

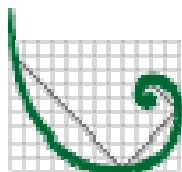
Appendix B
Pre-Design CPT/MIP Boring Logs

MIP REPORT

Membrane Interface Probe Services

228 Hookston Road, Pleasant Hill, CA

Hookston Station



ERM

2/21/2007



“Bringing Chemistry and Contaminants Together”

For the Consulting Community

“Expect Performance”

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Client: ERM

Brian Bjorklund
1777 Botelho Drive, Suite 260
Walnut Creek, CA 94596

Start Date: 2/12/2007

Completed Date: 2/20/2007

Site Address: 228 Hookston Road, Pleasant Hill, CA

Project Name: Hookston Station

Project Scope: Collected Membrane Interface Probe logs from 17 boring locations from approximately surface to as deep as 79 feet to identify and characterize the VOC's, and give a detailed understanding of the chemical distribution.

Project Information:

CPT-33	Hand augered to 5' bgs.
CPT-34	Hand augered to 5' bgs. Attenuation error at 40.55'. Disregard data. PID lamp went out at approximately 9' bgs. FID signal at 9' caused by opening the system to check PID lamp.
CPT-35	Hand augered to 5' bgs.
CPT-44	Hand augered to 5' bgs. First 28.35' is not valid, due to stringpot error and/or potential open hole smearing/volatilization of contaminants.
CPT-46	Hand augered to 5' bgs.
CPT-45	Hand augered to 5' bgs.
CPT-43	Hand augered to 5' bgs.
CPT-42	Hand augered to 5.0' bgs. Range change at 4.0' bgs. Disregard ECD reading at that level. Stringpot had loose connection and data did not transfer for approx. 3-4'. From 60-64' bgs. The FC5000 needed to be reset at 66' due to a computer communication error.
CPT-47	Hand augered to 5' bgs.
CPT-40	Attenuation error/change at 5.6'-2.6', for actual.
CPT-39	Hand augered to 5' bgs.
CPT-48	Hand augered to 5'. Trigger off at 22.65' per Gregg Drilling request. Restarted in one minute and equilibrated for 80 seconds.
CPT-38	Hand augered to 5'.
CPT-37	Hand augered to 5'.
CPT-50	Hand augered to 5' bgs.
CPT-36	Hand augered to 5' bgs.
CPT-41	Hand augered to 5' bgs.



MIP Boring and Confirmation Sampling Summary

Date Sampled	Time Sampled	Boring Name	Total Depth	Confirmation Samples Soil	Confirmation Samples Groundwater
Feb 12 2007	12:06	CPT-33	72.85	Not Provided	Not Provided
Feb 12 2007	14:48	CPT-34	76.95	Not Provided	Not Provided
Feb 13 2007	09:12	CPT-35	74.25	Not Provided	Not Provided
Feb 14 2007	16:11	CPT-44	54.55	Not Provided	Not Provided
Feb 14 2007	09:51	CPT-46	57.15	Not Provided	Not Provided
Feb 14 2007	11:49	CPT-45	56.9	Not Provided	Not Provided
Feb 15 2007	10:16	CPT-43	75.15	Not Provided	Not Provided
Feb 15 2007	14:12	CPT-42	72.35	Not Provided	Not Provided
Feb 16 2007	08:57	CPT-47	75.15	Not Provided	Not Provided
Feb 16 2007	12:01	CPT-40	78.45	Not Provided	Not Provided
Feb 16 2007	15:01	CPT-39	76.15	Not Provided	Not Provided
Feb 19 2007	13:50	CPT-48	74.85	Not Provided	Not Provided
Feb 20 2007	10:52	CPT-38	75.15	Not Provided	Not Provided
Feb 20 2007	13:50	CPT-37	78.8	Not Provided	Not Provided
Feb 21 2007	09:11	CPT-50	51.4	Not Provided	Not Provided
Feb 21 2007	08:59	CPT-36	79.05	Not Provided	Not Provided
Feb 21 2007	15:52	CPT-41	77.85	Not Provided	Not Provided



Quality Control: Vironex utilizes a response test* prior to each MIP boring. A solution containing water, Trichloroethene & Toluene are mixed and transferred into a galvanized test pipe. The MIP is then lowered into the test pipe for 45 seconds and then extracted. The trip time** is then noted and entered into the FC5000 MIP computer.

**Response Test - A test that ensures that the MIP system is working correctly.*

***Trip Time - Time it takes for the standard to enter the MIP probe, at the probe membrane, till the time a significant response is noticed on the FC 5000 Computer*

- MIP Components Used:**
- Gregg Drilling 30 Ton CPT Unit
 - FC 5000 MIP Computer
 - Flow Control Box
 - HP Gas Chromatograph
 - ECD (Electron Capture Detector)
 - PID (Photo Ionization Detector)
 - FID (Flame Ionization Detector)
 - 200' Trunk Line
 - 1.75" MIP Probe
 - 1.5" Drive Rods

Soil Confirmation No confirmation data was provided to Vironex.

Qualitative Analysis (Identification): The MIP system will detect most VOC's (Volatile Organic Compounds) which have the capability of migrating through the membrane. The ECD (Electron Capture Detector) will typically detect chlorinated compounds. The PID will typically detect aromatic and double bonded compounds, typical of gasoline components and some solvents. At high concentrations the ECD, PID and FID may detect other compounds not normally associated with the detector. Physical soil samples which are prepared by EPA Method 5035, and analyzed by EPA Method 8260, may be semi correlated with the MIP responses. The MIP responses are semi-correlated with most detected compounds, even those which are not

Lithology: No electrical conductivity collected.

A handwritten signature in black ink, appearing to read "Frank Stolfi".

Frank Stolfi
National Director of MIP Services



Client: ERM
 Brian Bjorklund
 1777 Botelho Drive, Suite 260
 Walnut Creek, CA 94596

Start Date: 2/12/2007
Completed Date: 2/20/2007

Site Address: 228 Hookston Road, Pleasant Hill, CA
Project Name: Hookston Station

MIP Quality Control

Standard Summary

Boring Name	Date	Time	Standard	PID Response	ECD Response	Pressure (PSI)	Response Time (s)
QA QC 1	Feb 12 2007	11:48	1 ppm TCE & 1 ppm Toluene	Yes	Yes	17.05	80
CPT-33	Feb 12 2007	12:06				16.78	80
QA QC 2	Feb 12 2007	14:34	1 ppm TCE & 1 ppm Toluene	Yes	Yes	16.57	100
CPT-34	Feb 12 2007	14:48				16.40	100
QA QC 3	Feb 13 2007	09:01	3 ppm TCE & 1 ppm Toluene	Yes	Yes	17.37	85
CPT-35	Feb 13 2007	09:12				16.90	85
QA QC 4	Feb 13 2007	12:56	5 ppm TCE & 1 ppm Toluene	Yes	Yes	16.34	105
CPT-44	Feb 14 2007	16:11				18.30	150
QA QC 5	Feb 14 2007	09:38	3 ppm TCE & 1 ppm Toluene	Yes	Yes	17.88	105
CPT-46	Feb 14 2007	09:51				17.66	105
QA QC 6	Feb 14 2007	11:38	3 ppm TCE & 1 ppm Toluene	Yes	Yes	17.37	115
CPT-45	Feb 14 2007	11:49				17.16	115
QA QC 7	Feb 14 2007	16:01	3 ppm TCE & 1 ppm Toluene	Yes	Yes	18.22	150
CPT-43	Feb 15 2007	10:16				18.55	150
QA QC 8	Feb 15 2007	09:59	5 ppm TCE & 1 ppm Toluene	Yes	Yes	19.02	150
CPT-42	Feb 15 2007	14:12				17.33	90



Standard Summary

Boring Name	Date	Time	Standard	PID Response	ECD Response	Pressure (PSI)	Response Time (s)
QA QC 9	Feb 15 2007	14:02	5 ppm TCE & 1 ppm Toluene	Yes	Yes	17.24	90
CPT-47	Feb 16 2007	08:57				17.71	85
QA QC 10	Feb 16 2007	08:46	5 ppm TCE & 1 ppm Toluene	Yes	Yes	18.27	85
CPT-40	Feb 16 2007	12:01				17.32	97
QA QC 11	Feb 16 2007	11:53	5 ppm TCE & 1 ppm Toluene	Yes	Yes	17.46	97
CPT-39	Feb 16 2007	15:01				17.11	87
QA QC 12	Feb 16 2007	14:52	5 ppm TCE & 1 ppm Toluene	Yes	Yes	17.19	87
CPT-48	Feb 19 2007	13:50				16.98	80
QA QC 13	Feb 19 2007	12:48	5 ppm TCE & 1 ppm Toluene	Yes	Yes	17.55	80
CPT-38	Feb 20 2007	10:52				17.96	105
QA QC 14	Feb 20 2007	10:39	5 ppm TCE & 1 ppm Toluene	Yes	Yes	18.72	105
CPT-37	Feb 20 2007	13:50				18.33	110
QA QC 15	Feb 20 2007	13:33	5 ppm TCE & 1 ppm Toluene	Yes	Yes	18.14	110
CPT-50	Feb 21 2007	09:11				17.38	85
QA QC 16	Feb 21 2007	08:59	5 ppm TCE & 2.5 ppm Toluene	Yes	Yes	18.23	85
CPT-36	Feb 21 2007	08:59				17.67	85
QA QC 17	Feb 21 2007	11:57	5 ppm TCE & 1 ppm Toluene	Yes	Yes	18.03	85
CPT-41	Feb 21 2007	15:52				17.28	95
QA QC 18	Feb 21 2007	15:40	5 ppm TCE & 2.5 ppm Toluene	Yes	Yes	17.30	95



End of Day QA QC Summary

Boring Name	Date	Time	Standard	PID Response	ECD Response	Pressure (PSI)	Response Time (s)
End of Day 1	Feb 12 2007	16:52	1 ppm TCE & Toluene	Yes	Yes	16.19	113
End of Day 2	Feb 13 2007	14:56	1 ppm TCE & Toluene	Yes	Yes	16.44	100
End of Day 3	Feb 14 2007	17:28	5 ppm TCE & Toluene	Yes	Yes	18.42	145
End of Day 4	Feb 15 2007	16:50	5 ppm TCE & Toluene	Yes	Yes	17.06	100
End of Day 5	Feb 16 2007		No end of day due to high ECD baselines				
End of Day 6	Feb 19 2007		No end of day due to high ECD baselines				
End of Day 7	Feb 20 2007	15:52	1 ppm TCE & Toluene	Yes	Yes	17.98	113
End of Day 8	Feb 21 2007	15:40	1 ppm TCE & Toluene	Yes	Yes	17.32	100



SITE MAP

No Map Provided



MIP Log Results by Boring - Detector Reading vs. Depth

Client: ERM

Boring I.D.: CPT-33

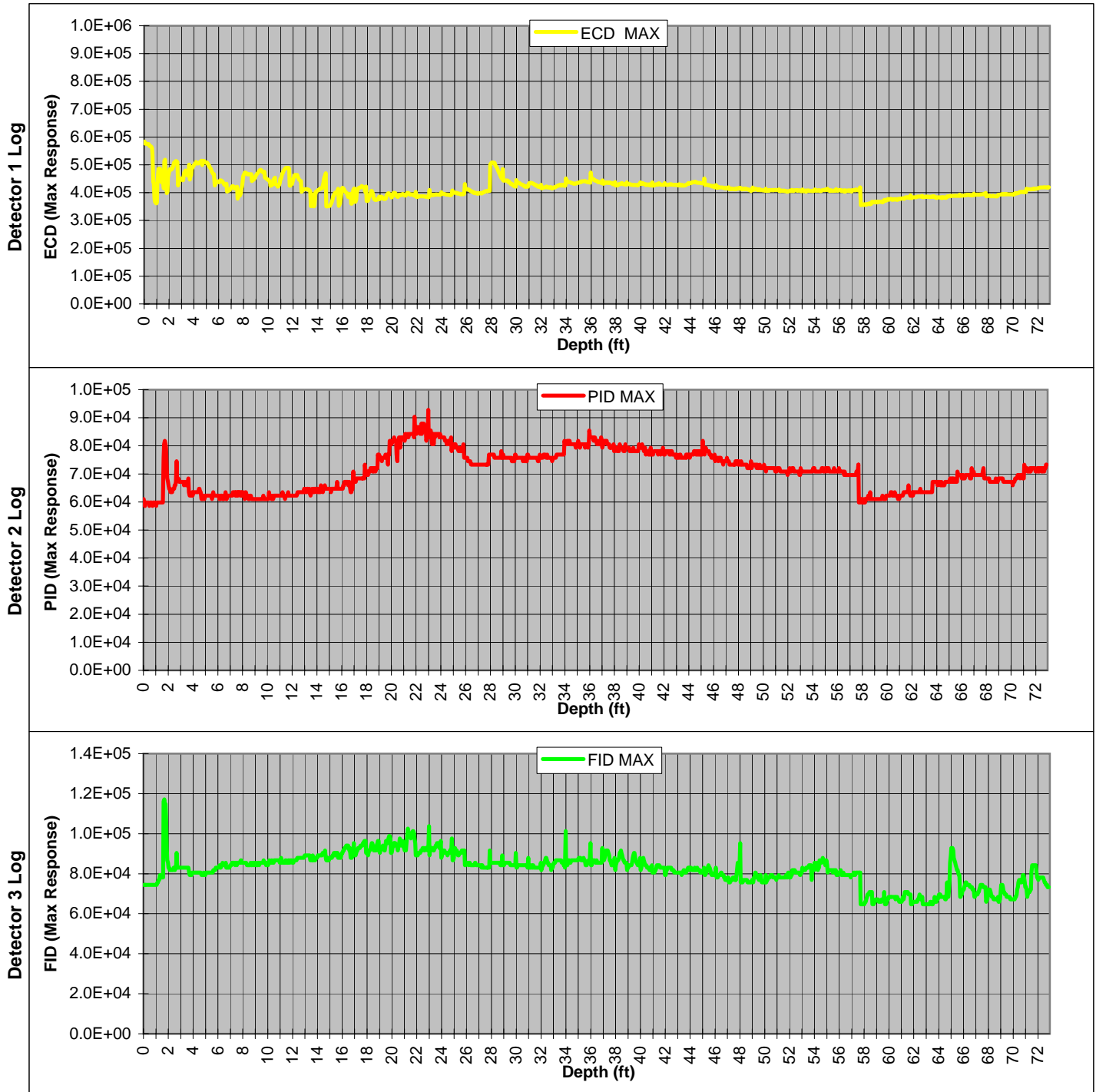
Detector 1 : Electron Capture (ECD)

Date: Feb 12 2007

Detector 2 : Photo Ionization (PID)

Time: 12:06

Detector 3 : Flame Ionization (FID)





MIP Log Results by Boring - Detector Reading vs. Depth

Client: ERM

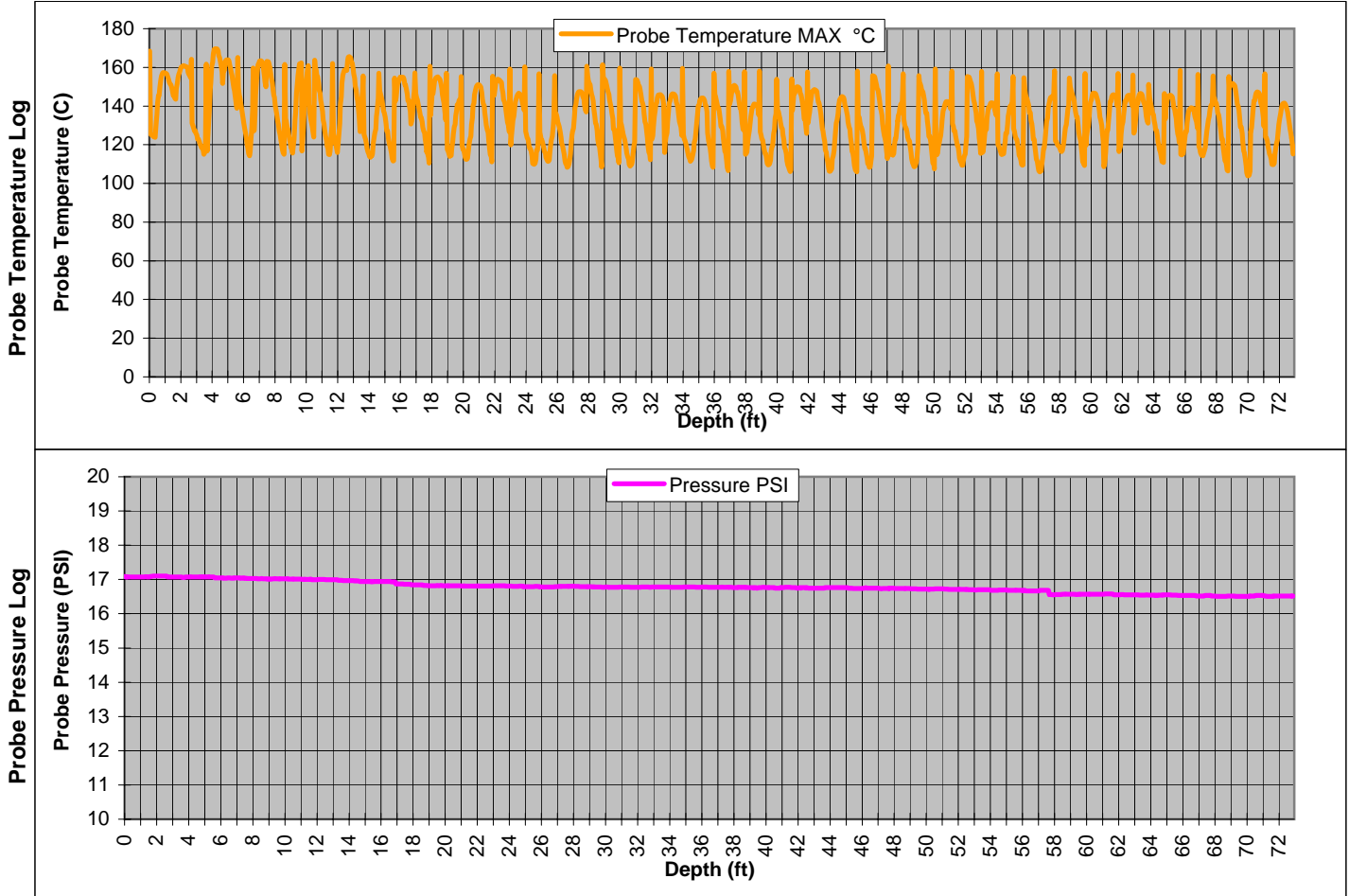
Boring I.D.: CPT-33

Graph 1 : Probe Temperature (C)

Date: Feb 12 2007

Graph 2 : Probe Pressure (PSI)

Time: 12:06



Explanation: Hand augered to 5' bgs.



MIP Log Results by Boring - Detector Reading vs. Depth

Client: ERM

Boring I.D.: CPT-34

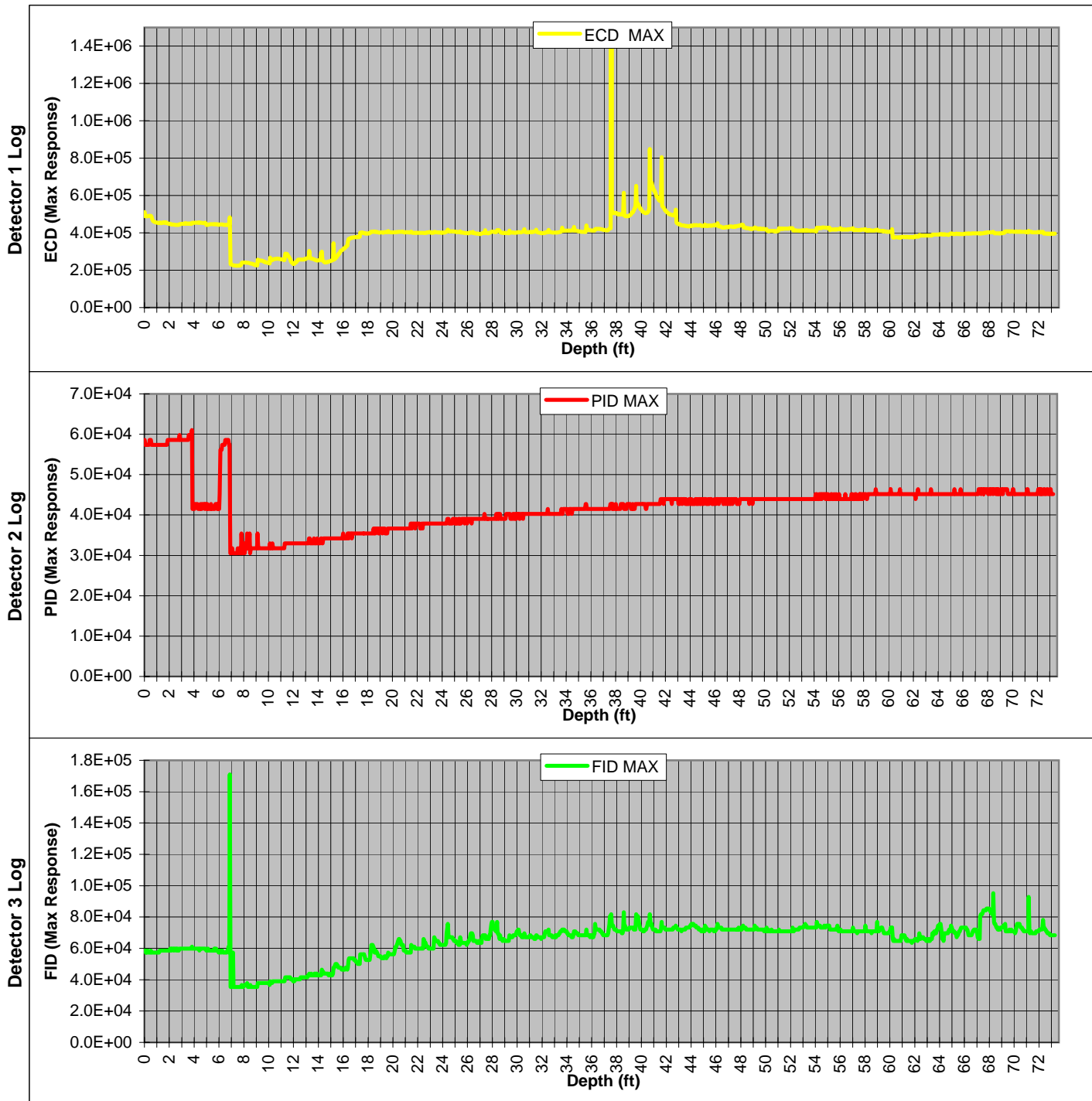
Detector 1 : Electron Capture (ECD)

Date: Feb 12 2007

Detector 2 : Photo Ionization (PID)

Time: 14:48

Detector 3 : Flame Ionization (FID)





MIP Log Results by Boring - Detector Reading vs. Depth

Client: ERM

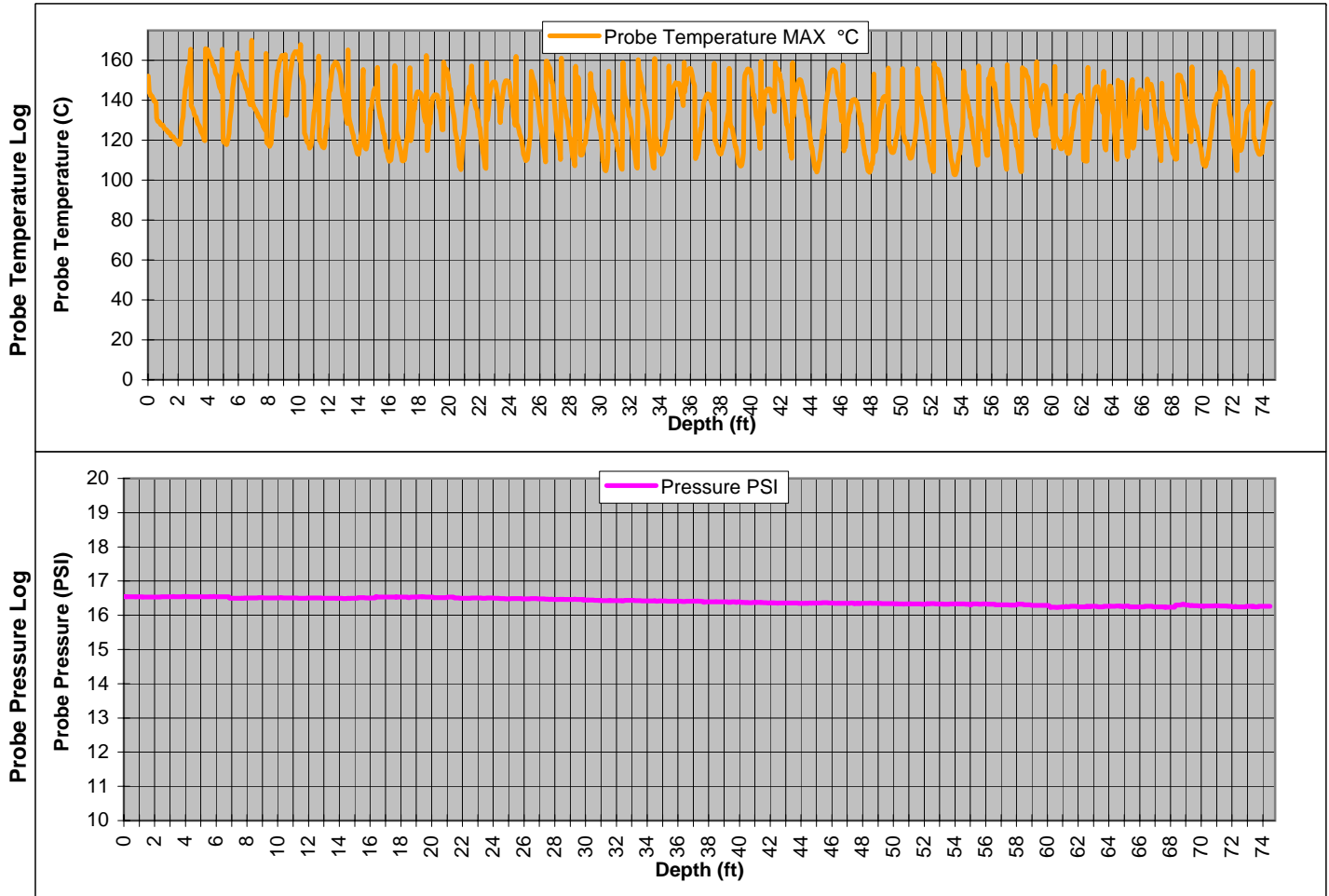
Boring I.D.: CPT-34

Graph 1 : Probe Temperature (C)

Date: Feb 12 2007

Graph 2 : Probe Pressure (PSI)

Time: 14:48



Explanation: Hand augered to 5' bgs. Attenuation error at 40.55'. Disregard data. PID lamp went out at approximately 9' bgs. FID signal at 9' caused by opening the system to check PID lamp.



MIP Log Results by Boring - Detector Reading vs. Depth

Client: ERM

Boring I.D.: CPT-35

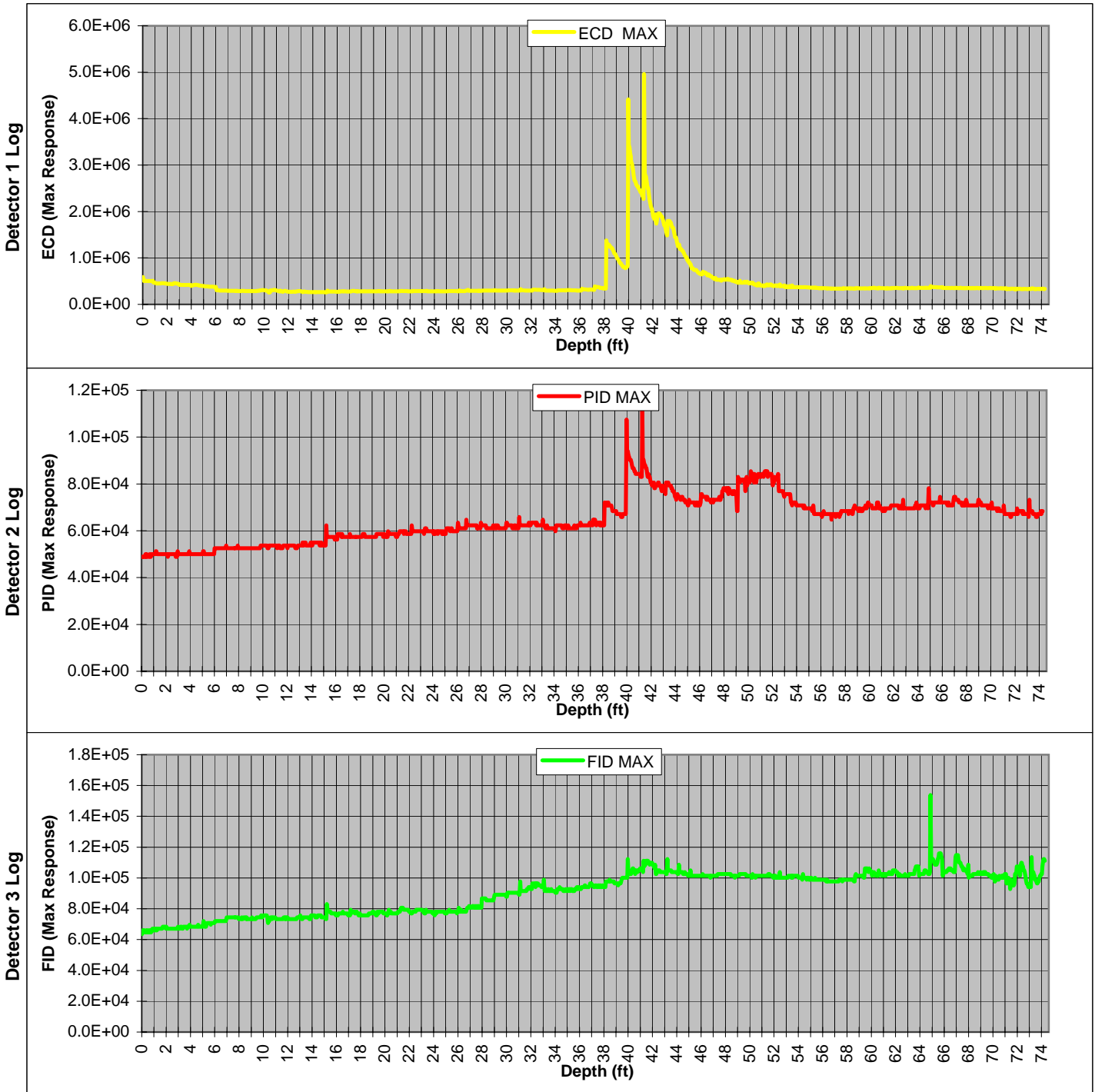
Detector 1 : Electron Capture (ECD)

Date: Feb 13 2007

Detector 2 : Photo Ionization (PID)

Time: 09:12

Detector 3 : Flame Ionization (FID)





MIP Log Results by Boring - Detector Reading vs. Depth

Client: ERM

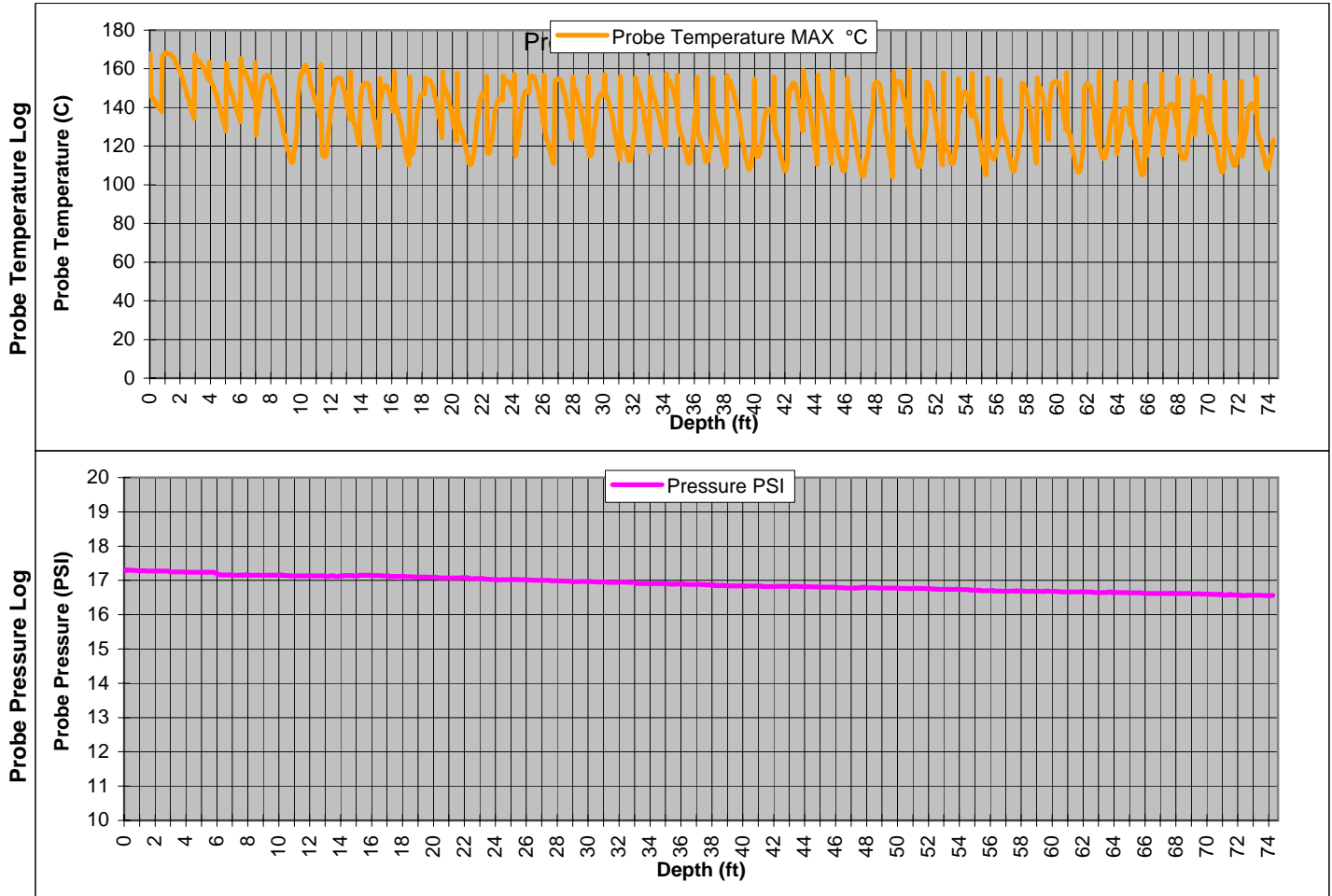
Boring I.D.: CPT-35

Graph 1 : Probe Temperature (C)

Date: Feb 13 2007

Graph 2 : Probe Pressure (PSI)

Time: 09:12



Explanation: Hand augered to 5' bgs.



MIP Log Results by Boring - Detector Reading vs. Depth

Client: ERM

Boring I.D.: CPT-44

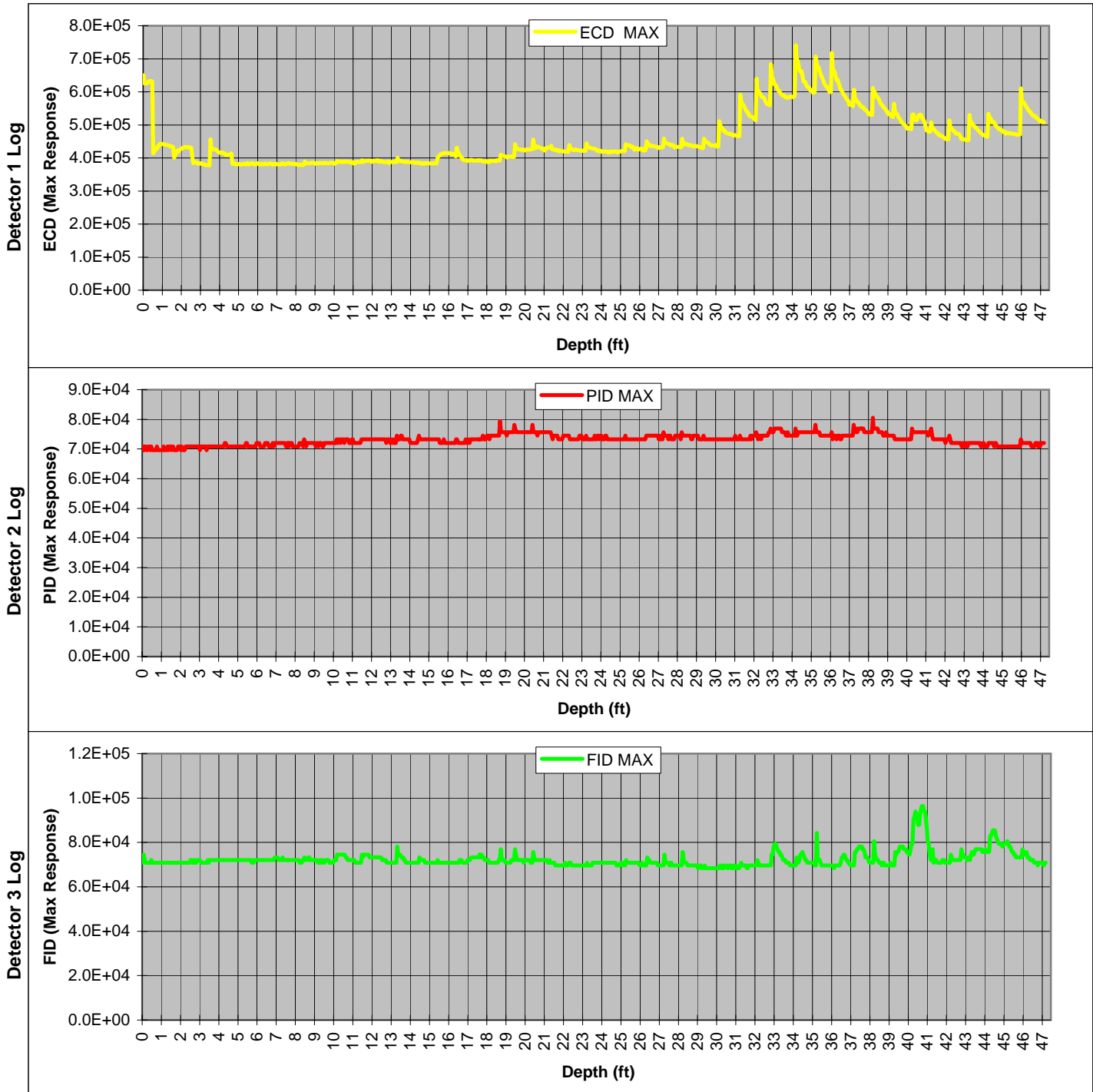
Detector 1 : Electron Capture (ECD)

Date: Feb 14 2007

Detector 2 : Photo Ionization (PID)

Time: 16:11

Detector 3 : Flame Ionization (FID)





MIP Log Results by Boring - Detector Reading vs. Depth

Client: ERM

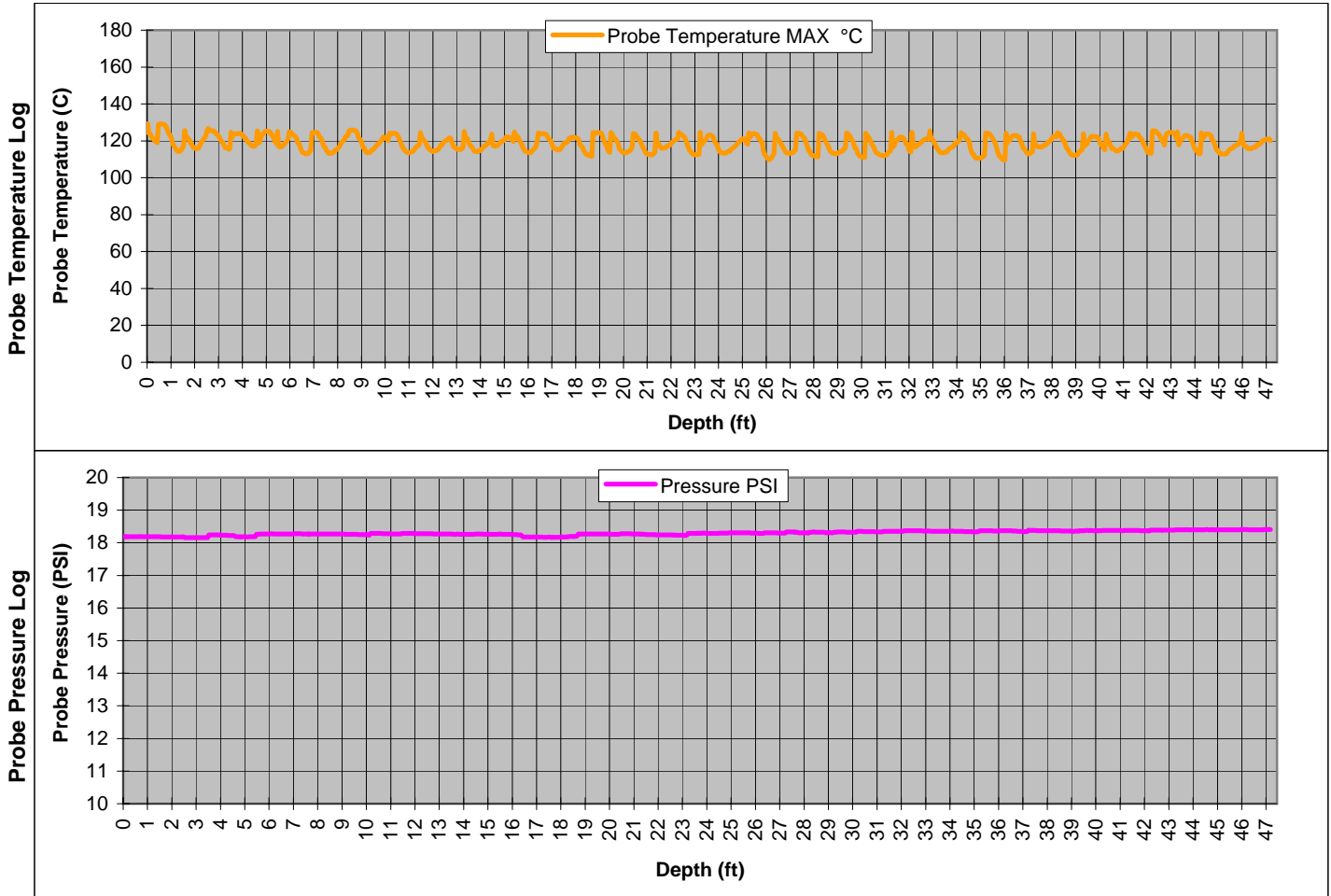
Boring I.D.: CPT-44

Graph 1 : Probe Temperature (C)

Date: Feb 14 2007

Graph 2 : Probe Pressure (PSI)

Time: 16:11



Explanation: Hand augered to 5' bgs. First 28.35' is not valid, due to stringpot error and/or potential open hole smearing/volatilization of contaminants.



MIP Log Results by Boring - Detector Reading vs. Depth

Client: ERM

Boring I.D.: CPT-46

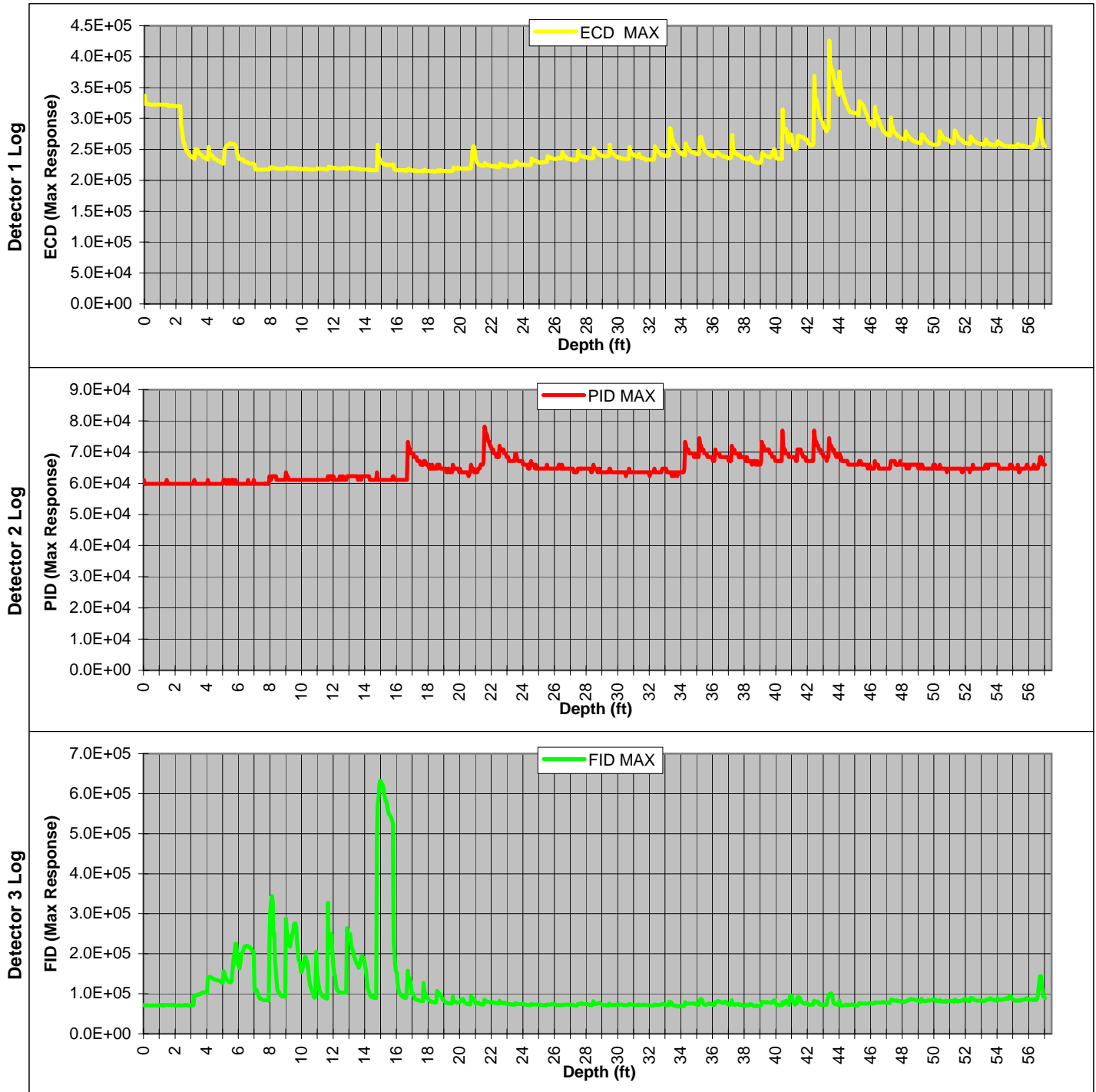
Detector 1 : Electron Capture (ECD)

Date: Feb 14 2007

Detector 2 : Photo Ionization (PID)

Time: 09:51

Detector 3 : Flame Ionization (FID)





MIP Log Results by Boring - Detector Reading vs. Depth

Client: ERM

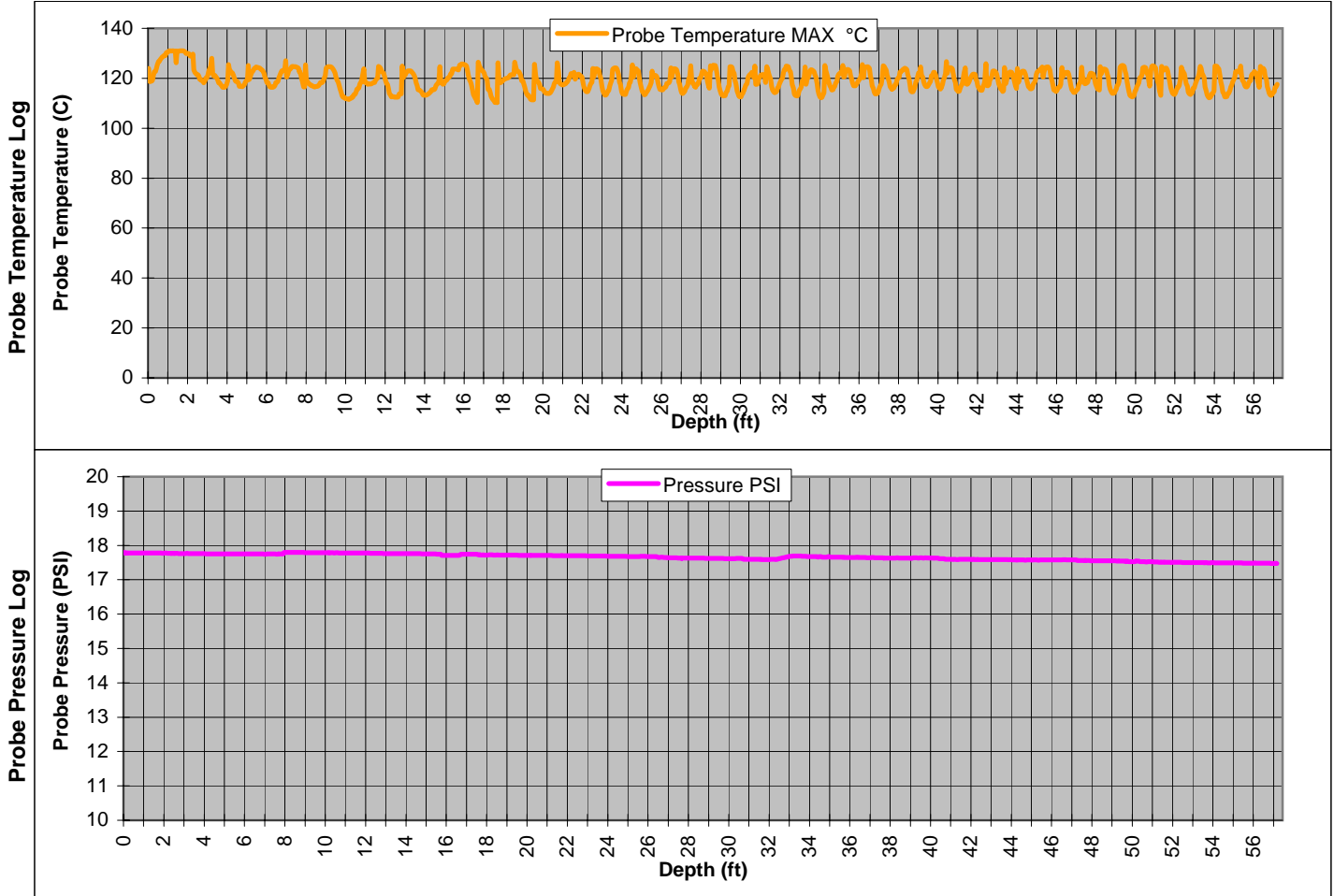
Boring I.D.: CPT-46

Graph 1 : Probe Temperature (C)

Date: Feb 14 2007

Graph 2 : Probe Pressure (PSI)

Time: 09:51



Explanation: Hand augered to 5' bgs.



MIP Log Results by Boring - Detector Reading vs. Depth

Client: ERM

Boring I.D.: CPT-45

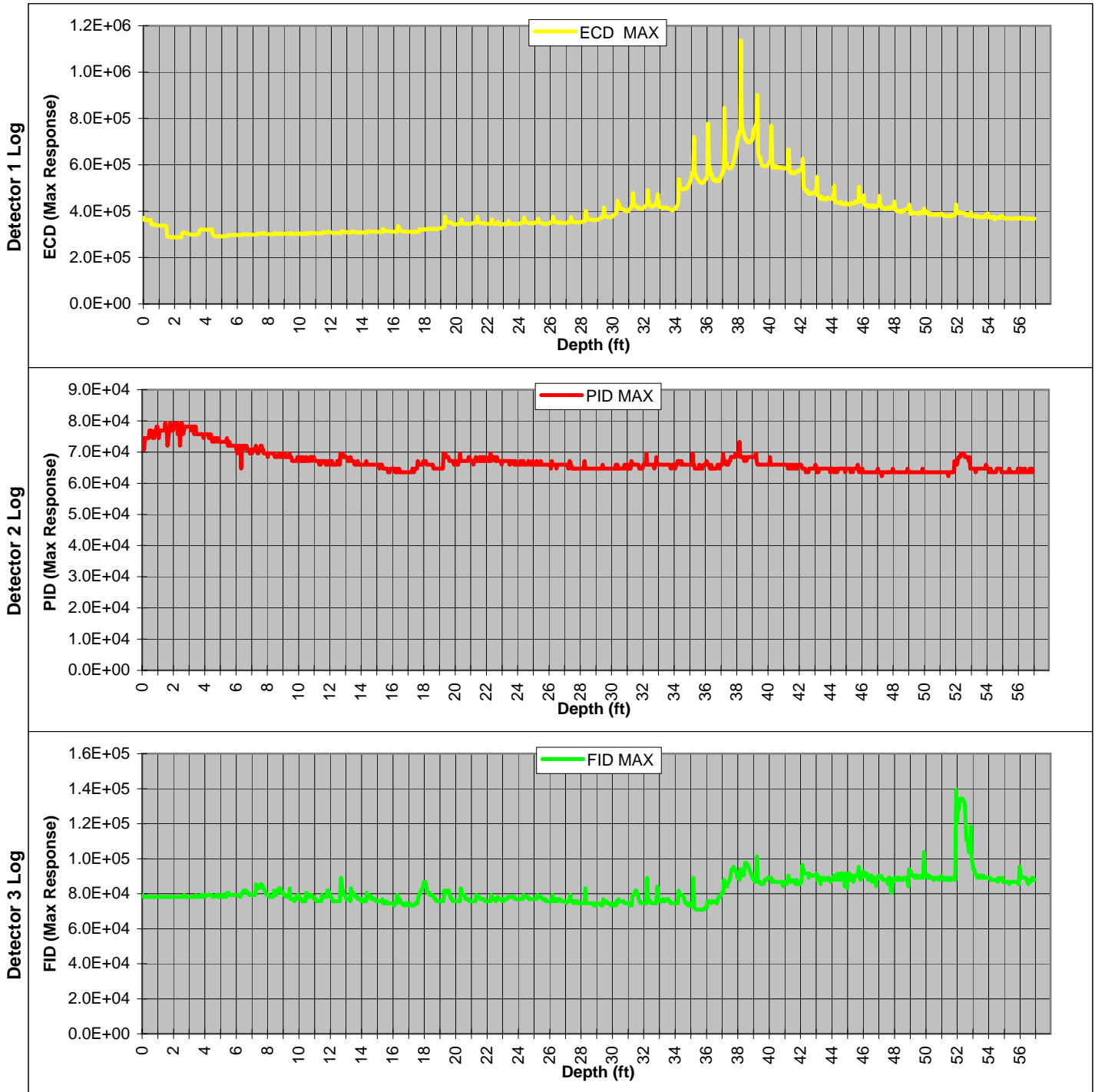
Detector 1 : Electron Capture (ECD)

Date: Feb 14 2007

Detector 2 : Photo Ionization (PID)

Time: 11:49

Detector 3 : Flame Ionization (FID)





MIP Log Results by Boring - Detector Reading vs. Depth

Client: ERM

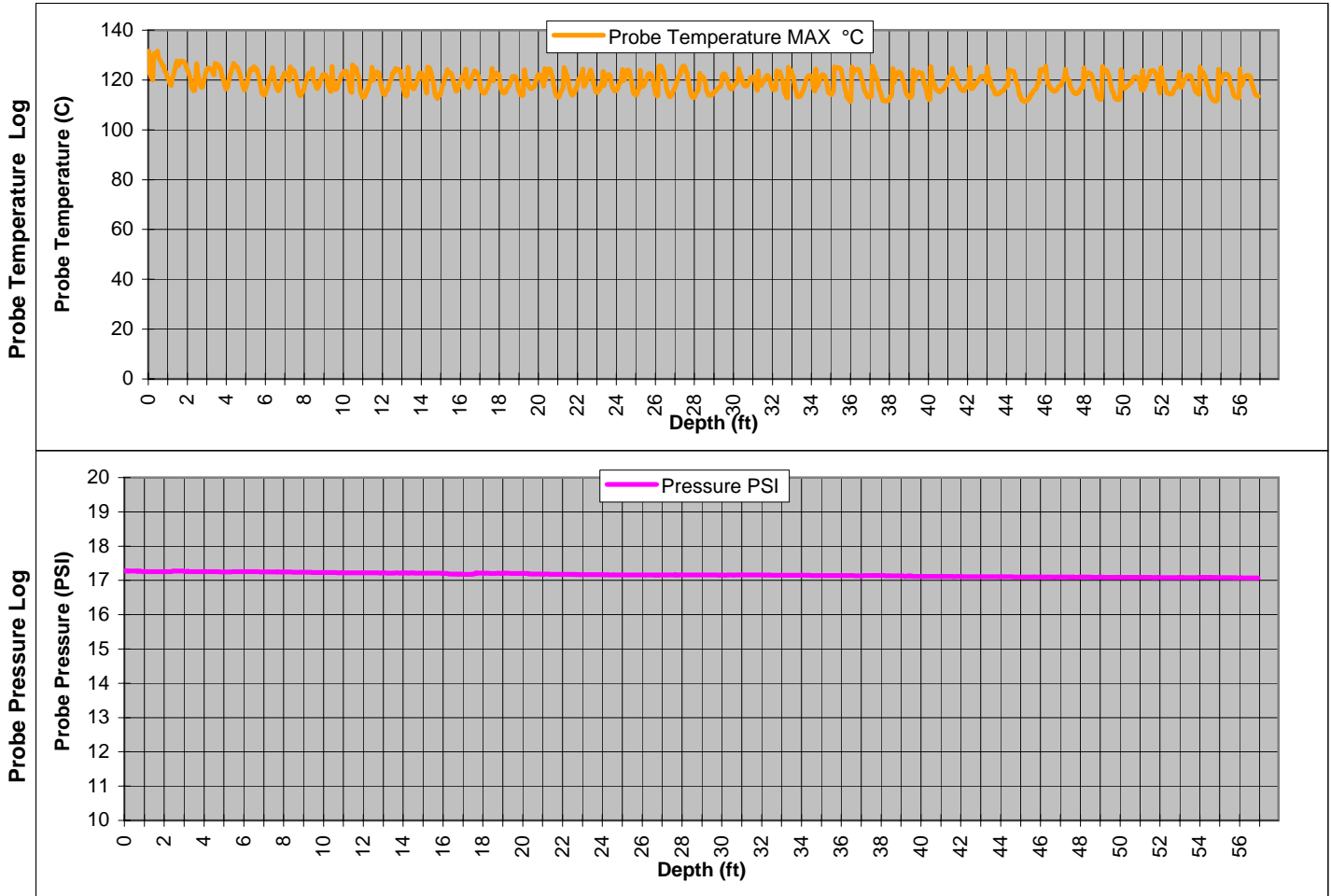
Boring I.D.: CPT-45

Graph 1 : Probe Temperature (C)

Date: Feb 14 2007

Graph 2 : Probe Pressure (PSI)

Time: 11:49



Explanation: Hand augered to 5' bgs.



MIP Log Results by Boring - Detector Reading vs. Depth

Client: ERM

Boring I.D.: CPT-43

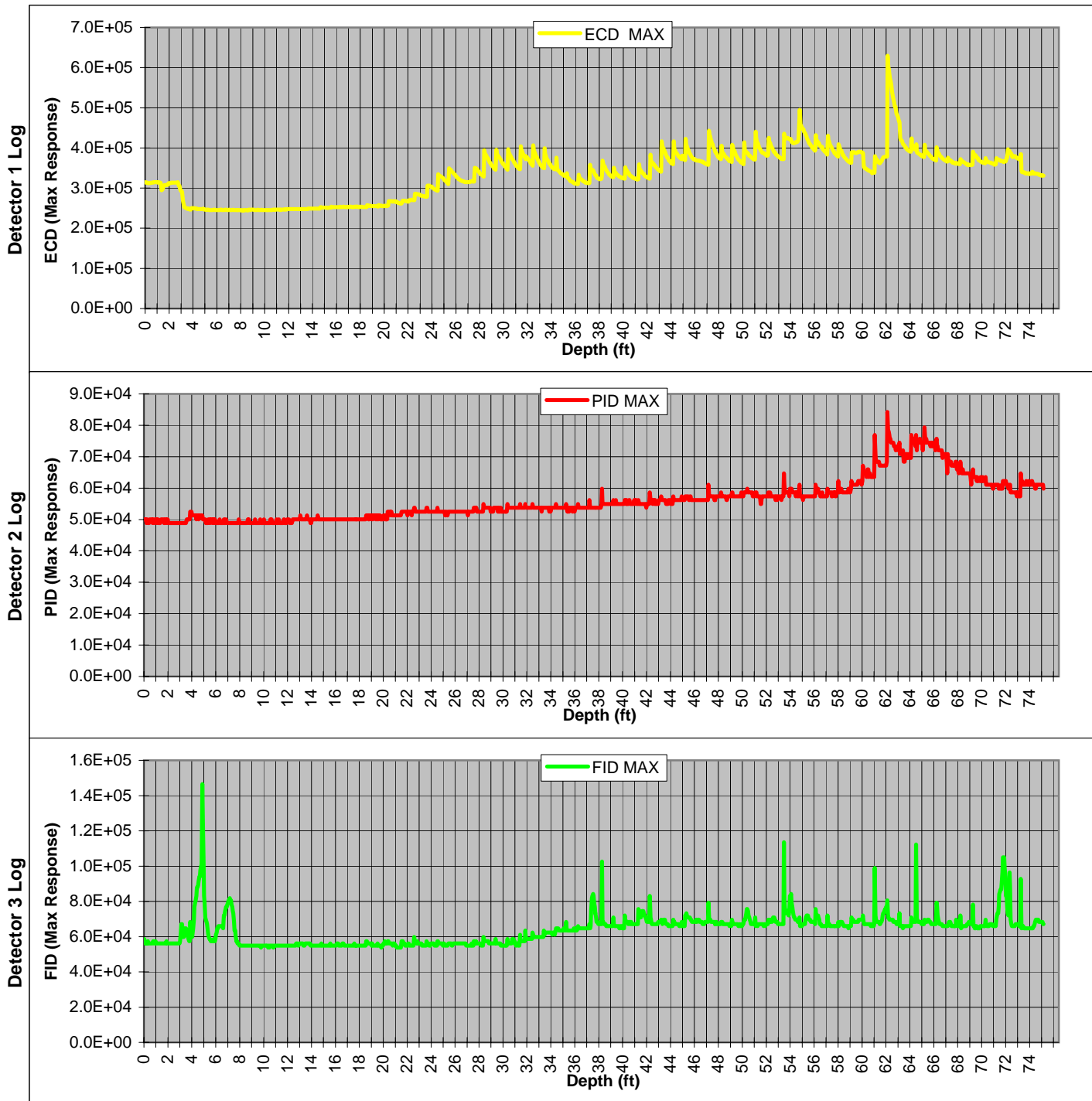
Detector 1 : Electron Capture (ECD)

Date: Feb 15 2007

Detector 2 : Photo Ionization (PID)

Time: 10:16

Detector 3 : Flame Ionization (FID)





MIP Log Results by Boring - Detector Reading vs. Depth

Client: ERM

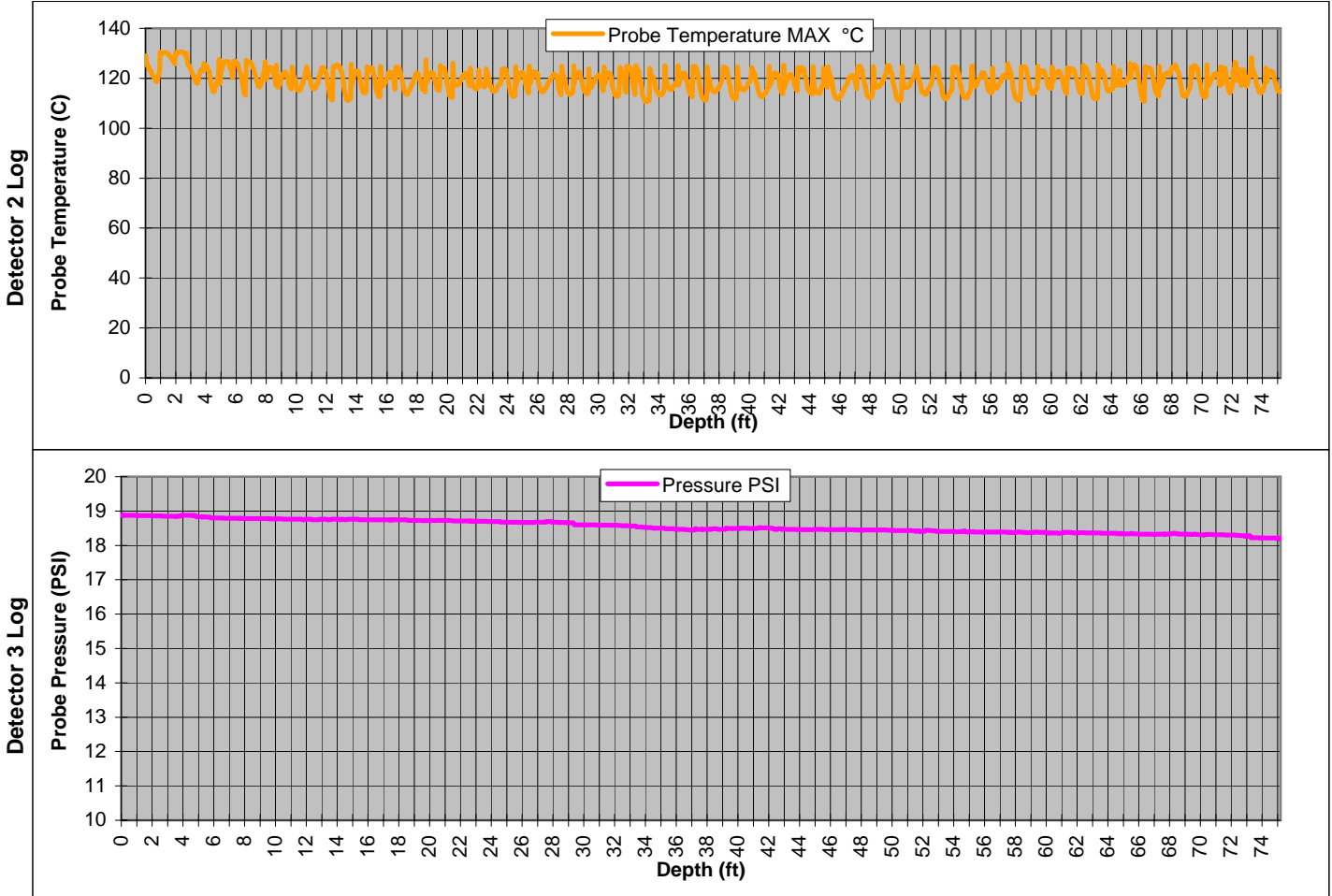
Boring I.D.: CPT-43

Graph 1 : Probe Temperature (C)

Date: Feb 15 2007

Graph 2 : Probe Pressure (PSI)

Time: 10:16



Explanation: Hand augered to 5' bgs.



MIP Log Results by Boring - Detector Reading vs. Depth

Client: ERM

Boring I.D.: CPT-42

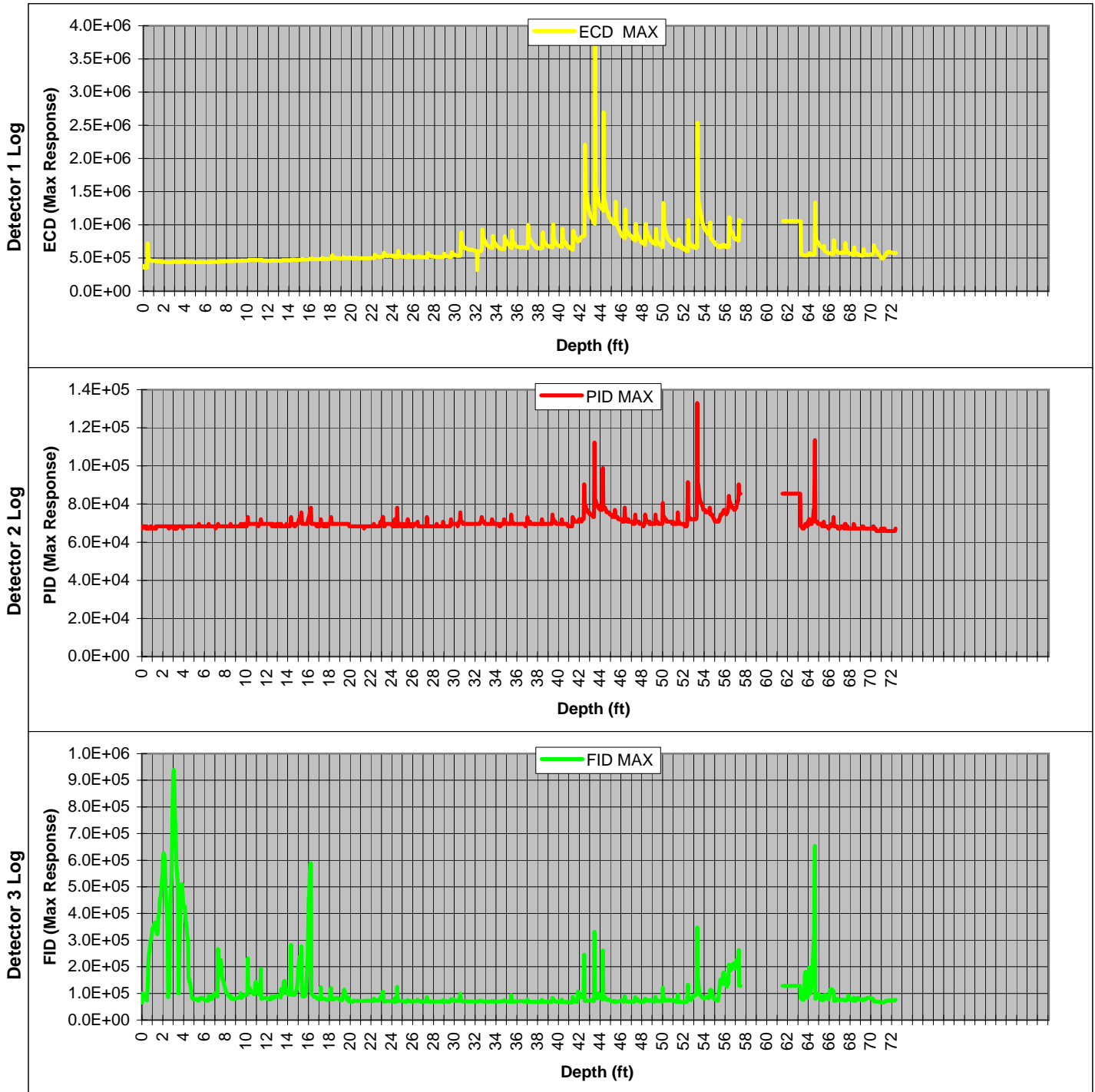
Detector 1 : Electron Capture (ECD)

Date: Feb 15 2007

Detector 2 : Photo Ionization (PID)

Time: 14:12

Detector 3 : Flame Ionization (FID)





MIP Log Results by Boring - Detector Reading vs. Depth

Client: ERM

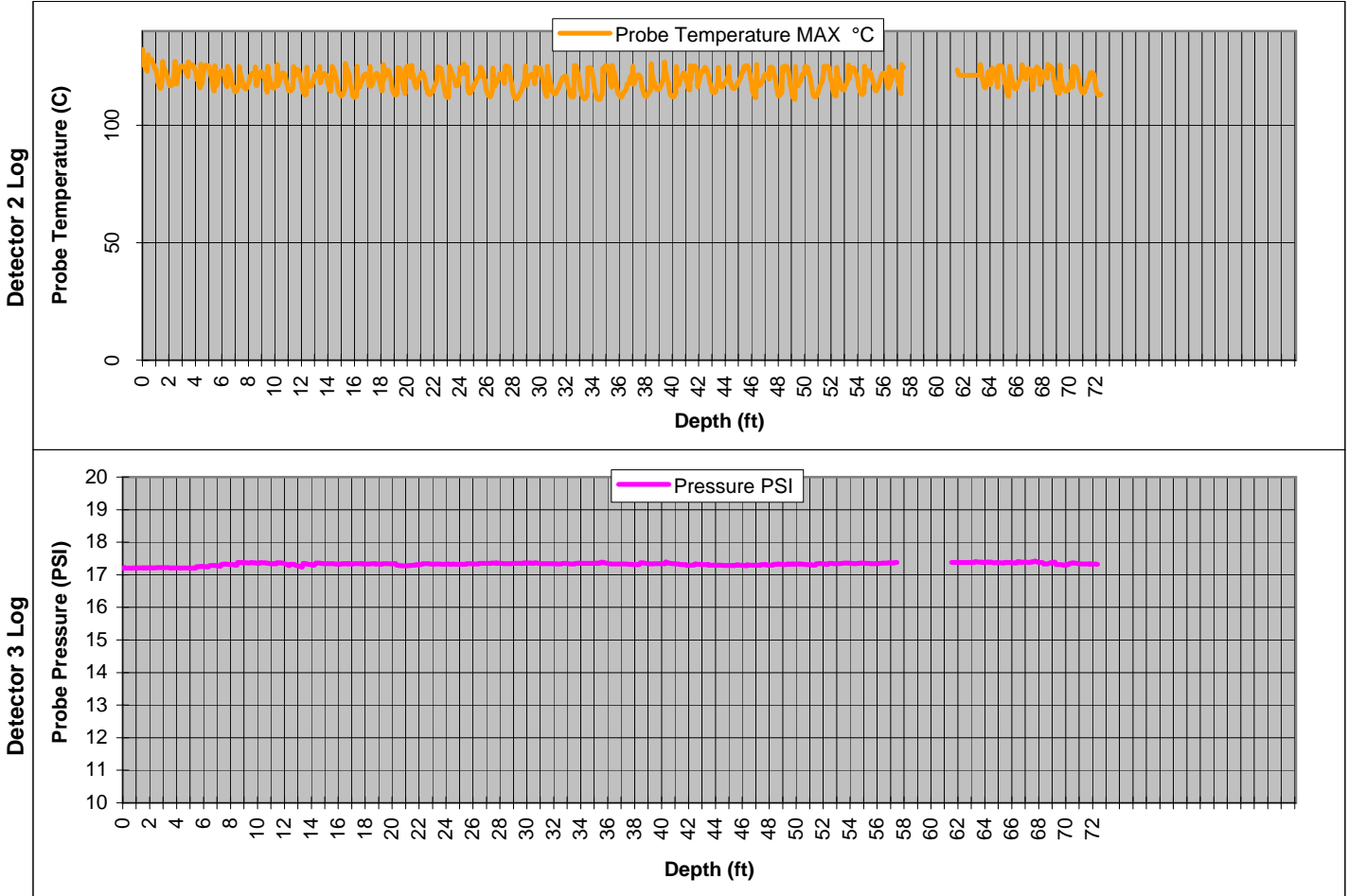
Boring I.D.: CPT-42

Graph 1 : Probe Temperature (C)

Date: Feb 15 2007

Graph 2 : Probe Pressure (PSI)

Time: 14:12



Explanation: Hand augered to 5.0' bgs. Range change at 4.0' bgs. Disregard ECD reading at that level. Stringpot had loose connection and data did not transfer for approx. 3-4'. From 60-64' bgs. The FC5000 needed to be reset at 66' due to a computer communication error.



MIP Log Results by Boring - Detector Reading vs. Depth

Client: ERM

Boring I.D.: CPT-47

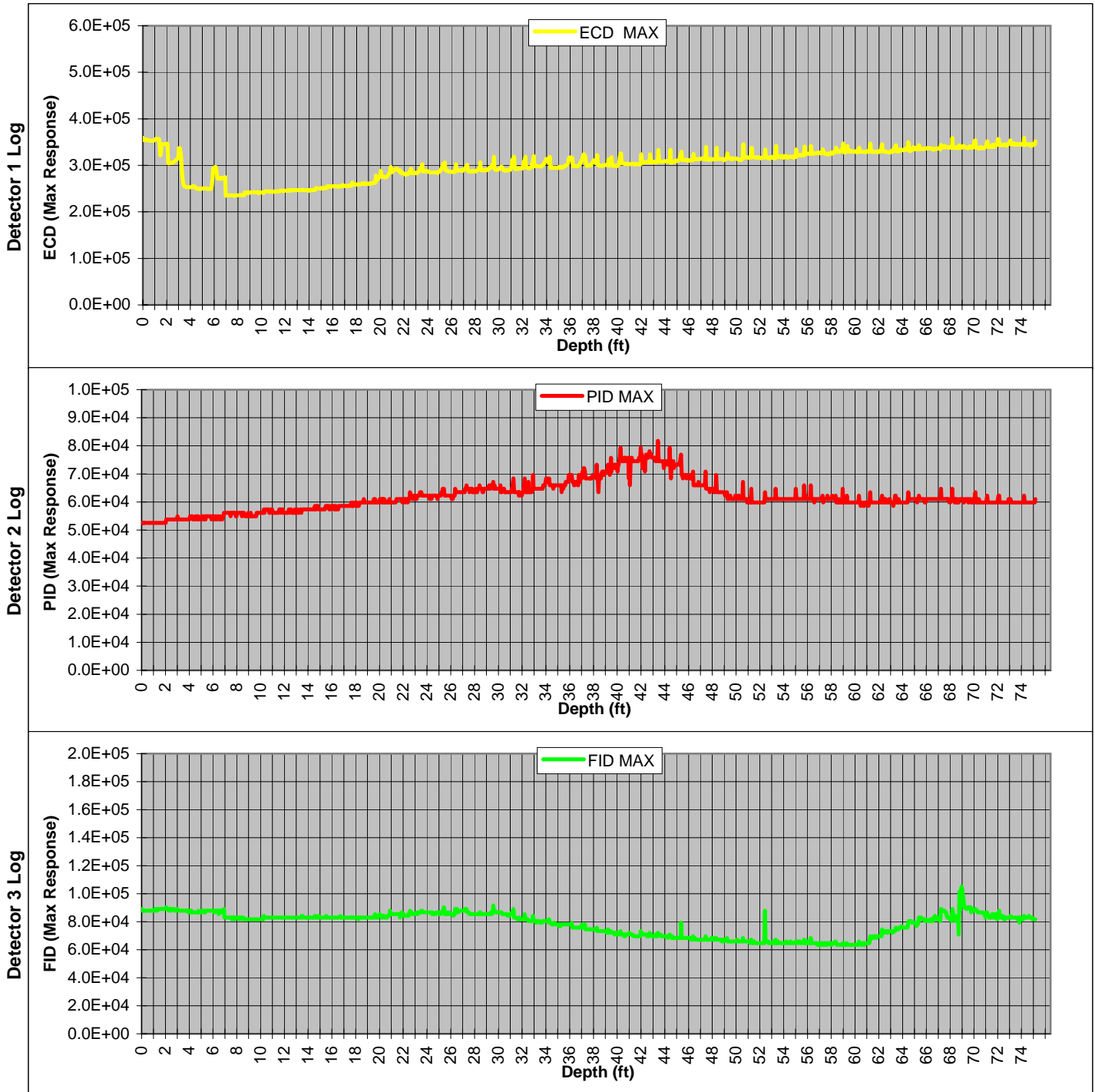
Detector 1 : Electron Capture (ECD)

Date: Feb 16 2007

Detector 2 : Photo Ionization (PID)

Time: 08:57

Detector 3 : Flame Ionization (FID)





MIP Log Results by Boring - Detector Reading vs. Depth

Client: ERM

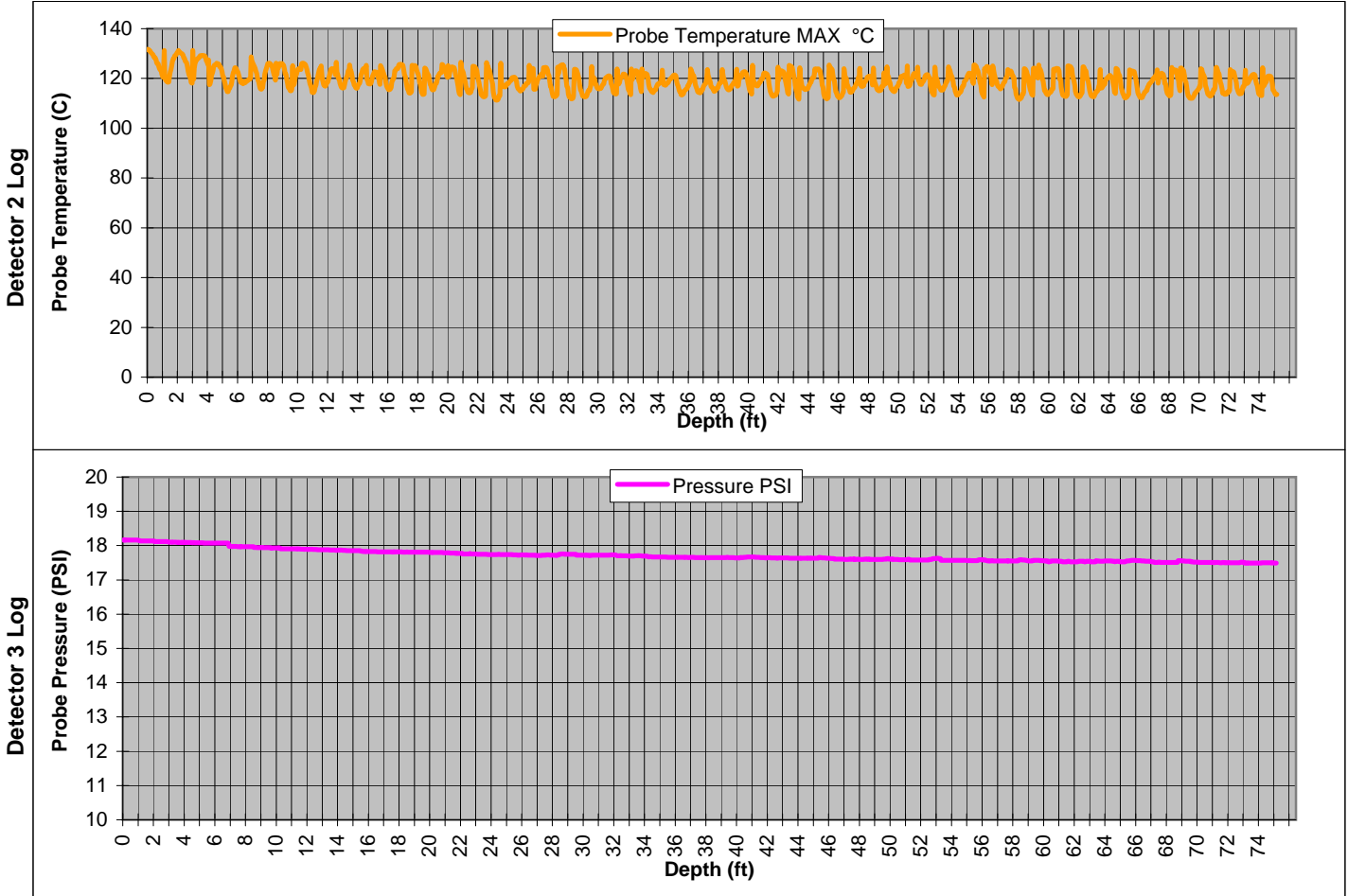
Boring I.D.: CPT-47

Graph 1 : Probe Temperature (C)

Date: Feb 16 2007

Graph 2 : Probe Pressure (PSI)

Time: 08:57



Explanation: Hand augered to 5' bgs.