Technical Report

Remediation Assessment

Fansteel, Inc.
Muskogee, Oklahoma

Volume 2 of 4

Kirkpatrick & Lockhart
Pittsburgh, Pennsylvania

Project No. 111
December 1993

Earth Sciences
Consultants, Inc.

Technical Report

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Volume 2 of 4

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Appendix A

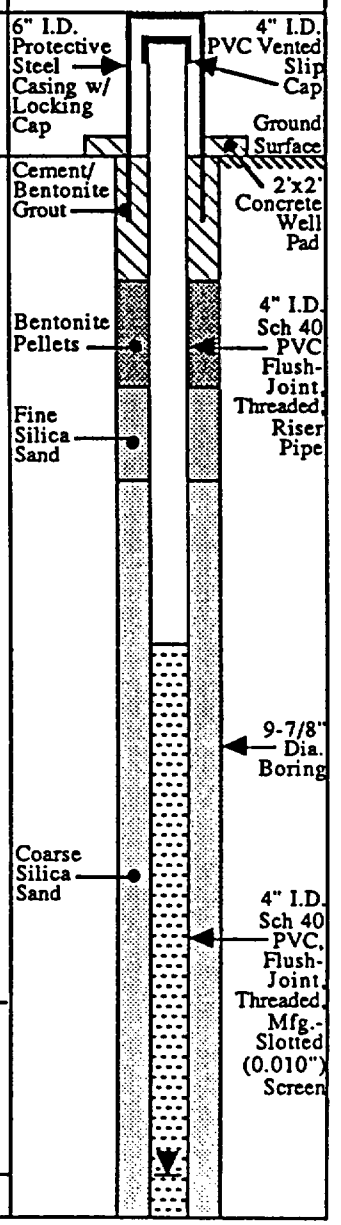
Boring Logs and Well Construction Details

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	MW-52S
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	RS
		Surface Elevation (ft/msl)	524.28		
Date Started	2/10/93	Bottom of Well (ft)	18.0	Checked By/Date	BES 3/1/93
Date Completed	2/10/93	Bottom of Boring (ft)	18.0	Page	1 of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	
0.0								
	SS 1	NA	2.0	0	450		Silty Clay - Med. Orange Brown, Mottled with Gray Fine-Grained Sand and Black Streaks, Rooted to 0.5', Damp - Becomes Damp to Dry at 1.5'	
2.5								
	SS 2		5.0	0	500		- Becomes Very Dense at 5'	
5.0								
7.5								
	SS 3		5.0	0	500 450		- Becomes Med. Reddish Brown, Very Dense from 11.2' to 13'	
10.0								
12.5								
	SS 4		5.0	0	450		Clayey Sand - Med. Reddish Brown, Fine-Grained with Few Black Streaks, Damp to Dry, Saturated from 14.7' to 15.1',	
15.0								
17.5	SS 5		1.0	0	450		Sand - Med. Reddish Brown, Fine-Grained, Well Sorted, Saturated	

Well/Piezometer Construction Detail



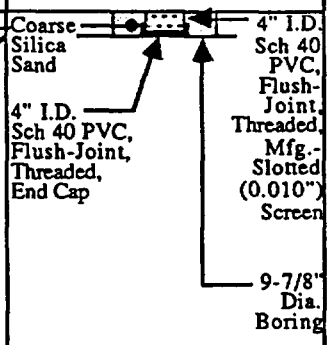
See footnotes at end of boring log.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	MW-52S
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	RS
		Surface Elevation (ft/msl)	524.28		
Date Started	2/10/93	Bottom of Well (ft)	18.0	Checked By/Date	BES 3/1/93
Date Completed	2/10/93	Bottom of Boring (ft)	18.0	Page	2 of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description
	SS 5	NA	1.0	0	450		Sand - Same as Above
							Shale - Black, Highly Weathered
20.0							

Well/Piezometer Construction Detail



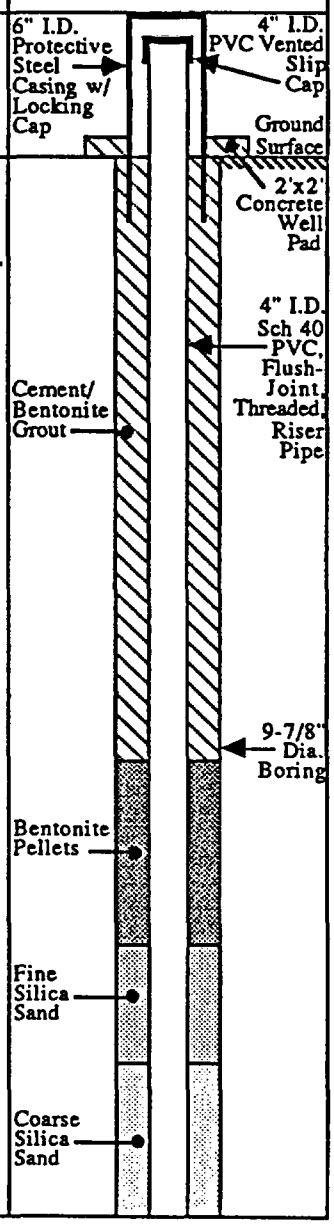
SS = Split-barrel sample.
NA = Not applicable.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	MW-53S
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	RS
Date Started	2/11/93	Surface Elevation (ft/msl)	537.56	Checked By/Date	BES 3/1/93
Date Completed	2/11/93	Bottom of Well (ft)	33.5	Page	1 of 2
		Bottom of Boring (ft)	33.5		

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description
0.0							
	SS 1	NA	2.0	0	500		Silty Clay - Med. Brown, Damp
2.5							- Becomes Med. Reddish Brown, Mottled with Gray Fine-Grained Sand and Black Streaks, Damp at 1.5'
	SS 2		5.0	0	500		
5.0							- Becomes Very Dense from 5.5' to 7'
7.5							
	SS 3		5.0	0	500		- Becomes Predominantly Gray from 9.5' to 12'
10.0							
12.5							
	SS 4		5.0	0	500		
15.0							
17.5	SS 5		5.0	0	450		

Well/Piezometer Construction Detail



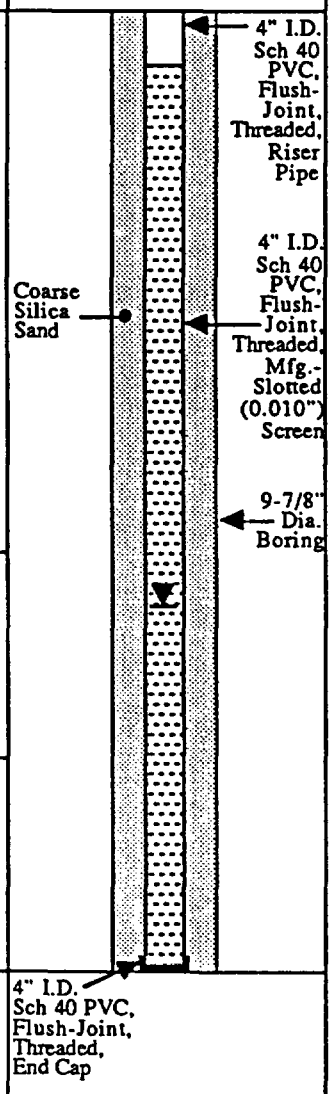
See footnotes at end of boring log.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	MW-53S
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	RS
		Surface Elevation (ft/msl)	537.56		
Date Started	2/11/93	Bottom of Well (ft)	33.5	Checked By/Date	BES 3/1/93
Date Completed	2/11/93	Bottom of Boring (ft)	33.5	Page	2 of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description
20.0	SS 5	NA	5.0	0	450		Silty Clay - Same as Above
							- Becomes Gray from 21.2' to 21.5'
22.5	SS 6		5.0	0	500		
25.0					475		
27.5	SS 7		5.0	NA	NA		Clayey Sand - Med. Reddish Brown, Fine-Grained, Damp
30.0							Sand - Med. Orange Brown, Med.-Grained, Well Sorted, Saturated at 30
32.5	SS 8		1.5	NA	NA		
							- Auger Refusal at 33.5'. Bedrock Encountered
35.0							

Well/Piezometer Construction Detail



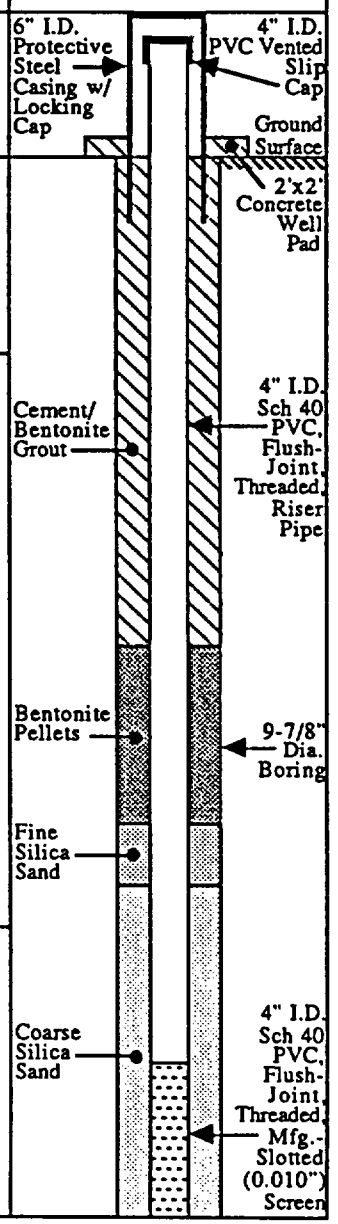
SS = Split-barrel sample.
NA = Not applicable.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	MW-54S
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	ASH
		Surface Elevation (ft/msl)	531.73		
Date Started	2/11/93	Bottom of Well (ft)	30.0	Checked By/Date	BES 3/1/93
Date Completed	2/11/93	Bottom of Boring (ft)	31.0	Page	1 of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description
0.0							
2.5	SS 1	NA	2.0	0	450		Sandy Clay - Dk. Brown, Sand is Med.- to Fine-Grained, Trace Well-Rounded Gravel (≤1/2" in Dia.), Rooted to 2.0', Damp
5.0	SS 2		5.0	0	500		Silty Clay - Mod. Orange Brown with Med. Gray to Lt. Gray Mottles, Very Stiff, Dry to Damp
7.5							
10.0	SS 3		5.0	0	500		- Becomes Med. Gray to Lt. Gray at 8.0'
12.5							
15.0	SS 4		5.0	0	500		Clayey Sand - Med. Reddish Brown, Mod. Stiff, Sand is Med.- to Fine-Grained, Moist
17.5	SS 5		5.0	0	475 450		- Becomes Med. Gray to Lt. Gray at 16.5'

Well/Piezometer Construction Detail



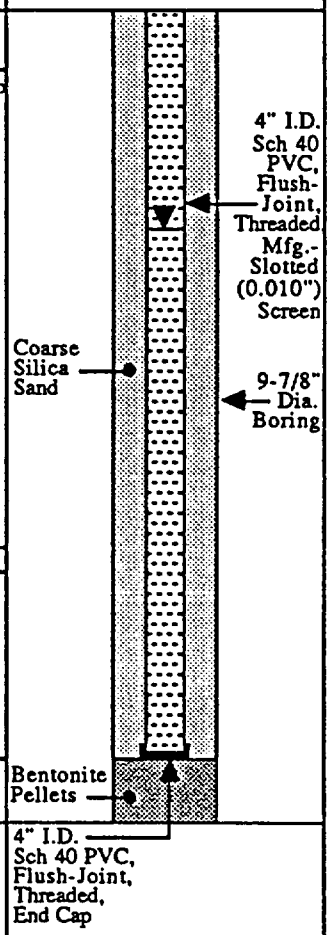
See footnotes at end of boring log.

Boring Log

ent	Fansteel Metals	Project No.	111	Boring No.	MW-54S
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	ASH
		Surface Elevation (ft/msl)	531.73		
Date Started	2/11/93	Bottom of Well (ft)	30.0	Checked By/Date	BES 3/1/93
Date Completed	2/11/93	Bottom of Boring (ft)	31.0	Page 2 of 2	

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description
							Clayey Sand - Same as Above
							Sand - Mod. Reddish Brown, Med.- to Fine-Grained, Damp
20.0	SS 5		5.0	0	450		
22.5					475		
25.0	SS 6	NA	5.0	0			
					500		- Becomes Wet at 26.2'
							Silt - Med. Brown to Lt. Reddish Brown, Stiff, Wet
27.5							Sand - Med. Brown, Med.- to Fine-Grained, Wet
30.0	SS 7		4.0	0	0		
							Shale - Grayish Black, Soft, Dry
32.5							

Well/Piezometer Construction Detail



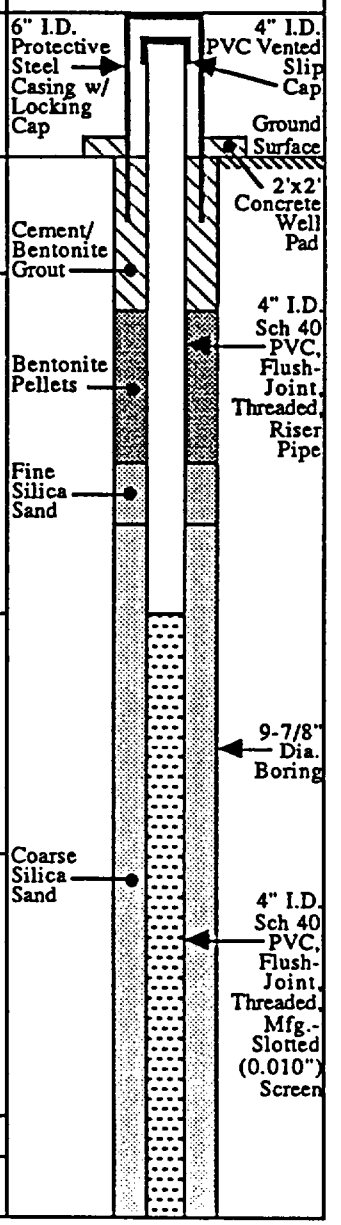
SS = Split-barrel sample.
NA = Not applicable.

Boring Log

ant	Fansteel Metals	Project No.	111	Boring No.	MW-55S
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	ASH
		Surface Elevation (ft/msl)	524.60		
Date Started	2/10/93	Bottom of Well (ft)	22.5	Checked By/Date	BES 3/1/93
Date Completed	2/10/93	Bottom of Boring (ft)	23.0	Page	1 of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description
0.0							
	SS 1	NA	2.0	0	430 470		Clayey Sand - Med. Brown to Dk. Brown, Sand is Med.- to Fine-Grained
2.5							
	SS 2		5.0	0	430 470		Silty Clay - Med. Brown, Few Lt. Gray Mottles, Mod. Cohesive, Trace Sand, Damp
5.0							
7.5							
	SS 3		5.0	0	500		Clayey Sand - Med. Brown, Sand is Fine- to Med.-Grained, Damp
10.0							
12.5							Sand - Med. Brown, Fine- to Med.-Grained, Damp
15.0	SS 4		5.0	0	500		
							Silt - Med. Reddish Brown, Moist to Damp - Becomes Saturated at 16.5'
17.5	SS 5		5.0	0	0		Sand - Med. Brown, Med.- to Coarse-Grained, Wet

Well/Piezometer Construction Detail



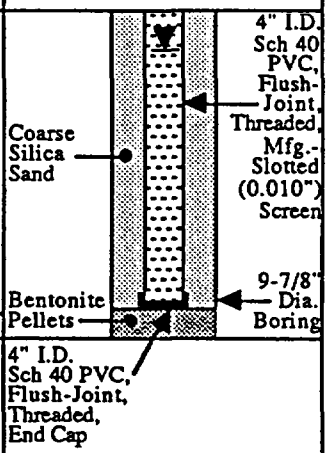
See footnotes at end of boring log.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	MW-55S
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	ASH
		Surface Elevation (ft/msl)	524.60		
Date Started	2/10/93	Bottom of Well (ft)	22.5	Checked By/Date	BES 3/1/93
Date Completed	2/10/93	Bottom of Boring (ft)	23.0	Page	2 of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description
20.0	SS 5	NA	5.0	0	0		Sand - Same as Above - Becomes Coarse- to Very Coarse-Grained at 18.5'
22.5	SS 6		1.0	0	0		Shale - Med. Bluish Gray, Dry
25.0							

Well/Piezometer Construction Detail



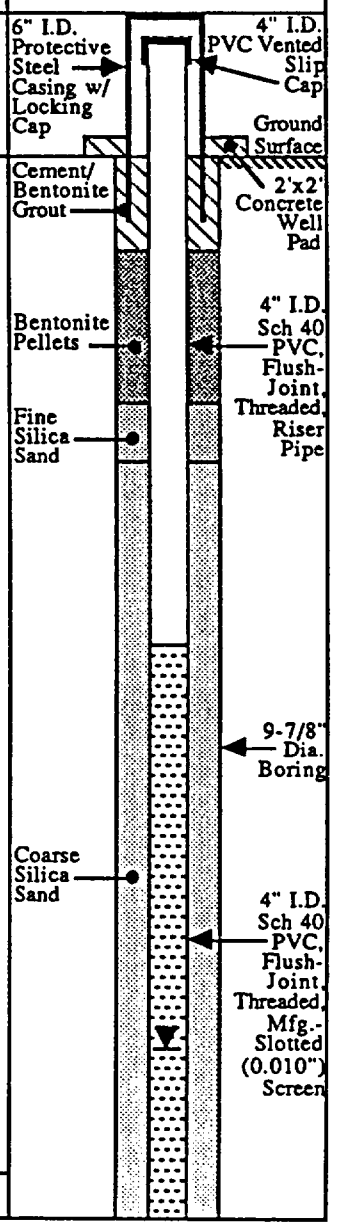
SS = Split-barrel sample.
NA = Not applicable.

Boring Log

'ent	Fansteel Metals	Project No.	111	Boring No.	MW-56S
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	RS
		Surface Elevation (ft/msl)	521.89		
Date Started	2/9/93	Bottom of Well (ft)	18.0	Checked By/Date	BES 3/1/93
Date Completed	2/9/93	Bottom of Boring (ft)	18.3	Page	1 of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description
0.0							
2.5	SS 1	NA	2.5	0	500 475		Silty Clay - Med. Brown, Rooted, Damp - Becomes Med. Orange Brown, Mottled with Gray Fine-Grained Sand and Black Streaks, Very Dense at 0.8'
5.0	SS 2		5.0	0	500 425		
7.5							- Becomes Predominantly Lt. Grayish Brown at 7.5'
10.0	SS 3		5.0	0	450 425		- Becomes Very Dense at 10'
15.0	SS 4		5.0	0	500		
17.5							Sand - Lt. Grayish Brown, Med.-Grained, Well Sorted, Saturated

Well/Piezometer Construction Detail



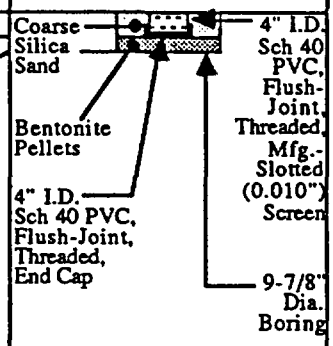
See footnotes at end of boring log.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	MW-56S
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	RS
		Surface Elevation (ft/msl)	521.89		
Date Started	2/9/93	Bottom of Well (ft)	18.0	Checked By/Date	BES 3/1/93
Date Completed	2/9/93	Bottom of Boring (ft)	18.3	Page	2 of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description
	SS 5	NA	0.8	0	500		Sand - Same as Above
							Shale - Black, Very Weathered with Limonite Staining
20.0							

Well/Piezometer Construction Detail



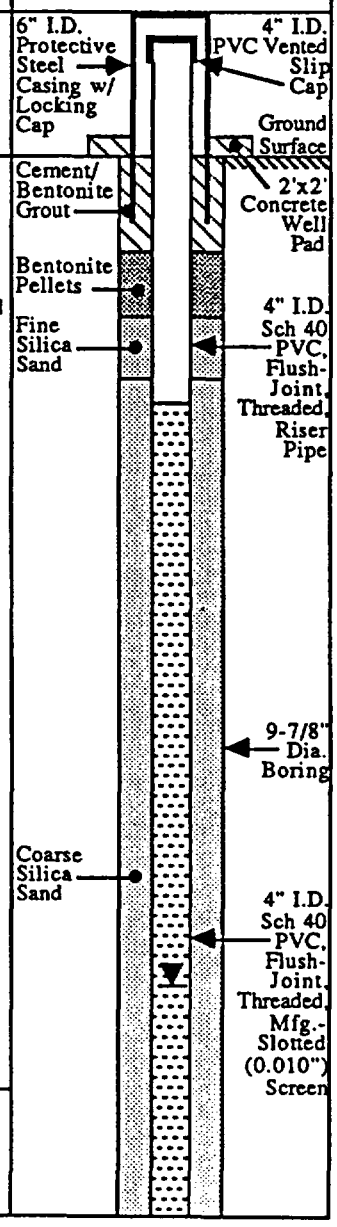
SS = Split-barrel sample.
NA = Not applicable.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	MW-57S
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	RS
		Surface Elevation (ft/msl)	522.42		
Date Started	2/8/93	Bottom of Well (ft)	19.0	Checked By/Date	BES 3/1/93
Date Completed	2/8/93	Bottom of Boring (ft)	19.0	Page	1 of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description
0.0							
2.5	SS 1	NA	2.5	0	500		Silty Clay - Med. Brown, Rooted to 0.8', Damp - Becomes Med. Reddish Brown at 1.5' - Becomes Mottled with Gray Fine-Grained Sand and Black Streaks at 2.5'
5.0	SS 2		5.0	0	500		
7.5							
10.0	SS 3		5.0	0	500 450		
12.5							
15.0	SS 4		5.0	0	500		- Becomes Lt. Reddish Brown at 14'
17.5					450		Sand - Lt. Reddish Brown, Med.-Grained, Well Sorted, Saturated - Becomes Silty Clay, Lt. Reddish Brown, Mottled, Saturated at 16.8' - Becomes Lt. Reddish Brown, Med.-Grained, Saturated at 17.0'

Well/Piezometer Construction Detail



See footnotes at end of boring log.

Boring Log

?nt	Fansteel Metals	Project No.	111	Boring No.	MW-57S
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	RS
		Surface Elevation (ft/msl)	522.42		
Date Started	2/8/93	Bottom of Well (ft)	19.0	Checked By/Date	BES 3/1/93
Date Completed	2/8/93	Bottom of Boring (ft)	19.0	Page	2 of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
	SS 5	NA	1.5	NA	NA		Sand - Same as Above - Auger Refusal at 19.0'. Bedrock Encountered	Coarse Silica Sand; 4" I.D. Sch 40 PVC, Flush-Joint, Threaded, Mfg.-Slotted (0.010") Screen; 4" I.D. Sch 40 PVC, Flush-Joint, Threaded, End Cap; 9-7/8" Dia. Boring
20.0								

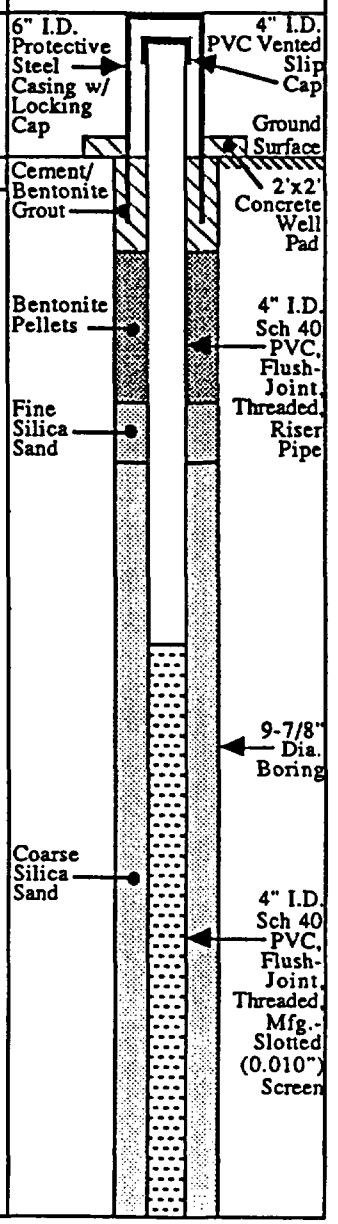
SS = Split-barrel sample.
NA = Not applicable.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	MW-58S
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	RS
		Surface Elevation (ft/msl)	524.47		
Date Started	2/10/93	Bottom of Well (ft)	23.0	Checked By/Date	BES 3/1/93
Date Completed	2/10/93	Bottom of Boring (ft)	23.0	Page	1 of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description
0.0							
	SS 1	NA	2.0	0	525	Fill / Silty Clay	Fill - Gray Black Shale, Gravel Silty Clay - Med. Orange Brown, Mottled with Gray Fine-Grained Sand and Black Streaks, Damp - Becomes Dk. Olive-Brown, Very Dense from 1.3' to 2.5'
2.5							
	SS 2		5.0	0	500		- Becomes Very Dense at 4.7'
5.0							
7.5							- Becomes Damp to Dry at 7.5'
	SS 3		5.0	0	500		
10.0							
12.5							- Becomes Predominantly Gray with Mottling from 12' to 14.2'
	SS 4		5.0	0	500		
15.0					425		
17.5	SS 5		5.0	0	500		

Well/Piezometer Construction Detail



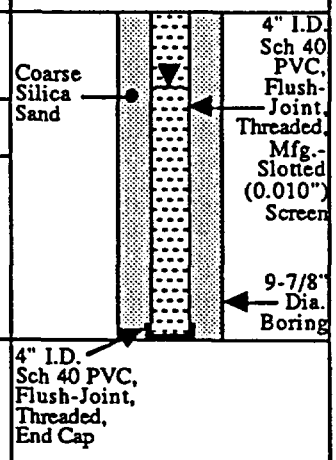
See footnotes at end of boring log.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	MW-58S
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	RS
		Surface Elevation (ft/msl)	524.47		
Date Started	2/10/93	Bottom of Well (ft)	23.0	Checked By/Date	BES 3/1/93
Date Completed	2/10/93	Bottom of Boring (ft)	23.0	Page 2 of 2	

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description
					500		Silty Clay - Same as Above
20.0	SS 5	NA	5.0	0			Clayey Sand - Med. Orange Brown, Fine-Grained, Well Sorted Some Lt. Greenish-Gray Mottling, Damp
					475		Sand - Med. Orange Brown, Med.-Grained, Well Sorted, Saturated at 20'
22.5	SS 6		1.0	0	475		- Auger Refusal at 23.0'. Bedrock Encountered
25.0							

Well/Piezometer Construction Detail



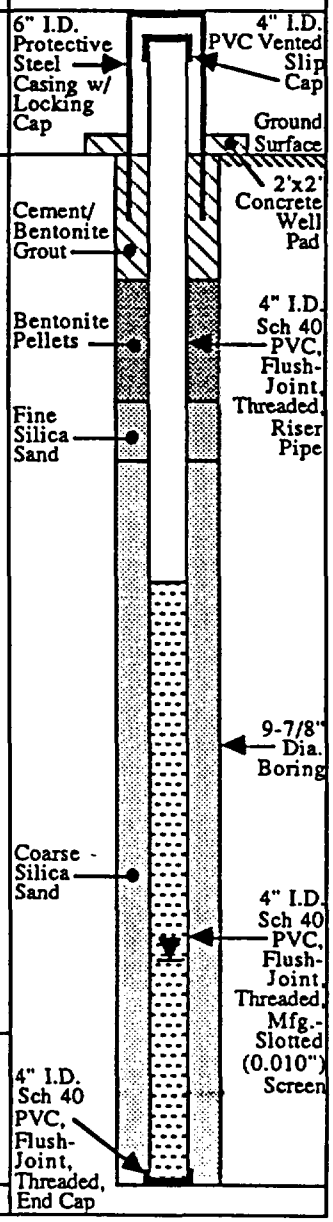
SS = Split-barrel sample.
NA = Not applicable.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	MW-60S
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	RS
		Surface Elevation (ft/msl)	519.88		
Date Started	2/9/93	Bottom of Well (ft)	17.0	Checked By/Date	BES 3/1/93
Date Completed	2/9/93	Bottom of Boring (ft)	17.0	Page	1 of 1

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description
0.0							
	SS 1	NA	2.0	0	500 450		Silty Clay - Med. Brown, Rooted, Damp - Becomes Med. Reddish Brown at 1.5'
2.5							
5.0	SS 2		5.0	0	500		- Becomes Mottled with Lt. Gray Fine-Grained Sand at 4' - Becomes Very Dense with Black Streaks at 5.5'
7.5							
10.0	SS 3		5.0	0	450		- Becomes Med. Orange Brown - No Black Streaks from 11'
12.5							
15.0	SS 4		5.0	0	500		Sand - Med. Orange Brown, Med.-Grained, Well Sorted, Saturated at 14.5' - Becomes Lt. Orange Brown at 15.5' - Becomes Black at 16.8' - Auger Refusal at 17.0'. Bedrock Encountered
17.5							

Well/Piezometer Construction Detail



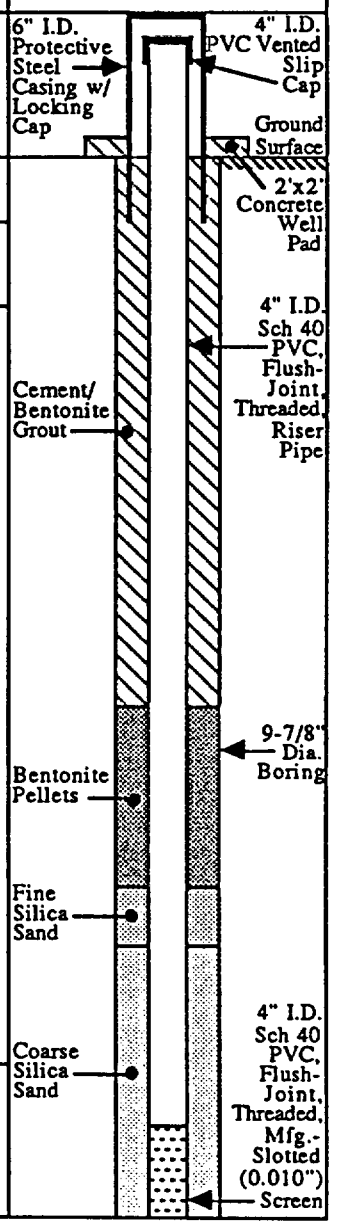
SS = Split-barrel sample.
NA = Not applicable.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	MW-64S
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	ASH
		Surface Elevation (ft/msl)	532.50		
Date Started	2/10/93	Bottom of Well (ft)	31.0	Checked By/Date	BES 3/1/93
Date Completed	2/10/93	Bottom of Boring (ft)	31.0	Page	1 of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description
0.0							
	AU	NA	NA	NA	500		Concrete
	SS 1		1.0	0			Fill - Dk. Brown Sand and Gravel, Damp
2.5							
	SS 2		5.0	0	500		Silty Clay - Med. Brown to Lt. Brown, Trace Lt. Gray Mottles, Trace Fine-Grained Sand, Damp
5.0							- Becomes Mod. Orange Brown at 6.0'
7.5							
	SS 3	NA	5.0	0	500		
10.0					470		
12.5							
	SS 4		5.0	3	470		- Becomes Med. Brown to Dk. Brown with Some Grayish-Brown Mottles, Strong Solvent Odor at 13'
15.0				6	500		Clayey Silt - Med. Brown to Dk. Brown with Some Reddish-Brown Mottles, Some Strong Solvent Odor, Damp
17.5	SS 5		5.0	4	470		

Well/Piezometer Construction Detail



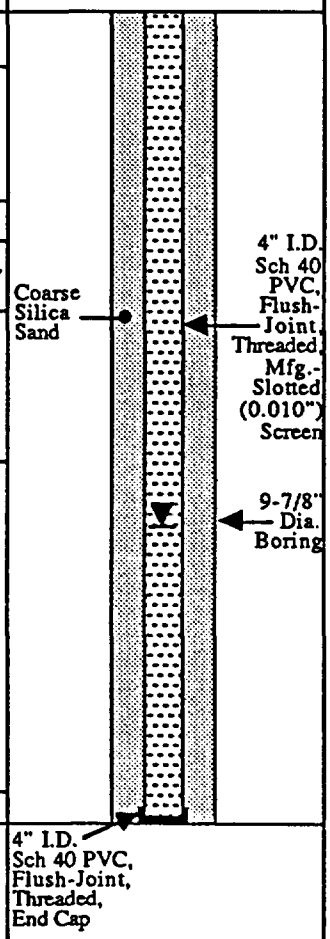
See footnotes at end of boring log.

Boring Log

ent	Fansteel Metals	Project No.	111	Boring No.	MW-64S
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	ASH
		Surface Elevation (ft/msl)	532.50		
Date Started	2/10/93	Bottom of Well (ft)	31.0	Checked By/Date	BES 3/1/93
Date Completed	2/10/93	Bottom of Boring (ft)	31.0	Page 2 of 2	

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description
							Clayey Silt - Same as Above
20.0	SS 5	NA	5.0	4, 3	470		Silty Sand - Med. Brown, Med.- to Fine-Grained, Damp
							Silt - Med. Reddish Brown, Stiff, Very Moist
22.5							Sand - Med. Brown, Some Dk. Gray Mottles, Med.- to Coarse-Grained, Strong Solvent Odor, Wet at 21.3'
25.0	SS 6		5.0	3, 3	0		Silt - Med. Brown, Wet
							Sand - Med. Brown, Coarse-Grained, Wet
27.5	SS 7		4.0	6, 0	0		
30.0							Shale - Med. Bluish Gray
32.5							

Well/Piezometer Construction Detail



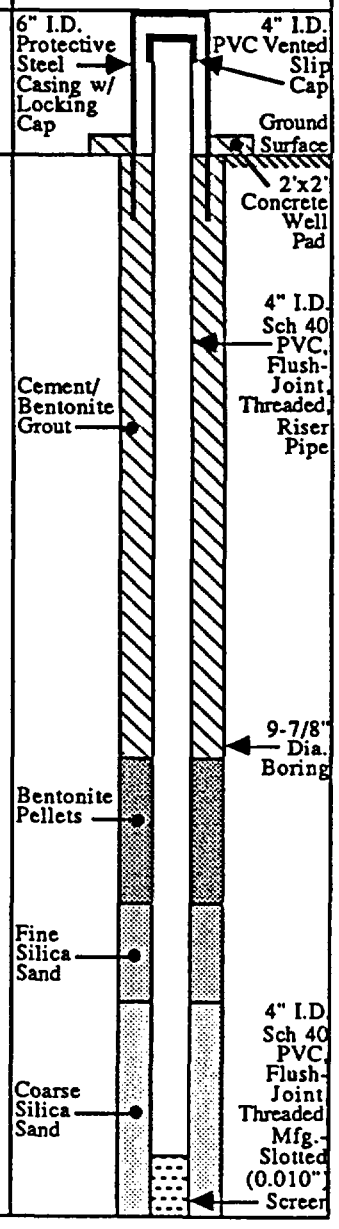
AU = Auger return.
SS = Split-barrel sample.
= Not applicable.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	MW-65S
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	RS
		Surface Elevation (ft/msl)	533.55		
Date Started	2/8/93	Bottom of Well (ft)	31.5	Checked By/Date	BES 3/1/93
Date Completed	2/8/93	Bottom of Boring (ft)	32.0	Page	1 of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description
0.0							
	SS 1	NA	2.0	0	450		Silty Clay - Med. Brown with Some Lithic Fragments, Rooted to 0.8', Damp - Becomes Med. Reddish Brown at 1.5'
2.5							
5.0	SS 2		5.0	0	450		- Becomes Very Dense from 5.5' to 7.0'
7.5							
10.0	SS 3		5.0	2-5	500		- Gray Fine-Grained Sand Pockets at 11.5'
12.5							
15.0	SS 4		5.0	15 20+	400		
17.5	SS 5		5.0	0	400		

Well/Piezometer Construction Detail



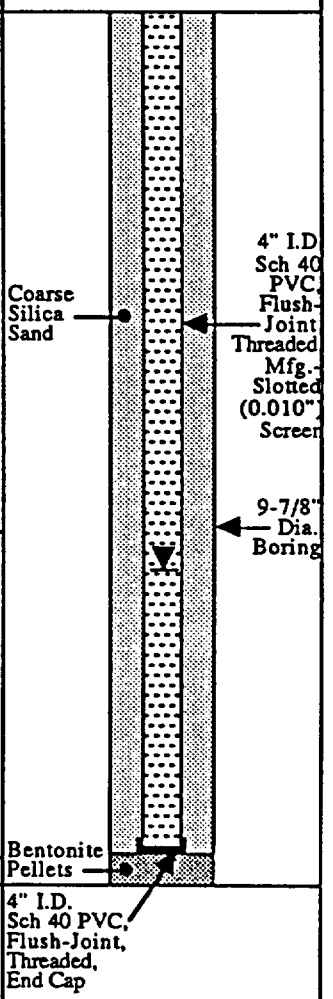
See footnotes at end of boring log.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	MW-65S
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	RS
		Surface Elevation (ft/msl)	533.55		
Date Started	2/8/93	Bottom of Well (ft)	31.5	Checked By/Date	BES 3/1/93
Date Completed	2/8/93	Bottom of Boring (ft)	32.0	Page	2 of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description
20.0	SS 5	NA	5.0	0	400		Silty Clay - Same as Above
22.5	SS 6	NA	5.0	0	400		
25.0							- Becomes Moist at 25.8'
					350		Sand - Lt. Reddish Brown, Med.-Grained, Well Sorted Saturated at 26.2'
27.5	SS 7	NA	5.0	NA	NA		
30.0							
							Shale - Black, Highly Weathered
32.5							
35.0							

Well/Piezometer Construction Detail



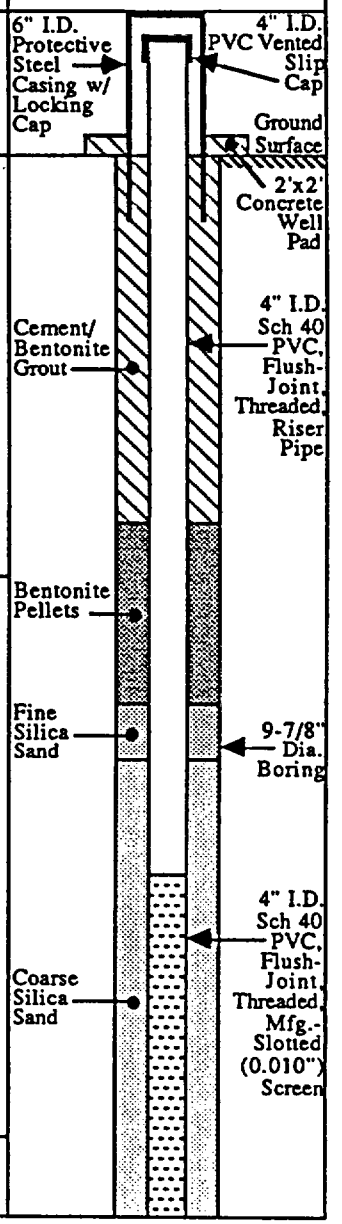
SS = Split-barrel sample.
NA = Not applicable.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	MW-68S
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	ASH
Date Started	2/10/93	Surface Elevation (ft/msl)	527.78	Checked By/Date	BES 3/1/93
Date Completed	2/10/93	Bottom of Well (ft)	26.8	Page	1 of 2
		Bottom of Boring (ft)	27.0		

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description
0.0							
	SS 1	NA	2.0	0	450		Silty Clay - Lt. Brown to Med. Orange Brown, Few Med. Gray to Lt. Gray Mottles, Abundant Black Organic Remnants, Dry to Damp
2.5							
5.0	SS 2		5.0	0	450		- Becomes Med. Reddish Brown at 5.2'
7.5							Clayey Sand - Mod. Reddish Brown with Some Med. Brown to Lt. Brown Mottles, Sand is Med.- to Fine-Grained, Damp
10.0	SS 3		5.0	0	450		
12.5							
15.0	SS 4		5.0	0	400		- Becomes Med. Grayish Brown at 15.8'
17.5	SS 5		5.0	0	350		Silty Clay - Med. Gray to Lt. Gray, Damp to Moist
					400		

Well/Piezometer Construction Detail



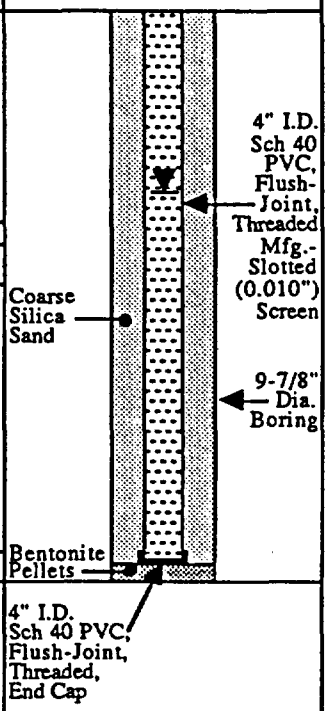
See footnotes at end of boring log.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	MW-68S
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	ASH
		Surface Elevation (ft/msl)	527.78		
Date Started	2/10/93	Bottom of Well (ft)	26.8	Checked By/Date	BES 3/1/93
Date Completed	2/10/93	Bottom of Boring (ft)	27.0	Page	2 of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description
20.0	SS 5	NA	5.0	0	400		Silty Clay - Same as Above
					450		Sand - Med. Brown, Med.- to Fine-Grained, Wet
							Clay - Med. Brown, Stiff, Moist
22.5	SS 6		5.0	0	0		Sand - Med. Brown, Med.- to Fine-Grained, Wet - Becomes Coarse- to Very Coarse-Grained at 22.5'
25.0							Shale - Med. Bluish Gray, Mod. Fissile, Moist
27.5							

Well/Piezometer Construction Detail



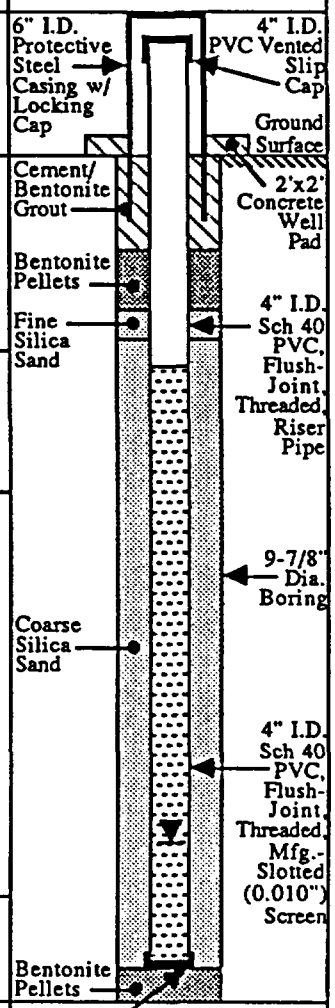
SS = Split-barrel sample.
NA = Not applicable.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	MW-69S
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	ASH
		Surface Elevation (ft/msl)	515.51		
Date Started	2/8/93	Bottom of Well (ft)	13.4	Checked By/Date	BES 3/1/93
Date Completed	2/8/93	Bottom of Boring (ft)	14.0	Page	1 of 1

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	
0.0								
2.5	SS 1	NA	3.0	0	500 450		Sandy Clay	- Dk. Brown, Sand is Fine- to Med.-Grained, Rooted to 3.0', Damp - Becomes Med. Brown to Lt. Brown at 1.5'
5.0	SS 2		4.9	0	450		Clayey Sand	- Med. Brown to Lt. Brown, Sand is Fine- to Med.-Grained, Well Sorted, Damp
7.5							Sand	- Med. Brown to Lt. Brown, Fine- to Med.-Grained, Damp
10.0	SS 3		5.0	0	400			- Becomes Med.- to Coarse-Grained, Moist at 11.0' - Med. Reddish-Brown Clay Streak from 12.0' to 12.3'
12.5	SS 4		1.0	0	0		Sand and Gravel	- Sand is Coarse- to Very Coarse-Grained, Subangular to Subrounded Gravel (≤1/4" in Dia.) is Composed of Sandstone and Shale, Saturated at 14.5' - Auger Refusal at 14.0'. Bedrock Encountered
15.0								

Well/Piezometer Construction Detail



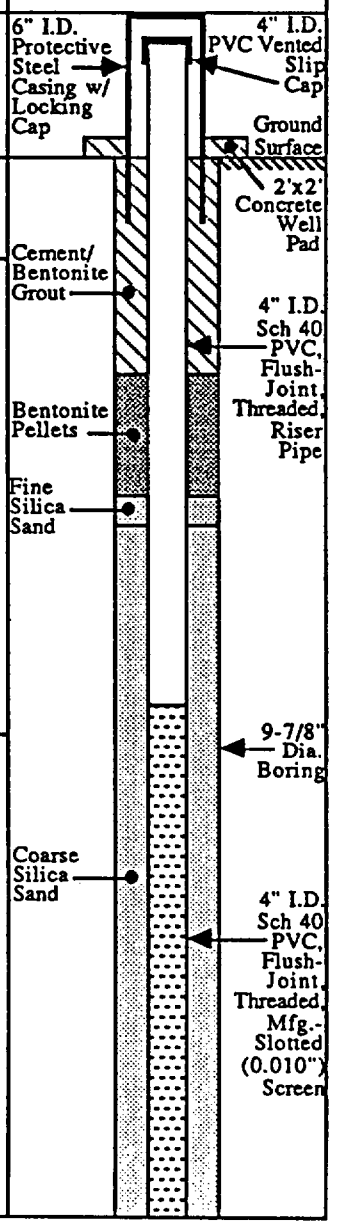
SS = Split-barrel sample.
NA = Not applicable.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	MW-71S
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	ASH
		Surface Elevation (ft/msl)	526.91		
Date Started	2/8/93	Bottom of Well (ft)	24.0	Checked By/Date	BES 3/1/93
Date Completed	2/8/93	Bottom of Boring (ft)	24.5	Page	1 of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description
0.0							
	SS 1	NA	2.0	4 / 0	450		**Sandy Clay** - Med. Brown, Cohesive, Trace Subangular Sandstone Fragments (≤1/2" in Dia.), Rooted to 2.5, Damp - Becomes Mod. Reddish Brown at 0.4'
2.5	SS 2		5.0	3	500		**Clayey Sand** - Mod. Brown, Sand is Fine- to Med.-Grained, Some Lithic Fragments (≤1/2" in Dia.) Predominantly Sandstone, Trace Wood Fragments, Loose, Damp
5.0							
7.5	SS 3		5.0	1	500		
10.0				0	400		**Sand** - Med. Brown, Fine- to Med.-Grained, Well Sorted, Dry to Damp
12.5	SS 4		5.0	0	500		- Becomes Med. Brown to Lt. Brown, Med.- to Coarse-Grained at 14.1'
15.0							
17.5	SS 5		5.0	1	550		

Well/Piezometer Construction Detail



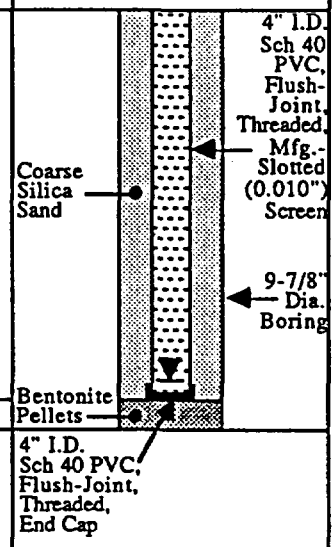
See footnotes at end of boring log.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	MW-71S
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	ASH
		Surface Elevation (ft/msl)	526.91		
Date Started	2/8/93	Bottom of Well (ft)	24.0	Checked By/Date	BES 3/1/93
Date Completed	2/8/93	Bottom of Boring (ft)	24.5	Page	2 of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description
20.0	SS 5	NA	5.0	1	550		Sand - Same as Above - Becomes Very Coarse-Grained at 18'
				0	450		
22.5	SS 6		2.0	0	0		- Becomes Wet at 22.2' with Some Subrounded to Subangular Gravel (≤1/4" in Dia.) Consisting Predominantly of Sandstone and Shale Fragments
25.0	SS 7		0.5	0	0		Sandstone - Med. Orange Brown, Very Coarse-Grained

Well/Piezometer Construction Detail



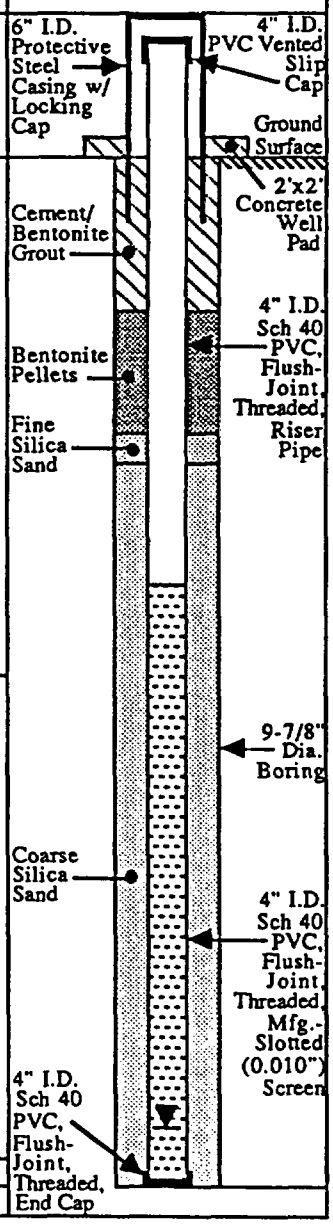
SS = Split-barrel sample.
NA = Not applicable.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	MW-74S
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	ASH
Date Started	2/9/93	Surface Elevation (ft/msl)	518.62	Checked By/Date	BES 3/1/93
Date Completed	2/9/93	Bottom of Well (ft)	17.0	Page	1 of 1
		Bottom of Boring (ft)	17.0		

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description
0.0							
2.5	SS 1	NA	2.0	0	475 400		Sandy Clay - Med. Brown to Dk. Brown, Mod. Stiff, Sand is Fine- to Med.-Grained, Trace Lithic Fragments - Becomes Med. Reddish Brown at 1.5'
5.0	SS 2		5.0	0	400 350		
7.5							
10.0	SS 3		5.0	0	375 350		Sand - Med. Brown to Lt. Brown, Fine- to Med.-Grained, Dry - Becomes Med.- to Coarse-Grained, Moist at 11.0'
12.5							
15.0	SS 4		3.0	0	350		- Saturated at 14.5' - Becomes Coarse-Grained, Wet at 15.0'
17.5	SS 5		2.0	0	0		Sandstone - Med. Brown, Very Coarse-Grained, Hard

Well/Piezometer Construction Detail



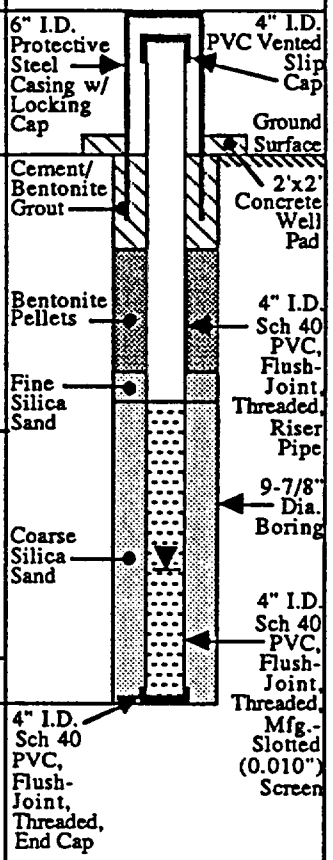
SS = Split-barrel sample.
NA = Not applicable.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	MW-75S
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	ASH
Date Started	2/9/93	Surface Elevation (ft/msl)	510.81	Checked By/Date	BES 3/1/93
Date Completed	2/9/93	Bottom of Well (ft)	9.0	Page	1 of 1
		Bottom of Boring (ft)	9.0		

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description
0.0							
	SS 1	NA	2.0	0	500 475		Clayey Sand - Med. Brown to Lt. Brown, Sand is Fine- to Med.-Grained, Trace Lithic Fragments (≤1/4" in Dia.) Consisting Predominantly of Sandstone, Rooted to 1.3', Damp
2.5							
	SS 2		5.0	0	450		
5.0							Sand - Med. Brown to Lt. Brown, Fine- to Med.-Grained, Well Sorted, Damp - Becomes Moist at 6.0' - Becomes Saturated at 6.5' - Becomes Coarse- to Very Coarse-Grained at 7.5'
7.5	SS 3		2.0	0	0		Shale - Med. Bluish Gray, Soft, Highly Weathered, Fissile, Damp
10.0							

Well/Piezometer Construction Detail



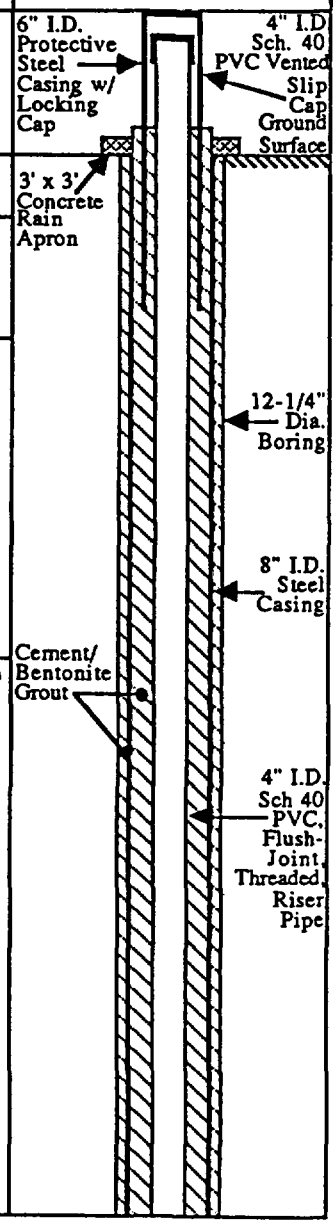
SS = Split-barrel sample.
NA = Not applicable.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	MW-151D
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	BES
		Surface Elevation (ft/msl)	540.55		
Date Started	2/15/93	Bottom of Well (ft)	70.0	Checked By/Date	RCH - 5/7/93
Date Completed	2/22/93	Bottom of Boring (ft)	85.0	Page	1 of 5

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Beta/Gamma Reading (cpm)	Profile	Profile Description
0.0							
2.5	SS 1	NA	2.5	<1	ND		Silty Clay Loam - Dusky Brown, Med., Stiff to Stiff, Rooted, Damp to Wet Silty Clay - Grayish Brown, Med. Stiff, Rooted, Damp - Becomes Moist from 1.2' to 1.5' - Med. Red Clay Layers from 1.8' to 2.4'
5.0	SS 2		5.0	<1	ND		Clay - Med. Brown to Lt. Brown, Very Stiff to Hard, Trace Silt, Rooted to 6.5', Dry - Few Dk. Yellowish-Orange Mottles from 4.2' - Few Dk. Gray, Med.- to Coarse-Grained Sandstone Fragments (≤1/8" in Dia.) from 5.4' to 8.2'
7.5							
10.0	SS 3		5.0	<1	ND		Sandy Clay - Dk. Yellowish Orange with Pale Yellowish-Brown Mottling, Very Hard, Sand is Fine-Grained, Dk. Reddish-Brown, Well-Rounded Limonite or Iron Concretions (<1/8" in Dia.) Throughout - Few Grayish-Black (N-2) Mottles from 10'
12.5							
15.0	SS 4		5.0	<1	ND		
17.5							

Well/Piezometer Construction Detail



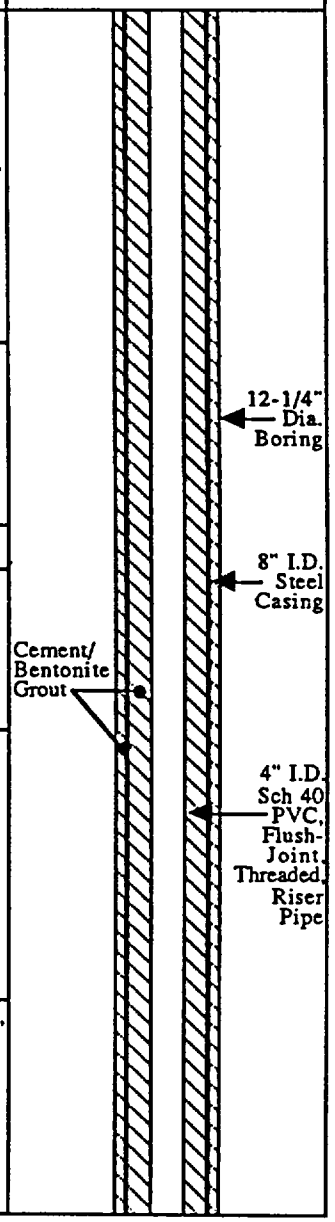
See footnotes at end of boring log.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	MW-151D
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	BES
		Surface Elevation (ft/msl)	540.55		
Date Started	2/15/93	Bottom of Well (ft)	70.0	Checked By/Date	RCH - 5/7/93
Date Completed	2/22/93	Bottom of Boring (ft)	85.0	Page	2 of 5

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Beta/Gamma Reading (cpm)	Profile	Profile Description
20.0 – 22.5	SS 5	NA	5.0	<1	ND		Sandy Clay - Same as Above - Becomes Dusky Red to Dk. Reddish Brown at 20.3' - Becomes Damp at 20.5'
25.0 – 27.5	SS 6	NA	5.0	<1	ND		Clayey Sand - Dusky Red to Med. Red, Sand is Fine- to Med.-Grained, Moist
							Sand - Grayish Orange, Med.- to Coarse-Grained, Moist
							Silty Clay - Dusky Red with Few Grayish-Black Mottles, Very Stiff, Coarse-Grained Wet Sand Lenses Throughout, Damp - Becomes Wet at 27.7'
30.0 – 32.5	SS 7	NA	5.0	<1	ND		Sand - Lt. Gray to Lt. Brown, Med.- to Coarse-Grained, Wet - Becomes Very Coarse-Grained with Trace Gravel (≤1/8" in Dia.) and Dk. Gray Subrounded Shale Fragments at 31.5'
35.0	SS 8	NA	2.5	<1	ND		Shale - Med. Bluish Gray to Med. Gray, Highly Weathered, Soft to 35' - Auger Refusal at 35.0'
37.5	WR	NA	NA	NA	NA		

Well/Piezometer Construction Detail



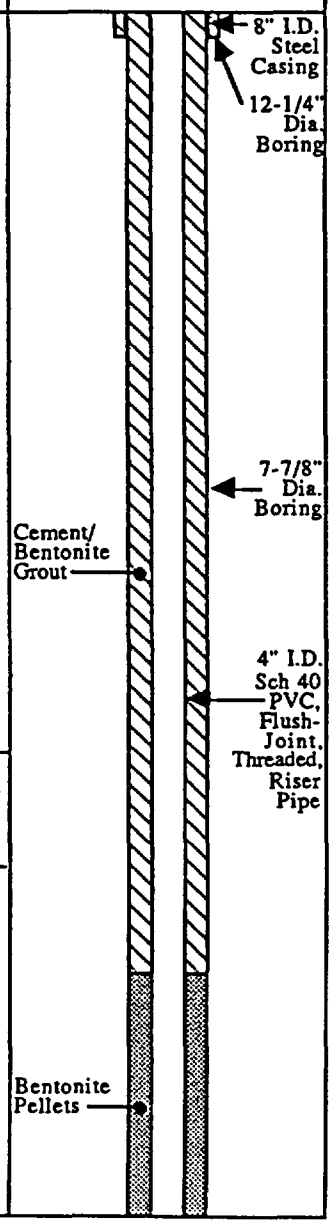
See footnotes at end of boring log.

Boring Log

ent	Fansteel Metals	Project No.	111	Boring No.	MW-151D
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	BES
		Surface Elevation (ft/msl)	540.55		
Date Started	2/15/93	Bottom of Well (ft)	70.0	Checked By/Date	RCH - 5/7/93
Date Completed	2/22/93	Bottom of Boring (ft)	85.0	Page	3 of 5

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Beta/Gamma Reading (cpm)	Profile	Profile Description
	WR	NA	NA	NA	NA		Shale - Med. Dk. Gray (N-4), Siliceous, Laminations Angled Slightly (~5°), Horizontal Fractures and Some 45° Fractures, No Staining Evident, Some Spalling of Core Fragments
40.0	Core 1	19%	43	<1	Range 40-80		
42.5							
45.0	Core 2	90%	62	<1	Range 40-95		- Becomes More Competent at 45.54' - No Return from 46.0' to 49.75' - Regain Return and Grayish Black Clay, Soft at 49.75'
47.5							
50.0							
							Sandy Shale - Lt. Gray (N-7), Thin Laminations, Fractured Along Bedding Planes, Some Shale Partings and Pressure-Solution Features Similar to Styolites, Interlaminated with Dk. Gray (N-4) Shale, Lt. Gray Laminae are Calcareous, Dk. Gray are Siliceous and Hard
52.5	Core 3	85%	62	<1	Range 40-80		Shale - Med. Dk. Gray (N-4), Soft, Fissile, Clay Rich, Few Fractures, Sharp Contact with Overlying Sandy Shale - Fractured from 52.3' to 52.5' and 53.55' to 56.0', No Staining Evident - Becomes Grayish Black (N-2) at 53.05' - Core Dry when Broken
55.0							
57.5	Core 4	18%	57	<1	Range 40-80		

Well/Piezometer Construction Detail



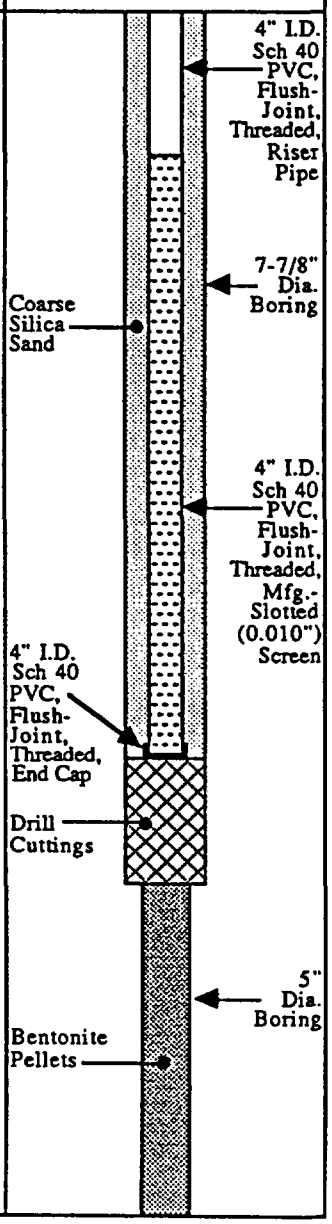
See footnotes at end of boring log.

Boring Log

'ent	Fansteel Metals	Project No.	111	Boring No.	MW-151D
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	BES
		Surface Elevation (ft/msl)	540.55		
Date Started	2/15/93	Bottom of Well (ft)	70.0	Checked By/Date	RCH - 5/7/93
Date Completed	2/22/93	Bottom of Boring (ft)	85.0	Page 4 of 5	

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Beta/Gamma Reading (cpm)	Profile	Profile Description
60.0	Core 4	18%	57	<1	Range 40-80		Shale - Same as Above - Becomes Med. Lt. Gray (N-7), Slightly Harder from 59.1' to 59.35' - Becomes Med. Hard, Slighly Fissile, Siliceous with Some Clay-Filled Horizontal Fractures at 62.7', 63.4', 64.2', and 64.65' - Fractured at 30° Angle from 64.4' to 64.5', Shale Grades to Dk. Gray (N-3)
62.5							
65.0							
67.5	Core 5	68%	94	<1	Range 40-100		- Highly Fractured from 65.0' to 68.3', Horizontal Fractures with No Staining, Very Fissile, Shale Partings Evident Along Fracture Surfaces - Bedding Plane Fractures (~10° Angle) from 66.73' to 67.13' - Some Clay Filling at 67.8' and 68.2'
70.0							
72.5							
75.0							
77.5	Core 6	95%	99	<1	Range 40-90		

Well/Piezometer Construction Detail



See footnotes at end of boring log.

Boring Log

ent	Fansteel Metals	Project No.	111	Boring No.	MW-151D
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	BES
		Surface Elevation (ft/msl)	540.55		
Date Started	2/15/93	Bottom of Well (ft)	70.0	Checked By/Date	RCH - 5/7/93
Date Completed	2/22/93	Bottom of Boring (ft)	85.0	Page 5 of 5	

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Beta/Gamma Reading (cpm)	Profile	Profile Description	Well/Piezometer Construction Detail
80.0 82.5 85.0	Core 6	95%	99	<1	Range 40-90		Shale - Same as Above - Zone of Thin Horizontal Fractures from 79.90' to 80.35', Very Soft - Horizontal Fractures with Clay Filling at 80.85', 81.45', and 82.93'	Bentonite Pellets 5" Dia. Boring
87.5								

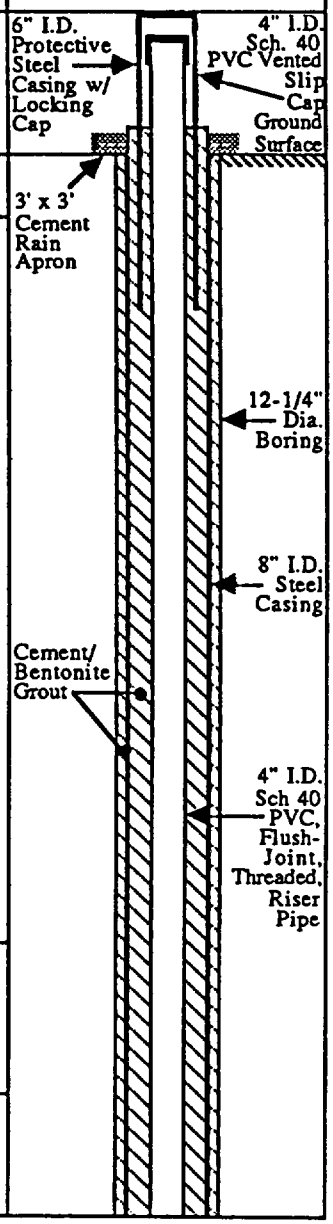
SS = Split-barrel sample.
ND = Not detected.
= Not applicable.
WR = Water rotary.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	MW-161D
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	BES
		Surface Elevation (ft/msl)	522.16		
Date Started	2/15/93	Bottom of Well (ft)	46.0	Checked By/Date	RCH - 5/7/93
Date Completed	2/23/93	Bottom of Boring (ft)	67.0	Page	1 of 4

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (%)	H-Nu Reading (ppm)	Beta/Gamma Reading (cpm)	Profile	Profile Description
0.0							
2.5	SS 1	NA	100	<1	ND		Sandy Clay Loam - Mod. Brown to Grayish Brown, Sand is Med.- to Fine- Grained, Rooted, Moist Silty Clay - Mod. Brown to Lt. Brown, Trace Fine-Grained Sand, Rooted, Moist - Becomes Dk. Reddish Brown to Mod. Reddish Brown at 2.3'
5.0	SS 2		90	<1	ND		- Becomes Mod. Red to Lt. Red, Very Stiff at 3.2', Inclusions of Black Organic Material to 7.0'
7.5							
10.0	SS 3		100	<1	ND		- Becomes Mod. Brown to Lt. Brown with Few Dk. Gray Granular Inclusions from 10.2'
12.5							
15.0	SS 4		74	<1	ND		Sandy Clay - Mod. Yellowish Brown to Dk. Yellowish Orange, Sand is Fine- to Med.-Grained, Few Roots, Very Moist to Wet
17.5							Sand - Mod. Reddish Orange, Med.- to Coarse-Grained, Mod. Sorted, Wet - Sandy Clay Streaks (0.15' Thick) at 15.95' and 16.75'

Well/Piezometer Construction Detail



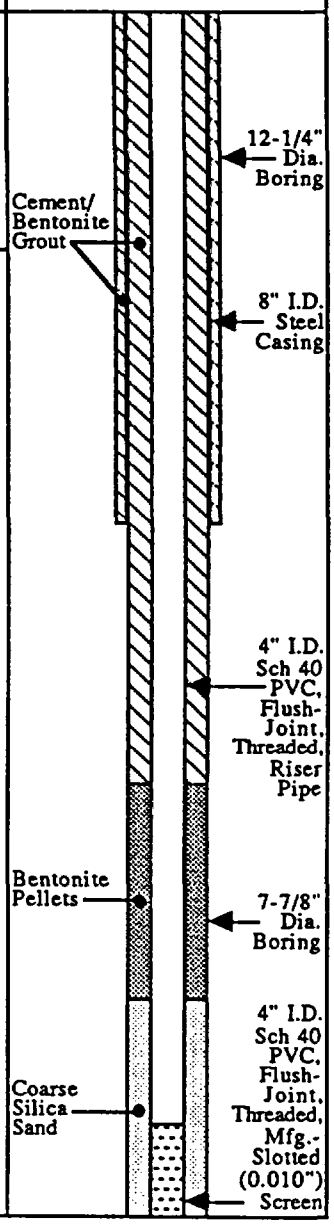
See footnotes at end of boring log.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	MW-161D
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	BES
		Surface Elevation (ft/msl)	522.16		
Date Started	2/15/93	Bottom of Well (ft)	46.0	Checked By/Date	RCH - 5/7/93
Date Completed	2/23/93	Bottom of Boring (ft)	67.0	Page	2 of 4

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (%)	H-Nu Reading (ppm)	Beta/Gamma Reading (cpm)	Profile	Profile Description
20.0	SS 5	NA	80	<1	ND		Sand - Same as Above
22.5							Shale - Bluish Gray, Soft, Slightly Weathered, Moist
25.0	WR		NA	NA	NA		- Becomes Harder, More Competent at 24'
27.5	Core 1	57%	61	<1	Range 40-60		- Becomes Dk. Gray (N-3), Hard, Slightly Fissile, Carbonaceous, Bedding Nearly Horizontal, Some Fossil Traces (Pelicipods and Brachiopods), Slightly Calcareous Along Fossil Traces, Core Dry when Broken
30.0							- Horizontal Fractures at 29.43' and 29.57'
32.5							- Thin White (N-9) Calcareous Laminations at 31.35' - Clay Filled Solution Vugs at 31.55'
35.0							
37.5	Core 2	41%	99	<1	SNP		- Dusky Yellowish-Brown Chert Nodules from 36.4' to 36.5'

Well/Piezometer Construction Detail



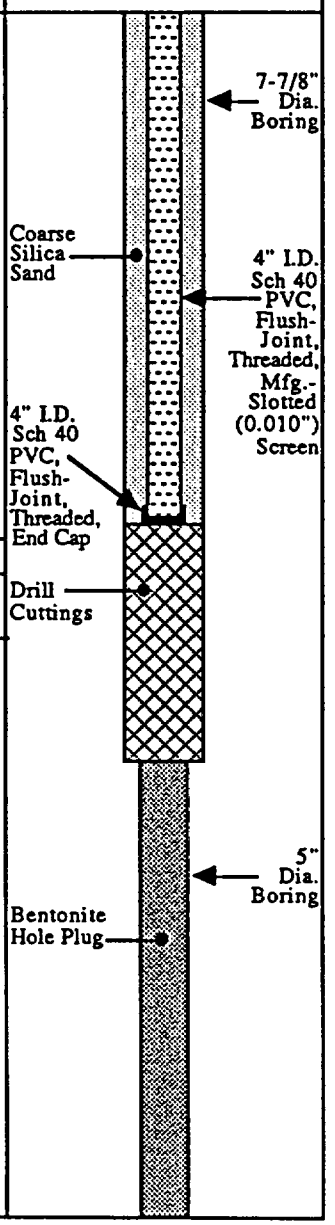
See footnotes at end of boring log.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	MW-161D
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	BES
		Surface Elevation (ft/msl)	522.16		
Date Started	2/15/93	Bottom of Well (ft)	46.0	Checked By/Date	RCH - 5/7/93
Date Completed	2/23/93	Bottom of Boring (ft)	67.0	Page	3 of 4

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (%)	H-Nu Reading (ppm)	Beta/Gamma Reading (cpm)	Profile	Profile Description
40.0							Shale - Same as Above - Pyrite Nodule at 38.55'
42.5	Core 2	41%	99	<1	Range 40-80		- Horizontal Fractures from 40.1' to 40.35' - Numerous Small Vugs (≤1/8" in Dia.) from 40.35' to 41.0' - Becomes Very Soft, Highly Fractured with Numerous Clay Filled Zones, Wet at 41.0'
45.0							- Becomes Med. Dk. Gray (N-4), Soft at 45.2' - Brown Clay Lamination at 45.95'
							Coal - Black (N-1) with Thin (0.02') Pyrite Bed at 46.25'
47.5							Clay Shale - Olive Gray (5Y 3/2), Soft at Coal Interface
							Silty Shale - Med. Gray (N-5), Med. Hard, Slightly Fissile, Siliceous
50.0							- Clay-Filled Fracture at 49.57', Clay is Pale Green (10G 6/2) - Gray (N-5) Clay-Filled Fractures at 50.2' and 53.95' - Core is Dry when Broken
52.5	Core 3	92%	100	<1	Range 40-80		
55.0							- Fractured with Minor Clay Filling from 54.8' to 55.6' - Numerous Convoluted Laminae Similar to Styolite Formations Throughout from 56'
57.5	Core 4	95%	93	<1	SNP		- Fractured from 57.0' to 57.28'

Well/Piezometer Construction Detail



See footnotes at end of boring log.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	MW-161D
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	BES
		Surface Elevation (ft/msl)	522.16		
Date Started	2/15/93	Bottom of Well (ft)	46.0	Checked By/Date	RCH - 5/7/93
Date Completed	2/23/93	Bottom of Boring (ft)	67.0	Page	4 of 4

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (%)	H-Nu Reading (ppm)	Beta/Gamma Reading (cpm)	Profile	Profile Description	Well/Piezometer Construction Detail
60.0							Silty Shale - Same as Above	
62.5	Core 4	95%	93	<1	Range 40-80			Bentonite Hole Plug; 5" Dia. Boring
65.0								
67.5								

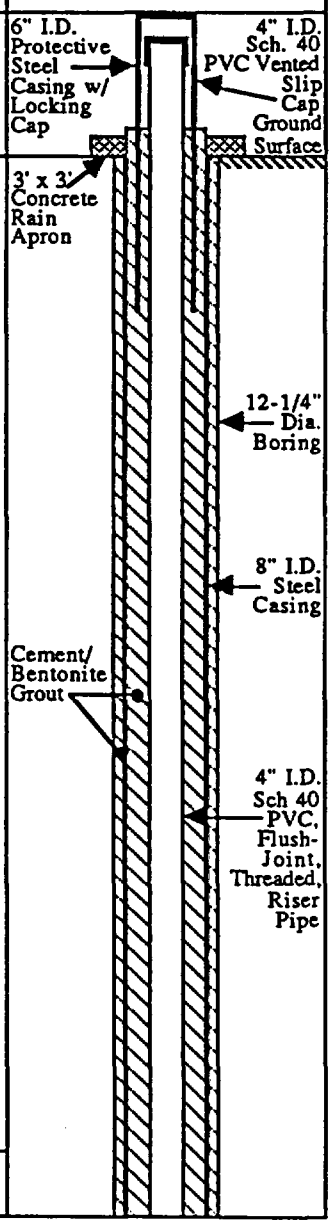
SS = Split-barrel sample.
ND = Not detected.
= Not applicable.
WR = Water rotary.
SNP = See next page.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	MW-167D
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	BES
		Surface Elevation (ft/msl)	527.50		
Date Started	2/15/93	Bottom of Well (ft)	53.0	Checked By/Date	RCH - 5/7/93
Date Completed	2/24/93	Bottom of Boring (ft)	76.6	Page	1 of 4

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (%)	H-Nu Reading (ppm)	Beta/Gamma Reading (cpm)	Profile	Profile Description
0.0							
2.5	SS 1	NA	2.2	<1	NM		Fill - Mod. Reddish-Brown to Red Sandy Clay, Sand is Med.-Grained, Stiff, Moist
5.0	SS 2	NA	5.0	<1	NM		- Becomes Intermixed with Gray Rounded Shale and Limestone Lithic Fragments at 3.1' - Becomes Yellowish Brown at 4.7'
7.5							
10.0	SS 3	NA	4.7	<1	NM		- Sparsely Intermixed with Dk. Brown Wood Fragments from 10.2' - Becomes More Homogenous Sandy Clay at 10.8' with Few Lithic Fragments
12.5							
15.0	SS 4	NA	3.25	<1	NM		- Becomes Highly Stratified Mixture of Black Organic Material and Variegated Reddish-Brown to Greenish-Blue Sandy Clay with Some Brown, Orange, and Red; Beds Range in Thickness from 0.01' to 0.20', Ammonia Odor, Dry from 14.3' to 17.0'
17.5							Clay - Med. Brown, Stiff, Some Silt, Trace Fine-Grained Sand, Dry to Damp - Becomes Moist at 17.5'

Well/Piezometer Construction Detail



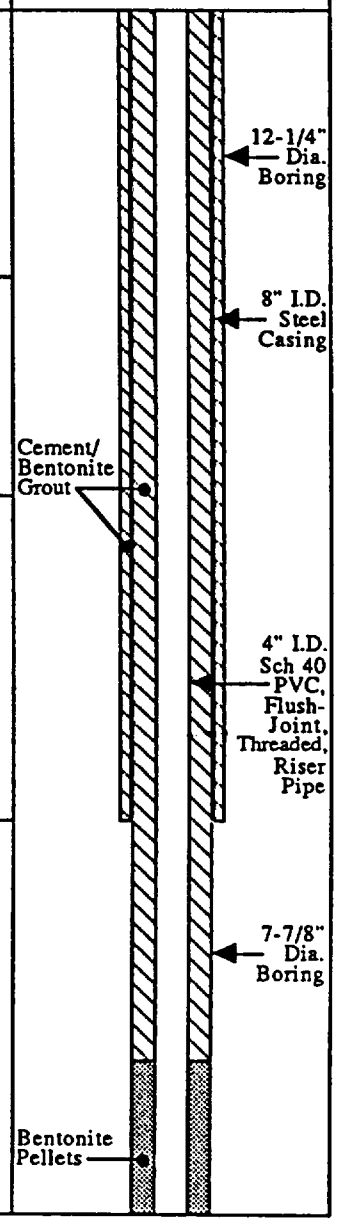
See footnotes at end of boring log.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	MW-167D
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	BES
		Surface Elevation (ft/msl)	527.50		
Date Started	2/15/93	Bottom of Well (ft)	53.0	Checked By/Date	RCH - 5/7/93
Date Completed	2/24/93	Bottom of Boring (ft)	76.6	Page	2 of 4

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (%)	H-Nu Reading (ppm)	Beta/Gamma Reading (cpm)	Profile	Profile Description
20.0	SS 5	NA	4.6	<1	NM		Clay - Same as Above - Becomes Wet at 18.0' - Grayish-Black Residue from 19.5' to 23.4'
22.5							Sand - Grayish Black, Med.- to Coarse-Grained, Well Sorted, Wet - Black, Orange, and Bluish-Gray Laminations from 23.4' to 25.6'
25.0	SS 6		5.0	<1	NM		
27.5							Silty Shale - Bluish Gray, Very Soft with Yellowish-Orange Staining, Highly Weathered, Dry
	SS 7		1.5	<1	NM		
30.0	WR		NA	NA	NA		- Auger Refusal at 29.0'
32.5	Core 1	73%	98.5	<1	Range 40-100		Shale - Med. Dk. Gray (N-4), Med. Soft, Weathered and Fractured to 33.3', Siliceous - Becomes Very Competent, Slightly Fissile with Thin Grayish-Black (N-2) Shale Laminations at 33.5' - Fractured Horizontally and at 30° Angles with Minor Clay Filling and Brecciation, Some Dk. Brown Staining from 35.33' to 35.53'
35.0							
37.5							

Well/Piezometer Construction Detail



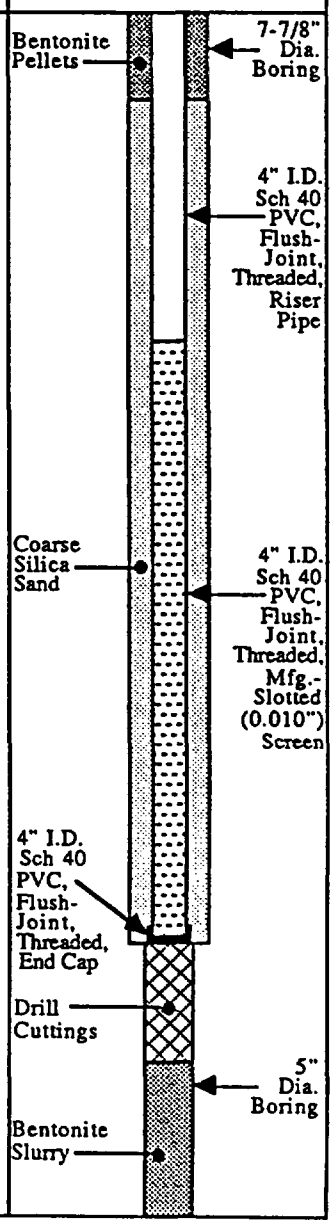
See footnotes at end of boring log.

Boring Log

ent	Fansteel Metals	Project No.	111	Boring No.	MW-167D
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	BES
		Surface Elevation (ft/msl)	527.50		
Date Started	2/15/93	Bottom of Well (ft)	53.0	Checked By/Date	RCH - 5/7/93
Date Completed	2/24/93	Bottom of Boring (ft)	76.6	Page 3 of 4	

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (%)	H-Nu Reading (ppm)	Beta/Gamma Reading (cpm)	Profile	Profile Description
40.0	Core 1	73%	98.5	<1	Range 40-100		Shale - Same as Above - Fractured Horizontally with some at 30° Angles, Some Clay Filling and Dk. Brown Staining, Slightly Brecciated from 37.0' to 37.2', 37.6' to 37.7', and 38.0' to 38.1' - Near Vertical Fracture from 40.3' to 41.0'
42.5 45.0 47.5 50.0	Core 2	17.4%	31.7	<1	Range 20-80		- Return of 3.17' Likely from Upper Portion of the 10' Run from 41', Lost Water to Formation - Bedding Becomes Very Convoluted with Dusky Yellowish-Brown Clay Replacement in Some Openings; Some Lt. Gray Clay Infilling at 41' - Streak of Coarse Sand in Clay Matrix from 41.57' to 41.67' - Pyrite Nodules at 41.77', 42.34', 43.0', and 43.1' - Chert Layer from 42.55' to 42.60' - Fractured; Horizontally, at 30° Angles, and Near Vertical from 42.15' to 42.65'
52.5 55.0 57.5	Core 3	67%	93	<1	NM		- Becomes Med. Dk. Gray (N-4), Silty, Interlaminated with Lt. Brownish-Gray Laminae, Convoluted from 51.65' to 52.78' - Gradual Color Transition to Dk. Grayish Black (N-2) with White (N-9) Calcareous Interlaminations, Siliceous, Silty at 53.0', Horizontal and Bedding Plane Fractures to 55.0' - 45° Angle Fractures from 54.8' to 55.0' and 56.45' to 56.65', Pyrite Accumulation Along Fracture Surfaces, Some Clay Filling

Well/Piezometer Construction Detail



See footnotes at end of boring log.

Boring Log

ent	Fansteel Metals	Project No.	111	Boring No.	MW-167D
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	BES
		Surface Elevation (ft/msl)	527.50		
Date Started	2/15/93	Bottom of Well (ft)	53.0	Checked By/Date	RCH - 5/7/93
Date Completed	2/24/93	Bottom of Boring (ft)	76.6	Page 4	of 4

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (%)	H-Nu Reading (ppm)	Beta/Gamma Reading (cpm)	Profile	Profile Description	Well/Piezometer Construction Detail
60.0	Core 3	67%	93	<1	NM		Shale - Same as Above	
62.5							Silty Shale - Grayish Black (N-2), with White (N-9) Calcareous Interlaminae, Breaks Along Bedding Planes, Some Pyrite Replacement of Laminae - Lost 7' of Recovery Down Hole out of Core Barrel	Bentonite Slurry 5" Dia. Boring
65.0	Core 4	100%	30	<1	NM			
67.5								
70.0							- Core Barrel Filled, Recovered 4.2' of Missing 7.0' of Core Run No. 4	
72.5	Core 5	100%	100	<1	NM		- Calcite-Healed Fractures at 30° Angles at 73.2' and 73.5'	
75.0								
77.5								

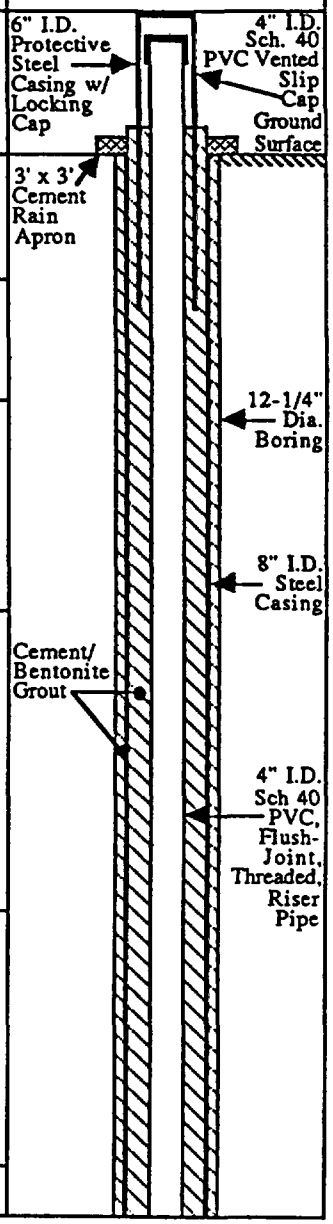
SS = Split-barrel sample.
NM = Not measured.
= Not applicable.
WR = Water rotary.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	MW-174D
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	BES
		Surface Elevation (ft/msl)	518.51		
Date Started	2/15/93	Bottom of Well (ft)	38.0	Checked By/Date	RCH - 5/7/93
Date Completed	2/25/93	Bottom of Boring (ft)	73.3	Page	1 of 4

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (%)	H-Nu Reading (ppm)	Beta/Gamma Reading (cpm)	Profile	Profile Description
0.0							
2.5	SS 1	NA	100	<1	NM		Sandy Clay - Med. Reddish Brown, High Content of Med.-Grained Sand, Rooted, Dry to Damp
							Clay - Med. Brown, Stiff, Trace Sand, Rooted, Damp
5.0	SS 2		100	<1	NM		Sandy Clay - Orange Brown, Rooted, Gradational Contact, Dry
7.5							
10.0	SS 3		48	<1	NM		Clayey Sand - Med. Brown, Stiff, Rooted, Gradational Color Change and Clay Content Reduction, Dry
12.5							
15.0	SS 4		76	<1	NM		Sand - Orange Brown, Med.-Grained Grading to Coarse-Grained at Depth, Moist - Becomes Wet at 15.27'
17.5							Shale -Dk. Gray (N-3), Soft to 17.2' then Becomes Very Hard, Weathered

Well/Piezometer Construction Detail



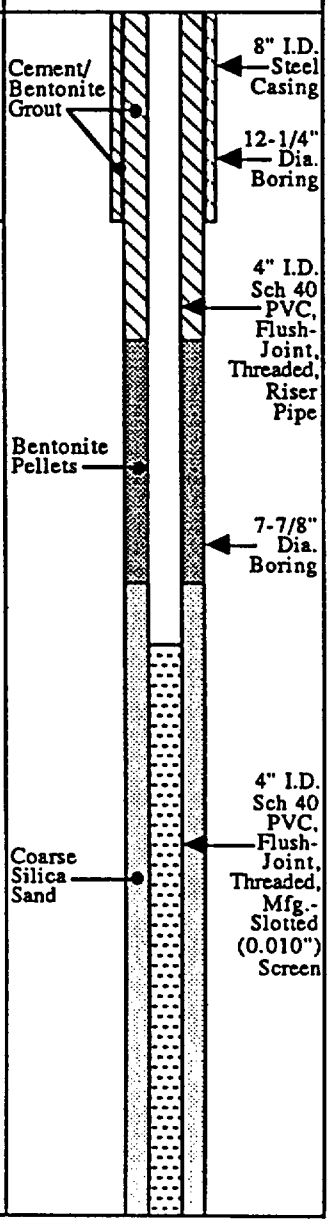
See footnotes at end of boring log.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	MW-174D
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	BES
Date Started	2/15/93	Surface Elevation (ft/msl)	518.51	Checked By/Date	RCH - 5/7/93
Date Completed	2/25/93	Bottom of Well (ft)	38.0	Page	2 of 4
		Bottom of Boring (ft)	73.3		

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (%)	H-Nu Reading (ppm)	Beta/Gamma Reading (cpm)	Profile	Profile Description
20.0	WR	NA	NA	NA	NA		Shale - Same as Above
22.5	Core 1	89%	88.2	<1	Range 20-80		Silty Shale - Grayish Black (N-2), Med. Soft, Slightly Fissile, Tightly Compacted Along Bedding Planes, Some Sporadic Pyrite Crystals Along Bedding Planes, Carbonaceous or Siliceous, Slightly Fractured but Confined to Isolated Zones as Follows: - Brownish-Gray Clay Accumulation and Some Brown Staining, Calcite Precipitation Evident Along Bedding Plane Fracture from 21.83' to 21.97' - Some Clay Filling and Calcite Precipitation Along Bedding Plane Fracture, Brecciated from 22.53' to 23.17' - Clay and Calcite Infilling at 23.65' - Calcite Precipitation Along Fracture (~30° Plane) at 24.70' - Calcite Precipitation and Some Clay Filling, Some Brecciation, Fractured Along 30° Plane at 26.05'
25.0							
27.5							
30.0							- Brecciated with Some Clay Filling and Calcite Precipitation, Fractured Along Bedding and 30° Planes from 28.53' to 28.64'
32.5	Core 2	0%	71(1)	<1	Range 20-80		- Becomes Highly Fractured with Horizontal, Bedding Plane, 30° Plane and near Vertical Fractures at 31.0' - Pyrite Nodules from 32.5' to 33'
35.0							- No Fractures from 35.75' to 38.47'
37.5							

Well/Piezometer Construction Detail



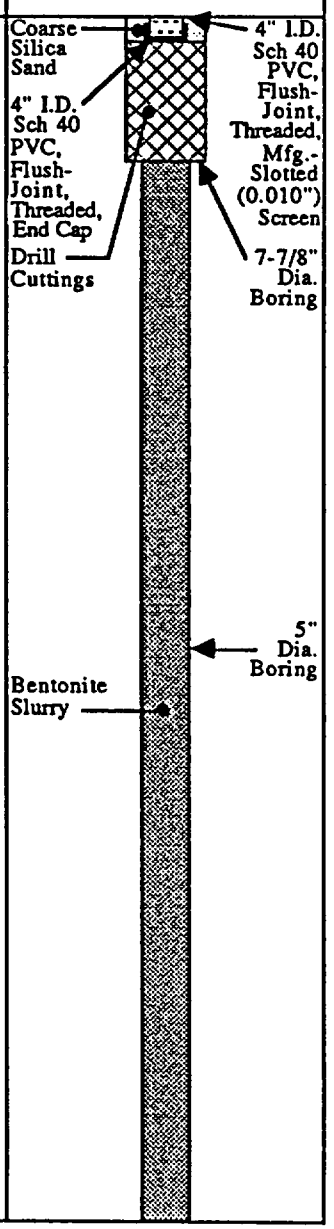
See footnotes at end of boring log.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	MW-174D
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	BES
		Surface Elevation (ft/msl)	518.51		
Date Started	2/15/93	Bottom of Well (ft)	38.0	Checked By/Date	RCH - 5/7/93
Date Completed	2/25/93	Bottom of Boring (ft)	73.3	Page	3 of 4

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (%)	H-Nu Reading (ppm)	Beta/Gamma Reading (cpm)	Profile	Profile Description
	Core 2	0%	71	<1	SAA		Silty Shale - Same as Above - Numerous Horizontal Fractures from 38.35' to 44.0' with Breccia in Place - Pyrite Nodules at 38.35', 40.25', and 41.13'
40.0							- Fracture Along 30° Plane at 40.05'
42.5	Core 3	69%	97	<1	Range 40-100		- Pyrite Nodules from 42.55' to 42.58
45.0							- Pyrite Vein from 44.75' to 44.8' - Fractured from 45.25' to 45.3' - Void Area from 45.93' to 46.15'
47.5							
							- Slight Color Variation Becomes Med. Dk. Gray (N-4), Fractured Return, Core was Dry when Broken at 48'
50.0							- Becomes Grayish Black (N-2), Carbonaceous from 49.5' to 51.0'
52.5	Core 4	15%	32	<1	Range 20-80		- Block in Core Barrel, Run Advanced 15' with no Return from 52' to 63'
55.0							
57.5							

Well/Piezometer Construction Detail



See footnotes at end of boring log.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	MW-174D
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	BES
		Surface Elevation (ft/msl)	518.51		
Date Started	2/15/93	Bottom of Well (ft)	38.0	Checked By/Date	RCH - 5/7/93
Date Completed	2/25/93	Bottom of Boring (ft)	73.3	Page 4 of 4	

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (%)	H-Nu Reading (ppm)	Beta/Gamma Reading (cpm)	Profile	Profile Description	Well/Piezometer Construction Detail
60.0	Core 4	15%	32	<1	Range 20-80		Silty Shale - Same as Above	
62.5								Bentonite Slurry; 5" Dia. Boring
65.0	Core 5	91%	92	<1	Range 20-80		- Fracture at 30° Plane at 64.7'	
67.5								
70.0								
72.5							- Fracture at 45° Plane from 72.5' to 72.9' with Calcite Precipitation Evident Along Plane	
75.0								

SS = Split-barrel sample.
ND = Not detected.
NA = Not applicable.
WR = Water rotary.
SA = Same as above.
NM = Not measured.

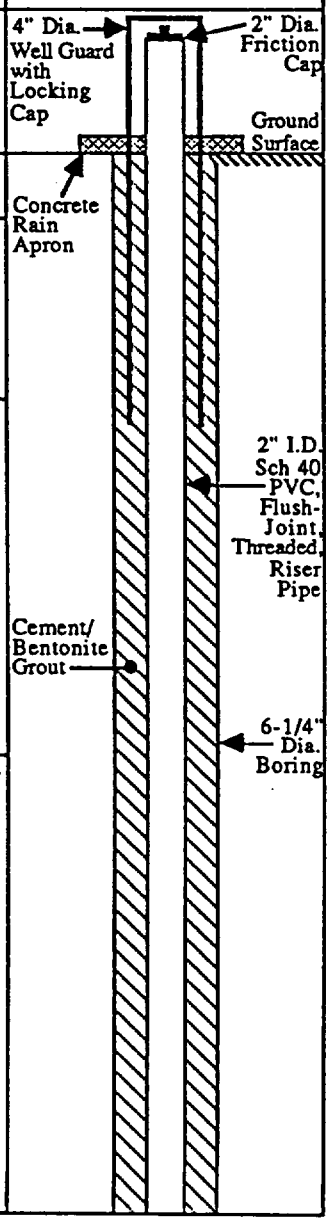
(1) Only 5 of 7 feet was recovered that could be attributed to the second core run. An additional 2.12 feet of core was removed above this interval which had likely fallen from the first core run during removal. This was evidenced by a piece of copper wire and fragments of the concrete base of the drive shoe above the materials cored during this second run.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	OW-1
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	RGD
		Surface Elevation (ft/msl)	537.43		
Date Started	4/3/93	Bottom of Well (ft)	34.5	Checked By/Date	ASH - 4/18/93
Date Completed	4/3/93	Bottom of Boring (ft)	35.5	Page	1 of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (%)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description
0.0							
	SS 1	NA	2.0	NM	NM		Gravel
2.5							Silt and Clay - Lt. Brown (5YR 5/6) and Mod. Yellowish Brown (10YR 5/4), Mottled, Damp
	SS 2		3.0				
5.0							Clay - Pale Yellowish Brown (10YR 6/2) and Lt. Brown (5YR 6/4), Mottled, Plastic, Stiff, Damp
7.5							
	SS 3		5.0				
10.0							Silt and Clay - Pale Yellowish Brown (10YR 6/2) and Dk. Yellowish Orange (10YR 6/6), Mottled, Damp
12.5							
15.0	SS 4		3.0				- Some Black (N-1) Inclusions from 15.0'
17.5	SS 5		3.0				

Well/Piezometer Construction Detail



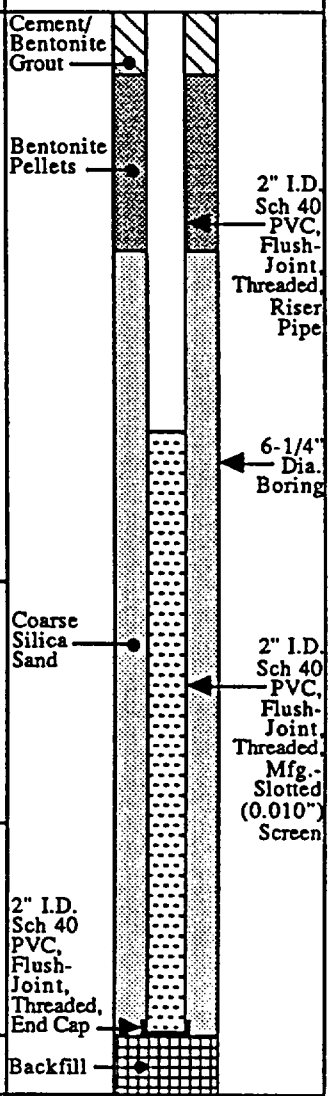
See footnotes at end of boring log.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	OW-1
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	RGD
		Surface Elevation (ft/msl)	537.43		
Date Started	4/3/93	Bottom of Well (ft)	34.5	Checked By/Date	ASH - 4/18/93
Date Completed	4/3/93	Bottom of Boring (ft)	35.5	Page	2 of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description
20.0	SS 5	NA	3.0	NM	NM		Silt and Clay - Same as Above
22.5	SS 6		5.0				- Clay Fraction Increases at 24.0', Becomes Lt. Brown (5YR 5/6) with Black (N-1) Inclusions, Moist
25.0							
27.5	SS 7		3.0				Sand and Clay - Lt. Brown (5YR 5/6), Soft, Sand is Well Sorted, Wet
30.0							
32.5	AU		NA				Sand - Lt. Brown (5YR 5/6) and Grayish Orange (10YR 7/4), Well Sorted, Wet - Heaving Sand from 32.0', No Return
35.0							Shale - Inferred from Drilling, Pressure Increase, No Rock Recovered
37.5							

Well/Piezometer Construction Detail



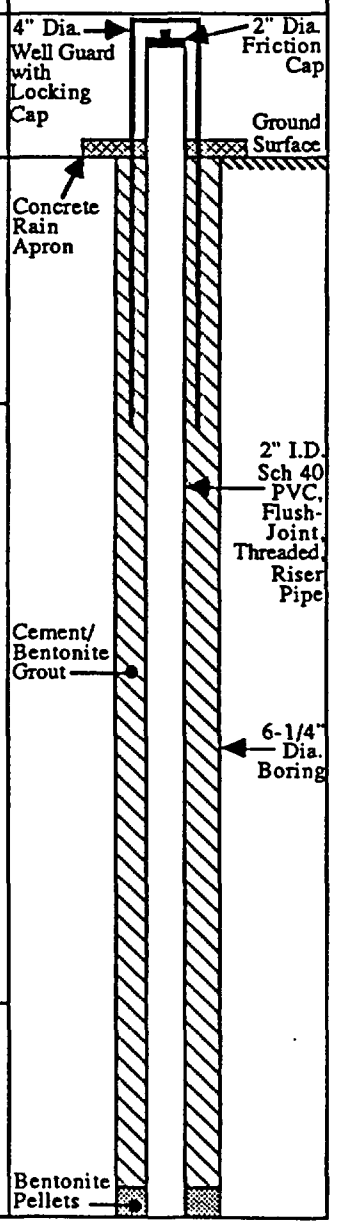
AU = Auger return.
SS = Split-barrel sample.
NM = Not measured.
NA = Not applicable.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	OW-2
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	RGD
Date Started	4/3/93	Surface Elevation (ft/msl)	537.50	Checked By/Date	ASH - 4/18/93
Date Completed	4/3/93	Bottom of Well (ft)	33.5	Page	1 of 2
		Bottom of Boring (ft)	33.5		

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (%)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	
0.0								
2.5	SS 1	NA	2.0	NM	NM		Silty Clay	- Lt. Brown (5YR 5/6) and Mod. Yellowish Brown (10YR 5/4), Mottled, Rooted to 1.5', Damp
5.0	SS 2		5.0				Clay	- Lt. Brown (5YR 5/6) and Mod. Yellowish Brown (10YR 5/4), Mottled, Plastic, Stiff, Damp
7.5								
10.0	SS 3		5.0					- Silt Fraction Increases at 8.0' - Becomes Very Pale Orange (10YR 8/2) and Grayish Orange (10YR 7/4) at 10.0', Mottled
12.5								
15.0	SS 4		4.5				Silt and Clay	- Very Pale Orange (10YR 8/2) and Mod. Reddish Brown (10YR 4/6), Mottled, Stiff, Some Black (N-1) Inclusions, Damp
17.5	SS 5		3.0					

Well/Piezometer Construction Detail



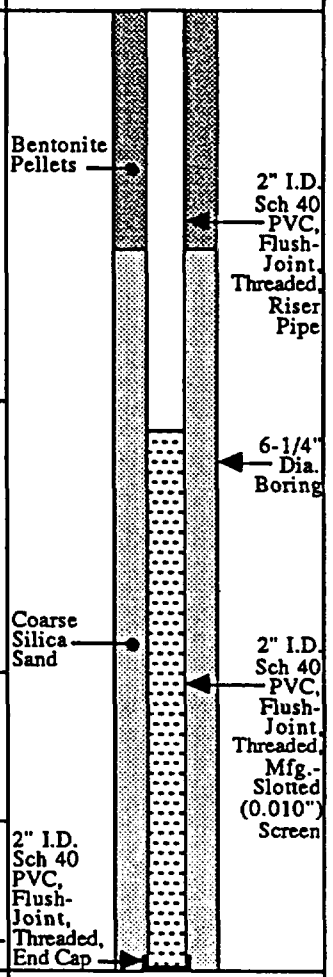
See footnotes at end of boring log.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	OW-2
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	RGD
		Surface Elevation (ft/msl)	537.50		
Date Started	4/3/93	Bottom of Well (ft)	33.5	Checked By/Date	ASH - 4/18/93
Date Completed	4/3/93	Bottom of Boring (ft)	33.5	Page	2 of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description
20.0	SS 5	NA	3.0	NM	NM		Silt and Clay - Same as Above - Becomes Lt. Brown (5YR 5/6), Very Pale Orange (10Y 8/2), and Mod. Reddish Brown (10YR 4/6) at 18.0', Mottled
22.5	SS 6		5.0				Sand and Clay - Lt. Brown (5YR 5/6), Soft, Sand Fraction is Small and Well Sorted, Moist
25.0							
27.5	SS 7		5.0				Sand - Lt. Brown (5YR 5/6), Some Clay, Wet
30.0							Gravel - Lt. Brown (5YR 5/6), Well-Rounded Pebbles, Poorly Sorted, Wet
32.5	SS 8		2.0				Shale - Black (N-1), Weathered, Fissile, Damp
35.0							

Well/Piezometer Construction Detail



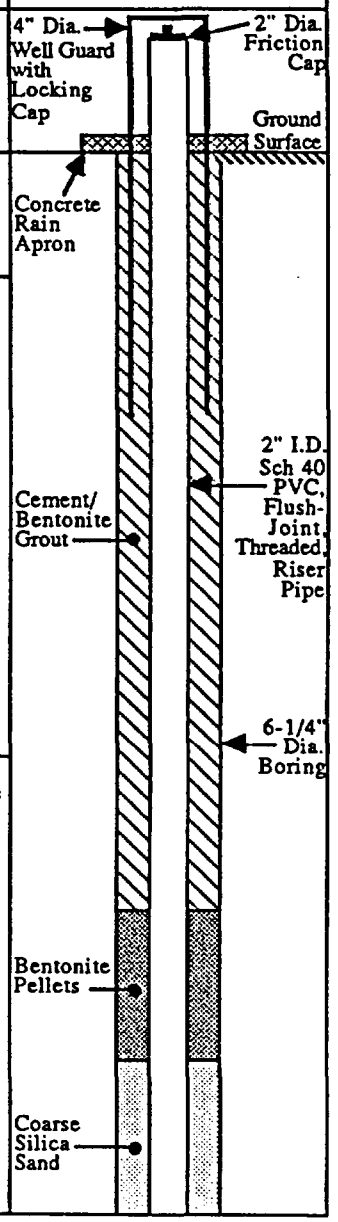
SS = Split-barrel sample.
NM = Not measured.
NA = Not applicable.

Boring Log

...nt	Fansteel Metals	Project No.	111	Boring No.	OW-3
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	RGD
		Surface Elevation (ft/msl)	529.88		
Date Started	4/4/93	Bottom of Well (ft)	28.0	Checked By/Date	ASH - 4/18/93
Date Completed	4/4/93	Bottom of Boring (ft)	28.0	Page 1 of 2	

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (%)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	
0.0								
	SS 1	NA	1.0	NM	NM		Clay and Silt - Mod. Yellowish Brown (10YR 5/4) and Mod. Brown (5YR 4/4), Mottled, Roots, Damp	
2.5							Clay - Lt. Brown (5YR 5/6) and Mod. Reddish Brown (10R 4/6), Mottled, Some Roots to 3.0', Damp	
	SS 2		5.0				- Becomes Mod. Reddish Brown (10YR 4/6) and Mod. Yellowish Brown (10YR 5/4), Mottled at 4.0'	
5.0								
7.5								
	SS 3		5.0					
10.0							Silt and Clay - Becomes Mod. Reddish Brown (10YR 4/6) and Pale Yellowish Brown (10YR 6/2), Mottled, Some Black (N-1) Inclusions, Damp	
12.5								
	SS 4		5.0					
15.0								
	SS 5		5.0				- Becomes Pale Yellowish Brown (10YR 6/2) and Mod. Yellowish Brown (10YR 5/4) at 16.0', Mottled	
17.5								

Well/Piezometer Construction Detail



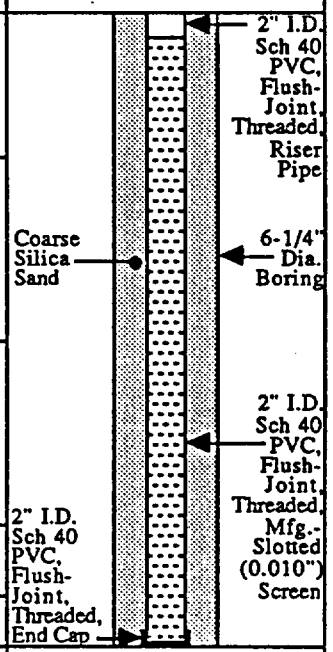
See footnotes at end of boring log.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	OW-3
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	RGD
		Surface Elevation (ft/msl)	529.88		
Date Started	4/4/93	Bottom of Well (ft)	28.0	Checked By/Date	ASH - 4/18/93
Date Completed	4/4/93	Bottom of Boring (ft)	28.0	Page	2 of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description
20.0	SS 5	NA	5.0	NM	NM		Silt and Clay - Same as Above
22.5	SS 6	NA	3.0	NM	NM		Clay - Lt. Brown (5YR 5/6) and Mod. Yellowish Brown (10YR 5/4), Mottled, Plastic, Soft, Moist
25.0	SS 6	NA	3.0	NM	NM		Sand and Clay - Lt. Brown (5YR 5/6) and Grayish Orange (10YR 7/4), Mottled, Soft, Moist
27.5	SS 7	NA	2.0	NM	NM		Sand - Grayish Orange (10YR 7/4) and Mod. Yellowish Brown (10YR 5/4), Mottled, Fine-Grained, Well Sorted, Some Clay, Wet
							Shale - Black (N-1), Weathered, Fissile, Damp
30.0							

Well/Piezometer Construction Detail



SS = Split-barrel sample.
NA = Not applicable.
NM = Not measured.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-5
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	ASH
		Surface Elevation (ft/msl)	536.2		
Date Started	2/2/93	Bottom of Well (ft)	—	Checked By/Date	BES - 3/4/93
Date Completed	2/2/93	Bottom of Boring (ft)	32.5	Page 1 of 2	

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
0.0								Ground Surface
2.5	SS 1	NA	2.5	0	450 500		Sand - Med. Orange Brown, Fine- to Med.-Grained, Well Sorted, Trace Clay, Rooted to 1.6'	
5.0	SS 2		5.0	0	450 500		- Trace Clay from 2.8', Dry - Broken from 4.6', Few Black Iron Nodules (≤1/8" in Dia.)	
7.5								
10.0	SS 3		3.0	0	450 500		Silty Clay - Med. Gray with Few Med. Orange-Brown Mottles, Some Lithic Fragments (≤1/8" in Dia.) Consisting of Shale and Sandstone, Soft, Highly Weathered, Dry	Cement/ Bentonite Grout 9-7/8" Dia. Boring
12.5								
15.0	SS 4		3.4	0	450 400		- Becomes Damp to Moist at 16.0' - Some Mod. Yellowish-Brown Mottles from 16.2'	
17.5								

See footnotes at end of boring log.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-5
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	ASH
		Surface Elevation (ft/msl)	536.2		
Date Started	2/2/93	Bottom of Well (ft)	—	Checked By/Date	BES - 3/4/93
Date Completed	2/2/93	Bottom of Boring (ft)	32.5	Page	2 of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
							Silty Clay - Same as Above	
					450		Clayey Silt - Med. Orange Brown with Trace Med. Gray to Med. Yellowish-Gray Mottles, Few Black Inclusions, Damp to Moist	
20.0	SS 5		5.0	0				
					500			
22.5								
							- Becomes Med. Gray with Trace Orange-Brown Mottles at 23.0'	
					500			
25.0	SS 6	NA	1.5	0				Cement/ Bentonite Grout; 9-7/8" Dia. Boring
					500			
27.5								
					500		Silt - Med. Brown to Med. Orange Brown, Very Wet	
30.0	SS 7		4.0	0				
					NA			
32.5								
35.0								

SS = Split-barrel sample.
NA = Not applicable.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-6
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	ASH
Date Started	2/3/93	Surface Elevation (ft/msl)	535.6	Checked By/Date	BES - 3/4/93
Date Completed	2/3/93	Bottom of Well (ft)	———	Page	1 of 2
		Bottom of Boring (ft)	27.0		

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
0.0								Ground Surface
	SS 1	NA	2.0	0	500		Clayey Sand - Med. Brown to Dk. Brown, Sand is Fine- to Med.-Grained, Trace Clay, Rooted to 1.8', Damp	
				20	400		- Becomes Med. Orange Brown at 1.0'	
2.5							- Dk. Brown Organic Staining from 2.0' to 2.4'	
	SS 2		5.0	310	400		Silty Clay - Med. Orange Brown, Very Cohesive, Damp	
5.0				10	350			
7.5	SS 3		5.0	0	500		- Becomes Med. Gray with Some Med. Orange-Brown Mottles, Trace Lithic Fragments (≤1/4" in Dia.) Consisting of Highly Weathered Shale at 7.5'	Cement/ Bentonite Grout
10.0								9-7/8" Dia. Boring
12.5	SS 4		5.0	0	450			
15.0					400		Clayey Silt - Lt. Gray to Med. Gray with Some Orange-Brown Mottles, Mod. Cohesive, Damp to Moist	
17.5	SS 5		5.0	0	500			

See footnotes at end of boring log.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-6
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	ASH
Date Started	2/3/93	Surface Elevation (ft/msl)	535.6	Checked By/Date	BES - 3/4/93
Date Completed	2/3/93	Bottom of Well (ft)	—	Page	2 of 2
		Bottom of Boring (ft)	27.0		

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
20.0	SS 5	NA	5.0	0	500		Clayey Silt - Same as Above	Cement/ Bentonite Grout; 9-7/8" Dia. Boring
22.5	SS 6		5.0	2	500		Silty Clay - Med. Reddish Brown to Dk. Reddish Brown, Trace Black Iron Nodules (≤1/8" in Dia.), Moist to Damp	
25.0				3			Clayey Silt - Med. Orange Brown, Cohesive, Moist to Wet - Saturated from 26.5'	
27.5								

SS = Split-barrel sample.
NA = Not applicable.

Boring Log

ent	Fansteel Metals	Project No.	111	Boring No.	B-7
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	ASH
		Surface Elevation (ft/msl)	536.1		
Date Started	2/3/93	Bottom of Well (ft)	———	Checked By/Date	BES - 3/4/93
Date Completed	2/3/93	Bottom of Boring (ft)	27.0	Page	1 of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
0.0								Ground Surface
	SS 1	NA	2.0	0 10	500		Fill - Dk. Brown Clayey Sand, Sand is Med.- to Fine-Grained, Rooted to 0.5', Damp - Becomes Med. Brown Sandy Clay with Orange-Brown Sand Lenses from 1.0' to 1.3' and 1.7' to 2.0', Trace Lithic Fragments (≤1/8" in Dia.), Damp at 0.7'	
2.5								
5.0	SS 2		5.0	0	500		Silty Clay - Med. Olive Gray, Few Med. Orange Brown Mottles, Very Cohesive, Abundant Black Organic Inclusions, Damp - Becomes Hard, Very Dry at 3.8'	
7.5								
10.0	SS 3		5.0	0	500			Cement/ Bentonite Grout 9-7/8" Dia. Boring
12.5							- Becomes Mod. Yellowish Brown with Some Lt. Gray to Med. Gray Mottles, Trace Sand at 12'	
15.0	SS 4		5.0	0	500			
17.5	SS 5		5.0	0	450			

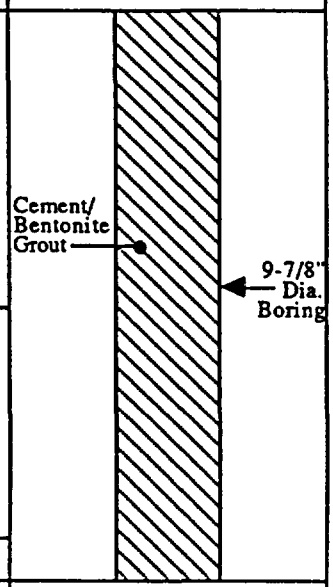
See footnotes at end of boring log.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-7
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	ASH
		Surface Elevation (ft/msl)	536.1		
Date Started	2/3/93	Bottom of Well (ft)	———	Checked By/Date	BES - 3/4/93
Date Completed	2/3/93	Bottom of Boring (ft)	27.0	Page	2 of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	
	SS 5	NA	5.0	0	450		Silty Clay	- Same as Above
20.0					500			- Becomes Med. Reddish Brown at 20.0'
								- Wood Fragments from 21.6'
22.5	SS 6		5.0	0	450		Clayey Silt	- Med. Reddish Brown, Trace Lt. Gray to Med. Gray Mottles, Damp to Moist
25.0					500			- Saturated from 26.3'
							Silt	- Med. Reddish Brown, Trace Clay, Wet
27.5								

Well/Piezometer Construction Detail



SS = Split-barrel sample.
NA = Not applicable.

Boring Log

ent	Fansteel Metals	Project No.	111	Boring No.	B-8
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	ASH
		Surface Elevation (ft/msl)	536.4		
Date Started	2/4/93	Bottom of Well (ft)	—	Checked By/Date	BES - 3/4/93
Date Completed	2/4/93	Bottom of Boring (ft)	27.0	Page 1 of 2	

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
0.0								Ground Surface
	SS 1	NA	2.0	2	525		Clayey Sand - Dk. Brown, Loose, Trace Shale Fragments (≤1/6" in Dia.), Rooted to 1.6', Damp - Becomes Med. Reddish Brown at 1.0'	
				1	500			
2.5	SS 2		3.0	315	525			
				300	500			
5.0				NA	NA		Silty Clay - Med. Brown with Trace Orange-Brown Mottles, Very Cohesive, Damp	
7.5	SS 3		5.0	5	475		- Becomes Med. Gray at 7.5' with Some Orange-Brown Mottles and Abundant Black Organic Inclusions	Cement/ Bentonite Grout
10.0				52	500			9-7/8" Dia. Boring
12.5	SS 4		5.0	2	450		- Trace Sand from 13.5' - Few Orange-Brown Mottles from 14.0'	
15.0				0	500			
17.5	SS 5		5.0	0	450			

See footnotes at end of boring log.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-8
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	ASH
		Surface Elevation (ft/msl)	536.4		
Date Started	2/4/93	Bottom of Well (ft)	———	Checked By/Date	BES - 3/4/93
Date Completed	2/4/93	Bottom of Boring (ft)	27.0	Page 2 of 2	

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
					450		Clayey Sand - Med. Reddish Brown, Cohesive, Sand is Fine - to Med.-Grained, Damp to Moist	
20.0	SS 5		5.0	0	500		- Becomes Med. Gray with Few Orange-Brown Mottles at 21.0', Mod. Cohesive, Clay Content Increases	Cement/ Bentonite Grout
22.5		NA						9-7/8" Dia. Boring
25.0	SS 6		5.0	0	500		- Saturated from 26.7'	
							Silt - Med. Brown, Wet	
27.5								

SS = Split-barrel sample.
NA = Not applicable.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-9
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	ASH
		Surface Elevation (ft/msl)	524.6		
Date Started	2/2/93	Bottom of Well (ft)	—	Checked By/Date	BES - 3/15/93
Date Completed	2/2/93	Bottom of Boring (ft)	19.5	Page	1 of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
0.0								Ground Surface
2.5	SS 1	NA	2.5	0	450 500		Silty Clay - Lt. Brown to Med. Brown, Hard, Blocky, Some Black Organic Inclusions, Few Med. Orange-Brown Mottles, Trace Lithic Fragments (≤1/16" in Dia.) Consisting Predominantly of Shale, Rooted to 3.5', Very Dry	
5.0	SS 2		5.0	0	500 450			
7.5								
10.0	SS 3		5.0	0	500		- Becomes Med. Brown at 9.6' with Few Orange-Brown Mottles, Damp	Cement/ Bentonite Grout; 9-7/8" Dia. Boring
12.5							- Becomes Med. Gray with Some Orange-Brown Mottles, Moist at 14.5'	
15.0	SS 4		5.0	0	500		Clayey Silt - Med. Gray, Damp to Moist - Saturated from 17.2'	
17.5							Silt and Sand - Med. Brown, Sand is Fine- to Med.-Grained, Very Wet	

See footnotes at end of boring log.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-9
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	ASH
		Surface Elevation (ft/msl)	524.6		
Date Started	2/2/93	Bottom of Well (ft)	———	Checked By/Date	BES - 3/15/93
Date Completed	2/2/93	Bottom of Boring (ft)	19.5	Page 2 of 2	

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
	SS 5	NA	2.0	0	NA		Silt and Sand - Same as Above	Cement/ Bentonite Grout; 9-7/8" Dia. Boring
20.0								

SS = Split-barrel sample.
NA = Not applicable.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-10
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	ASH
		Surface Elevation (ft/msl)	524.7		
Date Started	2/2/93	Bottom of Well (ft)	—	Checked By/Date	BES - 3/4/93
Date Completed	2/2/93	Bottom of Boring (ft)	17.0	Page	1 of 1

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
0.0								Ground Surface
	SS 1	NA	2.0	0	300, 400		Silty Clay - Med. Gray with Some Med. Orange-Brown Mottles, Hard, Blocky, Abundant Black Organic Inclusions, Trace Highly Weathered Shale Fragments (≤1/16" in Dia.), Rooted to 2.0', Dry	Cement/ Bentonite Grout; 9-7/8" Dia. Boring
2.5								
5.0	SS 2		5.0	0	500, 450		- Becomes Med. Orange Brown at 4.5'	
7.5								
10.0	SS 3		5.0	0	400, 500		- Becomes Med. Gray with Some Lithic Fragments Consisting of Shale, Chert, and Sandstone at 9' - Becomes Damp to Moist at 10.2'	
12.5								
15.0	SS 4		5.0	0	450, 500		Clayey Silt - Med. Brown to Med. Orange Brown, Moist to Wet - Saturated from 16.0'	
							Silt - Med. Brown, Wet - Clay Stringer from 16.2' to 16.5'	
17.5								

SS = Split-barrel sample.
NA = Not applicable.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-11
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	ASH
		Surface Elevation (ft/msl)	525.3		
Date Started	2/2/93	Bottom of Well (ft)	———	Checked By/Date	BES - 3/4/93
Date Completed	2/2/93	Bottom of Boring (ft)	17.0	Page	1 of 1

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
0.0								Ground Surface
	SS 1	NA	2.0	0	450, 500		Silty Clay - Lt. Brown to Med. Brown, Very Stiff, Some Black Organic Inclusions, Few Lithic Fragments (≤1/16" in Dia.) Consisting Predominantly of Highly Weathered Shale, Rooted to 1.8', Dry	
2.5								
	SS 2		5.0	0	500, 500		- Becomes Med. Orange Brown at 3.4'	Cement/ Bentonite Grout; 9-7/8" Dia. Boring
5.0								
							- Becomes Med. Gray, Some Dk. Brown Mottles at 6.6'	
7.5							- Becomes Med. Orange Brown at 7.5'	
	SS 3		5.0	0	500, 400			
10.0								
							- Becomes Med. Gray with Few Orange-Brown Mottles at 11.5'	
12.5								
	SS 4		5.0	0	350, 300			
15.0								
							- Becomes Saturated at 16.2'	
							Clayey Silt - Med. Brown, Very Wet	
17.5								

SS = Split-barrel sample.
NA = Not applicable.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-12
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	ASH
Date Started	2/3/93	Surface Elevation (ft/msl)	525.6	Checked By/Date	BES - 3/5/93
Date Completed	2/3/93	Bottom of Well (ft)	—	Page	1 of 2
		Bottom of Boring (ft)	22.5		

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
0.0								Ground Surface
2.5	SS 1	NA	2.5	0	500 400		Silty Clay - Med. Brown to Dk. Brown, Mod. Cohesive, Trace Highly Weathered Shale Fragments (≤1/16" in Dia.), Med. Orange Limonitic Staining, Rooted to 2.3', Damp	
5.0	SS 2		5.0	0	500		Clayey Silt - Lt. Brown to Dk. Brown, Mod. Cohesive, Damp	
7.5							Clayey Sand - Med. Reddish Brown to Dk. Reddish-Orange Brown, Abundant Black Inclusions, Moist	
10.0	SS 3		5.0	0	500			Cement/ Bentonite Grout; 9-7/8" Dia. Boring
12.5					400		- Becomes Med. Gray at 11.6'	
15.0	SS 4		5.0	0	450			
17.5							Clayey Silt - Med. Orange Brown with Some Dk. Reddish-Brown Mottles, Mod. Cohesive, Damp to Moist	

See footnotes at end of boring log.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-12
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	ASH
Date Started	2/3/93	Surface Elevation (ft/msl)	525.6	Checked By/Date	BES - 3/5/93
Date Completed	2/3/93	Bottom of Well (ft)	———	Page	2 of 2
		Bottom of Boring (ft)	22.5		

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
					500		Clayey Silt - Same as Above	
							Silt - Med. Reddish Brown, Very Wet	
20.0	SS 5	NA	3.2	0	NA		Sand - Med. Brown, Fine- to Med.-Grained, Wet	Cement/ Bentonite Grout; 9-7/8" Dia. Boring
22.5								
25.0								

SS = Split-barrel sample.
NA = Not applicable.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-13
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	RS
Date Started	2/2/93	Surface Elevation (ft/msl)	536.2	Checked By/Date	ASH - 3/9/93
Date Completed	2/2/93	Bottom of Well (ft)	NA		
		Bottom of Boring (ft)	27.5	Page 1	of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
0.0								Ground Surface
2.5	SS 1	NA	2.5	0	400 500		Silty Clay - Med. Orange Brown, Mottled with Gray Fine-Grained Sand, Very Dense, Damp	
5.0	SS 2		5.0	0	450			
7.5					500		- Predominantly Gray and Dry from 5.4' to 7.2'	
10.0	SS 3		5.0	0	500		- Black Streaks encountered from 8.5'	Cement/ Bentonite Grout 9-7/8" Dia. Boring
12.5								
15.0	SS 4		5.0	0	400			
17.5							- Becomes Predominantly Med. Orange Brown at 15.8' - Few Black Shale Fragments at 17.0'	

See footnotes at end of boring log.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-13
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	RS
		Surface Elevation (ft/msl)	536.2		
Date Started	2/2/93	Bottom of Well (ft)	NA	Checked By/Date	ASH - 3/9/93
Date Completed	2/2/93	Bottom of Boring (ft)	27.5	Page	2 of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
20.0	SS 5	NA	5.0	0	450		Silty Clay - Same as Above - Becomes Moist at 18.5'	Cement/ Bentonite Grout; 9-7/8" Dia. Boring
22.5					500			
25.0	SS 6		5.0	0	400			
27.5							- Saturated from 26.5' - Sand - Med. Orange Brown, Very Fine-Grained, Well Sorted, Saturated	
30.0								

SS = Split-barrel sample.
NA = Not applicable.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-14
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	RS
		Surface Elevation (ft/msl)	533.7		
Date Started	2/2/93	Bottom of Well (ft)	NA	Checked By/Date	ASH - 3/9/93
Date Completed	2/2/93	Bottom of Boring (ft)	27.5	Page	1 of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
0.0								Ground Surface
2.5	SS 1	NA	2.5	0	500 400		Silty Clay - Med. Brown, Rooted to 0.5', Damp - Becomes Med. Orange Brown and Mottled with Gray Sand and Black Streaks at 0.5' - Becomes Very Dense at 1' - Becomes Predominantly Med. Gray, Mottled at 2'	
5.0	SS 2		5.0	0	500		- Dry from 4.0' to 5.5' - Becomes Damp to Dry at 5.5'	
7.5							- Becomes Damp at 7.5'	
10.0	SS 3		5.0	0	500			Cement/ Bentonite Grout 9-7/8" Dia. Boring
12.5							- Becomes Dense at 12.5'	
15.0	SS 4		5.0	0	500			
17.5								

See footnotes at end of boring log.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-14
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	RS
Date Started	2/2/93	Surface Elevation (ft/msl)	533.7	Checked By/Date	ASH - 3/9/93
Date Completed	2/2/93	Bottom of Well (ft)	NA	Page	2 of 2
		Bottom of Boring (ft)	27.5		

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
					400		Silty Clay - Same as Above - Becomes Malleable at 18.5'	
20.0	SS 5		5.0	0				Cement/ Bentonite Grout
					500			
22.5		NA					- Becomes Predominantly Med. Gray at 22.5'	9-7/8" Dia. Boring
25.0	SS 6		5.0	0	500			
							- Becomes Moist at 26.8'	
27.5							- Becomes Saturated at 27.5'	
30.0								

SS = Split-barrel sample.
NA = Not applicable.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-15
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	BES
		Surface Elevation (ft/msl)	528.9		
Date Started	2/2/93	Bottom of Well (ft)	———	Checked By/Date	RCH - 3/15/93
Date Completed	2/2/93	Bottom of Boring (ft)	12.0	Page	1 of 1

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
0.0								Ground Surface
2.5	SS 1	NA	2.5	0	500 400		Silty Clay - Med. Brown with Black Shale Fragments, Damp - Rooted to 1.1' - Becomes Med. Brown to 1.5' - Becomes Med. Orange Brown, Mottled with Gray Fine-Grained Sand and Black Shale Fragments at 1.5' - Becomes Malleable, Clay-Rich at 2.0'	Cement/ Bentonite Grout 9-7/8" Dia. Boring
5.0	SS 2		5.0	0	500 550		- Encountered Perched Water Layer, Saturated 7.5' to 7.7'	
7.5								
10.0	SS 3		4.5	0	500		Sand - Lt. Orange Brown, Med.-Grained, Tightly Packed, Saturated	
							Clay - Lt. Orange Brown, Very Hard, Very Compacted, Dry	
12.5								
15.0								

SS = Split-barrel sample.
NA = Not applicable.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-17
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	ASH
Date Started	2/2/93	Surface Elevation (ft/msl)	527.2	Checked By/Date	BES - 3/5/93
Date Completed	2/2/93	Bottom of Well (ft)	—		
		Bottom of Boring (ft)	22.5	Page 1 of 2	

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
0.0								Ground Surface
	SS 1	NA	2.5	0	400		Clay and Gravel - Med. Dk. Gray, Dry	
2.5				6.5	450		Silty Clay - Med. Orange Brown, Trace Fine-Grained Sand, Rooted to 1.6', Damp - Becomes Med. Gray to Dk. Gray at 1.5'	
5.0	SS 2		3.6	0	450		- Grayish-White Chert Fragments (≤2" in Dia.) at 3.5'	
					350			
7.5					NA		- Becomes Med. Orange Brown, Hard, Blocky, Very Dry at 5.8'	
10.0	SS 3		5.0	0	350		- Some Black Organic Laminations from 8.0' - Becomes Med. Hard, Cohesive, Moist with Increased Sand Content from 9.6'	Cement/ Bentonite Grout 9-7/8" Dia. Boring
12.5					400			
15.0	SS 4		5.0	0	350		- Some Med. Gray to Lt. Gray Mottles from 14.4'	
17.5					400			

See footnotes at end of boring log.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-17
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	ASH
Date Started	2/2/93	Surface Elevation (ft/msl)	527.2	Checked By/Date	BES - 3/5/93
Date Completed	2/2/93	Bottom of Well (ft)	———	Page	2 of 2
		Bottom of Boring (ft)	22.5		

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
					300		Silty Clay - Same as Above	
20.0	SS 5	NA	3.5	0	NA		Silt and Sand - Med. Brown, Sand is Very Fine- to Very Coarse-Grained, Very Wet	Cement/ Bentonite Grout; 9-7/8" Dia. Boring
22.5								
25.0								

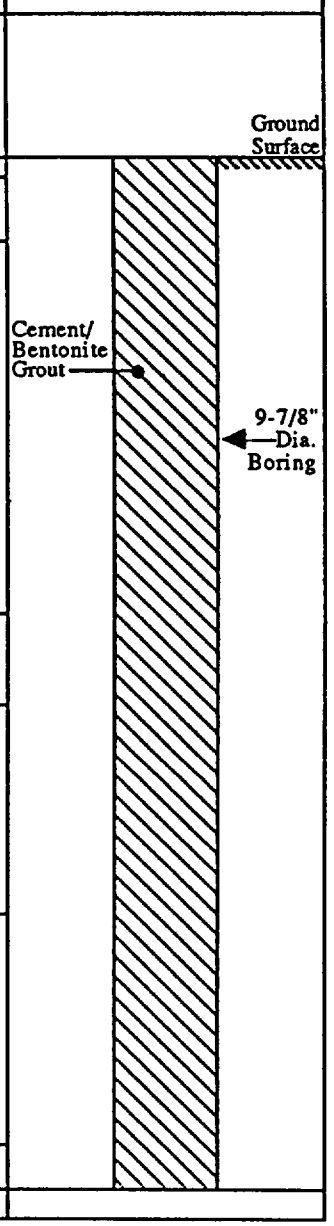
SS = Split-barrel sample.
NA = Not applicable.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-19
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	ASH
Date Started	2/2/93	Surface Elevation (ft/msl)	525.9	Checked By/Date	BES - 3/5/93
Date Completed	2/2/93	Bottom of Well (ft)	—	Page	1 of 1
		Bottom of Boring (ft)	17.0		

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description
0.0							
	SS 1	NA	2.0	0	400		Gravel - Med. Brown, <1" in Dia.
							Sandy Clay - Lt. Orange Brown to Med. Orange Brown, Cohesive, Trace Wood Fragments, Dry to Damp
2.5	SS 2		2.8	0	450		Silty Clay - Med. Grayish Brown, Damp - Wood Fragments at 1.6', Damp
					400		
5.0					NA		- Becomes Med. Orange Brown with Few Brown Mottles, Brittle, Blocky, Dry from 4.6' to 4.8'
7.5	SS 3		3.0	0	500		Clayey Silt - Lt. Gray to Med. Gray, Damp to Moist
10.0					NA		Silty Clay - Med. Grayish Brown, Dry to Damp
12.5	SS 4		4.8	0	450		Clayey Sand - Med. Gray to Lt. Gray with Some Med. Orange-Brown Mottles, Sand is Med.- to Coarse-Grained, Damp
15.0							
							Sand - Med. Brown, Very Fine- to Very Coarse-Grained, Very Wet
17.5							

Well/Piezometer Construction Detail



SS = Split-barrel sample.
NA = Not applicable.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-20
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	BES
		Surface Elevation (ft/msl)	512.2		
Date Started	2/1/93	Bottom of Well (ft)	———	Checked By/Date	RCH - 3/15/93
Date Completed	2/1/93	Bottom of Boring (ft)	12.5	Page 1 of 1	

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
0.0								Ground Surface
2.5	SS 1	NA	2.5	0	450		Silty Clay - Mod. Brown with Dk. Brown Staining, Rooted, Few White Rock Fragments ~1/4" in Diameter at 0.38', High Silt and Sand Content, Damp, Blocky Clayey Silt - Mod. Red Brown, Malleable, No Evidence of Mottling, Rooted to 1.8'	Cement/ Bentonite Grout
5.0	SS 2	NA	5.0	0	500		Sandy Clay and Sand - Reddish Brown, Saturated from 2.8', Mottled - Isolated Sand Pocket, Moist (~0.1' Thick) at 3.0' - Isolated Sand Pocket, Moist (~0.1' Thick) at 3.3' - Becomes Higher Sand Content at 3.95' - Dk. Brown to Black Lithic Fractions Create Some Color Staining, White Pebbles (~1/2" Long in Dia.), Well Rounded - Sand Content Increases with Some Clay from 6.7' - Sandstone Fragments at 7.5'	9-7/8" Dia. Boring
7.5							Gravel - Mod. Red Brown with Some Clay, Only 0.1' Recovery, Very Wet	
10.0	SS 3	NA	5.0	NA	NA		Shale - Gray Black, Highly Weathered Almost to Clay with Sporadic Limonite Staining - Becomes Dry at 9.65'	
12.5								

SS = Split-barrel sample.
NA = Not applicable.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-21
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	RS
		Surface Elevation (ft/msl)	511.7		
Date Started	2/1/93	Bottom of Well (ft)	9.0	Checked By/Date	ASH - 3/9/93
Date Completed	2/1/93	Bottom of Boring (ft)	9.0	Page	1 of 1

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
0.0								Ground Surface
	SS 1	NA	2.5	0	400		Silty Clay - Med. Reddish Brown, Damp, Rooted to 1.3', Lithic Fragments at 0.8' (~1/4" in Dia.)	Cement/ Bentonite Grout; 9-7/8" Dia. Boring
2.5					500		Sand - Med. Reddish Brown, Fine-Grained, Well Sorted, Damp	
	SS 2		5.0	0	500		Clayey Sand - Lt. Reddish Brown with Some Olive Black Streaks, Very Fine-Grained, Well Sorted, Damp	
5.0							Sand - Lt. Reddish Brown, Coarse-Grained, Well Sorted, Moist - Well-Rounded, Polished, Pebble Inclusions, (~1/10" in Dia.) at 5.45' - Becomes Saturated at 6.08'	
7.5					450			
	SS 3		1.5	NA	NA		Shale - Black, Massive, Few Bedding Plane Fractures, Some Limonite Staining, Dry	
10.0								

SS = Split-barrel sample.
NA = Not applicable.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-22
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	ASH
Date Started	2/8/93	Surface Elevation (ft/msl)	519.2	Checked By/Date	BES - 3/5/93
Date Completed	2/8/93	Bottom of Well (ft)	—	Page	1 of 1
		Bottom of Boring (ft)	15.0		

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
0.0								Ground Surface
	SS 1	NA	0.5	0 / NA	450 / NA		Sandy Clay - Med. Brown to Dk. Brown, Mod. Cohesive, Rooted to 0.5', Moist	Cement/ Bentonite Grout; 9-7/8" Dia. Boring
2.5	SS 2	NA	5.0	0	500 / 450		Clayey Sand - Med. Brown, Sand is Fine- to Med.-Grained, Well Sorted, Damp	
5.0							Sand - Lt. Brown to Med. Brown, Med.-Grained, Damp	
7.5	SS 3	NA	5.0	0	400		- Becomes Coarse-Grained, Well Sorted at 9.0 - Med. Reddish-Brown Silty Clay Streak from 9.5' to 9.8' and 10.9' to 11.3'	
10.0							- Saturated from 11.5'	
12.5	SS 4	NA	3.0	0	NA		- Becomes Very Coarse-Grained with Some Subangular to Well-Rounded Gravel (≤1/8" in Dia.) from 13.0'	
15.0							Shale - Med. Bluish Gray, Soft to Med. Soft, Highly Weathered	
17.5								

SS = Split-barrel sample.
NA = Not applicable.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-23
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	RS
		Surface Elevation (ft/msl)	536.5		
Date Started	2/3/93	Bottom of Well (ft)	—	Checked By/Date	ASH - 3/9/93
Date Completed	2/3/93	Bottom of Boring (ft)	26.0	Page	1 of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
0.0								Ground Surface
	SS 1	NA	3.0	0	500		Silty Clay - Med. Brown with Med. Reddish Brown Streaks, Rooted, Damp	
2.5					450		Clayey Gravel - Med. Gray (~1" in Dia.), Clay is Med. Reddish Brown and Silty with White Ash Streaks, Gravel Becomes 1/2" in Dia. at 2.5'	
	SS 2		5.0	0	500		Silty Clay - Med. Orange Brown, Mottled with Gray Fine-Grained Sand, Damp - Black Streaks from 2.5' to 18.0'	
5.0								
7.5								
10.0	SS 3		5.0	0	500			Cement/ Bentonite Grout; 9-7/8" Dia. Boring
12.5							- Becomes Slightly Dense at 13'	
15.0	SS 4		5.0	0	400			
17.5								

See footnotes at end of boring log.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-23
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	RS
		Surface Elevation (ft/msl)	536.5		
Date Started	2/3/93	Bottom of Well (ft)	———	Checked By/Date	ASH - 3/9/93
Date Completed	2/3/93	Bottom of Boring (ft)	26.0	Page	2 of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
	SS 4	NA	5.0	0	550		Silty Clay - Same as Above - Gray Sand Occurs in Thin Layers from 18'	Cement/ Bentonite Grout; 9-7/8" Dia. Boring
20.0	SS 5		5.0	0	500			
22.5								
	SS 6		3.0	0	500		Clayey Sand - Med. Orange Brown, Fine-Grained, Moist	
25.0					450		Sand - Med. Orange Brown, Med. Grained, Well Sorted, Saturated	
27.5								

SS = Split-barrel sample.
NA = Not applicable.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-24
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	RS
		Surface Elevation (ft/msl)	533.97		
Date Started	2/5/93	Bottom of Well (ft)	———	Checked By/Date	ASH - 3/9/93
Date Completed	2/5/93	Bottom of Boring (ft)	27.0	Page	1 of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
0.0								Ground Surface
	AU	NA	NA	NA	NA		Cement	
	SS 1		1.1	0	500		Silty Clay - Med. Reddish Brown, Mottled with Gray Fine-Grained Sand and Black Streaks, Damp	
2.5								
	SS 2		5.0	0	400			
5.0								
					500			
7.5								
	SS 3		5.0	0	450			Cement/ Bentonite Grout; 9-7/8" Dia. Boring
10.0							- Becomes Very Dense at 10'	
					500			
12.5								
15.0	SS 4		5.0	0	500			
17.5	SS 5		5.0	0	450			

See footnotes at end of boring log.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-24
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	RS
		Surface Elevation (ft/msl)	533.97		
Date Started	2/5/93	Bottom of Well (ft)	———	Checked By/Date	ASH - 3/9/93
Date Completed	2/5/93	Bottom of Boring (ft)	27.0	Page	2 of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
20.0	SS 5	NA	5.0	0	250		Silty Clay - Same as Above	
22.5	SS 6		5.0	0	450		Sand - Med. Reddish Brown, Fine-Grained, Damp - Becomes Yellowish Brown, Med.-Grained, Well Sorted, Saturated at 25.8'	Cement/ Bentonite Grout 9-7/8" Dia. Boring
25.0								
27.5								

SS = Split-barrel sample.
NA = Not applicable.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-25
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	RS
Date Started	2/5/93	Surface Elevation (ft/msl)	533.73	Checked By/Date	ASH - 3/9/93
Date Completed	2/5/93	Bottom of Well (ft)	—		
		Bottom of Boring (ft)	27.0	Page 1 of 2	

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
0.0								Ground Surface
	AU	NA	NA	NA	NA		Cement	Cement/ Bentonite Grout
	SS 1		1.0	0	500		Silty Clay - Dk. Olive Brown, Mottled with Gray and Med. Olive Fine-Grained Sand, Damp - Becomes Med. Grayish Brown at 0.5' - Becomes Med. Reddish Brown at 2.5'	9-7/8" Dia. Boring
2.5								
	SS 2		5.0	0	400			
5.0					500			
7.5								
	SS 3	NA	5.0	0	500			
10.0								
12.5								
	SS 4		5.0	0	500			
15.0								
17.5	SS 5		5.0	0	500			

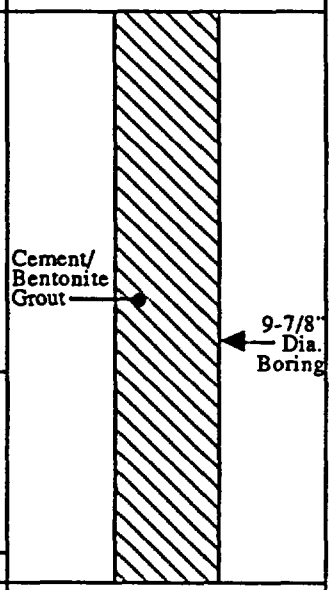
See footnotes at end of boring log.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-25
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	RS
		Surface Elevation (ft/msl)	533.73		
Date Started	2/5/93	Bottom of Well (ft)	———	Checked By/Date	ASH - 3/9/93
Date Completed	2/5/93	Bottom of Boring (ft)	27.0	Page	2 of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description
20.0	SS 5	NA	5.0	0	500		Silty Clay - Same as Above
22.5	SS 6		5.0	0	500		
25.0					400		Sandy Clay - Med. Reddish Brown, Sand is Fine-Grained, Moist
							Sand - Med. Reddish Brown, Med.-Grained, Saturated
27.5							

Well/Piezometer Construction Detail



SS = Split-barrel sample.
NA = Not applicable.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-26
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	RS
Date Started	2/5/93	Surface Elevation (ft/msl)	533.56	Checked By/Date	ASH - 3/9/93
Date Completed	2/5/93	Bottom of Well (ft)	—		
		Bottom of Boring (ft)	27.0	Page 1 of 2	

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
0.0								Ground Surface
	AU	NA	NA	NA	NA		Cement	
	SS 1		1.0	0	450 500		Silty Clay - Med. Reddish Brown, Mottled with Gray Fine-Grained Sand, Very Dense to 1.4', Damp	
2.5	SS 2		5.0	0	500		- Becomes Med. Reddish Brown at 2.5'	
5.0							- Becomes Very Dense at 5.5'	
7.5	SS 3	NA	5.0	0	450		- Black Streaks from 9'	Cement/ Bentonite Grout 9-7/8" Dia. Boring
10.0								
12.5	SS 4		5.0	0	500			
15.0								
17.5	SS 5		5.0	0	500			

See footnotes at end of boring log.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-26
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	RS
Date Started	2/5/93	Surface Elevation (ft/msl)	533.56	Checked By/Date	ASH - 3/9/93
Date Completed	2/5/93	Bottom of Well (ft)	—		
		Bottom of Boring (ft)	27.0	Page	2 of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
20.0	SS 5	NA	5.0	0	500		Silty Clay - Same as Above	
22.5	SS 6		5.0	0	500		Sandy Clay - Med. Reddish Brown, Sand is Fine-Grained, Damp	Cement/ Bentonite Grout
25.0					400		- Becomes Moist at 24.5'	9-7/8" Dia. Boring
							Sand - Med. Reddish Brown, Med.-Grained, Well Sorted, Saturated	
27.5								

AU = Auger return.
SS = Split-barrel sample.
= Not applicable.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-27
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	RS
Date Started	2/5/93	Surface Elevation (ft/msl)	533.55	Checked By/Date	ASH - 3/9/93
Date Completed	2/5/93	Bottom of Well (ft)	—		
		Bottom of Boring (ft)	27.0	Page 1 of 2	

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
0.0								Ground Surface
	AU	NA	NA	NA	NA		Cement	
	SS 1	NA	1.0	0	500		Silty Clay - Med. Reddish Brown, Mottled with Gray Fine-Grained Sand, Dense, Damp	
2.5								
5.0	SS 2	NA	5.0	0	500			
7.5								
10.0	SS 3	NA	5.0	0	500		- Becomes Very Dense at 10.5'	Cement/ Bentonite Grout; 9-7/8" Dia. Boring
12.5								
15.0	SS 4	NA	5.0	0	500			
17.5	SS 5	NA	5.0	0	500			

See footnotes at end of boring log.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-27
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	RS
Date Started	2/5/93	Surface Elevation (ft/msl)	533.55	Checked By/Date	ASH - 3/9/93
Date Completed	2/5/93	Bottom of Well (ft)	—		
		Bottom of Boring (ft)	27.0	Page 2	of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
20.0	SS 5	NA	5.0	0	500		Silty Clay - Same as Above	
22.5							Sandy Clay - Med. Reddish Brown, Sand is Fine-Grained, Well Sorted, Damp	Cement/ Bentonite Grout; 9-7/8" Dia. Boring
25.0	SS 6		5.0	0	500		- Becomes Lt. Reddish Brown, Moist at 24.5'	
					450		Sand - Lt. Reddish Brown, Med.-Grained, Well Sorted, Saturated - Med. Reddish-Brown Silty Clay Lens from 26.3' to 26.6', Wet	
27.5								

AU = Auger return.
SS = Split-barrel sample.
— = Not applicable.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-28
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	RS
Date Started	2/5/93	Surface Elevation (ft/msl)	533.61	Checked By/Date	ASH - 3/9/93
Date Completed	2/5/93	Bottom of Well (ft)	—		
		Bottom of Boring (ft)	27.0	Page 1	of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
0.0								Ground Surface
	AU	NA	NA	NA	NA		Cement	
	SS 1		1.0	0	400 450		Silty Clay - Med. Reddish Brown, Mottled with Gray Fine-Grained Sand, Dense, Damp	
2.5	SS 2		5.0	0	450			
5.0					500			
7.5	SS 3	NA	5.0	0	500			Cement/ Bentonite Grout
10.0					450			9-7/8" Dia. Boring
12.5	SS 4		5.0	0	500			
15.0								
17.5	SS 5		5.0	0	450			

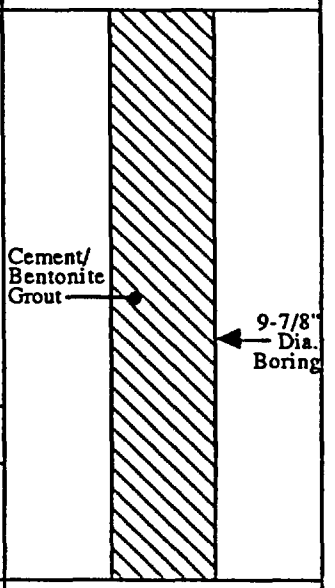
See footnotes at end of boring log.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-28
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	RS
		Surface Elevation (ft/msl)	533.61		
Date Started	2/5/93	Bottom of Well (ft)	———	Checked By/Date	ASH - 3/9/93
Date Completed	2/5/93	Bottom of Boring (ft)	27.0	Page	2 of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description
20.0	SS 5	NA	5.0	0	500		Silty Clay - Same as Above
22.5	SS 6		5.0	0	450		Sandy Clay - Med. Reddish Brown, Sand is Fine-Grained, Moist
25.0							Sand - Lt. Reddish Brown, Med.-Grained, Well Sorted, Saturated
27.5							

Well/Piezometer Construction Detail



AU = Auger return.
SS = Split-barrel sample.
— = Not applicable.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-29
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	RS
		Surface Elevation (ft/msl)	530.9		
Date Started	2/2/93	Bottom of Well (ft)	———	Checked By/Date	ASH - 3/9/93
Date Completed	2/2/93	Bottom of Boring (ft)	25.5	Page	1 of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
0.0								Ground Surface
2.5	SS 1	NA	2.5	0	500 / 600		Silty Clay - Med. Brown, Rooted to 0.5', Damp - Becomes Med. Reddish Brown with Black Shale Fragments at 0.9'	
5.0	SS 2		5.0	0	500			
7.5								
10.0	SS 3		5.0	0	500			Cement/ Bentonite Grout; 9-7/8" Dia. Boring
							Clayey Sand - Med. Reddish Brown, Med.-Grained, Mottled with Gray Fine-Grained Sand, Damp	
							Shale - Lt. Reddish Brown, Highly Weathered, Dry	
12.5							Silty Clay - Med. Orange Brown, Mottled, Few Rock Fragments Damp to Dry	
15.0	SS 4		5.0	0	500		- Becomes Dense and Damp at 15'	
17.5								

See footnotes at end of boring log.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-29
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	RS
		Surface Elevation (ft/msl)	530.9		
Date Started	2/2/93	Bottom of Well (ft)	———	Checked By/Date	ASH - 3/9/93
Date Completed	2/2/93	Bottom of Boring (ft)	25.5	Page	2 of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
20.0	SS 5	NA	5.0	0	450		Silty Clay - Same as Above	Cement/ Bentonite Grout; 9-7/8" Dia. Boring
22.5					500			
25.0	SS 6		3.0	0	500		Sand - Med. Reddish Brown, Med.-Grained, Well Sorted, Saturated Clay - Med. Reddish Brown Sandstone - Med. Reddish Brown, Med. to Coarse-Grained, Saturated	
27.5								

SS = Split-barrel sample.
NA = Not applicable.

Boring Log

nt	Fansteel Metals	Project No.	111	Boring No.	B-30
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	ASH
		Surface Elevation (ft/msl)	517.8		
Date Started	2/1/93	Bottom of Well (ft)	———	Checked By/Date	BES - 3/5/93
Date Completed	2/1/93	Bottom of Boring (ft)	12.0	Page 1	of 1

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
0.0								Ground Surface
	SS 1	NA	2.0	0	500		Sandy Clay - Dk. Brown, Loose, Sand is Fine- to Med.-Grained, Rooted to 0.8, Damp to Dry	Cement/ Bentonite Grout; 9-7/8" Dia. Boring
					400			
2.5	SS 2		2.8	0	450		Clayey Silt - Dk. Brown, Moist	
					500		Silty Clay - Med. Orange Brown, Dry	
5.0					NA			
7.5	SS 3		2.2	0	550		- Becomes Lt. Orange Brown at 8.0'	
10.0					NA		Sand - Very Fine- to Very Coarse-Grained, Very Wet	
12.5								

SS = Split-barrel sample.
NA = Not applicable.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-31
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	ASH
		Surface Elevation (ft/msl)	518.0		
Date Started	2/2/93	Bottom of Well (ft)	—	Checked By/Date	BES - 3/15/93
Date Completed	2/2/93	Bottom of Boring (ft)	17.5	Page 1 of 1	

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
0.0								Ground Surface
2.5	SS 1	NA	2.5	0	400 500		Sandy Clay - Med. Brown to Dk. Brown, Sand is Fine- to Med.-Grained, Rooted to 1.0', Angular, Highly Weathered with Some Shale Fragments (≤1/2" in Dia.), Damp - Orange-Brown Limonitic Staining at 1.3'	Cement/ Bentonite Grout
5.0	SS 2		3.2	0	500		Clayey Silt - Lt. Gray to Med. Gray, Damp	9-7/8" Dia. Boring
							Silty Clay - Med. Orange Brown with Few Lt. Gray Mottles, Very Cohesive, Trace Limonitic Staining	
7.5					NA		Sandy Clay - Dk. Brown, Sand is Fine- to Med.-Grained, Damp - Becomes Moist at 8.0'	
10.0	SS 3		1.5	0	500 NA		Clayey Silt - Med. Brown to Dk. Brown, Damp to Moist	
12.5								
15.0	SS 4		3.8	0	NA		Silt - Med. Brown to Dk. Brown, Very Wet - Some Clay from 14.0'	
17.5							Shale - Med. Bluish Gray to Dk. Bluish Gray, Very Fissile, Highly Weathered, Damp	

SS = Split-barrel sample.
NA = Not applicable.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-32
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	RS
		Surface Elevation (ft/msl)	531.4		
Date Started	2/3/93	Bottom of Well (ft)	———	Checked By/Date	ASH - 3/9/93
Date Completed	2/3/93	Bottom of Boring (ft)	27.0	Page 1 of 2	

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
0.0								Ground Surface
	SS 1	NA	2.0	0	500		Silty Clay - Med. Brown with Reddish Brown Streaks, Some Rock Fragments, Damp	
2.5								
	SS 2		5.0	0	350		- Becomes Mottled with Gray Fine-Grained Sand and Black Streaks at 4.5'	
5.0								
7.5							- Becomes Med. Orange Brown, Mottled at 7'	
	SS 3		5.0	0	500			Cement/ Bentonite Grout
10.0					450		- Becomes Dense at 10'	9-7/8" Dia. Boring
12.5								
15.0	SS 4		5.0	0	550			
17.5								

See footnotes at end of boring log.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-32
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	RS
		Surface Elevation (ft/msl)	531.4		
Date Started	2/3/93	Bottom of Well (ft)	—	Checked By/Date	ASH - 3/9/93
Date Completed	2/3/93	Bottom of Boring (ft)	27.0	Page	2 of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
20.0	SS 5	NA	5.0	0	500		Silty Clay - Same as Above	
22.5	SS 6		5.0	0	450		- Becomes Moist at 24' - Becomes Damp at 25.5'	Cement/ Bentonite Grout; 9-7/8" Dia. Boring
25.0							Sand - Lt. Orange Brown, Fine-Grained, Well Sorted, Saturated	
27.5								

SS = Split-barrel sample.
NA = Not applicable.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-33
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	RS
Date Started	2/3/93	Surface Elevation (ft/msl)	531.2	Checked By/Date	ASH - 3/9/93
Date Completed	2/3/93	Bottom of Well (ft)	—		
		Bottom of Boring (ft)	25.0	Page 1	of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
0.0								Ground Surface
2.5	SS 1	NA	2.5	0	400		Silty Clay - Med. Brown, Dense, Rooted to 0.9', Damp - Becomes Med. Reddish Brown at 0.7'	
5.0	SS 2	NA	5.0	0	500		- Black Shale Fragments from 4' to 6' - Becomes Lt. Reddish Brown at 6' - Black Gritty Layer, Fine-Grained, Dense from 6.2' to 6.5'	
7.5							- Becomes Med. Reddish Brown, Mottled, Very Dense and Malleable at 7.5'	
10.0	SS 3	NA	5.0	0	400			Cement/ Bentonite Grout 9-7/8" Dia. Boring
12.5								
15.0	SS 4	NA	5.0	0	500			
17.5								

See footnotes at end of boring log.

Boring Log

ent	Fansteel Metals	Project No.	111	Boring No.	B-33
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	RS
		Surface Elevation (ft/msl)	531.2		
Date Started	2/3/93	Bottom of Well (ft)	—	Checked By/Date	ASH - 3/9/93
Date Completed	2/3/93	Bottom of Boring (ft)	25.0	Page 2	of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
20.0	SS 5	NA	5.0	0	500		Silty Clay - Same as Above	Cement/ Bentonite Grout; 9-7/8" Dia. Boring
22.5								
25.0	SS 6		2.5	0	500		Sand - Med. Reddish Brown, Fine-Grained, Well Sorted, Slightly Clayey, Saturated	
27.5								

SS = Split-barrel sample.
NA = Not applicable.

Boring Log

nt	Fansteel Metals	Project No.	111	Boring No.	B-34
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	RS
		Surface Elevation (ft/msl)	530.9		
Date Started	2/3/93	Bottom of Well (ft)	—	Checked By/Date	ASH - 3/15/93
Date Completed	2/3/93	Bottom of Boring (ft)	22.5	Page 1 of 2	

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
0.0								Ground Surface
2.5	SS 1	NA	2.5	0	500		Silty Clay - Med. Brown with Lithic Fragments, Damp - Becomes Med. Reddish Brown at 1.5'	
5.0	SS 2		5.0	0	500			
7.5					400			
10.0	SS 3		5.0	0	500			Cement/ Bentonite Grout; 9-7/8" Dia. Boring
12.5					550		- Becomes Lt. Reddish Brown, Mottled with Gray Fine-Grained Sand at 11.5'	
15.0	SS 4		5.0	0	500			
17.5								

See footnotes at end of boring log.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-34
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	RS
		Surface Elevation (ft/msl)	530.9		
Date Started	2/3/93	Bottom of Well (ft)	———	Checked By/Date	ASH - 3/15/93
Date Completed	2/3/93	Bottom of Boring (ft)	22.5	Page	2 of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
20.0	SS 5	NA	5.0	0	500		Silty Clay - Same as Above - Becomes Med. Reddish Brown with Black Streaks at 21'	Cement/ Bentonite Grout 9-7/8" Dia. Boring
22.5							Sand - Med. Orange Brown, Fine-Grained, Slightly Clayey, Saturated	
25.0								

SS = Split-barrel sample.
NA = Not applicable.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-35
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	RS
		Surface Elevation (ft/msl)	532.2		
Date Started	2/3/93	Bottom of Well (ft)	—	Checked By/Date	ASH - 3/15/93
Date Completed	2/3/93	Bottom of Boring (ft)	12.0	Page	1 of 1

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
0.0								Ground Surface
	SS 1	NA	2.5	0	450		Silty Clay - Med. Brown with Reddish Brown Streaks, Damp	Cement/ Bentonite Grout; 9-7/8" Dia. Boring
2.5					500		Sandy Clay - Med. Reddish Brown, Fine-Grained, Damp - Becomes Dense from 2.0' to 6.0'	
5.0	SS 2		5.0	0	500		- Black Streaks Encountered at 4.5'	
7.5								
	SS 3		4.5	6	500		Silty Clay - Med. Orange Brown, Mottled with Gray Fine-Grained Sand and Black Streaks	
10.0				20+	400		- Becomes Predominantly Black with Some Lt. Orange Brown Mottling at 9.5'	
					450		Sandstone - Med. Orange Brown, Very Fine-Grained, Hard, Weathered, Strong Ammonia Odor - Auger Refusal at 12'	
12.5								
15.0								

SS = Split-barrel sample.
NA = Not applicable.

Boring Log

nt	Fansteel Metals	Project No.	111	Boring No.	B-36
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	ASH
		Surface Elevation (ft/msl)	532.3		
Date Started	2/4/93	Bottom of Well (ft)	—	Checked By/Date	BES - 3/5/93
Date Completed	2/4/93	Bottom of Boring (ft)	28.0	Page 1 of 2	

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
0.0								Ground Surface
	SS 1	NA	2.0	0	500		Clayey Sand - Med. Brown to Dk. Brown, Sand is Fine- to Med.-Grained, Moist	
					450			
2.5	SS 2		2.0	0	450		- Becomes Very Cohesive with Increased Clay Content from 2.5' to 2.8' - Becomes Med. Orange Brown at 2.5'	
5.0					NA			
7.5	SS 3		4.0	40	550		- Solvent Odor from 7.0'	Cement/ Bentonite Grout
10.0				60	700			9-7/8" Dia. Boring
12.5	SS 4		2.0	100	500		- Becomes Lt. Orange Brown, Very Hard, Blocky, Dry from 11.0' to 12.0'	
15.0	SS 5		5.0	10	500		Silty Clay - Med. Brown, Very Cohesive, Damp	
17.5								

See footnotes at end of boring log.

Boring Log

nt	Fansteel Metals	Project No.	111	Boring No.	B-36
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	ASH
		Surface Elevation (ft/msl)	532.3		
Date Started	2/4/93	Bottom of Well (ft)	———	Checked By/Date	BES - 3/5/93
Date Completed	2/4/93	Bottom of Boring (ft)	28.0	Page 2	of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
	SS 5	NA	5.0	10	SAA		Silty Clay - Same as Above	
20.0	SS 6		5.0	5	500		Sand - Med. Brown, Fine- to Med.-Grained, Well Sorted, Damp	Cement/ Bentonite Grout; 9-7/8" Dia. Boring
22.5							- Lt. Gray to Med. Gray Streaks at 22.5'	
					500			
25.0	SS 7		5.0	4			- Saturated from 24.5' - Becomes Dk. Gray from 24.5' to 25.0'	
					NA		- Coarsens with Depth from 25.0'	
27.5								
30.0								

SS = Split-barrel sample.
NA = Not applicable.
SAA = Same as above.

Boring Log

nt	Fansteel Metals	Project No.	111	Boring No.	B-38
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	RS
		Surface Elevation (ft/msl)	520.7		
Date Started	2/2/93	Bottom of Well (ft)	—	Checked By/Date	ASH - 3/15/93
Date Completed	2/2/93	Bottom of Boring (ft)	15.0	Page 1 of 1	

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
0.0								Ground Surface
2.5	SS 1	NA	2.5	0	350 500		Silty Clay - Med. Reddish Brown, Dense, Rooted to 0.5', Damp - Becomes Darker Brown with Black Shale Fragments and Black Streaks at 0.6' - Becomes Damp to Dry at 2.5'	
5.0 7.5	SS 2		5.0	0	400		- Becomes Med. Orange Brown, Mottled with Gray Fine-Grained Sand and Black Streaks at 3'	Cement/ Bentonite Grout 9-7/8" Dia. Boring
10.0 12.5	SS 3		5.0	0	450 500		Clayey Sand - Med. Orange Brown, Fine-Grained Sand - Lt. Brown, Med.-Grained, Damp - Becomes Med. Orange Brown, Saturated at 12'	
15.0	SS 4		2.5	0	400		Sandstone - Med. Brown, Coarse-Grained, Weathered, Well Sorted, Saturated - Med. Orange Brown, Fine-Grained, Well Sorted, Hard from 14.2'	

SS = Split-barrel sample.
NA = Not applicable.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-39
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	RS
Date Started	2/1/93	Surface Elevation (ft/msl)	507.5	Checked By/Date	ASH - 3/15/93
Date Completed	2/1/93	Bottom of Well (ft)	———	Page	1 of 1
		Bottom of Boring (ft)	13.0		

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
0.0								Ground Surface
2.5	SS 1	NA	3.0	0	400 450		Silty Clay - Med. Reddish Brown with Black Shale Fragments and Black Streaks, Damp - Thin Sand Layer at 1.3' - Becomes Very Stiff from 1.3' to 1.7' - Becomes Mottled with Gray Sand at 1.8' - Becomes Sandier, Dense at 2.1'	
5.0	SS 2		5.0	0	400 450		Clayey Sand - Lt. Reddish Brown, Few Black Streaks, Fine-Grained, Black Shale Fragments Throughout	Cement/ Bentonite Grout 9-7/8" Dia. Boring
7.5							Shale - Black, Highly Weathered with Limonite Stains Throughout, Crumbles Easily, Dry	
10.0	SS 3		5.0	0	500 350			
12.5							Silty Clay - Reddish Brown, Damp	
15.0								

SS = Split-barrel sample.
NA = Not applicable.

Boring Log

nt	Fansteel Metals	Project No.	111	Boring No.	B-41
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	ASH
		Surface Elevation (ft/msl)	521.6		
Date Started	2/1/93	Bottom of Well (ft)	———	Checked By/Date	BES - 3/5/93
Date Completed	2/1/93	Bottom of Boring (ft)	14.5	Page 1 of 1	

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
0.0								Ground Surface
2.5	SS 1	NA	2.5	0	500		Sand - Dk. Brown, Fine- to Med.-Grained, Rooted to 1.1', Damp to Moist	Cement/ Bentonite Grout; 9-7/8" Dia. Boring
5.0	SS 2		5.0	0	450		Clayey Sand and Silt - Med. Orange Brown, Sand is Fine- to Med.-Grained, Dry to Damp	
7.5								
10.0	SS 3		3.5	0	400		Silty Clay - Med. Orange Brown with Some Med. Gray Mottles, Trace Fine-Grained Sand, Damp	
					500			
12.5					NA		Clayey Silt - Med. Orange Brown, Trace Clay, Moist	
15.0	SS 4		2.0	0	NA		Silt - Med. Brown, Wet	

SS = Split-barrel sample.
NA = Not applicable.

Boring Log

nt	Fansteel Metals	Project No.	111	Boring No.	B-42
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	ASH
		Surface Elevation (ft/msl)	520.1		
Date Started	2/2/93	Bottom of Well (ft)	—	Checked By/Date	BES - 3/5/93
Date Completed	2/2/93	Bottom of Boring (ft)	15.0	Page 1 of 1	

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
0.0								Ground Surface
	SS 1	NA	2.0	0	500 550		Clayey Sand - Med. Brown to Dk. Brown, Loose, Sand is Fine- to Med.-Grained, Rooted to 1.2', Dry	
2.5								Cement/ Bentonite Grout
5.0	SS 2		4.0	0	450 NA		Sandy Clay - Med. Reddish Brown to Dk. Reddish Brown, Very Cohesive, Damp - Becomes Med. Orange Brown, Very Cohesive, Dry at 5.0'	9-7/8" Dia. Boring
7.5								
10.0	SS 3		4.0	0 3	500 NA			
12.5								
15.0	SS 4		3.0	0	NA		Sand - Med. Brown, Very Fine- to Very Coarse-Grained, Very Wet Shale - Med. Bluish Gray, Very Fissile	
17.5								

SS = Split-barrel sample.
NA = Not applicable.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-46
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	ASH
		Surface Elevation (ft/msl)	526.3		
Date Started	2/4/93	Bottom of Well (ft)	—	Checked By/Date	BES - 3/5/93
Date Completed	2/4/93	Bottom of Boring (ft)	22.5	Page	1 of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
0.0								Ground Surface
2.5	SS 1	NA	2.5	0	550, 500		Clayey Sand - Dk. Brown, Sand is Med.- to Coarse-Grained, Few Subangular to Subrounded Gravel Fragments (≤1/4" in Dia.) - Becomes Med. Orange Brown with no Gravel at 1.5'	
5.0	SS 2		5.2	0	450, 550			
7.5							Sand - Orange to Med. Orange Brown, Damp to Moist	Cement/ Bentonite Grout
10.0	SS 3		3.8	0	450, 500			9-7/8" Dia. Boring
12.5					NA			
15.0	SS 4		5.0	0	500		Clayey Sand - Med. Orange Brown, Few Lt. to Med. Gray Mottles, Sand is Med.- to Coarse-Grained	
17.5								

See footnotes at end of boring log.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-46
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	ASH
		Surface Elevation (ft/msl)	526.3		
Date Started	2/4/93	Bottom of Well (ft)	—	Checked By/Date	BES - 3/5/93
Date Completed	2/4/93	Bottom of Boring (ft)	22.5	Page	2 of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
							Clayey Sand - Same as Above	
							Sand - Orange Brown with Some Med. Gray Laminations, Med.- to Coarse-Grained, Trace Clay, Moist to Wet	
20.0	SS 5	NA	4.7	0	500			Cement/ Bentonite Grout
							- Becomes Med. Brown, Fine- to Med.-Grained, Wet at 21.0'	9-7/8" Dia. Boring
22.5							Sand and Gravel - Med. Brown, Sand is Med.- to Coarse-Grained, Gravel is Subrounded to Subangular (≤1/2" in Dia.), Very Wet	
25.0								

SS = Split-barrel sample.
NA = Not applicable.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-47
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	RS
		Surface Elevation (ft/msl)	532.0		
Date Started	2/4/93	Bottom of Well (ft)	———	Checked By/Date	ASH - 3/15/93
Date Completed	2/4/93	Bottom of Boring (ft)	27.5	Page	1 of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
0.0								Ground Surface
2.5	SS 1	NA	2.5	10 4	450 525		Silty Clay - Med. Brown, Rooted to 0.8', Damp - Becomes Med. Reddish Brown at 0.8', Mottled with Lithic Fragments and Gray Fine-Grained Sand - Becomes Dense at 1'	
5.0	SS 2		5.0	5	500		Sandy Clay - Med. Reddish Brown, Fine-Grained	
7.5								
10.0	SS 3		5.0	15	500		- Becomes Dense from 9.5' to 11.5' - Gray Fine-Grained Sand Layer from 11.2' to 11.4' - Becomes Dry at 11.5'	Cement/ Bentonite Grout 9-7/8" Dia. Boring
12.5								
15.0	SS 4		5.0	20+	550		Silty Clay - Med. Orange Brown, Dry	
17.5							- Becomes Lt. Brown, Mottled with Gray Fine-Grained Sand at 16.8'	

See footnotes at end of boring log.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-47
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	RS
		Surface Elevation (ft/msl)	532.0		
Date Started	2/4/93	Bottom of Well (ft)	—	Checked By/Date	ASH - 3/15/93
Date Completed	2/4/93	Bottom of Boring (ft)	27.5	Page	2 of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
20.0	SS 5	NA	5.0	15	500		Silty Clay - Same as Above - Becomes Dense from 19.5' to 20.5' - Becomes Med. Orange Brown at 21.5'	Cement/ Bentonite Grout
22.5							- Med. Orange Brown Hardpan Layer from 22.5' to 26', Dry	9-7/8" Dia. Boring
25.0	SS 6		5.0	20 20+	500		- Becomes Moist at 24.5'	
27.5				20	450		Sand - Med. Gray, Coarse-Grained, Well Sorted, Saturated	
30.0								

SS = Split-barrel sample.
NA = Not applicable.

Boring Log

...ent	Fansteel Metals	Project No.	111	Boring No.	B-48
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	RS
		Surface Elevation (ft/msl)	529.2		
Date Started	2/4/93	Bottom of Well (ft)	—	Checked By/Date	ASH - 3/15/93
Date Completed	2/4/93	Bottom of Boring (ft)	27.5	Page	1 of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
0.0								Ground Surface
2.5	SS 1	NA	2.5	EB	500		Silty Clay - Med. Brown, Damp - Becomes Med. Reddish Brown with Lithic Fragments at 0.8'	Cement/ Bentonite Grout; 9-7/8" Dia. Boring
5.0	SS 2		5.0		500		- Black Streaks from 4.5'	
7.5								
10.0	SS 3		5.0		500			
12.5								
15.0	SS 4		5.0		500			
17.5								

See footnotes at end of boring log.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-48
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	RS
		Surface Elevation (ft/msl)	529.2		
Date Started	2/4/93	Bottom of Well (ft)	———	Checked By/Date	ASH - 3/15/93
Date Completed	2/4/93	Bottom of Boring (ft)	27.5	Page	2 of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
20.0	SS 5	NA	5.0	EB	500		Silty Clay - Same as Above	Cement/ Bentonite Grout; 9-7/8" Dia. Boring
22.5							Sandy Clay - Med. Reddish Brown, Fine-Grained, Damp	
25.0	SS 6		5.0		500		- Becomes Lt. Reddish Brown at 25'	
27.5							Sand - Dk. Gray to Black, Med.-Grained, Well Sorted, Saturated	
30.0								

SS = Split-barrel sample.
NA = Not applicable.
= Equipment breakdown; H-Nu dysfunctional during drilling operations.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-49
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	ASH
		Surface Elevation (ft/msl)	526.3		
Date Started	2/5/93	Bottom of Well (ft)	—	Checked By/Date	BES - 3/5/93
Date Completed	2/5/93	Bottom of Boring (ft)	22.0	Page	1 of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
0.0								Ground Surface
	SS 1	NA	2.0	5	500		Fill - Med. Brown to Dk. Brown Sandy Clay, Some Slag, Damp	
				6	525			
2.5	SS 2		5.0	12	500		- Very Hard, Cemented, White Soil from 3.2' to 3.5'	
5.0				14			Silty Clay - Med. Reddish Brown to Dk. Reddish Brown, Very Cohesive	
7.5	SS 3		5.0	6	500			Cement/ Bentonite Grout
10.0				0				9-7/8" Dia. Boring
12.5	SS 4		5.0	0	500		Clayey Silt - Med. Reddish Brown, Mod. Cohesive, Damp to Moist - Becomes Lt. Brown to Med. Brown, Very Cohesive, Damp at 12.2'	
15.0				7				
17.5	SS 5		3.5	26	450			

See footnotes at end of boring log.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-49
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	ASH
		Surface Elevation (ft/msl)	526.3		
Date Started	2/5/93	Bottom of Well (ft)	—	Checked By/Date	BES - 3/5/93
Date Completed	2/5/93	Bottom of Boring (ft)	22.0	Page	2 of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
							Clayey Silt - Same as Above	
20.0	SS 5	NA	3.5	26	450		Sand - Med. Brown, Fine- to Med. Grained, Wet - Med. to Dk. Gray Staining at 18.5	Cement/ Bentonite Grout; 9-7/8" Dia. Boring
22.5								

SS = Split-barrel sample.
NA = Not applicable.
= Auger return.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-50
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	ASH
		Surface Elevation (ft/msl)	524.4		
Date Started	2/5/93	Bottom of Well (ft)	—	Checked By/Date	BES - 3/5/93
Date Completed	2/5/93	Bottom of Boring (ft)	17.0	Page	1 of 1

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
0.0								Ground Surface
	SS 1	NA	2.0	0	525		Fill - Med. Brown to Dk. Brown, Sandy Clay, Damp - Some Gravel (≤ 1/2" in Dia.) from 0.5' to 3.0'	
				4	500			
2.5							- Becomes Lt. Gray to Med. Gray at 2.0'	Cement/ Bentonite Grout
	SS 2		5.0	0	500		Silty Clay - Med. Brown to Dk. Brown, Mod. Cohesive, Some Wood Fragments, Damp	9-7/8" Dia. Boring
5.0							- Becomes Med. Reddish Brown at 5.0'	
7.5	SS 3		5.0	8	500		- Some Lt. Brown Mottles from 7.0' to 7.5' - Becomes Med. Reddish Brown with Some Sand at 7.5'	
10.0					450			
12.5	SS 4		5.0	4	450		- Becomes Med. Brown at 12.0', Moist	
15.0				7	500		Silt - Lt. Brown to Med. Brown, Trace Clay, Wet Clayey Silt - Mod. Yellowish Brown, Moist Sand and Silt - Sand is Fine- to Med.-Grained, Well Sorted, Wet	
17.5								

SS = Split-barrel sample.
NA = Not applicable.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-51
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	RS
		Surface Elevation (ft/msl)	———		
Date Started	2/4/93	Bottom of Well (ft)	———	Checked By/Date	ASH - 3/15/93
Date Completed	2/4/93	Bottom of Boring (ft)	27.5	Page 1 of 2	

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
0.0								Ground Surface
2.5	SS 1	NA	2.5	0	500		Silty Clay - Med. Brown, Damp - Becomes Med. Reddish Brown at 0.9' - Lithic Fragments from 2' to 2.5'	
5.0 7.5	SS 2		5.0	12	550		- Becomes Dense from 4.5' to 7.5'	
10.0 12.5	SS 3		5.0	12	500			Cement/ Bentonite Grout 9-7/8" Dia. Boring
15.0 17.5	SS 4		5.0	10	500		- Becomes Mottled with Gray Fine-Grained Sand and Black Streaks at 12.5'	

See footnotes at end of boring log.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-51
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	RS
		Surface Elevation (ft/msl)	———		
Date Started	2/4/93	Bottom of Well (ft)	———	Checked By/Date	ASH - 3/15/93
Date Completed	2/4/93	Bottom of Boring (ft)	27.5	Page	2 of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	
20.0	SS 5	NA	5.0	5	500		Silty Clay - Same as Above	
22.5				10			Sandy Clay - Med. Olive Brown with Black and Olive-Gold Streaks, Fine-Grained, Damp	Cement/ Bentonite Grout
25.0	SS 6		5.0	20+	500		- Becomes Lt. Brown and Moist at 24' - Becomes Blue/Greenish Gray at 24.7', Darkens with Depth	9-7/8" Dia. Boring
27.5					450		Sand - Dk. Gray to Black, Med.-Grained, Well Sorted, Saturated	
30.0								

SS = Split-barrel sample.
NA = Not applicable.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-52
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	RS
		Surface Elevation (ft/msl)	531.3		
Date Started	2/4/93	Bottom of Well (ft)	—	Checked By/Date	ASH - 3/15/93
Date Completed	2/4/93	Bottom of Boring (ft)	27.5	Page	1 of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
0.0								Ground Surface
2.5	SS 1	-	2.5	5 15	450 500		Silty Clay - Med. Brown, Damp - Becomes Med. Reddish Brown with Lithic Fragments at 0.9'	
5.0 7.5	SS 2		5.0	0	500		- Becomes Dense from 4.5' to 7.5'	
10.0 12.5	SS 3	NA	5.0	0	500			Cement/ Bentonite Grout 9-7/8" Dia. Boring
15.0 17.5	SS 4		5.0	NA	500		- Solid Black Fine-Grained Gritty Layer from 14.5' to 15', Dense, Moist - Becomes Mottled with Gray Fine-Grained Sand and Black Streaks at 15'	

See footnotes at end of boring log.

Boring Log

ent	Fansteel Metals	Project No.	111	Boring No.	B-52
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	RS
		Surface Elevation (ft/msl)	531.3		
Date Started	2/4/93	Bottom of Well (ft)	—	Checked By/Date	ASH - 3/15/93
Date Completed	2/4/93	Bottom of Boring (ft)	27.5	Page	2 of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
20.0	SS 5	NA	5.0	NA	500		Silty Clay - Same as Above	Cement/ Bentonite Grout; 9-7/8" Dia. Boring
22.5								
					500			
25.0	SS 6		5.0				Sandy Clay - Lt. Orange Brown, Fine-Grained, Well Sorted, Moist - Becomes Blue/Greenish Gray at 24.5', Darkens with Depth	
							Sand - Dk. Gray to Black, Med.-Grained, Well Sorted, Saturated	
					450			
27.5								
30.0								

SS = Split-barrel sample.
NA = Not applicable.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-53
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	RS
		Surface Elevation (ft/msl)	530.7		
Date Started	2/8/93	Bottom of Well (ft)		Checked By/Date	ASH - 3/15/93
Date Completed	2/8/93	Bottom of Boring (ft)	26.0	Page	1 of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
0.0								Ground Surface
2.5	SS 1	NA	2.5	0	400 550		Silty Clay - Med. Brown, Rooted to 0.8', Damp - Becomes Med. Reddish Brown with Lithic Fragments at 0.8'	
5.0 7.5	SS 2		5.0	0	500 450			
10.0 12.5	SS 3		5.0	0	500		- Becomes Dk. Reddish Brown and Very Dense from 8.5' to 8.9'	Cement/ Bentonite Grout 9-7/8" Dia. Boring
15.0 17.5	SS 4		5.0	0	450 500		- Becomes Lt. Reddish Brown and Mottled with Gray Fine-Grained Sand at 16.5'	

See footnotes at end of boring log.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-53
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	RS
		Surface Elevation (ft/msl)	530.7		
Date Started	2/8/93	Bottom of Well (ft)		Checked By/Date	ASH - 3/15/93
Date Completed	2/8/93	Bottom of Boring (ft)	26.0	Page 2	of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
20.0	SS 5	NA	5.0	0	450		Silty Clay - Same as Above - Becomes Mottled with Gray Fine-Grained Sand and Black Streaks at 20.0' - Strong Ammonia Odor from 20.0' to 22.5'	Cement/ Bentonite Grout 9-7/8" Dia. Boring
22.5								
25.0	SS 6		3.5	0	450		- Fine-Grained Black Gritty Layer from 23.8' to 24.0' and from 24.3' to 24.9', Moist - Bluish Gray at 24.9'	
							Sand - Lt. Bluish Gray, Med.-Grained, Well Sorted, Moist - Becomes Med. Gray at 25.3 - Becomes Black at 25.6	
27.5								

SS = Split-barrel sample.
NA = Not applicable.

Boring Log

nt	Fansteel Metals	Project No.	111	Boring No.	B-54
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	RS
		Surface Elevation (ft/msl)	530.0		
Date Started	2/5/93	Bottom of Well (ft)	———	Checked By/Date	ASH - 3/15/93
Date Completed	2/5/93	Bottom of Boring (ft)	22.0	Page	1 of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
0.0								Ground Surface
	AU	NA	NA	NA	NA		Cement	
	SS 1		1.0	0	500		Silty Clay - Med. Reddish Brown, Mottled with Black Ashy Material, Very Dense, Damp - Black and Med. Blue Lithic Fragments (~1/4" in Dia.) from 1.5' to 2.4' - Black Ashy Fragments from 2.4' to 2.6' - Becomes Med. Reddish Brown, Dense and Damp at 2.6'	
2.5								
5.0	SS 2		5.0	0	500		- Becomes Lt. Reddish Brown at 6' - Becomes Mottled with Gray Fine-Grained Sand and Black Streaks at 7'	
7.5								
10.0	SS 3	NA	5.0	0	450 400			Cement/ Bentonite Grout 9-7/8" Dia. Boring
12.5								
15.0	SS 4		5.0	0	500		Sandy Clay - Lt. Reddish Brown, Fine-Grained, Moist	
17.5	SS 5		5.0	0	500			

See footnotes at end of boring log.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-54
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	RS
		Surface Elevation (ft/msl)	530.0		
Date Started	2/5/93	Bottom of Well (ft)	———	Checked By/Date	ASH - 3/15/93
Date Completed	2/5/93	Bottom of Boring (ft)	22.0	Page	2 of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
20.0	SS 5	NA	5.0	0	300		Sandy Clay - Same as Above - Becomes Lt. Brown at 19' - Becomes Lt. Greenish Gray at 20' - Becomes Lt. Olive Gray at 20.5' - Becomes Lt. Grayish Green at 21.5'	Cement/ Bentonite Grout 9-7/8" Dia. Boring
22.5							Sand - Brownish Gray, Med.-Grained, Well Sorted, Saturated	

SS = Split-barrel sample.
NA = Not applicable.

Boring Log

'nt	Fansteel Metals	Project No.	111	Boring No.	B-55
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	ASH
		Surface Elevation (ft/msl)	528.56		
Date Started	2/4/93	Bottom of Well (ft)	—	Checked By/Date	BES - 3/5/93
Date Completed	2/4/93	Bottom of Boring (ft)	20.0	Page 1 of 2	

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
0.0								Ground Surface
	AU	NA	NA	NA	NA		Concrete	
	SS 1		1.0	0	575		Sand and Gravel - Med. Gray, Sand is Very Fine- to Very Coarse-Grained, Gravel is ≤1" in Dia., Damp	
2.5								
	SS 2		5.0	0	500		Silty Clay - Med. Reddish Brown, Very Cohesive, Damp	
5.0					425		- Becomes Med. Grayish Brown to Dk. Grayish Brown at 6.5'	
7.5								
	SS 3	NA	5.0	0	500		Clayey Sand - Med. Brown to Dk. Brown, Sand is Fine- to Med.-Grained and Med. to Well Sorted, Damp	Cement/ Bentonite Grout
10.0							Silty Clay - Med. Brown, Mod. Cohesive, few Lt. Gray Mottles, Damp - Wood Fragments at 10.2'	9-7/8" Dia. Boring
12.5								
	SS 4		5.0	0	400			
15.0					450			
17.5	SS 5		5.0	0	500		Clayey Silt - Mod. Brown, Moist - Some Grayish Black (Staining) from 17.5' to 19.5'	

See footnotes at end of boring log.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-55
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	ASH
		Surface Elevation (ft/msl)	528.56		
Date Started	2/4/93	Bottom of Well (ft)	———	Checked By/Date	BES - 3/5/93
Date Completed	2/4/93	Bottom of Boring (ft)	20.0	Page 2 of 2	

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
	SS 5	NA	3.0	0	500		Clayey Silt - Same as Above	Cement/ Bentonite Grout
20.0							Silt and Sand - Med. Brown, Wet	9-7/8" Dia. Boring
22.5								

AU = Auger return.
NA = Not applicable.
= Split-barrel sample.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-56
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	ASH
		Surface Elevation (ft/msl)	527.56		
Date Started	2/4/93	Bottom of Well (ft)	———	Checked By/Date	BES - 3/5/93
Date Completed	2/4/93	Bottom of Boring (ft)	22.0	Page	1 of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
0.0								Ground Surface
	AU	NA	NA	NA	NA		Concrete	
	SS 1		1.0	46	550		Sand and Gravel Fill - Med. Gray, Sand is Very Fine- to Very Coarse-Grained, Gravel is ≤1" in Dia., Damp	
2.5								
	SS 2		5.0	31	500		Silty Clay - Med. Reddish Brown, Abundant Wood Fragments, Damp - Some Dk. Gray to Black Organic Staining from 3.1' to 6.5'	
5.0				41				
7.5								
	SS 3	NA	5.0	2	500		- Becomes Med. Gray at 8.0' with Some Med. Orange-Brown Mottles	Cement/ Bentonite Grout; 9-7/8" Dia. Boring
10.0				1				
12.5								
	SS 4		5.0	10	500			
15.0				6			Clayey Silt - Med. Brown, Moist	
17.5	SS 5		5.0	6	475			

See footnotes at end of boring log.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-56
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	ASH
		Surface Elevation (ft/msl)	527.56		
Date Started	2/4/93	Bottom of Well (ft)	—	Checked By/Date	BES - 3/5/93
Date Completed	2/4/93	Bottom of Boring (ft)	22.0	Page 2 of 2	

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
							Silt - Same as Above	
							Sand - Med. Brown, Fine-Grained, Very Wet - Becomes Dk. Gray from 18.5' to 19.0' - Grain Coarsens with Depth from 19.0'	
20.0	SS 5	NA	5.0	6	475			Cement/ Bentonite Grout; 9-7/8" Dia. Boring
22.5								

AU = Auger return.
NA = Not applicable.
= Split-barrel sample.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-57
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	ASH
Date Started	2/5/93	Surface Elevation (ft/msl)	546.0	Checked By/Date	BES - 3/5/93
Date Completed	2/5/93	Bottom of Well (ft)	NA		
		Bottom of Boring (ft)	32.0	Page	1 of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
0.0								Ground Surface
	SS 1	NA	1.0	0	500		Silty Clay - Dk. Brown, Loose, Trace Fine-Grained Sand, Rooted to 1.8', Wet	
2.5								
	SS 2		5.0	0	500		Sandy Clay - Med. Gray with Some Dk. Reddish Brown Mottles, Hard, Sand is Fine- to Med.-Grained, Dry	
5.0					475		- Mottles Become Med. Orange Brown at 4.6'	
7.5	SS 3		5.0	0	500		- Abundant Black Organic Inclusions from 7.0' to 7.5'	Cement/ Bentonite Grout
10.0							- Becomes Predominantly Orange Brown with Few Lt. Gray to Med. Gray Mottles at 9.5'	9-7/8" Dia. Boring
12.5	SS 4		5.0	0	450		Silty Clay - Lt. Gray to Med. Gray, Very Hard, Few Med. Orange-Brown Mottles, Trace Orange-Brown Nodules, Dry to Damp	
15.0					500			
17.5	SS 5		5.0	0	500		- Becomes Med. Orange Brown, Damp to Moist at 17.0'	

See footnotes at end of boring log.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-57
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	ASH
		Surface Elevation (ft/msl)	546.0		
Date Started	2/5/93	Bottom of Well (ft)	NA	Checked By/Date	BES - 3/5/93
Date Completed	2/5/93	Bottom of Boring (ft)	32.0	Page	2 of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
20.0	SS 5		5.0	0	500		Silty Clay - Same as Above	Cement/ Bentonite Grout; 9-7/8" Dia. Boring
22.5								
25.0	SS 6	NA	5.0	0	500			
							Clayey Silt - Lt. Reddish Brown, Moist	
27.5								
30.0	SS 7		5.0	0	500		Sand - Med. Brown, Fine-Grained, Well Sorted, Moist - Becomes Med.-Grained, Wet at 30.0'	
32.5								

SS = Split-barrel sample.
NA = Not applicable.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-58
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	ASH
		Surface Elevation (ft/msl)	525.9		
Date Started	2/9/93	Bottom of Well (ft)	———	Checked By/Date	BES - 3/15/93
Date Completed	2/9/93	Bottom of Boring (ft)	19.0	Page	1 of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
0.0								Ground Surface
	SS 1	NA	2.0	0	500		Sandy Clay - Med. Orange Brown to Dk. Brown, Stiff, Rooted to 1.0', Damp	
2.5							Clayey Sand - Med. Reddish Brown, Poorly Cohesive, Sand is Fine- to Med.-Grained, Dry	
	SS 2		5.0	0	525		Sandy Clay - Med. Reddish Brown, Stiff to Very Stiff, Sand is Very Fine- to Very Coarse-Grained, Trace Lithic Fragments, Damp	
5.0					500			
7.5								
	SS 3		5.0	2	500			Cement/ Bentonite Grout
10.0				5	450		- Becomes Hard, Very Stiff with Ammonia Odor from 10.0' to 17.0', Clay is Stained Dk. Brown	9-7/8" Dia. Boring
12.5								
	SS 4		5.0	5	500			
15.0				4	475			
17.5	SS 5		2.0	7	NA		Sand - Med. Brown, Very Fine-Grained to Very Coarse-Grained, Very Wet	

See footnotes at end of boring log.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-58
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	ASH
Date Started	2/9/93	Surface Elevation (ft/msl)	525.9	Checked By/Date	BES - 3/15/93
Date Completed	2/9/93	Bottom of Well (ft)	———	Page	2 of 2
		Bottom of Boring (ft)	19.0		

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
	SS 5	NA	2.0	7	NA		Sand - Same as Above - Stained Dk. Gray from 18.2' to 18.6'	Cement/ Bentonite Grout → ← 9-7/8" Dia. Boring
20.0								

SS = Split-barrel sample.
NA = Not applicable.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-59
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	JHB
Date Started	3/31/93	Surface Elevation (ft/msl)	520.4	Checked By/Date	ASH - 5/7/93
Date Completed	3/31/93	Bottom of Well (ft)	—	Page	1 of 1
		Bottom of Boring (ft)	15.0		

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
0.0								Ground Surface
2.5	SS 1	NA	2.5	0	475		Sandy Clay - Reddish Brown, Soft, Sand is Fine- to Med.-Grained, Roots, Moist	
				0	500			
5.0	SS 2		5.0	0	500		- Becomes Orange Brown, Stiffer, Damp at 5', Occasional Pebbles	
7.5				0	475			Cement/ Bentonite Grout
10.0	SS 3		3.5	0	500		Sand - Orange Yellow, Loose, Med.-Grained, Trace Clay, Damp	9-7/8" Dia. Boring
							Sandy Clay - Orange Brown, Very Soft, Sand is Fine- to Med.-Grained, Moist	
12.5				0	475			
							Clayey Sand - Orange Brown, Soft, Moist	
15.0	SS 4		2.0	10	500		Sand - Med. Gray, Coarse-Grained, Hydrocarbon Odor, Wet	
							Sandy Shale - Med. Gray to Dk. Gray, Highly Weathered, Dry	
17.5								

SS = Split-barrel sample.
NA = Not applicable.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-60
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	JHB
		Surface Elevation (ft/msl)	521.0		
Date Started	3/31/93	Bottom of Well (ft)	—	Checked By/Date	ASH - 5/7/93
Date Completed	3/31/93	Bottom of Boring (ft)	17.0	Page 1 of 1	

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
0.0								Ground Surface
	SS 1	NA	2.5	0	450		Sandy Clay - Reddish Brown, Stiff, Roots, Damp	
2.5				0	500		Silt - Dusky Brown, Soft, Well Sorted, Loose, Damp	
	SS 2		5.0	0	400		- Some Fine-Grained Sand at 4.0', Moist	
5.0								
7.5				0	500		Silty Clay - Reddish Brown, Mod. Stiff, Plastic, Some Sand	Cement/ Bentonite Grout
10.0	SS 3		5.0	0	475		Sandy Clay - Orange Brown, Mod. Stiff, Sand is Med.-Grained, Damp to Moist	9-7/8" Dia. Boring
12.5				0	450			
15.0	SS 4		4.0	0	450		- Becomes Med. Dk. Gray, Soft, Moist at 14'	
				0	400			
17.5							Silty Shale - Med. Gray, Mod. Hard, Weathered, Damp	

SS = Split-barrel sample.
NA = Not applicable.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-61
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	JHB
		Surface Elevation (ft/msl)	520.4		
Date Started	4/1/93	Bottom of Well (ft)	———	Checked By/Date	ASH - 5/7/93
Date Completed	4/1/93	Bottom of Boring (ft)	17.5	Page	1 of 1

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
0.0								Ground Surface
	SS 1	NA	2.5	75	1250		Sandy Clay - Mod. Brown, Soft, Roots, Damp to Moist	
				5	750			
2.5								
	SS 2		4.5	20	750		Clayey Silt - Dusky Brown, Soft, Occasional (2-1/2") Fine-Grained Sand Stringer, Damp	
5.0								
				350	500		Silty Clay - Dk. Brown, Stiff, Plastic, Black Staining Throughout, Damp to Moist	
7.5								Cement/ Bentonite Grout
	SS 3		5.0	NA	500		- Becomes Dusky Brown, Softer, Trace Sand, Moist at 8'	9-7/8" Dia. Boring
10.0								
				100	750			
12.5								
	SS 4		4.0	200	750		- Root Fragments from 14.8' to 15.0'	
15.0								
				75	750		Silty Sand - Black, Soft, Loose, Sand is Med.-Grained, Some Pebbles, Hydrocarbon Odor, Moist - Thin Layer of Orange-Brown Clay at 17'	
17.5							Shale - Dk. Gray, Weathered, Damp	

SS = Split-barrel sample.
NA = Not applicable.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-62
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	JHB
Date Started	4/1/93	Surface Elevation (ft/msl)	520.2	Checked By/Date	ASH - 5/7/93
Date Completed	4/1/93	Bottom of Well (ft)	———	Page	1 of 1
		Bottom of Boring (ft)	17.0		

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
0.0								Ground Surface
	SS 1	NA	2.2	0	300		Silty Clay - Lt. Brown, Soft, Roots, Damp	
				0	500			
2.5							Clayey Silt - Lt. Brown, Mod. Soft, Some Fine-Grained Sand, Damp to Moist	
	SS 2		5.0	0	475		Clayey Sand - Reddish Brown, Soft, Sand is Fine-Grained, Damp to Moist	
5.0								
				0	425		Silty Clay - Dk. Brown, Mod. Stiff, Damp	
7.5								Cement/ Bentonite Grout
	SS 3		3.8	0	500		Sandy Clay - Brownish Red, Soft, Plastic, Sand is Fine- to Med.-Grained, Damp to Moist	9-7/8" Dia. Boring
10.0								
				0	475			
12.5								
	SS 4		4.2	0	500			
15.0								
				0	500			
							Shale - Dk. Gray, Weathered, Dry	
17.5								

SS = Split-barrel sample.
= Not applicable.

Boring Log

'ent	Fansteel Metals	Project No.	111	Boring No.	B-63
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	JHB
		Surface Elevation (ft/msl)	519.9		
Date Started	4/1/93	Bottom of Well (ft)	———	Checked By/Date	ASH - 5/7/93
Date Completed	4/1/93	Bottom of Boring (ft)	17.0	Page 1 of 1	

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description		Well/Piezometer Construction Detail
0.0									Ground Surface
	SS 1	NA	2.1	0	500		Silty Clay	- Reddish Brown, Soft, Roots, Damp	
				0	1050				
2.5							Sand	- Reddish Brown, Soft, Fine-Grained, Well Sorted, Damp	
	SS 2		4.8	5	500		Sandy Clay	- Reddish Brown, Mod. Stiff, Plastic, Damp	
5.0									
				15	600				
7.5								- Becomes Reddish Orange, Very Soft, Sand is Med.-Grained, Damp to Moist at 7.5'	Cement/ Bentonite Grout
	SS 3		3.8	6	500				9-7/8" Dia. Boring
10.0									
				6	600				
12.5									
	SS 4		4.2	35	500				
15.0									
				25	600		Sand	- Orange, Med.-Grained, Loose, Well Sorted, Saturated	
							Clay	- Bluish Gray, Stiff, Some Silt, Damp	
							Shale	- Med. Dk. Gray, Weathered, Damp	
17.5									

SS = Split-barrel sample.
NA = Not applicable.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-64
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	JHB
		Surface Elevation (ft/msl)	533.1		
Date Started	4/1/93	Bottom of Well (ft)	———	Checked By/Date	ASH - 5/7/93
Date Completed	4/1/93	Bottom of Boring (ft)	31.0	Page	1 of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
0.0								Ground Surface
	SS 1	NA	2.5	3	800		Sand - Lt. Brown, Loose, Fine-Grained, Roots, Dry	
				10	1200		Sandy Clay - Reddish Brown, Mod. Stiff, Cobbles Throughout, Damp to Dry	
2.5								
	SS 2		5.0	0	750			
5.0							- Sand Content Increases at 5.0'	
				0	900			
7.5								Cement/ Bentonite Grout
	SS 3		2.0	20	1000		Clayey Sand - Reddish Brown, Mod. Soft, Slight Ammonia Odor, Damp - Hardpan at 9.0', Very Hard, Chemically Altered, Sand Grains are Fused Together	9-7/8" Dia. Boring
10.0								
	AU		2.8	350	1300			
12.5								
15.0			NA	NA	NA			
							- Becomes Orange Red at 16.5'	
17.5								

See footnotes at end of boring log.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-64
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	JHB
		Surface Elevation (ft/msl)	533.1		
Date Started	4/1/93	Bottom of Well (ft)	———	Checked By/Date	ASH - 5/7/93
Date Completed	4/1/93	Bottom of Boring (ft)	31.0	Page	2 of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
	AU	NA	NA	NA	NA		Sandy Clay - Same as Above	Cement/ Bentonite Grout; 9-7/8" Dia. Boring
	SS 4		2.9	6.5	900			
20.0			2.9	4	1200			
22.5	AU		NA	NA	NA			
25.0								
	SS 5		1.9	20	750		Sand and Gravel - Orange Brown, Sand is Coarse-Grained, Gravel is Well Rounded, Saturated	
27.5	SS 6		2.0	0	750		- Occasional Sandstone Cobbles at 27' That Appear Chemically Altered, Sand Grains are Fused Together	
30.0							Shale Bedrock - Med. Dk. Gray, Weathered, Dry	
32.5								

SS = Split-barrel sample.
NA = Not applicable.
(= Auger return.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-65
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	JHB
		Surface Elevation (ft/msl)	531.4		
Date Started	4/2/93	Bottom of Well (ft)	———	Checked By/Date	ASH - 5/7/93
Date Completed	4/2/93	Bottom of Boring (ft)	27.5	Page	1 of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
0.0								Ground Surface
				0	800		Sand - Med. Brown, Fine-Grained, Some Silt, Roots, Damp	
2.5	SS 1		2.5	1	900		Sandy Clay - Reddish Brown, Mod. Stiff, Sand is Fine-Grained, Damp	
5.0	SS 2		2.5	5	1200		- Pebbles Throughout at 4.0'	
7.5				NA	NA		Sand - Reddish Brown, Soft, Loose, Fine-Grained, Trace Clay, Damp	Cement/ Bentonite Grout
10.0	SS 3	NA	4.6	0	1000			9-7/8" Dia. Boring
12.5				20	1100		- Dk. Brown Clay Stringer from 10' to 10.3'	
15.0	SS 4		5.0	110	800		- Clay Content Increases from 12.5' to 15.0', Mod. Stiff, Damp	
17.5				800	1500		- Hardpan at 15.5', Orange Brown, Very Hard, Chemically Altered, Sand Grains are Fused Together	

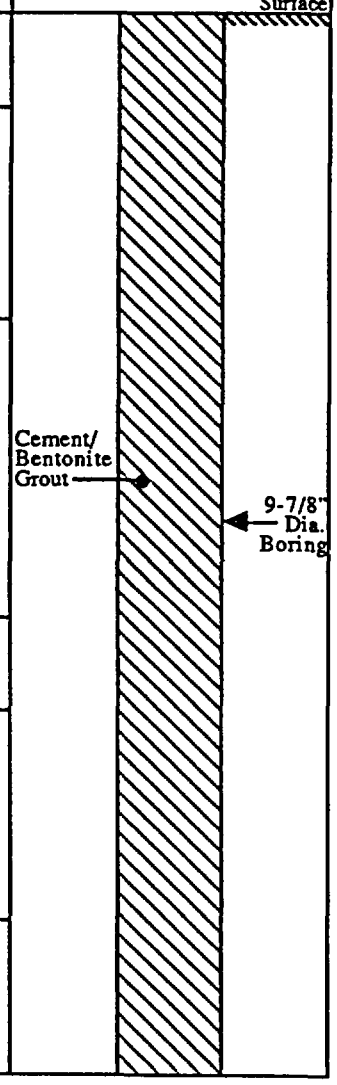
See footnotes at end of boring log.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-66
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	JHB
		Surface Elevation (ft/msl)	531.4		
Date Started	4/2/93	Bottom of Well (ft)	———	Checked By/Date	ASH - 5/7/93
Date Completed	4/2/93	Bottom of Boring (ft)	27.5	Page 1 of 2	

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	
0.0								
	SS 1	NA	2.5	1	475		Silty Sand - Brown, Soft, Loose, Sand is Fine-Grained, Roots, Damp	
				1	900		Silty Clay - Reddish Brown, Mod. Stiff, Damp	
2.5								
	SS 2		5.0	1	900			
5.0								
				12	1200		Clayey Sand - Reddish Brown, Mod. Soft, Sand is Fine- to Med.-Grained, Damp	
7.5								
	SS 3		5.0	1	500			
10.0								
				1	600		Clay - Mod. Brown, Soft, Trace Sand, Damp	
12.5							Clayey Sand - Reddish Brown, Mod. Soft, Sand is Fine- to Med.-Grained, Damp	
	SS 4		4.7	2	450			
15.0								
				9	600		Silty Clay - Lt. Brown, Very Soft, Some Fine-Grained Sand, Damp to Dry	
17.5								

Well/Piezometer Construction Detail



See footnotes at end of boring log.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-66
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	JHB
Date Started	4/2/93	Surface Elevation (ft/msl)	531.4	Checked By/Date	ASH - 5/7/93
Date Completed	4/2/93	Bottom of Well (ft)	—		
		Bottom of Boring (ft)	27.5	Page 2	of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
20.0	SS 5	NA	4.5	6	475		Silty Clay - Same as Above	Cement/ Bentonite Grout; 9-7/8" Dia. Boring
22.5				5	500		- Becomes Moist at 21.0'	
25.0	SS 6		4.1	1	600			
27.5				1	450		Clayey Silt - Lt. Brown, Soft, Trace Sand, Wet	
							Sand - Black, Coarse-Grained, Saturated	
30.0								

SS = Split-barrel sample.
NA = Not applicable.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-65
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	JHB
		Surface Elevation (ft/msl)	531.4		
Date Started	4/2/93	Bottom of Well (ft)	———	Checked By/Date	ASH - 5/7/93
Date Completed	4/2/93	Bottom of Boring (ft)	27.5	Page	2 of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
20.0	SS 5	NA	4.5	35	1200		Sand - Same as Above	
22.5				125	800		Silty Clay - Orange Brown, Stiff, Damp to Moist - Becomes Mod. Brown, Soft, Saturated at 22.5'	Cement/ Bentonite Grout; 9-7/8" Dia. Boring
25.0	SS 6		3.8	380	1000			
27.5				13	900		Sand - Med. Gray, Soft, Loose, Med.-Grained, Some Black Zones, Wet	
30.0								

SS = Split-barrel sample.
NA = Not applicable.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-67
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	JHB
		Surface Elevation (ft/msl)	517.7		
Date Started	4/3/93	Bottom of Well (ft)	———	Checked By/Date	ASH - 5/7/93
Date Completed	4/3/93	Bottom of Boring (ft)	12.5	Page	1 of 1

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
0.0								Ground Surface
	SS 1	NA	2.1	0	500		Sandy Clay - Dk. Brown, Soft, Roots, Damp to Moist	Cement/ Bentonite Grout; 9-7/8" Dia. Boring
				0	500		Silty Sand - Reddish Brown, Soft, Sand is Fine-Grained, Damp	
2.5								
	SS 2		5.0	0	475		Sandy Clay - Reddish Orange, Mod. Stiff, Sand is Micaceous, Damp	
5.0								
				0	500		Clayey Sand - Reddish Orange, Soft, Sand is Fine-Grained, Damp	
7.5								
	SS 3		4.2	0	500		- Sand Coarsens and Becomes Wet at 10.0', Occasional Thin Clay Bands from 10.0' to 11.5'	
10.0								
				0	490			
12.5							Sand - Orange Brown, Loose, Coarse-Grained, Saturated	
15.0								

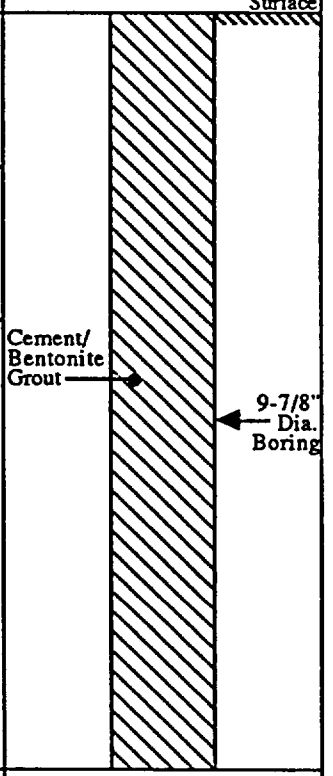
SS = Split-barrel sample.
NA = Not applicable.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-68
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	JHB
		Surface Elevation (ft/msl)	519.3		
Date Started	4/3/93	Bottom of Well (ft)	———	Checked By/Date	ASH - 5/7/93
Date Completed	4/3/93	Bottom of Boring (ft)	12.5	Page	1 of 1

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	
0.0								
2.5	SS 1	NA	0.8	1	500		Sandy Clay - Dk. Brown, Soft, Roots, Moist	
				NA	NA		- Becomes Orange Brown at 0.8', Very Soft, Moist to Wet	
5.0	SS 2		5.0	0	500		Clay - Orange Brown, Mod. Stiff, Plastic, Damp	
7.5				0	500		Sand - Orange Brown, Soft, Loose, Med.-Grained, Trace Clay, Damp	
10.0	SS 3		4.0	0	450		- Coarsens at 7.5', Becomes Orange Red	
12.5				0	500		- Becomes Saturated at 10.0', No Clay	
15.0								

Well/Piezometer Construction Detail



SS = Split-barrel sample.
NA = Not applicable.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-69
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	JHB
		Surface Elevation (ft/msl)	517.6		
Date Started	4/3/93	Bottom of Well (ft)	———	Checked By/Date	ASH - 5/7/93
Date Completed	4/3/93	Bottom of Boring (ft)	12.5	Page	1 of 1

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
0.0								Ground Surface
	SS 1	NA	2.0	0	500		Sandy Clay - Dk. Brown, Soft, Roots, Black Shale Fragments Throughout, Damp to Moist	Cement/ Bentonite Grout
				0	525			
2.5								
	SS 2		5.0	0	500		Silty Clay - Orange Brown, Mod. Stiff, Friable, Damp to Dry	
5.0							Clayey Silt - Orange Brown, Very Soft, Trace Fine-Grained Sand, Damp	
				0	500			9-7/8" Dia. Boring
7.5								
	SS 3		4.8	0	500		Sandy Clay - Orange Brown, Very Soft, Interbedded Silt Lenses (<1" Thick) Throughout, Wet	
10.0								
				0	525			
12.5							Sand - Lt. Orange Brown, Loose, Coarse-Grained, Wet	
15.0								

SS = Split-barrel sample.
NA = Not applicable.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-70
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	JHB
		Surface Elevation (ft/msl)	521.1		
Date Started	3/31/93	Bottom of Well (ft)	———	Checked By/Date	ASH - 5/7/93
Date Completed	3/31/93	Bottom of Boring (ft)	17.5	Page 1 of 1	

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
0.0								Ground Surface
	SS 1	NA	2.5	0	500		Sandy Clay - Mod. Brown, Mod. Stiff, Roots, Damp	
2.5				0	500		- Becomes Stiff at 1.5'	
5.0	SS 2		2.5	0	450		Sand - Med. Brown, Loose, Fine-Grained, Well Sorted, Damp	
7.5				0	500		- Becomes Mod. Stiff with Some Clay at 6.5'	Cement/ Bentonite Grout; 9-7/8" Dia. Boring
10.0	SS 3		5.0	0	450		- Becomes Lt. Orange Brown, Med.-Grained at 9.0'	
12.5				30	475			
15.0	SS 4		4.7	50	450		- Coarsens from 12.5' to 14.0', Occasional Sandstone Cobbles	
17.5				130	450		- Becomes Wet at 15.5'	

SS = Split-barrel sample.
NA = Not applicable.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-71
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	JHB
		Surface Elevation (ft/msl)	519.4		
Date Started	4/1/93	Bottom of Well (ft)	———	Checked By/Date	ASH - 5/7/93
Date Completed	4/1/93	Bottom of Boring (ft)	17.5	Page	1 of 1

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
0.0								Ground Surface
2.5	SS 1	NA	2.5	0	400		Sandy Clay - Mod. Brown, Mod. Soft, Roots, Organic Humus Throughout, Damp	
				25	450			
5.0	SS 2		5.0	30	325		Clayey Silt - Mod. Brown, Soft, Loose, Organic Humus Through-Out, Damp	
7.5				30	450		Silty Clay - Mod. Brown, Mod. Stiff, Some Fine-Grained Sand, Damp to Dry	Cement/ Bentonite Grout
10.0	SS 3		4.2	NA	490		Silty Sand - Reddish Orange, Mod. Soft, Well Sorted, Sand is Fine-Grained, Damp - Sand Coarsens at 9.5', Occasional Clay and Silt Interbeds Throughout, Becomes Moist to Wet	9-7/8" Dia. Boring
12.5				240	400			
15.0	SS 4		4.7	25	500			
							Sand - Orange Red, Coarse-Grained, Saturated	
17.5				75	475		Shale - Black, Weathered, Friable, Dry	

SS = Split-barrel sample.
NA = Not applicable.

Boring Log

ent	Fansteel Metals	Project No.	111	Boring No.	B-72
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	JHB
		Surface Elevation (ft/msl)	520.7		
Date Started	4/1/93	Bottom of Well (ft)	—	Checked By/Date	ASH - 5/7/93
Date Completed	4/1/93	Bottom of Boring (ft)	16.0	Page 1 of 1	

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
0.0								Ground Surface
	SS 1	NA	2.5	25	500		Clay - Reddish Brown to Dusky Brown, Mottled, Mod. Soft, Some Silt, Roots, Damp	
2.5				55	500		Clayey Silt - Mod. Brown, Soft, Loose, Damp	
	SS 2		5.0	5	600			
5.0				35	600		Silty Clay - Reddish Brown, Mod. Stiff, Damp	Cement/ Bentonite Grout
7.5								9-7/8" Dia. Boring
	SS 3		5.0	30	900			
10.0							- Some Fine-Grained Sand at 10.0', Stiff, Dry	
				55	500			
12.5								
	SS 4		3.5	350	750			
15.0							Sand - Orange Brown, Coarse-Grained, Well Rounded, Well Sorted, Trace Clay, Wet	
				3	750			
17.5								

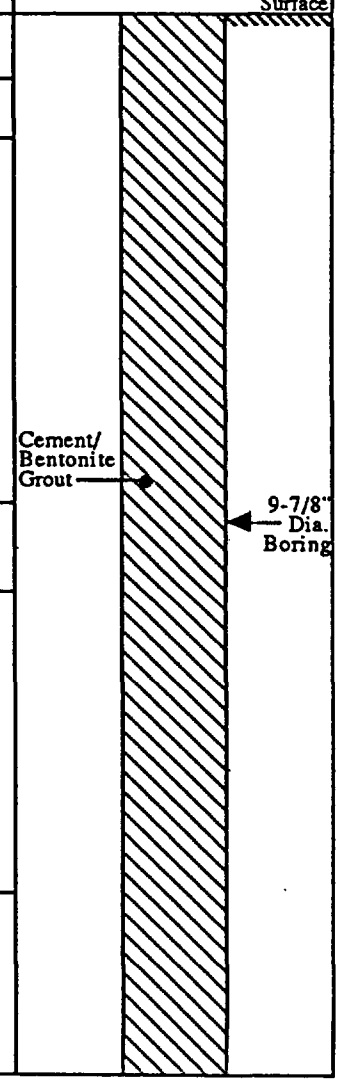
SS = Split-barrel sample.
NA = Not applicable.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-73
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	JHB
		Surface Elevation (ft/msl)	526.76		
Date Started	4/2/93	Bottom of Well (ft)	———	Checked By/Date	ASH - 5/7/93
Date Completed	4/2/93	Bottom of Boring (ft)	22.0	Page 1 of 2	

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	
0.0								
	AU	NA	NA	NA	NA		Concrete	
	SS 1		1.0	0	350		Gravel - Med. Gray, Loose, Dry	
2.5	SS 2		2.5	0	900		Fill - Dk. Brown and Gray, Mottled, Soft, Trace Gravel, Damp	
5.0	SS 3		1.5	0	1500		- Mod. Brown to Lt. Brown, Extremely Soft, Liquid, Lime Flakes, Saturated (Void)	
7.5				0	600		Clayey Silt - Dusky Brown, Mod. Soft, Loose, Moist	
10.0	SS 4		5.0	0	600		Clay - Mod. Brown to Dk. Brown, Very Stiff, Some Fine-Grained Sand, Damp	
12.5				0	700		- Becomes Reddish Brown, Mottled, Root Traces at 13.5'	
15.0	SS 5		4.8	0	600		Sandy Clay - Olive Green and Mod. Reddish Brown, Mottled, Mod. Stiff, Occasional Pebbles, Damp	
17.5				0	600			

Well/Piezometer Construction Detail



See footnotes at end of boring log.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-73
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	JHB
		Surface Elevation (ft/msl)	526.76		
Date Started	4/2/93	Bottom of Well (ft)	———	Checked By/Date	ASH - 5/7/93
Date Completed	4/2/93	Bottom of Boring (ft)	22.0	Page	2 of 2

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
	SS 5	NA	4.8	0	600		Sandy Clay - Same as Above	Cement/ Bentonite Grout; 9-7/8" Dia. Boring
							Silty Sand - Dusky Brown, Very Soft, Loose, Saturated	
20.0	SS 6		2.0	0	500		- Silt and Clay Interbeds Throughout from 20'	
							Sand - Grayish Black, Loose, Coarse-Grained, Saturated	
22.5								

AU = Auger return.
NA = Not applicable.
(= Split-barrel sample.

Boring Log

Client	Fansteel Metals	Project No.	111	Boring No.	B-74
Location	Muskogee, Oklahoma	Driller	A. W. Pool Drilling	Field Scientist	JHB
Date Started	4/2/93	Surface Elevation (ft/msl)	522.3	Checked By/Date	ASH - 5/7/93
Date Completed	4/2/93	Bottom of Well (ft)	—	Page	1 of 1
		Bottom of Boring (ft)	17.0		

Depth (Feet)	Sample No. and Type	SPT Blows (6") or RQD (%)	Sample Recovery (ft)	H-Nu Reading (ppm)	Radiation (µR/hr)	Profile	Profile Description	Well/Piezometer Construction Detail
0.0								Ground Surface
	SS 1	NA	2.5	0	900		Sand - Mod. Brown, Soft, Loose, Some Silt, Roots, Damp	
2.5				0	1100		Clay - Orange Brown, Mottled, Mod. Stiff, Damp	
5.0	SS 2		5.0	0	500		- Becomes Reddish Brown, Stiff, Some Fine-Grained Sand at 5.0'	Cement/ Bentonite Grout; 9-7/8" Dia. Boring
7.5				0	750			
10.0	SS 3		5.0	0	600			
12.5				0	600		Silty Clay - Orange Brown, Mod. Soft, Moist; - Becomes Very Soft, Saturated at 12.5', Some Fine- to Med.-Grained Sand	
15.0	SS 4		4.5	0	600			
17.5				0	500			

SS = Split-barrel sample.
NA = Not applicable.

Appendix B

Test Pit Logs

Earth Sciences Consultants, Inc.

Test Pit Log

Project No. 111 Project Name Fansteel, Inc. Test Pit ID TP-1

Field Scientist F. W. Benacquista Date 2/17/93

Surface Elevation ---------- Method of Excavation Backhoe

Pit Dimensions ---------- Sheet 1 of 1

Depth (ft)	Soil or Rock Description	Comments
		Ground Surface
0	Organic Zone (Grass, Roots) - Dk. Brown Black, Soft, Moist	
	Organic-Rich Silt and Clay - Dk. Brown, Soft, Damp	
1.0	Silty Clay - Med. Brown and Brownish Yellow with Gray Mottling, Stiff, Trace to Little Sand, Trace Rock Fragments, Damp	
2.0		
3.0		
	Bottom of Test Pit at 3.8'	
4.0		

Earth Sciences Consultants, Inc.

Test Pit Log

Project No. 111 Project Name Fansteel, Inc. Test Pit ID TP-2

Field Scientist F. W. Benacquista Date 2/17/93

Surface Elevation ——— Method of Excavation Backhoe

Pit Dimensions ——— Sheet 1 of 1

Depth (ft)	Soil or Rock Description	Comments
		Ground Surface
0	Organic Zone (Grass, Roots) - Dk. Brown Black, Soft, Moist	
	Organic-Rich Silt and Clay - Dk. Brown, Soft, Moist	
1.0		
	Silty Clay - Brownish Yellow with Gray Mottles, Med. Stiff, Little Rock Fragments, Trace Organics, Damp to Moist	
2.0		
3.0		
4.0		
	Bottom of Test Pit at 4.2'	
5.0		

Earth Sciences Consultants, Inc.

Test Pit Log

Project No. 111 Project Name Fansteel, Inc. Test Pit ID TP-3

Field Scientist F. W. Benacquista Date 2/17/93

Surface Elevation ------- Method of Excavation Backhoe

Pit Dimensions --------- Sheet 1 of 1

Depth (ft)	Soil or Rock Description	Comments
		Ground Surface
0	Organic Zone (Grass, Roots) - Dk. Brownish Black, Soft, Moist	
	Organic-Rich Silt and Clay - Dk. Brown, Soft, Moist	
1.0	Silty Clay - Lt. Brown to Yellow with Gray Mottles, Stiff, Trace Rock Fragments, Damp	
2.0		
3.0		
4.0		
5.0	Bottom of Test Pit at 5.2'	

Earth Sciences Consultants, Inc.

Test Pit Log

Project No. 111 Project Name Fansteel, Inc. Test Pit ID TP-4

Field Scientist F. W. Benacquista Date 2/17/93

Surface Elevation ---------- Method of Excavation Backhoe

Pit Dimensions ---------- Sheet 1 of 1

Depth (ft)	Soil or Rock Description	Comments
		Ground Surface
0	Organic Zone (Grass, Roots) - Dk. Brownish Black, Soft, Moist	
	Organic-Rich Silt and Clay - Dk. Brown to Med. Brownish Yellow, Soft, Moist	
1.0		
	Silty Clay - Lt. Brown to Yellow with Gray Mottles, Stiff, Trace Rock Fragments, Tree Roots, Damp to Moist	
2.0		
3.0		Encountered Wire Cable at Approximately 3 Feet; Water Emanating from Cable Trench
	Bottom of Test Pit at 3.5'	
4.0		

Earth Sciences Consultants, Inc.

Test Pit Log

Project No. 111 Project Name Fansteel, Inc. Test Pit ID TP-5

Field Scientist F. W. Benacquista Date 2/17/93

Surface Elevation --------- Method of Excavation Backhoe

Pit Dimensions --------- Sheet 1 of 1

Depth (ft)	Soil or Rock Description	Comments
		Ground Surface
0	Organic Zone (Grass, Roots) - Dk. Brownish Black, Soft, Moist	
	Silt and Clay - Dk. Brown, Soft, Organic Debris, Moist	
1.0	Silty Clay - Lt. Brown to Yellow with Gray Mottles, Stiff, Trace Sand, Trace Rock Fragments, Damp	
2.0		
3.0		
4.0		
	Bottom of Test Pit at 4.1'	
5.0		

Earth Sciences Consultants, Inc.

Test Pit Log

Project No. 111 Project Name Fansteel, Inc. Test Pit ID TP-6

Field Scientist F. W. Benacquista Date 2/17/93

Surface Elevation ------- Method of Excavation Backhoe

Pit Dimensions ------- Sheet 1 of 1

Depth (ft)	Soil or Rock Description	Comments
		Ground Surface
0	Organic Zone (Grass, Roots) - Dk. Brownish Black, Soft, Moist	
	Silt and Clay - Med. Brown, Soft, Organic-Rich Zones, Moist	
1.0	Silty Clay - Yellowish Brown with Gray Mottles, Stiff, Trace Rock Fragments, Damp to Moist	
2.0		
3.0		
4.0		
	Bottom of Test Pit at 4.1'	
5.0		

Earth Sciences Consultants, Inc.

Test Pit Log

Project No. 111 Project Name Fansteel, Inc. Test Pit ID TP-7

Field Scientist F. W. Benacquista Date 2/17/93

Surface Elevation ------- Method of Excavation Backhoe

Pit Dimensions ------- Sheet 1 of 1

Depth (ft)	Soil or Rock Description	Comments
		Ground Surface
0	Organic Zone (Grass, Roots) - Dk. Brownish Black, Soft, Moist	
	Organic-Rich Silt and Clay - Brown with Black Mottles, Soft, Trace Roots Moist	
	Silt - Brownish Gray, Soft, Moist	
1.0		
	Silty Clay - Brownish Yellow with Gray Mottles, Stiff, Trace Sand, Trace Rock Fragments, Damp to Moist	
2.0		
3.0		
	Bottom of Test Pit at 3.8'	
4.0		

Earth Sciences Consultants, Inc.

Test Pit Log

Project No. 111 Project Name Fansteel, Inc. Test Pit ID TP-8

Field Scientist F. W. Benacquista Date 2/17/93

Surface Elevation -------- Method of Excavation Backhoe

Pit Dimensions -------- Sheet 1 of 1

Depth (ft)	Soil or Rock Description	Comments
		Ground Surface
0	Organic Zone (Grass, Roots) - Dk. Brownish Black, Soft, Moist	
	Organic-Rich Silt and Clay - Dk. Brown with Black Mottles, Soft, Trace Roots, Moist	
1.0	Silt - Gray, Soft to Med. Stiff, Damp	
	Silty Clay - Brownish Yellow, Stiff, Trace Sand, Trace Rock Fragments, Damp	
2.0		
3.0		
	Bottom of Test Pit at 3.8'	
4.0		

Earth Sciences Consultants, Inc.

Test Pit Log

Project No. 111 Project Name Fansteel, Inc. Test Pit ID TP-9

Field Scientist F. W. Benacquista Date 2/17/93

Surface Elevation -------- Method of Excavation Backhoe

Pit Dimensions -------- Sheet 1 of 1

Depth (ft)	Soil or Rock Description	Comments
		Ground Surface
0	Organic Zone (Roots, Grass) - Dk. Brownish Black, Soft, Moist	
	Organic-Rich Silt and Clay - Dk. Brown, Soft, Rooted, Moist	
	Clay - Brown with Gray Mottles, Very Stiff, Little Silt, Damp	
1.0		
2.0		
3.0		
	Bottom of Test Pit at 3.8'	
4.0		
5.0		

Earth Sciences Consultants, Inc.

Test Pit Log

Project No. 111 Project Name Fansteel, Inc. Test Pit ID TP-10

Field Scientist F. W. Benacquista Date 2/17/93

Surface Elevation -------- Method of Excavation Backhoe

Pit Dimensions -------- Sheet 1 of 1

Depth (ft)	Soil or Rock Description	Comments
		Ground Surface
0	Organic Zone (Roots, Grass) - Dk. Brownish Black, Soft, Moist,	
	Organic-Rich Silt and Clay - Brown with Grayish-Black Mottles	
	Silt - Grayish Brown, Very Soft, Little Clay, Moist to Wet, Water Encountered at 1.2'	
1.0		
2.0	Silty Clay - Brownish Yellow with Gray Mottles, Stiff to Very Stiff, Trace Sand, Damp	
3.0		
4.0	Bottom of Test Pit at 4.1'	
5.0		

Earth Sciences Consultants, Inc.

Test Pit Log

Project No. 111 Project Name Fansteel, Inc. Test Pit ID TP-11

Field Scientist F. W. Benacquista Date 2/17/93

Surface Elevation -------- Method of Excavation Backhoe

Pit Dimensions -------- Sheet 1 of 1

Depth (ft)	Soil or Rock Description	Comments
		Ground Surface
0	Organic Zone (Grass, Roots) - Brown, Soft, Moist	
	Organic-Rich Silt and Clay - Brown with Grayish-Black Mottles, Soft, Trace Roots, Moist	
	Silt and Clay - Grayish Brown, Med. Stiff, Damp to Moist	
1.0		
2.0	Silt Clay - Brownish Yellow with Gray Mottles, Stiff, Trace Sand, Damp	
3.0		
4.0		
	Bottom of Test Pit at 4.4'	
5.0		

Earth Sciences Consultants, Inc.

Test Pit Log

Project No. 111 Project Name Fansteel, Inc. Test Pit ID TP-12

Field Scientist F. W. Benacquista Date 2/17/93

Surface Elevation -------- Method of Excavation Backhoe

Pit Dimensions -------- Sheet 1 of 1

Depth (ft)	Soil or Rock Description	Comments
		Ground Surface
0	Organic Zone (Grass, Roots) - Brownish Black, Soft, Moist	
	Organic-Rich Silt and Clay - Brown with Grayish-Black Mottles, Soft, Moist	
	Silt - Gray, Soft to Stiff, Damp	
1.0	Silty Clay - Brownish Gray, Stiff, Little Sand, Damp	
2.0	Clay - Brownish Yellow, Very Stiff to Hard, Little Silt, Damp	
3.0		
4.0		
	Bottom of Test Pit at 4.2'	
5.0		

Earth Sciences Consultants, Inc.

Test Pit Log

Project No. 111 Project Name Fansteel, Inc. Test Pit ID TP-13

Field Scientist F. W. Benacquista Date 2/17/93

Surface Elevation -------- Method of Excavation Backhoe

Pit Dimensions -------- Sheet 1 of 1

Depth (ft)	Soil or Rock Description	Comments
0		Ground Surface
	Organic Zone (Grass, Roots) - Brown, Soft, Moist	
	Silt and Clay - Brown with Grayish-Black Mottles, Soft, Damp to Moist	
1.0		
	Sandy Silt - Grayish Brown, Soft, Damp	
2.0	Clay - Brownish Yellow, Stiff, Little Silt, Trace Sand, Damp	
3.0		
4.0		
	Bottom of Test Pit at 4.8'	
5.0		

Appendix C

Aquifer Characterization Data

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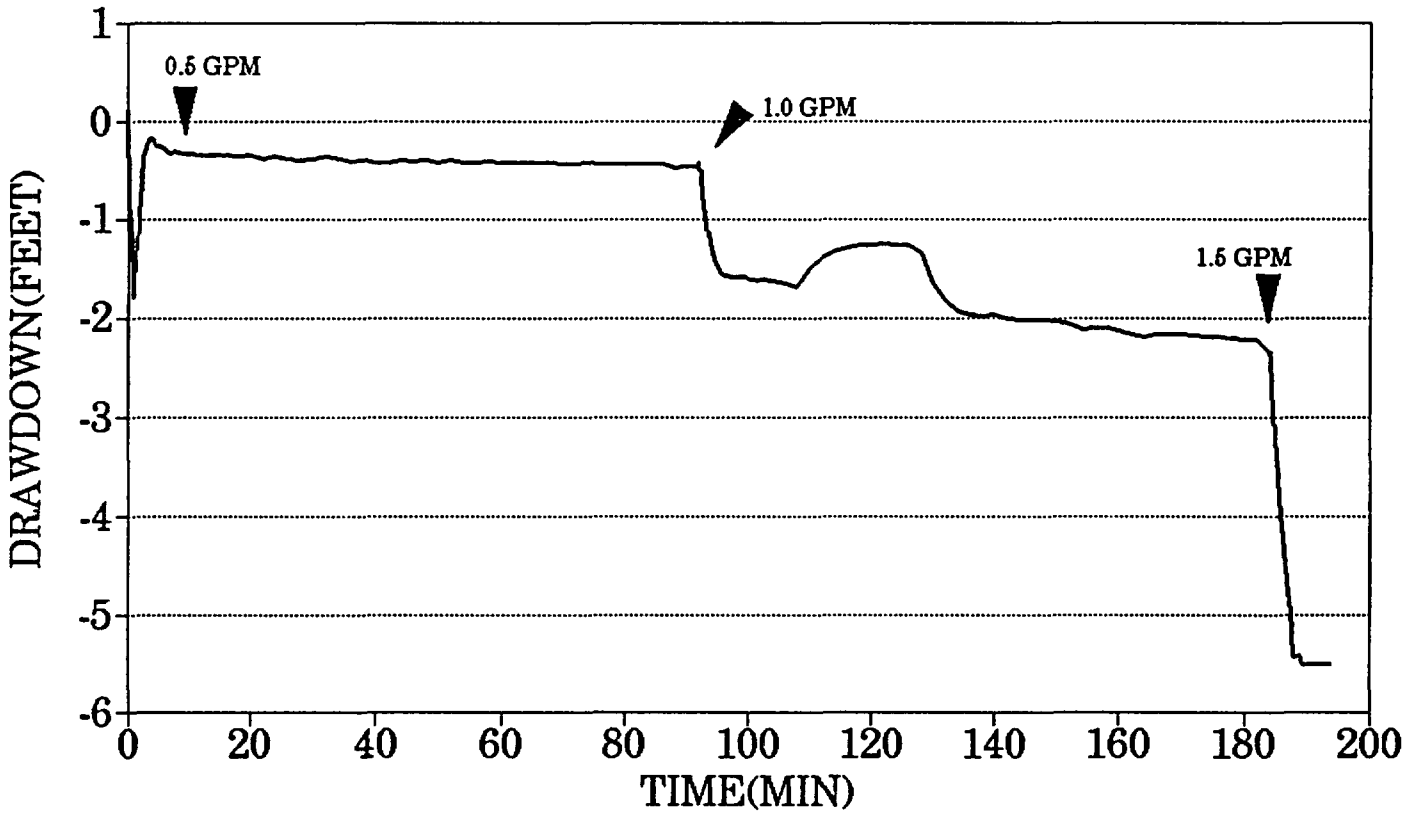

FANSTEEL, INC.

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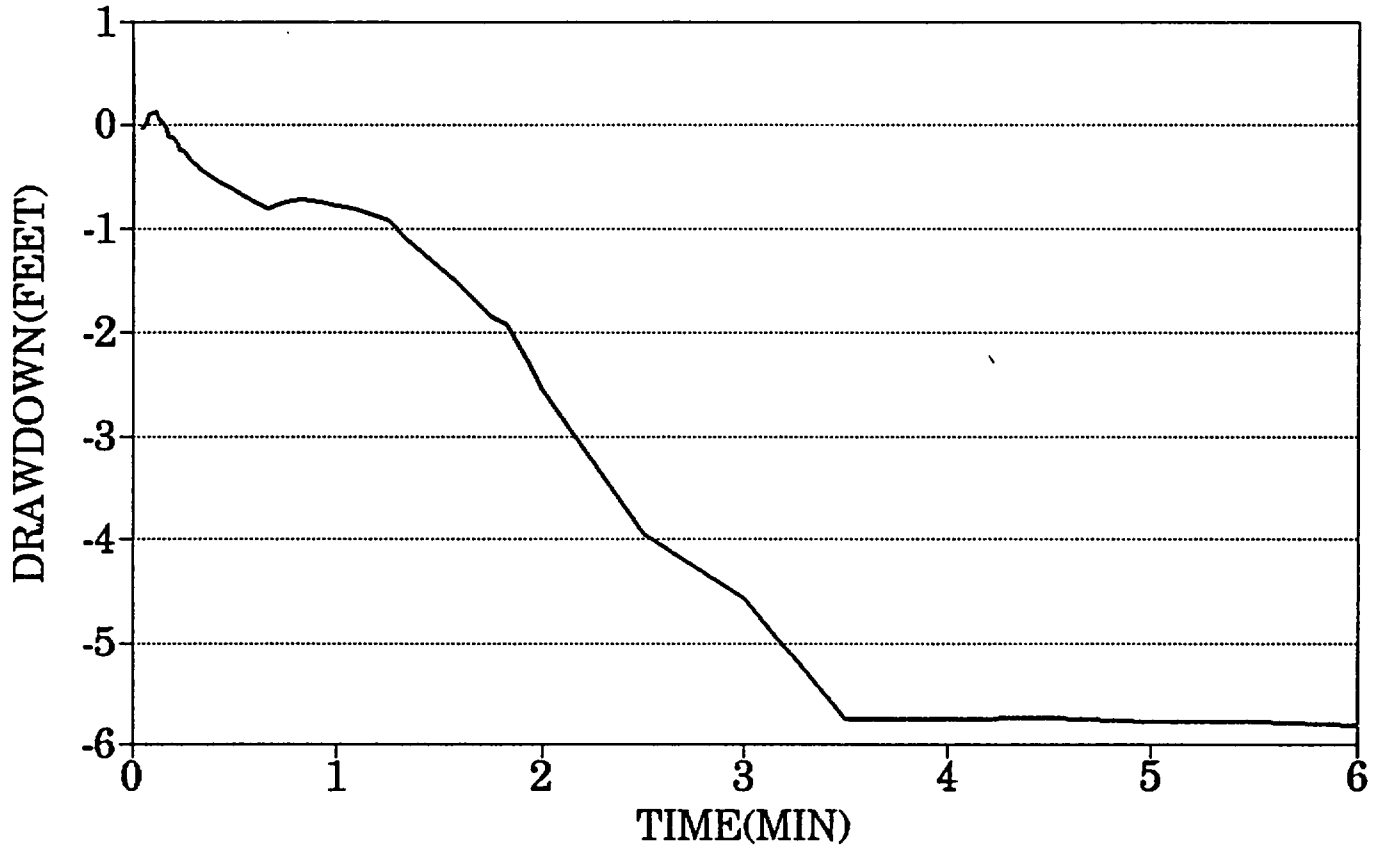

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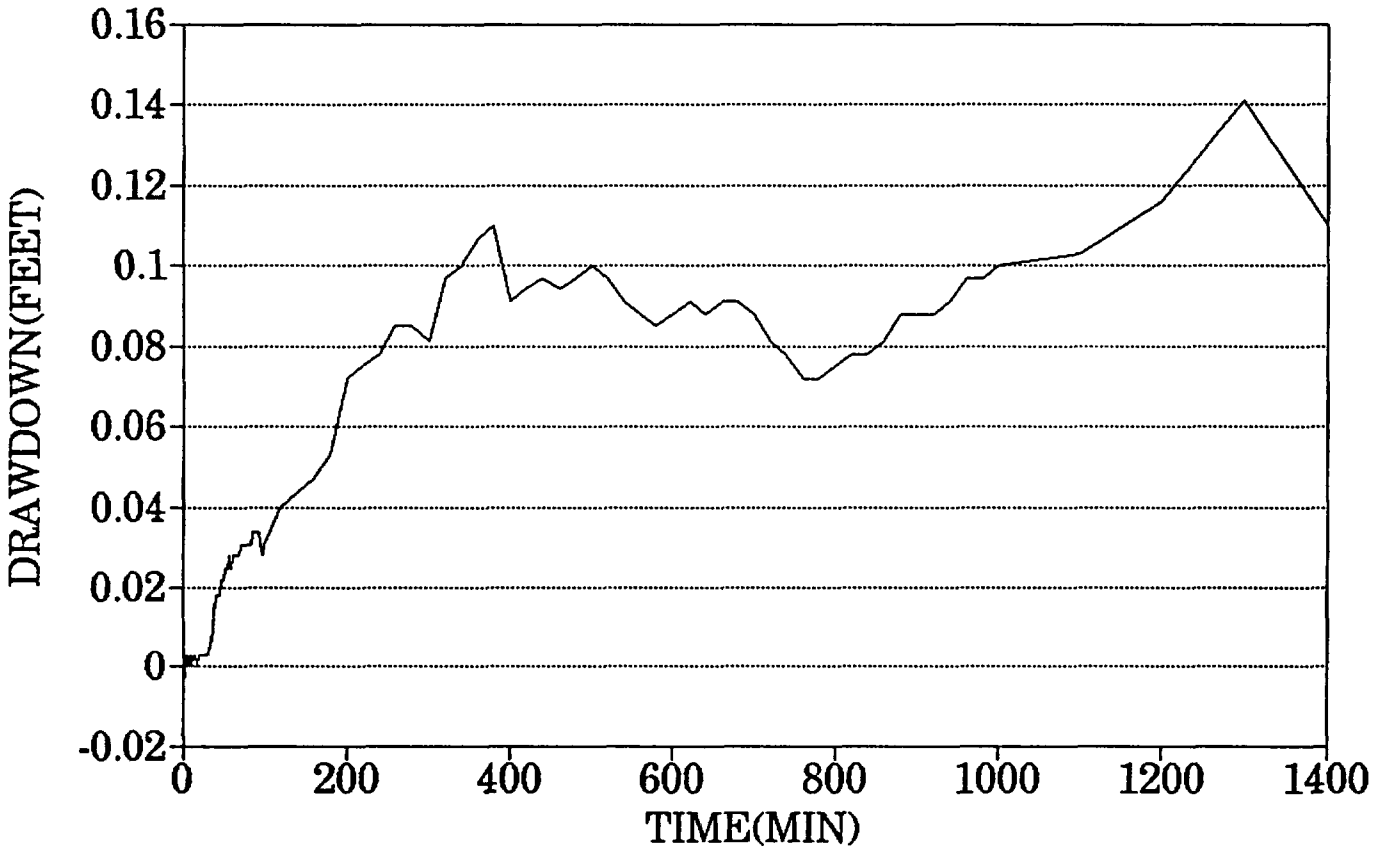

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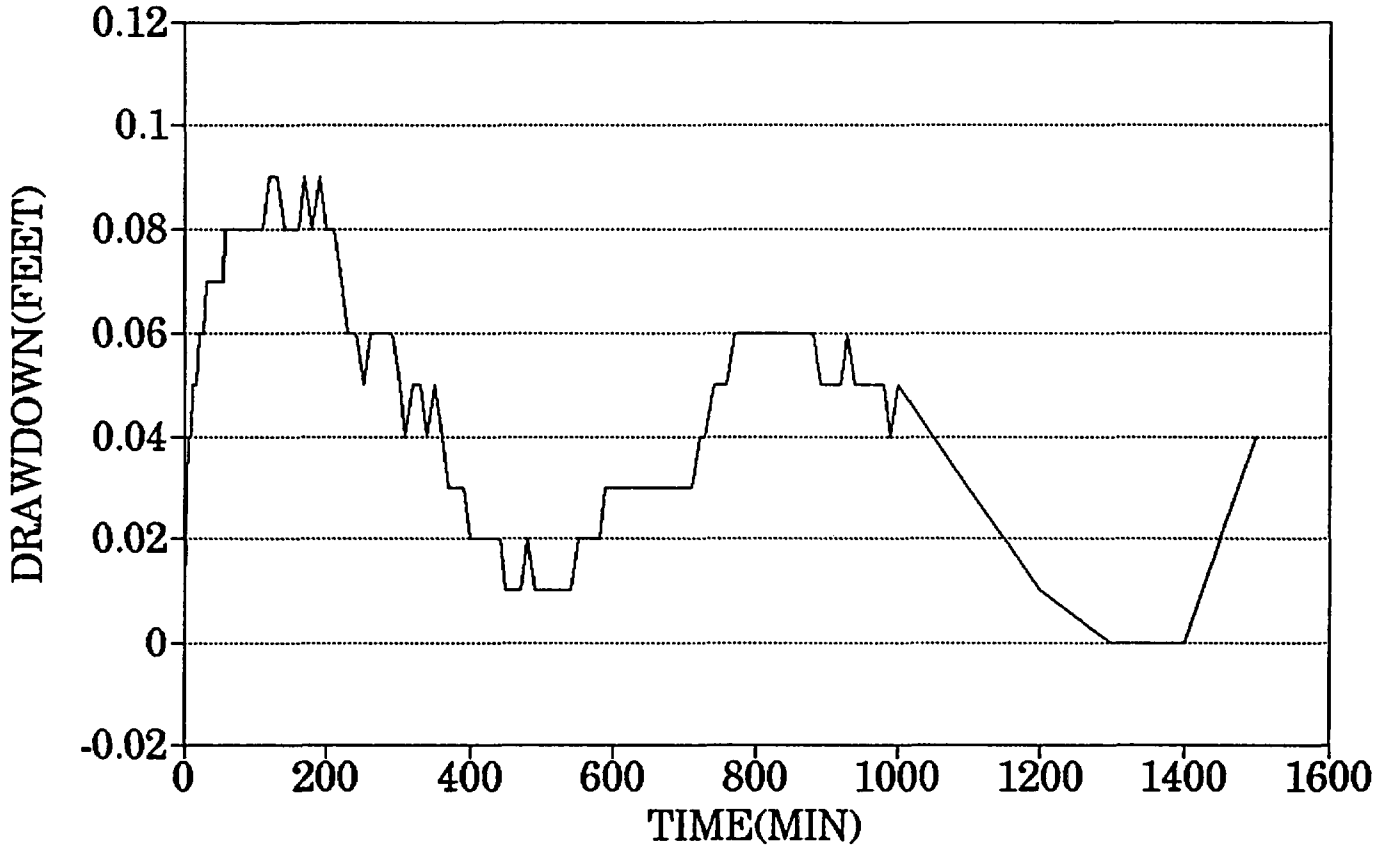
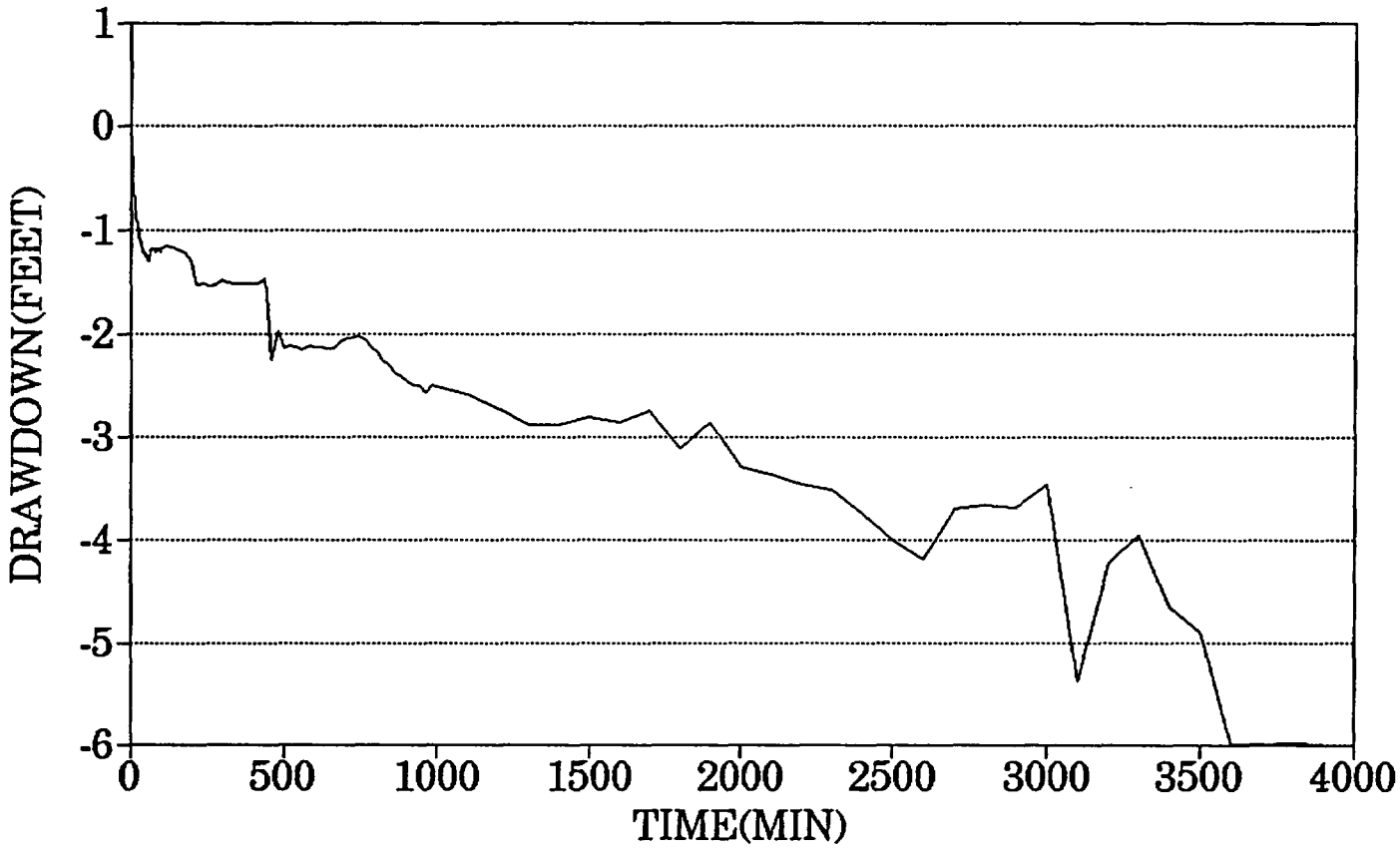


FANSTEEL, INC.

PUMPING TEST (MW-53S pumping well)



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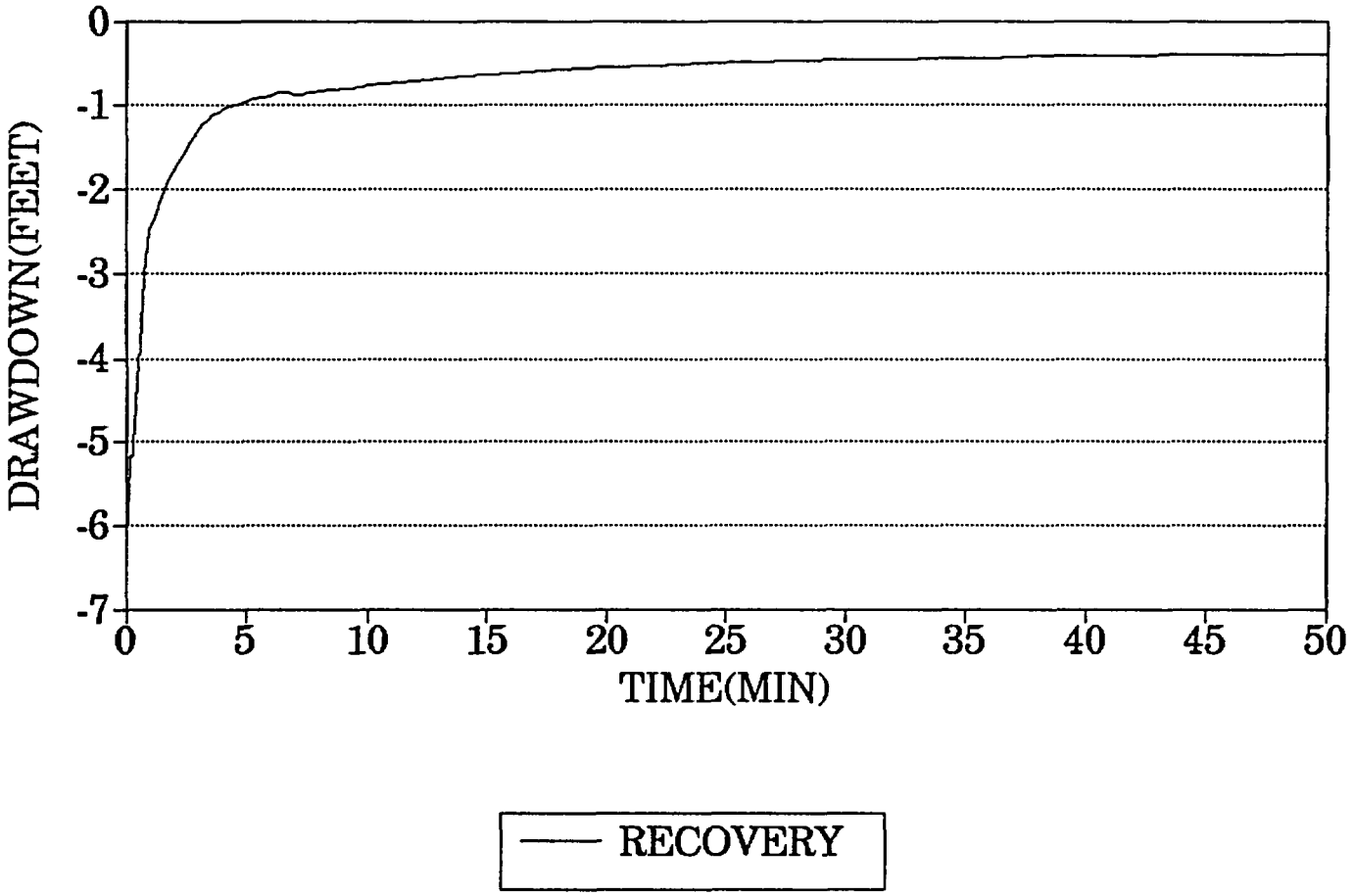

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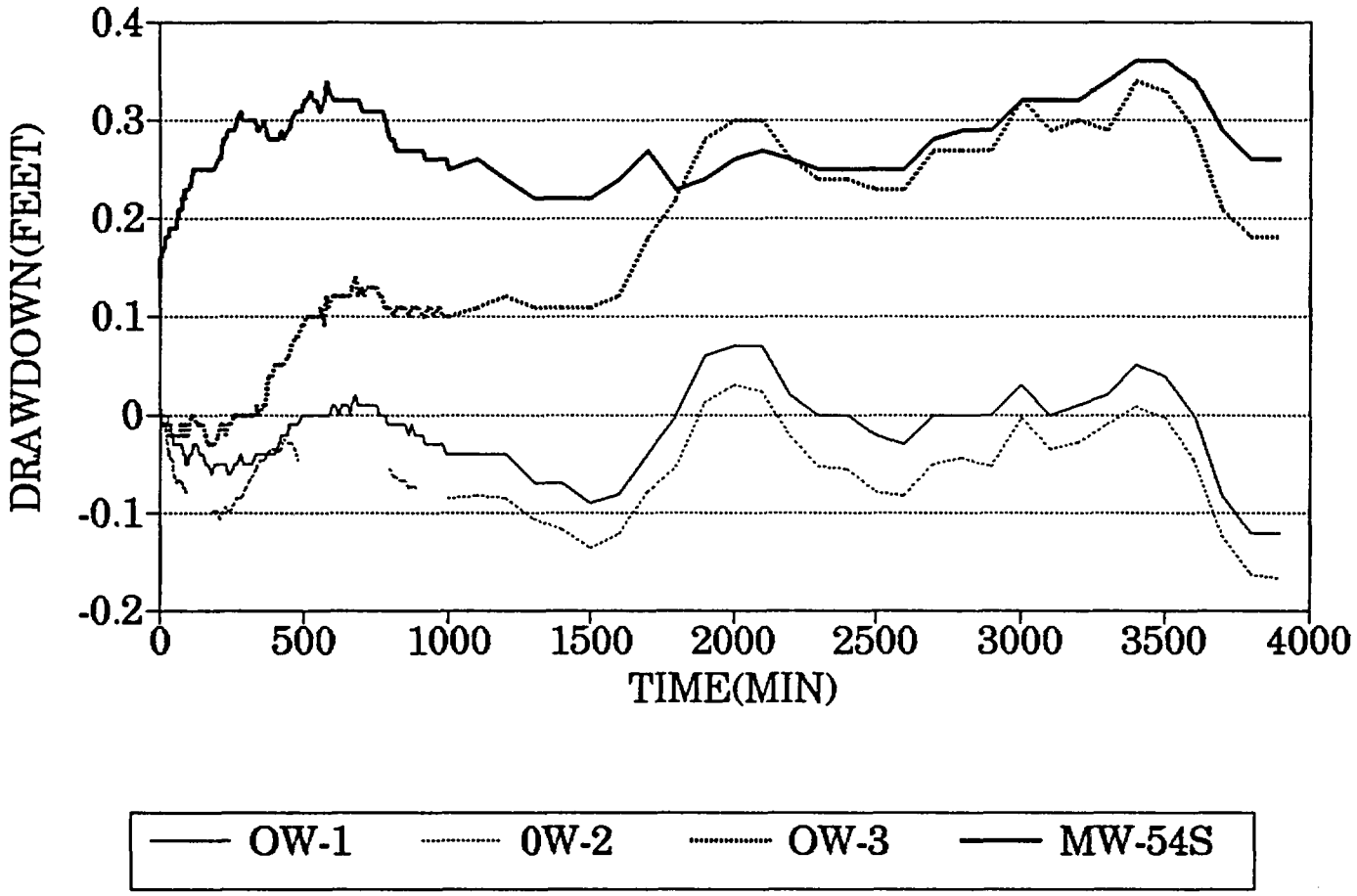

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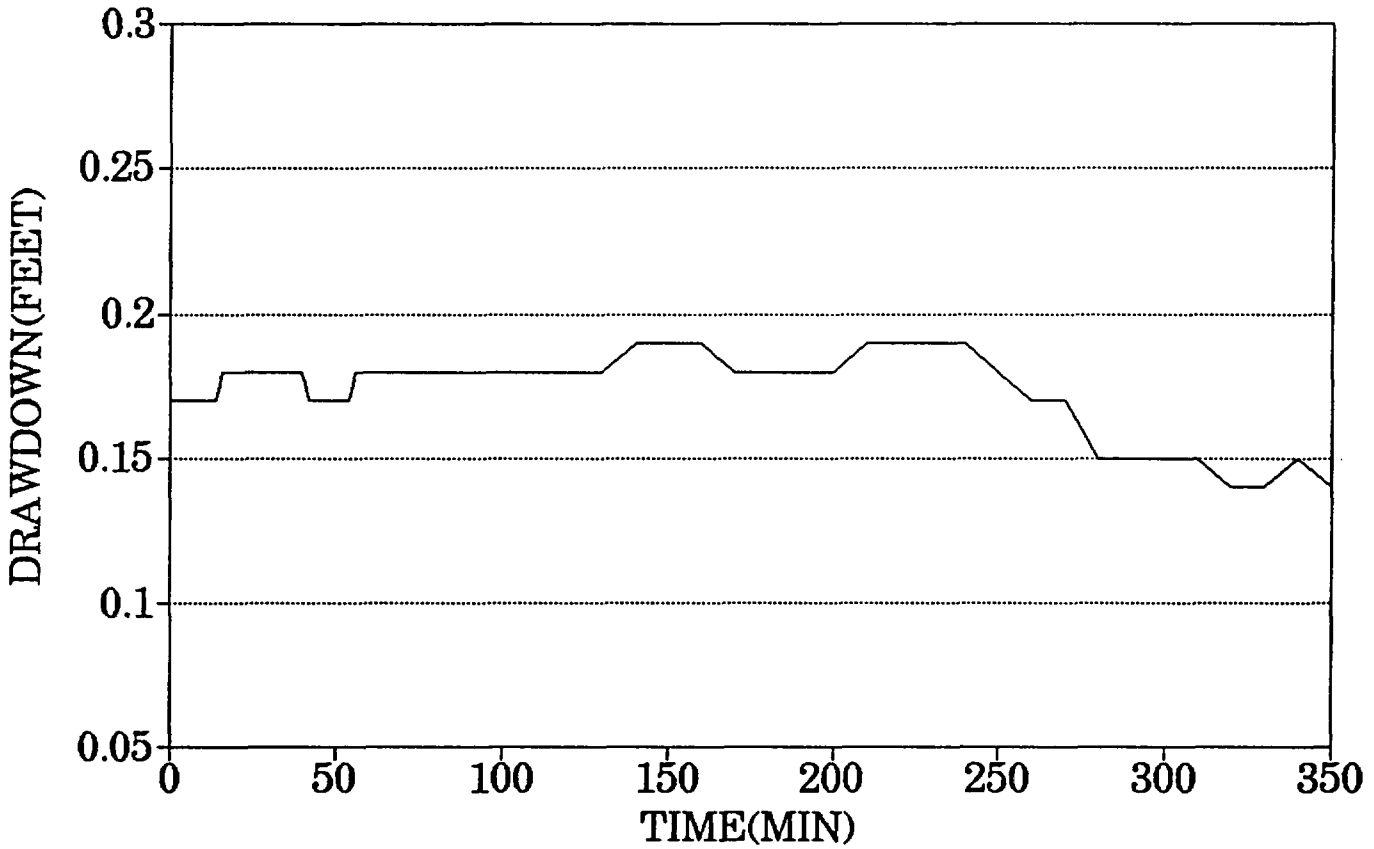
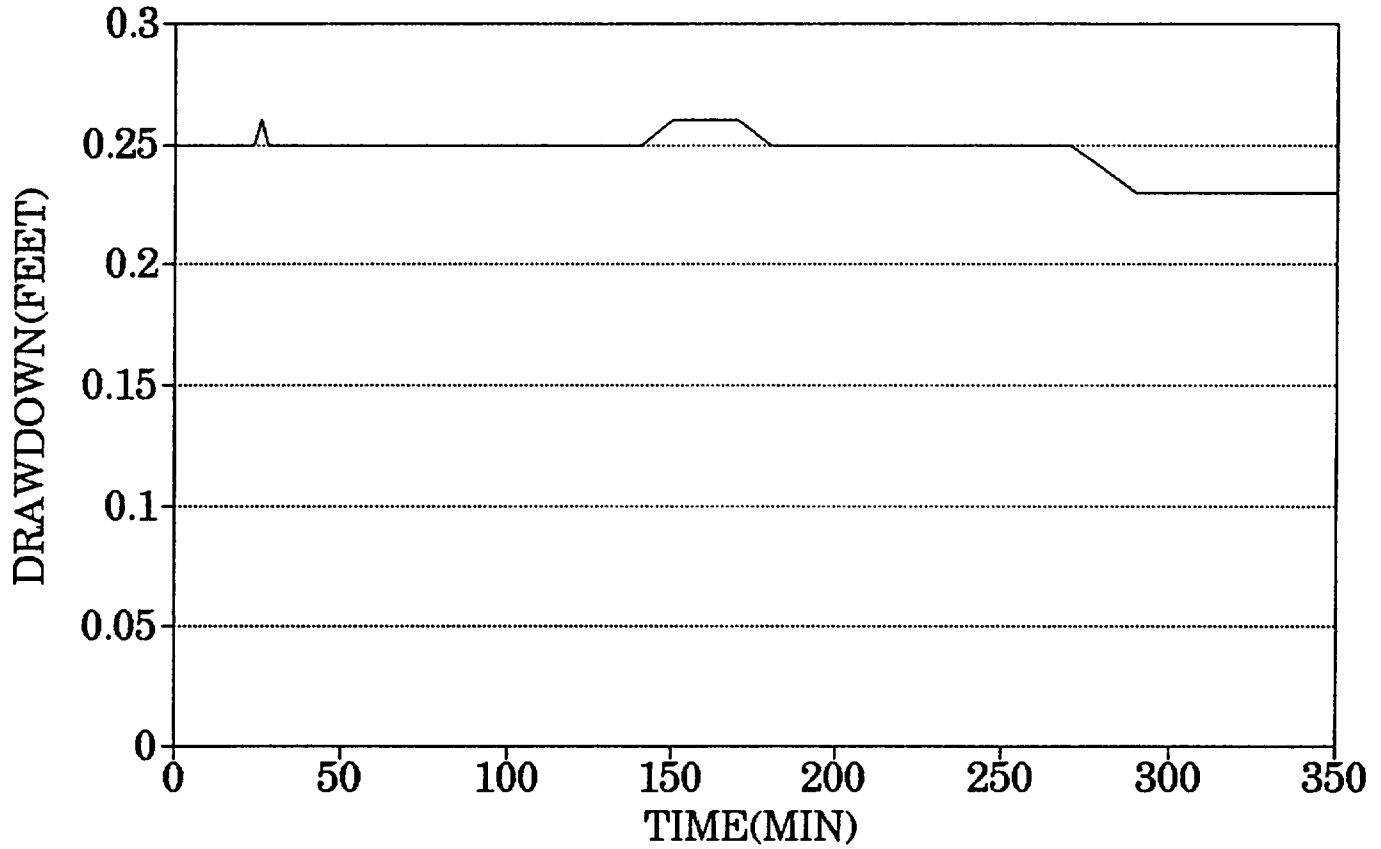
PUMPING TEST OW-3 RECOVERY

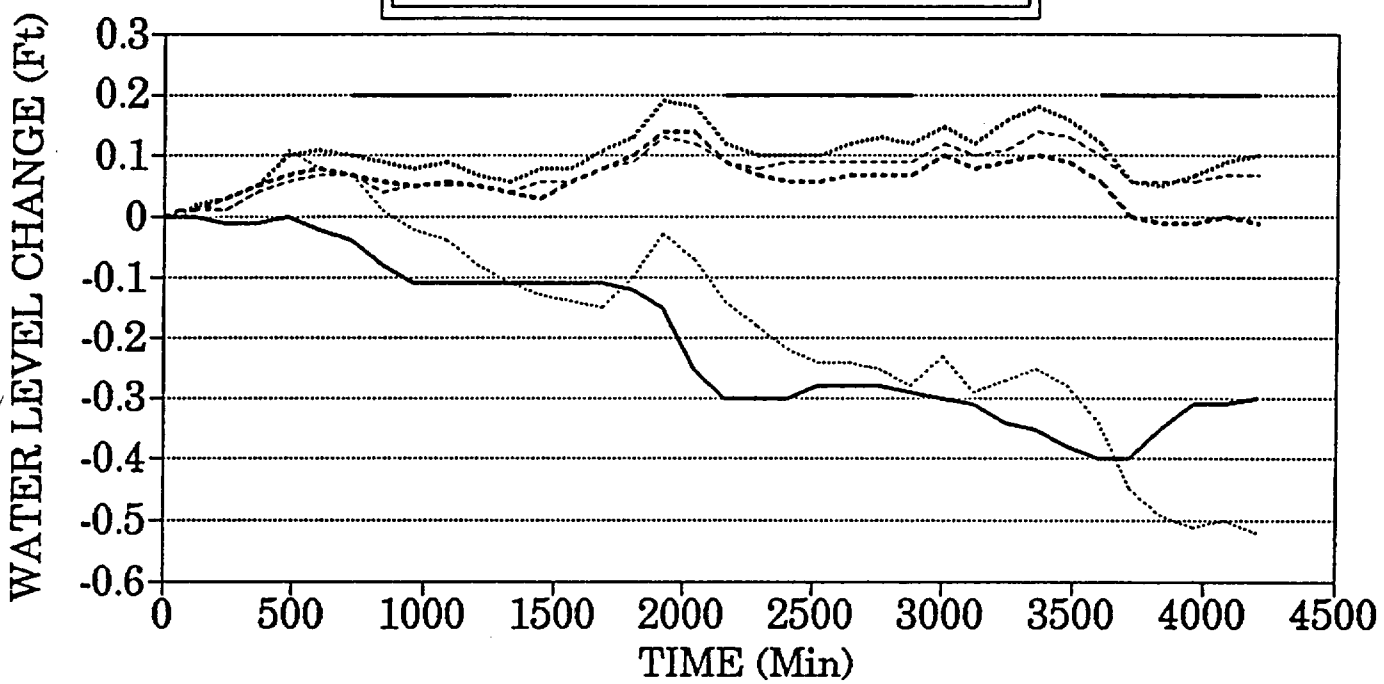


FANSTEEL, INC.

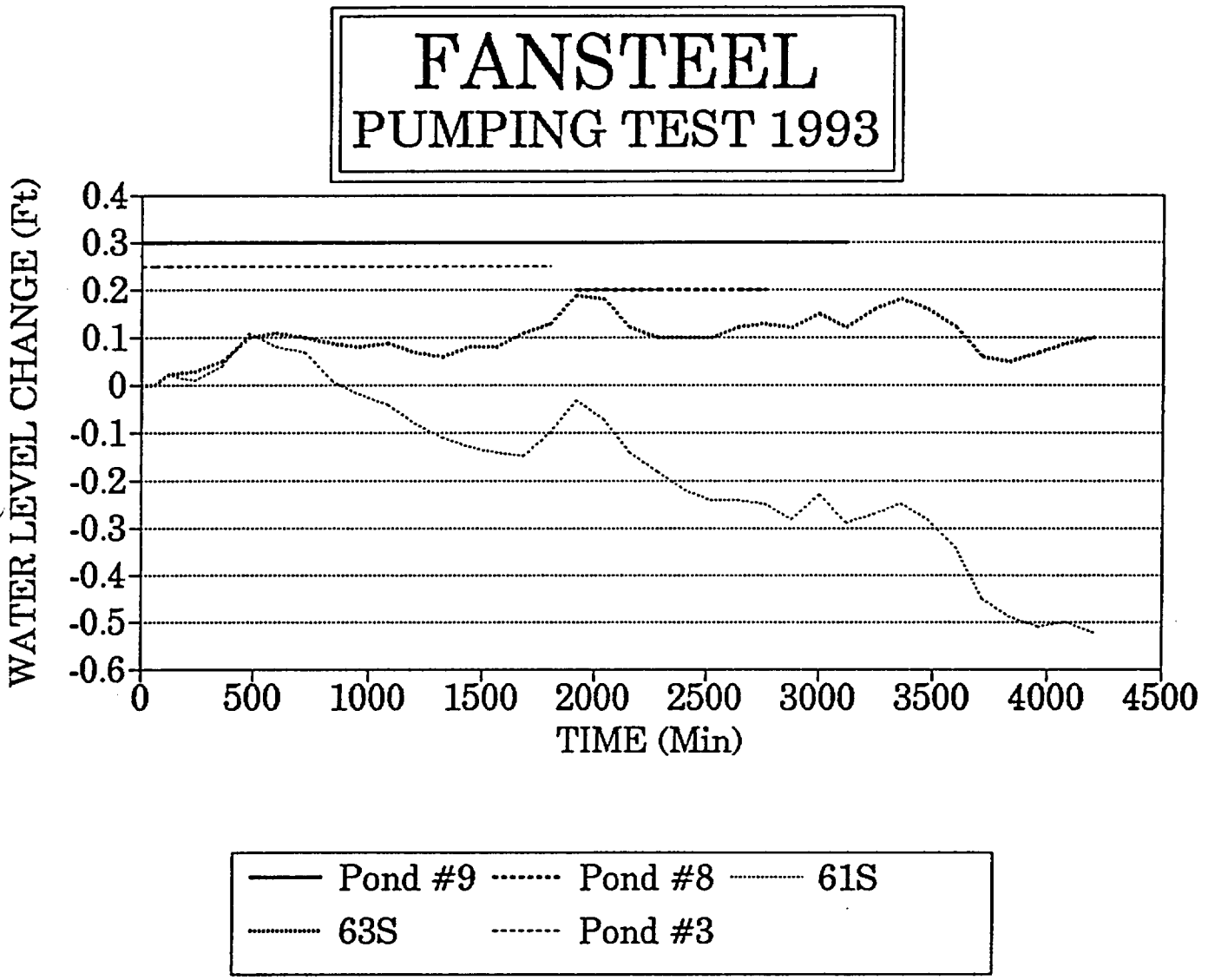
PUMPING TEST MW-54S RECOVERY



FANSTEEL
PUMPING TEST 1993



Night Shift	52S	Bar.
61S	63S	68S


FANSTEEL
PUMPING TEST 1993
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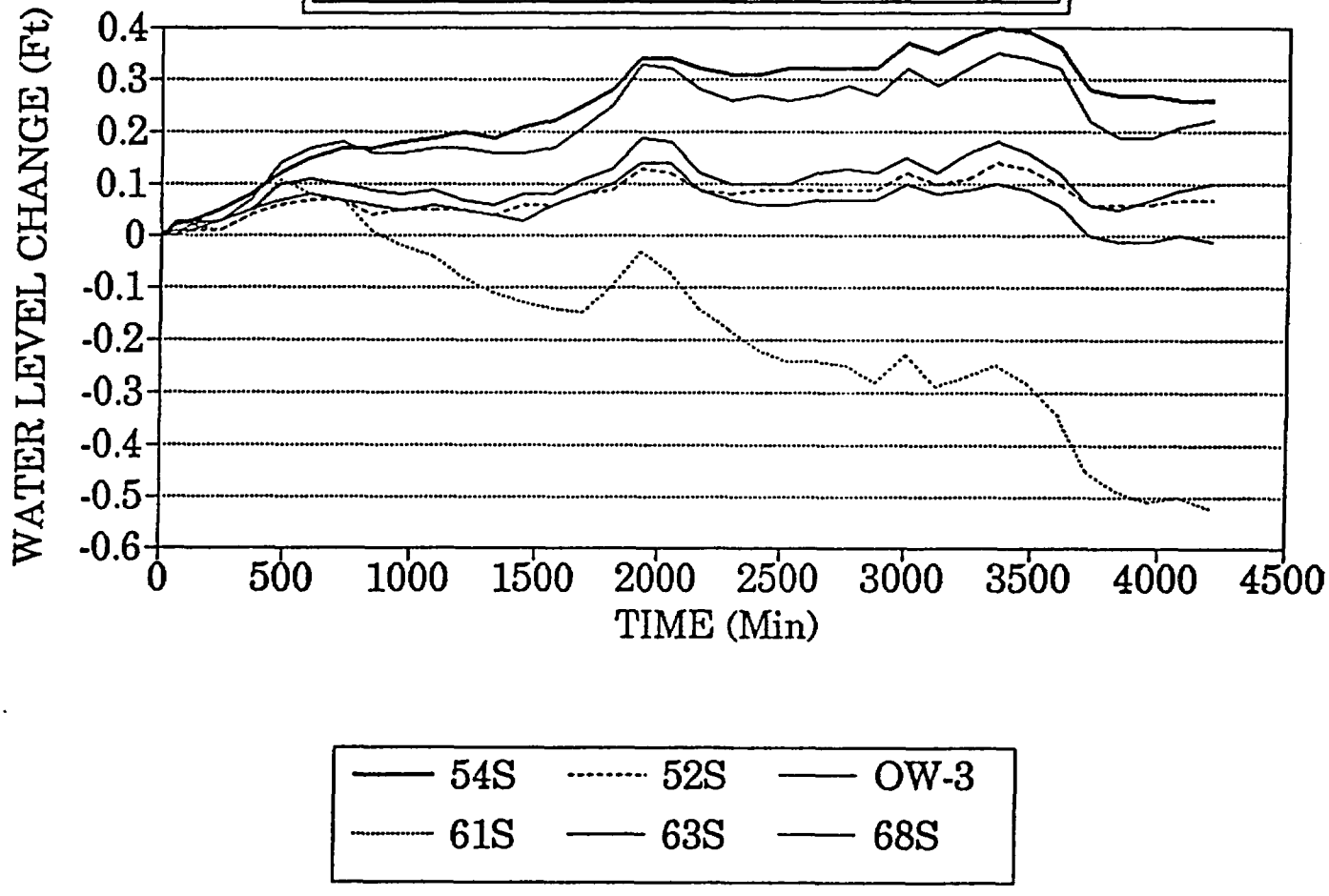
0.2
0.1
0
-0.1
-0.2
-0.3
-0.4
-0.5
-0.6
0
500
1000
1500
2000
2500
3000
3500
4000
4500
TIME (Min)
Pond #9
Pond #8
61S
63S
Pond #3

FANSTEEL 111-04
PUMPING TEST 1993



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Program Control
Data Set Manager
Confined solutions
Unconfined solutions
Leaky solutions
Slug
Fract
Misc.
Quit
```

```
A Q T E S O L V
Version 1.10
Geraghty & Miller Modeling Group
```

```
Data Set Manager
Read new data set from disk
Create new data set
Modify
Save c
Open n
```

```
Input Options
*Title for data set
 Description of test
 Confined/leaky aquifer test data
 Unconfined aquifer test data
*Recovery test data
 Slug test data
 Fractured aquifer test data
 Multiple well data
 Par
*Obs
 Len
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av 1

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Pumping rate.......... 0.1
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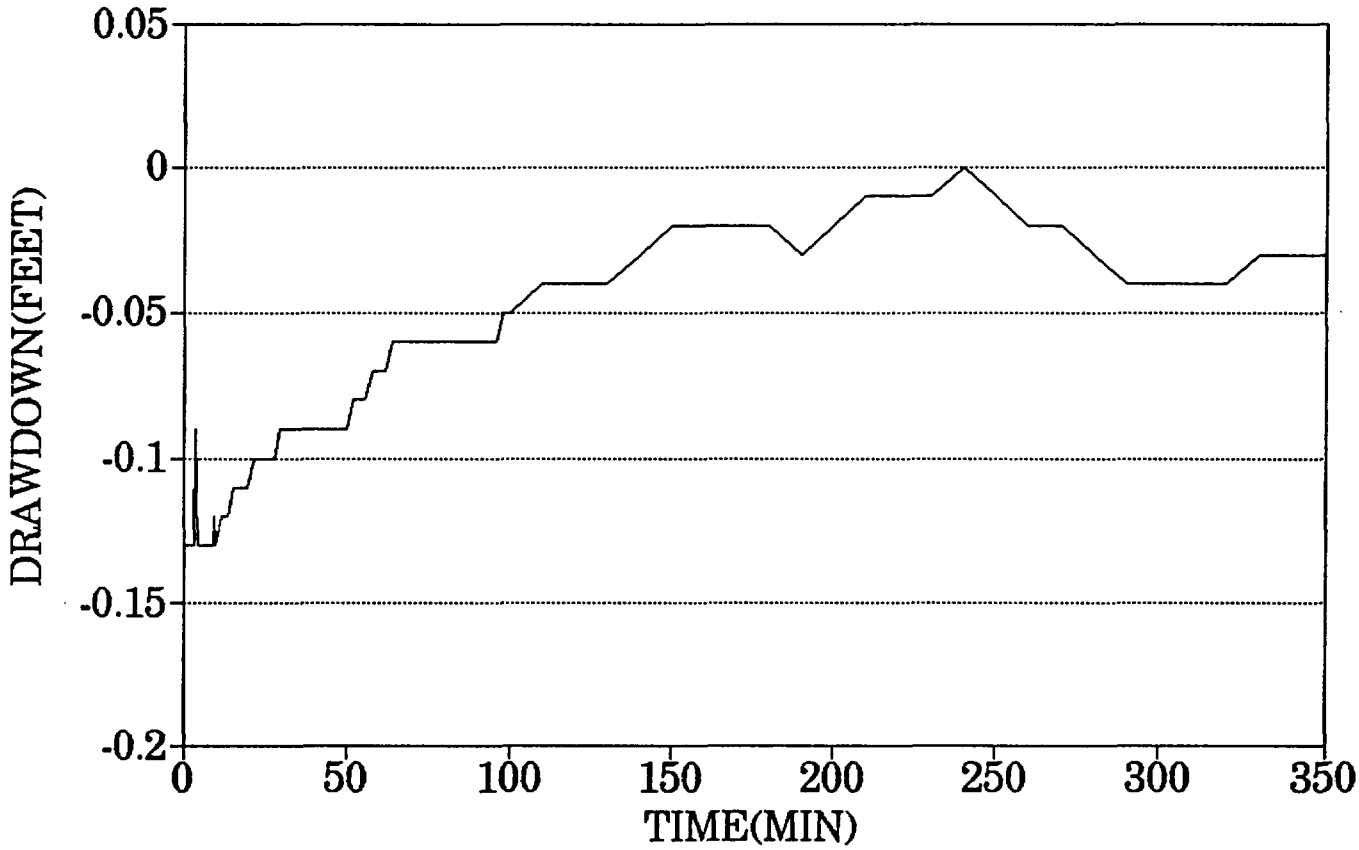
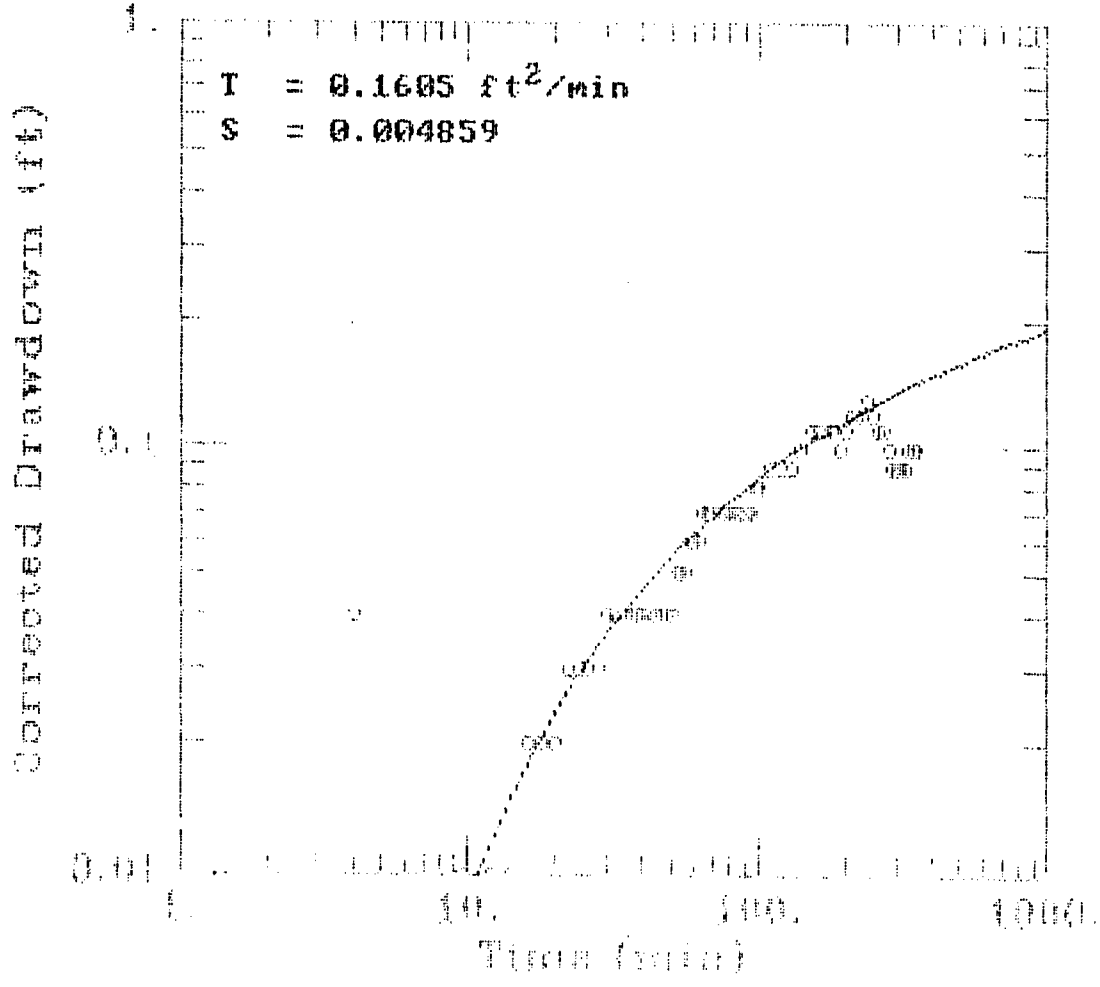


FANSTEEL METALS OW-1 REC



AQTESOLV

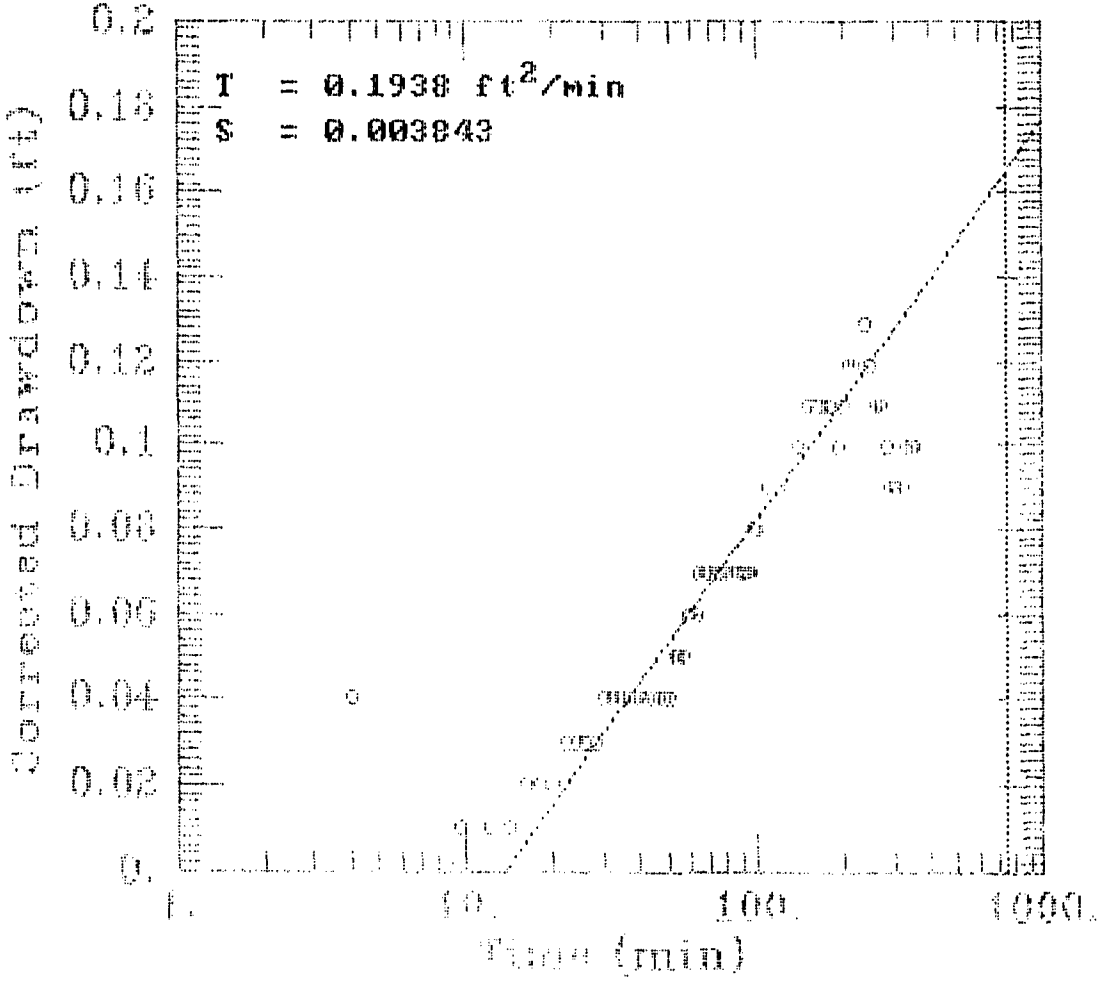
GERAGHTY & MILLER, INC.

Modeling Group

015

unconfined conditions assumed Theis

FANSTEEL METALS OW-1 REC



AQTESOLV

GERAGHTY & MILLER, INC.

Modeling Group

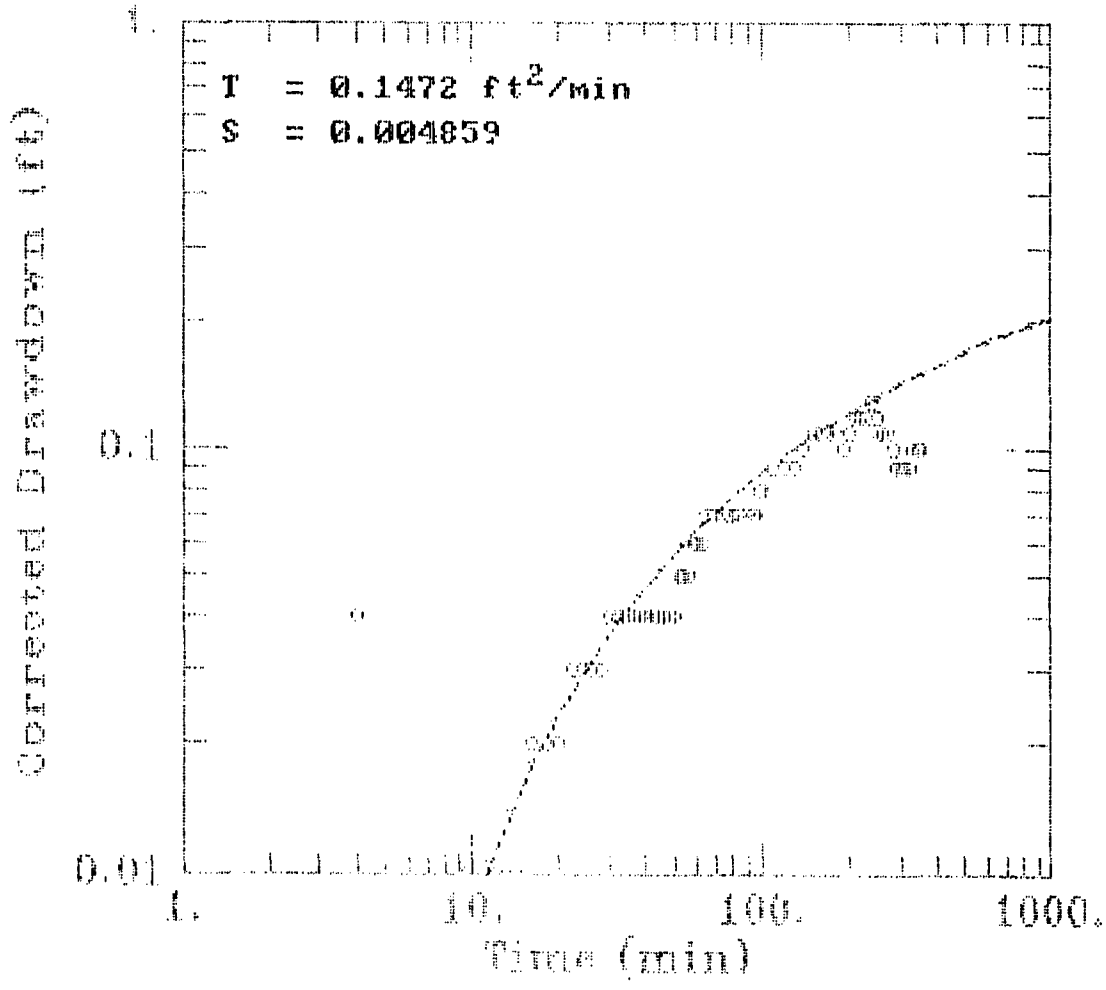
016

Unconfined Conditions assumed Cooper

```
Program Control
Data Set Manager                                  A Q T E S O L V
Confined solutions                                 Version  1.10
Unconfined solutions                          Geraghty & Miller Modeling Group
Leaky solutions
Slug        Data Set Manager
Fract       Read new data set from disk
Misc.       Create new data set
Quit        Modify          Input Options
            Save c          *Title for data set
            Open n           Description of test
                            *Confined/leaky aquifer test data
                             Unconfined aquifer test data
                             Recovery test data
                             Slug test data
                             Fractured aquifer test data
                             Mul          Confined/Leaky Aquifer Test Data
                             Par          Pumping rate...................... 0.1
                            *Obs          Distance to obs. well............. 39.
                             Len          Casing radius (pumped well)...... 0.167
                                          Effective radius (pumped well)... 0.265

                                                                                DATA ENTRY
AQTESOLV          F1=HELP          Mon Apr 26, 1993   3:33 PM
```

FANSTEEL METALS OW-1 REC



AQTESOLV

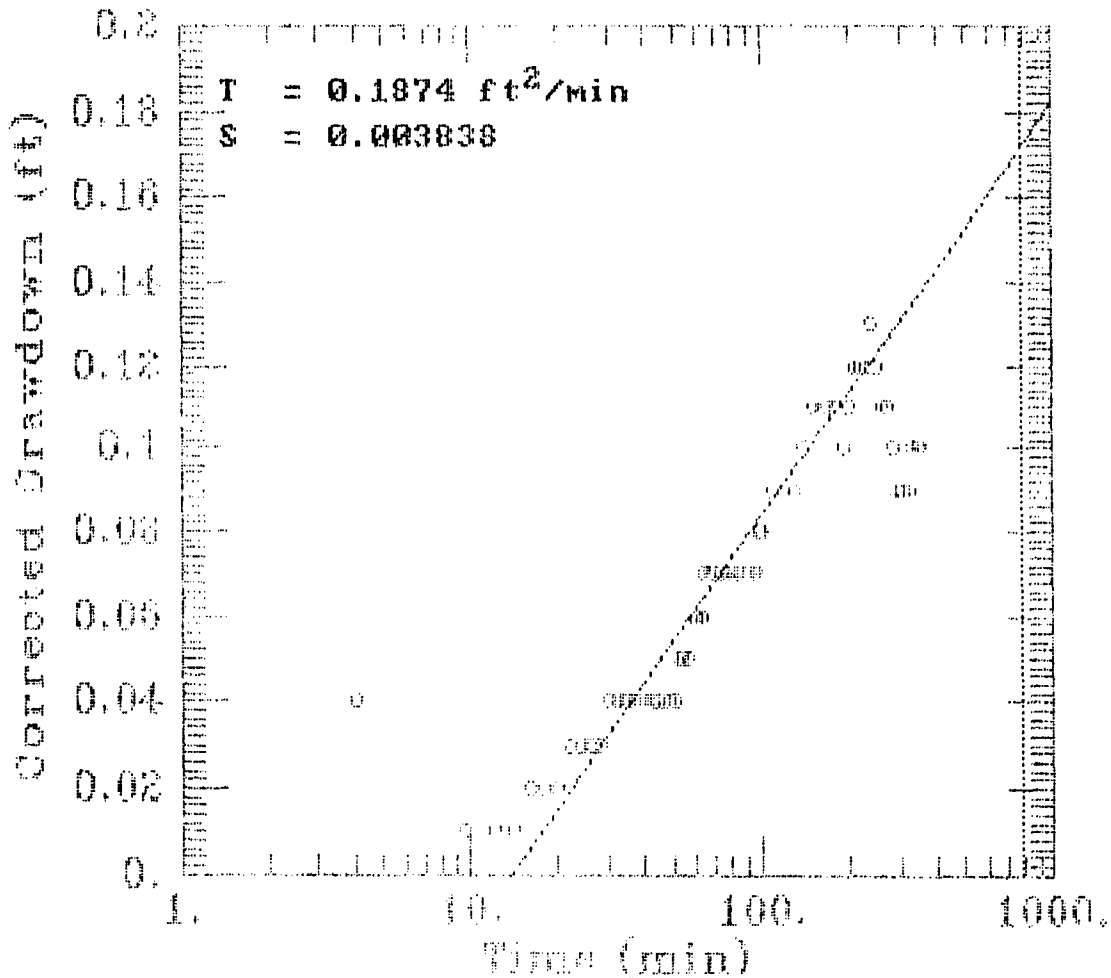
GERAGHTY & MILLER, INC.

Modeling Group

018

Confined Conditions assumed - Theis

FANSTEEL METALS OW-1 REC



AQTESOLV

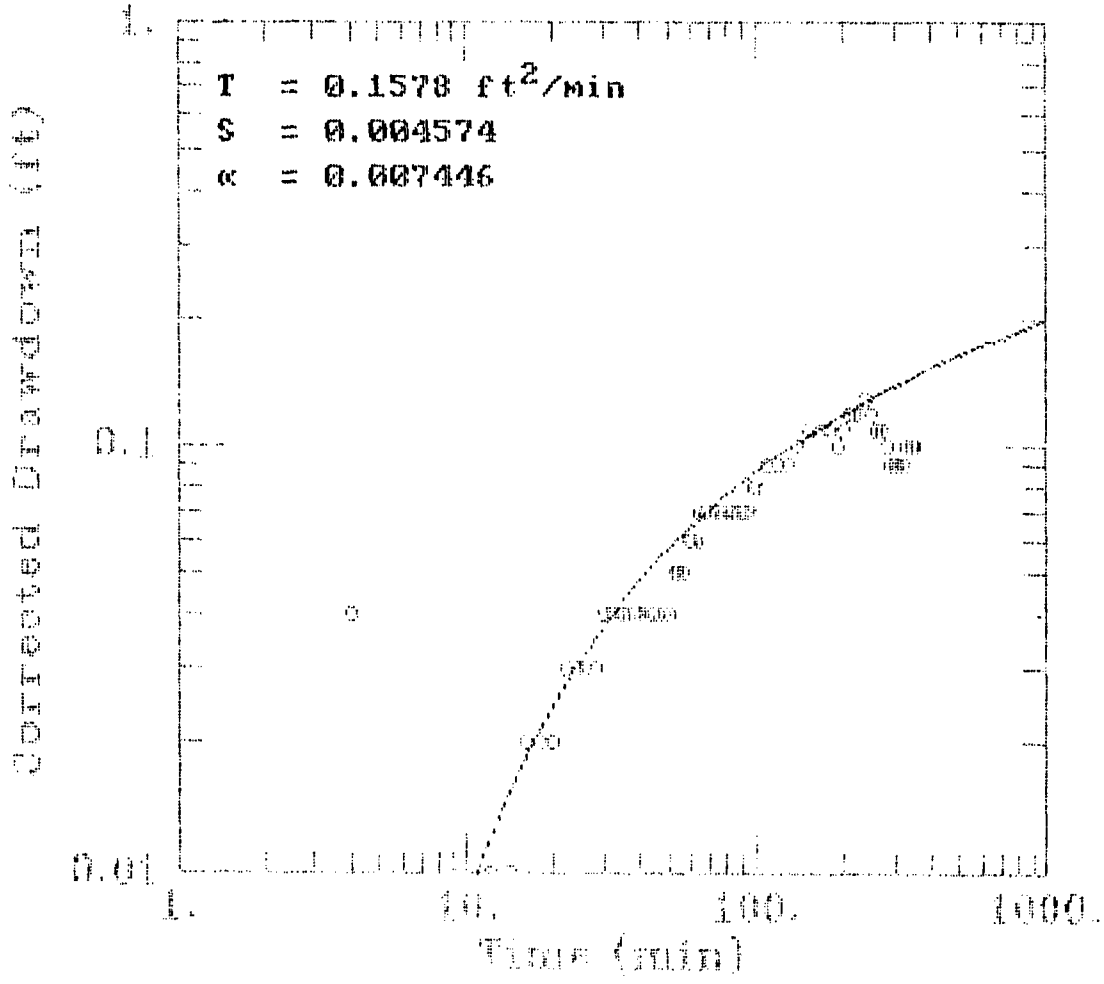
GERAGHTY & MILLER, INC.

Modeling Group

015

Confined Conditions assumed - Cooper-Jacob

FANSTEEL METALS OW-1 REC



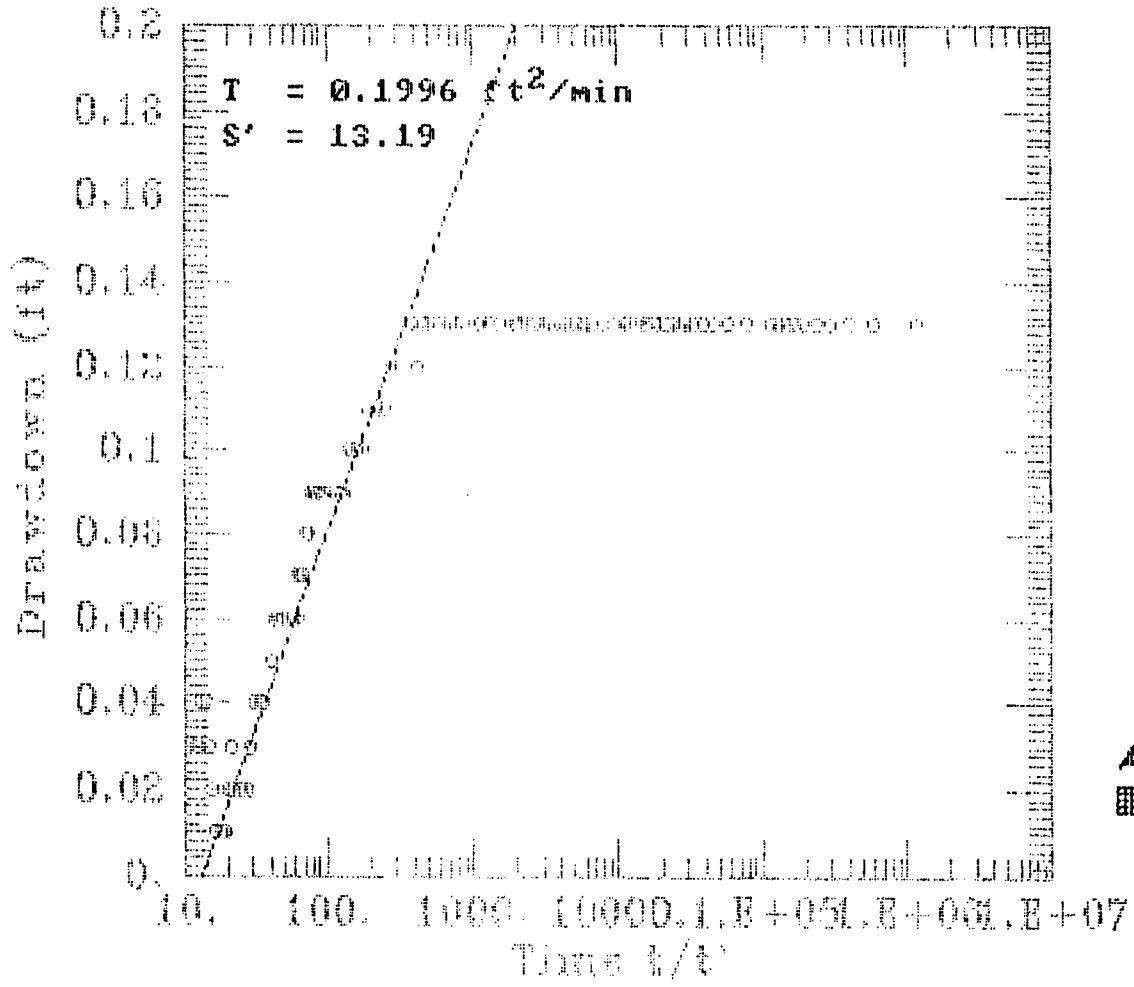
AQTESOLV

GERAGHTY & MILLER, INC.

Modeling Group

Confined Conditions assumed Papadopulos - Cooper

FANSTEEL METALS OW-1 REC



AQTESOLV

GERAGHTY & MILLER, INC.

Modeling Group

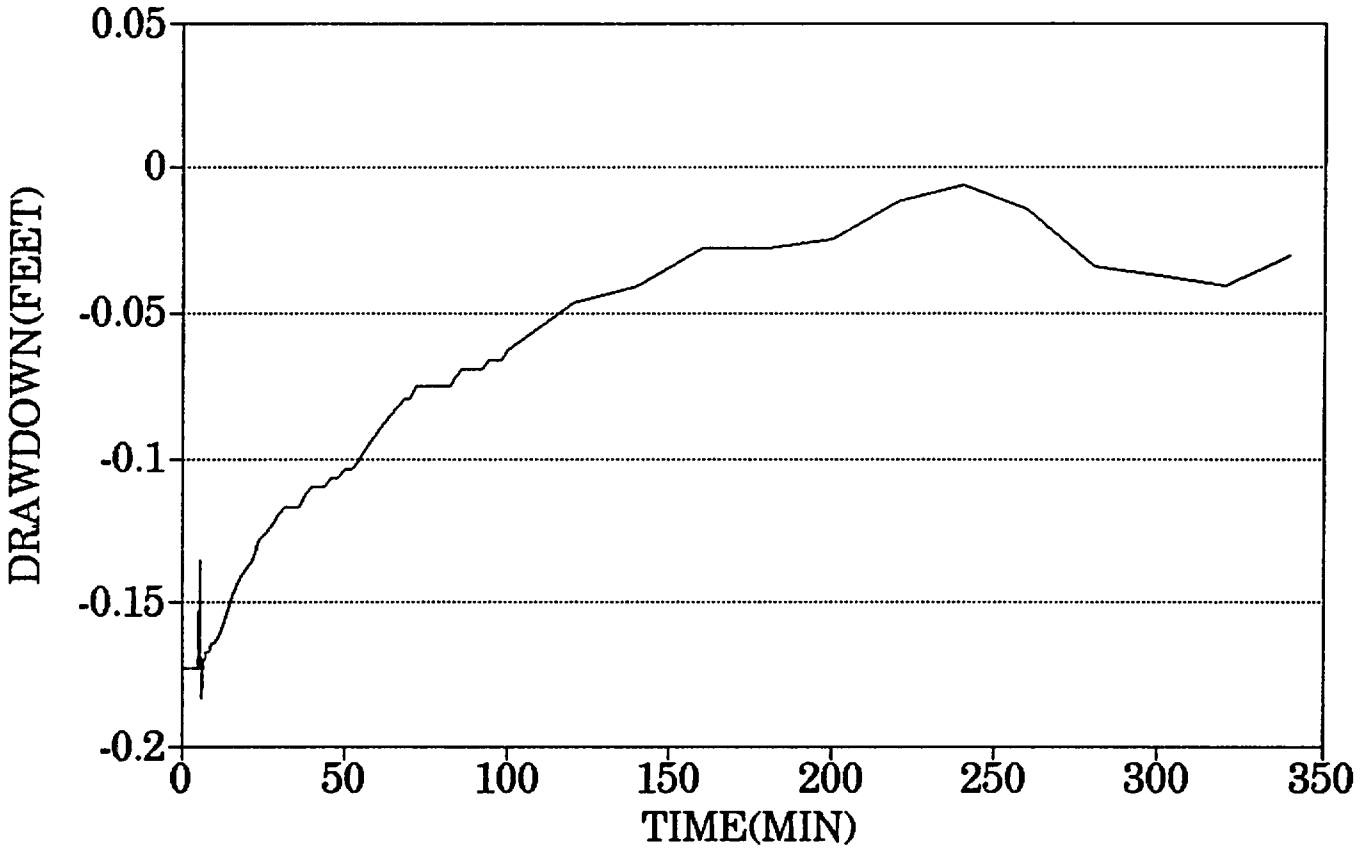
021

Assume confined conditions - Recovery method Theis

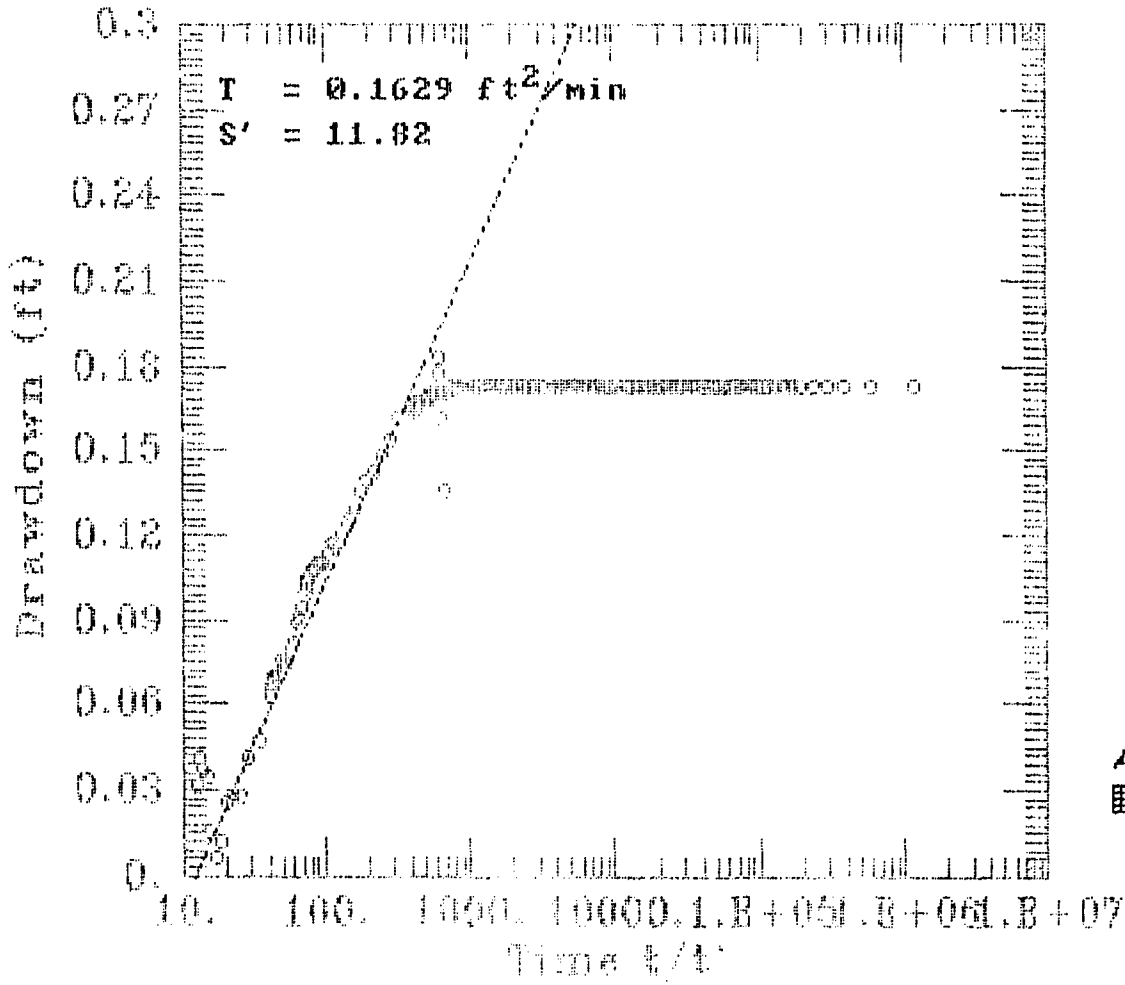
```
Program Control
Data Set Manager                                  A Q T E S O L V
Confined solutions                                  Version  1.10
Unconfined solutions                          Gerachty & Miller Modeling Group
Leaky solutions
Slug        Data Set Manager
Fract       Read new data set from disk
Misc.       Create new data set
Quit        Modify          Input Options   Qw-2
            Save c          *Title for data set
            Open n           Description of test
                             Confined/leaky aquifer test data
                             Unconfined aquifer test data
                            *Recovery test data
                             Slug test data
                             Fractured aquifer test data
                             Multiple well data
                             Par          Recovery Test Data
                            *Obs          Pumping rate............ 0.1
                             Len          Total pumping time..... 3900.

                                                                  DATA ENTRY
AQTESOLV          F1=HELP          Thu Apr 29, 1993    8:59 AM
```

FANSTEEL, INC.
PUMPING TEST OW-2 RECOVERY



FANSTEEL METALS OW-2 REC



AQTESOLV

GERAGHTY & MILLER, INC.

Modeling Group

024

MW-535 - Pumping Well

SE1000C
Environmental Logger
04/08 07:25

Unit# 00601 Test 2

INPUT 1: Level (F) TOC

Reference	0.000
Linearity	0.000
Scale factor	10.130
Offset	0.020
Delay mSEC	50.000

Step 0 04/05 06:12:46

Elapsed Time	INPUT 1
0.0000	-0.054
0.0033	-0.051
0.0066	-0.051
0.0100	-0.047
0.0133	-0.047
0.0166	0.015
0.0200	-0.009
0.0233	-0.025
0.0266	-0.047
0.0300	-0.067
0.0333	-0.095
0.0366	-0.070
0.0400	-0.105
0.0433	-0.111
0.0466	-0.137
0.0500	-0.137
0.0533	-0.140
0.0566	-0.172
0.0600	-0.143
0.0633	-0.153
0.0666	-0.188
0.0700	-0.162
0.0733	-0.146
0.0766	-0.175
0.0800	-0.201
0.0833	-0.172
0.0866	-0.150
0.0900	-0.150
0.0933	-0.130
0.0966	-0.105
0.1000	-0.092
0.1033	-0.086
0.1066	-0.076
0.1100	-0.044
0.1133	-0.044
0.1166	-0.009
0.1200	0.000
0.1233	0.019
0.1266	0.009
0.1300	0.022
0.1333	0.031
0.1366	0.054
0.1400	0.076
0.1433	0.080

0.1500	0.102
0.1533	0.115
0.1566	0.130
0.1600	0.140
0.1633	0.169
0.1666	0.159
0.1700	0.169
0.1733	0.182
0.1766	0.201
0.1800	0.204
0.1833	0.207
0.1866	0.217
0.1900	0.220
0.1933	0.245
0.1966	0.268
0.2000	0.258
0.2033	0.258
0.2066	0.277
0.2100	0.297
0.2133	0.284
0.2166	0.290
0.2200	0.313
0.2233	0.345
0.2266	0.351
0.2300	0.329
0.2333	0.329
0.2366	0.348
0.2400	0.383
0.2433	0.354
0.2466	0.370
0.2500	0.386
0.2533	0.405
0.2566	0.392
0.2600	0.396
0.2633	0.415
0.2666	0.408
0.2700	0.412
0.2733	0.418
0.2766	0.440
0.2800	0.437
0.2833	0.440
0.2866	0.453
0.2900	0.460
0.2933	0.460
0.2966	0.469
0.3000	0.482
0.3033	0.472
0.3066	0.482
0.3100	0.501
0.3133	0.511
0.3166	0.501
0.3200	0.514
0.3233	0.517
0.3266	0.517
0.3300	0.523
0.3333	0.536
0.3500	0.533
0.3666	0.533
0.3833	0.520
0.4000	0.491
0.4166	0.456
0.4333	0.418
0.4500	0.376
0.4666	0.335

0.5166	0.239
0.5333	0.201
0.5500	0.182
0.5666	0.150
0.5833	0.143
0.6000	0.102
0.6166	0.115
0.6333	0.083
0.6500	0.060
0.6666	0.044
0.6833	0.028
0.7000	0.003
0.7166	-0.015
0.7333	-0.019
0.7500	0.000
0.7666	-0.035
0.7833	-0.047
0.8000	-0.044
0.8166	-0.063
0.8333	-0.083
0.8500	-0.073
0.8666	-0.086
0.8833	-0.089
0.9000	-0.086
0.9166	-0.092
0.9333	-0.102
0.9500	-0.111
0.9666	-0.089
0.9833	-0.095
1.0000	-0.089
1.2000	-0.070
1.4000	0.006
1.6000	0.038
1.8000	0.067
2.0000	0.089
2.2000	0.102
2.4000	0.143
2.6000	0.178
2.8000	0.169
3.0000	0.207
3.2000	0.217
3.4000	0.217
3.6000	0.226
3.8000	0.239
4.0000	0.258
4.2000	0.258
4.4000	0.290
4.6000	0.287
4.8000	0.306
5.0000	0.303
5.2000	0.313
5.4000	0.345
5.6000	0.361
5.8000	0.357
6.0000	0.357
6.2000	0.367
6.4000	0.373
6.6000	0.373
6.8000	0.386
7.0000	0.405
7.2000	0.428
7.4000	0.418
7.6000	0.412
7.8000	0.415
8.0000	0.421

8.4000	0.434
8.6000	0.456
8.8000	0.447
9.0000	0.472
9.2000	0.488
9.4000	0.482
9.6000	0.498
9.8000	0.488
10.0000	0.511
12.0000	0.600
14.0000	0.654
16.0000	0.715
18.0000	0.798
20.0000	0.881
22.0000	0.952
24.0000	0.977
26.0000	1.015
28.0000	1.054
30.0000	1.073
32.0000	1.121
34.0000	1.114
36.0000	1.121
38.0000	1.140
40.0000	1.172
42.0000	1.204
44.0000	1.217
46.0000	1.220
48.0000	1.258
50.0000	1.233
52.0000	1.261
54.0000	1.252
56.0000	1.277
58.0000	1.261
60.0000	1.290
62.0000	1.277
64.0000	1.309
66.0000	1.223
68.0000	1.204
70.0000	1.198
72.0000	1.188
74.0000	1.185
76.0000	1.182
78.0000	1.198
80.0000	1.198
82.0000	1.198
84.0000	1.220
86.0000	1.204
88.0000	1.191
90.0000	1.191
92.0000	1.201
94.0000	1.198
96.0000	1.191
98.0000	1.210
100.000	1.201
120.000	1.162
140.000	1.175
160.000	1.201
180.000	1.214
200.000	1.300
220.000	1.530
240.000	1.520
260.000	1.546
280.000	1.530
300.000	1.485

360.000	1.511
380.000	1.520
400.000	1.511
420.000	1.511
440.000	1.472
460.000	2.239
480.000	1.983
500.000	2.140
520.000	2.108
540.000	2.127
560.000	2.153
580.000	2.108
600.000	2.124
620.000	2.124
640.000	2.137
660.000	2.143
680.000	2.079
700.000	2.031
720.000	2.041
740.000	2.022
760.000	2.047
780.000	2.127
800.000	2.178
820.000	2.242
840.000	2.300
860.000	2.386
880.000	2.412
900.000	2.459
920.000	2.498
940.000	2.498
960.000	2.581
980.000	2.507
1000.00	2.511
1100.00	2.597
1200.00	2.718
1300.00	2.894
1400.00	2.884
1500.00	2.811
1600.00	2.862
1700.00	2.753
1800.00	3.124
1900.00	2.859
2000.00	3.297
2100.00	3.364
2200.00	3.472
2300.00	3.520
2400.00	3.753
2500.00	4.009
2600.00	4.188
2700.00	3.702
2800.00	3.667
2900.00	3.696
3000.00	3.469
3100.00	5.383
3200.00	4.229
3300.00	3.951
3400.00	4.648
3500.00	4.904
3600.00	5.993
3700.00	5.987
3800.00	5.974
3900.00	5.993

53STEST. REC

SE1000C
Environmental Logger
04/08 07:29

036

Unit# 00601 Test 2

INPUT 1: Level (F) TOC

Reference	0.000
Linearity	0.000
Scale factor	10.130
Offset	0.020
Delay mSEC	50.000

Step 1 04/08 00:22:04

Elapsed Time	INPUT 1
0.0000	5.888
0.0033	5.942
0.0066	5.945
0.0100	5.955
0.0133	5.951
0.0166	5.955
0.0200	5.945
0.0233	5.951
0.0266	5.945
0.0300	5.948
0.0333	5.999
0.0366	6.003
0.0400	6.009
0.0433	5.974
0.0466	5.987
0.0500	5.993
0.0533	5.990
0.0566	5.996
0.0600	5.993
0.0633	5.996
0.0666	5.996
0.0700	5.996
0.0733	5.996
0.0766	5.999
0.0800	5.996
0.0833	5.980
0.0866	5.964
0.0900	5.942
0.0933	5.916
0.0966	5.888
0.1000	5.868
0.1033	5.843
0.1066	5.827
0.1100	5.808
0.1133	5.788
0.1166	5.769
0.1200	5.753
0.1233	5.737
0.1266	5.721
0.1300	5.705
0.1333	5.693
0.1366	5.673
0.1400	5.661
0.1433	5.645
0.1466	5.632

0.1533	5.600
0.1566	5.584
0.1600	5.568
0.1633	5.552
0.1666	5.536
0.1700	5.520
0.1733	5.507
0.1766	5.491
0.1800	5.475
0.1833	5.459
0.1866	5.447
0.1900	5.431
0.1933	5.418
0.1966	5.402
0.2000	5.389
0.2033	5.373
0.2066	5.357
0.2100	5.348
0.2133	5.332
0.2166	5.316
0.2200	5.303
0.2233	5.290
0.2266	5.274
0.2300	5.261
0.2333	5.249
0.2366	5.236
0.2400	5.220
0.2433	5.207
0.2466	5.191
0.2500	5.178
0.2533	5.165
0.2566	5.150
0.2600	5.137
0.2633	5.127
0.2666	5.114
0.2700	5.098
0.2733	5.086
0.2766	5.073
0.2800	5.060
0.2833	5.044
0.2866	5.031
0.2900	5.019
0.2933	5.006
0.2966	4.990
0.3000	4.977
0.3033	4.964
0.3066	4.951
0.3100	4.939
0.3133	4.926
0.3166	4.910
0.3200	4.897
0.3233	4.884
0.3266	4.872
0.3300	4.859
0.3333	4.846
0.3500	4.779
0.3666	4.715
0.3833	4.648
0.4000	4.581
0.4166	4.514
0.4333	4.443
0.4500	4.376
0.4666	4.309
0.4833	4.249
0.5000	4.181

0.5333	4.054
0.5500	3.983
0.5666	3.920
0.5833	3.856
0.6000	3.792
0.6166	3.728
0.6333	3.667
0.6500	3.600
0.6666	3.536
0.6833	3.472
0.7000	3.405
0.7166	3.338
0.7333	3.274
0.7500	3.210
0.7666	3.143
0.7833	3.076
0.8000	3.012
0.8166	2.945
0.8333	2.881
0.8500	2.824
0.8666	2.766
0.8833	2.715
0.9000	2.667
0.9166	2.626
0.9333	2.584
0.9500	2.552
0.9666	2.523
0.9833	2.495
1.0000	2.475
1.2000	2.313
1.4000	2.162
1.6000	2.028
1.8000	1.904
2.0000	1.792
2.2000	1.686
2.4000	1.587
2.6000	1.491
2.8000	1.399
3.0000	1.316
3.2000	1.236
3.4000	1.175
3.6000	1.124
3.8000	1.099
4.0000	1.063
4.2000	1.038
4.4000	1.012
4.6000	0.990
4.8000	0.974
5.0000	0.958
5.2000	0.942
5.4000	0.926
5.6000	0.913
5.8000	0.900
6.0000	0.884
6.2000	0.875
6.4000	0.862
6.6000	0.853
6.8000	0.849
7.0000	0.872
7.2000	0.878
7.4000	0.872
7.6000	0.862
7.8000	0.853
8.0000	0.843
8.2000	0.837

8.6000	0.821
8.8000	0.814
9.0000	0.808
9.2000	0.798
9.4000	0.792
9.6000	0.789
9.8000	0.779
10.0000	0.773
12.0000	0.706
14.0000	0.651
16.0000	0.616
18.0000	0.587
20.0000	0.555
22.0000	0.530
24.0000	0.507
26.0000	0.491
28.0000	0.476
30.0000	0.463
32.0000	0.453
34.0000	0.444
36.0000	0.434
38.0000	0.428
40.0000	0.421
42.0000	0.415
44.0000	0.412
46.0000	0.405
48.0000	0.402
50.0000	0.396
52.0000	0.392
54.0000	0.389
56.0000	0.386
58.0000	0.383
60.0000	0.376
62.0000	0.373
64.0000	0.367
66.0000	0.367
68.0000	0.364
70.0000	0.361
72.0000	0.357
74.0000	0.357
76.0000	0.357
78.0000	0.354
80.0000	0.354
82.0000	0.351
84.0000	0.351
86.0000	0.348
88.0000	0.348
90.0000	0.345
92.0000	0.345
94.0000	0.345
96.0000	0.341
98.0000	0.341
100.000	0.341
120.000	0.325
140.000	0.316
160.000	0.303
180.000	0.303
200.000	0.303
220.000	0.290
240.000	0.284
260.000	0.290
280.000	0.306
300.000	0.313
320.000	0.316
340.000	0.309

04/08 07:35 OW-2

Unit# 00601 Test 2

INPUT 2: Level (F) TOC

Reference	0.000
Linearity	0.010
Scale factor	10.020
Offset	0.020
Delay mSEC	50.000

Step 0 04/05 06:12:46

Elapsed Time	INPUT 2
0.0000	-0.003
0.0033	-0.003
0.0066	-0.003
0.0100	-0.003
0.0133	-0.003
0.0166	-0.003
0.0200	-0.003
0.0233	-0.003
0.0266	-0.003
0.0300	-0.003
0.0333	-0.003
0.0366	-0.003
0.0400	-0.003
0.0433	-0.003
0.0466	-0.003
0.0500	-0.003
0.0533	-0.003
0.0566	-0.003
0.0600	-0.003
0.0633	-0.003
0.0666	-0.003
0.0700	-0.003
0.0733	-0.003
0.0766	-0.003
0.0800	-0.003
0.0833	-0.003
0.0866	-0.003
0.0900	-0.003
0.0933	-0.003
0.0966	-0.003
0.1000	-0.003
0.1033	-0.003
0.1066	-0.003
0.1100	-0.003
0.1133	-0.003
0.1166	-0.003
0.1200	-0.003
0.1233	-0.003
0.1266	-0.003
0.1300	-0.003
0.1333	-0.003
0.1366	-0.003
0.1400	-0.003
0.1433	-0.003
0.1466	-0.003
0.1500	-0.003
0.1533	-0.003
0.1566	-0.003

0.1666	-0.003
0.1700	-0.003
0.1733	-0.003
0.1766	-0.003
0.1800	-0.003
0.1833	-0.003
0.1866	-0.003
0.1900	-0.003
0.1933	-0.003
0.1966	-0.003
0.2000	-0.003
0.2033	-0.003
0.2066	-0.003
0.2100	-0.003
0.2133	-0.003
0.2166	-0.003
0.2200	-0.003
0.2233	-0.003
0.2266	-0.003
0.2300	-0.003
0.2333	-0.003
0.2366	-0.003
0.2400	-0.003
0.2433	-0.003
0.2466	-0.003
0.2500	-0.003
0.2533	-0.003
0.2566	-0.003
0.2600	-0.003
0.2633	-0.003
0.2666	-0.003
0.2700	-0.003
0.2733	-0.003
0.2766	-0.003
0.2800	-0.003
0.2833	-0.003
0.2866	-0.003
0.2900	-0.003
0.2933	-0.003
0.2966	-0.003
0.3000	-0.003
0.3033	-0.003
0.3066	-0.003
0.3100	-0.003
0.3133	-0.003
0.3166	-0.003
0.3200	-0.003
0.3233	-0.003
0.3266	-0.003
0.3300	-0.003
0.3333	-0.003
0.3500	-0.003
0.3666	-0.003
0.3833	-0.003
0.4000	-0.003
0.4166	-0.003
0.4333	-0.003
0.4500	-0.003
0.4666	-0.003
0.4833	-0.003
0.5000	-0.003
0.5166	-0.003
0.5333	-0.003
0.5500	-0.003
0.5666	-0.003

0.6000	-0.003
0.6166	-0.003
0.6333	-0.003
0.6500	-0.006
0.6666	-0.003
0.6833	-0.003
0.7000	-0.003
0.7166	-0.006
0.7333	-0.006
0.7500	-0.006
0.7666	-0.006
0.7833	-0.006
0.8000	-0.006
0.8166	-0.003
0.8333	-0.006
0.8500	-0.006
0.8666	-0.003
0.8833	-0.003
0.9000	-0.003
0.9166	-0.003
0.9333	-0.003
0.9500	-0.003
0.9666	-0.003
0.9833	-0.003
1.0000	-0.003
1.2000	-0.006
1.4000	-0.006
1.6000	-0.006
1.8000	-0.003
2.0000	-0.006
2.2000	-0.006
2.4000	-0.006
2.6000	-0.006
2.8000	-0.006
3.0000	-0.006
3.2000	-0.006
3.4000	-0.006
3.6000	-0.006
3.8000	0.000
4.0000	-0.003
4.2000	-0.003
4.4000	-0.003
4.6000	-0.003
4.8000	-0.003
5.0000	-0.003
5.2000	-0.003
5.4000	-0.003
5.6000	-0.003
5.8000	-0.003
6.0000	-0.003
6.2000	-0.003
6.4000	0.000
6.6000	0.000
6.8000	0.000
7.0000	0.000
7.2000	0.000
7.4000	0.000
7.6000	0.000
7.8000	0.000
8.0000	0.000
8.2000	0.000
8.4000	0.000
8.6000	0.000
8.8000	0.003

9.4000	0.003
9.6000	0.003
9.8000	0.003
10.0000	0.003
12.0000	0.006
14.0000	0.009
16.0000	0.012
18.0000	0.015
20.0000	0.015
22.0000	0.025
24.0000	0.028
26.0000	0.028
28.0000	0.028
30.0000	0.034
32.0000	0.037
34.0000	0.037
36.0000	0.041
38.0000	0.044
40.0000	0.044
42.0000	0.047
44.0000	0.056
46.0000	0.056
48.0000	0.060
50.0000	0.060
52.0000	0.063
54.0000	0.063
56.0000	0.063
58.0000	0.066
60.0000	0.066
62.0000	0.069
64.0000	0.066
66.0000	0.066
68.0000	0.066
70.0000	0.066
72.0000	0.066
74.0000	0.069
76.0000	0.069
78.0000	0.069
80.0000	0.069
82.0000	0.072
84.0000	0.075
86.0000	0.075
88.0000	0.075
90.0000	0.075
92.0000	0.075
94.0000	0.079
96.0000	0.079
98.0000	0.082
100.000	0.079
120.000	0.072
140.000	0.082
160.000	0.088
180.000	0.101
200.000	0.098
220.000	0.098
240.000	0.107
260.000	0.101
280.000	0.094
300.000	0.098
320.000	0.098
340.000	0.091
360.000	0.085
380.000	0.085
400.000	0.082

460.000	0.063
480.000	0.056
500.000	0.053
520.000	0.047
540.000	0.047
560.000	0.044
580.000	0.037
600.000	0.034
620.000	0.034
640.000	0.037
660.000	0.034
680.000	0.025
700.000	0.028
720.000	0.028
740.000	0.028
760.000	0.034
780.000	0.047
800.000	0.056
820.000	0.063
840.000	0.063
860.000	0.066
880.000	0.066
900.000	0.066
920.000	0.075
940.000	0.072
960.000	0.072
980.000	0.075
1000.00	0.085
1100.00	0.082
1200.00	0.085
1300.00	0.107
1400.00	0.117
1500.00	0.136
1600.00	0.120
1700.00	0.079
1800.00	0.053
1900.00	-0.012
2000.00	-0.031
2100.00	-0.025
2200.00	0.022
2300.00	0.053
2400.00	0.056
2500.00	0.079
2600.00	0.082
2700.00	0.050
2800.00	0.044
2900.00	0.053
3000.00	0.003
3100.00	0.034
3200.00	0.028
3300.00	0.009
3400.00	-0.009
3500.00	0.003
3600.00	0.047
3700.00	0.123
3800.00	0.164
3900.00	0.167

OW-1

SE1000B
Environmental Logger
04/08 08:48

039

Unit# 00000 Test# 2

INPUT 1: Level (F) TOC

Reference	0.00
Scale factor	10.02
Offset	0.03

Step# 0 04/05 07:55

Elapsed Time	Value
0.0000	-0.00
0.0033	-0.00
0.0066	-0.00
0.0099	-0.00
0.0133	-0.00
0.0166	0.00
0.0200	-0.00
0.0233	-0.00
0.0266	-0.00
0.0300	-0.00
0.0333	-0.00
0.0500	-0.00
0.0666	-0.00
0.0833	-0.00
0.1000	-0.00
0.1166	0.00
0.1333	0.00
0.1500	-0.00
0.1666	-0.00
0.1833	0.00
0.2000	-0.00
0.2166	0.00
0.2333	-0.00
0.2500	-0.00
0.2666	-0.00
0.2833	-0.00
0.3000	-0.00
0.3166	-0.00
0.3333	-0.00
0.4167	-0.00
0.5000	-0.00
0.5833	-0.00
0.6667	-0.00
0.7500	-0.00
0.8333	-0.00
0.9167	-0.00
1.0000	-0.00
1.0833	-0.00
1.1667	-0.00
1.2500	-0.00
1.3333	-0.00
1.4166	-0.00
1.5000	-0.00
1.5833	-0.00
1.6667	-0.00
1.7500	-0.00
1.8333	-0.00

2.5000	-0.00
3.0000	-0.00
3.5000	-0.00
4.0000	-0.00
4.5000	-0.00
5.0000	-0.00
5.5000	-0.00
6.0000	-0.00
6.5000	-0.00
7.0000	-0.00
7.5000	-0.00
8.0000	-0.00
8.5000	-0.00
9.0000	-0.00
9.5000	-0.00
10.0000	-0.00
12.0000	-0.00
14.0000	-0.00
16.0000	0.00
18.0000	0.00
20.0000	0.00
22.0000	0.00
24.0000	0.00
26.0000	0.00
28.0000	0.00
30.0000	0.01
32.0000	0.01
34.0000	0.01
36.0000	0.01
38.0000	0.01
40.0000	0.01
42.0000	0.02
44.0000	0.03
46.0000	0.03
48.0000	0.03
50.0000	0.03
52.0000	0.03
54.0000	0.03
56.0000	0.03
58.0000	0.03
60.0000	0.03
62.0000	0.03
64.0000	0.03
66.0000	0.03
68.0000	0.03
70.0000	0.03
72.0000	0.03
74.0000	0.03
76.0000	0.03
78.0000	0.03
80.0000	0.04
82.0000	0.04
84.0000	0.04
86.0000	0.04
88.0000	0.04
90.0000	0.04
92.0000	0.04
94.0000	0.05
96.0000	0.05
98.0000	0.05
100.000	0.04
110.000	0.04
120.000	0.03
130.000	0.03
140.000	0.04

160.000	0.05
170.000	0.05
180.000	0.06
190.000	0.05
200.000	0.05
210.000	0.05
220.000	0.05
230.000	0.05
240.000	0.06
250.000	0.06
260.000	0.05
270.000	0.05
280.000	0.04
290.000	0.05
300.000	0.05
310.000	0.05
320.000	0.05
330.000	0.04
340.000	0.04
350.000	0.04
360.000	0.04
370.000	0.04
380.000	0.04
390.000	0.04
400.000	0.04
410.000	0.03
420.000	0.02
430.000	0.02
440.000	0.02
450.000	0.01
460.000	0.01
470.000	0.01
480.000	0.01
490.000	0.00
500.000	0.00
510.000	0.00
520.000	0.00
530.000	0.00
540.000	0.00
550.000	0.00
560.000	-0.00
570.000	0.00
580.000	-0.00
590.000	-0.00
600.000	-0.01
610.000	-0.01
620.000	-0.00
630.000	-0.01
640.000	-0.01
650.000	-0.01
660.000	-0.00
670.000	-0.01
680.000	-0.02
690.000	-0.01
700.000	-0.01
710.000	-0.01
720.000	-0.01
730.000	-0.01
740.000	-0.01
750.000	-0.01
760.000	-0.00
770.000	-0.00
780.000	0.00
790.000	0.01
800.000	0.01

820.000	0.01
830.000	0.01
840.000	0.01
850.000	0.01
860.000	0.02
870.000	0.01
880.000	0.02
890.000	0.02
900.000	0.02
910.000	0.02
920.000	0.03
930.000	0.03
940.000	0.03
950.000	0.03
960.000	0.03
970.000	0.03
980.000	0.03
990.000	0.04
1000.00	0.04
1100.00	0.04
1200.00	0.04
1300.00	0.07
1400.00	0.07
1500.00	0.09
1600.00	0.08
1700.00	0.04
1800.00	0.00
1900.00	-0.06
2000.00	-0.07
2100.00	-0.07
2200.00	-0.02
2300.00	0.00
2400.00	0.00
2500.00	0.02
2600.00	0.03
2700.00	0.00
2800.00	0.00
2900.00	0.00
3000.00	-0.03
3100.00	-0.00
3200.00	-0.01
3300.00	-0.02
3400.00	-0.05
3500.00	-0.04
3600.00	0.00
3700.00	0.08
3800.00	0.12
3900.00	0.12

OW-1 TEST, REC

SE1000B
Environmental Logger
04/08 08:52

Unit# 00000 Test# 2

INPUT 1: Level (F) TOC

Reference	0.00
Scale factor	10.02
Offset	0.03

Step# 1 04/08 02:06

Elapsed Time	Value
0.0000	0.13
0.0033	0.13
0.0066	0.13
0.0099	0.13
0.0133	0.13
0.0166	0.13
0.0200	0.13
0.0233	0.13
0.0266	0.13
0.0300	0.13
0.0333	0.13
0.0500	0.13
0.0666	0.13
0.0833	0.13
0.1000	0.13
0.1166	0.13
0.1333	0.13
0.1500	0.13
0.1666	0.13
0.1833	0.13
0.2000	0.13
0.2166	0.13
0.2333	0.13
0.2500	0.13
0.2666	0.13
0.2833	0.13
0.3000	0.13
0.3166	0.13
0.3333	0.13
0.4167	0.13
0.5000	0.13
0.5833	0.13
0.6667	0.13
0.7500	0.13
0.8333	0.13
0.9167	0.13
1.0000	0.13
1.0833	0.13
1.1667	0.13
1.2500	0.13
1.3333	0.13
1.4166	0.13
1.5000	0.13
1.5833	0.13
1.6667	0.13
1.7500	0.13
1.8333	0.13

2.0000	0.13
2.5000	0.13
3.0000	0.13
3.5000	0.13
4.0000	0.09
4.5000	0.13
5.0000	0.13
5.5000	0.13
6.0000	0.13
6.5000	0.13
7.0000	0.13
7.5000	0.13
8.0000	0.13
8.5000	0.13
9.0000	0.13
9.5000	0.12
10.0000	0.13
12.0000	0.12
14.0000	0.12
16.0000	0.11
18.0000	0.11
20.0000	0.11
22.0000	0.10
24.0000	0.10
26.0000	0.10
28.0000	0.10
30.0000	0.09
32.0000	0.09
34.0000	0.09
36.0000	0.09
38.0000	0.09
40.0000	0.09
42.0000	0.09
44.0000	0.09
46.0000	0.09
48.0000	0.09
50.0000	0.09
52.0000	0.08
54.0000	0.08
56.0000	0.08
58.0000	0.07
60.0000	0.07
62.0000	0.07
64.0000	0.06
66.0000	0.06
68.0000	0.06
70.0000	0.06
72.0000	0.06
74.0000	0.06
76.0000	0.06
78.0000	0.06
80.0000	0.06
82.0000	0.06
84.0000	0.06
86.0000	0.06
88.0000	0.06
90.0000	0.06
92.0000	0.06
94.0000	0.06
96.0000	0.06
98.0000	0.05
100.000	0.05
110.000	0.04
120.000	0.04
130.000	0.04

150.000	0.02
160.000	0.02
170.000	0.02
180.000	0.02
190.000	0.03
200.000	0.02
210.000	0.01
220.000	0.01
230.000	0.01
240.000	0.00
250.000	0.01
260.000	0.02
270.000	0.02
280.000	0.03
290.000	0.04
300.000	0.04
310.000	0.04
320.000	0.04
330.000	0.03
340.000	0.03
350.000	0.03

OW2TEST.REC

SE1000C
Environmental Logger
04/08 07:40

046

Unit# 00601 Test 2

INPUT 2: Level (F) TOC

Reference	0.000
Linearity	0.010
Scale factor	10.020
Offset	0.020
Delay mSEC	50.000

Step 1 04/08 00:22:04

Elapsed Time	INPUT 2
0.0000	0.173
0.0033	0.173
0.0066	0.173
0.0100	0.173
0.0133	0.173
0.0166	0.173
0.0200	0.173
0.0233	0.173
0.0266	0.173
0.0300	0.173
0.0333	0.173
0.0366	0.173
0.0400	0.173
0.0433	0.173
0.0466	0.173
0.0500	0.173
0.0533	0.173
0.0566	0.173
0.0600	0.173
0.0633	0.173
0.0666	0.173
0.0700	0.173
0.0733	0.173
0.0766	0.173
0.0800	0.173
0.0833	0.173
0.0866	0.173
0.0900	0.173
0.0933	0.173
0.0966	0.173
0.1000	0.173
0.1033	0.173
0.1066	0.173
0.1100	0.173
0.1133	0.173
0.1166	0.173
0.1200	0.173
0.1233	0.173
0.1266	0.173
0.1300	0.173
0.1333	0.173
0.1366	0.173
0.1400	0.173
0.1433	0.173
0.1466	0.173

0.1533	0.173
0.1566	0.173
0.1600	0.173
0.1633	0.173
0.1666	0.173
0.1700	0.173
0.1733	0.173
0.1766	0.173
0.1800	0.173
0.1833	0.173
0.1866	0.173
0.1900	0.173
0.1933	0.173
0.1966	0.173
0.2000	0.173
0.2033	0.173
0.2066	0.173
0.2100	0.173
0.2133	0.173
0.2166	0.173
0.2200	0.173
0.2233	0.173
0.2266	0.173
0.2300	0.173
0.2333	0.173
0.2366	0.173
0.2400	0.173
0.2433	0.173
0.2466	0.173
0.2500	0.173
0.2533	0.173
0.2566	0.173
0.2600	0.173
0.2633	0.173
0.2666	0.173
0.2700	0.173
0.2733	0.173
0.2766	0.173
0.2800	0.173
0.2833	0.173
0.2866	0.173
0.2900	0.173
0.2933	0.173
0.2966	0.173
0.3000	0.173
0.3033	0.173
0.3066	0.173
0.3100	0.173
0.3133	0.173
0.3166	0.173
0.3200	0.173
0.3233	0.173
0.3266	0.173
0.3300	0.173
0.3333	0.173
0.3500	0.173
0.3666	0.173
0.3833	0.173
0.4000	0.173
0.4166	0.173
0.4333	0.173
0.4500	0.173
0.4666	0.173
0.4833	0.173
0.5000	0.173

0.5333	0.173
0.5500	0.173
0.5666	0.173
0.5833	0.173
0.6000	0.173
0.6166	0.173
0.6333	0.173
0.6500	0.173
0.6666	0.173
0.6833	0.173
0.7000	0.173
0.7166	0.173
0.7333	0.173
0.7500	0.173
0.7666	0.173
0.7833	0.173
0.8000	0.173
0.8166	0.173
0.8333	0.173
0.8500	0.173
0.8666	0.173
0.8833	0.173
0.9000	0.173
0.9166	0.173
0.9333	0.173
0.9500	0.173
0.9666	0.173
0.9833	0.173
1.0000	0.173
1.2000	0.173
1.4000	0.173
1.6000	0.173
1.8000	0.173
2.0000	0.173
2.2000	0.173
2.4000	0.173
2.6000	0.173
2.8000	0.173
3.0000	0.173
3.2000	0.173
3.4000	0.173
3.6000	0.173
3.8000	0.173
4.0000	0.173
4.2000	0.173
4.4000	0.173
4.6000	0.173
4.8000	0.173
5.0000	0.170
5.2000	0.173
5.4000	0.170
5.6000	0.170
5.8000	0.136
6.0000	0.161
6.2000	0.177
6.4000	0.183
6.6000	0.170
6.8000	0.170
7.0000	0.170
7.2000	0.170
7.4000	0.167
7.6000	0.167
7.8000	0.167
8.0000	0.167

8.6000	0.167
8.8000	0.167
9.0000	0.164
9.2000	0.164
9.4000	0.164
9.6000	0.164
9.8000	0.164
10.0000	0.164
12.0000	0.161
14.0000	0.154
16.0000	0.148
18.0000	0.142
20.0000	0.139
22.0000	0.136
24.0000	0.129
26.0000	0.126
28.0000	0.123
30.0000	0.120
32.0000	0.117
34.0000	0.117
36.0000	0.117
38.0000	0.113
40.0000	0.110
42.0000	0.110
44.0000	0.110
46.0000	0.107
48.0000	0.107
50.0000	0.104
52.0000	0.104
54.0000	0.101
56.0000	0.098
58.0000	0.094
60.0000	0.091
62.0000	0.088
64.0000	0.085
66.0000	0.082
68.0000	0.079
70.0000	0.079
72.0000	0.075
74.0000	0.075
76.0000	0.075
78.0000	0.075
80.0000	0.075
82.0000	0.075
84.0000	0.072
86.0000	0.069
88.0000	0.069
90.0000	0.069
92.0000	0.069
94.0000	0.066
96.0000	0.066
98.0000	0.066
100.000	0.063
120.000	0.047
140.000	0.041
160.000	0.028
180.000	0.028
200.000	0.025
220.000	0.012
240.000	0.006
260.000	0.015
280.000	0.034
300.000	0.037
320.000	0.041
340.000	0.031

OW-5

SE1000B
Environmental Logger
04/08 08:55

056

Unit# 00000 Test# 2

INPUT 2: Level (F) TOC

Reference	0.00
Scale factor	9.98
Offset	0.01

Step# 0 04/05 07:55

Elapsed Time	Value
0.0000	0.01
0.0033	0.01
0.0066	0.01
0.0099	0.01
0.0133	0.01
0.0166	0.01
0.0200	0.01
0.0233	0.01
0.0266	0.01
0.0300	0.01
0.0333	0.01
0.0500	0.01
0.0666	0.01
0.0833	0.01
0.1000	0.01
0.1166	0.01
0.1333	0.01
0.1500	0.01
0.1666	0.01
0.1833	0.01
0.2000	0.01
0.2166	0.01
0.2333	0.01
0.2500	0.01
0.2666	0.01
0.2833	0.01
0.3000	0.01
0.3166	0.01
0.3333	0.01
0.4167	0.01
0.5000	0.01
0.5833	0.01
0.6667	0.01
0.7500	0.01
0.8333	0.01
0.9167	0.01
1.0000	0.01
1.0833	0.01
1.1667	0.01
1.2500	0.01
1.3333	0.01
1.4166	0.01
1.5000	0.01
1.5833	0.01
1.6667	0.01
1.7500	0.01
1.8333	0.01

2.0000	0.01
2.5000	0.01
3.0000	0.01
3.5000	0.01
4.0000	0.01
4.5000	0.01
5.0000	0.01
5.5000	0.01
6.0000	0.01
6.5000	0.01
7.0000	0.01
7.5000	0.01
8.0000	0.01
8.5000	0.01
9.0000	0.01
9.5000	0.01
10.0000	0.01
12.0000	0.01
14.0000	0.01
16.0000	0.01
18.0000	0.01
20.0000	0.01
22.0000	0.01
24.0000	0.01
26.0000	0.01
28.0000	0.01
30.0000	0.01
32.0000	0.01
34.0000	0.01
36.0000	0.02
38.0000	0.01
40.0000	0.02
42.0000	0.02
44.0000	0.02
46.0000	0.02
48.0000	0.02
50.0000	0.02
52.0000	0.02
54.0000	0.02
56.0000	0.02
58.0000	0.02
60.0000	0.02
62.0000	0.02
64.0000	0.02
66.0000	0.02
68.0000	0.02
70.0000	0.02
72.0000	0.01
74.0000	0.01
76.0000	0.01
78.0000	0.01
80.0000	0.02
82.0000	0.02
84.0000	0.02
86.0000	0.01
88.0000	0.01
90.0000	0.01
92.0000	0.02
94.0000	0.02
96.0000	0.02
98.0000	0.02
100.000	0.01
110.000	0.00
120.000	0.00
130.000	0.01

150.000	0.01
160.000	0.02
170.000	0.03
180.000	0.03
190.000	0.03
200.000	0.02
210.000	0.01
220.000	0.01
230.000	0.02
240.000	0.01
250.000	0.01
260.000	0.00
270.000	0.00
280.000	0.00
290.000	0.00
300.000	0.00
310.000	-0.00
320.000	0.00
330.000	-0.00
340.000	-0.01
350.000	-0.00
360.000	-0.01
370.000	-0.01
380.000	-0.04
390.000	-0.04
400.000	-0.05
410.000	-0.05
420.000	-0.05
430.000	-0.05
440.000	-0.06
450.000	-0.06
460.000	-0.07
470.000	-0.08
480.000	-0.08
490.000	-0.09
500.000	-0.09
510.000	-0.10
520.000	-0.10
530.000	-0.10
540.000	-0.10
550.000	-0.10
560.000	-0.11
570.000	-0.09
580.000	-0.12
590.000	-0.11
600.000	-0.12
610.000	-0.12
620.000	-0.12
630.000	-0.12
640.000	-0.12
650.000	-0.12
660.000	-0.12
670.000	-0.13
680.000	-0.14
690.000	-0.12
700.000	-0.13
710.000	-0.12
720.000	-0.13
730.000	-0.13
740.000	-0.13
750.000	-0.13
760.000	-0.12
770.000	-0.12
780.000	-0.11
790.000	-0.11

810.000	-0.10
820.000	-0.11
830.000	-0.11
840.000	-0.11
850.000	-0.11
860.000	-0.10
870.000	-0.11
880.000	-0.11
890.000	-0.11
900.000	-0.11
910.000	-0.10
920.000	-0.10
930.000	-0.11
940.000	-0.11
950.000	-0.10
960.000	-0.11
970.000	-0.11
980.000	-0.10
990.000	-0.10
1000.00	-0.10
1100.00	-0.11
1200.00	-0.12
1300.00	-0.11
1400.00	-0.11
1500.00	-0.11
1600.00	-0.12
1700.00	-0.18
1800.00	-0.22
1900.00	-0.28
2000.00	-0.30
2100.00	-0.30
2200.00	-0.26
2300.00	-0.24
2400.00	-0.24
2500.00	-0.23
2600.00	-0.23
2700.00	-0.27
2800.00	-0.27
2900.00	-0.27
3000.00	-0.32
3100.00	-0.29
3200.00	-0.30
3300.00	-0.29
3400.00	-0.34
3500.00	-0.33
3600.00	-0.29
3700.00	-0.21
3800.00	-0.18
3900.00	-0.18

SE1000B
Environmental Logger
04/08 08:58

Unit# 00000 Test# 2

INPUT 2: Level (F) TOC

Reference	0.00
Scale factor	9.98
Offset	0.01

Step# 1 04/08 02:06

Elapsed Time	Value
0.0000	-0.17
0.0033	-0.17
0.0066	-0.17
0.0099	-0.17
0.0133	-0.17
0.0166	-0.17
0.0200	-0.17
0.0233	-0.17
0.0266	-0.17
0.0300	-0.17
0.0333	-0.17
0.0500	-0.17
0.0666	-0.17
0.0833	-0.17
0.1000	-0.17
0.1166	-0.17
0.1333	-0.17
0.1500	-0.17
0.1666	-0.17
0.1833	-0.17
0.2000	-0.17
0.2166	-0.17
0.2333	-0.17
0.2500	-0.17
0.2666	-0.17
0.2833	-0.17
0.3000	-0.17
0.3166	-0.17
0.3333	-0.17
0.4167	-0.17
0.5000	-0.17
0.5833	-0.17
0.6667	-0.17
0.7500	-0.17
0.8333	-0.17
0.9167	-0.17
1.0000	-0.17
1.0833	-0.17
1.1667	-0.17
1.2500	-0.17
1.3333	-0.17
1.4166	-0.17
1.5000	-0.17
1.5833	-0.17
1.6667	-0.17
1.7500	-0.17
1.8333	-0.17

2.0000	-0.17
2.5000	-0.17
3.0000	-0.17
3.5000	-0.17
4.0000	-0.17
4.5000	-0.17
5.0000	-0.17
5.5000	-0.17
6.0000	-0.17
6.5000	-0.17
7.0000	-0.17
7.5000	-0.17
8.0000	-0.17
8.5000	-0.17
9.0000	-0.17
9.5000	-0.17
10.0000	-0.17
12.0000	-0.17
14.0000	-0.17
16.0000	-0.18
18.0000	-0.18
20.0000	-0.18
22.0000	-0.18
24.0000	-0.18
26.0000	-0.18
28.0000	-0.18
30.0000	-0.18
32.0000	-0.18
34.0000	-0.18
36.0000	-0.18
38.0000	-0.18
40.0000	-0.18
42.0000	-0.17
44.0000	-0.17
46.0000	-0.17
48.0000	-0.17
50.0000	-0.17
52.0000	-0.17
54.0000	-0.17
56.0000	-0.18
58.0000	-0.18
60.0000	-0.18
62.0000	-0.18
64.0000	-0.18
66.0000	-0.18
68.0000	-0.18
70.0000	-0.18
72.0000	-0.18
74.0000	-0.18
76.0000	-0.18
78.0000	-0.18
80.0000	-0.18
82.0000	-0.18
84.0000	-0.18
86.0000	-0.18
88.0000	-0.18
90.0000	-0.18
92.0000	-0.18
94.0000	-0.18
96.0000	-0.18
98.0000	-0.18
100.000	-0.18
110.000	-0.18
120.000	-0.18
130.000	-0.18

150.000	-0.19
160.000	-0.19
170.000	-0.18
180.000	-0.18
190.000	-0.18
200.000	-0.18
210.000	-0.19
220.000	-0.19
230.000	-0.19
240.000	-0.19
250.000	-0.18
260.000	-0.17
270.000	-0.17
280.000	-0.15
290.000	-0.15
300.000	-0.15
310.000	-0.15
320.000	-0.14
330.000	-0.14
340.000	-0.15
350.000	-0.14

MW 373

SE1000B
Environmental Logger
04/09 09:12

057

Unit# 00654 Test# 4

INPUT 1: Level (F) TOC

Reference 0.00
Scale factor 10.01
Offset - 0.06

Step# 0 04/06 08:32

Elapsed Time	Value
0.0000	-0.14
0.0033	-0.14
0.0066	-0.14
0.0099	-0.14
0.0133	-0.14
0.0166	-0.14
0.0200	-0.14
0.0233	-0.14
0.0266	-0.14
0.0300	-0.14
0.0333	-0.14
0.0500	-0.14
0.0666	-0.14
0.0833	-0.14
0.1000	-0.14
0.1166	-0.14
0.1333	-0.14
0.1500	-0.14
0.1666	-0.14
0.1833	-0.14
0.2000	-0.14
0.2166	-0.14
0.2333	-0.14
0.2500	-0.14
0.2666	-0.14
0.2833	-0.14
0.3000	-0.14
0.3166	-0.14
0.3333	-0.14
0.4167	-0.14
0.5000	-0.15
0.5833	-0.15
0.6667	-0.15
0.7500	-0.15
0.8333	-0.15
0.9167	-0.15
1.0000	-0.15
1.0833	-0.15
1.1667	-0.15
1.2500	-0.15
1.3333	-0.15
1.4166	-0.15
1.5000	-0.15
1.5833	-0.15
1.6667	-0.15
1.7500	-0.15
1.8333	-0.15

2.0000	-0.15
2.5000	-0.15
3.0000	-0.15
3.5000	-0.15
4.0000	-0.15
4.5000	-0.16
5.0000	-0.16
5.5000	-0.16
6.0000	-0.16
6.5000	-0.16
7.0000	-0.16
7.5000	-0.16
8.0000	-0.16
8.5000	-0.16
9.0000	-0.16
9.5000	-0.16
10.0000	-0.16
12.0000	-0.17
14.0000	-0.17
16.0000	-0.17
18.0000	-0.17
20.0000	-0.18
22.0000	-0.18
24.0000	-0.18
26.0000	-0.18
28.0000	-0.18
30.0000	-0.18
32.0000	-0.18
34.0000	-0.18
36.0000	-0.19
38.0000	-0.19
40.0000	-0.19
42.0000	-0.19
44.0000	-0.19
46.0000	-0.19
48.0000	-0.19
50.0000	-0.19
52.0000	-0.19
54.0000	-0.19
56.0000	-0.19
58.0000	-0.19
60.0000	-0.20
62.0000	-0.20
64.0000	-0.20
66.0000	-0.20
68.0000	-0.21
70.0000	-0.21
72.0000	-0.21
74.0000	-0.21
76.0000	-0.22
78.0000	-0.22
80.0000	-0.22
82.0000	-0.22
84.0000	-0.22
86.0000	-0.22
88.0000	-0.23
90.0000	-0.22
92.0000	-0.22
94.0000	-0.23
96.0000	-0.23
98.0000	-0.23
100.000	-0.23
110.000	-0.24
120.000	-0.25
130.000	-0.25

150.000	-0.25
160.000	-0.25
170.000	-0.25
180.000	-0.25
190.000	-0.25
200.000	-0.26
210.000	-0.26
220.000	-0.28
230.000	-0.28
240.000	-0.29
250.000	-0.29
260.000	-0.29
270.000	-0.30
280.000	-0.31
290.000	-0.30
300.000	-0.30
310.000	-0.30
320.000	-0.30
330.000	-0.30
340.000	-0.29
350.000	-0.29
360.000	-0.30
370.000	-0.29
380.000	-0.28
390.000	-0.28
400.000	-0.28
410.000	-0.28
420.000	-0.29
430.000	-0.28
440.000	-0.29
450.000	-0.29
460.000	-0.30
470.000	-0.31
480.000	-0.31
490.000	-0.31
500.000	-0.32
510.000	-0.32
520.000	-0.33
530.000	-0.32
540.000	-0.32
550.000	-0.31
560.000	-0.31
570.000	-0.32
580.000	-0.34
590.000	-0.33
600.000	-0.32
610.000	-0.32
620.000	-0.32
630.000	-0.32
640.000	-0.32
650.000	-0.32
660.000	-0.32
670.000	-0.32
680.000	-0.32
690.000	-0.32
700.000	-0.31
710.000	-0.31
720.000	-0.31
730.000	-0.31
740.000	-0.31
750.000	-0.31
760.000	-0.31
770.000	-0.31
780.000	-0.30
790.000	-0.29

810.000	-0.28
820.000	-0.27
830.000	-0.27
840.000	-0.27
850.000	-0.27
860.000	-0.27
870.000	-0.27
880.000	-0.27
890.000	-0.27
900.000	-0.27
910.000	-0.27
920.000	-0.26
930.000	-0.26
940.000	-0.26
950.000	-0.26
960.000	-0.26
970.000	-0.26
980.000	-0.26
990.000	-0.26
1000.00	-0.25
1100.00	-0.26
1200.00	-0.24
1300.00	-0.22
1400.00	-0.22
1500.00	-0.22
1600.00	-0.24
1700.00	-0.27
1800.00	-0.23
1900.00	-0.24
2000.00	-0.26
2100.00	-0.27
2200.00	-0.26
2300.00	-0.25
2400.00	-0.25
2500.00	-0.25
2600.00	-0.25
2700.00	-0.28
2800.00	-0.29
2900.00	-0.29
3000.00	-0.32
3100.00	-0.32
3200.00	-0.32
3300.00	-0.34
3400.00	-0.36
3500.00	-0.36
3600.00	-0.34
3700.00	-0.29
3800.00	-0.26
3900.00	-0.26

545 test.Rec

SE1000B
Environmental Logger
04/09 09:16

061

Unit# 00654 Test# 4

INPUT 1: Level (F) TOC

Reference	0.00
Scale factor	10.01
Offset	- 0.06

Step# 1 04/09 02:43

Elapsed Time	Value
0.0000	-0.25
0.0033	-0.25
0.0066	-0.25
0.0099	-0.25
0.0133	-0.25
0.0166	-0.25
0.0200	-0.25
0.0233	-0.25
0.0266	-0.25
0.0300	-0.25
0.0333	-0.25
0.0500	-0.25
0.0666	-0.25
0.0833	-0.25
0.1000	-0.25
0.1166	-0.25
0.1333	-0.25
0.1500	-0.25
0.1666	-0.25
0.1833	-0.25
0.2000	-0.25
0.2166	-0.25
0.2333	-0.25
0.2500	-0.25
0.2666	-0.25
0.2833	-0.25
0.3000	-0.25
0.3166	-0.25
0.3333	-0.25
0.4167	-0.25
0.5000	-0.25
0.5833	-0.25
0.6667	-0.25
0.7500	-0.25
0.8333	-0.25
0.9167	-0.25
1.0000	-0.25
1.0833	-0.25
1.1667	-0.25
1.2500	-0.25
1.3333	-0.25
1.4166	-0.25
1.5000	-0.25
1.5833	-0.25
1.6667	-0.25
1.7500	-0.25

1.9167	-0.25
2.0000	-0.25
2.5000	-0.25
3.0000	-0.25
3.5000	-0.25
4.0000	-0.25
4.5000	-0.25
5.0000	-0.25
5.5000	-0.25
6.0000	-0.25
6.5000	-0.25
7.0000	-0.25
7.5000	-0.25
8.0000	-0.25
8.5000	-0.25
9.0000	-0.25
9.5000	-0.25
10.0000	-0.25
12.0000	-0.25
14.0000	-0.25
16.0000	-0.25
18.0000	-0.25
20.0000	-0.25
22.0000	-0.25
24.0000	-0.25
26.0000	-0.26
28.0000	-0.25
30.0000	-0.25
32.0000	-0.25
34.0000	-0.25
36.0000	-0.25
38.0000	-0.25
40.0000	-0.25
42.0000	-0.25
44.0000	-0.25
46.0000	-0.25
48.0000	-0.25
50.0000	-0.25
52.0000	-0.25
54.0000	-0.25
56.0000	-0.25
58.0000	-0.25
60.0000	-0.25
62.0000	-0.25
64.0000	-0.25
66.0000	-0.25
68.0000	-0.25
70.0000	-0.25
72.0000	-0.25
74.0000	-0.25
76.0000	-0.25
78.0000	-0.25
80.0000	-0.25
82.0000	-0.25
84.0000	-0.25
86.0000	-0.25
88.0000	-0.25
90.0000	-0.25
92.0000	-0.25
94.0000	-0.25
96.0000	-0.25
98.0000	-0.25
100.000	-0.25
110.000	-0.25
120.000	-0.25

140.000	-0.25
150.000	-0.26
160.000	-0.26
170.000	-0.26
180.000	-0.25
190.000	-0.25
200.000	-0.25
210.000	-0.25
220.000	-0.25
230.000	-0.25
240.000	-0.25
250.000	-0.25
260.000	-0.25
270.000	-0.25
280.000	-0.24
290.000	-0.23
300.000	-0.23
310.000	-0.23
320.000	-0.23
330.000	-0.23
340.000	-0.23
350.000	-0.23

525 Bkgd. dat

SE1000C
Environmental Logger
04/04 08:09

Unit# 00601 Test 0

INPUT 1: Level (F) TOC

Reference	0.000
Linearity	0.020
Scale factor	9.980
Offset	0.010
Delay mSEC	50.000

Step 0 04/03 06:47:28

Elapsed Time	INPUT 1
0.0000	0.000
0.0033	0.000
0.0066	0.000
0.0100	0.000
0.0133	0.000
0.0166	0.000
0.0200	0.003
0.0233	0.003
0.0266	0.003
0.0300	0.003
0.0333	0.003
0.0366	0.003
0.0400	0.003
0.0433	0.000
0.0466	0.003
0.0500	0.000
0.0533	0.003
0.0566	0.003
0.0600	0.003
0.0633	0.003
0.0666	0.003
0.0700	0.003
0.0733	0.003
0.0766	0.003
0.0800	0.000
0.0833	0.000
0.0866	0.000
0.0900	0.000
0.0933	0.000
0.0966	0.003
0.1000	0.003
0.1033	0.003
0.1066	0.003
0.1100	0.003
0.1133	0.003
0.1166	0.003
0.1200	0.003
0.1233	0.003
0.1266	0.003
0.1300	0.003
0.1333	0.000
0.1366	0.003
0.1400	0.003
0.1433	0.003
0.1466	0.003

0.1533	0.000
0.1566	0.000
0.1600	-0.003
0.1633	-0.003
0.1666	-0.003
0.1700	-0.003
0.1733	-0.003
0.1766	-0.003
0.1800	0.000
0.1833	0.000
0.1866	0.000
0.1900	0.003
0.1933	0.003
0.1966	0.003
0.2000	0.003
0.2033	0.003
0.2066	0.003
0.2100	0.003
0.2133	0.003
0.2166	0.003
0.2200	0.003
0.2233	0.003
0.2266	0.003
0.2300	0.003
0.2333	0.003
0.2366	0.003
0.2400	0.003
0.2433	0.003
0.2466	0.003
0.2500	0.003
0.2533	0.003
0.2566	0.003
0.2600	0.003
0.2633	0.003
0.2666	0.003
0.2700	0.003
0.2733	0.003
0.2766	0.003
0.2800	0.003
0.2833	0.003
0.2866	0.003
0.2900	0.003
0.2933	0.003
0.2966	0.003
0.3000	0.003
0.3033	0.000
0.3066	0.000
0.3100	0.000
0.3133	0.000
0.3166	0.000
0.3200	0.000
0.3233	0.000
0.3266	0.000
0.3300	0.003
0.3333	0.000
0.3500	0.000
0.3666	0.003
0.3833	0.003
0.4000	0.003
0.4166	0.003
0.4333	0.003
0.4500	0.000
0.4666	0.000
0.4833	0.000
0.5000	0.000

0.5333	0.000
0.5500	0.000
0.5666	0.000
0.5833	0.003
0.6000	0.003
0.6166	0.003
0.6333	0.000
0.6500	0.003
0.6666	0.003
0.6833	0.000
0.7000	0.003
0.7166	0.003
0.7333	0.003
0.7500	0.003
0.7666	0.003
0.7833	0.003
0.8000	0.003
0.8166	0.003
0.8333	0.003
0.8500	0.003
0.8666	0.003
0.8833	0.003
0.9000	0.003
0.9166	0.003
0.9333	0.003
0.9500	0.003
0.9666	0.003
0.9833	0.003
1.0000	0.003
1.2000	0.003
1.4000	0.000
1.6000	0.000
1.8000	0.000
2.0000	0.000
2.2000	0.000
2.4000	0.000
2.6000	0.000
2.8000	0.000
3.0000	0.000
3.2000	0.000
3.4000	0.003
3.6000	0.000
3.8000	0.000
4.0000	0.000
4.2000	0.000
4.4000	-0.003
4.6000	0.000
4.8000	-0.003
5.0000	0.000
5.2000	-0.003
5.4000	0.000
5.6000	-0.003
5.8000	-0.003
6.0000	-0.003
6.2000	-0.003
6.4000	-0.003
6.6000	0.000
6.8000	0.000
7.0000	0.000
7.2000	0.000
7.4000	0.000
7.6000	0.000
7.8000	0.000
8.0000	0.000
8.2000	0.000

8.6000	-0.003
8.8000	-0.003
9.0000	-0.003
9.2000	-0.003
9.4000	-0.003
9.6000	-0.003
9.8000	-0.003
10.0000	0.000
12.0000	0.000
14.0000	-0.003
16.0000	-0.003
18.0000	0.000
20.0000	-0.003
22.0000	-0.003
24.0000	-0.003
26.0000	-0.003
28.0000	-0.003
30.0000	-0.003
32.0000	-0.003
34.0000	-0.006
36.0000	-0.009
38.0000	-0.015
40.0000	-0.015
42.0000	-0.018
44.0000	-0.018
46.0000	-0.018
48.0000	-0.022
50.0000	-0.022
52.0000	-0.022
54.0000	-0.025
56.0000	-0.025
58.0000	-0.028
60.0000	-0.025
62.0000	-0.025
64.0000	-0.028
66.0000	-0.028
68.0000	-0.028
70.0000	-0.028
72.0000	-0.031
74.0000	-0.031
76.0000	-0.031
78.0000	-0.031
80.0000	-0.031
82.0000	-0.031
84.0000	-0.031
86.0000	-0.034
88.0000	-0.034
90.0000	-0.034
92.0000	-0.034
94.0000	-0.034
96.0000	-0.031
98.0000	-0.028
100.000	-0.031
120.000	-0.040
140.000	-0.044
160.000	-0.047
180.000	-0.053
200.000	-0.072
220.000	-0.075
240.000	-0.078
260.000	-0.085
280.000	-0.085
300.000	-0.081
320.000	-0.097
340.000	-0.100

380.000	-0.110
400.000	-0.091
420.000	-0.094
440.000	-0.097
460.000	-0.094
480.000	-0.097
500.000	-0.100
520.000	-0.097
540.000	-0.091
560.000	-0.088
580.000	-0.085
600.000	-0.088
620.000	-0.091
640.000	-0.088
660.000	-0.091
680.000	-0.091
700.000	-0.088
720.000	-0.081
740.000	-0.078
760.000	-0.072
780.000	-0.072
800.000	-0.075
820.000	-0.078
840.000	-0.078
860.000	-0.081
880.000	-0.088
900.000	-0.088
920.000	-0.088
940.000	-0.091
960.000	-0.097
980.000	-0.097
1000.00	-0.100
1100.00	-0.103
1200.00	-0.116
1300.00	-0.141
1400.00	-0.110

5456Rgd.dat

069

SE1000B
Environmental Logger
04/04 09:45

Unit# 00000 Test# 1

INPUT 1: Level (F) TOC

Reference	0.00
Scale factor	10.00
Offset	0.06

Step# 0 04/03 08:11

Elapsed Time	Value
0.0000	0.00
0.0033	0.00
0.0066	0.00
0.0099	0.00
0.0133	0.00
0.0166	0.00
0.0200	0.00
0.0233	0.00
0.0266	0.00
0.0300	0.00
0.0333	0.00
0.0500	0.00
0.0666	0.00
0.0833	0.00
0.1000	0.00
0.1166	0.00
0.1333	0.00
0.1500	0.00
0.1666	0.00
0.1833	0.00
0.2000	0.00
0.2166	0.00
0.2333	0.00
0.2500	0.00
0.2666	0.00
0.2833	0.00
0.3000	0.00
0.3166	0.00
0.3333	0.00
0.4167	0.00
0.5000	0.00
0.5833	0.00
0.6667	0.00
0.7500	0.00
0.8333	0.00
0.9167	0.00
1.0000	0.00
1.0833	0.00
1.1667	0.00
1.2500	0.00
1.3333	0.00
1.4166	0.00
1.5000	0.01
1.5833	0.01
1.6667	0.01
1.7500	0.01

1.9167	0.01
2.0000	0.01
2.5000	0.02
3.0000	0.02
3.5000	0.02
4.0000	0.02
4.5000	0.03
5.0000	0.03
5.5000	0.03
6.0000	0.03
6.5000	0.04
7.0000	0.04
7.5000	0.04
8.0000	0.04
8.5000	0.04
9.0000	0.04
9.5000	0.04
10.0000	0.04
12.0000	0.05
14.0000	0.05
16.0000	0.05
18.0000	0.05
20.0000	0.06
22.0000	0.06
24.0000	0.06
26.0000	0.06
28.0000	0.06
30.0000	0.06
32.0000	0.07
34.0000	0.07
36.0000	0.07
38.0000	0.07
40.0000	0.07
42.0000	0.07
44.0000	0.07
46.0000	0.07
48.0000	0.07
50.0000	0.07
52.0000	0.07
54.0000	0.07
56.0000	0.08
58.0000	0.07
60.0000	0.08
62.0000	0.08
64.0000	0.08
66.0000	0.08
68.0000	0.08
70.0000	0.08
72.0000	0.08
74.0000	0.08
76.0000	0.08
78.0000	0.08
80.0000	0.08
82.0000	0.08
84.0000	0.08
86.0000	0.08
88.0000	0.08
90.0000	0.08
92.0000	0.08
94.0000	0.08
96.0000	0.08
98.0000	0.08
100.000	0.08
110.000	0.08
120.000	0.08

140.000	0.08
150.000	0.08
160.000	0.08
170.000	0.09
180.000	0.08
190.000	0.09
200.000	0.08
210.000	0.08
220.000	0.07
230.000	0.06
240.000	0.06
250.000	0.05
260.000	0.06
270.000	0.06
280.000	0.06
290.000	0.06
300.000	0.05
310.000	0.04
320.000	0.05
330.000	0.05
340.000	0.04
350.000	0.05
360.000	0.04
370.000	0.03
380.000	0.03
390.000	0.03
400.000	0.02
410.000	0.02
420.000	0.02
430.000	0.02
440.000	0.02
450.000	0.01
460.000	0.01
470.000	0.01
480.000	0.02
490.000	0.01
500.000	0.01
510.000	0.01
520.000	0.01
530.000	0.01
540.000	0.01
550.000	0.02
560.000	0.02
570.000	0.02
580.000	0.02
590.000	0.03
600.000	0.03
610.000	0.03
620.000	0.03
630.000	0.03
640.000	0.03
650.000	0.03
660.000	0.03
670.000	0.03
680.000	0.03
690.000	0.03
700.000	0.03
710.000	0.03
720.000	0.04
730.000	0.04
740.000	0.05
750.000	0.05
760.000	0.05
770.000	0.06
780.000	0.06

800.000	0.06
810.000	0.06
820.000	0.06
830.000	0.06
840.000	0.06
850.000	0.06
860.000	0.06
870.000	0.06
880.000	0.06
890.000	0.05
900.000	0.05
910.000	0.05
920.000	0.05
930.000	0.06
940.000	0.05
950.000	0.05
960.000	0.05
970.000	0.05
980.000	0.05
990.000	0.04
1000.00	0.05
1100.00	0.03
1200.00	0.01
1300.00	-0.00
1400.00	0.00
1500.00	0.04

SE1000B
Environmental Logger
04/05 09:17

Unit# 00654 Test# 3

INPUT 1: Level (F) TOC

Reference	0.00
Scale factor	10.13
Offset	0.02

Step# 2 04/04 18:45

Elapsed Time	Value
0.0000	2.34
0.0033	2.34
0.0066	2.35
0.0099	2.34
0.0133	2.34
0.0166	2.34
0.0200	2.33
0.0233	2.34
0.0266	2.34
0.0300	2.34
0.0333	2.35
0.0500	2.35
0.0666	2.35
0.0833	2.34
0.1000	2.34
0.1166	2.35
0.1333	2.37
0.1500	2.34
0.1666	2.35
0.1833	2.35
0.2000	2.38
0.2166	2.39
0.2333	2.40
0.2500	2.43
0.2666	2.47
0.2833	2.46
0.3000	2.48
0.3166	2.49
0.3333	2.51
0.4167	2.60
0.5000	2.69
0.5833	2.77
0.6667	2.89
0.7500	2.94
0.8333	3.03
0.9167	3.10
1.0000	3.18
1.0833	3.25
1.1667	3.33
1.2500	3.40
1.3333	3.47
1.4166	3.53
1.5000	3.61
1.5833	3.67
1.6667	3.74
1.7500	3.79
1.8333	3.86

2.0000	3.98
2.5000	4.33
3.0000	4.66
3.5000	4.96
4.0000	5.43
4.5000	5.43
5.0000	5.42
5.5000	5.51
6.0000	5.50
6.5000	5.50
7.0000	5.50
7.5000	5.50
8.0000	5.50
8.5000	5.50
9.0000	5.50
9.5000	5.50
10.0000	5.50
12.0000	2.83
14.0000	7.46
16.0000	7.46
18.0000	7.46
20.0000	7.46
22.0000	7.46
24.0000	7.46
26.0000	7.46
28.0000	7.46
30.0000	7.46
32.0000	7.46
34.0000	7.46
36.0000	7.46
38.0000	7.46
40.0000	7.46
42.0000	7.46
44.0000	7.46
46.0000	7.46
48.0000	7.46
50.0000	7.46
52.0000	7.46
54.0000	7.46
56.0000	7.46
58.0000	7.46
60.0000	7.46
62.0000	7.46
64.0000	7.46
66.0000	7.46
68.0000	7.46
70.0000	7.46
72.0000	7.46
74.0000	7.46
76.0000	7.46
78.0000	7.46
80.0000	7.46
82.0000	7.46
84.0000	7.46
86.0000	7.46
88.0000	7.46
90.0000	7.46
92.0000	7.46
94.0000	7.46
96.0000	7.46
98.0000	7.46
100.000	7.46
110.000	7.46
120.000	7.46
130.000	7.46

150.000	7.46
160.000	7.46
170.000	7.46
180.000	7.46
190.000	7.46
200.000	7.46
210.000	7.46
220.000	7.46
230.000	7.46
240.000	7.46
250.000	7.46
260.000	7.46
270.000	7.46
280.000	7.46
290.000	7.46
300.000	7.46
310.000	7.46
320.000	7.46
330.000	7.46
340.000	7.46
350.000	7.46
360.000	7.46
370.000	7.46
380.000	7.46
390.000	7.46
400.000	7.46
410.000	7.46
420.000	7.46
430.000	7.46
440.000	7.46
450.000	7.46
460.000	7.46
470.000	7.46
480.000	7.46
490.000	7.46
500.000	7.46
510.000	7.46
520.000	7.46
530.000	7.46
540.000	7.46
550.000	7.46
560.000	7.46
570.000	7.46
580.000	7.46
590.000	7.46
600.000	7.46
610.000	7.46
620.000	7.46
630.000	7.46
640.000	7.46
650.000	7.46
660.000	7.46
670.000	7.46
680.000	7.46
690.000	7.46
700.000	7.46
710.000	7.46
720.000	7.46
730.000	7.46
740.000	7.46
750.000	7.46
760.000	7.46
770.000	7.46
780.000	7.46
790.000	7.46

810.000	7.46
820.000	7.46
830.000	7.46
840.000	7.46
850.000	7.46

5 3 5 5 7 2. 7 GM

077

SE1000B
Environmental Logger
04/05 09:15

Unit# 00654 Test# 3

INPUT 1: Level (F) TOC

Reference	0.00
Scale factor	10.13
Offset	0.02

Step# 1 04/04 17:12

Elapsed Time	Value
0.0000	0.45
0.0033	0.41
0.0066	0.42
0.0099	0.44
0.0133	0.45
0.0166	0.42
0.0200	0.45
0.0233	0.44
0.0266	0.42
0.0300	0.42
0.0333	0.43
0.0500	0.43
0.0666	0.45
0.0833	0.44
0.1000	0.43
0.1166	0.44
0.1333	0.45
0.1500	0.47
0.1666	0.46
0.1833	0.50
0.2000	0.49
0.2166	0.49
0.2333	0.52
0.2500	0.52
0.2666	0.56
0.2833	0.55
0.3000	0.55
0.3166	0.57
0.3333	0.58
0.4167	0.64
0.5000	0.68
0.5833	0.75
0.6667	0.77
0.7500	0.83
0.8333	0.86
0.9167	0.89
1.0000	0.92
1.0833	0.98
1.1667	0.99
1.2500	1.04
1.3333	1.07
1.4166	1.10
1.5000	1.13
1.5833	1.17
1.6667	1.18

1.9167	1.25
2.0000	1.29
2.5000	1.41
3.0000	1.49
3.5000	1.54
4.0000	1.58
4.5000	1.58
5.0000	1.59
5.5000	1.59
6.0000	1.59
6.5000	1.59
7.0000	1.59
7.5000	1.59
8.0000	1.60
8.5000	1.60
9.0000	1.60
9.5000	1.63
10.0000	1.61
12.0000	1.63
14.0000	1.66
16.0000	1.68
18.0000	1.51
20.0000	1.39
22.0000	1.32
24.0000	1.29
26.0000	1.27
28.0000	1.27
30.0000	1.25
32.0000	1.27
34.0000	1.27
36.0000	1.34
38.0000	1.65
40.0000	1.82
42.0000	1.92
44.0000	1.96
46.0000	1.98
48.0000	1.97
50.0000	2.00
52.0000	2.02
54.0000	2.02
56.0000	2.01
58.0000	2.03
60.0000	2.06
62.0000	2.11
64.0000	2.09
66.0000	2.10
68.0000	2.12
70.0000	2.15
72.0000	2.18
74.0000	2.16
76.0000	2.16
78.0000	2.15
80.0000	2.17
82.0000	2.19
84.0000	2.19
86.0000	2.20
88.0000	2.22
90.0000	2.22
92.0000	2.34

535ST2, 5Gm

SE1000B
Environmental Logger
04/05 09:11

Unit# 00654 Test# 3

INPUT 1: Level (F) TOC

Reference	0.00
Scale factor	10.13
Offset	0.02

Step# 0 04/04 15:39

Elapsed Time	Value
0.0000	-0.00
0.0033	-0.00
0.0066	-0.00
0.0099	-0.00
0.0133	-0.00
0.0166	-0.00
0.0200	-0.00
0.0233	-0.00
0.0266	-0.00
0.0300	-0.00
0.0333	-0.00
0.0500	-0.00
0.0666	-0.00
0.0833	-0.08
0.1000	-0.09
0.1166	-0.11
0.1333	-0.07
0.1500	0.00
0.1666	0.10
0.1833	0.15
0.2000	0.20
0.2166	0.27
0.2333	0.33
0.2500	0.38
0.2666	0.43
0.2833	0.48
0.3000	0.53
0.3166	0.58
0.3333	0.63
0.4167	0.84
0.5000	1.01
0.5833	1.19
0.6667	1.35
0.7500	1.52
0.8333	1.69
0.9167	1.80
1.0000	1.75
1.0833	1.65
1.1667	1.57
1.2500	1.49
1.3333	1.42
1.4166	1.35
1.5000	1.29
1.5833	1.21
1.6667	1.19
1.7500	1.11

1.9167	0.91
2.0000	0.82
2.5000	0.36
3.0000	0.22
3.5000	0.16
4.0000	0.17
4.5000	0.25
5.0000	0.25
5.5000	0.26
6.0000	0.28
6.5000	0.31
7.0000	0.32
7.5000	0.29
8.0000	0.30
8.5000	0.31
9.0000	0.32
9.5000	0.32
10.0000	0.33
12.0000	0.34
14.0000	0.34
16.0000	0.34
18.0000	0.35
20.0000	0.34
22.0000	0.37
24.0000	0.36
26.0000	0.37
28.0000	0.38
30.0000	0.37
32.0000	0.36
34.0000	0.37
36.0000	0.40
38.0000	0.38
40.0000	0.41
42.0000	0.41
44.0000	0.39
46.0000	0.40
48.0000	0.38
50.0000	0.41
52.0000	0.39
54.0000	0.41
56.0000	0.41
58.0000	0.40
60.0000	0.42
62.0000	0.42
64.0000	0.41
66.0000	0.41
68.0000	0.42
70.0000	0.43
72.0000	0.44
74.0000	0.42
76.0000	0.43
78.0000	0.43
80.0000	0.44
82.0000	0.44
84.0000	0.44
86.0000	0.44
88.0000	0.46
90.0000	0.45
92.0000	0.45

SE1000B
Environmental Logger
04/05 09:09

Unit# 00654 Test# 2

INPUT 1: Level (F) TOC

Reference	0.00
Scale factor	10.13
Offset	0.02

Step# 0 04/04 15:23

Elapsed Time	Value
0.0000	0.00
0.0033	-0.00
0.0066	-0.00
0.0099	0.00
0.0133	0.00
0.0166	0.00
0.0200	0.00
0.0233	0.00
0.0266	0.00
0.0300	0.00
0.0333	0.00
0.0500	0.04
0.0666	-0.03
0.0833	-0.09
0.1000	-0.11
0.1166	-0.12
0.1333	-0.05
0.1500	-0.02
0.1666	0.04
0.1833	0.11
0.2000	0.13
0.2166	0.19
0.2333	0.24
0.2500	0.25
0.2666	0.30
0.2833	0.33
0.3000	0.38
0.3166	0.39
0.3333	0.43
0.4167	0.54
0.5000	0.64
0.5833	0.73
0.6667	0.81
0.7500	0.75
0.8333	0.73
0.9167	0.75
1.0000	0.78
1.0833	0.81
1.1667	0.87
1.2500	0.92
1.3333	1.09
1.4166	1.24
1.5000	1.37
1.5833	1.52
1.6667	1.69
1.7500	1.84

082

2.0000	2.56
2.5000	3.95
3.0000	4.58
3.5000	5.75
4.0000	5.76
4.5000	5.74
5.0000	5.78
5.5000	5.78
6.0000	5.81

Dry

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Program Control
Data Set Manager
Confined solutions
Unconfined solutions
Leaky solutions
Slug
Fract
Misc.
Quit

A Q T E S O L V
Version 1.10
Geraghty & Miller Modeling Group

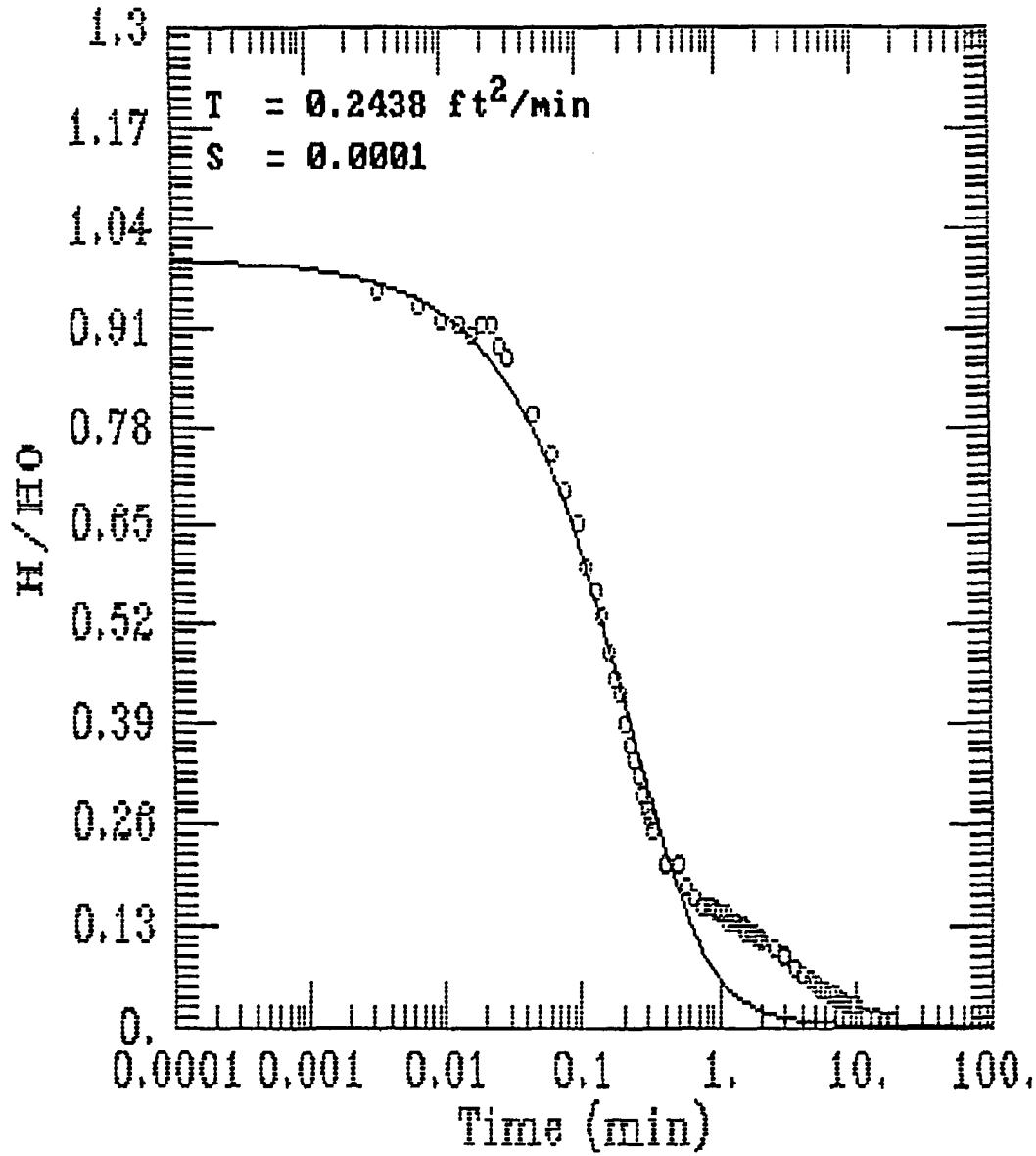
Data Set Manager
Read new data set from disk
Create new data set
Modify
Save c
Open n

Input Options
*Title for data set
 Description of test
 Confined/leaky aquifer test data
 Unconfined aquifer test data
 Recovery test data
*Slu
 Fra
 Mul
 Par
*Obs
 Len

Slug Test Data
Initial drawdown in well......... 1.48
Radius of well casing............ 0.167
Radius of well................... 0.411
Saturated thickness.............. 3.5
Screen length.................... 15.
Static height of water in well... 8.07

DATA ENTRY
AQTESOLV ═══ F1=HELP ═══ Thu Apr 22, 1993  3:03 PM
```

FANSTEEL METALS MW-53 (RISING)



AQTESOLV

GERAGHTY & MILLER, INC.

Modeling Group

```
Program Control
Data Set Manager
Confined solutions
Unconfined solutions
Leaky solutions
Slug
Fract
Misc.
Quit
```

```
A Q T E S O L V
Version 1.10
Geraghty & Miller Modeling Group
```

```
Data Set Manager
Read new data set from disk
Create new data set
Modify
Save c
Open n
```

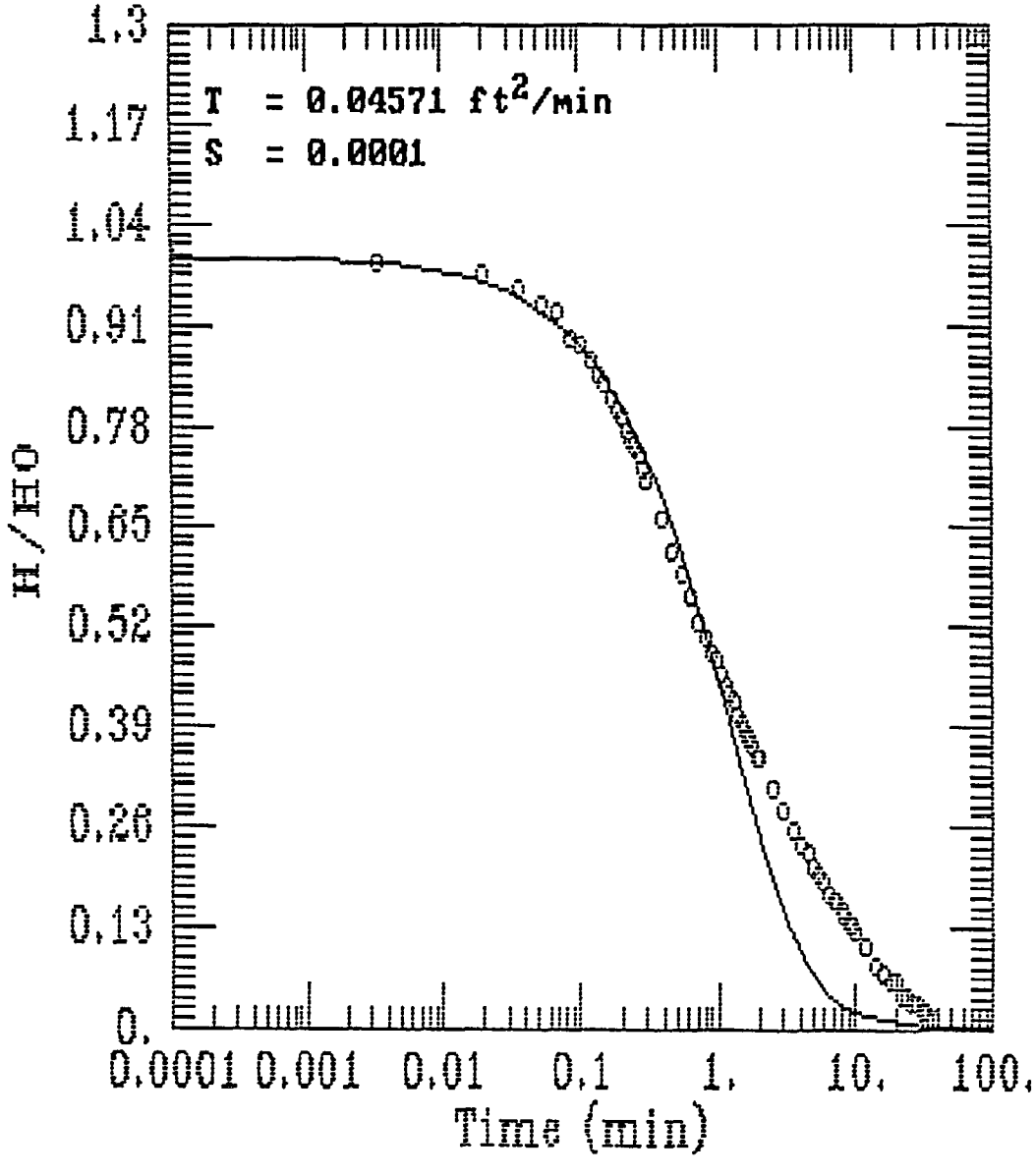
```
Input Options
*Title for data set
 Description of test
 Confined/leaky aquifer test data
 Unconfined aquifer test data
 Recovery test data
*Slu
 Fra
 Mul
 Par
*Obs
 Len
```

mw-54

```
Slug Test Data
Initial drawdown in well......... 0.97
Radius of well casing............ 0.167
Radius of well................... 0.411
Saturated thickness.............. 3.8
Screen length.................... 15.
Static height of water in well... 10.98
```

```
                                                                DATA ENTRY
AQTESOLV ═══ F1=HELP ═══ Thu Apr 22, 1993   3:06 PM
```

FANSTEEL METALS MW-54



AQTESOLV

GERAGHTY & MILLER, INC.

Modeling Group

```
Program Control
Data Set Manager
Confined solutions
Unconfined solutions
Leaky solutions
Slug
Fract
Misc.
Quit
```

```
A Q T E S O L V
Version 1.10
Geraghty & Miller Modeling Group
```

```
Data Set Manager
Read n
Create
Modify
Save c
Open n
```

```
55r.dat
Data Set Title
FANSTEEL METALS MW-55 (RISING)
Initial drawdown in well...          1.49
Radius of well casing......         0.265
Radius of well.............         0.411
Saturated thickness........          6.98
Screen length..............            15
Height of water in well....          6.98
Number of data points......            59
Last time on file..........             0
Last drawdown on file......             0

Press any key to continue
```

```
                                                                DATA ENTRY
AQTESOLV ═══ F1=HELP ═══ Thu Apr 22, 1993   1:53 PM
```

FANSTEEL METALS MW-55 (RISING)

088

SLUGT1

1.49

0.167

0.228

SLUGT2

6.98

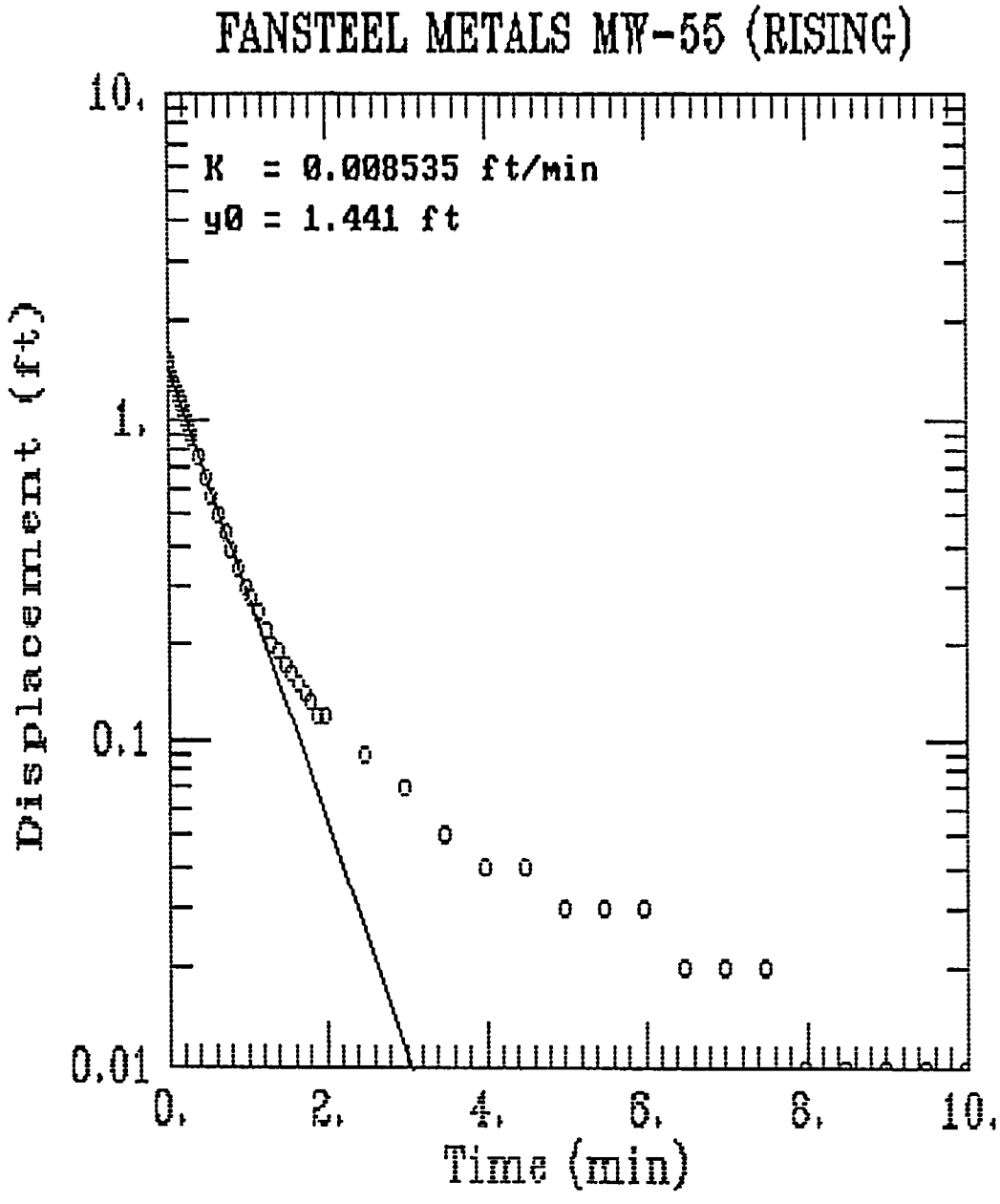
15

6.98

TSDATA

0.0001	1.49	1
0.0034	1.49	1
0.0068	1.47	1
0.0101	1.45	1
0.0268	1.41	1
0.0434	1.37	1
0.0601	1.33	1
0.0768	1.29	1
0.0934	1.26	1
0.1101	1.22	1
0.1268	1.19	1
0.1434	1.15	1
0.1601	1.12	1
0.1768	1.09	1
0.1934	1.06	1
0.2101	1.03	1
0.2268	1	1
0.2434	0.97	1
0.2601	0.95	1
0.2768	0.92	1
0.2934	0.9	1
0.3101	0.87	1
0.3935	0.76	1
0.4768	0.66	1
0.5601	0.57	1
0.6435	0.5	1
0.7268	0.44	1
0.8101	0.39	1
0.8935	0.34	1
0.9768	0.3	1
1.0601	0.28	1
1.1435	0.25	1
1.2268	0.22	1
1.3101	0.2	1
1.3934	0.19	1
1.4768	0.17	1
1.5601	0.16	1
1.6435	0.15	1
1.7268	0.14	1
1.8101	0.13	1
1.8935	0.12	1
1.9768	0.12	1
2.4768	0.09	1
2.9768	0.07	1
3.4768	0.05	1
3.9768	0.04	1
4.4768	0.04	1
4.9768	0.03	1
5.4768	0.03	1
5.9768	0.03	1
6.4768	0.02	1
6.9768	0.02	1

7.4768	0.02	1
7.9768	0.01	1
8.4768	0.01	1
8.9768	0.01	1
9.4768	0.01	1
9.9768	0.01	1
11.9768	0	1
13.9768	0	1



AQTESOLV

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Modeling Group

Earth Sciences Consultants, Inc.

Slug Test Data Sheet

Project Name: FANSTEEL METALS

Project No.: 111-05 User: ASN/AFB

Well Diameter: 4"

▽ Before Slug Introduction: 18.12

▽ After Slug Introduction: _____

▽ After Slug Removal: _____

Well Identification: MW-55S

Hermit Identification No.: A SB 10006

Start Date/Time: 2:00 pm 3/3/93

End Date/Time: 2:49 pm 3/3/93

Type of Transducer (PSI): 10

Depth of Transducer: 6.26

TOC Elevation: _____

Type of Test (check one):

Rising Head: ✓

Falling Head: ✓

Reference Level Set: Yes/No (Yes circled)

Scale Factor: 10.13

Offset: 0.02

Select File No.: 6

Rate (check one):

Logarithmic: ✓

Linear: _____

Display Mode (check one):

English (Surface): _____

English (TOC): ✓

SI (Surface): _____

SI (TOC): _____

Diameter of Slug (i.e., 1-1/2", etc.): 2"

Length of Slug (volume, if known): 3'

Weather Conditions: RAIN SHOWER, 45°

Note: Do not terminate test until water level has recovered a minimum of 67 percent.

Comments:

TO = 25.10

Rev. 2/6/92

```
Program Control
Data Set Manager
Confined solutions
Unconfined solutions
Leaky solutions
Slug
Fract
Misc.
Quit
```

```
A Q T E S O L V
Version 1.10
Geraghty & Miller Modeling Group
```

```
Data Set Manager
Read new data set from disk
Create new data set
Modify
Save c
Open n
```

```
Input Options
*Title for data set
 Description of test
 Confined/leaky aquifer test data
 Unconfined aquifer test data
 Recovery test data
*Slu
 Fra
 Mul
 Par
*Obs
 Len
```

mw-56

```
Slug Test Data
Initial drawdown in well......... 0.95
Radius of well casing............ 0.265
Radius of well................... 0.411
Saturated thickness.............. 5.54
Screen length.................... 10.
Static height of water in well... 5.54
```

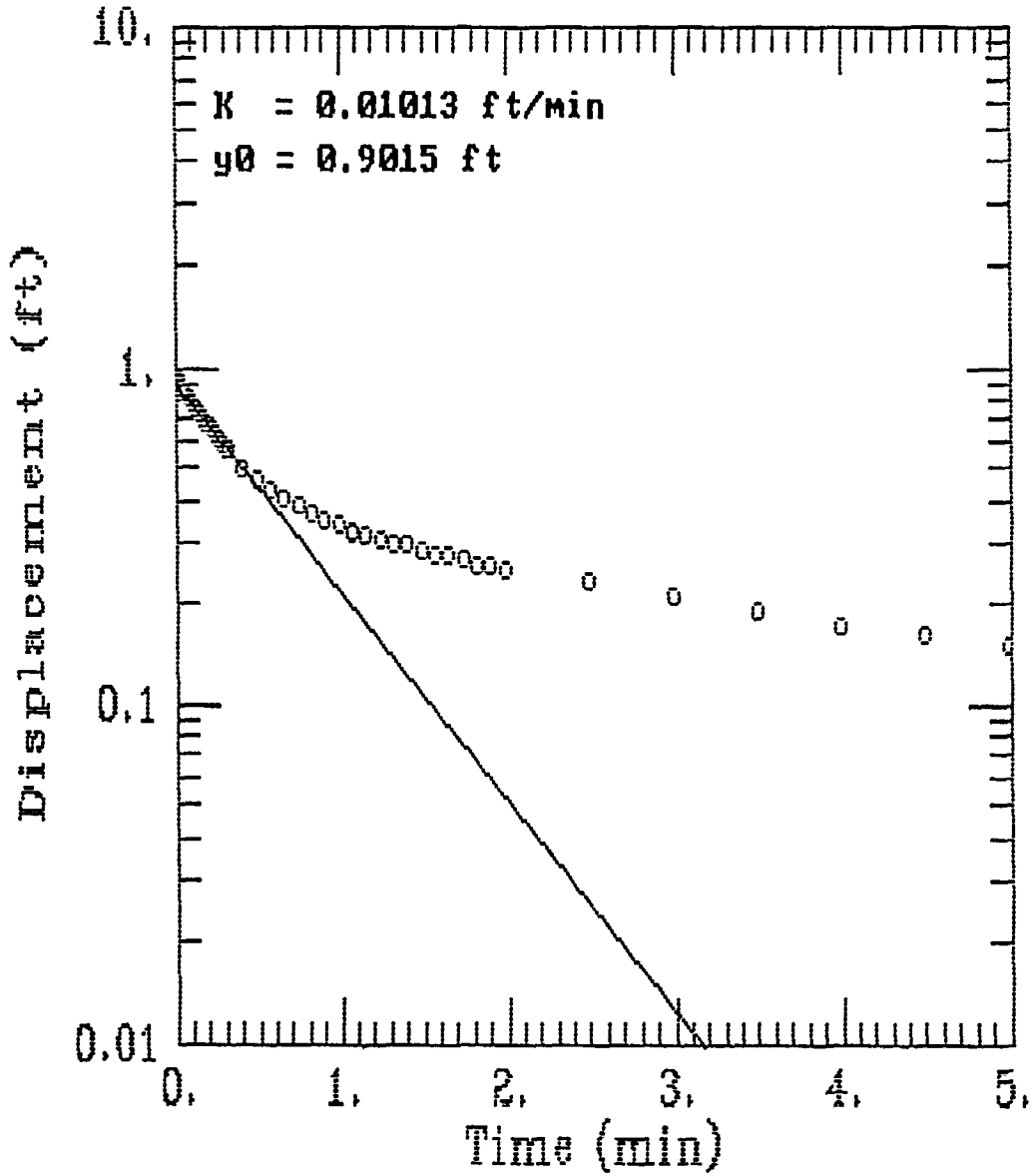
```
                                                    DATA ENTRY
AQTESOLV ------- F1=HELP ------- Thu Apr 22, 1993   3:27 PM
```

FANSTEEL METALS MW-56 (RISING)
SLUGT1
0.95
0.167
0.228
SLUGT2
5.54
10
5.54
TSDATA

0.0001	0.95	1
0.0034	0.93	1
0.0068	0.92	1
0.0101	0.91	1
0.0134	0.91	1
0.0168	0.91	1
0.0201	0.9	1
0.0368	0.88	1
0.0534	0.85	1
0.0701	0.83	1
0.0868	0.81	1
0.1034	0.79	1
0.1201	0.77	1
0.1368	0.75	1
0.1534	0.73	1
0.1701	0.71	1
0.1868	0.69	1
0.2034	0.67	1
0.2201	0.65	1
0.2368	0.64	1
0.2534	0.62	1
0.2701	0.61	1
0.2868	0.59	1
0.3034	0.58	1
0.3201	0.57	1
0.4035	0.51	1
0.4868	0.47	1
0.5701	0.43	1
0.6535	0.41	1
0.7368	0.39	1
0.8201	0.37	1
0.9035	0.35	1
0.9868	0.34	1
1.0701	0.33	1
1.1535	0.32	1
1.2368	0.31	1
1.3201	0.3	1
1.4034	0.3	1
1.4868	0.29	1
1.5701	0.28	1
1.6535	0.28	1
1.7368	0.27	1
1.8201	0.26	1
1.9035	0.26	1
1.9868	0.25	1
2.4868	0.23	1

2.9868	0.21	1
3.4868	0.19	1
3.9868	0.17	1
4.4868	0.16	1
4.9868	0.15	1
5.4868	0.14	1
5.9868	0.13	1
6.4868	0.12	1
6.9868	0.11	1
7.4868	0.1	1
7.9868	0.1	1
8.4868	0.09	1
8.9868	0.08	1
9.4868	0.08	1
9.9868	0.07	1
11.9868	0.05	1
13.9868	0.03	1
15.9868	0.02	1
17.9868	0.01	1
19.9868	0	1

FANSTEEL METALS MW-56 (RISING)



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```
Program Control
Data Set Manager
Confined solutions
Unconfined solutions
Leaky solutions
Slug
Fract
Misc.
Quit

A Q T E S O L V
Version 1.10
Geraghty & Miller Modeling Group

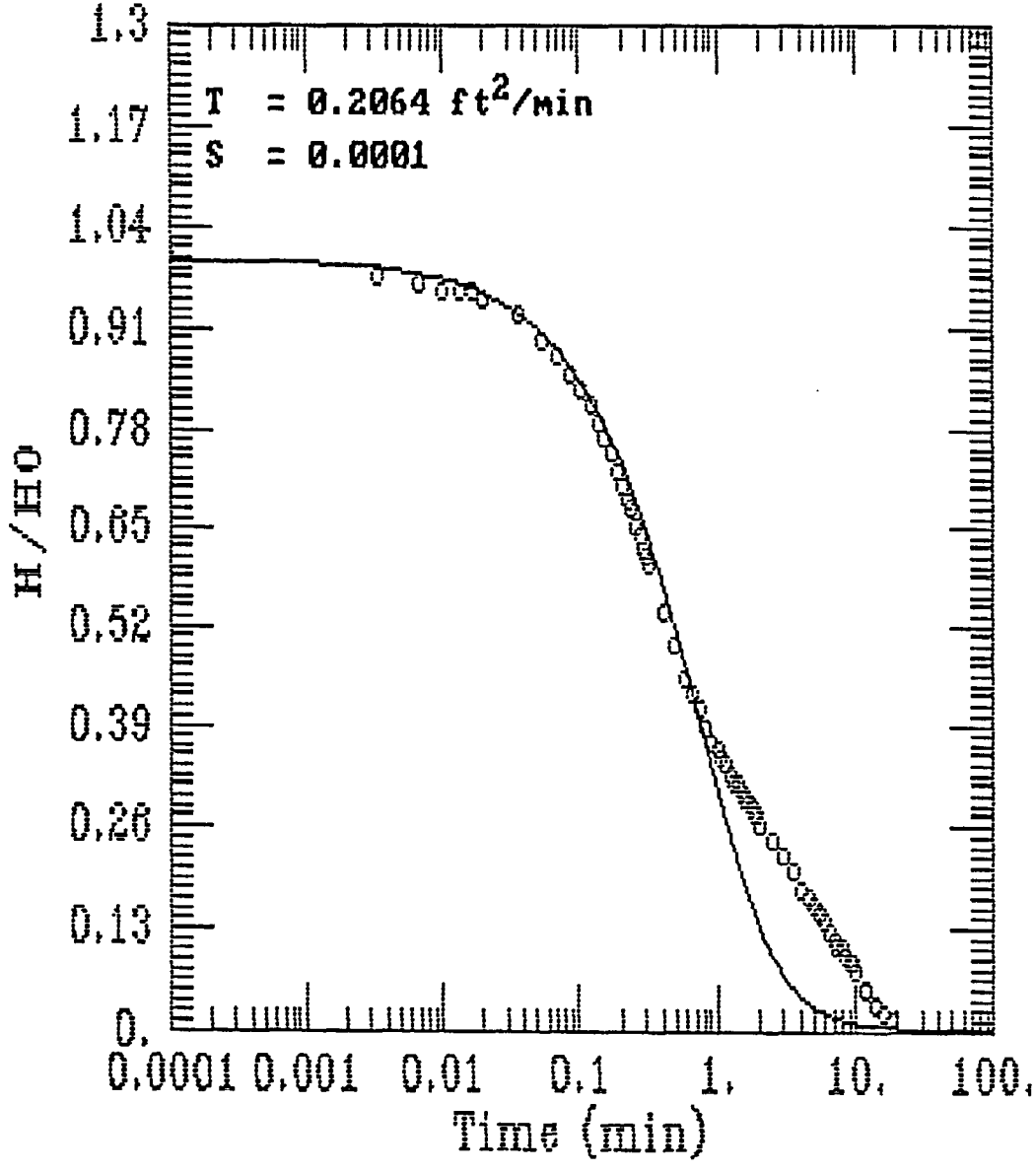
Data Set Manager
Read new data set from disk
Create new data set
Modify
Save c
Open n

Input Options
*Title for data set
 Description of test
 Confined/leaky aquifer test data
 Unconfined aquifer test data
 Recovery test data
*Slu
Fra
Mul
Par
*Obs
Len

Slug Test Data
 Initial drawdown in well..... 0.95
 Radius of well casing..... 0.265
 Radius of well..... 0.411
 Saturated thickness..... 1.2
 Screen length..... 10.
 Static height of water in well... 5.54

DATA ENTRY
AQTESOLV ---- F1=HELP ---- Thu Apr 22, 1993  3:38 PM
```

FANSTEEL METALS MW-56 (RISING)



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Modeling Group

Earth Sciences Consultants, Inc.

Slug Test Data Sheet

Project Name FANSTEEL

Project No. 111-05 User ASH

Well Diameter 4"

▽ Before Slug Introduction 14.68

▽ After Slug Introduction

▽ After Slug Removal

Well Identification MW-56S

Hermit Identification No. A 58 10005

Start Date/Time 10:07 3/4/93

End Date/Time

Type of Transducer (PSI) 10

Depth of Transducer

TOC Elevation

Type of Test (check one):

Rising Head ✓

Falling Head ✓

Rate (check one):

Logarithmic ✓

Linear

Reference Level Set Yes/No

Scale Factor 10.13

Offset 0.02

Select File No. 9

Display Mode (check one):

English (Surface)

English (TOC) ✓

SI (Surface)

SI (TOC)

Diameter of Slug (i.e., 1-1/2", etc.) 2"

Length of Slug (volume, if known) 3'

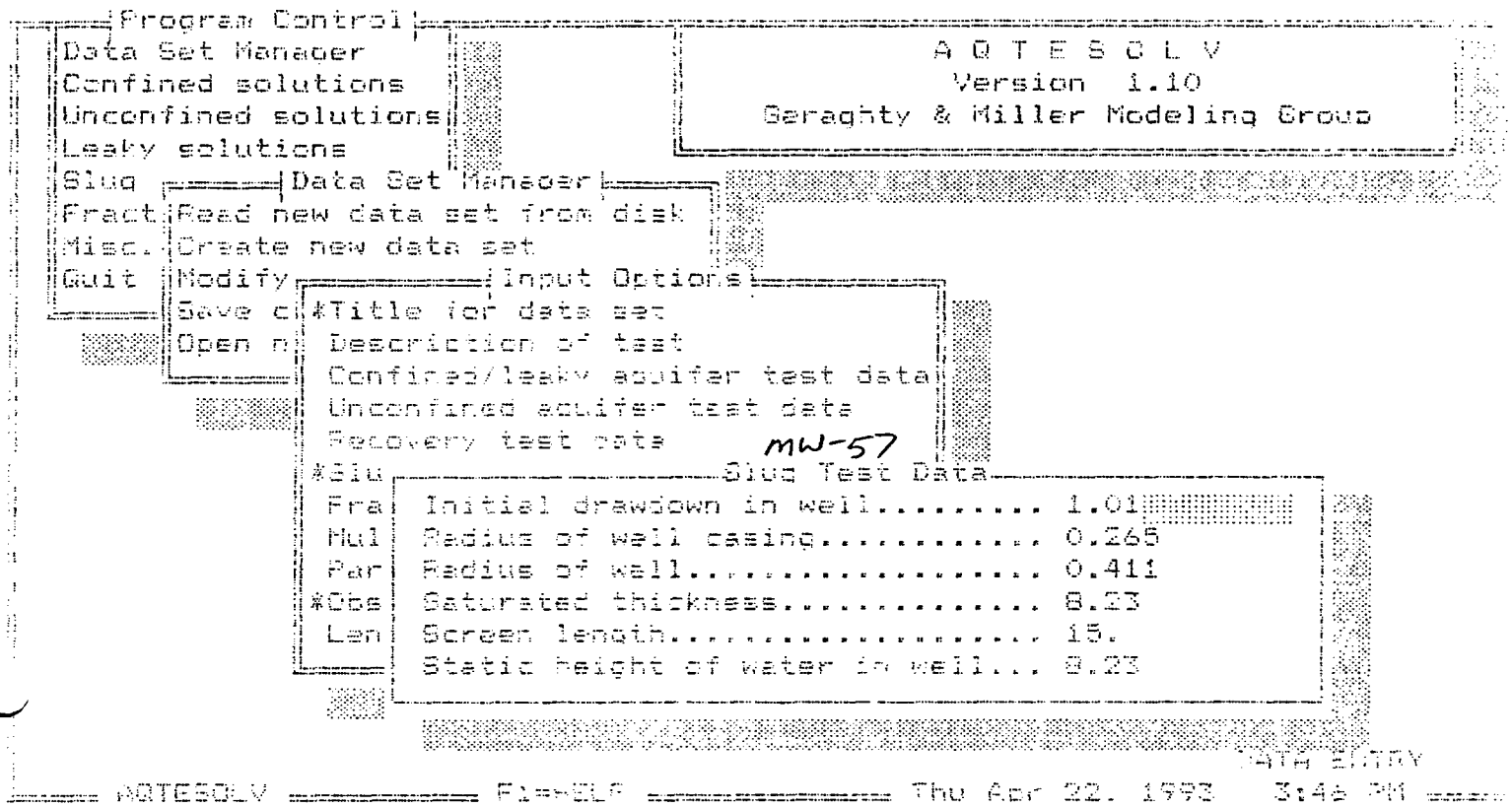
Weather Conditions: OVERCAST 50°

Note: Do not terminate test until water level has recovered a minimum of 67 percent.

Comments:

TD = 20.22

Rev. 2/6/92

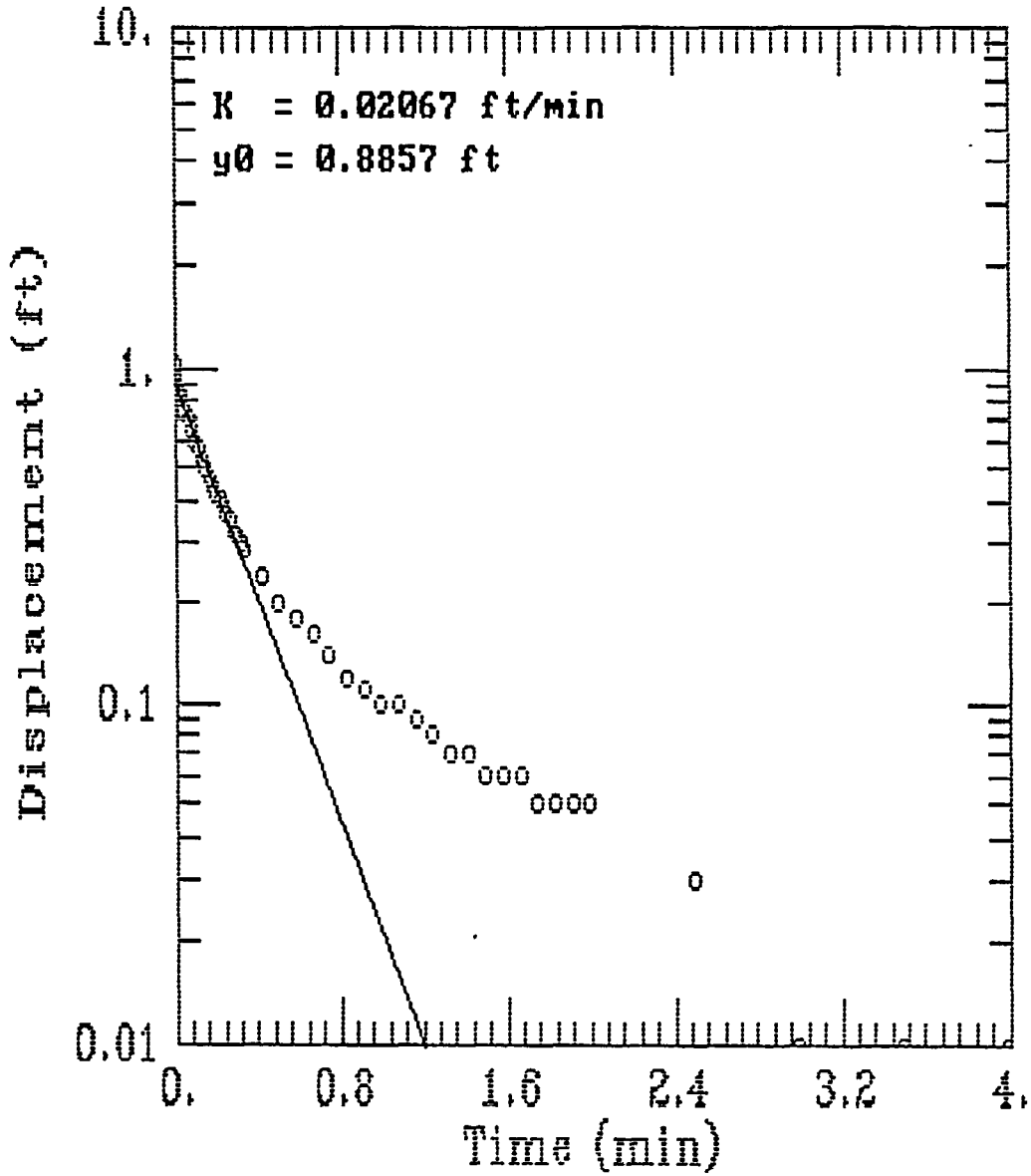

Program Control
Data Set Manager
Confined solutions
Unconfined solutions
Leaky solutions
Slug
Fract
Misc.
Quit
A Q T E S O L V
Version 1.10
Geraghty & Miller Modeling Group
Data Set Manager
Read new data set from disk
Create new data set
Modify
Save c
Open n
Input Options
*Title for data set
Description of test
Confined/leaky aquifer test data
Unconfined aquifer test data
Recovery test data
MW-57
*Slu
Fra
Mul
Par
*Obs
Len
Slug Test Data
Initial drawdown in well..... 1.01
Radius of well casing..... 0.265
Radius of well..... 0.411
Saturated thickness..... 8.23
Screen length..... 15.
Static height of water in well... 8.23
DATA ENTRY
AQTESOLV
F1=HELP
Thu Apr 22, 1993
3:46 PM

FANSTEEL METALS MW-57 (RISING)
SLUGT1
1.01
0.167
0.228
SLUGT2
8.23
15
8.23
TSDATA

0.0001	1.01	1
0.0034	0.95	1
0.0067	0.92	1
0.0101	0.88	1
0.0134	0.87	1
0.0168	0.85	1
0.0201	0.85	1
0.0234	0.84	1
0.0268	0.83	1
0.0301	0.81	1
0.0468	0.75	1
0.0634	0.7	1
0.0801	0.65	1
0.0968	0.61	1
0.1134	0.57	1
0.1301	0.53	1
0.1468	0.5	1
0.1634	0.47	1
0.1801	0.45	1
0.1968	0.42	1
0.2134	0.41	1
0.2301	0.39	1
0.2468	0.37	1
0.2634	0.35	1
0.2801	0.33	1
0.2968	0.32	1
0.3134	0.3	1
0.3301	0.29	1
0.4135	0.24	1
0.4968	0.2	1
0.5801	0.18	1
0.6635	0.16	1
0.7468	0.14	1
0.8301	0.12	1
0.9135	0.11	1
0.9968	0.1	1
1.0801	0.1	1
1.1635	0.09	1
1.2468	0.08	1
1.3301	0.07	1
1.4134	0.07	1
1.4968	0.06	1
1.5801	0.06	1
1.6635	0.06	1
1.7468	0.05	1
1.8301	0.05	1

1.9135	0.05	1
1.9968	0.05	1
2.4968	0.03	1
2.9968	0.01	1
3.4968	0.01	1
3.9968	0.01	1
4.4968	0	1
4.9968	0	1

FANSTEEL METALS MW-57 (RISING)



AQTESOLV

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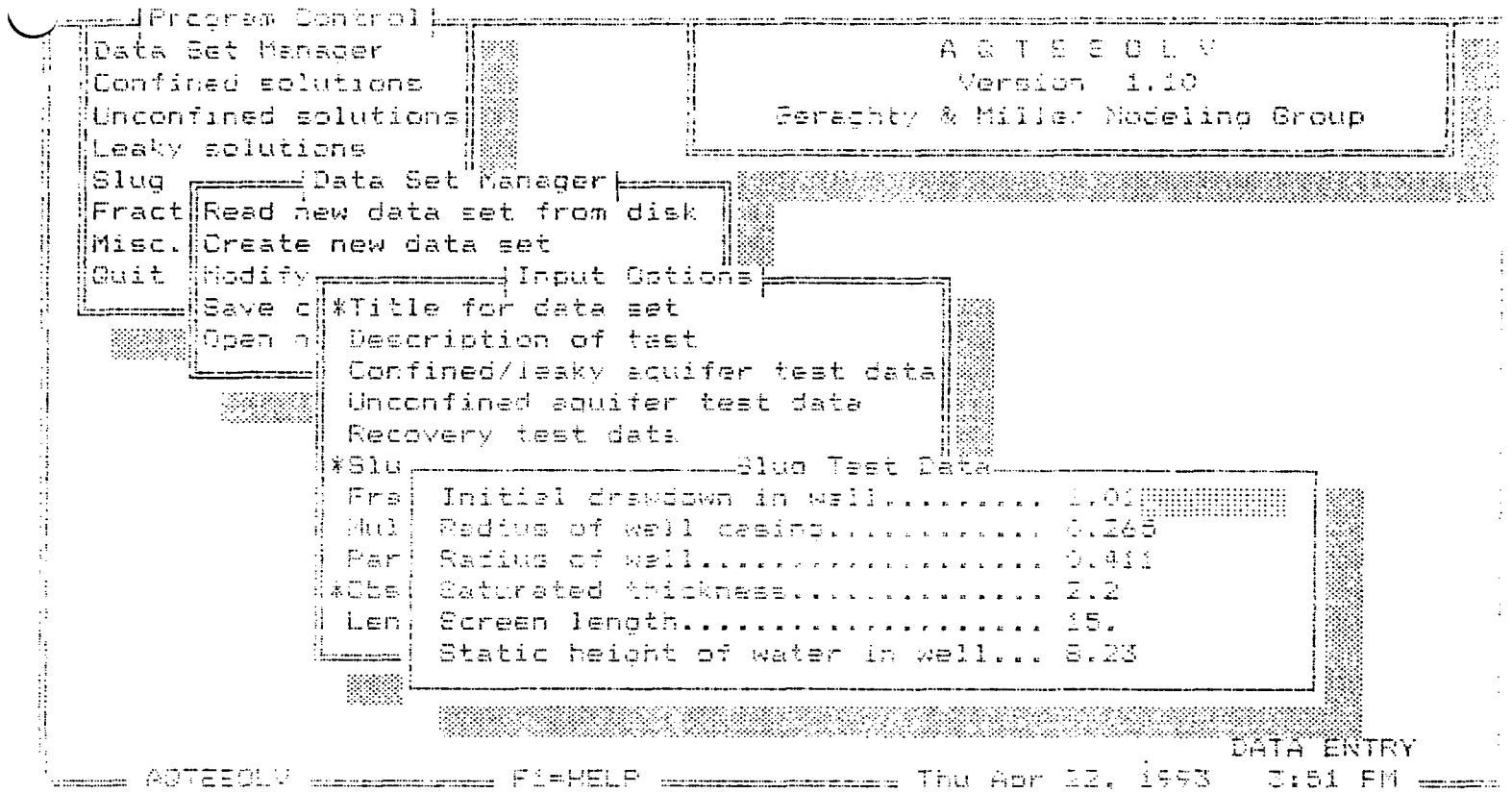
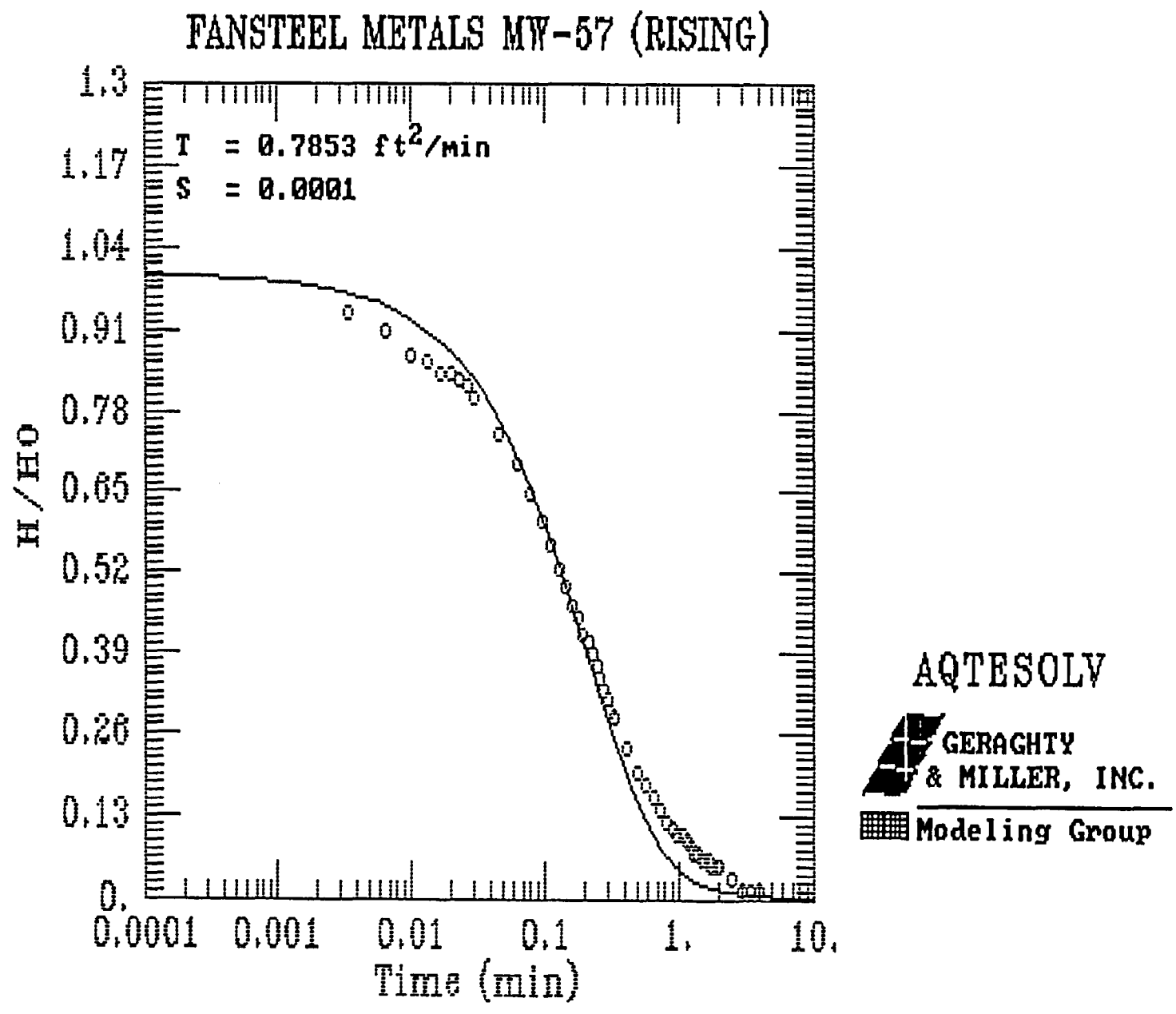
Modeling Group


Program Control
Data Set Manager
Confined solutions
Unconfined solutions
Leaky solutions
Slug
Fract
Misc.
Quit
A Q T E S O L V
Version 1.10
Geraghty & Miller Modeling Group
Data Set Manager
Read new data set from disk
Create new data set
Modify
Save c
Open n
Input Options
*Title for data set
Description of test
Confined/leaky aquifer test data
Unconfined aquifer test data
Recovery test data
*Slu
Fra
Mul
Par
*Obs
Len
Slug Test Data
Initial drawdown in well..... 1.01
Radius of well casing..... 0.265
Radius of well..... 0.411
Saturated thickness..... 2.2
Screen length..... 15.
Static height of water in well... 8.23
DATA ENTRY
AQTESOLV
F1=HELP
Thu Apr 22, 1993
3:51 PM


FANSTEEL METALS MW-57 (RISING)
T = 0.7853 ft²/min
S = 0.0001
H/HO
1.3
1.17
1.04
0.91
0.78
0.65
0.52
0.39
0.26
0.13
0.
0.0001
0.001
0.01
0.1
1.
10.
Time (min)
AQTESOLV
GERAGHTY & MILLER, INC.
Modeling Group

Earth Sciences Consultants, Inc.

Slug Test Data Sheet

Project Name: FANSTEEL METALS

Project No.: 111-05 User: ASH

Well Diameter: 4"

▽ Before Slug Introduction: 12.91

▽ After Slug Introduction: _____

▽ After Slug Removal: _____

Well Identification: MW-57S

Hermit Identification No.: B 58 10005

Start Date/Time: 3/1/93 3:47 p.m.

End Date/Time: _____

Type of Transducer (PSI): 10

Depth of Transducer: 8.74

TOC Elevation: _____

Type of Test (check one):

Rising Head: ✓

Falling Head: ✓

Rate (check one):

Logarithmic: ✓

Linear: _____

Reference Level Set Yes/No

Scale Factor: 10.0

Offset: 0.06

Display Mode (check one):

English (Surface): _____

English (TOC): ✓

SI (Surface): _____

SI (TOC): _____

Select File No.: 3

Diameter of Slug (i.e., 1-1/2", etc.): 2"

Length of Slug (volume, if known): 3'

Weather Conditions: OVERCAST, 40°

Note: Do not terminate test until water level has recovered a minimum of 67 percent.

Comments:

TO = 21.14

Rev. 2/6/92

```
Program Control
Data Set Manager
Confined solutions
Unconfined solutions
Leaky solutions
Slug
Fract
Misc.
Quit
```

```
A Q T E S O L V
Version 1.10
Geraghty & Miller Modeling Group
```

```
Data Set Manager
Read new data set from disk
Create new data set
Modify
Save c
Open n
```

```
Input Options
*Title for data set
 Description of test
 Confined/leaky aquifer test data
 Unconfined aquifer test data
 Recovery test data
*Slu
 Fra
 Mul
 Par
*Obs
 Len
```

MW-58

```
Slug Test Data
Initial drawdown in well.......... 1.42
Radius of well casing............. 0.265
Radius of well.................... 0.411
Saturated thickness............... 6.62
Screen length..................... 15.
Static height of water in well... 6.62
```

DATA ENTRY

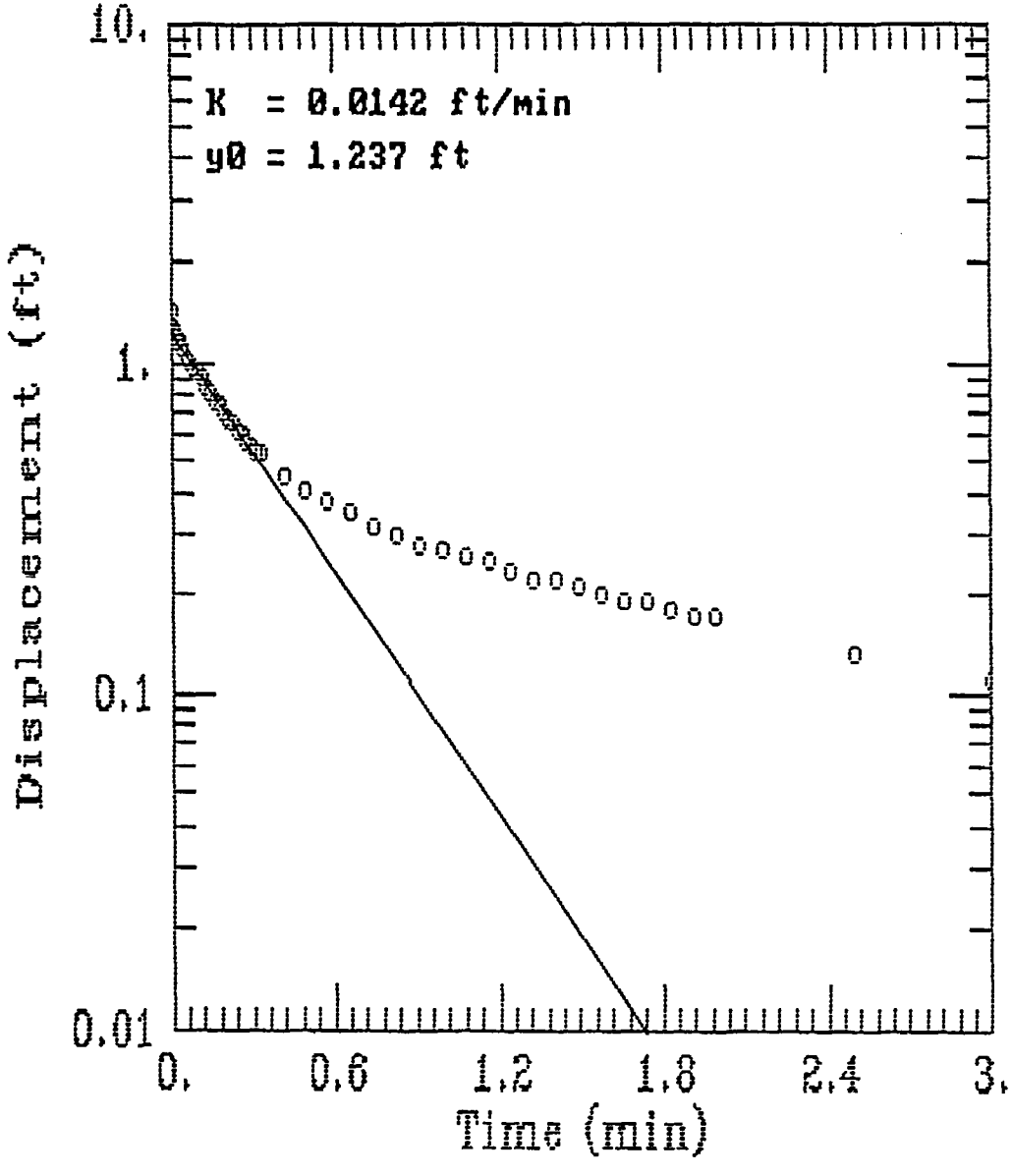
AQTESOLV F1=HELP Thu Apr 22, 1993 4:17 PM

FANSTEEL METALS MW-58 (RISING)
SLUGT1
1.42
0.228
0.328
SLUGT2
6.62
6.62
6.62
TSDATA

0.0001	1.42	1
0.0034	1.3	1
0.0067	1.28	1
0.0101	1.25	1
0.0134	1.21	1
0.0168	1.2	1
0.0201	1.19	1
0.0234	1.19	1
0.0268	1.17	1
0.0301	1.15	1
0.0468	1.09	1
0.0634	1.03	1
0.0801	0.98	1
0.0968	0.94	1
0.1134	0.89	1
0.1301	0.85	1
0.1468	0.81	1
0.1634	0.77	1
0.1801	0.74	1
0.1968	0.71	1
0.2134	0.68	1
0.2301	0.65	1
0.2468	0.63	1
0.2634	0.61	1
0.2801	0.58	1
0.2968	0.56	1
0.3134	0.54	1
0.3301	0.53	1
0.4135	0.46	1
0.4968	0.41	1
0.5801	0.38	1
0.6635	0.35	1
0.7468	0.32	1
0.8301	0.3	1
0.9135	0.28	1
0.9968	0.27	1
1.0801	0.26	1
1.1635	0.25	1
1.2468	0.23	1
1.3301	0.22	1
1.4134	0.22	1
1.4968	0.21	1
1.5801	0.2	1
1.6635	0.19	1
1.7468	0.19	1
1.8301	0.18	1

1.9135	0.17	1
1.9968	0.17	1
2.4968	0.13	1
2.9968	0.11	1
3.4968	0.09	1
3.9968	0.08	1
4.4968	0.07	1
4.9968	0.06	1
5.4968	0.05	1
5.9968	0.04	1
6.4968	0.03	1
6.9968	0.03	1
7.4968	0.03	1
7.9968	0.03	1
8.4968	0.02	1
8.9968	0.02	1
9.4968	0.02	1
9.9968	0.02	1
11.9968	0.01	1
13.9968	0.01	1
15.9968	0.01	1
17.9968	0.01	1
19.9968	0.01	1
21.9968	0	1

FANSTEEL METALS MW-58 (RISING)



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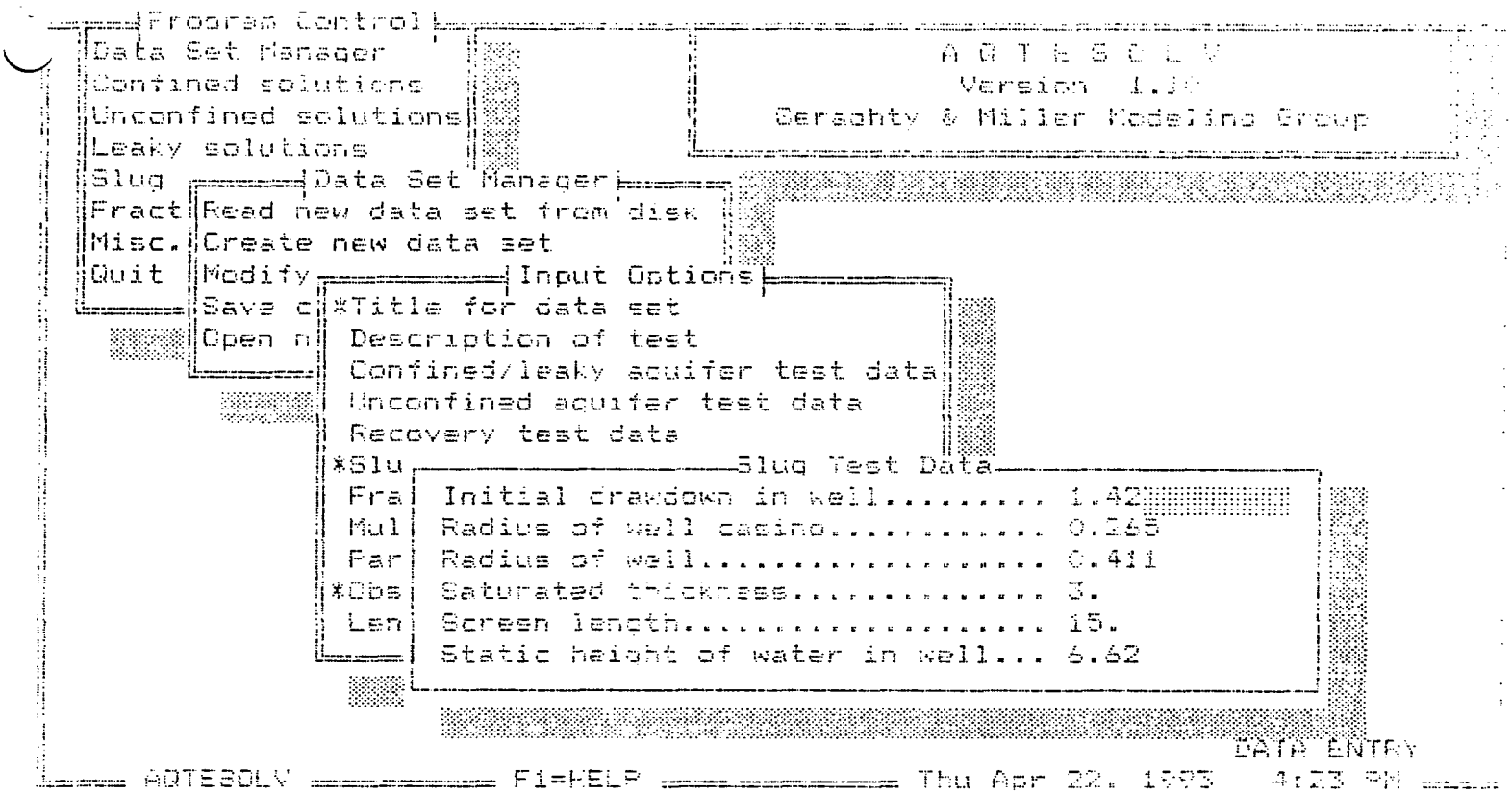
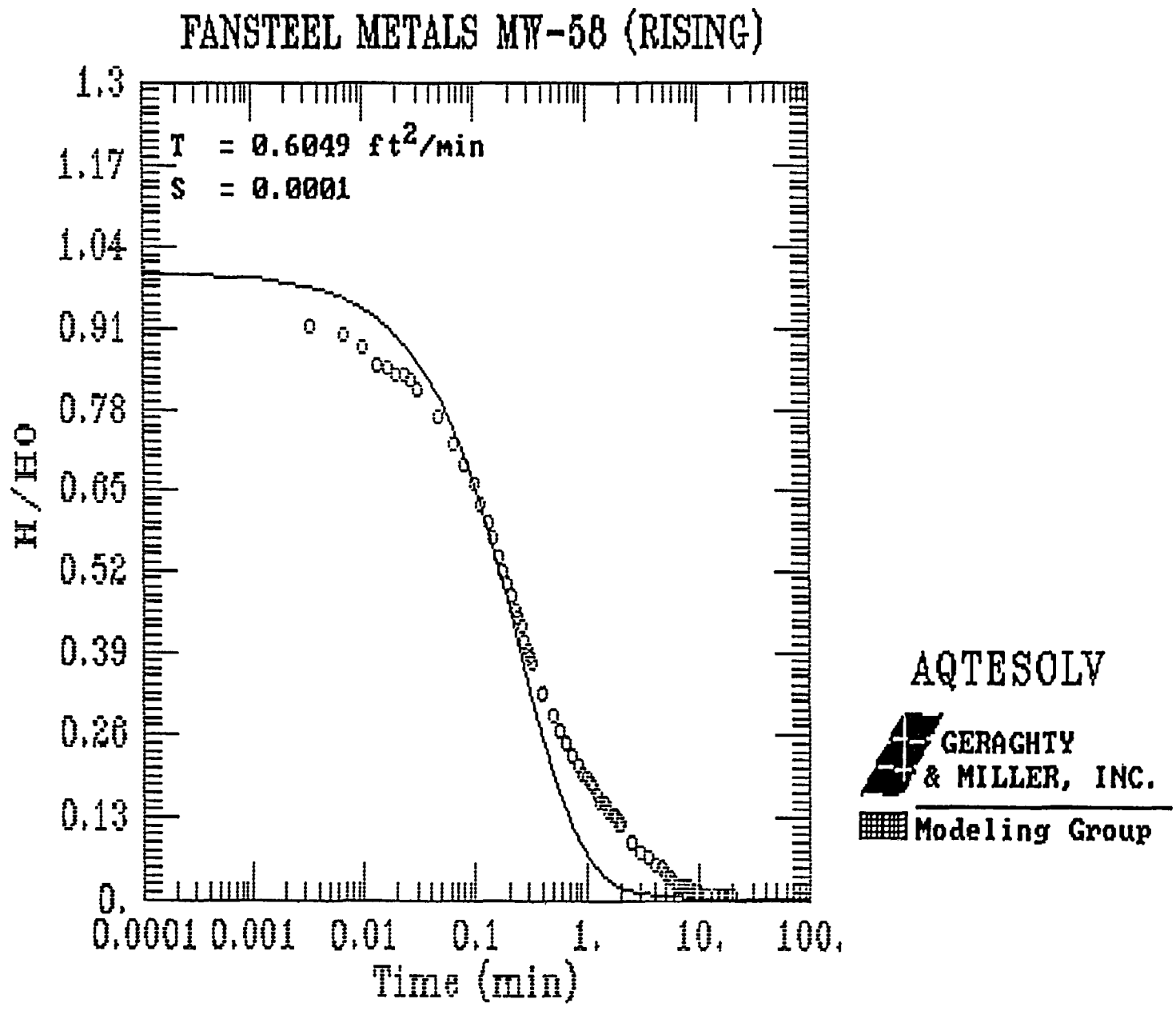

Program Control
Data Set Manager
Confined solutions
Unconfined solutions
Leaky solutions
Slug
Fract
Misc.
Quit
A Q T E S O L V
Version 1.10
Geraghty & Miller Modeling Group
Data Set Manager
Read new data set from disk
Create new data set
Modify
Save c
Open n
Input Options
*Title for data set
Description of test
Confined/leaky aquifer test data
Unconfined aquifer test data
Recovery test data
*Slu
Fra
Mul
Par
*Obs
Len
Slug Test Data
Initial drawdown in well..... 1.42
Radius of well casing..... 0.265
Radius of well..... 0.411
Saturated thickness..... 3.
Screen length..... 15.
Static height of water in well... 6.62
DATA ENTRY
AQTESOLV
F1=HELP
Thu Apr 22, 1993 4:23 PM


FANSTEEL METALS MW-58 (RISING)
T = 0.6049 ft²/min
S = 0.0001
H/HO
1.3
1.17
1.04
0.91
0.78
0.65
0.52
0.39
0.26
0.13
0.
0.0001
0.001
0.01
0.1
1.
10.
100.
Time (min)
AQTESOLV
GERAGHTY & MILLER, INC.
Modeling Group

Earth Sciences Consultants, Inc.

Slug Test Data Sheet

Project Name: FANSTEEL

Project No. 111-05 User: ASN

Well Diameter: 4"

▽ Before Slug Introduction: 18.51

▽ After Slug Introduction: _____

▽ After Slug Removal: _____

Well Identification: MW-58S

Hermit Identification No.: A 58 10000

Start Date/Time: 3/1/92 5:35 p.m.

End Date/Time: _____

Type of Transducer (PSI): 10

Depth of Transducer: 6.41

TOC Elevation: _____

Type of Test (check one):

Rising Head: ✓

Falling Head: ✓

Reference Level Set: Yes/No (Yes circled)

Scale Factor: 10.13

Offset: 0.02

Select File No.: 4

Rate (check one):

Logarithmic: ✓

Linear: _____

Display Mode (check one):

English (Surface): _____

English (TOC): ✓

SI (Surface): _____

SI (TOC): _____

Diameter of Slug (i.e., 1-1/2", etc.): 2"

Length of Slug (volume, if known): 3'

Weather Conditions: OVERCAST, 45°

Note: Do not terminate test until water level has recovered a minimum of 67 percent.

Comments:

TD: 25.13

Rev. 2/6/92

```
Program Control
Data Set Manager                                  A Q T E S O L V
Confined solutions                                  Version  1.10
Unconfined solutions                              Geraghty & Miller Modeling Group
Leaky solutions
Slug        Data Set Manager
Fract       Read new data set from disk
Misc.       Create new data set
Quit        Modify          Input Options
            Save c          *Title for data set
            Open n           Description of test
                             Confined/leaky aquifer test data
                             Unconfined aquifer test data
                             Recovery test data
                             *Slu                 Slug Test Data
                              Fra  Initial drawdown in well.......... 1.31
                              Mul  Radius of well casing............. 0.265
                              Par  Radius of well.................... 0.411
                             *Obs  Saturated thickness............... 3.
                              Len  Screen length..................... 10.
                                   Static height of water in well... 7.89
                                                                                DATA ENTRY
AQTESOLV                F1=HELP                Thu Apr 22, 1993    4:32 PM
```

MW-59

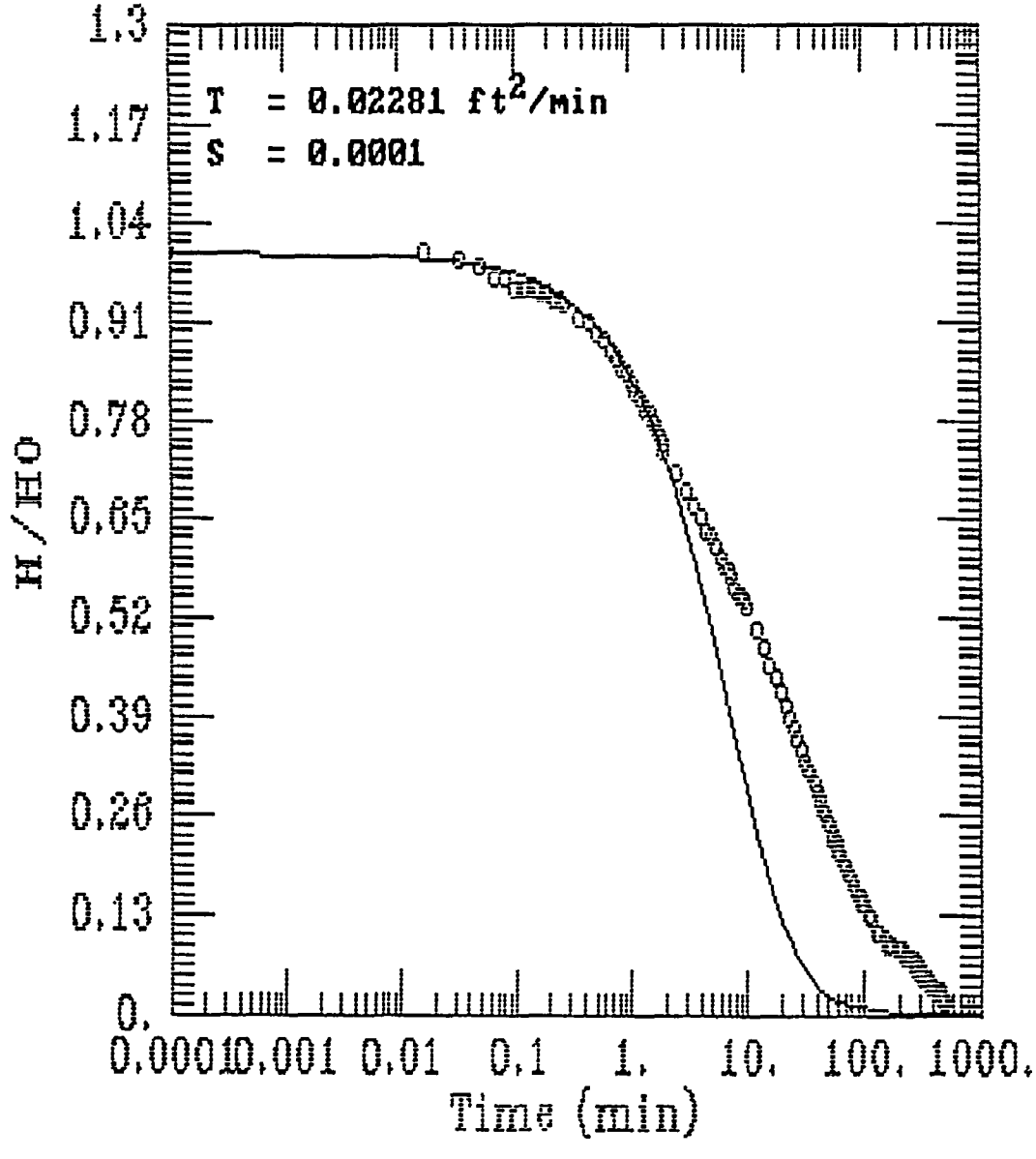
FANSTEEL METALS MW-59 (RISING)
SLUGT1
1.31
0.167
0.228
SLUGT2
7.89
10
7.89
TSDATA

0.0001	1.31	1
0.0168	1.31	1
0.0335	1.3	1
0.0501	1.29	1
0.0668	1.27	1
0.0835	1.27	1
0.1001	1.25	1
0.1168	1.25	1
0.1335	1.25	1
0.1501	1.25	1
0.1668	1.24	1
0.1835	1.24	1
0.2001	1.24	1
0.2168	1.23	1
0.2335	1.23	1
0.2501	1.23	1
0.2668	1.22	1
0.3502	1.2	1
0.4335	1.19	1
0.5168	1.17	1
0.6002	1.16	1
0.6835	1.14	1
0.7668	1.13	1
0.8502	1.11	1
0.9335	1.1	1
1.0168	1.08	1
1.1002	1.07	1
1.1835	1.06	1
1.2668	1.05	1
1.3501	1.04	1
1.4335	1.03	1
1.5168	1.02	1
1.6002	1.01	1
1.6835	1	1
1.7668	0.99	1
1.8502	0.98	1
1.9335	0.97	1
2.4335	0.93	1
2.9335	0.9	1
3.4335	0.87	1
3.9335	0.85	1
4.4335	0.83	1
4.9335	0.82	1
5.4335	0.8	1
5.9335	0.78	1
6.4335	0.77	1

6.9335	0.76	1
7.4335	0.75	1
7.9335	0.73	1
8.4335	0.72	1
8.9335	0.72	1
9.4335	0.71	1
9.9335	0.7	1
11.9335	0.66	1
13.9335	0.63	1
15.9335	0.6	1
17.9335	0.58	1
19.9335	0.55	1
21.9335	0.53	1
23.9335	0.51	1
25.9335	0.49	1
27.9335	0.47	1
29.9335	0.45	1
31.9335	0.43	1
33.9335	0.42	1
35.9335	0.41	1
37.9335	0.39	1
39.9335	0.38	1
41.9335	0.37	1
43.9335	0.36	1
45.9335	0.35	1
47.9335	0.34	1
49.9335	0.33	1
51.9335	0.32	1
53.9335	0.31	1
55.9335	0.3	1
57.9335	0.29	1
59.9335	0.29	1
61.9335	0.28	1
63.9335	0.27	1
65.9335	0.26	1
67.9335	0.26	1
69.9335	0.25	1
71.9335	0.25	1
73.9335	0.24	1
75.9335	0.24	1
77.9335	0.23	1
79.9335	0.23	1
81.9335	0.22	1
83.9335	0.22	1
85.9335	0.21	1
87.9335	0.21	1
89.9335	0.2	1
91.9335	0.2	1
93.9335	0.2	1
95.9335	0.19	1
97.9335	0.19	1
99.9335	0.19	1
109.9335	0.17	1
119.9335	0.16	1
129.9335	0.14	1
139.9335	0.14	1

149.9335	0.13	1
159.9335	0.12	1
169.9335	0.12	1
179.9335	0.12	1
189.9335	0.11	1
199.9335	0.11	1
209.9335	0.11	1
219.9335	0.11	1
229.9335	0.1	1
239.9335	0.1	1
249.9335	0.1	1
259.9335	0.09	1
269.9335	0.09	1
279.9335	0.08	1
289.9335	0.08	1
299.9335	0.08	1
309.9335	0.07	1
319.9335	0.07	1
329.9335	0.06	1
339.9335	0.06	1
349.9335	0.06	1
359.9335	0.06	1
369.9335	0.05	1
379.9335	0.05	1
389.9335	0.05	1
399.9335	0.05	1
409.9335	0.04	1
419.9335	0.04	1
429.9335	0.04	1
439.9335	0.04	1
449.9335	0.04	1
459.9335	0.03	1
469.9335	0.03	1
479.9335	0.03	1
489.9335	0.02	1
499.9335	0.02	1
509.9335	0.02	1
519.9335	0.01	1
529.9335	0.01	1
539.9335	0	1

FANSTEEL METALS MW-59 (RISING)



AQTESOLV

GERAGHTY & MILLER, INC.

Modeling Group

Earth Sciences Consultants, Inc.

Slug Test Data Sheet

Project Name FANSTEEL

Project No. 111-05 User ASH

Well Diameter 4"

▽ Before Slug Introduction 9.61

▽ After Slug Introduction

▽ After Slug Removal

Well Identification MW-59S

Hermit Identification No. B SB 10008

Start Date/Time 3/1/93 5:01 p.m.

End Date/Time

Type of Transducer (PSI) 10

Depth of Transducer 8.30

TOC Elevation

Type of Test (check one):

Rising Head ✓

Falling Head ✓

Rate (check one):

Logarithmic ✓

Linear

Reference Level Set (Yes)/No

Display Mode (check one):

English (Surface)

English (TOC) ✓

SI (Surface)

SI (TOC)

Scale Factor 10.0

Offset 0.06

Select File No. 4

Diameter of Slug (i.e., 1-1/2", etc.) 2"

Length of Slug (volume, if known) 3'

Weather Conditions:

Note: Do not terminate test until water level has recovered a minimum of 67 percent.

Comments:

TD = 17.5

Rev. 2/6/92

```
Program Control
Data Set Manager
Confined solutions
Unconfined solutions
Leaky solutions
Slug
Fract
Misc.
Quit

Data Set Manager
Read new data set from disk
Create new data set
Modify
Save c
Open n

Input Options
*Title for data set
 Description of test
 Confined/leaky aquifer test data
 Unconfined aquifer test data
 Recovery test data
*Slu
 Fra
 Mul
 Par
*Obs
 Len

Slug Test Data
 Initial drawdown in well......... 1.63
 Radius of well casing............ 0.265
 Radius of well.................... 0.411
 Saturated thickness............... 6.26
 Screen length..................... 10.
 Static height of water in well... 6.26

                                                    DATA ENTRY
AQTESOLV          F1=HELP          Thu Apr 22, 1993   5:07 PM
```

```
A Q T E S O L V
Version  1.10
Geraghty & Miller Modeling Group
```

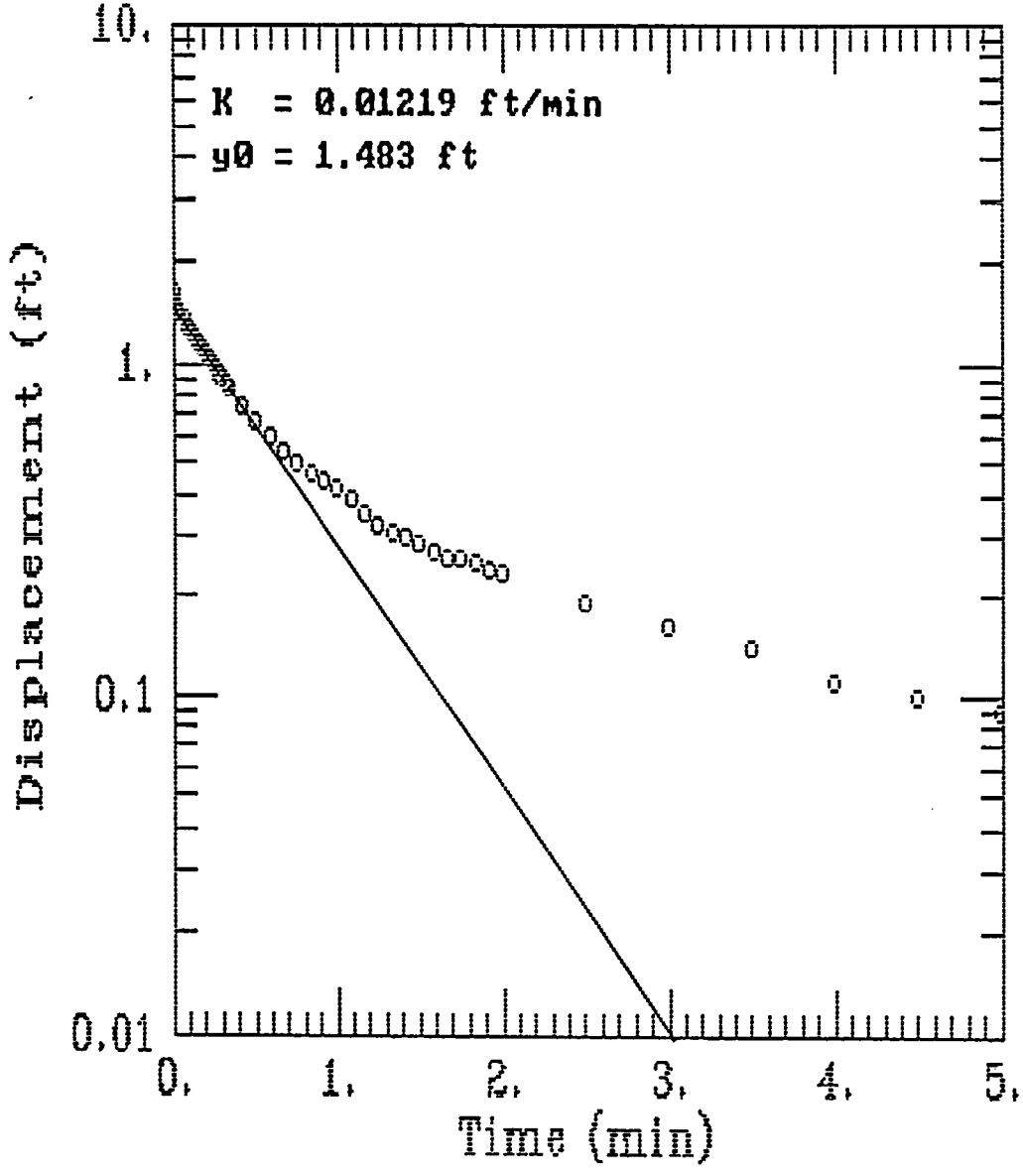
mw-60

FANSTEEL METALS MW-60 (RISING)
SLUGT1
1.63
0.167
0.228
SLUGT2
6.26
10
6.26
TSDATA

0.0001	1.63	1
0.0034	1.52	1
0.0067	1.5	1
0.0101	1.48	1
0.0134	1.48	1
0.0168	1.46	1
0.0201	1.45	1
0.0234	1.44	1
0.0268	1.43	1
0.0301	1.42	1
0.0468	1.38	1
0.0634	1.34	1
0.0801	1.3	1
0.0968	1.26	1
0.1134	1.23	1
0.1301	1.19	1
0.1468	1.16	1
0.1634	1.13	1
0.1801	1.1	1
0.1968	1.07	1
0.2134	1.04	1
0.2301	1.01	1
0.2468	0.99	1
0.2634	0.96	1
0.2801	0.93	1
0.2968	0.91	1
0.3134	0.88	1
0.3301	0.86	1
0.4135	0.75	1
0.4968	0.67	1
0.5801	0.6	1
0.6635	0.55	1
0.7468	0.51	1
0.8301	0.47	1
0.9135	0.44	1
0.9968	0.42	1
1.0801	0.39	1
1.1635	0.35	1
1.2468	0.33	1
1.3301	0.31	1
1.4134	0.3	1
1.4968	0.29	1
1.5801	0.27	1
1.6635	0.26	1
1.7468	0.26	1
1.8301	0.25	1

1.9135	0.24	1
1.9968	0.23	1
2.4968	0.19	1
2.9968	0.16	1
3.4968	0.14	1
3.9968	0.11	1
4.4968	0.1	1
4.9968	0.09	1
5.4968	0.08	1
5.9968	0.06	1
6.4968	0.06	1
6.9968	0.05	1
7.4968	0.04	1
7.9968	0.04	1
8.4968	0.03	1
8.9968	0.03	1
9.4968	0.02	1
9.9968	0.02	1
11.9968	0.01	1
13.9968	0.01	1
15.9968	0	1

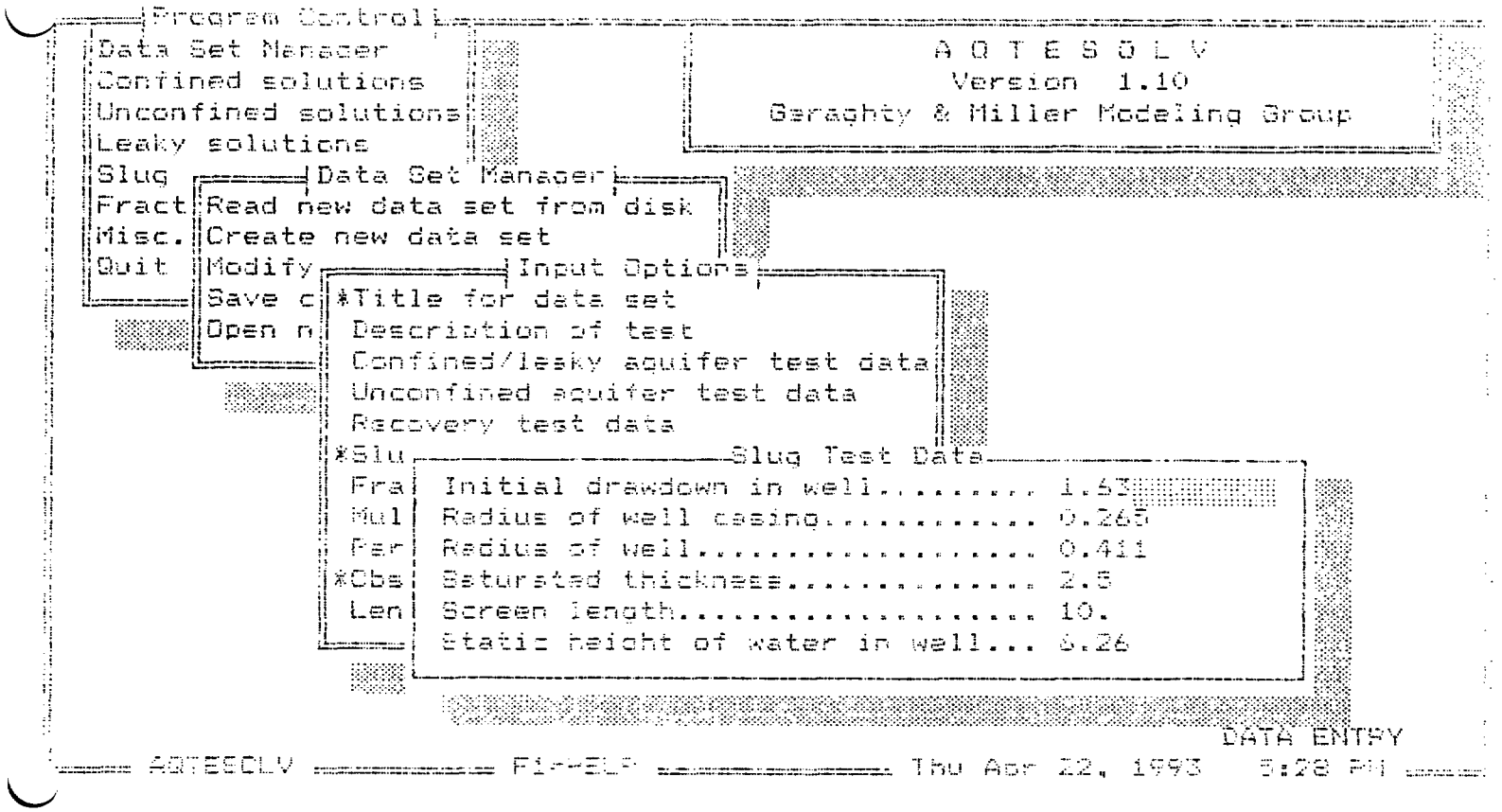
FANSTEEL METALS MW-60 (RISING)



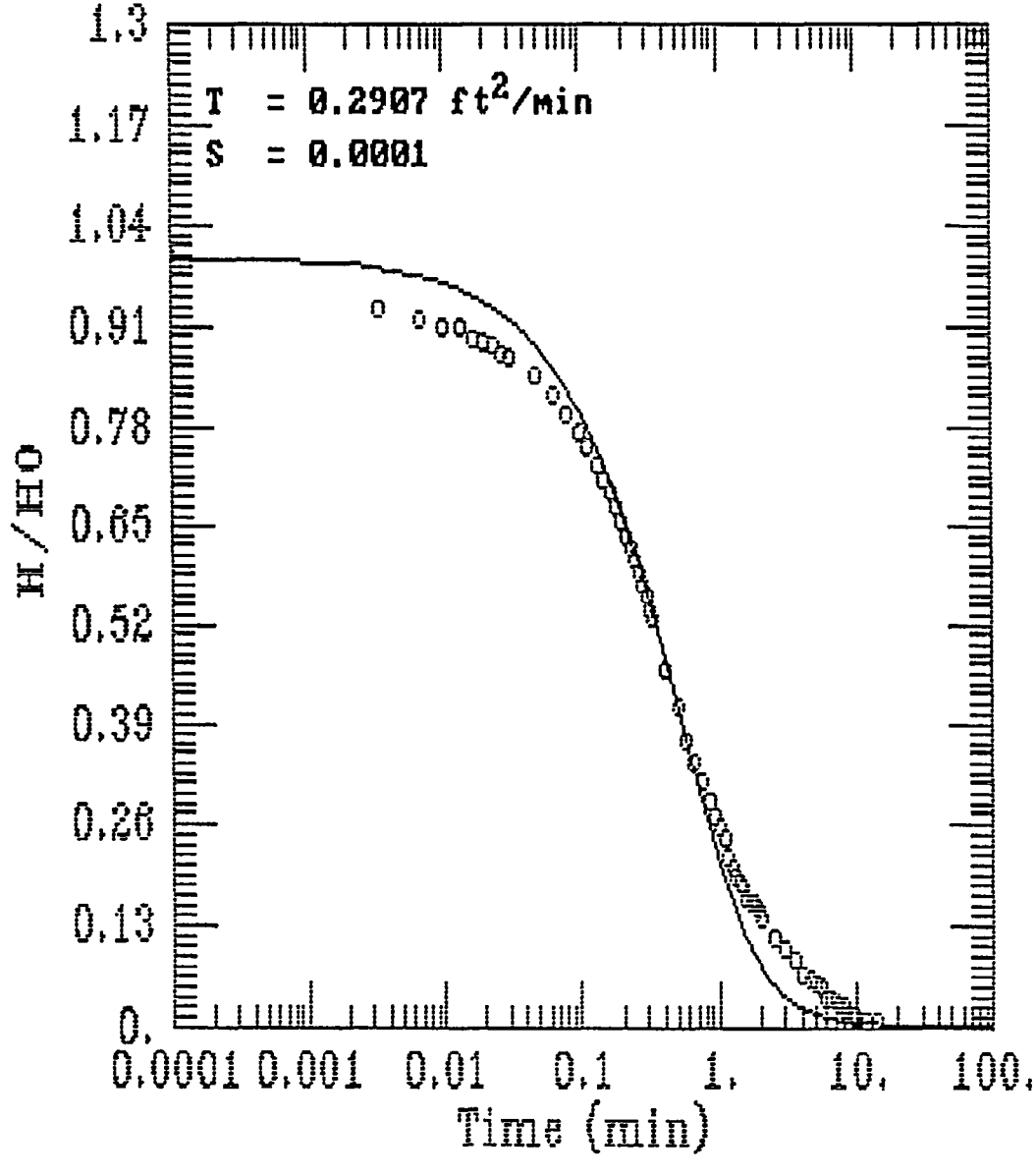
AQTESOLV

GERAGHTY & MILLER, INC.

Modeling Group


Program Control
Data Set Manager
Confined solutions
Unconfined solutions
Leaky solutions
Slug
Fract
Misc.
Quit
A Q T E S O L V
Version 1.10
Geraghty & Miller Modeling Group
Data Set Manager
Read new data set from disk
Create new data set
Modify
Save c
Open n
Input Options
*Title for data set
Description of test
Confined/leaky aquifer test data
Unconfined aquifer test data
Recovery test data
*Slu
Fra
Mul
Par
*Obs
Len
Slug Test Data
Initial drawdown in well..... 1.63
Radius of well casing..... 0.265
Radius of well..... 0.411
Saturated thickness..... 2.5
Screen length..... 10.
Static height of water in well... 6.26
DATA ENTRY
AQTESOLV
Thu Apr 22, 1993
5:28 PM

FANSTEEL METALS MW-60 (RISING)



AQTESOLV

GERAGHTY & MILLER, INC.

Modeling Group

Earth Sciences Consultants, Inc.

Slug Test Data Sheet

Project Name ~~MW~~ 60S FANSTEEL

Project No. 111-05 User ASN

Well Diameter 4"

▽ Before Slug Introduction 12.81

▽ After Slug Introduction

▽ After Slug Removal

Well Identification MW-60S

Hermit Identification No. A SS 10006

Start Date/Time 3/1/92 4:35 p.m.

End Date/Time 3/1/92 5:20 p.m.

Type of Transducer (PSI) 10

Depth of Transducer

TOC Elevation

Type of Test (check one):

Rising Head ✓

Falling Head ✓

Rate (check one):

Logarithmic ✓

Linear

Reference Level Set Yes/No

Scale Factor 10.13

Offset 0.02

Display Mode (check one):

English (Surface)

English (TOC) ✓

SI (Surface)

SI (TOC)

Select File No. ~~2~~ 3

Diameter of Slug (i.e., 1-1/2", etc.) 2"

Length of Slug (volume, if known) 3'

Weather Conditions: OVERCAST, 45°

Note: Do not terminate test until water level has recovered a minimum of 67 percent.

Comments:

70-1807

Rev. 2/6/92

```
Program Control
Data Set Manager
Confined solutions
Unconfined solutions
Leaky solutions
Slug
Fract
Misc.
Quit

Data Set Manager
Read n
Create
Modify
Save c
Open n

mw63r.dat
Data Set Title
FANSTEEL METALS MW-63 R
Initial drawdown in well...          1.44
Radius of well casing......         0.265
Radius of well.............         0.411
Saturated thickness........          9.11
Screen length..............            10
Height of water in well....          9.11
Number of data points......            68
Last time on file..........             0
Last drawdown on file......             0

Press any key to continue

AQTESOLV
Program Control
Data Set Manager
Confined solutions
Unconfined solutions
Leaky solutions
Slug
Fract
Misc.
Quit
```

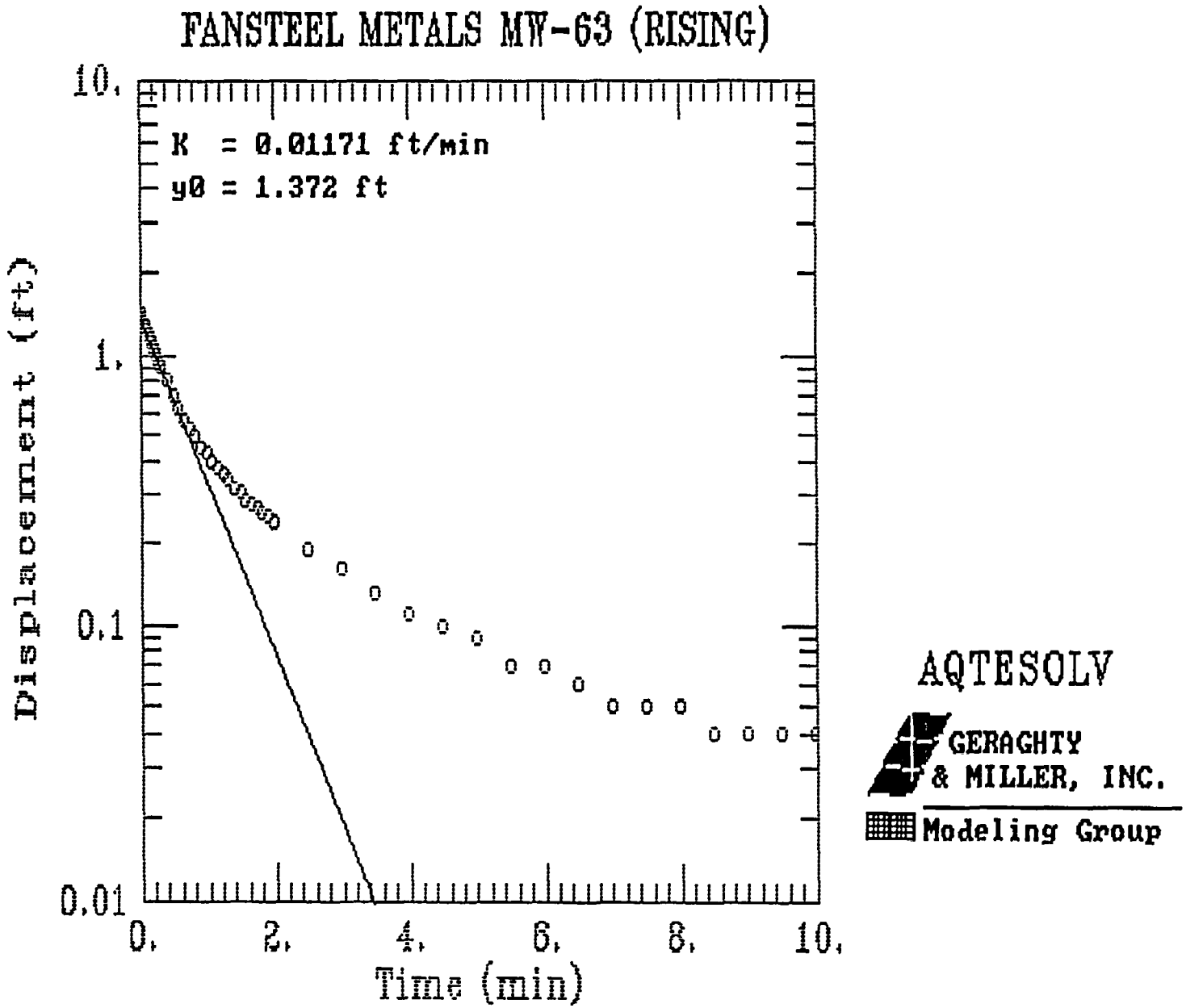
```
A Q T E S O L V
Version 1.10
Geraghty & Miller Modeling Group
```

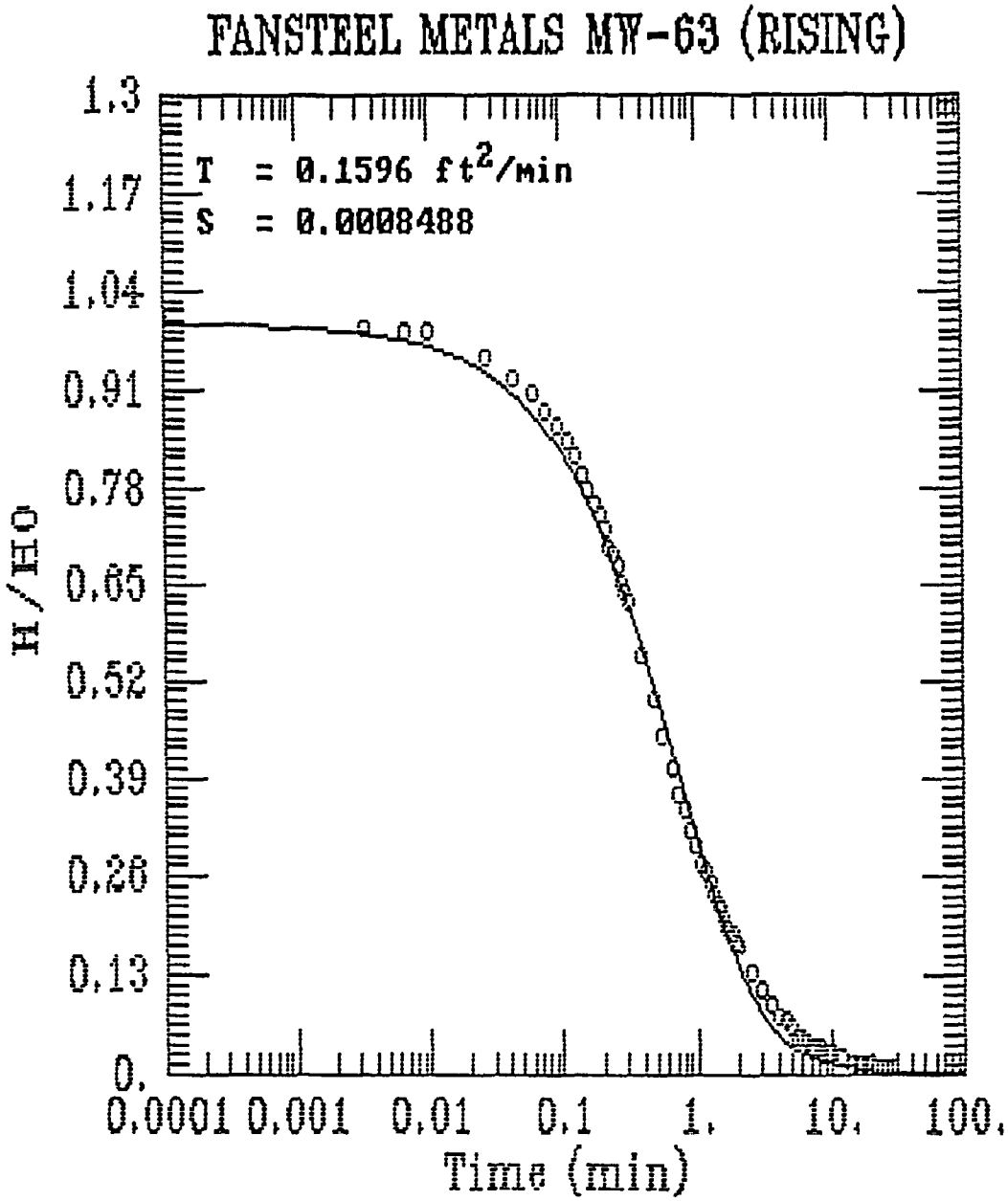
```
AQTESOLV ═══ F1=HELP ═══ Wed Apr 21, 1993  DATA ENTRY 3:33 PM
```

FANSTEEL METALS MW-63 (RISING)
SLUGT1
1.44
0.167
0.228
SLUGT2
9.11
10
9.11
TSDATA

0.0001	1.44	1
0.0034	1.43	1
0.0068	1.42	1
0.0101	1.42	1
0.0268	1.37	1
0.0434	1.33	1
0.0601	1.3	1
0.0768	1.27	1
0.0934	1.24	1
0.1101	1.21	1
0.1268	1.18	1
0.1434	1.15	1
0.1601	1.12	1
0.1768	1.09	1
0.1934	1.07	1
0.2101	1.04	1
0.2268	1.01	1
0.2434	0.99	1
0.2601	0.97	1
0.2768	0.94	1
0.2934	0.92	1
0.3101	0.9	1
0.3935	0.8	1
0.4768	0.71	1
0.5601	0.64	1
0.6435	0.58	1
0.7268	0.53	1
0.8101	0.5	1
0.8935	0.46	1
0.9768	0.43	1
1.0601	0.4	1
1.1435	0.38	1
1.2268	0.36	1
1.3101	0.34	1
1.3934	0.32	1
1.4768	0.31	1
1.5601	0.29	1
1.6435	0.28	1
1.7268	0.27	1
1.8101	0.26	1
1.8935	0.25	1
1.9768	0.24	1
2.4768	0.19	1
2.9768	0.16	1
3.4768	0.13	1
3.9768	0.11	1

4.4768	0.1	1
4.9768	0.09	1
5.4768	0.07	1
5.9768	0.07	1
6.4768	0.06	1
6.9768	0.05	1
7.4768	0.05	1
7.9768	0.05	1
8.4768	0.04	1
8.9768	0.04	1
9.4768	0.04	1
9.9768	0.04	1
11.9768	0.03	1
13.9768	0.02	1
15.9768	0.02	1
17.9768	0.02	1
19.9768	0.02	1
21.9768	0.01	1
23.9768	0.01	1
25.9768	0.01	1
27.9768	0.01	1
29.9768	0	1


FANSTEEL METALS MW-63 (RISING)
K = 0.01171 ft/min
y0 = 1.372 ft
Displacement (ft)
10.
1.
0.1
0.01
0.
2.
4.
6.
8.
10.
Time (min)
AQTESOLV
GERAGHTY & MILLER, INC.
Modeling Group



AQTESOLV

GERAGHTY & MILLER, INC.

Modeling Group

Earth Sciences Consultants, Inc.

Slug Test Data Sheet

Project Name: FANSTEEL METALS
Project No.: 111-05 User: ASH
Well Diameter: 4"
▽ Before Slug Introduction: 26.13
▽ After Slug Introduction: _____
▽ After Slug Removal: _____

Well Identification: MW-63 S
Hermit Identification No.: 8 S810008
Start Date/Time: 3/1/93 12:20 p.m.
End Date/Time: 3/1/93 1:39 p.m.
Type of Transducer (PSI): 10
Depth of Transducer: 8.54
TOC Elevation: _____

Type of Test (check one):
Rising Head: ✓
Falling Head: ✓

Rate (check one):
Logarithmic: ✓
Linear: _____

Reference Level Set Yes/No

Scale Factor: 10.0

Offset: 0.06

Display Mode (check one):
English (Surface): _____
English (TOC): ✓
SI (Surface): _____
SI (TOC): _____

Select File No.: 7

Diameter of Slug (i.e., 1-1/2", etc.): 2"

Length of Slug (volume, if known): 3"

Weather Conditions: RAIN 40°

Note: Do not terminate test until water level has recovered a minimum of 67 percent.

Comments:

T.O. 35.24

	TOTAL OSSP	END	% RECOVERY
FALLING HEAD TEST	0.73'	0.04'	94.5
RISING HEAD TEST	≥ 0.95	0.00	100.00

```
Program Control
Data Set Manager                                  A Q T E S O L V
Confined solutions                                  Version  1.10
Unconfined solutions                          Geraghty & Miller Modeling Group
Leaky solutions
Slug        Data Set Manager
Fract       Read n                  65r.dat
Misc.       Create                Data Set Title
Quit        Modify          FANSTEEL METALS MW-65 (RISING)
            Save c          Initial drawdown in well...          1.15
            Open n          Radius of well casing......         0.265
                            Radius of well.............         0.411
                            Saturated thickness........          6.96
                            Screen length..............            15
                            Height of water in well....          6.96
                            Number of data points......            37
                            Last time on file..........             0
                            Last drawdown on file......             0

                                 Press any key to continue

                                                                  DATA ENTRY
AQTESOLV          F1=HELP          Thu Apr 22. 1993    1:58 PM
```

FANSTEEL METALS MW-65 (RISING)

SLUGT1

1.15

0.228

0.328

SLUGT2

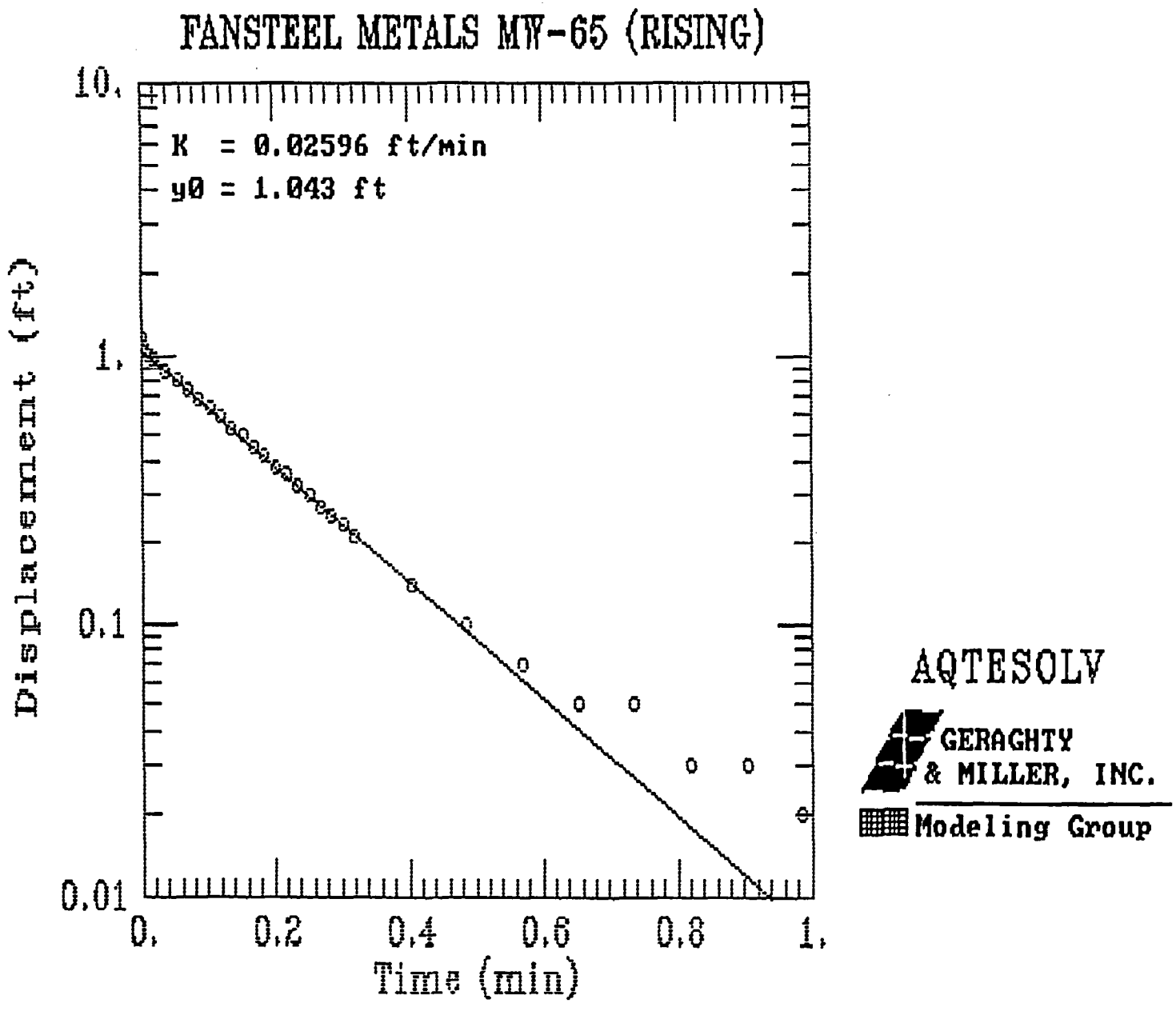
5.5

6.96

6.96

TSDATA

0.0001	1.15	1
0.0034	1.06	1
0.0068	1.02	1
0.0101	1	1
0.0134	0.99	1
0.0168	0.97	1
0.0201	0.96	1
0.0368	0.88	1
0.0534	0.81	1
0.0701	0.74	1
0.0868	0.69	1
0.1034	0.64	1
0.1201	0.59	1
0.1368	0.54	1
0.1534	0.5	1
0.1701	0.46	1
0.1868	0.42	1
0.2034	0.38	1
0.2201	0.36	1
0.2368	0.33	1
0.2534	0.3	1
0.2701	0.27	1
0.2868	0.25	1
0.3034	0.23	1
0.3201	0.21	1
0.4035	0.14	1
0.4868	0.1	1
0.5701	0.07	1
0.6535	0.05	1
0.7368	0.05	1
0.8201	0.03	1
0.9035	0.03	1
0.9868	0.02	1
1.0701	0.02	1
1.1535	0.01	1
1.2368	0.01	1
1.3201	0	1


FANSTEEL METALS MW-65 (RISING)
K = 0.02596 ft/min
y0 = 1.043 ft
Displacement (ft)
10.
1.
0.1
0.01
0.
0.2
0.4
0.6
0.8
1.
Time (min)
AQTESOLV
GERAGHTY & MILLER, INC.
Modeling Group

Earth Sciences Consultants, Inc.

Slug Test Data Sheet

Project Name FANSTEEL METALS

Project No. 111-05 User ASH

Well Diameter 4"

▽ Before Slug Introduction 26.81

▽ After Slug Introduction

▽ After Slug Removal

Well Identification MW-65S

Hermit Identification No. A SB 1000B

Start Date/Time 3/1/93 12:52

End Date/Time

Type of Transducer (PSI) 10

Depth of Transducer 6.67'

TOC Elevation

Type of Test (check one):

Rising Head ✓

Falling Head ✓

Rate (check one):

Logarithmic ✓

Linear

Reference Level Set Yes/No

Scale Factor 10.13

Offset 0.02

Display Mode (check one):

English (Surface)

English (TOC) ✓

SI (Surface)

SI (TOC)

Select File No. 2

Diameter of Slug (i.e., 1-1/2", etc.) 2"

Length of Slug (volume, if known) 3'

Weather Conditions: RAIN 40°

Note: Do not terminate test until water level has recovered a minimum of 67 percent.

Comments:

TO = 33.77

	INITIAL	END	% RECOVERY
FALLING HEAD TEST	0.69	0.04	94
RISING HEAD TEST	0.88	0.00	100

Rev. 2/6/92

```
Program Control
Data Set Manager
Confined solutions
Unconfined solutions
Leaky solutions
Slug
Fract
Misc.
Quit
```

```
A Q T E S O L V
Version 1.10
Geraghty & Miller Modeling Group
```

```
Data Set Manager
Read n
Create
Modify
Save c
Open n
```

```
66r.dat
Data Set Title
FANSTEEL METALS MW-66 (RISING)
Initial drawdown in well...          1.42
Radius of well casing......         0.167
Radius of well.............         0.411
Saturated thickness........         11.13
Screen length..............            10
Height of water in well....         11.13
Number of data points......            90
Last time on file..........             0
Last drawdown on file......             0

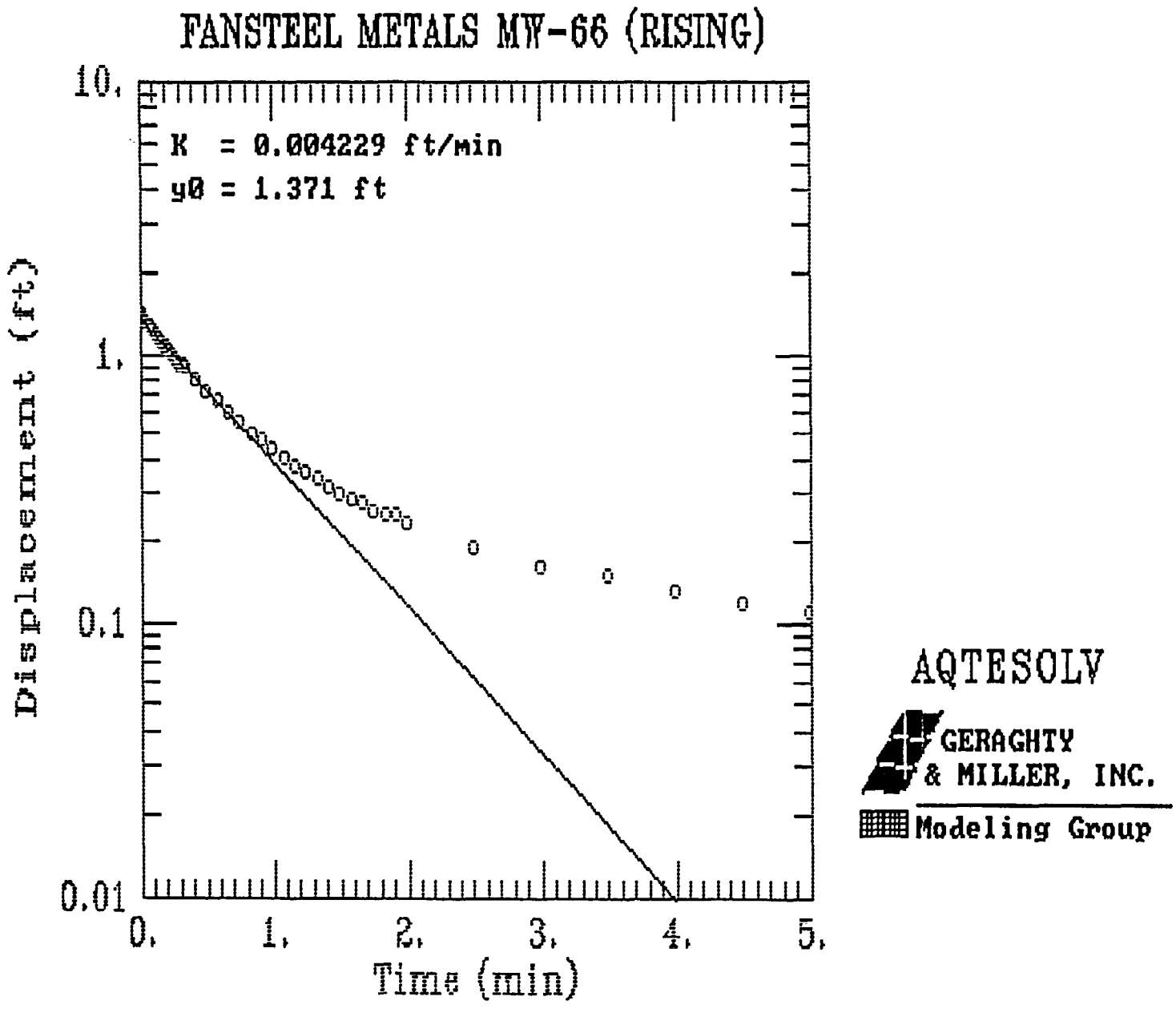
Press any key to continue
```

```
                                                                DATA ENTRY
AQTESOLV ========== F1=HELP ========== Thu Apr 22, 1993   5:34 PM
```

FANSTEEL METALS MW-66 (RISING)
SLUGT1
1.42
0.167
0.228
SLUGT2
11.13
10
11.13
TSDATA

0.0001	1.42	1
0.0034	1.41	1
0.0067	1.4	1
0.0101	1.38	1
0.0134	1.38	1
0.0168	1.37	1
0.0201	1.36	1
0.0234	1.36	1
0.0268	1.35	1
0.0301	1.34	1
0.0468	1.31	1
0.0634	1.28	1
0.0801	1.25	1
0.0968	1.22	1
0.1134	1.19	1
0.1301	1.16	1
0.1468	1.13	1
0.1634	1.11	1
0.1801	1.08	1
0.1968	1.06	1
0.2134	1.04	1
0.2301	1.01	1
0.2468	0.99	1
0.2634	0.97	1
0.2801	0.95	1
0.2968	0.93	1
0.3134	0.91	1
0.3301	0.89	1
0.4135	0.81	1
0.4968	0.73	1
0.5801	0.67	1
0.6635	0.61	1
0.7468	0.56	1
0.8301	0.51	1
0.9135	0.48	1
0.9968	0.44	1
1.0801	0.41	1
1.1635	0.38	1
1.2468	0.36	1
1.3301	0.34	1
1.4134	0.32	1
1.4968	0.3	1
1.5801	0.29	1
1.6635	0.28	1
1.7468	0.26	1
1.8301	0.25	1

1.9135	0.25	1
1.9968	0.23	1
2.4968	0.19	1
2.9968	0.16	1
3.4968	0.15	1
3.9968	0.13	1
4.4968	0.12	1
4.9968	0.11	1
5.4968	0.1	1
5.9968	0.09	1
6.4968	0.09	1
6.9968	0.08	1
7.4968	0.08	1
7.9968	0.07	1
8.4968	0.07	1
8.9968	0.06	1
9.4968	0.06	1
9.9968	0.06	1
11.9968	0.05	1
13.9968	0.04	1
15.9968	0.04	1
17.9968	0.03	1
19.9968	0.03	1
21.9968	0.03	1
23.9968	0.02	1
25.9968	0.02	1
27.9968	0.02	1
29.9968	0.02	1
31.9968	0.02	1
33.9968	0.02	1
35.9968	0.02	1
37.9968	0.02	1
39.9968	0.02	1
41.9968	0.02	1
43.9968	0.02	1
45.9968	0.02	1
47.9968	0.01	1
49.9968	0.01	1
51.9968	0.01	1
53.9968	0.01	1
55.9968	0.01	1
57.9968	0	1
59.9968	0	1
61.9968	0	1


FANSTEEL METALS MW-66 (RISING)
K = 0.004229 ft/min
y0 = 1.371 ft
Displacement (ft)
10.
1.
0.1
0.01
0.
1.
2.
3.
4.
5.
Time (min)
AQTESOLV
GERAGHTY & MILLER, INC.
Modeling Group

```
Program Control
Data Set Manager
Confined solutions
Unconfined solutions
Leaky solutions
Slug
Fract
Misc.
Quit
```

```
A Q T E S O L V
Version 1.10
Geraghty & Miller Modeling Group
```

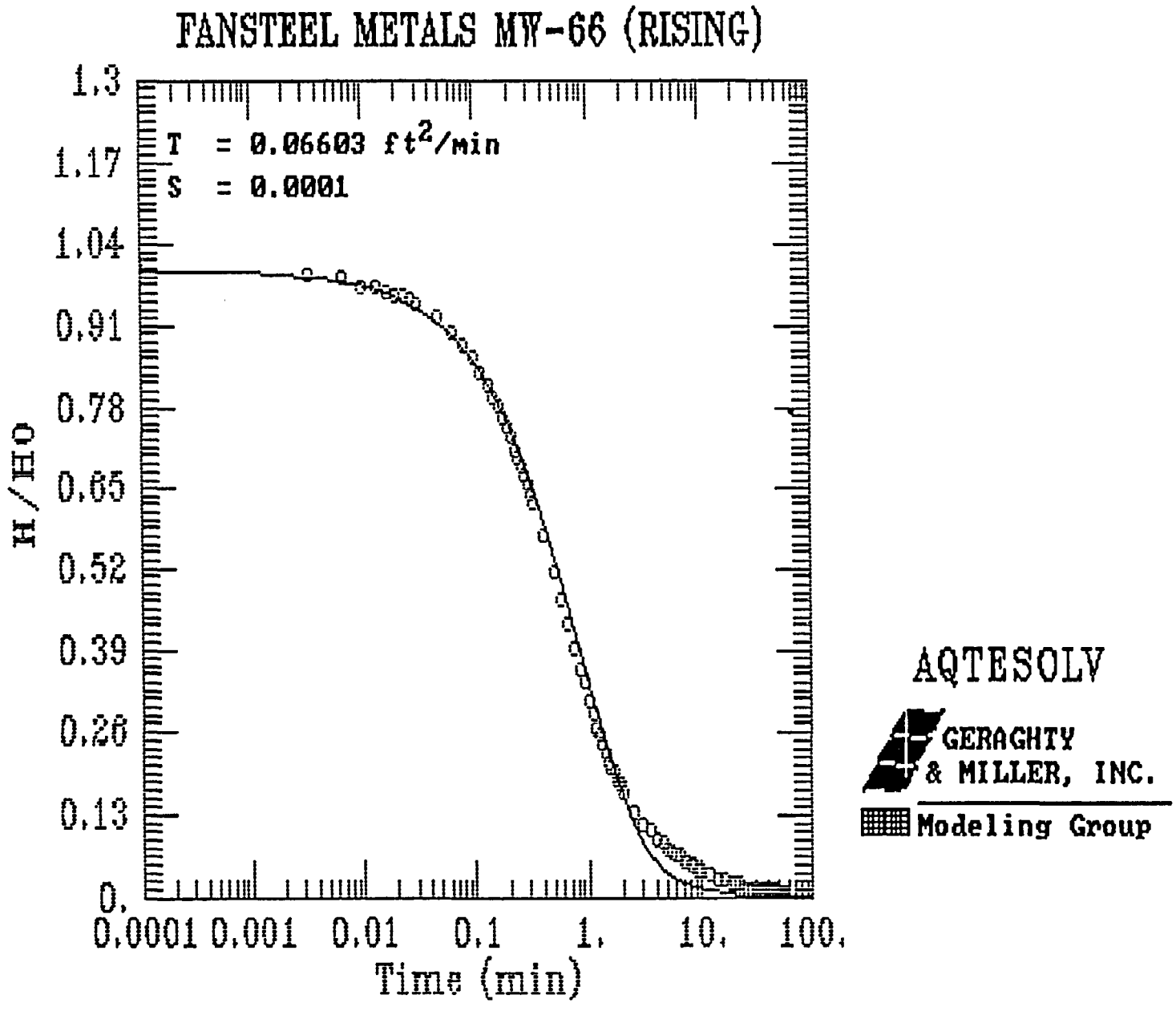
```
Data Set Manager
Read new data set from disk
Create new data set
Modify
Save c
Open n
```

```
Input Options
*Title for data set
 Description of test
 Confined/leaky aquifer test data
 Unconfined aquifer test data
 Recovery test data
*Slu
 Fra
 Mul
 Par
*Obs
 Len
```

```
Slug Test Data
Initial drawdown in well......... 1.42
Radius of well casing............ 0.167
Radius of well................... 0.411
Saturated thickness.............. 2.5
Screen length.................... 10.
Static height of water in well... 11.13
```

DATA ENTRY

AQTESOLV F1=HELP Thu Apr 22, 1993 5:35 PM


FANSTEEL METALS MW-66 (RISING)
T = 0.06603 ft²/min
S = 0.0001
H/HO
1.3
1.17
1.04
0.91
0.78
0.65
0.52
0.39
0.26
0.13
0.
0.0001
0.001
0.01
0.1
1.
10.
100.
Time (min)
AQTESOLV
GERAGHTY & MILLER, INC.
Modeling Group

Earth Sciences Consultants, Inc.

Slug Test Data Sheet

Project Name: FANSTEEL METALL

Project No. 111-05 User: RSN

Well Diameter: 4"

▽ Before Slug Introduction: 12.51

▽ After Slug Introduction: _____

▽ After Slug Removal: _____

Well Identification: MW-66S

Hermit Identification No.: 8 SB 10008

Start Date/Time: 3/1/93 2:00 p.m.

End Date/Time: 3/1/93 3:45 p.m.

Type of Transducer (PSI): 10

Depth of Transducer: 10.78

TOC Elevation: _____

Type of Test (check one):

Rising Head: ✓

Falling Head: ✓

Rate (check one):

Logarithmic: ✓

Linear: _____

Reference Level Set (Yes/No): Yes

Scale Factor: 10.0

Offset: 0.06

Display Mode (check one):

English (Surface): _____

English (TOC): ✓

SI (Surface): _____

SI (TOC): _____

Select File No.: 2

Diameter of Slug (i.e., 1-1/2", etc.): 2"

Length of Slug (volume, if known): 3'

Weather Conditions: OVERCAST 45°

Note: Do not terminate test until water level has recovered a minimum of 67 percent.

Comments:

TD = 23.64

	INITIAL	END	% RECOVERY
FALLING HEAD TEST			100
RISING HEAD TEST	1.21	0.00	100

```
Program Control
Data Set Manager
Confined solutions
Unconfined solutions
Leaky solutions
Slug
Fract
Misc.
Quit

A Q T E S O L V
Version 1.10
Geraghty & Miller Modeling Group

Data Set Manager
Read new data set from disk
Create new data set
Modify
Save c
Open n

Input Options
*Title for data set
 Description of test
 Confined/leaky aquifer test data
 Unconfined aquifer test data
 Recovery test data
*Slu
Fra
Mul
Par
*Obs
Len

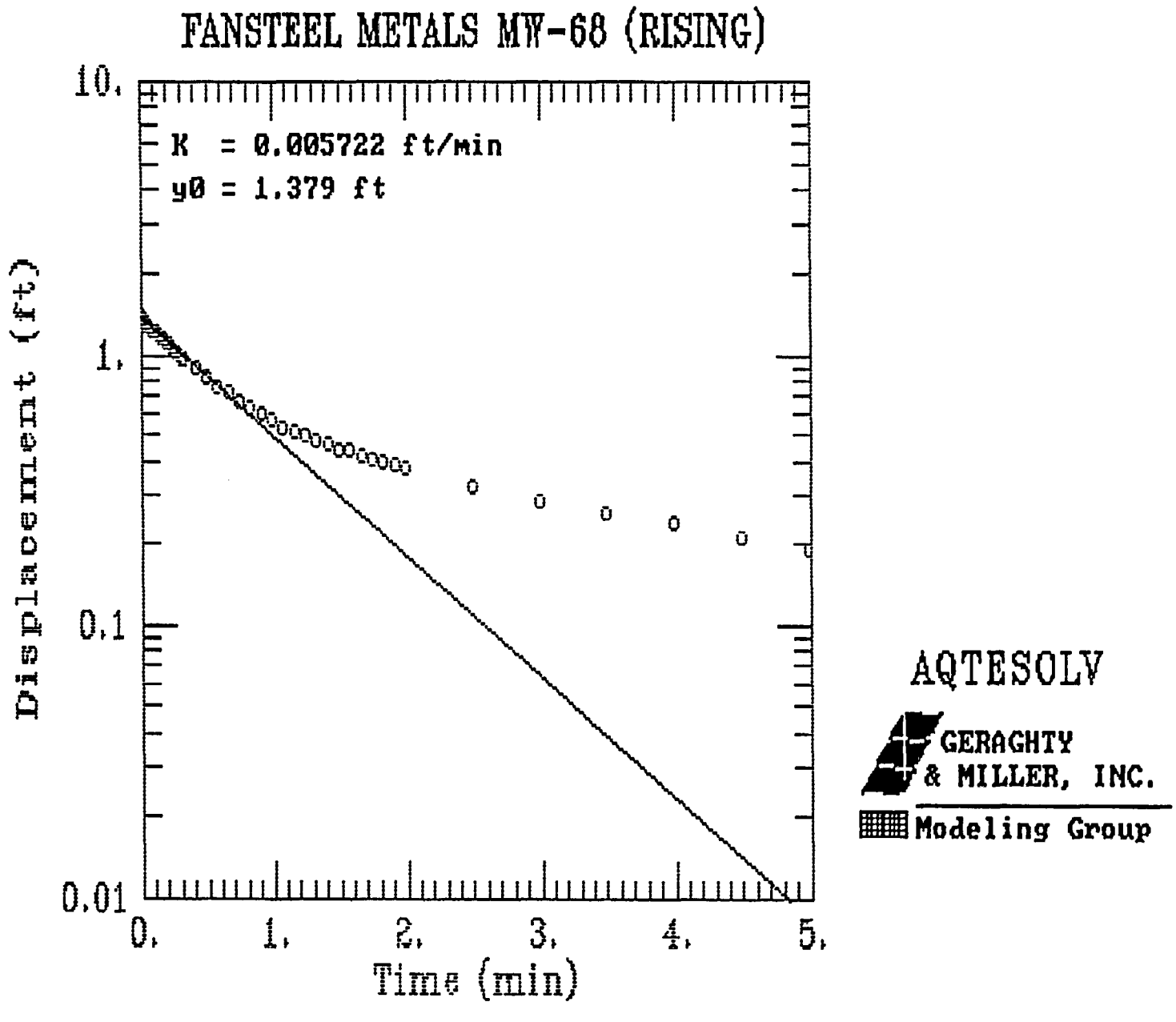
mw-68
Slug Test Data
 Initial drawdown in well......... 1.4
 Radius of well casing............ 0.265
 Radius of well................... 0.411
 Saturated thickness.............. 8.0
 Screen length.................... 15.
 Static height of water in well... 5.0

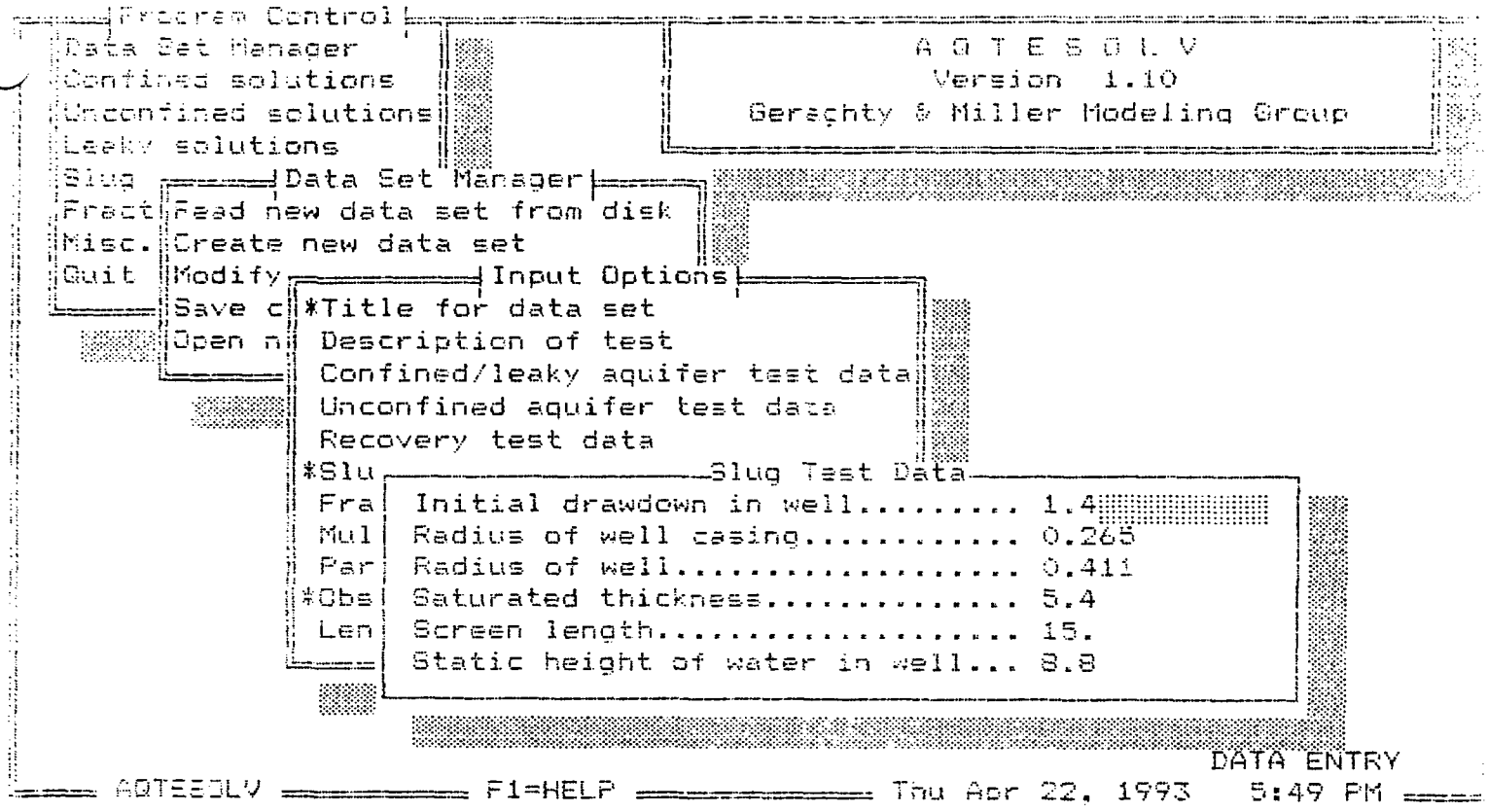
DATA ENTRY
AQTESOLV ---------- F1=HELP ---------- Thu Apr 22, 1993  5:44 PM
```

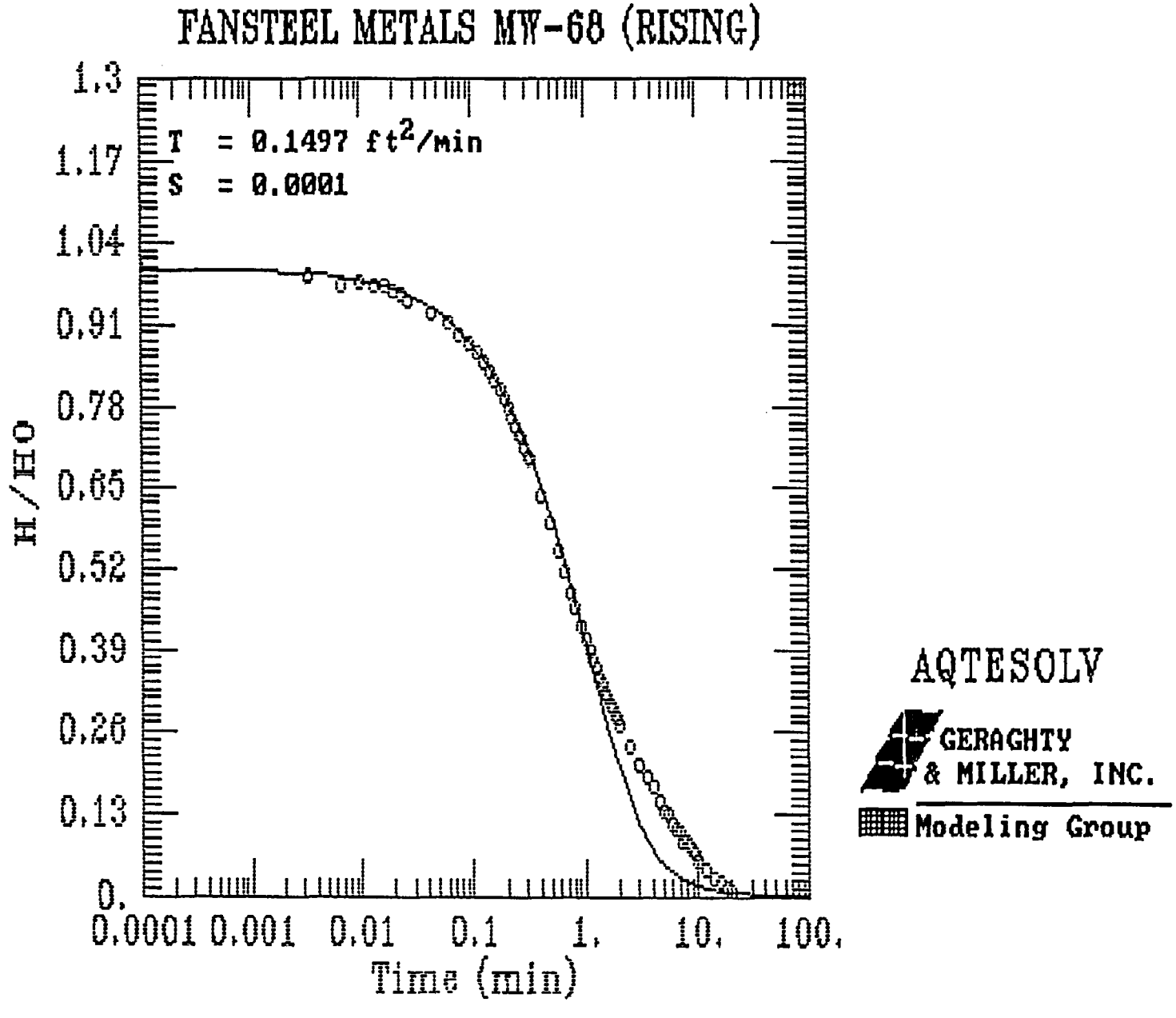
FANSTEEL METALS MW-68 (RISING)
SLUGT1
1.4
0.167
0.228
SLUGT2
8.8
15
8.8
TSDATA

0.0001	1.4	1
0.0034	1.38	1
0.0068	1.36	1
0.0101	1.37	1
0.0135	1.36	1
0.0168	1.36	1
0.0201	1.35	1
0.0235	1.34	1
0.0268	1.33	1
0.0435	1.3	1
0.0601	1.28	1
0.0768	1.25	1
0.0935	1.23	1
0.1101	1.21	1
0.1268	1.19	1
0.1435	1.17	1
0.1601	1.15	1
0.1768	1.13	1
0.1935	1.11	1
0.2101	1.09	1
0.2268	1.07	1
0.2435	1.05	1
0.2601	1.03	1
0.2768	1.02	1
0.2935	1	1
0.3101	0.98	1
0.3268	0.97	1
0.4102	0.89	1
0.4935	0.83	1
0.5768	0.77	1
0.6602	0.72	1
0.7435	0.67	1
0.8268	0.64	1
0.9102	0.6	1
0.9935	0.57	1
1.0768	0.54	1
1.1602	0.52	1
1.2435	0.5	1
1.3268	0.48	1
1.4101	0.47	1
1.4935	0.45	1
1.5768	0.44	1
1.6602	0.42	1
1.7435	0.41	1
1.8268	0.4	1
1.9102	0.39	1

1.9935	0.38	1
2.4935	0.33	1
2.9935	0.29	1
3.4935	0.26	1
3.9935	0.24	1
4.4935	0.21	1
4.9935	0.19	1
5.4935	0.18	1
5.9935	0.16	1
6.4935	0.15	1
6.9935	0.14	1
7.4935	0.12	1
7.9935	0.12	1
8.4935	0.11	1
8.9935	0.1	1
9.4935	0.09	1
9.9935	0.08	1
11.9935	0.06	1
13.9935	0.04	1
15.9935	0.03	1
17.9935	0.02	1
19.9935	0.01	1
21.9935	0	1


FANSTEEL METALS MW-68 (RISING)
K = 0.005722 ft/min
y0 = 1.379 ft
Displacement (ft)
10.
1.
0.1
0.01
0.
1.
2.
3.
4.
5.
Time (min)
AQTESOLV
GERAGHTY & MILLER, INC.
Modeling Group


Program Control
Data Set Manager
Confined solutions
Unconfined solutions
Leaky solutions
Slug
Fract
Misc.
Quit
A Q T E S O L V
Version 1.10
Geraghty & Miller Modeling Group
Data Set Manager
Read new data set from disk
Create new data set
Modify
Save c
Open n
Input Options
*Title for data set
Description of test
Confined/leaky aquifer test data
Unconfined aquifer test data
Recovery test data
*Slu
Fra
Mul
Par
*Obs
Len
Slug Test Data
Initial drawdown in well..... 1.4
Radius of well casing..... 0.265
Radius of well..... 0.411
Saturated thickness..... 5.4
Screen length..... 15.
Static height of water in well... 8.8
DATA ENTRY
AQTESOLV
F1=HELP
Thu Apr 22, 1993 5:49 PM


FANSTEEL METALS MW-68 (RISING)
T = 0.1497 ft²/min
S = 0.0001
H/HO
1.3
1.17
1.04
0.91
0.78
0.65
0.52
0.39
0.26
0.13
0.
0.0001
0.001
0.01
0.1
1.
10.
100.
Time (min)
AQTESOLV
GERAGHTY & MILLER, INC.
Modeling Group

Earth Sciences Consultants, Inc.

Slug Test Data Sheet

Project Name: FONSTELL

Project No. 111-05 User ASH

Well Diameter 4"

▽ Before Slug Introduction 20.49

▽ After Slug Introduction

▽ After Slug Removal

Well Identification MW-68S

Hermit Identification No. 8 S8 10008

Start Date/Time 3/3/93 3:34 p.m.

End Date/Time

Type of Transducer (PSI) 10

Depth of Transducer 8.47

TOC Elevation

Type of Test (check one):

Rising Head ✓

Falling Head ✓

Rate (check one):

Logarithmic ✓

Linear

Reference Level Set (Yes/No) Yes

Scale Factor 10.0

Offset 0.06

Display Mode (check one):

English (Surface)

English (TOC) ✓

SI (Surface)

SI (TOC)

Select File No. 6

Diameter of Slug (i.e., 1-1/2", etc.) 2"

Length of Slug (volume, if known) 3'

Weather Conditions: OVERCAST, 45°

Note: Do not terminate test until water level has recovered a minimum of 67 percent.

Comments:

TO: 29.27

Rev. 2/6/92

```
Program Control
Data Set Manager
Confined solutions
Unconfined solutions
Leaky solutions
Slug
Fract
Misc.
Quit
```

```
A Q T E S O L V
Version 1.10
Geraghty & Miller Modeling Group
```

```
Data Set Manager
Read n
Create
Modify
Save c
Open n
```

```
70r.dat
Data Set Title
FANSTEEL METALS MW-70 (RISING)
Initial drawdown in well...          1.17
Radius of well casing......         0.265
Radius of well.............         0.411
Saturated thickness........          7.51
Screen length..............            15
Height of water in well....          7.51
Number of data points......            63
Last time on file..........             0
Last drawdown on file......             0

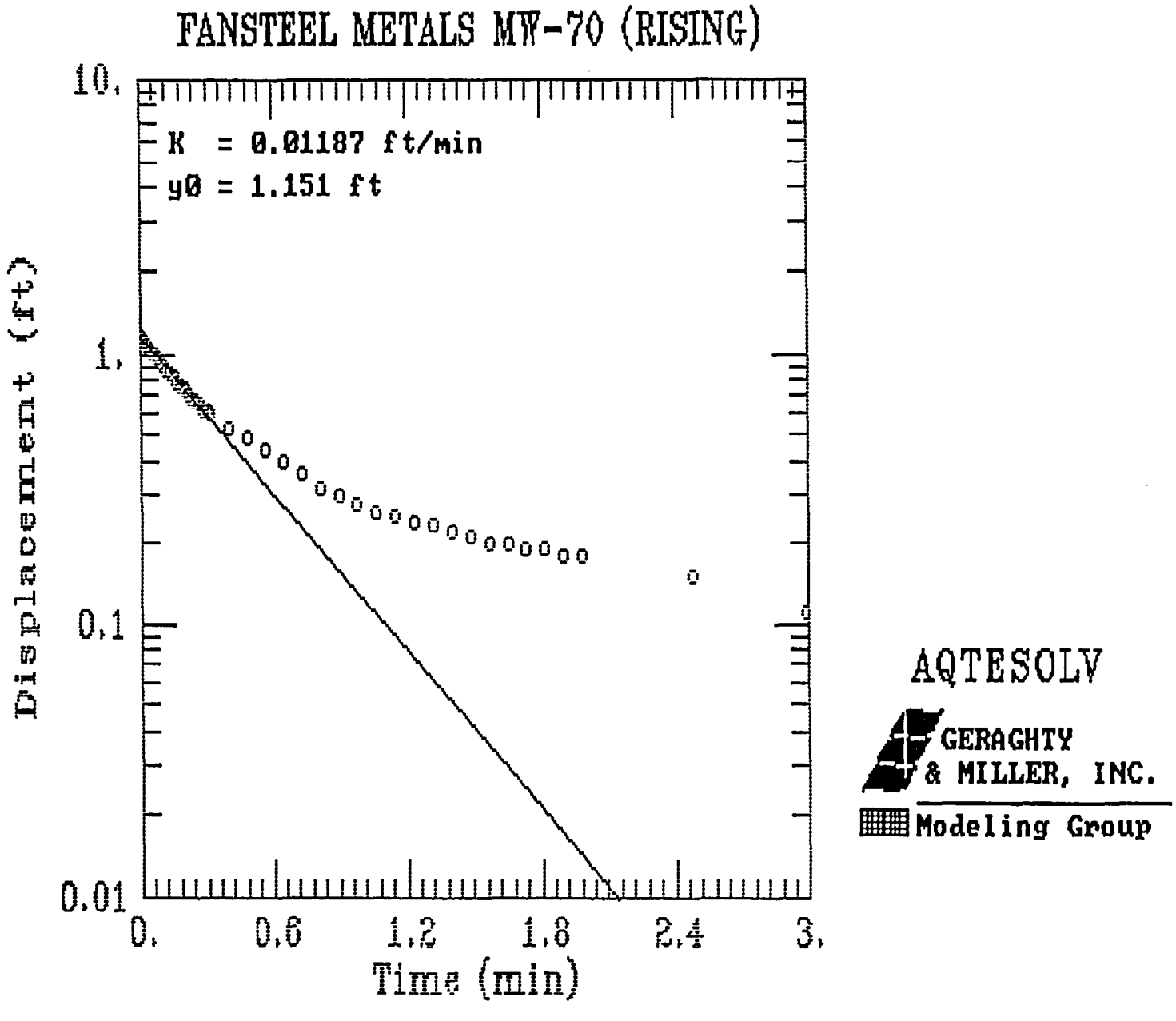
Press any key to continue
```

```
                                                                DATA ENTRY
AQTESOLV ═══ F1=HELP ═══ Thu Apr 22. 1993   2:11 PM
```

FANSTEEL METALS MW-70 (RISING)
SLUGT1
1.17
0.167
0.228
SLUGT2
7.51
15
7.51
TSDATA

0.0001	1.17	1
0.0035	1.15	1
0.0068	1.15	1
0.0101	1.13	1
0.0135	1.13	1
0.0168	1.11	1
0.0335	1.07	1
0.0501	1.03	1
0.0668	0.99	1
0.0835	0.96	1
0.1001	0.92	1
0.1168	0.88	1
0.1335	0.85	1
0.1501	0.82	1
0.1668	0.79	1
0.1835	0.76	1
0.2001	0.74	1
0.2168	0.71	1
0.2335	0.69	1
0.2501	0.67	1
0.2668	0.65	1
0.2835	0.63	1
0.3001	0.62	1
0.3168	0.61	1
0.4002	0.54	1
0.4835	0.49	1
0.5668	0.44	1
0.6502	0.4	1
0.7335	0.36	1
0.8168	0.32	1
0.9002	0.3	1
0.9835	0.28	1
1.0668	0.26	1
1.1502	0.25	1
1.2335	0.24	1
1.3168	0.23	1
1.4001	0.22	1
1.4835	0.21	1
1.5668	0.2	1
1.6502	0.2	1
1.7335	0.19	1
1.8168	0.19	1
1.9002	0.18	1
1.9835	0.18	1
2.4835	0.15	1
2.9835	0.11	1

3.4835	0.08	1
3.9835	0.06	1
4.4835	0.06	1
4.9835	0.05	1
5.4835	0.05	1
5.9835	0.04	1
6.4835	0.04	1
6.9835	0.04	1
7.4835	0.03	1
7.9835	0.03	1
8.4835	0.03	1
8.9835	0.02	1
9.4835	0.02	1
9.9835	0.02	1
11.9835	0.01	1
13.9835	0.01	1
15.9835	0	1


FANSTEEL METALS MW-70 (RISING)
K = 0.01187 ft/min
y0 = 1.151 ft
Displacement (ft)
10.
1.
0.1
0.01
0.
0.6
1.2
1.8
2.4
3.
Time (min)
AQTESOLV
GERAGHTY & MILLER, INC.
Modeling Group

Earth Sciences Consultants, Inc.

Slug Test Data Sheet

Project Name: FONSTEEL

Project No.: 111-05 User: RN

Well Diameter: 4"

▽ Before Slug Introduction: 25.92

▽ After Slug Introduction: _____

▽ After Slug Removal: _____

Well Identification: MW-70S

Hermit Identification No.: A SO 10608

Start Date/Time: 3/3/93 3:05 p.m.

End Date/Time: _____

Type of Transducer (PSI): 10

Depth of Transducer: 7.06

TOC Elevation: _____

Type of Test (check one):

Rising Head: ✓

Falling Head: ✓

Rate (check one):

Logarithmic: ✓

Linear: _____

Reference Level Set (Yes/No): Yes

Scale Factor: 10.13

Offset: 0.02

Display Mode (check one):

English (Surface): _____

English (TOC): ✓

SI (Surface): _____

SI (TOC): _____

Select File No.: 7

Diameter of Slug (i.e., 1-1/2", etc.): 2"

Length of Slug (volume, if known): 3'

Weather Conditions: OVERCAST, 38°

Note: Do not terminate test until water level has recovered a minimum of 67 percent.

Comments:

TO = 33.43

Rev. 2/6/92

```
Program Control
Data Set Manager
Confined solutions
Unconfined solutions
Leaky solutions
Slug
Fract
Misc.
Quit
```

```
A Q T E S O L V
Version 1.10
Geraghty & Miller Modeling Group
```

```
Data Set Manager
Read n
Create
Modify
Save c
Open n
```

```
72r.dat
Data Set Title
FANSTEEL METALS MW-72 (RISING)
Initial drawdown in well...          1.18
Radius of well casing......         0.265
Radius of well.............         0.411
Saturated thickness........         12.46
Screen length..............            15
Height of water in well....         12.46
Number of data points......            70
Last time on file..........             0
Last drawdown on file......             0

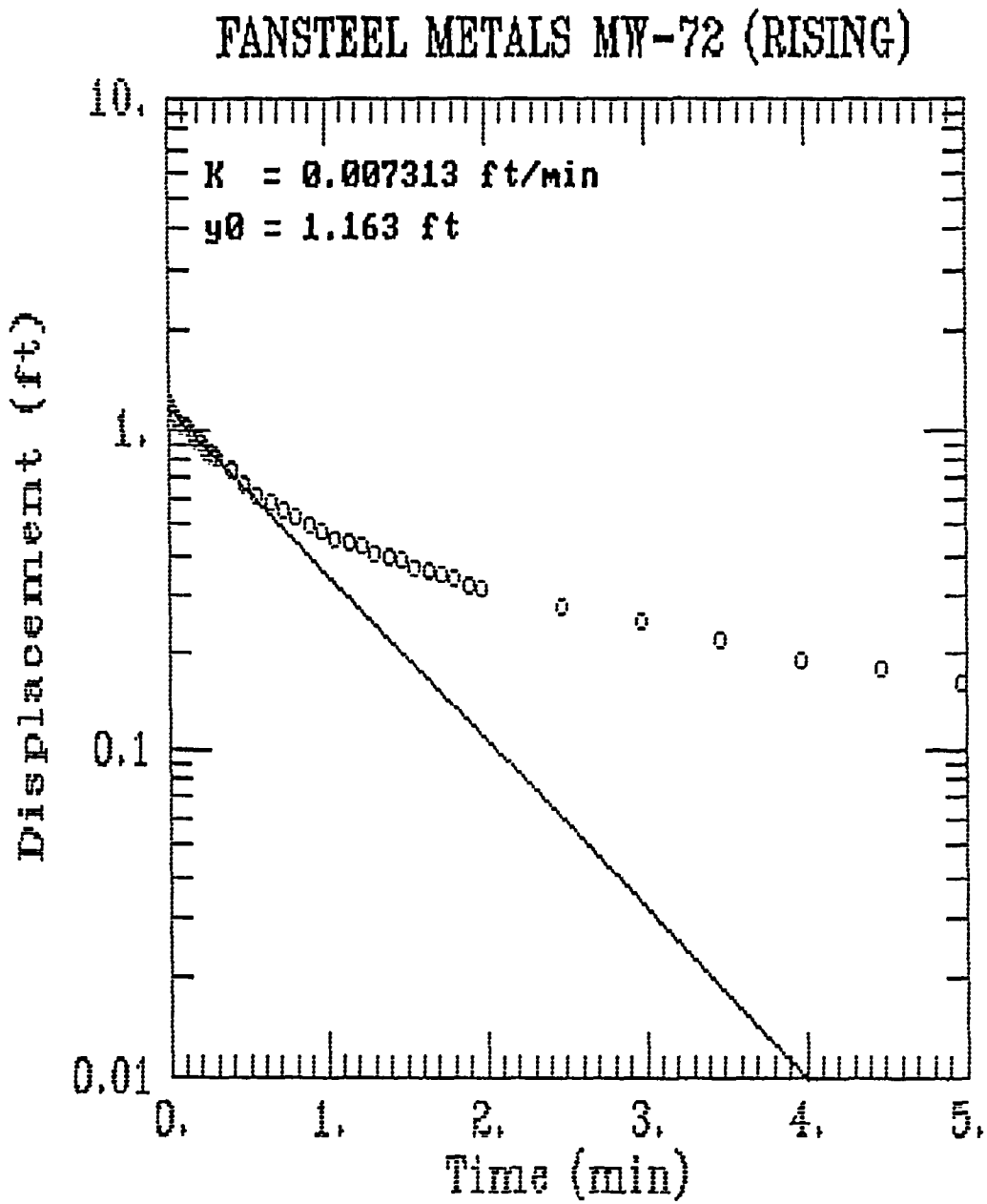
Press any key to continue
```

```
                                                                DATA ENTRY
AQTESOLV ═══ F1=HELP ═══ Thu Apr 22, 1993   2:22 PM
```

FANSTEEL METALS MW-72 (RISING)
SLUGT1
1.18
0.167
0.228
SLUGT2
12.46
10
12.46
TSDATA

0.0001	1.18	1
0.0034	1.16	1
0.0068	1.16	1
0.0101	1.15	1
0.0268	1.13	1
0.0434	1.1	1
0.0601	1.08	1
0.0768	1.05	1
0.0934	1.03	1
0.1101	1.01	1
0.1268	0.99	1
0.1434	0.97	1
0.1601	0.95	1
0.1768	0.93	1
0.1934	0.92	1
0.2101	0.9	1
0.2268	0.88	1
0.2434	0.86	1
0.2601	0.85	1
0.2768	0.83	1
0.2934	0.82	1
0.3101	0.8	1
0.3935	0.74	1
0.4768	0.68	1
0.5601	0.63	1
0.6435	0.59	1
0.7268	0.56	1
0.8101	0.53	1
0.8935	0.5	1
0.9768	0.48	1
1.0601	0.46	1
1.1435	0.44	1
1.2268	0.43	1
1.3101	0.41	1
1.3934	0.4	1
1.4768	0.39	1
1.5601	0.37	1
1.6435	0.36	1
1.7268	0.35	1
1.8101	0.34	1
1.8935	0.33	1
1.9768	0.32	1
2.4768	0.28	1
2.9768	0.25	1
3.4768	0.22	1
3.9768	0.19	1

4.4768	0.18	1
4.9768	0.16	1
5.4768	0.14	1
5.9768	0.13	1
6.4768	0.12	1
6.9768	0.11	1
7.4768	0.1	1
7.9768	0.09	1
8.4768	0.09	1
8.9768	0.09	1
9.4768	0.08	1
9.9768	0.07	1
11.9768	0.06	1
13.9768	0.04	1
15.9768	0.03	1
17.9768	0.03	1
19.9768	0.02	1
21.9768	0.02	1
23.9768	0.01	1
25.9768	0.01	1
27.9768	0.01	1
29.9768	0	1
31.9768	0	1
33.9768	0	1



AQTESOLV

GERAGHTY & MILLER, INC.

Modeling Group

Earth Sciences Consultants, Inc.

Slug Test Data Sheet

Project Name: FANSTEEL

Project No.: 111-05 User: ASH

Well Diameter: 4"

▽ Before Slug Introduction: 9.54

▽ After Slug Introduction: _____

▽ After Slug Removal: _____

Well Identification: MW-725

Hermit Identification No.: 8 SO 10006

Start Date/Time: 3/3/93 02:14 p.m.

End Date/Time: 3/3/93 3:15 p.m.

Type of Transducer (PSI): 10

Depth of Transducer: 12.51

TOC Elevation: _____

Type of Test (check one):

Rising Head: ✓

Falling Head: ✓

Rate (check one):

Logarithmic: ✓

Linear: _____

Reference Level Set (Yes/No): Yes

Scale Factor: 10.0

Offset: 0.06

Display Mode (check one):

English (Surface): _____

English (TOC): ✓

SI (Surface): _____

SI (TOC): _____

Select File No.: 5

Diameter of Slug (i.e., 1-1/2", etc.): 2"

Length of Slug (volume, if known): 3'

Weather Conditions: SNOWER, 45°

Note: Do not terminate test until water level has recovered a minimum of 67 percent.

Comments:

70=22.0

Rev. 2/6/92

```
Program Control
Data Set Manager
Confined solutions
Unconfined solutions
Leaky solutions
Slug
Fract
Misc.
Quit
```

```
A Q T E S O L V
Version 1.10
Geraghty & Miller Modeling Group
```

```
Data Set Manager
Read n
Create
Modify
Save c
Open n
```

```
75r.dat
Data Set Title
FANSTEEL METALS MW-75 (RISING)
Initial drawdown in well...          0.58
Radius of well casing......         0.265
Radius of well.............         0.411
Saturated thickness........          3.91
Screen length..............             5
Height of water in well....          3.91
Number of data points......            50
Last time on file..........             0
Last drawdown on file......             0

Press any key to continue
```

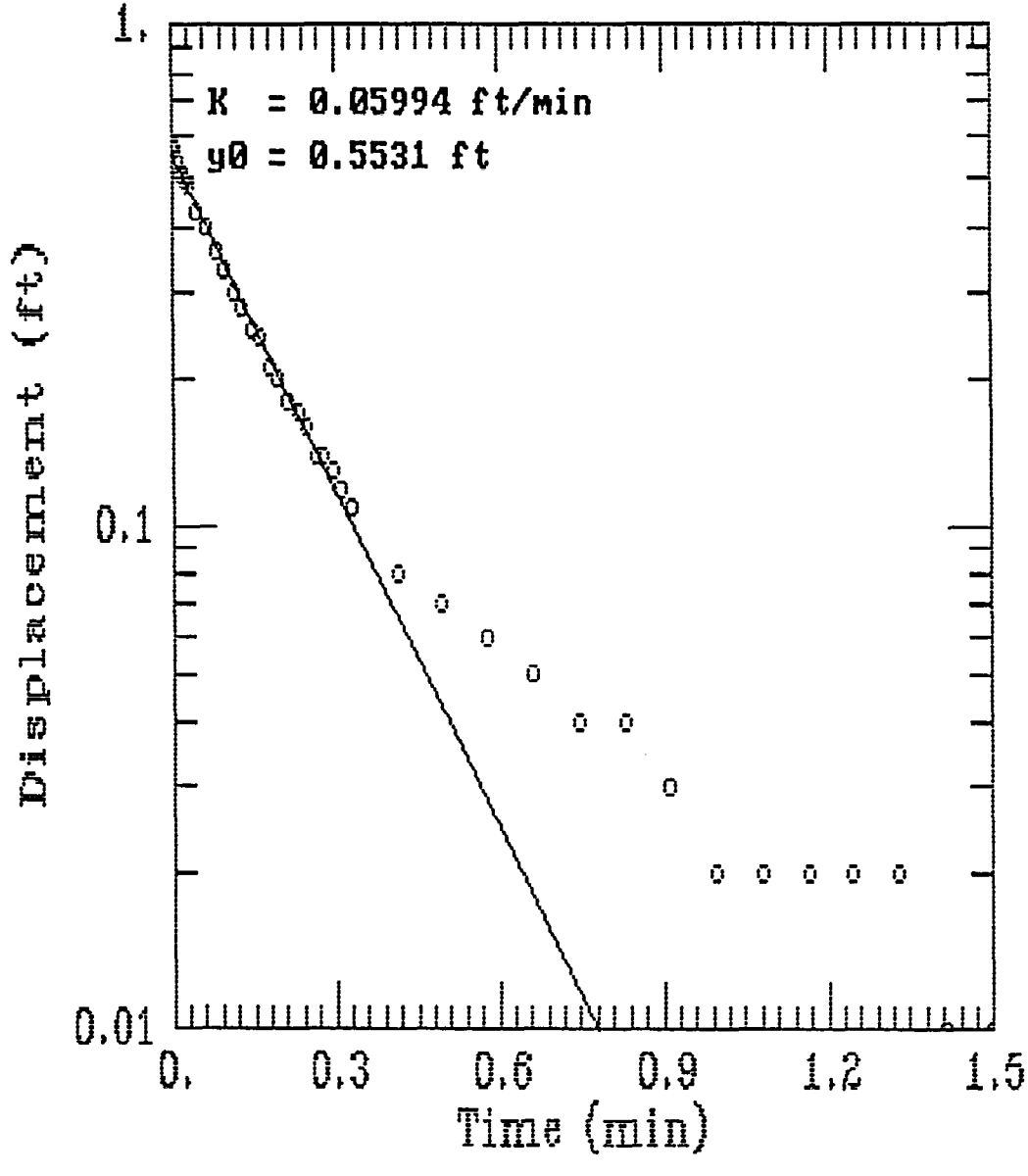
```
                                                                DATA ENTRY
AQTESOLV        F1=HELP        Thu Apr 22, 1993    2:36 PM
```

FANSTEEL METALS MW-75 (RISING)
SLUGT1
0.58
0.167
0.228
SLUGT2
3.91
5
3.91
TSDATA

0.0001	0.58	1
0.0034	0.57	1
0.0067	0.56	1
0.0101	0.54	1
0.0134	0.54	1
0.0168	0.51	1
0.0201	0.51	1
0.0234	0.5	1
0.0268	0.49	1
0.0301	0.48	1
0.0468	0.43	1
0.0634	0.4	1
0.0801	0.36	1
0.0968	0.33	1
0.1134	0.3	1
0.1301	0.28	1
0.1468	0.25	1
0.1634	0.24	1
0.1801	0.21	1
0.1968	0.2	1
0.2134	0.18	1
0.2301	0.17	1
0.2468	0.16	1
0.2634	0.14	1
0.2801	0.14	1
0.2968	0.13	1
0.3134	0.12	1
0.3301	0.11	1
0.4135	0.08	1
0.4968	0.07	1
0.5801	0.06	1
0.6635	0.05	1
0.7468	0.04	1
0.8301	0.04	1
0.9135	0.03	1
0.9968	0.02	1
1.0801	0.02	1
1.1635	0.02	1
1.2468	0.02	1
1.3301	0.02	1
1.4134	0.01	1
1.4968	0.01	1
1.5801	0.01	1
1.6635	0.01	1
1.7468	0.01	1
1.8301	0.01	1

1.9135	0.01	1
1.9968	0.01	1
2.4968	0.01	1
2.9968	0	1

FANSTEEL METALS MW-75 (RISING)



AQTESOLV

GERAGHTY & MILLER, INC.

Modeling Group

Earth Sciences Consultants, Inc.

Slug Test Data Sheet

Project Name FANSTEEL

Project No. 111-05 User ASN

Well Diameter 4"

▽ Before Slug Introduction 11.29

▽ After Slug Introduction

▽ After Slug Removal

Well Identification MW-75S

Hermit Identification No. A

Start Date/Time 3/4/93 9:15 a.m.

End Date/Time

Type of Transducer (PSI) 10

Depth of Transducer 3.75

TOC Elevation

Type of Test (check one):

Rising Head ✓

Falling Head ✓

Rate (check one):

Logarithmic ✓

Linear

Reference Level Set (Yes/No)

Scale Factor 10.13

Offset 0.02

Display Mode (check one):

English (Surface)

English (TOC) ✓

SI (Surface)

SI (TOC)

Select File No. 8

Diameter of Slug (i.e., 1-1/2", etc.) 2"

Length of Slug (volume, if known) 3'

Weather Conditions: OVERCAST, 50°

Note: Do not terminate test until water level has recovered a minimum of 67 percent.

Comments:

TO=15.2

Rev. 2/6/92

```
Program Control
Data Set Manager
Confined solutions
Unconfined solutions
Leaky solutions
Slug
Fract
Misc.
Quit

Data Set Manager
Read n
Create
Modify
Save c
Open n

161d.dat
Data Set Title
FANSTEEL METALS MW-161
Initial drawdown in well...          1.5
Radius of well casing......        0.167
Radius of well.............        0.228
Saturated thickness........            6
Screen length..............           10
Height of water in well....        24.71
Number of data points......          184
Last time on file..........            0
Last drawdown on file......            0

Press any key to continue

                                                    DATA ENTRY
AQTESOLV          F1=HELP          Thu Apr 22, 1993   6:18 PM
```

```
A Q T E S O L V
Version  1.10
Geraghty & Miller Modeling Group
```

FANSTEEL METALS MW-161
SLUGT1
1.5
0.167
0.228
SLUGT2
6
10
24.71
TSDATA

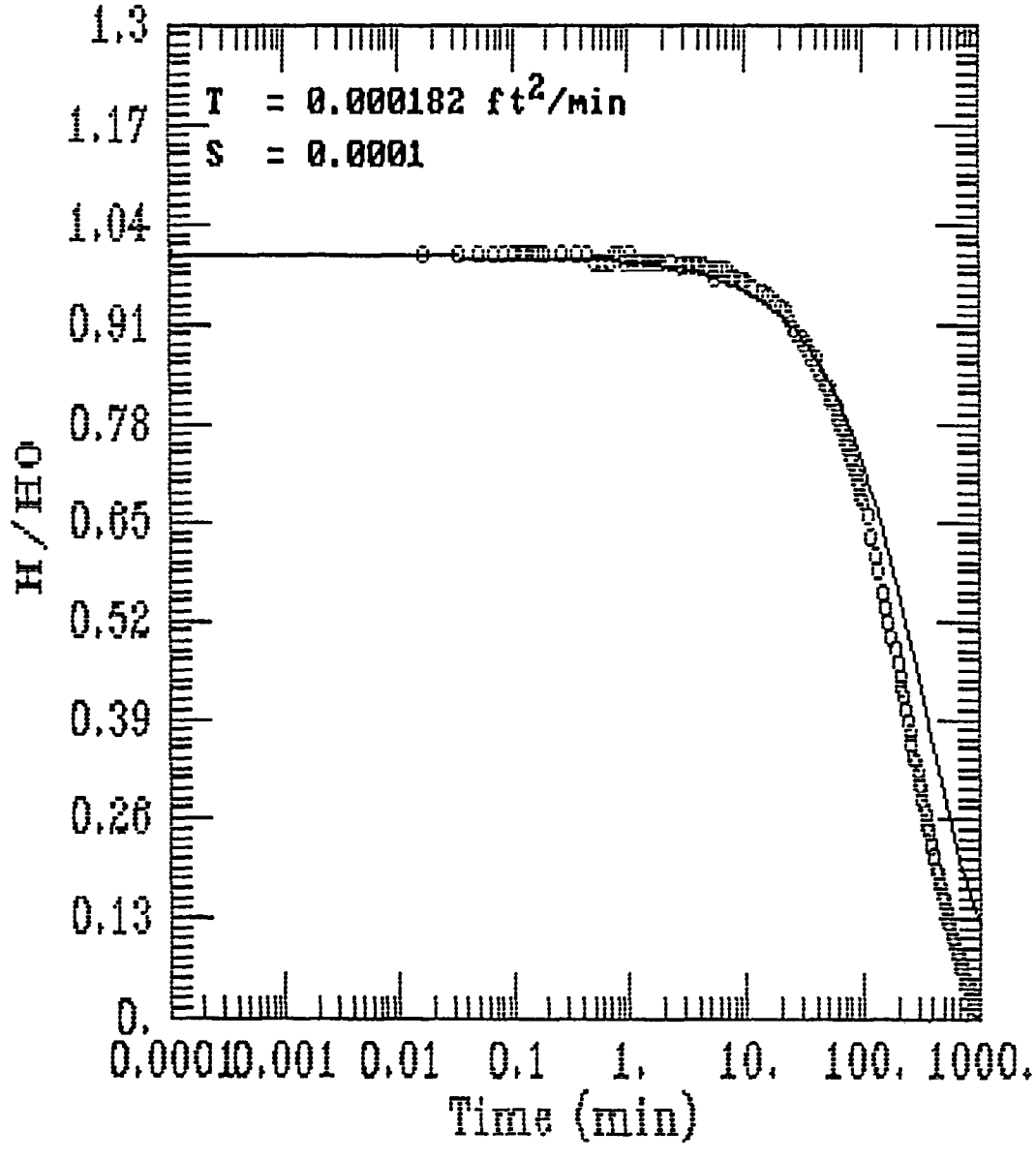
1E-04	1.5	1
0.0167	1.5	1
0.0334	1.5	1
0.0501	1.5	1
0.0667	1.5	1
0.0834	1.5	1
0.1001	1.5	1
0.1167	1.5	1
0.1334	1.5	1
0.1501	1.5	1
0.1667	1.5	1
0.1834	1.5	1
0.2668	1.5	1
0.3501	1.5	1
0.4334	1.5	1
0.5168	1.49	1
0.6001	1.49	1
0.6834	1.49	1
0.7668	1.5	1
0.8501	1.5	1
0.9334	1.49	1
1.0168	1.5	1
1.1001	1.49	1
1.1834	1.49	1
1.2667	1.49	1
1.3501	1.49	1
1.4334	1.49	1
1.5168	1.49	1
1.6001	1.49	1
1.6834	1.49	1
1.7668	1.49	1
1.8501	1.49	1
2.3501	1.49	1
2.8501	1.48	1
3.3501	1.48	1
3.8501	1.48	1
4.3501	1.48	1
4.8501	1.47	1
5.3501	1.46	1
5.8501	1.47	1
6.3501	1.47	1
6.8501	1.47	1
7.3501	1.46	1
7.8501	1.46	1
8.3501	1.46	1
8.8501	1.45	1

9.3501	1.45	1
9.8501	1.45	1
11.8501	1.44	1
13.8501	1.43	1
15.8501	1.42	1
17.8501	1.41	1
19.8501	1.4	1
21.8501	1.39	1
23.8501	1.38	1
25.8501	1.36	1
27.8501	1.35	1
29.8501	1.34	1
31.8501	1.33	1
33.8501	1.33	1
35.8501	1.31	1
37.8501	1.3	1
39.8501	1.3	1
41.8501	1.28	1
43.8501	1.27	1
45.8501	1.26	1
47.8501	1.25	1
49.8501	1.24	1
51.8501	1.24	1
53.8501	1.22	1
55.8501	1.22	1
57.8501	1.21	1
59.8501	1.2	1
61.8501	1.18	1
63.8501	1.18	1
65.8501	1.17	1
67.8501	1.16	1
69.8501	1.15	1
71.8501	1.14	1
73.8501	1.13	1
75.8501	1.12	1
77.8501	1.12	1
79.8501	1.11	1
81.8501	1.1	1
83.8501	1.09	1
85.8501	1.08	1
87.8501	1.08	1
89.8501	1.07	1
91.8501	1.06	1
93.8501	1.05	1
95.8501	1.04	1
97.8501	1.03	1
99.8501	1.02	1
109.8501	0.99	1
119.8501	0.95	1
129.8501	0.91	1
139.8501	0.88	1
149.8501	0.84	1
159.8501	0.81	1
169.8501	0.78	1
179.8501	0.75	1
189.8501	0.73	1

199.8501	0.7	1
209.8501	0.67	1
219.8501	0.65	1
229.8501	0.63	1
239.8501	0.6	1
249.8501	0.58	1
259.8501	0.56	1
269.8501	0.54	1
279.8501	0.51	1
289.8501	0.5	1
299.8501	0.48	1
309.8501	0.46	1
319.8501	0.45	1
329.8501	0.43	1
339.8501	0.41	1
349.8501	0.4	1
359.8501	0.38	1
369.8501	0.37	1
379.8501	0.36	1
389.8501	0.34	1
399.8501	0.33	1
409.8501	0.32	1
419.8501	0.31	1
429.8501	0.29	1
439.8501	0.29	1
449.8501	0.28	1
459.8501	0.26	1
469.8501	0.25	1
479.8501	0.24	1
489.8501	0.24	1
499.8501	0.23	1
509.8501	0.22	1
519.8501	0.21	1
529.8501	0.2	1
539.8501	0.19	1
549.8501	0.19	1
559.8501	0.18	1
569.8501	0.18	1
579.8501	0.16	1
589.8501	0.16	1
599.8501	0.16	1
609.8501	0.15	1
619.8501	0.14	1
629.8501	0.14	1
639.8501	0.13	1
649.8501	0.13	1
659.8501	0.12	1
669.8501	0.12	1
679.8501	0.11	1
689.8501	0.11	1
699.8501	0.1	1
709.8501	0.1	1
719.8501	0.09	1
729.8501	0.09	1
739.8501	0.08	1
749.8501	0.08	1

759.8501	0.08	1
769.8501	0.07	1
779.8501	0.07	1
789.8501	0.07	1
799.8501	0.06	1
809.8501	0.06	1
819.8501	0.06	1
829.8501	0.06	1
839.8501	0.05	1
849.8501	0.05	1
859.8501	0.05	1
869.8501	0.04	1
879.8501	0.03	1
889.8501	0.04	1
899.8501	0.03	1
909.8501	0.03	1
919.8501	0.03	1
929.8501	0.03	1
939.8501	0.02	1
949.8501	0.02	1
959.8501	0.02	1
969.8501	0.01	1
979.8501	0.01	1
989.8501	0.01	1
999.8501	0.01	1
1099.85	0	1

FANSTEEL METALS MW-161



AQTESOLV

GERAGHTY & MILLER, INC.

Modeling Group

Slug Test Data Sheet

Project Name: Fansteel

Project No. _____ User: JHB

Well Diameter: 2"

▽ Before Slug Introduction: 21.29

▽ After Slug Introduction: _____

▽ After Slug Removal: _____

Well Identification: MW-161D

Hermit Identification No.: A

Start Date/Time: 8:45

End Date/Time: _____

Type of Transducer (PSI): 20

Depth of Transducer: 14.57

TOC Elevation: -

Type of Test (check one):

- Rising Head _____
- Falling Head ✓

Rate (check one):

- Logarithmic ✓
- Linear _____

Reference Level Set (Yes/No)

Scale Factor: 20.13

Offset: 10.02

Select File No.: 0

Display Mode (check one):

- English (Surface) _____
- English (TOC) ✓
- SI (Surface) _____
- SI (TOC) _____

Diameter of Slug (i.e., 1-1/2", etc.): 1 1/2"

Length of Slug (volume, if known): 3'

Weather Conditions: 40° Cloudy

Note: Do not terminate test until water level has recovered a minimum of 67 percent.

Comments:

Total Depth 47.99'

Rev. 5/10/90

Earth Sciences Consultants, Inc.

Slug Test Data Sheet

Project Name FANSTEEL

Project No. 111.05 User RSN

Well Diameter 4"

▽ Before Slug Introduction ~~23.91~~ 22.15

▽ After Slug Introduction

▽ After Slug Removal

Well Identification MW-16LD

Hermit Identification No. B SB 10006

Start Date/Time 7:50 3/5/93

End Date/Time

Type of Transducer (PSI) 10

Depth of Transducer 11.12

TOC Elevation

Type of Test (check one):

Rising Head

Falling Head ✓

Rate (check one):

Logarithmic ✓

Linear

Reference Level Set (Yes)/No

Scale Factor 10.0

Offset 0.06

Display Mode (check one):

English (Surface)

English (TOC) ✓

SI (Surface)

SI (TOC)

Select File No. 7

Diameter of Slug (i.e., 1-1/2", etc.) 2"

Length of Slug (volume, if known) 3'

Weather Conditions: OVERCAST, 50°

Note: Do not terminate test until water level has recovered a minimum of 67 percent.

Comments:

TD = 48.21

23.91
22.34
1.67

DO NOT PERFORM TEST - WATER LEVEL NOT STABILIZED

3/4/93

2:43 p.m. ▽ = 22.97

3:19 p.m. ▽ = 22.93

3:49 p.m. ▽ = 22.89

3/5/93

7:26 a.m. ▽ = 22.15

7:47 a.m. ▽ = 22.15

9:40 ▽ 22.10

Rev. 2/6/92

```
Program Control
Data Set Manager
Confined solutions
Unconfined solutions
Leaky solutions
Slug
Fract
Misc.
Quit

Data Set Manager
Read n
Create
Modify
Save c
Open n

A Q T E S O L V
Version 1.10
Geraghty & Miller Modeling Group

167r.dat
Data Set Title
FANSTEEL METALS MW-167 (RISING)
Initial drawdown in well...          1.1
Radius of well casing......        0.167
Radius of well.............        0.328
Saturated thickness........           17
Screen length..............           10
Height of water in well....        17.23
Number of data points......           71
Last time on file..........            0
Last drawdown on file......            0

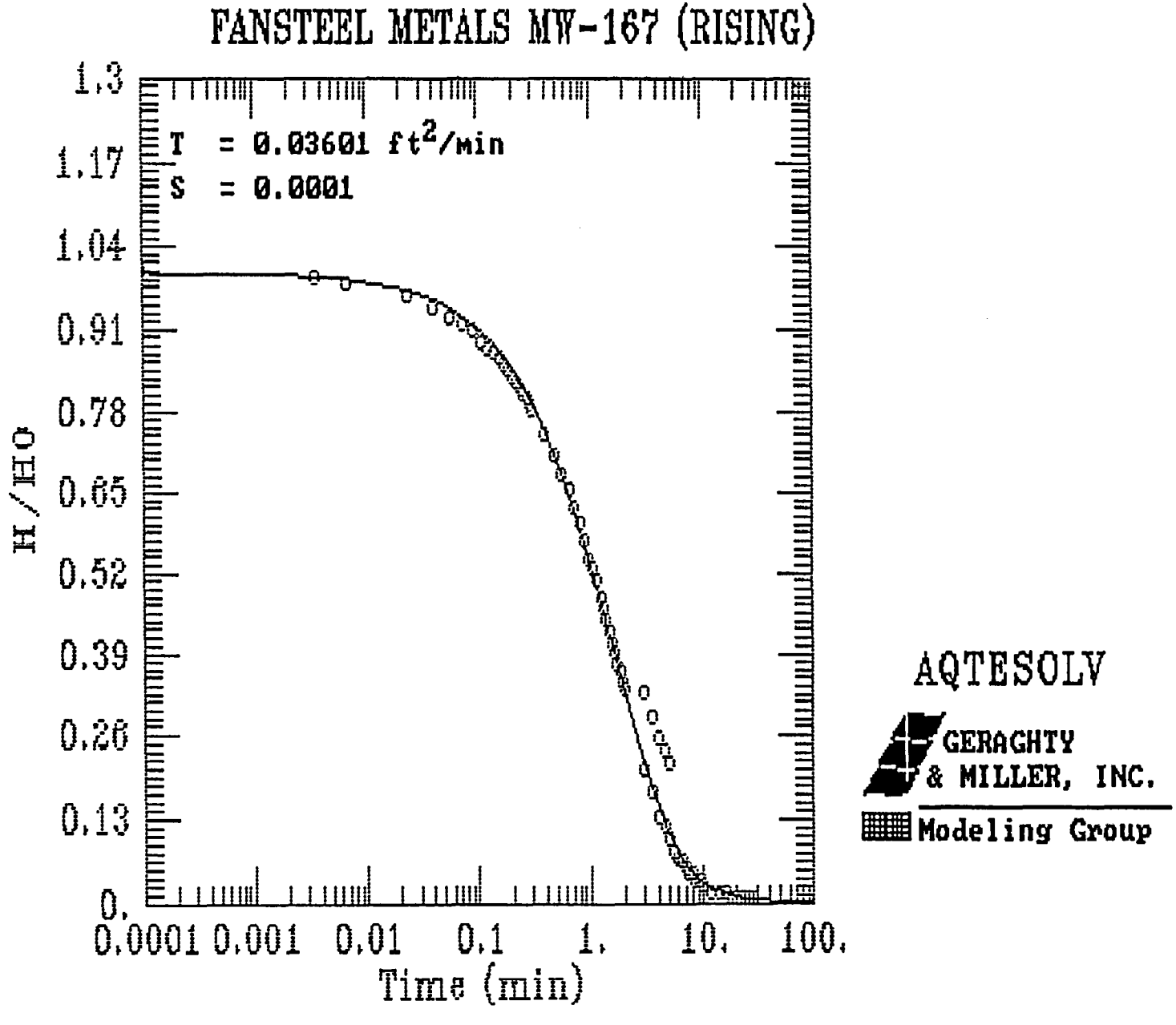
Press any key to continue

                                                    DATA ENTRY
AQTESOLV          F1=HELP          Thu Apr 22, 1993   5:55 PM
```

FANSTEEL METALS MW-167 (RISING)
SLUGT1
1.1
0.167
0.328
SLUGT2
17
10
17.23
TSDATA

0.0001	1.1	1
0.0035	1.09	1
0.0068	1.08	1
0.0235	1.06	1
0.0401	1.04	1
0.0568	1.02	1
0.0735	1.01	1
0.0901	1	1
0.1068	0.98	1
0.1235	0.97	1
0.1401	0.96	1
0.1568	0.95	1
0.1735	0.94	1
0.1901	0.93	1
0.2068	0.92	1
0.2235	0.91	1
0.2401	0.9	1
0.2568	0.89	1
0.2735	0.88	1
0.2901	0.87	1
0.3068	0.86	1
0.3902	0.82	1
0.4735	0.78	1
0.5568	0.75	1
0.6402	0.72	1
0.7235	0.69	1
0.8068	0.66	1
0.8902	0.63	1
0.9735	0.6	1
1.0568	0.58	1
1.1402	0.56	1
1.2235	0.53	1
1.3068	0.51	1
1.3901	0.49	1
1.4735	0.47	1
1.5568	0.45	1
1.6402	0.43	1
1.7235	0.41	1
1.8068	0.4	1
1.8902	0.38	1
1.9735	0.37	1
2.9735	0.36	1
3.4735	0.32	1
3.9735	0.28	1
4.4735	0.26	1
4.9735	0.24	1

2.9735	0.23	1
3.4735	0.19	1
3.9735	0.15	1
4.4735	0.13	1
4.9735	0.11	1
5.4735	0.09	1
5.9735	0.08	1
6.4735	0.07	1
6.9735	0.06	1
7.4735	0.05	1
7.9735	0.05	1
8.4735	0.04	1
8.9735	0.04	1
9.4735	0.04	1
9.9735	0.03	1
11.9735	0.02	1
13.9735	0.02	1
15.9735	0.02	1
17.9735	0.01	1
19.9735	0.01	1
21.9735	0.01	1
23.9735	0.01	1
25.9735	0.01	1
27.9735	0.01	1
29.9735	0	1


FANSTEEL METALS MW-167 (RISING)
T = 0.03601 ft²/min
S = 0.0001
H/H0
1.3
1.17
1.04
0.91
0.78
0.65
0.52
0.39
0.26
0.13
0.
0.0001
0.001
0.01
0.1
1.
10.
100.
Time (min)
AQTESOLV
GERAGHTY & MILLER, INC.
Modeling Group

Earth Sciences Consultants, Inc.

Slug Test Data Sheet

Project Name: FANSTEEL METALS

Project No. 111-04 User: ASN

Well Diameter: 4"

▽ Before Slug Introduction: 38.07

▽ After Slug Introduction: _____

▽ After Slug Removal: _____

Well Identification: MW-167D

Hermit Identification No. A SB 1006

Start Date/Time: 3/2/93 8:55 p.m.

End Date/Time: 3/3/93 8:10 a.m.

Type of Transducer (PSI): 10

Depth of Transducer: 102.50

TOC Elevation: _____

Type of Test (check one):

Rising Head: ✓

Falling Head: ✓

Rate (check one):

Logarithmic: ✓

Linear: _____

Reference Level Set (Yes) No

Scale Factor: 10.13

Offset: 0.02

Display Mode (check one):

English (Surface): _____

English (TOC): ✓

SI (Surface): _____

SI (TOC): _____

Select File No. 5

Diameter of Slug (i.e., 1-1/2", etc.) 2"

Length of Slug (volume, if known) 3'

Weather Conditions: OVERCAST, 50°

Note: Do not terminate test until water level has recovered a minimum of 67 percent.

Comments:

Rev. 2/6/92

```
Program Control
Data Set Manager
Confined solutions
Unconfined solutions
Leaky solutions
Slug
Fract
Misc.
Quit
```

```
A Q T E S O L V
Version 1.10
Geraghty & Miller Modeling Group
```

```
Data Set Manager
Read n
Create
Modify
Save c
Open n
```

```
174.dat
Data Set Title
FANSTEEL METALS MW-174
Initial drawdown in well...          1.48
Radius of well casing......         0.167
Radius of well.............         0.228
Saturated thickness........          7.25
Screen length..............            10
Height of water in well....         14.48
Number of data points......           120
Last time on file..........         389.8
Last drawdown on file......           0.9

Press any key to continue
```

```
                                                                DATA ENTRY
AQTESOLV ---------- F1=HELP ---------- Thu Apr 22, 1993   6:10 PM
```

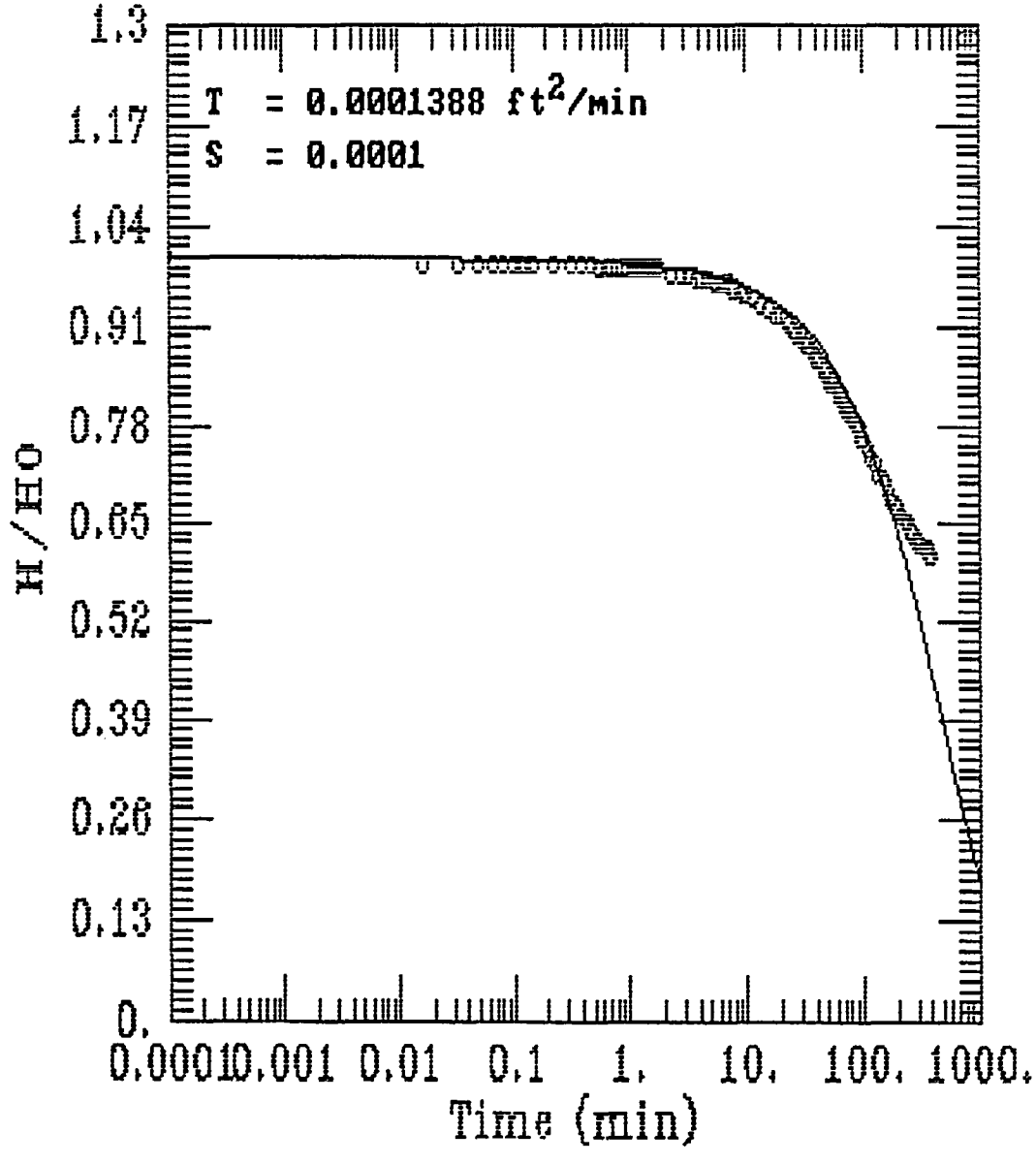
FANSTEEL METALS MW-174
SLUGT1
1.48
0.167
0.228
SLUGT2
7.25
10
14.48
TSDATA

1E-04	1.48	1
0.0168	1.47	1
0.0334	1.47	1
0.0501	1.47	1
0.0668	1.47	1
0.0834	1.47	1
0.1001	1.47	1
0.1168	1.47	1
0.1334	1.47	1
0.1501	1.47	1
0.2335	1.47	1
0.3168	1.47	1
0.4001	1.47	1
0.4835	1.47	1
0.5668	1.46	1
0.6501	1.46	1
0.7335	1.46	1
0.8168	1.46	1
0.9001	1.46	1
0.9835	1.46	1
1.0668	1.46	1
1.1501	1.46	1
1.2334	1.46	1
1.3168	1.46	1
1.4001	1.46	1
1.4835	1.46	1
1.5668	1.46	1
1.6501	1.46	1
1.7335	1.46	1
1.8168	1.46	1
2.3168	1.45	1
2.8168	1.45	1
3.3168	1.45	1
3.8168	1.44	1
4.3168	1.44	1
4.8168	1.44	1
5.3168	1.43	1
5.8168	1.43	1
6.3168	1.43	1
6.8168	1.43	1
7.3168	1.43	1
7.8168	1.42	1
8.3168	1.42	1
8.8168	1.42	1
9.3168	1.41	1
9.8168	1.41	1

11.8168	1.4	1
13.8168	1.39	1
15.8168	1.38	1
17.8168	1.37	1
19.8168	1.37	1
21.8168	1.36	1
23.8168	1.35	1
25.8168	1.34	1
27.8168	1.33	1
29.8168	1.33	1
31.8168	1.32	1
33.8168	1.31	1
35.8168	1.31	1
37.8168	1.3	1
39.8168	1.29	1
41.8168	1.28	1
43.8168	1.28	1
45.8168	1.27	1
47.8168	1.26	1
49.8168	1.26	1
51.8168	1.25	1
53.8168	1.24	1
55.8168	1.24	1
57.8168	1.24	1
59.8168	1.23	1
61.8168	1.22	1
63.8168	1.22	1
65.8168	1.21	1
67.8168	1.21	1
69.8168	1.2	1
71.8168	1.19	1
73.8168	1.19	1
75.8168	1.18	1
77.8168	1.18	1
79.8168	1.17	1
81.8168	1.17	1
83.8168	1.17	1
85.8168	1.16	1
87.8168	1.16	1
89.8168	1.15	1
91.8168	1.15	1
93.8168	1.15	1
95.8168	1.14	1
97.8168	1.13	1
99.8168	1.13	1
109.8168	1.11	1
119.8168	1.09	1
129.8168	1.08	1
139.8168	1.06	1
149.8168	1.05	1
159.8168	1.04	1
169.8168	1.02	1
179.8168	1.01	1
189.8168	1	1
199.8168	0.99	1
209.8168	0.99	1

219.8168	0.98	1
229.8168	0.97	1
239.8168	0.96	1
249.8168	0.96	1
259.8168	0.95	1
269.8168	0.94	1
279.8168	0.94	1
289.8168	0.93	1
299.8168	0.93	1
309.8168	0.92	1
319.8168	0.92	1
329.8168	0.92	1
339.8168	0.91	1
349.8168	0.91	1
359.8168	0.91	1
369.8168	0.91	1
379.8168	0.9	1
389.8168	0.9	1

FANSTEEL METALS MW-174



AQTESOLV

GERAGHTY & MILLER, INC.

Modeling Group

Slug Test Data Sheet

Project Name: Fansteel

Project No. 111-04 User JHB

Well Diameter 4"

▽ Before Slug Introduction 23.52

▽ After Slug Introduction

▽ After Slug Removal

Well Identification 174D

Hermit Identification No. A

Start Date/Time 6:00pm

End Date/Time

Type of Transducer (PSI) 20

Depth of Transducer 9.44

TOC Elevation

Type of Test (check one):

Rising Head

Falling Head ✓

Rate (check one):

Logarithmic ✓

Linear

Reference Level Set Yes/No

Scale Factor 10.13

Offset 6.02

Select File No. 1

Display Mode (check one):

English (Surface)

English (TOC) ✓

SI (Surface)

SI (TOC)

Diameter of Slug (i.e., 1-1/2", etc.) 3½"

Length of Slug (volume, if known) 3'

Weather Conditions: 60° Sunny

Note: Do not terminate test until water level has recovered a minimum of 67 percent.

Comments:

Total Depth = 39.90

Rev. 5/10/90

Earth Sciences Consultants, Inc.

Slug Test Data Sheet

Project Name: FANSTEEL

Project No. 111-05 User: ASH

Well Diameter: 4"

▽ Before Slug Introduction: 24.78

▽ After Slug Introduction: _____

▽ After Slug Removal: _____

Well Identification: MW-174 O

Hermit Identification No.: A 581000B

Start Date/Time: 3/4/93 7:44 a.m.

End Date/Time: _____

Type of Transducer (PSI): 10

Depth of Transducer: _____

TOC Elevation: _____

Type of Test (check one):

Rising Head: ✓

Falling Head: ✓

Rate (check one):

Logarithmic: ✓

Linear: _____

Reference Level Set (Yes/No): Yes

Scale Factor: 10.13

Offset: 0.02

Select File No.: ~~8~~

Display Mode (check one):

English (Surface): _____

English (TOC): ✓

SI (Surface): _____

SI (TOC): _____

Diameter of Slug (i.e., 1-1/2", etc.): 2"

Length of Slug (volume, if known): 3'

Weather Conditions: OVERCAST, 40°

Note: Do not terminate test until water level has recovered a minimum of 67 percent.

Comments:

TO = 39.75

DID NOT RUN TEST AT TIME & DATE ABOVE; WATER LEVEL NOT STABILIZED

3/4/93

2:50 p.m. ▽ 24.33

3:13 p.m. ▽ 24.31

3:55 p.m. ▽ 24.27

3/5/93

7:33 a.m. ▽ 23.65

7:59 a.m. ▽ 23.63

Rev. 2/6/92

Appendix D

Building and Equipment Radioactivity Survey Figures

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

THAT CAN BE VIEWED AT THE RECORD TITLED:

DRAWING NO. 0111-526, "FIGURE D-1 BUILDINGS 7, 8 AND 9 FLOOR PLANS FANSTEEL, INC. MUSKOGEE, OKLAHOMA"

WITHIN THIS PACKAGE... OR BY SEARCHING USING THE DOCUMENT/REPORT NO. 0111-526

D-01

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

THAT CAN BE VIEWED AT THE RECORD TITLED:

DRAWING NO. 0111-527, "FIGURE D-2 BUILDING 10 FLOOR PLAN REMEDIATION ASSESSMENT FANSTEEL, INC. MUSKOGEE, OKLAHOMA"

WITHIN THIS PACKAGE... OR BY SEARCHING USING THE DOCUMENT/REPORT NO. 0111-527

D-02

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

THAT CAN BE VIEWED AT THE RECORD TITLED:

DRAWING NO. 0111-528, "FIGURE D-3 BUILDINGS 11, 12 AND 1 3 FLOOR PLANS FANSTEEL, INC. MUSKOGEE, OKLAHOMA"

WITHIN THIS PACKAGE... OR BY SEARCHING USING THE DOCUMENT/REPORT NO. 0111-528

D-03

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

THAT CAN BE VIEWED AT THE RECORD TITLED:

DRAWING NO. 0111-529, "FIGURE D-4 BUILDING 15 FLOOR PLAN REMEDIAL ASSESSMENT FANSTEEL, INC. MUSKOGEE, OKLAHOMA"

WITHIN THIS PACKAGE... OR BY SEARCHING USING THE DOCUMENT/REPORT NO. 0111-529

D-04

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

THAT CAN BE VIEWED AT THE RECORD TITLED:

DRAWING NO. 0111-530,
"FIGURE D-5
BUILDING 16
FLOOR PLAN
FANSTEEL, INC.
MUSKOGEE, OKLAHOMA"

WITHIN THIS PACKAGE... OR BY SEARCHING USING THE DOCUMENT/REPORT NO. 0111-530

D-05

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

THAT CAN BE VIEWED AT THE RECORD TITLED:

DRAWING NO. 0111-531,
"FIGURE D-6
BUILDING 16
FLOOR PLANS
FANSTEEL, INC.
MUSKOGEE, OKLAHOMA"

WITHIN THIS PACKAGE... OR BY SEARCHING USING THE DOCUMENT/REPORT NO. 0111-531

D-06