M00263.AR.000333
MCRD PARRIS ISLAND
5090.3a

REMEDIAL INVESTIGATION/RESOURCE CONSERVATION AND RECOVERY ACT FACILITIES INVESTIGATION FOR SITE SOLID WASTE MANAGEMENT UNIT 45 (SWMU 45) VOLUME 2 OF 2 APPENDICES A THROUGH H MCRD PARRIS ISLAND SC (DRAFT ACTING AS FINAL)

11/01/2004

TETRA TECH NUS

Remedial Investigation/ RCRA Facilities Investigation for Site/SWMU 45 - Former MWR Dry Cleaning Facility

Marine Corps Recruit Depot

Parris Island, South Carolina

Volume II - Appendices A-H

Southern Division
Naval Facilities Engineering Command

Contract Number N62467-94-D-0888

Contract Task Order 0127

November 2004

APPENDIX A

FIELD FORMS

A-1 CHAIN OF CUSTODY RECORDS
A-2 SOIL BORING LOGS
A-3 WELL INSTALLATION RECORDS
A-4 WELL DEVELOPMENT RECORDS
A-5 GEOTECHNICAL DATA
A-6 SURFACE SOIL SAMPLE LOG SHEETS
A-7 SUBSURFACE SOIL SAMPLE LOG SHEETS
A-8 GROUNDWATER SAMPLE LOG SHEETS
A-9 WELL PERMITS

APPENDIX A-1

CHAIN OF CUSTODY RECORDS

TestAmerica INCORPORATED

Division/Laboratory Name: Charleston, SC

To assist us in using the proper analytical methods, is this work being conducted for regulatory purposes?
Compliance Monitoring _____

Client Name: Tetra Tech NUS Client #: 2448

Address: Foster Plaza #7 661 Anderson Drive

City/State/Zip Code: Pittsburgh, Pennsylvania 15220

Project Manager: David Brayack

Telephone Number: 412-921-8375 Fax: 412-921-4040

Sampler Name: (Print Name) Nathan Reel

Sampler Signature: [signature]

Swmu 45

Project Name: Parris Island, SC MCRD

Project #: N0502

Site/Location ID: Parris Island State: SC

Report To: DAVE Brayack

Invoice To: SAME (PER CONTRACT)

Quote #: 030201210399 PO#: PITT-N0502-P1150 (SD)

229649

TAT
__ Standard 48hr.
X Rush (surcharges may apply)

Date Needed: 3/16/01

Fax Results: (Y) N

QC Deliverables
__ None
X Level 2 (Batch QC)
__ Level 3
__ Level 4
Other: _____

SAMPLE ID	Date Sampled	Time Sampled	G = Grab, C = Composite	Field Filtered	Matrix: SL - Sludge DW - Drinking Water GW - Groundwater S - Soil/Solid WW - Wastewater Specify Other	Preservation & # of Containers: HNO_3	HCl	NaOH	H_2SO_4	Methanol	None	Other (Specify)	Analyze For: VOC										REMARKS
PAI-45-TW-11-10	3/12/01	1615	G	N	GW		X						3										32947
PAI-45-TW-11-20	3/13/01	910	G	N	GW		X						3										48
PAI-45-TW-11-32	3/12/01	1700	G	N	GW		X						3										49
PAI-45-TW-14-30	3/13/01	1240	G	N	GW		X						3										50
PAI-45-TW-14-17	3/13/01	1330	G	N	GW		X						3										51
PAI-45-TW-14-7	3/13/01	1350	G	N	GW		X						3										52
Trip Blank	3/13/01	XXXX	X	X	DI		X				X		1										32953

Special Instructions:
DI → Deionized water

Relinquished By:	Date:	Time:	Received By:	Date:	Time:
[signature]	3/13/01	1410	[signature]	3/13/01	1410
[signature]	3/13/01	1800			
			[signature]	3.14.01	0900

LABORATORY COMMENTS:
Init Lab Temp:
Rec Lab Temp: 2°
Custody Seals: (Y) N N/A
Bottles Supplied by TestAmerica: (Y) N
82S139372360
Method of Shipment: FedEx to TA-Nashville

A-1

TestAmerica INCORPORATED

Division/Laboratory Name: Charleston, SC 730788

To assist us in using the proper analytical methods, is this work being conducted for regulatory purposes?
Compliance Monitoring _____

Client Name: TTNUS Client #: 2448

Address: 661 Andersen Dr.

City/State/Zip Code: Pittsburgh PA. 15220

Project Manager: Dave Brayack

Telephone Number: 412-921-7090 Fax: 412-921-4040

Sampler Name (Print Name): Bob Balkovec

Sampler Signature: Robert Balkovec

Project Name: Parris Island

Project #: 0502

Site/Location ID: Bldg. 45 State: S.C.

Report To:

Invoice To:

Quote #: 030201210399 PO#: PITT-N0502-P1150 (SD)

TAT
__ Standard
X Rush (surcharges may apply)
48 Hr TAT
Date Needed: 3/24/01
Fax Results: (Y) N

QC Deliverables
__ None
X Level 2 (Batch QC)
__ Level 3
__ Level 4
Other: _____

Matrix: SL - Sludge, DW - Drinking Water, GW - Groundwater, S - Soil/Solid, WW - Wastewater, Specify Other

Preservation & # of Containers

Analyze For: VOC's - 8260 see enclosed list

SAMPLE ID	Date Sampled	Time Sampled	G = Grab, C = Composite	Field Filtered	SL - Sludge, DW - Drinking Water, GW - Groundwater, S - Soil/Solid, WW - Wastewater, Specify Other	HNO_3	HCl	NaOH	H_2SO_4	Methanol	None	Other (Specify) QC	VOC's - 8260 see enclosed list									REMARKS
PAI-45-TW-04-07	3/24/01	1040	G		GW		✓					✓	3									37748
PAI-45-TW-04-15	3/24/01	1055	G		GW		✓					✓	3									49
PAI-45-TW-07-08	3/24/01	1317	G		GW		✓					✓	3									50
PAI-45-TW-07-16	3/24/01	1410	G		GW		✓					✓	3									51
Trip Blank (3/24/01)													1									37752

Special Instructions:

Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Robert Balkovec	3/21/01	1500	[signature]	3/21/01	1500
[signature]	3/21/01	1800	M. Brady	3/22/01	9:00

LABORATORY COMMENTS:
Int Lab Temp:
Rec Lab Temp: 1.0
Custody Seals: (Y) N N/A
Bottles Supplied by TestAmerica: (Y) N
825 139 213 725
Method of Shipment: Fed Ex to TA Nashville

A-2

230982

TestAmerica INCORPORATED

Division/Laboratory Name: Charleston, SC

To assist us in using the proper analytical methods, is this work being conducted for regulatory purposes?
Compliance Monitoring _____

Client Name: TTNUS Client #: 2448

Address: 661 ANDERSEN DR.

City/State/Zip Code: PITTSBURGH, PA. 15220

Project Manager: DAVE BRAYACK

Telephone Number: 412-921-7090 Fax: 412-921-4040

Sampler Name: (Print Name) BOB BALKOVEC

Sampler Signature: Robert Balkovec

Project Name: PARRIS ISLAND

Project #: 0502

Site/Location ID: SITE 45 State: SC

Report To:

Invoice To:

Quote #: 030201210399 PO#: PITT-N0502-P1150(SD)

TAT
___ Standard
X Rush (surcharges may apply) 48 Hr
Date Needed: 3.26.01
Fax Results: (Y) N

QC Deliverables
___ None
X Level 2 (Batch QC)
___ Level 3
___ Level 4
Other: _____

SAMPLE ID	Date Sampled	Time Sampled	G = Grab, C = Composite	Field Filtered	Matrix: SL - Sludge DW - Drinking Water GW - Groundwater S - Soil/Solid WW - Wastewater Specify Other	Preservation & # of Containers: HNO_3	HCl	NaOH	H_2SO_4	Methanol	None	Other (Specify) 4°C	Analyze For: VOC is 8260 see enclosed list									REMARKS
PAI-45-TW-12-07	3/21/01	1620	G		GW		✓					✓	3									38510
PAI-45-TW-12-16	3/21/01	1635	G		GW		✓					✓	3									11
TRIP BLANK	3/21/01	—	G		W		✓					✓	1									12
PAI-45-TW-03-08	3-22-01	0955	G		GW		✓					✓	3									13
PAI-45-TW-03-17	3-22-01	1000	G		GW		✓					✓	3									14
PAI-45-TW-02-16	3-22-01	1210	G		GW		✓					✓	3									15
PAI-45-TW-02-10	3-22-01	1215	G		GW		✓					✓	3									16
PAI-45-TW-01-10	3-22-01	1357	G		GW		✓					✓	3									17
PAI-45-TW-01-15	3-22-01	1410	G		GW		✓					✓	3									38518

Special Instructions:

Relinquished By: Robert Balkovec	Date: 3-22-01	Time: 1510	Received By: [signature]	Date: 3-22-01	Time: 1510
Relinquished By: [signature]	Date: 3-22-01	Time: 1800	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By: [signature]	Date: 3/23/01	Time: 9:00

LABORATORY COMMENTS:
Init Lab Temp:
Rec Lab Temp:
Custody Seals: (Y) N N/A
Bottles Supplied by TestAmerica: (Y) N
825139368231
Method of Shipment: Fedex to TA-Nashville

A-3

231182

TestAmerica INCORPORATED

Division/Laboratory Name: Charleston, SC

To assist us in using the proper analytical methods, is this work being conducted for regulatory purposes?
Compliance Monitoring _____

Client Name: TTNUS Client #: 2448
Address: 661 ANDERSEN DR
City/State/Zip Code: PITTSBURGH, PA. 15220
Project Manager: DAVE BRAYACK
Telephone Number: 412-921-7090 Fax: 412-921-4040
Sampler Name: (Print Name) _____
Sampler Signature: _____

Project Name: PARRIS ISLAND
Project #: N0502
Site/Location ID: SITE 45 State: S.C.
Report To: _____
Invoice To: _____
Quote #: 030201210399 PO#: PITT-N0502-P1150(SD)

TAT
___ Standard
X Rush (surcharges may apply)
Date Needed: 3-27-01
Fax Results: (Y) N

QC Deliverables
___ None
X Level 2 (Batch QC)
___ Level 3
___ Level 4
Other: _____

SAMPLE ID	Date Sampled	Time Sampled	G = Grab, C = Composite	Field Filtered	Matrix: SL - Sludge DW - Drinking Water GW - Groundwater S - Soil/Solid WW - Wastewater Specify Other	Preservation & # of Containers: HNO_3	HCl	NaOH	H_2SO_4	Methanol	None	Other (Specify) 4°C	Analyze For: VOCs 8260										REMARKS
PAI-45-TW-15-18	3/27/01	1607	G		GW		✓					✓	3				01-A39303-1						
PAI-45-TW-15-10	↓	1610	G		GW		✓					✓	3										
TRIP BLANK	↓	–	G		W		✓					✓	1				01-A39304-1						
																	01-A39305-1						

Special Instructions:

Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Robert Bellkove	3-23-01	~~0900~~ 0900	[signature]	3-23-01	0900
[signature]	3-23-01	1730			
			[signature]	3/24/01	9:00

LABORATORY COMMENTS:
Init Lab Temp:
Rec Lab Temp:
Custody Seals: (Y) N N/A
Bottles Supplied by TestAmerica: (Y) N
826 274 868534
Method of Shipment: Fedex to TA-Nashville

A-4

232611

TestAmerica INCORPORATED

Division/Laboratory Name: Charleston, SC

To assist us in using the proper analytical methods, is this work being conducted for regulatory purposes?
Compliance Monitoring: _____

Client Name: TETRA TECH NUS Client #: 2448
Address: 661 ANDERSEN DR.
City/State/Zip Code: PITTSBURGH, PA. 15220
Project Manager: DAVE BRAKACK
Telephone Number: 412-921-8375 Fax: 412-921-4040
Sampler Name: (Print Name) ROBERT BALKOVEC
Sampler Signature: Robert Balkovec

Project Name: PARRIS ISLAND
Project #: N0502
Site/Location ID: SITE 45 State: SC
Report To:
Invoice To:
Quote #: 030201210399 PO#: N0502-P115Q(SD)

TAT: ___ Standard; X Rush (surcharges may apply)
Date Needed: 4/7/01
Fax Results: (Y) N

QC Deliverables: ___ None; X Level 2 (Batch QC); ___ Level 3; ___ Level 4; Other: _____

SAMPLE ID	Date Sampled	Time Sampled	G = Grab, C = Composite	Field Filtered	Matrix (SL - Sludge, DW - Drinking Water, GW - Groundwater, S - Soil/Solid, WW - Wastewater, Specify Other)	Preservation & # of Containers: HNO_3	HCl	NaOH	H_2SO_4	Methanol	None	Other (Specify) 4°C	Analyze For: VOC's 8260	REMARKS
TRIP BLANK	4/3/01	—			W		✓					✓	2	45400
PAI-45-TW-08-08		1140	G		GW		✓					✓	3	01
PAI-45-TW-05-32		1205	G		GW		✓					✓	3	02
PAI-45-TW-08-19	↓	1245	G		GW		✓					✓	3	03
PAI-45-TW-05-07	4/4/01	0850	G		GW		✓					✓	3	04
PAI-45-TW-05-20		820	G		GW		✓					✓	3	05
PAI-45-TW-05-34		820	G		GW		✓					✓	3	06
PAI-45-TW-10-32		1237	G		GW		✓					✓	3	07
PAI-45-TW-10-07		1245	G		GW		✓					✓	3	08
PAI-45-TW-10-16	↓	1330	G		GW		✓					✓	3	45409

Special Instructions:

LABORATORY COMMENTS:
Init Lab Temp:
Rec Lab Temp:
Custody Seals: (Y) N N/A
Bottles Supplied by TestAmerica: (Y) N
8262748168166
Method of Shipment: FedEx to TA-Nashville

	Date:	Time:		Date:	Time:
Relinquished By: Robert Balkovec	4/4/01	1300	Received By: J Brakack	4/4/01	1500
Relinquished By: J Brakack	4/4/01	1800	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By: RLRy	4/5/01	1200

A-5

TestAmerica INCORPORATED

Division/Laboratory Name: Charleston, SC

To assist us in using the proper analytical methods, is this work being conducted for regulatory purposes?
Compliance Monitoring ____

232964

Client Name: TETRA TECH NUS — Client #: 2448
Address: 661 ANDERSEN DR.
City/State/Zip Code: PITTSBURGH, PA. 15220
Project Manager: DAVE BRAKACH
Telephone Number: 412-921-8375 — Fax: 412-921-4040
Sampler Name: (Print Name) ROBERT BALKOVEC
Sampler Signature: Robert Balkovec

Project Name: PARRIS ISLAND
Project #: N0502
Site/Location ID: SITE 45 — State: S.C
Report To:
Invoice To:
Quote #: 030201210399 — PO#: PITT-N0502-P1150(SD)

TAT
___ Standard
X Rush (surcharges may apply)
Date Needed: 4/10/01
Fax Results: Y N

QC Deliverables
___ None
X Level 2 (Batch QC)
___ Level 3
___ Level 4
Other: ____

Matrix: SL - Sludge, DW - Drinking Water, GW - Groundwater, S - Soil/Solid, WW - Wastewater, Specify Other
Preservation & # of Containers: HNO_3, HCl, NaOH, H_2SO_4, Methanol, None, Other (Specify) 4°C
Analyze For: VOC 8260

SAMPLE ID	Date Sampled	Time Sampled	G = Grab, C = Composite	Field Filtered	Matrix	HNO_3	HCl	NaOH	H_2SO_4	Methanol	None	Other (Specify) 4°C	VOC 8260	REMARKS
TRIP BLANK	4/5/01	0800	G	-	W		✓					✓	1	46719
PAI-45-TW-19-32		1240	G	-	GW		✓					✓	3	220
PAI-45-TW-19-18		1250	G	-	GW		✓					✓	3	221
PAI-45-TW-19-07		1335	G	-	GW		✓					✓	3	222
PAI-45-TW-18-17		1515	G	-	GW		✓					✓	3	223
PAI-45-TW-18-07		1522	G	-	GW		✓					✓	3	224
PAI-45-TW-23-19		1633	G	-	GW		✓					✓	3	225
PAI-45-TW-23-09	↓	1640	G	-	GW		✓					✓	3	226
PAI-45-TW-20-19	4/6/01	0945	G	-	GW		✓					✓	3	227
PAI-45-TW-20-07		0950	G	-	GW		✓					✓	3	46728

Special Instructions:

LABORATORY COMMENTS:
Init Lab Temp:
Rec Lab Temp: 3°C
Custody Seals: (Y) N N/A
Bottles Supplied by TestAmerica: (Y) N
826274868122
Method of Shipment: Test America-Nashville

	Date:	Time:		Date:	Time:
Relinquished By: Robert Balkovec	4/6/01	0950	Received By: Dave Brakach	4/6/01	0950
Relinquished By: Dave Brakach	4/6/01	1730	Received By: J Jacobs	4/7/01	Time: 900
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

A-6

TestAmerica INCORPORATED

Division/Laboratory Name: Charleston, SC

To assist us in using the proper analytical methods, is this work being conducted for regulatory purposes?
Compliance Monitoring _____

Client Name: TTNUS Client #: 2448
Address: 661 ANDERSEN DR
City/State/Zip Code: PITTSBURGH, PA. 15220
Project Manager: DAVE BRAYACK
Telephone Number: 412-921-8375 Fax: 412-921-4040
Sampler Name: (Print Name) BOB BALKOVEC
Sampler Signature: Robert Balkovec

Project Name: PARRIS ISLAND
Project #: 0502
Site/Location ID: SITE 45 State: S.C.
Report To:
Invoice To:
Quote #: 030201210399 PO#: PITT-N0502-P1150(SD)

TAT: ___ Standard; X Rush (surcharges may apply)
Date Needed: 4/14/01
Fax Results: (Y) N
233428

QC Deliverables: ___ None; X Level 2 (Batch QC); ___ Level 3; ___ Level 4; Other: _____

SAMPLE ID	Date Sampled	Time Sampled	G = Grab, C = Composite	Field Filtered	Matrix: SL - Sludge DW - Drinking Water GW - Groundwater S - Soil/Solid WW - Wastewater Specify Other	Preservation & # of Containers: HNO_3	HCl	NaOH	H_2SO_4	Methanol	None	Other (Specify) 4°C	Analyze For: VOC 8260 (see enclosed list)										REMARKS
TRIP BLANK	4/9/01	1030	G		W		✓					✓	1										48462
PAI-45-TW-21-19		1145	G		GW		✓					✓	3										63
PAI-45-TW-21-07		1150	G		GW		✓					✓	3										64
PAI-45-TW-22-32		1245	G		GW		✓					✓	3										65
PAI-45-TW-22-06		1305	G		GW		✓					✓	3										66
PAI-45-TW-17-06		1535	G		GW		✓					✓	3										67
PAI-45-TW-25-18		1705	G		GW		✓					✓	3										68
PAI-45-TW-17-21		1715	G		GW		✓					✓	3										69
PAI-45-TW-25-06		1747	G		GW		✓					✓	3										70
PAI-45-TW-24-06	4/10/01	0842	G		GW		✓					✓	3										48471

Special Instructions:

	Date	Time		Date	Time
Relinquished By: Robert Balkovec	4/10/01	0930	Received By: [signature]	4/11/01	0930
Relinquished By: [signature]	4/11/01	1730	Received By:		
Relinquished By:			Received By: A. Whipple	4-12-01	9:00

LABORATORY COMMENTS:
Init Lab Temp: 3.0
Rec Lab Temp:
Custody Seals: (Y) N N/A
Bottles Supplied by TestAmerica: (Y) N
826253937996
Method of Shipment: Fedex to TA-Nashville

A-7

'Dep 2

TestAmerica INCORPORATED

Division/Laboratory Name: Charleston, SC

To assist us in using the proper analytical methods, is this work being conducted for regulatory purposes?
Compliance Monitoring _____

Client Name: TT Nus Client #: 2448
Address: 661 Andersen Dr.
City/State/Zip Code: Pittsburgh, PA. 15220
Project Manager: Dave Brayack
Telephone Number: 412-921-8375 Fax: 412-921-4040
Sampler Name: (Print Name) Bob Balkovec
Sampler Signature: Robert Balkovec

Project Name: Parris Island
Project #: 0502
Site/Location ID: Site 45 State: S.C.
Report To:
Invoice To:
Quote #: 030201GH 210399 PO#: PITT-N0502-P1150(SD)

TAT
___ Standard
X Rush (surcharges may apply)
Date Needed: 4/14/01
Fax Results: (Y) N
233428

QC Deliverables
___ None
X Level 2 (Batch QC)
___ Level 3
___ Level 4
Other: _____

SAMPLE ID	Date Sampled	Time Sampled	G = Grab, C = Composite	Field Filtered	Matrix: SL - Sludge DW - Drinking Water GW - Groundwater S - Soil/Solid WW - Wastewater Specify Other	Preservation & # of Containers: HNO_3	HCl	NaOH	H_2SO_4	Methanol	None	Other (Specify) 4oc	Analyze For: VOC 8260 (see enclosed List)										REMARKS
PAI-45-TW-24-18	4/10/01	0850	G		GW		✓					✓	3										48472
PAI-45-TW-16-19		1112	G		GW		✓					✓	3										73
PAI-45-TW-16-06		1115	G		GW		✓					✓	3										74
PAI-45-TW-13-18		1230	G		GW		✓					✓	3										75
PAI-45-TW-13-06		1237	G		GW		✓					✓	3										76
PAI-45-TW-06-06		1416	G		GW		✓					✓	3										77
PAI-45-TW-06-18		1440	G		GW		✓					✓	3										78
PAI-45-TW-04-06		1605	G		GW		✓					✓	3										79
PAI-45-TW-04-14		1612	G		GW		✓					✓	3										48480

Special Instructions:

Relinquished By: Robert Balkovec	Date: 4/11/01	Time: 0930	Received By: T Brailsford	Date: 4/11/01	Time: 0930
Relinquished By: T Brailsford	Date: 4/11/01	Time: 1730	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

LABORATORY COMMENTS:
Init Lab Temp: 3.0
Rec Lab Temp:
Custody Seals: (Y) N N/A
Bottles Supplied by TestAmerica: (Y) N
826253937996
Method of Shipment: FedEx to TA-Nashville

D-8

TestAmerica INCORPORATED

Division/Laboratory Name: Charleston, SC

240222

Client Name: TT NUS Client #: 2448

Address: 661 ANDERSEN DR

City/State/Zip Code: PITTSBURGH PA 15241

Project Manager: DAVE BRAYACK

Telephone Number: 412-921-8375 Fax: 412-921-4040

Sampler Name: (Print Name) BOB BALLOWE

Sampler Signature: Robert Ballowe

To assist us in using the proper analytical methods, is this work being conducted for regulatory purposes?
Compliance Monitoring: ____

Project Name: NCBC PARRIS ISLAND

Project #: 0502

Site/Location ID: SITE 45 State: S.C.

Report To: ____

Invoice To: ____

Quote #: 03D2012103 99 PO#: PITT-N0502-P1150(SD)

TAT: Standard / X Rush (surcharges may apply)

Date Needed: 6/9/01

Fax Results: (Y) N

SAMPLE ID	Date Sampled	Time Sampled	G = Grab, C = Composite	Field Filtered	Matrix: SL - Sludge, DW - Drinking Water, GW - Groundwater, S - Soil/Solid, WW - Wastewater, Specify Other	Preservation & # of Containers: HNO_3	HCl 4°C	NaOH	H_2SO_4	Methanol	None	Other (Specify)	Analyze For: VOCs	QC Deliverables	REMARKS
TRIP BLANK	6/5/01	1200	G				✓						1		76177
PAZ-45-MW06(D)-0601	↓	1606	G				✓						3		78
PAZ-45-MW06(S)-0601	↓	1642	G				✓						3		79
PAZ-45-TW20-07	6/6/01	1005	G				✓						3		80
PAZ-45-TW-20-17		1007	G				✓						3		81
PAZ-45-TW-27-08		1205	G				✓						3		82
PAZ-45-TW-27-18	↓	1225	G				✓						3		83
PAZ-45-TW-IRM-32	6/6/01	1446	G				✓						3		76184
															85

QC Deliverables: ___ None; ___ Level 2 (Batch QC); ___ Level 3; ___ Level 4; Other: ____

Special Instructions:

Relinquished By: Robert Ballowe	Date: 6/6/01	Time: 1505	Received By: [signature]	Date: 6/6/01	Time: 1505
Relinquished By: [signature]	Date: 6/6/01	Time: 1800	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By: [signature]	Date: 6/7/01	Time: 0900

LABORATORY COMMENTS:
Init Lab Temp:
Rec Lab Temp:
Custody Seals: (Y) N N/A
Bottles Supplied by TestAmerica: (Y) N
660 0505870
Method of Shipment: Airborne to TA-Nashville

A-9

TestAmerica INCORPORATED

Division/Laboratory Name: Charleston, SC

To assist us in using the proper analytical methods, is this work being conducted for regulatory purposes?
Compliance Monitoring _____

Client Name: TTNUS Client #: 2448

Address: 661 ANDERSEN DR

City/State/Zip Code: PITTSBURGH, PA. 15220

Project Manager: DAVE BRAYACK

Telephone Number: 412-921-8375 Fax: 412-921-4040

Sampler Name: (Print Name) BOB BALKOVEC

Sampler Signature: Bob Balkovec

Project Name: MCRD PARRIS ISLAND

Project #: 0502

Site/Location ID: SITE 45 State: S.C.

Report To:

Invoice To:

Quote #: 030201210399 PO#: PITT-N0502-P1150(SD)

240663

TAT
___ Standard
X Rush (surcharges may apply)
Date Needed: 48 hr TAT ~~6/12/01~~
Fax Results: (Y) N

QC Deliverables
___ None
X Level 2 (Batch QC)
___ Level 3
___ Level 4
Other: _____

SAMPLE ID	Date Sampled	Time Sampled	G = Grab, C = Composite	Field Filtered	Matrix: SL - Sludge DW - Drinking Water GW - Groundwater S - Soil/Solid WW - Wastewater Specify Other	Preservation & # of Containers: HNO_3	HCl 4°C	NaOH	H_2SO_4	Methanol	None	Other (Specify)	Analyze For: VOC										REMARKS
TRIP BLANK	6/6/01	1400	G				✓						1										01A 77916
PAI-45-TW-19A-40		1625	G				✓						3										17
PAI-45-TW-33-15		1725	G				✓						3										18
PAI-45-TW-31-12		1802	G				✓						3										19
PAI-45-TW-32-16		1842	G				✓						3										20
PAI-45-TW-30-32	6/7/01	1101	G				✓						3										21
PAI-45-TW-30-16		1110	G				✓						3										22
PAI-45-TW-30-08		1132	G				✓						3										23
PAI-45-TW-34-14		1230	G				✓						3										24
PAI-45-TW-35-32		1455	G				✓						3										77925

Special Instructions:

Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Robert Balkovec	6/8/01	1300	T Brailsford	6/8/01	1300
T Brailsford	6/8/01	1800			
			[illegible]	6-9-01	0900

LABORATORY COMMENTS:
Init Lab Temp:
Rec Lab Temp: 3°
Custody Seals: (Y) N N/A
Bottles Supplied by TestAmerica: (Y) N
660030 2671
Method of Shipment: Airborne to TA-Nashville

A-10

TestAmerica INCORPORATED

Division/Laboratory Name: Charleston, SC

To assist us in using the proper analytical methods, is this work being conducted for regulatory purposes?
Compliance Monitoring _____

Client Name: TT NUS Client #: 2448

Address: 661 ANDERSON DR

City/State/Zip Code: PITTSBURGH, PA. 15220

Project Manager: D. BRIHACK

Telephone Number: 412-921-8375 Fax: 412-921-4040

Sampler Name: (Print Name) BOB BALKOVEC

Sampler Signature: Robert Balkovec

Project Name: MCRD PARRIS ISLAND

Project #: 0502

Site/Location ID: SITE 45 State: S.C.

Report To:

Invoice To:

Quote #: 030201210399 PO#: PITT-N0502-P1150 (SD)

240663

TAT
___ Standard
X Rush (surcharges may apply)
48 hr.
Date Needed: 6/12/01

Fax Results: (Y) N

QC Deliverables
___ None
X Level 2 (Batch QC)
___ Level 3
___ Level 4
Other: _____

SAMPLE ID	Date Sampled	Time Sampled	G = Grab, C = Composite	Field Filtered	Matrix: SL - Sludge DW - Drinking Water GW - Groundwater S - Soil/Solid WW - Wastewater Specify Other	Preservation & # of Containers: HNO_3	HCl / 4°C	NaOH	H_2SO_4	Methanol	None	Other (Specify)	Analyze For: VOC										REMARKS
PAI-45-TW-28-32	6/8/01	1005	G				✓						3										01-A 77926
PAI-45-TW-28-40	↓	1230	G				✓						3										77927

Special Instructions:

Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Robert Balkovec	6/8/01	1300	[signature]	6/8/01	1300
[signature]	6/8/01	1800			
			[signature]	6-9-01	0900

LABORATORY COMMENTS:
Init Lab Temp:
Rec Lab Temp: 3°C
Custody Seals: (Y) N N/A
Bottles Supplied by TestAmerica: (Y) N
660030267
Method of Shipment: Airborne to TA-Nashville

A-11

240990

TestAmerica INCORPORATED

Division/Laboratory Name: Charleston, SC

To assist us in using the proper analytical methods, is this work being conducted for regulatory purposes?
Compliance Monitoring _____

Client Name: TTNUS Client #: 2448
Address: 661 ANDERSEN DR.
City/State/Zip Code: PITTSBURGH, PA. 15220
Project Manager: DAVE BRAYACK
Telephone Number: 412-921-8375 Fax: 412-921-4040
Sampler Name: (Print Name) BOB BALKOVEC
Sampler Signature: Robert Balkovec

Project Name: MCRD PARRIS ISLAND
Project #: 0502
Site/Location ID: SITE 45 State: S.C.
Report To:
Invoice To:
Quote #: 030201210399 PO#: PITT-N0502-P1150 (SD)

TAT
__ Standard
X Rush (surcharges may apply)
Date Needed: 48 HRS
Fax Results: (Y) N

QC Deliverables
__ None
X Level 2 (Batch QC)
__ Level 3
__ Level 4
Other: _____

SAMPLE ID	Date Sampled	Time Sampled	G = Grab, C = Composite	Field Filtered	Matrix: SL - Sludge DW - Drinking Water GW - Groundwater S - Soil/Solid WW - Wastewater Specify Other	Preservation & # of Containers: HNO_3	HCl	NaOH	H_2SO_4	Methanol	None	Other (Specify)	Analyze For: VOCs										REMARKS
TRIP BLANK	6/11/01	1100					✓						1										79273
PAI-45-MW07(S)-0601		1220					✓						3										74
PAI-45-MW07(D)-0601		1310					✓						3										75
PAI-45-MW08(D)-0601		1417					✓						3										76
PAI-45-MW08(S)-0601		1434					✓						3										79277

Special Instructions:

Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Robert Balkovec	6/12/01	1510	[signature]	6/12/01	1510
[signature]	6/12/01	1820			
			C. Wh	6.13.01	0900

LABORATORY COMMENTS:
Init Lab Temp:
Rec Lab Temp:
Custody Seals: (Y) N N/A
Bottles Supplied by TestAmerica: (Y) N
6600302170
Method of Shipment: Airborne to TA-Nashville

A-12

WR 1145

02220

CHAIN OF CUSTODY RECORD

PROJECT NO.:	SITE NAME:
0502 Parris Island	MCRD Parris Island

SAMPLERS (SIGNATURE): Robert Balkovec

STATION NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	VOC 8260						REMARKS
Site 45	4/9/01	1000	W		Trip Blank	1	✓						
↓	↓	1535	GW		PAI-45-TW-17-06	3	3						
↓	4/10/01	1416	GW		PAI-45-TW-06-06	3	3						

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):
Robert Balkovec	~~4/9/01~~				
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):
Robert Balkovec	4/16/01 0900				
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE):	DATE / TIME:	REMARKS:	
		Shelly Hill	04-12-01 0930		

Order No. 70440 (0693)

A-13

0000005

WR 1038

02234

CHAIN OF CUSTODY RECORD

PROJECT NO.:	SITE NAME:
0502	Parris Island SC Site 45

SAMPLERS (SIGNATURE):

STATION NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	VOC 8260						REMARKS
PAI-45	4/3/01	1245	GW	✓	PAI-45-TW-08-19	3	✓						Groundwater
PAI-45	4/4/01	820	GW	✓	PAI-45-TW-05-20	3	✓						Groundwater
PAI-45	4/4/01	1237	GW	✓	PAI-45-TW-10-32	3	✓						
—	4/3/01	1200	W		TRIP BLANK	2	✓						

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):
Robert Balkwill	4/5/01 1200				
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE):	DATE / TIME:	REMARKS:	
		Shelly Wel	040601 0905		

Order No. 70440 (0693)

A-14

Katahdin ANALYTICAL SERVICES
340 County Road No. 5
P.O. Box 720
Westbrook, ME 04092
Tel: (207) 874-2400
Fax: (207) 775-4029

CHAIN of CUSTODY

PLEASE BEAR DOWN AND PRINT LEGIBLY IN PEN

Page ____ of ____

Client: TTNUS
Contact: DAVE BRATACK
Phone #: (412) 921-8375
Fax #: (412) 921-4040
Address: 661 ANDERSEN DR
City: PITTSBURGH
State: PA
Zip Code: 15220
Purchase Order #:
Proj. Name / No.: 0502 PARRIS ISLAND
Katahdin Quote #:
Bill (if different than above):
Address:
Sampler (Print / Sign): BOB BALKOVEC / Robert Balkovec
Copies To:

LAB USE ONLY
WORK ORDER #: WK 1989 - *
KATAHDIN PROJECT MANAGER _____
REMARKS: _____
SHIPPING INFO: ☐ FED EX ☐ UPS ☐ CLIENT
AIRBILL NO: _____
TEMP°C _____ ☐ TEMP BLANK ☐ INTACT ☐ NOT INTACT

ANALYSIS AND CONTAINER TYPE PRESERVATIVES

*	Sample Description	Date / Time coll'd	Matrix	No. of Cntrs.	Filt. ☐Y☐N VOC's 4°C/HCl	Filt. ☐Y☐N	Filt. ☐Y☐N	Filt. ☐Y☐N	Filt. ☐Y☐N	Filt. ☐Y☐N	Filt. ☐Y☐N	Filt. ☐Y☐N	Filt. ☐Y☐N	Filt. ☐Y☐N
	PAI-45-TW-33-15	6/6/01 / 1725	GW	3	✓									
	PAI-45-TW-30-32	6/7/01 / 1101	GW	3	✓									
	PAI-45-TW-34-14	6/7/01 / 1230	GW	3	✓									
	TRIP BLANK	6/6/01 / 1000	GW	1	✓									
		/												
		/												
		/												
		/												
		/												
		/												
		/												
		/												
		/												
		/												
		/												
		/												

COMMENTS

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Relinquished By: (Signature)	Date / Time	Received By: (Signature)
Robert Balkovec	6/8/01 1000	M Mitchell 6/9/01 1045			
Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Relinquished By: (Signature)	Date / Time	Received By: (Signature)

FORMSOURCE INC. ☎ (877) 782-3311

KAS-COC1 (R.0900)

THE TERMS AND CONDITIONS ON THE REVERSE SIDE HEREOF SHALL GOVERN SERVICES, EXCEPT WHEN A SIGNED CONTRACTUAL AGREEMENT EXISTS.

ORIGINAL 0000005

Katahdin ANALYTICAL SERVICES
340 County Road No. 5
P.O. Box 720
Westbrook, ME 04092
Tel: (207) 874-2400
Fax: (207) 775-4029

CHAIN of CUSTODY

PLEASE BEAR DOWN AND PRINT LEGIBLY IN PEN

Client: TT NUS | Contact: D. BRAYACK | Phone #: (412) 921-8375 | Fax #: (412) 921-4040

Address: 661 ANDERSEN DR. | City: PITTSBURGH | State: PA. | Zip Code: 15220

Purchase Order #: | Proj. Name / No.: MCRD PAI 0502 | Katahdin Quote #:

Bill (if different than above): | Address:

Sampler (Print / Sign): BOB BALKOVEC / Robert Balkovec | Copies To:

LAB USE ONLY WORK ORDER #: WR2015 - *

KATAHDIN PROJECT MANAGER:

REMARKS:

SHIPPING INFO: ☐ FED EX ☐ UPS ☐ CLIENT

AIRBILL NO:

TEMP°C: ☐ TEMP BLANK ☐ INTACT ☐ NOT INTACT

ANALYSIS AND CONTAINER TYPE PRESERVATIVES

*	Sample Description	Date / Time coll'd	Matrix	No. of Cntrs.	TCL VOC's/6°C Encore (Filt. ☐Y ☐N)	TCL SVOC's/6°C 4oz (Filt. ☐Y ☐N)	TAL METALS (TOTAL) + TIN/6°C (Filt. ☐Y ☐N)	TOC/6°C 2oz (Filt. ☐Y ☐N)	Filt. ☐Y ☐N	Filt. ☐Y ☐N	Filt. ☐Y ☐N	Filt. ☐Y ☐N	Filt. ☐Y ☐N	Filt. ☐Y ☐N
	TRIP BLANK	06/12/01/0700	W	1										
	PAI-45-SS-01-01	/0745	SOIL	6	4	1	1							
	PAI-45-SS-02-01	/0810		6	4	1	1							
	PAI-45-SB-01-05	/0832		6	4	1		1						
	PAI-45-SB-01-14	/0905		1				1						
	PAI-45-SS-03-01	/0930		6	4	1	1							
	PAI-45-SS-04-01	/1020		6	4	1	1							
	PAI-45-SS-05-01	/1110		6	4	1	1							
	FD06120101	/0000		6	4	1	1							
	PAI-45-SB-02-04	/1125		6	4	1		1						
	PAI-45-SB-03-04	/1208		6	4	1		1						
	PAI-45-SS-06-01	/1250		6	4	1	1							
	PAI-45-SB-05-04	/1255		6	4	1		1						
	PAI-45-SB-06-04	/1325		6	4	1		1						
	PAI-45-SB-04-04	/1345		6	4	1		1						
	PAI-45-SS-07-01	/1415		6	4	1	1							

COMMENTS

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Relinquished By: (Signature)	Date / Time	Received By: (Signature)
Robert Balkovec	6/12/01 1730	Shelley Well 6-13-01 0845			
Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Relinquished By: (Signature)	Date / Time	Received By: (Signature)

FORMSOURCE INC. ☎ (877) 782-3311

KAS-COC1 (R.0900)

THE TERMS AND CONDITIONS ON THE REVERSE SIDE HEREOF SHALL GOVERN SERVICES, EXCEPT WHEN A SIGNED CONTRACTUAL AGREEMENT EXISTS.

ORIGINAL

Katahdin ANALYTICAL SERVICES
340 County Road No. 5
P.O. Box 720
Westbrook, ME 04092
Tel: (207) 874-2400
Fax: (207) 775-4029

CHAIN of CUSTODY

PLEASE BEAR DOWN AND PRINT LEGIBLY IN PEN

Client	Contact	Phone # ( )	Fax # ( )
Address	City	State	Zip Code
Purchase Order #	Proj. Name / No.		Katahdin Quote #
Bill (if different than above)	Address		
Sampler (Print / Sign)			Copies To:

LAB USE ONLY WORK ORDER #: WR2015 - *

KATAHDIN PROJECT MANAGER _____

REMARKS: _____

SHIPPING INFO: ☐ FED EX ☐ UPS ☐ CLIENT

AIRBILL NO: _____

TEMP°C _____ ☐ TEMP BLANK ☐ INTACT ☐ NOT INTACT

ANALYSIS AND CONTAINER TYPE PRESERVATIVES

*	Sample Description	Date / Time coll'd	Matrix	No. of Cntrs.	Tel VOC's 4°C ENCORES (Filt. ☐Y ☐N)	Tel SVOC's 4°C 4oz (Filt. ☐Y ☐N)	Tal Metals 4°C LTIN 4oz (Filt. ☐Y ☐N)	TOC 4°C 2oz (Filt. ☐Y ☐N)	Filt. ☐Y ☐N	Filt. ☐Y ☐N	Filt. ☐Y ☐N	Filt. ☐Y ☐N	Filt. ☐Y ☐N	Filt. ☐Y ☐N
	PAI-45-SB-07-04	/1450	Soil	5	3	1		1						
	PAI-45-SS-08-01	/1520	↓	10	6	2	2			MS/MSD				
	FD06120102	/0000		2	2	1		1						
	FD06120103	/0000		3	3					DUP ON SS-08-01				
	FD06120104	/0000		1				1						
	PAI-45-SB-08-04	/1550		2	✓	✓		2		MS/MSD ON TOC				
	PAI-45-SB-09-14	/1615		1				1						
		/												
		/												
		/												
		/												
		/												
		/												
		/												
		/												
		/												

COMMENTS

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Relinquished By: (Signature)	Date / Time	Received By: (Signature)
Robert Balhouse	6/12/01 1730	Shelley Wilt 6-13-01 0845			
Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Relinquished By: (Signature)	Date / Time	Received By: (Signature)

FORMSOURCE INC. ☎ (877) 782-3311

KAS-COC1 (R.0900)

THE TERMS AND CONDITIONS ON THE REVERSE SIDE HEREOF SHALL GOVERN SERVICES, EXCEPT WHEN A SIGNED CONTRACTUAL AGREEMENT EXISTS.

ORIGINAL

0000008

Katahdin ANALYTICAL SERVICES
340 County Road No. 5
P.O. Box 720
Westbrook, ME 04092
Tel: (207) 874-2400
Fax: (207) 775-4029

CHAIN of CUSTODY

PLEASE BEAR DOWN AND PRINT LEGIBLY IN PEN

Page ____ of ____

Client	Contact	Phone #	Fax #
TTNUS	D. BRACH	(412) 921-8375	( )

Address	City	State	Zip Code
661 ANDERSEN DR. PITTSBURGH	P.A.		15241

Purchase Order #	Proj. Name / No.	Katahdin Quote #
	MCRD PAZ 0502	

Bill (if different than above)	Address

Sampler (Print / Sign)	Copies To:
Robert Bellhouse / Bob Ballouse	

LAB USE ONLY WORK ORDER #: WR2082 - *

KATAHDIN PROJECT MANAGER _____

REMARKS: _____

SHIPPING INFO: ☐ FED EX ☐ UPS ☐ CLIENT

AIRBILL NO: _____

TEMP°C _____ ☐ TEMP BLANK ☐ INTACT ☐ NOT INTACT

*	Sample Description	Date / Time coll'd	Matrix	No. of Cntrs.	ANALYSIS AND CONTAINER TYPE PRESERVATIVES									
					Filt. ☐Y☐N TOC 4°C Tot	Filt. ☐Y☐N VOCs	Filt. ☐Y☐N SVOCs, Pest/PCB	Filt. ☐Y☐N TAL Metals Hg/Cr	Filt. ☐Y☐N TCLP 1312 H2SO4	Filt. ☐Y☐N Cyanide HCl IL Amber	Filt. ☐Y☐N COD	Filt. ☐Y☐N Hardness	Filt. ☐Y☐N TCLP/CA/F/ASS	Filt. ☐Y☐N Alk/Cl/NO3/SO4 Cr6/Fe2
	PAZ-45-SB-10-13	6/13/01 / 0755	Soil	1	1									
	PAZ-45-SB-1-10	/ 0935		1	1									
	PAZ-45-SB-12-10	/ 1123		1	1									
	PAZ-45-SB-13-10	/ 1323		1	1									
	TRIP BLANK	06/14/01 0700	W	1		1								
-1	PAZ-45-FRW	/ 0900	AQ	15		3	3	1	1	2	1	1	1	1 1
		/												
		/												
		/												
		/												
		/												
		/												
		/												
		/												
		/												
		/												
		/												

COMMENTS

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Relinquished By: (Signature)	Date / Time	Received By: (Signature)
Robert Bellhouse	6/14/01 1600	Shelly Hill 6-15-01 0900			
Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Relinquished By: (Signature)	Date / Time	Received By: (Signature)

FORMSOURCE INC. ☎ (877) 782-3311

THE TERMS AND CONDITIONS ON THE REVERSE SIDE HEREOF SHALL GOVERN SERVICES, EXCEPT WHEN A SIGNED CONTRACTUAL AGREEMENT EXISTS.

ORIGINAL

KAS-COC1 (R.0900)

WK'33 TC

TETRA TECH NUS, INC. CHAIN OF CUSTODY | NUMBER PAI 100401-1 | PAGE 1 OF 1

PROJECT NO:	SITE NAME:	PROJECT MANAGER AND PHONE NUMBER	LABORATORY NAME AND CONTACT:
N0502	PAI-45	DAVE BRAYACK 412 921 8375	KATAHDIN
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER AND PHONE NUMBER	ADDRESS
SJ Conti		SJ CONTI 412 921 8422	340 COUNTY RD #5
		CARRIER/WAYBILL NUMBER	CITY, STATE
		FED EX AB#	WESTBROOK, ME 04092

STANDARD TAT ☐
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

DATE YEAR 2001	TIME	SAMPLE ID	MATRIX	GRAB (G) COMP (C)	No. OF CONTAINERS	CONTAINER TYPE PLASTIC (P) or GLASS (G)	PRESERVATIVE USED	TYPE OF ANALYSIS: TCL VOLATILES 40ml VIAL							COMMENTS
						G	HCL								
10/4	1045	PAI 45 PW 100401	AQ	G	2			2							48 HR QUICK TURN. WATER FROM PLASTIC HOLD TANK.

1. RELINQUISHED BY SJ Conti	DATE 10/4/01	TIME 1400 ±	1. RECEIVED BY FED EX.	DATE	TIME
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY Shelly Hill	DATE 10-5-01	TIME 0900
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

3/99
FORM NO. TtNUS-001

A-19

900000

B

WR 3528

TETRA TECH NUS, INC. CHAIN OF CUSTODY | NUMBER PAI-101701 | PAGE 1 OF 1

PROJECT NO:	SITE NAME:	PROJECT MANAGER AND PHONE NUMBER	LABORATORY NAME AND CONTACT:
N0502	PAI SITE 45	D. BRAYACK 412 921 8375	KATAHDIN / A COLBY
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER AND PHONE NUMBER	ADDRESS
SJ Conti		S CONTI 412 921 8422	340 COUNTY RD 5
		CARRIER/WAYBILL NUMBER	CITY, STATE
		FED EX # 8243 8234 8456	WESTBROOK, ME. 04092

STANDARD TAT ☐
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): G, G, G, P, P, P

PRESERVATIVE USED: HCL, HCL, H_2SO_4, H_2SO_4, –, HNO_3

TYPE OF ANALYSIS

DATE YEAR 2001	TIME	SAMPLE ID	MATRIX	GRAB (G) COMP (C)	No. OF CONTAINERS	LOW CONC VOCS 3-40ml	METHANE, ETHANE, ETHENE 3-40ml	TOC 1-125ml Amber	COD 1-125ml PE	BOD, ALK, Cl, SO_4, NO_2 NO_3 PO_4^{-3}	METALS-Ca, Mg Na, K, Mn, Fe			COMMENTS
10/17	0715	PAI 45 TB 101701	~~GW~~ AQ	G	3	3								
10/17	1005	PAI 45 GW06SU-01	GW	G	10	3	3	1	1	1	1			
10/17	0000	PAI 45 DUP 101701	GW	G	10	3	3	1	1	1	1			
10/17	1330	PAI 45 GW04SU-01	GW	G	10	3	3	1	1	1	1			
10/17	1335	PAI 45 GW05SL-01	GW	G	10	3	3	1	1	1	1			

LAB: CAN YOU GIVE ME A CHECK ON THESE PARAMETERS IF POSSIBLE:
PH
ORP
SP. CONDUCTANCE

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY SJ Conti	10/17/01	1500	1. RECEIVED BY FED EX.		
2. RELINQUISHED BY			2. RECEIVED BY [signature]	10/18/01	920
3. RELINQUISHED BY			3. RECEIVED BY		

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

3/99
FORM NO. TtNUS-001

A-20

800008

WR355U

TETRA TECH NUS, INC. CHAIN OF CUSTODY | NUMBER PAI-101701-2 | PAGE 1 OF 1

PROJECT NO:	SITE NAME:	PROJECT MANAGER AND PHONE NUMBER	LABORATORY NAME AND CONTACT:
N0502	SITE 45	D BRAYACK 412 921 8375	KATAHDIN / A. COLBY
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER AND PHONE NUMBER	ADDRESS
SJ Conti		S CONTI 412 921 8422	340 COUNTY RD 5
		CARRIER/WAYBILL NUMBER	CITY, STATE
		FED EX # 8243 8234 8434	WESTBROOK, ME.

STANDARD TAT ☐
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

DATE YEAR 2001	TIME	SAMPLE ID	MATRIX	GRAB (G) COMP (C)	No. OF CONTAINERS	CONTAINER TYPE PLASTIC (P) or GLASS (G)	PRESERVATIVE USED	TYPE OF ANALYSIS: TCL VOLATILES 3-40 ml VOA								COMMENTS
						G	HCL									
10/17	0715	PAI 45 TB 101701-2	AQ	G	3			3								
10/17	1710	PAI 45 GW04D-01	GW	G	3			3								
10/17	1705	PAI 45 GW05D-01	GW	G	3			3								
10/17	1900	PAI 45 GW10D-01	GW	G	3			3								
10/17	0000	PAI 45 DUP 101701-2	GW	G	3			3								

1. RELINQUISHED BY SJ Conti	DATE 10/18/01	TIME 1600	1. RECEIVED BY FED EX.	DATE	TIME
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	DATE	TIME
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME
COMMENTS					

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

3/99
FORM NO. TtNUS-001

A-21

01000

WR3550 Cooler #1

TETRA TECH NUS, INC. CHAIN OF CUSTODY | NUMBER PAI 101801 | PAGE 1 OF 1

PROJECT NO: N0502	SITE NAME: PAI SITE 45	PROJECT MANAGER AND PHONE NUMBER: D. BRAYACK 412 921 8375	LABORATORY NAME AND CONTACT: KATAHDIN / A COLBY
SAMPLERS (SIGNATURE): SJ Conti		FIELD OPERATIONS LEADER AND PHONE NUMBER: S CONTI 412 921 8422	ADDRESS: 340 COUNTY RD 5
		CARRIER/WAYBILL NUMBER: FED EX AB# 824382348434	CITY, STATE: WESTBROOK, ME. 04092

STANDARD TAT ☐
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

DATE (YEAR 2001)	TIME	SAMPLE ID	MATRIX	GRAB (G) COMP (C)	No. OF CONTAINERS	CONTAINER TYPE PLASTIC (P) or GLASS (G)									
						G	G	G	P	P	P				
						PRESERVATIVE USED: HCL	HCL	H_2SO_4	H_2SO_4	—	HNO_3				
						TYPE OF ANALYSIS: Low Conc. VOCs 3-40ml	Methane, Ethane 3-40ml Ethene	TOC 1-125ml Amber	COD 1-125ml PE	BOD, Alk, Cl, SO_4-3 NO_3 NO_3 PO_4-3	Metals- Ca, Mg, Na, K, Mn, Fe				COMMENTS
10/18	0945	PAI 45 GW01SU-01	GW	G	10	3	3	1	1	1	1				
10/18	0950	PAI 45 GW08SU-01	GW	G	10	3	3	1	1	1	1				

LAB: RUN:
PH
SP COND
ORP
IF POSSIBLE TO CHECK OUR DATA

1. RELINQUISHED BY: SJ Conti	DATE: 10/18/01	TIME: 1600	1. RECEIVED BY: FED EX	DATE	TIME
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY: Andrew M Ewing	DATE: 10/19/01	TIME: 930
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

3/99
FORM NO. TtNUS-001

A-22

00000019

TETRA TECH NUS, INC. CHAIN OF CUSTODY | NUMBER PAI-120901 | PAGE 1 OF 1

PROJECT NO:	SITE NAME:	PROJECT MANAGER AND PHONE NUMBER	LABORATORY NAME AND CONTACT:
N0502	PAI-45	D. BRAYACK 412 921 8375	KATAHDIN / A. COLBY
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER AND PHONE NUMBER	ADDRESS
SJ Conti		S CONTI 412 921 8422	340 COUNTY RD 5
		CARRIER/WAYBILL NUMBER	CITY, STATE
		FED EX AB# 8243 8234 8607	WESTBROOK, ME 04092

STANDARD TAT ☐
RUSH TAT ☐ ☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

DATE YEAR 2001	TIME	SAMPLE ID	MATRIX	GRAB (G) COMP (C)	No. OF CONTAINERS	CONTAINER TYPE PLASTIC (P) or GLASS (G)								COMMENTS
						G	G	G	P					
						PRESERVATIVE USED		4°C HCL	4°C	4°C HNO3				
						TYPE OF ANALYSIS	TCL VOCs 40 ml VOA	TCL SVOCs 1-L Amber (2)	TAL METALS 1 L PE					
12/9 SJC	12/9 0745	PAI-45 TB 120901 SJC	AQ	G	2	2								TRIP BLANK
	~~12/9 1105~~	~~PAI 45 GW 11D 01 SJC~~												
A-23	12/9 1105	PAI 45 GW 11D 01	GW	G	3	3								GROUNDWATER
	12/9 1335	PAI 45 GW 09D 01	GW	G	3	3								GROUNDWATER
	12/10 0900	PAI 45 TW 121001	AQ	G	6	3	2	1						WATER FROM PLASTIC TANK

1. RELINQUISHED BY SJ Conti	DATE 12/10/01	TIME 1600	1. RECEIVED BY FED EX	DATE	TIME
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	DATE 12/11/01	TIME 910
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

3/99
FORM NO. TINUS-001

003 KATAHDIN ANALYTICAL 12/11/01 13:23 FAX 2077754029

TETRA TECH NUS, INC. CHAIN OF CUSTODY | NUMBER PAI 121001 | PAGE 1 OF 1

PROJECT NO:	SITE NAME:	PROJECT MANAGER AND PHONE NUMBER	LABORATORY NAME AND CONTACT:
N0502	PAI 45	D BRAYACK 412 921 8375	KATAHDIN / A. COLBY
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER AND PHONE NUMBER	ADDRESS
SJ Conti		S CONTI 412 921 8422	340 COUNTY RD 5
		CARRIER/WAYBILL NUMBER	CITY, STATE
		FED EX #	WESTBROOK ME., 04092

STANDARD TAT ☐
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

DATE YEAR 2001	TIME	SAMPLE ID	MATRIX	GRAB (G) COMP (C)	No. OF CONTAINERS	CONTAINER TYPE PLASTIC (P) or GLASS (G)	PRESERVATIVE USED	TYPE OF ANALYSIS: TCL VOCs (2 oz)	SVOCs / PH (4 oz)	PESTS (4 oz)	PCBs (4 oz)	TCLP METALS (4 oz)	TOTAL SOLIDS (4 oz)	CYANIDE (4 oz)	SULFIDE (4 oz)	COMMENTS
						G	4°C									
12/10	0800	PAI 45 SL 121001	S	G	1	G	4°C	1								SOIL FROM
12/10	0800	PAI 45 SL 121001	S	C	7	G	4°C		1	1	1	1	1	1	1	ROLL-OFF
																ANDREA ← CHECK W/ D. BRATACK ON EXACT ANALYSIS, ie REACTIVE: CN SUFIDE ETC TCLP/TCL

NOTE

1. RELINQUISHED BY	SJ Conti	DATE 12/10/01	TIME 1600	1. RECEIVED BY	FED EX	DATE	TIME
2. RELINQUISHED BY		DATE	TIME	2. RECEIVED BY		DATE 12/11/01	TIME 910
3. RELINQUISHED BY		DATE	TIME	3. RECEIVED BY		DATE	TIME

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

3/99
FORM NO. TINUS-001

12/11/01 13:23 FAX 2077754029 KATAHDIN ANALYTICAL 002

CHAIN OF CUSTODY RECORD

02221

PROJECT NO.:	SITE NAME:
0502	PAZ S.C.

SAMPLERS (SIGNATURE): Robert Bellhouse

STATION NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	pH + (SEE BELOW)	VOLATILE (UNPRESERVED)					REMARKS
SEE LIST	6/13/01	0905		X	PAZ-45-SB-01-14	1	1						
	↓	1615			PAZ-45-SB-04-14	1	1						
	6/13/01	1355			PAZ-45-SB-10-13	1	1						
		0935			PAZ-45-SB-11-10	1	1						
		1123			PAZ-45-SB-12-10	1	1						
	↓	1323			PAZ-45-SB-13-10	1	1						
	6/13/01	0940			PAZ-45-SB-01-23	1		1					
	↓	1610			PAZ-45-SB-04-23	1		1					
	6/13/01	0945			PAZ-45-SB-10-23	1		1					
		0945			PAZ-45-SB-11-23	1		1					
		1150			PAZ-45-SB-12-21	1		1					
DF	↓	1355			PAZ-45-SB-13-21	1		1					

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):
Robert Bellhouse	6/14/01 0900				
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE):	DATE / TIME:	REMARKS:	

Order No. 70440 (0693)

D-25

APPENDIX A-2

SOIL BORING LOGS

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: MCRD PARRIS ISLAND
PROJECT NUMBER: 0502 CTO 0127
DRILLING COMPANY: RICHARD SIMMONS
DRILLING RIG: CT 250 HSA
BORING NUMBER: PAZ-45-SB-01
DATE: 6/12/01
GEOLOGIST: BOB BALKOVEC
DRILLER: TOM TRYHYBA

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth /Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	1	2/2				LT BR	SILTY F-SAND	SM		0.0	0.0		
S-1 0829	2	2/3	2'/2'			DK BR				0.0			
	3	3/2				LT	SILTY F-SAND			0.0			
S-2 0828	4	2/5	4"/2'			BR				0.0		0.0	0.0
	5	2/6				GRAY	SILTY F-SAND		4.5' @ 0832	0.0			
S-3 0830	6	8/3	2'/2'			DK BR				0.0			
	7	4/2				GRAY	F-SAND T-SILT	SP	4V @ 7' →	2.0			
S-4 0835	8	3/7	2'/2'							0.0			
	9	1/1			SOFT	TAN	CLAYEY SAND	SC		0.0			
S-5 0840	10	1/1	2'/2'			GRAY				0.0			
	11	1/1					4"			0.0			
S-6 0850	12	1/1	4"/2'							0.0		0.0	0.0
	13	4/3				GRAY	F-SAND T-SILT	SP		3.4			
S-7 0900	14	1/1	2'/2'						12-14' @ 0905	2.1			
	15	8/2				GRAY	F-SAND	SP		0.0			
S-8 0905	16	1/1	2'/2'							1.1		0.0	0.0
	17	4/2				BLUE GRAY	F-SAND T-CLAY	SP		0.6			
S-9 0910	18	1/1	2'/2'			BLU	CLAY w/ 4" OF PEAT	OH PT		0.0			
	19	1/1				BLU	CLAYEY PEAT	PT		0.0			
S-10 0918	20	1/1	2'/2'						COLLECTED	0.0			
				T.D. 20'					SHELBY TUBE				
									FROM 20-				

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: UV TESTING @ 7' RESULTS ARE TRACE FINDINGS NEGATIVE

Drilling Area Background (ppm): 0.0

Converted to Well: Yes ____ No X Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

Page 1 of 1

PROJECT NAME: MCRD PARRIS ISLAND
PROJECT NUMBER: 0502 CTO 0127
DRILLING COMPANY: RICHARD STRATONS
DRILLING RIG: CT 250 HSA
BORING NUMBER: PAI-45-SB-02
DATE: 6/12/01
GEOLOGIST: BOB BALKOVEC
DRILLER: Tom [illegible]

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth /Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	1	2/3				TAN	SILTY F-SAND	SM		0.0	0.0		
S-1 1120	2	3/3	2"/2"			↓				↓			
	3	3/5				DK GRAY	SILTY SAND w/ T-			7.8			
S-2 1124	4	6/8	2"/2"			GRAY	CLAY	↓	3'-4' @ 1125	133		0.0	0.0
	5	1/1				GRAY	SANDY CLAY / CLAYEY SAND	CL		4.2			
S-3 1130	6	2/4	6"/2"			↓	↓	SC	use 6'	2.1			
	7	4/5				GRAY	F-SAND	SP		0.0			
S-4 1133	8	6/7	2"/2"			↓	↓	↓		0.0	↓		
				TD 8'									
							HSA TO 14', 5 SPOONS						
S-9	18		2"										

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: 4-V- Test @ 6' = TRACE

Drilling Area Background (ppm): 0.0

Converted to Well: Yes ____ No X Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: MCRD PARRIS ISLAND
PROJECT NUMBER: 0502 CTO 0127
DRILLING COMPANY: RICHARD SIMMONS
DRILLING RIG: CT 250 HSA

BORING NUMBER: PAI-45-SB-03
DATE: 6/12/01
GEOLOGIST: BOB BALKOVEC
DRILLER: TOM TRYHUBA

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth /Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	1	2 / 3				BLK	SILTY, F-SAND	SM		1.3	0.0		
S-1 1206	2	3 / 3	18" / 2"			TAN	↓	↓		.5	↓		
	3	3 / 3				BLK	SILTY SAND	SM	av @ 3'	320	↓		
S-2 1207	4	3 / 3	2" / 2"			+ OK GRAY	T-CLAY	SC	2-4' @ 1208	146	↓	0.0	0.0
	5	3 / 3					SILTY SAND	SM		41	↓		
S-3 1210	6	3 / 4	2" / 2"			GRAY	F-SAND	SP		2.8	↓		
	7	3 / 3				↓	F-SAND T-CLAY IN	↓		1.7	↓		
S-4 1213	8	1 / 1	2" / 2"			↓	SPOON NOSE	SP/CL		2.0	↓		
				TD 8'									

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: U.V. @ 5' - NEGATIVE

Drilling Area Background (ppm): 0.0

Converted to Well: Yes ____ No ✓ Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: MCRD PARRIS ISLAND
PROJECT NUMBER: 0502 CTO 0127
DRILLING COMPANY: RICHARD SIMMONS
DRILLING RIG: CT 250
BORING NUMBER: PAI-45-SB-04
DATE: 6/12/01
GEOLOGIST: BOB BALKOVEC
DRILLER: TOM [illegible]

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth /Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sample BZ	Borehole *	Driller BZ *
	1	3/3				DK	SILTY F-SAND	SM		0.0	0.0		
S-4 1340	2	4/4	17"/2"			BR	↓			1.8		0.0	0.0
	3	2/3				GRAY	SILTY, CLAYEY SAND	SM		1.7			
S-2 1343	4	4/8	2"/2"			BLK	↓	SC	@ 3-4' @ 1345	2.4			
	5	3/3				↓	↓	↓		8.7			
S-3 1345	6	3/3	2"/2"			GRAY	SANDY CLAY	CL	UVF6'	13.4		0.0	0.0
	7	/				GRAY	SILTY F-SAND	SM		41			
S-4 1350	8	/	2"/2"			DK	↓	↓	UVF6'	573	↓		
				TD 8'									

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: U.V. @ 6' - 8' BOTH NEGATIVE

Drilling Area Background (ppm): 0.0

Converted to Well: Yes _____ No X Well I.D. #: _____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: MCRD PARRIS ISLAND
PROJECT NUMBER: 0502 CTO 0127
DRILLING COMPANY: RICHARD SIMMONS
DRILLING RIG: CT 250 HSA
BORING NUMBER: PAI-45-SB-05
DATE: 6/12/01
GEOLOGIST: BOB BALKOVEC
DRILLER: Tom

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth /Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	1	1 / 3				LT. BR	SILTY F-SAND	Sm		0.0	0.0		
S-1	2	3 / 2	1' / 2'			TAN				1.1			
	3	2 / 3				DK	SILTY / CLAYEY SAND	Sm		170		0.0	0.0
S-2	4	3 / 5	2' / 2'			GRAY	↓	SC	2-4' @ 1255	64			
	5	4 / 3				GRAY	CLAYEY SAND	SC		22			
S-3	6	2 / 2	18" / 2'				↓	↓	UV @ 6'	17			
	7	3 / 6					F-SAND	SP		1.0			
S-4	8	7 / 1	2' / 2'			↓	↓	↓		0.0	↓		
				TD 8'									

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: U.V. @ 6' = TRACE

Drilling Area Background (ppm): 0.0

Converted to Well: Yes ____ No X Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: MCRD PARRIS ISLAND
PROJECT NUMBER: 0502 CTO 0127
DRILLING COMPANY: Richard Simmons
DRILLING RIG: CT 250 HSA
BORING NUMBER: PAJ-45-SB-06
DATE: 6/12/01
GEOLOGIST: BOB BALKOVEC
DRILLER: Tom Traymba

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth /Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sample BZ	Borehole**	Driller BZ**
	1	4/3				DK	SLTY F-SAND	SM		0.0	0.0		
SJ 1307	2	5/7	2"/2"			BR	"			"			
	3	3/4				BRN	SLTY, CLAYEY SAND	SM		16		0.0	0.0
SJ 1309	4	4/5	18"/2"			GRAY	"	SC	3-4' @ 1325	8.1			
	5	2/1				GRAY	"			0.0			
SJ 1325	6	1/1	2"/2"			GRAY	SANDY CLAY	CL	UVB 6"				
	7	3/3					F-SAND	SP					
SJ 1325	8	2/1	2"/2"				"						
				T.D.B.									

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0.0

Remarks: UVB 6" - NEGATIVE

Converted to Well: Yes ____ No X Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

Page 1 of 1

PROJECT NAME: MCRD PARRIS ISLAND
PROJECT NUMBER: 0502 CTO 0127
DRILLING COMPANY: RICHARD SIMMONS
DRILLING RIG: CT 250 HSA
BORING NUMBER: PRI-45-SB-07
DATE: 6/18/01
GEOLOGIST: BOB BALKOVEC
DRILLER: TOM TROTHUBA

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth /Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	1	3/6				BLK	SLGT F-SAND	SM		0.0	0.0		
S-1 1445	2	4/8	2'/2'			TAN		↓		0.0			
	3	6/7				DK	F-SAND T-SLGT	SP		0.0			
S-2 1447	4	7/5	1.9'/2'			GRAY	SLGT CLAY	CL	3-4' @ 1450	14.7		0.0	0.0
	5	3/6				GRAY	↓	↓	WET	0.0			
S-3 1450	6	4/1	2'/2'			DK	↓	↓		0.0			
	7	2/1				GRAY	F-SAND	SP		0.0			
S-4 1454	8	1/1	1'/2'			↓	↓	↓		0.0	↓		
				~0.8									

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0.0

Remarks: WET 5' - NEGATIVE

Converted to Well: Yes ____ No X Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: MCRD PARRIS ISLAND
PROJECT NUMBER: 0502 CTO 0127
DRILLING COMPANY: RICHARD SIMMONS
DRILLING RIG: CT250 HSA
BORING NUMBER: PA2-49-SB-08
DATE: 6/12/01
GEOLOGIST: BOB BALKOVEC
DRILLER: TOM TAYMURA

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth /Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	1	3/5				DK	SLTY F-SAND	SM		1.0	0.0		
S-1	2	5/4	17"/2'			BR	↓	↓		3.7			
	3	3/3				DK BR	SLTY, CLAYEY SAND	SM	3.4' @ 1550	5.1			
S-2	4	5/7	1.5'/2'			GRAY	↓	SC		4.1			
	5	6/4				GRAY	SLTY SAND	↓		14.0		0.0	0.0
S-3	6	7/8	2'/2'			↓	SLTY CLAY	CL	UV @ 6'	17.1			
	7	10/10				GRAY	F-SAND	SP		16.0			
S-4	8	10/6	2'/2'			TAN GRAY	↓	↓		0.0	↓		
				T.D. 8'									

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0.0

Remarks: UV @ 6' RESULTS ARE NEGATIVE

Converted to Well: Yes _____ No ✓ Well I.D. #: _____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: MCRD PARRIS ISLAND
PROJECT NUMBER: 0502 CTO 0127
DRILLING COMPANY: RICHARD SIMMONS
DRILLING RIG: CT250 HSA
BORING NUMBER: PAI-45-SB-09
DATE: 6/12/01
GEOLOGIST: BOB BALKOVEC
DRILLER: TOM MCKNIGHT

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth /Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	PID/FID Reading (ppm): Remarks	Sample	Sampler BZ	Borehole**	Driller BZ**
							REFER TO PAI-45-TW11						
							FOR COMPLETE LITHOLOGY						
	2												
	3	2/1			SOFT		SILTY, CLAYEY SAND						
S-1	4	3/4	2'										
	9												
	10												
	11	8/8				GRAY	F-SAND			0.0			
S-2	12	4/2	2'			↓	↓			↓			
	13	3/3											
S-3	14	1/1	2'			↓	↓		12:44 E 1615	↓			
	~~16~~												
	~~17~~												
	~~18~~												
	18												
	19	2/2					PEAT W/ CLAY	PT		0.0			
S-4	20	2/2	10"/2'					OH		0.0			
							SHELBY TUBE FROM						
							20-22.5'						

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): ____

Remarks: ____

Converted to Well: Yes ____ No ✓ Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: PARRIS ISLAND
PROJECT NUMBER: 0502
DRILLING COMPANY: COLUMBIA TECHNOLOGY
DRILLING RIG: GEOPROBE 66DT

BORING No.: PAI-45-SB-10
DATE: 3/7/01 - 3/8/01
GEOLOGIST: G GUNTER
DRILLER: R. BRAND

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length FT	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
1	0-4		4			DK Brn	Silty F SAND	SM		0	0	0	0
						to Brn							
									wet@3				
2	4-8		4							0	0	0	0
				7		Gray	F Sandy CLAY	SC					
				8									
3	8-12		4			Brn	Silty F SAND	SM		0	0	0	0
				9		Gray	F SAND	SP					
4	12-16		4							0	0	0	0
				14		DK Gray	Silty F/med SAND	SM					
				16									
5	16-20		4			Gray	F SAND	SP		0	0	0	0
				19		Brn	PEAT	PT	wood Freag.				
				20									
6	20-24		4			Gray	Clayey F/med SAND	CL	Fluorescent Scan-Neg	0	0	0	0
				24									
7	24-28		4			Brn	PEAT	PT	Sand Stringers				

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: Macrocore to 53'. HSA (4¼ ID/8½ OD) to 49 Ft. Grout through augers to surface.

Drilling Area Background (ppm): 0

Converted to Well: Yes ____ No X Well I.D. #: —

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: Parris Island
PROJECT NUMBER: 0502
DRILLING COMPANY: Columbia Technology
DRILLING RIG: Geoprobe 6600T

BORING No.: PAI-45-SB-10
DATE: 3/7/01 - 3/8/01
GEOLOGIST: G. Gunter
DRILLER: R Brand

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
				27									
				28		Gray	Silty F SAND	SM					
8	28-30		2				silty F/Co SAND	SM	6" Clay @ 29.5'	0	0	0	0
				30					Shells				
9	30-34		4			Gray	F/Co SAND w/	SW	Sand Mostly	0	0	0	0
							gravel		Shell Fragments				
10	34-38		3	34		Gray	F SAND	SP	4" Wood Seam @	0	0	0	0
									34'				
				36		Gray	Clayey w/ Some	SC					
							F Sand.						
				38									
11	38-42		4			Gray	F/Co SAND	SW	Shell Fragments	0	0	0	0
				39		Gray Grn	Silty F SAND	SM	Drying out very				
									hard				
				42									
12	42-45		18"			Gray Grn	F/Co SAND	SW	Shell Fragments	0	0	0	0
									wet - hard				
				45									
13	45-49		4			Gray Grn	Clayey F/med SAND	SC		0	0	0	0
				49									
14	49-53		4			Gray Grn	F/med SAND	SP		0	0	0	0

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0

Remarks: _____

Converted to Well: Yes _____ No / Well I.D. #: _____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: Parris Island
PROJECT NUMBER: 0502
DRILLING COMPANY: Columbia Technology
DRILLING RIG: GeoProbe 6610DT

BORING No.: PAI-45-SB-10
DATE: 3/7/01 - 3/8/01
GEOLOGIST: G. GUNTER
DRILLER: R. Brant

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	MATERIAL DESCRIPTION: Color	MATERIAL DESCRIPTION: Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	PID/FID Reading (ppm): Sampler BZ	PID/FID Reading (ppm): Borehole**	PID/FID Reading (ppm): Driller BZ**
							— Trace Clay						
				TD									
				-53-									

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0

Remarks: _____

Converted to Well: Yes _____ No / Well I.D. #: —

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: MCRD PARRIS ISLAND
PROJECT NUMBER: 0502 CTO 0127
DRILLING COMPANY: RICHARD SIMMONS
DRILLING RIG: CT750 HSA
BORING NUMBER: PAZ-45-SB-10
DATE: 6/13/01
GEOLOGIST: BOB BALKOVEC
DRILLER: TOM TOTHUBA

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth /Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
							SEE SB-10 FOR						
							COMPLETE LITHOLOGY						
	10								HSA TO 16'				
	11	6/4				GY	F-SAND	SP		0.0	0.0		
S4 0750	12	3/4	2"/2"			GRAY				0.0			
	13	7/9							16-18' @0755	0.0			
S3 0755	14	10/12	2"/2"							0.0		0.0	0.0
	18												
	19	8/10				LT GRAY	F-SAND W/SOME CLAY	SC		0.0			
S3 0805	20	10/12	2"	~0.20		BLK	PEAT	PT		0.0		0.0	0.0
							PUSH SHELBY TUBE FROM						
							20'-23' @0815						

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0.0

Remarks:

Converted to Well: Yes ____ No X Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: MCRD PARRIS ISLAND
PROJECT NUMBER: 0502 CTO 0127
DRILLING COMPANY: RICHARD SIMMONS
DRILLING RIG: CT 250 HSA
BORING NUMBER: PA2-45-SB-11
DATE: 6/13/01
GEOLOGIST: BOB BALKOVEC
DRILLER: TOM TAKHABA

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth /Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	1	4/8				BLK	F-SAND w/ some SILT	SM		0.0	0.0		0.0
S-1 0904	2	10/6	20"/2"			GRAY	+ T-CLAY	SC		0.0			
	3	6/1				BLK	SILTY F-SAND	SM		0.0			
S-2 0914	4	2/3	2"/2"			↓	↓	↓		0.0			
	5	2/3								0.0		0.0	0.0
S-3 0916	6	5/4	2"/2"							0.0			
	7	12/13				YELL BRN / GRAY	F-SAND	SP		0.0			
S-4 0918	8	13/12	16"/2"							0.0			
	9	7/4				GRAY	F-SAND	SP		0.0			
S-5 0922	10	12/13	14"/1"			↓	↓	↓	8'-10' @ 0925	0.0	0.0	0.0	0.0
	4	2/3			SOFT	DK	CLAYEY SAND	SC		0.0			
S-6 0927	12	1/4	2"/2"			GRAY	↓	↓		0.0			
	13	2/1				DK	F-SAND	SP		0.0			
S-7 0930	14	1/1	2"/2"			GRAY		↓		0.0			
	15	3/3								0.0	0.0	0.0	0.0
S-8 0932	16	1/1	2"/2"			↓	↓	↓		0.0			
	17	1/1					CLAYEY SAND	SC		0.0			
S-9 0934	18	3/4	2"/2"			BLK	PEAT W/ CLAY	PT		0.0			
	19	1/3								0.0			
S-10 0937	20	2/2	2"/2"			↓	↓	↓		0.0	0.0	0.0	0.0
				T.D. 20'			PUSH SHELBY TUBE FROM 20'-23' @ 0945						

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0.0

Remarks:

Converted to Well: Yes ____ No X Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: MCRD PARRIS ISLAND
PROJECT NUMBER: 0502 CTO 0127
DRILLING COMPANY: RICHARD SIMMONS
DRILLING RIG: CT250
BORING NUMBER: PAZ-45-SB-12
DATE: 6/13/01
GEOLOGIST: BOB BALKOVEC
DRILLER: TOM TARKUBA

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth /Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole *	Driller BZ**
	1	3/5				LT	F-SAND W/ SILT	SM		0.0	0.0		
S1 1106	2	6/7	1.5'/2'			BR	ORGANICS	↓		0.0			
	3	5/4		0' RECOVERY			0 RECOVERY PIECE OF						
S2 1109	4	3/3	0/2'				ROOT IN SPOON NOSE						
	5	6/6				YELL OR + GRAY	F-SAND	SP		0.0			
S3 1111	6	8/7	2'/2'			↓	↓	↓		0.0			
	7	6/6					F-SAND			0.0			
S4 1114	8	4/3	2'/2'			↓	↓	↓		0.0			
	9	3/2								0.0			
S5 1122	10	2/3	2'/2'			↓	↓	↓	8'-10' @ 1123	0.0		0.0	0.0
	11	1/1								0.0			
S6 1124	12	1/1	2'/2'							0.0			
	13	1/1								0.0			
S7 1126	14	6/6	2'/2'			↓	↓	↓		0.0			
	15	1/1				KELLER + GRAY	F-SAND	SP		0.0			
S8 1130	16	3/3	2'/2'			BLK	0.0'-0.6' CLAY + PEAT	PT		0.0			
	17	1/2				BLK +	CLAY + PEAT	PT		0.0			
S9 1133	18	2/1	2'/2'			BLUE GRAY	↓	OH		0.0	↓		
				TD 18'			PUSH SHELBY TUBE FROM 18'-21'						

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0.0

Remarks:

Converted to Well: Yes ____ No X Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

Page 1 of 1

PROJECT NAME: MCRD PARRIS ISLAND
PROJECT NUMBER: 0502 CTO 0127
DRILLING COMPANY: RICHARD SIMMONS
DRILLING RIG: CT 250 HSA
BORING NUMBER: PAI-45-SB-13
DATE: 6/13/01
GEOLOGIST: BOB BALKOVEC
DRILLER: TOM TORTUGA

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth /Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	1						HAND AUGERED TO 4.5'	SM	4 FOOT CHECK	0.0	0.0		
	2					LT BR	F-SAND W/ SILT						
	3					GRAY							
	4						CLAYEY F-SAND	SC					
	5	4/5				GRAY	F-SAND	SP					
S-1 1316	6	6/6	2"/2"							0.0		0.0	0.0
	7	4/6						SP		0.0			
S-2 1319	8	6/7	2"/2"							0.0			
	9	4/3								0.0			
S-3 1321	10	3/2	2"/2"						8-10' @ 1323	0.0			
	11	2/3								0.0			
S-4 1324	12	2/1	2"/2"							0.0			
	13	2/2								0.0			
S-5 1327	14	3/3	2"/2"			DK GRAY	SILTY SAND (FILL)	SM		0.0			
	15	2/2					SILTY, CLAYEY SAND	SM/SC		0.0			
S-6 1330	16	2/4	2"/2"			BLK	PEAT	PT		0.0			
	17									0.0			
S-7 1333	18		2"/2"							0.0			
				TD 18'			PUSH SHELBY FROM 18-21' @ 1355						

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0.0

Remarks:

Converted to Well: Yes ____ No X Well I.D. #: ____

BORING LOG

Tetra Tech NUS, Inc.

PROJECT NAME/No.: PARRIS ISLAND N0502 | BORING NO.: PA2-45-TW-01
GEOLOGIST: BOB BALKOVEC | DATE START: 3-22-01
DRILLER/Co.: COLUMBIA | GEOLOGIST:
DRILLING RIG: AFV GEOPROBE | DRILLER: R. BRAND

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS*	Time	Remarks	PID/FID Reading (ppm)
	1					BLK	TOP 14" SAND + SILT	SM			0.0
	2						↓	↓			
	3					BR	BOTT 22" SILTY V.F. SAND	SM			
S-1	4		3'-4'				↓				↓
	5					BR	TOP 6" SILTY V.F. SAND				0.0
	6							↓			
	7					GR	BOTT 2' CLAYEY SILT	ML			
S-2	8		2.5'-4'			GRAY	↓	↓			↓
	9					LT	TOP 3" SILTY V.F. SAND	SM			0.0
	10					GRAY	↓	↓		WELL @ 10'	
	11					GR	BOTT 6" CLAYEY SILT			WELL @ 11'	
S-3	12		3.5'-4'			GRAY	↓	SM			↓
	13					LT GRAY	TOP 2' SILTY V.F. SAND				0.0
	14					↓	↓	↓		UV TEST @ 15'	
	15					GR GRAY	CLAYEY SILT	ML		WELL @ 15'	
S-4	16		3.5'-4'			GR		↓			↓
	17					GRAY	SILTY CLAY	CH			0.0
	18										
	19										
S-5	20		4'-4'			↓	↓	↓			↓
				T.D. 20'							

* When rock coring, enter rock brokeness.

Background (ppm): 0.0

Remarks: UV TEST @ 15' = NEGATIVE RESULT

Converted to Well: Yes ____ No X Well I.D. #: ____

BORING LOG

Tetra Tech NUS, Inc.

PROJECT NAME/No.: PARRIS ISLAND 0502 — BORING NO.: PAI-45-TW-02
GEOLOGIST: BOB BALKOVEC — DATE START: 3-27-01
DRILLER/Co.: COLUMBIA — GEOLOGIST:
DRILLING RIG: ATV GEOPROBE — DRILLER: R. BRAND

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS*	Time	Remarks	PID/FID Reading (ppm)
	1					DLK	TOP 22" SAND & SILT	SM			0.0
	2							↓			
	3					GRAY	BOT 14" SLTY F SAND	SM			
S-1	4		3/4'			↓					
	5					GRAY	SLTY F. SAND				0.0
	6										
	7										
S-2	8		4/4'			TAN GR					
	9					GRAY	SLTY F. SAND			WELL @ (DRY)	0.0
	10					↓	↓	↓		HV TEST @ 10'	
	11				SOFT	GR	SLTY CLAY	CL		HAD TO RE-SET @ 10'	
S-3	12		4/4'			GRAY					
	13					↓	TOP 6" SLTY CLAY	↓			0.0
	14					LT	SLTY VF. SAND	ML			
	15					GRAY					
S-4	16		4/4'			↓	↓	↓		WELL @ 16'	
	17					GR	SLTY CLAY	CH			0.0
	18					GRAY					
	19										
S-5	20		4/4'			↓		↓			
				TD-20'							

* When rock coring, enter rock brokeness.

Background (ppm): 0.0

Remarks: HV TEST @ 10' NEGATIVE RESULT

Converted to Well: Yes _____ No ✓ Well I.D. #: _____

BORING LOG

Tetra Tech NUS, Inc.

Page 1 of 1

PROJECT NAME/No.: PARRIS ISLAND 0502 — BORING NO.: PAI-45-TW-03
GEOLOGIST: — DATE START: 3/22/01
DRILLER/Co.: COLUMBIA — GEOLOGIST: BOB BALKOVEC
DRILLING RIG: ATV GEOPROBE — DRILLER: R. BRAND

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS	Time	Remarks	PID/FID Reading (ppm)
	1					BLK	TOP 13" SILT AND SAND	SM			0.0
	2						W/ SHELLS + GRASS	↓			
	3					GRAY	BOTT 15" SILTY V.F. SAND	SM		SATURATION @ 4'	
S-1	4		38"				↓			WET @ 5'	
	5					GRAY	SILTY F. SAND				0.0
	6										
	7										
S-2	8		33"			YELL BRN				WET @ 8'	
	9					GRAY	3" SILTY V.F. SAND				0.0
	10										
	11										
S-3	12		4'		SOFT	GR GRAY	1" SILTY CLAY	CL			
	13						SILTY V.F. SAND	SM			0.0
	14										
	15										
S-4	16		3.5'								
	17					GR GRAY	SILTY V.F. SAND			WET @ 17'	0.0
	18					BLK	PEAT VERY CLAYEY	PT			
	19							OH		UV TEST @ 18'	
S-5	20		2'								
				TD 20'							

* When rock coring, enter rock brokeness.

Background (ppm): 0.0

Remarks: POOR RECOVERY ON 16-20' UV TEST @ 18' NEGATIVE RESULT

Converted to Well: Yes ____ No X Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

Page 1 of 1

PROJECT NAME: MCRD PARRIS ISLAND
PROJECT NUMBER: N0502
DRILLING COMPANY: COLUMBIS TECHNOLOGIES
DRILLING RIG: ATV GEOPROBE
BORING NUMBER: PA2-45-TW-04
DATE: 4/10/01
GEOLOGIST: BOB BALKOVEC
DRILLER: RANDY BRAND

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth /Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	1					BR	1' SILTY F-SAND	SM		0.0	0.0		0.0
	2						18" F. SAND	SP					
	3						↓						
S-1	4		30" / 4'			LT BR	6" F-SAND						
	5					LT	F. SAND W/	SP		0.0			
	6					GRAY	SOME SILT		WELL @ 6' (2-6')				
	7						↓						
S-2	8		18" / 4'									0.0	
	9					LT	SILTY SAND	SM		0.0			
	10					GRAY							
	11												
S-3	12		36" / 4'										
	13					GRAY	TOP 6" SILTY CLAY	CL		0.0			
	14						18" SILTY CLAY/CLAY	CL	WELL @ 14' (WET)				
	15						2' CLAY						
S-4	16		4' / 4'				CLAY	OH	HIGH PLASTICITY				
	17						CLAY			0.0			
	18												
	19												
S-5	20		4' / 4'				BOTT 1' CLAYEY SAND W/	SC					
				T.D. 20'			SHELL FRAGS						

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0.0

Remarks: P20 MALFUNCTION. U.V-F TEST @ (NEGATIVE)

Converted to Well: Yes _____ No X Well I.D. #: _____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: MCRD PARRIS ISLAND
PROJECT NUMBER: N0502
DRILLING COMPANY: COLUMBIA TECHNOLOGIES
DRILLING RIG: ATV GEOPROBE

BORING NUMBER: PA2-45-TW-05
DATE: 4/3/01
GEOLOGIST: BOB BALKOVEC
DRILLER: DANNY BRAND

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth /Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole*	Drillers BZ**
	1					BR	SLTY F-SAND	SM		0.0	0.0		0.0
	2												
	3								WET 7'				
S1 1342	4		30" / 4'						WET 3.5'				
	5					BLK	TOP 2" CLAYEY SILT	ML	STRONG ODOR	341	0.0	472	0.0
	6								W/ BLK MATERIAL	70			
	7					GRAY	BOTT 13"			41			
S2 1347	8		34" / 4'							62			
	9					GR	TOP 23" SLTY CLAY	CL		78	0.0		0.0
	10					GRAY				64			
	11					GRAY	BOTT 15" SLTY F-SAND	SM		20			
S3 1351	12		38" / 4'							11			
	13					GRAY	SLTY F-SAND			0.0	0.0		0.0
	14												
	15												
S4 1355	16		37" / 4'										
	17					GR. GRAY	CLAYEY SD	SC		0.0	0.0		0.0
	18						SLTY F-SAND						
	19							SM					
S5 1358	20		32" / 4'						TWL 20'			13.1	
	21					BR/BLK	TOP 3" SLTY F. SAND			0.0	0.0		0.0
	22					BLK	21" CLAYEY PEAT	PT					
	23								AUGERED 24'				
S6 1414	24		3.5" / 4'			GRAY	BOTT 1.5' CLAY & WOOD	OH	HIGH PLASTICITY	0			
	25					DK GRAY	CLAYEY PEAT			400			

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: U.V. FLUOR @ 5-10', TRACE READINGS

Drilling Area Background (ppm): 0.0

Converted to Well: Yes _____ No X Well I.D. #: _____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: MCRD PARRIS ISLAND
PROJECT NUMBER: N0502
DRILLING COMPANY: COLUMBIA TECHNOLOGIES
DRILLING RIG: ATV GEOPROBE
BORING NUMBER: PAI-45-TW-05
DATE: 4/3/01
GEOLOGIST: BOB BALKOVEC
DRILLER: RANDY BRAND

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth /Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sample B.Z.	Borehole**	Drillar B.Z.**
	26					BLK	6" CLAYEY PEAT			400	0.0	0.0	0.0
	27					GRAY	CLAY T-STIFF,	OH	HIGH PLASTICITY	0.0	↓	-	↓
S-7 1514	28		38 4'			↓	WOOD FIBERS	↓		↓	↓	-	↓
	29					GRAY	CLAY T WOOD FIBERS	OH	U.V. F TEST.	145	0.0	-	0.0
	30					↓		↓		↓	↓	-	↓
	31					GR	STIFF F-SAND T CLAY	SC		0.0	↓	-	↓
S-8 1531	32		4' 4'			GRAY	↓	↓		↓	↓	40	↓
				TD 35'									
							WELL PROBE TW TO 34'		WELL @ 34'				

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area
Background (ppm): 0.0

Remarks: U.V. FLUORESCENCES @ 29' - TRACE READINGS.

Converted to Well: Yes ____ No X Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: MCRD PARRIS ISLAND
PROJECT NUMBER: N0502
DRILLING COMPANY: COLUMBIS TECHNOLOGIES
DRILLING RIG: ATV GEOPROBE
BORING NUMBER: PA-45-TW-06
DATE: 4/10/01
GEOLOGIST: BOB BALKOVEC
DRILLER: RANDY BRAND

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth /Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sample: BZ	Borehole**	Driller: BZ**
	1					LT	F. SAND T-SLLT	SP		0.0	0.0		0.0
	2					BRN							
	3					BRN							
S-1	4		38" / 4'			↓	↓	↓		↓		0.0	↓
	5					LT	TOP 14" F. SAND T-SLLT	SP		0.0			0.0
	6					BRN		SM	TW-6 (2-6)				
	7					LT.	BOTTOM F. SAND	SP					
S-2	8		38" / 4'			GRAY	↓	↓		↓			↓
	9					↓	TOP 1" F. SAND	↓		0.0			0.0
	10					LT GRY	14" SLTY CLAY	CL					
	11					DRK GRY	↓						
S-3	12		4' / 4'			LT GRAY	22" SLTY SAND	SM				0.0	
	13					LT	8" F. SAND	SP		0.0			0.0
	14					GRAY							
	15												
S-4	16		17" / 4'			↓	↓	↓		↓			↓
	17					GRAY	SLTY F. SAND	SM		0.0			0.0
	18					↓		↓	TW-18 (14-18')				
	19					GRAY	CLAY	CH	HIGH PLASTICITY				
S-5	20		46" / 4'			DRK GRY	CLAYEY PEAT	PT		↓	↓		↓
				T.D. 20'									

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0.0

Remarks: _____

Converted to Well: Yes _____ No ✓ Well I.D. #: _____

BORING LOG

Tetra Tech NUS, Inc.

PROJECT NAME/No.: PARRIS ISLAND
GEOLOGIST: BOB BALLOUARD
DRILLER/Co.: COLUMBIA
DRILLING RIG: ATV GEOPROBE

BORING NO.: PAI-45-TW-07
DATE START: 3-21-01
GEOLOGIST:
DRILLER: R. BRAND

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS*	Time	Remarks	PID/FID Reading (ppm)
	1			0-0.50		BLK	TOP 3" ASPHALT	SM			0.0
	2					BR	14" SANDY SILT	↓			
	3					TAN/	BOTT 19" SILTY V.F. SAND	ML			
S-1	4		3"/4"			OR	↓				
	5						SILT				0.0
	6										
	7					↓					
S-2	8		3"/4"			LT					
	9					GRAY					0.0
	10					↓	↓	↓		UV TESTED 10'	
	11				SOFT	GR	SILTY CLAY	CL			
S-3	12		4"/4"		↓	GRAY	↓	↓			
	13					LT	TOP 21" SILT	ML			0.0
	14					BR					
	15					OL	BOTT 21" SILT				
S-4	16		4"/4"			GRAY		↓			
	17					-	WOOD FIBERS + PEAT	PT			0.0
	18					-		↓			
	19					GR	CLAY	CH		HIGH PLASTICITY	
S-5	20		17"/4"	T.D. 20'		GRAY		↓			

* When rock coring, enter rock brokeness.

Background (ppm): 0.0

Remarks: UV TEST @ 10' NEGATIVE RESULT

Converted to Well: Yes ____ No X Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: MCRD PARRIS ISLAND
PROJECT NUMBER: N0502
DRILLING COMPANY: COLUMBIA TECHNOLOGIES
DRILLING RIG: ATV GEOPROBE
BORING NUMBER: PA2-45-TW-08
DATE: 4/3/01
GEOLOGIST: BOB BALKOVEC
DRILLER: RANDY BRAND

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth /Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS*	Remarks	PID/FID Reading (ppm): Sample	Sample BZ	Borehole**	Driller BZ**
	26					BLK	TOP 1" CLAYEY PEAT	PT		368	0.0		0.0
	27					GRAY	BOTTOM SILTY CLAY	OH		21	↓		↓
S-7 0925	28		37" 4'			↓	↓	↓		11	↓	.9	↓
	29					GR.	SILTY FINE SAND	SM	SET TW @ 32'	0.0	0.0	0.0	0.0
	30					GRAY			SCREENED 28-32'				
	31												
S-8 0944	32		39" 4'										
				T.D. 32'									

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: U.V. FLUORESCENCE @ 26' - RESULTS NEGATIVE

Drilling Area Background (ppm): 0.0

Converted to Well: Yes ____ No X Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: MCRD PARRIS ISLAND
PROJECT NUMBER: N0502
DRILLING COMPANY: COLUMBIA TECHNOLOGIES
DRILLING RIG: ATV GEOPROBE
BORING NUMBER: PAI-45-TW-08
DATE: 4/3/01
GEOLOGIST: BOB BALKOVEC
DRILLER: RANDY BRAND

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth /Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	1					DK/BR	SILTY F/M SAND	SM		0.0	0.0		0.0
	2						T-ORGANIZES						
	3									1.8			
S-1 0749	4		1' / 4'										
	5						6" SILTY V.F. SAND	ML		76	0.0		0.0
	6					BLKH	CLAYEY SILT		STRONG FEUL ODOR	746			4
	7					BLK			WET @ 5'	410			
S-2 0752	8		4' / 4'			GRAY	SILTY F. SAND	SM	TW @ 8'	210		448	
	9									118	0.0		0.0
	10									180			
	11									110			
S-3 0758	12		3.5' / 4'							78		410	
	13					GRAY	SILTY F. SAND			98	0.0		
	14									100			
	15									24			
S-4 0805	16		38" / 4'			GR GRAY	BOTT 6" FINE SAND T-SILT	SP		20		376	
	17						SILTY F/M SAND	SM		11	0.0		
	18									14			
	19								TW @ 19'	17			
S-5 0810	20		3' / 4'			BR	BOTT 1' CLAYEY PEAT	PT		2.8		220	
	21						≈ 1.5' SLUMP			-	0.0	-	0.0
	22									-		-	
	23					GR	CLAYEY FINE SAND	SC		22		-	
S-6 0818	24		2.5' / 4'			GRAY			AUGER TO 24'	21		-	
	25					BLK	TOP 1' PEAT-CLAYEY	PT		-			

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: U.V. FLOURESCENCES @ 5-14' - RESULTS POSITIVE THROUGHOUT (TRACE)
GW SAMPLES @ 8', 19', 32'

Drilling Area Background (ppm): 0.0

Converted to Well: Yes ____ No X Well I.D. #: ____

BORING LOG

Tetra Tech NUS, Inc.

Page 1 of 1

PROJECT NAME/No.: PARRIS ISLAND 0502 — BORING NO.: PAI-45-TW-04
GEOLOGIST: BOB BALMOVER — DATE START: 3-21-01
DRILLER/Co.: COLUMBIA — GEOLOGIST:
DRILLING RIG: ATV GEOPROBE — DRILLER: R. BOAND

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Time	Remarks	PID/FID Reading (ppm)
	1					BLK	3" ASPHALT	SM			0.0
	2					TAN	5" SILTY AND SAND	↓			
	3					LT.	20" SILTY V.F-SAND	ML			
S-1	4		20"/4"			GRAY	W/3" CLAY LAYER			UV TEST @ 4'	
	5					DK BRN	1" SANDY PEAT				0.0
	6					GRAY	2" SILTY V.F-SAND				
	7										
S-2	8		4"/4"								
	9					DK BRN	TOP 6" SILTY PEAT	PT			0.0
	10					BLK	↓	↓			
	11					LT. GRAY	28" SILTY V.F-SAND	ML			
S-3	12		4"/4"		SOFT	GR GRAY	BOT 14" SILTY CLAY	CL			
	13					LT	SILTY V.F-SAND	ML			0.0
	14					GRAY					
	15					DK					
S-4	16		4"/4"			GRAY					
	17					BLK	TOP 28" PEAT	PT			0.0
	18										
	19					GR	BOT 5" CLAY	OH		HIGH PLASTICITY	
S-5	20		33"/4"			GRAY					
				TD, 20'							

* When rock coring, enter rock brokeness.

Background (ppm): 0.0

Remarks: UV TEST @ 4' NEGATIVE RESULT.

Converted to Well: Yes ____ No X Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: MCRD PARRIS ISLAND
PROJECT NUMBER: N0502
DRILLING COMPANY: COLUMBIA TECHNOLOGIES
DRILLING RIG: ATV GEOPROBE
BORING NUMBER: PAI-45-TW-10
DATE: 4/4/01
GEOLOGIST: BOB BALKOVEC
DRILLER: RANDY BRAND

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth /Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sample: BZ	Borehole*	Drillar: BZ**
	1					BR	ONLY 6" RECOVERY	NL		0.0	0.0		0.0
	2					↓	SANDY SILT T-	↓		↓	↓		↓
	3						ORGANICS						
S-4 0744	4		6/1 4'			↓		↓		↓	↓		
	5					BR	TOP 36" SILT W/ T- CLAY	NL		1.2	0.0	1.4	
	6					GRAY	↓	↓	WELL 6'	1.4	↓		
	7					MOTTLED ORG	BOTTOM SILTY F. SAND	SM	TWP 7'	2.0			
S-2 0749	8		4' 4'			GRAY	↓	↓		2.1	↓	2.1	
	9					GRAY	SILTY F. SAND				0.0		
	10					↓	↓	↓		↓	↓		
	11												
S-3 0755	12		36" 4'			↓		↓			↓		
	13					LT	FINE SAND	SP		3.3	0.0		
	14					GRAY				2.9			
	15					↓		↓		1.7		0.0	
S-4 0802	16		36" 4'			↓		↓	TWP 16'	2.1	↓		
	17					GRAY	SILTY CLAY	CL		0.0	0.0		
	18					↓	↓	↓		0.0	↓		
	19					SOFT	BOTTOM CLAYEY PEAT	PT		7.9			
S-5 0820	20		4' 4'			BLK	↓	↓		1.0	↓		
	21					GRAY	CLAY T- SILT	CH	HIGH PLASTICITY	0.0	0.0		
	22					GRAY	+ WOOD FIBERS						
	23												
S-6 0830	24		4' 4'			↓		↓	WELL AUGER TO 24'	↓	↓		
	25					LT GRAY	6" F-SAND	SP	0927	0.0	↓		↓

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0.0

Remarks: U.V.F TESTING @ 19' - NEGATIVE RESULTS

Converted to Well: Yes _____ No _____ Well I.D. #: _____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: MCRD PARRIS ISLAND
PROJECT NUMBER: N0502
DRILLING COMPANY: COLUMBIA TECHNOLOGIES
DRILLING RIG: ATV GEOPROBE
BORING NUMBER: PAI-45-TW-10
DATE: 4/4/01
GEOLOGIST: BOB BALKOVEC
DRILLER: RANDY BRAND

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth /Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color #	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	26					BLK	4" CLAYEY PEAT	PT		2.0	0.0		0.0
	27					GR	CLAY & SILT	CH		↓	↓		↓
S-7 0946	28		40" / 4"			GRAY		↓					
	29					GR	F-SAND W/ SHELL	SP		0.0	0.0		0.0
	30					GRAY	FRAGMENTS			↓	↓		↓
	31					↓	↓						
S-8 1004	32		4" / 4"			↓	↓	↓	TWP 32'	↓	↓	0.0	↓
				T.D. 32'									

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0.0

Remarks: _____

Converted to Well: Yes _____ No X Well I.D. #: _____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: Parris Island
PROJECT NUMBER: 0502
DRILLING COMPANY: Columbia Technology
DRILLING RIG: GeoProbe 66DT

BORING No.: PAI-45-TW-11
DATE: 3/12/01
GEOLOGIST: G. Gunter
DRILLER: R. Brand

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows/6" or RQD (%)	Sample Recovery / Sample Length (FT)	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS*	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
1	0-4		2			DK Brn to Gray	Silty F SAND	SM		0	0	0	0
2	4-8		4						wet	0	0	0	0
				8									
3	8-12		4	9		Gray	CLAY	CL		0.4	0	9.4	0
						Gray	F/med SAND	SP					
4	12-16		3							4.9	0	1.6	0
				16									
5	16-20		4			Gray	clayey F/Co SAND	SC	Fluorescent Neg. Scan	9.5	2.5	1.7	0
				20									
6	20-24		4	21		DK Brn	PEAT	PT	Organics	0	0	0	0
						DK Gray	CLAY w/Organics	OL	Fluorescent Scan Neg				
7	24-28		4							0	0	0	0

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0

Remarks: MACRO Core to 32, HSA (4¼ ID/8½ OD) to 28
Boring Abandoned by Grouting through augers & pressure grout DPT.

Converted to Well: Yes ____ No X Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: Parris Island
PROJECT NUMBER: 0502
DRILLING COMPANY: Columbia Tech.
DRILLING RIG: Geoprobe 66DT

BORING No.: PAI-45-TW-11
DATE: 3/12/01
GEOLOGIST: G. Gunter
DRILLER: R. Brand

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm) Sample	Sampler BZ	Borehole**	Driller BZ**
				26									
						Gray	Clayey F/med SAND	SC					
				28									
3	28-32		6"			Gray	F SAND	SP	No Sand Ring	0	0	0	0
				32									

* When rock coring, enter rock brokeness.
** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks:

Drilling Area Background (ppm): 0.0

Converted to Well: Yes ____ No ____ Well I.D. #: ____

BORING LOG

Tetra Tech NUS, Inc.

Page 1 of 1

PROJECT NAME/No.: PARRIS ISLAND N0509 — BORING NO.: PA2-45-TW-12
GEOLOGIST: BOB BALKOVEC — DATE START: 3/20/01
DRILLER/Co.: COLUMBIA — GEOLOGIST:
DRILLING RIG: ATV GEOPROBE — DRILLER: R. BRAND

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS*	Time	Remarks	PID/FID Reading (ppm)
	1					BLK	3" ASPHALT	SM			0.0
	2					BR	7" SLTY SAND	↓			
	3					TAN	23" SLT	ML			
S-1	4		33"			↓	↓				
	5					TAN	TOP 14" SLT				0.0
	6						↓			UV TESTING 6"	
	7					LT	BOTT 22" SLT				
S-2	8		3'			GRAY	↓				
	9					LT	TOP 34" SLT				0.0
	10					GRAY	↓				
	11					GR	BOTT 14" SLTY CLAY	CL			
S-3	12		4'			GRAY	↓	↓			
	13					TAN	TOP 6" SLT	ML			0.0
	14					GR	BOTT 42" SLT W/				
	15					GRAY	1-2 SAND				
S-4	16		4'								
	17					GRY	TOP 27" SLT				0.0
	18					GRAY	↓	↓			
	19					BLK	BOTT 27" PEAT W/	PT			
S-5	22		4'				7" CLAY ON BOTTOM	OH			

* When rock coring, enter rock brokeness.

Remarks: 8', 17' UV TESTING 6" NEGATIVE RESULT

Background (ppm): 0.0

Converted to Well: Yes ____ No X Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: MCRD PARRIS ISLAND
PROJECT NUMBER: N0502
DRILLING COMPANY: COLUMBIS TECHNOLOGIES
DRILLING RIG: ATV GEOPROBE

BORING NUMBER: PA2-45-MW-13
DATE: 4/10/01
GEOLOGIST: BOB BALKOVEC
DRILLER: RANDY BRAND

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth /Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS*	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	1					LTBR	1.5' F-SAND W/T-	SP		0.0	0.0		0.0
	2					↓	SILT	↓					
	3					BLK	4" SAND W/ CINDERS	SM					
S-1	4		46" / 4'			BRN/ TAN	36" F-SAND	SP			0.0	0.0	
	5					TAN	F-SAND			0.0			
	6					↓			TW-16				
	7					TAN							
S-2	8		4' / 4'			GR							
	9					LT.	F-SAND	SP		0.0			
	10					GRAY							
	11												
S-3	12		4' / 4'			↓	T-SILT				0.0	0.0	
	13					LT.	F-SAND			0.0			
	14					GRAY							
	15												
S-4	16		4' / 4'			↓							
	17					GRAY	1" SILTY SAND	SM		0.0		0.0	
	18					↓	.5' CLAYEY SAND	CL	TW-15				
	19					↓	.5' CLAY	OH	HIGH PLAST.				
S-5	20		3' / 4'			BLK	CLAYEY PEAT	PT					
				T.D. 20'									

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: UV-F TESTED W/ NEGATIVE

Drilling Area Background (ppm): 0.0

Converted to Well: Yes _____ No X Well I.D. #: _____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: Parris Island
PROJECT NUMBER: 0502
DRILLING COMPANY: Columbia Tech
DRILLING RIG: Geoprobe 66DT

BORING No.: PAF-45-TW-14
DATE: 3/13/01
GEOLOGIST: G Gunter
DRILLER: R. Brand

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length FT	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
1	0-4		4			Blk	Si F/co SAND	SM	FILL	0	0	0	0
							w/ Gravel						
									wet@3				
				3		Brn	Si F/med SAND	SM	Sediment				
2	4-8		2.5			to Gray				0	0	0.3	0
				8									
3	8-12		3	9		Gray	CLAY	CL	Fluorescent Sean Neg	0	0	0	0
				10		Gray	clayey F SAND	SC					
						LT to							
						DK Gray	F/med SAND	SP					
4	12-16		4	13		DK Gray	Sl. clayey F/med	SC		0	0	0	0
							SAND						
5	16-20		4	17						0	0	0	0
				17.5		DK Gray	CLAY	CL					
						BLK to	PEAT	PT	Wood Frag				
						Brn							
				20									
6	20-24		4			Gray	CLAY	CL		0	0	0	0
									becoming more				
									Sandy Last Foot				
				24									
7	24-28		4			Gray	F/med Sandy CLAY	CL		0	0	0	0

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0

Remarks: MACRO CORE Sampler & HSA (4 1/4 ID / 8 1/2 OD)
Boring Grouted to surface Through Augers ; HSAs to 25 FT

Converted to Well: Yes ____ No X Well I.D. #: —

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: Parris Island
PROJECT NUMBER: 0502
DRILLING COMPANY: Columbia Tech
DRILLING RIG: GeoProbe 66DT

BORING No.: PAT-45-TW-14
DATE: 3/13/01
GEOLOGIST: G. Gunter
DRILLER: R. Brand

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sample BZ	Borehole**	Driller BZ**
				26									
						Gray	F/med SAND	SP	very wet				
				28									

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0

Remarks:

Converted to Well: Yes ____ No X Well I.D. #: ____

BORING LOG

Tetra Tech NUS, Inc.

Page 1 of 1

PROJECT NAME/No.: PARRIS ISLAND
GEOLOGIST: BOB BALKOVEC
DRILLER/Co.: COLUMBIA
DRILLING RIG: ATV GEOPROBE

BORING NO.: PAI-45-TW-15
DATE START: 3-22-01
GEOLOGIST:
DRILLER: R. BRAND

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	MATERIAL DESCRIPTION: Color	MATERIAL DESCRIPTION: Material Classification	USCS*	Time	Remarks	PID/FID Reading (ppm)
	1					ASPH	TOP 3" ASPHALT	SM			0.0
	2					↓	10" SAND + SILT	↓			
	3					BR	3½" SILT W/ V.F. SAND	ML			
S-1	4		47" / 4'			↓	↓				↓
	5					BR	SILT W/ V.F. SAND				0.0
	6										
	7										
S-2	8		7" / 4'								
	9					GY	SILT W/ V.F. SAND				0.0
	10					GRAY	↓			TW @ 10'	
	11					↓					
S-3	12		3.5" / 4'			↓	↓				↓
	13					GY					0.0
	14					GRAY					
	15							↓		UV TEST @ 15'	
S-4	16		39" / 4'			DK GRAY	BOTTOM SILTY CLAY	CL			↓
	17						CLAYEY SILT	ML			0.0
	18					↓	↓	↓		TW @ 18'	
	19					BLK	PEAT W/ CLAY	PT			
S-5	20		3.5" / 4'					↓			↓
				TD 20'							

* When rock coring, enter rock brokeness.

Background (ppm): 0.0

Remarks: UV TEST @ 15' NEG. RESULT

Converted to Well: Yes _____ No X Well I.D. #: _____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: MCRD PARRIS ISLAND
PROJECT NUMBER: N0502
DRILLING COMPANY: COLUMBIS TECHNOLOGIES
DRILLING RIG: ATV GEOPROBE

BORING NUMBER: PA2-45-TW-16
DATE: 4/10/01
GEOLOGIST: BOB BALKOVEC
DRILLER: RANDY BRAND

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth /Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole*	Driller BZ**
	1					LT BRO	14" F. SAND	SP		0.0	0.0		0.0
	2					BLK	4" SAND + GRAVELS	GM					
	3						25" F. SAND w/ T-STRK	SP					
S-1	4		4"/4"									0.0	
	5					GRAY	F. SAND	SP		0.0			
	6								TW @ 6'				
	7												
S-2	8		38"/4"										
	9					LT GRAY	F. SAND			0.0			
	10					GRAY							
	11												
S-3	12		28"/4"									0.0	
	13					LT GRAY				0.0			
	14					GRAY							
	15					GRAY	STRK F. SAND	SM					
S-4	16		4"/4"										
	17					GRAY	WP 3"			0.0			
	18												
	19						6" CLAY	CH	TW @ 19'				
S-5	20		4"/4"			BLK	6" CLAYEY PEAT	PT					
				TD 20'									

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0.0

Remarks: TW TEST @ 19' (NEGATIVE)

Converted to Well: Yes _____ No X Well I.D. #: _____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: MCRD PARRIS ISLAND
PROJECT NUMBER: N0502
DRILLING COMPANY: COLUMBIA TECHNOLOGIES
DRILLING RIG: ATV GEOPROBE
BORING NUMBER: PAI-45-TW-17
DATE: 4/9/01
GEOLOGIST: BOB BALKOVEC
DRILLER:

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth /Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	1					WHT	TOP 6" ASPHALT + CONCRETE	GM		0.0			
	2					LT BR	BOTT 37" F-SAND	SP					
	3					GRAY							
S-1 1330	4		39" / 4'										
	5					LT	FINE SAND	SP	TW @ 6'	0.0			
	6					GRAY							
	7												
S-2 1336	8		41" / 4'										
	9					LT	TOP 18" F-SAND	SP		0.0			
	10					GRAY			UV @ 10' (neg)				
	11				SOFT	GRAY	BOTT 30" SILTY CLAY TO	CL					
S-3 1345	12		4' / 4'				SANDY SILT	ML					
	13					GRAY	SILTY SAND	SM		0.0			
	14												
	15												
S-4 1354	16		4' / 4'				BOTT 8" CLAY	CL	MOD PLASTICITY				
	17					GRAY	F. SAND T. SILT	SP		0.0			
	18												
	19												
S-5 1406	20		46" / 4'						NO PEAT!				
	21					GRAY	TOP 11" F-SAND T-SILT	SP	TW @ 21'	0.0			
	22						2' SANDY CLAY	CL					
	23												
S-6 1420	24		4' / 4'			LT GRAY	13" F. SAND	SP					
				T.D. 24'									

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks:

Drilling Area Background (ppm):

Converted to Well: Yes _____ No _____ Well I.D. #: _____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: MCRD PARRIS ISLAND
PROJECT NUMBER: N0502
DRILLING COMPANY: COLUMBIA TECHNOLOGIES
DRILLING RIG: ATV GEOPROBE
BORING NUMBER: PAI-45-TW-18
DATE: 4/5/01
GEOLOGIST: BOB BALKOVEC
DRILLER: RANDY BRAND

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth /Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole *	Driller BZ**
	1					LT	FINE SAND	SP		0.0	0.0		0.0
	2					BR							
	3					YEL							
S-1 1252	4		30" / 4'			OR						0.0	
	5					LT	FINE SAND	SP	WET @ 5'	0.0			
	6					GRAY							
	7					LT			TW @ 8'				
S-2 1256	8		46" / 4'			BR							
	9					LT BRN	TOP 2' F. SAND			0.0			
	10					GRAY							
	11				SOFT	GRAY	BOT 2' SILTY CLAY TO ...	CL	NOT VERY PLASTIC				
S-3 1302	12		48" / 4'			↓	SANDY SILT	ML	(MINERAL)				
	13					GRAY	SILTY / CLAYEY SAND	SM		0.0			
	14												
	15							SC					
S-4 1308	16		36" / 4'									0.0	
	17					GRAY	SILTY SAND	SM		0.0			
	18								TW @ 19'				
	19					BLK	CLAYEY PEAT	PT					
S-5 1313	20		48" / 4'			BR							
	21			TD. 20'									
	22												
	23												
	24												

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0.0

Remarks: H.V.P TESTING @ 19' - RESULTS NEGATIVE

Converted to Well: Yes ____ No X Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: MCRD PARRIS ISLAND
PROJECT NUMBER: N0502
DRILLING COMPANY: COLUMBIA TECHNOLOGIES
DRILLING RIG: ATV GEOPROBE
BORING NUMBER: PAI-45-TW-19
DATE: 4/5/01
GEOLOGIST: BOB BALKOVEC
DRILLER: RANDY BRAND

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth /Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sample BZ	Borehole**	Driller BZ**
	1					OR/	F-SAND	SP		0.0	0.0		0.0
	2					BR							
	3												
S-1 1010	4		35" 4'									0.0	
	5					LT	F-MEDSAND	SP		0.0			
	6					BR	T-SILT						
	7								WET				
S-2 1014	8		36" 4'										
	9					LT	F-SAND T-SILT	SP		0.0			
	10					BR							
	11						F-SAND T-SILT						
S-3 1018	12		28" 4'			GR GRAY						0.0	
	13					LT.	F-SAND T-SILT		SOME STRINGERS	0.0			
	14					BR			Fe				
	15					GR GRAY	F-SAND T-SILT	SP					
S-4 1024	16		46" 4'			GRAY							
	17					TAN	SILTY F-SAND	SM		0.0			
	18								WET 18'				
	19												
S-5 1033	20		37" 4'			GR GRAY							
	21					LT	F-SAND T-SILT	SP		0.0			
	22					BR							
	23					GRAY							
S-6 1045	24		24" 4'										
	25					GR GRAY	6" CLAY	CH		0.0			

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0.0

Remarks: U.V.F TESTED @ 24' - RESULTS WERE NEGATIVE.
TWEL 7', 18', & 30'

Converted to Well: Yes _____ No X Well I.D. #: _____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: MCRD PARRIS ISLAND
PROJECT NUMBER: N0502
DRILLING COMPANY: COLUMBIA TECHNOLOGIES
DRILLING RIG: ATV GEOPROBE
BORING NUMBER: PA2-45-TW-19
DATE: 4/5/01
GEOLOGIST: BOB BALKOVEC
DRILLER: RANDY BRAND

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth /Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	MATERIAL DESCRIPTION: Color	MATERIAL DESCRIPTION: Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	26					GR	SLTY F-SAND	SM		0.0	0.0		0.0
	27					GRAY	↓	↓		↓	↓		↓
S-7 1115	28		4' / 4'	28'		↓	↓	↓		↓	↓		↓
									TW@30'				

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0.0

Remarks: _____

Converted to Well: Yes _____ No _____ Well I.D. #: _____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: MCRD PARRIS ISLAND
PROJECT NUMBER: 0502 CTO 0127
DRILLING COMPANY: COLUMBIA TECHNOLOGIES
DRILLING RIG: TRACK MOUNT DPT-GEOPROBE
BORING NUMBER: PAI-45-TW19A
DATE: 6/6/01
GEOLOGIST: BOB BALKOVEC
DRILLER: RANDY BRAND

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth /Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
							SEE PAI-45-TW19		1300 SETUP + START				
							LOG FOR LITHOLOGIC						
							DESCRIPTION						
							- PUSH TO 18'						
	18						SAMPLED 18'-22'						
	19					BLUE/GRAY	CLAY,	OH	HIGH PLASTICITY	0.0			
	20					BLK	PEAT, CLAYEY	PT					
	21						HIGH ORGANICS		* INSTALL 3" CASING				
S-1 1335	22		4" / 4"						TO 24'.				
							PUSH TO 32' + SET						
							A TW. @ 32' w/4' SCREEN						
							PUSH TO 36'						
							SAMPLE 36'-40'						
	36												
	37					GRAY	F. SAND	SP		0.0			
	38												
	39												
S-2	40		3.5' / 4'										

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): ____

Remarks: ____

Converted to Well: Yes ____ No ____ Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: MCRD PARRIS ISLAND
PROJECT NUMBER: N0502
DRILLING COMPANY: COLUMBIA TECHNOLOGIES
DRILLING RIG: ATV GEOPROBE
BORING NUMBER: PAI-45-TW-20
DATE: 4/6/01
GEOLOGIST: BOB BALKOVEC
DRILLER: PRANK BRAND

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth /Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	1					LT	20" FINE SAND	SP		0.0	0.0		0.0
	2					BR	↓	↓		↓			
	3					DK	20" SILTY FINE SAND	SM					
S-1 0736	4		42" 4'			GRAY	↓	↓		↓			
	5					LT	MOTTLED. TOP 24"	SP		0.0	0.0		0.0
	6					GRAY	FINE SAND	↓		↓			
	7					LT BR	BOTT 20" SANDY CLAY	CL					
S-2 0739	8		44" 4'			↓	W/ CLAY SEAM @ 7-7.5'	↓	HIGH PLASTIC SEAM	↓			
	9					LT	FINE SAND	SP		0.0	0.0		0.0
	10					GRAY	↓	↓		↓			
	11					↓	↓	↓					
S-3 0743	12		46" 4'			↓	↓	↓		↓			
	13					LT	FINE - SAND	SP		0.0	0.0		0.0
	14					GRAY	↓	↓		↓			
	15					DK	SILTY FINE SAND	SM					
S-4 0749	16		48" 4'			GRAY	↓	↓		↓			
	17					↓	SILTY FINE SAND	↓		0.0	0.0		0.0
	18					↓	↓	↓		↓			
	19					GRAY	4" CLAY	CH	HIGH PLASTICITY				
S-5 0755	20		46" 4'			BLK	LAST 8" CLAYEY PEAT	PT		↓			
				TD. 20'									

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0.0

Remarks: _____

Converted to Well: Yes _____ No X Well I.D. #: _____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: MCRD PARRIS ISLAND
PROJECT NUMBER: N0502
DRILLING COMPANY: COLUMBIA TECHNOLOGIES
DRILLING RIG: ATV GEOPROBE
BORING NUMBER: PA2-45-TW-21
DATE: 5/9/01
GEOLOGIST: BOB BALKOVEC
DRILLER: SANDY BRAND

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth /Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole*	Driller BZ**
	1					LT BR	F-SAND	SP		0.0	0.0		0.0
	2												
	3					GRAY							
S-1	4		48" 4"										
	5					LT	F-SAND			0.0			
	6					GRAY							
	7					YEL/			wet				
S-2	8		38" 4"			OR						0.0	
	9					YEL OR	CLAYEY SAND	SC		11			
	10					LT	F-SAND	SP		10.			
	11					GRAY				0.0			
S-3	12		4" 4"										
	13									0.0			
	14												
	15												
S-4	16		4" 4"										
	17					DK	SLTY F-SAND	SM		0.0			
	18					GRAY							
	19					BLK/	CLAYEY PEAT	PT	TW @ 18'				
S-5	20		4" 4"			BR							
				T.D. 20'									

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: H.V.F TEST @ 0' NEGATIVE

Drilling Area Background (ppm): 0.0

Converted to Well: Yes _____ No X Well I.D. #: _____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: MCRD PARRIS ISLAND
PROJECT NUMBER: N0502
DRILLING COMPANY: COLUMBIA TECHNOLOGIES
DRILLING RIG: ATV GEOPROBE
BORING NUMBER: PA2-45-MW-22
DATE: 4/9/01
GEOLOGIST: BOB BALKOVEC
DRILLER: RANDY BRUNO

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth /Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sample: BZ	Borehole*	Driller: BZ**
	1			0-03		WHT	TOP 6" ASPHALT + CONCRETE	fill		0.0	0.0		0.0
	2					LT BR	BOTT 3" F. SAND	SP					
	3					GRAY							
S-1	4		3.8' / 4'										
	5					LT	F. SAND			0.0			
	6					GRAY							
	7								WET				
S-2	8		4.4" / 4'									0.0	
	9					LT				0.0			
	10					GRAY							
	11												
S-3	12		4' / 4'										
	13					LT	F. SAND			0.0			
	14					GRAY							
	15												
S-4	16		4' / 4'									0.0	
	17					DK	FINE SAND T-SLT	SP/SM		0.0			
	18					GRAY	TO SLTY						
	19												
S-5	20		4' / 4'						NO PEAT OR CLAY!				
	21									0.0			
	22												
	23												
S-6	24		4' / 4'										
	25					DK GRAY	F. SAND T-SLT			0.0			

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: U.V. FLUOR @ 16' NEGATIVE

Drilling Area Background (ppm): 0.0

Converted to Well: Yes _____ No ✓ Well I.D. #: _____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: MCRD PARRIS ISLAND
PROJECT NUMBER: N0502
DRILLING COMPANY: COLUMBIA TECHNOLOGIES
DRILLING RIG: ATV GEOPROBE
BORING NUMBER: PA1-45-MW-22
DATE: 4/9/01
GEOLOGIST: BOB BALKOVEC
DRILLER: RANDY BRUNO

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth /Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	MATERIAL DESCRIPTION: Color	MATERIAL DESCRIPTION: Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sample: BZ	Borehole*	Driller: BZ**
	26					GL	F. SAND TRACE	SP		0.0			
	29					GRY							
S-7	28		4'/4'			↓	↓	↓		↓			
				TD 28'									
									TWL 28'				

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0.0

Remarks: _____

Converted to Well: Yes _____ No _____ Well I.D. #: _____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: MCRD PARRIS ISLAND
PROJECT NUMBER: N0502
DRILLING COMPANY: COLUMBIA TECHNOLOGIES
DRILLING RIG: ATV GEOPROBE
BORING NUMBER: PAI-45-TW-23
DATE: 4/5/01
GEOLOGIST: BOB BALKOVEC
DRILLER: RANDY BRAND

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth /Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sample BZ	Borehole*	Driller BZ*
	1					LT	F. SAND	SP		0.0	0.0		0.0
	2					BR							
	3												
S-1 1437	4		30" 4'									0.0	
	5					LT	20" F. SAND	SP	WET @ 6'	0.0			
	6					BR							
	7					GR	BOTT 20" F. SAND	SP	COLOR CHANGE				
S-2 1442	8		40" 4'			GRAY							
	9							SP	TW @ 9'	0.0			0.0
	10												
	11												
S-3 1445	12		42" 4'										
	13					GR	TOP 28" F. SAND			0.0			
	14					GRAY							
	15				SOFT	GRAY	BOTT 20" CLAYEY SAND	SC	SOFT.				
S-4 1450	16		4' 4'									0.0	
	17					GRAY	SILTY SAND	SM		0.0			0.0
	18												
	19								TW @ 19'				
S-5 1455	20		4' 4'			BLK/BR	7" CLAYEY PEAT	PT					
				TD 20'									

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0.0

Remarks: UXF TESTING @ 8'. RESULTS WERE NEGATIVE.

Converted to Well: Yes _____ No X Well I.D. #: _____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: MCRD PARRIS ISLAND
PROJECT NUMBER: N0502
DRILLING COMPANY: COLUMBIS TECHNOLOGIES
DRILLING RIG: ATV GEOPROBE

BORING NUMBER: PAZ-45-TW-24
DATE: 4/10/01
GEOLOGIST: BOB BALKOVEC
DRILLER: RANDY BRAND

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth /Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	1					WHT	TOP 6" ASPHALT + CONCRETE	GM		0.0	0.0		0.0
	2					TAN	17" F. SAND	SP					
	3					LT.	1" F/M SAND						
S-1	4		3.5" 4'			GRAY	↓	↓		↓		0.0	
	5					BLK	6" SANDY SILT	ML		0.0			
	6					GRAY	SILTY F. SAND	SM	TW-@ 6'				
	7				↓		↓						
S-2	8		3" 4"			↓	↓	↓		↓			
	9					LT.	F. SAND	SP		0.0			
	10					GRAY							
	4					↓	↓	↓					
S-3	12		40" 4'			↓	↓	↓		↓		0.0	
	13					LT.	TOP 22" F. SAND	SP		0.0			
	14					GRAY		↓					
	15					GRAY	25" SILTY F. SAND	SM					
S-4	16		4' 4'				1" CLAY	OH		↓			
	17					↓	SILTY CLAY	CL		0.0			
	18					↓	↓	↓	TW-@ 18'				
	19					BLK	18" CLAYEY PEAT	PT		↓	↓		↓
S-5	20		3" 4'			↓	↓	↓					
				T.D. 20'									

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0.0

Remarks: U.V. TEST @ 14' (NEGATIVE)

Converted to Well: Yes _____ No X Well I.D. #: _____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: MCRD PARRIS ISLAND
PROJECT NUMBER: N0502
DRILLING COMPANY: COLUMBIS TECHNOLOGIES
DRILLING RIG: ATV GEOPROBE

BORING NUMBER: PA2-45-TW-25
DATE: 4/9/01
GEOLOGIST: BOB BALKOVEC
DRILLER: RANDY BRAND

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth /Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	1					WHT	TOP 6"	SM		0.0	0.0		0.0
	2					LT BR	BOTT 2.5' F-SAND	SP					
	3					GRAY							
S-4	4		3'/4'			↓	↓			↓			
	5					LT.	F. SAND			0.0			
	6					GRAY			TW @ 6'				
	7					YELL/							
S-2	8		3'/4'			OR						0.0	
	9					LT	F-SAND			0.0			
	10					GRAY							
	11												
S-3	12		4'/4'										
	13					LT	F. SAND			0.0			
	14					GRAY							
	15					GRAY	BOTT 18" CLAYEY/SILTY	SC					
S-4	16		16"/4'				SAND	SM				0.0	
	17								TW @ 18'	0.0			
	18												
	19					GRAY	CLAY	OH					
S-5	20		4'/4'			BLK	CLAYEY PEAT	PT					
				TD. 20'									

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0.0

Remarks: WF-TEST @ 9' NEGATIVE

Converted to Well: Yes _____ No X Well I.D. #: _____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: MCRD PARRIS ISLAND
PROJECT NUMBER: 0502 CTO 0127
DRILLING COMPANY: COLUMBIA
DRILLING RIG: TRACK MOUNT ATV
BORING NUMBER: PA2-45-TW26
DATE: 6/6/01
GEOLOGIST: BOB BALKOVEC
DRILLER: D. BROOKS

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth /Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	1				DRY	LT.	SILTY U.F. SAND	ML		0.0	0.0		0.0
	2					BR	T. ORGANICS						
	3												
S-1 0740	4		3' / 4'		MOIST	YELL OR	F-SAND	SP				0.0	
	5									0.0			0.0
	6								WET @ 6'				
	7					LT. GRAY	CLAYEY SAND	SC	SET TW @ 7'				
S-2 0748	8		38" / 4'				FINE SAND	SP					
	9					LT	F. SAND			0.0			0.0
	10					GRAY			V. WET				
	11												
S-3 0756	12		3.5' / 4'									0.0	
	13												
	14						0 RECOVERY		1ST ATTEMPT 0'				
	15						PUSTON STAKED IN		RECOVERY				
S-4 0807	16		4'				DRIVE SHOE						
	17					DK GRAY	MED SAND W/ STEEL FRAGS	SP	TW @ 17'	0.0	0.0		0.0
	18						CLAY	OH	HIGH PLASTICITY				
	19					BLK	CLAYEY PEAT	PT					
S-5 0832	20		4' / 4'				HIGH ORGANICS					0.0	
				T.D. 20'									

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0.0

Remarks: SET TW'S @ 7' & 17' ; UV TESTING @ 16' - NEGATIVE -

Converted to Well: Yes _____ No X Well I.D. #: _____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: MCRD PARRIS ISLAND
PROJECT NUMBER: 0502 CTO 0127
DRILLING COMPANY: COLUMBIA TECHNOLOGIES
DRILLING RIG: TRACK MOUNT ATV GEOPROBE
BORING NUMBER: PAI-45-TW27
DATE: 6/6/01
GEOLOGIST: BOB BALKOVEC
DRILLER: R. STEWART

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth /Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	1				DRY	LT	SILTY V.F. SAND	ML		0.0	0.0		0.0
	2					BR	T-ORGANICS						
	3												
S-1	4		46" / 4'		MOIST	YELL OR	F. SAND T-SILT	SP				0.0	
	5									0.0		0.0	0.0
	6												
	7												
S-2	8		3' / 4'		WET	LT GRAY	F. SAND T-SILT		TW @ 8'				
	9					LT.				0.0			
	10					GRAY							
	11												
S-3	12		4' / 4'									0.0	0.0
	13									0.0			
	14												
	15												
S-4	16		3.5' / 4'		SOFT	GRAY	CLAYEY SAND	SC					
	17						CLAYEY / SILT SAND			0.0			
	18								TW @ 18'				
	19				HARD	BLK	PEAT W/ HIGH	PT					
S-5	20		4' / 4'				ORGANICS					0.0	0.0

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks:

Drilling Area Background (ppm):

Converted to Well: Yes _____ No _____ Well I.D. #: _____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: MCRD PARRIS ISLAND
PROJECT NUMBER: 0502 CTO 0127
DRILLING COMPANY: COLUMBIA TECHNOLOGIES
DRILLING RIG: ATV-GEOPROBE
BORING NUMBER: PAZ-45-TW26
DATE: 6/8/00
GEOLOGIST: BOB BALKOVEC
DRILLER: R. BRAND

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth /Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	1					BLK + WHITE	CONCRETE + ASPHALT			0.0			
	2					BLK	SILTY SAND	SM					
	3					↓	↓	↓					
S-1	4		2-4			↓	↓	↓		↓		0.0	0.0
	5					LT	CLAYEY SOME SAND	CL		0.0			
	6					GRAY	F. SAND	SP					
	7					↓	↓	↓	WET @ 6.5'				
S-2	8		2.5-4			↓	↓	↓		↓			
	9					↓	↓	↓		0.0			
	10					↓	↓	↓		↓			
	11					↓	↓	↓					
S-3	12		3.5-4			DK GRAY	↓	↓		↓		0.0	0.0
	13					↓	F. SAND	↓		0.0			
	14					↓	↓	↓		↓			
	15					↓	↓	↓		↓			
S-4	16		4-4			↓	↓	↓		↓			
	17				SOFT	DK	CLAYEY SAND	SC		0.0			
	18				↓	GRAY	↓	↓		↓			
	19					BLUE GRAY	CLAY	CH	HIGH PLASTICITY				
S-5	20		1.5-4			BLK	PEAT, HIGH ORGANICS	PT		↓			
	21					↓	↓	↓		0.0			
	22					↓	↓	↓		↓			
	23					BLUE GRAY	CLAY W/ SOME PEAT	CH/PT					
S-6	24		2-4			↓	↓	↓		↓			
	25					↓	↓	CH					

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0.0

Remarks: _____

Converted to Well: Yes _____ No _____ Well I.D. #: _____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: MCRD PARRIS ISLAND
PROJECT NUMBER: 0502 CTO 0127
DRILLING COMPANY: COLUMBIA TECHNOLOGIES
DRILLING RIG: ATV-GEOPROBE
BORING NUMBER: PAZ-45-TW-28
DATE: 6/8/01
GEOLOGIST: BOB BALKOVEC
DRILLER: RICHARD

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth /Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Drillier BZ**
	26					BLUE	CLAY W/ T PLAT	OH		0.0			
	27					GRAY		↓		↓			
S-7	28		4'/4'			↓	SILTY CLAY	CL					0.0
	29					GRAY	SILTY CLAY /	CL	DOWNWARD	0.0			
	30						SANDY SILT	ML	DEGRATION				
	31						↓	↓					
S-8	32		4'/4'			↓	F- SAND ISHELL FRAGS.	SP	TW@ 32'				
	33						F TO MED SAND	SP	COARSER SAND	0.0			
	34												
	35												
S-9	36		4'/4'			↓	↓	↓					
	37					GRAY	F TO MED SAND	SP		0.0			
	38					OL	CLAYEY SAND	SC					
	39					GR		↓		↓			
S-10	40		4'/4'			↓							
				T.D. 40'			SET TW@ 40'						

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0.0

Remarks:

Converted to Well: Yes ____ No ✓ Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: MCRD PARRIS ISLAND
PROJECT NUMBER: 0502 CTO 0127
DRILLING COMPANY: COLUMBIA TECHNOLOGIES
DRILLING RIG: ATV GEOPROBE
BORING NUMBER: PAI-45-TW-29
DATE: 6/7/01
GEOLOGIST: BOB BALKOVEC
DRILLER: R. BRAND

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth /Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	1					LT BR	SILTY SAND	SM		0.0	0.0		
	2					& BLACK	W/ ORGANICS						
	3												
S-1	4		2' / 4'						RED BRICK FRAGS			0.0	0.0
	5					GRAY	F-SAND	SP		0.0			
	6												
	7												
S-2	8		4' / 4'										
	9									0.0			
	10												
	11												
S-3	12		4' / 4'			BLUE GRAY	CLAYEY SAND	SC				0.0	0.0
	13					GRAY	F-SAND	SP		0.0			
	14												
	15					BLUE	SAND W/ SOME CLAY	SC					
S-4	16		4' / 4'			GRAY							
	17						SANDY CLAY	CL		0.0			
	18					BLUE	CLAY	OH					
	19					GRAY	PEAT	PT					
S-5	20		3.5' / 4'			BLK						0.0	0.0
	21					BL	CLAY W/ SOME	OH		0.0			
	22					GRAY	PEAT	PT					
	23												
S-6	24		4' / 4'										
				TD. 24'									

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: @ 3' HIT STORM LINE. NOT ABLE TO SAMPLE GW TO MANY UTILITIES IN AREA

Drilling Area Background (ppm): 0.0

Converted to Well: Yes _____ No _____ Well I.D. #: _____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: MCRD PARRIS ISLAND
PROJECT NUMBER: 0502 CTO 0127
DRILLING COMPANY: COLUMBIA TECHNOLOGIES
DRILLING RIG: ATV- GEOPROBE
BORING NUMBER: PAI-45-TW30
DATE: 6/7/01
GEOLOGIST: BOB BALKOVEC
DRILLER: R. BRAND

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth /Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	1					BLK	TOP 6" ASPHALT + CONCRETE	GW		0.0			
	2					DK. BR	F-SAND T SZT	SP					
	3					LT.							
S-1	4		39" 4'			BR				0.0		0.0	
	5					LT.	F-MED SAND			0.0			
	6					BR							
	7					GRAY							
S-2	8		3' 4'				CLAY LENSE	CL	TW@8'			0.0	
	9					LT	F. SAND	SP		0.0			
	10					GRAY							
	11												
S-3	12		3.5' 4'										
	13					LT/	F. SAND			0.0			
	14					DK							
	15					GRAY							
S-4	16		3.5' 4'									0.0	
	17								TW@17'	0.0			
	18				SOFT	DK GRAY	SANDY CLAY	CL					
	19												
S-5	20		4' 4'			GRAY	CLAY / PEAT 6"	OH/PT	HIGH PLASTICITY				
	21					BR	CLAY W/ WOOD FIBERS	OH					
	22					GRAY	+ PEAT	PT					
	23												
S-6 7834	24		4'			GRAY	F. SAND	SP	W/H SEAL OFF W/3"				
	25								CASING TO 24'				

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): ____

Remarks: ____

Converted to Well: Yes ____ No ____ Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: MCRD PARRIS ISLAND
PROJECT NUMBER: 0502 CTO 0127
DRILLING COMPANY: COLUMBIA TECHNOLOGIES
DRILLING RIG: ATV - GEOPROBE
BORING NUMBER: PAR-45-TW30
DATE: 6/7/01
GEOLOGIST: BOB BALKOVEC
DRILLER: R. BRAND

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth /Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	MATERIAL DESCRIPTION: Color	MATERIAL DESCRIPTION: Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sample: BZ	Borehole**	Driller BZ**
	26						0 RECOVERY						
	27												
S-7	28		0 / 4'										
	29					GRAY	F. SAND	SP		0.0			
	30					↓		↓		↓			
	31												
S-8	32		4' / 4'										
				70.32			WELL SET TWICE @ 18', -32'						

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm):

Remarks:

Converted to Well: Yes _____ No _____ Well I.D. #: _____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: MCRD PARRIS ISLAND
PROJECT NUMBER: 0502 CTO 0127
DRILLING COMPANY: COLUMBIA TECHNOLOGIES
DRILLING RIG: TRACK MOUNT ATV GEOPROBE
BORING NUMBER: PAI-45-TW31
DATE: 6/6/01
GEOLOGIST: BOB BALKOVEC
DRILLER: R. STEWART

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth /Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	10												
	11				WET	LT	F. SAND	SP					
	12				↓	BR	↓	↓					
	13					GRAY							
S-1	14		4'-4'		↓	↓	↓	↓					
	18												
	19					LT BR	F. SAND	SP					
	20					GRAY	↓	↓					
	21					DRAY	SLTY SAND	SM					
S-2	22		3'-4'			BLK	CLAYEY PEAT	PT					
							SET TWP 12'						
							BASED ON HIGHEST						
							MIP READING						

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): ____

Remarks: ____

Converted to Well: Yes ____ No ____ Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: MCRD PARRIS ISLAND
PROJECT NUMBER: 0502 CTO 0127
DRILLING COMPANY: COLUMBIA TECHNOLOGIES
DRILLING RIG: ATV - GEOPROBE
BORING NUMBER: PAI-45-TW-32
DATE: 6/7/01
GEOLOGIST: BOB BALKOVEC
DRILLER: R. STEWART

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth /Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	MATERIAL DESCRIPTION: Color	MATERIAL DESCRIPTION: Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole *	Driller BZ**
	13												
	14					GRAY	F. SAND	SD					
	15												
	16												
S4	17		4' 4'										
	18			NOT SAMPLED									
	19					BLK	PEAT, CLAYEY	PT					
	20						HIGH ORGANICS						
	21												
S-2	22		4' 4'			BLUE GRAY	CLAY W/ PEAT	CH					
							TW SET @ 16' BASED ON HIGHEST MIP READING						

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm):

Remarks:

Converted to Well: Yes ____ No ____ Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: MCRD PARRIS ISLAND
PROJECT NUMBER: 0502 CTO 0127
DRILLING COMPANY: COLUMBIA TECH
DRILLING RIG: TRACK MOUNT DPT-GEOPROBE
BORING NUMBER: PA2-45-TW33
DATE: 6/6/02
GEOLOGIST: BOB BALKOVEC
DRILLER: R. STEWART

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth /Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler B.Z.	Borehole**	Driller B.Z.**
	12												
	13					YELL	F-SAND	SW		00			
	14					GR	SOME CLAY + SILT	SC		↓			
	15					↓		↓					
S4	16		3/4'			↓		↓		↓			
	17				SOFT	DK	SANDY CLAY	CL		00			
	18				↓	GRY		↓		↓			
	19					BLUE GRY	CLAY	CH	HIGH PLASTICITY				
S2	20		4'/4'			BLK	PEAT, CLAYEY W/ HIGH ORGANICS			↓			
							SET @ TW @ 15'						
							BASED ON HIGHEST						
							PID READING						
							SCREEN 11'–15'						

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 00

Remarks: TW @ 15'

Converted to Well: Yes _____ No X Well I.D. #: _____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: MCRD PARRIS ISLAND
PROJECT NUMBER: 0502 CTO 0127
DRILLING COMPANY:
DRILLING RIG:

BORING NUMBER: PA2-45-TW34
DATE: 6/7/01
GEOLOGIST: BOB BALKOVEC
DRILLER: R. STEWART

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth /Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	12												
	13					LT	F. SAND	SP		00			
	14					BR	↓	↓		↓			
	15					↓	↓	↓		↓			
S1	16		4'			GRAY	SILTY CLAY	CL		↓			
	17					GRAY	F. SAND	SP		00			
	18					↓	↓	↓		↓			
	19					BLK	PEAT, CLAYEY	PT		↓			
S2	20		4'				W/ ORGANICS	↓		↓			
							TW SET @ 14						
							BASED ON HAZMAT						
							MIP READINGS						

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm):

Remarks:

Converted to Well: Yes ____ No ____ Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: MCRD PARRIS ISLAND
PROJECT NUMBER: 0502 CTO 0127
DRILLING COMPANY: COLUMBIA TECHNOLOGIES
DRILLING RIG: ATV - GEOPROBE
BORING NUMBER: PA2-45-TW35
DATE: 6/7/01
GEOLOGIST: BOB BALKOVEC
DRILLER: R. STEWART

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth /Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	13												
	14					GRAY	SANDY CLAY	CL		0.0			
	15					↓	↓	↓					
	16					BROWN	F. SAND	SP					
S-1	17		4'/4'			GRAY	↓	↓					
	18					GRAY	F. SAND	SP					
	19					↓	↓	↓					
	20					BLUE GRAY	CLAY	CH	HIGH PLASTICITY				
S-2	21		4'/4'			BLK	CLAYEY PEAT	PT					
										↓			
							SET TW @ 21'						
							BASED ON HIGHEST						
							MIP READINGS.						
						✱	TW WAS DRY @ 21'-25'		1030				
							WILL SET 3" CASING @ 24'						
							& SET A TW @ 32'						

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0.0

Remarks: _____

Converted to Well: Yes _____ No X Well I.D. #: _____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: PAI SITE 45
PROJECT NUMBER: N0502
DRILLING COMPANY: RICHARD SIMMONS
DRILLING RIG: FOREMOST CT250

BORING No.: PZ-09S
DATE: 10-3-01
GEOLOGIST: CONTI
DRILLER: TOM TRYKUBA

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sample BZ	Borehole**	Drillor BZ**
	0						6" TOPSOIL		MOIST/DAMP	0	0	0	
				4 FT									
	5			5'		BRN GRAY	SILTY F SAND-TR CLAY	SM	WET (LOG CUTTINGS)	0	0	0	
						GRAY TO LT GRAY		SM					
	10						FINE SAND	SP	WET	0	0	0	
	15			15						0	0	0	
				15.5 BOTM									
							SCREEN 5-15						
							SAND 3-15.5						
							BENT. 1-3						

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm):

Remarks: 4¼" ID HSA - NO SAMPLING

Converted to Well: Yes ✓ No _____ Well I.D. #: PZ-09S

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: PAI SITE 45
PROJECT NUMBER: N0502
DRILLING COMPANY: RICHARD SIMMONS
DRILLING RIG: FOREMOST CT 250

BORING No.: PZ 10S
DATE: 10-3-01
GEOLOGIST: CONTI
DRILLER: TOM TRYKUBA

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS*	Remarks	PID/FID Reading (ppm): Sample	Sample BZ	Borehole*	Driller BZ**
	0						6" TOP SOIL						
				4'±									
	5			5		BRN	SILTY F SAND	SM	MOIST → WET	0	0	0	
						TO GRAY	TR CLAY		(LOG CUTTINGS)				
	10					GRAY	FINE SAND	SP	WET (LOGGED CUTTINGS)	0	0	0	
	15.0			15.0									
				15.5									
				BOTM									
							SCREEN 5-15						
							SAND 3-15.5						
							BENT. 1-3						

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm):

Remarks: 4¼" HSA – NO SAMPLING

Converted to Well: Yes ✓ No _____ Well I.D. #: PZ-10S

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: PAI - SITE 45
PROJECT NUMBER: N0502
DRILLING COMPANY: RICHARD SIMMONS
DRILLING RIG: FOREMOST CT 250

BORING No.: PZ 11S
DATE: 10-3-01
GEOLOGIST: CONTI
DRILLER: TOM TRYKUBA

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sample BZ	Borehole**	Drillers BZ**
	0						≈6" TOPSOIL						
	3												
S-1 e		3/5	1.7/2	▽	M DENSE	GRAY BRN	SILTY F. SAND-TR CLAY	SM	MOIST	0	0	0	
10 40	5	6/8		4 TO 5'		TO GRAY	TO FINE SAND		↓ WET				
	8												
S-2 e		11/10	1.8/2		M DENSE	BRN TO	SILTY SAND-TR CLAY	SM					
10 50	10	11/11				LT GRAY	TO FINE SAND	/ SP	WET	0	0	0	
	15.0			15									
				15.5									
							BOTM @ 15.5		OBS WELL FOR PUMP TEST.				
							SCREEN 5-15		MIN. SAMPLES				
							SAND 3-15.5		DUE TO NEARBY WELLS AND				
							BENT. 1-3		PRE DETERMINED DEPTH OF WELL				
									≈ 5-15' (SEE WORK PLAN)				

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. *Increase reading frequency if elevated reponse read.*

Drilling Area Background (ppm): ____

Remarks: 4 1/4" ID HSA - W/ SPT.

Converted to Well: Yes ✓ No ____ Well I.D. #: PZ 11S

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: PAI SITE 45
PROJECT NUMBER: N0502
DRILLING COMPANY: RICHARD SIMMONS
DRILLING RIG: FOREMOST CT250

BORING No.: PAI 45 MW04D
DATE: 10/2/01
GEOLOGIST: CONTI
DRILLER: TOM

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	0			6" CAS			≈6" TOPSOIL		4¼ HSA TO ≈15' THEN BEGIN TO SAMPLE (LITHOLOGY ONLY)		0		
	5					YELLOW BRN	CLAYEY SAND		5 TO 8' ±		0		
							FINE TO MED		WET				
	10										0		
	15												
S-1e		1/1	1.8/2		SOFT	GRAY	F/M SAND	SP	WET	0	0		
0910	17	1/1				MOTTLD GRAY	CLAYEY F SAND	SC					
S-2e		1/2	1.5/2			BRN GRAY	F/M SAND	SP	WET				
0915	19	3/4		19.5	M STIFF	BRN	PEAT LAYER/SILTY		MOIST	0	0		
S-3e		2/3	1.5/2	Pt				Pt					
0920	21	5/6		21.0					NOT MUCH CLAY HERE.				
S-4e		4/5	1.5/2	22.0	M DENSE	GRAY	SANDY CLAY-TR	SC	WET	0	0		
0925	23	6/5					SILTY CLAY LENS TO	CL	TR PT 21/22'				
S-5e		1/1	1.5/2				CLAYEY SAND	SP					
10/2 0935	25	3/4								0	0		

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm):

Remarks: SET 6" CAS TO 21' CONF LAYER W/ 8¼" HSA
NOT CLEARLY DEF HERE
BELOW CAS W/ 5⅞" MUD ROT DIAG BIT

Converted to Well: Yes ✓ No _____ Well I.D. #: PAI 45 MW04D

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: PAI SITE 45
PROJECT NUMBER: N0502
DRILLING COMPANY: RICHARD SIMMONS
DRILLING RIG: FOREMOST CT 250

BORING No.: PAI 45 MW04D
DATE: 10/4/01
GEOLOGIST: CONTI
DRILLER: TOM TRYKUBA.

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS*	Remarks	PID/FID Reading (ppm): Sample	Sample BZ	Borehole	Drilling BZ**
↑ 10/2													
10/4 ↓													
BC 1	25	2/2	1.5/2		M DENSE	GRAY	CLAYEY SAND -	SC	WET - NOT COHESIVE	0			
@ 1545	27	9/9					TR SHELLS						
BC 2		6/4	1.5/2		LOOSE		FINE/MED SAND	SP	WET	0			
@ 1600	29	5/7					TR. SHELLS / TR CLAY						
BC 3		4/6	1.1/2		M DENSE		SAME	SP	WET - NOT GOOD REC.	0			
@ 1615	31	9/9		31			TO SOME						
BC 4		2/1	1.5/2				SHELLS						
@ 1630	33	2/5		32.5	LOOSE	GRAY	SILTY FINE SAND	SM	WET	0			
BC 5		2/2	1.4/2				TR SHELLS						
@ 1640	35	3/5			LOOSE		SAME + TR 1/2" CLAY LENS @ 34'	SM	WET	0			
BC 6		7/7	1.6/2	36									
@ 1650	37	10/8		37	M DENSE	GRAY	CLAYEY SAND	SM/SC	WET 36.5 RODS	0			
BC 7		2/12	1.7/2			OLIVE GRAY	SILTY F SAND	SM	WET CHATTER (HARD)	0			
@ 1700	39	12/12							DENSE - BUT BREAKS EASILY				
BC 8		10/12	1.5/2		V DENSE	GRAY	SILTY F SAND	SM	MOIST → WET VERY DENSE	0			
@ 1720	40.5	50/6"		41			(TROUBLE PULLING VSL TR CLAY RODS)		BUT BREAKS EASILY WHEN				
BC 9 @	41	12/11	1.6/2	41.5 ±	M DENSE	OLIVE GRAY	CLAYEY F. SAND	SM	TAKEN FROM SPOON				
1745	43	13/13			M STIFF		TR SILT / ALMOST SANDY CLAY @ 41.5	SC	MOIST - CAN ROLL PORTIONS OF SAMPLE INTO 1/8" THREAD IS SOMEWHAT CONFINING	0			
							WILL DRILL TO 42 AND SET WELL @ 41 TO 31.		BC 8 SO DENSE COULD BE SOMEWHAT CONFINING.				

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm):

Remarks: BC = Below Casing Sample #

Converted to Well: Yes ✓ No _____ Well I.D. #: PAI MW04D

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: PAI SITE 45
PROJECT NUMBER: N0502
DRILLING COMPANY: RICHARD SIMMONS
DRILLING RIG: FOREMOST CT250

BORING No.: PAI 45 MW05D
DATE: 10-2-01 & 10/5/01
GEOLOGIST: CONTI
DRILLER: TOM

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler B.Z**	Borehole**	Driller B.Z**
	0			6" CAS					DRILL TO 15' W/O SAMPLING EXISTING LOGS AVAILABLE TO 15'±				
	5					BRN TO GRAY	SILTY SAND - TR CLAY	SM	WET ≈ 5'±		0		
	10									0	0		
	15												
SE1 @ 1640	17	1/1	1.8/2		V LOOSE	GRAY	F/M SAND	SP	WET - MICA	0	0		
S-2 @ 1645	19	1/1 1/2 2/3	1.7/2	18'			TR 1" CLAY @ 17.9'						
S-3 @ 1655	21	1/3 2/2	1.8/2	19.5 21	SOFT	BRN	PEAT (CLAYEY)	PT	MOIST				
10/2					SOFT	GRAY	SILTY CLAY - TR PT	CL	TR CLAY IN SHOE.	0	0		
10/5	23						SAND		BOTH OF SHOE IS SAND				
BC1 @ 1500	25	10/12 8/12	1.5/2		M DENSE	LT GRAY	SILTY F/M SAND TR CLAY @ BOTTM.	SM/SP	MOIST → WET (NO SHELLS)	0			

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): [ ]

Remarks: SET 6" CAS TO 20' W/ 8 1/4" ID HSA
DRILL BELOW CAS W/ 5 7/8 MUD ROT

Converted to Well: Yes ✓ No ____ Well I.D. #: PAI MW 45 MW05D

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: PAI-SITE 45
PROJECT NUMBER: N0502
DRILLING COMPANY: RICHARD SIMMONS
DRILLING RIG: FOREMOST CT 250

BORING No.: PAI 45 MW 05D
DATE: 10/5/01
GEOLOGIST: CONTI
DRILLER: TRYKUBA

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler B.Z.	Borehole**	Drillers B.Z.**
							TR CLAY = 27-27.3						
BC2 @ 15 10	27	12/11	1.8/2		M DENSE	GRAY	SILTY F/M SAND	SM	WET MICA - NO SHELLS NOTICED	0			
	29	13/11											
	31												
BC3 @ 15 25	33	4/6, 8/10	1.6/2	33	M DENSE		SAME AS ABOVE	SM	WET MICA - NO SHELLS NOTICED	0			
BC4	35	3/6, 11/12	1.5/2	34	M DENSE	GRAY	F/M SAND - TR SHELLS	SP	WET MICA CHANGE IS GRADATIONAL				
	37												
BC5 @ 1550	39	8/10, 12/11	1.8/2	38.5	M DENSE	GRAY	F/M SILTY SAND - TR - SOME SHELLS TR CLAY LENS LAST 4"	SP/SM	WET	0			
	41			41									
BC6 @ 1600	43	5/12, 16/27	2/2		M DENSE TO DENSE	OLIVE GRAY	SILTY VF SAND	SM	WET MOIST BECOMES MORE DENSE.	0			
	45			44	SAND								
				45	PACK		WILL DRILL TO 45						
							SET WELL 44-34						
							SAND TO 31						
							BENTONITE TO 29						

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm):

Remarks:

Converted to Well: Yes ✓ No _____ Well I.D. #: PAI 45 MW05D

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: PAI SITE 45
PROJECT NUMBER: N0502
DRILLING COMPANY: RICHARD SIMMONS
DRILLING RIG: FOREMOST CT250

BORING No.: PAI 45-MW09D
DATE: 10-4-01
GEOLOGIST: CONTI
DRILLER: TOM TRYKUBA.

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Drillers BZ**
	0			6" CAS TO 21'		GRAY BRN	6" SANDY TOPSOIL TO GRAY BRN FINE SAND TO 3'.		HAND AUGER TO 3' (MOIST) (LOG CUTTINGS)	0			
	5					BRN GRAY	SILTY F SAND	SM	WET @ 5'	0			
	10									0			
						GRAY	SAME AS ABOVE	SM	WET (LOG CUTTINGS)				
	15												
S-1 @		1/1	2/2		V LOOSE	GRAY	SILTY FINE SAND	SM	WET	0			
OB40	17	1/1							SANDY TR BROWN LENS				
S-2 @		1/3	1.8/2		V LOOSE	GRAY			16.8 → 17.0 ±				
OB50	19	1/2		18.5	SOFT	BRN	PEAT (SILTY)	PT	MOIST	0			
S-3 @		1/1	1.4/2					PT					
OB55	21	2/2	21	20.6	SOFT	GRAY	SANDY CLAY - TR PEAT & ROOTS	SC	WET	0			
S-4 @		3/4	1.0/2	22									
OB10	23	4/5			V LOOSE	GRAY	SILTY SAND - TR CLAY	SM	POOR RECOV.				

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): ____

Remarks: SET CASING 6" Φ @ 21'

Converted to Well: Yes ✓ No ____ Well I.D. #: PAI-45 MW09D

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: PAI SITE 45
PROJECT NUMBER: N0502
DRILLING COMPANY: RICHARD SIMMONS
DRILLING RIG: FOREMOST CT 250

BORING No.: PAI 45 MW 09 D
DATE: 11/13/01 & 11/14/01
GEOLOGIST: CONTI
DRILLER: T TRYKUBA

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	0			6" TO 19'		BRN	TOP 6" TOPSOIL TO SILTY SAND		DAMP		0		
	5					TAN	SILTY SAND		WET ≈ 5' (CUTTINGS)		0		
	10						SAME		(CUTTINGS)		0		
	15												
S-1a		5/3	1.8/2	16.2	LOOSE	GRAY	SILTY SAND	SM	WET	0			
1300	17	3/2		16.5	SOFT	GRAY	SILTY CLAY	CL					
S-2c		4/4	1.5/2	18	SOFT	BRN	Peat (Silty)	Pt	MOIST SHARP CONTACT @ 16.5 (PEAT)	0			
1310	19	3/2		19'	SOFT	GRAY	SILTY CLAY-TR SAND	CL	WET (PLASTIC)				
S-3c		3/8	1.3/2	20			TR WOOD (PEAT) FRAGS			0			
11/13 1320	21	8/11			M DENSE	GRAY	CLAYEY SAND	SC	WET	0			
11/14													
	23			23									
BC1c		8/12	1.8/2		M DENSE	GRAY	SILTY F SAND	SM	WET - MICACEOUS	0			
1220	25	18/18											

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): [ ]

Remarks: 4¼" ID (SPT) THEN 8¼" HSA TO SET CASG @ 19'
5⅞" MUD ROT DRAG BIT - BELOW CASING

Converted to Well: Yes ✓ No [ ] Well I.D. #: PAI 45 MW09D

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: PAI SITE 45
PROJECT NUMBER: N0502
DRILLING COMPANY: RICHARD SIMMONS
DRILLING RIG: FOREMOST CT 250

BORING No.: PAI 45 MW09D
DATE: 11/14/01
GEOLOGIST: CONTI
DRILLER: T TRYKUBA

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	25				M DENSE	GRAY	SILTY F SAND	SM	WET (MICA)	0			
	27												
BC2e		9/9	1.5/2				SAME	SM	WET	0			
1235	29	18/18											
	31												
BC3		8/9	1.7/2	31	M DENSE		SILTY F SAND	SM	WET (MICA)	0			
1245	33	8/10					TR MED SAND	/SP					
	35												
BC4e		3/4	1.7/2		LOOSE	GRAY TO	SILTY F SAND-TR	SM	WET (MICA)	0			
1255	37	4/5				GRAY BRN	MED SAND-TR SHELLS-TR ROCK FRAGS						
	39				V								
BC5e		20/30	1/1.5		DENSE	GRAY	SILTY F SAND-TR	SM	WET (MICA)	0			
1315	40.5	50		41			BLK ROCK FRAGS						
				BOTM @ 42'									
							BOTM @ 42'						
							SCREEN 41-31						
							SAND 28-42						
							BENT 28-25						

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): ____

Remarks: ____

Converted to Well: Yes ✓ No ____ Well I.D. #: PAI 45 MW09D

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: PAI- SITE 45
PROJECT NUMBER: N0502
DRILLING COMPANY: RICHARD SIMMONS
DRILLING RIG: FOREMOST CT 250

BORING No.: PAI45-MW10D
DATE: 10-3-01 & 10-5-01
GEOLOGIST: CONTI
DRILLER: TOM TRYKUBA

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	0			6" CAS			SANDY TOPSOIL		DRILL TO 15				0
									W/O SAMPLING				
									EXISTING LOGS				
									AVAILABLE TO ≈ 15'				
	5					BRN	SAND - TR CLAY		WET ≈ 5'±				0
				▽	APPROX.	GRAY							
	10												0
	15												
S-1 C		1/1	2/2	15.5	LOOSE	BRN	SAND - TR ROOTS	SM	MOIST	0	0	0	
15/0	17	1/1			SOFT	GRAY	SANDY CLAY - CLAYEY SAND	SC	WET - SOFT				
S-2 C		1/1	1.9/2										
15/15	19	1/5		18.6	SOFT	BRN	PEAT - CLAYEY	PT	MOIST → WET	0	0	0	
S-3 C		2/2	1.8/2	20'	SOFT	GRAY	SANDY CLAY		NOT MUCH PEAT HERE				
10/3 15/20	21	3/5		21.0			TO CLAYEY SAND IN		LAST AUGER				
10/5							(MORE SAND @ 21') SHOE		COATED IN A FAIRLY STIFF				
	23								CLAY TO 20'				
BC1 C		1/2	5/2		SOFT	GRAY	SANDY CLAY/	SC	WET - POOR REC	0			
10/50	25	1/1		25.0			CLAYEY SAND		INTERFERENCE FROM PLUG AT BOTM OF CASING.				

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area

Remarks: SET 6" CAS TO 20' HERE. ON 10/3/01 8 1/4 HSA Background (ppm):
RESUME ON 10/5/01 USING 5 7/8 DRAG BIT - SAMPLE THRU RODS.
BC = BELOW CASING SAMPLE. MUD ROT

Converted to Well: Yes ✓ No _____ Well I.D. #: PAI45-MW10D

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: PAI SITE 45
PROJECT NUMBER: N0502
DRILLING COMPANY: RICHARD SIMMONS
DRILLING RIG: FOREMOST CT250

BORING No.: PAI 45 MW10D
DATE: 10/5/01
GEOLOGIST: CONTI
DRILLER: TOM TRYKUBA

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sample BZ	Background**	Drilling BZ**
	27									0			
BC2 @ 1100	29	3/7, 9/12	0		M DENSE	GRAY	SAND - TR SHELLS		NO REC LOG BASED ON CUTTINGS				
BC3 @ 1110	31	8/9, 11/12	1.2/2	31	M DENSE		SILTY F SAND - TR SHELLS	SM	WET <1MM SAND	0			
	33												
BC4 @ 1125	35	12/11, 44/11	.5/2	35±	V DENSE	GRAY	SILTY F SAND - TR SHELLS	SM	POOR REC WET 34' RODS CHATTER	0			
BC5 @ 1135	37	1/7, 28/50			V DENSE	OLIVE GRAY	SILTY VF SAND	SM	MOIST → WET MICACEOUS	0			
	39								"SUGARY" APPEARANCE				
BC6 @ 1150	40.5	22/30, 50	1.5/1.5	41	V DENSE		SAME	SM	VERY COMPACTED MOIST - NOT ANY CLAY - BUT SOMEWHAT CONFINING	0			
BC7 @ 1215	41 / 43	17/26, 26/21	1.1/2	42±?	V DENSE TO DENSE	GRAY	CLAYEY SAND/ SANDY CLAY - TR ANG. ROCK FRAGS	SC	WET 41-42 BECOMES MORE CLAYEY	0			
							5 7/8" TO 42'		DRILL TO 42 SET WELL @ 41				

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm):

Remarks:

Converted to Well: Yes ✓ No _____ Well I.D. #: PAI 45 MW10D

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: PAI SITE 45
PROJECT NUMBER: N0502
DRILLING COMPANY: RICHARD SIMMONS
DRILLING RIG: FOREMOST CT250

BORING No.: MW11D
DATE: 11/13/01 & 11/14/01
GEOLOGIST: CONTI
DRILLER: TOM TRYKUBA

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	0			6" TO 18'			4" CONCRETE		ROTARY BIT THRU CONC.			0	
									HIT H20 4 TO 5'				
	5		S			GRAY	SAND		(CUTTINGS)		0		
	10					GRAY	SAND - TR CLAY		(CUTTINGS)		0		
	15					TAN BRN					0		
S-1e		2/2	2/2	15.5	LOOSE	GRY	SAND	SP	WET				
0905	17	3/4			SOFT	DARK BRN	Peat - SILTY	Pt	MOIST	0			
S-2e		1/2	1.5/2	18'			Peat - SILTY TO	Pt	PEAT IN DRIVE SHOE ALSO MOIST				
0915	19	2/2		19.0		BRN	CLAYEY SAND		TR WOOD FRAGS				
S-3e		4/4	1.8/2	19.5	LOOSE	GRAY	CLAYEY SAND - TR Pt						
11/13 0925	21	2/2			LOOSE	GRAY	CLAYEY SAND - TR TO SOME SHELL FRAGS	SC TO SP	WET	0			
11/14													
	23			23									
BC1e		3/2	2/2		LOOSE	GRAY	SILTY F SAND - TR	SM	WET	0			
0905	25	3/2					SHELL FRAGS - TR ROOTS						

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm):

Remarks: 4¼" HSA FOR SAMPLING (SPT)
8¼" HSA TO SET 6" CAS - 5 7/8" DRAG BIT THRU CASING.
BC = BELOW CASING SAMPLE.

Converted to Well: Yes ✓ No _____ Well I.D. #: MW11D

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: PAI SITE 45
PROJECT NUMBER: N0502
DRILLING COMPANY: RICHARD SIMMONS
DRILLING RIG: FOREMOST CT 250

BORING No.: MW 11D
DATE: 11/14/01
GEOLOGIST: CONTI
DRILLER: T. TRYKUBA

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
25	25				LOOSE	GRAY	SILTY F SAND - TR SHELLS/ROOTS	SM	WET	0			
	27												
BC 2		5/7	1.5/2		M DENSE		SAME	SM	WET				
@ 0920	29	10/10					TR WOOD FRAG.		MICACEOUS W/ SHELL FRAGS	0			
	31			31									
BC 3 @		3/3	2/2	CLAY	M STIFF	GRAY	SILTY CLAY - TR F SAND	CL	WET	0			
0935	33	3/3		33					ROLLS INTO 1/8" THREAD				
									DRILLER NOTES OUT OF CLAY				
	35								≈ 33'				
BC 4 @		6/10	1.8/2		DENSE	BRN GRAY	SILTY F SAND	SM	MOIST → WET	0			
0945	36.5	50					TR HARD ROCK FRAGS.		DENSELY PACKED				
	39												
BC 5 @		21/20	1.8/2		DENSE	GRAY	SILTY F SAND - TR CLAY	SM	WET	0			
1000	41	23/30		41									
				42									
				BOTM									
							DRILL TO 42'						
							WELL 31 - 41						
							SAND 41 - 28						

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): [ ]

Remarks: _____

Converted to Well: Yes ✓ No _____ Well I.D. #: MW 11D

APPENDIX A-3

WELL INSTALLATION RECORDS

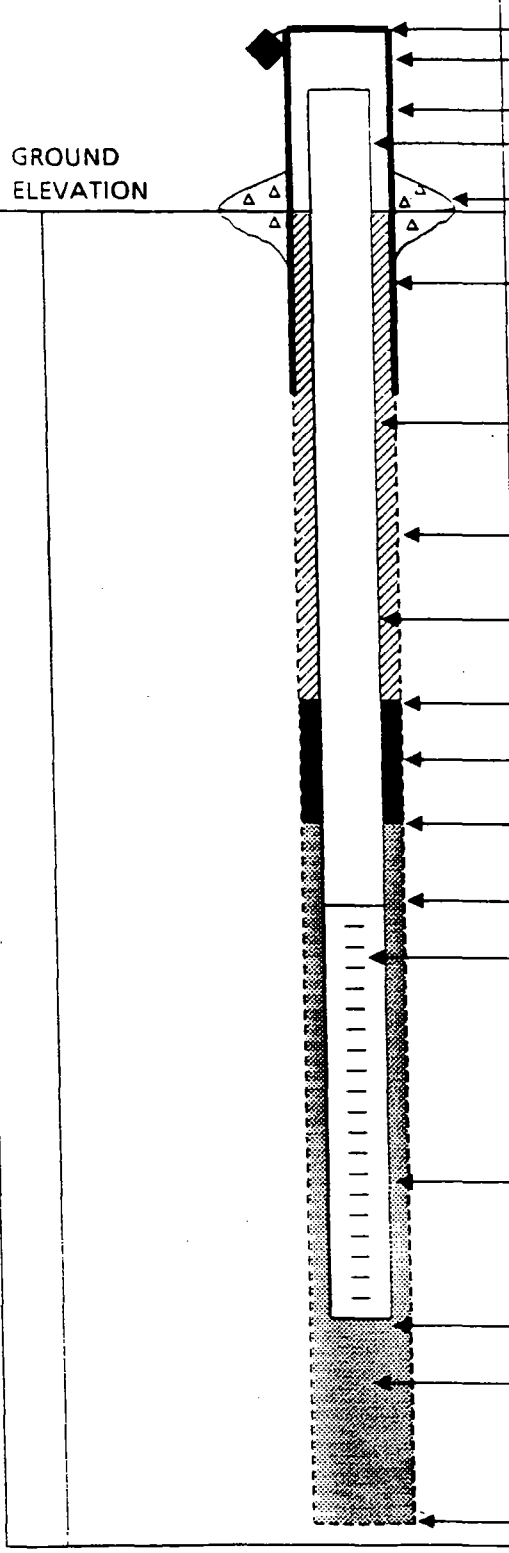
BORING NO.: PZ-09S

Tetra Tech NUS, Inc.

OVERBURDEN
MONITORING WELL SHEET

PROJECT PAI
PROJECT NO. N0502
ELEVATION
FIELD GEOLOGIST CONTI
LOCATION SITE 45
BORING PZ-09S
DATE 10-3-01

DRILLER TOM TRYKUBA
DRILLING METHOD HSA
DEVELOPMENT METHOD PUMP/SURGE



ELEVATION OF TOP OF SURFACE CASING :
ELEVATION OF TOP OF RISER PIPE:
STICK - UP TOP OF SURFACE CASING:
STICK - UP RISER PIPE :
TYPE OF SURFACE SEAL: CONCRETE PAD FLUSH MT.
I.D. OF SURFACE CASING: 7"
TYPE OF SURFACE CASING: STEEL
RISER PIPE I.D. 2" ϕ
TYPE OF RISER PIPE: PVC
BOREHOLE DIAMETER: 8"
TYPE OF BACKFILL: CONCRETE PAD
ELEVATION / DEPTH TOP OF SEAL: /1.0'
TYPE OF SEAL: BENTONITE CHIPS
DEPTH TOP OF SAND PACK: 3.0'
ELEVATION / DEPTH TOP OF SCREEN: /5.0'
TYPE OF SCREEN: PVC
SLOT SIZE x LENGTH: 10 SL x10'
I.D. OF SCREEN: 2"
TYPE OF SAND PACK: # 2 SAND (MED SAND)
ELEVATION / DEPTH BOTTOM OF SCREEN: /15.0'
ELEVATION / DEPTH BOTTOM OF SAND PACK: /15.0
TYPE OF BACKFILL BELOW OBSERVATION WELL: # 2 SAND
ELEVATION / DEPTH OF HOLE: /15.5

BORING NO.: PZ-10S

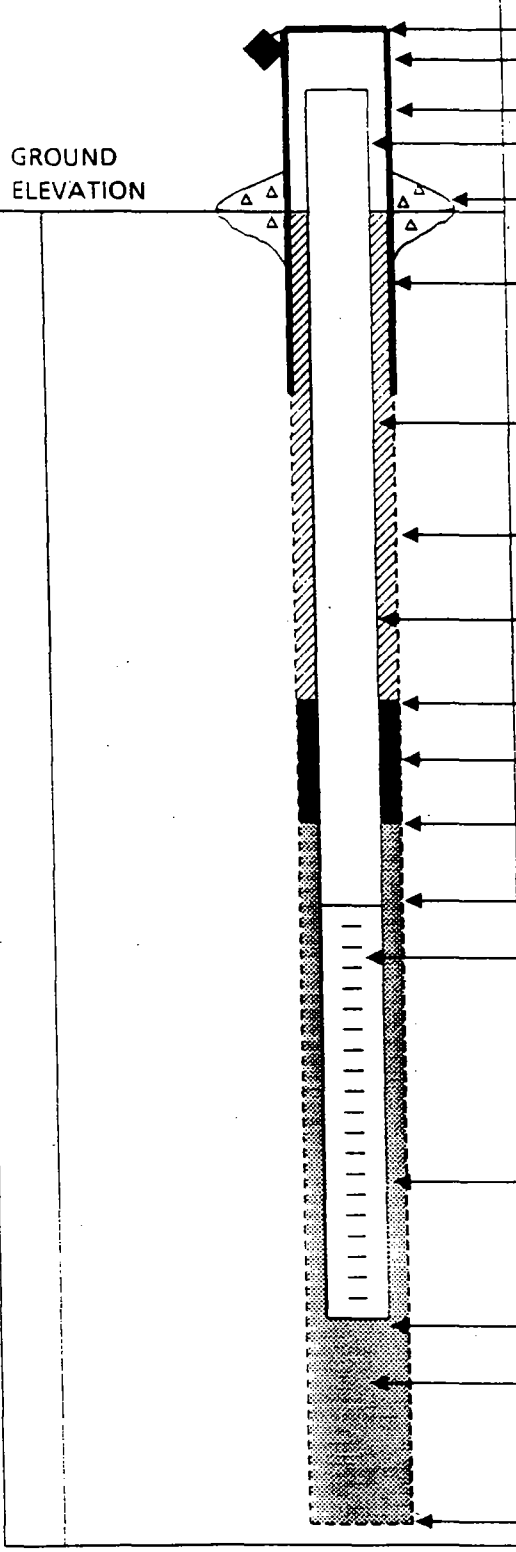
Tetra Tech NUS, Inc.

OVERBURDEN
MONITORING WELL SHEET

PROJECT PAI
PROJECT NO. N0502
ELEVATION
FIELD GEOLOGIST CONTI

LOCATION SITE 45
BORING PZ-10S
DATE 10-3-01

DRILLER TOM TRYKUBA
DRILLING METHOD HSA
DEVELOPMENT METHOD PUMP/SURGE



ELEVATION OF TOP OF SURFACE CASING :
ELEVATION OF TOP OF RISER PIPE:
STICK - UP TOP OF SURFACE CASING:
STICK - UP RISER PIPE :
TYPE OF SURFACE SEAL: CONCRETE PAD FLUSH MOUNT
I.D. OF SURFACE CASING: 7"
TYPE OF SURFACE CASING: STEEL
RISER PIPE I.D. 2"
TYPE OF RISER PIPE: PVC
BOREHOLE DIAMETER: 8"
TYPE OF BACKFILL: CONCRETE PAD
ELEVATION / DEPTH TOP OF SEAL: /1
TYPE OF SEAL: BENTONITE CHIPS
DEPTH TOP OF SAND PACK: 3
ELEVATION / DEPTH TOP OF SCREEN: /5
TYPE OF SCREEN: PVC
SLOT SIZE x LENGTH: 10 x 10'
I.D. OF SCREEN: 2"
TYPE OF SAND PACK: # 2 SAND (MED SAND)
ELEVATION / DEPTH BOTTOM OF SCREEN: /15
ELEVATION / DEPTH BOTTOM OF SAND PACK: /15.5
TYPE OF BACKFILL BELOW OBSERVATION WELL: # 2 SAND
ELEVATION / DEPTH OF HOLE: /15.5

BORING NO.: PZ-11S

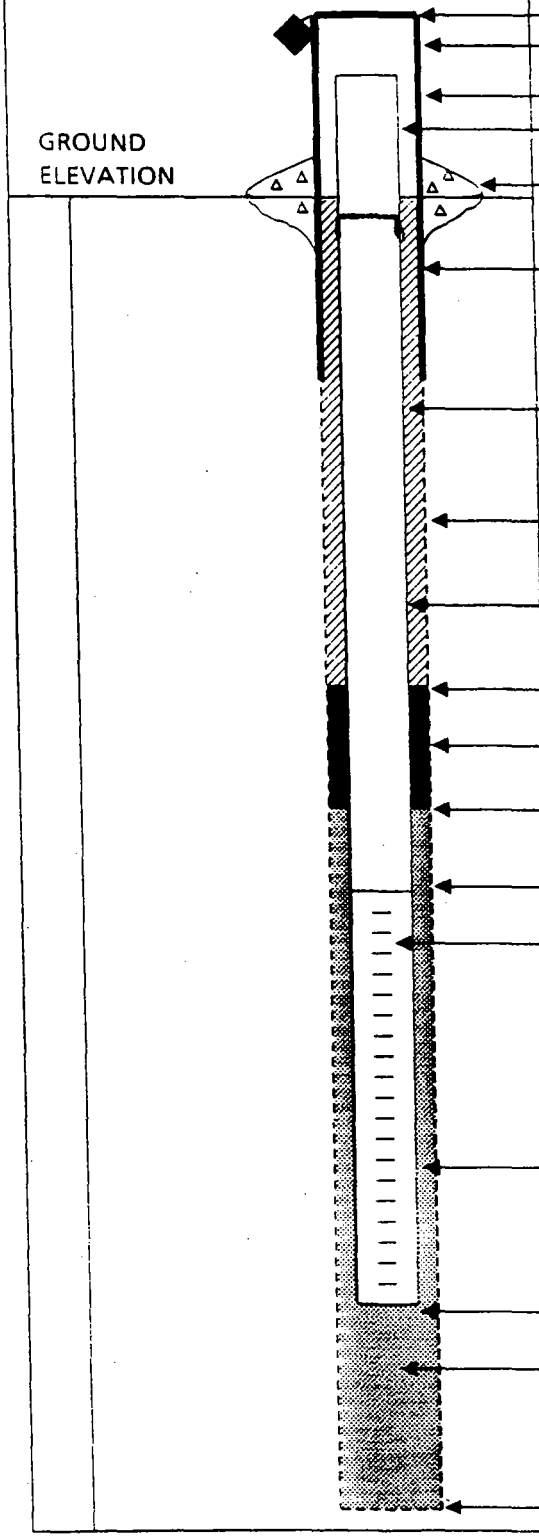
Tetra Tech NUS, Inc.

OVERBURDEN
MONITORING WELL SHEET

PROJECT PAI-SITE 45
PROJECT NO. N0502
ELEVATION
FIELD GEOLOGIST CONTI

LOCATION SITE-45
BORING PZ-11S
DATE 10-3-01

DRILLER TOM TRYKUDA
DRILLING METHOD HSA
DEVELOPMENT METHOD PUMP/SURGE



ELEVATION OF TOP OF SURFACE CASING : ____
ELEVATION OF TOP OF RISER PIPE: ____
STICK - UP TOP OF SURFACE CASING: NA
STICK - UP RISER PIPE : NA
TYPE OF SURFACE SEAL: CONCRETE PAD FLUSH MOUNT
I.D. OF SURFACE CASING: 7"
TYPE OF SURFACE CASING: STEEL
RISER PIPE I.D. 2"
TYPE OF RISER PIPE: PVC
BOREHOLE DIAMETER: 8" Φ
TYPE OF BACKFILL: CONCRETE PAD
ELEVATION / DEPTH TOP OF SEAL: /1
TYPE OF SEAL: BENTONITE CHIPS
DEPTH TOP OF SAND PACK: 3
ELEVATION / DEPTH TOP OF SCREEN: /5
TYPE OF SCREEN: PVC
SLOT SIZE x LENGTH: 10 SL X 10'
I.D. OF SCREEN: 2"
TYPE OF SAND PACK: # 2 SAND (MED SIZE)
ELEVATION / DEPTH BOTTOM OF SCREEN: /15'
ELEVATION / DEPTH BOTTOM OF SAND PACK: /15.5
TYPE OF BACKFILL BELOW OBSERVATION WELL: # 2 SAND
ELEVATION / DEPTH OF HOLE: /15.5

BORING NO.: PAI 45 MW04D

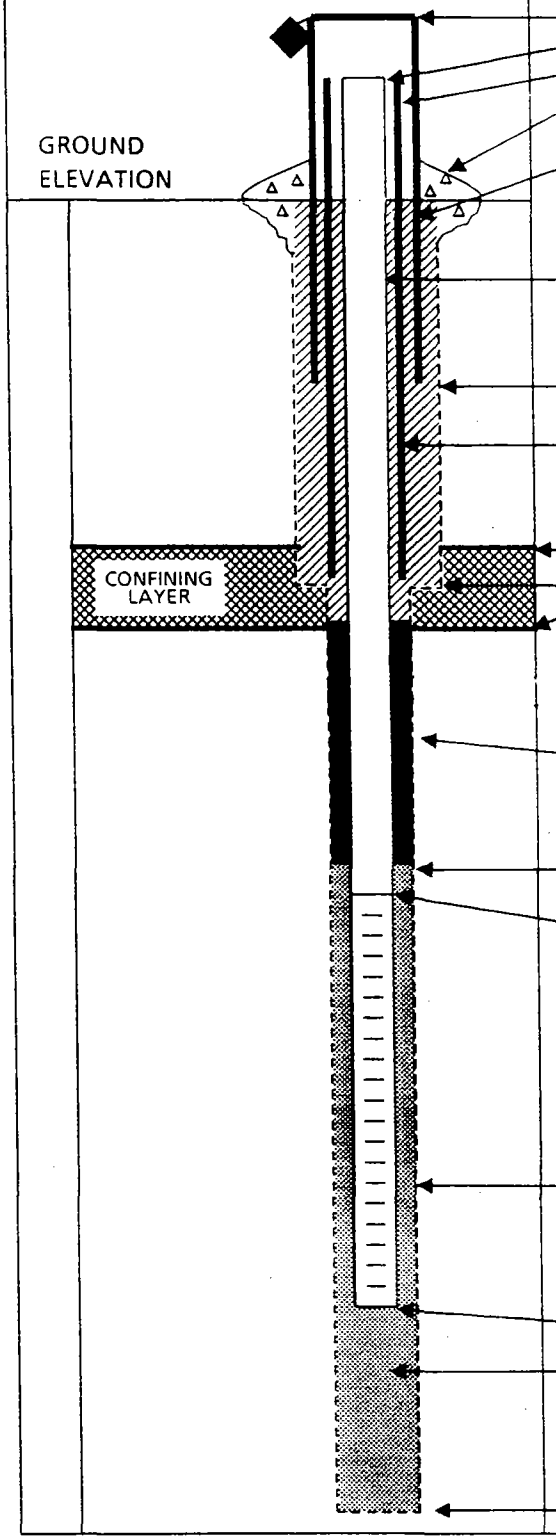
Tetra Tech NUS, Inc.

CONFINING LAYER
MONITORING WELL SHEET

PROJECT PAI
PROJECT NO. N0502
ELEVATION
FIELD GEOLOGIST CONTI

LOCATION SITE 45
BORING PAI 45 MW04D
DATE 10-2-01

DRILLER TOM TRYKUBA
DRILLING METHOD HSA / MUD ROT
DEVELOPMENT METHOD PUMP/SURGE



ELEVATION OF TOP OF SURFACE CASING: FLUSH MT.
ELEVATION OF TOP OF RISER PIPE:
ELEVATION TOP OF PERM. CASING:
TYPE OF SURFACE SEAL: CONCRETE PAD - FLUSH MOUNT.
I.D. OF SURFACE CASING:
TYPE OF SURFACE CASING:

RISER PIPE I.D. 2"
TYPE OF RISER PIPE: PVC

BOREHOLE DIAMETER: 12"

PERM. CASING I.D. 6" STEEL
TYPE OF CASING & BACKFILL: CEMENT/BENT GROUT /

ELEVATION / DEPTH TOP CONFINING LAYER: /19.5'
ELEVATION / DEPTH BOTTOM OF CASING: /21'
ELEVATION / DEPTH BOT. CONFINING LAYER: /22'

ELEVATION / DEPTH TOP OF SEAL: /
TYPE OF SEAL: BENTONITE CHIPS

DEPTH TOP OF SAND PACK: 28'

ELEVATION/DEPTH TOP OF SCREEN: /31'
TYPE OF SCREEN: PVC

TYPE OF SAND PACK: # 2 SAND (MED SAND)

BOREHOLE DIA. BELOW CASING: 5 7/8"

ELEVATION / DEPTH BOTTOM OF SCREEN: /41'

ELEVATION / DEPTH BOTTOM OF SAND PACK: /42'
TYPE OF BACKFILL BELOW OBSERVATION WELL: # 2 SAND

ELEVATION / DEPTH OF HOLE: /42'

BORING NO.: PAI 45 MW05D

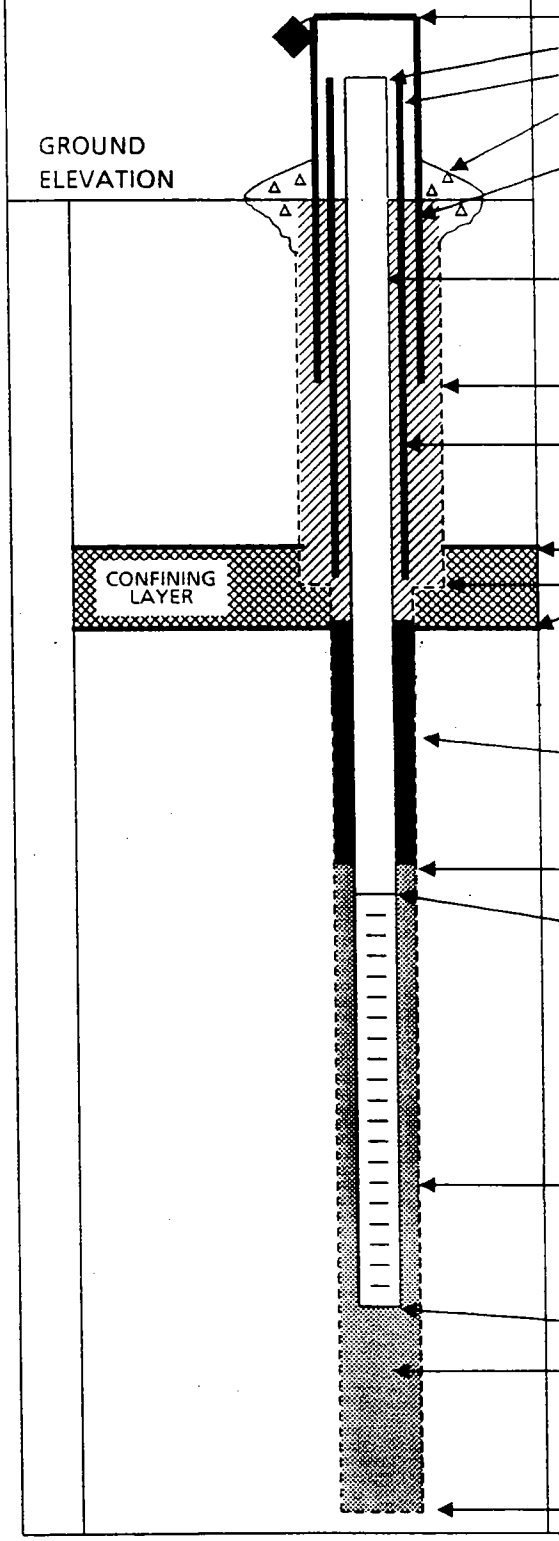
Tetra Tech NUS, Inc.

CONFINING LAYER
MONITORING WELL SHEET

PROJECT PAI
PROJECT NO. N0502
ELEVATION
FIELD GEOLOGIST CONTI

LOCATION SITE 45
BORING PAI 45 MW05D
DATE 10-3-01 / 10-5-01

DRILLER TOM TRYKUBA
DRILLING METHOD HSA / MUD ROT
DEVELOPMENT METHOD PUMP/SURGE



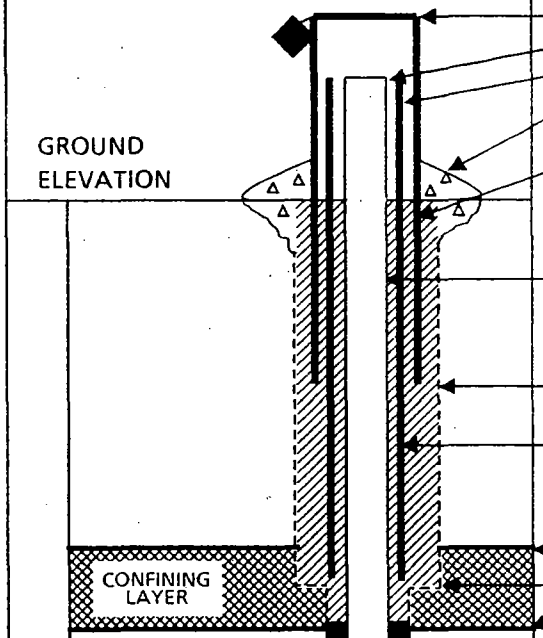
ELEVATION OF TOP OF SURFACE CASING: FLUSH MT.
ELEVATION OF TOP OF RISER PIPE:
ELEVATION TOP OF PERM. CASING:
TYPE OF SURFACE SEAL:
I.D. OF SURFACE CASING:
TYPE OF SURFACE CASING:
RISER PIPE I.D. 2"
TYPE OF RISER PIPE: PVC
BOREHOLE DIAMETER: 12"
PERM. CASING I.D. 6" STEEL
TYPE OF CASING & BACKFILL: CEMENT/ BENTONITE GROUT
ELEVATION / DEPTH TOP CONFINING LAYER: / 19.5
ELEVATION / DEPTH BOTTOM OF CASING: / 20.0
ELEVATION / DEPTH BOT. CONFINING LAYER: / 21.0
ELEVATION / DEPTH TOP OF SEAL: / 29
TYPE OF SEAL: BENTONITE CHIPS 3/8"
DEPTH TOP OF SAND PACK: 31
ELEVATION/DEPTH TOP OF SCREEN: / 34
TYPE OF SCREEN:
TYPE OF SAND PACK: #2 SAND (MED SAND)
BOREHOLE DIA. BELOW CASING: 5 7/8"
ELEVATION / DEPTH BOTTOM OF SCREEN: / 44
ELEVATION / DEPTH BOTTOM OF SAND PACK: / 45
TYPE OF BACKFILL BELOW OBSERVATION WELL: #2 SAND
ELEVATION / DEPTH OF HOLE: / 45

BORING NO.: PAI 45 MW09D

Tetra Tech NUS, Inc.

CONFINING LAYER
MONITORING WELL SHEET

PROJECT PAI SITE 45 | LOCATION SITE 45 | DRILLER TOM TRYKUBA
PROJECT NO. N0502 | BORING PAI 45 MW09D | DRILLING METHOD HSA/MUD ROT
ELEVATION _____ | DATE 11/14/01 | DEVELOPMENT METHOD _____
FIELD GEOLOGIST CONTI



ELEVATION OF TOP OF SURFACE CASING : _____
ELEVATION OF TOP OF RISER PIPE: _____
ELEVATION TOP OF PERM. CASING: _____
TYPE OF SURFACE SEAL: _____
I.D. OF SURFACE CASING: _____
TYPE OF SURFACE CASING: _____
RISER PIPE I.D. 2"
TYPE OF RISER PIPE: PVC
BOREHOLE DIAMETER: 12"
PERM. CASING I.D. 6"
TYPE OF CASING & BACKFILL: CEM/BENT GROUT
ELEVATION / DEPTH TOP CONFINING LAYER: 116.5
ELEVATION / DEPTH BOTTOM OF CASING: 119.0
ELEVATION / DEPTH BOT. CONFINING LAYER: 120
ELEVATION / DEPTH TOP OF SEAL: 125
TYPE OF SEAL: BENTONITE CHIPS
DEPTH TOP OF SAND PACK: 28
ELEVATION/DEPTH TOP OF SCREEN: 131
TYPE OF SCREEN: PVC 2" 10 SL
TYPE OF SAND PACK: #2 SAND (MED)
BOREHOLE DIA. BELOW CASING: 5 7/8"
ELEVATION / DEPTH BOTTOM OF SCREEN: 141
ELEVATION / DEPTH BOTTOM OF SAND PACK: 142
TYPE OF BACKFILL BELOW OBSERVATION WELL: SAND
ELEVATION / DEPTH OF HOLE: 142

BORING NO.: PAI 45 MW10D

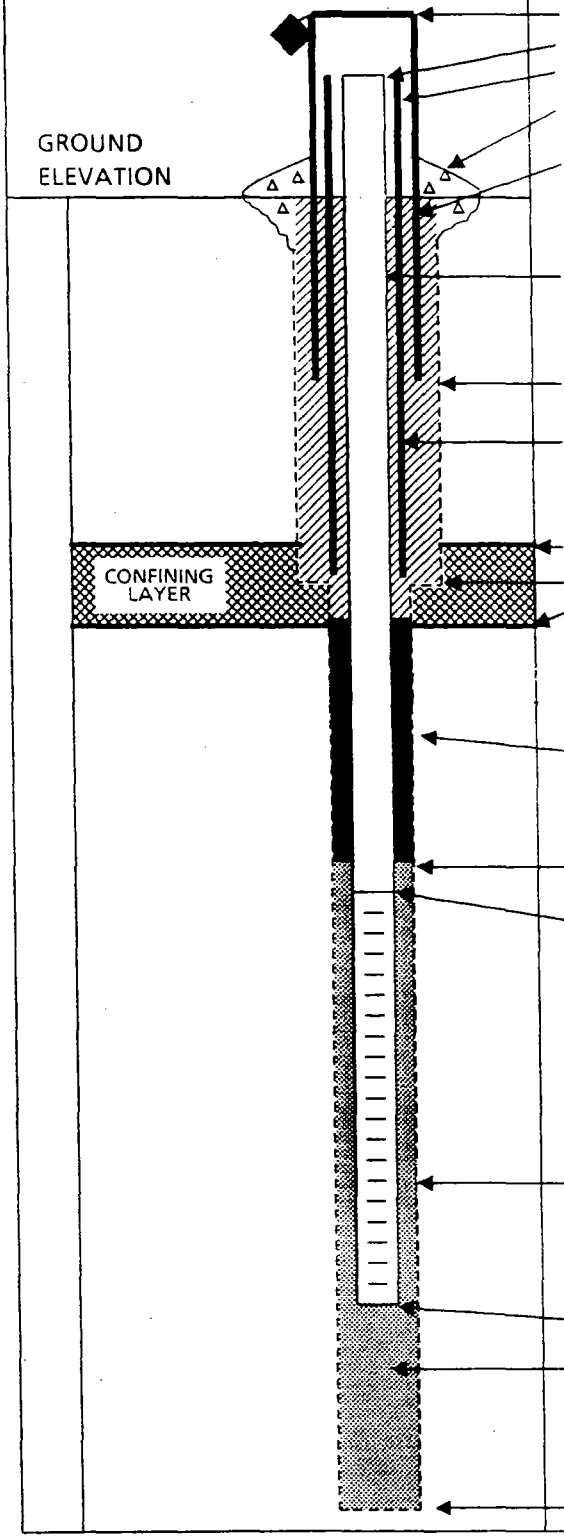
Tetra Tech NUS, Inc.

CONFINING LAYER
MONITORING WELL SHEET

PROJECT PAI
PROJECT NO. N0502
ELEVATION
FIELD GEOLOGIST CONTI

LOCATION SITE 45
BORING PAI 45 MW10D
DATE 10-3-01 / 10-5-01

DRILLER TOM TRYKUBA
DRILLING METHOD HSA/MUDROT
DEVELOPMENT METHOD PUMP/SURGE



ELEVATION OF TOP OF SURFACE CASING: FLUSH MT.
ELEVATION OF TOP OF RISER PIPE:
ELEVATION TOP OF PERM. CASING:
TYPE OF SURFACE SEAL: CONCRETE PAD FLUSH MT.
I.D. OF SURFACE CASING:
TYPE OF SURFACE CASING:

RISER PIPE I.D. 2"ϕ
TYPE OF RISER PIPE: PVC

BOREHOLE DIAMETER: 12"

PERM. CASING I.D. 6"
TYPE OF CASING & BACKFILL: STEEL W/ CEMENT: BENT GROUT

TOP OF PEAT 18.6

ELEVATION / DEPTH TOP CONFINING LAYER: 119
ELEVATION / DEPTH BOTTOM OF CASING: 120
ELEVATION / DEPTH BOT. CONFINING LAYER: 121

ELEVATION / DEPTH TOP OF SEAL: 126
TYPE OF SEAL: BENTONITE CHIPS 3/8"

DEPTH TOP OF SAND PACK: 28

ELEVATION/DEPTH TOP OF SCREEN: 131
TYPE OF SCREEN:

TYPE OF SAND PACK: # 2 SAND (MED SAND)

BOREHOLE DIA. BELOW CASING: 5 7/8"

ELEVATION / DEPTH BOTTOM OF SCREEN: 141

ELEVATION / DEPTH BOTTOM OF SAND PACK: 142
TYPE OF BACKFILL BELOW OBSERVATION WELL: # SAND

ELEVATION / DEPTH OF HOLE: 142

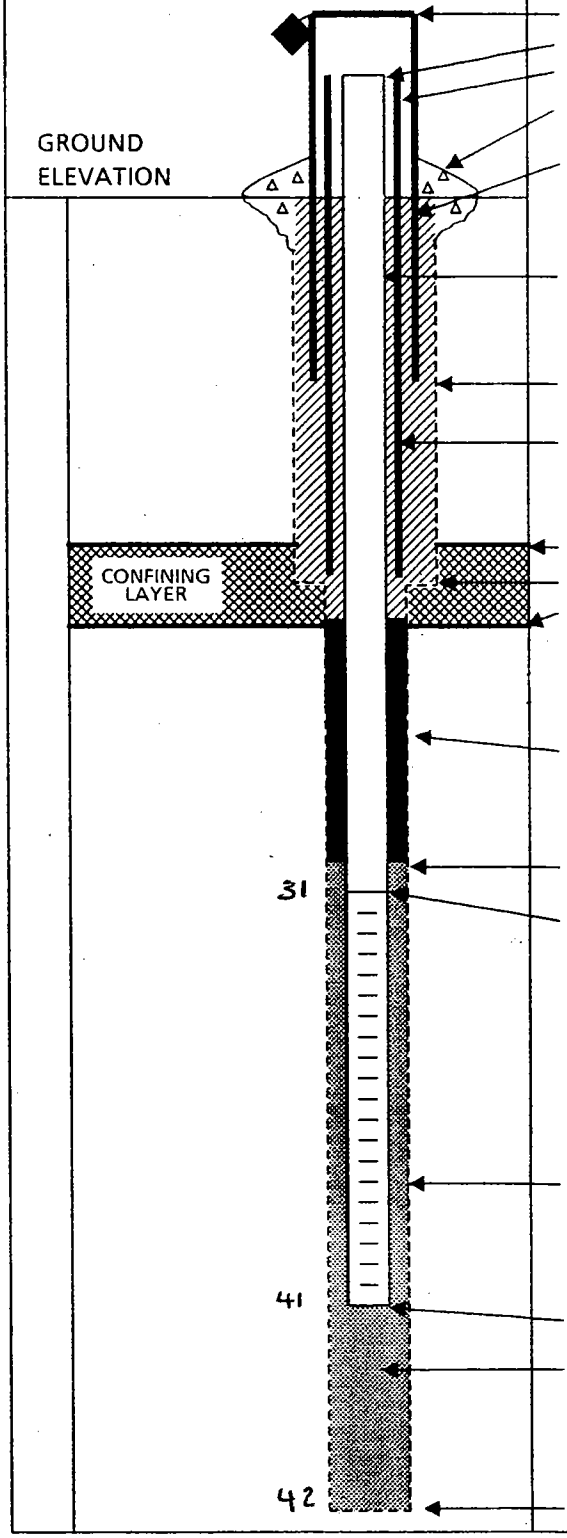
BORING NO.: PAI 45 MW 11D

Tetra Tech NUS, Inc.

CONFINING LAYER
MONITORING WELL SHEET

PROJECT PAI SITE 45 | LOCATION SITE 45
PROJECT NO. N0502 | BORING PAI45 MW 11D
ELEVATION _____ | DATE 11/14/01
FIELD GEOLOGIST CONTI

DRILLER TOM TRYKUBA
DRILLING METHOD HSA/MUD ROT
DEVELOPMENT METHOD _____



ELEVATION OF TOP OF SURFACE CASING : _____
ELEVATION OF TOP OF RISER PIPE: _____
ELEVATION TOP OF PERM. CASING: _____
TYPE OF SURFACE SEAL: _____
I.D. OF SURFACE CASING: _____
TYPE OF SURFACE CASING: _____
RISER PIPE I.D. 2"
TYPE OF RISER PIPE: PVC
BOREHOLE DIAMETER: 12"
PERM. CASING I.D. 6"
TYPE OF CASING & BACKFILL: CEMIBENT GROUT
ELEVATION / DEPTH TOP CONFINING LAYER: /15.5
ELEVATION / DEPTH BOTTOM OF CASING: /18
ELEVATION / DEPTH BOT. CONFINING LAYER: /19
ELEVATION / DEPTH TOP OF SEAL: /25
TYPE OF SEAL: BENTONITE CHIPS
DEPTH TOP OF SAND PACK: 28
ELEVATION/DEPTH TOP OF SCREEN: /31
TYPE OF SCREEN: PVC
TYPE OF SAND PACK: #2 SAND (MED GR SIZE)
BOREHOLE DIA. BELOW CASING: 5 7/8"
ELEVATION / DEPTH BOTTOM OF SCREEN: /41
ELEVATION / DEPTH BOTTOM OF SAND PACK: /42
TYPE OF BACKFILL BELOW OBSERVATION WELL: SAND
ELEVATION / DEPTH OF HOLE: /42

APPENDIX A-4

WELL DEVELOPMENT RECORDS

15.28
.02
15.30

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: PZ-09S
Site: 45
Date Installed: 10-3-01
Date Developed: 10-6-01
Dev. Method: PUMP/SURGE
Pump Type: WHALE
Depth to Bottom (ft.): 15.30 TPVC
Static Water Level Before (ft.): 3.35
Static Water Level After (ft.): 15'±
Screen Length (ft.): 10'
Specific Capacity: 11.65' DDE 1 TO 1.5 GPM.
Casing ID (in.): 2" Φ
Responsible Personnel: CONTI
Drilling Co.: RICHARD SIMMONS
Project Name: SITE 45 PARRIS IS.
Project Number: ND502

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units ____) mS/cm	Turbidity (NTU)	DO	Remarks (odor, color, etc.)	SAL
0905	—		3.35	—	—	—	—	—	—	—
0915	—	15	13.60@1.5GPM	23.9	5.62	.370	652	5.74	CLOUDY	.01
0930	—	25	—	24.3	5.61	.437	153	4.28	SL TURBID	.01
0940	—	30±	—	24.2	5.45	.411	-0	5.12	SL TURBID	.01
1000	—	45±	15.±	24.4	5.33	.400	-10 BLINK	4.51	CLEAR	.01
		WELL WENT DRY AFTER ≈ 15 GALLONS @ 0915								
		RECOVERS OK - PUMP DRY AGAIN @ 0930								
		9.8'@	0936 HRS	- TOOK RDGS @	0940					
		PUMPED DRY AGAIN @ 0945								
		TOOK LAST RDG @ 1000 HRS WELL MAKING ≈ 1 TO 1.5 GPM MAX DD.								

A-109

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: PZ-105 Depth to Bottom (ft.): 15.84 TPVC Responsible Personnel: CONTI
Site: 45 Static Water Level Before (ft.): 3.88 Drilling Co.: RICHARD SIMMONS
Date Installed: 10/3/01 Static Water Level After (ft.): 9.40 Project Name: SITE 45 PARRIS IS.
Date Developed: 10/6/01 Screen Length (ft.): 10' Project Number: N0502
Dev. Method: PUMP & SURGE Specific Capacity: 5.52' DD @ 1.5 GPM
Pump Type: WHALE Casing ID (in.): 2"

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units ____) mS/cm	Turbidity (NTU)	DO mg/l	Remarks (odor, color, etc.)	SAL %
0830	—	—	3.88	—	—	—	—	—	BRN. GRAY	—
0840	—	15	9.10 @ 1.5GPM	24.7	5.26	.404	746	1.90	CLOUDY LT BRN	.01
0850	—	30	9.52 @ "	24.6	5.11	.388	15	2.54	SL CLOUDY	.01
0900	—	45	9.40 @ "	24.7	5.03	.381	-10*	2.32	V SL CLOUDY	.01
									ALMOST CLEAR.	
STOP		PZ-105	TO BE USED	FOR OBS WELL	DURING	PUMP	TEST			
									-10 BLANKS	

A-110

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: PZ 11S
Site: 45
Date Installed: 10/3/01
Date Developed: 10/6/01
Dev. Method: PUMP
Pump Type: WHALE.
Depth to Bottom (ft.): 15.12 TPVC
Static Water Level Before (ft.): 3.20
Static Water Level After (ft.): 9.50
Screen Length (ft.): 10.0
Specific Capacity: 6.3' DD @ 1.5 GPM
Casing ID (in.): 2"
Responsible Personnel: CONTI
Drilling Co.: RICHARD SIMMONS
Project Name: SITE 45 PARRIS IS.
Project Number: ND502

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units mS/cm)	Turbidity (NTU)	DO mg/l	Remarks (odor, color, etc.)	SAL %
0745	0	—	3.20	—	—	—	—	—	—	—
0755	—	15	8.90	24.8	5.32	.743	516	1.35	≤1 GPM >1.5 GPM	.03
0805	—	30	9.60 @ 1.5 GPM	24.8	5.26	.706	—	1.48	SL. TURBID	.03
0815	—	45	9.45 @ 1.5 GPM	24.9	5.28	.681	—*	1.64	VSL. TURBID	.02
0825	—	60	9.50 @ 1.5 "	24.9	5.29	.670	—*	1.47	VSL TURBID.	.02
STOP @ 0825 - PZ-11S - TO BE USED FOR OBS WELL DURING PUMP TEST										
									-10 BLANKS.	

A-111

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: PAI 45 MW04D
Site: 45
Date Installed: 10/5/01
Date Developed: 10/6/01
Dev. Method: PUMP & SURGE
Pump Type: WHALE

Depth to Bottom (ft.): 41.8 TPVC
Static Water Level Before (ft.): 4.15
Static Water Level After (ft.): 27.11
Screen Length (ft.): 10'
Specific Capacity: 22.96 'DD@ 1 GPM
Casing ID (in.): 2" ϕ

Responsible Personnel: CONTI
Drilling Co.: RICHARD SIMMONS
Project Name: SITE 45 PARRIS IS.
Project Number: N0502

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units ____) mS/cm	Turbidity (NTU)	DO mg/l	Remarks (odor, color, etc.)	SAL %
1025	—	—	4.15							
1035	—	5	.5GPM	24.3	6.06	6.41	999	.51	GRAY TURBID	.34
1045	—	15	25.01 @ 1.0 "	23.7	5.93	11.5	999	.57	" "	.66
1055	—	25	27.60 @ "	23.4	6.13	13.9	954	1.11	" "	.80
1105	—	35	26.6 @ "	23.2	6.24	15.1	237	.56	LT GRAY, SL TUR	.88
1115	—	45	26.5 @ 1.0 GPM	23.2	6.28	15.2	144	.72↓	" "	.89
1125	—	55	26.85 @ "	23.2	6.32	15.3	30	.69↓	" "	.89
1135	—	65	27.00 @ "	23.2	6.17	15.4	-10 BLINK	.72↓	CLEAR SL TURB	.90
1145	—	75	27.15 @ "	23.2	6.08	15.5	-10 "	.65	" VSL "	.90
1155	—	85	27.12 @ "	23.1	6.18	15.5	-10 "	.59	" "	.91
1205	—	95	27.10 @ "	23.2	6.18	15.5	-10 "	.50	" "	.91
1215	—	105	27.11 @ "	23.2	6.18	15.5	-10 "	.45	" "	.91

A-110

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: PAI 45 MW 05D
Site: 45
Date Installed: 10/5/01
Date Developed: 10/6/01
Dev. Method: PUMP/SURGE
Pump Type: WHALE
Depth to Bottom (ft.): 43.85
Static Water Level Before (ft.): 4.59
Static Water Level After (ft.): _____
Screen Length (ft.): 10'
Specific Capacity: 5.11' DDe 2 GPM ±
Casing ID (In.): 2" Φ
Responsible Personnel: CONTI
Drilling Co.: RICHARD SIMMONS
Project Name: SITE 45 PARRIS IS.
Project Number: N0502

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units mS/cm)	Turbidity (NTU)	DO mg/l	Remarks (odor, color, etc.)	SAL
1340	—	—	4.59	—	—	—	—	—	GRAY V. TURBID WAIT UNIT IT	—
			≈ 1GPM TO GET RID OF SED.						CLEARS A LITTLE BEFORE PDBS.	
1400	—	20	8.78 @ 2 GPM	24.4	7.04	.758	146	.76	" LEMONADE SL TURBID APPEAR	.03
1410	—	40	9.40 @ 2 "	24.2	6.74	.816	142	.82	" " "	.03
1420	—	60	9.50 @ 2 "	23.9	6.53	.94	-10 BLINK	.92	" " "	.04
1430	—	80	9.52 @ 2 "	23.9	6.73	.99	-10 "	.87	" " "	.04
1440	—	100	9.61 @ 2 "	23.9	6.56	1.01	-10 "	.90	" " "	.04
1450	—	120	9.67 @ 2 "	23.8	6.60	1.02	-10 "	.95	" "	.04
1500	—	140	9.70 @ 2 "	23.8	6.65	1.03	-10 "	1.01	CLEAR SL TURB	.04

A-113

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: PAI 45 MW09D
Site: 45
Date Installed: 11/14/01
Date Developed: 11/15/01
Dev. Method: PUMP/SURGE
Pump Type: WHALE
Depth to Bottom (ft.): 40.65±
Static Water Level Before (ft.): 3.65
Static Water Level After (ft.): 13.50
Screen Length (ft.): 10'
Specific Capacity:
Casing ID (in.): 2"
Responsible Personnel: CONTI
Drilling Co.: R. SIMMONS
Project Name: PAI
Project Number: N0502

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units mS/cm)	Turbidity (NTU)	Remarks (odor, color, etc.)
1400	NA	—	3.65	—	—	—	—	GRAY V. TURBID ± 1GPM
1420	—	20	13.98	22.5	6.64	1.10	905	" SL TURBID
1430	—	30	14.12	22.5	6.36	1.08	595	" "
1445	—	45	14.33	22.9	6.13	1.08	461	" "
1500	—	60	14.35	22.9	6.16	1.09	315	LT. " "
1515	—	75	13.45	22.9	6.12	1.09	189	CLEAR SL TURBID ± 1GPM
1530	—	90	13.48	22.9	6.11	1.10	175	" " "
1545	—	105	13.50	22.9	6.13	1.10	179	" " "
								"Lemonade" Appearance.
								Clear, but sl. turbid.

A-114

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: PAI 45 MW 10D
Site: 45
Date Installed: 10/5/01
Date Developed: 10/6/01
Dev. Method: PUMP/SURGE
Pump Type: WHALE
Depth to Bottom (ft.): 41.60 TPVC
Static Water Level Before (ft.): 3.62
Static Water Level After (ft.): 14.30
Screen Length (ft.): 10'
Specific Capacity: 10.68'DD@2GPM
Casing ID (in.): 2"Φ
Responsible Personnel: CONTI
Drilling Co.: RICHARD SIMMONS
Project Name: SITE 45 PARRIS IS.
Project Number: N0502

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units ____) mS/cm	Turbidity (NTU)	DO mg/l	Remarks (odor, color, etc.)	SAL
1230	—	—	3.62	—	—	—	—	—		—
1250	—	40	14.28@2GPM	24.1	6.55	1.37	70	.84	CLEAR-SLTURB.	.06
1300	—	60	14.20@"	23.8	6.44	1.31	-10 BLNK	0.77	" "	.05
1310	—	80	14.35@"	23.8	6.48	1.32	22	.92	" "	.06
1320	—	100	14.31@"	23.7	6.46	1.33	-10 BLNK	.85	" "	.06
1330	—	120	14.30@"	23.6	6.47	1.34	-10 "	.89	" "	.06
									GW HAS @ "	
									LEMONADE TYPE APPEARANCE	
									DOESNT SEEM TO CLEAR UP	

A-115

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: PAI 45 MW11D
Site: 45
Date Installed: 11/14/01
Date Developed: 11/15/01
Dev. Method: PUMP/SURGE
Pump Type: WHALE
Depth to Bottom (ft.): 41.77
Static Water Level Before (ft.): 12.4
Static Water Level After (ft.): 38'±
Screen Length (ft.): 10'
Specific Capacity:
Casing ID (in.): 2"
Responsible Personnel: CONTI
Drilling Co.: B. SIMMONS
Project Name: PAI
Project Number: N0502

Time 1200	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units ms/cm)	Turbidity (NTU)	Remarks (odor, color, etc.)
1230	NA	≈ 5 GAL	12.4*	24.3	6.75	4.96	999	GRAY / CLOUDY < ½ GPM
1300				23.5	6.60	6.06	750	WENT DRY AFTER ≈ ½ HR.
1400		5.5	38'	23.1	6.55	7.00	500	WAIT ½ HR
								WENT DRY AGAIN
								AT 1300
								DONE @ 1400
			* STILL RISING - CAP WAS ON TIGHT.					

APPENDIX A-5

GEOTECHNICAL DATA

Geotechnics

LABORATORY TEST REPORT

July 11, 2001

Project No. 2001-165-01

Mr. David Brayack
Tetra Tech NUS.
Foster Plaza 7
661 Anderson Drive
Pittsburgh, PA 15201

RE: Soils- MCRD Parris Island 0502

Transmitted herein are the results of the soils testing performed for Tetra Tech NUS verified on the Project Verification Form, submitted June 18, 2001. The testing was performed in general accordance with the ASTM methods listed on the enclosed data sheets. The remaining sample materials for this project will be retained for a minimum of 90 days as directed by the Geotechnics' Quality Program.

Disclaimer

The test results are believed to be representative of the samples submitted but are indicative only of the specimens which were evaluated. Geotechnics has no direct knowledge of the origin of the samples, implies no position with regard to the disposition of the test results, i.e., pass/fail, and makes no claims as to the suitability of the material for its intended use.

The test data and all associated project information provided shall be held in strict confidence and disclosed to other parties only with authorization of the Client and Geotechnics. The test data submitted herein is considered integral with this report and is not to be reproduced except in whole and only with the authorization of the Client and Geotechnics.

We are pleased to provide these testing services. Should you have any questions or if we may be of further assistance, please do not hesitate to contact our office.

Respectively submitted,

David Backstrom/RJO

David R. Backstrom
Laboratory Director

Geotechnics

pH OF SOILS
ASTM D 4972-95a / AASHTO T 289-91
(SOP- S36)

Client	TETRA TECH NUS
Client Reference	MCRD PARRIS ISLAND 0502
Project No.	2001-165-01

Lab ID		01	02	03
Boring No.		NA	NA	NA
Depth (ft)		NA	NA	NA
Sample No.		PAI-45-SB-01-14	PAI-45-SB-09-14	PAI-45-SB-10-13
Drying Tare No.		626	596	1722
Testing Tare No.		150-1	150-7	150-9
Temperature (°C)		21	21	21
pH of Sample	***Test 1***	**5.5**	**5.2**	**7.3**
	Test 2	**5.6**	**5.2**	**7.4**
Agreement (+/- 0.2 units)		-0.1	0.0	-0.1

Meter Calibration

Buffer pH	Meter Reading	Meter Model
4.0	4.2	CORNING MOD. 12
7.0	7.0	
10.0	9.8	

pH of Deionized Water (Acceptable range 6.5-7.5)	7.3

Tested By KBL Date 6/23/01 Checked By Jm Date 6-25-01

DCN: CT-S36 DATE 2/16/01 REVISION: 3

N:\Soil Data\2001\2001-165-01pH1.xls]Sheet1

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999

Geotechnics

pH OF SOILS
ASTM D 4972-95a / AASHTO T 289-91
(SOP- S36)

Client	TETRA TECH NUS
Client Reference	MCRD PARRIS ISLAND 0502
Project No.	2001-165-01

Lab ID		04	05	06
Boring No.		NA	NA	NA
Depth (ft)		NA	NA	NA
Sample No.		PAI-45-SB-11-10	PAI-45-SB-12-10	PAI-45-SB-13-10
Drying Tare No.		579	574	783
Testing Tare No.		150-13	150-14	150-9
Temperature (° C)		21	21	21
pH of Sample	***Test 1***	**7.8**	**6.4**	**6.4**
	Test 2	**7.8**	**6.5**	**6.4**
Agreement (+/- 0.2 units)		0.0	-0.1	0.0

Meter Calibration

Buffer pH	Meter Reading	Meter Model
4.0	4.2	CORNING MOD. 12
7.0	7.0	
10.0	9.8	

pH of Deionized Water (Acceptable range 6.5-7.5)	7.3

Tested By KBL Date 6/23/01 Checked By Jcm Date 6-25-01

DCN: CT-S36 DATE 2/16/01 REVISION: 3

N:\Soil Data\2001\[2001-165-01pH2.xls]Sheet1

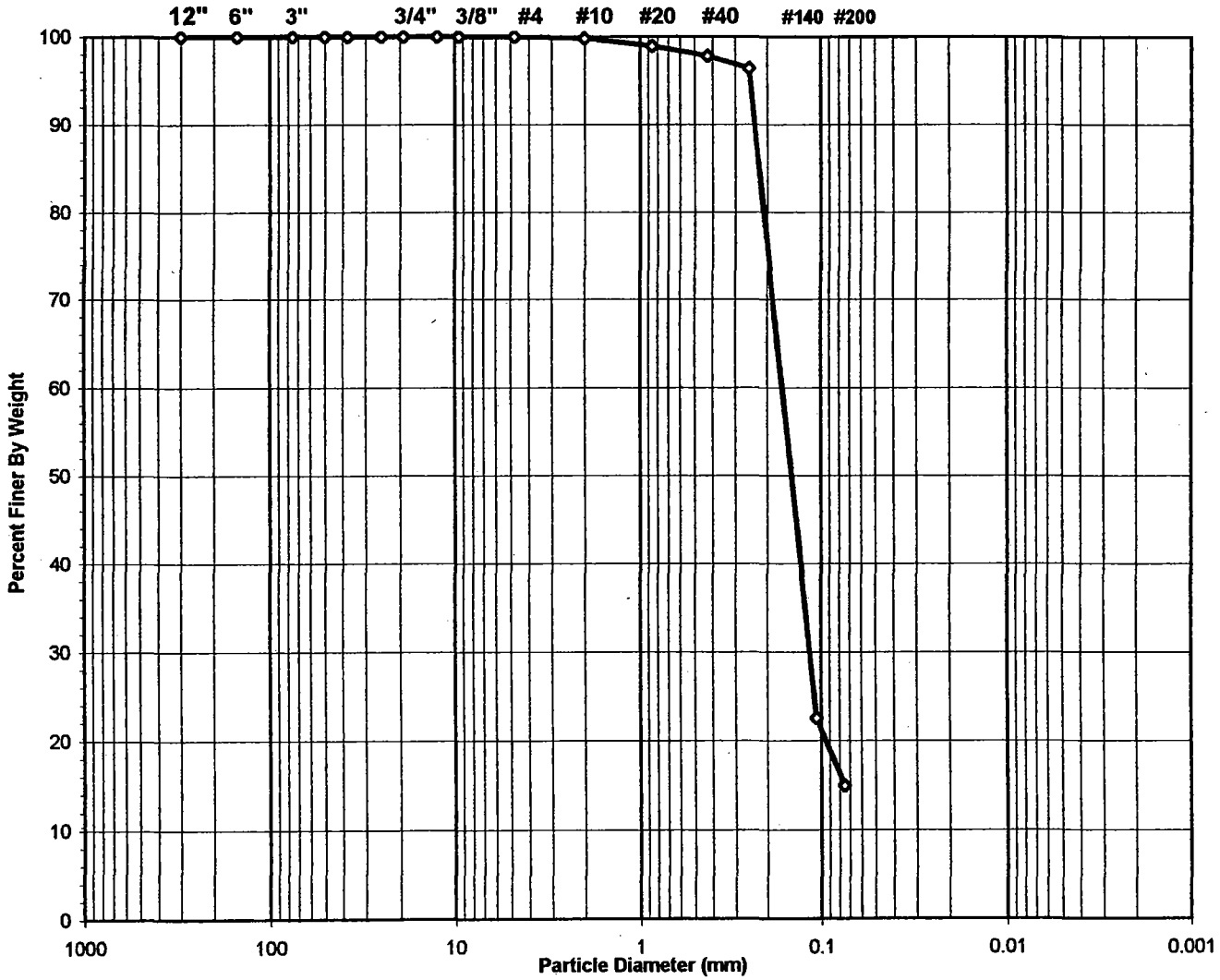
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999

Geotechnics

SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	TETRA TECH NUS	Boring No.	NA
Client Reference	MCRD PARRIS ISLAND 0502	Depth (ft)	NA
Project No.	2001-165-01	Sample No.	PAI-45-SB-01-14
Lab ID	2001-165-01-01	Soil Color	GRAY

USCS	SIEVE ANALYSIS		HYDROMETER
	gravel	sand	silt and clay



USCS Symbol ***sm, ASSUMED***

USCS Classification ***SILTY SAND***

Tested By TO Date 6/24/01 Checked By TMO Date 8/26/01

DCN: CT-S3C DATE 6-25-98 REVISION: 2

C:\MSOFFICE\EXCEL\PrintQ\[I269.xls]Sheet1

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999

A-120

Geotechnics

WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	TETRA TECH NUS	Boring No.	NA
Client Reference	MCRD PARRIS ISLAND 0502	Depth (ft)	NA
Project No.	2001-165-01	Sample No.	PAI-45-SB-01-14
Lab ID	2001-165-01-01	Soil Color	**GRAY**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	1703	Tare No.	NA
Wgt.Tare + Wet Specimen (gm)	316.90	Wgt.Tare + Wet Specimen (gm)	NA
Wgt.Tare + Dry Specimen (gm)	260.85	Wgt.Tare + Dry Specimen (gm)	NA
Weight of Tare (gm)	83.97	Weight of Tare (gm)	NA
Weight of Water (gm)	56.05	Weight of Water (gm)	NA
Weight of Dry Soil (gm)	176.88	Weight of Dry Soil (gm)	NA
Moisture Content (%)	**31.7**	**Moisture Content (%)**	**NA**

Wet Weight -3/4" Sample (gm)	NA	Weight of the Dry Specimen (gm)	176.88
Dry Weight - 3/4" Sample (gm)	150.4	Weight of minus #200 material (gm)	26.47
Wet Weight +3/4" Sample (gm)	NA	Weight of plus #200 material (gm)	150.41
Dry Weight + 3/4" Sample (gm)	0.00		
Total Dry Weight Sample (gm)	NA		

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	0.00	0.00	0.00	100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00	100.00	**100.00**
1/2"	12.50	0.00	0.00	0.00	100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00	100.00	**100.00**
#4	4.75	0.00	0.00	0.00	100.00	**100.00**
#10	2.00	0.34	0.19	0.19	99.81	**99.81**
#20	0.850	1.59	0.90	1.09	98.91	**98.91**
#40	0.425	1.96	1.11	2.20	97.80	**97.80**
#60	0.250	2.41	1.36	3.56	96.44	**96.44**
#140	0.106	130.67	73.87	77.44	22.56	**22.56**
#200	0.075	13.44	7.60	85.04	14.96	**14.96**
Pan	-	26.47	14.96	100.00	-	-

Tested By TO Date 6/24/01 Checked By TMO Date 6/26/01

DCN: CT-S3C DATE 6-25-98 REVISION: 2

C:\MSOFFICE\EXCEL\PrintQ\[269.xls]Sheet1

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999

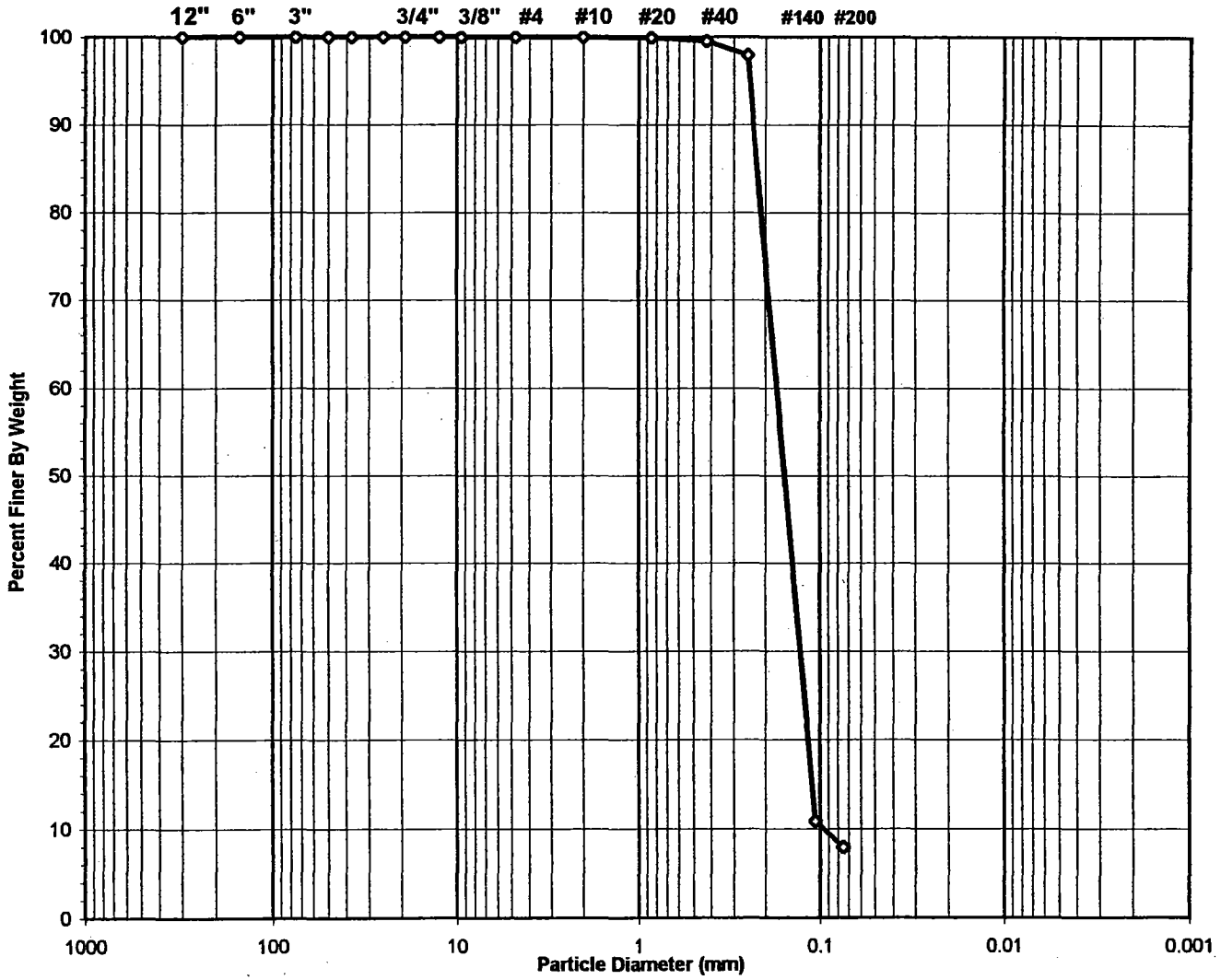
A-121

Geotechnics

SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	TETRA TECH NUS	Boring No.	NA
Client Reference	MCRD PARRIS ISLAND 0502	Depth (ft)	NA
Project No.	2001-165-01	Sample No.	PAI-45-SB-09-14
Lab ID	2001-165-01-02	Soil Color	GRAY

	SIEVE ANALYSIS		HYDROMETER
USCS	gravel	sand	silt and clay



USCS Symbol ***sp-sm, ASSUMED*** **D60 = 0.2** **CC = 1.0**

USCS Classification ***POORLY GRADED SAND WITH SILT*** **D30 = 0.1** **CU = 1.8**

D10 = 0.1

Tested By TO Date 6/24/01 Checked By TMO Date 6/26/01

DCN: CT-S3C DATE 6-25-98 REVISION: 2

C:\MSOFFICE\EXCEL\PrintQ\[270.xls]Sheet1

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999

Geotechnics

WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	TETRA TECH NUS	Boring No.	NA
Client Reference	MCRD PARRIS ISLAND 0502	Depth (ft)	NA
Project No.	2001-165-01	Sample No.	PAI-45-SB-09-14
Lab ID	2001-165-01-02	Soil Color	GRAY

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	621	Tare No.	NA
Wgt.Tare + Wet Specimen (gm)	529.70	Wgt.Tare + Wet Specimen (gm)	NA
Wgt.Tare + Dry Specimen (gm)	443.90	Wgt.Tare + Dry Specimen (gm)	NA
Weight of Tare (gm)	87.12	Weight of Tare (gm)	NA
Weight of Water (gm)	85.80	Weight of Water (gm)	NA
Weight of Dry Soil (gm)	356.78	Weight of Dry Soil (gm)	NA
Moisture Content (%)	**24.0**	**Moisture Content (%)**	**NA**

Wet Weight -3/4" Sample (gm)	NA	Weight of the Dry Specimen (gm)	356.78
Dry Weight - 3/4" Sample (gm)	328.6	Weight of minus #200 material (gm)	28.14
Wet Weight +3/4" Sample (gm)	NA	Weight of plus #200 material (gm)	328.64
Dry Weight + 3/4" Sample (gm)	0.00		
Total Dry Weight Sample (gm)	NA		

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	0.00	0.00	0.00	100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00	100.00	**100.00**
1/2"	12.50	0.00	0.00	0.00	100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00	100.00	**100.00**
#4	4.75	0.00	0.00	0.00	100.00	**100.00**
#10	2.00	0.06	0.02	0.02	99.98	**99.98**
#20	0.850	0.21	0.06	0.08	99.92	**99.92**
#40	0.425	1.35	0.38	0.45	99.55	**99.55**
#60	0.250	5.75	1.61	2.07	97.93	**97.93**
#140	0.106	310.70	87.08	89.15	10.85	**10.85**
#200	0.075	10.57	2.96	92.11	7.89	**7.89**
Pan	-	28.14	7.89	100.00	-	-

Tested By TO Date 6/24/01 Checked By TMO Date 6/26/01

DCN: CT-S3C DATE 6-25-98 REVISION: 2 C:\MSOFFICE\EXCEL\PrintQ\[270.xls]Sheet1

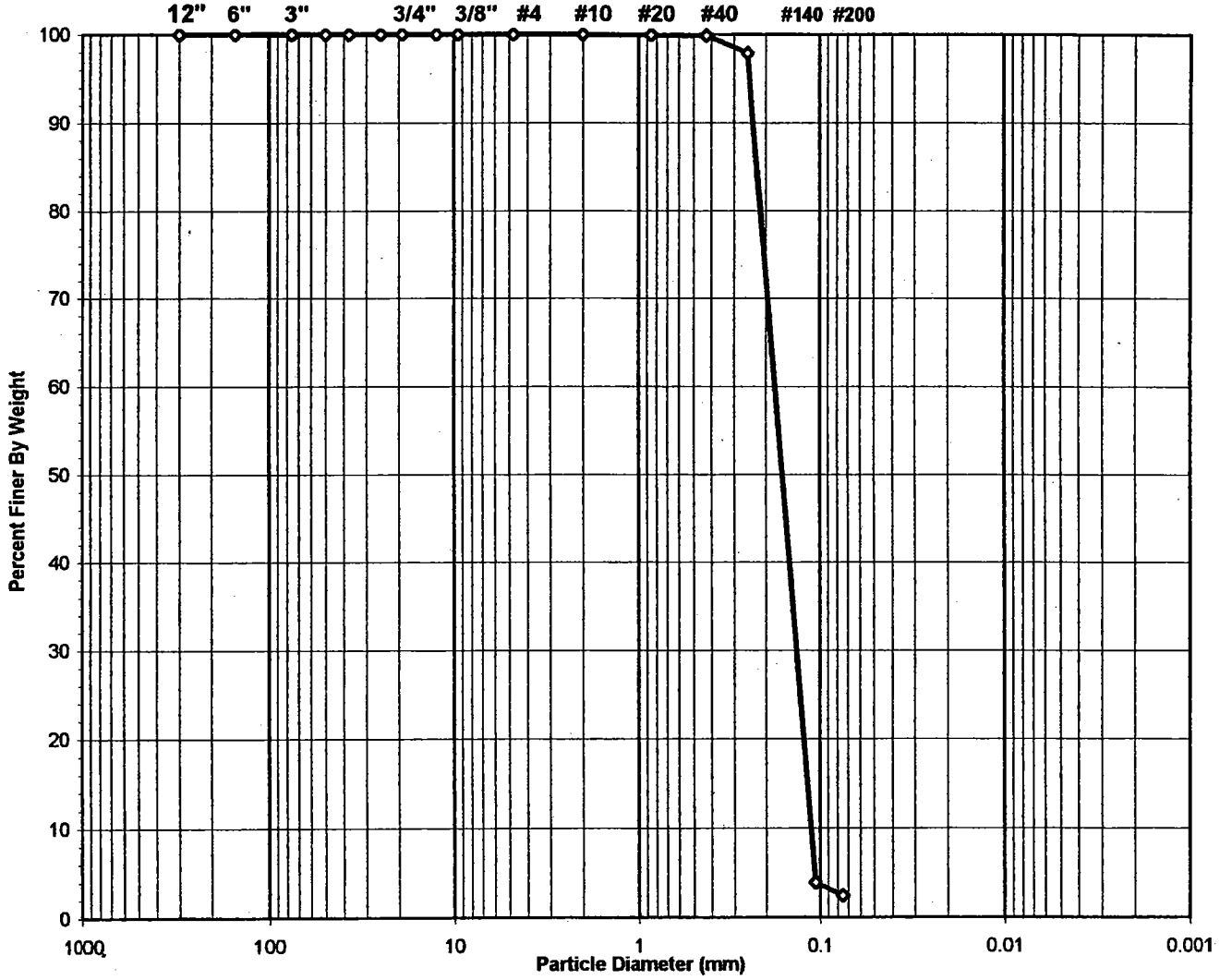
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999

Geotechnics

SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	TETRA TECH NUS	Boring No.	NA
Client Reference	MCRD PARRIS ISLAND 0502	Depth (ft)	NA
Project No.	2001-165-01	Sample No.	PAI-45-SB-10-13
Lab ID	2001-165-01-03	Soil Color	GRAY

USCS	SIEVE ANALYSIS		HYDROMETER
	gravel	sand	silt and clay



USCS Symbol ***sp, ASSUMED*** **D60 = 0.2** **CC = 0.9**

USCS Classification ***POORLY GRADED SAND*** **D30 = 0.1** **CU = 1.6**

D10 = 0.1

Tested By TO Date 6/24/01 Checked By TMO Date 6/26/01

DCN: CT-S3C DATE 6-25-98 REVISION: 2

C:\MSOFFICE\EXCEL\PrintQ\[1271.xls]Sheet1

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999

A-134

Geotechnics

WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	TETRA TECH NUS	Boring No.	NA
Client Reference	MCRD PARRIS ISLAND 0502	Depth (ft)	NA
Project No.	2001-165-01	Sample No.	PAI-45-SB-10-13
Lab ID	2001-165-01-03	Soil Color	GRAY

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	582	Tare No.	NA
Wgt.Tare + Wet Specimen (gm)	472.60	Wgt.Tare + Wet Specimen (gm)	NA
Wgt.Tare + Dry Specimen (gm)	395.30	Wgt.Tare + Dry Specimen (gm)	NA
Weight of Tare (gm)	84.22	Weight of Tare (gm)	NA
Weight of Water (gm)	77.30	Weight of Water (gm)	NA
Weight of Dry Soil (gm)	311.08	Weight of Dry Soil (gm)	NA
Moisture Content (%)	**24.8**	**Moisture Content (%)**	**NA**

Wet Weight -3/4" Sample (gm)	NA	Weight of the Dry Specimen (gm)	311.08
Dry Weight - 3/4" Sample (gm)	303.4	Weight of minus #200 material (gm)	7.69
Wet Weight +3/4" Sample (gm)	NA	Weight of plus #200 material (gm)	303.39
Dry Weight + 3/4" Sample (gm)	0.00		
Total Dry Weight Sample (gm)	NA		

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	0.00	0.00	0.00	100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00	100.00	**100.00**
1/2"	12.50	0.00	0.00	0.00	100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00	100.00	**100.00**
#4	4.75	0.00	0.00	0.00	100.00	**100.00**
#10	2.00	0.08	0.03	0.03	99.97	**99.97**
#20	0.850	0.07	0.02	0.05	99.95	**99.95**
#40	0.425	0.24	0.08	0.13	99.87	**99.87**
#60	0.250	6.14	1.97	2.10	97.90	**97.90**
#140	0.106	292.37	93.99	96.08	3.92	**3.92**
#200	0.075	4.49	1.44	97.53	2.47	**2.47**
Pan	-	7.69	2.47	100.00	-	-

Tested By TO Date 6/24/01 Checked By TMO Date 6/26/01

DCN: CT-S3C DATE 6-25-98 REVISION: 2

C:\MSOFFICE\EXCEL\PrintQ\[271.xls]Sheet1

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999

Geotechnics

SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	TETRA TECH NUS	Boring No.	NA
Client Reference	MCRD PARRIS ISLAND 0502	Depth (ft)	NA
Project No.	2001-165-01	Sample No.	PAI-45-SB-11-10
Lab ID	2001-165-01-04	Soil Color	**GRAY**

	SIEVE ANALYSIS		*HYDROMETER*
USCS	gravel	sand	silt and clay

USCS Symbol ***sp, ASSUMED*** **D60 = 0.2** **CC = 0.9**

USCS Classification ***POORLY GRADED SAND*** **D30 = 0.1** **CU = 1.6**

D10 = 0.1

Tested By TO Date 6/24/01 Checked By [illegible] Date 6/26/01

DCN: CT-S3C DATE 6-25-98 REVISION: 2

C:\MSOFFICE\EXCEL\PrintQ\[l272.xls]Sheet1

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999

A-126

Geotechnics

WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	TETRA TECH NUS	Boring No.	NA
Client Reference	MCRD PARRIS ISLAND 0502	Depth (ft)	NA
Project No.	2001-165-01	Sample No.	PAI-45-SB-11-10
Lab ID	2001-165-01-04	Soil Color	GRAY

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	1745	Tare No.	NA
Wgt.Tare + Wet Specimen (gm)	614.20	Wgt.Tare + Wet Specimen (gm)	NA
Wgt.Tare + Dry Specimen (gm)	505.50	Wgt.Tare + Dry Specimen (gm)	NA
Weight of Tare (gm)	82.24	Weight of Tare (gm)	NA
Weight of Water (gm)	108.70	Weight of Water (gm)	NA
Weight of Dry Soil (gm)	423.26	Weight of Dry Soil (gm)	NA
Moisture Content (%)	**25.7**	**Moisture Content (%)**	**NA**

Wet Weight -3/4" Sample (gm)	NA	Weight of the Dry Specimen (gm)	423.26
Dry Weight - 3/4" Sample (gm)	393.6	Weight of minus #200 material (gm)	29.66
Wet Weight +3/4" Sample (gm)	NA	Weight of plus #200 material (gm)	393.60
Dry Weight + 3/4" Sample (gm)	0.00		
Total Dry Weight Sample (gm)	NA		

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated **Percent Finer (%)**
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	0.00	0.00	0.00	100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00	100.00	**100.00**
1/2"	12.50	0.00	0.00	0.00	100.00	**100.00**
3/8"	9.50	2.42	0.57	0.57	99.43	**99.43**
#4	4.75	2.61	0.62	1.19	98.81	**98.81**
#10	2.00	4.26	1.01	2.19	97.81	**97.81**
#20	0.850	2.88	0.68	2.88	97.12	**97.12**
#40	0.425	2.76	0.65	3.53	96.47	**96.47**
#60	0.250	26.63	6.29	9.82	90.18	**90.18**
#140	0.106	343.30	81.11	90.93	9.07	**9.07**
#200	0.075	8.74	2.06	92.99	7.01	**7.01**
Pan	-	29.66	7.01	100.00	-	-

Tested By TO Date 6/24/01 Checked By TMO Date 6/26/01

DCN: CT-S3C DATE 6-25-98 REVISION: 2

C:\MSOFFICE\EXCEL\PrintQ\[I272.xls]Sheet1

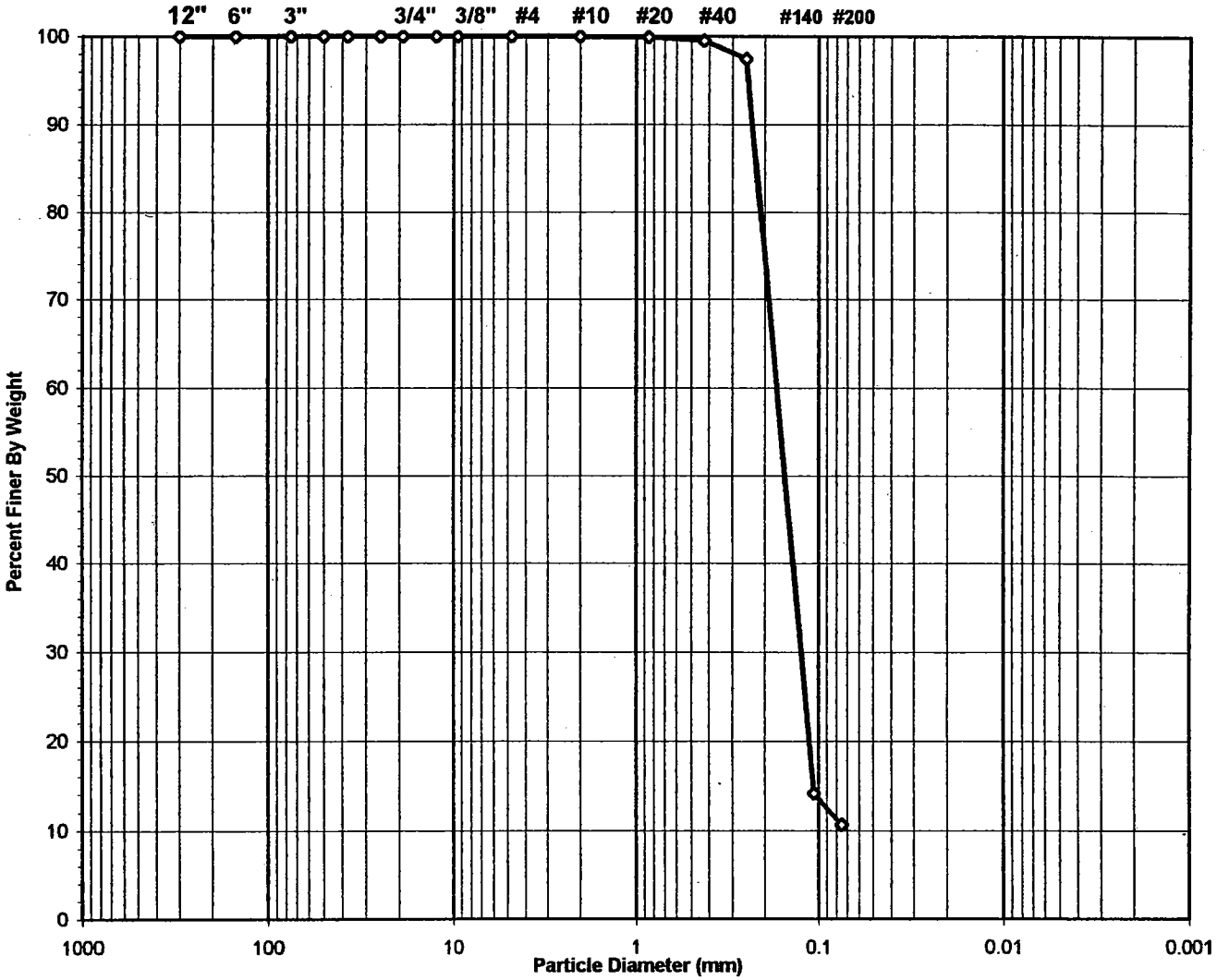
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999

Geotechnics

SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	TETRA TECH NUS	Boring No.	NA
Client Reference	MCRD PARRIS ISLAND 0502	Depth (ft)	NA
Project No.	2001-165-01	Sample No.	PAI-45-SB-12-10
Lab ID	2001-165-01-05	Soil Color	**BROWN**

	SIEVE ANALYSIS		*HYDROMETER*
USCS	gravel	sand	silt and clay



USCS Symbol ***sp-sm, ASSUMED***

USCS Classification ***POORLY GRADED SAND WITH SILT***

Tested By TO Date 6/24/01 Checked By TMO Date 8/26/01

DCN: CT-S3C DATE 6-25-98 REVISION: 2

C:\MSOFFICE\EXCEL\PrintQ\[273.xls]Sheet1

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999

Geotechnics

WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	TETRA TECH NUS	Boring No.	NA
Client Reference	MCRD PARRIS ISLAND 0502	Depth (ft)	NA
Project No.	2001-165-01	Sample No.	PAI-45-SB-12-10
Lab ID	2001-165-01-05	Soil Color	**BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	593	Tare No.	NA
Wgt.Tare + Wet Specimen (gm)	485.90	Wgt.Tare + Wet Specimen (gm)	NA
Wgt.Tare + Dry Specimen (gm)	414.70	Wgt.Tare + Dry Specimen (gm)	NA
Weight of Tare (gm)	82.48	Weight of Tare (gm)	NA
Weight of Water (gm)	71.20	Weight of Water (gm)	NA
Weight of Dry Soil (gm)	332.22	Weight of Dry Soil (gm)	NA
Moisture Content (%)	**21.4**	**Moisture Content (%)**	**NA**

Wet Weight -3/4" Sample (gm)	NA	Weight of the Dry Specimen (gm)	332.22
Dry Weight - 3/4" Sample (gm)	296.9	Weight of minus #200 material (gm)	35.32
Wet Weight +3/4" Sample (gm)	NA	Weight of plus #200 material (gm)	296.90
Dry Weight + 3/4" Sample (gm)	0.00		
Total Dry Weight Sample (gm)	NA		

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	0.00	0.00	0.00	100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00	100.00	**100.00**
1/2"	12.50	0.00	0.00	0.00	100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00	100.00	**100.00**
#4	4.75	0.00	0.00	0.00	100.00	**100.00**
#10	2.00	0.00	0.00	0.00	100.00	**100.00**
#20	0.850	0.19	0.06	0.06	99.94	**99.94**
#40	0.425	1.36	0.41	0.47	99.53	**99.53**
#60	0.250	6.81	2.05	2.52	97.48	**97.48**
#140	0.106	276.87	83.34	85.86	14.14	**14.14**
#200	0.075	11.67	3.51	89.37	10.63	**10.63**
Pan	-	35.32	10.63	100.00	-	-

Tested By TO Date 6/24/01 Checked By TMO Date 6/26/01

DCN: CT-S3C DATE 6-25-98 REVISION: 2

C:\MSOFFICE\EXCEL\PrintQ\[273.xls]Sheet1

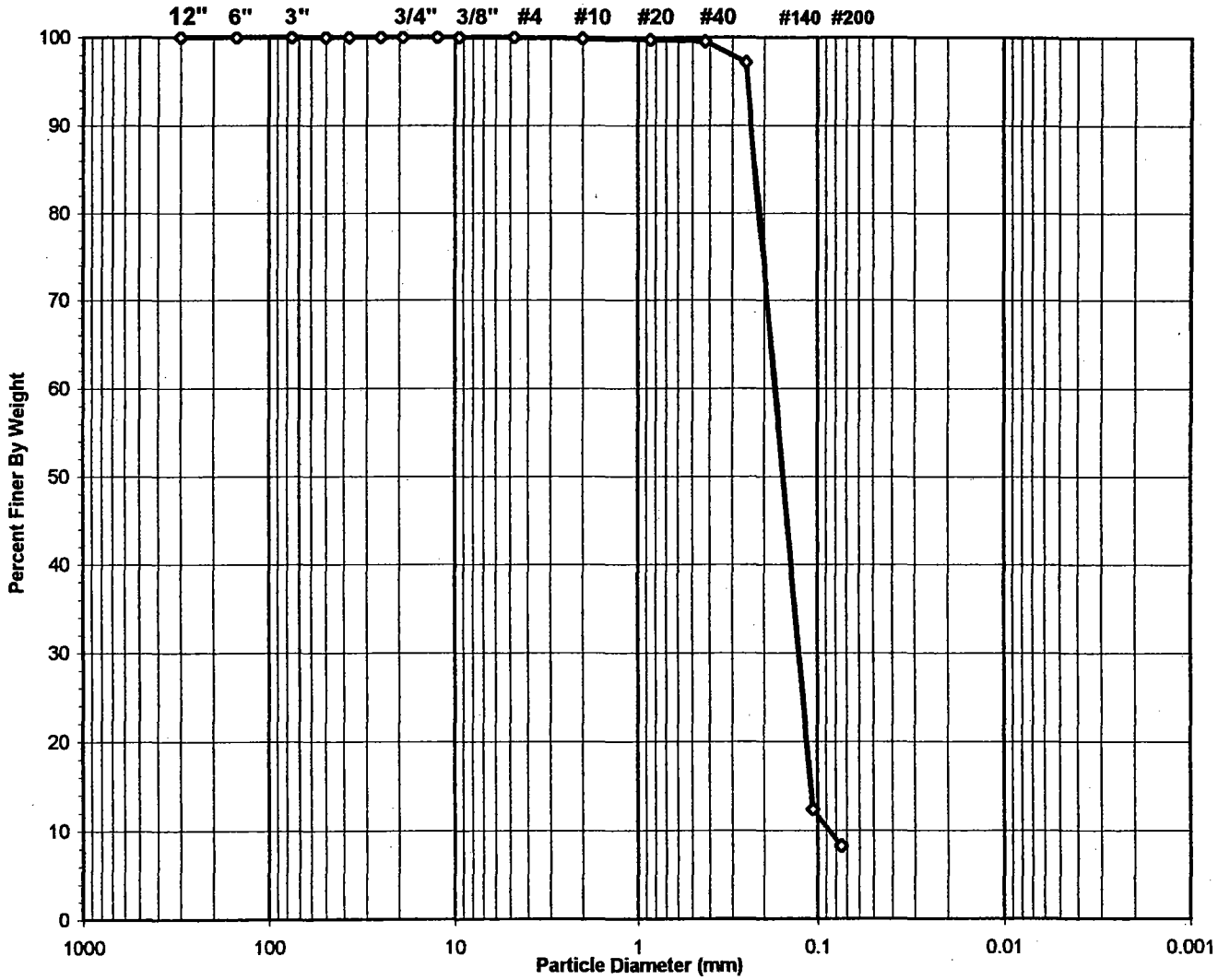
544 Braddock Avenue · East Pittsburgh, PA 15112 · Phone (412) 823-7600 · Fax (412) 823-8999

Geotechnics

SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	TETRA TECH NUS	Boring No.	NA
Client Reference	MCRD PARRIS ISLAND 0502	Depth (ft)	NA
Project No.	2001-165-01	Sample No.	PAI-45-SB-13-10
Lab ID	2001-165-01-06	Soil Color	GRAY

USCS	SIEVE ANALYSIS		HYDROMETER
	gravel	sand	silt and clay



USCS Symbol ***sp-sm, ASSUMED*** **D60 = 0.2** **CC = 1.1**

USCS Classification ***POORLY GRADED SAND WITH SILT*** **D30 = 0.1** **CU = 2.0**

D10 = 0.1

Tested By TO Date 6/24/01 Checked By TMO Date 6/26/01

DCN: CT-S3C DATE 6-25-98 REVISION: 2

C:\MSOFFICE\EXCEL\PrintQ\[274.xls]Sheet1

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999

Geotechnics

WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	TETRA TECH NUS	Boring No.	NA
Client Reference	MCRD PARRIS ISLAND 0502	Depth (ft)	NA
Project No.	2001-165-01	Sample No.	PAI-45-SB-13-10
Lab ID	2001-165-01-06	Soil Color	**GRAY**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	1734	Tare No.	NA
Wgt.Tare + Wet Specimen (gm)	484.00	Wgt.Tare + Wet Specimen (gm)	NA
Wgt.Tare + Dry Specimen (gm)	404.00	Wgt.Tare + Dry Specimen (gm)	NA
Weight of Tare (gm)	83.25	Weight of Tare (gm)	NA
Weight of Water (gm)	80.00	Weight of Water (gm)	NA
Weight of Dry Soil (gm)	320.75	Weight of Dry Soil (gm)	NA
Moisture Content (%)	**24.9**	**Moisture Content (%)**	**NA**

Wet Weight -3/4" Sample (gm)	NA	Weight of the Dry Specimen (gm)	320.75
Dry Weight - 3/4" Sample (gm)	294.3	Weight of minus #200 material (gm)	26.46
Wet Weight +3/4" Sample (gm)	NA	Weight of plus #200 material (gm)	294.29
Dry Weight + 3/4" Sample (gm)	0.00		
Total Dry Weight Sample (gm)	NA		

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	0.00	0.00	0.00	100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00	100.00	**100.00**
1/2"	12.50	0.00	0.00	0.00	100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00	100.00	**100.00**
#4	4.75	0.00	0.00	0.00	100.00	**100.00**
#10	2.00	0.35	0.11	0.11	99.89	**99.89**
#20	0.850	0.48	0.15	0.26	99.74	**99.74**
#40	0.425	0.75	0.23	0.49	99.51	**99.51**
#60	0.250	7.46	2.33	2.82	97.18	**97.18**
#140	0.106	272.03	84.81	87.63	12.37	**12.37**
#200	0.075	13.22	4.12	91.75	8.25	**8.25**
Pan	-	26.46	8.25	100.00	-	-

Tested By TO Date 6/24/01 Checked By TMO Date 6/26/01

DCN: CT-S3C DATE 6-25-98 REVISION: 2

C:\MSOFFICE\EXCEL\PrintQ\[274.xls]Sheet1

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999

A-131

FLEXIBLE WALL PERMEABILITY TEST

Geotechnics

PERMOMETER METHOD

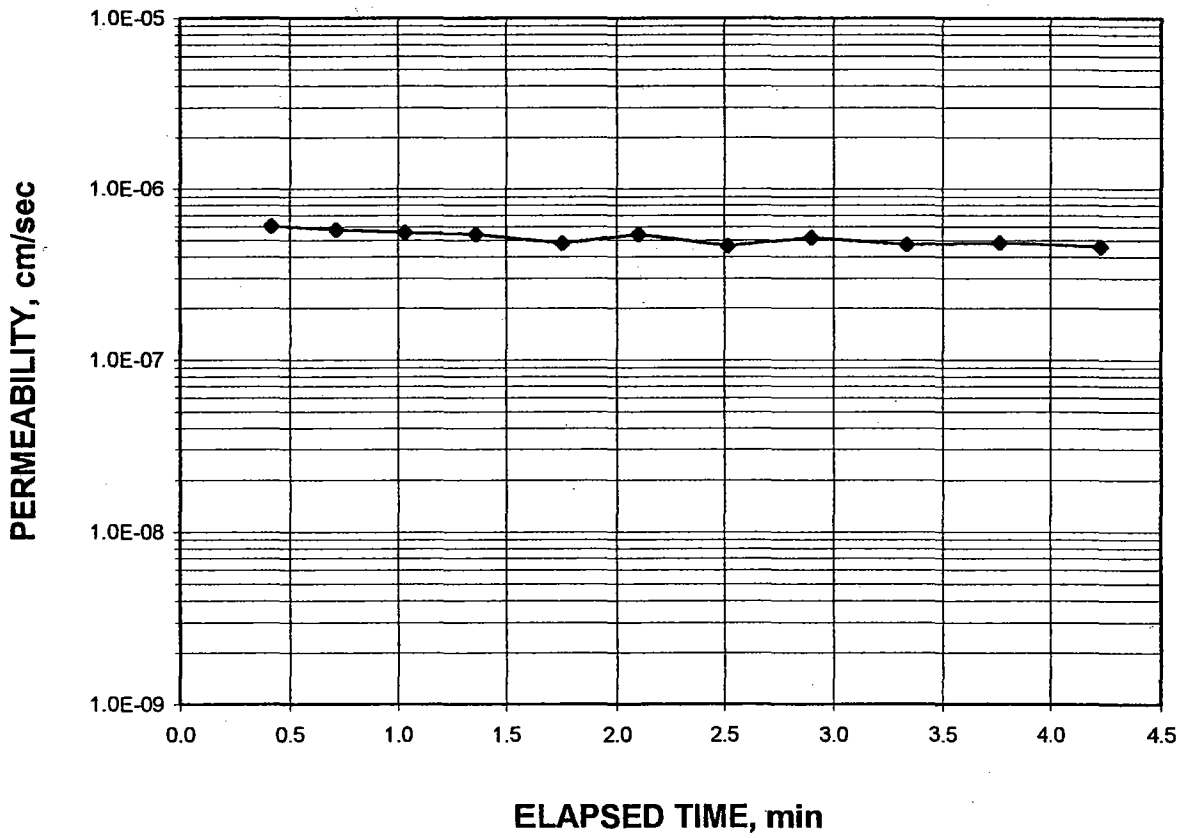
ASTM D 5084-97
(SOP-S22C)

Client	TETRA TECH NUS	Boring No.	NA
Client Project	MCRD PARRIS ISLAND 0502	Depth (ft.)	NA
Project No.	2001-165-01	Sample No.	PAI-45-SB-01-23
Lab ID No.	2001-165-01-07		

Visual Description: GRAY SILT AND GRAY SILTY FINE SAND

AVERAGE PERMEABILITY = 4.8E-07 cm/sec @ 20°C
AVERAGE PERMEABILITY = 4.8E-09 m/sec @ 20°C

PERMEABILITY vs. TIME



Tested By: JCM Date: 6/28/01 Checked By: TMO Date: 7/11/01

DCN: CT-22C DATE:12-21-98 REVISION: 4 C:\MSOffice\Excel\Perms\JULY2001\[165P1.xls]Sheet1
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999

A-132

FLEXIBLE WALL PERMEABILITY TEST

PERMOMETER METHOD

ASTM D 5084-97
(SOP-S22C)

Client	TETRA TECH NUS	Boring No.	NA
Client Project	MCRD PARRIS ISLAND 0502	Depth (ft.)	NA
Project No.	2001-165-01	Sample No.	PAI-45-SB-01-23
Lab ID No.	2001-165-01-07		
		Specific Gravity	2.70 Assumed
		Sample Condition	Undisturbed

Visual Description: GRAY SILT AND GRAY SILTY FINE SAND

MOISTURE CONTENT:	BEFORE TEST	AFTER TEST
Tare Number	725	1722
Wt. of Tare & WS (gm.)	311.17	386.16
Wt. of Tare & DS (gm.)	189.65	190.12
Wt. of Tare (gm.)	86.81	81.72
Wt. of Water (gm.)	121.52	196.04
Wt. of DS (gm.)	102.84	108.40
Moisture Content (%)	**118.2**	**180.8**

SPECIMEN:	BEFORE TEST	AFTER TEST
Wt. of Tube & WS (gm.)	427.60	NA
Wt. of Tube (gm.)	0.00	NA
Wt. of WS (gm.)	427.60	550.46
Length 1 (in.)	3.559	3.312
Length 2 (in.)	3.419	3.215
Length 3 (in.)	3.450	3.252
Top Diameter (in.)	2.861	2.831
Middle Diameter (in.)	2.863	2.806
Bottom Diameter (in.)	2.867	2.828
Average Length (in.)	3.48	3.26
Average Area ($in.^2$)	6.44	6.25
Sample Volume (cm^3)	366.87	334.02
Unit Wet Wt. ($gm./cm^3$)	1.166	1.648
Unit Wet Wt. (pcf)	72.8	102.9
Unit Dry Wt. (pcf)	33.3	36.6
Unit Dry Wt. ($gm./cm^3$)	0.534	0.587
Void Ratio, e	4.054	3.601
Porosity, n	0.802	0.783
Pore Volume (cm^3)	294.3	261.4

Tested By: JCM Date: 6/28/01 Checked By: TMO Date: 7/11/01

DCN: CT-22C DATE:12-21-98 REVISION: 4 C:\MSOffice\Excel\Perms\JULY2001\[165P1.xls]Sheet1
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999

FLEXIBLE WALL PERMEABILITY TEST

PERMOMETER METHOD

ASTM D 5084-97
(SOP-S22C)

Client	TETRA TECH NUS	Boring No.	NA
Client Project	MCRD PARRIS ISLAND 0502	Depth (ft.)	NA
Project No.	2001-165-01	Sample No.	PAI-45-SB-01-23
Lab ID No.	2001-165-01-07		

Test Pressures		Final Sample Dimensions	
Cell Pressure(psi)	77.0	Sample Length (cm), L	8.28
Back Pressure(psi)	70.0	Sample Area (cm^2), A	40.34
Eff. Cons. Pressure(psi)	7.0	Pipette Area (cm^2), a_p	0.03142
Response (%)	100	Annulus Area (cm^2), a_a	0.76712
		Equilibrium Level (cm), R_{eq}	1.3

AVERAGE PERMEABILITY = 4.8E-07 cm/sec @ 20°C
AVERAGE PERMEABILITY = 4.8E-09 m/sec @ 20°C

DATE	TIME		ELAPSED TIME t	PIPETTE READI NG R_p	INCREMENT GRADIENT i	FLOW CONDITION (0 flow)	TEMP.	INCREMENTAL PERMEABILITY @ 20°C
mm/dd/yy	(hr)	(min)	(min)	(cm)	(cm/cm)	(1 stop)	(°C)	(cm/sec)
7/3/01	10	25.8	0.00	10.8	15.0	0	22.0	NA
7/3/01	10	26.3	0.42	10.5	14.5	0	22.0	6.0E-07
7/3/01	10	26.6	0.72	10.3	14.2	0	22.0	5.7E-07
7/3/01	10	26.9	1.03	10.1	13.9	0	22.0	5.6E-07
7/3/01	10	27.2	1.37	9.9	13.6	0	22.0	5.4E-07
7/3/01	10	27.6	1.75	9.7	13.2	0	22.0	4.8E-07
7/3/01	10	27.9	2.10	9.5	12.9	0	22.0	5.4E-07
7/3/01	10	28.4	2.52	9.3	12.6	0	22.0	4.6E-07
7/3/01	10	28.7	2.90	9.1	12.3	0	22.0	5.2E-07
7/3/01	10	29.2	3.33	8.9	12.0	0	22.0	4.7E-07
7/3/01	10	29.6	3.77	8.7	11.7	0	22.0	4.8E-07
7/3/01	10	30.1	4.23	8.5	11.4	1	22.0	4.6E-07

Tested By: JCM Date: 6/28/01 Checked By: TMO Date: 7/11/01

DCN: CT-22C DATE:12-21-98 REVISION: 4 C:\MSOffice\Excel\Perms\JULY2001\[165P1.xls]Sheet1
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999

FLEXIBLE WALL PERMEABILITY TEST

Geotechnics

PERMOMETER METHOD

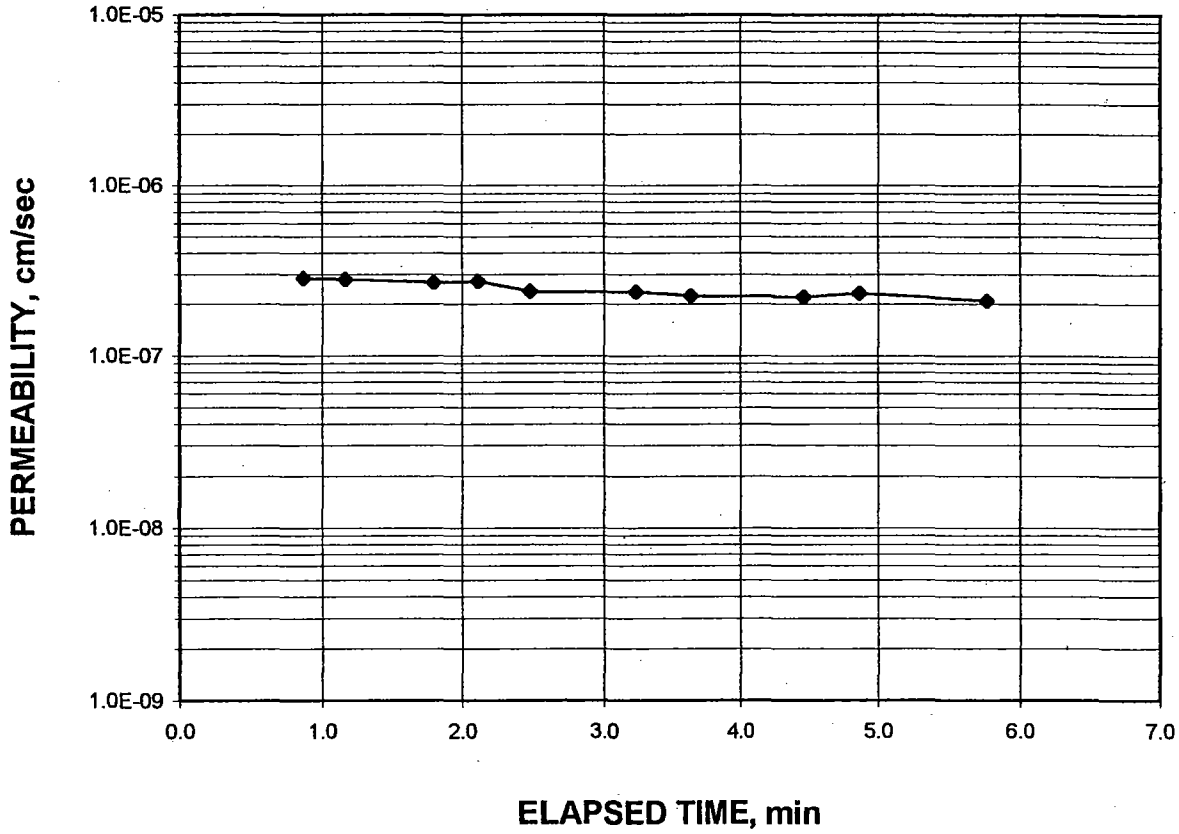
ASTM D 5084-97
(SOP-S22C)

Client	TETRA TECH NUS	Boring No.	NA
Client Project	MCRD PARRIS ISLAND 0502	Depth (ft.)	NA
Project No.	2001-165-01	Sample No.	PAI-45-SB-09-23
Lab ID No.	2001-165-01-08		

Visual Description: GRAY SILT

AVERAGE PERMEABILITY = 2.2E-07 cm/sec @ 20°C
AVERAGE PERMEABILITY = 2.2E-09 m/sec @ 20°C

PERMEABILITY vs. TIME



Tested By: JCM Date: 7/7/01 Checked By: TMO Date: 7/11/01

DCN: CT-22C DATE:12-21-98 REVISION: 4 C:\MSOffice\Excel\Perms\JULY2001\[165P2.xls]Sheet1

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999

FLEXIBLE WALL PERMEABILITY TEST

Geotechnics

PERMOMETER METHOD

ASTM D 5084-97
(SOP-S22C)

Client	TETRA TECH NUS	Boring No.	NA
Client Project	MCRD PARRIS ISLAND 0502	Depth (ft.)	NA
Project No.	2001-165-01	Sample No.	PAI-45-SB-09-23
Lab ID No.	2001-165-01-08		
		Specific Gravity	2.70 Assumed
		Sample Condition	Undisturbed

Visual Description: GRAY SILT

MOISTURE CONTENT:	BEFORE TEST	AFTER TEST
Tare Number	571	1728
Wt. of Tare & WS (gm.)	321.79	322.39
Wt. of Tare & DS (gm.)	214.54	231.4
Wt. of Tare (gm.)	84.26	81.71
Wt. of Water (gm.)	107.25	90.99
Wt. of DS (gm.)	130.28	149.69
Moisture Content (%)	**82.3**	**60.8**

SPECIMEN:	BEFORE TEST	AFTER TEST
Wt. of Tube & WS (gm.)	855.10	NA
Wt. of Tube (gm.)	252.88	NA
Wt. of WS (gm.)	602.22	531.08
Length 1 (in.)	3.526	3.531
Length 2 (in.)	3.517	3.509
Length 3 (in.)	3.516	3.477
Top Diameter (in.)	2.887	2.830
Middle Diameter (in.)	2.886	2.845
Bottom Diameter (in.)	2.880	2.843
Average Length (in.)	3.52	3.51
Average Area ($in.^2$)	6.53	6.33
Sample Volume (cm^3)	376.86	363.74
Unit Wet Wt. ($gm./cm^3$)	1.598	1.460
Unit Wet Wt. (pcf)	99.7	91.1
Unit Dry Wt. (pcf)	54.7	56.7
Unit Dry Wt. ($gm./cm^3$)	0.876	0.908
Void Ratio, e	2.081	1.973
Porosity, n	0.675	0.664
Pore Volume (cm^3)	254.5	241.4

Tested By: JCM Date: 7/7/01 Checked By: TMO Date: 7/11/01

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999

FLEXIBLE WALL PERMEABILITY TEST

PERMOMETER METHOD

ASTM D 5084-97
(SOP-S22C)

Client	TETRA TECH NUS	Boring No.	NA
Client Project	MCRD PARRIS ISLAND 0502	Depth (ft.)	NA
Project No.	2001-165-01	Sample No.	PAI-45-SB-09-23
Lab ID No.	2001-165-01-08		

Test Pressures		Final Sample Dimensions	
Cell Pressure(psi)	77.0	Sample Length (cm), L	8.90
Back Pressure(psi)	70.0	Sample Area (cm^2), A	40.85
Eff. Cons. Pressure(psi)	7.0	Pipette Area (cm^2), a_p	0.03142
Response (%)	98	Annulus Area (cm^2), a_a	0.76712
		Equilibrium Level (cm), R_{eq}	1.2

AVERAGE PERMEABILITY = 2.2E-07 cm/sec @ 20°C
AVERAGE PERMEABILITY = 2.2E-09 m/sec @ 20°C

DATE	TIME		ELAPSED TIME t	PIPETTE READING R_p	INCREMENT GRADIENT i	FLOW CONDITION (0 flow)	TEMP.	INCREMENTAL PERMEABILITY @ 20°C
mm/dd/yy	(hr)	(min)	(min)	(cm)	(cm/cm)	(1 stop)	(°C)	(cm/sec)
7/10/01	15	31.2	0.00	11.5	15.1	0	22.0	NA
7/10/01	15	32.1	0.87	11.2	14.7	0	22.0	2.8E-07
7/10/01	15	32.4	1.17	11.1	14.5	0	22.0	2.8E-07
7/10/01	15	33.0	1.80	10.9	14.2	0	22.0	2.7E-07
7/10/01	15	33.4	2.12	10.8	14.1	0	22.0	2.7E-07
7/10/01	15	33.7	2.48	10.7	13.9	0	22.0	2.4E-07
7/10/01	15	34.5	3.23	10.5	13.6	0	22.0	2.4E-07
7/10/01	15	34.9	3.63	10.4	13.5	0	22.0	2.3E-07
7/10/01	15	35.7	4.47	10.2	13.2	0	22.0	2.2E-07
7/10/01	15	36.1	4.87	10.1	13.1	0	22.0	2.3E-07
7/10/01	15	37.0	5.77	9.9	12.8	1	22.0	2.1E-07

Tested By: JCM Date: 7/7/01 Checked By: TMO Date: 7/11/01

DCN: CT-22C DATE:12-21-98 REVISION: 4 C:\MSOffice\Excel\Perms\JULY2001\[165P2.xls]Sheet1

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999

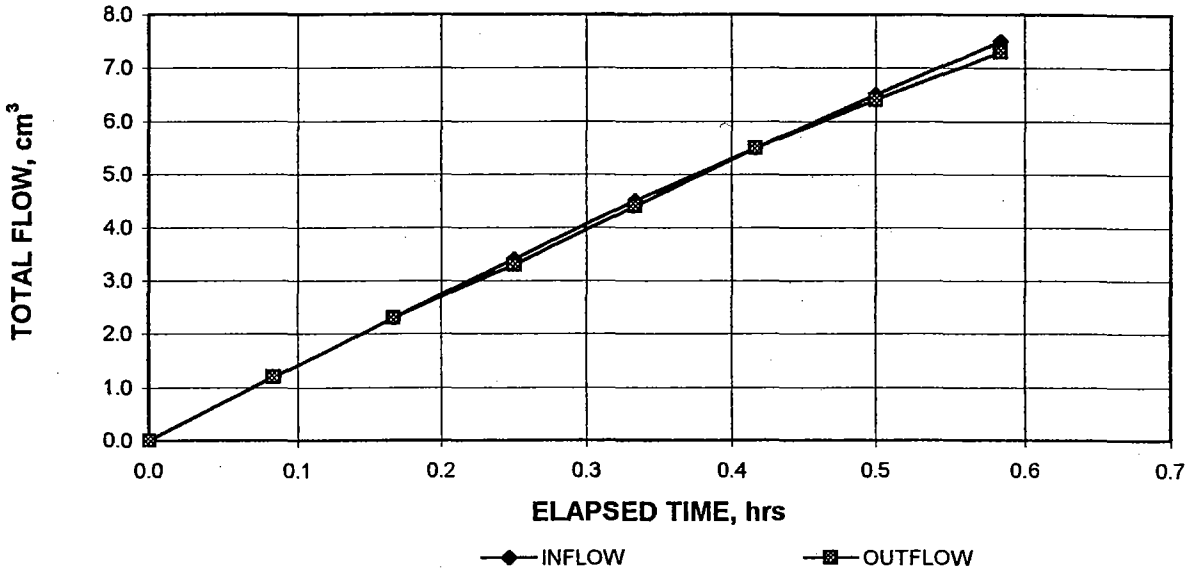
PERMEABILITY TEST

ASTM D 5084-90(Reapproved 1997)
(SOP-S22A & S22B)

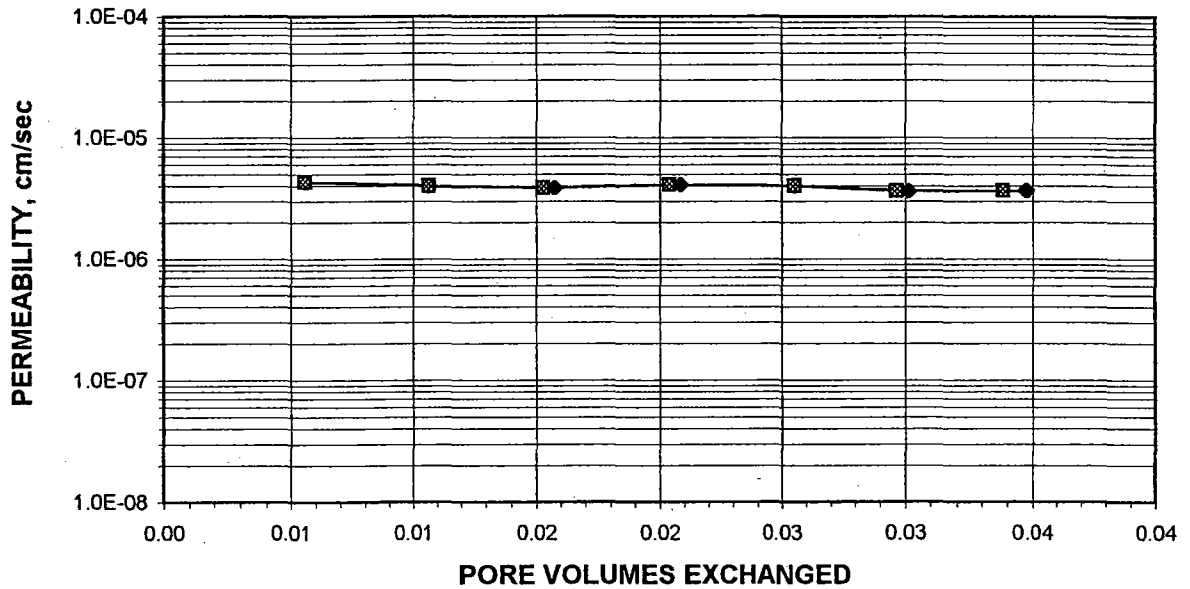
Client	TETRA TECH NUS	Boring No.	NA
Client Project	MCRD PARRIS ISLAND 0502	Depth (ft.)	NA
Project No.	2001-165-01	Sample No.	PAI-45-SB-10-23
Lab ID No.	2001-165-01-09		

AVERAGE PERMEABILITY = 3.9E-06 cm/sec @ 20°C
AVERAGE PERMEABILITY = 3.9E-08 m/sec @ 20°C

TOTAL FLOW vs. ELAPSED TIME



PORE VOLUMES EXCHANGED vs. PERMEABILITY



Tested By: JCM Date: 7/8/01 Checked By: TMO Date: 7/11/01

DCN: CT-22C DATE: 01-11-99 REVISION:3 C:\MSOffice\Excel\Perms\JULY2001\[165P6.xls]Sheet1
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999

PERMEABILITY TEST

ASTM D 5084-90(Reapproved 1997)
(SOP-S22A & S22B)

Client	TETRA TECH NUS	Boring No.	NA
Client Project	MCRD PARRIS ISLAND 0502	Depth (ft.)	NA
Project No.	2001-165-01	Sample No.	PAI-45-SB-10-23
Lab ID No.	2001-165-01-09		
		Specific Gravity	2.70 Assumed
		Sample Condition	Undisturbed

Visual Description: GRAY SILT

MOISTURE CONTENT:	BEFORE TEST	AFTER TEST
Tare Number	591	582
Wt. of Tare & WS (gm.)	343.15	364.34
Wt. of Tare & DS (gm.)	252.28	268.57
Wt. of Tare (gm.)	87.61	84.18
Wt. of Water (gm.)	90.87	95.77
Wt. of DS (gm.)	164.67	184.39
Moisture Content (%)	**55.2**	**51.9**

SPECIMEN:	BEFORE TEST	AFTER TEST
Wt. of Tube & WS (gm.)	880.80	NA
Wt. of Tube (gm.)	252.43	NA
Wt. of WS (gm.)	628.37	615.23
Length 1 (in.)	3.567	3.500
Length 2 (in.)	3.554	3.501
Length 3 (in.)	3.563	3.537
Top Diameter (in.)	2.877	2.835
Middle Diameter (in.)	2.875	2.842
Bottom Diameter (in.)	2.885	2.855
Average Length (in.)	3.56	3.51
Average Area ($in.^2$)	6.51	6.35
Sample Volume (cm^3)	379.92	365.67
Unit Wet Wt. ($gm./cm^3$)	1.65	1.68
Unit Wet Wt. (pcf)	103.2	105.0
Unit Dry Wt. (pcf)	66.5	69.1
Unit Dry Wt. ($gm./cm^3$)	1.07	1.11
Void Ratio, e	1.53	1.44
Porosity, n	0.61	0.59
Pore Volume (cm^3)	229.9	215.7

Tested By: JCM Date: 7/8/01 Checked By: TMO Date: 7/11/01

DCN: CT-22C DATE: 01-11-99 REVISION:3 C:\MSOffice\Excel\Perms\JULY2001\[165P6.xls]Sheet1
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999

PERMEABILITY TEST

ASTM D 5084-90(Reapproved 1997)
(SOP-S22A & S22B)

Geotechnics

Client	TETRA TECH NUS	Boring No.	NA
Client Project	MCRD PARRIS ISLAND 0502	Depth (ft.)	NA
Project No.	2001-165-01	Sample No.	PAI-45-SB-10-23
Lab ID No.	2001-165-01-09		

Pressure Heads (Constant)	
Top Cap (psi)	69.5
Bottom Cap (psi)	72.0
Cell (psi)	77.0
Total Pressure Head (cm)	175.8

Final Sample Dimensions	
Sample Length (cm), L	8.92
Sample Diameter (cm)	7.22
Sample Area (cm^2), A	40.98
Inflow Burette Area (cm^2), a-in	0.984
Outflow Burette Area (cm^2), a-out	0.842
B Parameter (%)	99

AVERAGE PERMEABILITY = 3.9E-06 cm/sec @ 20°C
AVERAGE PERMEABILITY = 3.9E-08 m/sec @ 20°C

DATE	TIME		ELAPSED TIME t	TOTAL INFLOW	TOTAL OUTFLOW	TOTAL HEAD h	FLOW (0 flow)	TEMP.	INCREMENTAL PERMEABILITY @ 20°C
(mm/dd/yy)	(hr)	(min)	(hr)	(cm^3)	(cm^3)	(cm)	(1 stop)	(°C)	(cm/sec)
7/10/01	16	30	0.0	0.0	0.0	193.6	0	22.0	NA
7/10/01	16	35	0.1	1.2	1.2	191.0	0	22.0	4.3E-06
7/10/01	16	40	0.2	2.3	2.3	188.5	0	22.0	4.0E-06
7/10/01	16	45	0.3	3.4	3.3	186.2	0	22.0	3.9E-06
7/10/01	16	50	0.3	4.5	4.4	183.8	0	22.0	4.1E-06
7/10/01	16	55	0.4	5.5	5.5	181.5	0	22.0	4.0E-06
7/10/01	17	0	0.5	6.5	6.4	179.4	0	22.0	3.6E-06
7/10/01	17	5	0.6	7.5	7.3	177.3	1	22.0	3.7E-06

Tested By: JCM Date: 7/8/01 Checked By: JMO Date: 7/11/01

DCN: CT-22C DATE: 01-11-99 REVISION:3 C:\MSOffice\Excel\Perms\JULY2001\[165P6.xls]Sheet1
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999

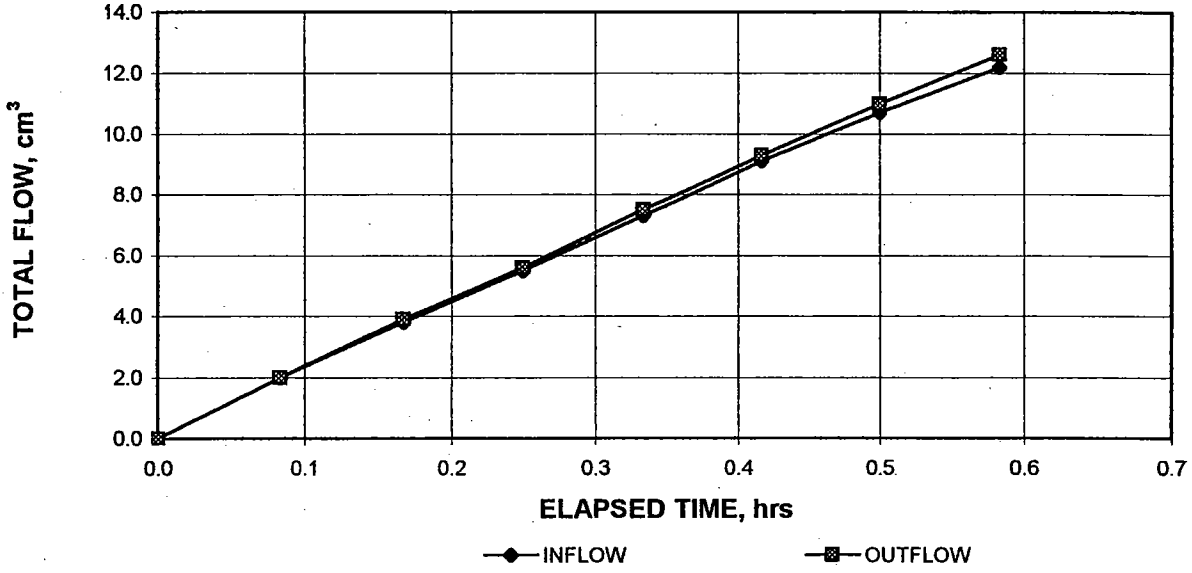
PERMEABILITY TEST

ASTM D 5084-90(Reapproved 1997)
(SOP-S22A & S22B)

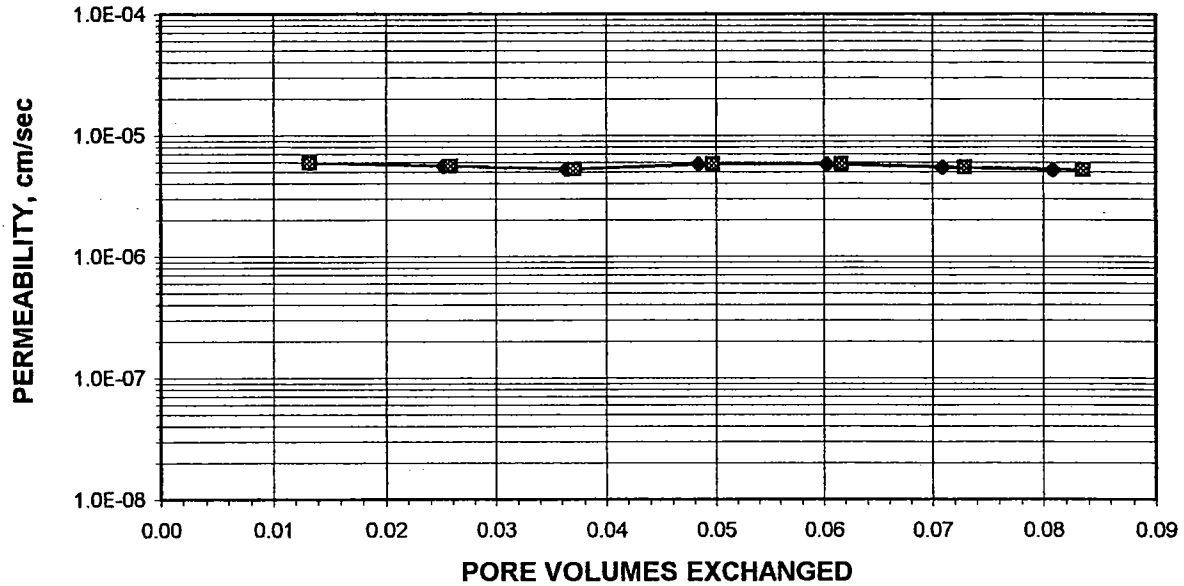
Client	TETRA TECH NUS	Boring No.	NA
Client Project	MCRD PARRIS ISLAND 0502	Depth (ft.)	NA
Project No.	2001-165-01	Sample No.	PAI-45-SDB-11-23
Lab ID No.	2001-165-01-10		

AVERAGE PERMEABILITY = 5.6E-06 cm/sec @ 20°C
AVERAGE PERMEABILITY = 5.6E-08 m/sec @ 20°C

TOTAL FLOW vs. ELAPSED TIME



PORE VOLUMES EXCHANGED vs. PERMEABILITY



Tested By: JCM Date: 7/9/01 Checked By: TMO Date: 7/11/01

DCN: CT-22C DATE: 01-11-99 REVISION:3 C:\MSOffice\Excel\Perms\JULY2001\[165P5.xls]Sheet1
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999

PERMEABILITY TEST

ASTM D 5084-90(Reapproved 1997)
(SOP-S22A & S22B)

Geotechnics

Client	TETRA TECH NUS	Boring No.	NA
Client Project	MCRD PARRIS ISLAND 0502	Depth (ft.)	NA
Project No.	2001-165-01	Sample No.	PAI-45-SDB-11-23
Lab ID No.	2001-165-01-10		
		Specific Gravity	2.70 Assumed
		Sample Condition	Undisturbed

Visual Description: GRAY SILTY FINE SAND (WOOD IN BOTTOM 0.5' OF TUBE)

MOISTURE CONTENT:	BEFORE TEST	AFTER TEST
Tare Number	553	607
Wt. of Tare & WS (gm.)	418.30	450.60
Wt. of Tare & DS (gm.)	345.32	374.03
Wt. of Tare (gm.)	84.70	83.02
Wt. of Water (gm.)	72.98	76.57
Wt. of DS (gm.)	260.62	291.01
Moisture Content (%)	**28.0**	**26.3**

SPECIMEN:	BEFORE TEST	AFTER TEST
Wt. of Tube & WS (gm.)	960.20	NA
Wt. of Tube (gm.)	252.58	NA
Wt. of WS (gm.)	707.62	698.27
Length 1 (in.)	3.487	3.118
Length 2 (in.)	3.517	3.180
Length 3 (in.)	3.494	3.246
Top Diameter (in.)	2.887	2.928
Middle Diameter (in.)	2.892	2.959
Bottom Diameter (in.)	2.880	2.954
Average Length (in.)	3.50	3.18
Average Area ($in.^2$)	6.54	6.82
Sample Volume (cm^3)	375.21	355.60
Unit Wet Wt. ($gm./cm^3$)	1.89	1.96
Unit Wet Wt. (pcf)	117.7	122.6
Unit Dry Wt. (pcf)	92.0	97.0
Unit Dry Wt. ($gm./cm^3$)	1.47	1.55
Void Ratio, e	0.83	0.74
Porosity, n	0.45	0.42
Pore Volume (cm^3)	170.5	150.9

Tested By: JCM Date: 7/9/01 Checked By: TMO Date: 7/11/01

DCN: CT-22C DATE: 01-11-99 REVISION:3 C:\MSOffice\Excel\Perms\JULY2001\[165P5.xls]Sheet1
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999

PERMEABILITY TEST

ASTM D 5084-90(Reapproved 1997)
(SOP-S22A & S22B)

Client	TETRA TECH NUS	Boring No.	NA
Client Project	MCRD PARRIS ISLAND 0502	Depth (ft.)	NA
Project No.	2001-165-01	Sample No.	PAI-45-SDB-11-23
Lab ID No.	2001-165-01-10		

Pressure Heads (Constant)

Top Cap (psi)	69.5
Bottom Cap (psi)	72.0
Cell (psi)	77.0
Total Pressure Head (cm)	175.8

Final Sample Dimensions

Sample Length (cm), L	8.08
Sample Diameter (cm)	7.49
Sample Area (cm^2), A	44.01
Inflow Burette Area (cm^2), a-in	0.877
Outflow Burette Area (cm^2), a-out	0.904
B Parameter (%)	99

AVERAGE PERMEABILITY = 5.6E-06 cm/sec @ 20°C
AVERAGE PERMEABILITY = 5.6E-08 m/sec @ 20°C

DATE	TIME		ELAPSED TIME t	TOTAL INFLOW	TOTAL OUTFLOW	TOTAL HEAD h	FLOW (0 flow)	TEMP.	INCREMENTAL PERMEABILITY @ 20°C
(mm/dd/yy)	(hr)	(min)	(hr)	(cm^3)	(cm^3)	(cm)	(1 stop)	(°C)	(cm/sec)
7/10/01	16	29	0.0	0.0	0.0	198.6	0	22.0	NA
7/10/01	16	34	0.1	2.0	2.0	194.1	0	22.0	5.9E-06
7/10/01	16	39	0.2	3.8	3.9	190.0	0	22.0	5.6E-06
7/10/01	16	44	0.3	5.5	5.6	186.2	0	22.0	5.2E-06
7/10/01	16	49	0.3	7.3	7.5	182.1	0	22.0	5.8E-06
7/10/01	16	54	0.4	9.1	9.3	178.1	0	22.0	5.8E-06
7/10/01	16	59	0.5	10.7	11.0	174.4	0	22.0	5.4E-06
7/10/01	17	4	0.6	12.2	12.6	171.0	1	22.0	5.2E-06

Tested By: JCM Date: 7/9/01 . Checked By: TMO Date: 7/11/01

DCN: CT-22C DATE: 01-11-99 REVISION:3 C:\MSOffice\Excel\Perms\JULY2001\[165P5.xls]Sheet1
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999

FLEXIBLE WALL PERMEABILITY TEST

Geotechnics

PERMOMETER METHOD

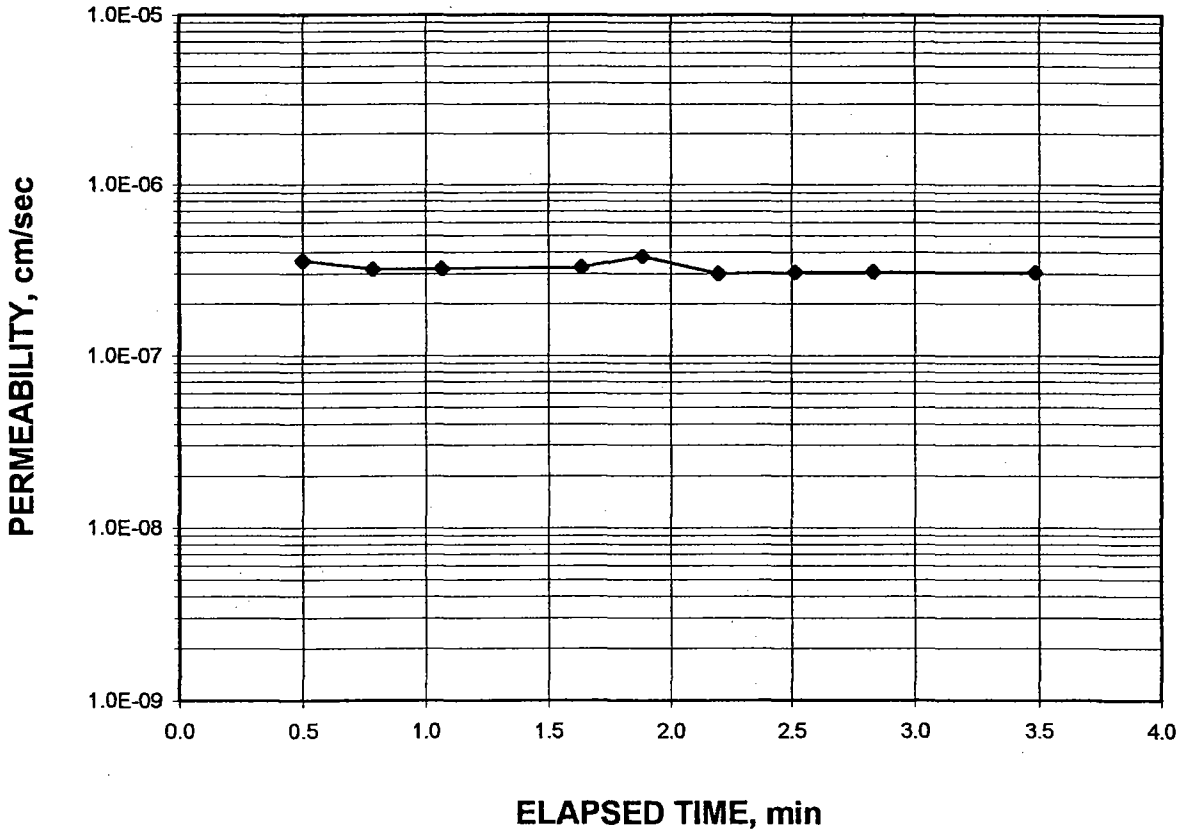
ASTM D 5084-97
(SOP-S22C)

Client	TETRA TECH NUS	Boring No.	NA
Client Project	MCRD PARRIS ISLAND 0502	Depth (ft.)	NA
Project No.	2001-165-01	Sample No.	PAI-45-SB-12-21
Lab ID No.	2001-165-01-11		

Visual Description: GRAY FINE SANDY SILT

AVERAGE PERMEABILITY = 3.0E-07 cm/sec @ 20°C
AVERAGE PERMEABILITY = 3.0E-09 m/sec @ 20°C

PERMEABILITY vs. TIME



Tested By: JCM Date: 7/9/01 Checked By: TMO Date: 7/11/01

DCN: CT-22C DATE:12-21-98 REVISION: 4 C:\MSOffice\Excel\Perms\JULY2001\[165P4.xls]Sheet1
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999

A-144

FLEXIBLE WALL PERMEABILITY TEST

PERMOMETER METHOD

ASTM D 5084-97
(SOP-S22C)

Client	TETRA TECH NUS	Boring No.	NA
Client Project	MCRD PARRIS ISLAND 0502	Depth (ft.)	NA
Project No.	2001-165-01	Sample No.	PAI-45-SB-12-21
Lab ID No.	2001-165-01-11		
		Specific Gravity	2.70 Assumed
		Sample Condition	Undisturbed

Visual Description: GRAY FINE SANDY SILT

MOISTURE CONTENT:	BEFORE TEST	AFTER TEST
Tare Number	1131A	1745
Wt. of Tare & WS (gm.)	268.35	432.7
Wt. of Tare & DS (gm.)	215.11	310.96
Wt. of Tare (gm.)	84.51	82.14
Wt. of Water (gm.)	53.24	121.74
Wt. of DS (gm.)	130.60	228.82
Moisture Content (%)	**40.8**	**53.2**

SPECIMEN:	BEFORE TEST	AFTER TEST
Wt. of Tube & WS (gm.)	884.50	NA
Wt. of Tube (gm.)	259.52	NA
Wt. of WS (gm.)	624.98	680.20
Length 1 (in.)	3.552	3.612
Length 2 (in.)	3.534	3.588
Length 3 (in.)	3.547	3.591
Top Diameter (in.)	2.882	2.828
Middle Diameter (in.)	2.877	2.825
Bottom Diameter (in.)	2.877	2.825
Average Length (in.)	3.54	3.60
Average Area ($in.^2$)	6.51	6.27
Sample Volume (cm^3)	378.01	369.72
Unit Wet Wt. ($gm./cm^3$)	1.653	1.840
Unit Wet Wt. (pcf)	103.2	114.8
Unit Dry Wt. (pcf)	73.3	75.0
Unit Dry Wt. ($gm./cm^3$)	1.175	1.201
Void Ratio, e	1.299	1.248
Porosity, n	0.565	0.555
Pore Volume (cm^3)	213.6	205.3

Tested By: JCM Date: 7/9/01 Checked By: JMO Date: 7/11/01

DCN: CT-22C DATE:12-21-98 REVISION: 4 C:\MSOffice\Excel\Perms\JULY2001\[165P4.xls]Sheet1
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999

FLEXIBLE WALL PERMEABILITY TEST

PERMOMETER METHOD

ASTM D 5084-97
(SOP-S22C)

Client	TETRA TECH NUS	Boring No.	NA
Client Project	MCRD PARRIS ISLAND 0502	Depth (ft.)	NA
Project No.	2001-165-01	Sample No.	PAI-45-SB-12-21
Lab ID No.	2001-165-01-11		

Test Pressures		Final Sample Dimensions	
Cell Pressure(psi)	77.0	Sample Length (cm), L	9.14
Back Pressure(psi)	70.0	Sample Area (cm^2), A	40.47
Eff. Cons. Pressure(psi)	7.0	Pipette Area (cm^2), a_p	0.03142
Response (%)	99	Annulus Area (cm^2), a_a	0.76712
		Equilibrium Level (cm), R_{eq}	1.2

AVERAGE PERMEABILITY = 3.0E-07 cm/sec @ 20°C
AVERAGE PERMEABILITY = 3.0E-09 m/sec @ 20°C

DATE	TIME		ELAPSED TIME t	PIPETTE READI NG R_p	INCREMENT GRADIENT i	FLOW CONDITION (0 flow)	TEMP.	INCREMENTAL PERMEABILITY @ 20°C
mm/dd/yy	(hr)	(min)	(min)	(cm)	(cm/cm)	(1 stop)	(°C)	(cm/sec)
7/10/01	16	36.0	0.00	11.0	14.0	0	22.0	NA
7/10/01	16	36.5	0.50	10.8	13.7	0	22.0	3.6E-07
7/10/01	16	36.8	0.78	10.7	13.6	0	22.0	3.2E-07
7/10/01	16	37.1	1.07	10.6	13.4	0	22.0	3.2E-07
7/10/01	16	37.7	1.63	10.4	13.2	0	22.0	3.3E-07
7/10/01	16	37.9	1.88	10.3	13.0	0	22.0	3.8E-07
7/10/01	16	38.2	2.20	10.2	12.9	0	22.0	3.0E-07
7/10/01	16	38.6	2.52	10.1	12.7	0	22.0	3.0E-07
7/10/01	16	38.9	2.83	10.0	12.6	0	22.0	3.1E-07
7/10/01	16	39.5	3.48	9.8	12.3	1	22.0	3.1E-07

Tested By: JCM Date: 7/9/01 Checked By: TMO Date: 7/11/01

DCN: CT-22C DATE:12-21-98 REVISION: 4 C:\MSOffice\Excel\Perms\JULY2001\[165P4.xls]Sheet1
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999

FLEXIBLE WALL PERMEABILITY TEST

PERMOMETER METHOD

ASTM D 5084-97
(SOP-S22C)

Client	TETRA TECH NUS	Boring No.	NA
Client Project	MCRD PARRIS ISLAND 0502	Depth (ft.)	NA
Project No.	2001-165-01	Sample No.	PAI-45-SB-13-21
Lab ID No.	2001-165-01-12		

Test Pressures		Final Sample Dimensions	
Cell Pressure(psi)	77.0	Sample Length (cm), L	9.37
Back Pressure(psi)	70.0	Sample Area (cm^2), A	41.01
Eff. Cons. Pressure(psi)	7.0	Pipette Area (cm^2), a_p	0.03142
Response (%)	99	Annulus Area (cm^2), a_a	0.76712
		Equilibrium Level (cm), R_{eq}	1.2

AVERAGE PERMEABILITY = 5.6E-08 cm/sec @ 20°C
AVERAGE PERMEABILITY = 5.6E-10 m/sec @ 20°C

DATE	TIME		ELAPSED TIME t	PIPETTE READI NG R_p	INCREMENT GRADIENT i	FLOW CONDITION (0 flow)	TEMP.	INCREMENTAL PERMEABILITY @ 20°C
mm/dd/yy	(hr)	(min)	(min)	(cm)	(cm/cm)	(1 stop)	(°C)	(cm/sec)
7/10/01	16	4.7	0.00	10.9	13.5	0	22.0	NA
7/10/01	16	6.0	1.32	10.8	13.4	0	22.0	6.9E-08
7/10/01	16	7.9	3.20	10.7	13.2	0	22.0	4.9E-08
7/10/01	16	9.5	4.83	10.6	13.1	0	22.0	5.7E-08
7/10/01	16	11.0	6.28	10.5	13.0	0	22.0	6.4E-08
7/10/01	16	12.6	7.92	10.4	12.8	0	22.0	5.8E-08
7/10/01	16	14.3	9.62	10.3	12.7	0	22.0	5.6E-08
7/10/01	16	15.9	11.27	10.2	12.5	0	22.0	5.8E-08
7/10/01	16	17.7	13.05	10.1	12.4	0	22.0	5.5E-08
7/10/01	16	19.5	14.83	10.0	12.3	1	22.0	5.5E-08

Tested By: JCM Date: 7/9/01 Checked By: tmo Date: 7/11/01

DCN: CT-22C DATE:12-21-98 REVISION: 4 C:\MSOffice\Excel\Perms\JULY2001\[165P3.xls]Sheet1
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999

FLEXIBLE WALL PERMEABILITY TEST

Geotechnics

PERMOMETER METHOD

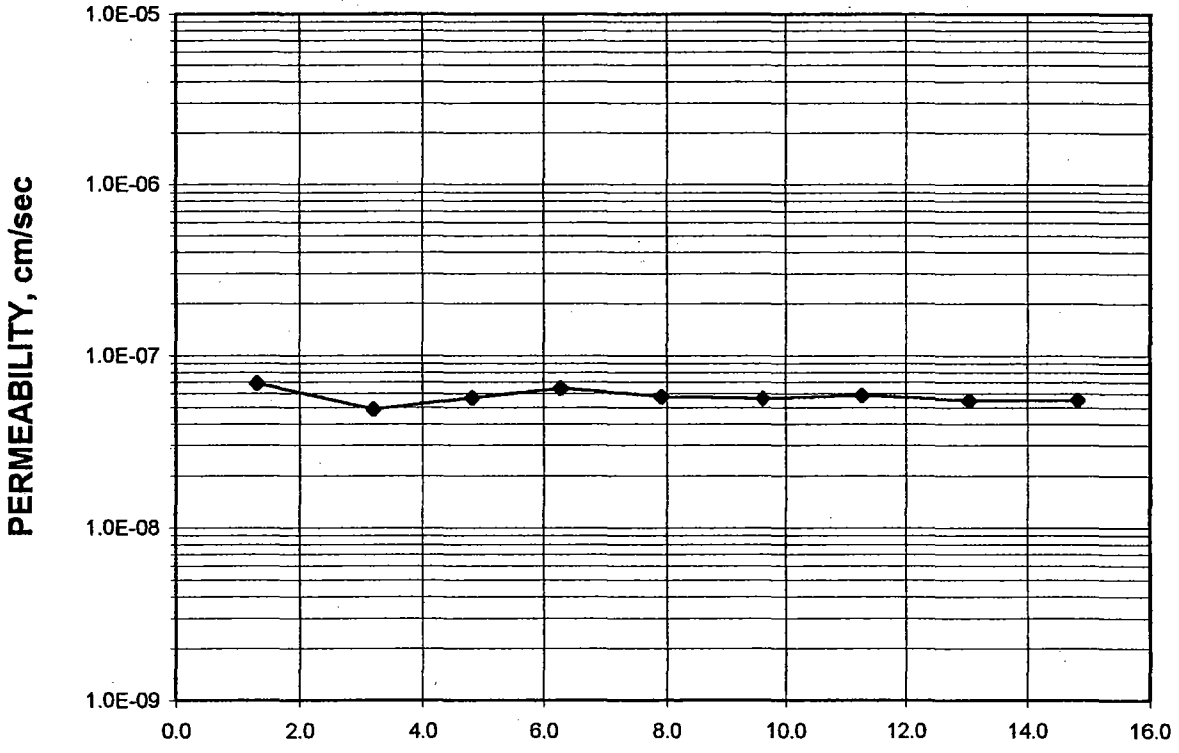
ASTM D 5084-97
(SOP-S22C)

Client	TETRA TECH NUS	Boring No.	NA
Client Project	MCRD PARRIS ISLAND 0502	Depth (ft.)	NA
Project No.	2001-165-01	Sample No.	PAI-45-SB-13-21
Lab ID No.	2001-165-01-12		

Visual Description: GRAY SILT

AVERAGE PERMEABILITY = 5.6E-08 cm/sec @ 20°C
AVERAGE PERMEABILITY = 5.6E-10 m/sec @ 20°C

PERMEABILITY vs. TIME



Tested By: JCM Date: 7/9/01 Checked By: TMO Date: 7/11/01

DCN: CT-22C DATE:12-21-98 REVISION: 4 C:\MSOffice\Excel\Perms\JULY2001\[165P3.xls]Sheet1
544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999

FLEXIBLE WALL PERMEABILITY TEST

PERMOMETER METHOD

ASTM D 5084-97
(SOP-S22C)

Client	TETRA TECH NUS	Boring No.	NA
Client Project	MCRD PARRIS ISLAND 0502	Depth (ft.)	NA
Project No.	2001-165-01	Sample No.	PAI-45-SB-13-21
Lab ID No.	2001-165-01-12		
		Specific Gravity	2.70 Assumed
		Sample Condition	Undisturbed

Visual Description: GRAY SILT

MOISTURE CONTENT:	BEFORE TEST	AFTER TEST
Tare Number	602	1718
Wt. of Tare & WS (gm.)	324.37	442.6
Wt. of Tare & DS (gm.)	253.53	316.5
Wt. of Tare (gm.)	85.72	82.39
Wt. of Water (gm.)	70.84	126.10
Wt. of DS (gm.)	167.81	234.11
Moisture Content (%)	**42.2**	**53.9**

SPECIMEN:	BEFORE TEST	AFTER TEST
Wt. of Tube & WS (gm.)	917.90	NA
Wt. of Tube (gm.)	264.49	NA
Wt. of WS (gm.)	653.41	706.93
Length 1 (in.)	3.634	3.677
Length 2 (in.)	3.626	3.712
Length 3 (in.)	3.633	3.677
Top Diameter (in.)	2.872	2.839
Middle Diameter (in.)	2.870	2.846
Bottom Diameter (in.)	2.879	2.850
Average Length (in.)	3.63	3.69
Average Area ($in.^2$)	6.49	6.36
Sample Volume (cm^3)	385.91	384.26
Unit Wet Wt. ($gm./cm^3$)	1.693	1.840
Unit Wet Wt. (pcf)	105.7	114.8
Unit Dry Wt. (pcf)	74.3	74.6
Unit Dry Wt. ($gm./cm^3$)	1.191	1.196
Void Ratio, e	1.268	1.258
Porosity, n	0.559	0.557
Pore Volume (cm^3)	215.7	214.1

Tested By: JCM Date: 7/9/01 Checked By: TMO Date: 7/11/01

544 Braddock Avenue • East Pittsburgh, PA 15112 • Phone (412) 823-7600 • Fax (412) 823-8999
DCN: CT-22C DATE:12-21-98 REVISION: 4 C:\MSOffice\Excel\Perms\JULY2001\[165P3.xls]Sheet1

APPENDIX A-6

SURFACE SOIL SAMPLE LOG SHEETS

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: N0502

Sample ID No.: PAI-45-SS-01-01
Sample Location: PAI-45-SS-01
Sampled By: Bob Balkovec
C.O.C. No.:

[x] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 6/22/01 Time: 0745 Method: Disposable Trowel Monitor Reading (ppm): 0.0	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	0-1'	LT. BROWN	SILTY F-SAND

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	(4) 5g Encores	✓	
TCL SVOCs	(1) 4 oz. Jar	✓	
TAL Metals (total) and Tin	(1) 4 oz. Jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Robert Balkovec

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: N0502

Sample ID No.: PAI-45-SS-02-01
Sample Location: PAI-45-SS-02
Sampled By: Bob Balkovec
C.O.C. No.:

[x] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 6/12/09 Time: 0810 Method: Disposable Trowel Monitor Reading (ppm): 0.0	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	0-1'	LT. BROWN TAN	SLTY, F. SAND

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	(4) 5g Encores	✓	
TCL SVOCs	(1) 4 oz. Jar	✓	
TAL Metals (total) and Tin	(1) 4 oz. Jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

Robert Balkovec

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: N0502

Sample ID No.: PAI-45-SS-03 -01
Sample Location: PAI-45-SS-03
Sampled By: Bob Balkovec
C.O.C. No.:

[x] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 6/12/01 Time: 0935 Method: Disposable Trowel Monitor Reading (ppm): 0.0	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	0-1'	Lt. Brown Tan	Silty F-SAND

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings				
(Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	(4) 5g Encores	✓	
TCL SVOCs	(1) 4 oz. Jar	✓	
TAL Metals (total) and Tin	(1) 4 oz. Jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): Robert Balkovec

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: N0502

Sample ID No.: PAI-45-SS-04-01
Sample Location: PAI-45-SS-04
Sampled By: Bob Balkovec
C.O.C. No.:

[x] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 6/12/01	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1025	0-1'	LT. BROWN, BLACK, TAN	SILTY, F-SAND
Method: Disposable Trowel			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	(4) 5g Encores	3	
TCL SVOCs	(1) 4 oz. Jar	2	
TAL Metals (total) and Tin	(1) 4 oz. Jar	2	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	FD061201 01

Signature(s): Robert Balkovec

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: N0502

Sample ID No.: PAI-45-SS-05-01
Sample Location: PAI-45-SS-05
Sampled By: Bob Balkovec
C.O.C. No.:

[x] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 6/12/01	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1110	0-1'	BROWN-TAN	SILT, F-SAND
Method: Disposable Trowel			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	(4) 5g Encores	✓	
TCL SVOCs	(1) 4 oz. Jar	✓	
TAL Metals (total) and Tin	(1) 4 oz. Jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD —

Duplicate ID No.: —

Signature(s):

Robert Balkovec

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: N0502

Sample ID No.: PAI-45-SS-06 -01
Sample Location: PAI-45-SS-06
Sampled By: Bob Balkovec
C.O.C. No.:

[x] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 6/12/09	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1250	0-1'	LT BR, DK BROWN-TAN	SILTY F-SAND
Method: Disposable Trowel			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	(4) 5g Encores	✓	
TCL SVOCs	(1) 4 oz. Jar	✓	
TAL Metals (total) and Tin	(1) 4 oz. Jar		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
~	~

Signature(s): Robert Balkovec

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: N0502

Sample ID No.: PAI-45-SS-07-01
Sample Location: PAI-45-SS-07
Sampled By: Bob Balkovec
C.O.C. No.:

[x] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 6/12/01 Time: 1445 Method: Disposable Trowel Monitor Reading (ppm): 0.0	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	0-1'	BLACK & TAN	SILTY, F-SAND

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	(4) 5g Encores	✓	
TCL SVOCs	(1) 4 oz. Jar	✓	
TAL Metals (total) and Tin	(1) 4 oz. Jar	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

Robert Balkovec

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: N0502

Sample ID No.: PAI-45-SS-08-01
Sample Location: PAI-45-SS-08
Sampled By: Bob Balkovec
C.O.C. No.:

[x] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 6/12/01	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1520	0-1'	BLK & TAN	SILTY, F SAND
Method: Disposable Trowel			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	9 ~~4~~ 5g Encores	Dup + MS/MSD	
TCL SVOCs	2 (1) 4 oz. Jar	MS/MSD	
TAL Metals (total) and Tin	2 (1) 4 oz. Jar	MS/MSD	

OBSERVATIONS / NOTES:

* TALKED W/ LAB 9 ENCORES SHOULD BE ENOUGH.

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.: FD06120103

Signature(s):

Robert Balkovec

APPENDIX A-7

SUBSURFACE SOIL SAMPLE LOG SHEETS

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: N0502

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: PAI-45-SB-01-05
Sample Location: PAI-45-SB-01
Sampled By: Bob Balkovec
C.O.C. No.:

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 6/12/01	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0932	4'-5'	GRAY/LT. BR	SILTY, F SAND.
Method: SPLIT SPOON			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	(4) 5g Encores	✓	
TCL SVOCs	(1) 4 oz. Jar	✓	
TOC	(1) ~~4 oz. Jar~~ 2oz	✓	
pH and GRAIN SIZE	~~(1) 2 oz. Jar~~ 6oz ZIPLOCK		
VERTICAL CONDUCTIVITY	SHELBY TUBE		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

Robert Balkovec

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: N0502

Sample ID No.: PAI-45-SB-01-14
Sample Location: PAI-45-SB-01
Sampled By: Bob Balkovec
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 6/12/01	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0905	12-14'	GRAY	F-SAND W/ T-SILT
Method: SPLIT SPOON			
Monitor Reading (ppm): 0-0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
~~TCL VOCs~~	~~(4) 5g Encores~~		
~~TCL SVOCs~~	~~(1) 4 oz. Jar~~		
TOC	(1) 2 oz. Jar	✓	
pH and GRAIN SIZE	(GRAIN) ~~(1) 2 oz. Jar~~ 2 PLUS		
~~VERTICAL CONDUCTIVITY~~	~~SHELBY TUBE~~		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
~~—~~	~~—~~

Signature(s):

Robert Balkovec

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: N0502

Sample ID No.: PAI-45-SB-01-23
Sample Location: PAI-45-SB-01
Sampled By: Bob Balkovec
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 6/12/01 Time: 0940 Method: SPLIT SPOON / SHELBY Monitor Reading (ppm): 0.0	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	20-22.5'	BLUE GRAY, BLACK	CLAY & PEAT

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	(4) 5g Encores		
TCL SVOCs	(1) 4 oz. Jar		
TOC	(1) 4 oz. Jar		
pH and GRAIN SIZE	(1) 2 oz. Jar		
VERTICAL CONDUCTIVITY	SHELBY TUBE	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD —

Duplicate ID No.:

Signature(s):

Robert Balkovec

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: N0502

Sample ID No.: PAI-45-SB-02-04
Sample Location: PAI-45-SB-02
Sampled By: Bob Balkovec
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 6/12/01	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1125	3-4'	BLACK + GRAY	SILT, F-SAND
Method: SPLIT SPOON			
Monitor Reading (ppm): 133			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings				
(Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	(4) 5g Encores	✓	
TCL SVOCs	(1) 4 oz. Jar	✓	
TOC	(1) 4 oz. Jar	✓	
~~pH and GRAIN SIZE~~	~~(1) 2 oz. Jar~~		
~~VERTICAL CONDUCTIVITY~~	~~SHELBY TUBE~~		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
~~	~~~~

Signature(s): Robert Balkovec

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: N0502

Sample ID No.: PAI-45-SB-03-04
Sample Location: PAI-45-SB-03
Sampled By: Bob Balkovec
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 6/12/01	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1208	2-4'	BLK & DK GRAY	SILTY SAND W/ T-CLAY
Method: SPLIT SPOON			
Monitor Reading (ppm): 320			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	(4) 5g Encores	✓	
TCL SVOCs	(1) 4 oz. Jar	✓	
TOC	(1) 2 oz. Jar	✓	
~~pH and GRAIN SIZE~~	~~(1) 2 oz. Jar~~		
~~VERTICAL CONDUCTIVITY~~	~~SHELBY TUBE~~		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
~~—~~	~~—~~

Signature(s): Robert Balkovec

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: N0502

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: PAI-45-SB-04-04
Sample Location: PAI-45-SB-04
Sampled By: Bob Balkovec
C.O.C. No.:

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 6/12/01	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1345	3-4'	BLACK & GRAY	SILTY, CLAYEY SAND
Method: SPLIT SPOON			
Monitor Reading (ppm): 2.4			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	(4) 5g Encores	✓	
TCL SVOCs	(1) 4 oz. Jar	✓	
TOC	(1) 2 oz. Jar		
~~pH and GRAIN SIZE~~	~~(1) 2 oz. Jar~~		
~~VERTICAL CONDUCTIVITY~~	~~SHELBY TUBE~~		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Robert Balkovec

A-163

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: N0502

Sample ID No.: PAI-45-SB-05-04
Sample Location: PAI-45-SB-05
Sampled By: Bob Balkovec
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 6/12/01 Time: 1255 Method: SPLIT SPOON Monitor Reading (ppm): 0.0 ppm	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	2-4'	DK GRAY	SILTY SAND, CLAYEY SAND

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	(4) 5g Encores	✓	
TCL SVOCs	(1) 4 oz. Jar	✓	
TOC	(1) 2 oz. Jar	✓	
~~pH and GRAIN SIZE~~	~~(1) 2 oz. Jar~~		
~~VERTICAL CONDUCTIVITY~~	~~SHELBY TUBE~~		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Robert Balkovec

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: N0502

Sample ID No.: PAI-45-SB-06-04
Sample Location: PAI-45-SB-06
Sampled By: Bob Balkovec
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 6/12/01	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1325	2-4'	BLK + OR GRAY	SILTY, CLAYEY SAND
Method: SPLIT SPOON			
Monitor Reading (ppm): 16			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	(4) 5g Encores	✓	
TCL SVOCs	(1) 4 oz. Jar	✓	
TOC	(1) 2 oz. Jar	✓	
~~pH and GRAIN SIZE~~	~~(1) 2 oz. Jar~~		
~~VERTICAL CONDUCTIVITY~~	~~SHELBY TUBE~~		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
~~—~~	~~—~~

Signature(s):

Robert Balkovec

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: N0502

Sample ID No.: PAI-45-SB-02-04
Sample Location: PAI-45-SB-02
Sampled By: Bob Balkovec
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 6/13/01	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1450	3-4'	DK. Gray	Silty Clay
Method: SPLIT SPOON			
Monitor Reading (ppm): 14.7			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	3 ~~(4)~~ 5g Encores	✓	
TCL SVOCs	2 ~~(4)~~ 4 oz. Jar	✓	
TOC	2 ~~(4)~~ 2 oz. Jar	✓	
pH and GRAIN SIZE	(1) 2 oz. Jar		
VERTICAL CONDUCTIVITY	SHELBY TUBE		

OBSERVATIONS / NOTES:

* Dup on SVOC & TOC

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
	FD061301 02

Signature(s):

Robert Balkovec

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: N0502

Sample ID No.: PAI-45-SB-08-04
Sample Location: PAI-45-SB-08
Sampled By: Bob Balkovec
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 6/13/01	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1550	3'-4'	DARK BROWN GRAY	SILTY, CLAYEY SAND
Method: SPLIT SPOON			
Monitor Reading (ppm): 5-1			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	(4) 5g Encores	✓	
TCL SVOCs	(1) 4 oz. Jar	✓	
TOC	3 ~~2~~ 4 oz. Jar	DUP + MS/MSD	
~~pH and GRAIN SIZE~~	~~(1) 2 oz. Jar~~		
~~VERTICAL CONDUCTIVITY~~	~~SHELBY TUBE~~		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:
MS/MSD

Duplicate ID No.: FD061201O4

Signature(s): Robert Balkovec

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: N0502

Sample ID No.: PAI-45-SB-09-14
Sample Location: PAI-45-SB-09
Sampled By: Bob Balkovec
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 6/12/01	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1615	12-14'	GRAY	FINE SAND
Method: SPLIT SPOON			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
~~TCL VOCs~~	~~(4) 5g Encores~~		
~~TCL SVOCs~~	~~(1) 4 oz. Jar~~		
TOC	(1) 2 oz. Jar	✓	
pH and GRAIN SIZE	1 GALLON ~~(1) 2 oz. Jar~~ 2 QUART	✓	
~~VERTICAL CONDUCTIVITY~~	~~SHELBY TUBE~~		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
~~MS/MSD~~	~~Duplicate ID No.:~~

Signature(s): Robert Balkovec

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: N0502

Sample ID No.: PAI-45-SB-09-23
Sample Location: PAI-45-SB-09
Sampled By: Bob Balkovec
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 06/12/01	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1600	20-22.5	BLACK + BLUE GRAY	PEAT + CLAY
Method: ~~SPLIT SPOON~~ ~~Shelby~~			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
~~TCL VOCs~~	~~(4) 5g Encores~~	X	
TCL SVOCs	(1) 4 oz. Jar	X	
~~TOC~~	~~(1) 4 oz. Jar~~	X	
pH ~~and GRAIN SIZE~~	~~(1) 2 oz. Jar~~	X	
VERTICAL CONDUCTIVITY	SHELBY TUBE	YES	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): Robert Balkovec

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: N0502

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: PAI-45-SB-10-13
Sample Location: PAI-45-SB-10
Sampled By: Bob Balkovec
C.O.C. No.:

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 6/13/01	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0755	11-13'	LT. GRAY	F. SAND
Method: SPLIT SPOON			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
~~TCL VOCs~~	~~(4) 5g Encores~~		
~~TCL SVOCs~~	~~(1) 4 oz. Jar~~		
TOC	(1) 8 oz. Jar	✓	
pH and GRAIN SIZE	GALLON ~~(1) 8 oz. Jar~~ SPOON	✓	
~~VERTICAL CONDUCTIVITY~~	~~SHELBY TUBE~~		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
~~MS/MSD~~	~~Duplicate ID No.:~~

Signature(s): Robert Balkovec

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: N0502

Sample ID No.: PAI-45-SB-10-23
Sample Location: PAI-45-SB-10
Sampled By: Bob Balkovec
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 6/13/01	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0815	20-22.5'	BLK + GRY	PEAT w/ CLAY
Method: SPLIT SPOON/SHELBY			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
~~TCL VOCs~~	~~(4) 5g Encores~~		
~~TCL SVOCs~~	~~(1) 4 oz. Jar~~		
~~TOC~~	(1) 4 oz. Jar		
~~pH and GRAIN SIZE~~	~~(1) 8 oz. Jar~~		
VERTICAL CONDUCTIVITY	SHELBY TUBE	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

Robert Balkovec

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: N0502

Sample ID No.: ~~PAI-45-SC-01~~ SB-11-10 SC 11/4/02
Sample Location: ~~PAI-45-SS~~ SB-11
Sampled By: Bob Balkovec
C.O.C. No.:

~~[x] Surface Soil~~
~~X~~ Subsurface Soil OK SC 11/4/02
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 6/13/01	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0925	~~8-10'~~ 8-9'	GRAY	F- SAND T-SILT
Method: ~~Disposable Trowel~~ SPLIT SPOON			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
~~TCL VOCs~~	~~(4) 5g Encores~~		
~~TCL SVOCs~~	~~(1) 4 oz. Jar~~		
~~TAL Metals (total) and Tin~~	~~(1) 4 oz. Jar~~		
TOC	(1) 2oz JAR	✓	
pH + GRAIN SIZE	(1) GALLON ZIPLOCK	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Robert Balkovec

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: N0502

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: PAI-45-SB-11-23
Sample Location: PAI-45-SB-11
Sampled By: Bob Balkovec
C.O.C. No.:

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 6/13/01	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0945	20-23'	BLACK & BLUE GRAY	PEAT & CLAY
Method: SPLIT SPOON/SHELBY TUBE			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
~~TCL VOCs~~	~~(4) 5g Encores~~		
~~TCL SVOCs~~	~~(1) 4 oz. Jar~~		
~~TOC~~	~~(1) 4 oz. Jar~~		
~~pH and GRAIN SIZE~~	~~(1) 2 oz. Jar~~		
VERTICAL CONDUCTIVITY	SHELBY TUBE	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): Robert Balkovec

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: N0502

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: PAI-45-SB-12-0
Sample Location: PAI-45-SB-12
Sampled By: Bob Balkovec
C.O.C. No.:

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 6/13/01	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1123	8-10'	YELLOW & LT. GRAY	F-SAND
Method: SPLIT SPOON			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

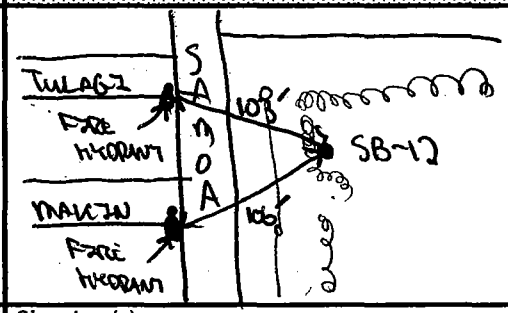
Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
~~TCL VOCs~~	~~(4) 5g Encores~~		
~~TCL SVOCs~~	~~(1) 4 oz. Jar~~		
TOC	(1) 2 oz. Jar	✓	
pH and GRAIN SIZE	GALLON ~~(1) 8 oz. Jar~~ ZIPLOCK	✓	
~~VERTICAL CONDUCTIVITY~~	~~SHELBY TUBE~~		

OBSERVATIONS / NOTES:

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Robert Balkovec

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: N0502

Sample ID No.: PAI-45-SB-12-21
Sample Location: PAI-45-SB-12
Sampled By: Bob Balkovec
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 6/13/01	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1150	18-21'	BLACK & BLUE GRAY	CLAY-PEAT
Method: SPLIT SPOON			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
~~TCL VOCs~~	~~(4) 5g Encores~~		
~~TCL SVOCs~~	~~(1) 4 oz. Jar~~		
~~TOC~~	~~(1) 4 oz. Jar~~		
~~pH and GRAIN SIZE~~	~~(1) 2 oz. Jar~~		
VERTICAL CONDUCTIVITY	SHELBY TUBE	✓	

OBSERVATIONS / NOTES:

MAP:

SEE SB-12-10 LOCATION

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

Robert Balkovec

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: N0502

Sample ID No.: PAI-45-SB-13-10
Sample Location: PAI-45-SB-13
Sampled By: Bob Balkovec
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 9/13/01	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1323	8'-10'	GRAY	F-SAND
Method: SPLIT SPOON			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

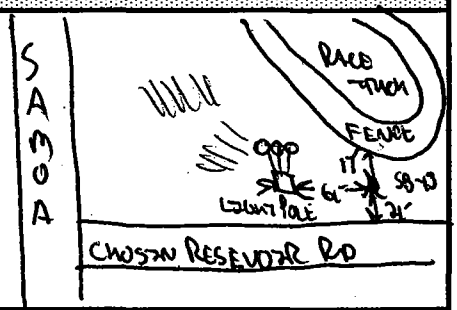
Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
~~TCL VOCs~~	~~(4) 5g Encores~~		
~~TCL SVOCs~~	~~(1) 4 oz. Jar~~		
TOC	(1) 2 oz. Jar	✓	
pH and GRAIN SIZE	YELLOW ~~(1) 8 oz. Jar~~ 2 PLUS	✓	
~~VERTICAL CONDUCTIVITY~~	~~SHELBY TUBE~~		

OBSERVATIONS / NOTES:

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Robert Balkovec

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: N0502

Sample ID No.: PAI-45-SB-13-21
Sample Location: PAI-45-SB-13
Sampled By: Bob Balkovec
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[x] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 6/13/01	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1355	18-21'	GRAY & BLACK	CLAY W/SAND, PEAT
Method: SPLIT SPOON / SHELBY			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
~~TCL VOCs~~	~~(4) 5g Encores~~		
TCL ~~SVOCs~~	(1) 4 oz. Jar		
~~TOC~~	~~(1) 4 oz. Jar~~		
~~pH and GRAIN SIZE~~	~~(1) 2 oz. Jar~~		
VERTICAL CONDUCTIVITY	SHELBY TUBE	✓	

OBSERVATIONS / NOTES:

MAP:

SEE SB-13-10 LOCATION

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

Robert Balkovec

APPENDIX A-8

GROUNDWATER SAMPLE LOG SHEETS

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: PARRIS ISLAND
Project No.: N0502

Sample ID No.: PAI-45-TW-01-10
Sample Location: PAI-45-TW-01
Sampled By: B BARNOVER
C.O.C. No.: 3-22-01

[ ] Domestic Well Data
[ ] Monitoring Well Data
[X] Other Well Type: TEMP WELL
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 3-22-01	Color	pH	S.C.	Temp.	Turbidity	DO	TBD	TBD
Time: 1357	Visual	Standard	mS/cm	°C	NTU	mg/l	SAL.	
Method: PERISTALTIC	BROWN	5.20	0.558	19.8	>999	0.78	0.02	—

PURGE DATA:

Date: 3-22-01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	SAL TBD	TBD
Method: PERISTALTIC	INITIAL	5.61	0.543	19.4	>999	0.56	0.02	BROWN
Monitor Reading (ppm): 0.0	1	5.60	0.546	20.2	>999	0.18	0.02	—
Well Casing Diameter & Material	2	5.72	0.553	19.9	>999	0.61	0.02	—
Type: 3/4" S.STEEL	3	5.70	0.558	19.8	>999	0.78	0.02	—
Total Well Depth (TD): 10.20								
Static Water Level (WL): 1.70								
One Casing Volume (gal/L): .34								
Start Purge (hrs): [redacted]1236								
End Purge (hrs): [redacted]1355								
Total Purge Time (min): [redacted]79								
Total Vol. Purged (gal/L): 1								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC	HCL/4°C	(6) 40ml VIAL	✓

OBSERVATIONS / NOTES:

1.75L/vial

SCREENED 6-10'

Circle if Applicable:
MS/MSD
Duplicate ID No.: PAI-45-TW-01-10

Signature(s): Robert Balkcom

TBD: To Be Determined

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: PAPPAS ISLAND
Project No.: N0502

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: TEMP WELL
[] QA Sample Type:

Sample ID No.: PAI-45-TW01-15
Sample Location: PAI-45-TW01-1
Sampled By: R. BALTAVEC
C.O.C. No.: 3-22-01
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 3-22-01	Color	pH	S.C.	Temp.	Turbidity	DO	~~TBD~~	TBD
Time: 1440	Visual	Standard	mS/cm	°C	NTU	mg/l	SALT.	
Method: PERISTALTIC	TAN	5.71	0.521	20.0	540	1.81	0.02	

PURGE DATA:

Date: 3-22-01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	~~SALTBD~~	TBD
Method: PERISTALTIC	INITIAL	5.85	0.519	20.4	>999	1.37	0.02	GRAY
Monitor Reading (ppm): 0.0	1	5.68	0.518	20.3	>999	1.81	0.02	GRAY
Well Casing Diameter & Material	2	5.71	0.521	20.1	>999	1.91	0.02	DRY
Type: 3/4" S. STEEL	3	ALLOW FOR RECHARGE			THEN	SAMPLE		
Total Well Depth (TD): 15.15								
Static Water Level (WL): 4.75								
One Casing Volume (gal/L): 1.41								
Start Purge (hrs): 1236								
End Purge (hrs): 1350								
Total Purge Time (min): 74								
Total Vol. Purged (gal/L): 1								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl/4°C	(3) ~~40~~ 40ml VIALS	✓

OBSERVATIONS / NOTES:

1.57 L/vol

NO MS/MSD REQUIRED

SCREENED 11-15'

Circle if Applicable: MS/MSD

Duplicate ID No.:

Signature(s): Robert Baltavec

TBD: To Be Determined

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Page 1 of 1

Project Site Name: PARRIS ISLAND
Project No.: N0502

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type:
[] QA Sample Type:

Sample ID No.: PAI-45-TW-02-10
Sample Location: PAI-45-TW-02
Sampled By: B. BALKOVEC
C.O.C. No.: 3-22-01
Type of Sample:
[X] Low Concentration
[] High Concentration

SJC 1/4/02

SAMPLING DATA:

	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	TBD SAL%	TBD
Date: 3-22-01								
Time: 1215								
Method: PERISTALTIC	TAN	5.78	0.337	19.6	>999	2.45	0.01	

PURGE DATA:

	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	SAL TBD	TBD
Date: 3-22-01								
Method: PERISTALTIC	INITIAL	—	—	—	—	—	—	—
Monitor Reading (ppm): 0.0	1/2	—	—	DRY ONLY 250 ml BEFORE DRYING OUT				—
Well Casing Diameter & Material	1	5.78	0.337	19.6	>999	2.45	0.01	DRY
Type: 3/4" S. STEEL	1.5	—	—	DRY REMOVED 200 ml BEFORE DRYING OUT				
Total Well Depth (TD): 10.10	→ ALLOW TO RECHARGE BEFORE SAMPLING							
Static Water Level (WL): 7.10								
One Casing Volume (gal/L): .12								
Start Purge (hrs): 1130								
End Purge (hrs): 1155								
Total Purge Time (min): 25								
Total Vol. Purged (gal/L): .18								

1135
1140

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC's	HCl/4°C	(3) 40 ml VIAL	✓

OBSERVATIONS / NOTES:

3" (.04) .12 gal/vol = 450 ml/vol

4' SCREENED 6-10

- TRIED TO SET WELL @ 8' BUT UNABLE TO GET ANY WATER

Circle if Applicable:

MS/MSD —

Duplicate ID No.: —

Signature(s): Robert Balkovec

TBD: To Be Determined

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: PARRIS ISLAND
Project No.: NU502

Sample ID No.: PAI-45-TW-02-16
Sample Location: PAI-45-TW-02
Sampled By: R. BALKOVEC
C.O.C. No.: 3-22-01

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: TEMP WELL
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 3-22-01	Color	pH	S.C.	Temp.	Turbidity	DO	TBD	TBD
Time: 1210	Visual	Standard	mS/cm	°C	NTU	mg/l	SAL ‰	
Method: PERISTALTIC	GRAY	5.92	0.517	19.9	7999	0.01	0.02	—

PURGE DATA:

Date: 3-22-01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	SAL TBD	TBD
Method: PERISTALTIC	INITIAL	5.92	0.517	19.9	7999	0.01	0.02	—
Monitor Reading (ppm): 0.0	.5	—	—	DRY	—			→ 1135
Well Casing Diameter & Material	1	—	—	DRY	—			→ 1150
Type: 3/4" S. STEEL	→ ALLOW TO RECHARGE THEN SAMPLE							
Total Well Depth (TD): 16.21								
Static Water Level (WL): 3.80								
One Casing Volume (gal/L): .5								
Start Purge (hrs): 1125								
End Purge (hrs): 1150								
Total Purge Time (min): 25								
Total Vol. Purged (gal/L): 1.5								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC	HCl/4°C	(3) 40ml VIALS	✓

OBSERVATIONS / NOTES:

2L = 1 well

SCREENED 12-16'

ALLOWED TO RECHARGE FOR 15 MIN. AFTER 1ST TIME WELL RAN DRY.

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

Robert Balkovec

TBD: To Be Determined

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: PARRIS ISLAND
Project No.: 0502

Sample ID No.: PI-45-TW-03-09
Sample Location: PI-45-TW-03
Sampled By: R DALWAY
C.O.C. No.: 3-22-01

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: TEMP WELL
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 3-22-01	Color	pH	S.C.	Temp.	Turbidity	DO	TBD	TBD
Time: ~~0935~~ 0955	Visual	Standard	mS/cm	°C	NTU	mg/l	SAL/.	
Method: PERISTALTIC	TAN	5.14	0.341	17.9	>999	2.00	0.01	—

PURGE DATA:

Date: 3-22-01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	SAL TBD	TBD
Method: PERISTALTIC	INITIAL	6.00	0.384	18.5	>999	1.68	0.01	TAN
Monitor Reading (ppm): 0.0	1	5.10	0.335	17.8	>999	2.10	0.01	TAN
Well Casing Diameter & Material	2	5.08	0.340	17.8	>999	1.92	0.01	—
Type: ¾" S. STEEL	3	5.11	0.338	17.9	>999	2.10	0.01	HEAVY SED
Total Well Depth (TD): 8.00	4	5.14	0.341	17.9	>999	2.00	0.01	4
Static Water Level (WL): 2.50		→ END PARAMETERS STABILIZED						
One Casing Volume (gal/L): .22								
Start Purge (hrs): 0924								
End Purge (hrs): ~~1052~~ 0952								
Total Purge Time (min): 28								
Total Vol. Purged (gal/L): 1.5								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC's	HCl/4°C	(3) 40ml VIAL	✓

OBSERVATIONS / NOTES:

$(5.5)\frac{0.623}{0.04} = 830$ ml/vol

SCREENED 4-8'

* WELL WOULD NOT CLEAN UP MAY BE PROBLEM W/ TEMP WELL CONSTRUCTION.

Circle if Applicable:

MS/MSD	Duplicate ID No.:
✓	

Signature(s): Robert Balhaver

TBD: To Be Determined

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: PARRIS ISLAND
Project No.: 0502

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: TEMP WELL
[] QA Sample Type:

Sample ID No.: PAI-45-GW-03-17
Sample Location: PAI-45-GW-03
Sampled By: B BALKCOM
C.O.C. No.: 3-22-01
Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 3-22-01 / Time: 1000	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	TBD SALT.	TBD
Method: PERISTALTIC	HAZY	5.42	0.357	19.1	347	1.45	0.01	HAZY/GRAY

PURGE DATA:

Date: 3-22-01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	SALTBD	TBD
Method: PERISTALTIC	INITIAL	5.66	0.412	17.6	7999	1.23	0.01	GRAY
Monitor Reading (ppm): 0.0	1	5.33	0.379	18.8	7999	1.16	0.01	—
Well Casing Diameter & Material Type: 3/4" S.STEEL	2	5.39	0.362	18.9	7999	1.24	0.01	—
	3	5.42	0.357	19.1	347	1.45	0.01	—
Total Well Depth (TD): 17.08								
Static Water Level (WL): 4.90								
One Casing Volume (gal/L): .5								
Start Purge (hrs): 0922								
End Purge (hrs): 0959								
Total Purge Time (min): 37								
Total Vol. Purged (gal/L): 1.5								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC	HCl/4°C	(3) 40 ml VIAL	✓

OBSERVATIONS / NOTES:

12.18' .04 FOR 1 INCH CASING: 2L

SCREENED 13-17'

Circle if Applicable:
MS/MSD — Duplicate ID No.: —

Signature(s): Robert Balkcom

TBD: To Be Determined

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: PARRIS ISLAND
Project No.: N0502

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type:
[] QA Sample Type:

Sample ID No.: PAI-45-TW-04-06
Sample Location: PAI-45-TW-04
Sampled By: B. BALKOVEC
C.O.C. No.: 4-11-01
Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	~~TBD~~ SAL %	TBD
Date: 4/10/01								
Time: 1605								
Method: PERISTALTIC	TAN							

PURGE DATA:

	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	SAL ~~TBD~~ %	TBD
Date: 4/10/01								
Method: PERISTALTIC	400ml	5.77	1.04	22.5	>499	0.74	0.04	DRY @ 1541
Monitor Reading (ppm): 0.0	→ ALLOW WELL TO RECHARGE THEN SAMPLE							
Well Casing Diameter & Material								
Type: 3/4" STAINLESS STEEL								
Total Well Depth (TD): 5.74'								
Static Water Level (WL): 3.14'								
One Casing Volume (gal/L): .06								
Start Purge (hrs): 1539								
End Purge (hrs): 1541								
Total Purge Time (min): 2								
Total Vol. Purged (gal/L): 400ml								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC's	HCl/4°C	(3) 40ml VIAL	✓

OBSERVATIONS / NOTES:

2.60' 226 ml/vol

@ 1604 w/L = 3.40'

SCREENED 2-6'

Circle if Applicable:

MS/MSD —

Duplicate ID No.:

Signature(s): Robert Balkovec

TBD: To Be Determined

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: PAPPAS ISLAND
Project No.: 11052

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: TEMP WELL
[] QA Sample Type:

Sample ID No.: PAI-45-TW-04-14
Sample Location: PAI-45-TW04
Sampled By: B. BALLOUER
C.O.C. No.: 4-11-01
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 4/10/01 Time: 1612	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	TBD SAL ‰	TBD
Method: PERISTALTIC	GRAY	5.26	0.429	21.9	>999	1.01	0.01	—

PURGE DATA:

Date: 4/10/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	SAL TBD ‰	TBD
Method: PERISTALTIC	INITIAL	5.95	0.509	23.3	>999	1.33	0.02	GRAY
Monitor Reading (ppm): 0.0	1	5.89	0.443	22.1	>999	1.47	0.01	—
Well Casing Diameter & Material	2	5.31	0.430	21.6	>999	1.00	0.01	—
Type: 3/4" STAINLESS STEEL	3	5.24	0.429	22.0	>999	1.40	0.01	—
Total Well Depth (TD): 13.87'	4	5.26	0.429	21.9	>999	1.01	0.01	—
Static Water Level (WL): 2.10'	L → END							
One Casing Volume (gal/L): .4								
Start Purge (hrs): 1536								
End Purge (hrs): 1611								
Total Purge Time (min): 35								
Total Vol. Purged (gal/L): 1.6								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC	HCl/4°C	(3) 40 ml VIAL	✓

OBSERVATIONS / NOTES:

11.77' = 1.5 L

SCREENED 10-14'

Circle if Applicable:		Signature(s):
MS/MSD	Duplicate ID No.:	Robert Ballouer

TBD: To Be Determined

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: N0502

[] Domestic Well Data
[] Monitoring Well Data
[X] Temporary Well
[] QA Sample Type:

Sample ID No.: PAI-45-TW- 05-07
Sample Location: PAI-45-TW- 05
Sampled By: Nathan Reel
C.O.C. No.: 4-4-01
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 4/4/01 Time: 0850	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	Salinity %	Notes:
Method: PERISTALTIC PUMP	MUDDY	5.91	1.82	16.9	860	2.80	0.08	

PURGE DATA:

Date: 4/4/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	Salinity %	Notes:
Method: PERISTALTIC PUMP	0752	5.42	1.93	16.7	>999	2.49	0.09	MUDDY
Monitor Reading (ppm): 0.0	0830	5.91	1.82	16.9	860	2.80	0.08	MUDDY
Well Casing Diameter & Material								
Type: 3/4" STAINLESS STEEL								
Total Well Depth (TD): 6.33								
Static Water Level (WL): 2.07								
One Casing Volume (gal/L): 0.11								
Start Purge (hrs): 0740								
End Purge (hrs): 0830								
Total Purge Time (min): 50								
Total Vol. Purged (gal/L): 1.0								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOCs	4 C / HCl	(3) 40 ML VIALS	3

OBSERVATIONS / NOTES:

3/4"=0.023/FT
1" =0.04/FT

WELL PUMPED FOR 5 MINUTES THEN WENT DRY. ALLOW FOR RECHARGE

CHEMICAL SMELL AND SHEEN.

WELL RAN DRY FOUR TIMES. ALLOW RECHARGE THEN SAMPLED.

* SCREENED 3'-7'

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Robert Baltrus

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: N0502

[] Domestic Well Data
[] Monitoring Well Data
[X] Temporary Well
[] QA Sample Type:

Sample ID No.: PAI-45-TW-05-00
Sample Location: PAI-45-TW-05
Sampled By: Nathan Reel
C.O.C. No.: 4-4-01
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 4/4/01 Time: 0820	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	Salinity %	Notes:
Method: PERISTALTIC PUMP	muddy	5.43	0.753	19.9	486	0.01	0.03	—

PURGE DATA:

Date: 4/4/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	Salinity %	Notes:
Method: PERISTALTIC PUMP	0750	5.37	0.91	18.6	>999	0.42	0.04	muddy
Monitor Reading (ppm): 0.0	0800	5.57	0.785	19.3	800	0.31	0.03	↓
Well Casing Diameter & Material	0808	5.51	0.767	19.7	494	0.06	0.03	
Type: 3/4" STAINLESS STEEL	0815	5.43	0.753	19.9	486	0.01	0.03	↓
Total Well Depth (TD): 19.60								
Static Water Level (WL): 2.91								
One Casing Volume (gal/L): 0.60								
Start Purge (hrs): 0745								
End Purge (hrs): 0815								
Total Purge Time (min): 30								
Total Vol. Purged (gal/L): 2.8								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOCs	4 C / HCl	(3) 40 ML VIALS	✓

OBSERVATIONS / NOTES:

3/4"=0.023/FT
1" =0.04/FT

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	PAI-45-TW-05-00

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: N0502

[] Domestic Well Data
[] Monitoring Well Data
[X] Temporary Well
[] QA Sample Type:

Sample ID No.: PAI-45-TW- 05-34
Sample Location: PAI-45-TW- 05
Sampled By: Nathan Reel
C.O.C. No.: 4-4-01
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 4/4/01 Time: 0950	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	Salinity %	Notes:
Method: PERISTALTIC PUMP	cloudy	6.01	1.23	21.5	>999	1.96	0.05	—

PURGE DATA:

Date: 4/4/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	Salinity %	Notes:
Method: PERISTALTIC PUMP	0900	6.01	1.26	20.5	968	0.15	0.05	cloudy
Monitor Reading (ppm): 0.0	0940	6.03	1.28	20.9	337	0.51	0.05	↓
Well Casing Diameter & Material	0930	6.01	1.23	21.5	>999	1.96	0.05	↓
Type: 3/4" STAINLESS STEEL								
Total Well Depth (TD): 34.07								
Static Water Level (WL): 6.83								
One Casing Volume (gal/L): 1.02								
Start Purge (hrs): 0840								
End Purge (hrs): 0930								
Total Purge Time (min): 50								
Total Vol. Purged (gal/L): 2.0								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOCs	4 C / HCl	(3) 40 ML VIALS	3

OBSERVATIONS / NOTES:

3/4"=0.023/FT
1" =0.04/FT

@ 0915 WELL RAN DRY

WELL RAN DRY 2 TIMES, ALLOWED TO RECHARGE THEN SAMPLED

SCREENED 30-34'

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	

Signature(s): Robert Bellmer

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: PARRIS ISLAND
Project No.: N0502

Sample ID No.: PAZ-45-TW-06-06
Sample Location: PAZ-45-TW-06
Sampled By: R. BALLOWE
C.O.C. No.: 4-11-01

[ ] Domestic Well Data
[ ] Monitoring Well Data
[X] Other Well Type: TEMP WELL
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 4/10/01	Color	pH	S.C.	Temp.	Turbidity	DO	TBD	TBD
Time: 1416	Visual	Standard	mS/cm	°C	NTU	mg/l	SAL ‰	
Method: PERISTALTIC	BROWN	5.47	0.482	22.7	>999	1.40	0.02	—

PURGE DATA:

Date: 4/10/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	SAL TBD ‰	TBD
Method: PERISTALTIC	500ml	5.65	0.554	24.0	>999	0.57	0.02	BROWN
Monitor Reading (ppm): 0.0	1L	5.46	0.443	23.0	>999	1.21	0.02	—
Well Casing Diameter & Material	1.5L	5.47	0.482	22.5	>999	1.01	0.02	—
Type: 3/4" ST. STEEL	2L	5.47	0.482	22.7	>999	1.40	002	—
Total Well Depth (TD): 5.74'	→ END PURGE							
Static Water Level (WL): 2.23'								
One Casing Volume (gal/L): .05								
Start Purge (hrs): 1402								
End Purge (hrs): 1415								
Total Purge Time (min): 13								
Total Vol. Purged (gal/L): ~~2.5~~								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC	HCl/4°C	(6) 40ml VIAL	6

OBSERVATIONS / NOTES:

3.51' = .08 gal/vol = 305ml/vol.

SCREENED 2-6'

CHEMICAL ODOR.
FREE PRODUCT IN WATER.

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	PAZ-45-TW-06-06

Signature(s): Robert Ballowe

TBD: To Be Determined

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: PARRIS ISLAND
Project No.: 105502

Sample ID No.: PAZ-45-TW-06-18
Sample Location: PAZ-45-TW-06
Sampled By: B. BALKOVEC
C.O.C. No.: 4-11-18

[ ] Domestic Well Data
[ ] Monitoring Well Data
[X] Other Well Type: TEMP WELL
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 4/10/01	Color	pH	S.C.	Temp.	Turbidity	DO	TBD	TBD
Time: 1440	Visual	Standard	mS/cm	°C	NTU	mg/l	SAL ‰	
Method: PERISTALTIC	HAZY							

PURGE DATA:

Date: 4/10/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	TBD SAL ‰	TBD
Method: PERISTALTIC	1	6.07	0.845	25.1	>999	1.76	0.04	12.60MV
Monitor Reading (ppm): 0.0	2	5.56	0.831	23.7	>999	2.01	0.03	
Well Casing Diameter & Material	3	5.60	0.838	23.5	945	2.41	0.03	DRY @ 1415
Type: 3/4" S. STEEL	→ ALLOW FOR RECHARGE THEN SAMPLE							
Total Well Depth (TD): 18.17'								
Static Water Level (WL): 12.05'								
One Casing Volume (gal/L): .17								
Start Purge (hrs): 1430								
End Purge (hrs): 1415								
Total Purge Time (min): 15								
Total Vol. Purged (gal/L): .55								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC's	HCl/4°C	4 Vial VOA	✓

OBSERVATIONS / NOTES:

6.12' : 17 gal/vol = 670 ml/vol

SCREENED 14-16'

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): Robert Balkovec

TBD: To Be Determined

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: PARRIS ISLAND
Project No.: N0502

Sample ID No.: PAI-45-GW-01-08
Sample Location: PAI-45-GW-07
Sampled By: B. BALKCOM
C.O.C. No.: 3/21/01
Type of Sample:
[X] Low Concentration
[ ] High Concentration

[ ] Domestic Well Data
[ ] Monitoring Well Data
[X] Other Well Type: TEMP WELL
[ ] QA Sample Type:

SAMPLING DATA:

Date: 3-21-01	Color	pH	S.C.	Temp.	Turbidity	DO	TBD	TBD
Time: 1317	Visual	Standard	mS/cm	°C	NTU	mg/l	SAL ‰	
Method: PERISTALTIC	HAZY	5.19	3.77	17.2	367	2.21	0.19	—

PURGE DATA:

Date: 3-21-01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	TBD	TBD
Method: Low Flow	INITIAL	5.72	3.77	16.7	7999	1.64	0.20	BROWN
Monitor Reading (ppm): 0-0	1	5.37	3.74	16.8	7999	2.07	0.18	TAN
Well Casing Diameter & Material	2	5.18	3.70	17.1	835	2.32	0.18	CLOUDY
Type: 3/4" S. STEEL	3	6.19	3.77	17.2	367	2.21	0.19	HAZY
Total Well Depth (TD): 7.42								
Static Water Level (WL): 2.54								
One Casing Volume (gal/L): .41								
Start Purge (hrs): 1234								
End Purge (hrs): 1315								
Total Purge Time (min): 41								
Total Vol. Purged (gal/L): .34								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC's	HCl/4°C	(3) 40ml VIALS	✓

OBSERVATIONS / NOTES:

425 ml/vol 1.275 L

SCREENED 4-8

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): Robert Balkcom

TBD: To Be Determined

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: PARRIS ISLAND
Project No.: N0502

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: TEMP WELL
[] QA Sample Type:

Sample ID No.: PAI-45-TW-07-16
Sample Location: PAI-45-TW-07
Sampled By: B BALKOVEC
C.O.C. No.: 3-21-01
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	TBD SAL %	TBD
Date: 3-21-01								
Time: 1410								
Method: PERISTALTIC	HAZY	5.77	0.588	17.3	144	1.41	0.02	—

PURGE DATA:

	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	SAL TBD	TBD
Date: 3-21-01								
Method: PERISTALTIC	INITIAL	6.00	0.64	17.5	7999	1.28	0.02	GRAY
Monitor Reading (ppm): 0.0	1	5.89	0.607	17.5	7999	0.88	0.02	DRY
Well Casing Diameter & Material	1.5	5.77	0.588	17.3	144	1.41	0.02	—
Type: 3/4" S. STEEL	→ ALLOW FOR RECHARGE.							
Total Well Depth (TD): 16.12								
Static Water Level (WL): 8.11								
One Casing Volume (gal/L): .2								
Start Purge (hrs): 1235								
End Purge (hrs): 1340								
Total Purge Time (min): 65								
Total Vol. Purged (gal/L): .6								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl/4°C	(3) 40 ml VIALS	✓

OBSERVATIONS / NOTES:

700ml/vol

SCREENED 12-16

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): Robert Balkovec

TBD: To Be Determined

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: MCDR PARRIS ISLAND
Project No.: N0502

[] Domestic Well Data
[] Monitoring Well Data
[x] Other Well Type: TEMPORARY WELL
[] QA Sample Type:

Sample ID No.: PAI-45-TW-0848
Sample Location: PAI-45-TW-08
Sampled By: Bob Balkovec
C.O.C. No.: 4-4-01
Type of Sample:
[x] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 4/3/01	Color	pH	S.C.	Temp.	Turbidity	DO	SALINITY	
Time: 1140	Visual	Standard	mS/cm	°C	NTU	mg/l	%	
Method: PERISTALTIC	BROWN	5.90	0.205	17.2	>999	0.03	0.03	HEAVY SED.

PURGE DATA:

Date: 4/3/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	SALINITY	NOTES:
Method: PERISTALTIC	2 GALLONS	6.01	0.221	17.1	>999	0.16	0.03	BROWN
Monitor Reading (ppm): 0.0	1	5.92	0.203	17.2	999	0.04	0.03	"
Well Casing Diameter & Material	2	5.91	0.204	17.3	>999	0.01	0.03	DRY @ 1114*
Type: 3/4" Stainless Steel	@ 1117	STARTED BACK UP REMOVED 2 GAL THEN WENT DRY.						
Total Well Depth (TD): 9.08'		ALLOW FOR RECHARGE, THEN SAMPLE.						(1135)
Static Water Level (WL): 3.10								
One Casing Volume (gal/L): .13								
Start Purge (hrs): 1103								
End Purge (hrs): 1117								
Total Purge Time (min): 14								
Total Vol. Purged (gal/L): .26								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC's	HCl / 4C	(3) 40 mL VIALS	✓

OBSERVATIONS / NOTES:

4.98

4' @ .023
.98' @ .04 = .13 gal/vol = 490 ml/vol

SCREENED 4-8'

*@ 1114 WELL WENT DRY. TURNING CLOGGED
@ 1117 WELL WENT DRY.

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	

Signature(s): Robert Balkovec

TBD: To Be Determined

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name:	MCDR PARRIS ISLAND	Sample ID No.:	PAI-45-TW-08-19
Project No.:	N0502	Sample Location:	PAI-45-TW-08
		Sampled By:	Bob Balkovec
[] Domestic Well Data		C.O.C. No.:	4-4-01
[] Monitoring Well Data		Type of Sample:	
[x] Other Well Type:	TEMPORARY WELL	[x] Low Concentration	
[] QA Sample Type:		[] High Concentration	

SAMPLING DATA:

	Color	pH	S.C.	Temp.	Turbidity	DO	SALINITY	
Date: 4/3/01	Visual	Standard	mS/cm	°C	NTU	mg/l	%	
Time: 1245								
Method: PERISTALTIC								

PURGE DATA:

Date: 4/3/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	SALINITY	NOTES:
Method: PERISTALTIC	INITIAL	5-70	0.707	19.0	>999	0-20	0.03	GRAY
Monitor Reading (ppm): 0-0	1	5-62	0.709	18.8	>999	0.18	0.03	-
Well Casing Diameter & Material	2	5-60	0.708	18-9	>999	0-21	0.03	DRY @1213 1228
Type: 3/4" Stainless Steel	2.5	5-61	0.710	18-8	>999	0-31	0.03	DRY @1231
Total Well Depth (TD): 18.90'	→ ALLOW WELL TO RECHARGE THEN SAMPLE							
Static Water Level (WL): 10.37'								
One Casing Volume (gal/L): .3								
Start Purge (hrs): 1203								
End Purge (hrs): 1231								
Total Purge Time (min): 28	→ MINUS 15 MIN OF RECHARGE.							
Total Vol. Purged (gal/L): .75								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC's	HCl / 4C	6 ~~(3)~~ 40 mL VIALS	✓

OBSERVATIONS / NOTES:

MEASUREMENTS FROM GROUND SURFACE:

8.63' 4' @ .023
4.63' @ .04 = .3 gal = 1.135 L

SCREENED 15-19'

Circle if Applicable:		Signature(s):
MS/MSD	Duplicate ID No.:	Robert Balkovec
—		

TBD: To Be Determined

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: MCDR PARRIS ISLAND
Project No.: N0502

[] Domestic Well Data
[] Monitoring Well Data
[x] Other Well Type: TEMPORARY WELL
[] QA Sample Type:

Sample ID No.: PA2-45-TW-08-32
Sample Location: PA2-45-TW-08
Sampled By: Bob Balkovec
C.O.C. No.: 4-4-01
Type of Sample:
[x] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 4/3/01	Color	pH	S.C.	Temp.	Turbidity	DO	SALINITY	
Time: 1205	Visual	Standard	mS/cm	°C	NTU	mg/l	%	
Method: PERISTALTIC	GRAY	5.90	1.08	20.8	847	0.99	0.04	—

PURGE DATA:

Date: 4/3/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	SALINITY	NOTES:
Method: PERISTALTIC	INITIAL	5.88	1.09	20.4	1999	1.60	0.04	GRAY
Monitor Reading (ppm): 0.0	1	5.96	1.08	20.6	920	0.93	0.04	GRAY
Well Casing Diameter & Material	2	5.88	1.08	20.7	889	0.90	0.04	GRAY
Type: 3/4" Stainless Steel	3	5.90	1.08	20.8	847	0.99	0.04	GRAY
Total Well Depth (TD): 32.17'	→ END							
Static Water Level (WL): 4.80'								
One Casing Volume (gal/L): 1.03								
Start Purge (hrs): 1102								
End Purge (hrs): 1204								
Total Purge Time (min): 62								
Total Vol. Purged (gal/L): 3.1								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC's	HCl / 4C	(3) 40 mL VIALS	✓

OBSERVATIONS / NOTES:

WATER MEASUREMENTS & WELL T.D. MADE FROM GROUND SURFACE.

27.37'

SCREEND 28-32'

4" CASING .023 × 23.37' @ .04 = 1.03 gal/vol

= 3.9 L

Circle if Applicable:

MS/MSD — Duplicate ID No.: —

Signature(s): Robert Balkovec

TBD: To Be Determined

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: PARRIS ISLAND
Project No.: 100502

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: TEMP. WELL
[] QA Sample Type:

Sample ID No.: PAI-45-TW-09-07
Sample Location: PAI-45-TW-09
Sampled By: B. BALKOVEC
C.O.C. No.: 3-21-01
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 3/21/01	Color	pH	S.C.	Temp.	Turbidity	DO	~~TBD~~	TBD
Time: 1040	Visual	Standard	mS/cm	°C	NTU	mg/l	SAL ‰	
Method: PERISTALTIC	CLEAR	5.20	2.38	17.4	4	2.39	0.11	

PURGE DATA:

Date: 3/21/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	~~TBD~~	TBD	
Method: PERISTALTIC	~~INITIAL~~	5.35	2.47	15.9	7999	1.00	0.11	TAN	0958
Monitor Reading (ppm): 0.0	1	5.20	2.38	17.2	7999	2.52	0.11	SLIGHT FUR BROWN	1005
Well Casing Diameter & Material	2	5.18	2.39	17.3	15	2.31	0.11	CLEAR	1030
Type: 3/4" S. STEEL	3	5.20	2.38	17.4	7	2.39	0.11	CLEAR	1037
Total Well Depth (TD): 6.45									
Static Water Level (WL): 1.45									
One Casing Volume (gal/L): .1									
Start Purge (hrs): 0955									
End Purge (hrs): 1037									
Total Purge Time (min): 43									
Total Vol. Purged (gal/L): .5									

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC's	HCl/4°C	(3) 40 ml VIALS	✓

OBSERVATIONS / NOTES:

340 ml/vol

SCREENED 3-7'

Circle if Applicable:		Signature(s):
MS/MSD	Duplicate ID No.:	Robert Balkovec
—	—	

TBD: To Be Determined

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: PARRIS ISLAND
Project No.: 100502

[ ] Domestic Well Data
[ ] Monitoring Well Data
[X] Other Well Type: TEMP. WELL
[ ] QA Sample Type:

Sample ID No.: PAZ-45-TW-09-15
Sample Location: PAZ-45-TW-09
Sampled By: B. BALKOVEC
C.O.C. No.: 3/21/01
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 3-21-01	Color	pH	S.C.	Temp.	Turbidity	DO	~~TBD~~ SAL	TBD
Time: 1055	Visual	Standard	mS/cm	°C	NTU	mg/l		
Method: PERISTALTIC	CLEAR	5.24	0.539	17.4	8	1.89	0.02	—

PURGE DATA:

Date: 3-21-01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	~~TBD~~ SAL	TBD	
Method: PERISTALTIC	INITIAL	5.15	0.620	17.0	>999	1.17	0.02	GRAY	0933
Monitor Reading (ppm): 0.0	1	5.20	0.518	17.1	>999	1.30	0.02	DRY	0937
Well Casing Diameter & Material	2	5.25	0.538	17.6	240	1.70	0.02	HAZE - DRY	1025
Type: 3/4" S. STEEL	3	5.24	0.539	17.4	8	1.89	0.02	CLEAR	1052
Total Well Depth (TD): 14.93									
Static Water Level (WL): 5.60									
One Casing Volume (gal/L): .216									
Start Purge (hrs): 0930									
End Purge (hrs): 1052									
Total Purge Time (min): 82									
Total Vol. Purged (gal/L): 3									

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC'S	HCl/4°C	(3) 40ml VIAL	✓

OBSERVATIONS / NOTES:

.216 gal/vol = .81 L

SCREENED 11-15'

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): Robert Balkovec

TBD: To Be Determined

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: N0502

[] Domestic Well Data
[] Monitoring Well Data
[X] Temporary Well
[] QA Sample Type:

Sample ID No.: PAI-45-TW- 10-07
Sample Location: PAI-45-TW- 10
Sampled By: Nathan Reel
C.O.C. No.: 4-5-01
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 4/4/01 Time: 1245	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	Salinity %	Notes:
Method: PERISTALTIC PUMP	MUDDY	5.30	0.516	19.1	7999	1.82	0.02	—

PURGE DATA:

Date: 4/4/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	Salinity %	Notes:
Method: PERISTALTIC PUMP	1200	5.24	0.442	18.3	7999	0.71	0.01	MUDDY
Monitor Reading (ppm): 0.0	1230	5.30	0.516	19.1	7999	1.82	0.02	↓
Well Casing Diameter & Material								
Type: 3/4" STAINLESS STEEL								
Total Well Depth (TD): 6.71								
Static Water Level (WL): 3.11								
One Casing Volume (gal/L): 0.05								
Start Purge (hrs): 1150								
End Purge (hrs): 1230								
Total Purge Time (min): 40								
Total Vol. Purged (gal/L): 5								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOCs	4 C / HCl	(3) 40 ML VIALS	3

OBSERVATIONS / NOTES:

3/4"=0.023/FT
1" =0.04/FT

@ 1153 WELL RAN DRY AFTER 45ML REMOVAL.

SCREENED FROM 3'-7'

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): Robert Balfour

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: N0502

[] Domestic Well Data
[] Monitoring Well Data
[X] Temporary Well
[] QA Sample Type:

Sample ID No.: PAI-45-TW- 10-16
Sample Location: PAI-45-TW- 10
Sampled By: Nathan Reel
C.O.C. No.: 4/4/01
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 4/4/01 Time: 1330	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	Salinity %	Notes:
Method: PERISTALTIC PUMP	GRAY	5.40	0.780	18.1	741	0.61	0.03	—

PURGE DATA:

Date: 4/4/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	Salinity %	Notes:
Method: PERISTALTIC PUMP	INITIAL	6.01	0.832	18.2	>999	0.64	0.03	GRAY 1310
Monitor Reading (ppm): 0.0	1	5.47	0.807	18.1	7999	0.69	0.03	- 1312
Well Casing Diameter & Material	2	5.39	0.770	18.1	7999	0.50	0.03	- 1320
Type: 3/4" STAINLESS STEEL	3	5.40	0.780	18.1	741	0.61	0.03	GRAY 1328
Total Well Depth (TD): 15.78	L → END PURGE							
Static Water Level (WL): 2.35								
One Casing Volume(gal/L): 0.47								
Start Purge (hrs): 1305								
End Purge (hrs): 1329								
Total Purge Time (min): 24								
Total Vol. Purged (gal/L):								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOCs	4 C / HCl	(3) 40 ML VIALS	3

OBSERVATIONS / NOTES:

3/4"=0.023/FT
1" =0.04/FT

SCREENED 12-16'

* SLIGHT SHEEN + SULFUR ODOR.

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

Robert Falkenberg

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: N0502

[] Domestic Well Data
[] Monitoring Well Data
[X] Temporary Well
[] QA Sample Type:

Sample ID No.: PAI-45-TW-10-32
Sample Location: PAI-45-TW-10
Sampled By: Nathan Reel
C.O.C. No.: 4-4-01
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 4/4/01 Time: 1237	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	Salinity %	Notes:
Method: PERISTALTIC PUMP	CLEAR/SL. HAZY	5.92	1.77	21.4	337	0.07	0.08	—

PURGE DATA:

Date: 4/4/01	~~Volume~~	pH	S.C.	Temp. (C)	Turbidity	DO	Salinity %	Notes:
Method: PERISTALTIC PUMP	1155	5.93	1.78	21.9	432	0.28	0.08	CLOUDY
Monitor Reading (ppm): 0-0	1205	5.86	1.77	21.9	87	0.08	0.08	CLEAR
Well Casing Diameter & Material	1215	5.97	1.78	21.6	64	0.00	0-08	↓
Type: 3/4" STAINLESS STEEL	1225	5.96	1.78	21.5	380	0.06	0.08	↓
Total Well Depth (TD): 32.11	1235	5.92	1.77	21.4	337	0.07	0.08	SL. HAZY
Static Water Level (WL): 4.73	→ END PURGE							
One Casing Volume (gal/L): 1.02								
Start Purge (hrs): 1145								
End Purge (hrs): 1235								
Total Purge Time (min): 50								
Total Vol. Purged (gal/L): 35								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOCs	4 C / HCl	(3) 40 ML VIALS	6

OBSERVATIONS / NOTES:

3/4"=0.023/FT
1" =0.04/FT

SCREENED 28'-32'

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	PAI-45-TW-10-32

Signature(s): Robert Bellhouse

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Parris Island, MCRD
Project No.:

[] Domestic Well Data
[X] Monitoring Well Data (temporary well)
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: PAI-45-TW11-10
Sample Location: PAI-45-TW-11
Sampled By: MP
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 3/12/01	Color	pH	S.C.	Temp.	Turbidity	DO	TBD	TBD
Time: 1615	Visual	Standard	mS/cm	°C	NTU	mg/l		
Method: Low Flow	cloudy	5.53	0.65	18.9	168	0.12	0.02	

PURGE DATA:

Date: 3/12/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	TBD	TBD
Method: Low Flow	1.0 g	9.66	0.64	19.1	761	0.07	0.02	cloudy
Monitor Reading (ppm): 0.0	2.5 g	5.56	0.65	18.9	189	0.14	0.02	↓
Well Casing Diameter & Material Type: 3/4" Stainless Steel	3.8 g	5.53	0.65	18.9	168	0.12	0.02	↓
Total Well Depth (TD): 9.61								
Static Water Level (WL): 2.68								
One Casing Volume (gal/L): 0.12								
Start Purge (hrs): 1545								
End Purge (hrs): 1615								
Total Purge Time (min): 30								
Total Vol. Purged (gal/L): 4.0								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC	HCl/4°C	3x 40 ml Glass Vials	3

OBSERVATIONS / NOTES:

developed well for 10 minutes before taking first reading due to silt

~~Screen at 10'-7'~~

Screen at 7'-10'

Circle if Applicable:		Signature(s):
MS/MSD	Duplicate ID No.:	
e		

TBD: To Be Determined

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Parris Island, mcRD
Project No.:

[] Domestic Well Data
[X] Monitoring Well Data (Temporary well)
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: PAI-49-TW-11-20
Sample Location: PAI-49-TW-11
Sampled By: NR
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 3/13/01	Color	pH	S.C.	Temp.	Turbidity	DO	TBD	TBD
Time: 910	Visual	Standard	mS/cm	°C	NTU	mg/l	Salinity	
Method: Low Flow	Clear	5.61	1.01	19.3	48	0.34	0.04	

PURGE DATA:

Date: 3/13/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	TBD Sal	TBD
Method: Low Flow	.05 g	5.41	1.01	19.3	48	0.34	0.04	Clear
Monitor Reading (ppm): 0.0								
Well Casing Diameter & Material Type: 3/4" Stainless Steel								
Total Well Depth (TD): 19.61								
Static Water Level (WL): 5.82								
One Casing Volume(gal/L): 0.25								
Start Purge (hrs): 705								
End Purge (hrs): 910								
Total Purge Time (min): 130								
Total Vol. Purged (gal/L): .5g								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC	HCl/4°C	3x 40ml Glass Vials	3

OBSERVATIONS / NOTES:

allowed to recharge overnight Screen 17'-20'

Purged well dry twice allowed to recharge.

very slow recharge took sample due to very slow recharge rate.

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

TBD: To Be Determined

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Parris Island, MCRD
Project No.:

[] Domestic Well Data
[X] Monitoring Well Data (Temporary well)
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: PAI-45-TW-11-32
Sample Location: PAI-45-TW-11
Sampled By: NA
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 3/12/01	Color	pH	S.C.	Temp.	Turbidity	DO	TBD	TBD
Time: 1700	Visual	Standard	mS/cm	°C	NTU	mg/l		
Method: Low Flow	cloudy	5.98	1.35	21.1	47	0.47	0.06	

PURGE DATA:

Date: 3/12/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	TBD	TBD
Method: Low Flow	1.5 g	5.90	1.38	22.4	776	0.84	0.06	cloudy
Monitor Reading (ppm): 0.0	2.0 g	5.94	1.35	22.3	227	0.57	0.06	↓
Well Casing Diameter & Material	3.5 g	5.98	1.35	21.1	47	0.47	0.06	↓
Type: 3/4" Stainless Steel								
Total Well Depth (TD): 32.67								
Static Water Level (WL): 18.68								
One Casing Volume (gal/L): 0.81								
Start Purge (hrs): 1530								
End Purge (hrs): 1700								
Total Purge Time (min): 90								
Total Vol. Purged (gal/L): 3.8								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC	HCl/4°C	3 X 40ml Glass Vials	3

OBSERVATIONS / NOTES:

Screen at 32'-35'

18.68 X .0133 = .81

developed well for 15 minutes before taking first Reading due to silt

Circle if Applicable:
MS/MSD
Duplicate ID No.:

Signature(s):

TBD: To Be Determined

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: N0502

[] Domestic Well Data
[] Monitoring Well Data
[X] Temporary Well
[] QA Sample Type:

Sample ID No.: PAI-45-TW-12-07
Sample Location: PAI-45-TW-12
Sampled By: Bob Balkovec
C.O.C. No.: 3/22/01
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 3/22/01 Time: 1620	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	Salinity %	Notes:
Method: PERISTALTIC PUMP	Cloudy	5.21	1.84	17.5	210	5.10	0.08	—

PURGE DATA:

Date:	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	Salinity %	Notes:
Method: PERISTALTIC PUMP	Initial	5.46	1.80	16.8	>999	4.96	0.08	TAN
Monitor Reading (ppm):	1	5.30	1.83	17.3	>999	5.29	0.08	↓
Well Casing Diameter & Material	2	5.27	1.82	17.4	651	5.30	0.08	Cloudy
Type: 3/4" STAINLESS STEEL	3	5.21	1.84	17.5	210	5.10	0.08	↓
Total Well Depth (TD): 8.60	TOC							
Static Water Level (WL): 3.00	TOC							
One Casing Volume (gal/L): .27								
Start Purge (hrs): 1540								
End Purge (hrs): 1618								
Total Purge Time (min): 38								
Total Vol. Purged (gal/L): .81								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOCs	4 C / HCl	(3) 40 ML VIALS	3

OBSERVATIONS / NOTES:

3/4"=0.023/FT
1" =0.04/FT

.6' STICK UP

UNSTEADY PUMPING RATES.

SCREENED FROM 4-8'

Circle if Applicable:

MS/MSD —

Duplicate ID No.: —

Signature(s):

Robert Balkovec

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: PARRIS ISLAND
Project No.: 10502

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: TEMP WELL
[] QA Sample Type:

Sample ID No.: PAI-45-GW-12-16
Sample Location: PAI-45-GW-12
Sampled By: B. BALLKOVEC
C.O.C. No.: 3-22-01
Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 3-21-01 / Time: 1635	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	TBD SAL %	TBD
Method: PERISTALTIC	HACH	5.20	1.10	15.1	101	6.78	0.03	—

PURGE DATA:

Date: 3-21-01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	SAL TBD	TBD
Method: PERISTALTIC	INITIAL	5.60	1.04	14.9	172	6.54	0.04	HACH
Monitor Reading (ppm): 0.0	1	5.20	1.10	15.1	101	6.78	0.03	DRY
Well Casing Diameter & Material		→	ALLOW	RECHARGE				
Type: 2" S-STEEL	1.5	—	SEE NOTES		—	—	—	DRY
Total Well Depth (TD): 19.14	TOC							
Static Water Level (WL): 6.40	TOC							
One Casing Volume (gal/L): .3								
Start Purge (hrs): 1554								
End Purge (hrs): 1633								
Total Purge Time (min): 59								
Total Vol. Purged (gal/L): .5								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC's	HCl/4°C	(3) 40ml VIAL	✓

OBSERVATIONS / NOTES:

3.5' STICK-UP 1.1L

SCREENED 12-16'

PUMP QUITS PUMPING AFTER 150ml EXTRACTED. ALLOW FOR RECHARGE THEN SAMPLE

Circle if Applicable:
MS/MSD — Duplicate ID No.: —

Signature(s): Robert Ballkovec

TBD: To Be Determined

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: PARRIS ISLAND
Project No.: 0502

[ ] Domestic Well Data
[ ] Monitoring Well Data
[X] Other Well Type: TEMP WELL
[ ] QA Sample Type:

Sample ID No.: PAI-45-TW-13-06
Sample Location: PAI-45-TW-13
Sampled By: B. BALLOUVE
C.O.C. No.: 4-11-01
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 4/10/01	Color	pH	S.C.	Temp.	Turbidity	DO	TBD	TBD
Time: 1257	Visual	Standard	mS/cm	°C	NTU	mg/l	SEE TBD	
Method: PERISTALTIC	BROWN							

PURGE DATA:

Date: 4/10/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	SEE TBD	TBD
Method: PERISTALTIC	500ml	5.76	.654	21.4	>999	.90	0.02	BROWN
Monitor Reading (ppm): 0.0	→ DRY @ 1211 ALLOW WELL TO RECHARGE							
Well Casing Diameter & Material Type: 3/4" S. STEEL								
Total Well Depth (TD): 6.17'								
Static Water Level (WL): 3.98'								
One Casing Volume (gal/L): .55								
Start Purge (hrs): 1209								
End Purge (hrs): 1211								
Total Purge Time (min): 3								
Total Vol. Purged (gal/L): .5								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC	HCl/4°C	(3) 40ml VIAL	✓

OBSERVATIONS / NOTES:

2.19' @ .022 = 190ml/vol

@ 1236 w/L = 4.21'

SCREENED 2-6'

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

Robert Ballouve

TBD: To Be Determined

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: PARRIS ISLAND
Project No.: 0502

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: TEMP WELL
[] QA Sample Type:

Sample ID No.: PAI-45-TW-13-18
Sample Location: PAI-45-TW-13
Sampled By: B. BALKOVEC
C.O.C. No.: 4-11-01
Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color	pH	S.C.	Temp.	Turbidity	DO	~~TBD~~	TBD
Date: 4/10/01	Visual	Standard	mS/cm	°C	NTU	mg/l	SAL %	
Time: 1230								
Method: PERISTALTIC								

PURGE DATA:

	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	SAL ~~TBD~~ %	TBD
Date: 4/10/01								
Method: PERISTALTIC	INITIAL	6.36	1.49	23.8	>999	0.84	0.06	GRAY
Monitor Reading (ppm): 0.0	1	5.87	1.47	22.8	>999	0.91	0.06	MY @ 1210
Well Casing Diameter & Material	\	→ ALLOW WELL TO RECHARGE THEN SAMPLE						
Type: 3/4" S. STEEL								
Total Well Depth (TD): 17.91'								
Static Water Level (WL): 8.04'								
One Casing Volume (gal/L): .33								
Start Purge (hrs): 1202								
End Purge (hrs): 1210								
Total Purge Time (min): 8								
Total Vol. Purged (gal/L): .33								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC	HCl/4°C	(3) 40ml VIAL	✓

OBSERVATIONS / NOTES:

9.87'
2.33 gal/vol = 1.25L/VOC.
4 @ .023
5.87 @ .04
SCREENED 14-18'

@1226 10.41' W/L

Circle if Applicable:

MS/MSD —
Duplicate ID No.:

Signature(s): Robert Balkovec

TBD: To Be Determined

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Parris Island, MCRD
Project No.:

Sample ID No.: PAI-45-TW-14-7
Sample Location: PAI-45-TW-14
Sampled By: NK
C.O.C. No.:

[] Domestic Well Data
[X] Monitoring Well Data (temporary well)
[] Other Well Type:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 3-13-01	Color	pH	S.C.	Temp.	Turbidity	DO	TBD	TBD
Time: 1350	Visual	Standard	mS/cm	°C	NTU	mg/l		
Method: Low Flow	muddy	3.96	0.149	20.8	999	0.33	0.00	

PURGE DATA:

Date: 3-13-01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	TBD	TBD
Method: Low Flow	1.0 g	3.46	0.149	20.8	999	0.33	0.00	muddy
Monitor Reading (ppm): 0.0		well	DRY					
Well Casing Diameter & Material Type: 3/4" Stainless Steel								
Total Well Depth (TD): 7.10								
Static Water Level (WL): 3.00								
One Casing Volume(gal/L): 0.13								
Start Purge (hrs): 1250								
End Purge (hrs): 1350								
Total Purge Time (min): 60								
Total Vol. Purged (gal/L): 2.0g								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC	HCl/4°C	3x40 ml Glass Vials	3

OBSERVATIONS / NOTES:

screened 4'-7'

Pumped well dry three times each at lower speeds

Circle if Applicable:		Signature(s):
MS/MSD	Duplicate ID No.:	
a		

TBD: To Be Determined

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Parris Island, MCRD
Project No.:

[] Domestic Well Data
[X] Monitoring Well Data (temporary well)
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: PAI-45-TW-14-17
Sample Location: PAI-45-TW-14
Sampled By: AR
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 3-13-01	Color	pH	S.C.	Temp.	Turbidity	DO	TBD	TBD
Time: 1325	Visual	Standard	mS/cm	°C	NTU	mg/l		
Method: Low Flow	Clear	5.46	1.83	23.0	76	0.19	0.08	

PURGE DATA:

Date: 3-13-01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	TBD	TBD
Method: Low Flow	0.5g	5.54	1.82	~~7.67~~	7.67	1.75	0.08	Cloudy
Monitor Reading (ppm): 0.0	1.5g	5.50	1.81	23.0	329	0.46	0.08	↓
Well Casing Diameter & Material Type: 3/4" Stainless Steel	3.0g	5.46	1.83	23.0	76	0.19	0.08	Clear
Total Well Depth (TD): 16.50								
Static Water Level (WL): 10.93								
One Casing Volume (gal/L): 0.47								
Start Purge (hrs): 1158								
End Purge (hrs): 1325								
Total Purge Time (min): 93								
Total Vol. Purged (gal/L): 3.0								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC	HCl/4°C	3x 40ml Glass vials	3

OBSERVATIONS / NOTES:

Well went dry after purging for 10 minutes allowed to recharge

SCREENED 14-17

Circle if Applicable:		Signature(s):
MS/MSD	Duplicate ID No.:	

TBD: To Be Determined

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Parris Island, MCRD
Project No.:

Sample ID No.: PAI-45-TW-14-30
Sample Location: PAI-45-TW-14
Sampled By: MR
C.O.C. No.:

[] Domestic Well Data
[X] Monitoring Well Data (Temporary well)
[] Other Well Type:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 3-13-01	Color	pH	S.C.	Temp.	Turbidity	DO	TBD	TBD
Time: 1240	Visual	Standard	mS/cm	°C	NTU	mg/l		
Method: Low Flow	Cloudy	5.99	2.90	24.0	341	0.02	0.14	

PURGE DATA:

Date: 3-13-01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	TBD	TBD
Method: Low Flow	1.0 g	5.82	2.90	24.6	624	0.14	0.14	Cloudy
Monitor Reading (ppm): 0.0	2.0 g	5.95	2.90	24.3	510	0.04	0.14	↓
Well Casing Diameter & Material	3.0 g	5.99	2.90	24.0	341	0.02	0.14	↓
Type: 3/4" Stainless steel								
Total Well Depth (TD): 30.11								
Static Water Level (WL): 4.85								
One Casing Volume(gal/L): 0.21								
Start Purge (hrs): 1205								
End Purge (hrs): 1240								
Total Purge Time (min): 35								
Total Vol. Purged (gal/L): 3.5								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC	HCl/4°C	3x40ml Glass vials	3

OBSERVATIONS / NOTES:

Screen 27' - 30'

Circle if Applicable:

MS/MSD	Duplicate ID No.:
C	

Signature(s):

TBD: To Be Determined

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: PARRIS ISLAND
Project No.: N0502

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: TEMP WELL
[] QA Sample Type:

Sample ID No.: PAI-45-TW-15-10
Sample Location: PAI-45-TW-15
Sampled By: B. BALKOVEC
C.O.C. No.: 3-23-01
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	TBD SAL %	TBD
Date: 3-22-01								
Time: 1610								
Method: PERISTALTIC	BROWN	5.80	0.300	20.5	>999	3.60	0.01	—

PURGE DATA:

	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	SAL ~~TBD~~	TBD
Date: 3-22-01								
Method: PERISTALTIC	INITIAL	6.09	0.299	19.9	7999	4.20	0.01	GRAY/BR
Monitor Reading (ppm): 0.0	1	5.76	0.299	20.6	7999	3.80	0.01	—
Well Casing Diameter & Material	~~2~~	ALLOW	FOR	RECHARGE	THEN	SAMPLE		START 1605
Type: 3/4" S. STEEL	~~3~~							
Total Well Depth (TD): 9.98								
Static Water Level (WL): 4.90								
One Casing Volume (gal/L): .2								
Start Purge (hrs): 1533								
End Purge (hrs): 1610								
Total Purge Time (min): 37	MINUS 15 MIN OF RECHARGE							
Total Vol. Purged (gal/L): .3								

DRY @ 1533

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC	HCl/4°C	(3) 40ml VIAL	✓

OBSERVATIONS / NOTES:

770ml/vol

SCREENED 6-10'

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s): Robert Balkovec

TBD: To Be Determined

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: PARRIS ISLAND
Project No.: N0502

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: TEMP WELL
[] QA Sample Type:

Sample ID No.: PAZ-45-TW-15-18
Sample Location: PAZ-45-TW-15
Sampled By: R. BALKWELL
C.O.C. No.: 3-23-01
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 3-22-01	Color	pH	S.C.	Temp.	Turbidity	DO	TBD	TBD
Time: 1607	Visual	Standard	mS/cm	°C	NTU	mg/l	SAL ‰	
Method: PERISTALTIC	GRAY	5.48	0.396	19.7	>999	1.30	0.01	

PURGE DATA:

Date: 3-22-01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	SAL TBD	TBD
Method: PERISTALTIC	INITIAL	6.49	0.416	20.8	7999	0.59	0.01	GRAY
Monitor Reading (ppm): 0.0	1	5.41	0.408	20.3	>999	1.21	0.01	—
Well Casing Diameter & Material	2	ALLOW FOR	RECHARGE	THEN SAMPLE			—	START 1605
Type: 3/4" S. STEEL	3							
Total Well Depth (TD): 19.03								
Static Water Level (WL): 7.50								
One Casing Volume (gal/L): .42								
Start Purge (hrs): 1540								
End Purge (hrs): 1607								
Total Purge Time (min): 27	27 MINUTES WITHIN OF RECHARGE							
Total Vol. Purged (gal/L): .50								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC's	HCl/4°C	(3) 40ml VIAL	✓

OBSERVATIONS / NOTES:

1.6L

SCREENED 14-18'

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): Robert Balkwell

TBD: To Be Determined

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: PARRIS ISLAND
Project No.: [illegible] 0502

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: TEMP WELL
[] QA Sample Type:

Sample ID No.: PAZ-45-TW-16-06
Sample Location: PAZ-45-TW-16
Sampled By: B. BALKCOM
C.O.C. No.: 4/11/01
Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 4/10/01	Color	pH	S.C.	Temp.	Turbidity	DO	TBD	TBD
Time: 1115	Visual	Standard	mS/cm	°C	NTU	mg/l	SAL ‰	
Method: PERISTALTIC	GRAY							

PURGE DATA:

Date: 4/10/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	SAL TBD ‰	TBD
Method: PERISTALTIC	250ml	→ DRY	P	1038				GRAY
Monitor Reading (ppm): 0.0		START	P	1050				
Well Casing Diameter & Material	400ml	DRY	E	1052				
Type: 3/4" S. STEEL		→ ALLOW FOR RECHARGE THEN SAMPLE						
Total Well Depth (TD): 6.17'								
Static Water Level (WL): 2.89'								
One Casing Volume (gal/L): .75								
Start Purge (hrs): 1036								
End Purge (hrs): 1052								
Total Purge Time (min): 4								
Total Vol. Purged (gal/L): 400ml								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC's	HCl/4°C	(3) 40ml VIAL	✓

OBSERVATIONS / NOTES:

285 lb/val

SCREENED FROM 2-6'

Circle if Applicable:		Signature(s):
MS/MSD	Duplicate ID No.:	Robert Balkcom
—	—	

TBD: To Be Determined

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: PARRIS ISLAND
Project No.: 0502

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: TEMP WELL
[] QA Sample Type:

Sample ID No.: PAI-45-TW-16-19
Sample Location: PAI-45-TW-16
Sampled By: B. BALKOVEC
C.O.C. No.: 4-11-01
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	~~TBD~~ SAL %	TBD
Date: 4/10/01								
Time: 1112								
Method: PERISTALTIC	CLOUDY							

PURGE DATA:

	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	SAL ~~TBD~~ %	TBD
Date: 4/10/01								
Method: PERISTALTIC	INITIAL	6.11	5.16	22.2	>999	1.33	0.26	DK. BROWN
Monitor Reading (ppm): 0.0	1	5.94	5.05	21.5	>999	0.79	0.26	@ 1042
Well Casing Diameter & Material	2	5.94	5.02	22.4	>999	0.90	0.26	DRY @ 1049
Type: 3/4" S. STEEL	→ DRY ALLOW FOR RECHARGE THEN SAMPLE							
Total Well Depth (TD): 18.50								
Static Water Level (WL): 8.04								
One Casing Volume (gal/L): .35								
Start Purge (hrs): 1035								
End Purge (hrs): 1049								
Total Purge Time (min): 14								
Total Vol. Purged (gal/L): .7								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC	HCl/4°C	(3) 40ml VIALS	✓

OBSERVATIONS / NOTES:

9.9
10.46
4 @ .023
6.46 @ .04
= 1.3 L
SCREENED FROM 15-19'

@ 1100 w/L @ 12.80'
@ 1110 w/L @ 10.21'

Circle if Applicable:

MS/MSD —
Duplicate ID No.: —

Signature(s): Robert Balkovec

TBD: To Be Determined

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: ~~MCBR~~ MCRD PARRIS ISLAND
Project No.: N0502

[] Domestic Well Data
[] Monitoring Well Data
[x] Other Well Type: TEMPORARY WELL
[] QA Sample Type:

Sample ID No.: PAZ-45-TW-17-06
Sample Location: PAZ-45-TW-17
Sampled By: Bob Balkovec
C.O.C. No.: 4/11/01
Type of Sample:
[x] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 4/9/01 Time: 1535	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	SALINITY %	
Method: PERISTALTIC	Brown	4.71	0.538	23.2	389	2.41	0.03	

PURGE DATA:

Date: 4/9/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	SALINITY	NOTES:
Method: PERISTALTIC	600mL	5.50	0.611	24.9	>999	2.74	0.02	Brown
Monitor Reading (ppm): 0.0	1.2L	4.77	0.541	23.0	>999	1.80	0.02	—
Well Casing Diameter & Material	1.8L	4.72	0.537	23.1	>999	2.10	0.02	—
Type: 3/4" Stainless Steel	2.4L	4.71	0.538	23.2	389	2.41	0.02	—
Total Well Depth (TD): 6.20	→ END PURGE							
Static Water Level (WL): 3.11								
One Casing Volume(gal/L): .07								
Start Purge (hrs): 1453								
End Purge (hrs): 1534								
Total Purge Time (min): 41								
Total Vol. Purged (gal/L): .63								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC's	HCl / 4C	(3) 40 mL VIALS	6

OBSERVATIONS / NOTES:

3.09' = .07 gal/vol = 268 ml/vol

SCREENED FROM 2-6'

Circle if Applicable:		Signature(s):
MS/MSD	Duplicate ID No.: PAZ-45-TW-17-00	Robert Balkovec

TBD: To Be Determinec

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: ~~MCDR~~ MCRD PARRIS ISLAND
Project No.: N0502

[] Domestic Well Data
[] Monitoring Well Data
[x] Other Well Type: TEMPORARY WELL
[] QA Sample Type:

Sample ID No.: PAI-45-TW-17-21
Sample Location: PAI-45-TW-17
Sampled By: Bob Balkovec
C.O.C. No.: 4/11/01
Type of Sample:
[x] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	SALINITY %	
Date: 4/9/01								
Time: 1715								
Method: PERISTALTIC	HAZY							

PURGE DATA:

	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	SALINITY	NOTES:
Date: 4/9/01								
Method: PERISTALTIC	INITIAL	6.46	2.48	25.8	>999	2.57	0.11	GRAY
Monitor Reading (ppm): 0.0	1	6.21	2.35	25.0	>999	2.79	0.11	@ 1657
Well Casing Diameter & Material	2L	DRY						1701
Type: 3/4" Stainless Steel	→ ALLOW WELL TO RECOVER BEFORE SAMPLING							
Total Well Depth (TD): 20.87'								
Static Water Level (WL): 8.80								
One Casing Volume (gal/L): .41								
Start Purge (hrs): 1650								
End Purge (hrs): 1701								
Total Purge Time (min): 11								
Total Vol. Purged (gal/L): 2								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC's	HCl / 4C	(3)-40 mL VIALS	✓

OBSERVATIONS / NOTES:

12.07'
4 @ 0.23
8.07 @ .04
= .41 gal/vol = 1.5 L

SCREENED FROM 17-21'

@ 1711 W/L @ 13.30'

Circle if Applicable:

MS/MSD —
Duplicate ID No.:

Signature(s): Robert Balkovec

TBD: To Be Determined

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: N0502

[] Domestic Well Data
[] Monitoring Well Data
[X] Temporary Well
[] QA Sample Type:

Sample ID No.: PAI-45-TW- 18-07
Sample Location: PAI-45-TW- 18
Sampled By: Nathan Reel
C.O.C. No.: 4-6-01
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 4/5/01 Time: 1522	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	Salinity %	Notes:
Method: PERISTALTIC PUMP	GRAY	5.78	0.385	19.5	>999	1.57	0.01	

PURGE DATA:

Date: 4/5/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	Salinity %	Notes:
Method: PERISTALTIC PUMP	1450	5.84	0.432	20.7	>999	0.09	0.01	
Monitor Reading (ppm): 0.0	1500	5.38	0.354	19.7	>999	0.00	0.00	
Well Casing Diameter & Material	1510	5.67	0.363	19.5	>999	2.45	0.01	
Type: 3/4" STAINLESS STEEL	1520	5.78	0.385	19.5	>999	1.57	0.01	
Total Well Depth (TD): 7.15	→ END PURGE							
Static Water Level (WL): 5.60								
One Casing Volume (gal/L): .035								
Start Purge (hrs): 1440								
End Purge (hrs): 1520								
Total Purge Time (min): 40								
Total Vol. Purged (gal/L): 3.0								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOCs	4 C / HCl	(3) 40 ML VIALS	3

OBSERVATIONS / NOTES:

3/4"=0.023/FT
1" =0.04/FT

HEAVY SEDS.

SCREENED FROM 3-7'

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s): Robert Belkevec

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: N0502

[] Domestic Well Data
[] Monitoring Well Data
[X] Temporary Well
[] QA Sample Type:

Sample ID No.: PAI-45-TW-18-17
Sample Location: PAI-45-TW-18
Sampled By: Nathan Reel
C.O.C. No.: 4/6/01
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 4/5/01 Time: 1515	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	Salinity %	Notes:
Method: PERISTALTIC PUMP	NAKED							

PURGE DATA:

Date: 4/5/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	Salinity %	Notes:
Method: PERISTALTIC PUMP	1440	5.77	1.09	24.1	>999	0.49	0.04	NAKED
Monitor Reading (ppm): 0.0	1500	5.71	1.41	22.7	>999	0.83	0.05	↓
Well Casing Diameter & Material								
Type: 3/4" STAINLESS STEEL								
Total Well Depth (TD): 17.10								
Static Water Level (WL): 12.05								
One Casing Volume (gal/L): .13								
Start Purge (hrs): 1430								
End Purge (hrs): 1445								
Total Purge Time (min): 45								
Total Vol. Purged (gal/L): 5								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOCs	4 C / HCl	(3) 40 ML VIALS	3

OBSERVATIONS / NOTES:

3/4"=0.023/FT
1" =0.04/FT

DRY AFTER 750ml

SCREENED FROM 13'-17'

Circle if Applicable:

MS/MSD — Duplicate ID No.:

Signature(s): Robert Falkenberg

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: N0502

[] Domestic Well Data
[] Monitoring Well Data
[X] Temporary Well
[] QA Sample Type:

Sample ID No.: PAI-45-TW- 19-07
Sample Location: PAI-45-TW- 19
Sampled By: Nathan Reel
C.O.C. No.: 4/6/01
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 4/5/01 Time: 1335	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	Salinity %	Notes:
Method: PERISTALTIC PUMP	Brown							

PURGE DATA:

Date: 4/5/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	Salinity %	Notes:
Method: PERISTALTIC PUMP	250ml							DRY
Monitor Reading (ppm): 0-0								
Well Casing Diameter & Material								
Type: 3/4" STAINLESS STEEL								
Total Well Depth (TD): 6.80								
Static Water Level (WL): 5.45								
One Casing Volume(gal/L): 0.03								
Start Purge (hrs): 1300								
End Purge (hrs): 1303								
Total Purge Time (min): 3								
Total Vol. Purged [redacted] 250ml								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOCs	4 C / HCl	(3) 40 ML VIALS	3

OBSERVATIONS / NOTES:

3/4"=0.023/FT
1" =0.04/FT

AFTER 250ml WELL RAN DRY. ALLOW FOR RECHARGE THEN SAMPLE

SCREENED FROM 3'-7'

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

Robert Gelhaus

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: N0502

[] Domestic Well Data
[] Monitoring Well Data
[X] Temporary Well
[] QA Sample Type:

Sample ID No.: PAI-45-TW- 19-18
Sample Location: PAI-45-TW- 19
Sampled By: Nathan Reel
C.O.C. No.: 4-6-01
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 4/5/01 Time: 1250	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	Salinity %	Notes:
Method: PERISTALTIC PUMP	MUDDY	5.37	0.302	20.8	>999	0.81	0.00	

PURGE DATA:

Date: 4/5/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	Salinity %	Notes:
Method: PERISTALTIC PUMP	1205	5.73	0.356	20.7	>999	0.06	0.01	
Monitor Reading (ppm): 0.0	1210	5.56	0.356	20.8	810	0.50	0.01	
Well Casing Diameter & Material	1230	5.37	0.302	20.8	>999	0.81	0.00	
Type: 3/4" STAINLESS STEEL								
Total Well Depth (TD): 17.50								
Static Water Level (WL): 8.43								
One Casing Volume (gal/L): .3								
Start Purge (hrs): 1200								
End Purge (hrs): 1230								
Total Purge Time (min): 30								
Total Vol. Purged (gal/L): 1.5								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOCs	4 C / HCl	(3) 40 ML VIALS	3

OBSERVATIONS / NOTES:

3/4"=0.023/FT
1" =0.04/FT

DRY @ 1210. ALLOW FOR RECHARGE

SCREENED FROM 13.5-17.5'

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	

Signature(s): Robert Baltrocc

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: N0502

[] Domestic Well Data
[] Monitoring Well Data
[X] Temporary Well
[] QA Sample Type:

Sample ID No.: PAI-45-TW-19-32
Sample Location: PAI-45-TW- 19
Sampled By: Nathan Reel
C.O.C. No.: 4-6-01
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 4/5/01 Time: 1240	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	Salinity %	Notes:
Method: PERISTALTIC PUMP	MUDDY	5.81	0.577	21.9	>999	0.03	0.02	–

PURGE DATA:

Date: 4/5/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	Salinity %	Notes:
Method: PERISTALTIC PUMP	1200	6.21	0.615	21.4	>999	0.06	0.02	MUDDY
Monitor Reading (ppm): 0.0	1210	5.90	0.580	21.5	>999	0.30	0.02	↓
Well Casing Diameter & Material	1220	5.82	0.571	21.7	>999	0.09	0.02	
Type: 3/4" STAINLESS STEEL	1230	5.79	0.574	21.7	>999	0.15	0.02	
Total Well Depth (TD): 32.11'	1240	5.81	0.577	21.9	>999	0.03	0.02	↓
Static Water Level (WL): 6.97								
One Casing Volume (gal/L): 1.21								
Start Purge (hrs): 1200								
End Purge (hrs): 1240								
Total Purge Time (min): 40								
Total Vol. Purged (gal/L): 3.2								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOCs	4 C / HCl	(3) 40 ML VIALS	3

OBSERVATIONS / NOTES:

3/4"=0.023/FT
1" =0.04/FT

SCREENED FROM 28-32'

Circle if Applicable:

MS/MSD —

Duplicate ID No.:

Signature(s):

Robert Falkner

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: N0502

[] Domestic Well Data
[] Monitoring Well Data
[X] Temporary Well
[] QA Sample Type:

Sample ID No.: PAI-45-TW-19A-32
Sample Location: PAI-45-TW-19A
Sampled By: BOB BALKOVEC
C.O.C. No.: 6-6-01
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 6/6/01	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	Notes:
Time: 1446	Visual	Standard	mS/cm	°C	NTU	mg/l	%	
Method: PERISTALTIC PUMP	CLEAR	5.80	0.639	26.4	101	1.00	0.02	—

PURGE DATA:

Date: 6/6/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	Salinity %	Notes:
Method: PERISTALTIC PUMP	INITIAL	5.83	0.640	27.9	427	1.36	0.02	
Monitor Reading (ppm): 0.0	1	5.81	0.641	26.8	620	1.29	0.02	1425 TIME
Well Casing Diameter & Material	2	5.82	0.640	26.5	223	1.41	0.02	1435 TIME
Type: 3/4" STAINLESS STEEL	3	5.80	0.639	26.9	101	1.00	0.02	1445
Total Well Depth (TD): 32.17	→ END PURGE							
Static Water Level (WL): 9.02	BEGIN SAMPLING							
One Casing Volume(gal/L): .84								
Start Purge (hrs): 1415								
End Purge (hrs): 1445								
Total Purge Time (min): 30								
Total Vol. Purged(gal/L): 2.5								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOCs	4 C / HCl	(3) 40 ML VIALS	✓

OBSERVATIONS / NOTES:

3/4"=0.023/FT
1" =0.04/FT

23.15
5 x .023 = .84 gal
19.7 - 04

3 - 2.5 L vol
2.5 L = 3 vol

LOW

SCREENED FROM 28-32'

Circle if Applicable:		Signature(s):
MS/MSD	Duplicate ID No.:	Robert Balkovec

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: N0502

[] Domestic Well Data
[] Monitoring Well Data
[X] Temporary Well
[] QA Sample Type:

Sample ID No.: PAI-45-TW-19A-40
Sample Location: PAI-45-TW-19A
Sampled By: BOB BALKOVEC
C.O.C. No.: 6/8/01
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 6/6/01	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	Notes:
Time: 1625	Visual	Standard	mS/cm	°C	NTU	mg/l	%	
Method: PERISTALTIC PUMP								

PURGE DATA:

Date: 6/6/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	Salinity %	Notes:
Method: PERISTALTIC PUMP	7 VOLUMES	6.29	0.614	27.7	>999	0.51	0.02	GRAY
Monitor Reading (ppm): 0-0	1	6.31	0.670	28.1	>999	0.62	0.02	DARK @ 1600
Well Casing Diameter & Material	→ ALLOW FOR RECHARGE - THEN SAMPLE							
Type: 3/4" STAINLESS STEEL								
Total Well Depth (TD): 40.27								
Static Water Level (WL): 14.50								
One Casing Volume (gal/L): .96								
Start Purge (hrs): 1535								
End Purge (hrs): 1600								
Total Purge Time (min): 10								
Total Vol. Purged (gal/L): 1								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOCs	4 C / HCl	(3) 40 ML VIALS	✓

OBSERVATIONS / NOTES:

3/4"=0.023/FT
1" =0.04/FT

4.00 x .023 = 3.6L = 1 vol
26.77 x .04 = 11L = 3 vol

HEAVY SEDIMENTS

SCREENED FROM 36-40'

Circle if Applicable:		Signature(s):
MS/MSD	Duplicate ID No.:	Robert Balkovec

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: ~~MCRD~~ ~~MCRD~~ PARRIS ISLAND
Project No.: N0502

[] Domestic Well Data
[] Monitoring Well Data
[x] Other Well Type: TEMPORARY WELL
[] QA Sample Type:

Sample ID No.: PAI-45-TW-20-07
Sample Location: PAI-45-TW-20
Sampled By: Bob Balkovec
C.O.C. No.: 4/6/01
Type of Sample:
[x] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 4/6/01	Color	pH	S.C.	Temp.	Turbidity	DO	SALINITY	
Time: 0920	Visual	Standard	mS/cm	°C	NTU	mg/l	%	
Method: PERISTALTIC								

PURGE DATA:

Date: 4/6/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	SALINITY	NOTES:
Method: PERISTALTIC	[redacted]							
Monitor Reading (ppm): 0.0	[redacted]							
Well Casing Diameter & Material	[redacted]							
Type: 3/4" Stainless Steel	600 ml	6.38	1.12	17.0	>999	2.31	0.05	DUP @ 0856
Total Well Depth (TD): 6.60'	900 ml	NOT ENOUGH FOR A READING. ALLOW FOR RECHARGE						
Static Water Level (WL): 3.20'		THEN SAMPLE @ 0906.						
One Casing Volume(gal/L): .08								
Start Purge (hrs): 0852								
End Purge (hrs): 0906								
Total Purge Time (min): 6								
Total Vol. Purged (gal/L): .24								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC's	HCl / 4C	(3) 40 mL VIALS	✓

OBSERVATIONS / NOTES:

3.40' @ 023 = .078 gal = 240 ml/vol.

SCREENED FROM 3-7'

DUP @ 0856
RECOVERED @ 0903, 0906 START

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

Robert Balkovec

TBD: To Be Determined

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: ~~MCDR~~ PARRIS ISLAND
Project No.: N0502

[] Domestic Well Data
[] Monitoring Well Data
[x] Other Well Type: TEMPORARY WELL
[] QA Sample Type:

Sample ID No.: PAI-45-TW-20-19
Sample Location: PAI-45-TW-20
Sampled By: Bob Balkovec
C.O.C. No.: 4-6-01
Type of Sample:
[x] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 4/6/01 Time: 0915 Method: PERISTALTIC	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	SALINITY %	
	GRAY	5.77	10.8	18.3	712	2.41	0.60	—

PURGE DATA:

Date: 4/6/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	SALINITY	NOTES:
Method: PERISTALTIC	INITIAL	5.78	10.8	18.1	550	2.10	0.60	GRAY
Monitor Reading (ppm):	1	5.76	10.8	18.4	462	2.41	0.61	—
Well Casing Diameter & Material	2	5.76	10.8	18.4	607	2.70	0.60	DRY @ 0847
Type: 3/4" Stainless Steel	3	5.77	10.8	18.3	712	2.41	0.60	DRY @ 0903
Total Well Depth (TD): 18.82'	→ ALLOW WELL TO RECOVER THEN SAMPLE.							
Static Water Level (WL): 8.35'								
One Casing Volume (gal/L): .33								
Start Purge (hrs): 0833								
End Purge (hrs): 0903								
Total Purge Time (min): 30	→ 10 min @ RECHARGE							
Total Vol. Purged (gal/L): 1								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC's	HCl / 4C	(3) 40 mL VIALS	✓

OBSERVATIONS / NOTES:

4' @ .023 = .37 gal = 1.25 L
6.05 @ .04

DRY @ 0847
@ 0856 FULL RECOVERY
START @ 0857.

* MEASUREMENTS FROM GROUND SURFACE 4' SCREEN

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

Robert Balkovec

TBD: To Be Determined

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: ~~MCRD~~ NCRD PARRIS ISLAND
Project No.: N0502

Sample ID No.: PA2-45-GW-21-07
Sample Location: PA2-45-TW21
Sampled By: Bob Balkovec
C.O.C. No.: 4/11/01

[] Domestic Well Data
[] Monitoring Well Data
[x] Other Well Type: TEMPORARY WELL
[] QA Sample Type:

Type of Sample:
[x] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 4/9/01 Time: 1150	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	SALINITY %	
Method: PERISTALTIC	BROWN	5.13	3.41	19.4	>999	2.20	0.17	—

PURGE DATA:

Date: 4/9/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	SALINITY	NOTES:
Method: PERISTALTIC	1	5.14	3.55	19.0	>999	1.84	0.17	BROWN
Monitor Reading (ppm): 0.0	2	5.12	3.35	19.4	>999	2.01	0.16	—
Well Casing Diameter & Material	3	5.12	3.40	19.4	>999	2.10	0.17	DRY 1140
Type: 3/4" Stainless Steel	→ WELL WENT DRY ALLOW FOR RECHARGE THEN SAMPLE							
Total Well Depth (TD): 6.90'								
Static Water Level (WL): 2.44'								
One Casing Volume(gal/L): .11								
Start Purge (hrs): 1132								
End Purge (hrs): 1140								
Total Purge Time (min): 8								
Total Vol. Purged (gal/L): .4								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC's	HCl / 4C	(3) 40 mL VIALS	✓

OBSERVATIONS / NOTES:

4.46' -1 gal/vol or 445 ml/vol

4" SCREEN

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

Robert Balkovec

TBD: To Be Determinec

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: ~~MCBR~~ MCRD PARRIS ISLAND
Project No.: N0502

Sample ID No.: PAI-45-GW-21-19
Sample Location: PAI-45-GW-21
Sampled By: Bob Balkovec
C.O.C. No.: 4-11-01

[] Domestic Well Data
[] Monitoring Well Data
[x] Other Well Type: TEMPORARY WELL
[] QA Sample Type:

Type of Sample:
[x] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 4/9/01	Color	pH	S.C.	Temp.	Turbidity	DO	SALINITY	
Time: 1145	Visual	Standard	mS/cm	°C	NTU	mg/l	%	
Method: PERISTALTIC	GRAY							

PURGE DATA:

Date: 4/9/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	SALINITY	NOTES:
Method: PERISTALTIC	2 LITER	6.08	6.91	20.6	>999	1.76	0.36	BLK.
Monitor Reading (ppm): 0.0	1	6.11	6.82	20.6	>999	2.01	0.36	—
Well Casing Diameter & Material	1.5							DRY @ 1131
Type: 3/4" Stainless Steel		ALLOW FOR RECHARGE THEN SAMPLE.						
Total Well Depth (TD): 19.21'		SK 4/4/02						
Static Water Level (WL): 14.80'								
One Casing Volume(gal/L): .11								
Start Purge (hrs): 1125								
End Purge (hrs): 1131								
Total Purge Time (min): 6								
Total Vol. Purged (gal/L): .17								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC's	HCl / 4C	(3) 40 mL VIALS	✓

OBSERVATIONS / NOTES:

4.41' = .11 gal/vol = 415 ml/vol

4" SCREEN

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s): Robert Balkovec

TBD: To Be Determined

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: ~~MCBP~~ MCRD PARRIS ISLAND
Project No.: N0502

Sample ID No.: PAI-45-GW-2206
Sample Location: PAI-45-GW-22
Sampled By: Bob Balkovec
C.O.C. No.: 4-11-01

[] Domestic Well Data
[] Monitoring Well Data
[x] Other Well Type: TEMPORARY WELL
[] QA Sample Type:

Type of Sample:
[x] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 4/9/01	Color	pH	S.C.	Temp.	Turbidity	DO	SALINITY	
Time: 1305	Visual	Standard	mS/cm	°C	NTU	mg/l	%	
Method: PERISTALTIC	Brown							

PURGE DATA:

Date: 4/9/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	SALINITY	NOTES:
Method: PERISTALTIC	500ml	5.98	0.323	22.6	>999	2.41	0.01	—
Monitor Reading (ppm): 0.0	600ml							DRY 1251
Well Casing Diameter & Material	→ ALLOW FOR RECHARGE THEN SAMPLE							
Type: 3/4" Stainless Steel								
Total Well Depth (TD): 5.89'								
Static Water Level (WL): 2.30'								
One Casing Volume (gal/L): .05								
Start Purge (hrs): 1247								
End Purge (hrs): 1251								
Total Purge Time (min): 4								
Total Vol. Purged (~~gal/L~~): 600ml								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC's	HCl / 4C	(3) 40 mL VIALS	✓

OBSERVATIONS / NOTES:

3.59' @ .023 = = 313 ml/vol.

4" SCREEN

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Robert Balkovec

TBD: To Be Determined

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: ~~MCRD~~ PARRIS ISLAND
Project No.: N0502

[] Domestic Well Data
[] Monitoring Well Data
[x] Other Well Type: TEMPORARY WELL
[] QA Sample Type:

Sample ID No.: PAI-45-TW-22-32
Sample Location: PAI-45-TW-22
Sampled By: Bob Balkovec
C.O.C. No.: 4-11-01
Type of Sample:
[x] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color	pH	S.C.	Temp.	Turbidity	DO	SALINITY	
Date: 4/9/01	Visual	Standard	mS/cm	°C	NTU	mg/l	%	
Time: 1245								
Method: PERISTALTIC	HAZY	6.20	2.61	23.7	344	2.29	0.12	—

PURGE DATA:

Date: 4/9/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	SALINITY	NOTES:
Method: PERISTALTIC	INITIAL	5.74	2.62	24.3	>999	2.02	0.12	GRAY
Monitor Reading (ppm): 0.0	1.	6.21	2.60	24.1	248	2.13	0.12	HAZY
Well Casing Diameter & Material	2	6.21	2.61	23.6	232	2.41	0.12	—
Type: 3/4" Stainless Steel	3	6.20	2.61	23.7	344	2.29	0.12	—
Total Well Depth (TD): 32.10		→ END PURGE						
Static Water Level (WL): 1.40								
One Casing Volume (gal/L): 1.16								
Start Purge (hrs): 1205								
End Purge (hrs): 1244								
Total Purge Time (min): 39								
Total Vol. Purged (gal/L): 3.5								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC's	HCl / 4C	(3) 40 mL VIALS	✓

OBSERVATIONS / NOTES:

30.70' 1.16 gal/vol = 4.4L

4" ø .023

26.70 ø .04

4" SCREEN

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): Robert Balkovec

TBD: To Be Determined

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: N0502

[] Domestic Well Data
[] Monitoring Well Data
[X] Temporary Well
[] QA Sample Type:

Sample ID No.: PAI-45-TW- 23-09
Sample Location: PAI-45-TW- 23
Sampled By: Nathan Reel
C.O.C. No.: 4-6-01
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 4/5/01 Time: 1640	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	Salinity %	Notes:
Method: PERISTALTIC PUMP	Cloudy	5.31	0.243	18.5	7999	0.16	0.00	—

PURGE DATA:

Date: 4/5/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	Salinity %	Notes:
Method: PERISTALTIC PUMP	1615	5.26	0.260	18.5	7999	0.2	0.00	Cloudy
Monitor Reading (ppm): 0.0	1630	5.31	0.243	18.5	7999	0.16	0.00	↓
Well Casing Diameter & Material								
Type: 3/4" STAINLESS STEEL								
Total Well Depth (TD): 8.81								
Static Water Level (WL): 3.67								
One Casing Volume (gal/L): 0.13								
Start Purge (hrs): 1600								
End Purge (hrs): 1635								
Total Purge Time (min): 35								
Total Vol. Purged (gal/L): 3.0								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOCs	4 C / HCl	(3) 40 ML VIALS	3

OBSERVATIONS / NOTES:

3/4"=0.023/FT
1" =0.04/FT

Screened From 5'-9'

Circle if Applicable:

MS/MSD —

Duplicate ID No.:

Signature(s):

Robert Bellrose

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: N0502

[] Domestic Well Data
[] Monitoring Well Data
[X] Temporary Well
[] QA Sample Type:

Sample ID No.: PAI-45-TW-23-19
Sample Location: PAI-45-TW- 23
Sampled By: Nathan Reel
C.O.C. No.: 4-6-01
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 4/5/01 Time: 1633	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	Salinity %	Notes:
Method: PERISTALTIC PUMP	CLOUDY	5.55	0.593	20.0	7999	0.81	0.02	-

PURGE DATA:

Date: 4/5/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	Salinity %	Notes:
Method: PERISTALTIC PUMP	1550	5.83	0.614	20.4	462	0.15	0.02	MUDDY
Monitor Reading (ppm): 0.0	1610	5.60	0.594	20.2	7999	0.66	0.02	↓
Well Casing Diameter & Material	1620	5.55	0.593	20.0	7999	0.81	0.02	CLOUDY
Type: 3/4" STAINLESS STEEL								
Total Well Depth (TD): 18.96								
Static Water Level (WL): 8.37								
One Casing Volume (gal/l): 0.69								
Start Purge (hrs): 1545								
End Purge (hrs): 1620								
Total Purge Time (min): 35								
Total Vol. Purged (gal/l): 2.0								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOCs	4 C / HCl	(3) 40 ML VIALS	3

OBSERVATIONS / NOTES:

3/4"=0.023/FT
1" =0.04/FT

SCREENED FROM 15-19'

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s): Robert Balkcom

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: MCDR PARRIS ISLAND
Project No.: N0502

[] Domestic Well Data
[] Monitoring Well Data
[x] Other Well Type: TEMPORARY WELL
[] QA Sample Type:

Sample ID No.: PAI-45-TW-24-06
Sample Location: PAI-45-TW-24
Sampled By: Bob Balkovec
C.O.C. No.: 4-11-01
Type of Sample:
[x] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 4/10/01	Color	pH	S.C.	Temp.	Turbidity	DO	SALINITY	
Time: 0842	Visual	Standard	mS/cm	°C	NTU	mg/l	%	
Method: PERISTALTIC	BROWN							

PURGE DATA:

Date: 4/10/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	SALINITY	NOTES:
Method: PERISTALTIC	500ml	5.81	0.768	20.3	>999	0.59	0.03	BROWN
Monitor Reading (ppm): 0-0	650ml	DRY @ 0835						
Well Casing Diameter & Material								
Type: 3/4" Stainless Steel								
Total Well Depth (TD): 5.79'								
Static Water Level (WL): 2.40'								
One Casing Volume (gal/L): .07								
Start Purge (hrs): 0830								
End Purge (hrs): 0835								
Total Purge Time (min): 5								
Total Vol. Purged (gal/L): 650ml								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC's	HCl / 4C	(3) 40 mL VIALS	✓

OBSERVATIONS / NOTES:

3.39' @ 0835 295ml/min

@ 0841 W/L = 3.00'

4" SCREEN 2-6'

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s): Robert Balkovec

TBD: To Be Determined

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: ~~MCBR~~ MCRD PARRIS ISLAND
Project No.: N0502

[] Domestic Well Data
[] Monitoring Well Data
[x] Other Well Type: TEMPORARY WELL
[] QA Sample Type:

Sample ID No.: PAZ-45-TW-24-18
Sample Location: PAZ-45-TW-24
Sampled By: Bob Balkovec
C.O.C. No.: 4-11-01
Type of Sample: Pg. 2 OF 2
[x] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 4/10/01	Color	pH	S.C.	Temp.	Turbidity	DO	SALINITY	
Time: 0850	Visual	Standard	mS/cm	°C	NTU	mg/l	%	
Method: PERISTALTIC	CLEAR							

PURGE DATA:

Date: 4/10/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	SALINITY	NOTES:
Method: PERISTALTIC	INITIAL	5.09	15.6	20.4	492	2.58	0.40	HAZY
Monitor Reading (ppm): 0.0	1	5.11	15.9	20.3	370	2.01	0.90	HAZY
Well Casing Diameter & Material		DRY @	0834	ALLOW FOR RECHARGE			THEN SAMPLE	
Type: 3/4" Stainless Steel								
Total Well Depth (TD): 17.90'								
Static Water Level (WL): 8.10'								
One Casing Volume (gal/L): .32								
Start Purge (hrs): 0828								
End Purge (hrs): 0834								
Total Purge Time (min): 6								
Total Vol. Purged (gal/L): .32								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC's	HCl / 4C	(3) 40 mL VIALS	✓

OBSERVATIONS / NOTES:

9.80'
4 @ 0.32
5.80 @ 0.04

= .32 gal/vol = 1.2 L

@ 0844 W/L = 11.25'
@ 0844 W/L = 9.24'

SCREENED FROM 14-19'

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	

Signature(s): Robert Balkovec

TBD: To Be Determined

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: MCDR PARRIS ISLAND
Project No.: N0502

[] Domestic Well Data
[] Monitoring Well Data
[x] Other Well Type: TEMPORARY WELL
[] QA Sample Type:

Sample ID No.: PA2-45-Tw-25-06
Sample Location: PA2-45-Tw-25
Sampled By: Bob Balkovec
C.O.C. No.: 4-11-01
Type of Sample:
[x] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 4/9/01 / Time: 1747 / Method: PERISTALTIC	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	SALINITY %	
	HAZY	6.50	0.611	21.5		0.10	0.02	—

PURGE DATA:

Date: 4/9/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	SALINITY	NOTES:
Method: PERISTALTIC	500ml	6.54	0.627	21.7	>999	1.00	0.02	BROWN
Monitor Reading (ppm): 0.0	1L	6.51	0.612	21.6	>999	0.08	0.02	—
Well Casing Diameter & Material	1.5L	6.50	0.611	21.5	336	0.10	0.02	HAZY
Type: 3/4" Stainless Steel								
Total Well Depth (TD): 6.11'								
Static Water Level (WL): 3.20'								
One Casing Volume(gal/L): .06								
Start Purge (hrs): 1735								
End Purge (hrs): 1745								
Total Purge Time (min): 10								
Total Vol. Purged (gal/L): 1.5								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC's	HCl / 4C	(3) 40 mL VIALS	✓

OBSERVATIONS / NOTES:

253 ml/vol

SCREENED FROM 2-6'

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	

Signature(s): Robert Balkovec

TBD: To Be Determined

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: 112502

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: TEMP WELL
[] QA Sample Type:

Sample ID No.: PAZ-45-TW25-1B
Sample Location: PAZ-45-TW25
Sampled By: B. BALKOVEC
C.O.C. No.: 4-11-01
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 4/9/01	Color	pH	S.C.	Temp.	Turbidity	DO	TBD	TBD
Time: 1705	Visual	Standard	mS/cm	°C	NTU	mg/l		
Method: PERISTALTIC	HAZY							

PURGE DATA:

Date: 4/9/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	TBD	TBD
Method: PERISTALTIC	1	5.89	10-6	23.0	>999	2.73	0.60	BLACK
Monitor Reading (ppm): 0.0	2	5.98	10.4	23.1	>999	2.10	0.60	DK @ 1645
Well Casing Diameter & Material	→	ALLOW FOR RECHARGE			THEN SAMPLE			
Type: 3/4" STAINLESS STEEL								
Total Well Depth (TD): 18.21'								
Static Water Level (WL): 12.10'								
One Casing Volume(gal/L): .17								
Start Purge (hrs): 1635								
End Purge (hrs): 1645								
Total Purge Time (min): 10								
Total Vol. Purged (gal/L): .35								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC'S	HCl / 4°C	(3) 40ml VIAL	✓

OBSERVATIONS / NOTES:

.17 gal/vol or 667 ml/vol

@ 1705 W/L = 13.1'

SCREENED FROM 14-18'

Circle if Applicable:
MS/MSD | Duplicate ID No.:

Signature(s): Robert Balkovec

TBD: To Be Determined

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: N0502

[] Domestic Well Data
[] Monitoring Well Data
[X] Temporary Well
[] QA Sample Type:

Sample ID No.: PAI-45-TW-26-07
Sample Location: PAI-45-TW-26
Sampled By: BOB BALKOVEC
C.O.C. No.: 6-6-01
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 6/6/01	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	Notes:
Time: 1005	Visual	Standard	mS/cm	°C	NTU	mg/l	%	
Method: PERISTALTIC PUMP	CLOUDY							

PURGE DATA:

Date: 6/6/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	Salinity %	Notes:
Method: PERISTALTIC PUMP	100ml		DRY					GRAB 0922
Monitor Reading (ppm): 0-0	200ml		DRY					START 0942
Well Casing Diameter & Material		ALLOW	FOR RECHARGE	THEN SAMPLE				
Type: 3/4" STAINLESS STEEL								
Total Well Depth (TD): 6.98'								
Static Water Level (WL): 5.20'								
One Casing Volume (gal/L): .04								
Start Purge (hrs): 0920								
End Purge (hrs): 0943								
Total Purge Time (min): 3min								
Total Vol. Purged (gal/L): .2								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOCs	4 C / HCl	(3) 40 ML VIALS	3

OBSERVATIONS / NOTES:

3/4"=0.023/FT
1" =0.04/FT

.04gal 460ml = 3vol

4" SCREEN

Circle if Applicable:		Signature(s):
MS/MSD	Duplicate ID No.:	Robert Balkovec
—	—	

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: N0502

[] Domestic Well Data
[] Monitoring Well Data
[X] Temporary Well
[] QA Sample Type:

Sample ID No.: PAI-45-TW-26-17
Sample Location: PAI-45-TW-26
Sampled By: BOB BALKOVEC
C.O.C. No.: 6/6/01
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 6/6/01 Time: 1007	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	Salinity %	Notes:
Method: PERISTALTIC PUMP	GRAY							

PURGE DATA:

Date: 6/6/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	Salinity %	Notes:
Method: PERISTALTIC PUMP	INITIAL	5.98	0.850	26.7	>999	0.05	0.03	GRAY
Monitor Reading (ppm): 0-0	1 LITER	5.78	0.800	27.8	>999	0.06	0.02	0955
Well Casing Diameter & Material	2 LITER	5.72	0.807	27.9	>999	0.06	0.02	0958 DRY
Type: 3/4" STAINLESS STEEL	3	ALLOW FOR RECHARGE TIME				SAMPLE		
Total Well Depth (TD): 17.10								
Static Water Level (WL): 10.21								
One Casing Volume (gal/L): .2								
Start Purge (hrs): 0945								
End Purge (hrs): 0958								
Total Purge Time (min): 13								
Total Vol. Purged (gal/L): .5								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOCs	4 C / HCl	(3) 40 ML VIALS	✓

OBSERVATIONS / NOTES:

3/4"=0.023/FT
1" =0.04/FT

6.99'
5 x .023
1.99 x .04
= .19

2.16 L = 3 vol

SCREENED FROM 13-17'

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

Robert Balkovec

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: N0502

[] Domestic Well Data
[] Monitoring Well Data
[X] Temporary Well
[] QA Sample Type:

Sample ID No.: PAI-45-TW-27-09
Sample Location: PAI-45-TW-27
Sampled By: BOB BALKOVEC
C.O.C. No.: 6-6-01
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 6/6/01 Time: 1205	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	Salinity %	Notes:
Method: PERISTALTIC PUMP	CLEAR	4.95	0.230	25.4	79	3.11	0.01	—

PURGE DATA:

Date: 6/6/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	Salinity %	Notes:
Method: PERISTALTIC PUMP	500ml	5.18	0.255	27.0	>999	2.00	0.01	TAN
Monitor Reading (ppm): 00	1L	4.99	0.235	26.4	428	2.21	0.01	HAZY (455
Well Casing Diameter & Material	1.5L	4.94	0.227	26.0	300	3.10	0.01	
Type: 3/4" STAINLESS STEEL	2L	4.95	0.230	25.9	98	3.00	0.01	HAZY
Total Well Depth (TD): 8.04	→ END PURGE							
Static Water Level (WL): 5.40								
One Casing Volume (gal/L): .07								
Start Purge (hrs): 1148								
End Purge (hrs): 1204								
Total Purge Time (min): 16								
Total Vol. Purged (gal/L): .52								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOCs	4 C / HCl	(3) 40 ML VIALS	✓

OBSERVATIONS / NOTES:

3/4"=0.023/FT
1" =0.04/FT

2.44 x .023 = .07 = 265 ml/vol

800 ml = 3 vol

4' SCREEN.

Circle if Applicable: MS/MSD	Duplicate ID No.:	Signature(s):
—	—	Robert Balkovec

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: N0502

[] Domestic Well Data
[] Monitoring Well Data
[X] Temporary Well
[] QA Sample Type:

Sample ID No.: PAI-45-TW-27-18
Sample Location: PAI-45-TW-27
Sampled By: BOB BALKOVEC
C.O.C. No.: 6-6-01
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 6/6/01 Time: 1225	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	Salinity %	Notes:
Method: PERISTALTIC PUMP	HAZY							

PURGE DATA:

Date: 6/6/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	Salinity %	Notes:
Method: PERISTALTIC PUMP	600ml	5.25	0.451	27.2	>999	2.43	0.01	GRAY
Monitor Reading (ppm): 0.0	DRY @ 1202	ALLOW FOR RECHARGE						
Well Casing Diameter & Material	950ml	DRY						1212 START
Type: 3/4" STAINLESS STEEL		DRY @ 1214	ALLOW FOR RECHARGE	THEN SAMPLE				
Total Well Depth (TD): 17.75								
Static Water Level (WL): 13.20								
One Casing Volume (gal/L): .1								
Start Purge (hrs): 1155								
End Purge (hrs): 1214								
Total Purge Time (min): 9								
Total Vol. Purged (gal/L): 1.45								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOCs	4 C / HCl	(3) 40 ML VIALS	✓

OBSERVATIONS / NOTES:

3/4"=0.023/FT
1" =0.04/FT

4.55 x .023 = .1

379ml=1vol

1.14L=3vol

4' SCREEN

Circle if Applicable:		Signature(s):
MS/MSD	Duplicate ID No.:	Robert Balkovec

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: N0502

[] Domestic Well Data
[] Monitoring Well Data
[X] Temporary Well
[] QA Sample Type:

Sample ID No.: PAI-45-TW-2832
Sample Location: PAI-45-TW-28
Sampled By: BOB BALKOVEC
C.O.C. No.: 6/8/01
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 6/8/01 Time: 1005	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	Salinity %	Notes:
Method: PERISTALTIC PUMP	GRAY							

PURGE DATA:

Date: 6/8/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	Salinity %	Notes:
Method: PERISTALTIC PUMP	INITIAL	6.54	0.824	24.9	>999	0.21	0.03	HEAVY SEDS
Monitor Reading (ppm): 0.0	1	6.44	0.700	24.3	>999	0.41	0.03	0945
Well Casing Diameter & Material	1.5	Dry At 0950 Allow For Recharge Then Sample						
Type: 3/4" STAINLESS STEEL								
Total Well Depth (TD): 31.62								
Static Water Level (WL): 6.00								
One Casing Volume (gal/L): .96								
Start Purge (hrs): 0935								
End Purge (hrs): 0950								
Total Purge Time (min): 15								
Total Vol. Purged (gal/L): 1.5								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOCs	4 C / HCl	(3) 40 ML VIALS	✓

OBSERVATIONS / NOTES:

3/4"=0.023/FT
1" =0.04/FT

25.62'
4x.023
+ 21.62 x .04
.96gal

SCREENED FROM 28-38'

Circle if Applicable:		Signature(s):
MS/MSD	Duplicate ID No.:	Robert Balkovec

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: N0502

[] Domestic Well Data
[] Monitoring Well Data
[X] Temporary Well
[] QA Sample Type:

Sample ID No.: PAI-45-TW-28-40
Sample Location: PAI-45-TW-28
Sampled By: BOB BALKOVEC
C.O.C. No.: 6/8/01
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 6/8/01 Time: 1230	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	Salinity %	Notes:
Method: PERISTALTIC PUMP	CLEAR	7.10	1.36	25.4	>999	0.41	0.06	—

PURGE DATA:

Date: 6/8/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	Salinity %	Notes:
Method: PERISTALTIC PUMP	2 LITERS	7.05	1.25	26.3	>999	0.07	0.05	CLEAR
Monitor Reading (ppm): 0-0	1	7.08	1.34	25.5	>999	0.50	0.06	1203
Well Casing Diameter & Material	2	7.10	1.35	25.4	7999	0.60	0.06	1217
Type: 3/4" STAINLESS STEEL	3	7.10	1.36	25.4	7999	0.41	0.06	1229
Total Well Depth (TD): 39.71'		→ END PURGE						
Static Water Level (WL): 4.50								
One Casing Volume (gal/L): 1.34								
Start Purge (hrs): 1150								
End Purge (hrs): 1229								
Total Purge Time (min): 39								
Total Vol. Purged (gal/L):								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOCs	4 C / HCl	(3) 40 ML VIALS	

OBSERVATIONS / NOTES:

3/4"=0.023/FT
1" =0.04/FT

35.71

1.34g/vol 5L=1vol

SCREENED FROM 36-40'

Circle if Applicable:		Signature(s):
MS/MSD	Duplicate ID No.:	Robert Balkovec

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: N0502

[] Domestic Well Data
[] Monitoring Well Data
[X] Temporary Well
[] QA Sample Type:

Sample ID No.: PAI-45-TW-30-08
Sample Location: PAI-45-TW- 30
Sampled By: BOB BALKOVEC
C.O.C. No.: 6/8/01
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 6/7/01	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	Notes:
Time: 1132	Visual	Standard	mS/cm	°C	NTU	mg/l	%	
Method: PERISTALTIC PUMP	CLOUDY							

PURGE DATA:

Date: 6/7/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	Salinity %	Notes:
Method: PERISTALTIC PUMP	350 ml	Dry @	1132	NOT ENOUGH FOR A READING				BROWN
Monitor Reading (ppm): 0.0		ALLOW	FOR RECHARGE - THEN SAMPLE					
Well Casing Diameter & Material								
Type: 3/4" STAINLESS STEEL								
Total Well Depth (TD): 7.89								
Static Water Level (WL): 4.60								
One Casing Volume (gal/L): .07								
Start Purge (hrs): 1120								
End Purge (hrs): 1122								
Total Purge Time (min): 2								
Total Vol. Purged ~~(gal/L)~~: 350 ml								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOCs	4 C / HCl	(3) 40 ML VIALS	✓

OBSERVATIONS / NOTES:

3/4"=0.023/FT
1" =0.04/FT

3.29' x .023 = 286 ml/vol

800 ml = 3 vol

4' SCREEN

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): Robert Balkovec

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name:	MCRD PARRIS ISLAND	Sample ID No.:	PAI-45-TW-30-16
Project No.:	N0502	Sample Location:	PAI-45-TW-30
		Sampled By:	BOB BALKOVEC
[] Domestic Well Data		C.O.C. No.:	6/8/01
[] Monitoring Well Data		Type of Sample:	
[X] Temporary Well		[X] Low Concentration	
[] QA Sample Type:		[] High Concentration	

SAMPLING DATA:

	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	Notes:
Date: 6/7/01	Visual	Standard	mS/cm	°C	NTU	mg/l	%	
Time: 1110								
Method: PERISTALTIC PUMP	Cloudy							

PURGE DATA:

Date: 6/7/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	Salinity %	Notes:
Method: PERISTALTIC PUMP	1	5.55	0.86	26.7	>999	0.05	0.08	GRAY 1038
Monitor Reading (ppm):	2	5.51	1.92	26.5	>999	0.80	0.09	DRY 1041
Well Casing Diameter & Material	→ DRY AFTER 2 VOLUMES							
Type: 3/4" STAINLESS STEEL	ALLOW FOR RECHARGE THEN SAMPLE							
Total Well Depth (TD): 16.11'								
Static Water Level (WL): 11.20								
One Casing Volume (gal/L): .16								
Start Purge (hrs): 1035								
End Purge (hrs): 1041								
Total Purge Time (min): 6								
Total Vol. Purged (gal/L): .32								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOCs	4 C / HCl	(3) 40 ML VIALS	✓

OBSERVATIONS / NOTES:

3/4"=0.023/FT
1" =0.04/FT

4.91'

2' of SCREEN

2 x .023
2.91 x .04 = .160

600 ml = 1 vol
1.8 L = 3 vol

SCREENED FROM 14-16'

* UNABLE TO PUSH SCREEN DEEPER.

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	

Signature(s): Robert Balkovec

A-243

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name:	MCRD PARRIS ISLAND	Sample ID No.:	PAI-45-TW-30-32
Project No.:	N0502	Sample Location:	PAI-45-TW-30
		Sampled By:	BOB BALKOVEC
[] Domestic Well Data		C.O.C. No.:	6/8/01
[] Monitoring Well Data		Type of Sample:	
[X] Temporary Well		[X] Low Concentration	
[] QA Sample Type:		[] High Concentration	

SAMPLING DATA:

Date: 6/7/01	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	Notes:
Time: 1101	Visual	Standard	mS/cm	°C	NTU	mg/l	%	
Method: PERISTALTIC PUMP	Cloudy	7.18	1.84	26.5	410	0.31	0.08	—

PURGE DATA:

Date: 6/7/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	Salinity %	Notes:
Method: PERISTALTIC PUMP	INITIAL	7.30	1.88	26.9	>999	0.13	0.09	GRAY
Monitor Reading (ppm): 0.0	1	7.19	1.87	26.9	560	0.54	0.08	—
Well Casing Diameter & Material	2	7.20	1.85	26.4	500	0.41	0.08	—
Type: 3/4" STAINLESS STEEL	3	7.18	1.84	26.5	410	0.31	0.08	—
32.25 Total Well Depth (TD): ~~30.21~~	→ END PURGE							
Static Water Level (WL): 6.40								
One Casing Volume (gal/L): .96								
Start Purge (hrs): 1030								
End Purge (hrs): 1100								
Total Purge Time (min): 30								
Total Vol. Purged (gal/L): 3								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOCs	4 C / HCl	(3) 40 ML VIALS	✓

OBSERVATIONS / NOTES:

3/4"=0.023/FT
1" =0.04/FT

25.81

4 x .023 = .96 gal 3.78L/vol
21.81 x .04

11.3L = 3 vol

SCREENED 28-32'

Circle if Applicable:		Signature(s):
MS/MSD	Duplicate ID No.:	
—	PAI-45-TW-30-32	Robert Balkovec

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: N0502

[] Domestic Well Data
[] Monitoring Well Data
[X] Temporary Well
[] QA Sample Type:

Sample ID No.: PAI-45-TW-31-12
Sample Location: PAI-45-TW- 31
Sampled By: BOB BALKOVEC
C.O.C. No.: 6/8/01
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 6/6/01 Time: 1862	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	Salinity %	Notes:
Method: PERISTALTIC PUMP	Cloudy	4.83	0.640	23.1	>999	1.40	0.02	—

PURGE DATA:

Date: 6/6/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	Salinity %	Notes:
Method: PERISTALTIC PUMP	1	5.29	0.665	24.4	>999	1.62	0.02	GRAY
Monitor Reading (ppm): 0.0	2	4.82	0.645	23.4	>999	1.00	0.02	"
Well Casing Diameter & Material	3	4.84	0.640	23.2	>999	1.21	0.02	"
Type: 3/4" STAINLESS STEEL	4	4.83	0.640	23.1	>999	1.40	0.02	"
Total Well Depth (TD): 11.7'	→ END PURGE							
Static Water Level (WL): 4.2								
One Casing Volume (gal/L): .23								
Start Purge (hrs): 1745								
End Purge (hrs): 1800								
Total Purge Time (min): 15								
Total Vol. Purged (gal/L): 1								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOCs	4 C / HCl	(3) 40 ML VIALS	✓

OBSERVATIONS / NOTES:

3/4"=0.023/FT
1" =0.04/FT

7.5'
4 x .023 = .23 gal/vol
3.5 x .04 =
SCREENED 8-12'

880 ml/vol
2.6L = 3 vol

* CHEMICAL ODOR

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	

Signature(s): Robert Balkovec

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: N0502

[] Domestic Well Data
[] Monitoring Well Data
[X] Temporary Well
[] QA Sample Type:

Sample ID No.: PAI-45-TW-32-16
Sample Location: PAI-45-TW-32
Sampled By: BOB BALKOVEC
C.O.C. No.: 618|01
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 6/6/01	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	Notes:
Time: ~~1832~~ 1840	Visual	Standard	mS/cm	°C	NTU	mg/l	%	
Method: PERISTALTIC PUMP								

PURGE DATA:

Date: 6/6/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	Salinity %	Notes:
Method: PERISTALTIC PUMP	INITIAL	5.38	0.523	23.4	>999	0.92	0.02	GRAY
Monitor Reading (ppm): 0.0	1	5.14	0.428	22.7	>999	0.52	0.01	-
Well Casing Diameter & Material	2	4.99	0.418	22.2	>999	0.50	0.01	-
Type: 3/4" STAINLESS STEEL	3	5.01	0.417	22.1	>999	0.61	0.01	-
Total Well Depth (TD): 15.80'	4	5.00	0.416	22.1	>999	0.51	0.01	-
Static Water Level (WL): 4.11'		→ END PURGE						
One Casing Volume (gal/L): .4								
Start Purge (hrs): 1820								
End Purge (hrs): 1840								
Total Purge Time (min): 20								
Total Vol. Purged (gal/L): 1.6								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOCs	4 C / HCl	(3) 40 ML VIALS	✓

OBSERVATIONS / NOTES:

3/4"=0.023/FT
1" =0.04/FT

11.69'
4 x .023 = .4 gal/vol
7.69 x .04

1.5L = 1 vol
4.5L = 3 vol

4' SCREEN

Circle if Applicable:		Signature(s):
MS/MSD	Duplicate ID No.:	Robert Balkovec

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: N0502

[] Domestic Well Data
[] Monitoring Well Data
[X] Temporary Well
[] QA Sample Type:

Sample ID No.: PAI-45-TW-33-15
Sample Location: PAI-45-TW-33
Sampled By: BOB BALKOVEC
C.O.C. No.: 6/8/01
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 6/6/01 Time: 1725	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	Salinity %	Notes:
Method: PERISTALTIC PUMP	HAZY	5.14	1.90	23.2	126	1.60	0.09	—

PURGE DATA:

Date: 6/6/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	Salinity %	Notes:
Method: PERISTALTIC PUMP	700ml	5.52	2.01	24.3	>999	1.48	0.09	GRAY
Monitor Reading (ppm): 0.0	1.4L	5.13	1.97	23.7	405	1.01	0.09	1 Vol
Well Casing Diameter & Material	2.1L	5.10	1.95	23.3	171	1.72	0.09	
Type: 3/4" STAINLESS STEEL	2.8L	5.16	1.95	23.4	291	1.51	0.09	2 vol
Total Well Depth (TD): 15.10'	3.5L	5.13	1.94	23.1	168	1.57	0.09	
Static Water Level (WL): 3.95'	4.2L	5.14	1.90	23.2	126	1.60	0.09	3 vol
One Casing Volume(gal/L): .38	→	→	END PURGE					
Start Purge (hrs): 1707								
End Purge (hrs): 1722								
Total Purge Time (min): 20								
Total Vol. Purged (gal/L):								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOCs	4 C / HCl	2x (3) 40 ML VIALS	6

OBSERVATIONS / NOTES:

3/4"=0.023/FT
1" =0.04/FT

11.15
4 x .023 = .378 gal = 1.4L/1 vol
7.15 x .04 =
4.2L = 3 vol

4" SCREEN

Circle if Applicable:
MS/MSD —
Duplicate ID No.: PAI-45-TW-33-15

Signature(s):
Robert Balkovec

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: N0502

[] Domestic Well Data
[] Monitoring Well Data
[X] Temporary Well
[] QA Sample Type:

Sample ID No.: PAI-45-TW-34-14
Sample Location: PAI-45-TW-34
Sampled By: BOB BALKOVEC
C.O.C. No.: 6/8/01
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 6/7/01	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	Notes:
Time: 1230	Visual	Standard	mS/cm	°C	NTU	mg/l	%	
Method: PERISTALTIC PUMP	Cloudy	6.08	6.37	26.7	810	0.62	0.34	—

PURGE DATA:

Date: 6/7/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	Salinity %	Notes:
Method: PERISTALTIC PUMP	INITIAL	7.01	5.71	29.0	7999	0.60	0.30	GRAY
Monitor Reading (ppm):	1	6.40	6.09	27.3	>999	0.91	0.32	
Well Casing Diameter & Material	2	6.07	6.36	26.9	>999	0.56	0.34	1215
Type: 3/4" STAINLESS STEEL	3	6.10	6.35	26.8	>999	0.61	0.33	
Total Well Depth (TD): 14.10'	4	6.08	6.37	26.7	810	0.62	0.34	1228
Static Water Level (WL): 3.80		→ END PURGE						
One Casing Volume (gal/L): .34								
Start Purge (hrs): 1203								
End Purge (hrs): 1228								
Total Purge Time (min): 20								
Total Vol. Purged (gal/L): 1.3								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOCs	4 C / HCl	(3) 40 ML VIALS	✓

OBSERVATIONS / NOTES:

3/4"=0.023/FT
1" =0.04/FT

10.3'
4 x .023
0.3 x .04 = .34

1.3 L = 1 vol
3.9 L = 3 vol

SCREENED 10-14'

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	PA2-45-TW-34-14

Signature(s): Robert Balkovec

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: N0502

[] Domestic Well Data
[] Monitoring Well Data
[X] Temporary Well
[] QA Sample Type:

Sample ID No.: PAI-45-TW-35-32
Sample Location: PAI-45-TW-35
Sampled By: BOB BALKOVEC
C.O.C. No.: 6/8/01
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 6/7/01	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	Notes:
Time: 1455	Visual	Standard	mS/cm	°C	NTU	mg/l	%	
Method: PERISTALTIC PUMP	TURBID	6.88	1.32	25.3	110	0.37	0.05	—

PURGE DATA:

Date: 6/7/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	Salinity %	Notes:
Method: PERISTALTIC PUMP	TURBID	6.78	1.35	27.5	652	0.82	0.06	—
Monitor Reading (ppm): 0.0	1	6.85	1.29	25.7	600	0.27	0.05	—
Well Casing Diameter & Material	2	6.86	1.30	25.4	410	0.41	0.05	—
Type: 3/4" STAINLESS STEEL	3	6.88	1.32	25.3	110	0.37	0.05	—
Total Well Depth (TD): 31.81'	→ END PURGE							
Static Water Level (WL): 6.2								
One Casing Volume (gal/L): .95								
Start Purge (hrs): 1420								
End Purge (hrs): 1450								
Total Purge Time (min): 30								
Total Vol. Purged (gal/L): 2.85								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOCs	4 C / HCl	(3) 40 ML VIALS	3

OBSERVATIONS / NOTES:

3/4"=0.023/FT
1" =0.04/FT

25.6'

4 x 0.023
+ 21.6 x 0.04 = .95 gal

3.62L = 1 vol
10.8L = 3 vol

4' SCREEN

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): Robert Balkovec

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: PAI Site 45
Project No.: N0502 CTO 127

Sample ID No.: PAI-GW- 45 01SU-01
Sample Location: PAI-MW- 01SU
Sampled By: SJC
C.O.C. No.: PAI- 101801
Type of Sample:
[X] Low Concentration
[] High Concentration

[] Domestic Well Data
[X] Monitoring Well Data (NATURAL ATTENUATION)
[] Other Well Type:
[] QA Sample Type:

SAMPLING DATA:					LAMOTTE			
Date: 10/18/01	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	Salinity
Time: 0945	Visual	Standard	mS/cm	°C	NTU	mg/l	mV	%
Method: Peristaltic pump	CLEAR	5.18	-360	22.3	3.5	4.18	-10	0.0

PURGE DATA:								
Date: 10/18/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	ORP	Salinity
Method: Peristaltic pump								
Monitor Reading (ppm): —								
Well Casing Diameter & Material								
Type: 2" PVC								
Total Well Depth (TD): 7.11								
Static Water Level (WL): 2.75			(SEE LOW FLOW PURGE DATA SHEET)					
One Casing Volume(gal/L): 3±								
Start Purge (hrs): 0830 HRS								
End Purge (hrs): 0940								
Total Purge Time (min): 70								
Total Vol. Purged (gal/L): 10.5								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative		Container Requirements	Collected
Low Concentration VOC's	4°C	HCL	3-40 ml VOA Vials	✓
Methane, Ethane, Ethene	4°C	HCL	3-40 ml VOA Vials	✓
TOC	4°C	H_2SO_4	1-125 ml Amber	✓
COD	4°C	H_2SO_4	1-125 ml PE	✓
BOD, Alkalinity, Cl, SO_4, NO_2, NO_3, PO_4^{-3}	4°C		1- L PE	✓
Metals- Ca, Mg, Na, K, Mn, Fe	4°C	HNO_3	1- L PE	

OBSERVATIONS / NOTES:

FIELD RESULTS:

DO (Chemetrics K-7512) Range (0-12)	2 TO 3	mg/L
DO (Chemetrics K-7501) Range (0-1)	—	mg/L
Carbon Dioxide (Chemetrics K-1910, 1920, 1925)	25	mg/L
Sulfide (Hach-DR-850 or 890)	0.0	mg/L

7.11
2.75
4.36

SCREEN 3.22 → 7.22 TPVC

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): SJConti

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Parris Island-Site 45 **WELL ID.:** PAI 45 MW 01 SU
PROJECT NUMBER: N0502 **DATE:** 10-18-01

U-10 LAMOTTE

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	Salinity (%)	ORP (mV)	Comments (Cumulative Vol. & Color)
0830	2.75	150	—	—	—	—	—	—	—	SLIGHTLY CLOUDY/
0845	3.56	150	5.35	.404	42.1	6.39	20.6	0.0	206	pH 6.72 U22 TURBID
0900	3.76	150	5.14	.369	22.8	3.83	23.1	0.0	53	" 7.64 "
0910	3.81	150	5.16	.365	13.8	4.40	22.9	0.0	49	" 7.70 "
0920	3.84	150	5.18	.364	8.2	5.14	22.3	0.0	-23	" 8.27 " CLEAR
0930	3.81	150	5.18	.361	6.1	3.95	22.3	0.0	-12	" 7.79 " "
0940	3.81	150	5.18	.360	3.5	4.18	22.3	0.0	-10	— "
	150 70									
	10500 10.5L	- Sample @ 0945								

SIGNATURE(S): DJConti

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: PAI Site 45
Project No.: N0502 CTO 127

[] Domestic Well Data
[X] Monitoring Well Data (NATURAL ATTENUATION)
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: PAI-GW-0450-01 (45)
Sample Location: PAI-MW-0450
Sampled By: SJC
C.O.C. No.: PAI- 101701
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:					LAMOTTE			
Date: 10/17/01	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	Salinity
Time: 1330	Visual	Standard	mS/cm	°C	NTU	mg/l	mV	%
Method: Peristaltic pump	CLEAR	4.56	452	23.0	4.5	5.98	138	0

PURGE DATA:								
Date: 10/17/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	ORP	Salinity
Method: Peristaltic pump								
Monitor Reading (ppm): —								
Well Casing Diameter & Material								
Type: 2" PVC								
Total Well Depth (TD): 7.06								
Static Water Level (WL): 2.74			(SEE LOW FLOW PURGE DATA SHEET)					
One Casing Volume(gal/L): 2.5								
Start Purge (hrs): 1210								
End Purge (hrs): 1325								
Total Purge Time (min): 75								
Total Vol. Purged (gal/L): 15								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative		Container Requirements	Collected
Low Concentration VOC's	4°C	HCL	3-40 ml VOA Vials	✓
Methane, Ethane, Ethene	4°C	HCL	3-40 ml VOA Vials	✓
TOC	4°C	H_2SO_4	1-125 ml Amber	✓
COD	4°C	H_2SO_4	1-125 ml PE	✓
BOD, Alkalinity, Cl, SO_4, NO_2, NO_3, PO_4^{-3}	4°C		1- L PE	✓
Metals- Ca, Mg, Na, K, Mn, Fe	4°C	HNO_3	1- L PE	

OBSERVATIONS / NOTES:

FIELD RESULTS:

DO (Chemetrics K-7512) Range (0-12)	2 to 3	mg/L	7.06
DO (Chemetrics K-7501) Range (0-1)	—	mg/L	2.74
Carbon Dioxide (Chemetrics K-1910, 1920, 1925)	48	mg/L	4.32
Sulfide (Hach-DR-850 or 890)	0.0	mg/L	

3.2 → 7.2 SCREEN (TPVC)

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): SJConti

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Parris Island-Site 45
PROJECT NUMBER: N0502

WELL ID.: PAI 45 MW 04 SU
DATE: 10/17/01

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. LAMOTTE (NTU)	DO (mg/L)	Temp. (Celsius)	Salinity (%)	ORP (mV)	Comments (Cumulative Vol. & Color)
1210	2.74	200	–	–	–	–	–	–	–	INITIAL
1220	3.10	200	5.00	.679	100	8.57	22.5	0.0	242	
1240	3.18	200	4.63	.515	20	6.20	23.8	0.0	171	5.00 DRIFTING (PH)
1255	3.21	200	4.62	.466	12	5.77	23.3	0.0	187	
1310	3.24	200	4.58	.458	10	6.32	22.9	0.0	144	≈12L
1325	3.29	200	4.56	.452	4.5	5.98	23.0	0.0	138	≈15L CLEAR.
	SAMPLE @	1330 HRS.								

P. 2 of 2

SIGNATURE(S): SJ Conti

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: PAI Site 45
Project No.: N0502 CTO-127

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: PAI-GW~~45-MW~~ 45 0~~5~~4D-01
Sample Location: PAI-MW 0~~5~~4D SJC 1/4/02
Sampled By: SJC
C.O.C. No.: PAI-101701-2
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:					Lamotte			
Date: 10/17/01	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	Salinity
Time: 1710	Visual	Standard	mS/cm	°C	NTU	mg/l	mV	%
Method: Peristaltic Pump	CLEAR	5.76	16.6	22.3	2.4	3.19	-80	1.0

PURGE DATA:								
Date: 10/17/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	ORP	Salinity
Method: Peristaltic Pump								
Monitor Reading (ppm):								
Well Casing Diameter & Material								
Type: 2" Φ								
Total Well Depth (TD): 41.71								
Static Water Level (WL): 3.61								
One Casing Volume(gal/L): 23.5 ← WATER COLUMN - 6.2' IF USE 10' SCREEN -								
Start Purge (hrs): 1540								
End Purge (hrs): 1710								
Total Purge Time (min): 90								
Total Vol. Purged (gal/L): 18								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL Volatiles	4°C HCL	3-40 ml VOA Vials	✓

OBSERVATIONS / NOTES:

41.71
3.61
38.10

SCREEN 31.85 → 41.85 TPVC

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): SJ Conti

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Parris Island-Site 45
PROJECT NUMBER: N0502

WELL ID.: PAI 45 MW05D
DATE: 10/17/01

U-10 LAMOTTE

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	Salinity (%)	ORP (mV)	Comments (Cumulative Vol. & Color)
1540	3.61	200	—	—	—	—	—	—	—	INITIAL
~~1555~~ 1600	4.55	200	5.73	15.9	2.6	6.23	22.5	0.9	-13	CLEAR. NON TURB
1615	4.65	200	5.76	16.6	2.8	5.71	22.3	1.0	-78	" "
1630	4.70	200	5.75	16.6	2.5	4.60	22.5	1.0	-87	" "
1645	4.71	200	5.76	16.7	2.3	3.57	22.3	1.0	-77	" "
1700	4.72	200	5.75	16.7	2.5	3.31	22.3	1.0	-79	" "
1710	90min 4.73	200	5.76	16.6	2.4	3.19	22.3	1.0	-80	" "
	SAMPLE @ 1710 HRS. (3 VOAS)									
	90									
	200 / 18000									

A-255

SIGNATURE(S): SJConte

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: PAI Site 45
Project No.: N0502 CTO 127

Sample ID No.: PAI-GW- 0551-01 (45)
Sample Location: PAI-MW- 05SL (45)
Sampled By:
C.O.C. No.: PAI- 101701
Type of Sample:
[X] Low Concentration
[] High Concentration

[] Domestic Well Data
[X] Monitoring Well Data (NATURAL ATTENUATION)
[] Other Well Type:
[] QA Sample Type:

SAMPLING DATA: LAMOTTE

Date: 10/17/01	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	Salinity
Time: 1335	Visual	Standard	mS/cm	°C	NTU	mg/l	mV	%
Method: Peristaltic pump	Clear	5.1	1.19	24.2	4.09	5.82	-35	0.1

PURGE DATA:

Date: 10/17/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	ORP	Salinity
Method: Peristaltic pump								
Monitor Reading (ppm): -								
Well Casing Diameter & Material								
Type: PVC 2 inch								
Total Well Depth (TD): 14.02								
Static Water Level (WL): 3.98			(SEE LOW FLOW PURGE DATA SHEET)					
One Casing Volume(gal/L): 6.2L								
Start Purge (hrs): 1230								
End Purge (hrs): 1330								
Total Purge Time (min): 60								
Total Vol. Purged (gal/L): 9.5 L								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative		Container Requirements	Collected
Low Concentration VOC's	4°C	HCL	3-40 ml VOA Vials	✓
Methane, Ethane, Ethene	4°C	HCL	3-40 ml VOA Vials	✓
TOC	4°C	H_2SO_4	1-125 ml Amber	✓
COD	4°C	H_2SO_4	1-125 ml PE	✓
BOD, Alkalinity, Cl, SO_4, NO_2, NO_3, PO_4^{-3}	4°C		1- L PE	✓
Metals- Ca, Mg, Na, K, Mn, Fe	4°C	HNO_3	1- L PE	✓

OBSERVATIONS / NOTES:

FIELD RESULTS:

DO (Chemetrics K-7512) Range (0-12)	2 to 3	mg/L
DO (Chemetrics K-7501) Range (0-1)	-	mg/L
Carbon Dioxide (Chemetrics K-1910,1920,1925)	45	mg/L
Sulfide (Hach-DR-850 or 890)	~~0.2~~ JJB 10/17/01 0.02	mg/L

2.95 → 6.95 SCREEN (TPVC)

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Parris Island-Site 45
PROJECT NUMBER: N0502

WELL ID.: PAI-45-MW-055L → SJC 1/4/02
DATE: 10/17/01

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	Salinity (%)	ORP (mV)	Comments (Cumulative Vol. & Color)
1230	3.98	150								0 L Clear
1240	5.11	200	5.1	1.22	13.0	6.04	24.0	0.1	17	1.5 L Clear
1250	5.15	150	5.0	1.16	16.9	5.66	23.8	0.1	42	3.5 L Clear
1300	5.21	150	5.0	1.17	13.4	5.32	23.8	0.1	23	5.0 L Clear
1310	5.09	150	4.9	1.17	7.78	5.54	24.3	0.1	8	6.5 L Clear
1320	5.16	150	5.1	1.21	5.08	5.70	23.2	0.1	-16	8.0 L Clear
1330	5.27	150	5.1	1.19	4.09	5.82	24.2	0.1	-35	9.5 L Clear

A-257

SIGNATURE(S): JJB

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: PAI Site 45
Project No.: N0502 CTO-127

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: PAI-GW-45-05D-01
Sample Location: PAI-MW-45D
Sampled By: 45- JB 1/4/02
C.O.C. No.: PAI-101701-2
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA: Lamotte

Date: 10/17/01	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	Salinity
Time: 1705	Visual	Standard	mS/cm	°C	NTU	mg/l	mV	%
Method: Peristaltic Pump	Clear	6.3	1.22	23.4	1.42	4.88	-95	0.1

PURGE DATA:

Date: 10/17/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	ORP	Salinity
Method: Peristaltic Pump								
Monitor Reading (ppm): -								
Well Casing Diameter & Material								
Type: PVC 2 inch								
Total Well Depth (TD): 44.34								
Static Water Level (WL): 5.31								
One Casing Volume(gal/L): 24 L								
Start Purge (hrs): 1545								
End Purge (hrs): 1700								
Total Purge Time (min): 75 min								
Total Vol. Purged (gal/L): 15 L								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL Volatiles	4°C HCL	3-40 ml VOA Vials	✓

OBSERVATIONS / NOTES:

SCREEN 33.87 → 43.87 (TPVC)

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Parris Island-Site 45
PROJECT NUMBER: N0502

WELL ID.: PAI-45-MW-05D
DATE: 10/17/01

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	Salinity (%)	ORP (mV)	Comments (Cumulative Vol. & Color)
1545	5.31	200								0 L Clear
1600	5.40	200	5.9	0.98	2.73	4.68	23.9	0	168	3 L clear
1615	5.42	200	6.3	1.14	1.61	4.68	23.2	0.1	-64	6 L clear
1630	5.42	200	6.4	1.16	1.41	4.75	24.4	0.1	-62	9 L clear
1645	5.42	200	6.3	1.19	1.01	3.94	23.6	0.1	-86	12 L clear
1700	5.42	200	6.3	1.22	1.42	4.88	23.4	0.1	-95	15 L clear

A-259

SIGNATURE(S): _____

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

PAI-45-GW06-SU-01

Project Site Name:	MCRD PARRIS ISLAND	Sample ID No.:	PAI-45-~~TW~~ MW06(S)-0601
Project No.:	N0502	Sample Location:	~~PAI-45-TW-142-6-MW-S~~
		Sampled By:	BOB BALKOVEC
[] Domestic Well Data		C.O.C. No.:	6-6-01
[X] Monitoring Well Data		Type of Sample:	PAI-45-MW06-SU
~~[X] Temporary Well~~		[X] Low Concentration	SJC 1/4/02
[] QA Sample Type:		[] High Concentration	

SAMPLING DATA:

Date: 6/5/01	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	Notes:
Time: 1642	Visual	Standard	mS/cm	°C	NTU	mg/l	%	
Method: PERISTALTIC PUMP	HAZY	5.80	11.9	24.9	89	1.21	0.65	—

PURGE DATA:

Date: 6/5/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	Salinity %	Notes: TIME / FLOW ml/min	
Method: PERISTALTIC PUMP	700 ml	5.72	9.7	25.6	833	1.03	0.54	1620/140	4.01'
Monitor Reading (ppm): 0.0	1.4L	5.75	11.0	24.9	742	0.62	0.62	1625	4.40'
Well Casing Diameter & Material	2.1L	5.79	11.9	25.1	641	0.91	0.68	1630/140	
Type: 2" PVC ~~3/4" STAINLESS STEEL~~	2.8L	5.80	11.7	25.0	101	1.11	0.66	1635	5.40'
Total Well Depth (TD): 6.90	3.5L	5.80	11.9	24.9	89	1.21	0.65	1640/140	
Static Water Level (WL): 3.82									
One ~~Casing~~ WELL Volume (gal/L): .5									
Start Purge (hrs): 1615									
End Purge (hrs): 1640									
Total Purge Time (min): 25									
Total Vol. Purged (gal/L): 1									

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOCs	4 C / HCl	(3) 40 ML VIALS	✓

OBSERVATIONS / NOTES:

3/4"=0.023/FT
1" =0.04/FT

5" SCREEN 2.93 - 6.93 TPVC ~~9.8 → 14.8 (TPVC)~~ SJC 1/8/02

3.08' + .163 = .5 gal PER WELL VOLUME

Circle if Applicable:		Signature(s):
MS/MSD	Duplicate ID No.:	Robert Balkovec
—	—	

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Page 1 of 1

Project Site Name:	MCRD PARRIS ISLAND	Sample ID No.:	PAI-45-~~TW~~ ~~MW06(S)~~ ~~0601~~ PAI-45-GW06SL
Project No.:	N0502	Sample Location:	~~PAI-45-TW-~~ ~~[illegible]~~
		Sampled By:	BOB BALKOVEC
[] Domestic Well Data		C.O.C. No.:	6-6-01
[X] Monitoring Well Data		Type of Sample:	PAI-45-MW06SL
~~[X] Temporary Well~~		[X] Low Concentration	
[] QA Sample Type:		[] High Concentration	

1/4/02

SAMPLING DATA:

Date: 6/5/01	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	Notes:
Time: 1606	Visual	Standard	mS/cm	°C	NTU	mg/l	%	
Method: PERISTALTIC PUMP	CLEAR	4.88	0.771	23.5	3.2	1.41	0.03	—

PURGE DATA:

Date: 6/5/01	~~Volume~~ Time	pH	S.C.	Temp. (C)	Turbidity	DO	Salinity %	Notes:
Method: PERISTALTIC PUMP	1535	START						
Monitor Reading (ppm): 0.0	1540	5.37	1.15	25.1	33	1.16	0.05	2.75 mg/mL
Well Casing Diameter & Material	1545	4.81	0.792	23.8	10	1.21	0.03	2.75L
Type: ~~3/4" STAINLESS STEEL~~ 2" PVC	1550	4.84	0.782	23.8	8.2	1.40	0.03	WL=3.20
Total Well Depth (TD): 14.55	1555	4.87	0.770	23.4	6.1	1.29	0.03	5.5L
Static Water Level (WL): 3.42	1600	4.88	0.770	23.6	4.2	1.35	0.03	WL=3.95
One Casing Volume (gal/L): .81	1605	4.88	0.771	23.5	3.2	1.41	0.03	8.25L
Start Purge (hrs): 1535		END	PURGE					
End Purge (hrs): 1605								
Total Purge Time (min): 30								
Total Vol. Purged (gal/L): 2.2								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOCs	4 C / HCl	(3) 40 ML VIALS	✓

OBSERVATIONS / NOTES:

3/4"=0.023/FT
1" =0.04/FT

11.13 5.4g = 3 vol

5" SCREEN x .163 → ~~6.81 gal~~ → 9.59 → 14.59 (TPVC)

.81 gal = 1 vol 3L = 1 vol

Circle if Applicable:		Signature(s):
MS/MSD	Duplicate ID No.:	Robert Balkovec
—		

A-261

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: PAI Site 45
Project No.: N0502 CTO 127

Sample ID No.: PAI-GW-0645U
Sample Location: PAI-MW-0645U
Sampled By: 45 JJB
C.O.C. No.: PAI-101701
Type of Sample:
[X] Low Concentration
[] High Concentration

[] Domestic Well Data
[X] Monitoring Well Data (NATURAL ATTENUATION)
[] Other Well Type:
[] QA Sample Type:

SAMPLING DATA:					LAMOTTE			
Date: 10/17/01	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	Salinity
Time: 1005	Visual	Standard	mS/cm	°C	NTU	mg/l	mV	%
Method: Peristaltic pump	Clear	5.9	7.22	23.3	1.64	4.88	-53	0.4

PURGE DATA:								
Date: 10/17/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	ORP	Salinity
Method: Peristaltic pump								
Monitor Reading (ppm): -								
Well Casing Diameter & Material Type: PVC 2 inch								
Total Well Depth (TD): 6.78								
Static Water Level (WL): 3.15			(SEE LOW FLOW PURGE DATA SHEET)					
One Casing Volume(gal/L): 2.5 L								
Start Purge (hrs): 0850								
End Purge (hrs): 1000								
Total Purge Time (min): 70								
Total Vol. Purged (gal/L): 14 L								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative		Container Requirements	Collected
Low Concentration VOC's	4°C	HCL	3-40 ml VOA Vials	✓
Methane, Ethane, Ethene	4°C	HCL	3-40 ml VOA Vials	✓
TOC	4°C	H_2SO_4	1-125 ml Amber	✓
COD	4°C	H_2SO_4	1-125 ml PE	✓
BOD, Alkalinity, Cl, SO_4, NO_2, NO_3, PO_4^{-3}	4°C		1- L PE	✓
Metals- Ca, Mg, Na, K, Mn, Fe	4°C	HNO_3	1- L PE	✓

OBSERVATIONS / NOTES:

FIELD RESULTS:

DO (Chemetrics K-7512) Range (0-12)	4 to 5	mg/L
DO (Chemetrics K-7501) Range (0-1)	-	mg/L
Carbon Dioxide (Chemetrics K-1910,1920,1925)	30	mg/L
Sulfide (Hach-DR-850 or 890)	0	mg/L

3.73 ft of wat.

SCREEN 2.93 → 6.93 (TPVC)

Circle if Applicable:
MS/MSD
Duplicate ID No.: PAI-45-DUP-101701

Signature(s):

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Parris Island-Site 45
PROJECT NUMBER: N0502

WELL ID.: PA1-45-MW-06SU
DATE: 10/17/01

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	Salinity (%)	ORP (mV)	Comments (Cumulative Vol. & Color)
850	3.15	200								0L slightly Cloudy
0900	3.27	200 5.33 10/17/01	~~6.22~~	0.22	33.1	5.05	22.5	0.4	-4	2L slightly Cloudy
0915	3.31	200	5.57	7.10	15.50	4.5	22.0	0.4	-27	5L Clear
0930	3.34	200	5.7	7.14	7.62	4.6	22.9	0.4	-36	8L Clear
0940	3.39	200	5.8	7.17	3.79	4.44	23.2	0.4	-44	10L Clear
0950	3.40	200	5.8	7.2	2.05	4.9	23.1	0.4	-48	12L Clear
1000	3.41	200	5.9	7.22	1.64	4.88	23.3	0.4	-53	14L Clear

A-26W

SIGNATURE(S):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Page 1 of 1

PAI-45-GW07 SU-01

Project Site Name:	MCRD PARRIS ISLAND	Sample ID No.:	PAI-45-~~TW-~~ ~~[illegible]~~
Project No.:	N0502	Sample Location:	~~PAI-45-TW-~~ ~~[illegible]~~
		Sampled By:	BOB BALKOVEC
[] Domestic Well Data		C.O.C. No.:	6-12-01
[X] Monitoring Well Data		Type of Sample:	PAI-45-MW07SU
[X] ~~Temporary~~ Well		[X] Low Concentration	SJC 1/4/02
[] QA Sample Type:		[] High Concentration	

SAMPLING DATA:

Date: 6/11/01	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	Notes:
Time: 1220	Visual	Standard	mS/cm	°C	NTU	mg/l	%	
Method: PERISTALTIC PUMP	CLEAR	6.48	0.263	24.0	2.7	1.47	0.01	—

PURGE DATA:

Date: 6/11/01	TIME ~~Volume~~	pH	S.C.	Temp. (C)	Turbidity	DO	Salinity %	Notes:
Method: PERISTALTIC PUMP	INITIAL	7.04	0.271	24.2	145	2.10	0.01	300ml/min
Monitor Reading (ppm): 0.0	1200	6.65	0.263	24.0	31	1.98	0.01	
Well Casing Diameter & Material	1205	6.51	0.264	24.0	5.1	1.17	0.01	3L
Type: ~~3/4" STAINLESS STEEL~~ 2" PVC	1210	6.50	0.264	24.0	4.1	1.20	0.01	
Total Well Depth (TD): 7.00	1215	6.49	0.263	23.9	3.7	1.41	0.01	6L
Static Water Level (WL): 3.48	1217	6.48	0.263	24.0	2.7	1.47	0.01	6.6L
One Casing Volume (gal/L): .6	→ END PURGE							
Start Purge (hrs): 1155								
End Purge (hrs): 1217								
Total Purge Time (min): 22								
Total Vol. Purged (gal/L): 1.8								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOCs	4 C / HCl	(3) 40 ML VIALS	✓

OBSERVATIONS / NOTES:

3/4"=0.023/FT
1" =0.04/FT

3.52' x .163 = 2.2L = 1 vol

6.6 L = 3 vol

SCREEN 3.07 → 7.07 (TPVC)

WL READINGS
1200 = 3.60
1205 3.61
1210 3.60
1215 3.62

Circle if Applicable:

MS/MSD	Duplicate ID No.:	Signature(s):
—	—	Robert Balkovec

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

PAI 45-GW 07-SL-01

Project Site Name: MCRD PARRIS ISLAND
Project No.: N0502

[] Domestic Well Data
~~[X]~~ Monitoring Well Data
~~[X] Temporary Well~~
[] QA Sample Type:

Sample ID No.: ~~PAI 45 TW-GW07(A)-060~~ ~~PAI-45-TW-MW-07-3-ML-01~~
Sample Location:
Sampled By: BOB BALKOVEC
C.O.C. No.: 6-12-01
Type of Sample: PAI-45-MW07SL
[X] Low Concentration
[] High Concentration

1/4/02

SAMPLING DATA:

Date: 6/4/01	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	Notes:
Time: 1310	Visual	Standard	mS/cm	°C	NTU	mg/l	%	
Method: PERISTALTIC PUMP	CLEAR	5.59	0.380	22.4	.70	1.37	0.01	

PURGE DATA:

Date: 6/4/01	~~Time~~ Volume	pH	S.C.	Temp. (C)	Turbidity	DO	Salinity %	Notes:
Method: PERISTALTIC PUMP	INITIAL	6.03	0.344	22.5	4.7	0.58	0.01	400 ml/min
Monitor Reading (ppm): 0.0	1228	5.80	0.383	22.4	3.6	1.24	0.01	WL=4.10
Well Casing Diameter & Material	1233	5.80	0.376	22.4	2.1	1.41	0.01	4L
Type: ~~3/4" STAINLESS STEEL~~ 2" PVC	1238	5.65	0.380	22.4	1.0	1.59	0.01	WL=4.12
Total Well Depth (TD): 14.16'	1243	5.64	0.380	22.4	1.0	1.60	0.01	8L
Static Water Level (WL): 4.01'	1248	5.60	0.380	22.3	.8	1.44	0.01	WL=4.14
One Casing Volume (gal.): 1.6	1253	5.59	0.380	22.5	.7	1.30	0.01	12L
Start Purge (hrs): 1223	1258	5.59	0.380	22.4	.55	1.35	0.01	WL=4.13
End Purge (hrs): 1309	1303	5.60	0.379	22.4	.61	1.42	0.01	16L
Total Purge Time (min): 46	1309	5.59	0.380	22.4	.70	1.37	0.01	19L
Total Vol. Purged (gal.): 5	→ END PURGE							

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOCs	4 C / HCl	(3) 40 ML VIALS	✓

OBSERVATIONS / NOTES:

3/4"=0.023/FT
1" =0.04/FT

10.01' × 0.167 = 5 gal = 1 vol

SCREEN : 9.8 → 14.8 (TPVC)

Circle if Applicable:

MS/MSD	Duplicate ID No.:
✓	

Signature(s): Robert Balkovec

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: PAI Site 45
Project No.: N0502 CTO 127

[] Domestic Well Data
[X] Monitoring Well Data (~~NATURAL~~ A~~TTENUATION~~)
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: PAI-GW-07SL-01 (45)
Sample Location: PAI-MW-07SL
Sampled By: SJC
C.O.C. No.: PAI-101801-2
Type of Sample:
[X] Low Concentration
[] High Concentration

SJC 11/4/02

SAMPLING DATA:					LAMOTTE			
Date: 10/18/01	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	Salinity
Time: 1315	Visual	Standard	mS/cm	°C	NTU	mg/l	mV	%
Method: Peristaltic pump	CLEAR	4-8	.386	23.9	3.8	1.95	—	0.01

PURGE DATA:								
Date: 10/18/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	ORP	Salinity
Method: Peristaltic pump								
Monitor Reading (ppm):								
Well Casing Diameter & Material								
Type: 2" ϕ PVC								
Total Well Depth (TD): 14.67								
Static Water Level (WL): 3.27			(SEE LOW FLOW PURGE DATA SHEET)					
One Casing Volume(gal/(L)): 7±								
Start Purge (hrs): 1210								
End Purge (hrs):								
Total Purge Time (min):								
Total Vol. Purged (gal/L):								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative		Container Requirements	Collected
Low ~~Concentration VOC~~'s	4°C	HCL	3-40 ml VOA Vials	NA
~~Methane, Ethane, Ethene~~	4°C	HCL	3-40 ml VOA Vials	NA
~~TOC~~	4°C	H_2SO_4	1-125 ml Amber	NA
~~COD~~	4°C	H_2SO_4	1-125 ml PE	NA
~~BOD, Alkalinity, Cl, SO_4, NO_2, NO_3, PO_4^{-3}~~	4°C		1- L PE	NA
~~Metals- Ca, Mg, Na, K, Mn, Fe~~	4°C	HNO_3	1- L PE	NA
			TOOK 4-1L AMBER	✓
			TOOK 8-40ml VOAS	✓

OBSERVATIONS / NOTES:

FIELD RESULTS:

DO (Chemetrics K-7512) Range (0-12)	—	mg/L
DO (Chemetrics K-7501) Range (0-1)	—	mg/L
Carbon Dioxide (Chemetrics K-1910,1920,1925)	—	mg/L
Sulfide (Hach-DR-850 or 890)	—	mg/L

14.67
3.27
11.40

SCREEN 9.8 → 14.8 (TPVC)

Circle if Applicable:		Signature(s):
MS/MSD	Duplicate ID No.:	SJ Conti

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Parris Island-Site 45
PROJECT NUMBER: N0502

WELL ID.: PAI 45 MW 07 SL
DATE: 10/18/01
USED: LAMOTTE HORIBA U10

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	Salinity (%)	ORP (mV)	Comments (Cumulative Vol. & Color)
1210	3.27	200	—	—	—	—	—	—	—	CLEAR. (INITIAL)
1220	3.45	200	5.04	.396	31.8	.87	24.4	0.01	—	"
1230	3.45	200	4.81	.389	17.1	1.64	23.9	0.01	—	"
1240	3.48	200	4.79	.388	10.4	1.41	24.3	0.01	—	"
1250	3.48	200	4.74	.385	4.4	1.23	24.3	0.01	—	"
1300	3.48	200	4.81	.387	4.0	2.15	23.8	0.01	—	"
1310	3.49	200	4.80	.386	3.8	1.95	23.9	0.01	—	"
		Sample @ 1315 HRS								

A-26

SIGNATURE(S): SJ Conti

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name:	MCRD PARRIS ISLAND	Sample ID No.:	PAI-45-GW08SU-01 ~~PAI-45-TW-[illegible]~~
Project No.:	N0502	Sample Location:	~~PAI-45-TW-[illegible]~~
		Sampled By:	BOB BALKOVEC
[] Domestic Well Data		C.O.C. No.:	6/12/01
[X] Monitoring Well Data		Type of Sample:	PAI-45-MW08SU
~~[X] Temporary Well~~		[X] Low Concentration	
[] QA Sample Type:		[] High Concentration	

SJC 1/4/02

SAMPLING DATA:

Date: 6/11/01	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	Notes:
Time: 1434	Visual	Standard	mS/cm	°C	NTU	mg/l	%	
Method: PERISTALTIC PUMP	CLEAR	5.60	0.415	24.3	6.4	0.61	0.01	—

PURGE DATA:

Date: 6/11/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	Salinity %	Notes:
Method: PERISTALTIC PUMP	INITIAL	5.82	0.420	25.5	721	2.30	0.01	CRWLISH
Monitor Reading (ppm): 0.0	1412	5.62	0.424	24.6	375	1.79	0.01	WL=3.74
Well Casing Diameter & Material	1417	5.61	0.420	24.5	110	1.11	0.01	3L
Type: 3/~~4" STAINLESS STEEL~~ 2" PVC	1422	5.60	0.416	24.4	9.8	0.88	0.01	WL=3.80
Total Well Depth (TD): 7.02'	1427	5.60	0.413	24.3	7.3	0.70	0.01	5.5L
Static Water Level (WL): 3.30	1432	5.60	0.415	24.3	6.4	0.61	0.01	6.9L
One Casing Volume (gal/L): .6	→ END PURGE							
Start Purge (hrs): 1407								
End Purge (hrs): 1432								
Total Purge Time (min): 25								
Total Vol. Purged (gal/L): 1.8								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOCs	4 C / HCl	(3) 40 ML VIALS	✓

OBSERVATIONS / NOTES:

3/4"=0.023/FT
1" =0.04/FT

3.68' x .163 6.8L ≈ 3 vol

SCREEN 3.07 → 7.07 (TPVC)

Circle if Applicable:		Signature(s):
MS/MSD	Duplicate ID No.:	Robert Balkovec

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

PAI-45-GW08SL-01

Project Site Name: MCRD PARRIS ISLAND
Project No.: N0502

Sample ID No.: ~~PAI-45-TW-MW08SL-01~~
Sample Location: ~~PAI-45-TW-MW08SL~~
Sampled By: BOB BALKOVEC
C.O.C. No.: 6-12-01
Type of Sample: PAI-45-MW08SL

[] Domestic Well Data
[X] ~~Monitoring~~ Well Data
[X] ~~Temporary~~ Well
[] QA Sample Type:

[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 6/11/01 Time: 1417	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	Salinity %	Notes:
Method: PERISTALTIC PUMP	CLEAR	5.34	0.343	23.2	3.5	0.61	0.01	—

PURGE DATA:

Date: 6/11/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	Salinity %	Notes:
Method: PERISTALTIC PUMP	TAP WATER	5.39	0.320	23.4	800	0.91	0.01	400 ml/min
Monitor Reading (ppm): 0.0	1330	5.36	0.302	22.7	703	0.45	0.01	WL=3.57
Well Casing Diameter & Material	1335	5.36	0.348	22.9	78	0.56	0.01	4L
Type: 3/4" ~~STAINLESS STEEL~~ 2" PVC	1340	5.36	0.343	23.0	5	0.50	0.01	WL=3.58
Total Well Depth (TD): 14.11'	1345	5.36	0.343	23.0	4.2	0.67	0.01	8L
Static Water Level (WL): 3.20'	1350	5.36	0.342	23.1	3.7	0.71	0.01	WL=3.58
One Casing Volume (gal/L): 1.7	1355	5.35	0.342	23.1	3.6	0.50	0.01	12L
Start Purge (hrs): 1325	1400	5.35	0.343	23.1	4.1	0.43	0.01	WL 3.59
End Purge (hrs): 1415	1405	5.35	0.343	23.2	4.2	0.49	0.01	16L
Total Purge Time (min): 50	1410	5.35	0.343	23.3	3.7	0.54	0.01	WL=3.58
Total Vol. Purged (gal/L): 5.3	1415	5.34	0.343	23.2	3.5	0.61	0.01	20L (5.3gal)

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOCs	4 C / HCl	(3) 40 ML VIALS	✓

OBSERVATIONS / NOTES:

3/4"=0.023/FT
1" =0.04/FT

1041 5.3gal=3gal = 20.7L

SCREEN 9.8→14.8 (TPVC)

Circle if Applicable:

MS/MSD	Duplicate ID No.:
✓	

Signature(s): Robert Balkovec

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: PAI Site 45
Project No.: N0502 CTO 127

[] Domestic Well Data
[X] Monitoring Well Data (NATURAL ATTENUATION)
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: PAI-GW-~~08SU-01~~ 45 0850-01 JJB 10/18/01
Sample Location: PAI-MW-08SU
Sampled By: 45 JJB
C.O.C. No.: PAI-101701-2
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:					LAMOTTE			
Date: 10/18/01	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	Salinity
Time: 0950	Visual	Standard	mS/cm	°C	NTU	mg/l	mV	%
Method: Peristaltic pump	Clear	5.0	0.43	21.4	2.06	5.26	27	0

PURGE DATA:								
Date: 10/18/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	ORP	Salinity
Method: Peristaltic pump								
Monitor Reading (ppm): –								
Well Casing Diameter & Material								
Type: 2 in PVC								
Total Well Depth (TD): 7.02								
Static Water Level (WL): 3.15			(SEE LOW FLOW PURGE DATA SHEET)					
One Casing Volume(gal/L):								
Start Purge (hrs): 0840								
End Purge (hrs): 0940								
Total Purge Time (min): 60								
Total Vol. Purged (gal/L): 10.5 L								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative		Container Requirements	Collected
Low Concentration VOC's	4°C	HCL	3-40 ml VOA Vials	✓
Methane, Ethane, Ethene	4°C	HCL	3-40 ml VOA Vials	✓
TOC	4°C	H_2SO_4	1-125 ml Amber	✓
COD	4°C	H_2SO_4	1-125 ml PE	✓
BOD, Alkalinity, Cl, SO_4, NO_2, NO_3, PO_4^{-3}	4°C		1- L PE	✓
Metals- Ca, Mg, Na, K, Mn, Fe	4°C	HNO_3	1- L PE	✓

OBSERVATIONS / NOTES:

FIELD RESULTS:

DO (Chemetrics K-7512) Range (0-12)	3 to 4	mg/L
DO (Chemetrics K-7501) Range (0-1)	–	mg/L
Carbon Dioxide (Chemetrics K-1910,1920,1925)	150	mg/L
Sulfide (Hach-DR-850 or 890)	0	mg/L

Circle if Applicable:

MS/MSD	Duplicate ID No.:
–	–

Signature(s): JJB

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Parris Island-Site 45
PROJECT NUMBER: N0502
WELL ID.: PAI-45-MW-08SU
DATE: 10/18/01

0840 3.15 200 0 L Orangish

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	Salinity (%)	ORP (mV)	Comments (Cumulative Vol. & Color)
~~0840~~	~~3.15~~ 3.64	200	5.0	0.393	79	4.9	21.5	0	167	~~0 L~~ 2 L JJB 10/18/01 Orangish
0850 — JJB 10/18/01 0900	3.65	200	4.9	0.410	20.5	5.02	21.8	0	60	4 L Clearing up
0910	3.74	200	5.0	0.417	13.7	5.12	21.9	0	28	6 L Clear
0920	3.84	150	5.0	0.422	4.64	4.66	22.4	0	22	7.5 L Clear
0930	3.80	150	5.1	0.423	1.95	5.06	21.7	0	35	9.0 L Clear
0940	3.85	150	5.0	0.430	2.06	5.26	21.4	0	27	10.5 L Clear

SIGNATURE(S): JJB

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: PAI SITE 45
Project No.: N0502

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: PAI 45 GW 09D01
Sample Location: PAI 45 MW 09D
Sampled By: SJC
C.O.C. No.: PAI 120901
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 12/9/01	Color	pH	S.C.	Temp.	Turbidity	DO	TBD	TBD
Time: 1335	Visual	Standard	mS/cm	°C	NTU	mg/l		ORP
Method: PERISTALTIC	CLEAR	7.04	1.25	23.81	4.8	3.95		-93 mV

PURGE DATA:

Date: 12/9/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	TBD	TBD
Method: PERISTALTIC								
Monitor Reading (ppm): 0								
Well Casing Diameter & Material								
Type: 2" PVC								
Total Well Depth (TD): 41.46								
Static Water Level (WL): 4.67								
One Casing Volume(gal/L): 23								
Start Purge (hrs): 1130 HRS								
End Purge (hrs): 1330 HRS								
Total Purge Time (min): 120								
Total Vol. Purged (gal/L): 72								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOCS	4°C / HCL	3 - 40 ml VOAS	✓

OBSERVATIONS / NOTES:

41.46
4.67
36.79

SCREEN 31.46 - 41.46 TPVC

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): SJ Corth

TBD: To Be Determined

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: PAI SITE 45
PROJECT NUMBER: N0502
WELL ID.: PAI 45 MW 09 D
DATE: 12/9/01

LAMOTTE

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	Salinity (%)	ORP (mV)	Comments (Cumulative Vol. & Color)
1130	4.67	0.6	-	-	-	-	-	-	-	CLEAR - NON TURB
1140	5.68	0.6	7.25	0.91	12.7	4.72	23.63	0	-108	6 L " "
1150	5.70	0.6	7.15	1.27	9.8	4.80	23.74	0	-102	12 L " "
1200	5.72	0.6	7.13	1.26	4.1	4.78	23.76	0	-98	18 L " "
1210	5.71	0.6	7.08	1.27	10.3	6.73	23.78	0	-100	24 L (1 VOL)
1220	5.72	0.6	7.09	1.25	6.4	4.39	23.72	0	-99	30 L
1230	5.72	0.6	7.08	1.26	8.1	4.75	23.72	0	-98	36 L
1240	5.72	0.6	7.09	1.22	5.9	4.13	23.77	0	-96	42 L
1250	5.72	0.6	7.07	1.25	5.3	3.92	23.76	0	-94	48 L (2 VOL)
1300	5.72	0.6	7.06	1.24	5.7	3.47	23.80	0	-94	54 L
1310	5.72	0.6	7.05	1.25	8.2	3.87	23.86	0	-93	60 L
1320	5.75	0.6	7.06	1.24	4.4	4.10	23.80	0	-94	66 L
1330	5.75	0.6	7.04	1.25	4.8	3.95	23.81	0	-93	72 L (3+ VOL)
		SAMPLE @		1335	HRS					
	120									
	-6									
	72.0 L									
										pH - Fluctuates each time from ~ 7.05 7.15. ? wont stabilize.

60m
110m
120

SIGNATURE(S): SJ Conti

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: PAI Site 45
Project No.: N0502 CTO-127

[] Domestic Well Data
[] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: PAI-GW-45 10D-01
Sample Location: PAI-MW-10D
Sampled By: SSC
C.O.C. No.: PAI 101701-2
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 10/17/01	Color	pH	S.C.	Temp.	Lamotte Turbidity	DO	ORP	Salinity
Time: 1900	Visual	Standard	mS/cm	°C	NTU	mg/l	mV	%
Method: Peristaltic Pump	CLEAR	5.92	1.34	21.2	4.0	5.89	-98	0.1

PURGE DATA:

Date: 10/17/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	ORP	Salinity
Method: Peristaltic Pump								
Monitor Reading (ppm):								
Well Casing Diameter & Material Type: 2" PVC								
Total Well Depth (TD): 41.5								
Static Water Level (WL): 3.92								
One Casing Volume(gal/L): 6.2	BASED ON 10' SCREEN							
Start Purge (hrs): 1745								
End Purge (hrs): 1900								
Total Purge Time (min): 75								
Total Vol. Purged (gal/L) 15								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL Volatiles	4°C HCL	3-40 ml VOA Vials	✓

OBSERVATIONS / NOTES:

SCREEN 31.61 → 41.61 (TPVC)

Circle if Applicable:

MS/MSD

Duplicate ID No.: PAI45 DUP 101701-2

Signature(s): S Conti

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Parris Island-Site 45 **WELL ID.:** PAI 45 MW 10D
PROJECT NUMBER: N0502 **DATE:** 10-17-01

			U-10	U-22	LAMOTTE	U-22	U-22	U-22	U-22	
Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	Salinity (%)	ORP (mV)	Comments (Cumulative Vol. & Color)
1745	3.92	200	—	—	—	—	—	—	—	SL. TURBID, CLOUDY
1800	4.22	200	5.97	1.33	5.6	4.55	22.5	0.1	-91	CLEAR
1810	4.25	200	5.56	1.27	—	5.29	22.6	0.1	-97	"
1820	4.25	200	5.54	1.33	2.5	4.57	23.2	0.1	-102	"
1830	4.25	200	5.75	1.34	2.9	4.73	21.7	0.1	-58?	"
1840	4.28	200	5.86	1.36	2.5	5.02	21.4	0.1	-100	"
1850	4.29	200	5.90	1.35	3.5	5.80	21.3	0.1	-99	"
1900	4.30	200	5.92	1.34	4.0	5.89	21.2	0.1	-98	"
										15 L
	SAMPLE @	1900								
	75 min									U-10 - Reading
	200/15000									3.79 in 4.00 STANDARD
										U-22 Reads
										4.54 in 4.00 STANDARD.

SIGNATURE(S): SJ Conte

PAGE 2 OF 2

A-215

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: PAI SITE 45
Project No.: N0502

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: PAI 45GW11D-01
Sample Location: PAI 45 MW11D
Sampled By: SJC
C.O.C. No.: PAI 120901
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA: MV

Date: 12/9/01 Time: 1105 Method: PERISTALTIC	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	TBD	TBD ORP
	CLEAR	5.92	1.34	21.2	4	5.89		-98

PURGE DATA:

Date: 12/9/01	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	TBD	TBD
Method: PERISTALTIC								
Monitor Reading (ppm): 0								
Well Casing Diameter & Material Type: 2"								
Total Well Depth (TD): 41.70								
Static Water Level (WL): 4.13								
One Casing Volume(gal/L): 23.4								
Start Purge (hrs): 0830								
End Purge (hrs): 1100								
Total Purge Time (min): 150								
Total Vol. Purged (gal/L): (72)								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCL VOCs	4°C/HCL	3- 40ml VOAs	✓

OBSERVATIONS / NOTES:

41.70
4.13
37.57

SCREEN 31.7 → 41.7 (TPVC)

Circle if Applicable:
MS/MSD | Duplicate ID No.:

Signature(s): SJ Conti

TBD: To Be Determined

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: PAI 45 **WELL ID.:** PAI 45 MW 11D
PROJECT NUMBER: N0502 **DATE:** 12-9-01

LAMOTTE

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	Salinity (%)	ORP (mV)	Comments (Cumulative Vol. & Color)
0830	4.13	.60	—	—	—	—	—	—	—	—
0840	6.74	.60	6.67	11.6	4.58	4.60	22.20	0.7	-46	6L CLEAR NON TURB
0850	11.50	.60	7.03	11.1	14.30	3.26	22.31	0.6	-60	12L " SL "
0900	15.60	.60	7.07	10.9	12.50	3.57	21.90	0.6	-25	18L " "
0910	19.90	.60	7.01	10.8	22.80	3.53	22.39	0.6	-21	24L (1VOL)
0920	23.45	.60	7.01	10.8	76.40	3.60	22.04	0.6	-23	30L
0930	26.05	.60	7.03	10.4	489.00	3.35	22.50	0.6	-22	36L
0940	28.20	.40	7.03	10.7	61.0	4.11	22.17	0.6	-14	40L
0950	29.05	.40	7.00	11.1	18.8	3.84	22.09	0.6	-11	44L
1000	29.32	.40	7.02	11.4	11.2	4.20	21.99	0.6	-21	48L (2VOL)
1010	29.47	.40	7.00	11.4	8.57	4.24	22.04	0.6	-35	52L
1020	29.55	.40	6.99	11.7	6.99	5.24	22.10	0.7	-26	56L
1030	29.58	.40	7.00	11.7	6.59	5.38	21.99	0.7	-23	60L
1040	29.60	.40	6.99	11.8	6.10	5.31	21.98	0.7	-28	64L
1050	29.60	.40	6.98	11.8	5.85	5.36	22.05	0.7	-31	68L
1100	29.58	.40	6.98	11.9	5.7	5.34	21.98	0.7	-32	72L (3VOL)
										FLOW RATE LESS
	SAMPLE AT	1105	HRS	(3 VOAS)						AS WL DROPS.

SIGNATURE(S): SJ Conti

A-217

APPENDIX A-9

WELL PERMITS

PROMOTE PROTECT PROSPER
2600 Bull Street
Columbia, SC 29201-1708

MONITORING WELL APPROVAL

Approval is hereby granted to: Commanding Officer
Department of the Navy
SOUTHNAVFACENGCOM
ATTN: Art Sanford (Code 1862)
2155 Eagle Drive
N. Charleston, SC 29406

Date of Issue: 5 February, 2001

Approval Number: HW-01-012

Facility: Marine Corps Recruit Depot
Parris Island, South Carolina
Beaufort County
SC6 170 022 767

For the installation of twenty-five (25) initial difect-push (DPT) groundwater sampling points, and up to ten (10) additional direct-push groundwater sampling points at SWMU-45 as follows:

1) Twenty-five (25) initial DPT groundwater sampling points to be installed at the locations specified on the attached Figure 7-2, at the depths specified in Table 7-2 (attached).

2) Up to ten (10) additional DPT groundwater sampling points. The locations and depths to be determined after reviewing the data generated from the initial DPT sampling.

Conditions:

1) That a driller certified to operate in the State of South Carolina must install the well. And that the certified well driller must be present during all phases of drilling, construction, and completion of this monitoring well.

2) That the latitude, longitude, surveyed elevation, boring and/or geologist log, and actual (as built) construction details for this monitoring well be submitted to the Department within thirty (30) days after installation.

3) This monitoring well must be properly developed until clear, sediment-free water samples are obtained. Specific conductance, temperature, turbidity, and pH measurements should be taken during development. A log recording the values of

these parameters should be maintained during development of the well. This log should be submitted with the "as-built" construction details required by Condition 2 above.

4) All well construction and sampling derived wastes, including but not limited to, drill cuttings, drilling fluids, development and purge water, must be managed properly and in accordance with all applicable state and federal requirements. If containerized, each vessel shall be clearly labeled with regard to contents, source and date of activity.

5) A minimum of (48) hours prior to initiation of drilling activities, provide notice to James White, District Hydrogeologist, at Low Country District EQC Office (843)522-9097.

This approval is pursuant to the provisions of Section 44-55-40 of the 1976 South Carolina Code of Laws and the Department of Environmental Control's Regulation R.61-71.

Approval granted by:

Donald C. Hargrove, Hydrogeologist
Bureau of Land and Waste Management
South Carolina Department of Health and
Environmental Control

Attachment: Proposed Direct-Push Groundwater Sampling Locations Figure 7-2.
Table 7-2: Summary of Groundwater Sampling at SWMU-45.

cc: Jerry Stamps, Corrective Action Engineering
James White, Low Country District EQC
Robert Pope, Federal Facilities Section, USEPA Region IV

RECEIVED
FEB 07 2001
Land... Management

TABLE 7-2

SUMMARY OF GROUNDWATER SAMPLING
SITE 45 - MWR DRY CLEANING FACILITY
MCRD PARRIS ISLAND, SOUTH CAROLINA
PAGE 1 OF 2

Sample Location	Sample Designation	Sample Depth (ft below ground surface)	Sample Analysis	
			QT VOCs	Soil Logging[3]
PAI-45-TW01	PAI-45-TW-01-07	7	•	•
	PAI-45-TW-01-18	18[4]	•	•
PAI-45-TW02	PAI-45-TW-02-07	7	•	•
	PAI-45-TW-02-18	18[4]	•	•
PAI-45-TW03	PAI-45-TW-03-07	7	•	•
	PAI-45-TW-03-18	18[4]	•	•
PAI-45-TW04	PAI-45-TW-04-07	7	•	•
	PAI-45-TW-04-18	18[4]	•	•
PAI-45-TW05	PAI-45-TW-05-07	7	•	•
	PAI-45-TW-05-18	18[4]	•	•
	PAI-45-TW-05-40	40[5]	•	•
PAI-45-TW06	PAI-45-TW-06-07	7	•	•
	PAI-45-TW-06-18	18[4]	•	•
PAI-45-TW07	PAI-45-TW-07-07	7	•	•
	PAI-45-TW-07-18	18[4]	•	•
PAI-45-TW08	PAI-45-TW-08-07	7	•	•
	PAI-45-TW-08-18	18[4]	•	•
	PAI-45-TW-08-40	40[5]	•	•
PAI-45-TW09	PAI-45-TW-09-07	7	•	•
	PAI-45-TW-09-18	18[4]	•	•
PAI-45-TW10	PAI-45-TW-10-07	7	•	•
	PAI-45-TW-10-18	18[4]	•	•
	PAI-45-TW-10-40	40[5]	•	•
PAI-45-TW11	PAI-45-TW-11-07	7	•	•
	PAI-45-TW-11-18	18[4]	•	•
	PAI-45-TW-11-40	40[5]	•	•
PAI-45-TW12	PAI-45-TW-12-07	7	•	•
	PAI-45-TW-12-18	18[4]	•	•
PAI-45-TW13	PAI-45-TW-13-07	7	•	•
	PAI-45-TW-13-18	18[4]	•	•
PAI-45-TW14	PAI-45-TW-14-07	7	•	•
	PAI-45-TW-14-18	18[4]	•	•
	PAI-45-TW-14-40	40[5]	•	•
PAI-45-TW15	PAI-45-TW-15-07	7	•	•
	PAI-45-TW-15-18	18[4]	•	•
PAI-45-TW16	PAI-45-TW-16-07	7	•	•
	PAI-45-TW-16-18	18[4]	•	•
PAI-45-TW17	PAI-45-TW-17-07	7	•	•
	PAI-45-TW-17-18	18[4]	•	•
PAI-45-TW18	PAI-45-TW-18-07	7	•	•
	PAI-45-TW-18-18	18[4]	•	•
PAI-45-TW19	PAI-45-TW-19-07	7	•	•
	PAI-45-TW-19-18	18[4]	•	•
PAI-45-TW20	PAI-45-TW-20-07	7	•	•
	PAI-45-TW-20-18	18[4]	•	•
PAI-45-TW21	PAI-45-TW-21-07	7	•	•
	PAI-45-TW-21-18	18[4]	•	•

TABLE 7-2

**SUMMARY OF GROUNDWATER SAMPLING
SITE 45 - MWR DRY CLEANING FACILITY
MCRD PARRIS ISLAND, SOUTH CAROLINA
PAGE 2 OF 2**

Sample Location	Sample Designation	Sample Depth (ft below ground surface)	Sample Analysis	
			QT VOCs	Soil Logging[3]
PAI-45-TW22	PAI-45-TW-22-07	7	•	•
	PAI-45-TW-22-18	18[4]	•	•
PAI-45-TW23	PAI-45-TW-23-07	7	•	•
	PAI-45-TW-23-18	18[4]	•	•
PAI-45-TW24	PAI-45-TW-24-07	7	•	•
	PAI-45-TW-24-18	18[4]	•	•
PAI-45-TW25	PAI-45-TW-25-07	7	•	•
	PAI-45-TW-25-18	18[4]	•	•

Notes:

1. Approximately ten additional wells may be installed to further delineate the extent of groundwater contamination.
2. Additional permanent wells may be installed in downgradient locations.
3. DNAPL screening will also be conducted if significant PID readings are obtained (greater than 50 ppm).
4. To be sampled above the Hawthorn Formation. The Hawthorn formation is anticipated to occur at a depth of approximately 20 feet bgs.
5. To be sampled in a water-bearing zone below the Hawthorn formation at a maximum depth of 40 ft bgs. If a water-bearing zone is not observed, a sample will not be collected.
6. Natural Attenuation sampling will be performed on five established monitoring wells after an initial round of sampling results have been analyzed.

TBD = To be determined

D H E C
PROMOTE PROTECT PROSPER
2600 Bull Street
Columbia, SC 29201-1708

MONITORING WELL APPROVAL

Approval is hereby granted to:

Commanding Officer
Department of the Navy
SOUTHNAVFACENGCOM
ATTN: Art Sanford (Code 1862)
2155 Eagle Drive
N. Charleston, SC 29406

Date of Issue: 1 October, 2001

Approval Number: HW-01-074

Facility: Marine Corps Recruit Depot
Parris Island, South Carolina
Beaufort County
SC6 170 022 767

For the installation of three (3) piezometers, screened in the shallow portion of the surficial aquifer, one (1) permanent monitoring well screened in the shallow portion of the surficial aquifer, and up to five (5) permanent monitoring wells screened in the deeper portion of the surficial aquifer at SWMU-45 as follows:

1) Three (3) shallow piezometers to be installed at the locations specified on Figure 1 (attached), at the depths specified in Table 1 (attached).

2) One (1) shallow permanent monitoring well to be installed as specified on Fig. 1 and Table 1.

3) Up to five (5) deep permanent monitoring wells to be installed as specified on Fig. 1 and Table 1.

Conditions:

1) That a driller certified to operate in the State of South Carolina must install the well. And that the certified well driller must be present during all phases of drilling, construction, and completion of these monitoring wells.

2) That the latitude, longitude, surveyed elevation, boring and/or geologist log, and actual (as built) construction details for these monitoring wells (piezometers included) be submitted to the Department within thirty (30) days after installation.

DD010747.DCH

3) These monitoring wells must be properly developed until clear, sediment-free water samples are obtained. Specific conductance, temperature, turbidity, and pH measurements should be taken during development. A log recording the values of these parameters should be maintained during development of each well. This log should be submitted with the "as-built" construction details required by Condition 2 above.

4) All well construction and sampling derived wastes, including but not limited to, drill cuttings, drilling fluids, development and purge water, must be managed properly and in accordance with all applicable state and federal requirements. If containerized, each vessel shall be clearly labeled with regard to contents, source and date of activity.

5) A minimum of (48) hours prior to initiation of drilling activities, provide notice to Russell Berry, at the Low Country District EQC Office (843) 846-1030, and myself, Don Hargrove, at (803) 896-4033.

This approval is pursuant to the provisions of Section 44-55-40 of the 1976 South Carolina Code of Laws and the Department of Environmental Control's Regulation R.61-71.

Approval granted by:

Donald C. Hargrove, Hydrogeologist
Bureau of Land and Waste Management
South Carolina Department of Health and
Environmental Control

Attachment: Figure 1: Proposed Monitoring Well Locations at SWMU-45.
Table 1: Summary of Groundwater Sampling at SWMU-45.

cc: Jerry Stamps, Corrective Action Engineering
Russell Berry, Low Country District EQC
Robert Pope, Federal Facilities Section, USEPA Region IV

APPENDIX B

HYDROGEOLOGICAL AND PUMP TEST DATA

B-1 SLUG TEST CALCULATIONS
B-2 PUMP TEST DATA
B-3 GROUNDWATER FLOW/PARTICLE TRACK MONITORING

APPENDIX B-1

SLUG TEST CALCULATIONS

CALCULATION WORKSHEET Order No. 19116 (01-91) PAGE 1 OF

CLIENT	JOB NUMBER
PARRIS IS.	N0502

SUBJECT: SLUG TEST CALCS : WELL NO : PZ 09 S

BASED ON	DRAWING NUMBER

BY	CHECKED BY	APPROVED BY	DATE
SJC 12-19-01	JK 12-28-01		

HVORSLEV

$$K = \frac{r^2 \ln(L/R)}{2L\,T_o}$$

$$= \frac{(.083)^2 \ln(10/.375)}{2(10)(.165)}$$

$$= \frac{(.083)^2 (3.28)}{3.3}$$

$$= \quad /$$

$$= 6.85 \times 10^{-3} \text{ ft/min}$$

$$= 3.48 \times 10^{-3} \text{ cm/sec}$$

$$= \underline{10} \text{ ft/day}$$

SEE PRINTOUT FOR MORE DATA

t (min)	H-h/H-Ho
0 - 2.136	1.00
.05 - .787	.37
.10 - .559	.26
.15 - .438	.21
.20 - .374	.18
.30 - .318	.15
.40 - .283	.13
.50 - .268	

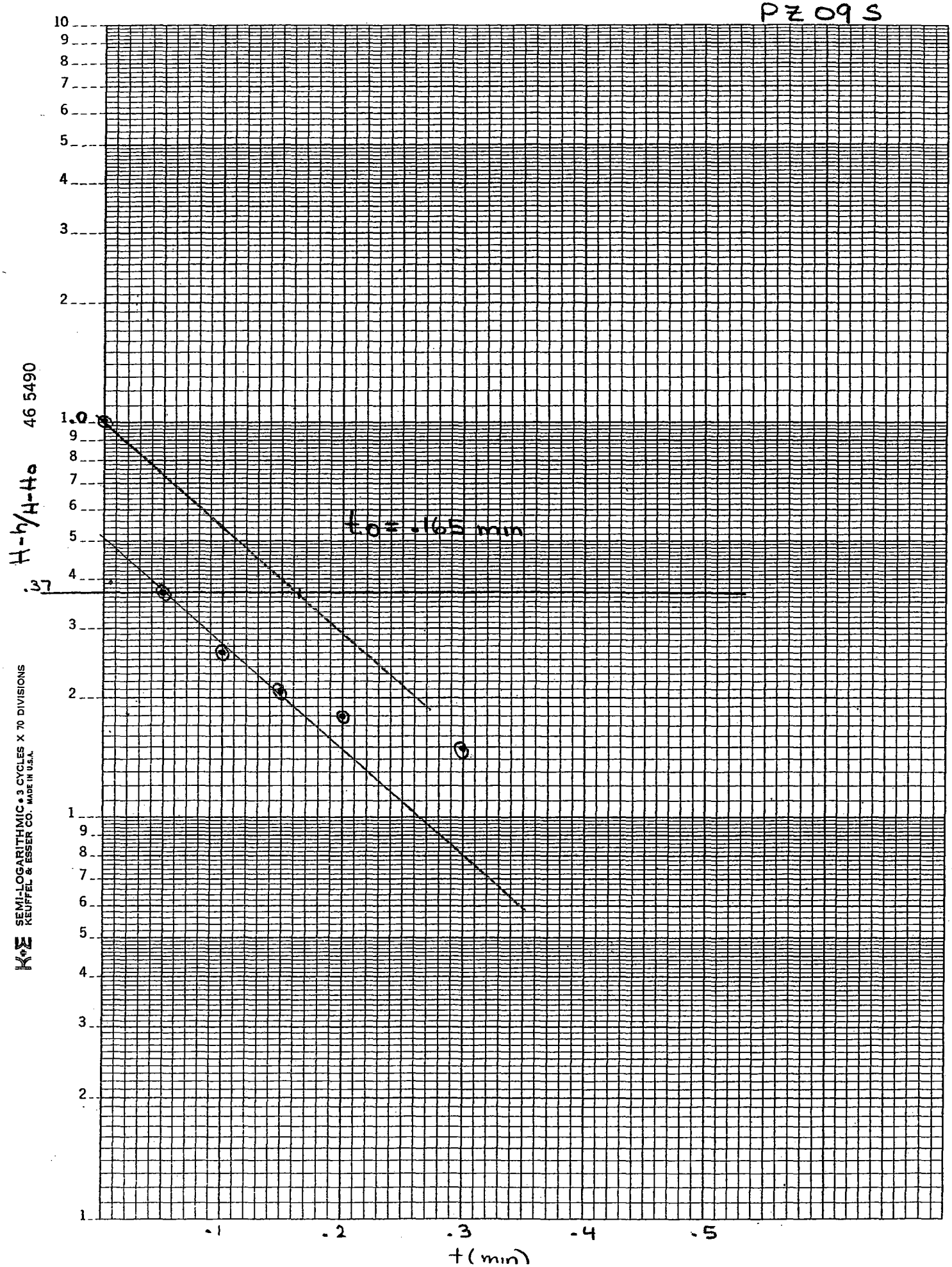
r = 1" ÷ 12 = .083'

L = 10'

R = 9"/12/2 .375

.05 To = .165m (from plot)

PZ09S


H-h/H-Ho
1.0
.37
to=.165 min
t (min)
.1
.2
.3
.4
.5
46 5490
K&E SEMI-LOGARITHMIC • 3 CYCLES X 70 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.

B-2

IN-SITU HYDRAULIC CONDUCTIVITY TESTING	Number	

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

PROJECT NAME: PAI-SITE 45 WELL/BORING NO.: PZ09S

PROJECT NO.: N0502 GEOLOGIST: CONTI

WELL DIAMETER: 2 SCREEN LENGTH/DEPTH: 10/15.31 TEST NO.: 1

STATIC WATER LEVEL (Depth/Elevation): 3.52 DATE: 11/3/01

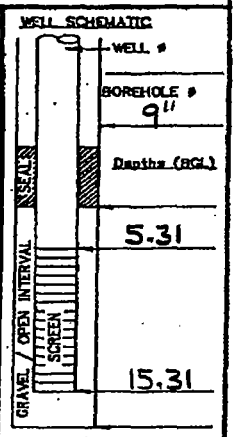
TEST TYPE (Rising/Falling/Constant Head): RISING CHECKED:

METHOD OF INDUCING WATER LEVEL CHANGE: 2 SECTION SLUG PAGE 1 OF

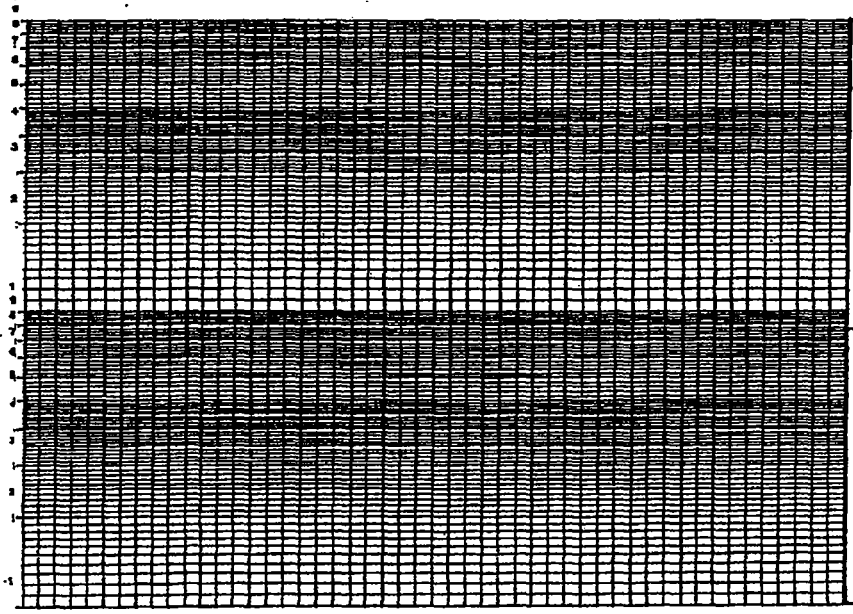
REFERENCE PT. FOR WL MEAS. (Top of Casing, Transducer, etc.): TOC = NA

ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)	ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)

WELL SCHEMATIC



▽ Indicate SWL Depth on Drawing



REMARKS:
PZ09S-RISING

START: 0953

HEAD: 9.164

CURVE: GOOD

CALCS, SKETCH MAPS, ETC.:

L = 10'

In-Situ Inc. MiniTroll Pro

Report generated: 11/3/01 10:03:18
Report from file: C:\WIN-SITU\Data\SN02468 2001-11-03 095300 PZ09S-RISING.bin
DataMgr Version 3.69

Serial number: 2468
Firmware Version 3.01
Unit name: SLUG TESTS

Test name: PZ09S-RISING

Test defined on: 11/3/01 9:48:43
Test scheduled for: 11/3/01 9:53:00
Test started on: 11/3/01 9:53:00
Test stopped on: 11/3/01 10:03:12
Test extracted on: N/A

Data gathered using Logarithmic testing
Maximum time between c Minutes.
Number of data samples: 101

TOTAL DATA SAMPLES 101

Channel number [1]
Measurement type: Temperature
Channel name: OnBoard Temp

Channel number [2]
Measurement type: Pressure
Channel name: Pressure
Sensor Range: 30 PSI.
Specific gravity: 1
Mode: Surface
User-defined reference: 0 Feet H2O
Referenced on: test start
Pressure head at referenc 9.109 Feet H2O

Date	Time	ET (min)	Chan[1] Celsius	Chan[2] Feet H2O
	11/3/01 9:53	0	23.52	0
	11/3/01 9:53	0.0048	23.53	0.008
	11/3/01 9:53	0.0098	23.53	0.008
	11/3/01 9:53	0.015	23.55	0.006
	11/3/01 9:53	0.0198	23.55	0.008
	11/3/01 9:53	0.025	23.55	0.01
	11/3/01 9:53	0.03	23.55	0.008
	11/3/01 9:53	0.035	23.55	0.01
	11/3/01 9:53	0.0398	23.56	-0.139

11/3/01 9:53	0.045		23.56	-2.793
11/3/01 9:53	0.05		23.56	-1.873
11/3/01 9:53	0.0548		23.56	-0.667
11/3/01 9:53	0.06		23.56	-2.136 ≈ 0
11/3/01 9:53	0.0648		23.56	-0.994
11/3/01 9:53	0.07		23.56	-1.205
11/3/01 9:53	0.075		23.56	-1.399
11/3/01 9:53	0.0798		23.56	-0.878
11/3/01 9:53	0.0848		23.56	-1.186
11/3/01 9:53	0.09		23.56	-0.957
11/3/01 9:53	0.095		23.56	-0.891
11/3/01 9:53	0.1		23.56	-0.968
11/3/01 9:53	0.1057		23.56	-0.787 .05
11/3/01 9:53	0.1118		23.56	-0.837
11/3/01 9:53	0.1185		23.56	-0.727
11/3/01 9:53	0.1255		23.56	-0.727
11/3/01 9:53	0.1327		23.57	-0.656
11/3/01 9:53	0.1405		23.57	-0.637
11/3/01 9:53	0.1488		23.57	-0.591
11/3/01 9:53	0.1578	*	23.57	-0.559 .1
11/3/01 9:53	0.167		23.56	-0.533
11/3/01 9:53	0.1768		23.56	-0.505
11/3/01 9:53	0.1875		23.56	-0.479
11/3/01 9:53	0.1985		23.56	-0.458
11/3/01 9:53	0.21	*	23.56	-0.438 .15
11/3/01 9:53	0.2225		23.56	-0.419
11/3/01 9:53	0.2358		23.56	-0.402
11/3/01 9:53	0.2498		23.56	-0.387
11/3/01 9:53	0.2647	*	23.56	-0.374 .2
11/3/01 9:53	0.2803		23.56	-0.361
11/3/01 9:53	0.297		23.56	-0.348
11/3/01 9:53	0.3145		23.56	-0.339
11/3/01 9:53	0.3333		23.56	-0.328
11/3/01 9:53	0.3532	*	23.56	-0.318 .3
11/3/01 9:53	0.374		23.56	-0.309
11/3/01 9:53	0.3963		23.56	-0.303
11/3/01 9:53	0.4198		23.55	-0.294
11/3/01 9:53	0.4445		23.56	-0.287
11/3/01 9:53	0.4695	*	23.56	-0.283 .4
11/3/01 9:53	0.4963		23.56	-0.277
11/3/01 9:53	0.5247		23.56	-0.272
11/3/01 9:53	0.5547	*	23.56	-0.268 .5
11/3/01 9:53	0.5862		23.56	-0.262
11/3/01 9:53	0.6213		23.56	-0.257
11/3/01 9:53	0.6578	*	23.56	-0.255 .6
11/3/01 9:53	0.6963		23.56	-0.249
11/3/01 9:53	0.738		23.56	-0.244
11/3/01 9:53	0.7813	*	23.55	-0.242
11/3/01 9:53	0.8278		23.55	-0.235
11/3/01 9:53	0.8762	*	23.56	-0.231
11/3/01 9:53	0.9278		23.55	-0.229
11/3/01 9:53	0.9828		23.55	-0.222

11/3/01 9:54	1.0412	*	23.55	-0.218
11/3/01 9:54	1.103		23.55	-0.216
11/3/01 9:54	1.1678		23.55	-0.212
11/3/01 9:54	1.238		23.55	-0.207
11/3/01 9:54	1.3113		23.55	-0.203
11/3/01 9:54	1.3895		23.55	-0.199
11/3/01 9:54	1.4728		23.55	-0.194
11/3/01 9:54	1.5613		23.55	-0.192
11/3/01 9:54	1.6547		23.55	-0.186
11/3/01 9:54	1.753		23.55	-0.184
11/3/01 9:54	1.858		23.55	-0.179
11/3/01 9:54	1.9678		23.53	-0.175
11/3/01 9:55	2.0845	*	23.53	-0.168
11/3/01 9:55	2.2097		23.53	-0.164
11/3/01 9:55	2.3412		23.52	-0.162
11/3/01 9:55	2.4812		23.52	-0.157
11/3/01 9:55	2.6297		23.52	-0.151
11/3/01 9:55	2.7863		23.52	-0.149
11/3/01 9:55	2.953		23.51	-0.144
11/3/01 9:56	3.1297		23.51	-0.14
11/3/01 9:56	3.3162		23.51	-0.135
11/3/01 9:56	3.5145		23.51	-0.131
11/3/01 9:56	3.7245		23.51	-0.127
11/3/01 9:56	3.9463		23.5	-0.124
11/3/01 9:57	4.1812		23.5	-0.118
11/3/01 9:57	4.4295		23.5	-0.116
11/3/01 9:57	4.6928		23.5	-0.114
11/3/01 9:57	4.9728		23.5	-0.109
11/3/01 9:58	5.2697		23.5	-0.105
11/3/01 9:58	5.583		23.5	-0.101
11/3/01 9:58	5.9145		23.5	-0.098
11/3/01 9:59	6.2663		23.51	-0.094
11/3/01 9:59	6.6395		23.51	-0.09
11/3/01 10:00	7.0345		23.51	-0.088
11/3/01 10:00	7.453		23.51	-0.088
11/3/01 10:00	7.8962		23.51	-0.084
11/3/01 10:01	8.3663		23.51	-0.082
11/3/01 10:01	8.8645		23.51	-0.077
11/3/01 10:02	9.3913		23.51	-0.077
11/3/01 10:02	9.9497		23.51	-0.073

CALCULATION WORKSHEET Order No. 19116 (01-91) PAGE 1 OF

CLIENT: PARRIS Is.	JOB NUMBER: N0502
SUBJECT: SLUG TEST CALCS : WELL NO : PZ 10S	
BASED ON	DRAWING NUMBER
BY: SJC 12-19-01 / CHECKED BY: JK 12-28-01	APPROVED BY / DATE

HVORSLEV

$$K = \frac{r^2 \ln(L/R)}{2L\,T_o}$$

$$= \frac{(.083)^2 \ln(10/.375)}{2(10)(.38)}$$

$$= \frac{(.083)^2 (3.28)}{7.6}$$

$$= 2.97 \times 10^{-3} \text{ ft/min}$$

$$= 1.51 \times 10^{-3} \text{ cm/sec}$$

$$= \underline{\underline{4}} \text{ ft/day}$$

SEE PRINTOUT FOR MORE DATA

t (min)	H-h/H-Ho
0 - 2.000	1.00
-1 1.102	.55
-2 .834	.42
.3 .630	.32
.4 .502	.25
.5 .388	.19
.6 .337	.17
.7 .266	.13
.8 .225	.11

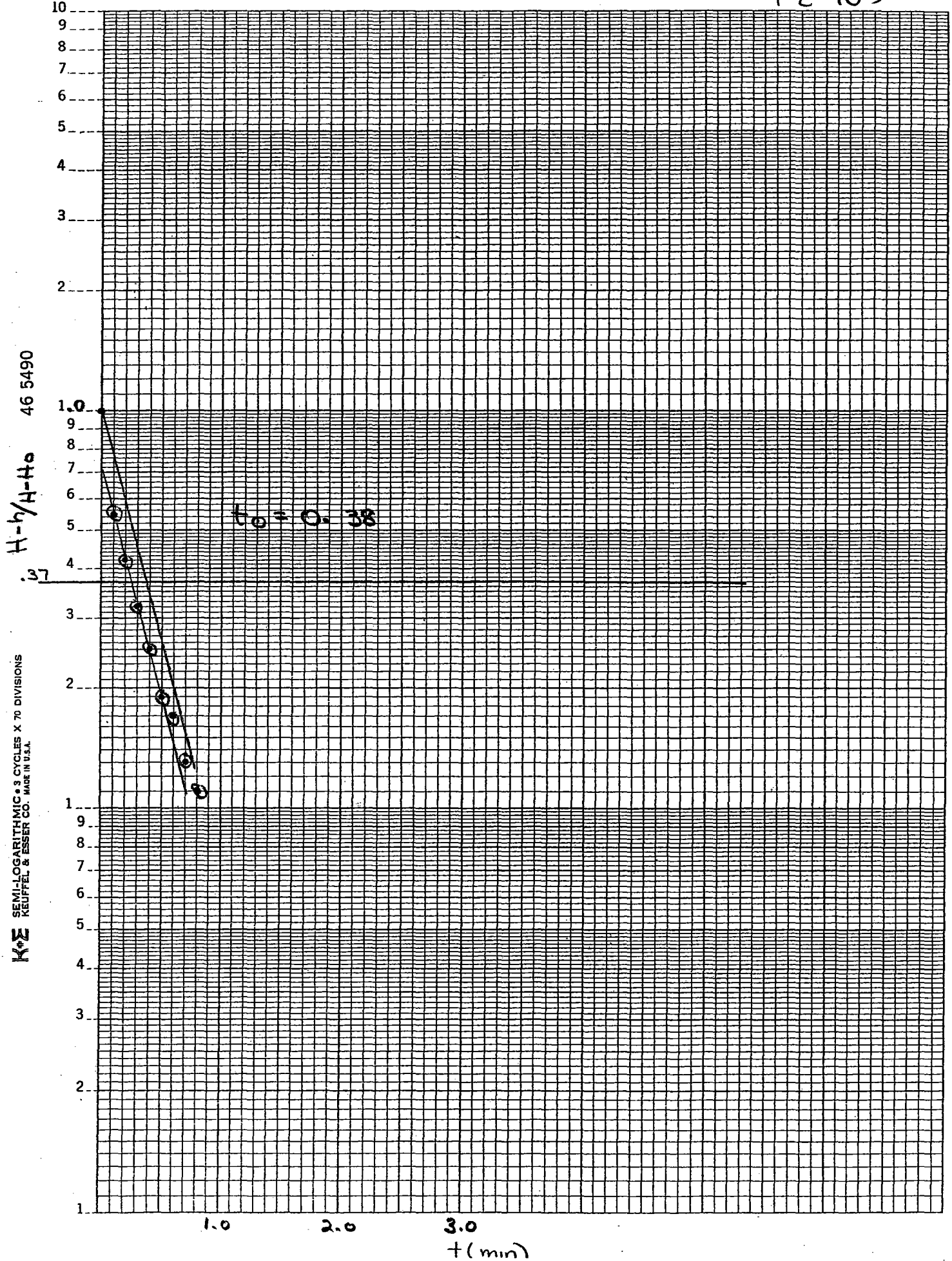
r = 1"/12 = .083

L = 10'

R = 9"/12/2 = .375

To = .38 (from plot)

PZ 10S


H-h/H-Ho
.37
$t_0 = 0.38$
1.0
2.0
3.0
t (min)
46 5490
K&E SEMI-LOGARITHMIC • 3 CYCLES X 70 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.

IN-SITU HYDRAULIC CONDUCTIVITY TESTING	Number	

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

PROJECT NAME: PAI-SITE 45 WELL/BORING NO.: PZ10S

PROJECT NO.: N0502 GEOLOGIST: CONTI

WELL DIAMETER: 2" SCREEN LENGTH/DEPTH: 10/15.27 TEST NO.: 1

STATIC WATER LEVEL (Depth/Elevation): 3.68 DATE: 11/3/01

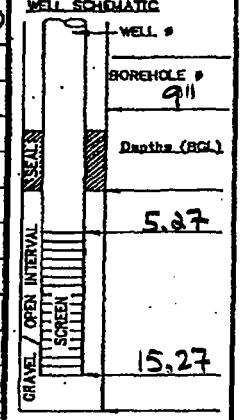
TEST TYPE (Rising/Falling/Constant Head): RISING CHECKED:

METHOD OF INDUCING WATER LEVEL CHANGE: 2 SECTION SLUG PAGE 1 OF 1

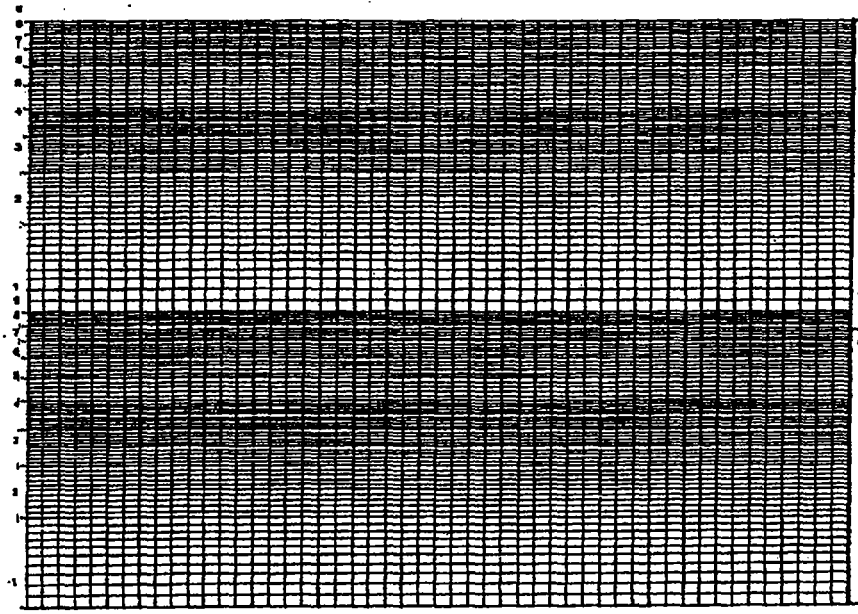
REFERENCE PT. FOR WL MEAS. (Top of Casing, Transducer, etc.): TOC

ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)	ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)

WELL SCHEMATIC



▽ Indicate SWL Depth on Drawing



REMARKS:

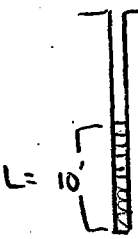
PZ10S - RISING

8.208 HEAD

START @ 0855

CURVE GOOD

CALCS, SKETCH MAPS, ETC.:



L= 10'

In-Situ Inc. MiniTroll Pro

Report generated: 11/3/01 9:02:44
Report from file: C:\WIN-SITU\Data\SN02468 2001-11-03 085500 PZ10S-RISING.bin
DataMgr Version 3.69

Serial number: 2468
Firmware Version 3.01
Unit name: SLUG TESTS

Test name: PZ10S-RISING

Test defined on: 11/3/01 8:51:24
Test scheduled for: 11/3/01 8:55:00
Test started on: 11/3/01 8:55:00
Test stopped on: 11/3/01 9:02:37
Test extracted on: N/A

Data gathered using Logarithmic testing
Maximum time between c Minutes.
Number of data samples: 96

TOTAL DATA SAMPLES 96

Channel number [1]
Measurement type: Temperature
Channel name: OnBoard Temp

Channel number [2]
Measurement type: Pressure
Channel name: Pressure
Sensor Range: 30 PSI.
Specific gravity: 1
Mode: Surface
User-defined reference: 0 Feet H2O
Referenced on: test start
Pressure head at referenc 8.203 Feet H2O

Date	Time	ET (min)	Chan[1] Celsius	Chan[2] Feet H2O
11/3/01	8:55	0	24.35	0
11/3/01	8:55	0.0048	24.35	-0.013
11/3/01	8:55	0.0098	24.37	-0.007
11/3/01	8:55	0.015	24.37	-0.002
11/3/01	8:55	0.0198	24.37	0.004
11/3/01	8:55	0.025	24.37	0.004
11/3/01	8:55	0.03	24.37	0.002
11/3/01	8:55	0.035	24.38	-0.009
11/3/01	8:55	0.0398	24.38	-0.003

11/3/01 8:55	0.045		24.38	-0.001
11/3/01 8:55	0.05		24.38	0.002
11/3/01 8:55	0.0548		24.38	-0.007
11/3/01 8:55	0.06		24.38	-0.022
11/3/01 8:55	0.0648		24.38	-3.036
11/3/01 8:55	0.07		24.38	-1.532
11/3/01 8:55	0.075		24.38	-1.472
11/3/01 8:55	0.0798		24.38	-1.53
11/3/01 8:55	0.0848		24.38	-1.48
11/3/01 8:55	0.09		24.39	-1.412
11/3/01 8:55	0.095		24.39	-1.412
11/3/01 8:55	0.1		24.39	-1.373
11/3/01 8:55	0.1057		24.39	-1.349
11/3/01 8:55	0.1118		24.39	-1.317
11/3/01 8:55	0.1185		24.39	-1.287
11/3/01 8:55	0.1255		24.39	-1.257
11/3/01 8:55	0.1327		24.39	-1.224
11/3/01 8:55	0.1405		24.39	-1.194
11/3/01 8:55	0.1488		24.39	-1.162
11/3/01 8:55	0.1578		24.39	-1.132
11/3/01 8:55	0.167	*	24.39	-1.102
11/3/01 8:55	0.1768		24.39	-1.069
11/3/01 8:55	0.1875		24.39	-1.037
11/3/01 8:55	0.1985		24.38	-1.004
11/3/01 8:55	0.21		24.38	-0.972
11/3/01 8:55	0.2225		24.38	-0.938
11/3/01 8:55	0.2358		24.38	-0.903
11/3/01 8:55	0.2498		24.38	-0.869
11/3/01 8:55	0.2647	*	24.38	-0.834
11/3/01 8:55	0.2803		24.38	-0.8
11/3/01 8:55	0.297		24.38	-0.765
11/3/01 8:55	0.3145		24.38	-0.731
11/3/01 8:55	0.3333		24.38	-0.696
11/3/01 8:55	0.3532		24.38	-0.664
11/3/01 8:55	0.374	*	24.38	-0.63
11/3/01 8:55	0.3963		24.38	-0.597
11/3/01 8:55	0.4198		24.38	-0.563
11/3/01 8:55	0.4445		24.38	-0.533
11/3/01 8:55	0.4695	*	24.38	-0.502
11/3/01 8:55	0.4963		24.38	-0.472
11/3/01 8:55	0.5247		24.38	-0.444
11/3/01 8:55	0.5547		24.38	-0.416
11/3/01 8:55	0.5862	*	24.38	-0.388
11/3/01 8:55	0.6213		24.38	-0.362
11/3/01 8:55	0.6578	*	24.38	-0.337
11/3/01 8:55	0.6963		24.38	-0.311
11/3/01 8:55	0.738		24.38	-0.287
11/3/01 8:55	0.7813	*	24.38	-0.266
11/3/01 8:55	0.8278		24.38	-0.244
11/3/01 8:55	0.8762	*	24.38	-0.225
11/3/01 8:55	0.9278		24.38	-0.207
11/3/01 8:55	0.9828		24.38	-0.192

2.000 ± Theoretical

11/3/01 8:56	1.0412	24.38	-0.175
11/3/01 8:56	1.103	24.38	-0.16
11/3/01 8:56	1.1678	24.37	-0.147
11/3/01 8:56	1.238	24.38	-0.134
11/3/01 8:56	1.3113	24.38	-0.126
11/3/01 8:56	1.3895	24.37	-0.112
11/3/01 8:56	1.4728	24.37	-0.104
11/3/01 8:56	1.5613	24.37	-0.095
11/3/01 8:56	1.6547	24.37	-0.089
11/3/01 8:56	1.753	24.37	-0.08
11/3/01 8:56	1.858	24.37	-0.076
11/3/01 8:56	1.9678	24.37	-0.067
11/3/01 8:57	2.0845	24.37	-0.065
11/3/01 8:57	2.2097	24.37	-0.061
11/3/01 8:57	2.3412	24.37	-0.058
11/3/01 8:57	2.4812	24.37	-0.054
11/3/01 8:57	2.6297	24.37	-0.05
11/3/01 8:57	2.7863	24.37	-0.048
11/3/01 8:57	2.953	24.37	-0.046
11/3/01 8:58	3.1297	24.37	-0.043
11/3/01 8:58	3.3162	24.37	-0.043
11/3/01 8:58	3.5145	24.37	-0.041
11/3/01 8:58	3.7245	24.37	-0.039
11/3/01 8:58	3.9463	24.37	-0.037
11/3/01 8:59	4.1812	24.37	-0.035
11/3/01 8:59	4.4295	24.37	-0.035
11/3/01 8:59	4.6928	24.37	-0.033
11/3/01 8:59	4.9728	24.37	-0.033
11/3/01 9:00	5.2697	24.37	-0.033
11/3/01 9:00	5.583	24.37	-0.03
11/3/01 9:00	5.9145	24.37	-0.03
11/3/01 9:01	6.2663	24.37	-0.03
11/3/01 9:01	6.6395	24.37	-0.028
11/3/01 9:02	7.0345	24.37	-0.028
11/3/01 9:02	7.453	24.37	-0.026

CALCULATION WORKSHEET Order No. 19116 (01-91) PAGE 1 OF

CLIENT	JOB NUMBER
PARRIS IS.	N0502

SUBJECT: SLUG TEST CALCS : WELL NO : PZ 11 S

BASED ON | DRAWING NUMBER

BY	CHECKED BY	APPROVED BY	DATE
SJC 12/19/01	JK 12-28-01		

HVORSLEV

$$K = \frac{r^2 \ln(L/R)}{2L\,T_o}$$

$$= \frac{(.083)^2 \ln(10/.375)}{2(10)(.69)}$$

$$= \frac{(.083)^2 (3.28)}{13.8}$$

$$= 1.64 \times 10^{-3} \text{ ft/min}$$

$$= 8.32 \times 10^{-4} \text{ cm/sec}$$

$$= \underline{\underline{2}} \text{ ft/day}$$

SEE PRINTOUT FOR MORE DATA

t (min)	H-h/H-Ho
0 - 2.109	1.00
.1 - 1.325	.63
.2 - 1.134	.54
.3 - .974	.46
.4 - .828	.39
.5 - .705	.33
.6 - .608	.29
.7 - .543	.26
.8 - .481	.23
.9 - .421	.20
1.0 - .36	.17
2.0 - .097	.05

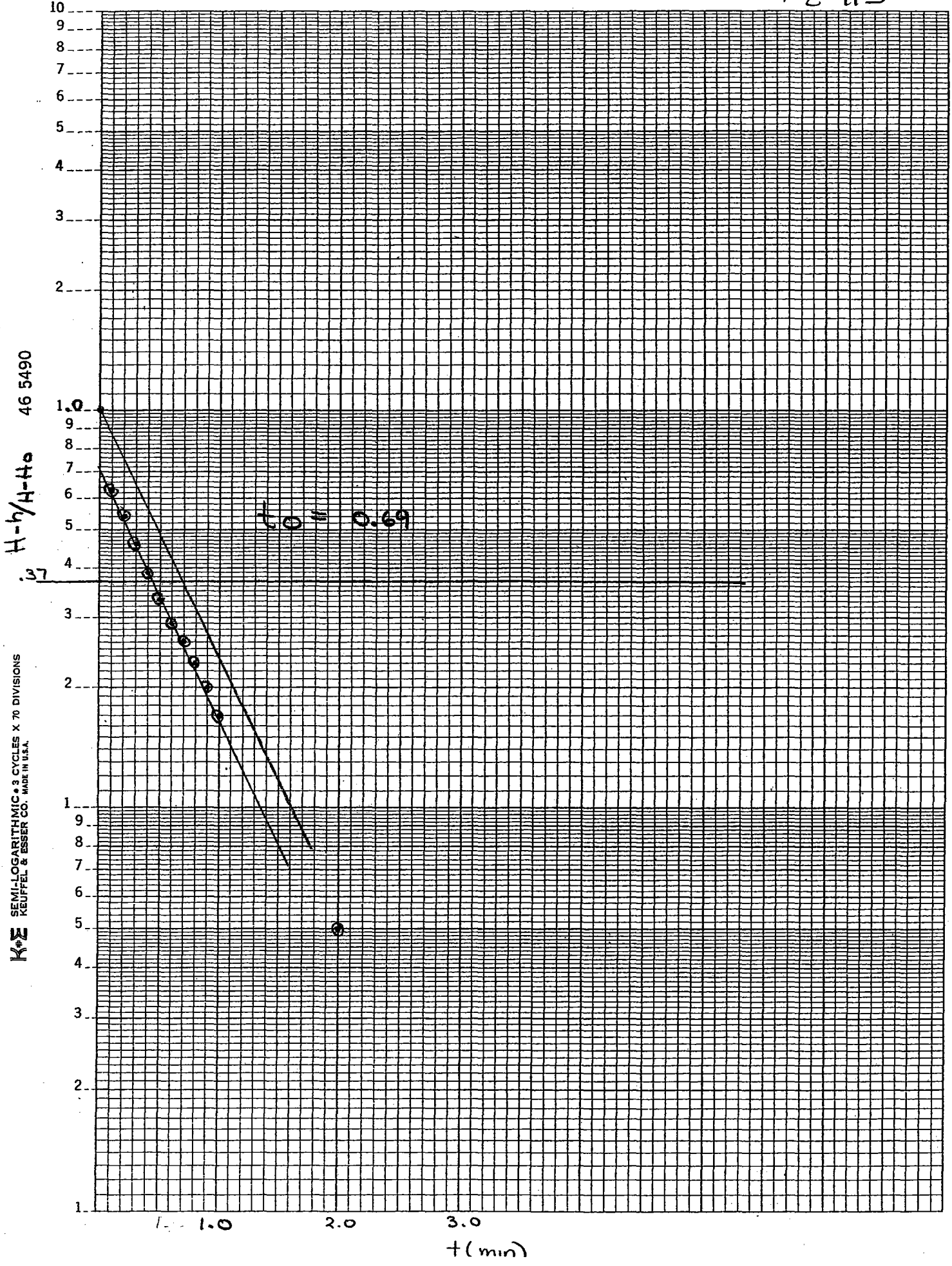
r = 1"/12 = .083'

L = 10'

R = 9"/12/2 .375

To = 0.69m (from plot)

PZ 115



H-h/H-Ho
46 5490
.37
to = 0.69
1.0
2.0
3.0
t (min)
K+E SEMI-LOGARITHMIC • 3 CYCLES X 70 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.

IN-SITU HYDRAULIC CONDUCTIVITY TESTING	Number	

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

PROJECT NAME: PAI - SITE 45 WELL/BORING NO.: PZ 11S

PROJECT NO.: N0502 GEOLOGIST: CONTI

WELL DIAMETER: 2" SCREEN LENGTH/DEPTH: 10'/15.15 TEST NO.: 1

STATIC WATER LEVEL (Depth/Elevation): 3.52 DATE: 11/3/01

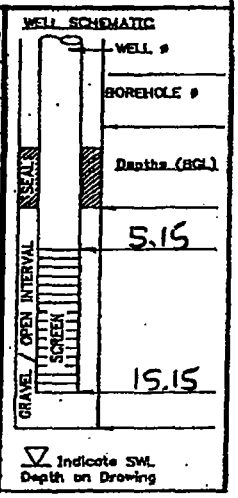
TEST TYPE (Rising/Falling/Constant Head): RISING CHECKED:

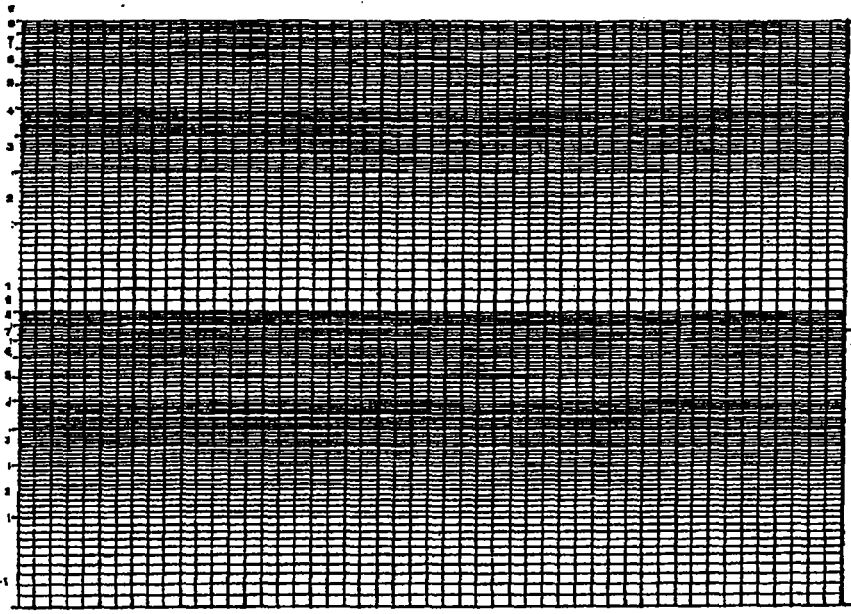
METHOD OF INDUCING WATER LEVEL CHANGE: 2 SECTION SLUG PAGE 1 OF

REFERENCE PT. FOR WL MEAS. (Top of Casing, Transducer, etc.): TOC

ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)	ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)

WELL SCHEMATIC





REMARKS:

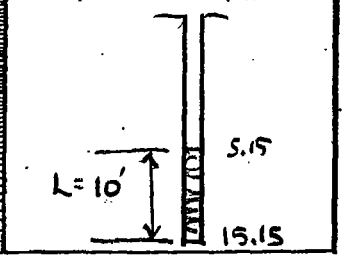
PZ 11S - RISING

9.475 HEAD

0832 - START

CURVE GOOD

CALCS, SKETCH MAPS, ETC.:



In-Situ Inc. MiniTroll Pro

Report generated: 11/3/01 8:38:57
Report from file: C:\WIN-SITU\Data\SN02468 2001-11-03 083200 PZ11S-RISING.bin
DataMgr Version 3.69

Serial number: 2468
Firmware Version 3.01
Unit name: SLUG TESTS

Test name: PZ11S-RISING

Test defined on: 11/3/01 8:29:02
Test scheduled for: 11/3/01 8:32:00
Test started on: 11/3/01 8:32:00
Test stopped on: 11/3/01 8:38:51
Test extracted on: N/A

Data gathered using Logarithmic testing
Maximum time between c Minutes.
Number of data samples: 94

TOTAL DATA SAMPLES 94

Channel number [1]
Measurement type: Temperature
Channel name: OnBoard Temp

Channel number [2]
Measurement type: Pressure
Channel name: Pressure
Sensor Range: 30 PSI.
Specific gravity: 1
Mode: Surface
User-defined reference: 0 Feet H2O
Referenced on: test start
Pressure head at referenc 9.432 Feet H2O

Date	Time	ET (min)	Chan[1] Celsius	Chan[2] Feet H2O
	11/3/01 8:32	0	24.47	0
	11/3/01 8:32	0.0048	24.48	0.056
	11/3/01 8:32	0.0098	24.48	0.06
	11/3/01 8:32	0.015	24.48	0.038
	11/3/01 8:32	0.0198	24.49	0.04
	11/3/01 8:32	0.025	24.49	0.051
	11/3/01 8:32	0.03	24.49	0.047
	11/3/01 8:32	0.035	24.49	0.032
	11/3/01 8:32	0.0398	24.49	-2.109

11/3/01 8:32	0.045	24.49	-1.564
11/3/01 8:32	0.05	24.49	-1.474
11/3/01 8:32	0.0548	24.5	-1.661
11/3/01 8:32	0.06	24.5	-1.58
11/3/01 8:32	0.0648	24.5	-1.517
11/3/01 8:32	0.07	24.5	-1.575
11/3/01 8:32	0.075	24.5	-1.487
11/3/01 8:32	0.0798	24.5	-1.517
11/3/01 8:32	0.0848	24.5	-1.474
11/3/01 8:32	0.09	24.5	-1.465
11/3/01 8:32	0.095	24.5	-1.448
11/3/01 8:32	0.1	24.5	-1.433
11/3/01 8:32	0.1057	24.5	-1.416
11/3/01 8:32	0.1118	24.5	-1.399
11/3/01 8:32	0.1185	24.5	-1.381
11/3/01 8:32	0.1255	24.5	-1.362
11/3/01 8:32	0.1327	24.5	-1.343
11/3/01 8:32	0.1405	24.5	-1.325
11/3/01 8:32	0.1488	24.5	-1.304
11/3/01 8:32	0.1578	24.5	-1.285
11/3/01 8:32	0.167	24.5	-1.267
11/3/01 8:32	0.1768	24.5	-1.246
11/3/01 8:32	0.1875	24.5	-1.226
11/3/01 8:32	0.1985	24.5	-1.205
11/3/01 8:32	0.21	24.5	-1.181
11/3/01 8:32	0.2225	24.5	-1.157
11/3/01 8:32	0.2358	24.5	-1.134
11/3/01 8:32	0.2498	24.5	-1.11
11/3/01 8:32	0.2647	24.5	-1.084
11/3/01 8:32	0.2803	24.49	-1.056
11/3/01 8:32	0.297	24.49	-1.03
11/3/01 8:32	0.3145	24.49	-1.004
11/3/01 8:32	0.3333	24.49	-0.974
11/3/01 8:32	0.3532	24.49	-0.948
11/3/01 8:32	0.374	24.49	-0.918
11/3/01 8:32	0.3963	24.49	-0.888
11/3/01 8:32	0.4198	24.49	-0.858
11/3/01 8:32	0.4445	24.49	-0.828
11/3/01 8:32	0.4695	24.49	-0.797
11/3/01 8:32	0.4963	24.49	-0.767
11/3/01 8:32	0.5247	24.49	-0.735
11/3/01 8:32	0.5547	24.49	-0.705
11/3/01 8:32	0.5862	24.49	-0.675
11/3/01 8:32	0.6213	24.49	-0.64
11/3/01 8:32	0.6578	24.49	-0.608
11/3/01 8:32	0.6963	24.49	-0.578
11/3/01 8:32	0.738	24.49	-0.543
11/3/01 8:32	0.7813	24.49	-0.513
11/3/01 8:32	0.8278	24.49	-0.481
11/3/01 8:32	0.8762	24.49	-0.451
11/3/01 8:32	0.9278	24.49	-0.421
11/3/01 8:32	0.9828	24.49	-0.39

11/3/01 8:33	1.0412	24.49	-0.36
11/3/01 8:33	1.103	24.49	-0.332
11/3/01 8:33	1.1678	24.49	-0.306
11/3/01 8:33	1.238	24.49	-0.278
11/3/01 8:33	1.3113	24.48	-0.254
11/3/01 8:33	1.3895	24.48	-0.231
11/3/01 8:33	1.4728	24.48	-0.207
11/3/01 8:33	1.5613	24.48	-0.186
11/3/01 8:33	1.6547	24.48	-0.166
11/3/01 8:33	1.753	24.48	-0.147
11/3/01 8:33	1.858	24.48	-0.13
11/3/01 8:33	1.9678	24.48	-0.112
11/3/01 8:34	2.0845	24.48	-0.097
11/3/01 8:34	2.2097	24.48	-0.084
11/3/01 8:34	2.3412	24.48	-0.071
11/3/01 8:34	2.4812	24.48	-0.061
11/3/01 8:34	2.6297	24.48	-0.052
11/3/01 8:34	2.7863	24.48	-0.043
11/3/01 8:34	2.953	24.48	-0.035
11/3/01 8:35	3.1297	24.48	-0.026
11/3/01 8:35	3.3162	24.47	-0.019
11/3/01 8:35	3.5145	24.47	-0.015
11/3/01 8:35	3.7245	24.47	-0.011
11/3/01 8:35	3.9463	24.47	-0.006
11/3/01 8:36	4.1812	24.47	-0.002
11/3/01 8:36	4.4295	24.47	0
11/3/01 8:36	4.6928	24.47	0.004
11/3/01 8:36	4.9728	24.47	0.004
11/3/01 8:37	5.2697	24.47	0.006
11/3/01 8:37	5.583	24.47	0.009
11/3/01 8:37	5.9145	24.47	0.011
11/3/01 8:38	6.2663	24.47	0.013
11/3/01 8:38	6.6395	24.47	0.013

CALCULATION WORKSHEET Order No. 19116 (01-91) PAGE 1 OF

CLIENT	JOB NUMBER
PARRIS Is.	N0502
SUBJECT	
SLUG TEST CALCS : WELL NO : MW 01 SU	
BASED ON	DRAWING NUMBER
BY / CHECKED BY	APPROVED BY / DATE
SJC 12/17/01 / JK 12-28-01	

HVORSLEV

$$K = \frac{r^2 \ln(L/R)}{2L\,T_o}$$

$$= \frac{(.083)^2 \ln(3.86/.375)}{2(3.86)1.25}$$

$$= \frac{(.083)^2 (2.33)}{9.65}$$

$$=$$

$$= 1.66 \times 10^{-3} \text{ ft/min}$$

$$= 8.45 \times 10^{-4} \text{ cm/sec}$$

$$= \underline{\underline{2}} \text{ ft/day}$$

SEE PRINTOUT FOR MORE DATA

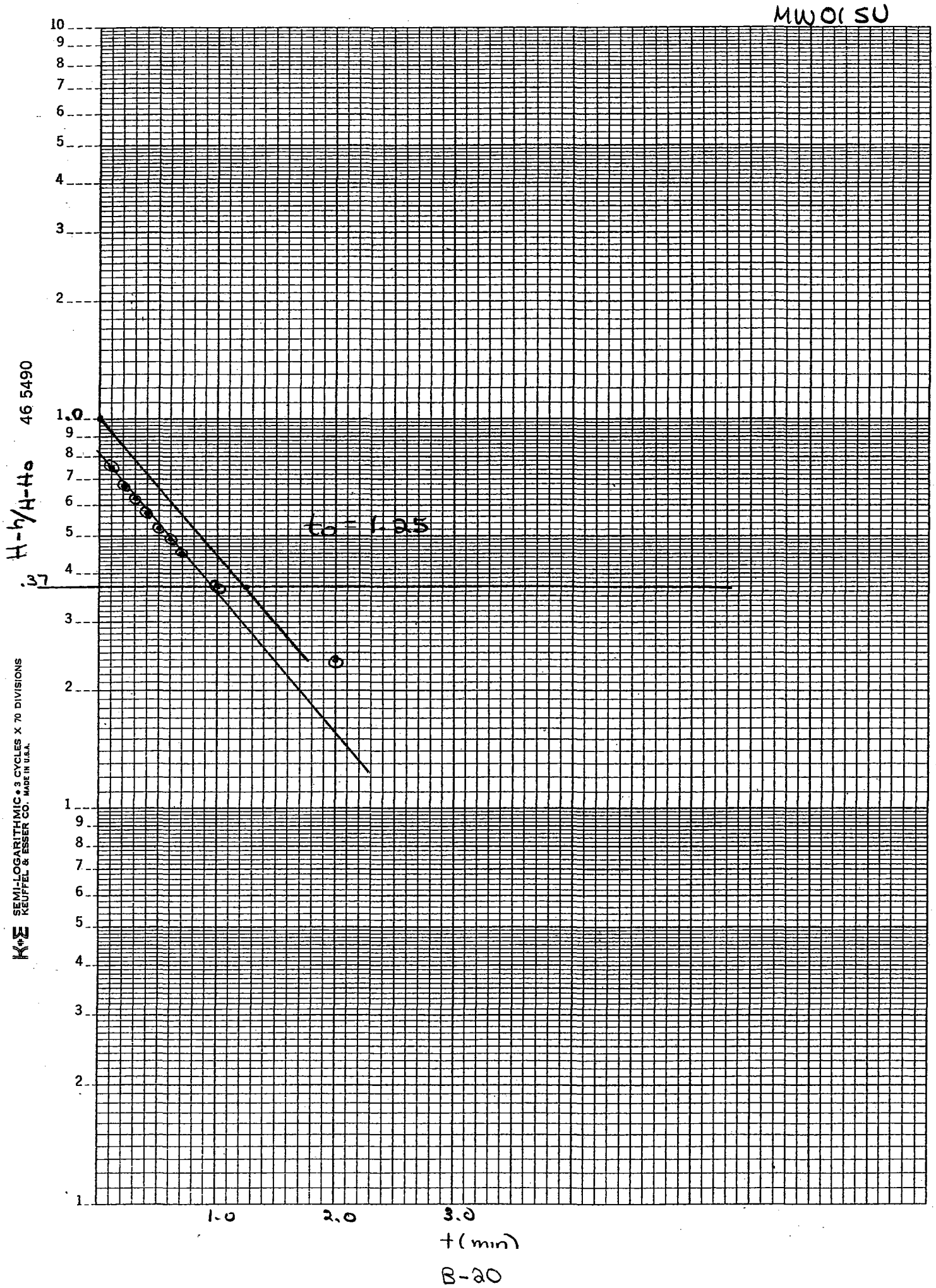
t (min)		H-h/H-Ho
0 =	.963	1.00
.1	.727	.75
.2	.645	.67
.3	.593	.62
.4	.548	.57
.5	.50	.52
.6	.475	.49
.7	.434	.45
1.0	.352	.37
2.0	.234	.24

r = 1" ÷ 12 = .083'

L = 3.86'

R = 9"/12/2 = .375

To = 1.25 (from plot)


MW01SU
46 5490
SEMI-LOGARITHMIC • 3 CYCLES X 70 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.
H-h/H-Ho
.37
to = 1.25
1.0
2.0
3.0
t (min)

B-20

IN-SITU HYDRAULIC CONDUCTIVITY TESTING	Number	

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

PROJECT NAME: PAI-SITE 45 WELL/BORING NO.: MW01SU

PROJECT NO.: N0502 GEOLOGIST: CONTI

WELL DIAMETER: 2 SCREEN LENGTH/DEPTH: 4 / 7.22 (TOC) TEST NO.: 1

STATIC WATER LEVEL (Depth/Elevation): 3.36 DATE: 11/30/01

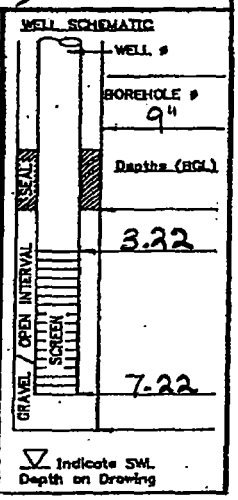
TEST TYPE (Rising/Falling/Constant Head): RISING CHECKED:

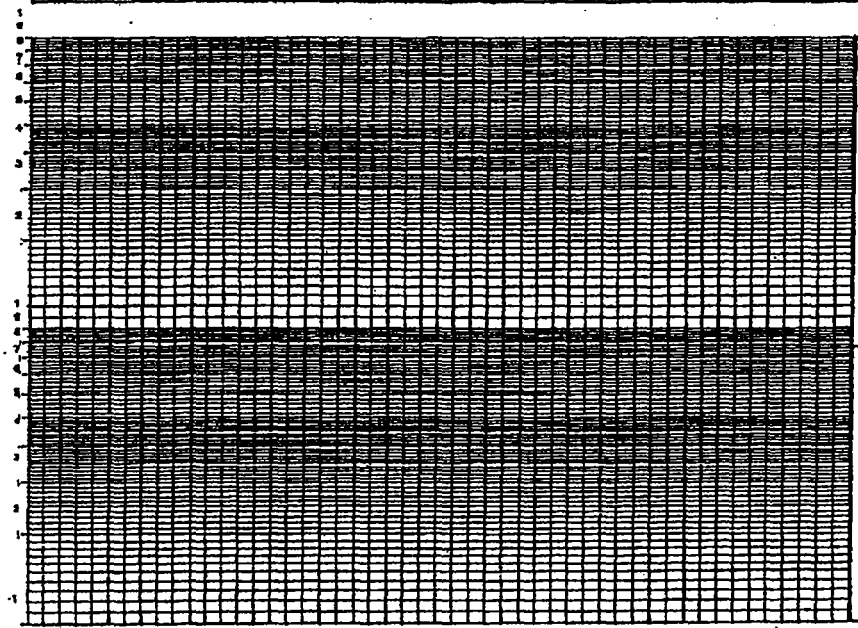
METHOD OF INDUCING WATER LEVEL CHANGE: 1-SECTION SLUG PAGE 1 OF

REFERENCE PT. FOR WL MEAS. (Top of Casing, Transducer, etc.): TOC (7.60)

ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)	ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)

WELL SCHEMATIC





REMARKS:

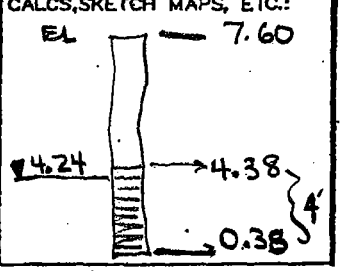
MW01SU-RISING

START: 1053

HEAD: 3.927

CURVE: GOOD

CALCS, SKETCH MAPS, ETC.:



L = 3.86' WATER

In-Situ Inc. MiniTroll Pro

Report generated: 11/3/01 11:03:15
Report from file: C:\WIN-SITU\Data\SN02468 2001-11-03 105300 MW01SU-RISING.bin
DataMgr Version 3.69

Serial number: 2468
Firmware Version 3.01
Unit name: SLUG TESTS

Test name: MW01SU-RISING

Test defined on: 11/3/01 10:49:20
Test scheduled for: 11/3/01 10:53:00
Test started on: 11/3/01 10:53:00
Test stopped on: 11/3/01 11:03:09
Test extracted on: N/A

Data gathered using Logarithmic testing
Maximum time betwe Minutes.
Number of data samp 101

TOTAL DATA SAMPLE 101

Channel number [1]
Measurement type: Temperature
Channel name: OnBoard Temp

Channel number [2]
Measurement type: Pressure
Channel name: Pressure
Sensor Range: 30 PSI.
Specific gravity: 1
Mode: Surface
User-defined referenc 0 Feet H2O
Referenced on: test start
Pressure head at refer 3.89 Feet H2O

Date	Time	ET (min)	Chan[1] Celsius	Chan[2] Feet H2O
	11/3/01 10:53	0	25.99	0
	11/3/01 10:53	0.0048	25.99	0.002
	11/3/01 10:53	0.0098	25.99	0.004
	11/3/01 10:53	0.015	26	0.004
	11/3/01 10:53	0.0198	26	0.004
	11/3/01 10:53	0.025	26	0.006
	11/3/01 10:53	0.03	26	0.004
	11/3/01 10:53	0.035	26.02	0.006
	11/3/01 10:53	0.0398	26.02	0.006

11/3/01 10:53	0.045		26.02	0.006
11/3/01 10:53	0.05		26.02	0.006
11/3/01 10:53	0.0548		26.02	-0.341
11/3/01 10:53	0.06		26.02	-4.564
11/3/01 10:53	0.0648		26.02	0.773
11/3/01 10:53	0.07		26.02	-0.864
11/3/01 10:53	0.075	*	26.02	-0.963
11/3/01 10:53	0.0798		26.02	-0.882
11/3/01 10:53	0.0848		26.02	-0.847
11/3/01 10:53	0.09		26.03	-0.835
11/3/01 10:53	0.095		26.03	-0.822
11/3/01 10:53	0.1		26.03	-0.813
11/3/01 10:53	0.1057		26.03	-0.807
11/3/01 10:53	0.1118		26.03	-0.8
11/3/01 10:53	0.1185		26.03	-0.787
11/3/01 10:53	0.1255		26.03	-0.776
11/3/01 10:53	0.1327		26.03	-0.766
11/3/01 10:53	0.1405		26.03	-0.755
11/3/01 10:53	0.1488		26.03	-0.744
11/3/01 10:53	0.1578		26.03	-0.733
11/3/01 10:53	0.167	*	26.03	-0.727
11/3/01 10:53	0.1768		26.03	-0.718
11/3/01 10:53	0.1875		26.03	-0.707
11/3/01 10:53	0.1985		26.03	-0.699
11/3/01 10:53	0.21		26.03	-0.69
11/3/01 10:53	0.2225		26.03	-0.682
11/3/01 10:53	0.2358		26.02	-0.673
11/3/01 10:53	0.2498		26.02	-0.662
11/3/01 10:53	0.2647		26.02	-0.653
11/3/01 10:53	0.2803	*	26.02	-0.645
11/3/01 10:53	0.297		26.02	-0.636
11/3/01 10:53	0.3145		26.02	-0.625
11/3/01 10:53	0.3333		26.02	-0.615
11/3/01 10:53	0.3532		26.02	-0.604
11/3/01 10:53	0.374	*	26.03	-0.593
11/3/01 10:53	0.3963		26.02	-0.582
11/3/01 10:53	0.4198		26.03	-0.572
11/3/01 10:53	0.4445		26.02	-0.561
11/3/01 10:53	0.4695	*	26.02	-0.548
11/3/01 10:53	0.4963		26.02	-0.537
11/3/01 10:53	0.5247		26.03	-0.524
11/3/01 10:53	0.5547		26.02	-0.511
11/3/01 10:53	0.5862	*	26.02	-0.5
11/3/01 10:53	0.6213		26.02	-0.485
11/3/01 10:53	0.6578	*	26.02	-0.475
11/3/01 10:53	0.6963		26.02	-0.462
11/3/01 10:53	0.738		26.02	-0.447
11/3/01 10:53	0.7813	*	26.03	-0.434
11/3/01 10:53	0.8278		26.02	-0.419
11/3/01 10:53	0.8762		26.03	-0.406
11/3/01 10:53	0.9278		26.02	-0.393
11/3/01 10:53	0.9828		26.02	-0.378

11/3/01 10:54	1.0412	26.03	-0.365
11/3/01 10:54	1.103	26.03	-0.352
11/3/01 10:54	1.1678	26.03	-0.339
11/3/01 10:54	1.238	26.03	-0.326
11/3/01 10:54	1.3113	26.02	-0.313
11/3/01 10:54	1.3895	26.03	-0.303
11/3/01 10:54	1.4728	26.03	-0.29
11/3/01 10:54	1.5613	26.03	-0.281
11/3/01 10:54	1.6547	26.03	-0.27
11/3/01 10:54	1.753	26.03	-0.262
11/3/01 10:54	1.858	26.03	-0.251
11/3/01 10:54	1.9678	26.03	-0.244
11/3/01 10:55	2.0845	26.03	-0.234
11/3/01 10:55	2.2097	26.03	-0.227
11/3/01 10:55	2.3412	26.03	-0.221
11/3/01 10:55	2.4812	26.03	-0.214
11/3/01 10:55	2.6297	26.03	-0.21
11/3/01 10:55	2.7863	26.03	-0.203
11/3/01 10:55	2.953	26.03	-0.199
11/3/01 10:56	3.1297	26.03	-0.195
11/3/01 10:56	3.3162	26.03	-0.193
11/3/01 10:56	3.5145	26.04	-0.189
11/3/01 10:56	3.7245	26.04	-0.184
11/3/01 10:56	3.9463	26.04	-0.18
11/3/01 10:57	4.1812	26.04	-0.178
11/3/01 10:57	4.4295	26.04	-0.176
11/3/01 10:57	4.6928	26.04	-0.174
11/3/01 10:57	4.9728	26.04	-0.169
11/3/01 10:58	5.2697	26.04	-0.167
11/3/01 10:58	5.583	26.04	-0.165
11/3/01 10:58	5.9145	26.05	-0.165
11/3/01 10:59	6.2663	26.05	-0.161
11/3/01 10:59	6.6395	26.05	-0.159
11/3/01 11:00	7.0345	26.05	-0.159
11/3/01 11:00	7.453	26.05	-0.155
11/3/01 11:00	7.8962	26.07	-0.153
11/3/01 11:01	8.3663	26.07	-0.151
11/3/01 11:01	8.8645	26.07	-0.148
11/3/01 11:02	9.3913	26.07	-0.146
11/3/01 11:02	9.9497	26.07	-0.144

CALCULATION WORKSHEET Order No. 19116 (01-91) PAGE 1 OF

CLIENT	JOB NUMBER
PARRIS Is.	N0502

SUBJECT: SLUG TEST CALCS : WELL NO : MW01 SL

BASED ON	DRAWING NUMBER

BY	CHECKED BY	APPROVED BY	DATE
SJC 12/17/01	JK 12-20-01		

HVORSLEV

$$K = \frac{r^2 \ln(L/R)}{2L\,T_o}$$

$$= \frac{(.083)^2 \ln(2.4/.375)}{2(2.4)(4.95)}$$

$$= \frac{(.083)^2 (1.86)}{23.76}$$

$$=$$

$$= 5.39 \times 10^{-4} \text{ ft/min}$$

$$= 2.74 \times 10^{-4} \text{ cm/sec}$$

$$= \underline{\underline{0.8}} \text{ ft/day}$$

SEE PRINTOUT FOR MORE DATA

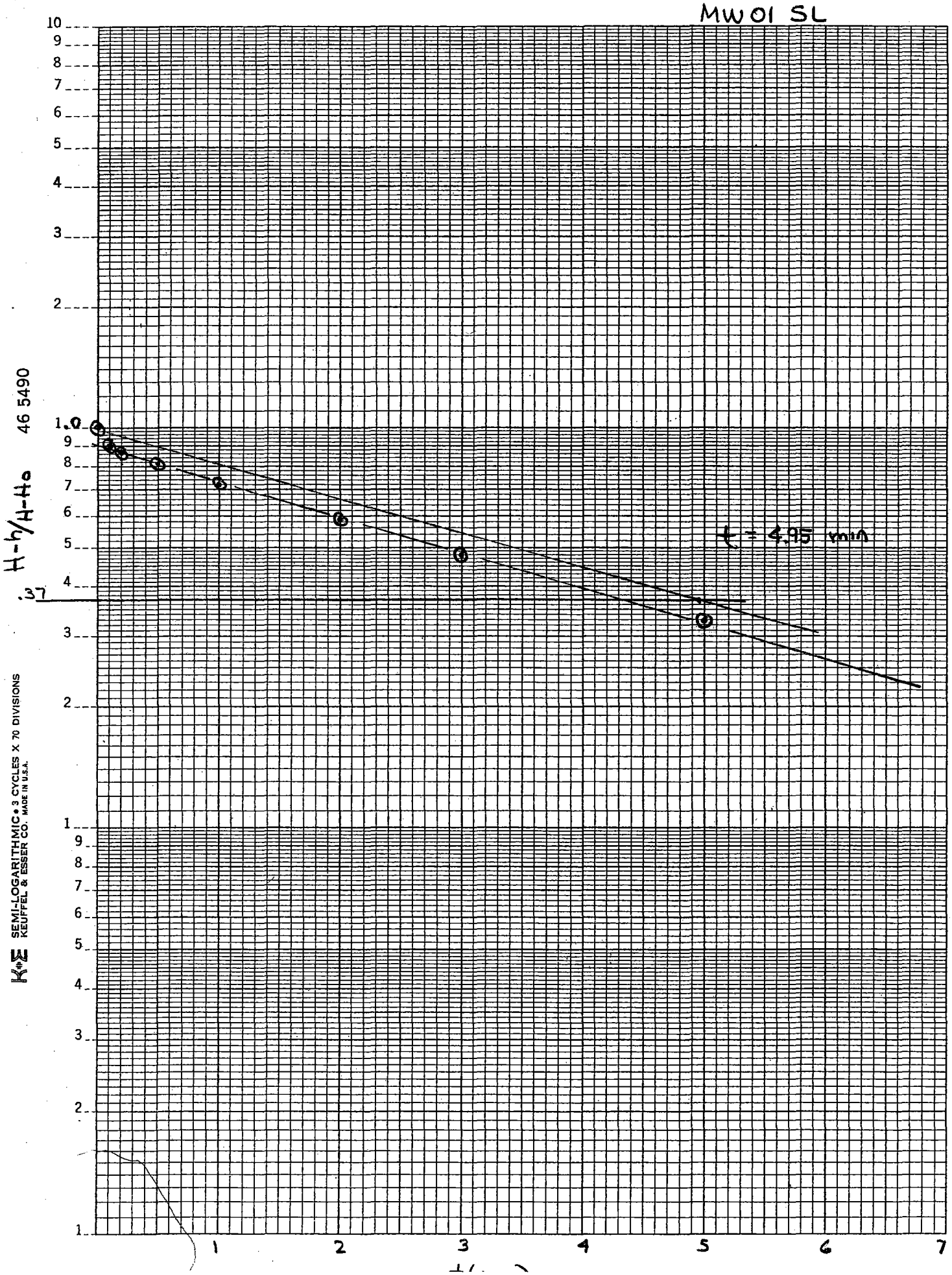
t (min)		H-h/H-Ho
0.0	= 2.027	1.00
0.1	= 1.829	.90
0.2	= 1.773	.87
0.5	= 1.637	.81
1.0	= 1.465	.72
2.0	= 1.187	.59
3.0	= 0.967	.48
5.0	= 0.662	.33
8.0	= 0.418	.21
10.0	0.319	.16

r = 1" = .083'

L = — 2.4'

R = 9" ÷ 2/12 = .375'

To = 4.95 m (from plot)


MW 01 SL
H-h/H-Ho
.37
t = 4.95 min
46 5490
SEMI-LOGARITHMIC • 3 CYCLES X 70 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.
10
9
8
7
6
5
4
3
2
1.0
9
8
7
6
5
4
3
2
1
9
8
7
6
5
4
3
2
1
1
2
3
4
5
6
7

IN-SITU HYDRAULIC CONDUCTIVITY TESTING	Number	

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

PROJECT NAME: PAI-SITE 45 WELL/BORING NO.: MW01SL

PROJECT NO.: N0502 GEOLOGIST: CONTI

WELL DIAMETER: 2" SCREEN LENGTH/DEPTH: 2.4 / 15.10 (TOC) TEST NO.:

STATIC WATER LEVEL (Depth/Elevation): 3.32 DATE: 11/3/01

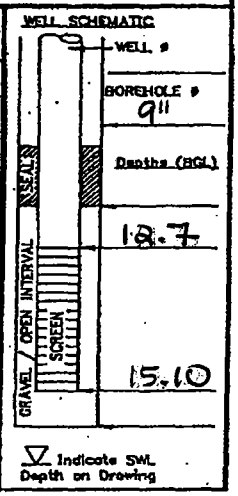
TEST TYPE (Rising/Falling/Constant Head): RISING CHECKED:

METHOD OF INDUCING WATER LEVEL CHANGE: 2-SECTION SLUG PAGE 1 OF

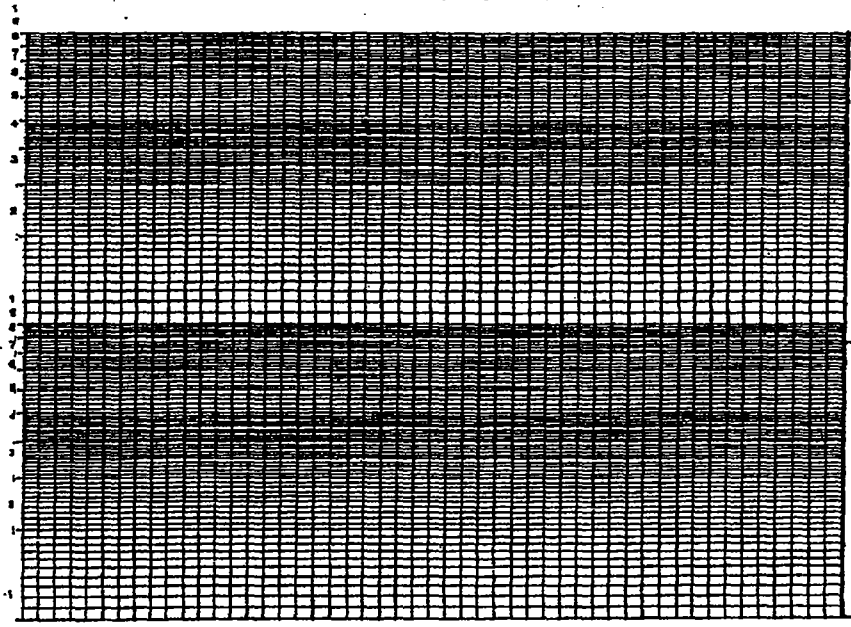
REFERENCE PT. FOR WL MEAS. (Top of Casing, Transducer, etc.): TOC (7.57 EL)

ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)	ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)

WELL SCHEMATIC



▽ Indicate SWL Depth on Drawing



REMARKS:

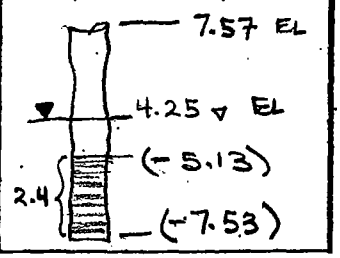
MW01 SL-RISING

START: 1120

HEAD: 9.547

CURVE: GOOD

CALCS, SKETCH MAPS, ETC.:



L = 2.4

In-Situ Inc. MiniTroll Pro

Report generated: 11/3/01 11:39:00
Report from file: C:\WIN-SITU\Data\SN02468 2001-11-03 112000 MW01SL-RISING.bin
DataMgr Version 3.69

Serial number: 2468
Firmware Version 3.01
Unit name: SLUG TESTS

Test name: MW01SL-RISING

Test defined on: 11/3/01 11:15:13
Test scheduled for: 11/3/01 11:20:00
Test started on: 11/3/01 11:20:00
Test stopped on: 11/3/01 11:38:54
Test extracted on: N/A

Data gathered using Logarithmic testing
Maximum time betwe Minutes.
Number of data sam| 112

TOTAL DATA SAMPLI 112

Channel number [1]
Measurement type: Temperature
Channel name: OnBoard Temp

Channel number [2]
Measurement type: Pressure
Channel name: Pressure
Sensor Range: 30 PSI.
Specific gravity: 1
Mode: Surface
User-defined referenc 0 Feet H2O
Referenced on: test start
Pressure head at refe 9.393 Feet H2O

Date	Time	ET (min)	Chan[1] Celsius	Chan[2] Feet H2O
	11/3/01 11:20	0	26.05	0
	11/3/01 11:20	0.0048	26.07	0.008
	11/3/01 11:20	0.0098	26.07	0.006
	11/3/01 11:20	0.015	26.08	0.002
	11/3/01 11:20	0.0198	26.08	0.004
	11/3/01 11:20	0.025	26.08	0.006
	11/3/01 11:20	0.03	26.08	0.006
	11/3/01 11:20	0.035	26.08	0.006
	11/3/01 11:20	0.0398	26.09	0.003

11/3/01 11:20	0.045		26.08		0.006	
11/3/01 11:20	0.05		26.09		0.005	
11/3/01 11:20	0.0548		26.09		0.005	
11/3/01 11:20	0.06		26.09		0.005	
11/3/01 11:20	0.0648		26.09		-0.531	
11/3/01 11:20	0.07		26.09		-4.142	
11/3/01 11:20	0.075		26.09		-1.816	
11/3/01 11:20	0.0798		26.09		-1.304	
11/3/01 11:20	0.0848		26.09		-2.395	
11/3/01 11:20	0.09		26.09		-1.935	
11/3/01 11:20	0.095		26.09		-1.702	
11/3/01 11:20	0.1	O	26.09	*	-2.027	O
11/3/01 11:20	0.1057		26.09		-1.887	
11/3/01 11:20	0.1118		26.09		-1.855	
11/3/01 11:20	0.1185		26.09		-1.911	
11/3/01 11:20	0.1255		26.1		-1.872	
11/3/01 11:20	0.1327		26.1		-1.898	
11/3/01 11:20	0.1405		26.1		-1.881	
11/3/01 11:20	0.1488		26.1		-1.87	
11/3/01 11:20	0.1578		26.1		-1.859	
11/3/01 11:20	0.167		26.1		-1.855	
11/3/01 11:20	0.1768		26.09		-1.851	
11/3/01 11:20	0.1875		26.09		-1.842	
11/3/01 11:20	0.1985		26.09		-1.835	
11/3/01 11:20	0.21	*	26.09		-1.829	
11/3/01 11:20	0.2225		26.09		-1.823	
11/3/01 11:20	0.2358		26.09		-1.814	
11/3/01 11:20	0.2498		26.09		-1.805	
11/3/01 11:20	0.2647		26.09		-1.797	
11/3/01 11:20	0.2803		26.09		-1.79	
11/3/01 11:20	0.297		26.09		-1.779	
11/3/01 11:20	0.3145	*	26.09		-1.773	
11/3/01 11:20	0.3333		26.09		-1.762	
11/3/01 11:20	0.3532		26.09		-1.754	
11/3/01 11:20	0.374		26.09		-1.745	
11/3/01 11:20	0.3963		26.09		-1.732	
11/3/01 11:20	0.4198		26.09		-1.723	
11/3/01 11:20	0.4445		26.09		-1.711	
11/3/01 11:20	0.4695		26.09		-1.702	
11/3/01 11:20	0.4963		26.09		-1.691	
11/3/01 11:20	0.5247		26.09		-1.676	
11/3/01 11:20	0.5547		26.09		-1.665	
11/3/01 11:20	0.5862		26.09		-1.652	
11/3/01 11:20	0.6213	*	26.09		-1.637	
11/3/01 11:20	0.6578		26.09		-1.624	
11/3/01 11:20	0.6963		26.09		-1.609	
11/3/01 11:20	0.738		26.09		-1.594	
11/3/01 11:20	0.7813		26.09		-1.577	
11/3/01 11:20	0.8278		26.09		-1.56	
11/3/01 11:20	0.8762		26.09		-1.543	
11/3/01 11:20	0.9278		26.09		-1.525	
11/3/01 11:20	0.9828		26.08		-1.506	

11/3/01 11:21	1.0412		26.09	-1.484
11/3/01 11:21	1.103	X	26.09	-1.465
11/3/01 11:21	1.1678		26.09	-1.444
11/3/01 11:21	1.238		26.08	-1.422
11/3/01 11:21	1.3113		26.08	-1.398
11/3/01 11:21	1.3895		26.08	-1.374
11/3/01 11:21	1.4728		26.08	-1.351
11/3/01 11:21	1.5613		26.08	-1.325
11/3/01 11:21	1.6547		26.08	-1.301
11/3/01 11:21	1.753		26.08	-1.273
11/3/01 11:21	1.858		26.08	-1.245
11/3/01 11:21	1.9678		26.08	-1.217
11/3/01 11:22	2.0845	X	26.08	-1.187
11/3/01 11:22	2.2097		26.08	-1.159
11/3/01 11:22	2.3412		26.08	-1.129
11/3/01 11:22	2.4812		26.08	-1.099
11/3/01 11:22	2.6297		26.08	-1.066
11/3/01 11:22	2.7863		26.08	-1.034
11/3/01 11:22	2.953		26.08	-1.002
11/3/01 11:23	3.1297		26.08	-0.967
11/3/01 11:23	3.3162		26.08	-0.933
11/3/01 11:23	3.5145		26.08	-0.901
11/3/01 11:23	3.7245		26.07	-0.866
11/3/01 11:23	3.9463		26.07	-0.831
11/3/01 11:24	4.1812		26.08	-0.797
11/3/01 11:24	4.4295		26.08	-0.763
11/3/01 11:24	4.6928		26.08	-0.728
11/3/01 11:24	4.9728		26.08	-0.696
11/3/01 11:25	5.2697		26.08	-0.662
11/3/01 11:25	5.583		26.08	-0.629
11/3/01 11:25	5.9145		26.07	-0.595
11/3/01 11:26	6.2663		26.07	-0.564
11/3/01 11:26	6.6395		26.07	-0.532
11/3/01 11:27	7.0345		26.07	-0.502
11/3/01 11:27	7.453		26.07	-0.474
11/3/01 11:27	7.8962		26.07	-0.446
11/3/01 11:28	8.3663		26.07	-0.418
11/3/01 11:28	8.8645		26.07	-0.386
11/3/01 11:29	9.3913		26.08	-0.362
11/3/01 11:29	9.9497		26.08	-0.341
11/3/01 11:30	10.5413		26.07	-0.319
11/3/01 11:31	11.168		26.08	-0.3
11/3/01 11:31	11.8312		26.08	-0.281
11/3/01 11:32	12.5347		26.07	-0.263
11/3/01 11:33	13.2795		26.08	-0.248
11/3/01 11:34	14.0695		26.08	-0.231
11/3/01 11:34	14.9062		26.08	-0.218
11/3/01 11:35	15.7913		26.08	-0.207
11/3/01 11:36	16.7295		26.08	-0.197
11/3/01 11:37	17.723		26.08	-0.186
11/3/01 11:38	18.7762		26.08	-0.177

CALCULATION WORKSHEET Order No. 19116 (01-91) PAGE 1 OF

CLIENT PARRIS IS.	JOB NUMBER N0502
SUBJECT SLUG TEST CALCS : WELL NO : MW02 SU	
BASED ON	DRAWING NUMBER
BY SJC 12/17/01	CHECKED BY JK 12-28-01
APPROVED BY	DATE

HVORSLEV

$$K = \frac{r^2 \ln(L/R)}{2L\,T_o}$$

$$= \frac{(.083)^2 \ln(3.94/.375)}{2(3.94)(1.35)}$$

$$= \frac{(.083)^2 (2.35)}{10.638}$$

$$= 1.52 \times 10^{-3} \text{ ft/min}$$

$$= 7.73 \times 10^{-4} \text{ cm/sec}$$

$$= 2 \text{ ft/day}$$

SEE PRINTOUT FOR MORE DATA

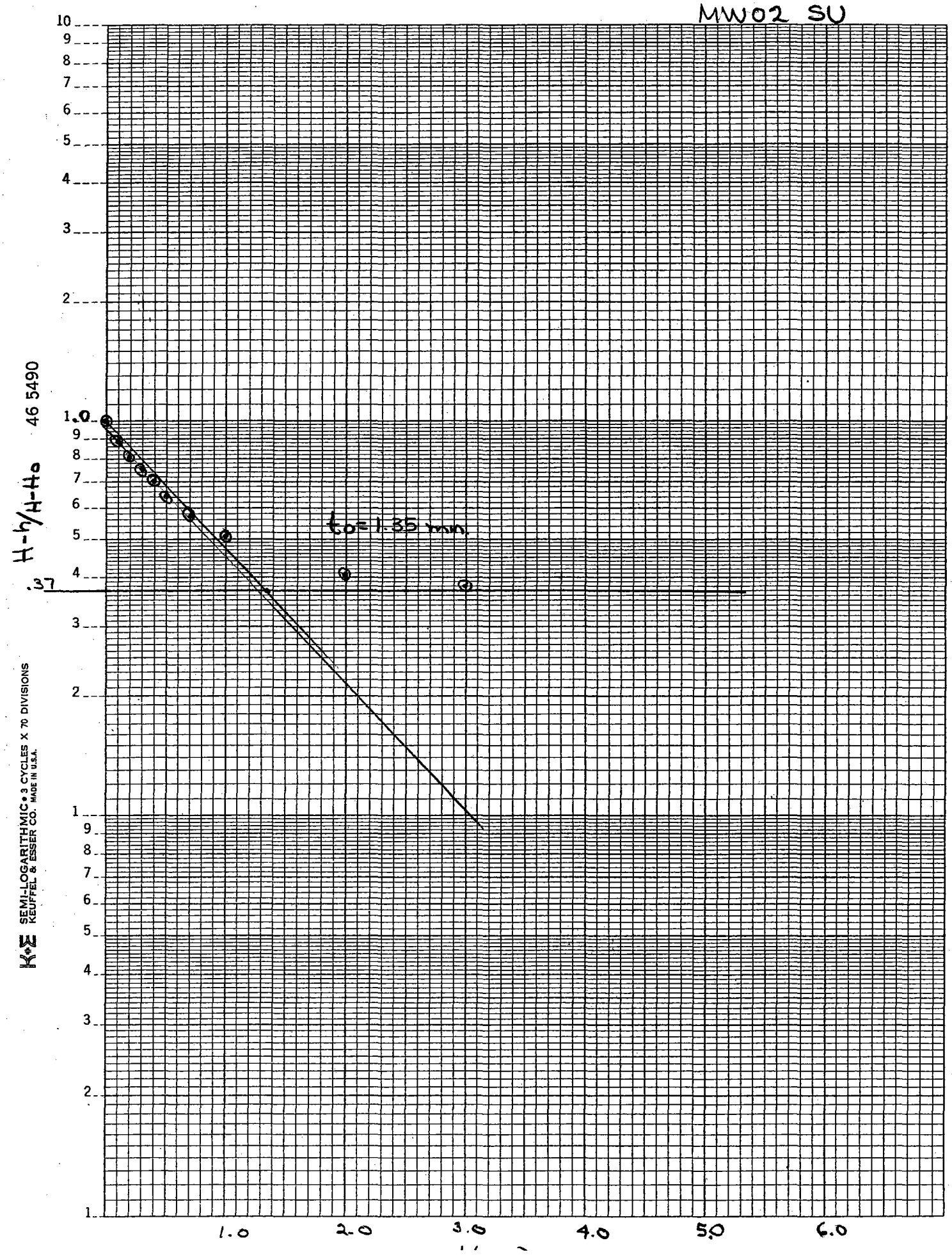
t (min)		H-h/H-Ho
0	= .938	1.00
.1	= .831	.89
.2	.759	.81
.3	.703	.75
.4	.654	.70
.5	.604	.64
.7	.537	.57
.8	.511	.54
.9	.488	.52
1.0	.479	.51
2.0	.382	.41
3.0	.359	.38
4.0	.351	.37
5.0	.347	.37

r = 1"/12 .083'

L = 3.94'

R = 9"/2/12 .375'

To = 1.35 m (from plot)


MW02 SU
H-h/H-Ho
46 5490
.37
t_o= 1.35 min.
1.0
2.0
3.0
4.0
5.0
6.0
K+E SEMI-LOGARITHMIC • 3 CYCLES X 70 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.

IN-SITU HYDRAULIC CONDUCTIVITY TESTING	Number	

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

PROJECT NAME: PAI-SITE 45 WELL/BORING NO.: MW02SU

PROJECT NO.: N0502 GEOLOGIST: CONTI

WELL DIAMETER: 2" SCREEN LENGTH/DEPTH: 4' /7.00 TEST NO.: 1

STATIC WATER LEVEL (Depth/Elevation): 3.06 DATE: 11/3/01

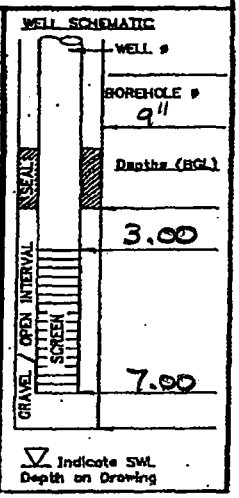
TEST TYPE (Rising/Falling/Constant Head): RISING CHECKED:

METHOD OF INDUCING WATER LEVEL CHANGE: 1 SECTION SLUG PAGE 1 OF

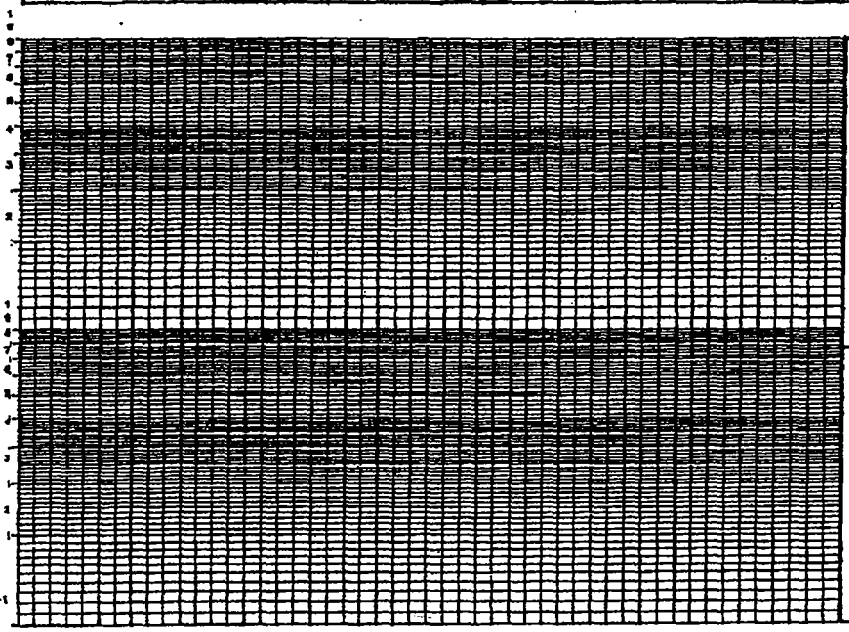
REFERENCE PT. FOR WL MEAS. (Top of Casing, Transducer, etc.): TOC = 7.11 EL

ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)	ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)

WELL SCHEMATIC



▽ Indicate SWL Depth on Drawing



REMARKS:

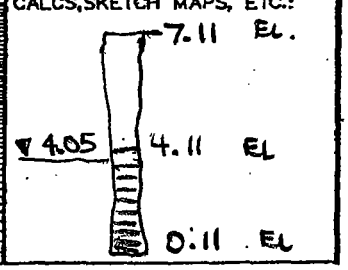
MW02SU - RISING

START : 1245

HEAD : 4.177

CURVE: GOOD

CALCS, SKETCH MAPS, ETC.:



L = 3.94

In-Situ Inc. MiniTroll Pro

Report generated: 11/3/01 13:03:17
Report from file: C:\WIN-SITU\Data\SN02468 2001-11-03 124500 MW02SU-RISING.bin
DataMgr Version 3.69

Serial number: 2468
Firmware Version 3.01
Unit name: SLUG TESTS

Test name: MW02SU-RISING

Test defined on: 11/3/01 12:39:08
Test scheduled for: 11/3/01 12:45:00
Test started on: 11/3/01 12:45:00
Test stopped on: 11/3/01 13:03:09
Test extracted on: N/A

Data gathered using Logarithmic testing
Maximum time between data Minutes.
Number of data samples: 111

TOTAL DATA SAMPLES 111

Channel number [1]
Measurement type: Temperature
Channel name: OnBoard Temp

Channel number [2]
Measurement type: Pressure
Channel name: Pressure
Sensor Range: 30 PSI.
Specific gravity: 1
Mode: Surface
User-defined reference: 0 Feet H2O
Referenced on: test start
Pressure head at reference: 4.167 Feet H2O

Date	Time	ET (min)	Chan[1] Celsius	Chan[2] Feet H2O
11/3/01	12:45	0	22.85	0
11/3/01	12:45	0.0048	22.85	0.002
11/3/01	12:45	0.0098	22.87	0.002
11/3/01	12:45	0.015	22.87	0.002
11/3/01	12:45	0.0198	22.87	0.002
11/3/01	12:45	0.025	22.87	0.004
11/3/01	12:45	0.03	22.87	0.004
11/3/01	12:45	0.035	22.88	0.004
11/3/01	12:45	0.0398	22.88	-0.24

11/3/01 12:45	0.045		22.88	-2.972
11/3/01 12:45	0.05		22.88	-4.123
11/3/01 12:45	0.0548		22.88	-1.641
11/3/01 12:45	0.06		22.88	-1.125
11/3/01 12:45	0.0648		22.88	-0.979
11/3/01 12:45	0.07		22.88	-0.951
11/3/01 12:45	0.075	*	22.88	-0.938
11/3/01 12:45	0.0798		22.88	-0.927
11/3/01 12:45	0.0848		22.88	-0.921
11/3/01 12:45	0.09		22.88	-0.914
11/3/01 12:45	0.095		22.88	-0.906
11/3/01 12:45	0.1		22.88	-0.899
11/3/01 12:45	0.1057		22.89	-0.893
11/3/01 12:45	0.1118		22.89	-0.884
11/3/01 12:45	0.1185		22.89	-0.88
11/3/01 12:45	0.1255		22.89	-0.874
11/3/01 12:45	0.1327		22.89	-0.867
11/3/01 12:45	0.1405		22.89	-0.859
11/3/01 12:45	0.1488		22.89	-0.852
11/3/01 12:45	0.1578		22.89	-0.843
11/3/01 12:45	0.167		22.89	-0.839
11/3/01 12:45	0.1768	*	22.89	-0.831
11/3/01 12:45	0.1875		22.88	-0.822
11/3/01 12:45	0.1985		22.88	-0.815
11/3/01 12:45	0.21		22.89	-0.805
11/3/01 12:45	0.2225		22.88	-0.798
11/3/01 12:45	0.2358		22.88	-0.787
11/3/01 12:45	0.2498		22.88	-0.779
11/3/01 12:45	0.2647		22.88	-0.768
11/3/01 12:45	0.2803	*	22.88	-0.759
11/3/01 12:45	0.297		22.88	-0.748
11/3/01 12:45	0.3145		22.88	-0.738
11/3/01 12:45	0.3333		22.88	-0.727
11/3/01 12:45	0.3532		22.88	-0.714
11/3/01 12:45	0.374	*	22.88	-0.703
11/3/01 12:45	0.3963		22.88	-0.692
11/3/01 12:45	0.4198		22.88	-0.679
11/3/01 12:45	0.4445		22.88	-0.666
11/3/01 12:45	0.4695	*	22.88	-0.654
11/3/01 12:45	0.4963		22.88	-0.641
11/3/01 12:45	0.5247		22.88	-0.63
11/3/01 12:45	0.5547		22.88	-0.617
11/3/01 12:45	0.5862	*	22.88	-0.604
11/3/01 12:45	0.6213		22.88	-0.589
11/3/01 12:45	0.6578		22.88	-0.576
11/3/01 12:45	0.6963		22.88	-0.565
11/3/01 12:45	0.738		22.88	-0.55
11/3/01 12:45	0.7813	*	22.88	-0.537
11/3/01 12:45	0.8278		22.88	-0.522
11/3/01 12:45	0.8762	*	22.88	-0.511
11/3/01 12:45	0.9278		22.88	-0.498
11/3/01 12:45	0.9828	*	22.88	-0.488

11/3/01 12:46	1.0412	22.88	-0.475
11/3/01 12:46	1.103	22.88	-0.466
11/3/01 12:46	1.1678	22.88	-0.453
11/3/01 12:46	1.238	22.87	-0.444
11/3/01 12:46	1.3113	22.87	-0.433
11/3/01 12:46	1.3895	22.87	-0.427
11/3/01 12:46	1.4728	22.88	-0.419
11/3/01 12:46	1.5613	22.87	-0.412
11/3/01 12:46	1.6547	22.87	-0.403
11/3/01 12:46	1.753	22.87	-0.397
11/3/01 12:46	1.858	22.87	-0.39
11/3/01 12:46	1.9678	22.87	-0.386
11/3/01 12:47	2.0845	22.88	-0.382
11/3/01 12:47	2.2097	22.88	-0.376
11/3/01 12:47	2.3412	22.88	-0.373
11/3/01 12:47	2.4812	22.89	-0.369
11/3/01 12:47	2.6297	22.89	-0.367
11/3/01 12:47	2.7863	22.89	-0.365
11/3/01 12:47	2.953	22.9	-0.361
11/3/01 12:48	3.1297	22.9	-0.359
11/3/01 12:48	3.3162	22.92	-0.357
11/3/01 12:48	3.5145	22.92	-0.355
11/3/01 12:48	3.7245	22.92	-0.353
11/3/01 12:48	3.9463	22.93	-0.351
11/3/01 12:49	4.1812	22.93	-0.351
11/3/01 12:49	4.4295	22.94	-0.349
11/3/01 12:49	4.6928	22.94	-0.347
11/3/01 12:49	4.9728	22.95	-0.347
11/3/01 12:50	5.2697	22.95	-0.345
11/3/01 12:50	5.583	22.97	-0.345
11/3/01 12:50	5.9145	22.97	-0.343
11/3/01 12:51	6.2663	22.97	-0.341
11/3/01 12:51	6.6395	22.98	-0.339
11/3/01 12:52	7.0345	22.98	-0.339
11/3/01 12:52	7.453	22.98	-0.339
11/3/01 12:52	7.8962	22.99	-0.34
11/3/01 12:53	8.3663	22.99	-0.335
11/3/01 12:53	8.8645	22.99	-0.337
11/3/01 12:54	9.3913	22.99	-0.335
11/3/01 12:54	9.9497	22.99	-0.335
11/3/01 12:55	10.5413	22.99	-0.333
11/3/01 12:56	11.168	22.99	-0.333
11/3/01 12:56	11.8312	22.99	-0.333
11/3/01 12:57	12.5347	22.99	-0.331
11/3/01 12:58	13.2795	22.98	-0.331
11/3/01 12:59	14.0695	22.98	-0.331
11/3/01 12:59	14.9062	22.97	-0.33
11/3/01 13:00	15.7913	22.94	-0.33
11/3/01 13:01	16.7295	22.93	-0.329
11/3/01 13:02	17.723	22.93	-0.327

CALCULATION WORKSHEET Order No. 19116 (01-91) PAGE 1 OF

CLIENT	PARRIS IS.	JOB NUMBER	N0502
SUBJECT	SLUG TEST CALCS : WELL NO : MW02 SL		
BASED ON		DRAWING NUMBER	
BY	SJC 12/17/01	CHECKED BY	JK 12-28-01
APPROVED BY		DATE	

HVORSLEV

$$K = \frac{r^2 \ln(L/R)}{2L\,T_o}$$

$$= \frac{(.083)^2 \ln(5/.375)}{2(5 \cdot 1.15)}$$

$$= \frac{(.083)^2 (2.59)}{11.5}$$

$$= 1.55 \times 10^{-3} \text{ ft/min}$$

$$= 7.88 \times 10^{-4} \text{ cm/sec}$$

$$= 2 \text{ ft/day}$$

SEE PRINTOUT FOR MORE DATA

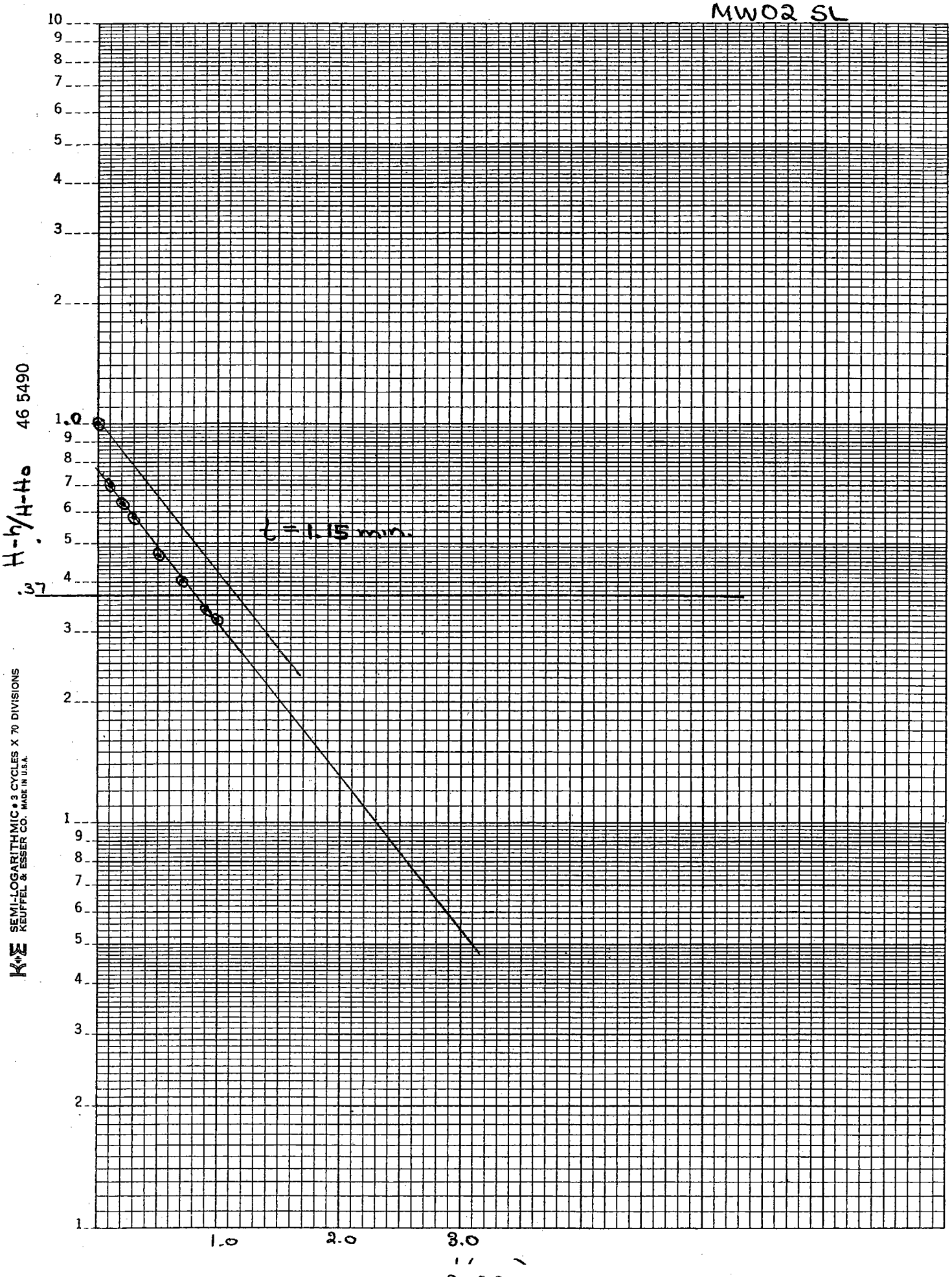
t (min)		H-h/H-Ho
0 =	2.22	1.00
.1 =	1.55	.70
.2 =	1.40	.63
.3	1.28	.58
.5	1.05	.47
.7	.89	.40
.9	.75	.34
1.0	.71	.32
2.0	.32	.14
3.0	.159	.07

r = 1"/12 = .083'

L = = 5'

R = 9"/12/2 .375'

To = 1.15 min (from plot)


MW02 SL
H-h/H-Ho
.37
t = 1.15 min.
1.0
2.0
3.0
SEMI-LOGARITHMIC • 3 CYCLES X 70 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.
46 5490

IN-SITU HYDRAULIC CONDUCTIVITY TESTING	Number	

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

PROJECT NAME: PAI-SITE 45 WELL/BORING NO.: MW02-SL

PROJECT NO.: N0502 GEOLOGIST: CONTI

WELL DIAMETER: 2" SCREEN LENGTH/DEPTH: 5' / 14.90 TEST NO.:

STATIC WATER LEVEL (Depth/Elevation): 3.09 DATE: 11/3/01

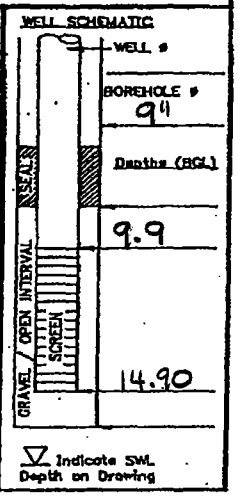
TEST TYPE (Rising/Falling/Constant Head): RISING CHECKED:

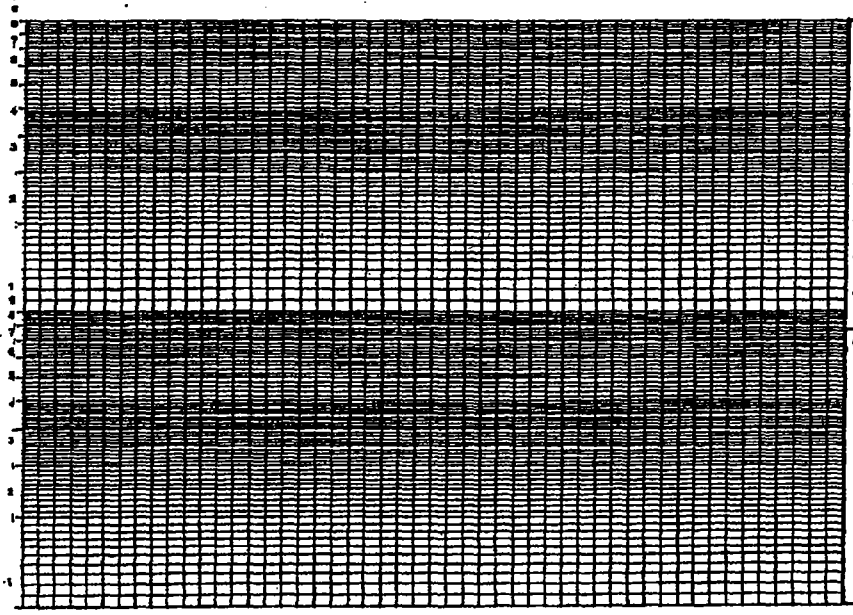
METHOD OF INDUCING WATER LEVEL CHANGE: 2 SECTION SLUG. PAGE 1 OF

REFERENCE PT. FOR WL MEAS. (Top of Casing, Transducer, etc.): TOC = 7.23 EL

ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)	ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)

WELL SCHEMATIC





REMARKS:

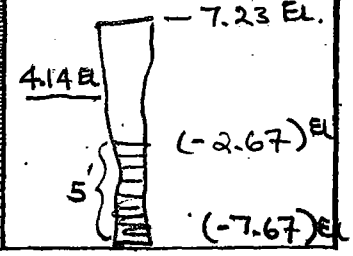
MW02 SL - RISING

1222 START.

11.356 - HEAD

CURVE: GOOD

CALCS, SKETCH MAPS, ETC.:



L = 5'

In-Situ Inc. MiniTroll Pro

Report generated 11/3/01 12:27:43
Report from file: C:\WIN-SITU\Data\SN02468 2001-11-03 122200 MW02SL-RISING.bin
DataMgr Version 3.69

Serial number: 2468
Firmware Version 3.01
Unit name: SLUG TESTS

Test name: MW02SL-RISING

Test defined on: 11/3/01 12:18:59
Test scheduled fo 11/3/01 12:22:00
Test started on: 11/3/01 12:22:00
Test stopped on: 11/3/01 12:27:38
Test extracted on: N/A

Data gathered using Logarithmic testing
Maximum time t Minutes.
Number of data 91

TOTAL DATA SA 91

Channel number [1]
Measurement ty Temperature
Channel name: OnBoard Temp

Channel number [2]
Measurement ty Pressure
Channel name: Pressure
Sensor Range: 30 PSI.
Specific gravity: 1
Mode: Surface
User-defined ref 0 Feet H2O
Referenced on: test start
Pressure head a 11.32 Feet H2O

Date	Time	ET (min)	Chan[1] Celsius	Chan[2] Feet H2O
11/3/01	12:22	0	23.26	0
11/3/01	12:22	0.0048	23.26	0.004
11/3/01	12:22	0.0098	23.26	0.006
11/3/01	12:22	0.015	23.27	0.006
11/3/01	12:22	0.0198	23.27	0.008
11/3/01	12:22	0.025	23.27	0.006
11/3/01	12:22	0.03	23.27	0.008
11/3/01	12:22	0.035	23.27	0.008
11/3/01	12:22	0.0398	23.27	0.008

11/3/01 12:22	0.045		23.28	0.008
11/3/01 12:22	0.05		23.28	0.008
11/3/01 12:22	0.0548		23.28	-0.147
11/3/01 12:22	0.06		23.28	-0.698
11/3/01 12:22	0.0648		23.28	-5.004
11/3/01 12:22	0.07		23.28	-1.039
11/3/01 12:22	0.075	*	23.28	-2.223
11/3/01 12:22	0.0798		23.28	-1.743
11/3/01 12:22	0.0848		23.28	-1.732
11/3/01 12:22	0.09		23.28	-1.734
11/3/01 12:22	0.095		23.28	-1.717
11/3/01 12:22	0.1		23.28	-1.702
11/3/01 12:22	0.1057		23.29	-1.685
11/3/01 12:22	0.1118		23.29	-1.674
11/3/01 12:22	0.1185		23.28	-1.661
11/3/01 12:22	0.1255		23.29	-1.644
11/3/01 12:22	0.1327		23.29	-1.629
11/3/01 12:22	0.1405		23.29	-1.614
11/3/01 12:22	0.1488		23.29	-1.599
11/3/01 12:22	0.1578		23.29	-1.582
11/3/01 12:22	0.167		23.29	-1.569
11/3/01 12:22	0.1768	*	23.28	-1.553
11/3/01 12:22	0.1875		23.28	-1.538
11/3/01 12:22	0.1985		23.28	-1.519
11/3/01 12:22	0.21		23.28	-1.502
11/3/01 12:22	0.2225		23.28	-1.485
11/3/01 12:22	0.2358		23.28	-1.463
11/3/01 12:22	0.2498		23.28	-1.444
11/3/01 12:22	0.2647		23.28	-1.422
11/3/01 12:22	0.2803	*	23.28	-1.401
11/3/01 12:22	0.297		23.28	-1.379
11/3/01 12:22	0.3145		23.28	-1.355
11/3/01 12:22	0.3333		23.28	-1.332
11/3/01 12:22	0.3532		23.28	-1.306
11/3/01 12:22	0.374	*	23.28	-1.28
11/3/01 12:22	0.3963		23.27	-1.254
11/3/01 12:22	0.4198		23.28	-1.228
11/3/01 12:22	0.4445		23.28	-1.2
11/3/01 12:22	0.4695		23.28	-1.172
11/3/01 12:22	0.4963		23.27	-1.142
11/3/01 12:22	0.5247		23.28	-1.112
11/3/01 12:22	0.5547		23.28	-1.084
11/3/01 12:22	0.5862	*	23.28	-1.054
11/3/01 12:22	0.6213		23.27	-1.021
11/3/01 12:22	0.6578		23.27	-0.987
11/3/01 12:22	0.6963		23.27	-0.954
11/3/01 12:22	0.738		23.27	-0.92
11/3/01 12:22	0.7813	*	23.27	-0.888
11/3/01 12:22	0.8278		23.28	-0.851
11/3/01 12:22	0.8762		23.27	-0.817
11/3/01 12:22	0.9278		23.27	-0.78
11/3/01 12:22	0.9828	*	23.27	-0.746

11/3/01 12:23	1.0412	*	23.27	-0.711
11/3/01 12:23	1.103		23.27	-0.674
11/3/01 12:23	1.1678		23.27	-0.638
11/3/01 12:23	1.238		23.27	-0.606
11/3/01 12:23	1.3113		23.27	-0.569
11/3/01 12:23	1.3895		23.27	-0.534
11/3/01 12:23	1.4728		23.27	-0.5
11/3/01 12:23	1.5613		23.27	-0.466
11/3/01 12:23	1.6547		23.26	-0.433
11/3/01 12:23	1.753		23.26	-0.403
11/3/01 12:23	1.858		23.26	-0.373
11/3/01 12:23	1.9678		23.26	-0.345
11/3/01 12:24	2.0845	*	23.26	-0.317
11/3/01 12:24	2.2097		23.26	-0.289
11/3/01 12:24	2.3412		23.26	-0.265
11/3/01 12:24	2.4812		23.26	-0.239
11/3/01 12:24	2.6297		23.26	-0.215
11/3/01 12:24	2.7863		23.26	-0.198
11/3/01 12:24	2.953		23.26	-0.177
11/3/01 12:25	3.1297	*	23.26	-0.159
11/3/01 12:25	3.3162		23.26	-0.144
11/3/01 12:25	3.5145		23.26	-0.129
11/3/01 12:25	3.7245		23.26	-0.116
11/3/01 12:25	3.9463		23.26	-0.103
11/3/01 12:26	4.1812		23.26	-0.093
11/3/01 12:26	4.4295		23.26	-0.084
11/3/01 12:26	4.6928		23.26	-0.075
11/3/01 12:26	4.9728		23.26	-0.067
11/3/01 12:27	5.2697		23.26	-0.062
11/3/01 12:27	5.583		23.26	-0.056

CALCULATION WORKSHEET Order No. 19116 (01-91) PAGE 1 OF

CLIENT	JOB NUMBER
PARRIS Is.	N0502

SUBJECT: SLUG TEST CALCS : WELL NO : MW03 SU

BASED ON	DRAWING NUMBER

BY	CHECKED BY	APPROVED BY	DATE
SJC 12/17/01	JK 12-28-01		

HVORSLEV

$$K = \frac{r^2 \ln(L/R)}{2L\,T_o}$$

$$= \frac{(.083)^2 \ln(3.12/.375)}{2(3.12 \times .4)}$$

$$= \frac{(.083)^2 (2.12)}{2.496}$$

$$= 4.368$$

$$= 5.85 \times 10^{-3}\ ft/min$$

$$= 2.97 \times 10^{-3}\ cm/sec$$

$$= \underline{8}\ ft/day$$

5 FT/DAY IF USE $0.7 = t_o$

SEE PRINTOUT FOR MORE DATA

t (min)	H-h/H-Ho
0 = 1.01	1.00
.1 = .77	.76
.2 = .602	.60
.3 = .492	.49
.4 = .443	.44
.5 = .408	.40
.6 = .391	.39
.7 = .378	.37
.8 = .358	.35
1.0 = .345	.34
2.0 = .30	.30

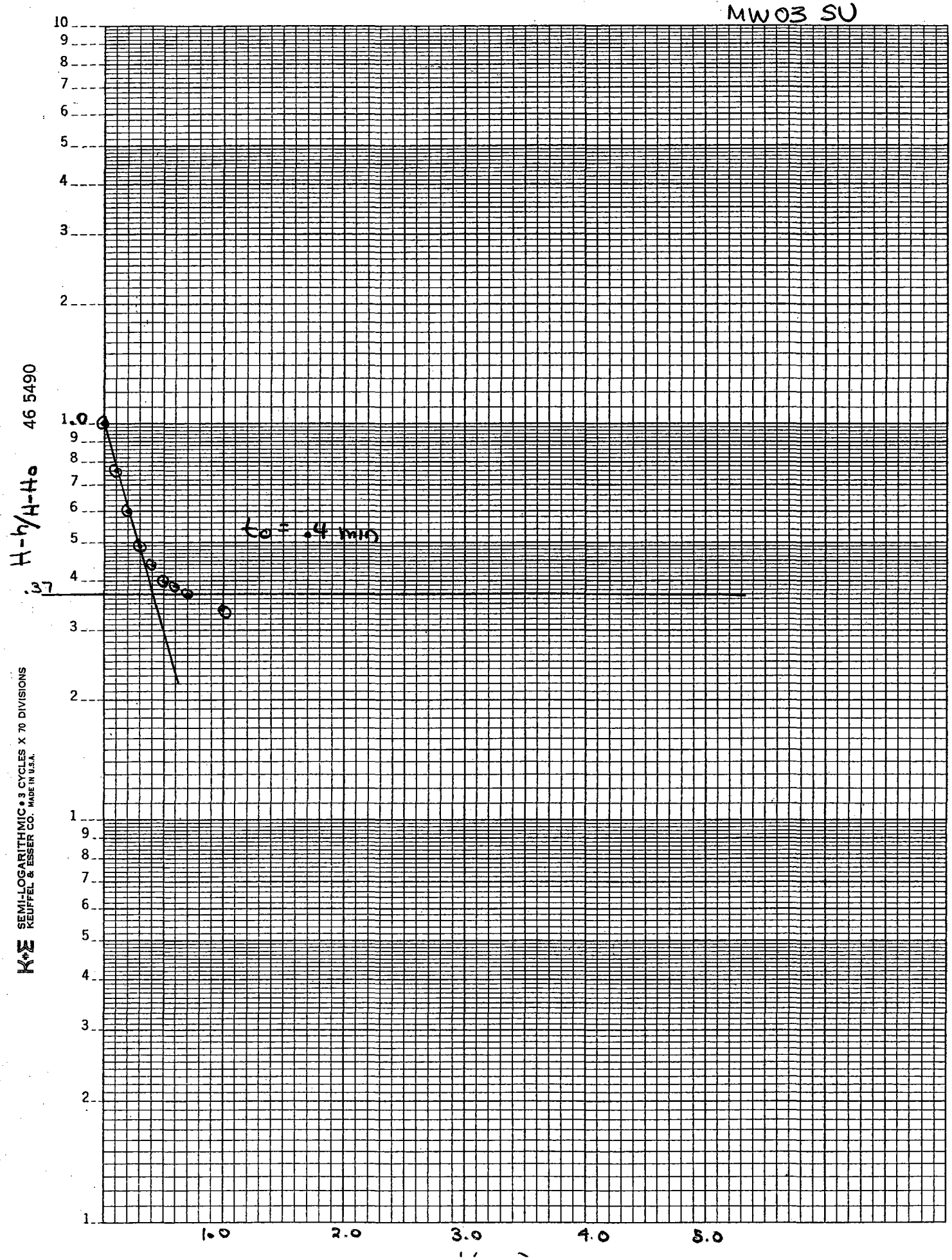
r = 1" = .083'

L = 3.12'

R = 9"/12/2 = .375

T_o = 0.4 min (from plot)

MW03 SU


10
9
8
7
6
5
4
3
2
1.0
9
8
7
6
5
4
.37
3
2
1
9
8
7
6
5
4
3
2
1
1.0
2.0
3.0
4.0
5.0
H-h/H-Ho
to = .4 min
46 5490
K&E SEMI-LOGARITHMIC • 3 CYCLES X 70 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.

IN-SITU HYDRAULIC CONDUCTIVITY TESTING	Number	

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

PROJECT NAME: PAI-SITE 45 WELL/BORING NO.: MW03SU

PROJECT NO.: N0502 GEOLOGIST: CONTI

WELL DIAMETER: 2" SCREEN LENGTH/DEPTH: 4/6.85' TEST NO.: 1

STATIC WATER LEVEL (Depth/Elevation): 3.73 DATE: 11/4/01

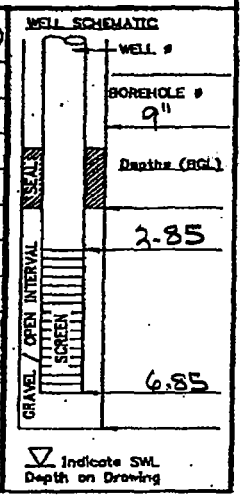
TEST TYPE (Rising/Falling/Constant Head): RISING CHECKED:

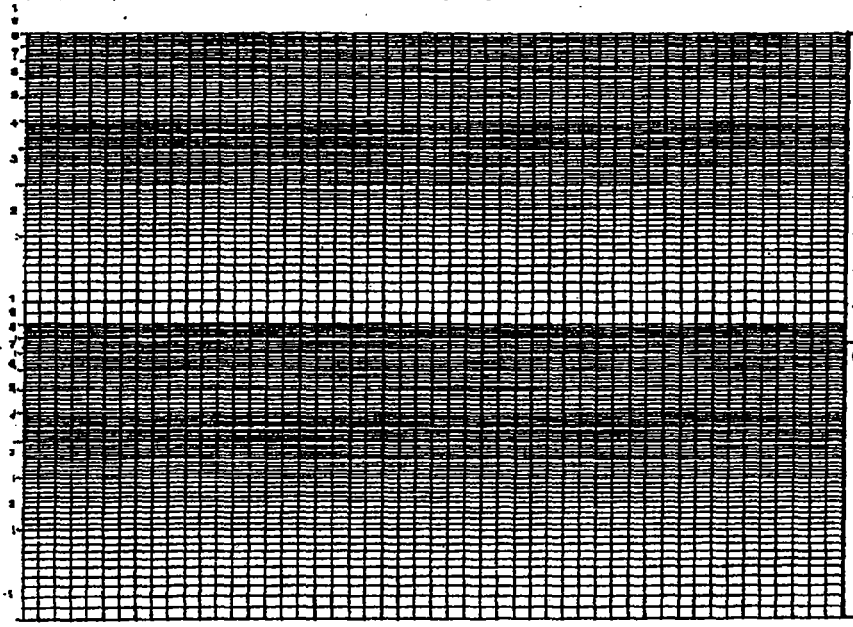
METHOD OF INDUCING WATER LEVEL CHANGE: 1-SEC SLUG PAGE 1 OF

REFERENCE PT. FOR WL MEAS. (Top of Casing, Transducer, etc.): TOC = 7.60'

ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)	ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)

WELL SCHEMATIC





REMARKS:

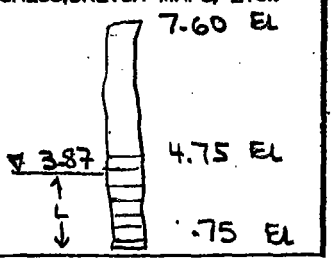
MW03SU-RISING

START:

HEAD: 3.394

CURVE: GOOD

CALCS, SKETCH MAPS, ETC.:



L = 3.12'

In-Situ Inc. MiniTroll Pro

Report generated: 11/4/01 9:10:36
Report from file: C:\WIN-SITU\Data\SN02468 2001-11-04 084500 MW03SU-RISING.bin
DataMgr Version 3.69

Serial number: 2468
Firmware Version 3.01
Unit name: SLUG TESTS

Test name: MW03SU-RISING

Test defined on: 11/4/01 8:43:43
Test scheduled for: 11/4/01 8:45:00
Test started on: 11/4/01 8:45:00
Test stopped on: 11/4/01 9:10:30
Test extracted on: N/A

Data gathered using Logarithmic testing
Maximum time between c Minutes.
Number of data samples: 117

TOTAL DATA SAMPLES 117

Channel number [1]
Measurement type: Temperature
Channel name: OnBoard Temp

Channel number [2]
Measurement type: Pressure
Channel name: Pressure
Sensor Range: 30 PSI.
Specific gravity: 1
Mode: Surface
User-defined reference: 0 Feet H2O
Referenced on: test start
Pressure head at referenc 3.392 Feet H2O

Date	Time	ET (min)	Chan[1] Celsius	Chan[2] Feet H2O
	11/4/01 8:45	0	23.71	0
	11/4/01 8:45	0.0048	23.72	0.002
	11/4/01 8:45	0.0098	23.72	0.004
	11/4/01 8:45	0.015	23.74	0.004
	11/4/01 8:45	0.0198	23.74	0.002
	11/4/01 8:45	0.025	23.74	0.004
	11/4/01 8:45	0.03	23.74	0.004
	11/4/01 8:45	0.035	23.74	0.004
	11/4/01 8:45	0.0398	23.74	0.004

11/4/01 8:45	0.045		23.75	-0.376
11/4/01 8:45	0.05		23.75	-1.246
11/4/01 8:45	0.0548	*	23.75	-1.012
11/4/01 8:45	0.06		23.75	-1.037
11/4/01 8:45	0.0648		23.75	-1.009
11/4/01 8:45	0.07		23.75	-1.009
11/4/01 8:45	0.075		23.75	-0.994
11/4/01 8:45	0.0798		23.75	-0.986
11/4/01 8:45	0.0848		23.75	-0.968
11/4/01 8:45	0.09		23.75	-0.949
11/4/01 8:45	0.095		23.75	-0.934
11/4/01 8:45	0.1		23.75	-0.921
11/4/01 8:45	0.1057		23.75	-0.904
11/4/01 8:45	0.1118		23.75	-0.887
11/4/01 8:45	0.1185		23.75	-0.869
11/4/01 8:45	0.1255		23.76	-0.85
11/4/01 8:45	0.1327		23.76	-0.831
11/4/01 8:45	0.1405		23.76	-0.811
11/4/01 8:45	0.1488		23.76	-0.79
11/4/01 8:45	0.1578	*	23.76	-0.77
11/4/01 8:45	0.167		23.76	-0.749
11/4/01 8:45	0.1768		23.75	-0.729
11/4/01 8:45	0.1875		23.75	-0.708
11/4/01 8:45	0.1985		23.75	-0.686
11/4/01 8:45	0.21		23.75	-0.665
11/4/01 8:45	0.2225		23.75	-0.645
11/4/01 8:45	0.2358		23.75	-0.624
11/4/01 8:45	0.2498	*	23.75	-0.602
11/4/01 8:45	0.2647		23.75	-0.581
11/4/01 8:45	0.2803		23.75	-0.561
11/4/01 8:45	0.297		23.75	-0.542
11/4/01 8:45	0.3145		23.75	-0.525
11/4/01 8:45	0.3333		23.75	-0.507
11/4/01 8:45	0.3532	*	23.75	-0.492
11/4/01 8:45	0.374		23.75	-0.479
11/4/01 8:45	0.3963		23.74	-0.464
11/4/01 8:45	0.4198		23.75	-0.453
11/4/01 8:45	0.4445	*	23.75	-0.443
11/4/01 8:45	0.4695		23.75	-0.434
11/4/01 8:45	0.4963		23.75	-0.423
11/4/01 8:45	0.5247		23.74	-0.416
11/4/01 8:45	0.5547	*	23.74	-0.408
11/4/01 8:45	0.5862		23.74	-0.401
11/4/01 8:45	0.6213		23.74	-0.395
11/4/01 8:45	0.6578	*	23.74	-0.391
11/4/01 8:45	0.6963		23.74	-0.384
11/4/01 8:45	0.738	*	23.74	-0.378
11/4/01 8:45	0.7813		23.74	-0.371
11/4/01 8:45	0.8278		23.74	-0.365
11/4/01 8:45	0.8762	*	23.74	-0.358
11/4/01 8:45	0.9278		23.74	-0.354
11/4/01 8:45	0.9828		23.74	-0.35

11/4/01 8:46	1.0412	*	23.74	-0.345
11/4/01 8:46	1.103		23.74	-0.339
11/4/01 8:46	1.1678		23.74	-0.337
11/4/01 8:46	1.238		23.74	-0.332
11/4/01 8:46	1.3113		23.74	-0.328
11/4/01 8:46	1.3895		23.74	-0.324
11/4/01 8:46	1.4728		23.74	-0.32
11/4/01 8:46	1.5613		23.74	-0.315
11/4/01 8:46	1.6547		23.74	-0.311
11/4/01 8:46	1.753		23.74	-0.309
11/4/01 8:46	1.858		23.74	-0.304
11/4/01 8:46	1.9678		23.74	-0.304
11/4/01 8:47	2.0845	*	23.74	-0.3
11/4/01 8:47	2.2097		23.72	-0.296
11/4/01 8:47	2.3412		23.74	-0.294
11/4/01 8:47	2.4812		23.74	-0.289
11/4/01 8:47	2.6297		23.72	-0.285
11/4/01 8:47	2.7863		23.72	-0.285
11/4/01 8:47	2.953		23.72	-0.28
11/4/01 8:48	3.1297	*	23.74	-0.279
11/4/01 8:48	3.3162		23.74	-0.274
11/4/01 8:48	3.5145		23.74	-0.272
11/4/01 8:48	3.7245		23.74	-0.27
11/4/01 8:48	3.9463		23.74	-0.268
11/4/01 8:49	4.1812		23.74	-0.266
11/4/01 8:49	4.4295		23.74	-0.261
11/4/01 8:49	4.6928		23.74	-0.261
11/4/01 8:49	4.9728		23.74	-0.257
11/4/01 8:50	5.2697		23.74	-0.255
11/4/01 8:50	5.583		23.74	-0.253
11/4/01 8:50	5.9145		23.74	-0.251
11/4/01 8:51	6.2663		23.74	-0.246
11/4/01 8:51	6.6395		23.74	-0.246
11/4/01 8:52	7.0345		23.74	-0.242
11/4/01 8:52	7.453		23.74	-0.24
11/4/01 8:52	7.8962		23.74	-0.24
11/4/01 8:53	8.3663		23.75	-0.236
11/4/01 8:53	8.8645		23.75	-0.234
11/4/01 8:54	9.3913		23.75	-0.229
11/4/01 8:54	9.9497		23.75	-0.227
11/4/01 8:55	10.5413		23.75	-0.223
11/4/01 8:56	11.168		23.75	-0.223
11/4/01 8:56	11.8312		23.75	-0.221
11/4/01 8:57	12.5347		23.75	-0.219
11/4/01 8:58	13.2795		23.75	-0.214
11/4/01 8:59	14.0695		23.76	-0.215
11/4/01 8:59	14.9062		23.76	-0.21
11/4/01 9:00	15.7913		23.76	-0.208
11/4/01 9:01	16.7295		23.76	-0.206
11/4/01 9:02	17.723		23.76	-0.204
11/4/01 9:03	18.7762		23.77	-0.202
11/4/01 9:04	19.8913		23.77	-0.198

11/4/01 9:06	21.073	23.77	-0.198
11/4/01 9:07	22.3247	23.77	-0.193
11/4/01 9:08	23.6497	23.77	-0.193
11/4/01 9:10	25.0545	23.77	-0.189

CALCULATION WORKSHEET Order No. 19116 (01-91) PAGE 1 OF

CLIENT: PARRIS Is.	JOB NUMBER: N0502
SUBJECT: SLUG TEST CALCS : WELL NO : MW03 SL	
BASED ON	DRAWING NUMBER
BY: SJC 12/17/01	CHECKED BY: JK 12-28-01
APPROVED BY	DATE

HVORSLEV

$$K = \frac{r^2 \ln(L/R)}{2L\,T_o}$$

$$= \frac{(.083)^2 \ln(5/.375)}{2(5)(.75)}$$

$$= \frac{(.083)^2 (2.59)}{7.5}$$

$$=$$

$$= 2.38 \times 10^{-3} \text{ ft/min}$$

$$= 1.21 \times 10^{-3} \text{ cm/sec}$$

$$= \underline{\underline{3}} \text{ ft/day}$$

SEE PRINTOUT FOR MORE DATA

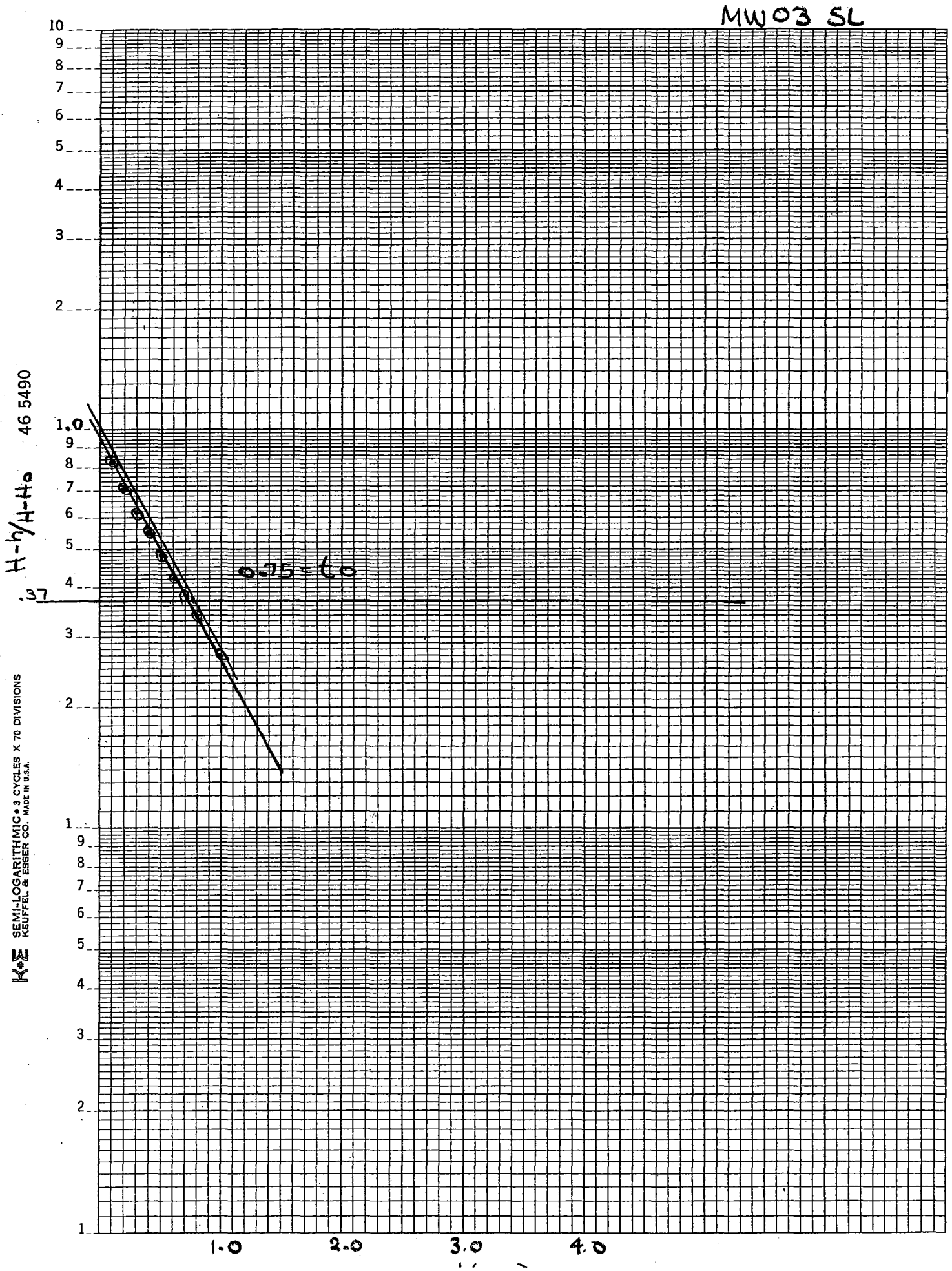
t (min)		H-h / H-Ho
0.0	= 2.139	1.00
0.1	1.769	.83
0.2	1.521	.71
0.3	1.327	.62
0.4	1.179	.55
0.5	1.026	.48
0.6	.903	.42
0.7	.821	.38
0.8	.737	.34
1.0	.571	.27
2.0	.190	.09

r = 1" ÷ 12 = .083'

L = = 5'

R = 9/12/2 = .375'

To = 0.75 m (from plot)


MW03 SL
H-h/H-Ho
46 5490
.37
0.75 = to
1.0
2.0
3.0
4.0
K+E SEMI-LOGARITHMIC • 3 CYCLES X 70 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.

IN-SITU HYDRAULIC CONDUCTIVITY TESTING	Number	

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

PROJECT NAME: PAI-SITE 45 WELL/BORING NO.: MW03SL

PROJECT NO.: N0502 GEOLOGIST: CONTI

WELL DIAMETER: 2 SCREEN LENGTH/DEPTH: 5 / 14.97 TEST NO.: 1

STATIC WATER LEVEL (Depth/Elevation): 3.65 @ 0920 HRS DATE: 11/4/01

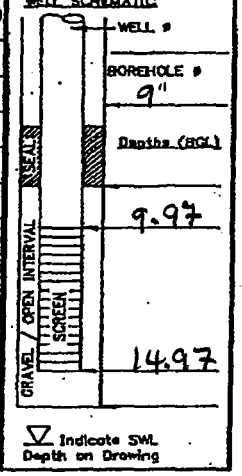
TEST TYPE (Rising/Falling/Constant Head): RISING CHECKED:

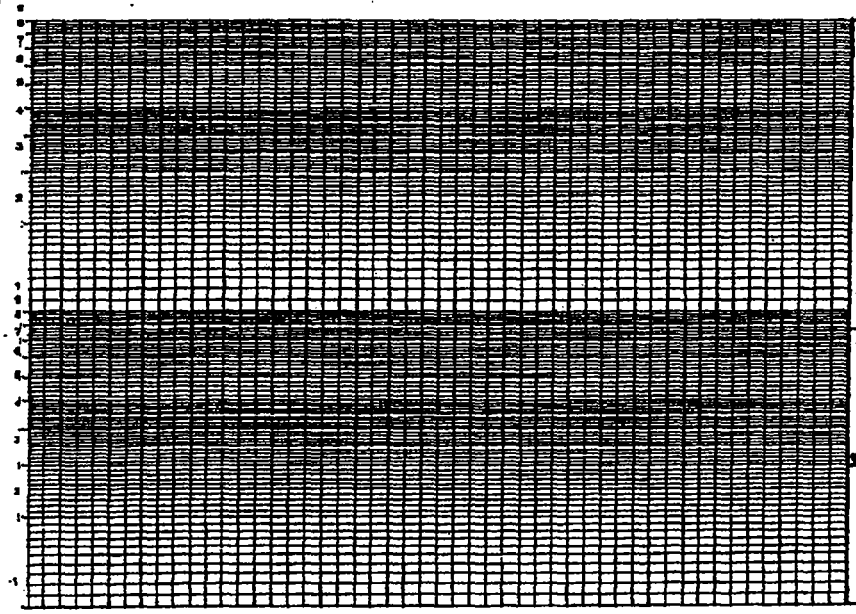
METHOD OF INDUCING WATER LEVEL CHANGE: PAGE 1 OF

REFERENCE PT. FOR WL MEAS. (Top of Casing, Transducer, etc.): TOC = 7.57 EL

ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)	ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)

WELL SCHEMATIC





REMARKS:

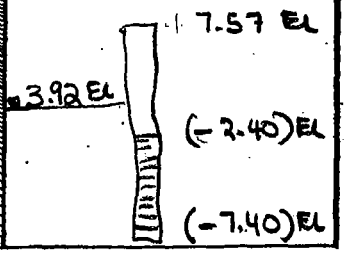
MW03SL-RISING

HEAD: 10.487

START: 0930

CURVE: GOOD

CALCS, SKETCH MAPS, ETC.:



L = 5'

In-Situ Inc. MiniTroll Pro

Report generated: 11/4/01 9:37:14
Report from file: C:\WIN-SITU\Data\SN02468 2001-11-04 093000 MW03SL-RISING.bin
DataMgr Version 3.69

Serial number: 2468
Firmware Version 3.01
Unit name: SLUG TESTS

Test name: MW03SL-RISING

Test defined on: 11/4/01 9:25:39
Test scheduled for: 11/4/01 9:30:00
Test started on: 11/4/01 9:30:00
Test stopped on: 11/4/01 9:37:11
Test extracted on: N/A

Data gathered using Logarithmic testing
Maximum time between dat: Minutes.
Number of data samples: 95

TOTAL DATA SAMPLES 95

Channel number [1]
Measurement type: Temperature
Channel name: OnBoard Temp

Channel number [2]
Measurement type: Pressure
Channel name: Pressure
Sensor Range: 30 PSI.
Specific gravity: 1
Mode: Surface
User-defined reference: 0 Feet H2O
Referenced on: test start
Pressure head at reference: 10.45 Feet H2O

Date	Time	ET (min)		Chan[1] Celsius	Chan[2] Feet H2O
11/4/01	9:30	0		24.29	0
11/4/01	9:30	0.0048		24.29	0.006
11/4/01	9:30	0.0098		24.29	0.006
11/4/01	9:30	0.015		24.3	0.008
11/4/01	9:30	0.0198		24.3	0.008
11/4/01	9:30	0.025		24.3	-0.089
11/4/01	9:30	0.03		24.3	-3.345
11/4/01	9:30	0.035		24.32	-1.5
11/4/01	9:30	0.0398	*	24.32	-2.139

11/4/01 9:30	0.045	24.32	-2.113
11/4/01 9:30	0.05	24.32	-2.081
11/4/01 9:30	0.0548	24.32	-2.047
11/4/01 9:30	0.06	24.32	-2.027
11/4/01 9:30	0.0648	24.32	-2.006
11/4/01 9:30	0.07	24.32	-1.988
11/4/01 9:30	0.075	24.32	-1.965
11/4/01 9:30	0.0798	24.32	-1.95
11/4/01 9:30	0.0848	24.32	-1.93
11/4/01 9:30	0.09	24.32	-1.915
11/4/01 9:30	0.095	24.32	-1.9
11/4/01 9:30	0.1	24.33	-1.885
11/4/01 9:30	0.1057	24.33	-1.866
11/4/01 9:30	0.1118	24.33	-1.849
11/4/01 9:30	0.1185	24.33	-1.829
11/4/01 9:30	0.1255	24.33	-1.808
11/4/01 9:30	0.1327	24.33	-1.788
11/4/01 9:30	0.1405	24.33	-1.769
11/4/01 9:30	0.1488	24.33	-1.745
11/4/01 9:30	0.1578	24.33	-1.724
11/4/01 9:30	0.167	24.33	-1.702
11/4/01 9:30	0.1768	24.33	-1.679
11/4/01 9:30	0.1875	24.33	-1.655
11/4/01 9:30	0.1985	24.32	-1.631
11/4/01 9:30	0.21	24.32	-1.605
11/4/01 9:30	0.2225	24.32	-1.577
11/4/01 9:30	0.2358	24.32	-1.549
11/4/01 9:30	0.2498	24.32	-1.521
11/4/01 9:30	0.2647	24.32	-1.489
11/4/01 9:30	0.2803	24.32	-1.459
11/4/01 9:30	0.297	24.32	-1.428
11/4/01 9:30	0.3145	24.32	-1.394
11/4/01 9:30	0.3333	24.32	-1.362
11/4/01 9:30	0.3532	24.32	-1.327
11/4/01 9:30	0.374	24.32	-1.291
11/4/01 9:30	0.3963	24.32	-1.254
11/4/01 9:30	0.4198	24.32	-1.217
11/4/01 9:30	0.4445	24.32	-1.179
11/4/01 9:30	0.4695	24.32	-1.142
11/4/01 9:30	0.4963	24.32	-1.103
11/4/01 9:30	0.5247	24.32	-1.064
11/4/01 9:30	0.5547	24.32	-1.026
11/4/01 9:30	0.5862	24.32	-0.987
11/4/01 9:30	0.6213	24.32	-0.946
11/4/01 9:30	0.6578	24.32	-0.903
11/4/01 9:30	0.6963	24.3	-0.864
11/4/01 9:30	0.738	24.3	-0.821
11/4/01 9:30	0.7813	24.3	-0.778
11/4/01 9:30	0.8278	24.3	-0.737
11/4/01 9:30	0.8762	24.3	-0.694
11/4/01 9:30	0.9278	24.3	-0.653
11/4/01 9:30	0.9828	24.3	-0.614

11/4/01 9:31	1.0412	24.3	-0.571
11/4/01 9:31	1.103	24.3	-0.534
11/4/01 9:31	1.1678	24.3	-0.498
11/4/01 9:31	1.238	24.3	-0.459
11/4/01 9:31	1.3113	24.3	-0.425
11/4/01 9:31	1.3895	24.3	-0.388
11/4/01 9:31	1.4728	24.3	-0.356
11/4/01 9:31	1.5613	24.29	-0.323
11/4/01 9:31	1.6547	24.3	-0.293
11/4/01 9:31	1.753	24.3	-0.265
11/4/01 9:31	1.858	24.29	-0.237
11/4/01 9:31	1.9678	24.29	-0.213
11/4/01 9:32	2.0845	24.29	-0.19
11/4/01 9:32	2.2097	24.29	-0.168
11/4/01 9:32	2.3412	24.29	-0.151
11/4/01 9:32	2.4812	24.29	-0.131
11/4/01 9:32	2.6297	24.29	-0.116
11/4/01 9:32	2.7863	24.29	-0.103
11/4/01 9:32	2.953	24.28	-0.088
11/4/01 9:33	3.1297	24.29	-0.075
11/4/01 9:33	3.3162	24.29	-0.067
11/4/01 9:33	3.5145	24.29	-0.058
11/4/01 9:33	3.7245	24.29	-0.052
11/4/01 9:33	3.9463	24.28	-0.045
11/4/01 9:34	4.1812	24.28	-0.041
11/4/01 9:34	4.4295	24.28	-0.034
11/4/01 9:34	4.6928	24.28	-0.03
11/4/01 9:34	4.9728	24.28	-0.028
11/4/01 9:35	5.2697	24.28	-0.026
11/4/01 9:35	5.583	24.28	-0.023
11/4/01 9:35	5.9145	24.28	-0.019
11/4/01 9:36	6.2663	24.28	-0.019
11/4/01 9:36	6.6395	24.28	-0.017
11/4/01 9:37	7.0345	24.28	-0.017

CALCULATION WORKSHEET Order No. 19116 (01-91) PAGE 1 OF

CLIENT	PARRIS IS.	JOB NUMBER	N0502
SUBJECT	SLUG TEST CALCS : WELL NO : MW 04 SU		
BASED ON		DRAWING NUMBER	
BY	SJC 12/18/01	CHECKED BY	JK-12-28-01
APPROVED BY		DATE	

HVORSLEV

$$K = \frac{r^2 \ln(L/R)}{2L\,T_o}$$

$$= \frac{(.083)^2 \ln(3.74/.375)}{2(3.74)(.25)}$$

$$= \frac{(.083)^2 (2.30)}{1.87}$$

$$=$$

$$= 8.47 \times 10^{-3} \text{ ft/min}$$

$$= 4.30 \times 10^{-3} \text{ cm/sec}$$

$$= \underline{12} \text{ ft/day}$$

SEE PRINTOUT FOR MORE DATA

t (min)		H-h/H-Ho
0 =	1.167	1.00
.1	.712	.61
.2	.486	.42
.3	.354	.30
.4	.292	.25
.5	.249	.21
.6	.225	.19
.7	.212	.18

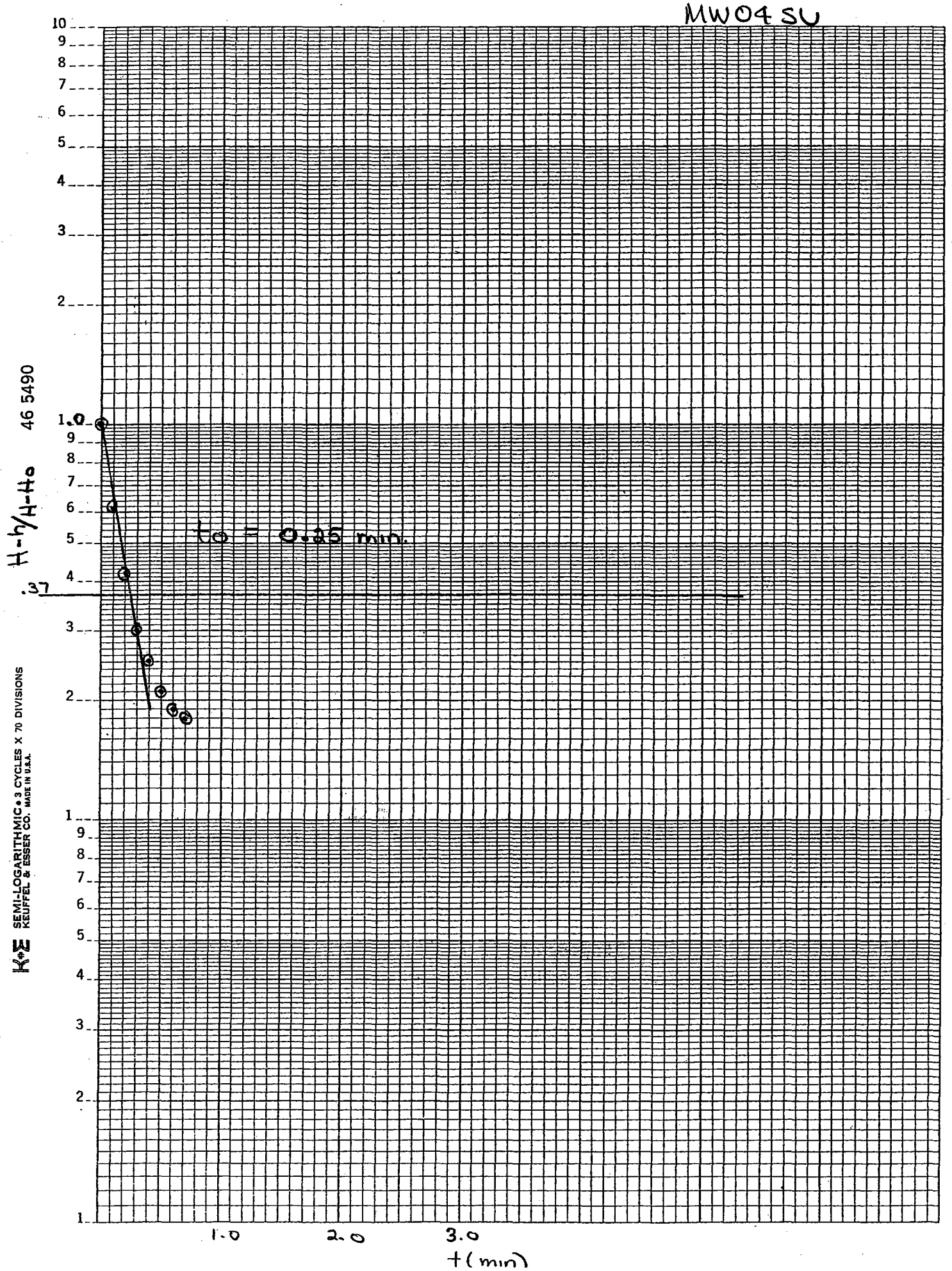
r = 1"/12 = .083'

L = 3.74'

R = 9"/12/2 .375

To = 0.25 (from plot)

MW04SU


H-h/H-Ho
46 5490
to = 0.25 min.
.37
10
9
8
7
6
5
4
3
2
1.0
9
8
7
6
5
4
3
2
1
9
8
7
6
5
4
3
2
1
1.0
2.0
3.0
t (min)
K+E SEMI-LOGARITHMIC • 3 CYCLES X 70 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.

B-57

IN-SITU HYDRAULIC CONDUCTIVITY TESTING	Number	

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

PROJECT NAME: PAI - SITE 45 WELL/BORING NO.: MW04SU

PROJECT NO.: N0502 GEOLOGIST: CONTI

WELL DIAMETER: 2" SCREEN LENGTH/DEPTH: 4' / 7.20 TEST NO.:

STATIC WATER LEVEL (Depth/Elevation): 3.46 DATE: 11/2/01

TEST TYPE (Rising/Falling/Constant Head): RISING CHECKED:

METHOD OF INDUCING WATER LEVEL CHANGE: 1 - SECT SLUG PAGE 1 OF

REFERENCE PT. FOR WL MEAS. (Top of Casing, Transducer, etc.): TOC = 6.98 EL

ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)	ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)

WELL SCHEMATIC

WELL #

BOREHOLE # 9"

Depths (BGL)

SEALS

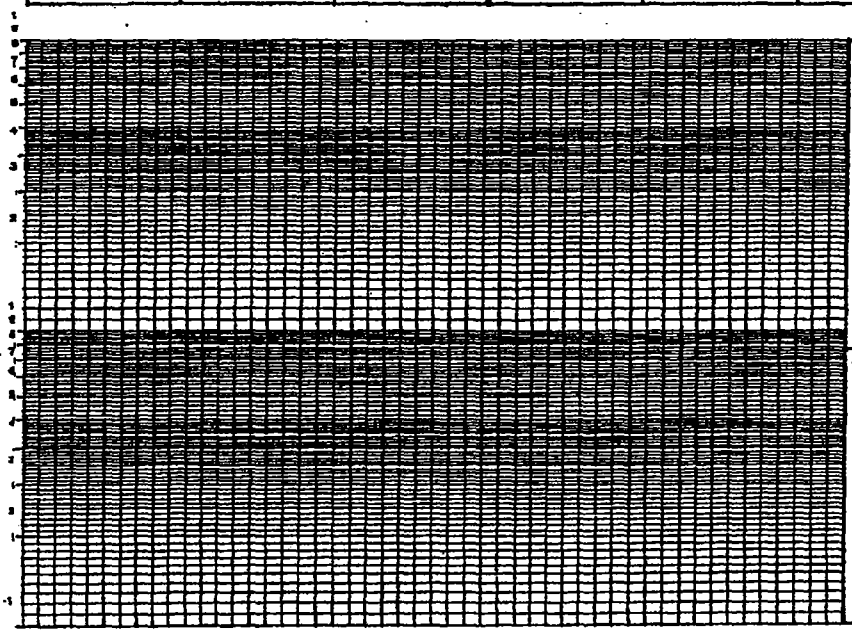
3.20

GRAVEL / OPEN INTERVAL

SCREEN

7.20

▽ Indicate SWL Depth on Drawing



REMARKS:

MW04SU - RISING

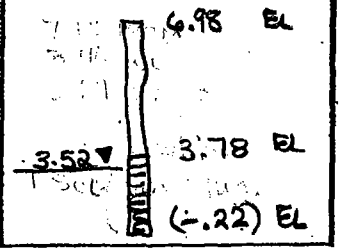
3.668 HEAD.

START @ 1715

3.69' WATER

TxAll on BOTM

CALCS, SKETCH MAPS, ETC.:



L = 3.74'

In-Situ Inc. MiniTroll Pro

Report generated: 11/2/01 17:21:05
Report from file: C:\WIN-SITU\Data\SN02468 2001-11-02 171500 MW04SU-RISING.bin
DataMgr Version 3.69

Serial number: 2468
Firmware Version 3.01
Unit name: SLUG TESTS

Test name: MW04SU-RISING

Test defined on: 11/2/01 17:06:46
Test scheduled for: 11/2/01 17:15:00
Test started on: 11/2/01 17:15:00
Test stopped on: 11/2/01 17:21:00
Test extracted on: N/A

Data gathered using Logarithmic testing
Maximum time between d Minutes.
Number of data samples: 92

TOTAL DATA SAMPLES 92

Channel number [1]
Measurement type: Temperature
Channel name: OnBoard Temp

Channel number [2]
Measurement type: Pressure
Channel name: Pressure
Sensor Range: 30 PSI.
Specific gravity: 1
Mode: Surface
User-defined reference: 0 Feet H2O
Referenced on: test start
Pressure head at referenc 3.624 Feet H2O

Date	Time	ET (min)	Chan[1] Celsius	Chan[2] Feet H2O
	11/2/01 17:15	0	22.61	0
	11/2/01 17:15	0.0048	22.63	0.004
	11/2/01 17:15	0.0098	22.63	0.004
	11/2/01 17:15	0.015	22.64	0.004
	11/2/01 17:15	0.0198	22.64	0.002
	11/2/01 17:15	0.025	22.64	0.004
	11/2/01 17:15	0.03	22.64	0.004
	11/2/01 17:15	0.035	22.64	0.004
	11/2/01 17:15	0.0398	22.64	-0.283

11/2/01 17:15	0.045		22.65	-0.652
11/2/01 17:15	0.05		22.65	-1.872
11/2/01 17:15	0.0548	*	22.65	-1.167
11/2/01 17:15	0.06		22.65	-1.001
11/2/01 17:15	0.0648		22.65	-0.986
11/2/01 17:15	0.07		22.65	-0.966
11/2/01 17:15	0.075		22.65	-0.943
11/2/01 17:15	0.0798		22.65	-0.925
11/2/01 17:15	0.0848		22.65	-0.908
11/2/01 17:15	0.09		22.65	-0.891
11/2/01 17:15	0.095		22.65	-0.872
11/2/01 17:15	0.1		22.65	-0.856
11/2/01 17:15	0.1057		22.65	-0.839
11/2/01 17:15	0.1118		22.65	-0.82
11/2/01 17:15	0.1185		22.65	-0.8
11/2/01 17:15	0.1255		22.65	-0.779
11/2/01 17:15	0.1327		22.66	-0.758
11/2/01 17:15	0.1405		22.66	-0.734
11/2/01 17:15	0.1488	*	22.66	-0.712
11/2/01 17:15	0.1578		22.66	-0.687
11/2/01 17:15	0.167		22.66	-0.665
11/2/01 17:15	0.1768		22.65	-0.641
11/2/01 17:15	0.1875		22.65	-0.615
11/2/01 17:15	0.1985		22.65	-0.589
11/2/01 17:15	0.21		22.65	-0.563
11/2/01 17:15	0.2225		22.65	-0.538
11/2/01 17:15	0.2358		22.65	-0.514
11/2/01 17:15	0.2498	*	22.65	-0.486
11/2/01 17:15	0.2647		22.65	-0.462
11/2/01 17:15	0.2803		22.65	-0.438
11/2/01 17:15	0.297		22.65	-0.415
11/2/01 17:15	0.3145		22.65	-0.393
11/2/01 17:15	0.3333		22.65	-0.374
11/2/01 17:15	0.3532	*	22.65	-0.354
11/2/01 17:15	0.374		22.65	-0.337
11/2/01 17:15	0.3963		22.65	-0.32
11/2/01 17:15	0.4198		22.65	-0.305
11/2/01 17:15	0.4445	*	22.65	-0.292
11/2/01 17:15	0.4695		22.65	-0.279
11/2/01 17:15	0.4963		22.65	-0.27
11/2/01 17:15	0.5247		22.65	-0.26
11/2/01 17:15	0.5547	*	22.65	-0.249
11/2/01 17:15	0.5862		22.65	-0.24
11/2/01 17:15	0.6213		22.65	-0.234
11/2/01 17:15	0.6578	*	22.65	-0.225
11/2/01 17:15	0.6963		22.65	-0.219
11/2/01 17:15	0.738	*	22.65	-0.212
11/2/01 17:15	0.7813		22.65	-0.206
11/2/01 17:15	0.8278		22.65	-0.199
11/2/01 17:15	0.8762	*	22.65	-0.193
11/2/01 17:15	0.9278		22.65	-0.186
11/2/01 17:15	0.9828	*	22.65	-0.18

11/2/01 17:16	1.0412	22.65	-0.173
11/2/01 17:16	1.103	22.64	-0.167
11/2/01 17:16	1.1678	22.64	-0.16
11/2/01 17:16	1.238	22.64	-0.154
11/2/01 17:16	1.3113	22.64	-0.145
11/2/01 17:16	1.3895	22.64	-0.141
11/2/01 17:16	1.4728	22.64	-0.132
11/2/01 17:16	1.5613	22.64	-0.126
11/2/01 17:16	1.6547	22.64	-0.119
11/2/01 17:16	1.753	22.64	-0.113
11/2/01 17:16	1.858	22.64	-0.106
11/2/01 17:16	1.9678	22.64	-0.1
11/2/01 17:17	2.0845	22.64	-0.093
11/2/01 17:17	2.2097	22.65	-0.089
11/2/01 17:17	2.3412	22.65	-0.085
11/2/01 17:17	2.4812	22.65	-0.079
11/2/01 17:17	2.6297	22.65	-0.072
11/2/01 17:17	2.7863	22.65	-0.068
11/2/01 17:17	2.953	22.65	-0.061
11/2/01 17:18	3.1297	22.65	-0.059
11/2/01 17:18	3.3162	22.65	-0.055
11/2/01 17:18	3.5145	22.66	-0.051
11/2/01 17:18	3.7245	22.66	-0.049
11/2/01 17:18	3.9463	22.66	-0.044
11/2/01 17:19	4.1812	22.66	-0.04
11/2/01 17:19	4.4295	22.66	-0.038
11/2/01 17:19	4.6928	22.68	-0.036
11/2/01 17:19	4.9728	22.68	-0.036
11/2/01 17:20	5.2697	22.68	-0.034
11/2/01 17:20	5.583	22.68	-0.034
11/2/01 17:20	5.9145	22.69	-0.032

CALCULATION WORKSHEET Order No. 19116 (01-91) PAGE 1 OF

CLIENT	PARRIS IS.	JOB NUMBER	N0502
SUBJECT	SLUG TEST CALCS : WELL NO : MW04SL		
BASED ON		DRAWING NUMBER	
BY	CHECKED BY	APPROVED BY	DATE
SJC 12/17/01	JK 12-28-01		

HVORSLEV

$$K = \frac{r^2 \ln(L/R)}{2L\,T_o}$$

$$= \frac{(.083)^2 \ln(5/.375)}{2(5\times.68)}$$

$$= \frac{(.083)^2 (2.59)}{6.8}$$

$$=$$

$$= 2.62\times10^{-3} \text{ ft/min}$$

$$= 1.33\times10^{-3} \text{ cm/sec}$$

$$= \underline{\underline{4}} \text{ ft/day}$$

SEE PRINTOUT FOR MORE DATA

t (min)	H-h / H-Ho
*0.0 = 2.000	1.00
.1 = 1.573	.79
.2 = 1.34	.67
.3 = 1.144	.57
.4 = .998	.50
.5 = .847	.42
.6 = .731	.37
.7 = .651	.33
.8 = .537	.27
1.0 = .427	.21
2.0 = .117	.06

* Theoretical Value ±

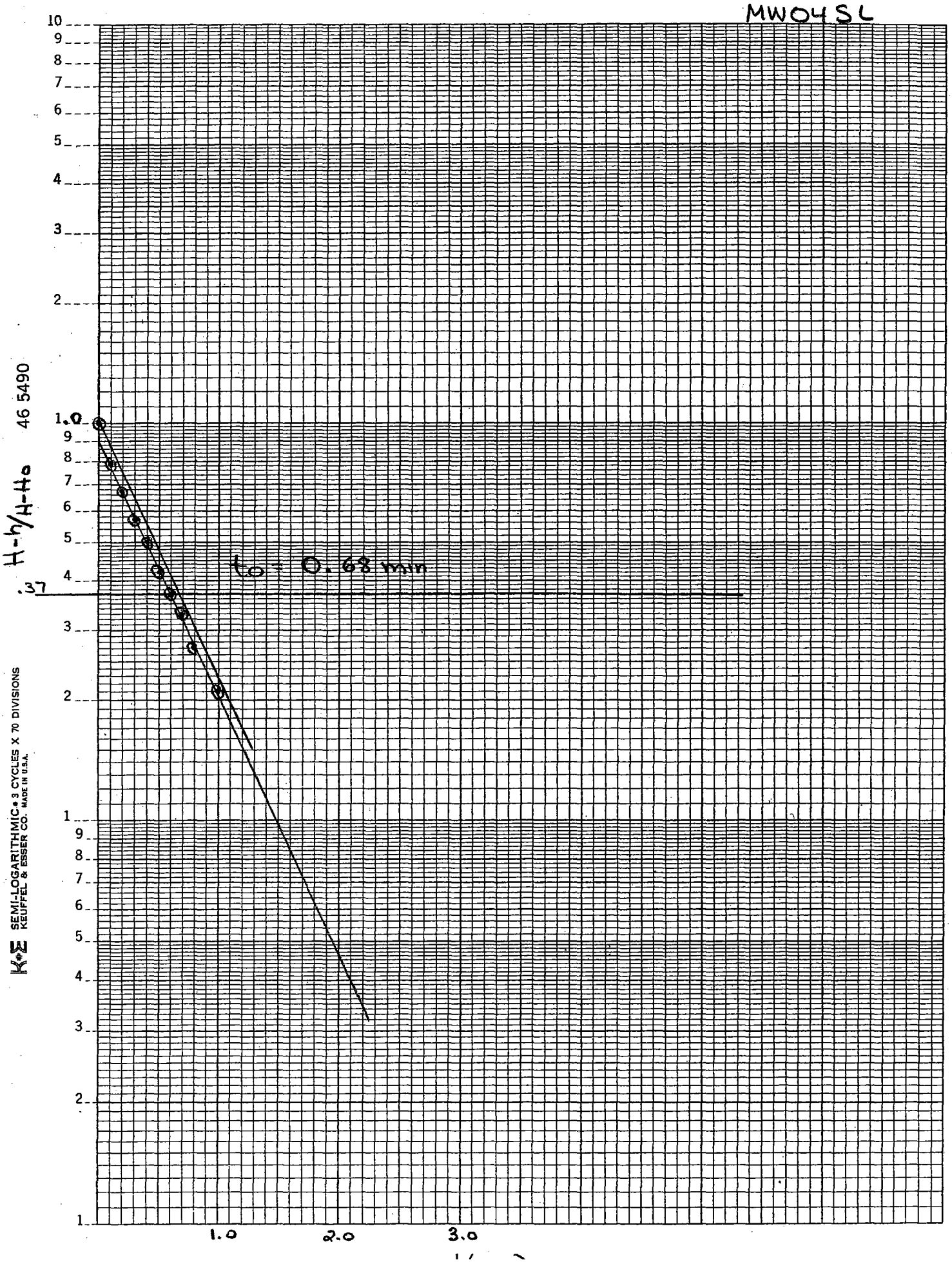
r = 1" ÷ 12 = .083'

L = 5'

R = 9"/12/2 .375

T_o = 0.68 m (from plot)

MW04SL



H-h/H-Ho
46 5490
.37
to = 0.68 min
1.0
2.0
3.0
K+E SEMI-LOGARITHMIC • 3 CYCLES X 70 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.

IN-SITU HYDRAULIC CONDUCTIVITY TESTING	Number	

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

PROJECT NAME: PAI-SITE 45 WELL/BORING NO.: MW04SL

PROJECT NO.: N0502 GEOLOGIST: CONTI

WELL DIAMETER: 2" SCREEN LENGTH/DEPTH: 5' / 15.04 TEST NO.: 1

STATIC WATER LEVEL (Depth/Elevation): 3.35 DATE: 11/2/01

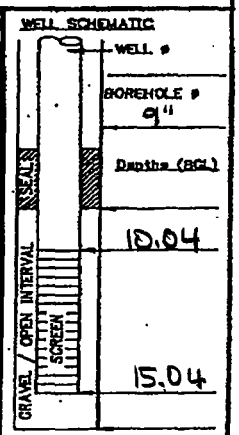
TEST TYPE (Rising/Falling/Constant Head): RISING CHECKED:

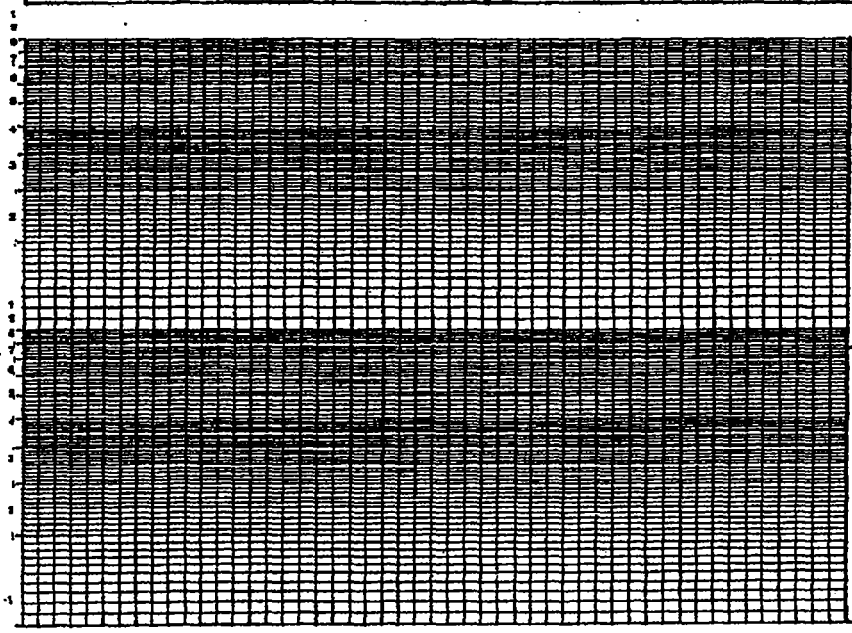
METHOD OF INDUCING WATER LEVEL CHANGE: 2" SLUG 2 SEC PAGE 1 OF

REFERENCE PT. FOR WL MEAS. (Top of Casing, Transducer, etc.): TOC = 6.93

ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)	ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)

WELL SCHEMATIC





REMARKS:

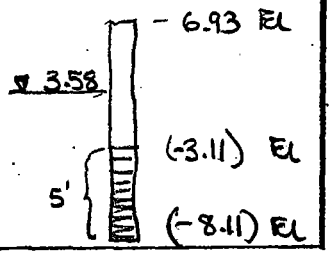
MW04SL-RISING.

8.237 Head

START 1650

Good Curve.

CALCS,SKETCH MAPS, ETC.:



L = 5'

In-Situ Inc. MiniTroll Pro

Report generated: 11/2/01 16:58:43
Report from file: C:\WIN-SITU\Data\SN02468 2001-11-02 165000 MW04SL-RISING.bin
DataMgr Version 3.69

Serial number: 2468
Firmware Version 3.01
Unit name: SLUG TESTS

Test name: MW04SL-RISING

Test defined on: 11/2/01 16:46:26
Test scheduled for: 11/2/01 16:50:00
Test started on: 11/2/01 16:50:00
Test stopped on: 11/2/01 16:58:30
Test extracted on: N/A

Data gathered using Logarithmic testing
Maximum time between c Minutes.
Number of data samples: 98

TOTAL DATA SAMPLES 98

Channel number [1]
Measurement type: Temperature
Channel name: OnBoard Temp

Channel number [2]
Measurement type: Pressure
Channel name: Pressure
Sensor Range: 30 PSI.
Specific gravity: 1
Mode: Surface
User-defined reference: 0 Feet H2O
Referenced on: test start
Pressure head at referenc 8.153 Feet H2O

Date	Time	ET (min)	Chan[1] Celsius	Chan[2] Feet H2O
11/2/01	16:50	0	23.69	0
11/2/01	16:50	0.0048	23.69	0.052
11/2/01	16:50	0.0098	23.7	0.019
11/2/01	16:50	0.015	23.7	-0.002
11/2/01	16:50	0.0198	23.71	0.034
11/2/01	16:50	0.025	23.71	0.058
11/2/01	16:50	0.03	23.71	0.019
11/2/01	16:50	0.035	23.71	-0.05
11/2/01	16:50	0.0398	23.71	-2.344

11/2/01 16:50	0.045		23.71	-2.467
11/2/01 16:50	0.05		23.71	-2.364
11/2/01 16:50	0.0548		23.71	-1.87
11/2/01 16:50	0.06		23.72	-1.845
11/2/01 16:50	0.0648		23.72	-1.838
11/2/01 16:50	0.07		23.72	-1.817
11/2/01 16:50	0.075		23.72	-1.8
11/2/01 16:50	0.0798		23.72	-1.78
11/2/01 16:50	0.0848		23.72	-1.763
11/2/01 16:50	0.09		23.72	-1.746
11/2/01 16:50	0.095		23.72	-1.729
11/2/01 16:50	0.1		23.72	-1.713
11/2/01 16:50	0.1057		23.72	-1.694
11/2/01 16:50	0.1118		23.72	-1.677
11/2/01 16:50	0.1185		23.72	-1.655
11/2/01 16:50	0.1255		23.72	-1.638
11/2/01 16:50	0.1327		23.72	-1.616
11/2/01 16:50	0.1405		23.72	-1.597
11/2/01 16:50	0.1488	*	23.72	-1.573
11/2/01 16:50	0.1578		23.72	-1.552
11/2/01 16:50	0.167		23.72	-1.53
11/2/01 16:50	0.1768		23.72	-1.507
11/2/01 16:50	0.1875		23.72	-1.483
11/2/01 16:50	0.1985		23.72	-1.455
11/2/01 16:50	0.21		23.72	-1.429
11/2/01 16:50	0.2225		23.72	-1.401
11/2/01 16:50	0.2358		23.72	-1.373
11/2/01 16:50	0.2498	*	23.71	-1.34
11/2/01 16:50	0.2647		23.71	-1.31
11/2/01 16:50	0.2803		23.71	-1.28
11/2/01 16:50	0.297		23.71	-1.246
11/2/01 16:50	0.3145		23.71	-1.213
11/2/01 16:50	0.3333		23.71	-1.179
11/2/01 16:50	0.3532	*	23.71	-1.144
11/2/01 16:50	0.374		23.71	-1.108
11/2/01 16:50	0.3963		23.71	-1.071
11/2/01 16:50	0.4198		23.71	-1.035
11/2/01 16:50	0.4445	*	23.71	-0.998
11/2/01 16:50	0.4695		23.71	-0.961
11/2/01 16:50	0.4963		23.71	-0.923
11/2/01 16:50	0.5247		23.71	-0.886
11/2/01 16:50	0.5547	*	23.71	-0.847
11/2/01 16:50	0.5862		23.71	-0.808
11/2/01 16:50	0.6213		23.71	-0.77
11/2/01 16:50	0.6578	*	23.71	-0.731
11/2/01 16:50	0.6963		23.71	-0.69
11/2/01 16:50	0.738	*	23.71	-0.651
11/2/01 16:50	0.7813		23.71	-0.612
11/2/01 16:50	0.8278		23.71	-0.574
11/2/01 16:50	0.8762	*	23.71	-0.537
11/2/01 16:50	0.9278		23.71	-0.5
11/2/01 16:50	0.9828		23.71	-0.464

< 2,000

11/2/01 16:51	1.0412	*	23.71	-0.427
11/2/01 16:51	1.103		23.71	-0.395
11/2/01 16:51	1.1678		23.71	-0.36
11/2/01 16:51	1.238		23.71	-0.33
11/2/01 16:51	1.3113		23.71	-0.3
11/2/01 16:51	1.3895		23.71	-0.27
11/2/01 16:51	1.4728		23.71	-0.244
11/2/01 16:51	1.5613		23.71	-0.218
11/2/01 16:51	1.6547		23.71	-0.195
11/2/01 16:51	1.753		23.71	-0.171
11/2/01 16:51	1.858		23.71	-0.151
11/2/01 16:51	1.9678		23.71	-0.134
11/2/01 16:52	2.0845	*	23.71	-0.117
11/2/01 16:52	2.2097		23.71	-0.1
11/2/01 16:52	2.3412		23.71	-0.087
11/2/01 16:52	2.4812		23.71	-0.074
11/2/01 16:52	2.6297		23.71	-0.063
11/2/01 16:52	2.7863		23.71	-0.052
11/2/01 16:52	2.953	*	23.71	-0.046
11/2/01 16:53	3.1297		23.71	-0.037
11/2/01 16:53	3.3162		23.71	-0.031
11/2/01 16:53	3.5145		23.71	-0.026
11/2/01 16:53	3.7245		23.71	-0.022
11/2/01 16:53	3.9463		23.71	-0.016
11/2/01 16:54	4.1812		23.71	-0.014
11/2/01 16:54	4.4295		23.71	-0.011
11/2/01 16:54	4.6928		23.71	-0.007
11/2/01 16:54	4.9728		23.71	-0.005
11/2/01 16:55	5.2697		23.71	-0.005
11/2/01 16:55	5.583		23.71	-0.003
11/2/01 16:55	5.9145		23.71	-0.001
11/2/01 16:56	6.2663		23.71	0.002
11/2/01 16:56	6.6395		23.71	0.004
11/2/01 16:57	7.0345		23.71	0.006
11/2/01 16:57	7.453		23.71	0.01
11/2/01 16:57	7.8962		23.7	0.017
11/2/01 16:58	8.3663		23.71	0.021

CALCULATION WORKSHEET Order No. 19116 (01-91) PAGE 1 OF

CLIENT: PARRIS IS.	JOB NUMBER: N0502
SUBJECT: SLUG TEST CALCS : WELL NO : MW04D	
BASED ON	DRAWING NUMBER
BY: SJC 12/17/01	CHECKED BY: JK 12-20-01
APPROVED BY	DATE

HVORSLEV

$$K = \frac{r^2 \ln(L/R)}{2L\,T_o}$$

$$= \frac{(.083)^2 \ln(10/.24)}{2(10 \times 2.35)}$$

$$= \frac{(.083)^2 (3.73)}{47}$$

$$= 5.47 \times 10^{-4} \text{ ft/min}$$

$$= 2.78 \times 10^{-4} \text{ cm/sec}$$

$$= 0.8 \text{ ft/day}$$

SEE PRINTOUT FOR MORE DATA

t (min)		H-h/H-Ho
0	= 2.202	1.00
.1	= 2.023	.92
.2	1.93	.88
.3	1.833	.83
.4	1.758	.80
.5	1.693	.77
.6	1.62	.74
.7	1.538	.70
.8	1.478	.67
1.0	1.383	.63
2.0	.924	.42
3.0	.635	.29
4.0	.445	.20
5.0	.346	.16
6.0	.262	.12

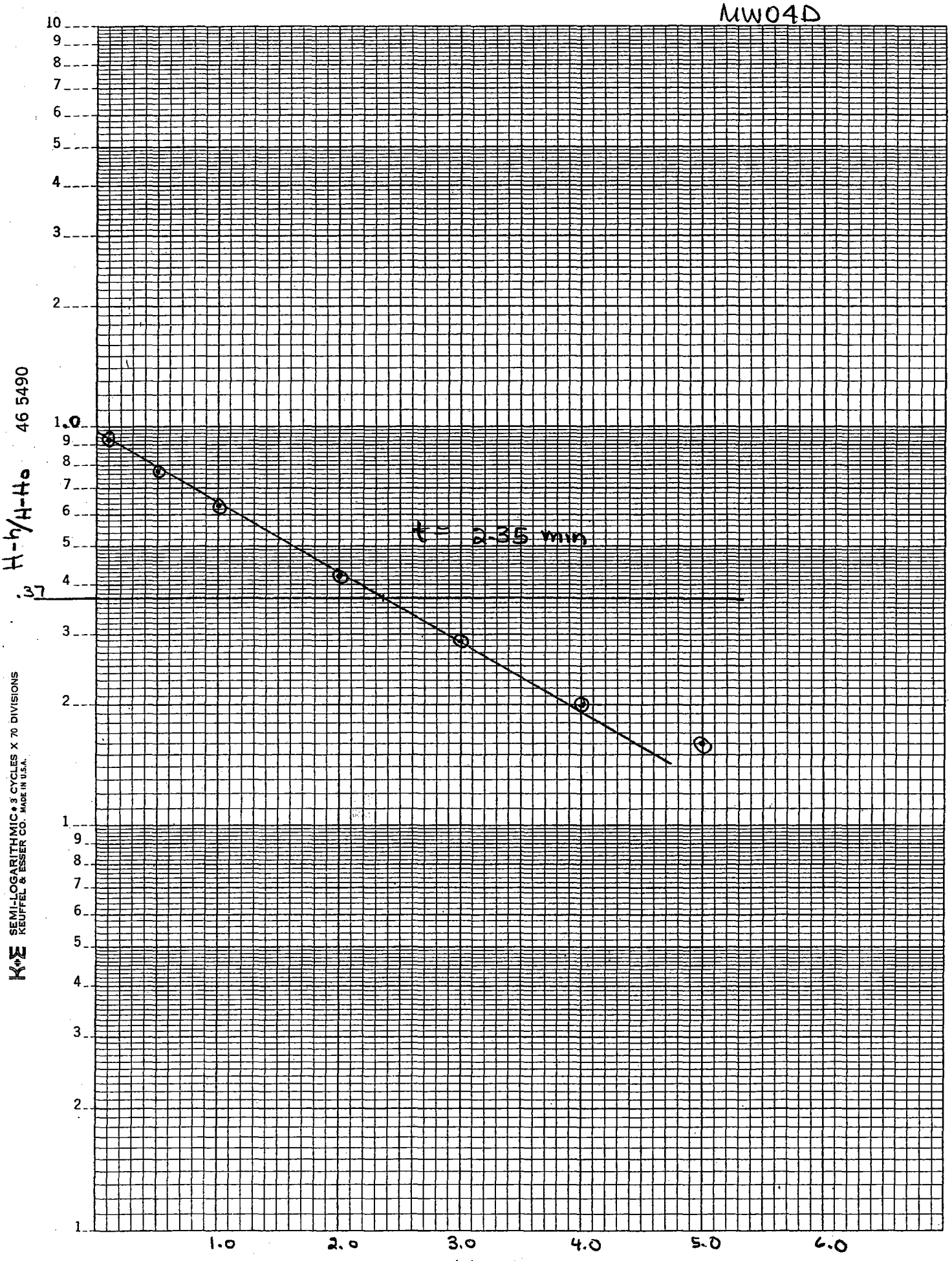
r = 1" ÷ 12 = .083

L = = 10'

R = 5 7/8" / 2 / 12 = .24'

To = 2.35 m (from plot)

MW04D


H-h/H-Ho
.37
t = 2.35 min
1.0
2.0
3.0
4.0
5.0
6.0
SEMI-LOGARITHMIC • 3 CYCLES X 70 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.
46 5490

IN-SITU HYDRAULIC CONDUCTIVITY TESTING	Number	

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

PROJECT NAME: PAI-SITE 45 WELL/BORING NO.: MW04D

PROJECT NO.: N0502 GEOLOGIST: CONTI

WELL DIAMETER: 2" SCREEN LENGTH/DEPTH: 10 / 41.85 TEST NO.: 1

STATIC WATER LEVEL (Depth/Elevation): 4.18 DATE: 11/2/01

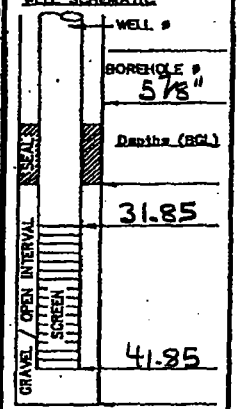
TEST TYPE (Rising/Falling/Constant Head): RISING CHECKED:

METHOD OF INDUCING WATER LEVEL CHANGE: 2 SEC SLUG PAGE 1 OF

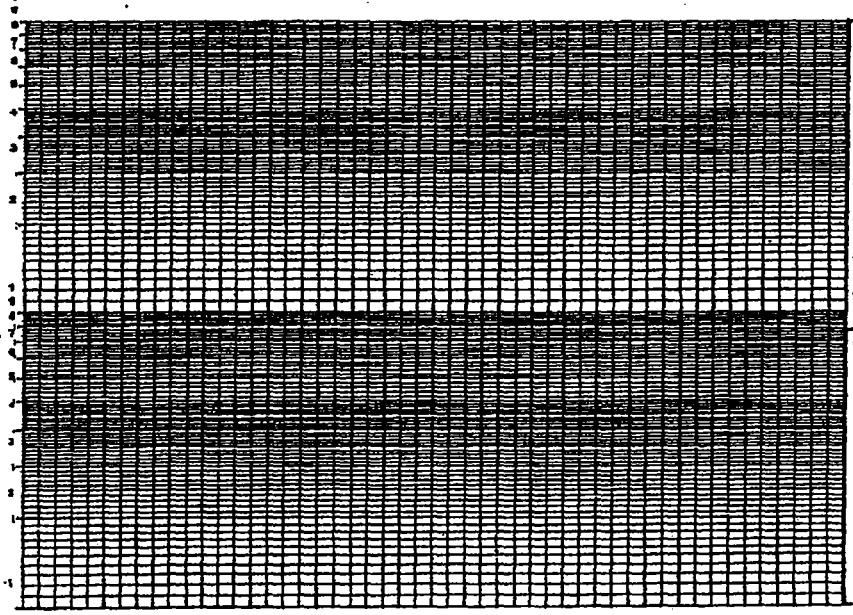
REFERENCE PT. FOR WL MEAS. (Top of Casing, Transducer, etc.): TOC = 6.81

ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)	ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)

WELL SCHEMATIC



▽ Indicate SWL Depth on Drawing



REMARKS:

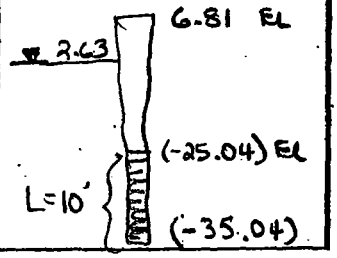
MW04D - RISING

12.145 HEAD

START @ 1620 HRS.

CURVE - GOOD

CALCS, SKETCH MAPS, ETC.:



L = 10'

In-Situ Inc. MiniTroll Pro

Report generated: 11/2/01 16:35:09
Report from file: C:\WIN-SITU\Data\SN02468 2001-11-02 162000 MW04D-RISING.bin
DataMgr Version 3.69

Serial number: 2468
Firmware Version 3.01
Unit name: SLUG TESTS

Test name: MW04D-RISING

Test defined on: 11/2/01 16:14:06
Test scheduled for: 11/2/01 16:20:00
Test started on: 11/2/01 16:20:00
Test stopped on: 11/2/01 16:35:03
Test extracted on: N/A

Data gathered using Logarithmic testing
Maximum time between c Minutes.
Number of data samples: 108

TOTAL DATA SAMPLES 108

Channel number [1]
Measurement type: Temperature
Channel name: OnBoard Temp

Channel number [2]
Measurement type: Pressure
Channel name: Pressure
Sensor Range: 30 PSI.
Specific gravity: 1
Mode: Surface
User-defined reference: 0 Feet H2O
Referenced on: test start
Pressure head at referenc 12.139 Feet H2O

Date	Time	ET (min)	Chan[1] Celsius	Chan[2] Feet H2O
	11/2/01 16:20	0	24.21	0
	11/2/01 16:20	0.0048	24.23	0.002
	11/2/01 16:20	0.0098	24.23	0.002
	11/2/01 16:20	0.015	24.24	0.004
	11/2/01 16:20	0.0198	24.24	0.004
	11/2/01 16:20	0.025	24.24	0.004
	11/2/01 16:20	0.03	24.24	-0.001
	11/2/01 16:20	0.035	24.24	0.017
	11/2/01 16:20	0.0398	24.25	-0.182

11/2/01 16:20	0.045		24.25	-1.078
11/2/01 16:20	0.05		24.25	-2.477
11/2/01 16:20	0.0548		24.25	-2.266
11/2/01 16:20	0.06		24.25	-2.185
11/2/01 16:20	0.0648		24.25	-2.247
11/2/01 16:20	0.07	*	24.25	-2.202
11/2/01 16:20	0.075		24.25	-2.185
11/2/01 16:20	0.0798		24.25	-2.174
11/2/01 16:20	0.0848		24.25	-2.165
11/2/01 16:20	0.09		24.25	-2.154
11/2/01 16:20	0.095		24.25	-2.144
11/2/01 16:20	0.1		24.25	-2.139
11/2/01 16:20	0.1057		24.25	-2.129
11/2/01 16:20	0.1118		24.25	-2.12
11/2/01 16:20	0.1185		24.26	-2.109
11/2/01 16:20	0.1255		24.26	-2.099
11/2/01 16:20	0.1327		24.26	-2.088
11/2/01 16:20	0.1405		24.26	-2.077
11/2/01 16:20	0.1488		24.26	-2.069
11/2/01 16:20	0.1578		24.26	-2.051
11/2/01 16:20	0.167	*	24.25	-2.023
11/2/01 16:20	0.1768		24.25	-2.014
11/2/01 16:20	0.1875		24.25	-2.004
11/2/01 16:20	0.1985		24.25	-1.991
11/2/01 16:20	0.21		24.25	-1.982
11/2/01 16:20	0.2225		24.25	-1.969
11/2/01 16:20	0.2358		24.25	-1.956
11/2/01 16:20	0.2498		24.25	-1.941
11/2/01 16:20	0.2647	*	24.25	-1.93
11/2/01 16:20	0.2803		24.25	-1.915
11/2/01 16:20	0.297		24.25	-1.9
11/2/01 16:20	0.3145		24.25	-1.883
11/2/01 16:20	0.3333		24.25	-1.868
11/2/01 16:20	0.3532		24.24	-1.85
11/2/01 16:20	0.374	*	24.24	-1.833
11/2/01 16:20	0.3963		24.24	-1.816
11/2/01 16:20	0.4198		24.25	-1.795
11/2/01 16:20	0.4445		24.24	-1.777
11/2/01 16:20	0.4695	*	24.24	-1.758
11/2/01 16:20	0.4963		24.24	-1.736
11/2/01 16:20	0.5247		24.24	-1.715
11/2/01 16:20	0.5547	*	24.24	-1.693
11/2/01 16:20	0.5862		24.24	-1.669
11/2/01 16:20	0.6213		24.24	-1.646
11/2/01 16:20	0.6578	*	24.24	-1.62
11/2/01 16:20	0.6963		24.24	-1.594
11/2/01 16:20	0.738		24.24	-1.566
11/2/01 16:20	0.7813	*	24.24	-1.538
11/2/01 16:20	0.8278		24.24	-1.508
11/2/01 16:20	0.8762	*	24.24	-1.478
11/2/01 16:20	0.9278		24.24	-1.448
11/2/01 16:20	0.9828		24.24	-1.418

11/2/01 16:21	1.0412	*	24.24	-1.383
11/2/01 16:21	1.103		24.24	-1.349
11/2/01 16:21	1.1678		24.24	-1.314
11/2/01 16:21	1.238		24.24	-1.278
11/2/01 16:21	1.3113		24.23	-1.243
11/2/01 16:21	1.3895		24.23	-1.204
11/2/01 16:21	1.4728		24.23	-1.165
11/2/01 16:21	1.5613		24.23	-1.127
11/2/01 16:21	1.6547		24.23	-1.088
11/2/01 16:21	1.753		24.23	-1.047
11/2/01 16:21	1.858		24.23	-1.006
11/2/01 16:21	1.9678		24.23	-0.963
11/2/01 16:22	2.0845	*	24.21	-0.924
11/2/01 16:22	2.2097		24.21	-0.883
11/2/01 16:22	2.3412		24.21	-0.84
11/2/01 16:22	2.4812		24.21	-0.799
11/2/01 16:22	2.6297		24.21	-0.758
11/2/01 16:22	2.7863		24.21	-0.717
11/2/01 16:22	2.953		24.21	-0.676
11/2/01 16:23	3.1297	*	24.2	-0.635
11/2/01 16:23	3.3162		24.2	-0.596
11/2/01 16:23	3.5145		24.2	-0.555
11/2/01 16:23	3.7245		24.2	-0.516
11/2/01 16:23	3.9463		24.2	-0.48
11/2/01 16:24	4.1812	*	24.19	-0.445
11/2/01 16:24	4.4295		24.19	-0.411
11/2/01 16:24	4.6928		24.19	-0.376
11/2/01 16:24	4.9728	*	24.19	-0.346
11/2/01 16:25	5.2697		24.19	-0.316
11/2/01 16:25	5.583		24.18	-0.288
11/2/01 16:25	5.9145	*	24.18	-0.262
11/2/01 16:26	6.2663		24.18	-0.236
11/2/01 16:26	6.6395		24.18	-0.212
11/2/01 16:27	7.0345	*	24.16	-0.19
11/2/01 16:27	7.453		24.16	-0.171
11/2/01 16:27	7.8962		24.16	-0.154
11/2/01 16:28	8.3663		24.16	-0.139
11/2/01 16:28	8.8645		24.16	-0.124
11/2/01 16:29	9.3913		24.15	-0.108
11/2/01 16:29	9.9497		24.15	-0.097
11/2/01 16:30	10.5413		24.15	-0.087
11/2/01 16:31	11.168		24.15	-0.076
11/2/01 16:31	11.8312		24.15	-0.069
11/2/01 16:32	12.5347		24.15	-0.061
11/2/01 16:33	13.2795		24.15	-0.054
11/2/01 16:34	14.0695		24.15	-0.05
11/2/01 16:34	14.9062		24.15	-0.046

CALCULATION WORKSHEET Order No. 19116 (01-91) PAGE 1 OF

CLIENT	JOB NUMBER
PARRIS IS.	N0502
SUBJECT: SLUG TEST CALCS : WELL NO : MW05 SU	
BASED ON	DRAWING NUMBER
BY: SJC 12/18/01	CHECKED BY: JK 12-28-01 / APPROVED BY / DATE

HVORSLEV

$$K = \frac{r^2 \ln(L/R)}{2L\,T_o}$$

$$= \frac{(.083)^2 \ln(1.85/.375)}{2(1.85)(.10)}$$

$$= \frac{(.083)^2 (1.60)}{.37}$$

$$=$$

$$= .030 \text{ ft/min}$$

$$= .015 \text{ cm/sec}$$

$$= \underline{\underline{43}} \text{ ft/day}$$

SEE PRINTOUT FOR MORE DATA

t (min)	H-h/H-Ho
0 = 1.000*	1.00
.01 = .548	.55
.02 = .438	.44
.03 = .395	.40
.04 = .380	.38
.05 = .330	.33
.07 = .268	.27
.10 .206	.21
.15 .165	.17
.20 .139	.14

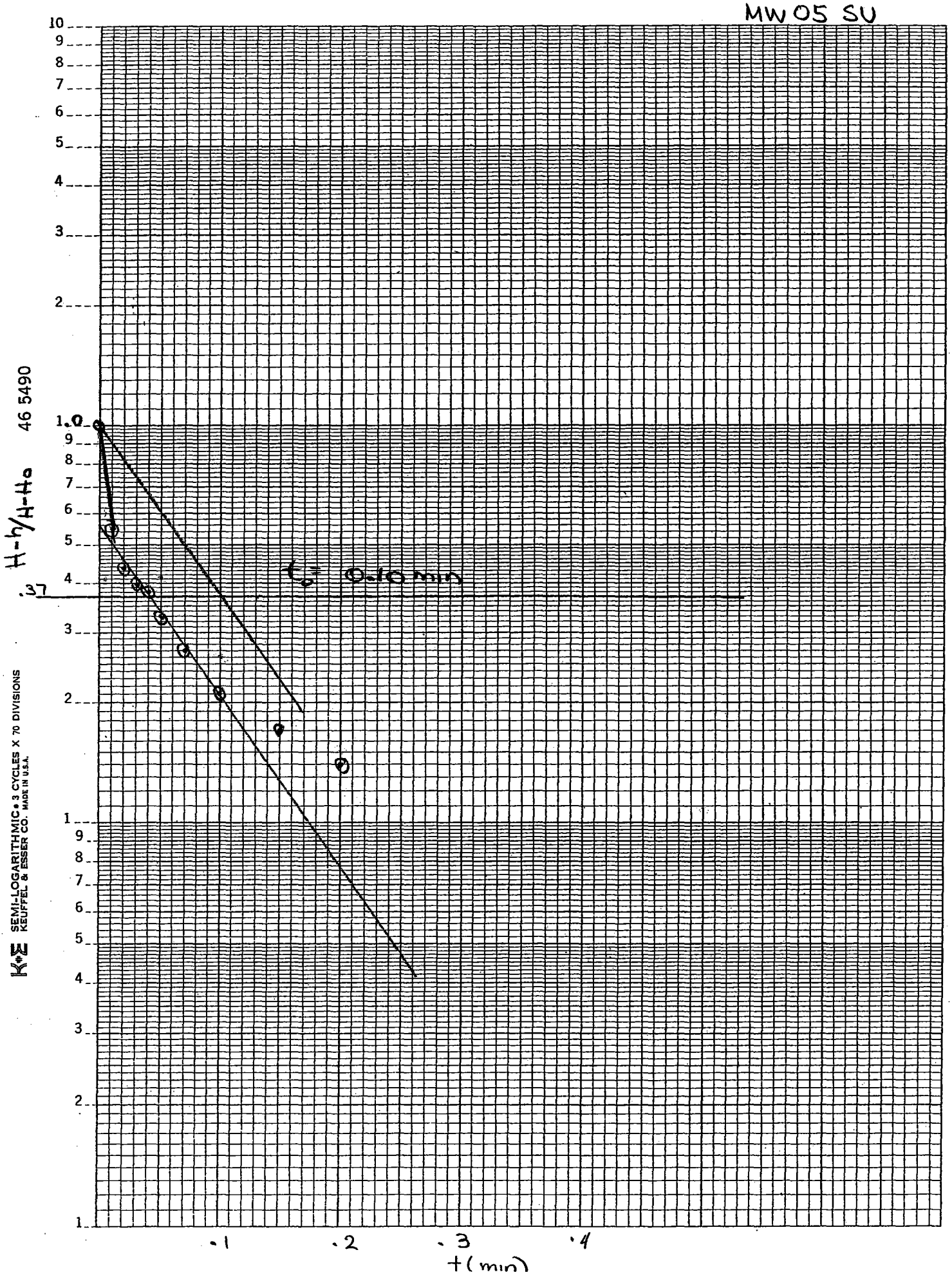
* Therotical Value

r = 1" ÷ 12 = .083

L = = 1.85'

R = = .375

To = 0.10 min (from plot)


MW 05 SU
H-h/H-Ho
46 5490
.37
t_o = 0.10 min
.1
.2
.3
.4
t (min)
K+E SEMI-LOGARITHMIC • 3 CYCLES X 70 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

Tetra Tech NUS, Inc.

PROJECT NAME: PAI SITE 45 WELL/BORING NO.: MW05SU

PROJECT NO.: N0502 GEOLOGIST: CONTI

WELL DIAMETER: 2" SCREEN LENGTH/DEPTH: 4' / 6.95 TEST NO.: 1

STATIC WATER LEVEL (Depth/Elevation): 5.1 DATE: 11/2/01

TEST TYPE (Rising/Falling/Constant Head): RISING CHECKED:

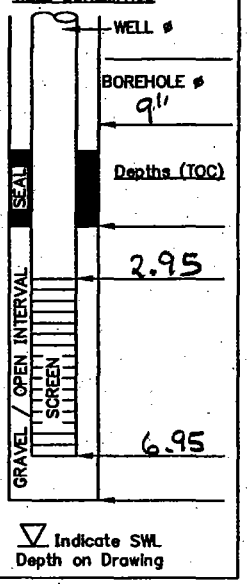
METHOD OF INDUCING WATER LEVEL CHANGE: 1 SEC SLUG PAGE 1 OF

REFERENCE PT. FOR WL MEAS. (Top of Casing, Transducer, etc.): TOC = 8.60

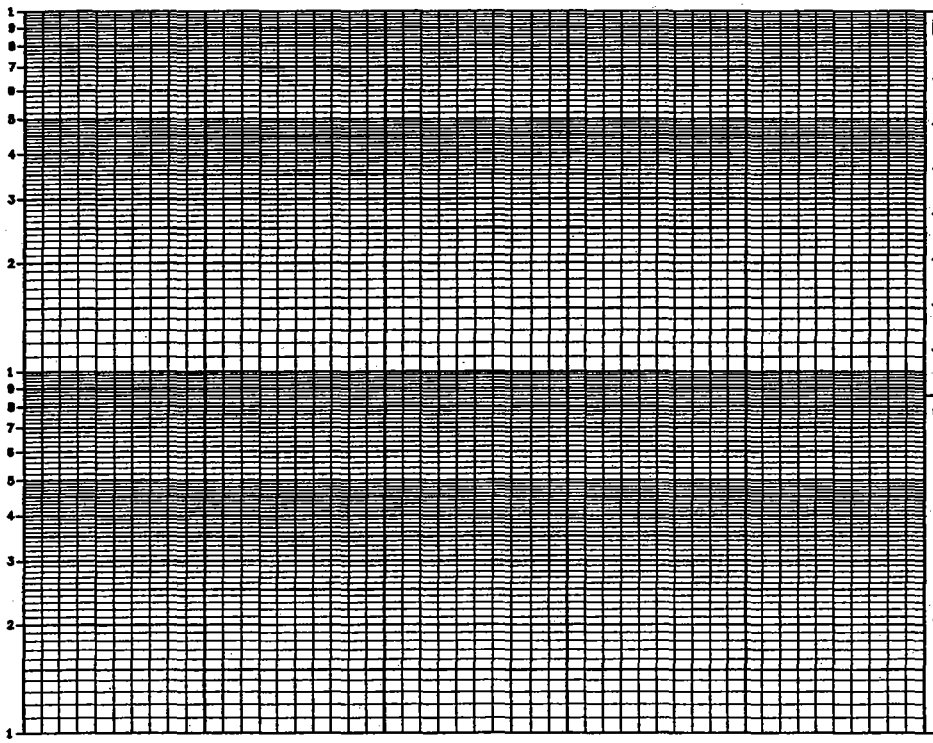
ACAD:FORM_HYDCONTST.dwg 07/06/99 INL

ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)	ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)

WELL SCHEMATIC



▽ Indicate SWL Depth on Drawing



REMARKS:

MW05SU - RISING

LESS THAN 2' WATER

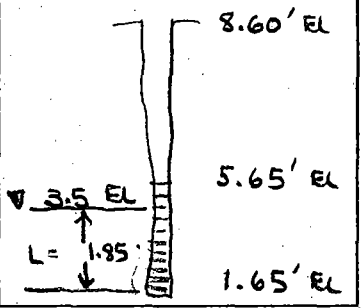
USED 1 SEC SLUG

1535 START - ONLY

SLUGGED ABOUT A

FOOT OF WATER

CALCS, SKETCH MAPS, ETC.:



L = 1.85'

In-Situ Inc. MiniTroll Pro

Report generated: 11/2/01 15:45:20
Report from file: C:\WIN-SITU\Data\SN02468 2001-11-02 153500 MW05SU-RISING.bin
DataMgr Version 3.69

Serial number: 2468
Firmware Version 3.01
Unit name: SLUG TESTS

Test name: MW05SU-RISING

Test defined on: 11/2/01 15:25:00
Test scheduled for: 11/2/01 15:35:00
Test started on: 11/2/01 15:35:00
Test stopped on: 11/2/01 15:45:13
Test extracted on: N/A

Data gathered using Logarithmic testing
Maximum time between c Minutes.
Number of data samples: 101

TOTAL DATA SAMPLES 101

Channel number [1]
Measurement type: Temperature
Channel name: OnBoard Temp

Channel number [2]
Measurement type: Pressure
Channel name: Pressure
Sensor Range: 30 PSI.
Specific gravity: 1
Mode: Surface
User-defined reference: 0 Feet H2O
Referenced on: test start
Pressure head at referenc 1.807 Feet H2O

Date	Time	ET (min)	Chan[1] Celsius	Chan[2] Feet H2O
	11/2/01 15:35	0	25.46	0
	11/2/01 15:35	0.0048	25.46	0.002
	11/2/01 15:35	0.0098	25.47	0.004
	11/2/01 15:35	0.015	25.47	0.006
	11/2/01 15:35	0.0198	25.47	0.006
	11/2/01 15:35	0.025	25.47	0.006
	11/2/01 15:35	0.03	25.49	0.006
	11/2/01 15:35	0.035	25.47	0.006
	11/2/01 15:35	0.0398	25.49	-0.548

< 1.000 @ .03 ±

11/2/01 15:35	0.045	25.49	-0.472	
11/2/01 15:35	0.05	25.49	-0.438	-02
11/2/01 15:35	0.0548	25.49	-0.412	
11/2/01 15:35	0.06	25.49	-0.395	
11/2/01 15:35	0.0648	25.49	-0.373	-03
11/2/01 15:35	0.07	25.49	-0.38	
11/2/01 15:35	0.075	25.49	-0.343	
11/2/01 15:35	0.0798	25.49	-0.33	
11/2/01 15:35	0.0848	25.49	-0.311	
11/2/01 15:35	0.09	25.5	-0.294	
11/2/01 15:35	0.095	25.49	-0.281	
11/2/01 15:35	0.1	25.5	-0.268	
11/2/01 15:35	0.1057	25.5	-0.255	
11/2/01 15:35	0.1118	25.5	-0.242	
11/2/01 15:35	0.1185	25.5	-0.229	
11/2/01 15:35	0.1255	25.5	-0.216	
11/2/01 15:35	0.1327	25.5	-0.206	
11/2/01 15:35	0.1405	25.5	-0.193	
11/2/01 15:35	0.1488	25.5	-0.184	
11/2/01 15:35	0.1578	25.5	-0.178	
11/2/01 15:35	0.167	25.5	-0.171	
11/2/01 15:35	0.1768	25.5	-0.165	
11/2/01 15:35	0.1875	25.5	-0.158	
11/2/01 15:35	0.1985	25.5	-0.152	
11/2/01 15:35	0.21	25.49	-0.147	
11/2/01 15:35	0.2225	25.49	-0.143	
11/2/01 15:35	0.2358	25.49	-0.139	
11/2/01 15:35	0.2498	25.49	-0.134	
11/2/01 15:35	0.2647	25.49	-0.13	
11/2/01 15:35	0.2803	25.49	-0.128	
11/2/01 15:35	0.297	25.49	-0.126	
11/2/01 15:35	0.3145	25.49	-0.121	
11/2/01 15:35	0.3333	25.49	-0.121	
11/2/01 15:35	0.3532	25.49	-0.117	
11/2/01 15:35	0.374	25.49	-0.115	
11/2/01 15:35	0.3963	25.49	-0.113	
11/2/01 15:35	0.4198	25.49	-0.113	
11/2/01 15:35	0.4445	25.49	-0.108	
11/2/01 15:35	0.4695	25.49	-0.108	
11/2/01 15:35	0.4963	25.49	-0.106	
11/2/01 15:35	0.5247	25.49	-0.104	
11/2/01 15:35	0.5547	25.49	-0.104	
11/2/01 15:35	0.5862	25.49	-0.102	
11/2/01 15:35	0.6213	25.49	-0.1	
11/2/01 15:35	0.6578	25.49	-0.1	
11/2/01 15:35	0.6963	25.49	-0.098	
11/2/01 15:35	0.738	25.49	-0.095	
11/2/01 15:35	0.7813	25.49	-0.095	
11/2/01 15:35	0.8278	25.49	-0.093	
11/2/01 15:35	0.8762	25.49	-0.091	
11/2/01 15:35	0.9278	25.47	-0.091	
11/2/01 15:35	0.9828	25.47	-0.086	

11/2/01 15:36	1.0412	25.47	-0.086
11/2/01 15:36	1.103	25.47	-0.086
11/2/01 15:36	1.1678	25.47	-0.086
11/2/01 15:36	1.238	25.47	-0.084
11/2/01 15:36	1.3113	25.47	-0.082
11/2/01 15:36	1.3895	25.47	-0.08
11/2/01 15:36	1.4728	25.47	-0.08
11/2/01 15:36	1.5613	25.47	-0.08
11/2/01 15:36	1.6547	25.47	-0.078
11/2/01 15:36	1.753	25.47	-0.078
11/2/01 15:36	1.858	25.47	-0.076
11/2/01 15:36	1.9678	25.47	-0.074
11/2/01 15:37	2.0845	25.47	-0.074
11/2/01 15:37	2.2097	25.47	-0.074
11/2/01 15:37	2.3412	25.47	-0.071
11/2/01 15:37	2.4812	25.47	-0.069
11/2/01 15:37	2.6297	25.47	-0.069
11/2/01 15:37	2.7863	25.47	-0.067
11/2/01 15:37	2.953	25.47	-0.067
11/2/01 15:38	3.1297	25.47	-0.065
11/2/01 15:38	3.3162	25.47	-0.065
11/2/01 15:38	3.5145	25.46	-0.065
11/2/01 15:38	3.7245	25.47	-0.063
11/2/01 15:38	3.9463	25.46	-0.06
11/2/01 15:39	4.1812	25.47	-0.058
11/2/01 15:39	4.4295	25.47	-0.058
11/2/01 15:39	4.6928	25.47	-0.056
11/2/01 15:39	4.9728	25.47	-0.056
11/2/01 15:40	5.2697	25.47	-0.054
11/2/01 15:40	5.583	25.47	-0.054
11/2/01 15:40	5.9145	25.47	-0.054
11/2/01 15:41	6.2663	25.47	-0.052
11/2/01 15:41	6.6395	25.47	-0.052
11/2/01 15:42	7.0345	25.47	-0.05
11/2/01 15:42	7.453	25.47	-0.05
11/2/01 15:42	7.8962	25.47	-0.048
11/2/01 15:43	8.3663	25.47	-0.048
11/2/01 15:43	8.8645	25.47	-0.046
11/2/01 15:44	9.3913	25.47	-0.043
11/2/01 15:44	9.9497	25.47	-0.046

CALCULATION WORKSHEET Order No. 19116 (01-91) PAGE 1 OF

CLIENT	JOB NUMBER
PARRIS IS.	N0502
SUBJECT	
SLUG TEST CALCS : WELL NO : MW05SL	
BASED ON	DRAWING NUMBER
BY / CHECKED BY	APPROVED BY / DATE
SJC 12/18/01 / JK 12-28-01	

HVORSLEV

$$K = \frac{r^2 \ln(L/R)}{2L\,T_o}$$

$$= \frac{(.083)^2 \ln(5/.375)}{2(5)(6.25)}$$

$$= \frac{(.083)^2 (2.59)}{62.5}$$

$$=$$

$$= 2.85 \times 10^{-4} \text{ ft/min}$$

$$= 1.45 \times 10^{-4} \text{ cm/sec}$$

$$= \underline{\underline{0.4}} \text{ ft/day}$$

SEE PRINTOUT FOR MORE DATA

t (min)		H-h/H-Ho
0	2.000*	1.00
.1	1.685	.84
.2	1.642	.82
.3	1.605	.80
.4	1.577	.79
.5	1.545	.77
.6	1.515	.76
.7	1.493	.75
.8	1.456	.73
1.0	1.415	.71
2.0	1.193	.60
3.0	1.049	.52
4.0	.914	.46
5.0	.802	.40
6.0	.72	.36
7.0	.636	.32

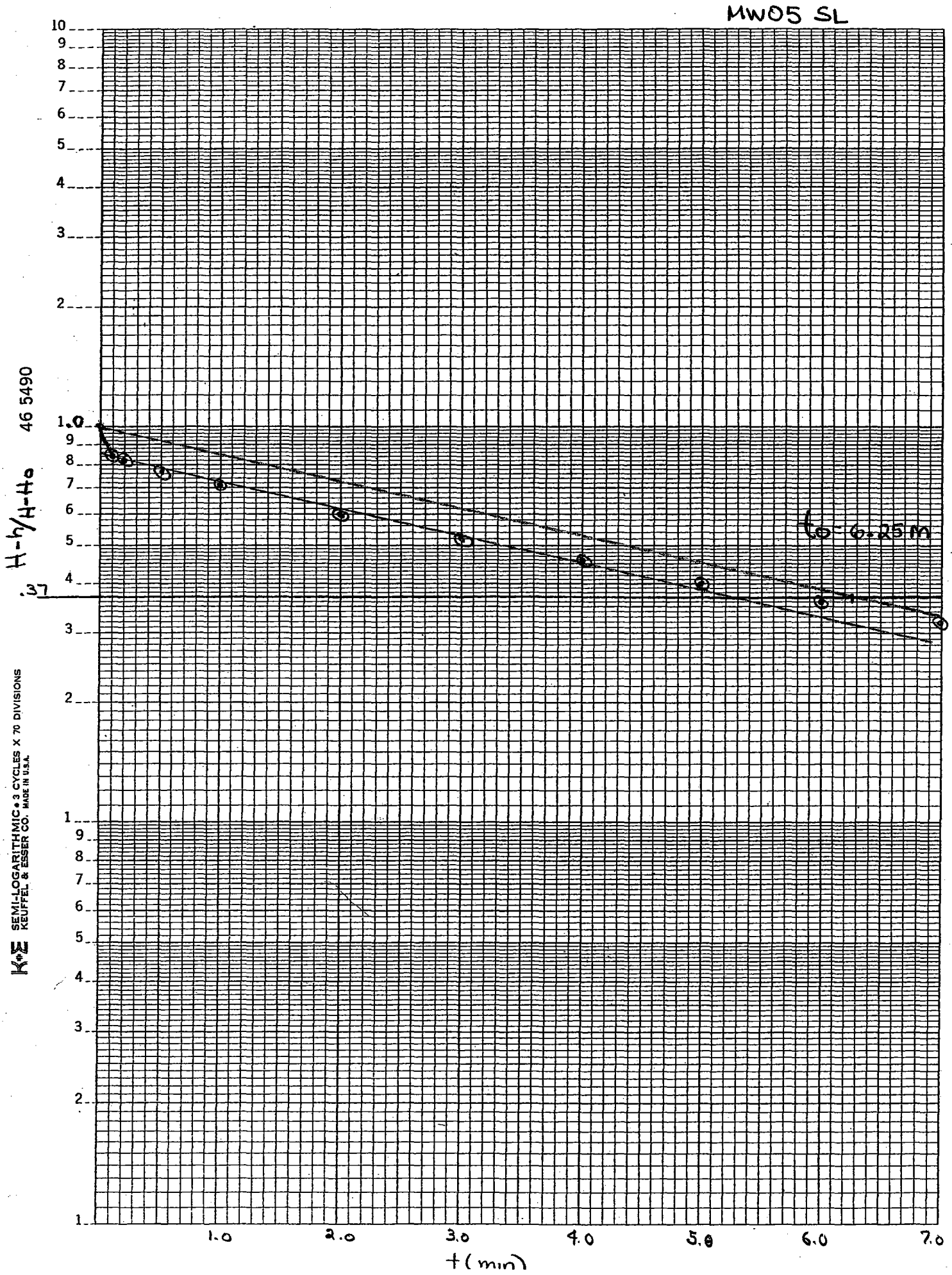
* Theoretical Value ±

r = 1" ÷ 12 = .083'

L = 5'

R = 9"/12/2 .375'

To = 6.25 m (from plot)


MW05 SL
H-h/H-Ho
46 5490
SEMI-LOGARITHMIC • 3 CYCLES X 70 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.
.37
to=6.25m
10
9
8
7
6
5
4
3
2
1.0
9
8
7
6
5
4
3
2
1
9
8
7
6
5
4
3
2
1
1.0
2.0
3.0
4.0
5.0
6.0
7.0
t (min)

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

Tetra Tech NUS, Inc.

PROJECT NAME: PAI SITE 45 WELL/BORING NO.: MW05SL

PROJECT NO.: N0502 GEOLOGIST: CONTI

WELL DIAMETER: 2" SCREEN LENGTH/DEPTH: 5' / 14.07 TEST NO.: 1

STATIC WATER LEVEL (Depth/Elevation): 4.64 DATE: 11/2/01

TEST TYPE (Rising/Falling/Constant Head): RISING CHECKED:

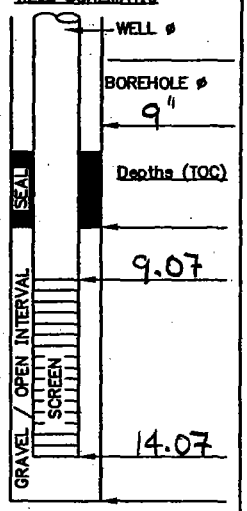
METHOD OF INDUCING WATER LEVEL CHANGE: 2 SEC SLUG PAGE 1 OF

REFERENCE PT. FOR WL MEAS. (Top of Casing, Transducer, etc.): TOC. = 8.26 EL

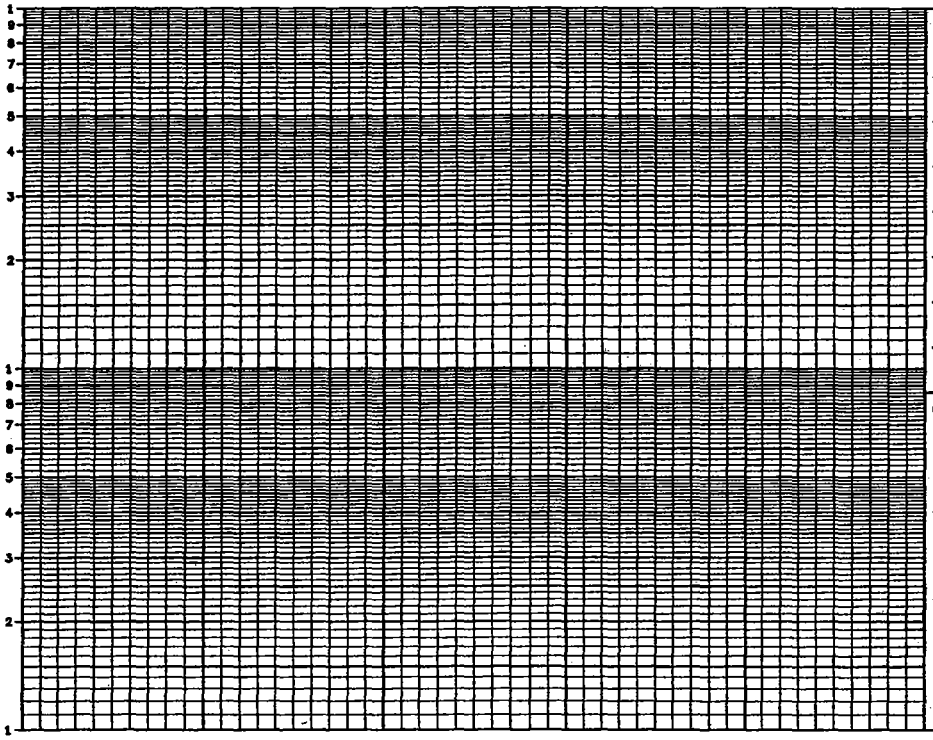
ACAD:FORM_HYDCONTST.dwg 07/06/99 INL

ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)	ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)

WELL SCHEMATIC



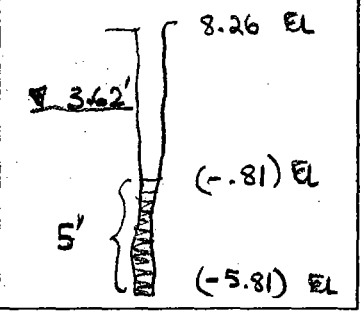
▽ Indicate SWL Depth on Drawing



REMARKS:

SEE MINITROLL DATA -
MW05SL-RISING
START 1445 HRS
11/2/01
CURVE GOOD.

CALCS, SKETCH MAPS, ETC.:



L = 5'

In-Situ Inc. MiniTroll Pro

Report generated: 11/2/01 15:17:29
Report from file: C:\WIN-SITU\Data\SN02468 2001-11-02 144500 MW05SL-RISING.bin
DataMgr Version 3.69

Serial number: 2468
Firmware Version 3.01
Unit name: SLUG TESTS

Test name: MW05SL-RISING

Test defined on: 11/2/01 14:40:50
Test scheduled for: 11/2/01 14:45:00
Test started on: 11/2/01 14:45:00
Test stopped on: N/A N/A
Test extracted on: N/A

Data gathered using Logarithmic testing
Maximum time between c Minutes.
Number of data samples: 121

TOTAL DATA SAMPLES 121

Channel number [1]
Measurement type: Temperature
Channel name: OnBoard Temp

Channel number [2]
Measurement type: Pressure
Channel name: Pressure
Sensor Range: 30 PSI.
Specific gravity: 1
Mode: Surface
User-defined reference: 0 Feet H2O
Referenced on: test start
Pressure head at referenc 5.556 Feet H2O

Date	Time	ET (min)	Chan[1] Celsius	Chan[2] Feet H2O
11/2/01	14:45	0	25.5	0
11/2/01	14:45	0.0048	25.5	0
11/2/01	14:45	0.0098	25.5	0.002
11/2/01	14:45	0.015	25.51	0.002
11/2/01	14:45	0.0198	25.51	0.002
11/2/01	14:45	0.025	25.51	0.002
11/2/01	14:45	0.03	25.52	0.006
11/2/01	14:45	0.035	25.52	-0.007
11/2/01	14:45	0.0398	25.52	-0.016

11/2/01 14:45	0.045		25.52	0.032
11/2/01 14:45	0.05	>	25.52	-2.376 < 2.000
11/2/01 14:45	0.0548		25.52	-1.89
11/2/01 14:45	0.06		25.52	-1.879
11/2/01 14:45	0.0648		25.52	-1.756
11/2/01 14:45	0.07		25.52	-1.855
11/2/01 14:45	0.075		25.52	-1.719
11/2/01 14:45	0.0798		25.52	-1.819
11/2/01 14:45	0.0848		25.52	-1.728
11/2/01 14:45	0.09		25.54	-1.767
11/2/01 14:45	0.095		25.52	-1.719
11/2/01 14:45	0.1		25.54	-1.728
11/2/01 14:45	0.1057		25.54	-1.72
11/2/01 14:45	0.1118		25.54	-1.711
11/2/01 14:45	0.1185		25.54	-1.709
11/2/01 14:45	0.1255		25.54	-1.7
11/2/01 14:45	0.1327		25.54	-1.694
11/2/01 14:45	0.1405		25.54	-1.69
11/2/01 14:45	0.1488	*	25.54	-1.685
11/2/01 14:45	0.1578		25.54	-1.681
11/2/01 14:45	0.167		25.54	-1.679
11/2/01 14:45	0.1768		25.54	-1.672
11/2/01 14:45	0.1875		25.54	-1.67
11/2/01 14:45	0.1985		25.52	-1.663
11/2/01 14:45	0.21		25.52	-1.659
11/2/01 14:45	0.2225		25.52	-1.655
11/2/01 14:45	0.2358		25.52	-1.648
11/2/01 14:45	0.2498	*	25.52	-1.642
11/2/01 14:45	0.2647		25.52	-1.638
11/2/01 14:45	0.2803		25.52	-1.631
11/2/01 14:45	0.297		25.52	-1.627
11/2/01 14:45	0.3145		25.52	-1.62
11/2/01 14:45	0.3333		25.52	-1.614
11/2/01 14:45	0.3532	*	25.52	-1.605
11/2/01 14:45	0.374		25.52	-1.599
11/2/01 14:45	0.3963		25.52	-1.592
11/2/01 14:45	0.4198		25.52	-1.586
11/2/01 14:45	0.4445	*	25.52	-1.577
11/2/01 14:45	0.4695		25.52	-1.569
11/2/01 14:45	0.4963		25.51	-1.56
11/2/01 14:45	0.5247		25.51	-1.553
11/2/01 14:45	0.5547	*	25.51	-1.545
11/2/01 14:45	0.5862		25.52	-1.534
11/2/01 14:45	0.6213		25.52	-1.526
11/2/01 14:45	0.6578	*	25.52	-1.515
11/2/01 14:45	0.6963		25.51	-1.504
11/2/01 14:45	0.738	*	25.51	-1.493
11/2/01 14:45	0.7813		25.51	-1.482
11/2/01 14:45	0.8278		25.51	-1.471
11/2/01 14:45	0.8762	*	25.51	-1.456
11/2/01 14:45	0.9278		25.51	-1.443
11/2/01 14:45	0.9828		25.51	-1.428

11/2/01 14:46	1.0412	*	25.51	-1.415
11/2/01 14:46	1.103		25.51	-1.4
11/2/01 14:46	1.1678		25.51	-1.385
11/2/01 14:46	1.238		25.51	-1.37
11/2/01 14:46	1.3113		25.51	-1.353
11/2/01 14:46	1.3895		25.51	-1.336
11/2/01 14:46	1.4728		25.51	-1.316
11/2/01 14:46	1.5613		25.51	-1.297
11/2/01 14:46	1.6547		25.51	-1.278
11/2/01 14:46	1.753		25.51	-1.258
11/2/01 14:46	1.858		25.51	-1.234
11/2/01 14:46	1.9678		25.51	-1.215
11/2/01 14:47	2.0845	*	25.5	-1.193
11/2/01 14:47	2.2097		25.51	-1.172
11/2/01 14:47	2.3412		25.51	-1.148
11/2/01 14:47	2.4812		25.51	-1.125
11/2/01 14:47	2.6297		25.5	-1.098
11/2/01 14:47	2.7863		25.51	-1.073
11/2/01 14:47	2.953	*	25.51	-1.049
11/2/01 14:48	3.1297		25.5	-1.023
11/2/01 14:48	3.3162		25.5	-0.997
11/2/01 14:48	3.5145		25.51	-0.97
11/2/01 14:48	3.7245		25.5	-0.941
11/2/01 14:48	3.9463	*	25.51	-0.914
11/2/01 14:49	4.1812		25.51	-0.888
11/2/01 14:49	4.4295		25.51	-0.858
11/2/01 14:49	4.6928		25.51	-0.83
11/2/01 14:49	4.9728	*	25.51	-0.802
11/2/01 14:50	5.2697		25.51	-0.776
11/2/01 14:50	5.583		25.51	-0.746
11/2/01 14:50	5.9145	*	25.51	-0.72
11/2/01 14:51	6.2663		25.51	-0.692
11/2/01 14:51	6.6395		25.51	-0.664
11/2/01 14:52	7.0345	*	25.51	-0.636
11/2/01 14:52	7.453		25.51	-0.61
11/2/01 14:52	7.8962		25.51	-0.584
11/2/01 14:53	8.3663		25.51	-0.56
11/2/01 14:53	8.8645		25.51	-0.539
11/2/01 14:54	9.3913		25.51	-0.515
11/2/01 14:54	9.9497		25.52	-0.496
11/2/01 14:55	10.5413		25.52	-0.474
11/2/01 14:56	11.168		25.51	-0.457
11/2/01 14:56	11.8312		25.52	-0.438
11/2/01 14:57	12.5347		25.52	-0.421
11/2/01 14:58	13.2795		25.51	-0.405
11/2/01 14:59	14.0695		25.52	-0.393
11/2/01 14:59	14.9062		25.52	-0.38
11/2/01 15:00	15.7913		25.52	-0.369
11/2/01 15:01	16.7295		25.52	-0.36
11/2/01 15:02	17.723		25.52	-0.35
11/2/01 15:03	18.7762		25.52	-0.343
11/2/01 15:04	19.8913		25.52	-0.337

11/2/01 15:06	21.073	25.52	-0.33
11/2/01 15:07	22.3247	25.52	-0.326
11/2/01 15:08	23.6497	25.52	-0.322
11/2/01 15:10	25.0545	25.52	-0.317
11/2/01 15:11	26.5428	25.54	-0.315
11/2/01 15:13	28.1178	25.54	-0.313
11/2/01 15:14	29.7863	25.54	-0.311
11/2/01 15:16	31.5545	25.54	-0.311

CALCULATION WORKSHEET Order No. 19116 (01-91) PAGE 1 OF

CLIENT	JOB NUMBER
PARRIS Is.	N0502
SUBJECT	
SLUG TEST CALCS : WELL NO : MW05D	
BASED ON	**DRAWING NUMBER**
BY / **CHECKED BY**	**APPROVED BY** / **DATE**
SJC 12/18/01 / JK 12-28-01	

HVORSLEV

$$K = \frac{r^2 \ln(L/R)}{2L\,T_o}$$

$$= \frac{(.083)^2 \ln(10/.24)}{2(10)(.35)}$$

$$= \frac{(.083)^2 (3.73)}{7}$$

$$=$$

$$= 3.67 \times 10^{-3}\ ft/min$$

$$= 1.86 \times 10^{-3}\ cm/sec$$

$$= \underline{5}\ ft/day$$

SEE PRINTOUT FOR MORE DATA

t (min)		H-h/H-Ho
0 =	2.003	1.00
.1	1.418	.71
.2	1.09	.54
.3	.862	.43
.4	.633	.32
.5	.508	.25
.6	.389	.19
.8	.227	.11
1.0	.155	.08
2.0	.024	.01

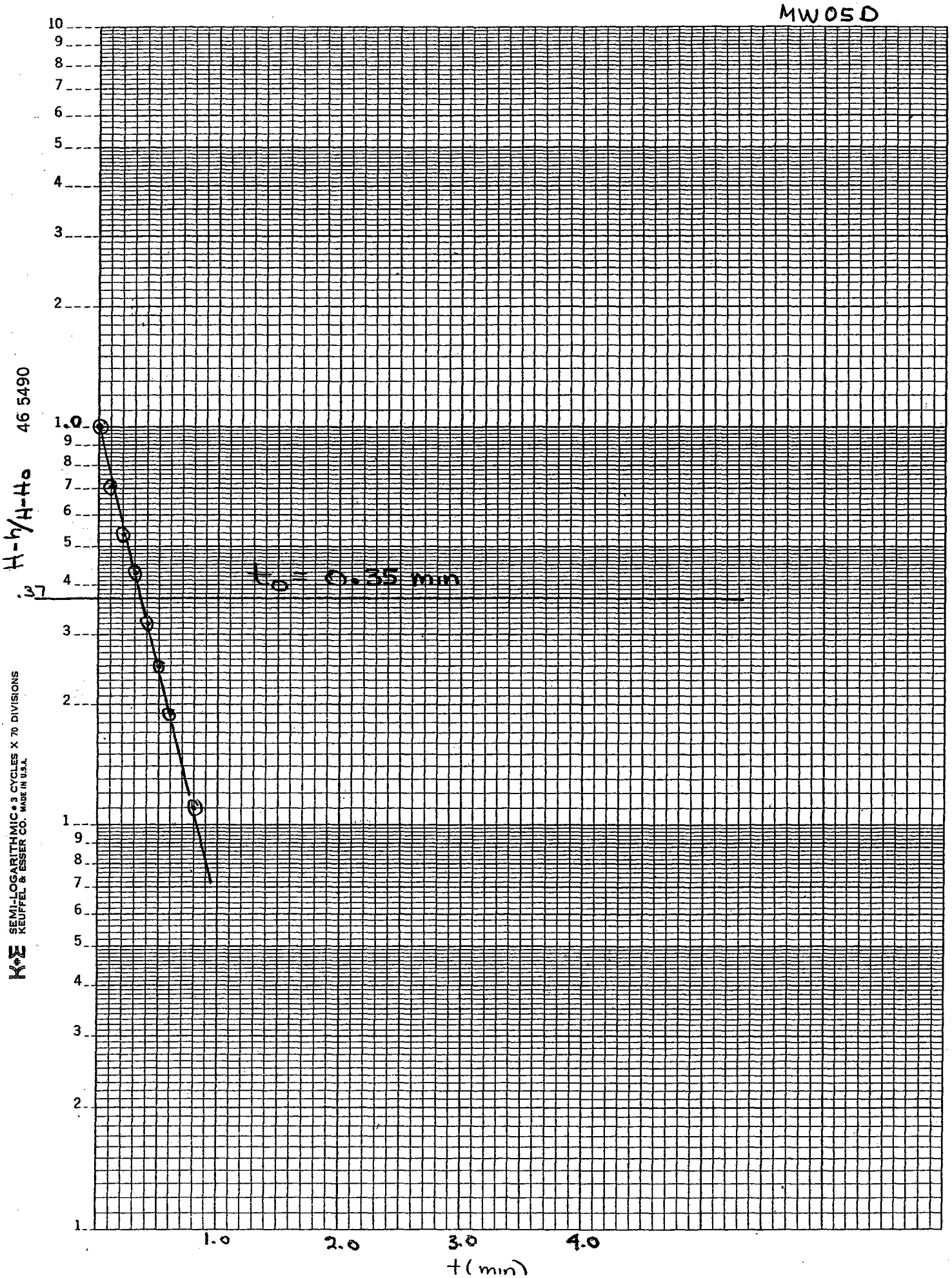
r = 1"/12 = .083'

L = = 10'

R = 5 7/8/12/2 = .24'

To = 0.35 m (from plot)

MW05D


H-h/H-Ho
46 5490
.37
t_o = 0.35 min
10
9
8
7
6
5
4
3
2
1.0
9
8
7
6
5
4
3
2
1
9
8
7
6
5
4
3
2
1
1.0
2.0
3.0
4.0
t (min)
K&E SEMI-LOGARITHMIC • 3 CYCLES X 70 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

Tetra Tech NUS, Inc.

PROJECT NAME: PAI SITE 45 WELL/BORING NO.: MW05D

PROJECT NO.: N0502 GEOLOGIST: CONTI

WELL DIAMETER: 2" SCREEN LENGTH/DEPTH: 10' / 43.87 TEST NO.: 1

STATIC WATER LEVEL (Depth/Elevation): 5.67 DATE: 11/2/01

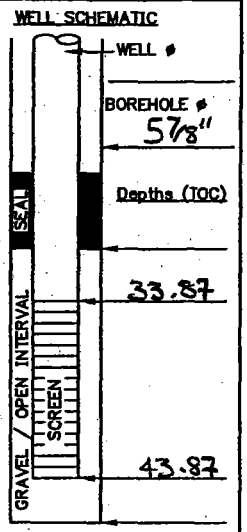
TEST TYPE (Rising/Falling/Constant Head): RISING CHECKED:

METHOD OF INDUCING WATER LEVEL CHANGE: 2 SEC SLUG PAGE 1 OF

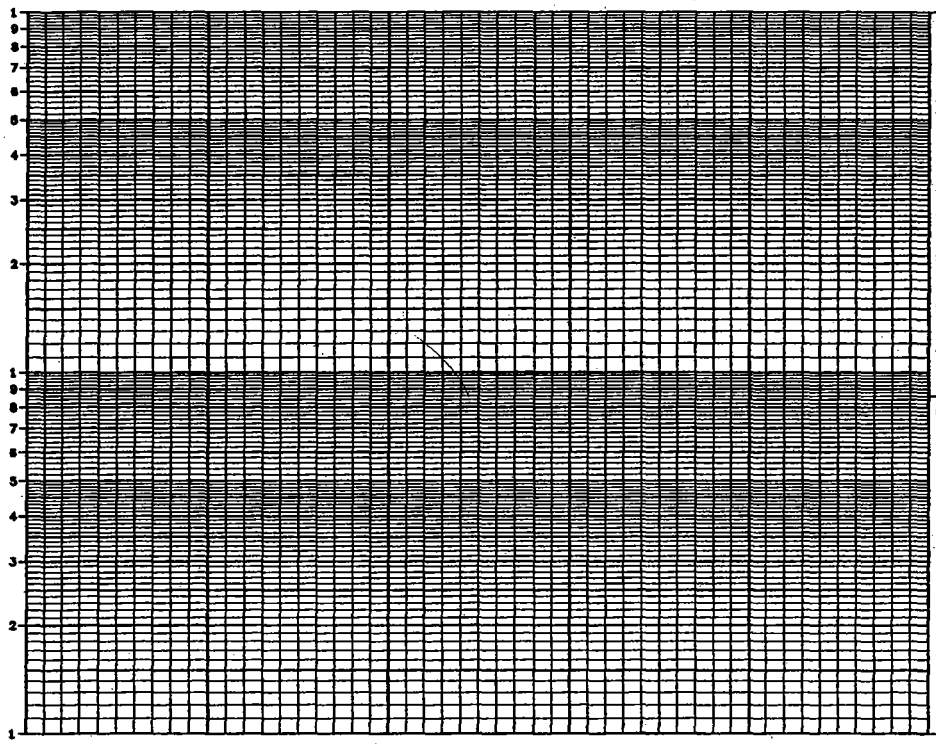
REFERENCE PT. FOR WL MEAS. (Top of Casing, Transducer, etc.): TPVC = 8.66 EL

ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)	ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)

WELL SCHEMATIC



▽ Indicate SWL Depth on Drawing



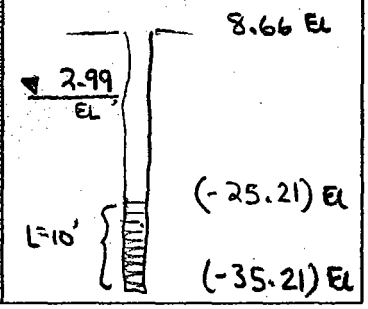
REMARKS:

SEE MINITROL

MW05D - RISING

GRAPH - GOOD

CALCS, SKETCH MAPS, ETC.:



L = 10'

ACAD:FORM_HYDCONTST.dwg 07/06/99 INL

In-Situ Inc. MiniTroll Pro

Report generated: 11/2/01 14:25:52
Report from file: C:\WIN-SITU\Data\SN02468 2001-11-02 141500 MW05D-RISING.bin
DataMgr Version 3.69

Serial number: 2468
Firmware Version 3.01
Unit name: SLUG TESTS

Test name: MW05D-RISING

Test defined on: 11/2/01 14:07:58
Test scheduled for: 11/2/01 14:15:00
Test started on: 11/2/01 14:15:00
Test stopped on: 11/2/01 14:25:20
Test extracted on: N/A

Data gathered using Logarithmic testing
Maximum time between c Minutes.
Number of data samples: 101

TOTAL DATA SAMPLES 101

Channel number [1]
Measurement type: Temperature
Channel name: OnBoard Temp

Channel number [2]
Measurement type: Pressure
Channel name: Pressure
Sensor Range: 30 PSI.
Specific gravity: 1
Mode: Surface
User-defined reference: 0 Feet H2O
Referenced on: test start
Pressure head at referenc 10.6 Feet H2O

Date	Time	ET (min)	Chan[1] Celsius	Chan[2] Feet H2O
11/2/01	14:15	0	25.49	0
11/2/01	14:15	0.0048	25.49	-0.004
11/2/01	14:15	0.0098	25.5	0.008
11/2/01	14:15	0.015	25.5	0.015
11/2/01	14:15	0.0198	25.5	0.008
11/2/01	14:15	0.025	25.5	0.008
11/2/01	14:15	0.03	25.5	0.008
11/2/01	14:15	0.035	25.51	0.008
11/2/01	14:15	0.0398	25.51	-0.039

11/2/01 14:15	0.045		25.51	-4.411
11/2/01 14:15	0.05		25.51	-2.455
11/2/01 14:15	0.0548		25.51	-1.971
11/2/01 14:15	0.06	*	25.51	-2.003
11/2/01 14:15	0.0648		25.51	-1.93
11/2/01 14:15	0.07		25.51	-1.889
11/2/01 14:15	0.075		25.51	-1.859
11/2/01 14:15	0.0798		25.51	-1.831
11/2/01 14:15	0.0848		25.51	-1.794
11/2/01 14:15	0.09		25.51	-1.766
11/2/01 14:15	0.095		25.52	-1.741
11/2/01 14:15	0.1		25.51	-1.715
11/2/01 14:15	0.1057		25.51	-1.682
11/2/01 14:15	0.1118		25.52	-1.655
11/2/01 14:15	0.1185		25.52	-1.622
11/2/01 14:15	0.1255		25.52	-1.59
11/2/01 14:15	0.1327		25.52	-1.558
11/2/01 14:15	0.1405		25.52	-1.521
11/2/01 14:15	0.1488		25.52	-1.487
11/2/01 14:15	0.1578		25.52	-1.452
11/2/01 14:15	0.167	*	25.52	-1.418
11/2/01 14:15	0.1768		25.52	-1.379
11/2/01 14:15	0.1875		25.51	-1.342
11/2/01 14:15	0.1985		25.51	-1.301
11/2/01 14:15	0.21		25.51	-1.262
11/2/01 14:15	0.2225		25.51	-1.219
11/2/01 14:15	0.2358		25.51	-1.178
11/2/01 14:15	0.2498		25.51	-1.133
11/2/01 14:15	0.2647	*	25.51	-1.09
11/2/01 14:15	0.2803		25.51	-1.045
11/2/01 14:15	0.297		25.5	-0.999
11/2/01 14:15	0.3145		25.5	-0.954
11/2/01 14:15	0.3333		25.5	-0.907
11/2/01 14:15	0.3532	*	25.5	-0.862
11/2/01 14:15	0.374		25.5	-0.814
11/2/01 14:15	0.3963		25.5	-0.769
11/2/01 14:15	0.4198		25.5	-0.722
11/2/01 14:15	0.4445		25.5	-0.679
11/2/01 14:15	0.4695	*	25.49	-0.633
11/2/01 14:15	0.4963		25.49	-0.592
11/2/01 14:15	0.5247		25.49	-0.547
11/2/01 14:15	0.5547	*	25.49	-0.508
11/2/01 14:15	0.5862		25.47	-0.467
11/2/01 14:15	0.6213		25.47	-0.428
11/2/01 14:15	0.6578	*	25.46	-0.389
11/2/01 14:15	0.6963		25.46	-0.352
11/2/01 14:15	0.738		25.45	-0.318
11/2/01 14:15	0.7813		25.45	-0.285
11/2/01 14:15	0.8278		25.44	-0.255
11/2/01 14:15	0.8762	*	25.42	-0.227
11/2/01 14:15	0.9278		25.41	-0.2
11/2/01 14:15	0.9828		25.4	-0.174

11/2/01 14:16	1.0412	*	25.4	-0.155
11/2/01 14:16	1.103		25.39	-0.133
11/2/01 14:16	1.1678		25.37	-0.115
11/2/01 14:16	1.238		25.36	-0.098
11/2/01 14:16	1.3113		25.35	-0.085
11/2/01 14:16	1.3895		25.34	-0.074
11/2/01 14:16	1.4728		25.32	-0.062
11/2/01 14:16	1.5613		25.31	-0.054
11/2/01 14:16	1.6547		25.3	-0.042
11/2/01 14:16	1.753		25.3	-0.038
11/2/01 14:16	1.858		25.29	-0.031
11/2/01 14:16	1.9678		25.27	-0.029
11/2/01 14:17	2.0845	*	25.26	-0.024
11/2/01 14:17	2.2097		25.25	-0.022
11/2/01 14:17	2.3412		25.24	-0.019
11/2/01 14:17	2.4812		25.22	-0.017
11/2/01 14:17	2.6297		25.22	-0.015
11/2/01 14:17	2.7863		25.21	-0.014
11/2/01 14:17	2.953		25.2	-0.014
11/2/01 14:18	3.1297		25.2	-0.012
11/2/01 14:18	3.3162		25.18	-0.011
11/2/01 14:18	3.5145		25.18	-0.009
11/2/01 14:18	3.7245		25.17	-0.011
11/2/01 14:18	3.9463		25.17	-0.009
11/2/01 14:19	4.1812		25.17	-0.013
11/2/01 14:19	4.4295		25.16	-0.009
11/2/01 14:19	4.6928		25.16	-0.009
11/2/01 14:19	4.9728		25.16	-0.013
11/2/01 14:20	5.2697		25.16	-0.015
11/2/01 14:20	5.583		25.16	-0.015
11/2/01 14:20	5.9145		25.16	-0.015
11/2/01 14:21	6.2663		25.16	-0.015
11/2/01 14:21	6.6395		25.16	-0.013
11/2/01 14:22	7.0345		25.16	-0.013
11/2/01 14:22	7.453		25.16	-0.013
11/2/01 14:22	7.8962		25.16	-0.013
11/2/01 14:23	8.3663		25.16	-0.011
11/2/01 14:23	8.8645		25.16	-0.011
11/2/01 14:24	9.3913		25.17	-0.011
11/2/01 14:24	9.9497		25.17	-0.007

CALCULATION WORKSHEET Order No. 19116 (01-91) PAGE 1 OF

CLIENT	PARRIS IS.	JOB NUMBER	N0502
SUBJECT	SLUG TEST CALCS : WELL NO : MW06SU		
BASED ON		DRAWING NUMBER	
BY	SJC 12/18/01	CHECKED BY	JK 12-28-01
APPROVED BY		DATE	

HVORSLEV

$$K = \frac{r^2 \ln(L/R)}{2L\,T_o}$$

$$= \frac{(.083)^2 \ln(3.39/.375)}{2(3.39)(0.3)}$$

$$= \frac{(.083)^2 (2.20)}{2.034}$$

$$=$$

$$= 7.45 \times 10^{-3} \text{ ft/min}$$

$$= 3.79 \times 10^{-3} \text{ cm/sec}$$

$$= \underline{11} \text{ ft/day}$$

SEE PRINTOUT FOR MORE DATA

t (min)	H-h/H-Ho
0 - 1.007	1.00
.1 - .755	.75
.2 .553	.55
.3 .369	.37
.4 .242	.24
.5 .139	.14
.6 .083	.08
.8 .033	.03

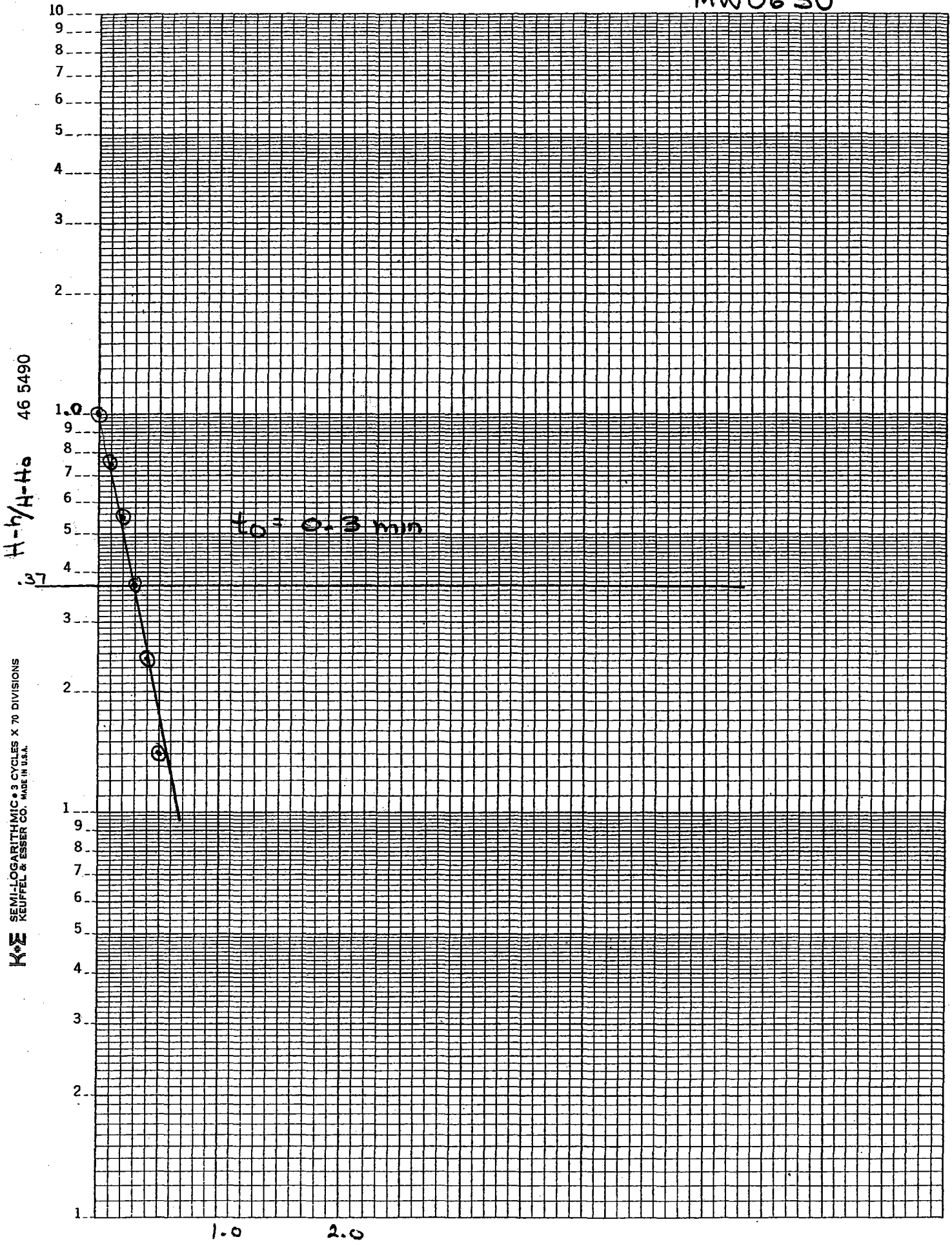
r = 1"/12 = .083'

L = 3.39

R = 9"/12/2 .375

To = 0.3m (from plot)

MW06 SU


H-h/H-Ho
46 5490
.37
t_0 = 0.3 min
1.0
2.0
t (min)
SEMI-LOGARITHMIC • 3 CYCLES X 70 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.

B-94

IN-SITU HYDRAULIC CONDUCTIVITY TESTING	Number	

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

PROJECT NAME: PAI-SITE 45 WELL/BORING NO.: MW06SU

PROJECT NO.: N0502 GEOLOGIST: CONTI

WELL DIAMETER: 2" SCREEN LENGTH/DEPTH: 4' / 6.93 TEST NO.: 1

STATIC WATER LEVEL (Depth/Elevation): 3.54 DATE: 11/3/01

TEST TYPE (Rising/Falling/Constant Head): RISING CHECKED:

METHOD OF INDUCING WATER LEVEL CHANGE: 1 SECT SLUG PAGE 1 OF

REFERENCE PT. FOR WL MEAS. (Top of Casing, Transducer, etc.): TOC = 7.61

ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)	ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)

WELL SCHEMATIC

WELL #

BOREHOLE # 94

Depths (BGL)

SEALS

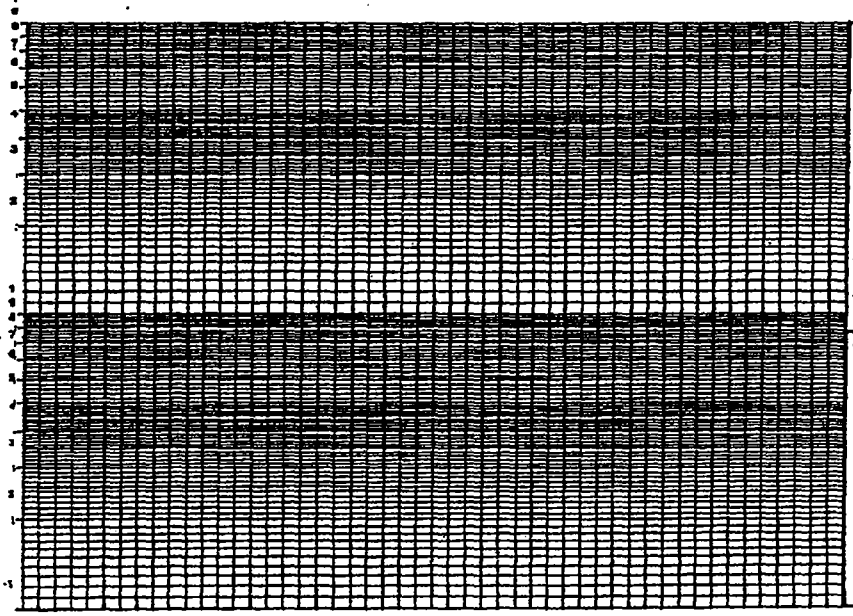
2.93

GRAVEL / OPEN INTERVAL

SCREEN

6.93

▽ Indicate SWL Depth on Drawing



REMARKS:

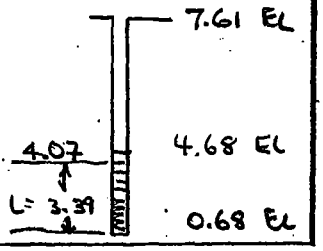
MW06SU - RISING

START 0750

3.290 HEAD

CURVE - OK

CALCS, SKETCH MAPS, ETC.:



L = 3.39'

In-Situ Inc. MiniTroll Pro

Report generated: 11/3/01 7:56:10
Report from file: C:\WIN-SITU\Data\SN02468 2001-11-03 075000 MW06SU-RISING.bin
DataMgr Version 3.69

Serial number: 2468
Firmware Version 3.01
Unit name: SLUG TESTS

Test name: MW06SU-RISING

Test defined on: 11/3/01 7:42:52
Test scheduled for: 11/3/01 7:50:00
Test started on: 11/3/01 7:50:00
Test stopped on: 11/3/01 7:56:03
Test extracted on: N/A

Data gathered using Logarithmic testing
Maximum time between c Minutes.
Number of data samples: 92

TOTAL DATA SAMPLES 92

Channel number [1]
Measurement type: Temperature
Channel name: OnBoard Temp

Channel number [2]
Measurement type: Pressure
Channel name: Pressure
Sensor Range: 30 PSI.
Specific gravity: 1
Mode: Surface
User-defined reference: 0 Feet H2O
Referenced on: test start
Pressure head at referenc 3.291 Feet H2O

Date	Time	ET (min)	Chan[1] Celsius	Chan[2] Feet H2O
11/3/01	7:50	0	23.32	0
11/3/01	7:50	0.0048	23.33	0.002
11/3/01	7:50	0.0098	23.33	0.002
11/3/01	7:50	0.015	23.33	0.004
11/3/01	7:50	0.0198	23.34	0.004
11/3/01	7:50	0.025	23.34	0.004
11/3/01	7:50	0.03	23.34	0.004
11/3/01	7:50	0.035	23.34	-6.148
11/3/01	7:50	0.0398	23.34	-1.233

11/3/01 7:50	0.045	23.34	-1.029
11/3/01 7:50	0.05	23.36	-1.007
11/3/01 7:50	0.0548	23.36	-0.988
11/3/01 7:50	0.06	23.36	-0.975
11/3/01 7:50	0.0648	23.36	-0.956
11/3/01 7:50	0.07	23.36	-0.943
11/3/01 7:50	0.075	23.36	-0.93
11/3/01 7:50	0.0798	23.36	-0.917
11/3/01 7:50	0.0848	23.36	-0.904
11/3/01 7:50	0.09	23.36	-0.891
11/3/01 7:50	0.095	23.36	-0.878
11/3/01 7:50	0.1	23.36	-0.867
11/3/01 7:50	0.1057	23.36	-0.852
11/3/01 7:50	0.1118	23.36	-0.837
11/3/01 7:50	0.1185	23.36	-0.824
11/3/01 7:50	0.1255	23.36	-0.807
11/3/01 7:50	0.1327	23.37	-0.79
11/3/01 7:50	0.1405	23.37	-0.773
11/3/01 7:50	0.1488	23.37	-0.755
11/3/01 7:50	0.1578	23.37	-0.734
11/3/01 7:50	0.167	23.36	-0.716
11/3/01 7:50	0.1768	23.36	-0.697
11/3/01 7:50	0.1875	23.36	-0.675
11/3/01 7:50	0.1985	23.36	-0.654
11/3/01 7:50	0.21	23.36	-0.628
11/3/01 7:50	0.2225	23.36	-0.604
11/3/01 7:50	0.2358	23.36	-0.578
11/3/01 7:50	0.2498	23.36	-0.553
11/3/01 7:50	0.2647	23.36	-0.525
11/3/01 7:50	0.2803	23.36	-0.494
11/3/01 7:50	0.297	23.36	-0.464
11/3/01 7:50	0.3145	23.36	-0.434
11/3/01 7:50	0.3333	23.36	-0.4
11/3/01 7:50	0.3532	23.34	-0.369
11/3/01 7:50	0.374	23.36	-0.337
11/3/01 7:50	0.3963	23.36	-0.305
11/3/01 7:50	0.4198	23.36	-0.272
11/3/01 7:50	0.4445	23.36	-0.242
11/3/01 7:50	0.4695	23.36	-0.214
11/3/01 7:50	0.4963	23.36	-0.188
11/3/01 7:50	0.5247	23.36	-0.163
11/3/01 7:50	0.5547	23.36	-0.139
11/3/01 7:50	0.5862	23.36	-0.117
11/3/01 7:50	0.6213	23.34	-0.098
11/3/01 7:50	0.6578	23.36	-0.083
11/3/01 7:50	0.6963	23.36	-0.066
11/3/01 7:50	0.738	23.36	-0.053
11/3/01 7:50	0.7813	23.34	-0.044
11/3/01 7:50	0.8278	23.34	-0.033
11/3/01 7:50	0.8762	23.36	-0.025
11/3/01 7:50	0.9278	23.34	-0.02
11/3/01 7:50	0.9828	23.34	-0.014

11/3/01 7:51	1.0412	*	23.34	-0.009
11/3/01 7:51	1.103		23.34	-0.007
11/3/01 7:51	1.1678		23.34	-0.005
11/3/01 7:51	1.238		23.34	-0.003
11/3/01 7:51	1.3113		23.34	-0.001
11/3/01 7:51	1.3895		23.34	-0.001
11/3/01 7:51	1.4728		23.34	-0.001
11/3/01 7:51	1.5613		23.34	0.002
11/3/01 7:51	1.6547		23.34	0.002
11/3/01 7:51	1.753		23.34	0.002
11/3/01 7:51	1.858		23.34	0.002
11/3/01 7:51	1.9678		23.33	0.004
11/3/01 7:52	2.0845	*	23.33	0.002
11/3/01 7:52	2.2097		23.33	0.004
11/3/01 7:52	2.3412		23.33	0.002
11/3/01 7:52	2.4812		23.33	0.004
11/3/01 7:52	2.6297		23.33	0.004
11/3/01 7:52	2.7863		23.33	0.004
11/3/01 7:52	2.953		23.33	0.004
11/3/01 7:53	3.1297	*	23.33	0.004
11/3/01 7:53	3.3162		23.33	0.004
11/3/01 7:53	3.5145		23.33	0.004
11/3/01 7:53	3.7245		23.33	0.004
11/3/01 7:53	3.9463		23.33	0.004
11/3/01 7:54	4.1812		23.33	0.006
11/3/01 7:54	4.4295		23.33	0.004
11/3/01 7:54	4.6928		23.33	0.004
11/3/01 7:54	4.9728		23.33	0.004
11/3/01 7:55	5.2697		23.33	0.004
11/3/01 7:55	5.583		23.33	0.006
11/3/01 7:55	5.9145		23.33	0.006

CALCULATION WORKSHEET Order No. 19116 (01-91) PAGE 1 OF

CLIENT	JOB NUMBER
PARRIS IS.	N0502

SUBJECT: SLUG TEST CALCS : WELL NO : MW06 SL

BASED ON	DRAWING NUMBER

BY	CHECKED BY	APPROVED BY	DATE
SJC 12/18/01	JK 12-28-01		

HVORSLEV

$$K = \frac{r^2 \ln(L/R)}{2L\,T_o}$$

$$= \frac{(.083)^2 \ln(5/.375)}{2(5)(.75)}$$

$$= \frac{(.083)^2 (2.59)}{7.5}$$

$$= 2.38 \times 10^{-3} \text{ ft/min}$$

$$= 1.21 \times 10^{-3} \text{ cm/sec}$$

$$= \underline{\underline{3}} \text{ ft/day}$$

SEE PRINTOUT FOR MORE DATA

t (min)		H-h/H-Ho
0	= 2.177	1.00
.1	1.657	.76
.2	1.429	.66
.3	1.254	.58
.4	1.103	.51
.5	.948	.44
.6	.823	.38
.7	.739	.34
1.0	.498	.23
2.0	.167	.08
3.0	.06	

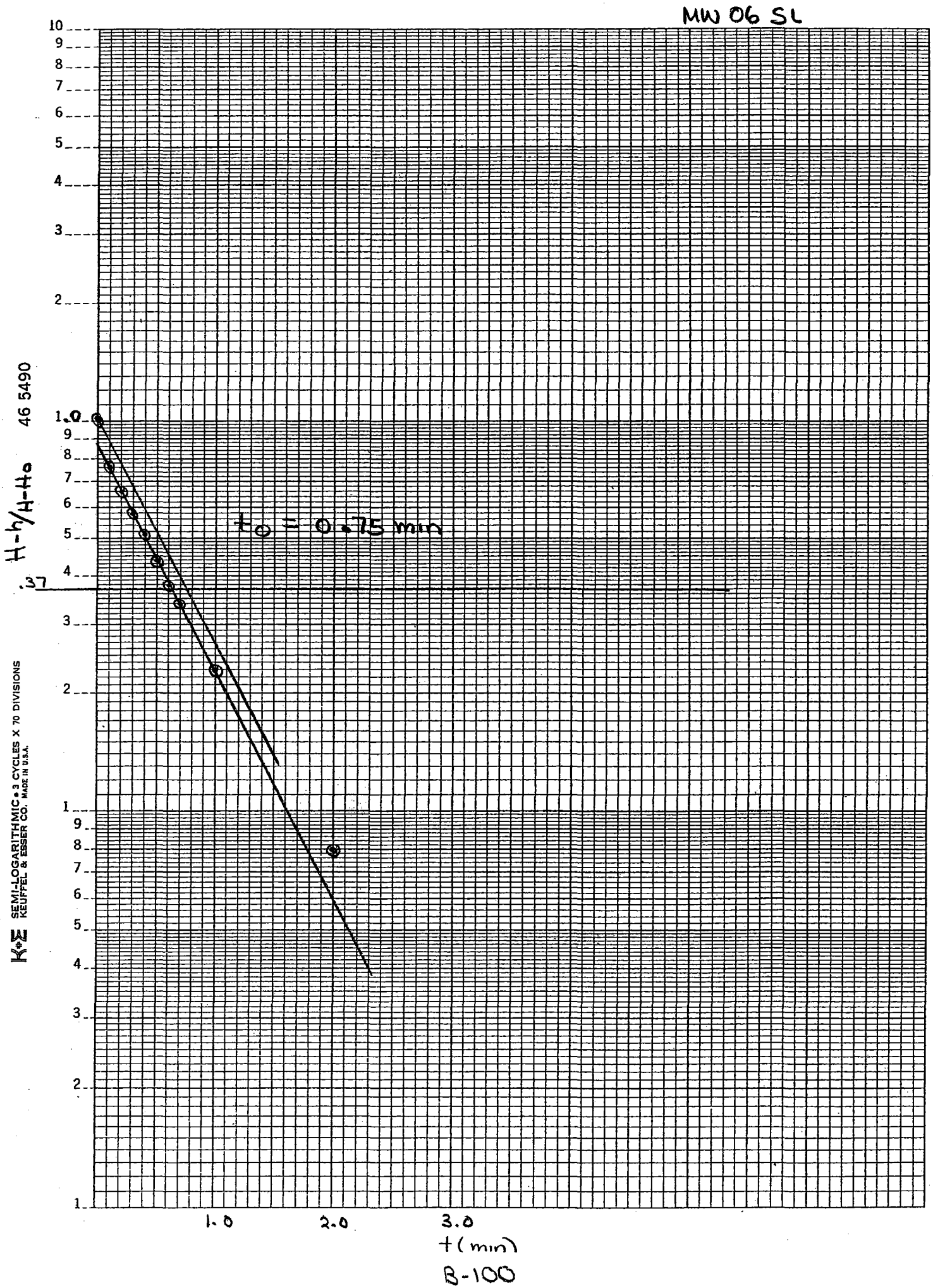
r = 1" ÷ 12 = .083

L = = 5'

R = = .375'

To = 0.75m (from plot)

MW 06 SL



H-h/H-Ho
46 5490
.37
t_o = 0.75 min
1.0
2.0
3.0
t (min)
K+E SEMI-LOGARITHMIC • 3 CYCLES X 70 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.

IN-SITU HYDRAULIC CONDUCTIVITY TESTING	Number	

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

PROJECT NAME: PAI-SITE 45 WELL/BORING NO.: MW06SL

PROJECT NO.: N0502 GEOLOGIST: CONTI

WELL DIAMETER: 2" SCREEN LENGTH/DEPTH: 5' / 14.59 TEST NO.: 1

STATIC WATER LEVEL (Depth/Elevation): 3.65 DATE: 11/30/01

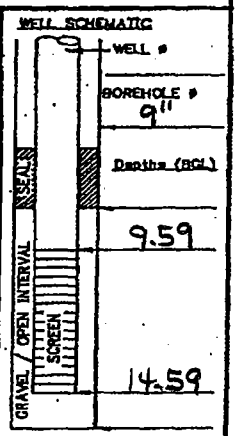
TEST TYPE (Rising/Falling/Constant Head): RISING CHECKED:

METHOD OF INDUCING WATER LEVEL CHANGE: 2-SECTION SLUG PAGE 1 OF

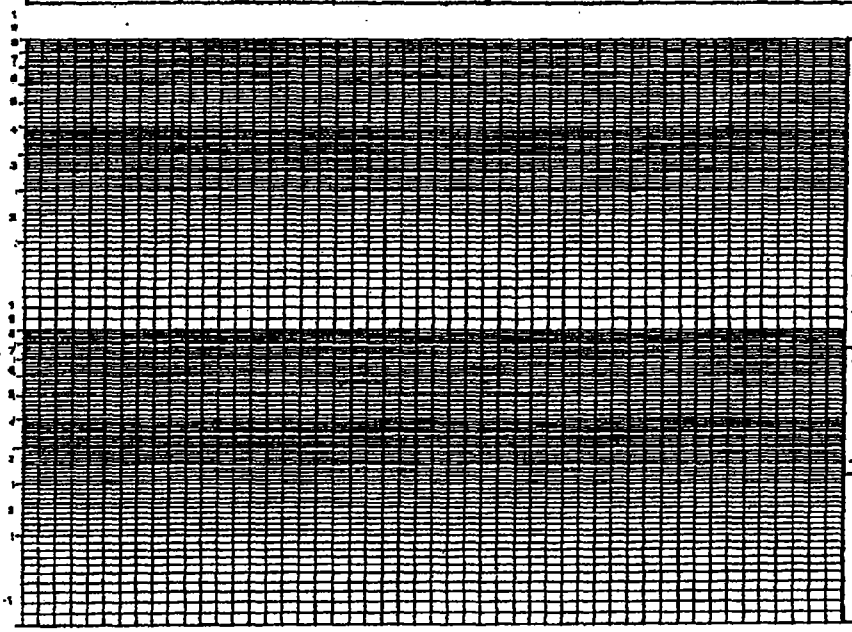
REFERENCE PT. FOR WL MEAS. (Top of Casing, Transducer, etc.): TOC = 7.52

ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)	ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)

WELL SCHEMATIC



▽ Indicate SWL Depth on Drawing



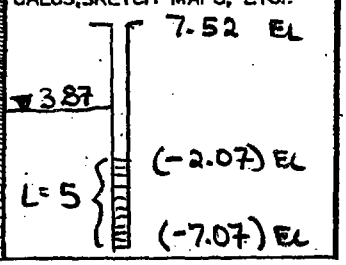
REMARKS:

MW06SL - RISING

START 0812

CURVE - OK

CALCS, SKETCH MAPS, ETC.:



L = 5'

In-Situ Inc. MiniTroll Pro

Report generated: 11/3/01 8:19:23
Report from file: C:\WIN-SITU\Data\SN02468 2001-11-03 081200 MW06SL-RISING.bin
DataMgr Version 3.69

Serial number: 2468
Firmware Version 3.01
Unit name: SLUG TESTS

Test name: MW06SL-RISING

Test defined on: 11/3/01 8:10:22
Test scheduled for: 11/3/01 8:12:00
Test started on: 11/3/01 8:12:00
Test stopped on: 11/3/01 8:19:12
Test extracted on: N/A

Data gathered using Logarithmic testing
Maximum time between d Minutes.
Number of data samples: 95

TOTAL DATA SAMPLES 95

Channel number [1]
Measurement type: Temperature
Channel name: OnBoard Temp

Channel number [2]
Measurement type: Pressure
Channel name: Pressure
Sensor Range: 30 PSI.
Specific gravity: 1
Mode: Surface
User-defined reference: 0 Feet H2O
Referenced on: test start
Pressure head at referenc 7.113 Feet H2O

Date	Time	ET (min)	Chan[1] Celsius	Chan[2] Feet H2O
11/3/01	8:12	0	24.18	0
11/3/01	8:12	0.0048	24.19	0.004
11/3/01	8:12	0.0098	24.19	0.006
11/3/01	8:12	0.015	24.2	0.006
11/3/01	8:12	0.0198	24.2	0.006
11/3/01	8:12	0.025	24.2	0.008
11/3/01	8:12	0.03	24.2	0.008
11/3/01	8:12	0.035	24.2	0.008
11/3/01	8:12	0.0398	24.2	0.008

11/3/01 8:12	0.045		24.21	0.008	
11/3/01 8:12	0.05		24.21	0.008	
11/3/01 8:12	0.0548		24.21	0.008	
11/3/01 8:12	0.06		24.21	0.008	
11/3/01 8:12	0.0648		24.21	0.008	
11/3/01 8:12	0.07		24.21	-0.975	
11/3/01 8:12	0.075		24.21	-4.497	
11/3/01 8:12	0.0798	*	24.21	-2.177	0
11/3/01 8:12	0.0848		24.21	-1.987	
11/3/01 8:12	0.09		24.21	-1.942	
11/3/01 8:12	0.095		24.21	-1.918	
11/3/01 8:12	0.1		24.21	-1.901	
11/3/01 8:12	0.1057		24.21	-1.873	
11/3/01 8:12	0.1118		24.23	-1.852	
11/3/01 8:12	0.1185		24.21	-1.828	
11/3/01 8:12	0.1255		24.23	-1.813	
11/3/01 8:12	0.1327		24.23	-1.789	
11/3/01 8:12	0.1405		24.21	-1.761	
11/3/01 8:12	0.1488		24.23	-1.733	
11/3/01 8:12	0.1578		24.23	-1.707	
11/3/01 8:12	0.167		24.21	-1.683	
11/3/01 8:12	0.1768	*	24.21	-1.657	
11/3/01 8:12	0.1875		24.21	-1.634	
11/3/01 8:12	0.1985		24.21	-1.606	
11/3/01 8:12	0.21		24.21	-1.58	
11/3/01 8:12	0.2225		24.21	-1.55	
11/3/01 8:12	0.2358		24.21	-1.522	
11/3/01 8:12	0.2498		24.2	-1.491	
11/3/01 8:12	0.2647		24.21	-1.459	
11/3/01 8:12	0.2803	*	24.2	-1.429	
11/3/01 8:12	0.297		24.2	-1.394	
11/3/01 8:12	0.3145		24.2	-1.362	
11/3/01 8:12	0.3333		24.2	-1.328	
11/3/01 8:12	0.3532		24.2	-1.291	
11/3/01 8:12	0.374	*	24.2	-1.254	
11/3/01 8:12	0.3963		24.2	-1.218	
11/3/01 8:12	0.4198		24.2	-1.181	
11/3/01 8:12	0.4445		24.2	-1.14	
11/3/01 8:12	0.4695	*	24.2	-1.103	
11/3/01 8:12	0.4963		24.2	-1.067	
11/3/01 8:12	0.5247		24.2	-1.026	
11/3/01 8:12	0.5547		24.2	-0.987	
11/3/01 8:12	0.5862	*	24.2	-0.948	
11/3/01 8:12	0.6213		24.2	-0.905	
11/3/01 8:12	0.6578		24.2	-0.862	
11/3/01 8:12	0.6963	*	24.2	-0.823	
11/3/01 8:12	0.738		24.2	-0.78	
11/3/01 8:12	0.7813	*	24.2	-0.739	.7
11/3/01 8:12	0.8278		24.2	-0.696	
11/3/01 8:12	0.8762		24.19	-0.655	
11/3/01 8:12	0.9278		24.19	-0.614	
11/3/01 8:12	0.9828		24.2	-0.576	

11/3/01 8:13	1.0412		24.19	-0.537	
11/3/01 8:13	1.103	*	24.19	-0.498	1.0
11/3/01 8:13	1.1678		24.19	-0.461	
11/3/01 8:13	1.238		24.2	-0.425	
11/3/01 8:13	1.3113		24.19	-0.388	
11/3/01 8:13	1.3895		24.2	-0.356	
11/3/01 8:13	1.4728		24.2	-0.324	
11/3/01 8:13	1.5613		24.2	-0.291	
11/3/01 8:13	1.6547		24.2	-0.263	
11/3/01 8:13	1.753		24.2	-0.235	
11/3/01 8:13	1.858		24.2	-0.212	
11/3/01 8:13	1.9678		24.21	-0.188	
11/3/01 8:14	2.0845	*	24.21	-0.167	
11/3/01 8:14	2.2097		24.21	-0.145	
11/3/01 8:14	2.3412		24.23	-0.128	
11/3/01 8:14	2.4812		24.24	-0.109	
11/3/01 8:14	2.6297		24.24	-0.096	
11/3/01 8:14	2.7863		24.25	-0.082	
11/3/01 8:14	2.953		24.25	-0.071	
11/3/01 8:15	3.1297	*	24.26	-0.06	
11/3/01 8:15	3.3162		24.28	-0.052	
11/3/01 8:15	3.5145		24.28	-0.046	
11/3/01 8:15	3.7245		24.29	-0.04	
11/3/01 8:15	3.9463		24.29	-0.033	
11/3/01 8:16	4.1812		24.29	-0.029	
11/3/01 8:16	4.4295		24.29	-0.024	
11/3/01 8:16	4.6928		24.29	-0.02	
11/3/01 8:16	4.9728		24.3	-0.018	
11/3/01 8:17	5.2697		24.3	-0.014	
11/3/01 8:17	5.583		24.3	-0.012	
11/3/01 8:17	5.9145		24.3	-0.01	
11/3/01 8:18	6.2663		24.3	-0.01	
11/3/01 8:18	6.6395		24.3	-0.008	
11/3/01 8:19	7.0345		24.3	-0.003	

CALCULATION WORKSHEET Order No. 19116 (01-91) PAGE 1 OF

CLIENT	PARRIS IS.	JOB NUMBER	N0502
SUBJECT	SLUG TEST CALCS : WELL NO : MW 07 SU		
BASED ON		DRAWING NUMBER	
BY	CHECKED BY	APPROVED BY	DATE
SJC 12/19/01	JK 12-28-01		

HVORSLEV

$$K = \frac{r^2 \ln(L/R)}{2L\,T_o}$$

$$= \frac{(.083)^2 \ln(3.3/.375)}{2(3.3)(.26)}$$

$$= \frac{(.083)^2 (2.17)}{1.716}$$

$$= 8.71 \times 10^{-3} \text{ ft/min}$$

$$= 4.43 \times 10^{-3} \text{ cm/sec}$$

$$= \underline{\underline{12.5}} \text{ ft/day}$$

SEE PRINTOUT FOR MORE DATA

t (min)	H-h/H-Ho
0 - 1.00	1.00
.05 - .699	.70
.10 - .529	.53
.15 - .432	.43
.20 - .348	.35
.30 - .268	.27
.40 - .218	.22
.50 .190	.19
.60 .169	.17
.70 .160	.16

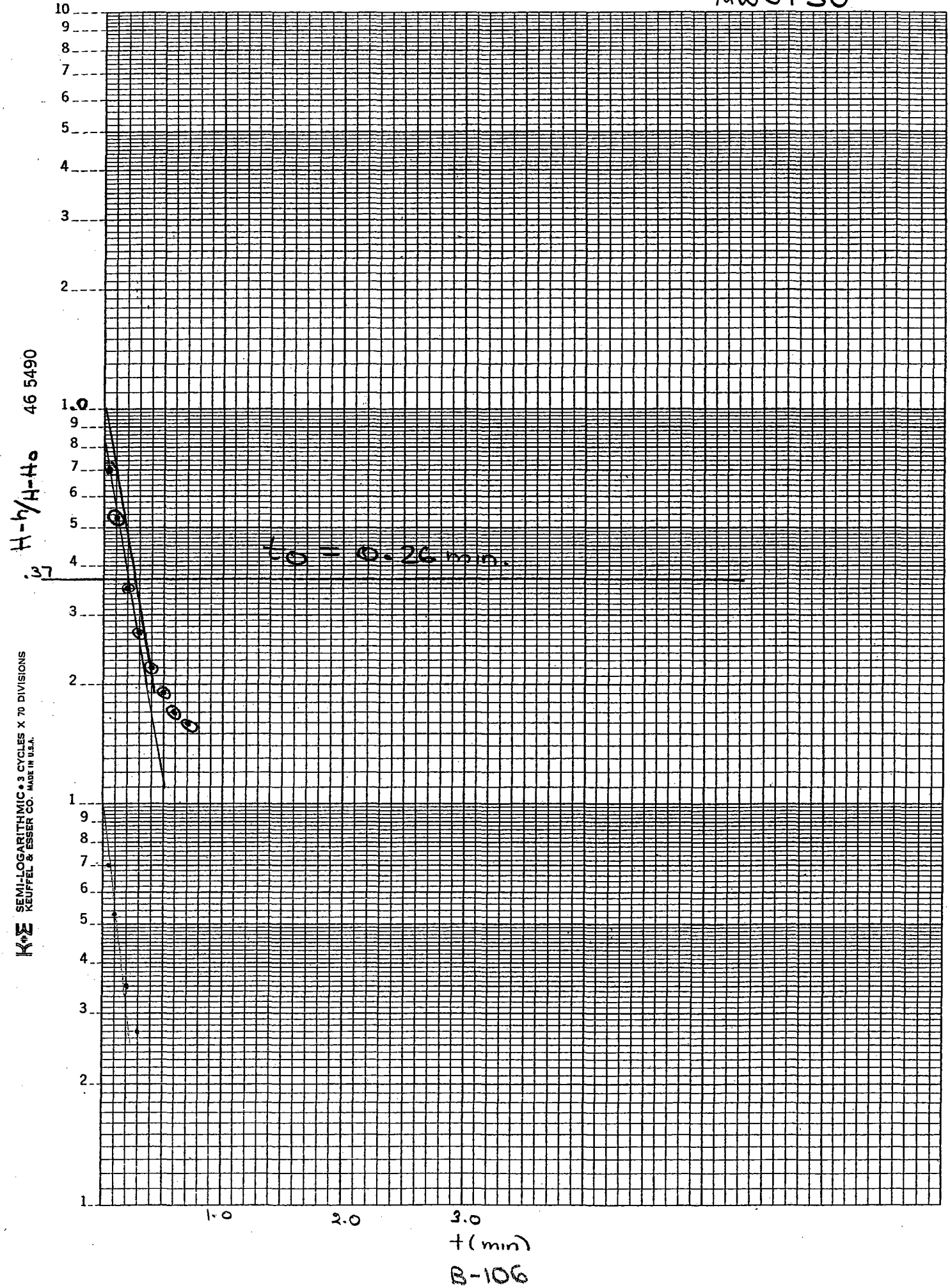
r = 1" ÷ 12 = .083'

L = 3.30'

R = 9"/12/2 = .375'

To = 0.26 m (from plot)

MW07SU


H-h/H-Ho
46 5490
.37
to = 0.26 min.
10
9
8
7
6
5
4
3
2
1.0
9
8
7
6
5
4
3
2
1
9
8
7
6
5
4
3
2
1
1.0
2.0
3.0
t (min)
SEMI-LOGARITHMIC • 3 CYCLES X 70 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.

B-106

IN-SITU HYDRAULIC CONDUCTIVITY TESTING	Number	

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

PROJECT NAME: PAI-SITE 45 WELL/BORING NO.: MW07SU

PROJECT NO.: N0502 GEOLOGIST: CONTI

WELL DIAMETER: 2 SCREEN LENGTH/DEPTH: 4' / 7.07 TEST NO.: 1

STATIC WATER LEVEL (Depth/Elevation): 3.77 DATE: 11/3/01

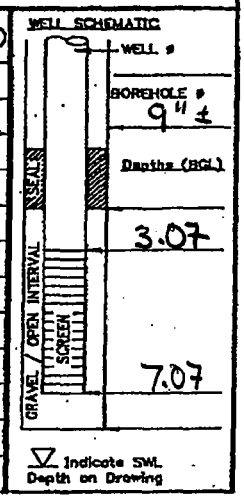
TEST TYPE (Rising/Falling/Constant Head): RISING CHECKED:

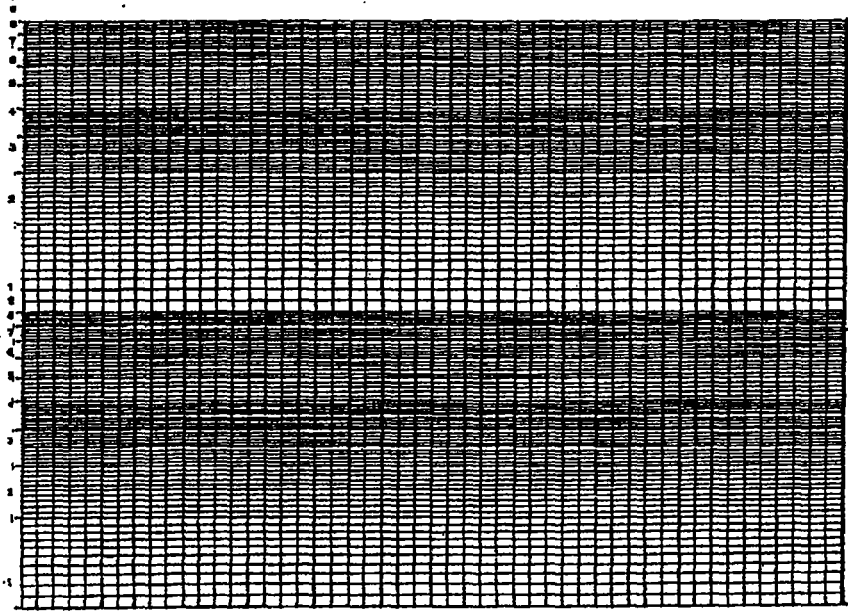
METHOD OF INDUCING WATER LEVEL CHANGE: 1 SECTION SLUG PAGE 1 OF

REFERENCE PT. FOR WL MEAS. (Top of Casing, Transducer, etc.): TOC = 7.68 EL

ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)	ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)

WELL SCHEMATIC





REMARKS:

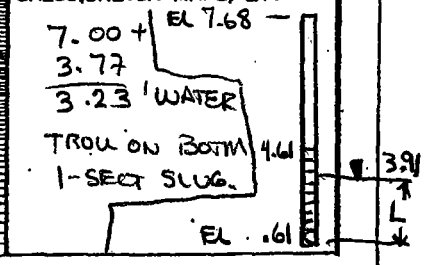
MW07SU - RISING

START : 0933

HEAD : 3.359

CURVE : GOOD

CALCS, SKETCH MAPS, ETC.:



L = 3.30

In-Situ Inc. MiniTroll Pro

Report generated: 11/3/01 9:40:27
Report from file: C:\WIN-SITU\Data\SN02468 2001-11-03 093300 MW07SU-RISING.bin
DataMgr Version 3.69

Serial number: 2468
Firmware Version 3.01
Unit name: SLUG TESTS

Test name: MW07SU-RISING

Test defined on: 11/3/01 9:29:36
Test scheduled for: 11/3/01 9:33:00
Test started on: 11/3/01 9:33:00
Test stopped on: 11/3/01 9:40:22
Test extracted on: N/A

Data gathered using Logarithmic testing
Maximum time between c Minutes.
Number of data samples: 95

TOTAL DATA SAMPLES 95

Channel number [1]
Measurement type: Temperature
Channel name: OnBoard Temp

Channel number [2]
Measurement type: Pressure
Channel name: Pressure
Sensor Range: 30 PSI.
Specific gravity: 1
Mode: Surface
User-defined reference: 0 Feet H2O
Referenced on: test start
Pressure head at referenc 3.21 Feet H2O

Date	Time	ET (min)	Chan[1] Celsius	Chan[2] Feet H2O
	11/3/01 9:33	0	23.4	0
	11/3/01 9:33	0.0048	23.4	0.004
	11/3/01 9:33	0.0098	23.41	0.041
	11/3/01 9:33	0.015	23.41	0.034
	11/3/01 9:33	0.0198	23.41	0.041
	11/3/01 9:33	0.025	23.42	0.038
	11/3/01 9:33	0.03	23.42	0.094
	11/3/01 9:33	0.035	23.42	-0.009
	11/3/01 9:33	0.0398	23.42	-0.022

ASSUME ↓

	0		-1.000 THEORETICAL
11/3/01 9:33	0.045	23.42	-0.02
11/3/01 9:33	0.05	23.42	-0.699
11/3/01 9:33	0.0548	23.42	-0.61
11/3/01 9:33	0.06	23.42	-0.632
11/3/01 9:33	0.0648	23.42	-0.613
11/3/01 9:33	0.07	23.42	-0.602
11/3/01 9:33	0.075	23.42	-0.587
11/3/01 9:33	0.0798	23.42	-0.585
11/3/01 9:33	0.0848	23.43	-0.563
11/3/01 9:33	0.09	23.43	-0.548
11/3/01 9:33	0.095	23.43	-0.54
11/3/01 9:33	0.1	23.43	-0.529
11/3/01 9:33	0.1057	23.43	-0.516
11/3/01 9:33	0.1118	23.43	-0.503
11/3/01 9:33	0.1185	23.43	-0.49
11/3/01 9:33	0.1255	23.43	-0.475
11/3/01 9:33	0.1327	23.43	-0.462
11/3/01 9:33	0.1405	23.43	-0.447
11/3/01 9:33	0.1488	23.43	-0.432
11/3/01 9:33	0.1578	23.43	-0.419
11/3/01 9:33	0.167	23.43	-0.406
11/3/01 9:33	0.1768	23.43	-0.391
11/3/01 9:33	0.1875	23.43	-0.378
11/3/01 9:33	0.1985	23.43	-0.363
11/3/01 9:33	0.21	23.43	-0.348
11/3/01 9:33	0.2225	23.42	-0.335
11/3/01 9:33	0.2358	23.43	-0.32
11/3/01 9:33	0.2498	23.42	-0.307
11/3/01 9:33	0.2647	23.42	-0.294
11/3/01 9:33	0.2803	23.42	-0.281
11/3/01 9:33	0.297	23.42	-0.268
11/3/01 9:33	0.3145	23.42	-0.257
11/3/01 9:33	0.3333	23.42	-0.246
11/3/01 9:33	0.3532	23.42	-0.236
11/3/01 9:33	0.374	23.42	-0.227
11/3/01 9:33	0.3963	23.42	-0.218
11/3/01 9:33	0.4198	23.42	-0.21
11/3/01 9:33	0.4445	23.42	-0.203
11/3/01 9:33	0.4695	23.42	-0.197
11/3/01 9:33	0.4963	23.42	-0.19
11/3/01 9:33	0.5247	23.42	-0.184
11/3/01 9:33	0.5547	23.42	-0.182
11/3/01 9:33	0.5862	23.42	-0.175
11/3/01 9:33	0.6213	23.42	-0.169
11/3/01 9:33	0.6578	23.42	-0.164
11/3/01 9:33	0.6963	23.42	-0.16
11/3/01 9:33	0.738	23.42	-0.158
11/3/01 9:33	0.7813	23.42	-0.151
11/3/01 9:33	0.8278	23.41	-0.149
11/3/01 9:33	0.8762	23.41	-0.145
11/3/01 9:33	0.9278	23.41	-0.14
11/3/01 9:33	0.9828	23.41	-0.136

11/3/01 9:34	1.0412	23.41	-0.134
11/3/01 9:34	1.103	23.41	-0.13
11/3/01 9:34	1.1678	23.41	-0.125
11/3/01 9:34	1.238	23.41	-0.121
11/3/01 9:34	1.3113	23.41	-0.119
11/3/01 9:34	1.3895	23.41	-0.115
11/3/01 9:34	1.4728	23.41	-0.112
11/3/01 9:34	1.5613	23.41	-0.11
11/3/01 9:34	1.6547	23.41	-0.106
11/3/01 9:34	1.753	23.41	-0.102
11/3/01 9:34	1.858	23.41	-0.097
11/3/01 9:34	1.9678	23.41	-0.095
11/3/01 9:35	2.0845	23.41	-0.091
11/3/01 9:35	2.2097	23.41	-0.091
11/3/01 9:35	2.3412	23.41	-0.087
11/3/01 9:35	2.4812	23.41	-0.082
11/3/01 9:35	2.6297	23.41	-0.08
11/3/01 9:35	2.7863	23.41	-0.076
11/3/01 9:35	2.953	23.41	-0.074
11/3/01 9:36	3.1297	23.41	-0.071
11/3/01 9:36	3.3162	23.41	-0.069
11/3/01 9:36	3.5145	23.41	-0.065
11/3/01 9:36	3.7245	23.41	-0.061
11/3/01 9:36	3.9463	23.41	-0.058
11/3/01 9:37	4.1812	23.41	-0.056
11/3/01 9:37	4.4295	23.42	-0.055
11/3/01 9:37	4.6928	23.42	-0.052
11/3/01 9:37	4.9728	23.42	-0.048
11/3/01 9:38	5.2697	23.42	-0.046
11/3/01 9:38	5.583	23.42	-0.044
11/3/01 9:38	5.9145	23.42	-0.039
11/3/01 9:39	6.2663	23.42	-0.037
11/3/01 9:39	6.6395	23.43	-0.035
11/3/01 9:40	7.0345	23.43	-0.033

CALCULATION WORKSHEET Order No. 19116 (01-91) PAGE 1 OF

CLIENT	JOB NUMBER
PARRIS Is.	N0502

SUBJECT: SLUG TEST CALCS : WELL NO : MW 07 SL

BASED ON	DRAWING NUMBER

BY	CHECKED BY	APPROVED BY	DATE
SJC 12/18/01	JK 12-20-01		

HVORSLEV

$$K = \frac{r^2 \ln(L/R)}{2L\,T_o}$$

$$= \frac{(.083)^2 \ln(5/.375)}{2(5)(0.65)}$$

$$= \frac{(.083)^2 (2.59)}{6.5}$$

$$= 2.75 \times 10^{-3} \text{ ft/min}$$

$$= 1.39 \times 10^{-3} \text{ cm/sec}$$

$$= \underline{4} \text{ ft/day}$$

SEE PRINTOUT FOR MORE DATA

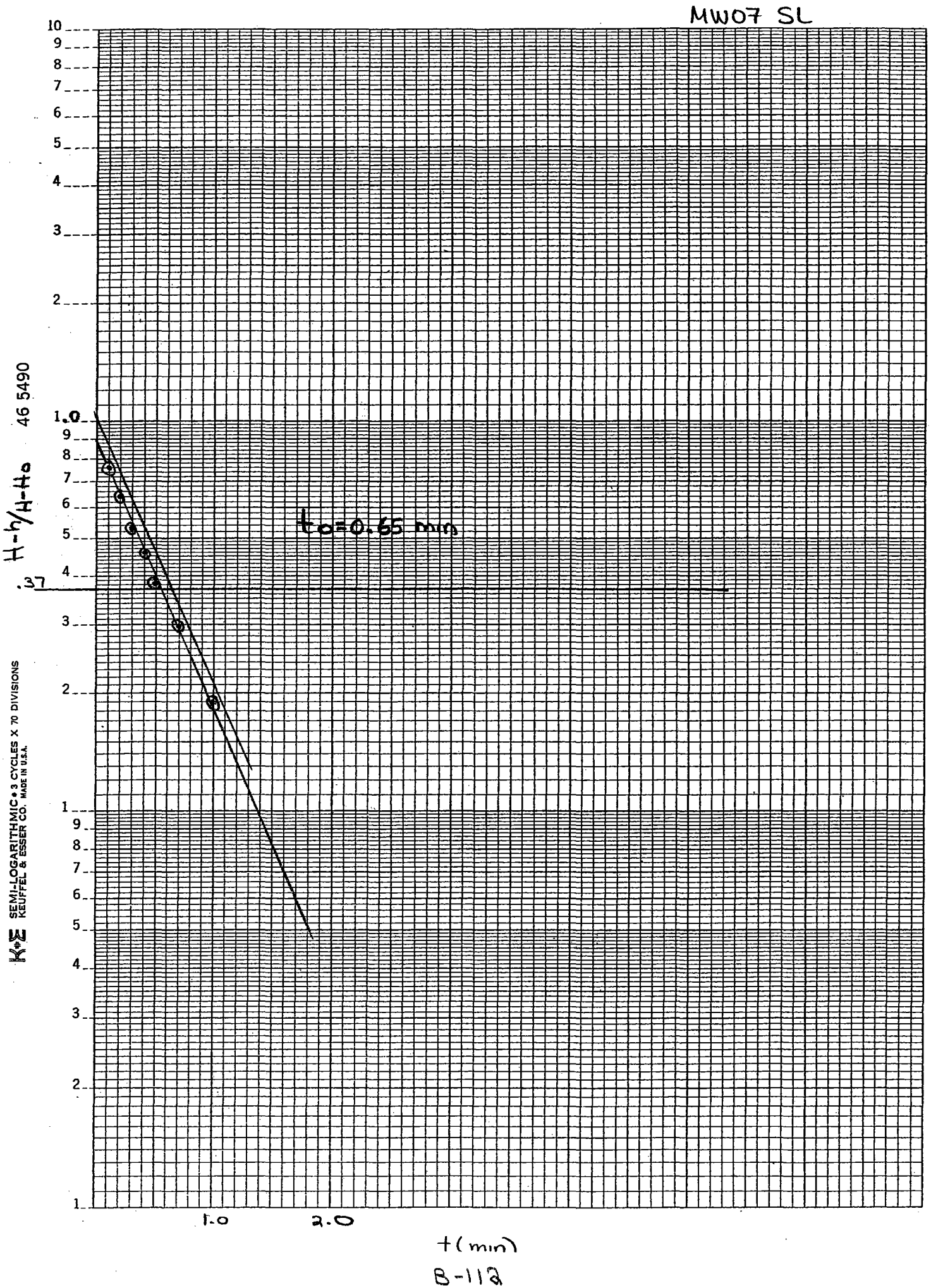
t (min)	H-h/H-Ho
0 - 1.883	1.00
-1 - 1.427	.76
.2 1.209	.64
.3 .996	.53
.4 .86	.46
.5 .724	.38
.7 .55	.29
.8 .483	.26
1.0 .358	.19
2.0 .097	.05

r = 1" ÷ 12 = .083'

L = = 5'

R = 9/12/2 = .375'

To = 0.65 m (from plot)


MW07 SL
10
9
8
7
6
5
4
3
2
1.0
9
8
7
6
5
4
.37
3
2
1
9
8
7
6
5
4
3
2
1
H-h/H-Ho
46 5490
to=0.65 min
1.0
2.0
t(min)
B-112
K&E SEMI-LOGARITHMIC • 3 CYCLES X 70 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.

IN-SITU HYDRAULIC CONDUCTIVITY TESTING	Number	

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

PROJECT NAME: PAI-SITE 45 WELL/BORING NO.: MW07SL

PROJECT NO.: N0502 GEOLOGIST: CONTI

WELL DIAMETER: 2" SCREEN LENGTH/DEPTH: 5 / 14.80 TEST NO.: 1

STATIC WATER LEVEL (Depth/Elevation): 3.78 DATE: 11/3/01

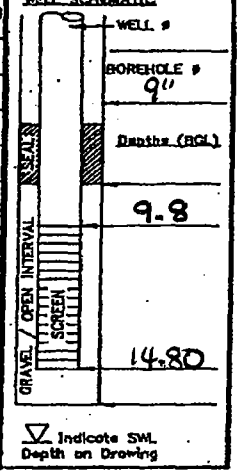
TEST TYPE (Rising/Falling/Constant Head): RISING CHECKED:

METHOD OF INDUCING WATER LEVEL CHANGE: 2 SECTION SLUG PAGE 1 OF

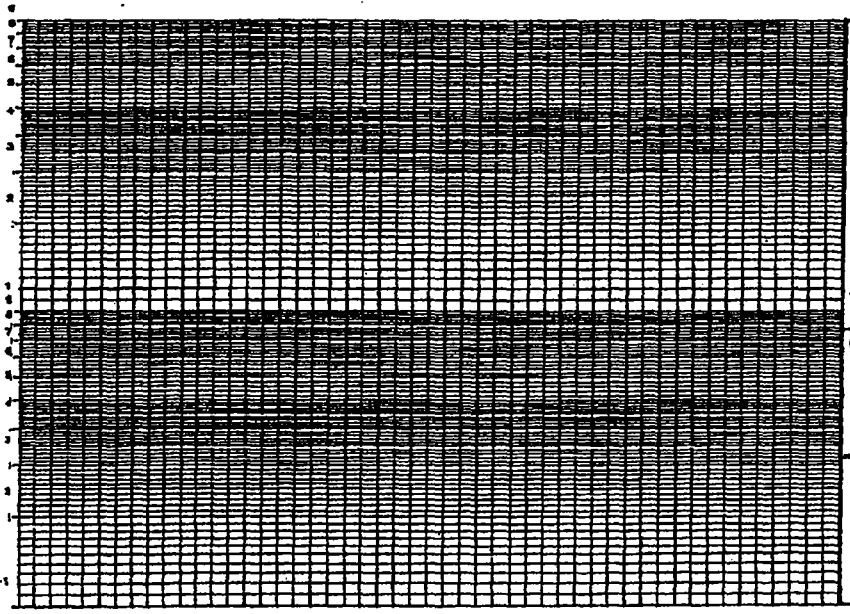
REFERENCE PT. FOR WL MEAS. (Top of Casing, Transducer, etc.): TOC = 7.72

ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)	ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)

WELL SCHEMATIC



▽ Indicate SWL Depth on Drawing



REMARKS:

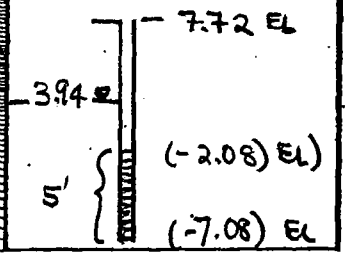
MW07SL-RISING

Head 8.637

START @ 0915

CURVE - GOOD

CALCS, SKETCH MAPS, ETC.:



L = 5'

In-Situ Inc. MiniTroll Pro

Report generated: 11/3/01 9:22:30
Report from file: C:\WIN-SITU\Data\SN02468 2001-11-03 091500 MWO7SL-RISING.bin
DataMgr Version 3.69

Serial number: 2468
Firmware Version 3.01
Unit name: SLUG TESTS

Test name: MWO7SL-RISING

Test defined on: 11/3/01 9:11:14
Test scheduled for: 11/3/01 9:15:00
Test started on: 11/3/01 9:15:00
Test stopped on: 11/3/01 9:22:21
Test extracted on: N/A

Data gathered using Logarithmic testing
Maximum time between c Minutes.
Number of data samples: 95

TOTAL DATA SAMPLES 95

Channel number [1]
Measurement type: Temperature
Channel name: OnBoard Temp

Channel number [2]
Measurement type: Pressure
Channel name: Pressure
Sensor Range: 30 PSI.
Specific gravity: 1
Mode: Surface
User-defined reference: 0 Feet H2O
Referenced on: test start
Pressure head at referenc 8.629 Feet H2O

Date	Time	ET (min)	Chan[1] Celsius	Chan[2] Feet H2O
11/3/01	9:15	0	23.79	0
11/3/01	9:15	0.0048	23.79	0.004
11/3/01	9:15	0.0098	23.8	0.004
11/3/01	9:15	0.015	23.8	0.006
11/3/01	9:15	0.0198	23.8	0.006
11/3/01	9:15	0.025	23.81	0.006
11/3/01	9:15	0.03	23.81	-1.002
11/3/01	9:15	0.035	23.81	-2.545
11/3/01	9:15	0.0398	23.81	-1.883

11/3/01 9:15	0.045		23.81	-1.791
11/3/01 9:15	0.05		23.81	-1.754
11/3/01 9:15	0.0548		23.81	-1.728
11/3/01 9:15	0.06		23.81	-1.707
11/3/01 9:15	0.0648		23.81	-1.685
11/3/01 9:15	0.07		23.81	-1.666
11/3/01 9:15	0.075		23.81	-1.646
11/3/01 9:15	0.0798		23.81	-1.631
11/3/01 9:15	0.0848		23.82	-1.616
11/3/01 9:15	0.09		23.82	-1.595
11/3/01 9:15	0.095		23.82	-1.58
11/3/01 9:15	0.1		23.82	-1.563
11/3/01 9:15	0.1057		23.82	-1.535
11/3/01 9:15	0.1118		23.82	-1.509
11/3/01 9:15	0.1185		23.82	-1.489
11/3/01 9:15	0.1255		23.82	-1.47
11/3/01 9:15	0.1327		23.82	-1.448
11/3/01 9:15	0.1405	*	23.82	-1.427
11/3/01 9:15	0.1488		23.82	-1.405
11/3/01 9:15	0.1578		23.82	-1.382
11/3/01 9:15	0.167		23.82	-1.362
11/3/01 9:15	0.1768		23.82	-1.339
11/3/01 9:15	0.1875		23.82	-1.313
11/3/01 9:15	0.1985		23.82	-1.289
11/3/01 9:15	0.21		23.81	-1.263
11/3/01 9:15	0.2225		23.81	-1.235
11/3/01 9:15	0.2358	*	23.81	-1.209
11/3/01 9:15	0.2498		23.81	-1.181
11/3/01 9:15	0.2647		23.81	-1.151
11/3/01 9:15	0.2803		23.81	-1.123
11/3/01 9:15	0.297		23.81	-1.093
11/3/01 9:15	0.3145		23.81	-1.058
11/3/01 9:15	0.3333		23.81	-1.03
11/3/01 9:15	0.3532	*	23.81	-0.996
11/3/01 9:15	0.374		23.81	-0.963
11/3/01 9:15	0.3963		23.81	-0.929
11/3/01 9:15	0.4198		23.81	-0.895
11/3/01 9:15	0.4445	*	23.81	-0.86
11/3/01 9:15	0.4695		23.81	-0.828
11/3/01 9:15	0.4963		23.81	-0.793
11/3/01 9:15	0.5247		23.81	-0.759
11/3/01 9:15	0.5547	*	23.81	-0.724
11/3/01 9:15	0.5862		23.81	-0.69
11/3/01 9:15	0.6213		23.81	-0.655
11/3/01 9:15	0.6578		23.81	-0.619
11/3/01 9:15	0.6963		23.81	-0.584
11/3/01 9:15	0.738	*	23.8	-0.55
11/3/01 9:15	0.7813		23.8	-0.515
11/3/01 9:15	0.8278	*	23.8	-0.483
11/3/01 9:15	0.8762		23.8	-0.448
11/3/01 9:15	0.9278		23.8	-0.418
11/3/01 9:15	0.9828		23.8	-0.386

11/3/01 9:16	1.0412	*	23.8	-0.358
11/3/01 9:16	1.103		23.8	-0.328
11/3/01 9:16	1.1678		23.8	-0.3
11/3/01 9:16	1.238		23.8	-0.272
11/3/01 9:16	1.3113		23.8	-0.248
11/3/01 9:16	1.3895		23.8	-0.222
11/3/01 9:16	1.4728		23.8	-0.201
11/3/01 9:16	1.5613		23.8	-0.179
11/3/01 9:16	1.6547		23.79	-0.159
11/3/01 9:16	1.753		23.79	-0.142
11/3/01 9:16	1.858		23.79	-0.127
11/3/01 9:16	1.9678		23.79	-0.112
11/3/01 9:17	2.0845	*	23.79	-0.097
11/3/01 9:17	2.2097		23.79	-0.084
11/3/01 9:17	2.3412		23.79	-0.073
11/3/01 9:17	2.4812		23.79	-0.065
11/3/01 9:17	2.6297		23.79	-0.056
11/3/01 9:17	2.7863		23.79	-0.047
11/3/01 9:17	2.953		23.77	-0.041
11/3/01 9:18	3.1297	*	23.77	-0.036
11/3/01 9:18	3.3162		23.77	-0.03
11/3/01 9:18	3.5145		23.77	-0.026
11/3/01 9:18	3.7245		23.77	-0.023
11/3/01 9:18	3.9463		23.77	-0.019
11/3/01 9:19	4.1812		23.77	-0.017
11/3/01 9:19	4.4295		23.77	-0.015
11/3/01 9:19	4.6928		23.77	-0.013
11/3/01 9:19	4.9728		23.77	-0.01
11/3/01 9:20	5.2697		23.77	-0.008
11/3/01 9:20	5.583		23.77	-0.008
11/3/01 9:20	5.9145		23.77	-0.006
11/3/01 9:21	6.2663		23.77	-0.004
11/3/01 9:21	6.6395		23.77	-0.006
11/3/01 9:22	7.0345		23.77	-0.004

CALCULATION WORKSHEET Order No. 19116 (01-91) PAGE 1 OF

CLIENT	PARRIS Is.	JOB NUMBER	N0502
SUBJECT	SLUG TEST CALCS : WELL NO :		
BASED ON		DRAWING NUMBER	MW 08 SU
BY	SJC 12/19/01	CHECKED BY	JK 12-28-01
APPROVED BY		DATE	

HVORSLEV

$$K = \frac{r^2 \ln(L/R)}{2L\,T_o}$$

$$= \frac{(.083)^2 \ln(3.5/.375)}{2(3.5)(0.65)}$$

$$= \frac{(.083)^2 (2.23)}{4.55}$$

$$=$$

$$= 3.38 \times 10^{-3} \text{ ft/min}$$

$$= 1.72 \times 10^{-3} \text{ cm/sec}$$

$$= 5 \text{ ft/day}$$

SEE PRINTOUT FOR MORE DATA

t (min)		H-h/H-Ho
0	- 1.007	1.00
.1	.82	.81
.2	.703	.70
.3	.617	.61
.4	.52	.52
.5	.46	.46
.6	.404	.40
.7	—	
.8	.33	.33
1.0	.298	.30

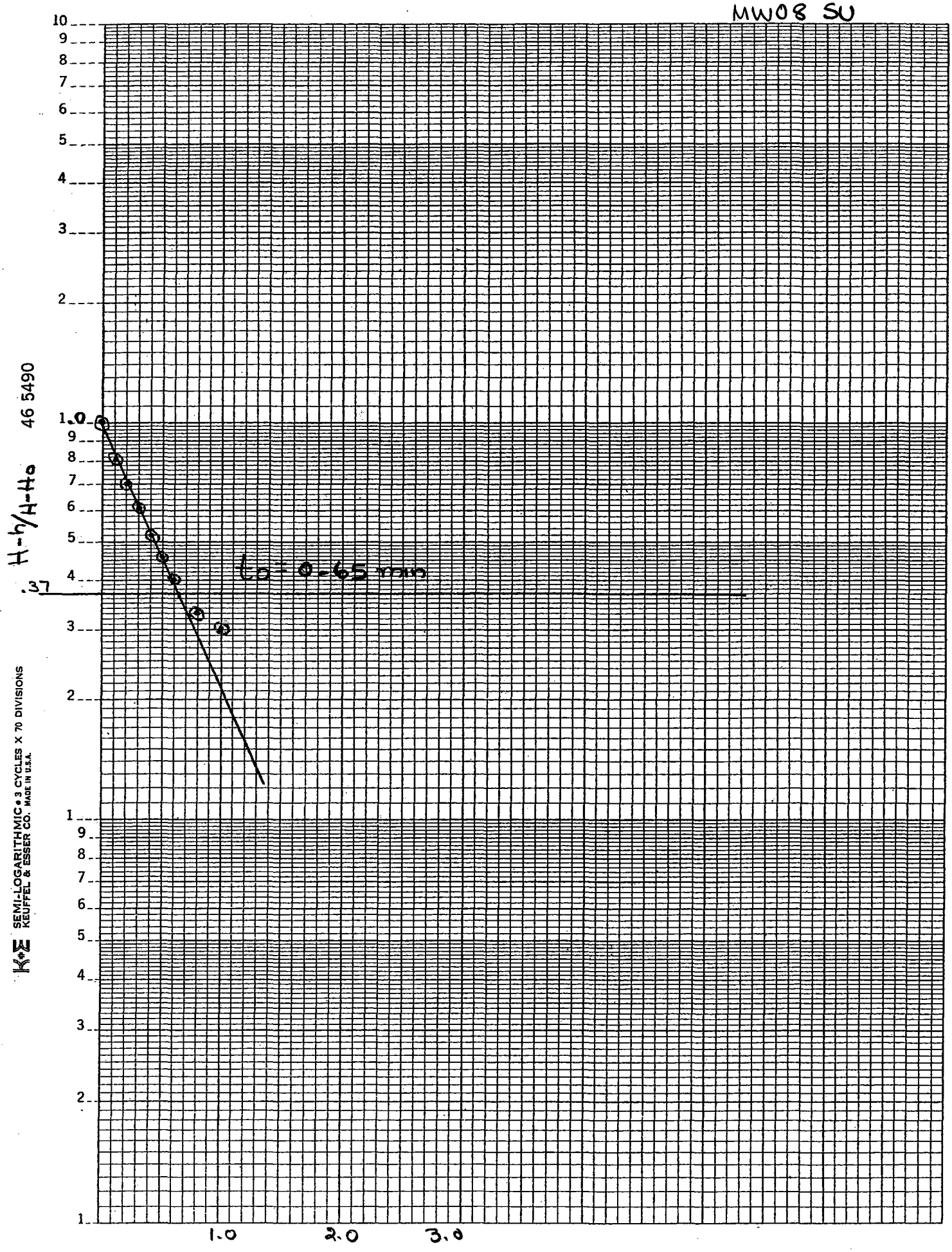
r = 1"/12 = .083'

L = 3.5'

R = 9"/12/2 = .375

To = 0.65m (from plot)

MW08 SU


H-h/H-Ho
.37
to = 0.65 min
1.0
2.0
3.0
t (min)
SEMI-LOGARITHMIC • 3 CYCLES X 70 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.
46 5490

B-118

IN-SITU HYDRAULIC CONDUCTIVITY TESTING	Number	

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

PROJECT NAME: PAI-SITE 45 WELL/BORING NO.: MW08SU

PROJECT NO.: N0502 GEOLOGIST: CONTI

WELL DIAMETER: 2" SCREEN LENGTH/DEPTH: 4 / 7.07 TEST NO.: 1

STATIC WATER LEVEL (Depth/Elevation): 3.57 DATE: 11/3/01

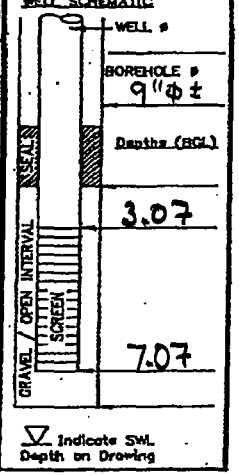
TEST TYPE (Rising/Falling/Constant Head): RISING CHECKED:

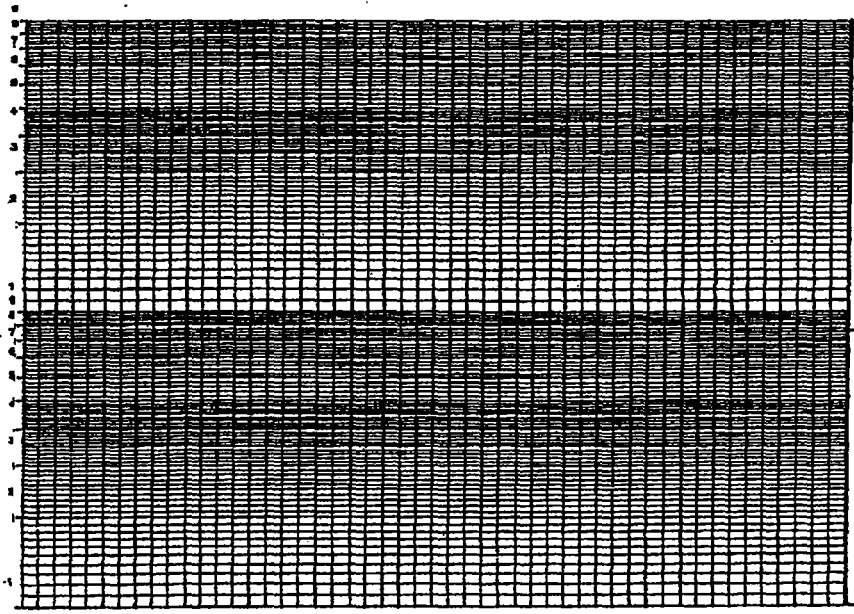
METHOD OF INDUCING WATER LEVEL CHANGE: 1 SECTION SLUG PAGE 1 OF

REFERENCE PT. FOR WL MEAS. (Top of Casing, Transducer, etc.): TOP = 7.60' EL

ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)	ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)

WELL SCHEMATIC





REMARKS:

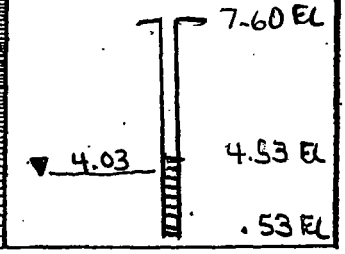
MW08SU-RISING

START: 1030

HEAD: 3.607

CURVE: GOOD

CALCS, SKETCH MAPS, ETC.:



L = 3.5'

In-Situ Inc. MiniTroll Pro

Report generated: 11/3/01 10:40:55
Report from file: C:\WIN-SITU\Data\SN02468 2001-11-03 103000 MW08SU-RISING.bin
DataMgr Version 3.69

Serial number: 2468
Firmware Version 3.01
Unit name: SLUG TESTS

Test name: MW08SU-RISING

Test defined on: 11/3/01 10:27:34
Test scheduled for: 11/3/01 10:30:00
Test started on: 11/3/01 10:30:00
Test stopped on: 11/3/01 10:40:50
Test extracted on: N/A

Data gathered using Logarithmic testing
Maximum time between c Minutes.
Number of data samples: 102

TOTAL DATA SAMPLES 102

Channel number [1]
Measurement type: Temperature
Channel name: OnBoard Temp

Channel number [2]
Measurement type: Pressure
Channel name: Pressure
Sensor Range: 30 PSI.
Specific gravity: 1
Mode: Surface
User-defined reference: 0 Feet H2O
Referenced on: test start
Pressure head at referenc 3.478 Feet H2O

Date	Time	ET (min)	Chan[1] Celsius	Chan[2] Feet H2O
11/3/01	10:30	0	24.3	0
11/3/01	10:30	0.0048	24.32	0.01
11/3/01	10:30	0.0098	24.32	0.015
11/3/01	10:30	0.015	24.33	0.014
11/3/01	10:30	0.0198	24.33	0.017
11/3/01	10:30	0.025	24.33	0.014
11/3/01	10:30	0.03	24.33	0.014
11/3/01	10:30	0.035	24.33	-0.016
11/3/01	10:30	0.0398	24.33	0.004

11/3/01 10:30	0.045		24.34	-0.046
11/3/01 10:30	0.05		24.34	-5.164
11/3/01 10:30	0.0548		24.34	-1.356
11/3/01 10:30	0.06	*	24.34	-1.007
11/3/01 10:30	0.0648		24.34	-0.966
11/3/01 10:30	0.07		24.34	-0.951
11/3/01 10:30	0.075		24.34	-0.94
11/3/01 10:30	0.0798		24.34	-0.932
11/3/01 10:30	0.0848		24.34	-0.923
11/3/01 10:30	0.09		24.34	-0.91
11/3/01 10:30	0.095		24.34	-0.902
11/3/01 10:30	0.1		24.34	-0.895
11/3/01 10:30	0.1057		24.34	-0.886
11/3/01 10:30	0.1118		24.34	-0.878
11/3/01 10:30	0.1185		24.34	-0.869
11/3/01 10:30	0.1255		24.34	-0.858
11/3/01 10:30	0.1327		24.35	-0.85
11/3/01 10:30	0.1405		24.34	-0.841
11/3/01 10:30	0.1488		24.35	-0.829
11/3/01 10:30	0.1578	*	24.34	-0.82
11/3/01 10:30	0.167		24.34	-0.809
11/3/01 10:30	0.1768		24.34	-0.798
11/3/01 10:30	0.1875		24.34	-0.787
11/3/01 10:30	0.1985		24.34	-0.774
11/3/01 10:30	0.21		24.34	-0.762
11/3/01 10:30	0.2225		24.34	-0.749
11/3/01 10:30	0.2358		24.34	-0.733
11/3/01 10:30	0.2498		24.33	-0.718
11/3/01 10:30	0.2647	*	24.33	-0.703
11/3/01 10:30	0.2803		24.33	-0.69
11/3/01 10:30	0.297		24.33	-0.671
11/3/01 10:30	0.3145		24.33	-0.653
11/3/01 10:30	0.3333		24.33	-0.636
11/3/01 10:30	0.3532	*	24.33	-0.617
11/3/01 10:30	0.374		24.33	-0.597
11/3/01 10:30	0.3963		24.33	-0.58
11/3/01 10:30	0.4198		24.33	-0.559
11/3/01 10:30	0.4445		24.33	-0.539
11/3/01 10:30	0.4695	*	24.33	-0.52
11/3/01 10:30	0.4963		24.33	-0.5
11/3/01 10:30	0.5247		24.33	-0.481
11/3/01 10:30	0.5547	*	24.33	-0.46
11/3/01 10:30	0.5862		24.33	-0.442
11/3/01 10:30	0.6213		24.33	-0.423
11/3/01 10:30	0.6578	*	24.33	-0.404
11/3/01 10:30	0.6963		24.33	-0.388
11/3/01 10:30	0.738		24.33	-0.373
11/3/01 10:30	0.7813		24.32	-0.358
11/3/01 10:30	0.8278		24.32	-0.345
11/3/01 10:30	0.8762	*	24.32	-0.33
11/3/01 10:30	0.9278		24.32	-0.319
11/3/01 10:30	0.9828		24.32	-0.308

11/3/01 10:31	1.0412	*	24.32	-0.298
11/3/01 10:31	1.103		24.32	-0.289
11/3/01 10:31	1.1678		24.32	-0.28
11/3/01 10:31	1.238		24.32	-0.274
11/3/01 10:31	1.3113		24.32	-0.265
11/3/01 10:31	1.3895		24.3	-0.259
11/3/01 10:31	1.4728		24.3	-0.252
11/3/01 10:31	1.5613		24.3	-0.246
11/3/01 10:31	1.6547		24.3	-0.239
11/3/01 10:31	1.753		24.3	-0.233
11/3/01 10:31	1.858		24.3	-0.226
11/3/01 10:31	1.9678		24.3	-0.224
11/3/01 10:32	2.0845	*	24.3	-0.218
11/3/01 10:32	2.2097		24.3	-0.211
11/3/01 10:32	2.3412		24.3	-0.207
11/3/01 10:32	2.4812		24.3	-0.203
11/3/01 10:32	2.6297		24.3	-0.198
11/3/01 10:32	2.7863		24.3	-0.194
11/3/01 10:32	2.953		24.3	-0.19
11/3/01 10:33	3.1297		24.3	-0.183
11/3/01 10:33	3.3162		24.3	-0.179
11/3/01 10:33	3.5145		24.3	-0.175
11/3/01 10:33	3.7245		24.3	-0.17
11/3/01 10:33	3.9463		24.3	-0.168
11/3/01 10:34	4.1812		24.29	-0.161
11/3/01 10:34	4.4295		24.3	-0.157
11/3/01 10:34	4.6928		24.3	-0.155
11/3/01 10:34	4.9728		24.3	-0.151
11/3/01 10:35	5.2697		24.3	-0.147
11/3/01 10:35	5.583		24.3	-0.144
11/3/01 10:35	5.9145		24.3	-0.14
11/3/01 10:36	6.2663		24.3	-0.136
11/3/01 10:36	6.6395		24.3	-0.134
11/3/01 10:37	7.0345		24.3	-0.131
11/3/01 10:37	7.453		24.3	-0.127
11/3/01 10:37	7.8962		24.3	-0.123
11/3/01 10:38	8.3663		24.3	-0.121
11/3/01 10:38	8.8645		24.3	-0.116
11/3/01 10:39	9.3913		24.32	-0.115
11/3/01 10:39	9.9497		24.3	-0.11
11/3/01 10:40	10.5413		24.32	-0.108

CALCULATION WORKSHEET Order No. 19116 (01-91) PAGE 1 OF

CLIENT	JOB NUMBER
PARRIS IS.	N0502
SUBJECT	
SLUG TEST CALCS : WELL NO : MW08SL	
BASED ON	**DRAWING NUMBER**
BY / **CHECKED BY**	**APPROVED BY** / **DATE**
SJC 12/18/01 / JK 12-28-01	

HVORSLEV

$$K = \frac{r^2 \ln(L/R)}{2L\,T_o}$$

$$= \frac{(.083)^2 \ln(5/.375)}{2(5)(.7)}$$

$$= \frac{(.083)^2 (2.59)}{7}$$

$$=$$

$$= 2.55 \times 10^{-3} \text{ ft/min}$$

$$= 1.29 \times 10^{-3} \text{ cm/sec}$$

$$= \underline{\underline{4}} \text{ ft/day}$$

SEE PRINTOUT FOR MORE DATA

t (min)		H-h/H-Ho
0	1.971	1.00
.1	1.644	.83
.2	1.409	.71
.3	1.209	.61
.4	1.06	.54
.5	.907	.46
.6	.789	.40
.7	.707	.36
.8	.589	.30
1.0	.477	.24
2.0	.150	.08

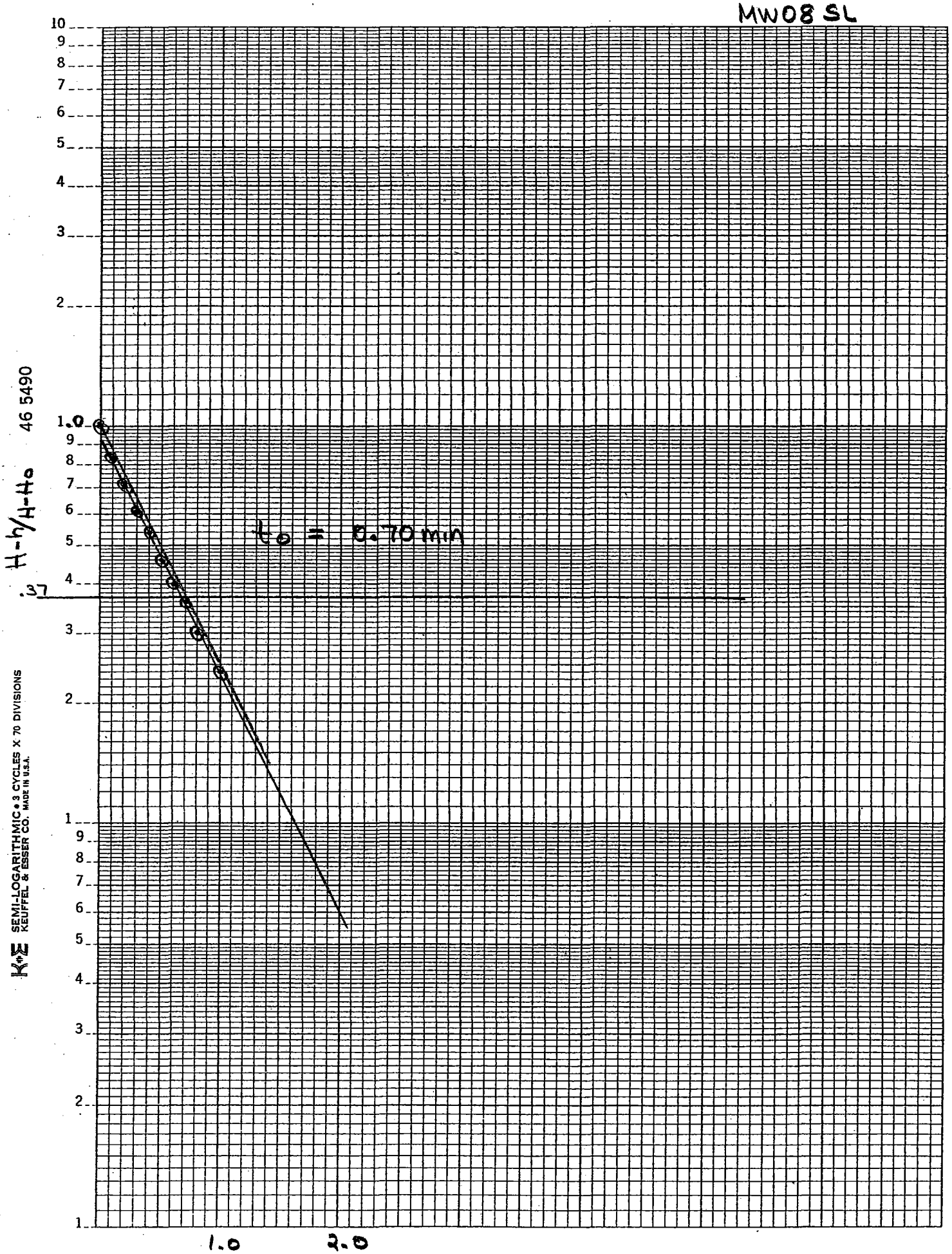
r = 1"/12 = .083'

L = = 5'

R = 9"/12/2 = .375

To = 0.70 (from plot)

MW08 SL


H-h/H-Ho
46 5490
K+E SEMI-LOGARITHMIC • 3 CYCLES X 70 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.
10
9
8
7
6
5
4
3
2
1.0
9
8
7
6
5
4
.37
3
2
1
9
8
7
6
5
4
3
2
1
to = 8.70 min
1.0
2.0
t (min)

IN-SITU HYDRAULIC CONDUCTIVITY TESTING	Number	

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

PROJECT NAME: PAI - SITE 45 WELL/BORING NO.: MW08SL

PROJECT NO.: N0502 GEOLOGIST: CONTI

WELL DIAMETER: 2" SCREEN LENGTH/DEPTH: 5' / 14.80 TEST NO.: 1

STATIC WATER LEVEL (Depth/Elevation): 3.51 DATE: 11/3/01

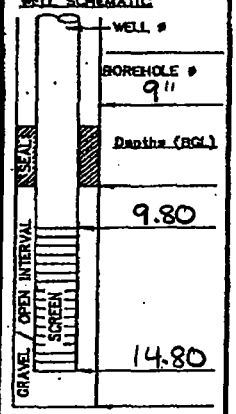
TEST TYPE (Rising/Falling/Constant Head): RISING CHECKED:

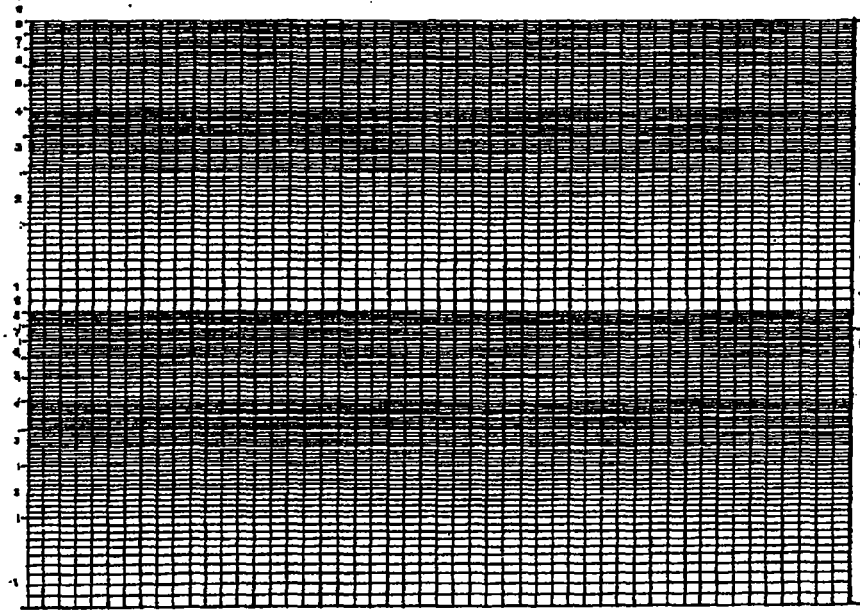
METHOD OF INDUCING WATER LEVEL CHANGE: 2 SECTION SLUG PAGE 1 OF

REFERENCE PT. FOR WL MEAS. (Top of Casing, Transducer, etc.): TOC = 7.53 EL

ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)	ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)

WELL SCHEMATIC





REMARKS:

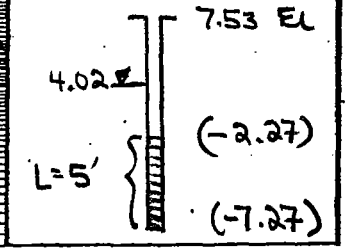
MW08SL - RISING

HEAD : 8.08$

START : 1015

CURVE GOOD

CALCS,SKETCH MAPS, ETC.:



L = 5'

In-Situ Inc. MiniTroll Pro

Report generated: 11/3/01 10:21:11
Report from file: C:\WIN-SITU\Data\SN02468 2001-11-03 101500 MW08SL-RISING.bin
DataMgr Version 3.69

Serial number: 2468
Firmware Version 3.01
Unit name: SLUG TESTS

Test name: MW08SL-RISING

Test defined on: 11/3/01 10:10:55
Test scheduled for: 11/3/01 10:15:00
Test started on: 11/3/01 10:15:00
Test stopped on: 11/3/01 10:21:06
Test extracted on: N/A

Data gathered using Logarithmic testing
Maximum time between c Minutes.
Number of data samples: 92

TOTAL DATA SAMPLES 92

Channel number [1]
Measurement type: Temperature
Channel name: OnBoard Temp

Channel number [2]
Measurement type: Pressure
Channel name: Pressure
Sensor Range: 30 PSI.
Specific gravity: 1
Mode: Surface
User-defined reference: 0 Feet H2O
Referenced on: test start
Pressure head at referenc 8.041 Feet H2O

Date	Time	ET (min)	Chan[1] Celsius	Chan[2] Feet H2O
	11/3/01 10:15	0	25.03	0
	11/3/01 10:15	0.0048	25.05	0.004
	11/3/01 10:15	0.0098	25.05	0.004
	11/3/01 10:15	0.015	25.05	0.004
	11/3/01 10:15	0.0198	25.05	0.006
	11/3/01 10:15	0.025	25.06	0.006
	11/3/01 10:15	0.03	25.06	0.006
	11/3/01 10:15	0.035	25.06	-2.219
	11/3/01 10:15	0.0398	25.06	-0.834

11/3/01 10:15	0.045		25.06	-1.65
11/3/01 10:15	0.05	○	25.06	-1.971
11/3/01 10:15	0.0548		25.06	-1.967
11/3/01 10:15	0.06		25.06	-1.937
11/3/01 10:15	0.0648		25.07	-1.916
11/3/01 10:15	0.07		25.07	-1.894
11/3/01 10:15	0.075		25.07	-1.873
11/3/01 10:15	0.0798		25.07	-1.851
11/3/01 10:15	0.0848		25.07	-1.834
11/3/01 10:15	0.09		25.07	-1.821
11/3/01 10:15	0.095		25.07	-1.801
11/3/01 10:15	0.1		25.07	-1.786
11/3/01 10:15	0.1057		25.07	-1.769
11/3/01 10:15	0.1118		25.07	-1.75
11/3/01 10:15	0.1185		25.07	-1.73
11/3/01 10:15	0.1255		25.07	-1.711
11/3/01 10:15	0.1327		25.07	-1.689
11/3/01 10:15	0.1405		25.07	-1.666
11/3/01 10:15	0.1488		25.07	-1.644
11/3/01 10:15	0.1578		25.07	-1.621
11/3/01 10:15	0.167		25.07	-1.599
11/3/01 10:15	0.1768		25.07	-1.575
11/3/01 10:15	0.1875		25.07	-1.549
11/3/01 10:15	0.1985		25.07	-1.524
11/3/01 10:15	0.21		25.07	-1.498
11/3/01 10:15	0.2225		25.07	-1.468
11/3/01 10:15	0.2358		25.06	-1.437
11/3/01 10:15	0.2498		25.06	-1.409
11/3/01 10:15	0.2647		25.06	-1.377
11/3/01 10:15	0.2803		25.06	-1.347
11/3/01 10:15	0.297		25.06	-1.312
11/3/01 10:15	0.3145		25.06	-1.28
11/3/01 10:15	0.3333		25.06	-1.243
11/3/01 10:15	0.3532		25.06	-1.209
11/3/01 10:15	0.374		25.06	-1.172
11/3/01 10:15	0.3963		25.06	-1.136
11/3/01 10:15	0.4198		25.06	-1.097
11/3/01 10:15	0.4445		25.06	-1.06
11/3/01 10:15	0.4695		25.06	-1.024
11/3/01 10:15	0.4963		25.06	-0.985
11/3/01 10:15	0.5247		25.06	-0.946
11/3/01 10:15	0.5547		25.06	-0.907
11/3/01 10:15	0.5862		25.06	-0.871
11/3/01 10:15	0.6213		25.06	-0.828
11/3/01 10:15	0.6578		25.06	-0.789
11/3/01 10:15	0.6963		25.06	-0.75
11/3/01 10:15	0.738		25.06	-0.707
11/3/01 10:15	0.7813		25.06	-0.668
11/3/01 10:15	0.8278		25.06	-0.627
11/3/01 10:15	0.8762		25.06	-0.589
11/3/01 10:15	0.9278		25.06	-0.552
11/3/01 10:15	0.9828		25.06	-0.513

11/3/01 10:16	1.0412	*	25.06	-0.477
11/3/01 10:16	1.103		25.06	-0.442
11/3/01 10:16	1.1678		25.06	-0.408
11/3/01 10:16	1.238		25.06	-0.373
11/3/01 10:16	1.3113		25.06	-0.343
11/3/01 10:16	1.3895		25.06	-0.313
11/3/01 10:16	1.4728		25.07	-0.283
11/3/01 10:16	1.5613		25.07	-0.257
11/3/01 10:16	1.6547		25.07	-0.231
11/3/01 10:16	1.753		25.07	-0.21
11/3/01 10:16	1.858		25.07	-0.188
11/3/01 10:16	1.9678		25.07	-0.167
11/3/01 10:17	2.0845	*	25.07	-0.15
11/3/01 10:17	2.2097		25.08	-0.135
11/3/01 10:17	2.3412		25.08	-0.12
11/3/01 10:17	2.4812		25.08	-0.107
11/3/01 10:17	2.6297		25.08	-0.096
11/3/01 10:17	2.7863		25.08	-0.085
11/3/01 10:17	2.953		25.08	-0.077
11/3/01 10:18	3.1297		25.08	-0.07
11/3/01 10:18	3.3162		25.08	-0.062
11/3/01 10:18	3.5145		25.08	-0.057
11/3/01 10:18	3.7245		25.1	-0.051
11/3/01 10:18	3.9463		25.1	-0.047
11/3/01 10:19	4.1812		25.1	-0.043
11/3/01 10:19	4.4295		25.1	-0.04
11/3/01 10:19	4.6928		25.1	-0.036
11/3/01 10:19	4.9728		25.1	-0.036
11/3/01 10:20	5.2697		25.1	-0.034
11/3/01 10:20	5.583		25.1	-0.032
11/3/01 10:20	5.9145		25.1	-0.03

CALCULATION WORKSHEET Order No. 19116 (01-91) PAGE 1 OF

CLIENT PARRIS Is.	JOB NUMBER N0502
SUBJECT SLUG TEST CALCS : WELL NO : MW09D	
BASED ON	DRAWING NUMBER
BY SJC 12/20/01	CHECKED BY JK 12-28-01
APPROVED BY	DATE

HVORSLEV

$$K = \frac{r^2 \ln(L/R)}{2L\,T_o}$$

$$= \frac{(.083)^2 \ln(10/.24)}{2(10)(1.38)}$$

$$= \frac{(.083)^2 (3.73)}{27.6}$$

$$= 9.31 \times 10^{-4} \text{ ft/min}$$

$$= 4.73 \times 10^{-4} \text{ cm/sec}$$

$$= 1 \text{ ft/day}$$

SEE PRINTOUT FOR MORE DATA

t (min)	H-h/H-Ho
0 - 2.071	1.00
.1 - 1.887	.91
.2 - 1.755	.85
.3 - 1.63	.79
.4 - 1.528	.74
.5 - 1.412	.68
.6 - 1.314	.63
.7 - 1.243	.60
.8 1.129	.55
1.0 1.008	.49
2.0 .498	.24
3.0 .252	.12

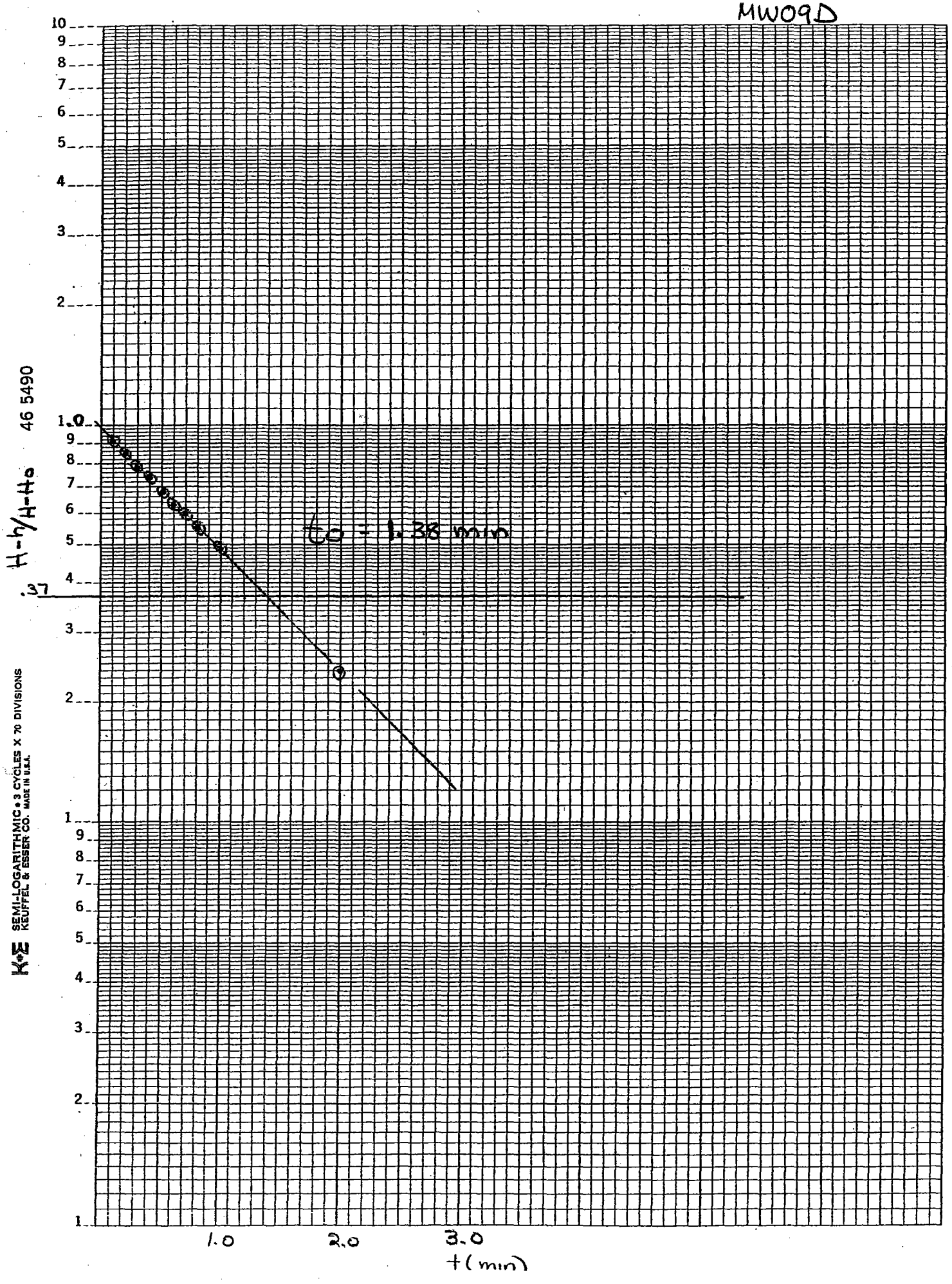
r = 1" = .083'

L = 10'

R = 5 7/8 / 2 / 12 = .24'

To = 1.38m (from plot)

MW09D


10
9
8
7
6
5
4
3
2
1.0
9
8
7
6
5
4
3
2
1
9
8
7
6
5
4
3
2
1
1.0
2.0
3.0
t (min)
H-h/H-Ho
.37
tc = 1.38 min
46 5490
K&E SEMI-LOGARITHMIC • 3 CYCLES X 70 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.

B-130

IN-SITU HYDRAULIC CONDUCTIVITY TESTING	Number	

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

PROJECT NAME: PAI-SITE 45 WELL/BORING NO.: MW09D

PROJECT NO.: N0502 GEOLOGIST: CONTI

WELL DIAMETER: 2" SCREEN LENGTH/DEPTH: 10' TEST NO.: 1

STATIC WATER LEVEL (Depth/Elevation): 4.65/ 41.46 DATE: 12/7/01

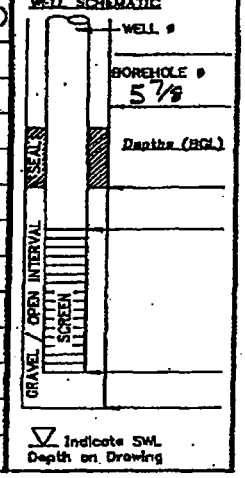
TEST TYPE (Rising/Falling/Constant Head): RISING CHECKED:

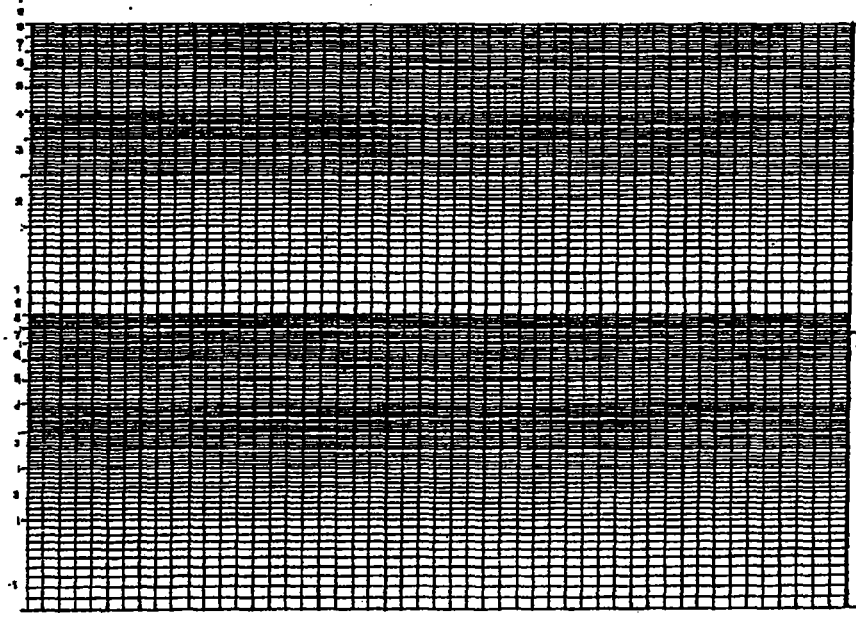
METHOD OF INDUCING WATER LEVEL CHANGE: 2 SECTION SLUG PAGE 1 OF

REFERENCE PT. FOR WL MEAS. (Top of Casing, Transducer, etc.): TOC

ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)	ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)

WELL SCHEMATIC

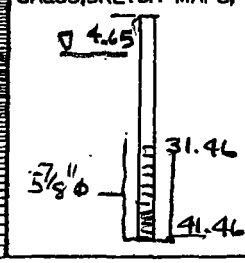




REMARKS:
START 1322 HRS.

GRAPH - GOOD

CALCS, SKETCH MAPS, ETC.:



L = 10'

In-Situ Inc. MiniTroll Pro

Report generated: 12/7/01 13:36:24
Report from file: C:\Win-Situ\Data\SN05040 2001-12-07 132200 MW09D.bin
DataMgr Version 3.69

Serial number: 5040
Firmware Version 3
Unit name: Slug Tests

Test name: MW09D

Test defined on: 12/7/01 13:19:39
Test scheduled for: 12/7/01 13:22:00
Test started on: 12/7/01 13:22:00
Test stopped on: N/A N/A
Test extracted on: N/A

Data gathered using Logarithmic testing
  Maximum time between data points: 10.0000 Minutes.
  Number of data samples: 104

TOTAL DATA SAMPLES 104

Channel number [1]
  Measurement type: Temperature
  Channel name:

Channel number [2]
  Measurement type: Pressure
  Channel name:
  Sensor Range: 30 PSI.
  Specific gravity: 1
  Mode: Surface
  User-defined reference: 0 Feet H2O
  Referenced on: test start
  Pressure head at reference: 13.018 Feet H2O

Date	Time	Chan[1] ET (min)	Chan[2] Celsius	Feet H2O
12/7/01	13:22	0	25.02	0
12/7/01	13:22	0.0048	25.03	0.005
12/7/01	13:22	0.0098	25.04	0.009
12/7/01	13:22	0.015	25.04	0.011
12/7/01	13:22	0.0198	25.05	-0.021
12/7/01	13:22	0.025	25.05	-3.218
12/7/01	13:22	0.03	25.05	-4.567
12/7/01	13:22	0.035	25.05	-1.768
12/7/01	13:22	0.0398	25.05	-2.175
12/7/01	13:22	0.045	25.05	-2.201
12/7/01	13:22	0.05	25.07	-2.071
12/7/01	13:22	0.0548	25.07	-2.062
12/7/01	13:22	0.06	25.07	-2.054
12/7/01	13:22	0.0648	25.07	-2.045
12/7/01	13:22	0.07	25.07	-2.026
12/7/01	13:22	0.075	25.07	-2.013
12/7/01	13:22	0.0798	25.07	-2.004
12/7/01	13:22	0.0848	25.07	-1.995
12/7/01	13:22	0.09	25.07	-1.986

B-132

12/7/01	13:22	0.095	25.07	-1.976
12/7/01	13:22	0.1	25.07	-1.967
12/7/01	13:22	0.1057	25.07	-1.958
12/7/01	13:22	0.1118	25.07	-1.946
12/7/01	13:22	0.1185	25.07	-1.935
12/7/01	13:22	0.1255	25.07	-1.924
12/7/01	13:22	0.1327	25.08	-1.913
12/7/01	13:22	0.1405	25.07	-1.902
12/7/01	13:22	0.1488	25.08	-1.887 .1
12/7/01	13:22	0.1578	25.08	-1.874
12/7/01	13:22	0.167	25.07	-1.865
12/7/01	13:22	0.1768	25.05	-1.851
12/7/01	13:22	0.1875	25.05	-1.836
12/7/01	13:22	0.1985	25.05	-1.822
12/7/01	13:22	0.21	25.05	-1.807
12/7/01	13:22	0.2225	25.05	-1.79
12/7/01	13:22	0.2358	25.05	-1.773
12/7/01	13:22	0.2498	25.05	-1.755 .2
12/7/01	13:22	0.2647	25.05	-1.736
12/7/01	13:22	0.2803	25.05	-1.716
12/7/01	13:22	0.297	25.05	-1.695
12/7/01	13:22	0.3145	25.05	-1.675
12/7/01	13:22	0.3333	25.05	-1.652
12/7/01	13:22	0.3532	25.05	-1.63 .3
12/7/01	13:22	0.374	25.05	-1.604
12/7/01	13:22	0.3963	25.05	-1.58
12/7/01	13:22	0.4198	25.05	-1.554
12/7/01	13:22	0.4445	25.05	-1.528 .4
12/7/01	13:22	0.4695	25.05	-1.5
12/7/01	13:22	0.4963	25.05	-1.472
12/7/01	13:22	0.5247	25.05	-1.444
12/7/01	13:22	0.5547	25.04	-1.412 .5
12/7/01	13:22	0.5862	25.04	-1.382
12/7/01	13:22	0.6213	25.04	-1.349
12/7/01	13:22	0.6578	25.04	-1.314 .6
12/7/01	13:22	0.6963	25.04	-1.28
12/7/01	13:22	0.738	25.04	-1.243 .7
12/7/01	13:22	0.7813	25.04	-1.208
12/7/01	13:22	0.8278	25.04	-1.168
12/7/01	13:22	0.8762	25.03	-1.129 .8
12/7/01	13:22	0.9278	25.03	-1.09
12/7/01	13:22	0.9828	25.03	-1.049
12/7/01	13:23	1.0412	25.03	-1.008 1
12/7/01	13:23	1.103	25.02	-0.965
12/7/01	13:23	1.1678	25.02	-0.922
12/7/01	13:23	1.238	25	-0.879
12/7/01	13:23	1.3113	25	-0.837
12/7/01	13:23	1.3895	24.99	-0.793
12/7/01	13:23	1.4728	24.99	-0.751
12/7/01	13:23	1.5613	24.98	-0.706
12/7/01	13:23	1.6547	24.97	-0.663
12/7/01	13:23	1.753	24.97	-0.62
12/7/01	13:23	1.858	24.95	-0.579
12/7/01	13:23	1.9678	24.94	-0.537
12/7/01	13:24	2.0845	24.93	-0.498 2
12/7/01	13:24	2.2097	24.91	-0.457
12/7/01	13:24	2.3412	24.9	-0.419
12/7/01	13:24	2.4812	24.89	-0.384
12/7/01	13:24	2.6297	24.86	-0.348
12/7/01	13:24	2.7863	24.85	-0.314
12/7/01	13:24	2.953	24.84	-0.282
12/7/01	13:25	3.1297	24.81	-0.252 3

12/7/01 13:25	3.3162	24.8	-0.225
12/7/01 13:25	3.5145	24.79	-0.199
12/7/01 13:25	3.7245	24.76	-0.174
12/7/01 13:25	3.9463	24.75	-0.153
12/7/01 13:26	4.1812	24.74	-0.133
12/7/01 13:26	4.4295	24.72	-0.116
12/7/01 13:26	4.6928	24.7	-0.098
12/7/01 13:26	4.9728	24.68	-0.085
12/7/01 13:27	5.2697	24.67	-0.073
12/7/01 13:27	5.583	24.66	-0.062
12/7/01 13:27	5.9145	24.65	-0.054
12/7/01 13:28	6.2663	24.63	-0.046
12/7/01 13:28	6.6395	24.63	-0.039
12/7/01 13:29	7.0345	24.62	-0.035
12/7/01 13:29	7.453	24.62	-0.029
12/7/01 13:29	7.8962	24.61	-0.025
12/7/01 13:30	8.3663	24.61	-0.023
12/7/01 13:30	8.8645	24.6	-0.021
12/7/01 13:31	9.3913	24.6	-0.019
12/7/01 13:31	9.9497	24.6	-0.018
12/7/01 13:32	10.5413	24.6	-0.018
12/7/01 13:33	11.168	24.6	-0.016
12/7/01 13:33	11.8312	24.6	-0.016

CALCULATION WORKSHEET Order No. 19116 (01-91) PAGE 1 OF

CLIENT PARRIS Is.	JOB NUMBER N0502
SUBJECT SLUG TEST CALCS : WELL NO : MW10D	
BASED ON	DRAWING NUMBER
BY SJC 12/19/01	CHECKED BY JL 12-20-01
APPROVED BY	DATE

HVORSLEV

$$K = \frac{r^2 \ln(L/R)}{2L\,T_o}$$

$$= \frac{(.083)^2 \ln(10/.24)}{2(10)(.85)}$$

$$= \frac{(.083)^2 (3.73)}{17}$$

$$= 1.51 \times 10^{-3} \text{ ft/min}$$

$$= 7.68 \times 10^{-4} \text{ cm/sec}$$

$$= \underline{2} \text{ ft/day}$$

SEE PRINTOUT FOR MORE DATA

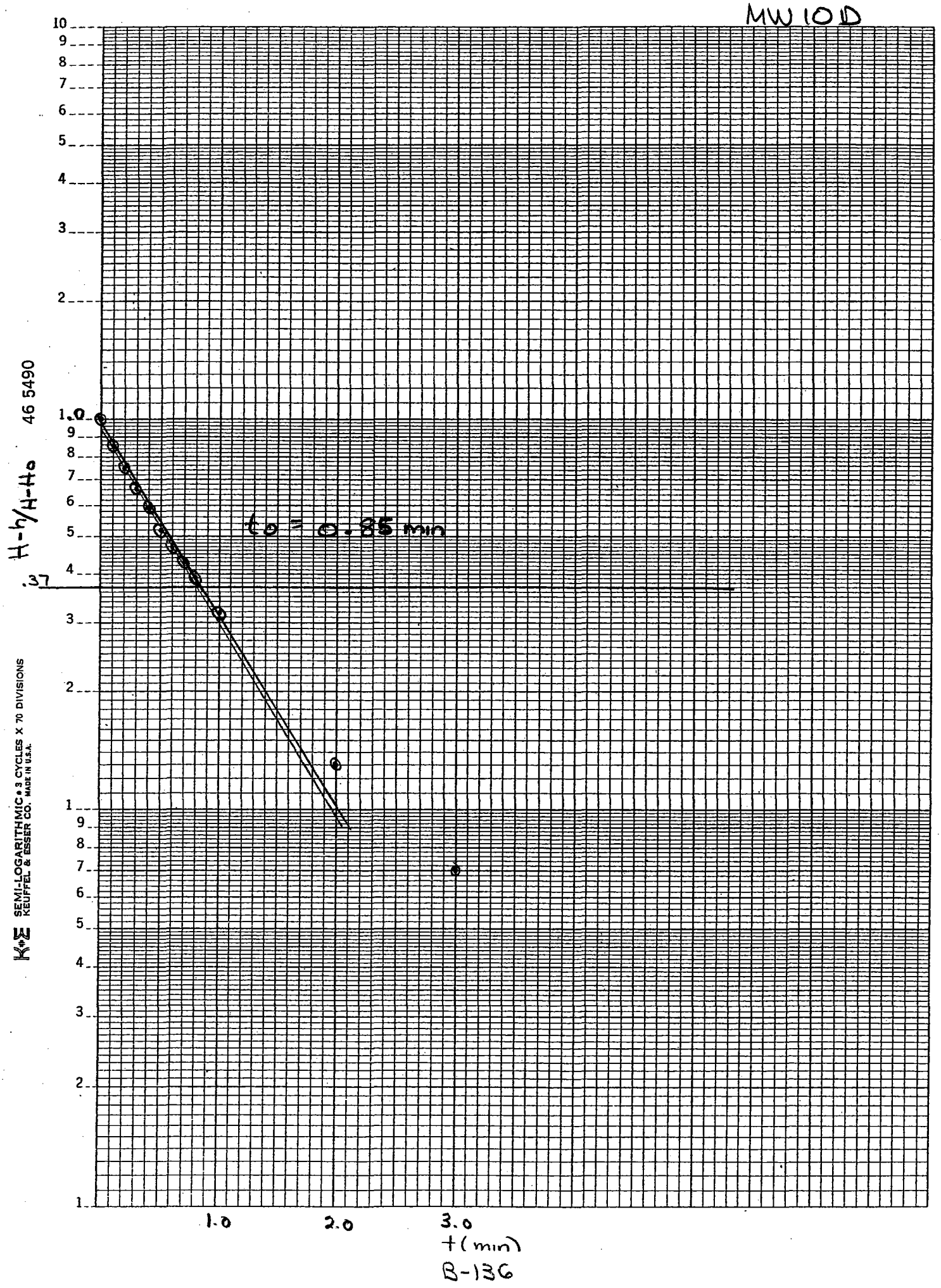
t (min)	H-h/H-Ho
0 - 2.055	1.00
.1 - 1.753	.85
.2 - 1.542	.75
.3 - 1.357	.66
.4 - 1.219	.59
.5 - 1.075	.52
.6 - .96	.47
.7 - .882	.43
.8 - .802	.39
1.0 - .648	.32
2.0 - .272	.13
3.0 - .144	.07

r = 1"/12 .083'

L = 10'

R = 5 7/8" = .24'

To = 0.85m (from plot)


MW 10D
H-h/H-Ho
46 5490
.37
to = 0.85 min
1.0
2.0
3.0
t (min)
B-136
K+E SEMI-LOGARITHMIC • 3 CYCLES X 70 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.

IN-SITU HYDRAULIC CONDUCTIVITY TESTING	Number	

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

PROJECT NAME: PAI-SITE 45 WELL/BORING NO.: MW10D

PROJECT NO.: N0502 GEOLOGIST: CONTI

WELL DIAMETER: 2" SCREEN LENGTH/DEPTH: 10' / 41.61 TEST NO.: 1

STATIC WATER LEVEL (Depth/Elevation): 4.30 DATE: 11/3/01

TEST TYPE (Rising/Falling/Constant Head): RISING CHECKED:

METHOD OF INDUCING WATER LEVEL CHANGE: 2-SECTION SLUG PAGE 1 OF

REFERENCE PT. FOR WL MEAS. (Top of Casing, Transducer, etc.): TOC = 7.28 EL

ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)	ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)

WELL SCHEMATIC

WELL #

BOREHOLE # 5 7/8

Depths (BGL)

SEAL

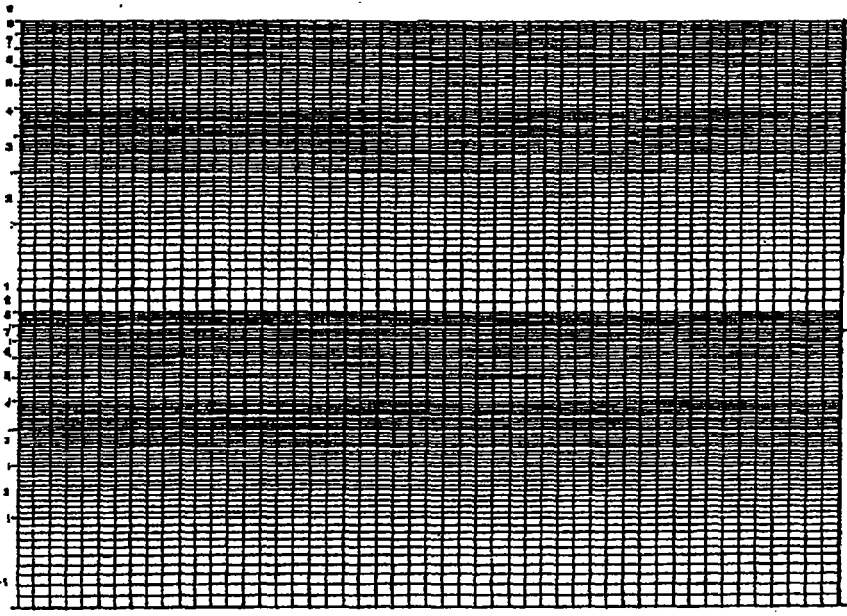
31.61

GRAVEL / OPEN INTERVAL

SCREEN

41.61

▽ Indicate SWL Depth on Drawing



REMARKS:

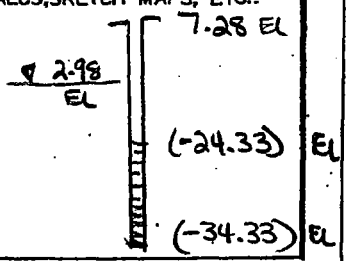
MW10D-RISING

START: 1152

HEAD: 18.174

CURVE: GOOD

CALCS, SKETCH MAPS, ETC.:



L = 10'

In-Situ Inc. MiniTroll Pro

Report generated: 11/3/01 12:00:13
Report from file: C:\WIN-SITU\Data\SN02468 2001-11-03 115200 MW10D-RISING.bin
DataMgr Version 3.69

Serial number: 2468
Firmware Version 3.01
Unit name: SLUG TESTS

Test name: MW10D-RISING

Test defined on: 11/3/01 11:49:23
Test scheduled for: 11/3/01 11:52:00
Test started on: 11/3/01 11:52:00
Test stopped on: 11/3/01 12:00:07
Test extracted on: N/A

Data gathered using Logarithmic testing
Maximum time between c Minutes.
Number of data samples: 97

TOTAL DATA SAMPLES 97

Channel number [1]
Measurement type: Temperature
Channel name: OnBoard Temp

Channel number [2]
Measurement type: Pressure
Channel name: Pressure
Sensor Range: 30 PSI.
Specific gravity: 1
Mode: Surface
User-defined reference: 0 Feet H2O
Referenced on: test start
Pressure head at referenc 18.135 Feet H2O

Date	Time	ET (min)	Chan[1] Celsius	Chan[2] Feet H2O
11/3/01	11:52	0	23.89	0
11/3/01	11:52	0.0048	23.9	0.006
11/3/01	11:52	0.0098	23.9	0.008
11/3/01	11:52	0.015	23.9	0.008
11/3/01	11:52	0.0198	23.91	0.01
11/3/01	11:52	0.025	23.91	-1.557
11/3/01	11:52	0.03	23.91	-4.106
11/3/01	11:52	0.035	23.91	-1.594
11/3/01	11:52	0.0398	23.91	-2.289

11/3/01 11:52	0.045		23.92	-2.051
11/3/01 11:52	0.05	*	23.92	-2.055
11/3/01 11:52	0.0548		23.92	-2.033
11/3/01 11:52	0.06		23.92	-2.014
11/3/01 11:52	0.0648		23.92	-1.995
11/3/01 11:52	0.07		23.92	-1.977
11/3/01 11:52	0.075		23.92	-1.96
11/3/01 11:52	0.0798		23.92	-1.943
11/3/01 11:52	0.0848		23.92	-1.926
11/3/01 11:52	0.09		23.92	-1.917
11/3/01 11:52	0.095		23.92	-1.906
11/3/01 11:52	0.1		23.92	-1.887
11/3/01 11:52	0.1057		23.92	-1.87
11/3/01 11:52	0.1118		23.92	-1.852
11/3/01 11:52	0.1185		23.92	-1.833
11/3/01 11:52	0.1255		23.92	-1.814
11/3/01 11:52	0.1327		23.92	-1.794
11/3/01 11:52	0.1405		23.92	-1.775
11/3/01 11:52	0.1488	*	23.92	-1.753
11/3/01 11:52	0.1578		23.92	-1.734
11/3/01 11:52	0.167		23.92	-1.715
11/3/01 11:52	0.1768		23.92	-1.693
11/3/01 11:52	0.1875		23.92	-1.669
11/3/01 11:52	0.1985		23.92	-1.648
11/3/01 11:52	0.21		23.92	-1.622
11/3/01 11:52	0.2225		23.92	-1.596
11/3/01 11:52	0.2358		23.92	-1.568
11/3/01 11:52	0.2498	*	23.91	-1.542
11/3/01 11:52	0.2647		23.91	-1.514
11/3/01 11:52	0.2803		23.91	-1.484
11/3/01 11:52	0.297		23.91	-1.454
11/3/01 11:52	0.3145		23.91	-1.422
11/3/01 11:52	0.3333		23.91	-1.391
11/3/01 11:52	0.3532	*	23.91	-1.357
11/3/01 11:52	0.374		23.91	-1.323
11/3/01 11:52	0.3963		23.91	-1.29
11/3/01 11:52	0.4198		23.91	-1.254
11/3/01 11:52	0.4445	*	23.9	-1.219
11/3/01 11:52	0.4695		23.9	-1.184
11/3/01 11:52	0.4963		23.9	-1.148
11/3/01 11:52	0.5247		23.9	-1.111
11/3/01 11:52	0.5547	*	23.9	-1.075
11/3/01 11:52	0.5862		23.89	-1.04
11/3/01 11:52	0.6213		23.89	-1.001
11/3/01 11:52	0.6578	*	23.87	-0.96
11/3/01 11:52	0.6963		23.87	-0.921
11/3/01 11:52	0.738	*	23.87	-0.882
11/3/01 11:52	0.7813		23.86	-0.843
11/3/01 11:52	0.8278	*	23.85	-0.802
11/3/01 11:52	0.8762		23.85	-0.763
11/3/01 11:52	0.9278		23.84	-0.726
11/3/01 11:52	0.9828		23.82	-0.687

11/3/01 11:53	1.0412	23.82	-0.648 1
11/3/01 11:53	1.103	23.81	-0.611
11/3/01 11:53	1.1678	23.8	-0.577
11/3/01 11:53	1.238	23.79	-0.54
11/3/01 11:53	1.3113	23.77	-0.505
11/3/01 11:53	1.3895	23.76	-0.47
11/3/01 11:53	1.4728	23.75	-0.438
11/3/01 11:53	1.5613	23.74	-0.407
11/3/01 11:53	1.6547	23.72	-0.377
11/3/01 11:53	1.753	23.71	-0.348
11/3/01 11:53	1.858	23.7	-0.32
11/3/01 11:53	1.9678	23.69	-0.296
11/3/01 11:54	2.0845	23.66	-0.272 2
11/3/01 11:54	2.2097	23.65	-0.248
11/3/01 11:54	2.3412	23.63	-0.228
11/3/01 11:54	2.4812	23.62	-0.208
11/3/01 11:54	2.6297	23.61	-0.188
11/3/01 11:54	2.7863	23.6	-0.173
11/3/01 11:54	2.953	23.57	-0.157
11/3/01 11:55	3.1297	23.56	-0.144 3
11/3/01 11:55	3.3162	23.55	-0.131
11/3/01 11:55	3.5145	23.53	-0.12
11/3/01 11:55	3.7245	23.52	-0.108
11/3/01 11:55	3.9463	23.51	-0.1
11/3/01 11:56	4.1812	23.5	-0.093
11/3/01 11:56	4.4295	23.48	-0.086
11/3/01 11:56	4.6928	23.47	-0.079
11/3/01 11:56	4.9728	23.47	-0.075
11/3/01 11:57	5.2697	23.46	-0.068
11/3/01 11:57	5.583	23.46	-0.064
11/3/01 11:57	5.9145	23.45	-0.061
11/3/01 11:58	6.2663	23.45	-0.059
11/3/01 11:58	6.6395	23.43	-0.052
11/3/01 11:59	7.0345	23.43	-0.05
11/3/01 11:59	7.453	23.43	-0.048
11/3/01 11:59	7.8962	23.42	-0.045

CALCULATION WORKSHEET Order No. 19116 (01-91) PAGE 1 OF

CLIENT	JOB NUMBER
PARRIS IS.	N0502

SUBJECT: SLUG TEST CALCS : WELL NO : MW11D

BASED ON	DRAWING NUMBER

BY	CHECKED BY	APPROVED BY	DATE
SJC 12/20/01	12-28-01 JK		

HVORSLEV

$$K = \frac{r^2 \ln(L/R)}{2L\,T_o}$$

$$= \frac{(.083)^2 \ln(10/.24)}{2(10)\,155}$$

$$= \frac{(.083)^2 (3.73)}{3100}$$

$$= 8.29 \times 10^{-6} \text{ ft/min}$$

$$= 4.21 \times 10^{-6} \text{ cm/sec}$$

$$= .01 \text{ ft/day}$$

SEE PRINTOUT FOR MORE DATA

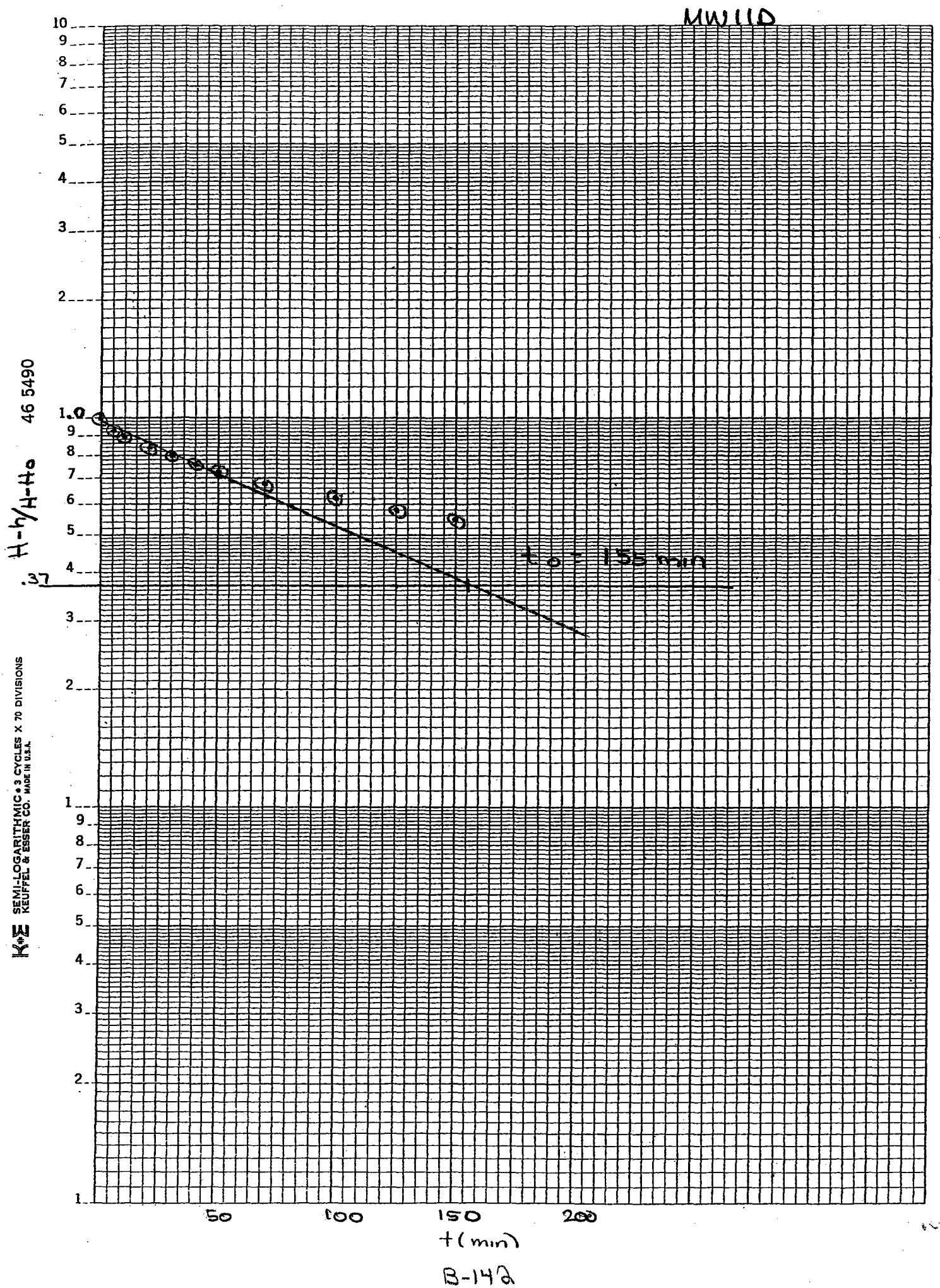
t (min)	H-h/H-Ho
0 - 2.215	1.00
5 - 2.071	.93
10 - 1.994	.90
21 - 1.862	.84
30 - 1.776	.80
40 - 1.694	.76
50 - 1.621	.73
63 - 1.541	.70
70 - 1.498	.68
100 - 1.368	.62
126 - 1.281	.58
150 - 1.218	.55

r = 1" ÷ 12 = .083

L = 10'

R = 5 7/8" Φ .24

To = 155 m (from plot)


MW11D
H-h/H-Ho
46 5490
.37
to = 155 min
10
9
8
7
6
5
4
3
2
1.0
9
8
7
6
5
4
3
2
1
9
8
7
6
5
4
3
2
1
50
100
150
200
t (min)
SEMI-LOGARITHMIC • 3 CYCLES X 70 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.

B-142

IN-SITU HYDRAULIC CONDUCTIVITY TESTING	Number	

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

HYDRAULIC CONDUCTIVITY TESTING DATA SHEET

PROJECT NAME: PAI-SITE 45 WELL/BORING NO.: MW11D

PROJECT NO.: N0502 GEOLOGIST: CONTI

WELL DIAMETER: 2" SCREEN LENGTH/DEPTH: 10' / 41.70 TEST NO.: 1

STATIC WATER LEVEL (Depth/Elevation): 3.40 DATE: 12/7/01

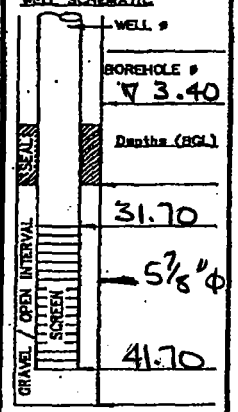
TEST TYPE (Rising/Falling/Constant Head): RISING CHECKED:

METHOD OF INDUCING WATER LEVEL CHANGE: 2 SECT SLUG PAGE 1 OF 1

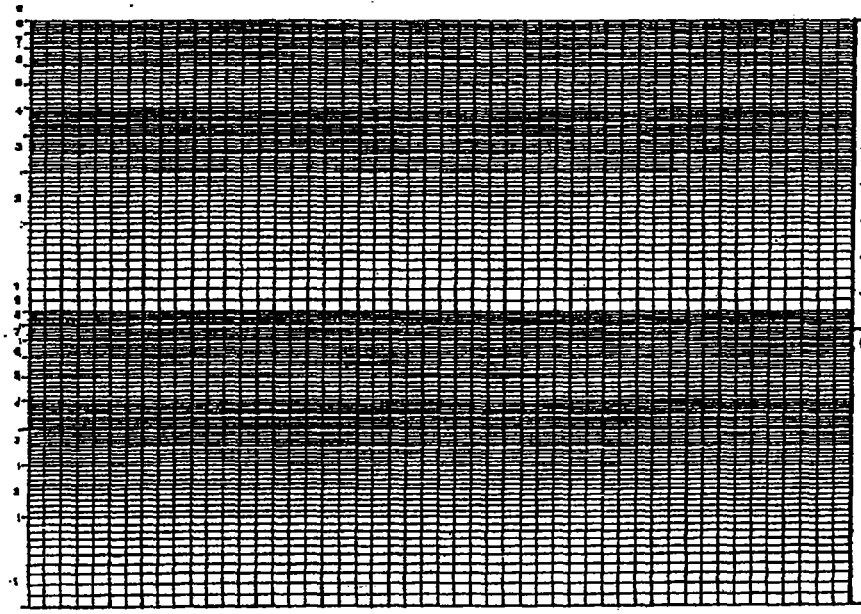
REFERENCE PT. FOR WL MEAS. (Top of Casing, Transducer, etc.): TOC

ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)	ELAPSED TIME (min. or sec.)	MEASURED WATER LEVEL (feet)	DRAWDOWN OR HEAD (ΔH) (feet)

WELL SCHEMATIC



▽ Indicate SWL Depth on Drawing



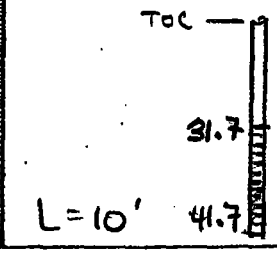
REMARKS:

START 1010

SLOW REC.

GRAPH - GOOD

CALCS, SKETCH MAPS, ETC.:



In-Situ Inc. MiniTroll Pro

Report generated: 12/7/01 12:42:29
Report from file: C:\WIN-SITU\Data\SN05040 2001-12-07 101000 MW11D.bin
DataMgr Version 3.69

Serial number: 5040
Firmware Version 3
Unit name: Slug Tests

Test name: MW11D

Test defined on: 12/7/01 10:09:18
Test scheduled for: 12/7/01 10:10:00
Test started on: 12/7/01 10:10:00
Test stopped on: N/A N/A
Test extracted on: N/A

Data gathered using Logarithmic testing
  Maximum time between data points: 10.0000 Minutes.
  Number of data samples: 148

TOTAL DATA SAMPLES 148

Channel number [1]
  Measurement type: Temperature
  Channel name:

Channel number [2]
  Measurement type: Pressure
  Channel name:
  Sensor Range: 30 PSI.
  Specific gravity: 1
  Mode: Surface
  User-defined reference: 0 Feet H2O
  Referenced on: test start
  Pressure head at reference: 13.87 Feet H2O

Date	Time	Chan[1] ET (min)	Chan[2] Celsius	Feet H2O
12/7/01	10:10	0	23.71	0
12/7/01	10:10	0.0048	23.73	0.005
12/7/01	10:10	0.0098	23.74	0.007
12/7/01	10:10	0.015	23.74	0.007
12/7/01	10:10	0.0198	23.74	0.009
12/7/01	10:10	0.025	23.75	-0.014
12/7/01	10:10	0.03	23.75	0.172
12/7/01	10:10	0.035	23.75	-0.724
12/7/01	10:10	0.0398	23.75	-1.944
12/7/01	10:10	0.045	23.75	-2.535
12/7/01	10:10	0.05	23.75	-2.593
12/7/01	10:10	0.0548	23.75	-2.206
12/7/01	10:10	0.06	23.75	-2.241
12/7/01	10:10	0.0648	23.76	-2.225
12/7/01	10:10	0.07	23.75	-2.215
12/7/01	10:10	0.075	23.76	-2.21
12/7/01	10:10	0.0798	23.76	-2.205
12/7/01	10:10	0.0848	23.76	-2.203
12/7/01	10:10	0.09	23.76	-2.199

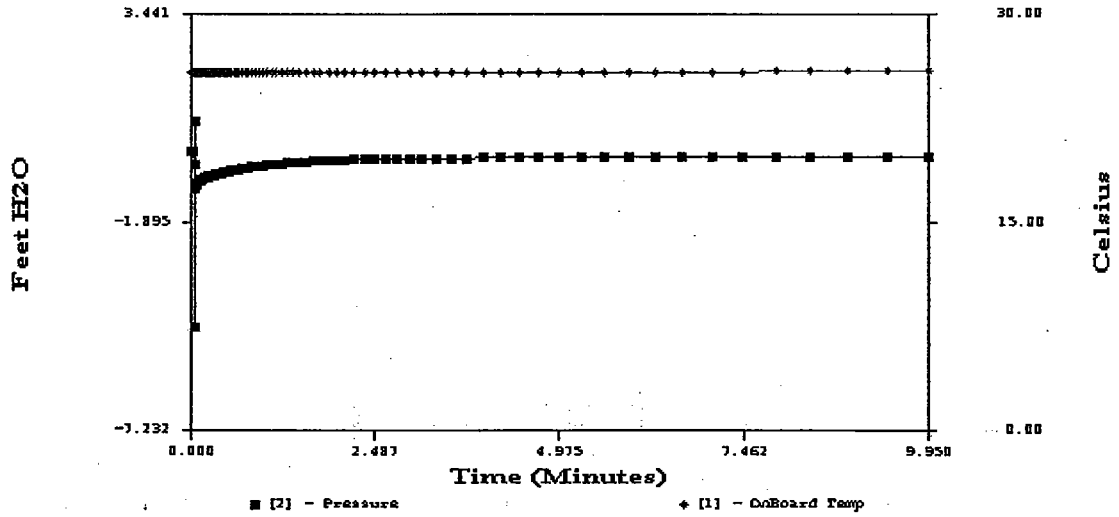
B-144

12/7/01 10:10	0.095	23.76	-2.197
12/7/01 10:10	0.1	23.76	-2.195
12/7/01 10:10	0.1057	23.76	-2.193
12/7/01 10:10	0.1118	23.76	-2.193
12/7/01 10:10	0.1185	23.76	-2.192
12/7/01 10:10	0.1255	23.76	-2.19
12/7/01 10:10	0.1327	23.76	-2.186
12/7/01 10:10	0.1405	23.76	-2.186
12/7/01 10:10	0.1488	23.76	-2.184
12/7/01 10:10	0.1578	23.76	-2.182
12/7/01 10:10	0.167	23.75	-2.184
12/7/01 10:10	0.1768	23.75	-2.184
12/7/01 10:10	0.1875	23.75	-2.182
12/7/01 10:10	0.1985	23.75	-2.182
12/7/01 10:10	0.21	23.75	-2.182
12/7/01 10:10	0.2225	23.75	-2.18
12/7/01 10:10	0.2358	23.74	-2.18
12/7/01 10:10	0.2498	23.75	-2.178
12/7/01 10:10	0.2647	23.75	-2.178
12/7/01 10:10	0.2803	23.74	-2.178
12/7/01 10:10	0.297	23.74	-2.176
12/7/01 10:10	0.3145	23.74	-2.176
12/7/01 10:10	0.3333	23.74	-2.176
12/7/01 10:10	0.3532	23.74	-2.174
12/7/01 10:10	0.374	23.74	-2.174
12/7/01 10:10	0.3963	23.74	-2.172
12/7/01 10:10	0.4198	23.74	-2.172
12/7/01 10:10	0.4445	23.74	-2.17
12/7/01 10:10	0.4695	23.74	-2.169
12/7/01 10:10	0.4963	23.74	-2.169
12/7/01 10:10	0.5247	23.75	-2.167
12/7/01 10:10	0.5547	23.74	-2.167
12/7/01 10:10	0.5862	23.74	-2.165
12/7/01 10:10	0.6213	23.74	-2.165
12/7/01 10:10	0.6578	23.74	-2.163
12/7/01 10:10	0.6963	23.74	-2.163
12/7/01 10:10	0.738	23.74	-2.161
12/7/01 10:10	0.7813	23.74	-2.159
12/7/01 10:10	0.8278	23.74	-2.157
12/7/01 10:10	0.8762	23.74	-2.157
12/7/01 10:10	0.9278	23.74	-2.156
12/7/01 10:10	0.9828	23.74	-2.154
12/7/01 10:11	1.0412	23.74	-2.152
12/7/01 10:11	1.103	23.74	-2.15
12/7/01 10:11	1.1678	23.74	-2.148
12/7/01 10:11	1.238	23.74	-2.146
12/7/01 10:11	1.3113	23.73	-2.144
12/7/01 10:11	1.3895	23.73	-2.142
12/7/01 10:11	1.4728	23.73	-2.14
12/7/01 10:11	1.5613	23.73	-2.137
12/7/01 10:11	1.6547	23.73	-2.135
12/7/01 10:11	1.753	23.73	-2.133
12/7/01 10:11	1.858	23.73	-2.131
12/7/01 10:11	1.9678	23.73	-2.127
12/7/01 10:12	2.0845	23.73	-2.126
12/7/01 10:12	2.2097	23.71	-2.121
12/7/01 10:12	2.3412	23.71	-2.12
12/7/01 10:12	2.4812	23.71	-2.118
12/7/01 10:12	2.6297	23.71	-2.114
12/7/01 10:12	2.7863	23.71	-2.11
12/7/01 10:12	2.953	23.71	-2.107
12/7/01 10:13	3.1297	23.71	-2.103

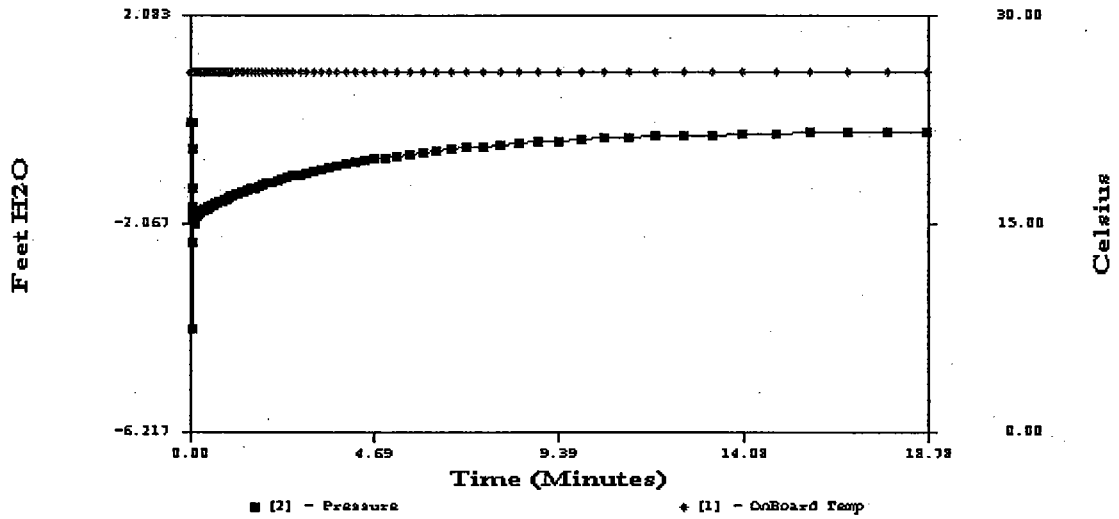
12/7/01 10:13	3.3162	23.7	-2.099	
12/7/01 10:13	3.5145	23.7	-2.097	
12/7/01 10:13	3.7245	23.7	-2.093	
12/7/01 10:13	3.9463	23.7	-2.088	
12/7/01 10:14	4.1812	23.7	-2.084	
12/7/01 10:14	4.4295	23.7	-2.08	
12/7/01 10:14	4.6928	23.7	-2.075	
12/7/01 10:14	4.9728	23.7	-2.071	5
12/7/01 10:15	5.2697	23.7	-2.065	
12/7/01 10:15	5.583	23.69	-2.06	
12/7/01 10:15	5.9145	23.69	-2.056	
12/7/01 10:16	6.2663	23.69	-2.048	
12/7/01 10:16	6.6395	23.69	-2.045	
12/7/01 10:17	7.0345	23.69	-2.037	
12/7/01 10:17	7.453	23.69	-2.032	
12/7/01 10:17	7.8962	23.69	-2.026	
12/7/01 10:18	8.3663	23.69	-2.019	
12/7/01 10:18	8.8645	23.69	-2.009	
12/7/01 10:19	9.3913	23.69	-2.002	
12/7/01 10:19	9.9497	23.68	-1.994	10
12/7/01 10:20	10.5413	23.68	-1.987	
12/7/01 10:21	11.168	23.68	-1.977	
12/7/01 10:21	11.8312	23.68	-1.97	
12/7/01 10:22	12.5347	23.68	-1.961	
12/7/01 10:23	13.2795	23.68	-1.951	
12/7/01 10:24	14.0695	23.66	-1.94	
12/7/01 10:24	14.9062	23.68	-1.931	
12/7/01 10:25	15.7913	23.66	-1.921	
12/7/01 10:26	16.7295	23.66	-1.908	
12/7/01 10:27	17.723	23.66	-1.897	
12/7/01 10:28	18.7762	23.66	-1.886	
12/7/01 10:29	19.8913	23.66	-1.873	
12/7/01 10:31	21.073	23.66	-1.862	21
12/7/01 10:32	22.3247	23.65	-1.848	
12/7/01 10:33	23.6497	23.65	-1.835	
12/7/01 10:35	25.0545	23.65	-1.821	
12/7/01 10:36	26.5428	23.65	-1.806	
12/7/01 10:38	28.1178	23.65	-1.791	
12/7/01 10:39	29.7868	23.65	-1.776	30
12/7/01 10:41	31.5545	23.65	-1.761	
12/7/01 10:43	33.428	23.65	-1.746	
12/7/01 10:45	35.4112	23.65	-1.728	
12/7/01 10:47	37.513	23.64	-1.711	
12/7/01 10:49	39.7397	23.64	-1.694	40
12/7/01 10:52	42.098	23.64	-1.675	
12/7/01 10:54	44.5963	23.64	-1.657	
12/7/01 10:57	47.2428	23.64	-1.64	
12/7/01 11:00	50.0463	23.64	-1.621	50
12/7/01 11:03	53.0147	23.64	-1.601	
12/7/01 11:06	56.1595	23.64	-1.582	
12/7/01 11:09	59.4913	23.64	-1.562	
12/7/01 11:13	63.0195	23.64	-1.541	63
12/7/01 11:16	66.758	23.64	-1.521	
12/7/01 11:20	70.7178	23.62	-1.498	
12/7/01 11:24	74.9113	23.64	-1.478	
12/7/01 11:29	79.3545	23.64	-1.456	
12/7/01 11:34	84.0613	23.64	-1.435	
12/7/01 11:39	89.0462	23.62	-1.413	
12/7/01 11:44	94.3262	23.62	-1.39	
12/7/01 11:49	99.9197	23.64	-1.368	
12/7/01 11:55	105.8447		23.62	-1.346
12/7/01 12:02	112.1197		23.62	-1.323

12/7/01 12:08	118.7678	23.64	-1.301
12/7/01 12:15	125.8095	23.62	-1.281
12/7/01 12:23	133.2678	23.62	-1.258
12/7/01 12:31	141.1678	23.62	-1.238
12/7/01 12:39	149.5363	23.62	-1.218

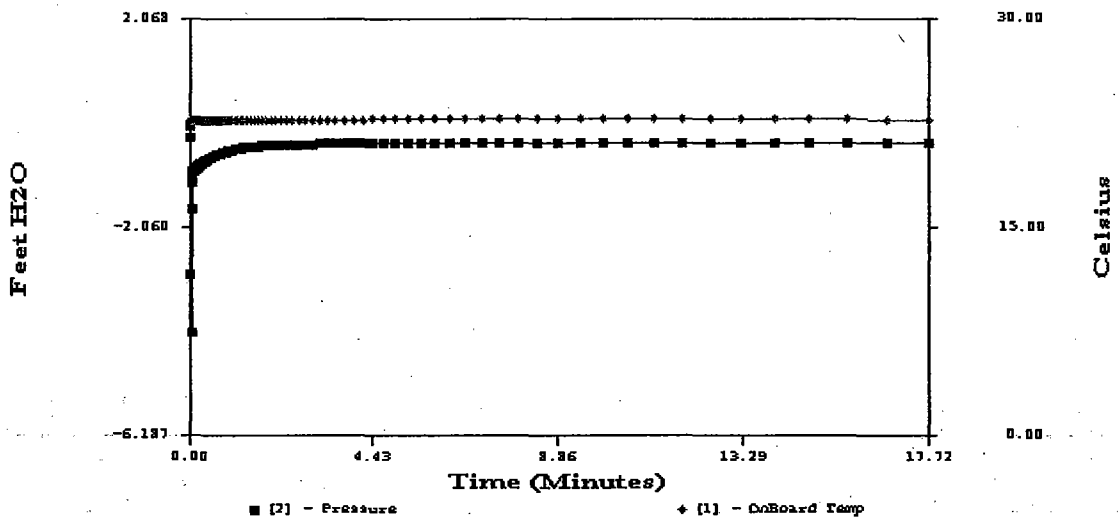
MW01SU-RISING



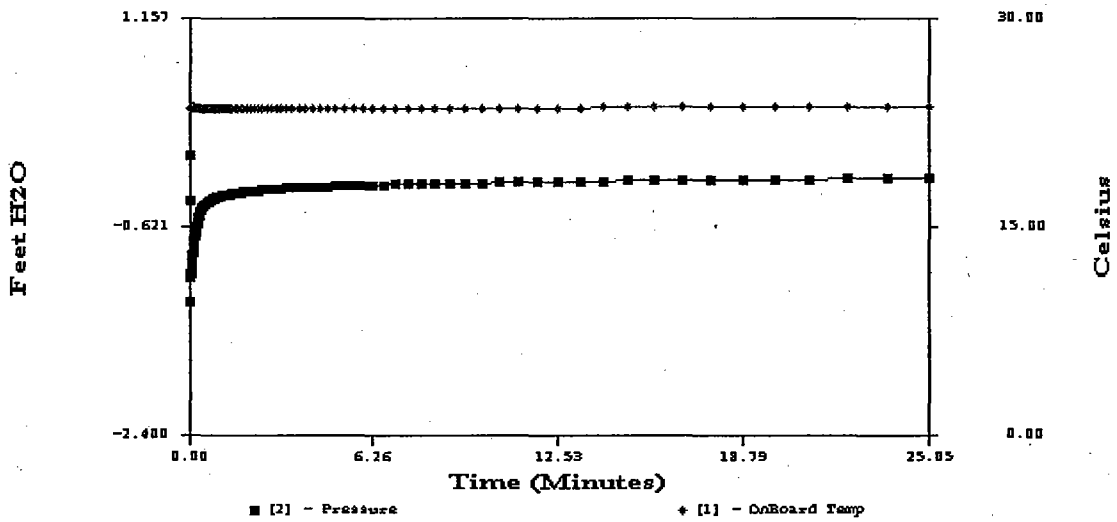
MW01SL-RISING



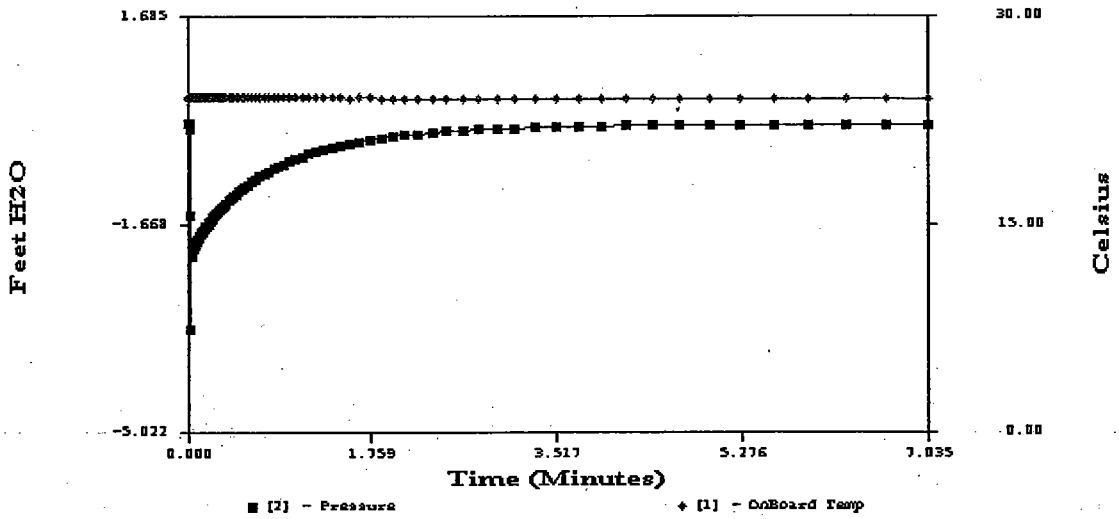
MW02SU-RISING



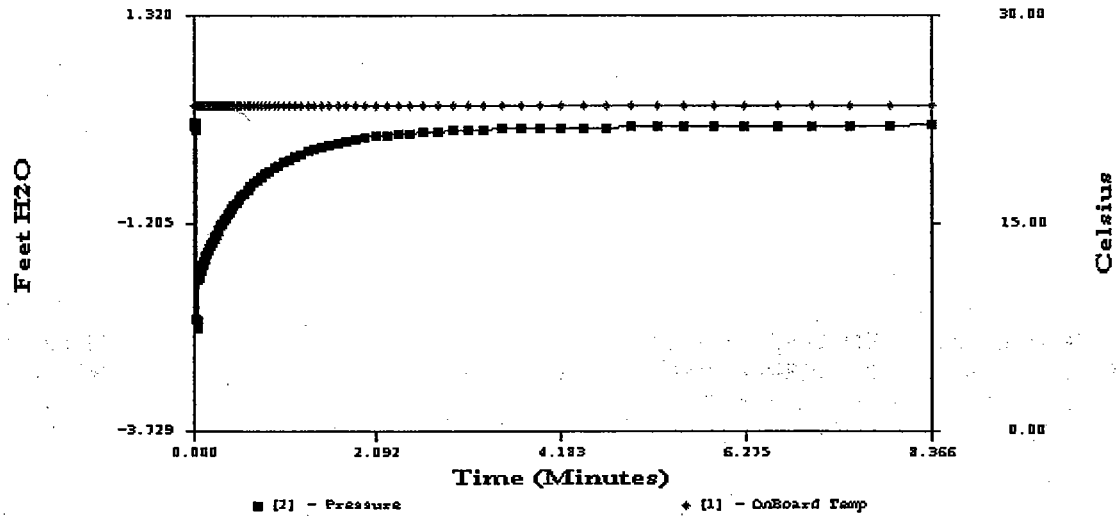
MW03SU-RISING



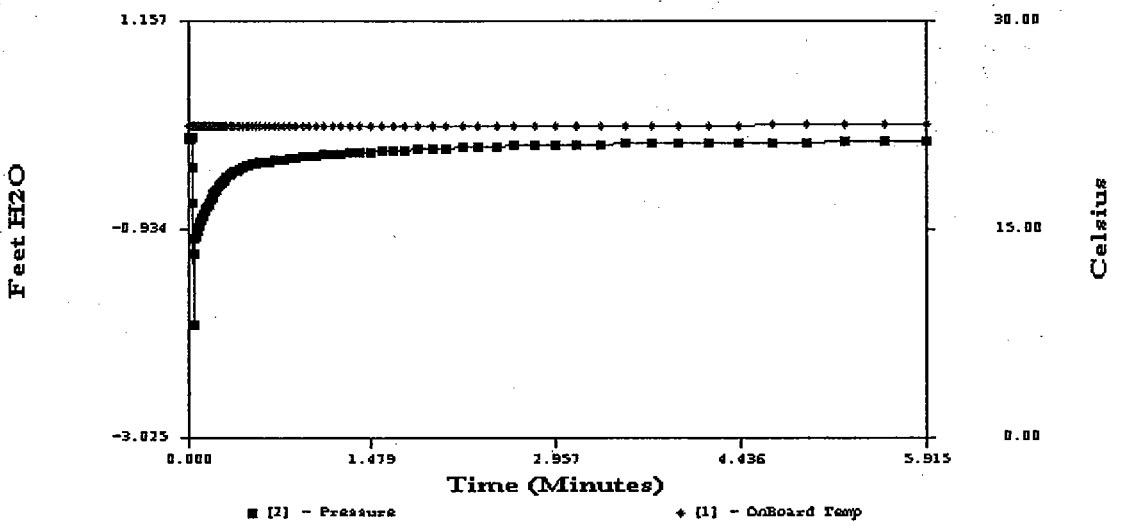
MW03SL-RISING



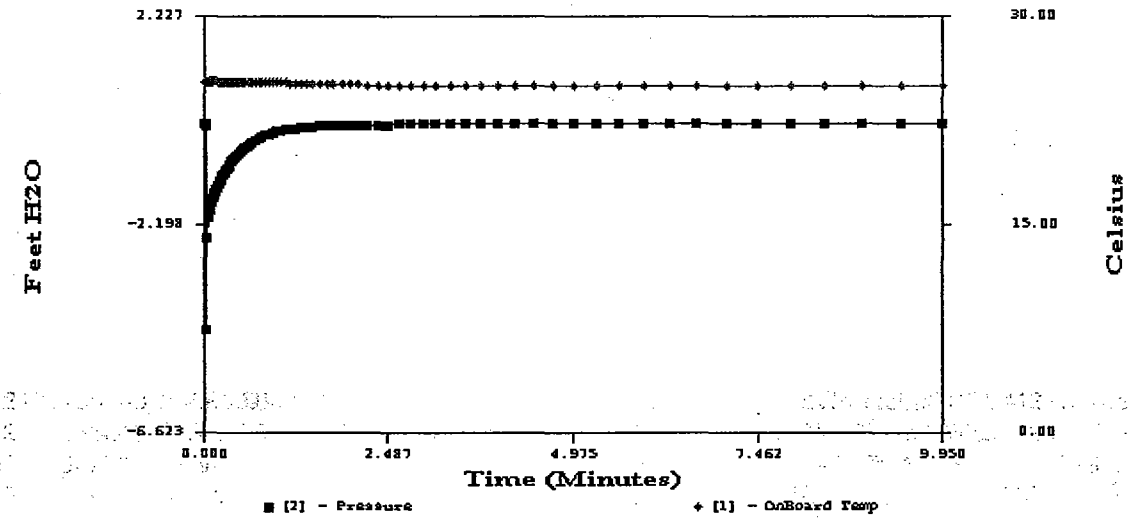
MW04SL-RISING



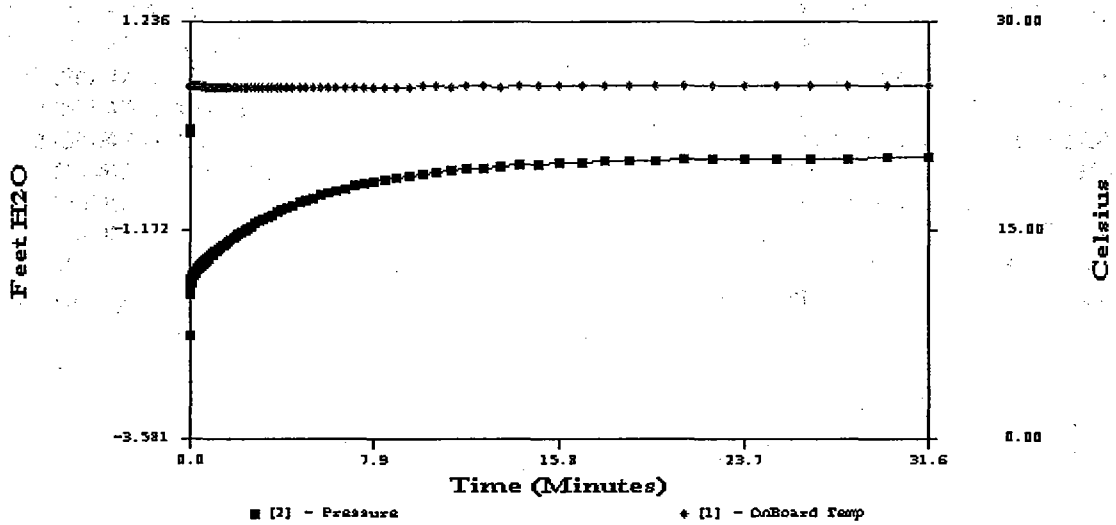
MW04SU-RISING



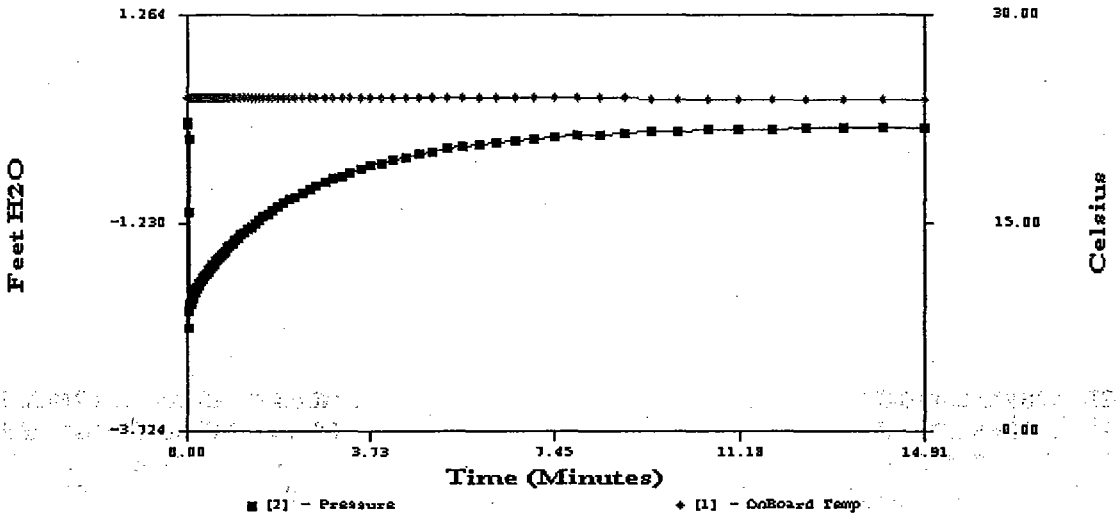
MW05D-RISING



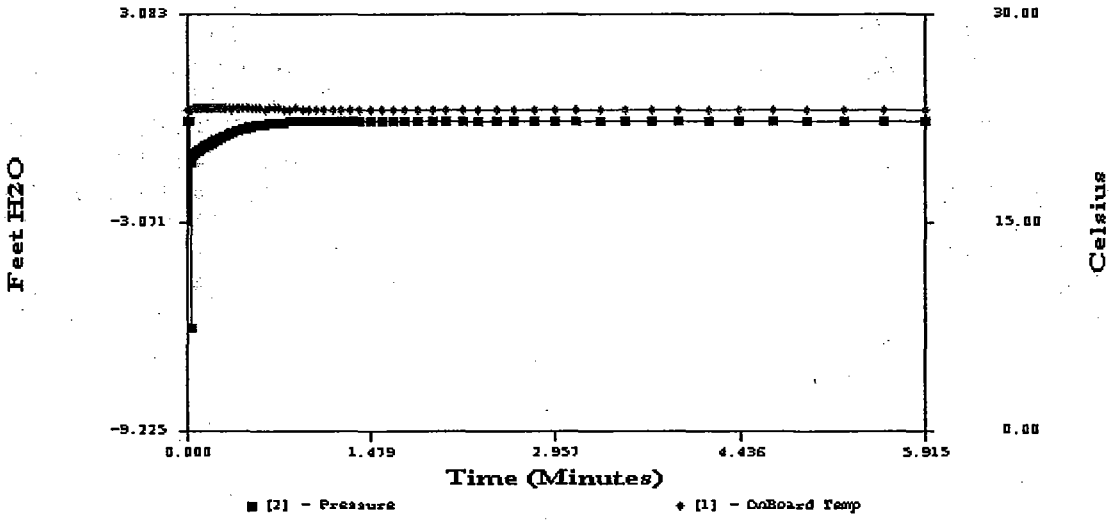
MW05SL-RISING



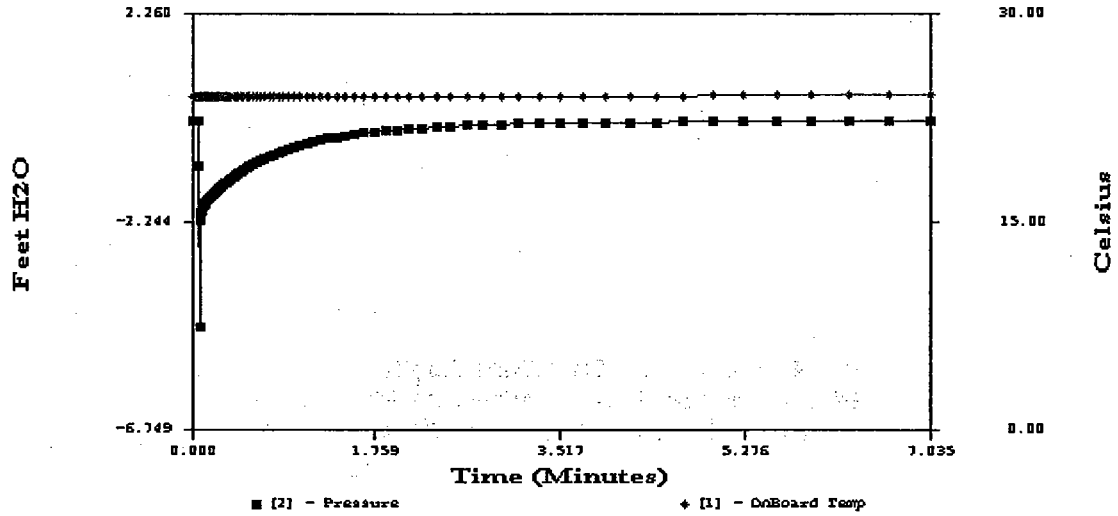
MW04D-RISING



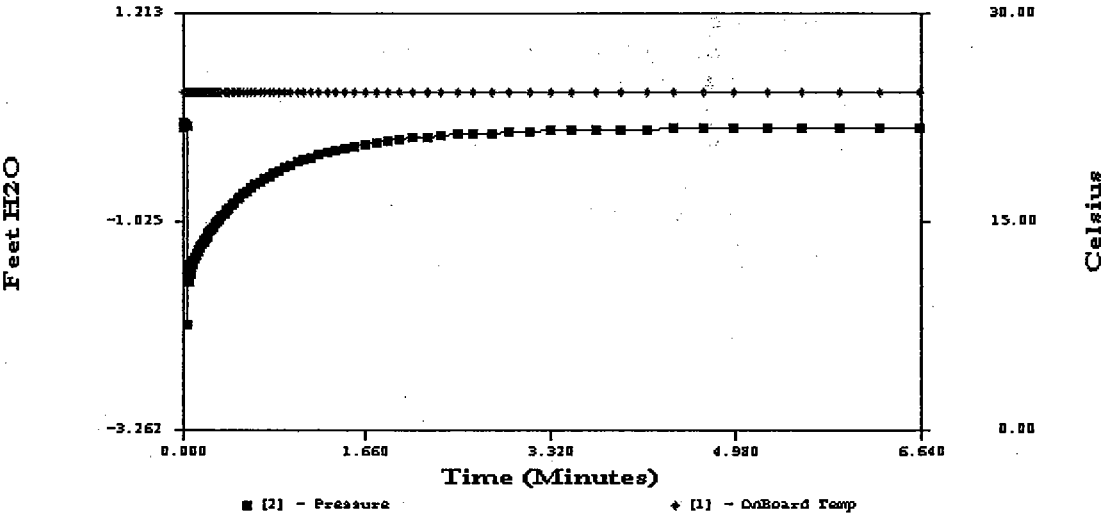
MW06SU-RISING



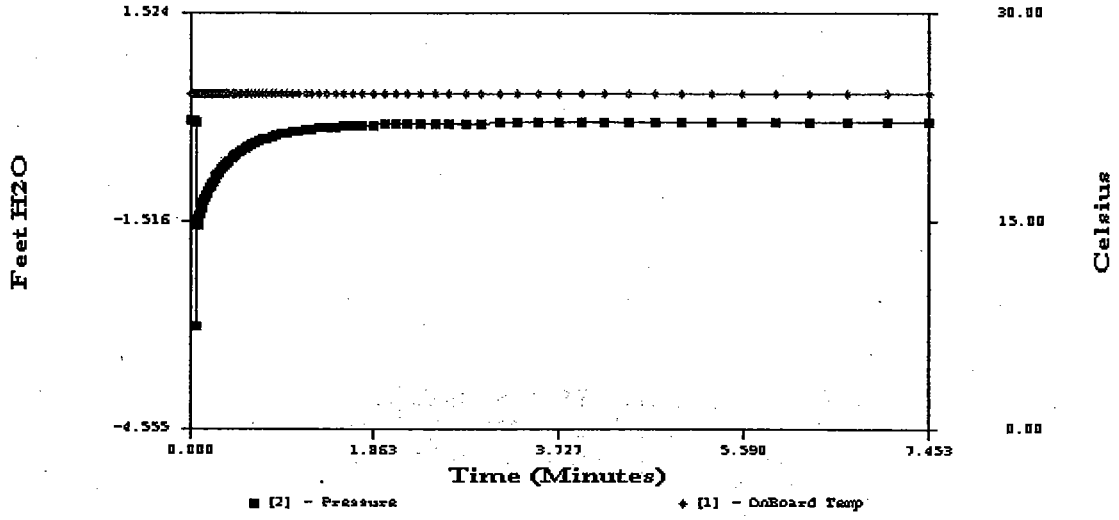
MW06SL-RISING



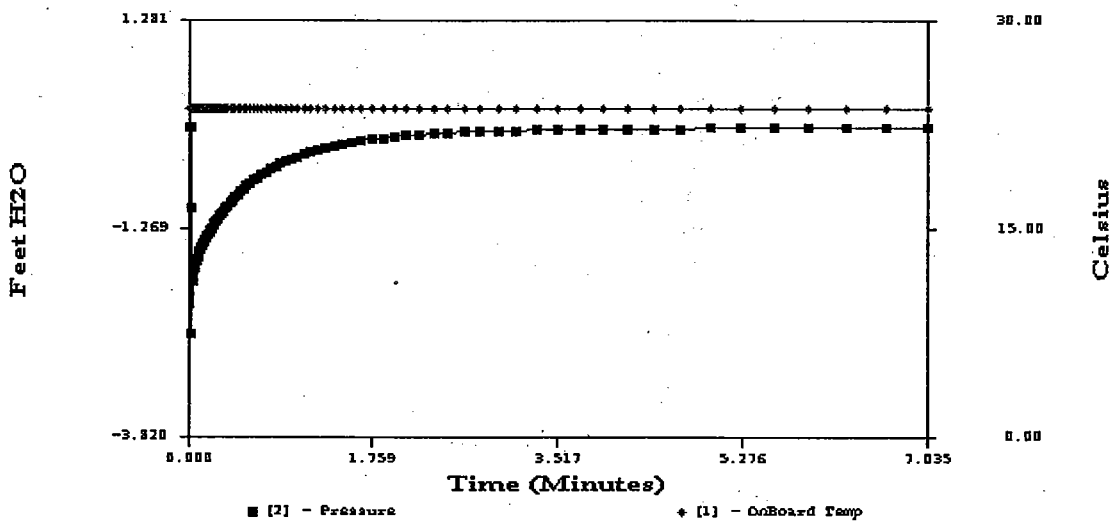
PZ11S-RISING



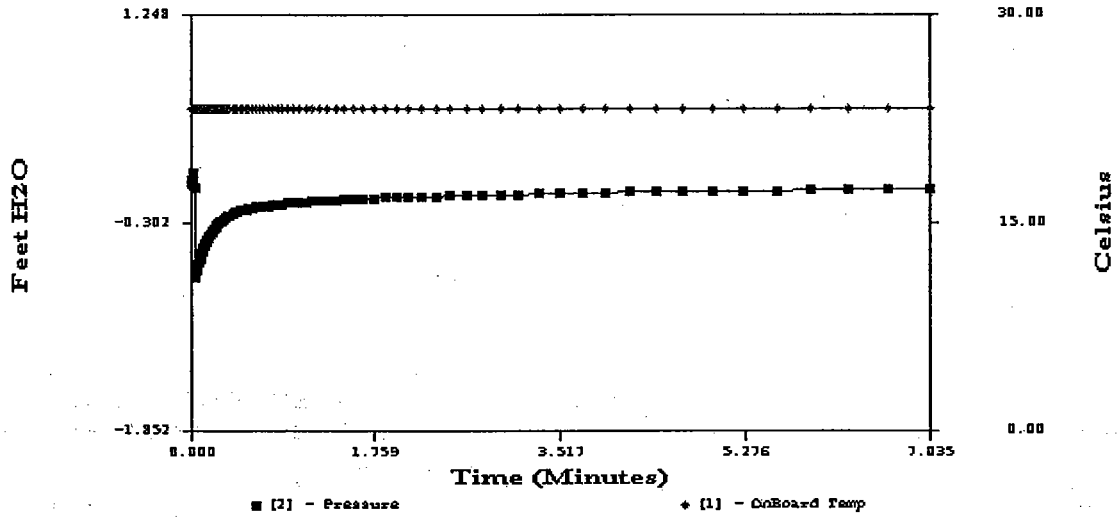
PZ10S-RISING



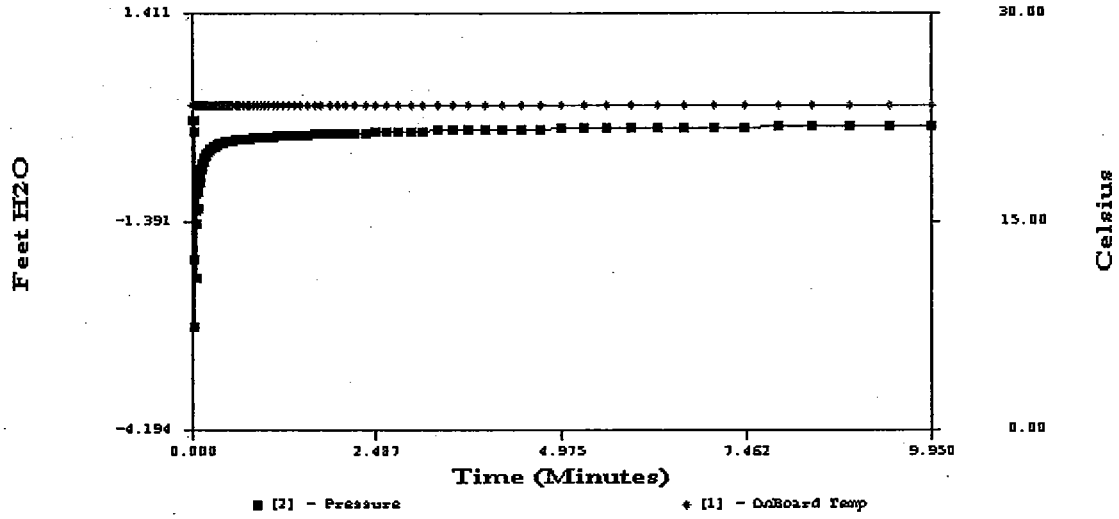
MW07SL-RISING



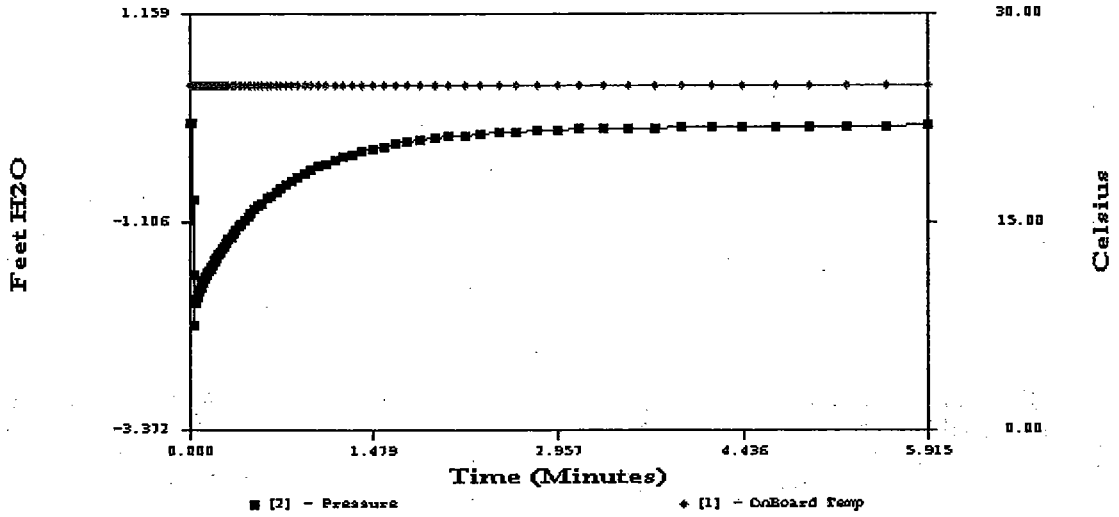
MW07SU-RISING



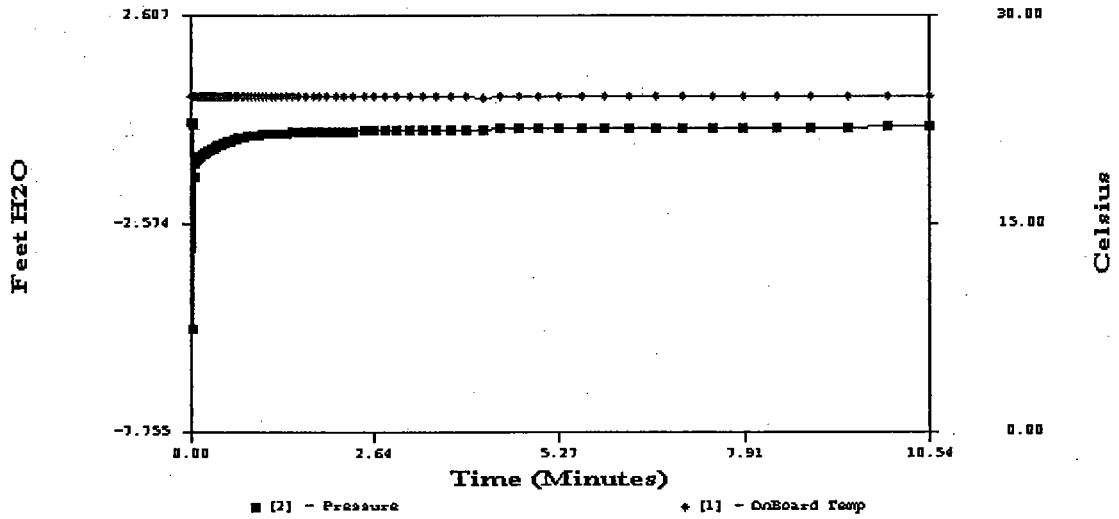
PZ09S-RISING



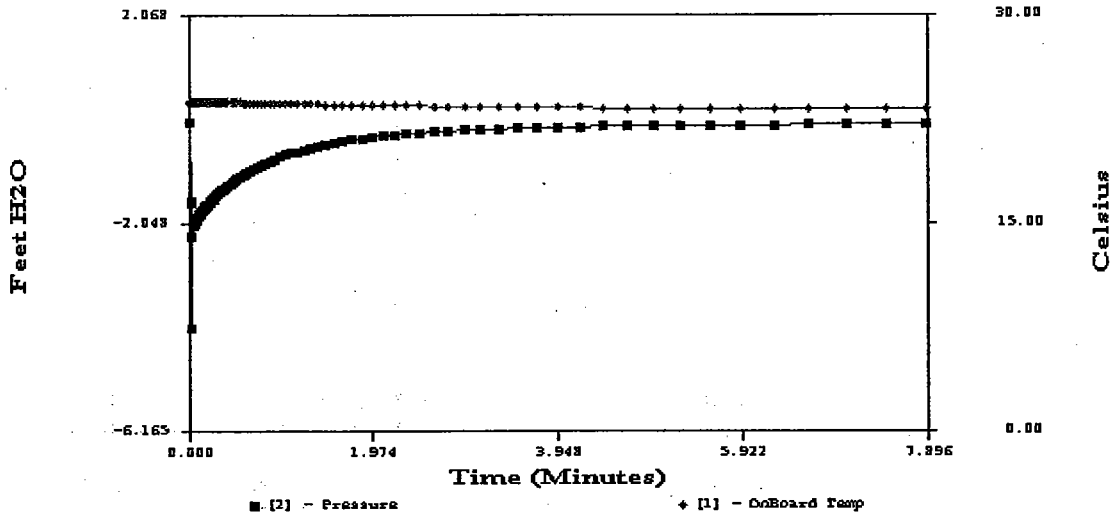
MW08SL-RISING



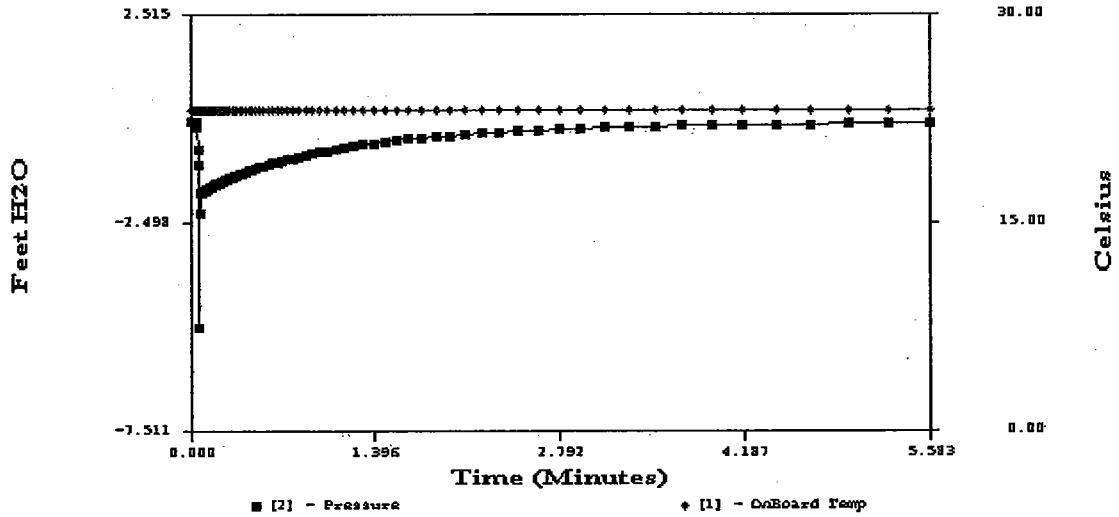
MW08SU-RISING



MW10D-RISING



MW02SL-RISING



APPENDIX B-2

PUMPING TEST DATA

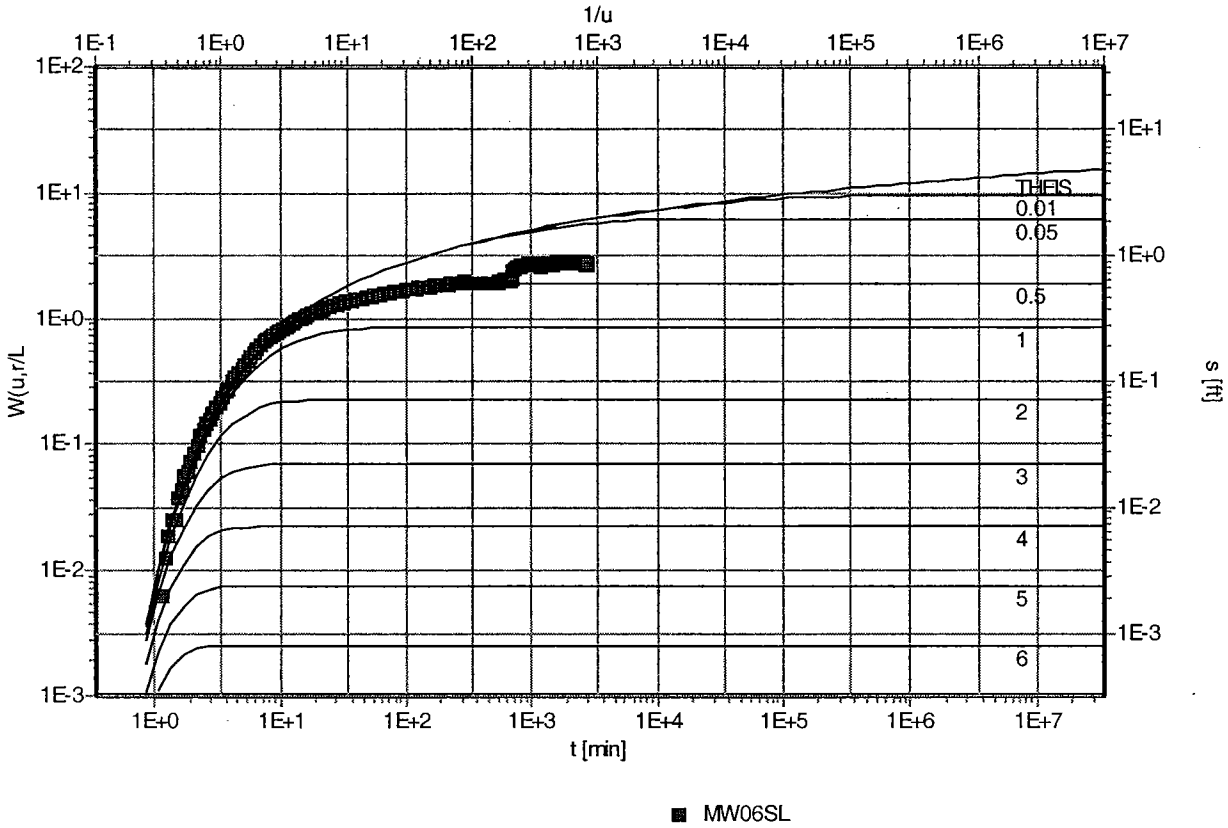
Pumping Test Drawdown Graphs

Waterloo Hydrogeologic, Inc.
180 Columbia St. Unit 1104
Waterloo, Ontario, Canada
Phone: +1 519 746 1798

Pumping Test Analysis Report

Project:	Parris Island.1
No:	CTO 127
Client:	Navy

Parris Island.11 (Hantush-Jacob)



Test name: **Parris Island.11**

Analysis method: **Hantush-Jacob**

Analysis results:	Transmissivity:	6.31E+1 [ft²/d]	Conductivity:	4.21E+0 [ft/d]
	Storativity:	3.05E-3	c:	4.47E+7 [min]

Test parameters:	Pumping well:	RW3	Aquifer thickness:	15 [ft]
	Screen radius:	0.5 [ft]	r/L:	0.01
	Screen length:	12 [ft]		
	Casing radius:	0.25 [ft]		
	Discharge rate:	250 [ft³/d]		

Comments:

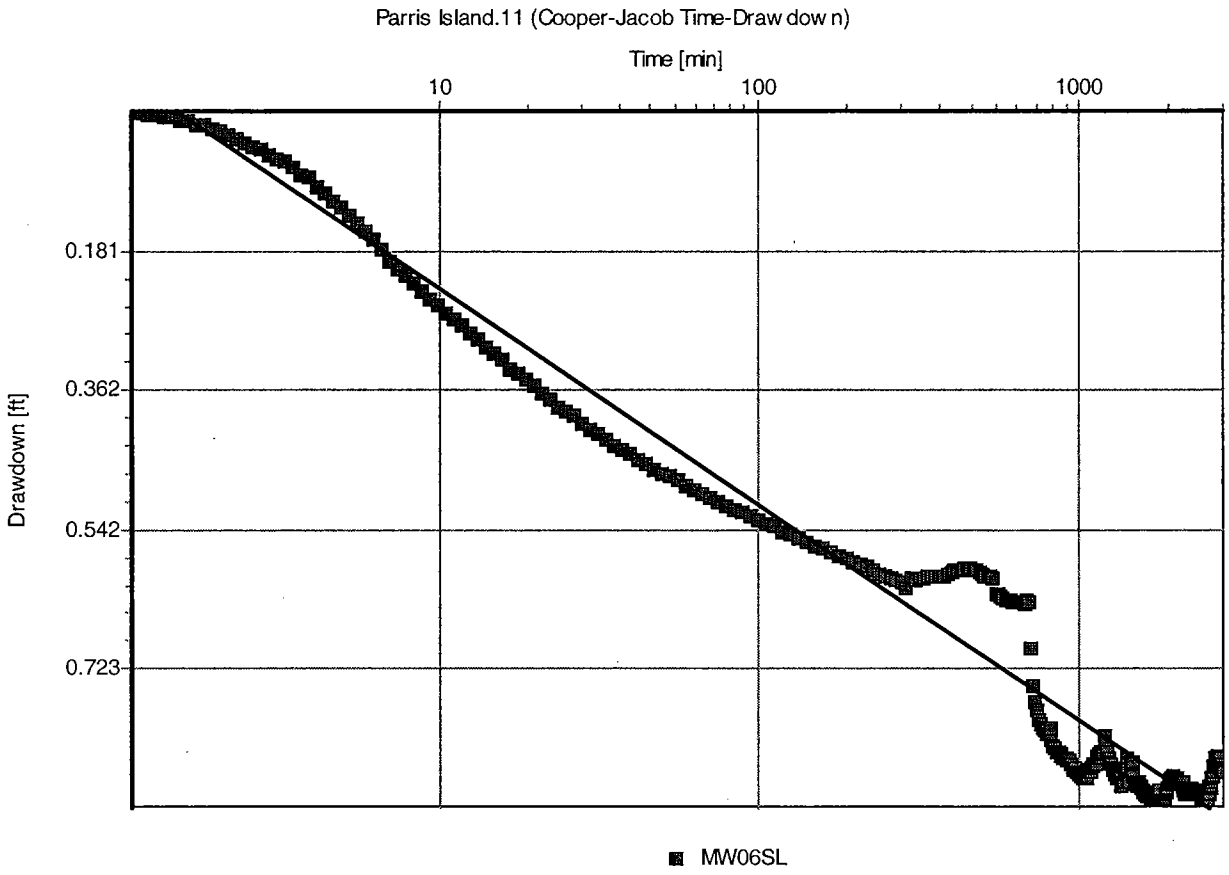
Evaluated by:

Date: 11/12/20

Waterloo Hydrogeologic, Inc.
180 Columbia St. Unit 1104
Waterloo, Ontario, Canada
Phone: +1 519 746 1798

Pumping Test Analysis Report

Project:	Parris Island.1
No:	CTO 127
Client:	Navy



Test name: **Parris Island.11**

Analysis method: **Cooper-Jacob Time-Drawdown**

Analysis results:	Transmissivity:	1.63E+2 [ft²/d]	Conductivity:	1.09E+1 [ft/d]
	Storativity:	1.97E-3		
Test parameters:	Pumping well:	RW3	Aquifer thickness:	15 [ft]
	Screen radius:	0.5 [ft]	Confined aquifer	
	Screen length:	12 [ft]		
	Casing radius:	0.25 [ft]		
	Discharge rate:	250 [ft³/d]		

Comments:

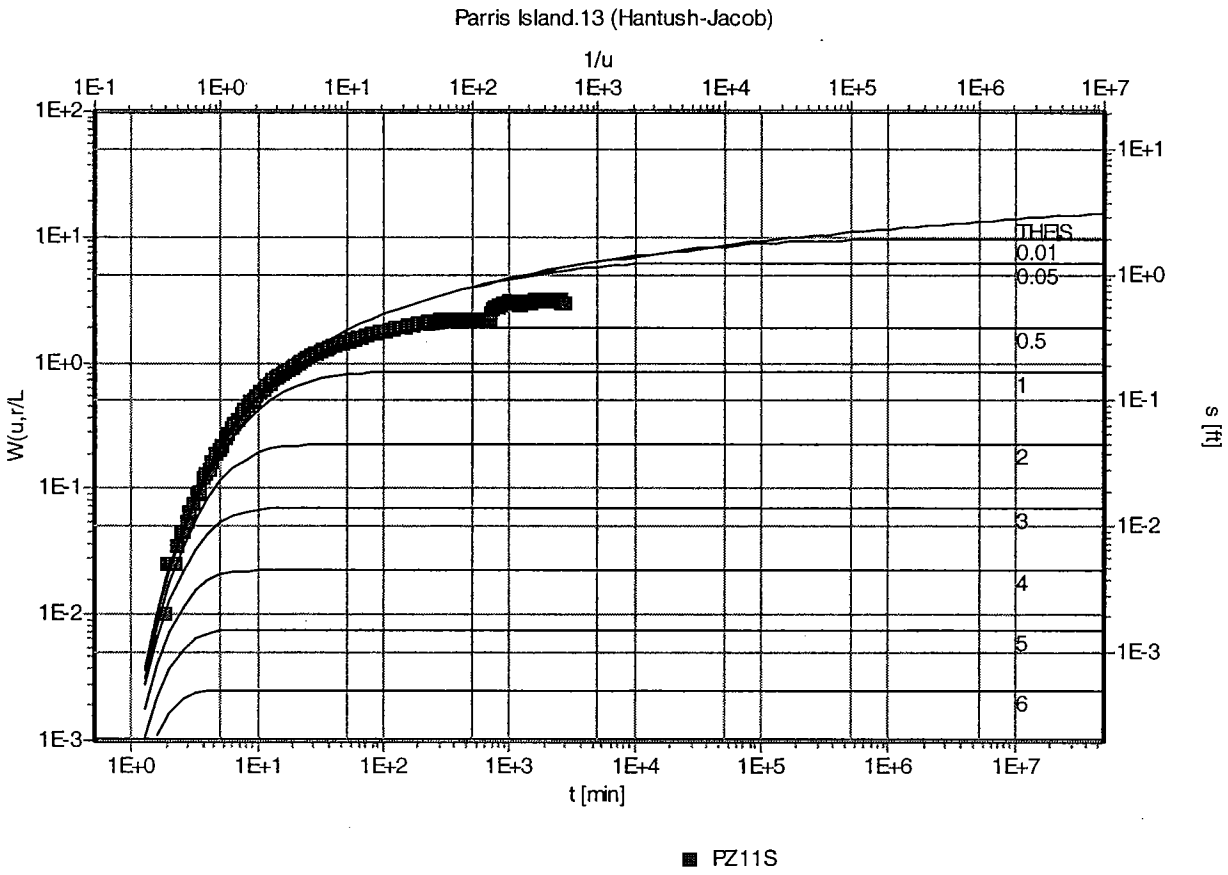
Evaluated by:

Date: 11/12/20

Waterloo Hydrogeologic, Inc.
180 Columbia St. Unit 1104
Waterloo, Ontario, Canada
Phone: +1 519 746 1798

Pumping Test Analysis Report

Project:	Parris Island.1
No:	CTO 127
Client:	Navy



Test name: **Parris Island.13**

Analysis method: **Hantush-Jacob**

Analysis results:	Transmissivity:	1.00E+2 [ft²/d]	Conductivity:	6.67E+0 [ft/d]
	Storativity:	1.81E-3	c:	1.13E+8 [min]

Test parameters:	Pumping well:	RW3	Aquifer thickness:	15 [ft]
	Screen radius:	0.5 [ft]	r/L:	0.01
	Screen length:	12 [ft]		
	Casing radius:	0.25 [ft]		
	Discharge rate:	250 [ft³/d]		

Comments:

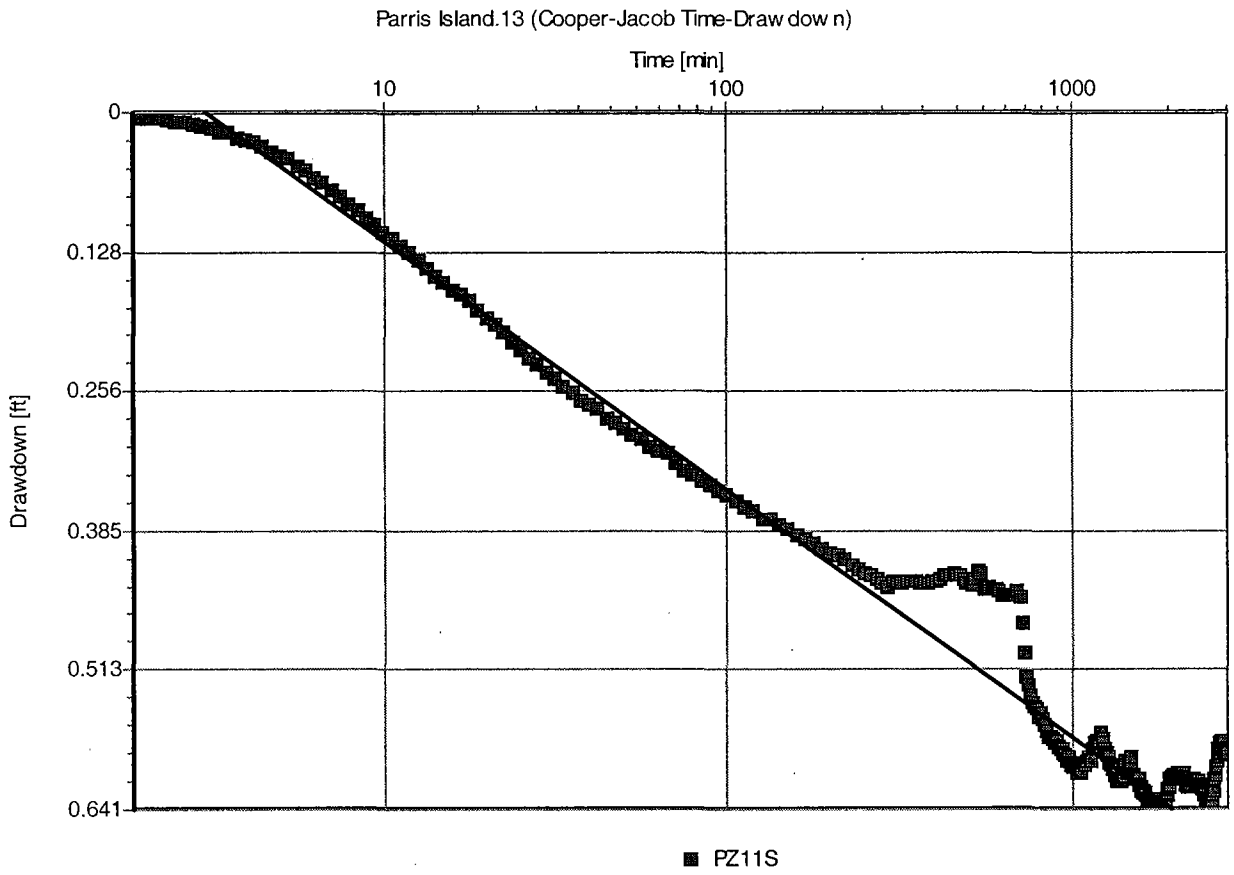
Evaluated by:

Date: 11/12/20

Waterloo Hydrogeologic, Inc.
180 Columbia St. Unit 1104
Waterloo, Ontario, Canada
Phone: +1 519 746 1798

Pumping Test Analysis Report

Project:	Parris Island.1
No:	CTO 127
Client:	Navy



Test name: **Parris Island.13**

Analysis method: **Cooper-Jacob Time-Drawdown**

Analysis results:	Transmissivity:	2.00E+2 [ft²/d]	Conductivity:	1.34E+1 [ft/d]
	Storativity:	1.20E-3		
Test parameters:	Pumping well:	RW3	Aquifer thickness:	15 [ft]
	Screen radius:	0.5 [ft]	Confined aquifer	
	Screen length:	12 [ft]		
	Casing radius:	0.25 [ft]		
	Discharge rate:	250 [ft³/d]		

Comments:

Evaluated by:

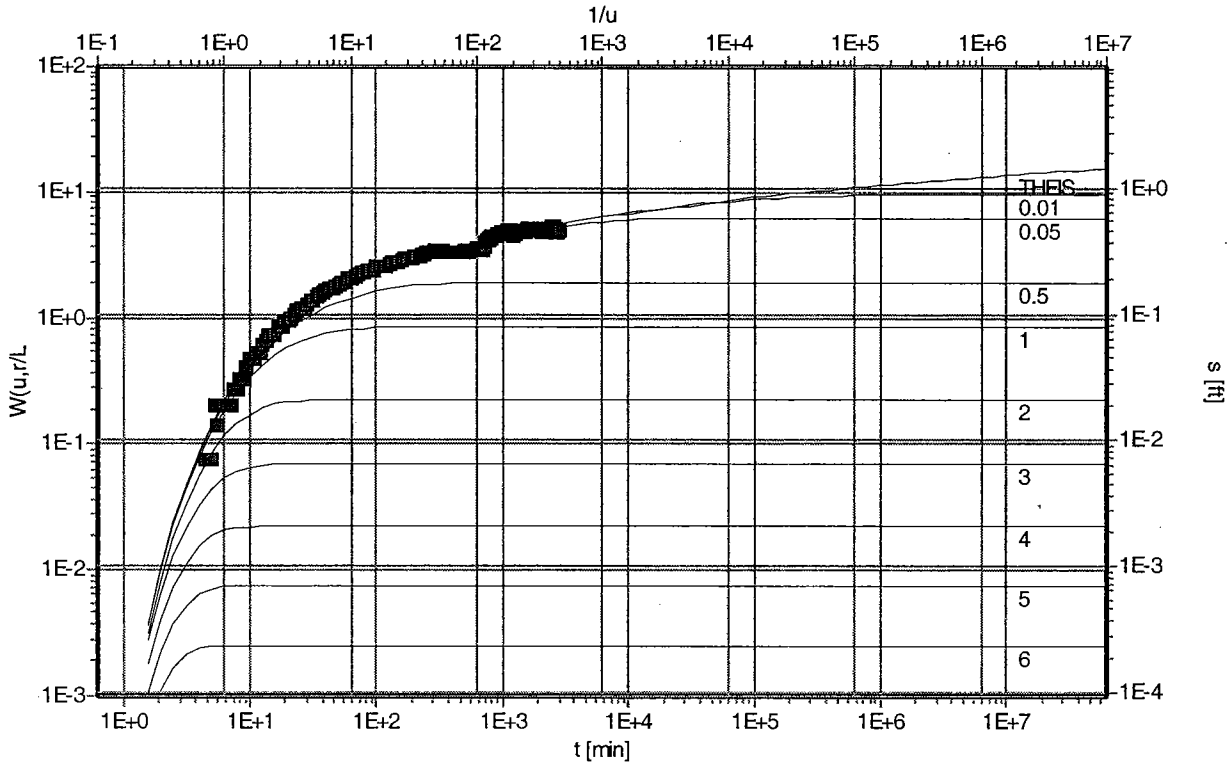
Date: 11/12/20

Waterloo Hydrogeologic, Inc.
180 Columbia St. Unit 1104
Waterloo, Ontario, Canada
Phone: +1 519 746 1798

Pumping Test Analysis Report

Project:	Parris Island.1
No:	CTO 127
Client:	Navy

Parris Island.12 (Hantush-Jacob)



■ ~~MW06SP~~
PZ 10S

Test name: **Parris Island.12**

Analysis method: **Hantush-Jacob**

Analysis results:	Transmissivity:	2.13E+2 [ft²/d]	Conductivity:	1.42E+1 [ft/d]
	Storativity:	1.64E-3	c:	1.52E+8 [min]
Test parameters:	Pumping well:	RW3	Aquifer thickness:	15 [ft]
	Screen radius:	0.5 [ft]	r/L:	0.01
	Screen length:	12 [ft]		
	Casing radius:	0.25 [ft]		
	Discharge rate:	250 [ft³/d]		

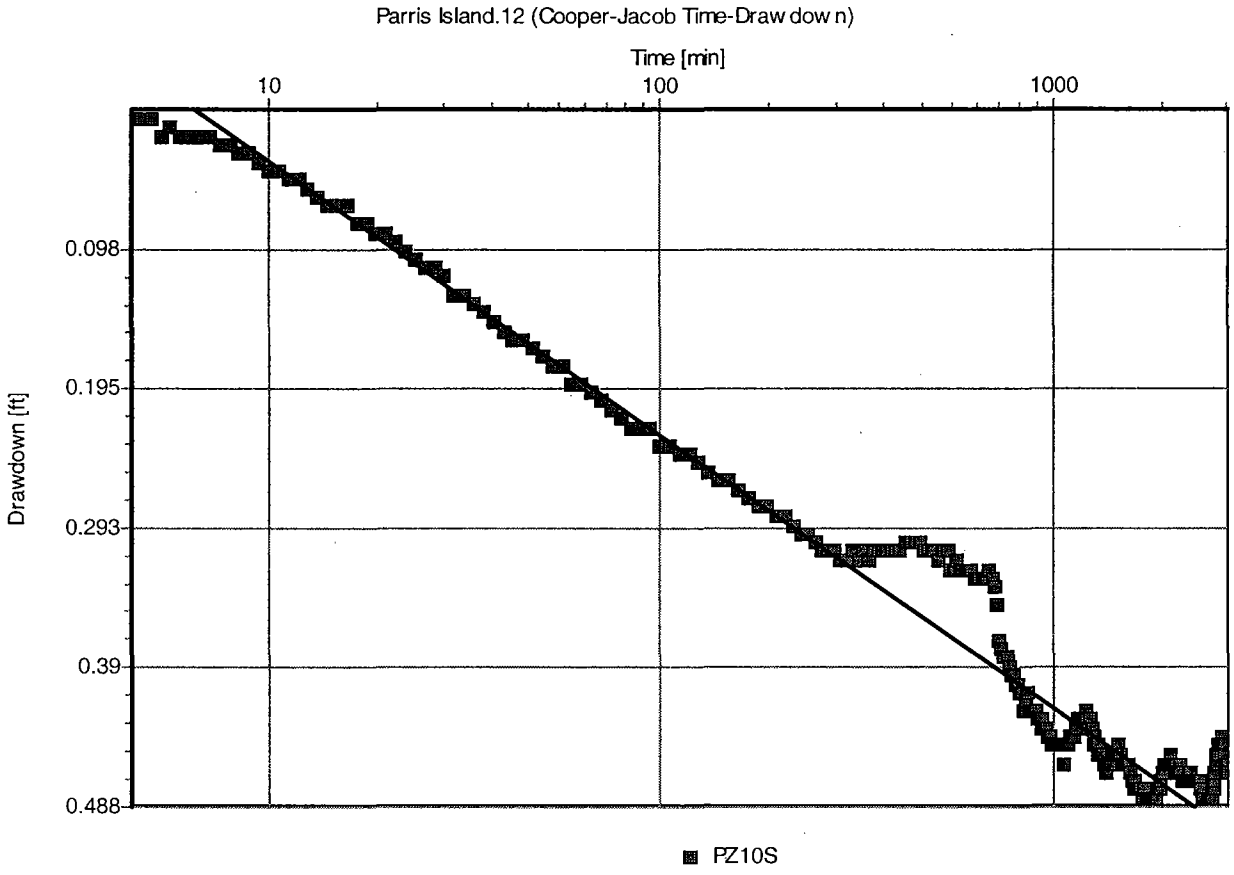
Comments:

Evaluated by:
Date: 11/12/20

Waterloo Hydrogeologic, Inc.
180 Columbia St. Unit 1104
Waterloo, Ontario, Canada
Phone: +1 519 746 1798

Pumping Test Analysis Report

Project:	Parris Island.1
No:	CTO 127
Client:	Navy



Test name: **Parris Island.12**

Analysis method: **Cooper-Jacob Time-Drawdown**

Analysis results:	Transmissivity:	2.40E+2 [ft²/d]	Conductivity:	1.60E+1 [ft/d]
	Storativity:	1.06E-3		
Test parameters:	Pumping well:	RW3	Aquifer thickness:	15 [ft]
	Screen radius:	0.5 [ft]	Confined aquifer	
	Screen length:	12 [ft]		
	Casing radius:	0.25 [ft]		
	Discharge rate:	250 [ft³/d]		

Comments:

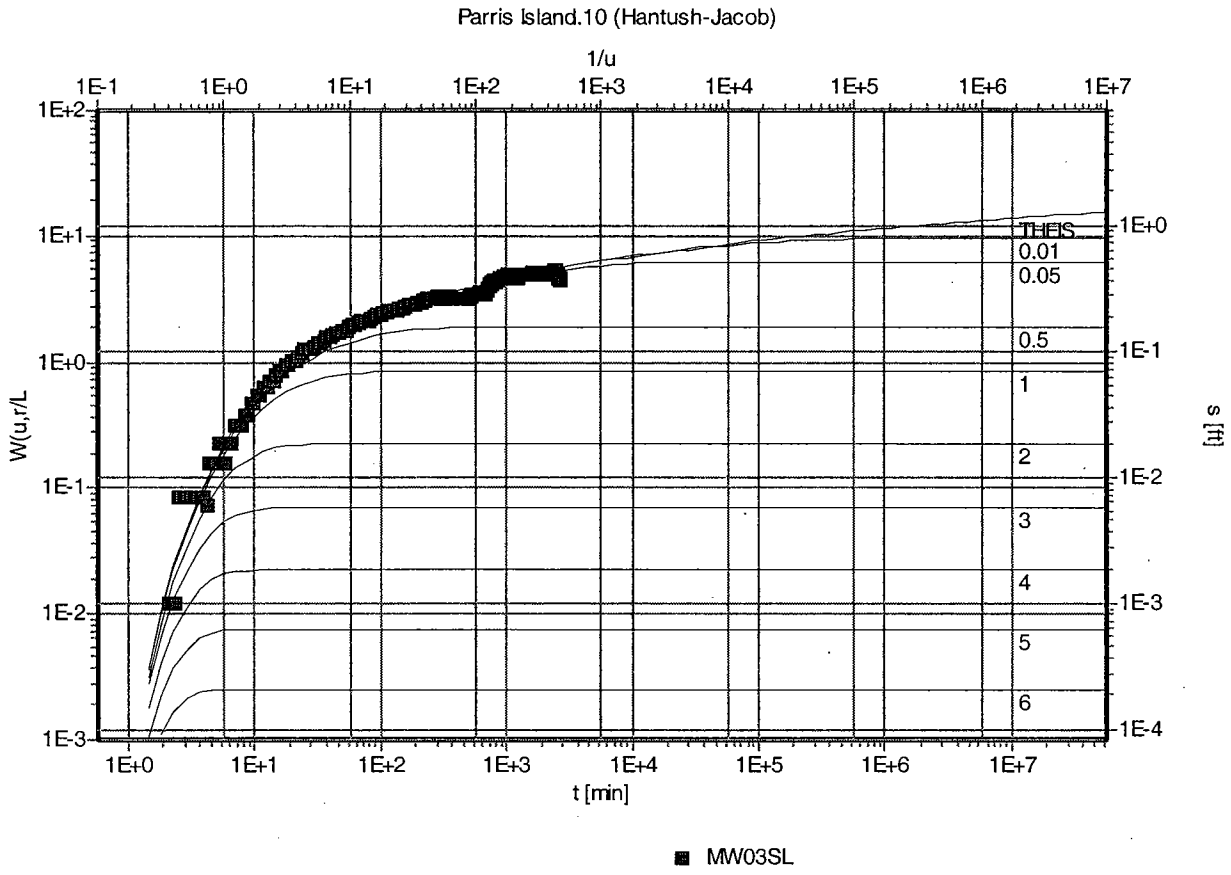
Evaluated by:

Date: 11/12/20

Waterloo Hydrogeologic, Inc.
180 Columbia St. Unit 1104
Waterloo, Ontario, Canada
Phone: +1 519 746 1798

Pumping Test Analysis Report

Project:	Parris Island.1
No:	CTO 127
Client:	Navy



Test name: **Parris Island.10**

Analysis method: **Hantush-Jacob**

Analysis results:	Transmissivity:	2.41E+2 [ft²/d]	Conductivity:	1.60E+1 [ft/d]
	Storativity:	1.14E-3	c:	2.01E+8 [min]
Test parameters:	Pumping well:	RW3	Aquifer thickness:	15 [ft]
	Screen radius:	0.5 [ft]	r/L:	0.01
	Screen length:	12 [ft]		
	Casing radius:	0.25 [ft]		
	Discharge rate:	250 [ft³/d]		

Comments:

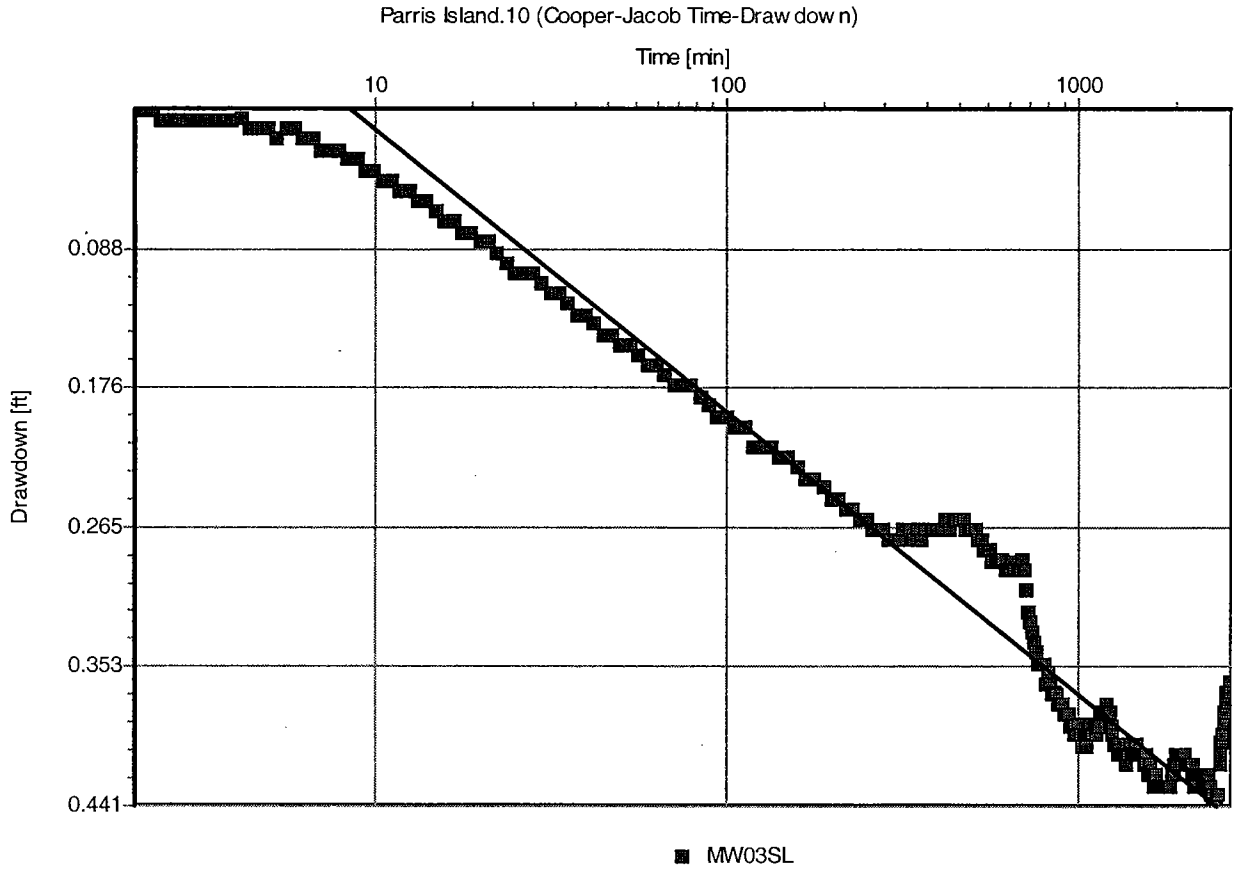
Evaluated by:

Date: 11/12/20

Waterloo Hydrogeologic, Inc.
180 Columbia St. Unit 1104
Waterloo, Ontario, Canada
Phone: +1 519 746 1798

Pumping Test Analysis Report

Project:	Parris Island.1
No:	CTO 127
Client:	Navy



Test name: **Parris Island.10**

Analysis method: **Cooper-Jacob Time-Drawdown**

Analysis results:	Transmissivity:	2.56E+2 [ft²/d]	Conductivity:	1.71E+1 [ft/d]
	Storativity:	1.00E-3		
Test parameters:	Pumping well:	RW3	Aquifer thickness:	15 [ft]
	Screen radius:	0.5 [ft]	Confined aquifer	
	Screen length:	12 [ft]		
	Casing radius:	0.25 [ft]		
	Discharge rate:	250 [ft³/d]		

Comments:

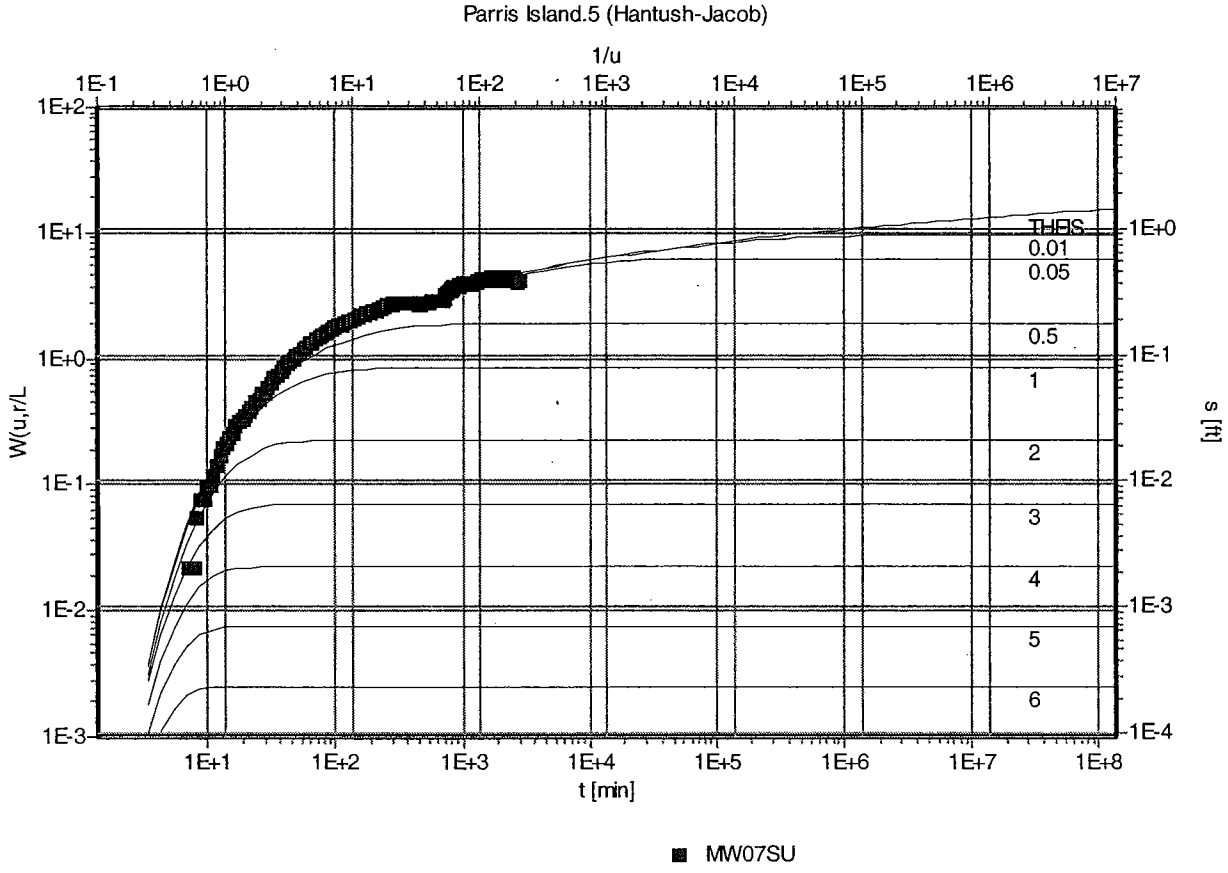
Evaluated by:

Date: 11/12/20

Waterloo Hydrogeologic, Inc.
180 Columbia St. Unit 1104
Waterloo, Ontario, Canada
Phone: +1 519 746 1798

Pumping Test Analysis Report

Project:	Parris Island.1
No:	CTO 127
Client:	Navy



Test name: **Parris Island.5**

Analysis method: **Hantush-Jacob**

Analysis results:				
	Transmissivity:	2.14E+2 [ft²/d]	Conductivity:	1.43E+1 [ft/d]
	Storativity:	2.06E-3	c:	2.67E+8 [min]

Test parameters:				
	Pumping well:	RW3	Aquifer thickness:	15 [ft]
	Screen radius:	0.5 [ft]	r/L:	0.01
	Screen length:	12 [ft]		
	Casing radius:	0.25 [ft]		
	Discharge rate:	250 [ft³/d]		

Comments:

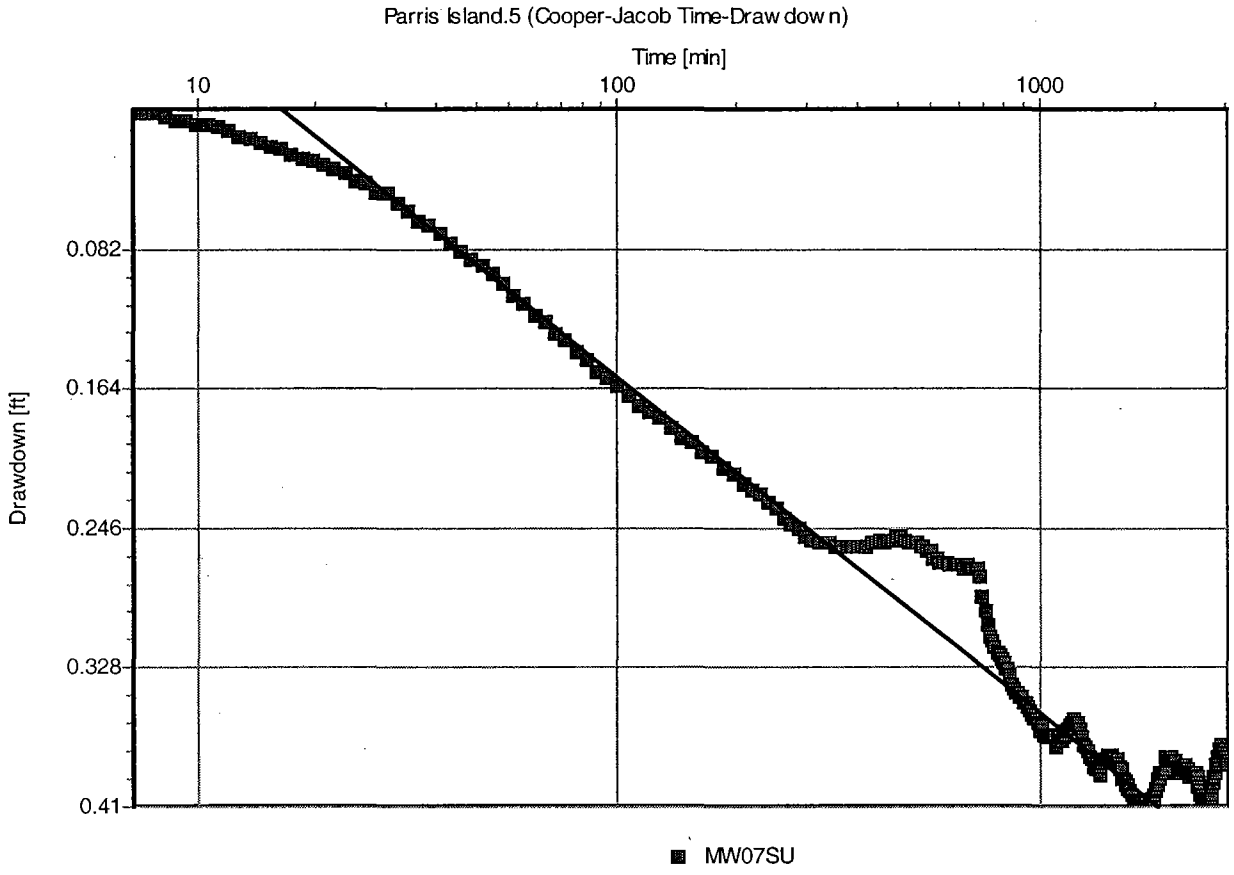
Evaluated by:

Date: 11/9/2001

Waterloo Hydrogeologic, Inc.
180 Columbia St. Unit 1104
Waterloo, Ontario, Canada
Phone: +1 519 746 1798

Pumping Test Analysis Report

Project:	Parris Island.1
No:	CTO 127
Client:	Navy



Test name: **Parris Island.5**

Analysis method: **Cooper-Jacob Time-Drawdown**

Analysis results:	Transmissivity:	2.33E+2 [ft²/d]	Conductivity:	1.55E+1 [ft/d]
	Storativity:	1.45E-3		
Test parameters:	Pumping well:	RW3	Aquifer thickness:	15 [ft]
	Screen radius:	0.5 [ft]	Confined aquifer	
	Screen length:	12 [ft]		
	Casing radius:	0.25 [ft]		
	Discharge rate:	250 [ft³/d]		

Comments:

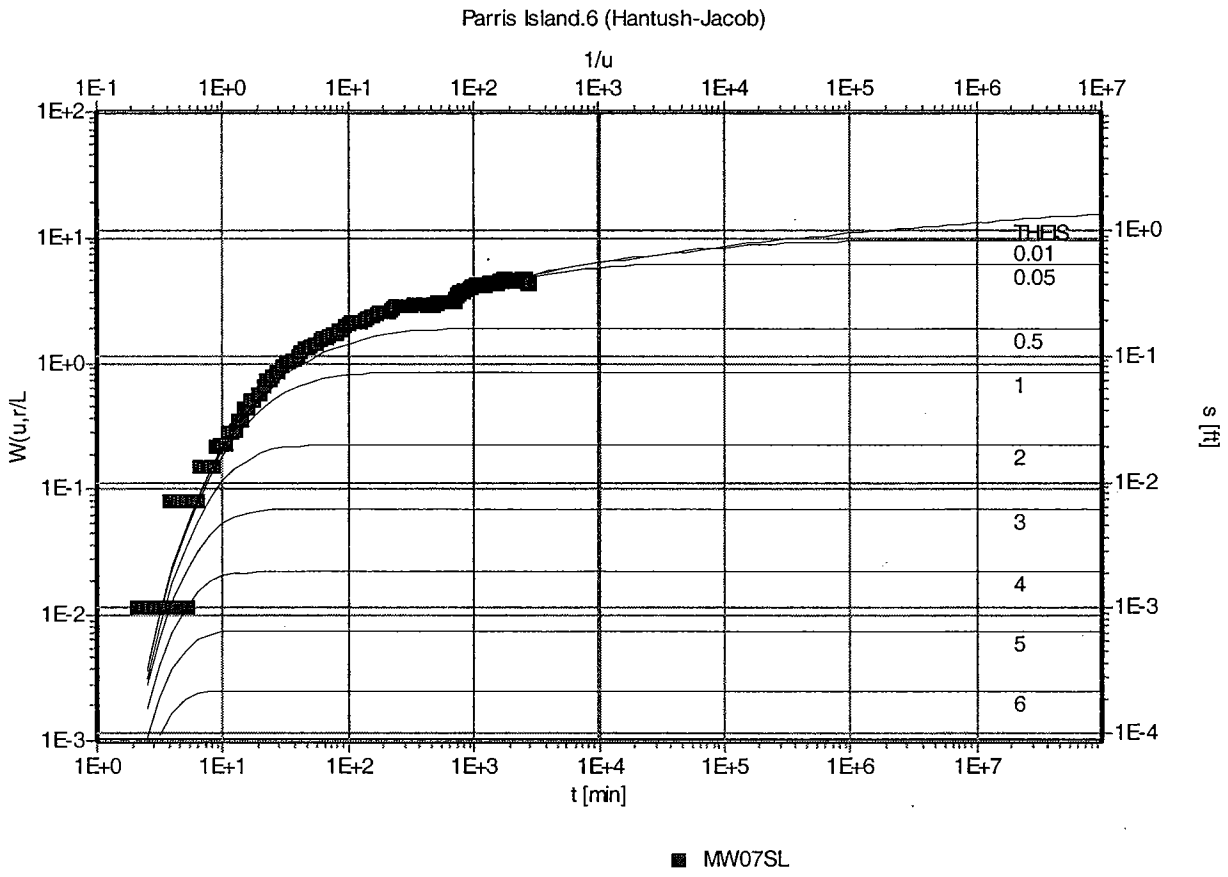
Evaluated by:

Date: 11/9/2001

Waterloo Hydrogeologic, Inc.
180 Columbia St. Unit 1104
Waterloo, Ontario, Canada
Phone: +1 519 746 1798

Pumping Test Analysis Report

Project:	Parris Island.1
No:	CTO 127
Client:	Navy



Test name: **Parris Island.6**

Analysis method: **Hantush-Jacob**

Analysis results:	Transmissivity:	2.28E+2 [ft²/d]	Conductivity:	1.52E+1 [ft/d]
	Storativity:	1.45E-3	c:	2.75E+8 [min]
Test parameters:	Pumping well:	RW3	Aquifer thickness:	15 [ft]
	Screen radius:	0.5 [ft]	r/L:	0.01
	Screen length:	12 [ft]		
	Casing radius:	0.25 [ft]		
	Discharge rate:	250 [ft³/d]		

Comments:

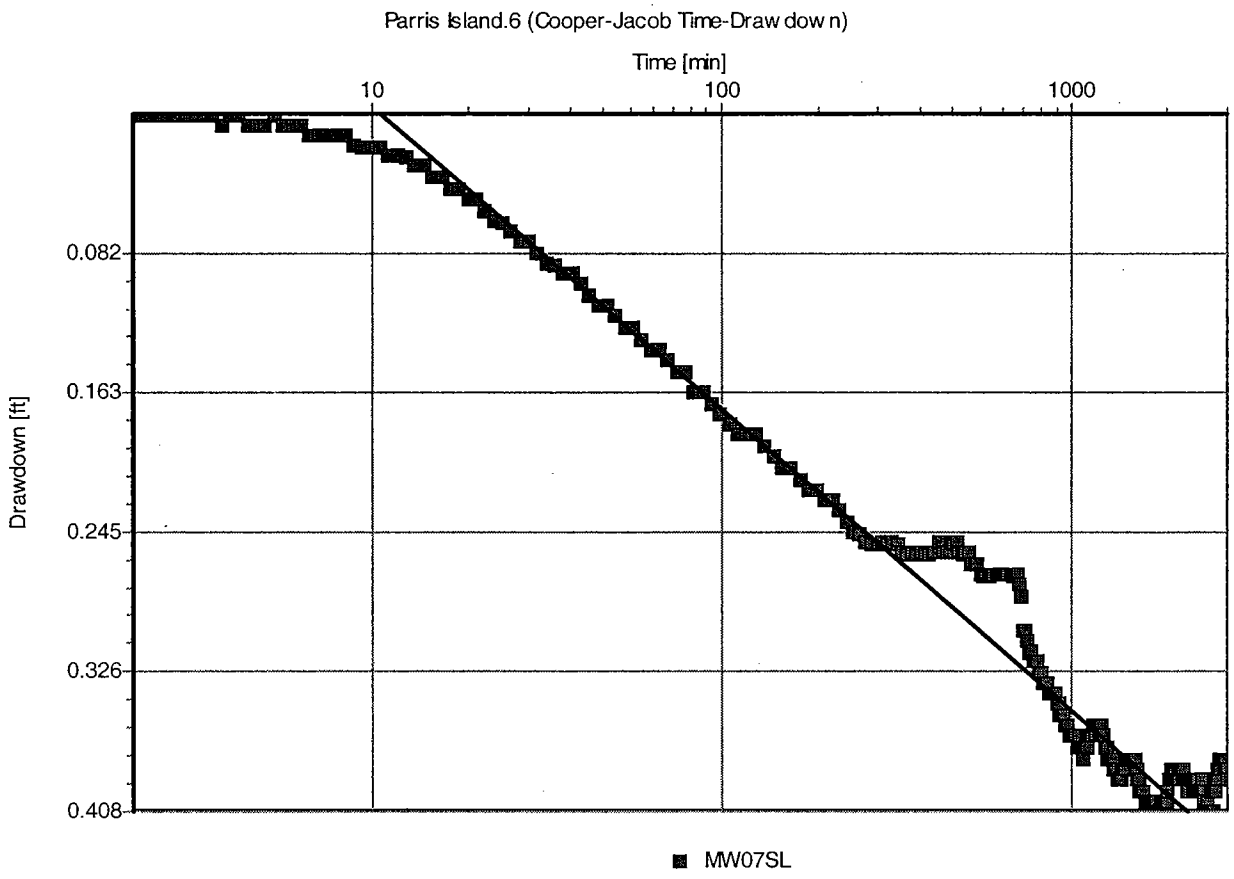
Evaluated by:

Date: 11/9/2001

Waterloo Hydrogeologic, Inc.
180 Columbia St. Unit 1104
Waterloo, Ontario, Canada
Phone: +1 519 746 1798

Pumping Test Analysis Report

Project:	Parris Island.1
No:	CTO 127
Client:	Navy



Test name: **Parris Island.6**

Analysis method: **Cooper-Jacob Time-Drawdown**

Analysis results:	Transmissivity:	2.59E+2 [ft²/d]	Conductivity:	1.73E+1 [ft/d]
	Storativity:	9.74E-4		
Test parameters:	Pumping well:	RW3	Aquifer thickness:	15 [ft]
	Screen radius:	0.5 [ft]	Confined aquifer	
	Screen length:	12 [ft]		
	Casing radius:	0.25 [ft]		
	Discharge rate:	250 [ft³/d]		

Comments:

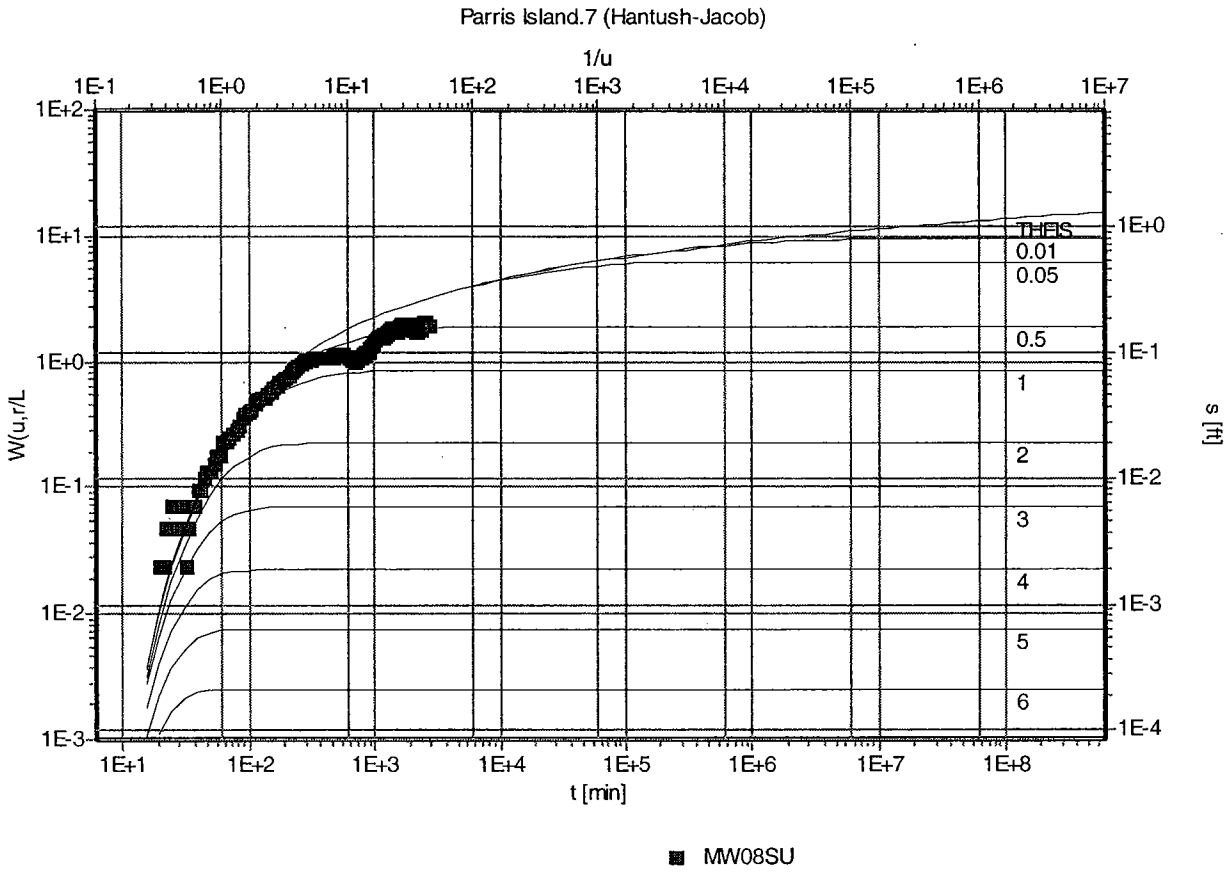
Evaluated by:

Date: 11/9/2001

Waterloo Hydrogeologic, Inc.
180 Columbia St. Unit 1104
Waterloo, Ontario, Canada
Phone: +1 519 746 1798

Pumping Test Analysis Report

Project:	Parris Island.1
No:	CTO 127
Client:	Navy



Test name: **Parris Island.7**

Analysis method: **Hantush-Jacob**

Analysis results:				
	Transmissivity:	2.35E+2 [ft²/d]	Conductivity:	1.56E+1 [ft/d]
	Storativity:	2.54E-3	c:	9.59E+8 [min]

Test parameters:				
	Pumping well:	RW3	Aquifer thickness:	15 [ft]
	Screen radius:	0.5 [ft]	r/L:	0.01
	Screen length:	12 [ft]		
	Casing radius:	0.25 [ft]		
	Discharge rate:	250 [ft³/d]		

Comments:

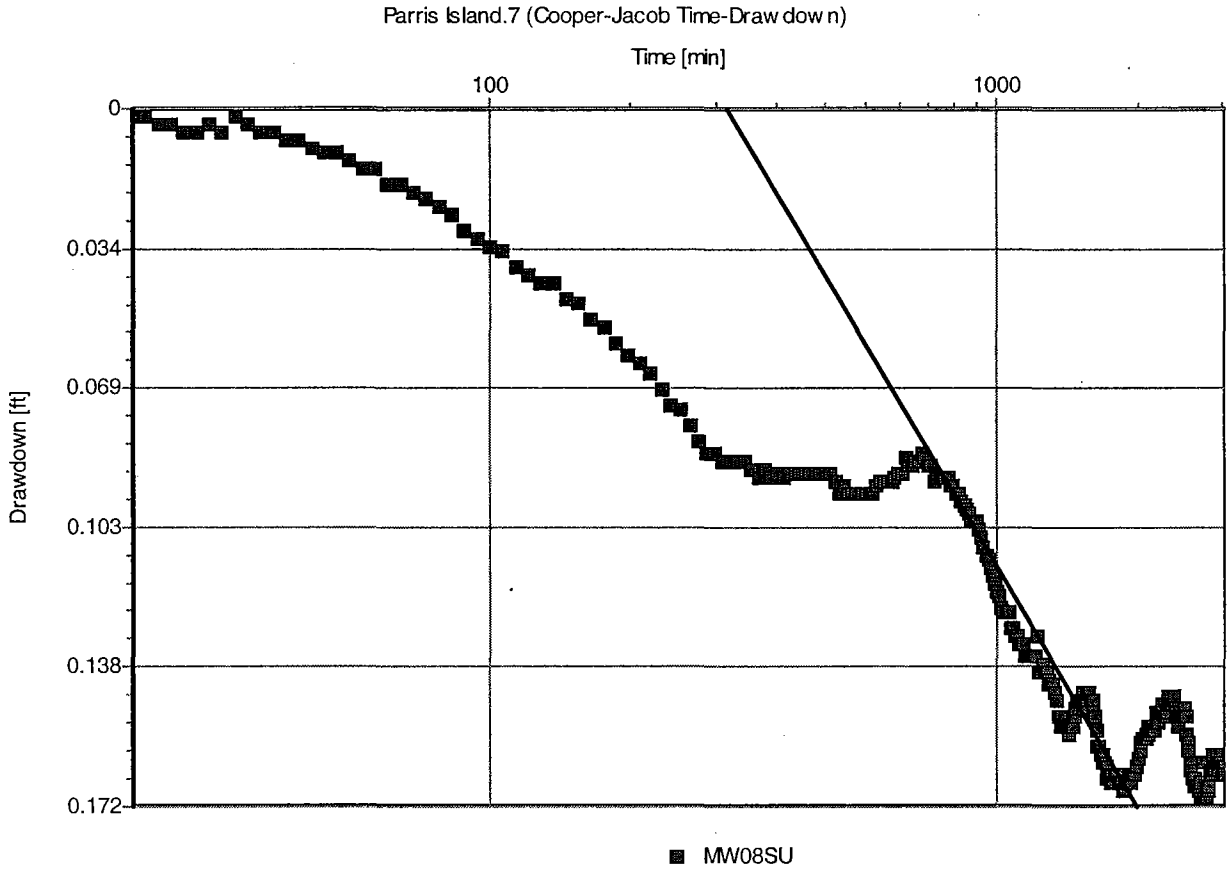
Evaluated by:

Date: 11/9/2001

Waterloo Hydrogeologic, Inc.
180 Columbia St. Unit 1104
Waterloo, Ontario, Canada
Phone: +1 519 746 1798

Pumping Test Analysis Report

Project:	Parris Island.1
No:	CTO 127
Client:	Navy



Test name: **Parris Island.7**

Analysis method: **Cooper-Jacob Time-Drawdown**

Analysis results:	Transmissivity:	2.14E+2 [ft²/d]	Conductivity:	1.43E+1 [ft/d]
	Storativity:	6.31E-3		
Test parameters:	Pumping well:	RW3	Aquifer thickness:	15 [ft]
	Screen radius:	0.5 [ft]	Confined aquifer	
	Screen length:	12 [ft]		
	Casing radius:	0.25 [ft]		
	Discharge rate:	250 [ft³/d]		

Comments:

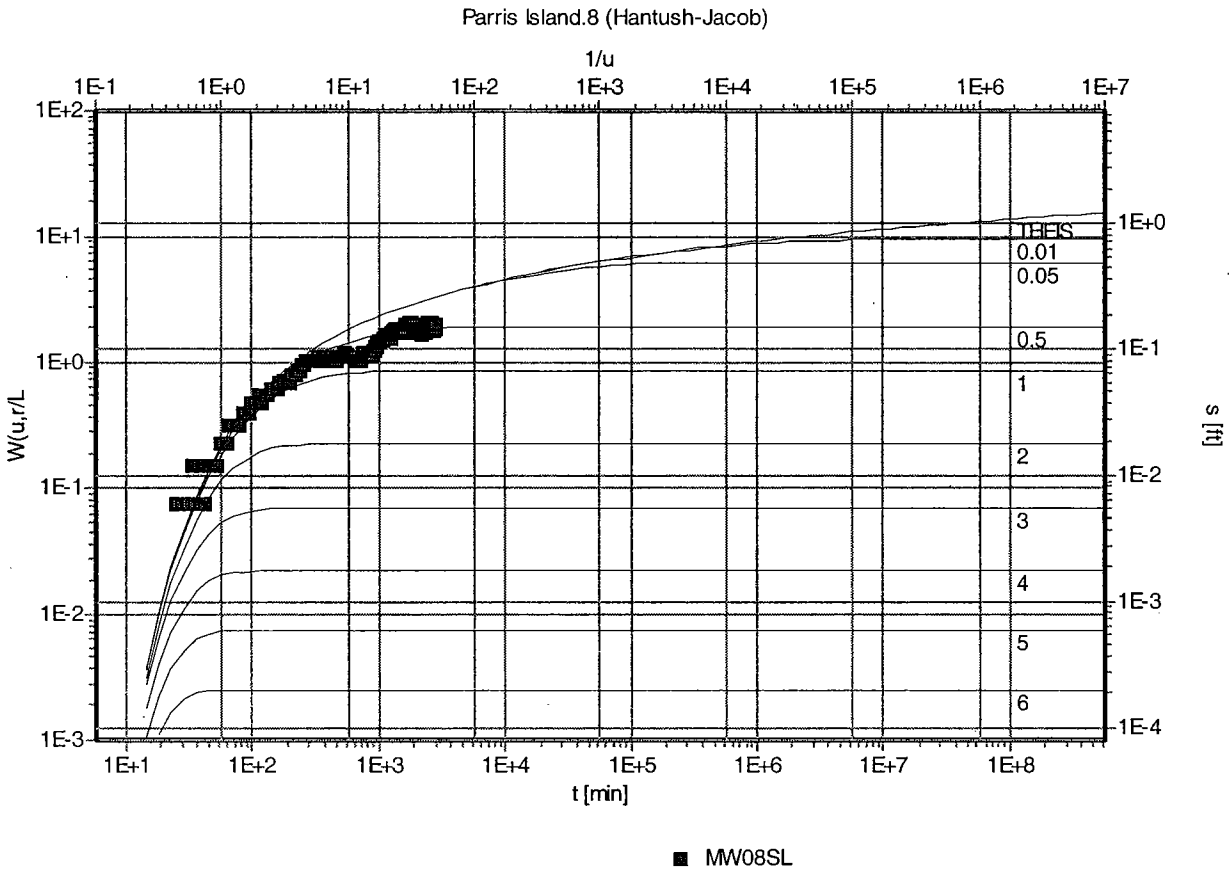
Evaluated by:

Date: 11/9/2001

Waterloo Hydrogeologic, Inc.
180 Columbia St. Unit 1104
Waterloo, Ontario, Canada
Phone: +1 519 746 1798

Pumping Test Analysis Report

Project:	Parris Island.1
No:	CTO 127
Client:	Navy



Test name: **Parris Island.8**

Analysis method: **Hantush-Jacob**

Analysis results:	Transmissivity:	2.51E+2 [ft²/d]	Conductivity:	1.68E+1 [ft/d]
	Storativity:	2.41E-3	c:	9.54E+8 [min]

Test parameters:	Pumping well:	RW3	Aquifer thickness:	15 [ft]
	Screen radius:	0.5 [ft]	r/L:	0.01
	Screen length:	12 [ft]		
	Casing radius:	0.25 [ft]		
	Discharge rate:	250 [ft³/d]		

Comments:

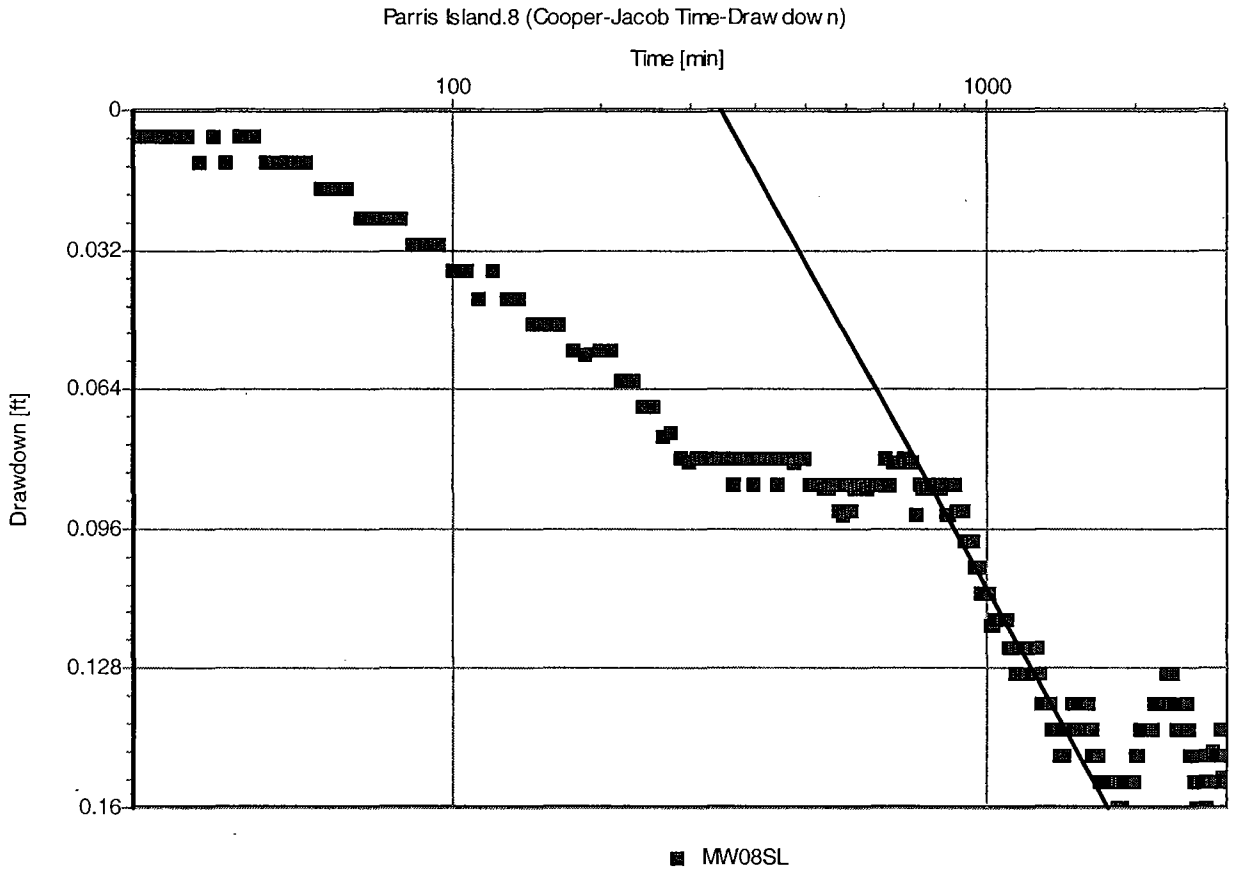
Evaluated by:

Date: 11/9/2001

Waterloo Hydrogeologic, Inc.
180 Columbia St. Unit 1104
Waterloo, Ontario, Canada
Phone: +1 519 746 1798

Pumping Test Analysis Report

Project:	Parris Island.1
No:	CTO 127
Client:	Navy



Test name: **Parris Island.8**

Analysis method: **Cooper-Jacob Time-Drawdown**

Analysis results:	Transmissivity:	2.06E+2 [ft²/d]	Conductivity:	1.38E+1 [ft/d]
	Storativity:	6.22E-3		
Test parameters:	Pumping well:	RW3	Aquifer thickness:	15 [ft]
	Screen radius:	0.5 [ft]	Confined aquifer	
	Screen length:	12 [ft]		
	Casing radius:	0.25 [ft]		
	Discharge rate:	250 [ft³/d]		

Comments:

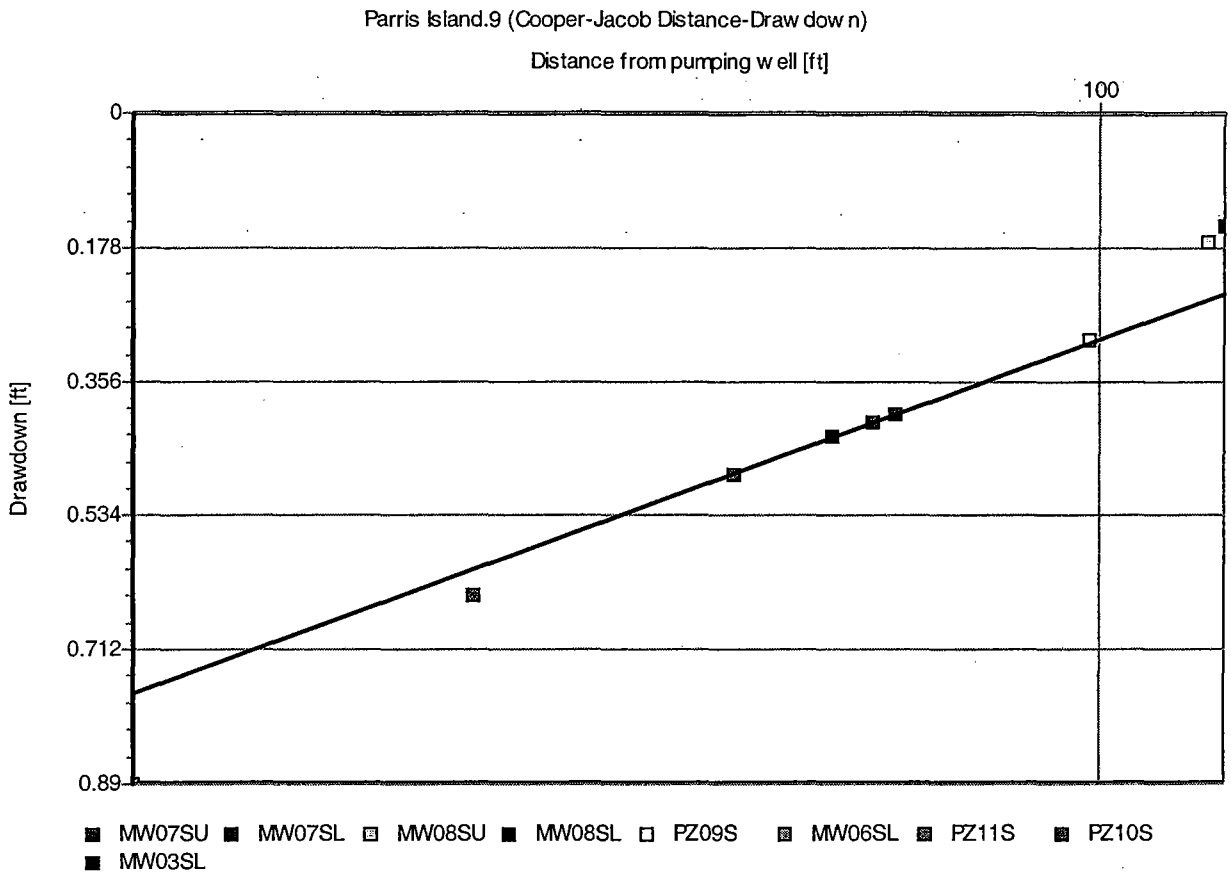
Evaluated by:

Date: 11/9/2001

Waterloo Hydrogeologic, Inc.
180 Columbia St. Unit 1104
Waterloo, Ontario, Canada
Phone: +1 519 746 1798

Pumping Test Analysis Report

Project:	Parris Island.1
No:	CTO 127
Client:	Navy



Test name: **Parris Island.9**

Analysis method: **Cooper-Jacob Distance-Drawdown**

Analysis results:	Transmissivity:	1.66E+2 [ft²/d]	Conductivity:	1.11E+1 [ft/d]
	Storativity:	3.71E-3		

Test parameters:	Pumping well:	RW3	Aquifer thickness:	15 [ft]
	Screen radius:	0.5 [ft]	Confined aquifer	
	Screen length:	12 [ft]		
	Casing radius:	0.25 [ft]		
	Discharge rate:	250 [ft³/d]		
	Calculation time:	1748 [min]		

Comments:

Evaluated by:

Date: 11/9/2001

Pumping Test Transducer Data

PZ10S-ST

In-Situ Inc. MiniTroll Pro

Report generated: 11/2/01 12:48:05
Report from file: C:\Win-Situ\Data\SN06338 2001-10-30 130000 PZ10S-ST.bin
DataMgr Version 3.69

Serial number: 6338
Firmware Version 3.01
Unit name: PZ10S-WL

Test name: PZ10S-ST

Test defined on: 10/30/01 12:20:28
Test scheduled for: 10/30/01 13:00:00
Test started on: 10/30/01 13:00:00
Test stopped on: 11/2/01 12:22:25
Test extracted on: N/A

Data gathered using Logarithmic testing
Maximum time between data points: 10.0000 Minutes.
Number of data samples: 561

TOTAL DATA SAMPLES 561

Channel number [1]
Measurement type: Temperature
Channel name: OnBoard Temp

Channel number [2]
Measurement type: Pressure
Channel name: OnBoard Pressure
Sensor Range: 100 PSI.
Specific gravity: 1
Mode: TOC
User-defined reference: 0 Feet H2O
Referenced on: test start
Pressure head at reference: 10.86 Feet H2O

Date	Time	Chan[1] ET (min)	Chan[2] Celsius	Feet H2O
10/30/01	13:00	0	24.21	0
10/30/01	13:00	0.005	24.22	-0.024
10/30/01	13:00	0.01	24.22	-0.037
10/30/01	13:00	0.015	24.23	-0.036
10/30/01	13:00	0.02	24.23	-0.042
10/30/01	13:00	0.025	24.23	-0.049
10/30/01	13:00	0.03	24.23	-0.049
10/30/01	13:00	0.035	24.23	-0.049
10/30/01	13:00	0.04	24.23	-0.049
10/30/01	13:00	0.045	24.23	-0.049
10/30/01	13:00	0.05	24.23	-0.049
10/30/01	13:00	0.055	24.23	-0.049
10/30/01	13:00	0.06	24.23	-0.055
10/30/01	13:00	0.065	24.25	-0.048
10/30/01	13:00	0.07	24.25	-0.048
10/30/01	13:00	0.075	24.25	-0.054
10/30/01	13:00	0.08	24.25	-0.048
10/30/01	13:00	0.0848	24.25	-0.048
10/30/01	13:00	0.09	24.25	-0.048
10/30/01	13:00	0.095	24.25	-0.054

PZ10S-ST

10/30/01 13:00	0.1	24.25	-0.054
10/30/01 13:00	0.1058	24.25	-0.048
10/30/01 13:00	0.112	24.25	-0.048
10/30/01 13:00	0.1185	24.25	-0.048
10/30/01 13:00	0.1255	24.25	-0.054
10/30/01 13:00	0.1328	24.25	-0.054
10/30/01 13:00	0.1407	24.25	-0.054
10/30/01 13:00	0.149	24.25	-0.054
10/30/01 13:00	0.1578	24.26	-0.054
10/30/01 13:00	0.167	24.25	-0.03
10/30/01 13:00	0.177	24.25	-0.023
10/30/01 13:00	0.1875	24.25	-0.023
10/30/01 13:00	0.1985	24.25	-0.023
10/30/01 13:00	0.2102	24.25	-0.017
10/30/01 13:00	0.2227	24.25	-0.017
10/30/01 13:00	0.2358	24.25	-0.017
10/30/01 13:00	0.2498	24.25	-0.017
10/30/01 13:00	0.2647	24.25	-0.017
10/30/01 13:00	0.2803	24.25	-0.017
10/30/01 13:00	0.297	24.25	-0.011
10/30/01 13:00	0.3147	24.25	-0.011
10/30/01 13:00	0.3333	24.25	-0.011
10/30/01 13:00	0.3532	24.25	-0.011
10/30/01 13:00	0.3742	24.25	-0.011
10/30/01 13:00	0.3963	24.25	-0.011
10/30/01 13:00	0.4198	24.25	-0.011
10/30/01 13:00	0.4447	24.25	-0.005
10/30/01 13:00	0.4697	24.25	-0.005
10/30/01 13:00	0.4963	24.25	-0.005
10/30/01 13:00	0.5247	24.25	-0.005
10/30/01 13:00	0.5547	24.25	-0.005
10/30/01 13:00	0.5863	24.25	-0.005
10/30/01 13:00	0.6213	24.25	-0.011
10/30/01 13:00	0.6578	24.25	0.001
10/30/01 13:00	0.6963	24.25	-0.005
10/30/01 13:00	0.738	24.25	-0.005
10/30/01 13:00	0.7813	24.25	-0.005
10/30/01 13:00	0.828	24.23	-0.005
10/30/01 13:00	0.8763	24.23	-0.005
10/30/01 13:00	0.928	24.23	-0.005
10/30/01 13:00	0.983	24.23	-0.005
10/30/01 13:01	1.0413	24.23	-0.005
10/30/01 13:01	1.103	24.23	0.001
10/30/01 13:01	1.168	24.23	-0.005
10/30/01 13:01	1.238	24.23	-0.005
10/30/01 13:01	1.3113	24.23	-0.005
10/30/01 13:01	1.3897	24.23	-0.005
10/30/01 13:01	1.473	24.23	-0.005
10/30/01 13:01	1.5613	24.23	0.001
10/30/01 13:01	1.6547	24.23	-0.005
10/30/01 13:01	1.753	24.23	0.001
10/30/01 13:01	1.858	24.23	0.001
10/30/01 13:01	1.968	24.22	0
10/30/01 13:02	2.0847	24.22	-0.006
10/30/01 13:02	2.2097	24.22	0
10/30/01 13:02	2.3412	24.22	0
10/30/01 13:02	2.4813	24.22	0
10/30/01 13:02	2.6297	24.22	0
10/30/01 13:02	2.7863	24.22	0
10/30/01 13:02	2.953	24.22	0
10/30/01 13:03	3.1297	24.22	0
10/30/01 13:03	3.3163	24.22	0
10/30/01 13:03	3.5147	24.22	0.007

10/30/01 13:03	3.7247	24.22	0.007	
10/30/01 13:03	3.9463	24.22	0.007	
10/30/01 13:04	4.1813	24.22	0.007	
10/30/01 13:04	4.4295	24.22	0.007	
10/30/01 13:04	4.693	24.22	0.007	
10/30/01 13:04	4.973	24.22	0.007	
10/30/01 13:05	5.2697	24.22	0.019	
10/30/01 13:05	5.583	24.22	0.013	
10/30/01 13:05	5.9147	24.22	0.019	
10/30/01 13:06	6.2663	24.22	0.019	
10/30/01 13:06	6.6397	24.21	0.019	
10/30/01 13:07	7.0347	24.21	0.019	
10/30/01 13:07	7.453	24.21	0.025	
10/30/01 13:07	7.8963	24.21	0.025	
10/30/01 13:08	8.3663	24.21	0.031	
10/30/01 13:08	8.8647	24.21	0.031	
10/30/01 13:09	9.3913	24.22	0.038	
10/30/01 13:09	9.9497	24.22	0.044	
10/30/01 13:10	10.5413	24.22	0.044	
10/30/01 13:11	11.168	24.21	0.049	
10/30/01 13:11	11.8313	24.21	0.049	
10/30/01 13:12	12.5347	24.22	0.056	
10/30/01 13:13	13.2797	24.21	0.062	
10/30/01 13:14	14.0697	24.21	0.068	
10/30/01 13:14	14.9063	24.21	0.068	
10/30/01 13:15	15.7913	24.21	0.068	
10/30/01 13:16	16.7297	24.21	0.08	
10/30/01 13:17	17.723	24.21	0.08	
10/30/01 13:18	18.7763	24.21	0.087	
10/30/01 13:19	19.8913	24.21	0.087	
10/30/01 13:21	21.073	24.21	0.093	
10/30/01 13:22	22.3247	24.21	0.099	
10/30/01 13:23	23.6497	24.21	0.105	
10/30/01 13:25	25.0547	24.21	0.111	
10/30/01 13:26	26.543	24.21	0.111	
10/30/01 13:28	28.118	24.21	0.117	
10/30/01 13:29	29.7863	24.21	0.13	
10/30/01 13:31	31.5547	24.21	0.13	
10/30/01 13:33	33.428	24.21	0.136	
10/30/01 13:35	35.4112	24.21	0.142	
10/30/01 13:37	37.513	24.21	0.148	
10/30/01 13:39	39.7397	24.22	0.155	
10/30/01 13:42	42.098	24.21	0.161	
10/30/01 13:44	44.5963	24.21	0.161	
10/30/01 13:47	47.243	24.21	0.167	
10/30/01 13:50	50.0463	24.21	0.173	
10/30/01 13:53	53.0147	24.21	0.179	
10/30/01 13:56	56.1597	24.21	0.179	
10/30/01 13:59	59.4913	24.21	0.192	
10/30/01 14:03	63.0197	24.21	0.192	
10/30/01 14:06	66.758	24.21	0.198	
10/30/01 14:10	70.718	24.21	0.204	
10/30/01 14:14	74.9113	24.21	0.21	
10/30/01 14:19	79.3547	24.21	0.216	
10/30/01 14:24	84.0613	24.21	0.223	
10/30/01 14:29	89.0463	24.22	0.223	
10/30/01 14:34	94.3263	24.21	0.223	
10/30/01 14:39	99.9197	24.21	0.235	
10/30/01 14:45	105.8447		24.21	0.235
10/30/01 14:52	112.1197		24.21	0.241
10/30/01 14:58	118.768	24.21	0.241	
10/30/01 15:05	125.8097		24.21	0.247
10/30/01 15:13	133.268	24.21	0.254	

10/30/01 15:21	141.168 24.21	0.26	
10/30/01 15:29	149.5363	24.21	0.26
10/30/01 15:38	158.4013	24.21	0.266
10/30/01 15:47	167.7913	24.21	0.272
10/30/01 15:57	177.738 24.21	0.278	
10/30/01 16:08	188.2747	24.21	0.278
10/30/01 16:18	198.2747	24.21	0.284
10/30/01 16:28	208.2747	24.21	0.284
10/30/01 16:38	218.2747	24.22	0.291
10/30/01 16:48	228.2747	24.21	0.297
10/30/01 16:58	238.2747	24.21	0.297
10/30/01 17:08	248.2747	24.21	0.303
10/30/01 17:18	258.2747	24.21	0.309
10/30/01 17:28	268.2747	24.21	0.309
10/30/01 17:38	278.2747	24.21	0.309
10/30/01 17:48	288.2747	24.21	0.315
10/30/01 17:58	298.2747	24.21	0.315
10/30/01 18:08	308.2747	24.21	0.309
10/30/01 18:18	318.2747	24.21	0.315
10/30/01 18:28	328.2747	24.21	0.309
10/30/01 18:38	338.2747	24.21	0.315
10/30/01 18:48	348.2747	24.21	0.309
10/30/01 18:58	358.2747	24.21	0.309
10/30/01 19:08	368.2747	24.21	0.309
10/30/01 19:18	378.2747	24.21	0.309
10/30/01 19:28	388.2747	24.21	0.309
10/30/01 19:38	398.2747	24.21	0.309
10/30/01 19:48	408.2747	24.21	0.309
10/30/01 19:58	418.2747	24.21	0.303
10/30/01 20:08	428.2747	24.21	0.303
10/30/01 20:18	438.2747	24.21	0.303
10/30/01 20:28	448.2747	24.21	0.303
10/30/01 20:38	458.2747	24.21	0.303
10/30/01 20:48	468.2747	24.21	0.309
10/30/01 20:58	478.2747	24.21	0.309
10/30/01 21:08	488.2747	24.21	0.309
10/30/01 21:18	498.2747	24.21	0.309
10/30/01 21:28	508.2747	24.21	0.315
10/30/01 21:38	518.2747	24.21	0.309
10/30/01 21:48	528.2747	24.21	0.309
10/30/01 21:58	538.2747	24.21	0.309
10/30/01 22:08	548.2747	24.21	0.322
10/30/01 22:18	558.2747	24.21	0.322
10/30/01 22:28	568.2747	24.21	0.315
10/30/01 22:38	578.2747	24.21	0.322
10/30/01 22:48	588.2747	24.21	0.322
10/30/01 22:58	598.2747	24.21	0.322
10/30/01 23:08	608.2747	24.21	0.322
10/30/01 23:18	618.2747	24.21	0.322
10/30/01 23:28	628.2747	24.21	0.328
10/30/01 23:38	638.2747	24.21	0.328
10/30/01 23:48	648.2747	24.21	0.328
10/30/01 23:58	658.2747	24.21	0.328
10/31/01 0:08	668.2747	24.21	0.328
10/31/01 0:18	678.2747	24.21	0.328
10/31/01 0:28	688.2747	24.21	0.322
10/31/01 0:38	698.2747	24.21	0.328
10/31/01 0:48	708.2747	24.21	0.334
10/31/01 0:58	718.2747	24.21	0.346
10/31/01 1:08	728.2747	24.21	0.371
10/31/01 1:18	738.2747	24.21	0.377
10/31/01 1:28	748.2747	24.21	0.383
10/31/01 1:38	758.2747	24.21	0.383

		PZ10S-ST	
10/31/01 1:48	768.2747	24.21	0.39
10/31/01 1:58	778.2747	24.21	0.396
10/31/01 2:08	788.2747	24.21	0.396
10/31/01 2:18	798.2747	24.21	0.402
10/31/01 2:28	808.2747	24.21	0.402
10/31/01 2:38	818.2747	24.21	0.408
10/31/01 2:48	828.2747	24.21	0.408
10/31/01 2:58	838.2747	24.21	0.42
10/31/01 3:08	848.2747	24.21	0.414
10/31/01 3:18	858.2747	24.21	0.408
10/31/01 3:28	868.2747	24.21	0.42
10/31/01 3:38	878.2747	24.21	0.42
10/31/01 3:48	888.2747	24.21	0.42
10/31/01 3:58	898.2747	24.21	0.42
10/31/01 4:08	908.2747	24.21	0.427
10/31/01 4:18	918.2747	24.21	0.427
10/31/01 4:28	928.2747	24.21	0.427
10/31/01 4:38	938.2747	24.21	0.433
10/31/01 4:48	948.2747	24.21	0.433
10/31/01 4:58	958.2747	24.21	0.433
10/31/01 5:08	968.2747	24.21	0.439
10/31/01 5:18	978.2747	24.21	0.439
10/31/01 5:28	988.2747	24.21	0.445
10/31/01 5:38	998.2747	24.21	0.445
10/31/01 5:48	1008.2747	24.21	0.445
10/31/01 5:58	1018.2747	24.21	0.445
10/31/01 6:08	1028.2747	24.21	0.445
10/31/01 6:18	1038.2747	24.21	0.445
10/31/01 6:28	1048.2747	24.21	0.445
10/31/01 6:38	1058.2747	24.21	0.445
10/31/01 6:48	1068.2747	24.21	0.458
10/31/01 6:58	1078.2747	24.21	0.445
10/31/01 7:08	1088.2747	24.21	0.445
10/31/01 7:18	1098.2747	24.21	0.439
10/31/01 7:28	1108.2747	24.21	0.439
10/31/01 7:38	1118.2747	24.21	0.439
10/31/01 7:48	1128.2747	24.21	0.439
10/31/01 7:58	1138.2747	24.21	0.433
10/31/01 8:08	1148.2747	24.21	0.433
10/31/01 8:18	1158.2747	24.21	0.427
10/31/01 8:28	1168.2747	24.21	0.427
10/31/01 8:38	1178.2747	24.21	0.427
10/31/01 8:48	1188.2747	24.21	0.427
10/31/01 8:58	1198.2747	24.21	0.427
10/31/01 9:08	1208.2747	24.21	0.42
10/31/01 9:18	1218.2747	24.21	0.427
10/31/01 9:28	1228.2747	24.21	0.433
10/31/01 9:38	1238.2747	24.21	0.427
10/31/01 9:48	1248.2747	24.21	0.433
10/31/01 9:58	1258.2747	24.21	0.433
10/31/01 10:08	1268.2747	24.21	0.439
10/31/01 10:18	1278.2747	24.21	0.445
10/31/01 10:28	1288.2747	24.21	0.445
10/31/01 10:38	1298.2747	24.21	0.451
10/31/01 10:48	1308.2747	24.21	0.445
10/31/01 10:58	1318.2747	24.21	0.451
10/31/01 11:08	1328.2747	24.21	0.451
10/31/01 11:18	1338.2747	24.21	0.451
10/31/01 11:28	1348.2747	24.21	0.458
10/31/01 11:38	1358.2747	24.21	0.458
10/31/01 11:48	1368.2747	24.21	0.464
10/31/01 11:58	1378.2747	24.21	0.458
10/31/01 12:08	1388.2747	24.21	0.458

		PZ10S-ST	
10/31/01 12:18	1398.2747	24.21	0.458
10/31/01 12:28	1408.2747	24.21	0.451
10/31/01 12:38	1418.2747	24.21	0.451
10/31/01 12:48	1428.2747	24.21	0.451
10/31/01 12:58	1438.2747	24.21	0.451
10/31/01 13:08	1448.2747	24.21	0.451
10/31/01 13:18	1458.2747	24.21	0.451
10/31/01 13:28	1468.2747	24.21	0.445
10/31/01 13:38	1478.2747	24.21	0.451
10/31/01 13:48	1488.2747	24.21	0.451
10/31/01 13:58	1498.2747	24.21	0.458
10/31/01 14:08	1508.2747	24.21	0.458
10/31/01 14:18	1518.2747	24.21	0.458
10/31/01 14:28	1528.2747	24.21	0.458
10/31/01 14:38	1538.2747	24.21	0.458
10/31/01 14:48	1548.2747	24.21	0.458
10/31/01 14:58	1558.2747	24.21	0.458
10/31/01 15:08	1568.2747	24.21	0.464
10/31/01 15:18	1578.2747	24.21	0.464
10/31/01 15:28	1588.2747	24.21	0.47
10/31/01 15:38	1598.2747	24.21	0.47
10/31/01 15:48	1608.2747	24.21	0.47
10/31/01 15:58	1618.2747	24.21	0.476
10/31/01 16:08	1628.2747	24.21	0.476
10/31/01 16:18	1638.2747	24.21	0.476
10/31/01 16:28	1648.2747	24.21	0.476
10/31/01 16:38	1658.2747	24.21	0.476
10/31/01 16:48	1668.2747	24.21	0.476
10/31/01 16:58	1678.2747	24.21	0.476
10/31/01 17:08	1688.2747	24.21	0.482
10/31/01 17:18	1698.2747	24.21	0.482
10/31/01 17:28	1708.2747	24.21	0.476
10/31/01 17:38	1718.2747	24.21	0.476
10/31/01 17:48	1728.2747	24.21	0.482
10/31/01 17:58	1738.2747	24.21	0.482
10/31/01 18:08	1748.2747	24.21	0.482
10/31/01 18:18	1758.2747	24.21	0.482
10/31/01 18:28	1768.2747	24.21	0.482
10/31/01 18:38	1778.2747	24.21	0.482
10/31/01 18:48	1788.2747	24.21	0.482
10/31/01 18:58	1798.2747	24.21	0.482
10/31/01 19:08	1808.2747	24.21	0.482
10/31/01 19:18	1818.2747	24.21	0.482
10/31/01 19:28	1828.2747	24.21	0.482
10/31/01 19:38	1838.2747	24.21	0.482
10/31/01 19:48	1848.2747	24.21	0.476
10/31/01 19:58	1858.2747	24.21	0.476
10/31/01 20:08	1868.2747	24.21	0.476
10/31/01 20:18	1878.2747	24.21	0.476
10/31/01 20:28	1888.2747	24.21	0.47
10/31/01 20:38	1898.2747	24.21	0.464
10/31/01 20:48	1908.2747	24.21	0.464
10/31/01 20:58	1918.2747	24.21	0.458
10/31/01 21:08	1928.2747	24.21	0.458
10/31/01 21:18	1938.2747	24.21	0.458
10/31/01 21:28	1948.2747	24.21	0.458
10/31/01 21:38	1958.2747	24.21	0.458
10/31/01 21:48	1968.2747	24.21	0.458
10/31/01 21:58	1978.2747	24.21	0.458
10/31/01 22:08	1988.2747	24.21	0.458
10/31/01 22:18	1998.2747	24.21	0.451
10/31/01 22:28	2008.2747	24.21	0.458
10/31/01 22:38	2018.2747	24.21	0.458

		PZ10S-ST	
10/31/01 22:48	2028.2747	24.21	0.458
10/31/01 22:58	2038.2747	24.21	0.458
10/31/01 23:08	2048.2747	24.21	0.458
10/31/01 23:18	2058.2747	24.21	0.464
10/31/01 23:28	2068.2747	24.21	0.458
10/31/01 23:38	2078.2747	24.21	0.458
10/31/01 23:48	2088.2747	24.21	0.464
10/31/01 23:58	2098.2747	24.21	0.464
11/1/01 0:08	2108.2747	24.21	0.458
11/1/01 0:18	2118.2747	24.21	0.464
11/1/01 0:28	2128.2747	24.21	0.464
11/1/01 0:38	2138.2747	24.21	0.47
11/1/01 0:48	2148.2747	24.21	0.47
11/1/01 0:58	2158.2747	24.21	0.47
11/1/01 1:08	2168.2747	24.21	0.47
11/1/01 1:18	2178.2747	24.21	0.47
11/1/01 1:28	2188.2747	24.21	0.47
11/1/01 1:38	2198.2747	24.21	0.47
11/1/01 1:48	2208.2747	24.21	0.47
11/1/01 1:58	2218.2747	24.21	0.47
11/1/01 2:08	2228.2747	24.21	0.464
11/1/01 2:18	2238.2747	24.21	0.464
11/1/01 2:28	2248.2747	24.21	0.47
11/1/01 2:38	2258.2747	24.21	0.47
11/1/01 2:48	2268.2747	24.21	0.47
11/1/01 2:58	2278.2747	24.21	0.47
11/1/01 3:08	2288.2747	24.21	0.47
11/1/01 3:18	2298.2747	24.21	0.47
11/1/01 3:28	2308.2747	24.21	0.47
11/1/01 3:38	2318.2747	24.21	0.47
11/1/01 3:48	2328.2747	24.21	0.47
11/1/01 3:58	2338.2747	24.21	0.47
11/1/01 4:08	2348.2747	24.21	0.47
11/1/01 4:18	2358.2747	24.21	0.47
11/1/01 4:28	2368.2747	24.21	0.47
11/1/01 4:38	2378.2747	24.21	0.47
11/1/01 4:48	2388.2747	24.21	0.476
11/1/01 4:58	2398.2747	24.21	0.476
11/1/01 5:08	2408.2747	24.21	0.482
11/1/01 5:18	2418.2747	24.21	0.482
11/1/01 5:28	2428.2747	24.21	0.488
11/1/01 5:38	2438.2747	24.21	0.488
11/1/01 5:48	2448.2747	24.21	0.488
11/1/01 5:58	2458.2747	24.21	0.488
11/1/01 6:08	2468.2747	24.21	0.488
11/1/01 6:18	2478.2747	24.21	0.488
11/1/01 6:28	2488.2747	24.21	0.488
11/1/01 6:38	2498.2747	24.21	0.488
11/1/01 6:48	2508.2747	24.21	0.482
11/1/01 6:58	2518.2747	24.21	0.482
11/1/01 7:08	2528.2747	24.21	0.482
11/1/01 7:18	2538.2747	24.21	0.482
11/1/01 7:28	2548.2747	24.21	0.47
11/1/01 7:38	2558.2747	24.21	0.482
11/1/01 7:48	2568.2747	24.21	0.476
11/1/01 7:58	2578.2747	24.21	0.476
11/1/01 8:08	2588.2747	24.21	0.476
11/1/01 8:18	2598.2747	24.21	0.47
11/1/01 8:28	2608.2747	24.21	0.464
11/1/01 8:38	2618.2747	24.21	0.458
11/1/01 8:48	2628.2747	24.21	0.458
11/1/01 8:58	2638.2747	24.21	0.451
11/1/01 9:08	2648.2747	24.21	0.451

		PZ10S-ST	
11/1/01 9:18	2658.2747	24.21	0.445
11/1/01 9:28	2668.2747	24.21	0.451
11/1/01 9:38	2678.2747	24.21	0.445
11/1/01 9:48	2688.2747	24.21	0.445
11/1/01 9:58	2698.2747	24.21	0.445
11/1/01 10:08	2708.2747	24.21	0.445
11/1/01 10:18	2718.2747	24.21	0.439
11/1/01 10:28	2728.2747	24.21	0.445
11/1/01 10:38	2738.2747	24.21	0.445
11/1/01 10:48	2748.2747	24.21	0.445
11/1/01 10:58	2758.2747	24.21	0.451
11/1/01 11:08	2768.2747	24.21	0.451
11/1/01 11:18	2778.2747	24.21	0.458
11/1/01 11:28	2788.2747	24.21	0.458
11/1/01 11:38	2798.2747	24.21	0.458
11/1/01 11:48	2808.2747	24.21	0.458
11/1/01 11:58	2818.2747	24.21	0.464
11/1/01 12:08	2828.2747	24.21	0.433
11/1/01 12:18	2838.2747	24.21	0.377
11/1/01 12:28	2848.2747	24.21	0.328
11/1/01 12:38	2858.2747	24.21	0.284
11/1/01 12:48	2868.2747	24.21	0.254
11/1/01 12:58	2878.2747	24.21	0.229
11/1/01 13:08	2888.2747	24.21	0.21
11/1/01 13:18	2898.2747	24.21	0.192
11/1/01 13:28	2908.2747	24.21	0.185
11/1/01 13:38	2918.2747	24.21	0.167
11/1/01 13:48	2928.2747	24.21	0.155
11/1/01 13:58	2938.2747	24.21	0.148
11/1/01 14:08	2948.2747	24.21	0.136
11/1/01 14:18	2958.2747	24.21	0.136
11/1/01 14:28	2968.2747	24.21	0.13
11/1/01 14:38	2978.2747	24.21	0.13
11/1/01 14:48	2988.2747	24.21	0.124
11/1/01 14:58	2998.2747	24.21	0.117
11/1/01 15:08	3008.2747	24.21	0.124
11/1/01 15:18	3018.2747	24.21	0.105
11/1/01 15:28	3028.2747	24.21	0.111
11/1/01 15:38	3038.2747	24.21	0.111
11/1/01 15:48	3048.2747	24.2	0.105
11/1/01 15:58	3058.2747	24.21	0.099
11/1/01 16:08	3068.2747	24.2	0.098
11/1/01 16:18	3078.2747	24.21	0.099
11/1/01 16:28	3088.2747	24.2	0.092
11/1/01 16:38	3098.2747	24.21	0.093
11/1/01 16:48	3108.2747	24.2	0.092
11/1/01 16:58	3118.2747	24.21	0.093
11/1/01 17:08	3128.2747	24.2	0.086
11/1/01 17:18	3138.2747	24.2	0.086
11/1/01 17:28	3148.2747	24.21	0.087
11/1/01 17:38	3158.2747	24.21	0.087
11/1/01 17:48	3168.2747	24.2	0.086
11/1/01 17:58	3178.2747	24.2	0.086
11/1/01 18:08	3188.2747	24.2	0.086
11/1/01 18:18	3198.2747	24.2	0.086
11/1/01 18:28	3208.2747	24.21	0.08
11/1/01 18:38	3218.2747	24.21	0.08
11/1/01 18:48	3228.2747	24.21	0.08
11/1/01 18:58	3238.2747	24.2	0.08
11/1/01 19:08	3248.2747	24.2	0.08
11/1/01 19:18	3258.2747	24.2	0.074
11/1/01 19:28	3268.2747	24.2	0.074
11/1/01 19:38	3278.2747	24.2	0.068

		PZ10S-ST	
11/1/01 19:48	3288.2747	24.2	0.068
11/1/01 19:58	3298.2747	24.2	0.068
11/1/01 20:08	3308.2747	24.2	0.061
11/1/01 20:18	3318.2747	24.2	0.055
11/1/01 20:28	3328.2747	24.2	0.055
11/1/01 20:38	3338.2747	24.2	0.049
11/1/01 20:48	3348.2747	24.2	0.049
11/1/01 20:58	3358.2747	24.2	0.043
11/1/01 21:08	3368.2747	24.21	0.043
11/1/01 21:18	3378.2747	24.2	0.037
11/1/01 21:28	3388.2747	24.21	0.037
11/1/01 21:38	3398.2747	24.2	0.03
11/1/01 21:48	3408.2747	24.21	0.031
11/1/01 21:58	3418.2747	24.2	0.03
11/1/01 22:08	3428.2747	24.2	0.03
11/1/01 22:18	3438.2747	24.2	0.024
11/1/01 22:28	3448.2747	24.2	0.024
11/1/01 22:38	3458.2747	24.2	0.024
11/1/01 22:48	3468.2747	24.21	0.019
11/1/01 22:58	3478.2747	24.2	0.018
11/1/01 23:08	3488.2747	24.2	0.024
11/1/01 23:18	3498.2747	24.2	0.018
11/1/01 23:28	3508.2747	24.2	0.018
11/1/01 23:38	3518.2747	24.2	0.018
11/1/01 23:48	3528.2747	24.2	0.018
11/1/01 23:58	3538.2747	24.2	0.012
11/2/01 0:08	3548.2747	24.2	0.012
11/2/01 0:18	3558.2747	24.2	0.012
11/2/01 0:28	3568.2747	24.2	0.012
11/2/01 0:38	3578.2747	24.2	0.012
11/2/01 0:48	3588.2747	24.21	0.012
11/2/01 0:58	3598.2747	24.2	0.012
11/2/01 1:08	3608.2747	24.2	0.006
11/2/01 1:18	3618.2747	24.21	0.006
11/2/01 1:28	3628.2747	24.2	0.006
11/2/01 1:38	3638.2747	24.2	0.006
11/2/01 1:48	3648.2747	24.21	0.012
11/2/01 1:58	3658.2747	24.2	0.006
11/2/01 2:08	3668.2747	24.2	0.006
11/2/01 2:18	3678.2747	24.2	0.006
11/2/01 2:28	3688.2747	24.2	0.006
11/2/01 2:38	3698.2747	24.2	0.012
11/2/01 2:48	3708.2747	24.2	0.006
11/2/01 2:58	3718.2747	24.2	0.006
11/2/01 3:08	3728.2747	24.2	0.006
11/2/01 3:18	3738.2747	24.2	0.006
11/2/01 3:28	3748.2747	24.2	0.006
11/2/01 3:38	3758.2747	24.2	0.006
11/2/01 3:48	3768.2747	24.2	0
11/2/01 3:58	3778.2747	24.2	0.006
11/2/01 4:08	3788.2747	24.2	0.006
11/2/01 4:18	3798.2747	24.2	0.006
11/2/01 4:28	3808.2747	24.2	0.012
11/2/01 4:38	3818.2747	24.21	0.012
11/2/01 4:48	3828.2747	24.21	0.012
11/2/01 4:58	3838.2747	24.2	0.018
11/2/01 5:08	3848.2747	24.2	0.018
11/2/01 5:18	3858.2747	24.2	0.018
11/2/01 5:28	3868.2747	24.2	0.018
11/2/01 5:38	3878.2747	24.2	0.024
11/2/01 5:48	3888.2747	24.2	0.024
11/2/01 5:58	3898.2747	24.21	0.025
11/2/01 6:08	3908.2747	24.2	0.024

			PZ10S-ST
11/2/01 6:18	3918.2747	24.2	0.024
11/2/01 6:28	3928.2747	24.2	0.018
11/2/01 6:38	3938.2747	24.2	0.018
11/2/01 6:48	3948.2747	24.2	0.018
11/2/01 6:58	3958.2747	24.2	0.018
11/2/01 7:08	3968.2747	24.2	0.018
11/2/01 7:18	3978.2747	24.2	0.018
11/2/01 7:28	3988.2747	24.2	0.018
11/2/01 7:38	3998.2747	24.2	0.018
11/2/01 7:48	4008.2747	24.2	0.018
11/2/01 7:58	4018.2747	24.2	0.012
11/2/01 8:08	4028.2747	24.2	0.012
11/2/01 8:18	4038.2747	24.2	0.012
11/2/01 8:28	4048.2747	24.2	0.006
11/2/01 8:38	4058.2747	24.2	0
11/2/01 8:48	4068.2747	24.2	0
11/2/01 8:58	4078.2747	24.2	-0.007
11/2/01 9:08	4088.2747	24.2	-0.007
11/2/01 9:18	4098.2747	24.2	-0.007
11/2/01 9:28	4108.2747	24.2	-0.013
11/2/01 9:38	4118.2747	24.2	-0.013
11/2/01 9:48	4128.2747	24.2	-0.019
11/2/01 9:58	4138.2747	24.2	-0.019
11/2/01 10:08	4148.2747	24.2	-0.019
11/2/01 10:18	4158.2747	24.2	-0.025
11/2/01 10:28	4168.2747	24.2	-0.025
11/2/01 10:38	4178.2747	24.2	-0.019
11/2/01 10:48	4188.2747	24.2	-0.019
11/2/01 10:58	4198.2747	24.2	-0.019
11/2/01 11:08	4208.2747	24.2	-0.019
11/2/01 11:18	4218.2747	24.2	-0.019
11/2/01 11:28	4228.2747	24.2	-0.019
11/2/01 11:38	4238.2747	24.2	-0.025
11/2/01 11:48	4248.2747	24.2	-0.019
11/2/01 11:58	4258.2747	24.2	-0.019
11/2/01 12:08	4268.2747	24.2	-0.019
11/2/01 12:18	4278.2747	24.2	-0.019

In-Situ Inc. MiniTroll Pro

Report generated: 11/2/01 12:16:30
Report from file: C:\WIN-SITU\Data\SN02468 2001-10-30 130000 PZ11S-ST.bin
DataMgr Version 3.69

Serial number: 2468
Firmware Version 3.01
Unit name: PZ11S-WL

Test name: PZ11S-ST

Test defined on: 10/30/01 12:17:13
Test scheduled for: 10/30/01 13:00:00
Test started on: 10/30/01 13:00:00
Test stopped on: 11/2/01 12:16:47
Test extracted on: N/A

Data gathered using Logarithmic testing
Maximum time between data points: 10.0000 Minutes.
Number of data samples: 560

TOTAL DATA SAMPLES 560

Channel number [1]
Measurement type: Temperature
Channel name: OnBoard Temp

Channel number [2]
Measurement type: Pressure
Channel name: Pressure
Sensor Range: 30 PSI.
Specific gravity: 1
Mode: TOC
User-defined reference: 0 Feet H2O
Referenced on: test start
Pressure head at reference: 10.951 Feet H2O

Date	Time	Chan[1] ET (min)	Chan[2] Celsius	Feet H2O
10/30/01	13:00	0	24.42	0
10/30/01	13:00	0.0048	24.43	-0.004
10/30/01	13:00	0.0098	24.43	-0.006
10/30/01	13:00	0.015	24.43	-0.006
10/30/01	13:00	0.0198	24.44	-0.006
10/30/01	13:00	0.025	24.44	-0.006
10/30/01	13:00	0.03	24.44	-0.006
10/30/01	13:00	0.035	24.44	-0.006
10/30/01	13:00	0.0398	24.44	-0.008
10/30/01	13:00	0.045	24.45	-0.005
10/30/01	13:00	0.05	24.45	-0.008
10/30/01	13:00	0.0548	24.45	-0.008
10/30/01	13:00	0.06	24.45	-0.008
10/30/01	13:00	0.0648	24.45	-0.008
10/30/01	13:00	0.07	24.45	-0.008
10/30/01	13:00	0.075	24.45	-0.005
10/30/01	13:00	0.0798	24.45	-0.008
10/30/01	13:00	0.0848	24.45	-0.008
10/30/01	13:00	0.09	24.45	-0.008
10/30/01	13:00	0.095	24.45	-0.008

PZ11S-ST

10/30/01 13:00	0.1	24.45	-0.008
10/30/01 13:00	0.1057	24.45	-0.008
10/30/01 13:00	0.1118	24.45	-0.008
10/30/01 13:00	0.1185	24.45	-0.008
10/30/01 13:00	0.1255	24.45	-0.008
10/30/01 13:00	0.1327	24.45	-0.008
10/30/01 13:00	0.1405	24.45	-0.008
10/30/01 13:00	0.1488	24.47	-0.007
10/30/01 13:00	0.1578	24.45	-0.008
10/30/01 13:00	0.167	24.45	-0.003
10/30/01 13:00	0.1768	24.45	-0.003
10/30/01 13:00	0.1875	24.45	-0.003
10/30/01 13:00	0.1985	24.45	-0.003
10/30/01 13:00	0.21	24.45	-0.001
10/30/01 13:00	0.2225	24.45	-0.003
10/30/01 13:00	0.2358	24.45	-0.001
10/30/01 13:00	0.2498	24.45	-0.001
10/30/01 13:00	0.2647	24.45	-0.001
10/30/01 13:00	0.2803	24.45	-0.001
10/30/01 13:00	0.297	24.44	-0.001
10/30/01 13:00	0.3145	24.44	-0.001
10/30/01 13:00	0.3333	24.44	-0.001
10/30/01 13:00	0.3532	24.44	-0.001
10/30/01 13:00	0.374	24.44	-0.001
10/30/01 13:00	0.3963	24.44	-0.001
10/30/01 13:00	0.4198	24.44	-0.001
10/30/01 13:00	0.4445	24.44	0.001
10/30/01 13:00	0.4695	24.44	-0.001
10/30/01 13:00	0.4963	24.44	-0.001
10/30/01 13:00	0.5247	24.44	-0.001
10/30/01 13:00	0.5547	24.44	0.001
10/30/01 13:00	0.5862	24.44	0.001
10/30/01 13:00	0.6213	24.44	-0.001
10/30/01 13:00	0.6578	24.44	0.001
10/30/01 13:00	0.6963	24.44	-0.001
10/30/01 13:00	0.738	24.44	-0.001
10/30/01 13:00	0.7813	24.44	0.001
10/30/01 13:00	0.8278	24.44	0.001
10/30/01 13:00	0.8762	24.44	0.001
10/30/01 13:00	0.9278	24.44	0.001
10/30/01 13:00	0.9828	24.44	0.001
10/30/01 13:01	1.0412	24.44	0.001
10/30/01 13:01	1.103	24.44	0.001
10/30/01 13:01	1.1678	24.44	0.001
10/30/01 13:01	1.238	24.44	0.001
10/30/01 13:01	1.3113	24.44	0.001
10/30/01 13:01	1.3895	24.43	0
10/30/01 13:01	1.4728	24.43	0
10/30/01 13:01	1.5613	24.43	0
10/30/01 13:01	1.6547	24.43	0.002
10/30/01 13:01	1.753	24.43	0.005
10/30/01 13:01	1.858	24.43	0.002
10/30/01 13:01	1.9678	24.43	0.005
10/30/01 13:02	2.0845	24.43	0.005
10/30/01 13:02	2.2097	24.43	0.005
10/30/01 13:02	2.3412	24.43	0.007
10/30/01 13:02	2.4812	24.43	0.009
10/30/01 13:02	2.6297	24.43	0.009
10/30/01 13:02	2.7863	24.43	0.011
10/30/01 13:02	2.953	24.42	0.013
10/30/01 13:03	3.1297	24.43	0.015
10/30/01 13:03	3.3162	24.43	0.018
10/30/01 13:03	3.5145	24.42	0.019

10/30/01	13:03	3.7245	24.42	0.024
10/30/01	13:03	3.9463	24.42	0.026
10/30/01	13:04	4.1812	24.42	0.028
10/30/01	13:04	4.4295	24.42	0.032
10/30/01	13:04	4.6928	24.42	0.037
10/30/01	13:04	4.9728	24.42	0.041
10/30/01	13:05	5.2697	24.42	0.043
10/30/01	13:05	5.583	24.42	0.05
10/30/01	13:05	5.9145	24.42	0.054
10/30/01	13:06	6.2663	24.42	0.06
10/30/01	13:06	6.6395	24.42	0.065
10/30/01	13:07	7.0345	24.42	0.071
10/30/01	13:07	7.453	24.42	0.078
10/30/01	13:07	7.8962	24.42	0.084
10/30/01	13:08	8.3663	24.42	0.09
10/30/01	13:08	8.8645	24.42	0.097
10/30/01	13:09	9.3913	24.42	0.103
10/30/01	13:09	9.9497	24.42	0.11
10/30/01	13:10	10.5413	24.42	0.116
10/30/01	13:11	11.168	24.42	0.123
10/30/01	13:11	11.8312	24.42	0.129
10/30/01	13:12	12.5347	24.42	0.136
10/30/01	13:13	13.2795	24.42	0.144
10/30/01	13:14	14.0695	24.42	0.151
10/30/01	13:14	14.9062	24.42	0.157
10/30/01	13:15	15.7913	24.42	0.164
10/30/01	13:16	16.7295	24.42	0.168
10/30/01	13:17	17.723	24.42	0.174
10/30/01	13:18	18.7762	24.42	0.183
10/30/01	13:19	19.8913	24.42	0.189
10/30/01	13:21	21.073	24.42	0.196
10/30/01	13:22	22.3247	24.42	0.202
10/30/01	13:23	23.6497	24.42	0.211
10/30/01	13:25	25.0545	24.42	0.22
10/30/01	13:26	26.5428	24.42	0.226
10/30/01	13:28	28.1178	24.42	0.233
10/30/01	13:29	29.7863	24.42	0.239
10/30/01	13:31	31.5545	24.42	0.245
10/30/01	13:33	33.428	24.42	0.252
10/30/01	13:35	35.4112	24.42	0.258
10/30/01	13:37	37.513	24.42	0.265
10/30/01	13:39	39.7397	24.42	0.269
10/30/01	13:42	42.098	24.42	0.273
10/30/01	13:44	44.5963	24.42	0.282
10/30/01	13:47	47.2428	24.42	0.286
10/30/01	13:50	50.0463	24.42	0.291
10/30/01	13:53	53.0147	24.42	0.297
10/30/01	13:56	56.1595	24.42	0.301
10/30/01	13:59	59.4913	24.42	0.308
10/30/01	14:03	63.0195	24.42	0.312
10/30/01	14:06	66.758	24.42	0.314
10/30/01	14:10	70.7178	24.42	0.323
10/30/01	14:14	74.9113	24.42	0.329
10/30/01	14:19	79.3545	24.42	0.334
10/30/01	14:24	84.0613	24.42	0.338
10/30/01	14:29	89.0462	24.42	0.342
10/30/01	14:34	94.3262	24.42	0.349
10/30/01	14:39	99.9197	24.42	0.351
10/30/01	14:45	105.8447	24.42	0.357
10/30/01	14:52	112.1197	24.42	0.362
10/30/01	14:58	118.7678	24.42	0.366
10/30/01	15:05	125.8095	24.42	0.373
10/30/01	15:13	133.2678	24.42	0.373

		PZ11S-ST	
10/30/01 15:21	141.1678	24.42	0.379
10/30/01 15:29	149.5363	24.42	0.383
10/30/01 15:38	158.4012	24.42	0.388
10/30/01 15:47	167.7912	24.42	0.392
10/30/01 15:57	177.738	24.42	0.396
10/30/01 16:08	188.2745	24.42	0.401
10/30/01 16:18	198.2745	24.42	0.405
10/30/01 16:28	208.2745	24.42	0.407
10/30/01 16:38	218.2745	24.42	0.411
10/30/01 16:48	228.2745	24.42	0.416
10/30/01 16:58	238.2745	24.42	0.42
10/30/01 17:08	248.2745	24.42	0.424
10/30/01 17:18	258.2745	24.42	0.426
10/30/01 17:28	268.2745	24.42	0.429
10/30/01 17:38	278.2745	24.42	0.433
10/30/01 17:48	288.2745	24.42	0.437
10/30/01 17:58	298.2745	24.42	0.431
10/30/01 18:08	308.2745	24.42	0.433
10/30/01 18:18	318.2745	24.42	0.433
10/30/01 18:28	328.2745	24.42	0.431
10/30/01 18:38	338.2745	24.42	0.431
10/30/01 18:48	348.2745	24.42	0.431
10/30/01 18:58	358.2745	24.42	0.433
10/30/01 19:08	368.2745	24.42	0.433
10/30/01 19:18	378.2745	24.42	0.433
10/30/01 19:28	388.2745	24.42	0.431
10/30/01 19:38	398.2745	24.42	0.431
10/30/01 19:48	408.2745	24.42	0.429
10/30/01 19:58	418.2745	24.42	0.426
10/30/01 20:08	428.2745	24.42	0.426
10/30/01 20:18	438.2745	24.42	0.426
10/30/01 20:28	448.2745	24.42	0.424
10/30/01 20:38	458.2745	24.42	0.426
10/30/01 20:48	468.2745	24.42	0.426
10/30/01 20:58	478.2745	24.42	0.429
10/30/01 21:08	488.2745	24.42	0.433
10/30/01 21:18	498.2745	24.42	0.433
10/30/01 21:28	508.2745	24.42	0.435
10/30/01 21:38	518.2745	24.42	0.429
10/30/01 21:48	528.2745	24.42	0.422
10/30/01 21:58	538.2745	24.42	0.424
10/30/01 22:08	548.2747	24.42	0.439
10/30/01 22:18	558.2747	24.42	0.437
10/30/01 22:28	568.2747	24.42	0.437
10/30/01 22:38	578.2747	24.42	0.439
10/30/01 22:48	588.2747	24.42	0.439
10/30/01 22:58	598.2747	24.42	0.439
10/30/01 23:08	608.2747	24.42	0.441
10/30/01 23:18	618.2747	24.42	0.444
10/30/01 23:28	628.2747	24.42	0.444
10/30/01 23:38	638.2747	24.42	0.444
10/30/01 23:48	648.2747	24.4	0.443
10/30/01 23:58	658.2747	24.42	0.444
10/31/01 0:08	668.2747	24.42	0.444
10/31/01 0:18	678.2747	24.42	0.444
10/31/01 0:28	688.2747	24.42	0.441
10/31/01 0:38	698.2747	24.42	0.446
10/31/01 0:48	708.2747	24.42	0.469
10/31/01 0:58	718.2747	24.42	0.497
10/31/01 1:08	728.2747	24.42	0.519
10/31/01 1:18	738.2747	24.4	0.527
10/31/01 1:28	748.2747	24.42	0.536
10/31/01 1:38	758.2747	24.42	0.543

		PZ11S-ST	
10/31/01 1:48	768.2747	24.42	0.547
10/31/01 1:58	778.2747	24.42	0.549
10/31/01 2:08	788.2747	24.42	0.553
10/31/01 2:18	798.2747	24.42	0.556
10/31/01 2:28	808.2747	24.42	0.553
10/31/01 2:38	818.2747	24.42	0.558
10/31/01 2:48	828.2747	24.42	0.564
10/31/01 2:58	838.2747	24.4	0.57
10/31/01 3:08	848.2747	24.42	0.575
10/31/01 3:18	858.2747	24.42	0.575
10/31/01 3:28	868.2747	24.42	0.577
10/31/01 3:38	878.2747	24.42	0.579
10/31/01 3:48	888.2747	24.42	0.581
10/31/01 3:58	898.2747	24.42	0.579
10/31/01 4:08	908.2747	24.42	0.584
10/31/01 4:18	918.2747	24.42	0.586
10/31/01 4:28	928.2747	24.42	0.586
10/31/01 4:38	938.2747	24.42	0.59
10/31/01 4:48	948.2747	24.42	0.592
10/31/01 4:58	958.2747	24.42	0.596
10/31/01 5:08	968.2747	24.42	0.594
10/31/01 5:18	978.2747	24.42	0.599
10/31/01 5:28	988.2747	24.4	0.6
10/31/01 5:38	998.2747	24.42	0.603
10/31/01 5:48	1008.2747	24.42	0.603
10/31/01 5:58	1018.2747	24.42	0.605
10/31/01 6:08	1028.2747	24.42	0.607
10/31/01 6:18	1038.2747	24.42	0.605
10/31/01 6:28	1048.2747	24.4	0.603
10/31/01 6:38	1058.2747	24.4	0.607
10/31/01 6:48	1068.2747	24.4	0.598
10/31/01 6:58	1078.2747	24.4	0.6
10/31/01 7:08	1088.2747	24.42	0.601
10/31/01 7:18	1098.2745	24.4	0.596
10/31/01 7:28	1108.2745	24.4	0.594
10/31/01 7:38	1118.2745	24.4	0.594
10/31/01 7:48	1128.2745	24.42	0.596
10/31/01 7:58	1138.2745	24.4	0.585
10/31/01 8:08	1148.2745	24.4	0.585
10/31/01 8:18	1158.2745	24.4	0.581
10/31/01 8:28	1168.2745	24.42	0.581
10/31/01 8:38	1178.2745	24.42	0.579
10/31/01 8:48	1188.2745	24.4	0.579
10/31/01 8:58	1198.2745	24.42	0.571
10/31/01 9:08	1208.2745	24.42	0.571
10/31/01 9:18	1218.2745	24.42	0.577
10/31/01 9:28	1228.2745	24.42	0.581
10/31/01 9:38	1238.2745	24.42	0.586
10/31/01 9:48	1248.2745	24.4	0.59
10/31/01 9:58	1258.2745	24.4	0.592
10/31/01 10:08	1268.2745	24.4	0.594
10/31/01 10:18	1278.2745	24.4	0.598
10/31/01 10:28	1288.2745	24.4	0.6
10/31/01 10:38	1298.2745	24.42	0.603
10/31/01 10:48	1308.2745	24.4	0.605
10/31/01 10:58	1318.2745	24.4	0.607
10/31/01 11:08	1328.2745	24.4	0.609
10/31/01 11:18	1338.2745	24.4	0.609
10/31/01 11:28	1348.2745	24.4	0.616
10/31/01 11:38	1358.2745	24.4	0.613
10/31/01 11:48	1368.2745	24.4	0.613
10/31/01 11:58	1378.2745	24.4	0.616
10/31/01 12:08	1388.2745	24.4	0.611

		PZ11S-ST	
10/31/01 12:18	1398.2745	24.4	0.605
10/31/01 12:28	1408.2745	24.4	0.596
10/31/01 12:38	1418.2745	24.4	0.6
10/31/01 12:48	1428.2745	24.4	0.607
10/31/01 12:58	1438.2745	24.4	0.607
10/31/01 13:08	1448.2745	24.4	0.6
10/31/01 13:18	1458.2745	24.4	0.598
10/31/01 13:28	1468.2745	24.4	0.594
10/31/01 13:38	1478.2745	24.4	0.605
10/31/01 13:48	1488.2745	24.4	0.609
10/31/01 13:58	1498.2745	24.4	0.611
10/31/01 14:08	1508.2745	24.4	0.613
10/31/01 14:18	1518.2745	24.4	0.613
10/31/01 14:28	1528.2745	24.4	0.613
10/31/01 14:38	1538.2745	24.4	0.613
10/31/01 14:48	1548.2745	24.4	0.613
10/31/01 14:58	1558.2745	24.4	0.618
10/31/01 15:08	1568.2745	24.4	0.62
10/31/01 15:18	1578.2745	24.4	0.622
10/31/01 15:28	1588.2745	24.4	0.624
10/31/01 15:38	1598.2745	24.4	0.624
10/31/01 15:48	1608.2745	24.4	0.626
10/31/01 15:58	1618.2745	24.4	0.626
10/31/01 16:08	1628.2745	24.4	0.628
10/31/01 16:18	1638.2745	24.4	0.631
10/31/01 16:28	1648.2745	24.4	0.631
10/31/01 16:38	1658.2745	24.4	0.631
10/31/01 16:48	1668.2745	24.4	0.633
10/31/01 16:58	1678.2745	24.4	0.635
10/31/01 17:08	1688.2745	24.4	0.633
10/31/01 17:18	1698.2745	24.4	0.635
10/31/01 17:28	1708.2745	24.4	0.633
10/31/01 17:38	1718.2745	24.4	0.635
10/31/01 17:48	1728.2745	24.4	0.635
10/31/01 17:58	1738.2745	24.4	0.637
10/31/01 18:08	1748.2745	24.4	0.637
10/31/01 18:18	1758.2745	24.42	0.637
10/31/01 18:28	1768.2745	24.4	0.639
10/31/01 18:38	1778.2745	24.4	0.631
10/31/01 18:48	1788.2745	24.4	0.635
10/31/01 18:58	1798.2745	24.4	0.639
10/31/01 19:08	1808.2745	24.4	0.641
10/31/01 19:18	1818.2745	24.4	0.641
10/31/01 19:28	1828.2745	24.4	0.639
10/31/01 19:38	1838.2745	24.4	0.635
10/31/01 19:48	1848.2745	24.4	0.633
10/31/01 19:58	1858.2745	24.4	0.631
10/31/01 20:08	1868.2745	24.4	0.628
10/31/01 20:18	1878.2745	24.4	0.626
10/31/01 20:28	1888.2745	24.4	0.622
10/31/01 20:38	1898.2745	24.4	0.62
10/31/01 20:48	1908.2745	24.4	0.618
10/31/01 20:58	1918.2745	24.4	0.613
10/31/01 21:08	1928.2745	24.4	0.613
10/31/01 21:18	1938.2745	24.4	0.611
10/31/01 21:28	1948.2745	24.4	0.609
10/31/01 21:38	1958.2745	24.4	0.609
10/31/01 21:48	1968.2745	24.4	0.609
10/31/01 21:58	1978.2745	24.4	0.611
10/31/01 22:08	1988.2745	24.4	0.609
10/31/01 22:18	1998.2745	24.4	0.609
10/31/01 22:28	2008.2745	24.4	0.607
10/31/01 22:38	2018.2745	24.4	0.609

			PZ11S-ST
10/31/01 22:48	2028.2745	24.4	0.611
10/31/01 22:58	2038.2745	24.4	0.611
10/31/01 23:08	2048.2745	24.4	0.611
10/31/01 23:18	2058.2745	24.4	0.611
10/31/01 23:28	2068.2745	24.4	0.609
10/31/01 23:38	2078.2745	24.4	0.607
10/31/01 23:48	2088.2745	24.4	0.609
10/31/01 23:58	2098.2745	24.4	0.607
11/1/01 0:08	2108.2745	24.4	0.611
11/1/01 0:18	2118.2745	24.4	0.613
11/1/01 0:28	2128.2745	24.4	0.618
11/1/01 0:38	2138.2745	24.4	0.62
11/1/01 0:48	2148.2745	24.4	0.616
11/1/01 0:58	2158.2745	24.4	0.618
11/1/01 1:08	2168.2745	24.4	0.616
11/1/01 1:18	2178.2745	24.4	0.616
11/1/01 1:28	2188.2747	24.4	0.616
11/1/01 1:38	2198.2747	24.4	0.616
11/1/01 1:48	2208.2747	24.4	0.616
11/1/01 1:58	2218.2747	24.4	0.616
11/1/01 2:08	2228.2747	24.4	0.613
11/1/01 2:18	2238.2747	24.4	0.613
11/1/01 2:28	2248.2747	24.4	0.616
11/1/01 2:38	2258.2747	24.4	0.616
11/1/01 2:48	2268.2747	24.4	0.62
11/1/01 2:58	2278.2747	24.4	0.618
11/1/01 3:08	2288.2747	24.4	0.618
11/1/01 3:18	2298.2747	24.4	0.616
11/1/01 3:28	2308.2747	24.4	0.618
11/1/01 3:38	2318.2747	24.4	0.618
11/1/01 3:48	2328.2747	24.4	0.62
11/1/01 3:58	2338.2747	24.4	0.62
11/1/01 4:08	2348.2747	24.4	0.618
11/1/01 4:18	2358.2747	24.4	0.618
11/1/01 4:28	2368.2747	24.4	0.62
11/1/01 4:38	2378.2747	24.4	0.622
11/1/01 4:48	2388.2747	24.4	0.624
11/1/01 4:58	2398.2747	24.4	0.626
11/1/01 5:08	2408.2747	24.4	0.628
11/1/01 5:18	2418.2747	24.4	0.631
11/1/01 5:28	2428.2747	24.4	0.631
11/1/01 5:38	2438.2747	24.4	0.633
11/1/01 5:48	2448.2747	24.4	0.635
11/1/01 5:58	2458.2747	24.4	0.631
11/1/01 6:08	2468.2747	24.4	0.633
11/1/01 6:18	2478.2747	24.4	0.635
11/1/01 6:28	2488.2747	24.4	0.635
11/1/01 6:38	2498.2747	24.4	0.633
11/1/01 6:48	2508.2747	24.4	0.631
11/1/01 6:58	2518.2747	24.4	0.633
11/1/01 7:08	2528.2747	24.4	0.628
11/1/01 7:18	2538.2747	24.4	0.618
11/1/01 7:28	2548.2747	24.4	0.613
11/1/01 7:38	2558.2747	24.4	0.624
11/1/01 7:48	2568.2747	24.4	0.616
11/1/01 7:58	2578.2747	24.4	0.613
11/1/01 8:08	2588.2747	24.4	0.609
11/1/01 8:18	2598.2747	24.4	0.605
11/1/01 8:28	2608.2747	24.4	0.603
11/1/01 8:38	2618.2747	24.4	0.596
11/1/01 8:48	2628.2747	24.4	0.594
11/1/01 8:58	2638.2747	24.4	0.59
11/1/01 9:08	2648.2747	24.4	0.585

			PZ11S-ST
11/1/01 9:18	2658.2747	24.4	0.583
11/1/01 9:28	2668.2747	24.4	0.581
11/1/01 9:38	2678.2747	24.4	0.581
11/1/01 9:48	2688.2747	24.4	0.581
11/1/01 9:58	2698.2747	24.4	0.581
11/1/01 10:08	2708.2747	24.4	0.579
11/1/01 10:18	2718.2747	24.4	0.579
11/1/01 10:28	2728.2747	24.4	0.579
11/1/01 10:38	2738.2747	24.4	0.585
11/1/01 10:48	2748.2747	24.4	0.588
11/1/01 10:58	2758.2747	24.4	0.588
11/1/01 11:08	2768.2747	24.4	0.588
11/1/01 11:18	2778.2747	24.4	0.59
11/1/01 11:28	2788.2747	24.4	0.592
11/1/01 11:38	2798.2747	24.4	0.59
11/1/01 11:48	2808.2747	24.4	0.588
11/1/01 11:58	2818.2747	24.4	0.59
11/1/01 12:08	2828.2747	24.39	0.523
11/1/01 12:18	2838.2747	24.4	0.411
11/1/01 12:28	2848.2747	24.4	0.329
11/1/01 12:38	2858.2747	24.4	0.275
11/1/01 12:48	2868.2747	24.4	0.239
11/1/01 12:58	2878.2747	24.4	0.211
11/1/01 13:08	2888.2747	24.4	0.189
11/1/01 13:18	2898.2747	24.4	0.172
11/1/01 13:28	2908.2747	24.4	0.159
11/1/01 13:38	2918.2747	24.4	0.146
11/1/01 13:48	2928.2747	24.4	0.131
11/1/01 13:58	2938.2747	24.4	0.125
11/1/01 14:08	2948.2747	24.4	0.12
11/1/01 14:18	2958.2747	24.4	0.112
11/1/01 14:28	2968.2747	24.39	0.105
11/1/01 14:38	2978.2747	24.4	0.101
11/1/01 14:48	2988.2747	24.4	0.097
11/1/01 14:58	2998.2747	24.4	0.092
11/1/01 15:08	3008.2747	24.39	0.062
11/1/01 15:18	3018.2747	24.39	0.062
11/1/01 15:28	3028.2747	24.39	0.062
11/1/01 15:38	3038.2747	24.4	0.058
11/1/01 15:48	3048.2747	24.4	0.054
11/1/01 15:58	3058.2747	24.4	0.051
11/1/01 16:08	3068.2747	24.4	0.051
11/1/01 16:18	3078.2747	24.4	0.047
11/1/01 16:28	3088.2747	24.39	0.047
11/1/01 16:38	3098.2747	24.39	0.042
11/1/01 16:48	3108.2747	24.39	0.042
11/1/01 16:58	3118.2747	24.39	0.04
11/1/01 17:08	3128.2747	24.39	0.038
11/1/01 17:18	3138.2747	24.39	0.036
11/1/01 17:28	3148.2747	24.39	0.036
11/1/01 17:38	3158.2747	24.39	0.034
11/1/01 17:48	3168.2747	24.39	0.034
11/1/01 17:58	3178.2747	24.4	0.032
11/1/01 18:08	3188.2747	24.39	0.029
11/1/01 18:18	3198.2747	24.39	0.029
11/1/01 18:28	3208.2747	24.39	0.029
11/1/01 18:38	3218.2747	24.39	0.027
11/1/01 18:48	3228.2747	24.39	0.027
11/1/01 18:58	3238.2747	24.39	0.025
11/1/01 19:08	3248.2747	24.4	0.023
11/1/01 19:18	3258.2747	24.39	0.021
11/1/01 19:28	3268.2747	24.39	0.019
11/1/01 19:38	3278.2747	24.39	0.017

			PZ11S-ST
11/1/01 19:48	3288.2747	24.39	0.014
11/1/01 19:58	3298.2747	24.39	0.01
11/1/01 20:08	3308.2747	24.39	0.008
11/1/01 20:18	3318.2747	24.39	0.006
11/1/01 20:28	3328.2747	24.39	0.001
11/1/01 20:38	3338.2747	24.39	-0.003
11/1/01 20:48	3348.2747	24.39	-0.007
11/1/01 20:58	3358.2747	24.39	-0.011
11/1/01 21:08	3368.2747	24.39	-0.016
11/1/01 21:18	3378.2747	24.39	-0.02
11/1/01 21:28	3388.2747	24.39	-0.02
11/1/01 21:38	3398.2747	24.39	-0.022
11/1/01 21:48	3408.2747	24.39	-0.024
11/1/01 21:58	3418.2747	24.39	-0.026
11/1/01 22:08	3428.2747	24.39	-0.029
11/1/01 22:18	3438.2747	24.39	-0.029
11/1/01 22:28	3448.2747	24.39	-0.031
11/1/01 22:38	3458.2747	24.39	-0.033
11/1/01 22:48	3468.2747	24.39	-0.035
11/1/01 22:58	3478.2747	24.39	-0.035
11/1/01 23:08	3488.2747	24.39	-0.035
11/1/01 23:18	3498.2747	24.39	-0.037
11/1/01 23:28	3508.2747	24.39	-0.037
11/1/01 23:38	3518.2747	24.39	-0.035
11/1/01 23:48	3528.2747	24.39	-0.037
11/1/01 23:58	3538.2747	24.39	-0.042
11/2/01 0:08	3548.2747	24.39	-0.039
11/2/01 0:18	3558.2747	24.39	-0.042
11/2/01 0:28	3568.2747	24.39	-0.039
11/2/01 0:38	3578.2747	24.39	-0.042
11/2/01 0:48	3588.2747	24.39	-0.042
11/2/01 0:58	3598.2747	24.39	-0.042
11/2/01 1:08	3608.2747	24.39	-0.042
11/2/01 1:18	3618.2747	24.39	-0.044
11/2/01 1:28	3628.2747	24.39	-0.044
11/2/01 1:38	3638.2747	24.39	-0.044
11/2/01 1:48	3648.2747	24.39	-0.044
11/2/01 1:58	3658.2747	24.39	-0.046
11/2/01 2:08	3668.2747	24.39	-0.046
11/2/01 2:18	3678.2747	24.39	-0.046
11/2/01 2:28	3688.2747	24.39	-0.046
11/2/01 2:38	3698.2747	24.39	-0.046
11/2/01 2:48	3708.2747	24.39	-0.046
11/2/01 2:58	3718.2747	24.39	-0.048
11/2/01 3:08	3728.2747	24.39	-0.048
11/2/01 3:18	3738.2747	24.39	-0.046
11/2/01 3:28	3748.2747	24.39	-0.048
11/2/01 3:38	3758.2747	24.39	-0.048
11/2/01 3:48	3768.2747	24.39	-0.046
11/2/01 3:58	3778.2747	24.39	-0.046
11/2/01 4:08	3788.2747	24.39	-0.044
11/2/01 4:18	3798.2747	24.39	-0.044
11/2/01 4:28	3808.2747	24.39	-0.039
11/2/01 4:38	3818.2747	24.39	-0.039
11/2/01 4:48	3828.2747	24.39	-0.035
11/2/01 4:58	3838.2747	24.39	-0.035
11/2/01 5:08	3848.2747	24.39	-0.033
11/2/01 5:18	3858.2747	24.39	-0.031
11/2/01 5:28	3868.2747	24.39	-0.031
11/2/01 5:38	3878.2747	24.39	-0.029
11/2/01 5:48	3888.2747	24.39	-0.026
11/2/01 5:58	3898.2747	24.39	-0.029
11/2/01 6:08	3908.2747	24.39	-0.029

			PZ11S-ST
11/2/01 6:18	3918.2747	24.39	-0.029
11/2/01 6:28	3928.2747	24.39	-0.029
11/2/01 6:38	3938.2747	24.39	-0.035
11/2/01 6:48	3948.2747	24.39	-0.042
11/2/01 6:58	3958.2747	24.39	-0.042
11/2/01 7:08	3968.2747	24.39	-0.042
11/2/01 7:18	3978.2747	24.39	-0.044
11/2/01 7:28	3988.2747	24.39	-0.046
11/2/01 7:38	3998.2747	24.39	-0.046
11/2/01 7:48	4008.2747	24.39	-0.05
11/2/01 7:58	4018.2747	24.39	-0.05
11/2/01 8:08	4028.2747	24.39	-0.048
11/2/01 8:18	4038.2747	24.39	-0.057
11/2/01 8:28	4048.2747	24.39	-0.059
11/2/01 8:38	4058.2747	24.39	-0.063
11/2/01 8:48	4068.2747	24.39	-0.067
11/2/01 8:58	4078.2747	24.39	-0.067
11/2/01 9:08	4088.2747	24.39	-0.076
11/2/01 9:18	4098.2747	24.39	-0.078
11/2/01 9:28	4108.2747	24.39	-0.08
11/2/01 9:38	4118.2747	24.39	-0.082
11/2/01 9:48	4128.2747	24.39	-0.091
11/2/01 9:58	4138.2747	24.39	-0.089
11/2/01 10:08	4148.2747	24.39	-0.091
11/2/01 10:18	4158.2747	24.39	-0.093
11/2/01 10:28	4168.2747	24.39	-0.095
11/2/01 10:38	4178.2747	24.39	-0.095
11/2/01 10:48	4188.2747	24.39	-0.098
11/2/01 10:58	4198.2747	24.39	-0.089
11/2/01 11:08	4208.2747	24.39	-0.091
11/2/01 11:18	4218.2747	24.39	-0.091
11/2/01 11:28	4228.2747	24.39	-0.091
11/2/01 11:38	4238.2747	24.39	-0.093
11/2/01 11:48	4248.2747	24.39	-0.089
11/2/01 11:58	4258.2747	24.39	-0.089
11/2/01 12:08	4268.2747	24.39	-0.091

MW03SU-ST

In-Situ Inc. MiniTroll Pro

Report generated: 11/2/01 13:16:24
Report from file: C:\WIN-SITU\Data\SN00838 2001-10-30 130000 MW03SU-ST.bin

DataMgr Version 3.69

Serial number: 838
Firmware Version 3.01
Unit name: MW03SU-WL

Test name: MW03SU-ST

Test defined on: 10/30/01 12:24:30
Test scheduled for: 10/30/01 13:00:00
Test started on: 10/30/01 13:00:00
Test stopped on: 11/2/01 13:16:22
Test extracted on: N/A

Data gathered using Logarithmic testing
  Maximum time between data points: 10.0000 Minutes.
  Number of data samples: 566

TOTAL DATA SAMPLES 566

Channel number [1]
  Measurement type: Temperature
  Channel name: OnBoard Temp

Channel number [2]
  Measurement type: Pressure
  Channel name: OnBoard Pressure
  Sensor Range: 30 PSI.
  Specific gravity: 1
  Mode: TOC
  User-defined reference: 0 Feet H2O
  Referenced on: test start
  Pressure head at reference: 2.46 Feet H2O

Date	Time	Chan[1] ET (min)	Chan[2] Celsius	Feet H2O
10/30/01	13:00	0	24.05	0
10/30/01	13:00	0.0048	24.06	-0.002
10/30/01	13:00	0.0098	24.06	-0.002
10/30/01	13:00	0.015	24.08	-0.001
10/30/01	13:00	0.0198	24.08	-0.001
10/30/01	13:00	0.025	24.08	-0.001
10/30/01	13:00	0.03	24.08	-0.001
10/30/01	13:00	0.035	24.08	-0.001
10/30/01	13:00	0.0398	24.09	-0.001
10/30/01	13:00	0.045	24.09	-0.001
10/30/01	13:00	0.05	24.09	-0.001
10/30/01	13:00	0.0548	24.09	-0.001
10/30/01	13:00	0.06	24.09	-0.001
10/30/01	13:00	0.0648	24.09	-0.001
10/30/01	13:00	0.07	24.09	0.001
10/30/01	13:00	0.075	24.09	-0.001
10/30/01	13:00	0.0798	24.1	0.001
10/30/01	13:00	0.0848	24.1	-0.001
10/30/01	13:00	0.09	24.09	-0.001

MW03SU-ST

10/30/01 13:00	0.095	24.1	-0.001
10/30/01 13:00	0.1	24.1	-0.001
10/30/01 13:00	0.1057	24.1	-0.001
10/30/01 13:00	0.1118	24.1	-0.001
10/30/01 13:00	0.1185	24.1	-0.001
10/30/01 13:00	0.1255	24.1	-0.001
10/30/01 13:00	0.1327	24.1	-0.001
10/30/01 13:00	0.1405	24.1	-0.001
10/30/01 13:00	0.1488	24.1	-0.001
10/30/01 13:00	0.1578	24.1	0.001
10/30/01 13:00	0.167	24.1	-0.001
10/30/01 13:00	0.1768	24.09	-0.001
10/30/01 13:00	0.1875	24.09	-0.001
10/30/01 13:00	0.1985	24.09	-0.001
10/30/01 13:00	0.21	24.09	-0.001
10/30/01 13:00	0.2225	24.09	-0.001
10/30/01 13:00	0.2358	24.09	-0.001
10/30/01 13:00	0.2498	24.09	0.001
10/30/01 13:00	0.2647	24.09	-0.001
10/30/01 13:00	0.2803	24.09	-0.001
10/30/01 13:00	0.297	24.09	-0.001
10/30/01 13:00	0.3145	24.09	-0.001
10/30/01 13:00	0.3333	24.09	-0.001
10/30/01 13:00	0.3532	24.09	-0.001
10/30/01 13:00	0.374	24.09	-0.001
10/30/01 13:00	0.3963	24.09	-0.001
10/30/01 13:00	0.4198	24.09	-0.001
10/30/01 13:00	0.4445	24.09	-0.001
10/30/01 13:00	0.4695	24.08	-0.001
10/30/01 13:00	0.4963	24.09	-0.001
10/30/01 13:00	0.5247	24.09	0.001
10/30/01 13:00	0.5547	24.09	-0.001
10/30/01 13:00	0.5862	24.09	0.001
10/30/01 13:00	0.6213	24.09	-0.001
10/30/01 13:00	0.6578	24.09	0.001
10/30/01 13:00	0.6963	24.09	-0.001
10/30/01 13:00	0.738	24.09	0.001
10/30/01 13:00	0.7813	24.09	-0.001
10/30/01 13:00	0.8278	24.08	-0.001
10/30/01 13:00	0.8762	24.08	0
10/30/01 13:00	0.9278	24.09	-0.001
10/30/01 13:00	0.9828	24.08	0
10/30/01 13:01	1.0412	24.08	0
10/30/01 13:01	1.103	24.08	0
10/30/01 13:01	1.1678	24.08	0
10/30/01 13:01	1.238	24.08	-0.001
10/30/01 13:01	1.3113	24.08	-0.001
10/30/01 13:01	1.3895	24.08	0
10/30/01 13:01	1.4728	24.08	-0.001
10/30/01 13:01	1.5613	24.08	-0.001
10/30/01 13:01	1.6547	24.08	0
10/30/01 13:01	1.753	24.08	0
10/30/01 13:01	1.858	24.06	0
10/30/01 13:01	1.9678	24.08	0
10/30/01 13:02	2.0845	24.06	-0.002
10/30/01 13:02	2.2097	24.06	0
10/30/01 13:02	2.3412	24.06	-0.002
10/30/01 13:02	2.4812	24.06	0
10/30/01 13:02	2.6297	24.06	-0.002
10/30/01 13:02	2.7863	24.06	-0.002
10/30/01 13:02	2.953	24.06	0
10/30/01 13:03	3.1297	24.06	0
10/30/01 13:03	3.3162	24.06	0

10/30/01	13:03	3.5145	24.06	0
10/30/01	13:03	3.7245	24.05	-0.002
10/30/01	13:03	3.9463	24.06	-0.002
10/30/01	13:04	4.1812	24.05	0
10/30/01	13:04	4.4295	24.06	0
10/30/01	13:04	4.6928	24.06	-0.002
10/30/01	13:04	4.9728	24.06	-0.002
10/30/01	13:05	5.2697	24.05	-0.002
10/30/01	13:05	5.583	24.05	-0.002
10/30/01	13:05	5.9145	24.05	-0.002
10/30/01	13:06	6.2663	24.05	-0.002
10/30/01	13:06	6.6395	24.05	0
10/30/01	13:07	7.0345	24.05	0
10/30/01	13:07	7.453	24.05	0
10/30/01	13:07	7.8962	24.05	0
10/30/01	13:08	8.3663	24.05	0
10/30/01	13:08	8.8645	24.05	0
10/30/01	13:09	9.3913	24.05	-0.002
10/30/01	13:09	9.9497	24.05	0
10/30/01	13:10	10.5413	24.05	0
10/30/01	13:11	11.168	24.05	0
10/30/01	13:11	11.8312	24.05	0
10/30/01	13:12	12.5347	24.05	0
10/30/01	13:13	13.2795	24.05	0
10/30/01	13:14	14.0695	24.05	0
10/30/01	13:14	14.9062	24.05	0.002
10/30/01	13:15	15.7913	24.05	0
10/30/01	13:16	16.7295	24.05	0
10/30/01	13:17	17.723	24.05	0
10/30/01	13:18	18.7762	24.05	0
10/30/01	13:19	19.8913	24.05	0
10/30/01	13:21	21.073	24.05	0
10/30/01	13:22	22.3247	24.05	0
10/30/01	13:23	23.6497	24.05	0
10/30/01	13:25	25.0545	24.05	0.002
10/30/01	13:26	26.5428	24.05	0.002
10/30/01	13:28	28.1178	24.05	0
10/30/01	13:29	29.7863	24.05	0
10/30/01	13:31	31.5545	24.05	0
10/30/01	13:33	33.428	24.05	-0.002
10/30/01	13:35	35.4112	24.05	0
10/30/01	13:37	37.513	24.05	0
10/30/01	13:39	39.7397	24.05	0
10/30/01	13:42	42.098	24.05	0
10/30/01	13:44	44.5963	24.05	-0.002
10/30/01	13:47	47.2428	24.05	-0.002
10/30/01	13:50	50.0463	24.05	0
10/30/01	13:53	53.0147	24.05	-0.002
10/30/01	13:56	56.1595	24.05	0
10/30/01	13:59	59.4913	24.05	0
10/30/01	14:03	63.0195	24.05	0
10/30/01	14:06	66.758	24.05	-0.002
10/30/01	14:10	70.7178	24.05	-0.002
10/30/01	14:14	74.9113	24.05	0
10/30/01	14:19	79.3545	24.05	0
10/30/01	14:24	84.0613	24.05	0
10/30/01	14:29	89.0462	24.05	0.002
10/30/01	14:34	94.3262	24.05	0
10/30/01	14:39	99.9197	24.05	0.002
10/30/01	14:45	105.8447	24.05	0.002
10/30/01	14:52	112.1197	24.05	0.004
10/30/01	14:58	118.7678	24.05	0.004
10/30/01	15:05	125.8095	24.05	0.006

			MW03SU-ST
10/30/01 15:13	133.2678	24.05	0.006
10/30/01 15:21	141.1678	24.05	0.007
10/30/01 15:29	149.5363	24.05	0.006
10/30/01 15:38	158.4012	24.04	0.007
10/30/01 15:47	167.7912	24.04	0.009
10/30/01 15:57	177.738 24.04	0.009	
10/30/01 16:08	188.2745	24.04	0.011
10/30/01 16:18	198.2745	24.04	0.011
10/30/01 16:28	208.2745	24.04	0.011
10/30/01 16:38	218.2745	24.04	0.013
10/30/01 16:48	228.2745	24.04	0.013
10/30/01 16:58	238.2745	24.04	0.017
10/30/01 17:08	248.2745	24.04	0.017
10/30/01 17:18	258.2745	24.04	0.017
10/30/01 17:28	268.2745	24.04	0.018
10/30/01 17:38	278.2745	24.04	0.018
10/30/01 17:48	288.2745	24.04	0.02
10/30/01 17:58	298.2745	24.04	0.018
10/30/01 18:08	308.2745	24.04	0.02
10/30/01 18:18	318.2745	24.04	0.022
10/30/01 18:28	328.2745	24.04	0.022
10/30/01 18:38	338.2745	24.04	0.022
10/30/01 18:48	348.2745	24.04	0.022
10/30/01 18:58	358.2745	24.04	0.024
10/30/01 19:08	368.2745	24.04	0.026
10/30/01 19:18	378.2745	24.02	0.024
10/30/01 19:28	388.2745	24.02	0.024
10/30/01 19:38	398.2745	24.02	0.026
10/30/01 19:48	408.2745	24.04	0.026
10/30/01 19:58	418.2745	24.02	0.028
10/30/01 20:08	428.2745	24.02	0.028
10/30/01 20:18	438.2745	24.02	0.028
10/30/01 20:28	448.2745	24.02	0.028
10/30/01 20:38	458.2745	24.02	0.029
10/30/01 20:48	468.2745	24.02	0.029
10/30/01 20:58	478.2745	24.02	0.031
10/30/01 21:08	488.2745	24.02	0.033
10/30/01 21:18	498.2745	24.02	0.035
10/30/01 21:28	508.2745	24.02	0.035
10/30/01 21:38	518.2745	24.02	0.035
10/30/01 21:48	528.2745	24.02	0.035
10/30/01 21:58	538.2745	24.02	0.035
10/30/01 22:08	548.2747	24.02	0.035
10/30/01 22:18	558.2747	24.02	0.035
10/30/01 22:28	568.2747	24.02	0.033
10/30/01 22:38	578.2747	24.02	0.033
10/30/01 22:48	588.2747	24.02	0.031
10/30/01 22:58	598.2747	24.02	0.031
10/30/01 23:08	608.2747	24.02	0.031
10/30/01 23:18	618.2747	24.01	0.031
10/30/01 23:28	628.2747	24.01	0.029
10/30/01 23:38	638.2747	24.01	0.029
10/30/01 23:48	648.2747	24.01	0.029
10/30/01 23:58	658.2747	24.01	0.029
10/31/01 0:08	668.2747	24.01	0.027
10/31/01 0:18	678.2747	24.01	0.029
10/31/01 0:28	688.2747	24.01	0.029
10/31/01 0:38	698.2747	24.01	0.031
10/31/01 0:48	708.2747	24.01	0.029
10/31/01 0:58	718.2747	24.01	0.029
10/31/01 1:08	728.2747	24.01	0.031
10/31/01 1:18	738.2747	24.01	0.029
10/31/01 1:28	748.2747	24.01	0.031

		MW03SU-ST	
10/31/01 1:38	758.2747	24.01	0.029
10/31/01 1:48	768.2747	24.01	0.027
10/31/01 1:58	778.2747	24.01	0.027
10/31/01 2:08	788.2747	24	0.025
10/31/01 2:18	798.2747	24.01	0.024
10/31/01 2:28	808.2747	24.01	0.025
10/31/01 2:38	818.2747	24.01	0.029
10/31/01 2:48	828.2747	24	0.029
10/31/01 2:58	838.2747	24	0.029
10/31/01 3:08	848.2747	24	0.029
10/31/01 3:18	858.2747	24	0.029
10/31/01 3:28	868.2747	24	0.029
10/31/01 3:38	878.2747	24	0.029
10/31/01 3:48	888.2747	24	0.031
10/31/01 3:58	898.2747	24	0.031
10/31/01 4:08	908.2747	24	0.031
10/31/01 4:18	918.2747	24	0.035
10/31/01 4:28	928.2747	24	0.035
10/31/01 4:38	938.2747	24	0.033
10/31/01 4:48	948.2747	24	0.036
10/31/01 4:58	958.2747	24	0.035
10/31/01 5:08	968.2747	24	0.035
10/31/01 5:18	978.2747	24	0.036
10/31/01 5:28	988.2747	24	0.036
10/31/01 5:38	998.2747	24	0.036
10/31/01 5:48	1008.2747	24	0.038
10/31/01 5:58	1018.2747	23.99	0.04
10/31/01 6:08	1028.2747	24	0.042
10/31/01 6:18	1038.2747	23.99	0.042
10/31/01 6:28	1048.2747	23.99	0.044
10/31/01 6:38	1058.2747	23.99	0.046
10/31/01 6:48	1068.2747	23.99	0.046
10/31/01 6:58	1078.2747	23.99	0.046
10/31/01 7:08	1088.2747	23.99	0.047
10/31/01 7:18	1098.2745	23.99	0.046
10/31/01 7:28	1108.2745	23.99	0.047
10/31/01 7:38	1118.2745	23.99	0.049
10/31/01 7:48	1128.2745	23.99	0.053
10/31/01 7:58	1138.2745	23.99	0.051
10/31/01 8:08	1148.2745	23.99	0.051
10/31/01 8:18	1158.2745	23.99	0.053
10/31/01 8:28	1168.2745	23.97	0.051
10/31/01 8:38	1178.2745	23.97	0.055
10/31/01 8:48	1188.2745	23.97	0.053
10/31/01 8:58	1198.2745	23.99	0.051
10/31/01 9:08	1208.2745	23.97	0.053
10/31/01 9:18	1218.2745	23.97	0.055
10/31/01 9:28	1228.2745	23.97	0.053
10/31/01 9:38	1238.2745	23.97	0.055
10/31/01 9:48	1248.2745	23.97	0.055
10/31/01 9:58	1258.2745	23.97	0.055
10/31/01 10:08	1268.2745	23.97	0.056
10/31/01 10:18	1278.2745	23.97	0.056
10/31/01 10:28	1288.2745	23.97	0.056
10/31/01 10:38	1298.2745	23.97	0.056
10/31/01 10:48	1308.2745	23.97	0.056
10/31/01 10:58	1318.2745	23.97	0.055
10/31/01 11:08	1328.2745	23.97	0.055
10/31/01 11:18	1338.2745	23.97	0.053
10/31/01 11:28	1348.2745	23.97	0.053
10/31/01 11:38	1358.2745	23.97	0.055
10/31/01 11:48	1368.2745	23.97	0.051
10/31/01 11:58	1378.2745	23.97	0.051

MW03SU-ST

10/31/01 12:08	1388.2745	23.97	0.049
10/31/01 12:18	1398.2745	23.96	0.047
10/31/01 12:28	1408.2745	23.96	0.047
10/31/01 12:38	1418.2745	23.97	0.045
10/31/01 12:48	1428.2745	23.96	0.045
10/31/01 12:58	1438.2745	23.96	0.043
10/31/01 13:08	1448.2745	23.96	0.043
10/31/01 13:18	1458.2745	23.96	0.043
10/31/01 13:28	1468.2745	23.96	0.043
10/31/01 13:38	1478.2745	23.96	0.041
10/31/01 13:48	1488.2745	23.96	0.039
10/31/01 13:58	1498.2745	23.96	0.041
10/31/01 14:08	1508.2745	23.96	0.041
10/31/01 14:18	1518.2745	23.96	0.039
10/31/01 14:28	1528.2745	23.96	0.039
10/31/01 14:38	1538.2745	23.96	0.041
10/31/01 14:48	1548.2745	23.96	0.045
10/31/01 14:58	1558.2745	23.96	0.047
10/31/01 15:08	1568.2745	23.96	0.049
10/31/01 15:18	1578.2745	23.95	0.049
10/31/01 15:28	1588.2745	23.96	0.051
10/31/01 15:38	1598.2745	23.96	0.051
10/31/01 15:48	1608.2745	23.95	0.052
10/31/01 15:58	1618.2745	23.95	0.054
10/31/01 16:08	1628.2745	23.95	0.054
10/31/01 16:18	1638.2745	23.95	0.054
10/31/01 16:28	1648.2745	23.95	0.056
10/31/01 16:38	1658.2745	23.95	0.054
10/31/01 16:48	1668.2745	23.95	0.056
10/31/01 16:58	1678.2745	23.95	0.056
10/31/01 17:08	1688.2745	23.95	0.054
10/31/01 17:18	1698.2745	23.95	0.056
10/31/01 17:28	1708.2745	23.95	0.054
10/31/01 17:38	1718.2745	23.95	0.056
10/31/01 17:48	1728.2745	23.95	0.056
10/31/01 17:58	1738.2745	23.95	0.056
10/31/01 18:08	1748.2745	23.95	0.058
10/31/01 18:18	1758.2745	23.95	0.06
10/31/01 18:28	1768.2745	23.94	0.059
10/31/01 18:38	1778.2745	23.95	0.062
10/31/01 18:48	1788.2745	23.94	0.061
10/31/01 18:58	1798.2745	23.94	0.061
10/31/01 19:08	1808.2745	23.94	0.063
10/31/01 19:18	1818.2745	23.94	0.061
10/31/01 19:28	1828.2745	23.94	0.061
10/31/01 19:38	1838.2745	23.94	0.063
10/31/01 19:48	1848.2745	23.94	0.065
10/31/01 19:58	1858.2745	23.94	0.065
10/31/01 20:08	1868.2745	23.94	0.067
10/31/01 20:18	1878.2745	23.94	0.067
10/31/01 20:28	1888.2745	23.94	0.065
10/31/01 20:38	1898.2745	23.94	0.067
10/31/01 20:48	1908.2745	23.94	0.067
10/31/01 20:58	1918.2745	23.94	0.067
10/31/01 21:08	1928.2745	23.94	0.069
10/31/01 21:18	1938.2745	23.94	0.067
10/31/01 21:28	1948.2745	23.94	0.069
10/31/01 21:38	1958.2745	23.94	0.067
10/31/01 21:48	1968.2745	23.94	0.069
10/31/01 21:58	1978.2745	23.92	0.07
10/31/01 22:08	1988.2745	23.94	0.069
10/31/01 22:18	1998.2745	23.92	0.067
10/31/01 22:28	2008.2745	23.92	0.069

		MW03SU-ST	
10/31/01 22:38	2018.2745	23.92	0.072
10/31/01 22:48	2028.2745	23.92	0.07
10/31/01 22:58	2038.2745	23.92	0.069
10/31/01 23:08	2048.2745	23.92	0.07
10/31/01 23:18	2058.2745	23.92	0.069
10/31/01 23:28	2068.2745	23.92	0.065
10/31/01 23:38	2078.2745	23.92	0.067
10/31/01 23:48	2088.2745	23.92	0.069
10/31/01 23:58	2098.2745	23.92	0.067
11/1/01 0:08	2108.2745	23.92	0.067
11/1/01 0:18	2118.2745	23.92	0.067
11/1/01 0:28	2128.2745	23.92	0.067
11/1/01 0:38	2138.2745	23.92	0.07
11/1/01 0:48	2148.2745	23.92	0.07
11/1/01 0:58	2158.2745	23.92	0.067
11/1/01 1:08	2168.2745	23.91	0.066
11/1/01 1:18	2178.2745	23.91	0.065
11/1/01 1:28	2188.2747	23.91	0.066
11/1/01 1:38	2198.2747	23.92	0.065
11/1/01 1:48	2208.2747	23.91	0.066
11/1/01 1:58	2218.2747	23.91	0.065
11/1/01 2:08	2228.2747	23.91	0.065
11/1/01 2:18	2238.2747	23.91	0.066
11/1/01 2:28	2248.2747	23.91	0.068
11/1/01 2:38	2258.2747	23.91	0.07
11/1/01 2:48	2268.2747	23.91	0.07
11/1/01 2:58	2278.2747	23.91	0.072
11/1/01 3:08	2288.2747	23.91	0.068
11/1/01 3:18	2298.2747	23.91	0.068
11/1/01 3:28	2308.2747	23.9	0.068
11/1/01 3:38	2318.2747	23.9	0.07
11/1/01 3:48	2328.2747	23.91	0.072
11/1/01 3:58	2338.2747	23.9	0.07
11/1/01 4:08	2348.2747	23.9	0.07
11/1/01 4:18	2358.2747	23.9	0.07
11/1/01 4:28	2368.2747	23.9	0.07
11/1/01 4:38	2378.2747	23.9	0.07
11/1/01 4:48	2388.2747	23.9	0.074
11/1/01 4:58	2398.2747	23.9	0.074
11/1/01 5:08	2408.2747	23.9	0.076
11/1/01 5:18	2418.2747	23.9	0.077
11/1/01 5:28	2428.2747	23.9	0.077
11/1/01 5:38	2438.2747	23.9	0.077
11/1/01 5:48	2448.2747	23.9	0.079
11/1/01 5:58	2458.2747	23.9	0.076
11/1/01 6:08	2468.2747	23.9	0.077
11/1/01 6:18	2478.2747	23.9	0.079
11/1/01 6:28	2488.2747	23.9	0.079
11/1/01 6:38	2498.2747	23.9	0.079
11/1/01 6:48	2508.2747	23.88	0.079
11/1/01 6:58	2518.2747	23.88	0.081
11/1/01 7:08	2528.2747	23.9	0.081
11/1/01 7:18	2538.2747	23.9	0.081
11/1/01 7:28	2548.2747	23.88	0.085
11/1/01 7:38	2558.2747	23.88	0.085
11/1/01 7:48	2568.2747	23.88	0.083
11/1/01 7:58	2578.2747	23.88	0.083
11/1/01 8:08	2588.2747	23.88	0.083
11/1/01 8:18	2598.2747	23.88	0.087
11/1/01 8:28	2608.2747	23.88	0.087
11/1/01 8:38	2618.2747	23.88	0.087
11/1/01 8:48	2628.2747	23.88	0.087
11/1/01 8:58	2638.2747	23.88	0.088

			MW03SU-ST
11/1/01 9:08	2648.2747	23.88	0.088
11/1/01 9:18	2658.2747	23.88	0.087
11/1/01 9:28	2668.2747	23.88	0.088
11/1/01 9:38	2678.2747	23.88	0.09
11/1/01 9:48	2688.2747	23.88	0.09
11/1/01 9:58	2698.2747	23.87	0.09
11/1/01 10:08	2708.2747	23.87	0.09
11/1/01 10:18	2718.2747	23.87	0.086
11/1/01 10:28	2728.2747	23.87	0.086
11/1/01 10:38	2738.2747	23.87	0.086
11/1/01 10:48	2748.2747	23.87	0.086
11/1/01 10:58	2758.2747	23.87	0.084
11/1/01 11:08	2768.2747	23.87	0.086
11/1/01 11:18	2778.2747	23.87	0.086
11/1/01 11:28	2788.2747	23.87	0.084
11/1/01 11:38	2798.2747	23.87	0.083
11/1/01 11:48	2808.2747	23.87	0.083
11/1/01 11:58	2818.2747	23.87	0.083
11/1/01 12:08	2828.2747	23.87	0.083
11/1/01 12:18	2838.2747	23.87	0.083
11/1/01 12:28	2848.2747	23.87	0.079
11/1/01 12:38	2858.2747	23.87	0.079
11/1/01 12:48	2868.2747	23.86	0.079
11/1/01 12:58	2878.2747	23.87	0.077
11/1/01 13:08	2888.2747	23.86	0.073
11/1/01 13:18	2898.2747	23.87	0.071
11/1/01 13:28	2908.2747	23.86	0.071
11/1/01 13:38	2918.2747	23.86	0.073
11/1/01 13:48	2928.2747	23.86	0.073
11/1/01 13:58	2938.2747	23.86	0.073
11/1/01 14:08	2948.2747	23.86	0.071
11/1/01 14:18	2958.2747	23.86	0.071
11/1/01 14:28	2968.2747	23.86	0.073
11/1/01 14:38	2978.2747	23.86	0.075
11/1/01 14:48	2988.2747	23.86	0.071
11/1/01 14:58	2998.2747	23.86	0.073
11/1/01 15:08	3008.2747	23.86	0.077
11/1/01 15:18	3018.2747	23.86	0.077
11/1/01 15:28	3028.2747	23.86	0.079
11/1/01 15:38	3038.2747	23.86	0.08
11/1/01 15:48	3048.2747	23.86	0.077
11/1/01 15:58	3058.2747	23.86	0.077
11/1/01 16:08	3068.2747	23.86	0.075
11/1/01 16:18	3078.2747	23.86	0.075
11/1/01 16:28	3088.2747	23.86	0.073
11/1/01 16:38	3098.2747	23.85	0.076
11/1/01 16:48	3108.2747	23.85	0.075
11/1/01 16:58	3118.2747	23.85	0.076
11/1/01 17:08	3128.2747	23.85	0.075
11/1/01 17:18	3138.2747	23.85	0.075
11/1/01 17:28	3148.2747	23.85	0.078
11/1/01 17:38	3158.2747	23.85	0.08
11/1/01 17:48	3168.2747	23.85	0.08
11/1/01 17:58	3178.2747	23.85	0.08
11/1/01 18:08	3188.2747	23.85	0.08
11/1/01 18:18	3198.2747	23.85	0.08
11/1/01 18:28	3208.2747	23.85	0.076
11/1/01 18:38	3218.2747	23.85	0.08
11/1/01 18:48	3228.2747	23.85	0.08
11/1/01 18:58	3238.2747	23.85	0.08
11/1/01 19:08	3248.2747	23.85	0.082
11/1/01 19:18	3258.2747	23.83	0.082
11/1/01 19:28	3268.2747	23.83	0.082

		MW03SU-ST	
11/1/01 19:38	3278.2747	23.83	0.08
11/1/01 19:48	3288.2747	23.83	0.082
11/1/01 19:58	3298.2747	23.83	0.082
11/1/01 20:08	3308.2747	23.83	0.08
11/1/01 20:18	3318.2747	23.83	0.084
11/1/01 20:28	3328.2747	23.83	0.082
11/1/01 20:38	3338.2747	23.83	0.086
11/1/01 20:48	3348.2747	23.83	0.082
11/1/01 20:58	3358.2747	23.83	0.082
11/1/01 21:08	3368.2747	23.83	0.082
11/1/01 21:18	3378.2747	23.83	0.084
11/1/01 21:28	3388.2747	23.83	0.084
11/1/01 21:38	3398.2747	23.83	0.084
11/1/01 21:48	3408.2747	23.83	0.086
11/1/01 21:58	3418.2747	23.83	0.084
11/1/01 22:08	3428.2747	23.83	0.086
11/1/01 22:18	3438.2747	23.83	0.086
11/1/01 22:28	3448.2747	23.83	0.086
11/1/01 22:38	3458.2747	23.83	0.086
11/1/01 22:48	3468.2747	23.82	0.085
11/1/01 22:58	3478.2747	23.82	0.082
11/1/01 23:08	3488.2747	23.82	0.082
11/1/01 23:18	3498.2747	23.82	0.083
11/1/01 23:28	3508.2747	23.82	0.08
11/1/01 23:38	3518.2747	23.82	0.082
11/1/01 23:48	3528.2747	23.82	0.08
11/1/01 23:58	3538.2747	23.82	0.078
11/2/01 0:08	3548.2747	23.82	0.076
11/2/01 0:18	3558.2747	23.82	0.076
11/2/01 0:28	3568.2747	23.82	0.078
11/2/01 0:38	3578.2747	23.82	0.078
11/2/01 0:48	3588.2747	23.82	0.074
11/2/01 0:58	3598.2747	23.81	0.076
11/2/01 1:08	3608.2747	23.81	0.074
11/2/01 1:18	3618.2747	23.82	0.074
11/2/01 1:28	3628.2747	23.81	0.074
11/2/01 1:38	3638.2747	23.82	0.074
11/2/01 1:48	3648.2747	23.82	0.074
11/2/01 1:58	3658.2747	23.82	0.074
11/2/01 2:08	3668.2747	23.81	0.076
11/2/01 2:18	3678.2747	23.81	0.074
11/2/01 2:28	3688.2747	23.81	0.076
11/2/01 2:38	3698.2747	23.81	0.076
11/2/01 2:48	3708.2747	23.81	0.076
11/2/01 2:58	3718.2747	23.81	0.074
11/2/01 3:08	3728.2747	23.81	0.076
11/2/01 3:18	3738.2747	23.81	0.072
11/2/01 3:28	3748.2747	23.81	0.076
11/2/01 3:38	3758.2747	23.81	0.076
11/2/01 3:48	3768.2747	23.81	0.076
11/2/01 3:58	3778.2747	23.81	0.076
11/2/01 4:08	3788.2747	23.79	0.077
11/2/01 4:18	3798.2747	23.81	0.08
11/2/01 4:28	3808.2747	23.79	0.083
11/2/01 4:38	3818.2747	23.81	0.087
11/2/01 4:48	3828.2747	23.79	0.087
11/2/01 4:58	3838.2747	23.81	0.087
11/2/01 5:08	3848.2747	23.79	0.087
11/2/01 5:18	3858.2747	23.79	0.089
11/2/01 5:28	3868.2747	23.79	0.089
11/2/01 5:38	3878.2747	23.79	0.09
11/2/01 5:48	3888.2747	23.79	0.09
11/2/01 5:58	3898.2747	23.79	0.09

			MW03SU-ST
11/2/01 6:08	3908.2747	23.79	0.09
11/2/01 6:18	3918.2747	23.79	0.09
11/2/01 6:28	3928.2747	23.79	0.089
11/2/01 6:38	3938.2747	23.79	0.089
11/2/01 6:48	3948.2747	23.79	0.089
11/2/01 6:58	3958.2747	23.79	0.09
11/2/01 7:08	3968.2747	23.79	0.092
11/2/01 7:18	3978.2747	23.79	0.09
11/2/01 7:28	3988.2747	23.79	0.09
11/2/01 7:38	3998.2747	23.79	0.09
11/2/01 7:48	4008.2747	23.78	0.09
11/2/01 7:58	4018.2747	23.79	0.09
11/2/01 8:08	4028.2747	23.78	0.092
11/2/01 8:18	4038.2747	23.79	0.092
11/2/01 8:28	4048.2747	23.78	0.092
11/2/01 8:38	4058.2747	23.78	0.094
11/2/01 8:48	4068.2747	23.78	0.092
11/2/01 8:58	4078.2747	23.78	0.092
11/2/01 9:08	4088.2747	23.78	0.092
11/2/01 9:18	4098.2747	23.78	0.094
11/2/01 9:28	4108.2747	23.78	0.096
11/2/01 9:38	4118.2747	23.78	0.096
11/2/01 9:48	4128.2747	23.78	0.096
11/2/01 9:58	4138.2747	23.78	0.096
11/2/01 10:08	4148.2747	23.78	0.096
11/2/01 10:18	4158.2747	23.78	0.094
11/2/01 10:28	4168.2747	23.77	0.094
11/2/01 10:38	4178.2747	23.77	0.096
11/2/01 10:48	4188.2747	23.78	0.094
11/2/01 10:58	4198.2747	23.78	0.096
11/2/01 11:08	4208.2747	23.78	0.092
11/2/01 11:18	4218.2747	23.78	0.092
11/2/01 11:28	4228.2747	23.78	0.09
11/2/01 11:38	4238.2747	23.77	0.088
11/2/01 11:48	4248.2747	23.78	0.087
11/2/01 11:58	4258.2747	23.77	0.086
11/2/01 12:08	4268.2747	23.77	0.084
11/2/01 12:18	4278.2747	23.77	0.083
11/2/01 12:28	4288.2747	23.77	0.081
11/2/01 12:38	4298.2747	23.77	0.081
11/2/01 12:48	4308.2747	23.77	0.081
11/2/01 12:58	4318.2747	23.77	0.077
11/2/01 13:08	4328.2747	23.77	0.077

MW03SLST

In-Situ Inc. MiniTroll Pro

Report generated: 11/1/01 10:39:12
Report from file: C:\WIN-SITU\Data\SN06476 2001-10-30 130000 MW03SL-ST.bin

DataMgr Version 3.69

Serial number: 6476
Firmware Version 3.01
Unit name: MW03SL

Test name: MW03SL-ST

Test defined on: 10/30/01 12:22:24
Test scheduled for: 10/30/01 13:00:00
Test started on: 10/30/01 13:00:00
Test stopped on: 11/1/01 10:36:21
Test extracted on: N/A

Data gathered using Logarithmic testing
Maximum time between data points: 10.0000 Minutes.
Number of data samples: 406

TOTAL DATA SAMPLES 406

Channel number [1]
Measurement type: Temperature
Channel name: OnBoard Temp

Channel number [2]
Measurement type: Pressure
Channel name: OnBoard Pressure
Sensor Range: 100 PSI.
Specific gravity: 1
Mode: TOC
User-defined reference: 0 Feet H2O
Referenced on: test start
Pressure head at reference: 9.362 Feet H2O

Date	Time	Chan[1] ET (min)	Chan[2] Celsius	Feet H2O
10/30/01	13:00 0	24.44	0	
10/30/01	13:00 0.0048	24.45	-0.006	
10/30/01	13:00 0.0098	24.45	-0.012	
10/30/01	13:00 0.015	24.46	-0.012	
10/30/01	13:00 0.0198	24.46	-0.012	
10/30/01	13:00 0.025	24.46	-0.012	
10/30/01	13:00 0.03	24.46	-0.012	
10/30/01	13:00 0.035	24.46	-0.012	
10/30/01	13:00 0.0398	24.46	-0.012	
10/30/01	13:00 0.045	24.46	-0.012	
10/30/01	13:00 0.05	24.46	-0.012	
10/30/01	13:00 0.0548	24.46	-0.012	
10/30/01	13:00 0.06	24.46	-0.012	
10/30/01	13:00 0.0648	24.47	-0.017	
10/30/01	13:00 0.07	24.47	-0.017	
10/30/01	13:00 0.075	24.47	-0.017	
10/30/01	13:00 0.0798	24.47	-0.011	
10/30/01	13:00 0.0848	24.47	-0.011	
10/30/01	13:00 0.09	24.47	-0.011	

10/30/01 13:00	0.095	24.47	-0.017
10/30/01 13:00	0.1	24.47	-0.017
10/30/01 13:00	0.1057	24.47	-0.011
10/30/01 13:00	0.1118	24.47	-0.017
10/30/01 13:00	0.1185	24.47	-0.017
10/30/01 13:00	0.1255	24.47	-0.017
10/30/01 13:00	0.1327	24.47	-0.011
10/30/01 13:00	0.1405	24.47	-0.017
10/30/01 13:00	0.1488	24.47	-0.017
10/30/01 13:00	0.1578	24.47	-0.011
10/30/01 13:00	0.167	24.47	-0.011
10/30/01 13:00	0.1768	24.47	-0.011
10/30/01 13:00	0.1875	24.47	-0.011
10/30/01 13:00	0.1985	24.47	-0.011
10/30/01 13:00	0.21	24.47	-0.011
10/30/01 13:00	0.2225	24.47	-0.011
10/30/01 13:00	0.2358	24.47	-0.004
10/30/01 13:00	0.2498	24.46	-0.005
10/30/01 13:00	0.2647	24.47	-0.004
10/30/01 13:00	0.2803	24.46	-0.005
10/30/01 13:00	0.297	24.47	-0.004
10/30/01 13:00	0.3145	24.47	0.002
10/30/01 13:00	0.3333	24.46	0.001
10/30/01 13:00	0.3532	24.46	0.001
10/30/01 13:00	0.374	24.46	-0.005
10/30/01 13:00	0.3963	24.46	0.001
10/30/01 13:00	0.4198	24.46	0.001
10/30/01 13:00	0.4445	24.46	0.001
10/30/01 13:00	0.4695	24.46	0.001
10/30/01 13:00	0.4963	24.46	0.001
10/30/01 13:00	0.5247	24.46	0.001
10/30/01 13:00	0.5547	24.46	0.001
10/30/01 13:00	0.5862	24.46	0.001
10/30/01 13:00	0.6213	24.46	0.001
10/30/01 13:00	0.6578	24.46	0.001
10/30/01 13:00	0.6963	24.46	0.001
10/30/01 13:00	0.738	24.46	0.001
10/30/01 13:00	0.7813	24.46	0.001
10/30/01 13:00	0.8278	24.46	0.001
10/30/01 13:00	0.8762	24.46	0.001
10/30/01 13:00	0.9278	24.46	0.001
10/30/01 13:00	0.9828	24.46	0.001
10/30/01 13:01	1.0412	24.46	0.008
10/30/01 13:01	1.103	24.46	0.001
10/30/01 13:01	1.1678	24.46	0.001
10/30/01 13:01	1.238	24.46	0.001
10/30/01 13:01	1.3113	24.46	0.008
10/30/01 13:01	1.3895	24.45	0.007
10/30/01 13:01	1.4728	24.46	0.001
10/30/01 13:01	1.5613	24.45	0.001
10/30/01 13:01	1.6547	24.45	0.001
10/30/01 13:01	1.753	24.45	0.001
10/30/01 13:01	1.858	24.45	0.007
10/30/01 13:01	1.9678	24.45	0.001
10/30/01 13:02	2.0845	24.45	0.001
10/30/01 13:02	2.2097	24.45	0.001
10/30/01 13:02	2.3412	24.45	0.001
10/30/01 13:02	2.4812	24.45	0.007
10/30/01 13:02	2.6297	24.45	0.007
10/30/01 13:02	2.7863	24.45	0.007
10/30/01 13:02	2.953	24.45	0.007
10/30/01 13:03	3.1297	24.45	0.007
10/30/01 13:03	3.3162	24.45	0.007

10/30/01 13:03	3.5145	24.45	0.007	
10/30/01 13:03	3.7245	24.45	0.007	
10/30/01 13:03	3.9463	24.45	0.007	
10/30/01 13:04	4.1812	24.44	0.006	
10/30/01 13:04	4.4295	24.44	0.013	
10/30/01 13:04	4.6928	24.44	0.013	
10/30/01 13:04	4.9728	24.44	0.013	
10/30/01 13:05	5.2697	24.44	0.019	
10/30/01 13:05	5.583	24.44	0.013	
10/30/01 13:05	5.9145	24.44	0.013	
10/30/01 13:06	6.2663	24.44	0.019	
10/30/01 13:06	6.6395	24.44	0.019	
10/30/01 13:07	7.0345	24.44	0.026	
10/30/01 13:07	7.453	24.44	0.026	
10/30/01 13:07	7.8962	24.44	0.026	
10/30/01 13:08	8.3663	24.44	0.032	
10/30/01 13:08	8.8645	24.44	0.032	
10/30/01 13:09	9.3913	24.44	0.039	
10/30/01 13:09	9.9497	24.44	0.039	
10/30/01 13:10	10.5413	24.44	0.045	
10/30/01 13:11	11.168	24.44	0.045	
10/30/01 13:11	11.8312	24.44	0.052	
10/30/01 13:12	12.5347	24.44	0.052	
10/30/01 13:13	13.2795	24.44	0.058	
10/30/01 13:14	14.0695	24.44	0.058	
10/30/01 13:14	14.9062	24.44	0.065	
10/30/01 13:15	15.7913	24.44	0.071	
10/30/01 13:16	16.7295	24.44	0.071	
10/30/01 13:17	17.723	24.44	0.078	
10/30/01 13:18	18.7762	24.44	0.078	
10/30/01 13:19	19.8913	24.44	0.084	
10/30/01 13:21	21.073	24.44	0.084	
10/30/01 13:22	22.3247	24.44	0.091	
10/30/01 13:23	23.6497	24.44	0.097	
10/30/01 13:25	25.0545	24.44	0.104	
10/30/01 13:26	26.5428	24.44	0.104	
10/30/01 13:28	28.1178	24.44	0.104	
10/30/01 13:29	29.7863	24.44	0.11	
10/30/01 13:31	31.5545	24.44	0.117	
10/30/01 13:33	33.428	24.44	0.117	
10/30/01 13:35	35.4112	24.44	0.123	
10/30/01 13:37	37.513	24.44	0.13	
10/30/01 13:39	39.7397	24.44	0.13	
10/30/01 13:42	42.098	24.44	0.136	
10/30/01 13:44	44.5963	24.44	0.143	
10/30/01 13:47	47.2428	24.44	0.143	
10/30/01 13:50	50.0463	24.44	0.149	
10/30/01 13:53	53.0147	24.44	0.149	
10/30/01 13:56	56.1595	24.44	0.156	
10/30/01 13:59	59.4913	24.44	0.162	
10/30/01 14:03	63.0195	24.44	0.162	
10/30/01 14:06	66.758	24.44	0.169	
10/30/01 14:10	70.7178	24.44	0.175	
10/30/01 14:14	74.9113	24.44	0.175	
10/30/01 14:19	79.3545	24.44	0.175	
10/30/01 14:24	84.0613	24.44	0.182	
10/30/01 14:29	89.0462	24.44	0.188	
10/30/01 14:34	94.3262	24.44	0.195	
10/30/01 14:39	99.9197	24.44	0.195	
10/30/01 14:45	105.8447		24.44	0.201
10/30/01 14:52	112.1197		24.44	0.201
10/30/01 14:58	118.7678		24.44	0.214
10/30/01 15:05	125.8095		24.44	0.214

		MW03SLST	
10/30/01 15:13	133.2678	24.44	0.214
10/30/01 15:21	141.1678	24.44	0.221
10/30/01 15:29	149.5363	24.44	0.221
10/30/01 15:38	158.4012	24.44	0.227
10/30/01 15:47	167.7912	24.44	0.234
10/30/01 15:57	177.738 24.44	0.234	
10/30/01 16:08	188.2745	24.44	0.24
10/30/01 16:18	198.2745	24.44	0.247
10/30/01 16:28	208.2745	24.44	0.247
10/30/01 16:38	218.2745	24.44	0.253
10/30/01 16:48	228.2745	24.44	0.253
10/30/01 16:58	238.2745	24.44	0.26
10/30/01 17:08	248.2745	24.44	0.26
10/30/01 17:18	258.2745	24.44	0.266
10/30/01 17:28	268.2745	24.44	0.266
10/30/01 17:38	278.2745	24.44	0.266
10/30/01 17:48	288.2745	24.44	0.273
10/30/01 17:58	298.2745	24.44	0.273
10/30/01 18:08	308.2745	24.44	0.273
10/30/01 18:18	318.2745	24.44	0.266
10/30/01 18:28	328.2745	24.44	0.266
10/30/01 18:38	338.2745	24.44	0.273
10/30/01 18:48	348.2745	24.44	0.266
10/30/01 18:58	358.2745	24.44	0.273
10/30/01 19:08	368.2745	24.44	0.266
10/30/01 19:18	378.2745	24.44	0.266
10/30/01 19:28	388.2745	24.44	0.266
10/30/01 19:38	398.2745	24.44	0.266
10/30/01 19:48	408.2745	24.44	0.266
10/30/01 19:58	418.2745	24.44	0.26
10/30/01 20:08	428.2745	24.44	0.266
10/30/01 20:18	438.2745	24.44	0.26
10/30/01 20:28	448.2745	24.44	0.26
10/30/01 20:38	458.2745	24.44	0.26
10/30/01 20:48	468.2745	24.44	0.26
10/30/01 20:58	478.2745	24.44	0.266
10/30/01 21:08	488.2745	24.44	0.266
10/30/01 21:18	498.2745	24.44	0.266
10/30/01 21:28	508.2745	24.44	0.266
10/30/01 21:38	518.2745	24.44	0.273
10/30/01 21:48	528.2745	24.44	0.273
10/30/01 21:58	538.2745	24.44	0.279
10/30/01 22:08	548.2747	24.44	0.279
10/30/01 22:18	558.2747	24.44	0.279
10/30/01 22:28	568.2747	24.44	0.286
10/30/01 22:38	578.2747	24.42	0.285
10/30/01 22:48	588.2747	24.44	0.286
10/30/01 22:58	598.2747	24.44	0.286
10/30/01 23:08	608.2747	24.42	0.285
10/30/01 23:18	618.2747	24.44	0.292
10/30/01 23:28	628.2747	24.44	0.292
10/30/01 23:38	638.2747	24.44	0.292
10/30/01 23:48	648.2747	24.44	0.286
10/30/01 23:58	658.2747	24.44	0.292
10/31/01 0:08	668.2747	24.44	0.292
10/31/01 0:18	678.2747	24.44	0.292
10/31/01 0:28	688.2747	24.42	0.285
10/31/01 0:38	698.2747	24.42	0.291
10/31/01 0:48	708.2747	24.42	0.304
10/31/01 0:58	718.2747	24.44	0.318
10/31/01 1:08	728.2747	24.42	0.324
10/31/01 1:18	738.2747	24.44	0.331
10/31/01 1:28	748.2747	24.42	0.337

			MW03SLST
10/31/01 1:38	758.2747	24.44	0.344
10/31/01 1:48	768.2747	24.44	0.351
10/31/01 1:58	778.2747	24.44	0.351
10/31/01 2:08	788.2747	24.44	0.351
10/31/01 2:18	798.2747	24.44	0.351
10/31/01 2:28	808.2747	24.44	0.364
10/31/01 2:38	818.2747	24.42	0.356
10/31/01 2:48	828.2747	24.44	0.364
10/31/01 2:58	838.2747	24.44	0.37
10/31/01 3:08	848.2747	24.44	0.37
10/31/01 3:18	858.2747	24.42	0.369
10/31/01 3:28	868.2747	24.44	0.37
10/31/01 3:38	878.2747	24.44	0.377
10/31/01 3:48	888.2747	24.44	0.377
10/31/01 3:58	898.2747	24.44	0.377
10/31/01 4:08	908.2747	24.44	0.383
10/31/01 4:18	918.2747	24.44	0.383
10/31/01 4:28	928.2747	24.44	0.383
10/31/01 4:38	938.2747	24.44	0.383
10/31/01 4:48	948.2747	24.44	0.39
10/31/01 4:58	958.2747	24.44	0.39
10/31/01 5:08	968.2747	24.44	0.39
10/31/01 5:18	978.2747	24.42	0.395
10/31/01 5:28	988.2747	24.42	0.395
10/31/01 5:38	998.2747	24.42	0.389
10/31/01 5:48	1008.2747	24.42	0.395
10/31/01 5:58	1018.2747	24.44	0.396
10/31/01 6:08	1028.2747	24.44	0.403
10/31/01 6:18	1038.2747	24.42	0.395
10/31/01 6:28	1048.2747	24.42	0.395
10/31/01 6:38	1058.2747	24.44	0.403
10/31/01 6:48	1068.2747	24.42	0.395
10/31/01 6:58	1078.2747	24.44	0.396
10/31/01 7:08	1088.2747	24.42	0.389
10/31/01 7:18	1098.2745	24.42	0.395
10/31/01 7:28	1108.2745	24.42	0.389
10/31/01 7:38	1118.2745	24.44	0.396
10/31/01 7:48	1128.2745	24.42	0.389
10/31/01 7:58	1138.2745	24.44	0.39
10/31/01 8:08	1148.2745	24.42	0.382
10/31/01 8:18	1158.2745	24.42	0.382
10/31/01 8:28	1168.2745	24.44	0.383
10/31/01 8:38	1178.2745	24.42	0.382
10/31/01 8:48	1188.2745	24.42	0.382
10/31/01 8:58	1198.2745	24.44	0.383
10/31/01 9:08	1208.2745	24.44	0.377
10/31/01 9:18	1218.2745	24.42	0.382
10/31/01 9:28	1228.2745	24.42	0.382
10/31/01 9:38	1238.2745	24.44	0.39
10/31/01 9:48	1248.2745	24.44	0.39
10/31/01 9:58	1258.2745	24.42	0.395
10/31/01 10:08	1268.2745	24.42	0.402
10/31/01 10:18	1278.2745	24.42	0.402
10/31/01 10:28	1288.2745	24.42	0.402
10/31/01 10:38	1298.2745	24.42	0.402
10/31/01 10:48	1308.2745	24.42	0.408
10/31/01 10:58	1318.2745	24.42	0.408
10/31/01 11:08	1328.2745	24.42	0.408
10/31/01 11:18	1338.2745	24.42	0.408
10/31/01 11:28	1348.2745	24.42	0.408
10/31/01 11:38	1358.2745	24.42	0.408
10/31/01 11:48	1368.2745	24.42	0.415
10/31/01 11:58	1378.2745	24.42	0.408

			MW03SLST
10/31/01 12:08	1388.2745	24.42	0.408
10/31/01 12:18	1398.2745	24.42	0.408
10/31/01 12:28	1408.2745	24.42	0.402
10/31/01 12:38	1418.2745	24.42	0.408
10/31/01 12:48	1428.2745	24.42	0.408
10/31/01 12:58	1438.2745	24.42	0.408
10/31/01 13:08	1448.2745	24.42	0.408
10/31/01 13:18	1458.2745	24.42	0.402
10/31/01 13:28	1468.2745	24.42	0.408
10/31/01 13:38	1478.2745	24.42	0.408
10/31/01 13:48	1488.2745	24.42	0.408
10/31/01 13:58	1498.2745	24.42	0.408
10/31/01 14:08	1508.2745	24.42	0.408
10/31/01 14:18	1518.2745	24.42	0.408
10/31/01 14:28	1528.2745	24.42	0.408
10/31/01 14:38	1538.2745	24.42	0.415
10/31/01 14:48	1548.2745	24.42	0.408
10/31/01 14:58	1558.2745	24.42	0.408
10/31/01 15:08	1568.2745	24.42	0.415
10/31/01 15:18	1578.2745	24.42	0.421
10/31/01 15:28	1588.2745	24.42	0.421
10/31/01 15:38	1598.2745	24.42	0.415
10/31/01 15:48	1608.2745	24.42	0.421
10/31/01 15:58	1618.2745	24.42	0.421
10/31/01 16:08	1628.2745	24.42	0.421
10/31/01 16:18	1638.2745	24.42	0.421
10/31/01 16:28	1648.2745	24.42	0.421
10/31/01 16:38	1658.2745	24.42	0.428
10/31/01 16:48	1668.2745	24.42	0.421
10/31/01 16:58	1678.2745	24.42	0.428
10/31/01 17:08	1688.2745	24.42	0.428
10/31/01 17:18	1698.2745	24.42	0.428
10/31/01 17:28	1708.2745	24.42	0.428
10/31/01 17:38	1718.2745	24.42	0.428
10/31/01 17:48	1728.2745	24.42	0.428
10/31/01 17:58	1738.2745	24.42	0.428
10/31/01 18:08	1748.2745	24.42	0.428
10/31/01 18:18	1758.2745	24.42	0.428
10/31/01 18:28	1768.2745	24.42	0.428
10/31/01 18:38	1778.2745	24.42	0.428
10/31/01 18:48	1788.2745	24.42	0.428
10/31/01 18:58	1798.2745	24.42	0.428
10/31/01 19:08	1808.2745	24.42	0.428
10/31/01 19:18	1818.2745	24.42	0.428
10/31/01 19:28	1828.2745	24.42	0.428
10/31/01 19:38	1838.2745	24.42	0.428
10/31/01 19:48	1848.2745	24.42	0.421
10/31/01 19:58	1858.2745	24.42	0.421
10/31/01 20:08	1868.2745	24.42	0.421
10/31/01 20:18	1878.2745	24.42	0.421
10/31/01 20:28	1888.2745	24.42	0.415
10/31/01 20:38	1898.2745	24.42	0.415
10/31/01 20:48	1908.2745	24.42	0.408
10/31/01 20:58	1918.2745	24.42	0.408
10/31/01 21:08	1928.2745	24.42	0.408
10/31/01 21:18	1938.2745	24.42	0.408
10/31/01 21:28	1948.2745	24.42	0.408
10/31/01 21:38	1958.2745	24.42	0.408
10/31/01 21:48	1968.2745	24.42	0.408
10/31/01 21:58	1978.2745	24.42	0.408
10/31/01 22:08	1988.2745	24.42	0.408
10/31/01 22:18	1998.2745	24.42	0.408
10/31/01 22:28	2008.2745	24.42	0.408

			MW03SLST
10/31/01 22:38	2018.2745	24.42	0.408
10/31/01 22:48	2028.2745	24.42	0.415
10/31/01 22:58	2038.2745	24.42	0.415
10/31/01 23:08	2048.2745	24.42	0.415
10/31/01 23:18	2058.2745	24.42	0.415
10/31/01 23:28	2068.2745	24.42	0.415
10/31/01 23:38	2078.2745	24.42	0.415
10/31/01 23:48	2088.2745	24.42	0.415
10/31/01 23:58	2098.2745	24.42	0.415
11/1/01 0:08	2108.2745	24.42	0.415
11/1/01 0:18	2118.2745	24.42	0.415
11/1/01 0:28	2128.2745	24.42	0.421
11/1/01 0:38	2138.2745	24.42	0.421
11/1/01 0:48	2148.2745	24.42	0.428
11/1/01 0:58	2158.2745	24.42	0.428
11/1/01 1:08	2168.2745	24.42	0.421
11/1/01 1:18	2178.2745	24.42	0.421
11/1/01 1:28	2188.2747	24.42	0.421
11/1/01 1:38	2198.2747	24.42	0.421
11/1/01 1:48	2208.2747	24.42	0.421
11/1/01 1:58	2218.2747	24.42	0.421
11/1/01 2:08	2228.2747	24.41	0.421
11/1/01 2:18	2238.2747	24.42	0.421
11/1/01 2:28	2248.2747	24.42	0.421
11/1/01 2:38	2258.2747	24.42	0.421
11/1/01 2:48	2268.2747	24.42	0.428
11/1/01 2:58	2278.2747	24.42	0.428
11/1/01 3:08	2288.2747	24.42	0.421
11/1/01 3:18	2298.2747	24.42	0.421
11/1/01 3:28	2308.2747	24.42	0.428
11/1/01 3:38	2318.2747	24.41	0.427
11/1/01 3:48	2328.2747	24.42	0.421
11/1/01 3:58	2338.2747	24.41	0.421
11/1/01 4:08	2348.2747	24.42	0.421
11/1/01 4:18	2358.2747	24.42	0.421
11/1/01 4:28	2368.2747	24.42	0.428
11/1/01 4:38	2378.2747	24.42	0.428
11/1/01 4:48	2388.2747	24.42	0.428
11/1/01 4:58	2398.2747	24.41	0.434
11/1/01 5:08	2408.2747	24.41	0.434
11/1/01 5:18	2418.2747	24.42	0.434
11/1/01 5:28	2428.2747	24.41	0.434
11/1/01 5:38	2438.2747	24.41	0.44
11/1/01 5:48	2448.2747	24.41	0.44
11/1/01 5:58	2458.2747	24.41	0.44
11/1/01 6:08	2468.2747	24.41	0.44
11/1/01 6:18	2478.2747	24.42	0.441
11/1/01 6:28	2488.2747	24.41	0.44
11/1/01 6:38	2498.2747	24.41	0.434
11/1/01 6:48	2508.2747	24.42	0.434
11/1/01 6:58	2518.2747	24.42	0.434
11/1/01 7:08	2528.2747	24.41	0.434
11/1/01 7:18	2538.2747	24.41	0.414
11/1/01 7:28	2548.2747	24.41	0.414
11/1/01 7:38	2558.2747	24.41	0.408
11/1/01 7:48	2568.2747	24.41	0.401
11/1/01 7:58	2578.2747	24.41	0.401
11/1/01 8:08	2588.2747	24.41	0.395
11/1/01 8:18	2598.2747	24.41	0.395
11/1/01 8:28	2608.2747	24.41	0.388
11/1/01 8:38	2618.2747	24.41	0.388
11/1/01 8:48	2628.2747	24.41	0.388
11/1/01 8:58	2638.2747	24.41	0.382

			MW03SLST
11/1/01 9:08	2648.2747	24.41	0.375
11/1/01 9:18	2658.2747	24.41	0.369
11/1/01 9:28	2668.2747	24.41	0.375
11/1/01 9:38	2678.2747	24.41	0.369
11/1/01 9:48	2688.2747	24.41	0.369
11/1/01 9:58	2698.2747	24.41	0.369
11/1/01 10:08	2708.2747	24.41	0.369
11/1/01 10:18	2718.2747	24.41	0.362
11/1/01 10:28	2728.2747	24.41	0.369

MW03SL-REC

In-Situ Inc. MiniTroll Pro

Report generated: 11/2/01 13:14:03
Report from file: C:\WIN-SITU\Data\SN06476 2001-11-01 110000 MW03SL-REC.bin

DataMgr Version 3.69

Serial number: 6476
Firmware Version 3.01
Unit name: MW03SL

Test name: MW03SL-REC

Test defined on: 11/1/01 10:50:15
Test scheduled for: 11/1/01 11:00:00
Test started on: 11/1/01 11:00:00
Test stopped on: 11/2/01 13:13:55
Test extracted on: N/A

Data gathered using Linear testing
Time between data points: 5.0000 Minutes.
Number of data samples: 315

TOTAL DATA SAMPLES 315

Channel number [1]
Measurement type: Temperature
Channel name: OnBoard Temp

Channel number [2]
Measurement type: Pressure
Channel name: OnBoard Pressure
Sensor Range: 100 PSI.
Specific gravity: 1
Mode: TOC
User-defined reference: 0 Feet H2O
Referenced on: test start
Pressure head at reference: 8.986 Feet H2O

Date	Time	Chan[1] ET (min)	Chan[2] Celsius	Feet H2O
11/1/01 11:00	0	24.42	0	
11/1/01 11:05	5	24.42	0.006	
11/1/01 11:10	10	24.42	0.006	
11/1/01 11:15	15	24.41	0.006	
11/1/01 11:20	20	24.41	0.006	
11/1/01 11:25	25	24.42	0.013	
11/1/01 11:30	30	24.41	0.012	
11/1/01 11:35	35	24.41	0.012	
11/1/01 11:40	40	24.41	0.012	
11/1/01 11:45	45	24.41	0.012	
11/1/01 11:50	50	24.41	0.012	
11/1/01 11:55	55	24.41	0.012	
11/1/01 12:00	60	24.41	0.012	
11/1/01 12:05	65	24.41	0.006	
11/1/01 12:10	70	24.41	-0.014	
11/1/01 12:15	75	24.41	-0.046	
11/1/01 12:20	80	24.41	-0.066	
11/1/01 12:25	85	24.41	-0.092	
11/1/01 12:30	90	24.41	-0.111	

MW03SL-REC

11/1/01 12:35	95	24.41	-0.131
11/1/01 12:40	100	24.41	-0.144
11/1/01 12:45	105	24.41	-0.157
11/1/01 12:50	110	24.41	-0.17
11/1/01 12:55	115	24.41	-0.176
11/1/01 13:00	120	24.41	-0.189
11/1/01 13:05	125	24.41	-0.196
11/1/01 13:10	130	24.41	-0.208
11/1/01 13:15	135	24.41	-0.215
11/1/01 13:20	140	24.41	-0.221
11/1/01 13:25	145	24.41	-0.228
11/1/01 13:30	150	24.41	-0.234
11/1/01 13:35	155	24.41	-0.234
11/1/01 13:40	160	24.41	-0.241
11/1/01 13:45	165	24.41	-0.247
11/1/01 13:50	170	24.41	-0.247
11/1/01 13:55	175	24.42	-0.253
11/1/01 14:00	180	24.41	-0.26
11/1/01 14:05	185	24.41	-0.26
11/1/01 14:10	190	24.41	-0.267
11/1/01 14:15	195	24.41	-0.267
11/1/01 14:20	200	24.41	-0.273
11/1/01 14:25	205	24.42	-0.273
11/1/01 14:30	210	24.41	-0.28
11/1/01 14:35	215	24.41	-0.28
11/1/01 14:40	220	24.41	-0.28
11/1/01 14:45	225	24.41	-0.286
11/1/01 14:50	230	24.41	-0.286
11/1/01 14:55	235	24.42	-0.286
11/1/01 15:00	240	24.41	-0.286
11/1/01 15:05	245	24.42	-0.286
11/1/01 15:10	250	24.41	-0.286
11/1/01 15:15	255	24.41	-0.293
11/1/01 15:20	260	24.41	-0.293
11/1/01 15:25	265	24.41	-0.293
11/1/01 15:30	270	24.41	-0.293
11/1/01 15:35	275	24.41	-0.306
11/1/01 15:40	280	24.41	-0.299
11/1/01 15:45	285	24.41	-0.299
11/1/01 15:50	290	24.41	-0.299
11/1/01 15:55	295	24.41	-0.299
11/1/01 16:00	300	24.41	-0.299
11/1/01 16:05	305	24.41	-0.299
11/1/01 16:10	310	24.41	-0.299
11/1/01 16:15	315	24.41	-0.299
11/1/01 16:20	320	24.41	-0.299
11/1/01 16:25	325	24.41	-0.306
11/1/01 16:30	330	24.42	-0.305
11/1/01 16:35	335	24.41	-0.306
11/1/01 16:40	340	24.41	-0.306
11/1/01 16:45	345	24.41	-0.306
11/1/01 16:50	350	24.41	-0.312
11/1/01 16:55	355	24.41	-0.312
11/1/01 17:00	360	24.41	-0.312
11/1/01 17:05	365	24.41	-0.312
11/1/01 17:10	370	24.41	-0.312
11/1/01 17:15	375	24.42	-0.318
11/1/01 17:20	380	24.41	-0.312
11/1/01 17:25	385	24.42	-0.312
11/1/01 17:30	390	24.41	-0.312
11/1/01 17:35	395	24.41	-0.312
11/1/01 17:40	400	24.41	-0.319
11/1/01 17:45	405	24.41	-0.312

MW03SL-REC

11/1/01 17:50	410	24.41	-0.312
11/1/01 17:55	415	24.41	-0.312
11/1/01 18:00	420	24.41	-0.312
11/1/01 18:05	425	24.41	-0.319
11/1/01 18:10	430	24.41	-0.319
11/1/01 18:15	435	24.41	-0.319
11/1/01 18:20	440	24.41	-0.319
11/1/01 18:25	445	24.41	-0.319
11/1/01 18:30	450	24.41	-0.319
11/1/01 18:35	455	24.41	-0.319
11/1/01 18:40	460	24.41	-0.325
11/1/01 18:45	465	24.41	-0.325
11/1/01 18:50	470	24.41	-0.325
11/1/01 18:55	475	24.41	-0.319
11/1/01 19:00	480	24.41	-0.325
11/1/01 19:05	485	24.41	-0.325
11/1/01 19:10	490	24.41	-0.325
11/1/01 19:15	495	24.41	-0.325
11/1/01 19:20	500	24.41	-0.332
11/1/01 19:25	505	24.42	-0.325
11/1/01 19:30	510	24.41	-0.332
11/1/01 19:35	515	24.41	-0.332
11/1/01 19:40	520	24.41	-0.332
11/1/01 19:45	525	24.41	-0.338
11/1/01 19:50	530	24.41	-0.338
11/1/01 19:55	535	24.41	-0.338
11/1/01 20:00	540	24.41	-0.338
11/1/01 20:05	545	24.41	-0.345
11/1/01 20:10	550	24.41	-0.345
11/1/01 20:15	555	24.41	-0.345
11/1/01 20:20	560	24.41	-0.345
11/1/01 20:25	565	24.41	-0.345
11/1/01 20:30	570	24.41	-0.345
11/1/01 20:35	575	24.41	-0.351
11/1/01 20:40	580	24.41	-0.351
11/1/01 20:45	585	24.41	-0.358
11/1/01 20:50	590	24.41	-0.358
11/1/01 20:55	595	24.41	-0.358
11/1/01 21:00	600	24.41	-0.358
11/1/01 21:05	605	24.41	-0.364
11/1/01 21:10	610	24.41	-0.364
11/1/01 21:15	615	24.41	-0.364
11/1/01 21:20	620	24.41	-0.364
11/1/01 21:25	625	24.41	-0.364
11/1/01 21:30	630	24.41	-0.364
11/1/01 21:35	635	24.41	-0.371
11/1/01 21:40	640	24.41	-0.371
11/1/01 21:45	645	24.41	-0.371
11/1/01 21:50	650	24.41	-0.371
11/1/01 21:55	655	24.41	-0.371
11/1/01 22:00	660	24.41	-0.371
11/1/01 22:05	665	24.41	-0.377
11/1/01 22:10	670	24.41	-0.371
11/1/01 22:15	675	24.41	-0.377
11/1/01 22:20	680	24.41	-0.377
11/1/01 22:25	685	24.41	-0.377
11/1/01 22:30	690	24.41	-0.377
11/1/01 22:35	695	24.41	-0.377
11/1/01 22:40	700	24.41	-0.384
11/1/01 22:45	705	24.41	-0.377
11/1/01 22:50	710	24.41	-0.377
11/1/01 22:55	715	24.41	-0.377
11/1/01 23:00	720	24.41	-0.377

		MW03SL-REC	
11/1/01 23:05	725	24.41	-0.377
11/1/01 23:10	730	24.41	-0.377
11/1/01 23:15	735	24.41	-0.384
11/1/01 23:20	740	24.41	-0.377
11/1/01 23:25	745	24.41	-0.377
11/1/01 23:30	750	24.41	-0.377
11/1/01 23:35	755	24.41	-0.377
11/1/01 23:40	760	24.41	-0.377
11/1/01 23:45	765	24.41	-0.377
11/1/01 23:50	770	24.41	-0.377
11/1/01 23:55	775	24.41	-0.377
11/2/01 0:00	780	24.41	-0.384
11/2/01 0:05	785	24.41	-0.384
11/2/01 0:10	790	24.41	-0.384
11/2/01 0:15	795	24.41	-0.384
11/2/01 0:20	800	24.41	-0.384
11/2/01 0:25	805	24.41	-0.384
11/2/01 0:30	810	24.41	-0.384
11/2/01 0:35	815	24.41	-0.384
11/2/01 0:40	820	24.41	-0.384
11/2/01 0:45	825	24.41	-0.384
11/2/01 0:50	830	24.41	-0.384
11/2/01 0:55	835	24.41	-0.384
11/2/01 1:00	840	24.41	-0.384
11/2/01 1:05	845	24.41	-0.384
11/2/01 1:10	850	24.41	-0.39
11/2/01 1:15	855	24.41	-0.39
11/2/01 1:20	860	24.41	-0.384
11/2/01 1:25	865	24.41	-0.384
11/2/01 1:30	870	24.41	-0.39
11/2/01 1:35	875	24.41	-0.39
11/2/01 1:40	880	24.41	-0.39
11/2/01 1:45	885	24.41	-0.39
11/2/01 1:50	890	24.41	-0.39
11/2/01 1:55	895	24.41	-0.39
11/2/01 2:00	900	24.41	-0.39
11/2/01 2:05	905	24.41	-0.39
11/2/01 2:10	910	24.41	-0.39
11/2/01 2:15	915	24.41	-0.39
11/2/01 2:20	920	24.41	-0.39
11/2/01 2:25	925	24.41	-0.39
11/2/01 2:30	930	24.41	-0.39
11/2/01 2:35	935	24.41	-0.39
11/2/01 2:40	940	24.41	-0.384
11/2/01 2:45	945	24.41	-0.39
11/2/01 2:50	950	24.41	-0.384
11/2/01 2:55	955	24.41	-0.39
11/2/01 3:00	960	24.41	-0.39
11/2/01 3:05	965	24.41	-0.39
11/2/01 3:10	970	24.41	-0.384
11/2/01 3:15	975	24.41	-0.39
11/2/01 3:20	980	24.41	-0.39
11/2/01 3:25	985	24.41	-0.39
11/2/01 3:30	990	24.41	-0.39
11/2/01 3:35	995	24.41	-0.39
11/2/01 3:40	1000	24.41	-0.39
11/2/01 3:45	1005	24.41	-0.39
11/2/01 3:50	1010	24.41	-0.39
11/2/01 3:55	1015	24.41	-0.39
11/2/01 4:00	1020	24.41	-0.39
11/2/01 4:05	1025	24.41	-0.384
11/2/01 4:10	1030	24.41	-0.39
11/2/01 4:15	1035	24.41	-0.39

MW03SL-REC

11/2/01 4:20	1040	24.41	-0.39
11/2/01 4:25	1045	24.41	-0.384
11/2/01 4:30	1050	24.41	-0.384
11/2/01 4:35	1055	24.41	-0.384
11/2/01 4:40	1060	24.4	-0.378
11/2/01 4:45	1065	24.41	-0.377
11/2/01 4:50	1070	24.41	-0.384
11/2/01 4:55	1075	24.4	-0.385
11/2/01 5:00	1080	24.4	-0.378
11/2/01 5:05	1085	24.4	-0.378
11/2/01 5:10	1090	24.4	-0.378
11/2/01 5:15	1095	24.41	-0.377
11/2/01 5:20	1100	24.41	-0.377
11/2/01 5:25	1105	24.41	-0.371
11/2/01 5:30	1110	24.4	-0.372
11/2/01 5:35	1115	24.4	-0.372
11/2/01 5:40	1120	24.4	-0.372
11/2/01 5:45	1125	24.4	-0.372
11/2/01 5:50	1130	24.4	-0.372
11/2/01 5:55	1135	24.4	-0.372
11/2/01 6:00	1140	24.41	-0.371
11/2/01 6:05	1145	24.41	-0.371
11/2/01 6:10	1150	24.4	-0.372
11/2/01 6:15	1155	24.41	-0.371
11/2/01 6:20	1160	24.41	-0.371
11/2/01 6:25	1165	24.41	-0.371
11/2/01 6:30	1170	24.4	-0.372
11/2/01 6:35	1175	24.4	-0.372
11/2/01 6:40	1180	24.4	-0.372
11/2/01 6:45	1185	24.41	-0.377
11/2/01 6:50	1190	24.4	-0.372
11/2/01 6:55	1195	24.4	-0.372
11/2/01 7:00	1200	24.41	-0.371
11/2/01 7:05	1205	24.41	-0.371
11/2/01 7:10	1210	24.4	-0.372
11/2/01 7:15	1215	24.4	-0.378
11/2/01 7:20	1220	24.41	-0.377
11/2/01 7:25	1225	24.4	-0.378
11/2/01 7:30	1230	24.4	-0.378
11/2/01 7:35	1235	24.4	-0.378
11/2/01 7:40	1240	24.4	-0.378
11/2/01 7:45	1245	24.4	-0.378
11/2/01 7:50	1250	24.4	-0.378
11/2/01 7:55	1255	24.4	-0.378
11/2/01 8:00	1260	24.4	-0.385
11/2/01 8:05	1265	24.4	-0.385
11/2/01 8:10	1270	24.4	-0.385
11/2/01 8:15	1275	24.4	-0.385
11/2/01 8:20	1280	24.4	-0.385
11/2/01 8:25	1285	24.4	-0.385
11/2/01 8:30	1290	24.4	-0.391
11/2/01 8:35	1295	24.4	-0.391
11/2/01 8:40	1300	24.4	-0.391
11/2/01 8:45	1305	24.4	-0.391
11/2/01 8:50	1310	24.4	-0.397
11/2/01 8:55	1315	24.4	-0.397
11/2/01 9:00	1320	24.4	-0.397
11/2/01 9:05	1325	24.4	-0.397
11/2/01 9:10	1330	24.4	-0.397
11/2/01 9:15	1335	24.4	-0.397
11/2/01 9:20	1340	24.4	-0.404
11/2/01 9:25	1345	24.4	-0.404
11/2/01 9:30	1350	24.4	-0.404

			MW03SL-REC
11/2/01 9:35	1355	24.4	-0.404
11/2/01 9:40	1360	24.4	-0.41
11/2/01 9:45	1365	24.4	-0.41
11/2/01 9:50	1370	24.4	-0.417
11/2/01 9:55	1375	24.4	-0.41
11/2/01 10:00	1380	24.4	-0.417
11/2/01 10:05	1385	24.4	-0.417
11/2/01 10:10	1390	24.4	-0.417
11/2/01 10:15	1395	24.4	-0.417
11/2/01 10:20	1400	24.4	-0.417
11/2/01 10:25	1405	24.4	-0.417
11/2/01 10:30	1410	24.4	-0.417
11/2/01 10:35	1415	24.4	-0.417
11/2/01 10:40	1420	24.4	-0.423
11/2/01 10:45	1425	24.4	-0.417
11/2/01 10:50	1430	24.4	-0.423
11/2/01 10:55	1435	24.4	-0.417
11/2/01 11:00	1440	24.4	-0.423
11/2/01 11:05	1445	24.4	-0.423
11/2/01 11:10	1450	24.4	-0.417
11/2/01 11:15	1455	24.4	-0.417
11/2/01 11:20	1460	24.4	-0.417
11/2/01 11:25	1465	24.4	-0.423
11/2/01 11:30	1470	24.4	-0.417
11/2/01 11:35	1475	24.4	-0.417
11/2/01 11:40	1480	24.4	-0.423
11/2/01 11:45	1485	24.4	-0.417
11/2/01 11:50	1490	24.4	-0.417
11/2/01 11:55	1495	24.4	-0.423
11/2/01 12:00	1500	24.4	-0.417
11/2/01 12:05	1505	24.4	-0.417
11/2/01 12:10	1510	24.4	-0.423
11/2/01 12:15	1515	24.4	-0.423
11/2/01 12:20	1520	24.4	-0.423
11/2/01 12:25	1525	24.4	-0.423
11/2/01 12:30	1530	24.4	-0.417
11/2/01 12:35	1535	24.4	-0.417
11/2/01 12:40	1540	24.4	-0.417
11/2/01 12:45	1545	24.4	-0.417
11/2/01 12:50	1550	24.4	-0.423
11/2/01 12:55	1555	24.4	-0.417
11/2/01 13:00	1560	24.4	-0.417
11/2/01 13:05	1565	24.4	-0.423
11/2/01 13:10	1570	24.4	-0.417

MW06SU-ST

In-Situ Inc. MiniTroll Pro

Report generated: 11/2/01 12:07:21
Report from file: C:\WIN-SITU\Data\SN06358 2001-10-30 130000 MW06SU-ST.bin

DataMgr Version 3.69

Serial number: 6358
Firmware Version 3.01
Unit name: MW06SU-WL

Test name: MW06SU-ST

Test defined on: 10/30/01 12:11:42
Test scheduled for: 10/30/01 13:00:00
Test started on: 10/30/01 13:00:00
Test stopped on: 11/2/01 12:07:14
Test extracted on: N/A

Data gathered using Logarithmic testing
Maximum time between data points: 10.0000 Minutes.
Number of data samples: 559

TOTAL DATA SAMPLES 559

Channel number [1]
Measurement type: Temperature
Channel name: OnBoard Temp

Channel number [2]
Measurement type: Pressure
Channel name: OnBoard Pressure
Sensor Range: 30 PSI.
Specific gravity: 1
Mode: TOC
User-defined reference: 0 Feet H2O
Referenced on: test start
Pressure head at reference: 2.925 Feet H2O

Date	Time	Chan[1] ET (min)	Chan[2] Celsius	Feet H2O
10/30/01	13:00	0	23.72	0
10/30/01	13:00	0.0048	23.74	0
10/30/01	13:00	0.0098	23.74	-0.002
10/30/01	13:00	0.015	23.75	-0.001
10/30/01	13:00	0.0198	23.75	-0.003
10/30/01	13:00	0.025	23.75	-0.003
10/30/01	13:00	0.03	23.75	-0.003
10/30/01	13:00	0.035	23.75	-0.005
10/30/01	13:00	0.0398	23.75	-0.003
10/30/01	13:00	0.045	23.75	-0.005
10/30/01	13:00	0.05	23.76	-0.003
10/30/01	13:00	0.0548	23.76	-0.005
10/30/01	13:00	0.06	23.76	-0.005
10/30/01	13:00	0.0648	23.76	-0.005
10/30/01	13:00	0.07	23.76	-0.007
10/30/01	13:00	0.075	23.76	-0.005
10/30/01	13:00	0.0798	23.76	-0.005
10/30/01	13:00	0.0848	23.76	-0.005
10/30/01	13:00	0.09	23.76	-0.005

MW06SU-ST

10/30/01 13:00	0.095	23.76	-0.005
10/30/01 13:00	0.1	23.76	-0.005
10/30/01 13:00	0.1057	23.76	-0.005
10/30/01 13:00	0.1118	23.76	-0.007
10/30/01 13:00	0.1185	23.76	-0.007
10/30/01 13:00	0.1255	23.76	-0.005
10/30/01 13:00	0.1327	23.76	-0.007
10/30/01 13:00	0.1405	23.76	-0.005
10/30/01 13:00	0.1488	23.77	-0.005
10/30/01 13:00	0.1578	23.77	-0.005
10/30/01 13:00	0.167	23.76	-0.005
10/30/01 13:00	0.1768	23.76	-0.005
10/30/01 13:00	0.1875	23.76	-0.005
10/30/01 13:00	0.1985	23.75	-0.003
10/30/01 13:00	0.21	23.76	-0.003
10/30/01 13:00	0.2225	23.75	-0.003
10/30/01 13:00	0.2358	23.75	-0.001
10/30/01 13:00	0.2498	23.75	-0.001
10/30/01 13:00	0.2647	23.75	-0.001
10/30/01 13:00	0.2803	23.76	-0.001
10/30/01 13:00	0.297	23.76	-0.001
10/30/01 13:00	0.3145	23.75	-0.001
10/30/01 13:00	0.3333	23.75	0.001
10/30/01 13:00	0.3532	23.75	0.001
10/30/01 13:00	0.374	23.75	0.001
10/30/01 13:00	0.3963	23.75	0.001
10/30/01 13:00	0.4198	23.75	0.001
10/30/01 13:00	0.4445	23.75	0.001
10/30/01 13:00	0.4695	23.75	0.001
10/30/01 13:00	0.4963	23.75	0.003
10/30/01 13:00	0.5247	23.76	0.001
10/30/01 13:00	0.5547	23.75	0.001
10/30/01 13:00	0.5862	23.75	0.001
10/30/01 13:00	0.6213	23.75	0.003
10/30/01 13:00	0.6578	23.75	0.003
10/30/01 13:00	0.6963	23.75	0.003
10/30/01 13:00	0.738	23.75	0.003
10/30/01 13:00	0.7813	23.75	0.001
10/30/01 13:00	0.8278	23.75	0.003
10/30/01 13:00	0.8762	23.75	0.003
10/30/01 13:00	0.9278	23.75	0.001
10/30/01 13:00	0.9828	23.75	0.003
10/30/01 13:01	1.0412	23.75	0.003
10/30/01 13:01	1.103	23.75	0.003
10/30/01 13:01	1.1678	23.75	0.003
10/30/01 13:01	1.238	23.75	0.003
10/30/01 13:01	1.3113	23.75	0.003
10/30/01 13:01	1.3895	23.74	0.002
10/30/01 13:01	1.4728	23.75	0.003
10/30/01 13:01	1.5613	23.75	0.005
10/30/01 13:01	1.6547	23.75	0.003
10/30/01 13:01	1.753	23.75	0.005
10/30/01 13:01	1.858	23.74	0.002
10/30/01 13:01	1.9678	23.75	0.003
10/30/01 13:02	2.0845	23.74	0.005
10/30/01 13:02	2.2097	23.74	0.005
10/30/01 13:02	2.3412	23.74	0.005
10/30/01 13:02	2.4812	23.74	0.005
10/30/01 13:02	2.6297	23.74	0.005
10/30/01 13:02	2.7863	23.74	0.005
10/30/01 13:02	2.953	23.74	0.005
10/30/01 13:03	3.1297	23.74	0.005
10/30/01 13:03	3.3162	23.74	0.002

MW06SU-ST

10/30/01 13:03	3.5145	23.72	0.004
10/30/01 13:03	3.7245	23.72	0.006
10/30/01 13:03	3.9463	23.72	0.004
10/30/01 13:04	4.1812	23.72	0.004
10/30/01 13:04	4.4295	23.72	0.004
10/30/01 13:04	4.6928	23.72	0.004
10/30/01 13:04	4.9728	23.72	0.004
10/30/01 13:05	5.2697	23.72	0.002
10/30/01 13:05	5.583	23.72	0.004
10/30/01 13:05	5.9145	23.71	0.004
10/30/01 13:06	6.2663	23.71	0.004
10/30/01 13:06	6.6395	23.71	0.004
10/30/01 13:07	7.0345	23.71	0.004
10/30/01 13:07	7.453	23.71	0.004
10/30/01 13:07	7.8962	23.71	0.004
10/30/01 13:08	8.3663	23.71	0.004
10/30/01 13:08	8.8645	23.71	0.004
10/30/01 13:09	9.3913	23.72	0.004
10/30/01 13:09	9.9497	23.72	0.004
10/30/01 13:10	10.5413	23.72	0.004
10/30/01 13:11	11.168	23.72	0.004
10/30/01 13:11	11.8312	23.71	0.004
10/30/01 13:12	12.5347	23.72	0.002
10/30/01 13:13	13.2795	23.71	0.006
10/30/01 13:14	14.0695	23.71	0.006
10/30/01 13:14	14.9062	23.71	0.006
10/30/01 13:15	15.7913	23.7	0.005
10/30/01 13:16	16.7295	23.7	0.005
10/30/01 13:17	17.723	23.68	0.005
10/30/01 13:18	18.7762	23.7	0.007
10/30/01 13:19	19.8913	23.68	0.005
10/30/01 13:21	21.073	23.7	0.007
10/30/01 13:22	22.3247	23.7	0.007
10/30/01 13:23	23.6497	23.7	0.005
10/30/01 13:25	25.0545	23.7	0.005
10/30/01 13:26	26.5428	23.7	0.005
10/30/01 13:28	28.1178	23.7	0.007
10/30/01 13:29	29.7863	23.68	0.007
10/30/01 13:31	31.5545	23.67	0.007
10/30/01 13:33	33.428	23.67	0.009
10/30/01 13:35	35.4112	23.67	0.009
10/30/01 13:37	37.513	23.67	0.003
10/30/01 13:39	39.7397	23.67	0
10/30/01 13:42	42.098	23.67	-0.002
10/30/01 13:44	44.5963	23.68	-0.003
10/30/01 13:47	47.2428	23.68	-0.001
10/30/01 13:50	50.0463	23.68	-0.003
10/30/01 13:53	53.0147	23.68	-0.005
10/30/01 13:56	56.1595	23.68	-0.005
10/30/01 13:59	59.4913	23.68	-0.009
10/30/01 14:03	63.0195	23.67	-0.012
10/30/01 14:06	66.758	23.67	-0.014
10/30/01 14:10	70.7178	23.67	-0.016
10/30/01 14:14	74.9113	23.67	-0.018
10/30/01 14:19	79.3545	23.67	-0.022
10/30/01 14:24	84.0613	23.67	-0.024
10/30/01 14:29	89.0462	23.67	-0.029
10/30/01 14:34	94.3262	23.67	-0.031
10/30/01 14:39	99.9197	23.66	-0.031
10/30/01 14:45	105.8447	23.66	-0.035
10/30/01 14:52	112.1197	23.66	-0.037
10/30/01 14:58	118.7678	23.66	-0.037
10/30/01 15:05	125.8095	23.66	-0.039

		MW06SU-ST	
10/30/01 15:13	133.2678	23.66	-0.037
10/30/01 15:21	141.1678	23.66	-0.037
10/30/01 15:29	149.5363	23.66	-0.037
10/30/01 15:38	158.4012	23.65	-0.036
10/30/01 15:47	167.7912	23.66	-0.033
10/30/01 15:57	177.738	23.65	-0.033
10/30/01 16:08	188.2745	23.65	-0.033
10/30/01 16:18	198.2745	23.66	-0.031
10/30/01 16:28	208.2745	23.65	-0.031
10/30/01 16:38	218.2745	23.65	-0.031
10/30/01 16:48	228.2745	23.66	-0.029
10/30/01 16:58	238.2745	23.65	-0.029
10/30/01 17:08	248.2745	23.63	-0.028
10/30/01 17:18	258.2745	23.65	-0.027
10/30/01 17:28	268.2745	23.65	-0.027
10/30/01 17:38	278.2745	23.63	-0.026
10/30/01 17:48	288.2745	23.63	-0.026
10/30/01 17:58	298.2745	23.65	-0.023
10/30/01 18:08	308.2745	23.65	-0.021
10/30/01 18:18	318.2745	23.63	-0.021
10/30/01 18:28	328.2745	23.63	-0.021
10/30/01 18:38	338.2745	23.63	-0.021
10/30/01 18:48	348.2745	23.63	-0.019
10/30/01 18:58	358.2745	23.63	-0.017
10/30/01 19:08	368.2745	23.62	-0.018
10/30/01 19:18	378.2745	23.63	-0.015
10/30/01 19:28	388.2745	23.61	-0.016
10/30/01 19:38	398.2745	23.62	-0.016
10/30/01 19:48	408.2745	23.62	-0.016
10/30/01 19:58	418.2745	23.63	-0.013
10/30/01 20:08	428.2745	23.63	-0.015
10/30/01 20:18	438.2745	23.63	-0.013
10/30/01 20:28	448.2745	23.62	-0.014
10/30/01 20:38	458.2745	23.62	-0.014
10/30/01 20:48	468.2745	23.62	-0.011
10/30/01 20:58	478.2745	23.61	-0.01
10/30/01 21:08	488.2745	23.62	-0.009
10/30/01 21:18	498.2745	23.61	-0.01
10/30/01 21:28	508.2745	23.61	-0.008
10/30/01 21:38	518.2745	23.62	-0.007
10/30/01 21:48	528.2745	23.61	-0.006
10/30/01 21:58	538.2745	23.61	-0.006
10/30/01 22:08	548.2747	23.58	-0.006
10/30/01 22:18	558.2747	23.61	-0.006
10/30/01 22:28	568.2747	23.62	-0.003
10/30/01 22:38	578.2747	23.6	-0.004
10/30/01 22:48	588.2747	23.61	-0.002
10/30/01 22:58	598.2747	23.58	-0.002
10/30/01 23:08	608.2747	23.6	0
10/30/01 23:18	618.2747	23.58	0
10/30/01 23:28	628.2747	23.58	0
10/30/01 23:38	638.2747	23.57	0.001
10/30/01 23:48	648.2747	23.56	0.001
10/30/01 23:58	658.2747	23.57	0.001
10/31/01 0:08	668.2747	23.56	0.003
10/31/01 0:18	678.2747	23.58	0.004
10/31/01 0:28	688.2747	23.57	0.003
10/31/01 0:38	698.2747	23.58	0.006
10/31/01 0:48	708.2747	23.6	-0.002
10/31/01 0:58	718.2747	23.6	-0.006
10/31/01 1:08	728.2747	23.56	-0.011
10/31/01 1:18	738.2747	23.57	-0.015
10/31/01 1:28	748.2747	23.58	-0.021

		MW06SU-ST	
10/31/01 1:38	758.2747	23.58	-0.023
10/31/01 1:48	768.2747	23.56	-0.026
10/31/01 1:58	778.2747	23.57	-0.032
10/31/01 2:08	788.2747	23.57	-0.034
10/31/01 2:18	798.2747	23.55	-0.037
10/31/01 2:28	808.2747	23.55	-0.039
10/31/01 2:38	818.2747	23.55	-0.041
10/31/01 2:48	828.2747	23.55	-0.043
10/31/01 2:58	838.2747	23.53	-0.039
10/31/01 3:08	848.2747	23.53	-0.039
10/31/01 3:18	858.2747	23.53	-0.037
10/31/01 3:28	868.2747	23.51	-0.036
10/31/01 3:38	878.2747	23.55	-0.033
10/31/01 3:48	888.2747	23.52	-0.031
10/31/01 3:58	898.2747	23.53	-0.029
10/31/01 4:08	908.2747	23.53	-0.029
10/31/01 4:18	918.2747	23.52	-0.027
10/31/01 4:28	928.2747	23.53	-0.027
10/31/01 4:38	938.2747	23.53	-0.025
10/31/01 4:48	948.2747	23.52	-0.023
10/31/01 4:58	958.2747	23.53	-0.021
10/31/01 5:08	968.2747	23.51	-0.019
10/31/01 5:18	978.2747	23.52	-0.019
10/31/01 5:28	988.2747	23.51	-0.015
10/31/01 5:38	998.2747	23.51	-0.015
10/31/01 5:48	1008.2747	23.51	-0.015
10/31/01 5:58	1018.2747	23.52	-0.013
10/31/01 6:08	1028.2747	23.52	-0.011
10/31/01 6:18	1038.2747	23.53	-0.008
10/31/01 6:28	1048.2747	23.55	-0.008
10/31/01 6:38	1058.2747	23.53	-0.006
10/31/01 6:48	1068.2747	23.51	-0.003
10/31/01 6:58	1078.2747	23.5	-0.001
10/31/01 7:08	1088.2747	23.51	-0.001
10/31/01 7:18	1098.2745	23.52	0
10/31/01 7:28	1108.2745	23.53	0
10/31/01 7:38	1118.2745	23.53	-0.002
10/31/01 7:48	1128.2745	23.53	-0.002
10/31/01 7:58	1138.2745	23.53	-0.004
10/31/01 8:08	1148.2745	23.52	-0.004
10/31/01 8:18	1158.2745	23.52	-0.004
10/31/01 8:28	1168.2745	23.53	-0.002
10/31/01 8:38	1178.2745	23.52	-0.002
10/31/01 8:48	1188.2745	23.53	-0.002
10/31/01 8:58	1198.2745	23.52	0
10/31/01 9:08	1208.2745	23.53	0
10/31/01 9:18	1218.2745	23.53	0.002
10/31/01 9:28	1228.2745	23.53	0.002
10/31/01 9:38	1238.2745	23.53	0.004
10/31/01 9:48	1248.2745	23.55	0.007
10/31/01 9:58	1258.2745	23.55	0.009
10/31/01 10:08	1268.2745	23.55	0.011
10/31/01 10:18	1278.2745	23.56	0.011
10/31/01 10:28	1288.2745	23.57	0.014
10/31/01 10:38	1298.2745	23.57	0.016
10/31/01 10:48	1308.2745	23.58	0.016
10/31/01 10:58	1318.2745	23.58	0.016
10/31/01 11:08	1328.2745	23.58	0.016
10/31/01 11:18	1338.2745	23.58	0.018
10/31/01 11:28	1348.2745	23.6	0.019
10/31/01 11:38	1358.2745	23.6	0.021
10/31/01 11:48	1368.2745	23.61	0.021
10/31/01 11:58	1378.2745	23.61	0.023

			MW06SU-ST
10/31/01 12:08	1388.2745	23.61	0.023
10/31/01 12:18	1398.2745	23.62	0.024
10/31/01 12:28	1408.2745	23.62	0.024
10/31/01 12:38	1418.2745	23.62	0.026
10/31/01 12:48	1428.2745	23.63	0.026
10/31/01 12:58	1438.2745	23.65	0.029
10/31/01 13:08	1448.2745	23.65	0.027
10/31/01 13:18	1458.2745	23.66	0.031
10/31/01 13:28	1468.2745	23.67	0.032
10/31/01 13:38	1478.2745	23.67	0.032
10/31/01 13:48	1488.2745	23.68	0.034
10/31/01 13:58	1498.2745	23.7	0.034
10/31/01 14:08	1508.2745	23.7	0.036
10/31/01 14:18	1518.2745	23.71	0.039
10/31/01 14:28	1528.2745	23.72	0.039
10/31/01 14:38	1538.2745	23.72	0.043
10/31/01 14:48	1548.2745	23.74	0.036
10/31/01 14:58	1558.2745	23.75	0.028
10/31/01 15:08	1568.2745	23.75	0.022
10/31/01 15:18	1578.2745	23.76	0.016
10/31/01 15:28	1588.2745	23.77	0.012
10/31/01 15:38	1598.2745	23.77	0.006
10/31/01 15:48	1608.2745	23.79	0.002
10/31/01 15:58	1618.2745	23.79	-0.002
10/31/01 16:08	1628.2745	23.8	-0.006
10/31/01 16:18	1638.2745	23.8	-0.01
10/31/01 16:28	1648.2745	23.8	-0.012
10/31/01 16:38	1658.2745	23.81	-0.016
10/31/01 16:48	1668.2745	23.81	-0.02
10/31/01 16:58	1678.2745	23.81	-0.02
10/31/01 17:08	1688.2745	23.81	-0.024
10/31/01 17:18	1698.2745	23.81	-0.026
10/31/01 17:28	1708.2745	23.81	-0.03
10/31/01 17:38	1718.2745	23.81	-0.032
10/31/01 17:48	1728.2745	23.8	-0.035
10/31/01 17:58	1738.2745	23.8	-0.037
10/31/01 18:08	1748.2745	23.8	-0.039
10/31/01 18:18	1758.2745	23.79	-0.041
10/31/01 18:28	1768.2745	23.77	-0.044
10/31/01 18:38	1778.2745	23.76	-0.044
10/31/01 18:48	1788.2745	23.76	-0.046
10/31/01 18:58	1798.2745	23.76	-0.044
10/31/01 19:08	1808.2745	23.76	-0.046
10/31/01 19:18	1818.2745	23.77	-0.046
10/31/01 19:28	1828.2745	23.77	-0.046
10/31/01 19:38	1838.2745	23.77	-0.046
10/31/01 19:48	1848.2745	23.76	-0.046
10/31/01 19:58	1858.2745	23.76	-0.046
10/31/01 20:08	1868.2745	23.76	-0.048
10/31/01 20:18	1878.2745	23.76	-0.048
10/31/01 20:28	1888.2745	23.76	-0.048
10/31/01 20:38	1898.2745	23.77	-0.048
10/31/01 20:48	1908.2745	23.76	-0.048
10/31/01 20:58	1918.2745	23.76	-0.048
10/31/01 21:08	1928.2745	23.76	-0.048
10/31/01 21:18	1938.2745	23.75	-0.049
10/31/01 21:28	1948.2745	23.75	-0.049
10/31/01 21:38	1958.2745	23.76	-0.048
10/31/01 21:48	1968.2745	23.76	-0.046
10/31/01 21:58	1978.2745	23.76	-0.048
10/31/01 22:08	1988.2745	23.76	-0.048
10/31/01 22:18	1998.2745	23.75	-0.049
10/31/01 22:28	2008.2745	23.74	-0.047

		MW06SU-ST	
10/31/01 22:38	2018.2745	23.74	-0.047
10/31/01 22:48	2028.2745	23.72	-0.048
10/31/01 22:58	2038.2745	23.71	-0.048
10/31/01 23:08	2048.2745	23.68	-0.049
10/31/01 23:18	2058.2745	23.66	-0.05
10/31/01 23:28	2068.2745	23.63	-0.055
10/31/01 23:38	2078.2745	23.62	-0.053
10/31/01 23:48	2088.2745	23.56	-0.053
10/31/01 23:58	2098.2745	23.55	-0.051
11/1/01 0:08	2108.2745	23.55	-0.051
11/1/01 0:18	2118.2745	23.52	-0.052
11/1/01 0:28	2128.2745	23.52	-0.05
11/1/01 0:38	2138.2745	23.52	-0.05
11/1/01 0:48	2148.2745	23.52	-0.05
11/1/01 0:58	2158.2745	23.53	-0.05
11/1/01 1:08	2168.2745	23.53	-0.05
11/1/01 1:18	2178.2745	23.53	-0.05
11/1/01 1:28	2188.2747	23.53	-0.05
11/1/01 1:38	2198.2747	23.52	-0.05
11/1/01 1:48	2208.2747	23.53	-0.05
11/1/01 1:58	2218.2747	23.52	-0.05
11/1/01 2:08	2228.2747	23.52	-0.05
11/1/01 2:18	2238.2747	23.52	-0.05
11/1/01 2:28	2248.2747	23.52	-0.05
11/1/01 2:38	2258.2747	23.51	-0.05
11/1/01 2:48	2268.2747	23.52	-0.05
11/1/01 2:58	2278.2747	23.51	-0.05
11/1/01 3:08	2288.2747	23.51	-0.05
11/1/01 3:18	2298.2747	23.52	-0.05
11/1/01 3:28	2308.2747	23.52	-0.05
11/1/01 3:38	2318.2747	23.51	-0.05
11/1/01 3:48	2328.2747	23.5	-0.051
11/1/01 3:58	2338.2747	23.5	-0.051
11/1/01 4:08	2348.2747	23.48	-0.051
11/1/01 4:18	2358.2747	23.47	-0.052
11/1/01 4:28	2368.2747	23.47	-0.049
11/1/01 4:38	2378.2747	23.48	-0.051
11/1/01 4:48	2388.2747	23.48	-0.049
11/1/01 4:58	2398.2747	23.48	-0.051
11/1/01 5:08	2408.2747	23.48	-0.051
11/1/01 5:18	2418.2747	23.48	-0.051
11/1/01 5:28	2428.2747	23.47	-0.049
11/1/01 5:38	2438.2747	23.47	-0.049
11/1/01 5:48	2448.2747	23.47	-0.049
11/1/01 5:58	2458.2747	23.46	-0.05
11/1/01 6:08	2468.2747	23.46	-0.05
11/1/01 6:18	2478.2747	23.46	-0.05
11/1/01 6:28	2488.2747	23.46	-0.05
11/1/01 6:38	2498.2747	23.46	-0.05
11/1/01 6:48	2508.2747	23.46	-0.05
11/1/01 6:58	2518.2747	23.45	-0.048
11/1/01 7:08	2528.2747	23.45	-0.048
11/1/01 7:18	2538.2747	23.45	-0.048
11/1/01 7:28	2548.2747	23.45	-0.048
11/1/01 7:38	2558.2747	23.45	-0.048
11/1/01 7:48	2568.2747	23.45	-0.05
11/1/01 7:58	2578.2747	23.43	-0.053
11/1/01 8:08	2588.2747	23.43	-0.053
11/1/01 8:18	2598.2747	23.43	-0.055
11/1/01 8:28	2608.2747	23.45	-0.056
11/1/01 8:38	2618.2747	23.43	-0.059
11/1/01 8:48	2628.2747	23.43	-0.059
11/1/01 8:58	2638.2747	23.43	-0.059

			MW06SU-ST
11/1/01 9:08	2648.2747	23.43	-0.059
11/1/01 9:18	2658.2747	23.42	-0.059
11/1/01 9:28	2668.2747	23.42	-0.059
11/1/01 9:38	2678.2747	23.43	-0.057
11/1/01 9:48	2688.2747	23.42	-0.055
11/1/01 9:58	2698.2747	23.42	-0.055
11/1/01 10:08	2708.2747	23.42	-0.055
11/1/01 10:18	2718.2747	23.42	-0.053
11/1/01 10:28	2728.2747	23.41	-0.054
11/1/01 10:38	2738.2747	23.42	-0.053
11/1/01 10:48	2748.2747	23.42	-0.053
11/1/01 10:58	2758.2747	23.41	-0.054
11/1/01 11:08	2768.2747	23.42	-0.053
11/1/01 11:18	2778.2747	23.42	-0.051
11/1/01 11:28	2788.2747	23.41	-0.051
11/1/01 11:38	2798.2747	23.42	-0.051
11/1/01 11:48	2808.2747	23.42	-0.051
11/1/01 11:58	2818.2747	23.42	-0.053
11/1/01 12:08	2828.2747	23.43	-0.053
11/1/01 12:18	2838.2747	23.43	-0.055
11/1/01 12:28	2848.2747	23.42	-0.053
11/1/01 12:38	2858.2747	23.42	-0.055
11/1/01 12:48	2868.2747	23.42	-0.055
11/1/01 12:58	2878.2747	23.42	-0.055
11/1/01 13:08	2888.2747	23.42	-0.055
11/1/01 13:18	2898.2747	23.43	-0.055
11/1/01 13:28	2908.2747	23.43	-0.055
11/1/01 13:38	2918.2747	23.43	-0.053
11/1/01 13:48	2928.2747	23.42	-0.055
11/1/01 13:58	2938.2747	23.42	-0.053
11/1/01 14:08	2948.2747	23.43	-0.053
11/1/01 14:18	2958.2747	23.43	-0.051
11/1/01 14:28	2968.2747	23.42	-0.051
11/1/01 14:38	2978.2747	23.42	-0.047
11/1/01 14:48	2988.2747	23.42	-0.049
11/1/01 14:58	2998.2747	23.42	-0.047
11/1/01 15:08	3008.2747	23.43	-0.047
11/1/01 15:18	3018.2747	23.42	-0.045
11/1/01 15:28	3028.2747	23.42	-0.045
11/1/01 15:38	3038.2747	23.42	-0.045
11/1/01 15:48	3048.2747	23.42	-0.043
11/1/01 15:58	3058.2747	23.42	-0.043
11/1/01 16:08	3068.2747	23.42	-0.043
11/1/01 16:18	3078.2747	23.41	-0.043
11/1/01 16:28	3088.2747	23.41	-0.043
11/1/01 16:38	3098.2747	23.41	-0.041
11/1/01 16:48	3108.2747	23.41	-0.041
11/1/01 16:58	3118.2747	23.41	-0.041
11/1/01 17:08	3128.2747	23.41	-0.041
11/1/01 17:18	3138.2747	23.41	-0.041
11/1/01 17:28	3148.2747	23.41	-0.041
11/1/01 17:38	3158.2747	23.41	-0.039
11/1/01 17:48	3168.2747	23.41	-0.039
11/1/01 17:58	3178.2747	23.41	-0.039
11/1/01 18:08	3188.2747	23.4	-0.039
11/1/01 18:18	3198.2747	23.41	-0.039
11/1/01 18:28	3208.2747	23.41	-0.039
11/1/01 18:38	3218.2747	23.4	-0.039
11/1/01 18:48	3228.2747	23.4	-0.037
11/1/01 18:58	3238.2747	23.4	-0.037
11/1/01 19:08	3248.2747	23.4	-0.037
11/1/01 19:18	3258.2747	23.4	-0.037
11/1/01 19:28	3268.2747	23.38	-0.038

		MW06SU-ST	
11/1/01 19:38	3278.2747	23.38	-0.038
11/1/01 19:48	3288.2747	23.38	-0.038
11/1/01 19:58	3298.2747	23.38	-0.038
11/1/01 20:08	3308.2747	23.38	-0.036
11/1/01 20:18	3318.2747	23.38	-0.036
11/1/01 20:28	3328.2747	23.38	-0.036
11/1/01 20:38	3338.2747	23.38	-0.038
11/1/01 20:48	3348.2747	23.38	-0.036
11/1/01 20:58	3358.2747	23.38	-0.038
11/1/01 21:08	3368.2747	23.37	-0.036
11/1/01 21:18	3378.2747	23.38	-0.036
11/1/01 21:28	3388.2747	23.38	-0.038
11/1/01 21:38	3398.2747	23.38	-0.036
11/1/01 21:48	3408.2747	23.37	-0.036
11/1/01 21:58	3418.2747	23.37	-0.036
11/1/01 22:08	3428.2747	23.37	-0.036
11/1/01 22:18	3438.2747	23.37	-0.034
11/1/01 22:28	3448.2747	23.37	-0.036
11/1/01 22:38	3458.2747	23.37	-0.036
11/1/01 22:48	3468.2747	23.36	-0.034
11/1/01 22:58	3478.2747	23.37	-0.034
11/1/01 23:08	3488.2747	23.37	-0.034
11/1/01 23:18	3498.2747	23.37	-0.034
11/1/01 23:28	3508.2747	23.36	-0.034
11/1/01 23:38	3518.2747	23.36	-0.034
11/1/01 23:48	3528.2747	23.36	-0.034
11/1/01 23:58	3538.2747	23.37	-0.034
11/2/01 0:08	3548.2747	23.37	-0.034
11/2/01 0:18	3558.2747	23.37	-0.036
11/2/01 0:28	3568.2747	23.36	-0.034
11/2/01 0:38	3578.2747	23.36	-0.034
11/2/01 0:48	3588.2747	23.36	-0.034
11/2/01 0:58	3598.2747	23.34	-0.033
11/2/01 1:08	3608.2747	23.34	-0.033
11/2/01 1:18	3618.2747	23.34	-0.035
11/2/01 1:28	3628.2747	23.34	-0.033
11/2/01 1:38	3638.2747	23.34	-0.033
11/2/01 1:48	3648.2747	23.33	-0.033
11/2/01 1:58	3658.2747	23.34	-0.033
11/2/01 2:08	3668.2747	23.34	-0.031
11/2/01 2:18	3678.2747	23.33	-0.033
11/2/01 2:28	3688.2747	23.33	-0.033
11/2/01 2:38	3698.2747	23.33	-0.033
11/2/01 2:48	3708.2747	23.33	-0.033
11/2/01 2:58	3718.2747	23.33	-0.031
11/2/01 3:08	3728.2747	23.33	-0.033
11/2/01 3:18	3738.2747	23.33	-0.031
11/2/01 3:28	3748.2747	23.33	-0.031
11/2/01 3:38	3758.2747	23.33	-0.031
11/2/01 3:48	3768.2747	23.33	-0.031
11/2/01 3:58	3778.2747	23.32	-0.031
11/2/01 4:08	3788.2747	23.33	-0.031
11/2/01 4:18	3798.2747	23.33	-0.031
11/2/01 4:28	3808.2747	23.33	-0.029
11/2/01 4:38	3818.2747	23.33	-0.029
11/2/01 4:48	3828.2747	23.32	-0.029
11/2/01 4:58	3838.2747	23.32	-0.029
11/2/01 5:08	3848.2747	23.31	-0.03
11/2/01 5:18	3858.2747	23.32	-0.027
11/2/01 5:28	3868.2747	23.32	-0.027
11/2/01 5:38	3878.2747	23.31	-0.028
11/2/01 5:48	3888.2747	23.31	-0.028
11/2/01 5:58	3898.2747	23.31	-0.026

		MW06SU-ST	
11/2/01 6:08	3908.2747	23.31	-0.026
11/2/01 6:18	3918.2747	23.31	-0.026
11/2/01 6:28	3928.2747	23.31	-0.026
11/2/01 6:38	3938.2747	23.31	-0.026
11/2/01 6:48	3948.2747	23.31	-0.028
11/2/01 6:58	3958.2747	23.31	-0.026
11/2/01 7:08	3968.2747	23.31	-0.026
11/2/01 7:18	3978.2747	23.31	-0.026
11/2/01 7:28	3988.2747	23.31	-0.026
11/2/01 7:38	3998.2747	23.32	-0.027
11/2/01 7:48	4008.2747	23.32	-0.025
11/2/01 7:58	4018.2747	23.31	-0.026
11/2/01 8:08	4028.2747	23.29	-0.024
11/2/01 8:18	4038.2747	23.29	-0.024
11/2/01 8:28	4048.2747	23.29	-0.026
11/2/01 8:38	4058.2747	23.31	-0.026
11/2/01 8:48	4068.2747	23.31	-0.028
11/2/01 8:58	4078.2747	23.31	-0.03
11/2/01 9:08	4088.2747	23.29	-0.03
11/2/01 9:18	4098.2747	23.29	-0.03
11/2/01 9:28	4108.2747	23.29	-0.03
11/2/01 9:38	4118.2747	23.29	-0.032
11/2/01 9:48	4128.2747	23.29	-0.032
11/2/01 9:58	4138.2747	23.29	-0.032
11/2/01 10:08	4148.2747	23.29	-0.03
11/2/01 10:18	4158.2747	23.28	-0.031
11/2/01 10:28	4168.2747	23.28	-0.031
11/2/01 10:38	4178.2747	23.28	-0.029
11/2/01 10:48	4188.2747	23.28	-0.029
11/2/01 10:58	4198.2747	23.29	-0.028
11/2/01 11:08	4208.2747	23.28	-0.026
11/2/01 11:18	4218.2747	23.28	-0.026
11/2/01 11:28	4228.2747	23.28	-0.029
11/2/01 11:38	4238.2747	23.28	-0.026
11/2/01 11:48	4248.2747	23.27	-0.029
11/2/01 11:58	4258.2747	23.28	-0.026

MW06SL-ST

In-Situ Inc. MiniTroll Pro

Report generated: 11/2/01 12:13:27
Report from file: C:\WIN-SITU\Data\SN06445 2001-10-30 130000 MW06SL-ST.bin

DataMgr Version 3.69

Serial number: 6445
Firmware Version 3.01
Unit name: MW06SL-WL

Test name: MW06SL-ST

Test defined on: 10/30/01 12:14:10
Test scheduled for: 10/30/01 13:00:00
Test started on: 10/30/01 13:00:00
Test stopped on: 11/2/01 12:13:42
Test extracted on: N/A

Data gathered using Logarithmic testing
Maximum time between data points: 10.0000 Minutes.
Number of data samples: 560

TOTAL DATA SAMPLES 560

Channel number [1]
Measurement type: Temperature
Channel name:

Channel number [2]
Measurement type: Pressure
Channel name:
Sensor Range: 30 PSI.
Specific gravity: 1
Mode: TOC
User-defined reference: 0 Feet H2O
Referenced on: test start
Pressure head at reference: 10.331 Feet H2O

Date	Time	Chan[1] ET (min)	Chan[2] Celsius	Chan[2] Feet H2O
10/30/01	13:00	0	24.45	0
10/30/01	13:00	0.0048	24.45	-0.012
10/30/01	13:00	0.0098	24.45	-0.017
10/30/01	13:00	0.015	24.46	-0.019
10/30/01	13:00	0.0198	24.46	-0.019
10/30/01	13:00	0.025	24.46	-0.019
10/30/01	13:00	0.03	24.46	-0.021
10/30/01	13:00	0.035	24.47	-0.021
10/30/01	13:00	0.0398	24.47	-0.023
10/30/01	13:00	0.045	24.47	-0.023
10/30/01	13:00	0.05	24.47	-0.023
10/30/01	13:00	0.0548	24.47	-0.021
10/30/01	13:00	0.06	24.47	-0.021
10/30/01	13:00	0.0648	24.47	-0.023
10/30/01	13:00	0.07	24.47	-0.023
10/30/01	13:00	0.075	24.47	-0.023
10/30/01	13:00	0.0798	24.47	-0.021
10/30/01	13:00	0.0848	24.47	-0.021
10/30/01	13:00	0.09	24.47	-0.021

10/30/01 13:00	0.095	24.47	-0.021
10/30/01 13:00	0.1	24.47	-0.023
10/30/01 13:00	0.1057	24.47	-0.021
10/30/01 13:00	0.1118	24.47	-0.021
10/30/01 13:00	0.1185	24.47	-0.021
10/30/01 13:00	0.1255	24.47	-0.019
10/30/01 13:00	0.1327	24.49	-0.021
10/30/01 13:00	0.1405	24.49	-0.021
10/30/01 13:00	0.1488	24.49	-0.023
10/30/01 13:00	0.1578	24.49	-0.023
10/30/01 13:00	0.167	24.49	-0.013
10/30/01 13:00	0.1768	24.47	-0.011
10/30/01 13:00	0.1875	24.47	-0.011
10/30/01 13:00	0.1985	24.47	-0.01
10/30/01 13:00	0.21	24.47	-0.008
10/30/01 13:00	0.2225	24.47	-0.008
10/30/01 13:00	0.2358	24.47	-0.008
10/30/01 13:00	0.2498	24.47	-0.008
10/30/01 13:00	0.2647	24.47	-0.008
10/30/01 13:00	0.2803	24.47	-0.006
10/30/01 13:00	0.297	24.47	-0.006
10/30/01 13:00	0.3145	24.47	-0.006
10/30/01 13:00	0.3333	24.47	-0.006
10/30/01 13:00	0.3532	24.47	-0.004
10/30/01 13:00	0.374	24.47	-0.004
10/30/01 13:00	0.3963	24.47	-0.004
10/30/01 13:00	0.4198	24.47	-0.004
10/30/01 13:00	0.4445	24.47	-0.004
10/30/01 13:00	0.4695	24.47	-0.004
10/30/01 13:00	0.4963	24.47	-0.004
10/30/01 13:00	0.5247	24.47	-0.002
10/30/01 13:00	0.5547	24.47	-0.002
10/30/01 13:00	0.5862	24.47	0
10/30/01 13:00	0.6213	24.47	-0.002
10/30/01 13:00	0.6578	24.47	-0.002
10/30/01 13:00	0.6963	24.47	-0.002
10/30/01 13:00	0.738	24.47	-0.002
10/30/01 13:00	0.7813	24.47	0
10/30/01 13:00	0.8278	24.47	0
10/30/01 13:00	0.8762	24.47	0
10/30/01 13:00	0.9278	24.47	0
10/30/01 13:00	0.9828	24.47	0
10/30/01 13:01	1.0412	24.46	0
10/30/01 13:01	1.103	24.46	0.002
10/30/01 13:01	1.1678	24.46	0.002
10/30/01 13:01	1.238	24.47	0.004
10/30/01 13:01	1.3113	24.46	0.006
10/30/01 13:01	1.3895	24.46	0.008
10/30/01 13:01	1.4728	24.46	0.008
10/30/01 13:01	1.5613	24.46	0.012
10/30/01 13:01	1.6547	24.46	0.014
10/30/01 13:01	1.753	24.46	0.018
10/30/01 13:01	1.858	24.46	0.019
10/30/01 13:01	1.9678	24.46	0.023
10/30/01 13:02	2.0845	24.46	0.027
10/30/01 13:02	2.2097	24.46	0.031
10/30/01 13:02	2.3412	24.46	0.037
10/30/01 13:02	2.4812	24.46	0.041
10/30/01 13:02	2.6297	24.45	0.047
10/30/01 13:02	2.7863	24.45	0.05
10/30/01 13:02	2.953	24.45	0.056
10/30/01 13:03	3.1297	24.46	0.062
10/30/01 13:03	3.3162	24.46	0.066

MW06SL-ST

10/30/01 13:03	3.5145	24.45	0.074
10/30/01 13:03	3.7245	24.45	0.082
10/30/01 13:03	3.9463	24.45	0.087
10/30/01 13:04	4.1812	24.45	0.099
10/30/01 13:04	4.4295	24.45	0.107
10/30/01 13:04	4.6928	24.45	0.116
10/30/01 13:04	4.9728	24.45	0.124
10/30/01 13:05	5.2697	24.45	0.136
10/30/01 13:05	5.583	24.45	0.146
10/30/01 13:05	5.9145	24.45	0.155
10/30/01 13:06	6.2663	24.45	0.165
10/30/01 13:06	6.6395	24.45	0.179
10/30/01 13:07	7.0345	24.45	0.194
10/30/01 13:07	7.453	24.45	0.204
10/30/01 13:07	7.8962	24.43	0.213
10/30/01 13:08	8.3663	24.43	0.223
10/30/01 13:08	8.8645	24.43	0.235
10/30/01 13:09	9.3913	24.43	0.243
10/30/01 13:09	9.9497	24.45	0.252
10/30/01 13:10	10.5413	24.45	0.262
10/30/01 13:11	11.168	24.45	0.27
10/30/01 13:11	11.8312	24.45	0.279
10/30/01 13:12	12.5347	24.43	0.289
10/30/01 13:13	13.2795	24.43	0.297
10/30/01 13:14	14.0695	24.43	0.307
10/30/01 13:14	14.9062	24.43	0.314
10/30/01 13:15	15.7913	24.43	0.322
10/30/01 13:16	16.7295	24.43	0.334
10/30/01 13:17	17.723	24.43	0.341
10/30/01 13:18	18.7762	24.45	0.349
10/30/01 13:19	19.8913	24.43	0.355
10/30/01 13:21	21.073	24.43	0.365
10/30/01 13:22	22.3247	24.43	0.374
10/30/01 13:23	23.6497	24.43	0.384
10/30/01 13:25	25.0545	24.45	0.39
10/30/01 13:26	26.5428	24.43	0.396
10/30/01 13:28	28.1178	24.43	0.406
10/30/01 13:29	29.7863	24.45	0.413
10/30/01 13:31	31.5545	24.43	0.419
10/30/01 13:33	33.428	24.43	0.425
10/30/01 13:35	35.4112	24.43	0.433
10/30/01 13:37	37.513	24.43	0.439
10/30/01 13:39	39.7397	24.43	0.444
10/30/01 13:42	42.098	24.43	0.452
10/30/01 13:44	44.5963	24.43	0.456
10/30/01 13:47	47.2428	24.43	0.464
10/30/01 13:50	50.0463	24.43	0.47
10/30/01 13:53	53.0147	24.43	0.473
10/30/01 13:56	56.1595	24.43	0.479
10/30/01 13:59	59.4913	24.43	0.485
10/30/01 14:03	63.0195	24.43	0.491
10/30/01 14:06	66.758	24.43	0.495
10/30/01 14:10	70.7178	24.43	0.501
10/30/01 14:14	74.9113	24.43	0.506
10/30/01 14:19	79.3545	24.43	0.512
10/30/01 14:24	84.0613	24.43	0.518
10/30/01 14:29	89.0462	24.43	0.52
10/30/01 14:34	94.3262	24.43	0.526
10/30/01 14:39	99.9197	24.43	0.53
10/30/01 14:45	105.8447	24.43	0.536
10/30/01 14:52	112.1197	24.43	0.539
10/30/01 14:58	118.7678	24.43	0.545
10/30/01 15:05	125.8095	24.43	0.549

		MW06SL-ST	
10/30/01 15:13	133.2678	24.43	0.553
10/30/01 15:21	141.1678	24.43	0.559
10/30/01 15:29	149.5363	24.43	0.563
10/30/01 15:38	158.4012	24.43	0.567
10/30/01 15:47	167.7912	24.43	0.572
10/30/01 15:57	177.738 24.43	0.576	
10/30/01 16:08	188.2745	24.45	0.58
10/30/01 16:18	198.2745	24.43	0.584
10/30/01 16:28	208.2745	24.43	0.586
10/30/01 16:38	218.2745	24.43	0.59
10/30/01 16:48	228.2745	24.45	0.596
10/30/01 16:58	238.2745	24.45	0.6
10/30/01 17:08	248.2745	24.43	0.602
10/30/01 17:18	258.2745	24.45	0.606
10/30/01 17:28	268.2745	24.45	0.607
10/30/01 17:38	278.2745	24.43	0.611
10/30/01 17:48	288.2745	24.43	0.617
10/30/01 17:58	298.2745	24.43	0.605
10/30/01 18:08	308.2745	24.45	0.609
10/30/01 18:18	318.2745	24.43	0.605
10/30/01 18:28	328.2745	24.43	0.605
10/30/01 18:38	338.2745	24.43	0.603
10/30/01 18:48	348.2745	24.43	0.603
10/30/01 18:58	358.2745	24.43	0.603
10/30/01 19:08	368.2745	24.43	0.603
10/30/01 19:18	378.2745	24.43	0.602
10/30/01 19:28	388.2745	24.43	0.6
10/30/01 19:38	398.2745	24.43	0.598
10/30/01 19:48	408.2745	24.43	0.596
10/30/01 19:58	418.2745	24.43	0.594
10/30/01 20:08	428.2745	24.43	0.594
10/30/01 20:18	438.2745	24.43	0.592
10/30/01 20:28	448.2745	24.43	0.592
10/30/01 20:38	458.2745	24.43	0.592
10/30/01 20:48	468.2745	24.43	0.594
10/30/01 20:58	478.2745	24.43	0.596
10/30/01 21:08	488.2745	24.43	0.598
10/30/01 21:18	498.2745	24.43	0.6
10/30/01 21:28	508.2745	24.43	0.602
10/30/01 21:38	518.2745	24.43	0.603
10/30/01 21:48	528.2745	24.43	0.603
10/30/01 21:58	538.2745	24.43	0.605
10/30/01 22:08	548.2747	24.43	0.625
10/30/01 22:18	558.2747	24.43	0.627
10/30/01 22:28	568.2747	24.43	0.629
10/30/01 22:38	578.2747	24.43	0.631
10/30/01 22:48	588.2747	24.43	0.633
10/30/01 22:58	598.2747	24.43	0.633
10/30/01 23:08	608.2747	24.43	0.635
10/30/01 23:18	618.2747	24.43	0.636
10/30/01 23:28	628.2747	24.43	0.636
10/30/01 23:38	638.2747	24.43	0.636
10/30/01 23:48	648.2747	24.43	0.636
10/30/01 23:58	658.2747	24.43	0.636
10/31/01 0:08	668.2747	24.43	0.636
10/31/01 0:18	678.2747	24.43	0.638
10/31/01 0:28	688.2747	24.43	0.635
10/31/01 0:38	698.2747	24.43	0.636
10/31/01 0:48	708.2747	24.43	0.697
10/31/01 0:58	718.2747	24.43	0.745
10/31/01 1:08	728.2747	24.43	0.767
10/31/01 1:18	738.2747	24.43	0.778
10/31/01 1:28	748.2747	24.43	0.79

MW06SL-ST

10/31/01 1:38	758.2747	24.43	0.796
10/31/01 1:48	768.2747	24.43	0.8
10/31/01 1:58	778.2747	24.43	0.803
10/31/01 2:08	788.2747	24.43	0.807
10/31/01 2:18	798.2747	24.43	0.809
10/31/01 2:28	808.2747	24.43	0.8
10/31/01 2:38	818.2747	24.43	0.815
10/31/01 2:48	828.2747	24.43	0.823
10/31/01 2:58	838.2747	24.43	0.827
10/31/01 3:08	848.2747	24.43	0.832
10/31/01 3:18	858.2747	24.43	0.832
10/31/01 3:28	868.2747	24.43	0.834
10/31/01 3:38	878.2747	24.43	0.836
10/31/01 3:48	888.2747	24.43	0.838
10/31/01 3:58	898.2747	24.43	0.838
10/31/01 4:08	908.2747	24.43	0.84
10/31/01 4:18	918.2747	24.43	0.842
10/31/01 4:28	928.2747	24.43	0.842
10/31/01 4:38	938.2747	24.43	0.846
10/31/01 4:48	948.2747	24.43	0.852
10/31/01 4:58	958.2747	24.43	0.854
10/31/01 5:08	968.2747	24.43	0.852
10/31/01 5:18	978.2747	24.43	0.856
10/31/01 5:28	988.2747	24.43	0.858
10/31/01 5:38	998.2747	24.43	0.86
10/31/01 5:48	1008.2747	24.43	0.862
10/31/01 5:58	1018.2747	24.43	0.862
10/31/01 6:08	1028.2747	24.43	0.864
10/31/01 6:18	1038.2747	24.43	0.862
10/31/01 6:28	1048.2747	24.43	0.86
10/31/01 6:38	1058.2747	24.43	0.864
10/31/01 6:48	1068.2747	24.43	0.854
10/31/01 6:58	1078.2747	24.43	0.856
10/31/01 7:08	1088.2747	24.43	0.852
10/31/01 7:18	1098.2745	24.43	0.85
10/31/01 7:28	1108.2745	24.43	0.848
10/31/01 7:38	1118.2745	24.43	0.846
10/31/01 7:48	1128.2745	24.43	0.848
10/31/01 7:58	1138.2745	24.43	0.836
10/31/01 8:08	1148.2745	24.43	0.838
10/31/01 8:18	1158.2745	24.43	0.834
10/31/01 8:28	1168.2745	24.43	0.832
10/31/01 8:38	1178.2745	24.43	0.832
10/31/01 8:48	1188.2745	24.43	0.832
10/31/01 8:58	1198.2745	24.43	0.811
10/31/01 9:08	1208.2745	24.43	0.819
10/31/01 9:18	1218.2745	24.43	0.832
10/31/01 9:28	1228.2745	24.43	0.84
10/31/01 9:38	1238.2745	24.43	0.844
10/31/01 9:48	1248.2745	24.43	0.846
10/31/01 9:58	1258.2745	24.43	0.848
10/31/01 10:08	1268.2745	24.43	0.852
10/31/01 10:18	1278.2745	24.43	0.854
10/31/01 10:28	1288.2745	24.43	0.858
10/31/01 10:38	1298.2745	24.43	0.86
10/31/01 10:48	1308.2745	24.43	0.862
10/31/01 10:58	1318.2745	24.43	0.864
10/31/01 11:08	1328.2745	24.43	0.865
10/31/01 11:18	1338.2745	24.43	0.865
10/31/01 11:28	1348.2745	24.43	0.875
10/31/01 11:38	1358.2745	24.43	0.871
10/31/01 11:48	1368.2745	24.43	0.871
10/31/01 11:58	1378.2745	24.43	0.871

		MW06SL-ST	
10/31/01 12:08	1388.2745	24.43	0.86
10/31/01 12:18	1398.2745	24.43	0.856
10/31/01 12:28	1408.2745	24.43	0.838
10/31/01 12:38	1418.2745	24.43	0.854
10/31/01 12:48	1428.2745	24.43	0.867
10/31/01 12:58	1438.2745	24.43	0.869
10/31/01 13:08	1448.2745	24.43	0.85
10/31/01 13:18	1458.2745	24.43	0.848
10/31/01 13:28	1468.2745	24.43	0.844
10/31/01 13:38	1478.2745	24.43	0.862
10/31/01 13:48	1488.2745	24.43	0.869
10/31/01 13:58	1498.2745	24.43	0.873
10/31/01 14:08	1508.2745	24.43	0.875
10/31/01 14:18	1518.2745	24.43	0.873
10/31/01 14:28	1528.2745	24.43	0.871
10/31/01 14:38	1538.2745	24.43	0.873
10/31/01 14:48	1548.2745	24.43	0.875
10/31/01 14:58	1558.2745	24.43	0.877
10/31/01 15:08	1568.2745	24.43	0.879
10/31/01 15:18	1578.2745	24.43	0.881
10/31/01 15:28	1588.2745	24.43	0.883
10/31/01 15:38	1598.2745	24.43	0.883
10/31/01 15:48	1608.2745	24.43	0.885
10/31/01 15:58	1618.2745	24.43	0.887
10/31/01 16:08	1628.2745	24.43	0.887
10/31/01 16:18	1638.2745	24.43	0.889
10/31/01 16:28	1648.2745	24.43	0.889
10/31/01 16:38	1658.2745	24.43	0.889
10/31/01 16:48	1668.2745	24.43	0.891
10/31/01 16:58	1678.2745	24.43	0.893
10/31/01 17:08	1688.2745	24.43	0.893
10/31/01 17:18	1698.2745	24.43	0.893
10/31/01 17:28	1708.2745	24.43	0.893
10/31/01 17:38	1718.2745	24.43	0.893
10/31/01 17:48	1728.2745	24.43	0.893
10/31/01 17:58	1738.2745	24.43	0.895
10/31/01 18:08	1748.2745	24.43	0.895
10/31/01 18:18	1758.2745	24.43	0.895
10/31/01 18:28	1768.2745	24.43	0.897
10/31/01 18:38	1778.2745	24.43	0.881
10/31/01 18:48	1788.2745	24.43	0.893
10/31/01 18:58	1798.2745	24.43	0.898
10/31/01 19:08	1808.2745	24.43	0.904
10/31/01 19:18	1818.2745	24.43	0.9
10/31/01 19:28	1828.2745	24.43	0.897
10/31/01 19:38	1838.2745	24.43	0.895
10/31/01 19:48	1848.2745	24.43	0.891
10/31/01 19:58	1858.2745	24.43	0.887
10/31/01 20:08	1868.2745	24.43	0.883
10/31/01 20:18	1878.2745	24.43	0.881
10/31/01 20:28	1888.2745	24.43	0.877
10/31/01 20:38	1898.2745	24.43	0.873
10/31/01 20:48	1908.2745	24.43	0.871
10/31/01 20:58	1918.2745	24.43	0.867
10/31/01 21:08	1928.2745	24.43	0.867
10/31/01 21:18	1938.2745	24.43	0.864
10/31/01 21:28	1948.2745	24.43	0.864
10/31/01 21:38	1958.2745	24.43	0.862
10/31/01 21:48	1968.2745	24.43	0.864
10/31/01 21:58	1978.2745	24.43	0.865
10/31/01 22:08	1988.2745	24.43	0.865
10/31/01 22:18	1998.2745	24.43	0.865
10/31/01 22:28	2008.2745	24.43	0.865

		MW06SL-ST	
10/31/01 22:38	2018.2745	24.43	0.867
10/31/01 22:48	2028.2745	24.43	0.867
10/31/01 22:58	2038.2745	24.43	0.869
10/31/01 23:08	2048.2745	24.43	0.869
10/31/01 23:18	2058.2745	24.43	0.871
10/31/01 23:28	2068.2745	24.43	0.869
10/31/01 23:38	2078.2745	24.43	0.869
10/31/01 23:48	2088.2745	24.43	0.871
10/31/01 23:58	2098.2745	24.43	0.871
11/1/01 0:08	2108.2745	24.43	0.877
11/1/01 0:18	2118.2745	24.43	0.881
11/1/01 0:28	2128.2745	24.43	0.887
11/1/01 0:38	2138.2745	24.43	0.887
11/1/01 0:48	2148.2745	24.43	0.885
11/1/01 0:58	2158.2745	24.43	0.885
11/1/01 1:08	2168.2745	24.43	0.883
11/1/01 1:18	2178.2745	24.43	0.881
11/1/01 1:28	2188.2747	24.43	0.881
11/1/01 1:38	2198.2747	24.42	0.881
11/1/01 1:48	2208.2747	24.43	0.881
11/1/01 1:58	2218.2747	24.43	0.881
11/1/01 2:08	2228.2747	24.43	0.879
11/1/01 2:18	2238.2747	24.43	0.879
11/1/01 2:28	2248.2747	24.43	0.879
11/1/01 2:38	2258.2747	24.43	0.881
11/1/01 2:48	2268.2747	24.43	0.883
11/1/01 2:58	2278.2747	24.43	0.883
11/1/01 3:08	2288.2747	24.43	0.881
11/1/01 3:18	2298.2747	24.43	0.881
11/1/01 3:28	2308.2747	24.42	0.881
11/1/01 3:38	2318.2747	24.43	0.883
11/1/01 3:48	2328.2747	24.43	0.883
11/1/01 3:58	2338.2747	24.43	0.885
11/1/01 4:08	2348.2747	24.43	0.885
11/1/01 4:18	2358.2747	24.43	0.883
11/1/01 4:28	2368.2747	24.43	0.885
11/1/01 4:38	2378.2747	24.43	0.887
11/1/01 4:48	2388.2747	24.43	0.889
11/1/01 4:58	2398.2747	24.43	0.891
11/1/01 5:08	2408.2747	24.43	0.893
11/1/01 5:18	2418.2747	24.42	0.895
11/1/01 5:28	2428.2747	24.42	0.896
11/1/01 5:38	2438.2747	24.43	0.898
11/1/01 5:48	2448.2747	24.42	0.898
11/1/01 5:58	2458.2747	24.42	0.898
11/1/01 6:08	2468.2747	24.43	0.898
11/1/01 6:18	2478.2747	24.42	0.896
11/1/01 6:28	2488.2747	24.42	0.896
11/1/01 6:38	2498.2747	24.42	0.896
11/1/01 6:48	2508.2747	24.42	0.893
11/1/01 6:58	2518.2747	24.42	0.895
11/1/01 7:08	2528.2747	24.42	0.893
11/1/01 7:18	2538.2747	24.42	0.877
11/1/01 7:28	2548.2747	24.42	0.875
11/1/01 7:38	2558.2747	24.42	0.885
11/1/01 7:48	2568.2747	24.42	0.879
11/1/01 7:58	2578.2747	24.42	0.875
11/1/01 8:08	2588.2747	24.42	0.871
11/1/01 8:18	2598.2747	24.42	0.865
11/1/01 8:28	2608.2747	24.42	0.862
11/1/01 8:38	2618.2747	24.42	0.858
11/1/01 8:48	2628.2747	24.42	0.856
11/1/01 8:58	2638.2747	24.42	0.85

		MW06SL-ST	
11/1/01 9:08	2648.2747	24.42	0.846
11/1/01 9:18	2658.2747	24.43	0.842
11/1/01 9:28	2668.2747	24.42	0.84
11/1/01 9:38	2678.2747	24.42	0.838
11/1/01 9:48	2688.2747	24.42	0.838
11/1/01 9:58	2698.2747	24.42	0.838
11/1/01 10:08	2708.2747	24.42	0.838
11/1/01 10:18	2718.2747	24.42	0.836
11/1/01 10:28	2728.2747	24.42	0.838
11/1/01 10:38	2738.2747	24.42	0.852
11/1/01 10:48	2748.2747	24.42	0.846
11/1/01 10:58	2758.2747	24.42	0.848
11/1/01 11:08	2768.2747	24.42	0.848
11/1/01 11:18	2778.2747	24.42	0.852
11/1/01 11:28	2788.2747	24.42	0.854
11/1/01 11:38	2798.2747	24.42	0.854
11/1/01 11:48	2808.2747	24.42	0.856
11/1/01 11:58	2818.2747	24.42	0.858
11/1/01 12:08	2828.2747	24.42	0.685
11/1/01 12:18	2838.2747	24.42	0.499
11/1/01 12:28	2848.2747	24.42	0.388
11/1/01 12:38	2858.2747	24.42	0.326
11/1/01 12:48	2868.2747	24.42	0.281
11/1/01 12:58	2878.2747	24.42	0.25
11/1/01 13:08	2888.2747	24.42	0.227
11/1/01 13:18	2898.2747	24.42	0.211
11/1/01 13:28	2908.2747	24.43	0.198
11/1/01 13:38	2918.2747	24.42	0.182
11/1/01 13:48	2928.2747	24.42	0.165
11/1/01 13:58	2938.2747	24.42	0.159
11/1/01 14:08	2948.2747	24.42	0.155
11/1/01 14:18	2958.2747	24.42	0.149
11/1/01 14:28	2968.2747	24.42	0.141
11/1/01 14:38	2978.2747	24.42	0.138
11/1/01 14:48	2988.2747	24.42	0.132
11/1/01 14:58	2998.2747	24.42	0.13
11/1/01 15:08	3008.2747	24.42	0.13
11/1/01 15:18	3018.2747	24.42	0.13
11/1/01 15:28	3028.2747	24.42	0.128
11/1/01 15:38	3038.2747	24.42	0.122
11/1/01 15:48	3048.2747	24.42	0.116
11/1/01 15:58	3058.2747	24.42	0.114
11/1/01 16:08	3068.2747	24.42	0.12
11/1/01 16:18	3078.2747	24.42	0.116
11/1/01 16:28	3088.2747	24.42	0.11
11/1/01 16:38	3098.2747	24.42	0.109
11/1/01 16:48	3108.2747	24.42	0.107
11/1/01 16:58	3118.2747	24.42	0.105
11/1/01 17:08	3128.2747	24.42	0.103
11/1/01 17:18	3138.2747	24.42	0.103
11/1/01 17:28	3148.2747	24.42	0.103
11/1/01 17:38	3158.2747	24.42	0.101
11/1/01 17:48	3168.2747	24.42	0.101
11/1/01 17:58	3178.2747	24.42	0.099
11/1/01 18:08	3188.2747	24.42	0.099
11/1/01 18:18	3198.2747	24.42	0.097
11/1/01 18:28	3208.2747	24.42	0.095
11/1/01 18:38	3218.2747	24.42	0.095
11/1/01 18:48	3228.2747	24.42	0.095
11/1/01 18:58	3238.2747	24.42	0.093
11/1/01 19:08	3248.2747	24.42	0.091
11/1/01 19:18	3258.2747	24.42	0.089
11/1/01 19:28	3268.2747	24.42	0.085

		MW06SL-ST	
11/1/01 19:38	3278.2747	24.42	0.083
11/1/01 19:48	3288.2747	24.42	0.079
11/1/01 19:58	3298.2747	24.42	0.077
11/1/01 20:08	3308.2747	24.42	0.074
11/1/01 20:18	3318.2747	24.42	0.07
11/1/01 20:28	3328.2747	24.42	0.066
11/1/01 20:38	3338.2747	24.42	0.062
11/1/01 20:48	3348.2747	24.42	0.058
11/1/01 20:58	3358.2747	24.42	0.052
11/1/01 21:08	3368.2747	24.42	0.046
11/1/01 21:18	3378.2747	24.42	0.044
11/1/01 21:28	3388.2747	24.42	0.043
11/1/01 21:38	3398.2747	24.42	0.041
11/1/01 21:48	3408.2747	24.42	0.039
11/1/01 21:58	3418.2747	24.42	0.037
11/1/01 22:08	3428.2747	24.42	0.037
11/1/01 22:18	3438.2747	24.42	0.037
11/1/01 22:28	3448.2747	24.42	0.035
11/1/01 22:38	3458.2747	24.42	0.033
11/1/01 22:48	3468.2747	24.42	0.031
11/1/01 22:58	3478.2747	24.42	0.031
11/1/01 23:08	3488.2747	24.42	0.031
11/1/01 23:18	3498.2747	24.42	0.029
11/1/01 23:28	3508.2747	24.42	0.031
11/1/01 23:38	3518.2747	24.42	0.031
11/1/01 23:48	3528.2747	24.42	0.029
11/1/01 23:58	3538.2747	24.42	0.027
11/2/01 0:08	3548.2747	24.42	0.027
11/2/01 0:18	3558.2747	24.42	0.027
11/2/01 0:28	3568.2747	24.42	0.027
11/2/01 0:38	3578.2747	24.42	0.027
11/2/01 0:48	3588.2747	24.42	0.025
11/2/01 0:58	3598.2747	24.42	0.025
11/2/01 1:08	3608.2747	24.42	0.025
11/2/01 1:18	3618.2747	24.42	0.025
11/2/01 1:28	3628.2747	24.42	0.023
11/2/01 1:38	3638.2747	24.42	0.023
11/2/01 1:48	3648.2747	24.42	0.025
11/2/01 1:58	3658.2747	24.42	0.023
11/2/01 2:08	3668.2747	24.42	0.023
11/2/01 2:18	3678.2747	24.42	0.023
11/2/01 2:28	3688.2747	24.42	0.023
11/2/01 2:38	3698.2747	24.42	0.023
11/2/01 2:48	3708.2747	24.42	0.023
11/2/01 2:58	3718.2747	24.42	0.023
11/2/01 3:08	3728.2747	24.42	0.023
11/2/01 3:18	3738.2747	24.42	0.021
11/2/01 3:28	3748.2747	24.42	0.021
11/2/01 3:38	3758.2747	24.42	0.021
11/2/01 3:48	3768.2747	24.42	0.023
11/2/01 3:58	3778.2747	24.42	0.023
11/2/01 4:08	3788.2747	24.42	0.025
11/2/01 4:18	3798.2747	24.42	0.025
11/2/01 4:28	3808.2747	24.42	0.029
11/2/01 4:38	3818.2747	24.42	0.031
11/2/01 4:48	3828.2747	24.42	0.033
11/2/01 4:58	3838.2747	24.42	0.035
11/2/01 5:08	3848.2747	24.42	0.037
11/2/01 5:18	3858.2747	24.42	0.037
11/2/01 5:28	3868.2747	24.42	0.039
11/2/01 5:38	3878.2747	24.42	0.043
11/2/01 5:48	3888.2747	24.42	0.043
11/2/01 5:58	3898.2747	24.42	0.043

			MW06SL-ST
11/2/01 6:08	3908.2747	24.42	0.043
11/2/01 6:18	3918.2747	24.42	0.043
11/2/01 6:28	3928.2747	24.42	0.041
11/2/01 6:38	3938.2747	24.42	0.031
11/2/01 6:48	3948.2747	24.42	0.037
11/2/01 6:58	3958.2747	24.42	0.039
11/2/01 7:08	3968.2747	24.42	0.039
11/2/01 7:18	3978.2747	24.42	0.035
11/2/01 7:28	3988.2747	24.42	0.033
11/2/01 7:38	3998.2747	24.42	0.033
11/2/01 7:48	4008.2747	24.42	0.029
11/2/01 7:58	4018.2747	24.42	0.027
11/2/01 8:08	4028.2747	24.42	0.031
11/2/01 8:18	4038.2747	24.42	0.017
11/2/01 8:28	4048.2747	24.42	0.015
11/2/01 8:38	4058.2747	24.42	0.011
11/2/01 8:48	4068.2747	24.42	0.008
11/2/01 8:58	4078.2747	24.42	0.006
11/2/01 9:08	4088.2747	24.42	-0.002
11/2/01 9:18	4098.2747	24.42	-0.002
11/2/01 9:28	4108.2747	24.42	-0.006
11/2/01 9:38	4118.2747	24.42	-0.012
11/2/01 9:48	4128.2747	24.42	-0.018
11/2/01 9:58	4138.2747	24.42	-0.018
11/2/01 10:08	4148.2747	24.42	-0.018
11/2/01 10:18	4158.2747	24.42	-0.022
11/2/01 10:28	4168.2747	24.42	-0.023
11/2/01 10:38	4178.2747	24.42	-0.023
11/2/01 10:48	4188.2747	24.42	-0.023
11/2/01 10:58	4198.2747	24.42	-0.014
11/2/01 11:08	4208.2747	24.42	-0.018
11/2/01 11:18	4218.2747	24.42	-0.016
11/2/01 11:28	4228.2747	24.42	-0.016
11/2/01 11:38	4238.2747	24.42	-0.02
11/2/01 11:48	4248.2747	24.42	-0.016
11/2/01 11:58	4258.2747	24.42	-0.014
11/2/01 12:08	4268.2747	24.42	-0.016

MW07SU-ST

In-Situ Inc. MiniTroll Pro

Report generated: 11/2/01 12:43:50
Report from file: C:\WIN-SITU\Data\SN06260 2001-10-30 130000 MW07SU-ST.bin

DataMgr Version 3.69

Serial number: 6260
Firmware Version 3.01
Unit name: MW07SU-WL

Test name: MW07SU-ST

Test defined on: 10/30/01 12:23:18
Test scheduled for: 10/30/01 13:00:00
Test started on: 10/30/01 13:00:00
Test stopped on: 11/2/01 12:25:56
Test extracted on: N/A

Data gathered using Logarithmic testing
Maximum time between data points: 10.0000 Minutes.
Number of data samples: 561

TOTAL DATA SAMPLES 561

Channel number [1]
Measurement type: Temperature
Channel name: OnBoard Temp

Channel number [2]
Measurement type: Pressure
Channel name: OnBoard Pressure
Sensor Range: 30 PSI.
Specific gravity: 1
Mode: TOC
User-defined reference: 0 Feet H2O
Referenced on: test start
Pressure head at reference: 2.948 Feet H2O

Date	Time	Chan[1] ET (min)	Chan[2] Celsius	Feet H2O
10/30/01	13:00	0	23.72	0
10/30/01	13:00	0.0048	23.72	0
10/30/01	13:00	0.0098	23.73	0
10/30/01	13:00	0.015	23.73	0
10/30/01	13:00	0.0198	23.73	-0.002
10/30/01	13:00	0.025	23.75	-0.002
10/30/01	13:00	0.03	23.75	-0.002
10/30/01	13:00	0.035	23.75	0
10/30/01	13:00	0.0398	23.75	0
10/30/01	13:00	0.045	23.75	0
10/30/01	13:00	0.05	23.75	0
10/30/01	13:00	0.0548	23.75	0
10/30/01	13:00	0.06	23.75	-0.002
10/30/01	13:00	0.0648	23.75	0
10/30/01	13:00	0.07	23.75	0
10/30/01	13:00	0.075	23.75	-0.002
10/30/01	13:00	0.0798	23.75	-0.002
10/30/01	13:00	0.0848	23.75	-0.002
10/30/01	13:00	0.09	23.75	-0.002

10/30/01 13:00	0.095	23.75	-0.002
10/30/01 13:00	0.1	23.76	-0.002
10/30/01 13:00	0.1057	23.75	0
10/30/01 13:00	0.1118	23.76	-0.002
10/30/01 13:00	0.1185	23.76	0
10/30/01 13:00	0.1255	23.76	-0.002
10/30/01 13:00	0.1327	23.76	-0.002
10/30/01 13:00	0.1405	23.76	-0.002
10/30/01 13:00	0.1488	23.76	-0.002
10/30/01 13:00	0.1578	23.76	-0.002
10/30/01 13:00	0.167	23.76	-0.002
10/30/01 13:00	0.1768	23.76	0
10/30/01 13:00	0.1875	23.76	-0.002
10/30/01 13:00	0.1985	23.76	-0.002
10/30/01 13:00	0.21	23.76	0
10/30/01 13:00	0.2225	23.76	0
10/30/01 13:00	0.2358	23.76	-0.002
10/30/01 13:00	0.2498	23.76	-0.002
10/30/01 13:00	0.2647	23.76	-0.002
10/30/01 13:00	0.2803	23.76	0
10/30/01 13:00	0.297	23.76	0
10/30/01 13:00	0.3145	23.76	-0.002
10/30/01 13:00	0.3333	23.76	0
10/30/01 13:00	0.3532	23.76	-0.002
10/30/01 13:00	0.374	23.75	-0.002
10/30/01 13:00	0.3963	23.75	-0.002
10/30/01 13:00	0.4198	23.76	-0.002
10/30/01 13:00	0.4445	23.76	-0.002
10/30/01 13:00	0.4695	23.76	0
10/30/01 13:00	0.4963	23.76	-0.002
10/30/01 13:00	0.5247	23.76	-0.002
10/30/01 13:00	0.5547	23.76	-0.002
10/30/01 13:00	0.5862	23.75	0
10/30/01 13:00	0.6213	23.75	-0.002
10/30/01 13:00	0.6578	23.76	-0.002
10/30/01 13:00	0.6963	23.76	-0.002
10/30/01 13:00	0.738	23.76	0
10/30/01 13:00	0.7813	23.75	-0.002
10/30/01 13:00	0.8278	23.75	-0.002
10/30/01 13:00	0.8762	23.75	0
10/30/01 13:00	0.9278	23.75	0
10/30/01 13:00	0.9828	23.75	-0.002
10/30/01 13:01	1.0412	23.75	-0.002
10/30/01 13:01	1.103	23.75	-0.002
10/30/01 13:01	1.1678	23.75	0
10/30/01 13:01	1.238	23.75	-0.002
10/30/01 13:01	1.3113	23.75	-0.002
10/30/01 13:01	1.3895	23.75	-0.002
10/30/01 13:01	1.4728	23.75	0
10/30/01 13:01	1.5613	23.75	-0.002
10/30/01 13:01	1.6547	23.75	0
10/30/01 13:01	1.753	23.73	0
10/30/01 13:01	1.858	23.75	-0.002
10/30/01 13:01	1.9678	23.73	0
10/30/01 13:02	2.0845	23.73	-0.002
10/30/01 13:02	2.2097	23.73	-0.002
10/30/01 13:02	2.3412	23.73	0
10/30/01 13:02	2.4812	23.73	-0.002
10/30/01 13:02	2.6297	23.73	-0.002
10/30/01 13:02	2.7863	23.73	-0.002
10/30/01 13:02	2.953	23.73	-0.002
10/30/01 13:03	3.1297	23.73	0
10/30/01 13:03	3.3162	23.73	-0.002

MW07SU-ST

10/30/01 13:03	3.5145	23.73	-0.002
10/30/01 13:03	3.7245	23.73	0
10/30/01 13:03	3.9463	23.73	0
10/30/01 13:04	4.1812	23.73	0
10/30/01 13:04	4.4295	23.73	0
10/30/01 13:04	4.6928	23.73	-0.002
10/30/01 13:04	4.9728	23.73	0
10/30/01 13:05	5.2697	23.73	0
10/30/01 13:05	5.583	23.73	0
10/30/01 13:05	5.9145	23.73	0.002
10/30/01 13:06	6.2663	23.73	0
10/30/01 13:06	6.6395	23.73	0
10/30/01 13:07	7.0345	23.73	0.002
10/30/01 13:07	7.453	23.73	0.002
10/30/01 13:07	7.8962	23.72	0.002
10/30/01 13:08	8.3663	23.73	0.005
10/30/01 13:08	8.8645	23.72	0.007
10/30/01 13:09	9.3913	23.73	0.007
10/30/01 13:09	9.9497	23.72	0.009
10/30/01 13:10	10.5413	23.73	0.009
10/30/01 13:11	11.168	23.73	0.011
10/30/01 13:11	11.8312	23.73	0.013
10/30/01 13:12	12.5347	23.73	0.016
10/30/01 13:13	13.2795	23.73	0.018
10/30/01 13:14	14.0695	23.73	0.02
10/30/01 13:14	14.9062	23.73	0.022
10/30/01 13:15	15.7913	23.73	0.024
10/30/01 13:16	16.7295	23.73	0.027
10/30/01 13:17	17.723	23.73	0.029
10/30/01 13:18	18.7762	23.73	0.031
10/30/01 13:19	19.8913	23.73	0.033
10/30/01 13:21	21.073	23.73	0.035
10/30/01 13:22	22.3247	23.73	0.038
10/30/01 13:23	23.6497	23.73	0.042
10/30/01 13:25	25.0545	23.73	0.044
10/30/01 13:26	26.5428	23.73	0.049
10/30/01 13:28	28.1178	23.73	0.049
10/30/01 13:29	29.7863	23.73	0.055
10/30/01 13:31	31.5545	23.73	0.06
10/30/01 13:33	33.428	23.72	0.066
10/30/01 13:35	35.4112	23.72	0.068
10/30/01 13:37	37.513	23.72	0.073
10/30/01 13:39	39.7397	23.73	0.079
10/30/01 13:42	42.098	23.73	0.084
10/30/01 13:44	44.5963	23.73	0.088
10/30/01 13:47	47.2428	23.73	0.092
10/30/01 13:50	50.0463	23.72	0.097
10/30/01 13:53	53.0147	23.73	0.103
10/30/01 13:56	56.1595	23.73	0.11
10/30/01 13:59	59.4913	23.73	0.114
10/30/01 14:03	63.0195	23.73	0.121
10/30/01 14:06	66.758	23.72	0.125
10/30/01 14:10	70.7178	23.73	0.132
10/30/01 14:14	74.9113	23.73	0.136
10/30/01 14:19	79.3545	23.73	0.143
10/30/01 14:24	84.0613	23.73	0.147
10/30/01 14:29	89.0462	23.73	0.154
10/30/01 14:34	94.3262	23.73	0.158
10/30/01 14:39	99.9197	23.72	0.163
10/30/01 14:45	105.8447	23.72	0.169
10/30/01 14:52	112.1197	23.72	0.174
10/30/01 14:58	118.7678	23.72	0.178
10/30/01 15:05	125.8095	23.72	0.182

		MW07SU-ST	
10/30/01 15:13	133.2678	23.72	0.187
10/30/01 15:21	141.1678	23.72	0.193
10/30/01 15:29	149.5363	23.72	0.196
10/30/01 15:38	158.4012	23.72	0.202
10/30/01 15:47	167.7912	23.72	0.204
10/30/01 15:57	177.738 23.73	0.211	
10/30/01 16:08	188.2745	23.72	0.215
10/30/01 16:18	198.2745	23.73	0.22
10/30/01 16:28	208.2745	23.72	0.224
10/30/01 16:38	218.2745	23.72	0.226
10/30/01 16:48	228.2745	23.72	0.231
10/30/01 16:58	238.2745	23.73	0.235
10/30/01 17:08	248.2745	23.72	0.24
10/30/01 17:18	258.2745	23.73	0.244
10/30/01 17:28	268.2745	23.72	0.246
10/30/01 17:38	278.2745	23.72	0.251
10/30/01 17:48	288.2745	23.72	0.253
10/30/01 17:58	298.2745	23.73	0.255
10/30/01 18:08	308.2745	23.73	0.255
10/30/01 18:18	318.2745	23.72	0.255
10/30/01 18:28	328.2745	23.73	0.257
10/30/01 18:38	338.2745	23.72	0.257
10/30/01 18:48	348.2745	23.72	0.257
10/30/01 18:58	358.2745	23.72	0.257
10/30/01 19:08	368.2745	23.73	0.257
10/30/01 19:18	378.2745	23.73	0.257
10/30/01 19:28	388.2745	23.73	0.257
10/30/01 19:38	398.2745	23.72	0.255
10/30/01 19:48	408.2745	23.72	0.255
10/30/01 19:58	418.2745	23.72	0.253
10/30/01 20:08	428.2745	23.72	0.255
10/30/01 20:18	438.2745	23.72	0.253
10/30/01 20:28	448.2745	23.72	0.253
10/30/01 20:38	458.2745	23.72	0.251
10/30/01 20:48	468.2745	23.72	0.251
10/30/01 20:58	478.2745	23.71	0.253
10/30/01 21:08	488.2745	23.72	0.255
10/30/01 21:18	498.2745	23.72	0.255
10/30/01 21:28	508.2745	23.72	0.255
10/30/01 21:38	518.2745	23.72	0.257
10/30/01 21:48	528.2745	23.71	0.257
10/30/01 21:58	538.2745	23.72	0.259
10/30/01 22:08	548.2747	23.72	0.259
10/30/01 22:18	558.2747	23.71	0.264
10/30/01 22:28	568.2747	23.71	0.264
10/30/01 22:38	578.2747	23.72	0.266
10/30/01 22:48	588.2747	23.72	0.266
10/30/01 22:58	598.2747	23.71	0.266
10/30/01 23:08	608.2747	23.71	0.268
10/30/01 23:18	618.2747	23.71	0.268
10/30/01 23:28	628.2747	23.71	0.268
10/30/01 23:38	638.2747	23.71	0.268
10/30/01 23:48	648.2747	23.71	0.268
10/30/01 23:58	658.2747	23.71	0.27
10/31/01 0:08	668.2747	23.71	0.268
10/31/01 0:18	678.2747	23.71	0.27
10/31/01 0:28	688.2747	23.71	0.27
10/31/01 0:38	698.2747	23.71	0.27
10/31/01 0:48	708.2747	23.71	0.27
10/31/01 0:58	718.2747	23.71	0.275
10/31/01 1:08	728.2747	23.71	0.286
10/31/01 1:18	738.2747	23.71	0.294
10/31/01 1:28	748.2747	23.7	0.303

MW07SU-ST

10/31/01 1:38	758.2747	23.7	0.31
10/31/01 1:48	768.2747	23.7	0.312
10/31/01 1:58	778.2747	23.71	0.316
10/31/01 2:08	788.2747	23.71	0.319
10/31/01 2:18	798.2747	23.71	0.321
10/31/01 2:28	808.2747	23.7	0.323
10/31/01 2:38	818.2747	23.7	0.325
10/31/01 2:48	828.2747	23.7	0.329
10/31/01 2:58	838.2747	23.7	0.329
10/31/01 3:08	848.2747	23.7	0.332
10/31/01 3:18	858.2747	23.7	0.338
10/31/01 3:28	868.2747	23.7	0.34
10/31/01 3:38	878.2747	23.7	0.343
10/31/01 3:48	888.2747	23.7	0.343
10/31/01 3:58	898.2747	23.7	0.345
10/31/01 4:08	908.2747	23.7	0.345
10/31/01 4:18	918.2747	23.71	0.349
10/31/01 4:28	928.2747	23.7	0.349
10/31/01 4:38	938.2747	23.7	0.351
10/31/01 4:48	948.2747	23.7	0.354
10/31/01 4:58	958.2747	23.7	0.356
10/31/01 5:08	968.2747	23.7	0.358
10/31/01 5:18	978.2747	23.7	0.358
10/31/01 5:28	988.2747	23.7	0.36
10/31/01 5:38	998.2747	23.7	0.365
10/31/01 5:48	1008.2747	23.7	0.362
10/31/01 5:58	1018.2747	23.7	0.367
10/31/01 6:08	1028.2747	23.68	0.369
10/31/01 6:18	1038.2747	23.68	0.369
10/31/01 6:28	1048.2747	23.7	0.369
10/31/01 6:38	1058.2747	23.68	0.369
10/31/01 6:48	1068.2747	23.7	0.367
10/31/01 6:58	1078.2747	23.7	0.369
10/31/01 7:08	1088.2747	23.68	0.375
10/31/01 7:18	1098.2745	23.68	0.371
10/31/01 7:28	1108.2745	23.68	0.371
10/31/01 7:38	1118.2745	23.68	0.369
10/31/01 7:48	1128.2745	23.68	0.371
10/31/01 7:58	1138.2745	23.7	0.369
10/31/01 8:08	1148.2745	23.68	0.367
10/31/01 8:18	1158.2745	23.7	0.365
10/31/01 8:28	1168.2745	23.68	0.364
10/31/01 8:38	1178.2745	23.68	0.362
10/31/01 8:48	1188.2745	23.68	0.36
10/31/01 8:58	1198.2745	23.68	0.36
10/31/01 9:08	1208.2745	23.68	0.358
10/31/01 9:18	1218.2745	23.68	0.36
10/31/01 9:28	1228.2745	23.68	0.36
10/31/01 9:38	1238.2745	23.67	0.364
10/31/01 9:48	1248.2745	23.67	0.364
10/31/01 9:58	1258.2745	23.67	0.369
10/31/01 10:08	1268.2745	23.68	0.373
10/31/01 10:18	1278.2745	23.68	0.373
10/31/01 10:28	1288.2745	23.67	0.375
10/31/01 10:38	1298.2745	23.67	0.377
10/31/01 10:48	1308.2745	23.67	0.377
10/31/01 10:58	1318.2745	23.67	0.38
10/31/01 11:08	1328.2745	23.67	0.382
10/31/01 11:18	1338.2745	23.68	0.384
10/31/01 11:28	1348.2745	23.68	0.386
10/31/01 11:38	1358.2745	23.67	0.388
10/31/01 11:48	1368.2745	23.67	0.388
10/31/01 11:58	1378.2745	23.66	0.388

		MW07SU-ST	
10/31/01 12:08	1388.2745	23.67	0.391
10/31/01 12:18	1398.2745	23.67	0.386
10/31/01 12:28	1408.2745	23.67	0.384
10/31/01 12:38	1418.2745	23.67	0.382
10/31/01 12:48	1428.2745	23.67	0.382
10/31/01 12:58	1438.2745	23.67	0.382
10/31/01 13:08	1448.2745	23.67	0.382
10/31/01 13:18	1458.2745	23.66	0.379
10/31/01 13:28	1468.2745	23.66	0.379
10/31/01 13:38	1478.2745	23.66	0.379
10/31/01 13:48	1488.2745	23.67	0.38
10/31/01 13:58	1498.2745	23.66	0.382
10/31/01 14:08	1508.2745	23.66	0.382
10/31/01 14:18	1518.2745	23.66	0.384
10/31/01 14:28	1528.2745	23.66	0.382
10/31/01 14:38	1538.2745	23.66	0.384
10/31/01 14:48	1548.2745	23.66	0.386
10/31/01 14:58	1558.2745	23.66	0.388
10/31/01 15:08	1568.2745	23.66	0.388
10/31/01 15:18	1578.2745	23.66	0.393
10/31/01 15:28	1588.2745	23.66	0.393
10/31/01 15:38	1598.2745	23.65	0.395
10/31/01 15:48	1608.2745	23.65	0.397
10/31/01 15:58	1618.2745	23.66	0.397
10/31/01 16:08	1628.2745	23.65	0.399
10/31/01 16:18	1638.2745	23.66	0.401
10/31/01 16:28	1648.2745	23.65	0.401
10/31/01 16:38	1658.2745	23.65	0.403
10/31/01 16:48	1668.2745	23.65	0.403
10/31/01 16:58	1678.2745	23.65	0.406
10/31/01 17:08	1688.2745	23.65	0.406
10/31/01 17:18	1698.2745	23.65	0.406
10/31/01 17:28	1708.2745	23.65	0.406
10/31/01 17:38	1718.2745	23.65	0.406
10/31/01 17:48	1728.2745	23.65	0.406
10/31/01 17:58	1738.2745	23.65	0.406
10/31/01 18:08	1748.2745	23.65	0.408
10/31/01 18:18	1758.2745	23.65	0.408
10/31/01 18:28	1768.2745	23.65	0.41
10/31/01 18:38	1778.2745	23.65	0.41
10/31/01 18:48	1788.2745	23.65	0.408
10/31/01 18:58	1798.2745	23.65	0.41
10/31/01 19:08	1808.2745	23.65	0.41
10/31/01 19:18	1818.2745	23.63	0.41
10/31/01 19:28	1828.2745	23.65	0.41
10/31/01 19:38	1838.2745	23.65	0.41
10/31/01 19:48	1848.2745	23.63	0.408
10/31/01 19:58	1858.2745	23.63	0.405
10/31/01 20:08	1868.2745	23.65	0.406
10/31/01 20:18	1878.2745	23.65	0.403
10/31/01 20:28	1888.2745	23.63	0.401
10/31/01 20:38	1898.2745	23.65	0.399
10/31/01 20:48	1908.2745	23.65	0.397
10/31/01 20:58	1918.2745	23.63	0.394
10/31/01 21:08	1928.2745	23.63	0.394
10/31/01 21:18	1938.2745	23.65	0.39
10/31/01 21:28	1948.2745	23.63	0.39
10/31/01 21:38	1958.2745	23.65	0.39
10/31/01 21:48	1968.2745	23.63	0.39
10/31/01 21:58	1978.2745	23.63	0.39
10/31/01 22:08	1988.2745	23.65	0.39
10/31/01 22:18	1998.2745	23.63	0.388
10/31/01 22:28	2008.2745	23.63	0.381

		MW07SU-ST	
10/31/01 22:38	2018.2745	23.63	0.383
10/31/01 22:48	2028.2745	23.62	0.383
10/31/01 22:58	2038.2745	23.62	0.383
10/31/01 23:08	2048.2745	23.62	0.383
10/31/01 23:18	2058.2745	23.62	0.383
10/31/01 23:28	2068.2745	23.63	0.381
10/31/01 23:38	2078.2745	23.63	0.383
10/31/01 23:48	2088.2745	23.62	0.383
10/31/01 23:58	2098.2745	23.62	0.383
11/1/01 0:08	2108.2745	23.62	0.383
11/1/01 0:18	2118.2745	23.62	0.383
11/1/01 0:28	2128.2745	23.63	0.386
11/1/01 0:38	2138.2745	23.63	0.39
11/1/01 0:48	2148.2745	23.62	0.39
11/1/01 0:58	2158.2745	23.61	0.39
11/1/01 1:08	2168.2745	23.62	0.388
11/1/01 1:18	2178.2745	23.62	0.388
11/1/01 1:28	2188.2747	23.62	0.386
11/1/01 1:38	2198.2747	23.62	0.388
11/1/01 1:48	2208.2747	23.61	0.388
11/1/01 1:58	2218.2747	23.61	0.388
11/1/01 2:08	2228.2747	23.61	0.388
11/1/01 2:18	2238.2747	23.61	0.385
11/1/01 2:28	2248.2747	23.61	0.388
11/1/01 2:38	2258.2747	23.61	0.39
11/1/01 2:48	2268.2747	23.61	0.39
11/1/01 2:58	2278.2747	23.61	0.392
11/1/01 3:08	2288.2747	23.61	0.39
11/1/01 3:18	2298.2747	23.61	0.39
11/1/01 3:28	2308.2747	23.61	0.39
11/1/01 3:38	2318.2747	23.61	0.39
11/1/01 3:48	2328.2747	23.61	0.39
11/1/01 3:58	2338.2747	23.61	0.392
11/1/01 4:08	2348.2747	23.6	0.392
11/1/01 4:18	2358.2747	23.6	0.39
11/1/01 4:28	2368.2747	23.6	0.392
11/1/01 4:38	2378.2747	23.6	0.392
11/1/01 4:48	2388.2747	23.6	0.396
11/1/01 4:58	2398.2747	23.6	0.398
11/1/01 5:08	2408.2747	23.6	0.401
11/1/01 5:18	2418.2747	23.6	0.403
11/1/01 5:28	2428.2747	23.6	0.403
11/1/01 5:38	2438.2747	23.6	0.405
11/1/01 5:48	2448.2747	23.61	0.405
11/1/01 5:58	2458.2747	23.6	0.405
11/1/01 6:08	2468.2747	23.6	0.407
11/1/01 6:18	2478.2747	23.6	0.405
11/1/01 6:28	2488.2747	23.6	0.407
11/1/01 6:38	2498.2747	23.6	0.407
11/1/01 6:48	2508.2747	23.6	0.407
11/1/01 6:58	2518.2747	23.6	0.405
11/1/01 7:08	2528.2747	23.6	0.407
11/1/01 7:18	2538.2747	23.58	0.407
11/1/01 7:28	2548.2747	23.6	0.396
11/1/01 7:38	2558.2747	23.6	0.407
11/1/01 7:48	2568.2747	23.58	0.405
11/1/01 7:58	2578.2747	23.6	0.403
11/1/01 8:08	2588.2747	23.58	0.398
11/1/01 8:18	2598.2747	23.58	0.396
11/1/01 8:28	2608.2747	23.58	0.394
11/1/01 8:38	2618.2747	23.58	0.392
11/1/01 8:48	2628.2747	23.6	0.39
11/1/01 8:58	2638.2747	23.58	0.387

		MW07SU-ST	
11/1/01 9:08	2648.2747	23.58	0.385
11/1/01 9:18	2658.2747	23.58	0.383
11/1/01 9:28	2668.2747	23.58	0.381
11/1/01 9:38	2678.2747	23.58	0.381
11/1/01 9:48	2688.2747	23.58	0.378
11/1/01 9:58	2698.2747	23.57	0.376
11/1/01 10:08	2708.2747	23.58	0.376
11/1/01 10:18	2718.2747	23.58	0.374
11/1/01 10:28	2728.2747	23.57	0.376
11/1/01 10:38	2738.2747	23.57	0.376
11/1/01 10:48	2748.2747	23.57	0.376
11/1/01 10:58	2758.2747	23.57	0.378
11/1/01 11:08	2768.2747	23.58	0.378
11/1/01 11:18	2778.2747	23.57	0.38
11/1/01 11:28	2788.2747	23.57	0.38
11/1/01 11:38	2798.2747	23.58	0.383
11/1/01 11:48	2808.2747	23.56	0.383
11/1/01 11:58	2818.2747	23.57	0.385
11/1/01 12:08	2828.2747	23.58	0.378
11/1/01 12:18	2838.2747	23.58	0.354
11/1/01 12:28	2848.2747	23.58	0.321
11/1/01 12:38	2858.2747	23.57	0.288
11/1/01 12:48	2868.2747	23.57	0.26
11/1/01 12:58	2878.2747	23.57	0.235
11/1/01 13:08	2888.2747	23.57	0.216
11/1/01 13:18	2898.2747	23.57	0.198
11/1/01 13:28	2908.2747	23.57	0.185
11/1/01 13:38	2918.2747	23.56	0.174
11/1/01 13:48	2928.2747	23.56	0.158
11/1/01 13:58	2938.2747	23.55	0.152
11/1/01 14:08	2948.2747	23.55	0.143
11/1/01 14:18	2958.2747	23.55	0.136
11/1/01 14:28	2968.2747	23.56	0.13
11/1/01 14:38	2978.2747	23.56	0.125
11/1/01 14:48	2988.2747	23.55	0.121
11/1/01 14:58	2998.2747	23.55	0.119
11/1/01 15:08	3008.2747	23.55	0.114
11/1/01 15:18	3018.2747	23.53	0.11
11/1/01 15:28	3028.2747	23.53	0.112
11/1/01 15:38	3038.2747	23.53	0.11
11/1/01 15:48	3048.2747	23.53	0.107
11/1/01 15:58	3058.2747	23.52	0.105
11/1/01 16:08	3068.2747	23.52	0.103
11/1/01 16:18	3078.2747	23.53	0.101
11/1/01 16:28	3088.2747	23.52	0.098
11/1/01 16:38	3098.2747	23.52	0.094
11/1/01 16:48	3108.2747	23.51	0.094
11/1/01 16:58	3118.2747	23.51	0.092
11/1/01 17:08	3128.2747	23.51	0.092
11/1/01 17:18	3138.2747	23.51	0.09
11/1/01 17:28	3148.2747	23.51	0.087
11/1/01 17:38	3158.2747	23.51	0.087
11/1/01 17:48	3168.2747	23.52	0.085
11/1/01 17:58	3178.2747	23.51	0.085
11/1/01 18:08	3188.2747	23.51	0.085
11/1/01 18:18	3198.2747	23.51	0.083
11/1/01 18:28	3208.2747	23.5	0.081
11/1/01 18:38	3218.2747	23.48	0.08
11/1/01 18:48	3228.2747	23.5	0.081
11/1/01 18:58	3238.2747	23.5	0.078
11/1/01 19:08	3248.2747	23.5	0.078
11/1/01 19:18	3258.2747	23.5	0.076
11/1/01 19:28	3268.2747	23.51	0.074

		MW07SU-ST	
11/1/01 19:38	3278.2747	23.5	0.072
11/1/01 19:48	3288.2747	23.48	0.069
11/1/01 19:58	3298.2747	23.5	0.067
11/1/01 20:08	3308.2747	23.5	0.065
11/1/01 20:18	3318.2747	23.5	0.061
11/1/01 20:28	3328.2747	23.51	0.059
11/1/01 20:38	3338.2747	23.5	0.059
11/1/01 20:48	3348.2747	23.48	0.054
11/1/01 20:58	3358.2747	23.5	0.052
11/1/01 21:08	3368.2747	23.48	0.047
11/1/01 21:18	3378.2747	23.48	0.045
11/1/01 21:28	3388.2747	23.47	0.043
11/1/01 21:38	3398.2747	23.48	0.041
11/1/01 21:48	3408.2747	23.47	0.041
11/1/01 21:58	3418.2747	23.48	0.036
11/1/01 22:08	3428.2747	23.48	0.034
11/1/01 22:18	3438.2747	23.48	0.034
11/1/01 22:28	3448.2747	23.46	0.032
11/1/01 22:38	3458.2747	23.47	0.03
11/1/01 22:48	3468.2747	23.48	0.028
11/1/01 22:58	3478.2747	23.48	0.028
11/1/01 23:08	3488.2747	23.47	0.025
11/1/01 23:18	3498.2747	23.48	0.023
11/1/01 23:28	3508.2747	23.48	0.023
11/1/01 23:38	3518.2747	23.48	0.023
11/1/01 23:48	3528.2747	23.48	0.021
11/1/01 23:58	3538.2747	23.48	0.019
11/2/01 0:08	3548.2747	23.47	0.017
11/2/01 0:18	3558.2747	23.47	0.017
11/2/01 0:28	3568.2747	23.47	0.014
11/2/01 0:38	3578.2747	23.46	0.016
11/2/01 0:48	3588.2747	23.47	0.014
11/2/01 0:58	3598.2747	23.46	0.014
11/2/01 1:08	3608.2747	23.47	0.012
11/2/01 1:18	3618.2747	23.47	0.01
11/2/01 1:28	3628.2747	23.46	0.01
11/2/01 1:38	3638.2747	23.46	0.01
11/2/01 1:48	3648.2747	23.46	0.01
11/2/01 1:58	3658.2747	23.45	0.01
11/2/01 2:08	3668.2747	23.45	0.007
11/2/01 2:18	3678.2747	23.46	0.008
11/2/01 2:28	3688.2747	23.46	0.008
11/2/01 2:38	3698.2747	23.46	0.008
11/2/01 2:48	3708.2747	23.43	0.007
11/2/01 2:58	3718.2747	23.45	0.007
11/2/01 3:08	3728.2747	23.46	0.005
11/2/01 3:18	3738.2747	23.46	0.005
11/2/01 3:28	3748.2747	23.46	0.003
11/2/01 3:38	3758.2747	23.45	0.003
11/2/01 3:48	3768.2747	23.45	0.005
11/2/01 3:58	3778.2747	23.45	0.005
11/2/01 4:08	3788.2747	23.45	0.005
11/2/01 4:18	3798.2747	23.46	0.008
11/2/01 4:28	3808.2747	23.45	0.01
11/2/01 4:38	3818.2747	23.46	0.012
11/2/01 4:48	3828.2747	23.43	0.014
11/2/01 4:58	3838.2747	23.45	0.014
11/2/01 5:08	3848.2747	23.43	0.016
11/2/01 5:18	3858.2747	23.42	0.018
11/2/01 5:28	3868.2747	23.43	0.02
11/2/01 5:38	3878.2747	23.43	0.023
11/2/01 5:48	3888.2747	23.43	0.023
11/2/01 5:58	3898.2747	23.43	0.023

			MW07SU-ST
11/2/01 6:08	3908.2747	23.45	0.023
11/2/01 6:18	3918.2747	23.46	0.023
11/2/01 6:28	3928.2747	23.46	0.023
11/2/01 6:38	3938.2747	23.46	0.021
11/2/01 6:48	3948.2747	23.45	0.021
11/2/01 6:58	3958.2747	23.45	0.021
11/2/01 7:08	3968.2747	23.45	0.021
11/2/01 7:18	3978.2747	23.45	0.021
11/2/01 7:28	3988.2747	23.43	0.018
11/2/01 7:38	3998.2747	23.43	0.018
11/2/01 7:48	4008.2747	23.45	0.018
11/2/01 7:58	4018.2747	23.43	0.018
11/2/01 8:08	4028.2747	23.43	0.016
11/2/01 8:18	4038.2747	23.43	0.016
11/2/01 8:28	4048.2747	23.42	0.014
11/2/01 8:38	4058.2747	23.42	0.011
11/2/01 8:48	4068.2747	23.42	0.007
11/2/01 8:58	4078.2747	23.42	0.007
11/2/01 9:08	4088.2747	23.42	-0.013
11/2/01 9:18	4098.2747	23.42	-0.015
11/2/01 9:28	4108.2747	23.42	-0.015
11/2/01 9:38	4118.2747	23.42	-0.017
11/2/01 9:48	4128.2747	23.42	-0.024
11/2/01 9:58	4138.2747	23.42	-0.026
11/2/01 10:08	4148.2747	23.41	-0.026
11/2/01 10:18	4158.2747	23.42	-0.028
11/2/01 10:28	4168.2747	23.41	-0.03
11/2/01 10:38	4178.2747	23.42	-0.03
11/2/01 10:48	4188.2747	23.42	-0.03
11/2/01 10:58	4198.2747	23.43	-0.03
11/2/01 11:08	4208.2747	23.42	-0.03
11/2/01 11:18	4218.2747	23.41	-0.028
11/2/01 11:28	4228.2747	23.41	-0.028
11/2/01 11:38	4238.2747	23.41	-0.028
11/2/01 11:48	4248.2747	23.4	-0.031
11/2/01 11:58	4258.2747	23.41	-0.03
11/2/01 12:08	4268.2747	23.41	-0.028
11/2/01 12:18	4278.2747	23.41	-0.03

MW07SL-ST

In-Situ Inc. MiniTroll Pro

Report generated: 11/2/01 12:51:41
Report from file: C:\WIN-SITU\Data\SN06451 2001-10-30 130000 MW07SL-ST.bin

DataMgr Version 3.69

Serial number: 6451
Firmware Version 3.01
Unit name: MW07SL-WL

Test name: MW07SL-ST

Test defined on: 10/30/01 12:25:51
Test scheduled for: 10/30/01 13:00:00
Test started on: 10/30/01 13:00:00
Test stopped on: 11/2/01 12:51:53
Test extracted on: N/A

Data gathered using Logarithmic testing
Maximum time between data points: 10.0000 Minutes.
Number of data samples: 564

TOTAL DATA SAMPLES 564

Channel number [1]
Measurement type: Temperature
Channel name: OnBoard Temp

Channel number [2]
Measurement type: Pressure
Channel name: OnBoard Pressure
Sensor Range: 100 PSI.
Specific gravity: 1
Mode: TOC
User-defined reference: 0 Feet H2O
Referenced on: test start
Pressure head at reference: 10.099 Feet H2O

Date	Time	Chan[1] ET (min)	Chan[2] Celsius	Feet H2O
10/30/01	13:00	0	23.77	0
10/30/01	13:00	0.0048	23.78	-0.018
10/30/01	13:00	0.0098	23.79	-0.024
10/30/01	13:00	0.015	23.79	-0.024
10/30/01	13:00	0.0198	23.79	-0.03
10/30/01	13:00	0.025	23.8	-0.029
10/30/01	13:00	0.03	23.8	-0.029
10/30/01	13:00	0.035	23.8	-0.029
10/30/01	13:00	0.0398	23.8	-0.036
10/30/01	13:00	0.045	23.8	-0.029
10/30/01	13:00	0.05	23.8	-0.036
10/30/01	13:00	0.0548	23.8	-0.036
10/30/01	13:00	0.06	23.8	-0.036
10/30/01	13:00	0.0648	23.8	-0.036
10/30/01	13:00	0.07	23.8	-0.036
10/30/01	13:00	0.075	23.8	-0.036
10/30/01	13:00	0.0798	23.8	-0.036
10/30/01	13:00	0.0848	23.8	-0.036
10/30/01	13:00	0.09	23.8	-0.036

MW07SL-ST

10/30/01 13:00	0.095	23.82	-0.035
10/30/01 13:00	0.1	23.82	-0.041
10/30/01 13:00	0.1057	23.82	-0.035
10/30/01 13:00	0.1118	23.8	-0.036
10/30/01 13:00	0.1185	23.82	-0.035
10/30/01 13:00	0.1255	23.82	-0.035
10/30/01 13:00	0.1327	23.82	-0.035
10/30/01 13:00	0.1405	23.82	-0.035
10/30/01 13:00	0.1488	23.82	-0.035
10/30/01 13:00	0.1578	23.82	-0.035
10/30/01 13:00	0.167	23.8	-0.029
10/30/01 13:00	0.1768	23.8	-0.029
10/30/01 13:00	0.1875	23.8	-0.017
10/30/01 13:00	0.1985	23.8	-0.017
10/30/01 13:00	0.21	23.8	-0.017
10/30/01 13:00	0.2225	23.79	-0.017
10/30/01 13:00	0.2358	23.8	-0.01
10/30/01 13:00	0.2498	23.79	-0.011
10/30/01 13:00	0.2647	23.8	-0.01
10/30/01 13:00	0.2803	23.8	-0.01
10/30/01 13:00	0.297	23.8	-0.01
10/30/01 13:00	0.3145	23.8	-0.004
10/30/01 13:00	0.3333	23.8	-0.004
10/30/01 13:00	0.3532	23.8	-0.004
10/30/01 13:00	0.374	23.8	-0.004
10/30/01 13:00	0.3963	23.8	-0.004
10/30/01 13:00	0.4198	23.8	-0.004
10/30/01 13:00	0.4445	23.8	-0.004
10/30/01 13:00	0.4695	23.8	0.002
10/30/01 13:00	0.4963	23.79	0.001
10/30/01 13:00	0.5247	23.79	-0.005
10/30/01 13:00	0.5547	23.8	0.002
10/30/01 13:00	0.5862	23.79	0.001
10/30/01 13:00	0.6213	23.79	0.001
10/30/01 13:00	0.6578	23.79	-0.005
10/30/01 13:00	0.6963	23.79	0.001
10/30/01 13:00	0.738	23.79	0.001
10/30/01 13:00	0.7813	23.79	0.001
10/30/01 13:00	0.8278	23.79	0.001
10/30/01 13:00	0.8762	23.79	0.001
10/30/01 13:00	0.9278	23.79	0.001
10/30/01 13:00	0.9828	23.79	0.001
10/30/01 13:01	1.0412	23.79	0.001
10/30/01 13:01	1.103	23.79	0.008
10/30/01 13:01	1.1678	23.79	0.001
10/30/01 13:01	1.238	23.79	0.001
10/30/01 13:01	1.3113	23.79	0.001
10/30/01 13:01	1.3895	23.79	0.001
10/30/01 13:01	1.4728	23.78	0.001
10/30/01 13:01	1.5613	23.79	0.001
10/30/01 13:01	1.6547	23.79	0.001
10/30/01 13:01	1.753	23.78	0.001
10/30/01 13:01	1.858	23.78	0.007
10/30/01 13:01	1.9678	23.78	0.001
10/30/01 13:02	2.0845	23.78	0.001
10/30/01 13:02	2.2097	23.78	0.001
10/30/01 13:02	2.3412	23.78	0.001
10/30/01 13:02	2.4812	23.78	0.001
10/30/01 13:02	2.6297	23.78	0.001
10/30/01 13:02	2.7863	23.78	0.001
10/30/01 13:02	2.953	23.78	0.001
10/30/01 13:03	3.1297	23.78	0.001
10/30/01 13:03	3.3162	23.78	0.001

10/30/01 13:03	3.5145	23.78	0.001	
10/30/01 13:03	3.7245	23.78	0.007	
10/30/01 13:03	3.9463	23.78	0.001	
10/30/01 13:04	4.1812	23.78	0.001	
10/30/01 13:04	4.4295	23.78	0.007	
10/30/01 13:04	4.6928	23.78	0.007	
10/30/01 13:04	4.9728	23.78	0.007	
10/30/01 13:05	5.2697	23.78	0.001	
10/30/01 13:05	5.583	23.78	0.007	
10/30/01 13:05	5.9145	23.78	0.007	
10/30/01 13:06	6.2663	23.78	0.007	
10/30/01 13:06	6.6395	23.77	0.013	
10/30/01 13:07	7.0345	23.77	0.013	
10/30/01 13:07	7.453	23.77	0.013	
10/30/01 13:07	7.8962	23.78	0.013	
10/30/01 13:08	8.3663	23.77	0.013	
10/30/01 13:08	8.8645	23.77	0.019	
10/30/01 13:09	9.3913	23.78	0.02	
10/30/01 13:09	9.9497	23.78	0.02	
10/30/01 13:10	10.5413	23.78	0.02	
10/30/01 13:11	11.168	23.77	0.025	
10/30/01 13:11	11.8312	23.77	0.025	
10/30/01 13:12	12.5347	23.78	0.026	
10/30/01 13:13	13.2795	23.77	0.031	
10/30/01 13:14	14.0695	23.77	0.031	
10/30/01 13:14	14.9062	23.77	0.038	
10/30/01 13:15	15.7913	23.77	0.038	
10/30/01 13:16	16.7295	23.77	0.044	
10/30/01 13:17	17.723	23.77	0.044	
10/30/01 13:18	18.7762	23.77	0.05	
10/30/01 13:19	19.8913	23.77	0.05	
10/30/01 13:21	21.073	23.77	0.057	
10/30/01 13:22	22.3247	23.77	0.063	
10/30/01 13:23	23.6497	23.78	0.064	
10/30/01 13:25	25.0545	23.77	0.069	
10/30/01 13:26	26.5428	23.77	0.075	
10/30/01 13:28	28.1178	23.77	0.075	
10/30/01 13:29	29.7863	23.77	0.082	
10/30/01 13:31	31.5545	23.77	0.088	
10/30/01 13:33	33.428	23.78	0.089	
10/30/01 13:35	35.4112	23.77	0.094	
10/30/01 13:37	37.513	23.77	0.094	
10/30/01 13:39	39.7397	23.77	0.1	
10/30/01 13:42	42.098	23.77	0.107	
10/30/01 13:44	44.5963	23.77	0.113	
10/30/01 13:47	47.2428	23.77	0.113	
10/30/01 13:50	50.0463	23.77	0.119	
10/30/01 13:53	53.0147	23.77	0.126	
10/30/01 13:56	56.1595	23.77	0.126	
10/30/01 13:59	59.4913	23.77	0.132	
10/30/01 14:03	63.0195	23.77	0.138	
10/30/01 14:06	66.758	23.77	0.138	
10/30/01 14:10	70.7178	23.77	0.144	
10/30/01 14:14	74.9113	23.77	0.151	
10/30/01 14:19	79.3545	23.77	0.151	
10/30/01 14:24	84.0613	23.77	0.163	
10/30/01 14:29	89.0462	23.77	0.163	
10/30/01 14:34	94.3262	23.77	0.17	
10/30/01 14:39	99.9197	23.77	0.176	
10/30/01 14:45	105.8447		23.77	0.182
10/30/01 14:52	112.1197		23.77	0.188
10/30/01 14:58	118.7678		23.77	0.188
10/30/01 15:05	125.8095		23.77	0.188

		MW07SL-ST	
10/30/01 15:13	133.2678	23.77	0.195
10/30/01 15:21	141.1678	23.77	0.201
10/30/01 15:29	149.5363	23.77	0.207
10/30/01 15:38	158.4012	23.78	0.208
10/30/01 15:47	167.7912	23.78	0.214
10/30/01 15:57	177.738 23.77	0.22	
10/30/01 16:08	188.2745	23.77	0.22
10/30/01 16:18	198.2745	23.77	0.226
10/30/01 16:28	208.2745	23.77	0.226
10/30/01 16:38	218.2745	23.77	0.232
10/30/01 16:48	228.2745	23.77	0.239
10/30/01 16:58	238.2745	23.77	0.245
10/30/01 17:08	248.2745	23.78	0.246
10/30/01 17:18	258.2745	23.77	0.251
10/30/01 17:28	268.2745	23.78	0.252
10/30/01 17:38	278.2745	23.78	0.252
10/30/01 17:48	288.2745	23.77	0.251
10/30/01 17:58	298.2745	23.78	0.252
10/30/01 18:08	308.2745	23.77	0.251
10/30/01 18:18	318.2745	23.78	0.252
10/30/01 18:28	328.2745	23.77	0.257
10/30/01 18:38	338.2745	23.78	0.258
10/30/01 18:48	348.2745	23.77	0.257
10/30/01 18:58	358.2745	23.78	0.258
10/30/01 19:08	368.2745	23.77	0.257
10/30/01 19:18	378.2745	23.78	0.258
10/30/01 19:28	388.2745	23.78	0.258
10/30/01 19:38	398.2745	23.77	0.257
10/30/01 19:48	408.2745	23.77	0.257
10/30/01 19:58	418.2745	23.77	0.251
10/30/01 20:08	428.2745	23.77	0.257
10/30/01 20:18	438.2745	23.77	0.257
10/30/01 20:28	448.2745	23.77	0.251
10/30/01 20:38	458.2745	23.78	0.252
10/30/01 20:48	468.2745	23.77	0.251
10/30/01 20:58	478.2745	23.77	0.257
10/30/01 21:08	488.2745	23.78	0.258
10/30/01 21:18	498.2745	23.77	0.257
10/30/01 21:28	508.2745	23.77	0.257
10/30/01 21:38	518.2745	23.78	0.264
10/30/01 21:48	528.2745	23.78	0.264
10/30/01 21:58	538.2745	23.77	0.264
10/30/01 22:08	548.2747	23.77	0.27
10/30/01 22:18	558.2747	23.78	0.271
10/30/01 22:28	568.2747	23.77	0.27
10/30/01 22:38	578.2747	23.78	0.271
10/30/01 22:48	588.2747	23.77	0.27
10/30/01 22:58	598.2747	23.77	0.27
10/30/01 23:08	608.2747	23.77	0.27
10/30/01 23:18	618.2747	23.77	0.27
10/30/01 23:28	628.2747	23.77	0.27
10/30/01 23:38	638.2747	23.77	0.27
10/30/01 23:48	648.2747	23.77	0.27
10/30/01 23:58	658.2747	23.77	0.27
10/31/01 0:08	668.2747	23.77	0.27
10/31/01 0:18	678.2747	23.78	0.271
10/31/01 0:28	688.2747	23.77	0.27
10/31/01 0:38	698.2747	23.77	0.27
10/31/01 0:48	708.2747	23.77	0.276
10/31/01 0:58	718.2747	23.78	0.283
10/31/01 1:08	728.2747	23.78	0.302
10/31/01 1:18	738.2747	23.78	0.302
10/31/01 1:28	748.2747	23.77	0.308

		MW07SL-ST	
10/31/01 1:38	758.2747	23.78	0.315
10/31/01 1:48	768.2747	23.77	0.314
10/31/01 1:58	778.2747	23.77	0.32
10/31/01 2:08	788.2747	23.77	0.32
10/31/01 2:18	798.2747	23.77	0.32
10/31/01 2:28	808.2747	23.77	0.327
10/31/01 2:38	818.2747	23.77	0.327
10/31/01 2:48	828.2747	23.77	0.333
10/31/01 2:58	838.2747	23.77	0.333
10/31/01 3:08	848.2747	23.77	0.333
10/31/01 3:18	858.2747	23.77	0.333
10/31/01 3:28	868.2747	23.77	0.339
10/31/01 3:38	878.2747	23.77	0.339
10/31/01 3:48	888.2747	23.77	0.339
10/31/01 3:58	898.2747	23.77	0.339
10/31/01 4:08	908.2747	23.77	0.345
10/31/01 4:18	918.2747	23.77	0.345
10/31/01 4:28	928.2747	23.77	0.352
10/31/01 4:38	938.2747	23.77	0.352
10/31/01 4:48	948.2747	23.77	0.352
10/31/01 4:58	958.2747	23.77	0.358
10/31/01 5:08	968.2747	23.77	0.358
10/31/01 5:18	978.2747	23.77	0.358
10/31/01 5:28	988.2747	23.77	0.364
10/31/01 5:38	998.2747	23.77	0.364
10/31/01 5:48	1008.2747	23.77	0.364
10/31/01 5:58	1018.2747	23.77	0.364
10/31/01 6:08	1028.2747	23.77	0.364
10/31/01 6:18	1038.2747	23.77	0.371
10/31/01 6:28	1048.2747	23.77	0.364
10/31/01 6:38	1058.2747	23.77	0.371
10/31/01 6:48	1068.2747	23.77	0.371
10/31/01 6:58	1078.2747	23.77	0.371
10/31/01 7:08	1088.2747	23.77	0.377
10/31/01 7:18	1098.2745	23.77	0.371
10/31/01 7:28	1108.2745	23.77	0.371
10/31/01 7:38	1118.2745	23.77	0.364
10/31/01 7:48	1128.2745	23.77	0.364
10/31/01 7:58	1138.2745	23.77	0.364
10/31/01 8:08	1148.2745	23.77	0.364
10/31/01 8:18	1158.2745	23.77	0.358
10/31/01 8:28	1168.2745	23.77	0.358
10/31/01 8:38	1178.2745	23.77	0.364
10/31/01 8:48	1188.2745	23.77	0.358
10/31/01 8:58	1198.2745	23.77	0.358
10/31/01 9:08	1208.2745	23.77	0.364
10/31/01 9:18	1218.2745	23.77	0.358
10/31/01 9:28	1228.2745	23.77	0.364
10/31/01 9:38	1238.2745	23.77	0.364
10/31/01 9:48	1248.2745	23.77	0.371
10/31/01 9:58	1258.2745	23.77	0.371
10/31/01 10:08	1268.2745	23.77	0.371
10/31/01 10:18	1278.2745	23.77	0.377
10/31/01 10:28	1288.2745	23.77	0.377
10/31/01 10:38	1298.2745	23.77	0.377
10/31/01 10:48	1308.2745	23.77	0.377
10/31/01 10:58	1318.2745	23.77	0.377
10/31/01 11:08	1328.2745	23.77	0.383
10/31/01 11:18	1338.2745	23.77	0.383
10/31/01 11:28	1348.2745	23.77	0.383
10/31/01 11:38	1358.2745	23.77	0.389
10/31/01 11:48	1368.2745	23.77	0.389
10/31/01 11:58	1378.2745	23.77	0.389

		MW07SL-ST	
10/31/01 12:08	1388.2745	23.77	0.389
10/31/01 12:18	1398.2745	23.77	0.383
10/31/01 12:28	1408.2745	23.77	0.383
10/31/01 12:38	1418.2745	23.77	0.383
10/31/01 12:48	1428.2745	23.77	0.383
10/31/01 12:58	1438.2745	23.77	0.377
10/31/01 13:08	1448.2745	23.77	0.377
10/31/01 13:18	1458.2745	23.77	0.377
10/31/01 13:28	1468.2745	23.77	0.377
10/31/01 13:38	1478.2745	23.77	0.377
10/31/01 13:48	1488.2745	23.77	0.377
10/31/01 13:58	1498.2745	23.77	0.377
10/31/01 14:08	1508.2745	23.77	0.377
10/31/01 14:18	1518.2745	23.77	0.377
10/31/01 14:28	1528.2745	23.77	0.377
10/31/01 14:38	1538.2745	23.77	0.383
10/31/01 14:48	1548.2745	23.77	0.383
10/31/01 14:58	1558.2745	23.77	0.389
10/31/01 15:08	1568.2745	23.77	0.389
10/31/01 15:18	1578.2745	23.77	0.396
10/31/01 15:28	1588.2745	23.77	0.396
10/31/01 15:38	1598.2745	23.77	0.396
10/31/01 15:48	1608.2745	23.77	0.396
10/31/01 15:58	1618.2745	23.77	0.396
10/31/01 16:08	1628.2745	23.77	0.402
10/31/01 16:18	1638.2745	23.77	0.402
10/31/01 16:28	1648.2745	23.77	0.402
10/31/01 16:38	1658.2745	23.77	0.402
10/31/01 16:48	1668.2745	23.77	0.402
10/31/01 16:58	1678.2745	23.77	0.402
10/31/01 17:08	1688.2745	23.77	0.402
10/31/01 17:18	1698.2745	23.77	0.402
10/31/01 17:28	1708.2745	23.77	0.402
10/31/01 17:38	1718.2745	23.77	0.402
10/31/01 17:48	1728.2745	23.77	0.408
10/31/01 17:58	1738.2745	23.77	0.408
10/31/01 18:08	1748.2745	23.77	0.402
10/31/01 18:18	1758.2745	23.77	0.408
10/31/01 18:28	1768.2745	23.77	0.408
10/31/01 18:38	1778.2745	23.77	0.408
10/31/01 18:48	1788.2745	23.77	0.408
10/31/01 18:58	1798.2745	23.77	0.408
10/31/01 19:08	1808.2745	23.77	0.408
10/31/01 19:18	1818.2745	23.77	0.402
10/31/01 19:28	1828.2745	23.77	0.402
10/31/01 19:38	1838.2745	23.77	0.402
10/31/01 19:48	1848.2745	23.77	0.402
10/31/01 19:58	1858.2745	23.77	0.402
10/31/01 20:08	1868.2745	23.77	0.402
10/31/01 20:18	1878.2745	23.77	0.402
10/31/01 20:28	1888.2745	23.77	0.402
10/31/01 20:38	1898.2745	23.77	0.396
10/31/01 20:48	1908.2745	23.77	0.389
10/31/01 20:58	1918.2745	23.77	0.389
10/31/01 21:08	1928.2745	23.77	0.389
10/31/01 21:18	1938.2745	23.77	0.389
10/31/01 21:28	1948.2745	23.77	0.383
10/31/01 21:38	1958.2745	23.77	0.383
10/31/01 21:48	1968.2745	23.77	0.389
10/31/01 21:58	1978.2745	23.77	0.389
10/31/01 22:08	1988.2745	23.77	0.389
10/31/01 22:18	1998.2745	23.77	0.389
10/31/01 22:28	2008.2745	23.77	0.383

			MW07SL-ST
10/31/01 22:38	2018.2745	23.77	0.389
10/31/01 22:48	2028.2745	23.77	0.389
10/31/01 22:58	2038.2745	23.77	0.383
10/31/01 23:08	2048.2745	23.77	0.389
10/31/01 23:18	2058.2745	23.77	0.383
10/31/01 23:28	2068.2745	23.77	0.383
10/31/01 23:38	2078.2745	23.77	0.383
10/31/01 23:48	2088.2745	23.77	0.383
10/31/01 23:58	2098.2745	23.77	0.389
11/1/01 0:08	2108.2745	23.77	0.383
11/1/01 0:18	2118.2745	23.77	0.389
11/1/01 0:28	2128.2745	23.77	0.389
11/1/01 0:38	2138.2745	23.77	0.389
11/1/01 0:48	2148.2745	23.77	0.396
11/1/01 0:58	2158.2745	23.77	0.389
11/1/01 1:08	2168.2745	23.77	0.389
11/1/01 1:18	2178.2745	23.77	0.389
11/1/01 1:28	2188.2747	23.77	0.389
11/1/01 1:38	2198.2747	23.77	0.389
11/1/01 1:48	2208.2747	23.77	0.389
11/1/01 1:58	2218.2747	23.77	0.389
11/1/01 2:08	2228.2747	23.77	0.389
11/1/01 2:18	2238.2747	23.77	0.389
11/1/01 2:28	2248.2747	23.77	0.389
11/1/01 2:38	2258.2747	23.77	0.396
11/1/01 2:48	2268.2747	23.77	0.396
11/1/01 2:58	2278.2747	23.77	0.389
11/1/01 3:08	2288.2747	23.77	0.396
11/1/01 3:18	2298.2747	23.77	0.389
11/1/01 3:28	2308.2747	23.77	0.389
11/1/01 3:38	2318.2747	23.77	0.396
11/1/01 3:48	2328.2747	23.77	0.396
11/1/01 3:58	2338.2747	23.77	0.396
11/1/01 4:08	2348.2747	23.77	0.396
11/1/01 4:18	2358.2747	23.77	0.396
11/1/01 4:28	2368.2747	23.77	0.389
11/1/01 4:38	2378.2747	23.77	0.396
11/1/01 4:48	2388.2747	23.77	0.396
11/1/01 4:58	2398.2747	23.77	0.402
11/1/01 5:08	2408.2747	23.77	0.402
11/1/01 5:18	2418.2747	23.77	0.402
11/1/01 5:28	2428.2747	23.77	0.408
11/1/01 5:38	2438.2747	23.77	0.408
11/1/01 5:48	2448.2747	23.77	0.408
11/1/01 5:58	2458.2747	23.77	0.402
11/1/01 6:08	2468.2747	23.77	0.408
11/1/01 6:18	2478.2747	23.77	0.408
11/1/01 6:28	2488.2747	23.77	0.408
11/1/01 6:38	2498.2747	23.77	0.408
11/1/01 6:48	2508.2747	23.77	0.408
11/1/01 6:58	2518.2747	23.77	0.408
11/1/01 7:08	2528.2747	23.77	0.408
11/1/01 7:18	2538.2747	23.77	0.408
11/1/01 7:28	2548.2747	23.77	0.396
11/1/01 7:38	2558.2747	23.77	0.408
11/1/01 7:48	2568.2747	23.77	0.408
11/1/01 7:58	2578.2747	23.77	0.396
11/1/01 8:08	2588.2747	23.77	0.396
11/1/01 8:18	2598.2747	23.77	0.396
11/1/01 8:28	2608.2747	23.77	0.396
11/1/01 8:38	2618.2747	23.77	0.389
11/1/01 8:48	2628.2747	23.77	0.389
11/1/01 8:58	2638.2747	23.77	0.383

		MW07SL-ST	
11/1/01 9:08	2648.2747	23.77	0.383
11/1/01 9:18	2658.2747	23.77	0.383
11/1/01 9:28	2668.2747	23.77	0.377
11/1/01 9:38	2678.2747	23.77	0.377
11/1/01 9:48	2688.2747	23.77	0.383
11/1/01 9:58	2698.2747	23.77	0.377
11/1/01 10:08	2708.2747	23.77	0.377
11/1/01 10:18	2718.2747	23.77	0.377
11/1/01 10:28	2728.2747	23.77	0.377
11/1/01 10:38	2738.2747	23.77	0.377
11/1/01 10:48	2748.2747	23.77	0.377
11/1/01 10:58	2758.2747	23.77	0.377
11/1/01 11:08	2768.2747	23.77	0.377
11/1/01 11:18	2778.2747	23.77	0.383
11/1/01 11:28	2788.2747	23.77	0.383
11/1/01 11:38	2798.2747	23.77	0.383
11/1/01 11:48	2808.2747	23.77	0.383
11/1/01 11:58	2818.2747	23.77	0.389
11/1/01 12:08	2828.2747	23.77	0.377
11/1/01 12:18	2838.2747	23.77	0.339
11/1/01 12:28	2848.2747	23.77	0.308
11/1/01 12:38	2858.2747	23.75	0.269
11/1/01 12:48	2868.2747	23.77	0.245
11/1/01 12:58	2878.2747	23.77	0.226
11/1/01 13:08	2888.2747	23.77	0.201
11/1/01 13:18	2898.2747	23.75	0.188
11/1/01 13:28	2908.2747	23.75	0.175
11/1/01 13:38	2918.2747	23.75	0.169
11/1/01 13:48	2928.2747	23.77	0.157
11/1/01 13:58	2938.2747	23.77	0.151
11/1/01 14:08	2948.2747	23.75	0.137
11/1/01 14:18	2958.2747	23.77	0.132
11/1/01 14:28	2968.2747	23.75	0.131
11/1/01 14:38	2978.2747	23.77	0.126
11/1/01 14:48	2988.2747	23.77	0.119
11/1/01 14:58	2998.2747	23.77	0.119
11/1/01 15:08	3008.2747	23.77	0.113
11/1/01 15:18	3018.2747	23.77	0.113
11/1/01 15:28	3028.2747	23.77	0.113
11/1/01 15:38	3038.2747	23.77	0.113
11/1/01 15:48	3048.2747	23.77	0.107
11/1/01 15:58	3058.2747	23.77	0.1
11/1/01 16:08	3068.2747	23.77	0.1
11/1/01 16:18	3078.2747	23.77	0.107
11/1/01 16:28	3088.2747	23.77	0.1
11/1/01 16:38	3098.2747	23.77	0.1
11/1/01 16:48	3108.2747	23.75	0.1
11/1/01 16:58	3118.2747	23.77	0.094
11/1/01 17:08	3128.2747	23.77	0.094
11/1/01 17:18	3138.2747	23.77	0.094
11/1/01 17:28	3148.2747	23.77	0.094
11/1/01 17:38	3158.2747	23.77	0.094
11/1/01 17:48	3168.2747	23.77	0.094
11/1/01 17:58	3178.2747	23.77	0.088
11/1/01 18:08	3188.2747	23.77	0.088
11/1/01 18:18	3198.2747	23.77	0.088
11/1/01 18:28	3208.2747	23.75	0.087
11/1/01 18:38	3218.2747	23.77	0.088
11/1/01 18:48	3228.2747	23.75	0.081
11/1/01 18:58	3238.2747	23.75	0.081
11/1/01 19:08	3248.2747	23.75	0.081
11/1/01 19:18	3258.2747	23.77	0.075
11/1/01 19:28	3268.2747	23.77	0.075

MW07SL-ST

11/1/01 19:38	3278.2747	23.75	0.075
11/1/01 19:48	3288.2747	23.75	0.068
11/1/01 19:58	3298.2747	23.75	0.068
11/1/01 20:08	3308.2747	23.75	0.068
11/1/01 20:18	3318.2747	23.77	0.069
11/1/01 20:28	3328.2747	23.75	0.062
11/1/01 20:38	3338.2747	23.75	0.062
11/1/01 20:48	3348.2747	23.77	0.057
11/1/01 20:58	3358.2747	23.75	0.056
11/1/01 21:08	3368.2747	23.75	0.05
11/1/01 21:18	3378.2747	23.75	0.043
11/1/01 21:28	3388.2747	23.75	0.05
11/1/01 21:38	3398.2747	23.75	0.043
11/1/01 21:48	3408.2747	23.75	0.043
11/1/01 21:58	3418.2747	23.75	0.037
11/1/01 22:08	3428.2747	23.75	0.037
11/1/01 22:18	3438.2747	23.75	0.037
11/1/01 22:28	3448.2747	23.75	0.037
11/1/01 22:38	3458.2747	23.77	0.038
11/1/01 22:48	3468.2747	23.77	0.031
11/1/01 22:58	3478.2747	23.77	0.025
11/1/01 23:08	3488.2747	23.77	0.025
11/1/01 23:18	3498.2747	23.77	0.025
11/1/01 23:28	3508.2747	23.77	0.025
11/1/01 23:38	3518.2747	23.77	0.025
11/1/01 23:48	3528.2747	23.75	0.024
11/1/01 23:58	3538.2747	23.75	0.024
11/2/01 0:08	3548.2747	23.75	0.018
11/2/01 0:18	3558.2747	23.75	0.018
11/2/01 0:28	3568.2747	23.75	0.018
11/2/01 0:38	3578.2747	23.75	0.018
11/2/01 0:48	3588.2747	23.75	0.018
11/2/01 0:58	3598.2747	23.75	0.012
11/2/01 1:08	3608.2747	23.75	0.012
11/2/01 1:18	3618.2747	23.77	0.019
11/2/01 1:28	3628.2747	23.77	0.013
11/2/01 1:38	3638.2747	23.75	0.012
11/2/01 1:48	3648.2747	23.75	0.012
11/2/01 1:58	3658.2747	23.75	0.012
11/2/01 2:08	3668.2747	23.75	0.012
11/2/01 2:18	3678.2747	23.75	0.012
11/2/01 2:28	3688.2747	23.75	0.012
11/2/01 2:38	3698.2747	23.75	0.012
11/2/01 2:48	3708.2747	23.75	0.012
11/2/01 2:58	3718.2747	23.75	0.006
11/2/01 3:08	3728.2747	23.77	0.013
11/2/01 3:18	3738.2747	23.75	0.006
11/2/01 3:28	3748.2747	23.75	0.006
11/2/01 3:38	3758.2747	23.75	0.006
11/2/01 3:48	3768.2747	23.75	0.006
11/2/01 3:58	3778.2747	23.75	0.006
11/2/01 4:08	3788.2747	23.75	0.006
11/2/01 4:18	3798.2747	23.75	0.012
11/2/01 4:28	3808.2747	23.75	0.012
11/2/01 4:38	3818.2747	23.75	0.012
11/2/01 4:48	3828.2747	23.75	0.018
11/2/01 4:58	3838.2747	23.75	0.018
11/2/01 5:08	3848.2747	23.75	0.018
11/2/01 5:18	3858.2747	23.75	0.024
11/2/01 5:28	3868.2747	23.77	0.025
11/2/01 5:38	3878.2747	23.77	0.025
11/2/01 5:48	3888.2747	23.75	0.024
11/2/01 5:58	3898.2747	23.75	0.024

			MW07SL-ST
11/2/01 6:08	3908.2747	23.77	0.025
11/2/01 6:18	3918.2747	23.75	0.024
11/2/01 6:28	3928.2747	23.75	0.024
11/2/01 6:38	3938.2747	23.75	0.024
11/2/01 6:48	3948.2747	23.75	0.024
11/2/01 6:58	3958.2747	23.75	0.024
11/2/01 7:08	3968.2747	23.75	0.024
11/2/01 7:18	3978.2747	23.75	0.024
11/2/01 7:28	3988.2747	23.75	0.024
11/2/01 7:38	3998.2747	23.75	0.024
11/2/01 7:48	4008.2747	23.75	0.024
11/2/01 7:58	4018.2747	23.75	0.018
11/2/01 8:08	4028.2747	23.75	0.018
11/2/01 8:18	4038.2747	23.75	0.018
11/2/01 8:28	4048.2747	23.75	0.018
11/2/01 8:38	4058.2747	23.75	0.018
11/2/01 8:48	4068.2747	23.75	0.012
11/2/01 8:58	4078.2747	23.75	0.012
11/2/01 9:08	4088.2747	23.75	0.006
11/2/01 9:18	4098.2747	23.75	0.006
11/2/01 9:28	4108.2747	23.75	0.006
11/2/01 9:38	4118.2747	23.75	0.006
11/2/01 9:48	4128.2747	23.75	-0.007
11/2/01 9:58	4138.2747	23.75	-0.001
11/2/01 10:08	4148.2747	23.75	-0.007
11/2/01 10:18	4158.2747	23.75	-0.007
11/2/01 10:28	4168.2747	23.75	-0.007
11/2/01 10:38	4178.2747	23.75	-0.007
11/2/01 10:48	4188.2747	23.75	-0.013
11/2/01 10:58	4198.2747	23.75	-0.007
11/2/01 11:08	4208.2747	23.75	-0.007
11/2/01 11:18	4218.2747	23.75	-0.001
11/2/01 11:28	4228.2747	23.75	-0.001
11/2/01 11:38	4238.2747	23.75	-0.007
11/2/01 11:48	4248.2747	23.75	-0.007
11/2/01 11:58	4258.2747	23.75	-0.001
11/2/01 12:08	4268.2747	23.75	-0.007
11/2/01 12:18	4278.2747	23.75	-0.007
11/2/01 12:28	4288.2747	23.75	-0.007
11/2/01 12:38	4298.2747	23.75	-0.007
11/2/01 12:48	4308.2747	23.75	-0.007

In-Situ Inc. MiniTroll Pro

Report generated: 11/2/01 12:58:16
Report from file: C:\WIN-SITU\Data\SN04881 2001-10-30 130000 MW08SU-ST.bin

DataMgr Version 3.69

Serial number: 4881
Firmware Version 3.01
Unit name: MW08SU-ST

Test name: MW08SU-ST

Test defined on: 10/30/01 12:29:04
Test scheduled for: 10/30/01 13:00:00
Test started on: 10/30/01 13:00:00
Test stopped on: 11/2/01 12:58:10
Test extracted on: N/A

Data gathered using Logarithmic testing
Maximum time between data points: 10.0000 Minutes.
Number of data samples: 564

TOTAL DATA SAMPLES 564

Channel number [1]
Measurement type: Temperature
Channel name: OnBorard Temp

Channel number [2]
Measurement type: Pressure
Channel name: OnBoard Pressure
Sensor Range: 30 PSI.
Specific gravity: 1
Mode: TOC
User-defined reference: 0 Feet H2O
Referenced on: test start
Pressure head at reference: 3.305 Feet H2O

Date	Time	Chan[1] ET (min)	Chan[2] Celsius	Feet H2O
10/30/01	13:00 0	24.68	0	
10/30/01	13:00 0.0048	24.69	0	
10/30/01	13:00 0.0098	24.7	-0.001	
10/30/01	13:00 0.015	24.7	0	
10/30/01	13:00 0.0198	24.7	-0.001	
10/30/01	13:00 0.025	24.71	-0.001	
10/30/01	13:00 0.03	24.71	-0.001	
10/30/01	13:00 0.035	24.71	-0.001	
10/30/01	13:00 0.0398	24.71	-0.001	
10/30/01	13:00 0.045	24.71	-0.001	
10/30/01	13:00 0.05	24.73	-0.001	
10/30/01	13:00 0.0548	24.73	0.001	
10/30/01	13:00 0.06	24.73	-0.001	
10/30/01	13:00 0.0648	24.73	-0.001	
10/30/01	13:00 0.07	24.73	-0.001	
10/30/01	13:00 0.075	24.73	-0.001	
10/30/01	13:00 0.0798	24.73	-0.001	
10/30/01	13:00 0.0848	24.73	-0.001	
10/30/01	13:00 0.09	24.73	-0.001	

MW08SU-ST

10/30/01 13:00	0.095	24.73	-0.001
10/30/01 13:00	0.1	24.73	-0.001
10/30/01 13:00	0.1057	24.73	-0.001
10/30/01 13:00	0.1118	24.73	-0.001
10/30/01 13:00	0.1185	24.73	-0.001
10/30/01 13:00	0.1255	24.73	-0.001
10/30/01 13:00	0.1327	24.73	-0.001
10/30/01 13:00	0.1405	24.74	0.001
10/30/01 13:00	0.1488	24.73	-0.001
10/30/01 13:00	0.1578	24.74	-0.001
10/30/01 13:00	0.167	24.73	-0.001
10/30/01 13:00	0.1768	24.73	-0.001
10/30/01 13:00	0.1875	24.73	-0.001
10/30/01 13:00	0.1985	24.73	-0.001
10/30/01 13:00	0.21	24.73	-0.001
10/30/01 13:00	0.2225	24.71	-0.001
10/30/01 13:00	0.2358	24.71	-0.001
10/30/01 13:00	0.2498	24.71	0.001
10/30/01 13:00	0.2647	24.71	-0.001
10/30/01 13:00	0.2803	24.71	-0.001
10/30/01 13:00	0.297	24.71	-0.001
10/30/01 13:00	0.3145	24.71	-0.001
10/30/01 13:00	0.3333	24.71	-0.001
10/30/01 13:00	0.3532	24.71	0.001
10/30/01 13:00	0.374	24.71	0.001
10/30/01 13:00	0.3963	24.71	-0.001
10/30/01 13:00	0.4198	24.71	-0.001
10/30/01 13:00	0.4445	24.71	-0.001
10/30/01 13:00	0.4695	24.71	0.001
10/30/01 13:00	0.4963	24.71	0.001
10/30/01 13:00	0.5247	24.71	0.001
10/30/01 13:00	0.5547	24.7	-0.001
10/30/01 13:00	0.5862	24.7	-0.001
10/30/01 13:00	0.6213	24.71	0.001
10/30/01 13:00	0.6578	24.7	0
10/30/01 13:00	0.6963	24.7	0
10/30/01 13:00	0.738	24.7	0
10/30/01 13:00	0.7813	24.7	0
10/30/01 13:00	0.8278	24.7	0
10/30/01 13:00	0.8762	24.7	0
10/30/01 13:00	0.9278	24.7	-0.001
10/30/01 13:00	0.9828	24.7	0
10/30/01 13:01	1.0412	24.7	0
10/30/01 13:01	1.103	24.7	0
10/30/01 13:01	1.1678	24.7	0
10/30/01 13:01	1.238	24.7	0
10/30/01 13:01	1.3113	24.7	0
10/30/01 13:01	1.3895	24.69	0
10/30/01 13:01	1.4728	24.7	0
10/30/01 13:01	1.5613	24.7	0
10/30/01 13:01	1.6547	24.69	0
10/30/01 13:01	1.753	24.69	0
10/30/01 13:01	1.858	24.69	0
10/30/01 13:01	1.9678	24.69	-0.002
10/30/01 13:02	2.0845	24.69	-0.002
10/30/01 13:02	2.2097	24.69	0
10/30/01 13:02	2.3412	24.69	0
10/30/01 13:02	2.4812	24.69	0
10/30/01 13:02	2.6297	24.69	0
10/30/01 13:02	2.7863	24.69	0
10/30/01 13:02	2.953	24.69	0
10/30/01 13:03	3.1297	24.69	0
10/30/01 13:03	3.3162	24.69	0

MW08SU-ST

10/30/01 13:03	3.5145	24.69	0
10/30/01 13:03	3.7245	24.69	-0.002
10/30/01 13:03	3.9463	24.69	0
10/30/01 13:04	4.1812	24.69	0
10/30/01 13:04	4.4295	24.69	-0.002
10/30/01 13:04	4.6928	24.69	-0.002
10/30/01 13:04	4.9728	24.69	-0.002
10/30/01 13:05	5.2697	24.69	-0.002
10/30/01 13:05	5.583	24.68	-0.002
10/30/01 13:05	5.9145	24.69	-0.002
10/30/01 13:06	6.2663	24.69	0
10/30/01 13:06	6.6395	24.68	0
10/30/01 13:07	7.0345	24.69	0
10/30/01 13:07	7.453	24.68	0
10/30/01 13:07	7.8962	24.69	0
10/30/01 13:08	8.3663	24.69	0
10/30/01 13:08	8.8645	24.68	0
10/30/01 13:09	9.3913	24.68	0
10/30/01 13:09	9.9497	24.69	0
10/30/01 13:10	10.5413	24.68	0
10/30/01 13:11	11.168	24.68	0.002
10/30/01 13:11	11.8312	24.69	0
10/30/01 13:12	12.5347	24.68	0.002
10/30/01 13:13	13.2795	24.68	0.002
10/30/01 13:14	14.0695	24.68	0
10/30/01 13:14	14.9062	24.69	0.002
10/30/01 13:15	15.7913	24.68	0
10/30/01 13:16	16.7295	24.69	0.002
10/30/01 13:17	17.723	24.69	0
10/30/01 13:18	18.7762	24.69	0.002
10/30/01 13:19	19.8913	24.69	0.002
10/30/01 13:21	21.073	24.68	0.002
10/30/01 13:22	22.3247	24.69	0.004
10/30/01 13:23	23.6497	24.69	0.004
10/30/01 13:25	25.0545	24.69	0.006
10/30/01 13:26	26.5428	24.69	0.006
10/30/01 13:28	28.1178	24.69	0.004
10/30/01 13:29	29.7863	24.69	0.006
10/30/01 13:31	31.5545	24.69	0.002
10/30/01 13:33	33.428	24.68	0.004
10/30/01 13:35	35.4112	24.69	0.006
10/30/01 13:37	37.513	24.69	0.006
10/30/01 13:39	39.7397	24.69	0.008
10/30/01 13:42	42.098	24.69	0.008
10/30/01 13:44	44.5963	24.69	0.01
10/30/01 13:47	47.2428	24.69	0.011
10/30/01 13:50	50.0463	24.69	0.011
10/30/01 13:53	53.0147	24.69	0.013
10/30/01 13:56	56.1595	24.69	0.015
10/30/01 13:59	59.4913	24.69	0.015
10/30/01 14:03	63.0195	24.69	0.019
10/30/01 14:06	66.758	24.69	0.019
10/30/01 14:10	70.7178	24.69	0.021
10/30/01 14:14	74.9113	24.69	0.022
10/30/01 14:19	79.3545	24.69	0.024
10/30/01 14:24	84.0613	24.69	0.026
10/30/01 14:29	89.0462	24.69	0.03
10/30/01 14:34	94.3262	24.69	0.032
10/30/01 14:39	99.9197	24.69	0.034
10/30/01 14:45	105.8447	24.69	0.035
10/30/01 14:52	112.1197	24.69	0.039
10/30/01 14:58	118.7678	24.69	0.041
10/30/01 15:05	125.8095	24.69	0.043

		MW08SU-ST	
10/30/01 15:13	133.2678	24.69	0.043
10/30/01 15:21	141.1678	24.69	0.047
10/30/01 15:29	149.5363	24.69	0.048
10/30/01 15:38	158.4012	24.69	0.052
10/30/01 15:47	167.7912	24.69	0.054
10/30/01 15:57	177.738 24.69	0.058	
10/30/01 16:08	188.2745	24.69	0.061
10/30/01 16:18	198.2745	24.69	0.063
10/30/01 16:28	208.2745	24.69	0.065
10/30/01 16:38	218.2745	24.69	0.069
10/30/01 16:48	228.2745	24.69	0.073
10/30/01 16:58	238.2745	24.68	0.074
10/30/01 17:08	248.2745	24.68	0.078
10/30/01 17:18	258.2745	24.68	0.082
10/30/01 17:28	268.2745	24.68	0.085
10/30/01 17:38	278.2745	24.68	0.085
10/30/01 17:48	288.2745	24.68	0.087
10/30/01 17:58	298.2745	24.68	0.087
10/30/01 18:08	308.2745	24.66	0.087
10/30/01 18:18	318.2745	24.66	0.087
10/30/01 18:28	328.2745	24.66	0.089
10/30/01 18:38	338.2745	24.66	0.091
10/30/01 18:48	348.2745	24.66	0.089
10/30/01 18:58	358.2745	24.66	0.091
10/30/01 19:08	368.2745	24.65	0.09
10/30/01 19:18	378.2745	24.66	0.091
10/30/01 19:28	388.2745	24.65	0.09
10/30/01 19:38	398.2745	24.65	0.09
10/30/01 19:48	408.2745	24.65	0.09
10/30/01 19:58	418.2745	24.64	0.09
10/30/01 20:08	428.2745	24.64	0.09
10/30/01 20:18	438.2745	24.64	0.09
10/30/01 20:28	448.2745	24.63	0.09
10/30/01 20:38	458.2745	24.63	0.09
10/30/01 20:48	468.2745	24.61	0.09
10/30/01 20:58	478.2745	24.61	0.092
10/30/01 21:08	488.2745	24.6	0.095
10/30/01 21:18	498.2745	24.59	0.093
10/30/01 21:28	508.2745	24.59	0.095
10/30/01 21:38	518.2745	24.59	0.095
10/30/01 21:48	528.2745	24.59	0.095
10/30/01 21:58	538.2745	24.59	0.095
10/30/01 22:08	548.2747	24.58	0.095
10/30/01 22:18	558.2747	24.58	0.095
10/30/01 22:28	568.2747	24.58	0.095
10/30/01 22:38	578.2747	24.58	0.093
10/30/01 22:48	588.2747	24.56	0.092
10/30/01 22:58	598.2747	24.56	0.092
10/30/01 23:08	608.2747	24.56	0.092
10/30/01 23:18	618.2747	24.55	0.092
10/30/01 23:28	628.2747	24.56	0.091
10/30/01 23:38	638.2747	24.54	0.09
10/30/01 23:48	648.2747	24.54	0.09
10/30/01 23:58	658.2747	24.53	0.086
10/31/01 0:08	668.2747	24.51	0.088
10/31/01 0:18	678.2747	24.5	0.088
10/31/01 0:28	688.2747	24.46	0.087
10/31/01 0:38	698.2747	24.45	0.087
10/31/01 0:48	708.2747	24.44	0.085
10/31/01 0:58	718.2747	24.43	0.086
10/31/01 1:08	728.2747	24.43	0.088
10/31/01 1:18	738.2747	24.41	0.088
10/31/01 1:28	748.2747	24.41	0.092

		MW08SU-ST	
10/31/01 1:38	758.2747	24.4	0.091
10/31/01 1:48	768.2747	24.4	0.091
10/31/01 1:58	778.2747	24.4	0.091
10/31/01 2:08	788.2747	24.4	0.091
10/31/01 2:18	798.2747	24.4	0.091
10/31/01 2:28	808.2747	24.39	0.093
10/31/01 2:38	818.2747	24.4	0.093
10/31/01 2:48	828.2747	24.4	0.095
10/31/01 2:58	838.2747	24.4	0.095
10/31/01 3:08	848.2747	24.4	0.097
10/31/01 3:18	858.2747	24.39	0.098
10/31/01 3:28	868.2747	24.4	0.099
10/31/01 3:38	878.2747	24.39	0.1
10/31/01 3:48	888.2747	24.39	0.102
10/31/01 3:58	898.2747	24.39	0.102
10/31/01 4:08	908.2747	24.4	0.102
10/31/01 4:18	918.2747	24.4	0.104
10/31/01 4:28	928.2747	24.39	0.106
10/31/01 4:38	938.2747	24.39	0.108
10/31/01 4:48	948.2747	24.39	0.11
10/31/01 4:58	958.2747	24.39	0.111
10/31/01 5:08	968.2747	24.38	0.113
10/31/01 5:18	978.2747	24.39	0.115
10/31/01 5:28	988.2747	24.39	0.117
10/31/01 5:38	998.2747	24.38	0.119
10/31/01 5:48	1008.2747	24.38	0.12
10/31/01 5:58	1018.2747	24.39	0.123
10/31/01 6:08	1028.2747	24.38	0.124
10/31/01 6:18	1038.2747	24.38	0.124
10/31/01 6:28	1048.2747	24.38	0.124
10/31/01 6:38	1058.2747	24.39	0.128
10/31/01 6:48	1068.2747	24.38	0.128
10/31/01 6:58	1078.2747	24.38	0.13
10/31/01 7:08	1088.2747	24.39	0.13
10/31/01 7:18	1098.2745	24.38	0.132
10/31/01 7:28	1108.2745	24.38	0.132
10/31/01 7:38	1118.2745	24.38	0.132
10/31/01 7:48	1128.2745	24.38	0.135
10/31/01 7:58	1138.2745	24.36	0.135
10/31/01 8:08	1148.2745	24.38	0.135
10/31/01 8:18	1158.2745	24.38	0.135
10/31/01 8:28	1168.2745	24.38	0.135
10/31/01 8:38	1178.2745	24.36	0.135
10/31/01 8:48	1188.2745	24.38	0.135
10/31/01 8:58	1198.2745	24.38	0.13
10/31/01 9:08	1208.2745	24.36	0.139
10/31/01 9:18	1218.2745	24.36	0.139
10/31/01 9:28	1228.2745	24.36	0.137
10/31/01 9:38	1238.2745	24.38	0.139
10/31/01 9:48	1248.2745	24.36	0.139
10/31/01 9:58	1258.2745	24.36	0.141
10/31/01 10:08	1268.2745	24.36	0.142
10/31/01 10:18	1278.2745	24.36	0.142
10/31/01 10:28	1288.2745	24.36	0.142
10/31/01 10:38	1298.2745	24.36	0.144
10/31/01 10:48	1308.2745	24.36	0.146
10/31/01 10:58	1318.2745	24.36	0.15
10/31/01 11:08	1328.2745	24.36	0.152
10/31/01 11:18	1338.2745	24.36	0.15
10/31/01 11:28	1348.2745	24.36	0.152
10/31/01 11:38	1358.2745	24.38	0.152
10/31/01 11:48	1368.2745	24.38	0.152
10/31/01 11:58	1378.2745	24.38	0.152

		MW08SU-ST	
10/31/01 12:08	1388.2745	24.36	0.154
10/31/01 12:18	1398.2745	24.38	0.152
10/31/01 12:28	1408.2745	24.36	0.152
10/31/01 12:38	1418.2745	24.36	0.15
10/31/01 12:48	1428.2745	24.36	0.148
10/31/01 12:58	1438.2745	24.36	0.146
10/31/01 13:08	1448.2745	24.35	0.146
10/31/01 13:18	1458.2745	24.35	0.146
10/31/01 13:28	1468.2745	24.35	0.148
10/31/01 13:38	1478.2745	24.35	0.144
10/31/01 13:48	1488.2745	24.35	0.146
10/31/01 13:58	1498.2745	24.35	0.146
10/31/01 14:08	1508.2745	24.35	0.144
10/31/01 14:18	1518.2745	24.35	0.144
10/31/01 14:28	1528.2745	24.35	0.146
10/31/01 14:38	1538.2745	24.35	0.146
10/31/01 14:48	1548.2745	24.34	0.149
10/31/01 14:58	1558.2745	24.35	0.15
10/31/01 15:08	1568.2745	24.35	0.153
10/31/01 15:18	1578.2745	24.35	0.157
10/31/01 15:28	1588.2745	24.35	0.157
10/31/01 15:38	1598.2745	24.34	0.159
10/31/01 15:48	1608.2745	24.34	0.159
10/31/01 15:58	1618.2745	24.34	0.161
10/31/01 16:08	1628.2745	24.34	0.161
10/31/01 16:18	1638.2745	24.34	0.162
10/31/01 16:28	1648.2745	24.35	0.165
10/31/01 16:38	1658.2745	24.34	0.164
10/31/01 16:48	1668.2745	24.34	0.164
10/31/01 16:58	1678.2745	24.34	0.166
10/31/01 17:08	1688.2745	24.34	0.166
10/31/01 17:18	1698.2745	24.34	0.166
10/31/01 17:28	1708.2745	24.34	0.164
10/31/01 17:38	1718.2745	24.34	0.164
10/31/01 17:48	1728.2745	24.34	0.164
10/31/01 17:58	1738.2745	24.34	0.166
10/31/01 18:08	1748.2745	24.34	0.166
10/31/01 18:18	1758.2745	24.33	0.166
10/31/01 18:28	1768.2745	24.33	0.168
10/31/01 18:38	1778.2745	24.34	0.168
10/31/01 18:48	1788.2745	24.33	0.166
10/31/01 18:58	1798.2745	24.33	0.166
10/31/01 19:08	1808.2745	24.33	0.166
10/31/01 19:18	1818.2745	24.33	0.166
10/31/01 19:28	1828.2745	24.33	0.164
10/31/01 19:38	1838.2745	24.33	0.166
10/31/01 19:48	1848.2745	24.33	0.164
10/31/01 19:58	1858.2745	24.31	0.164
10/31/01 20:08	1868.2745	24.33	0.164
10/31/01 20:18	1878.2745	24.31	0.162
10/31/01 20:28	1888.2745	24.33	0.162
10/31/01 20:38	1898.2745	24.31	0.16
10/31/01 20:48	1908.2745	24.31	0.16
10/31/01 20:58	1918.2745	24.3	0.158
10/31/01 21:08	1928.2745	24.31	0.156
10/31/01 21:18	1938.2745	24.33	0.155
10/31/01 21:28	1948.2745	24.31	0.155
10/31/01 21:38	1958.2745	24.31	0.155
10/31/01 21:48	1968.2745	24.31	0.155
10/31/01 21:58	1978.2745	24.3	0.154
10/31/01 22:08	1988.2745	24.3	0.154
10/31/01 22:18	1998.2745	24.3	0.152
10/31/01 22:28	2008.2745	24.31	0.153

		MW08SU-ST	
10/31/01 22:38	2018.2745	24.3	0.152
10/31/01 22:48	2028.2745	24.3	0.152
10/31/01 22:58	2038.2745	24.31	0.153
10/31/01 23:08	2048.2745	24.31	0.153
10/31/01 23:18	2058.2745	24.31	0.151
10/31/01 23:28	2068.2745	24.3	0.149
10/31/01 23:38	2078.2745	24.31	0.149
10/31/01 23:48	2088.2745	24.3	0.151
10/31/01 23:58	2098.2745	24.3	0.149
11/1/01 0:08	2108.2745	24.3	0.149
11/1/01 0:18	2118.2745	24.31	0.149
11/1/01 0:28	2128.2745	24.3	0.147
11/1/01 0:38	2138.2745	24.29	0.15
11/1/01 0:48	2148.2745	24.29	0.15
11/1/01 0:58	2158.2745	24.29	0.15
11/1/01 1:08	2168.2745	24.29	0.149
11/1/01 1:18	2178.2745	24.3	0.147
11/1/01 1:28	2188.2747	24.29	0.145
11/1/01 1:38	2198.2747	24.29	0.147
11/1/01 1:48	2208.2747	24.29	0.147
11/1/01 1:58	2218.2747	24.3	0.147
11/1/01 2:08	2228.2747	24.29	0.147
11/1/01 2:18	2238.2747	24.28	0.146
11/1/01 2:28	2248.2747	24.29	0.145
11/1/01 2:38	2258.2747	24.3	0.149
11/1/01 2:48	2268.2747	24.29	0.15
11/1/01 2:58	2278.2747	24.29	0.152
11/1/01 3:08	2288.2747	24.29	0.15
11/1/01 3:18	2298.2747	24.29	0.149
11/1/01 3:28	2308.2747	24.29	0.15
11/1/01 3:38	2318.2747	24.28	0.15
11/1/01 3:48	2328.2747	24.29	0.15
11/1/01 3:58	2338.2747	24.29	0.15
11/1/01 4:08	2348.2747	24.28	0.15
11/1/01 4:18	2358.2747	24.28	0.148
11/1/01 4:28	2368.2747	24.28	0.15
11/1/01 4:38	2378.2747	24.28	0.154
11/1/01 4:48	2388.2747	24.28	0.156
11/1/01 4:58	2398.2747	24.29	0.158
11/1/01 5:08	2408.2747	24.29	0.161
11/1/01 5:18	2418.2747	24.28	0.163
11/1/01 5:28	2428.2747	24.28	0.165
11/1/01 5:38	2438.2747	24.28	0.165
11/1/01 5:48	2448.2747	24.28	0.165
11/1/01 5:58	2458.2747	24.28	0.165
11/1/01 6:08	2468.2747	24.28	0.167
11/1/01 6:18	2478.2747	24.28	0.167
11/1/01 6:28	2488.2747	24.28	0.167
11/1/01 6:38	2498.2747	24.26	0.168
11/1/01 6:48	2508.2747	24.26	0.168
11/1/01 6:58	2518.2747	24.25	0.166
11/1/01 7:08	2528.2747	24.26	0.17
11/1/01 7:18	2538.2747	24.26	0.172
11/1/01 7:28	2548.2747	24.28	0.171
11/1/01 7:38	2558.2747	24.26	0.161
11/1/01 7:48	2568.2747	24.28	0.172
11/1/01 7:58	2578.2747	24.28	0.171
11/1/01 8:08	2588.2747	24.26	0.17
11/1/01 8:18	2598.2747	24.26	0.168
11/1/01 8:28	2608.2747	24.26	0.168
11/1/01 8:38	2618.2747	24.26	0.167
11/1/01 8:48	2628.2747	24.26	0.167
11/1/01 8:58	2638.2747	24.25	0.164

MW08SU-ST

11/1/01 9:08	2648.2747	24.25	0.163
11/1/01 9:18	2658.2747	24.25	0.163
11/1/01 9:28	2668.2747	24.28	0.159
11/1/01 9:38	2678.2747	24.26	0.163
11/1/01 9:48	2688.2747	24.25	0.163
11/1/01 9:58	2698.2747	24.26	0.163
11/1/01 10:08	2708.2747	24.26	0.161
11/1/01 10:18	2718.2747	24.25	0.161
11/1/01 10:28	2728.2747	24.25	0.159
11/1/01 10:38	2738.2747	24.26	0.161
11/1/01 10:48	2748.2747	24.26	0.163
11/1/01 10:58	2758.2747	24.25	0.161
11/1/01 11:08	2768.2747	24.25	0.161
11/1/01 11:18	2778.2747	24.25	0.161
11/1/01 11:28	2788.2747	24.24	0.162
11/1/01 11:38	2798.2747	24.26	0.163
11/1/01 11:48	2808.2747	24.24	0.162
11/1/01 11:58	2818.2747	24.25	0.164
11/1/01 12:08	2828.2747	24.25	0.163
11/1/01 12:18	2838.2747	24.24	0.162
11/1/01 12:28	2848.2747	24.25	0.157
11/1/01 12:38	2858.2747	24.24	0.149
11/1/01 12:48	2868.2747	24.25	0.14
11/1/01 12:58	2878.2747	24.25	0.131
11/1/01 13:08	2888.2747	24.24	0.122
11/1/01 13:18	2898.2747	24.24	0.114
11/1/01 13:28	2908.2747	24.23	0.108
11/1/01 13:38	2918.2747	24.25	0.103
11/1/01 13:48	2928.2747	24.24	0.096
11/1/01 13:58	2938.2747	24.24	0.094
11/1/01 14:08	2948.2747	24.24	0.09
11/1/01 14:18	2958.2747	24.24	0.086
11/1/01 14:28	2968.2747	24.23	0.084
11/1/01 14:38	2978.2747	24.23	0.082
11/1/01 14:48	2988.2747	24.23	0.081
11/1/01 14:58	2998.2747	24.23	0.077
11/1/01 15:08	3008.2747	24.21	0.077
11/1/01 15:18	3018.2747	24.23	0.077
11/1/01 15:28	3028.2747	24.21	0.056
11/1/01 15:38	3038.2747	24.23	0.06
11/1/01 15:48	3048.2747	24.21	0.06
11/1/01 15:58	3058.2747	24.21	0.058
11/1/01 16:08	3068.2747	24.23	0.056
11/1/01 16:18	3078.2747	24.23	0.051
11/1/01 16:28	3088.2747	24.23	0.051
11/1/01 16:38	3098.2747	24.23	0.049
11/1/01 16:48	3108.2747	24.21	0.047
11/1/01 16:58	3118.2747	24.21	0.047
11/1/01 17:08	3128.2747	24.21	0.045
11/1/01 17:18	3138.2747	24.21	0.043
11/1/01 17:28	3148.2747	24.21	0.04
11/1/01 17:38	3158.2747	24.21	0.043
11/1/01 17:48	3168.2747	24.21	0.041
11/1/01 17:58	3178.2747	24.21	0.04
11/1/01 18:08	3188.2747	24.21	0.038
11/1/01 18:18	3198.2747	24.21	0.038
11/1/01 18:28	3208.2747	24.21	0.036
11/1/01 18:38	3218.2747	24.21	0.036
11/1/01 18:48	3228.2747	24.21	0.036
11/1/01 18:58	3238.2747	24.2	0.034
11/1/01 19:08	3248.2747	24.21	0.032
11/1/01 19:18	3258.2747	24.2	0.03
11/1/01 19:28	3268.2747	24.2	0.026

		MW08SU-ST	
11/1/01 19:38	3278.2747	24.2	0.026
11/1/01 19:48	3288.2747	24.2	0.023
11/1/01 19:58	3298.2747	24.21	0.025
11/1/01 20:08	3308.2747	24.2	0.021
11/1/01 20:18	3318.2747	24.2	0.019
11/1/01 20:28	3328.2747	24.2	0.017
11/1/01 20:38	3338.2747	24.2	0.017
11/1/01 20:48	3348.2747	24.2	0.015
11/1/01 20:58	3358.2747	24.2	0.013
11/1/01 21:08	3368.2747	24.19	0.011
11/1/01 21:18	3378.2747	24.19	0.009
11/1/01 21:28	3388.2747	24.2	0.008
11/1/01 21:38	3398.2747	24.19	0.008
11/1/01 21:48	3408.2747	24.19	0.006
11/1/01 21:58	3418.2747	24.19	0.002
11/1/01 22:08	3428.2747	24.19	0
11/1/01 22:18	3438.2747	24.19	0
11/1/01 22:28	3448.2747	24.18	-0.002
11/1/01 22:38	3458.2747	24.18	-0.004
11/1/01 22:48	3468.2747	24.18	-0.008
11/1/01 22:58	3478.2747	24.19	-0.007
11/1/01 23:08	3488.2747	24.18	-0.009
11/1/01 23:18	3498.2747	24.18	-0.011
11/1/01 23:28	3508.2747	24.18	-0.013
11/1/01 23:38	3518.2747	24.18	-0.013
11/1/01 23:48	3528.2747	24.18	-0.015
11/1/01 23:58	3538.2747	24.18	-0.019
11/2/01 0:08	3548.2747	24.16	-0.023
11/2/01 0:18	3558.2747	24.16	-0.024
11/2/01 0:28	3568.2747	24.18	-0.024
11/2/01 0:38	3578.2747	24.18	-0.026
11/2/01 0:48	3588.2747	24.18	-0.028
11/2/01 0:58	3598.2747	24.16	-0.03
11/2/01 1:08	3608.2747	24.16	-0.03
11/2/01 1:18	3618.2747	24.18	-0.033
11/2/01 1:28	3628.2747	24.18	-0.033
11/2/01 1:38	3638.2747	24.16	-0.036
11/2/01 1:48	3648.2747	24.16	-0.036
11/2/01 1:58	3658.2747	24.16	-0.037
11/2/01 2:08	3668.2747	24.16	-0.039
11/2/01 2:18	3678.2747	24.16	-0.039
11/2/01 2:28	3688.2747	24.18	-0.039
11/2/01 2:38	3698.2747	24.18	-0.039
11/2/01 2:48	3708.2747	24.15	-0.04
11/2/01 2:58	3718.2747	24.16	-0.041
11/2/01 3:08	3728.2747	24.15	-0.043
11/2/01 3:18	3738.2747	24.15	-0.043
11/2/01 3:28	3748.2747	24.14	-0.045
11/2/01 3:38	3758.2747	24.15	-0.045
11/2/01 3:48	3768.2747	24.15	-0.047
11/2/01 3:58	3778.2747	24.15	-0.045
11/2/01 4:08	3788.2747	24.14	-0.043
11/2/01 4:18	3798.2747	24.14	-0.042
11/2/01 4:28	3808.2747	24.13	-0.04
11/2/01 4:38	3818.2747	24.15	-0.038
11/2/01 4:48	3828.2747	24.15	-0.036
11/2/01 4:58	3838.2747	24.15	-0.036
11/2/01 5:08	3848.2747	24.15	-0.034
11/2/01 5:18	3858.2747	24.14	-0.03
11/2/01 5:28	3868.2747	24.14	-0.03
11/2/01 5:38	3878.2747	24.15	-0.028
11/2/01 5:48	3888.2747	24.14	-0.027
11/2/01 5:58	3898.2747	24.15	-0.025

			MW08SU-ST
11/2/01 6:08	3908.2747	24.14	-0.027
11/2/01 6:18	3918.2747	24.14	-0.027
11/2/01 6:28	3928.2747	24.14	-0.027
11/2/01 6:38	3938.2747	24.14	-0.029
11/2/01 6:48	3948.2747	24.14	-0.029
11/2/01 6:58	3958.2747	24.14	-0.027
11/2/01 7:08	3968.2747	24.13	-0.027
11/2/01 7:18	3978.2747	24.14	-0.025
11/2/01 7:28	3988.2747	24.14	-0.027
11/2/01 7:38	3998.2747	24.14	-0.027
11/2/01 7:48	4008.2747	24.15	-0.027
11/2/01 7:58	4018.2747	24.15	-0.03
11/2/01 8:08	4028.2747	24.15	-0.03
11/2/01 8:18	4038.2747	24.14	-0.029
11/2/01 8:28	4048.2747	24.15	-0.028
11/2/01 8:38	4058.2747	24.15	-0.03
11/2/01 8:48	4068.2747	24.14	-0.032
11/2/01 8:58	4078.2747	24.13	-0.034
11/2/01 9:08	4088.2747	24.13	-0.034
11/2/01 9:18	4098.2747	24.13	-0.034
11/2/01 9:28	4108.2747	24.13	-0.034
11/2/01 9:38	4118.2747	24.13	-0.034
11/2/01 9:48	4128.2747	24.13	-0.044
11/2/01 9:58	4138.2747	24.13	-0.046
11/2/01 10:08	4148.2747	24.13	-0.046
11/2/01 10:18	4158.2747	24.13	-0.053
11/2/01 10:28	4168.2747	24.13	-0.053
11/2/01 10:38	4178.2747	24.13	-0.042
11/2/01 10:48	4188.2747	24.13	-0.047
11/2/01 10:58	4198.2747	24.13	-0.047
11/2/01 11:08	4208.2747	24.13	-0.047
11/2/01 11:18	4218.2747	24.11	-0.031
11/2/01 11:28	4228.2747	24.11	-0.033
11/2/01 11:38	4238.2747	24.1	-0.037
11/2/01 11:48	4248.2747	24.1	-0.037
11/2/01 11:58	4258.2747	24.11	-0.04
11/2/01 12:08	4268.2747	24.13	-0.046
11/2/01 12:18	4278.2747	24.13	-0.046
11/2/01 12:28	4288.2747	24.11	-0.046
11/2/01 12:38	4298.2747	24.13	-0.047
11/2/01 12:48	4308.2747	24.11	-0.05

MW08SL-ST

In-Situ Inc. MiniTroll Pro

Report generated: 11/2/01 13:02:33
Report from file: C:\WIN-SITU\Data\SN06482 2001-10-30 130000 MW08SL-ST.bin

DataMgr Version 3.69

Serial number: 6482
Firmware Version 3.01
Unit name: MW08SL-ST

Test name: MW08SL-ST

Test defined on: 10/30/01 12:31:48
Test scheduled for: 10/30/01 13:00:00
Test started on: 10/30/01 13:00:00
Test stopped on: 11/2/01 13:02:24
Test extracted on: N/A

Data gathered using Logarithmic testing
Maximum time between data points: 10.0000 Minutes.
Number of data samples: 565

TOTAL DATA SAMPLES 565

Channel number [1]
Measurement type: Temperature
Channel name: OnBoard Temp

Channel number [2]
Measurement type: Pressure
Channel name: OnBoard Pressure
Sensor Range: 100 PSI.
Specific gravity: 1
Mode: TOC
User-defined reference: 0 Feet H2O
Referenced on: test start
Pressure head at reference: 10.173 Feet H2O

Date	Time	Chan[1] ET (min)	Chan[2] Celsius	Feet H2O
10/30/01	13:00	0	25.06	0
10/30/01	13:00	0.0048	25.08	-0.005
10/30/01	13:00	0.0098	25.08	-0.012
10/30/01	13:00	0.015	25.08	-0.012
10/30/01	13:00	0.0198	25.09	-0.011
10/30/01	13:00	0.025	25.09	-0.011
10/30/01	13:00	0.03	25.09	-0.017
10/30/01	13:00	0.035	25.09	-0.011
10/30/01	13:00	0.0398	25.09	-0.017
10/30/01	13:00	0.045	25.09	-0.017
10/30/01	13:00	0.05	25.1	-0.016
10/30/01	13:00	0.0548	25.1	-0.016
10/30/01	13:00	0.06	25.1	-0.016
10/30/01	13:00	0.0648	25.1	-0.016
10/30/01	13:00	0.07	25.1	-0.016
10/30/01	13:00	0.075	25.1	-0.016
10/30/01	13:00	0.0798	25.1	-0.016
10/30/01	13:00	0.0848	25.1	-0.023
10/30/01	13:00	0.09	25.1	-0.016

MW08SL-ST

10/30/01 13:00	0.095	25.1	-0.016
10/30/01 13:00	0.1	25.1	-0.023
10/30/01 13:00	0.1057	25.1	-0.016
10/30/01 13:00	0.1118	25.1	-0.023
10/30/01 13:00	0.1185	25.1	-0.023
10/30/01 13:00	0.1255	25.1	-0.016
10/30/01 13:00	0.1327	25.11	-0.022
10/30/01 13:00	0.1405	25.1	-0.016
10/30/01 13:00	0.1488	25.11	-0.022
10/30/01 13:00	0.1578	25.11	-0.016
10/30/01 13:00	0.167	25.1	-0.016
10/30/01 13:00	0.1768	25.1	-0.016
10/30/01 13:00	0.1875	25.1	-0.016
10/30/01 13:00	0.1985	25.1	-0.01
10/30/01 13:00	0.21	25.1	-0.01
10/30/01 13:00	0.2225	25.1	-0.01
10/30/01 13:00	0.2358	25.1	-0.004
10/30/01 13:00	0.2498	25.1	-0.004
10/30/01 13:00	0.2647	25.1	-0.004
10/30/01 13:00	0.2803	25.1	-0.004
10/30/01 13:00	0.297	25.1	-0.004
10/30/01 13:00	0.3145	25.09	-0.005
10/30/01 13:00	0.3333	25.1	0.002
10/30/01 13:00	0.3532	25.1	-0.004
10/30/01 13:00	0.374	25.1	0.002
10/30/01 13:00	0.3963	25.1	0.002
10/30/01 13:00	0.4198	25.1	-0.004
10/30/01 13:00	0.4445	25.1	0.002
10/30/01 13:00	0.4695	25.1	0.002
10/30/01 13:00	0.4963	25.1	0.002
10/30/01 13:00	0.5247	25.1	0.002
10/30/01 13:00	0.5547	25.09	0.001
10/30/01 13:00	0.5862	25.1	0.002
10/30/01 13:00	0.6213	25.09	0.008
10/30/01 13:00	0.6578	25.09	0.001
10/30/01 13:00	0.6963	25.09	0.001
10/30/01 13:00	0.738	25.09	0.008
10/30/01 13:00	0.7813	25.09	0.008
10/30/01 13:00	0.8278	25.09	0.008
10/30/01 13:00	0.8762	25.09	0.001
10/30/01 13:00	0.9278	25.09	0.008
10/30/01 13:00	0.9828	25.09	0.001
10/30/01 13:01	1.0412	25.09	0.001
10/30/01 13:01	1.103	25.09	0.008
10/30/01 13:01	1.1678	25.09	0.008
10/30/01 13:01	1.238	25.09	0.001
10/30/01 13:01	1.3113	25.09	0.008
10/30/01 13:01	1.3895	25.09	0.001
10/30/01 13:01	1.4728	25.09	0.001
10/30/01 13:01	1.5613	25.09	0.001
10/30/01 13:01	1.6547	25.08	0.001
10/30/01 13:01	1.753	25.08	0.007
10/30/01 13:01	1.858	25.08	0.007
10/30/01 13:01	1.9678	25.08	0.001
10/30/01 13:02	2.0845	25.08	0.001
10/30/01 13:02	2.2097	25.08	0.007
10/30/01 13:02	2.3412	25.08	0.007
10/30/01 13:02	2.4812	25.08	0.001
10/30/01 13:02	2.6297	25.08	0.007
10/30/01 13:02	2.7863	25.08	0.001
10/30/01 13:02	2.953	25.08	0.001
10/30/01 13:03	3.1297	25.08	0.007
10/30/01 13:03	3.3162	25.08	0.001

10/30/01 13:03	3.5145	25.08	0.007	
10/30/01 13:03	3.7245	25.08	0.001	
10/30/01 13:03	3.9463	25.08	0.001	
10/30/01 13:04	4.1812	25.08	0.001	
10/30/01 13:04	4.4295	25.08	0.001	
10/30/01 13:04	4.6928	25.08	0.007	
10/30/01 13:04	4.9728	25.08	0.007	
10/30/01 13:05	5.2697	25.06	0.006	
10/30/01 13:05	5.583	25.08	0.001	
10/30/01 13:05	5.9145	25.06	0.006	
10/30/01 13:06	6.2663	25.06	0	
10/30/01 13:06	6.6395	25.06	0	
10/30/01 13:07	7.0345	25.06	0	
10/30/01 13:07	7.453	25.06	0.006	
10/30/01 13:07	7.8962	25.06	0.006	
10/30/01 13:08	8.3663	25.06	0	
10/30/01 13:08	8.8645	25.06	0	
10/30/01 13:09	9.3913	25.06	0.006	
10/30/01 13:09	9.9497	25.06	0.006	
10/30/01 13:10	10.5413	25.06	0	
10/30/01 13:11	11.168	25.06	0	
10/30/01 13:11	11.8312	25.06	0.006	
10/30/01 13:12	12.5347	25.06	0	
10/30/01 13:13	13.2795	25.06	0.006	
10/30/01 13:14	14.0695	25.06	0.006	
10/30/01 13:14	14.9062	25.06	0.006	
10/30/01 13:15	15.7913	25.06	0	
10/30/01 13:16	16.7295	25.06	0.006	
10/30/01 13:17	17.723	25.06	0.006	
10/30/01 13:18	18.7762	25.06	0	
10/30/01 13:19	19.8913	25.06	0	
10/30/01 13:21	21.073	25.06	0.006	
10/30/01 13:22	22.3247	25.06	0.006	
10/30/01 13:23	23.6497	25.06	0.006	
10/30/01 13:25	25.0545	25.06	0.006	
10/30/01 13:26	26.5428	25.06	0.006	
10/30/01 13:28	28.1178	25.06	0.006	
10/30/01 13:29	29.7863	25.06	0.006	
10/30/01 13:31	31.5545	25.06	0.006	
10/30/01 13:33	33.428	25.06	0.012	
10/30/01 13:35	35.4112	25.06	0.006	
10/30/01 13:37	37.513	25.06	0.012	
10/30/01 13:39	39.7397	25.06	0.006	
10/30/01 13:42	42.098	25.06	0.006	
10/30/01 13:44	44.5963	25.06	0.012	
10/30/01 13:47	47.2428	25.06	0.012	
10/30/01 13:50	50.0463	25.06	0.012	
10/30/01 13:53	53.0147	25.06	0.012	
10/30/01 13:56	56.1595	25.06	0.018	
10/30/01 13:59	59.4913	25.06	0.018	
10/30/01 14:03	63.0195	25.06	0.018	
10/30/01 14:06	66.758	25.06	0.025	
10/30/01 14:10	70.7178	25.06	0.025	
10/30/01 14:14	74.9113	25.06	0.025	
10/30/01 14:19	79.3545	25.06	0.025	
10/30/01 14:24	84.0613	25.06	0.031	
10/30/01 14:29	89.0462	25.06	0.031	
10/30/01 14:34	94.3262	25.06	0.031	
10/30/01 14:39	99.9197	25.06	0.037	
10/30/01 14:45	105.8447		25.06	0.037
10/30/01 14:52	112.1197		25.06	0.043
10/30/01 14:58	118.7678		25.06	0.037
10/30/01 15:05	125.8095		25.06	0.043

MW08SL-ST

10/30/01 15:13	133.2678	25.06	0.043
10/30/01 15:21	141.1678	25.06	0.049
10/30/01 15:29	149.5363	25.06	0.049
10/30/01 15:38	158.4012	25.06	0.049
10/30/01 15:47	167.7912	25.06	0.055
10/30/01 15:57	177.738 25.08	0.056	
10/30/01 16:08	188.2745	25.06	0.055
10/30/01 16:18	198.2745	25.06	0.055
10/30/01 16:28	208.2745	25.06	0.062
10/30/01 16:38	218.2745	25.06	0.062
10/30/01 16:48	228.2745	25.06	0.068
10/30/01 16:58	238.2745	25.08	0.068
10/30/01 17:08	248.2745	25.08	0.075
10/30/01 17:18	258.2745	25.06	0.074
10/30/01 17:28	268.2745	25.06	0.08
10/30/01 17:38	278.2745	25.08	0.081
10/30/01 17:48	288.2745	25.06	0.08
10/30/01 17:58	298.2745	25.06	0.08
10/30/01 18:08	308.2745	25.06	0.08
10/30/01 18:18	318.2745	25.06	0.08
10/30/01 18:28	328.2745	25.06	0.08
10/30/01 18:38	338.2745	25.06	0.086
10/30/01 18:48	348.2745	25.06	0.08
10/30/01 18:58	358.2745	25.06	0.08
10/30/01 19:08	368.2745	25.06	0.086
10/30/01 19:18	378.2745	25.06	0.08
10/30/01 19:28	388.2745	25.06	0.08
10/30/01 19:38	398.2745	25.06	0.08
10/30/01 19:48	408.2745	25.06	0.086
10/30/01 19:58	418.2745	25.06	0.08
10/30/01 20:08	428.2745	25.06	0.08
10/30/01 20:18	438.2745	25.08	0.081
10/30/01 20:28	448.2745	25.06	0.08
10/30/01 20:38	458.2745	25.06	0.08
10/30/01 20:48	468.2745	25.06	0.086
10/30/01 20:58	478.2745	25.06	0.086
10/30/01 21:08	488.2745	25.06	0.086
10/30/01 21:18	498.2745	25.08	0.087
10/30/01 21:28	508.2745	25.08	0.087
10/30/01 21:38	518.2745	25.06	0.086
10/30/01 21:48	528.2745	25.06	0.092
10/30/01 21:58	538.2745	25.08	0.093
10/30/01 22:08	548.2747	25.06	0.086
10/30/01 22:18	558.2747	25.06	0.092
10/30/01 22:28	568.2747	25.08	0.087
10/30/01 22:38	578.2747	25.06	0.086
10/30/01 22:48	588.2747	25.06	0.086
10/30/01 22:58	598.2747	25.08	0.087
10/30/01 23:08	608.2747	25.06	0.086
10/30/01 23:18	618.2747	25.06	0.086
10/30/01 23:28	628.2747	25.06	0.086
10/30/01 23:38	638.2747	25.06	0.086
10/30/01 23:48	648.2747	25.06	0.08
10/30/01 23:58	658.2747	25.06	0.086
10/31/01 0:08	668.2747	25.08	0.081
10/31/01 0:18	678.2747	25.08	0.081
10/31/01 0:28	688.2747	25.08	0.081
10/31/01 0:38	698.2747	25.06	0.08
10/31/01 0:48	708.2747	25.08	0.081
10/31/01 0:58	718.2747	25.08	0.081
10/31/01 1:08	728.2747	25.08	0.081
10/31/01 1:18	738.2747	25.08	0.093
10/31/01 1:28	748.2747	25.06	0.086

		MW08SL-ST	
10/31/01 1:38	758.2747	25.08	0.087
10/31/01 1:48	768.2747	25.08	0.087
10/31/01 1:58	778.2747	25.08	0.087
10/31/01 2:08	788.2747	25.06	0.086
10/31/01 2:18	798.2747	25.06	0.086
10/31/01 2:28	808.2747	25.06	0.086
10/31/01 2:38	818.2747	25.08	0.087
10/31/01 2:48	828.2747	25.06	0.086
10/31/01 2:58	838.2747	25.08	0.093
10/31/01 3:08	848.2747	25.08	0.093
10/31/01 3:18	858.2747	25.06	0.086
10/31/01 3:28	868.2747	25.06	0.086
10/31/01 3:38	878.2747	25.06	0.092
10/31/01 3:48	888.2747	25.06	0.092
10/31/01 3:58	898.2747	25.06	0.092
10/31/01 4:08	908.2747	25.06	0.099
10/31/01 4:18	918.2747	25.08	0.099
10/31/01 4:28	928.2747	25.06	0.099
10/31/01 4:38	938.2747	25.06	0.099
10/31/01 4:48	948.2747	25.06	0.105
10/31/01 4:58	958.2747	25.06	0.105
10/31/01 5:08	968.2747	25.06	0.105
10/31/01 5:18	978.2747	25.06	0.111
10/31/01 5:28	988.2747	25.06	0.111
10/31/01 5:38	998.2747	25.06	0.111
10/31/01 5:48	1008.2747	25.06	0.111
10/31/01 5:58	1018.2747	25.08	0.118
10/31/01 6:08	1028.2747	25.08	0.118
10/31/01 6:18	1038.2747	25.06	0.117
10/31/01 6:28	1048.2747	25.06	0.117
10/31/01 6:38	1058.2747	25.06	0.117
10/31/01 6:48	1068.2747	25.06	0.117
10/31/01 6:58	1078.2747	25.06	0.117
10/31/01 7:08	1088.2747	25.06	0.117
10/31/01 7:18	1098.2745	25.06	0.123
10/31/01 7:28	1108.2745	25.06	0.123
10/31/01 7:38	1118.2745	25.06	0.123
10/31/01 7:48	1128.2745	25.06	0.129
10/31/01 7:58	1138.2745	25.06	0.129
10/31/01 8:08	1148.2745	25.06	0.123
10/31/01 8:18	1158.2745	25.06	0.129
10/31/01 8:28	1168.2745	25.06	0.123
10/31/01 8:38	1178.2745	25.06	0.129
10/31/01 8:48	1188.2745	25.06	0.123
10/31/01 8:58	1198.2745	25.06	0.123
10/31/01 9:08	1208.2745	25.06	0.129
10/31/01 9:18	1218.2745	25.06	0.129
10/31/01 9:28	1228.2745	25.06	0.123
10/31/01 9:38	1238.2745	25.06	0.129
10/31/01 9:48	1248.2745	25.06	0.123
10/31/01 9:58	1258.2745	25.06	0.129
10/31/01 10:08	1268.2745	25.06	0.136
10/31/01 10:18	1278.2745	25.06	0.136
10/31/01 10:28	1288.2745	25.06	0.136
10/31/01 10:38	1298.2745	25.06	0.136
10/31/01 10:48	1308.2745	25.06	0.136
10/31/01 10:58	1318.2745	25.08	0.142
10/31/01 11:08	1328.2745	25.06	0.142
10/31/01 11:18	1338.2745	25.06	0.142
10/31/01 11:28	1348.2745	25.06	0.142
10/31/01 11:38	1358.2745	25.06	0.142
10/31/01 11:48	1368.2745	25.06	0.148
10/31/01 11:58	1378.2745	25.06	0.142

MW08SL-ST

10/31/01 12:08	1388.2745	25.06	0.148
10/31/01 12:18	1398.2745	25.06	0.142
10/31/01 12:28	1408.2745	25.06	0.142
10/31/01 12:38	1418.2745	25.06	0.142
10/31/01 12:48	1428.2745	25.06	0.142
10/31/01 12:58	1438.2745	25.06	0.136
10/31/01 13:08	1448.2745	25.06	0.136
10/31/01 13:18	1458.2745	25.06	0.142
10/31/01 13:28	1468.2745	25.06	0.142
10/31/01 13:38	1478.2745	25.06	0.136
10/31/01 13:48	1488.2745	25.06	0.136
10/31/01 13:58	1498.2745	25.06	0.136
10/31/01 14:08	1508.2745	25.06	0.136
10/31/01 14:18	1518.2745	25.06	0.136
10/31/01 14:28	1528.2745	25.06	0.136
10/31/01 14:38	1538.2745	25.06	0.142
10/31/01 14:48	1548.2745	25.06	0.136
10/31/01 14:58	1558.2745	25.06	0.142
10/31/01 15:08	1568.2745	25.06	0.142
10/31/01 15:18	1578.2745	25.06	0.148
10/31/01 15:28	1588.2745	25.06	0.148
10/31/01 15:38	1598.2745	25.06	0.148
10/31/01 15:48	1608.2745	25.06	0.148
10/31/01 15:58	1618.2745	25.06	0.148
10/31/01 16:08	1628.2745	25.06	0.154
10/31/01 16:18	1638.2745	25.06	0.154
10/31/01 16:28	1648.2745	25.06	0.154
10/31/01 16:38	1658.2745	25.06	0.154
10/31/01 16:48	1668.2745	25.06	0.154
10/31/01 16:58	1678.2745	25.06	0.154
10/31/01 17:08	1688.2745	25.06	0.154
10/31/01 17:18	1698.2745	25.06	0.154
10/31/01 17:28	1708.2745	25.06	0.154
10/31/01 17:38	1718.2745	25.06	0.154
10/31/01 17:48	1728.2745	25.06	0.154
10/31/01 17:58	1738.2745	25.06	0.154
10/31/01 18:08	1748.2745	25.06	0.154
10/31/01 18:18	1758.2745	25.06	0.16
10/31/01 18:28	1768.2745	25.06	0.16
10/31/01 18:38	1778.2745	25.06	0.154
10/31/01 18:48	1788.2745	25.06	0.16
10/31/01 18:58	1798.2745	25.06	0.16
10/31/01 19:08	1808.2745	25.06	0.154
10/31/01 19:18	1818.2745	25.06	0.154
10/31/01 19:28	1828.2745	25.06	0.154
10/31/01 19:38	1838.2745	25.06	0.154
10/31/01 19:48	1848.2745	25.06	0.154
10/31/01 19:58	1858.2745	25.06	0.154
10/31/01 20:08	1868.2745	25.06	0.154
10/31/01 20:18	1878.2745	25.06	0.154
10/31/01 20:28	1888.2745	25.06	0.154
10/31/01 20:38	1898.2745	25.06	0.148
10/31/01 20:48	1908.2745	25.06	0.148
10/31/01 20:58	1918.2745	25.06	0.148
10/31/01 21:08	1928.2745	25.06	0.148
10/31/01 21:18	1938.2745	25.06	0.142
10/31/01 21:28	1948.2745	25.06	0.142
10/31/01 21:38	1958.2745	25.06	0.142
10/31/01 21:48	1968.2745	25.06	0.142
10/31/01 21:58	1978.2745	25.06	0.142
10/31/01 22:08	1988.2745	25.06	0.142
10/31/01 22:18	1998.2745	25.06	0.142
10/31/01 22:28	2008.2745	25.06	0.142

		MW08SL-ST	
10/31/01 22:38	2018.2745	25.06	0.142
10/31/01 22:48	2028.2745	25.06	0.142
10/31/01 22:58	2038.2745	25.06	0.142
10/31/01 23:08	2048.2745	25.06	0.142
10/31/01 23:18	2058.2745	25.06	0.136
10/31/01 23:28	2068.2745	25.06	0.136
10/31/01 23:38	2078.2745	25.06	0.136
10/31/01 23:48	2088.2745	25.06	0.136
10/31/01 23:58	2098.2745	25.06	0.136
11/1/01 0:08	2108.2745	25.06	0.136
11/1/01 0:18	2118.2745	25.06	0.136
11/1/01 0:28	2128.2745	25.06	0.136
11/1/01 0:38	2138.2745	25.06	0.136
11/1/01 0:48	2148.2745	25.06	0.136
11/1/01 0:58	2158.2745	25.06	0.136
11/1/01 1:08	2168.2745	25.06	0.129
11/1/01 1:18	2178.2745	25.06	0.129
11/1/01 1:28	2188.2747	25.06	0.136
11/1/01 1:38	2198.2747	25.06	0.136
11/1/01 1:48	2208.2747	25.06	0.136
11/1/01 1:58	2218.2747	25.06	0.136
11/1/01 2:08	2228.2747	25.06	0.129
11/1/01 2:18	2238.2747	25.06	0.136
11/1/01 2:28	2248.2747	25.06	0.136
11/1/01 2:38	2258.2747	25.06	0.142
11/1/01 2:48	2268.2747	25.06	0.136
11/1/01 2:58	2278.2747	25.06	0.136
11/1/01 3:08	2288.2747	25.06	0.136
11/1/01 3:18	2298.2747	25.06	0.136
11/1/01 3:28	2308.2747	25.06	0.142
11/1/01 3:38	2318.2747	25.06	0.136
11/1/01 3:48	2328.2747	25.06	0.136
11/1/01 3:58	2338.2747	25.06	0.136
11/1/01 4:08	2348.2747	25.06	0.136
11/1/01 4:18	2358.2747	25.06	0.136
11/1/01 4:28	2368.2747	25.06	0.142
11/1/01 4:38	2378.2747	25.06	0.142
11/1/01 4:48	2388.2747	25.06	0.142
11/1/01 4:58	2398.2747	25.06	0.142
11/1/01 5:08	2408.2747	25.06	0.148
11/1/01 5:18	2418.2747	25.06	0.148
11/1/01 5:28	2428.2747	25.06	0.148
11/1/01 5:38	2438.2747	25.06	0.148
11/1/01 5:48	2448.2747	25.06	0.154
11/1/01 5:58	2458.2747	25.06	0.154
11/1/01 6:08	2468.2747	25.06	0.16
11/1/01 6:18	2478.2747	25.06	0.154
11/1/01 6:28	2488.2747	25.06	0.154
11/1/01 6:38	2498.2747	25.06	0.154
11/1/01 6:48	2508.2747	25.06	0.16
11/1/01 6:58	2518.2747	25.06	0.16
11/1/01 7:08	2528.2747	25.06	0.16
11/1/01 7:18	2538.2747	25.06	0.16
11/1/01 7:28	2548.2747	25.06	0.154
11/1/01 7:38	2558.2747	25.06	0.148
11/1/01 7:48	2568.2747	25.06	0.154
11/1/01 7:58	2578.2747	25.06	0.154
11/1/01 8:08	2588.2747	25.06	0.16
11/1/01 8:18	2598.2747	25.06	0.154
11/1/01 8:28	2608.2747	25.06	0.154
11/1/01 8:38	2618.2747	25.06	0.154
11/1/01 8:48	2628.2747	25.06	0.154
11/1/01 8:58	2638.2747	25.06	0.154

		MW08SL-ST	
11/1/01 9:08	2648.2747	25.06	0.148
11/1/01 9:18	2658.2747	25.05	0.147
11/1/01 9:28	2668.2747	25.06	0.154
11/1/01 9:38	2678.2747	25.06	0.154
11/1/01 9:48	2688.2747	25.06	0.148
11/1/01 9:58	2698.2747	25.06	0.148
11/1/01 10:08	2708.2747	25.06	0.148
11/1/01 10:18	2718.2747	25.06	0.148
11/1/01 10:28	2728.2747	25.06	0.148
11/1/01 10:38	2738.2747	25.06	0.142
11/1/01 10:48	2748.2747	25.06	0.148
11/1/01 10:58	2758.2747	25.06	0.148
11/1/01 11:08	2768.2747	25.06	0.154
11/1/01 11:18	2778.2747	25.05	0.153
11/1/01 11:28	2788.2747	25.06	0.154
11/1/01 11:38	2798.2747	25.06	0.148
11/1/01 11:48	2808.2747	25.06	0.154
11/1/01 11:58	2818.2747	25.06	0.154
11/1/01 12:08	2828.2747	25.06	0.154
11/1/01 12:18	2838.2747	25.06	0.148
11/1/01 12:28	2848.2747	25.06	0.148
11/1/01 12:38	2858.2747	25.06	0.136
11/1/01 12:48	2868.2747	25.05	0.129
11/1/01 12:58	2878.2747	25.06	0.117
11/1/01 13:08	2888.2747	25.06	0.105
11/1/01 13:18	2898.2747	25.06	0.105
11/1/01 13:28	2908.2747	25.05	0.092
11/1/01 13:38	2918.2747	25.06	0.092
11/1/01 13:48	2928.2747	25.06	0.086
11/1/01 13:58	2938.2747	25.06	0.086
11/1/01 14:08	2948.2747	25.06	0.08
11/1/01 14:18	2958.2747	25.06	0.074
11/1/01 14:28	2968.2747	25.06	0.074
11/1/01 14:38	2978.2747	25.06	0.074
11/1/01 14:48	2988.2747	25.06	0.068
11/1/01 14:58	2998.2747	25.06	0.068
11/1/01 15:08	3008.2747	25.06	0.068
11/1/01 15:18	3018.2747	25.06	0.068
11/1/01 15:28	3028.2747	25.05	0.067
11/1/01 15:38	3038.2747	25.06	0.068
11/1/01 15:48	3048.2747	25.06	0.062
11/1/01 15:58	3058.2747	25.06	0.062
11/1/01 16:08	3068.2747	25.06	0.062
11/1/01 16:18	3078.2747	25.06	0.062
11/1/01 16:28	3088.2747	25.05	0.061
11/1/01 16:38	3098.2747	25.05	0.055
11/1/01 16:48	3108.2747	25.06	0.055
11/1/01 16:58	3118.2747	25.05	0.049
11/1/01 17:08	3128.2747	25.05	0.049
11/1/01 17:18	3138.2747	25.06	0.049
11/1/01 17:28	3148.2747	25.05	0.049
11/1/01 17:38	3158.2747	25.05	0.049
11/1/01 17:48	3168.2747	25.05	0.049
11/1/01 17:58	3178.2747	25.05	0.049
11/1/01 18:08	3188.2747	25.05	0.049
11/1/01 18:18	3198.2747	25.05	0.042
11/1/01 18:28	3208.2747	25.06	0.049
11/1/01 18:38	3218.2747	25.05	0.042
11/1/01 18:48	3228.2747	25.06	0.043
11/1/01 18:58	3238.2747	25.06	0.037
11/1/01 19:08	3248.2747	25.05	0.042
11/1/01 19:18	3258.2747	25.05	0.036
11/1/01 19:28	3268.2747	25.06	0.037

		MW08SL-ST	
11/1/01 19:38	3278.2747	25.06	0.031
11/1/01 19:48	3288.2747	25.06	0.031
11/1/01 19:58	3298.2747	25.06	0.031
11/1/01 20:08	3308.2747	25.05	0.03
11/1/01 20:18	3318.2747	25.06	0.025
11/1/01 20:28	3328.2747	25.06	0.025
11/1/01 20:38	3338.2747	25.06	0.025
11/1/01 20:48	3348.2747	25.05	0.024
11/1/01 20:58	3358.2747	25.06	0.018
11/1/01 21:08	3368.2747	25.06	0.018
11/1/01 21:18	3378.2747	25.06	0.012
11/1/01 21:28	3388.2747	25.05	0.012
11/1/01 21:38	3398.2747	25.05	0.012
11/1/01 21:48	3408.2747	25.05	0.012
11/1/01 21:58	3418.2747	25.05	0.005
11/1/01 22:08	3428.2747	25.05	0.012
11/1/01 22:18	3438.2747	25.05	0.005
11/1/01 22:28	3448.2747	25.05	0.005
11/1/01 22:38	3458.2747	25.05	-0.001
11/1/01 22:48	3468.2747	25.05	-0.001
11/1/01 22:58	3478.2747	25.05	-0.001
11/1/01 23:08	3488.2747	25.05	-0.001
11/1/01 23:18	3498.2747	25.05	-0.007
11/1/01 23:28	3508.2747	25.05	-0.007
11/1/01 23:38	3518.2747	25.05	-0.007
11/1/01 23:48	3528.2747	25.05	-0.013
11/1/01 23:58	3538.2747	25.05	-0.013
11/2/01 0:08	3548.2747	25.05	-0.013
11/2/01 0:18	3558.2747	25.05	-0.019
11/2/01 0:28	3568.2747	25.05	-0.013
11/2/01 0:38	3578.2747	25.05	-0.019
11/2/01 0:48	3588.2747	25.05	-0.019
11/2/01 0:58	3598.2747	25.05	-0.025
11/2/01 1:08	3608.2747	25.05	-0.019
11/2/01 1:18	3618.2747	25.05	-0.025
11/2/01 1:28	3628.2747	25.05	-0.025
11/2/01 1:38	3638.2747	25.05	-0.025
11/2/01 1:48	3648.2747	25.05	-0.032
11/2/01 1:58	3658.2747	25.05	-0.032
11/2/01 2:08	3668.2747	25.05	-0.032
11/2/01 2:18	3678.2747	25.05	-0.032
11/2/01 2:28	3688.2747	25.05	-0.032
11/2/01 2:38	3698.2747	25.05	-0.032
11/2/01 2:48	3708.2747	25.05	-0.032
11/2/01 2:58	3718.2747	25.05	-0.038
11/2/01 3:08	3728.2747	25.05	-0.038
11/2/01 3:18	3738.2747	25.05	-0.038
11/2/01 3:28	3748.2747	25.05	-0.038
11/2/01 3:38	3758.2747	25.05	-0.038
11/2/01 3:48	3768.2747	25.05	-0.038
11/2/01 3:58	3778.2747	25.05	-0.038
11/2/01 4:08	3788.2747	25.05	-0.038
11/2/01 4:18	3798.2747	25.05	-0.038
11/2/01 4:28	3808.2747	25.05	-0.032
11/2/01 4:38	3818.2747	25.05	-0.032
11/2/01 4:48	3828.2747	25.05	-0.032
11/2/01 4:58	3838.2747	25.05	-0.025
11/2/01 5:08	3848.2747	25.05	-0.025
11/2/01 5:18	3858.2747	25.05	-0.025
11/2/01 5:28	3868.2747	25.05	-0.019
11/2/01 5:38	3878.2747	25.05	-0.019
11/2/01 5:48	3888.2747	25.05	-0.019
11/2/01 5:58	3898.2747	25.05	-0.019

			MW08SL-ST
11/2/01 6:08	3908.2747	25.05	-0.019
11/2/01 6:18	3918.2747	25.05	-0.013
11/2/01 6:28	3928.2747	25.05	-0.019
11/2/01 6:38	3938.2747	25.05	-0.019
11/2/01 6:48	3948.2747	25.05	-0.019
11/2/01 6:58	3958.2747	25.05	-0.019
11/2/01 7:08	3968.2747	25.05	-0.013
11/2/01 7:18	3978.2747	25.05	-0.013
11/2/01 7:28	3988.2747	25.05	-0.019
11/2/01 7:38	3998.2747	25.05	-0.013
11/2/01 7:48	4008.2747	25.05	-0.019
11/2/01 7:58	4018.2747	25.05	-0.013
11/2/01 8:08	4028.2747	25.05	-0.013
11/2/01 8:18	4038.2747	25.05	-0.013
11/2/01 8:28	4048.2747	25.05	-0.013
11/2/01 8:38	4058.2747	25.05	-0.019
11/2/01 8:48	4068.2747	25.05	-0.019
11/2/01 8:58	4078.2747	25.05	-0.019
11/2/01 9:08	4088.2747	25.05	-0.019
11/2/01 9:18	4098.2747	25.05	-0.019
11/2/01 9:28	4108.2747	25.05	-0.025
11/2/01 9:38	4118.2747	25.05	-0.019
11/2/01 9:48	4128.2747	25.05	-0.038
11/2/01 9:58	4138.2747	25.05	-0.032
11/2/01 10:08	4148.2747	25.05	-0.032
11/2/01 10:18	4158.2747	25.05	-0.038
11/2/01 10:28	4168.2747	25.05	-0.038
11/2/01 10:38	4178.2747	25.05	-0.019
11/2/01 10:48	4188.2747	25.05	-0.032
11/2/01 10:58	4198.2747	25.05	-0.032
11/2/01 11:08	4208.2747	25.05	-0.032
11/2/01 11:18	4218.2747	25.05	-0.013
11/2/01 11:28	4228.2747	25.05	-0.019
11/2/01 11:38	4238.2747	25.05	-0.019
11/2/01 11:48	4248.2747	25.05	-0.025
11/2/01 11:58	4258.2747	25.05	-0.025
11/2/01 12:08	4268.2747	25.05	-0.025
11/2/01 12:18	4278.2747	25.05	-0.025
11/2/01 12:28	4288.2747	25.05	-0.025
11/2/01 12:38	4298.2747	25.05	-0.032
11/2/01 12:48	4308.2747	25.05	-0.038
11/2/01 12:58	4318.2747	25.05	-0.05

MW04SL-TREND

In-Situ Inc. MiniTroll Pro

Report generated: 11/2/01 13:08:24
Report from file: C:\WIN-SITU\Data\SN04914 2001-10-30 093000 MW04SL-TREND.bin

DataMgr Version 3.69

Serial number: 4914
Firmware Version 3.01
Unit name: MW04SL-TREND

Test name: MW04SL-TREND

Test defined on: 10/30/01 9:28:26
Test scheduled for: 10/30/01 9:30:00
Test started on: 10/30/01 9:30:00
Test stopped on: 11/2/01 13:08:19
Test extracted on: N/A

Data gathered using Linear testing
Time between data points: 15.0000 Minutes.
Number of data samples: 303

TOTAL DATA SAMPLES 303

Channel number [1]
Measurement type: Temperature
Channel name: OnBoard Temp

Channel number [2]
Measurement type: Pressure
Channel name: OnBoard Pressure
Sensor Range: 30 PSI.
Specific gravity: 1
Mode: TOC
User-defined reference: 0 Feet H2O
Referenced on: test start
Pressure head at reference: 10.633 Feet H2O

Date	Time	Chan[1] ET (min)	Chan[2] Celsius	Feet H2O
10/30/01	9:30	0	23.65	0
10/30/01	9:45	15	23.66	0.004
10/30/01	10:00	30	23.66	0.022
10/30/01	10:15	45	23.66	0.02
10/30/01	10:30	60	23.66	0.024
10/30/01	10:45	75	23.66	0.045
10/30/01	11:00	90	23.66	0.033
10/30/01	11:15	105	23.66	0.035
10/30/01	11:30	120	23.66	0.037
10/30/01	11:45	135	23.66	0.037
10/30/01	12:00	150	23.66	0.041
10/30/01	12:15	165	23.67	0.061
10/30/01	12:30	180	23.66	0.039
10/30/01	12:45	195	23.67	0.039
10/30/01	13:00	210	23.67	0.039
10/30/01	13:15	225	23.66	0.045
10/30/01	13:30	240	23.66	0.056
10/30/01	13:45	255	23.66	0.068
10/30/01	14:00	270	23.66	0.091

10/30/01 14:15	285	23.66	0.082
10/30/01 14:30	300	23.67	0.094
10/30/01 14:45	315	23.66	0.101
10/30/01 15:00	330	23.66	0.107
10/30/01 15:15	345	23.66	0.113
10/30/01 15:30	360	23.66	0.13
10/30/01 15:45	375	23.66	0.122
10/30/01 16:00	390	23.66	0.128
10/30/01 16:15	405	23.67	0.136
10/30/01 16:30	420	23.66	0.134
10/30/01 16:45	435	23.66	0.138
10/30/01 17:00	450	23.66	0.155
10/30/01 17:15	465	23.66	0.138
10/30/01 17:30	480	23.66	0.13
10/30/01 17:45	495	23.66	0.124
10/30/01 18:00	510	23.66	0.113
10/30/01 18:15	525	23.66	0.103
10/30/01 18:30	540	23.66	0.091
10/30/01 18:45	555	23.66	0.097
10/30/01 19:00	570	23.66	0.074
10/30/01 19:15	585	23.66	0.064
10/30/01 19:30	600	23.66	0.055
10/30/01 19:45	615	23.66	0.045
10/30/01 20:00	630	23.66	0.039
10/30/01 20:15	645	23.66	0.039
10/30/01 20:30	660	23.66	0.055
10/30/01 20:45	675	23.66	0.045
10/30/01 21:00	690	23.66	0.055
10/30/01 21:15	705	23.66	0.068
10/30/01 21:30	720	23.66	0.08
10/30/01 21:45	735	23.66	0.095
10/30/01 22:00	750	23.66	0.124
10/30/01 22:15	765	23.66	0.124
10/30/01 22:30	780	23.66	0.13
10/30/01 22:45	795	23.66	0.146
10/30/01 23:00	810	23.66	0.136
10/30/01 23:15	825	23.66	0.151
10/30/01 23:30	840	23.66	0.155
10/30/01 23:45	855	23.66	0.161
10/31/01 0:00	870	23.66	0.148
10/31/01 0:15	885	23.66	0.151
10/31/01 0:30	900	23.66	0.153
10/31/01 0:45	915	23.66	0.155
10/31/01 1:00	930	23.66	0.175
10/31/01 1:15	945	23.66	0.165
10/31/01 1:30	960	23.66	0.171
10/31/01 1:45	975	23.66	0.173
10/31/01 2:00	990	23.66	0.177
10/31/01 2:15	1005	23.66	0.183
10/31/01 2:30	1020	23.66	0.184
10/31/01 2:45	1035	23.66	0.186
10/31/01 3:00	1050	23.66	0.19
10/31/01 3:15	1065	23.66	0.192
10/31/01 3:30	1080	23.66	0.194
10/31/01 3:45	1095	23.66	0.196
10/31/01 4:00	1110	23.66	0.198
10/31/01 4:15	1125	23.66	0.2
10/31/01 4:30	1140	23.66	0.204
10/31/01 4:45	1155	23.66	0.208
10/31/01 5:00	1170	23.66	0.206
10/31/01 5:15	1185	23.66	0.198
10/31/01 5:30	1200	23.66	0.188
10/31/01 5:45	1215	23.66	0.177

10/31/01 6:00	1230	23.66	0.165
10/31/01 6:15	1245	23.66	0.15
10/31/01 6:30	1260	23.66	0.14
10/31/01 6:45	1275	23.66	0.126
10/31/01 7:00	1290	23.66	0.115
10/31/01 7:15	1305	23.66	0.101
10/31/01 7:30	1320	23.65	0.103
10/31/01 7:45	1335	23.66	0.08
10/31/01 8:00	1350	23.66	0.072
10/31/01 8:15	1365	23.66	0.064
10/31/01 8:30	1380	23.66	0.06
10/31/01 8:45	1395	23.66	0.064
10/31/01 9:00	1410	23.66	0.084
10/31/01 9:15	1425	23.66	0.08
10/31/01 9:30	1440	23.66	0.093
10/31/01 9:45	1455	23.66	0.107
10/31/01 10:00	1470	23.66	0.126
10/31/01 10:15	1485	23.66	0.144
10/31/01 10:30	1500	23.66	0.165
10/31/01 10:45	1515	23.65	0.175
10/31/01 11:00	1530	23.65	0.182
10/31/01 11:15	1545	23.66	0.202
10/31/01 11:30	1560	23.66	0.194
10/31/01 11:45	1575	23.66	0.198
10/31/01 12:00	1590	23.65	0.2
10/31/01 12:15	1605	23.65	0.202
10/31/01 12:30	1620	23.65	0.202
10/31/01 12:45	1635	23.66	0.204
10/31/01 13:00	1650	23.65	0.204
10/31/01 13:15	1665	23.66	0.219
10/31/01 13:30	1680	23.65	0.206
10/31/01 13:45	1695	23.65	0.207
10/31/01 14:00	1710	23.65	0.207
10/31/01 14:15	1725	23.65	0.209
10/31/01 14:30	1740	23.66	0.212
10/31/01 14:45	1755	23.66	0.227
10/31/01 15:00	1770	23.65	0.219
10/31/01 15:15	1785	23.65	0.223
10/31/01 15:30	1800	23.66	0.225
10/31/01 15:45	1815	23.66	0.227
10/31/01 16:00	1830	23.66	0.229
10/31/01 16:15	1845	23.65	0.233
10/31/01 16:30	1860	23.65	0.233
10/31/01 16:45	1875	23.66	0.233
10/31/01 17:00	1890	23.65	0.239
10/31/01 17:15	1905	23.66	0.241
10/31/01 17:30	1920	23.66	0.237
10/31/01 17:45	1935	23.65	0.233
10/31/01 18:00	1950	23.65	0.24
10/31/01 18:15	1965	23.66	0.215
10/31/01 18:30	1980	23.66	0.206
10/31/01 18:45	1995	23.65	0.207
10/31/01 19:00	2010	23.66	0.183
10/31/01 19:15	2025	23.66	0.171
10/31/01 19:30	2040	23.66	0.159
10/31/01 19:45	2055	23.66	0.15
10/31/01 20:00	2070	23.66	0.138
10/31/01 20:15	2085	23.66	0.126
10/31/01 20:30	2100	23.65	0.116
10/31/01 20:45	2115	23.66	0.111
10/31/01 21:00	2130	23.66	0.111
10/31/01 21:15	2145	23.65	0.112
10/31/01 21:30	2160	23.65	0.118

10/31/01 21:45	2175	23.65	0.128
10/31/01 22:00	2190	23.65	0.153
10/31/01 22:15	2205	23.65	0.153
10/31/01 22:30	2220	23.65	0.171
10/31/01 22:45	2235	23.65	0.186
10/31/01 23:00	2250	23.65	0.211
10/31/01 23:15	2265	23.65	0.204
10/31/01 23:30	2280	23.65	0.219
10/31/01 23:45	2295	23.65	0.207
11/1/01 0:00	2310	23.65	0.229
11/1/01 0:15	2325	23.66	0.215
11/1/01 0:30	2340	23.65	0.219
11/1/01 0:45	2355	23.66	0.223
11/1/01 1:00	2370	23.65	0.223
11/1/01 1:15	2385	23.65	0.223
11/1/01 1:30	2400	23.66	0.225
11/1/01 1:45	2415	23.65	0.227
11/1/01 2:00	2430	23.65	0.239
11/1/01 2:15	2445	23.65	0.227
11/1/01 2:30	2460	23.65	0.227
11/1/01 2:45	2475	23.65	0.242
11/1/01 3:00	2490	23.65	0.244
11/1/01 3:15	2505	23.65	0.227
11/1/01 3:30	2520	23.65	0.229
11/1/01 3:45	2535	23.65	0.231
11/1/01 4:00	2550	23.65	0.233
11/1/01 4:15	2565	23.65	0.233
11/1/01 4:30	2580	23.65	0.233
11/1/01 4:45	2595	23.65	0.237
11/1/01 5:00	2610	23.65	0.254
11/1/01 5:15	2625	23.65	0.242
11/1/01 5:30	2640	23.65	0.244
11/1/01 5:45	2655	23.65	0.237
11/1/01 6:00	2670	23.65	0.24
11/1/01 6:15	2685	23.65	0.213
11/1/01 6:30	2700	23.65	0.202
11/1/01 6:45	2715	23.65	0.188
11/1/01 7:00	2730	23.65	0.176
11/1/01 7:15	2745	23.65	0.155
11/1/01 7:30	2760	23.65	0.143
11/1/01 7:45	2775	23.65	0.13
11/1/01 8:00	2790	23.65	0.114
11/1/01 8:15	2805	23.65	0.097
11/1/01 8:30	2820	23.65	0.083
11/1/01 8:45	2835	23.65	0.07
11/1/01 9:00	2850	23.65	0.062
11/1/01 9:15	2865	23.65	0.056
11/1/01 9:30	2880	23.65	0.056
11/1/01 9:45	2895	23.65	0.06
11/1/01 10:00	2910	23.65	0.07
11/1/01 10:15	2925	23.65	0.097
11/1/01 10:30	2940	23.65	0.095
11/1/01 10:45	2955	23.65	0.112
11/1/01 11:00	2970	23.65	0.134
11/1/01 11:15	2985	23.65	0.155
11/1/01 11:30	3000	23.65	0.169
11/1/01 11:45	3015	23.65	0.194
11/1/01 12:00	3030	23.65	0.202
11/1/01 12:15	3045	23.65	0.188
11/1/01 12:30	3060	23.65	0.178
11/1/01 12:45	3075	23.65	0.169
11/1/01 13:00	3090	23.65	0.153
11/1/01 13:15	3105	23.65	0.143

11/1/01 13:30	3120	23.65	0.136
11/1/01 13:45	3135	23.65	0.132
11/1/01 14:00	3150	23.65	0.126
11/1/01 14:15	3165	23.65	0.138
11/1/01 14:30	3180	23.65	0.122
11/1/01 14:45	3195	23.65	0.118
11/1/01 15:00	3210	23.65	0.116
11/1/01 15:15	3225	23.65	0.118
11/1/01 15:30	3240	23.65	0.105
11/1/01 15:45	3255	23.65	0.114
11/1/01 16:00	3270	23.65	0.095
11/1/01 16:15	3285	23.65	0.089
11/1/01 16:30	3300	23.65	0.085
11/1/01 16:45	3315	23.65	0.101
11/1/01 17:00	3330	23.65	0.085
11/1/01 17:15	3345	23.65	0.099
11/1/01 17:30	3360	23.63	0.081
11/1/01 17:45	3375	23.65	0.085
11/1/01 18:00	3390	23.65	0.097
11/1/01 18:15	3405	23.65	0.081
11/1/01 18:30	3420	23.65	0.076
11/1/01 18:45	3435	23.63	0.064
11/1/01 19:00	3450	23.65	0.064
11/1/01 19:15	3465	23.65	0.039
11/1/01 19:30	3480	23.65	0.021
11/1/01 19:45	3495	23.65	0.019
11/1/01 20:00	3510	23.65	0.01
11/1/01 20:15	3525	23.65	-0.019
11/1/01 20:30	3540	23.65	-0.033
11/1/01 20:45	3555	23.65	-0.043
11/1/01 21:00	3570	23.65	-0.054
11/1/01 21:15	3585	23.63	-0.062
11/1/01 21:30	3600	23.63	-0.062
11/1/01 21:45	3615	23.65	-0.06
11/1/01 22:00	3630	23.65	-0.043
11/1/01 22:15	3645	23.65	-0.048
11/1/01 22:30	3660	23.65	-0.025
11/1/01 22:45	3675	23.63	-0.025
11/1/01 23:00	3690	23.65	-0.012
11/1/01 23:15	3705	23.65	0.004
11/1/01 23:30	3720	23.63	0.009
11/1/01 23:45	3735	23.63	0.011
11/2/01 0:00	3750	23.63	0.011
11/2/01 0:15	3765	23.65	0.029
11/2/01 0:30	3780	23.63	0.033
11/2/01 0:45	3795	23.63	0.031
11/2/01 1:00	3810	23.65	0.025
11/2/01 1:15	3825	23.65	0.033
11/2/01 1:30	3840	23.63	0.035
11/2/01 1:45	3855	23.63	0.021
11/2/01 2:00	3870	23.63	0.019
11/2/01 2:15	3885	23.63	0.035
11/2/01 2:30	3900	23.63	0.025
11/2/01 2:45	3915	23.65	0.025
11/2/01 3:00	3930	23.63	0.037
11/2/01 3:15	3945	23.63	0.04
11/2/01 3:30	3960	23.63	0.027
11/2/01 3:45	3975	23.63	0.027
11/2/01 4:00	3990	23.63	0.027
11/2/01 4:15	4005	23.63	0.031
11/2/01 4:30	4020	23.63	0.035
11/2/01 4:45	4035	23.63	0.039
11/2/01 5:00	4050	23.63	0.042

			MW04SL-TREND
11/2/01 5:15	4065	23.63	0.058
11/2/01 5:30	4080	23.63	0.046
11/2/01 5:45	4095	23.63	0.048
11/2/01 6:00	4110	23.63	0.05
11/2/01 6:15	4125	23.65	0.045
11/2/01 6:30	4140	23.63	0.031
11/2/01 6:45	4155	23.63	0.033
11/2/01 7:00	4170	23.63	0.006
11/2/01 7:15	4185	23.63	0.006
11/2/01 7:30	4200	23.63	-0.024
11/2/01 7:45	4215	23.63	-0.037
11/2/01 8:00	4230	23.63	-0.049
11/2/01 8:15	4245	23.63	-0.064
11/2/01 8:30	4260	23.63	-0.08
11/2/01 8:45	4275	23.63	-0.091
11/2/01 9:00	4290	23.63	-0.109
11/2/01 9:15	4305	23.63	-0.105
11/2/01 9:30	4320	23.63	-0.13
11/2/01 9:45	4335	23.63	-0.136
11/2/01 10:00	4350	23.63	-0.142
11/2/01 10:15	4365	23.63	-0.136
11/2/01 10:30	4380	23.63	-0.128
11/2/01 10:45	4395	23.63	-0.107
11/2/01 11:00	4410	23.63	-0.109
11/2/01 11:15	4425	23.63	-0.095
11/2/01 11:30	4440	23.63	-0.078
11/2/01 11:45	4455	23.63	-0.062
11/2/01 12:00	4470	23.63	-0.045
11/2/01 12:15	4485	23.63	-0.024
11/2/01 12:30	4500	23.63	-0.02
11/2/01 12:45	4515	23.63	-0.029
11/2/01 13:00	4530	23.63	-0.025

Pumping Test Data Sheets

Tetra Tech NUS, Inc.

PUMPING TEST DATA SHEET

PROJECT NAME: Parris Island - Site 45 | PUMPING WELL NUMBER: RW-3
PROJECT NUMBER: N0502 | MEASURED WELL NUMBER: RW-3

(X) PUMPING TEST ( ) STEP DRAW DOWN TEST

DATE(s): 10/30/01 – | MONITORING POINT: TOC
MEASUREMENT METHOD: HERON | DEPTH CORRECTION (ft): —
TEST NUMBER: ST-1 (short term) | PUMP SETTING (Ft. below monitoring point):
STATIC WATER LEVEL (ft): 5.46 | DISTANCE FROM PUMPING WELL (ft): 0
PERSONNEL: SJC/KH
REMARKS: 600 minutes @ midnite 10/31 (0000)

	MILITARY TIME	ELAPSED TIME SINCE PUMP START OR STOP (Min.)	WATER LEVEL (Ft.)	CORRECTION (Ft.)	DRAW DOWN OR RECOVERY (Ft.)	FLOW METER READING (Gals.)	PUMPING RATE (GPM)	REMARKS
	1100	–	5.46					*PUMP LEAKED @ 1100 – HAD TO REPAIR – RE SET MINI TROLLS – TO START @ 1300 HRS.
10/30	1300	0	5.46					
	1302	2	6.92			1.5 gal	3.0	1.5 gpm ± 0.1
	1303	3	7.43					
	1306	6	8.16			7.8 gal	1.3	1.3 gpm ± 0.1
	1307	7	8.40					
	1309:00	9	8.50			11.7	1.3	1.3 gpm ± 0.1
	1311:00	11	8.56					
	1314:00	14	8.70					
	1318:00	18	8.80					
	1322:00	22	8.88			28.6	1.3	1.3 gpm ± 0.1
	1326:00	26	8.92					
	1334:00	34	8.99					
	1342:00	42	9.02					
	1355:00	55	9.06					
	1423:00	83	9.10				1.3	1.3 gpm ± 0.1
	1438	98	9.11					
	1505	125	9.13					
	1518	138	9.14					
	1615	195	9.17				1.3	
	1700	240	9.18				1.3	
	1800	300	9.16				1.3	
	1900	360	9.15				1.3	
	2000	420	9.14				1.3	
	2100	480	9.14				1.3	9:00 PM
	2200	540	9.15				1.3	10:00 PM
# 10-31	~~0020~~	680					1.2	~~MIDNITE~~
	0037	~~697~~ 717	9.31				1.3	pump rate adjusted to 1.3
	0231	811	10.69				1.3	pump " adjusted slightly to 1.3
	0324	864	10.81			1123.2	1.3	122,871

NOTE: All measurements to nearest 0.01 foot measured from top of well riser pipe unless otherwise noted.

~~34~~ gallons from totalizer (post treatment)

Tetra Tech NUS, Inc.

PUMPING TEST DATA SHEET

PROJECT NAME: Parris Island - Site 45
PROJECT NUMBER: N0502
PUMPING WELL NUMBER: (RW-3)
MEASURED WELL NUMBER: RW-3

(X) PUMPING TEST ( ) STEP DRAW DOWN TEST

DATE(s): 10/30/01
MEASUREMENT METHOD: Heron
TEST NUMBER: ST-1 (short term)
STATIC WATER LEVEL (ft): 5.46
PERSONNEL: SJC / KH
MONITORING POINT: TOC
DEPTH CORRECTION (ft): —
PUMP SETTING (Ft. below monitoring point):
DISTANCE FROM PUMPING WELL (ft): 0
REMARKS:

	MILITARY TIME	ELAPSED TIME SINCE PUMP START OR STOP (Min.)	WATER LEVEL (Ft.)	CORRECTION (Ft.)	DRAW DOWN OR RECOVERY (Ft.)	FLOW METER READING (Gals.)	PUMPING RATE (GPM)	REMARKS
10-31	~~40~~							
↓	0340		10.82			~~1.3~~	1.3 gal	
	0412		10.79				1.3	122,878 gal from totalizer
	0540		10.85				1.3 gal	122,884 gal (post treatment)
	0618		10.82				1.4 ±	
	0800		10.80				1.4 ±	DB - TURNS ON SUMP PUMP TO DRAIN SUMP. SYSTEM IS
	0900		10.67				1.4 ±	CONNECTED TO PW-PIPING.
	1000		10.84				1.4 ±	
	1100		10.85		5.39'		1.4 ±	
	1210		10.67				1.4 ±	
	1600		10.87				1.4	Between 1.4 & 1.3
	1700		10.88				1.4	" " "
	1800		10.88				1.4	" " "
7:00	1900		11.02				1.41	" " "
8:00	2000		10.90				1.41	" " "
9:00	2100		10.91				1.41	" " "
10:00	2215		10.98	-.89 ?				
11:00	2310		10.98	-.89 ?				
12:00	2345		10.98	-.89 ?				
11/1	0630		10.89				1.4	
	0800		10.87				1.4	
REC	1150		10.82				1.4	
11/1	1200	PUMP OFF - REC MEAS.						SHUT PUMP OFF @ 1200
	1203		9.28		↓			ON 11/1/01
	1204		8.95					REC MEASUREMENTS
	1206		8.36					↓
	1209		7.54					
	1212		7.02					
	1214		6.82					
	1217		6.58					

NOTE: All measurements to nearest 0.01 foot measured from top of well riser pipe unless otherwise noted.

Tetra Tech NUS, Inc.

PUMPING TEST DATA SHEET

PROJECT NAME: Parris Island - Site 45
PROJECT NUMBER: N0502
PUMPING WELL NUMBER: RW-3
MEASURED WELL NUMBER: RW-3

(X) PUMPING TEST ( ) STEP DRAW DOWN TEST

DATE(s): 10/30 → 11/2/01
MONITORING POINT: TOC
MEASUREMENT METHOD: HERON
DEPTH CORRECTION (ft): —
TEST NUMBER: ST-1 (SHORT TERM)
PUMP SETTING (Ft. below monitoring point):
STATIC WATER LEVEL (ft): 5.46
DISTANCE FROM PUMPING WELL (ft): 0
PERSONNEL: SJC / KH
REMARKS:

	MILITARY TIME	ELAPSED TIME SINCE PUMP START OR STOP (Min.)	WATER LEVEL (Ft.)	CORRECTION (Ft.)	DRAW DOWN OR RECOVERY (Ft.)	FLOW METER READING (Gals.)	PUMPING RATE (GPM)	REMARKS
11/1	1220		6.37					
	1225		6.18					
	1230		6.02					
	1240		5.84					
	1250		5.78					
	1300		5.74					
	1320		5.69					
	1340		5.65					
	1400		5.62					
	1430		5.60					
	1500		5.59					
11/1	1600		5.58					
11/2	0600		5.51					
	0800		5.50					
	0900		5.49					
	1100		5.44					
	1200		5.46					

NOTE: All measurements to nearest 0.01 foot measured from top of well riser pipe unless otherwise noted.

MW06SU

Tetra Tech NUS, Inc.

PUMPING TEST DATA SHEET

PROJECT NAME: Parris Island - Site 45 | PUMPING WELL NUMBER: RW-3
PROJECT NUMBER: N0502 | MEASURED WELL NUMBER: MW06 SU
(X) PUMPING TEST | ( ) STEP DRAW DOWN TEST
DATE(s): 10/30/01 → 11/2/01 | MONITORING POINT: TOC
MEASUREMENT METHOD: HERON | DEPTH CORRECTION (ft): —
TEST NUMBER: ST-1 | PUMP SETTING (Ft. below monitoring point): —
STATIC WATER LEVEL (ft): 3.43 | DISTANCE FROM PUMPING WELL (ft): 9.5'
PERSONNEL: SJC/ KH
REMARKS: MINI TROLL IN WELL. # 6358 MW06 SU - ST.

	MILITARY TIME	ELAPSED TIME SINCE PUMP START OR STOP (Min.)	WATER LEVEL (Ft.)	CORRECTION (Ft.)	DRAW DOWN OR RECOVERY (Ft.)	FLOW METER READING (Gals.)	PUMPING RATE (GPM)	REMARKS
10/30	1100	—	3.43					PUMP LEAKS - HAD TO FIX
	1300	0	3.46					RESET MINI TROLLS START @ 1300
	1304	4	3.47					
	1315	15	3.47					
	1320	20	3.47					
	1400	60	3.44					
	1520	140	3.43					
	1615	195	3.43					
	1845	345	3.49					
	2030	450	3.50					
10/31	0044	704	~~3.50~~ 3.50					
KH	0238	818	3.50					
	0411		3.49					
	0542		3.50					
	0619		3.52					
	0910		3.51					
	1110		3.49					
	1430		3.59		0.13			
	1815		3.47					
	2225		3.51					
~~11/1~~	2230		3.43					PUMP OFF 11/1/01 @ 1200 HRS
11/2	0900		3.49					
	1200		3.52					

NOTE: All measurements to nearest 0.01 foot measured from top of well riser pipe unless otherwise noted.

MW06 SU

Tetra Tech NUS, Inc.

PUMPING TEST DATA SHEET

MW06SL

PROJECT NAME: Parris Island - Site 45 | PUMPING WELL NUMBER: RW-3
PROJECT NUMBER: N0502 | MEASURED WELL NUMBER: MW06SL

(X) PUMPING TEST ( ) STEP DRAW DOWN TEST

DATE(s): 10/30/01 → 11/2/01 | MONITORING POINT: TOC
MEASUREMENT METHOD: HERON | DEPTH CORRECTION (ft): —
TEST NUMBER: ST-1 | PUMP SETTING (Ft. below monitoring point): —
STATIC WATER LEVEL (ft): | DISTANCE FROM PUMPING WELL (ft): 14'
PERSONNEL: SJC/KH
REMARKS: MINI TROLL IN WELL

	MILITARY TIME	ELAPSED TIME SINCE PUMP START OR STOP (Min.)	WATER LEVEL (Ft.)	CORRECTION (Ft.)	DRAW DOWN OR RECOVERY (Ft.)	FLOW METER READING (Gals.)	PUMPING RATE (GPM)	REMARKS
10/30	1100		3.56					
	1300	—	3.60					
	1305	5	3.75					
	1310	10	3.87					
	1315	15	3.94					
	1320	20	3.99					
	1400	60	4.09					
	1615	195	4.19					
	1845	345	4.21		0.61			
	2030	450	4.20					
10/31 KH	0047	707	4.28					
	0240	870	4.42					
	0410		4.44					
	0543		4.46					
	0618		4.46					
	0910		4.43					
	1110		4.47					
	1430		4.49		0.89			
	1815		4.50					
	2225		4.49					
	2330		4.46					
		SEE PG 2 FOR REC						

NOTE: All measurements to nearest 0.01 foot measured from top of well riser pipe unless otherwise noted.

MW06SL

MW06SL

Tetra Tech NUS, Inc.

PUMPING TEST DATA SHEET

PROJECT NAME: Parris Island - Site 45
PROJECT NUMBER: N0502
PUMPING WELL NUMBER: RW-3
MEASURED WELL NUMBER: MW06 SL W

(X) PUMPING TEST ( ) STEP DRAW DOWN TEST

DATE(s): 11/1/01 → 11/2/01
MONITORING POINT: TOC
MEASUREMENT METHOD: HERON
DEPTH CORRECTION (ft): —
TEST NUMBER: ST-1
PUMP SETTING (Ft. below monitoring point): —
STATIC WATER LEVEL (ft): 3.56'
DISTANCE FROM PUMPING WELL (ft): 14'
PERSONNEL: SJC/KH
REMARKS:

	MILITARY TIME	ELAPSED TIME SINCE PUMP START OR STOP (Min.)	WATER LEVEL (Ft.)	CORRECTION (Ft.)	DRAW DOWN OR RECOVERY (Ft.)	FLOW METER READING (Gals.)	PUMPING RATE (GPM)	REMARKS
11/1	1150		4.46					
	1200	0	4.46					Pump off @ NOON.
	sjc	30s	4.49					
	1201	1m	4.48					
	1202	2	4.45					
		3	—					
	1205	5	4.40					
		8	—					
	1210	10	4.26					
	1215	15	4.16					
	1225	25	4.02					
	1430		3.75					
11/1	1500		3.73					
11/2	0900		3.63					
	1200		3.61					

NOTE: All measurements to nearest 0.01 foot measured from top of well riser pipe unless otherwise noted.

MW06 SL

PZ-115

Tetra Tech NUS, Inc.

PUMPING TEST DATA SHEET

PROJECT NAME: Parris Island - Site 45
PROJECT NUMBER: N0502
PUMPING WELL NUMBER: RW-3
MEASURED WELL NUMBER: PZ 115

(X) PUMPING TEST ( ) STEP DRAW DOWN TEST

DATE(s): 10/30/01 → 11/2/01
MONITORING POINT: TOC
MEASUREMENT METHOD: HERON
DEPTH CORRECTION (ft): —
TEST NUMBER: ST-1
PUMP SETTING (Ft. below monitoring point): —
STATIC WATER LEVEL (ft): 3.44
DISTANCE FROM PUMPING WELL (ft): 28'
PERSONNEL: SJC/KH
REMARKS: MINI TROLL IN WELL

MILITARY TIME	ELAPSED TIME SINCE PUMP START OR STOP (Min.)	WATER LEVEL (Ft.)	CORRECTION (Ft.)	DRAW DOWN OR RECOVERY (Ft.)	FLOW METER READING (Gals.)	PUMPING RATE (GPM)	REMARKS
10/30 1100		3.44					
1300	0	3.51					
1325	25	3.72					
1405	65	3.82					
1530	150	3.89					
1850	350	3.93		.42			*431 DD @ 1848 Mini Troll
10/31 0054	714	3.97					
KH 0544		4.10					
0915		4.10					
1430		4.13		.62			
1900		4.16					
2225		4.11					
2330		4.12					
		~~SEE PG 2~~		REC			

NOTE: All measurements to nearest 0.01 foot measured from top of well riser pipe unless otherwise noted.

PZ115

Tetra Tech NUS, Inc.

PUMPING TEST DATA SHEET

PZ 11S

PROJECT NAME: Parris Island - Site 45
PROJECT NUMBER: N0502
PUMPING WELL NUMBER: RW-3
MEASURED WELL NUMBER: PZ 11S

(X) PUMPING TEST ( ) STEP DRAW DOWN TEST

DATE(s): 11/1/01
MONITORING POINT: TOC
MEASUREMENT METHOD: HERON
DEPTH CORRECTION (ft): —
TEST NUMBER: ST-1
PUMP SETTING (Ft. below monitoring point): —
STATIC WATER LEVEL (ft): 3.44
DISTANCE FROM PUMPING WELL (ft): 28'
PERSONNEL: SJC/KH
REMARKS:

	MILITARY TIME	ELAPSED TIME SINCE PUMP START OR STOP (Min.)	WATER LEVEL (Ft.)	CORRECTION (Ft.)	DRAW DOWN OR RECOVERY (Ft.)	FLOW METER READING (Gals.)	PUMPING RATE (GPM)	REMARKS
11/1	1150		4.13					
	1200	0	4.192					Turned Pump off (Recharge) @ 1200 11/1/01
		30S	4.12					
	1201	1	4.12					
		2	4.11					REC
		3	4.11					
	1205	5	4.10					
		8	4.06					
	1210	10	4.03					
	1215	15	3.98					
	1225	25	3.89					
	1430		3.64					
11/2	0900		3.52					
	1200		3.48					

NOTE: All measurements to nearest 0.01 foot measured from top of well riser pipe unless otherwise noted.

PZ 11S

Tetra Tech NUS, Inc.

PUMPING TEST DATA SHEET

PZ10S

PROJECT NAME: Parris Island - Site 45 | PUMPING WELL NUMBER: RW-3
PROJECT NUMBER: N0502 | MEASURED WELL NUMBER: PZ10S

(X) PUMPING TEST ( ) STEP DRAW DOWN TEST

DATE(s): 10/30/01 → 11/2/01 | MONITORING POINT:
MEASUREMENT METHOD: HERON | DEPTH CORRECTION (ft):
TEST NUMBER: ST-1 | PUMP SETTING (Ft. below monitoring point):
STATIC WATER LEVEL (ft): 3.63 | DISTANCE FROM PUMPING WELL (ft): 47.5
PERSONNEL: SJC/KH
REMARKS: MINI TROLL IN WELL (6338) PZ10S-ST

	MILITARY TIME	ELAPSED TIME SINCE PUMP START OR STOP (Min.)	WATER LEVEL (Ft.)	CORRECTION (Ft.)	DRAW DOWN OR RECOVERY (Ft.)	FLOW METER READING (Gals.)	PUMPING RATE (GPM)	REMARKS
10/30	1300	0	3.63					3.63 WL THIS AM.
	1325		3.78					
	1410		3.89					
	1535		3.93					
	2005	425	3.96					4.28 MIN (Troll) - .303' DD
10/31 KH	0057	717	3.99					
	0545		4.10					
	0930		4.12					
	1430		4.14		0.51			
	1900		4.16					
	2000		4.15					
	2220		4.14					
	2325		4.12		0.49			
11/1	1145		4.12					PUMP OFF @ 1200 HRS
11/2	0900		3.67					11/1/01
	1200		3.65					

NOTE: All measurements to nearest 0.01 foot measured from top of well riser pipe unless otherwise noted.

PZ10S

RW-2

Tetra Tech NUS, Inc.

PUMPING TEST DATA SHEET

PROJECT NAME: Parris Island - Site 45
PROJECT NUMBER: N0502
PUMPING WELL NUMBER: RW-3
MEASURED WELL NUMBER: RW-2

(X) PUMPING TEST ( ) STEP DRAW DOWN TEST

DATE(s): 10/30/01 → 11/2/01
MONITORING POINT: TOC
MEASUREMENT METHOD: HERON
DEPTH CORRECTION (ft): —
TEST NUMBER: ST-1
PUMP SETTING (Ft. below monitoring point): —
STATIC WATER LEVEL (ft): 5.68
DISTANCE FROM PUMPING WELL (ft): 54'
PERSONNEL: SJC/KH
REMARKS:

	MILITARY TIME	ELAPSED TIME SINCE PUMP START OR STOP (Min.)	WATER LEVEL (Ft.)	CORRECTION (Ft.)	DRAW DOWN OR RECOVERY (Ft.)	FLOW METER READING (Gals.)	PUMPING RATE (GPM)	REMARKS
10/30	0940		5.68					
	1300	0	5.73					START PUMP 1300
	1355	55	5.84					
	1415	75	5.89					
	1620	200	5.97					
	1820	320	6.00					
	2020	440	5.98					
10/31 KWH	0059	719	5.92					
	0550		6.10					
	0800		6.13					
	1410		6.14					
	1605		6.16					
	1810		6.17					
	2015		6.15					
	2100		6.14					
	2215		6.12					
	2310		6.15					
	2345		6.12		.39			
	—		—	—	—	—	—	
11/1	1145		6.13					
	1200	0	6.13					PUMP OFF 1200 HRS
	1400	120	5.86					11/1/01
	1600	240	5.82					
11/2	0900		5.72					
	1200		5.69					

NOTE: All measurements to nearest 0.01 foot measured from top of well riser pipe unless otherwise noted.

RW2

Tetra Tech NUS, Inc.

PUMPING TEST DATA SHEET

1 OF 1

MW07-SL

PROJECT NAME: Parris Island - Site 45 | PUMPING WELL NUMBER: RW-3

PROJECT NUMBER: N0502 | MEASURED WELL NUMBER: MW07 SL

(X) PUMPING TEST ( ) STEP DRAW DOWN TEST

DATE(s): 10/30/01 → 11/2/01 | MONITORING POINT: TOC

MEASUREMENT METHOD: HERON | DEPTH CORRECTION (ft): —

TEST NUMBER: ST-1 | PUMP SETTING (Ft. below monitoring point): —

STATIC WATER LEVEL (ft): 3.72 | DISTANCE FROM PUMPING WELL (ft): 66'

PERSONNEL: SJC/ KH

REMARKS: MINI TROLL IN WELL

	MILITARY TIME	ELAPSED TIME SINCE PUMP START OR STOP (Min.)	WATER LEVEL (Ft.)	CORRECTION (Ft.)	DRAW DOWN OR RECOVERY (Ft.)	FLOW METER READING (Gals.)	PUMPING RATE (GPM)	REMARKS
10/30	1300	0	3.72					
	1330	30	3.83					
	1420	80	3.91					
	2030	450	4.00					
10/31	0105	725	4.01					
KH	0547		4.10					
	1110		4.13					
	1430		4.15		0.43			
	1900		4.18					
	2220		4.14					
	2320		4.13		0.41			
	—		—					
11/1	1145		4.16					PUMP OFF 1200 HRS 11/1/01
11/2	0900		3.78					
"	1200		3.75					

NOTE: All measurements to nearest 0.01 foot measured from top of well riser pipe unless otherwise noted.

MW07SL

Tetra Tech NUS, Inc.

PUMPING TEST DATA SHEET

MW07 SU

PROJECT NAME: Parris Island - Site 45
PROJECT NUMBER: N0502
PUMPING WELL NUMBER: RW-3
MEASURED WELL NUMBER: MW07 SU

( ) PUMPING TEST ( ) STEP DRAW DOWN TEST

DATE(s): 10/30/01 → 11/2/01
MEASUREMENT METHOD: HERON
TEST NUMBER: ST-1
STATIC WATER LEVEL (ft): 3.70
PERSONNEL: SJC/KH
REMARKS: MINI TROLL IN WELL.
MONITORING POINT: TOC
DEPTH CORRECTION (ft): —
PUMP SETTING (Ft. below monitoring point): —
DISTANCE FROM PUMPING WELL (ft): 63'

	MILITARY TIME	ELAPSED TIME SINCE PUMP START OR STOP (Min.)	WATER LEVEL (Ft.)	CORRECTION (Ft.)	DRAW DOWN OR RECOVERY (Ft.)	FLOW METER READING (Gals.)	PUMPING RATE (GPM)	REMARKS
10/30	1300	0	3.70					
	1330	30	3.79					
	1415	75	3.88					
	2030	450	3.99					
10/31	0104	724	3.98					
KH	0548		4.07					
	1110		4.11					
	1430		4.13		0.43			
	1900		4.15					
	2220		4.11					
	2320		4.12		0.42			
	—		—					
11/1	1145		4.14					PUMP OFF @ 1200 HRS
11/2	0900		3.75					11/1/01
"	1800		3.76					

NOTE: All measurements to nearest 0.01 foot measured from top of well riser pipe unless otherwise noted.

B-296

MW07 SU

Tetra Tech NUS, Inc.

PUMPING TEST DATA SHEET

PZ09S

PROJECT NAME: Parris Island - Site 45 | PUMPING WELL NUMBER: RW-3
PROJECT NUMBER: N0502 | MEASURED WELL NUMBER: PZ09S

[X] PUMPING TEST ( ) STEP DRAW DOWN TEST

DATE(s): 10/30/01 | MONITORING POINT: TOC
MEASUREMENT METHOD: HERON | DEPTH CORRECTION (ft):
TEST NUMBER: ST-1 | PUMP SETTING (Ft. below monitoring point):
STATIC WATER LEVEL (ft): 3.47 | DISTANCE FROM PUMPING WELL (ft): 98'
PERSONNEL: SJC/KH
REMARKS:

	MILITARY TIME	ELAPSED TIME SINCE PUMP START OR STOP (Min.)	WATER LEVEL (Ft.)	CORRECTION (Ft.)	DRAW DOWN OR RECOVERY (Ft.)	FLOW METER READING (Gals.)	PUMPING RATE (GPM)	REMARKS
10/30	1300	0	3.47					
	1331	31	3.53					
	1905	365	3.65					
	2105	485	3.66					
10/31 KH	0108	728	3.62					
	0552		3.68					
	0815		3.72					
	1105		3.72					
	1410	1510	3.73					
	1605	1625	3.76					
	1810	1750	3.77					
	2015	1875	3.76					
	2100	1920	3.73					
	2215	1995	3.74					
	2315	2055	3.74					
	2345	2085	3.73		.26			
	—		—					
11/1	1145	2805	3.75					
	1200	0	3.75	—	—	—	—	PUMP OFF
	1400	120	3.63					
	1600	240	3.61					
11/2	0900		3.51					
	1200	1440	3.51					

NOTE: All measurements to nearest 0.01 foot measured from top of well riser pipe unless otherwise noted.

PZ09S

Tetra Tech NUS, Inc.

PUMPING TEST DATA SHEET

Pg 1 of 1

RW-1

PROJECT NAME: Parris Island - Site 45
PROJECT NUMBER: N0502
PUMPING WELL NUMBER: RW-3
MEASURED WELL NUMBER: RW-1

(X) PUMPING TEST ( ) STEP DRAW DOWN TEST

DATE(s): 10/30/01 → 11/2/01
MONITORING POINT: TOC
MEASUREMENT METHOD: HERON
DEPTH CORRECTION (ft): —
TEST NUMBER: ST-1
PUMP SETTING (Ft. below monitoring point): —
STATIC WATER LEVEL (ft): 5.83 10/30/01
DISTANCE FROM PUMPING WELL (ft): 106'
PERSONNEL: SJC/KH @ 0945 HRS.
REMARKS:

MILITARY TIME	ELAPSED TIME SINCE PUMP START OR STOP (Min.)	WATER LEVEL (Ft.)	CORRECTION (Ft.)	DRAW DOWN OR RECOVERY (Ft.)	FLOW METER READING (Gals.)	PUMPING RATE (GPM)	REMARKS
10/30 —		—					
10/31 0112	732	5.95					
KH 0553		6.0					
0945		6.04					
1410		6.05					
1605		6.06					
1810		6.08					
2015		6.07					
2100		6.07					
2215		6.06					
2315		6.04					
2345		6.02		.19			
—		—					
11/1 1145		5.98					
1200	0	5.98	—	—	—	—	PUMP OFF @ 1200 11/1/01
1400	120	6.02					
1600	240	5.96					
11/2 0900		5.86					
1200		5.81					

NOTE: All measurements to nearest 0.01 foot measured from top of well riser pipe unless otherwise noted.

B-298 RW1

Tetra Tech NUS, Inc.

PUMPING TEST DATA SHEET

MW08 SL

PROJECT NAME: Parris Island - Site 45
PROJECT NUMBER: N0502
PUMPING WELL NUMBER: RW-3
MEASURED WELL NUMBER: MW08SL

(X) PUMPING TEST ( ) STEP DRAW DOWN TEST

DATE(s): 10/30/01 → 11/2/01
MONITORING POINT: TOC
MEASUREMENT METHOD: HERON
DEPTH CORRECTION (ft): —
TEST NUMBER: ST-1
PUMP SETTING (Ft. below monitoring point): —
STATIC WATER LEVEL (ft): 3.47
DISTANCE FROM PUMPING WELL (ft): 129'
PERSONNEL: SJC/KH
REMARKS: MINI TROLL IN WELL

	MILITARY TIME	ELAPSED TIME SINCE PUMP START OR STOP (Min.)	WATER LEVEL (Ft.)	CORRECTION (Ft.)	DRAW DOWN OR RECOVERY (Ft.)	FLOW METER READING (Gals.)	PUMPING RATE (GPM)	REMARKS
10/30	1300	0	3.47					
	1332	32	3.52					
	2100	480	3.62					
10/31 KH	0116	736	3.56					
	0555		3.60					
	0900		3.64					
	1900		3.69					
	2220		3.67					
	2315		3.67		0.2			
	—		—					
11/1	1145	PUMP OFF 1200	3.69					
11/2	0905		3.51					
"	1200	1440	3.51					

NOTE: All measurements to nearest 0.01 foot measured from top of well riser pipe unless otherwise noted.

B-299

MW08SL

MW08SU

Tetra Tech NUS, Inc.

PUMPING TEST DATA SHEET

PROJECT NAME: Parris Island - Site 45 | PUMPING WELL NUMBER: RW-3
PROJECT NUMBER: N0502 | MEASURED WELL NUMBER: MW08SU

(X) PUMPING TEST ( ) STEP DRAW DOWN TEST

DATE(s): 10/30/01 → 11/2/01 | MONITORING POINT: TOC
MEASUREMENT METHOD: HERON | DEPTH CORRECTION (ft): —
TEST NUMBER: ST-1 | PUMP SETTING (Ft. below monitoring point):
STATIC WATER LEVEL (ft): 3.53 | DISTANCE FROM PUMPING WELL (ft): 125'
PERSONNEL: SJC / KH
REMARKS: MINI TROLL IN WELL

	MILITARY TIME	ELAPSED TIME SINCE PUMP START OR STOP (Min.)	WATER LEVEL (Ft.)	CORRECTION (Ft.)	DRAW DOWN OR RECOVERY (Ft.)	FLOW METER READING (Gals.)	PUMPING RATE (GPM)	REMARKS
10/30	~~1300~~	~~START~~ —	3.58					RDG @ THIS MORNINGS ROUND WAS 3.53
	1332	32	3.60					3.58 @ 1300
	2100	480	3.69					
10/31	0114	734	3.64					
HH	0554		3.68					
	0900		3.73					
	1900		3.78					
	2220		3.74					
	2315		3.74		0.16			
	—		—					
11/1	1145	PUMP OFF 1200	3.76					
11/2	0905		3.58					
"	1200	1440	3.59		~~0.16~~			

NOTE: All measurements to nearest 0.01 foot measured from top of well riser pipe unless otherwise noted.

B-300

MW08SU

Tetra Tech NUS, Inc.

PUMPING TEST DATA SHEET

MW03SU

PROJECT NAME: Parris Island - Site 45 | PUMPING WELL NUMBER: RW-3
PROJECT NUMBER: N0502 | MEASURED WELL NUMBER: MW03SU

[X] PUMPING TEST ( ) STEP DRAW DOWN TEST

DATE(s): 10/30/01 → 11/02/01 | MONITORING POINT: TOC
MEASUREMENT METHOD: HERON | DEPTH CORRECTION (ft): —
TEST NUMBER: ST-1 | PUMP SETTING (Ft. below monitoring point): —
STATIC WATER LEVEL (ft): 3.56 | DISTANCE FROM PUMPING WELL (ft): 54'
PERSONNEL: SJC/KH
REMARKS: MINI TROLL IN WELL

MILITARY TIME	ELAPSED TIME SINCE PUMP START OR STOP (Min.)	WATER LEVEL (Ft.)	CORRECTION (Ft.)	DRAW DOWN OR RECOVERY (Ft.)	FLOW METER READING (Gals.)	PUMPING RATE (GPM)	REMARKS
1300	0	3.56					3.56' WL THIS AM.
1345	45	3.56					
1435	95	3.58					
2010	430	3.60					
10/31 0131 KH	~~755~~ 750 KH	3.56					
0607		3.60					
1900		3.62					
2235		3.63					
2330		3.64		.08			
—	—	—	—	—	—	—	—
11/1 1135	PUMP OFF 1200	3.66					
11/2 0905		3.68					
1200	1440	3.66					

NOTE: All measurements to nearest 0.01 foot measured from top of well riser pipe unless otherwise noted.

MW03SU

MW03SL

Tetra Tech NUS, Inc.

PUMPING TEST DATA SHEET

PROJECT NAME: Parris Island - Site 45
PROJECT NUMBER: N0502
PUMPING WELL NUMBER: RW-3
MEASURED WELL NUMBER: MW03SL

(X) PUMPING TEST ( ) STEP DRAW DOWN TEST

DATE(s): 10/30/01
MONITORING POINT: TOC
MEASUREMENT METHOD: HERON
DEPTH CORRECTION (ft): —
TEST NUMBER: ST-1
PUMP SETTING (Ft. below monitoring point):
STATIC WATER LEVEL (ft): 3.67 @ 1300 ±
DISTANCE FROM PUMPING WELL (ft): 58'
PERSONNEL: SJC/KH
REMARKS: MINI TROLL IN WELL

	MILITARY TIME	ELAPSED TIME SINCE PUMP START OR STOP (Min.)	WATER LEVEL (Ft.)	CORRECTION (Ft.)	DRAW DOWN OR RECOVERY (Ft.)	FLOW METER READING (Gals.)	PUMPING RATE (GPM)	REMARKS
10/30	1300	0	3.67					START WAS 3.54 IN AM
	1345	45	3.79					
	1435	95	3.83					
	2010	430	3.92					
10/31 KH	0129	749	3.97					
	0606		4.02					
	1900		4.10					
	2235		4.08					
	2330		4.07		0.4			
	—	—	—	—	—	—	—	
11/1	1135		4.06					PUMP OFF @ NOON
11/2	0905		3.65					11/1/01
	1200		3.63					

NOTE: All measurements to nearest 0.01 foot measured from top of well riser pipe unless otherwise noted.

MW03SL

MW04SL

Tetra Tech NUS, Inc.

PUMPING TEST DATA SHEET

PROJECT NAME: Parris Island - Site 45
PROJECT NUMBER: N0502
PUMPING WELL NUMBER: RW-3
MEASURED WELL NUMBER: MW04SL

(X) PUMPING TEST ( ) STEP DRAW DOWN TEST

DATE(s): 10/30/01
MONITORING POINT: TOC
MEASUREMENT METHOD: HERON
DEPTH CORRECTION (ft): —
TEST NUMBER: ST-1
PUMP SETTING (Ft. below monitoring point): —
STATIC WATER LEVEL (ft): 3.18
DISTANCE FROM PUMPING WELL (ft):
PERSONNEL: SJC/KH
REMARKS: MINI TROLL IN WELL FOR TREND

	MILITARY TIME	ELAPSED TIME SINCE PUMP START OR STOP (Min.)	WATER LEVEL (Ft.)	CORRECTION (Ft.)	DRAW DOWN OR RECOVERY (Ft.)	FLOW METER READING (Gals.)	PUMPING RATE (GPM)	REMARKS
10/30								
1300	0732	—	3.18					
	1350	50	3.33					
	1430	90	3.40					
	1630	210	3.44					
	1830	330	3.39					
	2030	450	3.35					
10/31	0138	758	3.45					
KH	0408		3.48					
	0609		3.43					
	0800		3.39					
	1000		3.41					
	1200		3.51					
	1400		~~3.56~~ 3.51					
	1600		3.52					
	1800		3.54					
	2000		3.44					
	2230		3.46					
	2350		3.52					
11/1	1135		3.48					
	1200	0	~~3.48~~					PUMP OFF
	1400	120	3.42					
	1600	240	3.42					
11/2	0900		3.22					
	1100		3.22					
	1200	1440	3.27					

NOTE: All measurements to nearest 0.01 foot measured from top of well riser pipe unless otherwise noted.

MW04SL

MW04SU

Tetra Tech NUS, Inc.

PUMPING TEST DATA SHEET

PROJECT NAME: Parris Island - Site 45
PROJECT NUMBER: N0502
PUMPING WELL NUMBER: RW-3
MEASURED WELL NUMBER: MW04SU

(X) PUMPING TEST ( ) STEP DRAW DOWN TEST

DATE(s): 10/30/01 → 11/2/01
MEASUREMENT METHOD: HERON
TEST NUMBER: ST-1
STATIC WATER LEVEL (ft): 3.25
PERSONNEL: SJC/KH
MONITORING POINT: TOC
DEPTH CORRECTION (ft): —
PUMP SETTING (Ft. below monitoring point): —
DISTANCE FROM PUMPING WELL (ft):
REMARKS:

	MILITARY TIME	ELAPSED TIME SINCE PUMP START OR STOP (Min.)	WATER LEVEL (Ft.)	CORRECTION (Ft.)	DRAW DOWN OR RECOVERY (Ft.)	FLOW METER READING (Gals.)	PUMPING RATE (GPM)	REMARKS
10/30	0734		3.25					
	1350		3.39					
	1430		3.45					
	1630	210	3.48					
	1830	330	3.45					
	2030	450	3.41					
10/31 KH	0140	760	3.51					
	0407		3.53					
	0610		3.50					
	0800		3.45					
	1000		3.47					
	1200		3.56					
	1400		3.56					
	1600		3.59					
	1800		3.60					
	2000		3.51					
	2230		3.52					
	2350		3.59					
	—	—	~~3.47~~	—	—	—	—	—
11/1								
	1135		3.53					
	1200	0	3.53					PUMP OFF.
	1400	120	3.48					
	1600	240	3.47					
11/2	0900		3.31					
	1100		3.28					
	1200	1440	3.34					

NOTE: All measurements to nearest 0.01 foot measured from top of well riser pipe unless otherwise noted.

B-304

MW04SU

MW04D

Tetra Tech NUS, Inc.

PUMPING TEST DATA SHEET

PROJECT NAME: Parris Island - Site 45 | PUMPING WELL NUMBER: RW-3
PROJECT NUMBER: N0502 | MEASURED WELL NUMBER: MW04D
(X) PUMPING TEST | ( ) STEP DRAW DOWN TEST
DATE(s): 10/30/01 → 11/2/01 | MONITORING POINT: TOC
MEASUREMENT METHOD: HERON | DEPTH CORRECTION (ft): —
TEST NUMBER: ST-1 | PUMP SETTING (Ft. below monitoring point): —
STATIC WATER LEVEL (ft): 3.88 | DISTANCE FROM PUMPING WELL (ft):
PERSONNEL: SJC/KH
REMARKS:

	MILITARY TIME	ELAPSED TIME SINCE PUMP START OR STOP (Min.)	WATER LEVEL (Ft.)	CORRECTION (Ft.)	DRAW DOWN OR RECOVERY (Ft.)	FLOW METER READING (Gals.)	PUMPING RATE (GPM)	REMARKS
10/29	1442		3.88					
10/30	0733		3.82					
	1351		3.83					
	1430		3.93					
	1630	210	3.95					
	1830	330	3.95					
	2030	450	3.95					
10/31 KH	0135	755	3.86					
	0405		3.88					
	0611		3.88					
	0800		3.97					
	1000		3.90					
	1200		3.97					
	1400		3.93					
	1600		3.95					
	1800		3.96					
	2000		3.97					
	2230		3.98					
	2350		3.97					
11/1	1135		3.98					
	1200	0	3.98					PUMP OFF
	1400	120	3.95					
	1600	240	3.95					
11/2	0900		4.01					
	1100		4.02					
	1200		3.84					

NOTE: All measurements to nearest 0.01 foot measured from top of well riser pipe unless otherwise noted.

MW04D

Tetra Tech NUS, Inc.

PUMPING TEST DATA SHEET

MW01SL

PROJECT NAME: Parris Island - Site 45
PROJECT NUMBER: N0502
PUMPING WELL NUMBER: RW-3
MEASURED WELL NUMBER: MW01 SL

☒ PUMPING TEST ( ) STEP DRAW DOWN TEST

DATE(s): 10/30/01 → 11/2/01
MEASUREMENT METHOD: HERON
TEST NUMBER: ST-1
STATIC WATER LEVEL (ft): 3.29
PERSONNEL: SJC / KH
MONITORING POINT: TOC
DEPTH CORRECTION (ft): —
PUMP SETTING (Ft. below monitoring point): —
DISTANCE FROM PUMPING WELL (ft):
REMARKS:

	MILITARY TIME	ELAPSED TIME SINCE PUMP START OR STOP (Min.)	WATER LEVEL (Ft.)	CORRECTION (Ft.)	DRAW DOWN OR RECOVERY (Ft.)	FLOW METER READING (Gals.)	PUMPING RATE (GPM)	REMARKS
10/30	0756		3.29					
10/30	1300	0	3.31					
"	1500	120	3.34					
	1700	240	3.36					
	1900	360	3.37					
	2100	480	3.38					
	~~2300~~							
10/31 KH	0120	740	3.31					
	0400		3.32					
	0559		3.32					
	0810		3.41					
	1000		3.36					
	1200		3.39					
	1400		3.38					
	1600		3.40					
	1800		3.40					
	2000		3.39					
	2215		3.37					
	2345		3.38					
	—	—	—	—	—	—	—	
11/1	1145		3.41					
	1200	PUMP OFF 0	3.41					
	1400	120	3.37					
	1600	240	3.36					
11/2	0905		3.31					
	1100		3.30					
	1200	1440	3.32					

NOTE: All measurements to nearest 0.01 foot measured from top of well riser pipe unless otherwise noted.

MW01 SL

MW01-SU

Tetra Tech NUS, Inc.

PUMPING TEST DATA SHEET

PROJECT NAME: Parris Island - Site 45 | PUMPING WELL NUMBER: RW-3
PROJECT NUMBER: N0502 | MEASURED WELL NUMBER: MW01 SU

(X) PUMPING TEST ( ) STEP DRAW DOWN TEST

DATE(s): 10/30/01 → 11/2/01 | MONITORING POINT: TOC
MEASUREMENT METHOD: HERON | DEPTH CORRECTION (ft): —
TEST NUMBER: ST-1 | PUMP SETTING (Ft. below monitoring point): —
STATIC WATER LEVEL (ft): 3.30 | DISTANCE FROM PUMPING WELL (ft):
PERSONNEL: SJC/KH
REMARKS:

	MILITARY TIME	ELAPSED TIME SINCE PUMP START OR STOP (Min.)	WATER LEVEL (Ft.)	CORRECTION (Ft.)	DRAW DOWN OR RECOVERY (Ft.)	FLOW METER READING (Gals.)	PUMPING RATE (GPM)	REMARKS
10/29	1436		3.30					
10/30	0756		3.29					
	1300	0	3.31					
	1500	120	3.34					
	1700	240	3.34					
	1900	360	3.35					
	2100	480	3.35					
	~~2300~~							
10/31 KH	0122	742	3.32					
	0401		3.32					
	~~0406~~01		3.30					
	0810		3.37					
	1000		3.35					
	1200		3.36					
	1400		3.36					
	1600		3.37					
	1800		3.38					
	2000		3.37					
	2215		3.36					
	2345		3.38					
	—	—	—	—	—	—	—	
11/1	1135		3.38					
	1200	0	3.38					PUMP OFF
	1400	120	3.36					
	1600	240	3.38					
11/2	0905		3.35					
	1100		3.34					
	1200	1440	3.36					

NOTE: All measurements to nearest 0.01 foot measured from top of well riser pipe unless otherwise noted.

MW01 SU

MW05SU

Tetra Tech NUS, Inc.

PUMPING TEST DATA SHEET

PROJECT NAME: Parris Island - Site 45
PROJECT NUMBER: N0502
PUMPING WELL NUMBER: RW-3
MEASURED WELL NUMBER: MW05SU

(X) PUMPING TEST ( ) STEP DRAW DOWN TEST

DATE(s): 10/30/01 → 11/2/01
MONITORING POINT: TOC
MEASUREMENT METHOD: HERON
DEPTH CORRECTION (ft): —
TEST NUMBER: ST-1
PUMP SETTING (Ft. below monitoring point): —
STATIC WATER LEVEL (ft): 5.16
DISTANCE FROM PUMPING WELL (ft):
PERSONNEL: SJC/KH
REMARKS:

	MILITARY TIME	ELAPSED TIME SINCE PUMP START OR STOP (Min.)	WATER LEVEL (Ft.)	CORRECTION (Ft.)	DRAW DOWN OR RECOVERY (Ft.)	FLOW METER READING (Gals.)	PUMPING RATE (GPM)	REMARKS
10/29	1446	-	5.16					
10/30	0743	-	4.81					
	1830	330	5.12					
10/31 KH	0145	765	5.18					
	0614		5.14					
	0805		4.91					
	1600		5.23					
	1800		5.24					
	2100		~~5~~ 4.93					
	2335		5.15					
	—	—	—	—	—	—	—	
11/1	1140		5.06					PUMP OFF @ 1200 HRS
11/2	0900		4.89					11/1/01
"	1200	1440	4.92					

NOTE: All measurements to nearest 0.01 foot measured from top of well riser pipe unless otherwise noted.

B-308

MW05SU

MW05SL

Tetra Tech NUS, Inc.

PUMPING TEST DATA SHEET

PROJECT NAME: Parris Island - Site 45
PROJECT NUMBER: N0502
PUMPING WELL NUMBER: RW-3
MEASURED WELL NUMBER: MW05SL

(X) PUMPING TEST ( ) STEP DRAW DOWN TEST

DATE(s): 10/30/01 → 11/2/01
MONITORING POINT: TOC
MEASUREMENT METHOD: HERON
DEPTH CORRECTION (ft): —
TEST NUMBER: ST-1
PUMP SETTING (Ft. below monitoring point): —
STATIC WATER LEVEL (ft): 4.75
DISTANCE FROM PUMPING WELL (ft):
PERSONNEL: SJC/KH
REMARKS:

	MILITARY TIME	ELAPSED TIME SINCE PUMP START OR STOP (Min.)	WATER LEVEL (Ft.)	CORRECTION (Ft.)	DRAW DOWN OR RECOVERY (Ft.)	FLOW METER READING (Gals.)	PUMPING RATE (GPM)	REMARKS
10/29	1445	-	4.75					
10/30	0741	-	4.46					
"	1830	330	4.73					
10/31 KH	0143	767	4.72					
	0613		4.75					
	0805		4.55					
	1600		4.83					
	1800		4.85					
	2100		4.59					
			~~4.66~~					
	2335		4.76					
	—	—	—	—	—	—	—	
11/1	1140		4.66					PUMP OFF 1200 HRS
11/2	0900		4.51					11/1/01
"	1200	1440	4.55					

NOTE: All measurements to nearest 0.01 foot measured from top of well riser pipe unless otherwise noted.

MW05SL

MW05D

Tetra Tech NUS, Inc.

PUMPING TEST DATA SHEET

PROJECT NAME: Parris Island - Site 45
PROJECT NUMBER: N0502
PUMPING WELL NUMBER: RW-3
MEASURED WELL NUMBER: MW05D

(X) PUMPING TEST ( ) STEP DRAW DOWN TEST

DATE(s): 10/30/01
MONITORING POINT: TOC
MEASUREMENT METHOD: HERON
DEPTH CORRECTION (ft): —
TEST NUMBER: ST-1
PUMP SETTING (Ft. below monitoring point): —
STATIC WATER LEVEL (ft): 5.63
DISTANCE FROM PUMPING WELL (ft):
PERSONNEL: SJC/KH
REMARKS:

	MILITARY TIME	ELAPSED TIME SINCE PUMP START OR STOP (Min.)	WATER LEVEL (Ft.)	CORRECTION (Ft.)	DRAW DOWN OR RECOVERY (Ft.)	FLOW METER READING (Gals.)	PUMPING RATE (GPM)	REMARKS
10/29	1448		5.63					
10/30	0740		5.64					
"	1830	330	5.65					
10/31	0147	781	5.62					
KH	0615		5.64					
	0805		5.69					
	1600		5.64					
	1800		5.64					
	2100		5.66					
	2335		5.66					
→	—	—	—	—	—	—	—	
11/1	1140	0	5.67					PUMP OFF 1200 HRS
11/2	0900		5.71					11/1/01
"	1200	1440	5.71					

NOTE: All measurements to nearest 0.01 foot measured from top of well riser pipe unless otherwise noted.

MW05D

APPENDIX B-3

GROUNDWATER FLOW/PARTICLE TRACK MONITORING

Groundwater Flow/Particle Track Modeling
Site 45, MCDR Parris Island

Groundwater flow and particle track modeling was performed for Site 45 in order to delineate the groundwater extraction system capture zone under various pumping scenarios. The modeling performed was focused on the uppermost aquifer at the site and was approached as more of a generalized modeling effort adequate for approximation purposes rather than a detailed, rigorous, in-depth modeling effort. A steady-state, 2-dimensional groundwater flow and particle tracking model was created using Visual MODFLOW (Waterloo Hydrogeologic, 1996), an integrated modeling environment for the MODFLOW and MODPATH groundwater models developed by the USGS. Initially, the groundwater flow model was set up on a grid with a modeled area of 1700 ft by 1600 ft. Key hydrogeologic parameters used in creating the model include:

- Hydraulic conductivity – Kx = 15.3 ft/day
  Ky = 15.3 ft/day
  Kz = 3 ft/day
- Effective porosity – 0.12
- Total porosity – 0.24
- Specific yield - 0.0015
- Specific storage – 0.0015
- Groundwater flow gradient – 0.0026, to the south-southeast
- Aquifer thickness – 15 feet

The model was set up to first replicate the groundwater flow pattern observed under non-pumping conditions [Run No. 1, Figures 1 (equipotential contours) and 2 (particle tracks)]. Constant head cells were added to the upgradient and downgradient edges of the model to generate the background groundwater flow field. Once a reasonable match was obtained between the Run No. 1 results and the groundwater flow maps that were developed from field measurements (presented in Section 3 of the RI/RFI Report), additional model runs were performed with various combinations of pumping rates for the three extraction wells that currently exist at the site. Forward-tracking particles were added to the groundwater flow field near the upgradient edge of the model and at selected points within the interior of the model, while backward-tracking particles were added in the area around the extraction wells. The migration paths of these particles were used to delineate groundwater flow patterns and the capture zones of both the

individual extraction wells and the overall extraction system. Three different combinations of pumping rates were simulated for capture zone prediction purposes:

Run No.	Pumping Rate, ft^3/day (gpm)		
	RW1	RW2	RW3
2	192.51 (1)	385 (2)	577.5 (3)
3	58 (0.3)	96 (0.5)	289 (1.5)
4	385 (2)	577.5 (3)	770 (4)

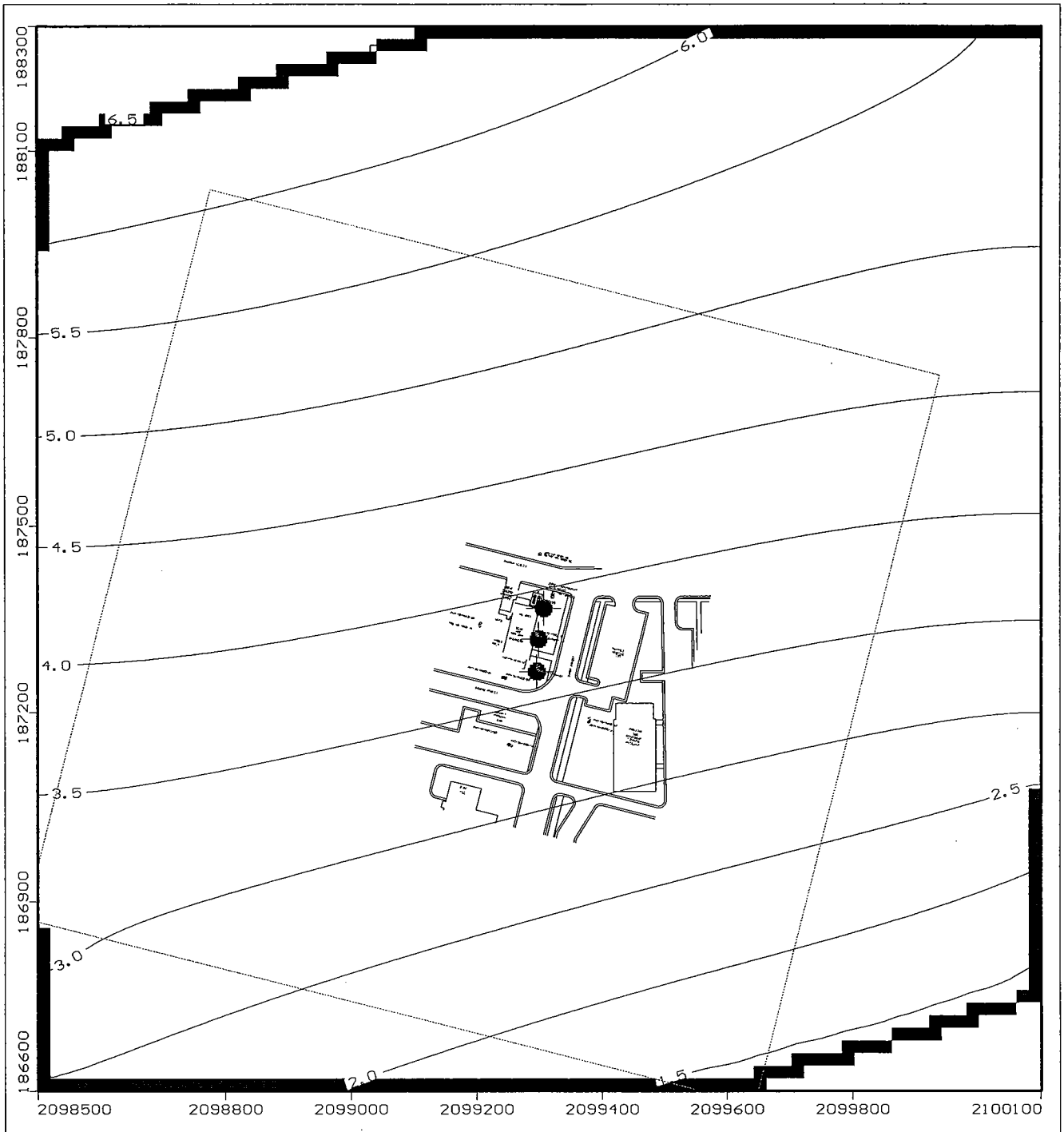
The pumping rates used for Run No. 2 are rates that historic extraction system pumping information indicates are readily sustainable when the wells are functioning properly. The Run No. 3 rates were set slightly below the long term average rates that the wells actually operated at from January through July of 2001. The pumping rates used for Run No. 4 are 50% above the Run No. 2 rates and probably represent the upper limit of what could be expected from the wells.

Under the Run No. 2 pumping scenario (6 gpm total), the capture zone of the extraction system extends approximately 400 feet south-southeast (downgradient) of the source area (Building 193), as shown on Figures 3 and 4. For Run No. 3 (2.3 gpm) and Run No. 4 (9 gpm), the downgradient capture zones extend approximately 160 and 600 feet downgradient from Building 193, as shown on Figures 5 through 8. Under all three pumping scenarios the source area for the Site 45 groundwater contamination is completely contained within the extraction system capture zone. As the extraction system pumping rate increases, more of the downgradient portion of the contaminant plume is captured.

Finally, as a check of how closely the model represents actual hydrogeologic conditions at Site 45 under stressed aquifer conditions, a 5th model run was performed to simulate the RW3 pumping test. For Run No. 5, only RW3 was pumped, at a rate of 1.3 gpm for 1748 minutes (the same time span for which the distance-drawdown pumping test analysis was performed). Figure 9 is a detailed depiction of the background groundwater flow field in the area of the pumping test, while Figure 10 shows the flow pattern after 1.21 days (1748 minutes) of pumping RW3 at 1.3 gpm. The measured drawdowns from the pumping test were compared to the model-predicted drawdowns, to see how well the two sets of data compared. As shown below, most of the model-simulated drawdowns were slightly less but within 25% of the actual measured drawdowns, indicating that the groundwater flow model adequately simulates the aquifer response to stress for generalized capture zone delineation purposes.

Well	Measured Drawdown @ 1748 min. (ft)	Model-Simulated Water Levels (ft)		Model-Predicted Drawdown (ft)	% Difference, Measured vs. Modeled
		Prepumping	Pumping		
MW06SL	0.9	3.67	3.08	0.59	35
PZ11S	0.64	3.72	3.21	0.51	25
PZ10S	0.48	3.76	3.35	0.41	17
MW03SL	0.43	3.65	3.26	0.39	10
MW07SU/L	0.4	3.82	3.45	0.37	8
PZ09S	0.3	3.9	3.6	0.3	0
MW08SU/L	0.16	3.96	3.72	0.24	50

Based on the capture zone simulations, the extraction wells appear to be well-situated to capture the source area portion of the contaminant plume associated with Site 45. The determination of the optimum long term pumping rates for the wells should be made based on a combination of factors including the long term sustainable yields of the wells, treatment system constraints, and the downgradient extent of plume capture desired. If desired, more precise capture zone delineation could be performed by further refining the groundwater flow model, however the capture zones would not be expected to change substantially from those shown, for the scenarios evaluated.

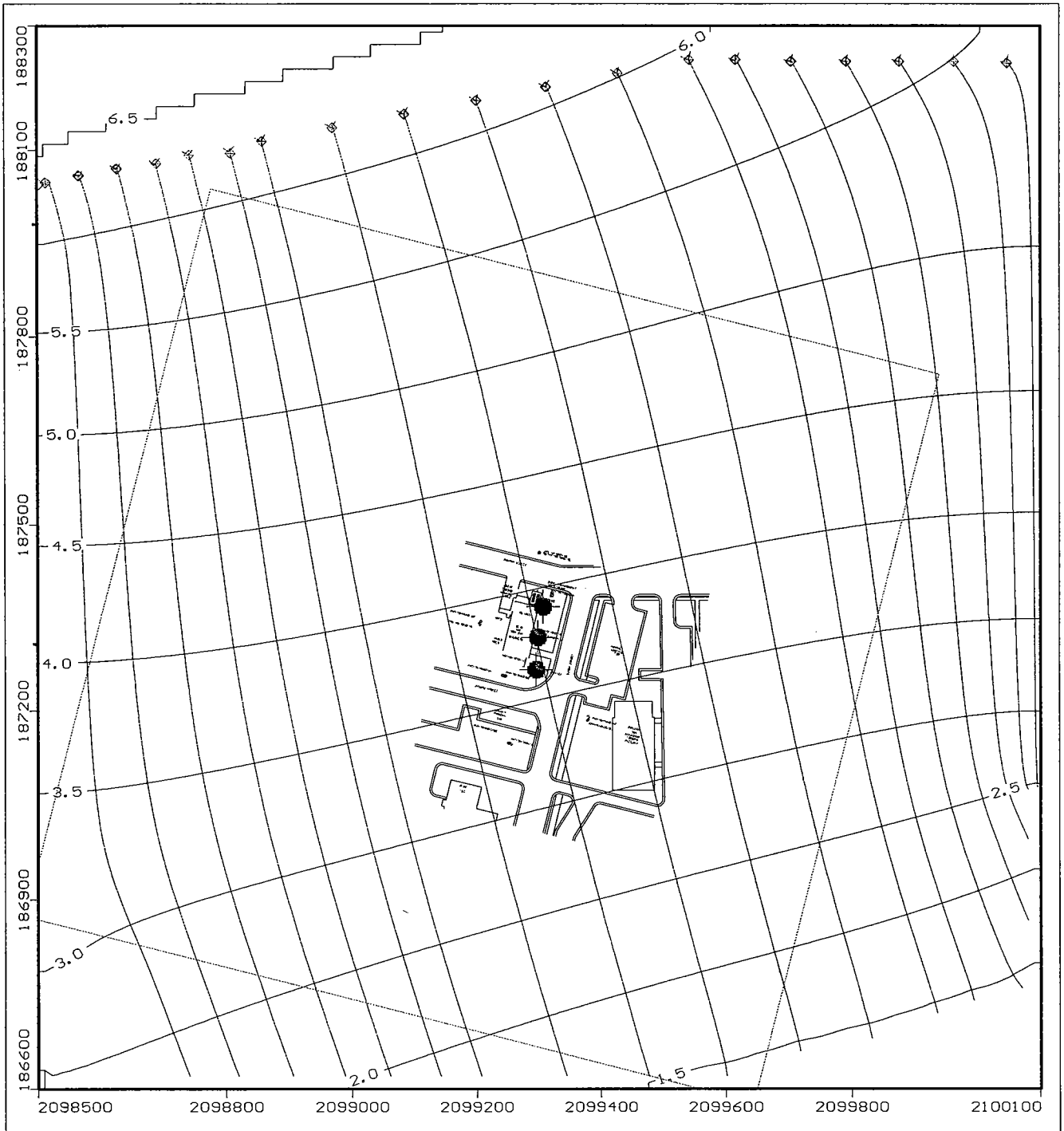


Project: Parris Island Site 45
Description: Capture Zones
Modeller: JPO
1 Feb 02

Visual MODFLOW v.2.60, (C) 1995–1997
Waterloo Hydrogeologic Software
NC: 98 NR: 105 NL: 1
Current Layer: 1

Run #1 Q = 0

Figure 1

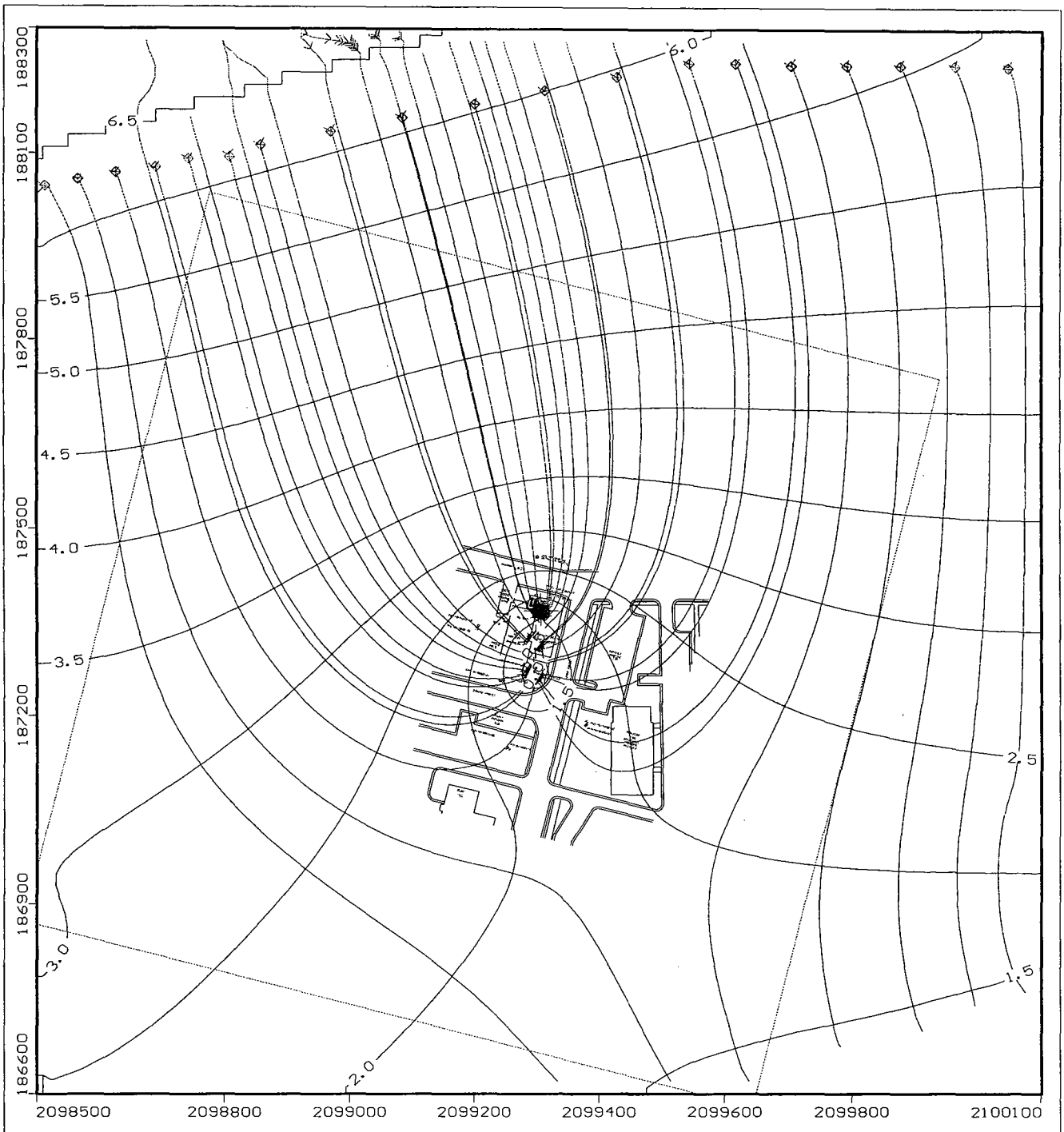


Project: Parris Island Site 45
Description: Capture Zones
Modeller: JPO
1 Feb 02

Visual MODFLOW v.2.60, (C) 1995–1997
Waterloo Hydrogeologic Software
NC: 98 NR: 105 NL: 1
Current Layer: 1

Run #1 Q = 0

Figure 2



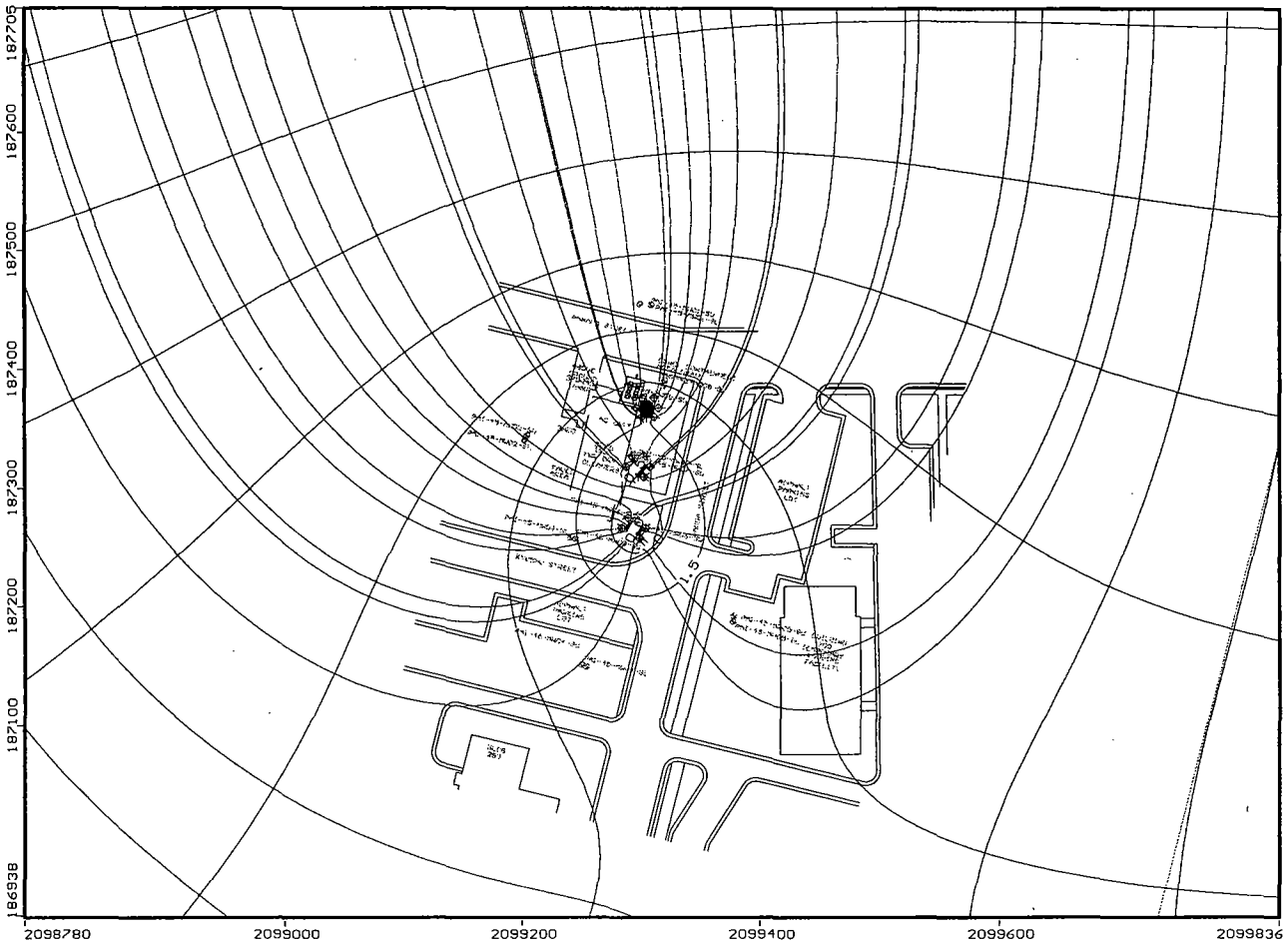
Project: Parris Island Site 45
Description: Capture Zones
Modeller: JPO
1 Feb 02

Visual MODFLOW v.2.60, (C) 1995–1997
Waterloo Hydrogeologic Software
NC: 98 NR: 105 NL: 1
Current Layer: 1

Run # 2 Q, ft^3/day (gpm)

RW1 - 192.51 (1)
RW2 - 385 (2)
RW3 - 577.5 (3)

Figure 3

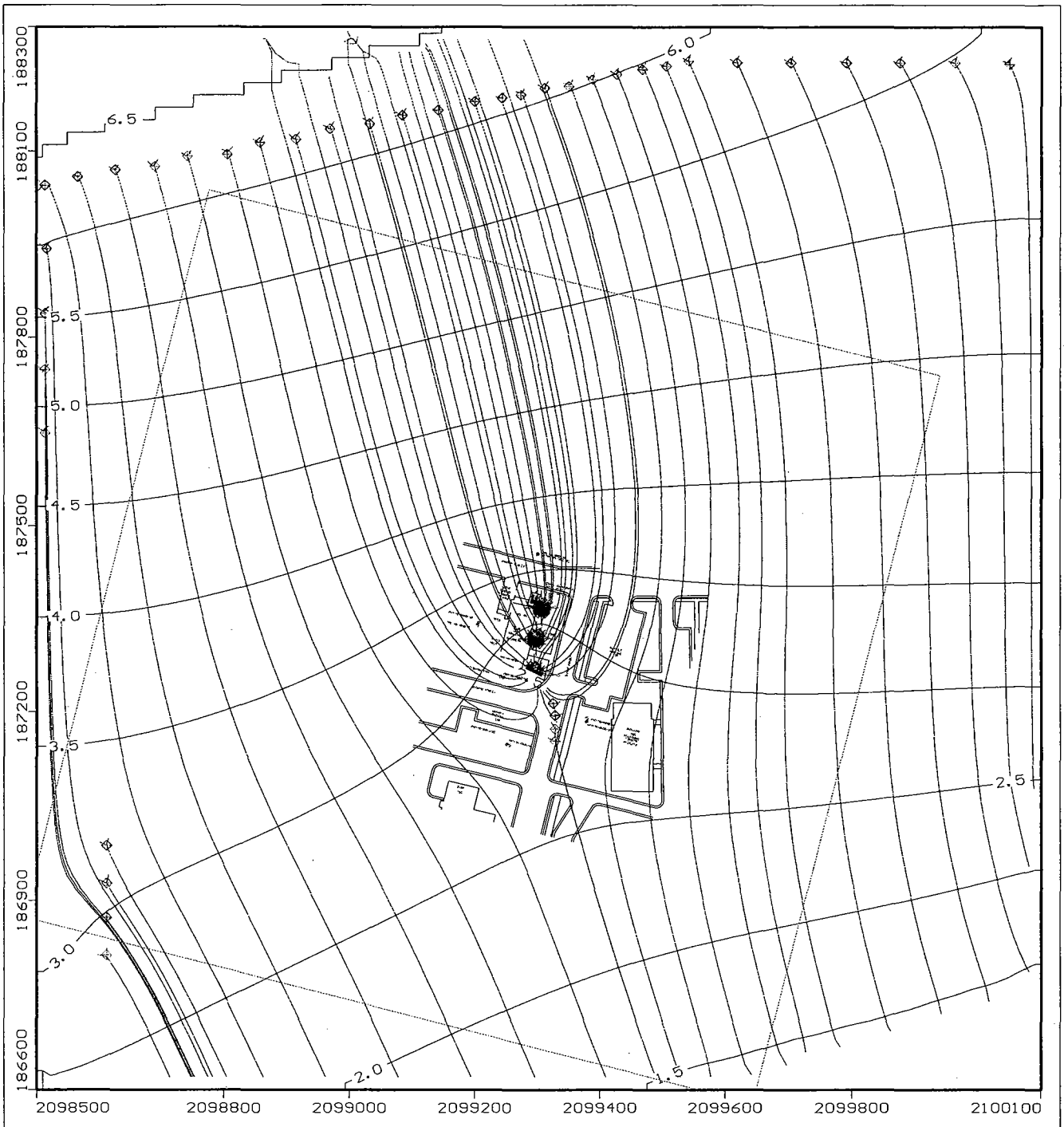


Project: Parris Island Site 45
Description: Capture Zones
Modeller: JPO
1 Feb 02

Visual MODFLOW v.2.60, (C) 1995–1997
Waterloo Hydrogeologic Software
NC: 98 NR: 105 NL: 1
Current Layer: 1

Run #2

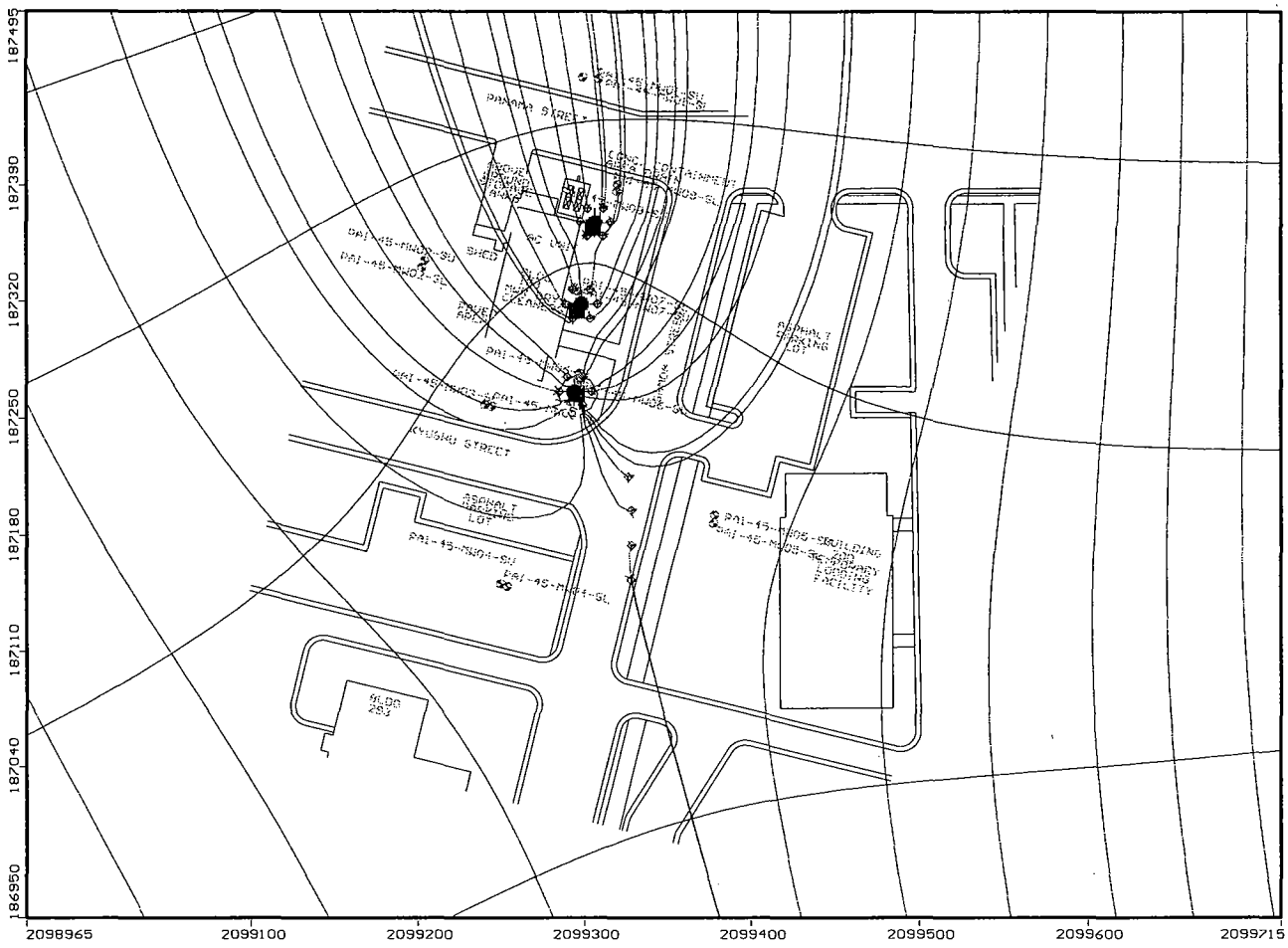
Figure 4



Brown & Root Env. – Pittsburgh, PA Project: Parris Island Site 45 Description: Capture Zones Modeller: JPO 20 Feb 02	Visual MODFLOW v.2.60, (C) 1995–1997 Waterloo Hydrogeologic Software NC: 98 NR: 105 NL: 1 Current Layer: 1

Run # 3 Q, ft^3/day (gpm) Figure 5

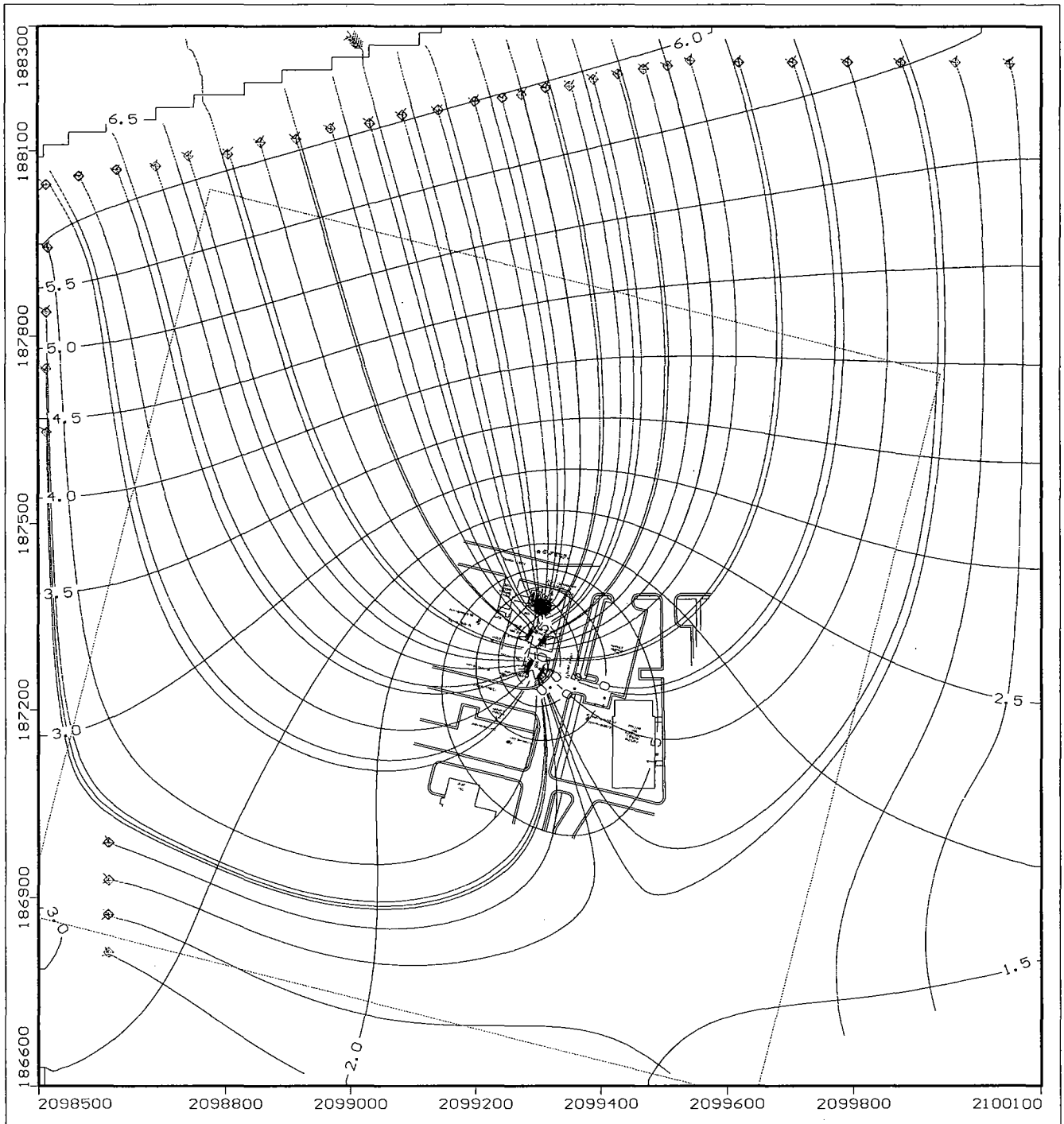
RW1 - 58 (0.3)
RW2 - 96 (0.5)
RW3 - 289 (1.5)



Brown & Root Env. – Pittsburgh, PA Project: Parris Island Site 45 Description: Capture Zones Modeller: JPO 20 Feb 02	Visual MODFLOW v.2.60, (C) 1995–1997 Waterloo Hydrogeologic Software NC: 98 NR: 105 NL: 1 Current Layer: 1

Run #3

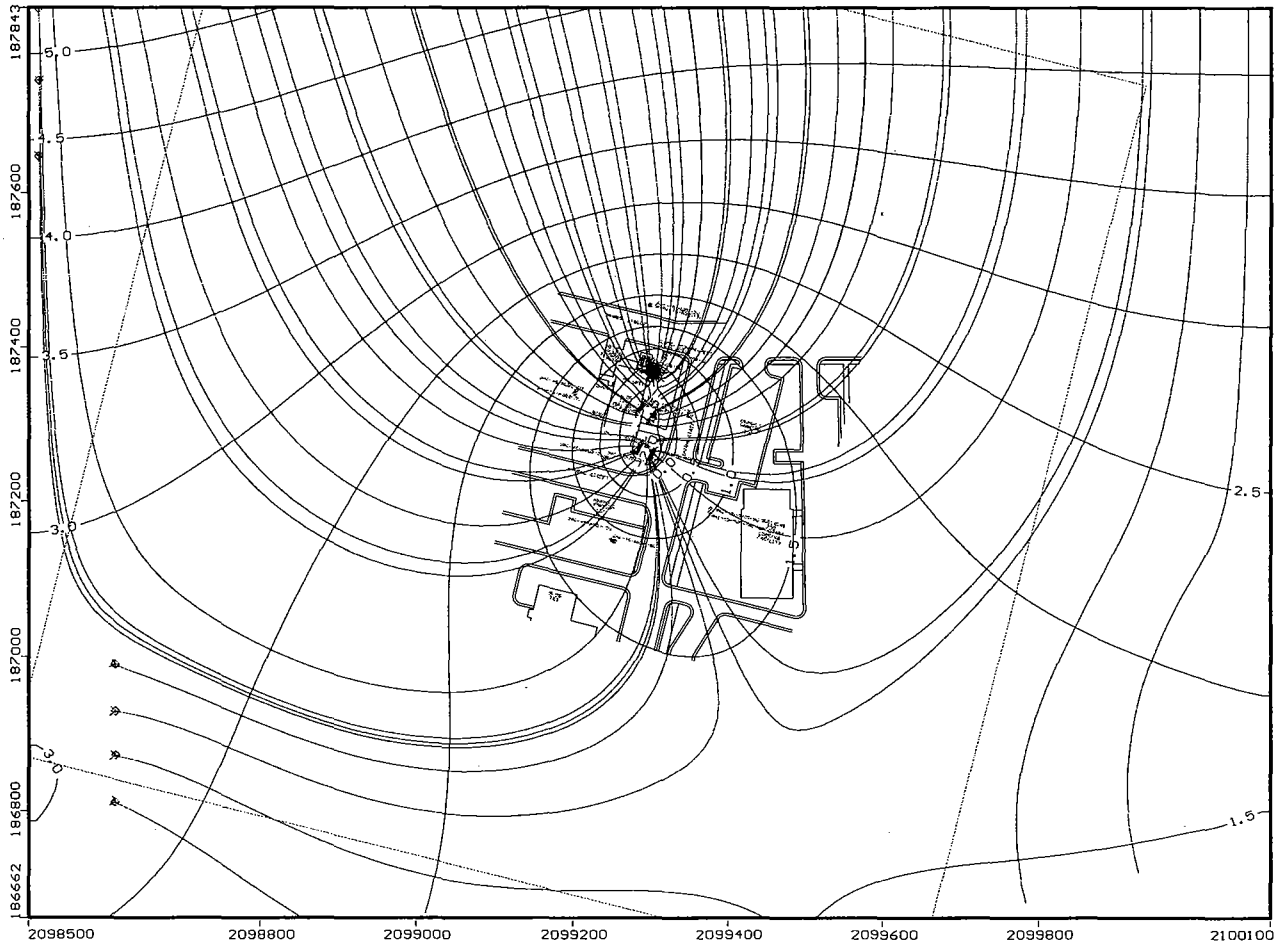
Figure 6



Brown & Root Env. – Pittsburgh, PA Project: Parris Island Site 45 Description: Capture Zones Modeller: JPO 20 Feb 02	Visual MODFLOW v.2.60, (C) 1995–1997 Waterloo Hydrogeologic Software NC: 98 NR: 105 NL: 1 Current Layer: 1

Run #4 Q, ft^3/day (gpm) Figure 7

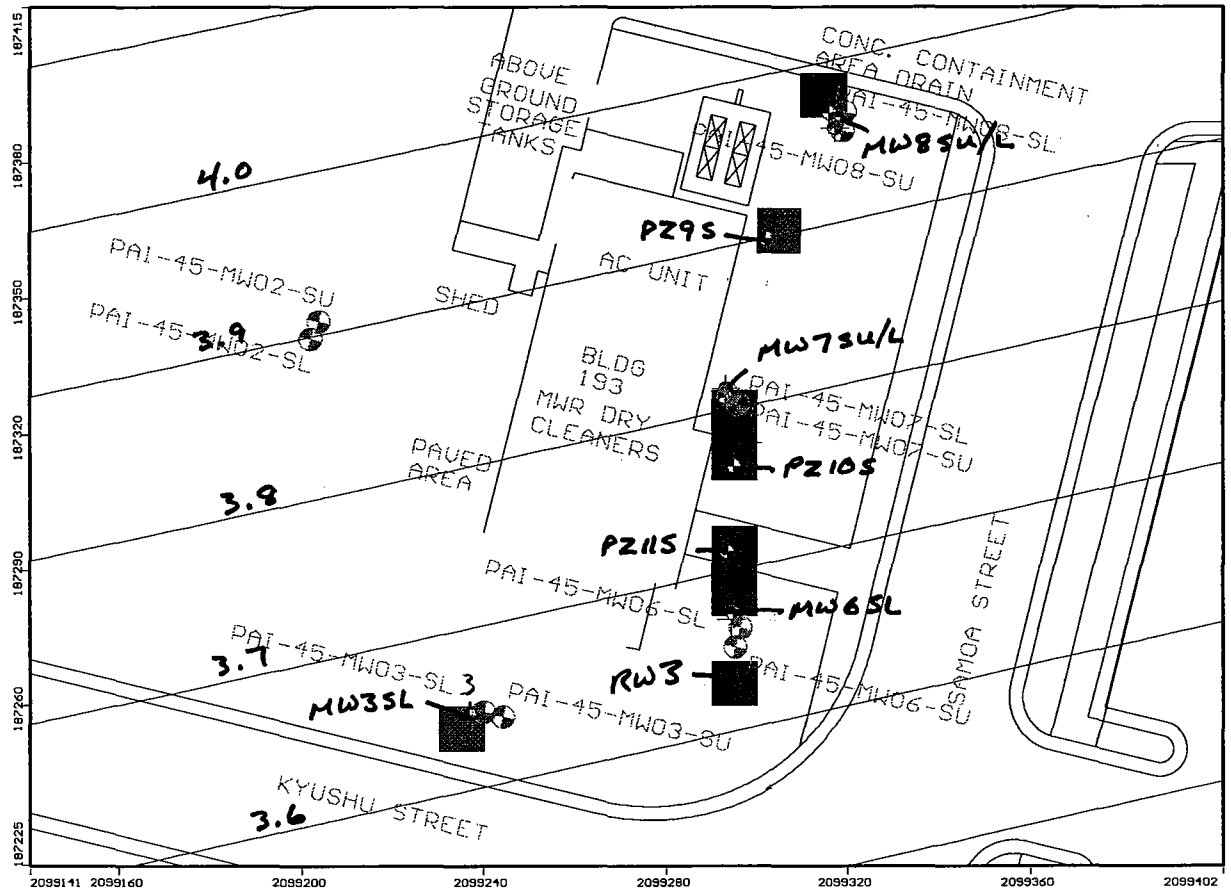
RW1 - 385 (2)
RW2 - 577.5 (3)
RW3 - 770 (4)



Brown & Root Env. – Pittsburgh, PA Project: Parris Island Site 45 Description: Capture Zones Modeller: JPO 20 Feb 02	Visual MODFLOW v.2.60, (C) 1995–1997 Waterloo Hydrogeologic Software NC: 98 NR: 105 NL: 1 Current Layer: 1

Run # 4

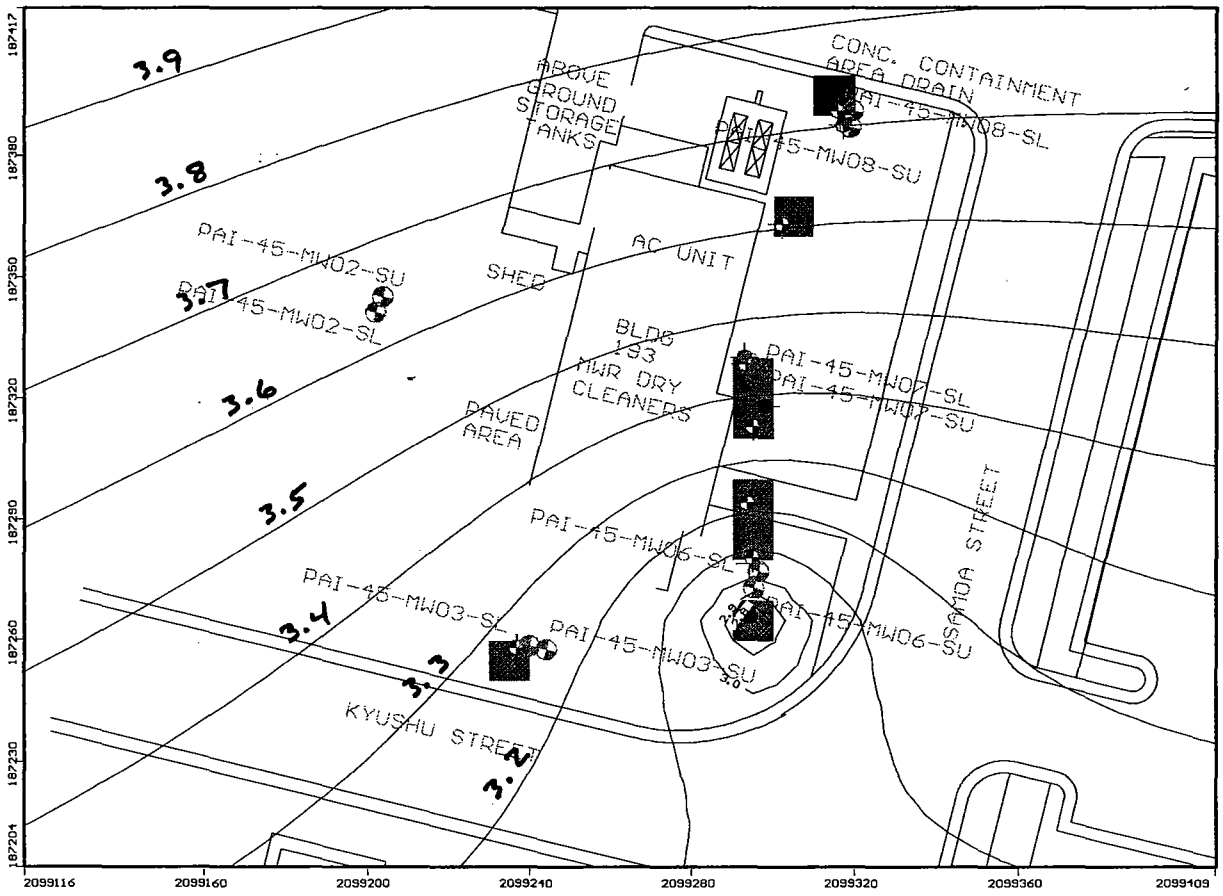
Figure 8



Brown & Root Env. – Pittsburgh, PA Project: Parris Island Site 45 Description: Capture Zones Modeller: JPO 6 May 02	Visual MODFLOW v.2.60, (C) 1995–1997 Waterloo Hydrogeologic Software NC: 98 NR: 105 NL: 1 Current Layer: 1

Run # 5 - Background

Figure 9



Brown & Root Env. – Pittsburgh, PA Project: Parris Island Site 45 Description: Capture Zones Modeller: JPO 6 May 02	Visual MODFLOW v.2.60, (C) 1995–1997 Waterloo Hydrogeologic Software NC: 98 NR: 105 NL: 1 Current Layer: 1

Figure 10

Run # 5
RW3 Pumping @ 1.3 gpm

APPENDIX C

ANALYTICAL DATA

APPENDIX C-1

SURFACE SOIL

PARRIS ISLAND
SURFACE SOIL - ANALYTICAL DATABASE

SAMPLE LOCATION:	PAI45SS01	PAI45SS02	PAI45SS03	PAI45SS04	PAI45SS04	PAI45SS04	PAI45SS05	PAI45SS06	PAI45SS07	PAI45SS08	PAI45SS08	PAI45SS08
SAMPLE:	PAI-45-SS-01-01	PAI-45-SS-02-01	PAI-45-SS-03-01	PAI-45-SS-04-01	FD06120101	FD06120101	PAI-45-SS-05-01	PAI-45-SS-06-01	PAI-45-SS-07-01	PAI-45-SS-08-01	FD06120103	FD06120103
COLLECTION DATE:	06/12/01	06/12/01	06/12/01	06/12/01	06/12/01	06/12/01	06/12/01	06/12/01	06/12/01	06/12/01	06/12/01	06/12/01
SAMPLE DEPTH:	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1
Volatile Organics (ug/kg)												
1,1,1-TRICHLOROETHANE	6 U	6 U	6 U	5 U	5.5 U	6 U	4 J	5 U	140 U	160 U	82.5 U	5 U
1,1,2,2-TETRACHLOROETHANE	6 U	6 U	6 U	5 U	5.5 U	6 U	5 U	5 U	140 U	160 U	82.5 U	5 U
1,1,2-TRICHLOROETHANE	6 U	6 U	6 U	5 U	5.5 U	6 U	5 U	5 U	140 U	160 U	82.5 U	5 U
1,1,2-TRICHLOROTRIFLUOROETHANE	6 U	6 U	6 U	5 U	5.5 U	6 U	5 U	5 U	140 U	160 U	82.5 U	5 U
1,1-DICHLOROETHANE	6 U	6 U	6 U	5 U	5.5 U	6 U	5 U	5 U	140 U	160 U	82.5 U	5 U
1,1-DICHLOROETHENE	6 U	6 U	6 U	5 U	5.5 U	6 U	5 U	5 U	140 U	160 U	82.5 U	5 U
1,2,4-TRICHLOROBENZENE	6 U	6 U	6 U	5 U	5.5 U	6 U	5 U	5 U	140 U	160 U	82.5 U	5 U
1,2-DIBROMO-3-CHLOROPROPANE	6 U	6 U	6 U	5 U	5.5 U	6 U	5 U	5 U	140 U	160 U	82.5 U	5 U
1,2-DIBROMOETHANE	6 U	6 U	6 U	5 U	5.5 U	6 U	5 U	5 U	140 U	160 U	82.5 U	5 U
1,2-DICHLOROBENZENE	6 U	6 U	6 U	5 U	5.5 U	6 U	2 J	5 U	140 U	160 U	82.5 U	5 U
1,2-DICHLOROETHANE	6 U	6 U	6 U	5 U	5.5 U	6 U	5 U	5 U	140 U	160 U	82.5 U	5 U
1,2-DICHLOROPROPANE	6 U	6 U	6 U	5 U	5.5 U	6 U	5 U	5 U	140 U	160 U	82.5 U	5 U
1,3-DICHLOROBENZENE	6 U	6 U	6 U	5 U	5.5 U	6 U	5 U	5 U	140 U	160 U	82.5 U	5 U
1,4-DICHLOROBENZENE	6 U	6 U	6 U	5 U	5.5 U	6 U	5 U	5 U	140 U	160 U	82.5 U	5 U
2-BUTANONE	6 U	6 U	6 U	5 U	5.5 U	6 U	5 U	5 U	140 U	160 U	82.5 U	5 U
2-HEXANONE	6 U	6 U	6 U	5 U	5.5 U	6 U	5 U	5 U	140 U	160 U	82.5 U	5 U
4-METHYL-2-PENTANONE	6 U	6 U	6 U	5 U	5.5 U	6 U	5 U	5 U	140 U	160 U	82.5 U	5 U
ACETONE	6 U	7 U	6 U	5 U	5.5 U	6 U	5 U	8 U	400 U	480 U	243 U	6 U
BENZENE	6 U	6 U	6 U	5 U	5.5 U	6 U	5 U	5 U	140 U	160 U	82.5 U	5 U
BROMODICHLOROMETHANE	6 U	6 U	6 U	5 U	5.5 U	6 U	5 U	5 U	140 U	160 U	82.5 U	5 U
BROMOFORM	6 U	6 U	6 U	5 U	5.5 U	6 U	5 U	5 U	140 U	160 U	82.5 U	5 U
BROMOMETHANE	6 U	6 U	6 U	5 U	5.5 U	6 U	5 U	5 U	140 U	160 U	82.5 U	5 U
CARBON DISULFIDE	6 U	6 U	6 U	5 U	5.5 U	6 U	5 U	5 U	140 U	160 U	82.5 U	5 U
CARBON TETRACHLORIDE	6 U	6 U	6 U	5 U	5.5 U	6 U	5 U	5 U	140 U	160 U	82.5 U	5 U
CHLOROBENZENE	6 U	6 U	6 U	5 U	5.5 U	6 U	5 U	5 U	140 U	160 U	82.5 U	5 U
CHLORODIBROMOMETHANE	6 U	6 U	6 U	5 U	5.5 U	6 U	5 U	5 U	140 U	160 U	82.5 U	5 U
CHLOROETHANE	6 U	6 U	6 U	5 U	5.5 U	6 U	5 U	5 U	140 U	160 U	82.5 U	5 U
CHLOROFORM	6 U	6 U	6 U	5 U	5.5 U	6 U	5 U	5 U	140 U	160 U	82.5 U	5 U
CHLOROMETHANE	6 U	6 U	6 U	5 U	5.5 U	6 U	5 U	5 U	140 U	160 U	82.5 U	5 U
CIS-1,2-DICHLOROETHENE	6 U	6 U	2 J	400 J	565 J	730 J	49	16	140 U	56 J	36.5 J	17 J
CIS-1,3-DICHLOROPROPENE	6 U	6 U	6 U	5 U	5.5 U	6 U	5 U	5 U	140 U	160 U	82.5 U	5 U
CYCLOHEXANE	6 U	6 U	6 U	5 U	5.5 U	6 U	5 U	5 U	140 U	160 U	82.5 U	5 U
DICHLORODIFLUOROMETHANE	6 U	2 J	6 U	5 U	5.5 U	6 U	5 U	5 U	140 U	160 U	82.5 U	5 U
ETHYLBENZENE	6 U	6 U	6 U	5 U	5.5 U	6 U	5 U	5 U	140 U	160 U	82.5 U	5 U
ISOPROPYLBENZENE	6 U	6 U	6 U	5 U	5.5 U	6 U	5 U	5 U	140 U	160 U	82.5 U	5 U
METHYL ACETATE	6 U	6 U	6 U	5 U	5.5 U	6 U	5 U	5 U	360 U	380 U	192.5 U	5 U
METHYL CYCLOHEXANE	6 U	6 U	6 U	5 U	5.5 U	6 U	5 U	5 U	140 U	160 U	82.5 U	5 U
METHYL TERT-BUTYL ETHER	6 U	6 U	6 U	5 U	5.5 U	6 U	5 U	5 U	140 U	160 U	82.5 U	5 U
METHYLENE CHLORIDE	6 U	10 U	6 U	5 U	5.5 U	6 U	5 U	6 U	140 U	160 U	82.5 U	5 U
STYRENE	6 U	6 U	6 U	5 U	5.5 U	6 U	5 U	5 U	140 U	160 U	82.5 U	5 U
TETRACHLOROETHENE	2900	14	190	6000	4900 J	3800 J	7500	76	1000	2500 J	1610 J	720 J
TOLUENE	6 U	6 U	6 U	5 U	5.5 U	6 U	5 U	5 U	140 U	160 U	82.5 U	5 U
TOTAL XYLENES	6 U	6 U	6 U	5 U	5.5 U	6 U	5 U	5 U	140 U	160 U	82.5 U	5 U
TRANS-1,2-DICHLOROETHENE	6 U	6 U	6 U	33	41.5	50	2 J	5 U	140 U	160 U	82.5 U	5 U
TRANS-1,3-DICHLOROPROPENE	6 U	6 U	6 U	5 U	5.5 U	6 U	5 U	5 U	140 U	160 U	82.5 U	5 U
TRICHLOROETHENE	6	6 U	3 J	200	260 J	320 J	150	8	27 J	37 J	25.5 J	14 J
TRICHLOROFLUOROMETHANE	6 U	6 U	6 U	5 U	5.5 U	6 U	5 U	5 U	140 U	160 U	82.5 U	5 U
VINYL CHLORIDE	6 U	6 U	6 U	5 U	5.5 U	6 U	5 U	5 U	140 U	160 U	82.5 U	5 U
Semivolatile Organics (ug/kg)												
1,1-BIPHENYL	360 U	360 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	430 U	430 U	
2,2'-OXYBIS(1-CHLOROPROPANE)	360 U	360 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	430 U	430 U	
2,4,5-TRICHLOROPHENOL	910 U	910 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1100 U	1100 U	
2,4,6-TRICHLOROPHENOL	360 U	360 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	430 U	430 U	
2,4-DICHLOROPHENOL	360 U	360 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	430 U	430 U	
2,4-DIMETHYLPHENOL	360 U	360 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	430 U	430 U	
2,4-DINITROPHENOL	910 U	910 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1100 U	1100 U	
2,4-DINITROTOLUENE	360 U	360 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	430 U	430 U	
2,6-DINITROTOLUENE	360 U	360 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	430 U	430 U	
2-CHLORONAPHTHALENE	360 U	360 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	430 U	430 U	

PARRIS ISLAND
SURFACE SOIL - ANALYTICAL DATABASE

SAMPLE LOCATION:	PAI45SS01	PAI45SS02	PAI45SS03	PAI45SS04	PAI45SS04	PAI45SS04	PAI45SS05	PAI45SS06	PAI45SS07	PAI45SS08	PAI45SS08	PAI45SS08
SAMPLE:	PAI-45-SS-01-01	PAI-45-SS-02-01	PAI-45-SS-03-01	PAI-45-SS-04-01	FD06120101	FD06120101	PAI-45-SS-05-01	PAI-45-SS-06-01	PAI-45-SS-07-01	PAI-45-SS-08-01	FD06120103	FD06120103
COLLECTION DATE:	06/12/01	06/12/01	06/12/01	06/12/01	06/12/01	06/12/01	06/12/01	06/12/01	06/12/01	06/12/01	06/12/01	06/12/01
SAMPLE DEPTH:	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1
2-CHLOROPHENOL	360 U	360 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	430 U	430 U	
2-METHYLNAPHTHALENE	360 U	360 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	430 U	430 U	
2-METHYLPHENOL	360 U	360 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	430 U	430 U	
2-NITROANILINE	910 U	910 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1100 U	1100 U	
2-NITROPHENOL	360 U	360 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	430 U	430 U	
3,3'-DICHLOROBENZIDINE	360 UR	360 UR	400 UR	400 UR	200 UR	400 UR	400 UR	400 UR	400 UR	430 UR		
3-NITROANILINE	910 U	910 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1100 U	1100 U	
4,6-DINITRO-2-METHYLPHENOL	910 U	910 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1100 U	1100 U	
4-BROMOPHENYL PHENYL ETHER	360 U	360 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	430 U	430 U	
4-CHLORO-3-METHYLPHENOL	360 U	360 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	430 U	430 U	
4-CHLOROANILINE	360 U	360 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	430 U	430 U	
4-CHLOROPHENYL PHENYL ETHER	360 U	360 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	430 U	430 U	
4-METHYLPHENOL	360 U	360 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	430 U	430 U	
4-NITROANILINE	910 U	910 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1100 U	1100 U	
4-NITROPHENOL	910 U	910 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1100 U	1100 U	
ACENAPHTHENE	360 U	360 U	25 J	400 U	400 U	400 U	400 U	400 U	400 U	430 U	430 U	
ACENAPHTHYLENE	360 U	360 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	430 U	430 U	
ACETOPHENONE	360 U	360 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	430 U	430 U	
ANTHRACENE	360 U	360 U	25 J	400 U	400 U	400 U	400 U	21 J	290 J	400 U	430 U	
ATRAZINE	360 U	360 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	430 U	430 U	
BENZALDEHYDE	360 U	360 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	430 U	430 U	
BENZO(A)ANTHRACENE	360 U	140 J	150 J	110 J	81 J	52 J	110 J	54 J	44 J	63 J	63 J	
BENZO(A)PYRENE	360 U	130 J	130 J	91 J	68 J	45 J	89 J	26 J	36 J	59 J	59 J	
BENZO(B)FLUORANTHENE	360 U	170 J	180 J	120 J	95 J	70 J	130 J	42 J	58 J	86 J	86 J	
BENZO(G,H,I)PERYLENE	360 U	110 J	88 J	66 J	57 J	48 J	83 J	400 U	36 J	51 J	51 J	
BENZO(K)FLUORANTHENE	360 U	61 J	64 J	48 J	48 J	400 U	47 J	400 U	400 U	32 J	32 J	
BIS(2-CHLOROETHOXY)METHANE	360 U	360 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	430 U	430 U	
BIS(2-CHLOROETHYL)ETHER	360 U	360 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	430 U	430 U	
BIS(2-ETHYLHEXYL)PHTHALATE	360 U	450 U	400 U	410 U	405 U	400 U	450 U	400 U	400 U	430 U	430 U	
BUTYL BENZYL PHTHALATE	360 U	43 J	900	25 J	25 J	400 UJ	37 J	400 U	180 J	430 U	430 U	
CAPROLACTAM	360 U	360 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	430 U	430 U	
CARBAZOLE	360 U	360 U	44 J	400 U	400 U	400 U	22 J	42 J	400 U	430 U	430 U	
CHRYSENE	360 U	140 J	170 J	110 J	82 J	54 J	120 J	53 J	45 J	69 J	69 J	
DI-N-BUTYL PHTHALATE	360 U	360 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	430 U	430 U	
DI-N-OCTYL PHTHALATE	360 U	360 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	430 U	430 U	
DIBENZO(A,H)ANTHRACENE	360 U	29 J	24 J	20 J	20 J	400 UJ	29 J	400 U	400 U	430 U	430 U	
DIBENZOFURAN	360 U	360 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	430 U	430 U	
DIETHYL PHTHALATE	360 U	360 U	400 U	400 U	400 U	400 U	19 J	400 U	400 U	430 U	430 U	
DIMETHYL PHTHALATE	360 U	360 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	430 U	430 U	
FLUORANTHENE	360 U	170 J	300 J	110 J	84.5 J	59 J	180 J	42 J	49 J	74 J	74 J	
FLUORENE	360 U	360 U	18 J	400 U	400 U	400 U	400 U	400 U	400 U	430 U	430 U	
HEXACHLOROBENZENE	360 U	360 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	430 U	430 U	
HEXACHLOROBUTADIENE	360 U	360 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	430 U	430 U	
HEXACHLOROCYCLOPENTADIENE	360 U	360 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	430 U	430 U	
HEXACHLOROETHANE	360 U	360 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	430 U	430 U	
INDENO(1,2,3-CD)PYRENE	360 U	120 J	94 J	73 J	60.5 J	48 J	79 J	400 U	34 J	53 J	53 J	
ISOPHORONE	360 U	360 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	430 U	430 U	
N-NITROSO-DI-N-PROPYLAMINE	360 U	360 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	430 U	430 U	
N-NITROSODIPHENYLAMINE	360 U	360 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	430 U	430 U	
NAPHTHALENE	360 U	360 U	22 J	400 U	400 U	400 U	400 U	400 U	400 U	430 U	430 U	
NITROBENZENE	360 U	360 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	430 U	430 U	
PENTACHLOROPHENOL	910 U	910 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1100 U	1100 U	
PHENANTHRENE	360 U	75 J	230 J	29 J	26.5 J	24 J	140 J	34 J	22 J	40 J	40 J	
PHENOL	360 U	360 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	430 U	430 U	
PYRENE	360 U	180 J	280 J	120 J	96.5 J	73 J	200 J	52 J	60 J	95 J	95 J	

PARRIS ISLAND
SURFACE SOIL - ANALYTICAL DATABASE

SAMPLE LOCATION:	PAI45SS01	PAI45SS02	PAI45SS03	PAI45SS04	PAI45SS04	PAI45SS04	PAI45SS05	PAI45SS06	PAI45SS07	PAI45SS08	PAI45SS08	PAI45SS08
SAMPLE:	PAI-45-SS-01-01	PAI-45-SS-02-01	PAI-45-SS-03-01	PAI-45-SS-04-01	FD06120101	FD06120101	PAI-45-SS-05-01	PAI-45-SS-06-01	PAI-45-SS-07-01	PAI-45-SS-08-01	FD06120103	FD06120103
COLLECTION DATE:	06/12/01	06/12/01	06/12/01	06/12/01	06/12/01	06/12/01	06/12/01	06/12/01	06/12/01	06/12/01	06/12/01	06/12/01
SAMPLE DEPTH:	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1
Inorganics (mg/kg)												
ALUMINUM	4980	6460	6770	9480	8505	7530	6140	6560	6600	4300	4300	
ANTIMONY	0.4 U	0.36 U	0.32 U	0.35 U	0.39 U	0.43 U	0.38 U	0.36 U	0.44 U	0.41 U	0.41 U	
ARSENIC	2.1	1.4	1.8	1.1	1.15	1.2	1.4	1.5	0.94	1.3	1.3	
BARIUM	14.2	17.9	20.1	28.6	27.55	26.5	22.7	21.7	18.8	20.5	20.5	
BERYLLIUM	0.11 U	0.17 U	0.18 U	0.22 U	0.205 U	0.19 U	0.16 U	0.18 U	0.16 U	0.2 U	0.2 U	
CADMIUM	0.24 U	0.1 U	0.12 U	0.08 U	0.11 U	0.14 U	0.12 U	0.09 U	0.15 U	0.34 U	0.34 U	
CALCIUM	724	1820	3720	1570	1585	1600	1200	1070	1510	1270	1270	
CHROMIUM	7.1	8.9	9.1	8.6	8.15	7.7	7.5	7	7	7.1	7.1	
COBALT	0.46 U	0.7	0.61	0.68	0.485 U	0.58 U	0.57	0.58	0.58 U	0.8	0.8	
COPPER	48.1	5.8	6.5	6.5	6.65	6.8	7.7	6.3	5	8	8	
IRON	3440	2910	2650	3180	3265	3350	3220	2910	2330	3650	3650	
LEAD	6.5	22.3	22.4	48.8	47.4	46	50.2	36.8	30.1	44	44	
MAGNESIUM	267	397	408	437	418	399	315	360	306	298	298	
MANGANESE	48.5	28.1	30.7	41.3	40.55	39.8	28.5	53.7	23.1	35.2	35.2	
MERCURY	0.03	0.04	0.04	0.05	0.055	0.06	0.04	0.04	0.04	0.06	0.06	
NICKEL	2.3	2.8	2.4	2.4	2.55	2.7	2.2	2	2	3.2	3.2	
POTASSIUM	165	220	264	315	307.5	300	248	253	296	194	194	
SELENIUM	0.34 U	0.3 U	0.27 U	0.29 U	0.325 U	0.36 U	0.31 U	0.3 U	0.36 U	0.34 U	0.34 U	
SILVER	0.11 U	0.1 U	0.09 U	0.1 U	0.11 U	0.12 U	0.11 U	0.1 U	0.12 U	0.11 U	0.11 U	
SODIUM	26	48.9	35	75.5	68.75	62	50	52	46.1	44.4	44.4	
THALLIUM	0.52 U	0.46 U	0.41 U	0.46 U	0.51 U	0.56 U	0.49 U	0.46 U	0.57 U	0.53 U	0.53 U	
TIN	3.9 U	4.5 U	3.9 U	5.1 U	5.55 U	6 U	4.6 U	4.9 U	5.6 U	5 U	5 U	
VANADIUM	8.3	6.9	7.3	8.6	7.9	7.2	6.5	6.5	5.5	5.6	5.6	
ZINC	338	40.2	41.3	49.6	49.25	48.9	46.9	21.8	62.3	117	117	

APPENDIX C-2

SUBSURFACE SOIL

PARRIS ISLAND
SUBSURFACE SOIL - ANALYTICAL DATABASE

SAMPLE LOCATION:	PAI45SB01	PAI45SB01	PAI45SB02	PAI45SB03	PAI45SB04	PAI45SB05	PAI45SB06	PAI45SB07	PAI45SB07	PAI45SB07
SAMPLE:	PAI-45-SB-01-05	PAI-45-SB-01-14	PAI-45-SB-02-04	PAI-45-SB-03-04	PAI-45-SB-04-04	PAI-45-SB-05-04	PAI-45-SB-06-04	PAI-45-SB-07-04	FD06120102	FD06120102
COLLECTION DATE:	06/12/01	06/12/01	06/12/01	06/12/01	06/12/01	06/12/01	06/12/01	06/12/01	06/12/01	06/12/01
SAMPLE DEPTH:	4 - 5'	12 - 14'	3 - 4'	2- 4'	3 - 4'	2- 4'	2- 4'	3 - 4'	3 - 4'	3 - 4'
Volatile Organics (ug/kg)										
1,1,1-TRICHLOROETHANE	210		240 U	120 U	120 U	120 U	140 U	120 U	120 U	
1,1,2,2-TETRACHLOROETHANE	120 U		240 U	120 U	120 U	120 U	140 U	120 U	120 U	
1,1,2-TRICHLOROETHANE	120 U		240 U	120 U	120 U	120 U	140 U	69 J	69 J	
1,1,2-TRICHLOROTRIFLUOROETHANE	120 U		240 U	120 U	120 U	120 U	140 U	120 U	120 U	
1,1-DICHLOROETHANE	120 U		240 U	28 J	120 U	34 J	140 U	120 U	120 U	
1,1-DICHLOROETHENE	120 U		240 U	120 U	120 U	43 J	140 U	120 U	120 U	
1,2,4-TRICHLOROBENZENE	120 U		240 U	120 U	120 U	120 U	140 U	120 U	120 U	
1,2-DIBROMO-3-CHLOROPROPANE	120 U		240 U	120 U	120 U	120 U	140 U	120 U	120 U	
1,2-DIBROMOETHANE	120 U		240 U	120 U	120 U	120 U	140 U	120 U	120 U	
1,2-DICHLOROBENZENE	120 U		240 U	260	120 U	120 U	140 U	120 U	120 U	
1,2-DICHLOROETHANE	120 U		240 U	120 U	120 U	120 U	140 U	120 U	120 U	
1,2-DICHLOROPROPANE	120 U		240 U	120 U	120 U	120 U	140 U	120 U	120 U	
1,3-DICHLOROBENZENE	120 U		240 U	120 U	120 U	120 U	140 U	120 U	120 U	
1,4-DICHLOROBENZENE	120 U		240 U	120 U	120 U	120 U	140 U	120 U	120 U	
2-BUTANONE	120 U		240 U	140	120 U	120 U	140 U	120 U	120 U	
2-HEXANONE	120 U		240 U	120 U	120 U	120 U	140 U	120 U	120 U	
4-METHYL-2-PENTANONE	120 U		240 U	120 U	120 U	120 U	140 U	120 U	120 U	
ACETONE	300 U		500 U	270 U	200 U	240 U	260 U	220 U	220 U	
BENZENE	120 U		240 U	120 U	120 U	120 U	140 U	120 U	120 U	
BROMODICHLOROMETHANE	120 U		240 U	120 U	120 U	120 U	140 U	120 U	120 U	
BROMOFORM	120 U		240 U	120 U	120 U	120 U	140 U	120 U	120 U	
BROMOMETHANE	90 J		240 U	120 U	120 U	42 J	140 U	120 U	120 U	
CARBON DISULFIDE	120 U		240 U	120 U	120 U	120 U	140 U	120 U	120 U	
CARBON TETRACHLORIDE	120 U		240 U	120 U	120 U	120 U	140 U	120 U	120 U	
CHLOROBENZENE	76 J		240 U	2000	120 U	77 J	140 U	120 U	120 U	
CHLORODIBROMOMETHANE	120 U		240 U	120 U	120 U	120 U	140 U	120 U	120 U	
CHLOROETHANE	120 U		240 U	120 U	120 U	120 U	140 U	120 U	120 U	
CHLOROFORM	120 U		240 U	120 U	120 U	120 U	140 U	120 U	120 U	
CHLOROMETHANE	120 U		240 U	120 U	120 U	120 U	140 U	120 U	120 U	
CIS-1,2-DICHLOROETHENE	470		240 U	30000	16000	40000	16000	1300	1300	
CIS-1,3-DICHLOROPROPENE	120 U		240 U	120 U	120 U	120 U	140 U	120 U	120 U	
CYCLOHEXANE	120 U		240 U	120 U	120 U	120 U	140 U	120 U	120 U	
DICHLORODIFLUOROMETHANE	120 U		240 U	120 U	120 U	120 U	140 U	120 U	120 U	
ETHYLBENZENE	41 J		240 U	1500	120 U	400	23 J	120 U	120 U	
ISOPROPYLBENZENE	22 J		240 U	850	120 U	690	51 J	120 U	120 U	
METHYL ACETATE	280 U		310 U	240 U	180 U	190 U	280 U	190 U	190 U	
METHYL CYCLOHEXANE	120 U		240 U	120 U	120 U	120 U	140 U	120 U	120 U	
METHYL TERT-BUTYL ETHER	120 U		240 U	120 U	120 U	120 U	140 U	120 U	120 U	
METHYLENE CHLORIDE	120 U		190 U	120 U	120 U	120 U	140 U	120 U	120 U	
STYRENE	120 U		240 U	120 U	120 U	120 U	140 U	120 U	120 U	
TETRACHLOROETHENE	8000000		100 U	15000 J	4400	6000	5400	1900	1900	
TOLUENE	430 U		240 U	530 U	120 U	62 J	140 U	120 U	120 U	
TOTAL XYLENES	100 J		240 U	1000	120 U	500	140 U	120 U	120 U	
TRANS-1,2-DICHLOROETHENE	20 J		240 U	810	370	660	330	180	180	
TRANS-1,3-DICHLOROPROPENE	120 U		240 U	120 U	120 U	120 U	140 U	120 U	120 U	
TRICHLOROETHENE	6200 J		240 U	120 J	980	120000	8200	65 J	65 J	
TRICHLOROFLUOROMETHANE	120 U		240 U	120 U	120 U	120 U	140 U	120 U	120 U	
VINYL CHLORIDE	120 U		240 U	30 J	120 U	120 U	140 U	120 U	120 U	

PARRIS ISLAND
SUBSURFACE SOIL - ANALYTICAL DATABASE

SAMPLE LOCATION:	PAI45SB01	PAI45SB01	PAI45SB02	PAI45SB03	PAI45SB04	PAI45SB05	PAI45SB06	PAI45SB07	PAI45SB07	PAI45SB07
SAMPLE:	PAI-45-SB-01-05	PAI-45-SB-01-14	PAI-45-SB-02-04	PAI-45-SB-03-04	PAI-45-SB-04-04	PAI-45-SB-05-04	PAI-45-SB-06-04	PAI-45-SB-07-04	FD06120102	FD06120102
COLLECTION DATE:	06/12/01	06/12/01	06/12/01	06/12/01	06/12/01	06/12/01	06/12/01	06/12/01	06/12/01	06/12/01
SAMPLE DEPTH:	4 - 5'	12 - 14'	3 - 4'	2- 4'	3 - 4'	2- 4'	2- 4'	3 - 4'	3 - 4'	3 - 4'
Semivolatile Organics (ug/kg)										
1,1-BIPHENYL	400 U		400 U	400 U	400 U	400 U	400 U	400 U	580 U	760 U
2,2'-OXYBIS(1-CHLOROPROPANE)	400 U		400 U	400 U	400 U	400 U	400 U	400 U	580 U	760 U
2,4,5-TRICHLOROPHENOL	1000 U		1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1450 U	1900 U
2,4,6-TRICHLOROPHENOL	400 U		400 U	400 U	400 U	400 U	400 U	400 U	580 U	760 U
2,4-DICHLOROPHENOL	400 U		400 U	400 U	400 U	400 U	400 U	400 U	580 U	760 U
2,4-DIMETHYLPHENOL	400 U		400 U	400 U	400 U	400 U	400 U	400 U	580 U	760 U
2,4-DINITROPHENOL	1000 U		1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1450 U	1900 U
2,4-DINITROTOLUENE	400 U		400 U	400 U	400 U	400 U	400 U	400 U	580 U	760 U
2,6-DINITROTOLUENE	400 U		400 U	400 U	400 U	400 U	400 U	400 U	580 U	760 U
2-CHLORONAPHTHALENE	400 U		400 U	400 U	400 U	400 U	400 U	400 U	580 U	760 U
2-CHLOROPHENOL	400 U		400 U	400 U	400 U	400 U	400 U	400 U	580 U	760 U
2-METHYLNAPHTHALENE	400 U		400 U	820	400 U	94 J	400 U	400 UJ	120 J	120 J
2-METHYLPHENOL	400 U		400 U	400 U	400 U	400 U	400 U	400 U	580 U	760 U
2-NITROANILINE	1000 U		1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1450 U	1900 U
2-NITROPHENOL	400 U		400 U	400 U	400 U	400 U	400 U	400 U	580 U	760 U
3,3'-DICHLOROBENZIDINE	400 UR		400 UR	400 UR	400 UR	400 UR	400 UR	400 UR	380 UR	760 UR
3-NITROANILINE	1000 U		1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1450 U	1900 U
4,6-DINITRO-2-METHYLPHENOL	1000 U		1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1450 U	1900 U
4-BROMOPHENYL PHENYL ETHER	400 U		400 U	400 U	400 U	400 U	400 U	400 U	580 U	760 U
4-CHLORO-3-METHYLPHENOL	400 U		400 U	400 U	400 U	400 U	400 U	400 U	580 U	760 U
4-CHLOROANILINE	400 U		400 U	400 U	400 U	400 U	400 U	400 U	580 U	760 U
4-CHLOROPHENYL PHENYL ETHER	400 U		400 U	400 U	400 U	400 U	400 U	400 U	580 U	760 U
4-METHYLPHENOL	400 U		400 U	400 U	400 U	400 U	400 U	400 U	580 U	760 U
4-NITROANILINE	1000 U		1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1450 U	1900 U
4-NITROPHENOL	1000 U		1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1450 U	1900 U
ACENAPHTHENE	400 U		400 U	400 U	400 U	400 U	400 U	400 UJ	360 J	520 J
ACENAPHTHYLENE	400 U		400 U	400 U	400 U	400 U	400 U	400 UJ	36 J	36 J
ACETOPHENONE	400 U		400 U	400 U	400 U	400 U	400 U	400 U	580 U	760 U
ANTHRACENE	400 U		400 U	400 U	400 U	400 U	400 U	400 UJ	1550 J	2900 J
ATRAZINE	400 U		400 U	400 U	400 U	400 U	400 U	400 U	580 U	760 U
BENZALDEHYDE	400 U		400 U	400 U	400 U	400 U	400 U	400 U	580 U	760 U
BENZO(A)ANTHRACENE	400 U		400 U	69 J	20 J	400 U	400 U	17 J	3608.5 J	7200 J
BENZO(A)PYRENE	400 U		400 U	58 J	400 U	400 U	400 U	400 UJ	3000 J	5800 J
BENZO(B)FLUORANTHENE	400 U		400 U	91 J	20 J	400 U	400 U	400 UJ	3650 J	7100 J
BENZO(G,H,I)PERYLENE	400 U		400 U	69 J	400 U	400 U	400 U	400 UJ	1700 J	3200 J
BENZO(K)FLUORANTHENE	400 U		400 U	29 J	400 U	400 U	400 U	400 UJ	1200 J	2200 J
BIS(2-CHLOROETHOXY)METHANE	400 U		400 U	400 U	400 U	400 U	400 U	400 U	580 U	760 U
BIS(2-CHLOROETHYL)ETHER	400 U		400 U	400 U	400 U	400 U	400 U	400 U	580 U	760 U
BIS(2-ETHYLHEXYL)PHTHALATE	400 U		400 U	5500	400 U	400 U	400 U	400 U	580 U	760 U
BUTYL BENZYL PHTHALATE	400 U		400 U	400 U	400 U	400 U	400 U	400 U	580 U	760 U
CAPROLACTAM	400 U		400 U	400 U	400 U	400 U	400 U	400 U	580 U	760 U
CARBAZOLE	400 U		400 U	400 U	400 U	400 U	400 U	400 UJ	360 J	360 J
CHRYSENE	400 U		400 U	70 J	400 U	400 U	400 U	400 UJ	3200 J	6200 J
DI-N-BUTYL PHTHALATE	400 U		400 U	400 U	400 U	400 U	400 U	400 U	580 U	760 U
DI-N-OCTYL PHTHALATE	400 U		400 U	290 J	400 U	400 U	400 U	400 U	580 U	760 U
DIBENZO(A,H)ANTHRACENE	400 U		400 U	400 U	400 U	400 U	400 U	400 UJ	490 J	780 J
DIBENZOFURAN	400 U		400 U	400 U	400 U	400 U	400 U	400 U	280 J	360 J
DIETHYL PHTHALATE	400 U		400 U	400 U	400 U	400 U	400 U	400 U	580 U	760 U
DIMETHYL PHTHALATE	400 U		400 U	400 U	400 U	400 U	400 U	400 U	580 U	760 U

PARRIS ISLAND
SUBSURFACE SOIL - ANALYTICAL DATABASE

SAMPLE LOCATION:	PAI45SB01	PAI45SB01	PAI45SB02	PAI45SB03	PAI45SB04	PAI45SB05	PAI45SB06	PAI45SB07	PAI45SB07	PAI45SB07
SAMPLE:	PAI-45-SB-01-05	PAI-45-SB-01-14	PAI-45-SB-02-04	PAI-45-SB-03-04	PAI-45-SB-04-04	PAI-45-SB-05-04	PAI-45-SB-06-04	PAI-45-SB-07-04	FD06120102	FD06120102
COLLECTION DATE:	06/12/01	06/12/01	06/12/01	06/12/01	06/12/01	06/12/01	06/12/01	06/12/01	06/12/01	06/12/01
SAMPLE DEPTH:	4 - 5'	12 - 14'	3 - 4'	2- 4'	3 - 4'	2- 4'	2- 4'	3 - 4'	3 - 4'	3 - 4'
FLUORANTHENE	400 U		400 U	100 J	16 J	400 U	400 U	14 J	8007 J	16000 J
FLUORENE	400 U		400 U	16 J	400 U	400 U	400 U	400 UJ	565 J	930 J
HEXACHLOROBENZENE	400 U		400 U	400 U	400 U	400 U	400 U	400 U	580 U	760 U
HEXACHLOROBUTADIENE	400 U		400 U	400 U	400 U	400 U	400 U	400 U	580 U	760 U
HEXACHLOROCYCLOPENTADIENE	400 U		400 U	400 U	400 U	400 U	400 U	400 U	580 U	760 U
HEXACHLOROETHANE	400 U		400 U	400 U	400 U	400 U	400 U	400 U	580 U	760 U
INDENO(1,2,3-CD)PYRENE	400 U		400 U	75 J	400 U	400 U	400 U	400 UJ	1950 J	3700 J
ISOPHORONE	400 U		400 U	400 U	400 U	400 U	400 U	400 U	580 U	760 U
N-NITROSO-DI-N-PROPYLAMINE	400 U		400 U	400 U	400 U	400 U	400 U	400 U	580 U	760 U
N-NITROSODIPHENYLAMINE	400 U		400 U	400 U	400 U	400 U	400 U	400 U	580 U	760 U
NAPHTHALENE	400 U		400 U	4500	400 U	620	400 U	400 UJ	55 J	55 J
NITROBENZENE	400 U		400 U	400 U	400 U	400 U	400 U	400 U	580 U	760 U
PENTACHLOROPHENOL	1000 U		1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1450 U	1900 U
PHENANTHRENE	400 U		400 U	64 J	400 U	400 U	400 U	400 UJ	4950 J	9700 J
PHENOL	400 U		400 U	400 U	400 U	400 U	400 U	400 U	580 U	760 U
PYRENE	400 U		400 U	120 J	400 U	400 U	400 U	400 UJ	6100 J	12000 J
Miscellaneous Parameters (mg/kg)										
TOTAL ORGANIC CARBON	6533	2690 U	4620	8600	21700	5225	18450	6095	7607.5	9120

PARRIS ISLAND
SUBSURFACE SOIL - ANALYTICAL DATABASE

SAMPLE LOCATION:	PAI45SB08	PAI45SB08	PAI45SB08	PAI45SB09	PAI45SB10	PAI45SB11	PAI45SB12	PAI45SB13
SAMPLE:	PAI-45-SB-08-04	FD06120104	FD06120104	PAI-45-SB-09-14	PAI-45-SB-10-13	PAI-45-SB-11-10	PAI-45-SB-12-10	PAI-45-SB-13-10
COLLECTION DATE:	06/12/01	06/12/01	06/12/01	06/12/01	06/13/01	06/13/01	06/13/01	06/13/01
SAMPLE DEPTH:	3 - 4'	3 - 4'	3 - 4'	12 - 14'	11 - 13'	8 - 10'	8 - 10'	8 - 10'
Volatile Organics (ug/kg)								
1,1,1-TRICHLOROETHANE	100 U	100 U						
1,1,2,2-TETRACHLOROETHANE	100 U	100 U						
1,1,2-TRICHLOROETHANE	100 U	100 U						
1,1,2-TRICHLOROTRIFLUOROETHANE	100 U	100 U						
1,1-DICHLOROETHANE	100 U	100 U						
1,1-DICHLOROETHENE	100 U	100 U						
1,2,4-TRICHLOROBENZENE	100 U	100 U						
1,2-DIBROMO-3-CHLOROPROPANE	100 U	100 U						
1,2-DIBROMOETHANE	100 U	100 U						
1,2-DICHLOROBENZENE	100 U	100 U						
1,2-DICHLOROETHANE	100 U	100 U						
1,2-DICHLOROPROPANE	100 U	100 U						
1,3-DICHLOROBENZENE	100 U	100 U						
1,4-DICHLOROBENZENE	100 U	100 U						
2-BUTANONE	100 U	100 U						
2-HEXANONE	100 U	100 U						
4-METHYL-2-PENTANONE	100 U	100 U						
ACETONE	180 U	180 U						
BENZENE	100 U	100 U						
BROMODICHLOROMETHANE	100 U	100 U						
BROMOFORM	100 U	100 U						
BROMOMETHANE	100 U	100 U						
CARBON DISULFIDE	100 U	100 U						
CARBON TETRACHLORIDE	100 U	100 U						
CHLOROBENZENE	100 U	100 U						
CHLORODIBROMOMETHANE	100 U	100 U						
CHLOROETHANE	100 U	100 U						
CHLOROFORM	100 U	100 U						
CHLOROMETHANE	100 U	100 U						
CIS-1,2-DICHLOROETHENE	820	820						
CIS-1,3-DICHLOROPROPENE	100 U	100 U						
CYCLOHEXANE	100 U	100 U						
DICHLORODIFLUOROMETHANE	100 U	100 U						
ETHYLBENZENE	100 U	100 U						
ISOPROPYLBENZENE	100 U	100 U						
METHYL ACETATE	150 U	150 U						
METHYL CYCLOHEXANE	100 U	100 U						
METHYL TERT-BUTYL ETHER	100 U	100 U						
METHYLENE CHLORIDE	100 U	100 U						
STYRENE	100 U	100 U						
TETRACHLOROETHENE	15000	15000						
TOLUENE	100 U	100 U						
TOTAL XYLENES	100 U	100 U						
TRANS-1,2-DICHLOROETHENE	100 U	100 U						
TRANS-1,3-DICHLOROPROPENE	100 U	100 U						
TRICHLOROETHENE	1300	1300						
TRICHLOROFLUOROMETHANE	100 U	100 U						
VINYL CHLORIDE	100 U	100 U						

PARRIS ISLAND
SUBSURFACE SOIL - ANALYTICAL DATABASE

SAMPLE LOCATION:	PAI45SB08	PAI45SB08	PAI45SB08	PAI45SB09	PAI45SB10	PAI45SB11	PAI45SB12	PAI45SB13
SAMPLE:	PAI-45-SB-08-04	FD06120104	FD06120104	PAI-45-SB-09-14	PAI-45-SB-10-13	PAI-45-SB-11-10	PAI-45-SB-12-10	PAI-45-SB-13-10
COLLECTION DATE:	06/12/01	06/12/01	06/12/01	06/12/01	06/13/01	06/13/01	06/13/01	06/13/01
SAMPLE DEPTH:	3 - 4'	3 - 4'	3 - 4'	12 - 14'	11 - 13'	8 - 10'	8 - 10'	8 - 10'
Semivolatile Organics (ug/kg)								
1,1-BIPHENYL	400 U	400 U						
2,2'-OXYBIS(1-CHLOROPROPANE)	400 U	400 U						
2,4,5-TRICHLOROPHENOL	1000 U	1000 U						
2,4,6-TRICHLOROPHENOL	400 U	400 U						
2,4-DICHLOROPHENOL	400 U	400 U						
2,4-DIMETHYLPHENOL	400 U	400 U						
2,4-DINITROPHENOL	1000 U	1000 U						
2,4-DINITROTOLUENE	400 U	400 U						
2,6-DINITROTOLUENE	400 U	400 U						
2-CHLORONAPHTHALENE	400 U	400 U						
2-CHLOROPHENOL	400 U	400 U						
2-METHYLNAPHTHALENE	400 U	400 U						
2-METHYLPHENOL	400 U	400 U						
2-NITROANILINE	1000 U	1000 U						
2-NITROPHENOL	400 U	400 U						
3,3'-DICHLOROBENZIDINE	400 UR							
3-NITROANILINE	1000 U	1000 U						
4,6-DINITRO-2-METHYLPHENOL	1000 U	1000 U						
4-BROMOPHENYL PHENYL ETHER	400 U	400 U						
4-CHLORO-3-METHYLPHENOL	400 U	400 U						
4-CHLOROANILINE	400 U	400 U						
4-CHLOROPHENYL PHENYL ETHER	400 U	400 U						
4-METHYLPHENOL	400 U	400 U						
4-NITROANILINE	1000 U	1000 U						
4-NITROPHENOL	1000 U	1000 U						
ACENAPHTHENE	400 U	400 U						
ACENAPHTHYLENE	400 U	400 U						
ACETOPHENONE	400 U	400 U						
ANTHRACENE	400 U	400 U						
ATRAZINE	400 U	400 U						
BENZALDEHYDE	400 U	400 U						
BENZO(A)ANTHRACENE	400 U	400 U						
BENZO(A)PYRENE	400 U	400 U						
BENZO(B)FLUORANTHENE	400 U	400 U						
BENZO(G,H,I)PERYLENE	400 U	400 U						
BENZO(K)FLUORANTHENE	400 U	400 U						
BIS(2-CHLOROETHOXY)METHANE	400 U	400 U						
BIS(2-CHLOROETHYL)ETHER	400 U	400 U						
BIS(2-ETHYLHEXYL)PHTHALATE	400 U	400 U						
BUTYL BENZYL PHTHALATE	400 U	400 U						
CAPROLACTAM	400 U	400 U						
CARBAZOLE	400 U	400 U						
CHRYSENE	400 U	400 U						
DI-N-BUTYL PHTHALATE	400 U	400 U						
DI-N-OCTYL PHTHALATE	400 U	400 U						
DIBENZO(A,H)ANTHRACENE	400 U	400 U						
DIBENZOFURAN	400 U	400 U						
DIETHYL PHTHALATE	400 U	400 U						
DIMETHYL PHTHALATE	400 U	400 U						

SAMPLE LOCATION:	PAI45SB08	PAI45SB08	PAI45SB08	PAI45SB09	PAI45SB10	PAI45SB11	PAI45SB12	PAI45SB13
SAMPLE:	PAI-45-SB-08-04	FD06120104	FD06120104	PAI-45-SB-09-14	PAI-45-SB-10-13	PAI-45-SB-11-10	PAI-45-SB-12-10	PAI-45-SB-13-10
COLLECTION DATE:	06/12/01	06/12/01	06/12/01	06/12/01	06/13/01	06/13/01	06/13/01	06/13/01
SAMPLE DEPTH:	3 - 4'	3 - 4'	3 - 4'	12 - 14'	11 - 13'	8 - 10'	8 - 10'	8 - 10'
FLUORANTHENE	400 U	400 U						
FLUORENE	400 U	400 U						
HEXACHLOROBENZENE	400 U	400 U						
HEXACHLOROBUTADIENE	400 U	400 U						
HEXACHLOROCYCLOPENTADIENE	400 U	400 U						
HEXACHLOROETHANE	400 U	400 U						
INDENO(1,2,3-CD)PYRENE	400 U	400 U						
ISOPHORONE	400 U	400 U						
N-NITROSO-DI-N-PROPYLAMINE	400 U	400 U						
N-NITROSODIPHENYLAMINE	400 U	400 U						
NAPHTHALENE	400 U	400 U						
NITROBENZENE	400 U	400 U						
PENTACHLOROPHENOL	1000 U	1000 U						
PHENANTHRENE	400 U	400 U						
PHENOL	400 U	400 U						
PYRENE	400 U	400 U						
Miscellaneous Parameters (mg/kg)								
TOTAL ORGANIC CARBON	4020 U	3777.5	5545	3493	2500 U	3725 U	3500 U	4600 U

APPENDIX C-3

GROUNDWATER

PARRIS ISLAND
SURFICIAL AQUIFER - ANALYTICAL DATABASE

SAMPLE LOCATION:	PAI45TW01	PAI45TW01	PAI45TW02	PAI45TW02	PAI45TW03	PAI45TW03	PAI45TW04	PAI45TW04	PAI45TW05	PAI45TW05
SAMPLE:	PAI-45-TW-01-10	PAI-45-TW-01-15	PAI-45-TW-02-10	PAI-45-TW-02-16	PAI-45-TW-03-08	PAI-45-TW-03-17	PAI-45-TW-04-06	PAI-45-TW-04-14	PAI-45-TW-05-07	PAI-45-TW-05-20
COLLECTION DATE:	03/22/01	03/22/01	03/22/01	03/22/01	03/22/01	03/22/01	04/10/01	04/09/01	04/04/01	04/04/01
SAMPLE DEPTH:	6 - 10	11 - 15	6 - 10	12 - 16	4 - 8	13 - 17	2 - 6	10 - 14	3 - 7	16 - 20
VOLATILE ORGANICS (UG/L)										
1,1,1-TRICHLOROETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,1,2,2-TETRACHLOROETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,1,2-TRICHLOROETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,1,2-TRICHLOROTRIFLUOROETHANE	2 U	2 U	2 U	2 U	2 U	2 U	5 U	5 U	5 U	5 U
1,1-DICHLOROETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,1-DICHLOROETHENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,2,4-TRICHLOROBENZENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,2-DIBROMO-3-CHLOROPROPANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-DIBROMOETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,2-DICHLOROBENZENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,2-DICHLOROETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,2-DICHLOROPROPANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,3-DICHLOROBENZENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,4-DICHLOROBENZENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
2-BUTANONE	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	10 U	10 U
2-HEXANONE	10 U	10 U	10 U	18	10 U	10 U	10 U	10 U	10 U	10 U
4-ISOPROPYLTOLUENE										
4-METHYL-2-PENTANONE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
ACETONE	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	10 U	10 U
BENZENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
BROMODICHLOROMETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
BROMOFORM	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
BROMOMETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
CARBON DISULFIDE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
CARBON TETRACHLORIDE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
CHLOROBENZENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
CHLORODIBROMOMETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
CHLOROETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
CHLOROFORM	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
CHLOROMETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
CIS-1,2-DICHLOROETHENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	3	2 U
CIS-1,3-DICHLOROPROPENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
CYCLOHEXANE	100 U	100 U	100 U	100 U	100 U	100 U	10 U	10 U	10 U	10 U
CYCLOHEXANONE										
DICHLORODIFLUOROMETHANE	2 U	2 U	2 U	2 U	2 U	2 U			2 U	2 U
ETHYLBENZENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	9	2 U
ISOPROPYLBENZENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	5	2 U
METHYL ACETATE										
METHYL CYCLOHEXANE										
METHYL TERT-BUTYL ETHER	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	10 U	10 U
METHYLENE CHLORIDE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
STYRENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
TETRACHLOROETHENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
TOLUENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	14	2 U
TOTAL XYLENES	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	22	2 U
TRANS-1,2-DICHLOROETHENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	6	2 U
TRANS-1,3-DICHLOROPROPENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
TRICHLOROETHENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
TRICHLOROFLUOROETHENE							2 U	2 U		
TRICHLOROFLUOROMETHANE	2 U	2 U	2 U	2 U	2 U	2 U			2 U	2 U
VINYL CHLORIDE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U

PARRIS ISLAND
SURFICIAL AQUIFER - ANALYTICAL DATABASE

SAMPLE LOCATION:	PAI45TW05	PAI45TW06	PAI45TW06	PAI45TW07	PAI45TW07	PAI45TW08	PAI45TW08	PAI45TW08	PAI45TW09	PAI45TW09	PAI45TW10
SAMPLE:	PAI-45-TW-05-34	PAI-45-TW-06-06	PAI-45-TW-06-18	PAI-45-TW-07-08	PAI-45-TW-07-16	PAI-45-TW-08-08	PAI-45-TW-08-19	PAI-45-TW-08-32	PAI-45-TW-09-07	PAI-45-TW-09-15	PAI-45-TW-10-07
COLLECTION DATE:	04/04/01	04/10/01	04/10/01	03/21/01	03/21/01	04/03/01	04/03/01	04/03/01	03/21/01	03/21/01	04/04/01
SAMPLE DEPTH:	23 - 27	2 - 6	14 - 18	4 - 8	12 - 16	4 - 8	15 - 19	28 - 32	3 - 7	11 - 15	3 - 7
VOLATILE ORGANICS (UG/L)											
1,1,1-TRICHLOROETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,1,2,2-TETRACHLOROETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,1,2-TRICHLOROETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,1,2-TRICHLOROTRIFLUOROETHANE	5 U	5 U	5 U	2 U	2 U	5 U	5 U	5 U	2 U	2 U	5 U
1,1-DICHLOROETHANE	2 U	2 U	2 U	2 U	2 U	26	2 U	2 U	2 U	2 U	2 U
1,1-DICHLOROETHENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,2,4-TRICHLOROBENZENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,2-DIBROMO-3-CHLOROPROPANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-DIBROMOETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,2-DICHLOROBENZENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,2-DICHLOROETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,2-DICHLOROPROPANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,3-DICHLOROBENZENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,4-DICHLOROBENZENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
2-BUTANONE	10 U	50 U	50 U	50 U	50 U	10 U	10 U	10 U	50 U	50 U	10 U
2-HEXANONE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-ISOPROPYLTOLUENE											
4-METHYL-2-PENTANONE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
ACETONE	10 U	50 U	50 U	50 U	50 U	10 U	10 U	10 U	50 U	50 U	10 U
BENZENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
BROMODICHLOROMETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
BROMOFORM	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
BROMOMETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
CARBON DISULFIDE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
CARBON TETRACHLORIDE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
CHLOROBENZENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
CHLORODIBROMOMETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
CHLOROETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
CHLOROFORM	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
CHLOROMETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
CIS-1,2-DICHLOROETHENE	22	6	2 U	2 U	2 U	23	4	2 U	6	2 U	2 U
CIS-1,3-DICHLOROPROPENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
CYCLOHEXANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CYCLOHEXANONE											
DICHLORODIFLUOROMETHANE	2 U			2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
ETHYLBENZENE	2 U	2 U	2 U	2 U	2 U	33	2 U	2 U	2 U	2 U	2 U
ISOPROPYLBENZENE	2 U	2 U	2 U	2 U	2 U	20	2 U	2 U	2 U	2 U	2 U
METHYL ACETATE											
METHYL CYCLOHEXANE											
METHYL TERT-BUTYL ETHER	10 U	2 U	2 U	2 U	2 U	10 U	10 U	10 U	2 U	2 U	10 U
METHYLENE CHLORIDE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
STYRENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
TETRACHLOROETHENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	8	2 U	2 U
TOLUENE	2 U	2 U	2 U	2 U	2 U	60	2 U	2 U	2 U	2 U	2 U
TOTAL XYLENES	2 U	5	2 U	2 U	2 U	34	2 U	2 U	2 U	2 U	2 U
TRANS-1,2-DICHLOROETHENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
TRANS-1,3-DICHLOROPROPENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
TRICHLOROETHENE	2 U	51	2 U	2 U	2 U	2 U	2 U	2 U	9	2 U	2 U
TRICHLOROFLUOROETHENE		2 U	2 U								
TRICHLOROFLUOROMETHANE	2 U			2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
VINYL CHLORIDE	2 U	50	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U

PARRIS ISLAND
SURFICIAL AQUIFER - ANALYTICAL DATABASE

SAMPLE LOCATION:	PAI45TW10	PAI45TW10	PAI45TW11	PAI45TW11	PAI45TW11	PAI45TW12	PAI45TW12	PAI45TW13	PAI45TW13	PAI45TW14	PAI45TW14
SAMPLE:	PAI-45-TW-10-16	PAI-45-TW-10-32	PAI-45-TW-11-10	PAI-45-TW-11-20	PAI-45-TW-11-32	PAI-45-TW-12-07	PAI-45-TW-12-16	PAI-45-TW-13-06	PAI-45-TW-13-18	PAI-45-TW-14-17	PAI-45-TW-14-30
COLLECTION DATE:	04/04/01	04/04/01	03/12/01	03/12/01	03/12/01	03/21/01	03/21/01	04/10/01	04/10/01	03/12/01	03/12/01
SAMPLE DEPTH:	12 - 16	28 - 32	7 - 10	17 - 20	29 - 32	3 - 7	12 - 16	2 - 6	14 - 18	14 - 17	27 - 30
VOLATILE ORGANICS (UG/L)											
1,1,1-TRICHLOROETHANE	2 U	2 U	100 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,1,2,2-TETRACHLOROETHANE	2 U	2 U	100 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,1,2-TRICHLOROETHANE	2 U	2 U	100 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,1,2-TRICHLOROTRIFLUOROETHANE	5 U	5 U	250 U	5 U	5 U	2 U	2 U	5 U	5 U	5 U	5 U
1,1-DICHLOROETHANE	2 U	2 U	100 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,1-DICHLOROETHENE	2 U	2 U	100 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,2,4-TRICHLOROBENZENE	2 U	2 U	100 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,2-DIBROMO-3-CHLOROPROPANE	10 U	10 U	500 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-DIBROMOETHANE	2 U	2 U	100 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,2-DICHLOROBENZENE	2 U	2 U	100 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,2-DICHLOROETHANE	2 U	2 U	100 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,2-DICHLOROPROPANE	2 U	2 U	100 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,3-DICHLOROBENZENE	2 U	2 U	100 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,4-DICHLOROBENZENE	2 U	2 U	100 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
2-BUTANONE	10 U	10 U	2500 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
2-HEXANONE	10 U	10 U	500 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-ISOPROPYLTOLUENE			100 U	2 U	2 U					2 U	2 U
4-METHYL-2-PENTANONE	10 U	10 U	500 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
ACETONE	10 U	10 U	2500 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
BENZENE	2 U	2 U	100 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
BROMODICHLOROMETHANE	2 U	2 U	100 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
BROMOFORM	2 U	2 U	100 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
BROMOMETHANE	2 U	2 U	100 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
CARBON DISULFIDE	2 U	2 U	100 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
CARBON TETRACHLORIDE	2 U	2 U	100 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
CHLOROBENZENE	2 U	2 U	100 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
CHLORODIBROMOMETHANE	2 U	2 U	100 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
CHLOROETHANE	2 U	2 U	100 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
CHLOROFORM	2 U	2 U	100 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
CHLOROMETHANE	2 U	2 U	100 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
CIS-1,2-DICHLOROETHENE	2 U	2 U	14000	13	2 U	15	2 U	2 U	2 U	47	2 U
CIS-1,3-DICHLOROPROPENE	2 U	2 U	100 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
CYCLOHEXANE	10 U	10 U	500 U	10 U	10 U	100 U	100 U	10 U	10 U	10 U	10 U
CYCLOHEXANONE											
DICHLORODIFLUOROMETHANE	2 U	2 U	100 U	2 U	2 U	2 U	2 U			2 U	2 U
ETHYLBENZENE	2 U	2 U	100 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
ISOPROPYLBENZENE	2 U	2 U	100 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
METHYL ACETATE			500 U	10 U	10 U					10 U	10 U
METHYL CYCLOHEXANE											
METHYL TERT-BUTYL ETHER	10 U	10 U	100 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
METHYLENE CHLORIDE	5 U	5 U	250 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
STYRENE	2 U	2 U	100 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
TETRACHLOROETHENE	2 U	2 U	9600	21	2 U	2 U	2 U	2 U	2 U	48	2 U
TOLUENE	2 U	2 U	100 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
TOTAL XYLENES	2 U	2 U	250	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
TRANS-1,2-DICHLOROETHENE	2 U	2 U	565	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
TRANS-1,3-DICHLOROPROPENE	2 U	2 U	100 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
TRICHLOROETHENE	2 U	2 U	12800	13	2 U	11	2 U	2 U	2 U	129	2 U
TRICHLOROFLUOROETHENE								2 U	2 U		
TRICHLOROFLUOROMETHANE	2 U	2 U	100 U	2 U	2 U	2 U	2 U			2 U	2 U
VINYL CHLORIDE	2 U	2 U	3110	2 U	2 U	2 U	2 U	5	2 U	16	2 U

PARRIS ISLAND
SURFICIAL AQUIFER - ANALYTICAL DATABASE

SAMPLE LOCATION:	PAI45TW14	PAI45TW15	PAI45TW15	PAI45TW16	PAI45TW16	PAI45TW17	PAI45TW17	PAI45TW18	PAI45TW18	PAI45TW19	PAI45TW19
SAMPLE:	PAI-45-TW-14-7	PAI-45-TW-15-10	PAI-45-TW-15-18	PAI-45-TW-16-06	PAI-45-TW-16-19	PAI-45-TW-17-06	PAI-45-TW-17-21	PAI-45-TW-18-07	PAI-45-TW-18-17	PAI-45-TW-19-07	PAI-45-TW-19-18
COLLECTION DATE:	03/12/01	03/22/01	03/22/01	04/10/01	04/10/01	04/09/01	04/09/01	04/05/01	04/05/01	04/05/01	04/05/01
SAMPLE DEPTH:	4 - 7	6 - 10	14 - 18	2 - 6	15 - 19	2 - 6	17 - 21	3 - 7	13 - 17	3 - 7	14 - 18
VOLATILE ORGANICS (UG/L)											
1,1,1-TRICHLOROETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,1,2,2-TETRACHLOROETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,1,2-TRICHLOROETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,1,2-TRICHLOROTRIFLUOROETHANE	5 U	2 U	2 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-DICHLOROETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,1-DICHLOROETHENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,2,4-TRICHLOROBENZENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,2-DIBROMO-3-CHLOROPROPANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-DIBROMOETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,2-DICHLOROBENZENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,2-DICHLOROETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,2-DICHLOROPROPANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,3-DICHLOROBENZENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,4-DICHLOROBENZENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
2-BUTANONE	50 U	50 U	50 U	50 U	50 U	50 U	50 U	10 U	10 U	10 U	10 U
2-HEXANONE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-ISOPROPYLTOLUENE	2 U										
4-METHYL-2-PENTANONE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
ACETONE	50 U	50 U	50 U	50 U	50 U	50 U	50 U	10 U	10 U	10 U	10 U
BENZENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
BROMODICHLOROMETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
BROMOFORM	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
BROMOMETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
CARBON DISULFIDE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
CARBON TETRACHLORIDE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
CHLOROBENZENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
CHLORODIBROMOMETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
CHLOROETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
CHLOROFORM	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
CHLOROMETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
CIS-1,2-DICHLOROETHENE	124	2 U	2 U	2 U	2 U	2 U	2 U	5	2 U	2 U	7
CIS-1,3-DICHLOROPROPENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
CYCLOHEXANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U				
CYCLOHEXANONE								5 U	5 U	5 U	5 U
DICHLORODIFLUOROMETHANE	2 U	2 U	2 U					2 U	2 U	2 U	2 U
ETHYLBENZENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
ISOPROPYLBENZENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
METHYL ACETATE	10 U										
METHYL CYCLOHEXANE											
METHYL TERT-BUTYL ETHER	2 U	2 U	2 U	2 U	2 U	2 U	2 U	10 U	10 U	10 U	10 U
METHYLENE CHLORIDE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
STYRENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
TETRACHLOROETHENE	21	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
TOLUENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
TOTAL XYLENES	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
TRANS-1,2-DICHLOROETHENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
TRANS-1,3-DICHLOROPROPENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
TRICHLOROETHENE	197	2 U	2 U	2 U	2 U	4	2 U	2 U	2 U	2 U	2 U
TRICHLOROFLUOROETHENE				2 U	2 U	2 U	2 U				
TRICHLOROFLUOROMETHANE	2 U	2 U	2 U								
VINYL CHLORIDE	16	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U

C-12

PARRIS ISLAND
SURFICIAL AQUIFER - ANALYTICAL DATABASE

SAMPLE LOCATION:	PAI45TW19	PAI45TW19	PAI45TW19	PAI45TW20	PAI45TW20	PAI45TW21	PAI45TW21	PAI45TW22	PAI45TW22	PAI45TW23	PAI45TW23
SAMPLE:	PAI-45-TW-19-32	PAI-45-TW-19A-32	PAI-45-TW-19A-40	PAI-45-TW-20-07	PAI-45-TW-20-19	PAI-45-TW-21-07	PAI-45-TW-21-19	PAI-45-TW-22-06	PAI-45-TW-22-32	PAI-45-TW-23-09	PAI-45-TW-23-19
COLLECTION DATE:	04/05/01	06/06/01	06/06/01	04/06/01	04/06/01	04/09/01	04/09/01	04/09/01	04/09/01	04/05/01	04/05/01
SAMPLE DEPTH:	28 - 32	28 - 32	36 - 40	3 - 7	15 - 19	3 - 7	15 - 19	2 - 6	28 - 32	5 - 9	15 - 19
VOLATILE ORGANICS (UG/L)											
1,1,1-TRICHLOROETHANE	2 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,1,2,2-TETRACHLOROETHANE	2 U	2 U	1 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,1,2-TRICHLOROETHANE	2 U	2 U	1 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,1,2-TRICHLOROTRIFLUOROETHANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-DICHLOROETHANE	2 U	2 U	1 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,1-DICHLOROETHENE	2 U	2 U	1 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,2,4-TRICHLOROBENZENE	2 U	2 U	1 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,2-DIBROMO-3-CHLOROPROPANE	10 U	10 U	5 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-DIBROMOETHANE	2 U	2 U	1 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,2-DICHLOROBENZENE	2 U	2 U	1 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,2-DICHLOROETHANE	2 U	2 U	1 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,2-DICHLOROPROPANE	2 U	2 U	1 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,3-DICHLOROBENZENE	2 U	2 U	1 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,4-DICHLOROBENZENE	2 U	2 U	1 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
2-BUTANONE	10 U	50 U	25 U	10 U	10 U	50 U	50 U	50 U	50 U	10 U	10 U
2-HEXANONE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-ISOPROPYLTOLUENE											
4-METHYL-2-PENTANONE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
ACETONE	10 U	50 U	25 U	10 U	10 U	50 U	50 U	50 U	50 U	10 U	10 U
BENZENE	15	15	6	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
BROMODICHLOROMETHANE	2 U	2 U	1 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
BROMOFORM	2 U	2 U	1 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
BROMOMETHANE	2 U	2 U	1 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
CARBON DISULFIDE	2 U	2 U	1	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
CARBON TETRACHLORIDE	2 U	2 U	1 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
CHLOROBENZENE	2 U	2 U	1 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
CHLORODIBROMOMETHANE	2 U	2 U	1 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
CHLOROETHANE	2 U	2 U	1 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
CHLOROFORM	2 U	2 U	1 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
CHLOROMETHANE	2 U	2 U	1 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
CIS-1,2-DICHLOROETHENE	2 U	2 U	1 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
CIS-1,3-DICHLOROPROPENE	2 U	2 U	1 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
CYCLOHEXANE		10 U	10 U			10 U	10 U	10 U	10 U		
CYCLOHEXANONE	5 U			5 U	5 U					5 U	5 U
DICHLORODIFLUOROMETHANE	2 U	2 U	1 U	2 U	2 U					2 U	2 U
ETHYLBENZENE	2	2 U	1 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
ISOPROPYLBENZENE	2 U	2 U	1 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
METHYL ACETATE		10 U	10 U								
METHYL CYCLOHEXANE		10 U	10 U								
METHYL TERT-BUTYL ETHER	10 U	2 U	1 U	10 U	10 U	2 U	2 U	2 U	2 U	10 U	10 U
METHYLENE CHLORIDE	5 U	5 U	2 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
STYRENE	2 U	2 U	1 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
TETRACHLOROETHENE	2 U	2 U	1 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
TOLUENE	14	11	4.7	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
TOTAL XYLENES	6	4	1.6	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
TRANS-1,2-DICHLOROETHENE	2 U	2 U	1 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
TRANS-1,3-DICHLOROPROPENE	2 U	2 U	1 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
TRICHLOROETHENE	2 U	2 U	1 U	2 U	2 U	2	2 U	2 U	2 U	2 U	2 U
TRICHLOROFLUOROETHENE						2 U	2 U	2 U	2 U		
TRICHLOROFLUOROMETHANE		2 U	1 U								
VINYL CHLORIDE	2 U	2 U	1 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U

C-14

PARRIS ISLAND
SURFICIAL AQUIFER - ANALYTICAL DATABASE

SAMPLE LOCATION:	PAI45TW24	PAI45TW24	PAI45TW25	PAI45TW25	PAI45TW26	PAI45TW26	PAI45TW27	PAI45TW27	PAI45TW28	PAI45TW28	PAI45TW30
SAMPLE:	PAI-45-TW-24-06	PAI-45-TW-24-18	PAI-45-TW-25-06	PAI-45-TW-25-18	PAI-45-TW-26-07	PAI-45-TW-26-17	PAI-45-TW-27-08	PAI-45-TW-27-18	PAI-45-TW-28-32	PAI-45-TW-28-40	PAI-45-TW-30-08
COLLECTION DATE:	04/10/01	04/10/01	04/09/01	04/09/01	06/06/01	06/06/01	06/06/01	06/06/01	06/08/01	06/08/01	06/07/01
SAMPLE DEPTH:	2 - 6	14 - 18	2 - 6	14 - 18	3 - 7	13 - 17	4 - 8	14 - 18	28 - 32	36 - 40	4 - 8
VOLATILE ORGANICS (UG/L)											
1,1,1-TRICHLOROETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	1 U	1 U	1 U
1,1,2,2-TETRACHLOROETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	1 U	1 U	1 U
1,1,2-TRICHLOROETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	1 U	1 U	1 U
1,1,2-TRICHLOROTRIFLUOROETHANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-DICHLOROETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	1 U	1 U	1 U
1,1-DICHLOROETHENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	1 U	1 U	1 U
1,2,4-TRICHLOROBENZENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	1 U	1 U	1 U
1,2-DIBROMO-3-CHLOROPROPANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	5 U	5 U	5 U
1,2-DIBROMOETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	1 U	1 U	1 U
1,2-DICHLOROBENZENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	1 U	1 U	1 U
1,2-DICHLOROETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	1 U	1 U	1 U
1,2-DICHLOROPROPANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	1 U	1 U	1 U
1,3-DICHLOROBENZENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	1 U	1 U	1 U
1,4-DICHLOROBENZENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	1 U	1 U	1 U
2-BUTANONE	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	25 U	25 U	25 U
2-HEXANONE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-ISOPROPYLTOLUENE											
4-METHYL-2-PENTANONE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
ACETONE	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	25 U	25 U	25 U
BENZENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	1 U	1 U	1 U
BROMODICHLOROMETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	1 U	1 U	1 U
BROMOFORM	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	1 U	1 U	1 U
BROMOMETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	1 U	1 U	1 U
CARBON DISULFIDE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	1 U	1 U	1 U
CARBON TETRACHLORIDE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	1 U	1 U	1 U
CHLOROBENZENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	1 U	1 U	1 U
CHLORODIBROMOMETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	1 U	1 U	1 U
CHLOROETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	1 U	1 U	1 U
CHLOROFORM	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	1 U	1 U	1 U
CHLOROMETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	1 U	1 U	1 U
CIS-1,2-DICHLOROETHENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	1 U	1 U	32
CIS-1,3-DICHLOROPROPENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	1 U	1 U	1 U
CYCLOHEXANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CYCLOHEXANONE											
DICHLORODIFLUOROMETHANE					2 U	2 U	2 U	2 U	1 U	1 U	1 U
ETHYLBENZENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	1 U	1 U	1 U
ISOPROPYLBENZENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	1 U	1 U	1 U
METHYL ACETATE					10 U	10 U	10 U	10 U	10 U	10 U	10 U
METHYL CYCLOHEXANE					10 U	10 U	10 U	10 U	10 U	10 U	10 U
METHYL TERT-BUTYL ETHER	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	1 U	1 U	1 U
METHYLENE CHLORIDE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	2 U	2 U	2 U
STYRENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	1 U	1 U	1 U
TETRACHLOROETHENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	1 U	1 U	1 U
TOLUENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	1 U	1 U	1 U
TOTAL XYLENES	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	1 U	1 U	1 U
TRANS-1,2-DICHLOROETHENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	1 U	1 U	1 U
TRANS-1,3-DICHLOROPROPENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	1 U	1 U	1 U
TRICHLOROETHENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	1 U	1 U	6.1
TRICHLOROFLUOROETHENE	2 U	2 U	2 U	2 U							
TRICHLOROFLUOROMETHANE					2 U	2 U	2 U	2 U	1 U	1 U	1 U
VINYL CHLORIDE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	1 U	1 U	31.3

PARRIS ISLAND
SURFICIAL AQUIFER - ANALYTICAL DATABASE

SAMPLE LOCATION:	PAI45TW30	PAI45TW30	PAI45TW31	PAI45TW32	PAI45TW33	PAI45TW34	PAI45TW35
SAMPLE:	PAI-45-TW-30-16	PAI-45-TW-30-32	PAI-45-TW-31-12	PAI-45-TW-32-16	PAI-45-TW-33-15	PAI-45-TW-34-14	PAI-45-TW-35-32
COLLECTION DATE:	06/07/01	06/07/01	06/06/01	06/06/01	06/06/01	06/07/01	06/07/01
SAMPLE DEPTH:	14 - 16	28 - 32	8 - 12	12 - 16	11 - 15	10 - 14	28 - 32
VOLATILE ORGANICS (UG/L)							
1,1,1-TRICHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2,2-TETRACHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2-TRICHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2-TRICHLOROTRIFLUOROETHANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-DICHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-DICHLOROETHENE	1 U	1 U	1 U	1 U	1 U	1.8	1 U
1,2,4-TRICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-DIBROMO-3-CHLOROPROPANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-DIBROMOETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-DICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-DICHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-DICHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,3-DICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,4-DICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2-BUTANONE	25 U	25 U	25 U	25 U	25 U	25 U	25 U
2-HEXANONE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-ISOPROPYLTOLUENE							
4-METHYL-2-PENTANONE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
ACETONE	25 U	25 U	25 U	25 U	25 U	25 U	25 U
BENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U
BROMODICHLOROMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U
BROMOFORM	1 U	1 U	1 U	1 U	1 U	1 U	1 U
BROMOMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U
CARBON DISULFIDE	1 U	1 U	1 U	1 U	1 U	1 U	1 U
CARBON TETRACHLORIDE	1 U	1 U	1 U	1 U	1 U	1 U	1 U
CHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U
CHLORODIBROMOMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U
CHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U
CHLOROFORM	1 U	1 U	1 U	1 U	1 U	1 U	1 U
CHLOROMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U
CIS-1,2-DICHLOROETHENE	2.5	1 U	163	109	390	678	1 U
CIS-1,3-DICHLOROPROPENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U
CYCLOHEXANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CYCLOHEXANONE							
DICHLORODIFLUOROMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U
ETHYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U
ISOPROPYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U
METHYL ACETATE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
METHYL CYCLOHEXANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
METHYL TERT-BUTYL ETHER	1 U	1 U	1 U	1 U	1 U	1 U	1 U
METHYLENE CHLORIDE	2 U	2 U	2 U	2 U	2 U	2 U	2 U
STYRENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U
TETRACHLOROETHENE	6.2	1 U	713	3240	585	1290	1 U
TOLUENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U
TOTAL XYLENES	1 U	1 U	1 U	1 U	1 U	1 U	1 U
TRANS-1,2-DICHLOROETHENE	1 U	1 U	2.4	3.5	25.3	34.1	1 U
TRANS-1,3-DICHLOROPROPENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U
TRICHLOROETHENE	12.8	1 U	252	2480	3760	1660	1 U
TRICHLOROFLUOROETHENE							
TRICHLOROFLUOROMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U
VINYL CHLORIDE	1 U	1 U	1 U	1 U	3.8	8.8	1 U

PARRIS ISLAND
SURFICIAL AQUIFER - ANALYTICAL DATABASE

SAMPLE LOCATION:	PAI45MW06SL	PAI45MW06SU	PAI45MW07SL	PAI45MW07SU	PAI45MW08SL	PAI45MW08SU
SAMPLE:	PAI-45-MW06SL-01	PAI-45-MW06SU-01	PAI-45-MW07SL-01	PAI-45-MW07SU-01	PAI-45-MW08SL-01	PAI-45-MW08SU-01
COLLECTION DATE:	06/05/01	06/05/01	06/11/01	06/11/01	06/11/01	06/11/01
SAMPLE DEPTH:	9 - 14	3 - 7	9 - 14	3 - 7	9 - 14	3 - 7
VOLATILES (UG/L)						
1,1,1-TRICHLOROETHANE	2 U	2 U	2 U	2 U	2 U	2 U
1,1,2,2-TETRACHLOROETHANE	2 U	2 U	2 U	2 U	2 U	2 U
1,1,2-TRICHLOROETHANE	2 U	2 U	2 U	2 U	2 U	2 U
1,1,2-TRICHLOROTRIFLUOROETHANE	5 U	5 U	5 U	5 U	5 U	5 U
1,1-DICHLOROETHANE	2 U	2 U	4	2 U	2 U	2 U
1,1-DICHLOROETHENE	2 U	2 U	5	2 U	2 U	4
1,2,4-TRICHLOROBENZENE	2 U	2 U	2 U	2 U	2 U	2 U
1,2-DIBROMO-3-CHLOROPROPANE	10 U	10 U	10 U	10 U	10 U	10 U
1,2-DIBROMOETHANE	2 U	2 U	2 U	2 U	2 U	2 U
1,2-DICHLOROBENZENE	2 U	2 U	2 U	2 U	2 U	2 U
1,2-DICHLOROETHANE	2 U	2 U	2 U	2 U	2 U	2 U
1,2-DICHLOROPROPANE	2 U	2 U	2 U	2 U	2 U	2 U
1,3-DICHLOROBENZENE	2 U	2 U	2 U	2 U	2 U	2 U
1,4-DICHLOROBENZENE	2 U	2 U	2 U	2 U	2 U	2 U
2-BUTANONE	50 U	50 U	50 U	50 U	50 U	50 U
2-HEXANONE	10 U	10 U	10 U	10 U	10 U	10 U
4-METHYL-2-PENTANONE	10 U	10 U	10 U	10 U	10 U	10 U
ACETONE	50 U	50 U	50 U	50 U	50 U	50 U
BENZENE	2 U	2 U	2 U	2 U	2 U	2 U
BROMODICHLOROMETHANE	2 U	2 U	2 U	2 U	2 U	2 U
BROMOFORM	2 U	2 U	2 U	2 U	2 U	2 U
BROMOMETHANE	2 U	2 U	2 U	2 U	2 U	2 U
CARBON DISULFIDE	2 U	2 U	2 U	2 U	2 U	2 U
CARBON TETRACHLORIDE	2 U	2 U	2 U	2 U	2 U	2 U
CHLOROBENZENE	2 U	2 U	2 U	2 U	2 U	2 U
CHLORODIBROMOMETHANE	2 U	2 U	2 U	2 U	2 U	2 U
CHLOROETHANE	2 U	2 U	2 U	2 U	2 U	2 U
CHLOROFORM	2 U	2 U	2 U	2 U	2 U	2 U
CHLOROMETHANE	2 U	2 U	2 U	2 U	2 U	2 U
CIS-1,2-DICHLOROETHENE	160	1280	1430	138	740	2900
CIS-1,3-DICHLOROPROPENE	2 U	2 U	2 U	2 U	2 U	2 U
CYCLOHEXANE	10 U	10 U	10 U	10 U	10 U	10 U
DICHLORODIFLUOROMETHANE	2 U	2 U	2 U	2 U	2 U	2 U
ETHYLBENZENE	2 U	2 U	2 U	2 U	2 U	2 U
ISOPROPYLBENZENE	2 U	2 U	2 U	2 U	2 U	2 U
METHYL ACETATE	10 U	10 U	10 U	10 U	10 U	10 U
METHYL CYCLOHEXANE	10 U	10 U	10 U	10 U	10 U	10 U
METHYL TERT-BUTYL ETHER	2 U	2 U	2 U	2 U	2 U	2 U
METHYLENE CHLORIDE	5 U	5 U	5 U	5 U	5 U	5 U
STYRENE	2 U	2 U	2 U	2 U	2 U	2 U
TETRACHLOROETHENE	6	230	8460	14	2920	7540
TOLUENE	2 U	2 U	2 U	2 U	2 U	5
TOTAL XYLENES	2 U	2 U	2 U	2 U	2 U	2 U
TRANS-1,2-DICHLOROETHENE	2 U	15	91	4	26	111
TRANS-1,3-DICHLOROPROPENE	2 U	2 U	2 U	2 U	2 U	2 U
TRICHLOROETHENE	184	169	6630	62	1520	13000
TRICHLOROFLUOROMETHANE	2 U	2 U	2 U	2 U	2 U	2 U
VINYL CHLORIDE	2 U	190	46	17	70	490

PARRIS ISLAND
SURFICIAL AQUIFER - ANALYTICAL DATABASE

SAMPLE LOCATION:	PAI45MW01SU	PAI45MW04SU	PAI45MW05SL	PAI45MW06SU	PAI45MW06SU	PAI45MW06SU	PAI45MW08SU
SAMPLE:	PAI-45-GW01SU-01	PAI-45-GW04SU-01	PAI-45-GW05SL-01	PAI-45-GW06SU-01	PAI-45-GW06SU-01-AVG	PAI-45-DUP-101701	PAI-45-GW08SU-01
COLLECTION DATE:	10/18/01	10/17/01	10/17/01	10/17/01	10/17/01	10/17/01	10/18/01
SAMPLE DEPTH:	3 - 7	3 - 7	2 - 7	3 - 7	3 - 7	3 - 7	3 - 7
VOLATILES (UG/L)							
1,1,1-TRICHLOROETHANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-TETRACHLOROETHANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-TRICHLOROETHANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-TRICHLOROTRIFLUOROETHANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-DICHLOROETHANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-DICHLOROETHENE	5 U	5 U	5 U	1 J	1.5 J	2 J	4 J
1,2,4-TRICHLOROBENZENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-DIBROMO-3-CHLOROPROPANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-DIBROMOETHANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-DICHLOROBENZENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-DICHLOROETHANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-DICHLOROPROPANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,3-DICHLOROBENZENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,4-DICHLOROBENZENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-BUTANONE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-HEXANONE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-METHYL-2-PENTANONE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
ACETONE	5 U	5 U	5 U	5 U	5 U	5 U	2 J
BENZENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
BROMODICHLOROMETHANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
BROMOFORM	5 U	5 U	5 U	5 U	5 U	5 U	5 U
BROMOMETHANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
CARBON DISULFIDE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
CARBON TETRACHLORIDE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
CHLOROBENZENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
CHLORODIBROMOMETHANE	5 U	5 U	5 U	5 U	5 U	5 U	4 J
CHLOROETHANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
CHLOROFORM	5 U	5 U	5 U	5 U	5 U	5 U	5 U
CHLOROMETHANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
CIS-1,2-DICHLOROETHENE	5 U	2 J	1 J	1400	1400	1400	3400
CIS-1,3-DICHLOROPROPENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
CYCLOHEXANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
DICHLORODIFLUOROMETHANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
ETHANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U
ETHENE	10 U	10 U	10 U	10 U	10 U	10 U	19
ETHYLBENZENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U

C-18

PARRIS ISLAND
SURFICIAL AQUIFER - ANALYTICAL DATABASE

SAMPLE LOCATION:	PAI45MW01SU	PAI45MW04SU	PAI45MW05SL	PAI45MW06SU	PAI45MW06SU	PAI45MW06SU	PAI45MW08SU
SAMPLE:	PAI-45-GW01SU-01	PAI-45-GW04SU-01	PAI-45-GW05SL-01	PAI-45-GW06SU-01	PAI-45-GW06SU-01-AVG	PAI-45-DUP-101701	PAI-45-GW08SU-01
COLLECTION DATE:	10/18/01	10/17/01	10/17/01	10/17/01	10/17/01	10/17/01	10/18/01
SAMPLE DEPTH:	3 - 7	3 - 7	2 - 7	3 - 7	3 - 7	3 - 7	3 - 7
VOLATILES (UG/L)							
ISOPROPYLBENZENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
METHANE	97	120	3000	430	415	400	900
METHYL ACETATE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
METHYL CYCLOHEXANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
METHYL TERT-BUTYL ETHER	5 U	5 U	5 U	5 U	5 U	5 U	5 U
METHYLENE CHLORIDE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
STYRENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
TETRACHLOROETHENE	5 U	6	9	200	200	200	10000
TOLUENE	5 U	5 U	5 U	5 U	5 U	5 U	5 J
TOTAL XYLENES	5 U	5 U	5 U	5 U	5 U	5 U	5 U
TRANS-1,2-DICHLOROETHENE	5 U	5 U	5 U	22	22.5	23	140
TRANS-1,3-DICHLOROPROPENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
TRICHLOROETHENE	5 U	11	9	120	125	130	10000
TRICHLOROFLUOROMETHANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
VINYL CHLORIDE	5 U	1 J	5 U	630	645	660	710
Inorganics (ug/L)							
CALCIUM	48000	3930	38200	145000	141500	138000	36900
IRON	2490	426	19500	11400	11200	11000	14500
MAGNESIUM	8780	4250	13900	142000	140000	138000	4720
MANGANESE	23.2	14	308	80.9	79.35	77.8	14.3
POTASSIUM	3370	4420	2870	41500	41350	41200	770
SODIUM	20700	69800	149000	1110000	1140000	1170000	42200
Miscellaneous Parameters (mg/L)							
ALKALINITY	160	20 U	30	220	215	210	110
BIOCHEMICAL OXYGEN DEMAND	24 U	6 U	6 U	6 U	6 U	6 U	24 U
CHEMICAL OXYGEN DEMAND	30	15 U	20	50	45	40	50
CHLORIDE	9	100	300	2000 J	2000 J	2000 J	30
NITRATE	0.05 U	0.05 U	0.08	0.05 U	0.05 U	0.05 U	0.05 U
NITRITE	0.05 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
ORTHOPHOSPHATE	0.09	0.05 U	0.96	0.09	0.09	0.09	0.05 U
PH (su)	6.3 S.U.	7.8 S.U.	6.2 S.U.	6.8 S.U.	6.8 S.U.	6.8 S.U.	5.4 S.U.
SPECIFIC CONDUCTANCE (umhos)	380 UMHOS	420 UMHOS	1100 UMHOS	6200 UMHOS	6250 UMHOS	6300 UMHOS	400 UMHOS
SULFATE	30	27	7.3	460	430	400	57
TOTAL ORGANIC CARBON	22 J	8.4 J	10 J	23 J	12 J	1 J	51 J

PARRIS ISLAND
DEEP AQUIFER - ANALYTICAL DATABASE

SAMPLE LOCATION:	PAI45MW09D	PAI45MW11D	PAI45MW04D	PAI45MW05D	PAI45MW10D	PAI45MW10D	PAI45MW10D
SAMPLE :	PAI-45-GW-09-D01	PAI-45-GW-11-D01	PAI-45-GW04D-01	PAI-45-GW05D-01	PAI-45-GW10D-01	PAI-45-GW10D-01-AVG	PAI-45-DUP10171-2
COLLECTION DATE:	12/09/01	12/09/01	10/17/01	10/17/01	10/17/01	10/17/01	10/17/01
SAMPLE DEPTH:	31 - 41	31 - 41	31 - 41	33 - 43	31 - 41	31 - 41	31 - 41
VOLATILE ORGANICS (UG/L)							
1,1,1-TRICHLOROETHANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-TETRACHLOROETHANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-TRICHLOROETHANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-TRICHLOROTRIFLUOROETHANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-DICHLOROETHANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-DICHLOROETHENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2,4-TRICHLOROBENZENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-DIBROMO-3-CHLOROPROPANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-DIBROMOETHANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-DICHLOROBENZENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-DICHLOROETHANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-DICHLOROPROPANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,3-DICHLOROBENZENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,4-DICHLOROBENZENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-BUTANONE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-HEXANONE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-METHYL-2-PENTANONE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
ACETONE	5 UR	5 UR	5 U	5 U	5 U	5 U	5 U
BENZENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
BROMODICHLOROMETHANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
BROMOFORM	5 U	5 U	5 U	5 U	5 U	5 U	5 U
BROMOMETHANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
CARBON DISULFIDE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
CARBON TETRACHLORIDE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
CHLOROBENZENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
CHLORODIBROMOMETHANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
CHLOROETHANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
CHLOROFORM	5 U	5 U	5 U	1 J	0.5 J	0.55 J	0.6 J
CHLOROMETHANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
CIS-1,2-DICHLOROETHENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
CIS-1,3-DICHLOROPROPENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
CYCLOHEXANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
DICHLORODIFLUOROMETHANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
ETHYLBENZENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
ISOPROPYLBENZENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
METHYL ACETATE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
METHYL CYCLOHEXANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
METHYL TERT-BUTYL ETHER	5 U	5 U	5 U	5 U	5 U	5 U	5 U
METHYLENE CHLORIDE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
STYRENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
TETRACHLOROETHENE	5 U	5 U	5 J	2 J	2 J	1.5 J	1 J
TOLUENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
TOTAL XYLENES	5 U	5 U	5 U	5 U	5 U	5 U	5 U
TRANS-1,2-DICHLOROETHENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
TRANS-1,3-DICHLOROPROPENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
TRICHLOROETHENE	5 U	5 U	2 J	5 U	0.8 J	0.7 J	0.6 J
TRICHLOROFLUOROMETHANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
VINYL CHLORIDE	5 U	5 U	5 U	5 U	5 U	5 U	5 U

CTO127-MCRD PARRIS ISLAND
WATER DATA
KAS
SDG: 12710

SAMPLE NUMBER:	PAI-45-DUP-101701			PAI-45-GW01SU-01			PAI-45-GW04SU-01			PAI-45-GW05SL-01		
SAMPLE DATE:	10/17/01			10/18/01			10/17/01			10/17/01		
LABORATORY ID:	WR3528-003			WR3550-001			WR3528-004			WR3528-005		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:	PAI-45-GW06SU-01											
	RESULT	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**
INORGANICS												
CALCIUM	138000			48000			3930			38200		
IRON	11000			2490			426			19500		
MAGNESIUM	138000			8780			4250			13900		
MANGANESE	77.8			23.2			14.0			308		
POTASSIUM	41200			3370			4420			2870		
SODIUM	1170000			20700			69800			149000		

C-2

SAMPLE NUMBER:	PAI-45-GW06SU-01			PAI-45-GW08SU-01								
SAMPLE DATE:	10/17/01			10/18/01			/ /			/ /		
LABORATORY ID:	WR3528-002			WR3550-002								
QC_TYPE:	NORMAL			NORMAL								
% SOLIDS:	0.0 %			0.0 %			100.0 %			100.0 %		
UNITS:	UG/L			UG/L								
FIELD DUPLICATE OF:												
	RESULT	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**
INORGANICS												
CALCIUM	145000			36900								
IRON	11400			14500								
MAGNESIUM	142000			4720								
MANGANESE	80.9			14.3								
POTASSIUM	41500			770								
SODIUM	1110000			42200								

C-22

CTO127-MCRD PARRIS ISLAND
WATER DATA
KAS
SDG: 12710

SAMPLE NUMBER:	PAI-45-GW01SU-01			PAI-45-GW04SU-01			PAI-45-GW05SL-01			PAI-45-GW06SU-01		
SAMPLE DATE:	10/18/01			10/17/01			10/17/01			10/17/01		
LABORATORY ID:	WR3550-1			WR3528-4			WR3528-5			WR3528-2		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
FIELD DUPLICATE OF:												
	RESULT	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**
MISCELLANEOUS PARAMETERS												
ALKALINITY(MG/L)	160			20	U		30			220		
BIOCHEMICAL OXYGEN DEMAND(MG/L)	24	U		6	U		6	U		6	U	
CHEMICAL OXYGEN DEMAND(MG/L)	30			15	U		20			50		
CHLORIDE(MG/L)	9			100			300			2000	J	H
NITRATE AS NITROGEN(MG/L)	0.05	U		0.05	U		0.08			0.05	U	
NITRITE AS NITROGEN(MG/L)	0.05	U		0.1	U		0.05	U		0.05	U	
ORTHOPHOSPHATE(MG/L)	0.09			0.05	U		0.96			0.09		
PH(PH)	6.3			7.8			6.2			6.8		
SPECIFIC CONDUCTANCE(UMHOS/CM)	380			420			1100			6200		
SULFATE(MG/L)	30			27			7.3			460		
TOTAL ORGANIC CARBON(MG/L)	22	J	G	8.4	J	G	10	J	G	23	J	G

SAMPLE NUMBER:	PAI-45-DUP-101701	PAI-45-GW08SU-01		
SAMPLE DATE:	10/17/01	10/18/01	/ /	/ /
LABORATORY ID:	WR3528-3	WR3550-2		
QC_TYPE:	NORMAL	NORMAL		
% SOLIDS:	0.0 %	0.0 %	100.0 %	100.0 %
FIELD DUPLICATE OF:	PAI-45-GW06SU-01			

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
MISCELLANEOUS PARAMETERS												
ALKALINITY(MG/L)	210			110								
BIOCHEMICAL OXYGEN DEMAND(MG/L)	6	U		24	U							
CHEMICAL OXYGEN DEMAND(MG/L)	40			50								
CHLORIDE(MG/L)	2000	J	H	30								
NITRATE AS NITROGEN(MG/L)	0.05	U		0.05	U							
NITRITE AS NITROGEN(MG/L)	0.05	U		0.05	U							
ORTHOPHOSPHATE(MG/L)	0.09			0.05	U							
PH(PH)	6.8			5.4								
SPECIFIC CONDUCTANCE(UMHOS/CM)	6300			400								
SULFATE(MG/L)	400			57								
TOTAL ORGANIC CARBON(MG/L)	1	J	G	51	J	G						

C-24

CTO127-MCRD PARRIS ISLAND
WATER DATA
KAS
SDG: WR1038

SAMPLE NUMBER:	PAI-45-TW-05-20	PAI-45-TW-08-19	PAI-45-TW-10-32	TB-040301
SAMPLE DATE:	04/04/01	04/03/01	04/04/01	04/03/01
LABORATORY ID:	WR1038-2	WR1038-1	WR1038-3	WR1038-4
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	0.0 %	0.0 %	0.0 %	0.0 %
UNITS:	UG/L	UG/L	UG/L	UG/L
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
1,1,1-TRICHLOROETHANE	5	U		5	U		5	U		5	U	
1,1,2,2-TETRACHLOROETHANE	5	U		5	U		5	U		5	U	
1,1,2-TRICHLOROETHANE	5	U		5	U		5	U		5	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	5	U		5	U		5	U		5	U	
1,1-DICHLOROETHANE	5	U		5	U		5	U		5	U	
1,1-DICHLOROETHENE	5	U		5	U		5	U		5	U	
1,2,4-TRICHLOROBENZENE	5	UR	C	5	UR	C	5	UR	C	5	UR	C
1,2-DIBROMO-3-CHLOROPROPANE	5	UR	C	5	UR	C	5	UR	C	5	UR	C
1,2-DIBROMOETHANE	5	U		5	U		5	U		5	U	
1,2-DICHLOROBENZENE	5	U		5	U		5	U		5	U	
1,2-DICHLOROETHANE	5	U		5	U		5	U		5	U	
1,2-DICHLOROPROPANE	5	U		5	U		5	U		5	U	
1,3-DICHLOROBENZENE	5	U		5	U		5	U		5	U	
1,4-DICHLOROBENZENE	5	U		5	U		5	U		5	U	
2-BUTANONE	5	U		5	U		5	U		5	U	
2-HEXANONE	5	U		5	U		5	U		5	U	
4-METHYL-2-PENTANONE	5	U		5	U		5	U		5	U	
ACETONE	5	UR	C	5	UR	C	5	UR	C	5	U	
BENZENE	5	U		5	U		5	U		5	U	
BROMODICHLOROMETHANE	5	U		5	U		5	U		5	U	
BROMOFORM	5	U		5	U		5	U		5	U	
BROMOMETHANE	5	U		5	U		5	U		5	U	
CARBON DISULFIDE	5	U		5	U		5	U		5	U	
CARBON TETRACHLORIDE	5	U		5	U		5	U		5	U	
CHLOROBENZENE	5	U		5	U		5	U		5	U	
CHLORODIBROMOMETHANE	5	U		5	U		5	U		5	U	
CHLOROETHANE	5	U		5	U		5	U		5	U	
CHLOROFORM	5	U		5	U		5	U		5	U	
CHLOROMETHANE	5	U		5	U		5	U		5	U	
CIS-1,2-DICHLOROETHENE	5	U		4	J	P	5	U		5	U	
CIS-1,3-DICHLOROPROPENE	5	U		5	U		5	U		5	U	
CYCLOHEXANE	5	U		5	U		5	U		5	U	

C-25

1/4 *

CTO127-MCRD PARRIS ISLAND
WATER DATA
KAS
SDG: WR1038

SAMPLE NUMBER:	PAI-45-TW-05-20			PAI-45-TW-08-19			PAI-45-TW-10-32			TB-040301		
SAMPLE DATE:	04/04/01			04/03/01			04/04/01			04/03/01		
LABORATORY ID:	WR1038-2			WR1038-1			WR1038-3			WR1038-4		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
DICHLORODIFLUOROMETHANE	5	U		5	U		5	U		5	U	
ETHYLBENZENE	5	U		5	U		5	U		5	U	
ISOPROPYLBENZENE	5	U		5	U		5	U		5	U	
METHYL ACETATE	5	U		5	U		5	U		5	U	
METHYL CYCLOHEXANE	5	U		5	U		5	U		5	U	
METHYL TERT-BUTYL ETHER	5	U		5	U		5	U		5	U	
METHYLENE CHLORIDE	5	U		5	U		5	U		5	U	
STYRENE	5	U		5	U		5	U		5	U	
TETRACHLOROETHENE	5	U		5	U		5	U		5	U	
TOLUENE	5	U		5	U		5	U		5	U	
TOTAL XYLENES	5	U		5	U		5	U		5	U	
TRANS-1,2-DICHLOROETHENE	5	U		5	U		5	U		5	U	
TRANS-1,3-DICHLOROPROPENE	5	U		5	U		5	U		5	U	
TRICHLOROETHENE	5	U		5	U		5	U		5	U	
TRICHLOROFLUOROMETHANE	5	U		5	U		5	U		5	U	
VINYL CHLORIDE	5	U		5	U		5	U		5	U	

C-26

CTO127-MCRD PARRIS ISLAND
WATER DATA
KAS
SDG: WR1145

SAMPLE NUMBER:	PAI-45-TW-06-06			PAI-45-TW-17-06			TB-040901					
SAMPLE DATE:	04/10/01			04/09/01			04/09/01			/ /		
LABORATORY ID:	WR1145-3			WR1145-2			WR1145-1					
QC_TYPE:	NORMAL			NORMAL			NORMAL					
% SOLIDS:	0.0 %			0.0 %			0.0 %			100.0 %		
UNITS:	UG/L			UG/L			UG/L					
FIELD DUPLICATE OF:												

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
1,1,1-TRICHLOROETHANE	5	U		5	U		5	U				
1,1,2,2-TETRACHLOROETHANE	5	U		5	U		5	U				
1,1,2-TRICHLOROETHANE	5	U		5	U		5	U				
1,1,2-TRICHLOROTRIFLUOROETHANE	5	U		5	U		5	U				
1,1-DICHLOROETHANE	5	U		5	U		5	U				
1,1-DICHLOROETHENE	5	U		5	U		5	U				
1,2,4-TRICHLOROBENZENE	5	UR	C	5	UR	C	5	UR	C			
1,2-DIBROMO-3-CHLOROPROPANE	5	UR	C	5	UR	C	5	UR	C			
1,2-DIBROMOETHANE	5	U		5	U		5	U				
1,2-DICHLOROBENZENE	3 /2u*	J	P	5	U		5	U				
1,2-DICHLOROETHANE	5	U		5	U		5	U				
1,2-DICHLOROPROPANE	5	U		5	U		5	U				
1,3-DICHLOROBENZENE	5	U		5	U		5	U				
1,4-DICHLOROBENZENE	5	U		5	U		5	U				
2-BUTANONE	5	U		5	U		5	U				
2-HEXANONE	5	U		5	U		5	U				
4-METHYL-2-PENTANONE	5	U		5	U		5	U				
ACETONE	5	U		5	U		5	U				
BENZENE	5	U		5	U		5	U				
BROMODICHLOROMETHANE	5	U		5	U		5	U				
BROMOFORM	5	U		5	U		5	U				
BROMOMETHANE	5	U		5	U		5	U				
CARBON DISULFIDE	5	U		5	U		5	U				
CARBON TETRACHLORIDE	5	U		5	U		5	U				
CHLOROBENZENE	5	U		5	U		5	U				
CHLORODIBROMOMETHANE	5	U		5	U		5	U				
CHLOROETHANE	5	U		5	U		5	U				
CHLOROFORM	5	U		5	U		5	U				
CHLOROMETHANE	5	U		5	U		5	U				
CIS-1,2-DICHLOROETHENE	520 /6*			12 /2u*			5	U				
CIS-1,3-DICHLOROPROPENE	5	U		5	U		5	U				
CYCLOHEXANE	5	U		5	U		5	U				

CTO127-MCRD PARRIS ISLAND
WATER DATA
KAS
SDG: WR1145

SAMPLE NUMBER:	PAI-45-TW-06-06	PAI-45-TW-17-06	TB-040901	
SAMPLE DATE:	04/10/01	04/09/01	04/09/01	/ /
LABORATORY ID:	WR1145-3	WR1145-2	WR1145-1	
QC_TYPE:	NORMAL	NORMAL	NORMAL	
% SOLIDS:	0.0 %	0.0 %	0.0 %	100.0 %
UNITS:	UG/L	UG/L	UG/L	
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
DICHLORODIFLUOROMETHANE	5	U		5	U		5	U				
ETHYLBENZENE	5	U		5	U		5	U				
ISOPROPYLBENZENE	5	U		5	U		5	U				
METHYL ACETATE	5	U		5	U		5	U				
METHYL CYCLOHEXANE	5	U		5	U		5	U				
METHYL TERT-BUTYL ETHER	5	U		5	U		5	U				
METHYLENE CHLORIDE	5	U		5	U		5					
STYRENE	5	U		5	U		5	U				
TETRACHLOROETHENE	5	U		5	U		5	U				
TOLUENE	5	U		5	U		5	U				
TOTAL XYLENES	5 /5*	U		5	U		5	U				
TRANS-1,2-DICHLOROETHENE	6			5	U		5	U				
TRANS-1,3-DICHLOROPROPENE	5	U		5	U		5	U				
TRICHLOROETHENE	54 /51*			4 /4*	J	P	5	U				
TRICHLOROFLUOROMETHANE	5	U		5	U		5	U				
VINYL CHLORIDE	54 /50*			5	U		5	U				

CTO127-MCRD PARRIS ISLAND
WATER DATA
KAS
SDG: WR1989

SAMPLE NUMBER:	PAI-45-TW-30-32			PAI-45-TW-33-15			PAI-45-TW-34-14			TB-060601		
SAMPLE DATE:	06/07/01			06/06/01			06/07/01			06/06/01		
LABORATORY ID:	WR1989-2			WR1989-1			WR1989-3			WR1989-4		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
1,1,1-TRICHLOROETHANE	5	U		5	U		5	U		5	U	
1,1,2,2-TETRACHLOROETHANE	5	UJ	C	5	UJ	C	5	UJ	C	5	U	
1,1,2-TRICHLOROETHANE	5	UJ	C	5	UJ	C	5	UJ	C	5	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	5	U		5	U		5	U		5	U	
1,1-DICHLOROETHANE	5	U		0.9 /1U*	J	P	0.9 /1U*	J	P	5	U	
1,1-DICHLOROETHENE	5	U		2 /1U*	J	P	3 /1.8*	J	P	5	U	
1,2,4-TRICHLOROBENZENE	5	U		5	U		5	U		5	U	
1,2-DIBROMO-3-CHLOROPROPANE	5	UJ	C	5	UJ	C	5	UJ	C	5	U	
1,2-DIBROMOETHANE	5	U		5	U		5	U		5	U	
1,2-DICHLOROBENZENE	5	U		5	U		5	U		5	U	
1,2-DICHLOROETHANE	5	U		5	U		5	U		5	U	
1,2-DICHLOROPROPANE	5	U		5	U		5	U		5	U	
1,3-DICHLOROBENZENE	5	U		5	U		5	U		5	U	
1,4-DICHLOROBENZENE	5	U		5	U		5	U		5	U	
2-BUTANONE	5	UJ	C	5	UJ	C	5	UJ	C	5	U	
2-HEXANONE	5	UJ	C	5	UJ	C	5	UJ	C	5	U	
4-METHYL-2-PENTANONE	5	UJ	C	5	UJ	C	5	UJ	C	5	U	
ACETONE	5	U	A	5	UJ	C	5	U	A	4	J	P
BENZENE	5	U		5	U		5	U		5	U	
BROMODICHLOROMETHANE	5	U		5	U		5	U		5	U	
BROMOFORM	5	U		5	U		5	U		5	U	
BROMOMETHANE	5	U		5	U		5	U		5	U	
CARBON DISULFIDE	5	U		5	U		5	U		5	U	
CARBON TETRACHLORIDE	5	U		5	U		5	U		5	U	
CHLOROBENZENE	5	U		5	U		5	U		5	U	
CHLORODIBROMOMETHANE	5	U		5	U		5	U		5	U	
CHLOROETHANE	5	U		5	U		5	U		5	U	
CHLOROFORM	5	U		5	U		5	U		5	U	
CHLOROMETHANE	5	U		5	U		5	U		5	U	
CIS-1,2-DICHLOROETHENE	5	U		900 /390*			1600 /678*			5	U	
CIS-1,3-DICHLOROPROPENE	5	U		5	U		5	U		5	U	
CYCLOHEXANE	5	U		5	U		5	U		5	U	

CTO127-MCRD PARRIS ISLAND
WATER DATA
KAS
SDG: WR1989

SAMPLE NUMBER:	PAI-45-TW-30-32			PAI-45-TW-33-15			PAI-45-TW-34-14			TB-060601		
SAMPLE DATE:	06/07/01			06/06/01			06/07/01			06/06/01		
LABORATORY ID:	WR1989-2			WR1989-1			WR1989-3			WR1989-4		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
DICHLORODIFLUOROMETHANE	5	U		5	U		5	U		5	U	
ETHYLBENZENE	5	U		5	U		5	U		5	U	
ISOPROPYLBENZENE	5	U		5	U		5	U		5	U	
METHYL ACETATE	5	UJ	C	5	UJ	C	5	UJ	C	5	U	
METHYL CYCLOHEXANE	5	U		5	U		5	U		5	U	
METHYL TERT-BUTYL ETHER	5	U		5	U		5	U		5	U	
METHYLENE CHLORIDE	5	U		5	U		5	U		4	J	P
STYRENE	5	U		5	U		5	U		5	U	
TETRACHLOROETHENE	5	U	B	1300/585*			2600/1290*			3	J	P
TOLUENE	5	U		5	U		0.5/1U*	J	P	5	U	
TOTAL XYLENES	5	U		5	U		5	U		5	U	
TRANS-1,2-DICHLOROETHENE	5	U		27/25.3*			36/34.1*			5	U	
TRANS-1,3-DICHLOROPROPENE	5	UJ	C	5	UJ	C	5	UJ	C	5	U	
TRICHLOROETHENE	5	U	B	7100/3760*			3100/1660*			2	J	P
TRICHLOROFLUOROMETHANE	5	U		5	U		5	U		2	J	P
VINYL CHLORIDE	5	U		5/3.8*			12/8.8*			5	U	

* Value reported by Katahdin / Value reported by Test America.

APPENDIX D

DATA VALIDATION LETTERS

D-1 DATA VALIDATION LETTERS

TABLE D-1-1

NUMBER OF SAMPLES EXCEEDING VARIOUS QC CRITERIA, BY MEDIA
SITE 45 – FORMER MWR DRY CLEANING FACILITY
MCRD PARRIS ISLAND, SOUTH CAROLINA

MEDIA	TOTAL SAMPLES	QUALITY CONTROL CRITERIA	NUMBER EXCEEDING	RESULTING QUALIFIER(s)	RESULTING QUALIFIER CODE(s)
Surface Soil	1281	Lab blank contamination	45	U	A
		Calibration noncompliance	9	UR	C
		Field duplicate imprecision	4	J	G
		Field duplicate imprecision	2	UJ	G
		Instrument calibration range exceedence	2	J	L
		Uncertainty near detection limit	90	J	P
		Field duplicate imprecision/ Instrument calibration range exceedence	2	J	GL
		Field duplicate imprecision/ Uncertainty near detection limit	12	J	GP
Subsurface Soil	985	Lab blank contamination	21	U	A
		Calibration noncompliance	9	UR	C
		Field duplicate imprecision	13	J	G
		Field duplicate imprecision	16	UJ	G
		Instrument calibration range exceedence	2	J	L
		Uncertainty near detection limit	34	J	P
		Field duplicate imprecision/ Uncertainty near detection limit	8	J	GP
Groundwater	4543	Lab blank contamination	10	U	A
		Calibration noncompliance	3	UR	C
		Field Duplicate imprecision	6	J	G
		Holding time exceedence	2	J	H
		Uncertainty near detection limit	21	J	P

APPENDIX D-1

DATA VALIDATION LETTERS

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**D. BRAYACK**	**DATE:**	**OCTOBER 3, 2001**
FROM:	**SETH C. STAFFEN**	**COPIES:**	**DV FILE**
SUBJECT:	**ORGANIC DATA VALIDATION- VOA/SVOA CTO 127, MCRD PARRIS ISLAND SDG WR2015**		

SAMPLES: 1/Aqueous/VOA

TRIP BLANK-061201

19/Soil/VOA/SVOA

FD06120101	FD06120102	FD06120103	PAI-45-SB-01-05
PAI-45-SB-02-04	PAI-45-SB-03-04	PAI-45-SB-04-04	PAI-45-SB-05-04
PAI-45-SB-06-04	PAI-45-SB-07-04	PAI-45-SB-08-04	PAI-45-SS-01-01
PAI-45-SS-02-01	PAI-45-SS-03-01	PAI-45-SS-04-01	PAI-45-SS-05-01
PAI-45-SS-06-01	PAI-45-SS-07-01	PAI-45-SS-08-01	

OVERVIEW

The sample set for CTO 127, MCRD Parris Island; SDG WR2015 consists of nineteen (19) environmental soil samples and one (1) trip blank. The environmental samples were analyzed for TCL volatile organic compounds (VOCs) and TCL semivolatile organic compounds (SVOCs). Three field duplicate pairs were included in this SDG: PAI-45-SS-04-01 / FD06120101, PAI-45-SB-07-04 / FD6120102, and PAI-45-SS-08-01 / FD06120103.

The samples were collected by TetraTech NUS on June 12, 2001 and analyzed by Katahdin Analytical Services. All analyses were conducted in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria using SW-846 Methods 8260B and 8270C analysis and reporting protocol. The data contained in this SDG were validated with regard to the following parameters:

* • Data completeness
* • Holding times
• Initial/continuing calibrations
• Laboratory method and field quality control blank results
• Field Duplicate Precision
• Detection Limits

The symbol (*) indicates that all quality control criteria were met for this parameter. Problems affecting data quality are discussed below; documentation supporting these findings is presented in Appendix C. Qualified Analytical results are presented in Appendix A. Results as reported by the laboratory are presented in Appendix B.

The text of this report is formulated to address only gross noncompliances resulting in the rejection of data and the elimination of false positives.

VOLATILE

Tetrachloroethene, trichloroethene, and cis-1,2-dichloroethene exceeded the linear calibration range of the instrument in sample FD06120101. Because the laboratory did not perform a dilution analysis, the aforementioned compounds were qualified as estimated, J.

Trichloroethene exceeded the linear calibration range of the instrument in sample PAI-45-SB-01-05. Trichloroethene was nondetected in the dilution analyses. Therefore, the aforementioned compound was qualified as estimated, J, in the original analysis.

Tetrachloroethene exceeded the linear calibration range of the instrument in sample PAI-45-SB-03-04. The original analysis was used for validation because the dilution analysis was not linear. The aforementioned compound was qualified as estimated, J, in the original analysis.

Several initial (%RSD) and/or continuing (%D) calibration noncompliances were noted, however, these noncompliances did not warrant qualification because only limited data review is being performed.

The following compounds were detected in the laboratory method blanks and/or field quality blanks at the maximum concentration indicated below:

Compound	Concentration	Soil Action Level
Acetone	8 µg/kg	80 µg/kg
Methylene chloride	4 µg/kg	40 µg/kg
Toluene	4 µg/kg	20 µg/kg
Tetrachloroethene	4 µg/L	20 µg/kg
Methyl Acetate	3 µg/L	15 µg/kg

Blank Actions

- Value < Reporting Limit (RL); report RL followed by a U.
- Value > RL and < Action level; report value followed by a U.
- Value > RL and > Action level; report value unqualified.

An action level of 10X (acetone and methyl chloride) and 5X (toluene, tetrachloroethene, and methyl acetate) the maximum contaminant concentration was established to evaluate laboratory contamination. Dilution factors, percent moisture, and sample aliquots were taken into consideration during the application of all action levels. The positive results below the blank action levels were qualified as nondetected, U, for the aforementioned compounds.

Field duplicate imprecision occurred between PAI-45-SS-04-01 and its duplicate FD06120101 for cis-1,2-dichloroethene. The aforementioned compound was detected below the reporting limit in the field pair and was qualified as estimated, J, since the RPD was greater than 50%.

Field duplicate imprecision occurred between PAI-45-SS-08-01 and its duplicate FD06120103 for cis-1,2-dichloroethene, tetrachloroethene, and trichloroethene. Cis-1,2-dichloroethene was detected below the reporting limit in the field pair and was qualified as estimated, J, since the RPD was greater than 50%. Tetrachloroethene and trichloroethene were detected in the original sample and detected below the reporting limit in the duplicate. Tetrachloroethene and trichloroethene were qualified as estimated, J, in the field pair since the RPD was greater than 50%.

Sample FD06120103 was analyzed without a dilution. The corresponding duplicate, PAI-45-SS-08-01, was analyzed at an approximate 25X dilution. This accounts for the disparity between reporting limits. Also, percent solids were not reported for sample FD06120103.

SEMIVOLATILE

The initial and continuing calibrations RRFs were less than the 0.05 quality control limit for 3,3'-Dichlorobenzidine. The aforementioned compound was qualified as rejected, UR, in all of the samples.

The following compound was detected in the laboratory method blanks and/or field quality blanks at the maximum concentration indicated below:

Compound	Concentration	Soil Action Level
Bis(2-ethylhexyl)phthalate	260 µg/kg	2600 µg/kg

Blank Actions

- Value < Reporting Limit (RL); report RL followed by a U.
- Value > RL and < Action level; report value followed by a U.
- Value > RL and > Action level; report value unqualified.

An action level of 10X the maximum contaminant concentration was established to evaluate laboratory contamination. Dilution factors, percent moisture, and sample aliquots were taken into consideration during the application of all action levels. Positive results below the blank action level were qualified as nondetected, U, as a result of blank contamination for Bis(2-ethylhexyl)phthalate.

Field duplicate imprecision occurred between PAI-45-SS-04-01 and its duplicate FD06120101 for cis-1,2-dichloroethene. The aforementioned compound was detected below the reporting limit in the field pair and was qualified as estimated, J, since the RPD was greater than 50%.

Field Duplicate imprecision occurred between PAI-45-SS-04-01 and its duplicate FD06120101 for several compounds. Butyl benyl phthalate and dibenzo(a,h)anthracene were detected in the original sample but were not detected in the duplicate sample. Positive and nondetected results were qualified as estimated, J, and ,UJ, respectively. Benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and fluoranthene were detected in the both samples but below the reporting limits. Positive results were qualified as estimated, J, in the field pair.

Field Duplicate imprecision occurred between PAI-45-SB-07-04 and its duplicate FD06120102 for several compounds. Benzo(a)anthracene and fluoranthene were detected in the original sample below the reporting limit and were detected the duplicate. Positive results were qualified as estimated, J, in the field pair. The following compounds were not detected in the original sample but were detected in the duplicate sample:

2-Methylnaphthalene
Acenaphthene
Acenaphthylene
Anthracene
Benzo(a)pyrene
Benzo(b)fluoranthene
Benzo(g,h,i)perylene
Benzo(k)fluoranthene
Carbazole
Chrysene
Dibenzo(a,h)anthracene
Dibenzofuran
Fluorene
Indeno(1,2,3-cd)pyrene
Naphthalene
Phenanthrene
Pyrene

Positive and nondetected results were qualified as estimated, J, and , UJ, respectively, in the field pair.

Field Duplicates for SDG WR2015

	Sample		Duplicate		RPD %	Difference
	PAI-45-SS-04-01		FD06120101			
	UG/KG		UG/KG			
cis-1,2-dichloroethene	400	J	730	J	58.4	330
Tetrachloroethene	6000		3800	J	44.9	2200
Trans-1,2-dichloroethene	33		50		41.0	17
Trichloroethene	200		320	J	46.2	120
Benzo(a)anthracene	110	J	52.0	J	71.6	58
Benzo(a)pyrene	91	J	45	J	67.6	46
Benzo(b)fluoranthene	120	J	70	J	52.6	50
Benzo(ghi)perylene	66	J	48	J	31.6	18
Butyl benzyl phthalate	25	J	ND		#VALUE!	#VALUE!
Chrysene	48	J	54	J	11.8	6
Dibenzo(a,h)anthracene	20	J	ND		#VALUE!	#VALUE!
Fluoranthene	110	J	59	J	60.4	51
indeno(123-cd)pyrene	73	J	48	J	41.3	25
Phenanthrene	29	J	24	J	18.9	5
	Sample		Duplicate			
	PAI-45-SS-08-01		FD06120103			
	UG/KG		UG/KG			
cis-1,2-dichloroethene	56.0	J	17.0	J	106.8	39
Methyl acetate	380	U	5	U	NC	NC
Tetrachloroethene	2500		720	J	110.6	1780
Trichloroethene	37		14	J	90.2	23
	Sample		Duplicate			
	PAI-45-SB-07-04		FD06120102			
	UG/KG		UG/KG			
2-Methylnaphthalene	ND		120.0	J	#VALUE!	#VALUE!
Acenaphthene	ND		520.0	J	#VALUE!	#VALUE!
Acenaphthylene	ND		36.0	J	#VALUE!	#VALUE!
Anthracene	ND		2900		#VALUE!	#VALUE!
Benzo(a)anthracene	17	J	7200		199.1	7183
Benzo(a)pyrene	ND		5800		#VALUE!	#VALUE!
Benzo(b)fluoranthene	ND		7100		#VALUE!	#VALUE!
Benzo(ghi)perylene	ND		3200		#VALUE!	#VALUE!
Benzo(k)fluoranthene	ND		2200		#VALUE!	#VALUE!
Carbazole	ND		360	J	#VALUE!	#VALUE!
Chrysene	ND		6200		#VALUE!	#VALUE!
Dibenzo(a,h)anthracene	ND		780		#VALUE!	#VALUE!
Dibenzofuran	ND		360	J	#VALUE!	#VALUE!
Fluoranthene	14	J	16000		199.7	15986
Fluorene	ND		930		#VALUE!	#VALUE!
indeno(123-cd)pyrene	ND		3700.0		#VALUE!	#VALUE!
Naphthalene	ND		760.0	J	#VALUE!	#VALUE!
Phenanthrene	ND		9700		#VALUE!	#VALUE!
Pyrene	ND		12000		NC	NC

ND - Compound not detected.
NC - RPD not calculated.

Additional Comments

Positive results below the quantitation limit were qualified as estimated, J, due to uncertainty near the detection limit.

Sample FD06120102 was analyzed for semivolatiles only. The COC is not clearly marked.

EXECUTIVE SUMMARY

Laboratory Performance Issues: Several initial and/or continuing calibrations did not met calibration criteria. Several laboratory contaminants were detected in the laboratory method blanks.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (October 1999) and the NFESC guidelines "Navy IRCDQM" (September 1999). The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC guidelines and the Quality Assurance Project Plan (QAPP)."

Seth C. Staffen

Environmental Scientist/Data Validator
Tetra Tech NUS

Joseph A. Samchuck

Data Validation Quality Assurance Officer
TetraTech NUS

Attachments:

1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as Reported by the Laboratory
3. Appendix C - Support Documentation

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO: D. BRAYACK **DATE:** OCTOBER 2, 2001

FROM: ERIN M. FAUST **COPIES:** DV FILE

SUBJECT: INORGANIC DATA VALIDATION – METALS AND TOC
CTO-127 MCRD PARRIS ISLAND
SAMPLE DELIVERY GROUP (SDG) – WR2015

SAMPLES: 21/Soils/

FD06120101	PAI-45-SS-01-01	PAI-45-SS-02-01
PAI-45-SS-03-01	PAI-45-SS-04-01	PAI-45-SS-05-01
PAI-45-SS-06-01	PAI-45-SS-07-01	PAI-45-SS-08-01
FD06120104	FD06120102	PAI-45-SB-01-05
PAI-45-SB-01-14	PAI-45-SB-02-04	PAI-45-SB-03-04
PAI-45-SB-04-04	PAI-45-SB-05-04	PAI-45-SB-06-04
PAI-45-SB-07-04	PAI-45-SB-08-04	PAI-45-SB-09-14

Overview

The sample set for CTO 127, MCRD Parris Island, SDG WR2015, consists of twenty-one (21) soil environmental samples. Three (3) field duplicate pairs (FD06120101 / PAI-45-SS-04-01, FD06120104 / PAI-45-SB-08-04 and FD06120102 / PAI-SB-07-04) are included within this SDG.

Samples FD06120101, PAI-45-SS-01-01, PAI-45-SS-02-01, PAI-45-SS-03-01, PAI-45-SS-04-01, PAI-45-SS-05-01, PAI-45-SS-06-01, PAI-45-SS-07-01 and PAI-45-SS-08-01 were analyzed for target analyte list (TAL) metals plus tin. The remaining samples were analyzed for total organic carbon (TOC) only. The samples were collected by TetraTech NUS on June 12, 2001 and analyzed Katahdin Analytical Services under Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria. Metals analyses, with the exception of mercury, were conducted using SW 846 method 6010B. Mercury analyses were conducted using SW 846 method 7471A. TOC analyses were conducted using SW 846 method 9060.

Metals analyses, with the exception of mercury, were conducted using Inductively Coupled Plasma (ICP) methodologies. Mercury analyses were conducted using Cold Vapor Atomic Absorption (CVAA).

These data were evaluated based on the following parameters:

* • Data Completeness
* • Holding Times
• Laboratory Blank Analyses
* • Sample Quantitation
* • Field Duplicate Results
* • Detection Limits

* - All quality control criteria were met for this parameter.

Laboratory Blank Analyses

The following contaminants were detected in the laboratory method / preparation blanks at the following maximum concentrations:

Analyte	Maximum Concentration	Action Level
Aluminum	40.79 µg/L	20.395 mg/kg
Antimony[(1)]	0.469mg/kg	2.345 mg/kg
Barium	0.65 µg/L	0.325 mg/kg
Beryllium	0.59 µg/L	0.295 mg/kg
Cadmium	0.63 µg/L	0.315 mg/kg
Calcium[(1)]	4.297 mg/kg	21.485 mg/kg
Chromium[(1)]	0.086 mg/kg	0.43 mg/kg
Cobalt	1.07 µg/L	0.535 mg/kg
Copper[(1)]	0.262 mg/kg	1.31 mg/kg
Iron[(1)]	3.8 mg/kg	19.0 mg/kg
Lead	2.53 µg/L	1.265 mg/kg
Magnesium	35.35 µg/L	17.675 mg/kg
Manganese	0.29 µg/L	0.145 mg/kg
Nickel	1.03 µg/L	0.515 mg/kg
Silver[(1)]	0.126 mg/kg	0.63 mg/kg
Sodium[(1)]	3.953 mg/kg	19.765 mg/kg
Thallium[(1)]	0.576 mg/kg	2.88 mg/kg
Tin[(1)]	3.867 mg/kg	19.335 mg/kg
Vanadium[(1)]	0.072 mg/kg	0.36 mg/kg
Zinc	10.99 µg/L	5.495 mg/kg

[(1)] Maximum concentration present in a laboratory preparation blank.

An action level of 5X the maximum concentration was used to evaluate the sample data for blank contamination. Sample aliquot, percent solids and dilution factors were taken into consideration when evaluating for blank contamination. Positive results less than the blank action levels reported for beryllium, cadmium, cobalt and tin were qualified, "U", as a result of blank contamination.

Notes

The TOC results that were entered into the database were determined by averaging the results for the two replicates reported by the laboratory for each sample. In the case of samples where the laboratory reported a positive value and a nondetected value, the results were calculated by averaging the positive value with one-half of the detection limit of the nondetected value.

As per the laboratory project manager, the samples were dried prior to measuring an aliquot for TOC analysis; therefore, the percent solid should not be taken into account when determining the reported result for TOC.

Executive Summary

Laboratory Performance: Several analytes were present in the laboratory method/preparation blanks.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Inorganic Review", February 1994 and the NFESC document entitled "Navy IRCDQM" (September 1999).

The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC Guidelines and the Quality Assurance Project Plan (QAPP)."

Tetra Tech NUS
Erin M. Faust
Environmental Scientist

TetraTech NUS
Joseph A. Samchuck
Quality Assurance Officer

Attachments:

1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Support Documentation

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**D. BRAYACK**	**DATE:**	**SEPTEMBER 27, 2001**
FROM:	**ERIN M. FAUST**	**COPIES:**	**DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION – TOC**
CTO-127 MCRD PARRIS ISLAND
SAMPLE DELIVERY GROUP (SDG) – WR2082

SAMPLES: 4/Soils/

PAI-45-SB-10-13 PAI-45-SB-11-10 PAI-45-SB-12-10
PAI-45-SB-13-10

1/Aqueous/

PAI-45-IDW

Overview

The sample set for CTO 127, MCRD Parris Island, SDG WR2082, consists of four (4) soil environmental samples and one (1) aqueous interim derived waste sample, PAI-45-IDW.

All soil samples were analyzed for total organic carbon (TOC) only. Sample PAI-45-IDW was analyzed for target analyte list metals (TAL), biochemical oxygen demand (BOD), chemical oxygen demand (COD), chloride, fluoride, hardness, nitrate, nitrite, pH, sulfate, fecal coliform, total dissolved solids (TDS), total suspended solids (TSS) and TOC. The samples were collected by TetraTech NUS on June 13 and 14, 2001 and analyzed Katahdin Analytical Services under Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria. TOC analyses in the solid samples were conducted using the Lloyd Kahn method. Metals analyses, with the exception of mercury, were conducted using SW 846 methods 6010B and 6020. Mercury analyses were conducted using SW 846 method 7471A. Analyses for nitrate, nitrite and sulfate were conducted using EPA method 300.0. Analyses for BOD, COD, chloride, fluoride, pH, TDS, TOC and TSS in sample PAI-45-IDW were conducted using EPA methods 405.1, 410.4, 325.2, 340.2, 150.1, 160.1, 415.1 and 160.2, respectively. Results for hardness were calculated using Standard Methods 18th edition, method 2340B. Analyses for fecal coliform were conducted using Standard Methods, method 9222D.

Metals analyses, with the exception of mercury, were conducted using Inductively Coupled Plasma (ICP) methodologies. Mercury analyses were conducted using Cold Vapor Atomic Absorption (CVAA).

These data were evaluated based on the following parameters:

* • Data Completeness
* • Holding Times
* • Laboratory Blank Analyses
* • Sample Quantitation
* • Detection Limits

* - All quality control criteria were met for this parameter.

Notes

As per the project manager, results for sample PAI-45-IDW were not validated.

All of the results reported for TOC in this SDG were nondetected. The laboratory reported two separate results for each sample. The TOC results that were entered into the database were determined by averaging the results for the two replicates reported by the laboratory for each sample.

Executive Summary

Laboratory Performance: None.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Inorganic Review", February 1994 and the NFESC document entitled "Navy IRCDQM" (September 1999).

The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC Guidelines and the Quality Assurance Project Plan (QAPP)."

Tetra Tech NUS
Erin M. Faust
Environmental Scientist

TetraTech NUS
Joseph A. Samchuck
Quality Assurance Officer

Attachments:

1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Support Documentation

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**MR. D. BRAYACK**	**DATE:**	**JANUARY 10, 2002**
FROM:	**BERNARD F SPADA III**	**COPIES:**	**DV FILE**
SUBJECT:	**ORGANIC DATA VALIDATION- VOA/OVG** **CTO 127, MCRD PARRIS ISLAND** **SDG 12710**		
SAMPLES:	12/Aqueous		

PAI-45-DUP-101701*	PAI-45-GW04SU-01*	PAI-45-GW05SL-01*
PAI-45-GW06SU-01*	PAI-45-TB-101701	PAI-45-DUP-101701-2
PAI45GW01SU-01*	PAI45GW04D-01	PAI45GW05D-01
PAI45GW08SU-01*	PAI45GW10D-01	PAI45TB101701-02

OVERVIEW

The sample set for CTO 127 MCRD Parris Island, SDG 12710 consists of eight (8) aqueous environmental samples two (2) duplicates and two (2) trip blanks. Sample PAI-45-DUP-101701 is the duplicate of sample PAI-45-GW06SU-01 and sample PAI-45-DUP-101701-2 is the duplicate of sample PAI-45-GW10D-01. All samples were analyzed for volatile organic compounds (VOC) by method SW-846 8260B. Six samples denoted by an asterisk (*) were analyzed for Methane, Ethane, and Ethene by method Modified RSK 175 also.

The samples were collected by Tetra Tech NUS on October 17 and 18, 2001 and analyzed by Katahdin Analytical Services. All analyses were conducted in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria using SW-846 Method 8260B and Modified RSK 175 analytical and reporting protocols. The data contained in this SDG were validated with regard to the following parameters:

* • Data completeness
* • Holding times
* • Initial and continuing calibration
• Laboratory method and field quality control blank results
* • Field duplicate results
* • Detection Limits

The symbol (*) indicates that all quality control criteria were met for this parameter. Problems affecting data quality are discussed below; documentation supporting these findings is presented in Appendix C. Qualified Analytical results are presented in Appendix A.

Volatile

The following compounds were detected in the method blank:

Compound	Maximum Concentration	Blank Action Level
Methylene Chloride	2 µg/L	20 µg/L
1,2,4-trichlorobenzene	0.5 µg/L	2.5 µg/L

Sample aliquot, and dilution factors were taken into consideration when applying the blank action levels. Positive results for the aforementioned compounds below the blank action level were qualified as nondetected, (U). Field blank samples were not qualified due to laboratory blank contamination.

Sample PAI45GW08SU-01 was analyzed at a 100X dilution. Samples PAI-45-GW06SU-01 and PAI-45-DUP-101701 were analyzed at a 10X dilution. Results within linear calibration range from the dilution analyses were transposed over the undiluted analyses and were used for validation.

Positive results reported below the Reporting Limit (RL) were qualified as estimated, (J).

In the undiluted analysis of sample PAI45GW08SU-01, the laboratory reported a non-detected result for tetrachloroethene. The subsequent diluted analysis of the sample showed a result of 10000 µg/L for tetrachloroethene. Further investigation determined that tetrachloroethene was present in both analyses but misidentified on the undiluted analysis. The chromatogram and spectra from the raw data have been included in the supporting documents section as verification. The result from the diluted analysis was used for validation.

Ethane, Ethene, and Methane

No qualifiers were assigned to this fraction.

EXECUTIVE SUMMARY

Laboratory Performance Issues: Qualifications were made based on method blank contamination.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (10/99), and the NFESC guidelines "Navy Installation Restoration Program Laboratory Quality Assurance Guide" (September, 1999). The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC guidelines and the Quality Assurance Project Plan (QAPP)."

Bernard F Spada III
Tetra Tech NUS

Bernard F Spada III
Chemist/Data Validator

Tetra Tech NUS

Joseph A. Samchuck
Data Validation Quality Assurance Officer

Attachments:

1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as Reported by the Laboratory
3. Appendix C - Support Documentation

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO: D. BRAYACK **DATE:** JANUARY 10, 2002

FROM: ERIN M. FAUST **COPIES:** DV FILE

SUBJECT: INORGANIC DATA VALIDATION – METALS AND MISCELLANEOUS PARAMETERS
CTO 127, MCRD PARRIS ISLAND
SAMPLE DELIVERY GROUP (SDG) 12710

SAMPLES: 6/Aqueous/

PAI-45-DUP-101701	PAI-45-GW04SU-01	PAI-45-GW05SL-01
PAI-45-GW06SU-01	PAI-45-GW01SU-01	PAI-45-GW08SU-01

Overview

The sample set for CTO 127, MCRD Parris Island, SDG 12710, consists of six (6) aqueous environmental samples. One (1) field duplicate pair (PAI-45-DUP-101701 / PAI-45-GW06SU-01) is included within this SDG.

All samples were analyzed for calcium, iron, magnesium, manganese, potassium, sodium, alkalinity, biochemical oxygen demand (BOD), chemical oxygen demand (COD), chloride, nitrate, nitrite, orthophosphate, pH, specific conductance, sulfate and total organic carbon (TOC). The samples were collected by TetraTech NUS on October 17 and 18, 2001 and analyzed Katahdin Analytical Services under Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria. Metals analyses were conducted using SW 846 method 6010B. Chloride, nitrite and sulfate analyses were conducted using EPA method 300.0. Analyses for alkalinity, BOD, COD, nitrate, orthophosphate, pH, specific conductance and TOC were conducted using EPA methods 310.1, 405.1, 410.4, 353.2, 365.2, 150.1, 120.1 and 415.1, respectively.

Metals analyses were conducted using Inductively Coupled Plasma (ICP) methodologies.

These data were evaluated based on the following parameters:

* • Data Completeness
• Holding Times
• Laboratory Blank Analyses
* • Sample Quantitation
• Field Duplicate Results
* • Detection Limits

* - All quality control criteria were met for this parameter.

Holding Times

The 28-day holding time for chloride was exceeded by one day for samples PAI-45-DUP-101701 and PAI-45-GW06SU-01. Positive results reported for chloride in these samples were qualified as estimated, "J".

Laboratory Blank Analyses

The following contaminants were detected in the laboratory method / preparation blanks at the following maximum concentrations:

Analyte	Maximum Concentration	Action Level
Calcium	14.79 µg/L	73.95 µg/L
Sodium[(1)]	39.43 µg/L	197.15 µg/L

[(1)] Maximum concentration present in a laboratory preparation blank.

An action level of 5X the maximum concentration was used to evaluate the sample data for blank contamination. Sample aliquot and dilution factors were taken into consideration when evaluating for blank contamination. No validation action was required because the reported results were greater than the action level.

Field Duplicate Results

Field duplicate imprecision (RPD > 30%) was noted for TOC. Positive results reported for TOC were qualified as estimated, "J".

Executive Summary

Laboratory Performance: Several analytes were present in the laboratory method/preparation blanks. The holding time was exceeded for chloride for two samples.

Other Factors Affecting Data Quality: Field duplicate imprecision was noted for TOC.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Inorganic Review", February 1994 and the NFESC document entitled "Navy IRCDQM" (September 1999).

The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC Guidelines and the Quality Assurance Project Plan (QAPP)."

Tetra Tech NUS
Erin M. Faust
Environmental Scientist

TetraTech NUS
Joseph A. Samchuck
Quality Assurance Officer

Attachments:

1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Support Documentation

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO: J. BROWN **DATE:** MAY 7, 2001

FROM: SETH STAFFEN **COPIES:** DV FILE

SUBJECT: ORGANIC DATA VALIDATION- VOA/SVOA/PEST/PCB
CTO 183, MCRD PARRIS ISLAND
SDG WR0839

SAMPLES: 3/Aqueous/VOA

PAI-45-TW-01-10 PAI-RTF-MW-01 TRIP BLANK TB-01

Not related to Site 45

1/Aqueous/SVOA/PEST/PCB

PAI-RTF-MW-01 – Not related to Site 45

OVERVIEW

The sample set for CTO 183 MCRD Parris Island, SDG WR0839 consisted of three (3) aqueous environmental samples analyzed for the parameters indicated above. One trip blank was included and analyzed for VOCs only. No field duplicate pairs were included in the SDG.

The samples were collected by TetraTech NUS on March 22, 2001 and analyzed by Katahdin Analytical Services. All analyses were conducted in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria using SW-846 Method 8260B, 8270C, 8081A, and 8082 analysis and reporting protocols. The data contained in this SDG were validated with regard to the following parameters:

* Data Completeness
* Holding Times
* Initial and Continuing Calibration
  Blank Results
* Detection Limits

The symbol (*) indicates that all quality control criteria were met for this parameter. Problems affecting data quality are discussed below; documentation supporting these findings is presented in Appendix C. Qualified Analytical results are presented in Appendix A. Results as reported by the laboratory are presented in Appendix B.

The text of this report was formulated to address only gross noncompliances resulting in the rejection of data and the elimination of false positives.

VOLATILE

The following compounds were detected in the laboratory method blank:

Compound	Maximum Concentration	Blank Action Level
Bromomethane	2.0 µg/L	10 µg/L
Acetone	4.0 µg/L	40 µg/L
Methylene Chloride	2.0 µg/L	20 µg/L
Methylcyclohexane	3.0 µg/L	15 µg/L
1,2,4-Trichlorobenzene	2.0 µg/L	10 µg/L
1,1,2-Trichloro-1,2,2-Trifluoroethane	1.0 µg/L	5.0 µg/L
Cyclohexane	1.0 µg/L	5.0 µg/L
Total Xylenes	1.0 µg/L	5.0 µg/L
1,2-Dibromo-3-Chloropropane	1.0 µg/L	5.0 µg/L
1,4-Dichlorobenzene[1]	0.6 µg/L	3.0 µg/L

Samples Affected: All
(1) In Trip Blank

Sample aliquot and dilution factors were taken into consideration when applying the blank action level. Positive results for the compounds listed above that were less than the blank action level were qualified as nondetected, U.

SEMIVOLATILE

All quality control parameters were met for this fraction.

PESTICIDES/PCB

All quality control parameters were met for this fraction.

Additional Comments

Positive results below the CRQL were qualified as estimated, J, due to uncertainty near the detection limit.

EXECUTIVE SUMMARY

Laboratory Performance Issues: Several compounds were detected in the laboratory method blank.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (October 1999) and the NFESC guidelines "Navy IRCDQM" (September 1999). The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC guidelines and the Quality Assurance Project Plan (QAPP)."

Seth Staffen.

Environmental Scientist/Data Validator
Tetra Tech NUS

Joseph A. Samchuck

Data Validation Quality Assurance Officer
TetraTech NUS

Attachments:

1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as Reported by the Laboratory
3. Appendix C - Support Documentation

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**D. BRAYACK**	**DATE:**	**NOVEMBER 2, 2001**
FROM:	**SETH STAFFEN**	**COPIES:**	**DV FILE**
SUBJECT:	**ORGANIC DATA VALIDATION - VOA CTO 127, MCRD PARRIS ISLAND SDG WR3372**		
SAMPLES:	1/Aqueous/VOA PAI45PW100401		

OVERVIEW

The sample set for CTO 127, MCRD Parris Island; SDG WR3372 consists of one (1) aqueous environmental sample that was analyzed for TCL volatile organic compounds (VOCs). No field duplicate pairs were included in this SDG.

The sample was collected by TetraTech NUS on October 4, 2001 and analyzed by Katahdin Analytical Services. All analyses were conducted in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria using SW-846 Method 8260 analysis and reporting protocol. The data contained in this SDG were validated with regard to the following parameters:

*	• Data completeness
*	• Holding times
*	• GC/MS tuning and system performance
*	• Initial/continuing calibrations
	• Laboratory method blank
*	• Detection Limits

The symbol (*) indicates that all quality control criteria were met for this parameter. Problems affecting data quality are discussed below; documentation supporting these findings is presented in Appendix C. Qualified Analytical results are presented in Appendix A. Results as reported by the laboratory are presented in Appendix B.

VOLATILE

The initial calibration on 009/28/01 contained a percent relative standard deviations (%RSD) that was greater than the 30% quality control limit for methylene chloride. No qualification action was taken since this was not a gross noncompliance.

Despite the absence of acetone in the laboratory method blank, acetone is a common laboratory contaminant. Therefore, the presence of acetone in environmental samples is a suspected laboratory contaminant. Positive results were qualified as estimated, J.

Methylene chloride was detected in the laboratory method blank. No action was taken since methylene chloride was not detected in the environmental sample.

The laboratory control sample percent recovery for acetone was greater than the upper quality control limit. No qualification action was taken.

Additional Comments

Positive results below the quantitation limit were qualified as estimated, J, due to uncertainty near the detection limit.

EXECUTIVE SUMMARY

Laboratory Performance Issues: Acetone was a suspected laboratory contaminant. The matrix spike and matrix spike duplicate samples were not analyzed for this fraction.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (October 1999) and the NFESC guidelines "Navy IRCDQM" (September 1999). The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC guidelines and the Quality Assurance Project Plan (QAPP)."

Seth Staffen

Environmental Scientist/Data Validator
Tetra Tech NUS

Joseph A. Samchuck

Data Validation Quality Assurance Officer
TetraTech NUS

Attachments:

1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as Reported by the Laboratory
3. Appendix C - Support Documentation

APPENDIX E

NATURAL ATTENUATION EVALUATION

E-1 NATURAL ATTENUATION EVALUATION

APPENDIX E-1

NATURAL ATTENUATION EVALUATION

APPENDIX E
NATURAL ATTENUATION EVALUATION
SITE 45 GROUNDWATER
MCRD PARRIS ISLAND, SOUTH CAROLINA

1.0 INTRODUCTION

A groundwater investigation was performed at Site 45 in November 2001 to evaluate groundwater conditions at the site. A primary focus of the investigation was to determine whether natural attenuation processes are active at the site and, if so, to identify the extent of impacts of natural attenuation on contaminant concentrations (chlorinated ethenes) in groundwater. The field work performed in support of this evaluation included groundwater sampling and analysis, along with general aquifer characterization activities (pumping test, slug tests, water level measurements/flow mapping). The Site 45 RI report text describes the field program in detail and presents a detailed discussion of the results of the aquifer characterization activities. This Appendix provides a detailed presentation and evaluation of the natural attenuation-related data collected, focused primarily on the chemical data collected in support of the natural attenuation evaluation (Table 1). Data presented in the RI Report regarding aquifer characteristics are used in evaluating contaminant migration trends, but are not otherwise discussed in detail herein.

2.0 DISCUSSION OF NATURAL ATTENUATION DATA

Guidance documents for evaluating natural attenuation processes at a site (EPA, 1997; EPA, 1998) suggest that a weight-of-evidence approach be taken to evaluate the impacts of natural attenuation processes on contaminant concentration changes in groundwater. Lines of evidence that can be used to support the natural attenuation evaluation include:

- Historical groundwater and/or soil chemistry data that demonstrate a clear and meaningful trend of declining contaminant mass and/or concentration over time.

- Hydrogeologic and geochemical data that that can be used to demonstrate indirectly the type(s) of natural attenuation processes active at the site, and the rate at which such processes will reduce contaminant concentrations to required levels.

- Data from field or microcosm studies which directly demonstrate the occurrence of a particular natural attenuation process at the site and its ability to degrade the contaminants of concern.

Of the three lines of evidence above, the first two are preferred approaches to evaluating natural attenuation processes, while the third is a supplementary approach that can be implemented if site conditions or other constraints preclude adequate evaluation using both of the two preferred approaches. For the groundwater investigation at Site 45, data were collected to support a natural attenuation evaluation using the two primary approaches described above.

2.1 Direct Evidence of Biodegradation

For chlorinated ethenes, the biodegradation process is characterized primarily by the sequential loss of chlorines (dechlorination) through both anaerobic and aerobic processes. In the dechlorination process, the primary degradation path for chlorinated ethenes involves the breakdown of tetrachloroethene (PCE) to trichloroethene (TCE), which degrades to 1,2-dichloroethene (DCE) (primarily cis-1,2-DCE), which breaks down to vinyl chloride (VC), which is then degraded to carbon dioxide or ethene. Reductive (anaerobic) dechlorination is the most effective biodegradation process for PCE and TCE, while DCE and VC can be biodegraded both anaerobically through reductive dechlorination and aerobically through direct metabolism and cometabolism (TCE can also degrade aerobically through cometabolism). Under anaerobic conditions, the rate of biodegradation decreases as the degree of chlorination decreases (PCE and TCE will degrade more readily and quickly than DCE and VC), while the opposite is generally true for aerobic biodegradation processes.

At Site 45, PCE is the only chlorinated solvent known to have been used, thus the observed presence of TCE, DCE, and VC in groundwater is a strong indicator that biodegradation processes are active at the site. The October 2001 concentrations of PCE, TCE, DCE, and VC detected in selected wells at the site are presented in Table 1. Well MW08SU is the source area well, while MW06SU, MW05SL, and MW04SU are located progressively further downgradient from the source area. As portrayed graphically on Figure 1, PCE and TCE concentrations drop off significantly from MW08SU to MW06SU while DCE and VC concentrations remain similar. This pattern indicates that PCE and TCE are actively undergoing reductive dechlorination to DCE and VC, while DCE and VC levels are relatively persistent (the rate of production of DCE/VC through biodegradation is approximately equal to the loss of DCE and VC through dispersion, dilution, and biodegradation). Further downgradient at wells MW05SL and MW04SU, the dropoff of DCE and VC concentrations is greater than that of PCE and TCE, suggesting that aerobic

degradation processes (cometabolism and/or use of DCE and VC as primary growth substrate) become more active in the downgradient area.

This observed parent-daughter pattern of chlorinated ethenes concentration is the strongest and most conclusive evidence available that biodegradation processes are active in groundwater at Site 45. No detections of ethene were found, indicating that either the breakdown of vinyl chloride to ethene is not occurring, ethene degradation is so rapid that measureable concentrations don't accumulate, or that the vinyl chloride is being mineralized to carbon dioxide, water, and chloride. Trace levels of ethane were detected in MW08SU, which could be an indicator of the breakdown of ethene to ethane. Overall, the pattern of contamination suggests mixed behavior of the chlorinated solvent plume, with anaerobic biodegradation in the source area and oxidation of vinyl chloride in the downgradient area, either aerobically or through iron reduction (U.S. EPA, 1998). This is considered the most favorable overall pattern for chlorinated solvent degradation, as both the more highly chlorinated and less-chlorinated ethenes are degraded.

Table 2 is a comparison of 1996 to 2001 sampling results for wells MW08SU, MW06SU, MW05SL, and MW04SU. The relative proportions of PCE, TCE, DCE, and VC to the total amount of chlorinated ethenes were calculated for each well for each sampling round, then were compared to see whether the proportions changed over time. For the source area well (MW08SU), the relative amount of PCE decreased in 2001 in comparison to 1996 (dropped from 84% of the total chlorinated ethenes to 41%), while the relative proportions of TCE, DCE, and VC increased. In well MW06SU, the relative proportions of PCE and TCE dropped in 2001, while the proportions of DCE and VC increased. In MW05SL, the relative proportions of the chlorinated ethenes did not materially change over time, while in MW04SU the relative proportion of PCE dropped while TCE and DCE proportions increased. These results show a definite pattern of dechlorination over time that is indicative of biodegradation activities.

2.2 Geochemical Indicators of Biodegradation

Table 1 lists the results of both field and fixed-base lab analyses performed in support of the natural attenuation evaluation. The field analyses and the miscellaneous parameters analyzed in the laboratory can be used to characterize the groundwater environment and indirectly provide evidence regarding the presence or absence of active biodegradation processes. Figure 2 shows the distributions of selected biodegradation parameters that provide evidence supporting the presence of biodegradation activities at the site.

As shown on both Table 1 and Figure 2, methane, an indicator of biological activity, is elevated in the source area and downgradient relative to the upgradient (MW01SU) concentration. Chloride, which is produced when chlorine atoms are replaced by hydrogen during dechlorination processes, is elevated in the downgradient wells in comparison to the upgradient well. Carbon dioxide, an indicator of biologic respiration, is elevated in the source area and downgradient in comparison to the upgradient level. Total organic carbon, which is a measurement of the substrate available for biological activity, is elevated in the source area. Ferrous (reduced) iron, which is an indicator of moderately reducing conditions in groundwater, is elevated within the source area and immediately downgradient in comparison to the upgradient concentration (as groundwater becomes more reducing, oxygen, then nitrate, iron, sulfate, and finally carbonate are used by bio-organisms as electron acceptors and are thus reduced). As indicated in Table 1 sulfate, which is reduced during anaerobic biological activity once the available ferric iron is reduced to ferrous iron, does not show a trend of decreasing concentration nor does the reduced form (sulfide) show an increase in concentration. This suggest that the reducing conditions in the aquifer have not progressed to the sulfate reduction level.

Dissolved oxygen levels and oxidation-reduction potential (ORP) are also often used to characterize the groundwater environment in regards to whether reducing (anaerobic) or oxidizing (aerobic) conditions are present, with DO levels of <0.5 mg/L and ORP measurements of <50 millivolts generally considered indicative of a reducing environment. Contrary to what was expected based on other geochemical indicators, the DO levels measured in October 2001 are indicative of an aerobic environment. A review of historic sampling data, however, reveals a wide variation in DO levels which may indicate that the groundwater environment changes seasonally or with discrete precipitation events. Figure 3 shows dissolved oxygen levels measured in groundwater over 5 rounds of sampling between 1998 and 2001. Based on the figure, there appears to be a slight tendency for higher DO levels downgradient in comparison to within the source area and upgradient. ORP readings on the other hand are in the reducing range in 4 of the 5 wells sampled in 2001. Historically, ORP readings in these wells have also varied as shown on Figure 4, but with the exception of well MW04SU, have been predominantly within the reducing (<50 mV) range.

Chemical Oxygen Demand (COD) results for the 2001 round of sampling are elevated in the source area and near-downgradient wells (MW08SU and MW06SU) in comparison to the upgradient well and the further downgradient wells. COD levels indicate the amount of organics present in the water, and are therefore an indicator of the degree of contamination.

The remaining analyses performed in support of the natural attenuation evaluation are general water quality parameters (i.e., pH, temperature, conductivity, turbidity, common ions, etc.) that do not directly indicate whether biodegradation is occurring or are inconclusive in regards to biodegradation. The pH and temperature readings generally indicate a groundwater environment suitable for biological activity (pH >5, <9; temperature >20°C).

2.3 Biodegradation Screening

As a supplement to the specific evaluations presented above, the EPA Worksheet for Screening for Anaerobic Biodegradation of Chlorinated Solvents was used to obtain an overall perspective regarding the likelihood that biodegradation processes are active at Site 45. Wells MW08SU, MW06SU, MW05SL, and MW04SU were scored using the procedure developed by EPA and presented in their document "Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Ground Water" (EPA, 1998). Based on the scoring (see Attachment A), there is strong evidence of anaerobic biodegradation at well MW08SU; adequate evidence of anaerobic biodegradation at wells MW06SU and MW05SL; and limited evidence of anaerobic biodegradation at well MW04SU. These results are consistent with the patterns of contamination and geochemistry described in Section 2.2, where the data generally suggests anaerobic biodegradation in the source area and near downgradient area, with groundwater conditions becoming more aerobic in the further downgradient area. It should be noted that the limited evidence of anaerobic biodegradation in MW04SU does not preclude the presence of aerobic biodegradation activity in this area.

2.4 Contaminant Trends Over Time

2.4.1 Concentration Trend Graphs

Sampling results for the Site 45 monitoring wells from 1996 to present were graphed to look for trends in contaminant concentrations over time (semi-log plots; logarithmic scale for concentration, linear scale for time). The time/concentration graphs in Attachment B generally show no strong trends in contaminant concentration changes over time in source area wells (MW08SU, MW08SL, MW07SU, MW07SL). Well MW06SU, located near the downgradient edge of the source area, has no apparent trend in overall chlorinated ethene concentrations, however PCE and TCE levels have generally declined while DCE and VC levels have increased. A decline in overall contaminant levels over time is apparent in the adjacent deeper well MW06SL. For downgradient wells MW05SL and MW04SU the chlorinated ethene concentrations dropped significantly over the 5-year time period (Attachment B), which is most likely due to the operation

of the groundwater extraction system since source area concentrations appear to be remaining more or less consistent.

2.4.2 Natural Attenuation Modeling

Analytical screening-level models were also used to obtain rough estimates regarding how contaminant levels in groundwater may be expected to change over time in the future. Model simulations (Attachment C) were run using two public-domain screening models, BIOSCREEN and BIOCHLOR. Both models are designed to be used as tools to aid in evaluating natural attenuation.

BIOSCREEN (Newell, et.al., 1996) simulates the fate and transport of a chemical under three scenarios: contaminant transport with no biodegradation, transport with biodegradation modeled as a 1st order decay process, and transport with biodegradation modeled as an instantaneous biodegradation reaction. For a multi-chemical plume, separate contaminant characteristics cannot be input for multiple chemicals – input parameters must be used that best approximate the overall plume. BIOSCREEN also allows for either a decaying source over time (the original source term depletes in mass over time) or a continuous/infinite source mass (no source depletion).

BIOCHLOR (Aziz and Newell, 2000) specifically simulates the fate and transport of chlorinated ethenes (PCE, TCE, DCE, and VC). Chemical degradation (sequential dechlorination) is modeled as a 1st order decay process, with contaminant-specific half-lives used to project concentrations over time for each contaminant. One significant limitation of the BIOCHLOR model is that it only simulates a constant (nondepleting) source, thus the source term is infinite and the model cannot be used to evaluate the time required for a plume to clean up to target concentrations.

Table 3 presents a summary of the model inputs and modeling results for each of the two screening-level models. To the extent possible, site-specific data were used for model inputs. Where site-specific data were not available or not appropriate, typical values for input parameters were used, based on information/guidance provided mainly in the models' user's manuals.

The models were initially calibrated against the 1996 groundwater monitoring data, specifically data from well clusters MWO8SU/SL, MW06SU/SL, AND MW05SU/SL. An eight-year time span since the initial contaminant release was assumed based on the first use of solvents (PCE) at the site in 1988 (Bechtel, 1997), thus the 1996 groundwater sampling results were used as calibration

targets in an 8 year simulation time model run for the overall model calibration. Dispersion, adsorption, biodegradation/transformation, and source data were adjusted during the calibration process in order to generate a reasonable match between model-predicted concentrations and the 1996 sampling data. For the BIOSCREEN calibration, a distance-concentration graph for total VOCs was prepared based on the 1996 monitoring data and used to project total VOC concentrations at distances of 100 and 200 feet from the source (Attachment C.1), as this model does not allow the user to define specific distances from the source for the field data used as comparison points for calibration. For the BIOCHLOR calibration, the average concentrations of PCE, TCE, DCE, and VC for each well cluster were input as calibration targets, as the model allows the user to specify distances from the source for the calibration data. In addition, two calibrations were performed for the BIOCHLOR modeling; one using low-end contaminant half-lives and one using average half-lives based on the typical range of values reported in the BIOCHLOR users manual.

Once reasonable matches were obtained between the model predictions and field data-derived targets for the 8-year model simulation run, additional simulations were run at various time intervals to project trends over time. Based on the BIOSCREEN model runs (Attachment C.1), the maximum downgradient distance that the Site 45 contaminant plume will migrate at concentrations of 1 ug/L or more is approximately 500 – 600 feet, and the time of maximum downgradient impacts is approximately 30 years from the assumed release time of 1988. The model-predicted time for contaminant levels to decline to 1 ug/L or less throughout the plume is approximately 260 years (assuming a residual source mass of 100 kg), with contaminant levels persisting in the source area for the longest time. The duration will increase or decrease with an increase or decrease, respectively, in the source mass term.

Based on the BIOCHLOR model runs (Attachment C.2), the projected maximum downgradient distance that the Site 45 contaminant plume will migrate at concentrations of 1 ug/L or more is approximately 900 feet (low-end half-lives) to >1,000 ft (mid-range half-lives). The projected time required to reach the steady-state maximum plume extent is approximately 80 years (low-end half-lives) to >100 years (mid-range half-lives, concentrations increased for 100 years, did not run out further) from the assumed release time of 1988. For BIOCHLOR, once the maximum predicted plume configuration is reached as predicted by biotransformation (biodegradation) constraints, the plume remains in this configuration for an infinite time since the source is assumed to be constant and ongoing. As a result, the BIOCHLOR model cannot be used to predict the length of time required for the contaminant plume to be naturally remediated to a target concentration.

It should be emphasized that both BIOSCREEN and BIOCHLOR are screening-level models, and as such the modeling results should be regarded as rough approximations at best. The most significant data limitation for both models is a lack of site data that can be used to define trends in contaminant concentrations over distance and/or time, and thus be used to assist in model calibration. Another limitation of the modeling is that there are likely at least two sources of contamination at the site (neither of which has been characterized in detail), which makes both source definition and distance-concentration trend determinations problematic. Additional groundwater monitoring over time may allow for more rigorous future model calibration and increase the accuracy of model predictions.

3.0 SUMMARY

Based on the weight-of-evidence approach followed above, there is sufficient evidence to conclude that biodegradation of the chlorinated ethenes in Site 45 groundwater is occurring, and this along with physical natural attenuation processes such as dilution, adsorption, and dispersion impacts the persistence and migration of contaminants at Site 45. The natural attenuation-related data suggest that anaerobic biodegradation is occurring in the vicinity of the source area, with aerobic biodegradation occurring further downgradient. Based on the overall consistency of source area concentrations, there appears to be a continuing source of contaminant releases to groundwater (i.e., residual leaching of contaminants from vadose zone soils to groundwater or the presence of DNAPL in groundwater in the source area).

There is no defined downward trend in source area groundwater concentrations at this time and the observed downgradient contaminant level decreases are likely a result of the operation of the groundwater extraction system, at least in part. As a result, the historic sampling data alone cannot be used to reliably calculate time-concentration or distance-concentration trends for impacted groundwater, or to project the time required for contaminants to decline to target concentrations throughout the plume. Screening model simulations based on available site data suggest that without any future active remedial actions, elevated contaminant levels will persist in groundwater for an extended time period and will eventually extend at least 500-600 feet downgradient from the site at detectable concentrations.

TABLE 1
SUMMARY OF NATURAL ATTENUATION DATA COLLECTED OCTOBER 2001
SITE 45 RI/RFI
MCRD PARRIS ISLAND, SOUTH CAROLINA

Natural Attenuation Analysis	Units	Well Number				
		MW01SU	MW04SU	MWO5SL	MWO6SU	MW08SU
Field Analyses						
pH	SU	5.18	4.56	5.1	5.9	5
Specific Conductance	mS/cm	0.36	0.452	1.19	7.22	0.43
Temperature	^{O}C	22.3	23	24.2	23.3	21.4
Turbidity	NTU	3.5	4.5	4.09	1.64	2.06
Dissolved Oxygen, meter	mg/L	4.18	5.98	5.82	4.88	5.26
Dissolved Oxygen, test kit	mg/L	2-3	2-3	2-3	4-5	3-4
Oxidation-Reduction Potential	mV	-10	138	-35	-53	27
Carbon Dioxide	mg/L	25	48	45	30	150
Sulfide	mg/L	0	0	0.02	0	0
Fixed-Base Lab Analyses- Miscellaneous Parameters						
Alkalinity	mg/L	160	<20	30	220	110
Total Organic Carbon	mg/L	22	8.4	10	23	51
Chloride	mg/L	9	100	300	2000	30
Nitrite	mg/L	<0.05	<0.1	<0.05	<0.05	<0.05
Nitrate	mg/L	<0.05	<0.05	0.08	<0.05	<0.05
Sulfate	mg/L	30	27	7.3	460	57
Phosphate	mg/L	0.09	<0.05	0.96	0.09	<0.05
Manganese	mg/L	0.023	0.014	0.308	0.081	0.014
Ferrous Iron	mg/L	2.49	0.43	19.5	11.4	14.5
Biochemical Oxygen Demand	mg/L	<24	<6	<6	<6	<24
Chemical Oxygen Demand	mg/L	30	<15	20	50	50
Methane	mg/L	0.097	0.12	3	0.43	0.9
Ethane	mg/L	ND	ND	ND	ND	0.019
Ethene	mg/L	ND	ND	ND	ND	ND
Calcium	mg/L	48	3.93	38.2	145	36.9
Magnesium	mg/L	8.78	4.25	13.9	142	4.72
Sodium	mg/L	20.7	69.8	149	1100	42.2
Potassium	mg/L	3.37	4.42	2.87	41.5	0.77
Fixed-Base Lab Analyses - Chlorinated Ethenes						
Tetrachloroethene	ug/L	ND	6	9	200	10000
Trichloroethene	ug/L	ND	11	9	120	10000
cis-1,2-Dichloroethene	ug/L	ND	2	1	1400	3400
Vinyl Chloride	ug/L	ND	1	ND	630	710
Well Location		Upgradient	Far Downgradient	Far Downgradient	Near Downgradient	Source Area

TABLE 2
PCE/TCE/CIS-1,2-DCE/VINYL CHLORIDE TRENDS (ug/L)
SITE 45 RI/RFI
MCRD PARRIS ISLAND,
SOUTH CAROLINA

Well	Date	PCE	TCE	1,2-DCE	VC	Sum (PCE/ TCE/DCE/VC)	PCE/Sum	TCE/Sum	DCE/Sum	VC/Sum
MW08SU	1996	32000	4900	1100	0	38000	0.84	0.13	0.03	0.00
	2001	10000	10000	3400	710	24110	0.41	0.41	0.14	0.03
MW06SU	1996	360	130	610	170	1270	0.28	0.10	0.48	0.13
	2001	200	120	1400	630	2350	0.09	0.05	0.60	0.27
MW05SL	1996	66	77	3.8	0	146.8	0.45	0.52	0.03	0.00
	2001	9	9	0	0	18	0.50	0.50	0.00	0.00
MW04SU	1996	180	2.9	0	0	182.9	0.98	0.02	0.00	0.00
	2001	6	11	2	0	19	0.32	0.58	0.11	0.00

H:PI-Site 45 NA trends

TABLE 3
SUMMARY OF SCREENING MODEL INPUTS/OUTPUTS
SITE 45 RI/RFI
MCRD PARRIS ISLAND, SOUTH CAROLINA

Screening Model Inputs

Input Parameter	BIOSCREEN	BIOCHLOR	Selection Rationale
Hydraulic conductivity	0.0054 cm/sec.	0.0054 cm/sec.	Average from pumping test
Hydraulic gradient	0.0026	0.0026	Average from GW flow maps
Porosity	0.25	0.25	Typical value, literature
Dispersivity - Longitudinal - Transverse - Vertical	 30 ft 3 ft .01 ft	 22 ft 2.2 ft 0 ft	Parameter adjusted during calibration
Retardation factor	5	6.5	Initially calculated by model, then adjusted during calibration
Contaminant half-lives - General - PCE to TCE - TCE to 1,2-DCE - 1,2-DCE to VC - VC to ethene	 2.5 years NA NA NA NA	 NA 0.62, 2.5 yrs 0.90, 10 yrs 0.20, 3 yrs 0.25, 0.5 yrs	Used ranges in literature, then adjusted during calibration
Modeled area length	1000 ft	1000 ft	Distance to closest downgradient receptor (surface water)
Modeled area width	60 ft	60 ft	Estimated near source, does not impact centerline simulations
Simulation time for model calibration	8 yrs	8 yrs	Time between first use of solvents (1988) and 1996 round of groundwater sampling
Source thickness in saturated zone	15 ft	15 ft	Average surficial aquifer thickness
Source width	45 ft	45 ft	Estimated from site data
Source type	Depleting	Constant strength	BIOCHLOR does not allow for source depletion over time
Source mass	100 kg	NA	Determined through calibration
Initial source concentrations - Total CVOCs - PCE - TCE - DCE - VC	 31, 8, 1 mg/L NA NA NA NA	 NA 18.8 mg/L 3.15 mg/L 0.825 mg/L 0 mg/L	BIOSCREEN – calibration values, projecting back to 1988 BIOCHLOR – Used average of 1996 concentrations for well cluster MW08SU/SL

Screening Model Results

Output Parameter	BIOSCREEN	BIOCHLOR	Comments
Maximum predicted plume migration distance, 1ug/L or greater contaminant concentration	500 – 600 ft	~900 ft, low-end half-lives 1,000 ft+, mid-range half-lives	Differences primarily reflect decaying versus constant source, differences in retardation factor and half-lives
Time of maximum plume extent/concentration	~ 30 years	80 years, >100 years	See above.
Time required for levels to decline to 1 ug/L or less throughout plume	~260 years	Infinite	BIOSCREEN result based on 100 Kg source, 1st order decay model BIOCHLOR has constant source term, never depletes

Figure 1
Parent/Daughter Chlorinated VOC Concentrations, ug/L

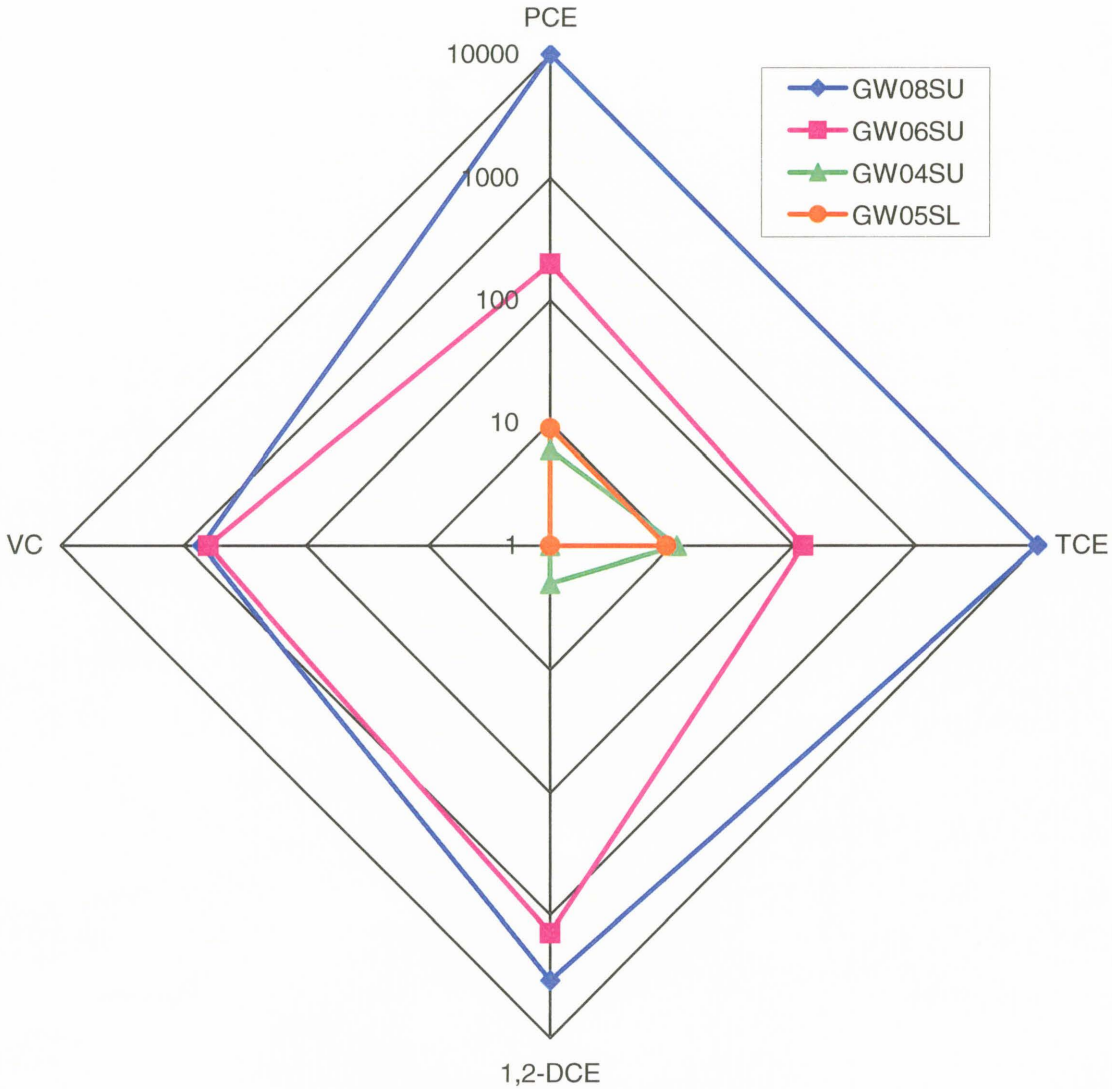


Figure 2
Selected Biodegradation Indicators

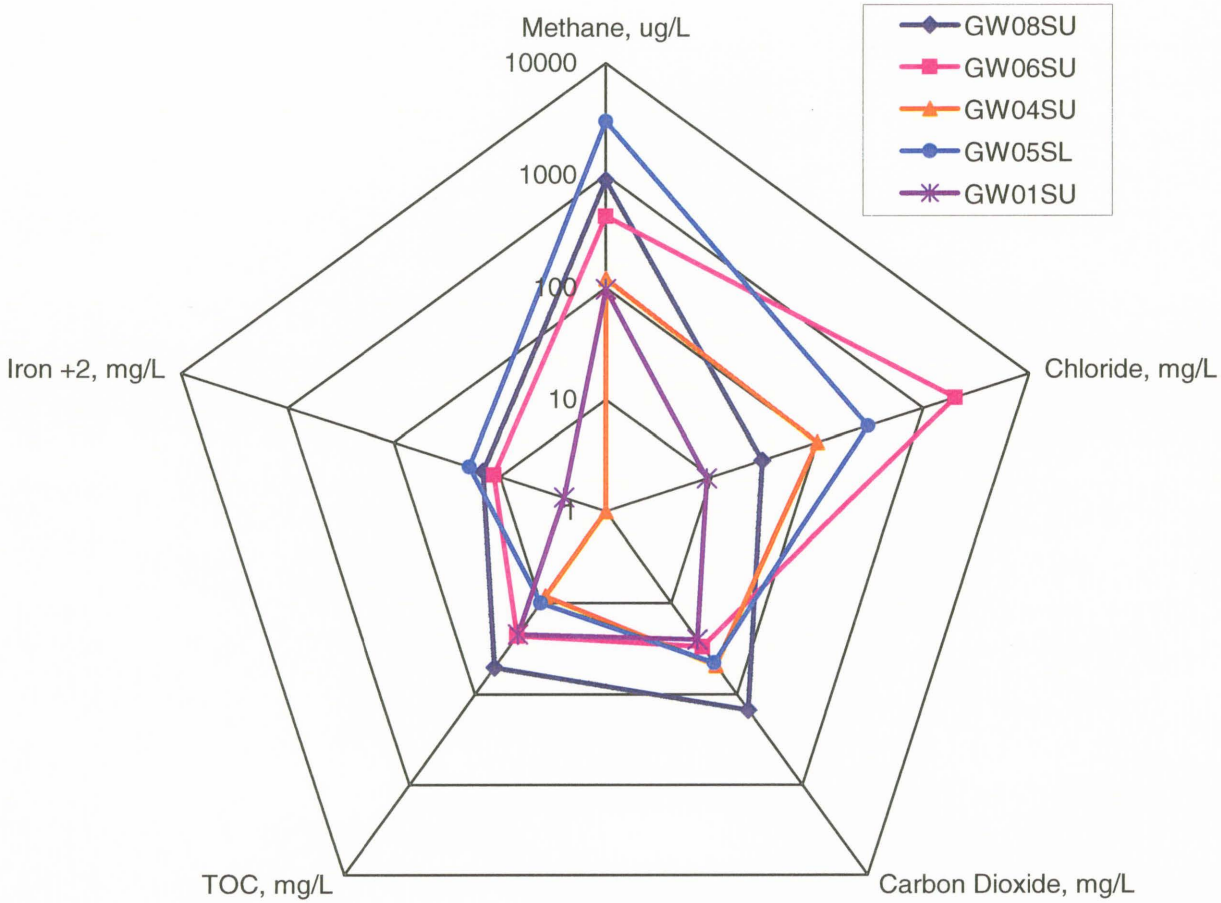


Figure 3
Dissolved Oxygen Levels

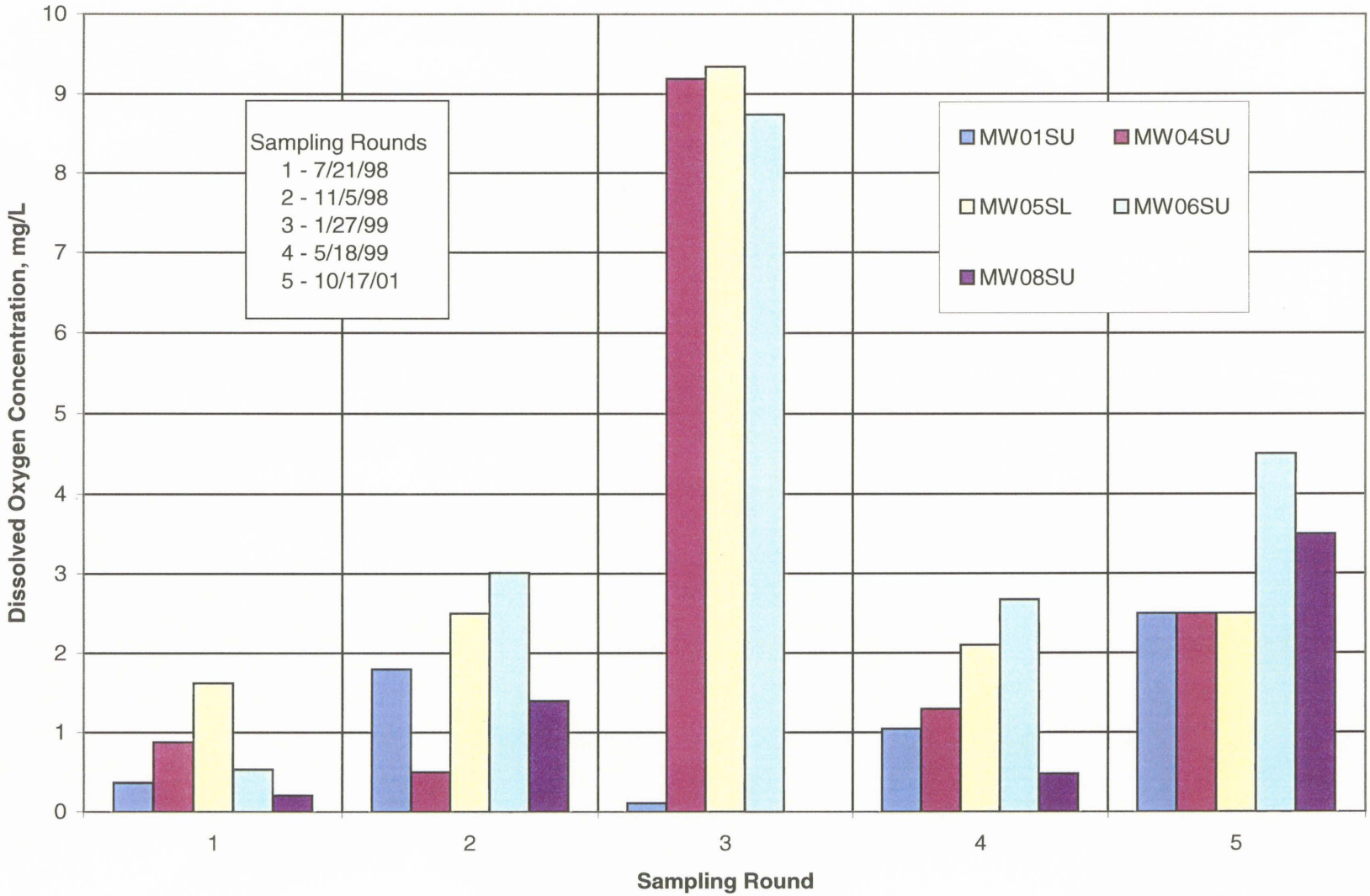
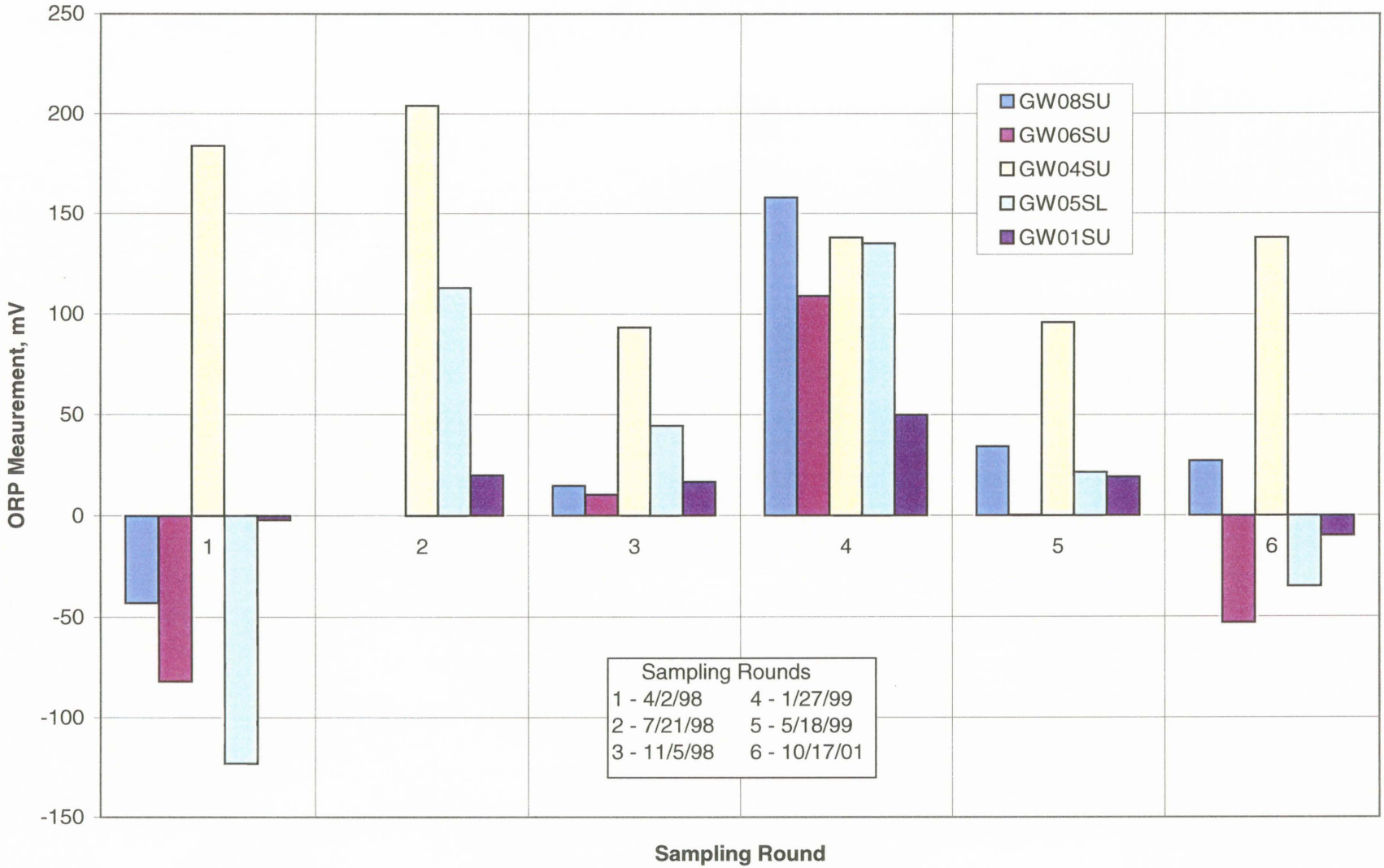


Figure 4
ORP Measurements



REFERENCES

Aziz, C. E. and C. J. Newell, 2000. BIOCHLOR: Natural Attenuation Decision Support System Users Manual, Version 1.0. U. S. EPA Office of Research and Development, EPA/600/R-00/008.

Bechtel Environmental Inc., 1997. Engineering Evaluation and Interim Removal Remedial Work Plan/Interim Measure Work Plan, Site 45/SWMU 45 Dry Cleaners Facility, Building 193, MCRD Parris Island, SC.

Newell, C. J., R. K. McLeod, and J. R. Gonzales, 1996. BIOSCREEN: Natural Attenuation Decision Support System Users Manual, Version 1.3. U.S. EPA Office of Research and Development, EPA/600/R-96/087.

Newell, C. J. and R. K. McLeod, 1997. BIOSCREEN Natural Attenuation Decision Support System Version 1.4 Revisions. Groundwater Services, Inc., Houston, Texas.

U.S. EPA, 1997. Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action, and Underground Storage Tank Sites. OSWER Directive 9200.4-17.

U.S. EPA, 1998. Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Ground Water. OSWER Publication EPA/600/R-98/128.

ATTACHMENT A
NATURAL ATTENUATION SCREENING WORKSHEETS

EPA Worksheet for Screening for Anaerobic Biodegradation of Chlorinated Solvents

Location:	MCRD Parris Island	**By:**	JPO
Site:	45	**Date:**	1/18/2002
Well No:	MW08SU	**Chkd:**	
Date Sampled:	10/17/2001	**Date:**	

Analytical Parameter	NA Indicator Level	Point Value	Conc. In Most Contaminated Zone	Units	Points Awarded
Dissolved Oxygen	<0.5, >5 mg/L	3, -3	3-4	mg/L	0
Nitrate	<1 mg/L	2	<0.05	mg/L	2
Iron II	>1 mg/L	3	14.5	mg/L	3
Sulfate	<20 mg/L	2	57	mg/L	0
Sulfide	>1 mg/L	3	0	mg/L	0
Methane	<0.5, >0.5 mg/L	0, 3	0.9	mg/L	3
ORP	<50, <-100 mV	1, 2	27	mV	1
pH	<5 , >9	-2	5	SU	0
TOC	>20 mg/L	2	51	mg/L	2
Temperature	>20 deg. C	1	21.4	C	1
Carbon Dioxide	>2x Bkgrnd	1	150 (25)	mg/L	1
Alkalinity	>2x Bkgrnd	1	110 (160)	mg/L	0
Chloride	>2x Bkgrnd	2	30 (9)	mg/L	2
Tetrachloroethene	Parent	0	10000	ug/L	0
Trichloroethene	If daughter	2	10000	ug/L	2
cis-1,2-Dichloroethene	If daughter	2	3400	ug/L	2
Vinyl Chloride	If daughter	2	710	ug/L	2
Ethene/Ethane	>10, >100	2, 3	19	ug/L	2
1,1,1-Trichloroethane	Parent	0	5U	ug/L	0
1,2-Dichloroethane	If daughter	2	5U	ug/L	0
Chloroethane	If daughter	2	5U	ug/L	0
Carbon Tetrachloride	Parent	0	5U	ug/L	0
Chloroform	Parent/daughter	0/2	5U	ug/L	0
Methylene Chloride	Parent/daughter	0/2	5U	ug/L	0
BTEX	>100	2	5	ug/L	0
Volatile Fatty Acids	>100	2	NA	ug/L	0
Hydrogen	>1 nM	3	NA	nM	0
Hydrogen	<1 nM	0	NA	nM	0
				Score	23

Score	Interpretation
0 to 5	Inadequate evidence for anaerobic biodegradation
6 to 14	Limited evidence for anaerobic biodegradation
15 to 20	Adequate evidence for anaerobic biodegradation
>20	Strong evidence for anaerobic biodegradation

EPA Worksheet for Screening for Anaerobic Biodegradation of Chlorinated Solvents

Location:	MCRD Parris Island	**By:**	JPO
Site:	45	**Date:**	1/18/2002
Well No:	MW05SL	**Chkd:**	
Date Sampled:	10/17/2001	**Date:**	

Analytical Parameter	NA Indicator Level	Point Value	Conc. In Most Contaminated Zone	Units	Points Awarded
Dissolved Oxygen	<0.5, >5 mg/L	3, -3	2-3	mg/L	0
Nitrate	<1 mg/L	2	0.08	mg/L	2
Iron II	>1 mg/L	3	19.5	mg/L	3
Sulfate	<20 mg/L	2	7.3	mg/L	2
Sulfide	>1 mg/L	3	0.02	mg/L	0
Methane	<0.5, >0.5 mg/L	0, 3	3	mg/L	3
ORP	<50, <-100 mV	1, 2	-35	mV	1
pH	<5 , >9	-2	5.1	SU	0
TOC	>20 mg/L	2	10	mg/L	0
Temperature	>20 deg. C	1	24.2	C	1
Carbon Dioxide	>2x Bkgrnd	1	45 (25)	mg/L	0
Alkalinity	>2x Bkgrnd	1	30 (160)	mg/L	0
Chloride	>2x Bkgrnd	2	300 (9)	mg/L	2
Tetrachloroethene	Parent	0	9	ug/L	0
Trichloroethene	If daughter	2	9	ug/L	2
cis-1,2-Dichloroethene	If daughter	2	1	ug/L	2
Vinyl Chloride	If daughter	2	5U	ug/L	0
Ethene/Ethane	>10, >100	2, 3	10U	ug/L	0
1,1,1-Trichloroethane	Parent	0	5U	ug/L	0
1,2-Dichloroethane	If daughter	2	5U	ug/L	0
Chloroethane	If daughter	2	5U	ug/L	0
Carbon Tetrachloride	Parent	0	5U	ug/L	0
Chloroform	Parent/daughter	0/2	5U	ug/L	0
Methylene Chloride	Parent/daughter	0/2	5U	ug/L	0
BTEX	>100	2	5U	ug/L	0
Volatile Fatty Acids	>100	2	NA	ug/L	0
Hydrogen	>1 nM	3	NA	nM	0
Hydrogen	<1 nM	0	NA	nM	0
				Score	18

Score	Interpretation
0 to 5	Inadequate evidence for anaerobic biodegradation
6 to 14	Limited evidence for anaerobic biodegradation
15 to 20	Adequate evidence for anaerobic biodegradation
>20	Strong evidence for anaerobic biodegradation

EPA Worksheet for Screening for Anaerobic Biodegradation of Chlorinated Solvents

Location:	MCRD Parris Island	**By:**	JPO
Site:	45	**Date:**	1/18/2002
Well No:	MW04SU	**Chkd:**	
Date Sampled:	10/17/2001	**Date:**	

Analytical Parameter	NA Indicator Level	Point Value	Conc. In Most Contaminated Zone	Units	Points Awarded
Dissolved Oxygen	<0.5, >5 mg/L	3, -3	2-3	mg/L	0
Nitrate	<1 mg/L	2	<0.05	mg/L	2
Iron II	>1 mg/L	3	0.43	mg/L	0
Sulfate	<20 mg/L	2	27	mg/L	0
Sulfide	>1 mg/L	3	0	mg/L	0
Methane	<0.5, >0.5 mg/L	0, 3	0.12	mg/L	0
ORP	<50, <-100 mV	1, 2	138	mV	0
pH	<5 , >9	-2	4.56	SU	-2
TOC	>20 mg/L	2	8.4	mg/L	0
Temperature	>20 deg. C	1	23	C	1
Carbon Dioxide	>2x Bkgrnd	1	48 (25)	mg/L	0
Alkalinity	>2x Bkgrnd	1	<20 (160)	mg/L	0
Chloride	>2x Bkgrnd	2	100 (9)	mg/L	2
Tetrachloroethene	Parent	0	6	ug/L	0
Trichloroethene	If daughter	2	11	ug/L	2
cis-1,2-Dichloroethene	If daughter	2	2	ug/L	2
Vinyl Chloride	If daughter	2	1	ug/L	2
Ethene/Ethane	>10, >100	2, 3	10U	ug/L	0
1,1,1-Trichloroethane	Parent	0	5U	ug/L	0
1,2-Dichloroethane	If daughter	2	5U	ug/L	0
Chloroethane	If daughter	2	5U	ug/L	0
Carbon Tetrachloride	Parent	0	5U	ug/L	0
Chloroform	Parent/daughter	0/2	5U	ug/L	0
Methylene Chloride	Parent/daughter	0/2	5U	ug/L	0
BTEX	>100	2	5U	ug/L	0
Volatile Fatty Acids	>100	2	NA	ug/L	0
Hydrogen	>1 nM	3	NA	nM	0
Hydrogen	<1 nM	0	NA	nM	0
				Score	9

Score	Interpretation
0 to 5	Inadequate evidence for anaerobic biodegradation
6 to 14	Limited evidence for anaerobic biodegradation
15 to 20	Adequate evidence for anaerobic biodegradation
>20	Strong evidence for anaerobic biodegradation

EPA Worksheet for Screening for Anaerobic Biodegradation of Chlorinated Solvents

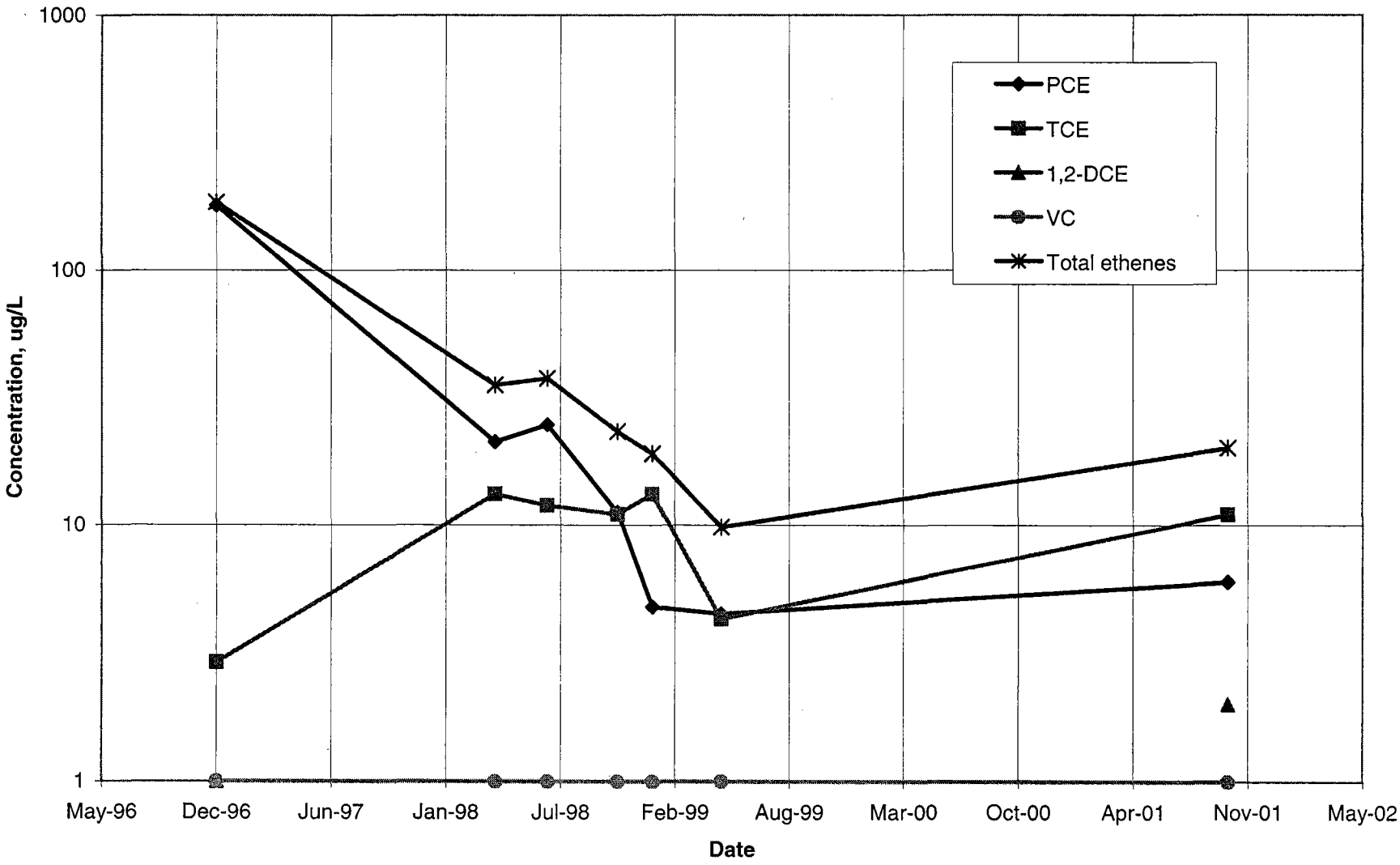
Location:	MCRD Parris Island	**By:**	JPO
Site:	45	**Date:**	1/18/2002
Well No:	MW06SU	**Chkd:**	
Date Sampled:	10/17/2001	**Date:**	

Analytical Parameter	NA Indicator Level	Point Value	Conc. In Most Contaminated Zone	Units	Points Awarded
Dissolved Oxygen	<0.5, >5 mg/L	3, -3	4-5	mg/L	0
Nitrate	<1 mg/L	2	<0.05	mg/L	2
Iron II	>1 mg/L	3	11.4	mg/L	3
Sulfate	<20 mg/L	2	460	mg/L	0
Sulfide	>1 mg/L	3	0	mg/L	0
Methane	<0.5, >0.5 mg/L	0, 3	0.43	mg/L	0
ORP	<50, <-100 mV	1, 2	-53	mV	1
pH	<5 , >9	-2	5.9	SU	0
TOC	>20 mg/L	2	23	mg/L	2
Temperature	>20 deg. C	1	23.3	C	1
Carbon Dioxide	>2x Bkgrnd	1	30 (25)	mg/L	0
Alkalinity	>2x Bkgrnd	1	220 (160)	mg/L	0
Chloride	>2x Bkgrnd	2	2000 (9)	mg/L	2
Tetrachloroethene	Parent	0	200	ug/L	0
Trichloroethene	If daughter	2	120	ug/L	2
cis-1,2-Dichloroethene	If daughter	2	1400	ug/L	2
Vinyl Chloride	If daughter	2	630	ug/L	2
Ethene/Ethane	>10, >100	2, 3	10U	ug/L	0
1,1,1-Trichloroethane	Parent	0	5U	ug/L	0
1,2-Dichloroethane	If daughter	2	5U	ug/L	0
Chloroethane	If daughter	2	5U	ug/L	0
Carbon Tetrachloride	Parent	0	5U	ug/L	0
Chloroform	Parent/daughter	0/2	5U	ug/L	0
Methylene Chloride	Parent/daughter	0/2	5U	ug/L	0
BTEX	>100	2	5U	ug/L	0
Volatile Fatty Acids	>100	2	NA	ug/L	0
Hydrogen	>1 nM	3	NA	nM	0
Hydrogen	<1 nM	0	NA	nM	0
				Score	17

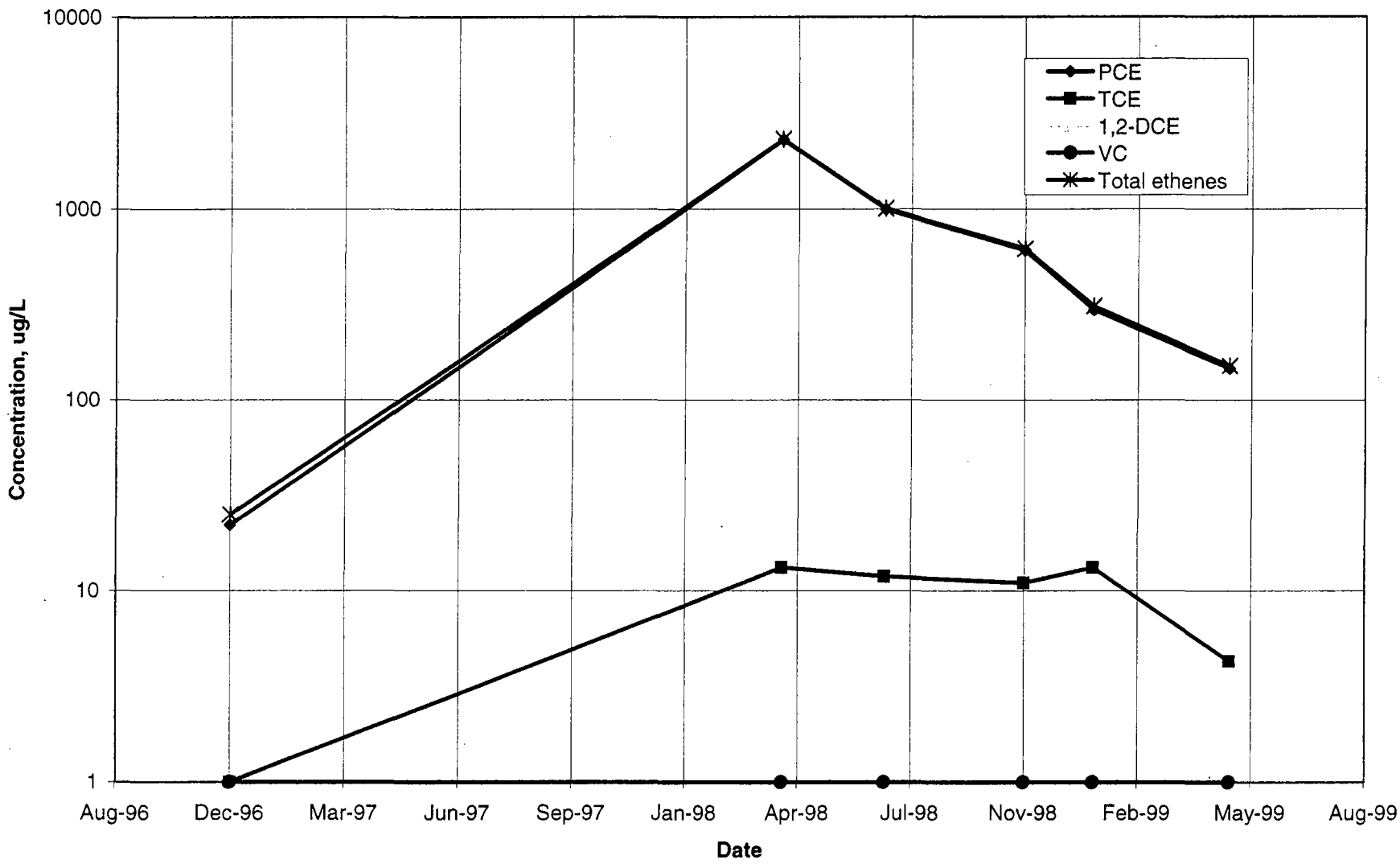
Score	Interpretation
0 to 5	Inadequate evidence for anaerobic biodegradation
6 to 14	Limited evidence for anaerobic biodegradation
15 to 20	Adequate evidence for anaerobic biodegradation
>20	Strong evidence for anaerobic biodegradation

ATTACHMENT B
MONITORING WELL TREND GRAPHS

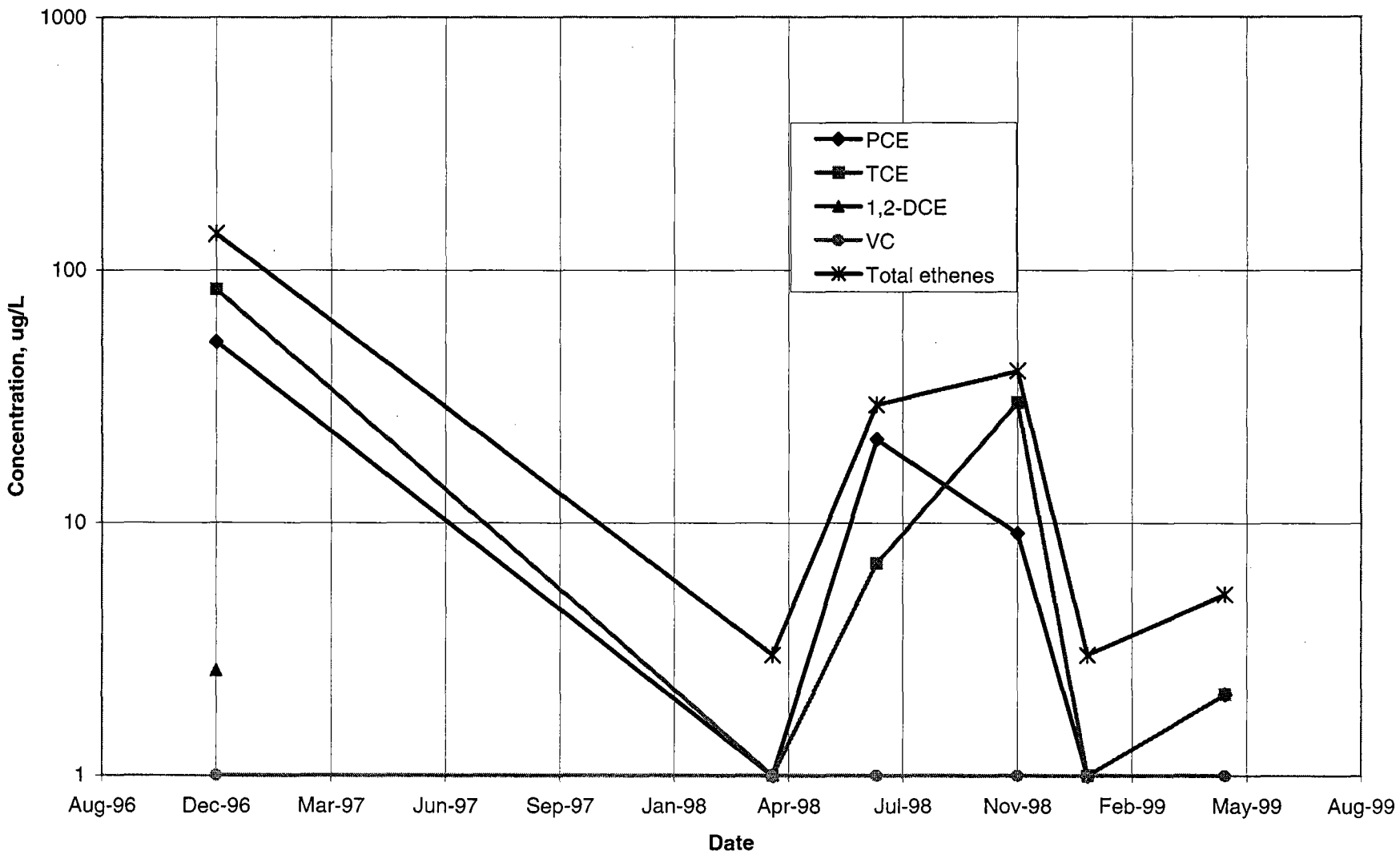
MW04SU VOC Concentration Trends



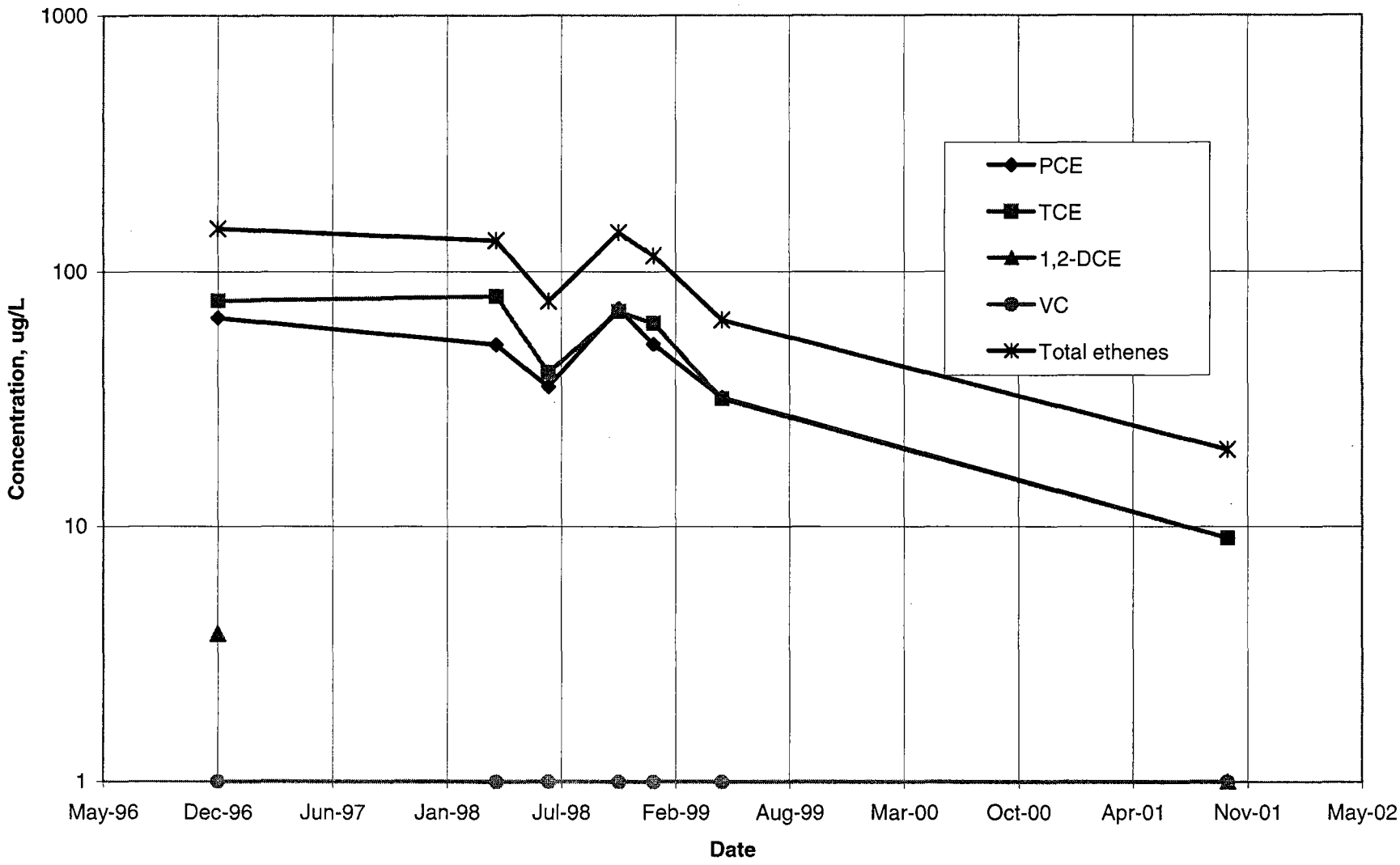
MW04SL VOC Concentration Trends



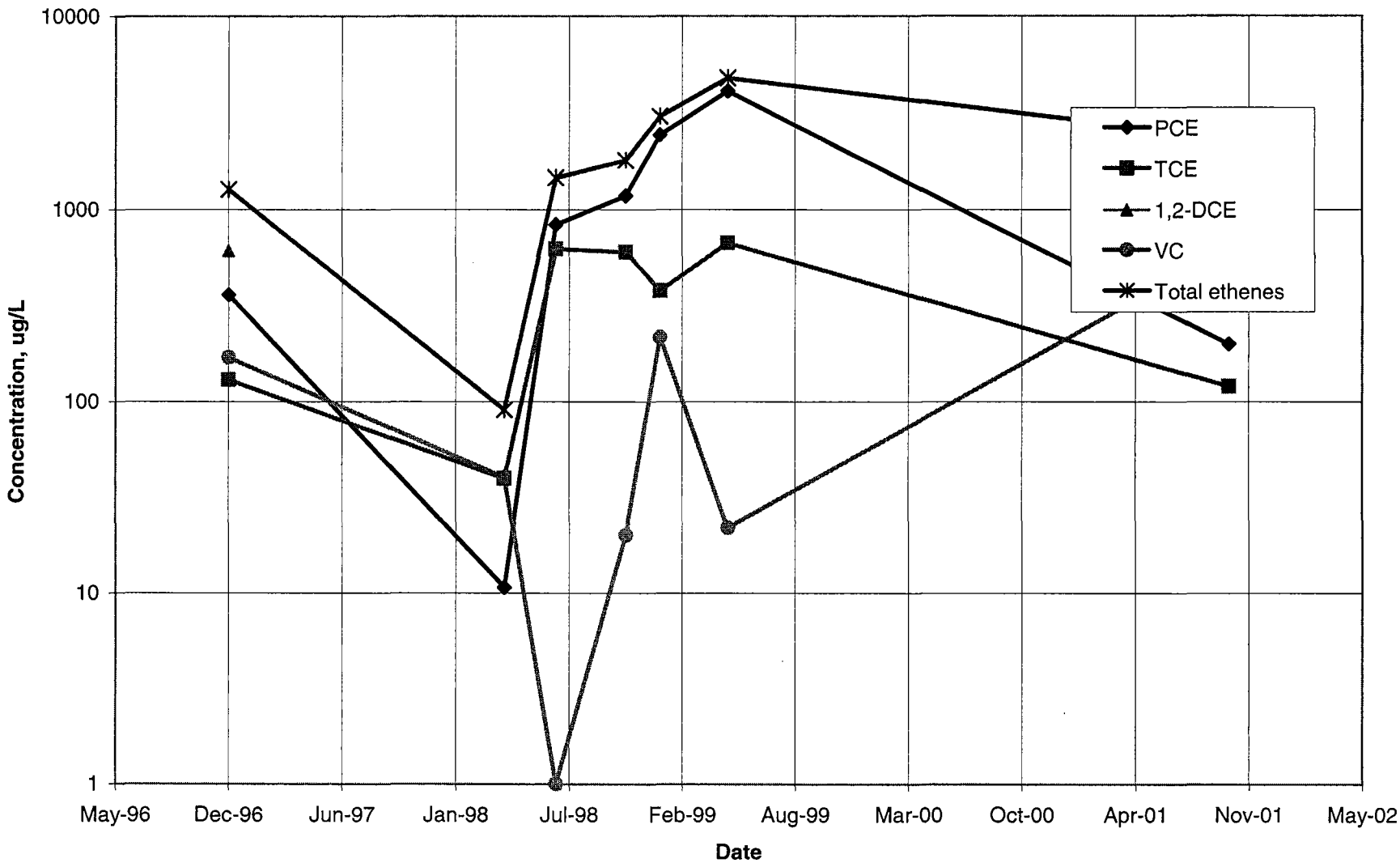
MW05SU VOC Concentration Trends



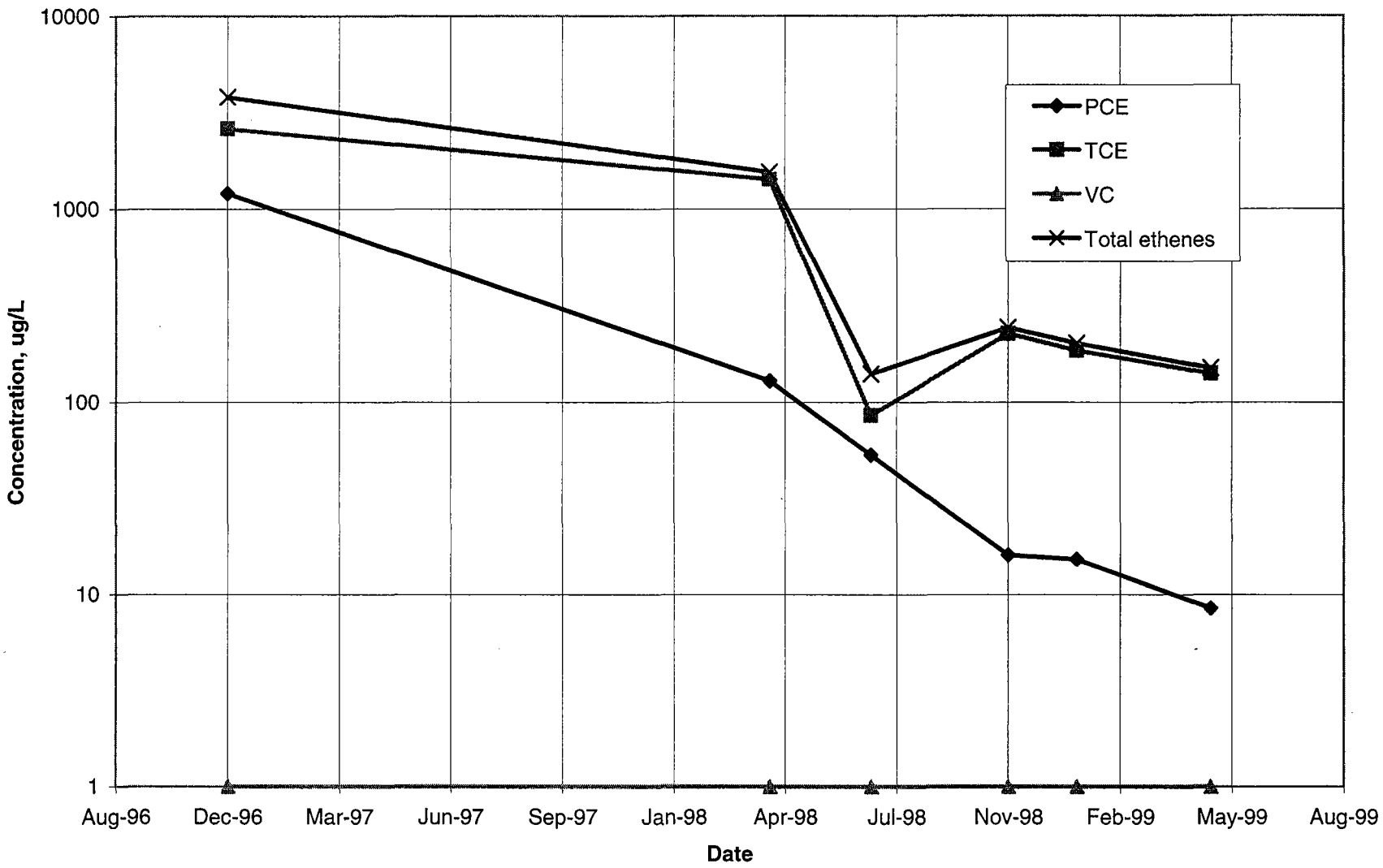
MW05SL VOC Concentration Trends



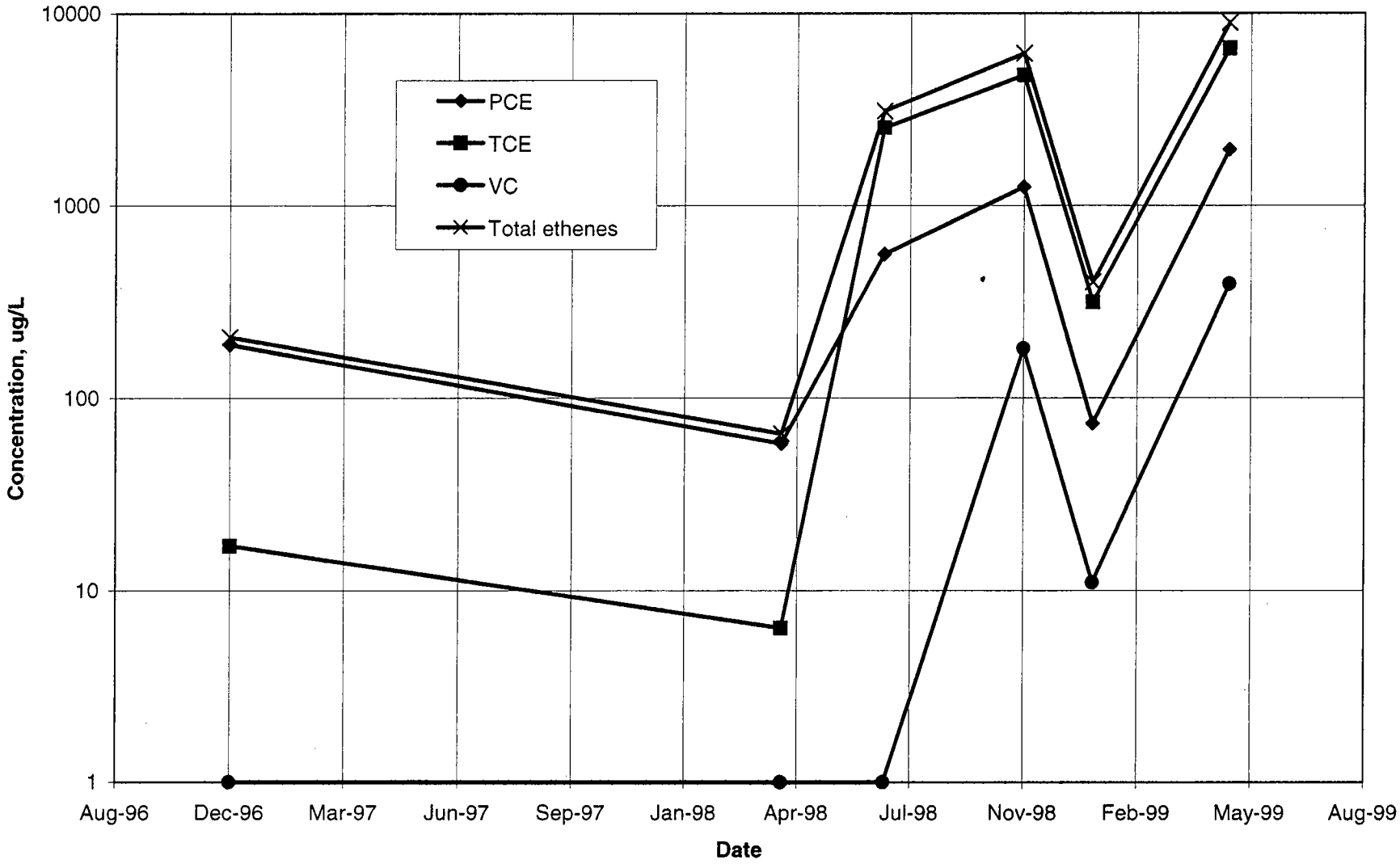
MW06SU VOC Concentration Trends

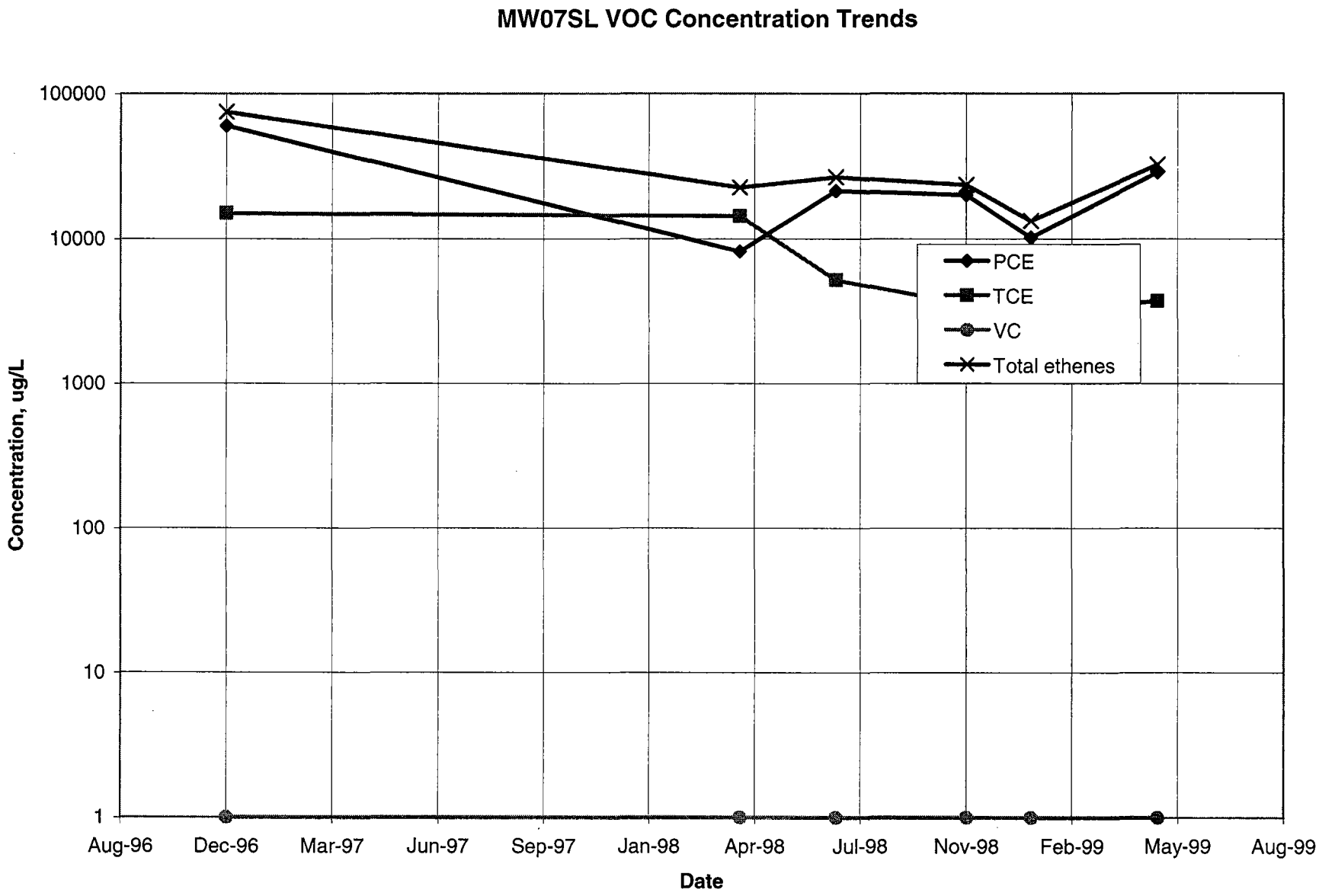


MW06SL VOC Concentration Trends

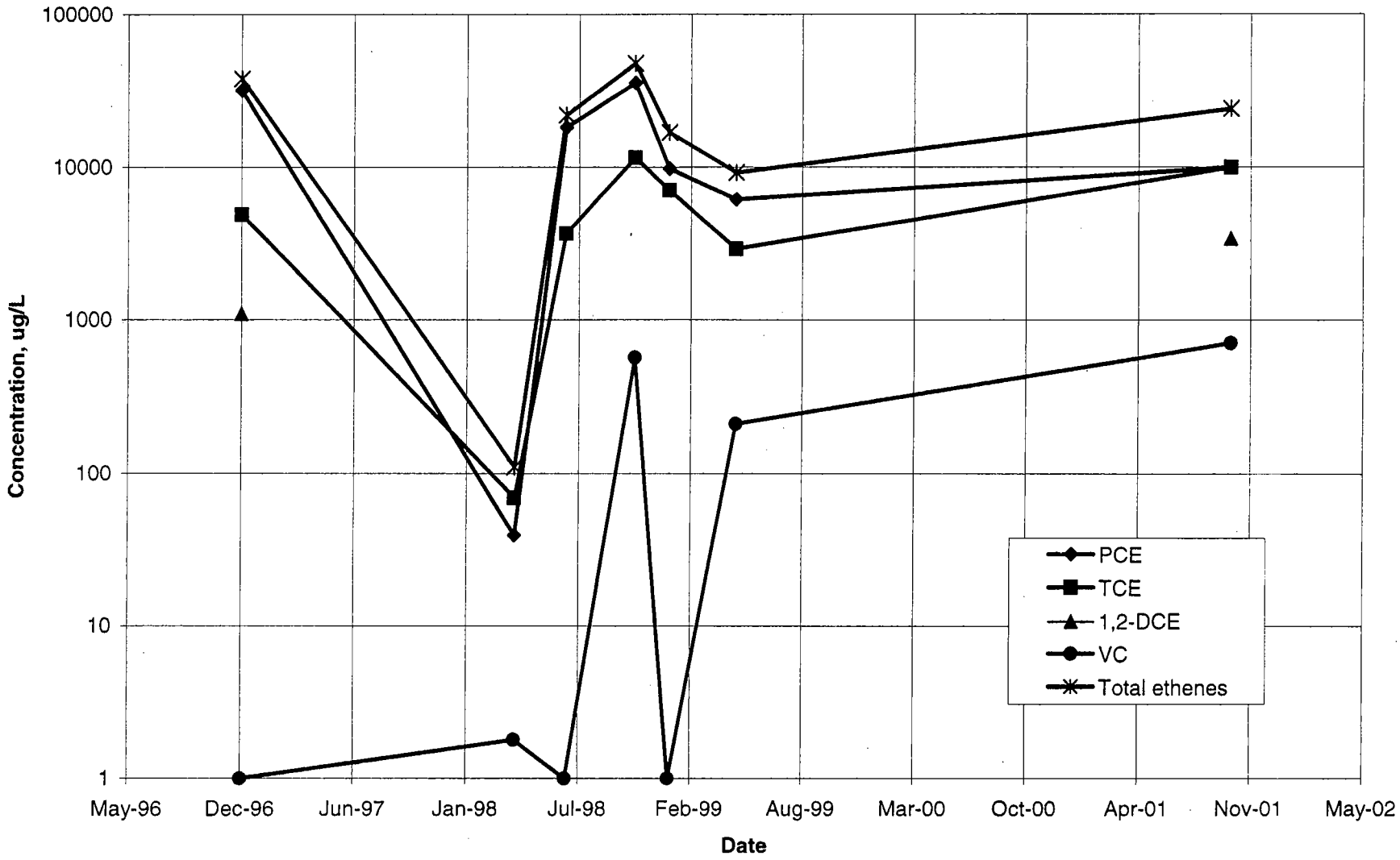


MW07SU VOC Concentration Trends

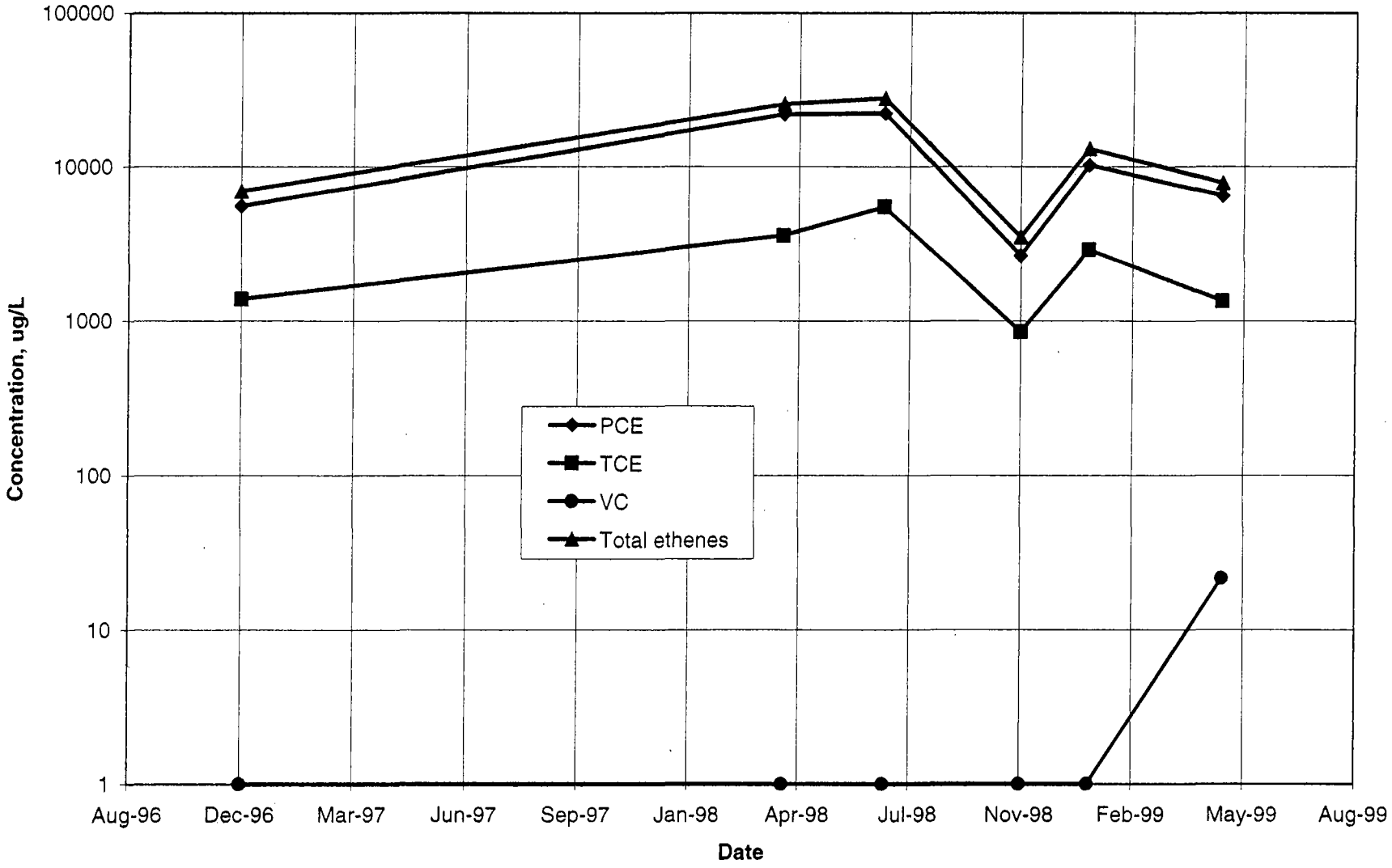



MW07SL VOC Concentration Trends
100000
10000
1000
100
10
1
Concentration, ug/L
Aug-96
Dec-96
Mar-97
Jun-97
Sep-97
Jan-98
Apr-98
Jul-98
Nov-98
Feb-99
May-99
Aug-99
Date
PCE
TCE
VC
Total ethenes

MW08SU Chlorinated VOC Concentrations



MW08SL VOC Concentration Trends



ATTACHMENT C
MODELING RESULTS

Attachment C.1

BIOSCREEN Modeling Results

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Site 45 / MCRD Parris Island / Run Name

Data Input Instructions:

1. Enter value directly, or
2. Calculate by filling in grey cells below. (To restore formulas, hit button below)

Variable* — Data used directly in model

Value calculated by model (Don't enter any data)

1. HYDROGEOLOGY

Seepage Velocity*	Vs	58.1	(ft/yr)
or		*or*	
Hydraulic Conductivity	K	5.4E-03	(cm/sec)
Hydraulic Gradient	I	0.0026	(ft/ft)
Porosity	n	0.25	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	30.0	(ft)
Transverse Dispersivity*	alpha y	3.0	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		*or*	
Estimated Plume Length	Lp	300	(ft)

3. ADSORPTION

Retardation Factor*	R	5.0	(-)
or		*or*	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	124	(L/kg)
FractionOrganicCarbon	foc	5.5E-3	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda	2.8E-1	(per yr)
or		*or*	
Solute Half-Life	t-half	2.50	(year)

or Instantaneous Reaction Model

Delta Oxygen*	DO	1	(mg/L)
Delta Nitrate*	NO3	0	(mg/L)
Observed Ferrous Iron*	Fe2+	14	(mg/L)
Delta Sulfate*	SO4	27	(mg/L)
Observed Methane*	CH4	0.9	(mg/L)

5. GENERAL

Modeled Area Length*	1000	(ft)
Modeled Area Width*	60	(ft)
Simulation Time*	8	(yr)

115 (or) 0.02

20 — Value calculated by model

6. SOURCE DATA

Source Thickness in Sat.Zone* 15 (ft)

Source Zones:

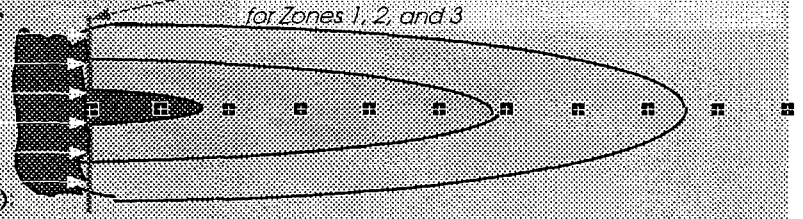
Width* (ft)	Conc. (mg/L)*
5	1
10	8
15	31
10	8
5	1

Source Halflife (see Help):

Inst. React	1st Order	
10	20	(yr)

Soluble Mass in Source NAPL, Soil: 100.0 (Kg)

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Dist. from Source (ft)	Concentration (mg/L)
0	22.78
100	1.75
200	.13
300	.0
400	.0
500	.0
600	.0
700	.0
800	.0
900	.0
1000	.0

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help

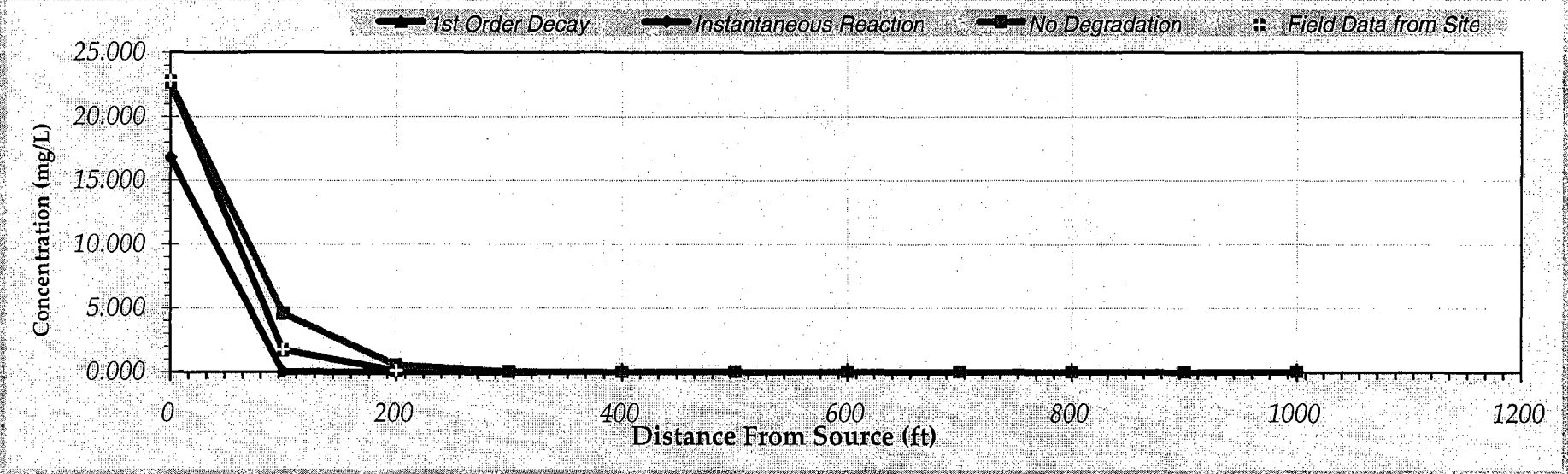
Recalculate This Sheet

Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

TYPE OF MODEL	Distance from Source (ft) 0	100	200	300	400	500	600	700	800	900	1000
No Degradation	22.663	4.555	0.541	0.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1st Order Decay	22.663	1.707	0.117	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Inst. Reaction	16.820	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	22.780	1.750	0.130								



Calculate Animation

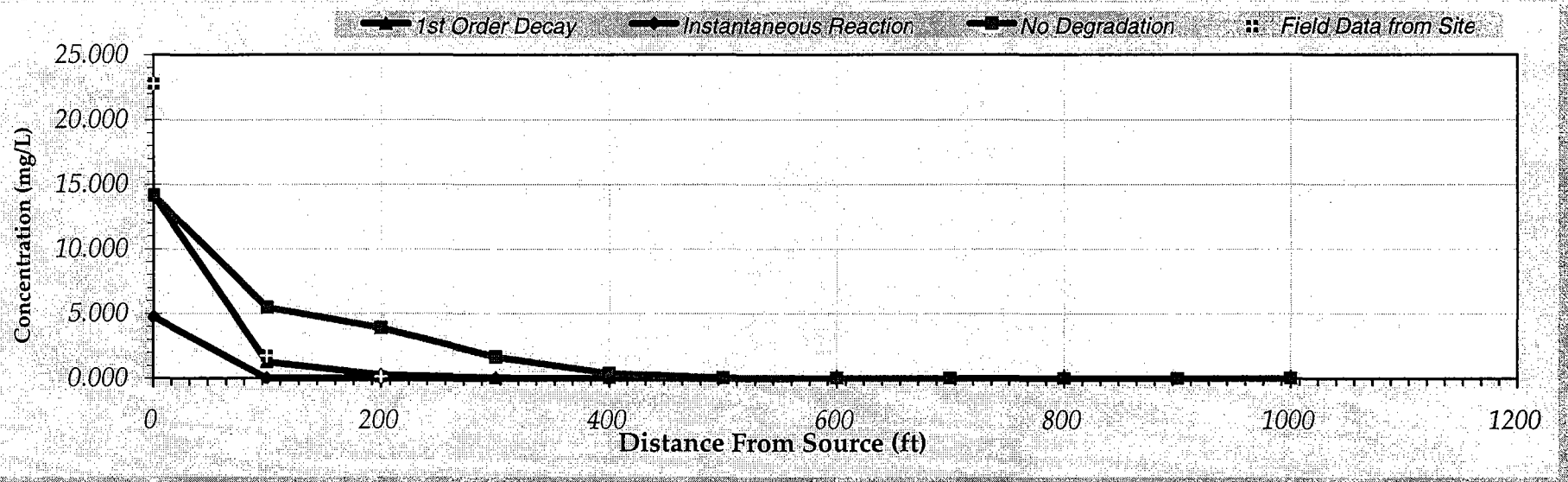
Time: 8 Years

Return to Input

Recalculate This Sheet

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

TYPE OF MODEL	Distance from Source (ft) 0	100	200	300	400	500	600	700	800	900	1000
No Degradation	14.166	5.478	3.889	1.665	0.398	0.054	0.004	0.000	0.000	0.000	0.000
1st Order Decay	14.166	1.260	0.252	0.043	0.006	0.001	0.000	0.000	0.000	0.000	0.000
Inst. Reaction	4.752	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	22.780	1.750	0.130								



Calculate Animation

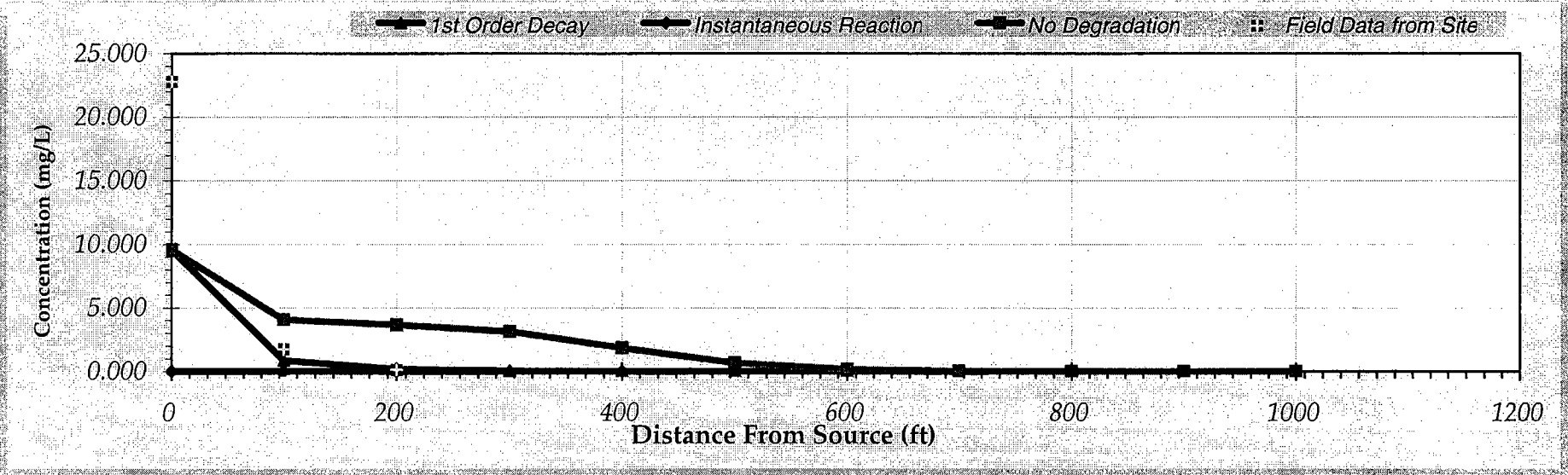
Time: 20 Years

Return to Input

Recalculate This Sheet

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

	Distance from Source (ft)										
TYPE OF MODEL	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	9.576	4.079	3.665	3.148	1.844	0.676	0.172	0.029	0.003	0.000	0.000
1st Order Decay	9.576	0.853	0.173	0.040	0.008	0.001	0.000	0.000	0.000	0.000	0.000
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	22.780	1.750	0.130								



Calculate Animation

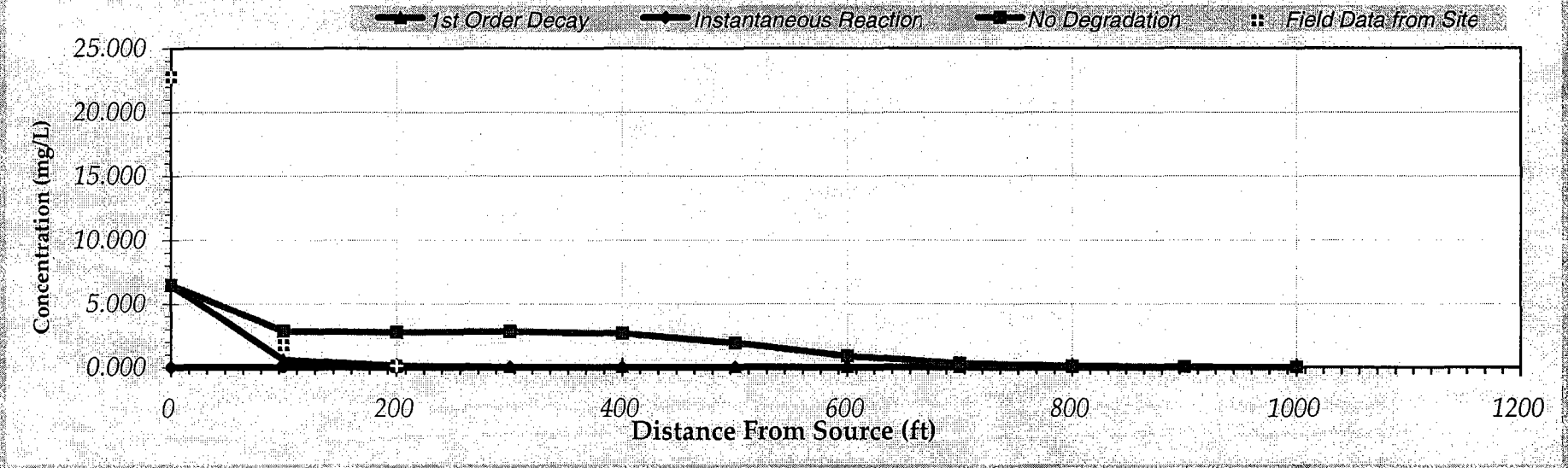
Time: 30 Years

Return to Input

Recalculate This Sheet

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

TYPE OF MODEL	Distance from Source (ft) 0	100	200	300	400	500	600	700	800	900	1000
No Degradation	6.473	2.839	2.757	2.824	2.672	1.908	0.876	0.309	0.081	0.016	0.002
1st Order Decay	6.473	0.577	0.117	0.027	0.007	0.001	0.000	0.000	0.000	0.000	0.000
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	22.780	1.750	0.130								



Calculate Animation

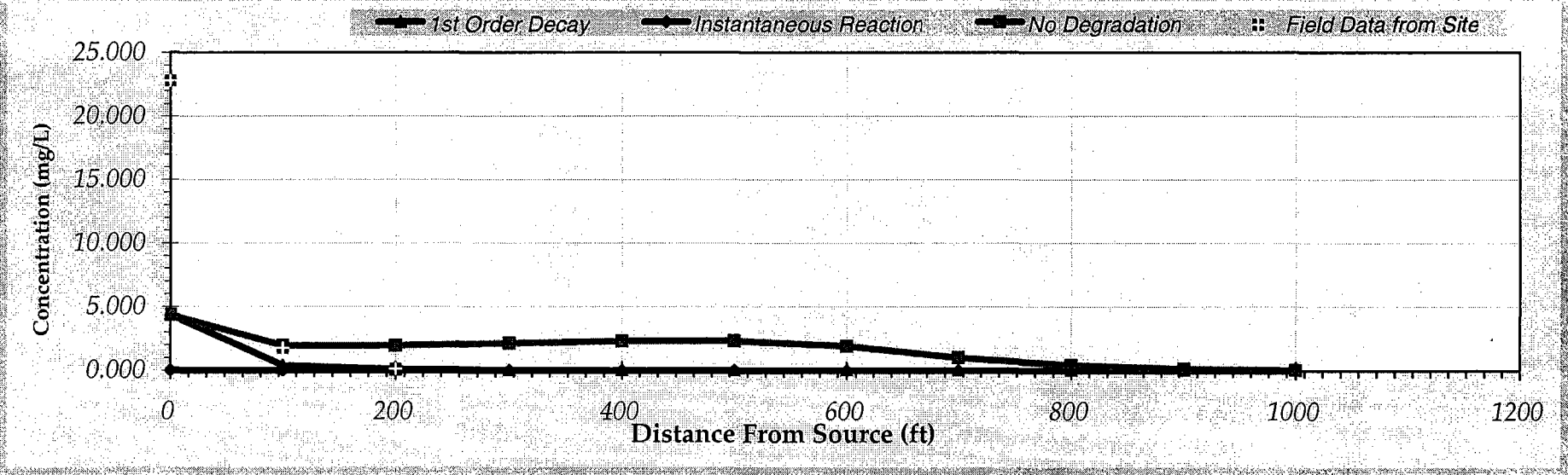
Time: 40 Years

Return to Input

Recalculate This Sheet

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

TYPE OF MODEL	Distance from Source (ft) 0	100	200	300	400	500	600	700	800	900	1000
No Degradation	4.376	1.938	1.934	2.127	2.313	2.327	1.924	1.017	0.438	0.150	0.040
1st Order Decay	4.376	0.390	0.079	0.018	0.004	0.001	0.000	0.000	0.000	0.000	0.000
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	22.780	1.750	0.130								



Calculate Animation

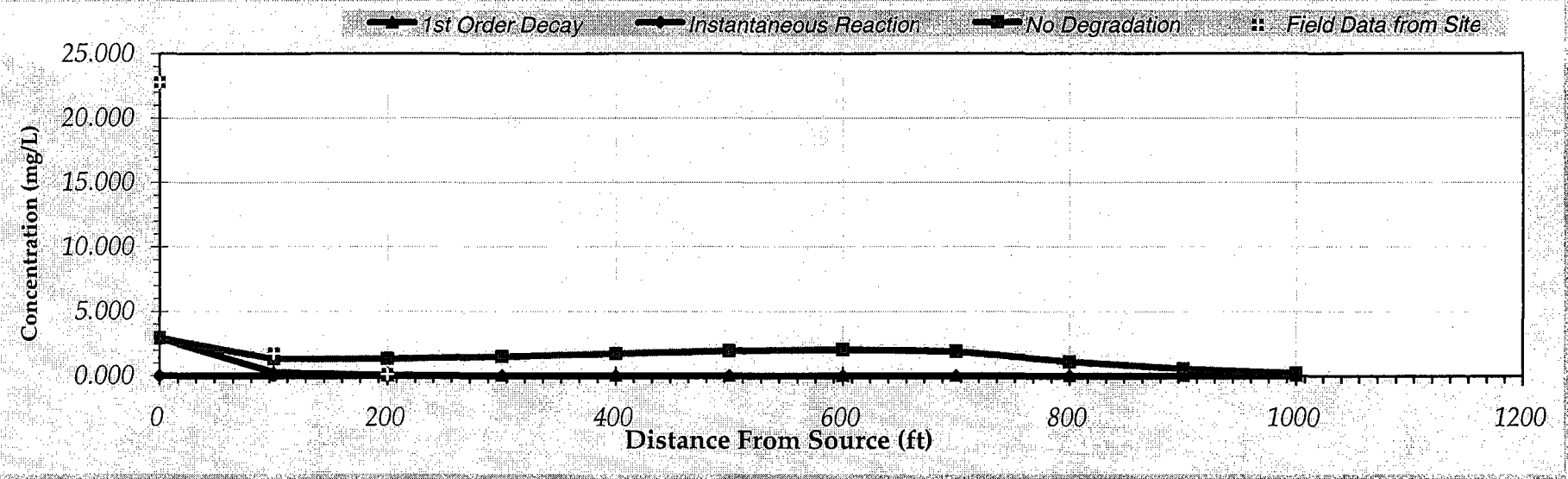
Time: 50 Years

Return to Input

Recalculate This Sheet

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

	Distance from Source (ft)										
TYPE OF MODEL	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	2.958	1.314	1.325	1.499	1.738	1.961	2.060	1.920	1.118	0.551	0.226
1st Order Decay	2.958	0.263	0.053	0.012	0.003	0.001	0.000	0.000	0.000	0.000	0.000
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	22.780	1.750	0.130								



Calculate Animation

Time: 60 Years

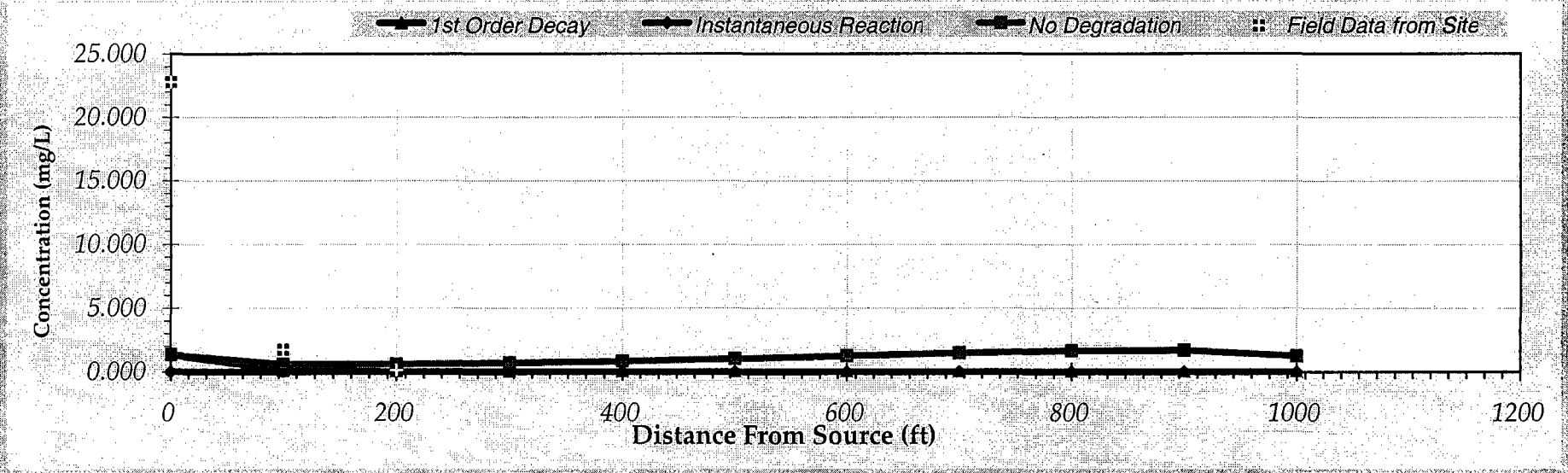
Return to Input

Recalculate This Sheet

Fig 1

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

	Distance from Source (ft)										
TYPE OF MODEL	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	1.352	0.601	0.610	0.701	0.846	1.039	1.266	1.494	1.663	1.705	1.245
1st Order Decay	1.352	0.120	0.024	0.006	0.001	0.000	0.000	0.000	0.000	0.000	0.000
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	22.780	1.750	0.130								



Calculate Animation

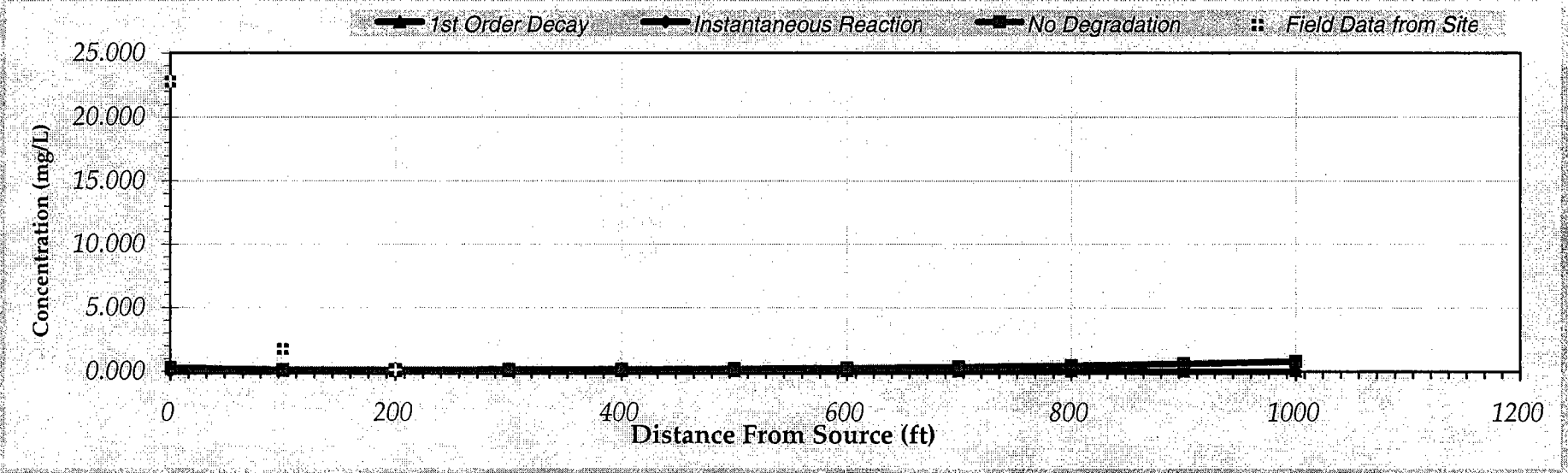
Time: 80 Years

Return to Input

Recalculate This Sheet

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

TYPE OF MODEL	Distance from Source (ft) 0	100	200	300	400	500	600	700	800	900	1000
No Degradation	0.282	0.126	0.127	0.147	0.179	0.225	0.287	0.371	0.480	0.619	0.786
1st Order Decay	0.282	0.025	0.005	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	22.780	1.750	0.130								



Calculate Animation

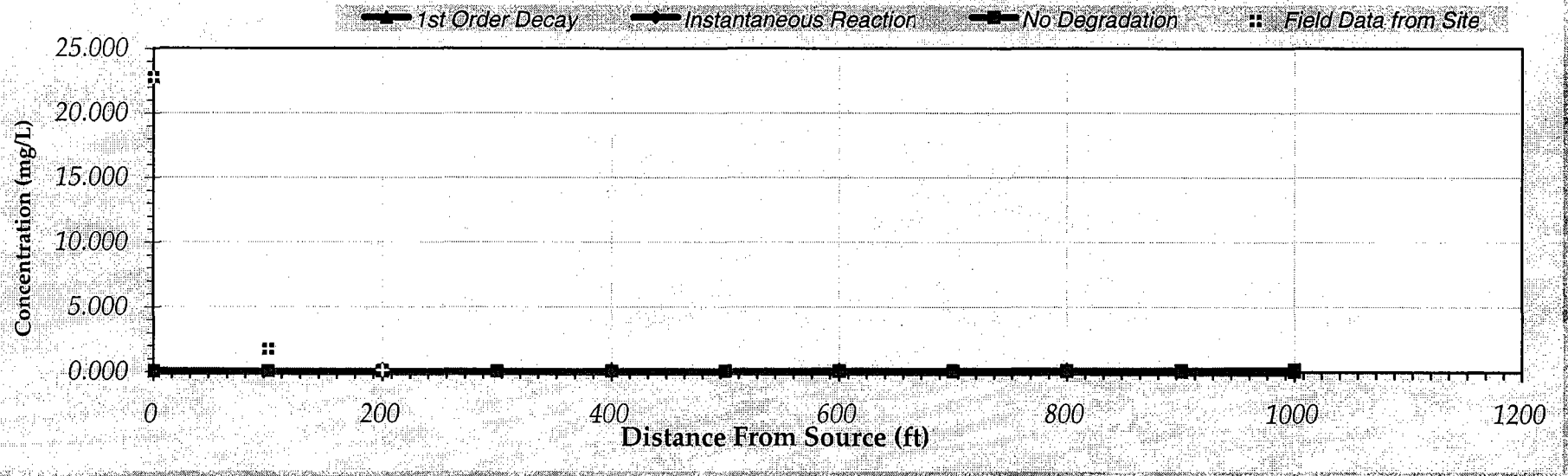
Time: 120 Years

Return to Input

Recalculate This Sheet

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

	Distance from Source (ft)										
TYPE OF MODEL	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	0.059	0.026	0.027	0.031	0.037	0.047	0.060	0.078	0.102	0.135	0.179
1st Order Decay	0.059	0.005	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	22.780	1.750	0.130								



Calculate Animation

Time: 160 Years

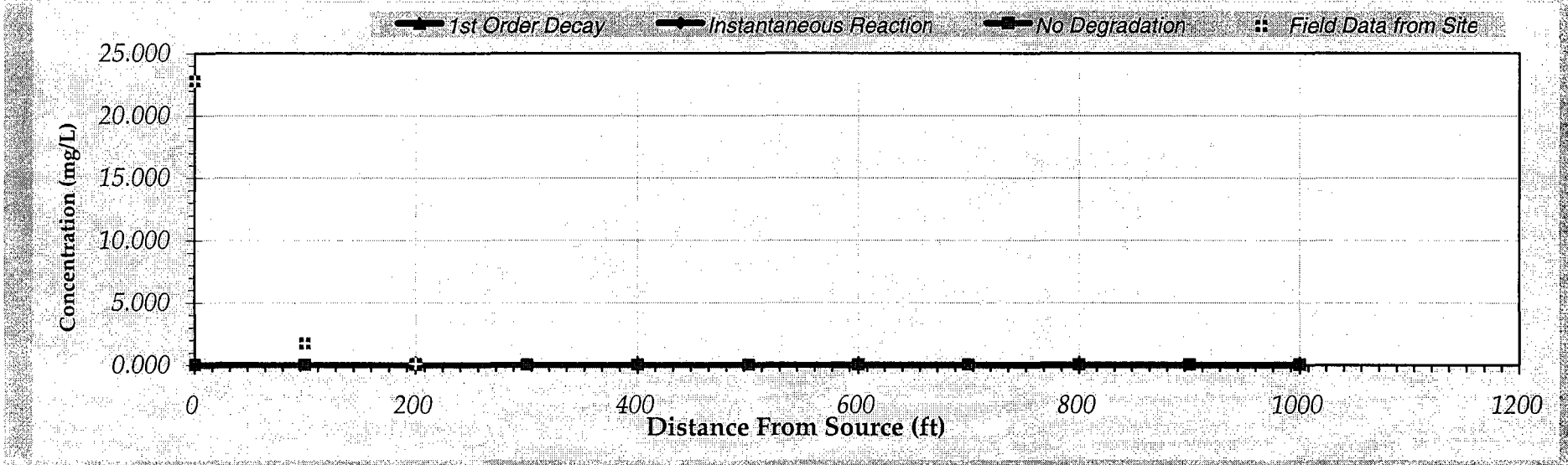
Return to Input

Recalculate This Sheet

Eh-3

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

	Distance from Source (ft)										
TYPE OF MODEL	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	0.012	0.005	0.006	0.006	0.008	0.010	0.013	0.016	0.021	0.028	0.038
1st Order Decay	0.012	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	22.780	1.750	0.130								



Calculate Animation

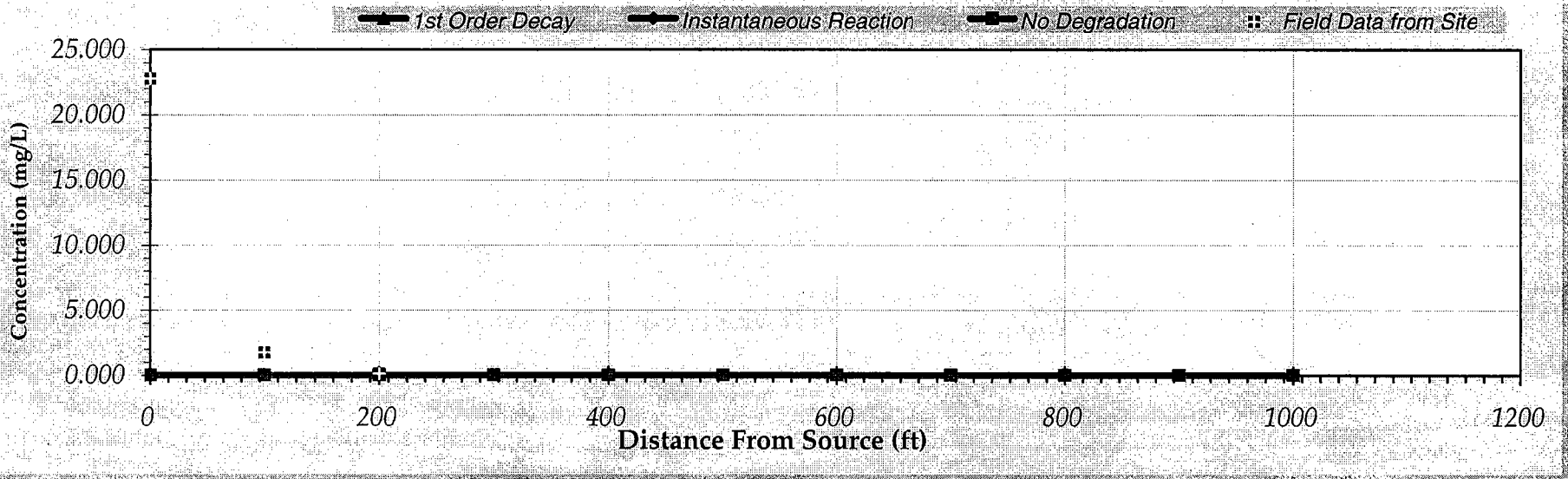
Time: 200 Years

Return to Input

Recalculate This Sheet

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

	Distance from Source (ft)										
TYPE OF MODEL	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	0.003	0.001	0.001	0.001	0.002	0.002	0.003	0.003	0.004	0.006	0.008
1st Order Decay	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	22.780	1.750	0.130								



Calculate Animation

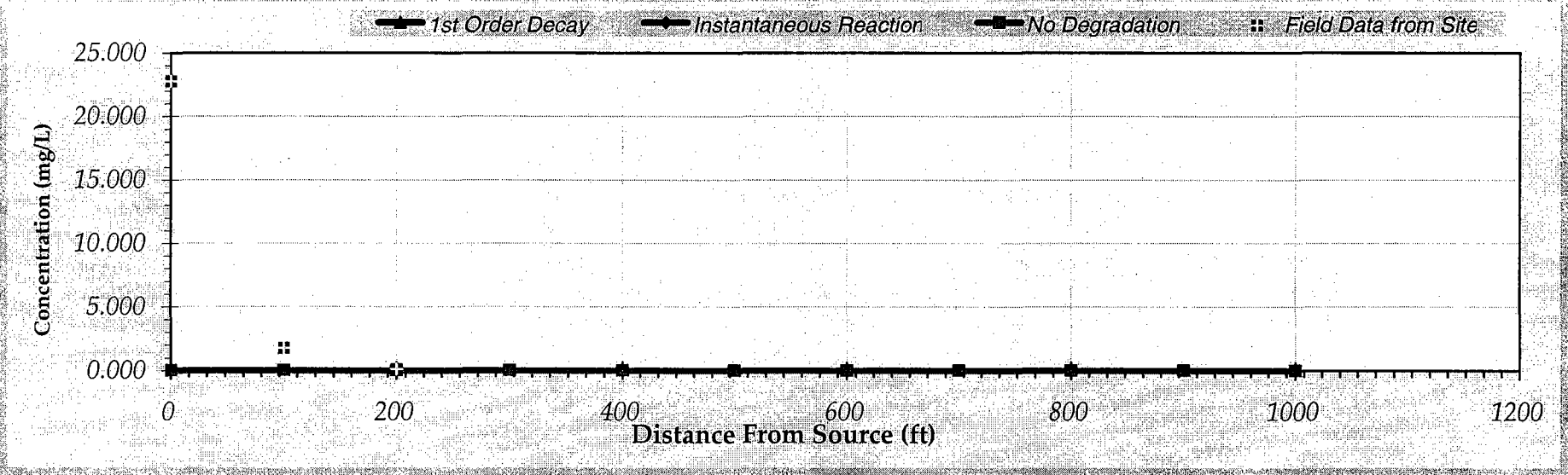
Time: 240 Years

Return to Input

Recalculate This Sheet

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

	Distance from Source (ft)										
TYPE OF MODEL	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.003	0.004
1st Order Decay	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	22.780	1.750	0.130								



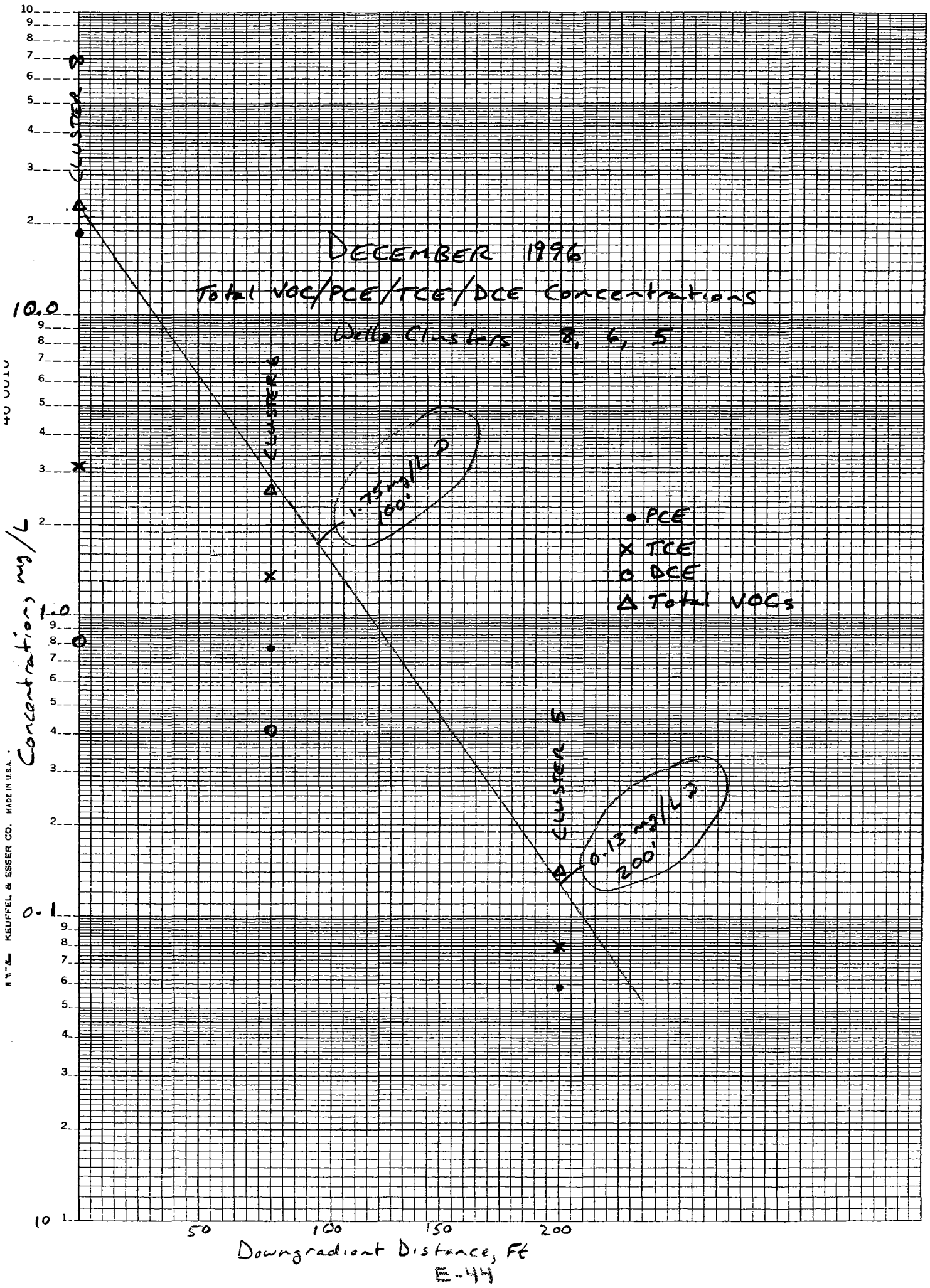
Calculate Animation

Time: 260 Years

Return to Input

Recalculate This Sheet

E-43


DECEMBER 1996
Total VOC/PCE/TCE/DCE Concentrations
Wells Clusters 8, 6, 5
CLUSTER 8
CLUSTER 6
CLUSTER 5
1.75 mg/L @ 100'
0.13 mg/L @ 200'
• PCE
x TCE
o DCE
Δ Total VOCs
Concentration, mg/L
10.0
1.0
0.1
10
50
100
150
200
Downgradient Distance, Ft
KEUFFEL & ESSER CO. MADE IN U.S.A.

Attachment C.2

BIOCHLOR Modeling Results

BIOCHLOR Natural Attenuation Decision Support System

Version 1.1
for Excel 7.0/ '95

Site 45
MCRD Parris Island
Run Name

Data Input Instructions:

115 — 1. Enter value directly....or
or — 2. Calculate by filling in gray
0.02 — cells. Press Enter, then (C)
(To restore formulas, hit "Restore Formulas" button.)
Variable* — Data used directly in model.

Test if Biotransformation Is Occurring → Natural Attenuation Screening Protocol

TYPE OF CHLORINATED SOLVENT: Ethenes ● Ethanes ○

1. ADVECTION

Seepage Velocity*	Vs	58.1	(ft/yr)	
or		or		
Hydraulic Conductivity	K	5.4E-03	(cm/sec)	
Hydraulic Gradient	i	0.0026	(ft/ft)	
Effective Porosity	n	0.25	(-)	

2. DISPERSION

Alpha x Calc. Method	22	(ft)	Change Alpha x Calc. Method
(Alpha y) / (Alpha x)	0.1	(-)	
(Alpha z) / (Alpha x)	1.E-99	(-)	

3. ADSORPTION

Retardation Factor* — R
or
Soil Bulk Density, rho: 2 (kg/L)
FractionOrganicCarbon, foc: 5.5E-3 (-)
Partition Coefficient — Koc

	Koc		R	
PCE	426	(L/kg)	19.7	(-)
TCE	130	(L/kg)	6.7	(-)
DCE	125	(L/kg)	6.5	(-)
VC	30	(L/kg)	2.3	(-)
ETH	10	(L/kg)	1.4	(-)
Common R (used in model)* =			**6.5**	

4. BIOTRANSFORMATION

	λ (1/yr)		half-life (yrs)	Yield*
Zone 1				
PCE → TCE	1.12	←	0.62	0.79
TCE → DCE	0.77	←	0.90	0.74
DCE → VC	3.47	←	0.20	0.64
VC → ETH	2.77	←	0.25	0.45
Zone 2	λ (1/yr)		half-life (yrs)	
PCE → TCE	0.00	←	0.00	
TCE → DCE	0.00	←	0.00	
DCE → VC	0.00	←	0.00	
VC → ETH	0.00	←	0.00	
ETH → Ethane	0.00	←	0.00	

5. GENERAL

Simulation Time*	8	(yr)
Modeled Area Width*	60	(ft)
Modeled Area Length*	1000	(ft)
Zone 1 Length*	1000	(ft)
Zone 2 Length*	0	(ft)

L, W

Zone 2= L - Zone 1

6. SOURCE DATA

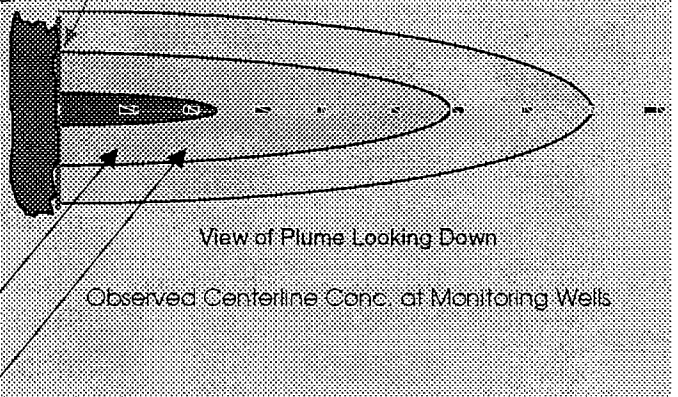
Source Options — TYPE: Single Planar

Source Thickness in Sat. Zone*: 15 (ft)

Width* (ft): 45

Conc. (mg/L)*	C1	C2	C3
PCE	18.8		
TCE	3.15		
DCE	.825		
VC	.0		
ETH	.0		

Vertical Plane Source: Determine Source Well Location and Input Solvent Concentrations



7. FIELD DATA FOR COMPARISON

PCE Conc. (mg/L)	18.8	.78	.059								
TCE Conc. (mg/L)	3.15	1.365	.08								
DCE Conc. (mg/L)	.825	.415	.003								
VC Conc. (mg/L)	.0	.085	.0								
ETH Conc. (mg/L)											
Dist. from Source (ft)	0	80	200								

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE

RUN ARRAY

Help

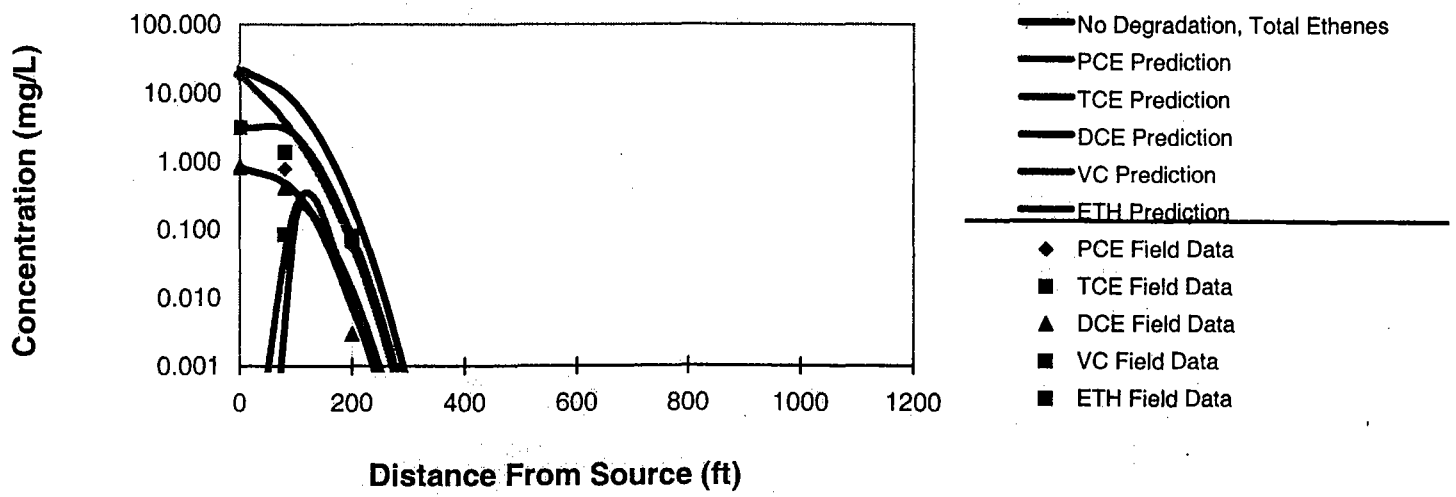
Restore Formulas

RESET

SEE OUTPUT

Paste Example

DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE



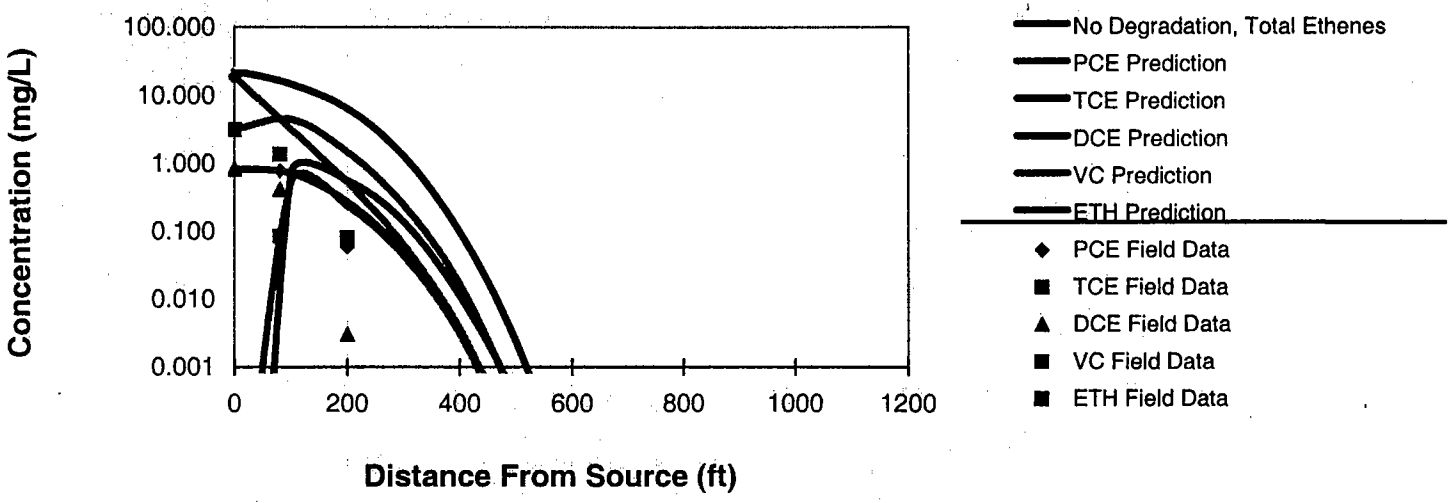
Log ⟺ Linear

Time: 8 Years

To Input

To Individual Compounds

DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE



Log ⟺ Linear

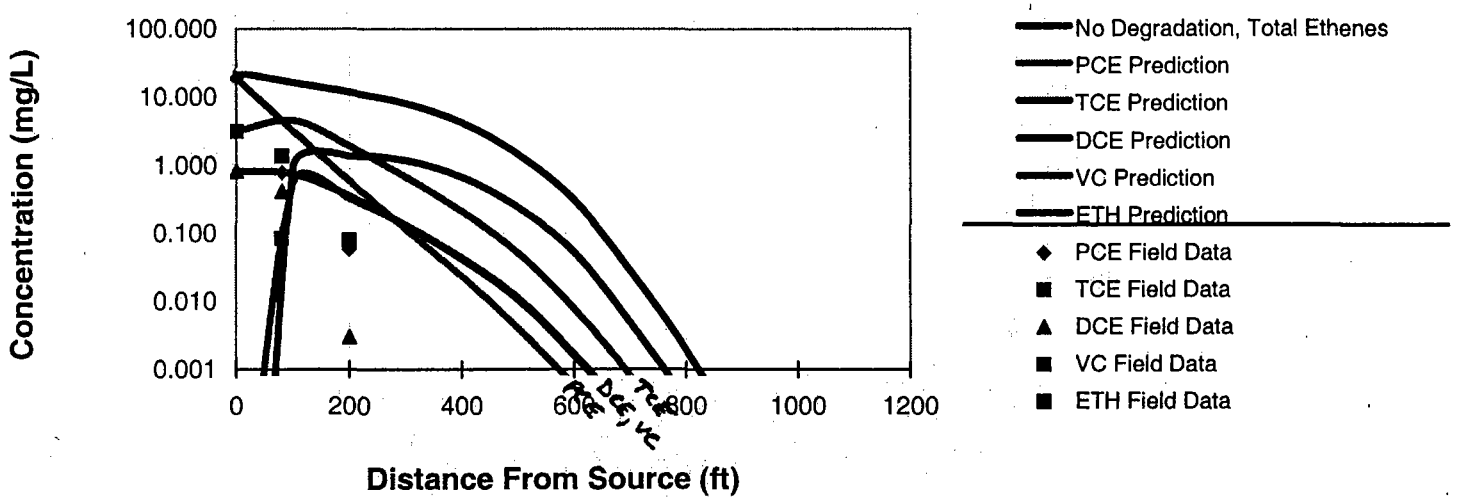
Time:

20 Years

To Input

To Individual Compounds

DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE



Log ⟺ Linear

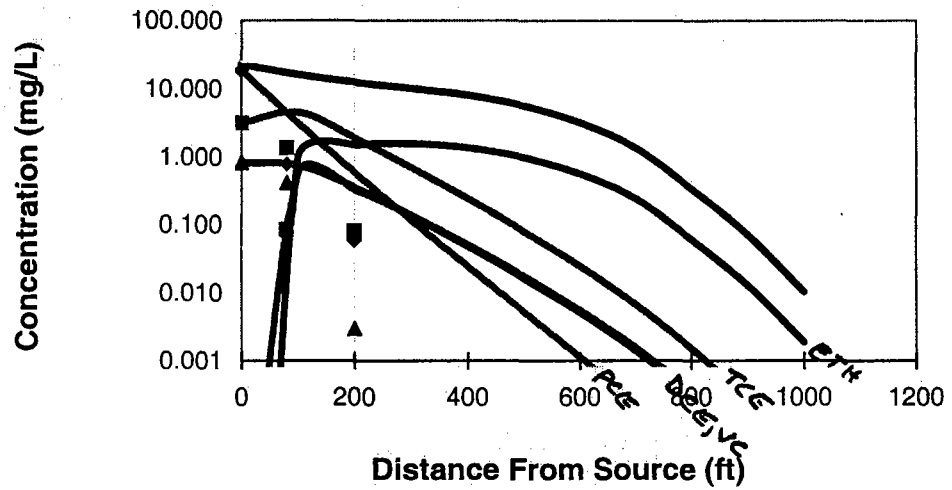
Time:
40 Years

To Input

To Individual Compounds

8h-3

DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE



- No Degradation, Total Ethenes
- PCE Prediction
- TCE Prediction
- DCE Prediction
- VC Prediction
- ETH Prediction
- PCE Field Data
- TCE Field Data
- DCE Field Data
- VC Field Data
- ETH Field Data

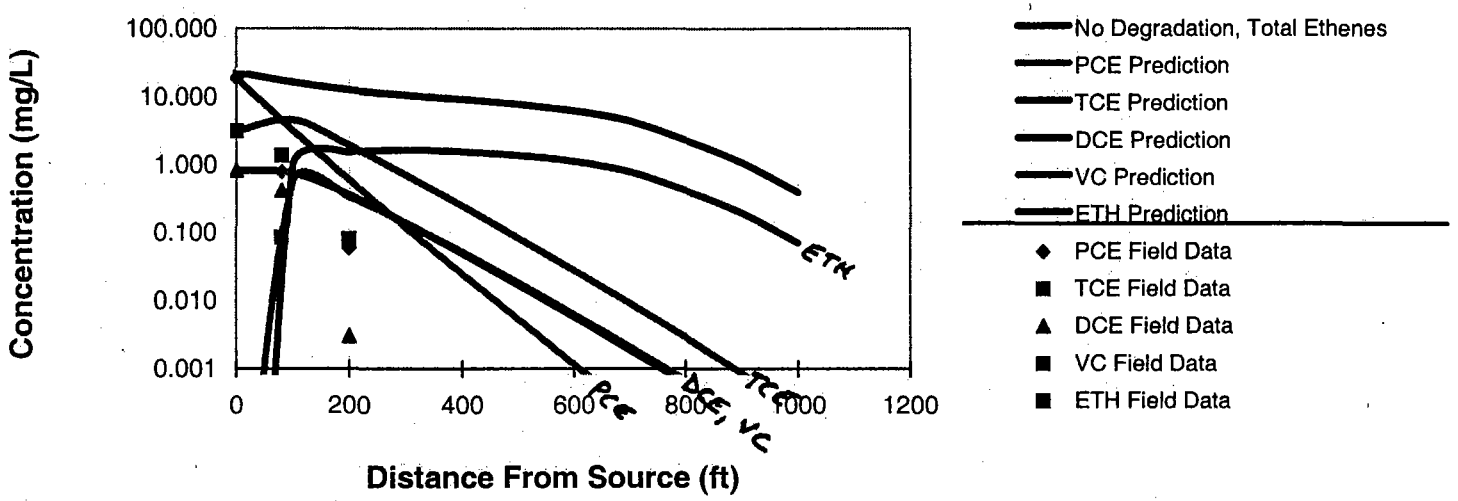
Log ⟺ Linear

Time: *60 Years*

To Input

To Individual Compounds

DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE



Log ⟺ Linear

Time:
80 Years

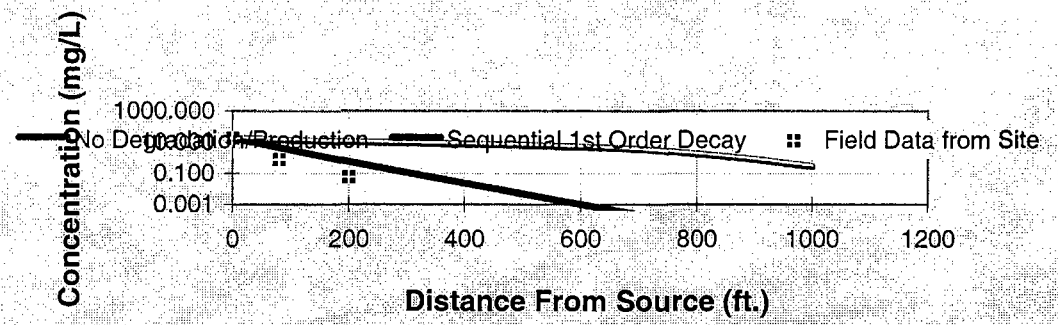
To Input

To Individual Compounds

DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE

PCE	Distance from Source (ft) 0	100	200	300	400	500	600	700	800	900	1000
No Degradation	18.800	13.471	10.367	8.683	7.483	6.338	4.994	3.442	1.757	0.781	0.270
Biotransformation	18.800	3.139	0.563	0.110	0.023	0.005	0.001	0.000	0.000	0.000	0.000

	Monitoring Well Locations (ft) 0	80	200								
Field Data from Site	18.800	0.780	0.059								



See PCE

See TCE

See DCE

See VC

See ETH

Log ⟺ Linear

Time:

80 Years

Return to Input

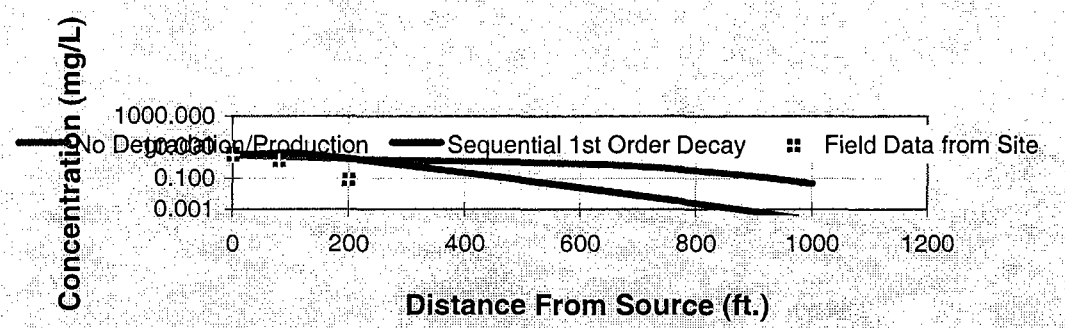
To All

To Array

DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE

TCE	Distance from Source (ft)										
	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	3.150	2.257	1.737	1.455	1.254	1.062	0.837	0.577	0.294	0.131	0.045
Biotransformation	3.150	4.533	1.869	0.671	0.229	0.076	0.025	0.008	0.003	0.001	0.000

	Monitoring Well Locations (ft)										
	0	80	200								
Field Data from Site	3.150	1.365	0.080								



See PCE

See TCE

See DCE

See VC

See ETH

Log ⟺ Linear

Time:

80 Years

Return to Input

To All

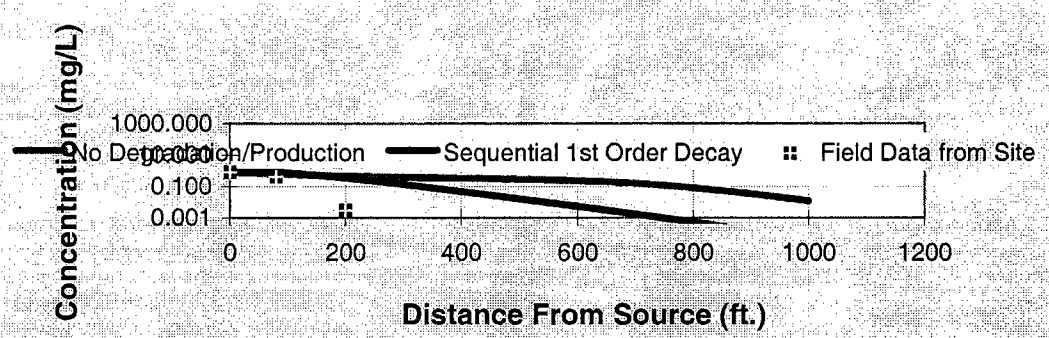
To Array

E-52

DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE

DCE	Distance from Source (ft) 0	100	200	300	400	500	600	700	800	900	1000
No Degradation	0.825	0.591	0.455	0.381	0.328	0.278	0.219	0.151	0.077	0.034	0.012
Biotransformation	0.825	0.744	0.350	0.133	0.046	0.016	0.005	0.002	0.001	0.000	0.000

	Monitoring Well Locations (ft) 0	80	200								
Field Data from Site	0.825	0.415	0.003								



See PCE

See TCE

See DCE

See VC

See ETH

Log ⟺ Linear

Time: 80 Years

Return to Input

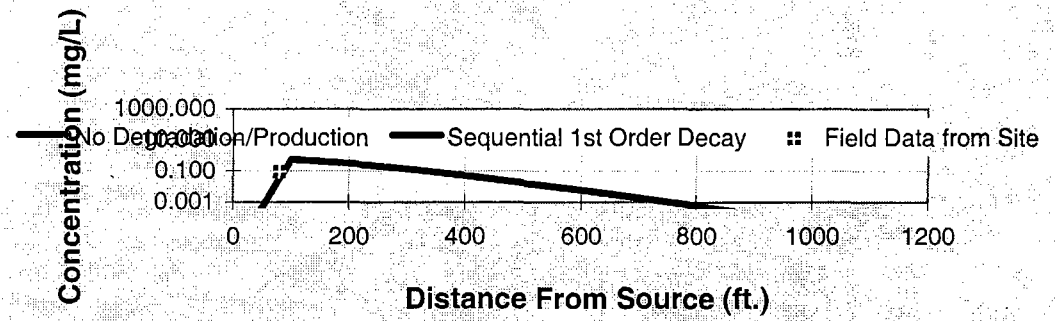
To All

To Array

DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE

VC	Distance from Source (ft)										
	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Biotransformation	0.000	0.557	0.319	0.132	0.049	0.017	0.006	0.002	0.001	0.000	0.000

	Monitoring Well Locations (ft)										
	0	80	200								
Field Data from Site	0.000	0.085	0.000								



See PCE

See TCE

See DCE

See VC

See ETH

Log ⟺ Linear

Time:

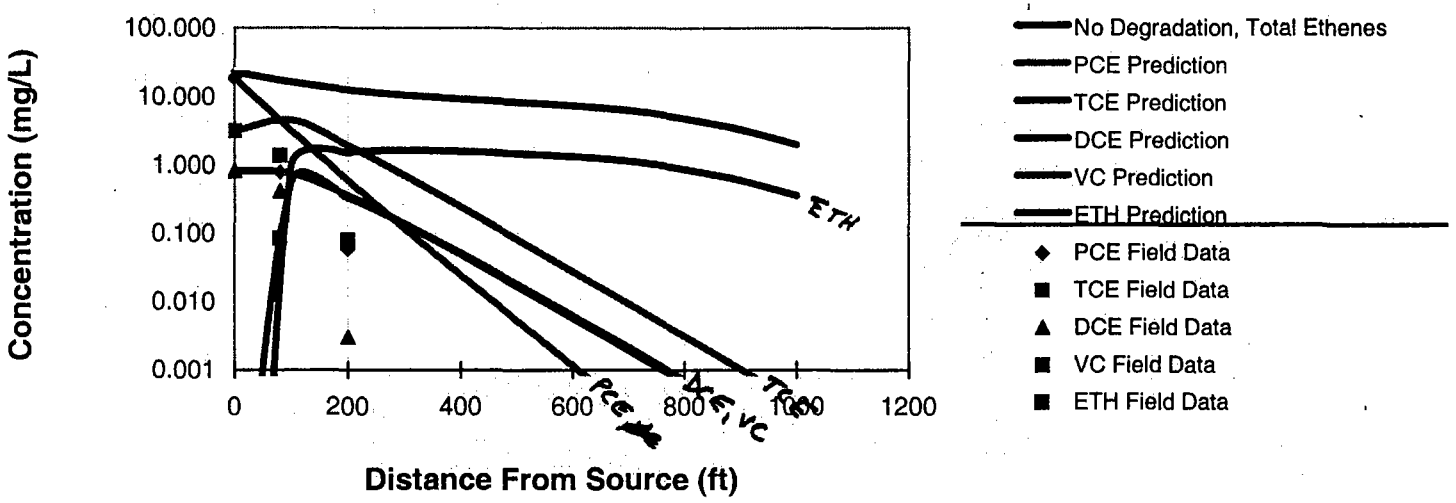
80 Years

Return to Input

To All

To Array

DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE



Log ⟺ Linear

Time: 100 Years

To Input

To Individual Compounds

BIOCHLOR Natural Attenuation Decision Support System

Version 1.1
for Excel 7.0/ '95

Site 45
MCRD Parris Island
Run Name

Data Input Instructions:

115 or 0.02

1. Enter value directly....or
2. Calculate by filling in gray cells. Press Enter, then (C)

(To restore formulas, hit "Restore Formulas" button.)

Variable* Data used directly in model.

Test if Biotransformation is Occurring → Natural Attenuation Screening Protocol

TYPE OF CHLORINATED SOLVENT: Ethenes ● Ethanes ○

1. ADVECTION

Seepage Velocity*	Vs	58.1	(ft/yr)
or			
Hydraulic Conductivity	K	5.4E-03	(cm/sec)
Hydraulic Gradient	i	0.0026	(ft/ft)
Effective Porosity	n	0.25	(-)

2. DISPERSION

Alpha x Calc. Method	22	(ft)
(Alpha y) / (Alpha x)	0.1	(-)
(Alpha z) / (Alpha x)	1.E-99	(-)

Change Alpha x Calc. Method

3. ADSORPTION

Retardation Factor* R

or

Soil Bulk Density, rho	2	(kg/L)		
FractionOrganicCarbon, foc	5.5E-3	(-)		
Partition Coefficient	Koc			
PCE	426	(L/kg)	19.7	(-)
TCE	130	(L/kg)	6.7	(-)
DCE	125	(L/kg)	6.5	(-)
VC	30	(L/kg)	2.3	(-)
ETH	10	(L/kg)	1.4	(-)
Common R (used in model)* =			**7.0**	

4. BIOTRANSFORMATION

Zone 1	λ (1/yr)	half-life (yrs)	Yield*
PCE → TCE	0.28	2.50	0.79
TCE → DCE	0.07	10.00	0.74
DCE → VC	0.23	3.00	0.64
VC → ETH	1.39	0.50	0.45

Zone 2	λ (1/yr)	half-life (yrs)
PCE → TCE	0.00	
TCE → DCE	0.00	
DCE → VC	0.00	
VC → ETH	0.00	
ETH → Ethane	0.00	

5. GENERAL

Simulation Time*	8	(yr)
Modeled Area Width*	60	(ft)
Modeled Area Length*	1000	(ft)
Zone 1 Length*	1000	(ft)
Zone 2 Length*	0	(ft)

Zone 2= L - Zone 1

6. SOURCE DATA

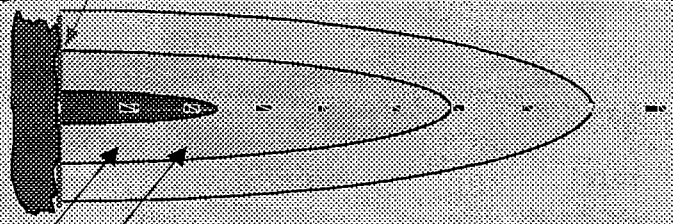
Source Options TYPE: Single Planar

Source Thickness in Sat. Zone* 15 (ft)

Width* (ft) 45

Conc. (mg/L)*	C1	C2	C3
PCE	18.8		
TCE	3.15		
DCE	.825		
VC	.0		
ETH	.0		

Vertical Plane Source: Determine Source Well Location and Input Solvent Concentrations



View of Plume Looking Down

Observed Centerline Conc. at Monitoring Wells

7. FIELD DATA FOR COMPARISON

PCE Conc. (mg/L)	18.8	.78	.059								
TCE Conc. (mg/L)	3.15	1.365	.08								
DCE Conc. (mg/L)	.825	.415	.003								
VC Conc. (mg/L)	.0	.085	.0								
ETH Conc. (mg/L)											
Dist. from Source (ft)	0	80	200								

8. CHOOSE TYPE OF OUTPUT TO SEE:

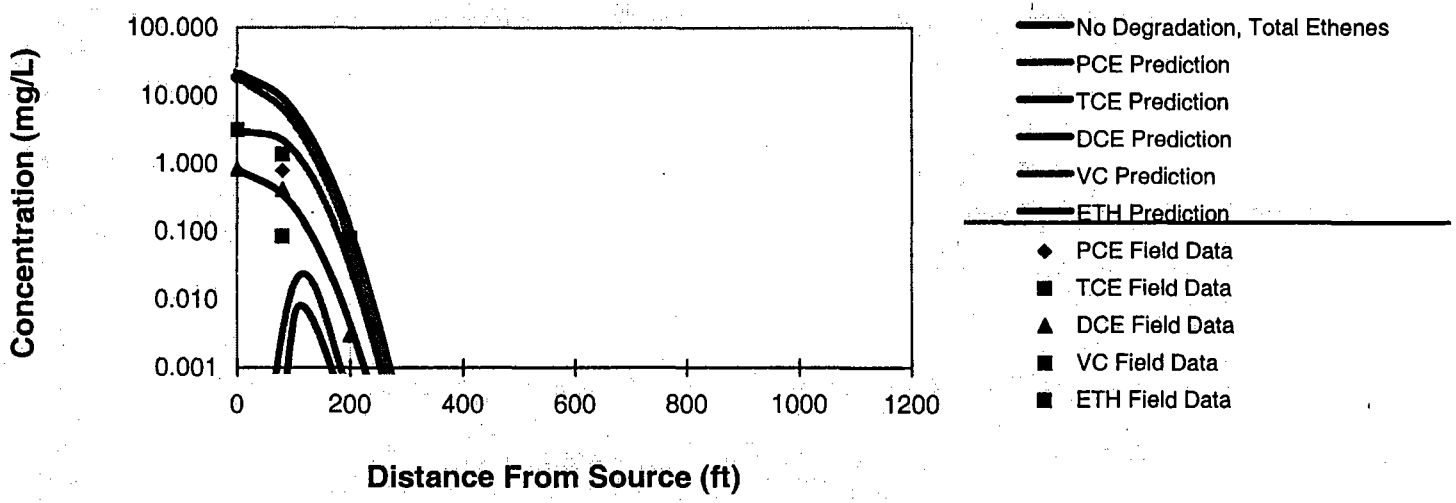
RUN CENTERLINE | RUN ARRAY

Help | Restore Formulas | RESET

SEE OUTPUT | Paste Example

E-56

DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE



Log ⟺ Linear

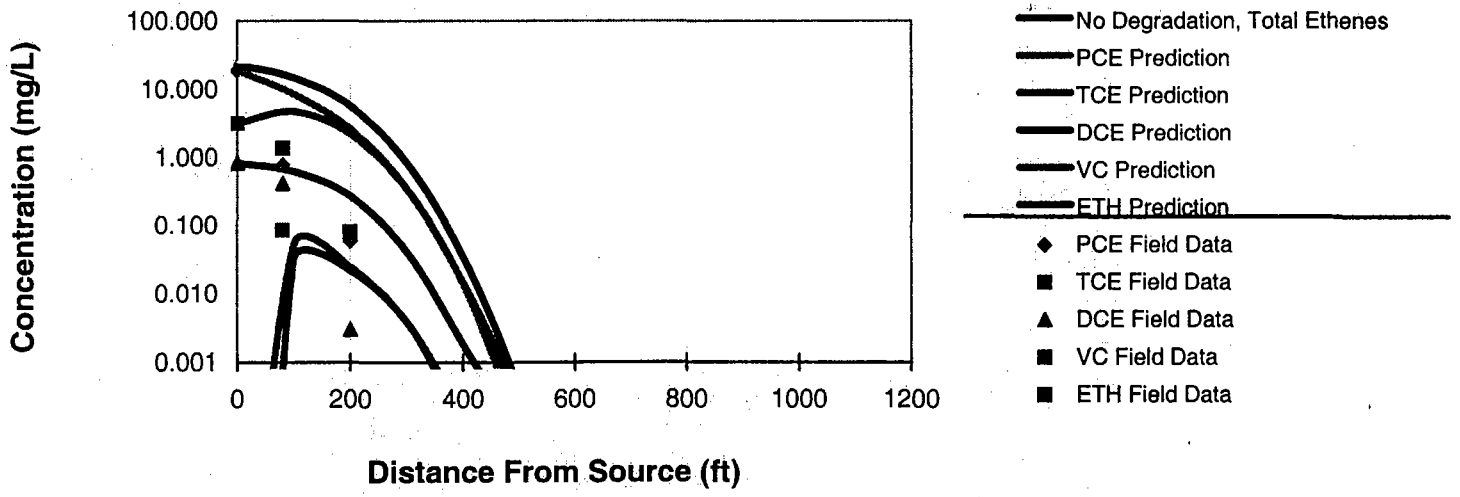
Time:

8 Years

To Input

To Individual Compounds

DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE



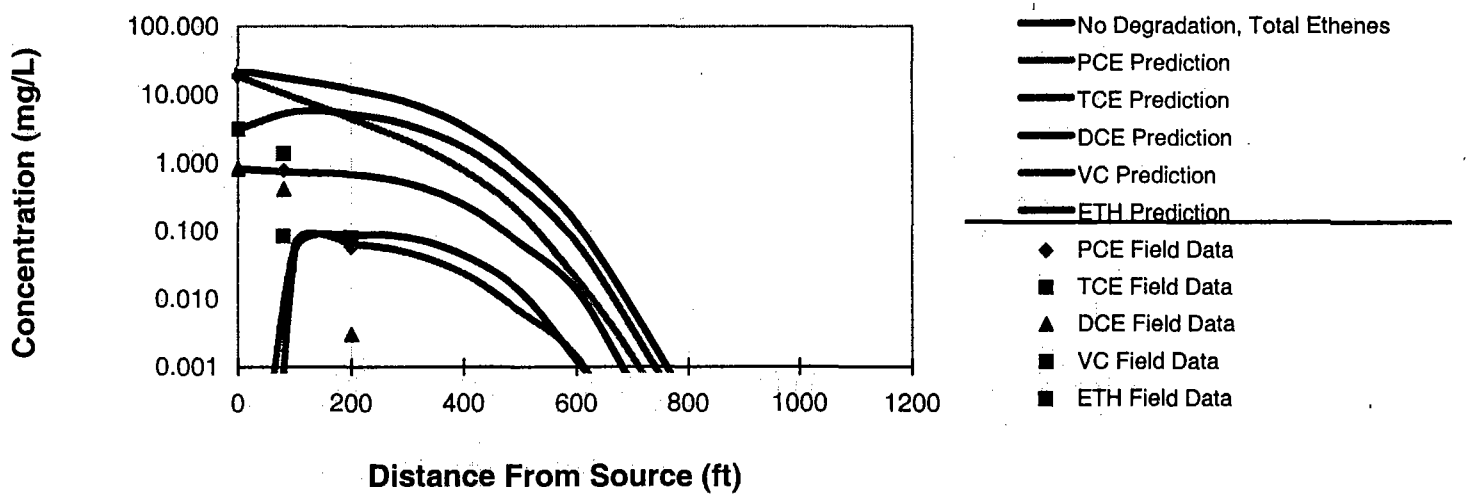
Log ⟺ Linear

Time:
20 Years

To Input

To Individual Compounds

DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE



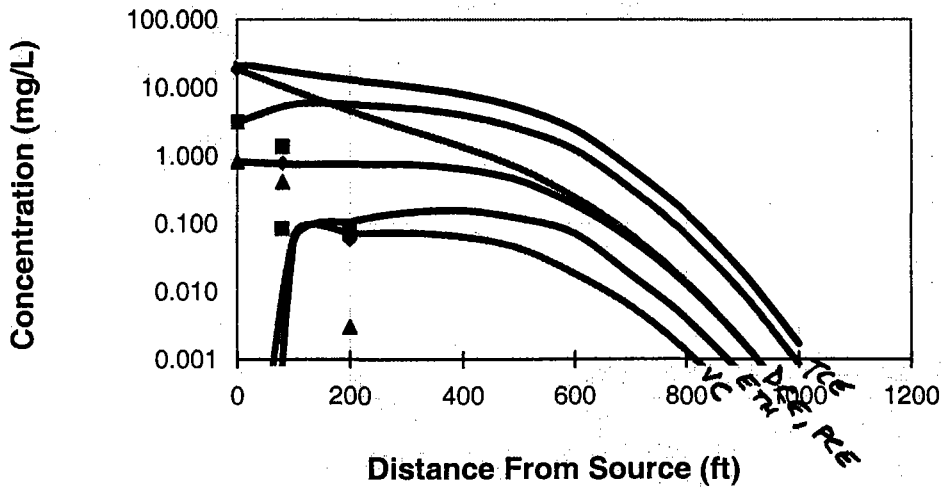
Log ⟺ Linear

Time:
40 Years

To Input

To Individual Compounds

DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE



- No Degradation, Total Ethenes
- PCE Prediction
- TCE Prediction
- DCE Prediction
- VC Prediction
- ETH Prediction
- PCE Field Data
- TCE Field Data
- DCE Field Data
- VC Field Data
- ETH Field Data

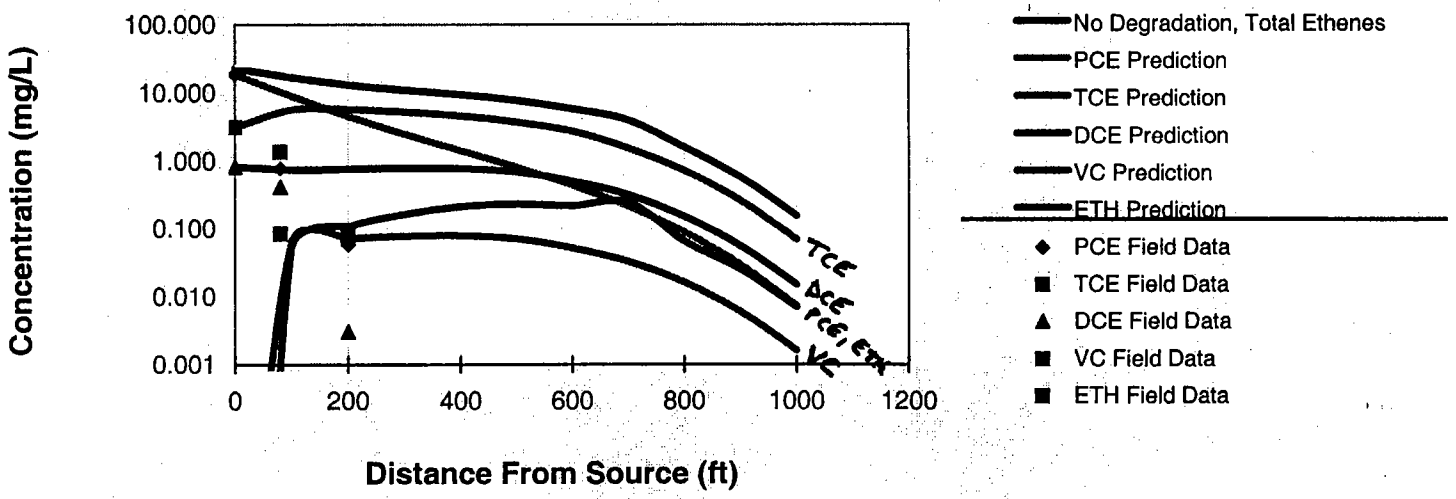
Log ⟺ Linear

Time:
60 Years

To Input

To Individual Compounds

DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE



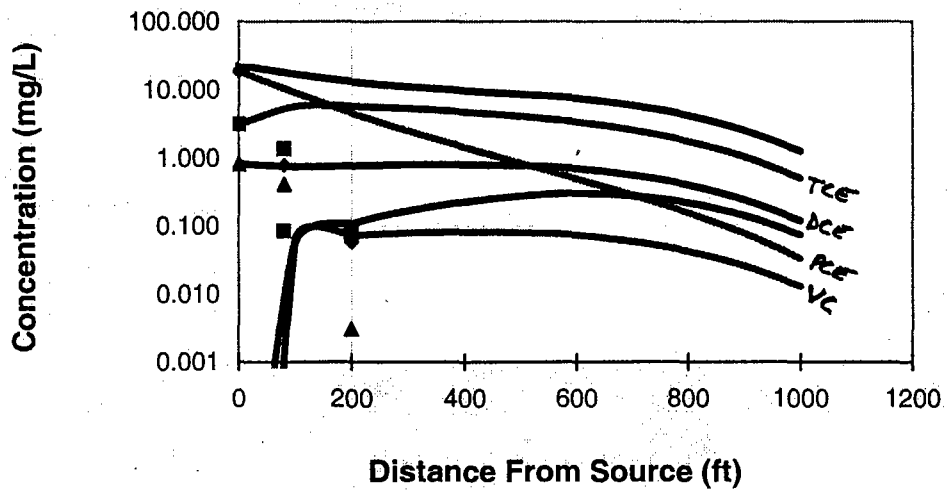
Log ⟺ Linear

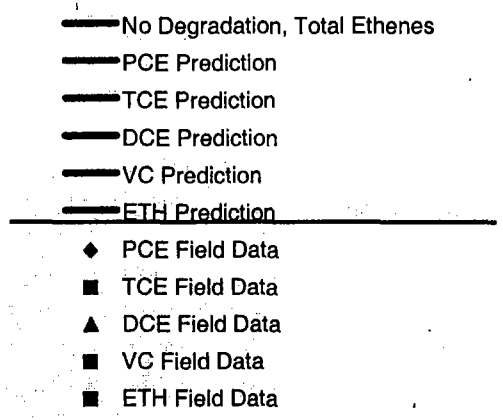
Time: 80 Years

To Input

To Individual Compounds

DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE





Log ⟺ Linear

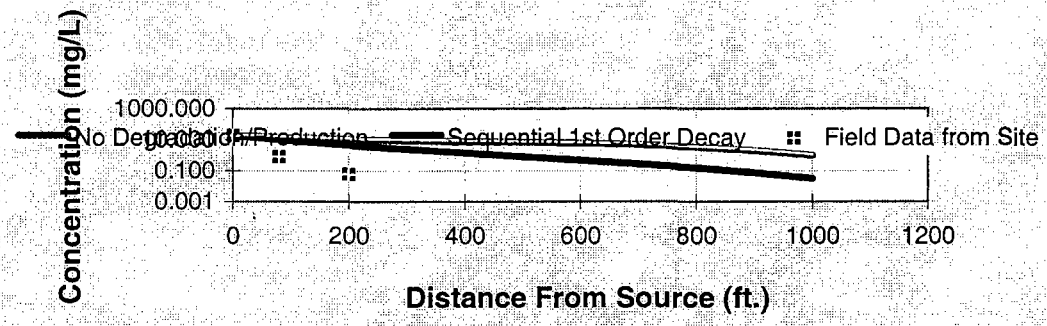
Time:
100 Years

To Input

To Individual Compounds

DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE

PCE	Distance from Source (ft)										
	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	18.800	13.471	10.373	8.716	7.619	6.725	5.799	4.689	3.125	1.876	0.933
Biotransformation	18.800	8.716	4.343	2.364	1.344	0.783	0.461	0.263	0.143	0.071	0.031
	Monitoring Well Locations (ft)										
	0	80	200								
Field Data from Site	18.800	0.780	0.059								



See PCE

See TCE

See DCE

See VC

See ETH

Log ⟺ Linear

Time:

100 Years

Return to Input

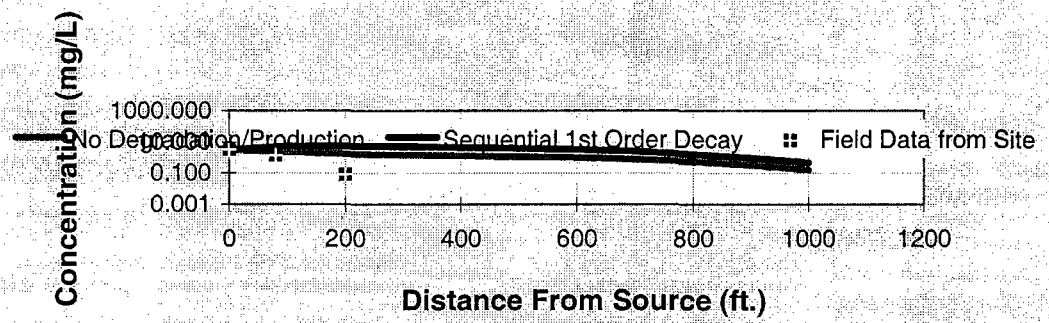
To All

To Array

DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE

TCE	Distance from Source (ft)										
	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	3.150	2.257	1.738	1.460	1.277	1.127	0.972	0.786	0.524	0.314	0.156
Biotransformation	3.150	5.482	5.487	5.048	4.468	3.842	3.173	2.470	1.591	0.927	0.451

	Monitoring Well Locations (ft)										
	0	80	200								
Field Data from Site	3.150	1.365	0.080								



See PCE

See TCE

See DCE

See VC

See ETH

Log ⟺ Linear

Time:

100 Years

Return to Input

To All

To Array

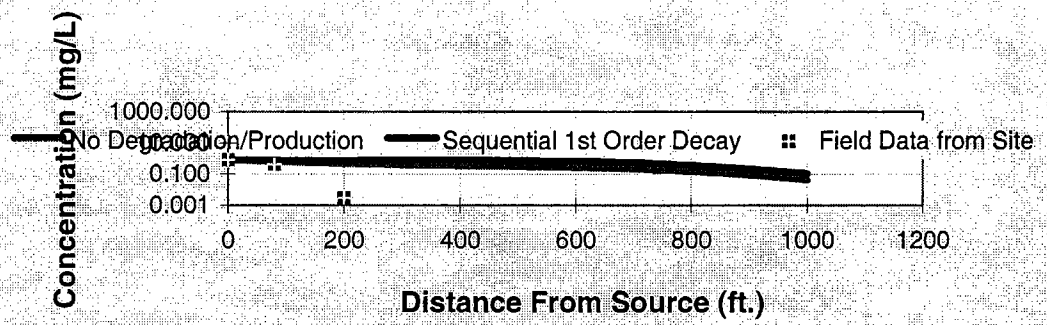
DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE

Distance from Source (ft)

DCE	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	0.825	0.591	0.455	0.383	0.334	0.295	0.254	0.206	0.137	0.082	0.041
Biotransformation	0.825	0.729	0.742	0.768	0.768	0.732	0.658	0.550	0.361	0.216	0.107

Monitoring Well Locations (ft)

	0	80	200								
Field Data from Site	0.825	0.415	0.003								



See PCE

See TCE

See DCE

See VC

See ETH

Log ⟺ Linear

Time:

100 Years

Return to Input

To All

To Array

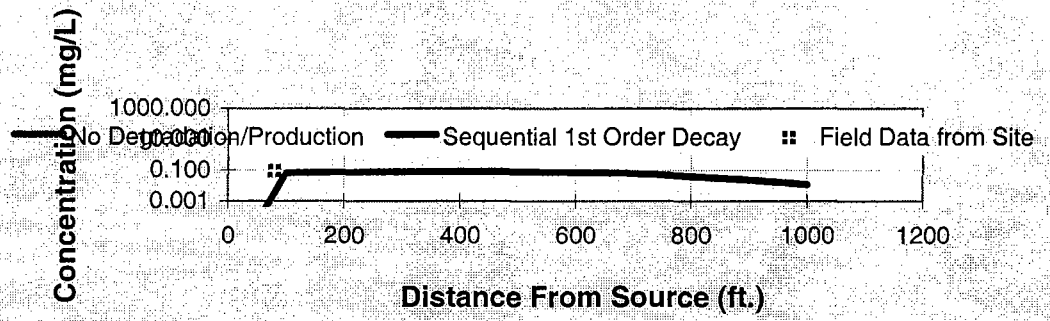
DISSOLVED CHLORINATED SOLVENT CONCENTRATIONS ALONG PLUME CENTERLINE

Distance from Source (ft)

VC	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Biotransformation	0.000	0.061	0.071	0.076	0.078	0.076	0.069	0.059	0.039	0.023	0.012

Monitoring Well Locations (ft)

	0	80	200								
Field Data from Site	0.000	0.085	0.000								



See PCE

See TCE

See DCE

See VC

See ETH

Log ⟺ Linear

Time:

100 Years

Return to Input

To All

To Array

E-66

APPENDIX F

SUPPORTING INFORMATION FOR HUMAN HEALTH RISK ASSESSMENT

F-1 SAMPLE CALCULATIONS
F-2 RAGS PART D TABLES
F-3 SUPPORTING INFORMATION
F-4 TOXICOLOGICAL PROFILES FOR CHEMICALS OF POTENTIAL CONCERN
F-5 REFERENCES

APPENDIX F-1

SAMPLE CALCULATIONS

CALCULATION WORKSHEET

CLIENT: MCRD PARRIS ISLAND, SOUTH CAROLINA		**JOB NUMBER:** 0502
SUBJECT: CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH SOIL CONSTRUCTION WORKER		
BASED ON: USEPA, DEC. 1992		
BY: D. SCHLOER	**CHECKED BY:**	**DATE:** 03/13/02

PURPOSE: To estimate intake, carcinogenic and noncarcinogenic risks from dermal contact with surface soil at Sites 45 by a construction worker.

EQUATION:

$$DEX = \frac{Cs \times CF \times SA \times AF \times ABS \times EF \times ED}{BW \times AT}$$

Where:

DEX = estimated exposure intake (mg/kg/day)
Cs = exposure point concentration in soil/sediment (mg/kg)
CF = conversion factor (1.0E-6 kg/mg)
SA = skin surface available for contact (cm^2/day)
ABS = absorption factor (unitless)
AF = adherence factor (mg/cm^2)
EF = exposure frequency (days/year)
ED = exposure duration (years)
BW = body weight (kg)
AT = averaging time (days)
CSFd = dermal carcinogenic slope factor ($(mg/kg/day)^{-1}$)
RfDd = dermal noncarcinogenic reference dose (mg/kg/day)

RISKS:

ICLR (Carcinogens) = Intake (mg/kg/day) x CSFd $(mg/kg/day)^{-1}$
HQ (Noncarcinogens) = Intake (mg/kg/day) / RFDd (mg/kg/day)

ASSUMPTIONS:

Cs	=	8000	mg/kg	Tetrachloroethene
CF	=	1.0E-06	kg/mg	
SA	=	3,300	cm^2/day	
AF	=	0.2	mg/cm^2	
ABS	=	0.01		
EF	=	90	days/year	
ED	=	1	years	
BW	=	70	kg	
ATc	=	25550	days	
ATnc	=	365	days	
CSFd	=	5.20E-02	$(mg/kg/day)^{-1}$	
RfDd	=	1.00E-02	(mg/kg/day)	

CLIENT: MCRD PARRIS ISLAND, SOUTH CAROLINA		**JOB NUMBER:** 0502
SUBJECT: CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH SOIL CONSTRUCTION WORKER		
BASED ON: USEPA, DEC. 1992		
BY: D. SCHLOER	**CHECKED BY:**	**DATE:** 03/13/02

EXAMPLE CARCINOGENIC CALCULATION

$$DEXc = \frac{8000\ mg/kg \times 1.0E\text{-}06\ kg/mg \times 3300\ cm2/day \times 0.2\ mg/cm2 \times 0.01 \times 90\ days/year \times 1\ years}{70\ kg \times 25550\ days}$$

DEXc = 2.66E-06 mg/kg/day ✓

ICLR = 2.66E-06 mg/kg/day x 5.20E-02 (mg/kg/day)-1 = Incremental Lifetime Cancer Risk

ICLR = 1.38E-07 ✓

EXAMPLE NONCARCINOGENIC CALCULATION

$$DEXnc = \frac{8000\ mg/kg \times 1.0E\text{-}06\ kg/mg \times 3300\ cm2/day \times 0.2\ mg/cm2 \times 0.01 \times 90\ days/year \times 1\ years}{70\ kg \times 365\ days}$$

DEXnc = 1.86E-04 mg/kg/day ✓

HQ = 1.86E-04 mg/kg/day / 1.00E-02 (mg/kg/day) = Hazard Quotient

HQ = 1.86E-02 ✓

CALCULATION WORKSHEET

CLIENT: MCRD PARRIS ISLAND, SOUTH CAROLINA		**JOB NUMBER:** 0502
SUBJECT: CALCULATION OF INTAKE/RISK FROM INCIDENTAL INGESTION OF SOIL CONSTRUCTION WORKER		
BASED ON: USEPA, DEC. 1989		
BY: D. SCHLOER	**CHECKED BY:**	**DATE:** 03/13/2002

PURPOSE: To estimate intake, carcinogenic and noncarcinogenic risks from incidental ingestion of surface/subsurface soil at Site 45 by a construction worker.

EQUATION:

$$IEX = \frac{Cs \times IR \times EF \times ED \times FI \times CF}{BW \times AT}$$

Where:

IEX	=	estimated exposure intake (mg/kg/day)
Cs	=	exposure point concentration in soil/sediment (mg/kg)
IR	=	incidental soil ingestion rate (mg/day)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
FI	=	fraction ingested from contaminated source (unitless)
CF	=	conversion factor (1.0E-6 kg/mg)
BW	=	body weight (kg)
AT	=	averaging time (days)
CSFo	=	oral carcinogenic slope factor ($(mg/kg/day)^{-1}$)
RfDo	=	oral noncarcinogenic reference dose (mg/kg/day)

RISKS:

ICLR (Carcinogens) = Intake (mg/kg/day) x CSFo $(mg/kg/day)^{-1}$

HQ (Noncarcinogens) = Intake (mg/kg/day) / RFDo (mg/kg/day)

ASSUMPTIONS:

Cs	=	8000	mg/kg	Tetrachloroethene
IR	=	480	mg/day	
EF	=	90	days/year	
ED	=	1	years	
FI	=	1		
CF	=	1.0E-06	kg/mg	
BW	=	70	kg	
ATc	=	25550	days	
ATnc	=	365	days	
CSFo	=	5.2E-02	$(mg/kg/day)^{-1}$	
RfDo	=	1.0E-02	(mg/kg/day)	

CLIENT: MCRD PARRIS ISLAND, SOUTH CAROLINA		**JOB NUMBER:** 0502
SUBJECT: CALCULATION OF INTAKE/RISK FROM INCIDENTAL INGESTION OF SOIL CONSTRUCTION WORKER		
BASED ON: USEPA, DEC. 1989		
BY: D. SCHLOER	**CHECKED BY:**	**DATE:** 03/13/2002

EXAMPLE CARCINOGENIC CALCULATION

$$IEXc = \frac{8000 \text{ mg/kg} \times 480 \text{ mg/day} \times 90 \text{ days/year} \times 1 \text{ years} \times 1.0E\text{-}06 \text{ kg/mg}}{70 \text{ kg} \times 25550 \text{ days}}$$

IEXc = 1.93E-04 mg/kg/day ✓

ICLR = 1.93E-04 mg/kg/day x 5.2E-02 (mg/kg/day)-1 = Incremental Lifetime Cancer Risk

ICLR = 1.00E-05 ✓

EXAMPLE NONCARCINOGENIC CALCULATION

$$IEXnc = \frac{8000 \text{ mg/kg} \times 480 \text{ mg/day} \times 90 \text{ days/year} \times 1 \text{ years} \times 1.0E\text{-}06 \text{ kg/mg}}{70 \text{ kg} \times 365 \text{ days}}$$

IEXnc = 1.35E-02 mg/kg/day ✓

HQ = 1.35E-02 mg/kg/day / 1.0E-02 (mg/kg/day) = Hazard Quotient

HQ = 1.4E+00 ✓

CLIENT: MCRD PARRIS ISLAND, SOUTH CAROLINA		**JOB NUMBER:** 0502
SUBJECT: ESTIMATION OF AMBIENT AIR CONCENTRATIONS RESULTING FROM FUGITIVE DUST EMISSIONS AND VOLATILIZATION FROM SOIL		
BASED ON: USEPA 1996		
BY: D. SCHLOER	**CHECKED BY:**	**DATE:** 03/13/02

PURPOSE: To calculate ambient air concentrations resulting from fugitive dust and volatilization from surface soil at Site 45.

RELEVANT EQUATIONS:

$$Cair = Cs \times (1/PEF + 1/VF)$$

$$VF = \frac{Q/C \times (3.14 \times DA \times T)^{1/2} \times 10^{-4}\ m^2/cm^2}{2 \times pb \times DA}$$

$$DA = \frac{(\theta a^{10/3} \times Di \times H + \theta w^{10/3} \times Dw)/\theta_T^{\,2}}{pb \times Kd + \theta w + \theta a \times H}$$

$$Csat = S/pb \times (Kd \times pb + \theta w + H \times \theta a)$$

Where:

Cair	=	Chemical concentration in air (mg/m3)
Cs	=	Chemical concentration in soil (mg/kg)
PEF	=	Particulate emission factor (m3/kg)
VF	=	Volatilization factor (m3/kg)
Q/C	=	Inverse of mean conc. at center of source (g/m2-s per kg/m3).
T	=	Exposure interval (seconds).
pb	=	Dry soil bulk density (g/cm3).
ps	=	soil particle density (g/cm3).
θ_T	=	Total soil porosity (Lpore/Lsoil).
θw	=	Water-filled soil porosity (Lpore/Lsoil).
θa	=	Air-filled soil porosity (Lair/Lsoil).
Di	=	Diffusivity in air (cm2/sec).
H	=	Dimensionless Henry's Law Constant.
S	=	Solubility limit (mg/L)
Dw	=	Diffusivity in water (cm2/sec).
DA	=	Apparent diffusivity (cm2/sec).
Kd	=	Soil-water partition coefficient (cm3/g).
Koc	=	Soil organic carbon partition coefficient (cm3/g).
foc	=	Fraction organic carbon in soil (g/g).

CLIENT:	JOB NUMBER:	
MCRD PARRIS ISLAND, SOUTH CAROLINA	0502	
SUBJECT: ESTIMATION OF AMBIENT AIR CONCENTRATIONS RESULTING FROM FUGITIVE DUST EMISSIONS AND VOLATILIZATION FROM SOIL		
BASED ON: USEPA 1996		
BY: D. SCHLOER	**CHECKED BY:**	**DATE:** 03/13/02

ASSUMPTIONS: Trichloroethene

Cs	=	8000	mg/kg
PEF	=	2.91E+10	m3/kg
Q/C	=	74.89	g/m2-s per kg/m3
T	=	3.20E+07	sec
pb	=	1.5	g/cm3
ps	=	2.65	g/cm3
θ_T	=	0.434	Lpore/Lsoil
θw	=	0.15	Lpore/Lsoil
θa	=	0.284	Lair/Lsoil
Di	=	7.20E-02	cm2/sec
H	=	7.54E-01	Uniltess
S	=	2.00E+02	mg/L
Dw	=	8.20E-06	cm2/sec
Koc	=	1.55E+02	cm3/g
foc	=	0.006	g/g
Kd	=	0.93	cm3/g

EXAMPLE CALCULATIONS

$$DA = \frac{[(0.284^{10/3}) \times (0.072\ cm2/sec) \times (7.54E\text{-}01) + (0.15^{10/3}) \times (8.20E\text{-}06\ cm2/sec)]/(0.434^2)}{(1.5\ g/cm3) \times)0.93\ cm3/g) + (0.15 + 0.284 \times 0.754)}$$

DA = 2.47E-03 cm2/sec ✓

$$VF = \frac{(74.89\ g/m2\text{-}s\ per\ kg/m3) \times [(3.14) \times (2.47E\text{-}03\ cm2/sec) \times (3.20E+07\ sec)]^{1/2} \times (1E\text{-}4\ m2/cm2)}{(2) \times (1.5g/cm3) \times (2.47E\text{-}03\ cm2/sec)}$$

VF = 5.04E+02 m3/kg ✓

Csat = (2.00E+02 mg/L)/(1.5 g/cm3) x [(0.93 cm3/g) x (1.5 g/cm3) + (0.15 + 7.54E-01 x 0.284)]

Csat = 2.35E+02 mg/kg ✓

Csat is less than Cs, therfore use Csat in calculation of air concentration.

Cair = 2.35E+02 mg/kg x [(1/2.91E+10 m3/kg) + (1/5.04E+02 m3/kg)]

Cair = 4.65E-01 mg/m3 ✓

CALCULATION WORKSHEET

CLIENT: MCRD PARRIS ISLAND, SOUTH CAROLINA		**JOB NUMBER:** 0502
SUBJECT: CALCULATION OF INTAKE/RISK FROM INHALATION OF FUGATIVE DUST EMISSIONS AND VOLATILES BY A CONSTRUCTION WORKER		
BASED ON: USEPA, DEC. 1989		
BY: D. SCHLOER	**CHECKED BY:**	**DATE:** 03/13/02

PURPOSE: To estimate intake, carcinogenic and noncarcinogenic risks from inhalation of fugitive dust and volatiles by a construction worker at Site 45.

EQUATION:

$$IEX = \frac{Ca \times IR \times ET \times EF \times ED}{BW \times AT}$$

Where:

IEX	=	estimated exposure intake (mg/kg-day)
Ca	=	exposure point concentration in air (mg/m3)
IR	=	inhlation rate (m3/hr)
ET	=	exposure time (hrs/day)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
BW	=	body weight (kg)
AT	=	averaging time (days)
CSFi	=	inhalation carcinogenic slope factor (kg-day/mg)
RfDi	=	inhalation noncarcinogenic reference dose (mg/kg-day)

RISKS:

ICLR (Carcinogens) = Intake (mg/kg/day) x CSFi (kg-day/mg)
HQ (Noncarcinogens) = Intake (mg/kg/day) / RFDi (mg/kg-day)

ASSUMPTIONS:

Ca	=	4.7E-01	mg/m3	Tetrachloroethene
IR	=	2.5	m3/hr	
ET	=	8	hr/day	
EF	=	90	days/year	
ED	=	1	years	
BW	=	70	kg	
ATc	=	25550	days	
ATnc	=	365	days	
CSFi	=	2.0E-03	(kg-day/mg)	
RfDi	=	1.1E-01	mg/kg-day	

CLIENT: MCRD PARRIS ISLAND, SOUTH CAROLINA		**JOB NUMBER:** 0502
SUBJECT: CALCULATION OF INTAKE/RISK FROM INHALATION OF FUGATIVE DUST EMISSIONS AND VOLATILES BY A CONSTRUCTION WORKER		
BASED ON: USEPA, DEC. 1989		
BY: D. SCHLOER	**CHECKED BY:**	**DATE:** 03/13/02

EXAMPLE CARCINOGENIC CALCULATION

$$IEXc = \frac{\text{4.7E-01 mg/m3 x 2.5 m3/hr x 8 hr/day x 90 days/year x 1 years}}{\text{70 kg x 25550 days}}$$

IEXc = 4.73E-04 mg/kg-day ✓

ICLR = 4.73E-04 mg/kg-day x 0.002 (kg-day/mg) = Incremental Lifetime Cancer Risk

ICLR = 9.46E-07 ✓

EXAMPLE NONCARCINOGENIC CALCULATION

$$IEXnc = \frac{\text{4.7E-01 mg/m3 x 2.5 m3/hr x 8 hr/day x 90 days/year x 1 years}}{\text{70 kg x 365 days}}$$

IEXnc = 3.31E-02 mg/kg-day ✓

HQ = 3.31E-02 mg/kg-day / 1.1E-01 mg/kg-day

HQ = **3.01E-01** ✓

CLIENT: MCRD PARRIS ISLAND, SOUTH CAROLINA		**JOB NUMBER:** 0502
SUBJECT: CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH GROUNDWATER CHILD RESIDENT		
BASED ON: USEPA, DEC. 1989, 1992		
BY: D. SCHLOER	**CHECKED BY:**	**DATE:** 03/13/02

PURPOSE: To estimate intake, carcinogenic and noncarcinogenic risks from dermal contact with groundwater by a child resident.

EQUATION:

$$DAD = \frac{DAevent \times EV \times ED \times EF \times A}{BW \times AT}$$

Where:

DAD	=	dermally absorbed dose (mg/kg/day)
DAevent	=	absorbed does per event (mg/cm^2/event)
EV	=	event frequency (events/day)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
A	=	skin surface available for contact (cm^2)
BW	=	body weight (kg)
AT	=	averaging time (days)
CSFo	=	oral carcinogenic slope factor ((mg/kg/day)$^{-1}$)
RfDo	=	oral noncarcinogenic reference dose (mg/kg/day)

RISKS:

ICLR (Carcinogens) = DAD (mg/kg/day) x CSFd (mg/kg/day)$^{-1}$
HQ (Noncarcinogens) = DAD (mg/kg/day) / RFDd (mg/kg/day)

EQUATIONS for DAevent:

For Inorganics:

$$DA_{event} = (K_p)\,(C_{gw})\,(t_{event})$$

For Organics:

$$\text{If } t_{event} < t^{*}, \text{ then : } DA_{event} = (2K_p)(C_{gw})(CF)\left(\sqrt{\frac{6\,\tau\,t_{event}}{\pi}}\right)$$

$$\text{If } t_{event} > t^{*}, \text{ then : } DA_{event} = (K_p)(C_{gw})(CF)\left(\frac{t_{event}}{1+B} + 2\,\tau\left(\frac{1+3B}{(1+B)}\right)\right)$$

CLIENT: MCRD PARRIS ISLAND, SOUTH CAROLINA		**JOB NUMBER:** 0502
SUBJECT: CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH GROUNDWATER CHILD RESIDENT		
BASED ON: USEPA, DEC. 1989, 1992		
BY: D. SCHLOER	**CHECKED BY:**	**DATE:** 03/13/02

Where:

Kp	=	permeability coefficient from water (cm/hr)
Cgw	=	concentration of chemical in groundwater (mg/L)
tevent	=	duration of event (hr/event)
CF	=	conversion factor (0.001 L/cm^3)
t*	=	time it takes to reach steady-state (hr/event)
τ	=	lag time (hr/event)
B	=	Bunge Model Constant (dimensionless)

EXAMPLE CALCULATION OF DAevent

ASSUMPTIONS:

Cgw	=	10	mg/L	Tetrachloroethene
Kp	=	3.30E-02	cm/hr	
tevent	=	0.33	hr/event	
CF	=	1.00E-03	L/cm^3	
t*	=	2.18	hr/event	
τ	=	0.91	hr/event	
B	=	0.2		

tevent < t*, therefore,

$$DAevent = (2 \times 0.033\ cm/hr)(10\ mg/L)(0.001\ L/cm3) \times \sqrt{\frac{6 \times 0.91\ hr/event \times 0.33\ hr/event}{\pi}}$$

DAevent = 5.00E-04 mg/cm^2-event

RISK CALCULATIONS

ASSUMPTIONS:

A	=	6600	cm^2/day
EV	=	1	event/day
ED	=	6	years
EF	=	350	days/year
BW	=	15	kg
ATc	=	25550	days
ATnc	=	2190	days
CSFd	=	5.2E-02	$(mg/kg/day)^{-1}$
RfDd	=	1.0E-02	(mg/kg/day)

CLIENT: MCRD PARRIS ISLAND, SOUTH CAROLINA		**JOB NUMBER:** 0502
SUBJECT: CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH GROUNDWATER CHILD RESIDENT		
BASED ON: USEPA, DEC. 1989, 1992		
BY: D. SCHLOER	**CHECKED BY:**	**DATE:** 03/13/02

EXAMPLE CARCINOGENIC CALCULATION

$$DADc = \frac{5.00E\text{-}04 \text{ mg/cm2-event} \times 1 \text{ event/day} \times 6 \text{ years} \times 350 \text{ days/year} \times 6600 \text{ cm2/day}}{15 \text{ kg} \times 25550 \text{ days}}$$

DADc = 1.81E-02 mg/kg/day ✓

DADc = 1.81E-02 mg/kg/day x 5.20E-02 (mg/kg/day)-1 = Incremental Lifetime Cancer Risk

ICLR = 9.40E-04 ✓

EXAMPLE NONCARCINOGENIC CALCULATION

$$DADnc = \frac{5.00E\text{-}04 \text{ mg/cm2-event} \times 1 \text{ event/day} \times 6 \text{ years} \times 350 \text{ days/year} \times 6600 \text{ cm2/day}}{15 \text{ kg} \times 2190 \text{ days}}$$

DADnc = 2.11E-01 mg/kg/day ✓

HQ = 2.11E-01 mg/kg/day / 1.00E-02 (mg/kg/day) = Hazard Quotient

HQ = 2.11E+01 ✓

CALCULATION WORKSHEET

CLIENT: MCRD PARRIS ISLAND, SOUTH CAROLINA		**JOB NUMBER:** 0502
SUBJECT: CALCULATION OF INTAKE/RISK FROM INGESTION OF GROUNDWATER CHILD RESIDENT		
BASED ON: USEPA, DEC. 1989		
BY: D. SCHLOER	**CHECKED BY:**	**DATE:** 03/13/02

PURPOSE: To estimate intake, carcinogenic and noncarcinogenic risks from ingestion of groundwater in surficial aquifer by a child resident.

EQUATION:

$$IEX = \frac{Csw \times CF \times IR \times EF \times ED}{BW \times AT}$$

Where:

IEX	=	estimated exposure intake (mg/kg/day)
Cgw	=	exposure point concentration in groundwater (ug/L)
CF	=	conversion factor (1.0E-3 mg/ug)
IR	=	ingestion rate (L/day)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
BW	=	body weight (kg)
AT	=	averaging time (days)
CSFo	=	oral carcinogenic slope factor ($(mg/kg/day)^{-1}$)
RfDo	=	oral noncarcinogenic reference dose (mg/kg/day)

RISKS:

ICLR (Carcinogens) = Intake (mg/kg/day) x CSFo $(mg/kg/day)^{-1}$
HQ (Noncarcinogens) = Intake (mg/kg/day) / RFDo (mg/kg/day)

ASSUMPTIONS:

Cgw	=	10000	ug/L	Tetrachloroethene
IR	=	1	L/day	
CF	=	1.0E-03	mg/ug	
EF	=	350	days/year	
ED	=	6	years	
BW	=	15	kg	
ATc	=	25,550	days	
ATnc	=	2,190	days	
CSFo	=	5.0E-02	$(mg/kg/day)^{-1}$	
RfDo	=	1.0E-02	(mg/kg/day)	

CLIENT: MCRD PARRIS ISLAND, SOUTH CAROLINA		**JOB NUMBER:** 0502
SUBJECT: CALCULATION OF INTAKE/RISK FROM INGESTION OF GROUNDWATER CHILD RESIDENT		
BASED ON: USEPA, DEC. 1989		
BY: D. SCHLOER	**CHECKED BY:**	**DATE:** 03/13/02

EXAMPLE CARCINOGENIC CALCULATION

$$IEXc = \frac{10000\ ug/L \times 0.001\ mg/ug \times 1\ L/day \times 350\ days/year \times 6\ years}{15\ kg \times 25550\ days}$$

IEXc = 5.48E-02 mg/kg/day ✓

ICLR = 5.48E-02 mg/kg/day x 5.00E-02 (mg/kg/day)-1 = Incremental Lifetime Cancer Risk

ICLR = 2.74E-03 ✓

EXAMPLE NONCARCINOGENIC CALCULATION

$$IEXnc = \frac{10000\ ug/L \times 0.001\ mg/ug \times 1\ L/day \times 350\ days/year \times 6\ years}{15\ kg \times 2190\ days}$$

IEXnc = 6.39E-01 mg/kg/day ✓

$$HQ = \frac{6.39E\text{-}01\ mg/kg/day}{1.00E\text{-}02\ (mg/kg/day)} = \text{Hazard Quotient}$$

HQ = 6.39E+01 ✓

CLIENT: MCRD PARRIS ISLAND, SOUTH CAROLINA		**JOB NUMBER:** 0502
SUBJECT: VOLATILIZATION OF COPC FROM GROUNDWATER CONSTRUCTION WORKER		
BASED ON: ASTM E50.04		
BY: D. SCHLOER	**CHECKED BY:**	**DATE:** 03/13/02

PURPOSE: Estimate ambient air concentration resulting from volatization of COPCs from groundwater.

EQUATION:

$$C_{air} = C_w \times VF$$

and

$$VF_{gw,amb} = \frac{1}{\left(1 + \frac{DF_{amb} \cdot L_{gw}}{D_{eff,ws}}\right) \cdot \frac{1}{H'}} \cdot 10^3 \frac{L}{m^3}$$

Where:

Cair	=	chemical concentration in air (mg/m^3)
Cw	=	chemical concentration in groundwater (mg/L)
VF	=	volatilization factor (L/m^3)
H'	=	Henry's Law Constant (cm^3-H_2O/cm^3-air)
DF	=	dispersion factor for ambient air (cm/sec)
Lgw	=	depth to groundwater (hv + hcap)
hv	=	thickness of vadose zone (cm)
hcap	=	thickness of capillary fringe (cm)
Deff,ws	=	effctive diffsuion coefficient between groundwater and surface soil (cm^2/sec)

Input Variables

Cw	=	10	mg/L	Tetrachloroethene
hv	=	0	cm	
hcap	=	0.1	cm	
Lgw	=	0.1	cm	
H'	=	7.54E-01	cm^3-H_2O/cm^3-air	

DF is calculated from:

$$DF_{amb} = \frac{U_{air} \cdot W \cdot d_{air}}{A}$$

CLIENT: MCRD PARRIS ISLAND, SOUTH CAROLINA		**JOB NUMBER:** 0502
SUBJECT: VOLATILIZATION OF COPC FROM GROUNDWATER CONSTRUCTION WORKER		
BASED ON: ASTM E50.04		
BY: D. SCHLOER	**CHECKED BY:**	**DATE:** 03/13/02

Where:

Uair	=	wind speed in mixing zone (cm/sec)
W	=	width of source parallel to groundwater flow direction (cm)
dair	=	mixing zone height (cm)
A	=	source-zone area (cm^2)

Input Variables

Uair	=	380	cm/sec
W	=	4500	cm
dair	=	200	cm
A	=	20250000	cm2

$$DFamb = \frac{380\ cm/sec \times 4500\ cm \times 200\ cm}{20250000\ cm2}$$

DFamb = 16.9 cm/sec ✓

Deff,ws is calculated from:

$$D_{eff,ws} = \frac{L_{gw}}{\left(h_v / D_{eff,vad}\right) + \left(h_{cap} / D_{eff,cap}\right)}$$

since hv = 0 then the above equation reduces to Deff,ws = Deffs,cap

Deff,cap is calculated from:

$$D_{eff,cap} = D_{air} \cdot \frac{\theta_{acap}^{3.33}}{\theta_T^2} + D_{wat} \cdot \left(\frac{\theta_{wcap}^{3.33}}{H' \cdot \theta_T^2} \right)$$

where:

Dair	=	diffusion coefficient in air (cm^2/sec)
Dwat	=	diffusion coefficient in water (cm^2/sec)
θacap	=	volumetric air content in capillary fringe (cm^3-air/cm^3-soil)
θwcap	=	volumetric water content in capillary fringe (cm^3-H_2O/cm^3-soil)
θT	=	Total soil porosity (cm^3/cm^3-soil)

CLIENT: MCRD PARRIS ISLAND, SOUTH CAROLINA		JOB NUMBER: 0502
SUBJECT: VOLATILIZATION OF COPC FROM GROUNDWATER CONSTRUCTION WORKER		
BASED ON: ASTM E50.04		
BY: D. SCHLOER	CHECKED BY:	DATE: 03/13/02

Input Variables

For Tetrachloroethene

Dair = 7.20E-02 cm^2/sec

Dwat = 8.20E-06 cm^2/sec

$\theta acap$ = 0.038 cm^3-air/cm^3-soil

$\theta wcap$ = 0.342 cm^3-H_2O/cm^3-soil

θT = 0.38 cm^3/cm^3-soil

$$Deff,cap = 7.20E\text{-}02\ cm2/sec \times \frac{(0.038\ cm3\text{-}air/cm3\text{-}soil)^{3.33}}{(0.38\ cm3/cm3\text{-}soil)^2}$$

$$+\ 8.20E\text{-}06\ cm2/sec \times \frac{(0.342)^{3.33}}{7.54E\text{-}01\ cm3\text{-}H2O/cm3\text{-}air \times (0.38\ cm3/cm3\text{-}soil)^2}$$

Deff,cap = 1.14E-05 cm^2/sec ✓

$$VF = \frac{1}{\left[1+\frac{1.69E+01 cm/sec \times 0.1\ cm}{1.14E\text{-}05\ cm2/sec}\right] \times \frac{1}{7.54E\text{-}01}} \times 1000\ L/m3$$

VF = 5.10E-03 L/m^3 ✓

Cair = 10 mg/L x 5.10E-03 L/m3

Cair = 5.10E-02 mg/m^3 ✓

CALCULATION WORKSHEET

CLIENT: MCRD PARRIS ISLAND, SOUTH CAROLINA		**JOB NUMBER:** 0502
SUBJECT: CALCULATION OF INTAKE/RISK FOR INHALATION OF VAPORS FROM GROUNDWATER CONSTRUCTION WORKER		
BASED ON: USEPA, DEC. 1989		
BY: D. SCHLOER	**CHECKED BY:**	**DATE:** 03/13/02

PURPOSE: To estimate intake, carcinogenic and noncarcinogenic risks from inhalation of vapors emitted from surficial groundwater by a construction worker.

EQUATION:

$$IEX = \frac{Cf \times IR \times EF \times ED \times FI}{BW \times AT}$$

Where:

IEX	=	estimated exposure intake (mg/kg/day)
Cair	=	exposure point concentration in ambient air (mg/m^3)
Ira	=	inhalation rate (m^3/hour)
ET	=	exposure time (hours/day)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
BW	=	body weight (kg)
AT	=	averaging time (days)
CSFi	=	inhalation carcinogenic slope factor ($(mg/kg/day)^{-1}$)
RfDi	=	inhalation noncarcinogenic reference dose (mg/kg/day)

RISKS:

ICLR (Carcinogens) = Intake (mg/kg/day) x CSFi $(mg/kg/day)^{-1}$

HQ (Noncarcinogens) = Intake (mg/kg/day) / RFDi (mg/kg/day)

ASSUMPTIONS:

Cair	=	5.10E-02	mg/m^3	Tetrachloroethene
Ira	=	2.5	m^3/hour	
ET	=	8	hr/day	
EF	=	21	days/year	
ED	=	1	year	
BW	=	70	kg	
ATc	=	25,550	days	
ATnc	=	365	days	
CSFi	=	2.00E-03	$(mg/kg/day)^{-1}$	
RfDi	=	1.10E-01	(mg/kg/day)	

CLIENT: MCRD PARRIS ISLAND, SOUTH CAROLINA		**JOB NUMBER:** 0502
SUBJECT: CALCULATION OF INTAKE/RISK FOR INHALATION OF VAPORS FROM GROUNDWATER CONSTRUCTION WORKER		
BASED ON: USEPA, DEC. 1989		
BY: D. SCHLOER	**CHECKED BY:**	**DATE:** 03/13/02

EXAMPLE CARCINOGENIC CALCULATION

$$IEXc = \frac{5.10E\text{-}02 \text{ mg/m3} \times 2.5 \text{ m3/hour} \times 8 \text{ hr/day} \times 21 \text{ days/year} \times 1 \text{ year}}{70 \text{ kg} \times 25550 \text{ days}}$$

IEXc = 1.20E-05 mg/kg/day ✓

ICLR = 1.20E-05 mg/kg/day x 2.00E-03 (mg/kg/day)-1 = Incremental Lifetime Cancer Risk

ICLR = 2.40E-08 ✓

EXAMPLE NONCARCINOGENIC CALCULATION

$$IEXnc = \frac{5.10E\text{-}02 \text{ mg/m3} \times 2.5 \text{ m3/hour} \times 8 \text{ hr/day} \times 21 \text{ days/year} \times 1 \text{ year}}{70 \text{ kg} \times 365 \text{ days}}$$

IEXnc = 8.38E-04 mg/kg/day ✓

HQ = 8.38E-04 mg/kg/day / 1.10E-01 (mg/kg/day) = Hazard Quotient

HQ = 7.62E-03 ✓

APPENDIX F-2

RAGS PART D TABLES

TABLE 1

SELECTION OF EXPOSURE PATHWAYS
SITE 45 - FORMER MWR DRY CLEANING FACILITY
MCRD PARRIS ISLAND, SOUTH CAROLINA
PAGE 1 OF 2

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	On-Site/ Off-Site	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Current/Future	Surface Soil	Surface Soil	Surface Soil	Maintenance Worker	Adult	Ingestion	On-Site	Quant	Maintenance workers may contact surface soil during normal work activities.
						Dermal	On-Site	Quant	
				Visitors	Adult	Ingestion	On-Site	Quant	Visitors may be exposed to surface soil while at the site.
						Dermal	On-Site	Quant	
		Air	Surface Soil	Maintenance Worker	Adult	Inhalation	On-site	None	No COPCs were identified for this pathway (1)
				Visitors	Adult	Inhalation	On-site	None	No COPCs were identified for this pathway (1)
	Subsurface Soil	Subsurface Soil	Subsurface Soil	Maintenance Worker	Adult	Ingestion	On-Site	None	Maintenance workers are not exposed to subsurface soil.
						Dermal	On-Site	None	
				Visitors	Adult	Ingestion	On-Site	None	Visitors are not exposed to subsurface soil.
						Dermal	On-Site	None	
		Air	Subsurface Soil	Maintenance Worker	Adult	Inhalation	On-site	None	Maintenance workers are not exposed to subsurface soil.
				Visitors	Adult	Inhalation	On-site	None	Visitors are not exposed to subsurface soil.
	Groundwater	Groundwater	Surficial Aquifer	Maintenance Workers	Adult	Ingestion	On-Site	None	Maintenance workers are not exposed to water.
						Dermal	On-Site	None	
				Visitors	Adult	Ingestion	On-Site	None	Visitors are not exposed to groundwater.
						Dermal	On-Site	None	
		Air	Surficial Aquifer	Maintenance Workers	Adult	Inhalation	On-site	None	Maintenance workers are not exposed to water.
				Visitors	Adult	Inhalation	On-Site	None	Visitors are not exposed to groundwater.
Future	Surface Soil	Surface Soil	Surface Soil	Construction Workers	Adult	Ingestion	On-Site	Quant	Construction workers may have contact with surface soil during excavation
						Dermal	On-Site	Quant	activities.
				Commercial Worker	Adult	Ingestion	On-Site	Quant	Commercial workers may contact surface soil during normal
						Dermal	On-Site	Quant	work activities.
				Residents	Child	Ingestion	On-Site	Quant	Child residents may contact surface soil.
						Dermal	On-Site	Quant	
					Adult	Ingestion	On-Site	Quant	Adult residents may contact surface soil.
						Dermal	On-Site	Quant	
		Air	Surface Soil	Construction Workers	Adult	Inhalation	On-site	None	No COPCs were identified for this pathway (1).
				Commercial Worker	Adult	Inhalation	On-site	None	No COPCs were identified for this pathway (1).
				Residents	Child	Inhalation	On-site	None	No COPCs were identified for this pathway (1).
					Adult	Inhalation	On-site	None	No COPCs were identified for this pathway (1).
	Subsurface Soil	Subsurface Soil	Subsurface Soil	Construction Workers	Adult	Ingestion	On-Site	Quant	Construction workers may have contact with subsurface soil during excavation
						Dermal	On-Site	Quant	activities.
				Commercial Worker	Adult	Ingestion	On-Site	None	Commercial workers are not exposed to subsurface soil.
						Dermal	On-Site	None	

F-19

TABLE 1

SELECTION OF EXPOSURE PATHWAYS
SITE 45 - FORMER MWR DRY CLEANING FACILITY
MCRD PARRIS ISLAND, SOUTH CAROLINA
PAGE 2 OF 2

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	On-Site/ Off-Site	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
		Subsurface Soil	Subsurface Soil	Residents	Child	Ingestion	On-Site	None	Child residents are not exposed to subsurface soil.
						Dermal	On-Site	None	
					Adult	Ingestion	On-Site	None	Adult residents are not exposed to subsurface soil.
						Dermal	On-Site	None	
		Air	Subsurface Soil	Construction Workers	Adult	Inhalation	On-site	Quant	Construction workers may be exposed to fugitive dust and volatile emissions during construction activities (2).
				Commercial Worker	Adult	Inhalation	On-site	None	Commercial workers are not exposed to subsurface soil.
	Groundwater	Groundwater	Surficial Aquifer	Construction Workers	Adult	Ingestion	On-Site	None	Groundwater is not used as a potable water supply at the site.
						Dermal	On-Site	Quant	Construction workers may contact groundwater during excavation activities.
				Commercial Worker	Adult	Ingestion	On-Site	None	Commercial workers are not exposed to groundwater.
						Dermal	On-Site	None	
				Residents	Child	Ingestion	On-Site	Quant	Groundwater may be used as potable water if the site was developed
						Dermal	On-Site	Quant	for residential use.
					Adult	Ingestion	On-Site	Quant	Groundwater may be used as potable water if the site was developed
						Dermal	On-Site	Quant	for residential use.
		Air	Surficial Aquifer	Construction Workers	Adult	Inhalation	On-site	Quant	Construction workers may contact groundwater during excavation activities.
				Commercial Worker	Adult	Inhalation	On-site	None	Commercial workers are not exposed to groundwater.
			Water Vapors at Shower Head	Residents	Child	Inhalation	On-site	Quant	Groundwater may be used as potable water if the site was developed for residential use.
					Adult	Inhalation	On-Site	Quant	Groundwater may be used as potable water if the site was developed for residential use.
		Groundwater	Deep Aquifer	Construction Workers	Adult	Ingestion	On-Site	None	Groundwater is not used as a potable water supply at the site.
						Dermal	On-Site	None	Construction workers are not exposed to deep groundwater.
				Commercial Worker	Adult	Ingestion	On-Site	None	Commercial workers are not exposed to groundwater.
						Dermal	On-Site	None	
				Residents	Child	Ingestion	On-Site	Quant	Groundwater may be used as potable water if the site was developed
						Dermal	On-Site	Quant	for residential use.
					Adult	Ingestion	On-Site	Quant	Groundwater may be used as potable water if the site was developed
						Dermal	On-Site	Quant	for residential use.
		Air	Deep Aquifer	Construction Workers	Adult	Inhalation	On-site	None	Construction workers are not exposed to deep groundwater.
				Commercial Worker	Adult	Inhalation	On-site	None	Commercial workers are not exposed to groundwater.
			Water Vapors at Shower Head	Residents	Child	Inhalation	On-site	Quant	Groundwater may be used as potable water if the site was developed for residential use.
					Adult	Inhalation	On-Site	Quant	Groundwater may be used as potable water if the site was developed for residential use.

Notes:
(1) - Concentrations of all chemicals detected in surface soil were less than USEPA SSLs for soil to air, therefore, exposures through inhalation of fugitive dust were not retained for evaluation in the risk assessment.
(2) - Exposures will be quantitatively evaluated for chemicals with maximum detected concentrations in subsurface soil which exceed USEPA SSLs for soil to air.

F-20

TABLE 2.1
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
DIRECT CONTACT WITH SURFACE SOIL
SITE 45 - FORMER MWR DRY CELANING FACILITY
MCRD PARRIS ISLAND, SOUTH CAROLINA

Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil
Exposure Point: Site 45

CAS Number	Chemical	Minimum Concentration [1]	Minimum Qualifier	Maximum Concentration[1]	Maximum Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Nondetects[2]	Concentration Used for Screening[3]	Background Value[4]	EPA Region 9 PRG-Residential[5]	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
Volatile Organic Compounds																
71-55-6	1,1,1-Trichloroethane	4	J	4	J	ug/kg	PAI-45-SS-05-01	1/8	5 - 160	4	NA	63000 N	NA	NA	No	BSL
95-50-1	1,2-Dichlorobenzene	2	J	2	J	ug/kg	PAI-45-SS-05-01	1/8	5 - 160	2	NA	370000 sat	NA	NA	No	BSL
75-71-8	Dichlorodifluoromethane	2	J	2	J	ug/kg	PAI-45-SS-02-01	1/8	5 - 160	2	NA	9400 N	NA	NA	No	BSL
127-18-4	Tetrachloroethene	14		7500		ug/kg	PAI-45-SS-05-01	8/8	NA	7500	NA	5700 C	NA	NA	Yes	ASL
156-60-5	Trans-1,2-dichloroethene	2	J	50		ug/kg	PAI-45-SS-04-01-D	2/8	5 - 160	50	NA	6300 N	NA	NA	No	BSL
79-01-6	Trichloroethene	3	J	320	J	ug/kg	PAI-45-SS-04-01-D	7/8	6	320	NA	2800 C	NA	NA	No	BSL
156-59-2	cis-1,2-dichloroethene	2	J	730	J	ug/kg	PAI-45-SS-04-01-D	5/8	6 - 140	730	NA	4300 N	NA	NA	No	BSL
Semivolatile Organic Compounds																
83-32-9	Acenaphthene	25	J	25	J	ug/kg	PAI-45-SS-03-01	1/8	360 - 430	25	NA	370000 N	NA	NA	No	BSL
120-12-7	Anthracene	21	J	290	J	ug/kg	PAI-45-SS-06-01	3/8	360 - 430	290	NA	2200000 N	NA	NA	No	BSL
56-55-3	Benzo(a)anthracene	44	J	150	J	ug/kg	PAI-45-SS-03-01	7/8	360	150	NA	620 C	NA	NA	Yes	cPAH
50-32-8	Benzo(a)pyrene	26	J	130	J	ug/kg	PAI-45-SS-02-01, PAI-45-SS-03-01	7/8	360	130	NA	62 C	NA	NA	Yes	ASL
205-99-2	Benzo(b)fluoranthene	42	J	180	J	ug/kg	PAI-45-SS-03-01	7/8	360	180	NA	620 C	NA	NA	Yes	cPAH
191-24-2	Benzo(g,h,i)perylene	36	J	110	J	ug/kg	PAI-45-SS-02-01	6/8	360 - 400	110	NA	230000 (7) N	NA	NA	No	BSL
207-08-9	Benzo(k)fluoranthene	32	J	64	J	ug/kg	PAI-45-SS-03-01	5/8	360 - 400	64	NA	6200 C	NA	NA	Yes	cPAH
85-68-7	Butyl Benzyl Phthalate	25	J	900		ug/kg	PAI-45-SS-03-01	5/8	360 - 430	900	NA	1200000 N	NA	NA	No	BSL
86-74-8	Carbazole	22	J	44	J	ug/kg	PAI-45-SS-03-01	3/8	360 - 430	44	NA	24000 C	NA	NA	No	BSL
218-01-9	Chrysene	45	J	170	J	ug/kg	PAI-45-SS-03-01	7/8	360	170	NA	62000 C	NA	NA	Yes	cPAH
53-70-3	Dibenzo(a,h)anthracene	20	J	29	J	ug/kg	PAI-45-SS-02-01, PAI-45-SS-05-01	4/8	360 - 430	29	NA	62 C	NA	NA	Yes	cPAH
84-66-2	Diethyl Phthalate	19	J	19	J	ug/kg	PAI-45-SS-05-01	1/8	360 - 430	19	NA	4900000 N	NA	NA	No	BSL
206-44-0	Fluoranthene	42	J	300	J	ug/kg	PAI-45-SS-03-01	7/8	360	300	NA	230000 N	NA	NA	No	BSL
86-73-7	Fluorene	18	J	18	J	ug/kg	PAI-45-SS-03-01	1/8	360 - 430	18	NA	260000 N	NA	NA	No	BSL
193-39-5	Indeno(1,2,3-cd)pyrene	34	J	120	J	ug/kg	PAI-45-SS-02-01	6/8	360 - 400	120	NA	620 C	NA	NA	Yes	cPAH
91-20-3	Naphthalene	22	J	22	J	ug/kg	PAI-45-SS-03-01	1/8	360 - 430	22	NA	5600 N	NA	NA	No	BSL
85-01-8	Phenanthrene	22	J	230	J	ug/kg	PAI-45-SS-03-01	7/8	360	230	NA	230000 (7) N	NA	NA	No	BSL
129-00-0	Pyrene	52	J	280	J	ug/kg	PAI-45-SS-03-01	7/8	360	280	NA	230000 N	NA	NA	No	BSL
Inorganics																
7429-90-5	Aluminum	4300		9480		mg/kg	PAI-45-SS-04-01	8/8	NA	9480	7270	7600 N	NA	NA	Yes	ASL
7440-38-2	Arsenic	0.94		2.1		mg/kg	PAI-45-SS-01-01	8/8	NA	2.1	1.44	0.39 C	NA	NA	Yes	ASL
7440-39-3	Barium	14.2		28.6		mg/kg	PAI-45-SS-04-01	8/8	NA	28.6	23.6	540 N	NA	NA	No	BSL
7440-70-2	Calcium	724		3720		mg/kg	PAI-45-SS-03-01	8/8	NA	3720	766	1,000,000 N	NA	NA	No	NUT, BSL
7440-47-3	Chromium	7		9.1		mg/kg	PAI-45-SS-03-01	8/8	NA	9.1	6.23	30 (8) C	NA	NA	No	BSL
7440-48-4	Cobalt	0.57		0.8		mg/kg	PAI-45-SS-08-01	5/8	0.46 - 0.58	0.8	0.363	470 N	NA	NA	No	BSL
7440-50-8	Copper	5		48.1		mg/kg	PAI-45-SS-01-01	8/8	NA	48.1	1.52	290 N	NA	NA	No	BSL
7439-89-6	Iron	2330		3650		mg/kg	PAI-45-SS-08-01	8/8	NA	3650	3920	2300 N	NA	NA	No	BKG
7439-92-1	Lead	6.5		50.2		mg/kg	PAI-45-SS-05-01	8/8	NA	50.2	12.5	400	NA	NA	No	BSL
7439-95-4	Magnesium	267		437		mg/kg	PAI-45-SS-04-01	8/8	NA	437	515	460,468 N	NA	NA	No	NUT, BKG, BSL
7439-96-5	Manganese	23.1		53.7		mg/kg	PAI-45-SS-06-01	8/8	NA	53.7	129	180 N	NA	NA	No	BSL, BKG
7439-97-6	Mercury	0.03		0.06		mg/kg	PAI-45-SS-04-01-D, PAI-45-SS-08-01	8/8	NA	0.06	0.11	2.3 N	NA	NA	No	BSL, BKG
7440-02-0	Nickel	2		3.2		mg/kg	PAI-45-SS-08-01	8/8	NA	3.2	1.8	160 N	NA	NA	No	BSL
7440-09-7	Potassium	165		315		mg/kg	PAI-45-SS-04-01	8/8	NA	315	313	1,000,000 N	NA	NA	No	NUT, BSL
7440-23-5	Sodium	26		75.5		mg/kg	PAI-45-SS-04-01	8/8	NA	75.5	241	1,000,000 N	NA	NA	No	NUT, BKG, BSL
7440-62-2	Vanadium	5.5		8.6		mg/kg	PAI-45-SS-04-01	8/8	NA	8.6	9.5	55 N	NA	NA	No	BSL, BKG
7440-66-6	Zinc	21.8		338		mg/kg	PAI-45-SS-01-01	8/8	NA	338	9.7	2300 N	NA	NA	No	BSL

F-21

TABLE 2.1
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
DIRECT CONTACT WITH SURFACE SOIL
SITE 45 - FORMER MWR DRY CELANING FACILITY
MCRD PARRIS ISLAND, SOUTH CAROLINA

Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil
Exposure Point: Site 45

CAS Number	Chemical	Minimum Concentration [1]	Minimum Qualifier	Maximum Concentration[1]	Maximum Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Nondetects[2]	Concentration Used for Screening[3]	Background Value[4]	EPA Region 9 PRG-Residential[5]	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection[6]

Notes:
(1) - Sample and duplicate are counted as two separate samples when determining the minimum and maximum detected concentrations.
(2) - Values presented are sample-specific quantitation limits.
(3) - The maximum detected concentration is used for screening purposes.
(4) - Background presented for inorganics is two times the arithmetic mean concentration.
(5) - USEPA Region 9 Preliminary Remediation Goals Table, November 1, 2000. Residential criteria. (Cancer benchmark value = 1E-06, noncancer benchmark HI = 0.1)
(6) - Rationale Codes:
Selection Reason:
Above Screening Levels (ASL)
If one carcinogenic PAH (cPAH) is retained as a COPC then all carcinogenic PAHs are retained as COPCs.
Deletion Reason:
Essential Nutrient (NUT)
Below Screening Level (BSL)
Below Background Value (BKG)

(7) - Value is for pyrene.
(8) - Value is for hexavalent chromium.
Shading indicates that the maximum detected concentration exceeded the screening criteria; therefore, the chemical was retained as a COPC.

Definitions:
NA = Not Applicable
SQL = Sample Quantitation Limit
COPC = Chemical of Potential Concern
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered
J = Estimated Value
C = Carcinogenic
N = Noncarcinogenic
sat = Soil saturation concentration

Associated Samples

PAI-45-SS-01-01	PAI-45-SS-05-01
PAI-45-SS-02-01	PAI-45-SS-06-01
PAI-45-SS-03-01	PAI-45-SS-07-01
PAI-45-SS-04-01	PAI-45-SS-08-01
PAI-45-SS-04-01-AVG	PAI-45-SS-08-01-AVG
PAI-45-SS-04-01-D	PAI-45-SS-08-01-D

F-22

TABLE 2.2
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
AIR EMISSIONS FROM SURFACE SOIL
SITE 45 - FORMER MWR DRY CLEANING FACILITY
MCRD PARRIS ISLAND, SOUTH CAROLINA

Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil
Exposure Point: Air Emisions for Surface Soil - Site 45

CAS Number	Chemical	Minimum Concentration [1]	Minimum Qualifier	Maximum Concentration[1]	Maximum Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Nondetects[2]	Concentration Used for Screening[3]	Background Value[4]	EPA Soil Screening Levels(5)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
Volatile Organic Compounds																
71-55-6	1,1,1-Trichloroethane	4	J	4	J	ug/kg	PAI-45-SS-05-01	1/8	5 - 160	4	NA	1200000 sat	NA	NA	No	BSL
95-50-1	1,2-Dichlorobenzene	2	J	2	J	ug/kg	PAI-45-SS-05-01	1/8	5 - 160	2	NA	560000 sat	NA	NA	No	BSL
75-71-8	Dichlorodifluoromethane	2	J	2	J	ug/kg	PAI-45-SS-02-01	1/8	5 - 160	2	NA	25000 N	NA	NA	No	BSL
127-18-4	Tetrachloroethene	14		7500		ug/kg	PAI-45-SS-05-01	8/8	NA	7500	NA	11000 C	NA	NA	No	BSL
156-60-5	Trans-1,2-dichloroethene	2	J	50		ug/kg	PAI-45-SS-04-01-D	2/8	5 - 160	50	NA	3100000 sat	NA	NA	No	BSL
79-01-6	Trichloroethene	3	J	320	J	ug/kg	PAI-45-SS-04-01-D	7/8	6	320	NA	5000 C	NA	NA	No	BSL
156-59-2	cis-1,2-dichloroethene	2	J	730	J	ug/kg	PAI-45-SS-04-01-D	5/8	6 - 140	730	NA	1200000 sat	NA	NA	No	BSL
Semivolatile Organic Compounds																
83-32-9	Acenaphthene	25	J	25	J	ug/kg	PAI-45-SS-03-01	1/8	360 - 430	25	NA	NA	NA	NA	No	NTX
120-12-7	Anthracene	21	J	290	J	ug/kg	PAI-45-SS-06-01	3/8	360 - 430	290	NA	NA	NA	NA	No	NTX
56-55-3	Benzo(a)anthracene	44	J	150	J	ug/kg	PAI-45-SS-03-01	7/8	360	150	NA	NA	NA	NA	No	NTX
50-32-8	Benzo(a)pyrene	26	J	130	J	ug/kg	PAI-45-SS-02-01, PAI-45-SS-03-01	7/8	360	130	NA	NA	NA	NA	No	NTX
205-99-2	Benzo(b)fluoranthene	42	J	180	J	ug/kg	PAI-45-SS-03-01	7/8	360	180	NA	NA	NA	NA	No	NTX
191-24-2	Benzo(g,h,i)perylene	36	J	110	J	ug/kg	PAI-45-SS-02-01	6/8	360 - 400	110	NA	NA	NA	NA	No	NTX
207-08-9	Benzo(k)fluoranthene	32	J	64	J	ug/kg	PAI-45-SS-03-01	5/8	360 - 400	64	NA	NA	NA	NA	No	NTX
85-68-7	Butyl Benzyl Phthalate	25	J	900		ug/kg	PAI-45-SS-03-01	5/8	360 - 430	900	NA	930000 sat	NA	NA	No	BSL
86-74-8	Carbazole	22	J	44	J	ug/kg	PAI-45-SS-03-01	3/8	360 - 430	44	NA	NA	NA	NA	No	NTX
218-01-9	Chrysene	45	J	170	J	ug/kg	PAI-45-SS-03-01	7/8	360	170	NA	NA	NA	NA	No	NTX
53-70-3	Dibenzo(a,h)anthracene	20	J	29	J	ug/kg	PAI-45-SS-02-01, PAI-45-SS-05-01	4/8	360 - 430	29	NA	NA	NA	NA	No	NTX
84-66-2	Diethyl Phthalate	19	J	19	J	ug/kg	PAI-45-SS-05-01	1/8	360 - 430	19	NA	2000000 sat	NA	NA	No	BSL
206-44-0	Fluoranthene	42	J	300	J	ug/kg	PAI-45-SS-03-01	7/8	360	300	NA	NA	NA	NA	No	NTX
86-73-7	Fluorene	18	J	18	J	ug/kg	PAI-45-SS-03-01	1/8	360 - 430	18	NA	NA	NA	NA	No	NTX
193-39-5	Indeno(1,2,3-cd)pyrene	34	J	120	J	ug/kg	PAI-45-SS-02-01	6/8	360 - 400	120	NA	NA	NA	NA	No	NTX
91-20-3	Naphthalene	22	J	22	J	ug/kg	PAI-45-SS-03-01	1/8	360 - 430	22	NA	17000 N	NA	NA	No	BSL
85-01-8	Phenanthrene	22	J	230	J	ug/kg	PAI-45-SS-03-01	7/8	360	230	NA	NA	NA	NA	No	NTX
129-00-0	Pyrene	52	J	280	J	ug/kg	PAI-45-SS-03-01	7/8	360	280	NA	NA	NA	NA	No	NTX
Inorganics																
7429-90-5	Aluminum	4300		9480		mg/kg	PAI-45-SS-04-01	8/8	NA	9480	7270	NA	NA	NA	No	NTX
7440-38-2	Arsenic	0.94		2.1		mg/kg	PAI-45-SS-01-01	8/8	NA	2.1	1.44	750 C	NA	NA	No	BSL
7440-39-3	Barium	14.2		28.6		mg/kg	PAI-45-SS-04-01	8/8	NA	28.6	23.6	69000 N	NA	NA	No	BSL
7440-70-2	Calcium	724		3720		mg/kg	PAI-45-SS-03-01	8/8	NA	3720	766	NA	NA	NA	No	NTX
7440-47-3	Chromium	7		9.1		mg/kg	PAI-45-SS-03-01	8/8	NA	9.1	6.23	270 C	NA	NA	No	BSL
7440-48-4	Cobalt	0.57		0.8		mg/kg	PAI-45-SS-08-01	5/8	0.46 - 0.58	0.8	0.363	NA	NA	NA	No	NTX
7440-50-8	Copper	5		48.1		mg/kg	PAI-45-SS-01-01	8/8	NA	48.1	1.52	NA	NA	NA	No	NTX
7439-89-6	Iron	2330		3650		mg/kg	PAI-45-SS-08-01	8/8	NA	3650	3920	NA	NA	NA	No	BKG
7439-92-1	Lead	6.5		50.2		mg/kg	PAI-45-SS-05-01	8/8	NA	50.2	12.5	NA	NA	NA	No	NTX
7439-95-4	Magnesium	267		437		mg/kg	PAI-45-SS-04-01	8/8	NA	437	515	NA	NA	NA	No	BKG
7439-96-5	Manganese	23.1		53.7		mg/kg	PAI-45-SS-06-01	8/8	NA	53.7	129	6860 N	NA	NA	No	BSL, BKG
7439-97-6	Mercury	0.03		0.06		mg/kg	PAI-45-SS-04-01-D, PAI-45-SS-08-01	8/8	NA	0.06	0.11	1 N	NA	NA	No	BSL, BKG
7440-02-0	Nickel	2		3.2		mg/kg	PAI-45-SS-08-01	8/8	NA	3.2	1.8	NA	NA	NA	No	NTX
7440-09-7	Potassium	165		315		mg/kg	PAI-45-SS-04-01	8/8	NA	315	313	NA	NA	NA	No	NTX
7440-23-5	Sodium	26		75.5		mg/kg	PAI-45-SS-04-01	8/8	NA	75.5	241	NA	NA	NA	No	BKG
7440-62-2	Vanadium	5.5		8.6		mg/kg	PAI-45-SS-04-01	8/8	NA	8.6	9.5	NA	NA	NA	No	BKG
7440-66-6	Zinc	21.8		338		mg/kg	PAI-45-SS-01-01	8/8	NA	338	9.7	NA	NA	NA	No	NTX

TABLE 2.2
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
AIR EMISSIONS FROM SURFACE SOIL
SITE 45 - FORMER MWR DRY CLEANING FACILITY
MCRD PARRIS ISLAND, SOUTH CAROLINA

Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil
Exposure Point: Air Emisions for Surface Soil - SIte 45

CAS Number	Chemical	Minimum Concentration (1)	Minimum Qualifier	Maximum Concentration(1)	Maximum Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Nondetects(2)	Concentration Used for Screening(3)	Background Value(4)	EPA Soil Screening Levels(5)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection(6)

Notes:
(1) - Sample and duplicate are counted as two separate samples when determining the minimum and maximum detected concentrations.
(2) - Values presented are sample-specific quantitation limits.
(3) - The maximum detected concentration is used for screening purposes.
(4) - Background presented for inorganics is two times the arithmetic mean concentration.
(5) - Soil Screening Levels for Inhalation U.S. EPA, May 1996. Soil Screening Guidance.
(6) - Rationale Codes:
Selection Reason:
Above Screening Levels (ASL)
Detection Limit is above Screening Level (DLASL)
No Toxicity Information (NTX)
If one carcinogenic PAH (cPAH) is retained as a COPC then all carcinogenic PAHs are retained as COPCs.
Deletion Reason:
Essential Nutrient (NUT)
Below Screening Level (BSL)
Below Background Value (BKG)

Definitions:
NA = Not Applicable
SQL = Sample Quantitation Limit
COPC = Chemical of Potential Concern
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Consider
J = Estimated Value
C = Carcinogenic
N = Noncarcinogenic
sat = Soil saturation concentration

Shading indicates that the maximum detected concentration exceeded the screening criteria; therefore, the chemical was retained as a COPC.

Associated Samples

PAI-45-SS-01-01	PAI-45-SS-05-01
PAI-45-SS-02-01	PAI-45-SS-06-01
PAI-45-SS-03-01	PAI-45-SS-07-01
PAI-45-SS-04-01	PAI-45-SS-08-01
PAI-45-SS-04-01-AVG	PAI-45-SS-08-01-AVG
PAI-45-SS-04-01-D	PAI-45-SS-08-01-D

T-95

TABLE 2.3
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
MIGRATION FROM SURFACE SOIL TO GROUNDWATER
SITE 45 - FORMER MWR DRY CLEANING FACILITY
MCRD PARRIS ISLAND, SOUTH CAROLINA

Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil
Exposure Point: Migration to Groundwater - Site 45

CAS Number	Chemical	Minimum Concentration [1]	Minimum Qualifier	Maximum Concentration[1]	Maximum Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Nondetects[2]	Concentration Used for Screening[3]	Background Value[4]	EPA Soil Screening Levels[5]	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
Volatile Organic Compounds																
71-55-6	1,1,1-Trichloroethane	4	J	4	J	ug/kg	PAI-45-SS-05-01	1/8	5 - 160	4	NA	2000 MCLG	NA	NA	No	BSL
95-50-1	1,2-Dichlorobenzene	2	J	2	J	ug/kg	PAI-45-SS-05-01	1/8	5 - 160	2	NA	17000 MCLG	NA	NA	No	BSL
75-71-8	Dichlorodifluoromethane	2	J	2	J	ug/kg	PAI-45-SS-02-01	1/8	5 - 160	2	NA	550000 N	NA	NA	No	BSL
127-18-4	Tetrachloroethene	14		7500		ug/kg	PAI-45-SS-05-01	8/8	NA	7500	NA	60 MCL	NA	NA	Yes	ASL
156-60-5	Trans-1,2-dichloroethene	2	J	50		ug/kg	PAI-45-SS-04-01-D	2/8	5 - 160	50	NA	700 MCLG	NA	NA	No	BSL
79-01-6	Trichloroethene	3	J	320	J	ug/kg	PAI-45-SS-04-01-D	7/8	6	320	NA	60 MCL	NA	NA	Yes	ASL
156-59-2	cis-1,2-dichloroethene	2	J	730	J	ug/kg	PAI-45-SS-04-01-D	5/8	6 - 140	730	NA	400 MCLG	NA	NA	Yes	ASL
Semivolatile Organic Compounds																
83-32-9	Acenaphthene	25	J	25	J	ug/kg	PAI-45-SS-03-01	1/8	360 - 430	25	NA	570000 N	NA	NA	No	BSL
120-12-7	Anthracene	21	J	290	J	ug/kg	PAI-45-SS-06-01	3/8	360 - 430	290	NA	12000000 N	NA	NA	No	BSL
56-55-3	Benzo(a)anthracene	44	J	150	J	ug/kg	PAI-45-SS-03-01	7/8	360	150	NA	2000 C	NA	NA	No	BSL
50-32-8	Benzo(a)pyrene	26	J	130	J	ug/kg	PAI-45-SS-02-01, PAI-45-SS-03-01	7/8	360	130	NA	8000 C	NA	NA	No	BSL
205-99-2	Benzo(b)fluoranthene	42	J	180	J	ug/kg	PAI-45-SS-03-01	7/8	360	180	NA	5000 C	NA	NA	No	BSL
191-24-2	Benzo(g,h,i)perylene	36	J	110	J	ug/kg	PAI-45-SS-02-01	6/8	360 - 400	110	NA	NA	NA	NA	No	NTX
207-08-9	Benzo(k)fluoranthene	32	J	64	J	ug/kg	PAI-45-SS-03-01	5/8	360 - 400	64	NA	49000 C	NA	NA	No	BSL
85-68-7	Butyl Benzyl Phthalate	25	J	900		ug/kg	PAI-45-SS-03-01	5/8	360 - 430	900	NA	930000 sat	NA	NA	No	BSL
86-74-8	Carbazole	22	J	44	J	ug/kg	PAI-45-SS-03-01	3/8	360 - 430	44	NA	600 C	NA	NA	No	BSL
218-01-9	Chrysene	45	J	170	J	ug/kg	PAI-45-SS-03-01	7/8	360	170	NA	160000 C	NA	NA	No	BSL
53-70-3	Dibenzo(a,h)anthracene	20	J	29	J	ug/kg	PAI-45-SS-02-01, PAI-45-SS-05-01	4/8	360 - 430	29	NA	2000 C	NA	NA	No	BSL
84-66-2	Diethyl Phthalate	19	J	19	J	ug/kg	PAI-45-SS-05-01	1/8	360 - 430	19	NA	470000 N	NA	NA	No	BSL
206-44-0	Fluoranthene	42	J	300	J	ug/kg	PAI-45-SS-03-01	7/8	360	300	NA	4300000 N	NA	NA	No	BSL
86-73-7	Fluorene	18	J	18	J	ug/kg	PAI-45-SS-03-01	1/8	360 - 430	18	NA	560000 N	NA	NA	No	BSL
193-39-5	Indeno(1,2,3-cd)pyrene	34	J	120	J	ug/kg	PAI-45-SS-02-01	6/8	360 - 400	120	NA	14000 C	NA	NA	No	BSL
91-20-3	Naphthalene	22	J	22	J	ug/kg	PAI-45-SS-03-01	1/8	360 - 430	22	NA	84000 N	NA	NA	No	BSL
85-01-8	Phenanthrene	22	J	230	J	ug/kg	PAI-45-SS-03-01	7/8	360	230	NA	NA	NA	NA	No	NTX
129-00-0	Pyrene	52	J	280	J	ug/kg	PAI-45-SS-03-01	7/8	360	280	NA	4200000 N	NA	NA	No	BSL
Inorganics																
7429-90-5	Aluminum	4300		9480		mg/kg	PAI-45-SS-04-01	8/8	NA	9480	7270	NA	NA	NA	No	NTX
7440-38-2	Arsenic	0.94		2.1		mg/kg	PAI-45-SS-01-01	8/8	NA	2.1	1.44	29	NA	NA	No	BSL
7440-39-3	Barium	14.2		28.6		mg/kg	PAI-45-SS-04-01	8/8	NA	28.6	23.6	16000 MCLG	NA	NA	No	BSL
7440-70-2	Calcium	724		3720		mg/kg	PAI-45-SS-03-01	8/8	NA	3720	766	NA	NA	NA	No	NTX
7440-47-3	Chromium	7		9.1		mg/kg	PAI-45-SS-03-01	8/8	NA	9.1	6.23	38 C	NA	NA	No	BSL
7440-48-4	Cobalt	0.57		0.8		mg/kg	PAI-45-SS-08-01	5/8	0.46 - 0.58	0.8	0.363	NA	NA	NA	No	NTX
7440-50-8	Copper	5		48.1		mg/kg	PAI-45-SS-01-01	8/8	NA	48.1	1.52	11000	NA	NA	No	BSL
7439-89-6	Iron	2330		3650		mg/kg	PAI-45-SS-08-01	8/8	NA	3650	3920	NA	NA	NA	No	BKG
7439-92-1	Lead	6.5		50.2		mg/kg	PAI-45-SS-05-01	8/8	NA	50.2	12.5	NA	NA	NA	No	NTX
7439-95-4	Magnesium	267		437		mg/kg	PAI-45-SS-04-01	8/8	NA	437	515	NA	NA	NA	No	BKG
7439-96-5	Manganese	23.1		53.7		mg/kg	PAI-45-SS-06-01	8/8	NA	53.7	129	2200 N	NA	NA	No	BSL, BKG
7439-97-6	Mercury	0.03		0.06		mg/kg	PAI-45-SS-04-01-D, PAI-45-SS-08-01	8/8	NA	0.06	0.11	2 MCLG	NA	NA	No	BSL, BKG
7440-02-0	Nickel	2		3.2		mg/kg	PAI-45-SS-08-01	8/8	NA	3.2	1.8	130 N	NA	NA	No	BSL
7440-09-7	Potassium	165		315		mg/kg	PAI-45-SS-04-01	8/8	NA	315	313	NA	NA	NA	No	NTX
7440-23-5	Sodium	26		75.5		mg/kg	PAI-45-SS-04-01	8/8	NA	75.5	241	NA	NA	NA	No	BKG
7440-62-2	Vanadium	5.5		8.6		mg/kg	PAI-45-SS-04-01	8/8	NA	8.6	9.5	6000 N	NA	NA	No	BSL, BKG
7440-66-6	Zinc	21.8		338		mg/kg	PAI-45-SS-01-01	8/8	NA	338	9.7	12000 N	NA	NA	No	BSL

T-25

TABLE 2.3
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
MIGRATION FROM SURFACE SOIL TO GROUNDWATER
SITE 45 - FORMER MWR DRY CLEANING FACILITY
MCRD PARRIS ISLAND, SOUTH CAROLINA

Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil
Exposure Point: Migration to Groundwater - Site 45

CAS Number	Chemical	Minimum Concentration [1]	Minimum Qualifier	Maximum Concentration[1]	Maximum Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Nondetects[2]	Concentration Used for Screening[3]	Background Value[4]	EPA Soil Screening Levels[5]	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection[6]

Notes:
(1) - Sample and duplicate are counted as two separate samples when determining the minimum and maximum detected concentrations.
(2) - Values presented are sample-specific quantitation limits.
(3) - The maximum detected concentration is used for screening purposes.
(4) - Background presented for inorganics is two times the arithmetic mean concentration.
(5) - USEPA Soil Screening Level Guidance: Technical Background Document. May 1996. (Based on a DAF [Dilutional Attenuation Factor] of 20).
(6) - Rationale Codes:
Selection Reason:
Above Screening Levels (ASL)
Detection Limit is above Screening Level (DLASL)
No Toxicity Information (NTX)
If one carcinogenic PAH (cPAH) is retained as a COPC then all carcinogenic PAHs are retained as COPCs.
Deletion Reason:
Essential Nutrient (NUT)
Below Screening Level (BSL)
Below Background Value (BKG)

Definitions:
NA = Not Applicable
SQL = Sample Quantitation Limit
COPC = Chemical of Potential Concern
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered
J = Estimated Value
C = Carcinogenic
N = Noncarcinogenic
sat = Soil saturation concentration

Shading indicates that the maximum detected concentration exceeded the screening criteria; therefore, the chemical was retained as a COPC.

Associated Samples

PAI-45-SS-01-01	PAI-45-SS-05-01
PAI-45-SS-02-01	PAI-45-SS-06-01
PAI-45-SS-03-01	PAI-45-SS-07-01
PAI-45-SS-04-01	PAI-45-SS-08-01
PAI-45-SS-04-01-AVG	PAI-45-SS-08-01-AVG
PAI-45-SS-04-01-D	PAI-45-SS-08-01-D

T-26

TABLE 2.4
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
DIRECT CONTACT WITH SUBSURFACE SOIL
SITE 45 - FORMER MWR DRY CLEANING FACILITY
MCRD PARRIS ISLAND, SOUTH CAROLINA

Scenario Timeframe: Current/Future
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil
Exposure Point: Site 45

CAS Number	Chemical	Minimum Concentration (1)	Minimum Qualifier	Maximum Concentration(1)	Maximum Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Nondetects(2)	Concentration Used for Screening(3)	Background Value	EPA Region 9 PRG-Residential(4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection(5)
Volatile Organic Compounds																
71-55-6	1,1,1-Trichloroethane	210		210		ug/kg	PAI-45-SB-01-05	1/8	100 - 240	210	NA	63000 N	NA	NA	No	BSL
79-00-5	1,1,2-Trichloroethane	69	J	69	J	ug/kg	PAI-45-SB-07-04	1/8	100 - 240	69	NA	840 C	NA	NA	No	BSL
75-34-3	1,1-Dichloroethane	28	J	34	J	ug/kg	PAI-45-SB-05-04	2/8	100 - 240	34	NA	59000 N	NA	NA	No	BSL
75-35-4	1,1-Dichloroethene	43	J	43	J	ug/kg	PAI-45-SB-05-04	1/8	100 - 240	43	NA	54 C	NA	NA	No	BSL
95-50-1	1,2-Dichlorobenzene	260		260		ug/kg	PAI-45-SB-03-04	1/8	100 - 240	260	NA	370000 sat	NA	NA	No	BSL
78-93-3	2-Butanone	140		140		ug/kg	PAI-45-SB-03-04	1/8	100 - 240	140	NA	730000 N	NA	NA	No	BSL
74-83-9	Bromomethane	42	J	90	J	ug/kg	PAI-45-SB-01-05	2/8	100 - 240	90	NA	390 N	NA	NA	No	BSL
108-90-7	Chlorobenzene	76	J	2000		ug/kg	PAI-45-SB-03-04	3/8	100 - 240	2000	NA	15000 N	NA	NA	No	BSL
100-41-4	Ethylbenzene	23	J	1500		ug/kg	PAI-45-SB-03-04	4/8	100 - 240	1500	NA	230000 sat	NA	NA	No	BSL
98-82-8	Isopropylbenzene	22	J	850		ug/kg	PAI-45-SB-03-04	4/8	100 - 240	850	NA	16000 N	NA	NA	No	BSL
127-18-4	Tetrachloroethene	1900		8000000		ug/kg	PAI-45-SB-01-05	7/8	100	8000000	NA	5700 C	NA	NA	Yes	ASL
108-88-3	Toluene	62	J	62	J	ug/kg	PAI-45-SB-05-04	1/8	100 - 530	62	NA	520000 sat	NA	NA	No	BSL
1330-20-7	Total Xylenes	100	J	1000		ug/kg	PAI-45-SB-03-04	3/8	100 - 240	1000	NA	210000 sat	NA	NA	No	BSL
156-60-5	Trans-1,2-dichloroethene	20	J	810		ug/kg	PAI-45-SB-03-04	6/8	100 - 240	810	NA	6300 N	NA	NA	No	BSL
79-01-6	Trichloroethene	65	J	120000		ug/kg	PAI-45-SB-05-04	7/8	240	120000	NA	2800 C	NA	NA	Yes	ASL
75-01-4	Vinyl Chloride	30	J	30	J	ug/kg	PAI-45-SB-03-04	1/8	100 - 240	30	NA	150 C	NA	NA	No	BSL
156-59-2	cis-1,2-dichloroethene	470		40000		ug/kg	PAI-45-SB-05-04	7/8	240	40000	NA	4300 N	NA	NA	Yes	ASL
Semivolatile Organic Compounds																
91-57-6	2-Methylnaphthalene	94	J	820		ug/kg	PAI-45-SB-03-04	3/8	400	820	NA	5600 (6) N	NA	NA	No	BSL
83-32-9	Acenaphthene	520	J	520	J	ug/kg	PAI-45-SB-07-04-D	1/8	400	520	NA	370000 N	NA	NA	No	BSL
208-96-8	Acenaphthylene	36	J	36	J	ug/kg	PAI-45-SB-07-04-D	1/8	400	36	NA	370000 (7) N	NA	NA	No	BSL
120-12-7	Anthracene	2900	J	2900	J	ug/kg	PAI-45-SB-07-04-D	1/8	400	2900	NA	2200000 N	NA	NA	No	BSL
56-55-3	Benzo(a)anthracene	17	J	7200	J	ug/kg	PAI-45-SB-07-04-D	3/8	400	7200	NA	620 C	NA	NA	Yes	ASL
50-32-8	Benzo(a)pyrene	58	J	5800	J	ug/kg	PAI-45-SB-07-04-D	2/8	400	5800	NA	62 C	NA	NA	Yes	ASL
205-99-2	Benzo(b)fluoranthene	20	J	7100	J	ug/kg	PAI-45-SB-07-04-D	3/8	400	7100	NA	620 C	NA	NA	Yes	ASL
191-24-2	Benzo(g,h,i)perylene	69	J	3200	J	ug/kg	PAI-45-SB-07-04-D	2/8	400	3200	NA	230000 (8) N	NA	NA	No	BSL
207-08-9	Benzo(k)fluoranthene	29	J	2200	J	ug/kg	PAI-45-SB-07-04-D	2/8	400	2200	NA	6200 C	NA	NA	Yes	cPAH
117-81-7	Bis(2-Ethylhexyl)phthalate	5500		5500		ug/kg	PAI-45-SB-03-04	1/8	400 - 760	5500	NA	35000 C	NA	NA	No	BSL
86-74-8	Carbazole	360	J	360	J	ug/kg	PAI-45-SB-07-04-D	1/8	400	360	NA	24000 C	NA	NA	No	BSL
218-01-9	Chrysene	70	J	6200	J	ug/kg	PAI-45-SB-07-04-D	2/8	400	6200	NA	62000 C	NA	NA	Yes	cPAH
117-84-0	Di-n-octyl phthalate	290	J	290	J	ug/kg	PAI-45-SB-03-04	1/8	400 - 760	290	NA	120000 N	NA	NA	No	BSL
53-70-3	Dibenzo(a,h)anthracene	780	J	780	J	ug/kg	PAI-45-SB-07-04-D	1/8	400	780	NA	62 C	NA	NA	Yes	ASL
132-64-9	Dibenzofuran	360	J	360	J	ug/kg	PAI-45-SB-07-04-D	1/8	400	360	NA	29000 N	NA	NA	No	BSL
206-44-0	Fluoranthene	14	J	16000	J	ug/kg	PAI-45-SB-07-04-D	3/8	400	16000	NA	230000 N	NA	NA	No	BSL
86-73-7	Fluorene	16	J	930	J	ug/kg	PAI-45-SB-07-04-D	2/8	400	930	NA	260000 N	NA	NA	No	BSL
193-39-5	Indeno(1,2,3-cd)pyrene	75	J	3700	J	ug/kg	PAI-45-SB-07-04-D	2/8	400	3700	NA	620 C	NA	NA	Yes	ASL
91-20-3	Naphthalene	55	J	4500		ug/kg	PAI-45-SB-03-04	3/8	400	4500	NA	5600 N	NA	NA	No	BSL
85-01-8	Phenanthrene	64	J	9700	J	ug/kg	PAI-45-SB-07-04-D	2/8	400	9700	NA	230000 (8) N	NA	NA	No	BSL
129-00-0	Pyrene	120	J	12000	J	ug/kg	PAI-45-SB-07-04-D	2/8	400	12000	NA	230000 N	NA	NA	No	BSL

L-67

TABLE 2.4
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
DIRECT CONTACT WITH SUBSURFACE SOIL
SITE 45 - FORMER MWR DRY CLEANING FACILITY
MCRD PARRIS ISLAND, SOUTH CAROLINA

Scenario Timeframe: Current/Future
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil
Exposure Point: Site 45

CAS Number	Chemical	Minimum Concentration (1)	Minimum Qualifier	Maximum Concentration(1)	Maximum Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Nondetects(2)	Concentration Used for Screening(3)	Background Value	EPA Region 9 PRG-Residential(4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection(5)

Notes:
(1) - Sample and duplicate are counted as two separate samples when determining the minimum and maximum detected concentrations.
(2) - Values presented are sample-specific quantitation limits.
(3) - The maximum detected concentration is used for screening purposes.
(4) - USEPA Region 9 Preliminary Remediation Goals Table, November 1, 2000. Residential criteria. (Cancer benchmark value = 1E-06, noncancer benchmark HI = 0.1)
(5) - Rationale Codes: Selection Reason: Above Screening Levels (ASL)
Deletion Reason: Essential Nutrient (NUT)
Below Screening Level (BSL)
(6) - Value is for naphthalene.
(7) - Value is for acenaphthene.
(8) - Value is for pyrene.
Shading indicates that the maximum detected concentration exceeded the screening criteria; therefore, the chemical was retained as a COPC.

Definitions:
NA = Not Applicable
SQL = Sample Quantitation Limit
COPC = Chemical of Potential Concern
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Co
J = Estimated Value
C = Carcinogenic
N = Noncarcinogenic
sat = Soil saturation concentration

Associated Samples:

PAI-45-SB-01-05
PAI-45-SB-01-14
PAI-45-SB-02-04
PAI-45-SB-03-04
PAI-45-SB-04-04
PAI-45-SB-05-04
PAI-45-SB-06-04
PAI-45-SB-07-04
PAI-45-SB-07-04-AVG
PAI-45-SB-07-04-D
PAI-45-SB-08-04
PAI-45-SB-08-04-AVG
PAI-45-SB-08-04-D
PAI-45-SB-09-14
PAI-45-SB-10-13
PAI-45-SB-11-10
PAI-45-SB-12-10
PAI-45-SB-13-10

T1-98

TABLE 2.5
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
AIR EMISSIONS FROM SUBSURFACE SOIL
SITE 45 - FORMER MWR DRY CLEANING FACILITY
MCRD PARRIS ISLAND, SOUTH CAROLINA

Scenario Timeframe: Current/Future
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil
Exposure Point: Air Emisions for Subsurface Soil - Site 45

CAS Number	Chemical	Minimum Concentration [1]	Minimum Qualifier	Maximum Concentration[1]	Maximum Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Nondetects[2]	Concentration Used for Screening[3]	Background Value	EPA Soil Screening Levels[4]	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection [5]
Volatile Organic Compounds																
71-55-6	1,1,1-Trichloroethane	210		210		ug/kg	PAI-45-SB-01-05	1/8	100 - 240	210	NA	1200000 sat	NA	NA	No	BSL
79-00-5	1,1,2-Trichloroethane	69	J	69	J	ug/kg	PAI-45-SB-07-04	1/8	100 - 240	69	NA	1000 C	NA	NA	No	BSL
75-34-3	1,1-Dichloroethane	28	J	34	J	ug/kg	PAI-45-SB-05-04	2/8	100 - 240	34	NA	130000 N	NA	NA	No	BSL
75-35-4	1,1-Dichloroethene	43	J	43	J	ug/kg	PAI-45-SB-05-04	1/8	100 - 240	43	NA	70 C	NA	NA	No	BSL
95-50-1	1,2-Dichlorobenzene	260		260		ug/kg	PAI-45-SB-03-04	1/8	100 - 240	260	NA	560000 sat	NA	NA	No	BSL
78-93-3	2-Butanone	140		140		ug/kg	PAI-45-SB-03-04	1/8	100 - 240	140	NA	900000 N	NA	NA	No	BSL
74-83-9	Bromomethane	42	J	90	J	ug/kg	PAI-45-SB-01-05	2/8	100 - 240	90	NA	950 N	NA	NA	No	BSL
108-90-7	Chlorobenzene	76	J	2000		ug/kg	PAI-45-SB-03-04	3/8	100 - 240	2000	NA	13000 N	NA	NA	No	BSL
100-41-4	Ethylbenzene	23	J	1500		ug/kg	PAI-45-SB-03-04	4/8	100 - 240	1500	NA	400000 sat	NA	NA	No	BSL
98-82-8	Isopropylbenzene	22	J	850		ug/kg	PAI-45-SB-03-04	4/8	100 - 240	850	NA	850000 sat	NA	NA	No	BSL
127-18-4	Tetrachloroethene	1900		8000000		ug/kg	PAI-45-SB-01-05	7/8	100	8000000	NA	11000 C	NA	NA	Yes	ASL
108-88-3	Toluene	62	J	62	J	ug/kg	PAI-45-SB-05-04	1/8	100 - 530	62	NA	650000 sat	NA	NA	No	BSL
1330-20-7	Total Xylenes	100	J	1000		ug/kg	PAI-45-SB-03-04	3/8	100 - 240	1000	NA	410000 sat	NA	NA	No	BSL
156-60-5	Trans-1,2-dichloroethene	20	J	810		ug/kg	PAI-45-SB-03-04	6/8	100 - 240	810	NA	3100000 sat	NA	NA	No	BSL
79-01-6	Trichloroethene	65	J	120000		ug/kg	PAI-45-SB-05-04	7/8	240	120000	NA	5000 C	NA	NA	Yes	ASL
75-01-4	Vinyl Chloride	30	J	30	J	ug/kg	PAI-45-SB-03-04	1/8	100 - 240	30	NA	30 C	NA	NA	No	BSL
156-59-2	cis-1,2-dichloroethene	470		40000		ug/kg	PAI-45-SB-05-04	7/8	240	40000	NA	1200000 sat	NA	NA	No	BSL
Semivolatile Organic Compounds																
91-57-6	2-Methylnaphthalene	94	J	820		ug/kg	PAI-45-SB-03-04	3/8	400	820	NA	NA	NA	NA	No	NTX
83-32-9	Acenaphthene	520	J	520	J	ug/kg	PAI-45-SB-07-04-D	1/8	400	520	NA	NA	NA	NA	No	NTX
208-96-8	Acenaphthylene	36	J	36	J	ug/kg	PAI-45-SB-07-04-D	1/8	400	36	NA	NA	NA	NA	No	NTX
120-12-7	Anthracene	2900	J	2900	J	ug/kg	PAI-45-SB-07-04-D	1/8	400	2900	NA	NA	NA	NA	No	NTX
56-55-3	Benzo(a)anthracene	17	J	7200	J	ug/kg	PAI-45-SB-07-04-D	3/8	400	7200	NA	NA	NA	NA	No	NTX
50-32-8	Benzo(a)pyrene	58	J	5800	J	ug/kg	PAI-45-SB-07-04-D	2/8	400	5800	NA	NA	NA	NA	No	NTX
205-99-2	Benzo(b)fluoranthene	20	J	7100	J	ug/kg	PAI-45-SB-07-04-D	3/8	400	7100	NA	NA	NA	NA	No	NTX
191-24-2	Benzo(g,h,i)perylene	69	J	3200	J	ug/kg	PAI-45-SB-07-04-D	2/8	400	3200	NA	NA	NA	NA	No	NTX
207-08-9	Benzo(k)fluoranthene	29	J	2200	J	ug/kg	PAI-45-SB-07-04-D	2/8	400	2200	NA	NA	NA	NA	No	NTX
117-81-7	Bis(2-Ethylhexyl)phthalate	5500		5500		ug/kg	PAI-45-SB-03-04	1/8	400 - 760	5500	NA	31000000 sat	NA	NA	No	BSL
86-74-8	Carbazole	360	J	360	J	ug/kg	PAI-45-SB-07-04-D	1/8	400	360	NA	NA	NA	NA	No	NTX
218-01-9	Chrysene	70	J	6200	J	ug/kg	PAI-45-SB-07-04-D	2/8	400	6200	NA	NA	NA	NA	No	NTX
117-84-0	Di-n-octyl phthalate	290	J	290	J	ug/kg	PAI-45-SB-03-04	1/8	400 - 760	290	NA	10000000 sat	NA	NA	No	BSL
53-70-3	Dibenzo(a,h)anthracene	780	J	780	J	ug/kg	PAI-45-SB-07-04-D	1/8	400	780	NA	NA	NA	NA	No	NTX
132-64-9	Dibenzofuran	360	J	360	J	ug/kg	PAI-45-SB-07-04-D	1/8	400	360	NA	21000 sat	NA	NA	No	NTX
206-44-0	Fluoranthene	14	J	16000	J	ug/kg	PAI-45-SB-07-04-D	3/8	400	16000	NA	NA	NA	NA	No	NTX
86-73-7	Fluorene	16	J	930	J	ug/kg	PAI-45-SB-07-04-D	2/8	400	930	NA	NA	NA	NA	No	NTX
193-39-5	Indeno(1,2,3-cd)pyrene	75	J	3700	J	ug/kg	PAI-45-SB-07-04-D	2/8	400	3700	NA	NA	NA	NA	No	NTX
91-20-3	Naphthalene	55	J	4500		ug/kg	PAI-45-SB-03-04	3/8	400	4500	NA	17000 N	NA	NA	No	BSL
85-01-8	Phenanthrene	64	J	9700	J	ug/kg	PAI-45-SB-07-04-D	2/8	400	9700	NA	NA	NA	NA	No	NTX
129-00-0	Pyrene	120	J	12000	J	ug/kg	PAI-45-SB-07-04-D	2/8	400	12000	NA	NA	NA	NA	No	NTX

TABLE 2.5
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
AIR EMISSIONS FROM SUBSURFACE SOIL
SITE 45 - FORMER MWR DRY CLEANING FACILITY
MCRD PARRIS ISLAND, SOUTH CAROLINA

Scenario Timeframe: Current/Future
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil
Exposure Point: Air Emisions for Subsurface Soil - Site 45

CAS Number	Chemical	Minimum Concentration [1]	Minimum Qualifier	Maximum Concentration[1]	Maximum Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Nondetects[2]	Concentration Used for Screening[3]	Background Value	EPA Soil Screening Levels[4]	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection [5]

Notes:
(1) - Sample and duplicate are counted as two separate samples when determining the minimum and maximum detected concentrations.
(2) - Values presented are sample-specific quantitation limits.
(3) - The maximum detected concentration is used for screening purposes.
(4) - Soil Screening Levels for Inhalation U.S. EPA, May 1996. Soil Screening Guidance.
(5) - Rationale Codes:
Selection Reason:
Above Screening Levels (ASL)
Detection Limit is above Screening Level (DLASL)
No Toxicity Information (NTX)
If one carcinogenic PAH (cPAH) is retained as a COPC then all carcinogenic PAHs are retained as COPCs.
Deletion Reason:
Essential Nutrient (NUT)
Below Screening Level (BSL)
Below Background Value (BKG)

Definitions:
NA = Not Applicable
SQL = Sample Quantitation Limit
COPC = Chemical of Potential Concern
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered
J = Estimated Value
C = Carcinogenic
N = Noncarcinogenic
sat = Soil saturation concentration

Shading indicates that the maximum detected concentration exceeded the screening criteria; therefore, the chemical was retained as a COPC.

Associated Samples:

PAI-45-SB-01-05	PAI-45-SB-08-04
PAI-45-SB-01-14	PAI-45-SB-08-04-AVG
PAI-45-SB-02-04	PAI-45-SB-08-04-D
PAI-45-SB-03-04	PAI-45-SB-09-14
PAI-45-SB-04-04	PAI-45-SB-10-13
PAI-45-SB-05-04	PAI-45-SB-11-10
PAI-45-SB-06-04	PAI-45-SB-12-10
PAI-45-SB-07-04	PAI-45-SB-13-10
PAI-45-SB-07-04-AVG	
PAI-45-SB-07-04-D	

F-30

TABLE 2.6
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
MIGRATION FROM SUBSURFACE SOIL TO GROUNDWATER
SITE 45 - FORMER MWR DRY CLEANING FACILITY
MCRD PARRIS ISLAND, SOUTH CAROLINA

Scenario Timeframe: Current/Future
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil
Exposure Point: Migration to Groundwater - Site 45

CAS Number	Chemical	Minimum Concentration (1)	Minimum Qualifier	Maximum Concentration(1)	Maximum Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Nondetects (2)	Concentration Used for Screening(3)	Background Value	EPA Soil Screening Levels(4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection(5)
Volatile Organics Compounds																
71-55-6	1,1,1-Trichloroethane	210		210		ug/kg	PAI-45-SB-01-05	1/8	100 - 240	210	NA	2000 MCLG	NA	NA	No	BSL
79-00-5	1,1,2-Trichloroethane	69	J	69	J	ug/kg	PAI-45-SB-07-04	1/8	100 - 240	69	NA	20 MCLG	NA	NA	Yes	ASL
75-34-3	1,1-Dichloroethane	28	J	34	J	ug/kg	PAI-45-SB-05-04	2/8	100 - 240	34	NA	23000 N	NA	NA	No	BSL
75-35-4	1,1-Dichloroethene	43	J	43	J	ug/kg	PAI-45-SB-05-04	1/8	100 - 240	43	NA	60 MCLG	NA	NA	No	BSL
95-50-1	1,2-Dichlorobenzene	260		260		ug/kg	PAI-45-SB-03-04	1/8	100 - 240	260	NA	17000 MCLG	NA	NA	No	BSL
78-93-3	2-Butanone	140		140		ug/kg	PAI-45-SB-03-04	1/8	100 - 240	140	NA	89000 N	NA	NA	No	BSL
74-83-9	Bromomethane	42	J	90	J	ug/kg	PAI-45-SB-01-05	2/8	100 - 240	90	NA	250 N	NA	NA	No	BSL
108-90-7	Chlorobenzene	76	J	2000		ug/kg	PAI-45-SB-03-04	3/8	100 - 240	2000	NA	1000 MCLG	NA	NA	Yes	ASL
100-41-4	Ethylbenzene	23	J	1500		ug/kg	PAI-45-SB-03-04	4/8	100 - 240	1500	NA	13000 MCLG	NA	NA	No	BSL
98-82-8	Isopropylbenzene	22	J	850		ug/kg	PAI-45-SB-03-04	4/8	100 - 240	850	NA	350000 N	NA	NA	No	BSL
127-18-4	Tetrachloroethene	1900		8000000		ug/kg	PAI-45-SB-01-05	7/8	100	8000000	NA	60 MCL	NA	NA	Yes	ASL
108-88-3	Toluene	62	J	62	J	ug/kg	PAI-45-SB-05-04	1/8	100 - 530	62	NA	12000 MCLG	NA	NA	No	BSL
1330-20-7	Total Xylenes	100	J	1000		ug/kg	PAI-45-SB-03-04	3/8	100 - 240	1000	NA	190000 MCLG	NA	NA	No	BSL
156-60-5	Trans-1,2-dichloroethene	20	J	810		ug/kg	PAI-45-SB-03-04	6/8	100 - 240	810	NA	700 MCLG	NA	NA	Yes	ASL
79-01-6	Trichloroethene	65	J	120000		ug/kg	PAI-45-SB-05-04	7/8	240	120000	NA	60 MCL	NA	NA	Yes	ASL
75-01-4	Vinyl Chloride	30	J	30	J	ug/kg	PAI-45-SB-03-04	1/8	100 - 240	30	NA	10 MCL	NA	NA	Yes	ASL
156-59-2	cis-1,2-dichloroethene	470		40000		ug/kg	PAI-45-SB-05-04	7/8	240	40000	NA	400 MCLG	NA	NA	Yes	ASL
Semivolatile Organics Compounds																
91-57-6	2-Methylnaphthalene	94	J	820		ug/kg	PAI-45-SB-03-04	3/8	400	820	NA	NA	NA	NA	No	NTX
83-32-9	Acenaphthene	520	J	520	J	ug/kg	PAI-45-SB-07-04-D	1/8	400	520	NA	570000 N	NA	NA	No	BSL
208-96-8	Acenaphthylene	36	J	36	J	ug/kg	PAI-45-SB-07-04-D	1/8	400	36	NA	NA	NA	NA	No	NTX
120-12-7	Anthracene	2900	J	2900	J	ug/kg	PAI-45-SB-07-04-D	1/8	400	2900	NA	1200000 N	NA	NA	No	BSL
56-55-3	Benzo(a)anthracene	17	J	7200	J	ug/kg	PAI-45-SB-07-04-D	3/8	400	7200	NA	2000 C	NA	NA	Yes	ASL
50-32-8	Benzo(a)pyrene	58	J	5800	J	ug/kg	PAI-45-SB-07-04-D	2/8	400	5800	NA	8000 C	NA	NA	No	BSL
205-99-2	Benzo(b)fluoranthene	20	J	7100	J	ug/kg	PAI-45-SB-07-04-D	3/8	400	7100	NA	5000 C	NA	NA	Yes	ASL
191-24-2	Benzo(g,h,I)perylene	69	J	3200	J	ug/kg	PAI-45-SB-07-04-D	2/8	400	3200	NA	NA	NA	NA	No	NTX
207-08-9	Benzo(k)fluoranthene	29	J	2200	J	ug/kg	PAI-45-SB-07-04-D	2/8	400	2200	NA	49000 C	NA	NA	No	BSL
117-81-7	Bis(2-Ethylhexyl)phthalate	5500		5500		ug/kg	PAI-45-SB-03-04	1/8	400 - 760	5500	NA	3600000 MCL	NA	NA	No	BSL
86-74-8	Carbazole	360	J	360	J	ug/kg	PAI-45-SB-07-04-D	1/8	400	360	NA	600 C	NA	NA	No	BSL
218-01-9	Chrysene	70	J	6200	J	ug/kg	PAI-45-SB-07-04-D	2/8	400	6200	NA	160000 C	NA	NA	No	BSL
117-84-0	Di-n-octyl phthalate	290	J	290	J	ug/kg	PAI-45-SB-03-04	1/8	400 - 760	290	NA	10000000 sat	NA	NA	No	BSL
53-70-3	Dibenzo(a,h)anthracene	780	J	780	J	ug/kg	PAI-45-SB-07-04-D	1/8	400	780	NA	2000 C	NA	NA	No	BSL
132-64-9	Dibenzofuran	360	J	360	J	ug/kg	PAI-45-SB-07-04-D	1/8	400	360	NA	46000 N	NA	NA	No	BSL
206-44-0	Fluoranthene	14	J	16000	J	ug/kg	PAI-45-SB-07-04-D	3/8	400	16000	NA	4300000 N	NA	NA	No	BSL
86-73-7	Fluorene	16	J	930	J	ug/kg	PAI-45-SB-07-04-D	2/8	400	930	NA	560000 N	NA	NA	No	BSL
193-39-5	Indeno(1,2,3-cd)pyrene	75	J	3700	J	ug/kg	PAI-45-SB-07-04-D	2/8	400	3700	NA	14000 C	NA	NA	No	BSL
91-20-3	Naphthalene	55	J	4500		ug/kg	PAI-45-SB-03-04	3/8	400	4500	NA	84000 N	NA	NA	No	BSL
85-01-8	Phenanthrene	64	J	9700	J	ug/kg	PAI-45-SB-07-04-D	2/8	400	9700	NA	NA	NA	NA	No	NTX
129-00-0	Pyrene	120	J	12000	J	ug/kg	PAI-45-SB-07-04-D	2/8	400	12000	NA	4200000 N	NA	NA	No	BSL

TABLE 2.6
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
MIGRATION FROM SUBSURFACE SOIL TO GROUNDWATER
SITE 45 - FORMER MWR DRY CLEANING FACILITY
MCRD PARRIS ISLAND, SOUTH CAROLINA

Scenario Timeframe: Current/Future
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil
Exposure Point: Migration to Groundwater - Site 45

CAS Number	Chemical	Minimum Concentration (1)	Minimum Qualifier	Maximum Concentration(1)	Maximum Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Nondetects (2)	Concentration Used for Screening(3)	Background Value	EPA Soil Screening Levels(4)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection(5)

Notes:
(1) - Sample and duplicate are counted as two separate samples when determining the minimum and maximum detected concentrations.
(2) - Values presented are sample-specific quantitation limits.
(3) - The maximum detected concentration is used for screening purposes.
(4) - Soil Screening Levels for Inhalation U.S. EPA, May 1996, Soil Screening Guidance.
(5) - Rationale Codes:
Selection Reason:
Above Screening Levels (ASL)
Detection Limit is above Screening Level (DLASL)
No Toxicity Information (NTX)
If one carcinogenic PAH (cPAH) is retained as a COPC then all carcinogenic PAHs are retained as COPCs.
Deletion Reason:
Essential Nutrient (NUT)
Below Screening Level (BSL)
Below Background Value (BKG)

Definitions:
NA = Not Applicable
SQL = Sample Quantitation Limit
COPC = Chemical of Potential Concern
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered
J = Estimated Value
C = Carcinogenic
N = Noncarcinogenic
sat = Soil saturation concentration

Shading indicates that the maximum detected concentration exceeded the screening criteria; therefore, the chemical was retained as a COPC.

Associated Samples:

PAI-45-SB-01-05	PAI-45-SB-08-04
PAI-45-SB-01-14	PAI-45-SB-08-04-AVG
PAI-45-SB-02-04	PAI-45-SB-08-04-D
PAI-45-SB-03-04	PAI-45-SB-09-14
PAI-45-SB-04-04	PAI-45-SB-10-13
PAI-45-SB-05-04	PAI-45-SB-11-10
PAI-45-SB-06-04	PAI-45-SB-12-10
PAI-45-SB-07-04	PAI-45-SB-13-10
PAI-45-SB-07-04-AVG	
PAI-45-SB-07-04-D	

T1
1
W
92

TABLE 2.7

OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
DIRECT CONTACT WITH GROUNDWATER - SURFICIAL GROUNDWATER
SITE 45 - FORMER MWR DRY CLEANING FACILITY
MCRD PARRIS ISLAND, SOUTH CAROLINA

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Surficial Aquifer
Exposure Point: Direct Contact With Groundwater - Site 45

CAS Number	Chemical	Minimum Concentration [1]	Minimum Qualifier	Maximum Concentration[1]	Maximum Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Nondetects[2]	Concentration Used for Screening[3]	Background Value	EPA Region 9 PRGS for Tap Water [4]	Potential ARAR/TBC Value [5]	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection [6]
Volatile Organic Compounds																
75-35-4	1,1-Dichloroethene	1	J	4	J	ug/L	PAI-45-GW08SU-01	2/5	5	4	NA	0.046 C	7	MCL	yes	ASL
67-64-1	Acetone	2	J	2	J	ug/L	PAI-45-GW08SU-01	1/5	5	2	NA	610 N	NA	NA	no	BSL
124-48-1	Chlorodibromomethane	4	J	4	J	ug/L	PAI-45-GW08SU-01	1/5	5	4	NA	0.13 C	0.08	MCL	yes	ASL
127-18-4	Tetrachloroethene	6		10000		ug/L	PAI-45-GW08SU-01	4/5	5	10000	NA	1.1 C	5	MCL	yes	ASL
108-88-3	Toluene	5	J	5	J	ug/L	PAI-45-GW08SU-01	1/5	5	5	NA	720 N	1000	MCL	no	BSL
156-60-5	Trans-1,2-dichloroethene	22		140		ug/L	PAI-45-GW08SU-01	2/5	5	140	NA	120 N	100	MCL	yes	ASL
79-01-6	Trichloroethene	9		10000		ug/L	PAI-45-GW08SU-01	4/5	5	10000	NA	1.6 C	5	MCL	yes	ASL
75-01-4	Vinyl Chloride	1	J	710		ug/L	PAI-45-GW08SU-01	3/5	5	710	NA	0.041 C	2	MCL	yes	ASL
156-59-2	cis-1,2-dichloroethene	1	J	3400		ug/L	PAI-45-GW08SU-01	4/5	5	3400	NA	61 N	70	MCL	yes	ASL

Notes:
(1) - Sample and duplicate are counted as two separate samples when determining the minimum and maximum detected concentrations.
(2) - Values presented are sample-specific quantitation limits.
(3) - The maximum detected concentration is used for screening purposes.
(4) - USEPA Region 9 Preliminary Remediation Goal Table, November 1, 2000.
(5) - USEPA Drinking Water Regulations and Health Advisories, Summer 2000.
(6) - Rationale Codes: Selection Reason: Above Screening Levels (ASL)
No Toxicity Information (NTX)

Deletion Reason: Essential Nutrient (NUT)
Below Screening Level (BSL)
Below Background Value (BKG)

Definitions:
NA = Not Applicable
SQL = Sample Quantitation Limit
COPC = Chemical of Potential Concern
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered
MCL = Maximum Contaminant Level
J = Estimated Value
C = Carcinogenic
N = Noncarcinogenic

Shading indicates that the maximum detected concentration exceeded the screening criteria; therefore, the chemical was retained as a COPC.

Associated Samples:

PAI-45-GW01SU-01
PAI-45-GW04SU-01
PAI-45-GW05SL-01
PAI-45-GW06SU-01
PAI-45-GW06SU-01-D

TABLE 2.8

OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
DIRECT CONTACT WITH GROUNDWATER - DEEP GROUNDWATER
SITE 45 - FORMER MWR DRY CLEANING FACILITY
MCRD PARRIS ISLAND, SOUTH CAROLINA

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Surficial Aquifer
Exposure Point: Direct Contact With Groundwater - Site 45

CAS Number	Chemical	Minimum Concentration [1]	Minimum Qualifier	Maximum Concentration[1]	Maximum Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Nondetects[2]	Concentration Used for Screening[3]	Background Value	EPA Region 9 PRG for Tap Water [4]	Potential ARAR/TBC Value [5]	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection [6]
Volatile Organic Compounds																
67-66-3	Chloroform	0.5	J	1	J	ug/L	PAI-45-GW05D-01	2/5	5	1	NA	0.16 C	80	MCL	yes	ASL
127-18-4	Tetrachloroethene	1	J	5	J	ug/L	PAI-45-GW04D-01	3/5	5	5	NA	1.1 C	5	MCL	yes	ASL
79-01-6	Trichloroethene	0.6	J	2	J	ug/L	PAI-45-GW04D-01	2/5	5	2	NA	1.6 C	5	MCL	yes	ASL

Notes:
(1) - Sample and duplicate are counted as two separate samples when determining the minimum and maximum detected concentrations.
(2) - Values presented are sample-specific quantitation limits.
(3) - The maximum detected concentration is used for screening purposes.
(4) - USEPA Region 9 Preliminary Remediation Goal Table, November 1, 2000.
(5) - USEPA Drinking Water Regulations and Health Advisories, Summer 2000.
(6) - Rationale Codes: Selection Reason: Above Screening Levels (ASL)
No Toxicity Information (NTX)

Deletion Reason: Essential Nutrient (NUT)
Below Screening Level (BSL)
Below Background Value (BKG)

Definitions:
NA = Not Applicable
SQL = Sample Quantitation Limit
COPC = Chemical of Potential Concern
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered
MCL = Maximum Contaminant Level
J = Estimated Value
C = Carcinogenic
N = Noncarcinogenic

Shading indicates that the maximum detected concentration exceeded the screening criteria; therefore, the chemical was retained as a COPC.

Associated Samples:

PAI-45-GW09D-01
PAI-45-GW11D-01
PAI-45-GW04D-01
PAI-45-GW05D-01
PAI-45-GW10D-01

T-W-I

TABLE 3.1
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY
SITE 45 - FORMER MWR DRY CLEANING FACILITY
MCRD PARRIS ISLAND, SOUTH CAROLINA

Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil
Exposure Point: Site 45

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Normal Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency Exposure		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Tetrachloroethene	mg/kg	2.3	NA	8		mg/kg	7.5	Max	(1)	N/A	N/A	N/A
Trichloroethene	mg/kg	0.07	NA	0.32	J	mg/kg	0.3	Max	(1)	N/A	N/A	N/A
cis-1,2-dichloroethene	mg/kg	0.13	NA	0.7	J	mg/kg	0.7	Max	(1)	N/A	N/A	N/A
Benzo(a)pyrene equivalents	mg/kg	0.12	NA	0.20		mg/kg	0.2	Max	(1)	N/A	N/A	N/A
Aluminum	mg/kg	6289	NA	9480		mg/kg	9480	Max	(1)	N/A	N/A	N/A
Arsenic	mg/kg	1.4	NA	2		mg/kg	2.1	Max	(1)	N/A	N/A	N/A

Notes:
(1) - An Insufficient number of samples were collected in order to evaluate statistics. Therefore, the maximum detected concentration is used for RME.

T-35

TABLE 3.2
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY
SITE 45 - FORMER MWR DRY CELANING FACILITY
MCRD PARRIS ISLAND, SOUTH CAROLINA

Scenario Timeframe: Current/Future
Medium: Surface/Subsurface Soil
Exposure Medium: Surface/Subsurface Soil
Exposure Point: Site 45

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Normal Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency Exposure		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Benzo(a)pyrene equivalents	mg/kg	0.32	0.78	4		mg/kg	4	Max	W - Test (1)	N/A	N/A	N/A
cis-1,2-dichloroethene	mg/kg	7	12	40		mg/kg	40	Max	W - Test (3)	N/A	N/A	N/A
Tetrachloroethene	mg/kg	504	1380	8000		mg/kg	8000	Max	W - Test (3)	N/A	N/A	N/A
Trichloroethene	mg/kg	8.59	21.65	120		mg/kg	120	Max	W - Test (3)	N/A	N/A	N/A
Aluminum	mg/kg	6289	7131	8505[4]		mg/kg	7130	95%UCL-N	W - Test (2)	N/A	N/A	N/A
Arsenic	mg/kg	1	2	2.1		mg/kg	2	95%UCL-T	W - Test	N/A	N/A	N/A

Notes:
For non-detects, 1/2 sample quantitation limit was used as a proxy concentration; for duplicate sample results, the average value was used in the calculation.
W - Test: Developed by Shapiro and Wilk, refer to Supplemental Guidance to RAGS: Calculating the Concentration Term, OSWER Directive 9285.7-081, May 1992.
Statistics: Maximum Detected Value (Max); 95% UCL of Normal Data (95% UCL-N); 95% UCL of Log-transformed Data (95% UCL-T); Mean of Log-transformed Data (Mean-T); Mean of Normal Data (Mean-N).
(1) - Shapiro-Wilk W Test is inconclusive and the data distribution is undefined. Therefore, the maximum detected concentration is used for RME.
(2) - Shapiro-Wilk W Test indicates data are normally distributed. Therefore, the 95% UCL of the normal data is used for RME.
(3) - Shapiro-Wilk W Test indicates the data are lognormally distributed. Therefore, the 95% UCL of the log-transformed data is used for RME.

TABLE 3.3
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY
SITE 45 - FORMER MWR DRY CLEANING FACILITY
MCRD PARRIS ISLAND, SOUTH CAROLINA

Scenario Timeframe: Current/Future
Medium: Groundwater - Surficial Aquifer
Exposure Medium: Direct Contact With Groundwater
Exposure Point: Site 45

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Normal Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency Exposure		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
1,1-Dichloroethene	ug/L	3	NA	4	J	ug/L	4	Max	(1)	N/A	N/A	N/A
Chlorodibromomethane	ug/L	4	NA	4	J	ug/L	4	Max	(1)	N/A	N/A	N/A
Tetrachloroethene	ug/L	2554	NA	10000		ug/L	10000	Max	(1)	N/A	N/A	N/A
Trans-1,2-dichloroethene	ug/L	81	NA	140		ug/L	140	Max	(1)	N/A	N/A	N/A
Trichloroethene	ug/L	2536	NA	10000		ug/L	10000	Max	(1)	N/A	N/A	N/A
Vinyl Chloride	ug/L	452	NA	710		ug/L	710	Max	(1)	N/A	N/A	N/A
cis-1,2-dichloroethene	ug/L	1201	NA	3400		ug/L	3400	Max	(1)	N/A	N/A	N/A

Notes:
(1) - An Insufficient number of samples were collected in order to evaluate statistics. Therefore, the maximum detected concentration is used for RME.

TABLE 3.4
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY
SITE 45 - FORMER MWR DRY CLEANING FACILITY
MCRD PARRIS ISLAND, SOUTH CAROLINA

Scenario Timeframe: Current/Future
Medium: Groundwater - Deep Aquifer
Exposure Medium: Direct Contact With Groundwater
Exposure Point: Site 45

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Normal Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency Exposure		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Chloroform	ug/L	0.8	NA	1	J	ug/L	1	Max	(1)	N/A	N/A	N/A
Tetrachloroethene	ug/L	2.8	NA	5	J	ug/L	5	Max	(1)	N/A	N/A	N/A
Trichloroethene	ug/L	1.4	NA	2	J	ug/L	2	Max	(1)	N/A	N/A	N/A

Notes:
(1) - An Insufficient number of samples were collected in order to evaluate statistics. Therefore, the maximum detected concentration is used for RME.

T-38

TABLE 4.1
VALUES USED FOR DAILY INTAKE CALCULATIONS
MCRD PARRIS ISLAND, SOUTH CAROLINA

Scenario Timeframe: Future
Medium: Surface Soil
Exposure Medium: Surface Soil
Exposure Point: Site 45
Receptor Population: Resident
Receptor Age: Adult

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Ingestion	CS	Chemical concentration in soil	mg/kg	Max or 95% UCL	EPA IV, 1995	N/A	N/A	Intake (mg/kg/day) =
	IR-S	Ingestion Rate	mg/day	100	EPA IV, 1995	N/A	N/A	$\frac{Cs \times IRS \times CF3 \times FI \times EF \times ED}{BW \times AT}$
	CF3	Conversion Factor 3	kg/mg	1.0E-06	--	N/A	N/A	
	FI	Fraction Ingested	unitless	1	EPA IV, 1995	N/A	N/A	
	EF	Exposure Frequency	days/year	350	EPA IV, 1995	N/A	N/A	
	ED	Exposure Duration	years	24	EPA IV, 1995	N/A	N/A	
	BW	Body Weight	kg	70	EPA, 1989	N/A	N/A	
	AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989	N/A	N/A	
	AT-N	Averaging Time (Non-Cancer)	days	8,760	EPA, 1989	N/A	N/A	
Dermal	CS	Chemical concentration in soil	mg/kg	Max or 95% UCL	EPA IV, 1995	N/A	N/A	Dermally Absorbed Dose (mg/kg/day) =
	CF3	Conversion Factor 3	kg/mg	1E-06	--	N/A	N/A	$\frac{Cs \times CF3 \times SA \times SSAF \times DABS \times EF \times ED}{BW \times AT}$
	SA	Skin Surface Available for Contact	cm2	5,700	EPA, 1997, 2001	N/A	N/A	
	SSAF	Soil to Skin Adherence Factor	mg/cm2/event	0.07	EPA, 1997, 2001	N/A	N/A	
	DABS	Absorption Factor	unitless	Chemical Specific	EPA IV, 1995	N/A	N/A	
	EF	Exposure Frequency	days/year	350	EPA IV, 1995	N/A	N/A	
	ED	Exposure Duration	years	24	EPA IV, 1995	N/A	N/A	
	BW	Body Weight	kg	70	EPA, 1989	N/A	N/A	
	AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989	N/A	N/A	
	AT-N	Averaging Time (Non-Cancer)	days	8,760	EPA, 1989	N/A	N/A	

Notes:

1 - Assumed head, hands, forearms, and lower legs exposed.

Sources:

EPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A.

EPA Region IV, 1995: Supplement Guidance to RAGS: Region 4 Bulletins.

EPA, 1997: Exposure Factors Handbook. EPA/600/P-95/002Fa

EPA, 2001: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Interim. EPA/540/R/99/005.

TABLE 4.2
VALUES USED FOR DAILY INTAKE CALCULATIONS
MCRD PARRIS ISLAND, SOUTH CAROLINA

Scenario Timeframe: Future
Medium: Surface Soil
Exposure Medium: Air
Exposure Point: Site 45
Receptor Population: Resident
Receptor Age: Adult

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Inhalation	CA	Chemical concentration in air	mg/m3	Calculated	EPA, 1996.	N/A	N/A	Intake (mg/kg/day) =
	Cs	Chemical concentration in soil	mg/kg	Max or 95% UCL	EPA IV, 1995	N/A	N/A	
	IR	Inhalation Rate	m3/hour	0.83	EPA IV, 1995	N/A	N/A	
	ET	Exposure Time	hours/day	24	EPA IV, 1995	N/A	N/A	$\frac{CA \times IR \times ET \times EF \times ED}{BW \times AT}$
	EF	Exposure Frequency	days/year	350	EPA IV, 1995	N/A	N/A	
	ED	Exposure Duration	years	24	EPA IV, 1995	N/A	N/A	
	BW	Body Weight	kg	70	EPA, 1989	N/A	N/A	$CA = \left(\frac{1}{PEF} + \frac{1}{VF}\right) \times Cs$
	AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989	N/A	N/A	
	AT-N	Averaging Time (Non-Cancer)	days	8,760	EPA, 1989	N/A	N/A	
	PEF	Particulate Emission Factor	m3/kg	2.91E+10	calculated	N/A	N/A	$PEF = \frac{Q/C \times 3600}{0.036 \times (1-V) \times (U_m/U_t)^3 \times F(x)}$
	VF	Volatilization Factor	m3/kg	Chemical-specific	EPA, 1996	N/A	N/A	
	Q/C	Inverse of mean concentration at center of source	g/m2-s per kg/m3	74.89	EPA, 1996 (1)	N/A	N/A	$F(x) = 0.18 \cdot (8x^3 + 12x) \cdot \exp(-x^2)$
	Ut	Equivalent threshold of wind velocity at 7m.	m/sec	11.32	EPA, 1996	N/A	N/A	
	Um	Mean annual windspeed	m/sec	3.6	EPA, 1985 (2)	N/A	N/A	
	V	Fraction of vegetative cover	unitless	0.5	EPA, 1996	N/A	N/A	$x = 0.886 \cdot Ut / Um$
	F(x)	Function dependent of Um/Ut	unitless	0.016	EPA, 1985, 1996	N/A	N/A	

Notes:

(1) - Site specific value for Raleigh-Durham obtained from EPA, 1996.

(2) - Site specific value for Greensboro/Charlotte obtained from EPA, 1985.

Sources:

EPA, 1985: Rapid Assessment of Exposure to Particulate Emissions from Surface Contamination Sites. PB85-192219.

EPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

EPA Region IV, 1995: Supplement Guidance to RAGS: Region 4 Bulletins.

EPA, 1996: Soil Screening Level Guidance.

T1-40

TABLE 4.3
VALUES USED FOR DAILY INTAKE CALCULATIONS
MCRD PARRIS ISLAND, SOUTH CAROLINA

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater
Exposure Point: Site 45
Receptor Population: Resident
Receptor Age: Adult

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CTE Value	CTE Rationale/ Reference	Intake Equation/ Model Name
Ingestion	CGW	Chemical Concentration in Groundwater	ug/L	Average Conc.	EPA IV, 1995	N/A	N/A	Chronic Daily Intake (CDI) (mg/kg/day) =
	CF	Conversion Factor	mg/ug	0.001	--	N/A	N/A	
	IR-GW	Ingestion Rate of Groundwater	L/day	2	EPA IV, 1995	N/A	N/A	$\frac{CW \times CF \times IRGW \times EF \times ED}{BW \times AT}$
	EF	Exposure Frequency	days/year	350	EPA IV, 1995	N/A	N/A	
	ED	Exposure Duration	years	24	EPA IV, 1995	N/A	N/A	
	BW	Body Weight	kg	70	EPA, 1989	N/A	N/A	
	AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989	N/A	N/A	
	AT-N	Averaging Time (Non-Cancer)	days	8,760	EPA, 1989	N/A	N/A	
Dermal	Daevent	Dermally Absorbed Dose per Event	mg/cm2-event	Calculated	EPA, 2001	N/A	N/A	Dermally Absorbed Dose (mg/kg/day)
	SA	Skin Surface Available for Contact	cm2	18,000	EPA, 1997, 2001	N/A	N/A	$= \frac{DAevent \times EV \times EF \times ED \times SA}{BW \times AT}$
	EV	Event Frequency	events/day	1	EPA, 2001	N/A	N/A	
	ET	Exposure Time	hours/day	0.25	EPA, 2001	N/A	N/A	
	EF	Exposure Frequency	days/year	350	EPA IV, 1995	N/A	N/A	
	ED	Exposure Duration	years	24	EPA, 1989	N/A	N/A	DAevent calculated according to EPA, 1998.
	BW	Body Weight	kg	70	EPA, 1989	N/A	N/A	
	AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989	N/A	N/A	
	AT-N	Averaging Time (Non-Cancer)	days	8,760	EPA, 1989	N/A	N/A	

Sources:

EPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

EPA Region IV, 1995: Supplement Guidance to RAGS: Region 4 Bulletins.

EPA, 1997: Exposure Factors Handbook. EPA/600/P-95/002Fa

EPA, 2001: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Interim. EPA/540/R/99/005.

TABLE 4.4
VALUES USED FOR DAILY INTAKE CALCULATIONS
MCRD PARRIS ISLAND, SOUTH CAROLINA

Scenario Timeframe: Future
Medium: Surface Soil
Exposure Medium: Surface Soil
Exposure Point: Site 45
Receptor Population: Resident
Receptor Age: Child

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Ingestion	CS	Chemical concentration in soil	mg/kg	Max or 95% UCL	EPA IV, 1995	N/A	N/A	Intake (mg/kg/day) =
	IR-S	Ingestion Rate	mg/day	200	EPA IV, 1995	N/A	N/A	$\frac{Cs \times IRS \times CF3 \times FI \times EF \times ED}{BW \times AT}$
	CF3	Conversion Factor 3	kg/mg	1.0E-06	--	N/A	N/A	
	FI	Fraction Ingested	unitless	1	EPA IV, 1995	N/A	N/A	
	EF	Exposure Frequency	days/year	350	EPA IV, 1995	N/A	N/A	
	ED	Exposure Duration	years	6	EPA IV, 1995	N/A	N/A	
	BW	Body Weight	kg	15	EPA, 1989	N/A	N/A	
	AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989	N/A	N/A	
	AT-N	Averaging Time (Non-Cancer)	days	2,190	EPA, 1989	N/A	N/A	
Dermal	CS	Chemical concentration in soil	mg/kg	Max or 95% UCL	EPA IV, 1995	N/A	N/A	Dermally Absorbed Dose (mg/kg/day) =
	CF3	Conversion Factor 3	kg/mg	1E-06	--	N/A	N/A	$\frac{Cs \times CF3 \times SA \times SSAF \times DABS \times EF \times ED}{BW \times AT}$
	SA	Skin Surface Available for Contact	cm2	2,800	EPA, 1997, 2001	N/A	N/A	
	SSAF	Soil to Skin Adherence Factor	mg/cm2/event	0.2	EPA, 1997, 2001	N/A	N/A	
	DABS	Absorption Factor	unitless	Chemical Specific	EPA IV, 1995	N/A	N/A	
	EF	Exposure Frequency	days/year	350	EPA IV, 1995	N/A	N/A	
	ED	Exposure Duration	years	6	EPA IV, 1995	N/A	N/A	
	BW	Body Weight	kg	15	EPA, 1989	N/A	N/A	
	AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989	N/A	N/A	
	AT-N	Averaging Time (Non-Cancer)	days	2,190	EPA, 1989	N/A	N/A	

T1-I 90

Sources:

1 - Assumed face, hands, forearms, lower legs, and feet exposed.

EPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

EPA, 1991: Risk Assessment Guidance for Superfund - Supplemental Guidance- Standard Default Exposure Factors Interim Final.

EPA Region IV, 1995: Supplement Guidance to RAGS: Region 4 Bulletins.

EPA, 1997: Exposure Factors Handbook. EPA/600/8-95/002FA.

EPA, 2001: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Interim. EPA/540/R/99/005.

TABLE 4.5
VALUES USED FOR DAILY INTAKE CALCULATIONS
MCRD PARRIS ISLAND, SOUTH CAROLINA

Scenario Timeframe: Future
Medium: Surface Soil
Exposure Medium: Air
Exposure Point: Site 45
Receptor Population: Resident
Receptor Age: Child

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Inhalation	CA	Chemical concentration in air	mg/m3	Calculated	EPA, 1996.	N/A	N/A	Intake (mg/kg/day) =
	Cs	Chemical concentration in soil	mg/kg	Max or 95% UCL	EPA IV, 1995	N/A	N/A	
	IR	Inhalation Rate	m3/hour	0.625	EPA IV, 1995	N/A	N/A	
	ET	Exposure Time	hours/day	24	EPA IV, 1995	N/A	N/A	$\frac{CA \times IR \times ET \times EF \times ED}{BW \times AT}$
	EF	Exposure Frequency	days/year	350	EPA IV, 1995	N/A	N/A	
	ED	Exposure Duration	years	6	EPA IV, 1995	N/A	N/A	
	BW	Body Weight	kg	15	EPA, 1989	N/A	N/A	$CA = \left(\frac{1}{PEF} + \frac{1}{VF}\right) \times Cs$
	AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989	N/A	N/A	
	AT-N	Averaging Time (Non-Cancer)	days	2,190	EPA, 1989	N/A	N/A	
	PEF	Particulate Emission Factor	m3/kg	2.91E+10	calculated	N/A	N/A	$PEF = \frac{Q/C \times 3600}{0.036 \times (1-V) \times (U_m/U_t)^3 \times F(x)}$
	VF	Volatilization Factor	m3/kg	Chemical-specific	EPA, 1996	N/A	N/A	
	Q/C	Inverse of mean concentration at	g/m2-s per	74.89	EPA, 1996 (1)	N/A	N/A	
		center of source	kg/m3			N/A	N/A	$F(x) = 0.18 \cdot (8x^3 + 12x) \cdot \exp(-x^2)$
	Ut	Equivalent threshold of wind velocity at 7m.	m/sec	11.32	EPA, 1996	N/A	N/A	
	Um	Mean annual windspeed	m/sec	3.6	EPA, 1985 (2)	N/A	N/A	
	V	Fraction of vegetative cover	unitless	0.5	EPA, 1996	N/A	N/A	$x = 0.886 \cdot Ut / Um$
	F(x)	Function dependent of Um/Ut	unitless	0.016	EPA, 1985, 1996	N/A	N/A	

Notes:

(1) - Site specific value for Raleigh-Durham obtained from EPA, 1996.

(2) - Site specific value for Greensboro/Charlotte obtained from EPA, 1985.

Sources:

EPA, 1985: Rapid Assessment of Exposure to Particulate Emissions from Surface Contamination Sites. PB85-192219.

EPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

EPA Region IV, 1995: Supplement Guidance to RAGS: Region 4 Bulletins.

EPA, 1996: Soil Screening Level Guidance.

T4-3W

TABLE 4.6
VALUES USED FOR DAILY INTAKE CALCULATIONS
MCRD PARRIS ISLAND, SOUTH CAROLINA
PAGE 1 OF 1

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater
Exposure Point: Site 45
Receptor Population: Resident
Receptor Age: Child

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CTE Value	CTE Rationale/ Reference	Intake Equation/ Model Name
Ingestion	CGW	Chemical Concentration in Groundwater	ug/L	Average Conc.	EPA IV, 1995	N/A	N/A	Chronic Daily Intake (CDI) (mg/kg/day) =
	CF	Conversion Factor	mg/ug	0.001	--	N/A	N/A	
	IR-GW	Ingestion Rate of Groundwater	L/day	1	EPA IV, 1995	N/A	N/A	$\frac{CW \times CF \times IRGW \times EF \times ED}{BW \times AT}$
	EF	Exposure Frequency	days/year	350	EPA IV, 1995	N/A	N/A	
	ED	Exposure Duration	years	6	EPA IV, 1995	N/A	N/A	
	BW	Body Weight	kg	15	EPA, 1989	N/A	N/A	
	AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989	N/A	N/A	
	AT-N	Averaging Time (Non-Cancer)	days	2,190	EPA, 1989	N/A	N/A	
Dermal	Daevent	Dermally Absorbed Dose per Event	mg/cm2-event	Calculated	EPA, 2001	N/A	N/A	Dermally Absorbed Dose (mg/kg/day)
	SA	Skin Surface Available for Contact	cm2	6,600	EPA, 1997, 2001	N/A	N/A	$= \frac{DAevent \times EV \times EF \times ED \times SA}{BW \times AT}$
	EV	Event Frequency	events/day	1	EPA, 2001	N/A	N/A	
	ET	Exposure Time	hours/day	0.33	EPA, 2001	N/A	N/A	
	EF	Exposure Frequency	days/year	350	EPA IV, 1995	N/A	N/A	
	ED	Exposure Duration	years	6	EPA IV, 1995	N/A	N/A	
	BW	Body Weight	kg	15	EPA, 1989	N/A	N/A	
	AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989	N/A	N/A	
	AT-N	Averaging Time (Non-Cancer)	days	2,190	EPA, 1989	N/A	N/A	

Sources:

EPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

EPA, 1997: Exposure Factors Handbook. EPA/600/P-95/002Fa

EPA Region IV, 1995: Supplement Guidance to RAGS: Region 4 Bulletins.

EPA, 2001: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Interim. EPA/540/R/99/005.

TABLE 4.7
VALUES USED FOR DAILY INTAKE CALCULATIONS
MCRD PARRIS ISLAND, SOUTH CAROLINA
PAGE 1 OF 1

Scenario Timeframe: Future
Medium: Surface/Subsurface Soil
Exposure Medium: Surface/Subsurface Soil
Exposure Point: Site 45
Receptor Population: Construction Workers
Receptor Age: Adult

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Ingestion	CS	Chemical concentration in soil	mg/kg	Max or 95% UCL	EPA IV, 1995	N/A	N/A	Intake (mg/kg/day) =
	IR-S	Ingestion Rate	mg/day	480	EPA IV, 1995	N/A	N/A	$\frac{Cs \times IRS \times CF3 \times FI \times EF \times ED}{BW \times AT}$
	CF3	Conversion Factor 3	kg/mg	1.0E-06	- -	N/A	N/A	
	FI	Fraction Ingested	unitless	1	EPA IV, 1995	N/A	N/A	
	EF	Exposure Frequency	days/year	90	(1)	N/A	N/A	
	ED	Exposure Duration	years	1	(1)	N/A	N/A	
	BW	Body Weight	kg	70	EPA, 1989	N/A	N/A	
	AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989	N/A	N/A	
	AT-N	Averaging Time (Non-Cancer)	days	365	EPA, 1989	N/A	N/A	
Dermal	CS	Chemical concentration in soil	mg/kg	Max or 95% UCL	EPA IV, 1995	N/A	N/A	Dermally Absorbed Dose (mg/kg/day) =
	CF3	Conversion Factor 3	kg/mg	1.0E-06	- -	N/A	N/A	$\frac{Cs \times CF3 \times SA \times SSAF \times DABS \times EF \times ED}{BW \times AT}$
	SA	Skin Surface Available for Contact	cm2	3,300	EPA, 1997, 2001	N/A	N/A	
	SSAF	Soil to Skin Adherence Factor	mg/cm2/event	0.2	EPA, 1997, 2001	N/A	N/A	
	DABS	Absorption Factor	unitless	Chemical Specific	EPA IV, 1995	N/A	N/A	
	EF	Exposure Frequency	days/year	90	(1)	N/A	N/A	
	ED	Exposure Duration	years	1	(1)	N/A	N/A	
	BW	Body Weight	kg	70	EPA, 1989	N/A	N/A	
	AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989	N/A	N/A	
	AT-N	Averaging Time (Non-Cancer)	days	365	EPA, 1989	N/A	N/A	

T1-5

Notes:
(1) - Assumed that constructions activties occur 90 days a year over a one year period.

Sources:
EPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A.
EPA Region IV, 1995: Supplement Guidance to RAGS: Region 4 Bulletins. Exposure Assessment Human Health Risk Assessment Bulletin No. 3.
EPA, 1997: Exposure Factors Handbook. EPA/600/8-95/002FA.
EPA, 2001a: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Interim. EPA/540/R/99/005.

TABLE 4.8
VALUES USED FOR DAILY INTAKE CALCULATIONS
MCRD PARRIS ISLAND, SOUTH CAROLINA

Scenario Timeframe: Future
Medium: Surface/Subsurface Soil
Exposure Medium: Air
Exposure Point: Site 45
Receptor Population: Construction Worker
Receptor Age: Adult

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Inhalation	CA	Chemical concentration in air	mg/m3	Calculated	EPA, 1996.	N/A	N/A	Intake (mg/kg/day) =
	Cs	Chemical concentration in soil	mg/kg	Max or 95% UCL	EPA IV, 1995	N/A	N/A	$\frac{CA \times IR \times ET \times EF \times ED}{BW \times AT}$
	IR	Inhalation Rate	m3/hour	2.5	EPA IV, 1995	N/A	N/A	
	ET	Exposure Time	hours/day	8	(1)	N/A	N/A	
	EF	Exposure Frequency	days/year	90	(1)	N/A	N/A	
	ED	Exposure Duration	years	1	(1)	N/A	N/A	$CA = \left(\frac{1}{PEF} + \frac{1}{VF}\right) \times Cs$
	BW	Body Weight	kg	70	EPA, 1989	N/A	N/A	
	AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989	N/A	N/A	
	AT-N	Averaging Time (Non-Cancer)	days	365	EPA, 1989	N/A	N/A	$PEF = \frac{Q/C \times 3600}{0.036 \times (1-V) \times (U_m/U_t)^3 \times F(x)}$
	PEF	Particulate Emission Factor	m3/kg	2.91E+10	calculated	N/A	N/A	
	VF	Volatilization Factor	m3/kg	Chemical-specific	EPA, 1996	N/A	N/A	
	Q/C	Inverse of mean concentration at center of source	g/m2-s per kg/m3	74.89	EPA, 1996 (2)	N/A	N/A	$F(x) = 0.18 \cdot (8x^3 + 12x) \cdot \exp(-x^2)$
	Ut	Equivalent threshold of wind velocity at 7m.	m/sec	11.32	EPA, 1996	N/A	N/A	
	Um	Mean annual windspeed	m/sec	3.6	EPA, 1985 (3)	N/A	N/A	
	V	Fraction of vegetative cover	unitless	0.5	EPA, 1996	N/A	N/A	$x = 0.886 \cdot Ut / Um$
	F(x)	Function dependent of Um/Ut	unitless	0.016	EPA, 1985, 1996	N/A	N/A	

Notes:

(1) - Length of typical work day. Assumed that constructions activties occur 90 days a year over a one year period.

(2) - Site specific value for Charleston, South Carolina obtained from EPA, 1996.

(3) - Site specific value for Savannah, Georgia obtained from EPA, 1985.

Sources:

EPA, 1985: Rapid Assessment of Exposure to Particulate Emissions from Surface Contamination Sites. PB85-192219.

EPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

EPA Region IV, 1995: Supplement Guidance to RAGS: Region 4 Bulletins.

EPA, 1996: Soil Screening Level Guidance.

TABLE 4.9
VALUES USED FOR DAILY INTAKE CALCULATIONS
MCRD PARRIS ISLAND, SOUTH CAROLINA

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater
Exposure Point: Site 45
Receptor Population: Construction Workers
Receptor Age: Adult

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Dermal	DAevent	Absorbed dose per event	mg/cm2-event	Calculated	EPA, 2001	N/A	N/A	Dermally Absorbed Dose (mg/kg/day)
	SA	Skin Surface Available for Contact	cm2	2,100	(1)	N/A	N/A	$= \frac{DAevent \times EV \times EF \times ED \times SA}{BW \times AT}$
	EV	Event Frequency	events/day	1	(2)	N/A	N/A	
	ET	Exposure Time	hours/event	8	(2)	N/A	N/A	
	EF	Exposure Frequency	days/year	21	(2)	N/A	N/A	
	ED	Exposure Duration	years	1	(2)	N/A	N/A	See text for calculation of DAevent.
	BW	Body Weight	kg	70	EPA, 1989	N/A	N/A	
	AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989	N/A	N/A	
	AT-N	Averaging Time (Non-Cancer)	days	365	EPA, 1989	N/A	N/A	

Sources:

Notes:

(1) - Assumes forearms and hands are exposed (EPA, 1997, 2001).

(2) - It is assumed that a construction worker is exposed to groundwater during excavations 21 days a year for 8 hours a day for a one year construction scenario.

Sources:

EPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. OERR. EPA/540/1-89/002.

EPA, 2001: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Interim. EPA/540/R/99/005.

TABLE 4.10
VALUES USED FOR DAILY INTAKE CALCULATIONS
MCRD PARRIS ISLAND, SOUTH CAROLINA

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Air
Exposure Point: Site 45
Receptor Population: Construction Worker
Receptor Age: Adult

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Inhalation	CA	Chemical concentration in air	mg/m3	Calculated	ASTM E50.04.	N/A	N/A	Intake (mg/kg/day) =
	CW	Chemical concentration in water.	ug/L	Average Conc.	EPA IV, 1995	N/A	N/A	
	CF	Conversion Factor	ug/mg	1000	--	N/A	N/A	
	IR	Inhalation Rate	m3/hour	2.5	EPA IV, 1995	N/A	N/A	$\frac{CA \times IR \times ET \times EF \times ED}{BW \times AT}$
	ET	Exposure Time	hours/day	8	(1)	N/A	N/A	
	EF	Exposure Frequency	days/year	21	(1)	N/A	N/A	
	ED	Exposure Duration	years	1	(1)	N/A	N/A	
	BW	Body Weight	kg	70	EPA, 1989	N/A	N/A	CA = CW x CF x VF
	AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989	N/A	N/A	
	AT-N	Averaging Time (Non-Cancer)	days	365	EPA, 1989	N/A	N/A	
	VF	Volatilization Factor	(mg/m3)/(mg/L)	Calculated	ASTM E50.04.	N/A	N/A	

Notes:

(1) - It is assumed that a construction worker is exposed to groundwater during excavations 21 days a year for 8 hours a day for a one year construction scenario.

EPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

EPA Region IV, 1995: Supplement Guidance to RAGS: Region 4 Bulletins.

ASTM, 1997: Standard Guide for Risk-Based Corrective Action, E50.04.

TABLE 4.11
VALUES USED FOR DAILY INTAKE CALCULATIONS
MCRD PARRIS ISLAND, SOUTH CAROLINA

Scenario Timeframe: Future
Medium: Surface Soil
Exposure Medium: Surface Soil
Exposure Point: Site 45
Receptor Population: Commercial Workers
Receptor Age: Adult

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Ingestion	CS	Chemical concentration in soil	mg/kg	Max or 95% UCL	EPA IV, 1995	N/A	N/A	Intake (mg/kg/day) =
	IR-S	Ingestion Rate	mg/day	50	EPA IV, 1995	N/A	N/A	$\frac{Cs \times IRS \times CF3 \times FI \times EF \times ED}{BW \times AT}$
	CF3	Conversion Factor 3	kg/mg	1.0E-06	--	N/A	N/A	
	FI	Fraction Ingested	unitless	1	EPA IV, 1995	N/A	N/A	
	EF	Exposure Frequency	days/year	250	EPA IV, 1995	N/A	N/A	
	ED	Exposure Duration	years	25	EPA IV, 1995	N/A	N/A	
	BW	Body Weight	kg	70	EPA, 1989	N/A	N/A	
	AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989	N/A	N/A	
	AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989	N/A	N/A	
Dermal	CS	Chemical concentration in soil	mg/kg	Max or 95% UCL	EPA IV, 1995	N/A	N/A	Dermally Absorbed Dose (mg/kg/day) =
	CF3	Conversion Factor 3	kg/mg	1.0E-06	--	N/A	N/A	$\frac{Cs \times CF3 \times SA \times SSAF \times DABS \times EF \times ED}{BW \times AT}$
	SA	Skin Surface Available for Contact	cm2	3,300	EPA, 1997, 2001	N/A	N/A	
	SSAF	Soil to Skin Adherence Factor	mg/cm2/event	0.2	EPA, 1997, 2001	N/A	N/A	
	DABS	Absorption Factor	unitless	Chemical Specific	EPA IV, 1995	N/A	N/A	
	EF	Exposure Frequency	days/year	250	EPA IV, 1995	N/A	N/A	
	ED	Exposure Duration	years	25	EPA IV, 1995	N/A	N/A	
	BW	Body Weight	kg	70	EPA, 1989	N/A	N/A	
	AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989	N/A	N/A	
	AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989	N/A	N/A	

Notes:

1 - Assumes face, forearms, and hands are exposed.

Sources:

EPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

EPA Region IV, 1995: Supplement Guidance to RAGS: Region 4 Bulletins.

EPA, 1997: Exposure Factors Handbook. EPA/600/P-95/002Fa.

EPA, 2001: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Interim. EPA/540/R/99/005.

TABLE 4.12
VALUES USED FOR DAILY INTAKE CALCULATIONS
MCRD PARRIS ISLAND, SOUTH CAROLINA

Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil
Exposure Point: Site 45
Receptor Population: Maintenance Workers
Receptor Age: Adult

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Ingestion	CS	Chemical concentration in soil	mg/kg	See Text	See Text	N/A	N/A	Intake (mg/kg/day) =
	IR-S	Ingestion Rate	mg/day	100	EPA IV, 1995	N/A	N/A	$\frac{Cs \times IRS \times CF3 \times FI \times EF \times ED}{BW \times AT}$
	CF3	Conversion Factor 3	kg/mg	1.0E-06	- -	N/A	N/A	
	FI	Fraction Ingested	unitless	1	EPA IV, 1995	N/A	N/A	
	EF	Exposure Frequency	days/year	50	(1)	N/A	N/A	
	ED	Exposure Duration	years	25	EPA, 1989	N/A	N/A	
	BW	Body Weight	kg	70	EPA, 1989	N/A	N/A	
	AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989	N/A	N/A	
	AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989	N/A	N/A	
Dermal	CS	Chemical concentration in soil	mg/kg	See Text	See Text	N/A	N/A	Dermally Absorbed Dose (mg/kg/day) =
	CF3	Conversion Factor 3	kg/mg	1.0E-06	- -	N/A	N/A	$\frac{Cs \times CF3 \times SA \times SSAF \times DABS \times EF \times ED}{BW \times AT}$
	SA	Skin Surface Available for Contact	cm2	3,300	EPA, 1997, 2001	N/A	N/A	
	SSAF	Soil to Skin Adherence Factor	mg/cm2/event	0.2	EPA, 1997, 2001	N/A	N/A	
	DABS	Absorption Factor	unitless	See Text	See Text	N/A	N/A	
	EF	Exposure Frequency	days/year	50	(1)	N/A	N/A	
	ED	Exposure Duration	years	25	EPA, 1989	N/A	N/A	
	BW	Body Weight	kg	70	EPA, 1989	N/A	N/A	
	AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989	N/A	N/A	
	AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989	N/A	N/A	

Notes:
(1) - Assume one day a week or 50 days/year.

Sources:
EPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. OERR. EPA/540/1-89/002.
EPA Region IV, 1995: Supplement Guidance to RAGS: Region 4 Bulletins.
EPA, 1997: Exposure Factors Handbook. EPA/600/8-95/002FA.
EPA, 2001: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Interim. EPA/540/R/99/005.

TABLE 4.13
VALUES USED FOR DAILY INTAKE CALCULATIONS
MCRD PARRIS ISLAND, SOUTH CAROLINA

Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil
Exposure Point: Site 45
Receptor Population: Visitors
Receptor Age: Adult

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Ingestion	CS	Chemical concentration in soil	mg/kg	Max or 95% UCL	EPA IV, 1995	NA	NA	Intake (mg/kg/day) =
	IR-S	Ingestion Rate	mg/day	50	EPA IV, 1995	NA	NA	$\frac{Cs \times IRS \times CF3 \times FI \times EF \times ED}{BW \times AT}$
	CF3	Conversion Factor 3	kg/mg	1.0E-06	- -	NA	NA	
	FI	Fraction Ingested	unitless	1	EPA IV, 1995	NA	NA	
	EF	Exposure Frequency	days/year	50	(1)	NA	NA	
	ED	Exposure Duration	years	25	(1)	NA	NA	
	BW	Body Weight	kg	70	EPA, 1997	NA	NA	
	AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989	NA	NA	
	AT-N	Averaging Time (Non-Cancer)	days	9,125	EPA, 1989	NA	NA	
Dermal	CS	Chemical concentration in soil	mg/kg	Max or 95% UCL	EPA IV, 1995	NA	NA	Dermally Absorbed Dose (mg/kg/day) =
	CF3	Conversion Factor 3	kg/mg	1.0E-06	- -	NA	NA	$\frac{Cs \times CF3 \times SA \times SSAF \times DABS \times EF \times ED}{BW \times AT}$
	SA	Skin Surface Available for Contact	cm2	3,820	(2)	NA	NA	
	SSAF	Soil to Skin Adherence Factor	mg/cm2/event	0.2	EPA, 1997	NA	NA	
	DABS	Absorption Factor	unitless	Chemical Specific	EPA IV, 1995	NA	NA	
	EF	Exposure Frequency	days/year	25	(1)	NA	NA	
	ED	Exposure Duration	years	10	(1)	NA	NA	
	BW	Body Weight	kg	70	EPA, 1997	NA	NA	
	AT-C	Averaging Time (Cancer)	days	25,550	EPA, 1989	NA	NA	
	AT-N	Averaging Time (Non-Cancer)	days	3,650	EPA, 1989	NA	NA	

Notes:
(1) - Professional judgement - assumes an adult visits the site approximately one day a week.
(2) - Assume 25 percent of total body surface area is available for contact.
Sources:
EPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. OERR. EPA/540/1-89/002.
EPA Region IV, 1995: Supplement Guidance to RAGS: Region 4 Bulletins. Exposure Assessment Human Health Risk Assessment Bulletin No. 3.
EPA, 1997: Exposure Factors Handbook, EPA/600/P-95/002Fa.

T-51

TABLE 5.1
NON-CANCER TOXICITY DATA - ORAL/DERMAL
SITE 45 - FORMER MWR DRY CLEANING FACILITY
MCRD PARRIS ISLAND, SOUTH CAROLINA
PAGE 1 OF 1

Chemical of Potential Concern	Chronic/ Subchronic	Oral RfD Value	Oral RfD Units	Oral to Dermal Adjustment Factor (1)	Adjusted Dermal RfD (2)	Units	Primary Target Organ	Combined Uncertainty/Modifying Factors	Sources of RfD: Target Organ	Dates of RfD: Target Organ (3) (MM/DD/YY)
Volatile Organic Compounds										
1,1-Dichloroethene	Chronic	9.0E-03	mg/kg/day	100%	9.0E-03	mg/kg/day	Liver	1000/1	IRIS	04/02/02
Cis-1,2-Dichloroethene	Chronic	1.0E-02	mg/kg/day	100%	1.0E-02	mg/kg/day	Blood	3000/1	HEAST	7/97
Chlorodibromomethane	Chronic	2.0E-02	mg/kg/day	60%	1.2E-02	mg/kg/day	Liver	1000/1	IRIS	04/02/02
Chloroform	Chronic	1.0E-02	mg/kg/day	20%	2.0E-03	mg/kg/day	Liver	100/1	IRIS	04/02/02
Tetrachloroethene	Chronic	1.0E-02	mg/kg/day	100%	1.0E-02	mg/kg/day	Liver	1000/1	IRIS	04/02/02
Trichloroethene	Chronic	6.0E-03	mg/kg/day	15%	9.0E-04	mg/kg/day	Liver	NA	EPA 9	11/01/00
Semivolatile Organic Compounds										
Benzo(a)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics										
Aluminum	Chronic	1.0E+00	mg/kg/day	10%	1.0E-01	mg/kg/day	Body Weight	NA	EPA 9	11/01/00
Arsenic	Chronic	3.0E-04	mg/kg/day	41%	1.2E-04	mg/kg/day	Skin, CVS	3/1	IRIS	04/02/02

Notes:
(1) - Oakridge National Laboratories
(2) - RfDdermal = RfDoral x Oral to Dermal Adjustment Factor
(3) For IRIS values date that IRIS was searched.
For HEAST values, the date of HEAST.
FOR EPA 9, date of PRG Table.

Definitions:

CVS = Cardiovascular System
NA = Not Applicable
IRIS = Integrated Risk Information System
HEAST= Health Effects Assessment Summary Tables
EPA 9 = USEPA Region 9 Preliminary Remediation Goals Table, November 1, 2000.

T-5.2

TABLE 5.2
NON-CANCER TOXICITY DATA - INHALATION
SITE 45 - FORMER MWR DRY CLEANING FACILITY
MCRD PARRIS ISLAND, SOUTH CAROLINA

Chemical of Potential Concern	Chronic/ Subchronic	Value Inhalation RfC	Units	Adjusted Inhalation RfD (1)	Units	Primary Target Organ	Combined Uncertainty/Modifying Factors	Sources of RfC:RfD: Target Organ	Dates (2) (MM/DD/YY)
Volatile Organic Compounds									
1,1-Dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorodibromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	Chronic	NA	NA	8.6E-05	mg/kg/day	Liver	NA	EPA 9	11/01/00
Tetrachloroethene	Chronic	NA	NA	1.1E-01	mg/kg-day	NA	NA	EPA 9	11/01/00
Trichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds									
Benzo(a)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics									
Aluminum	Chronic	NA	NA	1.4E-03	mg/kg-day	NA	NA	EPA 9	11/01/00
Arsenic	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
(1) Equation used for derivation provided in text.
(2) For IRIS values, provide the date IRIS was searched.
For HEAST values, provide the date of HEAST.
For NCEA values, provide the date of the article provided by NCEA.

Definitions:
N/A = Not Applicable
IRIS = Integrated Risk Information System
HEAST= Health Effects Assessment Summary Tables
EPA 9 = USEPA Region 9 Preliminary Remediation Goals Table, November 1, 2000.

TABLE 6.1
CANCER TOXICITY DATA - ORAL/DERMAL
SITE 45 - FORMER MWR DRY CLEANING FACILITY
MCRD PARRIS ISLAND, SOUTH CAROLINA
PAGE 1 OF 1

Chemical of Potential Concern	Oral Cancer Slope Factor	Oral to Dermal Adjustment Factor (1)	Adjusted Dermal Cancer Slope Factor (2)	Units	Weight of Evidence/ Cancer Guideline Description	Source	Date (3) (MM/DD/YY)
Volatile Organic Compounds							
1,1-Dichloroethene	6.0E-01	100%	6.0E-01	$(mg/kg\text{-}day)^{-1}$	C	IRIS	04/02/02
cis-1,2-Dichloroethene	NA	NA	NA	NA	D	IRIS	04/02/02
Chlorodibromomethane	8.4E-02	60%	1.4E-01	$(mg/kg\text{-}day)^{-1}$	C	IRIS	04/02/02
Chloroform	NA	NA	NA	NA	B2	IRIS	04/02/02
Tetrachloroethene	5.2E-02	100%	5.2E-02	$(mg/kg\text{-}day)^{-1}$	NA	EPA 9	11/1/00
Trichloroethene	1.1E-02	15%	7.3E-02	$(mg/kg\text{-}day)^{-1}$	NA	EPA 9	11/1/00
Semivolatile Organic Compounds							
Benzo(a)pyrene	7.3E+00	31%	2.4E+01	$(mg/kg\text{-}day)^{-1}$	B2	IRIS	04/02/02
Inorganics							
Aluminum	NA	NA	NA	NA	NA	NA	NA
Arsenic	1.5E+00	41%	3.7E+00	$(mg/kg\text{-}day)^{-1}$	A	IRIS	04/02/02

Notes:
(1) - Oakridge National Laboratories
(2) - CSFdermal = CSForal/Oral to Dermal Adjustment Factor.
(3) - For IRIS values, the date IRIS was searched.
For HEAST values, the date of HEAST.

EPA Group:
A - Human carcinogen
B1 - Probable human carcinogen - indicates that limited human data are available
B2 - Probable human carcinogen - indicates sufficient evidence in animals and inadequate or no evidence in humans
C - Possible human carcinogen
D - Not classifiable as a human carcinogen
E - Evidence of noncarcinogenicity

Definitions:
IRIS = Integrated Risk Information System
HEAST= Health Effects Assessment Summary Tables
EPA 9 = USEPA Region 9 Preliminary Remediation Goals Table, November 1, 2000.
NA = Not Available

TABLE 6-2
CANCER TOXICITY DATA - INHALATION
SITE 45 - FORMER MWR DRY CLEANING FACILITY
MCRD PARRIS ISLAND, SOUTH CAROLINA
PAGE 1 OF 1

Chemical of Potential Concern	Unit Risk	Units	Adjustment	Inhalation Cancer Slope Factor	Units	Weight of Evidence/ Cancer Guideline Description	Source	Date (1) (MM/DD/YY)
Volatile Organic Compounds								
1,1-Dichloroethene	5.0E-02	$(mg/m^3)^{-1}$	3.5	1.8E-01	$(mg/kg\text{-}day)^{-1}$	C	IRIS	04/02/02
cis-1,2-Dichloroethene	NA	NA	NA	NA	NA	D	IRIS	04/02/02
Chlorodibromomethane	NA	NA	NA	NA	NA	C	IRIS	04/02/02
Chloroform	2.3E-02	$(mg/m^3)^{-1}$	3.5	8.1E-02	$(mg/kg\text{-}day)^{-1}$	B2	IRIS	04/02/02
Tetrachloroethene	NA	NA	NA	2.0E-03	$(mg/kg\text{-}day)^{-1}$	NA	EPA 9	11/01/00
Trichloroethene	NA	NA	NA	6.0E-03	$(mg/kg\text{-}day)^{-1}$	NA	EPA 9	11/01/00
Semivolatile Organic Compounds								
Benzo(a)pyrene	NA	NA	NA	3.1E+00	$(mg/kg\text{-}day)^{-1}$	B2	EPA 4 / IRIS[(2)]	11//95, 04/02/02
Inorganics								
Aluminum	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	4.3E+00	$(mg/m^3)^{-1}$	3.5	1.5E+01	$(mg/kg\text{-}day)^{-1}$	A	IRIS	04/02/02

Notes:
(1) For IRIS values, the date IRIS was searched.
For HEAST values, the date of HEAST.
(2) - Inhalation CSF from EPA IV, Cancer Guideline Description from IRIS.

Definitions:
IRIS = Integrated Risk Information System
HEAST= Health Effects Assessment Summary Tables
EPA 9 = USEPA Region 9 Preliminary Remediation Goals Table, November 1, 2000.
NA = Not Available

EPA Group:
A - Human carcinogen
B1 - Probable human carcinogen - indicates that limited human data are available
B2 - Probable human carcinogen - indicates sufficient evidence in animals and inadequate or no evidence in humans
C - Possible human carcinogen
D - Not classifiable as a human carcinogen
E - Evidence of noncarcinogenicity

TABLE 7.1
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
MCRD PARRIS ISLAND, SOUTH CAROLINA

Scenario Timeframe: Future
Medium: Surface Soil
Exposure Medium: Surface Soil
Exposure Point: Site 45
Receptor Population: Resident
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose (2)	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Tetrachloroethene	7.50	mg/kg	7.50	mg/kg	M	1.0E-05	mg/kg/day	1.0E-02	mg/kg/day	N/A	N/A	1.0E-03
	Trichloroethene	0.320	mg/kg	0.320	mg/kg	M	4.4E-07	mg/kg/day	6.0E-03	mg/kg/day	N/A	N/A	7.3E-05
	cis-1,2-dichloroethene	0.730	mg/kg	0.730	mg/kg	M	1.0E-06	mg/kg/day	1.0E-02	mg/kg/day	N/A	N/A	1.0E-04
	Benzo(a)pyrene equivalents	0.203	mg/kg	0.203	mg/kg	M	2.8E-07	mg/kg/day	NA	mg/kg/day	N/A	N/A	- -
	Aluminum	9480	mg/kg	9480	mg/kg	M	1.3E-02	mg/kg/day	1.0E+00	mg/kg/day	N/A	N/A	1.3E-02
	Arsenic	2.10	mg/kg	2.10	mg/kg	M	2.9E-06	mg/kg/day	3.0E-04	mg/kg/day	N/A	N/A	9.6E-03
	(Total)												2.4E-02
Dermal	Tetrachloroethene	7.50	mg/kg	7.50	mg/kg	M	4.1E-07	mg/kg/day	1.0E-02	mg/kg/day	N/A	N/A	4.1E-05
	Trichloroethene	0.320	mg/kg	0.320	mg/kg	M	1.7E-08	mg/kg/day	9.0E-04	mg/kg/day	N/A	N/A	1.9E-05
	cis-1,2-dichloroethene	0.730	mg/kg	0.730	mg/kg	M	4.0E-08	mg/kg/day	1.0E-02	mg/kg/day	N/A	N/A	4.0E-06
	Benzo(a)pyrene equivalents	0.203	mg/kg	0.203	mg/kg	M	1.4E-07	mg/kg/day	NA	mg/kg/day	N/A	N/A	- -
	Aluminum	9480	mg/kg	9480	mg/kg	M	5.2E-05	mg/kg/day	1.0E-01	mg/kg/day	N/A	N/A	5.2E-04
	Arsenic	2.10	mg/kg	2.10	mg/kg	M	3.4E-07	mg/kg/day	1.2E-04	mg/kg/day	N/A	N/A	2.8E-03
	(Total)												3.4E-03
												Total Hazard Index Across All Exposure Routes/Pathways	2.7E-02

(1) Medium-Specific (M) EPC selected for hazard calculation.
(2) Chronic.

T-55

TABLE 7.2
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
MCRD PARRIS ISLAND, SOUTH CAROLINA

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater
Exposure Point: Site 45 - Surificial Groundwater
Receptor Population: Resident
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose (2)	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	1,1-Dichloroethene	4.00	ug/L	4.00	ug/L	M	1.1E-04	mg/kg/day	9.0E-03	mg/kg/day	N/A	N/A	1.2E-02
	Chlorodibromomethane	4.00	ug/L	4.00	ug/L	M	1.1E-04	mg/kg/day	2.0E-02	mg/kg/day	N/A	N/A	5.5E-03
	Tetrachloroethene	10000.00	ug/L	10000.00	ug/L	M	2.7E-01	mg/kg/day	1.0E-02	mg/kg/day	N/A	N/A	2.7E+01
	Trans-1,2-dichloroethene	140	ug/L	140	ug/L	M	3.8E-03	mg/kg/day	2.0E-02	mg/kg/day	N/A	N/A	1.9E-01
	Trichloroethene	10000	ug/L	10000	ug/L	M	2.7E-01	mg/kg/day	6.0E-03	mg/kg/day	N/A	N/A	4.6E+01
	Vinyl Chloride	710	ug/L	710	ug/L	M	1.9E-02	mg/kg/day	3.0E-03	mg/kg/day	N/A	N/A	6.5E+00
	cis-1,2-dichloroethene	3400	ug/L	3400	ug/L	M	9.3E-02	mg/kg/day	1.0E-02	mg/kg/day	N/A	N/A	9.3E+00
	(Total)												8.9E+01
Dermal	1,1-Dichloroethene	4.00	ug/L	4.00	ug/L	M	9.9E-06	mg/kg/day	9.0E-03	mg/kg/day	N/A	N/A	1.1E-03
	Chlorodibromomethane	4.00	ug/L	4.00	ug/L	M	5.5E-06	mg/kg/day	1.2E-02	mg/kg/day	N/A	N/A	4.6E-04
	Tetrachloroethene	10000.00	ug/L	10000.00	ug/L	M	1.1E-01	mg/kg/day	1.0E-02	mg/kg/day	N/A	N/A	1.1E+01
	Trans-1,2-dichloroethene	140	ug/L	140	ug/L	M	2.2E-04	mg/kg/day	2.0E-02	mg/kg/day	N/A	N/A	1.1E-02
	Trichloroethene	10000	ug/L	10000	ug/L	M	3.1E-02	mg/kg/day	9.0E-04	mg/kg/day	N/A	N/A	3.5E+01
	Vinyl Chloride	710	ug/L	710	ug/L	M	6.6E-04	mg/kg/day	3.0E-03	mg/kg/day	N/A	N/A	2.2E-01
	cis-1,2-dichloroethene	3400	ug/L	3400	ug/L	M	9.0E-03	mg/kg/day	1.0E-02	mg/kg/day	N/A	N/A	9.0E-01
	(Total)												4.6E+01
												Total Hazard Index Across All Exposure Routes/Pathways	1.4E+02

(1) Medium-Specific (M) EPC selected for hazard calculation.
(2) Chronic.

TABLE 7.3
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
MCRD PARRIS ISLAND, SOUTH CAROLINA

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater
Exposure Point: Site 45 - Deep Groundwater
Receptor Population: Resident
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose (2)	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Chloroform	1.00	ug/L	1.00	ug/L	M	2.7E-05	mg/kg/day	1.0E-02	mg/kg/day	N/A	N/A	2.7E-03
	Tetrachloroethene	5.00	ug/L	5.00	ug/L	M	1.4E-04	mg/kg/day	1.0E-02	mg/kg/day	N/A	N/A	1.4E-02
	Trichloroethene	2.00	ug/L	2.00	ug/L	M	5.5E-05	mg/kg/day	6.0E-03	mg/kg/day	N/A	N/A	9.1E-03
	(Total)												2.6E-02
Dermal	Chloroform	1.00	ug/L	1.00	ug/L	M	1.6E-06	mg/kg/day	2.0E-03	mg/kg/day	N/A	N/A	8.2E-04
	Tetrachloroethene	5.00	ug/L	5.00	ug/L	M	5.4E-05	mg/kg/day	1.0E-02	mg/kg/day	N/A	N/A	5.4E-03
	Trichloroethene	2.00	ug/L	2.00	ug/L	M	6.2E-06	mg/kg/day	9.0E-04	mg/kg/day	N/A	N/A	6.9E-03
	(Total)												1.3E-02
												Total Hazard Index Across All Exposure Routes/Pathways	3.9E-02

(1) Medium-Specific (M) EPC selected for hazard calculation.
(2) Chronic.

T-7.3

TABLE 7.4
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
MCRD PARRIS ISLAND, SOUTH CAROLINA

Scenario Timeframe: Future
Medium: Surface Soil
Exposure Medium: Surface Soil
Exposure Point: Site 45
Receptor Population: Resident
Receptor Age: Child

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose (2)	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Tetrachloroethene	7.50	mg/kg	7.50	mg/kg	M	9.6E-05	mg/kg/day	1.0E-02	mg/kg/day	N/A	N/A	9.6E-03
	Trichloroethene	0.320	mg/kg	0.320	mg/kg	M	4.1E-06	mg/kg/day	6.0E-03	mg/kg/day	N/A	N/A	6.8E-04
	cis-1,2-dichloroethene	0.730	mg/kg	0.730	mg/kg	M	9.3E-06	mg/kg/day	1.0E-02	mg/kg/day	N/A	N/A	9.3E-04
	Benzo(a)pyrene equivalents	0.203	mg/kg	0.203	mg/kg	M	2.6E-06	mg/kg/day	NA	mg/kg/day	N/A	N/A	- -
	Aluminum	9480	mg/kg	9480	mg/kg	M	1.2E-01	mg/kg/day	1.0E+00	mg/kg/day	N/A	N/A	1.2E-01
	Arsenic	2.10	mg/kg	2.10	mg/kg	M	2.7E-05	mg/kg/day	3.0E-04	mg/kg/day	N/A	N/A	8.9E-02
	(Total)												2.2E-01
Dermal	Tetrachloroethene	7.50	mg/kg	7.50	mg/kg	M	2.7E-06	mg/kg/day	1.0E-02	mg/kg/day	N/A	N/A	2.7E-04
	Trichloroethene	0.320	mg/kg	0.320	mg/kg	M	1.1E-07	mg/kg/day	9.0E-04	mg/kg/day	N/A	N/A	1.3E-04
	cis-1,2-dichloroethene	0.730	mg/kg	0.730	mg/kg	M	2.6E-07	mg/kg/day	1.0E-02	mg/kg/day	N/A	N/A	2.6E-05
	Benzo(a)pyrene equivalents	0.203	mg/kg	0.203	mg/kg	M	9.4E-07	mg/kg/day	NA	mg/kg/day	N/A	N/A	- -
	Aluminum	9480	mg/kg	9480	mg/kg	M	3.4E-04	mg/kg/day	1.0E-01	mg/kg/day	N/A	N/A	3.4E-03
	Arsenic	2.10	mg/kg	2.10	mg/kg	M	2.3E-06	mg/kg/day	1.2E-04	mg/kg/day	N/A	N/A	1.8E-02
	(Total)												2.2E-02
												Total Hazard Index Across All Exposure Routes/Pathways	2.4E-01

(1) Medium-Specific (M) EPC selected for hazard calculation.
(2) Chronic.

TABLE 7.5
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
MCRD PARRIS ISLAND, SOUTH CAROLINA

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater
Exposure Point: Site 45 - Surficial Groundwater
Receptor Population: Resident
Receptor Age: Child

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose (2)	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	1,1-Dichloroethene	4.0	ug/L	4.0	ug/L	M	2.6E-04	mg/kg/day	9.0E-03	mg/kg/day	N/A	N/A	2.8E-02
	Chlorodibromomethane	4.0	ug/L	4.0	ug/L	M	2.6E-04	mg/kg/day	2.0E-02	mg/kg/day	N/A	N/A	1.3E-02
	Tetrachloroethene	10000	ug/L	10000	ug/L	M	6.4E-01	mg/kg/day	1.0E-02	mg/kg/day	N/A	N/A	6.4E+01
	Trans-1,2-dichloroethene	140	ug/L	140	ug/L	M	8.9E-03	mg/kg/day	2.0E-02	mg/kg/day	N/A	N/A	4.5E-01
	Trichloroethene	10000	ug/L	10000	ug/L	M	6.4E-01	mg/kg/day	6.0E-03	mg/kg/day	N/A	N/A	1.1E+02
	Vinyl Chloride	710	ug/L	710	ug/L	M	4.5E-02	mg/kg/day	3.0E-03	mg/kg/day	N/A	N/A	1.5E+01
	cis-1,2-dichloroethene	3400	ug/L	3400	ug/L	M	2.2E-01	mg/kg/day	1.0E-02	mg/kg/day	N/A	N/A	2.2E+01
	(Total)												2.1E+02
Dermal	1,1-Dichloroethene	4.0	ug/L	4.0	ug/L	M	2.0E-05	mg/kg/day	9.0E-03	mg/kg/day	N/A	N/A	2.2E-03
	Chlorodibromomethane	4.0	ug/L	4.0	ug/L	M	1.1E-05	mg/kg/day	1.2E-02	mg/kg/day	N/A	N/A	9.0E-04
	Tetrachloroethene	10000	ug/L	10000	ug/L	M	2.1E-01	mg/kg/day	1.0E-02	mg/kg/day	N/A	N/A	2.1E+01
	Trans-1,2-dichloroethene	140	ug/L	140	ug/L	M	4.4E-04	mg/kg/day	2.0E-02	mg/kg/day	N/A	N/A	2.2E-02
	Trichloroethene	10000	ug/L	10000	ug/L	M	6.1E-02	mg/kg/day	9.0E-04	mg/kg/day	N/A	N/A	6.8E+01
	Vinyl Chloride	710	ug/L	710	ug/L	M	1.3E-03	mg/kg/day	3.0E-03	mg/kg/day	N/A	N/A	4.3E-01
	cis-1,2-dichloroethene	3400	ug/L	3400	ug/L	M	1.8E-02	mg/kg/day	1.0E-02	mg/kg/day	N/A	N/A	1.8E+00
	(Total)												9.1E+01
												Total Hazard Index Across All Exposure Routes/Pathways	3.0E+02

(1) Medium-Specific (M) EPC selected for hazard calculation.
(2) Chronic.

T-60

TABLE 7.6
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
MCRD PARRIS ISLAND, SOUTH CAROLINA

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater
Exposure Point: Site 45 - Deep Groundwater
Receptor Population: Resident
Receptor Age: Child

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose (2)	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Chloroform	1.00	ug/L	1.00	ug/L	M	6.4E-05	mg/kg/day	1.0E-02	mg/kg/day	N/A	N/A	6.4E-03
	Tetrachloroethene	5.00	ug/L	5.00	ug/L	M	3.2E-04	mg/kg/day	1.0E-02	mg/kg/day	N/A	N/A	3.2E-02
	Trichloroethene	2.00	ug/L	2.00	ug/L	M	1.3E-04	mg/kg/day	6.0E-03	mg/kg/day	N/A	N/A	2.1E-02
	(Total)												6.0E-02
Dermal	Chloroform	1.00	ug/L	1.00	ug/L	M	3.2E-06	mg/kg/day	2.0E-03	mg/kg/day	N/A	N/A	1.6E-03
	Tetrachloroethene	5.00	ug/L	5.00	ug/L	M	1.1E-04	mg/kg/day	1.0E-02	mg/kg/day	N/A	N/A	1.1E-02
	Trichloroethene	2.00	ug/L	2.00	ug/L	M	1.2E-05	mg/kg/day	9.0E-04	mg/kg/day	N/A	N/A	1.4E-02
	(Total)												2.6E-02
												Total Hazard Index Across All Exposure Routes/Pathways	8.5E-02

(1) Medium-Specific (M) EPC selected for hazard calculation.
(2) Chronic.

T1 x 61

TABLE 7.7
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
MCRD PARRIS ISLAND, SOUTH CAROLINA

Scenario Timeframe: Future
Medium: Surface/Subsurface Soil
Exposure Medium: Surface/Subsurface Soil
Exposure Point: Site 45
Receptor Population: Construction Worker
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose (2)	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Benzo(a)pyrene equivalents	4.21	mg/kg	4.21	mg/kg	M	7.1E-06	mg/kg/day	NA	mg/kg/day	N/A	N/A	- -
	cis-1,2-dichloroethene	40.0	mg/kg	40.0	mg/kg	M	6.8E-05	mg/kg/day	1.0E-02	mg/kg/day	N/A	N/A	6.8E-03
	Tetrachloroethene	8000	mg/kg	8000	mg/kg	M	1.4E-02	mg/kg/day	1.0E-02	mg/kg/day	N/A	N/A	1.4E+00
	Trichloroethene	120	mg/kg	120	mg/kg	M	2.0E-04	mg/kg/day	6.0E-03	mg/kg/day	N/A	N/A	3.4E-02
	Aluminum	7130	mg/kg	7130	mg/kg	M	1.2E-02	mg/kg/day	1.0E+00	mg/kg/day	N/A	N/A	1.2E-02
	Arsenic	1.75	mg/kg	1.75	mg/kg	M	3.0E-06	mg/kg/day	3.0E-04	mg/kg/day	N/A	N/A	9.9E-03
	(Total)												1.4E+00
Dermal	Benzo(a)pyrene equivalents	4.21	mg/kg	4.21	mg/kg	M	1.3E-06	mg/kg/day	NA	mg/kg/day	N/A	N/A	- -
	cis-1,2-dichloroethene	40.0	mg/kg	40.0	mg/kg	M	9.3E-07	mg/kg/day	1.0E-02	mg/kg/day	N/A	N/A	9.3E-05
	Tetrachloroethene	8000	mg/kg	8000	mg/kg	M	1.9E-04	mg/kg/day	1.0E-02	mg/kg/day	N/A	N/A	1.9E-02
	Trichloroethene	120	mg/kg	120	mg/kg	M	2.8E-06	mg/kg/day	9.0E-04	mg/kg/day	N/A	N/A	3.1E-03
	Aluminum	7130	mg/kg	7130	mg/kg	M	1.7E-05	mg/kg/day	1.0E-01	mg/kg/day	N/A	N/A	1.7E-04
	Arsenic	1.75	mg/kg	1.75	mg/kg	M	1.2E-07	mg/kg/day	1.2E-04	mg/kg/day	N/A	N/A	9.9E-04
	(Total)												2.3E-02
												Total Hazard Index Across All Exposure Routes/Pathways	1.4E+00

(1) Medium-Specific (M) EPC selected for hazard calculation.
(2) Chronic.

T-62

TABLE 7.8
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
MCRD PARRIS ISLAND, SOUTH CAROLINA

Scenario Timeframe: Future
Medium: Surface/Subsurface Soil
Exposure Medium: Air
Exposure Point: Site 45
Receptor Population: Construction Worker
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose (2)	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Inhalation	Benzo(a)pyrene equivalents	4.21	mg/kg	1.4E-10	mg/m3	R	1.0E-11	mg/kg/day	NA	mg/kg/day	NA	NA	- -
	cis-1,2-dichloroethene	40.0	mg/kg	7.0E-02	mg/m3	R	4.9E-03	mg/kg/day	NA	mg/kg/day	NA	NA	- -
	Tetrachloroethene	8000	mg/kg	4.7E-01	mg/m3	R	3.3E-02	mg/kg/day	1.1E-01	mg/kg/day	NA	NA	3.0E-01
	Trichloroethene	120	mg/kg	1.9E-01	mg/m3	R	1.3E-02	mg/kg/day	NA	mg/kg/day	NA	NA	- -
	Aluminum	7130	mg/kg	2.5E-07	mg/m3	R	1.7E-08	mg/kg/day	1.4E-03	mg/kg/day	NA	NA	1.2E-05
	Arsenic	1.75	mg/kg	6.0E-11	mg/m3	R	4.2E-12	mg/kg/day	NA	mg/kg/day	NA	NA	- -
	(Total)												3.0E-01
												Total Hazard Index Across All Exposure Routes/Pathways	3.0E-01

(1) Route-Specific (R) EPC selected for hazard calculation.
(2) Chronic.

T-6w

TABLE 7.9
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
MCRD PARRIS ISLAND, SOUTH CAROLINA

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater
Exposure Point: Site 45 - Surficial Groundwater
Receptor Population: Construction Worker
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose (2)	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Dermal	1,1-Dichloroethene	4.00	ug/L	4.00	ug/L	M	7.2E-07	mg/kg/day	9.0E-03	mg/kg/day	N/A	N/A	8.0E-05
	Chlorodibromomethane	4.00	ug/L	4.00	ug/L	M	2.5E-07	mg/kg/day	1.2E-02	mg/kg/day	N/A	N/A	2.1E-05
	Tetrachloroethene	10000	ug/L	10000	ug/L	M	5.0E-03	mg/kg/day	1.0E-02	mg/kg/day	N/A	N/A	5.0E-01
	Trans-1,2-dichloroethene	140	ug/L	140	ug/L	M	1.6E-05	mg/kg/day	2.0E-02	mg/kg/day	N/A	N/A	8.1E-04
	Trichloroethene	10000	ug/L	10000	ug/L	M	1.8E-03	mg/kg/day	9.0E-04	mg/kg/day	N/A	N/A	2.0E+00
	Vinyl Chloride	710	ug/L	710	ug/L	M	5.8E-05	mg/kg/day	3.0E-03	mg/kg/day	N/A	N/A	1.9E-02
	cis-1,2-dichloroethene	3400	ug/L	3400	ug/L	M	6.3E-04	mg/kg/day	1.0E-02	mg/kg/day	N/A	N/A	6.3E-02
	(Total)												2.6E+00
												Total Hazard Index Across All Exposure Routes/Pathways	2.6E+00

(1) Medium-Specific (M) EPC selected for hazard calculation.
(2) Chronic.

T1 67 F

TABLE 7.10
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
MCRD PARRIS ISLAND, SOUTH CAROLINA

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Air
Exposure Point: Site 45 - Surficial Groundwater
Receptor Population: Construction Worker
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose (2)	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Inhalation	1,1-Dichloroethene	4.00	ug/L	3.4E-05	mg/m3	R	5.6E-07	mg/kg/day	NA	mg/kg/day	N/A	N/A	- -
	Chlorodibromomethane	4.00	ug/L	0.0E+00	mg/m3	R	0.0E+00	mg/kg/day	NA	mg/kg/day	N/A	N/A	- -
	Tetrachloroethene	10000	ug/L	5.1E-02	mg/m3	R	8.4E-04	mg/kg/day	1.1E-01	mg/kg/day	N/A	N/A	7.6E-03
	Trans-1,2-dichloroethene	140	ug/L	4.8E-04	mg/m3	R	7.9E-06	mg/kg/day	2.0E-02	mg/kg/day	N/A	N/A	4.0E-04
	Trichloroethene	10000	ug/L	3.6E-02	mg/m3	R	5.9E-04	mg/kg/day	NA	mg/kg/day	N/A	N/A	- -
	Vinyl Chloride	710	ug/L	7.4E-03	mg/m3	R	1.2E-04	mg/kg/day	2.9E-02	mg/kg/day	N/A	N/A	4.3E-03
	cis-1,2-dichloroethene	3400	ug/L	7.6E-03	mg/m3	R	1.3E-04	mg/kg/day	NA	mg/kg/day	N/A	N/A	- -
	(Total)												1.2E-02
												Total Hazard Index Across All Exposure Routes/Pathways	1.2E-02

(1) Route-Specific (R) EPC selected for hazard calculation.
(2) Chronic.

T1-65

TABLE 7.11
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
MCRD PARRIS ISLAND, SOUTH CAROLINA
PAGE 1 OF 1

Scenario Timeframe: Future
Medium: Surface Soil
Exposure Medium: Surface Soil
Exposure Point: Site 45
Receptor Population: Commercial Workers
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose (2)	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Tetrachloroethene	7.50	mg/kg	7.50	mg/kg	M	3.7E-06	mg/kg/day	1.0E-02	mg/kg/day	N/A	N/A	3.7E-04
	Trichloroethene	0.320	mg/kg	0.320	mg/kg	M	1.6E-07	mg/kg/day	6.0E-03	mg/kg/day	N/A	N/A	2.6E-05
	cis-1,2-dichloroethene	0.730	mg/kg	0.730	mg/kg	M	3.6E-07	mg/kg/day	1.0E-02	mg/kg/day	N/A	N/A	3.6E-05
	Benzo(a)pyrene equivalents	0.203	mg/kg	0.203	mg/kg	M	9.9E-08	mg/kg/day	NA	mg/kg/day	N/A	N/A	- -
	Aluminum	9480	mg/kg	9480	mg/kg	M	4.6E-03	mg/kg/day	1.0E+00	mg/kg/day	N/A	N/A	4.6E-03
	Arsenic	2.10	mg/kg	2.10	mg/kg	M	1.0E-06	mg/kg/day	3.0E-04	mg/kg/day	N/A	N/A	3.4E-03
	(Total)												8.5E-03
Dermal	Tetrachloroethene	7.50	mg/kg	7.50	mg/kg	M	4.8E-07	mg/kg/day	1.0E-02	mg/kg/day	N/A	N/A	4.8E-05
	Trichloroethene	0.320	mg/kg	0.320	mg/kg	M	2.1E-08	mg/kg/day	9.0E-04	mg/kg/day	N/A	N/A	2.3E-05
	cis-1,2-dichloroethene	0.730	mg/kg	0.730	mg/kg	M	4.7E-08	mg/kg/day	1.0E-02	mg/kg/day	N/A	N/A	4.7E-06
	Benzo(a)pyrene equivalents	0.203	mg/kg	0.203	mg/kg	M	1.7E-07	mg/kg/day	NA	mg/kg/day	N/A	N/A	- -
	Aluminum	9480	mg/kg	9480	mg/kg	M	6.1E-05	mg/kg/day	1.0E-01	mg/kg/day	N/A	N/A	6.1E-04
	Arsenic	2.10	mg/kg	2.10	mg/kg	M	4.1E-07	mg/kg/day	1.2E-04	mg/kg/day	N/A	N/A	3.3E-03
	(Total)												4.0E-03
												Total Hazard Index Across All Exposure Routes/Pathways	1.2E-02

(1) Medium-Specific (M) EPC selected for hazard calculation.
(2) Chronic.

F-66

02/28/02

TABLE 7.12
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
MCRD PARRIS ISLAND, SOUTH CAROLINA
PAGE 1 OF 1

Scenario Timeframe: Future
Medium: Surface Soil
Exposure Medium: Surface Soil
Exposure Point: Site 45
Receptor Population: Maintenance Worker
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose (2)	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Tetrachloroethene	7.50	mg/kg	7.50	mg/kg	M	1.5E-06	mg/kg/day	1.0E-02	mg/kg/day	N/A	N/A	1.5E-04
	Trichloroethene	0.320	mg/kg	0.320	mg/kg	M	6.3E-08	mg/kg/day	6.0E-03	mg/kg/day	N/A	N/A	1.0E-05
	cis-1,2-dichloroethene	0.730	mg/kg	0.730	mg/kg	M	1.4E-07	mg/kg/day	1.0E-02	mg/kg/day	N/A	N/A	1.4E-05
	Benzo(a)pyrene equivalents	0.203	mg/kg	0.203	mg/kg	M	4.0E-08	mg/kg/day	NA	mg/kg/day	N/A	N/A	- -
	Aluminum	9480	mg/kg	9480	mg/kg	M	1.9E-03	mg/kg/day	1.0E+00	mg/kg/day	N/A	N/A	1.9E-03
	Arsenic	2.10	mg/kg	2.10	mg/kg	M	4.1E-07	mg/kg/day	3.0E-04	mg/kg/day	N/A	N/A	1.4E-03
	(Total)												3.4E-03
Dermal	Tetrachloroethene	7.50	mg/kg	7.50	mg/kg	M	9.7E-08	mg/kg/day	1.0E-02	mg/kg/day	N/A	N/A	9.7E-06
	Trichloroethene	0.320	mg/kg	0.320	mg/kg	M	4.1E-09	mg/kg/day	9.0E-04	mg/kg/day	N/A	N/A	4.6E-06
	cis-1,2-dichloroethene	0.730	mg/kg	0.730	mg/kg	M	9.4E-09	mg/kg/day	1.0E-02	mg/kg/day	N/A	N/A	9.4E-07
	Benzo(a)pyrene equivalents	0.203	mg/kg	0.203	mg/kg	M	3.4E-08	mg/kg/day	NA	mg/kg/day	N/A	N/A	- -
	Aluminum	9480	mg/kg	9480	mg/kg	M	1.2E-05	mg/kg/day	1.0E-01	mg/kg/day	N/A	N/A	1.2E-04
	Arsenic	2.10	mg/kg	2.10	mg/kg	M	8.1E-08	mg/kg/day	1.2E-04	mg/kg/day	N/A	N/A	6.6E-04
	(Total)												8.0E-04
												Total Hazard Index Across All Exposure Routes/Pathways	4.2E-03

(1) Medium-Specific (M) EPC selected for hazard calculation.
(2) Chronic.

T-61

TABLE 7.13
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
MCRD PARRIS ISLAND, SOUTH CAROLINA

Scenario Timeframe: Future
Medium: Surface Soil
Exposure Medium: Surface Soil
Exposure Point: Site 45
Receptor Population: Visitors
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose (2)	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Tetrachloroethene	7.50	mg/kg	7.50	mg/kg	M	7.3E-07	mg/kg/day	1.0E-02	mg/kg/day	N/A	N/A	7.3E-05
	Trichloroethene	0.320	mg/kg	0.320	mg/kg	M	3.1E-08	mg/kg/day	6.0E-03	mg/kg/day	N/A	N/A	5.2E-06
	cis-1,2-dichloroethene	0.730	mg/kg	0.730	mg/kg	M	7.1E-08	mg/kg/day	1.0E-02	mg/kg/day	N/A	N/A	7.1E-06
	Benzo(a)pyrene equivalents	0.203	mg/kg	0.203	mg/kg	M	2.0E-08	mg/kg/day	NA	mg/kg/day	N/A	N/A	- -
	Aluminum	9480	mg/kg	9480	mg/kg	M	9.3E-04	mg/kg/day	1.0E+00	mg/kg/day	N/A	N/A	9.3E-04
	Arsenic	2.10	mg/kg	2.10	mg/kg	M	2.1E-07	mg/kg/day	3.0E-04	mg/kg/day	N/A	N/A	6.8E-04
	(Total)												1.7E-03
Dermal	Tetrachloroethene	7.50	mg/kg	7.50	mg/kg	M	5.6E-08	mg/kg/day	1.0E-02	mg/kg/day	N/A	N/A	5.6E-06
	Trichloroethene	0.320	mg/kg	0.320	mg/kg	M	2.4E-09	mg/kg/day	9.0E-04	mg/kg/day	N/A	N/A	2.7E-06
	cis-1,2-dichloroethene	0.730	mg/kg	0.730	mg/kg	M	5.5E-09	mg/kg/day	1.0E-02	mg/kg/day	N/A	N/A	5.5E-07
	Benzo(a)pyrene equivalents	0.203	mg/kg	0.203	mg/kg	M	2.0E-08	mg/kg/day	NA	mg/kg/day	N/A	N/A	- -
	Aluminum	9480	mg/kg	9480	mg/kg	M	7.1E-06	mg/kg/day	1.0E-01	mg/kg/day	N/A	N/A	7.1E-05
	Arsenic	2.10	mg/kg	2.10	mg/kg	M	4.7E-08	mg/kg/day	1.2E-04	mg/kg/day	N/A	N/A	3.8E-04
	(Total)												4.6E-04
												Total Hazard Index Across All Exposure Routes/Pathways	2.2E-03

(1) Medium-Specific (M) EPC selected for hazard calculation.
(2) Chronic.

T-58

TABLE 8.1
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
MCRD PARRIS ISLAND, SOUTH CAROLINA
PAGE 1 OF 1

Scenario Timeframe: Future
Medium: Surface Soil
Exposure Medium: Surface Soil
Exposure Point: Site 45
Receptor Population: Resident
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Tetrachloroethene	7.50	mg/kg	7.50	mg/kg	M	3.5E-06	mg/kg/day	5.2E-02	(mg/kg/day) -1	1.8E-07
	Trichloroethene	0.320	mg/kg	0.320	mg/kg	M	1.5E-07	mg/kg/day	1.1E-02	(mg/kg/day) -1	1.7E-09
	cis-1,2-dichloroethene	0.730	mg/kg	0.730	mg/kg	M	3.4E-07	mg/kg/day	NA	(mg/kg/day) -1	- -
	Benzo(a)pyrene equivalents	0.203	mg/kg	0.203	mg/kg	M	9.5E-08	mg/kg/day	7.3E+00	(mg/kg/day) -1	7.0E-07
	Aluminum	9480	mg/kg	9480	mg/kg	M	4.5E-03	mg/kg/day	NA	(mg/kg/day) -1	- -
	Arsenic	2.10	mg/kg	2.10	mg/kg	M	9.9E-07	mg/kg/day	1.5E+00	(mg/kg/day) -1	1.5E-06
	(Total)										2.4E-06
Dermal	Tetrachloroethene	7.50	mg/kg	7.50	mg/kg	M	1.4E-07	mg/kg/day	5.2E-02	(mg/kg/day) -1	7.3E-09
	Trichloroethene	0.320	mg/kg	0.320	mg/kg	M	6.0E-09	mg/kg/day	7.3E-02	(mg/kg/day) -1	4.4E-10
	cis-1,2-dichloroethene	0.730	mg/kg	0.730	mg/kg	M	1.4E-08	mg/kg/day	NA	(mg/kg/day) -1	- -
	Benzo(a)pyrene equivalents	0.203	mg/kg	0.203	mg/kg	M	4.9E-08	mg/kg/day	2.4E+01	(mg/kg/day) -1	1.2E-06
	Aluminum	9480	mg/kg	9480	mg/kg	M	1.8E-05	mg/kg/day	NA	(mg/kg/day) -1	- -
	Arsenic	2.10	mg/kg	2.10	mg/kg	M	1.2E-07	mg/kg/day	3.7E+00	(mg/kg/day) -1	4.3E-07
	(Total)										1.6E-06
										Total Risk Across All Exposure Routes/Pathways	4.0E-06

(1) Medium-Specific (M) EPC selected for risk calculation.

T-69

TABLE 8.2
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
MCRD PARRIS ISLAND, SOUTH CAROLINA

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater
Exposure Point: Site 45 - Surificial Groundwater
Receptor Population: Resident
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	1,1-Dichloroethene	4.0	ug/L	4.0	ug/L	M	3.8E-05	mg/kg/day	6.0E-01	(mg/kg/day) -1	2.3E-05
	Chlorodibromomethane	4.0	ug/L	4.0	ug/L	M	3.8E-05	mg/kg/day	8.4E-02	(mg/kg/day) -1	3.2E-06
	Tetrachloroethene	10000	ug/L	10000	ug/L	M	9.4E-02	mg/kg/day	5.2E-02	(mg/kg/day) -1	4.9E-03
	Trans-1,2-dichloroethene	140	ug/L	140	ug/L	M	1.3E-03	mg/kg/day	NA	(mg/kg/day) -1	- -
	Trichloroethene	10000	ug/L	10000	ug/L	M	9.4E-02	mg/kg/day	1.1E-02	(mg/kg/day) -1	1.0E-03
	Vinyl Chloride	710	ug/L	710	ug/L	M	6.7E-03	mg/kg/day	1.5E+00	(mg/kg/day) -1	1.0E-02
	cis-1,2-dichloroethene	3400	ug/L	3400	ug/L	M	3.2E-02	mg/kg/day	NA	(mg/kg/day) -1	- -
	(Total)										1.6E-02
Dermal	1,1-Dichloroethene	4.0	ug/L	4.0	ug/L	M	3.4E-06	mg/kg/day	6.0E-01	(mg/kg/day) -1	2.0E-06
	Chlorodibromomethane	4.0	ug/L	4.0	ug/L	M	1.9E-06	mg/kg/day	1.4E-01	(mg/kg/day) -1	2.6E-07
	Tetrachloroethene	10000	ug/L	10000	ug/L	M	3.7E-02	mg/kg/day	5.2E-02	(mg/kg/day) -1	1.9E-03
	Trans-1,2-dichloroethene	140	ug/L	140	ug/L	M	7.7E-05	mg/kg/day	NA	(mg/kg/day) -1	- -
	Trichloroethene	10000	ug/L	10000	ug/L	M	1.1E-02	mg/kg/day	7.3E-02	(mg/kg/day) -1	7.8E-04
	Vinyl Chloride	710	ug/L	710	ug/L	M	2.3E-04	mg/kg/day	1.5E+00	(mg/kg/day) -1	3.4E-04
	cis-1,2-dichloroethene	3400	ug/L	3400	ug/L	M	3.1E-03	mg/kg/day	NA	(mg/kg/day) -1	- -
	(Total)										3.0E-03
										Total Risk Across All Exposure Routes/Pathways	1.9E-02

(1) Medium-Specific (M) EPC selected for risk calculation.

TABLE 8.3
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
MCRD PARRIS ISLAND, SOUTH CAROLINA

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater
Exposure Point: Site 45 - Deep Groundwater
Receptor Population: Resident
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Chloroform	1.0	ug/L	1.0	ug/L	M	9.4E-06	mg/kg/day	NA	(mg/kg/day) -1	- -
	Tetrachloroethene	5.0	ug/L	5.0	ug/L	M	4.7E-05	mg/kg/day	5.2E-02	(mg/kg/day) -1	2.4E-06
	Trichloroethene	2.0	ug/L	2.0	ug/L	M	1.9E-05	mg/kg/day	1.1E-02	(mg/kg/day) -1	2.1E-07
	(Total)										2.6E-06
Dermal	Chloroform	1.0	ug/L	1.0	ug/L	M	5.6E-07	mg/kg/day	NA	(mg/kg/day) -1	- -
	Tetrachloroethene	5.0	ug/L	5.0	ug/L	M	1.8E-05	mg/kg/day	5.2E-02	(mg/kg/day) -1	9.6E-07
	Trichloroethene	2.0	ug/L	2.0	ug/L	M	2.1E-06	mg/kg/day	7.3E-02	(mg/kg/day) -1	1.6E-07
	(Total)										1.1E-06
										Total Risk Across All Exposure Routes/Pathways	3.8E-06

(1) Medium-Specific (M) EPC selected for risk calculation.

TABLE 8.4
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
MCRD PARRIS ISLAND, SOUTH CAROLINA
PAGE 1 OF 1

Scenario Timeframe: Future
Medium: Surface Soil
Exposure Medium: Surface Soil
Exposure Point: Site 45
Receptor Population: Resident
Receptor Age: Child

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Tetrachloroethene	7.5	mg/kg	7.5	mg/kg	M	8.2E-06	mg/kg/day	5.2E-02	(mg/kg/day) -1	4.3E-07
	Trichloroethene	0.3	mg/kg	0.3	mg/kg	M	3.5E-07	mg/kg/day	1.1E-02	(mg/kg/day) -1	3.9E-09
	cis-1,2-dichloroethene	0.7	mg/kg	0.7	mg/kg	M	8.0E-07	mg/kg/day	NA	(mg/kg/day) -1	- -
	Benzo(a)pyrene equivalents	0.2	mg/kg	0.2	mg/kg	M	2.2E-07	mg/kg/day	7.3E+00	(mg/kg/day) -1	1.6E-06
	Aluminum	9480	mg/kg	9480	mg/kg	M	1.0E-02	mg/kg/day	NA	(mg/kg/day) -1	- -
	Arsenic	2.1	mg/kg	2.1	mg/kg	M	2.3E-06	mg/kg/day	1.5E+00	(mg/kg/day) -1	3.5E-06
	(Total)										5.5E-06
Dermal	Tetrachloroethene	7.5	mg/kg	7.5	mg/kg	M	2.3E-07	mg/kg/day	5.2E-02	(mg/kg/day) -1	1.2E-08
	Trichloroethene	0.3	mg/kg	0.3	mg/kg	M	9.8E-09	mg/kg/day	7.3E-02	(mg/kg/day) -1	7.2E-10
	cis-1,2-dichloroethene	0.7	mg/kg	0.7	mg/kg	M	2.2E-08	mg/kg/day	NA	(mg/kg/day) -1	- -
	Benzo(a)pyrene equivalents	0.2	mg/kg	0.2	mg/kg	M	8.1E-08	mg/kg/day	2.4E+01	(mg/kg/day) -1	1.9E-06
	Aluminum	9480	mg/kg	9480	mg/kg	M	2.9E-05	mg/kg/day	NA	(mg/kg/day) -1	- -
	Arsenic	2.1	mg/kg	2.1	mg/kg	M	1.9E-07	mg/kg/day	3.7E+00	(mg/kg/day) -1	7.1E-07
	(Total)										2.6E-06
										Total Risk Across All Exposure Routes/Pathways	8.1E-06

(1) Medium-Specific (M) EPC selected for risk calculation.

TABLE 8.5
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
MCRD PARRIS ISLAND, SOUTH CAROLINA
PAGE 1 OF 1

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater
Exposure Point: Site 45 - Surficial Groundwater
Receptor Population: Resident
Receptor Age: Child

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	1,1-Dichloroethene	4.0	ug/L	4.0	ug/L	M	2.2E-05	mg/kg/day	6.0E-01	(mg/kg/day) -1	1.3E-05
	Chlorodibromomethane	4.0	ug/L	4.0	ug/L	M	2.2E-05	mg/kg/day	8.4E-02	(mg/kg/day) -1	1.8E-06
	Tetrachloroethene	10000	ug/L	10000	ug/L	M	5.5E-02	mg/kg/day	5.2E-02	(mg/kg/day) -1	2.8E-03
	Trans-1,2-dichloroethene	140	ug/L	140	ug/L	M	7.7E-04	mg/kg/day	NA	(mg/kg/day) -1	- -
	Trichloroethene	10000	ug/L	10000	ug/L	M	5.5E-02	mg/kg/day	1.1E-02	(mg/kg/day) -1	6.0E-04
	Vinyl Chloride	710	ug/L	710	ug/L	M	3.9E-03	mg/kg/day	1.5E+00	(mg/kg/day) -1	5.8E-03
	cis-1,2-dichloroethene	3400	ug/L	3400	ug/L	M	1.9E-02	mg/kg/day	NA	(mg/kg/day) -1	- -
	(Total)										9.3E-03
Dermal	1,1-Dichloroethene	4.0	ug/L	4.0	ug/L	M	1.7E-06	mg/kg/day	6.0E-01	(mg/kg/day) -1	1.0E-06
	Chlorodibromomethane	4.0	ug/L	4.0	ug/L	M	9.2E-07	mg/kg/day	1.4E-01	(mg/kg/day) -1	1.3E-07
	Tetrachloroethene	10000	ug/L	10000	ug/L	M	1.8E-02	mg/kg/day	5.2E-02	(mg/kg/day) -1	9.4E-04
	Trans-1,2-dichloroethene	140	ug/L	140	ug/L	M	3.8E-05	mg/kg/day	NA	(mg/kg/day) -1	- -
	Trichloroethene	10000	ug/L	10000	ug/L	M	5.2E-03	mg/kg/day	7.3E-02	(mg/kg/day) -1	3.8E-04
	Vinyl Chloride	710	ug/L	710	ug/L	M	1.1E-04	mg/kg/day	1.5E+00	(mg/kg/day) -1	1.7E-04
	cis-1,2-dichloroethene	3400	ug/L	3400	ug/L	M	1.5E-03	mg/kg/day	NA	(mg/kg/day) -1	- -
	(Total)										1.5E-03
										Total Risk Across All Exposure Routes/Pathways	1.1E-02

(1) Medium-Specific (M) EPC selected for risk calculation.

TABLE 8.6
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
MCRD PARRIS ISLAND, SOUTH CAROLINA
PAGE 1 OF 1

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater
Exposure Point: Site 45 - Deep Groundwater
Receptor Population: Resident
Receptor Age: Child

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Chloroform	1.00	ug/L	1.00	ug/L	M	5.5E-06	mg/kg/day	NA	(mg/kg/day) -1	- -
	Tetrachloroethene	5.00	ug/L	5.00	ug/L	M	2.7E-05	mg/kg/day	5.2E-02	(mg/kg/day) -1	1.4E-06
	Trichloroethene	2.00	ug/L	2.00	ug/L	M	1.1E-05	mg/kg/day	1.1E-02	(mg/kg/day) -1	1.2E-07
	(Total)										1.5E-06
Dermal	Chloroform	1.00	ug/L	1.00	ug/L	M	2.8E-07	mg/kg/day	NA	(mg/kg/day) -1	- -
	Tetrachloroethene	5.00	ug/L	5.00	ug/L	M	9.0E-06	mg/kg/day	5.2E-02	(mg/kg/day) -1	4.7E-07
	Trichloroethene	2.00	ug/L	2.00	ug/L	M	1.0E-06	mg/kg/day	7.3E-02	(mg/kg/day) -1	7.7E-08
	(Total)										5.5E-07
										Total Risk Across All Exposure Routes/Pathways	2.1E-06

(1) Medium-Specific (M) EPC selected for risk calculation.

TABLE 8.7
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
MCRD PARRIS ISLAND, SOUTH CAROLINA
PAGE 1 OF 1

Scenario Timeframe: Future
Medium: Surface/Subsurface Soil
Exposure Medium: Surface/Subsurface Soil
Exposure Point: Site 45
Receptor Population: Construction Worker
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Benzo(a)pyrene equivalents	4.2	mg/kg	4.2	mg/kg	M	1.0E-07	mg/kg/day	7.3E+00	(mg/kg/day) -1	7.4E-07
	cis-1,2-dichloroethene	40	mg/kg	40	mg/kg	M	9.7E-07	mg/kg/day	NA	(mg/kg/day) -1	- -
	Tetrachloroethene	8000	mg/kg	8000	mg/kg	M	1.9E-04	mg/kg/day	5.2E-02	(mg/kg/day) -1	1.0E-05
	Trichloroethene	120	mg/kg	120	mg/kg	M	2.9E-06	mg/kg/day	1.1E-02	(mg/kg/day) -1	3.2E-08
	Aluminum	7130	mg/kg	7130	mg/kg	M	1.7E-04	mg/kg/day	NA	(mg/kg/day) -1	- -
	Arsenic	1.8	mg/kg	1.8	mg/kg	M	4.2E-08	mg/kg/day	1.5E+00	(mg/kg/day) -1	6.3E-08
	(Total)										1.1E-05
Dermal	Benzo(a)pyrene equivalents	4.2	mg/kg	4.2	mg/kg	M	1.8E-08	mg/kg/day	2.4E+01	(mg/kg/day) -1	4.3E-07
	cis-1,2-dichloroethene	40	mg/kg	40	mg/kg	M	1.3E-08	mg/kg/day	NA	(mg/kg/day) -1	- -
	Tetrachloroethene	8000	mg/kg	8000	mg/kg	M	2.7E-06	mg/kg/day	5.2E-02	(mg/kg/day) -1	1.4E-07
	Trichloroethene	120	mg/kg	120	mg/kg	M	4.0E-08	mg/kg/day	7.3E-02	(mg/kg/day) -1	2.9E-09
	Aluminum	7130	mg/kg	7130	mg/kg	M	2.4E-07	mg/kg/day	NA	(mg/kg/day) -1	- -
	Arsenic	1.8	mg/kg	1.8	mg/kg	M	1.7E-09	mg/kg/day	3.7E+00	(mg/kg/day) -1	6.4E-09
	(Total)										5.8E-07
										Total Risk Across All Exposure Routes/Pathways	1.1E-05

(1) Medium-Specific (M) EPC selected for risk calculation.

TABLE 8.8
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
MCRD PARRIS ISLAND, SOUTH CAROLINA
PAGE 1 OF 1

Scenario Timeframe: Future
Medium: Surface/Subsurface Soil
Exposure Medium: Air
Exposure Point: Site 45
Receptor Population: Construction Worker
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Inhalation	Benzo(a)pyrene equivalents	4.2	mg/kg	1.4E-10	mg/m3	R	1.5E-13	mg/kg/day	3.1E+00	(mg/kg/day) -1	4.5E-13
	cis-1,2-dichloroethene	40	mg/kg	7.0E-02	mg/m3	R	7.1E-05	mg/kg/day	NA	(mg/kg/day) -1	- -
	Tetrachloroethene	8000	mg/kg	4.7E-01	mg/m3	R	4.7E-04	mg/kg/day	2.0E-03	(mg/kg/day) -1	9.4E-07
	Trichloroethene	120	mg/kg	1.9E-01	mg/m3	R	1.9E-04	mg/kg/day	6.0E-03	(mg/kg/day) -1	1.1E-06
	Aluminum	7130	mg/kg	2.5E-07	mg/m3	R	2.5E-10	mg/kg/day	NA	(mg/kg/day) -1	- -
	Arsenic	1.8	mg/kg	6.0E-11	mg/m3	R	6.1E-14	mg/kg/day	1.5E+01	(mg/kg/day) -1	9.1E-13
	(Total)										2.1E-06
										Total Risk for Inhalation Pathway	2.1E-06

(1) Route-Specific (R) EPC selected for risk calculation.

SL-7

TABLE 8.9
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
MCRD PARRIS ISLAND, SOUTH CAROLINA
PAGE 1 OF 1

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater
Exposure Point: Site 45 - Surficial Groundwater
Receptor Population: Construction Worker
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Dermal	1,1-Dichloroethene	4.0	ug/L	4.00	ug/L	M	1.0E-08	mg/kg/day	6.0E-01	(mg/kg/day) -1	6.2E-09
	Chlorodibromomethane	4.0	ug/L	4.00	ug/L	M	3.5E-09	mg/kg/day	1.4E-01	(mg/kg/day) -1	4.9E-10
	Tetrachloroethene	10000	ug/L	10000	ug/L	M	7.2E-05	mg/kg/day	5.2E-02	(mg/kg/day) -1	3.7E-06
	Trans-1,2-dichloroethene	140	ug/L	140	ug/L	M	2.3E-07	mg/kg/day	NA	(mg/kg/day) -1	- -
	Trichloroethene	10000	ug/L	10000	ug/L	M	2.5E-05	mg/kg/day	7.3E-02	(mg/kg/day) -1	1.9E-06
	Vinyl Chloride	710	ug/L	710	ug/L	M	8.3E-07	mg/kg/day	1.5E+00	(mg/kg/day) -1	1.2E-06
	cis-1,2-dichloroethene	3400	ug/L	3400	ug/L	M	9.0E-06	mg/kg/day	NA	(mg/kg/day) -1	- -
	(Total)										6.8E-06
										Total Risk Across All Exposure Routes/Pathways	6.8E-06

(1) Medium-Specific (M) EPC selected for risk calculation.

TABLE 8.10
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
MCRD PARRIS ISLAND, SOUTH CAROLINA

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Air
Exposure Point: Site 45 - Surficial Groundwater
Receptor Population: Construction Worker
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Inhalation	1,1-Dichloroethene	4.0	ug/L	3.4E-05	mg/m3	R	8.0E-09	mg/kg/day	1.8E-01	$(mg/kg/day)^{-1}$	1.4E-09
	Chlorodibromomethane	4.0	ug/L	0.0E+00	mg/m3	R	0.0E+00	mg/kg/day	NA	$(mg/kg/day)^{-1}$	N/A
	Tetrachloroethene	10000	ug/L	5.1E-02	mg/m3	R	1.2E-05	mg/kg/day	2.0E-03	$(mg/kg/day)^{-1}$	2.4E-08
	Trans-1,2-dichloroethene	140	ug/L	4.8E-04	mg/m3	R	1.1E-07	mg/kg/day	NA	$(mg/kg/day)^{-1}$	N/A
	Trichloroethene	10000	ug/L	3.6E-02	mg/m3	R	8.4E-06	mg/kg/day	6.0E-03	$(mg/kg/day)^{-1}$	5.1E-08
	Vinyl Chloride	710	ug/L	7.4E-03	mg/m3	R	1.7E-06	mg/kg/day	3.1E-02	$(mg/kg/day)^{-1}$	5.3E-08
	cis-1,2-dichloroethene	3400	ug/L	7.6E-03	mg/m3	R	1.8E-06	mg/kg/day	NA	$(mg/kg/day)^{-1}$	N/A
	(Total)										1.3E-07
										Total Risk Across All Exposure Routes/Pathways	1.3E-07

(1) Route-Specific (R) EPC selected for risk calculation.

8L-T1

TABLE 8.11
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
MCRD PARRIS ISLAND, SOUTH CAROLINA
PAGE 1 OF 1

Scenario Timeframe: Future
Medium: Surface Soil
Exposure Medium: Surface Soil
Exposure Point: Site 45
Receptor Population: Commercial Workers
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Tetrachloroethene	7.5	mg/kg	7.5	mg/kg	M	1.3E-06	mg/kg/day	5.2E-02	(mg/kg/day) -1	6.8E-08
	Trichloroethene	0.3	mg/kg	0.3	mg/kg	M	5.6E-08	mg/kg/day	1.1E-02	(mg/kg/day) -1	6.2E-10
	cis-1,2-dichloroethene	0.7	mg/kg	0.7	mg/kg	M	1.3E-07	mg/kg/day	NA	(mg/kg/day) -1	- -
	Benzo(a)pyrene equivalents	0.2	mg/kg	0.2	mg/kg	M	3.5E-08	mg/kg/day	7.3E+00	(mg/kg/day) -1	2.6E-07
	Aluminum	9480	mg/kg	9480	mg/kg	M	1.7E-03	mg/kg/day	NA	(mg/kg/day) -1	- -
	Arsenic	2.1	mg/kg	2.1	mg/kg	M	3.7E-07	mg/kg/day	1.5E+00	(mg/kg/day) -1	5.5E-07
	(Total)										8.8E-07
Dermal	Tetrachloroethene	7.5	mg/kg	7.5	mg/kg	M	1.7E-07	mg/kg/day	5.2E-02	(mg/kg/day) -1	9.0E-09
	Trichloroethene	0.3	mg/kg	0.3	mg/kg	M	7.4E-09	mg/kg/day	7.3E-02	(mg/kg/day) -1	5.4E-10
	cis-1,2-dichloroethene	0.7	mg/kg	0.7	mg/kg	M	1.7E-08	mg/kg/day	NA	(mg/kg/day) -1	- -
	Benzo(a)pyrene equivalents	0.2	mg/kg	0.2	mg/kg	M	6.1E-08	mg/kg/day	2.4E+01	(mg/kg/day) -1	1.4E-06
	Aluminum	9480	mg/kg	9480	mg/kg	M	2.2E-05	mg/kg/day	NA	(mg/kg/day) -1	- -
	Arsenic	2.1	mg/kg	2.1	mg/kg	M	1.5E-07	mg/kg/day	3.7E+00	(mg/kg/day) -1	5.3E-07
	(Total)										2.0E-06
										Total Risk Across All Exposure Routes/Pathways	2.9E-06

(1) Medium-Specific (M) EPC selected for risk calculation.

F-79

TABLE 8.12
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
MCRD PARRIS ISLAND, SOUTH CAROLINA
PAGE 1 OF 1

Scenario Timeframe: Future
Medium: Surface Soil
Exposure Medium: Surface Soil
Exposure Point: Site 45
Receptor Population: Maintenance Worker
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Tetrachloroethene	7.5	mg/kg	7.5	mg/kg	M	5.2E-07	mg/kg/day	5.2E-02	(mg/kg/day) -1	2.7E-08
	Trichloroethene	0.3	mg/kg	0.3	mg/kg	M	2.2E-08	mg/kg/day	1.1E-02	(mg/kg/day) -1	2.5E-10
	cis-1,2-dichloroethene	0.7	mg/kg	0.7	mg/kg	M	5.1E-08	mg/kg/day	NA	(mg/kg/day) -1	- -
	Benzo(a)pyrene equivalents	0.2	mg/kg	0.2	mg/kg	M	1.4E-08	mg/kg/day	7.3E+00	(mg/kg/day) -1	1.0E-07
	Aluminum	9480	mg/kg	9480	mg/kg	M	6.6E-04	mg/kg/day	NA	(mg/kg/day) -1	- -
	Arsenic	2.1	mg/kg	2.1	mg/kg	M	1.5E-07	mg/kg/day	1.5E+00	(mg/kg/day) -1	2.2E-07
	(Total)										3.5E-07
Dermal	Tetrachloroethene	7.5	mg/kg	7.5	mg/kg	M	3.5E-08	mg/kg/day	5.2E-02	(mg/kg/day) -1	1.8E-09
	Trichloroethene	0.3	mg/kg	0.3	mg/kg	M	1.5E-09	mg/kg/day	7.3E-02	(mg/kg/day) -1	1.1E-10
	cis-1,2-dichloroethene	0.7	mg/kg	0.7	mg/kg	M	3.4E-09	mg/kg/day	NA	(mg/kg/day) -1	- -
	Benzo(a)pyrene equivalents	0.2	mg/kg	0.2	mg/kg	M	1.2E-08	mg/kg/day	2.4E+01	(mg/kg/day) -1	2.9E-07
	Aluminum	9480	mg/kg	9480	mg/kg	M	4.4E-06	mg/kg/day	NA	(mg/kg/day) -1	- -
	Arsenic	2.10	mg/kg	2.10	mg/kg	M	2.9E-08	mg/kg/day	3.7E+00	(mg/kg/day) -1	1.1E-07
	(Total)										3.9E-07
										Total Risk Across All Exposure Routes/Pathways	7.5E-07

(1) Medium-Specific (M) EPC selected for risk calculation.

TABLE 8.13
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
MCRD PARRIS ISLAND, SOUTH CAROLINA
PAGE 1 OF 1

Scenario Timeframe: Future
Medium: Surface Soil
Exposure Medium: Surface Soil
Exposure Point: Site 45
Receptor Population: Visitors
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Tetrachloroethene	7.5	mg/kg	7.5	mg/kg	M	2.6E-07	mg/kg/day	5.2E-02	(mg/kg/day) -1	1.4E-08
	Trichloroethene	0.3	mg/kg	0.3	mg/kg	M	1.1E-08	mg/kg/day	1.1E-02	(mg/kg/day) -1	1.2E-10
	cis-1,2-dichloroethene	0.7	mg/kg	0.7	mg/kg	M	2.6E-08	mg/kg/day	NA	(mg/kg/day) -1	- -
	Benzo(a)pyrene equivalents	0.2	mg/kg	0.2	mg/kg	M	7.1E-09	mg/kg/day	7.3E+00	(mg/kg/day) -1	5.2E-08
	Aluminum	9480	mg/kg	9480	mg/kg	M	3.3E-04	mg/kg/day	NA	(mg/kg/day) -1	- -
	Arsenic	2.1	mg/kg	2.1	mg/kg	M	7.3E-08	mg/kg/day	1.5E+00	(mg/kg/day) -1	1.1E-07
	(Total)										1.8E-07
Dermal	Tetrachloroethene	7.5	mg/kg	7.5	mg/kg	M	8.0E-09	mg/kg/day	5.2E-02	(mg/kg/day) -1	4.2E-10
	Trichloroethene	0.3	mg/kg	0.3	mg/kg	M	3.4E-10	mg/kg/day	7.3E-02	(mg/kg/day) -1	2.5E-11
	cis-1,2-dichloroethene	0.7	mg/kg	0.7	mg/kg	M	7.8E-10	mg/kg/day	NA	(mg/kg/day) -1	- -
	Benzo(a)pyrene equivalents	0.2	mg/kg	0.2	mg/kg	M	2.8E-09	mg/kg/day	2.4E+01	(mg/kg/day) -1	6.6E-08
	Aluminum	9480	mg/kg	9480	mg/kg	M	1.0E-06	mg/kg/day	NA	(mg/kg/day) -1	- -
	Arsenic	2.1	mg/kg	2.1	mg/kg	M	6.7E-09	mg/kg/day	3.7E+00	(mg/kg/day) -1	2.5E-08
	(Total)										9.1E-08
										Total Risk Across All Exposure Routes/Pathways	2.7E-07

(1) Medium-Specific (M) EPC selected for risk calculation.

8-71

TABLE 9.1
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
MCRD PARRIS ISLAND, SOUTH CAROLINA

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Site 45	Tetrachloroethene	1.8E-07	--	7.3E-09	1.9E-07	Tetrachloroethene	Liver	0.001	--	0.00004	0.001
			Trichloroethene	1.7E-09	--	4.4E-10	2.1E-09	Trichloroethene	Liver	0.00007	--	0.00002	0.00009
			cis-1,2-dichloroethene	--	--	--	--	cis-1,2-dichloroethene	Blood	0.00010	--	0.000004	0.0001
			Benzo(a)pyrene equivalent	7.0E-07	--	1.2E-06	1.9E-06	Benzo(a)pyrene equivalent	NA	--	--	--	--
			Aluminum	--	--	--	--	Aluminum	Body Weight	0.01	--	0.0005	0.01
			Arsenic	1.5E-06	--	4.3E-07	1.9E-06	Arsenic	Skin, CVS	0.010	--	0.003	0.01
			(Total)	2.4E-06	--	1.6E-06	4.0E-06	(Total)		0.02	--	0.003	0.03
Groundwater	Groundwater	Site 45 - Surificial Groundwater	1,1-Dichloroethene	2.3E-05	2.3E-05	2.0E-06	4.7E-05	1,1-Dichloroethene	Liver	0.01	0.01	0.0011	0.025
			Chlorodibromomethane	3.2E-06	3.2E-06	2.6E-07	6.6E-06	Chlorodibromomethane	Liver	0.005	0.005	0.0005	0.011
			Tetrachloroethene	4.9E-03	4.9E-03	1.9E-03	1.2E-02	Tetrachloroethene	Liver	27	27	11	66
			Trans-1,2-dichloroethene	--	--	--	--	Trans-1,2-dichloroethene	Blood	0.2	0.2	0.01	0.4
			Trichloroethene	1.0E-03	1.0E-03	7.8E-04	2.8E-03	Trichloroethene	Liver	46	45.7	35	126
			Vinyl Chloride	1.0E-02	1.0E-02	3.4E-04	2.0E-02	Vinyl Chloride	Liver	6.5	6.5	0.2	13.2
			cis-1,2-dichloroethene	--	--	--	--	cis-1,2-dichloroethene	Blood	9.3	9.3	0.9	20
			(Total)	1.6E-02	1.6E-02	3.0E-03	3.5E-02	(Total)		89	89	46	225
Groundwater	Groundwater	Site 45 - Deep Groundwater	Chloroform	--	--	--	--	Chloroform	Liver	0.003	0.003	0.0008	0.006
			Tetrachloroethene	2.4E-06	2.4E-06	9.6E-07	5.8E-06	Tetrachloroethene	Liver	0.01	0.01	0.005	0.03
			Trichloroethene	2.1E-07	2.1E-07	1.6E-07	5.7E-07	Trichloroethene	Liver	0.009	0.009	0.007	0.03
			(Total)	2.6E-06	2.6E-06	1.1E-06	6.4E-06	(Total)		0.03	0.03	0.01	0.06

Total Risk Across Soil	4.0E-06
Total Risk Across Surficial Groundwater	3.5E-02
Total Risk Across Deep Groundwater	6.4E-06
Total Risk Across All Media and All Exposure Routes	3.5E-02

Total Hazard Index Across All Media and All Exposure Routes	225

Total Blood HI	20
Total Body Weight HI	0.01
Total CVS HI	0.01
Total Liver HI	205
Total Skin HI	0.01

F-88

TABLE 9.2
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
MCRD PARRIS ISLAND, SOUTH CAROLINA

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Site 45	Tetrachloroethene	4.3E-07	--	1.2E-08	4.4E-07	Tetrachloroethene	Liver	0.010	--	0.0003	0.010
			Trichloroethene	3.9E-09	--	7.2E-10	4.6E-09	Trichloroethene	Liver	0.0007	--	0.0001	0.0008
			cis-1,2-dichloroethene	--	--	--	--	cis-1,2-dichloroethene	Blood	0.0009	--	0.00003	0.0010
			Benzo(a)pyrene equivalent	1.6E-06	--	1.9E-06	3.5E-06	Benzo(a)pyrene equivalent	NA	--	--	--	--
			Aluminum	--	--	--	--	Aluminum	Body Weight	0.1	--	0.003	0.1
			Arsenic	3.5E-06	--	7.1E-07	4.2E-06	Arsenic	Skin, CVS	0.09	--	0.02	0.1
			(Total)	5.5E-06	--	2.6E-06	8.1E-06	(Total)		0.2	--	0.02	0.2
Groundwater	Groundwater	Site 45 - Surficial Groundwater	1,1-Dichloroethene	1.3E-05	1.3E-05	1.0E-06	2.7E-05	1,1-Dichloroethene	Liver	0.03	0.03	0.002	0.06
			Chlorodibromomethane	1.8E-06	1.8E-06	1.3E-07	3.8E-06	Chlorodibromomethane	Liver	0.01	0.01	0.001	0.03
			Tetrachloroethene	2.8E-03	2.8E-03	9.4E-04	6.6E-03	Tetrachloroethene	Liver	64	64	21	149
			Trans-1,2-dichloroethene	--	--	--	--	Trans-1,2-dichloroethene	Blood	0.4	0.4	0.02	0.9
			Trichloroethene	6.0E-04	6.0E-04	3.8E-04	1.6E-03	Trichloroethene	Liver	107	107	68	281
			Vinyl Chloride	5.8E-03	5.8E-03	1.7E-04	1.2E-02	Vinyl Chloride	Liver	15	15	0.4	31
			cis-1,2-dichloroethene	--	--	--	--	cis-1,2-dichloroethene	Blood	22	22	1.8	45
			(Total)	9.3E-03	9.3E-03	1.5E-03	2.0E-02	(Total)		208	208	91	507
Groundwater	Groundwater	Site 45 - Deep Groundwater	Chloroform	--	--	--	--	Chloroform	Liver	0.006	0.006	0.002	0.014
			Tetrachloroethene	1.4E-06	1.4E-06	4.7E-07	3.3E-06	Tetrachloroethene	Liver	0.032	0.032	0.011	0.074
			Trichloroethene	1.2E-07	1.2E-07	7.7E-08	3.2E-07	Trichloroethene	Liver	0.021	0.021	0.014	0.056
			(Total)	1.5E-06	1.5E-06	5.5E-07	3.6E-06	(Total)		0.06	0.06	0.03	0.1

Total Risk Across Soil	8.1E-06
Total Risk Across Surficial Groundwater	2.0E-02
Total Risk Across Deep Groundwater	3.6E-06
Total Risk Across All Media and All Exposure Routes	2.0E-02

Total Hazard Index Across All Media and All Exposure Routes	507
Total Blood HI	46
Total Body Weight HI	0.1
Total CVS HI	0.1
Total Liver HI	461
Total Skin HI	0.1

F-83

02/28/02

TABLE 9.3
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
MCRD PARRIS ISLAND, SOUTH CAROLINA

Scenario Timeframe: Future
Receptor Population : Lifetime Residents
Receptor Age: Adult / Child

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Site 45	Tetrachloroethene	6.1E-07	--	1.9E-08	6.3E-07	Tetrachloroethene	Liver	--	--	--	--
			Trichloroethene	5.5E-09	--	1.2E-09	6.7E-09	Trichloroethene	Liver	--	--	--	--
			cis-1,2-dichloroethene	--	--	--	--	cis-1,2-dichloroethene	Blood	--	--	--	--
			Benzo(a)pyrene equivalents	2.3E-06	--	3.1E-06	5.4E-06	Benzo(a)pyrene equivalents	NA	--	--	--	--
			Aluminum	--	--	--	--	Aluminum	Body Weight	--	--	--	--
			Arsenic	4.9E-06	--	1.1E-06	6.1E-06	Arsenic	Skin, CVS	--	--	--	--
			(Total)	7.9E-06	--	4.2E-06	1.2E-05	(Total)		--	--	--	--
Groundwater	Groundwater	Site 45 - Surificial Groundwater	1,1-Dichloroethene	3.6E-05	3.6E-05	3.1E-06	7.4E-05	1,1-Dichloroethene	Liver	--	--	--	--
			Chlorodibromomethane	5.0E-06	5.0E-06	3.9E-07	1.0E-05	Chlorodibromomethane	Liver	--	--	--	--
			Tetrachloroethene	7.7E-03	7.7E-03	2.9E-03	1.8E-02	Tetrachloroethene	Liver	--	--	--	--
			Trans-1,2-dichloroethene	--	--	--	--	Trans-1,2-dichloroethene	Blood	--	--	--	--
			Trichloroethene	1.6E-03	1.6E-03	1.2E-03	4.4E-03	Trichloroethene	Liver	--	--	--	--
			Vinyl Chloride	1.6E-02	1.6E-02	5.1E-04	3.2E-02	Vinyl Chloride	Liver	--	--	--	--
			cis-1,2-dichloroethene	--	--	--	--	cis-1,2-dichloroethene	Blood	--	--	--	--
			(Total)	2.5E-02	2.5E-02	4.5E-03	5.5E-02	(Total)		--	--	--	--
Groundwater	Groundwater	Site 45 - Deep Groundwater	Chloroform	--	--	--	--	Chloroform	Liver	--	--	--	--
			Tetrachloroethene	3.9E-06	3.9E-06	1.4E-06	9.2E-06	Tetrachloroethene	Liver	--	--	--	--
			Trichloroethene	3.3E-07	3.3E-07	2.3E-07	8.9E-07	Trichloroethene	Liver	--	--	--	--
			(Total)	4.2E-06	4.2E-06	1.7E-06	1.0E-05	(Total)		--	--	--	--
							Total Risk Across Soil	1.2E-05					
							Total Risk Across Surficial Groundwater	5.5E-02					
							Total Risk Across Deep Groundwater	1.0E-05					
							Total Risk Across All Media and All Exposure Routes	5.5E-02					
									Total Hazard Index Across All Media and All Exposure Routes				--

TABLE 9.4
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
MCRD PARRIS ISLAND, SOUTH CAROLINA

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface/Subsurface Soil	Surface/Subsurface Soil	Site 45	Benzo(a)pyrene equivalents	7.4E-07	4.5E-13	4.3E-07	1.2E-06	Benzo(a)pyrene equivalents	NA	--	--	--	--
			cis-1,2-dichloroethene	--	--	--	--	cis-1,2-dichloroethene	Blood	0.007	--	0.00009	0.007
			Tetrachloroethene	1.0E-05	9.4E-07	1.4E-07	1.1E-05	Tetrachloroethene	Liver	1.4	0.3	0.02	1.7
			Trichloroethene	3.2E-08	1.1E-06	2.9E-09	1.2E-06	Trichloroethene	Liver	0.03	--	0.003	0.04
			Aluminum	--	--	--	--	Aluminum	Body Weight	0.01	0.00001	0.0002	0.01
			Arsenic	6.3E-08	9.1E-13	6.4E-09	7.0E-08	Arsenic	Skin, CVS	0.010	--	0.0010	0.01
			(Total)	1.1E-05	2.1E-06	5.8E-07	1.4E-05	(Total)		1.4	0.3	0.02	1.7
Groundwater	Groundwater	Site 45 - Surficial Groundwater	1,1-Dichloroethene	--	1.4E-09	6.2E-09	7.6E-09	1,1-Dichloroethene	Liver	--	--	0.00008	0.00008
			Chlorodibromomethane	--	--	4.9E-10	4.9E-10	Chlorodibromomethane	Liver	--	--	0.00002	0.00002
			Tetrachloroethene	--	2.4E-08	3.7E-06	3.8E-06	Tetrachloroethene	Liver	--	0.008	0.5	0.5
			Trans-1,2-dichloroethene	--	--	--	--	Trans-1,2-dichloroethene	Blood	--	0.0004	0.0008	0.001
			Trichloroethene	--	5.1E-08	1.9E-06	1.9E-06	Trichloroethene	Liver	--	--	2.0	2.0
			Vinyl Chloride	--	5.3E-08	1.2E-06	1.3E-06	Vinyl Chloride	Liver	--	0.004	0.02	0.02
			cis-1,2-dichloroethene	--	--	--	--	cis-1,2-dichloroethene	Blood	--	--	0.06	0.06
			(Total)	--	1.3E-07	6.8E-06	7.0E-06	(Total)		--	0.01	2.6	2.6
							Total Risk Across Soil	1.4E-05					Total Hazard Index Across All Media and All Exposure Routes	4.3
							Total Risk Across Groundwater	7.0E-06						
							Total Risk Across All Media and All Exposure Routes	2.1E-05						

Total Blood HI	0.07
Total Body Weight HI	0.01
Total CVS HI	0.01
Total Liver HI	4.2
Total Skin HI	0.01

TABLE 9.5
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
MCRD PARRIS ISLAND, SOUTH CAROLINA

Scenario Timeframe: Future
Receptor Population: Commercial Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Site 45	Tetrachloroethene	6.8E-08	--	9.0E-09	7.7E-08	Tetrachloroethene	Liver	0.0004	--	0.00005	0.0004
			Trichloroethene	6.2E-10	--	5.4E-10	1.2E-09	Trichloroethene	Liver	0.00003	--	0.00002	0.00005
			cis-1,2-dichloroethene	--	--	--	--	cis-1,2-dichloroethene	Blood	0.00004	--	0.000005	0.00004
			Benzo(a)pyrene equivalents	2.6E-07	--	1.4E-06	1.7E-06	Benzo(a)pyrene equivalents	NA	--	--	--	--
			Aluminum	--	--	--	--	Aluminum	Body Weight	0.005	--	0.0006	0.005
			Arsenic	5.5E-07	--	5.3E-07	1.1E-06	Arsenic	Skin, CVS	0.003	--	0.003	0.007
			(Total)	8.8E-07	--	2.0E-06	2.9E-06	(Total)		0.008	--	0.004	0.01
							Total Risk Across Soil	2.9E-06					Total Hazard Index Across All Media and All Exposure Routes	0.01
							Total Risk Across All Media and All Exposure Routes	2.9E-06						

Total Blood HI	0.00004
Total Body Weight HI	0.005
Total CVS HI	0.007
Total Liver HI	0.0005
Total Skin HI	0.007

TABLE 9.6
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
MCRD PARRIS ISLAND, SOUTH CAROLINA

Scenario Timeframe: Future
Receptor Population: Maintenance Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Site 45	Tetrachloroethene	2.7E-08	--	1.8E-09	2.9E-08	Tetrachloroethene	Liver	0.0001	--	0.000010	0.0002
			Trichloroethene	2.5E-10	--	1.1E-10	3.5E-10	Trichloroethene	Liver	0.00001	--	0.000005	0.00002
			cis-1,2-dichloroethene	--	--	--	--	cis-1,2-dichloroethene	Blood	0.00001	--	0.0000009	0.00002
			Benzo(a)pyrene equivalents	1.0E-07	--	2.9E-07	3.9E-07	Benzo(a)pyrene equivalents	NA	--	--	--	--
			Aluminum	--	--	--	--	Aluminum	Body Weight	0.002	--	0.0001	0.002
			Arsenic	2.2E-07	--	1.1E-07	3.3E-07	Arsenic	Skin, CVS	0.001	--	0.0007	0.002
			(Total)	3.5E-07	--	3.9E-07	7.5E-07	(Total)		0.003	--	0.0008	0.004
						Total Risk Across Soil	7.5E-07		Total Hazard Index Across All Media and All Exposure Routes				0.004
						Total Risk Across All Media and All Exposure Routes	7.5E-07						

Total Blood HI	0.00002
Total Body Weight HI	0.002
Total CVS HI	0.002
Total Liver HI	0.0002
Total Skin HI	0.002

F-87

TABLE 9.7
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
MCRD PARRIS ISLAND, SOUTH CAROLINA

Scenario Timeframe: Future
Receptor Population: Visitors
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Site 45	Tetrachloroethene	1.4E-08	--	4.2E-10	1.4E-08	Tetrachloroethene	Liver	0.00007	--	0.000006	0.00008
			Trichloroethene	1.2E-10	--	2.5E-11	1.5E-10	Trichloroethene	Liver	0.000005	--	0.000003	0.000008
			cis-1,2-dichloroethene	--	--	--	--	cis-1,2-dichloroethene	Blood	0.000007	--	0.0000005	0.000008
			Benzo(a)pyrene equivalents	5.2E-08	--	6.6E-08	1.2E-07	Benzo(a)pyrene equivalents	NA	--	--	--	--
			Aluminum	--	--	--	--	Aluminum	Body Weight	0.0009	--	0.00007	0.0010
			Arsenic	1.1E-07	--	2.5E-08	1.3E-07	Arsenic	Skin, CVS	0.0007	--	0.0004	0.001
			(Total)	1.8E-07	--	9.1E-08	2.7E-07	(Total)		0.002	--	0.0005	0.002
							Total Risk Across Soil	2.7E-07					Total Hazard Index Across All Media and All Exposure Routes	0.002
							Total Risk Across All Media and All Exposure Routes	2.7E-07						

Total Blood HI	0.000008
Total Body Weight HI	0.0010
Total CVS HI	0.001
Total Liver HI	0.00009
Total Skin HI	0.001

T1
-
00
00

TABLE 10.1
RISK ASSESSMENT SUMMARY
REASONABLE MAXIMUM EXPOSURE
MCRD PARRIS ISLAND, SOUTH CAROLINA

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Site 45	Benzo(a)pyrene equivalent	7.0E-07	--	1.2E-06	1.9E-06	Benzo(a)pyrene equivalent	NA	--	--	--	--
			Arsenic	1.5E-06	--	4.3E-07	1.9E-06	Arsenic	Skin, CVS	0.010	--	0.003	0.01
			(Total)	2.2E-06	--	1.6E-06	3.8E-06	(Total)		0.01	--	0.003	0.01
Groundwater	Groundwater	Site 45 - Surificial Groundwater	1,1-Dichloroethene	2.3E-05	2.3E-05	2.0E-06	4.7E-05	1,1-Dichloroethene	Liver	0.01	0.01	0.0011	0.025
			Chlorodibromomethane	3.2E-06	3.2E-06	2.6E-07	6.6E-06	Chlorodibromomethane	Liver	0.005	0.005	0.0005	0.011
			Tetrachloroethene	4.9E-03	4.9E-03	1.9E-03	1.2E-02	Tetrachloroethene	Liver	27	27	11	66
			Trichloroethene	1.0E-03	1.0E-03	7.8E-04	2.8E-03	Trichloroethene	Liver	46	45.7	35	126
			Vinyl Chloride	1.0E-02	1.0E-02	3.4E-04	2.0E-02	Vinyl Chloride	Liver	6.5	6.5	0.2	13.2
			cis-1,2-dichloroethene	--	--	--	--	cis-1,2-dichloroethene	Blood	9.3	9.3	0.9	20
			(Total)	1.6E-02	1.6E-02	3.0E-03	3.5E-02	(Total)		89	89	46	224
Groundwater	Groundwater	Site 45 - Deep Groundwater	Tetrachloroethene	2.4E-06	2.4E-06	9.6E-07	5.8E-06	Tetrachloroethene	Liver	0.01	0.01	0.005	0.03
			(Total)	2.4E-06	2.4E-06	9.6E-07	5.8E-06	(Total)		0.01	0.01	0.01	0.03

Total Risk Across Soil	3.8E-06
Total Risk Across Surficial Groundwater	3.5E-02
Total Risk Across Deep Groundwater	5.8E-06
Total Risk Across All Media and All Exposure Routes	3.5E-02

Total Hazard Index Across All Media and All Exposure Routes	224
Total Blood HI	20
Total Body Weight HI	0.00
Total CVS HI	0.01
Total Liver HI	205
Total Skin HI	0.01

TABLE 10.2
RISK ASSESSMENT SUMMARY
REASONABLE MAXIMUM EXPOSURE
MCRD PARRIS ISLAND, SOUTH CAROLINA

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Site 45	Benzo(a)pyrene equivalent	1.6E-06	--	1.9E-06	3.5E-06	Benzo(a)pyrene equivalent	NA	--	--	--	--
			Arsenic	3.5E-06	--	7.1E-07	4.2E-06	Arsenic	Skin, CVS	0.09	--	0.02	0.1
			(Total)	5.1E-06	--	2.6E-06	7.7E-06	(Total)		0.1	--	0.02	0.1
Groundwater	Groundwater	Site 45 - Surficial Groundwater	1,1-Dichloroethene	1.3E-05	1.3E-05	1.0E-06	2.7E-05	1,1-Dichloroethene	Liver	0.03	0.03	0.002	0.06
			Chlorodibromomethane	1.8E-06	1.8E-06	1.3E-07	3.8E-06	Chlorodibromomethane	Liver	0.01	0.01	0.001	0.03
			Tetrachloroethene	2.8E-03	2.8E-03	9.4E-04	6.6E-03	Tetrachloroethene	Liver	64	64	21	149
			Trichloroethene	6.0E-04	6.0E-04	3.8E-04	1.6E-03	Trichloroethene	Liver	107	107	68	281
			Vinyl Chloride	5.8E-03	5.8E-03	1.7E-04	1.2E-02	Vinyl Chloride	Liver	15	15	0.4	31
			cis-1,2-dichloroethene	--	--	--	--	cis-1,2-dichloroethene	Blood	22	22	1.8	45
			(Total)	9.3E-03	9.3E-03	1.5E-03	2.0E-02	(Total)		207	207	91	506
Groundwater	Groundwater	Site 45 - Deep Groundwater	Tetrachloroethene	1.4E-06	1.4E-06	4.7E-07	3.3E-06	Tetrachloroethene	Liver	0.032	0.032	0.011	0.074
			(Total)	1.4E-06	1.4E-06	4.7E-07	3.3E-06	(Total)		0.03	0.03	0.01	0.1

Total Risk Across Soil	7.7E-06
Total Risk Across Surficial Groundwater	2.0E-02
Total Risk Across Deep Groundwater	3.3E-06
Total Risk Across All Media and All Exposure Routes	2.0E-02

Total Hazard Index Across All Media and All Exposure Routes	506
Total Blood HI	45
Total Body Weight HI	0.0
Total CVS HI	0.1
Total Liver HI	461
Total Skin HI	0.1

F-90

TABLE 10.3
RISK ASSESSMENT SUMMARY
REASONABLE MAXIMUM EXPOSURE
MCRD PARRIS ISLAND, SOUTH CAROLINA

Scenario Timeframe: Future
Receptor Population : Lifetime Residents
Receptor Age: Adult / Child

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Site 45	Benzo(a)pyrene equivalents	2.3E-06	--	3.1E-06	5.4E-06	Benzo(a)pyrene equivalents	NA	--	--	--	--
			Arsenic	4.9E-06	--	1.1E-06	6.1E-06	Arsenic	Skin, CVS	--	--	--	--
			(Total)	7.2E-06	--	4.2E-06	1.1E-05	(Total)		--	--	--	--
Groundwater	Groundwater	Site 45 - Surificial Groundwater	1,1-Dichloroethene	3.6E-05	3.6E-05	3.1E-06	7.4E-05	1,1-Dichloroethene	Liver	--	--	--	--
			Chlorodibromomethane	5.0E-06	5.0E-06	3.9E-07	1.0E-05	Chlorodibromomethane	Liver	--	--	--	--
			Tetrachloroethene	7.7E-03	7.7E-03	2.9E-03	1.8E-02	Tetrachloroethene	Liver	--	--	--	--
			Trichloroethene	1.6E-03	1.6E-03	1.2E-03	4.4E-03	Trichloroethene	Liver	--	--	--	--
			Vinyl Chloride	1.6E-02	1.6E-02	5.1E-04	3.2E-02	Vinyl Chloride	Liver	--	--	--	--
			(Total)	2.5E-02	2.5E-02	4.5E-03	5.5E-02	(Total)		--	--	--	--
Groundwater	Groundwater	Site 45 - Deep Groundwater	Tetrachloroethene	3.9E-06	3.9E-06	1.4E-06	9.2E-06	Tetrachloroethene	Liver	--	--	--	--
			(Total)	3.9E-06	3.9E-06	1.4E-06	9.2E-06	(Total)		--	--	--	--

Total Risk Across Soil	1.1E-05
Total Risk Across Surficial Groundwater	5.5E-02
Total Risk Across Deep Groundwater	9.2E-06
Total Risk Across All Media and All Exposure Routes	5.5E-02

Total Hazard Index Across All Media and All Exposure Routes	--

F-91

TABLE 10.4
RISK ASSESSMENT SUMMARY
REASONABLE MAXIMUM EXPOSURE
MCRD PARRIS ISLAND, SOUTH CAROLINA

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface/Subsurface Soil	Surface/Subsurface Soil	Site 45	Benzo(a)pyrene equivalents	7.4E-07	4.5E-13	4.3E-07	1.2E-06	Benzo(a)pyrene equivalents	NA	--	--	--	--
			Tetrachloroethene	1.0E-05	9.4E-07	1.4E-07	1.1E-05	Tetrachloroethene	Liver	1.4	0.3	0.02	1.7
			Trichloroethene	3.2E-08	1.1E-06	2.9E-09	1.2E-06	Trichloroethene	Liver	0.03	--	0.003	0.04
			(Total)	1.1E-05	2.1E-06	5.7E-07	1.3E-05	(Total)		1.4	0.3	0.02	1.7
Groundwater	Groundwater	Site 45 - Surficial Groundwater	Tetrachloroethene	--	2.4E-08	3.7E-06	3.8E-06	Tetrachloroethene	Liver	--	0.008	0.5	0.5
			Trichloroethene	--	5.1E-08	1.9E-06	1.9E-06	Trichloroethene	Liver	--	--	2.0	2.0
			Vinyl Chloride	--	5.3E-08	1.2E-06	1.3E-06	Vinyl Chloride	Liver	--	0.004	0.02	0.02
			(Total)	--	1.3E-07	6.8E-06	7.0E-06	(Total)		--	0.01	2.5	2.5
						Total Risk Across Soil	1.3E-05					Total Hazard Index Across All Media and All Exposure Routes	4.2
						Total Risk Across Groundwater	7.0E-06						
						Total Risk Across All Media and All Exposure Routes	2.0E-05					Total Liver HI	4.2

T-69

TABLE 10.5
RISK ASSESSMENT SUMMARY
REASONABLE MAXIMUM EXPOSURE
MCRD PARRIS ISLAND, SOUTH CAROLINA

Scenario Timeframe: Future
Receptor Population: Commercial Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Site 45	Benzo(a)pyrene equivalents	2.6E-07	--	1.4E-06	1.7E-06	Benzo(a)pyrene equivalents	NA	--	--	--	--
			Arsenic	5.5E-07	--	5.3E-07	1.1E-06	Arsenic	Skin, CVS	0.003	--	0.003	0.007
			(Total)	8.1E-07	--	2.0E-06	2.8E-06	(Total)		0.003	--	0.003	0.007
						Total Risk Across Soil	2.8E-06					Total Hazard Index Across All Media and All Exposure Routes	0.007
						Total Risk Across All Media and All Exposure Routes	2.8E-06						

Total CVS HI	0.007
Total Skin HI	0.007

TABLE 10.6
RISK ASSESSMENT SUMMARY
REASONABLE MAXIMUM EXPOSURE
MCRD PARRIS ISLAND, SOUTH CAROLINA

Scenario Timeframe: Future
Receptor Population: Maintenance Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Site 45	Tetrachloroethene	2.7E-08	--	1.8E-09	2.9E-08	Tetrachloroethene	Liver	0.0001	--	0.000010	0.0002
			Trichloroethene	2.5E-10	--	1.1E-10	3.5E-10	Trichloroethene	Liver	0.00001	--	0.000005	0.00002
			cis-1,2-dichloroethene	--	--	--	--	cis-1,2-dichloroethene	Blood	0.00001	--	0.0000009	0.00002
			Benzo(a)pyrene equivalents	1.0E-07	--	2.9E-07	3.9E-07	Benzo(a)pyrene equivalents	NA	--	--	--	--
			Aluminum	--	--	--	--	Aluminum	Body Weight	0.002	--	0.0001	0.002
			Arsenic	2.2E-07	--	1.1E-07	3.3E-07	Arsenic	Skin, CVS	0.001	--	0.0007	0.002
			(Total)	3.5E-07	--	3.9E-07	7.5E-07	(Total)		0.003	--	0.0008	0.004
						Total Risk Across Soil	7.5E-07					Total Hazard Index Across All Media and All Exposure Routes	0.004
						Total Risk Across All Media and All Exposure Routes	7.5E-07						

Total Blood HI	0.00002
Total Body Weight HI	0.002
Total CVS HI	0.002
Total Liver HI	0.0002
Total Skin HI	0.002

T-94

TABLE 10.7
RISK ASSESSMENT SUMMARY
REASONABLE MAXIMUM EXPOSURE
MCRD PARRIS ISLAND, SOUTH CAROLINA

Scenario Timeframe: Future
Receptor Population: Visitors
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Site 45	Tetrachloroethene	1.4E-08	--	4.2E-10	1.4E-08	Tetrachloroethene	Liver	0.00007	--	0.000006	0.00008
			Trichloroethene	1.2E-10	--	2.5E-11	1.5E-10	Trichloroethene	Liver	0.000005	--	0.000003	0.000008
			cis-1,2-dichloroethene	--	--	--	--	cis-1,2-dichloroethene	Blood	0.000007	--	0.0000005	0.000008
			Benzo(a)pyrene equivalents	5.2E-08	--	6.6E-08	1.2E-07	Benzo(a)pyrene equivalents	NA	--	--	--	--
			Aluminum	--	--	--	--	Aluminum	Body Weight	0.0009	--	0.00007	0.0010
			Arsenic	1.1E-07	--	2.5E-08	1.3E-07	Arsenic	Skin, CVS	0.0007	--	0.0004	0.001
			(Total)	1.8E-07	--	9.1E-08	2.7E-07	(Total)		0.002	--	0.0005	0.002
						Total Risk Across Soil	2.7E-07						
						Total Risk Across All Media and All Exposure Routes	2.7E-07						

Total Hazard Index Across All Media and All Exposure Routes: 0.002

Total Blood HI	0.000008
Total Body Weight HI	0.0010
Total CVS HI	0.001
Total Liver HI	0.00009
Total Skin HI	0.001

F-95

APPENDIX F-3

SUPPORTING INFORMATION

SCREENING CRITERIA FOR ESSENTIAL NUTRIENTS
DERIVATION OF SURFACE SOIL AND GROUNDWATER SCREENING CONCENTRATIONS OF ESSENTIAL NUTRIENTS

Certain inorganics (calcium, magnesium, potassium, and sodium) that are present as naturally occurring constituents in soil and groundwater are required in limited intakes to maintain normal human physiological functions and are, therefore, considered essential nutrients. The Risk Assessment Guidance for Superfund (RAGS), Volume I, Part A, regarding the treatment of essential nutrients in selection of human health contaminants of potential concern (COPCs), states that essential nutrients need not be quantitatively evaluated in a public health risk assessment if they are (1) present at low concentrations (only slightly above background) and (2) toxic only at doses much higher than those which might be related to exposure at the site (USEPA, 1989). The focus of this section of the document is the technical approach for determining that an analyte is "toxic only at doses higher than those associated with exposures at the site" and a mechanism for making that determination by employing soil and groundwater screening concentrations. The screening concentrations are used to streamline the process and to eliminate the need to calculate essential nutrient doses as part of COPCs selection at every site. If the maximum concentration of an essential nutrient does not exceed the appropriate screening concentration shown below, the essential nutrient is considered nontoxic. Essential nutrients are not retained as COPCs if they are detected at concentrations that are either consistent with background or do not exceed the screening concentrations.

Currently, no published essential nutrient screening concentrations for use in risk assessment COPC selection are available. Therefore, surface soil and groundwater screening concentrations of essential nutrients have been derived that, when contacted in accordance with the exposure assumptions described below, are not expected to result in adverse health effects. The screening concentrations for groundwater and surface soil are presented in Table 1. The essential nutrient concentrations in surface sol and groundwater are to be compared directly to the nutrient screening concentrations for the purposes of COPC selection.

DOCUMENTATION OF SURFACE SOIL AND GROUNDWATER SCREENING CONCENTRATIONS

The essential nutrient toxicity screening concentrations were derived in two steps: first, a "nontoxic" dose was identified for each essential nutrient; second, the soil and groundwater concentrations associated with the "nontoxic" doses were calculated using standard residential exposure assumptions. The details of the derivation of the screening values are presented below.

Identification of Nontoxic Doses. The identification of doses which are not toxic is often accomplished by identifying reference doses (RfDs), which are published by USEPA. These RfDs represent doses, including a margin of safety, to which even sensitive subpopulations could be exposed for a lifetime without adverse noncarcinogenic effects. Because no RfDs for calcium, magnesium, potassium, or sodium are available in the Integrated Risk Information System (IRIS) (USEPA, 1999b) or the Health Effects Assessment Summary Tables (HEAST) (USEPA, 1997a), other published nontoxic doses were sought out. Recommended Dietary Allowances (RDAs) prepared by the Food and Nutrition Board (FNB) of the National Research Council (NRC, 1989) have been selected here to represent nontoxic doses.

TABLE 1

ESSENTIAL NUTRIENT SCREENING CONCENTRATIONS FOR SURFACE SOIL AND GROUNDWATER

Essential Nutrient	Surface Soil Screening Concentration (mg/kg)	Groundwater Screening Concentration (µg/l)
Calcium	1,000,000(1)	1,055,398
Magnesium	460,468	118,807
Potassium	1,000,000(1)	297,016
Sodium	1,000,000(1)	396,022

1 Actual calculated screening concentration is greater than 1,000,000 milligrams per kilogram, indicating that this essential nutrient would not be present at toxic levels in surface soil.

Notes: As described below, screening concentrations for surface sol and groundwater represent conservative screening concentrations for other media. These surface soil and groundwater screening concentrations are used to screen sediment, subsurface soil, sludge, and surface water, respectively.

mg/kg = milligrams per kilogram.
µg/l = micrograms per liter

RDAs are defined by the FNB as "the levels of intake of essential nutrients that, on the basis of scientific knowledge, are judged by the Food and Nutrition Board to be adequate to meet the known nutrient needs of practically all healthy persons." It is assumed here that because the RDA represents a requirement for good nutrition, it also represents a dose that is nontoxic. Although some essential nutrients (arsenic for example) have been classified as carcinogens, none of the five nutrients discussed here have been classified as carcinogens. The available RDA data for calcium, magnesium, potassium, and sodium are presented in Table 2. From this data set, RDAs for children were preferentially selected to coincide with the child exposure scenario. RDAs were converted from units of milligrams per day to units of milligrams per kilogram per day by dividing the RDA by the child resident body weight of 15 kilograms (USEPA, 1991). Dermal RDAs were developed by adjusting the oral RDA to compensate for the oral absorption efficiency in a manner similar to that presented in Appendix A of RAGS, Volume I, Part A (USEPA, 1989).

TABLE 2

RECOMMENDED DIETARY ALLOWANCES[1]

Nutrient	RDA	Age (years)	Oral Absorption (Percent)	Typical Dietary Intake (mg/day)	Toxicity Threshold (mg/day)	Oral RDA (mg/kg/day)[2]	Dermal RDA (mg/kg/day)[3]
Calcium	800 (mg/day) 1,200 (mg/day) 800 (mg/day)	1 - 10 11 - 24 >24	40	743 (average of all ages) 1,179 743 (average of all ages); 530 (women ages 35-50)	NA NA >2,500	53.3	21.2
Magnesium	6 (mg/kg/day) 4.5 (mg/kg/day)	1 - 15 >15	50	193 (age 1-5) 207 - 329	NA NA	6	3
Potassium	15 - 20 (mg/kg/day) 1,600 - 2,000 (mg/day)	1 - 10 >20	90	1,500 2,500	NA 18,000 (hyperkalemia)	15	13.5
Sodium	300 (mg/day) 500 (mg/day)	2 - 5 Adult	90[4]	NA 1,800 - 5,000	NA 2,400 (Intake not to be exceeded)	20 20	18 18

1 All data are from the National Resource Council (1989).
2 Adjusted oral recommended daily allowance (RDA) calculated by dividing the RDA (milligrams per kilogram) by the bodyweight of a child ages 1 to 6 (15 kilogram) (USEPA, 1991); RDAs provided in milligrams per kilogram per day were modified.
3 Adjusted dermal RDA calculated by multiplying the oral RDA by the oral absorption efficiency (USEPA, 1989).
4 Oral absorption data not available; value for potassium used as a surrogate based on physio-chemical similarities.

Notes: RDA = recommended daily allowance.
mg/day = milligrams per day.
mg/kg = milligrams per kilogram.
mg/kg/day = milligrams per kilogram per day.

To derive screening concentrations that would be protective to the majority of the exposed population, the exposure assumptions for the most sensitive receptor (e.g., a child resident) were used. For groundwater, screening concentrations were based on ingestion of groundwater as drinking water. For surface soil, screening concentrations were based on ingestion of surface soil and dermal contact with surface soil. Child resident exposure to surface soil and groundwater used as drinking water is usually greater than or equal to oral and dermal exposure to media treated as soil and groundwater, respectively, for exposure assessment. Therefore, screening values for surface soil represent conservative screening values for sediment, subsurface soil, and sludge, and screening values for groundwater used as drinking water represent conservative screening values for surface water.

The calculated essential nutrient screening concentrations for surface soil and groundwater are presented in Table 1. These values represent the concentrations of individual essential nutrients in media that if contacted in accordance with the exposure parameters used to derive the screening concentration, it would theoretically results in the receptor receiving his or her recommended dietary allowance of an essential nutrient solely from the contacted media. For some nutrients, the calculated screening concentrations exceed 1,000,000 mg/kg (i.e., 100 percent). Such concentrations indicate that no concentration of nutrient in the particular medium would result in an intake that exceeds the RDA, given the exposure assumptions on which the screening value is based. Because these screening concentrations do not take into account the additivity of exposures between media (and other dietary intakes, including food), a receptor exposed to essential nutrients that are present in multiple media at the screening concentrations would, in essence, be receiving more than his or her recommended dietary allowance of nutrient. However, data provided in Table 2 indicate that the toxicity threshold for most essential nutrients is several times greater than the RDA; the RDA is not a toxicity threshold value. Therefore, these screening concentrations do not represent concentrations which, if exceeded, would necessarily result in deleterious effects.

APPENDIX F-4

TOXICOLOGICAL PROFILES FOR CHEMICALS OF POTENTIAL CONCERN

1.0 ALUMINUM

Aluminum is a silver-white flexible metal with a vast number of uses. It is poorly absorbed and efficiently eliminated; however, when absorption does occur, aluminum is distributed mainly in bone, liver, testes, kidneys, and brain.

1.1 Noncancer Toxicity

Aluminum may be involved in Alzheimer's disease (dialysis dementia) and in Amyotrophic Lateral Sclerosis and Parkinsonism-Dementia Syndromes of Guam (Guam ALS-PD complex). Aluminum content of brain, muscle, and bone increases in Alzheimer's patients. Neurofibrillary tangles (NFTs) are found in patients suffering from aluminum encephalopathy and Alzheimer's disease. Symptoms of "dialysis dementia" include speech disorders, dementia, convulsions, and myoclonus. People of Guam and Rota have an unusually high incidence of neurodegenerative diseases. The volcanic soil in the region of Guam where the high incidence of ALS-PD occurs contains high levels of aluminum and manganese. Neurological effects have also been observed in rats orally exposed to aluminum compounds.

The respiratory system appears to be the primary target following inhalation exposure to aluminum. Alveolar proteinosis has been observed in guinea pigs, rats, and hamsters exposed to aluminum powders. No decrease in reproductive capacity, hormonal abnormalities, or testicular histopathology was observed in male rats exposed to aluminum in drinking water for 90 days. However, male rats exposed to aluminum (as aluminum chloride) via gavage for 6 months exhibited decreased spermatozoa counts and sperm motility, and testicular histological and histochemical changes.

Subchronic and chronic reference doses and reference concentrations have not been derived for aluminum. However, the EPA's National Center for Environmental Assessment (NCEA) has developed a provisional oral RfD of 1.0 mg/kg/day and an inhalation reference dose of 0.001 mg/kg/day.

1.2 Carcinogenicity

The U.S. EPA has not evaluated aluminum or aluminum compounds for carcinogenicity, and a weight-of-evidence classification is currently not assigned.

2.0 ARSENIC

2.1 Pharmacokinetics

Several studies confirm that soluble inorganic arsenic compounds and organic arsenic compounds are almost completely (>90 percent) absorbed from the GI tract in both animals and humans. The absorption

efficiency of insoluble inorganic arsenic compounds depends on particle size an stomach pH. Initial distribution of absorbed arsenic is to the liver, kidneys, and lungs, flowed by redistribution to hair, nails, teeth, bone, and skin, which are considered tissues of accumulation. Arsenic has a long half-life in the blood of rats, compared with other animals and humans, because of firm binding to the hemoglobin in erythrocytes.

Metabolism of inorganic arsenic includes reversible oxidation-reduction so that both arsenite (valence of 3) and arsenate (valence of 5) are present in the urine of animals treated with arsenic of either valence. Arsenite is subsequently oxidized and methylated by a saturable mechanism to form mono- or dimethylarsenate; the latter is the predominant metabolite in the urine of animals or humans. Organic arsenic compounds (arsenilic acid, cacodylic acid) are not readily converted to inorganic arsenic. Excretion of organic or inorganic arsenic is largely via the urine, but considerable species variation exists. Continuously exposed humans appear to excrete 60 to 70 percent of their daily intake of arsenate or arsenite via the urine.

2.2 Noncancer Toxicity

A lethal dose of arsenic trioxide in humans is 70 to 180 milligrams (approximately 50 to 140 mg arsenic. Acute oral exposure of humans to high doses of arsenic produce liver swelling, skin lesions, disturbed heart function, and neurological effects. The only noncancer effects in humans clearly attributable to chronic oral exposure to arsenic are dermal hyperpigmentation and keratosis, as revealed by studies of several hundred Chinese exposed to naturally occurring arsenic in well water. Similar effects were observed in persons exposed to high levels of arsenic in water in Utah and the northern part of Mexico. Occupational (predominantly inhalation) exposure is also associated with neurological deficits, anemia, and cardiovascular effects, but concomitant exposure to other chemicals cannot be ruled out. The EPA derived an RfD of 0.0003 mg/kg/day for chronic oral exposure, based on an NOAEL of 0.0008 mg/kg/day for skin lesions from Chinese data. The principal target organ for arsenic appears to be the skin. The nervous system and cardiovascular systems appear to be less significant target organs. Inorganic arsenic may be an essential nutrient, exerting beneficial effects on growth, health, and feed conversion efficiency .

2.3 Carcinogenicity

Inorganic arsenic is clearly a carcinogen in humans. Inhalation exposure is associated with increased risk of lung cancer in persons employed as smelter workers, in arsenical pesticide applicators, and in a population residing near a pesticide manufacturing plant. Oral exposure to high levels in well water is associated with increased risk of skin cancer. Extensive animal testing with various forms of arsenic given by many routes of exposure to several species, however, has not demonstrated the carcinogenicity

of arsenic. The EPA classifies inorganic arsenic in cancer weight-of-evidence Group A (human carcinogen), and recommends an oral unit risk of 0.00005 ug/L in drinking water, based on the incidence of skin cancer in the Chinese study. The EPA presents a chronic oral slope factor of 1.5 per mg/kg/day based on the same information. The EPA notes that the uncertainties associated with the oral unit risk are considerably less than those for most carcinogens, so that the unit risk might be reduced in order of magnitude. An inhalation unit risk of 0.0043 per mg/m^3 was derived for inorganic arsenic from the incidence of lung cancer in occupationally exposed men, equivalent to 15.1 per mg/kg/day, was derived from the same data assuming an inhalation rate of 20 m^3/day and a body weight of 70 kg for humans.

3.0 BENZO(A)ANTHRACENE

3.1 Noncancer Toxicity

The oral and inhalation RfD and RfC are not available at this time.

3.2 Carcinogenicity

Benzo(a)anthracene has a weight of evidence classification of B2, a probable human carcinogen. The classification was based on sufficient data from animal bioassays. Benzo(a)anthracene produced tumors in mice exposed by gavage; intraperitoneal, subcutaneous or intramuscular injection; and topical application. Benzo(a)anthracene produced mutations in bacteria and in mammalian cells, and transformed mammalian cells in culture.

Although there are no human data that specifically link exposure to benzo(a)anthracene to human cancers, benzo(a)anthracene is a component of mixtures that have been associated with human cancer. These include coal tar, soot, coke oven emissions and cigarette smoke.

Benzo(a)anthracene administration caused an increase in the incidence of tumors by gavage; dermal application; and both subcutaneous injection and intraperitoneal injection assays. A group of male mice was exposed to gavage solutions containing 3% benzo(a)anthracene for 5 weeks. There was an increased incidence of pulmonary adenomas and hepatomas.

Supporting data for carcinogenicity include genetic mutations in five different strains of Salmonella typhimurium. Benzo(a)anthracene produced positive results in an assay for mutations in Drosophila melongaster.

The currently used Oral Slope Factor (CSF) for benzo(a)anthracene is 0.73 per (mg/kg)/day which is extrapolated from the CSF for benzo(a)pyrene (BaP), i.e., 0.1 x 7.3 (BaP) = 0.73 per (mg/kg)/day).

4.0 BENZO(A)PYRENE (BAP)

4.1 Pharmacokinetics

Benzo(a)pyrene was readily absorbed across the GI and respiratory epithelia. Benzo(a)pyrene was distributed widely in the tissues of treated rats and mice, but primarily to tissues high in fat, such as adipose tissue and mammary gland.

Studies of the metabolism of benzo(a)pyrene provide information relevant to other PAHs because of the structural similarities of all members of the class. Metabolism involves microsomal mixed function oxidase hydroxylation of one or more of the phenyl rings with the formation of phenols and dihydrodiols, probably via formation of arene oxide intermediates. The dihydrodiols may be further oxidized to diol epoxides, which, for certain members of the class, are known to be the ultimate carcinogens. Conjugation with glutathione or glucuronic acid, and reduction to tetrahydrotetrols are important detoxification pathways.

Excretion of benzo(a)pyrene residue was reported to be rapid, although quantitative data were not located. Excretion occurred mainly via the feces, probably largely due to biliary secretion. The EPA concluded that accumulation in the body tissues of PAHs from chronic low level exposure would be unlikely.

4.2 Noncancer Toxicity

The oral RfD and inhalation RfC are not available at this time.

4.3 Carcinogenicity

The PAHs are ubiquitous, being released to the environment from anthropogenic as well as from natural sources. Benzo(a)pyrene is the most extensively studied member of the class, inducing tumors in multiple tissues of virtually all laboratory species tested by all routes of exposure. Although epidemiology studies suggested that complex mixtures that contain PAHs (coal tar, soots, coke oven emissions, cigarette smoke) are carcinogenic to humans, the carcinogenicity cannot be attributed to PAHs alone because of the presence of other potentially carcinogenic substances in these mixtures. In addition, recent investigations showed that the PAH fraction of roofing tar, cigarette smoke, and coke oven emissions accounted for only 0.1 to 8 percent of the total mutagenic activity of the unfractionated complex mixture in Salmonella. Aromatic amines, nitrogen heterocyclic compounds, highly oxygenated quinones, diones, and nitrooxygenated compounds, none of which would be expected to arise from in vivo metabolism of PAHs,

probably accounted for the majority of the mutagenicity of coke oven emissions and cigarette smoke. Coal tar, which contains a mixture of many PAHs, has a long history of use in the clinical treatment of a variety of skin disorders in humans.

Because of the lack of human cancer data, assignment of individual PAHs to EPA cancer weight-of-evidence groups was based largely on the results of animal studies with large doses of purified compound. Frequently, unnatural routes of exposure, including implants of the test chemical in beeswax and trioctanoin in the lungs of female Osborne-Mendel rats, intratracheal instillation, and subcutaneous or intraperitoneal injection, were used. Benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene were classified in Group B2 (probable human carcinogens).

The EPA verified a slope factor for oral exposure to benzo(a)pyrene of 7.3 per mg/kg/day, based on several dietary studies in mice and rats. Neither verified nor provisional quantitative risk estimates were available for the other PAHs in Group B2. The EPA promulgated an ambient water quality criterion for "total carcinogenic PAHs," based on an oral slope factor derived from a study with benzo(a)pyrene, as being sufficiently protective for the class. Largely because of this precedent, the quantitative risk estimates for benzo(a)pyrene were adopted for the other carcinogenic PAHs when quantitative estimates were needed. The EPA has calculated an inhalation slope factor for benzo(a)pyrene of 3.1 per mg/kg/day.

Human data specifically linking benzo(a)pyrene to a carcinogenic effect are lacking. There are, however, multiple animal studies in many species demonstrating benzo(a)pyrene to be carcinogenic following administration by numerous routes. In addition, benzo(a)pyrene has produced positive results in numerous genotoxicity assays.

The data for animal carcinogenicity was sufficient. The animal data consist of dietary, gavage, inhalation, intratracheal instillation, dermal and subcutaneous studies in numerous strains of at least four species of rodents and several primates. Repeated benzo(a)pyrene administration has been associated with increased incidences of total tumors and of tumors at the site of exposure. The tumor types in mice from oral diet studies include forestomach, squamous cell papillomas and carcinomas.

Benzo(a)pyrene has been shown to cause genotoxic effects in a broad range of prokaryotic and mammalian cell assay systems.

5.0 BENZO(B)FLUORANTHENE

5.1 Noncancer Toxicity

Little information is available on benzo(b)fluoranthene. However, based on the similarities of chemical structures, most properties should be similar to benzo(a)pyrene.

5.2 Carcinogenicity

No long-term oral or inhalation bioassays were available to assess the carcinogenicity of benzo(b)fluoranthene. Benzo(b)fluoranthene was tested for carcinogenicity in dermal application, lung implantation, subcutaneous (s.c.) injection, and intraperitoneal (i.p.) injection studies. Dermal applications of 0.01-0.5% solutions of benzo(b)fluoranthene for life produced a high incidence of skin papillomas and carcinomas in mice (Wynder and Hoffmann, 1959). In initiation-promotion assays, the compound was active as an initiator of skin carcinogenesis in mice (LaVoie et al., 1982; Amin et al., 1985). Sarcomas and carcinomas of the lungs and thorax were seen in rats receiving single lung implants of 0.1-1 mg benzo(b)fluoranthene (Deutsch-Wenzel et al., 1983). Newborn mice receiving 0.5 umol benzo(b)fluoranthene via i.p. injection developed liver and lung tumors (LaVoie et al., 1987), and mice administered three s.c. injections of 0.6 mg benzo(b)fluoranthene developed injection site sarcomas (IARC, 1993).

Based on no human data and sufficient evidence for carcinogenicity in animals, EPA has assigned a weight-of-evidence classification of B2, probable human carcinogen, to benzo(b)fluoranthene. The currently used Oral Slope Factor (CSF) for benzo(b)fluoranthene is 0.73 per (mg/kg)/day which is extrapolated from the CSF for benzo(a)pyrene (BaP), i.e., 0.1 x 7.3 (BaP) = 0.73 per (mg/kg)/day).

6.0 BENZO(K)FLUORANTHENE

6.1 Noncancer Toxicity

Little information is available on benzo(k)fluoranthene. However, based on the similarities of chemical structures, most properties should be similar to benzo(a)pyrene.

6.2 Carcinogenicity

No long-term oral or inhalation bioassays were available to assess the carcinogenicity of benzo(k)fluoranthene. Benzo(k)fluoranthene was tested for carcinogenicity in dermal application, subcutaneous (s.c.) injection, lung implantation, and intraperitoneal (i.p.) injection studies. Dermal

applications of 0.5% solutions of benzo(k)fluoranthene for life produced only a few skin papillomas in mice (Wynder and Hoffmann, 1959), but in initiation-promotion assays, benzo(k)fluoranthene was active as an initiator of skin carcinogenesis (LaVoie et al., 1982; Amin et al., 1985). Injection site sarcomas developed in mice given three s.c. injections of 0.6 mg benzo(k)fluoranthene (Lacassagne et al., 1963) and dose-related increases of epidermoid carcinomas of the lungs were reported in rats receiving single lung implants of 0.16-4.15 mg benzo(k)fluoranthene (Deutsch-Wenzel et al., 1983). In a short-term assay, hepatic and lung tumors occurred in newborn mice receiving 2.1 umol benzo(k)fluoranthene via i.p. injection (LaVoie et al., 1987).

Based on no human data and sufficient evidence for carcinogenicity in animals, EPA has assigned a weight-of-evidence classification of B2, probable human carcinogen, to benzo(k)fluoranthene. The currently used Oral Slope Factor (CSF) for benzo(k)fluoranthene is 0.073 per (mg/kg)/day which is extrapolated from the CSF for benzo(a)pyrene (BaP), i.e., 0.01 x 7.3 (BaP) = 0.073 per (mg/kg)/day).

7.0 CHLOROBENZENE

7.1 Noncancer Toxicity

Oral exposure of animals to chlorobenzene induced liver effects (EPA,1994). Inhalation exposure of animals induced narcosis and other CNS effects as well as lung, liver, and kidney changes (ACGIH 1991). Minimal occupational exposure data indicated that chlorobenzene induces respiratory tract irritation and CNS effects (headache) in workers exposed to high levels. The EPA (1999) presented a verified chronic oral RfD of 0.02 mg/kg/day, based on an NOAEL for liver lesions in a 13-week oral study in dogs and an uncertainty factor of 1000. The EPA (1999) presented a provisional subchronic oral RfD of 0.2 mg/kg/day, based on the same NOAEL and an uncertainty factor of 100. A provisional chronic inhalation RfC of 0.02 mg/m^3 is based on an LOAEL for liver and kidney effects in rats exposed by inhalation for 120 days and an uncertainty factor of 10,000 (EPA 1999). The provisional subchronic inhalation RfC, based on the same LOAEL and an uncertainty factor of 1000, is 0.2 mg/m^3. The chronic inhalation RfC value is equivalent to 0.005 mg/kg/day, assuming an inhalation rate of 20 m^3/day and a body weight of 70 kg for humans. Target organs for the toxicity of chlorobenzene include the liver, CNS, lung, and kidney.

7.2 Carcinogenicity

Chlorobenzene is classified as an EPA cancer weight-of-evidence Group D compound (not classifiable as to carcinogenicity for humans), based on no available human cancer data and inadequate animal data (EPA 1999). Quantitative risk estimates are not derived for Group D compounds.

8.0 CHLORODIBROMOMETHANE

Chlorodibromomethane is a colorless or pale yellow, heavy, liquid (Specific gravity = 2.38). Chlorodibromomethane does not usually exist as a liquid in the environment. Rather, it usually is found evaporated in air or dissolved in water. Chlorodibromomethane is used as a chemical intermediate and solvent and may be released to the environment through various waste streams. Chlorodibromomethane is one of several trihalomethanes (including chloroform, bromoform and bromodichloromethane) that are formed from the interaction of chlorine with organic materials found in water. A large number of other byproducts are present in chlorinated water as well. The predominant anthropogenic source of chlorodibromomethane release to the environment is its inadvertent formation during chlorination treatment processes of water. Chlorodibromomethane is also produced naturally via bio-synthesis and emitted to seawater (and eventually to the atmosphere) by various species of marine macroalgae which are abundant in the various locations of the world's oceans. Exposure to chlorodibromomethane can occur through inadvertent formation during chlorination treatment of the drinking water and subsequent use of chlorinated tap water to produce food products. Exposure can also occur through inhalation of background levels in ambient air and through dermal exposure in chlorinated swimming pool water.

8.1 Noncancer Toxicity

The effects of chlorodibromomethane depend on how much is taken into the body. In animals, the main effect of eating or drinking large amounts of chlorodibromomethane is injury to the liver and kidneys. These effects can occur within a short time after exposure. High levels can also cause effects on the brain, leading to lack of coordination and sleepiness. There is some evidence that chlorodibromomethane can be toxic to developing fetuses, but this has not been well-studied. Studies in animals show that intake of chlorodibromomethane for several years in food or water can lead to cancer of the liver, kidney, and intestines. Although effects of chlorodibromomethane have not been reported in humans, effects would probably occur if enough chlorodibromomethane were taken into the body. Both di- and tri-halogenated methane derivatives have been found to produce increased blood levels of methemoglobin; the greatest increase caused by iodo-, followed by bromo- and chloro- compounds. CNS functional disturbances are reported, including depression of rapid eye movement sleep, as seen in carbon monoxide exposures. The USEPA (IRIS online, January 2001) has derived an oral reference dose (RfD) of 0.02 mg/kg/day for chlorodibromomethane based on liver lesions in mice.

8.2 Carcinogenicity

Chlorodibromomethane is classified as C; possible human carcinogen based on inadequate human data and limited evidence of carcinogenicity in animals; namely, positive carcinogenic evidence in B6C3F1

mice (males and females), together with positive mutagenicity data, and structural similarity to other trihalomethanes, which are known animal carcinogens.

There is inadequate evidence for the carcinogenicity of chlorodibromomethane in humans. There is limited evidence for the carcinogenicity of chlorodibromomethane in experimental animals. Chlorodibromomethane is not classifiable as to its carcinogenicity in humans. The USEPA has classified chlorodibromomethane as a Class C carcinogen, possible human carcinogen, based on inadequate human data and limited evidence of carcinogenicity in animals; namely, positive carcinogenic evidence in B6C3FI mice (males and females), together with positive mutagenicity data, and structural similarity to other trihalomethanes, which are known animal carcinogens. The USEPA (IRIS online, January 2001) has issued an oral cancer slope factor (CSF) of 0.084 $(mg/kg/day)^{-1}$ for chlorodibromomethane based on tumors in the livers of female mice.

9.0 CHLOROFORM

9.1 Noncancer Toxicity

Oral or inhalation exposure of animals to chloroform was associated with liver and kidney damage. In humans, acute inhalation exposure to high levels induced narcosis, ventricular fibrillation, and death. Limited occupational data associated chronic exposure to chloroform with CNS depression, digestive disturbances, and enlarged livers. The EPA derived a chronic oral RfD of 0.01 mg/kg/day based on an LOAEL for fatty cyst formation in the livers of dogs treated orally for 7.5 years and an uncertainty factor of 1000. The inhalation RfD for chloroform is 8.6×10^{-5} mg/kg/day. Target organs for the toxicity of chloroform include the liver and kidney for oral and inhalation exposure, and the heart and CNS for inhalation exposure.

9.2 Carcinogenicity

Chloroform is classified as a cancer weight-of-evidence group B2 compound (probable human carcinogen), based on increased incidence of several tumor types in rats and liver tumors in mice. Human carcinogenicity data are inadequate. An oral slope factor of 0.0061 per mg/kg/day was derived from the incidence of kidney tumors in rats treated with chloroform in drinking water for two years. An inhalation unit risk of 2.3×10^{-5} per mg/m^3 was based on the incidence of hepatocellular carcinomas in mice treated by gavage for 78 weeks. The inhalation unit risk is equivalent to 0.081 per mg/kg/day, assuming an inhalation rate of 20 m^3/day and a body weight of 70 kg for humans.

10.0 CHRYSENE

10.1 Noncancer Toxicity

Chrysene is absorbed by the oral route of exposure. Absorption may also occur following dermal exposure. Data are not available to determine whether chrysene is absorbed via the lungs. Absorbed chrysene is distributed to several tissues, i.e. it was found in a all five tissues in a study reported in 1983. It is accumulated preferentially in the adipose and mammary tissue.

There is no information on other toxic effects of chrysene in human and laboratory animals following inhalation, oral and dermal exposures. (ATSDR 1987, draft).

10.2 Carcinogenicity

The EPA (1999b) has classified chrysene in cancer weight-of-evidence Group B2 (Probable Human Carcinogen, sufficient evidence of carcinogenicity in animals with inadequate or lack of evidence in humans) based on tumors and malignant lymphoma in mice and chromosomal abnormalities in hamsters. The currently used Oral Slope Factor (CSF) for chrysene is 0.0073 per (mg/kg)/day which is extrapolated from the CSF for Benzo(a)pyrene (BaP), i.e., 0.001 x 7.3 (BaP) = 0.0073 per (mg/kg)/day (USEPA Region III Risk-Based Concentration Table, 4/12/99).

11.0 DIBENZO(A,H)ANTHRACENE

11.1 Noncancer Toxicity

The oral RfD and inhalation RfC are not available.

11.2 Carcinogenicity

The EPA has classified dibenzo(a,h)anthracene in cancer weight-of-evidence group B2 (Probable Human Carcinogen, sufficient evidence of carcinogenicity in animals) based on carcinomas in mice following oral or dermal exposure and injection site tumors in several species following subcutaneous or intramuscular administration. Dibenzo[a,h]anthracene has induced DNA damage and gene mutations in bacteria as well as gene mutations and transformation in several types of mammalian cell cultures.

Although there are no human data that specifically link exposure to dibenzo(a,h)anthracene with human cancers, dibenzo(a,h)anthracene is a component of mixtures that have been associated with human cancer. These include coal tar, soot, coke oven emissions and cigarette smoke.

Dibenzo(a,h)anthracene has been shown to be carcinogenic when administered to mice by the oral route in a water-olive oil emulsion. Mice developed pulmonary adenomas, pulmonary carcinomas, and mammary carcinomas.

Dibenzo(a,h)anthracene has produced positive results in bacterial DNA damage and mutagenicity assays and in mammalian cell DNA damage, mutagenicity and cell transformation assays.

The currently used Oral Slope Factor (CSF) for dibenzo(a,h)anthracene is 7.3 per (mg/kg)/day which is extrapolated from the CSF for benzo[a]pyrene i.e., 1.0 x 7.3 (BaP) = 7.3 per (mg/kg)/day).

12.0 1,1-DICHLOROETHENE

1,1-Dichloroethene, also known as vinylidine chloride, is a colorless liquid that is used primarily in the production of polyvinylidine chloride (PVC) copolymers and as an intermediate for synthesis of organic chemicals. The major application for PVC copolymers is the production of flexible films for food packaging such as Saran® wrap. 1,1-Dichloroethene does not occur naturally but is found in the environment due to releases associated with its production and transport and with the production of its polymers. Because of its high volatility, releases to the atmosphere are the greatest source of ambient 1,1-dichloroethene. Smaller amounts are released to surface waters and soils. Loss of 1,1-dichloroethene from water and soils is primarily due to volatilization. In the atmosphere, reaction with photochemically generated hydroxyl radicals is expected to be the predominant removal mechanism. Human exposure to 1,1-dichloroethene is potentially highest in workplace settings and in the vicinity of hazardous waste sites where the compound may contaminate environmental media.

12.1 Noncancer Toxicity

The primary effect of acute exposure to high concentrations (approximately 4000 ppm) of 1,1-dichloroethene vapor in humans is central nervous system (CNS) depression which may progress to unconsciousness. Occupational exposure has been reported to cause liver dysfunction in workers. 1,1-Dichloroethene is irritating when applied to the skin and prolonged contact can cause first degree burns. Direct contact with the eyes may cause conjunctivitis and transient corneal injury. In experimental animals, the liver and kidneys are target organs for the toxic effects of 1,1-dichloroethene. Subchronic oral exposure for 90 days to 1,1-dichloroethylene in drinking water produced slight hepatotoxic effects at 200 ppm and chronic oral exposure to drinking water for 2 years produced hepatocellular changes in males at >=100 ppm and in females at >=50 ppm. Gavage administration of 10 mg/kg/day, 5 days/week for 2 years produced chronic inflammation of the kidney in male and female rats and liver necrosis in

male and female mice. Exposure by inhalation to 55 ppm 1,1-dichloroethene, 6 hours/day, 5 days/week for up to 1 year produced fatty liver changes in rats and focal degeneration and necrosis in mice. In a three-generation study, no treatment-related effects on reproduction or neonatal development were seen in male and female Sprague-Dawley rats administered up to 200 ppm of 1,1-dichloroethene in the drinking water. However, inhalation exposure during gestation produced increased resorptions and minor skeletal alterations in rodents at concentrations that caused maternal toxicity. These effects were reported in rats and mice at >=15 ppm and in rats and rabbits at >=80 ppm and >=160 ppm, respectively. An oral Reference Dose (RfD) of 0.009 mg/kg/day was derived for chronic exposure and subchronic exposure to 1,1-dichloroethylene, based on liver lesions seen in rats in a 2-year drinking water study. The oral RfD is currently under review and may be subject to change. An inhalation Reference Concentration (RfC) for 1,1-dichloroethene is under review.

12.2 Carcinogenicity

An epidemiology study using a small cohort found no association between the occurrence of cancer or cancer mortality and exposure to 1,1-dichloroethene. Oral carcinogenicity bioassays (drinking water or gavage exposures) with experimental animals gave generally negative results. In one inhalation study, statistically significant increases in renal adenocarcinomas were noted in male Swiss mice exposed to 25 ppm for 12 months. Also observed were statistically significant increases in mammary gland carcinomas in females and lung tumors in both sexes. Results of other inhalation studies with rats, mice, and hamsters have been negative. Based on EPA guidelines, 1,1-dichloroethene was assigned to weight-of-evidence group C, possible human carcinogen. For oral exposure, the slope factor is 0.6 $(mg/kg/day)^{-1}$ and the unit risk is 1.7×10^{-5} $(ug/L)^{-1}$. The inhalation slope factor is 0.175 $(mg/kg/day)^{-1}$.

13.0 CIS AND TRANS-1,2-DICHLOROETHENE

1,2-Dichloroethene exists in two isomeric forms, cis-1,2-dichloroethene and trans-1,2-dichloroethene, that are colorless, volatile liquids with a slightly acrid odor. Although not used extensively in industry, 1,2-dichloroethene is used in the production of other chlorinated solvents and as a solvent for dyes, perfumes, and lacquers. Humans are exposed to 1,2-dichloroethene primarily by inhalation, but exposure can also occur by oral and dermal routes.

13.1 Noncancer Toxicity

Information on the toxicity of 1,2-dichloroethene in humans and animals is limited. Workers exposed to 1,2-dichloroethene have been reported to suffer from drowsiness, dizziness, nausea, fatigue, and eye irritation. Acute and subchronic oral and inhalation animal studies of trans-1,2-dichloroethene and acute

inhalation animal studies of cis-1,2-dichloroethene suggest that the liver is the primary target organ. The toxicity is expressed in increased activities of liver associated enzymes, fatty degeneration, and necrosis. Secondary target organs include the central nervous system and lung. Based on an unpublished study describing decreased hemoglobin and hematocrits in rats treated by gavage for 90 days.

The EPA has assigned a subchronic and chronic oral reference dose (RfD) for cis-1,2-dichloroethene of 1.00E-01 mg/kg/day and 1.00E-02 mg/kg/day, respectively. The RfDs were derived from a no-observed-adverse-effect-level/lowest-observed-adverse-effect-level (NOAEL/LOAEL) of 32 mg/kg/day. An inhalation reference concentration (RfC) for cis-1,2-dichloroethene has not been derived. Subchronic and chronic RfDs of 0.2 mg/kg/day and 0.02 mg/kg/day, respectively, for trans-1,2-dichloroethene have been calculated. The RfDs were derived from a LOAEL of 175 mg/kg/day that was based on increased serum alkaline phosphatase activity in mice that received trans-1,2-dichloroethene in their drinking water. An RfC for trans-1,2-dichloroethene has not been derived. No information was available concerning the chronic, developmental, or reproductive toxicity of cis-1,2-dichloroethene or trans-1,2-dichloroethene.

13.2 Carcinogenicity

No cancer bioassays or epidemiological studies were available to assess the carcinogenicity of 1,2-dichloroethene. EPA has placed both cis-1,2-dichloro-ethene and trans-1,2-dichloroethene in weight-of-evidence group D, not classifiable as to human carcinogenicity, based on the lack of human or animal carcinogenicity data and on essentially negative mutagenicity data. Oral and inhalation slope factors have not been calculated for these isomers.

14.0 INDENO(1,2,3-CD)PYRENE

14.1 Noncancer Toxicity

The chronic oral RfD and chronic inhalation RfC are not available.

14.2 Carcinogenicity

EPA classifies indeno(1,2,3-cd)pyrene as cancer weight-of-evidence B2, probable human carcinogen, based on sufficient data from animal bioassays. Indeno(1,2,3-cd)pyrene produced tumors in mice following lung implants, subcutaneous injection and dermal exposure. Indeno(1,2,3-cd)pyrene tested positive in bacterial gene mutation assays.

Although there are no human data that specifically link exposure to indeno(1,2,3-cd)pyrene to human cancers, indeno(1,2,3-cd)pyrene is a component of mixtures that have been associated with human cancer. These include coal tar, soot, coke oven emissions and cigarette smoke.

In animal carcinogen bioassays indeno(1,2,3-cd)pyrene exposure resulted in increased incidences of epidermoid carcinomas in a lung implantation study, injection site sarcomas in a subcutaneous injection assay and skin tumors in dermal application studies.

Supporting data for carcinogenicity includes genotoxicity studies. Indeno(1,2,3-cd)pyrene produced positive results in mutation assays in Salmonella typhimurium strains.

The currently used Oral Slope Factor (CSF) for indeno(1,2,3-cd)pyrene is 0.73 per (mg/kg)/day which is extrapolated from the CSF for benzo(a)pyrene, i.e., 0.1 x 7.3 (BaP) = 0.73 per (mg/kg)/day).

15.0 TETRACHLOROETHENE (PCE)

Tetrachloroethene is a halogenated aliphatic hydrocarbon with a vapor pressure of 17.8 mm Hg at 25C. The chemical is used primarily as a solvent in industry and, less frequently, in commercial dry-cleaning operations.

15.1 Noncancer Toxicity

Occupational exposure to tetrachloroethene occurs via inhalation, resulting in systemic effects, and via dermal contact, resulting in local effects. Exposure to the general population can occur through contaminated air, food and water .The respiratory tract is the primary route of entry for tetrachloroethene. The chemical is rapidly absorbed by this route and reaches an equilibrium in the blood within 3 hours after the initiation of exposure. Tetrachloroethene is also significantly absorbed by the gastrointestinal (g.i.) tract, but not through the skin. The chemical accumulates in tissues with high lipid content, where the half-life is estimated to be 55 hours, and has been identified in perirenal fat, brain, liver, placentofetal tissue, and amniotic fluid.

The main targets of tetrachloroethene toxicity are the liver and kidney by both oral and inhalation exposure, and the central nervous system by inhalation exposure. Acute exposure to high concentrations of the chemical (estimated to be greater than 1,500 ppm for a 30-minute exposure) may be fatal to humans. Chronic exposure causes respiratory tract irritation, headache, nausea, sleeplessness, abdominal pains, constipation, cirrhosis of the liver, hepatitis, and nephritis in humans; and microscopic changes in renal tubular cells, squamous metaplasia of the nasal epithelium, necrosis of the liver, and

congestion of the lungs in animals. Some epidemiology studies have found an association between inhalation exposure to tetrachloroethylene and an increased risk for spontaneous abortion, idiopathic infertility, and sperm abnormalities among dry-cleaning workers, but others have not found similar effects. The adverse effects in humans are supported in part by the results of animal studies in which tetrachloroethylene induced fetotoxicity (but did not cause malformations) in the offspring of treated dams.

Reference doses (RfDs) for subchronic and chronic oral exposure to tetrachloroethylene are 1E-1 mg/kg/day and 1E-2 mg/kg/day, respectively. These values are based on hepatotoxicity observed in mice given 100 mg tetrachloroethylene/kg body weight for 6 weeks and a no-observed-adverse effect level (NOAEL) of 20 mg/kg. EPA-NCEA has developed an inhalation RfD of 0.14 mg/kg-day for PCE.

15.2 Carcinogenicity

Epidemiology studies of dry cleaning and laundry workers have demonstrated excesses in mortality due to various types of cancer, including liver cancer, but the data are regarded as inconclusive because of various confounding factors. The tenuous finding of an excess of liver tumors in humans is strengthened by the results of carcinogenicity bioassays in which tetrachloroethylene, administered either orally or by inhalation, induced hepatocellular tumors in mice. The chemical also induced mononuclear cell leukemia and renal tubular cell tumors in rats. Tetrachloroethylene was negative for tumor initiation in a dermal study and for tumor induction in a pulmonary tumor assay. Although U.S. EPA's Science Advisory Board recommended a weight-of-evidence classification of C-B2 continuum (C = possible human carcinogen; B2 = probable human carcinogen), the agency has not adopted a current position on the weight-of-evidence classification. In an earlier evaluation, tetrachloroethylene was assigned to weight-of-evidence Group B2, probable human carcinogen, based on sufficient evidence from oral and inhalation studies for carcinogenicity in animals and no or inadequate evidence for carcinogenicity to humans. The unit risk and slope factor values for tetrachloroethylene have been withdrawn from IRIS and HEAST. Upper bound risk estimates provided by EPA-NCEA are as follows: for oral exposure, the slope factor is 0.052 $(mg/kg/day)^{-1}$; for inhalation exposure, the slope factor is 0.002 $(mg/kg/day)^{-1}$.

16.0 1,1,2-TRICHLOROETHANE

16.1 Noncancer Toxicity

1,1,2-Trichloroethane was not mutagenic when tested using the Ames assay. No information was found concerning the reproductive toxicity or teratogenicity of 1,1,2-trichloroethane. No chronic studies were found on the toxicity of 1,1,2-trichloroethane but single doses as low as 400 mg/kg caused liver and kidney damage in dogs. The oral LD_{50} value for 1,1,2-trichloroethane in rats is 835 mg/kg (Clement, 1985). A drinking water 90-day study in mice had a NOAEL of 3.9 mg/kg/day with clinical chemistry alterations. A subchronic RfD of 0.04 mg/kg/day with an uncertainty factory of 100 was interpolated to a chronic oral RfD 0.004 mg/kg/day. No inhalation RfD was reported for 1,1,2-trichloroethane.

16.2 Carcinogenicity

1,1,2-Trichloroethane induced heptacellular carcinomas and pheochromocytoma of the adrenal gland in male and female mice but did not produce a significant increase in tumor incidence in male or female rats (NCI 1976). A 78 week oral gavage study in mice produced liver carcinomas and EPA presented and oral slope factor of 5.7E-02 per mg/kg/day (1997). The route-to-route extrapolation presents an inhalation slope factor of 0.056 per mg/kg/day (1997).

17.0 TRICHLOROETHENE

Trichloroethene (TCE) is an industrial solvent used primarily in metal degreasing and cleaning operations. TCE can be absorbed through the lungs, mucous membranes, gastrointestinal tract, and the skin.

17.1 Pharmacokinetics

TCE is extensively metabolized in humans to trichloroacetic acid and trichloroethanol, as well as to several minor metabolites, with most of the absorbed dose excreted in urine.

17.2 Noncancer Toxicity

Human and animal data indicate that exposure to TCE can result in toxic effects on a number of organs and systems, including the liver, kidney, blood, skin, immune system, reproductive system, nervous system, and cardiovascular system. In humans, acute inhalation exposure to TCE causes central nervous system symptoms such as headache, dizziness, nausea, and unconsciousness. Among the reported effects from occupational exposure studies are fatigue, light-headedness, sleepiness, vision distortion, abnormal reflexes, tremors, ataxia, nystagmus, increased respiration, as well as neurobehavioral or psychological changes. Cardiovascular effects include tachycardia, extrasystoles, EKG abnormalities,

and precordial pain. The use of TCE as an anesthetic has been associated with cardiac arrhythmias. Cases of severe liver and kidney damage, including necrosis, have been reported in humans following acute exposure to TCE, but these effects generally are not associated with long-term occupational exposures. In animals, TCE has produced liver enlargement with hepatic biochemical and/or histological changes and kidney enlargement, renal tubular alterations and/or toxic nephropathy. Also observed in animals were hematological effects and immunosuppression. Inhalation studies with rats indicate that TCE is a developmental toxicant causing skeletal ossification anomalies and other effects consistent with delayed maturation. TCE may cause dermatitis and dermographism.

Reference Doses (RfDs) and Reference Concentrations (RfCs) for subchronic and chronic oral and inhalation exposure to TCE are presently under review by EPA. However, EPA-NCEA has published an oral RfD of 0.006 mg/kg-day for TCE.

17.3 Carcinogenicity

Epidemiologic studies have been inadequate to determine if a correlation exists between exposure to TCE and increased cancer risk. Chronic oral exposure to TCE increased the incidences of hepatocellular carcinomas in mice and renal adenocarcinomas and leukemia in rats. Chronic inhalation exposure induced lung and liver tumors in mice and testicular Leydig cell tumors in rats. Although U.S. EPA's Science Advisory Board recommended a weight-of-evidence classification of C-B2 continuum (C = possible human carcinogen; B2 = probable human carcinogen), the agency has not adopted a current position on the weight-of-evidence classification. In an earlier evaluation, TCE was assigned to weight-of-evidence Group B2, probable human carcinogen, based on tumorigenic responses in rats and mice for both oral and inhalation exposure and on inadequate data in humans. Carcinogen slope factors are 0.011 $(mg/kg/day)^{-1}$ and 0.006 $(mg/kg/day)^{-1}$ for oral and inhalation exposure, respectively. The corresponding unit risks are 3.2×10^{-7} $(\mu g/L)^{-1}$ and 1.7×10^{-6} $(\mu g/m^3)^{-1}$, respectively.

18.0 VINYL CHLORIDE

Vinyl chloride, a colorless gas, is a halogenated aliphatic hydrocarbon with the empirical formula of C2H3Cl. It is used primarily as an intermediate in the manufacture of polyvinyl chloride (PVC); limited quantities are used as a refrigerant and as an intermediate in the production of chlorinated compounds.

18.1 Noncancer Toxicity

Vinyl chloride is rapidly absorbed from the gastrointestinal tract and lungs. Metabolism of vinyl chloride occurs primarily in the liver via oxidation by hepatic microsomal enzymes to polar compounds which can

be conjugated with glutathione and/or cysteine. These covalently bound metabolites are then excreted in the urine. In humans and animals, vinyl chloride is a CNS depressant, inducing narcosis and anesthesia at high concentrations. Nonneoplastic toxic effects observed in workers exposed by inhalation to vinyl chloride include hepatotoxicity, acroosteolysis and scleroderma, and Raynaud's syndrome, a vascular disorder of the extremities. Also reported were abnormalities of CNS function, high blood pressure, and occasional pulmonary effects. The evidence for potential developmental effects in humans (increased fetal loss and birth defects) is equivocal. Occupational exposure to vinyl chloride has been associated with reduced sexual function in both sexes and gynecological effects in women. For the oral route of exposure, the primary target organ of vinyl chloride toxicity in animals is the liver. Chronic oral administration of 1.7-14.1 mg/kg/day of vinyl chloride induced dose-related increases in nonneoplastic lesions of the liver of rats. In addition to the CNS, target organs for inhalation exposure include the liver, kidneys, lungs, spleen, and testes. Subchronic inhalation studies with rodents documented hepatic effects at concentrations as low as 50 ppm and degenerative changes of the liver and kidneys at >= 500 ppm. Exposure to higher concentrations caused proliferative changes in the lungs of mice, extensive liver and kidney damage in rats and guinea pigs, cerebral and cerebellar nephrosis in rats, and degeneration of the spleen in guinea pigs. Subchronic exposure of rats to 100 ppm vinyl chloride produced significantly decreased testes weights and testicular regeneration. Evidence of developmental toxicity was seen in rats exposed to vinyl chloride during the first trimester of gestation. The U.S. EPA has derived an oral reference dose (RfD) of 0.003 mg/kg/day and an inhalation reference concentration (RfC) of 0.1 mg/m^3 for vinyl chloride.

18.2 Carcinogenicity

The carcinogenicity of vinyl chloride in humans has been demonstrated in a number of epidemiological studies and case reports, many of which associated occupational exposure to vinyl chloride to the development of angiosarcomas of the liver. In addition to liver cancer, exposure to vinyl chloride also has been linked to an increased risk of lung, brain, hematopoietic, and digestive tract cancers. Vinyl chloride has been shown to be carcinogenic in numerous animal studies. Inhalation exposure to vinyl chloride induced an increased incidence of liver angiosarcomas; kidney nephroblastomas; and lung, brain, and forestomach tumors in rodents. Oral administration of vinyl chloride induced liver, lung, and kidney tumors in rodents. Angiosarcomas observed in offspring of rats exposed by inhalation during gestation indicates that vinyl chloride has the potential to initiate cancer in utero. EPA has classified vinyl chloride as a Group A chemical, human carcinogen. Oral slope factors of 0.72 $(mg/kg/day)^{-1}$ and 1.5 $(mg/kg/day)^{-1}$ have been derived for continuous lifetime exposure during adulthood and exposure from birth, respectively. Inhalation unit risks corresponding to inhalation slope factors of 0.016 $(mg/kg/day)^{-1}$ and 0.031 $(mg/kg/day)^{-1}$ have been derived for adulthood and exposure from birth, respectively

SOURCES

The information contained in the Toxicological Profiles has been extracted from the following sources:

Agency for Toxic Substances and Disease Registry, ToxFAQs (Online), http://www.atsdr.cdc.gov.toxfaq.html, November 2001.

Hazardous Substance Data Base (HSDB), Online, http://toxnet.nlm.nih/gov/cgi/sis, November 2001.

U.S. EPA (U.S. Environmental Protection Agency). November 2001. Integrated Risk Information System (IRIS) - On-Line Database, http://www.epa.gov/ngispgm3/iris/subst/index.html.

U.S. Department of Energy, November 2001. Toxicity Profiles (Summary), Risk Assessment Information System (RAIS), Office of Environmental Management, Oak Ridge Operations (ORO), http://risk.lsd.ornl.gov/rap_hp.shtml.

U.S. Environmental Protection Agency (USEPA), Region IX, November 2000. "Region 9 Preliminary Remediation Goals (PRGs) 2000", EPA Region IX, 75 Hawthorne Street, San Francisco, California, 94105.

U.S. Environmental Protection Agency (USEPA), Region III, October 2001. Risk-Based Concentration Table. EPA Region III, 841 Chestnut Street, Philadelphia, Pennsylvania 19107.

USEPA, July 1997, Health Effects Assessment Summary Tables (HEAST)

APPENDIX F-5

REFERENCES

REFERENCES

Gilbert, R.O., 1987. Statistical Methods for Environmental Pollution Monitoring. Van Nostrand-Reinhold Company, New York, New York.

U.S. EPA, 1988. Superfund Exposure Assessment Manual. Office of Emergency Response, Washington, DC, EPA/540/1-88/001, December.

U.S. EPA, 1989. Risk Assessment Guidance for Superfund – Volume I – Human Health Evaluation Manual (Interim Final). EPA/540/1-89/002, Washington, D.C, December.

U.S. EPA, 1992. Supplemental Guidance to RAGS: Calculating the Concentration Term. OSWER Publication No. 9285.7-081, Washington, D.C, May.

U.S. EPA, 1995. Supplemental Region 4 Guidance to RAGS: Human Health Risk Assessment. Atlanta, Georgia, November.

U.S. EPA, 1996a. Soil Screening Level Guidance: Technical Background Document. Office of Emergency and Remedial Response, Washington, D.C., May.

U.S. EPA, 1996b. Recommendations of the Technical Review Workgroup for Lead for an Interim Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil. Technical Review Workgroup for Lead, December.

U.S. EPA, 1997. Health Effects Assessment Summary Tables FY 1997. Office of Solid Waste and Emergency Response, Washington, D.C., July.

U.S. EPA, 1998. Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part D, Standardized Planning, Reporting, and Review of Superfund Risk Assessments). Office of Emergency and Remedial Response, Washington, D.C., January.

U.S. EPA, 1999. National Recommended Water Quality Criteria – Correction. EPA 822-Z-99-001. Office of Water, Washington, D.C., April.

U.S. EPA, 2001a. Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Interim Guidance, Review Draft. Office of Emergency and Remedial Response, Washington, D.C, September.

U.S. EPA, 2002. Integrated Risk Information System (IRIS) On-line Data Base. March.

Williams, G.M., and J.H. Weisburger, 1991. "Chemical Carcinogensis." In M.O. Amdur, J. Doull, and C.D. Klaassen, eds. Cassarett and Doull's Toxicology, the Basis Science of Poisons, Fourth Edition, Pergamon Press, New York, New York.

APPENDIX G

AREA AND VOLUME OF IMPACTED SOIL AND GROUNDWATER

TETRA TECH NUS, INC. **CALCULATION WORKSHEET** PAGE 1 OF 1

CLIENT	JOB NUMBER
MCRD Parris Island - Site 45	N0502
SUBJECT	
Area of Screening Criteria Exceedances in Surface Soil	
BASED ON	DRAWING NUMBER
Figure 4-1 in RI Report	ACAD: 0502CT04.dwg
BY: David Zwarstetzby	CHECKED BY: [illegible] 2/10/03
APPROVED BY	DATE: 2/7/2003

Purpose: To determine area of contaminated surface soil exceeding USEPA screening criteria. Using summary data from figure 4-1 of RI Report, estimate extents areas (see attached figure).

Assumptions: A = area = l × w × h

where, l = length
w = width
h = height or thickness

Area 1

$A = 22\ ft \times 22\ ft \times 1\ ft$
$= 484\ ft^3$

Area 2

$A = 17\ ft \times 24\ ft \times 1\ ft$
$= 408\ ft^3$

Area 3A

$A = 10\ ft \times 13\ ft \times 1\ ft$
$= 130\ ft^3$

Area 3B

$A = 16\ ft \times 13\ ft \times 1\ ft$
$= 208\ ft^3$

Total estimated area = $484\ ft^3 + 408\ ft^3 + 130\ ft^3 + 208\ ft^3 = 1,230\ ft^3$

TETRA TECH NUS, INC. **CALCULATION WORKSHEET** PAGE 1 OF 1

CLIENT	JOB NUMBER
MCRD Parris Island - Site 45	N0502
SUBJECT	
Area of Screening Criteria Exceedances in Subsurface Soil	
BASED ON	**DRAWING NUMBER**
Figure 4-2 of RCI Report	ACAD: 0502CT05.dwg
BY David Iwaszetzky	**CHECKED BY** RMB 2/10/03
APPROVED BY	**DATE** 2/7/2003

Purpose: To determine area of contaminated subsurface soil exceeding USEPA screening criteria. Using summary data from Figure 4-2 of RCI Report, estimate extent of area (see Figure 4-2 attached).

Assumptions: A = area = $l \times w \times h$

where l = length

w = width

h = height or thickness

Area 1

$A = 10\,ft \times 10\,ft \times 1\,ft$

$= 100\,ft^3$

Area 2

$A = 40\,ft \times 11\,ft \times 2\,ft$

$= 880\,ft^3$

Area 3

$A = 42\,ft \times 11\,ft \times 1$

$= 462\,ft^3$

Total Area (estimated) $= 100\,ft^3 + 880\,ft^3 + 462\,ft^3 = 1,442\,ft^3$

TETRA TECH NUS, INC. **CALCULATION WORKSHEET** PAGE 1 OF 2

CLIENT	JOB NUMBER
MCRD Parris Island	N0502
SUBJECT	
Volume of groundwater exceeding USEPA MCLs in the surficial aquifer	
BASED ON	**DRAWING NUMBER**
Figures 4-8 & 4-14 of RI Report	ACAD: 0502GM14.dwg & ACAD: 0502GM17.dwg
BY David Zwastetsky / **CHECKED BY** RMB 2/10/03	**APPROVED BY** / **DATE** 2/7/2003

Purpose: To determine volume area of contaminated groundwater within the upper and lower surficial aquifer using USEPA MCLs for boundary extent.

Assumptions: TCE plume largest extent for upper surficial aquifer, use CIS 1,2 DCE plume for lower surficial aquifer (see Figures 4-8 & 4-14).
Figure scales 1" = 50', then 1 in^2 = 2500 ft^2.
Using Planimeter measure plume areas in square inches.

Upper surficial aquifer planimeter measurements:

1.) small northern plume area
- 1.19 in^2
- 1.24 in^2
- 1.24 in^2

average: $(1.19 + 1.24 + 1.24)/3 = 1.22\ in^2$
convert to ft^2: $1.22\ in^2 \times 2{,}500\ ft^2/in^2 = 3050\ ft^2$
aquifer thickness = 10 ft.
$3{,}050\ ft^2 \times 10\ ft = 30{,}500\ ft^3$

2.) larger plume area
- 9.43 in^2
- 9.40 in^2
- 9.42 in^2

average: $(9.43 + 9.40 + 9.42)/3 = 9.42\ in^2$
convert to ft^2: $9.42\ in^2 \times 2500\ ft^2/in^2 = 23{,}550\ ft^2$
aquifer thickness = 10 ft.
$23{,}550\ ft^2 \times 10\ ft = 235{,}500\ ft^3$

Estimated Total Area = $30{,}500\ ft^3 + 235{,}500\ ft^3 = 266{,}000\ ft^3$

TETRA TECH NUS, INC. **CALCULATION WORKSHEET** PAGE 2 OF 2

CLIENT	JOB NUMBER		
MCRD Parris Island	N0502		
SUBJECT: Volume of groundwater exceeding USEPA MCLs in the surficial aquifer			
BASED ON: Figures 4-8 & 4-14 of RI Report	DRAWING NUMBER: ACAD: 0502GM14.dwg & ACAD: 0502GM17.dwg		
BY: David Zwastetzky	CHECKED BY: RMB 2/10/03	APPROVED BY:	DATE: 2/7/2003

Lower surficial aquifer planimeter measurements:

1.) small northern plum area

0.11 in^2

0.12 in^2

0.13 in^2

average = 0.11 + 0.12 + 0.13 = 0.12 in^2

convert to ft^3 = 0.12 in^2 × 2500 ft^2/in^2 = 300 ft^3

aquifer thickness = 9 ft.

300 ft^3 × 9 ft = 2700 ft^3

2.) larger plume area

3.22 in^2

3.19 in^2

3.19 in^2

average = 3.22 + 3.19 + 3.19 = 3.20 in^2

convert to ft^2 = 3.20 in^2 × 2500 ft^2/in^2 = 8000 ft^2

aquifer thickness = 9 ft.

8000 ft^2 × 9 ft = 72,000 ft^3

Estimated Total Area = 27,000 ft^3 + 72,000 ft^3 = 74,700 ft^3

APPENDIX H

BACKGROUND SAMPLE DESCRIPTION, LOCATIONS, AND SUPPORTIVE COLLECTION DATA (FROM RFI/RI FOR SWMU 3)

TABLE 4-1

SUMMARY OF DETECTED BACKGROUND CONCENTRATIONS
MCRD PARRIS ISLAND, SOUTH CAROLINA

Parameter	Surface Soil	Sediment	Surface Water Filtered	Surface Water Unfiltered
Organics	**(µg/kg)**	**(µg/kg)**	**(µg/l)**	**(µg/l)**
4-Methyl-2-pentanone	7.3	26		
2-Butanone		22		
Acetone	267			
Chloromethane				0.68
Carbon Disulfide		9.2		
Toluene	5.7	9.7		
Xylenes				1
Bis(2-Ethylhexyl)phthalate		421		45
Fluorene	646			
Indeno(1,2,3-cd)pyrene		518		2.6
Beta-BHC		7.1		
Inorganics	**(mg/kg)**	**(mg/kg)**	**(µg/l)**	**(µg/l)**
Aluminum	7270	24200		3100
Arsenic	1.4	12	4.3	5.1
Barium	24	28	256	38
Beryllium	0.095	0.98		
Cadmium		0.28		
Calcium	766	4000	650000	637000
Chromium	6.2	35.2	20	22.5
Cobalt	0.36	2.6		
Copper	1.5	10	13	7
Iron	3920	21500	48	2090
Lead	12.5	21	11	
Magnesium	515	6400	1900000	1900000
Manganese	129	186	18	53
Mercury	0.11	0.09		
Nickel	1.8	6		
Potassium	313	3200	890000	830000
Selenium	0.29			
Sodium	241	19000	15900000	16000000
Thallium	0.098	0.41		
Vanadium	9.5	50	15	18
Zinc	9.7	45	66	11

Background concentration is calculated as 2 times the average background concentration.

For chemicals in which at least one detection was noted, the average was calculated using 1/2 the detection limit for non detected chemicals.

Blank: Indicates that the chemical was not detected in any sample, and therefore an average could not be calculated.

Chemicals not detected in the background data set were not presented in this table. They include antimony, silver, and most organic compounds.

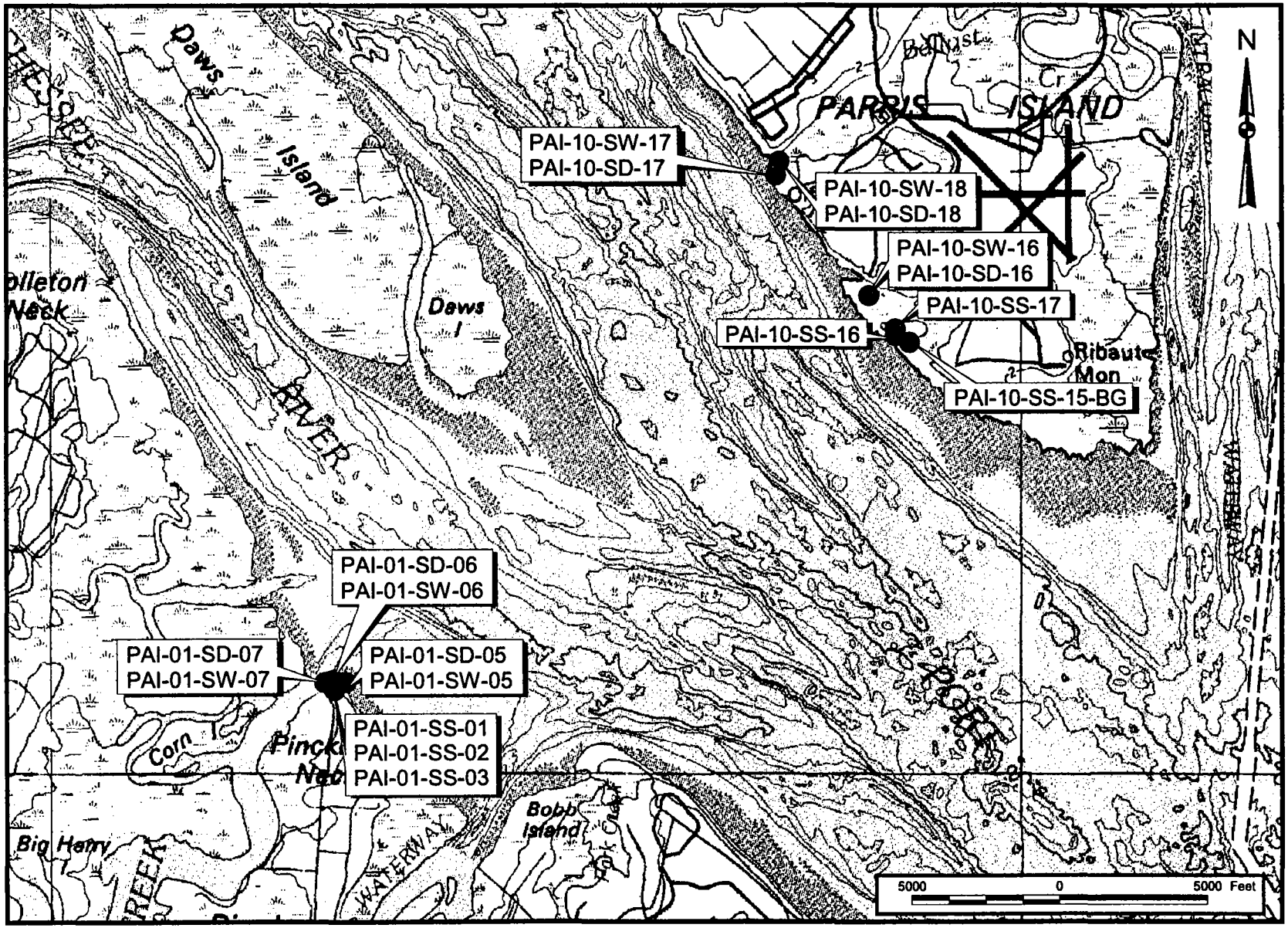
A-12

BACKGROUND SAMPLE DESCRIPTION, LOCATIONS, AND SUPPORTING COLLECTION DATA

BACKGROUND SAMPLE DESCRIPTION
PARRIS AND PINCKNEY ISLANDS
MCRD PARRIS ISLAND, SOUTH CAROLINA

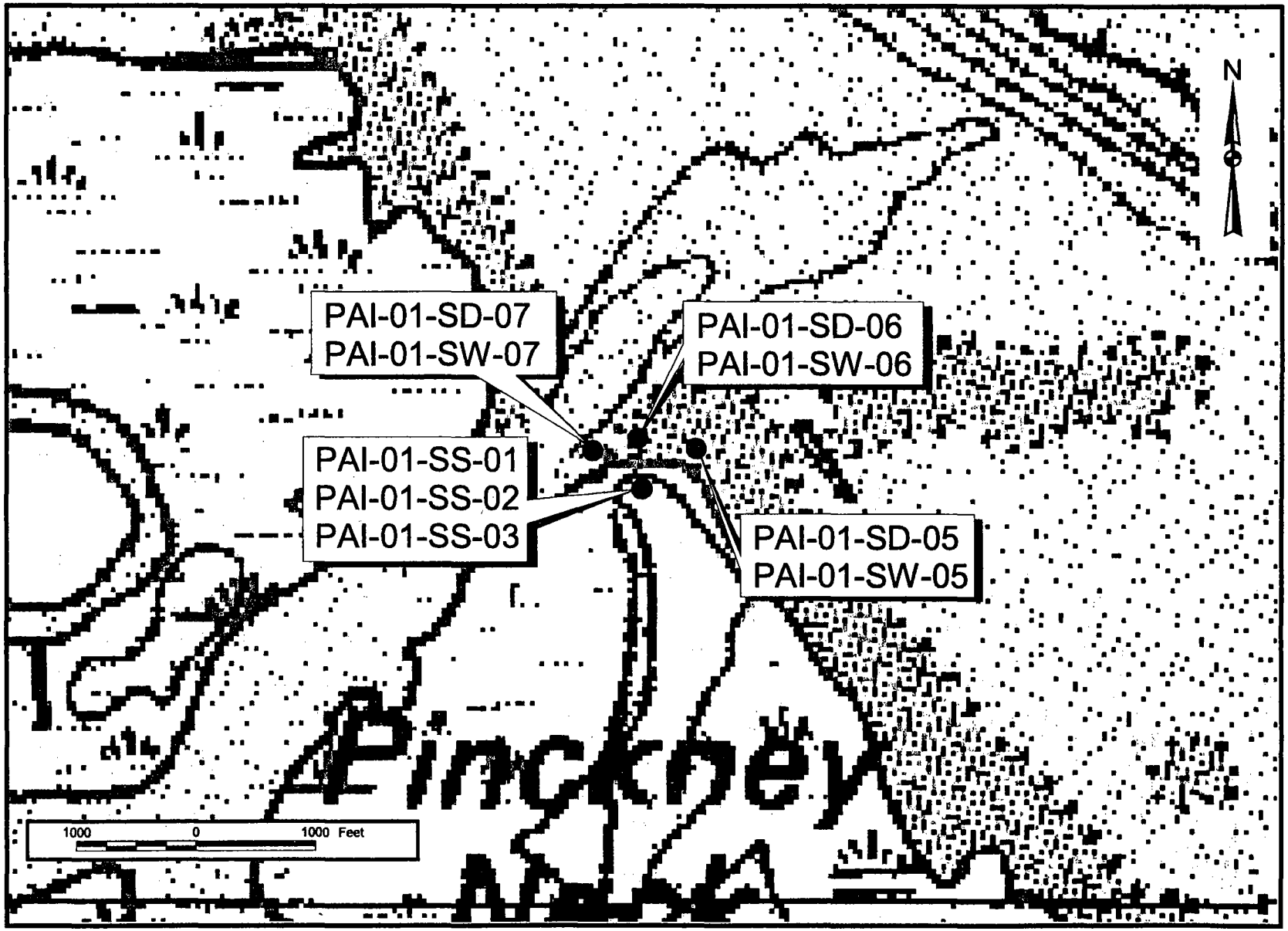
Sample Location	Sample Description
Surface Water	
PAI-01-SW-05*	Saline surface water sample collected on the northern edge of Pinckney Island at a submerged low tide elevation point.
PAI-01-SW-06*	Saline surface water sample collected in an intertidal area approximately 50 ft west of PAI-01-SW-05.
PAI-01-SW-07*	Saline surface water sample collected from flowing water at a point southwest of PAI-01-SW-05 and PAI-01-SW-06 over a high tide tidal flat in the marsh area.
PAI-10-SW-16	Saline surface water sample collected from a tidal stream adjacent to the Broad River, along the southwestern edge of Parris Island.
PAI-10-SW-17	Saline surface water sample collected from a tidal stream adjacent to the Broad River, along the southwestern edge of Parris Island.
PAI-10-SW-18	Saline surface water sample collected from a tidal stream adjacent to the Broad River, along the southwestern edge of Parris Island.
Sediment	
PAI-01-SD-05*	Sediment sample collected from the northern edge of Pinckney Island at a submerged low tide elevation point. Sample consisted of fine/medium grain sand.
PAI-01-SD-06*	Fine, medium grain sand sample collected in an intertidal area approximately 50 ft west of PAI-01-SD-05.
PAI-01-SD-07*	Collected from flowing water at a point west of PAI-01-SD-05 and PAI-01-SD-06, over a high tide tidal flat in the marsh area. Sample consisted of fine/medium grain sand.
PAI-10-SD-16	Silty clay sediment sample collected on the southwestern edge of Parris Island, near the Broad River
PAI-10-SD-17	Sediment sample with clay mud consistency collected approximately 500 ft south of the Ballast Creek on the southwestern edge of Parris Island.
PAI-10-SD-18	Sediment sample with clay mud consistency collected approximately 500 ft northeast of location PAI-10-SD-17.
Surface Soil	
PAI-01-SS-01*	Soil sample with fine/medium grain sand collected on the northern edge of Pinckney Island.
PAI-01-SS-02*	Located east of PAI-01-SS-01, consisting of fine/medium grain sand.
PAI-01-SS-03*	Fine/medium grain sand sample located southeast of PAI-01-SS-01.
PAI-10-SS-15	Silty, fine sand sample collected in a forest area on the southwestern edge of Parris Island.
PAI-10-SS-16	Collected in a forest area on the southwestern edge of Parris Island, approximately 600 ft northwest of PAI-01-SS-15. Surface soil sample consisted of silty fine sand.
PAI-10-SS-17	Silty, fine sand sample collected in a forest area on the southwestern edge of Parris Island, approximately 250 ft north of PAI-10-SS-16.

* Sample locations selected with input from the United States Fish and Wildlife Service.
Additional description of samples and locations are provided on sample log sheets.


N
PARRIS ISLAND
Ballast
Cr
PAI-10-SW-17
PAI-10-SD-17
PAI-10-SW-18
PAI-10-SD-18
PAI-10-SW-16
PAI-10-SD-16
PAI-10-SS-17
PAI-10-SS-16
PAI-10-SS-15-BG
Ribaut Mon
Daws Island
Daws I
RIVER
PAI-01-SD-06
PAI-01-SW-06
PAI-01-SD-07
PAI-01-SW-07
PAI-01-SD-05
PAI-01-SW-05
PAI-01-SS-01
PAI-01-SS-02
PAI-01-SS-03
Corn I
Bobb Island
Big Harry
WATERWAY
5000
0
5000 Feet

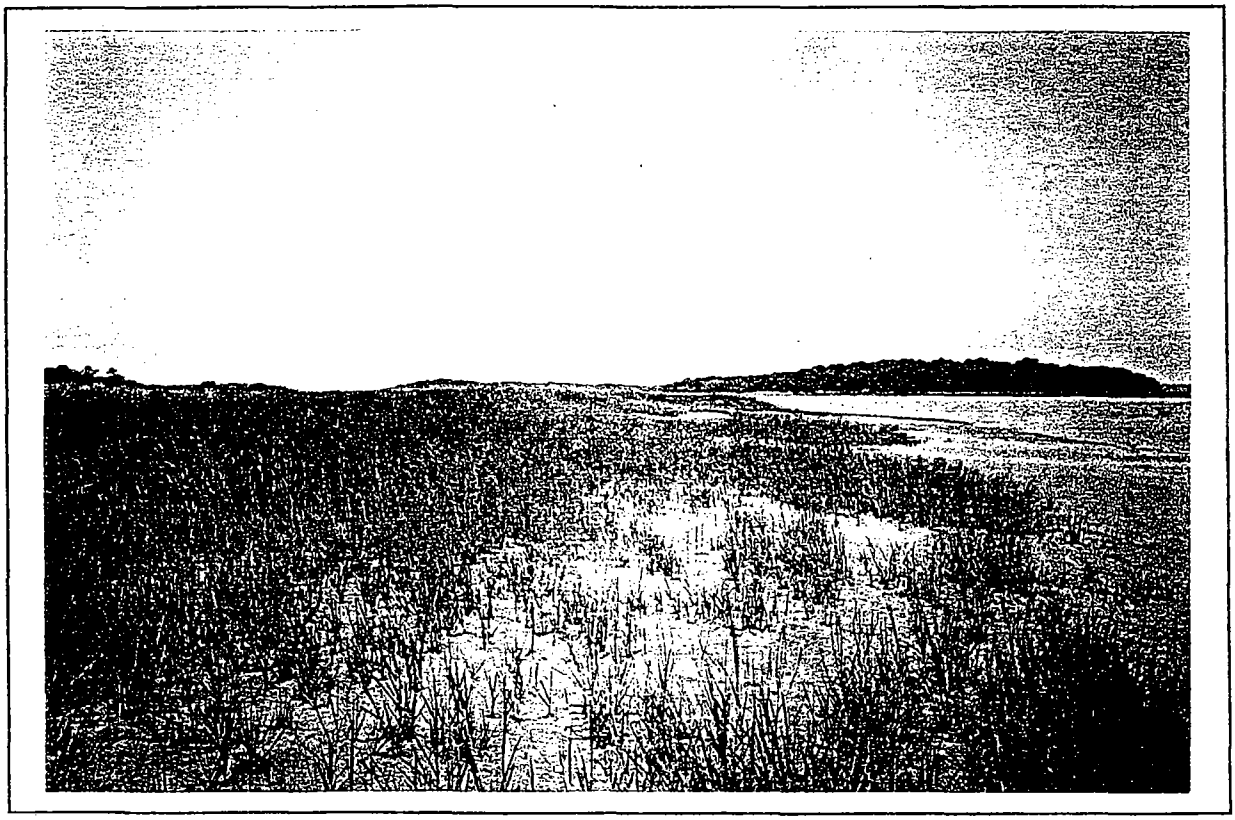
PAI-10-SW-17
PAI-10-SD-17
PAI-10-SW-18
PAI-10-SD-18
Airport
PAI-10-SW-16
PAI-10-SD-16
PAI-10-SS-17
PAI-10-SS-16
PAI-10-SS-15-BG
N
1000
0
1000 Feet

A-153


PAI-01-SD-07
PAI-01-SW-07
PAI-01-SD-06
PAI-01-SW-06
PAI-01-SS-01
PAI-01-SS-02
PAI-01-SS-03
PAI-01-SD-05
PAI-01-SW-05
N
1000 0 1000 Feet
Pinckbey

PHOTOS - BACKGROUND SAMPLE LOCATIONS

SURFACE SOIL LOCATION IMMEDIATELY ADJACENT TO THE
NORTHERN SHORE OF PINCKNEY ISLAND.



SEDIMENT AND SURFACE WATER SAMPLING LOCATIONS
IN INTERTIDAL ZONE OF PINCKNEY ISLAND.

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: 7394

Sample ID No.: PAI 01 SW-05
Sample Location: PINCKNEY Is.
Sampled By: RLM / JFL
C.O.C. No.: 01306

- [ ] Stream
- [ ] Spring
- [ ] Pond
- [ ] Lake
- [x] Other: – TIDAL STREAM
- [ ] QA Sample Type:

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

SAMPLING DATA:

Date: 052798 / Time: 1240 / Depth: / Method: Grab	Color Visual	pH Standard	S.C. mS/cm	Temp. Degrees C	Turbidity NTU	DO mg/l	Salinity %	Other NA
		7.7	39	28	8	10.3	2.5	

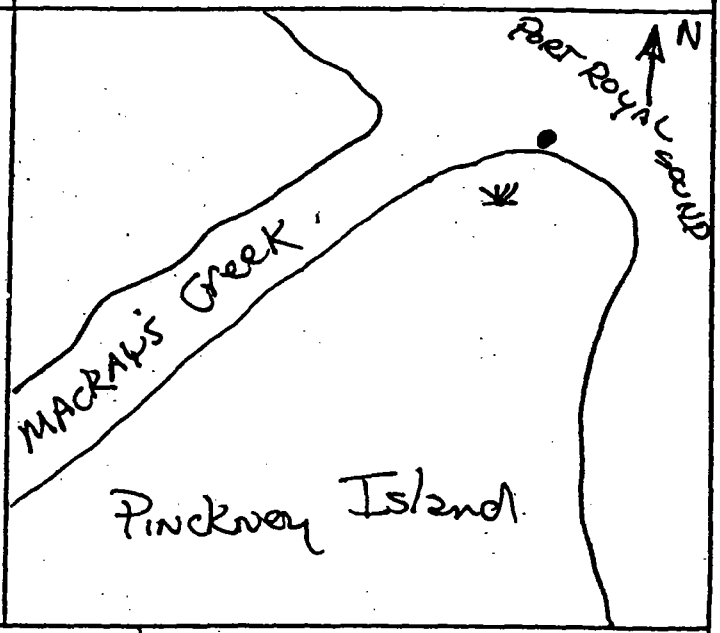
SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements (ml)	Collected
VOCs	HCL	40	3
SVOCs		1000 amber	2
Pest./PCBs		1000 Amber	2
Total Metals, Hardness	HNO_3	1000 plastic	1
Dissolved (Filtered) Metals	HNO_3	1000 plastic	1
Cyanide	NAOH	250 plastic	1
~~Hex Chromium~~		~~1000 plastic~~	~~1~~
TOC	H_2SO_4	1000 plastic	1
pH		1000 plastic	1

OBSERVATIONS / NOTES:

Sample Area chosen by Diane Duncan SC Fish & Wildlife

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: 7394

Sample ID No.: PAI01 SW06
Sample Location: PINCKNEY Is.
Sampled By: RLM/JFL
C.O.C. No.: 01306

[] Stream
[] Spring
[] Pond
[] Lake
[X] Other: - TIDAL STREAM
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 052798 / Time: 1330	Color Visual	pH Standard	S.C. mS/cm	Temp. Degrees C	Turbidity NTU	DO mg/l	Salinity %	Other NA
Depth: / Method: Grab		7.7	38	29	36	9.1	2.5	

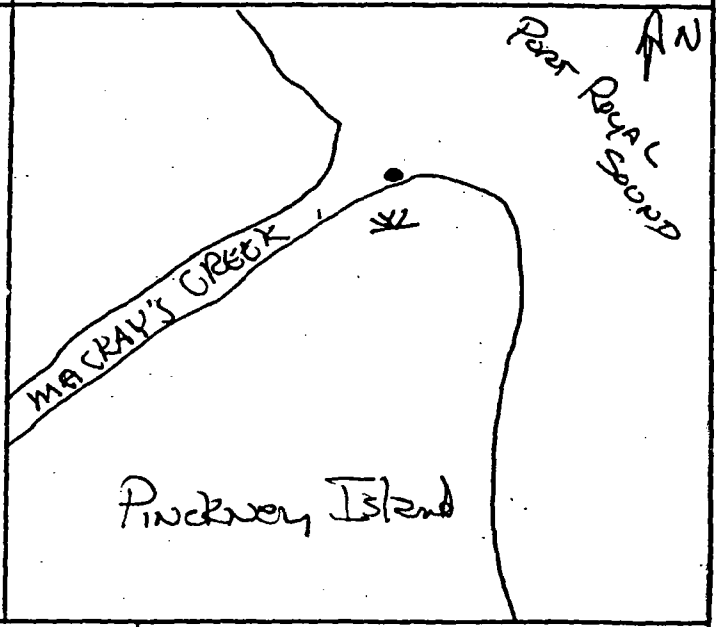
SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements (ml)	Collected
VOCA	HCL	40	3
SVOCA		1000 amber	2
PEST./PCBA		1000 Amber	2
TOTAL METALS, Hardness	HNO3	1000 plastic	1
DISSOLVED (FILTERED) METALS	HNO3	1000 plastic	1
CYANIDE	NAOH	250 plastic	1
~~HEX CHROMIUM~~		~~1000 plastic~~	~~1~~
TOC	H_2SO_4	1000 plastic	1
pH		1000 plastic	1

OBSERVATIONS / NOTES:

Sample area Chosen by Diane Duncan SC Fish & Wildlife

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: 7394

Sample ID No.: PAI 01 SW 07
Sample Location: PINCKNEY IS.
Sampled By: RLM / JFL
C.O.C. No.: 01364

- [ ] Stream
- [ ] Spring
- [ ] Pond
- [ ] Lake
- [x] Other: – TIDAL STREAM
- [ ] QA Sample Type:

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

SAMPLING DATA:

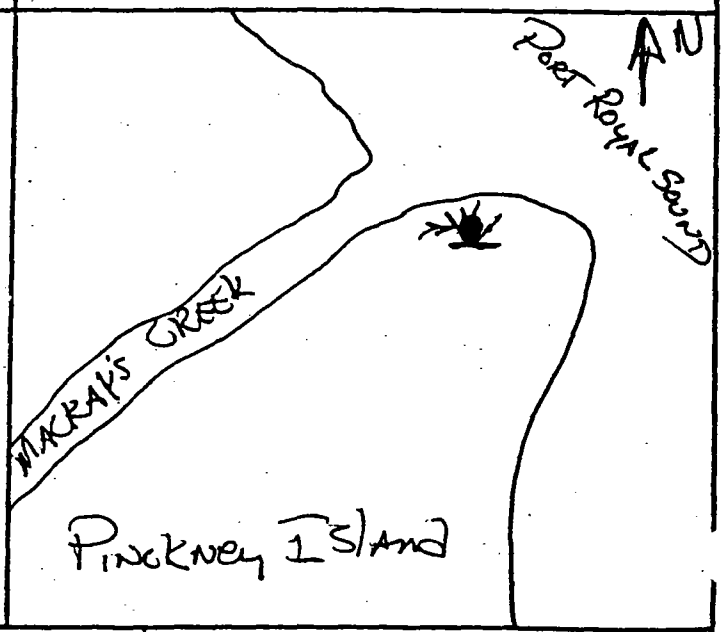
Date: / Time: / Depth: / Method:	Color Visual	pH Standard	S.C. mS/cm	Temp. Degrees C	Turbidity NTU	DO mg/l	Salinity %	Other NA
Grab		6.8	38.0	31	18	11.4	2.4	

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements (ml)	Collected
VOCs	HCL	40	3
SVOCs		1000 amber	2
Pest./PCBs		1000 Amber	2
Total Metals, Hardness	HNO3	1000 plastic	1
Dissolved (Filtered) Metals	HNO3	1000 plastic	1
Cyanide	NAOH	250 plastic	1
~~Hex Chromium~~		~~1000 plastic~~	~~1~~
TOC	H2SO4	1000 plastic	1
pH		1000 plastic	1

OBSERVATIONS / NOTES:

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: 7803

[] Stream
[] Spring
[] Pond
[] Lake
[X] Other: – TIDAL Stream
[] QA Sample Type:

Sample ID No.: PAI-10-SW-16-01
Sample Location: PAI-10-SW16
Sampled By: Shp Barton
C.O.C. No.: 2280

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

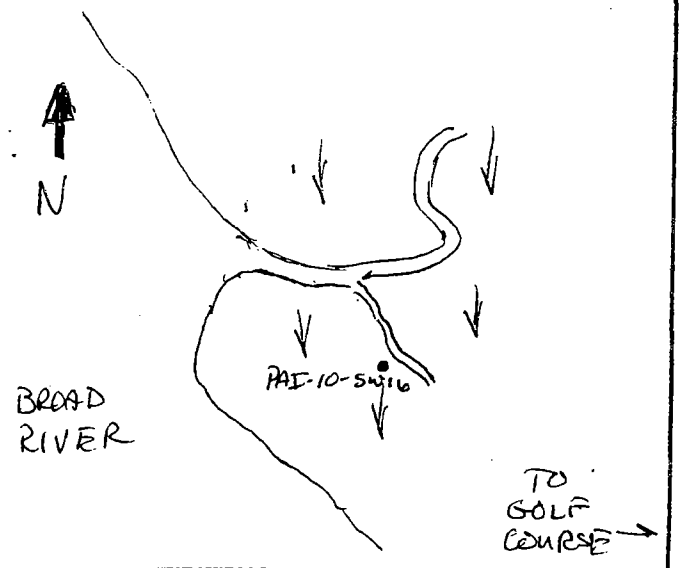
	Color Visual	pH Standard	S.C. mS/cm	Temp. Degrees C	Turbidity NTU	DO mg/l	Salinity %	Other NA
Date: 091098 Time: 1242 Depth: surface Method: Grab	cloudy	6.72	44.3	27.4	7	3.25	2.87	secci disk 0.75 ft.

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements (ml)	Collected
VOCA	HCL	40 VOAs	~~3~~ 4
SVOCA		1000 Amber	2
Pest./PCBA		1000 Amber	2
Total Metals/Hardness	HNO_3	1000 plastic	1
Dissolved (Filtered) Metals	HNO_3	1000 plastic	1
Cyanide	NAOH	250 plastic	1
~~Hex Chromium~~		~~1000 plastic~~	~~1~~
TOC	H_2SO_4	1000 plastic	1
~~pH~~		~~1000 plastic~~	~~1~~

OBSERVATIONS / NOTES:

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Shp Barton

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: 1803

Sample ID No.: PAI-10-SW-17-01
Sample Location: PAI-10-SW17
Sampled By: Skip Barton
C.O.C. No.: 2250

[] Stream
[] Spring
[] Pond
[] Lake
[X] Other: – TIDAL STREAM
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

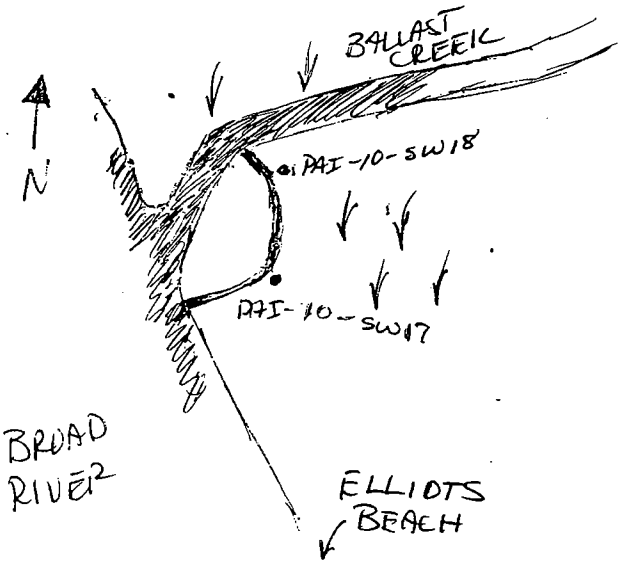
Date: 091098 Time: 1421 Depth: Surface Method: Grab	Color Visual	pH Standard	S.C. mS/cm	Temp. Degrees C	Turbidity NTU	DO mg/l	Salinity %	Other NA
	Clear	7.65	44.7	28.7	-9	4.64	2.91	secchi disk 1.35 ft

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements (ml)	Collected
VOCs	HCL	40 VOAs	3/4
SVOCs		1000 amber	2
Pest./PCBs		1000 Amber	2
Total Metals	HNO_3	1000 plastic	1
Dissolved (Filtered) Metals	HNO_3	1000 plastic	1
Cyanide	NAOH	250 plastic	1
~~Hexchromium~~		1000 plastic	1
TOC	H_2SO_4	1000 plastic	1
~~pH~~		1000 plastic	1

OBSERVATIONS / NOTES:

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Skip Barton

A-160

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: 1803

Sample ID No.: PAI-10-SW-18-01
Sample Location: PAI-10-SW18
Sampled By: Shuf Benton
C.O.C. No.: 2250

[] Stream
[] Spring
[] Pond
[] Lake
[X] Other: – TIDAL STREAM
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

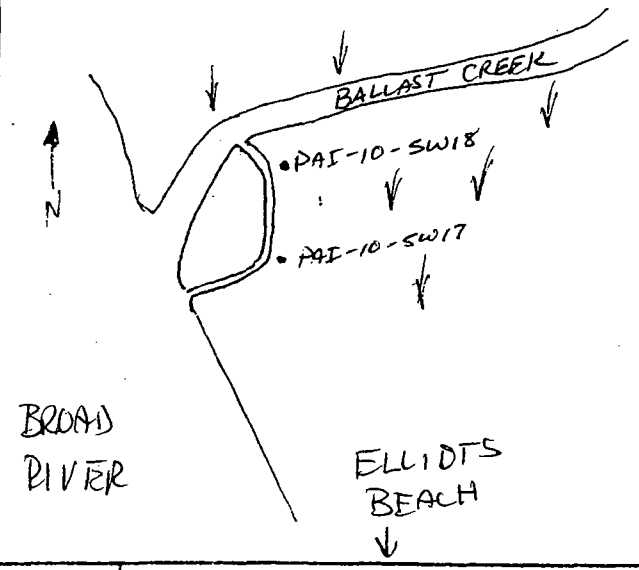
Date: / Time:	Color Visual	pH Standard	S.C. mS/cm	Temp. Degrees C	Turbidity NTU	DO mg/l	Salinity %	Other NA
Depth: / Method: Grab	Cloudy	7.51	44.5	28.4	23	3.79	2.91	Secci disk 0.25 ft.

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements (ml)	Collected
VOCs	HCL	40	3/4
SVOCs		1000 Amber	2
Pest./PCBs		1000 Amber	2
Total Metals	HNO_3	1000 plastic	1
Dissolved (Filtered) Metals	HNO_3	1000 plastic	1
Cyanide	NAOH	250 plastic	1
~~Hexchromium~~		~~1000 plastic~~	~~1~~
TOC	H_2SO_4	1000 plastic	1
~~pH~~		~~1000 plastic~~	~~1~~

OBSERVATIONS / NOTES:

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Shuf Benton

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: 7394

Sample ID No.: PAI 01 SD05
Sample Location: Pinckney Is.
Sampled By: RLM / JAF
C.O.C. No.: 01307

[] Surface Soil
[] Subsurface Soil
[X] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 052798	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1240	0-6"	lt. br. - blk.	fn. - med. gr. sd.
Method: Grab			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

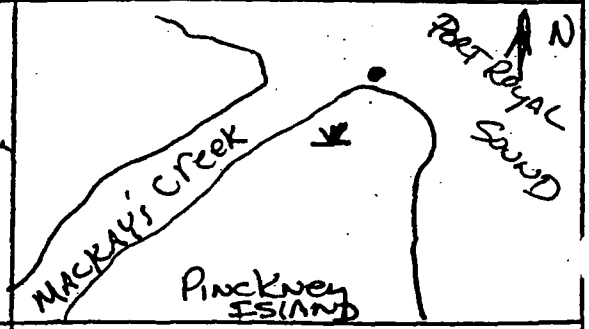
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC's	5 ENCORE Samples	✓	
TCL SVOC's	1602	✓	
TAL METALS (TOTAL)	1602	✓	
CYANIDE	1602	✓	
TCL PESTICIDES / PCBS	1602	✓	
TOC	1602	✓	
PH	1602	✓	
~~HEXAVALENT CHROMIUM~~	1602		

OBSERVATIONS / NOTES:

Sample Area Chosen by Diane Duncan of SC. Fish & Wildlife

MAP:



Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: 7394

Sample ID No.: PAI 01 SD06
Sample Location: Pinckney Is.
Sampled By: RUM/JFL
C.O.C. No.: 01307

- [ ] Surface Soil
- [ ] Subsurface Soil
- [X] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [X] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date:	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1330	0-6"	Mbr.-blk.	fn.-med. gr. sd.
Method: Grab			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

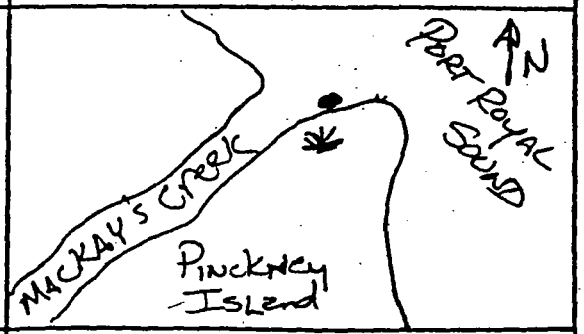
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC.A	5 ENCORE SAMPLES	✓	
TCL SVOC.A	16oz	✓	
TAL METALS (TOTAL)	16oz	✓	
CYANIDE	16oz	✓	
TCL PESTICIDES / PCBS	16oz	✓	
TOC	16oz	✓	
PH	16oz	✓	
~~HEXAVALENT CHROMIUM~~	16oz		

OBSERVATIONS / NOTES:

Sample Area Chosen by Diane Duncan SC Fish & Wildlife

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: 7394

Sample ID No.: PAI01SD07
Sample Location: PINCKNEY ISLD.
Sampled By: RLM/JFL
C.O.C. No.: 01307

- [ ] Surface Soil
- [ ] Subsurface Soil
- [X] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [X] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 052798	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1400	0-6"	br.-blk.	fn.-med. gr. sd.
Method: Grab			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

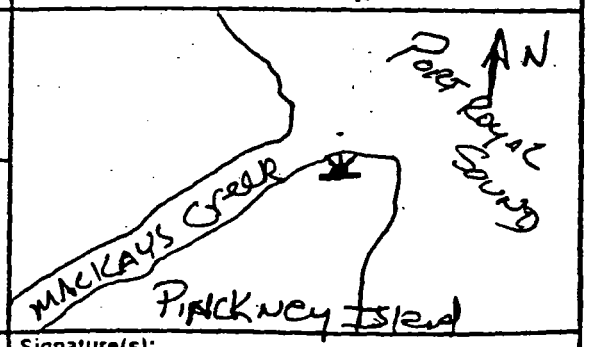
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC.A	5 ENCORE SAMPLES	✓	
TCL SVOC.A	1602	✓	
TAL METALS (TOTAL)	1602	✓	
CYANIDE	1602	✓	
TCL PESTICIDES / PCBS	1602	✓	
TOC	1602	✓	
PH	1602	✓	
~~HEXAVALENT CHROMIUM~~	~~1602~~		

OBSERVATIONS / NOTES:

Sample Area Chosen by Diane Duncan SC Fish & Wildlife

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: ~~7394~~ 7803

Sample ID No.: PAI-10-SD16-01
Sample Location: PAI-10-SD16
Sampled By: Skip Baxton
C.O.C. No.: 2080

- [ ] Surface Soil
- [ ] Subsurface Soil
- [X] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [X] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 090998	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1527	0-0.5 ft.	dk. gray	silty clay, v. moist
Method: GRAB			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

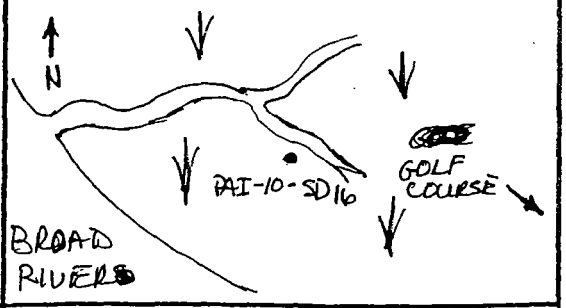
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC.A	5 ENCORE SAMPLES	5	
TCL SVOC.A	1602	TOTAL OF 3	
TAL METALS (TOTAL)	1602	16 OZ JARS	
CYANIDE	1602		
TCL PESTICIDES / PCBS	1602		
TOC	1602		
PH	1602		
~~HEXAVALENT CHROMIUM~~	1602		

OBSERVATIONS / NOTES:

DUE TO SHIPPING CONSTRAINTS VOC SAMPLES COLLECTED @ 0900 on 091098

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Skip Baxton

SOIL & SEDIMENT SAMPLE LOG SHEET

PAI-10-SD-06-01A

Project Site Name: MCRD - Jericho Island
Project No.: 7803

Sample ID No.: ~~PAI-10-SD-06-01~~
Sample Location: PAI-10-SD06
Sampled By: GG, RD
C.O.C. No.: ~~2213~~ 2212

- [ ] Surface Soil
- [ ] Subsurface Soil
- [x] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 12/15/98	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1245	0. -0.5 Ft	dark Gray	Silty Clay; v. moist
Method: Grab			
Monitor Reading (ppm): NA			

COMPOSITE SAMPLE DATA:

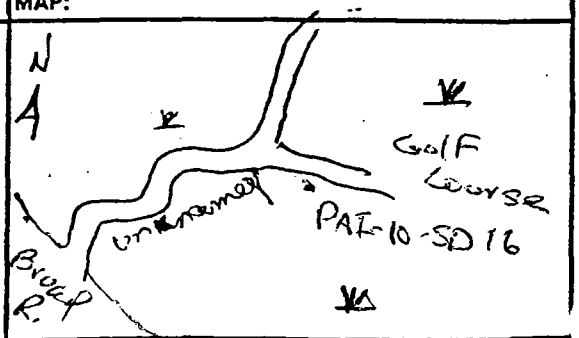
Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH - SW846-8310	1	✓	

OBSERVATIONS / NOTES:

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

A-166

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: ~~7394~~ 7803

[] Surface Soil
[] Subsurface Soil
[X] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: PAI-10-SD-17-01 ~~PAI-10-SD-017-01~~
Sample Location: PAI-10-SD17 66
Sampled By: [signature]
C.O.C. No.: 2280

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 090998	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time:	0-0.5 ft.	dk. gray/ black	clay mud, saturated
Method: Grab			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

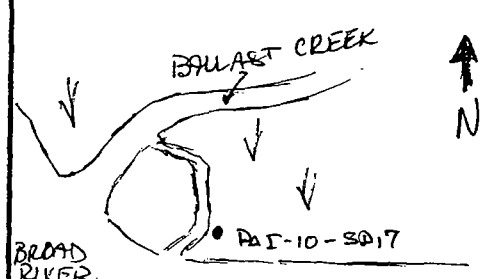
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	5 ENCORE SAMPLES	5	
TCL SVOCs	16oz	Total of 3	
TAL METALS (TOTAL)	16oz	16oz jars	
CYANIDE	16oz	↓	
TCL PESTICIDES / PCBs	16oz	↓	
TOC	16oz	↓	
PH	16oz	↓	
~~HEXAVALENT CHROMIUM~~	~~16oz~~		

OBSERVATIONS / NOTES:

DUE TO SHIPPING CONSTRAINTS VOC SAMPLES WERE COLLECTED @ 1429 ON 09.098

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): [signature]

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: MCRD - Jericho Island
Project No.: 7803

Sample ID No.: ~~PAI-10-SD-017-01~~ PAI-10-SD-17-01A
Sample Location: PAI-10-SD17
Sampled By: GG, RD
C.O.C. No.: 2212

- [x] Surface Soil
- [ ] Subsurface Soil
- [x] Sediment
- [ ] Other: _____
- [ ] QA Sample Type: _____

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 12/15/98	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1200	0-0.5 FT	Drk Gray/Black	Clay mud, saturated
Method: Grab			
Monitor Reading (ppm): NA			

COMPOSITE SAMPLE DATA:

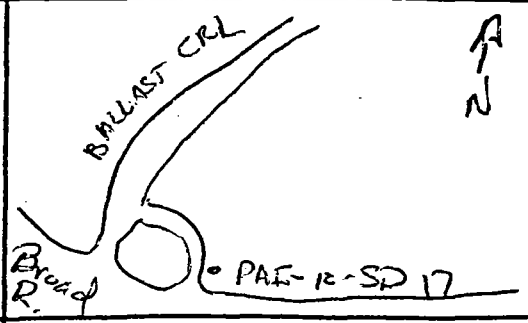
Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH - SW 846 - 8310	1 - 8 oz	✓	

OBSERVATIONS / NOTES:

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Gary L. Gunter

SOIL & SEDIMENT SAMPLE LOG SHEET

Page 1 of 1

Project Site Name: MCRD PARRIS ISLAND
Project No.: ~~7394~~ 7803

[] Surface Soil
[] Subsurface Soil
[X] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: PAI-10-SD-18-01 ~~PAI-10-SD-018-01~~ GC
Sample Location: PAI-10-SD18
Sampled By: [signature]
C.O.C. No.: 2280

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 090998	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time:	0-0.5 ft	drk. gray	clay mud, saturated
Method: Grab			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

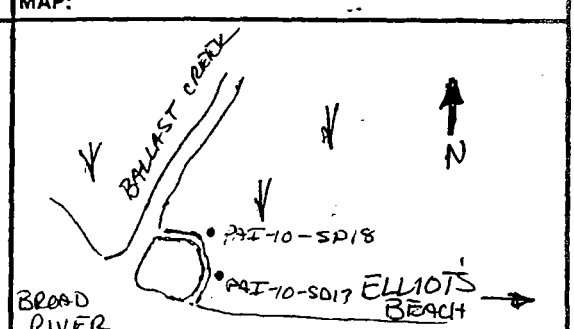
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	5 ENCORE SAMPLES	5	
TCL SVOCs	16oz	Total of 3	
TAL METALS (TOTAL)	16oz	16 oz Jars	
CYANIDE	16oz	↓	
TCL PESTICIDES / PCBs	16oz		
TOC	16oz		
pH	16oz		
~~HEXAVALENT CHROMIUM~~	~~16oz~~		

OBSERVATIONS / NOTES:

Due to shipping constraints VOC samples were collected @ 1515 on 091098

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): [signature]

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: MCRD - Jencho Island
Project No.: 7803

Sample ID No.: ~~PAI-10-SD-018-01~~ PAI-10-SD-18-01A
Sample Location: PAI-10-SD18
Sampled By: RD, GG
C.O.C. No.: 2212

- [ ] Surface Soil
- [ ] Subsurface Soil
- [x] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 12/15/98	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1200	0-0.5 Ft	dark Gray	Clay mud, Saturated
Method: Grab			
Monitor Reading (ppm): NA			

COMPOSITE SAMPLE DATA:

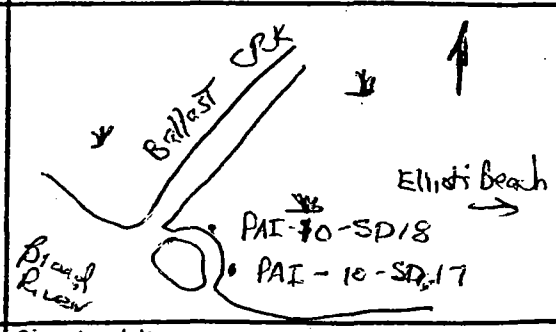
Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH SW846-8310	1 -	✓	

OBSERVATIONS / NOTES:

MAP:



Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: 7394

Sample ID No.: PAI015S00101
Sample Location: Pinckneys.
Sampled By: RLM/JFL
C.O.C. No.: 00263

- [X] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [X] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 060198 / Time: 1015 / Method: Grab / Monitor Reading (ppm): —	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	0-1'	H.br.	fn.-med. sd., dry

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

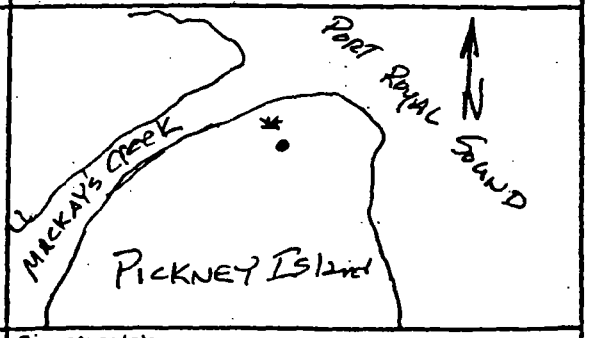
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC.A	5 ENCORE Samples	✓	
TCL SVOC.A	16 oz	✓	
TAL METALS (TOTAL)	16 oz	✓	
CYANIDE	16 oz	✓	
TCL PESTICIDES / PCBS	16 oz	✓	
~~TOC~~	~~16 oz~~		
~~OH~~	~~16 oz~~		
~~HEXAVALENT CHROMIUM~~	~~16 oz~~		

OBSERVATIONS / NOTES:

Sampling Area chosen by Diane Duncan - South Carolina Fish & Wildlife

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: 7394

Sample ID No.: PAI01SS00201
Sample Location: ~~PE~~ Pinckney Is.
Sampled By: RLM/JFL
C.O.C. No.: 00263

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

Date: 060198	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1030	0-1'	H.Br.	fn.-med. sd. dry
Method: 6mb			
Monitor Reading (ppm): —			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

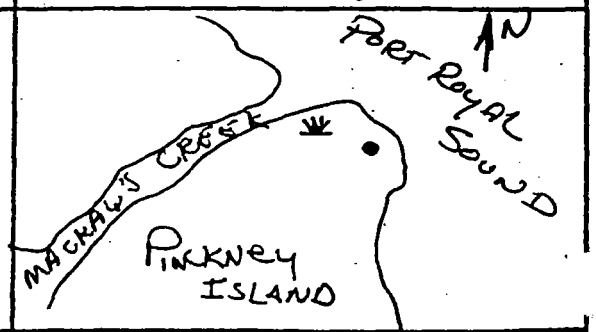
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC.A	5 ENCORE SAMPLES	✓	
TCL SVOC.A	16 oz	✓	
TAL METALS (TOTAL)	16 oz	✓	
CYANIDE	16 oz	✓	
TCL PESTICIDES / PCBS	16 oz	✓	
~~TOC~~	~~16 oz~~		
~~PH~~	~~16 oz~~		
~~HEXAVALENT CHROMIUM~~	~~16 oz~~		

OBSERVATIONS / NOTES:

Sampling Area Chosen by Diane Duncan SC Fish & Wildlife

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: 7394

Sample ID No.: PAIDSS00301
Sample Location: Pinckney Is.
Sampled By: RLM/HHL
C.O.C. No.: 00243

- [X] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [X] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 060198 / Time: 1055 / Method: Grab / Monitor Reading (ppm):	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	0-1'	lt. br.	fn.-med. sd. dry

COMPOSITE SAMPLE DATA:

Date: / Method: / Monitor Readings (Range in ppm):	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)

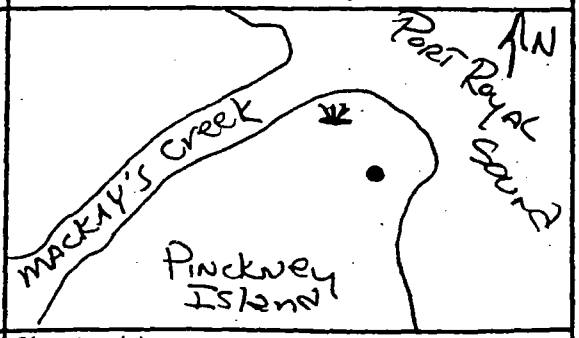
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC's	5 ENCORE SAMPLES	✓	
TCL SVOC's	16 oz	✓	
TAL METALS (TOTAL)	16 oz	✓	
CYANIDE	16 oz	✓	
TCL PESTICIDES / PCBs	16 oz	✓	
~~TOC~~	~~16 oz~~		
~~pH~~	~~16 oz~~		
HEXAVALENT CHROMIUM	~~16 oz~~		

OBSERVATIONS / NOTES:

Samples Area Chosen by Diane Duncan - SC Fish & Wildlife

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: ~~7394~~ 7803

Sample ID No.: ~~PAI-10-SS-015-01~~ PAI-10-SS-15-01
Sample Location: PAI-10-SS15
Sampled By: ~~Stuy Barton~~
C.O.C. No.: 2280

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

Date: 090998 / Time: 1419 / Method: disp. trowel / Monitor Reading (ppm):	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	0-1 ft.	lt. gray	v. silty fine sand, dry, no odor

COMPOSITE SAMPLE DATA:

Date: / Method: / Monitor Readings (Range in ppm):	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)

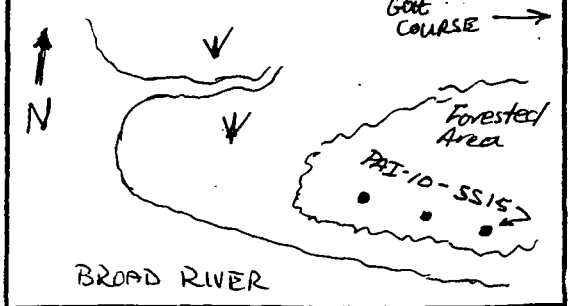
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	5 ENCORE Samples	5	
TCL SVOCs	16 oz	Total of 3	
TAL METALS (TOTAL) INS/SOM	16 oz	16oz jars	
CYANIDE	16 oz		
TCL PESTICIDES / PCBs	16 oz		
TOC	16 oz		
pH	16 oz		
~~HEXAVALENT CHROMIUM~~	16 oz		

OBSERVATIONS / NOTES:

DUE TO SHIPPING CONSTRAINTS VOC SAMPLES WERE COLLECTED @ ~~1444~~ 0813 ON 09/10/98 09/10 98 GB

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Stuy Barton

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: ~~7394~~ 7803

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: PAI-10-SS-16-01 ~~PAI-10-SS-016-01~~
Sample Location: PAI-10-SS16
Sampled By: Shep Barton
C.O.C. No.: 2280

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 090998 Time: 1440 Method: disp. trowel Monitor Reading (ppm): –	0-1 ft.	lt. gray	v. silty fine sand, dry, no odor

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

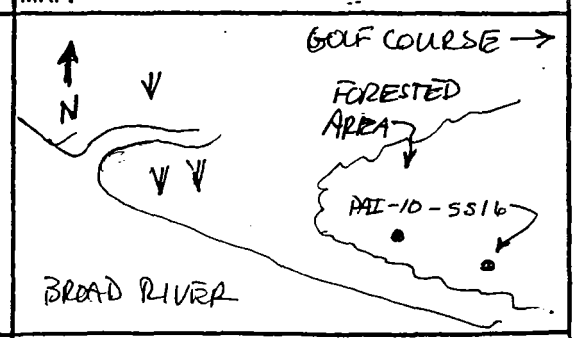
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOCs	5 ENCORE SAMPLES	5	
TCL SVOCs	16 oz	TOTAL OF 3	
TAL METALS (TOTAL)/AVS/SEM	16 oz	16 OZ JARS	
CYANIDE	16 oz	↓	
TCL PESTICIDES / PCBs	16 oz		
TOC	16 oz		
pH	16 oz		
~~HEXAVALENT CHROMIUM~~	~~16 oz~~		

OBSERVATIONS / NOTES:

DUE TO SHIPPING CONSTRAINTS VOC SAMPLES WERE COLLECTED @ 0825 on 091098

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Shep Barton

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: MCRD PARRIS ISLAND
Project No.: ~~7394~~ 7803

Sample ID No.: ~~PAI-10-SS-17-01~~
Sample Location: ~~PAI-10-SS-17~~
Sampled By: Skip Barton
C.O.C. No.: 2280

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

Date: 090998	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1455	0-1 ft.	lt. gray	silty fine sand, dry, no odor
Method: disp. trowel			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

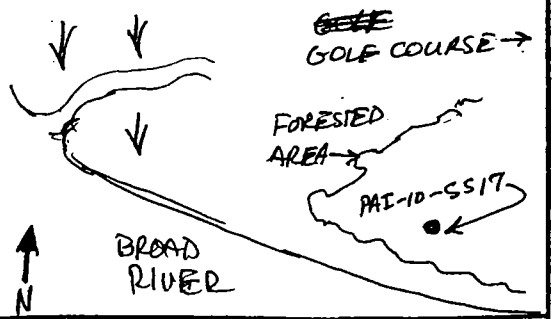
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOC.A	5 ENCORE SAMPLES	5	
TCL SVOC.A	16 oz	TOTAL OF 3	
TAL METALS (TOTAL) AVS/SEM	16 oz	16 OZ JARS	
CYANIDE	16 oz		
TCL PESTICIDES / PCBS	16 oz		
TOC	16 oz		
PH	16 oz		
~~HEXAVALENT CHROMIUM~~	16 oz		

OBSERVATIONS / NOTES:

DUE TO SHIPPING CONSTRAINTS VOC SAMPLES WERE COLLECTED @ 0835 ON 091098

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Skip Barton

00263

CHAIN OF CUSTODY RECORD

PROJECT NO.:	SITE NAME:
7394	MCRD Parris Is.

SAMPLERS (SIGNATURE):

STATION NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	TCL VOC Excores (5)	TCL SVOC 160zi	TAL Metals + CN 160z.	TCL Pest/PCB 160z.			REMARKS
	0601 98	10 15		✓	[redacted]	6	✓	✓	✓	✓			
	0601 98	10 30		✓	[redacted]	6	✓	✓	✓	✓			
	0601 98	10 55		✓	[redacted]	6	✓	✓	✓	✓			
	0601 98	11 38	25 pm	✓	[redacted]	6	✓	✓	✓	✓			
	0601 98	16 18		✓	[redacted]	6	✓	✓	✓	✓			
	0601 98	15 38		✓	[redacted]	6	✓	✓	✓	✓			
					[redacted]	2	✓						Cooler 1 of 2
					Temp. Blank	1							Cooler 1 of 2

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):
[signature]	060198 1800				
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE):	DATE / TIME:	REMARKS:	
		[signature]	6/6/98 1145	2.8c (10.4, 11.3, 6.1)	

Order No. 70440 (0693)

A-117

01306

CHAIN OF CUSTODY RECORD

PROJECT NO.: 7394

SITE NAME: Pinckney Island

SAMPLERS (SIGNATURE): [signature], Janet K Laffey

STATION NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	TCL VOC + HCl 40 ml.	TCL SVOC 1000 ml. Amber	TAL Metals + HNO3 Hardness 1000 ml plastic	TAL Metals + HNO3 Filtered 1000 ml plastic	TCL Pest / PCB 1000 ml. Amber	TOC + H2SO4 1000 ml. plastic	Cn + NaOH 250 ml. plastic	pH 1000 ml. plastic	REMARKS
	052798	1240		✓	[redacted]	12	✓	✓	✓	✓	✓	✓	✓	✓	
	052798	1330		✓	[redacted]	12	✓	✓	✓	✓	✓	✓	✓	✓	
	052798	1400		✓	[redacted]	12	✓	✓	✓	✓	✓	✓	✓	✓	
					[redacted]	2									each cooler
					[redacted]	2	✓								Cooler #1 of 2

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
[signature]	052798 1845				
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE):	DATE / TIME:	REMARKS:	
		[signature]	5/28/98 1420		

A-178

01307

CHAIN OF CUSTODY RECORD

PROJECT NO.: 7394

SITE NAME: Pinckney Island

SAMPLERS (SIGNATURE): [signature] Janos K Laffey

STATION NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	TCL VOC Encores (5)	TCL SVOC 16oz.	TAL Metals + CN 16oz.	TCL Pest/PCB 16oz.	TOC, pH 16oz		REMARKS
	052798	1240		✓	[redacted]	6	✓	✓	✓	✓	✓		
	052798	1330		✓	[redacted]	6	✓	✓	✓	✓	✓		
	052798	1400		✓	[redacted]	6	✓	✓	✓	✓	✓		

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
[signature]	052798 1845				
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE): [signature]	DATE / TIME: 5/28/98 1420	REMARKS:	

Order No. 70440 (0693)

51852, 52304, 52360 (12.9.1.6.7.8)(8.4.7.0.6.0). 6.0°C

A-179

CHAIN OF CUSTODY RECORD

9812418

02212

PROJECT NO.: 7803

SITE NAME: Jericho - Island

SAMPLERS (SIGNATURE): Gary L Gunter [signature]

STATION NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	PAH SW8416 8310						REMARKS
15	12/14/98	1240		X	PAI-10-SD-002-01DA	1	✓						Duplicate
16	12/14/98	1240		X	PAI-10-SD-002-01A	1	✓						MS
17	12/14/98	1240		X	PAI-10-SD-002-01DA	1	✓						MSD
18	12/14/98	1507		X	PAI-10-SD-014-02A	1	✓						
19	12/14/98	1458		X	PAI-10-SD-015-01A	1	✓						
20	12/15/98	1200		X	PAI-10-SD-018-01A	1	✓						
21	12/15/98	1200		X	PAI-10-SD-017-01A	1	✓						
22	12/15/98	1245		X	PAI-10-SD-016-01A	1	✓						

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
Gary L Gunter	12/15/98 1500				
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE): Josie A Smith	DATE / TIME: 12/16/98 8:40	REMARKS: Questions To DAVE Brayack TETRA TECH - Pittsburgh 412-921-8375	

Order No. 70440 (0693)

A-180

CHAIN OF STODY RECORD

98092

UCCOU

PROJECT NO.:	SITE NAME:
7803	MCRD Parris Island, SC

SAMPLERS (SIGNATURE): Steph Barton

STATION NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	TCL VOCs	TCL SVOCs	TCL Pes/PCBs	TAL Diss. Metals	TAL Total metals/Hexch CN	AVS/SEM	TOC	P/H	REMARKS
1)	9/9/98	1419	1	✓	[redacted] BACKGROUND SAMPLE	8	5	✓	✓		✓	✓	✓		VOCs (encores)
2)		1440		✓	[redacted]	8	5	✓	✓		✓	✓	✓		collected on 9/10/98
3)	↓	1455		✓	[redacted]	8	5	✓	✓		✓	✓	✓		↓
4)	9/9/98	1527		✓	[redacted]	8	5	✓	✓		✓	✓	✓	✓	soils are
5)		1623		✓	[redacted]	8	5	✓	✓		✓	✓	✓	✓	reactive
6)	↓	1641		✓	[redacted]	8	5	✓	✓		✓	✓	✓	✓	✓
DUP	9/10/98	1242		✓	[redacted]	12	4	2	2	1	1	1		1	
		1421		✓	[redacted]	12	4	2	2	1	1	1		1	
	↓	1503		✓	[redacted]	12	4	2	2	1	1	1		1	
					Trip Blanks	2									
					Temp Blanks	4									

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):
Steph Barton	9/10/98 2000	Fed Ex			
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE): Jane A Smith	DATE / TIME: 9/11/98 8:50	REMARKS: for soil & sediment samples 16oz jars were collected on 9/9/98, encores on 9/10/98 due to holding time constraints.	

Order No. 70440 (0693)

A-181

SAMPLE LOG SHEETS TO SUPPORT
TYPICAL FACILITY PESTICIDE CONCENTRATIONS

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of___

Project Site Name: MCRD Parris Island
Project No.: 7394

Sample ID No.: PAI-01-SS-016
Sample Location: PAI-01-SS16
Sampled By: GG
C.O.C. No.: 00241

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

Date: 4/21/99	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 13:18	0-1.0 Ft	Tan Brn	F Sand Dry
Method: Grab			
Monitor Reading (ppm): —			

COMPOSITE SAMPLE DATA:

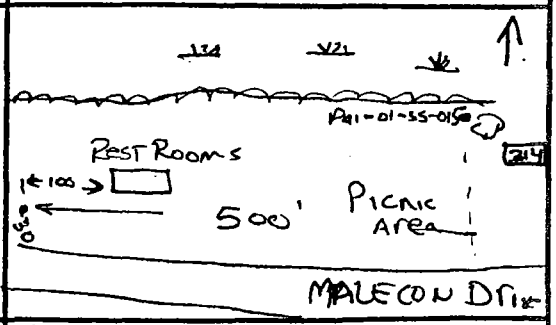
Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAH, TCL Pest	1-16oz	✓	

OBSERVATIONS / NOTES:

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: MCRD Parris Island
Project No.: 7394

Sample ID No.: PAI-01-SS-015
Sample Location: PAI-01-SS15
Sampled By: GG
C.O.C. No.: 00241

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

Date: 4/21/99	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1301	0-1.0 FT	Tan-Brn	F Sand Dry
Method: Grab			
Monitor Reading (ppm): —			

COMPOSITE SAMPLE DATA:

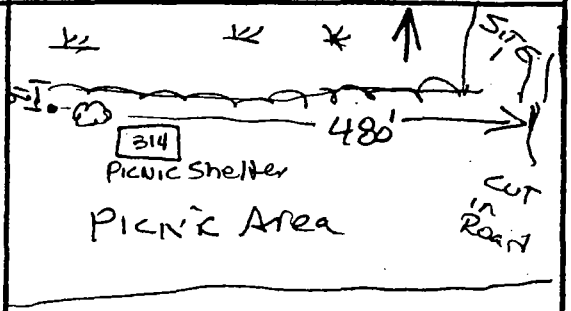
Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAHs, TCL Pest	1-16oz	✓	

OBSERVATIONS / NOTES:

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): G Gunter