62.24	~~21.35~~ 58.69 LDB 11/9	274.84	21.35	0.3		
3 0064	494.88	384.20	62.85	110.68	321.35	34.44	1.8	3.7	
3 0065	488.53	376.14	62.21	112.39	313.93	35.80	1.4	2.7	
3 0066	488.35	369.80	62.82	118.55	306.98	38.62	0.6	<1.0	
*3 0067	543.77	380.48	62.80	163.29	317.68	51.40	0.3	<1.0	
3 0068	459.26	336.10	62.96	123.16	273.14	45.09	0.3	<1.0	
3 0069	394.76	294.87	61.19	99.89	233.68	42.75	1.0	1.7	
3 0070	482.50	351.13	63.13	131.37	288.00	45.61	0.9	1.5	
*3 0071	602.70	464.58	61.93	138.12	402.65	34.30	0.3	<1.0	

Remarks: * standing water

Tests Checked By: R. G. McIntosh B-76 Date 11/10/92

BD-6000-806 (04/92)

GEL.07 ☐	GEL 16 ☐
GEL 09 ☐	GEL 17 ☐
GEL 10 ☐	GEL 19 ☑
GEL 14 ☑	GEL ☐

WHC-SD-EN-DP-068, Rev. 0
GEOTECHNICAL ENGINEERING LABORATORY
GEL-14, GEL-19

Sample No(s). 3-0072 → 0095

Page 2 of 2

GEL-14 SOIL MOISTURE

Tested By LD Bruggeman Balance: 3304 Calibration Due Date 1-25-93

Date 4/9/92 Thermometer: 0014 Calibration Due Date 9-21-93

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
	3 0072	382.61	297.28	62.59	85.33	234.69	36.36	0.4	<1.0	LDB/computer
	3 0073	288.11	236.24	61.71	51.87	174.53	29.72	0.4		
*	3 0074	588.76	456.85	61.90	131.91	394.95	33.40	0.3		
*	3 0075	461.73	277.93	63.72	183.80	214.21	85.80	0.5		
*	3 0076	407.76	271.19	61.04	136.57	210.15	64.99	0.6		
*	3 0077	573.72	458.52	60.57	115.20	397.95	28.95	0.3		
*	3 0078	476.36	326.16	61.77	150.20	264.39	56.81	0.4		
	3 0079	522.54	436.34	63.15	86.20	373.19	23.10	0.3		
*	3 0080	485.79	365.30	60.66	120.49	304.64	39.55	0.3		
*	3 0081	474.53	341.43	60.60	133.10	280.83	47.40	0.3		
	3 0082	527.33	418.24	62.07	109.09	356.17	30.63	0.3		
*	3 0083	538.36	407.63	62.99	130.73	344.64	37.93	0.2		
	3 0084	410.01	310.30	62.55	99.71	247.75	40.25	0.3		
	3 0085	405.72	309.36	63.01	96.36	246.35	39.12	0.4		
*	3 0086	526.45	398.20	62.74	128.25	335.46	38.23	0.3		
*	3 0087	479.42	301.68	61.83	177.74	239.85	74.10	0.4		
*	3 0088	464.68	269.81	61.89	194.87	207.92	93.72	0.3		
*	3 0089	411.41	297.13	61.04	114.28	236.09	48.41	0.3		
*	3 0090	443.78	306.33	62.31	137.45	244.02	56.33	0.3		
*	3 0091	415.96	308.86	63.87	107.10	244.99	43.72	0.2		
*	3 0092	466.56	350.13	61.02	116.43	289.11	40.27	0.2		
*	3 0093	438.01	310.62	62.56	127.39	248.06	51.35	0.3		
*	3 0094	507.74	353.88	61.48	153.86	292.40	52.62	0.3		
	3 0095	374.59	238.95	62.85	135.64	176.10	77.02	0.5		

Remarks: * STANDING WATER

Tests Checked By: R. T. McIntosh B-77 Date 11/10/92

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator: Keith J. Snett

Company Contact: Ed Rafuse — Telephone: 376-0542

Project Designation/Sampling Locations: WO49H 699-41-35 — Collection Date: see below

samples every 5 Ft and major lith changes

Ice Chest No.: N/A — Field Logbook No.: N/A

Bill of Lading/Airbill No.: N/A — Offsite Property No.: N/A

Method of Shipment: Govt. vehicle

Shipped to: 2101M

Possible Sample Hazards/Remarks: No Rad or chem contamination detected

Moisture Tins for RCRA Characterization. Note: 81 Ft sample submitted w/ CERCLA Test Package B samples

Sample Identification

5 Ft	8-24-92 @ 1145	$CaCO_3$ - moisture content		60 Ft	8-27-92 @ 1440	$CaCO_3$ - moisture content	
9.5 Ft	" @ 1340	"		65 Ft	9-1-92 @ 1100	"	
14.5 Ft	8-25-92 @ 0935	"		70 Ft	" @ 1330	"	
20.5 Ft	" @ 1140	"		75 Ft	" @ 1400	"	
25 Ft	8-26-92 @ 1010	"		81 Ft	see note above	"	
30 Ft	" @ 1030	"		85 Ft	9-2-92 @ 1010	"	
35 Ft	" @ 1330	"		90 Ft	9-2-92 @ 1300	"	
40 Ft	" @ 1410	"		95 Ft	9-2-92 @ 1345	"	
45 Ft	8-27-92 @ 0840	"		100 Ft	9-3-92 @ 0825	"	
50 Ft	" @ 0958	"		102.7 Ft	" @ 0940	"	
55 Ft	" @ 1245	"		105 Ft	" @ 1400	$CaCO_3$ Only	

☐ Field Transfer of Custody

CHAIN OF POSSESSION (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
Keith J. Snett	E.C. Rafuse	9-28-92 @ 0750
Relinquished by: E.C. Rafuse	Received by: J. McGuffey	Date/Time: 10/27/92 145
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90)

Westinghouse Hanford Company	CHAIN OF CUSTODY

tody Form Initiator: Keith J. Swett

Company Contact: Ed Refuse — Telephone: 376-0542

Project Designation/Sampling Locations: W049H 699-41-35 — Collection Date: see below

samples every 5 Ft and major lith changes

Ice Chest No.: N/A — Field Logbook No.: N/A

Bill of Lading/Airbill No.: N/A — Offsite Property No.: N/A

Method of Shipment: Govt. vehicle

Shipped to: 2101 M

Possible Sample Hazards/Remarks: No Rad or chem contamination detected

Moisture Tins for RCRA Characterization

Sample Identification

110 Ft	9-3-92	@ 1445	$CaCO_3$ only	165 Ft	9-10-92	@ 1135	$CaCO_3$ only
115 Ft	"	@ 1440	"	170 Ft	"	@ 1145	"
120 Ft	9-9-92	@ 0750	"	175 Ft	9-11-92	@ 1325	"
12[illegible] Ft	"	@ 0805	"	180 Ft	9-14-92	@ 0800	"
[illegible] Ft	"	@ 0850	"	185 Ft	"	@ 1300	"
135 Ft	"	@ 0900	"	190 Ft	9-13-92	@ 1300	"
140 Ft	"	@ 0915	"	195 Ft	"	@ 1400	"
145 Ft	"	@ 1340	"	200 Ft	9-16-92	@ 1200	"
150 Ft	9-10-92	@ 0820	"	205 Ft	9-17-92	@ 0800	"
155 Ft	"	@ 0844	"	210 Ft	"	@ 1030	"
160 Ft	"	@ 1125	"	216 Ft	"	@ 1100	"

☐ Field Transfer of Custody

CHAIN OF POSSESSION (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
Keith J. Swett	E.C. Refuse	9-28-92 @ 0750
Relinquished by: E.C. Refuse	Received by: J. M. Guffey	Date/Time: 10/29/92 1415
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

Westinghouse Hanford Company

WHC-SD-EN-DP-068, Rev. 0

CHAIN OF CUSTODY

Custody Form Initiator: Keith J. Swett

Company Contact: Ed Rafuse

Telephone: 376-0542

Project Designation/Sampling Locations: W049H 699-41-35

Collection Date: see below

samples every 5 Ft and at major lith. changes

Ice Chest No.: N/A

Field Logbook No.: N/A

Bill of Lading/Airbill No.: N/A

Offsite Property No.: N/A

Method of Shipment: Govt. vehicle

Shipped to: 2101M

Possible Sample Hazards/Remarks: No Rad or Chem contamination detected

Moisture Tins for RCRA characterization

Sample Identification

220 Ft 9-17-92 @ 1500, $CaCO_3$ only

225 Ft 9-21-92 @ 0830, "

230 Ft " @ 1030, "

235 Ft 9-22-92 @ 0900, "

240 Ft " @ 1115, "

245 Ft " @ 1310, "

250 Ft 9-23-92 @ 1210, "

255 Ft 9-24-92 @ 0730 "

260 Ft " @ 0915, "

☐ Field Transfer of Custody

CHAIN OF POSSESSION

(Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
Keith J. Swett	E.C. Rafuse	9-28-92 @ 0750
E.C. Rafuse	J.C. McGuffey	10/21/92 1415

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90)

RADIATION RELEASE

Bldg. 699-41-35 Expiration Date 10/29/92

leased By TEC Health Physics

Remarks 3 0043 5

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-41-35 Expiration Date 10/29/92

Released By TEC Health Physics

Remarks 3 0044 9.5

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-41-35 Expiration Date 10/29/92

Released By TEC Health Physics

Remarks 3 0045 14.5

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-41-35 Expiration Date 10/29/92

Released By TEC Health Physics

Remarks 3 0046 20.5

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-41-35 Expiration Date 10/29/92

Released By TEC Health Physics

marks 3 0047 25

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-41-35 Expiration Date 10/29/92

Released By TEC Health Physics

Remarks 3 0048 30

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-41-35 Expiration Date 10/29/92

Released By TEC Health Physics

Remarks 3 0049 35

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-41-35 Expiration Date 10/29/92

Released By TEC Health Physics

Remarks 3 0050 40

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-41-35 Expiration Date 10/29/92

Released By TEC Health Physics

Remarks 3 0051 45

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-41-35 Expiration Date 10/29/92

Released By TEC Health Physics

Remarks 3 0052 50

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-41-35 Expiration Date 10/29/92

Released By TEC
Health Physics

Remarks 3 0053 55

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-41-35 Expiration Date 10/29/92

Released By TEC
Health Physics

Remarks 3 0054 60

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-41-35 Expiration Date 10/29/92

Released By TEC
Health Physics

Remarks 3 0055 65

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-41-35 Expiration Date 10/29/92

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Health Physics

Remarks 70 3 0056

54-3000-022 (01/89)

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Bldg. 699-41-35 Expiration Date 10/29/92

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Health Physics

Remarks 3 0057 75

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-41-35 Expiration Date 10/29/92

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Health Physics

Remarks 3 0059 85

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-41-35 Expiration Date 10/29/92

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Health Physics

Remarks 3 0060 90

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-41-35 Expiration Date 10/29/92

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Health Physics

Remarks 3 0061 95

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-41-35 Expiration Date 10/29/92

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Health Physics

Remarks 3 0062 100

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-41-35 Expiration Date 10/29/92

Released By TEC
Health Physics

Remarks 102.7 3 0063

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-41-35 Expiration Date 10/29/92

Released By TEC
Health Physics

Remarks 3 0064 105

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-41-35 Expiration Date 10/29/92

Released By TEC
Health Physics

Remarks 3 0065 110

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-41-35 Expiration Date 10/29/92

Released By TEC
Health Physics

Remarks 3 0066 115

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-41-35 Expiration Date 10/29/92

Released By TEC
Health Physics

Remarks 3 0067 120

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-41-35 Expiration Date 10/29/92

Released By TEC
Health Physics

Remarks 3 0068 125

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-41-35 Expiration Date 10/29/92

Released By TEC
Health Physics

Remarks 3 0069 130

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-41-35 Expiration Date 10/29/92

Released By TEC
Health Physics

Remarks 3 0070 135

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-41-35 Expiration Date 10/29/92

Released By TEC
Health Physics

Remarks 3 0071 140

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-41-35 Expiration Date 10/29/92

Released By TEC
Health Physics

Remarks 3 0072 145

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-41-35 Expiration Date 10/29/92

Released By TEC
Health Physics

Remarks 3 0073 150

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-41-35 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 3 0074 155

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-41-35 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 3 0075 160

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-41-35 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 3 0076 165

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-41-35 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 3 0077 170

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-41-35 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 3 0078 175

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-41-35 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 3 0079 180

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-41-35 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 3 0080 185

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-41-35 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 3 0081 190

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-41-35 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 3 0082 ~~200~~ 195

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-41-35 Expiration Date 10/29/92
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Health Physics
Remarks 3 0083 200

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-41-35 Expiration Date 10/29/92

Released By TEC
Health Physics

Remarks 3 0084 205

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-41-35 Expiration Date 10/29/92

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Health Physics

Remarks 3 0085 210

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-41-35 Expiration Date 10/29/92

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Health Physics

Remarks 3 0086 216

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-41-35 Expiration Date 10/29/92

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Health Physics

Remarks 3 0087 220

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-41-35 Expiration Date 10/29/92

Released By TEC
Health Physics

Remarks 3 0088 225

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-41-35 Expiration Date 10/29/92

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Health Physics

Remarks 3 0089 230

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-41-35 Expiration Date 10/29/92

Released By TEC
Health Physics

Remarks 3 0090 235

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-40-35 Expiration Date 10/29/92

Released By TEC
Health Physics

Remarks 0091 240

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-41-35 Expiration Date 10/29/92

Released By TEC
Health Physics

Remarks 3 0092 245

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-41-35 Expiration Date 10/29/92

Released By TEC
Health Physics

Remarks 3 0093 250

54-3000-022 (01/89)

P. 12 of 12

RADIATION RELEASE

Bldg. 689-41-35 Expiration Date 10/29/92

Released By JEC

Health Physics

Remarks 3 0094 255

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 689-41-35 Expiration Date 10/29/92

Released By JEC

Health Physics

Remarks 3 0095 260

54-3000-022 (01/89)

PHYSICAL PROPERTIES DATA SHEET
200 AREAS TREATED EFFLUENT DISPOSAL FACILITY - RCRA BOREHOLES

Lab-Sample #	Stratigraphic Unit	Sample Depth (ft)	Specific Gravity (g/cm^3)	Moisture (%)	Moisture Retention	Sieve Analysis	Hydraulic Cond. (cm/sec)	Porosity (%)
				699-42-37				
2-3088	Hanford formation	11.6-17.3	2.72	6.79	Data available	Sandy Gravel	$1.3x10^{-3}$	28.68
2-3089	Ringold Lower Mud Sequence	91.65-94.0	2.62	19.30	Data available	Silty Sand	$3.2x10^{-7}$	36.32
2-2865	Ringold Lower Mud Sequence	126.8-128.8	2.66	25.82	Data available	Silty Sand	$2.3x10^{-6}$	40.41
2-2864	Ringold Unit A Gravels	130	NR	NR	NR	Sandy Gravel	NR	NR
2-3053	Ringold Unit A Gravels	135.39-136.69	2.63	7.60	NR	Sandy Gravel	$6.4x10^{-7}$	24.38
				699-40-36				
3-0001	Hanford formation	95.5-97.0	2.72	6.47	Data available	Silty sandy gravel	$1.8x10^{-4}$	18.32
3-0002	Ringold Lower Mud Sequence	114.5-116.5	2.46	26.52	Data available	Silty sand	$9.3x10^{-8}$	31.32
3-0003	Ringold Unit A	215.0-217.0	2.57	11.02	Data available	Silty sandy gravel	$6.3x10^{-7}$	22.16
				699-41-35				
2-3084	Hanford formation	80.8-81.8	2.80	6.46	Data available	Gravel	$1.3x10^{-1}$	33.12
2-3085	Ringold Lower Mud Sequence	102.7-104.7	2.71	20.72	Data available	Silty sand	$1.4x10^{-8}$	38.48
2-3086	Ringold Lower Mud Sequence	146.1-147.6	2.65	15.59	NR	Silty sand	$7.5x10^{-9}$	28.73

Physical Data Continued

Page 1 of 48

PHYSICAL PROPERTIES DATA SHEET
200 AREAS TREATED EFFLUENT DISPOSAL FACILITY - RCRA BOREHOLES

Lab-Sample #	Stratigraphic Unit	Sample Depth (ft)	Specific Gravity (g/cm^3)	Moisture (%)	Moisture Retention	Sieve Analysis	Hydraulic Cond. (cm/sec)	Porosity (%)
2-3087	Ringold Unit A (second fine grained unit)	207.3-208.8	2.65	45.38	NR	Silty sand	9.2×10^{-9}	55.8

W-049H 200 AREAS TREATED EFFLUENT DISPOSAL FACILITY ELEVATION DATA						
WELL	HANFORD COORDINATES	BRASS CAP (NGVD'29)	CASING	SCREENED INTERVAL	PUMP INTAKE	WATER TABLE DEC 92
699-40-36	N39830 W36432	525.79	528.92	302.59-325.32	219.18*	117.94*
699-41-35	N40856 W35476	517.42	520.38	315.52-333.92	203.81	108.57*
699-42-37	N41846 W37451	516.18	519.40	356.28-376.58	158.46*	104.35*

*Below top of casing

P.3 of 8

P.94

E R Walker
L7-09/6-4761

12/02/92 699-40-36 TEST RESULTS SUMMARY SHEET Page 1

FOR INFORMATION ONLY

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
2-3084	699-41-35	W-049H	80.8-81.8	1.3E-01	2.75	2.85	2.80	6.46	33.12	1.89	<1.0	GEL-07/17
2-3085	699-41-35	W-049H	102.7-104.7	1.4E-08	2.71	na	2.71	20.72	38.48	1.66	<1.0	GEL-07/17
2-3086	699-41-35	W-049H	146.1-147.6	7.5E-09	2.65	na	2.65	15.59	28.73	1.89	<1.0	GEL-07
2-3087	699-41-35	W-049H	207.3-208.8	9.2E-09	2.65	na	2.65	45.38	55.80	1.17	<1.0	GEL-07

P.5+48

TEST REQUEST

OPERABLE UNIT	W-049H	WELL NO	699-41-35	DEPTH	80.8-81.8
SAMPLE/SPECIMEN NO	2-3084	COST CODE/WORK ORDER NUMBER			A6CDR
REQUESTED BY: ORG	82436	PERSON	C. DELANEY	PHONE	6-9235
********HEIS********	NA	MSIN	H4-56	DATE	09/21/92

TEST REQUESTED	# OF SAMPLES	TEST LAB INFORMATION
Sieve/Hydrometer	2	GEL-07 / Rev. 2 / 3-13-92
Hydraulic Conductivity	2	GEL-09 / Rev. 2 / 3-13-92
Specific Gravity	2	GEL-10 / Rev. 1 / 12-1-89
Moisture Content	T	GEL-14 / Rev. 0 / 3-13-92
Bulk Density/Porosity	2	GEL-16 / Rev. 1 / 3-13-92
Moisture Retention	2	GEL-17 / Rev. 0 / 3-13-92
Calcium Carbonate	T	GEL-19 / Rev. 0 / 9-7-90

REMARKS: Hydrometer analysis - only if applicable (25% or more passed #200).

ARCHIVE YES JM ☒ NO ☒

RADIATION RELEASE

Bldg. 699-41-35 Expiration Date 09/22/92

Released By TEC
Health Physics

Remarks 80.8-81.3

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-41-35 Expiration Date 09/22/92

Released By TEC
Health Physics

Remarks 81.3-81.8

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-41-35 Expiration Date 09/22/92

Released By TEC
Health Physics

Remarks 81.2

2-3084

54-3000-022 (01/89)

RECEIVED BY J.C. McGuffey

DATE 09/21/92

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

WHC-SD-EN-DP-068, Rev. 0

GEOTECHNICAL ENGINEERING LABORATORY
GEL-07 SIEVE AND HYDROMETER ANALYSIS

Sample No. 2-3084

Page 1 of 5

GEL-07 SIEVE ANALYSIS

Date 10/9/92 Calibration Due Date 10-25-92 Balance: 3310

Sample Description Large rock to fine sand & silt Sieve Time 10 (min)

Reduced By: ☒ Splitting ☐ Quartering ☐ Stockpile

Sieve Size	Sample Weight	Cumulative Wt. Retained	Cumulative % Retained	Cumulative % Passed	Tested By
5	2776.8	0	0	100	LD Bruggen
4	↓	1035.2	37.3	62.7	↓
3		1340.3	48.3	51.7	
3/4		1588.7	57.2	42.8	
3/8		1834.1	66.1	33.9	
4		2056.3	74.1	25.9	
10	155.3	50.6	32.6	17.5	
40		103.1	66.4	8.7	
60		116.1	74.8	6.5	
100 / 200		124.4 / 133.6	80.1 / 86.0	5.2 / 3.6	

Remarks: one large rock 3.5 x 4.5 in = 1035.2 gms

GEL-07 HYDROMETER ANALYSIS

Date _____ Balance: _____ Calibration Due Date _____

Thermometer: _____ Calibration Due Date _____

Hydrometer: _____ Calibration Due Date _____

WEIGHT OF SAMPLE

Wt. Container + Soil _____ (g)

Wt. Container _____ (g)

Wt. Soil _____ (g)

Specific Gravity of Sample _____

% Passing No. 10 Sieve _____ %

A = _____ W = _____ K = _____

COMPOSITE CORRECTION

1st Reading _____ at _____ °C

2nd Reading _____ at _____ °C

Date	Clock Time	Elapsed Time (min)	Hydrometer Reading	Hydrometer with Composite Correction	Temperature (°C)	Soil in Suspension (%)	Particle Diameter (mm)	Tested By
		2.0						
		5.0						
		15.0						
		30.0						
		60.0						
		250.0						
		1440.0						

Remarks: NA

B-92

Tests Checked By Richard T. McCutcheon Date 10/26/92

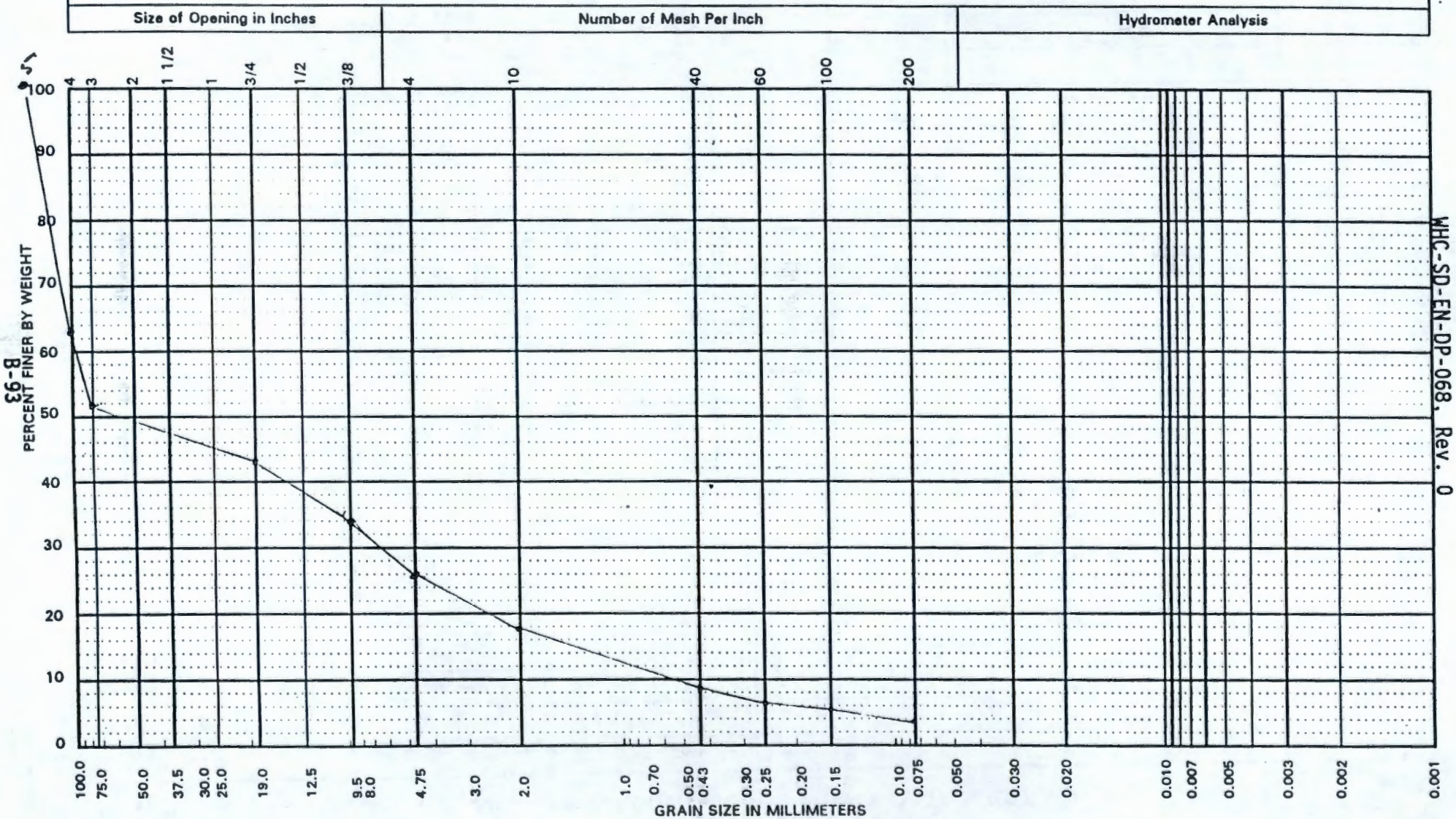
BD-6000-796 (04/92)

GEL-07 GRAIN SIZE ANALYSIS PLOT

Sample No. 2-3084

Page 2 of 5

Remarks 699-41-35 80.8-81.8'



Plotted By L D Bomgeman Date 10/9/92

Plot Checked By Richard T. McCluskey Date 10/28/92

WHC-SD-EN-DP-068, Rev. 0

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

GEOTECHNICAL ENGINEERING LABORATORY
GEL-09 HYDRAULIC CONDUCTIVITY DATA SHEET

Sample No. 2-3084

Balance No. 3310 Permeameter No. 2

Test Initiated By LD Bauggemn Date 10/9/92 Procedure GEL 09 / Rev 2 / 3-13-92 Sleeve Type: ☐ Metal ☒ Plastic

Specimen Diameter (D) 9.53 cm

Specimen Length (L) 15.24 cm

$$A = \left(\frac{D}{2}\right)^2 \times 3.1415$$

Specimen Area (A) 71.33 cm^2

Darcy's Law

$$K = \frac{QL}{AH}$$

K = Hydraulic Conductivity (cm/sec)
Q = Flow (cm^3/sec) = Vol. g/Time (sec)
A = Area (cm^2)
H = Hydraulic Head
L = Length (cm)

Date Year 92 (Mo/Day)	Run Time System (Hr:Min)	Run Time System (Hr:Min)	Run Time Time Change	Container Weight (± 0.1 g)	Container Tare (± 0.1 g)	Container Tare & Effluent (± 0.1 g)	Room Temp (°C)	Pressure Pore H_2O (cm)	Effluent Description	Operator Initials	Hydraulic Conductivity (cm/sec)	Calculated By
10/9	14:43	14:45	:02	409.0	202.6	611.6	25.7	5.7	clear	LDB	1.28E-01	LDB
	14:46	14:48	:02	351.6	202.6	554.2	24.8	5.3	clear	LDB	1.18E-01	LDB
	14:50	14:52	:02	337.1	202.6	539.7	24.8	4.6	clear	LDB	1.30E-01	LDB
	14:54	14:56	:02	405.5	202.6	608.1	24.6	5.6	clear	LDB	1.29E-01	LDB
	14:57	14:59	:02	369.0	202.6	571.6	24.6	4.7	clear	LDB	1.40E-01	LDB
	15:00	15:02	:02	333.8	202.6	536.4	24.6	4.3	clear	LDB	1.38E-01	LDB
								Average = 1.31 -01				

Remarks

Test Checked By Richard T. McCulloch Date 12/7/92

GEL 07 ☑	GEL 16 ☑	WHC-SD-EN-DP-068, Rev. 0	Sample No. 2-3084
GEL 09 ☑	GEL 17 ☑	GEOTECHNICAL ENGINEERING LABORATORY	
GEL 10 ☑	GEL 19 ☑	GEL-10 SPECIFIC GRAVITY SOILS FINE/COARSE	Page 4 of 5
GEL 14 ☑	GEL ☐		

GEL-10 SPECIFIC GRAVITY OF SOILS

Date 10/9/92 Tested By LD Bruggeman

Balance: 3304 Calibration Due Date 10-25-92

	DETERMINATION NO.	1	2	3
W_o	Wt. Oven Dry, Soil, g	55.0	.	.
	Pycnometer No.	2555		
	Wt. Pycnometer, g	122.83	.	.
W_a	Wt. Pycnometer + Wetting Agent, g	381.38	.	.
W_b	Wt. Pycnometer + Wetting Agent + Soil, g	416.41	.	.
	Temperature, T_x at W_b, °C	23.4		
G_w	Specific Gravity of Wetting Agent at T_x	1.00	.	.
G_t	Specific Gravity of Soil at T_x	2.75	.	.
G_s	Specific Gravity of Soil at 20 °C	2.75	.	.

Wetting Agent D.I. H_2O

$$C_t = \frac{W_o}{W_o + W_a - W_b}$$

Remarks:

GEL-10 SPECIFIC GRAVITY COARSE AGGREGATES

Date 10/13/92 Tested By: LD Bruggeman

Balance: 3312 Calibration Due Date 7/20/93

	DETERMINATION NO.	1	NA
	Size fraction	5" → #4	
P_1	Size fraction, wt. % total, g	74.1	
	Tare weight	233.5	
B	Weight sample (SSD), g	2064.5	.
C	Weight sample in H_2O, g	~~1575.0~~ 1341.5	.
A	Weight of oven dry sample, g	2061.4	.

Bulk Specific Gravity, 23/23 °C = A/(B-C) = 2.85

A = wt. oven dry sample in air, g
B = wt. SSD sample in air, g
C = wt. saturated sample in H_2O, g

Bulk Specific Gravity SSD, 23/23 °C = B/(B-C) = 2.86

Apparent Specific Gravity, 23/23 °C = A/(A-C) = 2.86

*Average Specific Gravity Values, 23/23 °C $\overline{G}$ = 2.82

Remarks:

$$\overline{G} = \frac{1}{\dfrac{P_1 = \%\ \text{coarse}}{G_1 = \text{coarse sp.gr.} \times 100} + \dfrac{P_2 = \%\ \text{fines}}{G_2 = \text{fines sp. gr.} \times 100}}$$

$\overline{G}$ = Ave. Specific Gravity for all forms of Specific Gravity i.e., formula applicable to Bulk, Bulk SSD and Apparent Specific Gravity.

G_1, G_2 = appropriate Specific Gravity values for each size fraction depending on the type of Specific Gravity being averaged.

P_1, P_2 = wt. percentages of each size fraction present in the original sample.

*State type of Specific Gravity Reported i.e., either Bulk, Bulk SSD or Apparent.

Tests Checked By: Richard T. McSpadden Date 10/27/92

BD-6000-798 (08/92)

GEL 07 ☑	GEL 16 ☑	WHC-SD-EN-DP-068, Rev. 0	Sample No. 2-3084
GEL 09 ☑	GEL 17 ☑	GEOTECHNICAL ENGINEERING LABORATORY	
GEL 10 ☑	GEL 19 ☑	GEL-14, GEL-16, GEL-19	Page 5 of 5
GEL 14 ☑	GEL ☐		

GEL-14 SOIL MOISTURE

Balance: ~~3310~~ 3304 LDB 10/9 Calibration Due Date 10-25-92 Tested By LD Bruggeman

Thermometer: 0015 Calibration Due Date 9-21-93

Date	Wet Wt. + Can	Dry Wt. + Can	Tare Wt.	Moisture	Dry Wt. Soil	% Moisture	Calculated By
10/8/92	380.0	360.71	62.24	19.29	298.47	6.46	LD Bruggeman

Remarks:

GEL-16 BULK DENSITY-POROSITY

DETERMINATION NO.			1	
Pan No.:	Mold: ☒ Plastic ☐ Metal	Length:	15.24	
Sample Volume, V, cc			1087.07	
Wt. of Sample & Mold, g			2500.2	
Wt. of Mold, g			317.4	
Wet Wt. of Sample, g			2182.8	
Wet Density of Sample, γ m, g/cc			~~2050.35~~	2.01 LDB 10/15/92
Water Content % Dry Weight			6.46	
Dry Density, g/cc γ d			1.89	
Dry weight of Sample, g, Ws			2050.35	
*Void Ratio, e			.4951	
**Porosity, n, %			33.12	

Tested By LD Bruggeman

$$Ws = \frac{\text{Wet Wt.}}{1 + \%\ \text{Dry Wt.}}$$

$$\text{*Void Ratio, } e = \frac{\text{Avg. Sp. Gr. x Vol.}}{Ws} - 1$$

$$\text{**Porosity, } n, \% = \left(\frac{e}{1+e}\right) 100$$

Remarks:

GEL-19 CALCIUM CARBONATE

Vessel No. 5650 Tested By LD Bruggeman

Balance No. 3304 Date Due 10-25-92

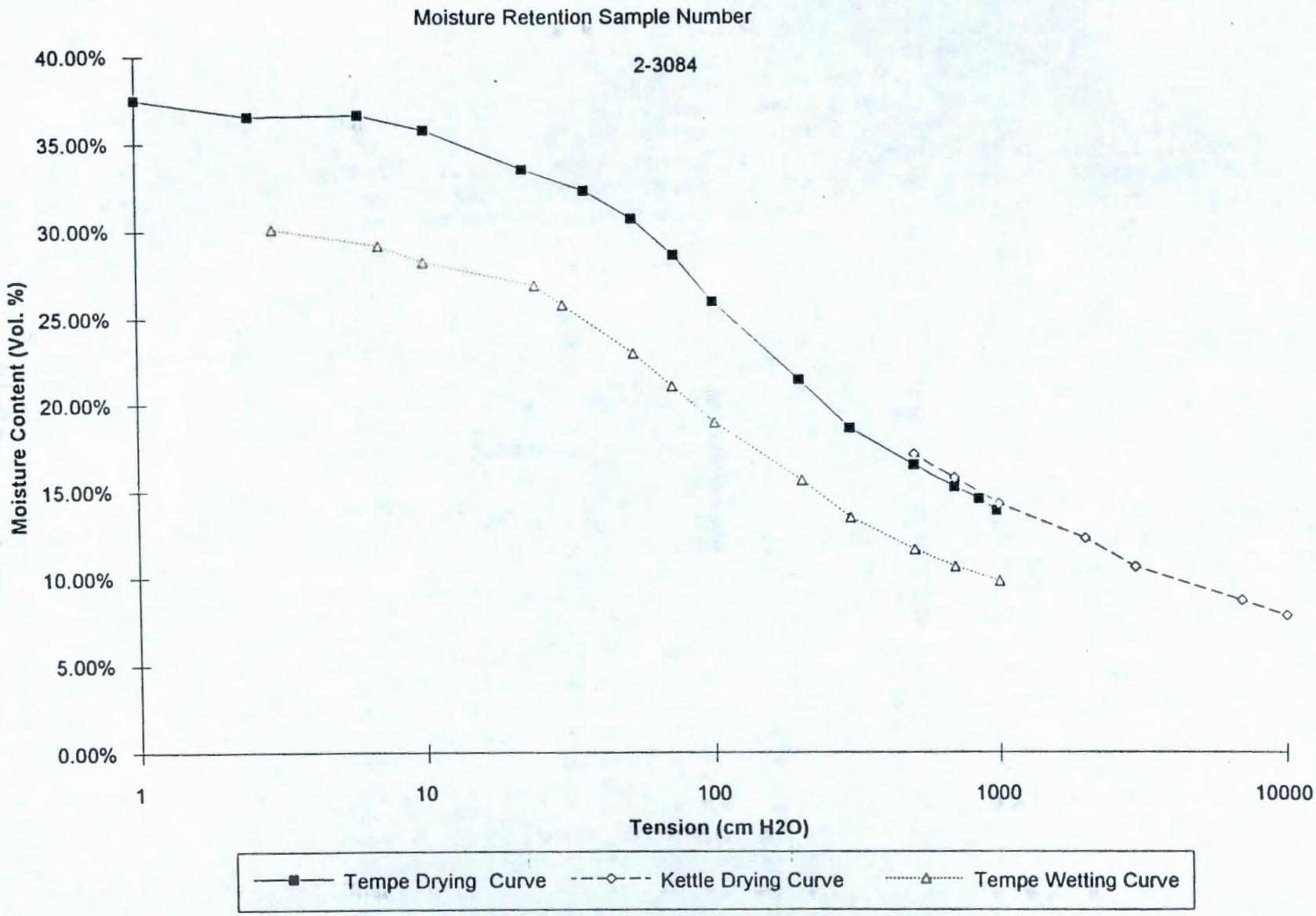
Sample Weight 8.0 (g)

Sample Pressure 0.2 (psi) $\%CaCO_3$ <1.0% Per Gram

Remarks:

Tests Checked By: Richard T. McCutcheon Date 10/27/92

BD-6000-797 (04/92)


Moisture Retention Sample Number
2-3084
40.00%
35.00%
30.00%
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
Moisture Content (Vol. %)
1
10
100
1000
10000
Tension (cm H2O)
Tempe Drying Curve
Kettle Drying Curve
Tempe Wetting Curve

P. 12 of 48

SAMPLE NO.	2-3084
Contact	C. DELANEY
Well No.	699-41-35
Operable Unit	W-049H/LERF
HEIS No.	NA
Depth	80.8-81.8

TEMPE CELLS	Sample #	2-3084 1 Bar Drying Curve								
tension in cm	N/A	N/A	0	2.5	6	10.2	22	36	52.5	73.5
error in tension value +/-			0	0.5	1	1	2	3	3	4
container number	MC-1	TC-26	TC-26	TC-26	TC-26	TC-26	TC-26	TC-26	TC-26	TC-26
weight of container/ring,+wet sample	170.99	552.53	577.84	577.18	577.24	576.65	575.12	574.27	573.18	571.75
weight of container/ring,+ dry sample	170.51	551.96	552.23	552.23	552.23	552.23	552.23	552.23	552.23	552.23
weight of moisture	0.48	0.57	25.61	24.95	25.01	24.42	22.89	22.04	20.95	19.52
weight of container and ring	62.73	424.24	424.63	424.63	424.63	424.63	424.63	424.63	424.63	424.63
weight of dry sample	108.26	127.72	127.60	127.60	127.60	127.60	127.60	127.60	127.60	127.60
moisture content % by wt.	0.44%		20.07%	19.55%	19.60%	19.14%	17.94%	17.27%	16.42%	15.30%
moisture content % by vol.			37.51%	36.55%	36.63%	35.77%	33.53%	32.28%	30.69%	28.59%
date measured			10/23/92	10/27/92	10/28/92	10/29/92	10/30/92	11/2/92	11/3/92	11/4/92
temperature deg. C			26	25	24	24	24	23	24	23
volume of brass ring, cm^3	68.26									

TEMPE CELLS	Sample #	2-3084 1 Bar Drying Curve								
tension in cm	100.5	200.3	300	500	700	850	980	N/A	N/A	
error in tension value +/-	5	5	20	20	20	20	20			
container number	TC-26	TC-26	TC-26	TC-26	TC-26	TC-26	TC-26	TC-26	MC-1	
weight of container/ring,+wet sample	569.94	566.85	564.93	563.48	562.63	562.15	561.69	561.69	199.67	
weight of container/ring,+ dry sample	552.23	552.23	552.23	552.23	552.23	552.23	552.23	552.23	190.27	
weight of moisture	17.71	14.62	12.70	11.25	10.40	9.92	9.46	9.46	9.40	
weight of container and ring	424.63	424.63	424.63	424.63	424.63	424.63	424.63	424.63	62.74	
weight of dry sample	127.60	127.60	127.60	127.60	127.60	127.60	127.60	127.60	127.53	
moisture content % by wt.	13.88%	11.46%	9.95%	8.81%	8.15%	7.77%	7.41%	7.41%	7.37%	
moisture content % by vol.	25.94%	21.41%	18.60%	16.48%	15.23%	14.53%	13.85%	13.85%		
date measured	11/5/92	11/6/92	11/9/92	11/10/92	11/11/92	11/12/92	11/13/92	11/13/92	11/14/92	
temperature deg. C	24	24	23	25	24	24	23			
volume of brass ring, cm^3	68.26									

Cell wt. before cleanup = 424.62 grams

Cell wt. after cleanup = 425.04 grams

BULK DENSITY = 1.87

424.63 Average of all 3

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TEMPE LS	Sample #	2-3084 1 Bar Wetting Curve							
tension in cm	N/A	N/A	1000	1000	1000	1000	1000	1000	1000
error in tension value +/-			20	20	20	20	20	20	20
container number	MC-1	TC-1	TC-1	TC-1	TC-1	TC-1	TC-1	TC-1	TC-1
weight of container/ring,+wet sample	170.99	550.56	557.24	557.24	557.39	557.41	557.43	557.51	557.48
weight of container/ring,+ dry sample	170.51	550.01	550.80	550.80	550.80	550.80	550.80	550.80	550.80
weight of moisture	0.48	0.55	6.44	6.44	6.59	6.61	6.63	6.71	6.68
weight of container and ring	62.73	425.34	426.20	426.20	426.20	426.20	426.20	426.20	426.20
weight of dry sample	108.26	124.67	124.60	124.60	124.60	124.60	124.60	124.60	124.60
moisture content %	0.44%		5.17%	5.17%	5.29%	5.30%	5.32%	5.39%	5.36%
moisture content % by vol.			9.43%	9.43%	9.65%	9.68%	9.71%	9.83%	9.79%
date measured			10/26/92	10/27/92	10/28/92	10/29/92	10/30/92	11/2/92	11/3/92
temperature deg. C			23	25	24	23	24	23	24
volume of brass ring, cm^3	68.26								

TEMPE CELLS	Sample #	2-3084 1 Bar Wetting Curve								
tension in cm	1000	1000	1000	700	500	300	203.2	101	72
error in tension value +/-	20	20	20	20	20	20	5	2	2
container number	TC-1	TC-1	TC-1	TC-1	TC-1	TC-1	TC-1	TC-1	TC-1
weight of container/ring,+wet sample	557.52	557.52	557.49	558.06	558.73	560.00	561.46	563.74	565.18
weight of container/ring,+ dry sample	550.80	550.80	550.80	550.80	550.80	550.80	550.80	550.80	550.80
weight of moisture	6.72	6.72	6.69	7.26	7.93	9.20	10.66	12.94	14.38
weight of container and ring	426.20	426.20	426.20	426.20	426.20	426.20	426.20	426.20	426.20
weight of dry sample	124.60	124.60	124.60	124.60	124.60	124.60	124.60	124.60	124.60
moisture content %	5.39%	5.39%	5.37%	5.83%	6.36%	7.38%	8.56%	10.39%	11.54%
moisture content % by vol.	9.84%	9.84%	9.80%	10.64%	11.62%	13.48%	15.62%	18.96%	21.07%
date measured	11/4/92	11/5/92	11/6/92	11/9/92	11/10/92	11/11/92	11/12/92	11/13/92	11/16/92
temperature deg. C	23	23	23	23	24	24	23	23	24
volume of brass ring, cm^3	68.26								

Cell wt. before cleanup = 426.18 grams

Cell wt. after cleanup = 425.77 grams

TEMPE CELLS	Sample #	2-3084 1 Bar Wetting Curve					425.76 Average of all three		
tension in cm	52.8	30	24	10	7	3	3	N/A
error in tension value +/-	3	2	2	1	0.5	0.5	0.5	
container number	TC-1	TC-1	TC-1	TC-1	TC-1	TC-1	TC-1	SML-1
weight of container/ring,+wet sample	566.47	568.38	569.15	570.07	570.71	571.19	571.35	207.75
weight of container/ring,+ dry sample	550.80	550.80	550.80	550.80	550.80	550.80	550.80	187.23
weight of moisture	15.67	17.58	18.35	19.27	19.91	20.39	20.55	20.52
weight of container and ring	426.20	426.20	426.20	426.20	426.20	426.20	426.20	62.80
weight of dry sample	124.60	124.60	124.60	124.60	124.60	124.60	124.60	124.43
moisture content %	12.58%	14.11%	14.73%	15.47%	15.98%	16.36%	16.49%	16.49%
moisture content % by vol.	22.96%	25.75%	26.88%	28.23%	29.17%	29.87%	30.11%	
date measured	11/17/92	11/18/92	11/19/92	11/20/92	11/23/92	11/24/92	11/25/92	12/1/92
temperature deg. C	22	23	23	21	24	22	22	25
volume of brass ring, cm^3	68.26		BULK DENSITY =		1.83			

P. 14 of 48

KETTLES	Sample #	2-3084 15 Bar Drying Curve								
tension in cm	500	500	700	700	1000	1000	2000	2000	3000	3000
error in tension value +/-	20	20	20	20	20	20	20	20	20	20
container number	BA13	BA14	BA13	BA14	BA13	BA14	BB13	BB14	BB13	BB14
weight of container/ring,+wet sample	56.50	57.65	56.24	57.42	55.87	57.11	57.60	55.07	54.79	57.39
weight of container/ring,+ dry sample	54.32	55.17	54.27	55.10	54.09	55.03	55.79	53.44	53.33	55.78
weight of moisture	2.18	2.48	1.97	2.32	1.78	2.08	1.81	1.63	1.46	1.61
weight of container and ring	30.42	28.05	30.42	28.05	30.42	28.05	28.34	28.41	28.34	28.41
weight of dry sample	23.90	27.12	23.85	27.05	23.67	26.98	27.45	25.03	24.99	27.37
moisture content %	9.12%	9.14%	8.26%	8.58%	7.52%	7.71%	6.59%	6.51%	5.84%	5.88%
date measured	11/20/92	11/20/92	11/24/92	11/24/92	12/3/92	12/3/92	11/20/92	11/20/92	11/24/92	11/24/92
temperature deg. C	22	22	25	25	27	27	22	22	25	25

KETTLES										
tension in cm	3000	3000	5000	5000	7000	7000	10000	10000	15000	15000
error in tension value +/-	20	20	100	100	100	100	100	100	100	100
container number	BB13	BB14	BB13	BB14	BA11	BA12	BA11	BA12		
weight of container/ring,+wet sample	54.40	57.02	53.25	56.87	51.36	53.84	51.14	53.71		
weight of container/ring,+ dry sample	53.06	55.51	51.91	55.29	50.29	52.70	50.18	52.69		
weight of moisture	1.34	1.51	1.34	1.58	1.07	1.14	0.96	1.02	0.00	0.00
weight of container and ring	28.34	28.41	28.34	28.41	27.48	28.18	27.48	28.18	15.51	15.44
weight of dry sample	24.72	27.10	23.57	26.88	22.81	24.52	22.70	24.51	-15.51	-15.44
moisture content %	5.42%	5.57%	5.69%	5.88%	4.69%	4.65%	4.23%	4.16%	0.00%	0.00%
date measured	12/3/92	12/3/92	12/7/92	12/7/92	11/20/92	11/20/92	11/24/92	11/24/92		
temperature deg. C	27	27	24	24	22	22	25	25		

'POINTS ECTED FOR PLOTTING Sample # 2-3...

container number	TC-26	TC-26	TC-26	TC-26	TC-26	TC-26	TC-26	TC-26	TC-26	TC-26	TC-26
Tension in cm	1	2.5	6	10.2	22	36	52.5	73.5	100.5	200.3	300
Tempe Drying Curve	37.51%	36.55%	36.63%	35.77%	33.53%	32.28%	30.69%	28.59%	25.94%	21.41%	18.60%
Kettle Drying Curve											
Tempe Wetting Curve											
date measured	10/23/92	10/27/92	10/28/92	10/29/92	10/30/92	11/2/92	11/3/92	11/4/92	11/5/92	11/6/92	11/9/92

container number	TC-26	TC-26	TC-26	TC-26	BA13	BA13	BA13	BB13	BB13	BA11	BA11
tension in cm	500	700	850	980	500	700	1000	2000	3000	7000	10000
Tempe Drying Curve	16.48%	15.23%	14.53%	13.85%							
Kettle Drying Curve					17.07%	15.74%	14.23%	12.25%	10.62%	8.73%	7.84%
Tempe Wetting Curve											
date measured	11/10/92	11/11/92	11/12/92	11/13/92	11/20/92	11/24/92	12/3/92	11/20/92	11/24/92	11/20/92	11/24/92

container number	TC-1	TC-1	TC-1	TC-1	TC-1	TC-1	TC-1	TC-1	TC-1	TC-1	TC-1
tension in cm	1000	700	500	300	203.2	101	72	52.8	30	24	10
Tempe Drying Curve											
Kettle Drying Curve											
Tempe Wetting Curve	9.80%	10.64%	11.62%	13.48%	15.62%	18.96%	21.07%	22.96%	25.75%	26.88%	28.23%
date measured	11/6/92	11/9/92	11/10/92	11/11/92	11/12/92	11/13/92	11/16/92	11/17/92	11/18/92	11/19/92	11/20/92

container number	TC-1	TC-1
tension in cm	7	3
Tempe Drying Curve		
Kettle Drying Curve		
Tempe Wetting Curve	29.17%	30.11%
date measured	11/23/92	11/25/92

Kettle data points were converted from gravimetric
to volumetric by multiplying by Bulk Density
Bulk Density = 1.87

MOISTURE RETENTION DATA SHEET

SAMPLE NO. 2-3084 Page ____ of ____

Tested By:	R. M. Shailer	Date	10-23-92
Procedure No:	17	Rev.	0 Date Issued 2/25/90
Test Plan No:	N/A	Rev.	N/A Date Issued
Pressure Cell No.	TC- 26	Calibration Due Date	N/A
Gauge:	GEL - 2032	Calibration Due Date	2-28-93
Thermometer:	GEL - 12	Calibration Due Date	N/A
Balance:	GEL - 3307	Calibration Due Date	~~9/15/92~~ JRR 10-23-92 3-15-93
Gauge:	GEL -	Calibration Due Date	
:	GEL -	Calibration Due Date	

(1) Tension units = cm	NA	NA	0	2.5	6.0	10.2	22	36	52.5	73.5	100.5	200.3	300
(2) Container/Ring Number	MC-1	TC-26	TC-26	TC-26	TC-26	TC-26	TC-26	TC-26	TC-26	TC-26	TC-26	TC-26	TC-26
(3) Wt. of Container and Wet Sample, g	170.99	552.53	577.84	577.18	577.24	576.65	575.12	574.27	573.18	571.75	569.94	566.85	564.93
(4) Wt. of Container and Dry Sample, g	170.51												
(5) Container Tare Wt., g	62.73	424.24											
(6) Temperature			26	25	24	24	24	23	24	23	24	24	23
(7) Date			10-23-92	10-27-92	10-28-92	10-29-92	10-30-92	11-2-92	11-3-92	11-4-92	11-5-92	11-6-92	11-9-92

(1) Tension units = cm	500	700	850	980	NA	NA							
(2) Container/Ring Number	TC-26	TC-26	TC-26	TC-26	TC-26	MC-1							
(3) Wt. of Container and Wet Sample, g	563.48	562.63	562.15	561.69	561.69	~~[illegible]~~ 199.67 JRR 11-13-92							
(4) Wt. of Container and Dry Sample, g						190.27							
(5) Container Tare Wt., g					424.62*	62.74							
(6) Temperature	25	24	24	23									
(7) Date	11-10-92	11-11-92	11-12-92	~~10-13-92~~ 11-13-92 JRR 11-16-92									

REMARKS W-049H

Tempe Drying Curve (0 to 1 Bar) *425.04 after cleanup

All data are acurately and completely recorded. The test operator was trained and used calibrated instruments

Checked By: G. F. Relyea Date: 12-11-92

B-102

WHC-SD-EN-DP-068, Rev. 0

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MOISTURE RETENTION DATA SHEET

SAMPLE NO. 2-3084 Page ____ of ____

Tested By:	R. M. Shailer	Date	10-23-92
Procedure No:	17	Rev. 0	Date Issued 2/25/90
Test Plan No:	N/A	Rev. N/A	Date Issued
Pressure Cell No.	TC-1	Calibration Due Date	N/A
Gauge:	GEL - 2033	Calibration Due Date	2-28-93
Thermometer:	GEL - 12	Calibration Due Date	N/A
Balance:	GEL - 3307	Calibration Due Date	~~9/15/92~~ JJR 10-23-92 3-15-93
Gauge:	GEL -	Calibration Due Date	
:	GEL -	Calibration Due Date	

(1) Tension units = cm	NA	NA	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	700
(2) Container/Ring Number	TC-1	TC-1	TC-1	TC-1	TC-1	TC-1	TC-1	TC-1	TC-1	TC-1	TC-1	TC-1	TC-1
(3) Wt. of Container and Wet Sample, g	170.99	550.56	557.24	557.24	557.39	557.41	557.43	557.51	557.48	557.52	557.52	557.49	558.06
(4) Wt. of Container and Dry Sample, g	170.51												
(5) Container Tare Wt., g	62.73	425.34											
(6) Temperature			23	25	24	23	24	23	24	23	23	23	23
(7) Date			10-26-92	10-27-92	10-28-92	10-29-92	10-30-92	11-2-92	11-3-92	11-4-92	11-5-92	11-6-92	11-9-92

(1) Tension units = cm	500	300	203.2	101	72	52.8	30	24	10.0	7	3	3	NA
(2) Container/Ring Number	TC-1	TC-1	TC-1	TC-1	TC-1	TC-1	TC-1	TC-1	TC-1	TC-1	TC-1	TC-1	SML-1
(3) Wt. of Container and Wet Sample, g	558.73	560.00	561.46	563.74	565.18	566.47	568.38	569.15	570.07	570.71	571.19	571.35	207.75
(4) Wt. of Container and Dry Sample, g													187.23
(5) Container Tare Wt., g												426.18*	62.80
(6) Temperature	24	24	23	23	24	22	23	23	21	24	22	22	25
(7) Date	11-10-92	11-11-92	11-12-92	11-13-92	11-16-92	11-17-92	11-18-92	11-19-92	11-20-92	11-23-92	11-24-92	11-25-92	12-1-92

REMARKS W-049H

Tempe Wetting Curve (0 to 1 Bar)

JJR 11-25-92
* ~~415.88~~ cleaned up
425.77 cleaned up

All data are acurately and completely recorded. The test operator was trained and used calibrated instruments

Checked By: J F Relyea Date: 12-11-92

B-103

WHC-SD-EN-DP-068, Rev. 0

MOISTURE RETENTION DATA SHEET

SAMPLE NO. 2-3084 Page 1 of 3

Tested By:	R.M. SHAILER	Date 11/16/92		
Procedure No:	17	Rev. 0	Date Issu	2/25/90
Test Plan No:	N/A	Rev. N/A	Date Issu	N/A
Pressure Cell No.	GEL - KETTLE PK05-01	Calibration Due Date	N/A	
Gauge:	GEL - 2051	Calibration Due Date	7/2/93	
Thermometer:	GEL - 12	Calibration Due Date	N/A	
Balance:	GEL - 3307	Calibration Due Date	3/15/93	
Gauge:	GEL -	Calibration Due Date		
:	GEL -	Calibration Due Date		

	.5	.5	.5	.5	.7	.7	1	1					
(1) Tension units = Bar			0.5	0.5	0.70	0.70	1.0	1.0					
(2) Container/Ring Number	~~1-13~~ 2-3 RMS A13	~~1-14~~ 2-4 RMS A14	2-3 BA13	2-4 BA14	2-3 BA13	2-4 BA14	2-3 BA13	2-4 BA14					
(3) Wt. of Container and Wet Sample, g			56.50	57.65	56.24	57.42	55.87	57.11					
(4) Wt. of Container and Dry Sample, g		11-20-92	54.32	55.17	54.27	55.10	54.09	55.03					
(5) Container Tare Wt., g	15.35	15.47	30.42	28.05	30.42	28.05	30.42	28.05					
(6) Temperature			22	22	25	25	27	27					
(7) Date			11-20-92	11-20-92	11-24-92	11-24-92	12-3-92	12-3-92					

(1) Tension units = Bar													
(2) Container/Ring Number													
(3) Wt. of Container and Wet Sample, g													
(4) Wt. of Container and Dry Sample, g													
(5) Container Tare Wt., g													
(6) Temperature													
(7) Date													

REMARKS

KETTLE DRYING CURVE (0.5 to 1.0 BARs)

W-049H

All data are acurately and completely recorded. The test operator was trained and used calibrated instruments

Checked By: [signature] Date: 12-11-92

B-104

WHC-SD-EN-DP-068, Rev. 0

MOISTURE RETENTION DATA SHEET

SAMPLE NO. 2-3084 Page 2 of 3

Tested By:	R.M. SHAILER	Date	11/16/92	
Procedure No:	17	Rev.	0	Date Issu 2/25/90
Test Plan No:	N/A	Rev.	N/A	Date Issu N/A
Pressure Cell No.	GEL - KETTLE PK05-02	Calibration Due Date		
Gauge:	GEL - 2052	Calibration Due Date	7/2/93	
Thermometer:	GEL - 12	Calibration Due Date	N/A	
Balance:	GEL - 3307	Calibration Due Date	3/15/93	
Gauge:	GEL - 2034	Calibration Due Date	4/3/93	
:	GEL -	Calibration Due Date		

	2	2	2	2	3	3	3	3	5	5			
(1) Tension units = Bar			2.0	2.0	3.0	3.0	3.0	3.0	5.0	5.0			
(2) Container/Ring Number	4-3 B13	4-4 B14	4-3 BB13	4-4 BB14	4-3 BB13	4-4 BB14	4-3 BB13	4-4 BB14	2-3 BB13	2-4 BB14			
(3) Wt. of Container and Wet Sample, g			57.60	55.07	54.79	57.39	54.40	57.02	53.25	56.87			
(4) Wt. of Container and Dry Sample, g	JTR	11-20-92	55.79	53.44	53.33	55.78	53.06	55.51	51.91	55.29			
(5) Container Tare Wt., g	16.01	15.47	28.34	28.41	28.34	28.41	28.34	28.41	28.34	28.41			
(6) Temperature			22	22	25	25	27	27	24	24			
(7) Date			11-20-92	11-20-92	11-24-92	11-24-92	12-3-92	12-3-92	12-7-92	12-7-92			

(1) Tension units = Bar													
(2) Container/Ring Number													
(3) Wt. of Container and Wet Sample, g													
(4) Wt. of Container and Dry Sample, g													
(5) Container Tare Wt., g													
(6) Temperature													
(7) Date													

REMARKS

KETTLE DRYING CURVE (2.0 to 5.0 BARs)

All data are acurately and completely recorded. The test operator was trained and used calibrated instruments

Checked By: G. T. Belyea Date: 12-11-92

MOISTURE RETENTION DATA SHEET

SAMPLE NO. 2-3084 Page 3 of 3

Tested By:	R.M. SHAILER	Date 11/16/92		
Procedure No:	17	Rev. 0	Date Issu	2/25/90
Test Plan No:	N/A	Rev. N/A	Date Issu	N/A
Pressure Cell No.	GEL - KETTLE PK15-02	Calibration Due Date		
Gauge:	GEL - 2035	Calibration Due Date	2/28/93	
Thermometer:	GEL - 12	Calibration Due Date	N/A	
Balance:	GEL - 3307	Calibration Due Date	3/15/93	
Gauge:	GEL -	Calibration Due Date		
:	GEL -	Calibration Due Date		

	7	7	7	7	10	10							
(1) Tension units = Bar			7.0	7.0	10	10							
(2) Container/Ring Number	6-1 C11	6-2 C12	6-1 BA11	6-2 BA12	6-1 BA11	6-2 BA12							
(3) Wt. of Container and Wet Sample, g			51.36	53.84	51.14	53.71							
(4) Wt. of Container and Dry Sample, g	JPR	11-20-92	50.29	52.70	50.18	52.69							
(5) Container Tare Wt., g	15.50	15.71	27.48	28.18	27.48	28.18							
(6) Temperature			22	22	25	25							
(7) Date			11-20-92	11-20-92	11-24-92	11-24-92							

(1) Tension units = Bar													
(2) Container/Ring Number													
(3) Wt. of Container and Wet Sample, g													
(4) Wt. of Container and Dry Sample, g													
(5) Container Tare Wt., g													
(6) Temperature													
(7) Date													

REMARKS

KETTLE DRYING CURVE (7.0 to 15.0 BARs)

All data are acurately and completely recorded. The test operator was trained and used calibrated instruments

Checked By: G F Delgado Date: 12-11-92

P21 of 48

TEST REQUEST

OPERABLE UNIT	W-049H	WELL NO	699-41-35	DEPTH	102.7-104.7
SAMPLE/SPECIMEN NO	2-3085	COST CODE/WORK ORDER NUMBER			A6CDR
REQUESTED BY: ORG	82436	PERSON	C. DELANEY	PHONE	6-9235
********HEIS********	NA	MSIN	H4-56	DATE	09/21/92

TEST REQUESTED	# OF SAMPLES	TEST LAB INFORMATION
Sieve/Hydrometer	2	GEL-07 / Rev. 2 / 3-13-92
Hydraulic Conductivity	2	GEL-09 / Rev. 2 / 3-13-92
Specific Gravity	2	GEL-10 / Rev. 1 / 12-1-89
Moisture Content	T	GEL-14 / Rev. 0 / 3-13-92
Bulk Density/Porosity	2	GEL-16 / Rev. 1 / 3-13-92
Moisture Retention	2	GEL-17 / Rev. 0 / 3-13-92
Calcium Carbonate	T	GEL-19 / Rev. 0 / 9-7-90

REMARKS: Hydrometer analysis - only if applicable (25% or more passed #200).

ARCHIVE YES ☒ NO ☒

RADIATION RELEASE

Bldg. 699-41-35 Expiration Date 09/22/92

Released By TEC Health Physics

Remarks 104.2-104.7

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-41-35 Expiration Date 09/22/92

Released By TEC Health Physics

Remarks 102.7-104.7

2-3085

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-41-35 Expiration Date 09/22/92

Released By TEC Health Physics

Remarks 102.7-103.2

54-3000-022 (01/89)

RECEIVED BY J.C. McGuffey

DATE 09/21/92

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

GEOTECHNICAL ENGINEERING LABORATORY
GEL-07 SIEVE AND HYDROMETER ANALYSIS

Sample No. 2-3085

Page 1 of 5

GEL-07 SIEVE ANALYSIS

Date 10/12/92 Calibration Due Date 10-25-92 Balance: 3310

Sample Description fine sand & silt Sieve Time 10 (min)

Reduced By: ☒ Splitting ☐ Quartering ☐ Stockpile

Sieve Size	Sample Weight	Cumulative Wt. Retained	Cumulative % Retained	Cumulative % Passed	Tested By
10	158.7	0	0	100	L D Bruggeman
40	↓	29.9	18.8	81.2	
60		72.0	45.4	54.6	
100		109.0	68.7	31.3	
200		137.5	86.6	13.4	

Remarks: used mortar & pestal to break down representative sample of 158.7 gms sample then washed.

GEL-07 HYDROMETER ANALYSIS

Date 10/12/92

Balance: 3310 Calibration Due Date 10-25-92

Thermometer: 0018 Calibration Due Date 9-17-93

Hydrometer: 1007 Calibration Due Date 1-29-93

WEIGHT OF SAMPLE

Wt. Container + Soil 121.6 (g)

Wt. Container 56.7 (g)

Wt. Soil 64.9 (g)

Specific Gravity of Sample 2.70

% Passing No. 10 Sieve 100 %

A = W = K =

COMPOSITE CORRECTION

1st Reading 6 at 22.9 °C

2nd Reading 7 at 22.8 °C

Date	Clock Time	Elapsed Time (min)	Hydrometer Reading	Hydrometer with Composite Correction	Temperature (°C)	Soil in Suspension (%)	Particle Diameter (mm)	Tested By
10/12	10:00	2.0	31	25	22.8	38.14	0.031	L D Bruggeman
	10:03	5.0	29	23	23.1	35.08	0.020	
	10:13	15.0	26	20	23.1	30.51	0.012	
	10:28	30.0	23	17	23.1	25.93	0.008	
	10:58	60.0	20	14	23.3	21.36	0.006	
	14:08	250.0	13	9	24.5	13.73	0.003	
10/13	9:58	1440.0	12	5	23.2	9.15	0.001	

ORIGINAL

Remarks: TUBE "B" hydro plot adjusted by .41 to reflect sample size difference

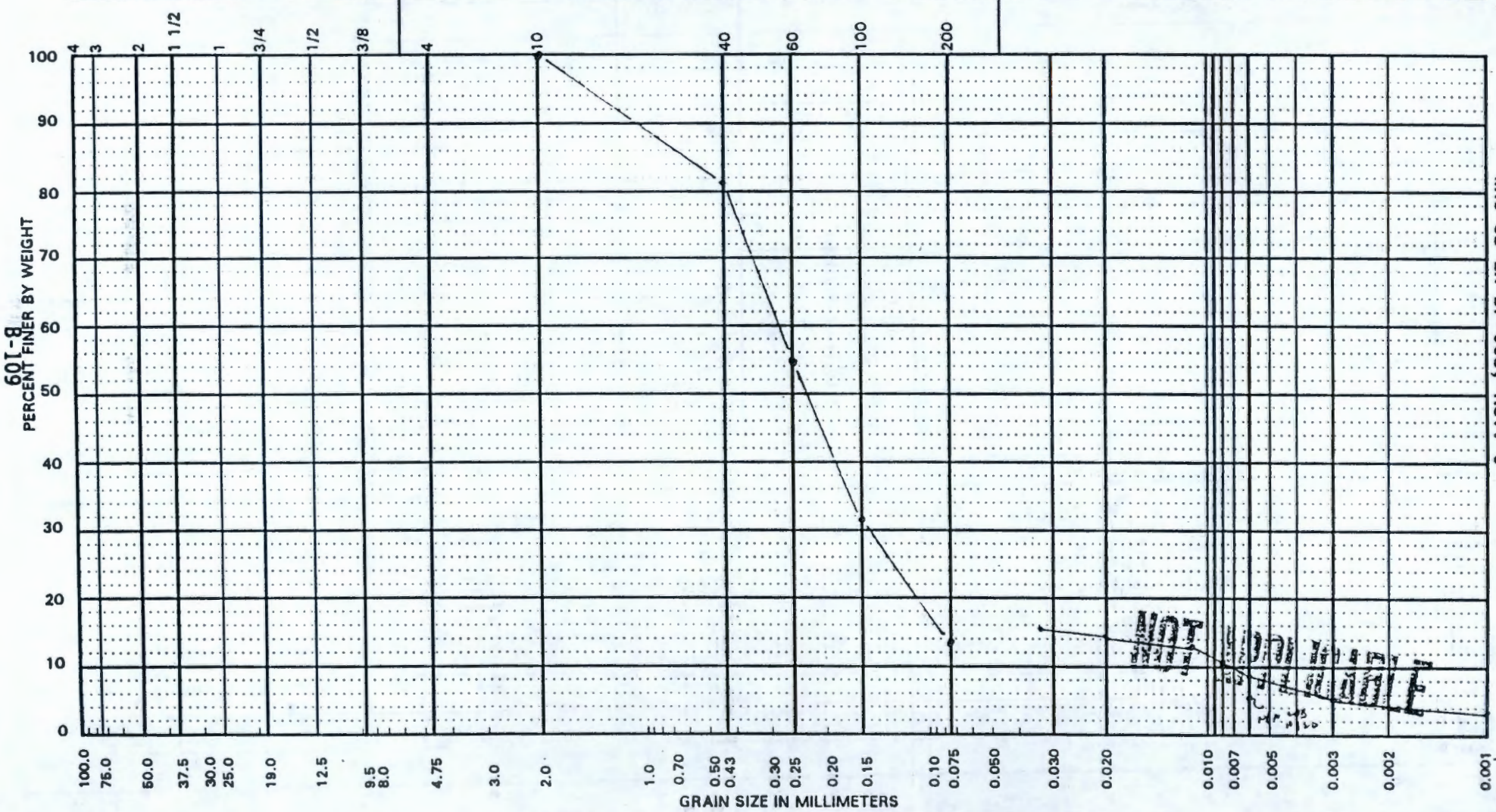
Tests Checked By R.T. McGuinness Date 11/20/92

GEL-07 GRAIN SIZE ANALYSIS PLOT

Sample No. 2-3085

Page 2 of 5

Remarks 699-41-35 102.7–104.7'



Plotted By L D Bruggeman Date 10/12/92

Plot Checked By R. M. Gutsche Date 11/20/92

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

GEOTECHNICAL ENGINEERING LABORATORY
GEL-09 HYDRAULIC CONDUCTIVITY DATA SHEET

Sample No. 2-3085

Page 3 of 5

Balance No. 3304 1-25-93 Permeameter No. 3

Test Initiated By LD Bruggeman Date 11/16/92 Procedure GEL 09/Rev 2/3-13-92 Sleeve Type: ☒ Metal ☐ Plastic

Specimen Diameter (D) 9.83 cm

Specimen Length (L) 15.24 cm

$A = \left(\frac{D}{2}\right)^2 \times 3.1415$

Specimen Area (A) 75.89 cm^2

Darcy's Law

$K = \frac{QL}{AH}$

K = Hydraulic Conductivity (cm/sec)

Q = Flow (cm^3/sec) = Vol. g/Time (sec)

A = Area (cm^2)

H = Hydraulic Head

L = Length (cm)

Date Year 92 (Mo/Day)	Run Time System (Hr:Min)	Run Time System (Hr:Min)	Run Time Time Change	Container Weight (± 0.1 g)	Container Tare (± 0.1 g)	Container Tare & Effluent (± 0.1 g)	Room Temp (°C)	Pressure Pore H_2O (cm)	Effluent Description	Operator Initials	Hydraulic Conductivity (cm/sec)	Calculated By
11/16 \ 11/17	07:03	14:53	31:50	11.05	154.4	165.45	23.8	1406.9	clear	LDB	1.38E-08	LDB
11/17 \ 11/18	14:55	09:07	18:12	6.01	154.4	160.41	23.3	↓	↓	↓	1.31E-08	↓
11/18	9:09	14:50	5:41	2.39	154.4	156.79	24.4	↓	↓	↓	1.67E-08	↓
11/18 \ 11/19	14:51	07:53	17:02	5.75	154.4	160.15	22.1	↓	↓	↓	1.34E-08	↓
					$\bar{K}$=1.4E-08							

Remarks 20 psi x factor (70.345) = 1406.9 cm head.

Test Checked By [signature] Date 10/92

WHC-SD-EN-DP-068, Rev. 0

B-110

8224448

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

WHC-SD-EN-DP-068, Rev. 0
GEOTECHNICAL ENGINEERING LABORATORY
GEL-10 SPECIFIC GRAVITY SOILS FINE/COARSE

Sample No. 2-3085

GEL-10 SPECIFIC GRAVITY OF SOILS

Date 10/9/92 Tested By L.D. Bruggeman

Balance: 3304 Calibration Due Date

	DETERMINATION NO.	1	2	3
W_o	Wt. Oven Dry, Soil, g	55.00	.	.
	Pycnometer No.	2555		
	Wt. Pycnometer, g	122.83	.	.
W_a	Wt. Pycnometer + Wetting Agent, g	381.38	.	.
W_b	Wt. Pycnometer + Wetting Agent + Soil, g	416.05	.	.
	Temperature, T_x at W_b, °C	24.0		
G_w	Specific Gravity of Wetting Agent at T_x	1.00	.	.
G_t	Specific Gravity of Soil at T_x	2.71	.	.
G_s	Specific Gravity of Soil at 20 °C	2.70	.	.

Wetting Agent D.I. H_2O

$$C_t = \frac{W_o}{W_o + W_a - W_b}$$

Remarks:

GEL-10 SPECIFIC GRAVITY COARSE AGGREGATES

Date Tested By:

Balance: 3312 Calibration Due Date

	DETERMINATION NO.	1	
	Size fraction		
P_1	Size fraction, wt. % total, g		
	Tare weight		
B	Weight sample (SSD), g	.	.
C	Weight sample in H_2O, g	.	.
A	Weight of oven dry sample, g	.	.

Bulk Specific Gravity, 23/23 °C = A/(B-C) = .

A = wt. oven dry sample in air, g
B = wt. SSD sample in air, g
C = wt. saturated sample in H_2O, g

Bulk Specific Gravity SSD, 23/23 °C = B/(B-C) = .

Apparent Specific Gravity, 23/23 °C = A/(A-C) = .

*Average Specific Gravity Values, 23/23 °C $\overline{G}$ = .

Remarks: NA

$$\overline{G} = \frac{1}{\frac{P_1 = \%\ \text{coarse}}{G_1 = \text{coarse sp.gr.} \times 100} + \frac{P_2 = \%\ \text{fines}}{G_2 = \text{fines sp. gr.} \times 100}}$$

$\overline{G}$ = Ave. Specific Gravity for all forms of Specific Gravity i.e., formula applicable to Bulk, Bulk SSD and Apparent Specific Gravity.

G_1, G_2 = appropriate Specific Gravity values for each size fraction depending on the type of Specific Gravity being averaged.

P_1, P_2 = wt. percentages of each size fraction present in the original sample.

*State type of Specific Gravity Reported i.e., either Bulk, Bulk SSD or Apparent.

Tests Checked By: R.T. McIntosh Date 11/20/92

BD-6000-798 (08/92)

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

GEOTECHNICAL ENGINEERING LABORATORY
GEL-14, GEL-16, GEL-19

Sample No. 2-3085

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GEL-14 SOIL MOISTURE

Balance: 3310 Calibration Due Date 10-25-92 Tested By LD Bruggeman

Thermometer: 0014 Calibration Due Date 9-21-93

Date	Wet Wt. + Can	Dry Wt. + Can	Tare Wt.	Moisture	Dry Wt. Soil	% Moisture	Calculated By
10/8/92	444.0	378.32	61.32	65.68	317.0	20.72	LD Bruggeman

Remarks: fine silt & clay.

GEL-16 BULK DENSITY-POROSITY

DETERMINATION NO.			1	
Pan No.:	Mold: ☐ Plastic ☒ Metal	Length:	15.24	
Sample Volume, V, cc			1156.56	
Wt. of Sample & Mold, g			3063.9	
Wt. of Mold, g			744.7	
Wet Wt. of Sample, g			2319.20	
Wet Density of Sample, γm, g/cc			2.01	
Water Content % Dry Weight			20.72	
Dry Density, g/cc γd			1.66	
Dry weight of Sample, g, Ws			1921.14	
*Void Ratio, e			0.6254	
**Porosity, n, %			38.48	

Tested By LD Bruggeman

$$Ws = \frac{\text{Wet Wt.}}{1 + \%\ \text{Dry Wt.}}$$

$$\text{*Void Ratio, } e = \frac{\text{Avg. Sp. Gr.} \times \text{Vol.}}{Ws} - 1$$

$$\text{**Porosity, } n, \% = \left(\frac{e}{1+e}\right) 100$$

Remarks:

GEL-19 CALCIUM CARBONATE

Vessel No. 5650 Tested By LD Bruggeman

Balance No. 3304 Date Due 10-25-92

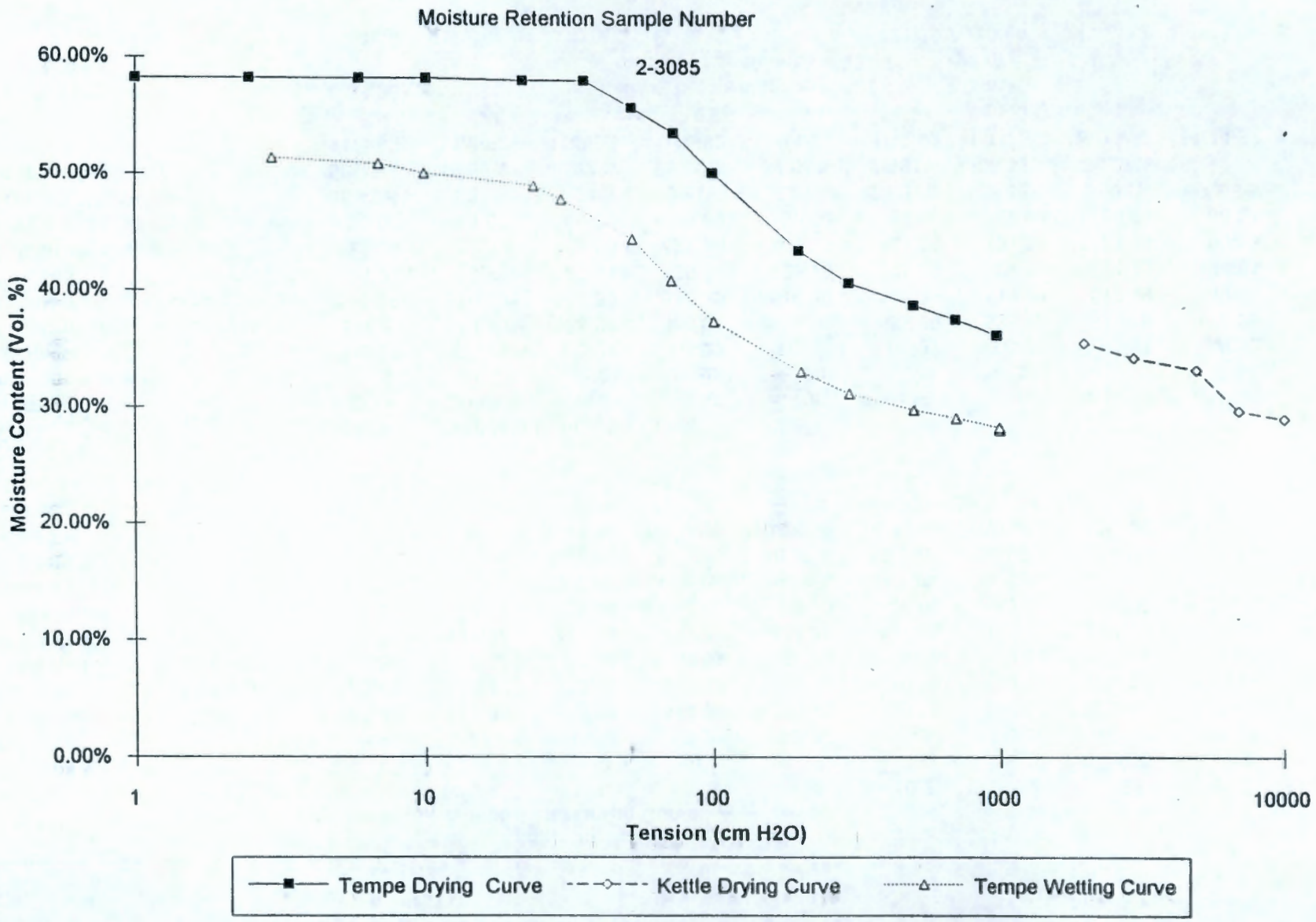
Sample Weight 8.0 (g)

Sample Pressure 1.3 (psi) $\%CaCO_3$ 2.5 Per Gram

Remarks:

Tests Checked By: R. T. M. Stitsel Date 11/20/92

BD-6000-797 (04/92)


Moisture Retention Sample Number
2-3085
60.00%
50.00%
40.00%
30.00%
20.00%
10.00%
0.00%
Moisture Content (Vol. %)
1
10
100
1000
10000
Tension (cm H2O)
Tempe Drying Curve
Kettle Drying Curve
Tempe Wetting Curve

	2-3085
Contact	C. DELANEY
Well No.	699-41-35
Operable Unit	W-049H/LERF
HEIS No.	NA
Depth	102.7-104.7

TEMPE CELLS	Sample #	2-3085 1 Bar Drying Curve								
tension in cm	N/A	N/A	0	2.5	6	10.2	22	36	52.5	73.5
error in tension value +/-			0	0.5	1	1	2	3	3	4
container number	MC-2	TC-27	TC-27	TC-27	TC-27	TC-27	TC-27	TC-27	TC-27	TC-27
weight of container/ring,+wet sample	168.72	512.86	549.28	549.90	550.12	550.15	550.02	550.03	548.45	546.96
weight of container/ring,+ dry sample	165.84	510.47	510.39	510.39	510.39	510.39	510.39	510.39	510.39	510.39
weight of moisture	2.88	2.39	38.89	39.51	39.73	39.76	39.63	39.64	38.06	36.57
weight of container and ring	60.83	421.02	421.39	421.39	421.39	421.39	421.39	421.39	421.39	421.39
weight of dry sample	107.89	89.45	89.00	89.00	89.00	89.00	89.00	89.00	89.00	89.00
moisture content % by wt.	2.67%		43.69%	44.39%	44.64%	44.67%	44.52%	44.54%	42.76%	41.09%
moisture content % by vol.			56.97%	57.88%	58.20%	58.24%	58.05%	58.07%	55.75%	53.57%
date measured			10/23/92	10/27/92	10/28/92	10/29/92	10/30/92	11/2/92	11/3/92	11/4/92
temperature deg. C			26	25	24	24	24	23	24	23
volume of brass ring, cm^3	68.26									

TEMPE CELLS	Sample #	2-3085 1 Bar Drying Curve								
tension in cm	100.5	200.3	300	500	700	850	980	N/A	N/A	
error in tension value +/-	5	5	20	20	20	20	20			
container number	TC-27	TC-27	TC-27	TC-27	TC-27	TC-27	TC-27	TC-27	MC-2	
weight of container/ring,+wet sample	544.6	540.10	538.20	536.92	536.09	535.59	535.18	535.15	174.35	
weight of container/ring,+ dry sample	510.39	510.39	510.39	510.39	510.39	510.39	510.39	510.39	149.74	
weight of moisture	34.21	29.71	27.81	26.53	25.70	25.20	24.79	24.76	24.61	
weight of container and ring	421.39	421.39	421.39	421.39	421.39	421.39	421.39	421.39	60.83	
weight of dry sample	89.00	89.00	89.00	89.00	89.00	89.00	89.00	89.00	88.91	
moisture content % by wt.	38.43%	33.38%	31.24%	29.81%	28.87%	28.31%	27.85%	27.82%	27.68%	
moisture content % by vol.	50.11%	43.52%	40.74%	38.86%	37.65%	36.91%	36.31%	36.27%		
date measured	11/5/92	11/6/92	11/9/92	11/10/92	11/11/92	11/12/92	11/13/92	11/13/92	11/14/92	
temperature deg. C	24	24	23	25	24	24	23			
volume of brass ring, cm^3	68.26									

Cell wt. before cleanup = 421.41 grams

Cell wt. after cleanup = 421.75 grams

BULK DENSITY = 1.30

421.39 Average of all 3

TEMPE CELLS	Sample #	2-3085 1 Bar Wetting Curve							
tension in cm	N/A	N/A	1000	1000	1000	1000	1000	1000	1000
error in tension value +/-			20	20	20	20	20	20	20
container number	MC-2	TC-2	TC-2	TC-2	TC-2	TC-2	TC-2	TC-2	TC-2
weight of container/ring,+wet sample	168.72	520.00	528.60	529.81	531.59	532.92	534.00	535.89	536.20
weight of container/ring,+ dry sample	165.84	517.67	517.18	517.18	517.18	517.18	517.18	517.18	517.18
weight of moisture	2.88	2.33	11.42	12.63	14.41	15.74	16.82	18.71	19.02
weight of container and ring	60.83	430.33	430.48	430.48	430.48	430.48	430.48	430.48	430.48
weight of dry sample	107.89	87.34	86.70	86.70	86.70	86.70	86.70	86.70	86.70
moisture content %	2.67%		13.18%	14.57%	16.62%	18.16%	19.40%	21.58%	21.94%
moisture content % by vol.			16.74%	18.51%	21.12%	23.06%	24.65%	27.41%	27.87%
date measured			10/26/92	10/27/92	10/28/92	10/29/92	10/30/92	11/2/92	11/3/92
temperature deg. C			23	25	24	23	24	23	24
volume of brass ring, cm^3	68.26								

TEMPE CELLS	Sample #	2-3085 1 Bar Wetting Curve							
tension in cm	1000	1000	1000	700	500	300	203.2	101	72
error in tension value +/-	20	20	20	20	20	20	5	2	2
container number	TC-2	TC-2	TC-2	TC-2	TC-2	TC-2	TC-2	TC-2	TC-2
weight of container/ring,+wet sample	536.39	536.41	536.53	537.11	537.58	538.53	539.83	542.73	545.11
weight of container/ring,+ dry sample	517.18	517.18	517.18	517.18	517.18	517.18	517.18	517.18	517.18
weight of moisture	19.21	19.23	19.35	19.93	20.40	21.35	22.65	25.55	27.93
weight of container and ring	430.48	430.48	430.48	430.48	430.48	430.48	430.48	430.48	430.48
weight of dry sample	86.70	86.70	86.70	86.70	86.70	86.70	86.70	86.70	86.70
moisture content %	22.16%	22.18%	22.32%	22.99%	23.53%	24.63%	26.13%	29.47%	32.22%
moisture content % by vol.	28.15%	28.18%	28.35%	29.20%	29.89%	31.28%	33.19%	37.44%	40.92%
date measured	11/4/92	11/5/92	11/6/92	11/9/92	11/10/92	11/11/92	11/12/92	11/13/92	11/16/92
temperature deg. C	23	23	23	23	24	24	23	23	24
volume of brass ring, cm^3	68.26								

Cell wt. before cleanup = 430.80 grams

Cell wt. after cleanup = 430.30 grams

TEMPE CELLS	Sample #	2-3085 1 Bar Wetting Curve					430.48 Average of all three		
tension in cm	52.8	30	24	10	7	3	3	N/A	
error in tension value +/-	3	2	2	1	0.5	0.5	0.5		
container number	TC-2	TC-2	TC-2	TC-2	TC-2	TC-2	TC-2	SML-2	
weight of container/ring,+wet sample	547.51	549.84	550.63	551.36	551.90	552.10	552.23	184.33	
weight of container/ring,+ dry sample	517.18	517.18	517.18	517.18	517.18	517.18	517.18	149.50	
weight of moisture	30.33	32.66	33.45	34.18	34.72	34.92	35.05	34.83	
weight of container and ring	430.48	430.48	430.48	430.48	430.48	430.48	430.48	63.11	
weight of dry sample	86.70	86.70	86.70	86.70	86.70	86.70	86.70	86.39	
moisture content %	34.99%	37.67%	38.59%	39.43%	40.05%	40.28%	40.43%	40.32%	
moisture content % by vol.	44.44%	47.85%	49.01%	50.08%	50.87%	51.16%	51.35%		
date measured	11/17/92	11/18/92	11/19/92	11/20/92	11/23/92	11/24/92	11/25/92	12/1/92	
temperature deg. C	22	23	23	21	24	22	22	25	
volume of brass ring, cm^3	68.26		BULK DENSITY =		1.27				

KETTLES

Sample #	2-3085	15 Bar Drying Curve							
tension in cm	500	500	700	700	1000	1000	2000	2000	3000	3000
error in tension value +/-	20	20	20	20	20	20	20	20	20	20
container number	BA15	BA16	BA15	BA16	BA15	BA16	BB15	BB16	BB15	BB16
weight of container/ring,+wet sample	54.60	54.37	54.57	54.20	54.25	53.84	52.24	52.21	51.90	51.93
weight of container/ring,+ dry sample	48.00	47.79	48.00	47.76	47.85	47.56	47.03	47.15	46.98	47.08
weight of moisture	6.60	6.58	6.57	6.44	6.40	6.28	5.21	5.06	4.92	4.85
weight of container and ring	27.71	27.63	27.71	27.63	27.71	27.63	28.05	28.53	28.05	28.53
weight of dry sample	20.29	20.16	20.29	20.13	20.14	19.93	18.98	18.62	18.93	18.55
moisture content %	32.53%	32.64%	32.38%	31.99%	31.78%	31.51%	27.45%	27.18%	25.99%	26.15%
date measured	11/20/92	11/20/92	11/24/92	11/24/92	12/3/92	12/3/92	11/20/92	11/20/92	11/24/92	11/24/92
temperature deg. C	22	22	25	25	27	27	22	22	25	25

KETTLES

tension in cm	3000	3000	5000	5000	7000	7000	10000	10000
error in tension value +/-	20	20	100	100	100	100	100	100
container number	BB15	BB16	BB15	BB16	BA13	BA14	BA13	BA14
weight of container/ring,+wet sample	51.87	51.90	53.07	53.37	51.82	50.44	51.48	50.18
weight of container/ring,+ dry sample	46.84	46.99	47.96	48.32	47.81	46.31	47.63	46.15
weight of moisture	5.03	4.91	5.11	5.05	4.01	4.13	3.85	4.03
weight of container and ring	28.05	28.53	28.05	28.53	30.42	28.05	30.42	28.05
weight of dry sample	18.79	18.46	19.91	19.79	17.39	18.26	17.21	18.10
moisture content %	26.77%	26.60%	25.67%	25.52%	23.06%	22.62%	22.37%	22.27%
date measured	12/3/92	12/3/92	12/7/92	12/7/92	11/20/92	11/20/92	11/24/92	11/24/92
temperature deg. C	27	27	24	24	22	22	25	25

P31 of 48

POINTS SELECTED FOR PLOTTING — Sample # 2-3085

container number	TC-27	TC-27	TC-27	TC-27	TC-27	TC-27	TC-27	TC-27	TC-27	TC-27	TC-27
Tension in cm	1	2.5	6	10.2	22	36	52.5	73.5	100.5	200.3	300
Tempe Drying Curve	58.24%	58.24%	58.24%	58.24%	58.05%	58.07%	55.75%	53.57%	50.11%	43.52%	40.74%
Kettle Drying Curve											
Tempe Wetting Curve											
date measured	10/23/92	10/27/92	10/28/92	10/29/92	10/30/92	11/2/92	11/3/92	11/4/92	11/5/92	11/6/92	11/9/92

container number	TC-27	TC-27	TC-27	TC-27	BB15	BB15	BB15	BA13	BA13	TC-2	TC-2
tension in cm	500	700	700	980	2000	3000	5000	7000	10000	1000	700
Tempe Drying Curve	38.86%	37.65%	37.65%	36.31%							
Kettle Drying Curve					35.61%	34.39%	33.37%	29.78%	29.10%		
Tempe Wetting Curve										28.35%	29.20%
date measured	11/10/92	11/11/92	11/11/92	11/13/92	11/20/92	11/24/92	12/7/92	11/20/92	11/24/92	11/6/92	11/9/92

container number	TC-2	TC-2	TC-2	TC-2	TC-2	TC-2	TC-2	TC-2	TC-2	TC-2	TC-2
tension in cm	500	300	203.2	101	72	52.8	30	24	10	7	3
Tempe Drying Curve											
Kettle Drying Curve											
Tempe Wetting Curve	29.89%	31.28%	33.19%	37.44%	40.92%	44.44%	47.85%	49.01%	50.08%	50.87%	51.35%
date measured	11/10/92	11/11/92	11/12/92	11/13/92	11/16/92	11/17/92	11/18/92	11/19/92	11/20/92	11/23/92	11/25/92

Kettle data points were converted from gravimetric
to volumetric by multiplying by Bulk Density
Bulk Density = 1.30

MOISTURE RETENTION DATA SHEET

SAMPLE NO. 2-3085 Page ____ of ____

Tested By:	R. M. Shailer	Date	10-23-92
Procedure No:	17	Rev. 0	Date Issued 2/25/90
Test Plan No:	N/A	Rev. N/A	Date Issued
Pressure Cell No.	TC-27	Calibration Due Date	N/A
Gauge:	GEL - 2032	Calibration Due Date	2-28-93
Thermometer:	GEL - 12	Calibration Due Date	N/A
Balance:	GEL - 3307	Calibration Due Date	~~9/15/92~~ RR 10-23-92 3-15-93
Gauge:	GEL -	Calibration Due Date	
:	GEL -	Calibration Due Date	

(1) Tension units = cm	NA	NA	0	2.5	6.0	10.2	22	36	52.5	73.5	100.5	200.3	300
(2) Container/Ring Number	MC-2	TC-27	TC-27	TC-27	TC-27	TC-27	TC-27	TC-27	TC-27	TC-27	TC-27	TC-27	TC-27
(3) Wt. of Container and Wet Sample, g	168.72	512.86	549.28	549.90	550.12	550.15	550.02	550.03	548.45	546.96	544.60	540.10	538.20
(4) Wt. of Container and Dry Sample, g	165.84												
(5) Container Tare Wt., g	60.83	421.02											
(6) Temperature			26	25	24	24	24	23	24	23	24	24	23
(7) Date			10-23-92	10-27-92	10-28-92	10-29-92	10-30-92	11-2-92	11-3-92	11-4-92	11-5-92	11-6-92	11-9-92

(1) Tension units = cm	500	700	850	980	NA	NA							
(2) Container/Ring Number	TC-27	TC-27	TC-27	TC-27	TC-27	MC-2							
(3) Wt. of Container and Wet Sample, g	536.92	536.09	535.59	535.18	535.15	174.35							
(4) Wt. of Container and Dry Sample, g						149.74							
(5) Container Tare Wt., g					421.41*	60.83							
(6) Temperature	25	24	24	23									
(7) Date	11-10-92	11-11-92	11-12-92	11-13-92									

REMARKS W-049H

Tempe Drying Curve (0 to 1 Bar) * 421.75 cleaned up

All data are acurately and completely recorded. The test operator was trained and used calibrated instruments

Checked By: J F Relyea Date: 12-11-92

MOISTURE RETENTION DATA SHEET

SAMPLE NO. 2-3085 Page ____ of ____

Tested By:	R. M. Shailer	Date	10-23-92
Procedure No:	17	Rev.	0 Date Issued 2/25/90
Test Plan No:	N/A	Rev.	N/A Date Issued
Pressure Cell No.	TC-2	Calibration Due Date	N/A
Gauge:	GEL - 2033	Calibration Due Date	2-28-93
Thermometer:	GEL - 12	Calibration Due Date	N/A
Balance:	GEL - 3307	Calibration Due Date	9/15/92 RMS 10-23-92 3-15-93
Gauge:	GEL -	Calibration Due Date	
:	GEL -	Calibration Due Date	

(1) Tension units = cm	NA	NA	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	700
(2) Container/Ring Number	TC-2	MC-2	TC-2	TC-2	TC-2	TC-2	TC-2	TC-2	TC-2	TC-2	TC-2	TC-2	TC-2
(3) Wt. of Container and Wet Sample, g	520.00	168.72	528.60	529.81	531.59	532.92	534.00	535.89	536.20	536.39	536.41	536.53	537.11
(4) Wt. of Container and Dry Sample, g		165.84											
(5) Container Tare Wt., g	430.33	60.83											
(6) Temperature			23	25	24	23	24	23	24	23	23	23	23
(7) Date			10-26-92	10-27-92	10-28-92	10-29-92	10-30-92	11-2-92	11-3-92	11-4-92	11-5-92	11-6-92	11-9-92

(1) Tension units = cm	500	300	203.2	101	72	52.8	30	24	10.0	7	3	3	NA
(2) Container/Ring Number	TC-2	TC-2	TC-2	TC-2	TC-2	TC-2	TC-2	TC-2	TC-2	TC-2	TC-2	TC-2	SMC-2
(3) Wt. of Container and Wet Sample, g	537.58	538.53	539.83	542.73	545.11	547.51	549.84	550.63	551.36	551.90	552.10	552.23	184.33
(4) Wt. of Container and Dry Sample, g													149.50
(5) Container Tare Wt., g												430.80	63.11
(6) Temperature	24	24	23	23	24	22	23	23	21	24	22	22	25
(7) Date	11-10-92	11-11-92	11-12-92	11-13-92	11-16-92	11-17-92	11-18-92	11-19-92	11-20-92	11-23-92	11-24-92	11-25-92	12-1-92

REMARKS W-049H

Tempe Wetting Curve (0 to 1 Bar) * 430.30 cleaned up

All data are acurately and completely recorded. The test operator was trained and used calibrated instruments

Checked By: J. F. Relyea Date: 12-11-92

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WHC-SD-EN-DP-068, Rev. 0

MOISTURE RETENTION DATA SHEET

SAMPLE NO. 2-3085 Page 1 of 3

Tested By:	R.M. SHAILER	Date	11/16/92	
Procedure No:	17	Rev.	0	Date Issu. 2/25/90
Test Plan No:	N/A	Rev.	N/A	Date Issu N/A
Pressure Cell No.	GEL - KETTLE PK05-01	Calibration Due Date	N/A	
Gauge:	GEL - 2051	Calibration Due Date	7/2/93	
Thermometer:	GEL - 12	Calibration Due Date	N/A	
Balance:	GEL - 3307	Calibration Due Date	3/15/93	
Gauge:	GEL -	Calibration Due Date		
:	GEL -	Calibration Due Date		

	.5	.5	.5	.5	.7	.7	1	1					
(1) Tension units = Bar			0.5	0.5	0.70	0.70	1.0	1.0					
(2) Container/Ring Number	2-5 A15	2-6 A16	2-5 BA15	2-6 BA16	2-5 BA15	2-6 BA16	2-5 BA15	2-6 BA16					
(3) Wt. of Container and Wet Sample, g		97	54.60	54.37	54.57	54.20	54.25	53.84					
(4) Wt. of Container and Dry Sample, g	97.R 11-20		48.00	47.79	48.00	47.76	47.85	47.56					
(5) Container Tare Wt., g	15.53	15.43	27.71	27.63	27.71	27.63	27.71	27.63					
(6) Temperature			22	22	25	25	27	27					
(7) Date			11-20-92	11-20-92	11-24-92	11-24-92	12-3-92	12-3-92					

(1) Tension units = Bar													
(2) Container/Ring Number													
(3) Wt. of Container and Wet Sample, g													
(4) Wt. of Container and Dry Sample, g													
(5) Container Tare Wt., g													
(6) Temperature													
(7) Date													

REMARKS

KETTLE DRYING CURVE (0.5 to 1.0 BARs)

W-049H

All data are acurately and completely recorded. The test operator was trained and used calibrated instruments

Checked By: [signature] Date: 12-11-92

B-120

WHC-SD-EN-DP-068, Rev. 0

MOISTURE RETENTIO_ _ATA SHEET

SAMPLE NO. 2-3085 Page 2 of 3

Tested By:	R.M. SHAILER	Date 11/16/92		
Procedure No:	17	Rev. 0	Date Issu	2/25/90
Test Plan No:	N/A	Rev. N/A	Date Issu	N/A
Pressure Cell No.	GEL - KETTLE PK05-02	Calibration Due Date		
Gauge:	GEL - 2052	Calibration Due Date	7/2/93	
Thermometer:	GEL - 12	Calibration Due Date	N/A	
Balance:	GEL - 3307	Calibration Due Date	3/15/93	
Gauge:	GEL - 2034	Calibration Due Date	4/3/93	
:	GEL -	Calibration Due Date		

	2	2	2	2	3	3	3	3	5	5			
(1) Tension units = Bar			2.0	2.0	3.0	3.0	3.0	3.0	5.0	5.0			
(2) Container/Ring Number	4-5 B15	4-6 B16	4-5 BB15	4-6 BB16	4-5 BB15	4-6 BB16	4-5 BB15	4-6 BB16	2-5 BB15	2-6 BB16			
(3) Wt. of Container and Wet Sample, g			52.24	52.21	51.90	51.93	51.87	51.90	53.07	53.37			
(4) Wt. of Container and Dry Sample, g	JTR	11-20-92	47.03	47.15	46.98	47.08	46.84	46.99	47.96	48.32			
(5) Container Tare Wt., g	15.22	15.58	28.05	28.53	28.05	28.53	28.05	28.53	28.05	28.53			
(6) Temperature			22	22	25	25	27	27	24	24			
(7) Date			11-20-92	11-20-92	11-24-92	11-24-92	12-3-92	12-3-92	12-7-92	12-7-92			

(1) Tension units = Bar													
(2) Container/Ring Number													
(3) Wt. of Container and Wet Sample, g													
(4) Wt. of Container and Dry Sample, g													
(5) Container Tare Wt., g													
(6) Temperature													
(7) Date													

REMARKS

KETTLE DRYING CURVE (2.0 to 5.0 BARs)

All data are acurately and completely recorded. The test operator was trained and used calibrated instruments

Checked By: J. A. Belyea Date: 12-11-91

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MOISTURE RETENTION DATA SHEET

SAMPLE NO. 2-3085

Tested By:	R.M. SHAILER	Date	11/16/92	
Procedure No:	17	Rev.	0	Date Issu 2/25/90
Test Plan No:	N/A	Rev.	N/A	Date Issu N/A
Pressure Cell No.	GEL - KETTLE PK15-02	Calibration Due Date		
Gauge:	GEL - 2035	Calibration Due Date	2/28/93	
Thermometer:	GEL - 12	Calibration Due Date	N/A	
Balance:	GEL - 3307	Calibration Due Date	3/15/93	
Gauge:	GEL -	Calibration Due Date		
:	GEL -	Calibration Due Date		

	7	7	7	7	10	10							
(1) Tension units = Bar			7.0	7.0	10	10							
(2) Container/Ring Number	6-3 C13	6-4 C14	6-3 BA13	6-4 BA14	6-3 BA13	6-4 BA14							
(3) Wt. of Container and Wet Sample, g			51.82	50.44	51.48	50.18							
(4) Wt. of Container and Dry Sample, g	JR	11-20-92	47.81	46.31	47.63	46.15							
(5) Container Tare Wt., g	15.31	15.30	30.42	28.05	30.42	28.05							
(6) Temperature			22	22	25	25							
(7) Date			11-20-92	11-20-92	11-24-92	11-24-92							

(1) Tension units = Bar													
(2) Container/Ring Number													
(3) Wt. of Container and Wet Sample, g													
(4) Wt. of Container and Dry Sample, g													
(5) Container Tare Wt., g													
(6) Temperature													
(7) Date													

REMARKS

KETTLE DRYING CURVE (7.0 to 15.0 BARs)

All data are acurately and completely recorded. The test operator was trained and used calibrated instruments

Checked By: [illegible] Date: 12-11-92

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TEST REQUEST

OPERABLE UNIT	W-049H	WELL NO	699-41-35	DEPTH	146.1-147.6
SAMPLE/SPECIMEN NO	2-3086	COST CODE/WORK ORDER NUMBER			A6CDR
REQUESTED BY: ORG	82436	PERSON	C. DELANEY	PHONE	6-9235
********HEIS********	NA	MSIN	H4-56	DATE	09/21/92

TEST REQUESTED	# OF SAMPLES	TEST LAB INFORMATION
Sieve/Hydrometer	2	GEL-07 / Rev. 2 / 3-13-92
Hydraulic Conductivity	2	GEL-09 / Rev. 2 / 3-13-92
Specific Gravity	2	GEL-10 / Rev. 1 / 12-1-89
Moisture Content	T	GEL-14 / Rev. 0 / 3-13-92
Bulk Density/Porosity	2	GEL-16 / Rev. 1 / 3-13-92
Calcium Carbonate	T	GEL-19 / Rev. 0 / 9-7-90

REMARKS: Hydrometer analysis - only if applicable (25% or more passed #200).

ARCHIVE YES ☒ NO ☒

JWM

RADIATION RELEASE

Bldg. 699-41-35 Expiration Date 09/22/92

Released By TEC
Health Physics

Remarks 146.10-146.60

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-~~35~~ 41-35 Expiration Date 09/22/92

Released By TEC
Health Physics

Remarks 2-3086 145.60-147.60

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699 41-35 Expiration Date 09/22/92

Released By TEC
Health Physics

Remarks 146.60-147.10

54-3000-022 (01/89)

RECEIVED BY J.C. McGuffey

DATE 09/21/92

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

WHC-SD-EN-DP-068, Rev. 0

GEOTECHNICAL ENGINEERING LABORATORY
GEL-07 SIEVE AND HYDROMETER ANALYSIS

Sample No. 2-3086

GEL-07 SIEVE ANALYSIS

Date 10/12/92 Calibration Due Date 10-25-92 Balance: 3310

Sample Description fine brown silt & clay. Sieve Time 10 (min)

Reduced By: ☒ Splitting ☐ Quartering ☐ Stockpile

Sieve Size	Sample Weight	Cumulative Wt. Retained	Cumulative % Retained	Cumulative % Passed	Tested By
10	156.4	0	0	100	LD Bruggen
40	↓	15.0	9.6	90.4	
60	↓	48.0	21.1	69.3	
100	↓	79.2	19.9	49.4	
200	↓	112.9	21.5	27.8	

Remarks: brought to (-10) with mortar & pestal, then washed.

GEL-07 HYDROMETER ANALYSIS

Date 10/12/92

Balance: 3310 Calibration Due Date 10-25-92

Thermometer: 0018 Calibration Due Date 9-17-93

Hydrometer: 1007 Calibration Due Date 1-29-93

WEIGHT OF SAMPLE

Wt. Container + Soil 124.5 (g)

Wt. Container 59.9 (g)

Wt. Soil 64.6 (g)

Specific Gravity of Sample 2.65

% Passing No. 10 Sieve 100 %

A = 1 W = 64.6 K = .01317

COMPOSITE CORRECTION

1st Reading 6 at 22.9 °C

2nd Reading 7 at 22.8 °C

Date	Clock Time	Elapsed Time (min)	Hydrometer Reading	Hydrometer with Composite Correction	Temperature (°C)	Soil in Suspension (%)	Particle Diameter (mm)	Tested By
10/12/92	10:11	2.0	24	18	23.1	27.86	0.033	LD Bruggen
	10:14	5.0	22	16	23.1	24.77	0.021	
	10:24	15.0	20	14	23.2	21.67	0.012	
	10:39	30.0	19	13	23.2	20.12	0.009	
	11:09	60.0	17	11	23.4	17.03	0.006	
	14:19	250.0	13	7	24.4	10.84	0.003	
10/13/92	10:09	1440.0	12	5	22.7	9.29	0.001	

Remarks: TUBE "C"

Tests Checked By R.T. McPhetersen Date 11/23/92

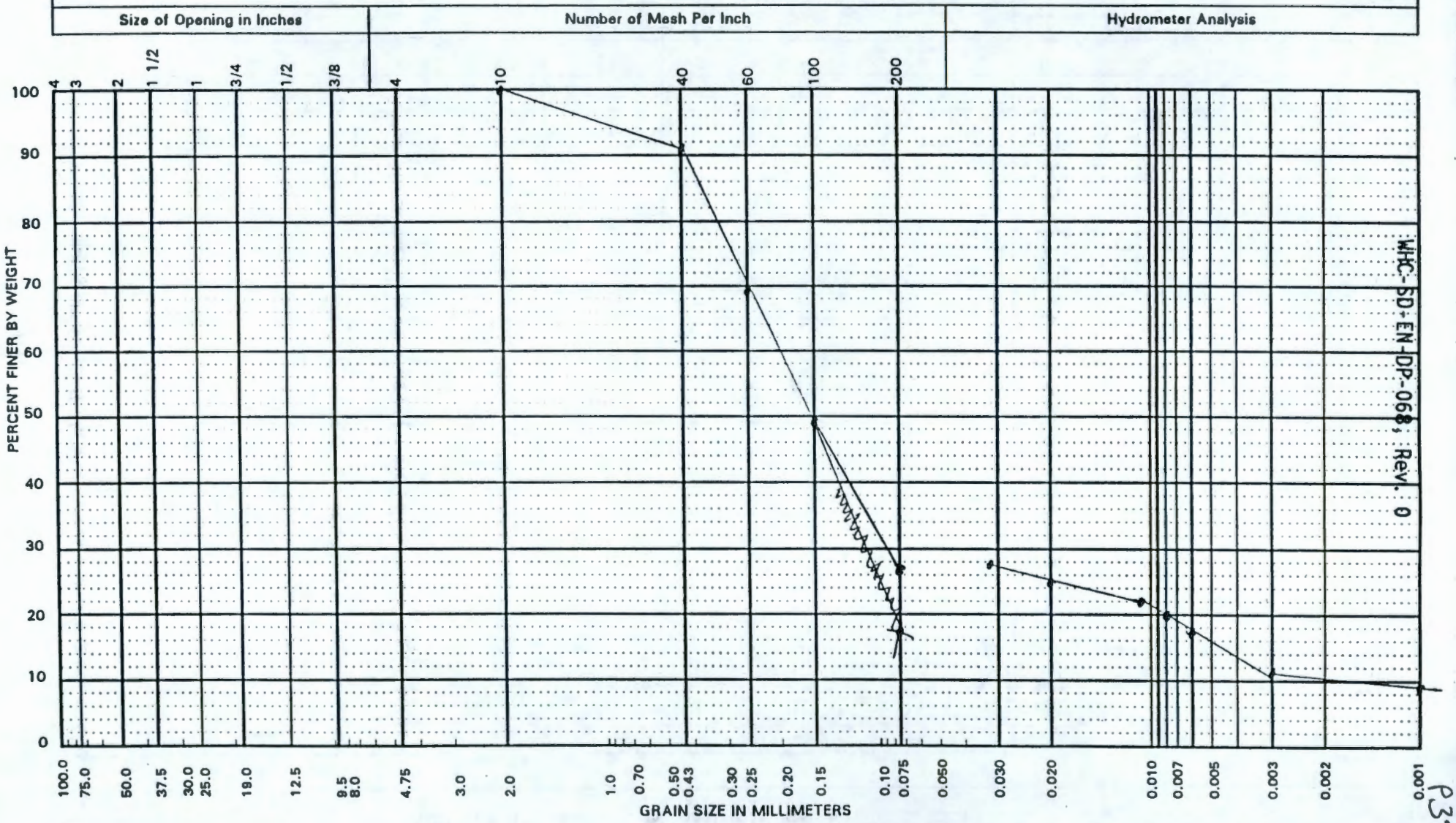
BD-6000-796 (04/92)

GEL-07 GRAIN SIZE ANALYSIS PLOT

Sample I 2-3086

Page 2 of 5

Remarks 699 - 41-35



Plotted By LD B Date 10/12/92

Plot Checked By [signature] Date 11/23/92

BD-6000-799 (04/92)

WHC-SD-EN-DP-068, Rev. 0

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

GEOTECHNICAL ENGINEERING LABORATORY
GEL-09 HYDRAULIC CONDUCTIVITY DATA SHEET

Sample No. Z-3086

Balance No. 3304 1-25-93 Permeameter No. 1

Test Initiated By L.D. Bruggeman Date 11/16/92 Procedure GEL 09/Rev 2/3-13-92 Sleeve Type: ☐ Metal ☒ Plastic

Specimen Diameter (D) 9.53 cm

Specimen Length (L) 15.24 cm

$$A = \left(\frac{D}{2}\right)^2 \times 3.1415$$

Specimen Area (A) 71.33 cm^2

Darcy's Law

$$K = \frac{QL}{AH}$$

K = Hydraulic Conductivity (cm/sec)
Q = Flow (cm^3/sec) = Vol. g/Time (sec)
A = Area (cm^2)
H = Hydraulic Head
L = Length (cm)

Date Year 92 (Mo/Day)	Run Time System (Hr:Min)	Run Time System (Hr:Min)	Run Time Time Change	Container Weight (± 0.1 g)	Container Tare (± 0.1 g)	Container Tare & Effluent (± 0.1 g)	Room Temp (°C)	Pressure Pore H_2O (cm)	Effluent Description	Operator Initials	Hydraulic Conductivity (cm/sec)	Calculated By
11/16 \ 11/17	07:03	14:59	31:56	4.22	150.4	154.62	23.8	1406.9	clear	LDB	5.57E-09	LDB
11/17 \ 11/18	15:00	9:14	18:14	2.78	150.4	153.18	22.3	↓	↓	↓	6.43E-09	↓
11/18	9:15	14:54	5:39	1.53	150.4	151.93	24.4	↓	↓	↓	1.14E-08	↓
11/18 \ 11/19	14:55	07:57	17:02	2.64	150.4	153.04	22.1	↓	↓	↓	6.54E-09	↓
					$\bar{K}$=7.5E-09							

Remarks 20 psi x 70.345 factor = 1406.9 cm head

Test Checked By R.T. McCulloch Date 1/3/92

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WHC-SD-EN-DP-068, Rev. 0

GEL 07 ☑ GEL 09 ☑ GEL 10 ☑ GEL 14 ☑	GEL 16 ☑ GEL 17 ☐ GEL 19 ☑ GEL ☐	WHC-SD-EN-DP-068, Rev. 0 GEOTECHNICAL ENGINEERING LABORATORY GEL-10 SPECIFIC GRAVITY SOILS FINE/COARSE

Sample No. 2-3086

Page 4 of 5

GEL-10 SPECIFIC GRAVITY OF SOILS

Date 10/12/92 Tested By W.D. Bruggeman

Balance: 3304 Calibration Due Date 10-25-92

	DETERMINATION NO.	1	2	3
W_o	Wt. Oven Dry, Soil, g	55.0	.	.
	Pycnometer No.	2555		
	Wt. Pycnometer, g	122.83	.	.
W_a	Wt. Pycnometer + Wetting Agent, g	381.38	.	.
W_b	Wt. Pycnometer + Wetting Agent + Soil, g	415.62	.	.
	Temperature, T_x at W_b, °C	24.4		
G_w	Specific Gravity of Wetting Agent at T_x	1.00	.	.
G_t	Specific Gravity of Soil at T_x	2.65	.	.
G_s	Specific Gravity of Soil at 20 °C	2.65	.	.

Wetting Agent D.I. H_2O

$$C_t = \frac{W_o}{W_o + W_a - W_b}$$

Remarks:

GEL-10 SPECIFIC GRAVITY COARSE AGGREGATES

Date Tested By:

Balance: 3312 Calibration Due Date

	DETERMINATION NO.	1	
	Size fraction		
P_1	Size fraction, wt. % total, g		
	Tare weight		
B	Weight sample (SSD), g	.	.
C	Weight sample in H_2O, g	.	.
A	Weight of oven dry sample, g	.	.

Bulk Specific Gravity, 23/23 °C = A/(B-C) = .

A = wt. oven dry sample in air, g
B = wt. SSD sample in air, g
C = wt. saturated sample in H_2O, g

Bulk Specific Gravity SSD, 23/23 °C = B/(B-C) = .

Apparent Specific Gravity, 23/23 °C = A/(A-C) = .

*Average Specific Gravity Values, 23/23 °C $\overline{G}$ = .

Remarks: NA

$$\overline{G} = \frac{1}{\frac{P_1 = \%\ \text{coarse}}{G_1 = \text{coarse sp.gr.} \times 100} + \frac{P_2 = \%\ \text{fines}}{G_2 = \text{fines sp. gr.} \times 100}}$$

$\overline{G}$ = Ave. Specific Gravity for all forms of Specific Gravity i.e., formula applicable to Bulk, Bulk SSD and Apparent Specific Gravity.

G_1, G_2 = appropriate Specific Gravity values for each size fraction depending on the type of Specific Gravity being averaged.

P_1, P_2 = wt. percentages of each size fraction present in the original sample.

*State type of Specific Gravity Reported i.e., either Bulk, Bulk SSD or Apparent.

Tests Checked By: R.T. McCutcheon Date 11/23/92

BD-6000-798 (08/92)

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

WHC-SD-EN-DP-068, Rev. 0

GEOTECHNICAL ENGINEERING LABORATORY

GEL-14, GEL-16, GEL-19

Sample No. 2-3086

GEL-14 SOIL MOISTURE

Balance: 3314 Calibration Due Date 10-25-92 Tested By LD Bruggeman

Thermometer: 0014 Calibration Due Date 9-21-93

Date	Wet Wt. + Can	Dry Wt. + Can	Tare Wt.	Moisture	Dry Wt. Soil	% Moisture	Calculated By
10/8/92	428.50	379.07	61.99	49.43	317.08	15.59	LD Bruggeman

Remarks: very fine chocklate brown sand-silt.

GEL-16 BULK DENSITY-POROSITY

DETERMINATION NO.			1	
Pan No.:	Mold: ☒ Plastic ☐ Metal	Length:	15.24	
Sample Volume, V, cc			1087.07	
Wt. of Sample & Mold, g			2677.7	
Wt. of Mold, g			304.4	
Wet Wt. of Sample, g			2373.3	
Wet Density of Sample, γ m, g/cc			2.18	
Water Content % Dry Weight			15.59	
Dry Density, g/cc γ d			1.89	
Dry weight of Sample, g, Ws			2053.21	
*Void Ratio, e			0.4030	
**Porosity, n, %			28.73	

Tested By LD Bruggeman

$$Ws = \frac{\text{Wet Wt.}}{1 + \%\ \text{Dry Wt.}}$$

$$\text{*Void Ratio, } e = \frac{\text{Avg. Sp. Gr. x Vol.}}{Ws} - 1$$

$$\text{**Porosity, } n, \% = \left(\frac{e}{1+e}\right) 100$$

Remarks:

GEL-19 CALCIUM CARBONATE

Vessel No. 5650 Tested By LD Bruggeman

Balance No. 3304 Date Due 10-25-92

Sample Weight 8.0 (g)

Sample Pressure 0.4 (psi) %$CaCO_3$ <1 Per Gram

Remarks:

Tests Checked By: R.T. McIntosh Date 11/23/92

BD-6000-797 (04/92)

P.93 of 98

TEST REQUEST

OPERABLE UNIT	W-049H	WELL NO	699-41-35	DEPTH	207.3-208.8
SAMPLE/SPECIMEN NO	2-3087	COST CODE/WORK ORDER NUMBER			A6CDR
REQUESTED BY: ORG	82436	PERSON	C. DELANEY	PHONE	6-9235
********HEIS********	NA	MSIN	H4-56	DATE	09/21/92

TEST REQUESTED	# OF SAMPLES	TEST LAB INFORMATION
Sieve/Hydrometer	2	GEL-07 / Rev. 2 / 3-13-92
Hydraulic Conductivity	2	GEL-09 / Rev. 2 / 3-13-92
Specific Gravity	2	GEL-10 / Rev. 1 / 12-1-89
Moisture Content	T	GEL-14 / Rev. 0 / 3-13-92
Bulk Density/Porosity	2	GEL-16 / Rev. 1 / 3-13-92
Calcium Carbonate	T	GEL-19 / Rev. 0 / 9-7-90

REMARKS: Hydrometer analysis - only if applicable (25% or more passed #200).

ARCHIVE YES ☒ NO ☒

JM

RADIATION RELEASE

Bldg. 699-41-35 Expiration Date 09/22/92

Released By TEC
Health Physics

Remarks 207.8-208.3

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-41-35 Expiration Date 09/22/92

Released By TEC
Health Physics

Remarks 206.8-208.8

2-3087

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-41-35 Expiration Date 09/22/92

Released By TEC
Health Physics

Remarks 207.3-207.8

54-3000-022 (01/89)

RECEIVED BY J.C. McGuffey

DATE 09/21/92

GEL-07 GRAIN SIZE ANALYSIS PLOT

Sample No. 2-3087

Page 2 of 5

Remarks 699-41-35 207.3 — 208.8

Not plot corrected for Sample weight

PI By LD Bruggeman Dated 6/12/92

Plot Checked By R. M. McCulloch Date 6/20/92

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

WHC-SD-EN-DP-068, Rev. 0

GEOTECHNICAL ENGINEERING LABORATORY
GEL-07 SIEVE AND HYDROMETER ANALYSIS

Sample No. 2-3087

GEL-07 SIEVE ANALYSIS

Date 10/12/92 Calibration Due Date 10-25-92 Balance: 3310

Sample Description fine silt & clay. Sieve Time 10 (min)

Reduced By: ☒ Splitting ☐ Quartering ☐ Stockpile

Sieve Size	Sample Weight	Cumulative Wt. Retained	Cumulative % Retained	Cumulative % Passed	Tested By
10	112.7	0	0	100	LD Bruggem
40	↓	69.9	62.0	38.0	
60	↓	85.3	13.7	24.3	
100	↓	95.5	9.1	15.3	
200	↓	104.8	8.3	7.0	

Remarks: broken to -10 with mortar & pestal - then washed

GEL-07 HYDROMETER ANALYSIS

Date 10/12/92 Balance: 3310 Calibration Due Date 10-25-92

Thermometer: 0018 Calibration Due Date 9-17-93

Hydrometer: 1007 Calibration Due Date 1-29-93

WEIGHT OF SAMPLE

Wt. Container + Soil 119.3 (g) Specific Gravity of Sample 2.65

Wt. Container 56.1 (g) % Passing No. 10 Sieve 100 %

Wt. Soil 63.2 (g) A = W = K =

COMPOSITE CORRECTION

1st Reading 6 at 22.9 °C

2nd Reading 7 at 22.8 °C

Date	Clock Time	Elapsed Time (min)	Hydrometer Reading	Hydrometer with Composite Correction	Temperature (°C)	Soil in Suspension (%)	Particle Diameter (mm)	Tested By
10/12/92	10:22	2.0	31	25	23.2	39.56	0.031	LD Bruggem 22.13
	10:25	5.0	29	~~23~~	23.[illegible]	36.39	0.020	20.39
	10:35	15.0	27	21	[illegible]	33.23	[illegible]	18.61
	10:50	30.0	24	18	[illegible]	28.4[illegible]	[illegible]	15.95
	11:20	60.0	20	14	23.9	[illegible]	0.006	12.40
	14:30	250.0	15	9	24.4	14.[illegible]	0.003	7.97
10/13/92	10:20	1440.0	10	3	22.[illegible]	6.33	0.001	3.54

NOT APPLICABLE

Remarks: TUBE "E"

Tests Checked By [illegible] Date 11/20/92

BD-6000-796 (04/92)

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

GEOTECHNICAL ENGINEERING LABORATORY
GEL-09 HYDRAULIC CONDUCTIVITY DATA SHEET

Sample No. 2-3087

Balance No. 3304 Permeameter No. 4

Test Initiated By LD Bruggeman Date 11/16/92 Procedure GEL 09/Rev 2/3-13-92 Sleeve Type: ☐ Metal ☒ Plastic

Specimen Diameter (D) 9.53 cm

Specimen Length (L) 15.0 cm

$$A = \left(\frac{D}{2}\right)^2 \times 3.1415$$

Specimen Area (A) 71.33 cm^2

Darcy's Law

$$K = \frac{QL}{AH}$$

K = Hydraulic Conductivity (cm/sec)
Q = Flow (cm^3/sec) = Vol. g/Time (sec)
A = Area (cm^2)
H = Hydraulic Head
L = Length (cm)

Date Year 92 (Mo/Day)	Run Time System (Hr:Min)	Run Time System (Hr:Min)	Run Time Time Change	Container Weight (± 0.1 g)	Container Tare (± 0.1 g)	Container Tare & Effluent (± 0.1 g)	Room Temp (°C)	Pressure Pore H_2O (cm)	Effluent Description	Operator Initials	Hydraulic Conductivity (cm/sec)	Calculated By
11/16 \ 11/17	07:03	14:56	31:53	6.71	152.57	159.28	23.8	1406.9	clear	LDB	8.74E-09	LDB
11/17 \ 11/18	14:58	9:11	18:13	3.69	152.57	156.26	22.8	↓	↓	↓	8.40E-09	↓
11/18	9:13	14:52	5:39	1.52	152.57	154.09	24.4	↓	↓	↓	1.12E-08	↓
11/18 \ 11/19	14:53	07:54	17:01	3.46	152.57	156.03	22.1	↓	↓	↓	8.44E-09	↓
					$\bar{K}$=9.2E-09							

Remarks USED Factor 70.345 x psi = cm head Samples run at 20 psi = 1406.9 cm

Test Checked By R. T. McGuire D 11/20/92

GEL 07 ☑ GEL 09 ☑ GEL 10 ☑ GEL 14 ☑	GEL 16 ☑ GEL 17 ☐ GEL 19 ☑ GEL ☐	WHC-SD-EN-DP-068, Rev. 0 GEOTECHNICAL ENGINEERING LABORATORY GEL-10 SPECIFIC GRAVITY SOILS FINE/COARSE

Sample No. 2-3087

GEL-10 SPECIFIC GRAVITY OF SOILS

Date 10/12/92 Tested By LD Buggen

Balance: 3304 Calibration Due Date

	DETERMINATION NO.	1	2	3
W_o	Wt. Oven Dry, Soil, g	55.0		
	Pycnometer No.	2555		
	Wt. Pycnometer, g	122.83		
W_a	Wt. Pycnometer + Wetting Agent, g	381.38		
W_b	Wt. Pycnometer + Wetting Agent + Soil, g	415.64		
	Temperature, T_x at W_b, °C	24.8		
G_w	Specific Gravity of Wetting Agent at T_x	1.00		
G_t	Specific Gravity of Soil at T_x	2.65		
G_s	Specific Gravity of Soil at 20 °C	2.65		

Wetting Agent D.I. H_2O

$$C_t = \frac{W_o}{W_o + W_a - W_b}$$

Remarks:

GEL-10 SPECIFIC GRAVITY COARSE AGGREGATES

Date Tested By:

Balance: 3312 Calibration Due Date

	DETERMINATION NO.	1	
	Size fraction		
P_1	Size fraction, wt. % total, g		
	Tare weight		
B	Weight sample (SSD), g		
C	Weight sample in H_2O, g		
A	Weight of oven dry sample, g		

Bulk Specific Gravity, 23/23 °C = A/(B-C) =

A = wt. oven dry sample in air, g
B = wt. SSD sample in air, g
C = wt. saturated sample in H_2O, g

Bulk Specific Gravity SSD, 23/23 °C = B/(B-C) =

Apparent Specific Gravity, 23/23 °C = A/(A-C) =

*Average Specific Gravity Values, 23/23 °C $\overline{G}$ =

Remarks: NA

$$\overline{G} = \frac{1}{\dfrac{P_1 = \%\ \text{coarse}}{G_1 = \text{coarse sp.gr.} \times 100} + \dfrac{P_2 = \%\ \text{fines}}{G_2 = \text{fines sp. gr.} \times 100}}$$

$\overline{G}$ = Ave. Specific Gravity for all forms of Specific Gravity i.e., formula applicable to Bulk, Bulk SSD and Apparent Specific Gravity.

G_1, G_2 = appropriate Specific Gravity values for each size fraction depending on the type of Specific Gravity being averaged.

P_1, P_2 = wt. percentages of each size frection present in the original sample.

*State type of Specific Gravity Reported i.e., either Bulk, Bulk SSD or Apparent.

Tests Checked By: R.T. McIntosh Date 11/20/92

BD-6000-798 (08/92)

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

WHC-SD-EN-DP-068, Rev. 0

GEOTECHNICAL ENGINEERING LABORATORY
GEL-14, GEL-16, GEL-19

Sample No. 2-3087

GEL-14 SOIL MOISTURE

Balance: 3304 Calibration Due Date 10-25-92 Tested By LD Bruggeman

Thermometer: 5014 Calibration Due Date 9-21-93

Date	Wet Wt. + Can	Dry Wt. + Can	Tare Wt.	Moisture	Dry Wt. Soil	% Moisture	Calculated By
10/8/92	406.4	299.07	62.56	107.33	236.51	45.38	LD Bruggeman

Remarks: clay - dark brown.

GEL-16 BULK DENSITY-POROSITY

DETERMINATION NO.			1	
Pan No.:	Mold: ☒ Plastic ☐ Metal	Length:	~~15.24~~ 15.0 cm 10/9/92	
Sample Volume, V, cc			1069.95	
Wt. of Sample & Mold, g			2136.1	
Wt. of Mold, g			314.1	
Wet Wt. of Sample, g			1822.0	
Wet Density of Sample, γ m, g/cc			1.70	
Water Content % Dry Weight			45.38	
Dry Density, g/cc γ d			1.17	
Dry weight of Sample, g, Ws			1253.27	
*Void Ratio, e			1.2624	
**Porosity, n, %			55.80	

Tested By LD Bruggeman

$$Ws = \frac{\text{Wet Wt.}}{1 + \%\ \text{Dry Wt.}}$$

$$*\text{Void Ratio, } e = \frac{\text{Avg. Sp. Gr. x Vol.}}{Ws} - 1$$

$$**\text{Porosity, } n, \% = \left(\frac{e}{1+e}\right) 100$$

Remarks:

GEL-19 CALCIUM CARBONATE

Vessel No. 5650 Tested By LD Bruggeman

Balance No. 3304 Date Due 10-25-92

Sample Weight 8.0 (g)

Sample Pressure 0.4 (psi) $\%CaCO_3$ <1 Per Gram

Remarks:

Tests Checked By: R.T. McIntosh Date 11/20/92

BD-6000-797 (04/92)

WELL 699-42-37

VALIDATED
KDR 1/12/93
SIGNATURE/DATE

ENVIRONMENTAL RESTORATION HEALTH AND SAFETY

Requested by:			Phone No.	Well No. 699-42-37		Date:
Sample No. (Depth)	**Sample Date**	**Sample Description**	**Analysis Date**	**Lab No.**	**Results Beta/Gamma (pci/g)**	**Results Alpha (pci/g)**
5'	8-12-92	Soil	8-13-92	1883-92-23	15	1
5.9'-7.9'	8-12-92		8-13-92	1884-92-24	12	<D
8.3'-10.3'	8-13-92		8-13-92	1892-92-25	15	1
10'	8-13-92		8-14-92	1893-92-33	15	1
10'-12'	8-13-92		8-14-92	1894-92-34	12	<D
15'	8-13-92		8-14-92	1895-92-35	12	<D
15' SPLIT SPOON	8-13-92		8-14-92	1896-92-36	13	<D
20'	8-17-92		8-19-92	1898-92-38	13	1
20' SPLIT SPOON	8-17-92		8-19-92	1899-92-39	12	<D
25'	8-17-92		8-19-92	1900-92-40	12	1
30'	8-17-92		8-19-92	1901-92-41	10	<D
35'	8-17-92		8-19-92	1902-92-42	11	<D
40'	8-18-92		8-19-92	1903-92-43	12	<D
45'	8-18-92		8-19-92	1904-92-44	12	1
50'	8-18-92		8-19-92	1905-92-45	14	<D
55'	8-19-92		8-19-92	1912-92-5	~~10~~ 11	<D
60'	8-19-92		8-19-92	1913-92-6	8	<D
65'	8-19-92		8-19-92	1914-92-7	10	1
70'	8-19-92		8-19-92	1916-92-9	~~8~~ 14	<D
66'	8-19-92		8-19-92	1915-92-8	8	<D
75'	8-19-92		8-20-92	1940-92-33	11	<D
80'	8-19-92		8-20-92	1941-92-34	13	1
85'	8-20-92		8-20-92	1942-92-35	12	<D

Performed By: C. Allessio Date: 8-20-92

Supervisor Review: [signature] Date: 9/21/92

A-6000-829 (10/91)

ENVIRONMENTAL RESTORATION HEALTH AND SAFETY

Requested by:			Phone No.	Well No. 699-42-37		Date:

Sample No. (Depth)	Sample Date	Sample Description	Analysis Date	Lab No.	Results Beta/Gamma (pci/g)	Results Alpha (pci/g)
90'	8-20-92	SOIL	8-20-92	1943-92-36	11	1
92'	8-20-92		8-20-92	1944-92-37	15	1
95'	8-21-92		8-21-92	1945-92-38	13	1
100'	8-21-92		8-21-92	1946-92-39	17	<D
105'	8-21-92		8-21-92	1947-92-40	13	1
110'	8-21-92		8-21-92	1948-92-41	16	1
115'	8-21-92		8-21-92	1949-92-42	15	1
120'	8-24-92		8-24-92	1958-92-4	20	<D
125'	8-26-92		8-26-92	1987-92-33	24	1
126.79'-129.1'	8-26-92		8-26-92	1988-92-34	23	2
129'	8-26-92		8-27-92	1989-92-35	22	1
130'	8-26-92		8-27-92	1990-92-36	21	2
130'-133'	8-26-92		8-27-92	1991-92-37	14	1
135'	8-31-92		9-2-92	2036-92-37	9	1
140'	8-31-92		9-2-92	2037-92-38	8	<D
145'	8-31-92		9-2-92	2038-92-39	10	<D
150'	8-31-92		9-2-92	2043-92-44	9	<D
155'	8-31-92		9-2-92	2044-92-45	7	<D
160'	8-31-92		9-2-92	2045-92-46	8	<D
165'	9-2-92		9-3-92	2088-92-42	10	<D
170'	9-2-92		9-3-92	2089-92-43	7	<D
175'	9-2-92		9-3-92	2090-92-44	9	<D
176'	9-2-92		9-3-92	2091-92-45	13	<D

Performed By: C. Allessio Date: 9-3-92

Supervisor Review: [illegible] Date: 9/21/92

ENVIRONMENTAL RESTORATION HEALTH AND SAFETY

Requested by:			Phone No.	Well No. 699-42-37		Date:
Sample No. (Depth)	**Sample Date**	**Sample Description**	**Analysis Date**	**Lab No.**	**Results Beta/Gamma (pci/g)**	**Results Alpha (pci/g)**
180'	9-3-92	SOIL	9-4-92	2104-92-11	10	1
185'	9-3-92		9-4-92	2105-92-12	14 ~~12~~ CC 9-4-92	1
190'	9-3-92		9-4-92	2106-92-13	13	2
191'	9-3-92		9-4-92	2107-92-14	13	<D
195'	9-4-92		9-8-92	2182-92-12	7	<D
195'	9-4-92		9-8-92	2183-92-13	10	<D
200'	9-4-92		9-8-92	2184-92-14	9	<D
205'	9-4-92		9-8-92	2185-92-15	9	1
91.6'-93.6'	9-4-92		9-9-92	2179-92-43	8	<D
215'	9-9-92		9-10-92	2238-92-7	8	1
220'	9-9-92		9-10-92	2239-92-8	6	1
225'	9-9-92		9-10-92	2240-92-9	6	<D
230'	9-9-92		9-10-92	2241-92-10	6	1
210'	9-14-92		9-16-92	2340-92-6	7	1
235'	9-14-92		9-17-92	2341-92-20	4	<D
240'	9-14-92		9-17-92	2342-92-21	4	<D
245'	9-14-92		9-17-92	2343-92-22	4	<D
250'	9-14-92		9-17-92	2344-92-23	4	<D
255'	9-14-92		9-17-92	2345-92-24	6	<D
260'	9-14-92		9-17-92	2350-92-25	5	<D
265'	9-14-92		9-17-92	2351-92-26	5	<D
268'	9-14-92	TD	9-17-92	2352-92-27	6	<D

Performed By: C. Allendier Date: 9-17-92

Supervisor Review: C. Stic Date: 9/21/92

Pg 1 of 7

TEST REQUEST

OPERABLE UNIT	W-049H	WELL NO	699-42-37	DEPTH	91.65-94.0
SAMPLE/SPECIMEN NO	2-3089	COST CODE/WORK ORDER NUMBER			A6CDR
REQUESTED BY: ORG	82436	PERSON	C. DELANEY	PHONE	6-9235
********HEIS********	NA	MSIN	H4-56	DATE	09/22/92

TEST REQUESTED	# OF SAMPLES	TEST LAB INFORMATION
Sieve/Hydrometer	2	GEL-07 / Rev. 2 / 3-13-92
Hydraulic Conductivity	2	GEL-09 / Rev. 2 / 3-13-92
Specific Gravity	2	GEL-10 / Rev. 1 / 12-1-89
Moisture Content	T	GEL-14 / Rev. 0 / 3-13-92
Bulk Density/Porosity	2	GEL-16 / Rev. 1 / 3-13-92
Moisture Retention	2	GEL-17 / Rev. 0 / 3-13-92
Calcium Carbonate	T	GEL-19 / Rev. 0 / 9-7-90

REMARKS: Run hydrometer if applicable

ARCHIVE YES ☐ NO ☑

RADIATION RELEASE

Bldg. 699-42-37 Expiration Date 09/23/92

Released By TEC
Health Physics

Remarks 91.65-92.15

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-42-37 Expiration Date 9/23/92

Released By TEC
Health Physics

Remarks 2-3089 94.0

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-42-37 Expiration Date 09/23/92

Released By TEC
Health Physics

Remarks 93.5-93.65

54-3000-022 (01/89)

RECEIVED BY J.C. McGuffey

DATE 09/22/92

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

GEOTECHNICAL ENGINEERING LABORATORY
GEL-07 SIEVE AND HYDROMETER ANALYSIS

Sample No. 2-3089

Page 1 of 5

GEL-07 SIEVE ANALYSIS

Date 9/29/92 Calibration Due Date 10-25-92 Balance: 3310

Sample Description Very fine silt Sieve Time 10 (min)

Reduced By: ☐ Splitting ☐ Quartering ☐ Stockpile

Sieve Size	Sample Weight	Cumulative Wt. Retained	Cumulative % Retained	Cumulative % Passed	Tested By
10	119.7	0	0	100	LD Bruggen
40	↓	12.3	10.3	89.7	↓
60	↓	31.5	26.3 LDB 9/29 ~~26.2~~	73.7	↓
100	↓	51.3	42.9	57.1	↓
200	↓	79.9	66.8	33.2	↓
NA	NA	NA	NA	NA	NA
↓	↓	↓	↓	↓	↓

Remarks: WASHED FINE GRADING. SAMPLE SPLIT & WASHED FROM 517.0 gm sample which was prepared by marta & pestal

GEL-07 HYDROMETER ANALYSIS

Date 9/29/92

Balance: 3310 Calibration Due Date 10-25-92

Thermometer: 0018 Calibration Due Date

Hydrometer: 1007 Calibration Due Date 1-29-93

WEIGHT OF SAMPLE

Wt. Container + Soil 124.1 (g)

Wt. Container 59.9 (g)

Wt. Soil 64.2 (g)

Specific Gravity of Sample 2.62

% Passing No. 10 Sieve 100 %

A = — W = — K = —

COMPOSITE CORRECTION

1st Reading LDB 9/29 ~~26~~ at 22.6 °C

2nd Reading — at — °C

Date	Clock Time	Elapsed Time (min)	Hydrometer Reading	Hydrometer with Composite Correction	Temperature (°C)	Soil in Suspension (%)	Particle Diameter (mm)	Tested By
9/29/92	10:57	2.0	31	25	22.6	39.33	0.032	LD Bruggen
	11:00	5.0	29	23	22.7	36.18	0.020	↓
	11:10	15.0	23	17	22.7	26.74	0.012	
	11:25	30.0	19	13	22.8	20.45	0.009	
	11:55	60.0	17	11	23.7	17.31	0.006	
	15:05	250.0	13	7	25.1	11.01	0.003	
9/29/92	10:55	1440.0	9	3	23.8	4.72	0.001	↓

Remarks: TUBE "B" computer calculated

FOR INFORMATION ONLY

Tests Checked By K McGilley Date 10/5/92

30-6000-796 (04/92)

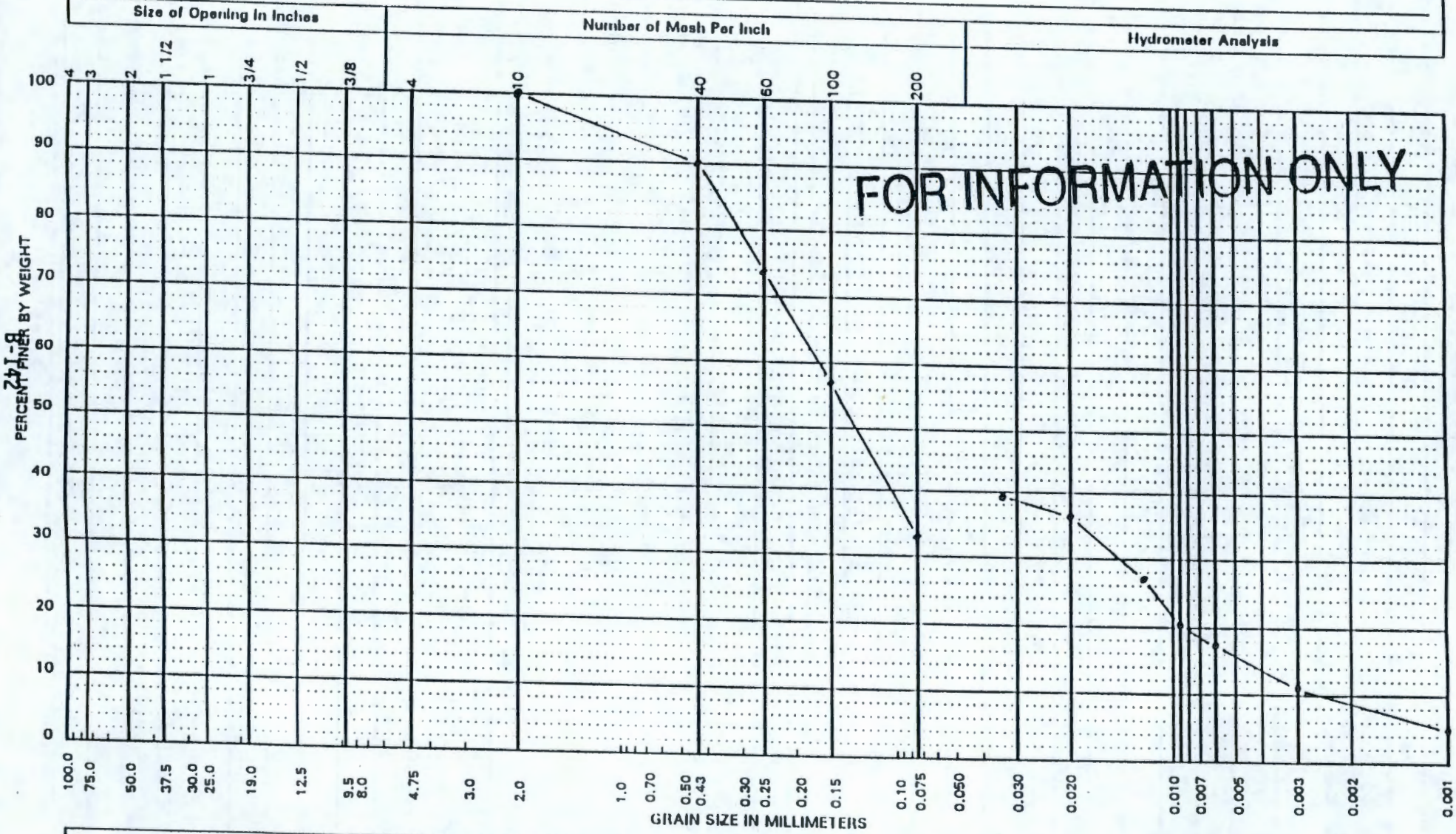
Pg 3 of 7

GEL-07 GRAIN SIZE ANALYSIS PLOT

Sample No. 2-3089

Page 2 of 5

Remarks very fine silt; washed fine grading.



Plotted J. McGuffey Date 10/5/92 Checked By L D Bruggeman Date 10/8

B-142

WHC-SD-EN-DP-068, Rev. 0

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

GEOTECHNICAL ENGINEERING LABORATORY
GEL-09 HYDRAULIC CONDUCTIVITY DATA SHEET

Sample N 2-3089

Balance No. 3310 Permeameter No. 2

Test Initiated By LD Bruggeman Date 9/24/92 Procedure GEL 09/Rev 2/3-13-92 Sleeve Type: ☒ Metal ☐ Plastic

Specimen Diameter (D) 9.83 cm

Specimen Length (L) 15.24 cm

$$A = \left(\frac{D}{2}\right)^2 \times 3.1415$$

Specimen Area (A) 75.89 cm^2

Darcy's Law

$$K = \frac{QL}{AH}$$

K = Hydraulic Conductivity (cm/sec)

Q = Flow (cm^3/sec) = Vol. g/Time (sec)

A = Area (cm^2)

H = Hydraulic Head

L = Length (cm)

Date Year 92 (Mo/Day)	Run Time System (Hr:Min)	Run Time System (Hr:Min)	Run Time Time Change	Container Weight (± 0.1 g)	Container Tare (± 0.1 g)	Container * Tare & Effluent (± 0.1 g)	Room Temp (°C)	Pressure Pore H_2O (cm)	Effluent Description	Operator Initials	Hydraulic Conductivity (cm/sec)	Calculated By
9/28 \ 9/29	09:48	07:42	21:54	16.4	273.3	289.7	22.4	125.5	clear	LDB	3.33E-07	LDB
9/29 \ 9/30	07:45	08:06	24:21	18.4	273.3	291.7	23.2	125.5	clear	LDB	3.36E-07	LDB
9/30 \ 10/1	08:11	13:40	29:29	22.0	273.3	295.3	24.0	125.0	clear	JM	3.33E-07	JM
10/1 \ 10/5	13:42	07:25	89:43	60.3	274.0	334.3	21.6	125.0	clear	JM	3.00E-07	JM
10/5 \ 10/6	07:27	14:20	30:53	19.5	273.7	293.2	22.8	125.0	clear	JM	2.82E-07	JM

$\bar{K}$ = 3.2E-07

FOR INFORMATION ONLY

Remarks fine sand and clay

Test Checked By JC McGuffey Date 10/6/92

BD 6000 795 (04/91)

WHC-SD-EN-DP-068, Rev. 0

B-143

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

GEOTECHNICAL ENGINEERING LABORATORY
GEL-10 SPECIFIC GRAVITY SOILS FINE/COARSE

Sample No. 2-3089 Pg 9 of 9

GEL-10 SPECIFIC GRAVITY OF SOILS

Date 9/29/92 Tested By L D Bruggeman

Balance: 3304 Calibration Due Date 10-25-92

	DETERMINATION NO.	1	2	3
W_o	Wt. Oven Dry, Soil, g	55.0	.	.
	Pycnometer No.	2555		
	Wt. Pycnometer, g	122.83	.	.
W_a	Wt. Pycnometer + Wetting Agent, g	381.38	.	.
W_b	Wt. Pycnometer + Wetting Agent + Soil, g	415.43	.	.
	Temperature, T_x at W_b, °C	21.7		
G_w	Specific Gravity of Wetting Agent at T_x	1.00	.	.
G_t	Specific Gravity of Soil at T_x	2.63	.	.
G_s	Specific Gravity of Soil at 20 °C	2.62	.	.

Wetting Agent D.I. H_2O

$$C_t = \frac{W_o}{W_o + W_a - W_b}$$

Remarks:

GEL-10 SPECIFIC GRAVITY COARSE AGGREGATES

Date Tested By:

Balance: 3312 Calibration Due Date

	DETERMINATION NO.	1	
	Size fraction		
P_1	Size fraction, wt. % total, g		
	Tare weight		
B	Weight sample (SSD), g	.	.
C	Weight sample in H_2O, g	.	
A	Weight of oven dry sample, g		

Bulk Specific Gravity, 23/23 °C = A/(B-C) = .

A = wt. oven dry sample in air, g
B = wt. SSD sample in air, g
C = wt. saturated sample in H_2O, g

Bulk Specific Gravity SSD, 23/23 °C = B/(B-C) = .

Apparent Specific Gravity, 23/23 °C = A/(A-C) = .

Average Specific Gravity Values, 23/23 °C $\overline{G}$ = .

NOT APPLICABLE

Remarks: NA

FOR INFORMATION ONLY

$$\overline{G} = \frac{P_1 = \%\ \text{coarse}}{G_1 = \text{coarse sp.gr.} \times 100} + \frac{P_2 = \%\ \text{fines}}{G_2 = \text{fines sp. gr.} \times 100}$$

$\overline{G}$ = Ave. Specific Gravity for all forms of Specific Gravity i.e., formula applicable to Bulk, Bulk SSD and Apparent Specific Gravity.

G_1, G_2 = appropriate Specific Gravity values for each size fraction depending on the type of Specific Gravity being averaged.

P_1, P_2 = wt. percentages of each size fraction present in the original sample.

*State type of Specific Gravity Reported i.e., either Bulk, Bulk SSD or Apparent.

Tests Checked By: J McGuffey Date 10/5/92

BD-6000-798 (08/92)

GEL 07 ☑ GEL 09 ☑ GEL 10 ☑ GEL 14 ☑	GEL 16 ☑ GEL 17 ☑ GEL 19 ☑ GEL ☐	WHC-SD-EN-DP-068, Rev. 0 GEOTECHNICAL ENGINEERING LABORATORY GEL-14, GEL-16, GEL-19

Sample No. 2-3089

Page 5 of 5

GEL-14 SOIL MOISTURE

Balance: 3304 Calibration Due Date 10-25-92 Tested By LD Bruggeman

Thermometer: 0015 Calibration Due Date 9-21-93

Date	Wet Wt. + Can	Dry Wt. + Can	Tare Wt.	Moisture	Dry Wt. Soil	% Moisture	Calculated By
9/24/92	457.39	393.73	63.84	63.66	329.89	19.30	LD Bruggeman / computer

Remarks:

GEL-16 BULK DENSITY-POROSITY

Tested By LD Bruggeman

DETERMINATION NO.			1	NA
Pan No.:	Mold: ☐ Plastic ☒ Metal	Length:	15.0	
Sample Volume, V, cc			113835	
Wt. of Sample & Mold, g			2978.8	
Wt. of Mold, g			713.0	
Wet Wt. of Sample, g			2265.8	
Wet Density of Sample, γ m, g/cc			1.99	
Water Content % Dry Weight			19.30	
Dry Density, g/cc γ d			1.67	
Dry weight of Sample, g, Ws			1899.25	
*Void Ratio, e			.5703	
**Porosity, n, %			36.32	↓

$$Ws = \frac{\text{Wet Wt.}}{1 + \%\ \text{Dry Wt.}}$$

$$\text{*Void Ratio, } e = \frac{\text{Avg. Sp. Gr.} \times \text{Vol.}}{Ws} - 1$$

$$\text{**Porosity, } n, \% = \left(\frac{e}{1+e}\right) 100$$

Remarks:

FOR INFORMATION ONLY

GEL-19 CALCIUM CARBONATE

Vessel No. 5650 Tested By LD Bruggeman

Balance No. 3304 Date Due 10-25-92

Sample Weight 8.0 (g)

Sample Pressure 0.3 (psi) $\%CaCO_3$ 0.7 Per Gram

Remarks:

Tests Checked By: JC McGulley Date 10/5/92

BD-6000-797 (04/92)

Westinghouse Hanford Company

CHAIN OF CUSTODY

Custody Form Initiator Keith J. Swett ECL 09/23/92 ATTN: Cindy Lowney

Company Contact Ed Rafuse Telephone 376-0542

Project Designation/Sampling Locations W049H 699-42-37 Collection Date see below

Depths as noted below

Ice Chest No. N/A Field Logbook No. N/A

Bill of Lading/Airbill No. N/A Offsite Property No. N/A

Method of Shipment Govt. vehicle

Shipped to 2101M

Possible Sample Hazards/Remarks No chem or rad contamination detected

Samples to be analyzed per CERCLA Full characterization (Test Package B)

Sample Identification

6" S.S. liner @ 11.6'-12.1', 8-13-92 @ 0900

Moist tin @ 15', " , @ 1130

6" S.S. liner @ 16.8'-17.3', " , @ 1300

6" S.S. liner @ 91.65'-92.15', 8-20-92 @ 0900

6" S.S. liner @ 93.15'-93.65', 8-20-92 @ 0900

Moist tin @ 94.6' 8-20-92 @ 0900

FOR INFORMATION ONLY

☐ Field Transfer of Custody

CHAIN OF POSSESSION		(Sign and Print Names)
Relinquished by: Stewart Causey	Received by: E.C. Rafuse	Date/Time: 09/17/92 1020
Relinquished by: E.C. Rafuse	Received by: C.C. McTurley	Date/Time: 09/22/92 10:25
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

P1 of 7

TEST REQUEST

OPERABLE UNIT	W-049H	WELL NO	699-42-37	DEPTH	11.6-17.3
SAMPLE/SPECIMEN NO	2-3088	COST CODE/WORK ORDER NUMBER			A6CDR
REQUESTED BY: ORG	82436	PERSON	C. DELANEY	PHONE	6-9235
********HEIS********	NA	MSIN	H4-56	DATE	09/22/92

TEST REQUESTED	# OF SAMPLES	TEST LAB INFORMATION
Sieve/Hydrometer	2	GEL-07 / Rev. 2 / 3-13-92
Hydraulic Conductivity	2	GEL-09 / Rev. 2 / 3-13-92
Specific Gravity	2	GEL-10 / Rev. 1 / 12-1-89
Moisture Content	T	GEL-14 / Rev. 0 / 3-13-92
Bulk Density/Porosity	2	GEL-16 / Rev. 1 / 3-13-92
Moisture Retention	2	GEL-17 / Rev. 0 / 3-13-92
Calcium Carbonate	T	GEL-19 / Rev. 0 / 9-7-90

REMARKS: Run hydrometer if applicable

ARCHIVE YES ☐ NO ☑

RADIATION RELEASE

Bldg. 699-42-37 Expiration Date 09/23/92

Released By RC
Health Physics

Remarks 11.6-12.1

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-42-37 Expiration Date 9/23/92

Released By TEC
Health Physics

Remarks 15.0

2-3088

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-42-37 Expiration Date 09/23/92

Released By TEC
Health Physics

Remarks 16.8-17.3

54-3000-022 (01/89)

RECEIVED BY J.C. McGuffey

DATE 09/22/92

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

WHC-SD-EN-DP-068, Rev. 0

GEOTECHNICAL ENGINEERING LABORATORY
GEL-07 SIEVE AND HYDROMETER ANALYSIS

Sample No. 2-3088

Page 1 of 5

GEL-07 SIEVE ANALYSIS

Date 9/28/92 Calibration Due Date 10-25-92 Balance: 3310

Sample Description SAND & GRAVEL Sieve Time 10 (min)

Reduced By: ☒ Splitting ☐ Quartering ☐ Stockpile

Sieve Size	Sample Weight	Cumulative Wt. Retained	Cumulative % Retained	Cumulative % Passed	Tested By
2	2325.2	0	0	100	LD Ruggam
1½	↓	148.2	6.4	93.6	↓
3/4	↓	403.9	17.4	82.6	↓
3/8	↓	701.6	30.2	69.8	↓
4	↓	1072.0	46.1	53.9	↓
10	134.8	49.5	36.7	34.1	↓
40	↓	92.8	68.8	16.8	↓
60	↓	99.7	74.0	14.0	↓
100	↓	104.5	77.5	12.1	↓
200	↓	110.9	82.3	9.6	↓

Remarks: WASHED FINE GRADING

GEL-07 HYDROMETER ANALYSIS

Date _____ Balance: _____ Calibration Due Date _____

Thermometer: _____ Calibration Due Date _____

Hydrometer: _____ Calibration Due Date _____

WEIGHT OF SAMPLE

Wt. Container + Soil _____ (g)

Wt. Container _____ (g)

Wt. Soil _____ (g)

Specific Gravity of Sample _____

% Passing No. 10 Sieve _____ %

A = _____ W = _____ K = _____

COMPOSITE CORRECTION

1st Reading _____ at _____ °C

2nd Reading _____ at _____ °C

Date	Clock Time	Elapsed Time (min)	Hydrometer Reading	Hydrometer with Composite Correction	Temperature (°C)	Soil in Suspension (%)	Particle Diameter (mm)	Tested By
		2.0						
		5.0						
		15.0						
		30.0						
		60.0						
		250.0						
		1440.0						

FOR INFORMATION ONLY

Remarks: _____

Tests Checked By AC McGuffey Date 9/29/92

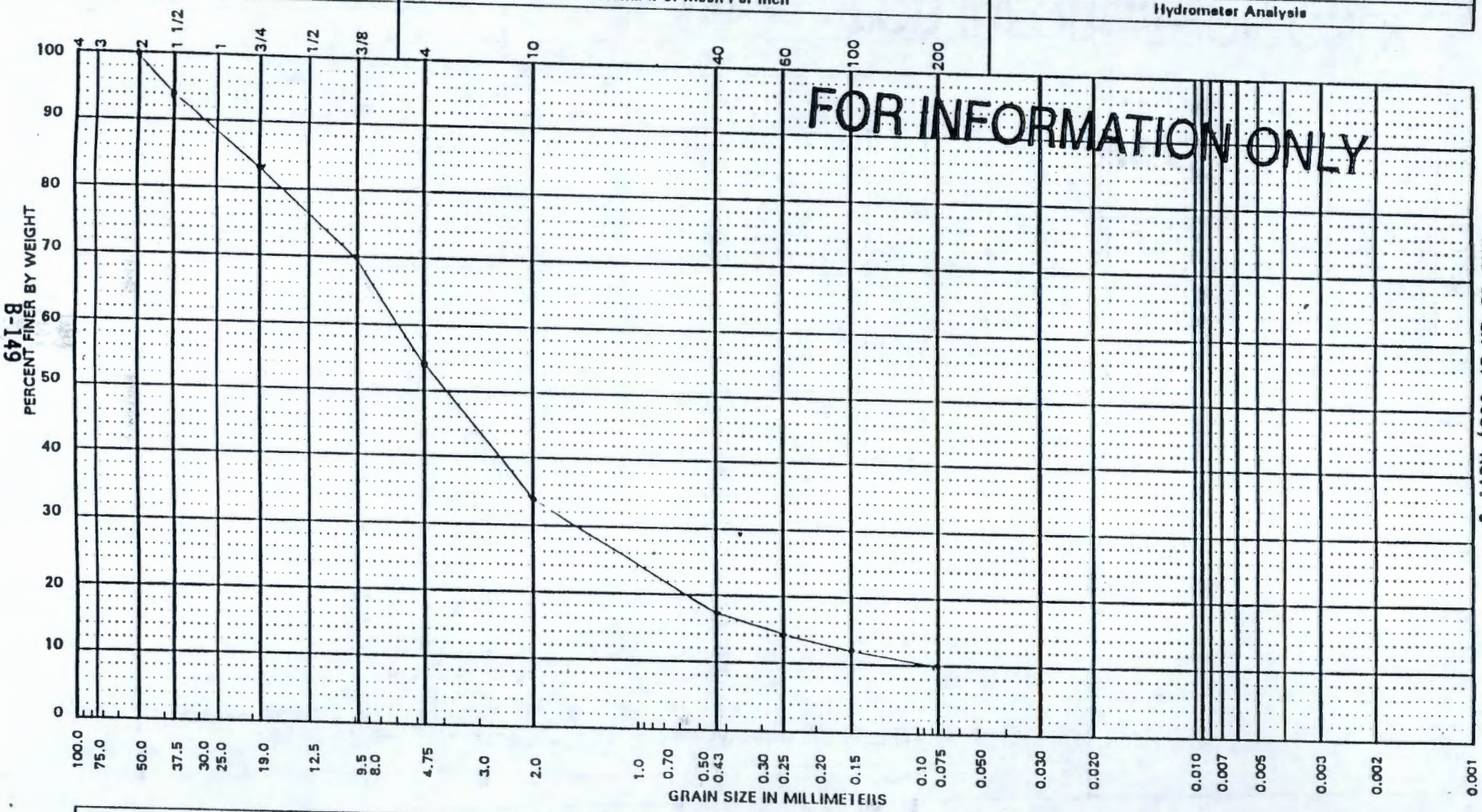
BD-6000-796 (04/92)

GEL-07 GRAIN SIZE ANALYSIS PLOT

Sample No. 2-3088

Page 2 of 5

Remarks 699-42-37



FOR INFORMATION ONLY

Plotted By LD Bruggeman Date 9/29/92

Plot Checked By J McGuffey Date 9/29/92

RD C000 799 (04/92)

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

GEOTECHNICAL ENGINEERING LABORATORY
GEL-09 HYDRAULIC CONDUCTIVITY DATA SHEET

Sample No. 2-3088

Balance No. 3310 Permeameter No. 3

Test Initiated By LD Bruggema Date 9/24/92 Procedure GEL 09 Rev 2/3-13-92 Sleeve Type: ☒ Metal ☐ Plastic

Specimen Diameter (D) 9.83 cm

Specimen Length (L) 15.24 cm

$$A = \left(\frac{D}{2}\right)^2 \times 3.1415$$

Specimen Area (A) 15.24 cm^2

Darcy's Law

$$K = \frac{QL}{AH}$$

K = Hydraulic Conductivity (cm/sec)

Q = Flow (cm^3/sec) = Vol. g/Time (sec)

A = Area (cm^2)

H = Hydraulic Head

L = Length (cm)

Date Year 92 (Mo/Day)	Run Time System (Hr:Min)	Run Time System (Hr:Min)	Run Time Time Change	Container Weight (± 0.1 g)	Container Tare (± 0.1 g)	Container Tare & Effluent (± 0.1 g)	Room Temp (°C)	Pressure Pore H_2O (cm)	Effluent Description	Operator Initials	Hydraulic Conductivity (cm/sec)	Calculated By
9/25	08:56	09:46	0:50	158.1	153.5	311.6	22.8	7.3	clear	LDB	1.45E-03	LDB
	09:47	11:03	1:16	222.0	153.5	375.5	22.7	7.3	clear	LDB	1.34E-03	LDB
	11:05	12:51	1:46	294.6	153.5	448.1	24.0	7.3	clear	LDB	1.27E-03	LDB
	12:52	14:13	1:21	222.5	153.5	376.0	23.9	7.3	clear	LDB	1.26E-03	LDB
	14:15	15:15	1:00	162.4	153.5	315.9	24.8	7.3	clear	LDB	1.24E-03	LDB
9/28	09:51	11:24	1:33	294.6	153.5	448.1	22.8	7.3	clear	LDB	1.45E-03	LDB
						$\bar{K}$=1.3E-03						

FOR INFORMATION ONLY

Remarks

Test Checked By JC McGuffey Date 9/29/92

WHC-SD-EN-DP-068, Rev. 0

B-150

4 of 4

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

GEOTECHNICAL ENGINEERING LABORATORY
GEL-10 SPECIFIC GRAVITY SOILS FINE/COARSE

Sample No. 2-3088

GEL-10 SPECIFIC GRAVITY OF SOILS

Date 9/28/92 Tested By L.D. Bruggen

Balance: 3304 Calibration Due Date 10-25-92

	DETERMINATION NO.	1	2	3
W_o	Wt. Oven Dry, Soil, g	55.0		
	Pycnometer No.	2555		
	Wt. Pycnometer, g	122.83		
W_a	Wt. Pycnometer + Wetting Agent, g	381.38		
W_b	Wt. Pycnometer + Wetting Agent + Soil, g	416.41		
	Temperature, T_x at W_b, °C	23.7		
G_w	Specific Gravity of Wetting Agent at T_x	1.00		
G_t	Specific Gravity of Soil at T_x	2.75		
G_s	Specific Gravity of Soil at 20 °C	2.75		

Wetting Agent D.I. H_2O

$$C_t = \frac{W_o}{W_o + W_a - W_b}$$

Remarks:

GEL-10 SPECIFIC GRAVITY COARSE AGGREGATES

Date 9/28/92 Tested By: L.D. Bruggen

Balance: 3312 Calibration Due Date 7/20/93

	DETERMINATION NO.	1		
	Size fraction	2" → #4		
P_1	Size fraction, wt. % total, g	46.1		
	Tare weight	256.9		
B	Weight sample (SSD), g	1070.1		
C	Weight sample in H_2O, g	677.2		
A	Weight of oven dry sample, g	1056.0		

Bulk Specific Gravity, 23/23 °C = A/(B-C) = 2.69

A = wt. oven dry sample in air, g
B = wt. SSD sample in air, g
C = wt. saturated sample in H_2O, g

Bulk Specific Gravity SSD, 23/23 °C = B/(B-C) = 2.72

Apparent Specific Gravity, 23/23 °C = A/(A-C) = 2.79

*Average Specific Gravity Values, 23/23 °C $\overline{G}$ = 2.72

Remarks:

FOR INFORMATION ONLY

$$\overline{G} = \frac{P_1 = \text{\% coarse}}{G_1 = \text{coarse sp.gr.} \times 100} + \frac{P_2 = \text{\% fines}}{G_2 = \text{fines sp. gr.} \times 100}$$

$\overline{G}$ = Ave. Specific Gravity for all forms of Specific Gravity i.e., formula applicable to Bulk, Bulk SSD and Apparent Specific Gravity.

G_1, G_2 = appropriate Specific Gravity values for each size fraction depending on the type of Specific Gravity being averaged.

P_1, P_2 = wt. percentages of each size fraction present in the original sample.

*State type of Specific Gravity Reported i.e., either Bulk, Bulk SSD or Apparent.

Tests Checked By: J.C. McGulley Date 9/29/92

BD-6000-798 (08/92)

GEL 07 ☑ GEL 09 ☑ GEL 10 ☑ GEL 14 ☑	GEL 16 ☑ GEL 17 ☑ GEL 19 ☑ GEL ☐	WHC-SD-EN-DP-068, Rev. 0 GEOTECHNICAL ENGINEERING LABORATORY GEL-14, GEL-16, GEL-19	Sample No. 2-3088 Page 5 of 5

GEL-14 SOIL MOISTURE

Balance: 3304 Calibration Due Date 10-25-92 Tested By LD Bruggeman

Thermometer: 0018 Calibration Due Date 9-17-93

Date	Wet Wt. + Can	Dry Wt. + Can	Tare Wt.	Moisture	Dry Wt. Soil	% Moisture	Calculated By
9/24/92	504.60	476.50	62.44	28.10	414.06	6.79	LD Bruggeman/computer

Remarks:

GEL-16 BULK DENSITY-POROSITY

DETERMINATION NO.			1	NA
Pan No.:	Mold: ☐ Plastic ☒ Metal	Length:	15.24	
Sample Volume, V, cc			1156.56	
Wt. of Sample & Mold, g			3118.1	
Wt. of Mold, g			722.2	
Wet Wt. of Sample, g			2395.9	
Wet Density of Sample, γ m, g/cc			2.07	
Water Content % Dry Weight			6.79	
Dry Density, g/cc γ d			1.94	
Dry weight of Sample, g, Ws			2243.56	
*Void Ratio, e			0.4022	
**Porosity, n, %			28.67	↓

Tested By LD Bruggeman

$$Ws = \frac{\text{Wet Wt.}}{1 + \%\ \text{Dry Wt.}}$$

$$*\text{Void Ratio, } e = \frac{\text{Avg. Sp. Gr.} \times \text{Vol.}}{Ws} - 1$$

$$**\text{Porosity, } n, \% = \left(\frac{e}{1+e}\right) 100$$

Remarks:

FOR INFORMATION ONLY

GEL-19 CALCIUM CARBONATE

Vessel No. 5650 Tested By LD Bruggeman

Balance No. 3304 Date Due 10-25-92

Sample Weight 8.0 (g)

Sample Pressure 0.4 (psi) $\%CaCO_3$ 0.9 Per Gram

Remarks:

Tests Checked By: K. McGulley Date 9/29/92

BD-6000-797 (04/92)

Pg 7 of 7

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator Keith J. Swett E.C. 09/23/92

Company Contact Ed Rafuse ~~Attn: Cindy Beaney~~ Telephone 376-0542

Project Designation/Sampling Locations W049H 699-42-37 Collection Date see below

Depths as noted below

Ice Chest No. N/A Field Logbook No. N/A

Bill of Lading/Airbill No. N/A Offsite Property No. N/A

Method of Shipment Govt. vehicle

Shipped to 2101M

Possible Sample Hazards/Remarks No chem or rad contamination detected

Samples to be analyzed per CERCLA Full Characterization (Test Package B)

Sample Identification

6" S.S. liner @ 11.6'-12.1', 8-13-92 @ 0900

Moist tin @ 15', " , @ 1130

" S.S. liner @ 16.8'-17.3', " , @ 1300

6" S.S. liner @ 91.65'-92.15', 8-20-92 @ 0900

6" S.S. liner @ 93.15'-93.65', 8-20-92 @ 0900

Moist tin @ 94.6' 8-20-92 @ 0900

FOR INFORMATION ONLY

☐ Field Transfer of Custody

CHAIN OF POSSESSION (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
Stewart Cauley / Stewart Cauley	E.C. Rafuse / E.C. Rafuse	09/17/92 1020
Relinquished by: E.C. Rafuse / E.C. Rafuse	Received by: C.C. McTurley	Date/Time: 09/22/92 10:25
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

Pg 1 of 6

TEST REQUEST

OPERABLE UNIT	W-049H	WELL NO	699-42-37	DEPTH	135.39-136.69
SAMPLE/SPECIMEN NO	2-3053	COST CODE/WORK ORDER NUMBER			~~R331H~~ JM A6CDR
REQUESTED BY: ORG	81421	PERSON	B. Williams	PHONE	6-3416
********HEIS********	NA	MSIN	H4-56	DATE	09-08-92

TEST REQUESTED	# OF SAMPLES	TEST LAB INFORMATION
Sieve/Hydrometer	3	GEL-07 / Rev. 2 / 3-13-92
Hydraulic Conductivity	3	GEL-09 / Rev. 2 / 3-13-92
Specific Gravity	3	GEL-10 / Rev. 1 / 12-1-89
Moisture Content	3	GEL-14 / Rev. 0 / 3-13-92
Bulk Density/Porosity	3	GEL-16 / Rev. 1 / 3-13-92
Calcium Carbonate	3	GEL-19 / Rev. 0 / 9-7-90

REMARKS:

ARCHIVE YES ☐ NO ■

RADIATION RELEASE

Bldg. 699-42-37 Expiration Date 09/10/92

Released By [signature] Health Physics

Remarks 136.39

2-3053

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-42-37 Expiration Date 09/10/92

Released By [signature] Health Physics

Remarks 135.39-136.39

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-42-37 Expiration Date 09/10/92

Released By [signature] Health Physics

Remarks 135.39-136.39

54-3000-022 (01/89)

RECEIVED BY L. D. Bruggeman

DATE 09-08-92

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

WHC-SD-EN-DP-068, Rev. 0
GEOTECHNICAL ENGINEERING LABORATORY
GEL-07 SIEVE AND HYDROMETER ANALYSIS

Sample No. 2-3053
Page 1 of 5

GEL-07 SIEVE ANALYSIS

Date 9/22/92 Calibration Due Date 10-25-92 Balance: 3310

Sample Description SAND & GRAVEL Sieve Time 10 (min

Reduced By: ☒ Splitting ☐ Quartering ☒ Stockpile

Sieve Size	Sample Weight	Cumulative Wt. Retained	Cumulative % Retained	Cumulative % Passed	Tested By
1 1/2	2116.7	0	0	100	LD Bragg
3/4	↓	531.1	25.1	74.9	↓
3/8	↓	1013.3	47.9	52.1	↓
4	↓	1248.3	59.0	41.0	↓
10	102.2	14.3	14.0	35.3	↓
40	↓	39.4	38.6	25.2	↓
60	↓	57.6	56.4	17.9	↓
100	↓	69.3	67.8	13.2	↓
200	↓	80.8	79.1	8.6	↓
NA	NA	NA	NA	NA	NA

Remarks: Fines split from stockpile. Washed Fine Grading

GEL-07 HYDROMETER ANALYSIS

Date _____ Balance: _____ Calibration Due Date _____

Thermometer: _____ Calibration Due Date _____

Hydrometer: _____ Calibration Due Date _____

WEIGHT OF SAMPLE

Wt. Container + Soil _____ (g) Specific Gravity of Sample _____

Wt. Container _____ (g) % Passing No. 10 Sieve _____ %

Wt. Soil _____ (g) W = _____ K = _____

COMPOSITE CORRECTION

1st Reading _____ at _____ °C

2nd Reading _____ at _____ °C

Date	Clock Time	Elapsed Time (min)	Hydrometer Reading	Hydrometer with Composite Correction	Temperature (°C)	Soil in Suspension (%)	Particle Diameter (mm)	Tested By
		2.0						
		5.0						
		15.0						
		30.0						
		60.0						
		250.0						
		1440.0						

FOR INFORMATION ONLY

Remarks: NA

Tests Checked By CC McGulley Date 9/23/92

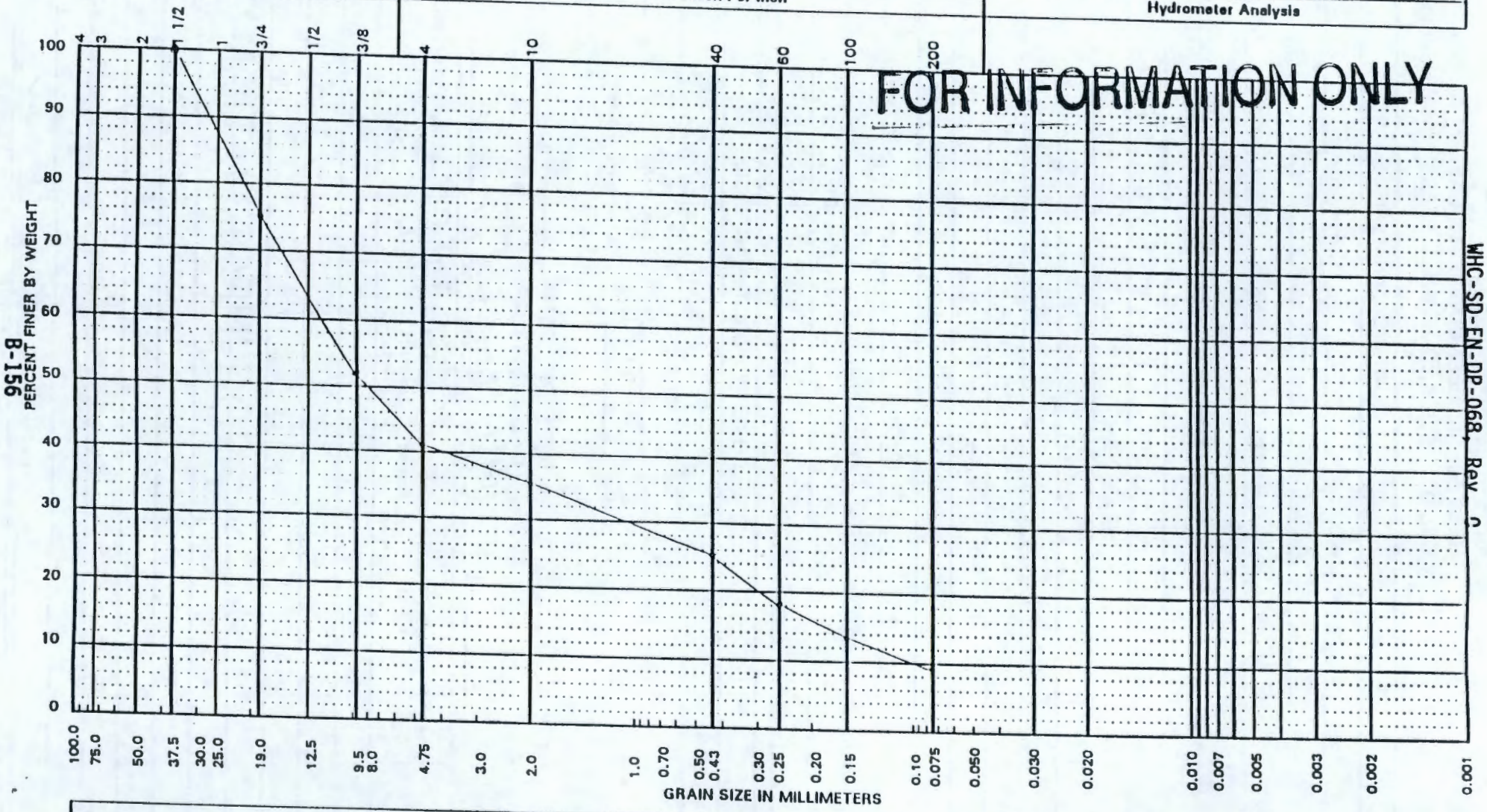
Pg 3 of 6

GEL-07 GRAIN SIZE ANALYSIS PLOT

Sample No. 2-3053

Page 2 of 5

Remarks 699-42-37 135.39-136.69'



FOR INFORMATION ONLY

Plotted By L D Bruggeman Date 9/22/92

Plot Checked By JC McGuffey Date 9/23/92

BD 6 99 (04/92)

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

GEOTECHNICAL EN EERING LABORATORY
GEL-09 HYDRAULIC CONDUCTIVITY DATA SHEET

Sample 2-3053

Pg 4 of 6

Balance No. 3310 Permeameter No. 3

Test Initiated By LD Buggeman Date 9/14/92 Procedure GEL.09/Rev.2/3-13-92 Sleeve Type: ☐ Metal ☒ Plastic

Specimen Diameter (D) 9.53 cm

Specimen Length (L) 14.5 cm

$$A = \left(\frac{D}{2}\right)^2 \times 3.1415$$

Specimen Area (A) 71.33 cm^2

Darcy's Law

$$K = \frac{QL}{AH}$$

K = Hydraulic Conductivity (cm/sec)

Q = Flow (cm^3/sec) = Vol. g/Time (sec)

A = Area (cm^2)

H = Hydraulic Head

L = Length (cm)

Date Year 92 (Mo/Day)	Run Time System (Hr:Min)	Run Time System (Hr:Min)	Run Time Time Change	Container Weight (± 0.1 g)	Container Tare (± 0.1 g)	Container Tare & Effluent (± 0.1 g)	Room Temp (°C)	Pressure Pore H_2O (cm)	Effluent Description	Operator Initials	Hydraulic Conductivity (cm/sec)	Calculate By
9/14	07:45	11:45	4:00:00	5.50	98.3	103.8	22.9	121.3	clear	LDB	6.40E-07	LDB
9/14 ~~9/15~~	11:46	7:36	19:50	27.0	98.3	125.3	21.8	121.3	clear	LDB	6.34E-07	LDB
9/15 ~~9/17~~	07:37	09:05	49:28	68.4	98.3	166.7	21.8	121.3	clear	LDB	6.44E-07	LDB
9/17 ~~9/21~~	09:06	07:04	93:58	125.7	98.3	224.0	23.3	121.3	clear	LDB	6.23E-07	LDB

$\bar{K} = 6.4E^{-07}$

FOR INFORMATION ONLY

Remarks

Test Checked By JC McGuffey Date 9/23/92

BD-6000-795 (01/9

B-157

WHC-SD-EN-DP-068, Rev. 0

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

GEOTECHNICAL ENGINEERING LABORATORY
GEL-10 SPECIFIC GRAVITY SOILS FINE/COARSE

Sample No. 2-3053

GEL-10 SPECIFIC GRAVITY OF SOILS

Date 9/22/92 Tested By LD Bruggeman

Balance: 3304 Calibration Due Date 10-25-92

	DETERMINATION NO.	1	2	3
W_o	Wt. Oven Dry, Soil, g	55.0		
	Pycnometer No.	2555		
	Wt. Pycnometer, g	122.83		
W_a	Wt. Pycnometer + Wetting Agent, g	381.38		
W_b	Wt. Pycnometer + Wetting Agent + Soil, g	415.97		
	Temperature, T_x at W_b, °C	25.8		
G_w	Specific Gravity of Wetting Agent at T_x	1.00		
G_t	Specific Gravity of Soil at T_x	2.69		
G_s	Specific Gravity of Soil at 20 °C	2.69		

Wetting Agent D.I. H_2O

$$C_t = \frac{W_o}{W_o + W_a - W_b}$$

Remarks:

GEL-10 SPECIFIC GRAVITY COARSE AGGREGATES

Date 9/23/92 Tested By: LD Bruggeman

Balance: 3312 Calibration Due Date 7/20/93

	DETERMINATION NO.	1	NA
	Size fraction	1½" → #4	
P_1	Size fraction, wt. % total, g	59.0	
	Tare weight	254.0	
B	Weight sample (SSD), g	982.2	
C	Weight sample in H_2O, g	610.0	
A	Weight of oven dry sample, g	962.7	↓

Bulk Specific Gravity, 23/23 °C = A/(B-C) = 2.59

A = wt. oven dry sample in air, g
B = wt. SSD sample in air, g
C = wt. saturated sample in H_2O, g

Bulk Specific Gravity SSD, 23/23 °C = B/(B-C) = 2.64

Apparent Specific Gravity, 23/23 °C = A/(A-C) = 2.73

*Average Specific Gravity Values, 23/23 °C $\overline{G}$ = 2.63

Remarks:

$$\overline{G} = \frac{1}{\frac{P_1}{G_1} + \frac{P_2}{G_2}}$$

P_1 = % coarse P_2 = % fines
G_1 = coarse sp.gr. x 100 G_2 = fines sp. gr. x 100

FOR INFORMATION ONLY

$\overline{G}$ = Ave. Specific Gravity for all forms of Specific Gravity i.e., formula applicable to Bulk, Bulk SSD and Apparent Specific Gravity.

G_1, G_2 = appropriate Specific Gravity values for each size fraction depending on the type of Specific Gravity being averaged.

P_1, P_2 = wt. percentages of each size fraction present in the original sample.

*State type of Specific Gravity Reported i.e., either Bulk, Bulk SSD or Apparent.

Tests Checked By: C. McGuffey Date 9/23/92

GEL 07 ☑	GEL 16 ☑	WHC-SD-EN-DP-068, Rev. 0	Sample No. 2-3053
GEL 09 ☑	GEL 17 ☐	GEOTECHNICAL ENGINEERING LABORATORY	
GEL 10 ☑	GEL 19 ☑	GEL-14, GEL-16, GEL-19	Page 5 of 5
GEL 14 ☑	GEL ☐		

GEL-14 SOIL MOISTURE

Balance: 3304 Calibration Due Date 10-25-92 Tested By L D Bruggen

Thermometer: 0018 Calibration Due Date 9/17/93

Date	Wet Wt. + Can	Dry Wt. + Can	Tare Wt.	Moisture	Dry Wt. Soil	% Moisture	Calculated By
9/10/92	273.5	258.5	61.26	15.00	197.24	7.60	Computer / LDBruggen

Remarks:

GEL-16 BULK DENSITY-POROSITY

DETERMINATION NO.			1	NA
Pan No.:	Mold: ☒ Plastic ☐ Metal	Length:	14.5	
Sample Volume, V, cc			1034.3	
Wt. of Sample & Mold, g			2592.5	
Wt. of Mold, g			311.9	
Wet Wt. of Sample, g			2280.6	↓
Wet Density of Sample, γ m, g/cc			~~2.119.52~~ 2.20	LDB 9/21
Water Content % Dry Weight			7.60	NA
Dry Density, g/cc γ d			2.05	
Dry weight of Sample, g, Ws			2119.52	
*Void Ratio, e			.3224	
**Porosity, n, %			24.38	↓

Tested By L D Bruggen

$$Ws = \frac{\text{Wet Wt.}}{1 + \%\ \text{Dry Wt.}}$$

$$*\text{Void Ratio, } e = \frac{\text{Avg. Sp. Gr. x Vol.}}{Ws} - 1$$

$$**\text{Porosity, } n, \% = \left(\frac{e}{1+e}\right) 100$$

Remarks: L = 14.5 cm. sample rearranged and repacked to insure sealing. .74 cm void filled with #10 AL0032 road base gravel.

GEL-19 CALCIUM CARBONATE

Vessel No. 5650 Tested By

FOR INFORMATION ONLY

Balance No. 3304 Date Due 10-25-92

Sample Weight 8.0 (g)

Sample Pressure 0.5 (psi) %$CaCO_3$ 1.1 Per Gram

Remarks: Sample contained a lot of rock and gravel. Some soil particles were cemented to the rocks. Soil appears to be of silt/clay.

Tests Checked By: L D Bruggen Date 9-14-92

Page 1 of 3

TEST REQUEST

VALIDATED KDR 1/12/93

OPERABLE UNIT	RCRA	WELL NO	699-42-37	DEPTH	5.0-268.0
SAMPLE/SPECIMEN NO	3-0151>020~~8~~9	COST CODE/WORK ORDER NUMBER			R4G1H
REQUESTED BY: ORG	81421	PERSON	B. Williams	PHONE	6-3416
********HEIS********	NA	MSIN	H4-56	DATE	10/27/92

TEST REQUESTED	# OF SAMPLES	TEST LAB INFORMATION
Moisture Content	10/30 JM 58 ~~587~~ JM	GEL-14 / Rev. 0 / 3-13-92
Calcium Carbonate	JM 58 ~~587~~ JM 10/30	GEL-19 / Rev. 0 / 9-07-90

REMARKS:

ARCHIVE YES ☐ NO ☑

TAPE RELEASE STICKER HERE

see attached

RECEIVED BY J.C. McGuffey

DATE 10/27/92

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

WHC-SD-EN-DP-068, Rev. 0
GEOTECHNICAL ENGINEERING LABORATORY
GEL-14, GEL-19

Sample No(s). 3-0151-017

GEL-14 SOIL MOISTURE | **GEL-19 CALCIUM CARBONATE**

Tested By JRPayne Balance: 3304 Calibration Due Date 1-25-93 Vessel No. 5650

Date 11-19-92 Thermometer: # 18 Calibration Due Date 9-17-93 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
3-0151	495.50	466.04	60.96	29.46	406.08	7.27	1.95	4.0	JRP/Comp
3-0152	548.06	533.14	62.79	14.92	470.35	3.17	.05	<1.0	JRP/Comp
3-0154	527.72	502.09	63.01	25.63	439.08	5.84	.04	<1.0	JRP/Comp
3-0155	503.64	472.32	62.58	31.32	409.74	7.64	.04	<1.0	JRP/Comp
3-0156	510.98	477.15	62.99	33.83	414.16	8.17	.04	<1.0	JRP/Comp
3-0157	441.25	413.70	62.74	27.55	350.96	7.85	.04	<1.0	JRP/Comp
3-0158	478.95	455.25	62.40	23.70	392.85	6.03	.04	<1.0	JRP/Comp
3-0159	480.62	459.24	61.95	21.38	397.29	5.38	.04	<1.0	JRP/Comp
3-0160	509.35	476.73	60.82	32.62	415.91	7.84	.04	<1.0	JRP/Comp
3-0161	470.22	446.10	61.79	24.12	384.31	6.28	.04	<1.0	JRP/Comp
3-0162	512.50	498.95	63.15	13.55	435.80	3.11	.04	<1.0	JRP/Comp
3-0163	483.30	469.55	63.31	13.75	406.24	3.38	.04	<1.0	JRP/Comp
3-0164	549.30	531.58	62.17	17.72	469.41	3.77	.05	<1.0	JRP/Comp
3-0165	525.55	513.83	63.41	11.72	450.42	2.60	.04	<1.0	JRP/Comp
3-0166	283.69	269.76	62.22	13.93	207.54	6.71	.04	<1.0	JRP/Comp
3-0167	417.71	399.27	62.07	18.44	337.20	5.47	.06	<1.0	JRP/Comp
3-0168	509.52	493.60	63.57	15.92	430.03	3.70	.03	<1.0	JRP/Comp
3-0169	432.28	412.48	63.16	19.80	349.32	5.67	.04	<1.0	JRP/Comp
3-0170	414.39	360.60	63.52	53.79	297.08	18.11	.04	<1.0	JRP/Comp
3-0171	409.98	347.27	60.82	62.71	286.45	21.89	.04	<1.0	JRP/Comp
3-0172	392.00	334.70	63.02	57.30	271.68	21.09	.04	<1.0	JRP/Comp
3-0173	572.94	401.22	62.72	171.72	338.50	50.73	.05	<1.0	JRP/Comp
3-0174	579.23	443.69	62.31	135.54	381.38	35.54	.04	<1.0	JRP/Comp
3-0175	513.46	378.09	62.95	135.37	315.14	42.96	.04	<1.0	JRP/Comp
3-0176	424.03	281.47	62.93	142.56	218.54	65.23	.04	<1.0	JRP/Comp
3-0177	381.44	260.86	62.95	120.58	197.91	60.93	.06	<1.0	JRP/Comp
3-0178	368.25	336.05	63.17	32.20	272.88	11.80	1.0	1.7	JRP/Comp
3-0179	542.92	450.68	63.23	92.24	387.45	23.81	.09	1.5	JRP/Comp
3-0180	360.09	346.17	61.87	13.92	284.30	4.90	.06	<1.0	JRP/Comp

Remarks:

Tests Checked By: R. L. McCartney Date 11/23/92

BD-6000-806 (04/92)

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

WHC-SD-EN-DP-068, Rev. 0
GEOTECHNICAL ENGINEERING LABORATORY
GEL-14, GEL-19

Sample No(s). 3-181-209

GEL-14 SOIL MOISTURE

Tested By J.R. Payne Balance: 3304 Calibration Due Date 1-25-93
Date 11-19-93 Thermometer: #18 Calibration Due Date 9-17-93

GEL-19 CALCIUM CARBO

Vessel No. 565-C
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
3-0181	523.70	486.42	62.66	37.28	423.76	8.80	.04	<1.0	JRP/Comp
3-0182	541.63	445.02	61.53	96.61	383.49	25.19	.04	<1.0	JRP/Comp
3-0183	451.77	359.47	63.71	92.30	295.76	31.21	.03	<1.0	JRP/Comp
3-0184	532.94	455.62	63.29	77.32	392.33	19.71	.03	<1.0	JRP/Comp
3-0185	443.62	371.92	63.08	71.70	308.84	23.22	.03	<1.0	JRP/Comp
3-0186	466.57	399.89	62.73	66.68	337.16	19.78	.03	<1.0	JRP/Comp
3-0187	537.15	449.35	63.15	87.80	386.20	22.73	.03	<1.0	JRP/Comp
3-0188	513.34	412.12	63.40	101.22	348.72	29.03	.03	<1.0	JRP/Comp
3-0189	483.87	349.98	63.92	133.89	286.06	46.80	.03	<1.0	JRP/Comp
3-0190	508.10	403.73	63.01	104.37	340.72	30.63	.03	<1.0	JRP/Comp
3-0191	451.24	319.38	61.76	131.86	257.62	51.18	.03	<1.0	JRP/Comp
3-0192	478.19	321.78	60.85	156.41	260.93	59.94	.04	<1.0	JRP/Comp
3-0193	457.57	368.13	63.22	89.44	368.13	29.33	.03	<1.0	JRP/Comp
3-0194	482.54	362.46	63.72	120.08	298.74	40.20	.05	<1.0	JRP/Comp
3-0195	545.87	402.19	62.60	143.68	339.59	42.31	.04	<1.0	JRP/Comp
3-0196	534.91	407.24	61.12	127.67	346.12	36.89	.05	<1.0	JRP/Comp
3-0197	545.76	467.86	61.06	77.90	406.80	19.15	.04	<1.0	JRP/Comp
3-0198	560.66	417.19	61.78	143.47	355.41	40.37	.04	<1.0	JRP/Comp
3-0199	566.09	424.30	62.40	141.79	361.90	39.18	.03	<1.0	JRP/Comp
3-0200	540.40	411.74	63.08	128.66	348.66	36.90	.03	<1.0	JRP/Comp
3-0201	591.54	447.36	60.59	144.18	386.77	37.28	.03	<1.0	JRP/Comp
3-0202	499.10	389.14	63.35	109.96	325.79	33.75	.03	<1.0	JRP/Comp
3-0203	572.82	442.87	61.91	129.95	380.96	34.11	.03	<1.0	JRP/Comp
3-0204	558.64	435.68	61.42	122.96	374.26	32.85	.03	<1.0	JRP/Comp
3-0205	474.82	392.31	63.18	82.51	329.13	25.07	.04	<1.0	JRP/Comp
3-0206	480.89	391.53	61.16	89.36	330.37	27.05	.03	<1.0	JRP/Comp
3-0207	583.04	442.98	62.05	140.06	380.93	36.77	.04	<1.0	JRP/Comp
3-0208	494.56	382.73	60.60	111.83	322.13	34.72	.04	<1.0	JRP/Comp
3-0209	524.23	430.82	62.80	93.41	368.02	25.38	.03	<1.0	JRP/Comp

Remarks:

Tests Checked By: R.T. McIntosh Date 11/23/92

BD-6000-806 (04/92)

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Health Physics
Remarks 3 0168 85

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Remarks 3 0170 92

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Health Physics
Remarks 3 0171 95

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Health Physics
Remarks 3 0172 100

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Health Physics
Remarks 3 0173 105

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Health Physics
Remarks 0174 110

54-3000-022 (01/89)

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Health Physics
Remarks 3 0175 115

54-3000-022 (01/89)

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Remarks 120
3 0176
54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-42-37 Expiration Date 10/29/92
Released By LRW Health Physics
Remarks 125
3 0177
54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-42-37 Expiration Date 10/29/92
Released By LRW Health Physics
Remarks 129
3 0178

RADIATION RELEASE

Bldg. 699-42-37 Expiration Date 10/29/92
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Remarks 130
3 0179
54-3000-022 (01/89)

RADIATION RELEASE

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Remarks 135
3 0180
54-3000-022 (01/89)

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Remarks 140
3 0181
54-3000-022 (01/89)

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Bldg. 699-42-37 Expiration Date 10/29/92
Released By LRW Health Physics
Remarks 145
3 0182
54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-42-37 Expiration Date 10/29/92
Released By LRW Health Physics
Remarks 150
3 0183
54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-42-37 Expiration Date 10/29/92
Released By LRW Health Physics
Remarks 155
3 0184
54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-42-37 Expiration Date 10/29/92
Released By LRW Health Physics
Remarks 160
3 0185
54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-42-37 Expiration Date 10/29/92
Released By LRW Health Physics
Remarks 165
3 0186
54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-42-37 Expiration Date 10/29/92
Released By LRW Health Physics
Remarks 170
3 0187
54-3000-022 (01/89)

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Bldg. 699-42-37 Expiration Date 10/28/92
Released By [signature]
Health Physics
Remarks 3 0188 175

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-42-37 Expiration Date 10/28/92
Released By [signature]
Health Physics
Remarks 3 0189 176

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-42-37 Expiration Date 10/28/92
Released By [signature]
Health Physics
Remarks 3 0190 180

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-42-37 Expiration Date 10/28/92
Released By [signature]
Health Physics
Remarks 3 0191 185

RADIATION RELEASE

Bldg. 699-42-37 Expiration Date 10/28/92
Released By [signature]
Health Physics
Remarks 3 0192 190

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-42-37 Expiration Date 10/28/92
Released By [signature]
Health Physics
Remarks 3 0193 191

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-42-37 Expiration Date 10/28/92
Released By [signature]
Health Physics
Remarks 3 0194 195

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-42-37 Expiration Date 10/28/92
Released By TEC
Health Physics
Remarks 3 0195 200

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-42-37 Expiration Date 10/28/92
Released By TEC
Health Physics
Remarks 3 0196 205

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-42-37 Expiration Date 10/28/92
Released By TEC
Health Physics
Remarks 3 0197 210

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-42-37 Expiration Date 10/28/92
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Health Physics
Remarks 3 0198 215

54-3000-022 (01/89)

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Bldg. 699-42-37 Expiration Date 10/28/92
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Health Physics
Remarks 3 0199 220

54-3000-022 (01/89)

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Bldg. 699-42-37 Expiration Date 10/29/92
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Health Physics
Remarks 3 0200 225

54-3000-022 (01/89)

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Bldg. 699-42-37 Expiration Date 10/29/92
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Health Physics
Remarks 3 0201 230

54-3000-022 (01/89)

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Health Physics
Remarks 3 0202 235

RADIATION RELEASE

Bldg. 699-42-37 Expiration Date 10/29/92
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Health Physics
Remarks 3 0203 240

54-3000-022 (01/89)

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Bldg. 699-42-37 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 3 0204 245

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-42-37 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 3 0205 250

54-3000-022 (01/89)

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Bldg. 699-42-37 Expiration Date 10/29/92
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Health Physics
Remarks 3 0206 255

54-3000-022 (01/89)

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Bldg. 699-42-37 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 3 0207 260

RADIATION RELEASE

Bldg. 699-42-37 Expiration Date 10/29/92
Released By TEC
Health Physics
Remarks 3 0208 265

54-3000-022 (01/89)

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Health Physics
Remarks 3 0209 268

54-3000-022 (01/89)

PHYSICAL PROPERTIES DATA SHEET
200 AREAS TREATED EFFLUENT DISPOSAL FACILITY - RCRA BOREHOLES

Lab-Sample #	Stratigraphic Unit	Sample Depth (ft)	Specific Gravity (g/cm^3)	Moisture (%)	Moisture Retention	Sieve Analysis	Hydraulic Cond. (cm/sec)	Porosity (%)
699-42-37								
2-3088	Hanford formation	11.6-17.3	2.72	6.79	Data available	Sandy Gravel	$1.3x10^{-3}$	28.68
2-3089	Ringold Lower Mud Sequence	91.65-94.0	2.62	19.30	Data available	Silty Sand	$3.2x10^{-7}$	36.32
2-2865	Ringold Lower Mud Sequence	126.8-128.8	2.66	25.82	Data available	Silty Sand	$2.3x10^{-6}$	40.41
2-2864	Ringold Unit A Gravels	130	NR	NR	NR	Sandy Gravel	NR	NR
2-3053	Ringold Unit A Gravels	135.39-136.69	2.63	7.60	NR	Sandy Gravel	$6.4x10^{-7}$	24.38
699-40-36								
3-0001	Hanford formation	95.5-97.0	2.72	6.47	Data available	Silty sandy gravel	$1.8x10^{-4}$	18.32
3-0002	Ringold Lower Mud Sequence	114.5-116.5	2.46	26.52	Data available	Silty sand	$9.3x10^{-8}$	31.32
3-0003	Ringold Unit A	215.0-217.0	2.57	11.02	Data available	Silty sandy gravel	$6.3x10^{-7}$	22.16
699-41-35								
2-3084	Hanford formation	80.8-81.8	2.80	6.46	Data available	Gravel	$1.3x10^{-1}$	33.12
2-3085	Ringold Lower Mud Sequence	102.7-104.7	2.71	20.72	Data available	Silty sand	$1.4x10^{-8}$	38.48
2-3086	Ringold Lower Mud Sequence	146.1-147.6	2.65	15.59	NR	Silty sand	$7.5x10^{-9}$	28.73

PHYSICAL PROPERTIES DATA SHEET
200 AREAS TREATED EFFLUENT DISPOSAL FACILITY - RCRA BOREHOLES

Lab-Sample #	Stratigraphic Unit	Sample Depth (ft)	Specific Gravity (g/cm^3)	Moisture (%)	Moisture Retention	Sieve Analysis	Hydraulic Cond. (cm/sec)	Porosity (%)
2-3087	Ringold Unit A (second fine grained unit)	207.3-208.8	2.65	45.38	NR	Silty sand	9.2×10^{-9}	55.8

W-049H 200 AREAS TREATED EFFLUENT DISPOSAL FACILITY ELEVATION DATA						
WELL	HANFORD COORDINATES	BRASS CAP (NGVD'29)	CASING	SCREENED INTERVAL	PUMP INTAKE	WATER TABLE DEC 92
699-40-36	N39830 W36432	525.79	528.92	302.59-325.32	219.18*	117.94*
699-41-35	N40856 W35476	517.42	520.38	315.52-333.92	203.81*	108.57*
699-42-37	N41846 W37451	516.18	519.40	356.28-376.58	158.40*	104.35*

*Below top of casing

P3 of 55

JC McGUFFEY
SO-10/3-4590

9/02/92

699-42-37 TEST RESULTS SUMMARY SHEET

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
2-2865	699-42-37	RCRA	126.79-128.29	2.3E-06	2.66	na	2.66	25.82	40.41	1.59	2.7	GEL-07/17

NR = Not Requested
na = not applicable

P.5 of 55

TEST REQUEST

OPERABLE UNIT	RCRA	WELL NO	699-42-37	DEPTH	126.79-128.29
SAMPLE/SPECIMEN NO	2-2865	COST CODE/WORK ORDER NUMBER			R3314
REQUESTED BY: ORG	81421	PERSON	B. WILLIAMS	PHONE	6-3416
********HEIS********	NA	MSIN	H4-56	DATE	8/27/92

TEST REQUESTED	# OF SAMPLES	TEST LAB INFORMATION
Sieve Analysis	3	GEL-07 / Rev. 2 / 3-13-92
Hydraulic Conductivity	3	GEL-09 / Rev. 2 / 3-13-92
Specific Gravity	3	GEL-10 / Rev. 1 / 12-1-89
Moisture Content	3	GEL-14 / Rev. 0 / 3-13-92
Bulk Density/Porosity	3	GEL-16 / Rev. 1 / 3-13-92
Moisture Retention	3	GEL-17 / Rev. 0 / 3-13-92
Calcium Carbonate	3	GEL-19 / Rev. 0 / 9-7-90

REMARKS: Indicate which sleeve used for each test.

ARCHIVE YES ■ NO ☐

RADIATION RELEASE

Bldg. 699-42-37 Expiration Date 08/31/92

Released By TEC
Health Physics

Remarks 126.79-127.29

54-3000-022 (01/89)

RADIATION RELEASE

Bldg. 699-42-37 Expiration Date 8/31/92

Released By TEC
Health Physics

Remarks 127.29-127.79

RECEIVED BY JC McGuffey

DATE 8/27/92

B-172

54-3000-022 (01/89)

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

WHC-SD-EN-DP-068, Rev. 0

GEOTECHNICAL ENGINEERING LABORATORY
GEL-07 SIEVE AND HYDROMETER ANALYSIS

Sample No. 2-2865

GEL-07 SIEVE ANALYSIS

Date 9-1-92 Calibration Due Date 10-25-92 Balance: 3310

Sample Description VERY FINE SAND & SILT Sieve Time 10 (min)

Reduced By: ☒ Splitting ☐ Quartering ☐ Stockpile

Sieve Size	Sample Weight	Cumulative Wt. Retained	Cumulative % Retained	Cumulative % Passed	Tested By
#10	179.3	0	0	100	LD Bruggeman
#40		23.1	12.9	87.1	
#60		29.8	16.6	83.4	
#100		45.2	25.2	74.8	
#200		100.7	56.2	43.8	
NA	NA	NA	NA	NA	NA

Remarks: SAMPLE GROUND TO (-10) WITH MORTAR AND PESTAL.

GEL-07 HYDROMETER ANALYSIS

Date 9-1-92 Balance: 3310 Calibration Due Date 10-25-92

Thermometer: 0015 Calibration Due Date 9-16-92

Hydrometer: 1007 Calibration Due Date 1-29-93

WEIGHT OF SAMPLE

Wt. Container + Soil 128.4 (g) Specific Gravity of Sample 2.66

Wt. Container 61.6 (g) % Passing No. 10 Sieve 100 %

Wt. Soil 66.8 (g) A = — W = — K = —

COMPOSITE CORRECTION

1st Reading 6 at 22.5 °C

2nd Reading 5 at 23.1 °C

Date	Clock Time	Elapsed Time (min)	Hydrometer Reading	Hydrometer with Composite Correction	Temperature (°C)	Soil in Suspension (%)	Particle Diameter (mm)	Tested By
9-1-92	7:57	2.0	26	20	22.8	29.94	0.032	LD Bruggeman
	8:0	5.0	20	14	22.9	20.96	0.021	
	8:10	15.0	15	9	23.0	13.47	0.013	
	8:25	30.0	14	8	22.9	11.98	0.009	
	8:55	60.0	12	6	23.1	8.98	0.006	
	12:05	250.0	10	4	24.4	~~6.08~~ 5.99 lost 5/6	.003	
9-2-92	7:55	1440.0	9	3	22.9	4.49	.001	

Remarks: "TUBE C"

CALCULATED BY COMPUTER

Tests Checked By B-173 J. McGulley Date 9/2/92

BD-6000-796 (04/92)

PK 55

GEL-07 GRAIN SIZE ANALYSIS PLOT

Sample No. 2-2865

Page 2 of 5

Remarks

Plot: J. McGuffey Date 9/2/92

Plot Checked By L. A. Bruggeman Date 9-92

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

GEOTECHNICAL E...NEERING LABORATORY
GEL-09 HYDRAULIC CONDUCTIVITY DATA SHEET

Sam[illegible] L-2865

Balance No. 3310 Permeameter No. 4

Test Initiated By LD Bruggeman Date 8/28/92 Procedure GEL 09 Rev. 2/3-13-92 Sleeve Type: ☒ Metal ☐ Plastic

Specimen Diameter (D) 9.83 cm

Specimen Length (L) 15.24 cm

$$A = \left(\frac{D}{2}\right)^2 \times 3.1415$$

Specimen Area (A) 75.89 cm^2

Darcy's Law

$$K = \frac{QL}{AH}$$

K = Hydraulic Conductivity (cm/sec)
Q = Flow (cm^3/sec) = Vol. g/Time (sec)
A = Area (cm^2)
H = Hydraulic Head
L = Length (cm)

Date Year 92 (Mo/Day)	Run Time System (Hr:Min)	Run Time System (Hr:Min)	Run Time Time Change	Container Weight (± 0.1 g)	Container Tare (± 0.1 g)	Container Tare & Effluent (± 0.1 g)	Room Temp (°C)	Pressure Pore H_2O (cm)	Effluent Description	Operator Initials	Hydraulic Conductivity (cm/sec)	Calculated By
8/28 ~~8/31~~	14:02	7:17	65:15	260.3	273.8	534.1	25.0	98.0	clear	LDB	2.27E-06	LDB
8/31	7:19	15:58	8:39	35.6	273.8	309.4	25.7	98.3	clear	LDB	2.34E-06	LDB
8/31 ~~9/1~~	16:00	7:08	15:08	62.1	273.8	335.9	22.2	98.4	clear	LDB	2.33E-06	LDB
9/1	7:09	15:21	8:12	34.0	273.8	307.8	25.8	98.4	clear	LDB	2.35E-06	LDB
9/1 ~~9/2~~	15:25	7:21	15:56	65.3	273.8	339.1	22.2	98.3	clear	LDB	2.33E-06	LDB
					$\bar{K} = 2.3E^{-06}$							

Remarks Fine moist sand, tightly packed.

Test Checked By JC McGuffey Date 9/2/92

BD-6000-795 (04/92)

WHC-SD-EN-DP-068, Rev. 0

B-175

P. 9 of 55

GEL 07 ☑ GEL 09 ☑ GEL 10 ☑ GEL 14 ☑ GEL 16 ☑ GEL 17 ☑ GEL 19 ☑ GEL ☐	**GEOTECHNICAL ENGINEERING LABORATORY** **GEL-10 SPECIFIC GRAVITY SOILS FINE/COARSE**	Sample No. 2-2865 Page 4 of 5

GEL-10 SPECIFIC GRAVITY OF SOILS

Date 8-31-92 Tested By L D Bruggeman

Balance: 3304 Calibration Due Date 10-25-92

	DETERMINATION NO.	1	2	3
W_o	Wt. Oven Dry, Soil, g	55.00	.	.
	Pycnometer No.	25555		
	Wt. Pycnometer, g	122.83	.	.
W_a	Wt. Pycnometer + Wetting Agent, g	381.38	.	.
W_b	Wt. Pycnometer + Wetting Agent + Soil, g	415.71	.	.
	Temperature, T_x at W_b, °C	25.2		
G_w	Specific Gravity of Wetting Agent at T_x	1.00	.	.
G_t	Specific Gravity of Soil at T_x	2.66	.	.
G_s	Specific Gravity of Soil at 20 °C	2.66	.	.

Wetting Agent D.I. H_2O

$$C_t = \frac{W_o}{W_o + W_a - W_b}$$

Remarks:

GEL-10 SPECIFIC GRAVITY COARSE AGGREGATES

Date Tested By:

	*DETERMINATION NO.	1	
	Size fraction		
P_1	Size fraction, wt. % total, g		
B	Weight sample (SSD), g	.	.
C	Weight sample in H_2O, g	.	.
A	Weight of oven dry sample, g	.	.

Bulk Specific Gravity, 23/23 °C = A/(B-C) = .

A = wt. oven dry sample in air, g
B = wt. SSD sample in air, g
C = wt. saturated sample in H_2O, g

Bulk Specific Gravity SSD, 23/23 °C = B/(B-C) = .

Apparent Specific Gravity, 23/23 °C = A/(A-C) = .

*Average Specific Gravity Values, 23/23 °C $\overline{G}$ = .

Remarks: NA

$$\overline{G} = \frac{1}{\dfrac{P_1 = \%\ \text{coarse}}{G_1 = \text{coarse sp.gr.} \times 100} + \dfrac{P_2 = \%\ \text{fines}}{G_2 = \text{fines sp. gr.} \times 100}}$$

$\overline{G}$ = Ave. Specific Gravity for all forms of Specific Gravity i.e., formula applicable to Bulk, Bulk SSD and Apparent Specific Gravity.

G_1, G_2 = appropriate Specific Gravity values for each size fraction depending on the type of Specific Gravity being averaged.

P_1, P_2 = wt. percentages of each size fraction present in the original sample.

*State type of Specific Gravity Reported i.e., either Bulk, Bulk SSD or Apparent.

Tests Checked By: JC McGuffey B-176 Date 9/2/92

GEL 07 ☑	GEL 16 ☑	WHC-SD-EN-DP-068, Rev. 0 GEOTECHNICAL ENGINEERING LABORATORY GEL-14, GEL-16, GEL-19	Sample No. 2-2865
GEL 09 ☑	GEL 17 ☑		
GEL 10 ☑	GEL 19 ☑		Page 5 of 5
GEL 14 ☑	GEL ☐		

GEL-14 SOIL MOISTURE

Balance: 3310 Calibration Due Date 10-25-92 Tested By LD Bruggem

Thermometer: 0014 Calibration Due Date 9-16-92

Date	Wet Wt. + Can	Dry Wt. + Can	Tare Wt.	Moisture	Dry Wt. Soil	% Moisture	Calculated By
8-31-92	2306.6	NA	NA	473.35	1833.25 ~~.3~~ 9/31	25.82	LD Bruggem

Remarks: MOISTURE TAKEN FROM SLEEVE - estimate only

GEL-16 BULK DENSITY-POROSITY

Tested By L D Bruggem

DETERMINATION NO.			1	NA
Pan No.:	Mold: ☐ Plastic ☒ Metal	Length:	15.24	
Sample Volume, V, cc			1156.56	
Wt. of Sample & Mold, g			3044.6	
Wt. of Mold, g			738.0	
Wet Wt. of Sample, g			2306.6	
Wet Density of Sample, γ m, g/cc			1.99	
Water Content % Dry Weight			25.82	
Dry Density, g/cc γ d			1.59	
Dry weight of Sample, g, Ws			1833.25	
*Void Ratio, e			.6781	
**Porosity, n, %			40.41	

$$Ws = \frac{\text{Wet Wt.}}{1 + \%\ \text{Dry Wt.}}$$

$$\text{*Void Ratio, } e = \frac{\text{Avg. Sp. Gr. x Vol.}}{Ws} - 1$$

$$\text{**Porosity, } n, \% = \left(\frac{e}{1+e}\right) 100$$

Remarks: CALCULATED BY COMPUTER

GEL-19 CALCIUM CARBONATE

Vessel No. 5650 Tested By LD Bruggem

Balance No. 3304 Date Due 10-25-92

Sample Weight 8.0 (g)

Sample Pressure 1.2 (psi) %$CaCO_3$ 2.7 Per Gram

emarks:

Tests Checked By: JC. McGuffey B-177 Date 9/2/92

BD-6000-797 (04/32)

P.11 of 55

Westinghouse Hanford Company	WHC-SD-EN-DP-068, Rev. 0 CHAIN OF CUSTODY

Custody Form Initiator Brett Thompson

Company Contact E.R. RAFUSE Telephone 376-0542

Project Designation/Sampling Locations W049H 699-42-37 Collection Date

Physical Sample, split spoon, stainless liners (0.5')

Ice Chest No. N/A Field Logbook No.

Bill of Lading/Airbill No. N/A Offsite Property No.

Method of Shipment Govt vehicle.

Shipped to

Possible Sample Hazards/Remarks

Sample Identification

699-42-37 126.79'-127.29' a10908	"CERCLA B"	08/25/92
127.29'-127.79' a10908	CERCLA B	08/25/92
127.79'-128.29' a10908	CERCLA B	08/25/92

on 8/25/92 split spoon sample in 0.5' stainless steel liners

☐ Field Transfer of Custody

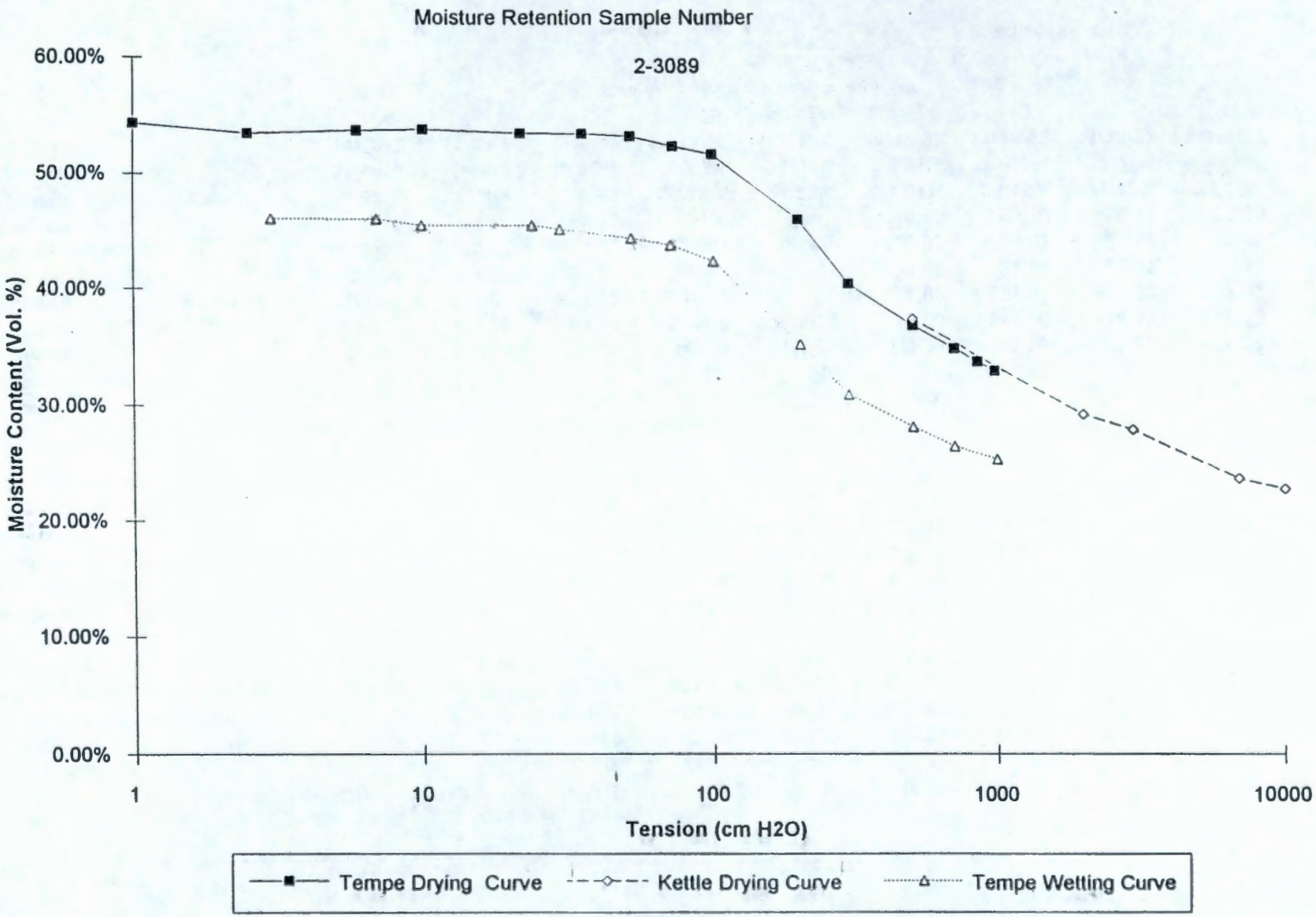
CHAIN OF POSSESSION		(Sign and Print Names)
Relinquished by: Brett R. Thompson	Received by: E.C. Rafuse E.C. Rafuse	Date/Time: 08/27/92 0830
Relinquished by: E.C. Rafuse E.C. Rafuse	Received by: JC McGuffey	Date/Time: 08/27/92 0930
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90)


Moisture Retention Sample Number
2-3089
60.00%
50.00%
40.00%
30.00%
20.00%
10.00%
0.00%
Moisture Content (Vol. %)
1
10
100
1000
10000
Tension (cm H2O)
Tempe Drying Curve
Kettle Drying Curve
Tempe Wetting Curve

P.124 55

	2-3089
Contact	C. DELANEY
Well No.	699-42-37
Operable Unit	W-049H/LERF
HEIS No.	NA
Depth	91.65-94.0

TEMPE CELLS	Sample #	2-3089 1 Bar Drying Curve								
tension in cm	N/A	N/A	0	2.5	6	10.2	22	36	52.5	73.5
error in tension value +/-			0	0.5	1	1	2	3	3	4
container number	MC-4	TC-29	TC-29	TC-29	TC-29	TC-29	TC-29	TC-29	TC-29	TC-29
weight of container/ring,+wet sample	175.34	524.17	559.01	558.41	558.56	558.62	558.40	558.35	558.21	557.64
weight of container/ring,+ dry sample	172.94	522.14	521.92	521.92	521.92	521.92	521.92	521.92	521.92	521.92
weight of moisture	2.40	2.03	37.09	36.49	36.64	36.70	36.48	36.43	36.29	35.72
weight of container and ring	61.04	425.63	425.82	425.82	425.82	425.82	425.82	425.82	425.82	425.82
weight of dry sample	114.30	96.51	96.10	96.10	96.10	96.10	96.10	96.10	96.10	96.10
moisture content % by wt.	2.10%		38.59%	37.97%	38.12%	38.19%	37.96%	37.90%	37.76%	37.17%
moisture content % by vol.			54.33%	53.45%	53.67%	53.76%	53.44%	53.36%	53.16%	52.32%
date measured			10/23/92	10/27/92	10/28/92	10/29/92	10/30/92	11/2/92	11/3/92	11/4/92
temperature deg. C			26	25	24	24	24	23	24	23
volume of brass ring, cm^3	68.26									

TEMPE CELLS	Sample #	2-3089 1 Bar Drying Curve								
tension in cm	100.5	200.3	300	500	700	850	980	N/A	N/A	
error in tension value +/-	5	5	20	20	20	20	20			
container number	TC-29	TC-29	TC-29	TC-29	TC-29	TC-29	TC-29	TC-29	MC-4	
weight of container/ring,+wet sample	557.17	553.29	549.54	547.09	545.75	545.00	544.46	544.43	179.53	
weight of container/ring,+ dry sample	521.92	521.92	521.92	521.92	521.92	521.92	521.92	521.92	157.02	
weight of moisture	35.25	31.37	27.62	25.17	23.83	23.08	22.54	22.51	22.51	
weight of container and ring	425.82	425.82	425.82	425.82	425.82	425.82	425.82	425.82	61.03	
weight of dry sample	96.10	96.10	96.10	96.10	96.10	96.10	96.10	96.10	95.99	
moisture content % by wt.	36.68%	32.64%	28.74%	26.19%	24.79%	24.01%	23.45%	23.42%	23.45%	
moisture content % by vol.	51.64%	45.95%	40.46%	36.87%	34.91%	33.81%	33.02%	32.97%		
date measured	11/5/92	11/6/92	11/9/92	11/10/92	11/11/92	11/12/92	11/13/92	11/13/92	11/14/92	
temperature deg. C	24	24	23	25	24	24	23			
volume of brass ring, cm^3	68.26									

Cell wt. before cleanup = 425.74 grams

Cell wt. after cleanup = 426.1 grams

BULK DENSITY = 1.41

425.82 Average of all 3

P.13 of 55

TEMPE CELLS	Sample #	2-3089 1 Bar Wetting Curve							
tension in cm	N/A	N/A	1000	1000	1000	1000	1000	1000	1000
error in tension value +/-			20	20	20	20	20	20	20
container number	MC-4	TC-4	TC-4	TC-4	TC-4	TC-4	TC-4	TC-4	TC-4
weight of container/ring,+wet sample	175.34	522.77	534.99	536.33	536.89	537.08	537.11	537.20	537.26
weight of container/ring,+ dry sample	172.94	520.68	520.03	520.03	520.03	520.03	520.03	520.03	520.03
weight of moisture	2.40	2.09	14.96	16.30	16.86	17.05	17.08	17.17	17.23
weight of container and ring	61.04	420.96	421.33	421.33	421.33	421.33	421.33	421.33	421.33
weight of dry sample	114.30	99.72	98.70	98.70	98.70	98.70	98.70	98.70	98.70
moisture content %	2.10%		15.15%	16.51%	17.08%	17.27%	17.30%	17.39%	17.45%
moisture content % by vol.			21.91%	23.87%	24.69%	24.97%	25.02%	25.15%	25.24%
date measured			10/26/92	10/27/92	10/28/92	10/29/92	10/30/92	11/2/92	11/3/92
temperature deg. C			23	25	24	23	24	23	24
volume of brass ring, cm^3	68.26								

TEMPE CELLS	Sample #	2-3089 1 Bar Wetting Curve								
tension in cm	1000	1000	1000	700	500	300	203.2	101	72
error in tension value +/-	20	20	20	20	20	20	5	2	2
container number	TC-4	TC-4	TC-4	TC-4	TC-4	TC-4	TC-4	TC-4	TC-4
weight of container/ring,+wet sample	537.31	537.36	537.34	538.10	539.24	541.19	544.13	548.92	549.88
weight of container/ring,+ dry sample	520.03	520.03	520.03	520.03	520.03	520.03	520.03	520.03	520.03
weight of moisture	17.28	17.33	17.31	18.07	19.21	21.16	24.10	28.89	29.85
weight of container and ring	421.33	421.33	421.33	421.33	421.33	421.33	421.33	421.33	421.33
weight of dry sample	98.70	98.70	98.70	98.70	98.70	98.70	98.70	98.70	98.70
moisture content %	17.50%	17.55%	17.53%	18.30%	19.46%	21.44%	24.41%	29.27%	30.24%
moisture content % by vol.	25.31%	25.38%	25.35%	26.47%	28.14%	30.99%	35.30%	42.32%	43.72%
date measured	11/4/92	11/5/92	11/6/92	11/9/92	11/10/92	11/11/92	11/12/92	11/13/92	11/16/92
temperature deg. C	23	23	23	23	24	24	23	23	24
volume of brass ring, cm^3	68.26								

Cell wt. before cleanup = 421.80 grams

Cell wt. after cleanup = 421.24 grams

TEMPE CELLS	Sample #	2-3089 1 Bar Wetting Curve				421.33 Average of all three		
tension in cm	52.8	30	24	10	7	3	3	N/A
error in tension value +/-	3	2	2	1	0.5	0.5	0.5	
container number	TC-4	TC-4	TC-4	TC-4	TC-4	TC-4	TC-4	SML-4
weight of container/ring,+wet sample	550.29	550.80	551.06	551.05	551.42	551.37	551.45	191.58
weight of container/ring,+ dry sample	520.03	520.03	520.03	520.03	520.03	520.03	520.03	160.35
weight of moisture	30.26	30.77	31.03	31.02	31.39	31.34	31.42	31.23
weight of container and ring	421.33	421.33	421.33	421.33	421.33	421.33	421.33	62.13
weight of dry sample	98.70	98.70	98.70	98.70	98.70	98.70	98.70	98.22
moisture content %	30.66%	31.17%	31.44%	31.43%	31.80%	31.75%	31.83%	31.80%
moisture content % by vol.	44.33%	45.07%	45.45%	45.44%	45.98%	45.91%	46.03%	
date measured	11/17/92	11/18/92	11/19/92	11/20/92	11/23/92	11/24/92	11/25/92	12/1/92
temperature deg. C	22	23	23	21	24	22	22	25
volume of brass ring, cm^3	68.26		BULK DENSITY =		1.45			

P. 14455

KETTLES

Sample #	2-3089 15 Bar Drying Curve									
tension in cm	500	500	700	700	1000	1000	2000	2000	3000	3000
error in tension value +/-	20	20	20	20	20	20	20	20	20	20
container number	BA19	BA20	BA19	BA20	BA19	BA20	BB19	BB20	BB19	BB20
weight of container/ring,+wet sample	54.17	58.32	54.18	58.02	53.89	57.48	47.69	53.68	47.40	53.40
weight of container/ring,+ dry sample	48.69	51.86	48.70	51.71	48.66	51.52	44.27	49.34	44.18	49.26
weight of moisture	5.48	6.46	5.48	6.31	5.23	5.96	3.42	4.34	3.22	4.14
weight of container and ring	28.03	27.61	28.03	27.61	28.03	27.61	27.77	28.44	27.77	28.44
weight of dry sample	20.66	24.25	20.67	24.10	20.63	23.91	16.50	20.90	16.41	20.82
moisture content %	26.52%	26.64%	26.51%	26.18%	25.35%	24.93%	20.73%	20.77%	19.62%	19.88%
date measured	11/20/92	11/20/92	11/24/92	11/24/92	12/3/92	12/3/92	11/20/92	11/20/92	11/24/92	11/24/92
temperature deg. C	22	22	25	25	27	27	22	22	25	25

KETTLES

tension in cm	3000	3000	5000	5000	7000	7000	10000	10000
error in tension value +/-	20	20	100	100	100	100	100	100
container number	BB19	BB20	BB19	BB20	BA17	BA18	BA17	BA18
weight of container/ring,+wet sample	47.33	53.06	52.25	56.79	52.09	52.07	51.77	51.79
weight of container/ring,+ dry sample	44.09	48.97	48.24	52.19	48.57	48.98	48.41	48.84
weight of moisture	3.24	4.09	4.01	4.60	3.52	3.09	3.36	2.95
weight of container and ring	27.77	28.44	27.77	28.44	27.63	30.61	27.63	30.61
weight of dry sample	16.32	20.53	20.47	23.75	20.94	18.37	20.78	18.23
moisture content %	19.85%	19.92%	19.59%	19.37%	16.81%	16.82%	16.17%	16.18%
date measured	12/3/92	12/3/92	12/7/92	12/7/92	11/20/92	11/20/92	11/24/92	11/24/92
temperature deg. C	27	27	24	24	22	22	25	25

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POINTS SELECTED FOR PLOTTING — Sample # 2-3089

container number	TC-29	TC-29	TC-29	TC-29	TC-29	TC-29	TC-29	TC-29	TC-29	TC-29	TC-29
Tension in cm	1	2.5	6	10.2	22	36	52.5	73.5	100.5	200.3	300
Tempe Drying Curve	54.33%	53.45%	53.67%	53.76%	53.44%	53.36%	53.16%	52.32%	51.64%	45.95%	40.46%
Kettle Drying Curve											
Tempe Wetting Curve											
date measured	10/23/92	10/27/92	10/28/92	10/29/92	10/30/92	11/2/92	11/3/92	11/4/92	11/5/92	11/6/92	11/9/92

container number	TC-29	TC-29	TC-29	TC-29	BA19	BB19	BB19	BA17	BA17	TC-4	TC-4
tension in cm	500	700	850	980	500	2000	3000	7000	10000	1000	700
Tempe Drying Curve	36.87%	34.91%	33.81%	33.02%							
Kettle Drying Curve					37.42%	29.21%	27.90%	23.67%	22.77%		
Tempe Wetting Curve										25.35%	26.47%
date measured	11/10/92	11/11/92	11/12/92	11/13/92	11/20/92	11/20/92	11/24/92	11/20/92	11/24/92	11/6/92	11/9/92

container number	TC-4	TC-4	TC-4	TC-4	TC-4	TC-4	TC-4	TC-4	TC-4	TC-4	TC-4
tension in cm	500	300	203.2	101	72	52.8	30	24	10	7	3
Tempe Drying Curve											
Kettle Drying Curve											
Tempe Wetting Curve	28.14%	30.99%	35.30%	42.32%	43.72%	44.33%	45.07%	45.45%	45.44%	45.98%	46.03%
date measured	11/10/92	11/11/92	11/12/92	11/13/92	11/16/92	11/17/92	11/18/92	11/19/92	11/20/92	11/23/92	11/25/92

Kettle data points were converted from gravimetric
to volumetric by multiplying by Bulk Density
Bulk Density = 1.41

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MOISTURE RETENTION DATA SHEET

SAMPLE NO. 2-3089 Page ____ of ____

Tested By:	R. M. Shuler	Date	10-23-92
Procedure No:	17	Rev. 0	Date Issued 2/25/90
Test Plan No:	N/A	Rev. N/A	Date Issued
Pressure Cell No.	TC-29	Calibration Due Date	N/A
Gauge: GEL -	2032	Calibration Due Date	2-28-93
Thermometer: GEL -	12	Calibration Due Date	N/A
Balance: GEL -	3307	Calibration Due Date	~~9/15/92~~ RMS 10-23-92 3-15-93
Gauge: GEL -		Calibration Due Date	
: GEL -		Calibration Due Date	

(1) Tension units = cm	NA	NA	0	2.5	6.0	10.2	22	36	52.5	73.5	100.5	200.3	300
(2) Container/Ring Number	MC-4	TC-29	TC-29	TC-29	TC-29	TC-29	TC-29	TC-29	TC-29	TC-29	TC-29	TC-29	TC-29
(3) Wt. of Container and Wet Sample, g	175.34	524.17	559.01	558.41	558.56	558.62	558.40	558.35	558.21	557.64	557.17	553.29	549.54
(4) Wt. of Container and Dry Sample, g	172.94												
(5) Container Tare Wt., g	61.04	425.63											
(6) Temperature			26	25	24	24	24	23	24	23	24	24	23
(7) Date			10-23-92	10-27-92	10-28-92	10-29-92	10-30-92 ~~10-29-92~~ RMS	11-2-92	11-3-92	11-4-92	11-5-92	11-6-92	11-9-92

(1) Tension units = cm	500	700	850	980	NA	NA							
(2) Container/Ring Number	TC-29	TC-29	TC-29	TC-29	TC-29	MC-4							
(3) Wt. of Container and Wet Sample, g	547.09	545.75	545.00	544.46	544.43	179.53							
(4) Wt. of Container and Dry Sample, g						157.02							
(5) Container Tare Wt., g					425.74*	61.03							
(6) Temperature	25	24	24	23									
(7) Date	11-10-92	11-11-92	11-12-92	11-13-92									

REMARKS W-049H

Tempe Drying Curve (0 to 1 Bar)

426.10 cleaned up

All data are acurately and completely recorded. The test operator was trained and used calibrated instruments

Checked By: J F Relyea Date: 12-11-9

B-184

WHC-SD-EN-DP-068, Rev. 0

MOISTURE RETENTION DATA SHEET

SAMPLE NO. 2-3089 Page ____ of ____

Tested By:	R. M. Shailer	Date	10-23-92
Procedure No:	17	Rev.	0 Date Issued 2/25/90
Test Plan No:	N/A	Rev.	N/A Date Issued
Pressure Cell No.	TC-4	Calibration Due Date	N/A
Gauge: GEL -	2033	Calibration Due Date	2-28-93
Thermometer: GEL -	12	Calibration Due Date	N/A
Balance: GEL -	3307	Calibration Due Date	~~9/15/92~~ 10-23-92 3-15-93
Gauge: GEL -		Calibration Due Date	
: GEL -		Calibration Due Date	

(1) Tension units = cm	NA	NA	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	700
(2) Container/Ring Number	MC-4	TC-4	TC-4	TC-4	TC-4	TC-4	TC-4	TC-4	TC-4	TC-4	TC-4	TC-4	TC-4
(3) Wt. of Container and Wet Sample, g	175.34 ~~61.04~~ RMS 10-23-92	522.77	534.99	536.33	536.89	537.08	537.11	537.20	537.26	537.31	537.36	537.34	538.10
(4) Wt. of Container and Dry Sample, g	172.94												
(5) Container Tare Wt., g	61.04	420.96											
(6) Temperature			23	25	24	23	24	23	24	23	23	23	23
(7) Date			10-26-92	10-27-92	10-28-92	10-29-92	10-30-92	11-2-92	11-3-92	11-4-92	11-5-92	11-6-92	11-9-92

(1) Tension units = cm	500	300	203.2	101	72	52.8	30	24	10.0	7	3	3	NA
(2) Container/Ring Number	TC-4	TC-4	TC-4	TC-4	TC-4	TC-4	TC-4	TC-4	TC-4	TC-4	TC-4	TC-4	SML-4
(3) Wt. of Container and Wet Sample, g	539.24	541.19	544.13	548.92	549.88	550.29	550.80	551.06	551.05	551.42	551.37	551.45	191.58
(4) Wt. of Container and Dry Sample, g													160.35
(5) Container Tare Wt., g												421.80*	62.13
(6) Temperature	24	24	23	23	24	22	23	23	21	24	22	22	25
(7) Date	11-10-92	11-11-92	11-12-92	11-13-92	11-16-92	11-17-92	11-18-92	11-19-92	11-20-92	11-23-92	11-24-92	11-25-92	12-1-92

REMARKS W-049H

Tempe Wetting Curve (0 to 1 Bar) *421.24 cleanup

All data are acurately and completely recorded. The test operator was trained and used calibrated instruments

Checked By: [signature] Date: 12-11-92

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MOISTURE RETENTION DATA SHEET

SAMPLE NO. 2-3089 Page 1 of 3

Tested By:	R.M. SHAILER	Date 11/16/92		
Procedure No:	17	Rev. 0	Date Issu	2/25/90
Test Plan No:	N/A	Rev. N/A	Date Issu	N/A
Pressure Cell No.	GEL - KETTLE PK05-01	Calibration Due Date	N/A	
Gauge:	GEL - 2051	Calibration Due Date	7/2/93	
Thermometer:	GEL - 12	Calibration Due Date	N/A	
Balance:	GEL - 3307	Calibration Due Date	3/15/93	
Gauge:	GEL -	Calibration Due Date		
:	GEL -	Calibration Due Date		

	.5	.5	.5	.5	.7	.7	1	1					
(1) Tension units = Bar			0.5	0.5	0.70	0.70	1.0	1.0					
(2) Container/Ring Number	2-9 A19	2-10 A20	2-9 BA19	2-10 BA20	2-9 BA19	2-10 BA20	2-9 BA19	2-10 BA20					
(3) Wt. of Container and Wet Sample, g			54.17	58.32	54.18	58.02	53.89	57.48					
(4) Wt. of Container and Dry Sample, g	JTR	11-20-92	48.69	51.86	48.70	51.71	48.66	51.52					
(5) Container Tare Wt., g	15.31	15.47	28.03	27.61	28.03	27.61	28.03	27.61					
(6) Temperature			22	22	25	25	27	27					
(7) Date			11-20-92	11-20-92	11-24-92	11-24-92	12-3-92	12-3-92					

(1) Tension units = Bar													
(2) Container/Ring Number													
(3) Wt. of Container and Wet Sample, g													
(4) Wt. of Container and Dry Sample, g													
(5) Container Tare Wt., g													
(6) Temperature													
(7) Date													

REMARKS

KETTLE DRYING CURVE (0.5 to 1.0 BARs)

W-049H

All data are acurately and completely recorded. The test operator was trained and used calibrated instruments

Checked By: J T Relyea Date: 12-11-92

R 14455

MOISTURE RETENTION DATA SHEET

SAMPLE NO. 2-3089

Tested By:	R.M. SHAILER	Date	11/16/92	
Procedure No:	17	Rev.	0	Date Issu 2/25/90
Test Plan No:	N/A	Rev.	N/A	Date Issu N/A
Pressure Cell No.	GEL - KETTLE PK05-02	Calibration Due Date		
Gauge:	GEL - 2052	Calibration Due Date	7/2/93	
Thermometer:	GEL - 12	Calibration Due Date	N/A	
Balance:	GEL - 3307	Calibration Due Date	3/15/93	
Gauge:	GEL - 2034	Calibration Due Date	4/3/93	
:	GEL -	Calibration Due Date		

	2	2	2	2	3	3	3	3	5	5			
(1) Tension units = Bar			2.0	2.0	3.0	3.0	3.0	3.0	5.0	5.0			
(2) Container/Ring Number	4-9 BB19	4-10 BB20	4-9 BB19	4-10 BB20	4-9 BB19	4-10 BB20	4-9 BB19	4-10 BB20	2-9 BB19	2-10 BB20			
(3) Wt. of Container and Wet Sample, g			47.69	53.68	47.40	53.40	47.33	53.06	52.25	56.79			
(4) Wt. of Container and Dry Sample, g	9 JR	11-20-92	44.27	49.34	44.18	49.26	44.09	48.97	48.24	52.19			
(5) Container Tare Wt., g	16/10	15.76	27.77	28.44	27.77	28.44	27.77	28.44	27.77 ~~28~~ 12-7	28.44			
(6) Temperature			22	22	25	25	27	27	24	24			
(7) Date			11-20-92	11-20-92	11-24-92	11-24-92	12-3-92	12-3-92	12-7-92	12-7-92			

(1) Tension units = Bar													
(2) Container/Ring Number													
(3) Wt. of Container and Wet Sample, g													
(4) Wt. of Container and Dry Sample, g													
(5) Container Tare Wt., g													
(6) Temperature													
(7) Date													

REMARKS

KETTLE DRYING CURVE (2.0 to 5.0 BARs)

All data are acurately and completely recorded. The test operator was trained and used calibrated instruments

Checked By: [signature] Date: 12-11-92

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MOISTURE RETENTION DATA SHEET

SAMPLE NO. 2-3089 Page 3 of 3

Tested By:	R.M. SHAILER	Date	11/16/92	
Procedure No:	17	Rev.	0	Date Issu 2/25/90
Test Plan No:	N/A	Rev.	N/A	Date Issu N/A
Pressure Cell No.	GEL - KETTLE PK15-02	Calibration Due Date		
Gauge:	GEL - 2035	Calibration Due Date	2/28/93	
Thermometer:	GEL - 12	Calibration Due Date	N/A	
Balance:	GEL - 3307	Calibration Due Date	3/15/93	
Gauge:	GEL -	Calibration Due Date		
:	GEL -	Calibration Due Date		

	7	7	7	7	10	10							
(1) Tension units = Bar			7.0	7.0	10	10							
(2) Container/Ring Number	6-7 C17	6-8 C18	6-7 BA17	6-8 BA18	6-7 BA17	6-8 BA18							
(3) Wt. of Container and Wet Sample, g			52.09	52.07	51.77	51.79							
(4) Wt. of Container and Dry Sample, g	JJR	11-20-92	48.57	48.98	48.41	48.84							
(5) Container Tare Wt., g	15.38	15.62	27.63	30.61	27.63	30.61							
(6) Temperature			22	22	25	25							
(7) Date			11-20-92	11-20-92	11-24-92	11-24-92							

(1) Tension units = Bar													
(2) Container/Ring Number													
(3) Wt. of Container and Wet Sample, g													
(4) Wt. of Container and Dry Sample, g													
(5) Container Tare Wt., g													
(6) Temperature													
(7) Date													

REMARKS

KETTLE DRYING CURVE (7.0 to 15.0 BARs)

All data are acurately and completely recorded. The test operator was trained and used calibrated instruments

Checked By: J J Belyea Date: 12-11-92

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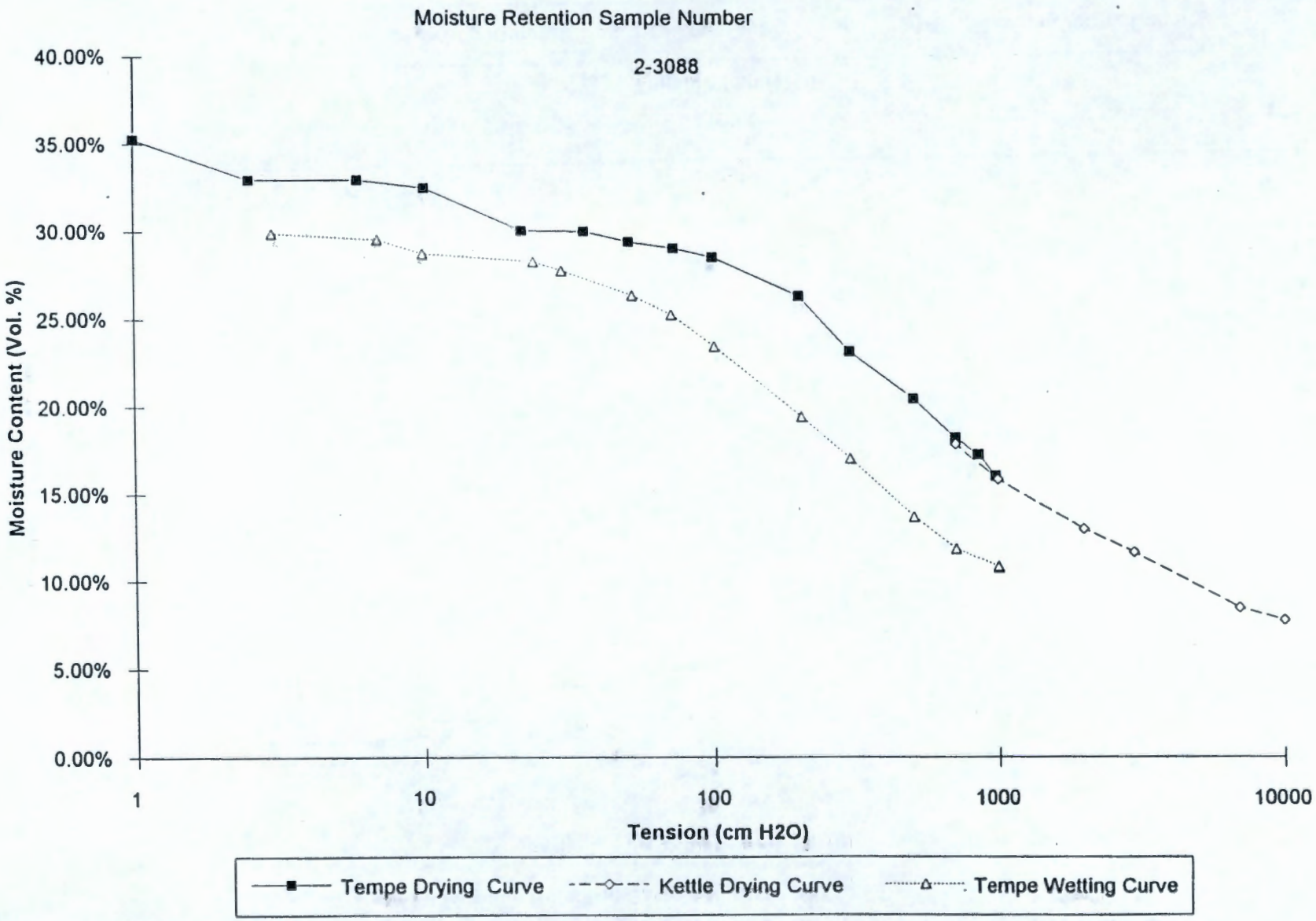
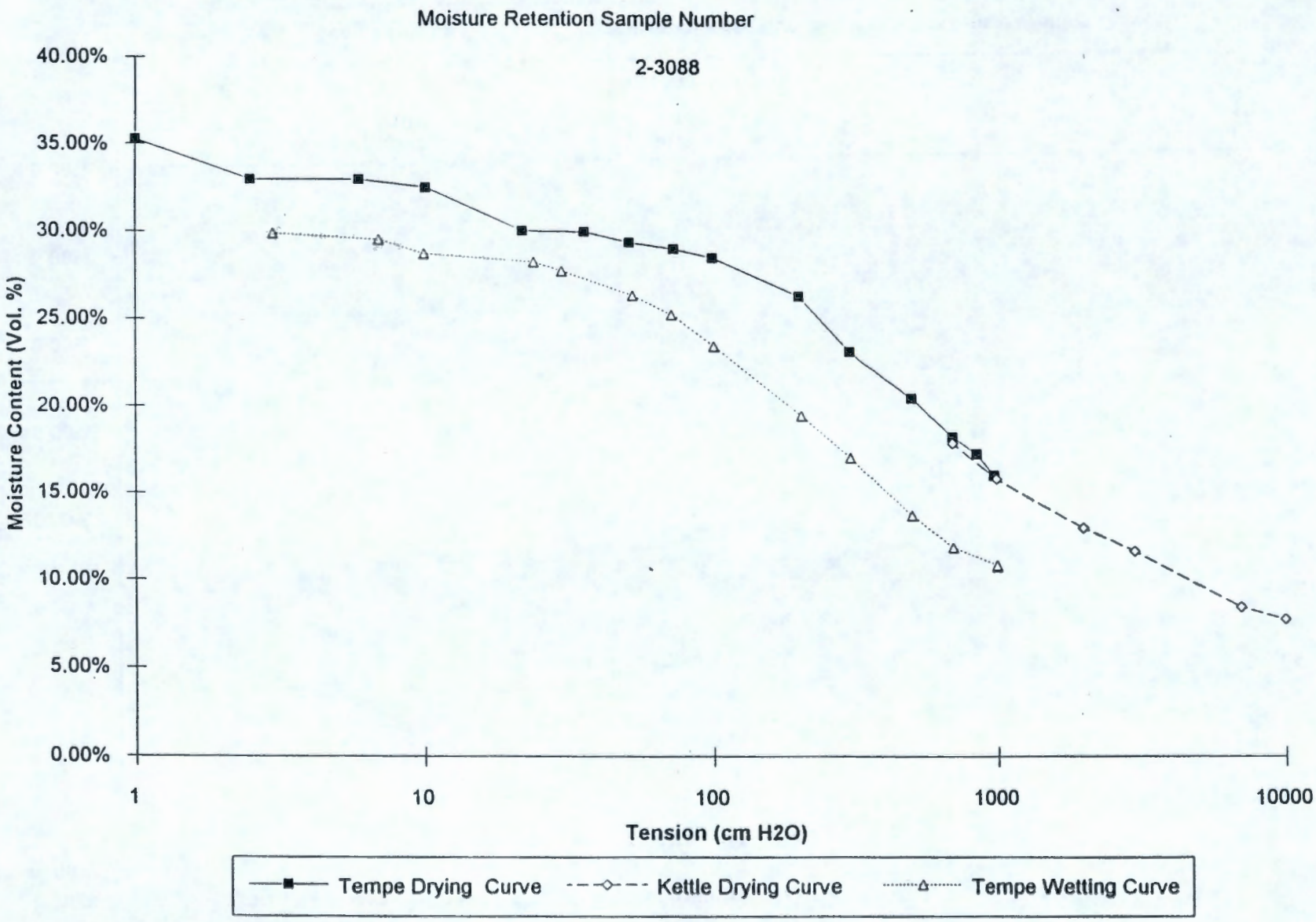

Moisture Retention Sample Number
2-3088
40.00%
35.00%
30.00%
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
Moisture Content (Vol. %)
1
10
100
1000
10000
Tension (cm H2O)
Tempe Drying Curve
Kettle Drying Curve
Tempe Wetting Curve

P. 224.55


Moisture Retention Sample Number
2-3088
40.00%
35.00%
30.00%
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
Moisture Content (Vol. %)
1
10
100
1000
10000
Tension (cm H2O)
Tempe Drying Curve
Kettle Drying Curve
Tempe Wetting Curve

P. 23455

SAMPLE NO.	2-3088
Contact	C. DELANEY
Well No.	699-42-37
Operable Unit	W-049H/LERF
HEIS No.	NA
Depth	11.6-17.3

TEMPE CELLS	Sample #	2-3088 1 Bar Drying Curve								
tension in cm	N/A	N/A	0	2.5	6	10.2	22	36	51.5	73.5
error in tension value +/-			0	0.5	1	1	2	3	3	4
container number	MC-3	TC-28	TC-28	TC-28	TC-28	TC-28	TC-28	TC-28	TC-28	TC-28
weight of container/ring,+wet sample	187.55	559.47	582.07	580.53	580.53	580.21	578.53	578.49	578.08	577.83
weight of container/ring,+ dry sample	187.04	558.94	558.00	558.00	558.00	558.00	558.00	558.00	558.00	558.00
weight of moisture	0.51	0.53	24.07	22.53	22.53	22.21	20.53	20.49	20.08	19.83
weight of container and ring	61.02	428.42	427.70	427.70	427.70	427.70	427.70	427.70	427.70	427.70
weight of dry sample	126.53	130.52	130.30	130.30	130.30	130.30	130.30	130.30	130.30	130.30
moisture content % by wt.	0.40%		18.47%	17.29%	17.29%	17.05%	15.76%	15.73%	15.41%	15.22%
moisture content % by vol.			35.26%	33.01%	33.01%	32.54%	30.08%	30.02%	29.42%	29.05%
date measured			10/23/92	10/27/92	10/28/92	10/29/92	10/30/92	11/2/92	11/3/92	11/4/92
temperature deg. C			26	25	24	24	24	23	24	23
volume of brass ring, cm^3	68.26									

TEMPE CELLS	Sample #	2-3088 1 Bar Drying Curve								
tension in cm	100.5	200.3	300	500	700	850	980	N/A	N/A	
error in tension value +/-	5	5	20	20	20	20	20			
container number	TC-28	TC-28	TC-28	TC-28	TC-28	TC-28	TC-28	TC-28	MC-3	
weight of container/ring,+wet sample	577.49	575.97	573.83	571.99	570.47	569.80	568.95	568.93	202.18	
weight of container/ring,+ dry sample	558.00	558.00	558.00	558.00	558.00	558.00	558.00	558.00	191.27	
weight of moisture	19.49	17.97	15.83	13.99	12.47	11.80	10.95	10.93	10.91	
weight of container and ring	427.70	427.70	427.70	427.70	427.70	427.70	427.70	427.70	61.01	
weight of dry sample	130.30	130.30	130.30	130.30	130.30	130.30	130.30	130.30	130.26	
moisture content % by wt.	14.96%	13.79%	12.15%	10.74%	9.57%	9.06%	8.40%	8.39%	8.38%	
moisture content % by vol.	28.55%	26.33%	23.19%	20.50%	18.27%	17.29%	16.04%	16.01%		
date measured	11/5/92	11/6/92	11/9/92	11/10/92	11/11/92	11/12/92	11/13/92	11/13/92	11/14/92	
temperature deg. C	24	24	23	25	24	24	23			
volume of brass ring, cm^3	68.26									

Cell wt. before cleanup = 427.69 grams

Cell wt. after cleanup = 427.99 grams

BULK DENSITY = 1.91 428.03 Average of all 3

P. 29455

TEMPE CELLS

Sample #	N/A	2-3088 1 Bar Wetting Curve N/A	1000	1000	1000	1000	1000	1000	1000
tension in cm									
error in tension value +/-			20	20	20	20	20	20	20
container number	MC-3	TC-3	TC-3	TC-3	TC-3	TC-3	TC-3	TC-3	TC-3
weight of container/ring,+wet sample	187.55	548.02	555.93	556.02	556.00	556.07	556.08	556.09	556.10
weight of container/ring,+ dry sample	187.04	547.49	548.80	548.80	548.80	548.80	548.80	548.80	548.80
weight of moisture	0.51	0.53	7.13	7.22	7.20	7.27	7.28	7.29	7.30
weight of container and ring	61.02	416.84	418.20	418.20	418.20	418.20	418.20	418.20	418.20
weight of dry sample	126.53	130.65	130.60	130.60	130.60	130.60	130.60	130.60	130.60
moisture content %	0.40%		5.46%	5.53%	5.51%	5.57%	5.57%	5.58%	5.59%
moisture content % by vol.			10.45%	10.58%	10.55%	10.65%	10.67%	10.68%	10.69%
date measured			10/26/92	10/27/92	10/28/92	10/29/92	10/30/92	11/2/92	11/3/92
temperature deg. C			23	25	24	23	24	23	24
volume of brass ring, cm^3	68.26								

TEMPE CELLS

Sample #	2-3088 1 Bar Wetting Curve 1000	1000	1000	700	500	300	203.2	101	72
tension in cm									
error in tension value +/-	20	20	20	20	20	20	5	2	2
container number	TC-3	TC-3	TC-3	TC-3	TC-3	TC-3	TC-3	TC-3	TC-3
weight of container/ring,+wet sample	556.15	556.16	556.22	556.90	558.17	560.46	562.11	564.84	566.07
weight of container/ring,+ dry sample	548.80	548.80	548.80	548.80	548.80	548.80	548.80	548.80	548.80
weight of moisture	7.35	7.36	7.42	8.10	9.37	11.66	13.31	16.04	17.27
weight of container and ring	418.20	418.20	418.20	418.20	418.20	418.20	418.20	418.20	418.20
weight of dry sample	130.60	130.60	130.60	130.60	130.60	130.60	130.60	130.60	130.60
moisture content %	5.63%	5.64%	5.68%	6.20%	7.17%	8.93%	10.19%	12.28%	13.22%
moisture content % by vol.	10.77%	10.78%	10.87%	11.87%	13.73%	17.08%	19.50%	23.50%	25.30%
date measured	11/4/92	11/5/92	11/6/92	11/9/92	11/10/92	11/11/92	11/12/92	11/13/92	11/16/92
temperature deg. C	23	23	23	23	24	24	23	23	24
volume of brass ring, cm^3	68.26								

Cell wt. before cleanup = 418.20 grams

Cell wt. after cleanup = 417.02 grams

TEMPE CELLS

Sample #	2-3088 1 Bar Wetting Curve 52.8	30	24	10	7	3	3	N/A
tension in cm								
error in tension value +/-	3	2	2	1	0.5	0.5	0.5	
container number	TC-3	TC-3	TC-3	TC-3	TC-3	TC-3	TC-3	SML-3
weight of container/ring,+wet sample	566.81	567.77	568.12	568.43	568.98	569.18	569.22	213.50
weight of container/ring,+ dry sample	548.80	548.80	548.80	548.80	548.80	548.80	548.80	193.24
weight of moisture	18.01	18.97	19.32	19.63	20.18	20.38	20.42	20.26
weight of container and ring	418.20	418.20	418.20	418.20	418.20	418.20	418.20	63.02
weight of dry sample	130.60	130.60	130.60	130.60	130.60	130.60	130.60	130.22
moisture content %	13.79%	14.53%	14.79%	15.03%	15.45%	15.60%	15.64%	15.56%
moisture content % by vol.	26.38%	27.79%	28.30%	28.76%	29.56%	29.86%	29.92%	
date measured	11/17/92	11/18/92	11/19/92	11/20/92	11/23/92	11/24/92	11/25/92	12/1/92
temperature deg. C	22	23	23	21	24	22	22	25
volume of bras], cm^3	68.26		BULK [	ITY =	1.91			

417.35 Average of all three

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KETTLES	Sample #	2-3088 15 Bar Drying Curve					point not used			
tension in cm	500	500	700	700	1000	1000	2000	2000	3000	3000
error in tension value +/-	20	20	20	20	20	20	20	20	20	20
container number	BA17	BA18	BA17	BA18	BA17	BA18	BB17	BB18	BB17	BB18
weight of container/ring,+wet sample	58.04	58.58	57.64	58.35	57.12	58.01	60.60	55.18	56.09	54.93
weight of container/ring,+ dry sample	55.23	56.04	55.04	56.00	54.84	55.93	54.54	53.42	54.45	53.37
weight of moisture	2.81	2.54	2.60	2.35	2.28	2.08	6.06	1.76	1.64	1.56
weight of container and ring	27.63	30.61	27.63	30.61	27.63	30.61	27.85	27.63	27.85	27.63
weight of dry sample	27.60	25.43	27.41	25.39	27.21	25.32	26.69	25.79	26.60	25.74
moisture content %	10.18%	9.99%	9.49%	9.26%	8.38%	8.21%	22.71%	6.82%	6.17%	6.06%
date measured	11/20/92	11/20/92	11/24/92	11/24/92	12/3/92	12/3/92	11/20/92	11/20/92	11/24/92	11/24/92
temperature deg. C	22	22	25	25	27	27	22	22	25	25

KETTLES								
tension in cm	3000	3000	5000	5000	7000	7000	10000	10000
error in tension value +/-	20	20	100	.100	100	100	100	100
container number	BB17	BB18	BB17	BB18	BA15	BA16	BA15	BA16
weight of container/ring,+wet sample	55.84	54.69	56.49	54.30	52.18	55.04	51.98	54.86
weight of container/ring,+ dry sample	54.38	53.30	54.85	52.75	51.13	53.89	51.02	53.81
weight of moisture	1.46	1.39	1.64	1.55	1.05	1.15	0.96	1.05
weight of container and ring	27.85	27.63	27.85	27.63	27.71	27.63	27.71	27.63
weight of dry sample	26.53	25.67	27.00	25.12	23.42	26.26	23.31	26.18
moisture content %	5.50%	5.41%	6.07%	6.17%	4.48%	4.38%	4.12%	4.01%
date measured	12/3/92	12/3/92	12/7/92	12/7/92	11/20/92	11/20/92	11/24/92	11/24/92
temperature deg. C	27	27	24	24	22	22	25	25

P. 294555

POINTS SELECTED FOR PLOTTING

Sample # 2-3088

container number	TC-28	TC-28	TC-28	TC-28	TC-28	TC-28	TC-28	TC-28	TC-28	TC-28	TC-28
Tension in cm	1	2.5	6	10.2	22	36	51.5	73.5	100.5	200.3	300
Tempe Drying Curve	35.26%	33.01%	33.01%	32.54%	30.08%	30.02%	29.42%	29.05%	28.55%	26.33%	23.19%
Kettle Drying Curve											
Tempe Wetting Curve											
date measured	10/23/92	10/27/92	10/28/92	10/29/92	10/30/92	11/2/92	11/3/92	11/4/92	11/5/92	11/6/92	11/9/92

container number	TC-28	TC-28	TC-28	TC-28	BA17	BA17	BB17	BB17	BA15	BA15
tension in cm	500	700	850	980	700	1000	2000	3000	7000	10000
Tempe Drying Curve	20.50%	18.27%	17.29%	16.04%						
Kettle Drying Curve					17.89%	15.84%	13.03%	11.67%	8.46%	7.76%
Tempe Wetting Curve										
date measured	11/10/92	11/11/92	11/12/92	11/13/92	11/24/92	12/3/92	11/20/92	11/24/92	11/20/92	11/24/92

container number	TC-3	TC-3	TC-3	TC-3	TC-3	TC-3	TC-3	TC-3	TC-3	TC-3	TC-3
tension in cm	1000	700	500	300	203.2	101	72	52.8	30	24	10
Tempe Drying Curve											
Kettle Drying Curve											
Tempe Wetting Curve	10.87%	11.87%	13.73%	17.08%	19.50%	23.50%	25.30%	26.38%	27.79%	28.30%	28.76%
date measured	11/6/92	11/9/92	11/10/92	11/11/92	11/12/92	11/13/92	11/16/92	11/17/92	11/18/92	11/19/92	11/20/92

container number	TC-3	TC-3
tension in cm	7	3
Tempe Drying Curve		
Kettle Drying Curve		
Tempe Wetting Curve	29.56%	29.92%
date measured	11/23/92	11/25/92

Kettle data points were converted from gravimetric to volumetric by multiplying by Bulk Density

Bulk Density = 1.91

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MOISTURE RETENTION DATA SHEET

SAMPLE NO. 2-3088 Page ____ of ____

Tested By:	R. M. Shuler	Date	10-23-92
Procedure No:	17	Rev. 0	Date Issued 2/25/90
Test Plan No:	N/A	Rev. N/A	Date Issued
Pressure Cell No.	TC-28	Calibration Due Date	N/A
Gauge: GEL -	2032	Calibration Due Date	2-28-93
Thermometer: GEL -	12	Calibration Due Date	N/A
Balance: GEL -	3307	Calibration Due Date	~~9/15/92~~ RMR 10-23-92 3-15-93
Gauge: GEL -		Calibration Due Date	
: GEL -		Calibration Due Date	

(1) Tension units = cm	NA	NA	0	2.5	6.0	10.2	22	36	52.5	73.5	100.5	200.3	300
(2) Container/Ring Number	MC-3	TC-28	TC-28	TC-28	TC-28	TC-28	TC-28	TC-28	TC-28	TC-28	TC-28	TC-28	TC-28
(3) Wt. of Container and Wet Sample, g	187.55	559.47	582.07	580.53	580.53	580.21	578.53	578.49	578.08	577.83	577.49	575.97	573.83
(4) Wt. of Container and Dry Sample, g	187.04												
(5) Container Tare Wt., g	61.02	428.42											
(6) Temperature			26	25	24	24	24	23	24	23	24	23	23
(7) Date			10-23-92	10-27-92	10-28-92	10-29-92	10-30-92	11-2-92	11-3-92	11-4-92	11-5-92	11-6-92	11-9-92

(1) Tension units = cm	500	700	850	980	NA	NA							
(2) Container/Ring Number	TC-28	TC-28	TC-28	TC-28	TC-28	MC-3							
(3) Wt. of Container and Wet Sample, g	571.99	570.47	569.80	568.95	568.93	202.18							
(4) Wt. of Container and Dry Sample, g						191.27							
(5) Container Tare Wt., g					427.69	61.01							
(6) Temperature	25	24	24	23									
(7) Date	11-10-92	11-11-92	11-12-92	11-13-92									

REMARKS W-049H

Tempe Drying Curve (0 to 1 Bar)

Cleaned Tare 427.99

All data are acurately and completely recorded. The test operator was trained and used calibrated instruments

Checked By: [signature] Date: 12-11-92

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MOISTURE RETENTION DATA SHEET

SAMPLE NO. 2-3088 Page ____ of ____

Tested By:	R. M. Shailer	Date	10-23-92
Procedure No:	17	Rev. 0	Date Issued 2/25/90
Test Plan No:	N/A	Rev. N/A	Date Issued
Pressure Cell No.	TC-3	Calibration Due Date	N/A
Gauge:	GEL - 2033	Calibration Due Date	2-28-93
Thermometer:	GEL - 12	Calibration Due Date	N/A
Balance:	GEL - 3307	Calibration Due Date	9/15/92 ~~N/A~~ 10-23-92 3-15-93
Gauge:	GEL -	Calibration Due Date	
:	GEL -	Calibration Due Date	

(1) Tension units = cm	NA	NA	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	700
(2) Container/Ring Number	MC-3	TC-3	TC-3	TC-3	TC-3	TC-3	TC-3	TC-3	TC-3	TC-3	TC-3	TC-3	TC-3
(3) Wt. of Container and Wet Sample, g	187.55	548.02	555.93	556.02	556.00	556.07	556.08	556.09	556.10	556.15	556.16	556.22	556.90
(4) Wt. of Container and Dry Sample, g	187.04												
(5) Container Tare Wt., g	61.02	416.84											
(6) Temperature			23	25	24	23	24	23	24	23	23	23	23
(7) Date			10-26-92	10-27-92	10-28-92	10-29-92	10-30-92	11-2-92	11-3-92	11-4-92	11-5-92	11-6-92	11-9-92

(1) Tension units = cm	500	300	203.2	101	72	52.8	30	24	10.0	7	3	3	NA
(2) Container/Ring Number	TC-3	TC-3	TC-3	TC-3	TC-3	TC-3	TC-3	TC-3	TC-3	TC-3	TC-3	TC-3	SML-3
(3) Wt. of Container and Wet Sample, g	558.17	560.46	562.11	564.84	566.07	566.81	567.77	568.12	568.43	568.98	569.18	569.22	213.50 ~~418.20~~
(4) Wt. of Container and Dry Sample, g													193.24
(5) Container Tare Wt., g												418.20	63.02
(6) Temperature	24	24	23	23	24	22	23	23	21	24	22	22	25
(7) Date	11-10-92	11-11-92	11-12-92	11-13-92	11-16-92	11-17-92	11-18-92	11-19-92	11-20-92	11-23-92	11-24-92	11-25-92	12-1-92

REMARKS W-049H

Tempe Wetting Curve (0 to 1 Bar)

Cleaned Tare wt. 417.02

All data are acurately and completely recorded. The test operator was trained and used calibrated instruments

Checked By: J. F. Relyea Date: 12-11-92

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WHC-SD-EN-DP-068, Rev. 0

1274.55

MOISTURE RETENTION TA SHEET

SAMPLE NO. 2-3088 Page 1 of 3

Tested By:	R.M. SHAILER	Date 11/16/92		
Procedure No:	17	Rev. 01	Date Issu	2/25/90
Test Plan No:	N/A	Rev. N/A	Date Issu	N/A
Pressure Cell No.	GEL - KETTLE PK05-01	Calibration Due Date	N/A	
Gauge:	GEL - 2051	Calibration Due Date	7/2/93	
Thermometer:	GEL - 12	Calibration Due Date	N/A	
Balance:	GEL - 3307	Calibration Due Date	3/15/93	
Gauge:	GEL -	Calibration Due Date		
:	GEL -	Calibration Due Date		

	.5	.5	.5	.5	.7	.7	1	1					
(1) Tension units = Bar			0.5	0.5	0.70	0.70	1.0	1.0					
(2) Container/Ring Number	2-7 A17	2-8 A18	2-7 BA17	2-8 BA18	2-7 BA17	2-8 BA18	2-7 BA17	2-8 BA18					
(3) Wt. of Container and Wet Sample, g			58.04	58.58	57.64	58.35	57.12	58.01					
(4) Wt. of Container and Dry Sample, g	JFR 11-30-92		55.23	56.04	55.04	56.00	54.84	55.93					
(5) Container Tare Wt., g	15.44	15.58	27.63	30.61	27.63	30.61	27.63	30.61					
(6) Temperature			22	22	25	25	27	27					
(7) Date			11-20-92	11-20-92	11-24-92	11-24-92	12-3-92	12-3-92					

(1) Tension units = Bar													
(2) Container/Ring Number													
(3) Wt. of Container and Wet Sample, g													
(4) Wt. of Container and Dry Sample, g													
(5) Container Tare Wt., g													
(6) Temperature													
(7) Date													

REMARKS

KETTLE DRYING CURVE (0.5 to 1.0 BARs)

W-049H

All data are acurately and completely recorded. The test operator was trained and used calibrated instruments

Checked By: J F Relyea Date: 12-11-92

B-197

WHC-SD-EN-DP-068, Rev. 0

B-55

MOISTURE RETENTION DATA SHEET

SAMPLE NO. 2-3088

Tested By:	R.M. SHAILER	Date	11/16/92	
Procedure No:	17	Rev.	0	Date Issu 2/25/90
Test Plan No:	N/A	Rev.	N/A	Date Issu N/A
Pressure Cell No.	GEL - KETTLE PK05-02	Calibration Due Date		
Gauge:	GEL - 2052	Calibration Due Date	7/2/93	
Thermometer:	GEL - 12	Calibration Due Date	N/A	
Balance:	GEL - 3307	Calibration Due Date	3/15/93	
Gauge:	GEL - 2034	Calibration Due Date	4/3/93	
:	GEL -	Calibration Due Date		

	2	2	2	2	3	3	3	3	5	5			
(1) Tension units = Bar			2.0	2.0	3.0	3.0	3.0	3.0	5.0	5.0			
(2) Container/Ring Number	4-7 BB17	4-8 BB18	4-7 BB17	4-8 BB18	4-7 BB17	4-8 BB18	4-7 BB17	4-8 BB18	2-7 BB17	2-8 BB18			
(3) Wt. of Container and Wet Sample, g			60.60	55.18	56.09	54.93	55.84	54.69	56.49	54.30			
(4) Wt. of Container and Dry Sample, g	JJR	11-20-92	54.54	53.42	54.45	53.37	54.38	53.30	54.85	52.75			
(5) Container Tare Wt., g	15.37	15.72	27.85	27.63	27.85	27.63	27.85	27.63	27.85	27.63			
(6) Temperature			22	22	25	25	27	27	24	24			
(7) Date			11-20-92	11-20-92	11-24-92	11-24-92	12-3-92	12-3-92	12-7-92	12-7-92			

(1) Tension units = Bar													
(2) Container/Ring Number													
(3) Wt. of Container and Wet Sample, g													
(4) Wt. of Container and Dry Sample, g													
(5) Container Tare Wt., g													
(6) Temperature													
(7) Date													

REMARKS

KETTLE DRYING CURVE (2.0 to 5.0 BARs)

All data are acurately and completely recorded. The test operator was trained and used calibrated instruments

Checked By: J F Relyea Date: 12-11-92

B-198

WHC-SD-EN-DP-068, Rev. 0

P 3/455

MOISTURE RETENTION DATA SHEET

SAMPLE NO. 2-3088

Tested By:	R.M. SHAILER	Date 11/16/92		
Procedure No:	17	Rev. 0	Date Issu	2/25/90
Test Plan No:	N/A	Rev. N/A	Date Issu	N/A
Pressure Cell No.	GEL - KETTLE PK15-02	Calibration Due Date		
Gauge:	GEL - 2035	Calibration Due Date	2/28/93	
Thermometer:	GEL - 12	Calibration Due Date	N/A	
Balance:	GEL - 3307	Calibration Due Date	3/15/93	
Gauge:	GEL -	Calibration Due Date		
:	GEL -	Calibration Due Date		

	7	7	7	7	10	10							
(1) Tension units = Bar			7.0	7.0	10	10							
(2) Container/Ring Number	6-5 C15	6-6 C16	6-5 BA15	6-6 BA16	6-5 BA15	6-6 BA16							
(3) Wt. of Container and Wet Sample, g			52.18	55.04	51.98	54.86							
(4) Wt. of Container and Dry Sample, g	JJR	11-20-92	51.13	53.89	51.02	53.81							
(5) Container Tare Wt., g	15.21	15.36	27.71	27.63	27.71	27.63							
(6) Temperature			22	22	25	25							
(7) Date			11-20-92	11-20-92	11-24-92	11-24-92							

(1) Tension units = Bar													
(2) Container/Ring Number													
(3) Wt. of Container and Wet Sample, g													
(4) Wt. of Container and Dry Sample, g													
(5) Container Tare Wt., g													
(6) Temperature													
(7) Date													

REMARKS

KETTLE DRYING CURVE (7.0 to 15.0 BARs)

All data are acurately and completely recorded. The test operator was trained and used calibrated instruments

Checked By: J F Relyea Date: 12-11-92

P.324 55

J.C. McGuffey
SO-10/3-4590

10/12/92

W-049H/699-42-37 TEST RESULTS SUMMARY SHEET

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
2-2864	699-42-37	W-049H	130	NR	NR	NR	NR	NR	NR	NR	NR	GEL-07/na
2-2865	699-42-37	W-049H	126.79-128.29	2.3E-06	2.66	na	2.66	25.82	40.41	1.59	2.7	GEL-07/17
2-3053	699-42-37	W-049H	135.39-136.69	6.4E-07	2.69	2.59	2.63	7.60	24.38	2.05	1.1	GEL-07/NR
2-3088	699-42-37	W-049H	11.6-17.3	1.3E-03	2.75	2.69	2.72	6.79	28.68	1.94	0.9	GEL-07/17
2-3089	699-42-37	W-049H	91.65-94.0	3.2E-07	2.62	na	2.62	19.30	36.32	1.67	0.7	GEL-07/17

NR = Not Requested
na = not [illegible]able

P. 33 of 55

J.C. McGuffey
SO-10/3-4590

10/06/92 W-049H/699-42-37 TEST RESULTS SUMMARY **COPY** 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
2-2865	699-42-37	W-049H	126.79-128.29	2.3E-06	2.66	na	2.66	25.82	40.41	1.59	2.7	GEL-07/17
2-3053	699-42-37	W-049H	135.39-136.69	6.4E-07	2.69	2.59	2.63	7.60	24.38	2.05	1.1	GEL-07/NR
2-3088	699-42-37	W-049H	11.6-17.3	1.3E-03	2.75	2.69	2.72	6.79	28.68	1.94	0.9	GEL-07/17
2-3089	699-42-37	W-049H	91.65-94.0	3.2E-07	2.62	na	2.62	19.30	36.32	1.67	0.7	GEL-07/17

FOR INFORMATION ONLY

NR = Not Requested
na = not applicable

P.39 of 55

GEL-07 GRAIN SIZE ANALYSIS PLOT

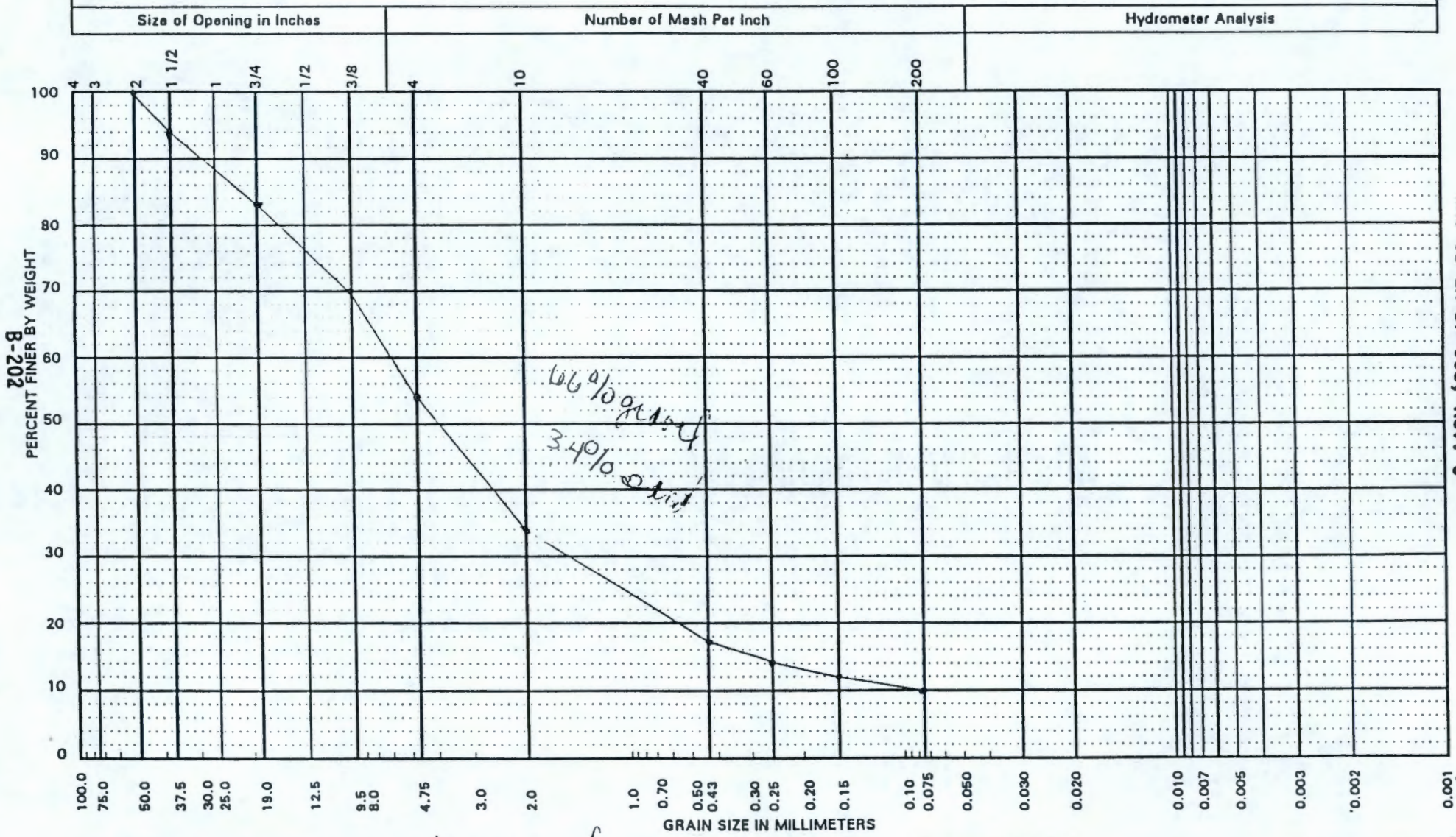
COPY

Sample No. 2-3088

Page 2 of 5

Remarks 699-42-3J

FOR INFORMATION ONLY



Plotte LD Bruggeman Sandy gravel Date 9/29/5

Plot Checked By K McGuffey Date 9 92

B-202

WHC-SD-EN-DP-068, Rev. 0

B-35

GEL-07 GRAIN SIZE ANALYSIS PLOT

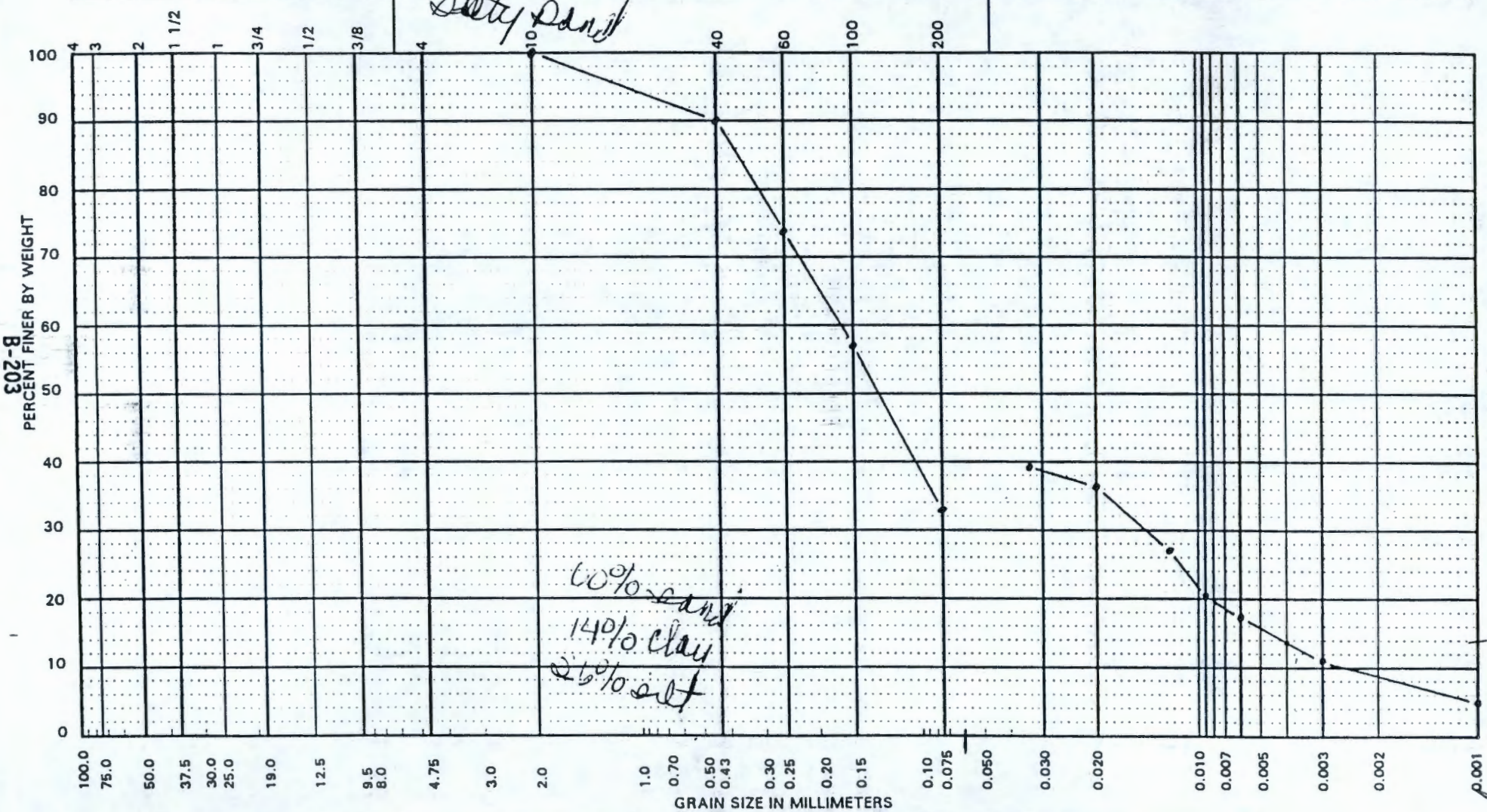
COPY

Sample No. 2-Em-7

Page 2 of 5

Remarks very fine silt: washed fine grading.

FOR INFORMATION ONLY



Plotted By JC McGuffey Date 10/5/92

Plot Checked By L D Bruggeman Date 10/8/92

BD-6000-799 (04/92)

B-203

WHC-SD-EN-DP-068, Rev. 0

P. 36455

JC McGUFFEY
SO-10/3-4590

FOR INFORMATION ONLY COPY

9/02/92

699-42-37 TEST RESULTS SUMMARY SHEET

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
2-2865	699-42-37	RCRA	126.79-128.29	2.3E-06	2.66	na	2.66	25.82	40.41	1.59	2.7	GEL-07/17

NR = Not Requested
na = not [illegible]cable

P.37455

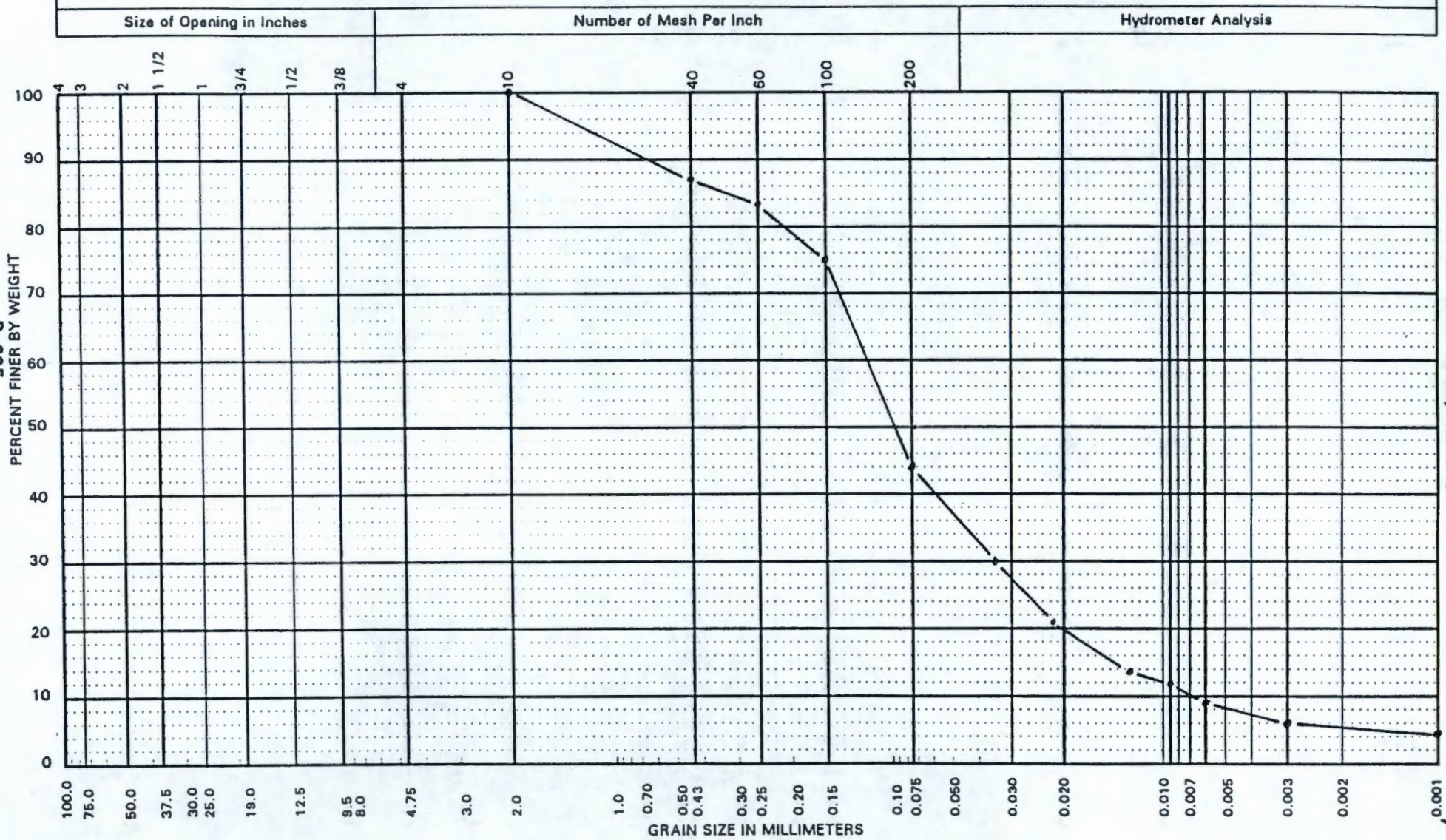
GEL-07 GRAIN SIZE ANALYSIS PLOT

COPY

Sample No. 2-2865

Page 2 of 5

Remarks FOR INFORMATION ONLY



Plotted By K M Fuller Date 9/2/92

Plot Checked By L A Bruggeman Date 9-2-92

B-205

WHC-SD-EN-DP-068, Rev. 0

P 38/55

J.C. McGuffey
SO-10/3-4590

10/06/92

W-049H/699-42-37 TEST RESULTS SUMMARY

COPY

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
2-2865	699-42-37	W-049H	126.79-128.29	2.3E-06	2.66	na	2.66	25.82	40.41	1.59	2.7	GEL-07/17
2-3053	699-42-37	W-049H	135.39-136.69	6.4E-07	2.69	2.59	2.63	7.60	24.38	2.05	1.1	GEL-07/NR
2-3088	699-42-37	W-049H	11.6-17.3	1.3E-03	2.75	2.69	2.72	6.79	28.68	1.94	0.9	GEL-07/17
2-3089	699-42-37	W-049H	91.65-94.0	3.2E-07	2.62	na	2.62	19.30	36.32	1.67	0.7	GEL-07/17

FOR INFORMATION ONLY

NR = Not Requested
na = not applicable

P.39455

GEL-07 GRAIN SIZE ANALYSIS PLOT

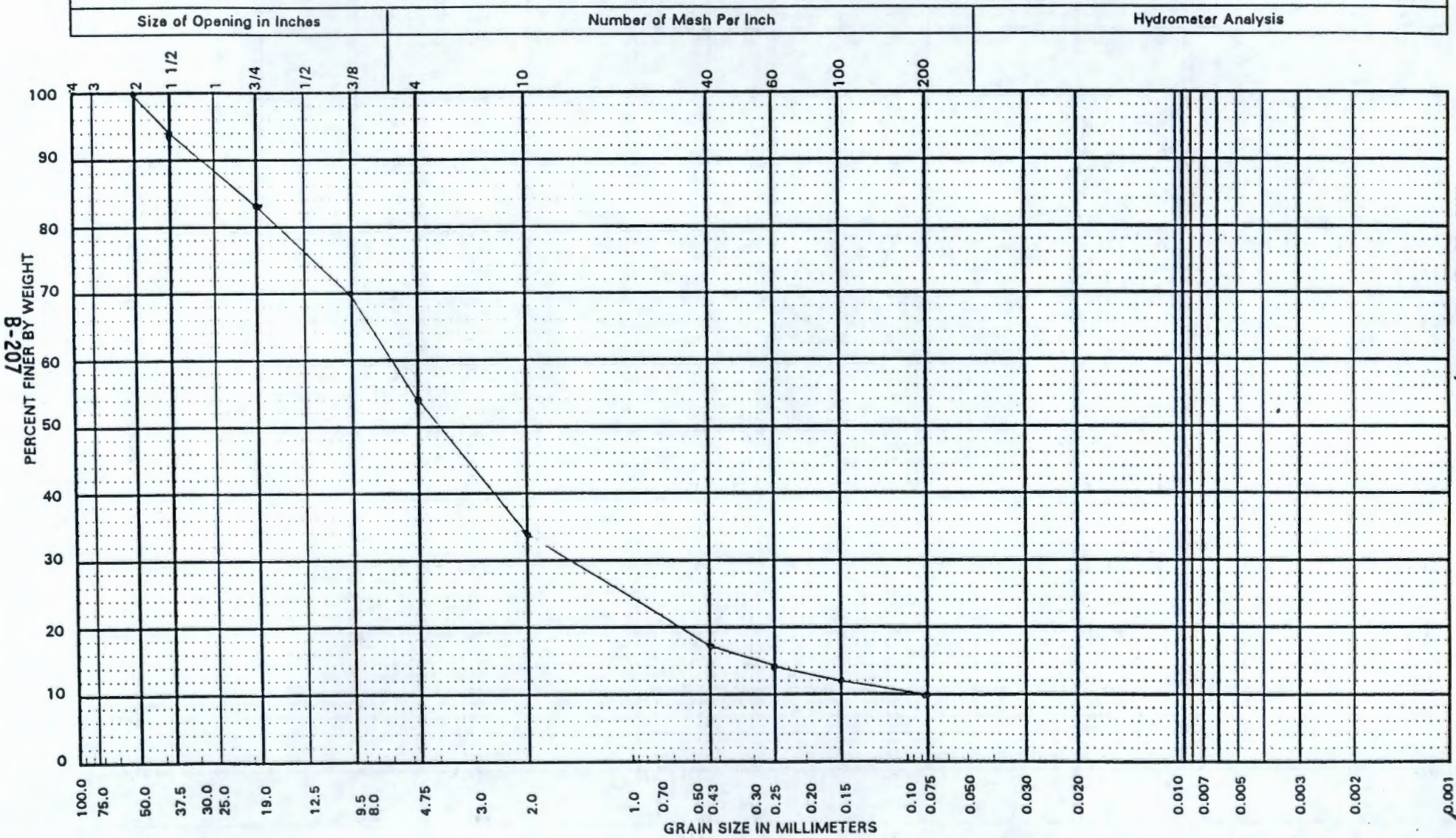
COPY

Sample No. 2-3088

Page 2 of 5

Remarks 699-42-37

FOR INFORMATION ONLY



B-207

WHC-SD-EN-DP-068, Rev. 0

Plotted By LD Bruggeman Date 9/29/92

Plot Checked By K McGuffey Date 9/29/92

GEL-07 GRAIN SIZE ANALYSIS PLOT

COPY

Sample No. 2-3089

Page 2 of 5

Remarks very fine silt; washed fine grinding.

Plott: J. McGuffey Date 10/5/92

Plot Checked By L D Bruggeman Date 10/-/-

BD-60 9 (04/92)

B-208

WHC-SD-EN-DP-068, Rev. 0

p. 91 of 155

J.C. McGuffey
SO-10/3-4590

9/23/92 W-049H, 699-42-37 TEST RESULTS SUMMARY COPY

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
2-2864	699-42-37	RCRA	130	NR	NR	NR	NR	NR	NR	NR	NR	GEL-07
3 2-2865 JR	699-42-37	RCRA	•126.79-128.29	2.3E-06	2.66	na	2.66	25.82	40.41	1.59	2.7	GEL-07/17
2-3053	699-42-37	W-049H	135.39-136.69	6.4E-07	2.69	2.59	2.63	7.60	24.38	2.05	1.1	GEL-07
2-3088	699-42-37	W-049H/LERF	•11.6-17.3									
2-3089	699-42-37	W-049H/LERF	•91.65-94.0									

FOR INFORMATION ONLY

Note: Sample numbers 2-3088, and 2-3089 arrived yesterday, and have not yet been tested.
Note: Moisture retention data is not yet complete. Sample numbers 2-2864, and 2-2865 were sent previously.
NR = Not Requested
na = not applicable

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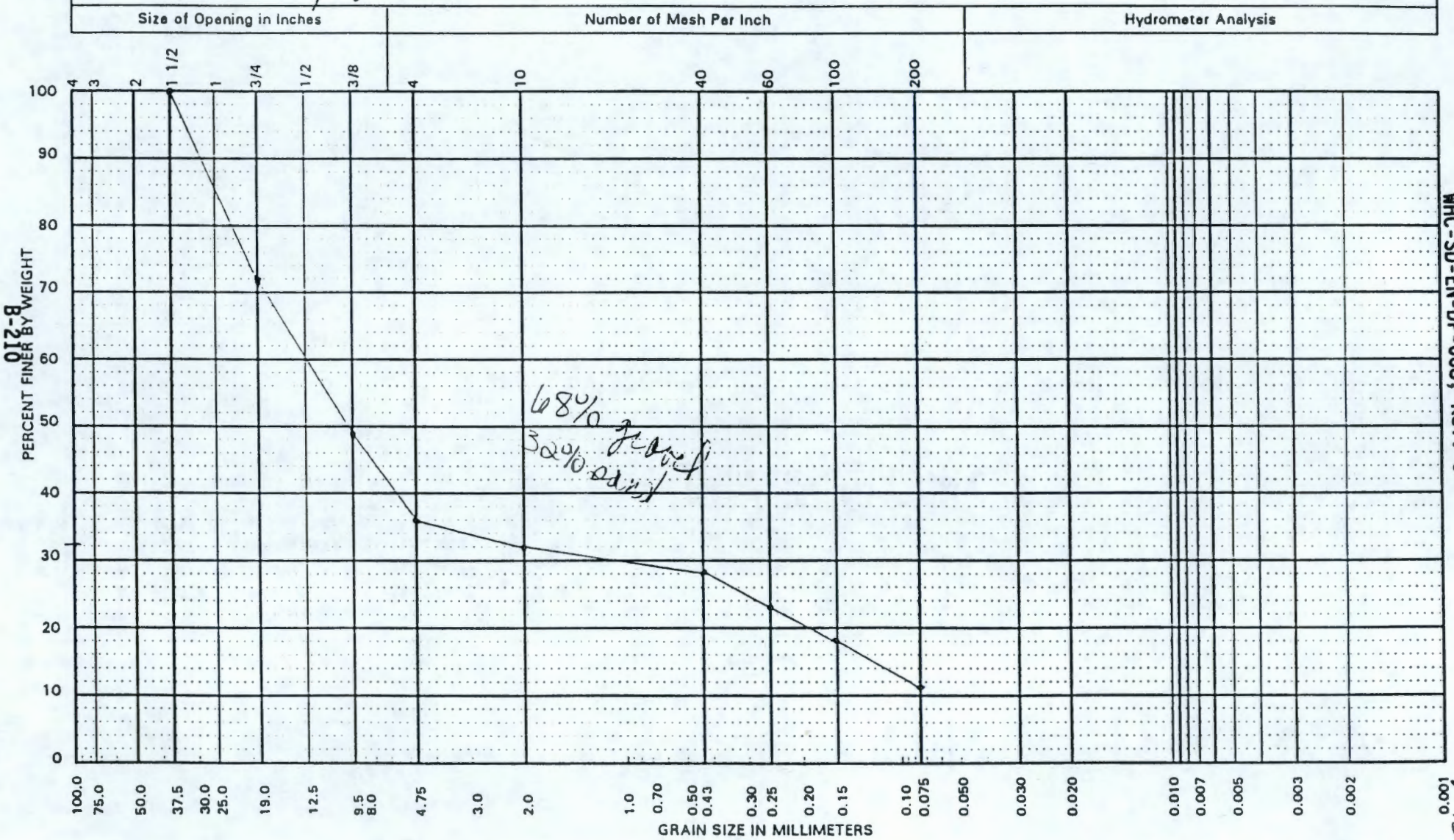
GEL-07 GRAIN SIZE ANALYSIS PLOT

COPY

Sample No. 2-2864

Page 2 of 2

Remarks FOR INFORMATION ONLY
Sandy gravel



B-210

WHC-SD-EN-DP-068, Rev. 0

8/93

Plot ... Date checked ... Checked by ... 8/ /92

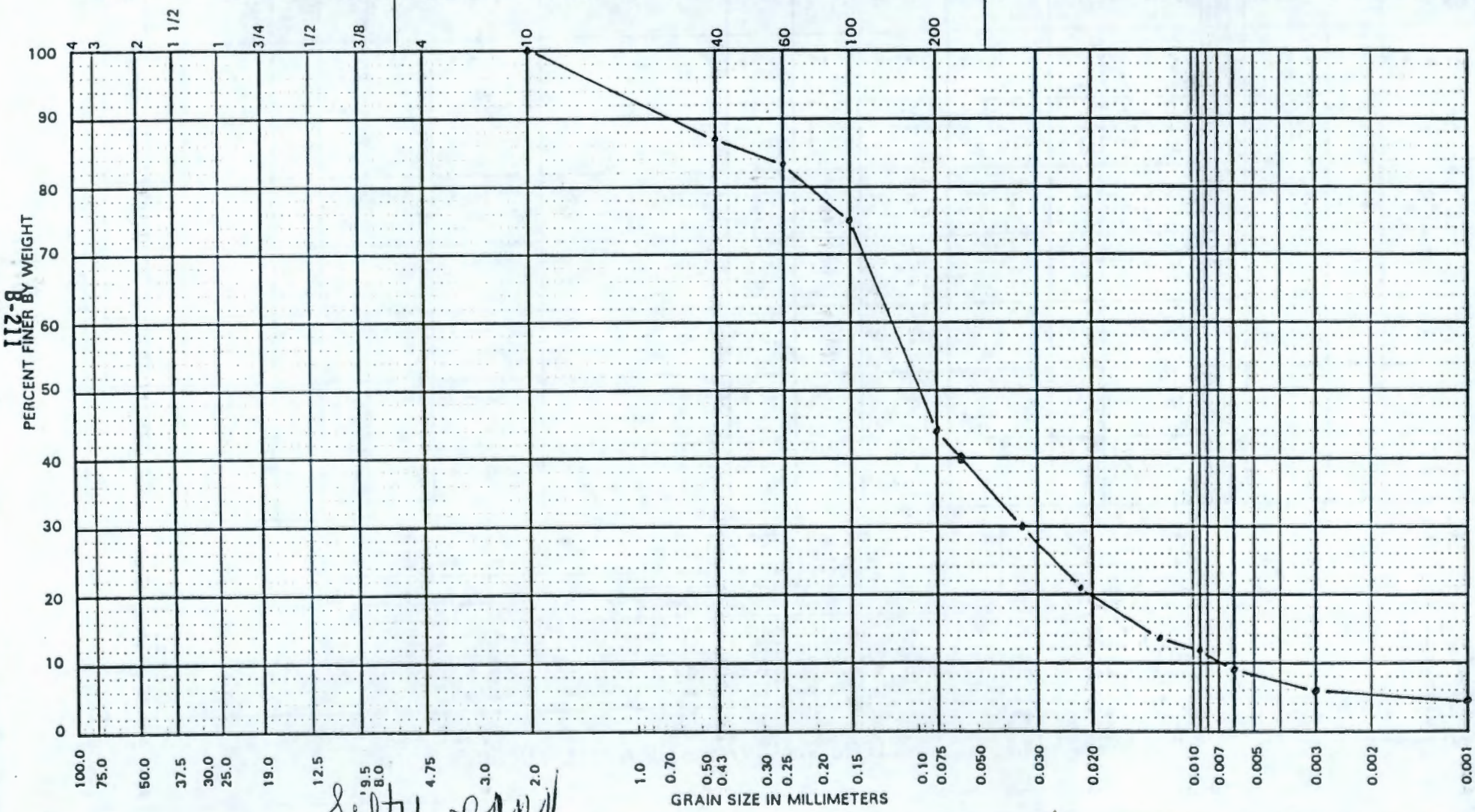
GEL-07 GRAIN SIZE ANALYSIS PLOT

COPY

Sample No. 2-2865

Page 2 of 5

Remarks: FOR INFORMATION ONLY



Silty sand

WHC-SD-EN-DP-068, Rev. 0

B-211

P. 94 of 95

GEL-07 GRAIN SIZE ANALYSIS PLOT

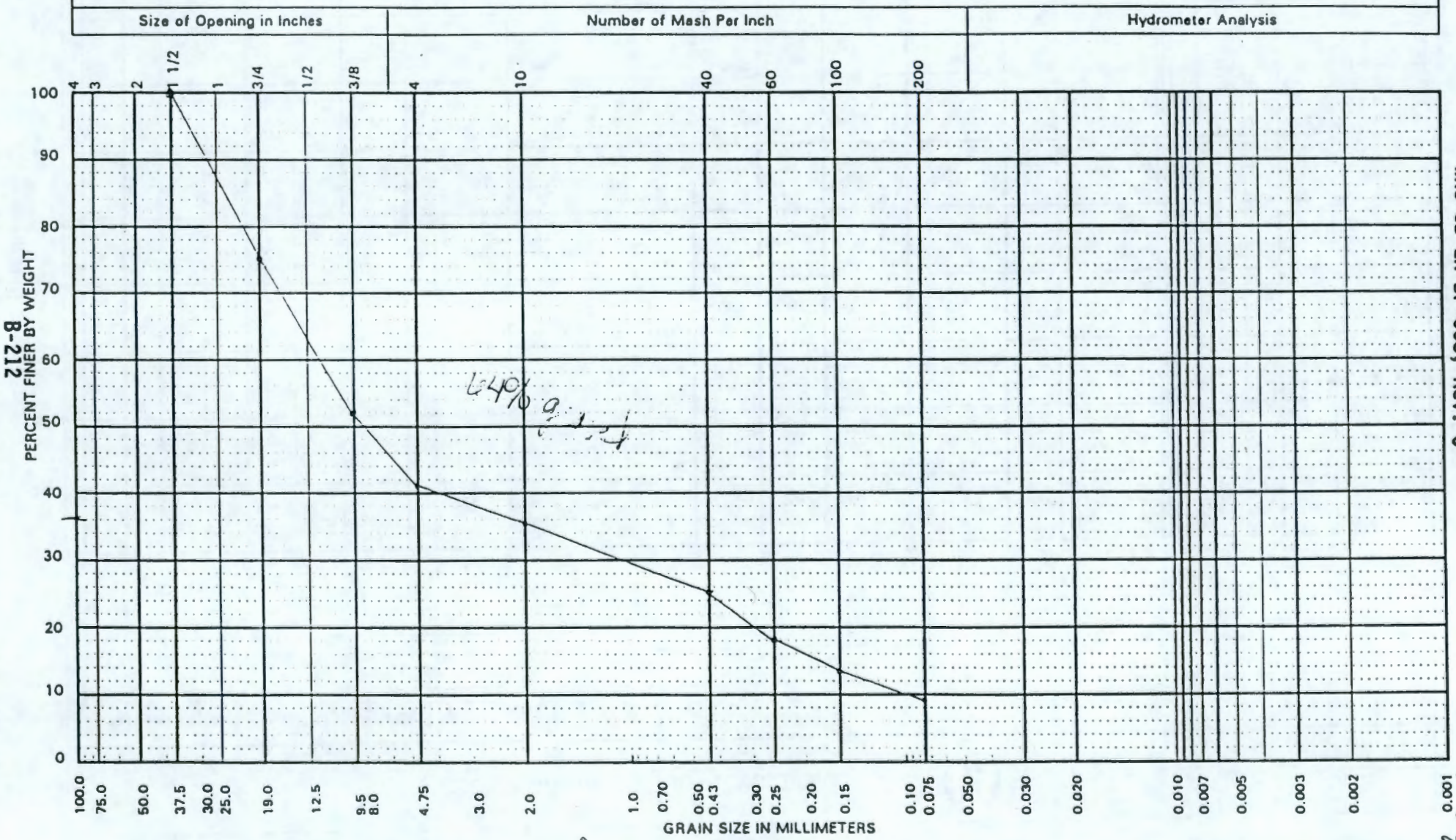
COPY

Sample No. 2-3053

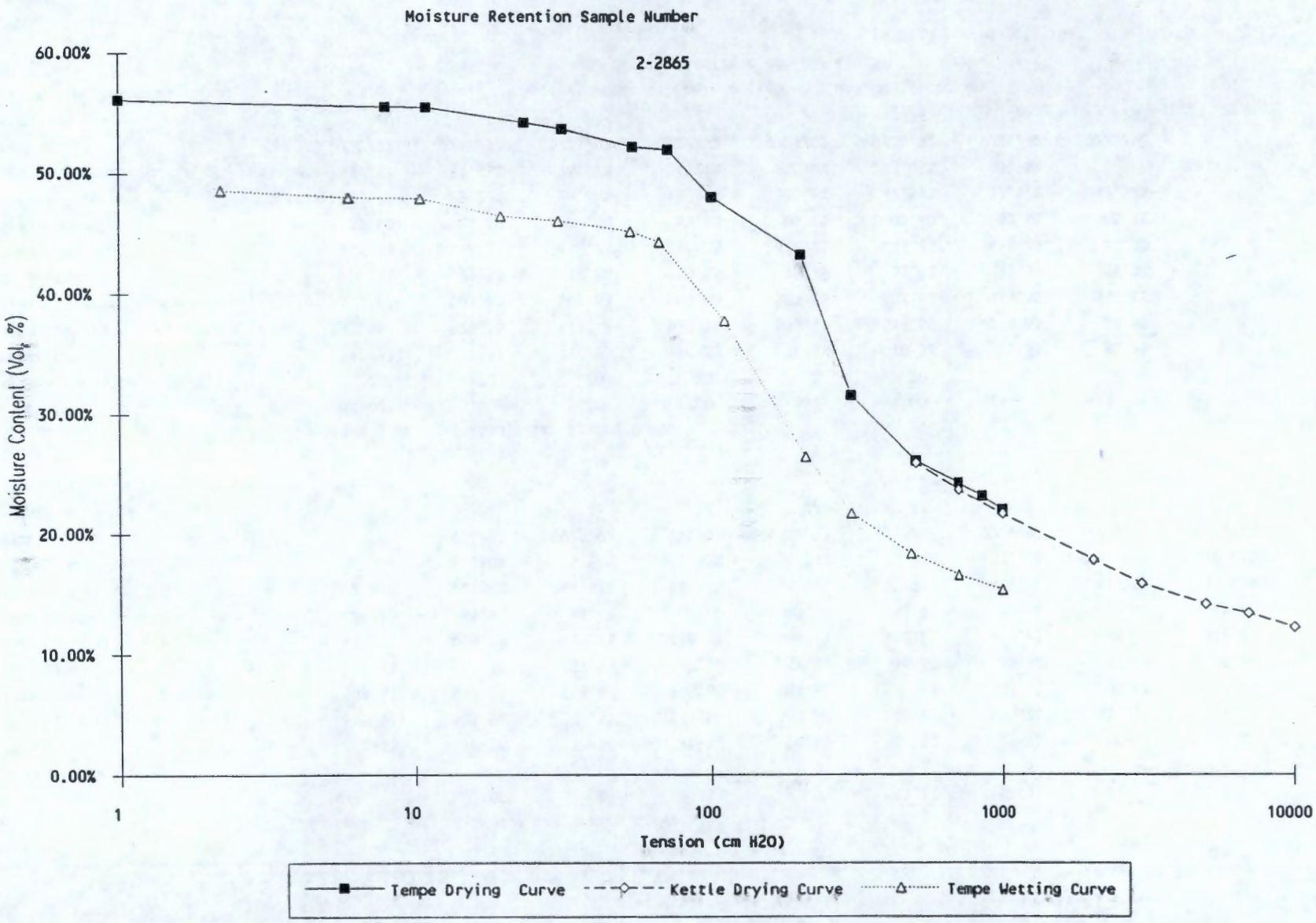
Page 2 of 5

Remarks 699-42-37 135.39-136.69'

FOR INFORMATION ONLY



Sandy gravel


Moisture Retention Sample Number
2-2865
60.00%
50.00%
40.00%
30.00%
20.00%
10.00%
0.00%
Moisture Content (Vol. %)
1
10
100
1000
10000
Tension (cm H2O)
Tempe Drying Curve
Kettle Drying Curve
Tempe Wetting Curve

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SAMPLE NO.	2-2865
Contact	C. DELANEY
Well No.	699-42-37
Operable Unit	W-049H
HEIS No.	NA
Depth	126.79-128.29

TEMPE CELLS	Sample #	2-2865 1 Bar Drying Curve							
tension in cm	N/A	0	8	11	23.5	31.5	54.5	72.1	101
error in tension value +/-		0	0.5	1	3	3	3	3	2
container number	TC-33	TC-33	TC-33	TC-33	TC-33	TC-33	TC-33	TC-33	TC-33
weight of container/ring,+wet sample	505.96	541.92	541.55	541.52	540.68	540.29	539.26	539.11	536.43
weight of container/ring,+ dry sample	503.63	503.63	503.63	503.63	503.63	503.63	503.63	503.63	503.63
weight of moisture	2.33	38.30	37.93	37.90	37.05	36.67	35.64	35.49	32.80
weight of container and ring	418.52	418.23	418.23	418.23	418.23	418.23	418.23	418.23	418.23
weight of dry sample	85.40	85.40	85.40	85.40	85.40	85.40	85.40	85.40	85.40
moisture content % by wt.	2.73%	44.84%	44.41%	44.37%	43.39%	42.93%	41.73%	41.55%	38.41%
moisture content % by vol.		56.10%	55.56%	55.52%	54.29%	53.71%	52.20%	51.99%	48.06%
date measured		9/4/92	9/8/92	9/9/92	9/10/92	9/11/92	9/14/92	9/15/92	9/16/92
temperature deg. C		24	26	26	27	27	27	27	25
volume of brass ring, cm^3	68.26								

TEMPE CELLS	Sample #	2-2865 1 Bar Drying Curve							
tension in cm	203	300	500	700	850	1000	N/A	N/A	
error in tension value +/-	20	20	20	20	20	20			
container number	TC-33	TC-33	TC-33	TC-33	TC-33	TC-33	TC-33	MC-18	
weight of container/ring,+wet sample	533.15	525.15	521.42	520.15	519.41	518.65	518.63	161.65	
weight of container/ring,+ dry sample	503.63	503.63	503.63	503.63	503.63	503.63	503.63	146.65	
weight of moisture	29.53	21.53	17.80	16.53	15.79	15.03	15.01	15.00	
weight of container and ring	418.23	418.23	418.23	418.23	418.23	418.23	418.23	61.30	
weight of dry sample	85.40	85.40	85.40	85.40	85.40	85.40	85.40	85.35	
moisture content % by wt.	34.57%	25.20%	20.84%	19.35%	18.48%	17.59%	17.57%	17.57%	
moisture content % by vol.	43.25%	31.53%	26.07%	24.21%	23.12%	22.01%	21.98%		
date measured	9/17/92	9/18/92	9/21/92	9/22/92	9/23/92	9/24/92	9/24/92	9/25/92	
temperature deg. C	24	24	28	25	25	26	26	25	
volume of brass ring, cm^3	68.26								

Cell wt. before cleanup = 418.08 grams

Cell wt. after cleanup = 418.37 grams

418.23 Average of last 2

P.97455

TEMPE CELLS	Sample #	2-2865 1 Bar Wetting Curve							
tension in cm	N/A	N/A	1000	1000	1000	1000	1000	1000	1000
error in tension value +/-			20	20	20	20	20	20	20
container number	MC-3	TC-6	TC-6	TC-6	TC-6	TC-6	TC-6	TC-6	TC-6
weight of container/ring,+wet sample	188.60	518.74	521.93	523.25	524.50	526.56	527.05	527.54	528.03
weight of container/ring,+ dry sample	187.64	518.05	518.53	518.53	518.53	518.53	518.53	518.53	518.53
weight of moisture	0.96	0.69	3.40	4.72	5.97	8.03	8.52	9.01	9.50
weight of container and ring	61.01	426.08	426.53	426.53	426.53	426.53	426.53	426.53	426.53
weight of dry sample	127.59	91.97	92.00	92.00	92.00	92.00	92.00	92.00	92.00
moisture content %	0.75%		3.70%	5.13%	6.49%	8.73%	9.26%	9.79%	10.33%
moisture content % by vol.			4.98%	6.91%	8.75%	11.76%	12.48%	13.20%	13.92%
date measured			9/23/92	9/24/92	9/25/92	9/28/92	9/29/92	9/30/92	10/1/92
temperature deg. C			27	21	25	27	27	27	28
volume of brass ring, cm^3	68.26								

TEMPE CELLS	Sample #	2-2865 1 Bar Wetting Curve							
tension in cm	1000	1000	700	480	300	210	111.5	67	53.5
error in tension value +/-	20	20	20	20	3	5	5	4	2
container number	TC-6	TC-6	TC-6	TC-6	TC-6	TC-6	TC-6	TC-6	TC-6
weight of container/ring,+wet sample	528.28	529.01	529.84	531.08	533.34	536.56	544.31	548.78	549.38
weight of container/ring,+ dry sample	518.53	518.53	518.53	518.53	518.53	518.53	518.53	518.53	518.53
weight of moisture	9.75	10.48	11.31	12.55	14.81	18.03	25.78	30.25	30.85
weight of container and ring	426.53	426.53	426.53	426.53	426.53	426.53	426.53	426.53	426.53
weight of dry sample	92.00	92.00	92.00	92.00	92.00	92.00	92.00	92.00	92.00
moisture content %	10.60%	11.39%	12.29%	13.64%	16.10%	19.60%	28.02%	32.88%	33.53%
moisture content % by vol.	14.28%	15.35%	16.57%	18.39%	21.70%	26.41%	37.77%	44.32%	45.19%
date measured	10/2/92	10/5/92	10/6/92	10/7/92	10/8/92	10/9/92	10/12/92	10/13/92	10/14/92
temperature deg. C	25	25	26	30	26	24	25	27	26
volume of brass ring, cm^3	68.26								

Cell wt. before cleanup = 427.19 grams

Cell wt. after cleanup = 426.32 grams

TEMPE CELLS	Sample #	2-2865 1 Bar Wetting Curve				426.53 Average of all three	
tension in cm	30.5	19.6	10.5	6	2.2	N/A	N/A
error in tension value +/-	2	1	1	1	1		
container number	TC-6	TC-6	TC-6	TC-6	TC-6	TC-6	MC-3
weight of container/ring,+wet sample	549.97	550.25	551.26	551.32	551.72	551.72	185.35
weight of container/ring,+ dry sample	518.53	518.53	518.53	518.53	518.53	518.53	152.42
weight of moisture	31.44	31.72	32.73	32.79	33.19	33.19	32.93
weight of container and ring	426.53	426.53	426.53	426.53	426.53	426.53	61.01
weight of dry sample	92.00	92.00	92.00	92.00	92.00	92.00	91.41
moisture content %	34.17%	34.48%	35.58%	35.64%	36.08%	36.08%	36.02%
moisture content % by vol.	46.06%	46.47%	47.95%	48.04%	48.62%	48.62%	
date measured	10/15/92	10/16/92	10/19/92	10/20/92	10/21/92		
temperature deg. C	30	26	26	25	25		
volume of brass ring, cm^3	68.26						

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KETTLES	Sample #	2-2865 15 Bar Drying Curve								
tension in cm	500	500	700	700	1000	1000	2060	2060	3020	3020
error in tension value +/-	20	20	20	20	20	20	20	20	20	20
container number	A35	A36	A35	A36	A35	A36	B35	B36	B35	B36
weight of container/ring,+wet sample	43.20	42.59	42.68	41.78	42.06	41.06	35.66	37.53	35.37	36.75
weight of container/ring,+ dry sample	38.43	38.03	38.34	37.69	38.13	37.36	33.14	34.76	33.12	34.35
weight of moisture	4.77	4.56	4.34	4.09	3.93	3.70	2.52	2.77	2.25	2.40
weight of container and ring	15.46	15.95	15.46	15.95	15.46	15.95	15.43	15.34	15.43	15.34
weight of dry sample	22.97	22.08	22.88	21.74	22.67	21.41	17.71	19.42	17.69	19.01
moisture content %	20.77%	20.65%	18.97%	18.81%	17.34%	17.28%	14.23%	14.26%	12.72%	12.62%
date measured	10/27/92	10/27/92	11/3/92	11/3/92	11/10/92	11/10/92	10/27/92	10/27/92	11/3/92	11/3/92
temperature deg. C	25	25	26	26	26	26	25	25	26	26

KETTLES								
tension in cm	5000	5000	7000	7000	10000	10000	15000	15000
error in tension value +/-	100	100	100	100	100	100	100	100
container number	B35	B36	C35	C36	C35	C36	C35	C36
weight of container/ring,+wet sample	35.04	36.41	35.82	37.45	35.54	37.16	35.71	37.28
weight of container/ring,+ dry sample	33.04	34.28	33.86	35.32	33.77	35.22	33.70	35.12
weight of moisture	2.00	2.13	1.96	2.13	1.77	1.94	2.01	2.16
weight of container and ring	15.43	15.34	15.51	15.44	15.51	15.44	15.51	15.44
weight of dry sample	17.61	18.94	18.35	19.88	18.26	19.78	18.19	19.68
moisture content %	11.36%	11.25%	10.68%	10.71%	9.69%	9.81%	11.05%	10.98%
date measured	11/10/92	11/10/92	10/27/92	10/27/92	11/3/92	11/3/92	11/10/92	11/10/92
temperature deg. C	26	26	25	25	26	26	26	26

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POINTS SELECTED FOR PLOTTING — Sample # 2-2865

container number	TC-33	TC-33	TC-33	TC-33	TC-33	TC-33	TC-33	TC-33	TC-33	TC-33	TC-33
Tension in cm	1	8	11	23.5	31.5	54.5	72.1	101	203	300	500
Tempe Drying Curve	56.10%	55.56%	55.52%	54.29%	53.71%	52.20%	51.99%	48.06%	43.25%	31.53%	26.07%
Kettle Drying Curve											
Tempe Wetting Curve											
date measured	9/4/92	9/8/92	9/9/92	9/10/92	9/11/92	9/14/92	9/15/92	9/16/92	9/17/92	9/18/92	9/21/92

container number	TC-33	TC-33	TC-33	A35	A35	A35	B35	B35	B35	C35	C35
tension in cm	700	850	1000	500	700	1000	2060	3020	5000	7000	10000
Tempe Drying Curve	24.21%	23.12%	22.01%								
Kettle Drying Curve				25.91%	23.63%	21.65%	17.82%	15.85%	14.14%	13.38%	12.20%
Tempe Wetting Curve											
date measured	9/22/92	9/23/92	9/24/92	10/27/92	11/3/92	11/10/92	10/27/92	11/3/92	11/10/92	10/27/92	11/3/92

container number	TC-6	TC-6	TC-6	TC-6	TC-6	TC-6	TC-6	TC-6	TC-6	TC-6	TC-6
tension in cm	1000	700	480	300	210	111.5	67	53.5	30.5	19.6	10.5
Tempe Drying Curve											
Kettle Drying Curve											
Tempe Wetting Curve	15.35%	16.57%	18.39%	21.70%	26.41%	37.77%	44.32%	45.19%	46.06%	46.47%	47.95%
date measured	10/5/92	10/6/92	10/7/92	10/8/92	10/9/92	10/12/92	10/13/92	10/14/92	10/15/92	10/16/92	10/19/92

container number	TC-6	TC-6
tension in cm	6	2.2
Tempe Drying Curve		
Kettle Drying Curve		
Tempe Wetting Curve	48.04%	48.62%
date measured	10/20/92	10/21/92

Kettle data points were converted from gravimetric to volumetric by multiplying by Bulk Density

Bulk Density = 1.25

P.50 of 55

MOISTURE RETENTION DATA SHEET

Sample No. 2-2865 Page ____ of ____

Tested By:	R.M.SHAILER	Date	9-3-92
Procedure No:	17	Rev. 0 Date Issued	2/25/90
Test Plan No:	N/A	Rev. N/A Date Issued	N/A
Pressure Cell No.	TC-33	Calibration Due Date	N/A
Gauge: GEL-	~~2033~~ 2032 9-3-92 RMS	Calibration Due Date	2/28/93
Thermometer: GEL-	12	Calibration Due Date	N/A
Balance: GEL-	3307	Calibration Due Date	9/15/92 3-15-93
Gauge: GEL-		Calibration Due Date	
____: GEL-		Calibration Due Date	

(1) Tension units = cm	NA	0	8	11	23.5	31.5	54.5	72.1	101	203	300	500
(2) Container/Ring Number	TC-33	TC-33	TC-33	TC-33	TC-33	TC-33	TC-33	TC-33	TC-33	TC-33	TC-33	TC-33
(3) Wt. of Container and Wet Sample, g	505.96	541.92	541.55	541.52	540.68	546.29	539.26	539.11	536.43	533.15	525.15	521.42
(4) Wt. of container and Dry Sample, g												
(5) Container Tare Wt., g	418.52											
(6) Temperature C°		24	26	26	27	27	27	27	25	24	24	28
(6) Date		9-4-92	9-8-92	9-9-92	9-10-92	9-11-92	9-14-92	9-15-92 ~~9-11-92~~	9-16-92	9-17-92	9-18-92	9-21-92
(1) Tension units = cm	700	850	1000	NA	NA							
(2) Container/Ring Number	TC-33	TC-33	TC-33	TC-33	MC-18							
(3) Wt. of Container and Wet Sample, g	520.15	519.41	518.65	518.63	161.65							
(4) Wt. of container and Dry Sample, g					146.65							
(5) Container Tare Wt., g				* 418.08	61.30							
(6) Temperature C°	25	27	25		25							
(7) Date	9-22-92	9-23-92	9-24-92		9-25-92							

REMARKS Drying Curve
~~CO-18H, Charge Code A2CBD~~ J Relyea 9-25-92
WO-49H charge Code E00347
* Cleaned Tare 418.37

All data are accurately and completely recorded by a test trained operator.
Checked By; J Relyea Date 11-11-92

B-218

WHC-SD-EN-DP-068, Rev. 0

P.5 of 55

MOISTURE RETENTION DATA SHEET

SAMPLE NO. 2- 2865 Page ____ of ____

Tested By:	R.M. SHAILER	Date 9-22-92	
Procedure No:	17	Rev. 0	Date Issu 2/25/90
Test Plan No:	N/A	Rev. N/A	Date Issu N/A
Pressure Cell No.	TC- 6	Calibration Due Date	N/A
Gauge: GEL -	2028	Calibration Due Date	2-28-93
Thermometer: GEL -	12	Calibration Due Date	N/A
Balance: GEL -	3307	Calibration Due Date	3-15-93
Gauge: GEL -		Calibration Due Date	
: GEL -		Calibration Due Date	

(1) Tension units =	NA	NA	1000	1000	1000	1000	1000	1000	1000	1000	1000	700	480
(2) Container/Ring Number	TC-6	MC-3	TC-6	TC-6	TC-6	TC-6	TC-6	TC-6	TC-6	TC-6	TC-6	TC-6	TC-6
(3) Wt. of Container and Wet Sample, g	518.74	188.60	521.93	523.25	524.50	526.56	527.65	527.54	528.03	528.28	529.01	529.84	531.08
(4) Wt. of Container and Dry Sample, g		187.64											
(5) Container Tare Wt., g	426.08	61.01											
(6) Temperature			27	21	25	28	26	27	28	25	25	25	30
(7) Date			9-23-92	9-24-92	9-25-92	9-28-92	9-29-92	9-30-92	10-1-92	10-2-92	10-5-92	10-6-92	10-7-92

(1) Tension units =	300	210	111.5	67	53.5	30.5	19.6	10.5	6.0	2.2	NA	NA	
(2) Container/Ring Number	TC-6	TC-6	TC-6	TC-6	TC-6	TC-6	TC-6	TC-6	TC-6	TC-6	TC-6	MC-3	
(3) Wt. of Container and Wet Sample, g	533.34	536.56	544.31	548.78	549.38	549.97	550.25	551.26	551.32	551.72	551.72	185.35	
(4) Wt. of Container and Dry Sample, g												152.42	
(5) Container Tare Wt., g											* 427.19	61.01	
(6) Temperature	26	23	25	27	26	30	26	26	25	25			
(7) Date	10-8-92	10-9-92	10-12-92	10-13-92	10-14-92	10-15-92	10-16-92	10-19-92	10-20-92	10-21-92			

REMARKS JFR 9-25-92 WETTING CURVE

~~CO-18H~~ ~~A2CBD~~ *Cleaned Tare Wt.

WO-49H ~~E00347~~ 426.32

project

charge Code

All data are acurately and completely recorded. The test operator was trained and used calibrated instruments

Checked By: J F Relyea Date: 11-11-92

B-219

WHC-SD-EN-DP-068, Rev. 0

MOISTURE RETENTION DATA SHEET

SAMPLE NO. 2-2865 Page 1 of 3

Tested By:	R. M. Shailer	Date	10/22/92
Procedure No:	17	Rev.	0 Date Issued 2/25/90
Test Plan No:	N/A	Rev.	N/A Date Issued
Pressure Cell No.	PK05-01	Calibration Due Date	N/A
Gauge:	GEL - 2051	Calibration Due Date	7/2/93
Thermometer:	GEL - 12	Calibration Due Date	N/A
Balance:	GEL - 3307	Calibration Due Date	9/15/92
Gauge:	GEL -	Calibration Due Date	
:	GEL -	Calibration Due Date	

	.5	.5	.7	.7	1	1							
(1) Tension units = Bars	0.5	0.5	0.7	0.7	1.0	1.0							
(2) Container/Ring Number	4-7 A35	4-8 A36	4-7 A35	4-8 A36	4-7 A35	4-8 A36							
(3) Wt. of Container and Wet Sample, g	43.20	42.59	42.68	41.78	42.06	41.06							
(4) Wt. of Container and Dry Sample, g	38.43	38.03	38.34	37.69	38.13	37.36							
(5) Container Tare Wt., g	15.46	15.95	15.46	15.95	15.46	15.95							
(6) Temperature	25	25	26	26	26	26							
(7) Date	10-27-92	10-27-92	11-3-92	11-3-92	11-10-92	11-10-92							

(1) Tension units = Bars													
(2) Container/Ring Number													
(3) Wt. of Container and Wet Sample, g													
(4) Wt. of Container and Dry Sample, g													
(5) Container Tare Wt., g													
(6) Temperature													
(7) Date													

REMARKS Kettle Drying Curve (0 to 1 Bars)

All data are acurately and completely recorded. The test operator was trained and used calibrated instruments

Checked By: J F Relyea Date: 11-11-92

B-220

WHC-SD-EN-DP-068, Rev. 0

P.S.34.55

MOISTURE RETENTION DATA SHEET

SAMPLE NO. 2-2865

Tested By:	R. M. Shailer	Date	10/22/92
Procedure No:	17	Rev.	0 Date Issued 2/25/90
Test Plan No:	N/A	Rev.	N/A Date Issued
Pressure Cell No.	PK05-02	Calibration Due Date	N/A
Gauge:	GEL - 2052	Calibration Due Date	7/2/93
Thermometer:	GEL - 12	Calibration Due Date	N/A
Balance:	GEL - 3307	Calibration Due Date	9/15/92
Gauge:	GEL - 2034	Calibration Due Date	4/3/93
:	GEL -	Calibration Due Date	

	2	2	3	3	5	5							
(1) Tension units = Bars	2.06 ~~2.10 10-28-92 Bars~~	2.06 ~~2.10 10-28-92 Bars~~	3.02	3.02	5.0	5.0							
(2) Container/Ring Number	8-7 B35	8-8 B36	8-7 B35	8-8 B36	8-7 B35	8-8 B36							
(3) Wt. of Container and Wet Sample, g	35.66	37.53	35.37	36.75	35.04	36.41							
(4) Wt. of Container and Dry Sample, g	33.14	34.76	33.12	34.35	33.04	34.28							
(5) Container Tare Wt., g	15.43	15.34	15.43	15.34	15.43	15.34							
(6) Temperature	25	25	26	26	26	26							
(7) Date	10-27-92	10-27-92	11-3-92	11-3-92	11-10-92	11-10-92							

(1) Tension units = Bars													
(2) Container/Ring Number													
(3) Wt. of Container and Wet Sample, g													
(4) Wt. of Container and Dry Sample, g													
(5) Container Tare Wt., g													
(6) Temperature													
(7) Date													

REMARKS Kettle drying Curve (2 to 5 Bars)

All data are acurately and completely recorded. The test operator was trained and used calibrated instruments

Checked By: J F Relyea Date: 11-11-92

B-221

WHC-SD-EN-DP-068, Rev. 0

MOISTURE RETENTION DATA SHEET

SAMPLE NO. 2-2865 Page 3 of 3

Tested By:	R. M. Shailer	Date	10/22/92
Procedure No:	17	Rev. 0	Date Issued 2/25/90
Test Plan No:	N/A	Rev. N/A	Date Issued
Pressure Cell No.	PK15-02	Calibration Due Date	N/A
Gauge:	GEL - 2035	Calibration Due Date	2/28/93
Thermometer:	GEL - 12	Calibration Due Date	N/A
Balance:	GEL - 3307	Calibration Due Date	9/15/92
Gauge:	GEL -	Calibration Due Date	
:	GEL -	Calibration Due Date	

	7	7	10	10	15	15							
(1) Tension units = Bars	7.0	7.0	10	10	15	15							
(2) Container/Ring Number	11-11 C35	11-12 C36	11-11 C35	11-12 C36	11-11 C35	11-12 C36							
(3) Wt. of Container and Wet Sample, g	35.82	37.45	35.54	37.16	35.71	37.28							
(4) Wt. of Container and Dry Sample, g	33.86	35.32	33.77	35.22	33.70	35.12							
(5) Container Tare Wt., g	15.51	15.44	15.51	15.44	15.51	15.44							
(6) Temperature	25	25	26	26	26	26							
(7) Date	10.27.92	10.27.92	11.3.92	11.3.92	11-10-92	11-10-92							

(1) Tension units = Bars													
(2) Container/Ring Number													
(3) Wt. of Container and Wet Sample, g													
(4) Wt. of Container and Dry Sample, g													
(5) Container Tare Wt., g													
(6) Temperature													
(7) Date													

REMARKS Kettle Drying Curve (7 to 15 Bars)

All data are acurately and completely recorded. The test operator was trained and used calibrated instruments

Checked By: J F Relyea Date: 11-11-92

B-222

WHC-SD-EN-DP-068, Rev. 0

APPENDIX C

WELL DEVELOPMENT AND PUMP INSTALLATION

This appendix includes for each well:

- well development log
- pump installation report.

CONTENTS

WELL 699-40-36 . . . . . C-1

WELL 699-41-35 . . . . . C-73

WELL 699-42-37 . . . . . C-153

WELL 699-40-36

SAMPLING PUMP INSTALLATION FORM

Project: W-049H

Well Number: 699-40-36

Pump Type: Hydrostar

Pump Model: 8001

Date Installed: 12/02/92

Installed By: B. Strode

Depth to Water: 117.94 Ft BTOC*

Depth to Bottom: 222.97 Ft BTOC

Reported Depth of water: 118.05' (12/01/92)

Screened Interval: 212.97-222.97 Ft BTOC

Pump/Riser Pipe Description:

Pipe: 3/4" Stainless steel

Pump Length: 4.33'

Pump Screen Length: 1.90'

Material Cleaning: Manufacturer

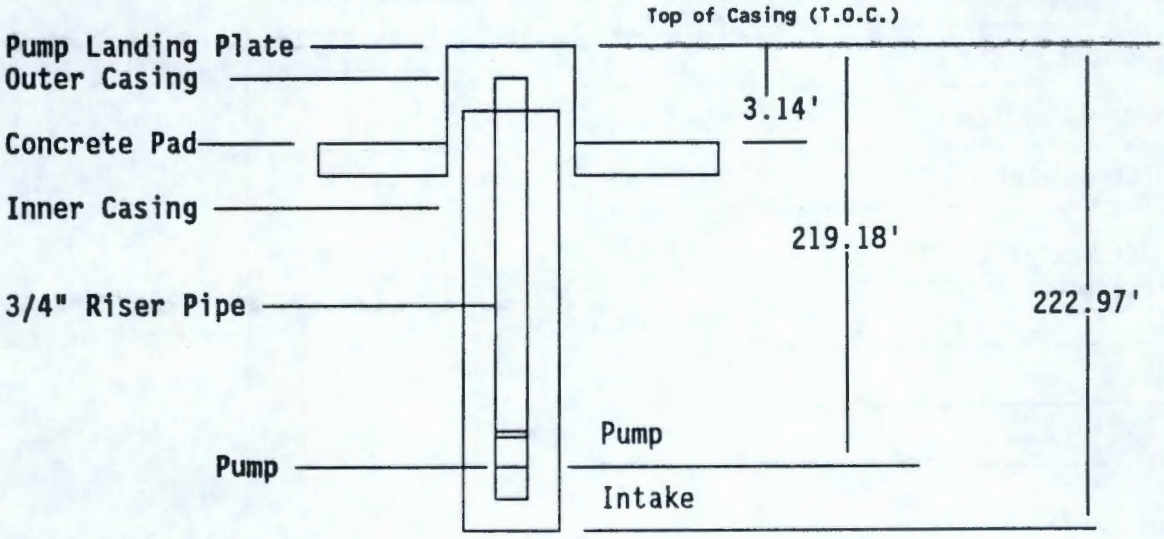
Distance pump off bottom: 1.89'

Comments: Pump tested on 12/02/92, produced 5 gal/55.03 sec @ 48 strokes = 5.45 gpm @ 52.3 s/m.

PUMP INSTALLATION SKETCH

Total Material Length: 221.08 Ft

Depth to Pump intake: 219.18 Ft BTOC



Completed By: R. S. Edrington

Date: 12/10/92

* BTOC - Below Top Of Casing

VALIDATED KDR 1/12/93

page 1 of 11

BOREHOLE TEST INFORMATION

Borehole 699-40-36 Borehole Diameter 4 in. Hanford Coordinates N/A

Interval Tested 118.05-222.97' Depth Interval 118.05-222.97' Test Type: Instantaneous Slug

Borehole Depth: 212.70 - 222.97' 222.97' Instruction Used: WHC-CM-7-7 (EII 10.1)

EQUIPMENT

NAME	DESCRIPTION
Electric Sounder	Solinst s/n: ET-4 Calibration due: 1-08-93
Data Logger	In-Situ Inc. s/n: 1KB277
Pressure Transducer	In-Situ Inc. s/n: 2110 Calibration due: 2-21-93
Slugging Rod	Site Fabricated 72.0"Lx2.0"D 0.13 cu. ft.
Steel Measuring Tape	300' Graduated Steel Tape

MEASUREMENT DATUM

Control Datum: Top of Casing (TOC) 6"

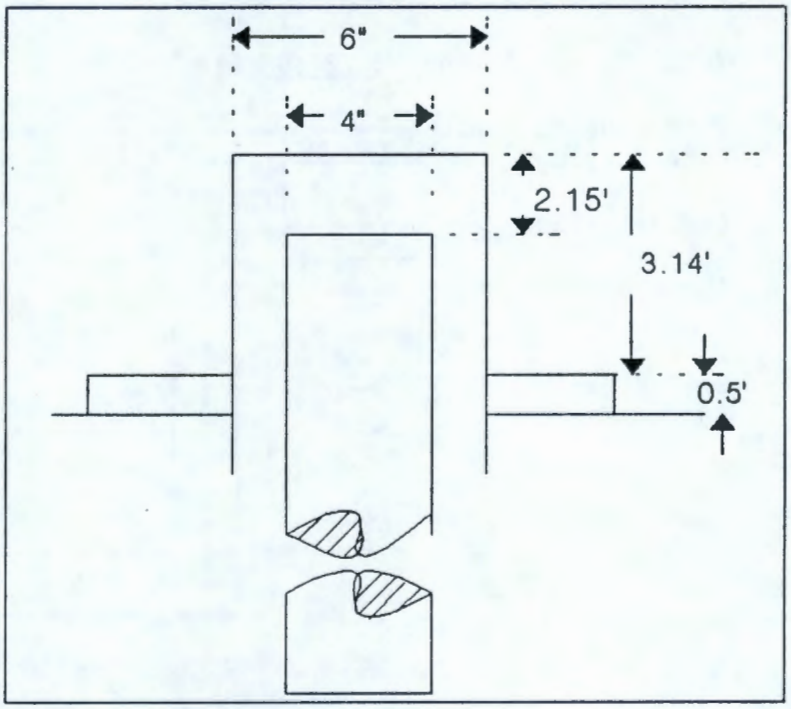
Elevation: N/A

Electric Sounder: TOC 6"

Steel Tape: TOC 6"

Pressure Transducer: TOC 6"

WELL HEAD DIAGRAM



COMMENTS

Recorded by: Robert S. Edrington R S. Edrington Date: 01/05/93

Sign and Print Name

page 2 of 11

INSTANTANEOUS SLUG TEST DATA SHEET: INJECTION

Borehole: 699-40-36

Interval Tested: 118.05 -222.97' Btoc 6"

Depth To Water: 118.05' Btoc 6"

Depth to Transducer: 80.07' BWL

Measured by: Robert S. Edrington

Slug Volume: 0.13 cu. ft.

Barometric Reading:

Beginning: N/A End: N/A

Time:	Start	End
Baseline	1109	1133
Injection	1134	1216

Date: 12-01-92

Initial Pressure (Pi): 118.05

Slug Level/Pressure (Pmax) 116.21

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: Robert S. Edrington Date: 01-05-93

Sign and Print Name

BD-6000-293(07/90)

699-40-36 Slug Injection

Page 3 of 4

Hermit Environment Data Logger Unit# 277

Test# 4 Water Level (ft) below top of casing (BTOC)

Type: Slug Injection Baseline Begun: 1109 12/01/92

SWL: 118.05' Slug Injected: 1134 12/01/92

Scale: 50.15 Slug Volume: 0.13 Cu ft

Time:min	Time:hrs	D-T-W:Ft	d(BTOC)
0.000	0.00000	118.05	-118.05
0.003	0.00006	117.95	-117.95
0.007	0.00011	116.78	-116.78
0.010	0.00017	114.86	-114.86
0.013	0.00022	113.26	-113.26
0.017	0.00028	113.50	-113.50
0.020	0.00033	130.55	-130.55
0.023	0.00039	112.88	-112.88
0.027	0.00044	114.48	-114.48
0.030	0.00050	116.72	-116.72
0.033	0.00056	119.50	-119.50
0.050	0.00083	116.29	-116.29
0.067	0.00111	116.35	-116.35
0.083	0.00139	116.24	-116.24
0.100	0.00167	116.29	-116.29
0.117	0.00194	116.21	-116.21
0.133	0.00222	116.26	-116.26
0.150	0.00250	116.22	-116.22
0.167	0.00278	116.24	-116.24
0.183	0.00306	116.24	-116.24
0.200	0.00333	116.26	-116.26
0.217	0.00361	116.27	-116.27
0.233	0.00389	116.27	-116.27
0.250	0.00417	116.29	-116.29
0.267	0.00444	116.29	-116.29
0.283	0.00472	116.30	-116.30
0.300	0.00500	116.30	-116.30
0.317	0.00528	116.30	-116.30
0.333	0.00556	116.32	-116.32
0.417	0.00695	116.34	-116.34
0.500	0.00833	116.38	-116.38
0.583	0.00972	116.41	-116.41
0.667	0.01111	116.43	-116.43
0.750	0.01250	116.48	-116.48

Time:min	Time:hrs	D-T-W:Ft	d(WL):Ft
0.00	0.00	118.05	-118.05
1.00	0.02	118.05	-118.05
2.00	0.03	118.05	-118.05
3.00	0.05	118.05	-118.05
4.00	0.07	118.05	-118.05
5.00	0.08	118.05	-118.05
6.00	0.10	118.05	-118.05
7.00	0.12	118.05	-118.05
8.00	0.13	118.05	-118.05
9.00	0.15	118.05	-118.05
10.00	0.17	118.05	-118.05
11.00	0.18	118.05	-118.05
12.00	0.20	118.05	-118.05
13.00	0.22	118.05	-118.05
14.00	0.23	118.05	-118.05
15.00	0.25	118.05	-118.05
16.00	0.27	118.05	-118.05
17.00	0.28	118.05	-118.05
18.00	0.30	118.05	-118.05
19.00	0.32	118.05	-118.05
20.00	0.33	118.05	-118.05
21.00	0.35	118.05	-118.05
22.00	0.37	118.05	-118.05
23.00	0.38	118.05	-118.05
24.00	0.40	118.05	-118.05

699-40-36 Slug Injection

0.833	0.01389	116.51	-116.51
0.917	0.01528	116.54	-116.54
1.000	0.01667	116.56	-116.56
1.083	0.01806	116.59	-116.59
1.167	0.01945	116.62	-116.62
1.250	0.02083	116.64	-116.64
1.333	0.02222	116.67	-116.67
1.417	0.02361	116.70	-116.70
1.500	0.02500	116.72	-116.72
1.583	0.02639	116.75	-116.75
1.667	0.02778	116.76	-116.76
1.750	0.02917	116.79	-116.79
1.833	0.03056	116.81	-116.81
1.917	0.03195	116.84	-116.84
2.000	0.03333	116.86	-116.86
2.500	0.04167	116.98	-116.98
3.000	0.05000	117.10	-117.10
3.500	0.05833	117.19	-117.19
4.000	0.06667	117.29	-117.29
4.500	0.07500	117.36	-117.36
5.000	0.08333	117.44	-117.44
5.500	0.09167	117.51	-117.51
6.000	0.10000	117.55	-117.55
6.500	0.10833	117.60	-117.60
7.000	0.11667	117.65	-117.65
7.500	0.12500	117.70	-117.70
8.000	0.13333	117.73	-117.73
8.500	0.14167	117.76	-117.76
9.000	0.15000	117.79	-117.79
9.500	0.15833	117.82	-117.82
10.000	0.16667	117.84	-117.84
12.000	0.20000	117.92	-117.92
14.000	0.23333	117.97	-117.97
16.000	0.26667	117.98	-117.98
18.000	0.30000	118.00	-118.00
20.000	0.33333	118.01	-118.01
22.000	0.36667	118.03	-118.03
24.000	0.40000	118.03	-118.03
26.000	0.43333	118.03	-118.03
28.000	0.46667	118.03	-118.03
30.000	0.50000	118.03	-118.03
32.000	0.53333	118.03	-118.03

34.000	0.56667	118.05	-118.05
36.000	0.60000	118.03	-118.03
38.000	0.63333	118.03	-118.03
40.000	0.66667	118.03	-118.03
42.000	0.70000	118.05	-118.05

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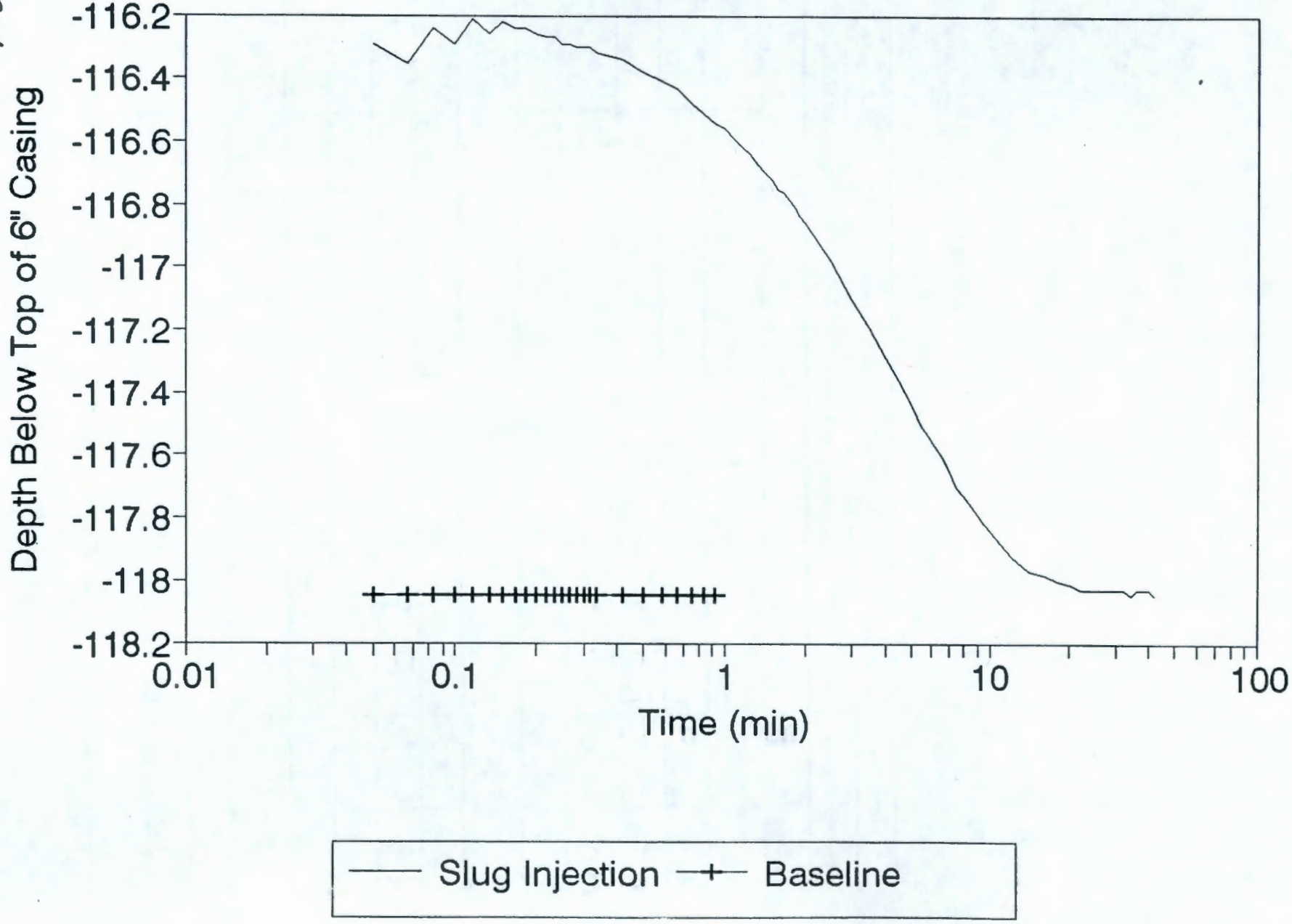
699-40-36 Slug Injection
1-Dec-92



P.7 of 11

INSTANTANEOUS SLUG TEST DATA SHEET :WITHDRAWAL

Borehole: 699-40-36

Interval Tested: 118.05 -222.97' Btoc 6"

Depth To Water: 118.05' Btoc 6"

Depth to Transducer: 80.07' BWL

Measured by: Robert S. Edrington

Slug Volume: 0.13 cu. ft.

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

Time:	Start	End
Baseline	1217	1249
Injection	1250	1406

Date: 12-01-92

Initial Pressure (Pi): 118.05

Slug Level/Pressure (Pmax) 119.99

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: Robert S. Edrington Date: 01-05-93
Sign and Print Name

BD-6000-293(07/90)

699-40-36 Slug Withdrawal

P. 8 of 11

Hermit Environment Data Logger Unit# 277

Test# 6 Water Level (ft) below top of casing (BTOC)

Type: Slug Withdrawal Baseline Begun: 1217 12/01/92

SWL: 118.05' Slug Withdrawn: 1250 12/01/92

Scale: 50.15 Slug Volume: 0.13 Cu ft

Time:min	Time:hrs	D-T-W:Ft	d(BTOC)
0.000	0.00000	118.98	-118.98
0.003	0.00006	118.54	-118.54
0.007	0.00011	118.31	-118.31
0.010	0.00017	119.39	-119.39
0.013	0.00022	120.25	-120.25
0.017	0.00028	119.96	-119.96
0.020	0.00033	119.98	-119.98
0.023	0.00039	119.98	-119.98
0.027	0.00044	119.98	-119.98
0.030	0.00050	119.98	-119.98
0.033	0.00056	119.99	-119.99
0.050	0.00083	119.98	-119.98
0.067	0.00111	119.96	-119.96
0.083	0.00139	119.93	-119.93
0.100	0.00167	119.91	-119.91
0.117	0.00194	119.88	-119.88
0.133	0.00222	119.90	-119.90
0.150	0.00250	119.88	-119.88
0.167	0.00278	119.87	-119.87
0.183	0.00306	119.87	-119.87
0.200	0.00333	119.85	-119.85
0.217	0.00361	119.83	-119.83
0.233	0.00389	119.83	-119.83
0.250	0.00417	119.83	-119.83
0.267	0.00444	119.82	-119.82
0.283	0.00472	119.82	-119.82
0.300	0.00500	119.80	-119.80
0.317	0.00528	119.80	-119.80
0.333	0.00556	119.79	-119.79
0.417	0.00695	119.76	-119.76
0.500	0.00833	119.72	-119.72
0.583	0.00972	119.69	-119.69
0.667	0.01111	119.66	-119.66
0.750	0.01250	119.63	-119.63

Time:min	Time:hrs	D-T-W:Ft	d(BTOC)
0.00	0.00	118.06	-118.06
1.00	0.02	118.06	-118.06
2.00	0.03	118.05	-118.05
3.00	0.05	118.06	-118.06
4.00	0.07	118.05	-118.05
5.00	0.08	118.05	-118.05
6.00	0.10	118.05	-118.05
7.00	0.12	118.06	-118.06
8.00	0.13	118.05	-118.05
9.00	0.15	118.05	-118.05
10.00	0.17	118.05	-118.05
11.00	0.18	118.05	-118.05
12.00	0.20	118.05	-118.05
13.00	0.22	118.05	-118.05
14.00	0.23	118.05	-118.05
15.00	0.25	118.05	-118.05
16.00	0.27	118.05	-118.05
17.00	0.28	118.05	-118.05
18.00	0.30	118.05	-118.05
19.00	0.32	118.05	-118.05
20.00	0.33	118.05	-118.05
21.00	0.35	118.05	-118.05
22.00	0.37	118.05	-118.05
23.00	0.38	118.05	-118.05
24.00	0.40	118.05	-118.05
25.00	0.42	118.05	-118.05
26.00	0.43	118.05	-118.05
27.00	0.45	118.05	-118.05
28.00	0.47	118.05	-118.05
29.00	0.48	118.05	-118.05
30.00	0.50	118.05	-118.05
31.00	0.52	118.05	-118.05
32.00	0.53	118.05	-118.05

P9 of 11

699-40-36 Slug Withdrawal

0.833	0.01389	119.60	-119.60
0.917	0.01528	119.57	-119.57
1.000	0.01667	119.53	-119.53
1.083	0.01806	119.52	-119.52
1.167	0.01945	119.49	-119.49
1.250	0.02083	119.45	-119.45
1.333	0.02222	119.44	-119.44
1.417	0.02361	119.41	-119.41
1.500	0.02500	119.39	-119.39
1.583	0.02639	119.36	-119.36
1.667	0.02778	119.34	-119.34
1.750	0.02917	119.31	-119.31
1.833	0.03056	119.30	-119.30
1.917	0.03195	119.26	-119.26
2.000	0.03333	119.25	-119.25
2.500	0.04167	119.12	-119.12
3.000	0.05000	119.01	-119.01
3.500	0.05833	118.92	-118.92
4.000	0.06667	118.82	-118.82
4.500	0.07500	118.74	-118.74
5.000	0.08333	118.68	-118.68
5.500	0.09167	118.62	-118.62
6.000	0.10000	118.55	-118.55
6.500	0.10833	118.50	-118.50
7.000	0.11667	118.46	-118.46
7.500	0.12500	118.41	-118.41
8.000	0.13333	118.38	-118.38
8.500	0.14167	118.35	-118.35
9.000	0.15000	118.31	-118.31
9.500	0.15833	118.28	-118.28
10.000	0.16667	118.25	-118.25
12.000	0.20000	118.17	-118.17
14.000	0.23333	118.12	-118.12
16.000	0.26667	118.09	-118.09
18.000	0.30000	118.08	-118.08
20.000	0.33333	118.06	-118.06
22.000	0.36667	118.06	-118.06
24.000	0.40000	118.05	-118.05
26.000	0.43333	118.05	-118.05
28.000	0.46667	118.05	-118.05
30.000	0.50000	118.03	-118.03
32.000	0.53333	118.03	-118.03

699-40-36 Slug Withdrawal

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34.000	0.56667	118.03	-118.03
36.000	0.60000	118.03	-118.03
38.000	0.63333	118.03	-118.03
40.000	0.66667	118.03	-118.03
42.000	0.70000	118.03	-118.03
44.000	0.73333	118.03	-118.03
46.000	0.76667	118.03	-118.03
48.000	0.80000	118.03	-118.03
50.000	0.83333	118.03	-118.03
52.000	0.86667	118.03	-118.03
54.000	0.90000	118.03	-118.03
56.000	0.93333	118.03	-118.03
58.000	0.96667	118.03	-118.03
60.000	1.00000	118.03	-118.03
62.000	1.03333	118.03	-118.03
64.000	1.06667	118.03	-118.03
66.000	1.10000	118.03	-118.03
68.000	1.13333	118.03	-118.03
70.000	1.16667	118.03	-118.03
72.000	1.20000	118.03	-118.03
74.000	1.23333	118.03	-118.03
76.000	1.26667	118.03	-118.03

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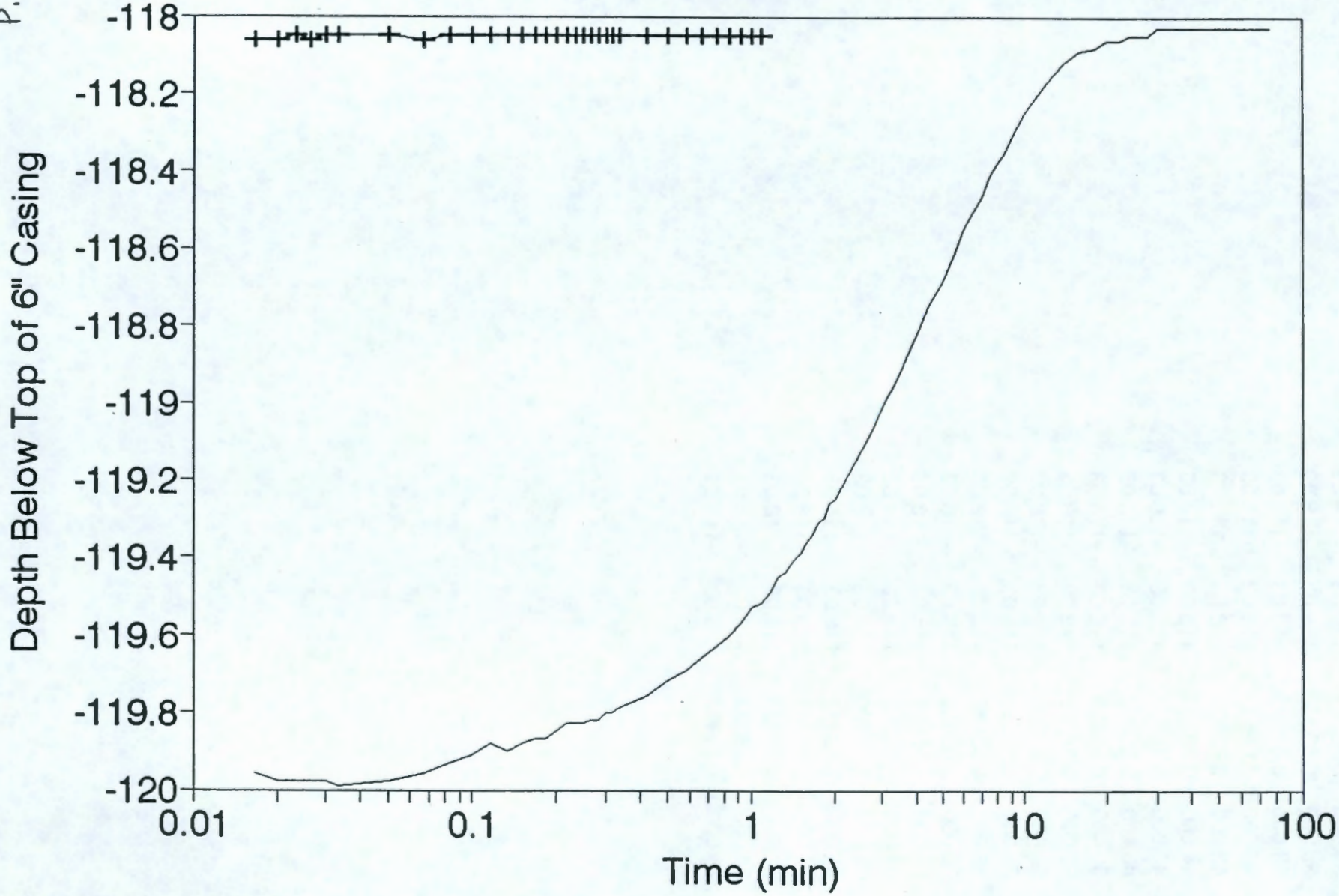
699-40-36 Slug Withdrawal

1-Dec-92



For Information Only

Well Development Information
Checklist

Well No. 699-40-36 Date: 11/19/92

WELL INFORMATION

A. Outer Casing Diameter 6"

B. Inner Casing Diameter 4"

C. Difference in stick-up 2.15'

D. Stick-up of outer casing 3.14'

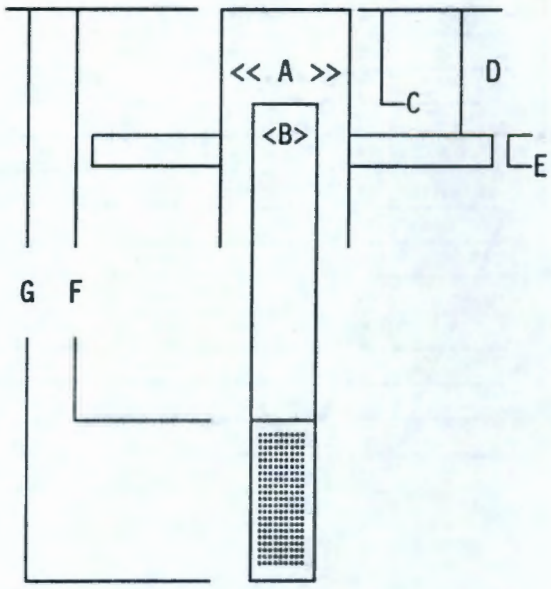
E. Thickness of well pad 0.5'

F. Depth to Water (BTOC) 117.90'

G. Total depth of Hole (BTOC) 222.97'

H. Screened Interval (BTOC) 212.97-222.97'

I. Screen length 10'



DEVELOPMENT INFORMATION

J. Depth of Development pump intake. 221.76' BTOC

K. Depth (below water) of Transducer during drawdown/recovery. 93.32'

L. Depth (below water) of Transducer during slug test. 80.07'

EQUIPMENT INFORMATION

	Serial #	Calibration date
Hermit	1KB-277	N/A
E-Tape	ET-4	1/8/93
Transducer	2110	2/21/93

Slugging Rod dimensions 6'x 2" (0.13 ft^3)

Comments: Development started on 11/19/92 and finished 11/30/92, pumping rate varied day to day but averaged 0.6 to 0.9 gpm. A final turbidity of 4.6 was reached at 1655 on 11/30, 1,802 gallons pumped total during development. Slug Test performed 12/1, slug in 1134, slug out 1250.

BTOC = Below Top Of Casing. BLS = Below Land Surface

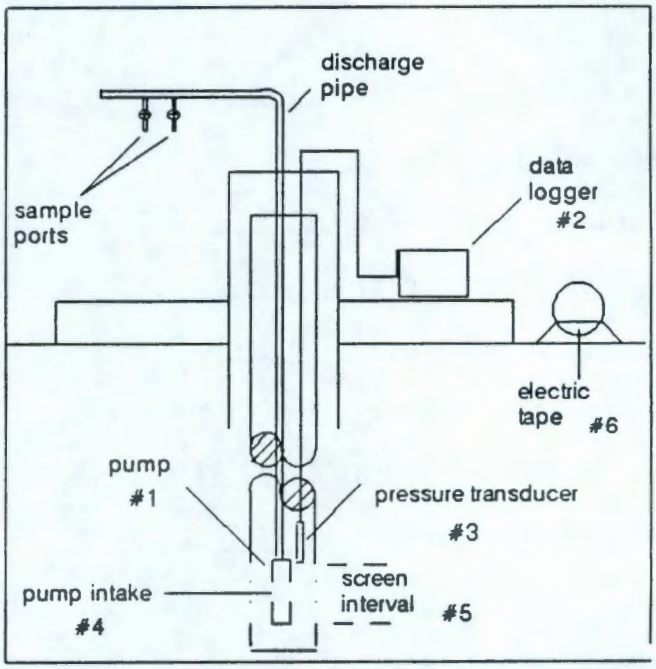
EQUIPMENT CONFIGURATION AND WELL HEAD DIAGRAM

WELL DESIGNATION 699-40-36 DEPTH 222.97' Btoc 6"

Equipment Configuration

Item	Description
#1	1.5 hp. Grundfos submersible
#2	Data Logger 1KB-277
#3	In-Situ Inc s/n 2110 (cal. 2-20-93)
#4	@221.76' Btoc 6"
#5	212.97-222.97' Btoc 6"
#6	Solinst s/n: ET-4 (cal. 1-08-93)

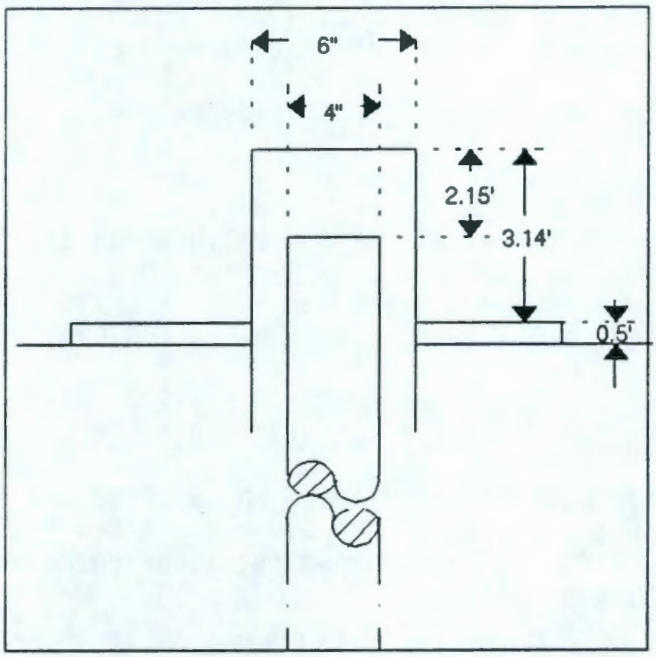
Diagram



Comments

Development started on 11/19/92. Completed 11/30. Slug Test performed 12/01.

Well Head Diagram



Signature of Recorder R. S Edrington Date 01-05-93

A-6000-417 (08/89)

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WELL DEVELOPMENT FORM

Well Designation: 699-40-36 Well Depth: 222.97' BTOC

Screened Interval: 212.97-222.97' BTOC Date Well Devel. Performed: 11/19-12/02

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: 221.76BTOC Pump Start Time: 1048/11-19

Flow Rate: 0.6 - 0.9 Accumulated Flow: 1,802 gal Pump Stop Time: 1700/11-30

Turbidity (NTU): 100+ 100+ 36 41 86 18 14 40 19 14 11 9.9
9.7 9.2 7.8 7.6 6 5.9 5.7 11 7.3 5.3 4.6

COMMENTS: Development started on 11/19/92 and finished 11/30/92. Drawdown performed on 11/19.

Recorded by: Robert S. Edrington R S Edrington Date: 01-05-93

Sign and Print Name

A-6000-393 (03/90)

DRAWDOWN/RECOVERY

Well Designation: 699-40-36 Date: 11-19-92

Well Depth: 222.97'BTOC Screened Interval: 212.97-222.97'BTOC

Pumping Method: Constant Discharge

Equipment Used to Measure Water Level: E.Tape/Transducer S.N. ET-4/2110 Calibration Due: 1-8-93 /2-21-93

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

Measuring Point: Top of Casing (6") Pump Start Time: 1250 Pump Stop Time: 1425

Time		Water Level		Discharge
Date	Time	Reading Units:	Water Level Units:	Reading Bucket Method
11-19-92	1250			5gal./400 sec = 0.75gpm
		See Attached Data	See Attached Data	

Recorded by: Robert S. Edrington Date: 01-05-93

Sign and Print Name

BD-6000-402(03/90)

699-40-36 Drawdown

Hermit Environment Data Logger Unit# 277

Test# 1 Water Level (ft) below top of casing (BTOC)

Type: Drawdown Baseline Begun: 1008 11/19/92

SWL: 117.90' Pump Started: 1250 11/19/92

Scale Factor: 50.15

Time:min	Time:hrs	D-T-W:Ft	d(BTOC)
0.000	0.00000	117.50	-117.50
0.003	0.00006	118.86	-118.86
0.007	0.00011	118.51	-118.51
0.010	0.00017	117.96	-117.96
0.013	0.00022	118.15	-118.15
0.017	0.00028	118.21	-118.21
0.020	0.00033	118.31	-118.31
0.023	0.00039	118.39	-118.39
0.027	0.00044	118.47	-118.47
0.030	0.00050	118.56	-118.56
0.033	0.00056	118.64	-118.64
0.050	0.00083	119.04	-119.04
0.067	0.00111	119.38	-119.38
0.083	0.00139	119.75	-119.75
0.100	0.00167	120.10	-120.10
0.117	0.00194	120.44	-120.44
0.133	0.00222	120.84	-120.84
0.150	0.00250	121.13	-121.13
0.167	0.00278	121.51	-121.51
0.183	0.00306	121.84	-121.84
0.200	0.00333	122.19	-122.19
0.217	0.00361	122.50	-122.50
0.233	0.00389	122.84	-122.84
0.250	0.00417	123.15	-123.15
0.267	0.00444	123.47	-123.47
0.283	0.00472	123.80	-123.80
0.300	0.00500	124.09	-124.09
0.317	0.00528	124.37	-124.37
0.333	0.00556	124.63	-124.63
0.417	0.00695	125.54	-125.54
0.500	0.00833	125.80	-125.80
0.583	0.00972	125.88	-125.88
0.667	0.01111	125.94	-125.94
0.750	0.01250	125.96	-125.96

Time:min	Time:hrs	D-T-W:Ft	d(BTOC)
0.00	0.00	117.99	-117.99
1.00	0.02	118.05	-118.05
2.00	0.03	118.13	-118.13
3.00	0.05	118.20	-118.20
4.00	0.07	118.26	-118.26
5.00	0.08	118.32	-118.32
6.00	0.10	118.39	-118.39
7.00	0.12	118.47	-118.47
8.00	0.13	118.51	-118.51
9.00	0.15	118.58	-118.58
10.00	0.17	118.62	-118.62
11.00	0.18	118.69	-118.69
12.00	0.20	118.73	-118.73
13.00	0.22	118.78	-118.78
14.00	0.23	118.83	-118.83
15.00	0.25	118.88	-118.88
16.00	0.27	118.92	-118.92
17.00	0.28	118.97	-118.97
18.00	0.30	119.00	-119.00
19.00	0.32	119.05	-119.05
20.00	0.33	119.08	-119.08
21.00	0.35	119.13	-119.13
22.00	0.37	119.16	-119.16
23.00	0.38	119.19	-119.19
24.00	0.40	119.24	-119.24
25.00	0.42	119.27	-119.27
26.00	0.43	119.30	-119.30
27.00	0.45	119.34	-119.34
28.00	0.47	119.37	-119.37
29.00	0.48	119.40	-119.40
30.00	0.50	119.43	-119.43
31.00	0.52	119.45	-119.45
32.00	0.53	119.48	-119.48
33.00	0.55	119.51	-119.51

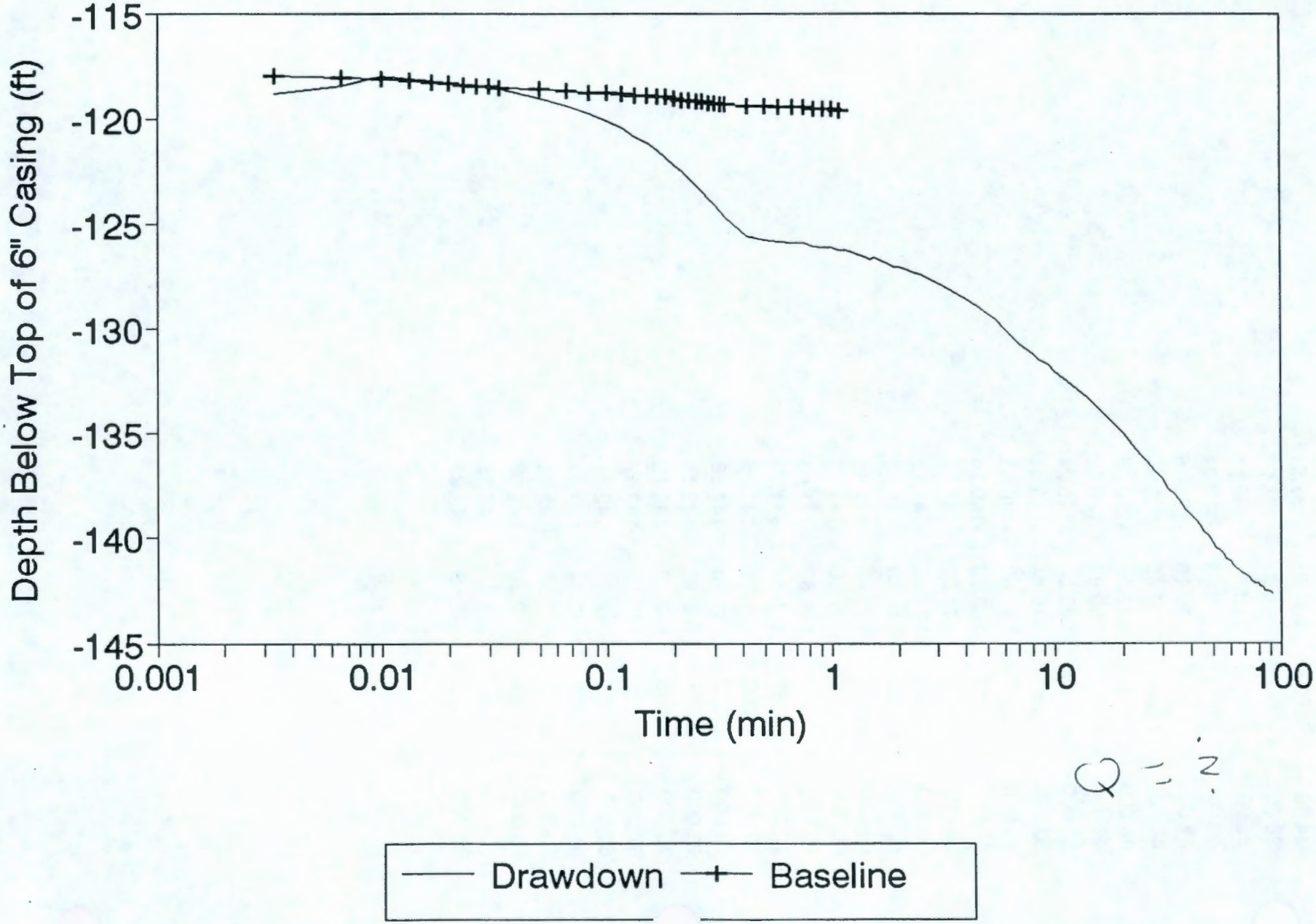
699-40-36 Drawdown

0.833	0.01389	126.07	-126.07
0.917	0.01528	126.13	-126.13
1.000	0.01667	126.16	-126.16
1.083	0.01806	126.29	-126.29
1.167	0.01945	126.30	-126.30
1.250	0.02083	126.37	-126.37
1.333	0.02222	126.46	-126.46
1.417	0.02361	126.54	-126.54
1.500	0.02500	126.67	-126.67
1.583	0.02639	126.64	-126.64
1.667	0.02778	126.79	-126.79
1.750	0.02917	126.81	-126.81
1.833	0.03056	126.91	-126.91
1.917	0.03195	127.03	-127.03
2.000	0.03333	127.06	-127.06
2.500	0.04167	127.40	-127.40
3.000	0.05000	127.84	-127.84
3.500	0.05833	128.25	-128.25
4.000	0.06667	128.58	-128.58
4.500	0.07500	128.95	-128.95
5.000	0.08333	129.28	-129.28
5.500	0.09167	129.58	-129.58
6.000	0.10000	130.06	-130.06
6.500	0.10833	130.36	-130.36
7.000	0.11667	130.72	-130.72
7.500	0.12500	130.97	-130.97
8.000	0.13333	131.18	-131.18
8.500	0.14167	131.45	-131.45
9.000	0.15000	131.59	-131.59
9.500	0.15833	131.77	-131.77
10.000	0.16667	132.02	-132.02
12.000	0.20000	132.75	-132.75
14.000	0.23333	133.33	-133.33
16.000	0.26667	133.94	-133.94
18.000	0.30000	134.51	-134.51
20.000	0.33333	135.00	-135.00
22.000	0.36667	135.55	-135.55
24.000	0.40000	136.01	-136.01
26.000	0.43333	136.39	-136.39
28.000	0.46667	136.85	-136.85
30.000	0.50000	137.20	-137.20
32.000	0.53333	137.63	-137.63
34.00	0.57	119.53	-119.53
35.00	0.58	119.56	-119.56
36.00	0.60	119.57	-119.57

699-40-36 Drawdown

34.000	0.56667	137.91	-137.91
36.000	0.60000	138.27	-138.27
38.000	0.63333	138.61	-138.61
40.000	0.66667	138.94	-138.94
42.000	0.70000	139.16	-139.16
44.000	0.73333	139.43	-139.43
46.000	0.76667	139.68	-139.68
48.000	0.80000	139.89	-139.89
50.000	0.83333	140.24	-140.24
52.000	0.86667	140.44	-140.44
54.000	0.90000	140.62	-140.62
56.000	0.93333	140.76	-140.76
58.000	0.96667	141.03	-141.03
60.000	1.00000	141.12	-141.12
62.000	1.03333	141.30	-141.30
64.000	1.06667	141.46	-141.46
66.000	1.10000	141.50	-141.50
68.000	1.13333	141.63	-141.63
70.000	1.16667	141.73	-141.73
72.000	1.20000	141.85	-141.85
74.000	1.23333	141.98	-141.98
76.000	1.26667	142.11	-142.11
78.000	1.30000	142.12	-142.12
80.000	1.33333	142.17	-142.17
82.000	1.36667	142.31	-142.31
84.000	1.40000	142.34	-142.34
86.000	1.43333	142.52	-142.52
88.000	1.46667	142.50	-142.50
90.000	1.50000	142.55	-142.55
92.000	1.53333	142.63	-142.63

699-40-36 Drawdown
19-Nov-92



Q = ?

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Hermit Environment Data Logger Unit# 277

Test# 2

Water Level (ft) below top of casing (BTOC)

Type: Recovery

SWL: 118.13'

Pump Shut off: 1425 11/19/92

Scale: 50.15

Time:min	Time:hrs	D-T-W:Ft	d (BTOC)
0.000	0.00000	145.11	-145.11
0.003	0.00006	146.01	-146.01
0.007	0.00011	145.77	-145.77
0.010	0.00017	145.74	-145.74
0.013	0.00022	145.71	-145.71
0.017	0.00028	145.68	-145.68
0.020	0.00033	145.65	-145.65
0.023	0.00039	145.61	-145.61
0.027	0.00044	145.60	-145.60
0.030	0.00050	145.57	-145.57
0.033	0.00056	145.53	-145.53
0.050	0.00083	145.39	-145.39
0.067	0.00111	145.25	-145.25
0.083	0.00139	145.12	-145.12
0.100	0.00167	144.98	-144.98
0.117	0.00194	144.85	-144.85
0.133	0.00222	144.74	-144.74
0.150	0.00250	144.60	-144.60
0.167	0.00278	144.49	-144.49
0.183	0.00306	144.36	-144.36
0.200	0.00333	144.25	-144.25
0.217	0.00361	144.13	-144.13
0.233	0.00389	144.00	-144.00
0.250	0.00417	143.89	-143.89
0.267	0.00444	143.78	-143.78
0.283	0.00472	143.65	-143.65
0.300	0.00500	143.56	-143.56
0.317	0.00528	143.44	-143.44
0.333	0.00556	143.33	-143.33
0.417	0.00695	142.76	-142.76
0.500	0.00833	142.26	-142.26
0.583	0.00972	141.77	-141.77
0.667	0.01111	141.29	-141.29
0.750	0.01250	140.90	-140.90

699-40-36 Recovery

0.833	0.01389	140.50	-140.50
0.917	0.01528	140.10	-140.10
1.000	0.01667	139.74	-139.74
1.083	0.01806	139.39	-139.39
1.167	0.01945	139.09	-139.09
1.250	0.02083	138.81	-138.81
1.333	0.02222	138.54	-138.54
1.417	0.02361	138.31	-138.31
1.500	0.02500	138.11	-138.11
1.583	0.02639	137.95	-137.95
1.667	0.02778	137.81	-137.81
1.750	0.02917	137.68	-137.68
1.833	0.03056	137.59	-137.59
1.917	0.03195	137.52	-137.52
2.000	0.03333	137.46	-137.46
2.500	0.04167	137.13	-137.13
3.000	0.05000	136.81	-136.81
3.500	0.05833	136.51	-136.51
4.000	0.06667	136.22	-136.22
4.500	0.07500	135.94	-135.94
5.000	0.08333	135.75	-135.75
5.500	0.09167	135.48	-135.48
6.000	0.10000	135.23	-135.23
6.500	0.10833	134.96	-134.96
7.000	0.11667	134.70	-134.70
7.500	0.12500	134.45	-134.45
8.000	0.13333	134.20	-134.20
8.500	0.14167	133.94	-133.94
9.000	0.15000	133.71	-133.71
9.500	0.15833	133.47	-133.47
10.000	0.16667	133.22	-133.22
12.000	0.20000	132.14	-132.14
14.000	0.23333	131.22	-131.22
16.000	0.26667	130.35	-130.35
18.000	0.30000	129.53	-129.53
20.000	0.33333	128.75	-128.75
22.000	0.36667	128.01	-128.01
24.000	0.40000	127.33	-127.33
26.000	0.43333	126.68	-126.68
28.000	0.46667	126.06	-126.06
30.000	0.50000	125.47	-125.47
32.000	0.53333	124.93	-124.93

34.000	0.56667	124.43	-124.43
36.000	0.60000	123.95	-123.95
38.000	0.63333	123.51	-123.51
40.000	0.66667	123.08	-123.08
42.000	0.70000	122.69	-122.69
44.000	0.73333	122.32	-122.32
46.000	0.76667	121.99	-121.99
48.000	0.80000	121.66	-121.66
50.000	0.83333	121.36	-121.36
52.000	0.86667	121.07	-121.07
54.000	0.90000	120.82	-120.82
56.000	0.93333	120.56	-120.56
58.000	0.96667	120.34	-120.34
60.000	1.00000	120.14	-120.14
62.000	1.03333	119.95	-119.95
64.000	1.06667	119.76	-119.76
66.000	1.10000	119.60	-119.60
68.000	1.13333	119.44	-119.44
70.000	1.16667	119.30	-119.30
72.000	1.20000	119.17	-119.17
74.000	1.23333	119.04	-119.04
76.000	1.26667	118.93	-118.93
78.000	1.30000	118.84	-118.84
80.000	1.33333	118.74	-118.74
82.000	1.36667	118.66	-118.66
84.000	1.40000	118.58	-118.58
86.000	1.43333	118.52	-118.52
88.000	1.46667	118.46	-118.46
90.000	1.50000	118.39	-118.39
92.000	1.53333	118.35	-118.35
94.000	1.56667	118.30	-118.30
96.000	1.60000	118.27	-118.27
98.000	1.63333	118.22	-118.22
100.000	1.66667	118.19	-118.19
110.000	1.83333	118.09	-118.09
120.000	2.00000	118.05	-118.05
130.000	2.16667	118.05	-118.05
140.000	2.33333	118.05	-118.05
150.000	2.50000	118.05	-118.05
160.000	2.66667	118.05	-118.05
170.000	2.83333	118.06	-118.06
180.000	3.00000	118.08	-118.08

190.000	3.16667	118.06	-118.06
200.000	3.33333	118.08	-118.08
210.000	3.50000	118.08	-118.08
220.000	3.66667	118.08	-118.08
230.000	3.83333	118.08	-118.08
240.000	4.00000	118.08	-118.08
250.000	4.16667	118.08	-118.08
260.000	4.33333	118.09	-118.09
270.000	4.50000	118.09	-118.09
280.000	4.66667	118.09	-118.09
290.000	4.83333	118.09	-118.09
300.000	5.00000	118.09	-118.09
310.000	5.16667	118.09	-118.09
320.000	5.33333	118.09	-118.09
330.000	5.50000	118.09	-118.09
340.000	5.66667	118.09	-118.09
350.000	5.83333	118.11	-118.11
360.000	6.00000	118.09	-118.09
370.000	6.16667	118.11	-118.11
380.000	6.33333	118.11	-118.11
390.000	6.50000	118.11	-118.11
400.000	6.66667	118.11	-118.11
410.000	6.83333	118.11	-118.11
420.000	7.00000	118.11	-118.11
430.000	7.16667	118.11	-118.11
440.000	7.33333	118.11	-118.11
450.000	7.50000	118.13	-118.13
460.000	7.66667	118.11	-118.11
470.000	7.83333	118.13	-118.13
480.000	8.00000	118.13	-118.13
490.000	8.16667	118.13	-118.13
500.000	8.33333	118.13	-118.13
510.000	8.50000	118.13	-118.13
520.000	8.66667	118.13	-118.13
530.000	8.83333	118.13	-118.13
540.000	9.00000	118.13	-118.13
550.000	9.16667	118.13	-118.13
560.000	9.33333	118.11	-118.11
570.000	9.50000	118.13	-118.13
580.000	9.66667	118.11	-118.11
590.000	9.83333	118.13	-118.13
600.000	10.00000	118.13	-118.13

610.000	10.16667	118.13	-118.13
620.000	10.33333	118.13	-118.13
630.000	10.50000	118.13	-118.13
640.000	10.66667	118.11	-118.11
650.000	10.83333	118.13	-118.13
660.000	11.00000	118.13	-118.13
670.000	11.16667	118.13	-118.13
680.000	11.33333	118.13	-118.13
690.000	11.50000	118.13	-118.13
700.000	11.66667	118.13	-118.13
710.000	11.83333	118.13	-118.13
720.000	12.00000	118.13	-118.13
730.000	12.16667	118.13	-118.13
740.000	12.33333	118.13	-118.13
750.000	12.50000	118.13	-118.13
760.000	12.66667	118.13	-118.13
770.000	12.83333	118.13	-118.13
780.000	13.00000	118.13	-118.13
790.000	13.16667	118.13	-118.13
800.000	13.33333	118.13	-118.13
810.000	13.50000	118.13	-118.13
820.000	13.66667	118.13	-118.13
830.000	13.83333	118.14	-118.14
840.000	14.00000	118.14	-118.14
850.000	14.16667	118.14	-118.14
860.000	14.33333	118.14	-118.14
870.000	14.50000	118.14	-118.14
880.000	14.66667	118.14	-118.14
890.000	14.83333	118.14	-118.14
900.000	15.00000	118.14	-118.14
910.000	15.16667	118.14	-118.14
920.000	15.33333	118.14	-118.14
930.000	15.50000	118.14	-118.14
940.000	15.66667	118.16	-118.16
950.000	15.83333	118.16	-118.16
960.000	16.00000	118.16	-118.16
970.000	16.16667	118.16	-118.16
980.000	16.33333	118.16	-118.16
990.000	16.50000	118.17	-118.17
1000.000	16.66667	118.16	-118.16
1100.000	18.33333	118.13	-118.13

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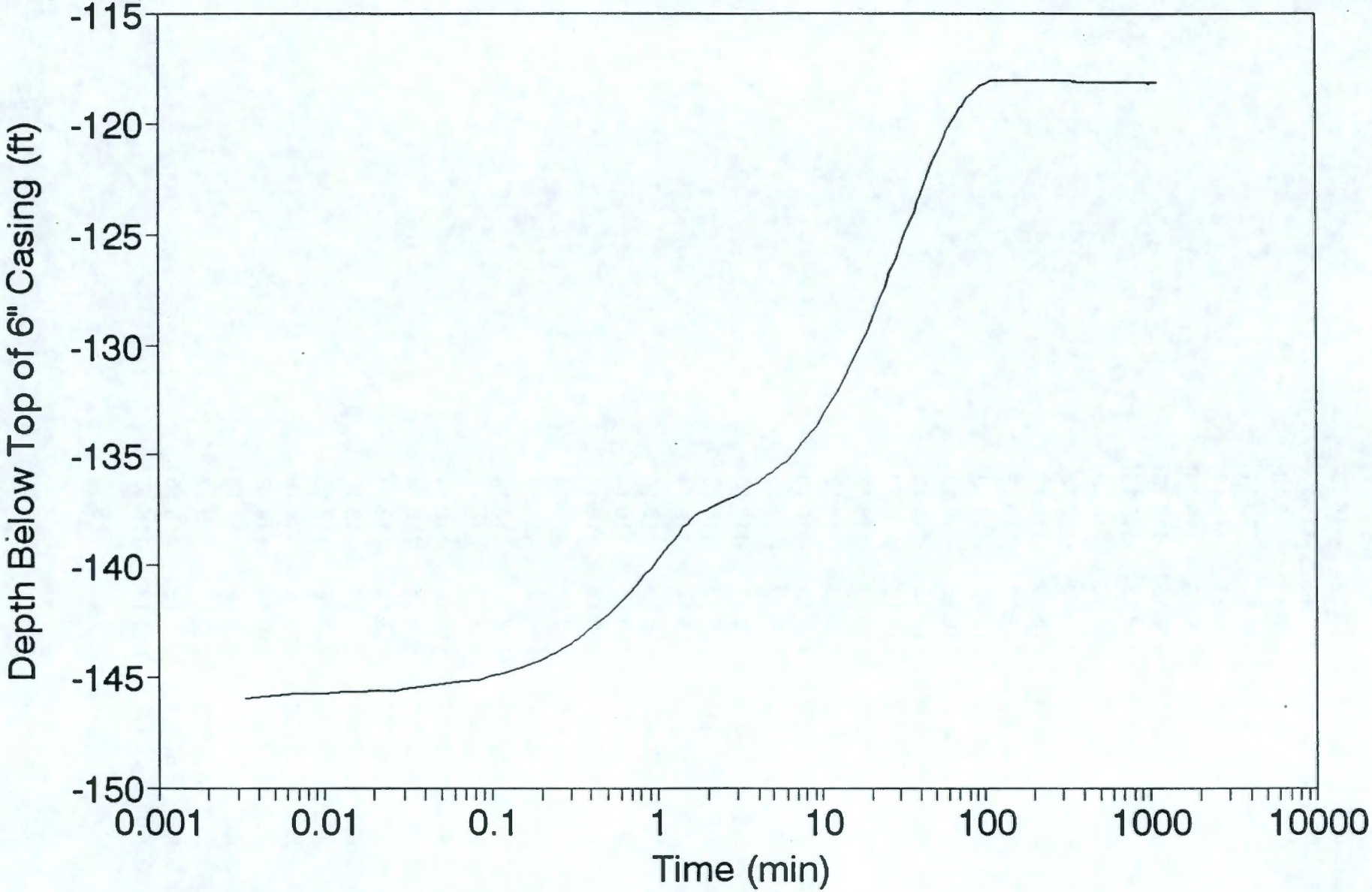
699-40-36 Recovery

19-20-Nov-92



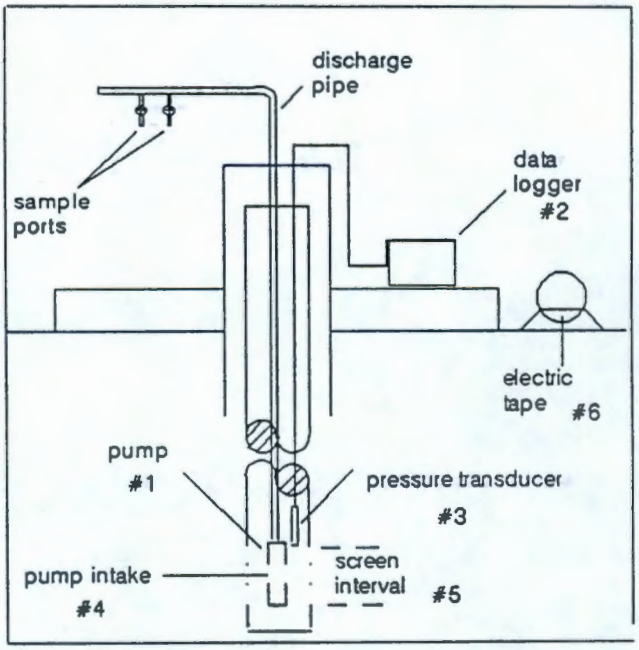
EQUIPMENT CONFIGURATION AND WELL HEAD DIAGRAM

WELL DESIGNATION 699-40-36 DEPTH 223.02' Btoc 6"

Equipment Configuration

Item	Description
#1	Grundfos Redi-Flo2 Submersible
#2	Data Logger 2K-459
#3	In-Situ Inc s/n 1989 (cal. 3-11-94)
#4	@200' Btoc 6"
#5	213.02-223.02' Btoc 6"
#6	Solinst s/n: ET-1 (cal. 7-21-93)
#7	
#8	
#9	
#10	

Diagram

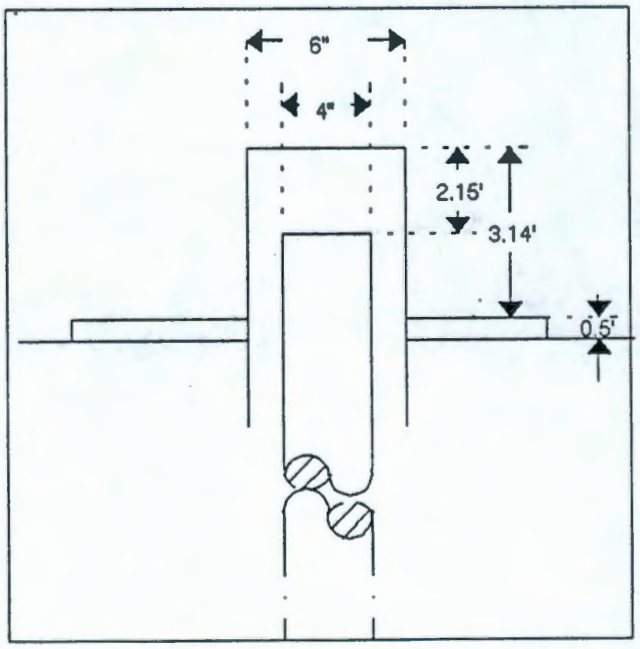


Well Head

Comments

A rotometer was used during drawdown to monitor flow. The meter was also checked periodically by the bucket method. Baseline data for test 1 & 2 are questionable due to transducer malfunction. Drawdown data O.K.

Diagram



Signature of Recorder R. S Edrington Date 3-31-93

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660.0	11.0	117.803	-117.803
690.0	11.5	117.803	-117.803
720.0	12.0	117.803	-117.803
750.0	12.5	117.803	-117.803
780.0	13.0	117.806	-117.806
810.0	13.5	117.806	-117.806
840.0	14.0	117.806	-117.806
870.0	14.5	117.803	-117.803
900.0	15.0	117.803	-117.803
930.0	15.5	117.806	-117.806
960.0	16.0	117.806	-117.806
990.0	16.5	117.806	-117.806
1020.0	17.0	117.806	-117.806
1050.0	17.5	117.806	-117.806
1080.0	18.0	117.806	-117.806
1110.0	18.5	117.806	-117.806
1140.0	19.0	117.806	-117.806
1170.0	19.5	117.806	-117.806
1200.0	20.0	117.806	-117.806
1230.0	20.5	117.809	-117.809
1260.0	21.0	117.812	-117.812
1290.0	21.5	117.809	-117.809
1320.0	22.0	117.809	-117.809
1350.0	22.5	117.796	-117.796
1380.0	23.0	117.809	-117.809
1410.0	23.5	117.803	-117.803
1440.0	24.0	117.806	-117.806
1470.0	24.5	117.803	-117.803
1500.0	25.0	117.803	-117.803
1530.0	25.5	117.803	-117.803
1560.0	26.0	117.806	-117.806
1590.0	26.5	117.803	-117.803
1620.0	27.0	117.803	-117.803
1650.0	27.5	117.806	-117.806
1680.0	28.0	117.806	-117.806
1710.0	28.5	117.806	-117.806
1740.0	29.0	117.806	-117.806
1770.0	29.5	117.806	-117.806
1800.0	30.0	117.806	-117.806
1830.0	30.5	117.806	-117.806
1860.0	31.0	117.806	-117.806
1890.0	31.5	117.806	-117.806
1920.0	32.0	117.806	-117.806
1950.0	32.5	117.806	-117.806
1980.0	33.0	117.806	-117.806

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2010.0	33.5	117.803	-117.803
2040.0	34.0	117.806	-117.806
2070.0	34.5	117.806	-117.806
2100.0	35.0	117.806	-117.806
2130.0	35.5	117.806	-117.806
2160.0	36.0	117.806	-117.806
2190.0	36.5	117.806	-117.806
2220.0	37.0	117.803	-117.803
2250.0	37.5	117.806	-117.806
2280.0	38.0	117.806	-117.806
2310.0	38.5	117.803	-117.803
2340.0	39.0	117.806	-117.806
2370.0	39.5	117.806	-117.806
2400.0	40.0	117.806	-117.806
2430.0	40.5	117.806	-117.806
2460.0	41.0	117.806	-117.806
2490.0	41.5	117.803	-117.803
2520.0	42.0	117.809	-117.809
2550.0	42.5	117.806	-117.806
2580.0	43.0	117.806	-117.806
2610.0	43.5	117.812	-117.812
2640.0	44.0	117.796	-117.796
2670.0	44.5	117.796	-117.796
2700.0	45.0	117.803	-117.803
2730.0	45.5	117.812	-117.812
2760.0	46.0	117.803	-117.803
2790.0	46.5	117.800	-117.800
2820.0	47.0	117.812	-117.812
2850.0	47.5	117.806	-117.806
2880.0	48.0	117.803	-117.803
2910.0	48.5	117.803	-117.803
2940.0	49.0	117.803	-117.803
2970.0	49.5	117.803	-117.803
3000.0	50.0	117.803	-117.803
3030.0	50.5	117.803	-117.803
3060.0	51.0	117.803	-117.803
3090.0	51.5	117.800	-117.800
3120.0	52.0	117.803	-117.803
3150.0	52.5	117.803	-117.803
3180.0	53.0	117.803	-117.803
3210.0	53.5	117.803	-117.803
3240.0	54.0	117.803	-117.803
3270.0	54.5	117.803	-117.803
3300.0	55.0	117.806	-117.806
3330.0	55.5	117.803	-117.803

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3360.0	56.0	117.803	-117.803
3390.0	56.5	117.800	-117.800
3420.0	57.0	117.800	-117.800
3450.0	57.5	117.803	-117.803
3480.0	58.0	117.803	-117.803
3510.0	58.5	117.803	-117.803
3540.0	59.0	117.800	-117.800
3570.0	59.5	117.800	-117.800
3600.0	60.0	117.800	-117.800
3630.0	60.5	117.800	-117.800
3660.0	61.0	117.800	-117.800
3690.0	61.5	117.800	-117.800
3720.0	62.0	117.800	-117.800
3750.0	62.5	117.800	-117.800
3780.0	63.0	117.800	-117.800
3810.0	63.5	117.800	-117.800
3840.0	64.0	117.803	-117.803
3870.0	64.5	117.800	-117.800
3900.0	65.0	117.803	-117.803
3930.0	65.5	117.800	-117.800
3960.0	66.0	117.800	-117.800
3990.0	66.5	117.800	-117.800
4020.0	67.0	117.803	-117.803
4050.0	67.5	117.796	-117.796
4080.0	68.0	117.793	-117.793
4110.0	68.5	117.800	-117.800
4140.0	69.0	117.800	-117.800
4170.0	69.5	117.800	-117.800
4200.0	70.0	117.800	-117.800
4230.0	70.5	117.803	-117.803
4260.0	71.0	117.809	-117.809
4290.0	71.5	117.803	-117.803
4320.0	72.0	117.796	-117.796
4350.0	72.5	117.803	-117.803
4380.0	73.0	117.796	-117.796
4410.0	73.5	117.796	-117.796
4440.0	74.0	117.793	-117.793
4470.0	74.5	117.796	-117.796
4500.0	75.0	117.796	-117.796
4530.0	75.5	117.796	-117.796
4560.0	76.0	117.796	-117.796
4590.0	76.5	117.796	-117.796
4620.0	77.0	117.796	-117.796
4650.0	77.5	117.796	-117.796
4680.0	78.0	117.793	-117.793

4710.0	78.5	117.793	-117.793
4740.0	79.0	117.796	-117.796
4770.0	79.5	117.796	-117.796
4800.0	80.0	117.796	-117.796
4830.0	80.5	117.793	-117.793
4860.0	81.0	117.796	-117.796
4890.0	81.5	117.793	-117.793
4920.0	82.0	117.793	-117.793
4950.0	82.5	117.793	-117.793
4980.0	83.0	117.793	-117.793
5010.0	83.5	117.796	-117.796
5040.0	84.0	117.790	-117.790
5070.0	84.5	117.790	-117.790
5100.0	85.0	117.777	-117.777
5130.0	85.5	117.771	-117.771
5160.0	86.0	117.764	-117.764
5190.0	86.5	117.764	-117.764
5220.0	87.0	117.768	-117.768
5250.0	87.5	117.764	-117.764
5280.0	88.0	117.768	-117.768
5310.0	88.5	117.771	-117.771
5340.0	89.0	117.771	-117.771
5370.0	89.5	117.774	-117.774
5400.0	90.0	117.764	-117.764
5430.0	90.5	117.771	-117.771
5460.0	91.0	117.771	-117.771
5490.0	91.5	117.755	-117.755
5520.0	92.0	117.812	-117.812
5550.0	92.5	117.768	-117.768
5580.0	93.0	117.736	-117.736

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3360.0	56.0	112.599	-112.599
3390.0	56.5	112.621	-112.621
3420.0	57.0	112.650	-112.650
3450.0	57.5	112.679	-112.679
3480.0	58.0	112.707	-112.707
3510.0	58.5	112.726	-112.726
3540.0	59.0	112.748	-112.748
3570.0	59.5	112.771	-112.771
3600.0	60.0	112.790	-112.790
3630.0	60.5	112.806	-112.806
3660.0	61.0	112.821	-112.821
3690.0	61.5	112.844	-112.844
3720.0	62.0	112.866	-112.866
3750.0	62.5	112.891	-112.891
3780.0	63.0	112.917	-112.917
3810.0	63.5	112.939	-112.939
3840.0	64.0	124.658	-124.658
3870.0	64.5	102.897	-102.897
3900.0	65.0	103.599	-103.599
3930.0	65.5	103.911	-103.911
3960.0	66.0	102.818	-102.818
3990.0	66.5	98.640	-98.640
4020.0	67.0	98.640	-98.640
4050.0	67.5	98.640	-98.640
4080.0	68.0	98.640	-98.640
4110.0	68.5	98.640	-98.640
4140.0	69.0	98.640	-98.640
4170.0	69.5	98.640	-98.640
4200.0	70.0	98.640	-98.640
4230.0	70.5	98.640	-98.640
4260.0	71.0	98.640	-98.640
4290.0	71.5	98.640	-98.640
4320.0	72.0	98.640	-98.640
4350.0	72.5	98.640	-98.640
4380.0	73.0	98.640	-98.640
4410.0	73.5	98.640	-98.640
4440.0	74.0	98.640	-98.640
4470.0	74.5	98.640	-98.640
4500.0	75.0	98.640	-98.640
4530.0	75.5	98.640	-98.640
4560.0	76.0	98.640	-98.640
4590.0	76.5	98.640	-98.640
4620.0	77.0	98.640	-98.640
4650.0	77.5	98.640	-98.640
4680.0	78.0	98.640	-98.640

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4710.0	78.5	98.640	-98.640
4740.0	79.0	98.640	-98.640
4770.0	79.5	98.640	-98.640
4800.0	80.0	98.640	-98.640
4830.0	80.5	98.640	-98.640
4860.0	81.0	98.640	-98.640
4890.0	81.5	98.640	-98.640
4920.0	82.0	98.640	-98.640
4950.0	82.5	98.640	-98.640
4980.0	83.0	98.640	-98.640
5010.0	83.5	98.640	-98.640
5040.0	84.0	98.640	-98.640
5070.0	84.5	98.640	-98.640
5100.0	85.0	98.640	-98.640
5130.0	85.5	98.640	-98.640
5160.0	86.0	98.640	-98.640
5190.0	86.5	98.640	-98.640
5220.0	87.0	98.640	-98.640
5250.0	87.5	98.640	-98.640
5280.0	88.0	98.640	-98.640
5310.0	88.5	98.640	-98.640
5340.0	89.0	98.640	-98.640
5370.0	89.5	98.640	-98.640
5400.0	90.0	98.640	-98.640
5430.0	90.5	98.640	-98.640
5460.0	91.0	98.640	-98.640
5490.0	91.5	98.640	-98.640
5520.0	92.0	98.640	-98.640
5550.0	92.5	98.640	-98.640
5580.0	93.0	98.640	-98.640
5610.0	93.5	98.640	-98.640
5640.0	94.0	98.640	-98.640

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2010.0	33.5	111.144	-111.144
2040.0	34.0	111.189	-111.189
2070.0	34.5	111.224	-111.224
2100.0	35.0	111.262	-111.262
2130.0	35.5	111.290	-111.290
2160.0	36.0	111.325	-111.325
2190.0	36.5	111.376	-111.376
2220.0	37.0	111.414	-111.414
2250.0	37.5	111.455	-111.455
2280.0	38.0	111.494	-111.494
2310.0	38.5	111.532	-111.532
2340.0	39.0	111.563	-111.563
2370.0	39.5	111.602	-111.602
2400.0	40.0	111.637	-111.637
2430.0	40.5	111.675	-111.675
2460.0	41.0	111.716	-111.716
2490.0	41.5	111.754	-111.754
2520.0	42.0	111.795	-111.795
2550.0	42.5	111.830	-111.830
2580.0	43.0	111.872	-111.872
2610.0	43.5	111.903	-111.903
2640.0	44.0	111.935	-111.935
2670.0	44.5	111.964	-111.964
2700.0	45.0	111.996	-111.996
2730.0	45.5	112.021	-112.021
2760.0	46.0	112.050	-112.050
2790.0	46.5	112.069	-112.069
2820.0	47.0	112.107	-112.107
2850.0	47.5	112.135	-112.135
2880.0	48.0	112.161	-112.161
2910.0	48.5	112.189	-112.189
2940.0	49.0	112.212	-112.212
2970.0	49.5	112.234	-112.234
3000.0	50.0	112.240	-112.240
3030.0	50.5	112.262	-112.262
3060.0	51.0	112.291	-112.291
3090.0	51.5	112.323	-112.323
3120.0	52.0	112.355	-112.355
3150.0	52.5	112.383	-112.383
3180.0	53.0	112.415	-112.415
3210.0	53.5	112.450	-112.450
3240.0	54.0	112.478	-112.478
3270.0	54.5	112.510	-112.510
3300.0	55.0	112.539	-112.539
3330.0	55.5	112.571	-112.571

660.0	11.0	110.563	-110.563
690.0	11.5	110.563	-110.563
720.0	12.0	110.569	-110.569
750.0	12.5	110.572	-110.572
780.0	13.0	110.569	-110.569
810.0	13.5	110.572	-110.572
840.0	14.0	110.582	-110.582
870.0	14.5	110.585	-110.585
900.0	15.0	110.595	-110.595
930.0	15.5	110.604	-110.604
960.0	16.0	110.607	-110.607
990.0	16.5	110.614	-110.614
1020.0	17.0	110.620	-110.620
1050.0	17.5	110.633	-110.633
1080.0	18.0	110.642	-110.642
1110.0	18.5	110.658	-110.658
1140.0	19.0	110.664	-110.664
1170.0	19.5	110.661	-110.661
1200.0	20.0	110.664	-110.664
1230.0	20.5	110.671	-110.671
1260.0	21.0	110.677	-110.677
1290.0	21.5	110.674	-110.674
1320.0	22.0	110.674	-110.674
1350.0	22.5	110.671	-110.671
1380.0	23.0	110.671	-110.671
1410.0	23.5	110.674	-110.674
1440.0	24.0	110.677	-110.677
1470.0	24.5	110.668	-110.668
1500.0	25.0	110.668	-110.668
1530.0	25.5	110.674	-110.674
1560.0	26.0	110.677	-110.677
1590.0	26.5	110.687	-110.687
1620.0	27.0	110.696	-110.696
1650.0	27.5	110.699	-110.699
1680.0	28.0	110.709	-110.709
1710.0	28.5	110.718	-110.718
1740.0	29.0	110.725	-110.725
1770.0	29.5	110.734	-110.734
1800.0	30.0	110.744	-110.744
1830.0	30.5	110.753	-110.753
1860.0	31.0	110.817	-110.817
1890.0	31.5	110.887	-110.887
1920.0	32.0	110.954	-110.954
1950.0	32.5	111.011	-111.011
1980.0	33.0	111.074	-111.074

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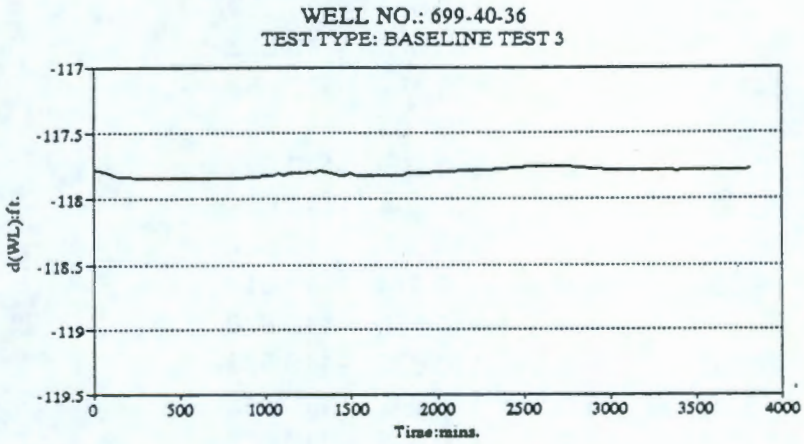
WELL NO.: 699-40-36
TEST TYPE: BASELINE #3

DATA LOGGER:
S/N: SE2000
Unit No. 1 2
Test 2
INPUT 1:
TRANSDUCER:
Reference: 117.800
Specific G.: 1.000
Linearity: 0.000
Scale Factor: 10.060
Offset: 0.000
Delay (mSec.): 50.000



START DATE: 3/26/93 END DAT 03/29/93
START TIME: 16:00:01 END TIM 07:30:01

Time:min.	Time:hrs.	Depth to Water	d(WL):ft.
0.0	0.0	117.770	-117.770
30.0	0.5	117.786	-117.786
60.0	1.0	117.799	-117.799
90.0	1.5	117.808	-117.808
120.0	2.0	117.821	-117.821
150.0	2.5	117.828	-117.828
180.0	3.0	117.834	-117.834
210.0	3.5	117.834	-117.834
240.0	4.0	117.837	-117.837
270.0	4.5	117.840	-117.840
300.0	5.0	117.840	-117.840
330.0	5.5	117.843	-117.843
360.0	6.0	117.843	-117.843
390.0	6.5	117.843	-117.843
420.0	7.0	117.843	-117.843
450.0	7.5	117.840	-117.840
480.0	8.0	117.837	-117.837
510.0	8.5	117.837	-117.837
540.0	9.0	117.837	-117.837
570.0	9.5	117.837	-117.837
600.0	10.0	117.840	-117.840
630.0	10.5	117.840	-117.840

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660.0	11.0	117.843	-117.843
690.0	11.5	117.843	-117.843
720.0	12.0	117.843	-117.843
750.0	12.5	117.843	-117.843
780.0	13.0	117.843	-117.843
810.0	13.5	117.840	-117.840
840.0	14.0	117.840	-117.840
870.0	14.5	117.837	-117.837
900.0	15.0	117.831	-117.831
930.0	15.5	117.831	-117.831
960.0	16.0	117.828	-117.828
990.0	16.5	117.824	-117.824
1020.0	17.0	117.821	-117.821
1050.0	17.5	117.824	-117.824
1080.0	18.0	117.805	-117.805
1110.0	18.5	117.815	-117.815
1140.0	19.0	117.802	-117.802
1170.0	19.5	117.805	-117.805
1200.0	20.0	117.805	-117.805
1230.0	20.5	117.802	-117.802
1260.0	21.0	117.799	-117.799
1290.0	21.5	117.802	-117.802
1320.0	22.0	117.789	-117.789
1350.0	22.5	117.799	-117.799
1380.0	23.0	117.802	-117.802
1410.0	23.5	117.812	-117.812
1440.0	24.0	117.818	-117.818
1470.0	24.5	117.815	-117.815
1500.0	25.0	117.808	-117.808
1530.0	25.5	117.815	-117.815
1560.0	26.0	117.821	-117.821
1590.0	26.5	117.821	-117.821
1620.0	27.0	117.821	-117.821
1650.0	27.5	117.821	-117.821
1680.0	28.0	117.818	-117.818
1710.0	28.5	117.818	-117.818
1740.0	29.0	117.815	-117.815
1770.0	29.5	117.815	-117.815
1800.0	30.0	117.815	-117.815
1830.0	30.5	117.808	-117.808
1860.0	31.0	117.808	-117.808
1890.0	31.5	117.805	-117.805
1920.0	32.0	117.802	-117.802
1950.0	32.5	117.802	-117.802
1980.0	33.0	117.796	-117.796

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2010.0	33.5	117.796	-117.796
2040.0	34.0	117.793	-117.793
2070.0	34.5	117.796	-117.796
2100.0	35.0	117.796	-117.796
2130.0	35.5	117.789	-117.789
2160.0	36.0	117.789	-117.789
2190.0	36.5	117.789	-117.789
2220.0	37.0	117.786	-117.786
2250.0	37.5	117.789	-117.789
2280.0	38.0	117.786	-117.786
2310.0	38.5	117.780	-117.780
2340.0	39.0	117.777	-117.777
2370.0	39.5	117.770	-117.770
2400.0	40.0	117.770	-117.770
2430.0	40.5	117.767	-117.767
2460.0	41.0	117.761	-117.761
2490.0	41.5	117.761	-117.761
2520.0	42.0	117.758	-117.758
2550.0	42.5	117.758	-117.758
2580.0	43.0	117.751	-117.751
2610.0	43.5	117.754	-117.754
2640.0	44.0	117.758	-117.758
2670.0	44.5	117.751	-117.751
2700.0	45.0	117.751	-117.751
2730.0	45.5	117.751	-117.751
2760.0	46.0	117.754	-117.754
2790.0	46.5	117.761	-117.761
2820.0	47.0	117.761	-117.761
2850.0	47.5	117.761	-117.761
2880.0	48.0	117.770	-117.770
2910.0	48.5	117.770	-117.770
2940.0	49.0	117.773	-117.773
2970.0	49.5	117.780	-117.780
3000.0	50.0	117.783	-117.783
3030.0	50.5	117.783	-117.783
3060.0	51.0	117.786	-117.786
3090.0	51.5	117.786	-117.786
3120.0	52.0	117.786	-117.786
3150.0	52.5	117.786	-117.786
3180.0	53.0	117.789	-117.789
3210.0	53.5	117.789	-117.789
3240.0	54.0	117.789	-117.789
3270.0	54.5	117.786	-117.786
3300.0	55.0	117.789	-117.789
3330.0	55.5	117.789	-117.789

3360.0	56.0	117.789	-117.789
3390.0	56.5	117.793	-117.793
3420.0	57.0	117.789	-117.789
3450.0	57.5	117.789	-117.789
3480.0	58.0	117.786	-117.786
3510.0	58.5	117.789	-117.789
3540.0	59.0	117.789	-117.789
3570.0	59.5	117.789	-117.789
3600.0	60.0	117.789	-117.789
3630.0	60.5	117.789	-117.789
3660.0	61.0	117.789	-117.789
3690.0	61.5	117.786	-117.786
3720.0	62.0	117.783	-117.783
3750.0	62.5	117.780	-117.780
3780.0	63.0	117.780	-117.780
3810.0	63.5	117.777	-117.777

DRAWDOWN/RECOVERY

Well Designation: 699-40-36 Date: 03-29-93

Well Depth: 223.02' BTOC Screened Interval: 213.02-223.02'BTOC

Pumping Method: Constant Discharge

Equipment Used to Measure Water Level: E.Tape/Transducer S.N. ET-1/1989 Calibration Due: 07-31-93/03-11-93

Equipment Used to Measure Flow: Rotometer/Bucket(see note) S.N.: N/A Calibration Due: Field Calibrated

Measuring Point: Top of Casing (6") Pump Start Time: 0818 ~~0805~~ RSE 4/2/93 Pump Stop Time: 1523 ~~1515~~ RSE 4/2/93

Time		Water Level		Discharge
Date	Time	Reading Units:	Water Level Units:	Reading Units: Bucket Method/GPM
03-26-93	0820			0.83
	1206	See Attached Data		0.81
	1400			0.76
			See Attached Data	

NOTE: A rotometer was used to keep flow constant.
This meter was periodically check with the bucket method.

Recorded by: Robert S. Edrington Date: 04-01-93
Sign and Print Name

BD-6000-402(03/90)

WELL NO.: 699-40-36

TEST TYPE: CONSTANT DISCHARGE PUMP TEST

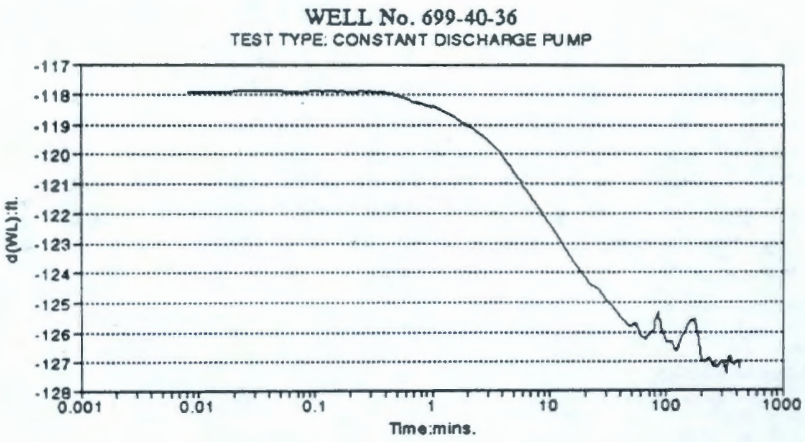
Q(gpm) = 0.85

DATA LOGGER:

S/N: SE2000
Unit No. 1 2
Test 3
INPUT 1:

TRANSDUCER:

Reference: 117.800
Specific G.: 1.000
Linearity: 0.000
Scale Factor: 10.060
Offset: 0.000
Delay (mSec.): 50.000



START DATE: 3/29/93 END DAT 03/29/93
START TIME: 08:18:35 END TIM 15:23:35

Time:min.	Time:hrs.	Depth to Water	d(WL):ft.
0.000	0.0000	117.882	-117.882
0.008	0.0001	117.888	-117.888
0.017	0.0003	117.892	-117.892
0.025	0.0004	117.876	-117.876
0.033	0.0006	117.863	-117.863
0.042	0.0007	117.882	-117.882
0.050	0.0008	117.879	-117.879
0.058	0.0010	117.888	-117.888
0.067	0.0011	117.892	-117.892
0.075	0.0013	117.892	-117.892
0.083	0.0014	117.892	-117.892
0.092	0.0015	117.876	-117.876
0.100	0.0017	117.873	-117.873
0.108	0.0018	117.879	-117.879
0.117	0.0019	117.885	-117.885
0.125	0.0021	117.873	-117.873
0.133	0.0022	117.863	-117.863
0.142	0.0024	117.876	-117.876
0.150	0.0025	117.873	-117.873
0.158	0.0026	117.892	-117.892
0.167	0.0028	117.882	-117.882
0.175	0.0029	117.879	-117.879

0.183	0.0031	117.892	-117.892
0.192	0.0032	117.895	-117.895
0.200	0.0033	117.885	-117.885
0.208	0.0035	117.885	-117.885
0.217	0.0036	117.888	-117.888
0.225	0.0038	117.895	-117.895
0.233	0.0039	117.885	-117.885
0.242	0.0040	117.882	-117.882
0.250	0.0042	117.882	-117.882
0.258	0.0043	117.882	-117.882
0.267	0.0044	117.898	-117.898
0.275	0.0046	117.888	-117.888
0.283	0.0047	117.895	-117.895
0.292	0.0049	117.879	-117.879
0.300	0.0050	117.879	-117.879
0.308	0.0051	117.888	-117.888
0.317	0.0053	117.888	-117.888
0.325	0.0054	117.888	-117.888
0.333	0.0056	117.888	-117.888
0.350	0.0058	117.904	-117.904
0.367	0.0061	117.904	-117.904
0.383	0.0064	117.901	-117.901
0.400	0.0067	117.917	-117.917
0.417	0.0069	117.936	-117.936
0.433	0.0072	117.933	-117.933
0.450	0.0075	117.962	-117.962
0.467	0.0078	117.971	-117.971
0.483	0.0081	118.019	-118.019
0.500	0.0083	118.028	-118.028
0.517	0.0086	118.050	-118.050
0.533	0.0089	118.070	-118.070
0.550	0.0092	118.076	-118.076
0.567	0.0094	118.104	-118.104
0.583	0.0097	118.124	-118.124
0.600	0.0100	118.130	-118.130
0.617	0.0103	118.143	-118.143
0.633	0.0106	118.158	-118.158
0.650	0.0108	118.190	-118.190
0.667	0.0111	118.193	-118.193
0.683	0.0114	118.222	-118.222
0.700	0.0117	118.222	-118.222
0.717	0.0119	118.235	-118.235
0.733	0.0122	118.247	-118.247
0.750	0.0125	118.260	-118.260
0.767	0.0128	118.254	-118.254

0.783	0.0131	118.273	-118.273
0.800	0.0133	118.298	-118.298
0.817	0.0136	118.286	-118.286
0.833	0.0139	118.289	-118.289
0.850	0.0142	118.314	-118.314
0.867	0.0144	118.317	-118.317
0.883	0.0147	118.324	-118.324
0.900	0.0150	118.336	-118.336
0.917	0.0153	118.349	-118.349
0.933	0.0156	118.352	-118.352
0.950	0.0158	118.381	-118.381
0.967	0.0161	118.371	-118.371
0.983	0.0164	118.397	-118.397
1.000	0.0167	118.384	-118.384
1.200	0.0200	118.508	-118.508
1.400	0.0233	118.632	-118.632
1.600	0.0267	118.746	-118.746
1.800	0.0300	118.889	-118.889
2.000	0.0333	119.007	-119.007
2.200	0.0367	119.115	-119.115
2.400	0.0400	119.204	-119.204
2.600	0.0433	119.293	-119.293
2.800	0.0467	119.397	-119.397
3.000	0.0500	119.502	-119.502
3.200	0.0533	119.585	-119.585
3.400	0.0567	119.706	-119.706
3.600	0.0600	119.801	-119.801
3.800	0.0633	119.906	-119.906
4.000	0.0667	120.023	-120.023
4.200	0.0700	120.157	-120.157
4.400	0.0733	120.262	-120.262
4.600	0.0767	120.379	-120.379
4.800	0.0800	120.490	-120.490
5.000	0.0833	120.592	-120.592
5.200	0.0867	120.684	-120.684
5.400	0.0900	120.786	-120.786
5.600	0.0933	120.875	-120.875
5.800	0.0967	120.970	-120.970
6.000	0.1000	121.056	-121.056
6.200	0.1033	121.151	-121.151
6.400	0.1067	121.205	-121.205
6.600	0.1100	121.281	-121.281
6.800	0.1133	121.361	-121.361
7.000	0.1167	121.421	-121.421
7.200	0.1200	121.520	-121.520

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7.400	0.1233	121.574	-121.574
7.600	0.1267	121.659	-121.659
7.800	0.1300	121.720	-121.720
8.000	0.1333	121.777	-121.777
8.200	0.1367	121.856	-121.856
8.400	0.1400	121.910	-121.910
8.600	0.1433	121.958	-121.958
8.800	0.1467	122.021	-122.021
9.000	0.1500	122.082	-122.082
9.200	0.1533	122.139	-122.139
9.400	0.1567	122.187	-122.187
9.600	0.1600	122.237	-122.237
9.800	0.1633	122.291	-122.291
10.000	0.1667	122.339	-122.339
12.000	0.2000	122.819	-122.819
14.000	0.2333	123.222	-123.222
16.000	0.2667	123.629	-123.629
18.000	0.3000	123.924	-123.924
20.000	0.3333	124.144	-124.144
22.000	0.3667	124.337	-124.337
24.000	0.4000	124.474	-124.474
26.000	0.4333	124.588	-124.588
28.000	0.4667	124.769	-124.769
30.000	0.5000	124.893	-124.893
32.000	0.5333	125.017	-125.017
34.000	0.5667	125.147	-125.147
36.000	0.6000	125.262	-125.262
38.000	0.6333	125.357	-125.357
40.000	0.6667	125.497	-125.497
42.000	0.7000	125.608	-125.608
44.000	0.7333	125.691	-125.691
46.000	0.7667	125.748	-125.748
48.000	0.8000	125.808	-125.808
50.000	0.8333	125.789	-125.789
52.000	0.8667	125.732	-125.732
54.000	0.9000	125.745	-125.745
56.000	0.9333	125.897	-125.897
58.000	0.9667	126.027	-126.027
60.000	1.000	126.148	-126.148
62.000	1.033	126.177	-126.177
64.000	1.067	126.212	-126.212
66.000	1.100	126.237	-126.237
68.000	1.133	126.129	-126.129
70.000	1.167	126.097	-126.097
72.000	1.200	126.069	-126.069

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74.000	1.233	126.015	-126.015
76.000	1.267	125.973	-125.973
78.000	1.300	125.862	-125.862
80.000	1.333	125.621	-125.621
82.000	1.367	125.452	-125.452
84.000	1.400	125.338	-125.338
86.000	1.433	125.510	-125.510
88.000	1.467	125.722	-125.722
90.000	1.500	125.849	-125.849
92.000	1.533	125.980	-125.980
94.000	1.567	126.113	-126.113
96.000	1.600	126.199	-126.199
98.000	1.633	126.278	-126.278
100.000	1.667	126.358	-126.358
105.000	1.750	126.339	-126.339
110.000	1.833	126.361	-126.361
115.000	1.917	126.558	-126.558
120.000	2.000	126.631	-126.631
125.000	2.083	126.615	-126.615
130.000	2.167	126.326	-126.326
135.000	2.250	126.180	-126.180
140.000	2.333	126.072	-126.072
145.000	2.417	125.919	-125.919
150.000	2.500	125.815	-125.815
155.000	2.583	125.729	-125.729
160.000	2.667	125.637	-125.637
165.000	2.750	125.630	-125.630
170.000	2.833	125.614	-125.614
175.000	2.917	125.589	-125.589
180.000	3.000	125.878	-125.878
185.000	3.083	126.002	-126.002
190.000	3.167	126.332	-126.332
195.000	3.250	126.675	-126.675
200.000	3.333	126.879	-126.879
205.000	3.417	126.971	-126.971
210.000	3.500	126.993	-126.993
215.000	3.583	127.006	-127.006
220.000	3.667	126.952	-126.952
225.000	3.750	126.888	-126.888
230.000	3.833	126.860	-126.860
235.000	3.917	126.885	-126.885
240.000	4.000	126.882	-126.882
245.000	4.083	127.057	-127.057
250.000	4.167	127.203	-127.203
255.000	4.250	127.038	-127.038

260.000	4.333	127.181	-127.181
265.000	4.417	127.193	-127.193
270.000	4.500	127.184	-127.184
275.000	4.583	127.174	-127.174
280.000	4.667	127.152	-127.152
285.000	4.750	127.069	-127.069
290.000	4.833	127.034	-127.034
295.000	4.917	126.965	-126.965
300.000	5.000	126.977	-126.977
305.000	5.083	127.009	-127.009
310.000	5.167	126.920	-126.920
315.000	5.250	127.107	-127.107
320.000	5.333	127.352	-127.352
325.000	5.417	127.435	-127.435
330.000	5.500	127.257	-127.257
335.000	5.583	127.006	-127.006
340.000	5.667	126.866	-126.866
345.000	5.750	126.866	-126.866
350.000	5.833	126.818	-126.818
355.000	5.917	126.802	-126.802
360.000	6.000	126.999	-126.999
365.000	6.083	126.920	-126.920
370.000	6.167	127.028	-127.028
375.000	6.250	127.073	-127.073
380.000	6.333	127.063	-127.063
385.000	6.417	127.127	-127.127
390.000	6.500	127.092	-127.092
395.000	6.583	127.025	-127.025
400.000	6.667	126.965	-126.965
405.000	6.750	126.968	-126.968
410.000	6.833	126.961	-126.961
415.000	6.917	126.923	-126.923
420.000	7.000	127.012	-127.012
425.000	7.083	127.212	-127.212

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WELL NO.: 699-40-36

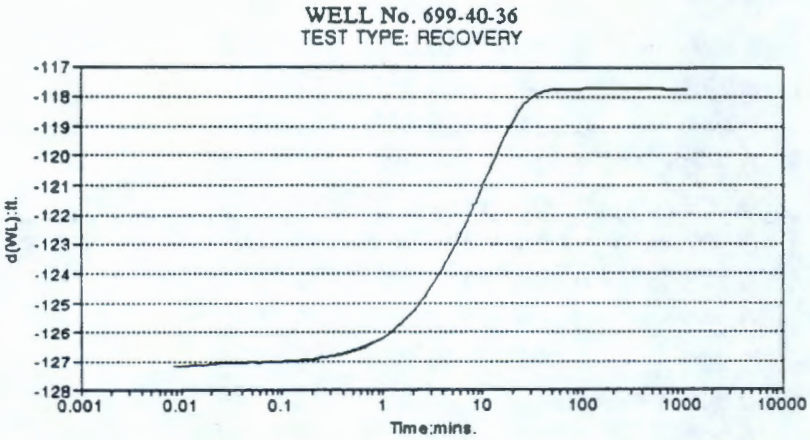
TEST TYPE: RECOVERY (CONSTANT DISCHARGE)

DATA LOGGER:

S/N: SE2000
Unit No. 1 2
Test 4
INPUT 1:

TRANSDUCER:

Reference: 117.800
Specific G.: 1.000
Linearity: 0.000
Scale Factor: 10.060
Offset: 0.000
Delay (mSec.): 50.000



START DATE: 3/29/93 END DAT 03/30/93
START TIME: 15:~~26~~:45 END TIM 09:~~41~~:45
23 RSE 4/2/93 38 RSE 4/2/93

Time:min.	Time:hrs.	Depth to Water	d(WL):ft.
0.0000	0.00000	127.221	-127.221
0.0083	0.00014	127.209	-127.209
0.0166	0.00028	127.135	-127.135
0.0250	0.00042	127.053	-127.053
0.0333	0.00056	127.062	-127.062
0.0416	0.00069	127.040	-127.040
0.0500	0.00083	127.034	-127.034
0.0583	0.00097	127.037	-127.037
0.0666	0.00111	127.027	-127.027
0.0750	0.00125	127.015	-127.015
0.0833	0.00139	127.008	-127.008
0.0916	0.002	127.002	-127.002
0.100	0.002	126.993	-126.993
0.108	0.002	126.986	-126.986
0.117	0.002	126.980	-126.980
0.125	0.002	126.970	-126.970
0.133	0.002	126.964	-126.964
0.142	0.002	126.958	-126.958
0.150	0.003	126.951	-126.951
0.158	0.003	126.942	-126.942
0.167	0.003	126.935	-126.935
0.175	0.003	126.929	-126.929

0.183	0.003	126.923	-126.923
0.192	0.003	126.916	-126.916
0.200	0.003	126.910	-126.910
0.208	0.003	126.904	-126.904
0.217	0.004	126.894	-126.894
0.225	0.004	126.888	-126.888
0.233	0.004	126.881	-126.881
0.242	0.004	126.875	-126.875
0.250	0.004	126.865	-126.865
0.258	0.004	126.859	-126.859
0.267	0.004	126.853	-126.853
0.275	0.005	126.846	-126.846
0.283	0.005	126.840	-126.840
0.292	0.005	126.834	-126.834
0.300	0.005	126.824	-126.824
0.308	0.005	126.818	-126.818
0.317	0.005	126.811	-126.811
0.325	0.005	126.805	-126.805
0.333	0.006	126.796	-126.796
0.350	0.006	126.783	-126.783
0.367	0.006	126.770	-126.770
0.383	0.006	126.754	-126.754
0.400	0.007	126.742	-126.742
0.417	0.007	126.726	-126.726
0.433	0.007	126.713	-126.713
0.450	0.008	126.697	-126.697
0.467	0.008	126.684	-126.684
0.483	0.008	126.668	-126.668
0.500	0.008	126.653	-126.653
0.517	0.009	126.640	-126.640
0.533	0.009	126.624	-126.624
0.550	0.009	126.621	-126.621
0.567	0.009	126.599	-126.599
0.583	0.010	126.586	-126.586
0.600	0.010	126.570	-126.570
0.617	0.010	126.557	-126.557
0.633	0.011	126.541	-126.541
0.650	0.011	126.529	-126.529
0.667	0.011	126.513	-126.513
0.683	0.011	126.500	-126.500
0.700	0.012	126.487	-126.487
0.717	0.012	126.475	-126.475
0.733	0.012	126.459	-126.459
0.750	0.013	126.446	-126.446
0.767	0.013	126.430	-126.430

0.783	0.013	126.418	-126.418
0.800	0.013	126.398	-126.398
0.817	0.014	126.389	-126.389
0.833	0.014	126.376	-126.376
0.850	0.014	126.360	-126.360
0.867	0.014	126.348	-126.348
0.883	0.015	126.332	-126.332
0.900	0.015	126.319	-126.319
0.917	0.015	126.306	-126.306
0.933	0.016	126.294	-126.294
0.950	0.016	126.278	-126.278
0.967	0.016	126.265	-126.265
0.983	0.016	126.249	-126.249
1.000	0.017	126.236	-126.236
1.200	0.020	126.036	-126.036
1.400	0.023	125.846	-125.846
1.600	0.027	125.658	-125.658
1.800	0.030	125.477	-125.477
2.000	0.033	125.299	-125.299
2.200	0.037	125.125	-125.125
2.400	0.040	124.953	-124.953
2.600	0.043	124.785	-124.785
2.800	0.047	124.623	-124.623
3.000	0.050	124.464	-124.464
3.200	0.053	124.314	-124.314
3.400	0.057	124.165	-124.165
3.600	0.060	124.044	-124.044
3.800	0.063	123.917	-123.917
4.000	0.067	123.794	-123.794
4.200	0.070	123.676	-123.676
4.400	0.073	123.558	-123.558
4.600	0.077	123.444	-123.444
4.800	0.080	123.330	-123.330
5.000	0.083	123.219	-123.219
5.200	0.087	123.110	-123.110
5.400	0.090	123.002	-123.002
5.600	0.093	122.898	-122.898
5.800	0.097	122.796	-122.796
6.000	0.100	122.694	-122.694
6.200	0.103	122.596	-122.596
6.400	0.107	122.497	-122.497
6.600	0.110	122.402	-122.402
6.800	0.113	122.310	-122.310
7.000	0.117	122.218	-122.218
7.200	0.120	122.126	-122.126

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7.400	0.123	122.037	-122.037
7.600	0.127	121.951	-121.951
7.800	0.130	121.865	-121.865
8.000	0.133	121.783	-121.783
8.200	0.137	121.700	-121.700
8.400	0.140	121.621	-121.621
8.600	0.143	121.544	-121.544
8.800	0.147	121.465	-121.465
9.000	0.150	121.392	-121.392
9.200	0.153	121.316	-121.316
9.400	0.157	121.246	-121.246
9.600	0.160	121.173	-121.173
9.800	0.163	121.103	-121.103
10.000	0.167	121.036	-121.036
12.000	0.200	120.420	-120.420
14.000	0.233	119.918	-119.918
16.000	0.267	119.454	-119.454
18.000	0.300	119.108	-119.108
20.000	0.333	118.847	-118.847
22.000	0.367	118.599	-118.599
24.000	0.400	118.403	-118.403
26.000	0.433	118.253	-118.253
28.000	0.467	118.139	-118.139
30.000	0.500	118.047	-118.047
32.000	0.533	117.980	-117.980
34.000	0.567	117.929	-117.929
36.000	0.600	117.888	-117.888
38.000	0.633	117.859	-117.859
40.000	0.667	117.831	-117.831
42.000	0.700	117.818	-117.818
44.000	0.733	117.802	-117.802
46.000	0.767	117.793	-117.793
48.000	0.800	117.783	-117.783
50.000	0.833	117.774	-117.774
52.000	0.867	117.767	-117.767
54.000	0.900	117.767	-117.767
56.000	0.933	117.764	-117.764
58.000	0.967	117.761	-117.761
60.000	1.000	117.758	-117.758
62.000	1.033	117.758	-117.758
64.000	1.067	117.751	-117.751
66.000	1.100	117.751	-117.751
68.000	1.133	117.748	-117.748
70.000	1.167	117.751	-117.751
72.000	1.200	117.748	-117.748

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74.000	1.233	117.748	-117.748
76.000	1.267	117.745	-117.745
78.000	1.300	117.745	-117.745
80.000	1.333	117.745	-117.745
82.000	1.367	117.745	-117.745
84.000	1.400	117.742	-117.742
86.000	1.433	117.745	-117.745
88.000	1.467	117.742	-117.742
90.000	1.500	117.742	-117.742
92.000	1.533	117.745	-117.745
94.000	1.567	117.745	-117.745
96.000	1.600	117.742	-117.742
98.000	1.633	117.739	-117.739
100.000	1.667	117.735	-117.735
105.000	1.750	117.739	-117.739
110.000	1.833	117.739	-117.739
115.000	1.917	117.739	-117.739
120.000	2.000	117.739	-117.739
125.000	2.083	117.735	-117.735
130.000	2.167	117.739	-117.739
135.000	2.250	117.735	-117.735
140.000	2.333	117.735	-117.735
145.000	2.417	117.735	-117.735
150.000	2.500	117.735	-117.735
155.000	2.583	117.735	-117.735
160.000	2.667	117.735	-117.735
165.000	2.750	117.732	-117.732
170.000	2.833	117.732	-117.732
175.000	2.917	117.732	-117.732
180.000	3.000	117.729	-117.729
185.000	3.083	117.732	-117.732
190.000	3.167	117.729	-117.729
195.000	3.250	117.729	-117.729
200.000	3.333	117.729	-117.729
205.000	3.417	117.729	-117.729
210.000	3.500	117.729	-117.729
215.000	3.583	117.732	-117.732
220.000	3.667	117.729	-117.729
225.000	3.750	117.729	-117.729
230.000	3.833	117.729	-117.729
235.000	3.917	117.732	-117.732
240.000	4.000	117.729	-117.729
245.000	4.083	117.729	-117.729
250.000	4.167	117.732	-117.732
255.000	4.250	117.729	-117.729

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260.000	4.333	117.732	-117.732
265.000	4.417	117.732	-117.732
270.000	4.500	117.729	-117.729
275.000	4.583	117.729	-117.729
280.000	4.667	117.729	-117.729
285.000	4.750	117.729	-117.729
290.000	4.833	117.729	-117.729
295.000	4.917	117.729	-117.729
300.000	5.000	117.729	-117.729
305.000	5.083	117.732	-117.732
310.000	5.167	117.732	-117.732
315.000	5.250	117.732	-117.732
320.000	5.333	117.735	-117.735
325.000	5.417	117.735	-117.735
330.000	5.500	117.732	-117.732
335.000	5.583	117.732	-117.732
340.000	5.667	117.729	-117.729
345.000	5.750	117.732	-117.732
350.000	5.833	117.729	-117.729
355.000	5.917	117.729	-117.729
360.000	6.000	117.729	-117.729
365.000	6.083	117.729	-117.729
370.000	6.167	117.729	-117.729
375.000	6.250	117.729	-117.729
380.000	6.333	117.732	-117.732
385.000	6.417	117.732	-117.732
390.000	6.500	117.729	-117.729
395.000	6.583	117.729	-117.729
400.000	6.667	117.729	-117.729
405.000	6.750	117.729	-117.729
410.000	6.833	117.729	-117.729
415.000	6.917	117.729	-117.729
420.000	7.000	117.726	-117.726
425.000	7.083	117.726	-117.726
430.000	7.167	117.726	-117.726
435.000	7.250	117.726	-117.726
440.000	7.333	117.726	-117.726
445.000	7.417	117.729	-117.729
450.000	7.500	117.726	-117.726
455.000	7.583	117.726	-117.726
460.000	7.667	117.729	-117.729
465.000	7.750	117.726	-117.726
470.000	7.833	117.729	-117.729
475.000	7.917	117.729	-117.729
480.000	8.000	117.729	-117.729

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485.000	8.083	117.729	-117.729
490.000	8.167	117.732	-117.732
495.000	8.250	117.729	-117.729
500.000	8.333	117.729	-117.729
505.000	8.417	117.729	-117.729
510.000	8.500	117.729	-117.729
515.000	8.583	117.729	-117.729
520.000	8.667	117.732	-117.732
525.000	8.750	117.729	-117.729
530.000	8.833	117.729	-117.729
535.000	8.917	117.729	-117.729
540.000	9.000	117.729	-117.729
545.000	9.083	117.729	-117.729
550.000	9.167	117.732	-117.732
555.000	9.250	117.729	-117.729
560.000	9.333	117.732	-117.732
565.000	9.417	117.732	-117.732
570.000	9.500	117.732	-117.732
575.000	9.583	117.732	-117.732
580.000	9.667	117.735	-117.735
585.000	9.750	117.735	-117.735
590.000	9.833	117.735	-117.735
595.000	9.917	117.739	-117.739
600.000	10.000	117.739	-117.739
605.000	10.083	117.739	-117.739
610.000	10.167	117.739	-117.739
615.000	10.250	117.739	-117.739
620.000	10.333	117.739	-117.739
625.000	10.417	117.739	-117.739
630.000	10.500	117.739	-117.739
635.000	10.583	117.739	-117.739
640.000	10.667	117.742	-117.742
645.000	10.750	117.742	-117.742
650.000	10.833	117.739	-117.739
655.000	10.917	117.739	-117.739
660.000	11.000	117.742	-117.742
665.000	11.083	117.742	-117.742
670.000	11.167	117.742	-117.742
675.000	11.250	117.742	-117.742
680.000	11.333	117.742	-117.742
685.000	11.417	117.742	-117.742
690.000	11.500	117.742	-117.742
695.000	11.583	117.742	-117.742
700.000	11.667	117.742	-117.742
705.000	11.750	117.745	-117.745

710.000	11.833	117.742	-117.742
715.000	11.917	117.745	-117.745
720.000	12.000	117.745	-117.745
725.000	12.083	117.742	-117.742
730.000	12.167	117.745	-117.745
735.000	12.250	117.745	-117.745
740.000	12.333	117.745	-117.745
745.000	12.417	117.745	-117.745
750.000	12.500	117.745	-117.745
755.000	12.583	117.742	-117.742
760.000	12.667	117.742	-117.742
765.000	12.750	117.742	-117.742
770.000	12.833	117.742	-117.742
775.000	12.917	117.745	-117.745
780.000	13.000	117.745	-117.745
785.000	13.083	117.745	-117.745
790.000	13.167	117.748	-117.748
795.000	13.250	117.745	-117.745
800.000	13.333	117.745	-117.745
805.000	13.417	117.745	-117.745
810.000	13.500	117.748	-117.748
815.000	13.583	117.745	-117.745
820.000	13.667	117.748	-117.748
825.000	13.750	117.748	-117.748
830.000	13.833	117.745	-117.745
835.000	13.917	117.748	-117.748
840.000	14.000	117.748	-117.748
845.000	14.083	117.751	-117.751
850.000	14.167	117.751	-117.751
855.000	14.250	117.751	-117.751
860.000	14.333	117.751	-117.751
865.000	14.417	117.751	-117.751
870.000	14.500	117.751	-117.751
875.000	14.583	117.754	-117.754
880.000	14.667	117.754	-117.754
885.000	14.750	117.754	-117.754
890.000	14.833	117.758	-117.758
895.000	14.917	117.758	-117.758
900.000	15.000	117.758	-117.758
905.000	15.083	117.758	-117.758
910.000	15.167	117.761	-117.761
915.000	15.250	117.761	-117.761
920.000	15.333	117.761	-117.761
925.000	15.417	117.761	-117.761
930.000	15.500	117.761	-117.761

P. 16 of 16

935.000	15.583	117.761	-117.761
940.000	15.667	117.764	-117.764
945.000	15.750	117.764	-117.764
950.000	15.833	117.764	-117.764
955.000	15.917	117.770	-117.770
960.000	16.000	117.767	-117.767
965.000	16.083	117.764	-117.764
970.000	16.167	117.761	-117.761
975.000	16.250	117.761	-117.761
980.000	16.333	117.764	-117.764
985.000	16.417	117.761	-117.761
990.000	16.500	117.764	-117.764
995.000	16.583	117.770	-117.770
1000.000	16.667	117.770	-117.770
1005.000	16.750	117.770	-117.770
1010.000	16.833	117.774	-117.774
1015.000	16.917	117.767	-117.767
1020.000	17.000	117.767	-117.767
1025.000	17.083	117.767	-117.767
1030.000	17.167	117.767	-117.767
1035.000	17.250	117.761	-117.761
1040.000	17.333	117.770	-117.770
1045.000	17.417	117.770	-117.770
1050.000	17.500	117.770	-117.770
1055.000	17.583	117.764	-117.764
1060.000	17.667	117.764	-117.764
1065.000	17.750	117.764	-117.764
1070.000	17.833	117.767	-117.767
1075.000	17.917	117.774	-117.774
1080.000	18.000	117.774	-117.774
1085.000	18.083	117.767	-117.767
1090.000	18.167	117.767	-117.767
1095.000	18.250	117.770	-117.770

BOREHOLE TEST INFORMATION

Borehole 699-40-36 Borehole Diameter 4 in. Hanford Coordinates N/A

Interval Tested 213.02-223.02' Depth Interval 198 - 230' Test Type: Instantaneous Slug

Borehole Depth: 223.02' Instruction Used: WHC-CM-7-7 (EII 10.1)

EQUIPMENT

NAME	DESCRIPTION	
Electric Sounder	Solinst s/n: ET-1	Calibration due: 7-31-93
Data Logger	In-Situ Inc. s/n: 2K-459	
Pressure Transducer	In-Situ Inc. s/n: 1989	Calibration due: 3-11-94
Slugging Rod	BR-2: 0.194 Cu. Ft	
Steel Measuring Tape	300' Graduated Steel Tape	

MEASUREMENT DATUM

Control Datum: Top of Casing (TOC) 6"

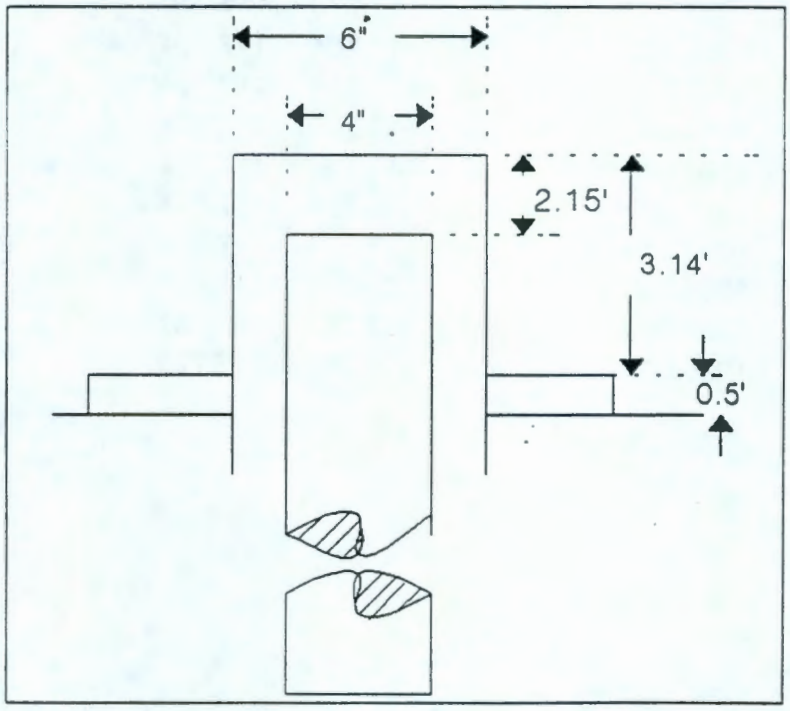
Elevation: N/A

Electric Sounder: TOC 6"

Steel Tape: TOC 6"

Pressure Transducer: TOC 6"

WELL HEAD DIAGRAM



COMMENTS

One slug test performed using slug BR-2.

Recorded by: R S. Edrington Date: 03/31/93

Sign and Print Name

4135' BWN

EQUIPMENT DECONTAMINATION

Sheet 1 of 1

roject: W049 Drilling Company: KEH

Decontamination Area: Drill Yard Pad #1 Borehole:

Origin: Destination: W049

The following equipment has been decontaminated following WHC-CM-7-7 EII 5.4 Rev. 4

List types of detergent: ☒ Non-phosphate ☐ Other

Rigs

Rig Type	ID No.	Date of Decontamination
☐ Cable Tool		
☐ Auger		
☐ Sonic		
☐ Other		

General Equipment

	ID No.	Date of Decontamination
☐ Waste Drums		
☐ Sampler Vise		
☐ Decon Truck		
☐ Log Truck		

Downhole Equipment

			Size	Length	Date of Decontamination
☐ Rope Sockets		Ea.			
☐ Stem		Ea.			
☐ Jars		Ea.			
☐ Drive Barrels		Ea.			
☐ Split Tube Samplers		Ea.			
☐ Casing		Ea.			
☐ Casing Shoes		Ea.			
☐ Auger Flights		Ea.			
☐ Core Barrel		Ea.			
☐ Rods		Ea.			
☐ Stainless Steel Bowls		Ea.			
☐ Stainless Steel Spoons		Ea.			
☐ Hand Tools		Ea.			
☒ 1" Pipe	30	Ea.	1"	630'	3-10-93

Remarks:

Jody L Carpenter
Person Conducting Decontamination

Field Team Leader/AI

Jody L Carpenter J. Carpenter 3-10-93
Print/Sign Name Date

Print/Sign Name Date/Time

DISTRIBUTION: White - Field File Custodian Yellow - Group Files Pink - Field Team Leader

BC-6000-292 (08/9

INSTANTANEOUS SLUG TEST DATA SHEET: INJECTION

Page 1 of 2 6

Borehole: 699-40-36

Interval Tested: 193.85 -203.85' Btoc 6"

Depth To Water: 117.77' Btoc 6"

Depth to Transducer: 12.768 BWL

Measured by: Robert S. Edrington

Slug Volume: BR-2 0.194 Cu Ft

Barometric Reading:

See Barometric Pressure Data.

Time:	Start	End
Baseline	1255	1305
Injection	1307	1330

Date: 03-22-93

Initial Pressure (Pi): 117.77'

Slug Level/Pressure (Pmax) 115.717

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: Robert S. Edrington Date: 04-01-93

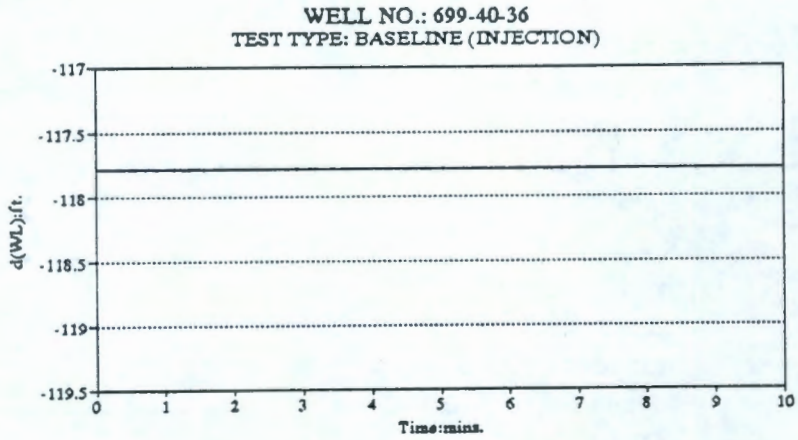
Sign and Print Name

BD-6000-293(07/90)

LDL
Pg 2 of 26

WELL NO.: 699-40-36
TEST TYPE: BASELINE (INJECTION)

DATA LOGGER:
S/N: SE2000
Unit No. 4 9
Test 5
INPUT 1:
TRANSDUCER:
Reference: 117.770
Specific G.: 1.000
Linearity: 0.000
Scale Factor: 10.110
Offset: 0.000
Delay (mSec.): 50.000



START DATE: 3/22/93 END DAT 03/22/93
START TIME: 12:55:24 END TIM 13:05:24

Time:min.	Time:hrs.	Depth to Water	d(WL):ft.
0.00	0.00	117.789	-117.789
1.00	0.02	117.785	-117.785
2.00	0.03	117.785	-117.785
3.00	0.05	117.785	-117.785
4.00	0.07	117.785	-117.785
5.00	0.08	117.785	-117.785
6.00	0.10	117.785	-117.785
7.00	0.12	117.785	-117.785
8.00	0.13	117.785	-117.785
9.00	0.15	117.785	-117.785
10.00	0.17	117.785	-117.785

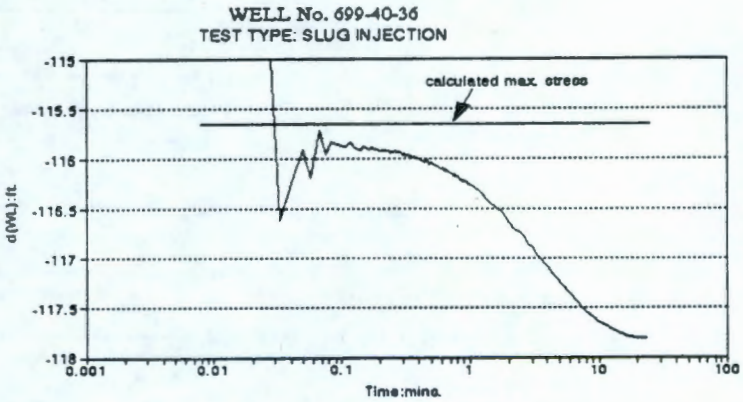
Pg 3 of 6

WELL NO.: 699-40-36
TEST TYPE: SLUG INJECTION

SLUG VO. (cu. ft.)=0.194

DATA LOGGER:
- S/N: SE2000
- Unit No. 4 9
- Test 6
- INPUT 1:

TRANSDUCER:
- Reference: 117.770
- Specific G.: 1.000
- Linearity: 0.000
- Scale Factor: 10.110
- Offset: 0.000
- Delay (mSec.): 50.000



START DATE: 3/22/93 END DAT 03/22/93
START TIME: 13:07:10 END TIM 13:30:10

Time:min.	Time:hrs.	Depth to Water	d(WL):ft.
0.000	0.0000	117.763	-117.763
0.008	0.0001	114.369	-114.369
0.017	0.0003	110.305	-110.305
0.025	0.0004	114.002	-114.002
0.033	0.0006	116.607	-116.607
0.042	0.0007	116.202	-116.202
0.050	0.0008	115.908	-115.908
0.058	0.0010	116.183	-116.183
0.067	0.0011	115.717	-115.717
0.075	0.0013	115.953	-115.953
0.083	0.0014	115.822	-115.822
0.092	0.0015	115.854	-115.854
0.100	0.0017	115.876	-115.876
0.108	0.0018	115.879	-115.879
0.117	0.0019	115.828	-115.828
0.125	0.0021	115.879	-115.879
0.133	0.0022	115.892	-115.892
0.142	0.0024	115.921	-115.921
0.150	0.0025	115.870	-115.870
0.158	0.0026	115.889	-115.889
0.167	0.0028	115.905	-115.905
0.175	0.0029	115.883	-115.883

Pg 4 of 6

0.183	0.0031	115.902	-115.902
0.192	0.0032	115.905	-115.905
0.200	0.0033	115.918	-115.918
0.208	0.0035	115.924	-115.924
0.217	0.0036	115.908	-115.908
0.225	0.0038	115.921	-115.921
0.233	0.0039	115.924	-115.924
0.242	0.0040	115.947	-115.947
0.250	0.0042	115.937	-115.937
0.258	0.0043	115.937	-115.937
0.267	0.0044	115.918	-115.918
0.275	0.0046	115.931	-115.931
0.283	0.0047	115.931	-115.931
0.292	0.0049	115.927	-115.927
0.300	0.0050	115.962	-115.962
0.308	0.0051	115.940	-115.940
0.317	0.0053	115.969	-115.969
0.325	0.0054	115.978	-115.978
0.333	0.0056	115.959	-115.959
0.350	0.0058	115.972	-115.972
0.367	0.0061	115.991	-115.991
0.383	0.0064	115.988	-115.988
0.400	0.0067	116.001	-116.001
0.417	0.0069	116.007	-116.007
0.433	0.0072	116.023	-116.023
0.450	0.0075	116.033	-116.033
0.467	0.0078	116.010	-116.010
0.483	0.0081	116.055	-116.055
0.500	0.0083	116.033	-116.033
0.517	0.0086	116.049	-116.049
0.533	0.0089	116.061	-116.061
0.550	0.0092	116.074	-116.074
0.567	0.0094	116.077	-116.077
0.583	0.0097	116.087	-116.087
0.600	0.0100	116.103	-116.103
0.617	0.0103	116.081	-116.081
0.633	0.0106	116.122	-116.122
0.650	0.0108	116.097	-116.097
0.667	0.0111	116.128	-116.128
0.683	0.0114	116.128	-116.128
0.700	0.0117	116.138	-116.138
0.717	0.0119	116.141	-116.141
0.733	0.0122	116.148	-116.148
0.750	0.0125	116.170	-116.170
0.767	0.0128	116.148	-116.148

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0.783	0.0131	116.176	-116.176
0.800	0.0133	116.176	-116.176
0.817	0.0136	116.176	-116.176
0.833	0.0139	116.205	-116.205
0.850	0.0142	116.196	-116.196
0.867	0.0144	116.212	-116.212
0.883	0.0147	116.227	-116.227
0.900	0.0150	116.212	-116.212
0.917	0.0153	116.218	-116.218
0.933	0.0156	116.227	-116.227
0.950	0.0158	116.224	-116.224
0.967	0.0161	116.259	-116.259
0.983	0.0164	116.253	-116.253
1.000	0.017	116.256	-116.256
1.200	0.020	116.317	-116.317
1.400	0.023	116.413	-116.413
1.600	0.027	116.480	-116.480
1.800	0.030	116.534	-116.534
2.000	0.033	116.633	-116.633
2.200	0.037	116.700	-116.700
2.400	0.040	116.732	-116.732
2.600	0.043	116.770	-116.770
2.800	0.047	116.844	-116.844
3.000	0.050	116.882	-116.882
3.200	0.053	116.927	-116.927
3.400	0.057	116.968	-116.968
3.600	0.060	117.010	-117.010
3.800	0.063	117.048	-117.048
4.000	0.067	117.080	-117.080
4.200	0.070	117.118	-117.118
4.400	0.073	117.147	-117.147
4.600	0.077	117.182	-117.182
4.800	0.080	117.211	-117.211
5.000	0.083	117.240	-117.240
5.200	0.087	117.262	-117.262
5.400	0.090	117.291	-117.291
5.600	0.093	117.313	-117.313
5.800	0.097	117.339	-117.339
6.000	0.100	117.361	-117.361
6.200	0.103	117.383	-117.383
6.400	0.107	117.406	-117.406
6.600	0.110	117.422	-117.422
6.800	0.113	117.441	-117.441
7.000	0.117	117.460	-117.460
7.200	0.120	117.479	-117.479

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7.400	0.123	117.492	-117.492
7.600	0.127	117.508	-117.508
7.800	0.130	117.524	-117.524
8.000	0.133	117.540	-117.540
8.200	0.137	117.549	-117.549
8.400	0.140	117.562	-117.562
8.600	0.143	117.575	-117.575
8.800	0.147	117.584	-117.584
9.000	0.150	117.594	-117.594
9.200	0.153	117.603	-117.603
9.400	0.157	117.616	-117.616
9.600	0.160	117.623	-117.623
9.800	0.163	117.632	-117.632
10.000	0.167	117.642	-117.642
11.000	0.183	117.677	-117.677
12.000	0.200	117.706	-117.706
13.000	0.217	117.731	-117.731
14.000	0.233	117.750	-117.750
15.000	0.250	117.763	-117.763
16.000	0.267	117.776	-117.776
17.000	0.283	117.782	-117.782
18.000	0.300	117.789	-117.789
19.000	0.317	117.795	-117.795
20.000	0.333	117.798	-117.798
21.000	0.350	117.798	-117.798
22.000	0.367	117.801	-117.801
23.000	0.383	117.801	-117.801

INSTANTANEOUS SLUG TEST DATA SHEET :WITHDRAWAL

Borehole: 699-40-36

Interval Tested: 193.85 -203.85' Btoc 6"

Depth To Water: 117.77' Btoc 6"

Depth to Transducer: 12.768 BWL

Measured by: Robert S. Edrington

Slug Volume: BR-2 0.194 Cu Ft

Barometric Reading:

See Barometric Pressure Data.

Time:	Start	End
Baseline	1255	1305
Injection	1331	1357

Date: 03-22-93

Initial Pressure (Pi): 117.77'

Slug Level/Pressure (Pmax) ~~118.089~~ BE 119.816

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: Robert S. Edrington (signature) Robert S. Edrington Date: 04-01-93

Sign and Print Name

BD-6000-293(07/90)

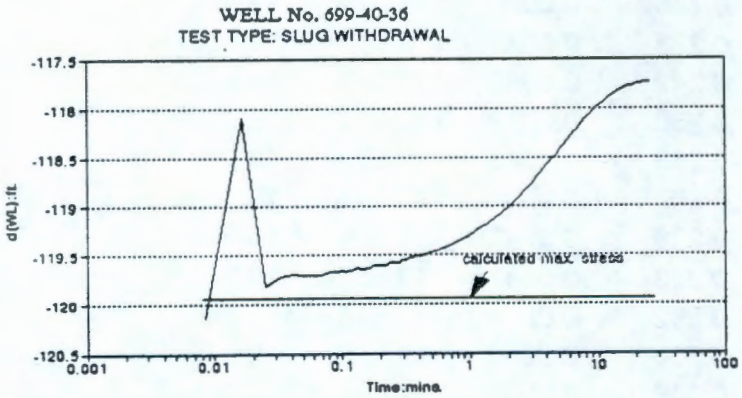
P295

WELL NO.: 699-40-36
TEST TYPE: SLUG WITHDRAWAL

SLUG VO. (cu. ft.)=0.194

DATA LOGGER:
- S/N: SE2000
- Unit No. 4 9
- Test 7
- INPUT 1:

TRANSDUCER:
- Reference: 117.770
- Specific G.: 1.000
- Linearity: 0.000
- Scale Factor: 10.110
- Offset: 0.000
- Delay (mSec.): 50.000



START DATE: 3/22/93 END DAT 03/22/93
START TIME: 13:31:02 END TIM 13:57:02

Time:min.	Time:hrs.	Depth to Water	d(WL):ft.
0.000	0.0000	117.763	-117.763
0.008	0.0001	120.132	-120.132
0.017	0.0003	118.089	-118.089
0.025	0.0004	119.816	-119.816
0.033	0.0006	119.711	-119.711
0.042	0.0007	119.688	-119.688
0.050	0.0008	119.691	-119.691
0.058	0.0010	119.701	-119.701
0.067	0.0011	119.695	-119.695
0.075	0.0013	119.672	-119.672
0.083	0.0014	119.663	-119.663
0.092	0.0015	119.656	-119.656
0.100	0.0017	119.653	-119.653
0.108	0.0018	119.660	-119.660
0.117	0.0019	119.650	-119.650
0.125	0.0021	119.631	-119.631
0.133	0.0022	119.628	-119.628
0.142	0.0024	119.634	-119.634
0.150	0.0025	119.631	-119.631
0.158	0.0026	119.618	-119.618
0.167	0.0028	119.618	-119.618
0.175	0.0029	119.602	-119.602

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0.183	0.0031	119.599	-119.599
0.192	0.0032	119.602	-119.602
0.200	0.0033	119.596	-119.596
0.208	0.0035	119.596	-119.596
0.217	0.0036	119.596	-119.596
0.225	0.0038	119.596	-119.596
0.233	0.0039	119.580	-119.580
0.242	0.0040	119.580	-119.580
0.250	0.0042	119.570	-119.570
0.258	0.0043	119.573	-119.573
0.267	0.0044	119.564	-119.564
0.275	0.0046	119.564	-119.564
0.283	0.0047	119.567	-119.567
0.292	0.0049	119.548	-119.548
0.300	0.0050	119.545	-119.545
0.308	0.0051	119.541	-119.541
0.317	0.0053	119.541	-119.541
0.325	0.0054	119.535	-119.535
0.333	0.0056	119.538	-119.538
0.350	0.0058	119.525	-119.525
0.367	0.0061	119.519	-119.519
0.383	0.0064	119.513	-119.513
0.400	0.0067	119.503	-119.503
0.417	0.0069	119.503	-119.503
0.433	0.0072	119.497	-119.497
0.450	0.0075	119.481	-119.481
0.467	0.0078	119.478	-119.478
0.483	0.0081	119.474	-119.474
0.500	0.0083	119.468	-119.468
0.517	0.0086	119.458	-119.458
0.533	0.0089	119.452	-119.452
0.550	0.0092	119.449	-119.449
0.567	0.0094	119.442	-119.442
0.583	0.0097	119.436	-119.436
0.600	0.0100	119.426	-119.426
0.617	0.0103	119.420	-119.420
0.633	0.0106	119.426	-119.426
0.650	0.0108	119.407	-119.407
0.667	0.0111	119.404	-119.404
0.683	0.0114	119.404	-119.404
0.700	0.0117	119.388	-119.388
0.717	0.0119	119.395	-119.395
0.733	0.0122	119.382	-119.382
0.750	0.0125	119.375	-119.375
0.767	0.0128	119.369	-119.369

Pg 4 of 5

0.783	0.0131	119.366	-119.366
0.800	0.0133	119.356	-119.356
0.817	0.0136	119.353	-119.353
0.833	0.0139	119.347	-119.347
0.850	0.0142	119.340	-119.340
0.867	0.0144	119.331	-119.331
0.883	0.0147	119.328	-119.328
0.900	0.0150	119.324	-119.324
0.917	0.0153	119.318	-119.318
0.933	0.0156	119.312	-119.312
0.950	0.0158	119.305	-119.305
0.967	0.0161	119.302	-119.302
0.983	0.0164	119.296	-119.296
1.000	0.0167	119.292	-119.292
1.200	0.0200	119.229	-119.229
1.400	0.0233	119.168	-119.168
1.600	0.027	119.114	-119.114
1.800	0.030	119.056	-119.056
2.000	0.033	119.005	-119.005
2.200	0.037	118.954	-118.954
2.400	0.040	118.906	-118.906
2.600	0.043	118.855	-118.855
2.800	0.047	118.810	-118.810
3.000	0.050	118.769	-118.769
3.200	0.053	118.730	-118.730
3.400	0.057	118.689	-118.689
3.600	0.060	118.651	-118.651
3.800	0.063	118.616	-118.616
4.000	0.067	118.577	-118.577
4.200	0.070	118.536	-118.536
4.400	0.073	118.513	-118.513
4.600	0.077	118.481	-118.481
4.800	0.080	118.453	-118.453
5.000	0.083	118.424	-118.424
5.200	0.087	118.395	-118.395
5.400	0.090	118.367	-118.367
5.600	0.093	118.341	-118.341
5.800	0.097	118.319	-118.319
6.000	0.100	118.293	-118.293
6.200	0.103	118.271	-118.271
6.400	0.107	118.248	-118.248
6.600	0.110	118.229	-118.229
6.800	0.113	118.210	-118.210
7.000	0.117	118.188	-118.188
7.200	0.120	118.172	-118.172

P75 75

7.400	0.123	118.153	-118.153
7.600	0.127	118.137	-118.137
7.800	0.130	118.118	-118.118
8.000	0.133	118.105	-118.105
8.200	0.137	118.089	-118.089
8.400	0.140	118.073	-118.073
8.600	0.143	118.060	-118.060
8.800	0.147	118.047	-118.047
9.000	0.150	118.034	-118.034
9.200	0.153	118.019	-118.019
9.400	0.157	118.012	-118.012
9.600	0.160	117.996	-117.996
9.800	0.163	117.987	-117.987
10.000	0.167	117.977	-117.977
11.000	0.183	117.929	-117.929
12.000	0.200	117.891	-117.891
13.000	0.217	117.856	-117.856
14.000	0.233	117.830	-117.830
15.000	0.250	117.808	-117.808
16.000	0.267	117.795	-117.795
17.000	0.283	117.779	-117.779
18.000	0.300	117.770	-117.770
19.000	0.317	117.763	-117.763
20.000	0.333	117.754	-117.754
21.000	0.350	117.747	-117.747
22.000	0.367	117.741	-117.741
23.000	0.383	117.734	-117.734
24.000	0.400	117.731	-117.731
25.000	0.417	117.728	-117.728
26.000	0.433	117.725	-117.725

WELL 699-41-35

For Information Only

SAMPLING PUMP INSTALLATION FORM

Project: W-049H

Well Number: 699-41-35

Pump Type: Hydrostar

Pump Model: 8001

Date Installed: 11/04/92

Installed By: B. Strode

Depth to Water: 108.57 Ft BTOC*

Depth to Bottom: 203.81 Ft BTOC

Reported Depth of water: 109.20' (11/03/92)

Screened Interval: 193.81-203.81 Ft BTOC

Pump/Riser Pipe Description:

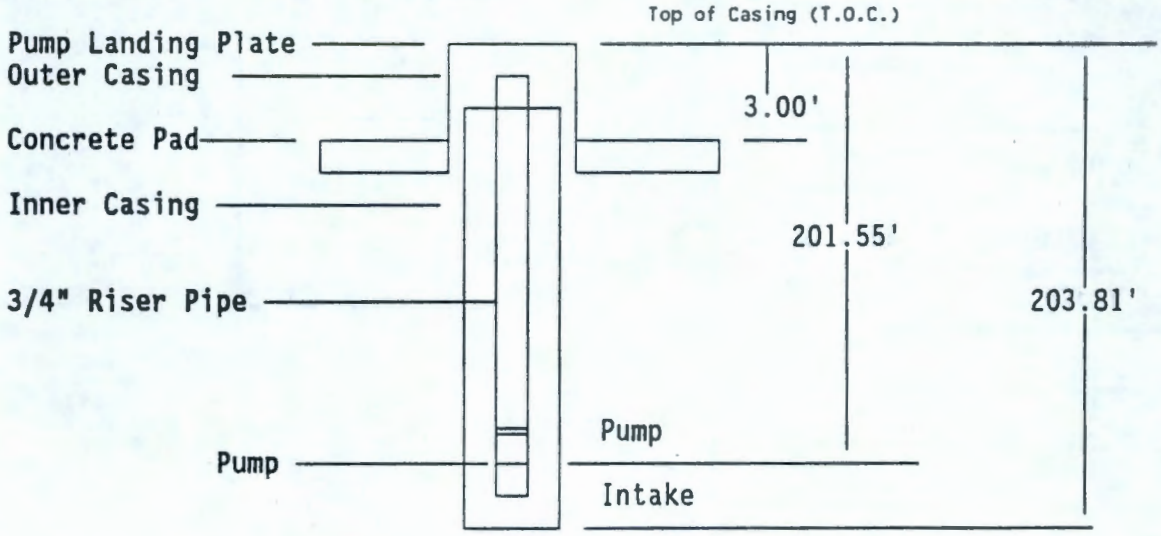
- Pipe: 3/4" Stainless steel
- Pump Length: 4.33'
- Pump Screen Length: 1.90'
- Material Cleaning: Manufacturer
- Distance pump off bottom: 0.36'

Comments: Pump tested on 11/04/92, produced 5 gal/49.50 sec @ 47 strokes = 6.06 gpm @ 57 s/m.

PUMP INSTALLATION SKETCH

Total Material Length: 203.45 Ft

Depth to Pump intake: 201.55 Ft BTOC



Completed By: B. Sol Edrington

Date: 01/05/93

* BTOC - Below Top Of Casing

KDR 1/12/93

Page 1 of

BOREHOLE TEST INFORMATION

Borehole 699-41-35 Borehole Diameter 4 in. Hanford Coordinates N/A

Interval Tested ~~109.20~~ 203.81' Depth Interval 109.20-203.81' Test Type: Instantaneous Slug

Borehole Depth: 193.51 - 203.81' Instruction Used: WHC-CM-7-7 (EII 10.1)

EQUIPMENT

NAME	DESCRIPTION	
Electric Sounder	Solinst s/n: ET-4	Calibration due: 1-08-93
Data Logger	In-Situ Inc. s/n: 1KB700	
Pressure Transducer	In-Situ Inc. s/n: 2110	Calibration due: 2-21-93
Slugging Rod	Site Fabricated 72.0"Lx2.0"D	0.13 cu. ft.
Steel Measuring Tape	300' Graduated Steel Tape	

MEASUREMENT DATUM

Control Datum: Top of Casing (TOC) 6"

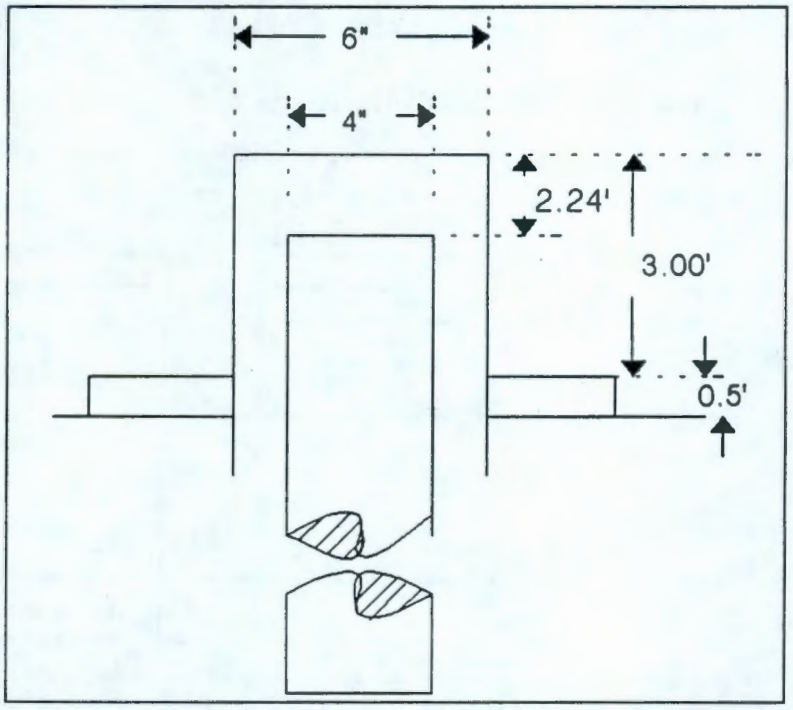
Elevation: N/A

Electric Sounder: TOC 6"

Steel Tape: TOC 6"

Pressure Transducer: TOC 6"

WELL HEAD DIAGRAM



COMMENTS

Recorded by: R S. Edrington Date: 01/05/93

Sign and Print Name

P24

INSTANTANEOUS SLUG TEST DATA SHEET: INJECTION

Borehole: 699-41-35

Interval Tested: ~~109.20~~ 113.51 -203.81' Btoc 6"

Depth To Water: 109.20' Btoc 6"

Depth to Transducer: 80.12' BWL

Measured by: Robert S. Edrington

Slug Volume: 0.13 cu. ft.

Barometric Reading:

Beginning: N/A End: N/A

Time:	Start	End
Baseline	1333	1358
Injection	1401	1425

Date: 11-03-92

Initial Pressure (Pi): 109.20

Slug Level/Pressure (Pmax) 107.37

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: Robert S. Edrington Date: 01-05-93

Sign and Print Name

BD-6000-293(07/90)

P.34

Hermit Environment Data Logger Unit# 700

Test# 4 Water Level (ft) below top of casing (BTOC)

Type: Slug Injection Baseline Begun: 13:33 11/03/92

SWL: 109.20' Slug Injected: 14:01 11/03/92

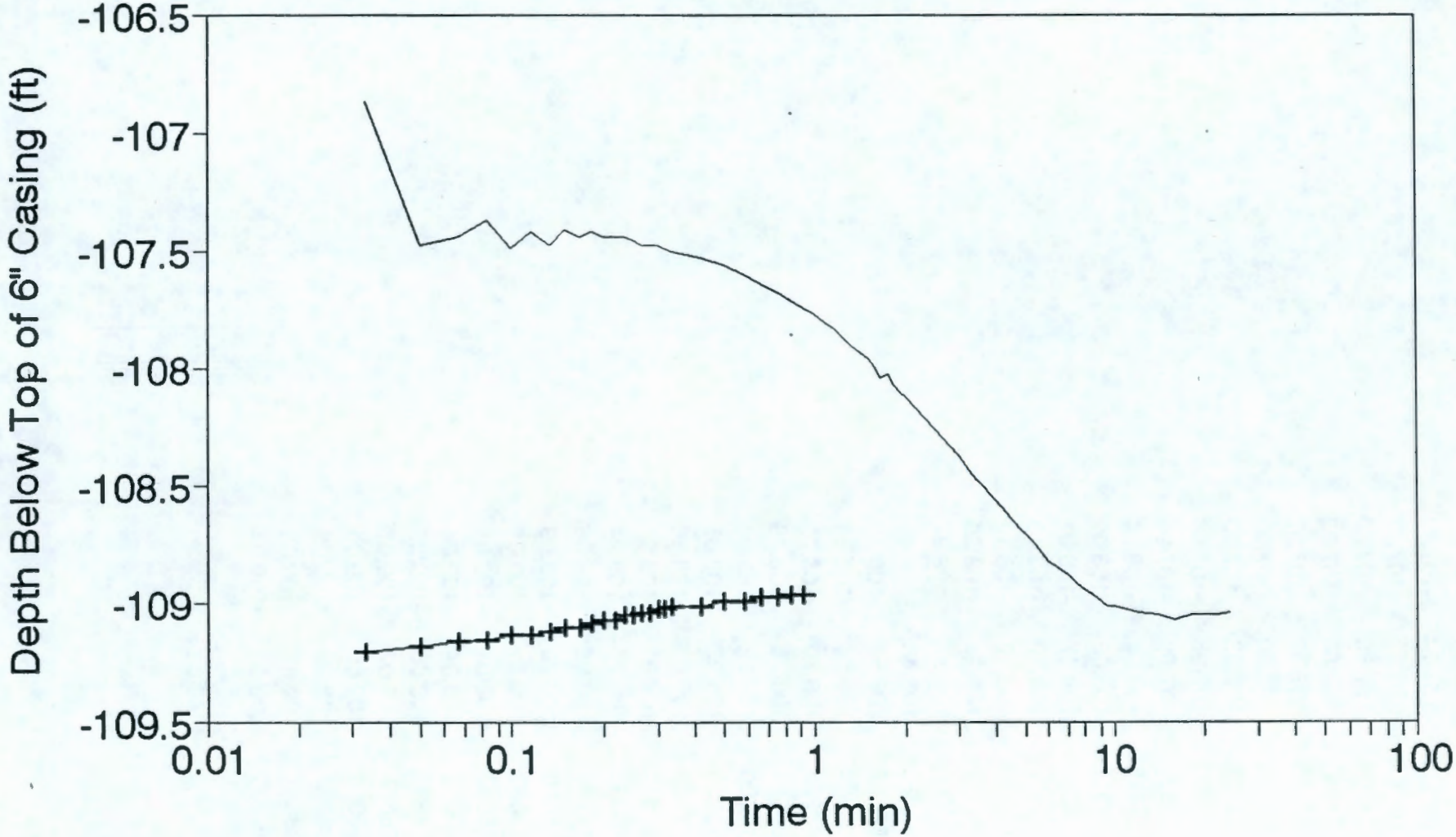
Scale: 50.15 Slug Volume: 0.13 Cu ft

Time:min	Time:hrs	D-T-W:Ft	d(BTOC)
0.000	0.00000	109.16	-109.16
0.003	0.00006	106.80	-106.80
0.007	0.00011	104.49	-104.49
0.010	0.00017	105.28	-105.28
0.013	0.00022	125.14	-125.14
0.017	0.00028	105.16	-105.16
0.020	0.00033	105.22	-105.22
0.023	0.00039	107.14	-107.14
0.027	0.00044	105.00	-105.00
0.030	0.00050	108.77	-108.77
0.033	0.00056	106.87	-106.87
0.050	0.00083	107.47	-107.47
0.067	0.00111	107.44	-107.44
0.083	0.00139	107.37	-107.37
0.100	0.00167	107.49	-107.49
0.117	0.00194	107.42	-107.42
0.133	0.00222	107.47	-107.47
0.150	0.00250	107.41	-107.41
0.167	0.00278	107.44	-107.44
0.183	0.00306	107.42	-107.42
0.200	0.00333	107.44	-107.44
0.217	0.00361	107.44	-107.44
0.233	0.00389	107.44	-107.44
0.250	0.00417	107.45	-107.45
0.267	0.00444	107.47	-107.47
0.283	0.00472	107.47	-107.47
0.300	0.00500	107.47	-107.47
0.317	0.00528	107.49	-107.49
0.333	0.00556	107.50	-107.50
0.417	0.00695	107.53	-107.53
0.500	0.00833	107.56	-107.56
0.583	0.00972	107.60	-107.60
0.667	0.01111	107.64	-107.64
0.750	0.01250	107.68	-107.68

Time:min	Time:hrs	D-T-W:Ft	d(BTOC)
0.00	0.00	109.20	-109.20
1.00	0.02	109.18	-109.18
2.00	0.03	109.16	-109.16
3.00	0.05	109.15	-109.15
4.00	0.07	109.13	-109.13
5.00	0.08	109.13	-109.13
6.00	0.10	109.12	-109.12
7.00	0.12	109.10	-109.10
8.00	0.13	109.10	-109.10
9.00	0.15	109.08	-109.08
10.00	0.17	109.07	-109.07
11.00	0.18	109.07	-109.07
12.00	0.20	109.05	-109.05
13.00	0.22	109.05	-109.05
14.00	0.23	109.04	-109.04
15.00	0.25	109.04	-109.04
16.00	0.27	109.02	-109.02
17.00	0.28	109.02	-109.02
18.00	0.30	109.01	-109.01
19.00	0.32	109.01	-109.01
20.00	0.33	108.99	-108.99
21.00	0.35	108.99	-108.99
22.00	0.37	108.97	-108.97
23.00	0.38	108.97	-108.97
24.00	0.40	108.96	-108.96
25.00	0.42	108.96	-108.96

0.833	0.01389	107.71	-107.71
0.917	0.01528	107.74	-107.74
1.000	0.01667	107.77	-107.77
1.083	0.01806	107.80	-107.80
1.167	0.01945	107.83	-107.83
1.250	0.02083	107.87	-107.87
1.333	0.02222	107.90	-107.90
1.417	0.02361	107.93	-107.93
1.500	0.02500	107.96	-107.96
1.583	0.02639	107.99	-107.99
1.667	0.02778	108.04	-108.04
1.750	0.02917	108.02	-108.02
1.833	0.03056	108.07	-108.07
1.917	0.03195	108.10	-108.10
2.000	0.03333	108.12	-108.12
2.500	0.04167	108.26	-108.26
3.000	0.05000	108.37	-108.37
3.500	0.05833	108.48	-108.48
4.000	0.06667	108.56	-108.56
4.500	0.07500	108.64	-108.64
5.000	0.08333	108.70	-108.70
5.500	0.09167	108.75	-108.75
6.000	0.10000	108.82	-108.82
6.500	0.10833	108.85	-108.85
7.000	0.11667	108.88	-108.88
7.500	0.12500	108.91	-108.91
8.000	0.13333	108.94	-108.94
8.500	0.14167	108.96	-108.96
9.000	0.15000	108.99	-108.99
9.500	0.15833	109.01	-109.01
10.000	0.16667	109.01	-109.01
12.000	0.20000	109.04	-109.04
14.000	0.23333	109.05	-109.05
16.000	0.26667	109.07	-109.07
18.000	0.30000	109.05	-109.05
20.000	0.33333	109.05	-109.05
22.000	0.36667	109.05	-109.05
24.000	0.40000	109.04	-109.04

699-41-35 Slug Injection
03-Nov-92



Slug Injection — Baseline

P.6 of

INSTANTANEOUS SLUG TEST DATA SHEET :WITHDRAWAL

Borehole: 699-41-35

Interval Tested: ~~109.20~~ 193.51 -203.81' Btoc 6"

Depth To Water: 109.20' Btoc 6"

Depth to Transducer: 80.12' BWL

Measured by: Robert S. Edrington

Slug Volume: 0.13 cu. ft.

Barometric Reading:

Beginning: N/A End: N/A

Time:	Start	End
Baseline	1426	1436
Injection	1437	0845(11/04)

Date: 11-03-92

Initial Pressure (Pi): 109.20

Slug Level/Pressure (Pmax) 111.49

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: Robert S. Edrington Date: 01-05-93

Sign and Print Name

BD-6000-293(07/90)

699-41-35 Slug Withdrawal

P.7 of

Hermit Environment Data Logger Unit# 700

Test# 6 Water Level (ft) below top of casing (BTOC)

Type: Slug Withdrawal Baseline Begun: 14:26 11/03/92

SWL: 109.20' Slug Withdrawn: 14:37 11/03/92

Scale: 50.15' Slug Volume: 0.13 Cu ft

Time:min	Time:hrs	D-T-W:Ft	d(BTOC)
0.000	0.00000	117.11	-117.11
0.003	0.00006	110.21	-110.21
0.007	0.00011	109.42	-109.42
0.010	0.00017	111.49	-111.49
0.013	0.00022	111.13	-111.13
0.017	0.00028	111.06	-111.06
0.020	0.00033	111.05	-111.05
0.023	0.00039	111.08	-111.08
0.027	0.00044	111.08	-111.08
0.030	0.00050	111.08	-111.08
0.033	0.00056	111.08	-111.08
0.050	0.00083	111.06	-111.06
0.067	0.00111	111.05	-111.05
0.083	0.00139	111.02	-111.02
0.100	0.00167	111.02	-111.02
0.117	0.00194	111.00	-111.00
0.133	0.00222	110.98	-110.98
0.150	0.00250	110.98	-110.98
0.167	0.00278	110.97	-110.97
0.183	0.00306	110.95	-110.95
0.200	0.00333	110.94	-110.94
0.217	0.00361	110.94	-110.94
0.233	0.00389	110.92	-110.92
0.250	0.00417	110.92	-110.92
0.267	0.00444	110.91	-110.91
0.283	0.00472	110.89	-110.89
0.300	0.00500	110.89	-110.89
0.317	0.00528	110.87	-110.87
0.333	0.00556	110.87	-110.87
0.417	0.00695	110.83	-110.83
0.500	0.00833	110.78	-110.78
0.583	0.00972	110.75	-110.75
0.667	0.01111	110.70	-110.70
0.750	0.01250	110.67	-110.67

Time:min	Time:hrs	D-T-W:Ft	d(BTOC)
0.00	0.00	109.20	-109.20
1.00	0.02	109.20	-109.20
2.00	0.03	109.20	-109.20
3.00	0.05	109.18	-109.18
4.00	0.07	109.18	-109.18
5.00	0.08	109.18	-109.18
6.00	0.10	109.18	-109.18
7.00	0.12	109.18	-109.18
8.00	0.13	109.18	-109.18
9.00	0.15	109.16	-109.16
10.00	0.17	109.16	-109.16

P. 8 of

699-41-35 Slug Withdrawal

0.833	0.01389	110.64	-110.64
0.917	0.01528	110.59	-110.59
1.000	0.01667	110.56	-110.56
1.083	0.01806	110.53	-110.53
1.167	0.01945	110.49	-110.49
1.250	0.02083	110.46	-110.46
1.333	0.02222	110.43	-110.43
1.417	0.02361	110.40	-110.40
1.500	0.02500	110.37	-110.37
1.583	0.02639	110.35	-110.35
1.667	0.02778	110.32	-110.32
1.750	0.02917	110.29	-110.29
1.833	0.03056	110.26	-110.26
1.917	0.03195	110.24	-110.24
2.000	0.03333	110.21	-110.21
2.500	0.04167	110.07	-110.07
3.000	0.05000	109.96	-109.96
3.500	0.05833	109.84	-109.84
4.000	0.06667	109.75	-109.75
4.500	0.07500	109.69	-109.69
5.000	0.08333	109.61	-109.61
5.500	0.09167	109.54	-109.54
6.000	0.10000	109.50	-109.50
6.500	0.10833	109.45	-109.45
7.000	0.11667	109.40	-109.40
7.500	0.12500	109.37	-109.37
8.000	0.13333	109.34	-109.34
8.500	0.14167	109.32	-109.32
9.000	0.15000	109.29	-109.29
9.500	0.15833	109.27	-109.27
10.000	0.16667	109.26	-109.26
12.000	0.20000	109.20	-109.20
14.000	0.23333	109.16	-109.16
16.000	0.26667	109.15	-109.15
18.000	0.30000	109.13	-109.13
20.000	0.33333	109.12	-109.12
22.000	0.36667	109.12	-109.12
24.000	0.40000	109.10	-109.10
26.000	0.43333	109.08	-109.08
28.000	0.46667	109.08	-109.08
30.000	0.50000	109.08	-109.08
32.000	0.53333	109.07	-109.07

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34.000	0.56667	109.07	-109.07
36.000	0.60000	109.07	-109.07
38.000	0.63333	109.05	-109.05
40.000	0.66667	109.05	-109.05
42.000	0.70000	109.05	-109.05
44.000	0.73333	109.04	-109.04
46.000	0.76667	109.04	-109.04
48.000	0.80000	109.04	-109.04
50.000	0.83333	109.04	-109.04
52.000	0.86667	109.02	-109.02
54.000	0.90000	109.02	-109.02
56.000	0.93333	109.02	-109.02
58.000	0.96667	109.01	-109.01
60.000	1.00000	109.01	-109.01
62.000	1.03333	109.01	-109.01
64.000	1.06667	109.01	-109.01
66.000	1.10000	108.99	-108.99
68.000	1.13333	108.99	-108.99
70.000	1.16667	108.99	-108.99
72.000	1.20000	108.99	-108.99
74.000	1.23333	108.97	-108.97
76.000	1.26667	108.97	-108.97
78.000	1.30000	108.97	-108.97
80.000	1.33333	108.97	-108.97
82.000	1.36667	108.96	-108.96
84.000	1.40000	108.96	-108.96
86.000	1.43333	108.96	-108.96
88.000	1.46667	108.96	-108.96
90.000	1.50000	108.96	-108.96
92.000	1.53333	108.94	-108.94
94.000	1.56667	108.94	-108.94
96.000	1.60000	108.94	-108.94
98.000	1.63333	108.94	-108.94
100.000	1.66667	108.94	-108.94
110.000	1.83333	108.93	-108.93
120.000	2.00000	108.91	-108.91
130.000	2.16667	108.89	-108.89
140.000	2.33333	108.89	-108.89
150.000	2.50000	108.88	-108.88
160.000	2.66667	108.86	-108.86
170.000	2.83333	108.86	-108.86
180.000	3.00000	108.85	-108.85

P. 10 of

190.000	3.16667	108.83	-108.83
200.000	3.33333	108.83	-108.83
210.000	3.50000	108.82	-108.82
220.000	3.66667	108.82	-108.82
230.000	3.83333	108.80	-108.80
240.000	4.00000	108.80	-108.80
250.000	4.16667	108.80	-108.80
260.000	4.33333	108.78	-108.78
270.000	4.50000	108.78	-108.78
280.000	4.66667	108.77	-108.77
290.000	4.83333	108.77	-108.77
300.000	5.00000	108.75	-108.75
310.000	5.16667	108.75	-108.75
320.000	5.33333	108.75	-108.75
330.000	5.50000	108.74	-108.74
340.000	5.66667	108.74	-108.74
350.000	5.83333	108.74	-108.74
360.000	6.00000	108.72	-108.72
370.000	6.16667	108.72	-108.72
380.000	6.33333	108.72	-108.72
390.000	6.50000	108.70	-108.70
400.000	6.66667	108.70	-108.70
410.000	6.83333	108.69	-108.69
420.000	7.00000	108.69	-108.69
430.000	7.16667	108.69	-108.69
440.000	7.33333	108.69	-108.69
450.000	7.50000	108.67	-108.67
460.000	7.66667	108.67	-108.67
470.000	7.83333	108.67	-108.67
480.000	8.00000	108.66	-108.66
490.000	8.16667	108.66	-108.66
500.000	8.33333	108.66	-108.66
510.000	8.50000	108.66	-108.66
520.000	8.66667	108.64	-108.64
530.000	8.83333	108.64	-108.64
540.000	9.00000	108.63	-108.63
550.000	9.16667	108.63	-108.63
560.000	9.33333	108.63	-108.63
570.000	9.50000	108.61	-108.61
580.000	9.66667	108.61	-108.61
590.000	9.83333	108.59	-108.59
600.000	10.00000	108.59	-108.59

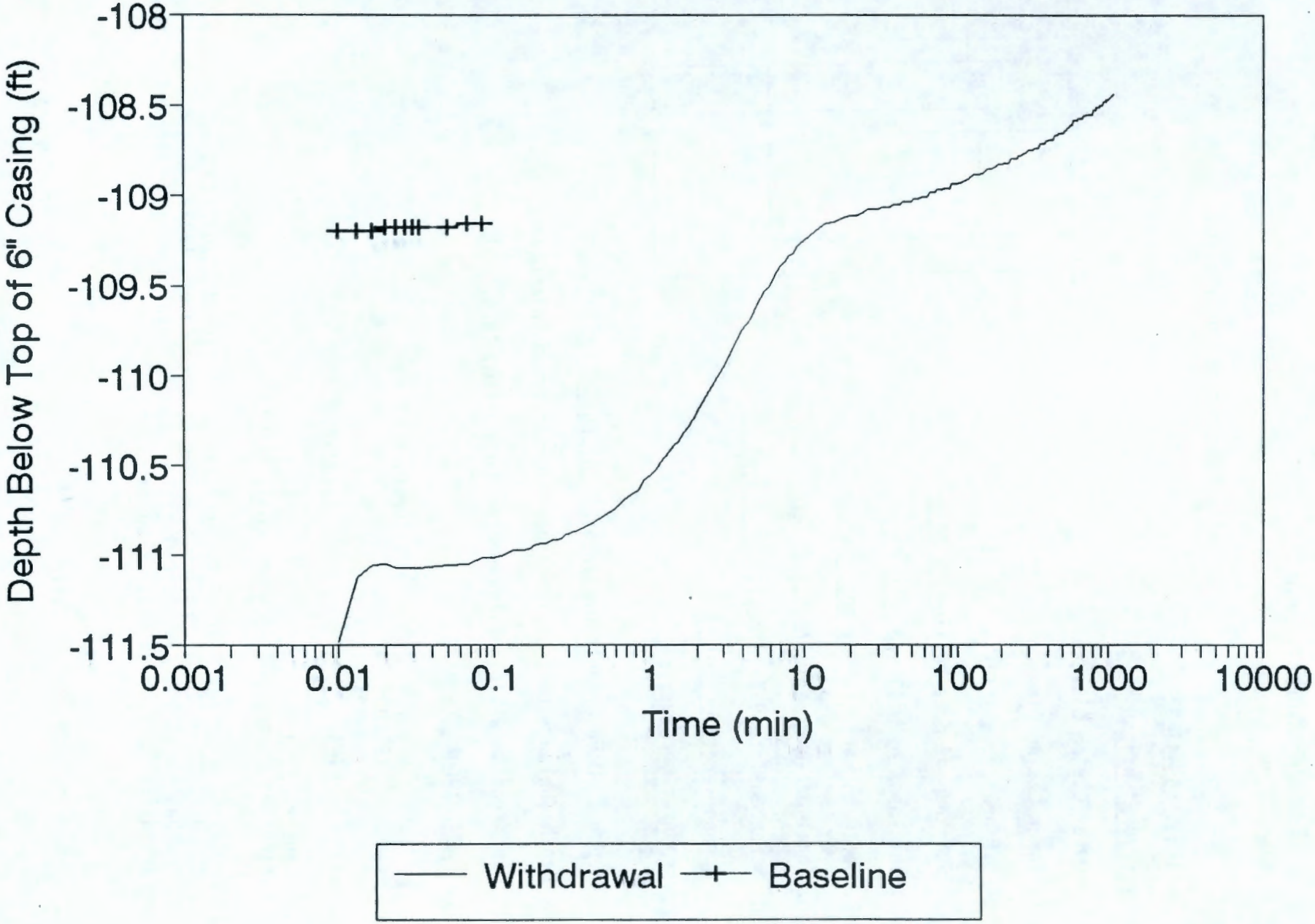
P. 11 of

699-41-35 Slug Withdrawal

610.000	10.16667	108.59	-108.59
620.000	10.33333	108.59	-108.59
630.000	10.50000	108.59	-108.59
640.000	10.66667	108.58	-108.58
650.000	10.83333	108.58	-108.58
660.000	11.00000	108.58	-108.58
670.000	11.16667	108.58	-108.58
680.000	11.33333	108.58	-108.58
690.000	11.50000	108.56	-108.56
700.000	11.66667	108.56	-108.56
710.000	11.83333	108.56	-108.56
720.000	12.00000	108.55	-108.55
730.000	12.16667	108.55	-108.55
740.000	12.33333	108.55	-108.55
750.000	12.50000	108.55	-108.55
760.000	12.66667	108.55	-108.55
770.000	12.83333	108.55	-108.55
780.000	13.00000	108.55	-108.55
790.000	13.16667	108.55	-108.55
800.000	13.33333	108.55	-108.55
810.000	13.50000	108.53	-108.53
820.000	13.66667	108.53	-108.53
830.000	13.83333	108.53	-108.53
840.000	14.00000	108.53	-108.53
850.000	14.16667	108.51	-108.51
860.000	14.33333	108.51	-108.51
870.000	14.50000	108.51	-108.51
880.000	14.66667	108.51	-108.51
890.000	14.83333	108.50	-108.50
900.000	15.00000	108.50	-108.50
910.000	15.16667	108.50	-108.50
920.000	15.33333	108.50	-108.50
930.000	15.50000	108.50	-108.50
940.000	15.66667	108.48	-108.48
950.000	15.83333	108.48	-108.48
960.000	16.00000	108.48	-108.48
970.000	16.16667	108.48	-108.48
980.000	16.33333	108.48	-108.48
990.000	16.50000	108.47	-108.47
1000.000	16.66667	108.47	-108.47
1100.000	18.33333	108.44	-108.44

p. 12

699-41-35 Slug Withdrawal
03-Nov-92



For Information Only

Well Development Information
Checklist

Well No. 699-41-35 Date: 11/02/92

WELL INFORMATION

A. Outer Casing Diameter 6"

B. Inner Casing Diameter 4"

C. Difference in stick-up 2.24'

D. Stick-up of outer casing 3.00'

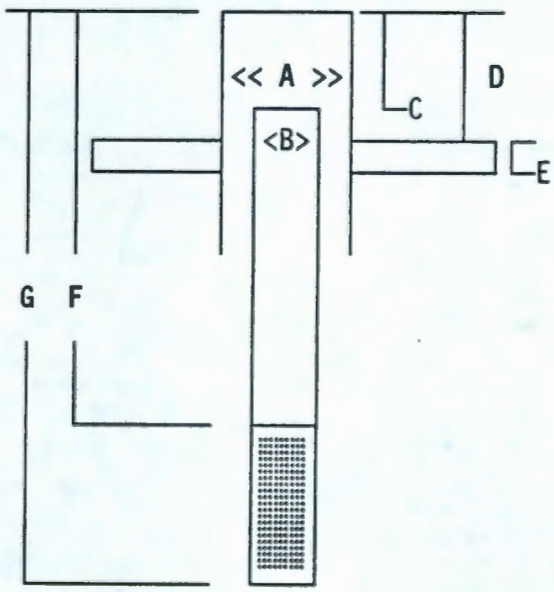
E. Thickness of well pad 0.5'

F. Depth to Water (BTOC) 108.97'

G. Total depth of Hole (BTOC) 203.81'

H. Screened Interval (BTOC) 193.81-203.81'

I. Screen length 10'



DEVELOPMENT INFORMATION

J. Depth of Development pump intake. 202.60' BTOC

K. Depth (below water) of Transducer during drawdown/recovery. 80.12'

L. Depth (below water) of Transducer during slug test. 80.12'

EQUIPMENT INFORMATION

	Serial #	Calibration date
Hermit	1KB-700	N/A
E-Tape	ET-4	1/8/93
Transducer	2110	2/21/93

Slugging Rod dimensions 6'x 2" (0.13 ft^3)

Comments: Development started on 11/02/92 and finished 11/03/92, pumping rate 12.65 on 11/02 and 13.82 on 11/03, well was surged on morning of 11/03. A final turbidity of 3.1 was reached at 1225(11/03); 5,090 gallons pumped total during development. Slug Test performed 11/03, slug in 1401, slug out 1436.

BTOC = Below Top Of Casing. BLS = Below Land Surface

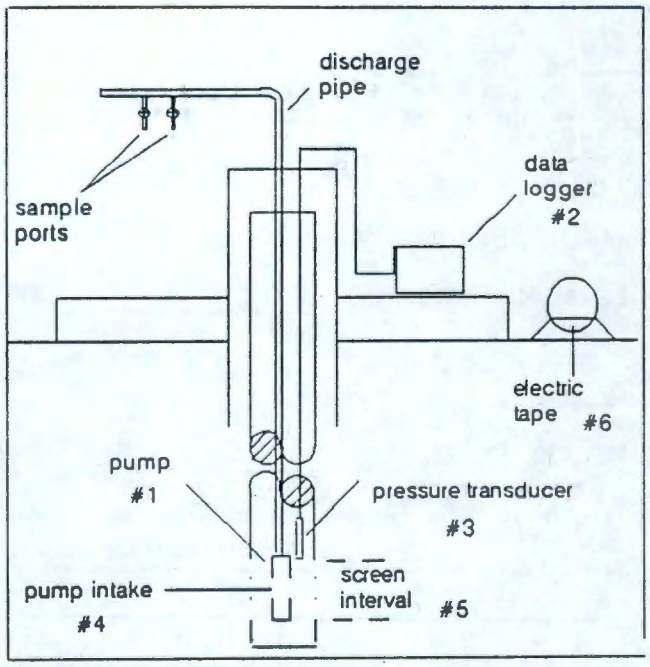
EQUIPMENT CONFIGURATION AND WELL HEAD DIAGRAM

WELL DESIGNATION 699-41-35 DEPTH 203.81' Btoc 6"

Equipment Configuration

Item	Description
#1	1.5 hp. Grundfos submersible
#2	Data Logger 1KB-700
#3	In-Situ Inc s/n 2110 (cal. 2-20-93)
#4	@202.60' Btoc 6"
#5	193.81-203.81' Btoc 6"
#6	Solinst s/n: ET-4 (cal. 1-08-93)

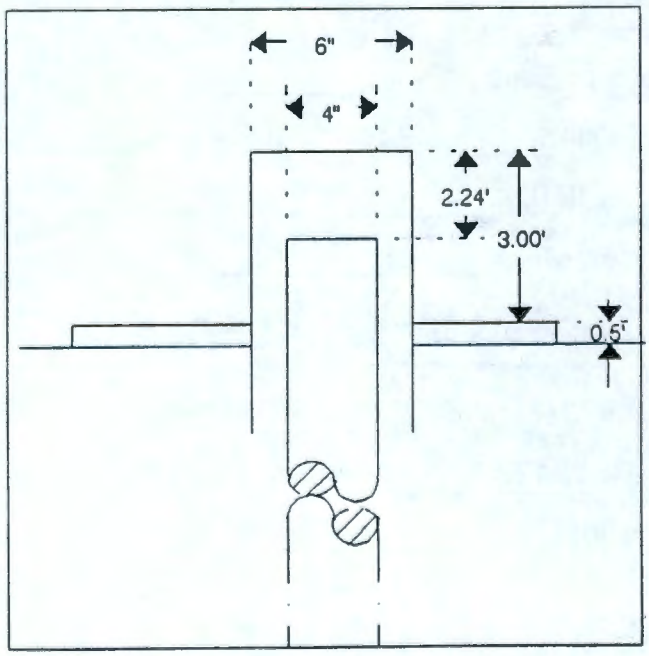
Diagram



Comments

Development started on 11/02/92. Completed 11/03. Slug Test performed 11/03.

Well Head Diagram



Signature of Recorder R. S Edrington Date 01-05-93

A-6000-417 (08/89)

P.2 of 14

WELL DEVELOPMENT FORM

Well Designation: 699-41-35 Well Depth: 203.81' BTOC

Screened Interval: 193.81-203.81' BTOC Date Well Devel. Performed: 11/02-11/03

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: 202.60BTOC Pump Start Time: 1039/11-02

Flow Rate: 12.65/13.82 Accumulated Flow: 5,090 gallons Pump Stop Time: 1230/11-03

Turbidity (NTU): 100+ 34 10 13 19 9.7 8.7 6.9 [3.1] --- --- ---

--- --- --- --- --- --- --- --- --- --- ---

COMMENTS: Development started on 11/02/92 and finished 11/03/92. Drawdown performed on 11/02

Recorded by: R S Edrington Date: 01-05-93

Sign and Print Name

A-6000-393 (03/90)

P.3 of 14

DRAWDOWN/RECOVERY

Well Designation: 699-41-35 Date: 11-02-92

Well Depth: 203.81'BTOC Screened Interval: 193.81-203.81'BTOC

Pumping Method: Constant Discharge

Equipment Used to Measure Water Level: E.Tape/Transducer S.N. ET-4/2110 Calibration Due: 1-8-93 /2-21-93

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

Measuring Point: Top of Casing (6") Pump Start Time: 1039 Pump Stop Time: 1429

Time		Water Level		Discharge
Date	Time	Reading Units:	Water Level Units:	Reading Bucket Method
11-02-92	1039			5gal./23.72 sec= 12.65gpm
		See Attached Data	See Attached Data	

Recorded by: Robert S. Edrington Date: 01-05-93

Sign and Print Name

BD-6000-402(03/90)

P. 4 of 14

699-41-35 Drawdown

Hermit Environment Data Logger Unit# 700
Water Level (ft) below top of casing (BTOC)

Test# 1
Type: Drawdown
SWL: 108.97'
Scale Factor: 50.15

Baseline Begun: 09:30 11/02/92
Pump Started: 10:39 11/02/92

Time:min	Time:hrs	D-T-W:Ft	d(BTOC)
0.000	0.00000	109.04	-109.04
0.003	0.00006	109.25	-109.25
0.007	0.00011	109.11	-109.11
0.010	0.00017	109.16	-109.16
0.013	0.00022	109.30	-109.30
0.017	0.00028	109.39	-109.39
0.020	0.00033	109.54	-109.54
0.023	0.00039	109.58	-109.58
0.027	0.00044	109.68	-109.68
0.030	0.00050	109.74	-109.74
0.033	0.00056	109.80	-109.80
0.050	0.00083	110.11	-110.11
0.067	0.00111	110.47	-110.47
0.083	0.00139	110.77	-110.77
0.100	0.00167	111.10	-111.10
0.117	0.00194	111.48	-111.48
0.133	0.00222	111.78	-111.78
0.150	0.00250	112.10	-112.10
0.167	0.00278	112.45	-112.45
0.183	0.00306	112.77	-112.77
0.200	0.00333	113.03	-113.03
0.217	0.00361	113.41	-113.41
0.233	0.00389	113.72	-113.72
0.250	0.00417	114.06	-114.06
0.267	0.00444	114.36	-114.36
0.283	0.00472	114.67	-114.67
0.300	0.00500	115.00	-115.00
0.317	0.00528	115.27	-115.27
0.333	0.00556	115.57	-115.57
0.417	0.00695	116.99	-116.99
0.500	0.00833	118.35	-118.35
0.583	0.00972	119.62	-119.62
0.667	0.01111	120.90	-120.90
0.750	0.01250	122.12	-122.12

Time:min	Time:hrs	D-T-W:Ft	d(BTOC)
0.00	0.00	109.00	-109.00
1.00	0.02	108.99	-108.99
2.00	0.03	108.99	-108.99
3.00	0.05	108.99	-108.99
4.00	0.07	108.99	-108.99
5.00	0.08	108.99	-108.99
6.00	0.10	108.99	-108.99
7.00	0.12	108.99	-108.99
8.00	0.13	108.99	-108.99
9.00	0.15	108.97	-108.97
10.00	0.17	108.99	-108.99
11.00	0.18	108.97	-108.97
12.00	0.20	108.97	-108.97
13.00	0.22	108.99	-108.99
14.00	0.23	108.99	-108.99
15.00	0.25	108.97	-108.97
16.00	0.27	108.97	-108.97
17.00	0.28	108.97	-108.97
18.00	0.30	108.97	-108.97
19.00	0.32	108.97	-108.97
20.00	0.33	108.97	-108.97
21.00	0.35	108.97	-108.97
22.00	0.37	108.97	-108.97
23.00	0.38	108.97	-108.97
24.00	0.40	108.97	-108.97
25.00	0.42	108.97	-108.97
26.00	0.43	108.97	-108.97
27.00	0.45	108.97	-108.97
28.00	0.47	108.97	-108.97
29.00	0.48	108.99	-108.99
30.00	0.50	108.97	-108.97
31.00	0.52	108.97	-108.97
32.00	0.53	108.97	-108.97
33.00	0.55	108.97	-108.97

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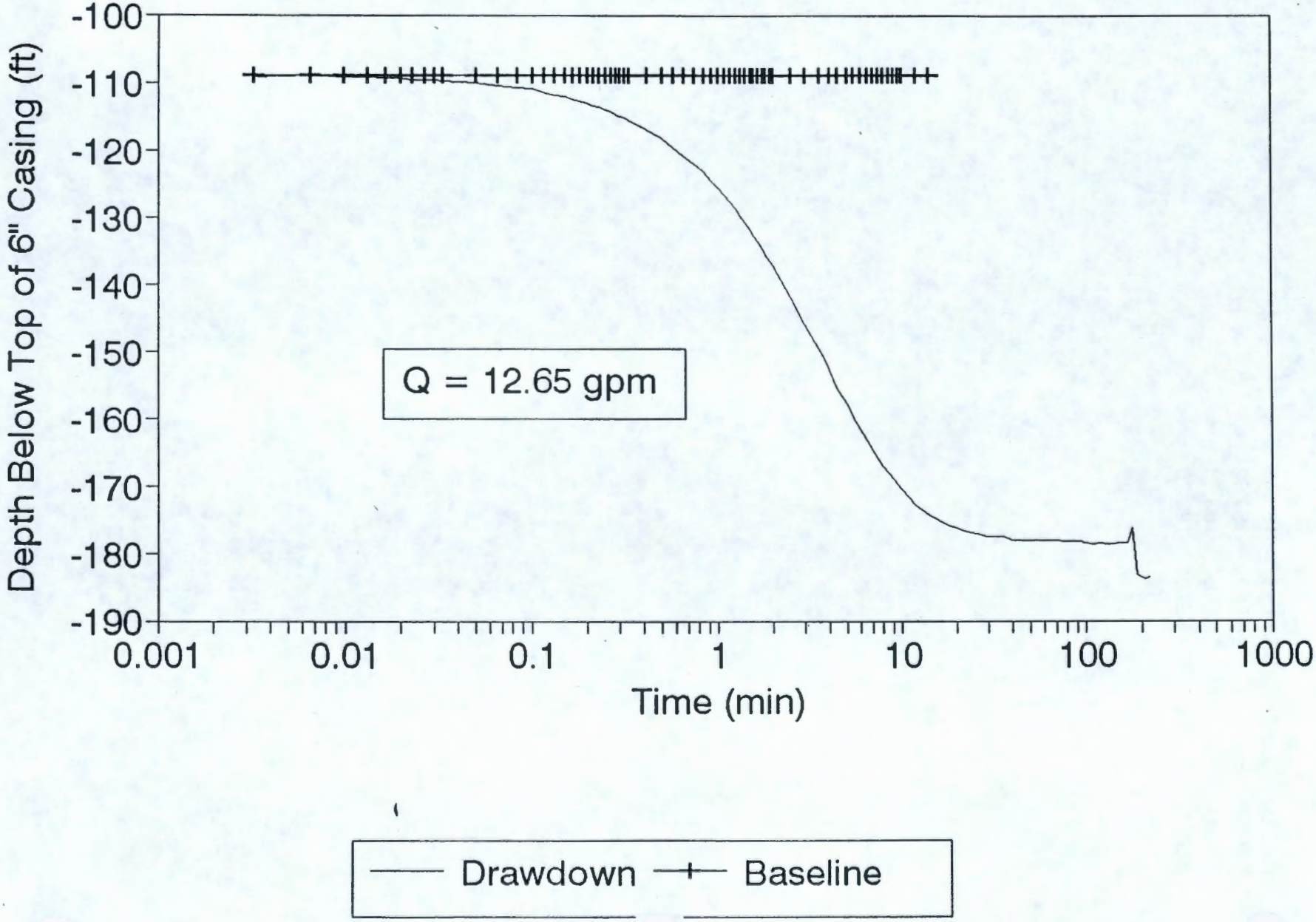
699-41-35 Drawdown

0.833	0.01389	123.31	-123.31
0.917	0.01528	124.50	-124.50
1.000	0.01667	125.62	-125.62
1.083	0.01806	126.70	-126.70
1.167	0.01945	127.74	-127.74
1.250	0.02083	128.82	-128.82
1.333	0.02222	129.87	-129.87
1.417	0.02361	130.85	-130.85
1.500	0.02500	131.86	-131.86
1.583	0.02639	132.76	-132.76
1.667	0.02778	133.76	-133.76
1.750	0.02917	134.68	-134.68
1.833	0.03056	135.57	-135.57
1.917	0.03195	136.45	-136.45
2.000	0.03333	137.29	-137.29
2.500	0.04167	141.99	-141.99
3.000	0.05000	146.13	-146.13
3.500	0.05833	149.67	-149.67
4.000	0.06667	152.81	-152.81
4.500	0.07500	155.56	-155.56
5.000	0.08333	157.91	-157.91
5.500	0.09167	159.97	-159.97
6.000	0.10000	161.76	-161.76
6.500	0.10833	163.39	-163.39
7.000	0.11667	164.78	-164.78
7.500	0.12500	166.02	-166.02
8.000	0.13333	167.16	-167.16
8.500	0.14167	168.17	-168.17
9.000	0.15000	169.09	-169.09
9.500	0.15833	169.91	-169.91
10.000	0.16667	170.62	-170.62
12.000	0.20000	172.97	-172.97
14.000	0.23333	174.41	-174.41
16.000	0.26667	175.21	-175.21
18.000	0.30000	175.83	-175.83
20.000	0.33333	176.40	-176.40
22.000	0.36667	176.73	-176.73
24.000	0.40000	177.00	-177.00
26.000	0.43333	177.29	-177.29
28.000	0.46667	177.48	-177.48
30.000	0.50000	177.61	-177.61
32.000	0.53333	177.65	-177.65
34.00	0.57	108.97	-108.97
35.00	0.58	108.97	-108.97
36.00	0.60	108.97	-108.97
37.00	0.62	108.97	-108.97
38.00	0.63	108.97	-108.97
39.00	0.65	108.97	-108.97
40.00	0.67	108.97	-108.97
41.00	0.68	108.97	-108.97
42.00	0.70	108.97	-108.97
43.00	0.72	108.97	-108.97
44.00	0.73	108.97	-108.97
45.00	0.75	108.97	-108.97
46.00	0.77	108.97	-108.97
47.00	0.78	108.97	-108.97
48.00	0.80	108.97	-108.97
49.00	0.82	108.97	-108.97
50.00	0.83	108.97	-108.97
51.00	0.85	108.97	-108.97
52.00	0.87	108.99	-108.99
53.00	0.88	108.99	-108.99
54.00	0.90	108.99	-108.99
55.00	0.92	108.99	-108.99
56.00	0.93	108.97	-108.97
57.00	0.95	108.97	-108.97
58.00	0.97	108.97	-108.97
59.00	0.98	108.97	-108.97
60.00	1.00	108.97	-108.97
61.00	1.02	108.97	-108.97
62.00	1.03	108.97	-108.97
63.00	1.05	108.97	-108.97
64.00	1.07	108.95	-108.95
65.00	1.08	108.97	-108.97

699-41-35 Drawdown

190.000	3.16667	183.43	-183.43
200.000	3.33333	183.62	-183.62
210.000	3.50000	183.86	-183.86
220.000	3.66667	183.70	-183.70

699-41-35 Drawdown
02-Nov-92



P.9 of 14

699-41-35 Recovery

Hermit Environment Data Logger Unit# 700
Water Level (ft) below top of casing (BTOC)

Test# 2
Type: Recovery
SWL: 108.97'
Scale: 50.15

Pump Shut off: 14:29 11/02/92

Time:min	Time:hrs	D-T-W:Ft	d(BTOC)
0.000	0.00000	182.86	-182.86
0.003	0.00006	183.27	-183.27
0.007	0.00011	183.23	-183.23
0.010	0.00017	183.12	-183.12
0.013	0.00022	183.02	-183.02
0.017	0.00028	182.94	-182.94
0.020	0.00033	182.83	-182.83
0.023	0.00039	182.74	-182.74
0.027	0.00044	182.64	-182.64
0.030	0.00050	182.55	-182.55
0.033	0.00056	182.44	-182.44
0.050	0.00083	181.99	-181.99
0.067	0.00111	181.53	-181.53
0.083	0.00139	181.09	-181.09
0.100	0.00167	180.63	-180.63
0.117	0.00194	180.19	-180.19
0.133	0.00222	179.74	-179.74
0.150	0.00250	179.30	-179.30
0.167	0.00278	178.86	-178.86
0.183	0.00306	178.43	-178.43
0.200	0.00333	178.00	-178.00
0.217	0.00361	177.57	-177.57
0.233	0.00389	177.16	-177.16
0.250	0.00417	176.73	-176.73
0.267	0.00444	176.32	-176.32
0.283	0.00472	175.91	-175.91
0.300	0.00500	175.52	-175.52
0.317	0.00528	175.10	-175.10
0.333	0.00556	174.71	-174.71
0.417	0.00695	172.70	-172.70
0.500	0.00833	170.83	-170.83
0.583	0.00972	169.06	-169.06
0.667	0.01111	167.35	-167.35
0.750	0.01250	165.71	-165.71

699-41-35 Recovery

0.833	0.01389	164.15	-164.15
0.917	0.01528	162.67	-162.67
1.000	0.01667	161.28	-161.28
1.083	0.01806	159.95	-159.95
1.167	0.01945	158.70	-158.70
1.250	0.02083	157.51	-157.51
1.333	0.02222	156.40	-156.40
1.417	0.02361	155.37	-155.37
1.500	0.02500	154.42	-154.42
1.583	0.02639	153.49	-153.49
1.667	0.02778	152.65	-152.65
1.750	0.02917	151.83	-151.83
1.833	0.03056	151.02	-151.02
1.917	0.03195	150.23	-150.23
2.000	0.03333	149.47	-149.47
2.500	0.04167	145.13	-145.13
3.000	0.05000	141.28	-141.28
3.500	0.05833	137.86	-137.86
4.000	0.06667	134.82	-134.82
4.500	0.07500	132.08	-132.08
5.000	0.08333	129.72	-129.72
5.500	0.09167	127.62	-127.62
6.000	0.10000	125.75	-125.75
6.500	0.10833	124.10	-124.10
7.000	0.11667	122.63	-122.63
7.500	0.12500	121.33	-121.33
8.000	0.13333	120.19	-120.19
8.500	0.14167	119.18	-119.18
9.000	0.15000	118.28	-118.28
9.500	0.15833	117.48	-117.48
10.000	0.16667	116.77	-116.77
12.000	0.20000	114.59	-114.59
14.000	0.23333	113.26	-113.26
16.000	0.26667	112.45	-112.45
18.000	0.30000	111.91	-111.91
20.000	0.33333	111.55	-111.55
22.000	0.36667	111.29	-111.29
24.000	0.40000	111.10	-111.10
26.000	0.43333	110.98	-110.98
28.000	0.46667	110.85	-110.85
30.000	0.50000	110.75	-110.75
32.000	0.53333	110.68	-110.68

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699-41-35 Recovery

34.000	0.56667	110.61	-110.61
36.000	0.60000	110.55	-110.55
38.000	0.63333	110.49	-110.49
40.000	0.66667	110.44	-110.44
42.000	0.70000	110.39	-110.39
44.000	0.73333	110.36	-110.36
46.000	0.76667	110.31	-110.31
48.000	0.80000	110.28	-110.28
50.000	0.83333	110.25	-110.25
52.000	0.86667	110.20	-110.20
54.000	0.90000	110.17	-110.17
56.000	0.93333	110.15	-110.15
58.000	0.96667	110.12	-110.12
60.000	1.00000	110.09	-110.09
62.000	1.03333	110.07	-110.07
64.000	1.06667	110.04	-110.04
66.000	1.10000	110.03	-110.03
68.000	1.13333	109.99	-109.99
70.000	1.16667	109.98	-109.98
72.000	1.20000	109.96	-109.96
74.000	1.23333	109.93	-109.93
76.000	1.26667	109.92	-109.92
78.000	1.30000	109.90	-109.90
80.000	1.33333	109.88	-109.88
82.000	1.36667	109.87	-109.87
84.000	1.40000	109.85	-109.85
86.000	1.43333	109.84	-109.84
88.000	1.46667	109.82	-109.82
90.000	1.50000	109.80	-109.80
92.000	1.53333	109.80	-109.80
94.000	1.56667	109.79	-109.79
96.000	1.60000	109.77	-109.77
98.000	1.63333	109.76	-109.76
100.000	1.66667	109.74	-109.74
110.000	1.83333	109.69	-109.69
120.000	2.00000	109.65	-109.65
130.000	2.16667	109.60	-109.60
140.000	2.33333	109.57	-109.57
150.000	2.50000	109.54	-109.54
160.000	2.66667	109.50	-109.50
170.000	2.83333	109.49	-109.49
180.000	3.00000	109.46	-109.46

P.12 of 14

699-41-35 Recovery

190.000	3.16667	109.44	-109.44
200.000	3.33333	109.42	-109.42
210.000	3.50000	109.39	-109.39
220.000	3.66667	109.38	-109.38
230.000	3.83333	109.36	-109.36
240.000	4.00000	109.36	-109.36
250.000	4.16667	109.35	-109.35
260.000	4.33333	109.33	-109.33
270.000	4.50000	109.31	-109.31
280.000	4.66667	109.31	-109.31
290.000	4.83333	109.30	-109.30
300.000	5.00000	109.30	-109.30
310.000	5.16667	109.28	-109.28
320.000	5.33333	109.27	-109.27
330.000	5.50000	109.27	-109.27
340.000	5.66667	109.27	-109.27
350.000	5.83333	109.25	-109.25
360.000	6.00000	109.25	-109.25
370.000	6.16667	109.23	-109.23
380.000	6.33333	109.23	-109.23
390.000	6.50000	109.23	-109.23
400.000	6.66667	109.22	-109.22
410.000	6.83333	109.22	-109.22
420.000	7.00000	109.22	-109.22
430.000	7.16667	109.22	-109.22
440.000	7.33333	109.22	-109.22
450.000	7.50000	109.20	-109.20
460.000	7.66667	109.20	-109.20
470.000	7.83333	109.20	-109.20
480.000	8.00000	109.20	-109.20
490.000	8.16667	109.19	-109.19
500.000	8.33333	109.19	-109.19
510.000	8.50000	109.19	-109.19
520.000	8.66667	109.19	-109.19
530.000	8.83333	109.19	-109.19
540.000	9.00000	109.19	-109.19
550.000	9.16667	109.19	-109.19
560.000	9.33333	109.19	-109.19
570.000	9.50000	109.17	-109.17
580.000	9.66667	109.19	-109.19
590.000	9.83333	109.17	-109.17
600.000	10.00000	109.17	-109.17

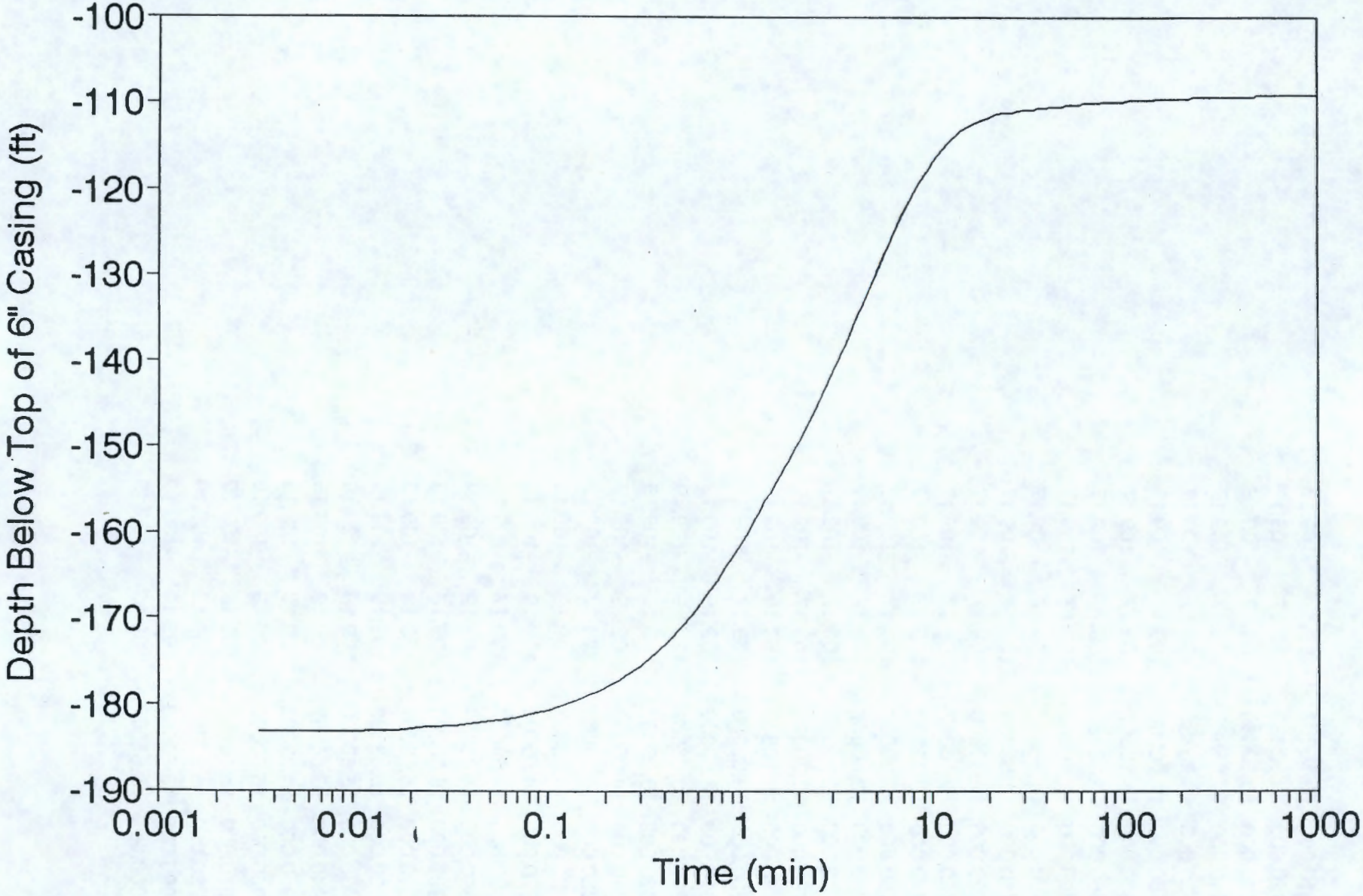
P. B of 14

699-41-35 Recovery

610.000	10.16667	109.17	-109.17
620.000	10.33333	109.17	-109.17
630.000	10.50000	109.17	-109.17
640.000	10.66667	109.17	-109.17
650.000	10.83333	109.17	-109.17
660.000	11.00000	109.17	-109.17
670.000	11.16667	109.17	-109.17
680.000	11.33333	109.17	-109.17
690.000	11.50000	109.17	-109.17
700.000	11.66667	109.17	-109.17
710.000	11.83333	109.17	-109.17
720.000	12.00000	109.17	-109.17
730.000	12.16667	109.17	-109.17
740.000	12.33333	109.17	-109.17
750.000	12.50000	109.17	-109.17
760.000	12.66667	109.17	-109.17
770.000	12.83333	109.17	-109.17
780.000	13.00000	109.17	-109.17
790.000	13.16667	109.19	-109.19
800.000	13.33333	109.17	-109.17
810.000	13.50000	109.19	-109.19
820.000	13.66667	109.19	-109.19
830.000	13.83333	109.19	-109.19
840.000	14.00000	109.19	-109.19
850.000	14.16667	109.17	-109.17
860.000	14.33333	109.19	-109.19
870.000	14.50000	109.19	-109.19
880.000	14.66667	109.17	-109.17
890.000	14.83333	109.19	-109.19
900.000	15.00000	109.19	-109.19
910.000	15.16667	109.19	-109.19
920.000	15.33333	109.19	-109.19
930.000	15.50000	109.19	-109.19
940.000	15.66667	109.19	-109.19
950.000	15.83333	109.19	-109.19
960.000	16.00000	109.19	-109.19
970.000	16.16667	109.19	-109.19
980.000	16.33333	109.19	-109.19
990.000	16.50000	109.19	-109.19
1000.000	16.66667	109.19	-109.19

699-41-35 Recovery

02-Nov-92



BOREHOLE TEST INFORMATION

Borehole 699-41-35 Borehole Diameter 4 in. Hanford Coordinates N/A

Interval Tested 193.85-203.85' Depth Interval 160 - 203.85' Test Type: Instantaneous Slug

Borehole Depth: 203.85' Instruction Used: WHC-CM-7-7 (EII 10.1)

EQUIPMENT

NAME	DESCRIPTION
Electric Sounder	Solinst s/n: ET-1 Calibration due: 7-21-93
Data Logger	In-Situ Inc. s/n: 2K-459
Pressure Transducer	In-Situ Inc. s/n: 2044DE Calibration due: 3-11-94
Slugging Rod	BR-1: 0.388 BR-2: 0.194 Cu. Ft
Steel Measuring Tape	300' Graduated Steel Tape

MEASUREMENT DATUM

Control Datum: Top of Casing (TOC) 6"

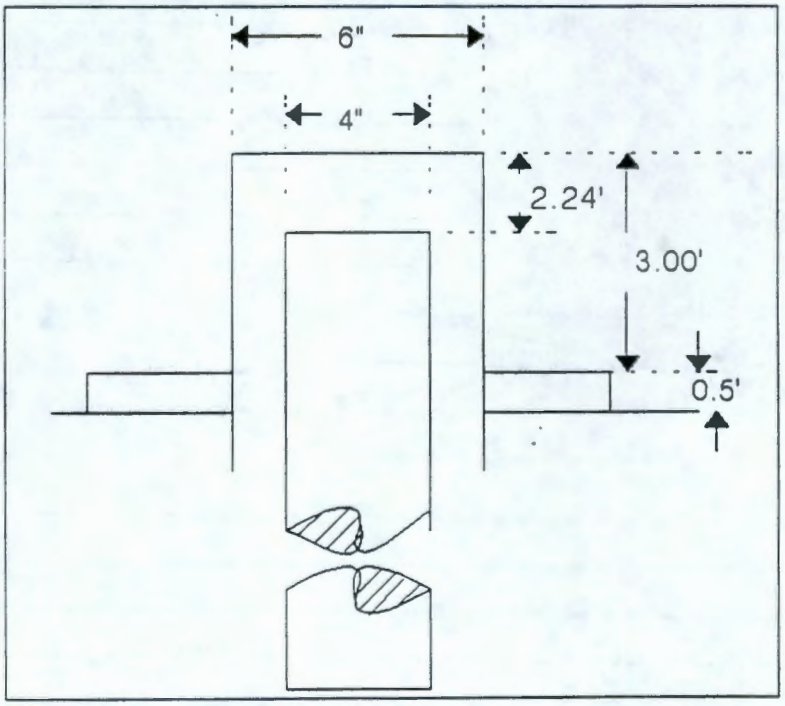
Elevation: N/A

Electric Sounder: TOC 6"

Steel Tape: TOC 6"

Pressure Transducer: TOC 6"

WELL HEAD DIAGRAM



COMMENTS

Two Slug Tests performed on this well, first with slug BR-2, then with BR-1.

Recorded by: Robert S. Edrington R S. Edrington Date: 03/31/93

Sign and Print Name

EQUIPMENT DECONTAMINATION

Sheet 1 of 1

Project: W049 Drilling Company: K.E.H.

Decontamination Area: Drill Yard Pad #1 Borehole:

Origin: Destination: W049

The following equipment has been decontaminated following WHC-CM-7-7 EII 5.4 Rev. 4

List types of detergent: ☒ Non-phosphate ☐ Other

Rigs			General Equipment		
Rig Type	ID No.	Date of Decontamination		ID No.	Date of Decontamination
☐ Cable Tool			☐ Waste Drums		
☐ Auger			☐ Sampler Vise		
☐ Sonic			☐ Decon Truck		
☐ Other			☐ Log Truck		

Downhole Equipment

			Size	Length	Date of Decontamination
☐ Rope Sockets		Ea.			
☐ Stem		Ea.			
☐ Jars		Ea.			
☐ Drive Barrels		Ea.			
☐ Split Tube Samplers		Ea.			
☐ Casing		Ea.			
☐ Casing Shoes		Ea.			
☐ Auger Flights		Ea.			
☑ Core Barrel		Ea.			
☑ ~~Rods~~ Slug Rods (JC 3-10-93)	1	Ea.	3 1/2	6'	3-10-93
☐ Stainless Steel Bowls		Ea.			
☐ Stainless Steel Spoons		Ea.			
☐ Hand Tools		Ea.			
☑ Slug Rods	1	Ea.	2 3/8	6'	3-10-93

Remarks:

Jody L. Carpenter
Person Conducting Decontamination

Field Team Leader/AI

Jody L. Carpenter Jody L. Carpenter 3-10-93
Print/Sign Name Date

Print/Sign Name Date/Time

DISTRIBUTION: White - Field File Custodian Yellow - Group Files Pink - Field Team Leader

BC-6000-292 (08/9

INSTANTANEOUS SLUG TEST DATA SHEET: INJECTION

Borehole: 699-41-35

Interval Tested: 193.85 -203.85' Btoc 6"

Depth To Water: 108.22' Btoc 6"

Depth to Transducer: 6.974' BWL

Measured by: Robert S. Edrington

Slug Volume: BR-2 0.194 Cu Ft

Barometric Reading:

See Barometric Pressure Data.

Time:	Start	End
Baseline	0955	1015
Injection	~~1000~~ 1019 RSE 4/2/93	1040

Date: 03-22-93

Initial Pressure (Pi): 108.22'

Slug Level/Pressure (Pmax) 108.22

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: Robert S. Edrington (signature) Robert S. Edrington Date: 03-31-93

Sign and Print Name

BD-6000-293(07/90)

Pg 2 of 6

WELL NO.: 699-41-35

TEST TYPE: BASELINE (INJECTION)

Q(gpm)= NA

SLUG VO. (cu. ft.)=NA

DATA LOGGER:

S/N: SE2000

Unit No. 4 9

Test 0

INPUT 1:

TRANSDUCER:

Reference: 108.220

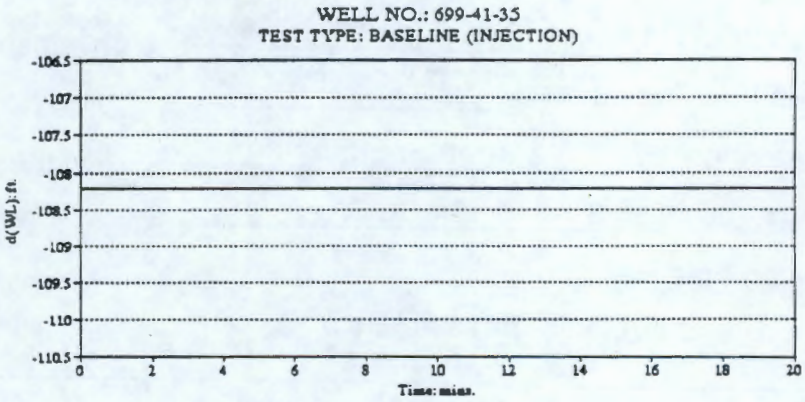
Specific G.: 1.000

Linearity: 0.003

Scale Factor: 10.009

Offset:-0.033

Delay (mSec.): 50.000



START DATE: 3/22/93 END DAT 03/22/93

START TIME: 09:56:16 END TIM 10:16:16

Time:min.	Time:hrs.	Depth to Water	d(WL):ft.
0.00	0.000	108.210	-108.210
1.00	0.017	108.210	-108.210
2.00	0.033	108.210	-108.210
3.00	0.050	108.210	-108.210
4.00	0.067	108.210	-108.210
5.00	0.083	108.210	-108.210
6.00	0.100	108.210	-108.210
7.00	0.117	108.210	-108.210
8.00	0.133	108.210	-108.210
9.00	0.150	108.210	-108.210
10.00	0.167	108.210	-108.210
11.00	0.183	108.207	-108.207
12.00	0.200	108.210	-108.210
13.00	0.217	108.207	-108.207
14.00	0.233	108.207	-108.207
15.00	0.250	108.207	-108.207
16.00	0.267	108.207	-108.207
17.00	0.283	108.207	-108.207
18.00	0.300	108.207	-108.207
19.00	0.317	108.207	-108.207
20.00	0.333	108.210	-108.210

Pg 3-46

WELL NO.: 699-41-35

TEST TYPE: SLUG INJECTION

Q(gpm)= NA

SLUG VO. (cu. ft.)=0.19

DATA LOGGER:

S/N: SE2000

Unit No. 4 9

Test 1

INPUT 1:

TRANSDUCER:

Reference: 108.220

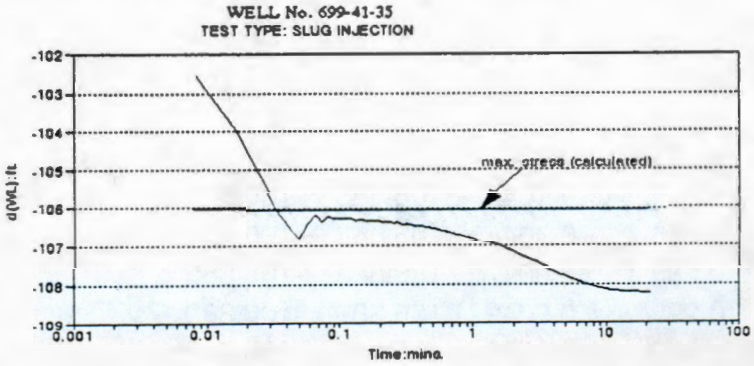
Specific G.: 1.000

Linearity: 0.003

Scale Factor: 10.009

Offset:-0.033

Delay (mSec.): 50.000



START DATE: 3/22/93 END DAT 03/22/93

START TIME: 10:19:54 END TIM 10:40:54

Time:min.	Time:hrs.	Depth to Water	d(WL):ft.
0.000	0.0000	107.786	-107.786
0.008	0.0001	102.541	-102.541
0.017	0.0003	103.967	-103.967
0.025	0.0004	105.102	-105.102
0.033	0.0006	106.022	-106.022
0.042	0.0007	106.418	-106.418
0.050	0.0008	106.765	-106.765
0.058	0.0010	106.389	-106.389
0.067	0.0011	106.161	-106.161
0.075	0.0013	106.351	-106.351
0.083	0.0014	106.190	-106.190
0.092	0.0015	106.256	-106.256
0.100	0.0017	106.240	-106.240
0.108	0.0018	106.266	-106.266
0.117	0.0019	106.266	-106.266
0.125	0.0021	106.269	-106.269
0.133	0.0022	106.310	-106.310
0.142	0.0024	106.301	-106.301
0.150	0.0025	106.282	-106.282
0.158	0.0026	106.307	-106.307
0.167	0.0028	106.320	-106.320
0.175	0.0029	106.320	-106.320

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0.183	0.0031	106.316	-106.316
0.192	0.0032	106.323	-106.323
0.200	0.0033	106.329	-106.329
0.208	0.0035	106.335	-106.335
0.217	0.0036	106.348	-106.348
0.225	0.0038	106.354	-106.354
0.233	0.0039	106.354	-106.354
0.242	0.0040	106.364	-106.364
0.250	0.0042	106.370	-106.370
0.258	0.0043	106.383	-106.383
0.267	0.0044	106.383	-106.383
0.275	0.0046	106.364	-106.364
0.283	0.0047	106.383	-106.383
0.292	0.0049	106.389	-106.389
0.300	0.0050	106.408	-106.408
0.308	0.0051	106.418	-106.418
0.317	0.0053	106.427	-106.427
0.325	0.0054	106.399	-106.399
0.333	0.0056	106.408	-106.408
0.350	0.0058	106.424	-106.424
0.367	0.0061	106.436	-106.436
0.383	0.0064	106.443	-106.443
0.400	0.0067	106.455	-106.455
0.417	0.0069	106.462	-106.462
0.433	0.0072	106.471	-106.471
0.450	0.0075	106.484	-106.484
0.467	0.0078	106.493	-106.493
0.483	0.0081	106.500	-106.500
0.500	0.0083	106.509	-106.509
0.517	0.0086	106.519	-106.519
0.533	0.0089	106.528	-106.528
0.550	0.0092	106.538	-106.538
0.567	0.0094	106.547	-106.547
0.583	0.0097	106.557	-106.557
0.600	0.0100	106.569	-106.569
0.617	0.0103	106.576	-106.576
0.633	0.0106	106.588	-106.588
0.650	0.0108	106.601	-106.601
0.667	0.0111	106.610	-106.610
0.683	0.0114	106.623	-106.623
0.700	0.0117	106.636	-106.636
0.717	0.0119	106.645	-106.645
0.733	0.0122	106.655	-106.655
0.750	0.0125	106.661	-106.661
0.767	0.0128	106.670	-106.670

Pg 5 of 6

0.783	0.0131	106.680	-106.680
0.800	0.0133	106.686	-106.686
0.817	0.0136	106.696	-106.696
0.833	0.0139	106.702	-106.702
0.850	0.0142	106.712	-106.712
0.867	0.0144	106.718	-106.718
0.883	0.0147	106.724	-106.724
0.900	0.0150	106.734	-106.734
0.917	0.0153	106.740	-106.740
0.933	0.0156	106.749	-106.749
0.950	0.0158	106.756	-106.756
0.967	0.0161	106.762	-106.762
0.983	0.0164	106.772	-106.772
1.000	0.017	106.778	-106.778
1.200	0.020	106.870	-106.870
1.400	0.023	106.949	-106.949
1.600	0.027	107.025	-107.025
1.800	0.030	107.097	-107.097
2.000	0.033	107.164	-107.164
2.200	0.037	107.233	-107.233
2.400	0.040	107.290	-107.290
2.600	0.043	107.347	-107.347
2.800	0.047	107.398	-107.398
3.000	0.050	107.448	-107.448
3.200	0.053	107.496	-107.496
3.400	0.057	107.540	-107.540
3.600	0.060	107.581	-107.581
3.800	0.063	107.616	-107.616
4.000	0.067	107.650	-107.650
4.200	0.070	107.682	-107.682
4.400	0.073	107.717	-107.717
4.600	0.077	107.742	-107.742
4.800	0.080	107.767	-107.767
5.000	0.083	107.793	-107.793
5.200	0.087	107.818	-107.818
5.400	0.090	107.840	-107.840
5.600	0.093	107.862	-107.862
5.800	0.097	107.881	-107.881
6.000	0.100	107.900	-107.900
6.200	0.103	107.919	-107.919
6.400	0.107	107.935	-107.935
6.600	0.110	107.951	-107.951
6.800	0.113	107.967	-107.967
7.000	0.117	107.979	-107.979
7.200	0.120	107.995	-107.995

Pg 6-96

7.400	0.123	108.005	-108.005
7.600	0.127	108.017	-108.017
7.800	0.130	108.030	-108.030
8.000	0.133	108.039	-108.039
8.200	0.137	108.049	-108.049
8.400	0.140	108.061	-108.061
8.600	0.143	108.068	-108.068
8.800	0.147	108.077	-108.077
9.000	0.150	108.084	-108.084
9.200	0.153	108.093	-108.093
9.400	0.157	108.099	-108.099
9.600	0.160	108.106	-108.106
9.800	0.163	108.112	-108.112
10.000	0.167	108.118	-108.118
11.000	0.183	108.144	-108.144
12.000	0.200	108.159	-108.159
13.000	0.217	108.175	-108.175
14.000	0.233	108.185	-108.185
15.000	0.250	108.194	-108.194
16.000	0.267	108.201	-108.201
17.000	0.283	108.204	-108.204
18.000	0.300	108.207	-108.207
19.000	0.317	108.210	-108.210
20.000	0.333	108.213	-108.213
21.000	0.350	108.213	-108.213

INSTANTANEOUS SLUG TEST DATA SHEET :WITHDRAWAL

Borehole: 699-41-35

Interval Tested: 193.85 -203.85' Btoc 6"

Depth To Water: 108.22' Btoc 6"

Depth to Transducer: 6.974' BWL

Measured by: Robert S. Edrington

Slug Volume: BR-2 0.194 Cu Ft

Barometric Reading:

See Barometric Pressure Data.

Time:	Start	End
Baseline	0955	1015
Withdrawal	1042	1105

Date: 03-22-93

Initial Pressure (Pi): 108.22'

Slug Level/Pressure (Pmax) 110.445

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: Robert S. Edrington Robert S. Edrington Date: 03-31-93

Sign and Print Name

BD-6000-293(07/90)

Pg 275

WELL NO.: 699-41-35

TEST TYPE: SLUG WITHDRAWAL #1

Q(gpm)= NA

SLUG VO. (cu. ft.)=0.19

DATA LOGGER:

S/N: SE2000

Unit No. 4 9

Test 2

INPUT 1:

TRANSDUCER:

Reference: 108.220

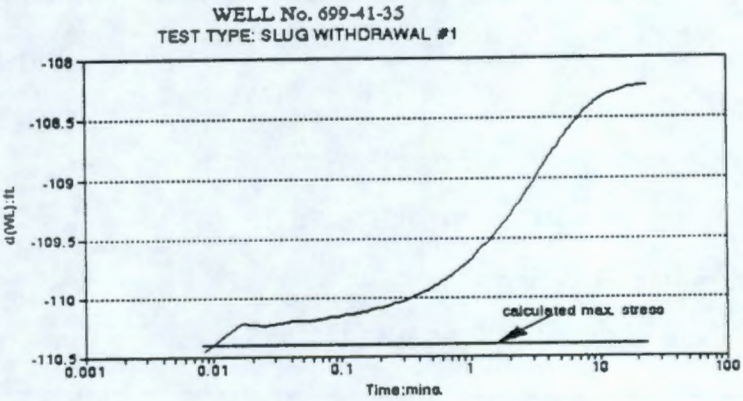
Specific G.: 1.000

Linearity: 0.003

Scale Factor: 10.009

Offset:-0.033

Delay (mSec.): 50.000



START DATE: 3/22/93 END DAT 03/22/93

START TIME: 10:42:09 END TIM 11:05:09

Time:min.	Time:hrs.	Depth to Water	d(WL):ft.
0.000	0.0000	107.657	-107.657
0.008	0.0001	110.445	-110.445
0.017	0.0003	110.211	-110.211
0.025	0.0004	110.240	-110.240
0.033	0.0006	110.217	-110.217
0.042	0.0007	110.198	-110.198
0.050	0.0008	110.192	-110.192
0.058	0.0010	110.195	-110.195
0.067	0.0011	110.189	-110.189
0.075	0.0013	110.173	-110.173
0.083	0.0014	110.167	-110.167
0.092	0.0015	110.164	-110.164
0.100	0.0017	110.154	-110.154
0.108	0.0018	110.148	-110.148
0.117	0.0019	110.142	-110.142
0.125	0.0021	110.138	-110.138
0.133	0.0022	110.126	-110.126
0.142	0.0024	110.129	-110.129
0.150	0.0025	110.123	-110.123
0.158	0.0026	110.119	-110.119
0.167	0.0028	110.110	-110.110
0.175	0.0029	110.104	-110.104

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0.183	0.0031	110.100	-110.100
0.192	0.0032	110.094	-110.094
0.200	0.0033	110.091	-110.091
0.208	0.0035	110.085	-110.085
0.217	0.0036	110.081	-110.081
0.225	0.0038	110.075	-110.075
0.233	0.0039	110.072	-110.072
0.242	0.0040	110.066	-110.066
0.250	0.0042	110.056	-110.056
0.258	0.0043	110.047	-110.047
0.267	0.0044	110.047	-110.047
0.275	0.0046	110.047	-110.047
0.283	0.0047	110.047	-110.047
0.292	0.0049	110.034	-110.034
0.300	0.0050	110.031	-110.031
0.308	0.0051	110.025	-110.025
0.317	0.0053	110.028	-110.028
0.325	0.0054	110.015	-110.015
0.333	0.0056	110.009	-110.009
0.350	0.0058	110.002	-110.002
0.367	0.0061	109.983	-109.983
0.383	0.0064	109.980	-109.980
0.400	0.0067	109.971	-109.971
0.417	0.0069	109.961	-109.961
0.433	0.0072	109.952	-109.952
0.450	0.0075	109.946	-109.946
0.467	0.0078	109.933	-109.933
0.483	0.0081	109.923	-109.923
0.500	0.0083	109.917	-109.917
0.517	0.0086	109.908	-109.908
0.533	0.0089	109.901	-109.901
0.550	0.0092	109.892	-109.892
0.567	0.0094	109.885	-109.885
0.583	0.0097	109.879	-109.879
0.600	0.0100	109.867	-109.867
0.617	0.0103	109.857	-109.857
0.633	0.0106	109.854	-109.854
0.650	0.0108	109.841	-109.841
0.667	0.0111	109.832	-109.832
0.683	0.0114	109.822	-109.822
0.700	0.0117	109.816	-109.816
0.717	0.0119	109.810	-109.810
0.733	0.0122	109.800	-109.800
0.750	0.0125	109.791	-109.791
0.767	0.0128	109.784	-109.784

P1445

0.783	0.0131	109.778	-109.778
0.800	0.0133	109.769	-109.769
0.817	0.0136	109.762	-109.762
0.833	0.0139	109.753	-109.753
0.850	0.0142	109.743	-109.743
0.867	0.0144	109.737	-109.737
0.883	0.0147	109.731	-109.731
0.900	0.0150	109.724	-109.724
0.917	0.0153	109.715	-109.715
0.933	0.0156	109.708	-109.708
0.950	0.0158	109.702	-109.702
0.967	0.0161	109.693	-109.693
0.983	0.0164	109.686	-109.686
1.000	0.017	109.680	-109.680
1.200	0.020	109.591	-109.591
1.400	0.023	109.519	-109.519
1.600	0.027	109.440	-109.440
1.800	0.030	109.370	-109.370
2.000	0.033	109.307	-109.307
2.200	0.037	109.237	-109.237
2.400	0.040	109.190	-109.190
2.600	0.043	109.136	-109.136
2.800	0.047	109.083	-109.083
3.000	0.050	109.035	-109.035
3.200	0.053	108.991	-108.991
3.400	0.057	108.950	-108.950
3.600	0.060	108.909	-108.909
3.800	0.063	108.871	-108.871
4.000	0.067	108.836	-108.836
4.200	0.070	108.801	-108.801
4.400	0.073	108.770	-108.770
4.600	0.077	108.741	-108.741
4.800	0.080	108.716	-108.716
5.000	0.083	108.684	-108.684
5.200	0.087	108.659	-108.659
5.400	0.090	108.637	-108.637
5.600	0.093	108.612	-108.612
5.800	0.097	108.593	-108.593
6.000	0.100	108.574	-108.574
6.200	0.103	108.551	-108.551
6.400	0.107	108.536	-108.536
6.600	0.110	108.520	-108.520
6.800	0.113	108.504	-108.504
7.000	0.117	108.488	-108.488
7.200	0.120	108.476	-108.476

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7.400	0.123	108.460	-108.460
7.600	0.127	108.447	-108.447
7.800	0.130	108.438	-108.438
8.000	0.133	108.425	-108.425
8.200	0.137	108.416	-108.416
8.400	0.140	108.403	-108.403
8.600	0.143	108.397	-108.397
8.800	0.147	108.387	-108.387
9.000	0.150	108.378	-108.378
9.200	0.153	108.368	-108.368
9.400	0.157	108.362	-108.362
9.600	0.160	108.355	-108.355
9.800	0.163	108.346	-108.346
10.000	0.167	108.343	-108.343
11.000	0.183	108.314	-108.314
12.000	0.200	108.299	-108.299
13.000	0.217	108.283	-108.283
14.000	0.233	108.270	-108.270
15.000	0.250	108.261	-108.261
16.000	0.267	108.254	-108.254
17.000	0.283	108.248	-108.248
18.000	0.300	108.245	-108.245
19.000	0.317	108.242	-108.242
20.000	0.333	108.238	-108.238
21.000	0.350	108.238	-108.238
22.000	0.367	108.235	-108.235
23.000	0.383	108.232	-108.232

INSTANTANEOUS SLUG TEST DATA SHEET :2nd INJECTION

Borehole: 699-41-35

Interval Tested: 193.85 -203.85' Btoc 6"

Depth To Water: 108.22' Btoc 6"

Depth to Transducer: 6.974' BWL

Measured by: Robert S. Edrington

Slug Volume: BR-1: 0.388 Cu Ft

Barometric Reading:

See Barometric pressure data

Time:	Start	End
Baseline	0955	1015
Injection	1119	1145

Date: 03-22-93

Initial Pressure (Pi): 108.22'

Slug Level/Pressure (Pmax) 103.812

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: Robert S. Edrington Date: 03-31-93

Sign and Print Name

BD-6000-293(07/90)

P. 2 of 5

WELL NO.: 699-41-35

TEST TYPE: SLUG INJECTION #2

Q(gpm)= NA

SLUG VO. (cu. ft.)=0.388

DATA LOGGER:

S/N: SE2000

Unit No. 4 9

Test 3

INPUT 1:

TRANSDUCER:

Reference: 108.220

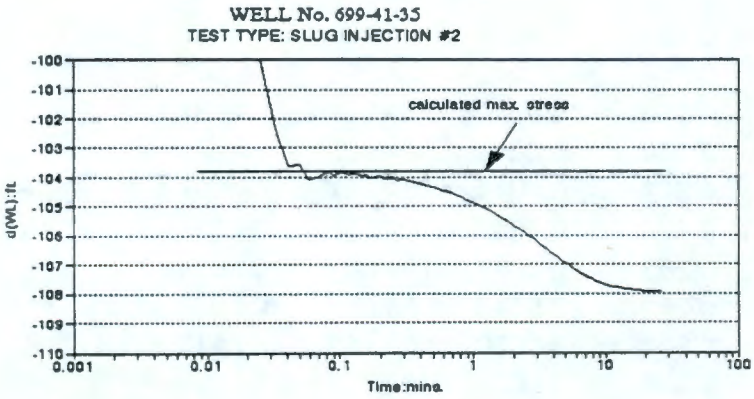
Specific G.: 1.000

Linearity: 0.003

Scale Factor: 10.009

Offset:-0.033

Delay (mSec.): 50.000



START DATE: 3/22/93 END DAT 03/22/93

START TIME: 11:19:48 END TIM 11:45:48

Time:min.	Time:hrs.	Depth to Water	d(WL):ft.
0.000	0.0000	107.960	-107.960
0.008	0.0001	97.640	-97.640
0.017	0.0003	98.627	-98.627
0.025	0.0004	99.841	-99.841
0.033	0.0006	102.532	-102.532
0.042	0.0007	103.597	-103.597
0.050	0.0008	103.566	-103.566
0.058	0.0010	104.084	-104.084
0.067	0.0011	103.996	-103.996
0.075	0.0013	103.901	-103.901
0.083	0.0014	103.812	-103.812
0.092	0.0015	103.942	-103.942
0.100	0.0017	103.835	-103.835
0.108	0.0018	103.819	-103.819
0.117	0.0019	103.901	-103.901
0.125	0.0021	103.885	-103.885
0.133	0.0022	103.891	-103.891
0.142	0.0024	103.917	-103.917
0.150	0.0025	103.948	-103.948
0.158	0.0026	103.904	-103.904
0.167	0.0028	104.018	-104.018
0.175	0.0029	103.989	-103.989

0.183	0.0031	103.983	-103.983
0.192	0.0032	103.939	-103.939
0.200	0.0033	103.970	-103.970
0.208	0.0035	103.983	-103.983
0.217	0.0036	104.024	-104.024
0.225	0.0038	104.062	-104.062
0.233	0.0039	104.050	-104.050
0.242	0.0040	104.008	-104.008
0.250	0.0042	104.031	-104.031
0.258	0.0043	104.053	-104.053
0.267	0.0044	104.097	-104.097
0.275	0.0046	104.135	-104.135
0.283	0.0047	104.084	-104.084
0.292	0.0049	104.068	-104.068
0.300	0.0050	104.113	-104.113
0.308	0.0051	104.110	-104.110
0.317	0.0053	104.129	-104.129
0.325	0.0054	104.125	-104.125
0.333	0.0056	104.151	-104.151
0.350	0.0058	104.185	-104.185
0.367	0.0061	104.185	-104.185
0.383	0.0064	104.211	-104.211
0.400	0.0067	104.233	-104.233
0.417	0.0069	104.246	-104.246
0.433	0.0072	104.265	-104.265
0.450	0.0075	104.287	-104.287
0.467	0.0078	104.306	-104.306
0.483	0.0081	104.321	-104.321
0.500	0.0083	104.340	-104.340
0.517	0.0086	104.356	-104.356
0.533	0.0089	104.375	-104.375
0.550	0.0092	104.394	-104.394
0.567	0.0094	104.416	-104.416
0.583	0.0097	104.435	-104.435
0.600	0.0100	104.454	-104.454
0.617	0.0103	104.473	-104.473
0.633	0.0106	104.483	-104.483
0.650	0.0108	104.508	-104.508
0.667	0.0111	104.524	-104.524
0.683	0.0114	104.543	-104.543
0.700	0.0117	104.559	-104.559
0.717	0.0119	104.574	-104.574
0.733	0.0122	104.593	-104.593
0.750	0.0125	104.609	-104.609
0.767	0.0128	104.628	-104.628

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0.783	0.0131	104.647	-104.647
0.800	0.0133	104.660	-104.660
0.817	0.0136	104.685	-104.685
0.833	0.0139	104.704	-104.704
0.850	0.0142	104.723	-104.723
0.867	0.0144	104.745	-104.745
0.883	0.0147	104.764	-104.764
0.900	0.0150	104.780	-104.780
0.917	0.0153	104.805	-104.805
0.933	0.0156	104.815	-104.815
0.950	0.0158	104.824	-104.824
0.967	0.0161	104.840	-104.840
0.983	0.0164	104.853	-104.853
1.000	0.017	104.868	-104.868
1.200	0.020	105.045	-105.045
1.400	0.023	105.210	-105.210
1.600	0.027	105.362	-105.362
1.800	0.030	105.510	-105.510
2.000	0.033	105.646	-105.646
2.200	0.037	105.773	-105.773
2.400	0.040	105.893	-105.893
2.600	0.043	106.007	-106.007
2.800	0.047	106.114	-106.114
3.000	0.050	106.215	-106.215
3.200	0.053	106.307	-106.307
3.400	0.057	106.399	-106.399
3.600	0.060	106.478	-106.478
3.800	0.063	106.563	-106.563
4.000	0.067	106.636	-106.636
4.200	0.070	106.705	-106.705
4.400	0.073	106.772	-106.772
4.600	0.077	106.841	-106.841
4.800	0.080	106.901	-106.901
5.000	0.083	106.958	-106.958
5.200	0.087	107.012	-107.012
5.400	0.090	107.072	-107.072
5.600	0.093	107.110	-107.110
5.800	0.097	107.154	-107.154
6.000	0.100	107.195	-107.195
6.200	0.103	107.233	-107.233
6.400	0.107	107.271	-107.271
6.600	0.110	107.312	-107.312
6.800	0.113	107.347	-107.347
7.000	0.117	107.375	-107.375
7.200	0.120	107.407	-107.407

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7.400	0.123	107.435	-107.435
7.600	0.127	107.461	-107.461
7.800	0.130	107.483	-107.483
8.000	0.133	107.508	-107.508
8.200	0.137	107.530	-107.530
8.400	0.140	107.549	-107.549
8.600	0.143	107.571	-107.571
8.800	0.147	107.590	-107.590
9.000	0.150	107.606	-107.606
9.200	0.153	107.625	-107.625
9.400	0.157	107.641	-107.641
9.600	0.160	107.660	-107.660
9.800	0.163	107.669	-107.669
10.000	0.167	107.682	-107.682
11.000	0.183	107.739	-107.739
12.000	0.200	107.780	-107.780
13.000	0.217	107.815	-107.815
14.000	0.233	107.853	-107.853
15.000	0.250	107.865	-107.865
16.000	0.267	107.881	-107.881
17.000	0.283	107.891	-107.891
18.000	0.300	107.900	-107.900
19.000	0.317	107.941	-107.941
20.000	0.333	107.926	-107.926
21.000	0.350	107.932	-107.932
22.000	0.367	107.929	-107.929
23.000	0.383	107.932	-107.932
24.000	0.400	107.938	-107.938
25.000	0.417	107.938	-107.938
26.000	0.433	107.944	-107.944

INSTANTANEOUS SLUG TEST DATA SHEET 2nd :WITHDRAWAL

Borehole: 699-41-35

Interval Tested: 193.85 -203.85' Btoc 6"

Depth To Water: 108.22' Btoc 6"

Depth to Transducer: 6.974' BWL

Measured by: Robert S. Edrington

Slug Volume: BR-1: 0.388 Cu Ft

Barometric Reading:

See Barometric pressure data

Time:	Start	End
Baseline	0955	1015
Withdrawal	1146	1242

Date: 03-22-93

Initial Pressure (Pi): 108.22'

Slug Level/Pressure (Pmax) 112.718

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: Robert S. Edrington Date: 03-31-93

Sign and Print Name

BD-6000-293(07/90)

Pg 2 of 5

WELL NO.: 699-41-35

TEST TYPE: SLUG WITHDRAWAL #2

Q(gpm)= NA

SLUG VO. (cu. ft.)=0.388

DATA LOGGER:

S/N: SE2000

Unit No. 4 9

Test 4

INPUT 1:

TRANSDUCER:

Reference: 108.220

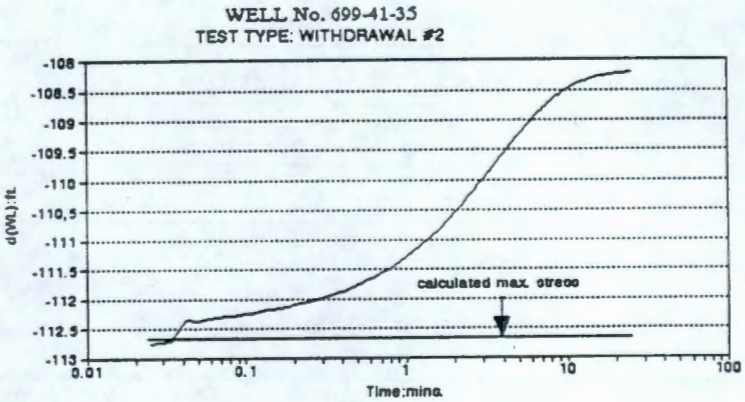
Specific G.: 1.000

Linearity: 0.003

Scale Factor: 10.009

Offset:-0.033

Delay (mSec.): 50.000



START DATE: 3/22/93 END DAT 03/22/93

START TIME: 11:46:58 END TIM 12:42:58

Time:min.	Time:hrs.	Depth to Water	d(WL):ft.
0.025	0.0004	112.753	-112.753
0.033	0.0006	112.718	-112.718
0.042	0.0007	112.358	-112.358
0.050	0.0008	112.374	-112.374
0.058	0.0010	112.332	-112.332
0.067	0.0011	112.307	-112.307
0.075	0.0013	112.285	-112.285
0.083	0.0014	112.285	-112.285
0.092	0.0015	112.263	-112.263
0.100	0.0017	112.247	-112.247
0.108	0.0018	112.235	-112.235
0.117	0.0019	112.212	-112.212
0.125	0.0021	112.206	-112.206
0.133	0.0022	112.181	-112.181
0.142	0.0024	112.187	-112.187
0.150	0.0025	112.174	-112.174
0.158	0.0026	112.155	-112.155
0.167	0.0028	112.149	-112.149
0.175	0.0029	112.140	-112.140
0.183	0.0031	112.130	-112.130
0.192	0.0032	112.121	-112.121
0.200	0.0033	112.105	-112.105

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0.208	0.0035	112.099	-112.099
0.217	0.0036	112.080	-112.080
0.225	0.0038	112.076	-112.076
0.233	0.0039	112.061	-112.061
0.242	0.0040	112.054	-112.054
0.250	0.0042	112.042	-112.042
0.258	0.0043	112.029	-112.029
0.267	0.0044	112.020	-112.020
0.275	0.0046	112.013	-112.013
0.283	0.0047	112.001	-112.001
0.292	0.0049	111.991	-111.991
0.300	0.0050	111.985	-111.985
0.308	0.0051	111.972	-111.972
0.317	0.0053	111.960	-111.960
0.325	0.0054	111.953	-111.953
0.333	0.0056	111.941	-111.941
0.350	0.0058	111.928	-111.928
0.367	0.0061	111.906	-111.906
0.383	0.0064	111.890	-111.890
0.400	0.0067	111.868	-111.868
0.417	0.0069	111.849	-111.849
0.433	0.0072	111.833	-111.833
0.450	0.0075	111.817	-111.817
0.467	0.0078	111.798	-111.798
0.483	0.0081	111.783	-111.783
0.500	0.0083	111.760	-111.760
0.517	0.0086	111.748	-111.748
0.533	0.0089	111.729	-111.729
0.550	0.0092	111.710	-111.710
0.567	0.0094	111.694	-111.694
0.583	0.0097	111.675	-111.675
0.600	0.0100	111.662	-111.662
0.617	0.0103	111.647	-111.647
0.633	0.0106	111.637	-111.637
0.650	0.0108	111.612	-111.612
0.667	0.0111	111.593	-111.593
0.683	0.0114	111.580	-111.580
0.700	0.0117	111.564	-111.564
0.717	0.0119	111.549	-111.549
0.733	0.0122	111.533	-111.533
0.750	0.0125	111.517	-111.517
0.767	0.0128	111.501	-111.501
0.783	0.0131	111.492	-111.492
0.800	0.0133	111.470	-111.470
0.817	0.0136	111.454	-111.454

0.833	0.0139	111.441	-111.441
0.850	0.0142	111.425	-111.425
0.867	0.0144	111.410	-111.410
0.883	0.0147	111.394	-111.394
0.900	0.0150	111.378	-111.378
0.917	0.0153	111.362	-111.362
0.933	0.0156	111.349	-111.349
0.950	0.0158	111.318	-111.318
0.967	0.0161	111.318	-111.318
0.983	0.0164	111.305	-111.305
1.000	0.017	111.289	-111.289
1.200	0.020	111.122	-111.122
1.400	0.023	110.961	-110.961
1.600	0.027	110.809	-110.809
1.800	0.030	110.670	-110.670
2.000	0.033	110.537	-110.537
2.200	0.037	110.411	-110.411
2.400	0.040	110.291	-110.291
2.600	0.043	110.180	-110.180
2.800	0.047	110.076	-110.076
3.000	0.050	109.974	-109.974
3.200	0.053	109.880	-109.880
3.400	0.057	109.791	-109.791
3.600	0.060	109.706	-109.706
3.800	0.063	109.627	-109.627
4.000	0.067	109.551	-109.551
4.200	0.070	109.481	-109.481
4.400	0.073	109.415	-109.415
4.600	0.077	109.352	-109.352
4.800	0.080	109.289	-109.289
5.000	0.083	109.235	-109.235
5.200	0.087	109.181	-109.181
5.400	0.090	109.131	-109.131
5.600	0.093	109.080	-109.080
5.800	0.097	109.036	-109.036
6.000	0.100	108.991	-108.991
6.200	0.103	108.953	-108.953
6.400	0.107	108.916	-108.916
6.600	0.110	108.878	-108.878
6.800	0.113	108.843	-108.843
7.000	0.117	108.811	-108.811
7.200	0.120	108.780	-108.780
7.400	0.123	108.751	-108.751
7.600	0.127	108.723	-108.723
7.800	0.130	108.697	-108.697

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8.000	0.133	108.672	-108.672
8.200	0.137	108.650	-108.650
8.400	0.140	108.625	-108.625
8.600	0.143	108.606	-108.606
8.800	0.147	108.584	-108.584
9.000	0.150	108.565	-108.565
9.200	0.153	108.549	-108.549
9.400	0.157	108.530	-108.530
9.600	0.160	108.514	-108.514
9.800	0.163	108.501	-108.501
10.000	0.167	108.489	-108.489
11.000	0.183	108.429	-108.429
12.000	0.200	108.378	-108.378
13.000	0.217	108.347	-108.347
14.000	0.233	108.318	-108.318
15.000	0.250	108.293	-108.293
16.000	0.267	108.277	-108.277
17.000	0.283	108.264	-108.264
18.000	0.300	108.252	-108.252
19.000	0.317	108.245	-108.245
20.000	0.333	108.239	-108.239
21.000	0.350	108.233	-108.233
22.000	0.367	108.230	-108.230
23.000	0.383	108.226	-108.226
24.000	0.400	108.220	-108.220
25.000	0.417	108.220	-108.220

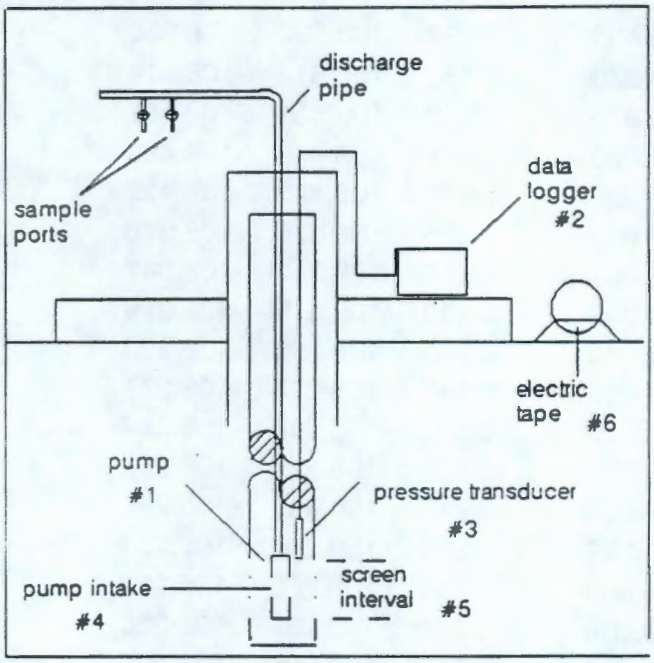
EQUIPMENT CONFIGURATION AND WELL HEAD DIAGRAM

WELL DESIGNATION 699-41-35 DEPTH 203.85' Btoc 6"

Equipment Configuration

Item	Description
#1	1.5 hp Grundfos submersible
#2	Data Logger 2K-459
#3	In-Situ Inc s/n 2044DE (cal. 3-11-94)
#4	@202.64' Btoc 6"
#5	193.85-203.85' Btoc 6"
#6	Solinst s/n: ET-1 (cal. 7-21-93)
#7	
#8	
#9	
#10	

Diagram

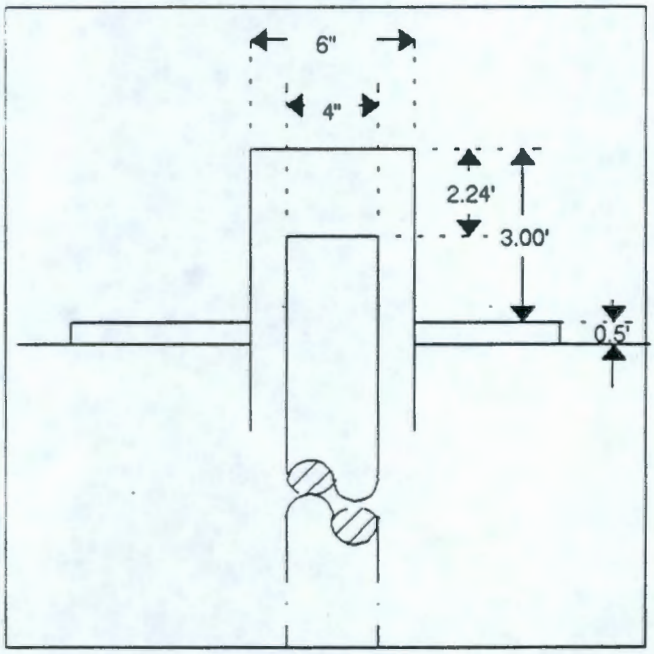


Well Head

Comments

A rotometer was used during drawdown to monitor flow. The meter was also checked periodically by the bucket method.

Diagram



Signature of Recorder R. S Edrington Date 3-31-93

DRAWDOWN/RECOVERY

Well Designation: 699-41-35 Date: 03-26-93

Well Depth: 203.85' BTOC Screened Interval: 193.85-203.85'BTOC

Pumping Method: Constant Discharge

Equipment Used to Measure Water Level: E.Tape/Transducer S.N. ET-1/2044DE Calibration Due: 07-31-93/03-11-93

Equipment Used to Measure Flow: Rotometer/Bucket(see note) S.N.: N/A Calibration Due: Field Calibrated

Measuring Point: Top of Casing (6") Pump Start Time: 0800 Pump Stop Time: 1330

Time		Water Level		Discharge
Date	Time	Reading Units:	Water Level Units:	Reading Units: Bucket Method/GPM
03-26-93	0800			3.3
	0900	See Attached Data		3.3
	1030			3.3
	1300			3.3
			See Attached Data	

NOTE: A rotometer was used to keep flow constant.
This meter was periodically check with the bucket method.

Recorded by: Robert S. Edrington Robert S. Edrington Date: 03-31-93
Sign and Print Name

BD-6000-402(03/90)

WELL NO.: 699-41-35

TEST TYPE: BASELINE #1

Q(gpm)= NA

SLUG VO. (cu. ft.)=NA

DATA LOGGER:

S/N: SE2000

Unit No. 1 3

Test 0

INPUT 1:

TRANSDUCER:

Reference: 108.180

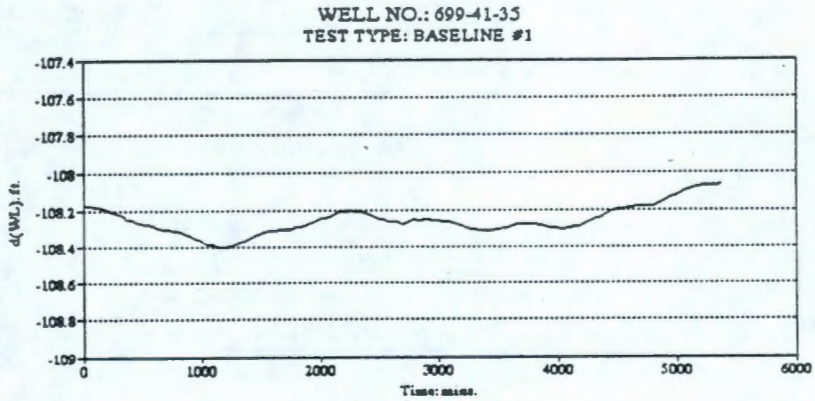
Specific G.: 1.000

Linearity: 0.003

Scale Factor: 10.009

Offset: 0.033

Delay (mSec.): 50.000



START DATE: 3/18/93 END DAT 03/22/93

START TIME: 15:00:01 END TIM 08:30:01

Time:min.	Time:hrs.	Depth to Water	d(WL):ft.
0	0.00	108.170	-108.170
30	0.50	108.173	-108.173
60	1.00	108.173	-108.173
90	1.50	108.176	-108.176
120	2.00	108.180	-108.180
150	2.50	108.186	-108.186
180	3.00	108.192	-108.192
210	3.50	108.202	-108.202
240	4.00	108.211	-108.211
270	4.50	108.217	-108.217
300	5.00	108.224	-108.224
330	5.50	108.230	-108.230
360	6.00	108.246	-108.246
390	6.50	108.252	-108.252
420	7.00	108.255	-108.255
450	7.50	108.268	-108.268
480	8.00	108.271	-108.271
510	8.50	108.277	-108.277
540	9.00	108.277	-108.277
570	9.50	108.284	-108.284
600	10.00	108.290	-108.290
630	10.50	108.293	-108.293

660	11.00	108.300	-108.300
690	11.50	108.300	-108.300
720	12.00	108.303	-108.303
750	12.50	108.306	-108.306
780	13.00	108.312	-108.312
810	13.50	108.319	-108.319
840	14.00	108.325	-108.325
870	14.50	108.331	-108.331
900	15.00	108.341	-108.341
930	15.50	108.350	-108.350
960	16.00	108.356	-108.356
990	16.50	108.366	-108.366
1020	17.00	108.375	-108.375
1050	17.50	108.385	-108.385
1080	18.00	108.388	-108.388
1110	18.50	108.394	-108.394
1140	19.00	108.398	-108.398
1170	19.50	108.398	-108.398
1200	20.00	108.398	-108.398
1230	20.50	108.391	-108.391
1260	21.00	108.391	-108.391
1290	21.50	108.382	-108.382
1320	22.00	108.372	-108.372
1350	22.50	108.366	-108.366
1380	23.00	108.356	-108.356
1410	23.50	108.350	-108.350
1440	24.00	108.341	-108.341
1470	24.50	108.334	-108.334
1500	25.00	108.325	-108.325
1530	25.50	108.319	-108.319
1560	26.00	108.315	-108.315
1590	26.50	108.309	-108.309
1620	27.00	108.306	-108.306
1650	27.50	108.303	-108.303
1680	28.00	108.300	-108.300
1710	28.50	108.303	-108.303
1740	29.00	108.300	-108.300
1770	29.50	108.293	-108.293
1800	30.00	108.290	-108.290
1830	30.50	108.287	-108.287
1860	31.00	108.284	-108.284
1890	31.50	108.277	-108.277
1920	32.00	108.268	-108.268
1950	32.50	108.262	-108.262
1980	33.00	108.252	-108.252

2010	33.50	108.243	-108.243
2040	34.00	108.243	-108.243
2070	34.50	108.236	-108.236
2100	35.00	108.227	-108.227
2130	35.50	108.217	-108.217
2160	36.00	108.211	-108.211
2190	36.50	108.208	-108.208
2220	37.00	108.205	-108.205
2250	37.50	108.202	-108.202
2280	38.00	108.205	-108.205
2310	38.50	108.208	-108.208
2340	39.00	108.211	-108.211
2370	39.50	108.214	-108.214
2400	40.00	108.224	-108.224
2430	40.50	108.230	-108.230
2460	41.00	108.236	-108.236
2490	41.50	108.249	-108.249
2520	42.00	108.249	-108.249
2550	42.50	108.259	-108.259
2580	43.00	108.262	-108.262
2610	43.50	108.265	-108.265
2640	44.00	108.265	-108.265
2670	44.50	108.268	-108.268
2700	45.00	108.274	-108.274
2730	45.50	108.268	-108.268
2760	46.00	108.259	-108.259
2790	46.50	108.252	-108.252
2820	47.00	108.259	-108.259
2850	47.50	108.255	-108.255
2880	48.00	108.252	-108.252
2910	48.50	108.252	-108.252
2940	49.00	108.255	-108.255
2970	49.50	108.255	-108.255
3000	50.00	108.259	-108.259
3030	50.50	108.262	-108.262
3060	51.00	108.262	-108.262
3090	51.50	108.265	-108.265
3120	52.00	108.271	-108.271
3150	52.50	108.277	-108.277
3180	53.00	108.284	-108.284
3210	53.50	108.290	-108.290
3240	54.00	108.293	-108.293
3270	54.50	108.300	-108.300
3300	55.00	108.303	-108.303
3330	55.50	108.306	-108.306

3360	56.00	108.309	-108.309
3390	56.50	108.306	-108.306
3420	57.00	108.306	-108.306
3450	57.50	108.306	-108.306
3480	58.00	108.303	-108.303
3510	58.50	108.303	-108.303
3540	59.00	108.293	-108.293
3570	59.50	108.293	-108.293
3600	60.00	108.287	-108.287
3630	60.50	108.281	-108.281
3660	61.00	108.277	-108.277
3690	61.50	108.277	-108.277
3720	62.00	108.274	-108.274
3750	62.50	108.277	-108.277
3780	63.00	108.274	-108.274
3810	63.50	108.277	-108.277
3840	64.00	108.284	-108.284
3870	64.50	108.284	-108.284
3900	65.00	108.290	-108.290
3930	65.50	108.293	-108.293
3960	66.00	108.296	-108.296
3990	66.50	108.296	-108.296
4020	67.00	108.300	-108.300
4050	67.50	108.303	-108.303
4080	68.00	108.296	-108.296
4110	68.50	108.293	-108.293
4140	69.00	108.290	-108.290
4170	69.50	108.287	-108.287
4200	70.00	108.284	-108.284
4230	70.50	108.271	-108.271
4260	71.00	108.265	-108.265
4290	71.50	108.255	-108.255
4320	72.00	108.243	-108.243
4350	72.50	108.240	-108.240
4380	73.00	108.227	-108.227
4410	73.50	108.221	-108.221
4440	74.00	108.211	-108.211
4470	74.50	108.202	-108.202
4500	75.00	108.198	-108.198
4530	75.50	108.192	-108.192
4560	76.00	108.192	-108.192
4590	76.50	108.189	-108.189
4620	77.00	108.186	-108.186
4650	77.50	108.183	-108.183
4680	78.00	108.183	-108.183

4710	78.50	108.183	-108.183
4740	79.00	108.183	-108.183
4770	79.50	108.180	-108.180
4800	80.00	108.176	-108.176
4830	80.50	108.170	-108.170
4860	81.00	108.161	-108.161
4890	81.50	108.151	-108.151
4920	82.00	108.142	-108.142
4950	82.50	108.132	-108.132
4980	83.00	108.126	-108.126
5010	83.50	108.116	-108.116
5040	84.00	108.107	-108.107
5070	84.50	108.097	-108.097
5100	85.00	108.088	-108.088
5130	85.50	108.082	-108.082
5160	86.00	108.078	-108.078
5190	86.50	108.075	-108.075
5220	87.00	108.072	-108.072
5250	87.50	108.069	-108.069
5280	88.00	108.069	-108.069
5310	88.50	108.072	-108.072
5340	89.00	108.069	-108.069
5370	89.50	108.063	-108.063

WELL NO.: 699-41-35

TEST TYPE: CONSTANT DISCHARGE PUMP TEST

Q(gpm)= 3.3

SLUG VO. (cu. ft.)=NA

DATA LOGGER:

S/N: SE2000

Unit No. 4 9

9est 12

INPUT 1:

TRANSDUCER:

Reference: 108.22

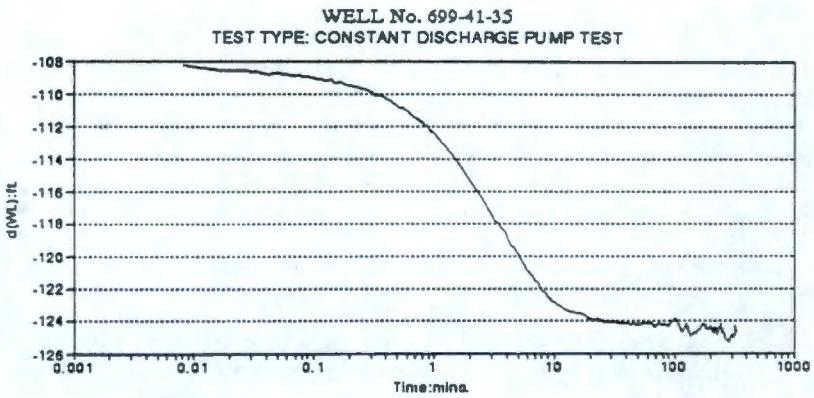
Specific G.: 1.000

Linearity: 0.003

Scale Factor: 10.009

Offset:-0.033

Delay (mSec.): 50.000



START DATE: 3/26/93 END DAT 03/26/93

START TIME: 07:59:54 END TIM 13:29:54

Time:min.	Time:hrs.	Depth to Water	d(WL):ft.
0.008	0.0001	108.220	-108.220
0.017	0.0003	108.498	-108.498
0.025	0.0004	108.514	-108.514
0.033	0.0006	108.622	-108.622
0.042	0.0007	108.754	-108.754
0.050	0.0008	108.701	-108.701
0.058	0.0010	108.795	-108.795
0.067	0.0011	108.868	-108.868
0.075	0.0013	108.852	-108.852
0.083	0.0014	108.925	-108.925
0.092	0.0015	108.950	-108.950
0.100	0.0017	108.973	-108.973
0.108	0.0018	109.049	-109.049
0.117	0.0019	109.074	-109.074
0.125	0.0021	109.124	-109.124
0.133	0.0022	109.159	-109.159
0.142	0.0024	109.090	-109.090
0.150	0.0025	109.251	-109.251
0.158	0.0026	109.273	-109.273
0.167	0.0028	109.210	-109.210
0.175	0.0029	109.295	-109.295

0.183	0.0031	109.381	-109.381
0.192	0.0032	109.463	-109.463
0.200	0.0033	109.491	-109.491
0.208	0.0035	109.501	-109.501
0.217	0.0036	109.539	-109.539
0.225	0.0038	109.529	-109.529
0.233	0.0039	109.567	-109.567
0.242	0.0040	109.608	-109.608
0.250	0.0042	109.624	-109.624
0.258	0.0043	109.697	-109.697
0.267	0.0044	109.722	-109.722
0.275	0.0046	109.713	-109.713
0.283	0.0047	109.782	-109.782
0.292	0.0049	109.823	-109.823
0.300	0.0050	109.845	-109.845
0.308	0.0051	109.877	-109.877
0.317	0.0053	109.991	-109.991
0.325	0.0054	110.029	-110.029
0.333	0.0056	110.048	-110.048
0.350	0.0058	110.035	-110.035
0.367	0.0061	110.076	-110.076
0.383	0.0064	110.168	-110.168
0.400	0.0067	110.307	-110.307
0.417	0.0069	110.320	-110.320
0.433	0.0072	110.348	-110.348
0.450	0.0075	110.427	-110.427
0.467	0.0078	110.605	-110.605
0.483	0.0081	110.586	-110.586
0.500	0.0083	110.680	-110.680
0.517	0.0086	110.810	-110.810
0.533	0.0089	110.791	-110.791
0.550	0.0092	110.892	-110.892
0.567	0.0094	110.946	-110.946
0.583	0.0097	110.978	-110.978
0.600	0.0100	111.028	-111.028
0.617	0.0103	111.069	-111.069
0.633	0.0106	111.202	-111.202
0.650	0.0108	111.240	-111.240
0.667	0.0111	111.275	-111.275
0.683	0.0114	111.436	-111.436
0.700	0.0117	111.446	-111.446
0.717	0.0119	111.465	-111.465
0.733	0.0122	111.566	-111.566
0.750	0.0125	111.556	-111.556
0.767	0.0128	111.724	-111.724

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0.783	0.0131	111.753	-111.753
0.800	0.0133	111.715	-111.715
0.817	0.0136	111.800	-111.800
0.833	0.0139	111.873	-111.873
0.850	0.0142	112.009	-112.009
0.867	0.0144	111.955	-111.955
0.883	0.0147	112.012	-112.012
0.900	0.0150	112.141	-112.141
0.917	0.0153	112.151	-112.151
0.933	0.0156	112.287	-112.287
0.950	0.0158	112.236	-112.236
0.967	0.0161	112.306	-112.306
0.983	0.0164	112.350	-112.350
1.000	0.017	112.369	-112.369
1.200	0.020	113.055	-113.055
1.400	0.023	113.666	-113.666
1.600	0.027	114.232	-114.232
1.800	0.030	114.826	-114.826
2.000	0.033	115.316	-115.316
2.200	0.037	115.743	-115.743
2.400	0.040	116.230	-116.230
2.600	0.043	116.645	-116.645
2.800	0.047	117.068	-117.068
3.000	0.050	117.391	-117.391
3.200	0.053	117.754	-117.754
3.400	0.057	117.960	-117.960
3.600	0.060	118.248	-118.248
3.800	0.063	118.497	-118.497
4.000	0.067	118.769	-118.769
4.200	0.070	119.041	-119.041
4.400	0.073	119.310	-119.310
4.600	0.077	119.408	-119.408
4.800	0.080	119.670	-119.670
5.000	0.083	119.898	-119.898
5.200	0.087	120.119	-120.119
5.400	0.090	120.217	-120.217
5.600	0.093	120.496	-120.496
5.800	0.097	120.679	-120.679
6.000	0.100	120.856	-120.856
6.200	0.103	120.964	-120.964
6.400	0.107	121.112	-121.112
6.600	0.110	121.188	-121.188
6.800	0.113	121.387	-121.387
7.000	0.117	121.533	-121.533
7.200	0.120	121.596	-121.596

7.400	0.123	121.710	-121.710
7.600	0.127	121.871	-121.871
7.800	0.130	121.979	-121.979
8.000	0.133	122.083	-122.083
8.200	0.137	122.184	-122.184
8.400	0.140	122.203	-122.203
8.600	0.143	122.317	-122.317
8.800	0.147	122.408	-122.408
9.000	0.150	122.516	-122.516
9.200	0.153	122.582	-122.582
9.400	0.157	122.665	-122.665
9.600	0.160	122.671	-122.671
9.800	0.163	122.842	-122.842
10.000	0.167	122.813	-122.813
12.000	0.200	123.272	-123.272
14.000	0.233	123.445	-123.445
16.000	0.267	123.569	-123.569
18.000	0.300	123.749	-123.749
20.000	0.333	123.917	-123.917
22.000	0.367	123.948	-123.948
24.000	0.400	123.973	-123.973
26.000	0.433	124.068	-124.068
28.000	0.467	124.113	-124.113
30.000	0.500	124.100	-124.100
32.000	0.533	124.116	-124.116
34.000	0.567	124.150	-124.150
36.000	0.600	124.154	-124.154
38.000	0.633	124.220	-124.220
40.000	0.667	124.236	-124.236
42.000	0.700	124.223	-124.223
44.000	0.733	124.277	-124.277
46.000	0.767	124.236	-124.236
48.000	0.800	124.245	-124.245
50.000	0.833	124.239	-124.239
52.000	0.867	124.245	-124.245
54.000	0.900	124.157	-124.157
56.000	0.933	124.207	-124.207
58.000	0.967	124.166	-124.166
60.000	1.000	124.185	-124.185
62.000	1.033	124.173	-124.173
64.000	1.067	124.233	-124.233
66.000	1.100	124.324	-124.324
68.000	1.133	124.391	-124.391
70.000	1.167	124.353	-124.353
72.000	1.200	124.286	-124.286

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74.000	1.233	124.239	-124.239
76.000	1.267	124.239	-124.239
78.000	1.300	124.296	-124.296
80.000	1.333	124.286	-124.286
82.000	1.367	124.293	-124.293
84.000	1.400	124.286	-124.286
86.000	1.433	124.248	-124.248
88.000	1.467	124.359	-124.359
90.000	1.500	124.362	-124.362
92.000	1.533	124.185	-124.185
94.000	1.567	124.040	-124.040
96.000	1.600	124.015	-124.015
98.000	1.633	123.945	-123.945
100.000	1.667	123.910	-123.910
105.000	1.750	124.065	-124.065
110.000	1.833	124.530	-124.530
115.000	1.917	124.694	-124.694
120.000	2.000	124.511	-124.511
125.000	2.083	124.214	-124.214
130.000	2.167	124.530	-124.530
135.000	2.250	124.957	-124.957
140.000	2.333	124.837	-124.837
145.000	2.417	124.713	-124.713
150.000	2.500	124.764	-124.764
155.000	2.583	124.599	-124.599
160.000	2.667	124.552	-124.552
165.000	2.750	124.419	-124.419
170.000	2.833	124.293	-124.293
175.000	2.917	124.220	-124.220
180.000	3.000	124.293	-124.293
185.000	3.083	124.482	-124.482
190.000	3.167	124.517	-124.517
195.000	3.250	124.498	-124.498
200.000	3.333	124.359	-124.359
205.000	3.417	124.650	-124.650
210.000	3.500	124.767	-124.767
215.000	3.583	124.685	-124.685
220.000	3.667	124.391	-124.391
225.000	3.750	124.530	-124.530
230.000	3.833	124.865	-124.865
235.000	3.917	124.517	-124.517
240.000	4.000	124.328	-124.328
245.000	4.083	124.211	-124.211
250.000	4.167	124.682	-124.682
255.000	4.250	124.697	-124.697

260.000	4.333	124.776	-124.776
265.000	4.417	124.969	-124.969
270.000	4.500	125.219	-125.219
275.000	4.583	125.276	-125.276
280.000	4.667	125.292	-125.292
285.000	4.750	125.304	-125.304
290.000	4.833	125.178	-125.178
295.000	4.917	124.991	-124.991
300.000	5.000	124.884	-124.884
305.000	5.083	124.985	-124.985
310.000	5.167	125.017	-125.017
315.000	5.250	124.773	-124.773
320.000	5.333	124.501	-124.501
325.000	5.417	124.365	-124.365
330.000	5.500	124.701	-124.701

WELL NO.: 699-41-35

TEST TYPE: RECOVERY (CONSTANT DISCHARGE)

Q(gpm) = NA

SLUG VO. (cu. ft.) = NA

DATA LOGGER:

S/N: SE2000

Unit No. 4 9

9est 13

INPUT 1:

TRANSDUCER:

Reference: 108.22

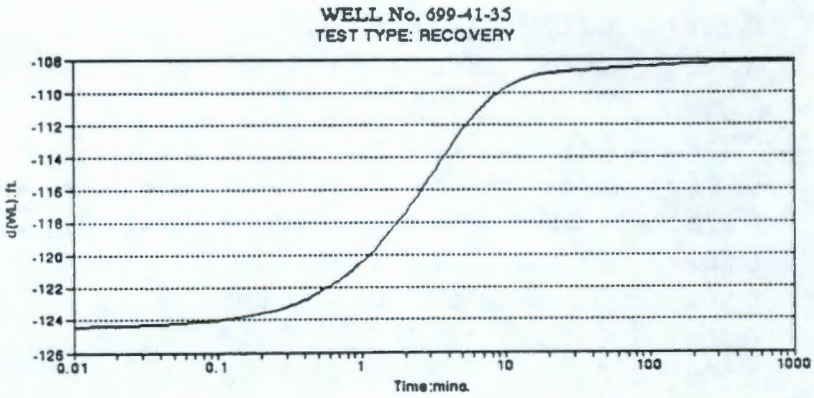
Specific G.: 1.000

Linearity: 0.003

Scale Factor: 10.009

Offset:-0.033

Delay (mSec.): 50.000



START DATE: 3/26/93 END DAT 03/29/93

START TIME: 13:~~31:23~~ 30 RSE 4/2/93 END TIM 11:~~31:23~~ 30 RSE 4/2/93

Time:min.	Time:hrs.	Depth to Water	d(WL):ft.
0.000	0.0000	124.495	-124.495
0.008	0.0001	124.508	-124.508
0.017	0.0003	124.454	-124.454
0.025	0.0004	124.410	-124.410
0.033	0.0006	124.372	-124.372
0.042	0.0007	124.331	-124.331
0.050	0.0008	124.290	-124.290
0.058	0.0010	124.252	-124.252
0.067	0.0011	124.214	-124.214
0.075	0.0013	124.176	-124.176
0.083	0.0014	124.135	-124.135
0.092	0.0015	124.097	-124.097
0.100	0.0017	124.059	-124.059
0.108	0.0018	124.021	-124.021
0.117	0.0019	123.983	-123.983
0.125	0.0021	123.945	-123.945
0.133	0.0022	123.907	-123.907
0.142	0.0024	123.870	-123.870
0.150	0.0025	123.832	-123.832
0.158	0.0026	123.794	-123.794
0.167	0.0028	123.756	-123.756
0.175	0.0029	123.718	-123.718

0.183	0.0031	123.680	-123.680
0.192	0.0032	123.645	-123.645
0.200	0.0033	123.607	-123.607
0.208	0.0035	123.569	-123.569
0.217	0.0036	123.531	-123.531
0.225	0.0038	123.496	-123.496
0.233	0.0039	123.459	-123.459
0.242	0.0040	123.421	-123.421
0.250	0.0042	123.386	-123.386
0.258	0.0043	123.348	-123.348
0.267	0.0044	123.313	-123.313
0.275	0.0046	123.275	-123.275
0.283	0.0047	123.240	-123.240
0.292	0.0049	123.202	-123.202
0.300	0.0050	123.168	-123.168
0.308	0.0051	123.133	-123.133
0.317	0.0053	123.095	-123.095
0.325	0.0054	123.060	-123.060
0.333	0.0056	123.025	-123.025
0.350	0.0058	122.953	-122.953
0.367	0.0061	122.883	-122.883
0.383	0.0064	122.814	-122.814
0.400	0.0067	122.741	-122.741
0.417	0.0069	122.671	-122.671
0.433	0.0072	122.602	-122.602
0.450	0.0075	122.532	-122.532
0.467	0.0078	122.466	-122.466
0.483	0.0081	122.396	-122.396
0.500	0.0083	122.330	-122.330
0.517	0.0086	122.260	-122.260
0.533	0.0089	122.194	-122.194
0.550	0.0092	122.128	-122.128
0.567	0.0094	122.061	-122.061
0.583	0.0097	121.995	-121.995
0.600	0.0100	121.928	-121.928
0.617	0.0103	121.862	-121.862
0.633	0.0106	121.799	-121.799
0.650	0.0108	121.732	-121.732
0.667	0.0111	121.669	-121.669
0.683	0.0114	121.603	-121.603
0.700	0.0117	121.539	-121.539
0.717	0.0119	121.476	-121.476
0.733	0.0122	121.413	-121.413
0.750	0.0125	121.350	-121.350
0.767	0.0128	121.287	-121.287

0.783	0.0131	121.226	-121.226
0.800	0.0133	121.163	-121.163
0.817	0.0136	121.103	-121.103
0.833	0.0139	121.043	-121.043
0.850	0.0142	120.980	-120.980
0.867	0.0144	120.920	-120.920
0.883	0.0147	120.860	-120.860
0.900	0.0150	120.800	-120.800
0.917	0.0153	120.740	-120.740
0.933	0.0156	120.683	-120.683
0.950	0.0158	120.623	-120.623
0.967	0.0161	120.563	-120.563
0.983	0.0164	120.506	-120.506
1.000	0.017	120.446	-120.446
1.200	0.020	119.744	-119.744
1.400	0.023	119.108	-119.108
1.600	0.027	118.511	-118.511
1.800	0.030	117.951	-117.951
2.000	0.033	117.423	-117.423
2.200	0.037	116.926	-116.926
2.400	0.040	116.458	-116.458
2.600	0.043	116.019	-116.019
2.800	0.047	115.598	-115.598
3.000	0.050	115.209	-115.209
3.200	0.053	114.843	-114.843
3.400	0.057	114.498	-114.498
3.600	0.060	114.175	-114.175
3.800	0.063	113.869	-113.869
4.000	0.067	113.543	-113.543
4.200	0.070	113.271	-113.271
4.400	0.073	113.021	-113.021
4.600	0.077	112.781	-112.781
4.800	0.080	112.559	-112.559
5.000	0.083	112.348	-112.348
5.200	0.087	112.151	-112.151
5.400	0.090	111.965	-111.965
5.600	0.093	111.788	-111.788
5.800	0.097	111.620	-111.620
6.000	0.100	111.462	-111.462
6.200	0.103	111.317	-111.317
6.400	0.107	111.181	-111.181
6.600	0.110	111.048	-111.048
6.800	0.113	110.924	-110.924
7.000	0.117	110.811	-110.811
7.200	0.120	110.697	-110.697

7.400	0.123	110.596	-110.596
7.600	0.127	110.498	-110.498
7.800	0.130	110.409	-110.409
8.000	0.133	110.320	-110.320
8.200	0.137	110.238	-110.238
8.400	0.140	110.162	-110.162
8.600	0.143	110.086	-110.086
8.800	0.147	110.020	-110.020
9.000	0.150	109.954	-109.954
9.200	0.153	109.893	-109.893
9.400	0.157	109.833	-109.833
9.600	0.160	109.780	-109.780
9.800	0.163	109.726	-109.726
10.000	0.167	109.678	-109.678
12.000	0.200	109.308	-109.308
14.000	0.233	109.084	-109.084
16.000	0.267	108.948	-108.948
18.000	0.300	108.862	-108.862
20.000	0.333	108.799	-108.799
22.000	0.367	108.752	-108.752
24.000	0.400	108.717	-108.717
26.000	0.433	108.688	-108.688
28.000	0.467	108.660	-108.660
30.000	0.500	108.635	-108.635
32.000	0.533	108.616	-108.616
34.000	0.567	108.600	-108.600
36.000	0.600	108.584	-108.584
38.000	0.633	108.565	-108.565
40.000	0.667	108.549	-108.549
42.000	0.700	108.537	-108.537
44.000	0.733	108.521	-108.521
46.000	0.767	108.508	-108.508
48.000	0.800	108.492	-108.492
50.000	0.833	108.489	-108.489
52.000	0.867	108.480	-108.480
54.000	0.900	108.473	-108.473
56.000	0.933	108.467	-108.467
58.000	0.967	108.458	-108.458
60.000	1.000	108.454	-108.454
62.000	1.033	108.448	-108.448
64.000	1.067	108.439	-108.439
66.000	1.100	108.435	-108.435
68.000	1.133	108.429	-108.429
70.000	1.167	108.426	-108.426
72.000	1.200	108.417	-108.417

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74.000	1.233	108.413	-108.413
76.000	1.267	108.407	-108.407
78.000	1.300	108.401	-108.401
80.000	1.333	108.398	-108.398
82.000	1.367	108.388	-108.388
84.000	1.400	108.385	-108.385
86.000	1.433	108.382	-108.382
88.000	1.467	108.375	-108.375
90.000	1.500	108.372	-108.372
92.000	1.533	108.369	-108.369
94.000	1.567	108.363	-108.363
96.000	1.600	108.360	-108.360
98.000	1.633	108.356	-108.356
100.000	1.667	108.350	-108.350
110.000	1.833	108.334	-108.334
120.000	2.000	108.318	-108.318
130.000	2.167	108.306	-108.306
140.000	2.333	108.293	-108.293
150.000	2.500	108.277	-108.277
160.000	2.667	108.265	-108.265
170.000	2.833	108.255	-108.255
180.000	3.000	108.249	-108.249
190.000	3.167	108.236	-108.236
200.000	3.333	108.227	-108.227
210.000	3.500	108.217	-108.217
220.000	3.667	108.211	-108.211
230.000	3.833	108.205	-108.205
240.000	4.000	108.198	-108.198
250.000	4.167	108.192	-108.192
260.000	4.333	108.189	-108.189
270.000	4.500	108.182	-108.182
280.000	4.667	108.176	-108.176
290.000	4.833	108.173	-108.173
300.000	5.000	108.167	-108.167
310.000	5.167	108.163	-108.163
320.000	5.333	108.157	-108.157
330.000	5.500	108.157	-108.157
340.000	5.667	108.151	-108.151
350.000	5.833	108.151	-108.151
360.000	6.000	108.148	-108.148
370.000	6.167	108.145	-108.145
380.000	6.333	108.141	-108.141
390.000	6.500	108.141	-108.141
400.000	6.667	108.138	-108.138
410.000	6.833	108.135	-108.135

420.000	7.000	108.135	-108.135
430.000	7.167	108.129	-108.129
440.000	7.333	108.129	-108.129
450.000	7.500	108.129	-108.129
460.000	7.667	108.126	-108.126
470.000	7.833	108.126	-108.126
480.000	8.000	108.126	-108.126
490.000	8.167	108.122	-108.122
500.000	8.333	108.122	-108.122
510.000	8.500	108.122	-108.122
520.000	8.667	108.122	-108.122
530.000	8.833	108.122	-108.122
540.000	9.000	108.122	-108.122
550.000	9.167	108.119	-108.119
560.000	9.333	108.122	-108.122
570.000	9.500	108.119	-108.119
580.000	9.667	108.119	-108.119
590.000	9.833	108.119	-108.119
600.000	10.000	108.119	-108.119
610.000	10.167	108.119	-108.119
620.000	10.333	108.119	-108.119
630.000	10.500	108.119	-108.119
640.000	10.667	108.119	-108.119
650.000	10.833	108.119	-108.119
660.000	11.000	108.119	-108.119
670.000	11.167	108.119	-108.119
680.000	11.333	108.119	-108.119
690.000	11.500	108.119	-108.119
700.000	11.667	108.119	-108.119
710.000	11.833	108.119	-108.119
720.000	12.000	108.116	-108.116
730.000	12.167	108.116	-108.116
740.000	12.333	108.116	-108.116
750.000	12.500	108.116	-108.116
760.000	12.667	108.116	-108.116
770.000	12.833	108.116	-108.116
780.000	13.000	108.116	-108.116
790.000	13.167	108.116	-108.116
800.000	13.333	108.113	-108.113
810.000	13.500	108.113	-108.113
820.000	13.667	108.113	-108.113
830.000	13.833	108.113	-108.113
840.000	14.000	108.113	-108.113
850.000	14.167	108.113	-108.113
860.000	14.333	108.113	-108.113

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870.000	14.500	108.113	-108.113
880.000	14.667	108.113	-108.113
890.000	14.833	108.113	-108.113
900.000	15.000	108.113	-108.113
910.000	15.167	108.113	-108.113
920.000	15.333	108.113	-108.113
930.000	15.500	108.113	-108.113
940.000	15.667	108.116	-108.116
950.000	15.833	108.113	-108.113
960.000	16.000	108.113	-108.113
970.000	16.167	108.116	-108.116
980.000	16.333	108.116	-108.116
990.000	16.500	108.119	-108.119
1000.000	16.667	108.119	-108.119
1010.000	16.833	108.119	-108.119
1020.000	17.000	108.119	-108.119
1030.000	17.167	108.122	-108.122
1040.000	17.333	108.122	-108.122
1050.000	17.500	108.126	-108.126
1060.000	17.667	108.126	-108.126
1070.000	17.833	108.129	-108.129
1080.000	18.000	108.129	-108.129
1090.000	18.167	108.132	-108.132
1100.000	18.333	108.132	-108.132
1110.000	18.500	108.135	-108.135
1120.000	18.667	108.135	-108.135
1130.000	18.833	108.135	-108.135
1140.000	19.000	108.138	-108.138
1150.000	19.167	108.138	-108.138
1160.000	19.333	108.141	-108.141
1170.000	19.500	108.141	-108.141
1180.000	19.667	108.141	-108.141
1190.000	19.833	108.145	-108.145
1200.000	20.000	108.145	-108.145
1210.000	20.167	108.148	-108.148
1220.000	20.333	108.151	-108.151
1230.000	20.500	108.151	-108.151
1240.000	20.667	108.154	-108.154
1250.000	20.833	108.151	-108.151
1260.000	21.000	108.154	-108.154
1270.000	21.167	108.157	-108.157
1280.000	21.333	108.157	-108.157
1290.000	21.500	108.157	-108.157
1300.000	21.667	108.154	-108.154
1310.000	21.833	108.160	-108.160

1320.000	22.000	108.157	-108.157
1330.000	22.167	108.160	-108.160
1340.000	22.333	108.167	-108.167
1350.000	22.500	108.157	-108.157
1360.000	22.667	108.157	-108.157
1370.000	22.833	108.160	-108.160
1380.000	23.000	108.160	-108.160
1390.000	23.167	108.163	-108.163
1400.000	23.333	108.160	-108.160
1410.000	23.500	108.160	-108.160
1420.000	23.667	108.163	-108.163
1430.000	23.833	108.163	-108.163
1440.000	24.000	108.160	-108.160
1450.000	24.167	108.163	-108.163
1460.000	24.333	108.167	-108.167
1470.000	24.500	108.167	-108.167
1480.000	24.667	108.163	-108.163
1490.000	24.833	108.160	-108.160
1500.000	25.000	108.163	-108.163
1510.000	25.167	108.160	-108.160
1520.000	25.333	108.160	-108.160
1530.000	25.500	108.160	-108.160
1540.000	25.667	108.157	-108.157
1550.000	25.833	108.160	-108.160
1560.000	26.000	108.151	-108.151
1570.000	26.167	108.151	-108.151
1580.000	26.333	108.145	-108.145
1590.000	26.500	108.154	-108.154
1600.000	26.667	108.151	-108.151
1610.000	26.833	108.154	-108.154
1620.000	27.000	108.151	-108.151
1630.000	27.167	108.151	-108.151
1640.000	27.333	108.151	-108.151
1650.000	27.500	108.148	-108.148
1660.000	27.667	108.148	-108.148
1670.000	27.833	108.148	-108.148
1680.000	28.000	108.148	-108.148
1690.000	28.167	108.145	-108.145
1700.000	28.333	108.145	-108.145
1710.000	28.500	108.145	-108.145
1720.000	28.667	108.145	-108.145
1730.000	28.833	108.145	-108.145
1740.000	29.000	108.141	-108.141
1750.000	29.167	108.141	-108.141
1760.000	29.333	108.141	-108.141

1770.000	29.500	108.141	-108.141
1780.000	29.667	108.141	-108.141
1790.000	29.833	108.141	-108.141
1800.000	30.000	108.141	-108.141
1810.000	30.167	108.145	-108.145
1820.000	30.333	108.145	-108.145
1830.000	30.500	108.145	-108.145
1840.000	30.667	108.145	-108.145
1850.000	30.833	108.145	-108.145
1860.000	31.000	108.148	-108.148
1870.000	31.167	108.148	-108.148
1880.000	31.333	108.148	-108.148
1890.000	31.500	108.148	-108.148
1900.000	31.667	108.148	-108.148
1910.000	31.833	108.151	-108.151
1920.000	32.000	108.151	-108.151
1930.000	32.167	108.151	-108.151
1940.000	32.333	108.154	-108.154
1950.000	32.500	108.154	-108.154
1960.000	32.667	108.157	-108.157
1970.000	32.833	108.157	-108.157
1980.000	33.000	108.157	-108.157
1990.000	33.167	108.154	-108.154
2000.000	33.333	108.157	-108.157
2010.000	33.500	108.160	-108.160
2020.000	33.667	108.163	-108.163
2030.000	33.833	108.163	-108.163
2040.000	34.000	108.163	-108.163
2050.000	34.167	108.167	-108.167
2060.000	34.333	108.163	-108.163
2070.000	34.500	108.163	-108.163
2080.000	34.667	108.167	-108.167
2090.000	34.833	108.167	-108.167
2100.000	35.000	108.170	-108.170
2110.000	35.167	108.170	-108.170
2120.000	35.333	108.173	-108.173
2130.000	35.500	108.173	-108.173
2140.000	35.667	108.173	-108.173
2150.000	35.833	108.176	-108.176
2160.000	36.000	108.176	-108.176
2170.000	36.167	108.176	-108.176
2180.000	36.333	108.176	-108.176
2190.000	36.500	108.176	-108.176
2200.000	36.667	108.176	-108.176
2210.000	36.833	108.176	-108.176

2220.000	37.000	108.176	-108.176
2230.000	37.167	108.179	-108.179
2240.000	37.333	108.179	-108.179
2250.000	37.500	108.179	-108.179
2260.000	37.667	108.179	-108.179
2270.000	37.833	108.182	-108.182
2280.000	38.000	108.182	-108.182
2290.000	38.167	108.182	-108.182
2300.000	38.333	108.182	-108.182
2310.000	38.500	108.182	-108.182
2320.000	38.667	108.182	-108.182
2330.000	38.833	108.186	-108.186
2340.000	39.000	108.186	-108.186
2350.000	39.167	108.186	-108.186
2360.000	39.333	108.189	-108.189
2370.000	39.500	108.189	-108.189
2380.000	39.667	108.189	-108.189
2390.000	39.833	108.189	-108.189
2400.000	40.000	108.189	-108.189
2410.000	40.167	108.189	-108.189
2420.000	40.333	108.189	-108.189
2430.000	40.500	108.192	-108.192
2440.000	40.667	108.192	-108.192
2450.000	40.833	108.195	-108.195
2460.000	41.000	108.195	-108.195
2470.000	41.167	108.198	-108.198
2480.000	41.333	108.198	-108.198
2490.000	41.500	108.201	-108.201
2500.000	41.667	108.201	-108.201
2510.000	41.833	108.205	-108.205
2520.000	42.000	108.208	-108.208
2530.000	42.167	108.211	-108.211
2540.000	42.333	108.211	-108.211
2550.000	42.500	108.211	-108.211
2560.000	42.667	108.214	-108.214
2570.000	42.833	108.214	-108.214
2580.000	43.000	108.217	-108.217
2590.000	43.167	108.220	-108.220
2600.000	43.333	108.224	-108.224
2610.000	43.500	108.224	-108.224
2620.000	43.667	108.227	-108.227
2630.000	43.833	108.227	-108.227
2640.000	44.000	108.230	-108.230
2650.000	44.167	108.230	-108.230
2660.000	44.333	108.230	-108.230

Pg 23-26

2670.000	44.500	108.233	-108.233
2680.000	44.667	108.233	-108.233
2690.000	44.833	108.233	-108.233
2700.000	45.000	108.233	-108.233
2710.000	45.167	108.236	-108.236
2720.000	45.333	108.233	-108.233
2730.000	45.500	108.233	-108.233
2740.000	45.667	108.233	-108.233
2750.000	45.833	108.236	-108.236
2760.000	46.000	108.236	-108.236
2770.000	46.167	108.230	-108.230
2780.000	46.333	108.239	-108.239
2790.000	46.500	108.236	-108.236
2800.000	46.667	108.236	-108.236
2810.000	46.833	108.233	-108.233
2820.000	47.000	108.239	-108.239
2830.000	47.167	108.236	-108.236
2840.000	47.333	108.233	-108.233
2850.000	47.500	108.233	-108.233
2860.000	47.667	108.230	-108.230
2870.000	47.833	108.239	-108.239
2880.000	48.000	108.233	-108.233
2890.000	48.167	108.227	-108.227
2900.000	48.333	108.230	-108.230
2910.000	48.500	108.227	-108.227
2920.000	48.667	108.230	-108.230
2930.000	48.833	108.227	-108.227
2940.000	49.000	108.217	-108.217
2950.000	49.167	108.224	-108.224
2960.000	49.333	108.227	-108.227
2970.000	49.500	108.224	-108.224
2980.000	49.667	108.220	-108.220
2990.000	49.833	108.214	-108.214
3000.000	50.000	108.224	-108.224
3010.000	50.167	108.217	-108.217
3020.000	50.333	108.220	-108.220
3030.000	50.500	108.217	-108.217
3040.000	50.667	108.214	-108.214
3050.000	50.833	108.211	-108.211
3060.000	51.000	108.208	-108.208
3070.000	51.167	108.211	-108.211
3080.000	51.333	108.208	-108.208
3090.000	51.500	108.205	-108.205
3100.000	51.667	108.205	-108.205
3110.000	51.833	108.201	-108.201

3120.000	52.000	108.201	-108.201
3130.000	52.167	108.198	-108.198
3140.000	52.333	108.198	-108.198
3150.000	52.500	108.198	-108.198
3160.000	52.667	108.195	-108.195
3170.000	52.833	108.195	-108.195
3180.000	53.000	108.195	-108.195
3190.000	53.167	108.195	-108.195
3200.000	53.333	108.192	-108.192
3210.000	53.500	108.192	-108.192
3220.000	53.667	108.192	-108.192
3230.000	53.833	108.192	-108.192
3240.000	54.000	108.189	-108.189
3250.000	54.167	108.189	-108.189
3260.000	54.333	108.192	-108.192
3270.000	54.500	108.192	-108.192
3280.000	54.667	108.189	-108.189
3290.000	54.833	108.189	-108.189
3300.000	55.000	108.186	-108.186
3310.000	55.167	108.189	-108.189
3320.000	55.333	108.186	-108.186
3330.000	55.500	108.186	-108.186
3340.000	55.667	108.186	-108.186
3350.000	55.833	108.186	-108.186
3360.000	56.000	108.186	-108.186
3370.000	56.167	108.186	-108.186
3380.000	56.333	108.186	-108.186
3390.000	56.500	108.186	-108.186
3400.000	56.667	108.189	-108.189
3410.000	56.833	108.186	-108.186
3420.000	57.000	108.189	-108.189
3430.000	57.167	108.186	-108.186
3440.000	57.333	108.186	-108.186
3450.000	57.500	108.186	-108.186
3460.000	57.667	108.186	-108.186
3470.000	57.833	108.186	-108.186
3480.000	58.000	108.186	-108.186
3490.000	58.167	108.186	-108.186
3500.000	58.333	108.186	-108.186
3510.000	58.500	108.186	-108.186
3520.000	58.667	108.186	-108.186
3530.000	58.833	108.182	-108.182
3540.000	59.000	108.186	-108.186
3550.000	59.167	108.186	-108.186
3560.000	59.333	108.186	-108.186

3570.000	59.500	108.186	-108.186
3580.000	59.667	108.186	-108.186
3590.000	59.833	108.186	-108.186
3600.000	60.000	108.189	-108.189
3610.000	60.167	108.186	-108.186
3620.000	60.333	108.189	-108.189
3630.000	60.500	108.189	-108.189
3640.000	60.667	108.186	-108.186
3650.000	60.833	108.186	-108.186
3660.000	61.000	108.186	-108.186
3670.000	61.167	108.186	-108.186
3680.000	61.333	108.189	-108.189
3690.000	61.500	108.189	-108.189
3700.000	61.667	108.186	-108.186
3710.000	61.833	108.186	-108.186
3720.000	62.000	108.186	-108.186
3730.000	62.167	108.186	-108.186
3740.000	62.333	108.189	-108.189
3750.000	62.500	108.189	-108.189
3760.000	62.667	108.189	-108.189
3770.000	62.833	108.189	-108.189
3780.000	63.000	108.189	-108.189
3790.000	63.167	108.189	-108.189
3800.000	63.333	108.189	-108.189
3810.000	63.500	108.192	-108.192
3820.000	63.667	108.189	-108.189
3830.000	63.833	108.192	-108.192
3840.000	64.000	108.192	-108.192
3850.000	64.167	108.192	-108.192
3860.000	64.333	108.192	-108.192
3870.000	64.500	108.195	-108.195
3880.000	64.667	108.195	-108.195
3890.000	64.833	108.195	-108.195
3900.000	65.000	108.198	-108.198
3910.000	65.167	108.198	-108.198
3920.000	65.333	108.198	-108.198
3930.000	65.500	108.201	-108.201
3940.000	65.667	108.198	-108.198
3950.000	65.833	108.201	-108.201
3960.000	66.000	108.201	-108.201
3970.000	66.167	108.201	-108.201
3980.000	66.333	108.205	-108.205
3990.000	66.500	108.208	-108.208
4000.000	66.667	108.205	-108.205
4010.000	66.833	108.205	-108.205

4020.000	67.000	108.208	-108.208
4030.000	67.167	108.208	-108.208
4040.000	67.333	108.211	-108.211
4050.000	67.500	108.211	-108.211
4060.000	67.667	108.214	-108.214
4070.000	67.833	108.217	-108.217
4080.000	68.000	108.217	-108.217
4090.000	68.167	108.220	-108.220
4100.000	68.333	108.224	-108.224
4110.000	68.500	108.224	-108.224
4120.000	68.667	108.224	-108.224
4130.000	68.833	108.224	-108.224
4140.000	69.000	108.227	-108.227
4150.000	69.167	108.227	-108.227
4160.000	69.333	108.230	-108.230
4170.000	69.500	108.236	-108.236
4180.000	69.667	108.236	-108.236
4190.000	69.833	108.236	-108.236
4200.000	70.000	108.236	-108.236

WELL 699-42-37

For Information Only

SAMPLING PUMP INSTALLATION FORM

Project: W-049H

Well Number: 699-42-37

Pump Type: Hydrostar

Pump Model: 8001

Date Installed: 11/02/92

Installed By: B. Strode

Depth to Water: 104.35 Ft BTOC*

Depth to Bottom: 158.40 Ft BTOC

Reported Depth of water: 104.35' (10/30/92)

Screened Interval: 148.13-158.40 Ft BTOC

Pump/Riser Pipe Description:

Pipe: 3/4" Stainless steel

Pump Length: 4.33'

Pump Screen Length: 1.91'

Material Cleaning: Manufacturer

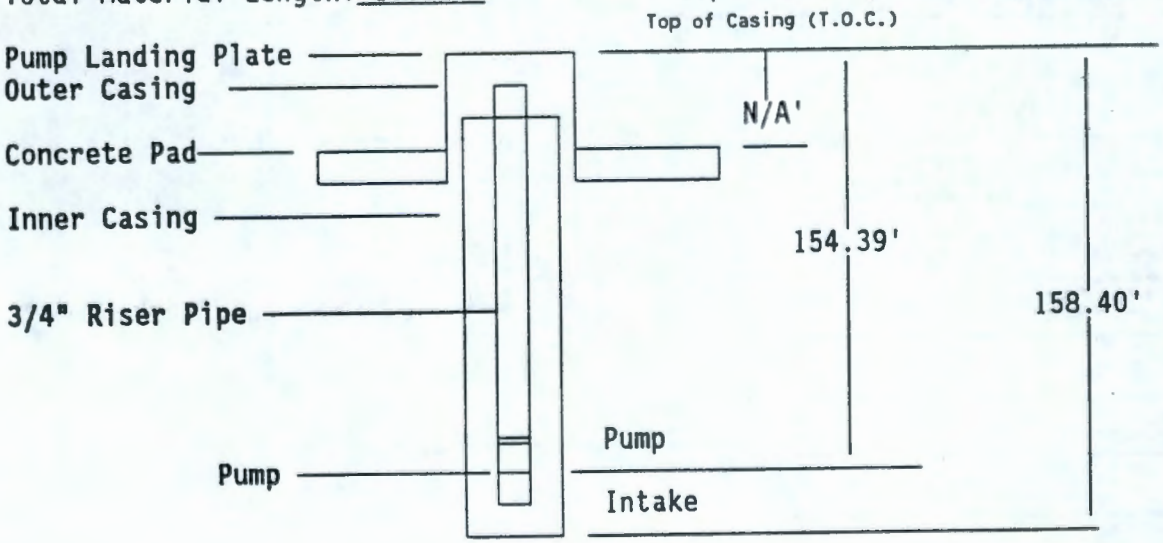
Distance pump off bottom: 2.20'

Comments: Pump tested on 11/02/92, produced 5 gal/53.16 sec @ 48 strokes = 5.64 gpm @ 54 s/m.

PUMP INSTALLATION SKETCH

Total Material Length: 156.20 Ft

Depth to Pump intake: 154.39 Ft BTOC



Completed By: R. S. Edrington

Date: 01/05/93

* BTOC - Below Top Of Casing

BOREHOLE TEST INFORMATION

Borehole 699-42-37 Borehole Diameter 4 in. Hanford Coordinates N/A

Interval Tested ~~104.35-158.40'~~ 148.1 - 158.4 Depth Interval 104.35-158.40' Test Type: Instantaneous Slug

Borehole Depth: 158.40' Instruction Used: WHC-CM-7-7 (EII 10.1)

EQUIPMENT

NAME	DESCRIPTION
Electric Sounder	Solinst s/n: ET-4 Calibration due: 1-08-93
Data Logger	In-Situ Inc. s/n: 1KB277
Pressure Transducer	In-Situ Inc. s/n: 2110 Calibration due: 2-21-93
Slugging Rod	Site Fabricated 72.0"Lx2.0"D 0.13 cu. ft.
Steel Measuring Tape	300' Graduated Steel Tape

MEASUREMENT DATUM

Control Datum: Top of Casing (TOC) 6"

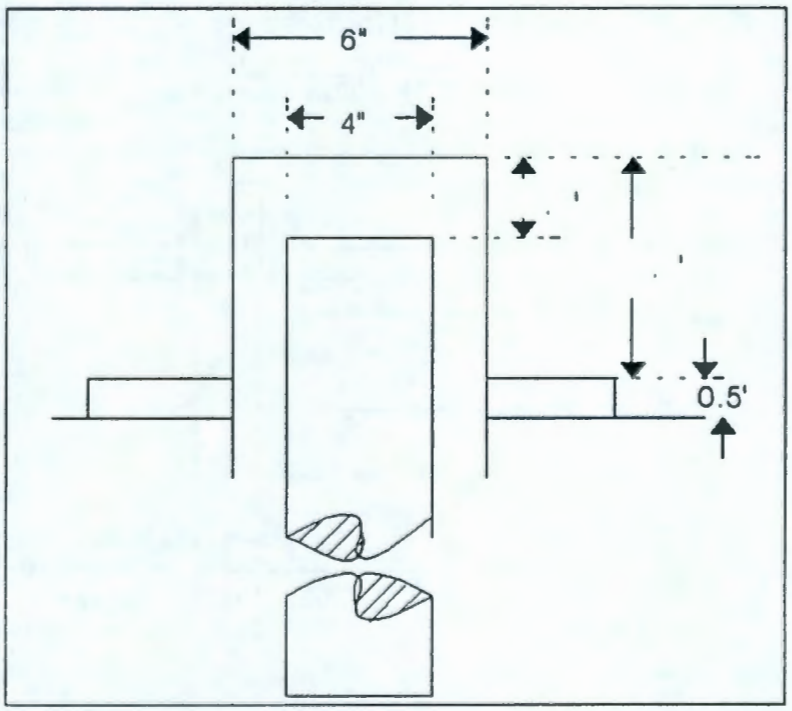
Elevation: N/A

Electric Sounder: TOC 6"

Steel Tape: TOC 6"

Pressure Transducer: TOC 6"

WELL HEAD DIAGRAM



COMMENTS

Recorded by: R S. Edrington Date: 01/05/93

Sign and Print Name

P.2 of 9

INSTANTANEOUS SLUG TEST DATA SHEET: INJECTION

Borehole: 699-42-37

Interval Tested: ~~104.35 -158.40'~~ 146.1 - 158.4 Btoc 6"

Depth To Water: 104.35' Btoc 6"

Depth to Transducer: 80.12' BWL

Measured by: Robert S. Edrington

Slug Volume: 0.13 cu. ft.

Barometric Reading:

Beginning: N/A End: N/A

Time:	Start	End
Baseline	1005	1017
Injection	1020	1038

Date: 10-30-92

Initial Pressure (Pi): 104.35

Slug Level/Pressure (Pmax) 102.57

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: Robert S. Edrington Date: 01-05-93

Sign and Print Name

BD-6000-293(07/90)

P.3 of 9

699-42-37 Slug Injection

Hermit Environment Data Logger Unit# 277
Water Level (ft) below top of casing (BTOC)

Test# 4
Type: Slug Injection
SWL: 104.35'
Scale: 50.15
0277 Test# 4

Baseline Begun: 1005 10/30/92
Slug Injected: 1020 10/30/92
Slug Volume: 0.13 Cu ft

Time:min	Time:hrs	D-T-W:Ft	d(BTOC)
0.000	0.00000	104.28	-104.28
0.003	0.00006	103.41	-103.41
0.007	0.00011	101.57	-101.57
0.010	0.00017	106.96	-106.96
0.013	0.00022	121.89	-121.89
0.017	0.00028	101.75	-101.75
0.020	0.00033	101.31	-101.31
0.023	0.00039	102.57	-102.57
0.027	0.00044	102.37	-102.37
0.030	0.00050	102.19	-102.19
0.033	0.00056	100.96	-100.96
0.050	0.00083	103.03	-103.03
0.067	0.00111	102.18	-102.18
0.083	0.00139	102.59	-102.59
0.100	0.00167	102.43	-102.43
0.117	0.00194	102.57	-102.57
0.133	0.00222	102.59	-102.59
0.150	0.00250	102.65	-102.65
0.167	0.00278	102.65	-102.65
0.183	0.00306	102.68	-102.68
0.200	0.00333	102.67	-102.67
0.217	0.00361	102.68	-102.68
0.233	0.00389	102.68	-102.68
0.250	0.00417	102.70	-102.70
0.267	0.00444	102.71	-102.71
0.283	0.00472	102.73	-102.73
0.300	0.00500	102.75	-102.75
0.317	0.00528	102.75	-102.75
0.333	0.00556	102.76	-102.76
0.417	0.00695	102.81	-102.81
0.500	0.00833	102.86	-102.86
0.583	0.00972	102.92	-102.92
0.667	0.01111	102.97	-102.97

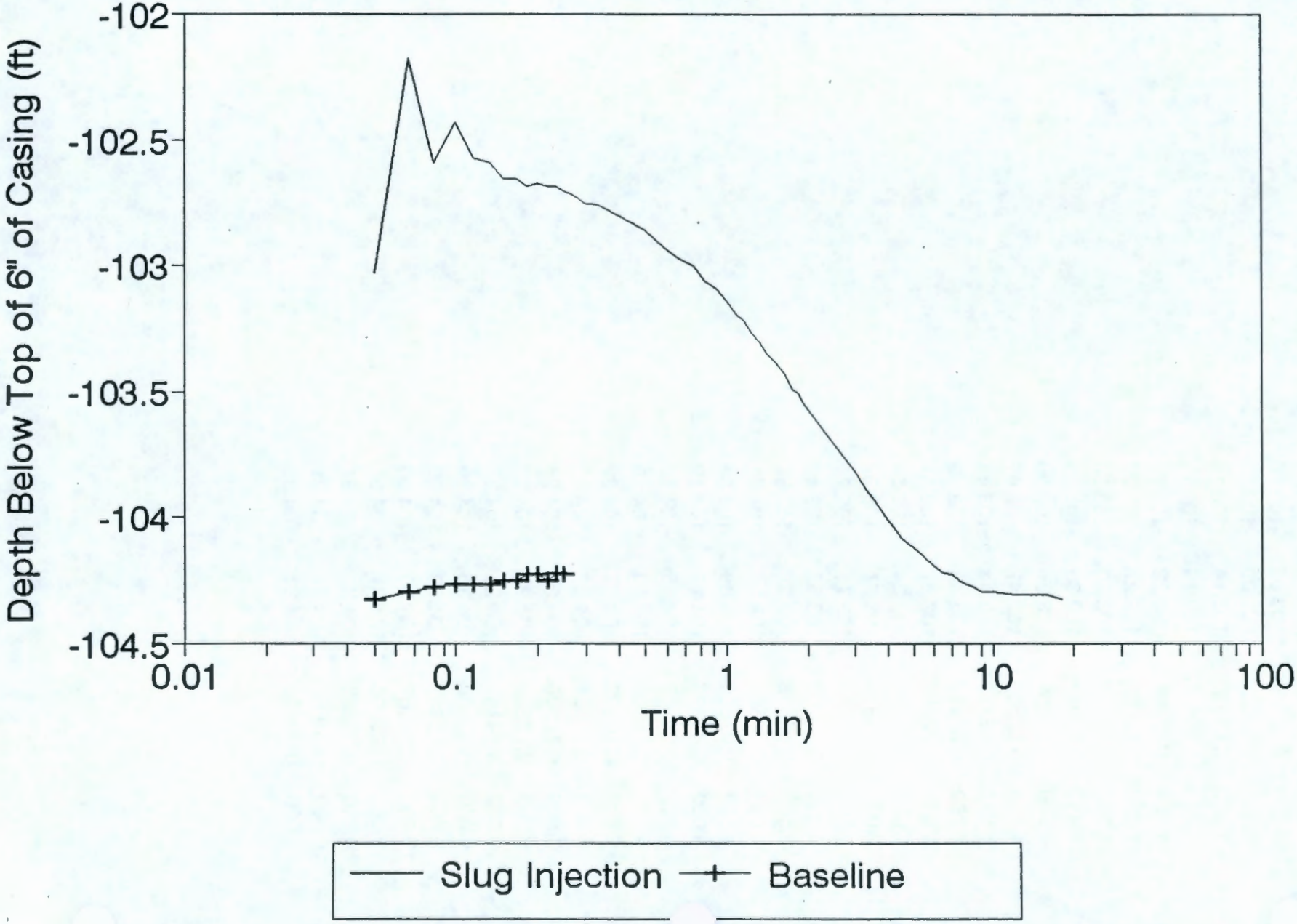
Time:min	Time:hrs	D-T-W:Ft	d(BTOC)
0.00	0.00	104.33	-104.33
1.00	0.02	104.30	-104.30
2.00	0.03	104.28	-104.28
3.00	0.05	104.27	-104.27
4.00	0.07	104.27	-104.27
5.00	0.08	104.27	-104.27
6.00	0.10	104.25	-104.25
7.00	0.12	104.25	-104.25
8.00	0.13	104.23	-104.23
9.00	0.15	104.23	-104.23
10.00	0.17	104.25	-104.25
11.00	0.18	104.22	-104.22
12.00	0.20	104.23	-104.23

P. 4 & 9

699-42-37 Slug Injection

0.750	0.01250	103.00	-103.00
0.833	0.01389	103.06	-103.06
0.917	0.01528	103.09	-103.09
1.000	0.01667	103.14	-103.14
1.083	0.01806	103.19	-103.19
1.167	0.01945	103.22	-103.22
1.250	0.02083	103.27	-103.27
1.333	0.02222	103.30	-103.30
1.417	0.02361	103.35	-103.35
1.500	0.02500	103.38	-103.38
1.583	0.02639	103.41	-103.41
1.667	0.02778	103.44	-103.44
1.750	0.02917	103.49	-103.49
1.833	0.03056	103.51	-103.51
1.917	0.03195	103.54	-103.54
2.000	0.03333	103.57	-103.57
2.500	0.04167	103.71	-103.71
3.000	0.05000	103.82	-103.82
3.500	0.05833	103.92	-103.92
4.000	0.06667	104.01	-104.01
4.500	0.07500	104.08	-104.08
5.000	0.08333	104.12	-104.12
5.500	0.09167	104.16	-104.16
6.000	0.10000	104.19	-104.19
6.500	0.10833	104.22	-104.22
7.000	0.11667	104.23	-104.23
7.500	0.12500	104.25	-104.25
8.000	0.13333	104.27	-104.27
8.500	0.14167	104.28	-104.28
9.000	0.15000	104.30	-104.30
9.500	0.15833	104.30	-104.30
10.000	0.16667	104.30	-104.30
12.000	0.20000	104.31	-104.31
14.000	0.23333	104.31	-104.31
16.000	0.26667	104.31	-104.31
18.000	0.30000	104.33	-104.33

699-42-37 Slug Injection
30-Oct-92



INSTANTANEOUS SLUG TEST DATA SHEET: WITHDRAWAL

Borehole: 699-42-37

Interval Tested: ~~104.35 - 158.40'~~ 145.1 - 153.4 Btoc 6"

Depth To Water: 104.35' Btoc 6"

Depth to Transducer: 80.12' BWL

Measured by: Robert S. Edrington

Slug Volume: 0.13 cu. ft.

Barometric Reading:

Beginning: N/A End: N/A

Time:	Start	End
Baseline	1039	1051
Injection	1052	1114

Date: 10-30-92

Initial Pressure (Pi): 104.35

Slug Level/Pressure (Pmax) 106.31

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: Robert S. Edrington Date: 01-05-93

Sign and Print Name

BD-6000-293(07/90)

699-42-37 Slug Withdrawal

Hermit Environment Data Logger Unit# 277

Test# 6 Water Level (ft) below top of casing (BTOC)

Type: Slug Withdrawal Baseline Begun: 1039 10/30/92

SWL: 104.35' Slug Withdrawn: 1052 10/30/92

Scale: 50.15 Slug Volume: 0.13 Cu ft

Time:min	Time:hrs	D-T-W:Ft	d(BTOC)
0.000	0.00000	104.36	-104.36
0.003	0.00006	109.59	-109.59
0.007	0.00011	106.10	-106.10
0.010	0.00017	104.22	-104.22
0.013	0.00022	105.82	-105.82
0.017	0.00028	106.31	-106.31
0.020	0.00033	106.23	-106.23
0.023	0.00039	106.31	-106.31
0.027	0.00044	106.23	-106.23
0.030	0.00050	106.25	-106.25
0.033	0.00056	106.23	-106.23
0.050	0.00083	106.20	-106.20
0.067	0.00111	106.17	-106.17
0.083	0.00139	106.13	-106.13
0.100	0.00167	106.13	-106.13
0.117	0.00194	106.12	-106.12
0.133	0.00222	106.10	-106.10
0.150	0.00250	106.09	-106.09
0.167	0.00278	106.07	-106.07
0.183	0.00306	106.07	-106.07
0.200	0.00333	106.04	-106.04
0.217	0.00361	106.04	-106.04
0.233	0.00389	106.02	-106.02
0.250	0.00417	106.01	-106.01
0.267	0.00444	105.99	-105.99
0.283	0.00472	105.98	-105.98
0.300	0.00500	105.98	-105.98
0.317	0.00528	105.96	-105.96
0.333	0.00556	105.94	-105.94
0.417	0.00695	105.88	-105.88
0.500	0.00833	105.83	-105.83
0.583	0.00972	105.77	-105.77
0.667	0.01111	105.72	-105.72
0.750	0.01250	105.68	-105.68

Time:min	Time:hrs	D-T-W:Ft	d(WL):Ft
0.00	0.00	104.36	-104.36
1.00	0.02	104.35	-104.35
2.00	0.03	104.35	-104.35
3.00	0.05	104.35	-104.35
4.00	0.07	104.35	-104.35
5.00	0.08	104.35	-104.35
6.00	0.10	104.35	-104.35
7.00	0.12	104.33	-104.33
8.00	0.13	104.33	-104.33
9.00	0.15	104.33	-104.33
10.00	0.17	104.33	-104.33
11.00	0.18	104.33	-104.33
12.00	0.20	104.33	-104.33

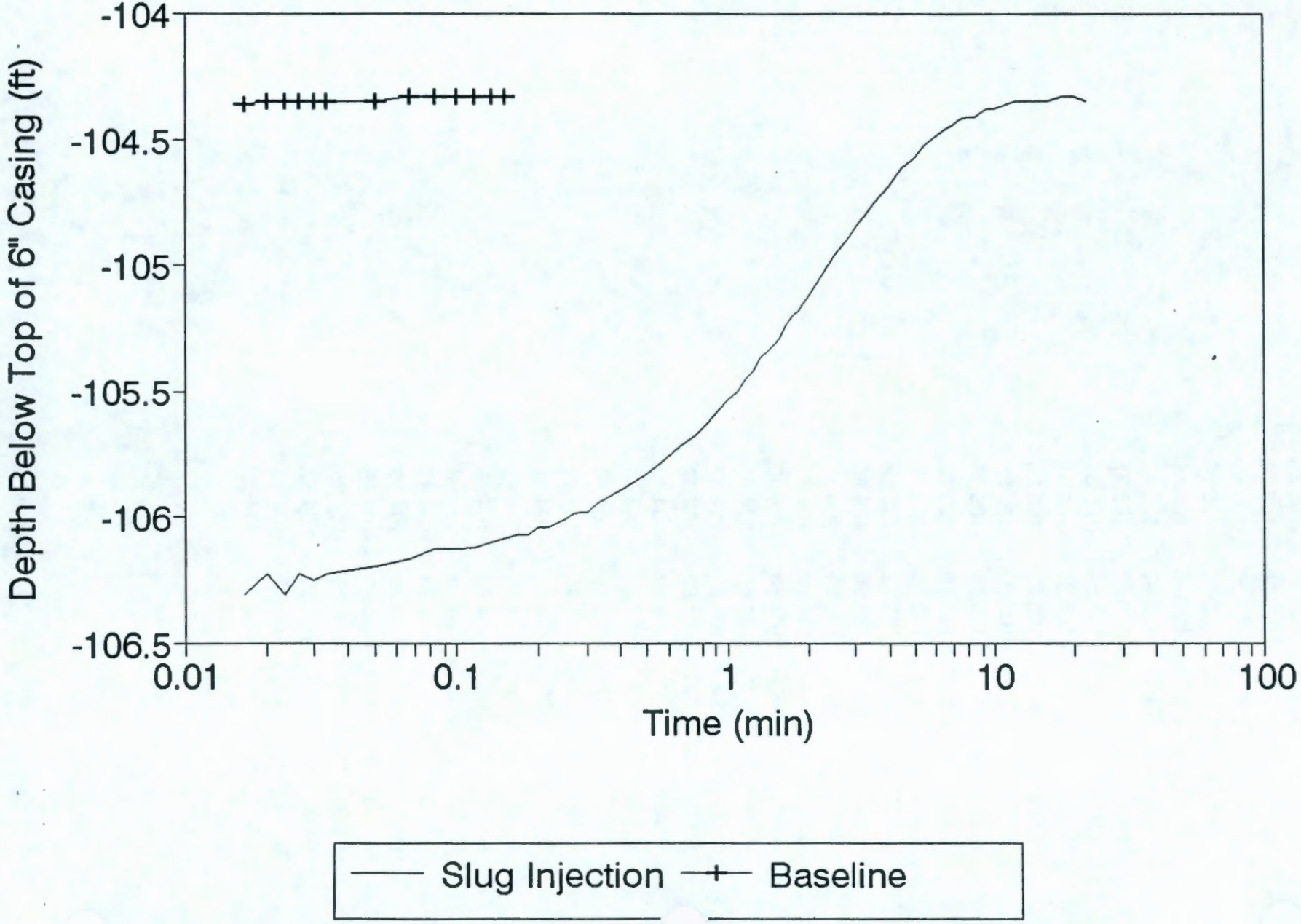
P. 8 of 9

699-42-37 Slug Withdrawal

0.833	0.01389	105.63	-105.63
0.917	0.01528	105.58	-105.58
1.000	0.01667	105.53	-105.53
1.083	0.01806	105.50	-105.50
1.167	0.01945	105.45	-105.45
1.250	0.02083	105.42	-105.42
1.333	0.02222	105.37	-105.37
1.417	0.02361	105.34	-105.34
1.500	0.02500	105.31	-105.31
1.583	0.02639	105.28	-105.28
1.667	0.02778	105.23	-105.23
1.750	0.02917	105.20	-105.20
1.833	0.03056	105.18	-105.18
1.917	0.03195	105.15	-105.15
2.000	0.03333	105.12	-105.12
2.500	0.04167	104.96	-104.96
3.000	0.05000	104.85	-104.85
3.500	0.05833	104.76	-104.76
4.000	0.06667	104.68	-104.68
4.500	0.07500	104.61	-104.61
5.000	0.08333	104.57	-104.57
5.500	0.09167	104.52	-104.52
6.000	0.10000	104.49	-104.49
6.500	0.10833	104.46	-104.46
7.000	0.11667	104.44	-104.44
7.500	0.12500	104.42	-104.42
8.000	0.13333	104.41	-104.41
8.500	0.14167	104.41	-104.41
9.000	0.15000	104.39	-104.39
9.500	0.15833	104.38	-104.38
10.000	0.16667	104.38	-104.38
12.000	0.20000	104.35	-104.35
14.000	0.23333	104.35	-104.35
16.000	0.26667	104.35	-104.35
18.000	0.30000	104.33	-104.33
20.000	0.33333	104.33	-104.33
22.000	0.36667	104.35	-104.35

P. 9 of 9

699-42-37 Slug Withdrawal
30-Oct-92



P. 1 of 1

For Information Only

Well Development Information
Checklist

Well No. 699-42-37 Date: 10/23/92

WELL INFORMATION

A. Outer Casing Diameter 6"

B. Inner Casing Diameter 4"

C. Difference in stick-up N/A

D. Stick-up of outer casing N/A

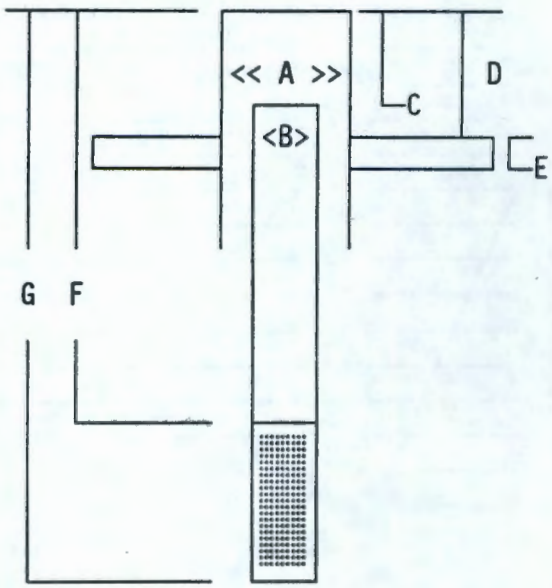
E. Thickness of well pad 0.5'

F. Depth to Water (BTOC) 105.17'

G. Total depth of Hole (BTOC) 158.40'

H. Screened Interval (BTOC) 148.13-158.40'

I. Screen length 10.27'



DEVELOPMENT INFORMATION

J. Depth of Development pump intake. 157.19' BTOC

K. Depth (below water) of Transducer during drawdown/recovery. 50.16'

L. Depth (below water) of Transducer during slug test. 53.35'

EQUIPMENT INFORMATION

	Serial #	Calibration date
Hermit	1KB-700	N/A
E-Tape	ET-4	1/8/93
Transducer	2110	2/21/93

Slugging Rod dimensions 6'x 2" (0.13 ft^3)

Comments: Development started on 10/23/92 and finished 10/30/92, pumping rate averaged between 5.06 to 8.56 gpm, well was surged on 10/29. A final turbidity of 3.1 was reached at 0848(10/30); 6,039.5 gallons pumped total during development. Slug Test performed 10/30, slug in 1018, slug out 1054.

BTOC = Below Top Of Casing. BLS = Below Land Surface

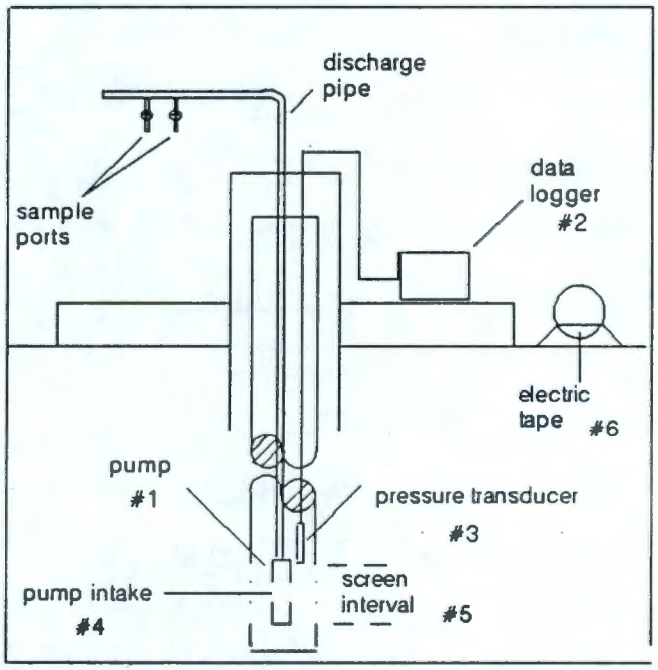
EQUIPMENT CONFIGURATION AND WELL HEAD DIAGRAM

WELL DESIGNATION 699-42-37 DEPTH 158.40' Btoc 6"

Equipment Configuration

Item	Description
#1	1.5 hp. Grundfos submersible
#2	Data Logger 1KB-700
#3	In-Situ Inc s/n 2110 (cal. 2-21-93)
#4	@157.19' Btoc 6"
#5	148.13-158.40' Btoc 6"
#6	Solinst s/n: ET-4 (cal. 1-08-93)

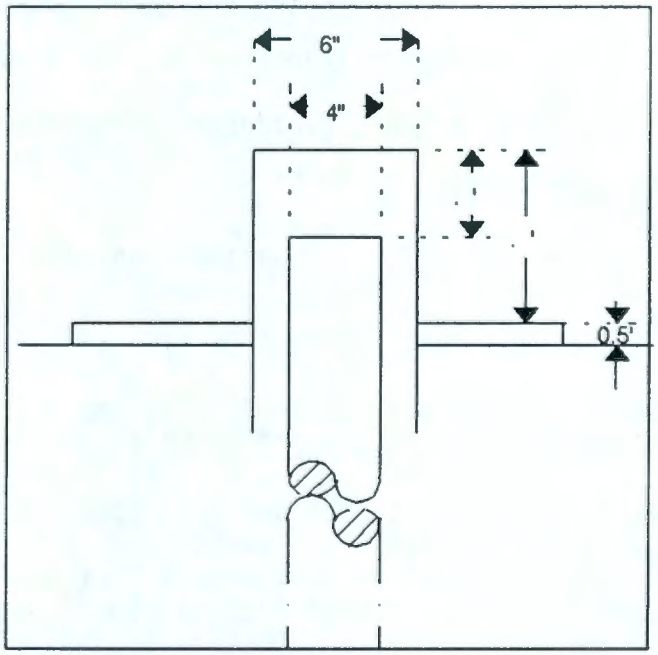
Diagram



Comments

Development started on 10/23/92. Completed 10/30. Slug Test performed 10/30.

Well Head Diagram



Signature of Recorder R. S Edrington Date 01-05-93

A-6000-417 (08/89)

P.2 of 33

WELL DEVELOPMENT FORM

Well Designation: 699-42-37 Well Depth: 158.40' BTOC

Screened Interval: 148.13-158.40' BTOC Date Well Devel. Performed: 10/23-10/30

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: 157,19BTOC Pump Start Time: 1148/10-23

Flow Rate: 5.06 to 8.56 Accumulated Flow: 6,039.5 gallons Pump Stop Time: 0902/10-30

Turbidity (NTU): 59 75 26 30 13 11 8.1 9.8 8.0 8.5 9.8 8.7
29 25 15 33 17 14 23 40 20 11 3.1

COMMENTS: Development started on 10/23/92 and finished 10/30/92. Multiple drawdowns were performed.

Recorded by: R S Edrington Date: 01-05-93
Sign and Print Name

A-6000-393 (03/90)

P.3 of 33

1st DRAWDOWN/RECOVERY

page 1 of

Well Designation: 699-42-37 Date: 10-23-92

Well Depth: 158.40'BTOC Screened Interval: 148.13-158.40'BTOC

Pumping Method: Constant Discharge

Equipment Used to Measure Water Level: E.Tape/Transducer S.N. ET-4/2110 Calibration Due: 1-8-93 /2-21-93

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

Measuring Point: Top of Casing (6") Pump Start Time: 1234 Pump Stop Time: 1430

Time		Water Level		Discharge
Date	Time	Reading Units:	Water Level Units:	Reading Bucket Method
10-23-92	1234			5gal./52.81 sec= 5.68gpm
		See Attached Data	See Attached Data	

Recorded by: Robert S. Edrington Robert S. Edrington Date: 01-05-93

Sign and Print Name

BD-6000-402(03/90)

699-42-37 Drawdown

Hermit Environment Data Logger Unit# 700
Water Level (ft) below top of casing (BTOC)

Test# 1
Type: Drawdown
SWL: 105.26'
Scale Factor: 50.15

Baseline Begun: 1102 10/23/92
Pump Started: 1234 10/23/92

Time:min	Time:hrs	D-T-W:Ft	d(BTOC)
0.000	0.00000	108.06	-108.06
0.003	0.00006	105.51	-105.51
0.007	0.00011	105.76	-105.76
0.010	0.00017	105.60	-105.60
0.013	0.00022	105.52	-105.52
0.017	0.00028	105.62	-105.62
0.020	0.00033	105.71	-105.71
0.023	0.00039	105.83	-105.83
0.027	0.00044	105.87	-105.87
0.030	0.00050	105.97	-105.97
0.033	0.00056	106.03	-106.03
0.050	0.00083	106.41	-106.41
0.067	0.00111	106.78	-106.78
0.083	0.00139	107.12	-107.12
0.100	0.00167	107.47	-107.47
0.117	0.00194	107.84	-107.84
0.133	0.00222	108.17	-108.17
0.150	0.00250	108.56	-108.56
0.167	0.00278	108.93	-108.93
0.183	0.00306	109.23	-109.23
0.200	0.00333	109.55	-109.55
0.217	0.00361	109.88	-109.88
0.233	0.00389	110.18	-110.18
0.250	0.00417	110.50	-110.50
0.267	0.00444	110.80	-110.80
0.283	0.00472	111.10	-111.10
0.300	0.00500	111.38	-111.38
0.317	0.00528	111.70	-111.70
0.333	0.00556	111.91	-111.91
0.417	0.00695	112.32	-112.32
0.500	0.00833	112.70	-112.70
0.583	0.00972	113.11	-113.11
0.667	0.01111	113.46	-113.46
0.750	0.01250	113.90	-113.90

Time:min	Time:hrs	D-T-W:Ft	d(BTOC)
0.00	0.00	105.17	-105.17
1.00	0.02	105.17	-105.17
2.00	0.03	105.18	-105.18
3.00	0.05	105.20	-105.20
4.00	0.07	105.21	-105.21
5.00	0.08	105.21	-105.21
6.00	0.10	105.23	-105.23
7.00	0.12	105.23	-105.23
8.00	0.13	105.24	-105.24
9.00	0.15	105.26	-105.26
10.00	0.17	105.26	-105.26
11.00	0.18	105.28	-105.28
12.00	0.20	105.29	-105.29
13.00	0.22	105.31	-105.31
14.00	0.23	105.31	-105.31
15.00	0.25	105.32	-105.32
16.00	0.27	105.32	-105.32
17.00	0.28	105.34	-105.34
18.00	0.30	105.34	-105.34
19.00	0.32	105.36	-105.36
20.00	0.33	105.36	-105.36
21.00	0.35	105.36	-105.36
22.00	0.37	105.37	-105.37
23.00	0.38	105.39	-105.39
24.00	0.40	105.39	-105.39
25.00	0.42	105.40	-105.40
26.00	0.43	105.40	-105.40
27.00	0.45	105.42	-105.42
28.00	0.47	105.42	-105.42
29.00	0.48	105.43	-105.43
30.00	0.50	105.43	-105.43
31.00	0.52	105.45	-105.45
32.00	0.53	105.45	-105.45
33.00	0.55	105.47	-105.47

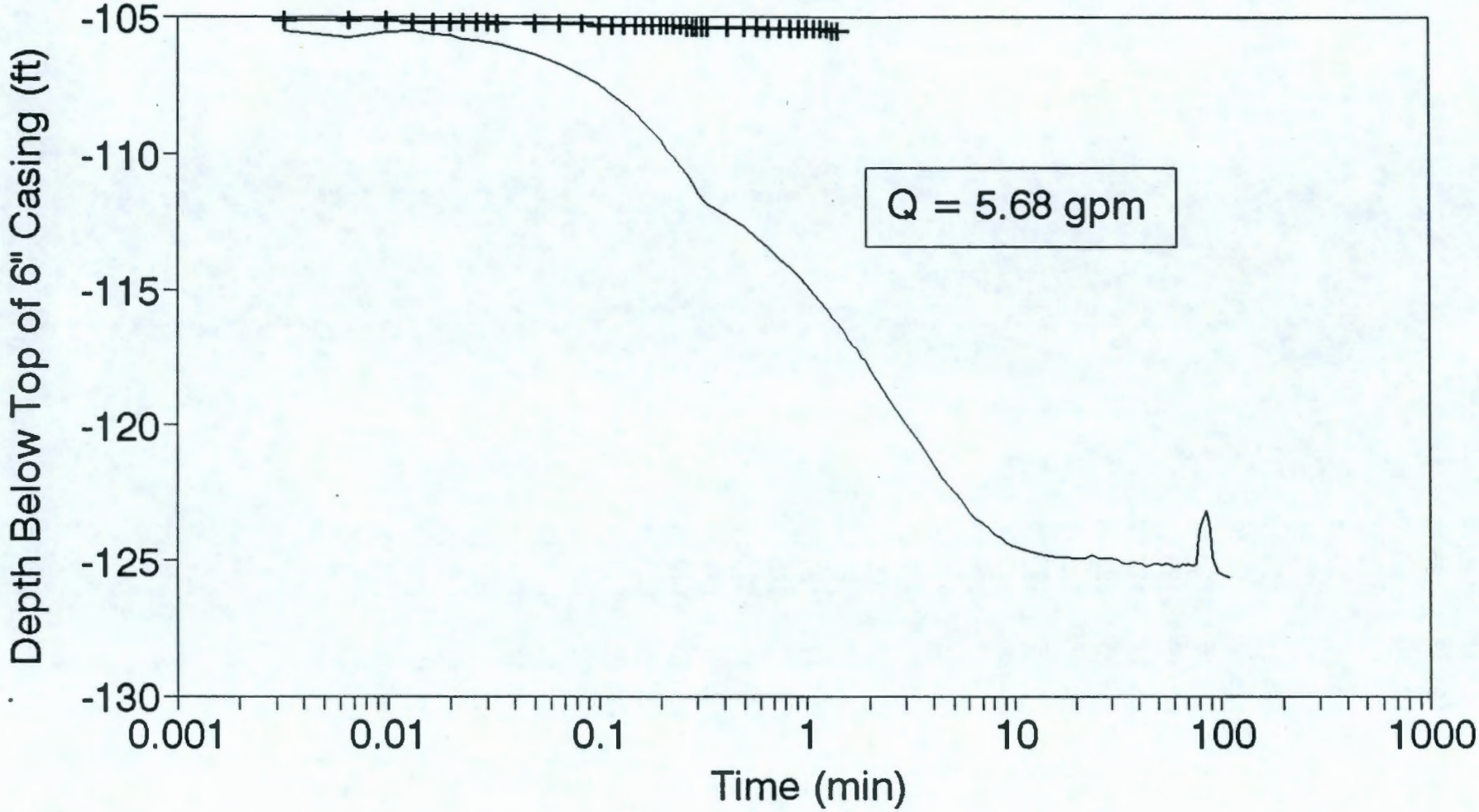
699-42-37 Drawdown

0.833	0.01389	114.25	-114.25
0.917	0.01528	114.53	-114.53
1.000	0.01667	114.87	-114.87
1.083	0.01806	115.23	-115.23
1.167	0.01945	115.47	-115.47
1.250	0.02083	115.77	-115.77
1.333	0.02222	116.05	-116.05
1.417	0.02361	116.29	-116.29
1.500	0.02500	116.55	-116.55
1.583	0.02639	116.83	-116.83
1.667	0.02778	117.07	-117.07
1.750	0.02917	117.24	-117.24
1.833	0.03056	117.51	-117.51
1.917	0.03195	117.67	-117.67
2.000	0.03333	117.91	-117.91
2.500	0.04167	119.09	-119.09
3.000	0.05000	119.98	-119.98
3.500	0.05833	120.76	-120.76
4.000	0.06667	121.47	-121.47
4.500	0.07500	121.98	-121.98
5.000	0.08333	122.47	-122.47
5.500	0.09167	122.80	-122.80
6.000	0.10000	123.21	-123.21
6.500	0.10833	123.50	-123.50
7.000	0.11667	123.65	-123.65
7.500	0.12500	123.88	-123.88
8.000	0.13333	124.05	-124.05
8.500	0.14167	124.18	-124.18
9.000	0.15000	124.35	-124.35
9.500	0.15833	124.46	-124.46
10.000	0.16667	124.51	-124.51
12.000	0.20000	124.70	-124.70
14.000	0.23333	124.86	-124.86
16.000	0.26667	124.91	-124.91
18.000	0.30000	124.92	-124.92
20.000	0.33333	124.95	-124.95
22.000	0.36667	124.98	-124.98
24.000	0.40000	124.87	-124.87
26.000	0.43333	124.95	-124.95
28.000	0.46667	124.95	-124.95
30.000	0.50000	124.98	-124.98
32.000	0.53333	125.05	-125.05
34.00	0.57	105.47	-105.47
35.00	0.58	105.47	-105.47
36.00	0.60	105.48	-105.48
37.00	0.62	105.48	-105.48
38.00	0.63	105.48	-105.48
39.00	0.65	105.50	-105.50
40.00	0.67	105.51	-105.51

699-42-37 Drawdown

34.000	0.56667	125.17	-125.17
36.000	0.60000	125.13	-125.13
38.000	0.63333	125.10	-125.10
40.000	0.66667	125.13	-125.13
42.000	0.70000	125.17	-125.17
44.000	0.73333	125.25	-125.25
46.000	0.76667	125.21	-125.21
48.000	0.80000	125.16	-125.16
50.000	0.83333	125.16	-125.16
52.000	0.86667	125.19	-125.19
54.000	0.90000	125.17	-125.17
56.000	0.93333	125.16	-125.16
58.000	0.96667	125.21	-125.21
60.000	1.00000	125.25	-125.25
62.000	1.03333	125.21	-125.21
64.000	1.06667	125.27	-125.27
66.000	1.10000	125.14	-125.14
68.000	1.13333	125.21	-125.21
70.000	1.16667	125.17	-125.17
72.000	1.20000	125.19	-125.19
74.000	1.23333	125.22	-125.22
76.000	1.26667	125.13	-125.13
78.000	1.30000	124.56	-124.56
80.000	1.33333	123.84	-123.84
82.000	1.36667	123.48	-123.48
84.000	1.40000	123.29	-123.29
86.000	1.43333	123.20	-123.20
88.000	1.46667	123.62	-123.62
90.000	1.50000	124.43	-124.43
92.000	1.53333	124.92	-124.92
94.000	1.56667	125.17	-125.17
96.000	1.60000	125.33	-125.33
98.000	1.63333	125.48	-125.48
100.000	1.66667	125.52	-125.52
110.000	1.83333	125.67	-125.67

699-42-37 Drawdown
23-Oct-92



Drawdown — Baseline

699-42-37 1st Recovery

Hermit Environment Data Logger Unit# 700

Test# 2 Water Level (ft) below top of casing (BTOC)

Type: Recovery

SWL: 105.26' Pump Shut off: 1430 10/23/92

Scale: 50.15

Time:min	Time:hrs	D-T-W:Ft	d(BTOC)
0.000	0.00000	125.11	-125.11
0.003	0.00006	125.32	-125.32
0.007	0.00011	125.41	-125.41
0.010	0.00017	125.44	-125.44
0.013	0.00022	125.40	-125.40
0.017	0.00028	125.33	-125.33
0.020	0.00033	125.29	-125.29
0.023	0.00039	125.24	-125.24
0.027	0.00044	125.19	-125.19
0.030	0.00050	125.14	-125.14
0.033	0.00056	125.10	-125.10
0.050	0.00083	124.86	-124.86
0.067	0.00111	124.62	-124.62
0.083	0.00139	124.38	-124.38
0.100	0.00167	124.15	-124.15
0.117	0.00194	123.91	-123.91
0.133	0.00222	123.69	-123.69
0.150	0.00250	123.46	-123.46
0.167	0.00278	123.24	-123.24
0.183	0.00306	123.04	-123.04
0.200	0.00333	122.82	-122.82
0.217	0.00361	122.59	-122.59
0.233	0.00389	122.39	-122.39
0.250	0.00417	122.18	-122.18
0.267	0.00444	121.98	-121.98
0.283	0.00472	121.77	-121.77
0.300	0.00500	121.56	-121.56
0.317	0.00528	121.36	-121.36
0.333	0.00556	121.17	-121.17
0.417	0.00695	120.22	-120.22
0.500	0.00833	119.35	-119.35
0.583	0.00972	118.52	-118.52
0.667	0.01111	117.76	-117.76
0.750	0.01250	117.05	-117.05

699-42-37 1st Recovery

0.833	0.01389	116.40	-116.40
0.917	0.01528	115.82	-115.82
1.000	0.01667	115.28	-115.28
1.083	0.01806	114.79	-114.79
1.167	0.01945	114.36	-114.36
1.250	0.02083	113.96	-113.96
1.333	0.02222	113.63	-113.63
1.417	0.02361	113.35	-113.35
1.500	0.02500	113.08	-113.08
1.583	0.02639	112.86	-112.86
1.667	0.02778	112.62	-112.62
1.750	0.02917	112.40	-112.40
1.833	0.03056	112.19	-112.19
1.917	0.03195	111.98	-111.98
2.000	0.03333	111.78	-111.78
2.500	0.04167	110.69	-110.69
3.000	0.05000	109.80	-109.80
3.500	0.05833	109.06	-109.06
4.000	0.06667	108.41	-108.41
4.500	0.07500	107.88	-107.88
5.000	0.08333	107.47	-107.47
5.500	0.09167	107.12	-107.12
6.000	0.10000	106.84	-106.84
6.500	0.10833	106.60	-106.60
7.000	0.11667	106.41	-106.41
7.500	0.12500	106.24	-106.24
8.000	0.13333	106.11	-106.11
8.500	0.14167	106.00	-106.00
9.000	0.15000	105.90	-105.90
9.500	0.15833	105.83	-105.83
10.000	0.16667	105.76	-105.76
12.000	0.20000	105.56	-105.56
14.000	0.23333	105.46	-105.46
16.000	0.26667	105.41	-105.41
18.000	0.30000	105.38	-105.38
20.000	0.33333	105.35	-105.35
22.000	0.36667	105.35	-105.35
24.000	0.40000	105.30	-105.30
26.000	0.43333	105.29	-105.29
28.000	0.46667	105.27	-105.27
30.000	0.50000	105.24	-105.24
32.000	0.53333	105.22	-105.22

699-42-37 1st Recovery

34.000	0.56667	105.21	-105.21
36.000	0.60000	105.19	-105.19
38.000	0.63333	105.19	-105.19
40.000	0.66667	105.18	-105.18
42.000	0.70000	105.18	-105.18
44.000	0.73333	105.16	-105.16
46.000	0.76667	105.16	-105.16
48.000	0.80000	105.16	-105.16
50.000	0.83333	105.16	-105.16
52.000	0.86667	105.18	-105.18
54.000	0.90000	105.18	-105.18
56.000	0.93333	105.18	-105.18
58.000	0.96667	105.18	-105.18
60.000	1.00000	105.18	-105.18
62.000	1.03333	105.18	-105.18
64.000	1.06667	105.18	-105.18
66.000	1.10000	105.18	-105.18
68.000	1.13333	105.18	-105.18
70.000	1.16667	105.18	-105.18
72.000	1.20000	105.19	-105.19
74.000	1.23333	105.19	-105.19
76.000	1.26667	105.19	-105.19
78.000	1.30000	105.19	-105.19
80.000	1.33333	105.19	-105.19
82.000	1.36667	105.18	-105.18
84.000	1.40000	105.18	-105.18
86.000	1.43333	105.18	-105.18
88.000	1.46667	105.18	-105.18
90.000	1.50000	105.18	-105.18
92.000	1.53333	105.16	-105.16
94.000	1.56667	105.16	-105.16
96.000	1.60000	105.16	-105.16
98.000	1.63333	105.16	-105.16
100.000	1.66667	105.14	-105.14
110.000	1.83333	105.13	-105.13
120.000	2.00000	105.10	-105.10
130.000	2.16667	105.10	-105.10
140.000	2.33333	105.08	-105.08
150.000	2.50000	105.07	-105.07
160.000	2.66667	105.07	-105.07
170.000	2.83333	105.05	-105.05
180.000	3.00000	105.03	-105.03

699-42-37 1st Recovery

190.000	3.16667	105.03	-105.03
200.000	3.33333	105.02	-105.02
210.000	3.50000	105.00	-105.00
220.000	3.66667	105.00	-105.00
230.000	3.83333	105.00	-105.00
240.000	4.00000	104.99	-104.99
250.000	4.16667	104.99	-104.99
260.000	4.33333	104.99	-104.99
270.000	4.50000	104.99	-104.99
280.000	4.66667	104.97	-104.97
290.000	4.83333	104.97	-104.97
300.000	5.00000	104.97	-104.97
310.000	5.16667	104.97	-104.97
320.000	5.33333	104.97	-104.97
330.000	5.50000	104.95	-104.95
340.000	5.66667	104.95	-104.95
350.000	5.83333	104.95	-104.95
360.000	6.00000	104.94	-104.94
370.000	6.16667	104.94	-104.94
380.000	6.33333	104.94	-104.94
390.000	6.50000	104.94	-104.94
400.000	6.66667	104.92	-104.92
410.000	6.83333	104.92	-104.92
420.000	7.00000	104.92	-104.92
430.000	7.16667	104.92	-104.92
440.000	7.33333	104.92	-104.92
450.000	7.50000	104.92	-104.92
460.000	7.66667	104.92	-104.92
470.000	7.83333	104.91	-104.91
480.000	8.00000	104.91	-104.91
490.000	8.16667	104.91	-104.91
500.000	8.33333	104.91	-104.91
510.000	8.50000	104.91	-104.91
520.000	8.66667	104.91	-104.91
530.000	8.83333	104.89	-104.89
540.000	9.00000	104.91	-104.91
550.000	9.16667	104.89	-104.89
560.000	9.33333	104.89	-104.89
570.000	9.50000	104.89	-104.89
580.000	9.66667	104.89	-104.89
590.000	9.83333	104.89	-104.89
600.000	10.00000	104.89	-104.89

699-42-37 1st Recovery

610.000	10.16667	104.89	-104.89
620.000	10.33333	104.88	-104.88
630.000	10.50000	104.88	-104.88
640.000	10.66667	104.88	-104.88
650.000	10.83333	104.88	-104.88
660.000	11.00000	104.88	-104.88
670.000	11.16667	104.88	-104.88
680.000	11.33333	104.86	-104.86
690.000	11.50000	104.86	-104.86
700.000	11.66667	104.86	-104.86
710.000	11.83333	104.86	-104.86
720.000	12.00000	104.86	-104.86
730.000	12.16667	104.86	-104.86
740.000	12.33333	104.86	-104.86
750.000	12.50000	104.86	-104.86
760.000	12.66667	104.86	-104.86
770.000	12.83333	104.86	-104.86
780.000	13.00000	104.86	-104.86
790.000	13.16667	104.84	-104.84
800.000	13.33333	104.84	-104.84
810.000	13.50000	104.83	-104.83
820.000	13.66667	104.84	-104.84
830.000	13.83333	104.83	-104.83
840.000	14.00000	104.83	-104.83
850.000	14.16667	104.83	-104.83
860.000	14.33333	104.83	-104.83
870.000	14.50000	104.83	-104.83
880.000	14.66667	104.83	-104.83
890.000	14.83333	104.83	-104.83
900.000	15.00000	104.83	-104.83
910.000	15.16667	104.83	-104.83
920.000	15.33333	104.83	-104.83
930.000	15.50000	104.83	-104.83
940.000	15.66667	104.83	-104.83
950.000	15.83333	104.83	-104.83
960.000	16.00000	104.83	-104.83
970.000	16.16667	104.83	-104.83
980.000	16.33333	104.83	-104.83
990.000	16.50000	104.83	-104.83
1000.000	16.66667	104.83	-104.83
1100.000	18.33333	104.86	-104.86
1200.000	20.00000	104.86	-104.86

699-42-37 1st Recovery

1300.000	21.66667	104.83	-104.83
1400.000	23.33333	104.80	-104.80
1500.000	25.00000	104.75	-104.75
1600.000	26.66667	104.75	-104.75
1700.000	28.33333	104.75	-104.75
1800.000	30.00000	104.76	-104.76
1900.000	31.66667	104.80	-104.80
2000.000	33.33333	104.81	-104.81
2100.000	35.00000	104.83	-104.83
2200.000	36.66667	104.86	-104.86
2300.000	38.33333	104.88	-104.88
2400.000	40.00000	104.88	-104.88
2500.000	41.66667	104.89	-104.89
2600.000	43.33333	104.91	-104.91
2700.000	45.00000	104.89	-104.89
2800.000	46.66667	104.86	-104.86
2900.000	48.33333	104.81	-104.81
3000.000	50.00000	104.78	-104.78
3100.000	51.66667	104.75	-104.75
3200.000	53.33333	104.75	-104.75
3300.000	55.00000	104.75	-104.75
3400.000	56.66667	104.76	-104.76
3500.000	58.33333	104.75	-104.75
3600.000	60.00000	104.75	-104.75
3700.000	61.66667	104.73	-104.73
3800.000	63.33333	104.75	-104.75
3900.000	65.00000	104.75	-104.75
4000.000	66.66667	104.78	-104.78
4100.000	68.33333	104.81	-104.81

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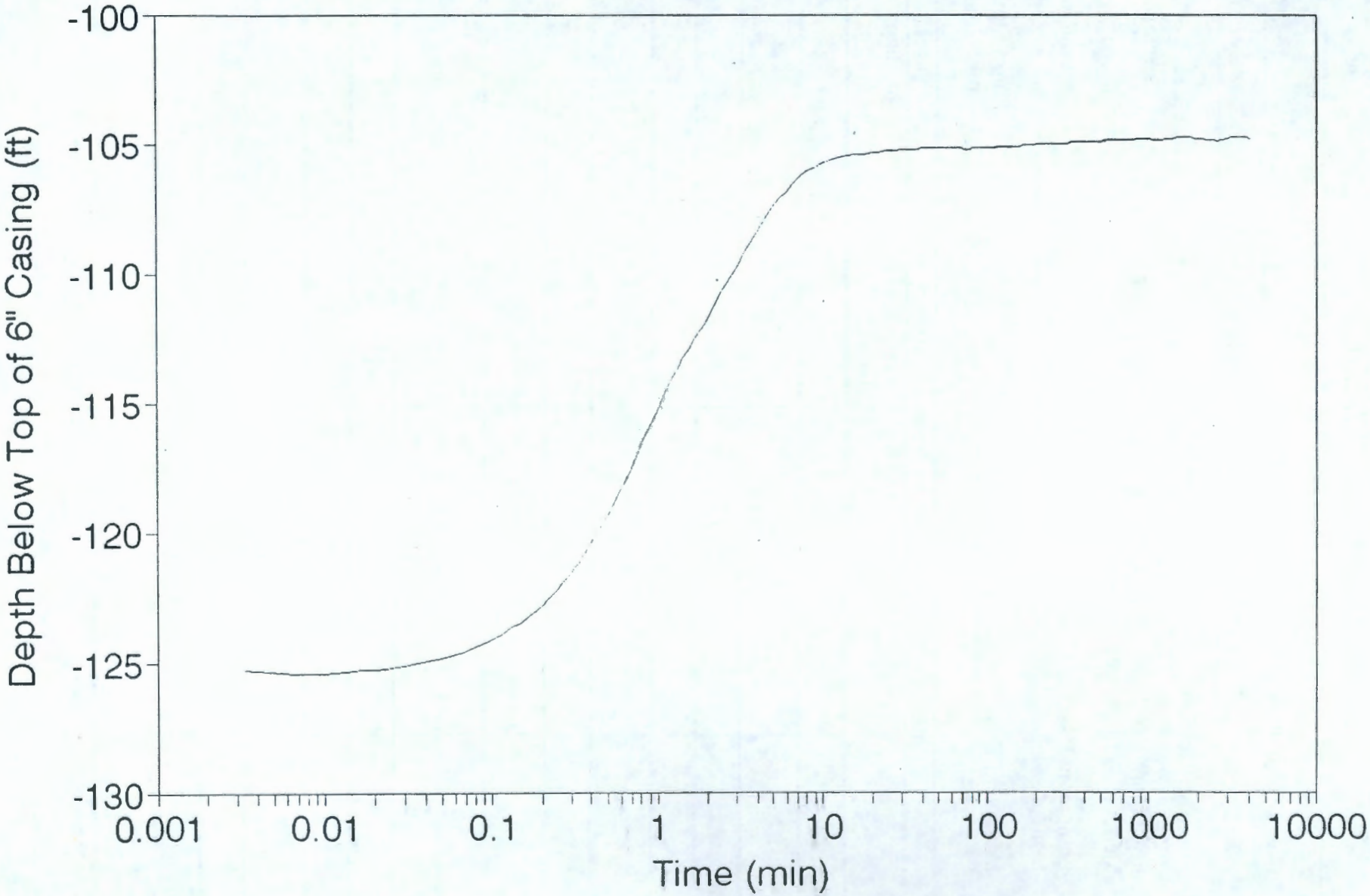
699-42-37 1st Recovery

23-Oct-92



2nd DRAWDOWN/RECOVERY

page 1 of

Well Designation: 699-42-37 Date: 10-28-92

Well Depth: 158.40'BTOC Screened Interval: 148.13-158.40'BTOC

Pumping Method: Constant Discharge

Equipment Used to Measure Water Level: E.Tape/Transducer S.N. ET-4/2110 Calibration Due: 1-8-93 /2-21-93

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

Measuring Point: Top of Casing (6") Pump Start Time: 0727 Pump Stop Time: 1442

Time		Water Level		Discharge
Date	Time	Reading Units:	Water Level Units:	Reading Bucket Method
10-28-92	0727			5gal./59.31 sec= 5.06gpm
	1435	See Attached Data	See Attached Data	5gal./56.56 sec= 5.3 gpm

Recorded by: Robert S. Edrington Date: 01-05-93

Sign and Print Name

BD-6000-402(03/90)

699-42-37 2nd Drawdown

Hermit Environment Data Logger Unit# 700
Water Level (ft) below top of casing (BTOC)

Test# 3
Type: Drawdown 2
SWL: 104.63'
Scale Factor: 50.15

Baseline Begun: 1600 10/23/92
Pump Started: 0727 10/28/92

Time:min	Time:hrs	D-T-W:Ft	d(BTOC)
0.000	0.00000	105.10	-105.10
0.003	0.00006	105.04	-105.04
0.007	0.00011	105.02	-105.02
0.010	0.00017	104.97	-104.97
0.013	0.00022	105.02	-105.02
0.017	0.00028	105.10	-105.10
0.020	0.00033	105.18	-105.18
0.023	0.00039	105.29	-105.29
0.027	0.00044	105.35	-105.35
0.030	0.00050	105.45	-105.45
0.033	0.00056	105.53	-105.53
0.050	0.00083	105.88	-105.88
0.067	0.00111	106.22	-106.22
0.083	0.00139	106.59	-106.59
0.100	0.00167	106.92	-106.92
0.117	0.00194	107.24	-107.24
0.133	0.00222	107.57	-107.57
0.150	0.00250	107.92	-107.92
0.167	0.00278	108.22	-108.22
0.183	0.00306	108.60	-108.60
0.200	0.00333	108.92	-108.92
0.217	0.00361	109.19	-109.19
0.233	0.00389	109.45	-109.45
0.250	0.00417	109.74	-109.74
0.267	0.00444	110.02	-110.02
0.283	0.00472	110.23	-110.23
0.300	0.00500	110.47	-110.47
0.317	0.00528	110.61	-110.61
0.333	0.00556	110.74	-110.74
0.417	0.00695	110.86	-110.86
0.500	0.00833	110.72	-110.72
0.583	0.00972	110.55	-110.55
0.667	0.01111	110.45	-110.45
0.750	0.01250	110.26	-110.26

Time:min	Time:hrs	D-T-W:Ft	d(BTOC)
0	1.50000	105.18	-105.18
2	1.53333	105.16	-105.16
4	1.56667	105.16	-105.16
6	1.60000	105.16	-105.16
8	1.63333	105.16	-105.16
10	1.66667	105.14	-105.14
20	1.83333	105.13	-105.13
30	2.00000	105.10	-105.10
40	2.16667	105.10	-105.10
50	2.33333	105.08	-105.08
60	2.50000	105.07	-105.07
70	2.66667	105.07	-105.07
80	2.83333	105.05	-105.05
90	3.00000	105.03	-105.03
100	3.16667	105.03	-105.03
110	3.33333	105.02	-105.02
120	3.50000	105.00	-105.00
130	3.66667	105.00	-105.00
140	3.83333	105.00	-105.00
150	4.00000	104.99	-104.99
160	4.16667	104.99	-104.99
170	4.33333	104.99	-104.99
180	4.50000	104.99	-104.99
190	4.66667	104.97	-104.97
200	4.83333	104.97	-104.97
210	5.00000	104.97	-104.97
220	5.16667	104.97	-104.97
230	5.33333	104.97	-104.97
240	5.50000	104.95	-104.95
250	5.66667	104.95	-104.95
260	5.83333	104.95	-104.95
270	6.00000	104.94	-104.94
280	6.16667	104.94	-104.94
290	6.33333	104.94	-104.94

699-42-37 2nd Drawdown

0.833	0.01389	110.10	-110.10
0.917	0.01528	110.02	-110.02
1.000	0.01667	109.82	-109.82
1.083	0.01806	109.64	-109.64
1.167	0.01945	109.49	-109.49
1.250	0.02083	109.47	-109.47
1.333	0.02222	109.30	-109.30
1.417	0.02361	109.14	-109.14
1.500	0.02500	109.11	-109.11
1.583	0.02639	109.53	-109.53
1.667	0.02778	110.01	-110.01
1.750	0.02917	110.44	-110.44
1.833	0.03056	110.91	-110.91
1.917	0.03195	111.34	-111.34
2.000	0.03333	111.72	-111.72
2.500	0.04167	113.87	-113.87
3.000	0.05000	115.61	-115.61
3.500	0.05833	116.90	-116.90
4.000	0.06667	118.02	-118.02
4.500	0.07500	118.94	-118.94
5.000	0.08333	119.73	-119.73
5.500	0.09167	120.35	-120.35
6.000	0.10000	120.84	-120.84
6.500	0.10833	121.30	-121.30
7.000	0.11667	121.65	-121.65
7.500	0.12500	121.93	-121.93
8.000	0.13333	122.17	-122.17
8.500	0.14167	122.36	-122.36
9.000	0.15000	122.58	-122.58
9.500	0.15833	122.77	-122.77
10.000	0.16667	122.82	-122.82
12.000	0.20000	123.29	-123.29
14.000	0.23333	123.47	-123.47
16.000	0.26667	123.55	-123.55
18.000	0.30000	123.55	-123.55
20.000	0.33333	123.45	-123.45
22.000	0.36667	123.56	-123.56
24.000	0.40000	123.61	-123.61
26.000	0.43333	123.78	-123.78
28.000	0.46667	123.99	-123.99
30.000	0.50000	124.20	-124.20
32.000	0.53333	124.32	-124.32

300	6.50000	104.94	-104.94
310	6.66667	104.92	-104.92
320	6.83333	104.92	-104.92
330	7.00000	104.92	-104.92
340	7.16667	104.92	-104.92
350	7.33333	104.92	-104.92
360	7.50000	104.92	-104.92
370	7.66667	104.92	-104.92
380	7.83333	104.91	-104.91
390	8.00000	104.91	-104.91
400	8.16667	104.91	-104.91
410	8.33333	104.91	-104.91
420	8.50000	104.91	-104.91
430	8.66667	104.91	-104.91
440	8.83333	104.89	-104.89
450	9.00000	104.91	-104.91
460	9.16667	104.89	-104.89
470	9.33333	104.89	-104.89
480	9.50000	104.89	-104.89
490	9.66667	104.89	-104.89
500	9.83333	104.89	-104.89
510	10.00000	104.89	-104.89
520	10.16667	104.89	-104.89
530	10.33333	104.88	-104.88
540	10.50000	104.88	-104.88
550	10.66667	104.88	-104.88
560	10.83333	104.88	-104.88
570	11.00000	104.88	-104.88
580	11.16667	104.88	-104.88
590	11.33333	104.86	-104.86
600	11.50000	104.86	-104.86
610	11.66667	104.86	-104.86
620	11.83333	104.86	-104.86
630	12.00000	104.86	-104.86
640	12.16667	104.86	-104.86
650	12.33333	104.86	-104.86
660	12.50000	104.86	-104.86
670	12.66667	104.86	-104.86
680	12.83333	104.86	-104.86
690	13.00000	104.86	-104.86
700	13.16667	104.84	-104.84
710	13.33333	104.84	-104.84

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699-42-37 2nd Drawdown

34.000	0.56667	124.31	-124.31
36.000	0.60000	124.32	-124.32
38.000	0.63333	124.43	-124.43
40.000	0.66667	124.40	-124.40
42.000	0.70000	124.45	-124.45
44.000	0.73333	124.43	-124.43
46.000	0.76667	124.43	-124.43
48.000	0.80000	124.43	-124.43
50.000	0.83333	124.43	-124.43
52.000	0.86667	124.42	-124.42
54.000	0.90000	124.48	-124.48
56.000	0.93333	124.43	-124.43
58.000	0.96667	124.42	-124.42
60.000	1.00000	124.50	-124.50
62.000	1.03333	124.40	-124.40
64.000	1.06667	124.50	-124.50
66.000	1.10000	124.50	-124.50
68.000	1.13333	124.42	-124.42
70.000	1.16667	124.54	-124.54
72.000	1.20000	124.56	-124.56
74.000	1.23333	124.59	-124.59
76.000	1.26667	124.58	-124.58
78.000	1.30000	124.66	-124.66
80.000	1.33333	124.61	-124.61
82.000	1.36667	124.66	-124.66
84.000	1.40000	124.64	-124.64
86.000	1.43333	124.66	-124.66
88.000	1.46667	124.69	-124.69
90.000	1.50000	124.69	-124.69
92.000	1.53333	124.67	-124.67
94.000	1.56667	124.73	-124.73
96.000	1.60000	124.72	-124.72
98.000	1.63333	124.69	-124.69
100.000	1.66667	124.72	-124.72
110.000	1.83333	124.64	-124.64
120.000	2.00000	124.70	-124.70
130.000	2.16667	124.66	-124.66
140.000	2.33333	124.75	-124.75
150.000	2.50000	124.72	-124.72
160.000	2.66667	124.72	-124.72
170.000	2.83333	124.62	-124.62
180.000	3.00000	124.73	-124.73

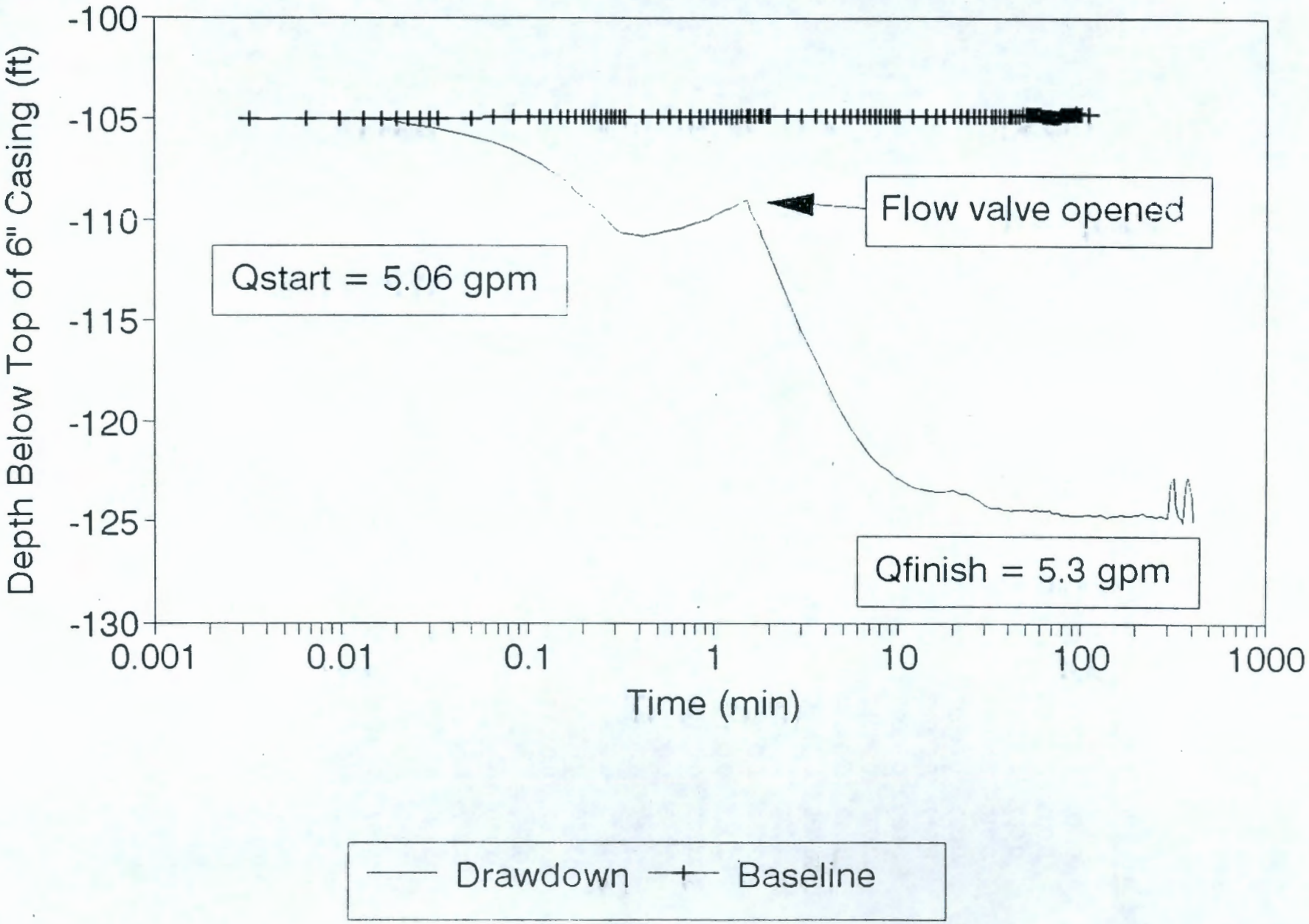
720	13.50000	104.83	-104.83
730	13.66667	104.84	-104.84
740	13.83333	104.83	-104.83
750	14.00000	104.83	-104.83
760	14.16667	104.83	-104.83
770	14.33333	104.83	-104.83
780	14.50000	104.83	-104.83
790	14.66667	104.83	-104.83
800	14.83333	104.83	-104.83
810	15.00000	104.83	-104.83
820	15.16667	104.83	-104.83
830	15.33333	104.83	-104.83
840	15.50000	104.83	-104.83
850	15.66667	104.83	-104.83
860	15.83333	104.83	-104.83
870	16.00000	104.83	-104.83
880	16.16667	104.83	-104.83
890	16.33333	104.83	-104.83
900	16.50000	104.83	-104.83
910	16.66667	104.83	-104.83
1010	18.33333	104.86	-104.86
1110	20.00000	104.86	-104.86
1210	21.66667	104.83	-104.83
1310	23.33333	104.80	-104.80
1410	25.00000	104.75	-104.75
1510	26.66667	104.75	-104.75
1610	28.33333	104.75	-104.75
1710	30.00000	104.76	-104.76
1810	31.66667	104.80	-104.80
1910	33.33333	104.81	-104.81
2010	35.00000	104.83	-104.83
2110	36.66667	104.86	-104.86
2210	38.33333	104.88	-104.88
2310	40.00000	104.88	-104.88
2410	41.66667	104.89	-104.89
2510	43.33333	104.91	-104.91
2610	45.00000	104.89	-104.89
2710	46.66667	104.86	-104.86
2810	48.33333	104.81	-104.81
2910	50.00000	104.78	-104.78
3010	51.66667	104.75	-104.75
3110	53.33333	104.75	-104.75

699-42-37 2nd Drawdown

190.000	3.16667	124.67	-124.67
200.000	3.33333	124.66	-124.66
210.000	3.50000	124.61	-124.61
220.000	3.66667	124.59	-124.59
230.000	3.83333	124.67	-124.67
240.000	4.00000	124.67	-124.67
250.000	4.16667	124.72	-124.72
260.000	4.33333	124.77	-124.77
270.000	4.50000	124.69	-124.69
280.000	4.66667	124.73	-124.73
290.000	4.83333	124.75	-124.75
300.000	5.00000	124.78	-124.78
310.000	5.16667	123.04	-123.04
320.000	5.33333	122.80	-122.80
330.000	5.50000	124.02	-124.02
340.000	5.66667	124.73	-124.73
350.000	5.83333	124.85	-124.85
360.000	6.00000	125.04	-125.04
370.000	6.16667	123.28	-123.28
380.000	6.33333	122.80	-122.80
390.000	6.50000	122.85	-122.85
400.000	6.66667	123.78	-123.78
410.000	6.83333	125.00	-125.00

3210	55.00000	104.75	-104.75
3310	56.66667	104.76	-104.76
3410	58.33333	104.75	-104.75
3510	60.00000	104.75	-104.75
3610	61.66667	104.73	-104.73
3710	63.33333	104.75	-104.75
3810	65.00000	104.75	-104.75
3910	66.66667	104.78	-104.78
4010	68.33333	104.81	-104.81

699-42-37 2nd Drawdown
28-Oct-92



Hermit Environment Data Logger Unit# 700
Water Level (ft) below top of casing (BTOC)

Test# 4
Type: Recovery
SWL: 104.63'
Scale: 50.15

Pump Shut off: 1442 10/28/92

Time:min	Time:hrs	D-T-W:Ft	d(BTOC)
0.000	0.00000	126.25	-126.25
0.003	0.00006	124.56	-124.56
0.007	0.00011	124.64	-124.64
0.010	0.00017	124.75	-124.75
0.013	0.00022	124.77	-124.77
0.017	0.00028	124.72	-124.72
0.020	0.00033	124.67	-124.67
0.023	0.00039	124.62	-124.62
0.027	0.00044	124.58	-124.58
0.030	0.00050	124.53	-124.53
0.033	0.00056	124.48	-124.48
0.050	0.00083	124.23	-124.23
0.067	0.00111	123.99	-123.99
0.083	0.00139	123.77	-123.77
0.100	0.00167	123.53	-123.53
0.117	0.00194	123.31	-123.31
0.133	0.00222	123.07	-123.07
0.150	0.00250	122.85	-122.85
0.167	0.00278	122.63	-122.63
0.183	0.00306	122.41	-122.41
0.200	0.00333	122.20	-122.20
0.217	0.00361	121.98	-121.98
0.233	0.00389	121.77	-121.77
0.250	0.00417	121.57	-121.57
0.267	0.00444	121.36	-121.36
0.283	0.00472	121.16	-121.16
0.300	0.00500	120.95	-120.95
0.317	0.00528	120.74	-120.74
0.333	0.00556	120.55	-120.55
0.417	0.00695	119.62	-119.62
0.500	0.00833	118.73	-118.73
0.583	0.00972	117.93	-117.93
0.667	0.01111	117.17	-117.17
0.750	0.01250	116.49	-116.49

699-42-37 2nd Recovery

Hermit Environment Data Logger Unit# 700
Water Level (ft) below top of casing (BTOC)

Test# 4
Type: Recovery
SWL: 104.63'
Scale: 50.15

Pump Shut off: 1442 10/28/92

Time:min	Time:hrs	D-T-W:Ft	d(BTOC)
0.000	0.00000	126.25	-126.25
0.003	0.00006	124.56	-124.56
0.007	0.00011	124.64	-124.64
0.010	0.00017	124.75	-124.75
0.013	0.00022	124.77	-124.77
0.017	0.00028	124.72	-124.72
0.020	0.00033	124.67	-124.67
0.023	0.00039	124.62	-124.62
0.027	0.00044	124.58	-124.58
0.030	0.00050	124.53	-124.53
0.033	0.00056	124.48	-124.48
0.050	0.00083	124.23	-124.23
0.067	0.00111	123.99	-123.99
0.083	0.00139	123.77	-123.77
0.100	0.00167	123.53	-123.53
0.117	0.00194	123.31	-123.31
0.133	0.00222	123.07	-123.07
0.150	0.00250	122.85	-122.85
0.167	0.00278	122.63	-122.63
0.183	0.00306	122.41	-122.41
0.200	0.00333	122.20	-122.20
0.217	0.00361	121.98	-121.98
0.233	0.00389	121.77	-121.77
0.250	0.00417	121.57	-121.57
0.267	0.00444	121.36	-121.36
0.283	0.00472	121.16	-121.16
0.300	0.00500	120.95	-120.95
0.317	0.00528	120.74	-120.74
0.333	0.00556	120.55	-120.55
0.417	0.00695	119.62	-119.62
0.500	0.00833	118.73	-118.73
0.583	0.00972	117.93	-117.93
0.667	0.01111	117.17	-117.17
0.750	0.01250	116.49	-116.49

0.833	0.01389	115.85	-115.85
0.917	0.01528	115.27	-115.27
1.000	0.01667	114.74	-114.74
1.083	0.01806	114.27	-114.27
1.167	0.01945	113.86	-113.86
1.250	0.02083	113.49	-113.49
1.333	0.02222	113.16	-113.16
1.417	0.02361	112.89	-112.89
1.500	0.02500	112.65	-112.65
1.583	0.02639	112.43	-112.43
1.667	0.02778	112.21	-112.21
1.750	0.02917	112.00	-112.00
1.833	0.03056	111.80	-111.80
1.917	0.03195	111.61	-111.61
2.000	0.03333	111.40	-111.40
2.500	0.04167	110.36	-110.36
3.000	0.05000	109.50	-109.50
3.500	0.05833	108.79	-108.79
4.000	0.06667	108.16	-108.16
4.500	0.07500	107.67	-107.67
5.000	0.08333	107.27	-107.27
5.500	0.09167	106.94	-106.94
6.000	0.10000	106.67	-106.67
6.500	0.10833	106.45	-106.45
7.000	0.11667	106.26	-106.26
7.500	0.12500	106.10	-106.10
8.000	0.13333	105.97	-105.97
8.500	0.14167	105.86	-105.86
9.000	0.15000	105.78	-105.78
9.500	0.15833	105.70	-105.70
10.000	0.16667	105.64	-105.64
12.000	0.20000	105.45	-105.45
14.000	0.23333	105.35	-105.35

P.24 of 33

699-42-37 2nd Recovery

0.833	0.01389	115.85	-115.85
0.917	0.01528	115.27	-115.27
1.000	0.01667	114.74	-114.74
1.083	0.01806	114.27	-114.27
1.167	0.01945	113.86	-113.86
1.250	0.02083	113.49	-113.49
1.333	0.02222	113.16	-113.16
1.417	0.02361	112.89	-112.89
1.500	0.02500	112.65	-112.65
1.583	0.02639	112.43	-112.43
1.667	0.02778	112.21	-112.21
1.750	0.02917	112.00	-112.00
1.833	0.03056	111.80	-111.80
1.917	0.03195	111.61	-111.61
2.000	0.03333	111.40	-111.40
2.500	0.04167	110.36	-110.36
3.000	0.05000	109.50	-109.50
3.500	0.05833	108.79	-108.79
4.000	0.06667	108.16	-108.16
4.500	0.07500	107.67	-107.67
5.000	0.08333	107.27	-107.27
5.500	0.09167	106.94	-106.94
6.000	0.10000	106.67	-106.67
6.500	0.10833	106.45	-106.45
7.000	0.11667	106.26	-106.26
7.500	0.12500	106.10	-106.10
8.000	0.13333	105.97	-105.97
8.500	0.14167	105.86	-105.86
9.000	0.15000	105.78	-105.78
9.500	0.15833	105.70	-105.70
10.000	0.16667	105.64	-105.64
12.000	0.20000	105.45	-105.45
14.000	0.23333	105.35	-105.35

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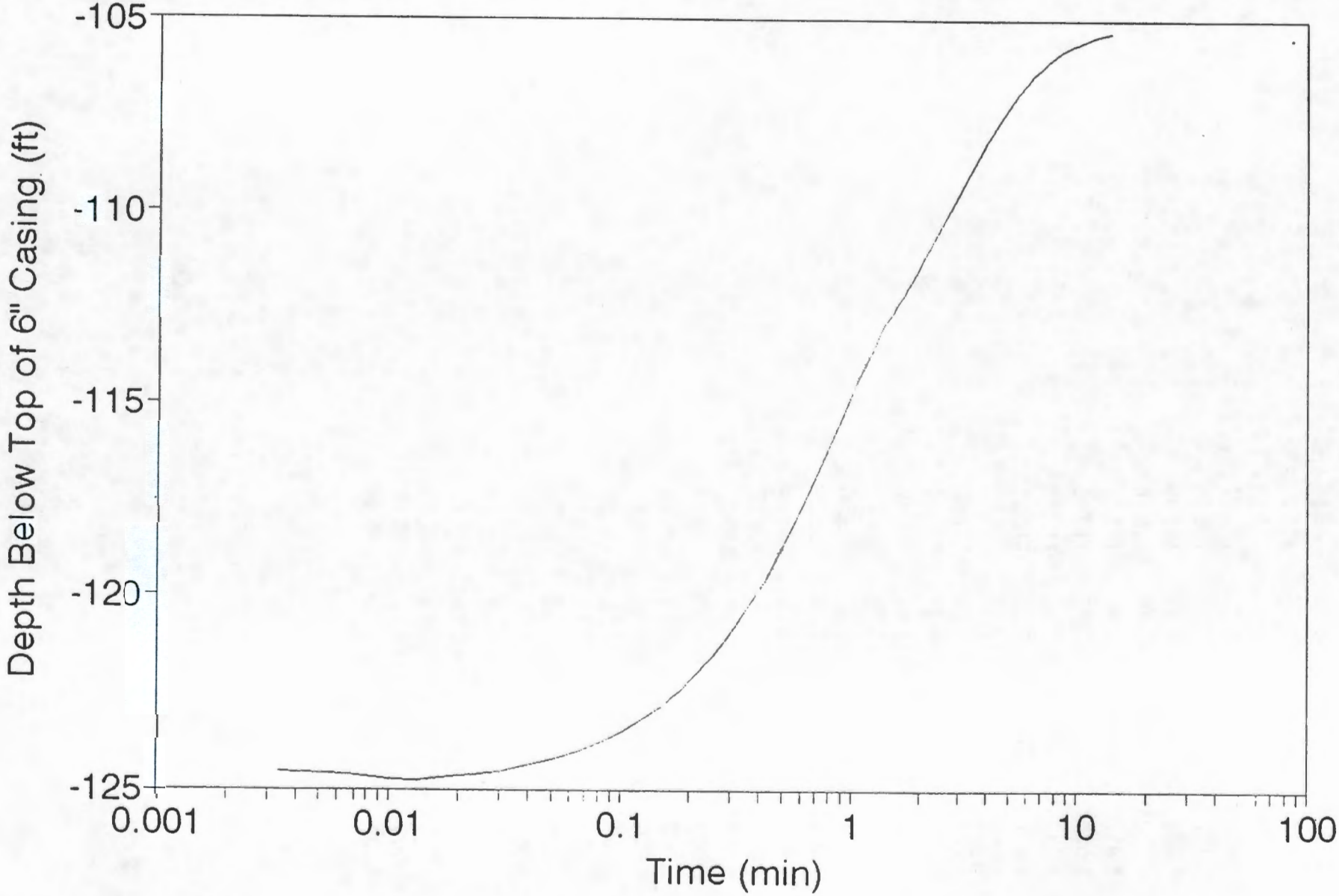
699-42-37 2nd Recovery

28-Oct-92



3rd DRAWDOWN/RECOVERY

page 1 of

Well Designation: 699-42-37 Date: 10-30-92

Well Depth: 158.40'BTOC Screened Interval: 148.13-158.40'BTOC

Pumping Method: Constant Discharge

Equipment Used to Measure Water Level: E.Tape/Transducer S.N. ET-4/2110 Calibration Due: 1-8-93 /2-21-93

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

Measuring Point: Top of Casing (6") Pump Start Time: 0814 Pump Stop Time: 0902

Time		Water Level		Discharge
Date	Time	Reading Units:	Water Level Units:	Reading Bucket Method
10-30-92	0814			5gal./35.90 sec= 8.36gpm
		See Attached Data	See Attached Data	

Recorded by: Robert S. Edrington Date: 01-05-93

Sign and Print Name

BD-6000-402(03/90)

699-42-37 3rd Drawdown

Hermit Environment Data Logger Unit# 277
Water Level (ft) below top of casing (BTOC)

Test# 1
Type: Drawdown
SWL: 104.35'
Scale Factor: 50.15

Baseline Begun: 18:37 10/29/92
Pump Started: 0814 10/30/92

Time:min	Time:hrs	D-T-W:Ft	d(BTOC)
0.000	0.00000	102.95	-102.95
0.003	0.00006	104.69	-104.69
0.007	0.00011	104.47	-104.47
0.010	0.00017	104.60	-104.60
0.013	0.00022	104.68	-104.68
0.017	0.00028	104.74	-104.74
0.020	0.00033	104.87	-104.87
0.023	0.00039	104.93	-104.93
0.027	0.00044	105.03	-105.03
0.030	0.00050	105.09	-105.09
0.033	0.00056	105.17	-105.17
0.050	0.00083	105.53	-105.53
0.067	0.00111	105.88	-105.88
0.083	0.00139	106.18	-106.18
0.100	0.00167	106.77	-106.77
0.117	0.00194	107.02	-107.02
0.133	0.00222	107.43	-107.43
0.150	0.00250	107.61	-107.61
0.167	0.00278	107.96	-107.96
0.183	0.00306	109.37	-109.37
0.200	0.00333	108.46	-108.46
0.217	0.00361	108.54	-108.54
0.233	0.00389	108.72	-108.72
0.250	0.00417	108.79	-108.79
0.267	0.00444	108.94	-108.94
0.283	0.00472	109.05	-109.05
0.300	0.00500	109.18	-109.18
0.317	0.00528	109.27	-109.27
0.333	0.00556	109.40	-109.40
0.417	0.00695	109.97	-109.97
0.500	0.00833	110.46	-110.46
0.583	0.00972	111.04	-111.04
0.667	0.01111	111.52	-111.52
0.750	0.01250	112.03	-112.03

Time:min	Time:hrs	D-T-W:Ft	d(BTOC)
0	0.000	104.44	-104.44
10	0.167	104.44	-104.44
20	0.333	104.43	-104.43
30	0.500	104.43	-104.43
40	0.667	104.43	-104.43
50	0.833	104.43	-104.43
60	1.000	104.41	-104.41
70	1.167	104.41	-104.41
80	1.333	104.41	-104.41
90	1.500	104.41	-104.41
100	1.667	104.41	-104.41
110	1.833	104.39	-104.39
120	2.000	104.39	-104.39
130	2.167	104.39	-104.39
140	2.333	104.39	-104.39
150	2.500	104.39	-104.39
160	2.667	104.39	-104.39
170	2.833	104.39	-104.39
180	3.000	104.39	-104.39
190	3.167	104.38	-104.38
200	3.333	104.38	-104.38
210	3.500	104.38	-104.38
220	3.667	104.38	-104.38
230	3.833	104.38	-104.38
240	4.000	104.38	-104.38
250	4.167	104.38	-104.38
260	4.333	104.38	-104.38
270	4.500	104.38	-104.38
280	4.667	104.36	-104.36
290	4.833	104.38	-104.38
300	5.000	104.36	-104.36
310	5.167	104.36	-104.36
320	5.333	104.36	-104.36
330	5.500	104.36	-104.36

699-42-37 3rd Drawdown

0.833	0.01389	112.50	-112.50
0.917	0.01528	112.93	-112.93
1.000	0.01667	113.43	-113.43
1.083	0.01806	113.83	-113.83
1.167	0.01945	114.27	-114.27
1.250	0.02083	114.69	-114.69
1.333	0.02222	115.07	-115.07
1.417	0.02361	115.45	-115.45
1.500	0.02500	115.79	-115.79
1.583	0.02639	116.16	-116.16
1.667	0.02778	116.46	-116.46
1.750	0.02917	116.78	-116.78
1.833	0.03056	117.12	-117.12
1.917	0.03195	117.41	-117.41
2.000	0.03333	117.69	-117.69
2.500	0.04167	119.31	-119.31
3.000	0.05000	120.61	-120.61
3.500	0.05833	121.75	-121.75
4.000	0.06667	122.65	-122.65
4.500	0.07500	123.43	-123.43
5.000	0.08333	124.06	-124.06
5.500	0.09167	124.58	-124.58
6.000	0.10000	125.03	-125.03
6.500	0.10833	125.44	-125.44
7.000	0.11667	125.69	-125.69
7.500	0.12500	125.98	-125.98
8.000	0.13333	126.18	-126.18
8.500	0.14167	126.34	-126.34
9.000	0.15000	126.48	-126.48
9.500	0.15833	126.56	-126.56
10.000	0.16667	126.67	-126.67
12.000	0.20000	126.96	-126.96
14.000	0.23333	127.16	-127.16
16.000	0.26667	127.16	-127.16
18.000	0.30000	127.27	-127.27
20.000	0.33333	127.32	-127.32
22.000	0.36667	127.37	-127.37
24.000	0.40000	127.40	-127.40
26.000	0.43333	127.40	-127.40
28.000	0.46667	127.40	-127.40
30.000	0.50000	127.40	-127.40
32.000	0.53333	127.40	-127.40

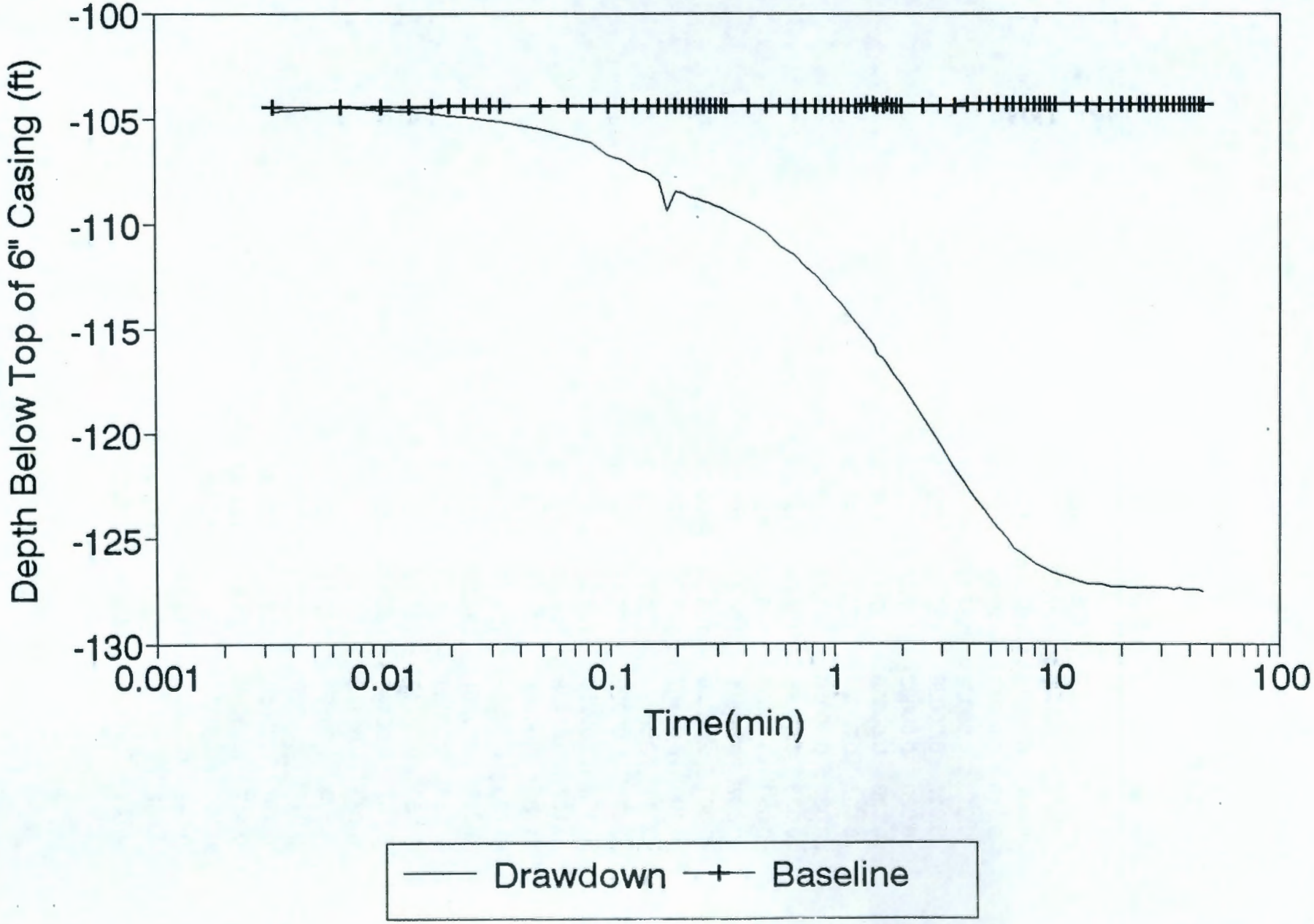
340	5.667	104.36	-104.36
350	5.833	104.36	-104.36
360	6.000	104.36	-104.36
370	6.167	104.36	-104.36
380	6.333	104.36	-104.36
390	6.500	104.36	-104.36
400	6.667	104.36	-104.36
410	6.833	104.35	-104.35
420	7.000	104.35	-104.35
430	7.167	104.36	-104.36
440	7.333	104.36	-104.36
450	7.500	104.35	-104.35
460	7.667	104.36	-104.36
470	7.833	104.36	-104.36
480	8.000	104.36	-104.36
490	8.167	104.36	-104.36
500	8.333	104.36	-104.36
510	8.500	104.36	-104.36
520	8.667	104.35	-104.35
530	8.833	104.35	-104.35
540	9.000	104.35	-104.35
550	9.167	104.35	-104.35
560	9.333	104.35	-104.35
570	9.500	104.33	-104.33
580	9.667	104.33	-104.33
590	9.833	104.33	-104.33
600	10.000	104.33	-104.33
610	10.167	104.33	-104.33
620	10.333	104.33	-104.33
630	10.500	104.33	-104.33
640	10.667	104.33	-104.33
650	10.833	104.33	-104.33
660	11.000	104.33	-104.33
670	11.167	104.33	-104.33
680	11.333	104.33	-104.33
690	11.500	104.33	-104.33
700	11.667	104.33	-104.33
710	11.833	104.33	-104.33
720	12.000	104.33	-104.33
730	12.167	104.33	-104.33
740	12.333	104.33	-104.33
750	12.500	104.33	-104.33

P.29 of 33

699-42-37 3rd Drawdown

34.000	0.56667	127.46	-127.46	760	12.667	104.33	-104.33
36.000	0.60000	127.40	-127.40	770	12.833	104.35	-104.35
38.000	0.63333	127.42	-127.42	780	13.000	104.35	-104.35
40.000	0.66667	127.45	-127.45	790	13.167	104.35	-104.35
42.000	0.70000	127.42	-127.42	800	13.333	104.35	-104.35
44.000	0.73333	127.46	-127.46	810	13.500	104.35	-104.35
46.000	0.76667	127.51	-127.51	820	13.667	104.35	-104.35

699-42-37 3rd Drawdown
30-Oct-92



Hermit Environment Data Logger Unit# 277
Water Level (ft) below top of casing (BTOC)

Test# 2
Type: Recovery
SWL: 104.35'
Scale: 50.15

Pump Shut off: 0902 10/30/92

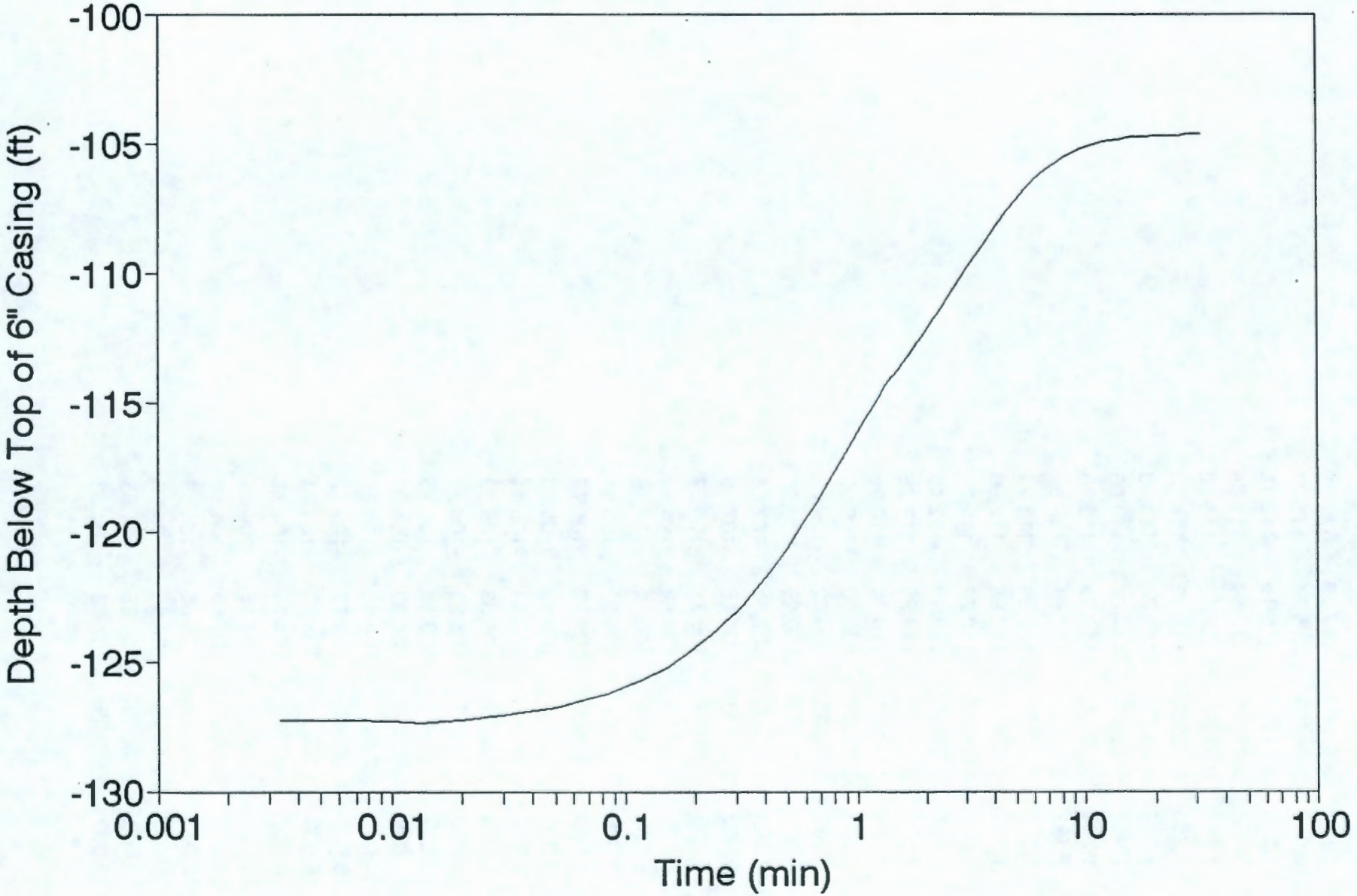
Time:min	Time:hrs	D-T-W:Ft	d(BTOC)
0.000	0.00000	125.29	-125.29
0.003	0.00006	127.24	-127.24
0.007	0.00011	127.23	-127.23
0.010	0.00017	127.29	-127.29
0.013	0.00022	127.37	-127.37
0.017	0.00028	127.31	-127.31
0.020	0.00033	127.26	-127.26
0.023	0.00039	127.19	-127.19
0.027	0.00044	127.15	-127.15
0.030	0.00050	127.08	-127.08
0.033	0.00056	127.04	-127.04
0.050	0.00083	126.77	-126.77
0.067	0.00111	126.50	-126.50
0.083	0.00139	126.24	-126.24
0.100	0.00167	125.98	-125.98
0.117	0.00194	125.72	-125.72
0.133	0.00222	125.47	-125.47
0.150	0.00250	125.23	-125.23
0.167	0.00278	124.98	-124.98
0.183	0.00306	124.74	-124.74
0.200	0.00333	124.49	-124.49
0.217	0.00361	124.25	-124.25
0.233	0.00389	124.03	-124.03
0.250	0.00417	123.79	-123.79
0.267	0.00444	123.57	-123.57
0.283	0.00472	123.33	-123.33
0.300	0.00500	123.11	-123.11
0.317	0.00528	122.89	-122.89
0.333	0.00556	122.67	-122.67
0.417	0.00695	121.62	-121.62
0.500	0.00833	120.64	-120.64
0.583	0.00972	119.74	-119.74
0.667	0.01111	118.88	-118.88
0.750	0.01250	118.11	-118.11

699-42-37 3rd Recovery

0.833	0.01389	117.39	-117.39
0.917	0.01528	116.74	-116.74
1.000	0.01667	116.16	-116.16
1.083	0.01806	115.64	-115.64
1.167	0.01945	115.16	-115.16
1.250	0.02083	114.73	-114.73
1.333	0.02222	114.38	-114.38
1.417	0.02361	114.08	-114.08
1.500	0.02500	113.78	-113.78
1.583	0.02639	113.51	-113.51
1.667	0.02778	113.24	-113.24
1.750	0.02917	112.98	-112.98
1.833	0.03056	112.72	-112.72
1.917	0.03195	112.48	-112.48
2.000	0.03333	112.25	-112.25
2.500	0.04167	110.96	-110.96
3.000	0.05000	109.90	-109.90
3.500	0.05833	109.02	-109.02
4.000	0.06667	108.26	-108.26
4.500	0.07500	107.65	-107.65
5.000	0.08333	107.16	-107.16
5.500	0.09167	106.77	-106.77
6.000	0.10000	106.42	-106.42
6.500	0.10833	106.15	-106.15
7.000	0.11667	105.91	-105.91
7.500	0.12500	105.72	-105.72
8.000	0.13333	105.56	-105.56
8.500	0.14167	105.44	-105.44
9.000	0.15000	105.33	-105.33
9.500	0.15833	105.23	-105.23
10.000	0.16667	105.15	-105.15
12.000	0.20000	104.93	-104.93
14.000	0.23333	104.85	-104.85
16.000	0.26667	104.77	-104.77
18.000	0.30000	104.74	-104.74
20.000	0.33333	104.71	-104.71
22.000	0.36667	104.69	-104.69
24.000	0.40000	104.68	-104.68
26.000	0.43333	104.66	-104.66
28.000	0.46667	104.65	-104.65
30.000	0.50000	104.65	-104.65
32.000	0.53333	104.63	-104.63

699-42-37 3rd Recovery

30-Oct-92



BOREHOLE TEST INFORMATION

Borehole 699-42-37 Borehole Diameter 4 in. Hanford Coordinates N/A

Interval Tested 148.13-158.40' Depth Interval 129 - 176' Test Type: Instantaneous Slug

Borehole Depth: 158.40' Instruction Used: WHC-CM-7-7 (Ell 10.1)

EQUIPMENT

NAME	DESCRIPTION
Electric Sounder	Solinst s/n: ET-1 Calibration due: 7-31-93
Data Logger	In-Situ Inc. s/n: 2K-459
Pressure Transducer	In-Situ Inc. s/n: 2246 Calibration due: 3-11-94
Slugging Rod	BR-1: 0.388 BR-2: 0.194 Cu. Ft
Steel Measuring Tape	300' Graduated Steel Tape

MEASUREMENT DATUM

Control Datum: Top of Casing (TOC) 6"

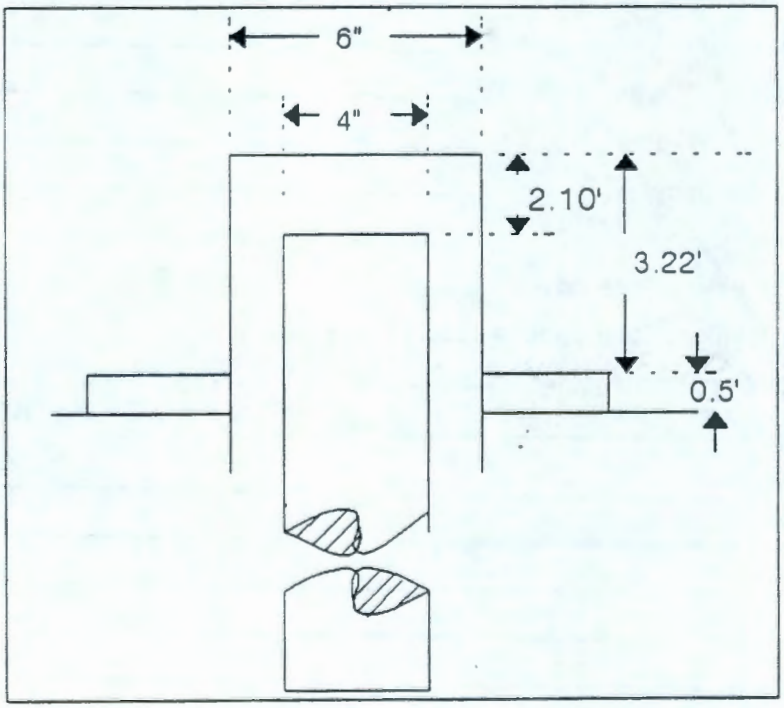
Elevation: N/A

Electric Sounder: TOC 6"

Steel Tape: TOC 6"

Pressure Transducer: TOC 6"

WELL HEAD DIAGRAM



COMMENTS

Two Slug tests were performed on this well, first with slug BR-2 and then BR-1

Recorded by: Robert S. Edrington R S. Edrington Date: 03/31/93

Sign and Print Name

EQUIPMENT DECONTAMINATION

Sheet 1 of 1

Project: W049 Drilling Company: KEH

Decontamination Area: Slab yard Pad #1 Borehole:

Origin: Destination: W049

The following equipment has been decontaminated following WHC-CM-7-7 EII 5.4 Rev. 4

List types of detergent: ☒ Non-phosphate ☐ Other

Rigs

Rig Type	ID No.	Date of Decontamination
☐ Cable Tool		
☐ Auger		
☐ Sonic		
☒ Other	HU-22-5659	3-10-93

General Equipment

	ID No.	Date of Decontamination
☐ Waste Drums		
☐ Sampler Vise		
☐ Decon Truck		
☐ Log Truck		

Downhole Equipment

			Size	Length	Date of Decontamination
☐ Rope Sockets		Ea.			
☐ Stem		Ea.			
☐ Jars		Ea.			
☐ Drive Barrels		Ea.			
☐ Split Tube Samplers		Ea.			
☐ Casing		Ea.			
☐ Casing Shoes		Ea.			
☐ Auger Flights		Ea.			
☐ Core Barrel		Ea.			
☐ Rods		Ea.			
☐ Stainless Steel Bowls		Ea.			
☐ Stainless Steel Spoons		Ea.			
☐ Hand Tools		Ea.			
☒ 1/2 HP Pump	1	Ea.	C91-07-2510		3-10-93

Remarks:

B.F. Strode
Person Conducting Decontamination

Field Team Leader/AI

B.F. Strode 3-10-93
Print/Sign Name Date

Print/Sign Name Date/Time

C-200

DISTRIBUTION: White - Field File Custodian Yellow - Group Files Pink - Field Team Leader

BC-6000-292 (08/91)

INSTANTANEOUS SLUG TEST DATA SHEET: INJECTION

Borehole: 699-42-37

Interval Tested: 148.13 -158.40' Btoc 6"

Depth To Water: 104.70' Btoc 6"

Depth to Transducer: 10.268 BWL

Measured by: Robert S. Edrington

Slug Volume: BR-2 0.194 Cu Ft

Barometric Reading:

See Barometric Pressure Data.

Time:	Start	End
Baseline	0821	0840
Injection	0843	0904

Date: 03-23-93

Initial Pressure (Pi): 104.70'

Slug Level/Pressure (Pmax) 102.819

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: Robert S. Edrington Date: 04-01-93

Sign and Print Name

BD-6000-293(07/90)

Pg 2 of 6

WELL NO.: 699-42-37

TEST TYPE: BASELINE: INJECTION

Q(gpm) = NA

SLUG VO. (cu. ft.) = NA

DATA LOGGER:

S/N: SE2000

Unit No. 4 9

Test 8

INPUT 1:

TRANSDUCER:

Reference: 104.700

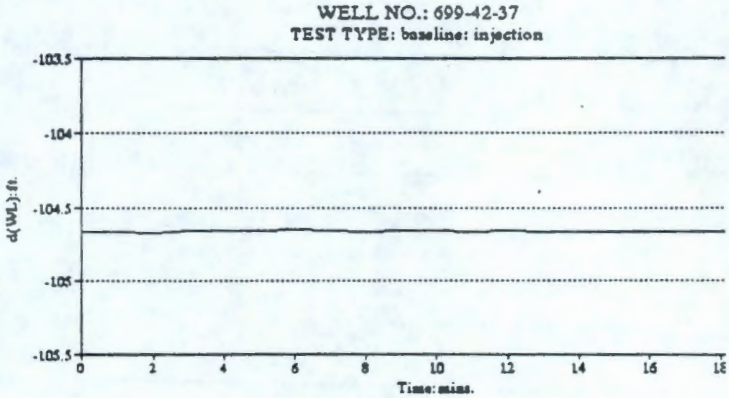
Specific G.: 1.000

Linearity: 0.000

Scale Factor: 10.060

Offset: 0.000

Delay (mSec.): 50.000



START DATE: 3/23/93 END DAT 03/23/93

START TIME: 08:21:38 END TIM 08:40:38

Time:min.	Time:hrs.	Depth to Water	d(WL):ft.
0.0000	0.00000	104.665	-104.665
1.0000	0.01667	104.665	-104.665
2.0000	0.03333	104.671	-104.671
3.0000	0.05000	104.655	-104.655
4.0000	0.06667	104.655	-104.655
5.0000	0.08333	104.655	-104.655
6.0000	0.10000	104.652	-104.652
7.0000	0.11667	104.655	-104.655
8.0000	0.13333	104.661	-104.661
9.0000	0.15000	104.655	-104.655
10.0000	0.16667	104.655	-104.655
11.0000	0.183	104.661	-104.661
12.000	0.200	104.658	-104.658
13.000	0.217	104.661	-104.661
14.000	0.233	104.665	-104.665
15.000	0.250	104.661	-104.661
16.000	0.267	104.668	-104.668
17.000	0.283	104.665	-104.665
18.000	0.300	104.665	-104.665
19.000	0.317	104.665	-104.665

P9 3 of 6

WELL NO.: 699-42-37

TEST TYPE: INJECTION #1

Q(gpm) = NA

SLUG VO. (cu. ft.) = 0.195

DATA LOGGER:

S/N: SE2000

Unit No. 4 9

Test 9

INPUT 1:

TRANSDUCER:

Reference: 104.700

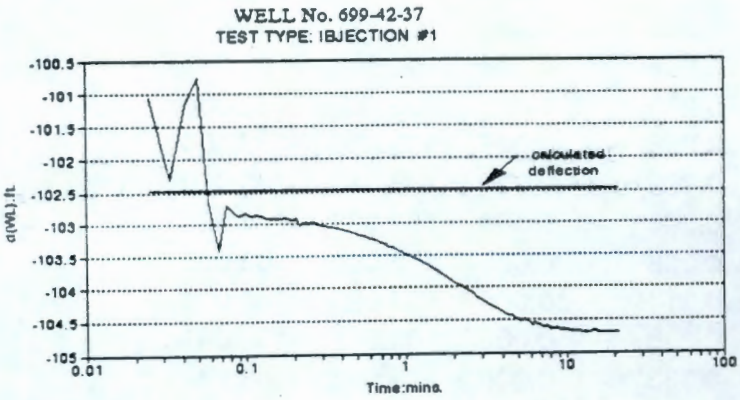
Specific G.: 1.000

Linearity: 0.000

Scale Factor: 10.060

Offset: 0.000

Delay (mSec.): 50.000



START DATE: 3/23/93 END DAT 03/23/93

START TIME: 08:43:16 END TIM 09:04:16

Time:min.	Time:hrs.	Depth to Water	d(WL):ft.
0.0250	0.00042	101.049	-101.049
0.0333	0.00056	102.311	-102.311
0.0416	0.00069	101.164	-101.164
0.0500	0.00083	100.738	-100.738
0.0583	0.00097	102.644	-102.644
0.0666	0.00111	103.416	-103.416
0.0750	0.00125	102.711	-102.711
0.0833	0.00139	102.819	-102.819
0.0916	0.002	102.873	-102.873
0.100	0.002	102.816	-102.816
0.108	0.002	102.870	-102.870
0.117	0.002	102.857	-102.857
0.125	0.002	102.879	-102.879
0.133	0.002	102.911	-102.911
0.142	0.002	102.920	-102.920
0.150	0.003	102.917	-102.917
0.158	0.003	102.917	-102.917
0.167	0.003	102.914	-102.914
0.175	0.003	102.901	-102.901
0.183	0.003	102.917	-102.917
0.192	0.003	102.936	-102.936
0.200	0.003	102.936	-102.936

0.208	0.003	102.927	-102.927
0.217	0.004	103.022	-103.022
0.225	0.004	102.981	-102.981
0.233	0.004	102.990	-102.990
0.242	0.004	102.974	-102.974
0.250	0.004	102.984	-102.984
0.258	0.004	102.978	-102.978
0.267	0.004	102.968	-102.968
0.275	0.005	103.000	-103.000
0.283	0.005	103.006	-103.006
0.292	0.005	103.013	-103.013
0.300	0.005	103.022	-103.022
0.308	0.005	103.022	-103.022
0.317	0.005	103.025	-103.025
0.325	0.005	103.041	-103.041
0.333	0.006	103.044	-103.044
0.350	0.006	103.054	-103.054
0.367	0.006	103.067	-103.067
0.383	0.006	103.079	-103.079
0.400	0.007	103.086	-103.086
0.417	0.007	103.105	-103.105
0.433	0.007	103.117	-103.117
0.450	0.008	103.130	-103.130
0.467	0.008	103.140	-103.140
0.483	0.008	103.152	-103.152
0.500	0.008	103.162	-103.162
0.517	0.009	103.175	-103.175
0.533	0.009	103.191	-103.191
0.550	0.009	103.194	-103.194
0.567	0.009	103.206	-103.206
0.583	0.010	103.216	-103.216
0.600	0.010	103.232	-103.232
0.617	0.010	103.248	-103.248
0.633	0.011	103.251	-103.251
0.650	0.011	103.260	-103.260
0.667	0.011	103.273	-103.273
0.683	0.011	103.289	-103.289
0.700	0.012	103.305	-103.305
0.717	0.012	103.305	-103.305
0.733	0.012	103.318	-103.318
0.750	0.013	103.327	-103.327
0.767	0.013	103.333	-103.333
0.783	0.013	103.349	-103.349
0.800	0.013	103.356	-103.356
0.817	0.014	103.362	-103.362

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0.833	0.014	103.378	-103.378
0.850	0.014	103.384	-103.384
0.867	0.014	103.391	-103.391
0.883	0.015	103.400	-103.400
0.900	0.015	103.419	-103.419
0.917	0.015	103.426	-103.426
0.933	0.016	103.435	-103.435
0.950	0.016	103.441	-103.441
0.967	0.016	103.457	-103.457
0.983	0.016	103.467	-103.467
1.000	0.017	103.470	-103.470
1.200	0.020	103.565	-103.565
1.400	0.023	103.670	-103.670
1.600	0.027	103.762	-103.762
1.800	0.030	103.839	-103.839
2.000	0.033	103.918	-103.918
2.200	0.037	103.972	-103.972
2.400	0.040	104.032	-104.032
2.600	0.043	104.096	-104.096
2.800	0.047	104.150	-104.150
3.000	0.050	104.182	-104.182
3.200	0.053	104.236	-104.236
3.400	0.057	104.283	-104.283
3.600	0.060	104.306	-104.306
3.800	0.063	104.337	-104.337
4.000	0.067	104.388	-104.388
4.200	0.070	104.410	-104.410
4.400	0.073	104.429	-104.429
4.600	0.077	104.439	-104.439
4.800	0.080	104.474	-104.474
5.000	0.083	104.506	-104.506
5.200	0.087	104.528	-104.528
5.400	0.090	104.506	-104.506
5.600	0.093	104.499	-104.499
5.800	0.097	104.528	-104.528
6.000	0.100	104.566	-104.566
6.200	0.103	104.601	-104.601
6.400	0.107	104.560	-104.560
6.600	0.110	104.598	-104.598
6.800	0.113	104.588	-104.588
7.000	0.117	104.601	-104.601
7.200	0.120	104.617	-104.617
7.400	0.123	104.617	-104.617
7.600	0.127	104.607	-104.607
7.800	0.130	104.617	-104.617

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8.000	0.133	104.655	-104.655
8.200	0.137	104.645	-104.645
8.400	0.140	104.642	-104.642
8.600	0.143	104.645	-104.645
8.800	0.147	104.645	-104.645
9.000	0.150	104.655	-104.655
9.200	0.153	104.665	-104.665
9.400	0.157	104.661	-104.661
9.600	0.160	104.655	-104.655
9.800	0.163	104.658	-104.658
10.000	0.167	104.668	-104.668
11.000	0.183	104.680	-104.680
12.000	0.200	104.674	-104.674
13.000	0.217	104.703	-104.703
14.000	0.233	104.693	-104.693
15.000	0.250	104.668	-104.668
16.000	0.267	104.693	-104.693
17.000	0.283	104.693	-104.693
18.000	0.300	104.703	-104.703
19.000	0.317	104.696	-104.696
20.000	0.333	104.700	-104.700
21.000	0.350	104.700	-104.700

INSTANTANEOUS SLUG TEST DATA SHEET: WITHDRAWAL #1

Borehole: 699-42-37

Interval Tested: 148.13 -158.40' Btoc 6"

Depth To Water: 104.70' Btoc 6"

Depth to Transducer: 10.268 BWL

Measured by: Robert S. Edrington

Slug Volume: BR-2: 0.194 Cu Ft

Barometric Reading:

See Barometric Pressure Data.

Time:	Start	End
Baseline	0905	0915
Withdrawal	0919	0930

Date: 03-23-93

Initial Pressure (Pi): 104.70'

Slug Level/Pressure (Pmax) ~~103.410~~ 106.634 RSE 5/6/93

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: Robert S. Edrington (signature) Robert S. Edrington Date: 04-01-93

Sign and Print Name

BD-6000-293(07/90)

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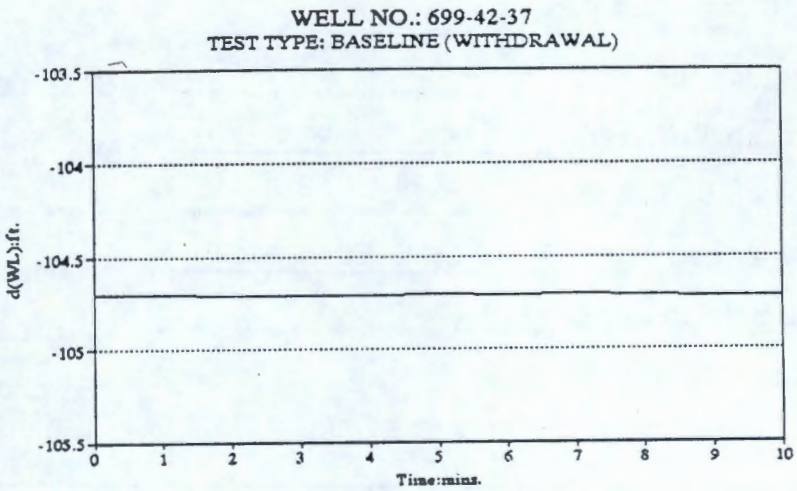
WELL NO.: 699-42-37
TEST TYPE: WITHDRAWAL BASELINE



DATA LOGGER:
- S/N: SE2000
- Unit No. 4 9
- 9est 10
- INPUT 1:

TRANSDUCER:
- Reference: 104.700
- Specific G.: 1.000
- Linearity: 0.000
- Scale Factor: 10.060
- Offset: 0.000
- Delay (mSec.): 50.000

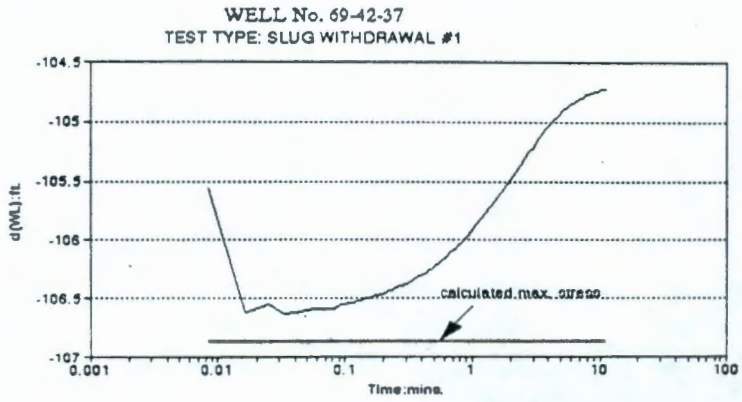
START DATE: 3/23/93 END DAT 03/23/93
START TIME: 09:05:54 END TIM 09:15:54

Time:min.	Time:hrs.	Depth to Water	d(WL):ft.
0.00	0.000	104.700	-104.700
1.00	0.017	104.700	-104.700
2.00	0.033	104.703	-104.703
3.00	0.050	104.703	-104.703
4.00	0.067	104.706	-104.706
5.00	0.083	104.700	-104.700
6.00	0.100	104.703	-104.703
7.00	0.117	104.700	-104.700
8.00	0.133	104.703	-104.703
9.00	0.150	104.709	-104.709
10.00	0.167	104.709	-104.709

SLUG VO. (cu. ft.)=0.194

DATA LOGGER:
S/N: SE2000
Unit No. 4 9
9est 11
INPUT 1:

TRANSDUCER:
Reference: 104.700
Specific G.: 1.000
Linearity: 0.000
Scale Factor: 10.060
Offset: 0.000
Delay (mSec.): 50.000



START DATE: 3/23/93 END DAT 03/23/93
START TIME: 09:19:09 END TIM 09:30:09

Time:min.	Time:hrs.	Depth to Water	d(WL):ft.
0.00	0.0000	104.687	-104.687
0.01	0.0001	105.560	-105.560
0.02	0.0003	106.634	-106.634
0.03	0.0004	106.555	-106.555
0.03	0.0006	106.641	-106.641
0.04	0.0007	106.631	-106.631
0.05	0.0008	106.609	-106.609
0.06	0.0010	106.596	-106.596
0.07	0.0011	106.596	-106.596
0.08	0.0013	106.596	-106.596
0.08	0.0014	106.590	-106.590
0.09	0.0015	106.552	-106.552
0.100	0.0017	106.552	-106.552
0.108	0.0018	106.539	-106.539
0.117	0.0019	106.548	-106.548
0.125	0.0021	106.523	-106.523
0.133	0.0022	106.523	-106.523
0.142	0.0024	106.517	-106.517
0.150	0.0025	106.498	-106.498
0.158	0.0026	106.494	-106.494
0.167	0.0028	106.491	-106.491
0.175	0.0029	106.463	-106.463
0.183	0.0031	106.479	-106.479
0.192	0.0032	106.472	-106.472
0.200	0.0033	106.466	-106.466

0.208	0.0035	106.456	-106.456
0.217	0.0036	106.450	-106.450
0.225	0.0038	106.434	-106.434
0.233	0.0039	106.440	-106.440
0.242	0.0040	106.431	-106.431
0.250	0.0042	106.418	-106.418
0.258	0.0043	106.402	-106.402
0.267	0.0044	106.409	-106.409
0.275	0.0046	106.396	-106.396
0.283	0.0047	106.399	-106.399
0.292	0.0049	106.386	-106.386
0.300	0.0050	106.377	-106.377
0.308	0.0051	106.377	-106.377
0.317	0.0053	106.367	-106.367
0.325	0.0054	106.361	-106.361
0.333	0.0056	106.361	-106.361
0.350	0.0058	106.342	-106.342
0.367	0.0061	106.326	-106.326
0.383	0.0064	106.313	-106.313
0.400	0.0067	106.307	-106.307
0.417	0.0069	106.291	-106.291
0.433	0.0072	106.285	-106.285
0.450	0.0075	106.266	-106.266
0.467	0.0078	106.253	-106.253
0.483	0.0081	106.250	-106.250
0.500	0.0083	106.231	-106.231
0.517	0.0086	106.218	-106.218
0.533	0.0089	106.218	-106.218
0.550	0.0092	106.189	-106.189
0.567	0.0094	106.189	-106.189
0.583	0.0097	106.180	-106.180
0.600	0.0100	106.164	-106.164
0.617	0.0103	106.151	-106.151
0.633	0.0106	106.145	-106.145
0.650	0.0108	106.132	-106.132
0.667	0.0111	106.120	-106.120
0.683	0.0114	106.104	-106.104
0.700	0.0117	106.097	-106.097
0.717	0.0119	106.088	-106.088
0.733	0.0122	106.078	-106.078
0.750	0.0125	106.069	-106.069
0.767	0.0128	106.062	-106.062
0.783	0.0131	106.046	-106.046
0.800	0.0133	106.040	-106.040
0.817	0.0136	106.027	-106.027

0.833	0.0139	106.018	-106.018
0.850	0.0142	106.015	-106.015
0.867	0.0144	105.999	-105.999
0.883	0.0147	105.989	-105.989
0.900	0.0150	105.986	-105.986
0.917	0.0153	105.967	-105.967
0.933	0.0156	105.961	-105.961
0.950	0.0158	105.958	-105.958
0.967	0.0161	105.938	-105.938
0.983	0.0164	105.935	-105.935
1.000	0.0167	105.919	-105.919
1.200	0.0200	105.818	-105.818
1.400	0.0233	105.722	-105.722
1.600	0.0267	105.637	-105.637
1.800	0.0300	105.557	-105.557
2.000	0.0333	105.484	-105.484
2.200	0.0367	105.417	-105.417
2.400	0.0400	105.360	-105.360
2.600	0.0433	105.306	-105.306
2.800	0.0467	105.255	-105.255
3.000	0.0500	105.211	-105.211
3.200	0.0533	105.166	-105.166
3.400	0.0567	105.132	-105.132
3.600	0.0600	105.090	-105.090
3.800	0.0633	105.058	-105.058
4.000	0.0667	105.030	-105.030
4.200	0.0700	105.001	-105.001
4.400	0.0733	104.982	-104.982
4.600	0.0767	104.960	-104.960
4.800	0.0800	104.938	-104.938
5.000	0.0833	104.919	-104.919
5.200	0.0867	104.896	-104.896
5.400	0.0900	104.884	-104.884
5.600	0.0933	104.871	-104.871
5.800	0.0967	104.855	-104.855
6.000	0.100	104.846	-104.846
6.200	0.103	104.836	-104.836
6.400	0.107	104.827	-104.827
6.600	0.110	104.817	-104.817
6.800	0.113	104.814	-104.814
7.000	0.117	104.798	-104.798
7.200	0.120	104.798	-104.798
7.400	0.123	104.795	-104.795
7.600	0.127	104.782	-104.782
7.800	0.130	104.773	-104.773

8.000	0.133	104.769	-104.769
8.200	0.137	104.766	-104.766
8.400	0.140	104.757	-104.757
8.600	0.143	104.757	-104.757
8.800	0.147	104.754	-104.754
9.000	0.150	104.750	-104.750
9.200	0.153	104.744	-104.744
9.400	0.157	104.741	-104.741
9.600	0.160	104.741	-104.741
9.800	0.163	104.741	-104.741
10.000	0.167	104.728	-104.728
11.000	0.183	104.728	-104.728

INSTANTANEOUS SLUG TEST DATA SHEET :INJECTION #2

Borehole: 699-42-37

Interval Tested: 148.13 -158.40' Btoc 6"

Depth To Water: 104.70' Btoc 6"

Depth to Transducer: 10.268 BWL

Measured by: Robert S. Edrington

Slug Volume: BR-1: 0.388 Cu Ft

Barometric Reading:

See Barometric Pressure Data.

Time:	Start	End
Baseline	0821	0840
Injection	0932	0947

Date: 03-23-93

Initial Pressure (Pi): 104.70'

Slug Level/Pressure (Pmax) 100.039

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: Robert S. Edrington Date: 04-01-93

Sign and Print Name

BD-6000-293(07/90)

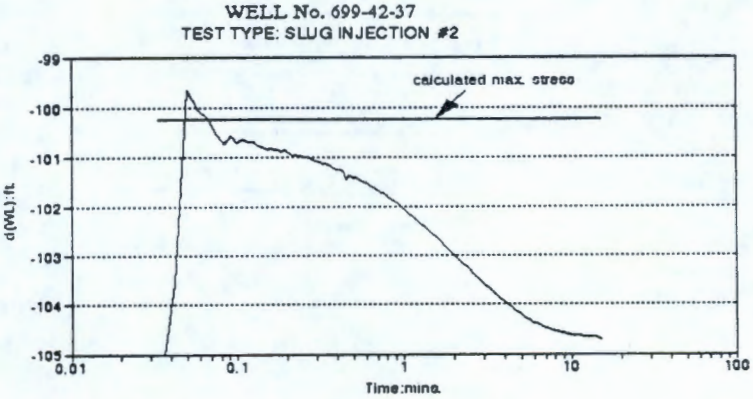
Pg 2 of 5

WELL NO.: 699-42-37
TEST TYPE: SLUG INJECTION #2

SLUG VO. (cu. ft.)=0.388

DATA LOGGER:
S/N: SE2000
Unit No. 4 9
9est 12
INPUT 1:

TRANSDUCER:
Reference: 104.700
Specific G.: 1.000
Linearity: 0.000
Scale Factor: 10.060
Offset: 0.000
Delay (mSec.): 50.000



START DATE: 3/23/93 END DAT 03/23/93
START TIME: 09:32:53 END TIM 09:47:53

Time:min.	Time:hrs.	Depth to Water	d(WL):ft.
0.000	0.0000	104.693	-104.693
0.033	0.0006	106.183	-106.183
0.042	0.0007	103.559	-103.559
0.050	0.0008	99.632	-99.632
0.058	0.0010	100.039	-100.039
0.067	0.0011	100.195	-100.195
0.075	0.0013	100.541	-100.541
0.083	0.0014	100.738	-100.738
0.092	0.0015	100.547	-100.547
0.100	0.0017	100.728	-100.728
0.108	0.0018	100.643	-100.643
0.117	0.0019	100.690	-100.690
0.125	0.0021	100.684	-100.684
0.133	0.0022	100.767	-100.767
0.142	0.0024	100.786	-100.786
0.150	0.0025	100.846	-100.846
0.158	0.0026	100.817	-100.817
0.167	0.0028	100.846	-100.846
0.175	0.0029	100.836	-100.836
0.183	0.0031	100.894	-100.894
0.192	0.0032	100.827	-100.827
0.200	0.0033	100.897	-100.897

Pg 3 of 5

0.208	0.0035	100.929	-100.929
0.217	0.0036	100.960	-100.960
0.225	0.0038	100.951	-100.951
0.233	0.0039	100.976	-100.976
0.242	0.0040	100.983	-100.983
0.250	0.0042	100.995	-100.995
0.258	0.0043	101.002	-101.002
0.267	0.0044	101.005	-101.005
0.275	0.0046	101.030	-101.030
0.283	0.0047	101.037	-101.037
0.292	0.0049	101.059	-101.059
0.300	0.0050	101.072	-101.072
0.308	0.0051	101.094	-101.094
0.317	0.0053	101.103	-101.103
0.325	0.0054	101.132	-101.132
0.333	0.0056	101.119	-101.119
0.350	0.0058	101.151	-101.151
0.367	0.0061	101.192	-101.192
0.383	0.0064	101.230	-101.230
0.400	0.0067	101.243	-101.243
0.417	0.0069	101.249	-101.249
0.433	0.0072	101.281	-101.281
0.450	0.0075	101.459	-101.459
0.467	0.0078	101.345	-101.345
0.483	0.0081	101.370	-101.370
0.500	0.0083	101.418	-101.418
0.517	0.0086	101.396	-101.396
0.533	0.0089	101.431	-101.431
0.550	0.0092	101.450	-101.450
0.567	0.0094	101.475	-101.475
0.583	0.0097	101.497	-101.497
0.600	0.0100	101.519	-101.519
0.617	0.0103	101.548	-101.548
0.633	0.0106	101.574	-101.574
0.650	0.0108	101.586	-101.586
0.667	0.0111	101.605	-101.605
0.683	0.0114	101.637	-101.637
0.700	0.0117	101.659	-101.659
0.717	0.0119	101.682	-101.682
0.733	0.0122	101.704	-101.704
0.750	0.0125	101.723	-101.723
0.767	0.0128	101.745	-101.745
0.783	0.0131	101.767	-101.767
0.800	0.0133	101.790	-101.790
0.817	0.0136	101.809	-101.809

Pg 4 of 5

0.833	0.0139	101.831	-101.831
0.850	0.0142	101.853	-101.853
0.867	0.0144	101.872	-101.872
0.883	0.0147	101.891	-101.891
0.900	0.0150	101.913	-101.913
0.917	0.0153	101.932	-101.932
0.933	0.0156	101.955	-101.955
0.950	0.0158	101.977	-101.977
0.967	0.0161	101.996	-101.996
0.983	0.0164	102.015	-102.015
1.000	0.0167	102.034	-102.034
1.200	0.0200	102.266	-102.266
1.400	0.0233	102.473	-102.473
1.600	0.0267	102.673	-102.673
1.800	0.0300	102.832	-102.832
2.000	0.0333	102.987	-102.987
2.200	0.0367	103.127	-103.127
2.400	0.0400	103.254	-103.254
2.600	0.0433	103.368	-103.368
2.800	0.0467	103.473	-103.473
3.000	0.0500	103.572	-103.572
3.200	0.0533	103.661	-103.661
3.400	0.0567	103.743	-103.743
3.600	0.0600	103.816	-103.816
3.800	0.0633	103.886	-103.886
4.000	0.0667	103.947	-103.947
4.200	0.0700	104.004	-104.004
4.400	0.0733	104.061	-104.061
4.600	0.0767	104.105	-104.105
4.800	0.0800	104.156	-104.156
5.000	0.0833	104.198	-104.198
5.200	0.0867	104.239	-104.239
5.400	0.0900	104.267	-104.267
5.600	0.0933	104.302	-104.302
5.800	0.0967	104.334	-104.334
6.000	0.1000	104.363	-104.363
6.200	0.1033	104.388	-104.388
6.400	0.1067	104.410	-104.410
6.600	0.1100	104.429	-104.429
6.800	0.1133	104.452	-104.452
7.000	0.1167	104.474	-104.474
7.200	0.1200	104.483	-104.483
7.400	0.1233	104.503	-104.503
7.600	0.1267	104.518	-104.518
7.800	0.1300	104.531	-104.531

Pg 5 of 5

8.000	0.1333	104.541	-104.541
8.200	0.1367	104.547	-104.547
8.400	0.1400	104.557	-104.557
8.600	0.1433	104.566	-104.566
8.800	0.1467	104.576	-104.576
9.000	0.1500	104.585	-104.585
9.200	0.1533	104.595	-104.595
9.400	0.1567	104.598	-104.598
9.600	0.1600	104.604	-104.604
9.800	0.1633	104.617	-104.617
10.000	0.1667	104.614	-104.614
11.000	0.1833	104.636	-104.636
12.000	0.2000	104.652	-104.652
13.000	0.2167	104.665	-104.665
14.000	0.2333	104.668	-104.668
15.000	0.2500	104.700	-104.700

INSTANTANEOUS SLUG TEST DATA SHEET: WITHDRAWAL #2

Borehole: 699-42-37

Interval Tested: 148.13 -158.40' Btoc 6"

Depth To Water: 104.70' Btoc 6"

Depth to Transducer: 10.268 BWL

Measured by: Robert S. Edrington

Slug Volume: BR-1: 0.388 Cu Ft

Barometric Reading:

See Barometric Pressure Data.

Time:	Start	End
Baseline	0905	0915
Withdrawal	0948	1002

Date: 03-23-93

Initial Pressure (Pi): 104.70'

Slug Level/Pressure (Pmax) 108.750

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: Robert S. Edrington Date: 04-01-93

Sign and Print Name

BD-6000-293(07/90)

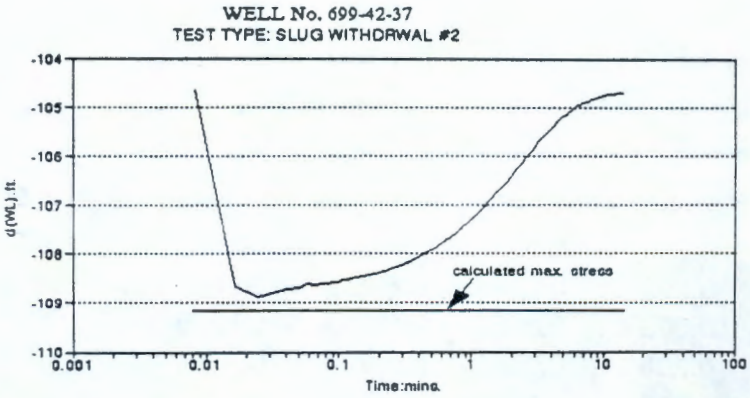
P, 2 of 5

WELL NO.: 699-42-37
TEST TYPE: SLUG WITHDRAWAL TEST 2

SLUG VO. (cu. ft.)=0.388

DATA LOGGER:
- S/N: SE2000
- Unit No. 4 9
- 9est 13
- INPUT 1:

TRANSDUCER:
- Reference: 104.700
- Specific G.: 1.000
- Linearity: 0.000
- Scale Factor: 10.060
- Offset: 0.000
- Delay (mSec.): 50.000



START DATE: 3/23/93 END DAT 03/23/93
START TIME: 09:48:28 END TIM 10:02:28

Time:min.	Time:hrs.	Depth to Water	d(WL):ft.
0.000	0.0000	104.639	-104.639
0.008	0.0001	104.639	-104.639
0.017	0.0003	108.648	-108.648
0.025	0.0004	108.861	-108.861
0.033	0.0006	108.750	-108.750
0.042	0.0007	108.709	-108.709
0.050	0.0008	108.680	-108.680
0.058	0.0010	108.594	-108.594
0.067	0.0011	108.620	-108.620
0.075	0.0013	108.604	-108.604
0.083	0.0014	108.591	-108.591
0.092	0.0015	108.569	-108.569
0.100	0.0017	108.566	-108.566
0.108	0.0018	108.528	-108.528
0.117	0.0019	108.518	-108.518
0.125	0.0021	108.502	-108.502
0.133	0.0022	108.486	-108.486
0.142	0.0024	108.477	-108.477
0.150	0.0025	108.461	-108.461
0.158	0.0026	108.445	-108.445
0.167	0.0028	108.429	-108.429
0.175	0.0029	108.420	-108.420

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0.183	0.0031	108.404	-108.404
0.192	0.0032	108.388	-108.388
0.200	0.0033	108.378	-108.378
0.208	0.0035	108.362	-108.362
0.217	0.0036	108.347	-108.347
0.225	0.0038	108.337	-108.337
0.233	0.0039	108.321	-108.321
0.242	0.0040	108.308	-108.308
0.250	0.0042	108.296	-108.296
0.258	0.0043	108.280	-108.280
0.267	0.0044	108.267	-108.267
0.275	0.0046	108.258	-108.258
0.283	0.0047	108.242	-108.242
0.292	0.0049	108.229	-108.229
0.300	0.0050	108.216	-108.216
0.308	0.0051	108.204	-108.204
0.317	0.0053	108.188	-108.188
0.325	0.0054	108.178	-108.178
0.333	0.0056	108.165	-108.165
0.350	0.0058	108.137	-108.137
0.367	0.0061	108.115	-108.115
0.383	0.0064	108.092	-108.092
0.400	0.0067	108.067	-108.067
0.417	0.0069	108.038	-108.038
0.433	0.0072	108.013	-108.013
0.450	0.0075	107.994	-107.994
0.467	0.0078	107.968	-107.968
0.483	0.0081	107.943	-107.943
0.500	0.0083	107.924	-107.924
0.517	0.0086	107.895	-107.895
0.533	0.0089	107.886	-107.886
0.550	0.0092	107.851	-107.851
0.567	0.0094	107.829	-107.829
0.583	0.0097	107.806	-107.806
0.600	0.0100	107.784	-107.784
0.617	0.0103	107.765	-107.765
0.633	0.0106	107.740	-107.740
0.650	0.0108	107.721	-107.721
0.667	0.0111	107.698	-107.698
0.683	0.0114	107.679	-107.679
0.700	0.0117	107.657	-107.657
0.717	0.0119	107.635	-107.635
0.733	0.0122	107.609	-107.609
0.750	0.0125	107.597	-107.597
0.767	0.0128	107.575	-107.575

Pg 4 of 5

0.783	0.0131	107.549	-107.549
0.800	0.0133	107.540	-107.540
0.817	0.0136	107.511	-107.511
0.833	0.0139	107.492	-107.492
0.850	0.0142	107.473	-107.473
0.867	0.0144	107.451	-107.451
0.883	0.0147	107.435	-107.435
0.900	0.0150	107.416	-107.416
0.917	0.0153	107.393	-107.393
0.933	0.0156	107.378	-107.378
0.950	0.0158	107.355	-107.355
0.967	0.0161	107.339	-107.339
0.983	0.0164	107.320	-107.320
1.000	0.0167	107.298	-107.298
1.200	0.0200	107.082	-107.082
1.400	0.0233	106.885	-106.885
1.600	0.0267	106.707	-106.707
1.800	0.0300	106.548	-106.548
2.000	0.0333	106.396	-106.396
2.200	0.0367	106.259	-106.259
2.400	0.0400	106.132	-106.132
2.600	0.0433	106.015	-106.015
2.800	0.0467	105.910	-105.910
3.000	0.0500	105.811	-105.811
3.200	0.0533	105.722	-105.722
3.400	0.0567	105.640	-105.640
3.600	0.0600	105.564	-105.564
3.800	0.0633	105.497	-105.497
4.000	0.0667	105.427	-105.427
4.200	0.0700	105.367	-105.367
4.400	0.0733	105.313	-105.313
4.600	0.0767	105.262	-105.262
4.800	0.0800	105.217	-105.217
5.000	0.0833	105.173	-105.173
5.200	0.0867	105.135	-105.135
5.400	0.0900	105.100	-105.100
5.600	0.0933	105.065	-105.065
5.800	0.0967	105.036	-105.036
6.000	0.100	105.008	-105.008
6.200	0.103	104.985	-104.985
6.400	0.107	104.957	-104.957
6.600	0.110	104.938	-104.938
6.800	0.113	104.922	-104.922
7.000	0.117	104.896	-104.896
7.200	0.120	104.881	-104.881

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7.400	0.123	104.868	-104.868
7.600	0.127	104.852	-104.852
7.800	0.130	104.836	-104.836
8.000	0.133	104.827	-104.827
8.200	0.137	104.817	-104.817
8.400	0.140	104.804	-104.804
8.600	0.143	104.798	-104.798
8.800	0.147	104.785	-104.785
9.000	0.150	104.782	-104.782
9.200	0.153	104.776	-104.776
9.400	0.157	104.757	-104.757
9.600	0.160	104.757	-104.757
9.800	0.163	104.747	-104.747
10.000	0.167	104.744	-104.744
11.000	0.183	104.722	-104.722
12.000	0.200	104.706	-104.706
13.000	0.217	104.693	-104.693
14.000	0.233	104.687	-104.687

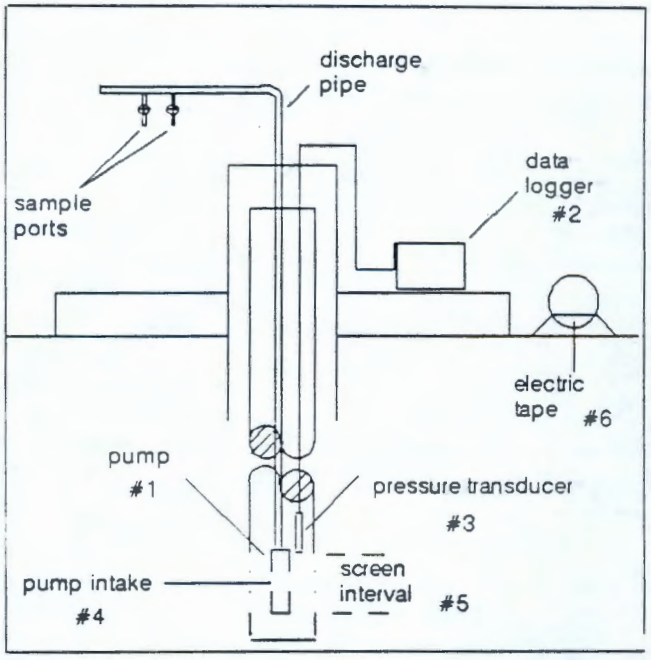
EQUIPMENT CONFIGURATION AND WELL HEAD DIAGRAM

WELL DESIGNATION 699-42-37 DEPTH 158.40' Btoc 6"

Equipment Configuration

Item	Description
#1	1.5 hp Grundfos submersible
#2	Data Logger 2K-459
#3	In-Situ Inc s/n 2246 (cal. 3-11-94)
#4	@157.19' Btoc 6"
#5	148.13-158.40' Btoc 6"
#6	Solinst s/n: ET-1 (cal. 7-21-93)
#7	
#8	
#9	
#10	

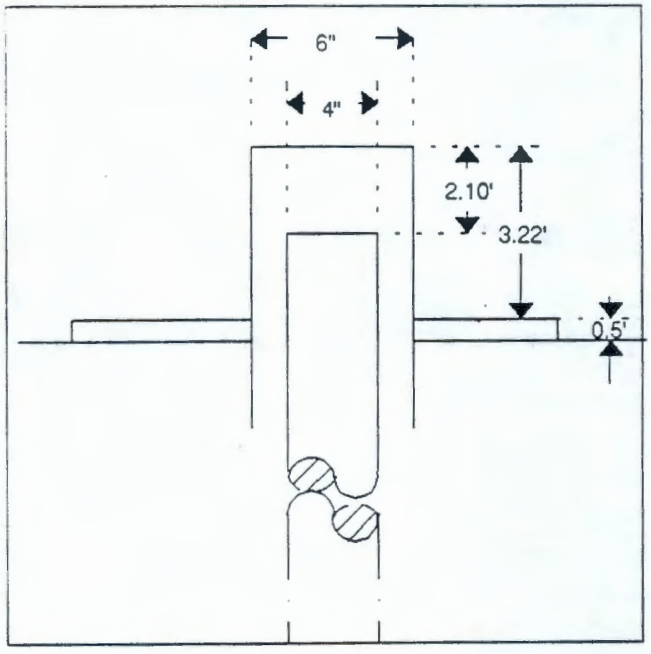
Diagram



Comments

A rotometer was used during drawdown to monitor flow. The meter was also checked periodically by the bucket method.

Well Head Diagram



Signature of Recorder R. S Edrington Date 3-31-93

DRAWDOWN/RECOVERY

Well Designation: 699-42-37 Date: 03-24-93

Well Depth: 158.40' BTOC Screened Interval: 148.13-158.40'BTOC

Pumping Method: Constant Discharge

Equipment Used to Measure Water Level: E.Tape/Transducer S.N. ET-1/2246 Calibration Due: 07-31-93/03-11-93

Equipment Used to Measure Flow: Rotometer/Bucket(see note) S.N.: N/A Calibration Due: Field Calibrated

Measuring Point: Top of Casing (6") Pump Start Time: 0815 Pump Stop Time: 1515

Time		Water Level		Discharge
Date	Time	Reading Units:	Water Level Units:	Reading Units: Bucket Method/GPM
03-24-93	0820			3.3
	0835	See Attached Data		3.3
	1300			3.3
			See Attached Data	

NOTE: A rotometer was used to keep flow constant.
This meter was periodically check with the bucket method.

Recorded by: Robert S. Edrington Date: 04-01-93
Sign and Print Name

BD-6000-402(03/90)

WELL NUMBER:699-42-37

TEST TYPE:BASELINE

Q(gpm) =N/A

SLUG VOLUME(cu.ft.)=N/A

DATA LOGGER:

S/N: SE1000B

Unit No:0277

Test# 0

INPUT 1:

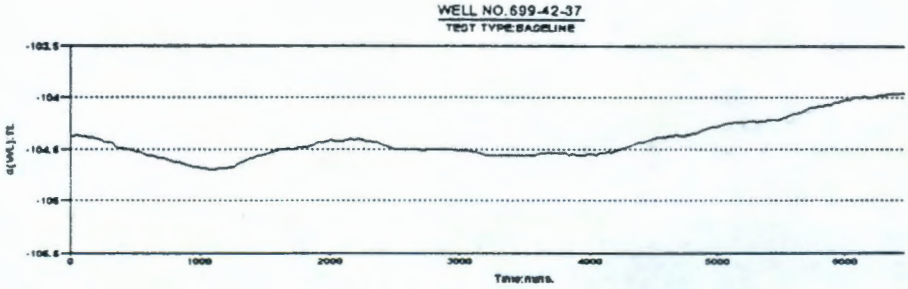
TRANSDUCER:

Reference: 104.35

Scale factor: 10.06

Offset: 0.00

Datum Point:



START DATE 03/18/93 END DAT 03/23/93

START TIME: 15:00 END TIM 07:30:00

Time:mins.	Time:hrs.	Depth to Water	d(WL):ft.
0.0	0.0	104.37	-104.37
30.0	0.5	104.37	-104.37
60.0	1.0	104.36	-104.36
90.0	1.5	104.37	-104.37
120.0	2.0	104.37	-104.37
150.0	2.5	104.38	-104.38
180.0	3.0	104.39	-104.39
210.0	3.5	104.40	-104.40
240.0	4.0	104.41	-104.41
270.0	4.5	104.43	-104.43
300.0	5.0	104.44	-104.44
330.0	5.5	104.45	-104.45
360.0	6.0	104.48	-104.48
390.0	6.5	104.49	-104.49
420.0	7.0	104.49	-104.49
450.0	7.5	104.51	-104.51
480.0	8.0	104.52	-104.52
510.0	8.5	104.53	-104.53
540.0	9.0	104.53	-104.53
570.0	9.5	104.55	-104.55
600.0	10.0	104.56	-104.56
630.0	10.5	104.57	-104.57
660.0	11.0	104.58	-104.58
690.0	11.5	104.59	-104.59

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720.0	12.0	104.59	-104.59
750.0	12.5	104.60	-104.60
780.0	13.0	104.61	-104.61
810.0	13.5	104.63	-104.63
840.0	14.0	104.63	-104.63
870.0	14.5	104.64	-104.64
900.0	15.0	104.65	-104.65
930.0	15.5	104.66	-104.66
960.0	16.0	104.67	-104.67
990.0	16.5	104.68	-104.68
1020.0	17.0	104.69	-104.69
1050.0	17.5	104.69	-104.69
1080.0	18.0	104.70	-104.70
1110.0	18.5	104.70	-104.70
1140.0	19.0	104.69	-104.69
1170.0	19.5	104.69	-104.69
1200.0	20.0	104.69	-104.69
1230.0	20.5	104.67	-104.67
1260.0	21.0	104.67	-104.67
1290.0	21.5	104.64	-104.64
1320.0	22.0	104.63	-104.63
1350.0	22.5	104.62	-104.62
1380.0	23.0	104.59	-104.59
1410.0	23.5	104.59	-104.59
1440.0	24.0	104.57	-104.57
1470.0	24.5	104.56	-104.56
1500.0	25.0	104.55	-104.55
1530.0	25.5	104.54	-104.54
1560.0	26.0	104.53	-104.53
1590.0	26.5	104.52	-104.52
1620.0	27.0	104.51	-104.51
1650.0	27.5	104.50	-104.50
1680.0	28.0	104.49	-104.49
1710.0	28.5	104.50	-104.50
1740.0	29.0	104.49	-104.49
1770.0	29.5	104.48	-104.48
1800.0	30.0	104.48	-104.48
1830.0	30.5	104.48	-104.48
1860.0	31.0	104.47	-104.47
1890.0	31.5	104.45	-104.45
1920.0	32.0	104.44	-104.44
1950.0	32.5	104.43	-104.43
1980.0	33.0	104.42	-104.42
2010.0	33.5	104.41	-104.41
2040.0	34.0	104.42	-104.42

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2070.0	34.5	104.42	-104.42
2100.0	35.0	104.42	-104.42
2130.0	35.5	104.41	-104.41
2160.0	36.0	104.40	-104.40
2190.0	36.5	104.41	-104.41
2220.0	37.0	104.40	-104.40
2250.0	37.5	104.41	-104.41
2280.0	38.0	104.42	-104.42
2310.0	38.5	104.42	-104.42
2340.0	39.0	104.43	-104.43
2370.0	39.5	104.44	-104.44
2400.0	40.0	104.46	-104.46
2430.0	40.5	104.47	-104.47
2460.0	41.0	104.48	-104.48
2490.0	41.5	104.50	-104.50
2520.0	42.0	104.50	-104.50
2550.0	42.5	104.51	-104.51
2580.0	43.0	104.51	-104.51
2610.0	43.5	104.51	-104.51
2640.0	44.0	104.51	-104.51
2670.0	44.5	104.51	-104.51
2700.0	45.0	104.52	-104.52
2730.0	45.5	104.52	-104.52
2760.0	46.0	104.51	-104.51
2790.0	46.5	104.50	-104.50
2820.0	47.0	104.50	-104.50
2850.0	47.5	104.50	-104.50
2880.0	48.0	104.50	-104.50
2910.0	48.5	104.51	-104.51
2940.0	49.0	104.51	-104.51
2970.0	49.5	104.52	-104.52
3000.0	50.0	104.52	-104.52
3030.0	50.5	104.52	-104.52
3060.0	51.0	104.52	-104.52
3090.0	51.5	104.53	-104.53
3120.0	52.0	104.53	-104.53
3150.0	52.5	104.54	-104.54
3180.0	53.0	104.55	-104.55
3210.0	53.5	104.56	-104.56
3240.0	54.0	104.56	-104.56
3270.0	54.5	104.56	-104.56
3300.0	55.0	104.57	-104.57
3330.0	55.5	104.57	-104.57
3360.0	56.0	104.57	-104.57
3390.0	56.5	104.57	-104.57

3420.0	57.0	104.57	-104.57
3450.0	57.5	104.57	-104.57
3480.0	58.0	104.57	-104.57
3510.0	58.5	104.57	-104.57
3540.0	59.0	104.56	-104.56
3570.0	59.5	104.56	-104.56
3600.0	60.0	104.55	-104.55
3630.0	60.5	104.54	-104.54
3660.0	61.0	104.54	-104.54
3690.0	61.5	104.54	-104.54
3720.0	62.0	104.54	-104.54
3750.0	62.5	104.54	-104.54
3780.0	63.0	104.54	-104.54
3810.0	63.5	104.54	-104.54
3840.0	64.0	104.56	-104.56
3870.0	64.5	104.55	-104.55
3900.0	65.0	104.56	-104.56
3930.0	65.5	104.56	-104.56
3960.0	66.0	104.56	-104.56
3990.0	66.5	104.55	-104.55
4020.0	67.0	104.55	-104.55
4050.0	67.5	104.56	-104.56
4080.0	68.0	104.54	-104.54
4110.0	68.5	104.54	-104.54
4140.0	69.0	104.53	-104.53
4170.0	69.5	104.54	-104.54
4200.0	70.0	104.52	-104.52
4230.0	70.5	104.51	-104.51
4260.0	71.0	104.49	-104.49
4290.0	71.5	104.48	-104.48
4320.0	72.0	104.47	-104.47
4350.0	72.5	104.45	-104.45
4380.0	73.0	104.43	-104.43
4410.0	73.5	104.43	-104.43
4440.0	74.0	104.42	-104.42
4470.0	74.5	104.41	-104.41
4500.0	75.0	104.40	-104.40
4530.0	75.5	104.39	-104.39
4560.0	76.0	104.39	-104.39
4590.0	76.5	104.38	-104.38
4620.0	77.0	104.37	-104.37
4650.0	77.5	104.37	-104.37
4680.0	78.0	104.36	-104.36
4710.0	78.5	104.37	-104.37
4740.0	79.0	104.37	-104.37

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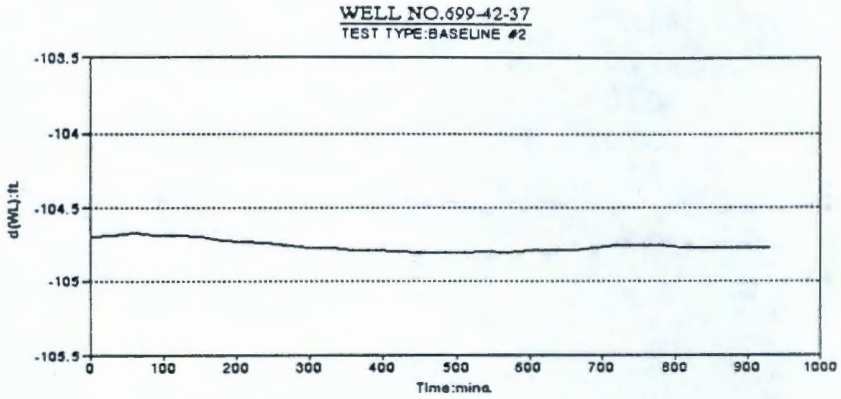
4770.0	79.5	104.36	-104.36
4800.0	80.0	104.35	-104.35
4830.0	80.5	104.35	-104.35
4860.0	81.0	104.33	-104.33
4890.0	81.5	104.31	-104.31
4920.0	82.0	104.30	-104.30
4950.0	82.5	104.29	-104.29
4980.0	83.0	104.29	-104.29
5010.0	83.5	104.28	-104.28
5040.0	84.0	104.27	-104.27
5070.0	84.5	104.25	-104.25
5100.0	85.0	104.25	-104.25
5130.0	85.5	104.24	-104.24
5160.0	86.0	104.24	-104.24
5190.0	86.5	104.24	-104.24
5220.0	87.0	104.24	-104.24
5250.0	87.5	104.23	-104.23
5280.0	88.0	104.23	-104.23
5310.0	88.5	104.24	-104.24
5340.0	89.0	104.23	-104.23
5370.0	89.5	104.23	-104.23
5400.0	90.0	104.21	-104.21
5430.0	90.5	104.22	-104.22
5460.0	91.0	104.22	-104.22
5490.0	91.5	104.21	-104.21
5520.0	92.0	104.19	-104.19
5550.0	92.5	104.18	-104.18
5580.0	93.0	104.16	-104.16
5610.0	93.5	104.15	-104.15
5640.0	94.0	104.14	-104.14
5670.0	94.5	104.13	-104.13
5700.0	95.0	104.11	-104.11
5730.0	95.5	104.10	-104.10
5760.0	96.0	104.10	-104.10
5790.0	96.5	104.09	-104.09
5820.0	97.0	104.08	-104.08
5850.0	97.5	104.07	-104.07
5880.0	98.0	104.07	-104.07
5910.0	98.5	104.05	-104.05
5940.0	99.0	104.05	-104.05
5970.0	99.5	104.04	-104.04
6000.0	100.0	104.03	-104.03
6030.0	100.5	104.02	-104.02
6060.0	101.0	104.00	-104.00
6090.0	101.5	104.00	-104.00

6120.0	102.0	104.00	-104.00
6150.0	102.5	103.99	-103.99
6180.0	103.0	104.00	-104.00
6210.0	103.5	104.00	-104.00
6240.0	104.0	103.99	-103.99
6270.0	104.5	103.98	-103.98
6300.0	105.0	103.97	-103.97
6330.0	105.5	103.96	-103.96
6360.0	106.0	103.96	-103.96
6390.0	106.5	103.96	-103.96
6420.0	107.0	103.96	-103.96
6450.0	107.5	103.95	-103.95
6480.0	108.0	103.96	-103.96
6510.0	108.5	103.97	-103.97
6540.0	109.0	103.98	-103.98
6570.0	109.5	103.98	-103.98
6600.0	110.0	103.99	-103.99
6630.0	110.5	104.00	-104.00
6660.0	111.0	104.02	-104.02
6690.0	111.5	104.03	-104.03
6720.0	112.0	104.04	-104.04
6750.0	112.5	104.06	-104.06

P1 8-9 30

WELL NUMBER:699-42-37
TEST TYPE:BASELINE #2



DATA LOGGER:
S/N: SE1000B
Unit No:0277
Test# 1
INPUT 1:

TRANSDUCER:
Reference: 104.70
Scale factor: 10.06
Offset: 0.00
Datum Point:

START DATE 03/23/93 END DAT 03/24/93
START TIME: 15:30 END TIM 07:00:00

Time:mins.	Time:hrs.	Depth to Water	d(WL):ft.
0.0	0.0	104.70	-104.70
30.0	0.5	104.69	-104.69
60.0	1.0	104.67	-104.67
90.0	1.5	104.69	-104.69
120.0	2.0	104.69	-104.69
150.0	2.5	104.70	-104.70
180.0	3.0	104.72	-104.72
210.0	3.5	104.73	-104.73
240.0	4.0	104.74	-104.74
270.0	4.5	104.76	-104.76
300.0	5.0	104.77	-104.77
330.0	5.5	104.77	-104.77
360.0	6.0	104.79	-104.79
390.0	6.5	104.79	-104.79
420.0	7.0	104.80	-104.80
450.0	7.5	104.81	-104.81
480.0	8.0	104.81	-104.81
510.0	8.5	104.81	-104.81
540.0	9.0	104.80	-104.80
570.0	9.5	104.81	-104.81
600.0	10.0	104.79	-104.79
630.0	10.5	104.79	-104.79
660.0	11.0	104.79	-104.79
690.0	11.5	104.77	-104.77

720.0	12.0	104.76	-104.76
750.0	12.5	104.76	-104.76
780.0	13.0	104.76	-104.76
810.0	13.5	104.77	-104.77
840.0	14.0	104.77	-104.77
870.0	14.5	104.77	-104.77
900.0	15.0	104.77	-104.77
930.0	15.5	104.77	-104.77

WELL NO.: 699-42-37

TEST TYPE: CONSTANT DISCHARGE

Q(gpm) = 3.3

SLUG VO. (cu. ft.) = N/A

DATA LOGGER:

S/N: SE2000

Unit No. 4 9

9est 10

INPUT 1:

TRANSDUCER:

Reference: 104.700

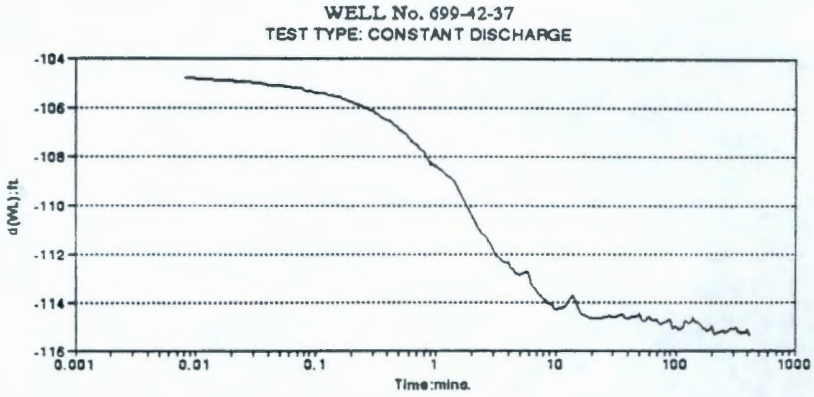
Specific G.: 1.000

Linearity: 0.000

Scale Factor: 10.060

Offset: 0.000

Delay (mSec.): 50.000



START DATE: 3/24/93 END DAT 03/24/93

START TIME: 08:15:00 END TIM 15:15:00

Time:min.	Time:hrs.	Depth to Water	d(WL):ft.
0.0000	0.00000	104.811	-104.811
0.0083	0.00014	104.757	-104.757
0.0166	0.00028	104.865	-104.865
0.0250	0.00042	104.928	-104.928
0.0333	0.00056	105.001	-105.001
0.0416	0.00069	105.068	-105.068
0.0500	0.00083	105.093	-105.093
0.0583	0.00097	105.119	-105.119
0.0666	0.00111	105.176	-105.176
0.0750	0.00125	105.195	-105.195
0.0833	0.00139	105.303	-105.303
0.0916	0.002	105.262	-105.262
0.100	0.002	105.351	-105.351
0.108	0.002	105.363	-105.363
0.117	0.002	105.392	-105.392
0.125	0.002	105.417	-105.417
0.133	0.002	105.468	-105.468
0.142	0.002	105.484	-105.484
0.150	0.003	105.554	-105.554
0.158	0.003	105.564	-105.564
0.167	0.003	105.624	-105.624
0.175	0.003	105.653	-105.653

0.183	0.003	105.665	-105.665
0.192	0.003	105.716	-105.716
0.200	0.003	105.738	-105.738
0.208	0.003	105.780	-105.780
0.217	0.004	105.811	-105.811
0.225	0.004	105.827	-105.827
0.233	0.004	105.891	-105.891
0.242	0.004	105.894	-105.894
0.250	0.004	105.942	-105.942
0.258	0.004	105.983	-105.983
0.267	0.004	105.980	-105.980
0.275	0.005	106.050	-106.050
0.283	0.005	106.097	-106.097
0.292	0.005	106.113	-106.113
0.300	0.005	106.123	-106.123
0.308	0.005	106.189	-106.189
0.317	0.005	106.183	-106.183
0.325	0.005	106.243	-106.243
0.333	0.006	106.234	-106.234
0.350	0.006	106.339	-106.339
0.367	0.006	106.380	-106.380
0.383	0.006	106.453	-106.453
0.400	0.007	106.504	-106.504
0.417	0.007	106.533	-106.533
0.433	0.007	106.609	-106.609
0.450	0.008	106.672	-106.672
0.467	0.008	106.726	-106.726
0.483	0.008	106.780	-106.780
0.500	0.008	106.892	-106.892
0.517	0.009	106.917	-106.917
0.533	0.009	106.974	-106.974
0.550	0.009	107.041	-107.041
0.567	0.009	107.095	-107.095
0.583	0.010	107.168	-107.168
0.600	0.010	107.212	-107.212
0.617	0.010	107.298	-107.298
0.633	0.011	107.371	-107.371
0.650	0.011	107.390	-107.390
0.667	0.011	107.422	-107.422
0.683	0.011	107.482	-107.482
0.700	0.012	107.486	-107.486
0.717	0.012	107.616	-107.616
0.733	0.012	107.619	-107.619
0.750	0.013	107.698	-107.698
0.767	0.013	107.762	-107.762

0.783	0.013	107.762	-107.762
0.800	0.013	107.854	-107.854
0.817	0.014	107.940	-107.940
0.833	0.014	108.013	-108.013
0.850	0.014	108.054	-108.054
0.867	0.014	108.153	-108.153
0.883	0.015	108.232	-108.232
0.900	0.015	108.204	-108.204
0.917	0.015	108.340	-108.340
0.933	0.016	108.312	-108.312
0.950	0.016	108.299	-108.299
0.967	0.016	108.318	-108.318
0.983	0.016	108.439	-108.439
1.000	0.017	108.388	-108.388
1.200	0.020	108.690	-108.690
1.400	0.023	109.010	-109.010
1.600	0.027	109.516	-109.516
1.800	0.030	110.024	-110.024
2.000	0.033	110.450	-110.450
2.200	0.037	110.831	-110.831
2.400	0.040	111.123	-111.123
2.600	0.043	111.260	-111.260
2.800	0.047	111.568	-111.568
3.000	0.050	111.847	-111.847
3.200	0.053	112.060	-112.060
3.400	0.057	112.149	-112.149
3.600	0.060	112.352	-112.352
3.800	0.063	112.407	-112.407
4.000	0.067	112.403	-112.403
4.200	0.070	112.578	-112.578
4.400	0.073	112.629	-112.629
4.600	0.077	112.810	-112.810
4.800	0.080	112.870	-112.870
5.000	0.083	112.908	-112.908
5.200	0.087	112.861	-112.861
5.400	0.090	112.800	-112.800
5.600	0.093	112.765	-112.765
5.800	0.097	112.711	-112.711
6.000	0.100	112.959	-112.959
6.200	0.103	113.137	-113.137
6.400	0.107	113.280	-113.280
6.600	0.110	113.420	-113.420
6.800	0.113	113.509	-113.509
7.000	0.117	113.560	-113.560
7.200	0.120	113.645	-113.645

7.400	0.123	113.680	-113.680
7.600	0.127	113.766	-113.766
7.800	0.130	113.871	-113.871
8.000	0.133	113.868	-113.868
8.200	0.137	113.938	-113.938
8.400	0.140	114.004	-114.004
8.600	0.143	114.049	-114.049
8.800	0.147	114.046	-114.046
9.000	0.150	114.087	-114.087
9.200	0.153	114.116	-114.116
9.400	0.157	114.119	-114.119
9.600	0.160	114.224	-114.224
9.800	0.163	114.246	-114.246
10.000	0.167	114.281	-114.281
12.000	0.200	114.151	-114.151
14.000	0.233	113.712	-113.712
16.000	0.267	114.440	-114.440
18.000	0.300	114.564	-114.564
20.000	0.333	114.621	-114.621
22.000	0.367	114.630	-114.630
24.000	0.400	114.611	-114.611
26.000	0.433	114.567	-114.567
28.000	0.467	114.522	-114.522
30.000	0.500	114.576	-114.576
32.000	0.533	114.583	-114.583
34.000	0.567	114.503	-114.503
36.000	0.600	114.471	-114.471
38.000	0.633	114.637	-114.637
40.000	0.667	114.646	-114.646
42.000	0.700	114.608	-114.608
44.000	0.733	114.532	-114.532
46.000	0.767	114.564	-114.564
48.000	0.800	114.516	-114.516
50.000	0.833	114.424	-114.424
52.000	0.867	114.741	-114.741
54.000	0.900	114.764	-114.764
56.000	0.933	114.707	-114.707
58.000	0.967	114.614	-114.614
60.000	1.000	114.583	-114.583
62.000	1.033	114.665	-114.665
64.000	1.067	114.710	-114.710
66.000	1.100	114.719	-114.719
68.000	1.133	114.672	-114.672
70.000	1.167	114.783	-114.783
72.000	1.200	114.869	-114.869

74.000	1.233	114.919	-114.919
76.000	1.267	114.942	-114.942
78.000	1.300	114.910	-114.910
80.000	1.333	114.869	-114.869
82.000	1.367	114.846	-114.846
84.000	1.400	114.824	-114.824
86.000	1.433	114.748	-114.748
88.000	1.467	114.659	-114.659
90.000	1.500	114.662	-114.662
92.000	1.533	114.884	-114.884
94.000	1.567	115.139	-115.139
96.000	1.600	115.075	-115.075
98.000	1.633	115.056	-115.056
100.000	1.667	115.053	-115.053
105.000	1.750	115.183	-115.183
110.000	1.833	115.161	-115.161
115.000	1.917	115.088	-115.088
120.000	2.000	114.748	-114.748
125.000	2.083	114.840	-114.840
130.000	2.167	114.881	-114.881
135.000	2.250	114.799	-114.799
140.000	2.333	114.599	-114.599
145.000	2.417	114.834	-114.834
150.000	2.500	114.818	-114.818
155.000	2.583	114.888	-114.888
160.000	2.667	114.938	-114.938
165.000	2.750	114.999	-114.999
170.000	2.833	115.132	-115.132
175.000	2.917	115.094	-115.094
180.000	3.000	115.224	-115.224
185.000	3.083	115.231	-115.231
190.000	3.167	115.174	-115.174
195.000	3.250	115.167	-115.167
200.000	3.333	115.021	-115.021
205.000	3.417	115.240	-115.240
210.000	3.500	115.396	-115.396
215.000	3.583	115.380	-115.380
220.000	3.667	115.377	-115.377
225.000	3.750	115.326	-115.326
230.000	3.833	115.282	-115.282
235.000	3.917	115.297	-115.297
240.000	4.000	115.228	-115.228
245.000	4.083	115.253	-115.253
250.000	4.167	115.180	-115.180
255.000	4.250	115.288	-115.288

260.000	4.333	115.224	-115.224
265.000	4.417	115.310	-115.310
270.000	4.500	115.243	-115.243
275.000	4.583	115.224	-115.224
280.000	4.667	115.202	-115.202
285.000	4.750	115.148	-115.148
290.000	4.833	115.097	-115.097
295.000	4.917	115.129	-115.129
300.000	5.000	115.135	-115.135
305.000	5.083	115.139	-115.139
310.000	5.167	115.148	-115.148
315.000	5.250	115.113	-115.113
320.000	5.333	115.043	-115.043
325.000	5.417	115.046	-115.046
330.000	5.500	115.250	-115.250
335.000	5.583	115.316	-115.316
340.000	5.667	115.316	-115.316
345.000	5.750	115.234	-115.234
350.000	5.833	115.326	-115.326
355.000	5.917	115.374	-115.374
360.000	6.000	115.339	-115.339
365.000	6.083	115.336	-115.336
370.000	6.167	115.326	-115.326
375.000	6.250	115.326	-115.326
380.000	6.333	115.329	-115.329
385.000	6.417	115.282	-115.282
390.000	6.500	115.237	-115.237
395.000	6.583	115.272	-115.272
400.000	6.667	115.228	-115.228
405.000	6.750	115.154	-115.154
410.000	6.833	115.390	-115.390
415.000	6.917	115.424	-115.424
420.000	7.000	115.390	-115.390

WELL NO.: 699-42-37

TEST TYPE: RECOVERY

Q(gpm)= NA

SLUG VO. (cu. ft.)=NA

DATA LOGGER:

S/N: SE2000

Unit No. 4 9

9est 11

INPUT 1:

TRANSDUCER:

Reference: 104.700

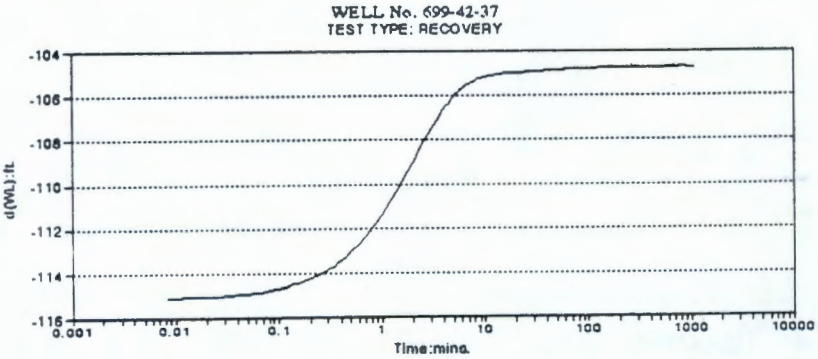
Specific G.: 1.000

Linearity: 0.000

Scale Factor: 10.060

Offset: 0.000

Delay (mSec.): 50.000



START DATE: 3/24/93 END DAT 03/25/93

START TIME: 15:15:41 END TIM 08:45:41

Time:min.	Time:hrs.	Depth to Water	d(WL):ft.
0.0000	0.00000	115.129	-115.129
0.0083	0.00014	115.088	-115.088
0.0166	0.00028	115.050	-115.050
0.0250	0.00042	115.015	-115.015
0.0333	0.00056	114.977	-114.977
0.0416	0.00069	114.939	-114.939
0.0500	0.00083	114.900	-114.900
0.0583	0.00097	114.862	-114.862
0.0666	0.00111	114.824	-114.824
0.0750	0.00125	114.786	-114.786
0.0833	0.00139	114.751	-114.751
0.0916	0.0015	114.713	-114.713
0.100	0.0017	114.678	-114.678
0.108	0.0018	114.640	-114.640
0.117	0.0019	114.602	-114.602
0.125	0.0021	114.567	-114.567
0.133	0.0022	114.529	-114.529
0.142	0.0024	114.494	-114.494
0.150	0.0025	114.459	-114.459
0.158	0.0026	114.424	-114.424
0.167	0.0028	114.386	-114.386
0.175	0.0029	114.351	-114.351

0.183	0.0031	114.316	-114.316
0.192	0.0032	114.281	-114.281
0.200	0.0033	114.246	-114.246
0.208	0.0035	114.211	-114.211
0.217	0.0036	114.176	-114.176
0.225	0.0038	114.141	-114.141
0.233	0.0039	114.106	-114.106
0.242	0.0040	114.071	-114.071
0.250	0.0042	114.036	-114.036
0.258	0.0043	114.001	-114.001
0.267	0.0044	113.966	-113.966
0.275	0.0046	113.935	-113.935
0.283	0.0047	113.900	-113.900
0.292	0.0049	113.865	-113.865
0.300	0.0050	113.833	-113.833
0.308	0.0051	113.798	-113.798
0.317	0.0053	113.766	-113.766
0.325	0.0054	113.731	-113.731
0.333	0.0056	113.700	-113.700
0.350	0.0058	113.636	-113.636
0.367	0.0061	113.566	-113.566
0.383	0.0064	113.503	-113.503
0.400	0.0067	113.439	-113.439
0.417	0.0069	113.376	-113.376
0.433	0.0072	113.312	-113.312
0.450	0.0075	113.249	-113.249
0.467	0.0078	113.188	-113.188
0.483	0.0081	113.125	-113.125
0.500	0.0083	113.061	-113.061
0.517	0.0086	113.001	-113.001
0.533	0.0089	112.944	-112.944
0.550	0.0092	112.880	-112.880
0.567	0.0094	112.823	-112.823
0.583	0.0097	112.762	-112.762
0.600	0.0100	112.702	-112.702
0.617	0.0103	112.645	-112.645
0.633	0.0106	112.588	-112.588
0.650	0.0108	112.531	-112.531
0.667	0.0111	112.473	-112.473
0.683	0.0114	112.416	-112.416
0.700	0.0117	112.359	-112.359
0.717	0.0119	112.305	-112.305
0.733	0.0122	112.245	-112.245
0.750	0.0125	112.187	-112.187
0.767	0.0128	112.130	-112.130

0.783	0.0131	112.079	-112.079
0.800	0.0133	112.025	-112.025
0.817	0.0136	111.971	-111.971
0.833	0.0139	111.917	-111.917
0.850	0.0142	111.863	-111.863
0.867	0.0144	111.813	-111.813
0.883	0.0147	111.762	-111.762
0.900	0.0150	111.711	-111.711
0.917	0.0153	111.657	-111.657
0.933	0.0156	111.609	-111.609
0.950	0.0158	111.558	-111.558
0.967	0.0161	111.508	-111.508
0.983	0.0164	111.457	-111.457
1.000	0.0167	111.409	-111.409
1.200	0.0200	110.847	-110.847
1.400	0.0233	110.339	-110.339
1.600	0.0267	109.872	-109.872
1.800	0.0300	109.446	-109.446
2.000	0.0333	109.061	-109.061
2.200	0.0367	108.706	-108.706
2.400	0.0400	108.343	-108.343
2.600	0.0433	108.042	-108.042
2.800	0.0467	107.781	-107.781
3.000	0.0500	107.543	-107.543
3.200	0.0533	107.324	-107.324
3.400	0.0567	107.124	-107.124
3.600	0.0600	106.946	-106.946
3.800	0.0633	106.777	-106.777
4.000	0.0667	106.628	-106.628
4.200	0.0700	106.488	-106.488
4.400	0.0733	106.367	-106.367
4.600	0.0767	106.250	-106.250
4.800	0.0800	106.151	-106.151
5.000	0.0833	106.053	-106.053
5.200	0.0867	105.967	-105.967
5.400	0.0900	105.888	-105.888
5.600	0.0933	105.815	-105.815
5.800	0.0967	105.748	-105.748
6.000	0.100	105.691	-105.691
6.200	0.103	105.637	-105.637
6.400	0.107	105.583	-105.583
6.600	0.110	105.538	-105.538
6.800	0.113	105.494	-105.494
7.000	0.117	105.459	-105.459
7.200	0.120	105.424	-105.424

7.400	0.123	105.392	-105.392
7.600	0.127	105.364	-105.364
7.800	0.130	105.332	-105.332
8.000	0.133	105.310	-105.310
8.200	0.137	105.287	-105.287
8.400	0.140	105.262	-105.262
8.600	0.143	105.246	-105.246
8.800	0.147	105.227	-105.227
9.000	0.150	105.211	-105.211
9.200	0.153	105.195	-105.195
9.400	0.157	105.183	-105.183
9.600	0.160	105.170	-105.170
9.800	0.163	105.160	-105.160
10.000	0.167	105.148	-105.148
12.000	0.200	105.071	-105.071
14.000	0.233	105.033	-105.033
16.000	0.267	105.008	-105.008
18.000	0.300	104.992	-104.992
20.000	0.333	104.979	-104.979
22.000	0.367	104.957	-104.957
24.000	0.400	104.944	-104.944
26.000	0.433	104.932	-104.932
28.000	0.467	104.925	-104.925
30.000	0.500	104.916	-104.916
32.000	0.533	104.912	-104.912
34.000	0.567	104.903	-104.903
36.000	0.600	104.897	-104.897
38.000	0.633	104.890	-104.890
40.000	0.667	104.884	-104.884
42.000	0.700	104.881	-104.881
44.000	0.733	104.874	-104.874
46.000	0.767	104.871	-104.871
48.000	0.800	104.865	-104.865
50.000	0.833	104.858	-104.858
52.000	0.867	104.858	-104.858
54.000	0.900	104.855	-104.855
56.000	0.933	104.849	-104.849
58.000	0.967	104.843	-104.843
60.000	1.000	104.836	-104.836
62.000	1.033	104.836	-104.836
64.000	1.067	104.833	-104.833
66.000	1.100	104.833	-104.833
68.000	1.133	104.827	-104.827
70.000	1.167	104.824	-104.824
72.000	1.200	104.820	-104.820

74.000	1.233	104.817	-104.817
76.000	1.267	104.814	-104.814
78.000	1.300	104.811	-104.811
80.000	1.333	104.808	-104.808
82.000	1.367	104.808	-104.808
84.000	1.400	104.804	-104.804
86.000	1.433	104.798	-104.798
88.000	1.467	104.798	-104.798
90.000	1.500	104.795	-104.795
92.000	1.533	104.795	-104.795
94.000	1.567	104.792	-104.792
96.000	1.600	104.789	-104.789
98.000	1.633	104.789	-104.789
100.000	1.667	104.785	-104.785
105.000	1.750	104.779	-104.779
110.000	1.833	104.773	-104.773
115.000	1.917	104.770	-104.770
120.000	2.000	104.766	-104.766
125.000	2.083	104.760	-104.760
130.000	2.167	104.760	-104.760
135.000	2.250	104.757	-104.757
140.000	2.333	104.754	-104.754
145.000	2.417	104.750	-104.750
150.000	2.500	104.747	-104.747
155.000	2.583	104.741	-104.741
160.000	2.667	104.738	-104.738
165.000	2.750	104.735	-104.735
170.000	2.833	104.728	-104.728
175.000	2.917	104.728	-104.728
180.000	3.000	104.725	-104.725
185.000	3.083	104.722	-104.722
190.000	3.167	104.722	-104.722
195.000	3.250	104.722	-104.722
200.000	3.333	104.719	-104.719
205.000	3.417	104.719	-104.719
210.000	3.500	104.719	-104.719
215.000	3.583	104.719	-104.719
220.000	3.667	104.716	-104.716
225.000	3.750	104.716	-104.716
230.000	3.833	104.719	-104.719
235.000	3.917	104.719	-104.719
240.000	4.000	104.716	-104.716
245.000	4.083	104.719	-104.719
250.000	4.167	104.716	-104.716
255.000	4.250	104.716	-104.716

260.000	4.333	104.716	-104.716
265.000	4.417	104.716	-104.716
270.000	4.500	104.716	-104.716
275.000	4.583	104.719	-104.719
280.000	4.667	104.716	-104.716
285.000	4.750	104.716	-104.716
290.000	4.833	104.712	-104.712
295.000	4.917	104.719	-104.719
300.000	5.000	104.719	-104.719
305.000	5.083	104.719	-104.719
310.000	5.167	104.719	-104.719
315.000	5.250	104.716	-104.716
320.000	5.333	104.716	-104.716
325.000	5.417	104.716	-104.716
330.000	5.500	104.716	-104.716
335.000	5.583	104.716	-104.716
340.000	5.667	104.716	-104.716
345.000	5.750	104.719	-104.719
350.000	5.833	104.719	-104.719
355.000	5.917	104.719	-104.719
360.000	6.000	104.716	-104.716
365.000	6.083	104.719	-104.719
370.000	6.167	104.719	-104.719
375.000	6.250	104.719	-104.719
380.000	6.333	104.716	-104.716
385.000	6.417	104.716	-104.716
390.000	6.500	104.716	-104.716
395.000	6.583	104.719	-104.719
400.000	6.667	104.719	-104.719
405.000	6.750	104.719	-104.719
410.000	6.833	104.719	-104.719
415.000	6.917	104.719	-104.719
420.000	7.000	104.719	-104.719
425.000	7.083	104.719	-104.719
430.000	7.167	104.722	-104.722
435.000	7.250	104.722	-104.722
440.000	7.333	104.725	-104.725
445.000	7.417	104.722	-104.722
450.000	7.500	104.719	-104.719
455.000	7.583	104.722	-104.722
460.000	7.667	104.722	-104.722
465.000	7.750	104.719	-104.719
470.000	7.833	104.722	-104.722
475.000	7.917	104.725	-104.725
480.000	8.000	104.725	-104.725

485.000	8.083	104.722	-104.722
490.000	8.167	104.725	-104.725
495.000	8.250	104.719	-104.719
500.000	8.333	104.719	-104.719
505.000	8.417	104.722	-104.722
510.000	8.500	104.722	-104.722
515.000	8.583	104.722	-104.722
520.000	8.667	104.725	-104.725
525.000	8.750	104.722	-104.722
530.000	8.833	104.722	-104.722
535.000	8.917	104.725	-104.725
540.000	9.000	104.725	-104.725
545.000	9.083	104.722	-104.722
550.000	9.167	104.719	-104.719
555.000	9.250	104.722	-104.722
560.000	9.333	104.716	-104.716
565.000	9.417	104.712	-104.712
570.000	9.500	104.712	-104.712
575.000	9.583	104.712	-104.712
580.000	9.667	104.716	-104.716
585.000	9.750	104.716	-104.716
590.000	9.833	104.716	-104.716
595.000	9.917	104.712	-104.712
600.000	10.000	104.709	-104.709
605.000	10.083	104.712	-104.712
610.000	10.167	104.712	-104.712
615.000	10.250	104.712	-104.712
620.000	10.333	104.716	-104.716
625.000	10.417	104.712	-104.712
630.000	10.500	104.716	-104.716
635.000	10.583	104.712	-104.712
640.000	10.667	104.712	-104.712
645.000	10.750	104.712	-104.712
650.000	10.833	104.712	-104.712
655.000	10.917	104.716	-104.716
660.000	11.000	104.716	-104.716
665.000	11.083	104.712	-104.712
670.000	11.167	104.712	-104.712
675.000	11.250	104.712	-104.712
680.000	11.333	104.716	-104.716
685.000	11.417	104.712	-104.712
690.000	11.500	104.716	-104.716
695.000	11.583	104.716	-104.716
700.000	11.667	104.719	-104.719
705.000	11.750	104.719	-104.719

710.000	11.833	104.719	-104.719
715.000	11.917	104.719	-104.719
720.000	12.000	104.722	-104.722
725.000	12.083	104.719	-104.719
730.000	12.167	104.719	-104.719
735.000	12.250	104.722	-104.722
740.000	12.333	104.722	-104.722
745.000	12.417	104.716	-104.716
750.000	12.500	104.709	-104.709
755.000	12.583	104.706	-104.706
760.000	12.667	104.706	-104.706
765.000	12.750	104.703	-104.703
770.000	12.833	104.700	-104.700
775.000	12.917	104.700	-104.700
780.000	13.000	104.700	-104.700
785.000	13.083	104.693	-104.693
790.000	13.167	104.696	-104.696
795.000	13.250	104.696	-104.696
800.000	13.333	104.693	-104.693
805.000	13.417	104.690	-104.690
810.000	13.500	104.693	-104.693
815.000	13.583	104.700	-104.700
820.000	13.667	104.703	-104.703
825.000	13.750	104.706	-104.706
830.000	13.833	104.706	-104.706
835.000	13.917	104.709	-104.709
840.000	14.000	104.709	-104.709
845.000	14.083	104.709	-104.709
850.000	14.167	104.712	-104.712
855.000	14.250	104.712	-104.712
860.000	14.333	104.712	-104.712
865.000	14.417	104.712	-104.712
870.000	14.500	104.712	-104.712
875.000	14.583	104.712	-104.712
880.000	14.667	104.716	-104.716
885.000	14.750	104.719	-104.719
890.000	14.833	104.719	-104.719
895.000	14.917	104.719	-104.719
900.000	15.000	104.722	-104.722
905.000	15.083	104.725	-104.725
910.000	15.167	104.722	-104.722
915.000	15.250	104.725	-104.725
920.000	15.333	104.725	-104.725
925.000	15.417	104.728	-104.728
930.000	15.500	104.731	-104.731

935.000	15.583	104.731	-104.731
940.000	15.667	104.735	-104.735
945.000	15.750	104.738	-104.738
950.000	15.833	104.738	-104.738
955.000	15.917	104.741	-104.741
960.000	16.000	104.741	-104.741
965.000	16.083	104.741	-104.741
970.000	16.167	104.735	-104.735
975.000	16.250	104.738	-104.738
980.000	16.333	104.741	-104.741
985.000	16.417	104.738	-104.738
990.000	16.500	104.738	-104.738
995.000	16.583	104.735	-104.735
1000.000	16.667	104.738	-104.738
1005.000	16.750	104.738	-104.738
1010.000	16.833	104.741	-104.741
1015.000	16.917	104.741	-104.741
1020.000	17.000	104.735	-104.735
1025.000	17.083	104.731	-104.731
1030.000	17.167	104.731	-104.731
1035.000	17.250	104.731	-104.731
1040.000	17.333	104.735	-104.735
1045.000	17.417	104.735	-104.735
1050.000	17.500	104.735	-104.735

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WELL NO.: 699-42-37

TEST TYPE: CONSTANT DISCHARGE

Q(gpm) = 3.3

SLUG VO. (cu. ft.) = N\A

DATA LOGGER:

S/N: SE2000

Unit No. 4 9

9est 10

INPUT 1:

TRANSDUCER:

Reference: 104.700

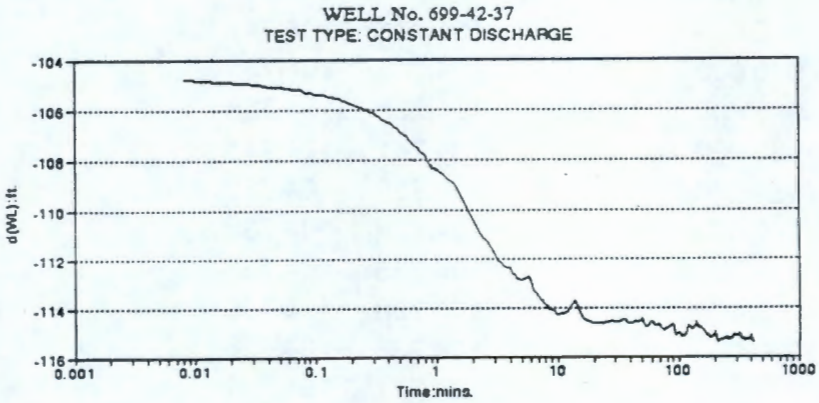
Specific G.: 1.000

Linearity: 0.000

Scale Factor: 10.060

Offset: 0.000

Delay (mSec.): 50.000



START DATE: 3/24/93 END DAT 03/24/93

START TIME: 08:15:00 END TIM 15:15:00

Time:min.	Time:hrs.	Depth to Water	d(WL):ft.
0.0000	0.00000	104.811	-104.811
0.0083	0.00014	104.757	-104.757
0.0166	0.00028	104.865	-104.865
0.0250	0.00042	104.928	-104.928
0.0333	0.00056	105.001	-105.001
0.0416	0.00069	105.068	-105.068
0.0500	0.00083	105.093	-105.093
0.0583	0.00097	105.119	-105.119
0.0666	0.00111	105.176	-105.176
0.0750	0.00125	105.195	-105.195
0.0833	0.00139	105.303	-105.303
0.0916	0.0015	105.262	-105.262
0.1000	0.0017	105.351	-105.351
0.1083	0.0018	105.363	-105.363
0.1166	0.0019	105.392	-105.392
0.1250	0.0021	105.417	-105.417
0.1333	0.0022	105.468	-105.468
0.1416	0.0024	105.484	-105.484
0.1500	0.0025	105.554	-105.554
0.1583	0.0026	105.564	-105.564
0.1666	0.0028	105.624	-105.624
0.1750	0.0029	105.653	-105.653

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0.1833	0.0031	105.665	-105.665
0.1916	0.0032	105.716	-105.716
0.2000	0.0033	105.738	-105.738
0.2083	0.0035	105.780	-105.780
0.2166	0.0036	105.811	-105.811
0.2250	0.0038	105.827	-105.827
0.2333	0.0039	105.891	-105.891
0.2416	0.0040	105.894	-105.894
0.2500	0.0042	105.942	-105.942
0.2583	0.0043	105.983	-105.983
0.2666	0.0044	105.980	-105.980
0.2750	0.0046	106.050	-106.050
0.2833	0.0047	106.097	-106.097
0.2916	0.0049	106.113	-106.113
0.3000	0.0050	106.123	-106.123
0.3083	0.0051	106.189	-106.189
0.3166	0.0053	106.183	-106.183
0.3250	0.0054	106.243	-106.243
0.3333	0.0056	106.234	-106.234
0.3500	0.0058	106.339	-106.339
0.3666	0.0061	106.380	-106.380
0.3833	0.0064	106.453	-106.453
0.4000	0.0067	106.504	-106.504
0.4166	0.0069	106.533	-106.533
0.4333	0.0072	106.609	-106.609
0.4500	0.0075	106.672	-106.672
0.4666	0.0078	106.726	-106.726
0.4833	0.0081	106.780	-106.780
0.5000	0.0083	106.892	-106.892
0.5166	0.0086	106.917	-106.917
0.5333	0.0089	106.974	-106.974
0.5500	0.0092	107.041	-107.041
0.5666	0.0094	107.095	-107.095
0.5833	0.0097	107.168	-107.168
0.6000	0.0100	107.212	-107.212
0.6166	0.0103	107.298	-107.298
0.6333	0.0106	107.371	-107.371
0.6500	0.0108	107.390	-107.390
0.6666	0.0111	107.422	-107.422
0.6833	0.0114	107.482	-107.482
0.7000	0.0117	107.486	-107.486
0.7166	0.0119	107.616	-107.616
0.7333	0.0122	107.619	-107.619
0.7500	0.0125	107.698	-107.698
0.7666	0.0128	107.762	-107.762

0.7833	0.0131	107.762	-107.762
0.8000	0.0133	107.854	-107.854
0.8166	0.0136	107.940	-107.940
0.8333	0.0139	108.013	-108.013
0.8500	0.0142	108.054	-108.054
0.8666	0.0144	108.153	-108.153
0.8833	0.0147	108.232	-108.232
0.9000	0.0150	108.204	-108.204
0.9166	0.0153	108.340	-108.340
0.9333	0.0156	108.312	-108.312
0.9500	0.0158	108.299	-108.299
0.9666	0.0161	108.318	-108.318
0.9833	0.0164	108.439	-108.439
1.000	0.017	108.388	-108.388
1.200	0.020	108.690	-108.690
1.400	0.023	109.010	-109.010
1.600	0.027	109.516	-109.516
1.800	0.030	110.024	-110.024
2.000	0.033	110.450	-110.450
2.200	0.037	110.831	-110.831
2.400	0.040	111.123	-111.123
2.600	0.043	111.260	-111.260
2.800	0.047	111.568	-111.568
3.000	0.050	111.847	-111.847
3.200	0.053	112.060	-112.060
3.400	0.057	112.149	-112.149
3.600	0.060	112.352	-112.352
3.800	0.063	112.407	-112.407
4.000	0.067	112.403	-112.403
4.200	0.070	112.578	-112.578
4.400	0.073	112.629	-112.629
4.600	0.077	112.810	-112.810
4.800	0.080	112.870	-112.870
5.000	0.083	112.908	-112.908
5.200	0.087	112.861	-112.861
5.400	0.090	112.800	-112.800
5.600	0.093	112.765	-112.765
5.800	0.097	112.711	-112.711
6.000	0.100	112.959	-112.959
6.200	0.103	113.137	-113.137
6.400	0.107	113.280	-113.280
6.600	0.110	113.420	-113.420
6.800	0.113	113.509	-113.509
7.000	0.117	113.560	-113.560
7.200	0.120	113.645	-113.645

7.400	0.123	113.680	-113.680
7.600	0.127	113.766	-113.766
7.800	0.130	113.871	-113.871
8.000	0.133	113.868	-113.868
8.200	0.137	113.938	-113.938
8.400	0.140	114.004	-114.004
8.600	0.143	114.049	-114.049
8.800	0.147	114.046	-114.046
9.000	0.150	114.087	-114.087
9.200	0.153	114.116	-114.116
9.400	0.157	114.119	-114.119
9.600	0.160	114.224	-114.224
9.800	0.163	114.246	-114.246
10.000	0.167	114.281	-114.281
12.000	0.200	114.151	-114.151
14.000	0.233	113.712	-113.712
16.000	0.267	114.440	-114.440
18.000	0.300	114.564	-114.564
20.000	0.333	114.621	-114.621
22.000	0.367	114.630	-114.630
24.000	0.400	114.611	-114.611
26.000	0.433	114.567	-114.567
28.000	0.467	114.522	-114.522
30.000	0.500	114.576	-114.576
32.000	0.533	114.583	-114.583
34.000	0.567	114.503	-114.503
36.000	0.600	114.471	-114.471
38.000	0.633	114.637	-114.637
40.000	0.667	114.646	-114.646
42.000	0.700	114.608	-114.608
44.000	0.733	114.532	-114.532
46.000	0.767	114.564	-114.564
48.000	0.800	114.516	-114.516
50.000	0.833	114.424	-114.424
52.000	0.867	114.741	-114.741
54.000	0.900	114.764	-114.764
56.000	0.933	114.707	-114.707
58.000	0.967	114.614	-114.614
60.000	1.000	114.583	-114.583
62.000	1.033	114.665	-114.665
64.000	1.067	114.710	-114.710
66.000	1.100	114.719	-114.719
68.000	1.133	114.672	-114.672
70.000	1.167	114.783	-114.783
72.000	1.200	114.869	-114.869

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74.000	1.233	114.919	-114.919
76.000	1.267	114.942	-114.942
78.000	1.300	114.910	-114.910
80.000	1.333	114.869	-114.869
82.000	1.367	114.846	-114.846
84.000	1.400	114.824	-114.824
86.000	1.433	114.748	-114.748
88.000	1.467	114.659	-114.659
90.000	1.500	114.662	-114.662
92.000	1.533	114.884	-114.884
94.000	1.567	115.139	-115.139
96.000	1.600	115.075	-115.075
98.000	1.633	115.056	-115.056
100.000	1.667	115.053	-115.053
105.000	1.750	115.183	-115.183
110.000	1.833	115.161	-115.161
115.000	1.917	115.088	-115.088
120.000	2.000	114.748	-114.748
125.000	2.083	114.840	-114.840
130.000	2.167	114.881	-114.881
135.000	2.250	114.799	-114.799
140.000	2.333	114.599	-114.599
145.000	2.417	114.834	-114.834
150.000	2.500	114.818	-114.818
155.000	2.583	114.888	-114.888
160.000	2.667	114.938	-114.938
165.000	2.750	114.999	-114.999
170.000	2.833	115.132	-115.132
175.000	2.917	115.094	-115.094
180.000	3.000	115.224	-115.224
185.000	3.083	115.231	-115.231
190.000	3.167	115.174	-115.174
195.000	3.250	115.167	-115.167
200.000	3.333	115.021	-115.021
205.000	3.417	115.240	-115.240
210.000	3.500	115.396	-115.396
215.000	3.583	115.380	-115.380
220.000	3.667	115.377	-115.377
225.000	3.750	115.326	-115.326
230.000	3.833	115.282	-115.282
235.000	3.917	115.297	-115.297
240.000	4.000	115.228	-115.228
245.000	4.083	115.253	-115.253
250.000	4.167	115.180	-115.180
255.000	4.250	115.288	-115.288

260.000	4.333	115.224	-115.224
265.000	4.417	115.310	-115.310
270.000	4.500	115.243	-115.243
275.000	4.583	115.224	-115.224
280.000	4.667	115.202	-115.202
285.000	4.750	115.148	-115.148
290.000	4.833	115.097	-115.097
295.000	4.917	115.129	-115.129
300.000	5.000	115.135	-115.135
305.000	5.083	115.139	-115.139
310.000	5.167	115.148	-115.148
315.000	5.250	115.113	-115.113
320.000	5.333	115.043	-115.043
325.000	5.417	115.046	-115.046
330.000	5.500	115.250	-115.250
335.000	5.583	115.316	-115.316
340.000	5.667	115.316	-115.316
345.000	5.750	115.234	-115.234
350.000	5.833	115.326	-115.326
355.000	5.917	115.374	-115.374
360.000	6.000	115.339	-115.339
365.000	6.083	115.336	-115.336
370.000	6.167	115.326	-115.326
375.000	6.250	115.326	-115.326
380.000	6.333	115.329	-115.329
385.000	6.417	115.282	-115.282
390.000	6.500	115.237	-115.237
395.000	6.583	115.272	-115.272
400.000	6.667	115.228	-115.228
405.000	6.750	115.154	-115.154
410.000	6.833	115.390	-115.390
415.000	6.917	115.424	-115.424
420.000	7.000	115.390	-115.390

APPENDIX D

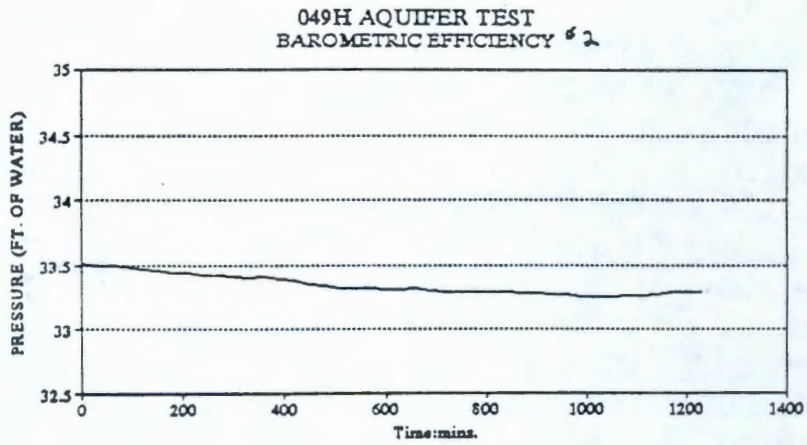
AQUIFER TESTS

This appendix includes aquifer test data for all three wells.

WELL NO.: ALL 049H WELLS
TEST TYPE: BAROMETRIC EFFICIENCY

DATA LOGGER:
- S/N: SE2000
- Unit No. 1 3
- Test 1
- INPUT 2:

TRANSDUCER:
- Reference:
- Specific G.:
- Linearity: 0.204
- Scale Factor: 15.705
- Offset: 0.200
- Delay (mSec.): 50.000



START DATE: 3/25/93 END DAT 03/26/93
START TIME: 10:48:35 END TIM 07:18:35

Time:min.	Time:hrs.	PSIA	FEET OF WATER
0.0000	0.00000	14.529	33.51
30.0000	0.50000	14.522	33.50
60.0000	1.00000	14.522	33.50
90.0000	1.50000	14.518	33.49
120.0000	2.00000	14.511	33.47
150.0000	2.50000	14.505	33.46
180.0000	3.00000	14.498	33.44
210.0000	3.50000	14.496	33.44
240.0000	4.00000	14.491	33.43
270.0000	4.50000	14.489	33.42
300.0000	5.00000	14.483	33.41
330.0000	5.500	14.480	33.40
360.000	6.000	14.483	33.41
390.000	6.500	14.478	33.40
420.000	7.000	14.472	33.38
450.000	7.500	14.461	33.36
480.000	8.000	14.456	33.35
510.000	8.500	14.447	33.32
540.000	9.000	14.447	33.32
570.000	9.500	14.447	33.32
600.000	10.000	14.443	33.32
630.000	10.500	14.443	33.32

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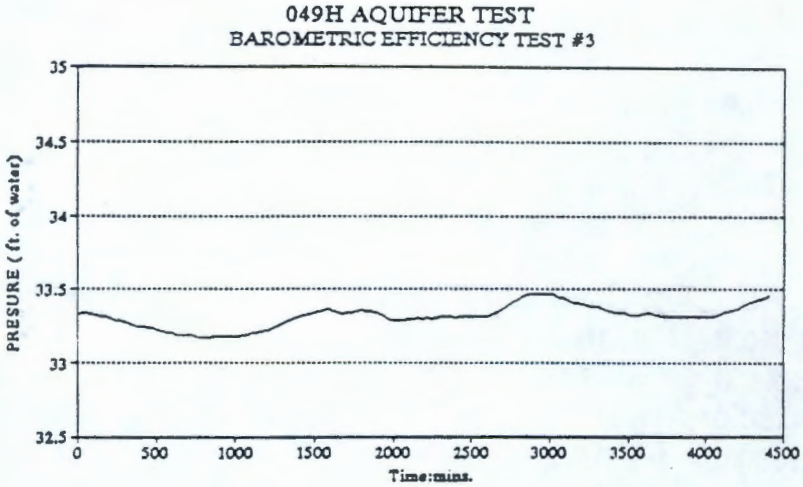
660.000	11.000	14.445	33.32
690.000	11.500	14.439	33.31
720.000	12.000	14.434	33.29
750.000	12.500	14.434	33.29
780.000	13.000	14.436	33.30
810.000	13.500	14.434	33.29
840.000	14.000	14.432	33.29
870.000	14.500	14.430	33.29
900.000	15.000	14.430	33.29
930.000	15.500	14.425	33.27
960.000	16.000	14.423	33.27
990.000	16.500	14.419	33.26
1020.000	17.000	14.419	33.26
1050.000	17.500	14.419	33.26
1080.000	18.000	14.421	33.26
1110.000	18.500	14.421	33.26
1140.000	19.000	14.425	33.27
1170.000	19.500	14.432	33.29
1200.000	20.000	14.432	33.29
1230.000	20.500	14.432	33.29

WELL NO.: ALL 049H WEELLS
TEST TYPE: BAROMETRIC EFFICIENCY #3



DATA LOGGER:
- S/N: SE2000
- Unit No. 1 3
- Test 2
- INPUT 1:

TRANSDUCER:
- Reference:
- Specific G.:
- Linearity: 0.204
- Scale Factor: 15.705
- Offset: 0.200
- Delay (mSec.): 50.000

START DATE: 3/26/93 END DAT 03/29/93
START TIME: 10:00:00 END TIM 11:30:00

Time:min.	Time:hrs.	PSIA	PRESSURE FT. of WATER
0.0	0.0	14.447	33.32
30.0	0.5	14.454	33.34
60.0	1.0	14.452	33.34
90.0	1.5	14.450	33.33
120.0	2.0	14.447	33.32
150.0	2.5	14.443	33.32
180.0	3.0	14.441	33.31
210.0	3.5	14.439	33.31
240.0	4.0	14.434	33.29
270.0	4.5	14.432	33.29
300.0	5.0	14.430	33.29
330.0	5.5	14.425	33.27
360.0	6.0	14.419	33.26
390.0	6.5	14.414	33.25
420.0	7.0	14.412	33.24
450.0	7.5	14.410	33.24
480.0	8.0	14.408	33.23
510.0	8.5	14.401	33.22
540.0	9.0	14.399	33.21
570.0	9.5	14.395	33.20
600.0	10.0	14.392	33.20
630.0	10.5	14.388	33.19

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660.0	11.0	14.388	33.19
690.0	11.5	14.386	33.18
720.0	12.0	14.386	33.18
750.0	12.5	14.384	33.18
780.0	13.0	14.381	33.17
810.0	13.5	14.381	33.17
840.0	14.0	14.381	33.17
870.0	14.5	14.384	33.18
900.0	15.0	14.384	33.18
930.0	15.5	14.384	33.18
960.0	16.0	14.384	33.18
990.0	16.5	14.384	33.18
1020.0	17.0	14.384	33.18
1050.0	17.5	14.386	33.18
1080.0	18.0	14.388	33.19
1110.0	18.5	14.392	33.20
1140.0	19.0	14.395	33.20
1170.0	19.5	14.399	33.21
1200.0	20.0	14.403	33.22
1230.0	20.5	14.406	33.23
1260.0	21.0	14.412	33.24
1290.0	21.5	14.421	33.26
1320.0	22.0	14.428	33.28
1350.0	22.5	14.434	33.29
1380.0	23.0	14.439	33.31
1410.0	23.5	14.443	33.32
1440.0	24.0	14.447	33.32
1470.0	24.5	14.450	33.33
1500.0	25.0	14.454	33.34
1530.0	25.5	14.456	33.35
1560.0	26.0	14.461	33.36
1590.0	26.5	14.463	33.36
1620.0	27.0	14.456	33.35
1650.0	27.5	14.452	33.34
1680.0	28.0	14.450	33.33
1710.0	28.5	14.452	33.34
1740.0	29.0	14.454	33.34
1770.0	29.5	14.456	33.35
1800.0	30.0	14.461	33.36
1830.0	30.5	14.458	33.35
1860.0	31.0	14.458	33.35
1890.0	31.5	14.454	33.34
1920.0	32.0	14.450	33.33
1950.0	32.5	14.441	33.31
1980.0	33.0	14.434	33.29

2010.0	33.5	14.434	33.29
2040.0	34.0	14.434	33.29
2070.0	34.5	14.434	33.29
2100.0	35.0	14.436	33.30
2130.0	35.5	14.436	33.30
2160.0	36.0	14.439	33.31
2190.0	36.5	14.436	33.30
2220.0	37.0	14.439	33.31
2250.0	37.5	14.436	33.30
2280.0	38.0	14.439	33.31
2310.0	38.5	14.441	33.31
2340.0	39.0	14.441	33.31
2370.0	39.5	14.441	33.31
2400.0	40.0	14.439	33.31
2430.0	40.5	14.441	33.31
2460.0	41.0	14.441	33.31
2490.0	41.5	14.443	33.32
2520.0	42.0	14.441	33.31
2550.0	42.5	14.443	33.32
2580.0	43.0	14.445	33.32
2610.0	43.5	14.445	33.32
2640.0	44.0	14.450	33.33
2670.0	44.5	14.454	33.34
2700.0	45.0	14.463	33.36
2730.0	45.5	14.472	33.38
2760.0	46.0	14.483	33.41
2790.0	46.5	14.491	33.43
2820.0	47.0	14.500	33.45
2850.0	47.5	14.505	33.46
2880.0	48.0	14.507	33.46
2910.0	48.5	14.511	33.47
2940.0	49.0	14.511	33.47
2970.0	49.5	14.511	33.47
3000.0	50.0	14.509	33.47
3030.0	50.5	14.507	33.46
3060.0	51.0	14.500	33.45
3090.0	51.5	14.498	33.44
3120.0	52.0	14.491	33.43
3150.0	52.5	14.485	33.41
3180.0	53.0	14.483	33.41
3210.0	53.5	14.480	33.40
3240.0	54.0	14.476	33.39
3270.0	54.5	14.472	33.38
3300.0	55.0	14.472	33.38
3330.0	55.5	14.467	33.37

3360.0	56.0	14.461	33.36
3390.0	56.5	14.456	33.35
3420.0	57.0	14.452	33.34
3450.0	57.5	14.452	33.34
3480.0	58.0	14.452	33.34
3510.0	58.5	14.447	33.32
3540.0	59.0	14.447	33.32
3570.0	59.5	14.447	33.32
3600.0	60.0	14.450	33.33
3630.0	60.5	14.452	33.34
3660.0	61.0	14.450	33.33
3690.0	61.5	14.447	33.32
3720.0	62.0	14.445	33.32
3750.0	62.5	14.443	33.32
3780.0	63.0	14.441	33.31
3810.0	63.5	14.441	33.31
3840.0	64.0	14.443	33.32
3870.0	64.5	14.443	33.32
3900.0	65.0	14.445	33.32
3930.0	65.5	14.443	33.32
3960.0	66.0	14.443	33.32
3990.0	66.5	14.441	33.31
4020.0	67.0	14.445	33.32
4050.0	67.5	14.445	33.32
4080.0	68.0	14.447	33.32
4110.0	68.5	14.454	33.34
4140.0	69.0	14.456	33.35
4170.0	69.5	14.461	33.36
4200.0	70.0	14.465	33.37
4230.0	70.5	14.474	33.39
4260.0	71.0	14.480	33.40
4290.0	71.5	14.487	33.42
4320.0	72.0	14.491	33.43
4350.0	72.5	14.496	33.44
4380.0	73.0	14.500	33.45
4410.0	73.5	14.505	33.46

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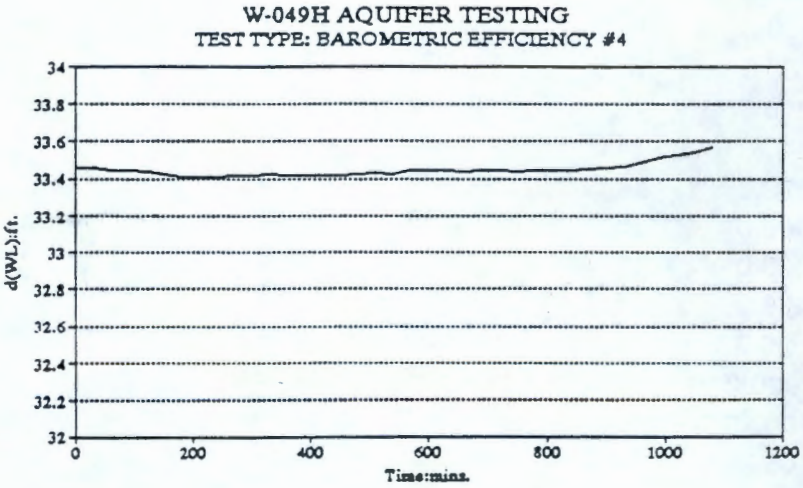
W-049H AQUIFER TESTING

TEST TYPE: BAROMETRIC EFFICIENCY TEST #4



DATA LOGGER:
- S/N: SE2000
- Unit No. 1 3
- Test 3
- INPUT 1:

TRANSDUCER:
- Reference:
- Specific G.:
- Linearity: 0.204
- Scale Factor: 15.705
- Offset: 0.200
- Delay (mSec.): 50.000

START DATE: 3/29/93 END DAT 03/30/93
START TIME: 15:01:17 END TIM 09:01:17

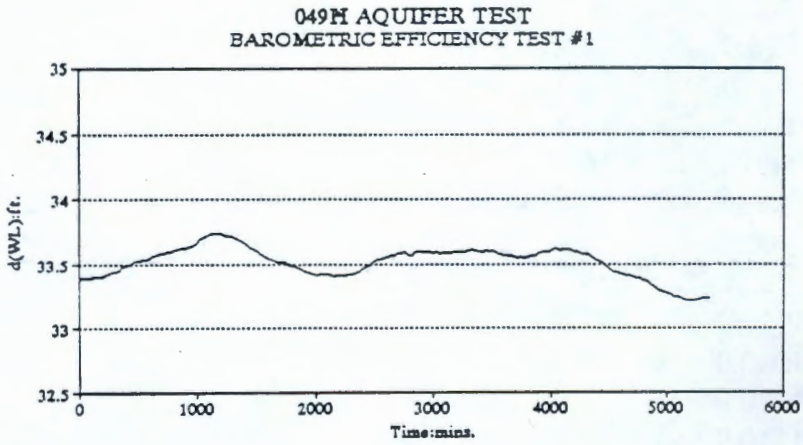
Time:min.	Time:hrs.	PRESSUR PSIA	PRESSURE ft. of water
0.0	0.0	14.505	33.46
30.0	0.5	14.505	33.46
60.0	1.0	14.500	33.45
90.0	1.5	14.498	33.44
120.0	2.0	14.496	33.44
150.0	2.5	14.491	33.43
180.0	3.0	14.485	33.41
210.0	3.5	14.485	33.41
240.0	4.0	14.485	33.41
270.0	4.5	14.487	33.42
300.0	5.0	14.489	33.42
330.0	5.5	14.491	33.43
360.0	6.0	14.489	33.42
390.0	6.5	14.489	33.42
420.0	7.0	14.487	33.42
450.0	7.5	14.489	33.42
480.0	8.0	14.491	33.43
510.0	8.5	14.494	33.43
540.0	9.0	14.491	33.43
570.0	9.5	14.498	33.44
600.0	10.0	14.498	33.44
630.0	10.5	14.498	33.44

Pg 1 of 2

660.0	11.0	14.496	33.44
690.0	11.5	14.500	33.45
720.0	12.0	14.498	33.44
750.0	12.5	14.496	33.44
780.0	13.0	14.498	33.44
810.0	13.5	14.498	33.44
840.0	14.0	14.500	33.45
870.0	14.5	14.502	33.45
900.0	15.0	14.505	33.46
930.0	15.5	14.507	33.46
960.0	16.0	14.518	33.49
990.0	16.5	14.529	33.51
1020.0	17.0	14.535	33.53
1050.0	17.5	14.542	33.54
1080.0	18.0	14.553	33.57

WELL NO.: ALL 049H WELLS
TEST TYPE: BAROMETRIC EFFICIENCY

DATA LOGGER:
S/N: SE2000
Unit No. 1 3
Test 0
INPUT 2:
TRANSDUCER:
Reference:
Specific G.:
Linearity: 0.204
Scale Factor: 15.705
Offset: 0.200
Delay (mSec.): 50.000



START DATE: 3/18/93 END DAT 03/22/93
START TIME: 15:00:01 END TIM 08:30:01

Time:min.	Time:hrs.	PSIA	FEET OF WATER
0.0	0.0	14.472	33.38
30.0	0.5	14.476	33.39
60.0	1.0	14.476	33.39
90.0	1.5	14.478	33.40
120.0	2.0	14.480	33.40
150.0	2.5	14.480	33.40
180.0	3.0	14.480	33.40
210.0	3.5	14.483	33.41
240.0	4.0	14.487	33.42
270.0	4.5	14.498	33.44
300.0	5.0	14.498	33.44
330.0	5.5	14.502	33.45
360.0	6.0	14.513	33.48
390.0	6.5	14.516	33.48
420.0	7.0	14.522	33.50
450.0	7.5	14.529	33.51
480.0	8.0	14.535	33.53
510.0	8.5	14.535	33.53
540.0	9.0	14.538	33.53
570.0	9.5	14.542	33.54
600.0	10.0	14.549	33.56
630.0	10.5	14.551	33.56

Pg 1 of 5

660.0	11.0	14.557	33.58
690.0	11.5	14.560	33.59
720.0	12.0	14.560	33.59
750.0	12.5	14.562	33.59
780.0	13.0	14.566	33.60
810.0	13.5	14.571	33.61
840.0	14.0	14.575	33.62
870.0	14.5	14.577	33.62
900.0	15.0	14.579	33.63
930.0	15.5	14.584	33.64
960.0	16.0	14.588	33.65
990.0	16.5	14.595	33.67
1020.0	17.0	14.604	33.69
1050.0	17.5	14.617	33.72
1080.0	18.0	14.621	33.73
1110.0	18.5	14.626	33.74
1140.0	19.0	14.628	33.74
1170.0	19.5	14.628	33.74
1200.0	20.0	14.626	33.74
1230.0	20.5	14.621	33.73
1260.0	21.0	14.621	33.73
1290.0	21.5	14.619	33.72
1320.0	22.0	14.612	33.71
1350.0	22.5	14.606	33.69
1380.0	23.0	14.599	33.68
1410.0	23.5	14.593	33.66
1440.0	24.0	14.584	33.64
1470.0	24.5	14.575	33.62
1500.0	25.0	14.568	33.60
1530.0	25.5	14.560	33.59
1560.0	26.0	14.553	33.57
1590.0	26.5	14.546	33.55
1620.0	27.0	14.540	33.54
1650.0	27.5	14.535	33.53
1680.0	28.0	14.529	33.51
1710.0	28.5	14.533	33.52
1740.0	29.0	14.529	33.51
1770.0	29.5	14.520	33.49
1800.0	30.0	14.518	33.49
1830.0	30.5	14.513	33.48
1860.0	31.0	14.509	33.47
1890.0	31.5	14.502	33.45
1920.0	32.0	14.496	33.44
1950.0	32.5	14.494	33.43
1980.0	33.0	14.487	33.42

P,245

2010.0	33.5	14.483	33.41
2040.0	34.0	14.489	33.42
2070.0	34.5	14.489	33.42
2100.0	35.0	14.487	33.42
2130.0	35.5	14.483	33.41
2160.0	36.0	14.480	33.40
2190.0	36.5	14.485	33.41
2220.0	37.0	14.483	33.41
2250.0	37.5	14.483	33.41
2280.0	38.0	14.489	33.42
2310.0	38.5	14.491	33.43
2340.0	39.0	14.494	33.43
2370.0	39.5	14.500	33.45
2400.0	40.0	14.509	33.47
2430.0	40.5	14.513	33.48
2460.0	41.0	14.520	33.49
2490.0	41.5	14.529	33.51
2520.0	42.0	14.538	33.53
2550.0	42.5	14.542	33.54
2580.0	43.0	14.544	33.55
2610.0	43.5	14.549	33.56
2640.0	44.0	14.553	33.57
2670.0	44.5	14.551	33.56
2700.0	45.0	14.560	33.59
2730.0	45.5	14.560	33.59
2760.0	46.0	14.564	33.59
2790.0	46.5	14.555	33.57
2820.0	47.0	14.555	33.57
2850.0	47.5	14.564	33.59
2880.0	48.0	14.562	33.59
2910.0	48.5	14.562	33.59
2940.0	49.0	14.562	33.59
2970.0	49.5	14.562	33.59
3000.0	50.0	14.560	33.59
3030.0	50.5	14.562	33.59
3060.0	51.0	14.557	33.58
3090.0	51.5	14.562	33.59
3120.0	52.0	14.560	33.59
3150.0	52.5	14.560	33.59
3180.0	53.0	14.566	33.60
3210.0	53.5	14.566	33.60
3240.0	54.0	14.566	33.60
3270.0	54.5	14.566	33.60
3300.0	55.0	14.568	33.60
3330.0	55.5	14.571	33.61

3360.0	56.0	14.568	33.60
3390.0	56.5	14.566	33.60
3420.0	57.0	14.566	33.60
3450.0	57.5	14.568	33.60
3480.0	58.0	14.564	33.59
3510.0	58.5	14.568	33.60
3540.0	59.0	14.560	33.59
3570.0	59.5	14.557	33.58
3600.0	60.0	14.553	33.57
3630.0	60.5	14.551	33.56
3660.0	61.0	14.551	33.56
3690.0	61.5	14.549	33.56
3720.0	62.0	14.546	33.55
3750.0	62.5	14.549	33.56
3780.0	63.0	14.546	33.55
3810.0	63.5	14.549	33.56
3840.0	64.0	14.553	33.57
3870.0	64.5	14.555	33.57
3900.0	65.0	14.560	33.59
3930.0	65.5	14.564	33.59
3960.0	66.0	14.564	33.59
3990.0	66.5	14.566	33.60
4020.0	67.0	14.573	33.62
4050.0	67.5	14.577	33.62
4080.0	68.0	14.568	33.60
4110.0	68.5	14.571	33.61
4140.0	69.0	14.571	33.61
4170.0	69.5	14.573	33.62
4200.0	70.0	14.564	33.59
4230.0	70.5	14.562	33.59
4260.0	71.0	14.557	33.58
4290.0	71.5	14.557	33.58
4320.0	72.0	14.557	33.58
4350.0	72.5	14.549	33.56
4380.0	73.0	14.538	33.53
4410.0	73.5	14.535	33.53
4440.0	74.0	14.531	33.52
4470.0	74.5	14.520	33.49
4500.0	75.0	14.511	33.47
4530.0	75.5	14.500	33.45
4560.0	76.0	14.498	33.44
4590.0	76.5	14.494	33.43
4620.0	77.0	14.487	33.42
4650.0	77.5	14.483	33.41
4680.0	78.0	14.483	33.41

4710.0	78.5	14.480	33.40
4740.0	79.0	14.476	33.39
4770.0	79.5	14.474	33.39
4800.0	80.0	14.469	33.38
4830.0	80.5	14.465	33.37
4860.0	81.0	14.454	33.34
4890.0	81.5	14.445	33.32
4920.0	82.0	14.439	33.31
4950.0	82.5	14.432	33.29
4980.0	83.0	14.430	33.29
5010.0	83.5	14.425	33.27
5040.0	84.0	14.421	33.26
5070.0	84.5	14.412	33.24
5100.0	85.0	14.412	33.24
5130.0	85.5	14.408	33.23
5160.0	86.0	14.403	33.22
5190.0	86.5	14.401	33.22
5220.0	87.0	14.401	33.22
5250.0	87.5	14.401	33.22
5280.0	88.0	14.406	33.23
5310.0	88.5	14.408	33.23
5340.0	89.0	14.408	33.23
5370.0	89.5	14.410	33.24

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Westinghouse Hanford Company

WC-TD-TP-OP-006 Rev. 0
VALIDATED LOG HEADER
(Form 1)

Page 1 of 2

Well No. 699-45-36 Hole Number(s) 699-45-36 Date 10/10/92

Log Run #3 Log Type Gross Gamma

Elevation Datum Brass Cap Elevation 525.79'

Survey Coordinates N 138,633.56 E 578,789.75

Log Measured from Ground Surface

Location Description 75 mile East of B-Pond

Ground Surface Elevation 525.79'

Surface Temperature N/A Weather Partly Cloudy - Cool

BOREHOLE INFORMATION

Driller Mc Wiggin

Drill Rig Type Cable Tool Bit Type/Diameter Drive Barrel 18"

Borehole Diameter(s)/Depth 12"/22.33' 10"/117.59' 8"/260'

Depth Driller 260' Depth Logger 259.75'

Liquid Level 165' Liquid Density Freshwater Cement

Temperature N/A

CASING RECORD

Type	12" Carbon Steel	Sch. 40	Interval 0.76' - 22.33'
Type	10" Carbon Steel	Sch. 40	Interval 0.76' - 117.59'
Type	8" Carbon Steel	Sch. 40	Interval 0.76' - 260.09'
Type			Interval

Well Screen Interval N/A

Comments: Return Error = 0.2' high
Centralizer used

D-18-15

A-6000-120 (05/90)

LOG HEADER

Page 2 of 2

EQUIPMENT DATA

Logging Company DOE

Operator(s) Alex Bowman

Equipment Brand Mc Wiggin

Tool Type Gamma Ray

Base Calibration Date 5/92

Calibration/Radius Factor (CPS/%) 1.0

Equipment Type Analog

Serial No. GM2-1013

Calibration Reference DOE-DR2000 WC-6616

Position 1 3161 all

Position 2 681 all

Gross Cpm 1.8 Date 5/92

Return Cpm 7.15 Date

CALIBRATION DATA

Log Interval from 22.33' to 260.0'

Remarks

Pre Survey Verification: Position 1 333.31 all Position 2 660.0 all Background 110 cpm

Base Calibration Differences: Position 1 1.3 all Position 2 0.9 all

Logging Speed 5 ft/min. Return Scales, CPSM: 50 cpm/in.

Start Time 0845 Completion Time 0930

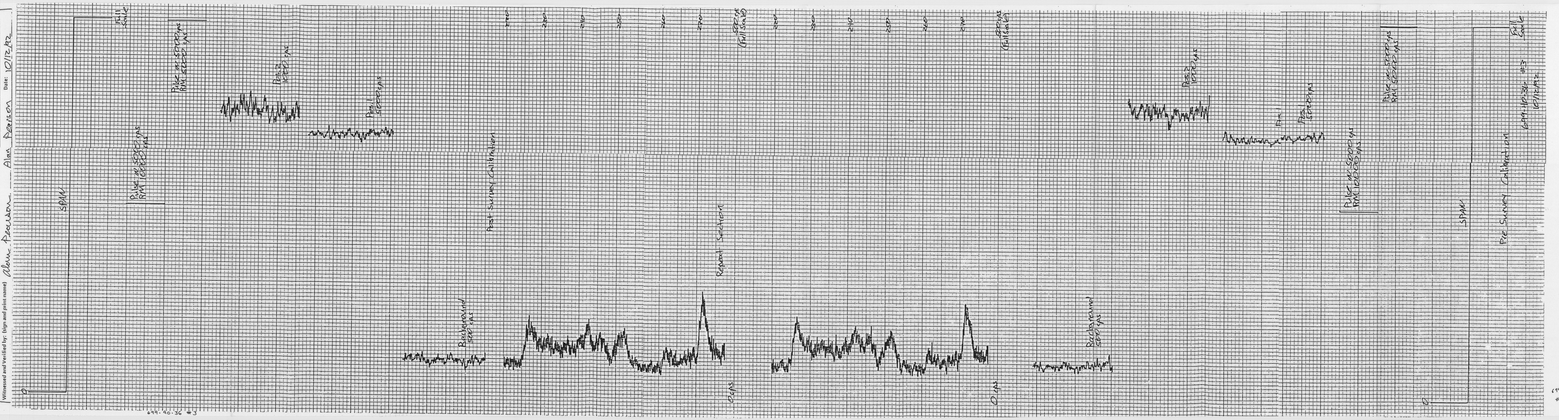
Clock Synchronized Yes N/A

Post Survey Verification: Position 1 333.31 all Position 2 660.0 all Time Constant TC-1

Percent Change: Position 1 0.0% Position 2 0.0% Background 110 cpm

Comments: Return Error = 0.2' high
Centralizer used

Witnessed and Verified by: Sign and print name Alex Bowman Date 10/10/92



WHC-SD-EN-DP-068, Rev. 0

Westinghouse Hanford Company — **LOG HEADER**

VALIDATED KDR 1/12/93 SIGNATURE/DATE

Well No. 699-40-36 Area 600 Area Date 10/9/92

Log Run #2 Log Type Gross Gamma

Elevation Datum Brass Cap Elevation 525.79'

Survey Coordinates N: 135,633.84 N 578,789.25 E

Log Measured From Ground Surface

Location Description ~1/2 mile east of B-Pond

Ground Surface Elevation 525.79'

Surface Temperature NA Weather Clear - Warm

BOREHOLE INFORMATION

Driller Mo Wraspir

Drill Rig Type Cable Tool | Bit Type/Diameter Hard Tool / 8"

Borehole Diameter(s)/Depth 12"/22.33' 10"/117.59' 8"/~~260.89'~~ 275'

Depth Driller 275' | Depth Logger 273.2'

Liquid Level 115.30' | Liquid ~~Density~~ Appearance Muddy

Temperature NA

CASING RECORD

Type	Interval
12" Carbon Steel Sch. 40	+0.5' - 22.33'
10" Carbon Steel Sch. 40	+1.0' - 117.59'
8" Carbon Steel Sch. 40	+2.6 - 260.89'

Well Screen Interval NA

Comments: Return Error = +0.2' high

Centralizer used.

A-6000-520 (05/90)

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 273.2' | To 85.0'

Rerun(s) 273.2' to 220.0'

Pre Survey Verification: Position 1 311.4 eU | Position 2 64.0 eU | Background 45 cps

Base Calibration Difference: Position 1 | Position 2 1.1 eU

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

Start Time 1045 | Completion Time 1315

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 64.2 eU | Background 45 cps

Percent Change: Position 1 0.0% | Position 2 0.3%

Comments Return Error = +0.2' high

Centralizer used.

Witnessed and Verified by: (sign and print name) Alan Pearson Alan Pearson Date: 10/9/92

699-40-36 #2

Westinghouse Hanford Company | WE-SD-EN-SP-008, Rev. 0 | WALKER/WILLIAMS/READER | SIGNAT.-DATE | Page 1 of 2

Well No. GPH-40-36 Area 600 Area Date 9/24/92
Log Run #1 Log Type Gross Gamma
Elevation Datum Brass Cap Elevation 575.79
Survey Coordinates N 135,633.84 W 578,789.85 E
Log Measured From Ground Surface
Location Description 3/4 mile East of B-Pond
Ground Surface Elevation 575.79'
Surface Temperature N/A Weather Overcast-Cool

BOREHOLE INFORMATION

Driller	Mc Wanger		
Drill Rig Type	Cable Tool	Bit Type/Diameter	Hard Tool / 10"
Borehole Diameter(s)/Depth	10" 0'/22.33'		10"/120'
Depth Driller	120'	Depth Logger	119.2'
Liquid Level	N/A	Liquid Type	Freshwater N/A
Temperature	N/A		

CASING RECORD

Type	12" Carbon Steel Sch 40	Interval	"0'-22.33'
Type	10" Carbon Steel Sch 40	Interval	1.4'-117.59'
Type		Interval	
Type		Interval	

Well Screen Interval N/A
Comments: Return Freon "0.2" high
Centralizer used

A-6200-123-05-93

D-17

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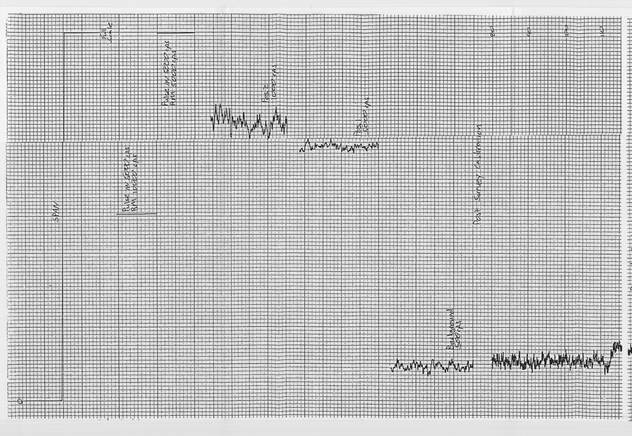
LOG HEADER EQUIPMENT DATA

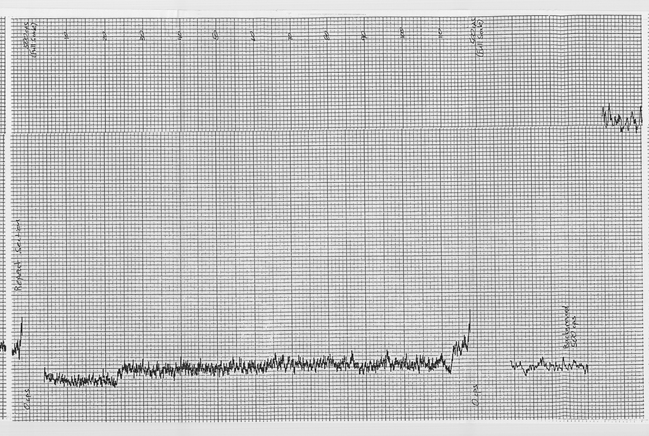
Logging Company	PNL	Equipment Type	Marlog
Operator(s)	Alan Bowson	Serial No.	G6218A1
Equipment Brand	MLS	Probe Calibration Statement	PNL-BCC00 / WC-GC56
Seal Type	Gamma Rot	Probe Serial No.	3861 - 4K
Rear Calibration Date	5/92	Probe Calibration Date	6/92 - 4K
Calibration Source Serial No.	GRP-4	Probe Calibration Source Serial No.	6611 - 4K
Check Source	Ra 3.4 Mr	Wellhead Reading	3.5 MR/h

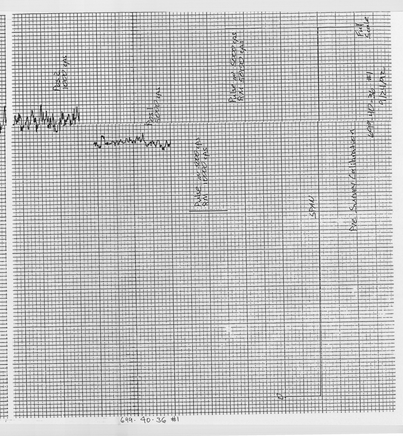
LOGGING DETAILS

Log Interval From	118.2' to 80.0'	To	3.0'
Remarks			
Pre Survey Verification:	Position 1 3.12 cps	Position 2 6.46 cps	Background 18 cps
Post Calibration Allowance:	Position 1 3.29 cps	Position 2 6.8 cps	
Logging Speed	5 ft/min	Total Logging Time	50 min.
Logging Method	Static	Completion Time	0900
Check Source Calibration	1234/h	Host Constraints	TC-1
Check Source Statistical Fluctuation	60.05%		
Post Survey Verification:	Position 1 3.09 cps	Position 2 6.12 cps	Background 18 cps
Percent Change:	Position 1 0.7%	Position 2 0.6%	
Comments:	Return Freon "0.2" high		
	Centralizer used		

Witnessed and Verified by: Sign and print name: Alan Bowson Date: 9/24/92







WC-05.EX-DR-005 Rev. 0

Page 1 of 3

Washington Hanford Company

VALIDATED
ACCEPTED
NONRECORDS

LOG HEADER

Well No. 699-41-35

Log Run #1

Log Type Gamma Gamma

Elevation Datum —

Elevation 201.6' ground surface

Survey Coordinates N 137,187.7 E 567,000

Log Measured from Ground Surface

Location Description 7th mile East of B-Pond

Ground Surface Elevation 201.6'

Surface Temperature N/A

Weather Partly Cloudy - Cool

BOREHOLE INFORMATION

Driller Lewis Watkins

Drill Rig Type Cable Tool

Bit Type/Diameter Wood 20ft/8"

Borehole Diameter/Depth 12"/40.0' 10"100.65' 8"/10.60'

Depth Driller 210.0'

Depth Logger 209.6'

Liquid Level 109.1'

Liquid Measured Acoustic

Temperature N/A

CASING RECORD

Type 12" Carbon Steel	Sch. 40	Interval +0.5' - 19.9'	
Type 10" Carbon Steel	Sch. 40	Interval +0.5' - 100.65'	
Type 8" Carbon Steel	Sch. 40	Interval +0.5' - 210.6'	
Type		Interval	

Well Screen Interval N/A

Comments: Return Count "0.0" high

Continued used

D-18

9-000-120 05/95

WC-05.EX-DR-005 Rev. 0

Page 2 of 3

LOG HEADER

SCINTILLATION DATA

Logging Contractor RSI

Operator(s) Mark Thornton

Instrument Type Mini Ratemeter

Instrument Serial No. N/A

Probe Serial No. N/A

Probe Calibration Date 5/95

Calibration Source Type Cs137

Calibration Source Serial No. N/A

Calibration Reference Date 11/01/92

Calibration Source Strength 10 mR/hr

Position 1 3.61 cpm

Position 2 663 cpm

Position 3 15.5 cpm

Log Measured From 209.6'

Log Measured From Ground Surface

Log Speed 30 fpm

Time Constant 1 sec

Time Constant Calibration Date 5/95

Time Constant Calibration Source Type Cs137

Time Constant Calibration Source Strength 10 mR/hr

Time Constant Calibration Source Serial No. N/A

Time Constant Calibration Reference Date 11/01/92

Position 1 3.63 cpm

Position 2 665 cpm

Position 3 15.4 cpm

Background Cs137 Date 5/95

Background Cs137 Serial No. N/A

Background Cs137 Reference Date 11/01/92

Background Cs137 Strength 10 mR/hr

Background Cs137 Position 1 0.8 cpm

Background Cs137 Position 2 0.8 cpm

Background Cs137 Position 3 0.8 cpm

Time Constant Calibration Source Type Cs137

Time Constant Calibration Source Serial No. N/A

Time Constant Calibration Source Strength 10 mR/hr

Time Constant Calibration Reference Date 11/01/92

Position 1 0.8 cpm

Position 2 0.8 cpm

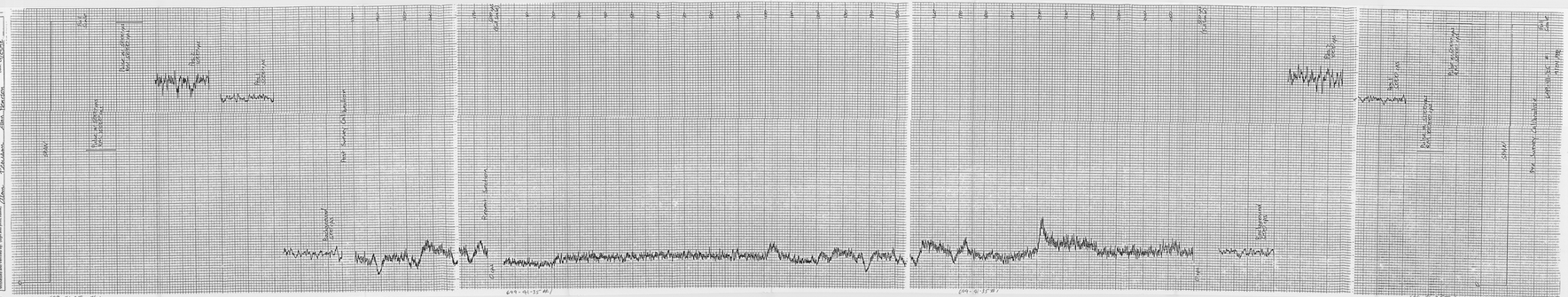
Position 3 0.8 cpm

Probe Changed

Comments: Count Rate Meter Serial No. 1-1

Calibrated used

Witnessed and verified by (logger and witness sign) Mark Thornton Mark Thornton Date 10/26/95



WHC-SD-EN-DP-008, Rev. 0

Westinghouse Hanford Company — VADOSE ZONE RESEARCH UNIT — LOG HEADER — Page 1 of 2

Well No. 299-W23-19 — Area 200 — Date 9/21/92

Log Run 01 — Log Type Gamma Gamma

Elevation Datum 708.03 ± 0.03 m — Elevation 708.18'

Survey Coordinates 136,247.24 E — 574,476.75 N

Log Measured from Ground Surface

Location Description East of B-Pond

Ground Surface Elevation Depth Down Gro Elev. 18'

Surface Temperature N/A — Weather

BOREHOLE INFORMATION

Driller Ace Wrought

Drill Rig Type Cable Tool — Bit Type/Diameter Wood Tom / 8"

Borehole Diameter/Depth 0'/21.6' — 8"/121.83' — 8"/207.08'

Depth Driller 208.0' — Depth Logger 206.92'

Liquid Level 111.63' — Liquid Source Groundwater Cleanup

Temperature N/A

CASING RECORD

Type 12" Carbon Steel Sch 40 — Interval 0'/3' - 21.6'

Type 10" Carbon Steel Sch 40 — Interval 21.6' - 121.83'

Type 8" Carbon Steel Sch 40 — Interval 121.83' - 207.08'

Type — Interval

Well Screen Interval N/A

Comments Drilled from +12' Vault. Centralizer used.

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OPERATOR DATA

Logging Company DOE — Equipment Type Probe

Operator Alan Brown — Equipment Serial No. N/A

Tool Type Gamma Ray — Serial No. CGA-2873

Tool Calibration Date 5/92 — Calibration Source Date 1/92 — Source Type Co60 — Source Strength 10 mR/hr

Tool Time Had to drill — Max Temp 65°C

LOGGING RECORD

Logging Speed 20'/min — Sensitivity 10X — Time Constant 1 sec

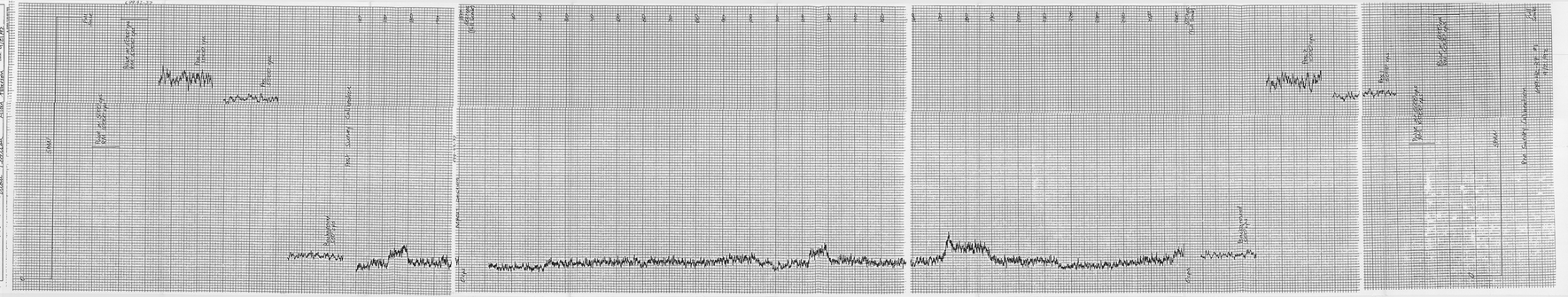
Pre Survey Verification: Position 1 338.3 cpd — Position 2 6.5 cpd — Background 62 cpd

Post Survey Verification: Position 1 338.3 cpd — Position 2 6.5 cpd — Background 62 cpd

Logging Speed 5'/min — Sensitivity 10X — Time Constant 1 sec

Pre Survey Verification: Position 1 338.3 cpd — Position 2 6.5 cpd — Background 62 cpd

Post Survey Verification: Position 1 338.3 cpd — Position 2 6.5 cpd — Background 62 cpd

Comments Drilled from +12' Vault. Centralizer used.

Witnessed and Verified by: Sign and print name Alan Brown — Date 9/21/92