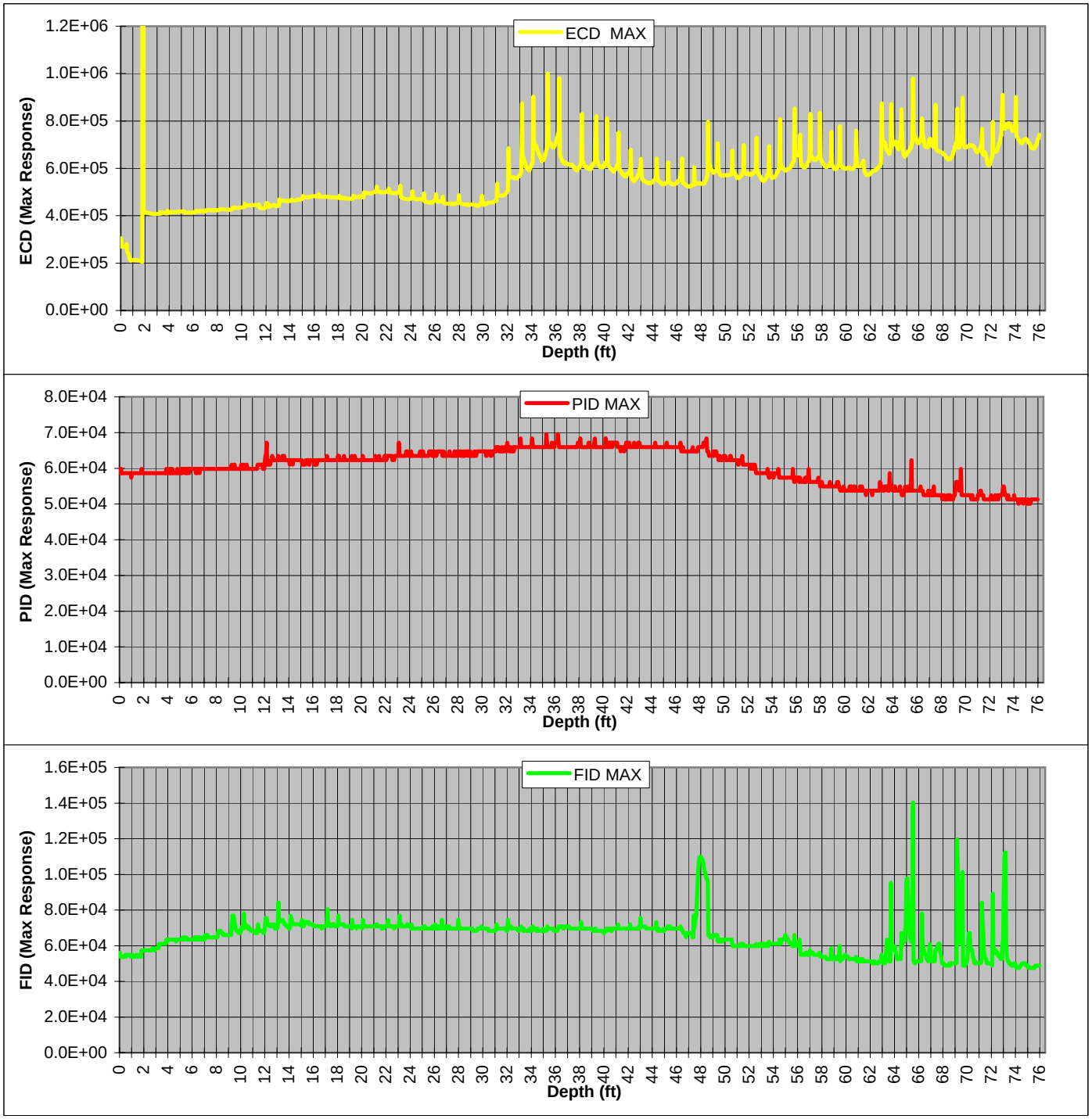
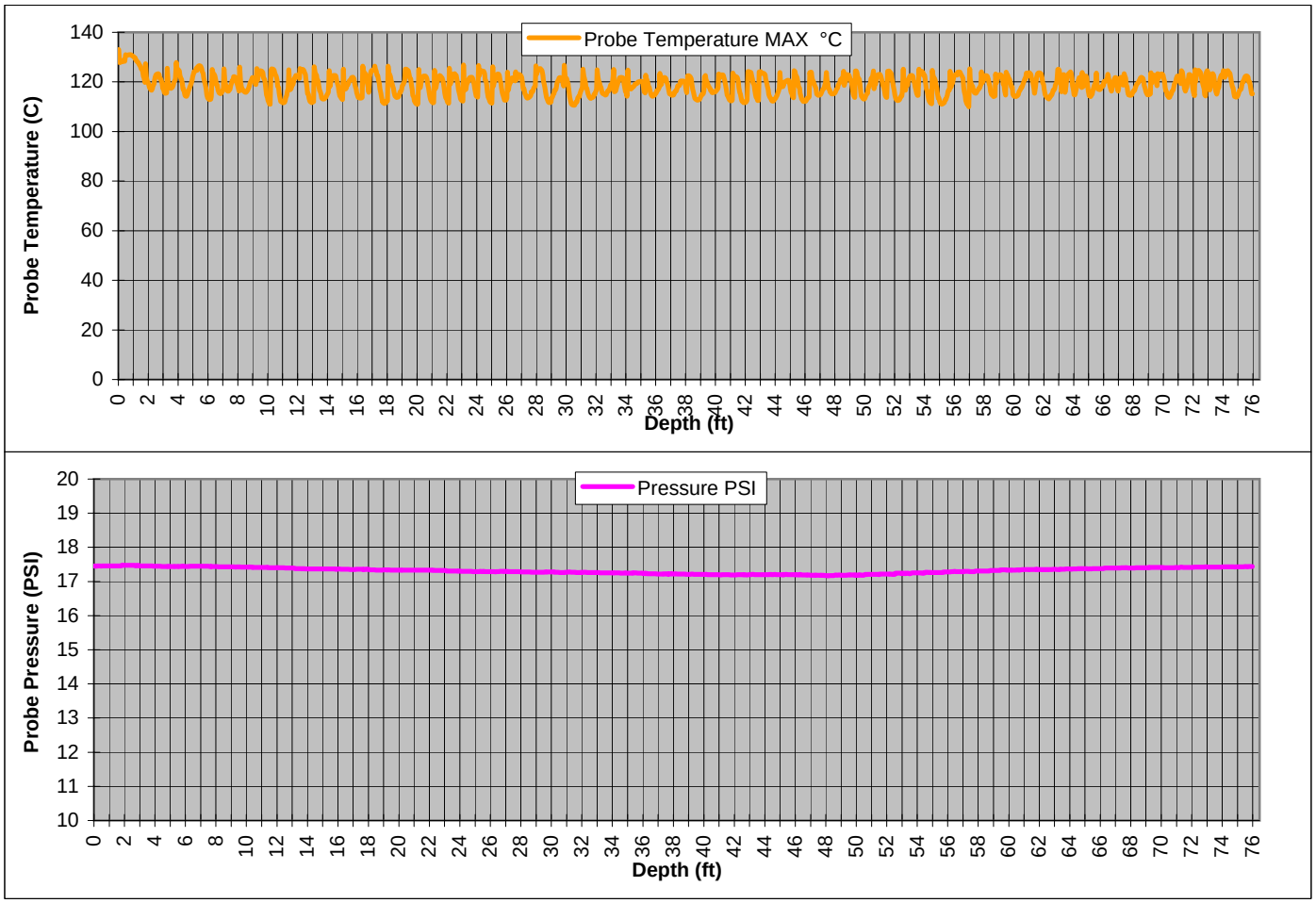
MIP Log Results by Boring - Detector Reading vs. Depth

Client:	ERM	Boring I.D.:	CPT-40	Detector 1 :	Electron Capture (ECD)
		Date:	Feb 16 2007	Detector 2 :	Photo Ionization (PID)
		Time:	12:01	Detector 3 :	Flame Ionization (FID)



MIP Log Results by Boring - Detector Reading vs. Depth

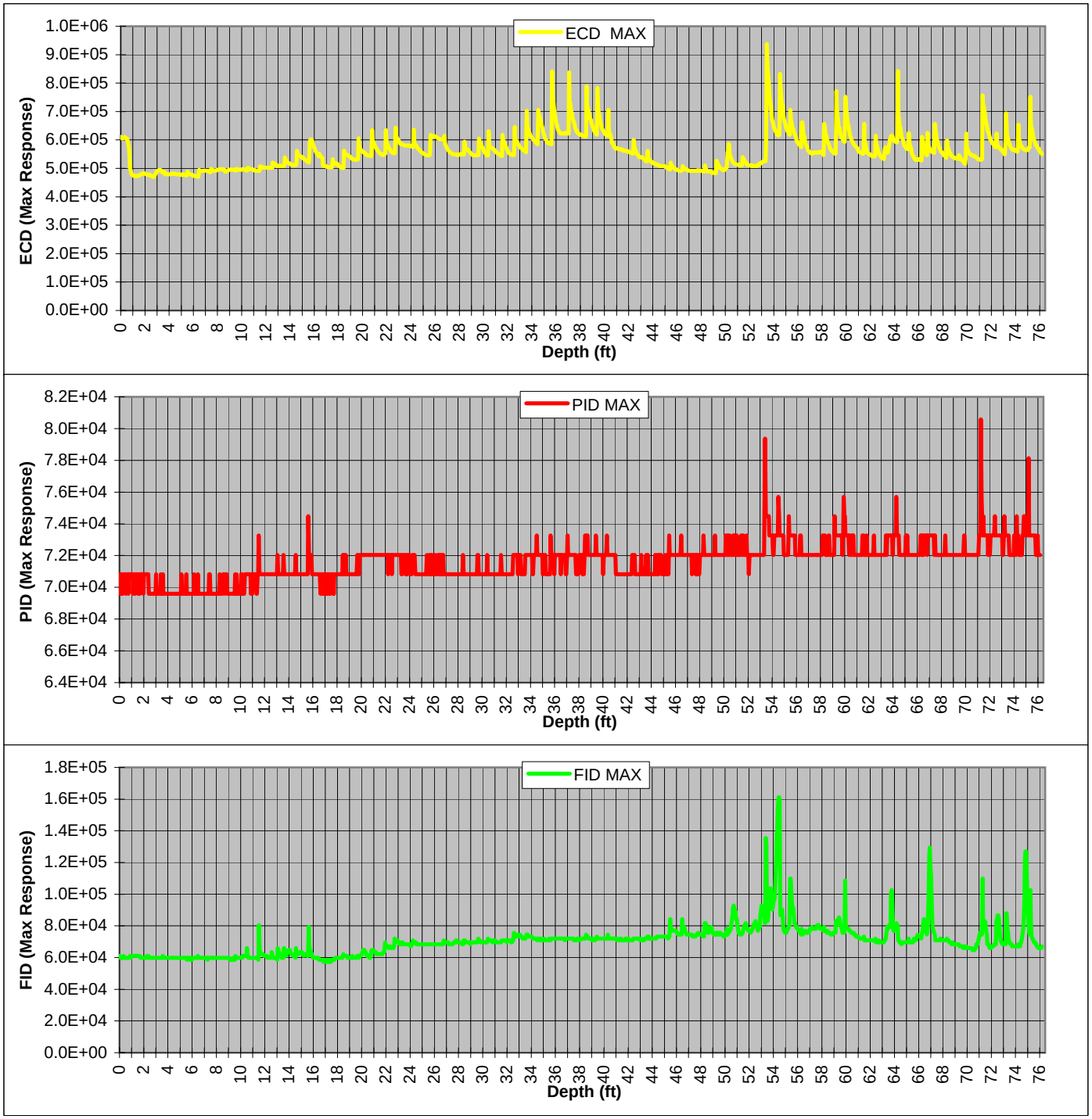
Client:	ERM	Boring I.D.:	CPT-40	Graph 1 :	Probe Temperature (C)
		Date:	Feb 16 2007	Graph 2 :	Probe Pressure (PSI)
		Time:	12:01		



Explanation: Attenuation error/change at 5.6'-2.6', for actual.

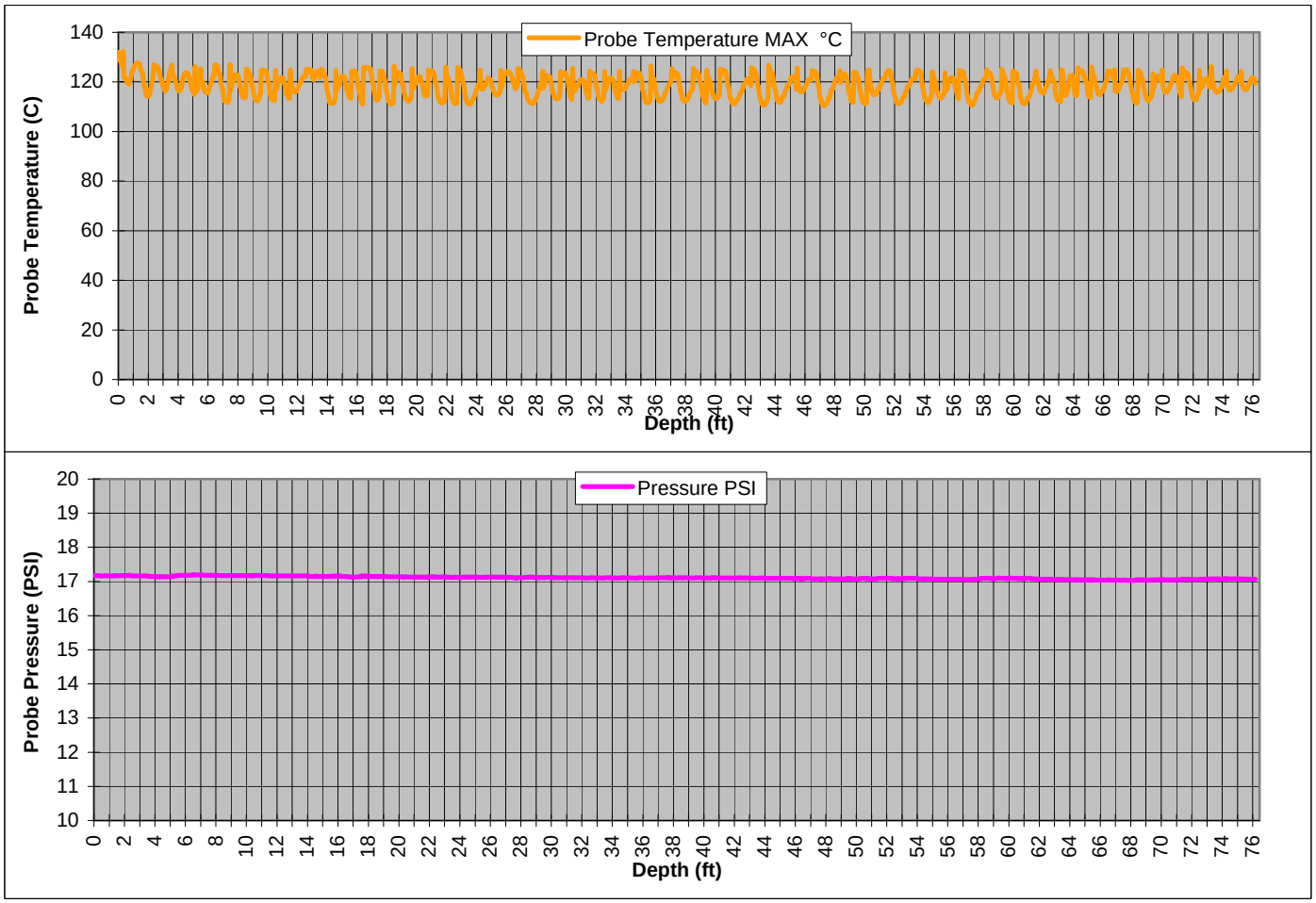
MIP Log Results by Boring - Detector Reading vs. Depth

Client:	ERM	Boring I.D.:	CPT-39	Detector 1 :	Electron Capture (ECD)
		Date:	Feb 16 2007	Detector 2 :	Photo Ionization (PID)
		Time:	15:01	Detector 3 :	Flame Ionization (FID)



MIP Log Results by Boring - Detector Reading vs. Depth

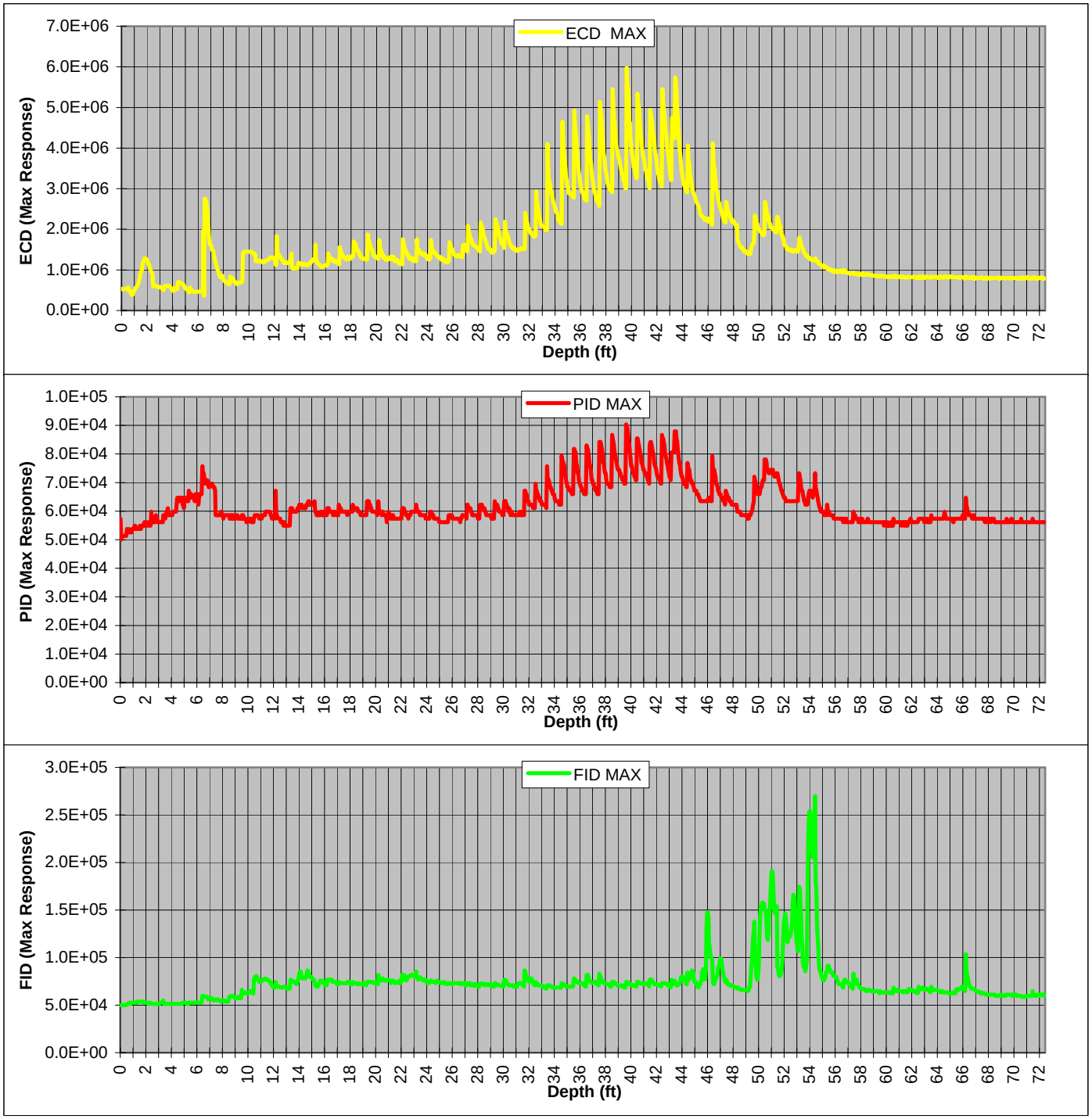
Client:	ERM	Boring I.D.:	CPT-39	Graph 1 :	Probe Temperature (C)
		Date:	Feb 16 2007	Graph 2 :	Probe Pressure (PSI)
		Time:	15:01		



Explanation: Hand augered to 5' bgs.

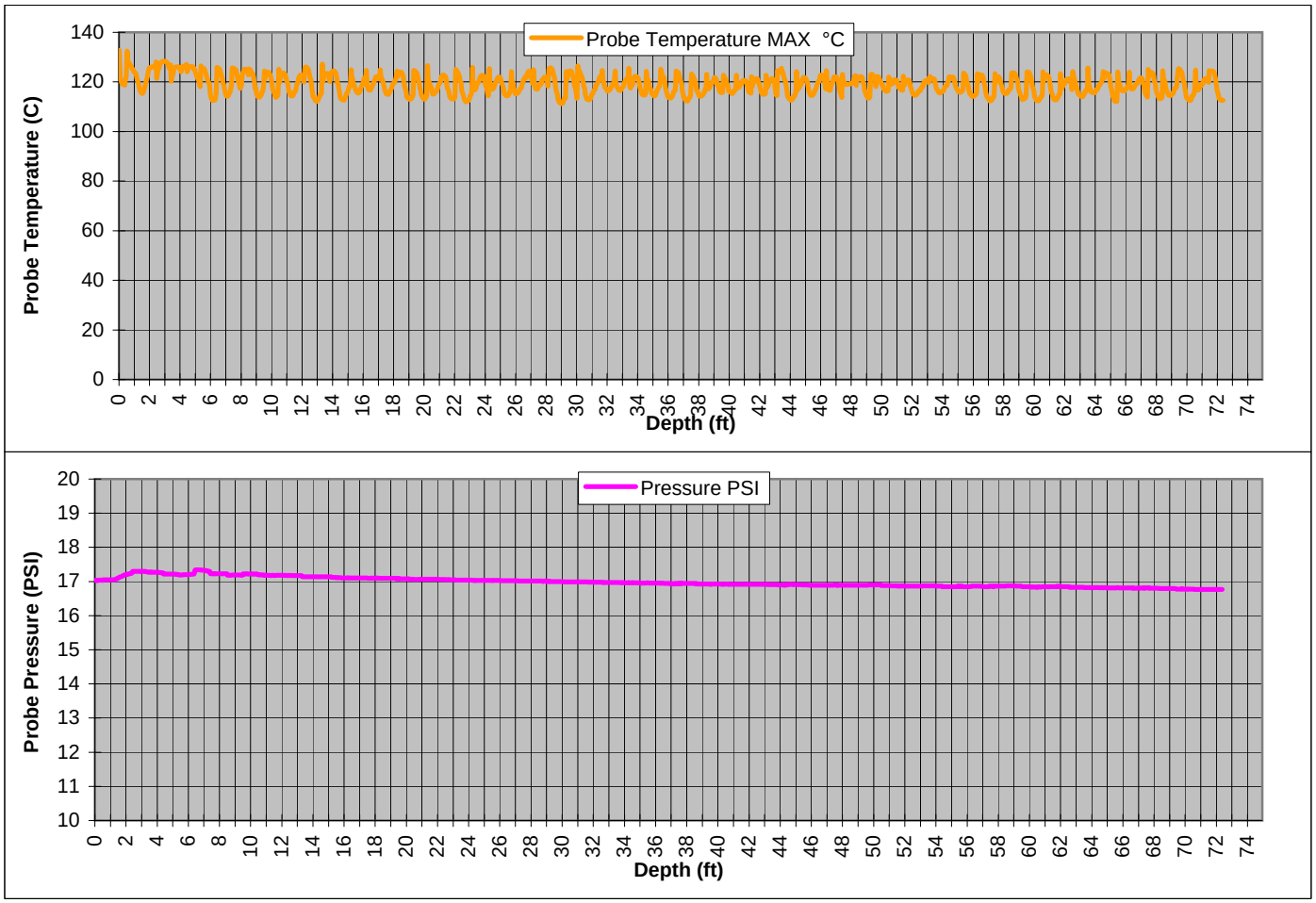
MIP Log Results by Boring - Detector Reading vs. Depth

Client:	ERM	Boring I.D.:	CPT-48	Detector 1 :	Electron Capture (ECD)
		Date:	Feb 19 2007	Detector 2 :	Photo Ionization (PID)
		Time:	13:50	Detector 3 :	Flame Ionization (FID)



MIP Log Results by Boring - Detector Reading vs. Depth

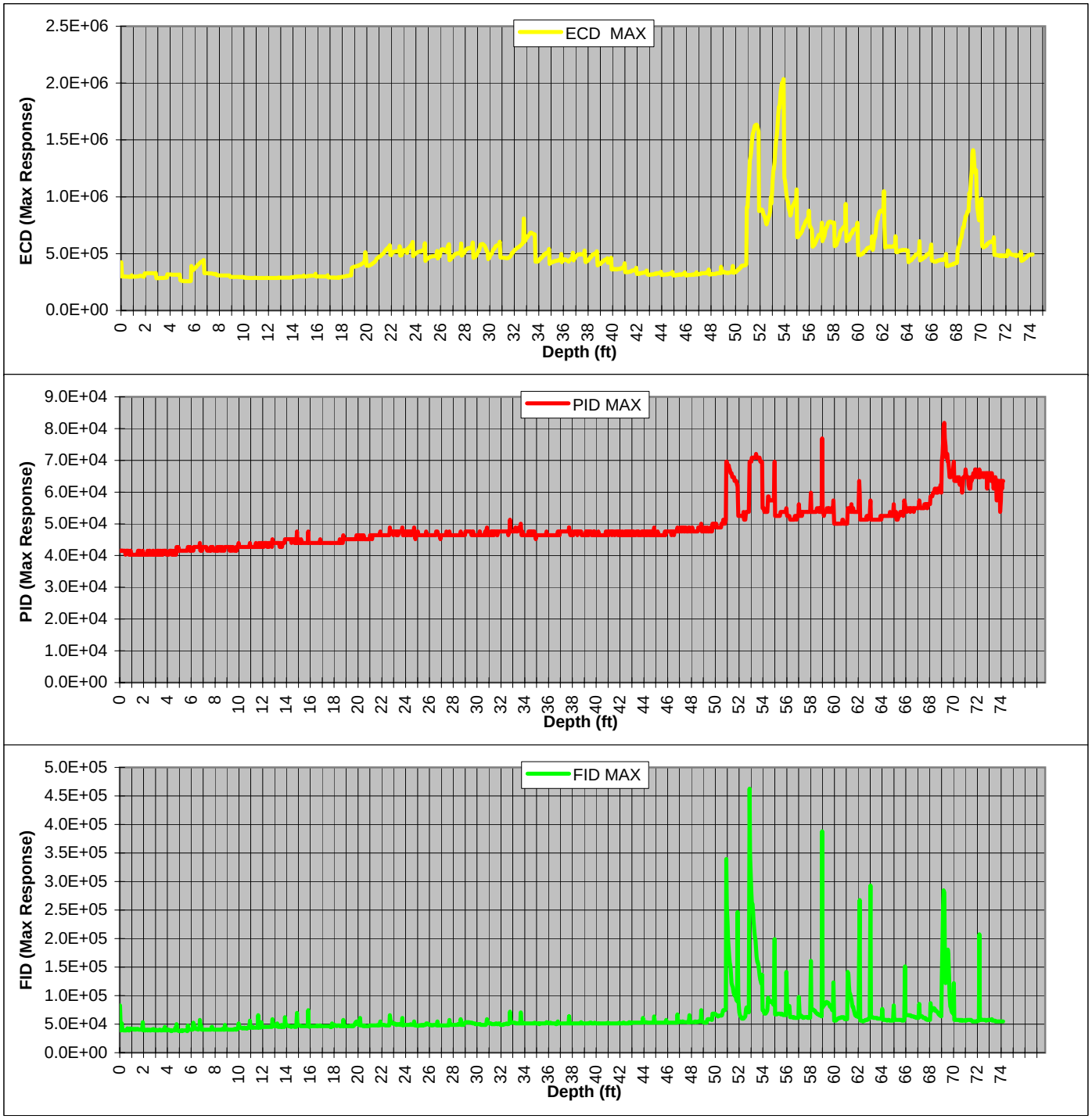
Client:	ERM	Boring I.D.:	CPT-48	Graph 1 :	Probe Temperature (C)
		Date:	Feb 19 2007	Graph 2 :	Probe Pressure (PSI)
		Time:	13:50		



Explanation: Hand augered to 5'. Trigger off at 22.65' per Gregg Drilling request. Restarted in one minute and equilibrated for 80 seconds.

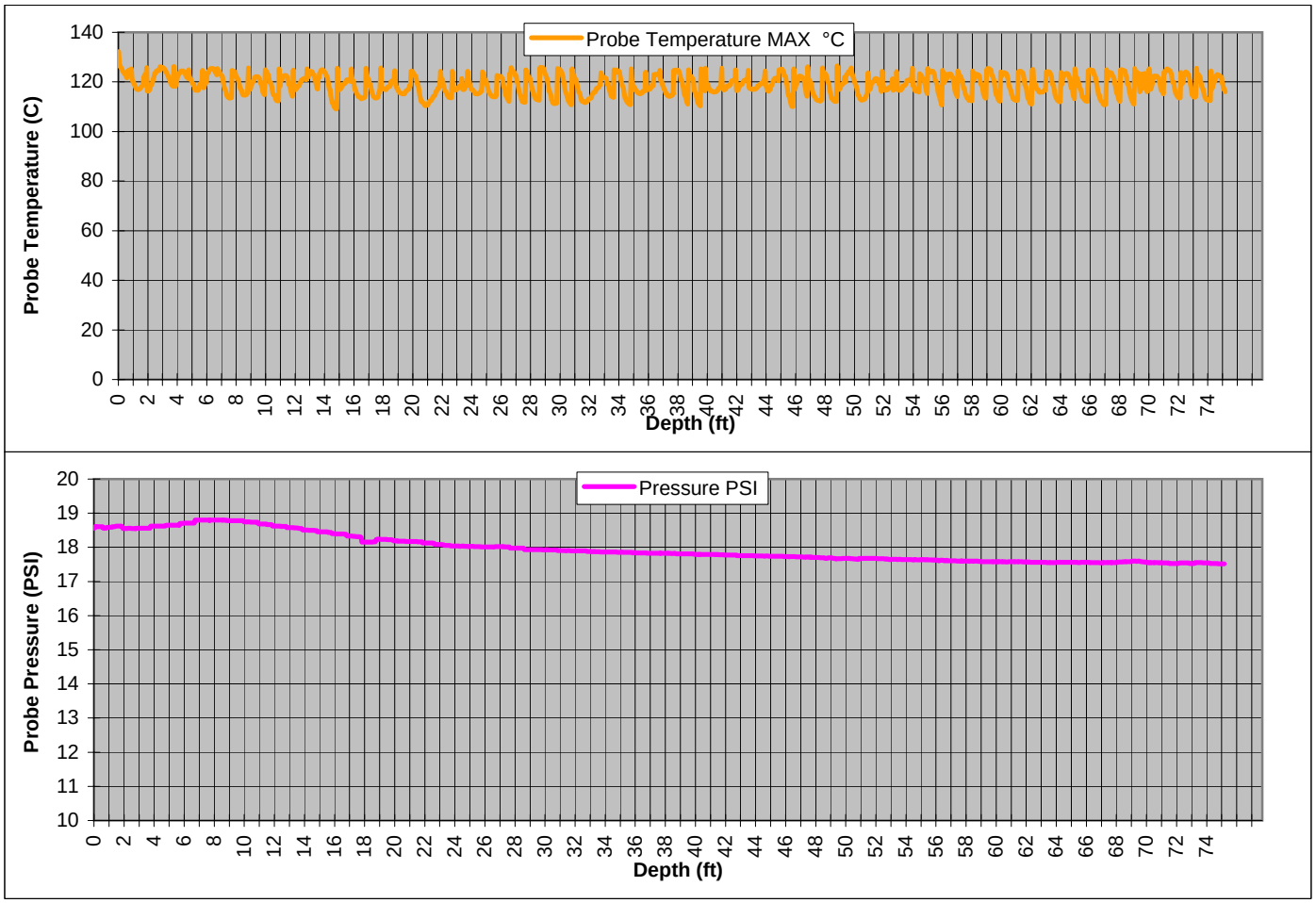
MIP Log Results by Boring - Detector Reading vs. Depth

Client:	ERM	Boring I.D.:	CPT-38	Detector 1 :	Electron Capture (ECD)
		Date:	Feb 20 2007	Detector 2 :	Photo Ionization (PID)
		Time:	10:52	Detector 3 :	Flame Ionization (FID)



MIP Log Results by Boring - Detector Reading vs. Depth

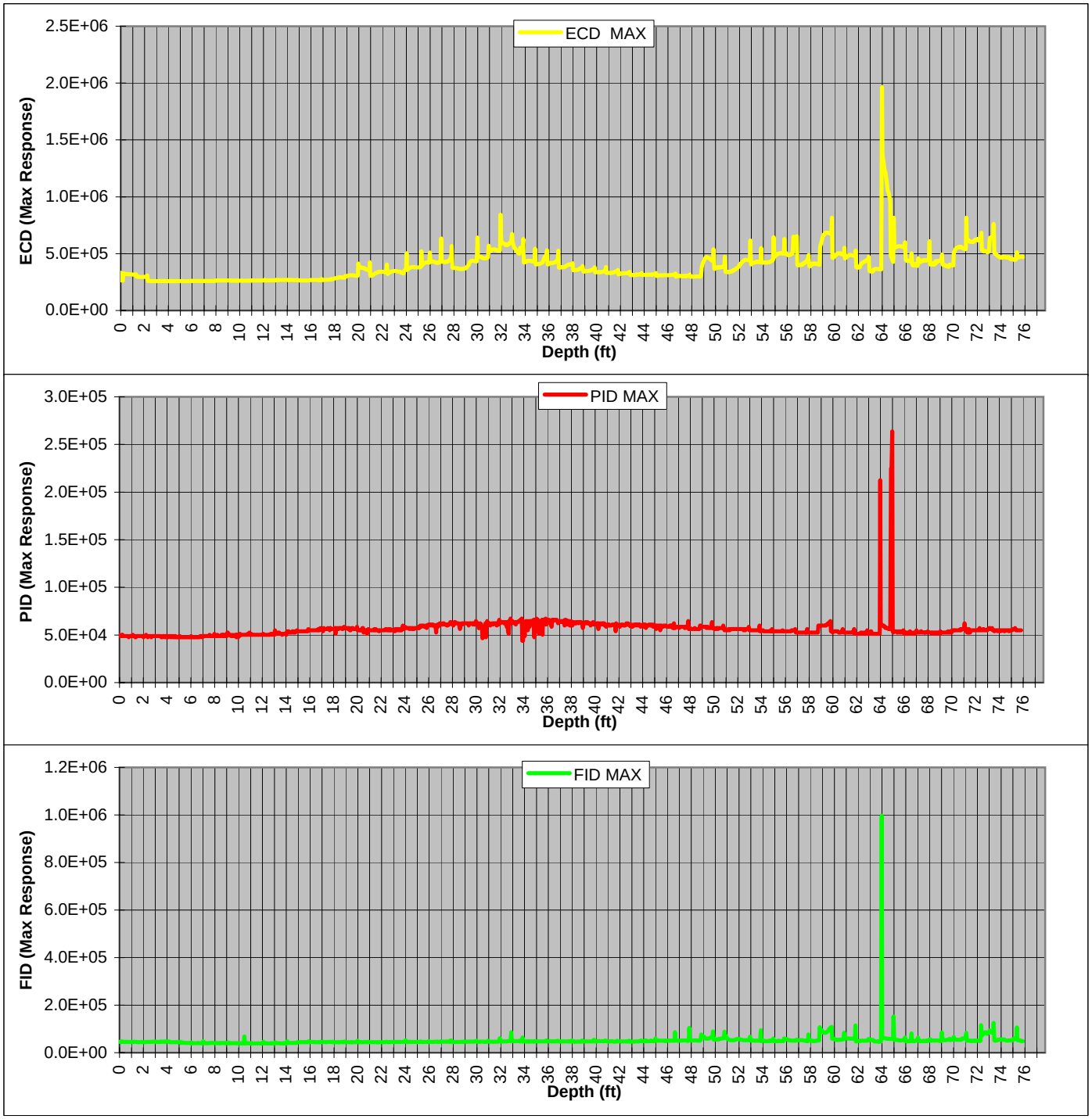
Client:	ERM	Boring I.D.:	CPT-38	Graph 1 :	Probe Temperature (C)
		Date:	Feb 20 2007	Graph 2 :	Probe Pressure (PSI)
		Time:	10:52		



Explanation: Hand augered to 5'.

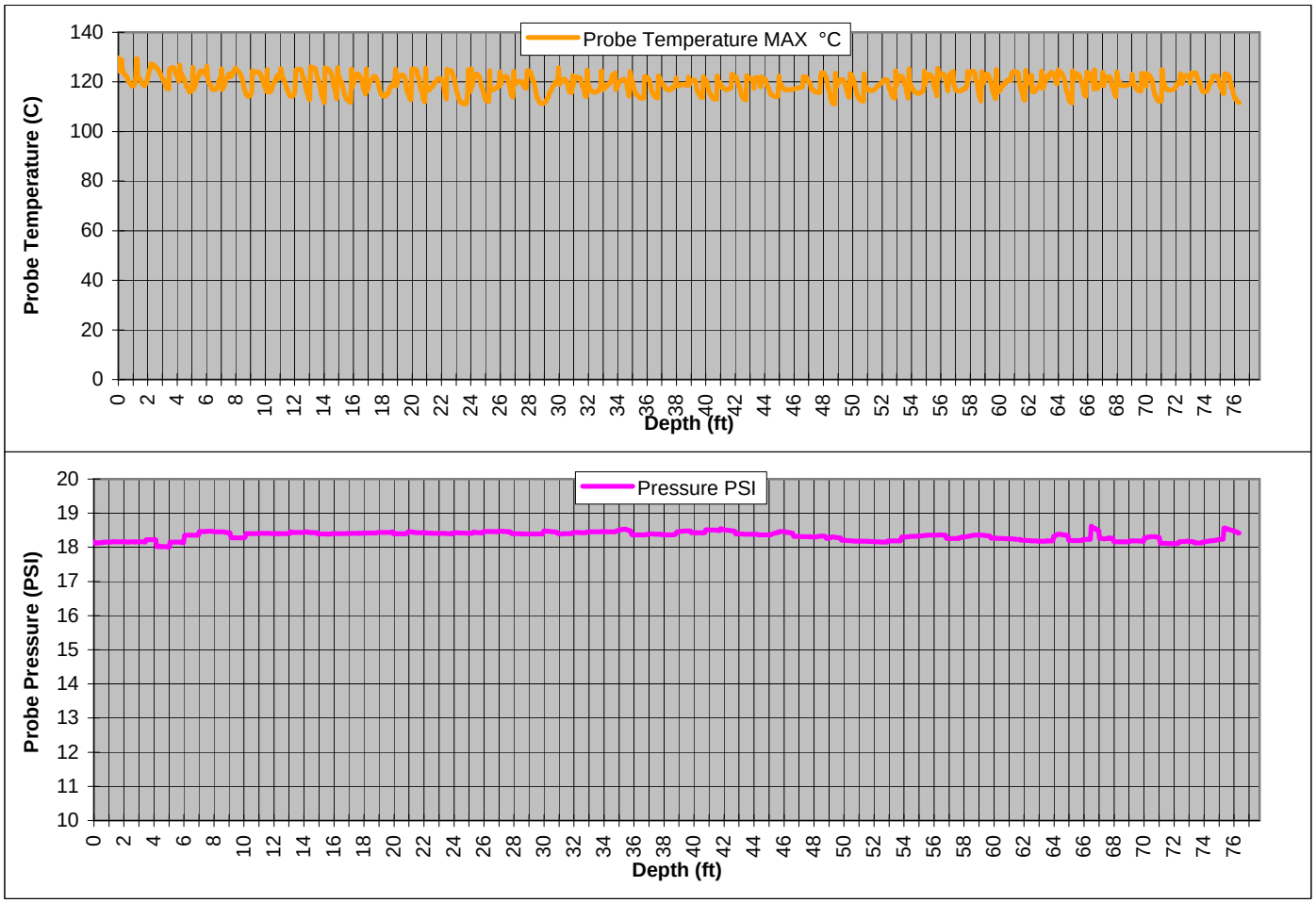
MIP Log Results by Boring - Detector Reading vs. Depth

Client:	ERM	Boring I.D.:	CPT-37	Detector 1 :	Electron Capture (ECD)
		Date:	Feb 20 2007	Detector 2 :	Photo Ionization (PID)
		Time:	13:50	Detector 3 :	Flame Ionization (FID)



MIP Log Results by Boring - Detector Reading vs. Depth

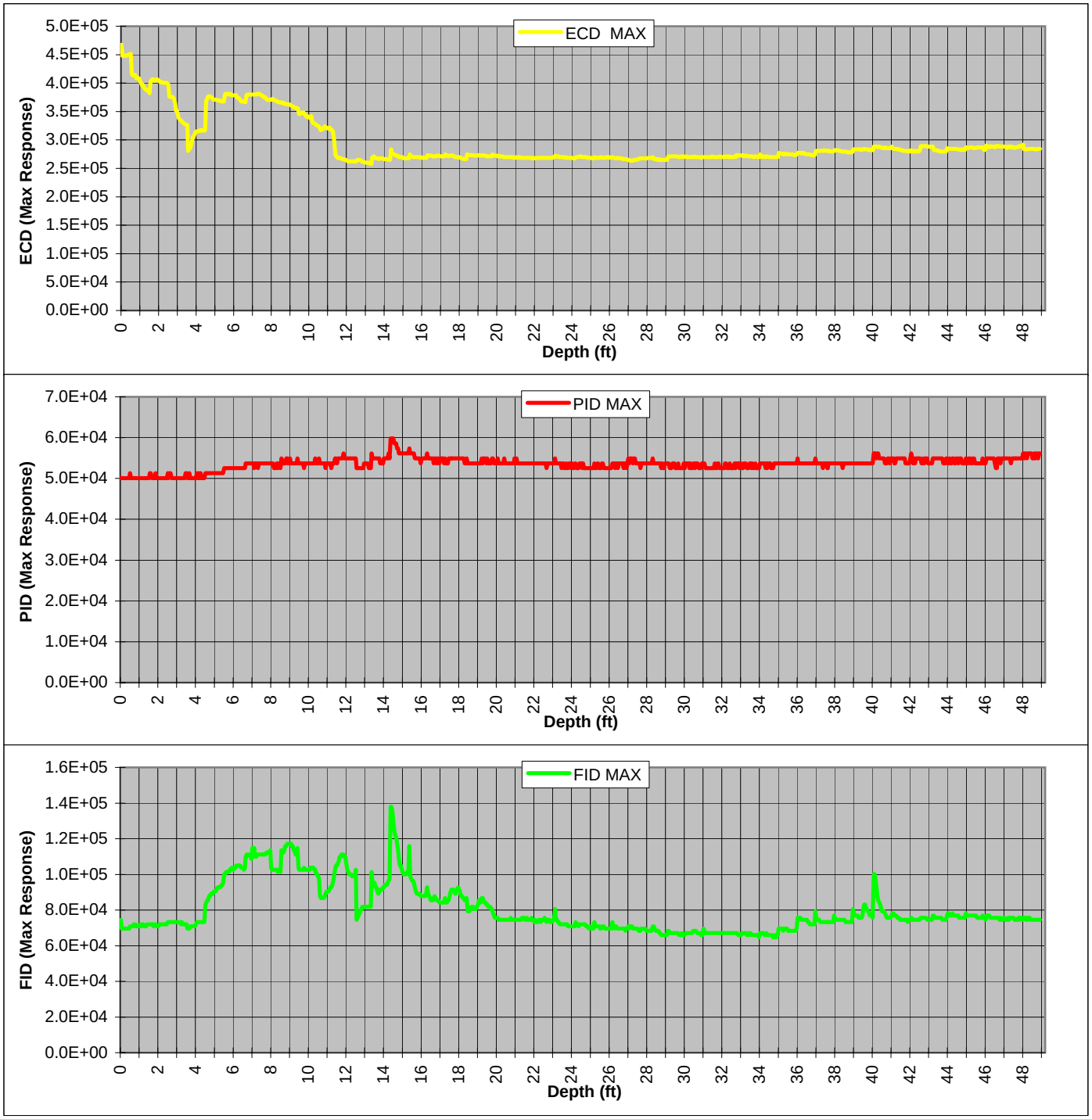
Client:	ERM	Boring I.D.:	CPT-37	Graph 1 :	Probe Temperature (C)
		Date:	Feb 20 2007	Graph 2 :	Probe Pressure (PSI)
		Time:	13:50		



Explanation: Hand augered to 5'.

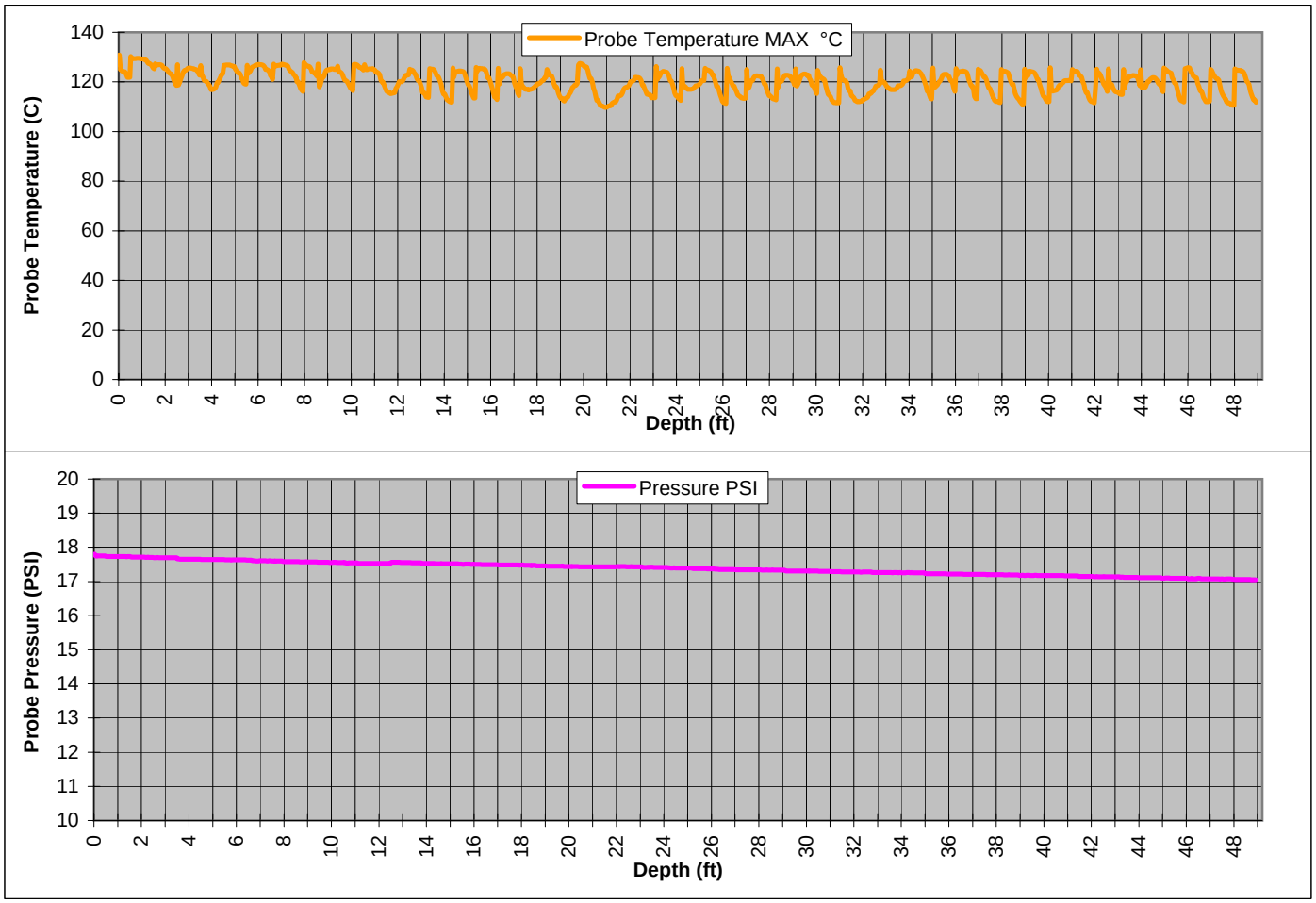
MIP Log Results by Boring - Detector Reading vs. Depth

Client:	ERM	Boring I.D.:	CPT-50	Detector 1 :	Electron Capture (ECD)
		Date:	Feb 21 2007	Detector 2 :	Photo Ionization (PID)
		Time:	09:11	Detector 3 :	Flame Ionization (FID)



MIP Log Results by Boring - Detector Reading vs. Depth

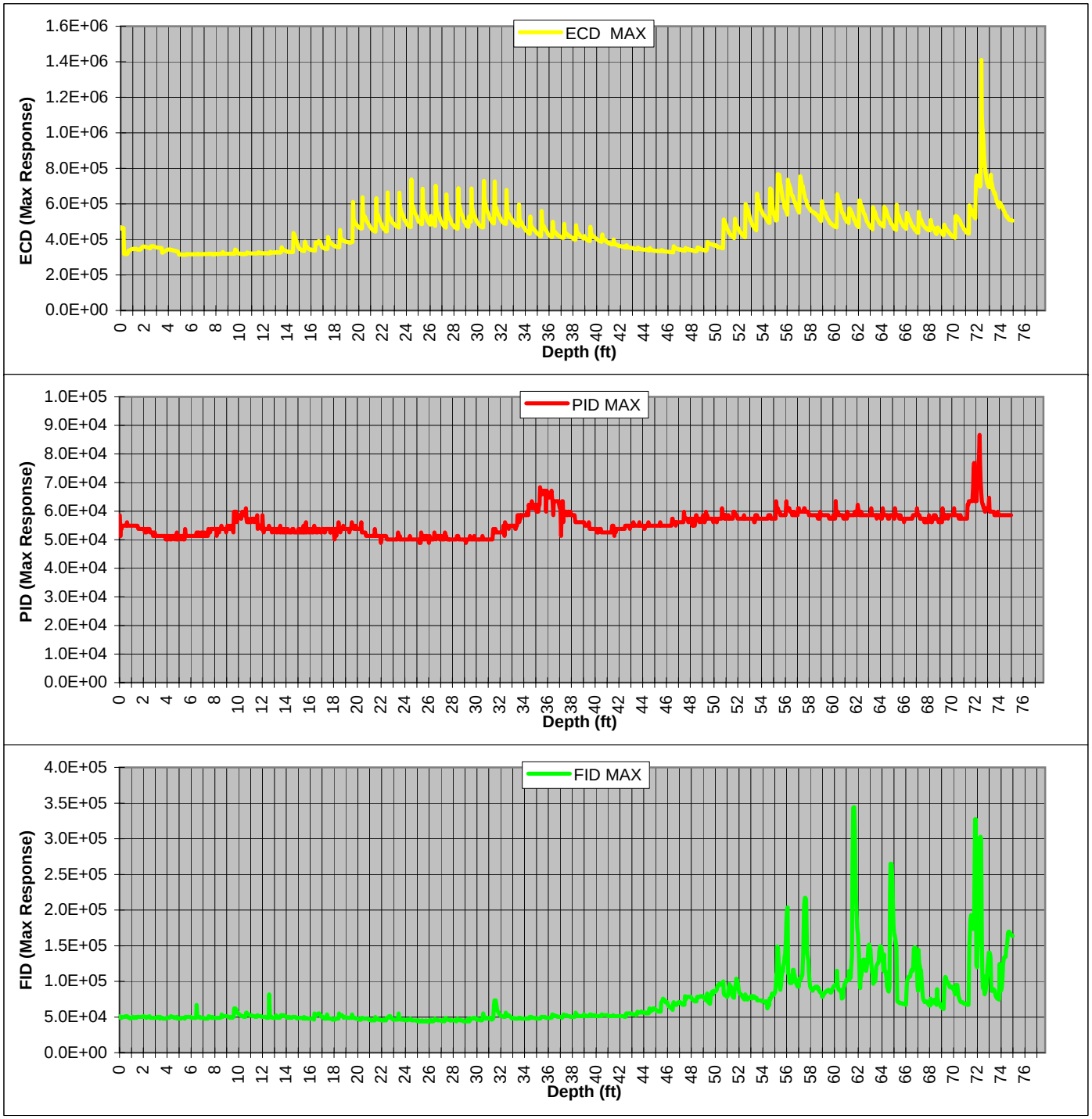
Client:	ERM	Boring I.D.:	CPT-50	Graph 1 :	Probe Temperature (C)
		Date:	Feb 21 2007	Graph 2 :	Probe Pressure (PSI)
		Time:	09:11		



Explanation: Hand augered to 5' bgs.

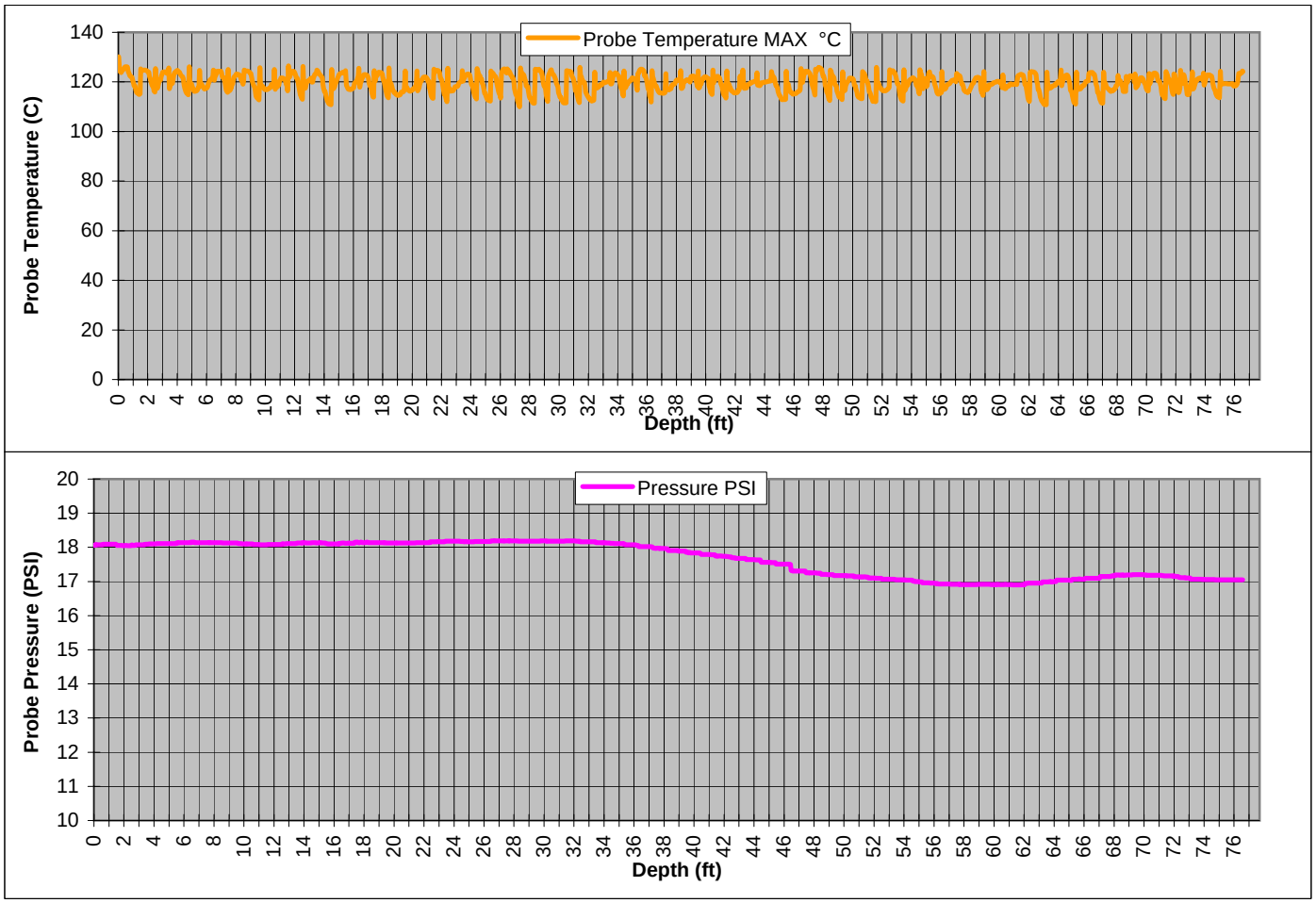
MIP Log Results by Boring - Detector Reading vs. Depth

Client:	ERM	Boring I.D.:	CPT-36	Detector 1 :	Electron Capture (ECD)
		Date:	Feb 21 2007	Detector 2 :	Photo Ionization (PID)
		Time:	08:59	Detector 3 :	Flame Ionization (FID)



MIP Log Results by Boring - Detector Reading vs. Depth

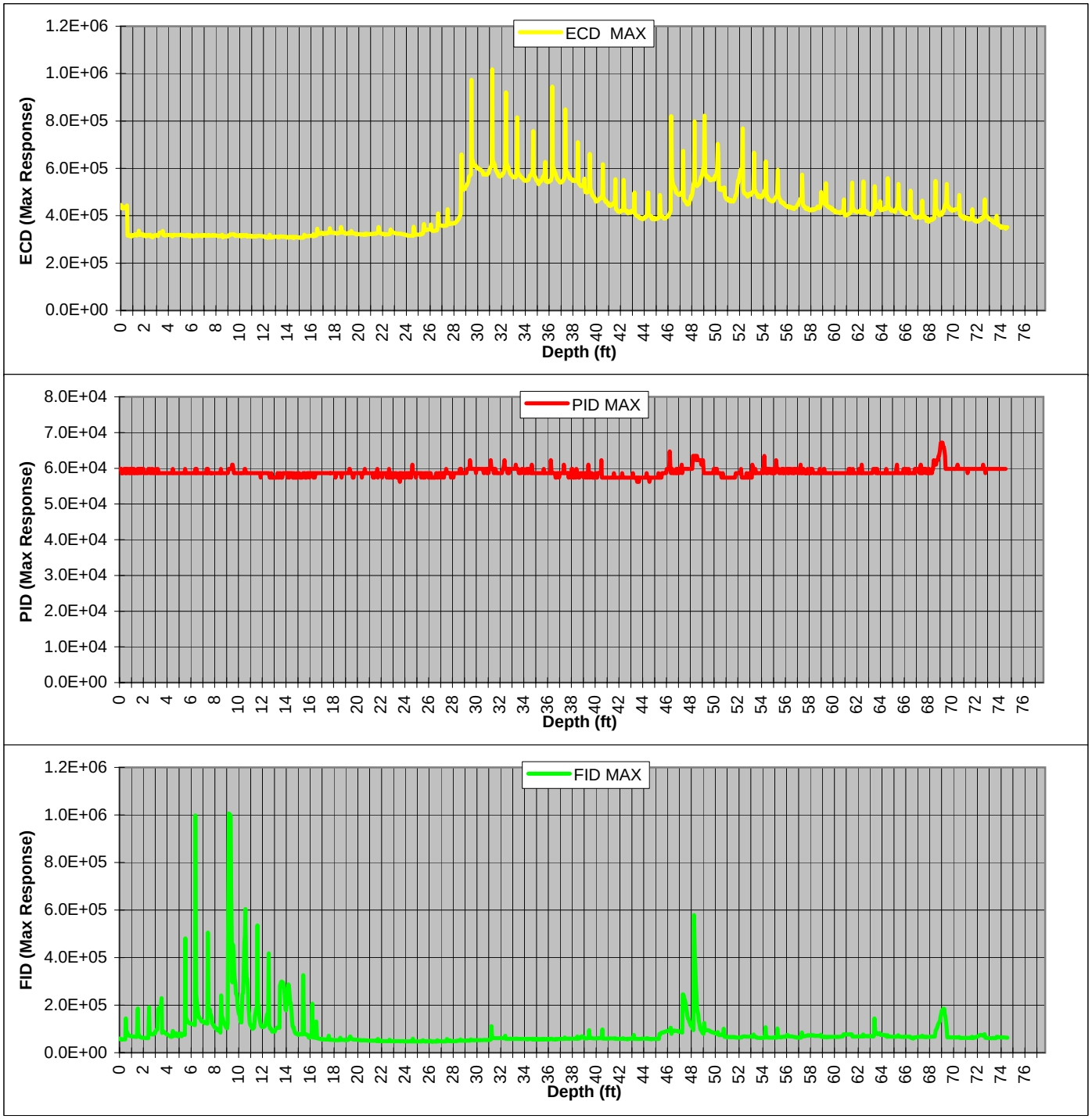
Client:	ERM	Boring I.D.:	CPT-36	Graph 1 :	Probe Temperature (C)
		Date:	Feb 21 2007	Graph 2 :	Probe Pressure (PSI)
		Time:	08:59		



Explanation: Hand augered to 5' bgs.

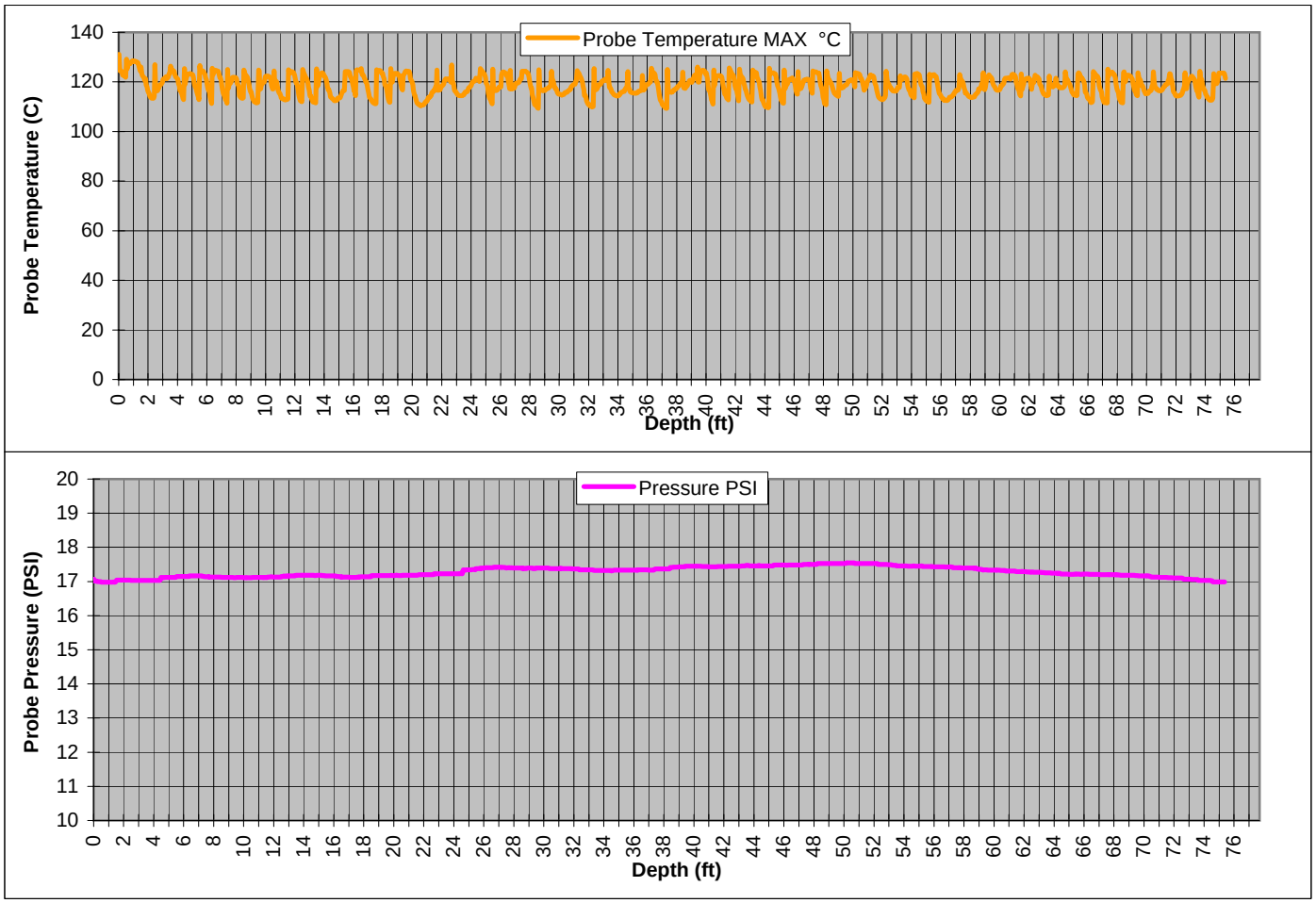
MIP Log Results by Boring - Detector Reading vs. Depth

Client:	ERM	Boring I.D.:	CPT-41	Detector 1 :	Electron Capture (ECD)
		Date:	Feb 21 2007	Detector 2 :	Photo Ionization (PID)
		Time:	15:52	Detector 3 :	Flame Ionization (FID)



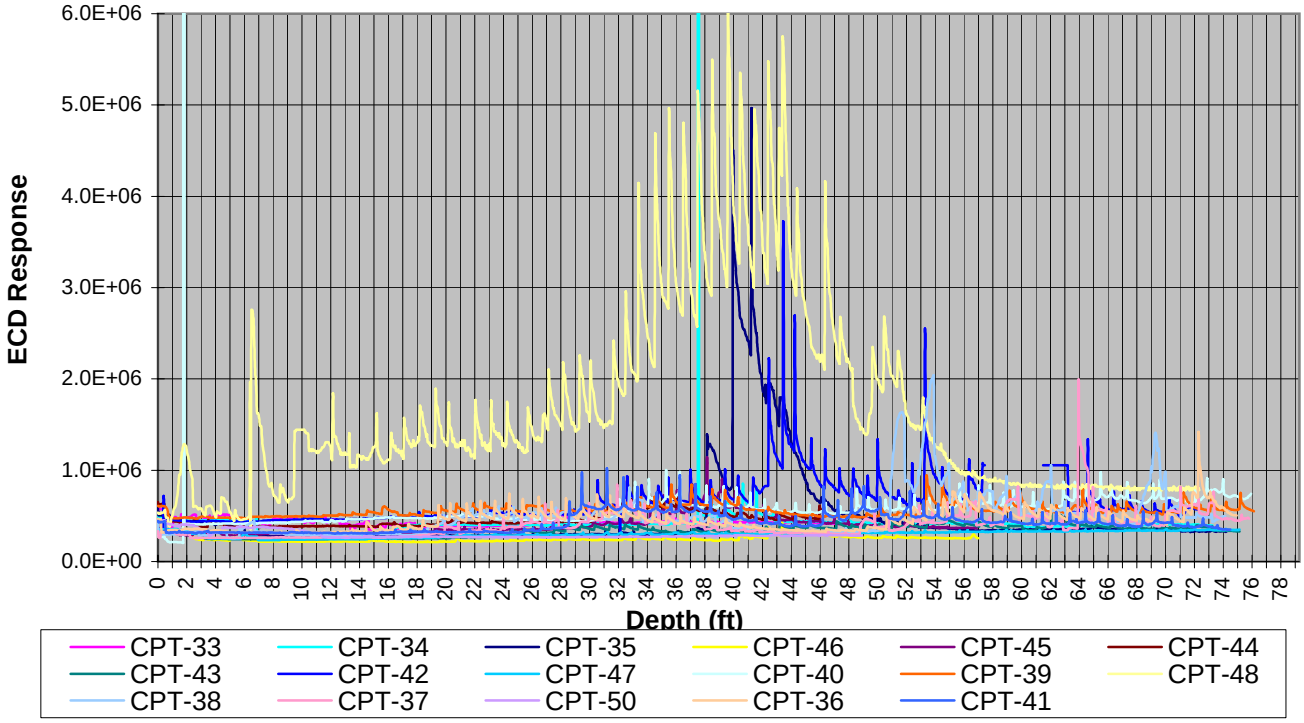
MIP Log Results by Boring - Detector Reading vs. Depth

Client:	ERM	Boring I.D.:	CPT-41	Graph 1 :	Probe Temperature (C)
		Date:	Feb 21 2007	Graph 2 :	Probe Pressure (PSI)
		Time:	15:52		

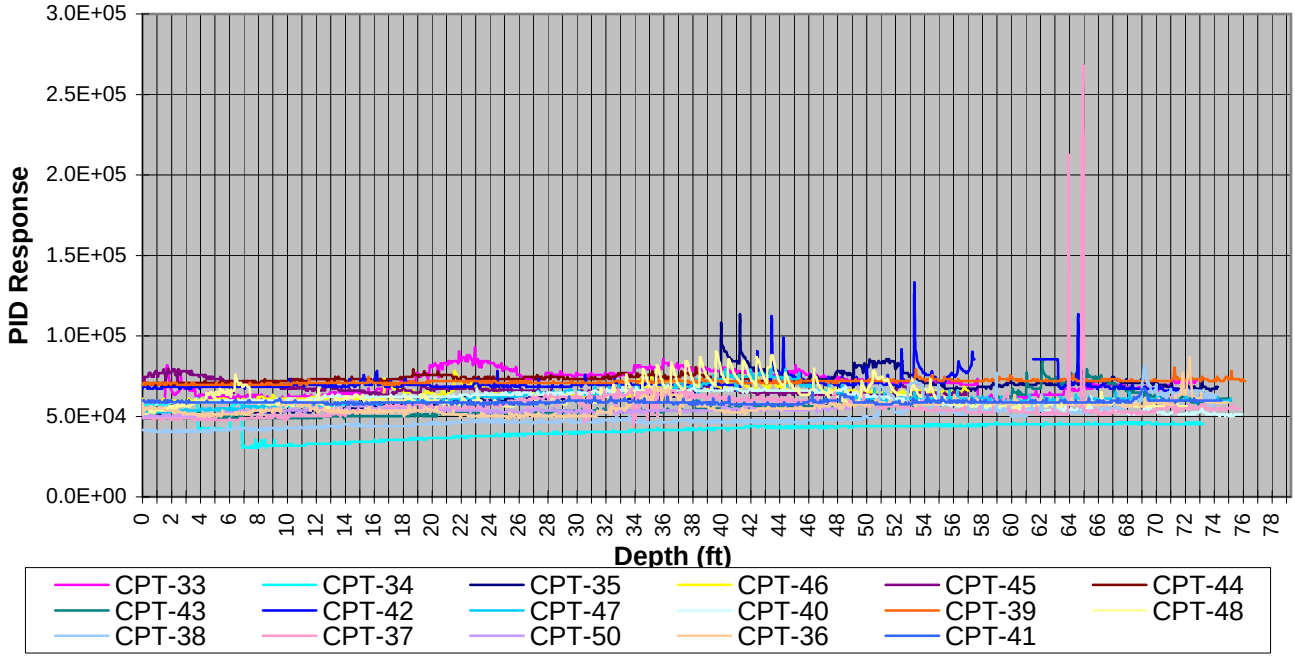


Explanation: Hand augered to 5' bgs.

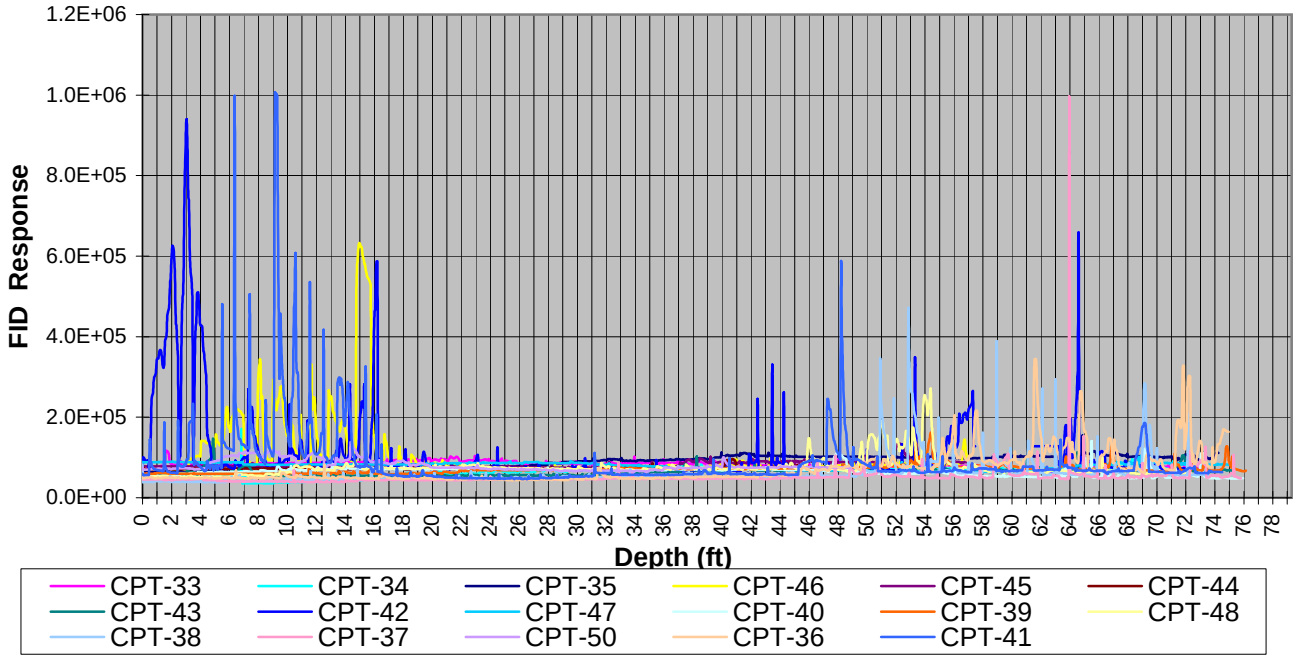
Maximum ECD Response Same Scale



Maximum PID Response Same Scale



Maximum FID Response Same Scale



Summary:
Data was collected at the Hookston Station Site located at 228 Hookston Road, Pleasant Hill, CA using the MIP (Membrane Interface Probe) in conjunction with Gregg Drilling 30 CPT unit at 17 sampling locations, collecting data from the surface to as deep as 79' bgs. An ECD (Electron Capture Detector), PID (Photo Ionization Detector) and a FID (Flame Ionization Detector) were used with a Hewlett Packard 5890 Gas Chromatograph.

The purpose of this MIP project was to identify and characterize the VOC's, and give a detailed understanding of the chemical distribution.

Contaminant Mass:
ECD detections were noted at all MIP borings, with exception of CPT-50, CPT-47 and CPT-33. ECD detections were primarily located as shallow as 6' bgs and as deep as 76' bgs. The highest ECD detection of 5.5E+6 was noted at CPT-48 which was at approximately 43' bgs. ECD detections are an indication of halogenated compounds.

No significant PID responses were noted. PID detections are an indication of double bonded compounds.

FID detections were noted at all MIP borings with exception of CPT-47 and CPT-37. FID detections were primarily located as shallow as 1' bgs and as deep as 76' bgs. The highest FID detection 1.0E+6 was noted at CPT-41 which was between 2' bgs to 10' bgs. FID detections are an indication of combustible hydrocarbons.

ECD detections were primarily between 30' bgs to 54' bgs. CPT-48 indicated higher ECD detections, and represented the highest ECD response closest to the surface.

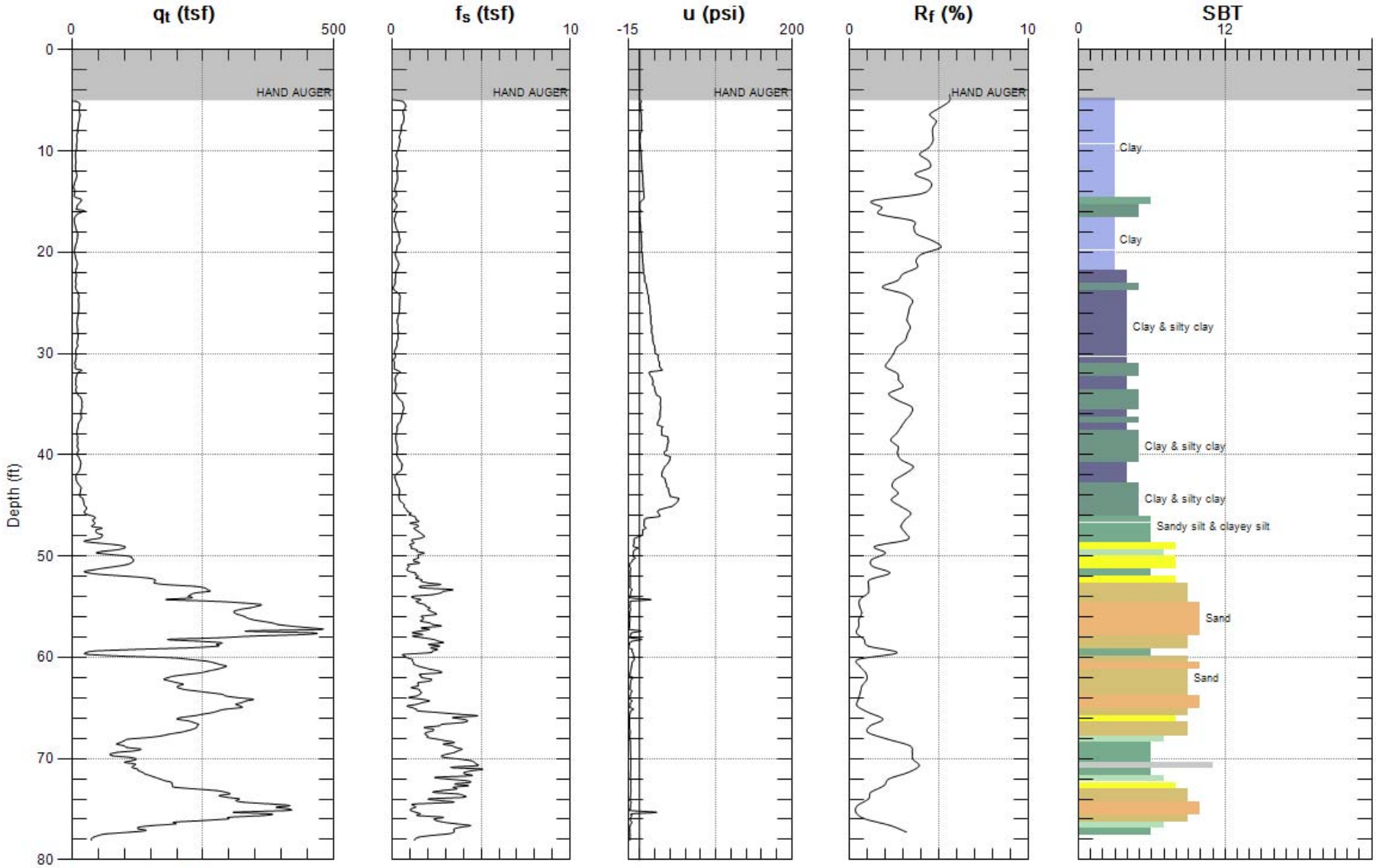
Soil Conductivity:
Lithology information was collected by Gregg Drilling CPT system.

GREGG

ERM

Site: HOOKSTON STATION **Engineer: D.MOBERG**

Sounding: CPT-36 **Date: 2/21/2007 11:13**



Max. Depth: 78.080 (ft)
Avg. Interval: 0.656 (ft)

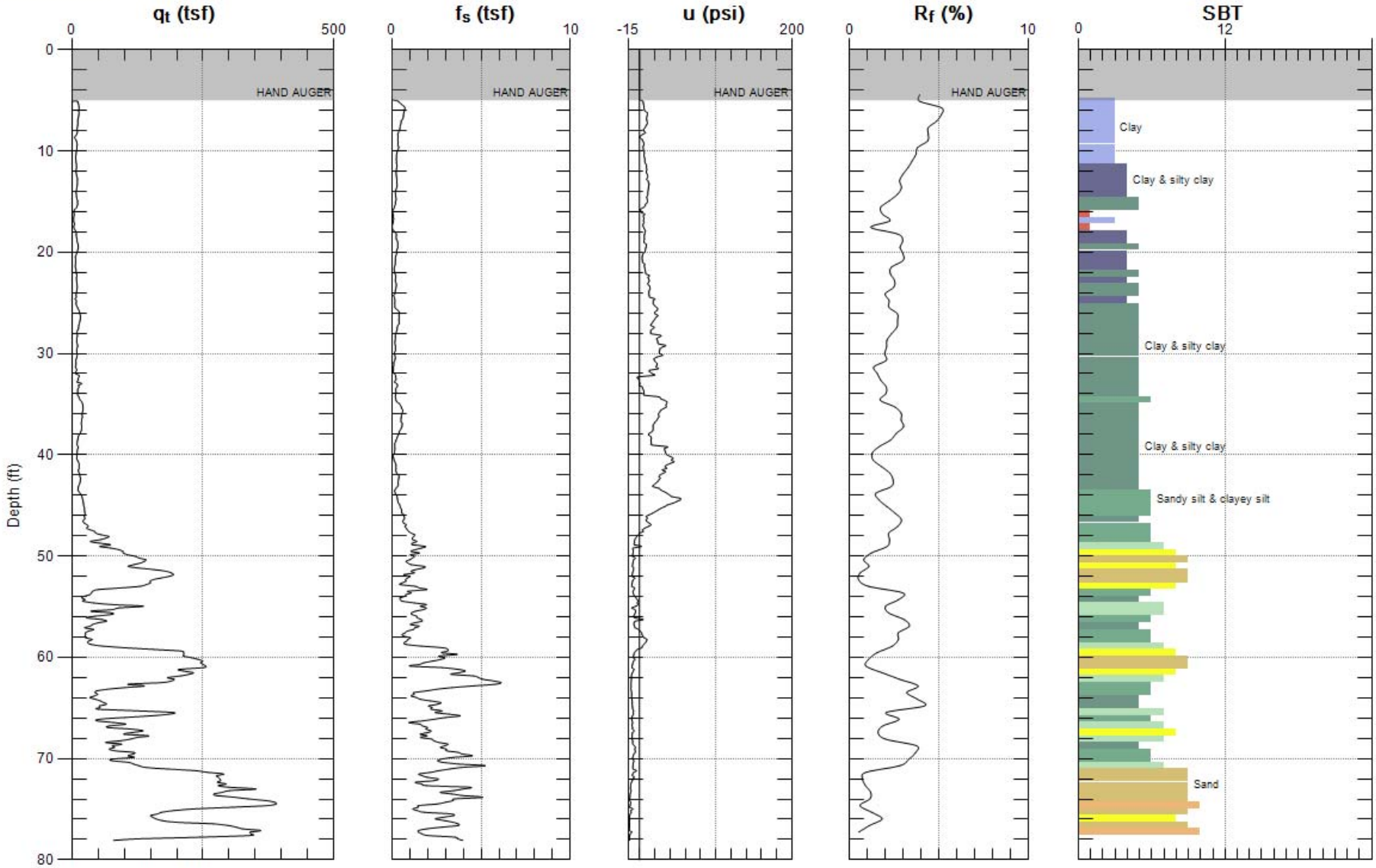
SBT: Soil Behavior Type (Robertson 1990)

GREGG

ERM

Site: HOOKSTON STATION **Engineer: D.MOBERG**

Sounding: CPT-37 **Date: 2/20/2007 12:59**



Max. Depth: 78.080 (ft)
Avg. Interval: 0.656 (ft)

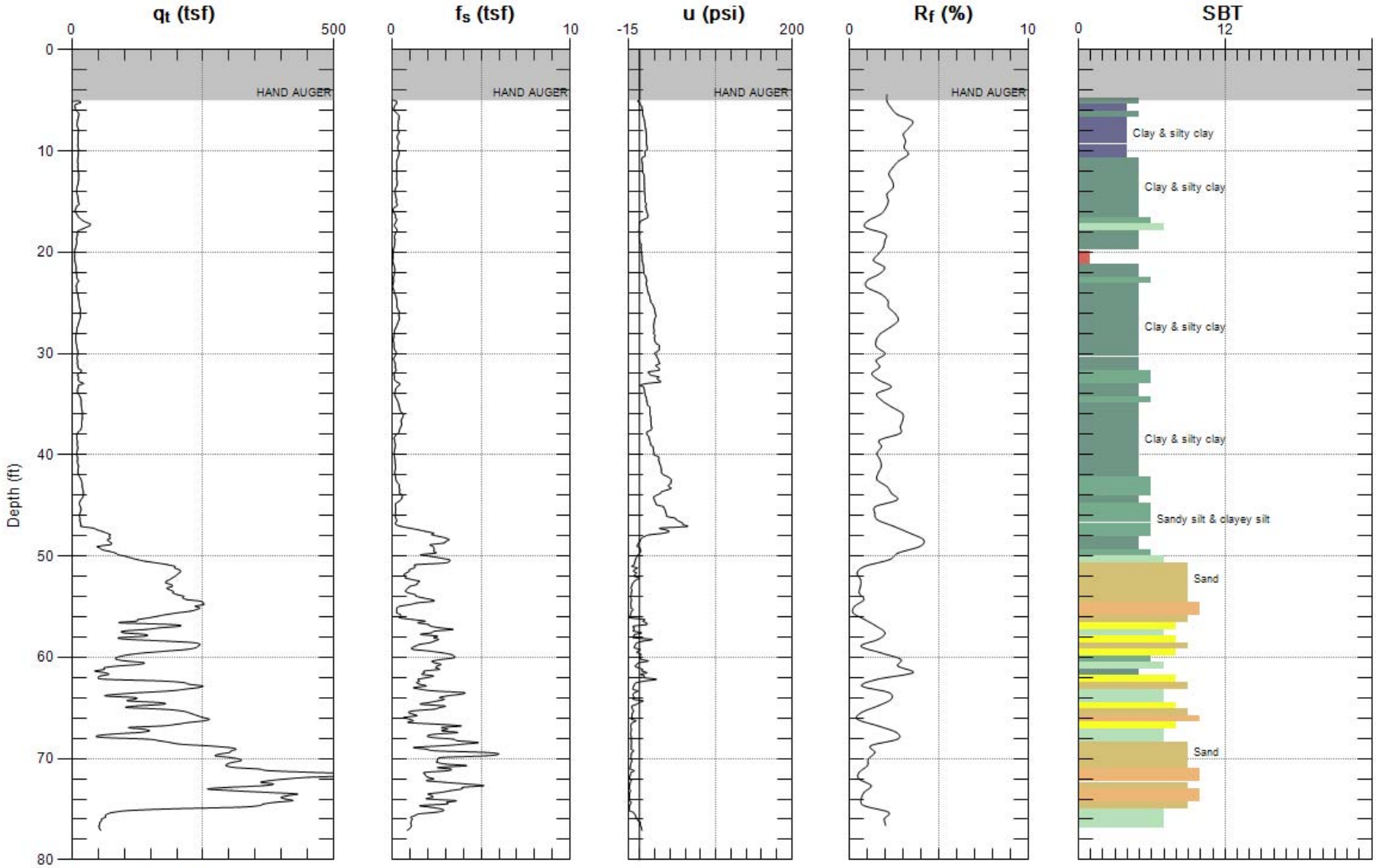
SBT: Soil Behavior Type (Robertson 1990)

GREGG

ERM

Site: HOOKSTON STATION **Engineer: D.MOBERG**

Sounding: CPT-38 **Date: 2/20/2007 10:04**



Max. Depth: 77.100 (ft)
Avg. Interval: 0.656 (ft)

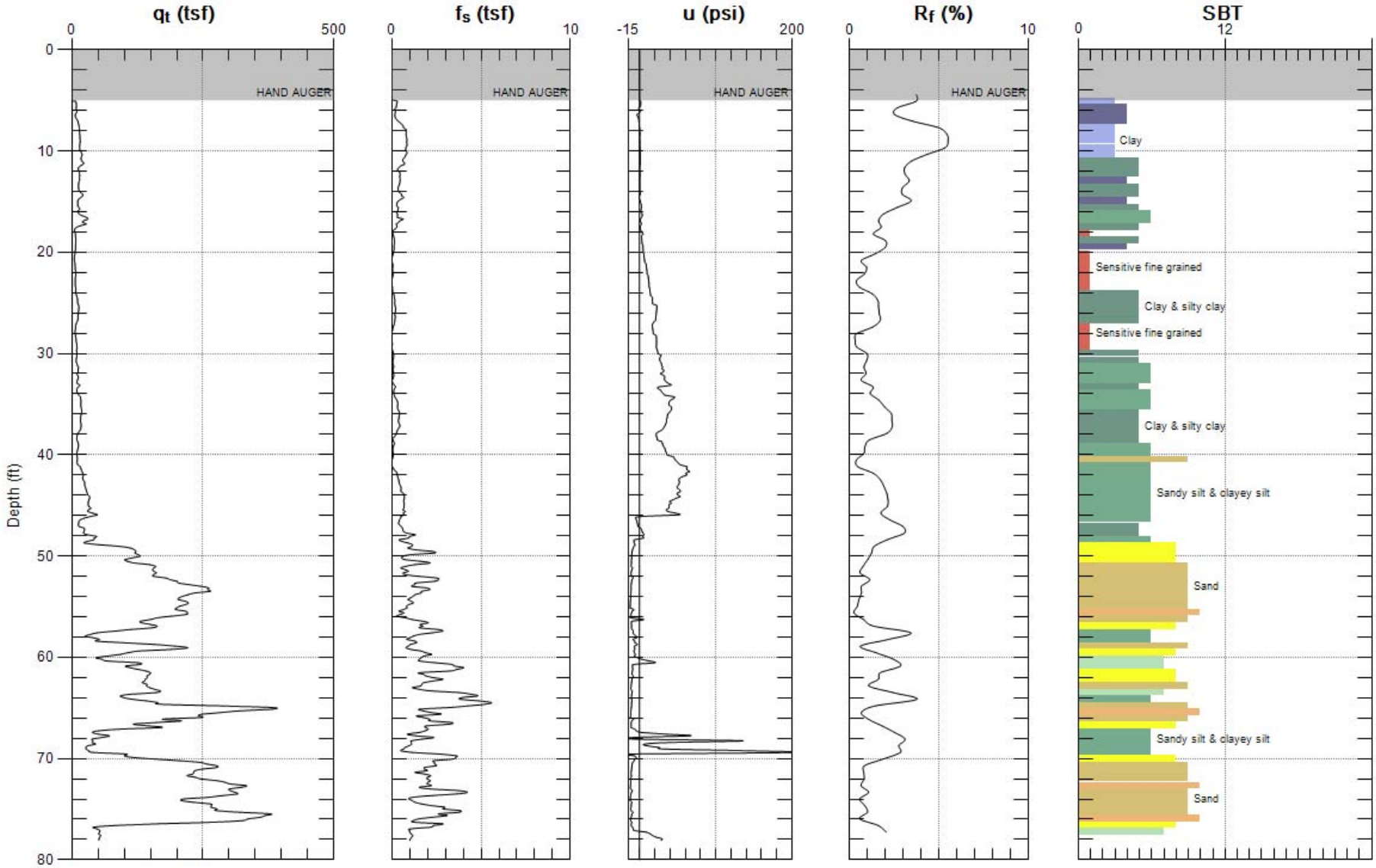
SBT: Soil Behavior Type (Robertson 1990)

GREGG

ERM

Site: HOOKSTON STATION **Engineer: D.MOBERG**

Sounding: CPT-39 **Date: 2/16/2007 02:10**



Max. Depth: 78.080 (ft)
Avg. Interval: 0.656 (ft)

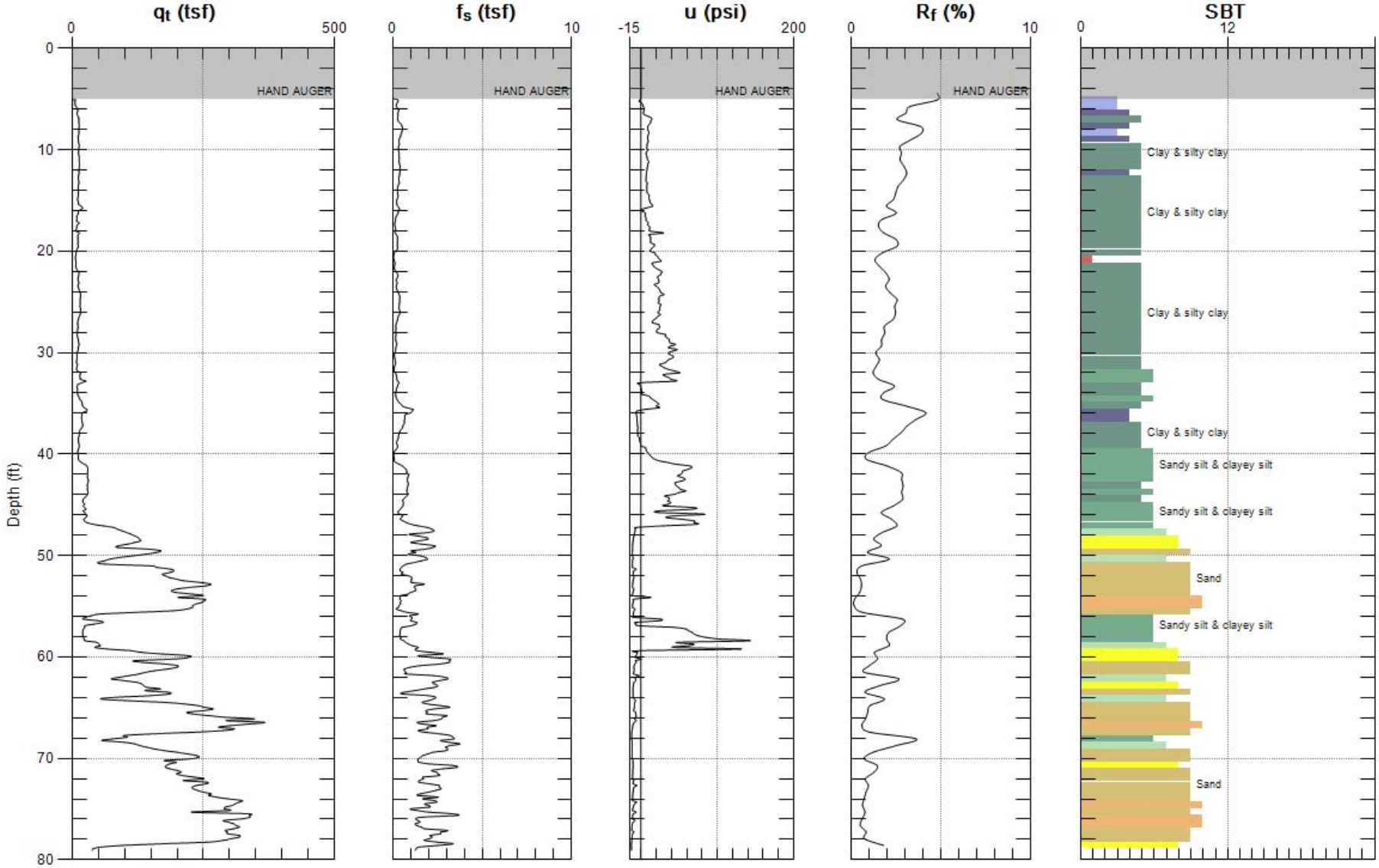
SBT: Soil Behavior Type (Robertson 1990)

GREGG

ERM

Site: HOOKSTON STATION **Engineer: D.MOBERG**

Sounding: CPT-40 **Date: 2/16/2007 11:20**



Max. Depth: 79.070 (ft)
Avg. Interval: 0.656 (ft)

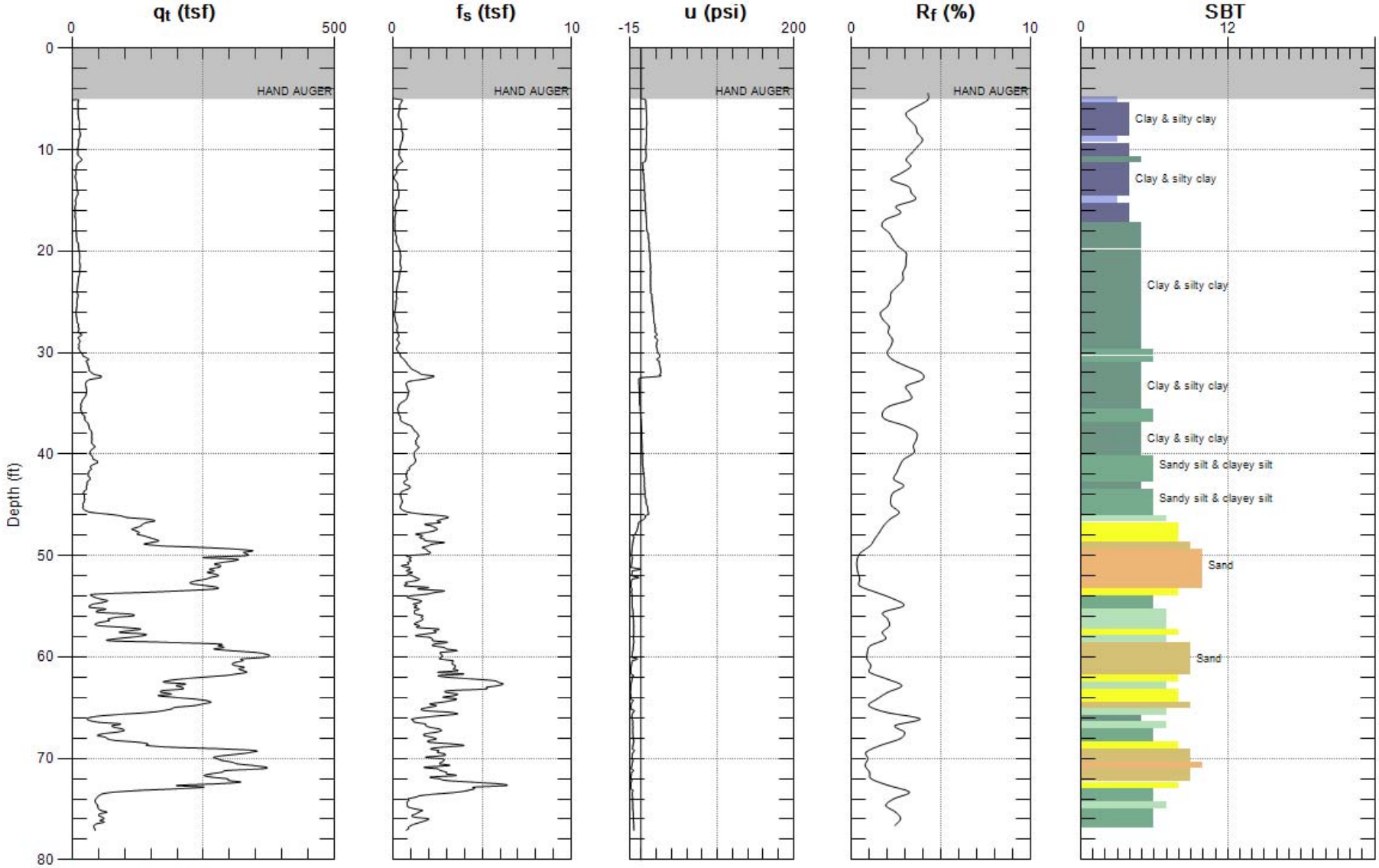
SBT: Soil Behavior Type (Robertson 1990)

GREGG

ERM

Site: HOOKSTON STATION **Engineer: D.MOBERG**

Sounding: CPT-41 **Date: 2/21/2007 03:01**



Max. Depth: 77.100 (ft)
Avg. Interval: 0.656 (ft)

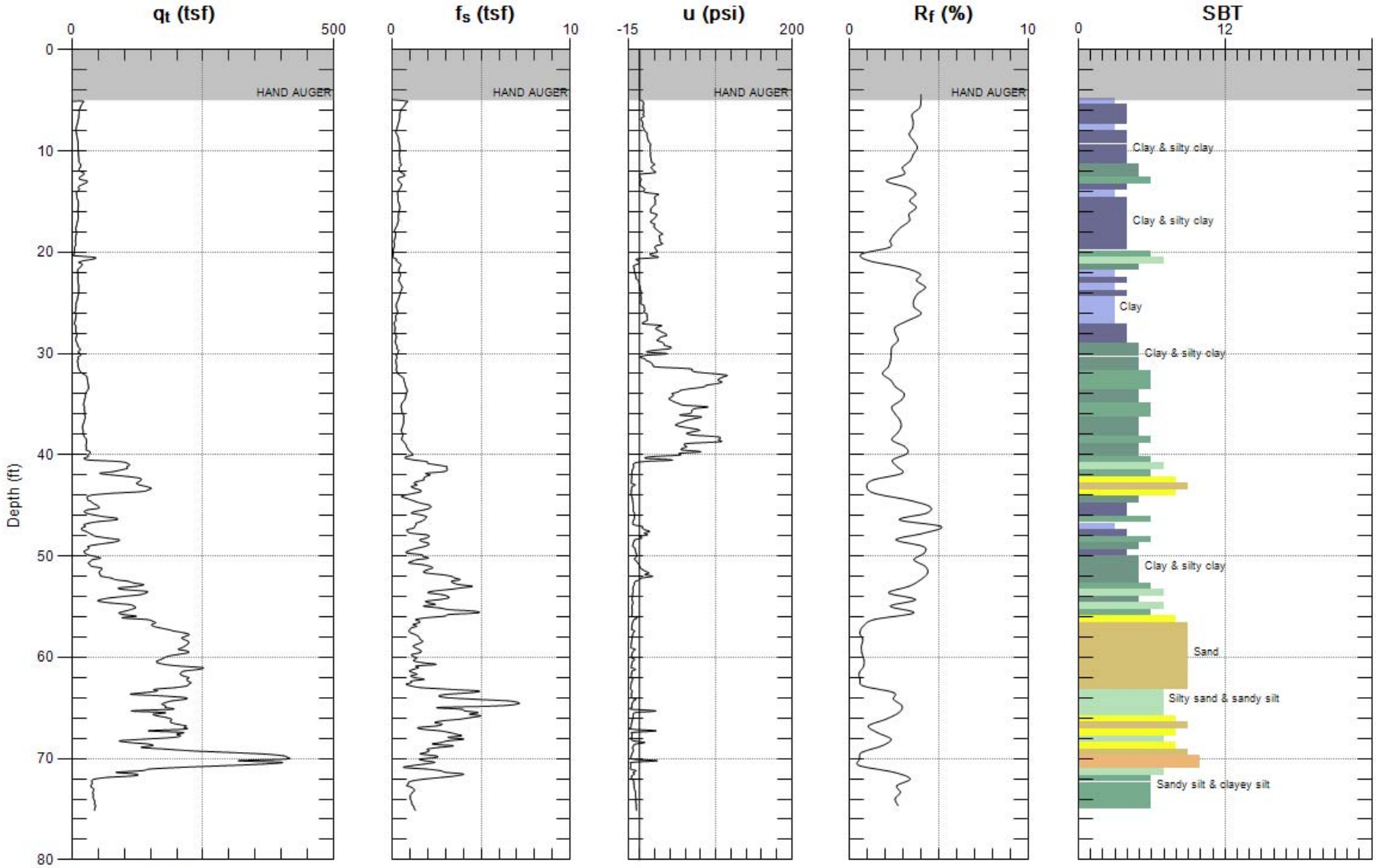
SBT: Soil Behavior Type (Robertson 1990)

GREGG

ERM

Site: HOOKSTON STATION **Engineer: D.MOBERG**

Sounding: CPT-42 **Date: 2/15/2007 01:24**



Max. Depth: 75.130 (ft)
Avg. Interval: 0.656 (ft)

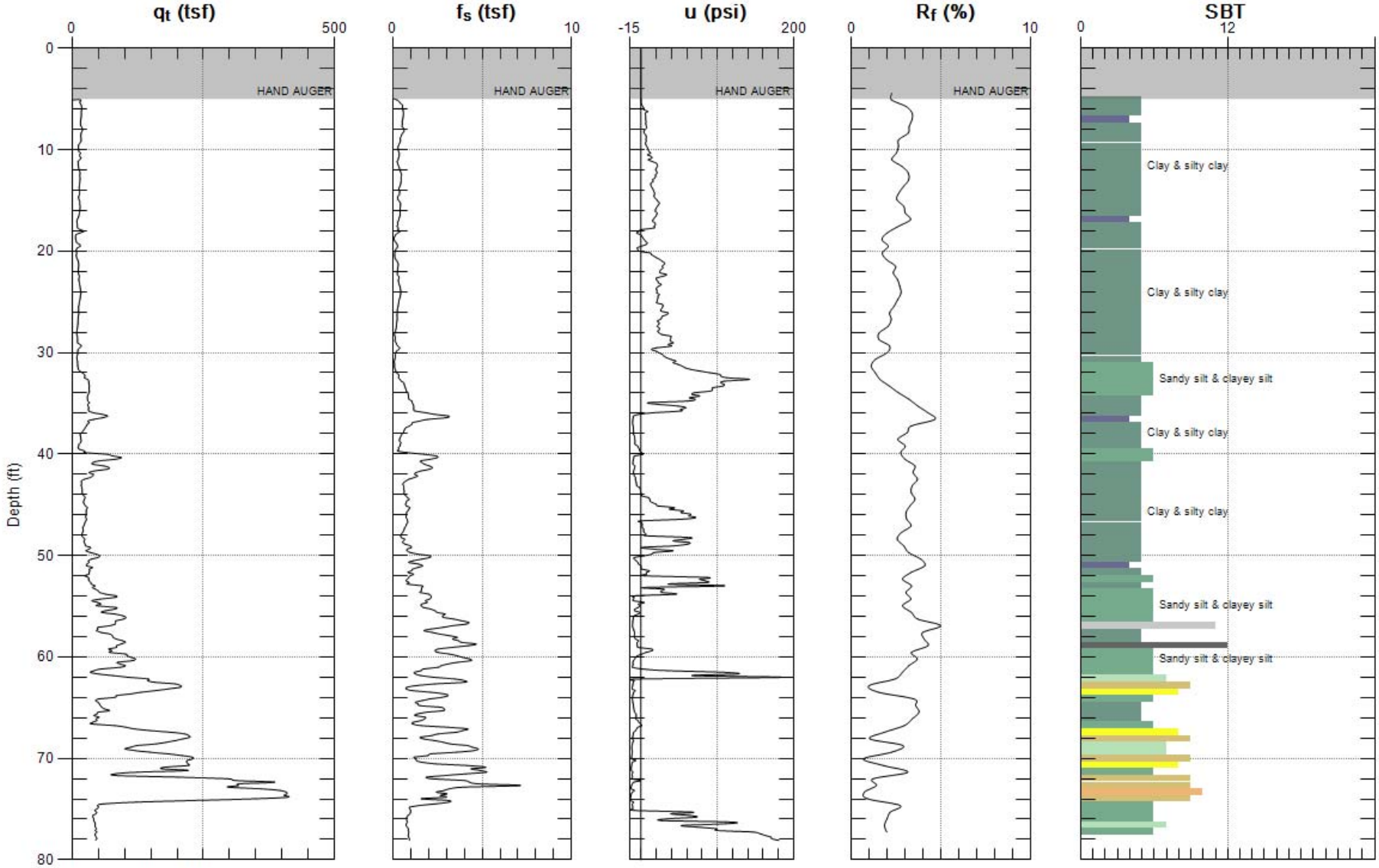
SBT: Soil Behavior Type (Robertson 1990)

GREGG

ERM

Site: HOOKSTON STATION **Engineer: D.MOBERG**

Sounding: CPT-43 **Date: 2/15/2007 09:24**



Max. Depth: 78.080 (ft)
Avg. Interval: 0.656 (ft)

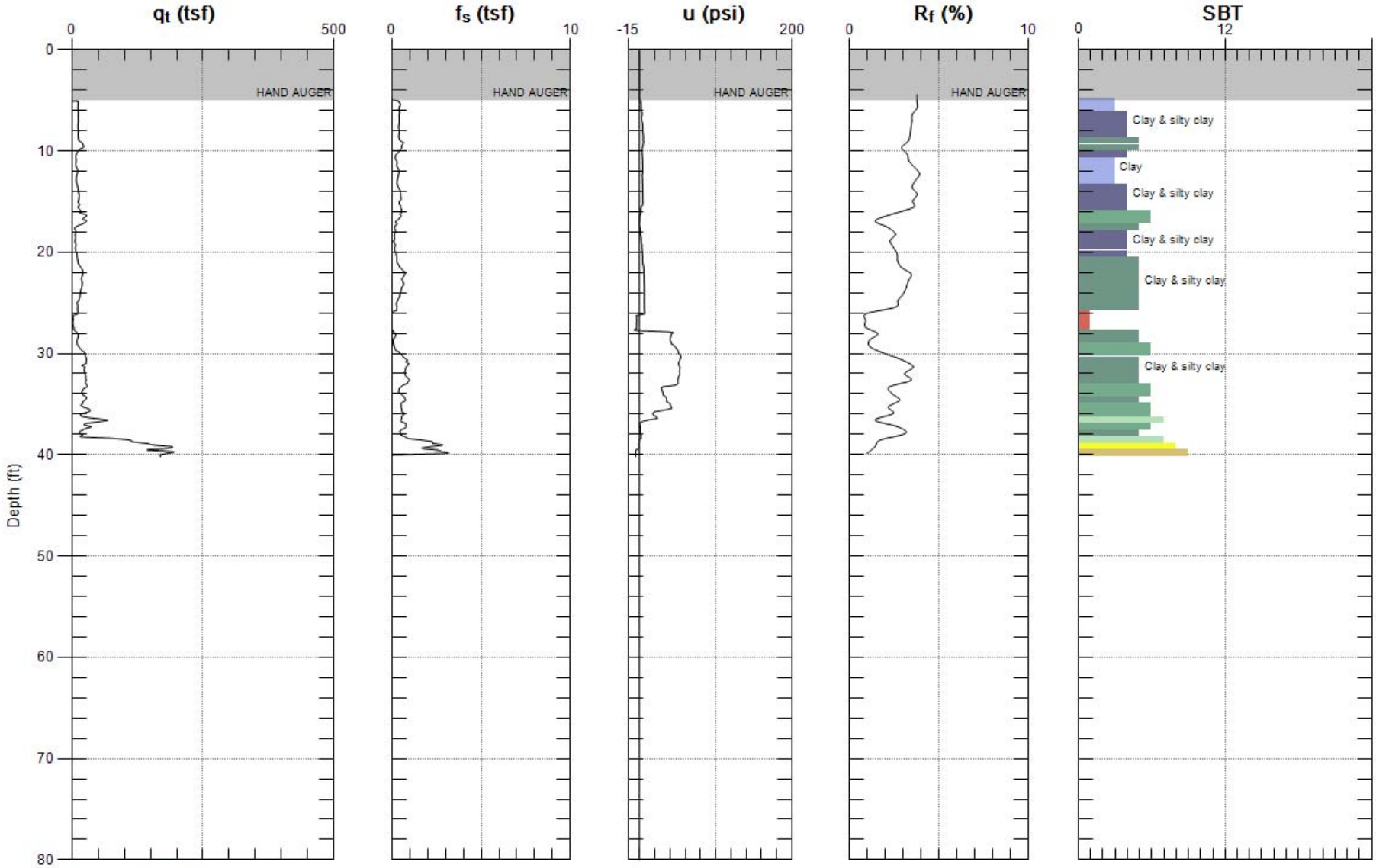
SBT: Soil Behavior Type (Robertson 1990)

GREGG

ERM

Site: HOOKSTON STATION **Engineer: D.MOBERG**

Sounding: CPT-44 **Date: 2/13/2007 11:44**



Max. Depth: 40.190 (ft)
Avg. Interval: 0.656 (ft)

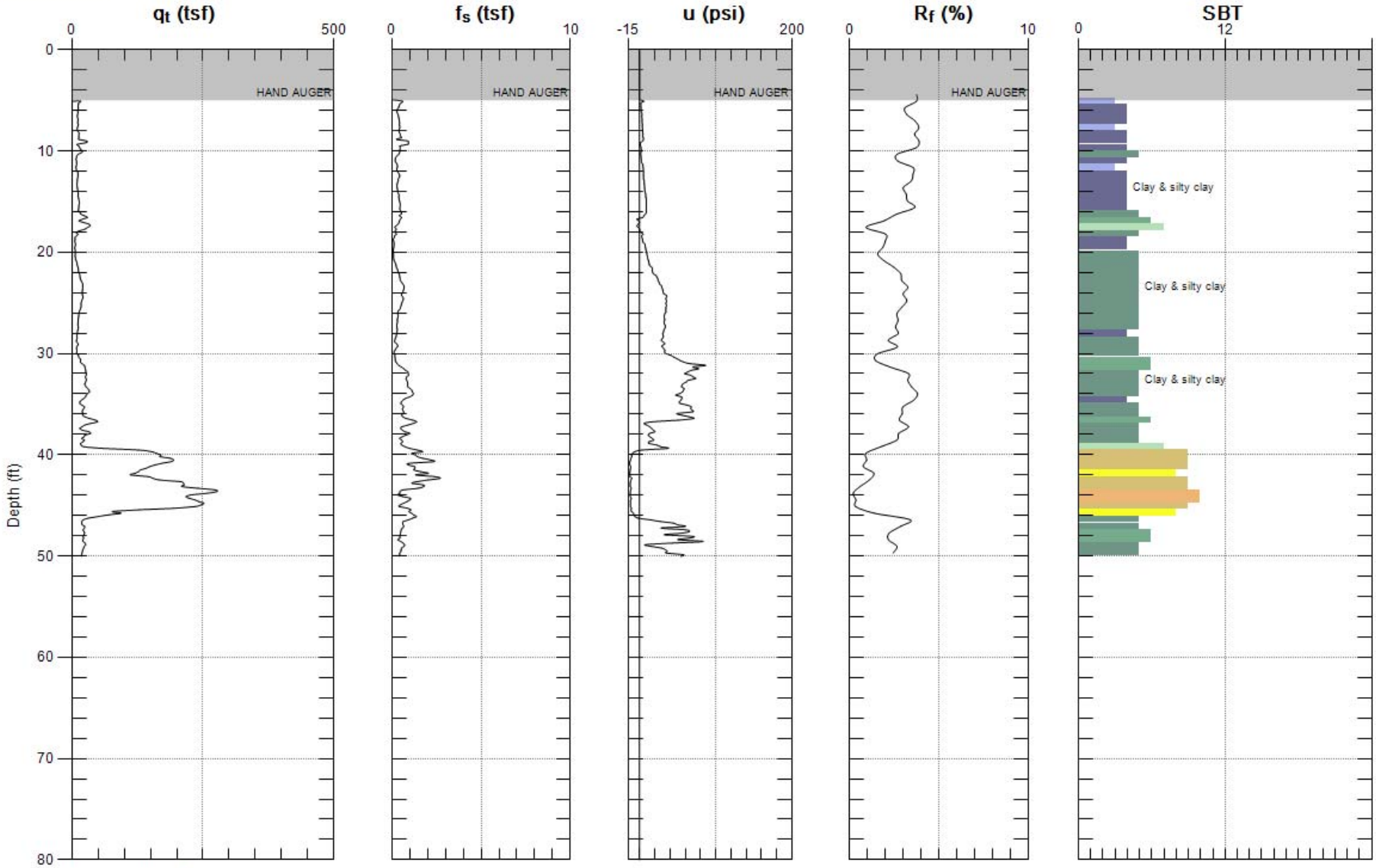
SBT: Soil Behavior Type (Robertson 1990)

GREGG

ERM

Site: HOOKSTON STATION **Engineer: D.MOBERG**

Sounding: CPT-44A **Date: 2/14/2007 03:20**



Max. Depth: 50.030 (ft)
Avg. Interval: 0.656 (ft)

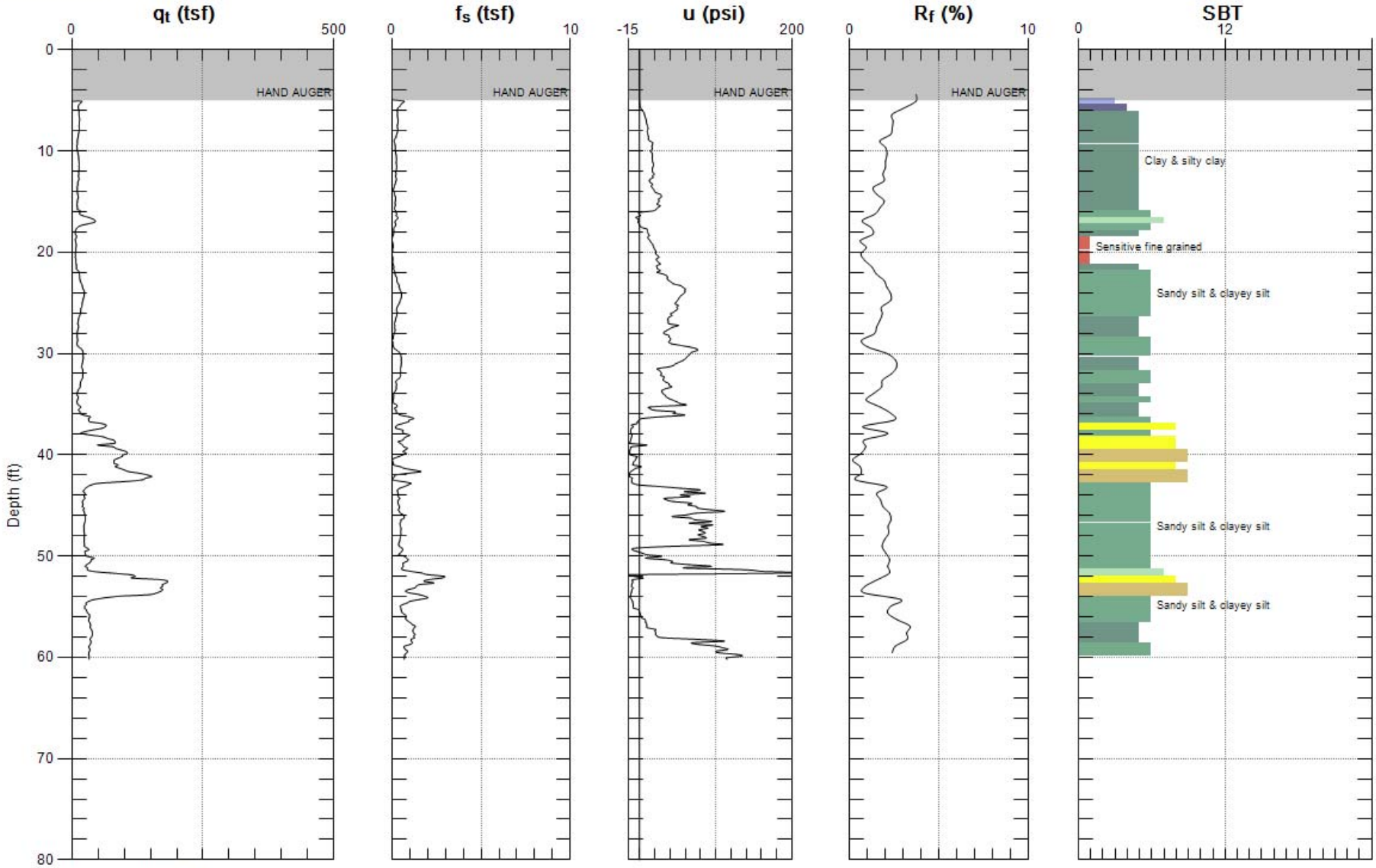
SBT: Soil Behavior Type (Robertson 1990)

GREGG

ERM

Site: HOOKSTON STATION **Engineer: D.MOBERG**

Sounding: CPT-45 **Date: 2/14/2007 10:59**



Max. Depth: 60.200 (ft)
Avg. Interval: 0.656 (ft)

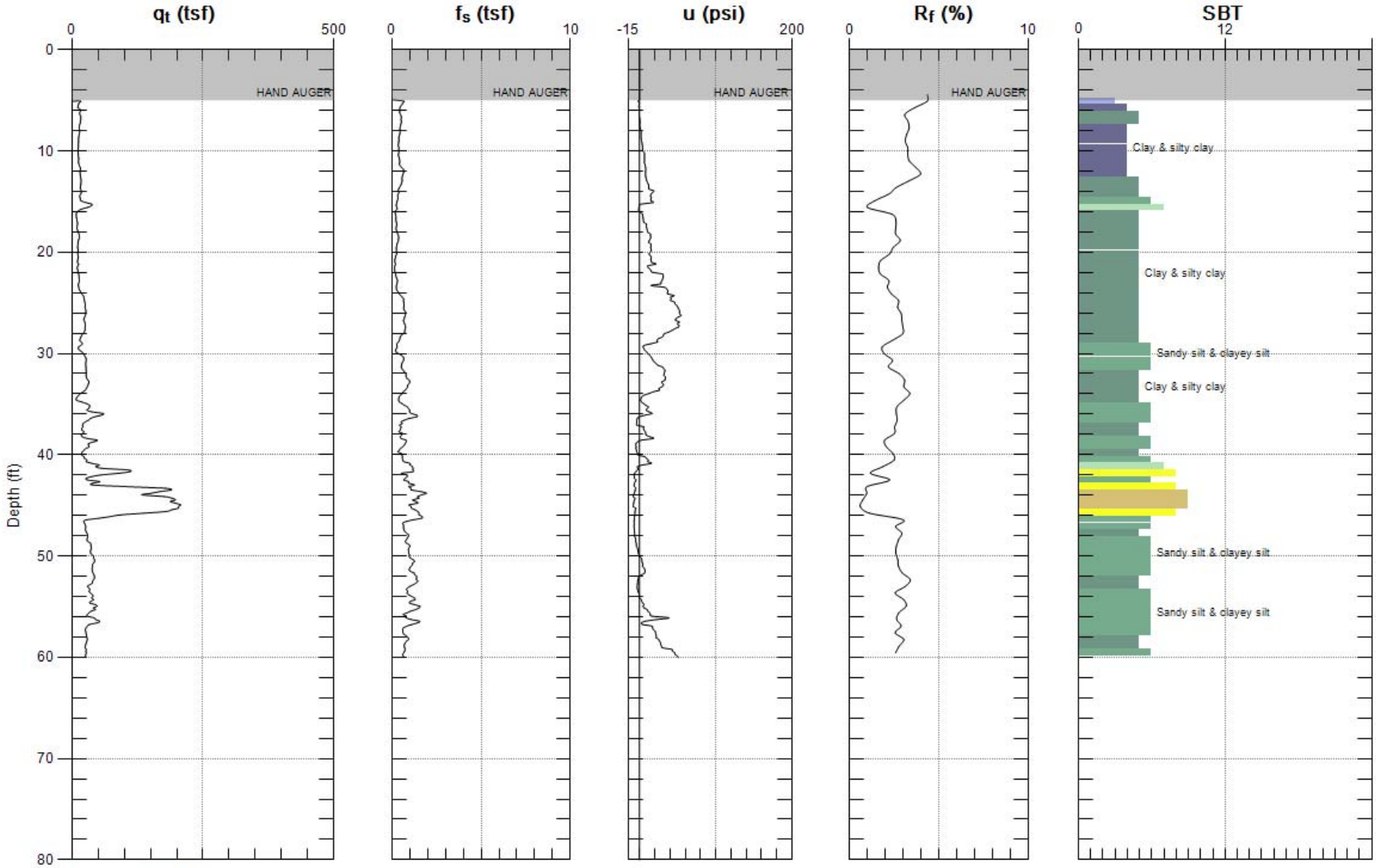
SBT: Soil Behavior Type (Robertson 1990)

GREGG

ERM

Site: HOOKSTON STATION **Engineer: D.MOBERG**

Sounding: CPT-46 **Date: 2/14/2007 08:57**



Max. Depth: 60.040 (ft)
Avg. Interval: 0.656 (ft)

SBT: Soil Behavior Type (Robertson 1990)