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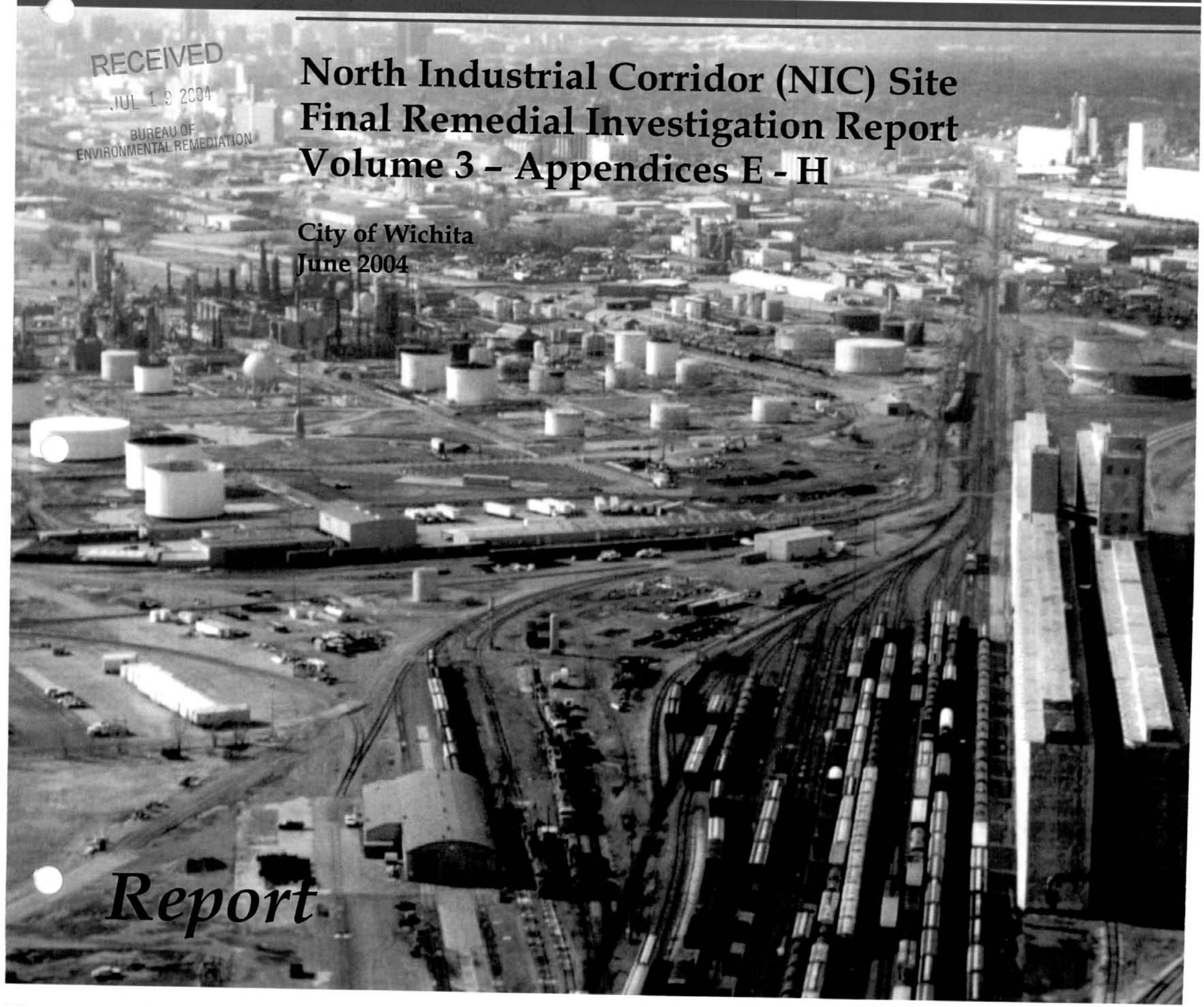
North Industrial Corridor (NIC) Site Final Remedial Investigation Report Volume 3 – Appendices E - H

City of Wichita
June 2004



Report

Volume 3
Appendices E-H

Appendix E NIC Site Lithological Data
- *Appendix E-1* Boring Logs and Lithological Data
- *Appendix E-2* Electrical Conductance Logs
- *Appendix E-3a* Bottom of Aquifer and Saturated Thickness Data
- *Appendix E-3b* Boring Logs from Others
- *Appendix E-4* Cross Section Data Table
- *Appendix E-5* Cross Sections from Selected Facilities
- *Appendix E-6* Grain Size Analyses from Selected Facilities

Appendix F NIC Site Survey Data

Appendix G NIC Site Hydrogeological Data
- *Appendix G-1* Phase 1 Potentiometric Surface Maps – October 1997/April 1998
- *Appendix G-2* Potentiometric Surface Maps from Selected Facilities
- *Appendix G-3* Hydraulic Conductivity Data
- *Appendix G-4* Permitted Pumping Wells Table
- *Appendix G-5* Nested Well Differences

Appendix H NIC Site Laboratory Analytical Data Tables
- *Appendix H-1* VOCs in Geoprobe Samples
- *Appendix H-2* VOCs in Monitoring Well Samples
- *Appendix H-3* Extended List VOCs in Monitoring Well Samples
- *Appendix H-4* Calculation of BAP Equivalents in Sediment and Soil Samples

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Appendix E
NIC Site Lithological Data

Appendix E-1
Boring Logs and Lithological Data

CAMP DRESSER & McKEE

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BOREHOLE LOG
NMW-01

Client: City of Wichita
Project Name: Northern Industrial Corridor
Project Location: North of 37th and Bridgeport Ct., Wichita, KS
Project Number: 2395-20456

Drilling Contractor:
Surface Elevation (ft.): 0
Drilling Method/Rig: /
Total Depth (ft.): 48.5
Drillers:
Depth to Initial Water Level (ft. BGS):
Drilling Date: Start: 12/12/00 **End:** 12/12/00
Abandonment Method:
Borehole Coordinates:
Field Screening Instrument:
N E
Logged By: Darren Brown

Sample Type	Sample Number	Sample Recovery (Inches)	Elev. Depth (ft.)	Field Instrument Reading (ppm)	Blows per 6 Inches	Graphic Log	Stratum Designation	Material Description
			0.0					
			0					0-1' CL. Clay; dark brown; silty, sandy; dense; stiff. Moist. Roots. (could also be classified as silty sandy clay loam.
								1-2.5' CL. Clay; tan-brown to orange-brown; silty; sandy to very sandy; moderately stiff; moderately dense. Damp. Roots. Apparent low permeability.
								2.5-5' NO RECOVERY - Assumed to be clay (CL).
			-5.0 / 5					5-7' CL. Clay; tan brown; locally varve-like layering alternating between white-tan to medium brown; silty; sand content varies from light to heavy; stiff; very dense. Damp to Dry. Apparent low permeability.
								7-10' CL. Clay; medium to dark brown; silty; very sandy; stiff; brittle; low plasticity. Damp. Apparent low permeability.
			-10.0 / 10					10-12' CL. Clay; dark brown; silty; very sandy; stiff; brittle; low plasticity. Damp. Apparent very low permeability.
								12-15' CL. Clay; medium to dark brown; mottled; silty; sandy; stiff; dense; moderately plastic. Moist. Apparent very low permeability.
			-15.0 / 15					15-17' CL. Clay; medium to dark brown; silty; sandy; stiff; dense; moderately plastic. Moist. Apparent very low permeability. Some white nodules between 15 and 17 feet. Less dense at 17 feet.
								17-20' CL. Clay; medium to dark brown; some mottling - white and orange; silty; sandy; stiff; moderately dense; moderately plastic. Moist. Apparent very low permeability. Some white nodules between 17 and 18 feet.
			-20.0					

EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
- HSA - Hollow Stem Auger
- SSA - Solid Stem Auger
- HA - Hand Auger
- AR - Air Rotary
- DTR - Dual Tube Rotary
- FR - Foam Rotary
- MR - Mud Rotary
- RC - Reverse Circulation
- CT - Cable Tool
- JET - Jetting
- D - Driving
- DTC - Drill Through Casing

SAMPLING TYPES:
- AS - Auger/Grab Sample
- CS - California Sampler
- BX - 1.5" Rock Core
- NX - 2.1" Rock Core
- GP - Geoprobe
- HP - Hydro Punch
- SS - Split Spoon
- ST - Shelby Tube
- WS - Wash Sample

OTHER:
- AGS - Above Ground Surface

REMARKS

Reviewed by: **Date:**

CAMP DRESSER & McKEE

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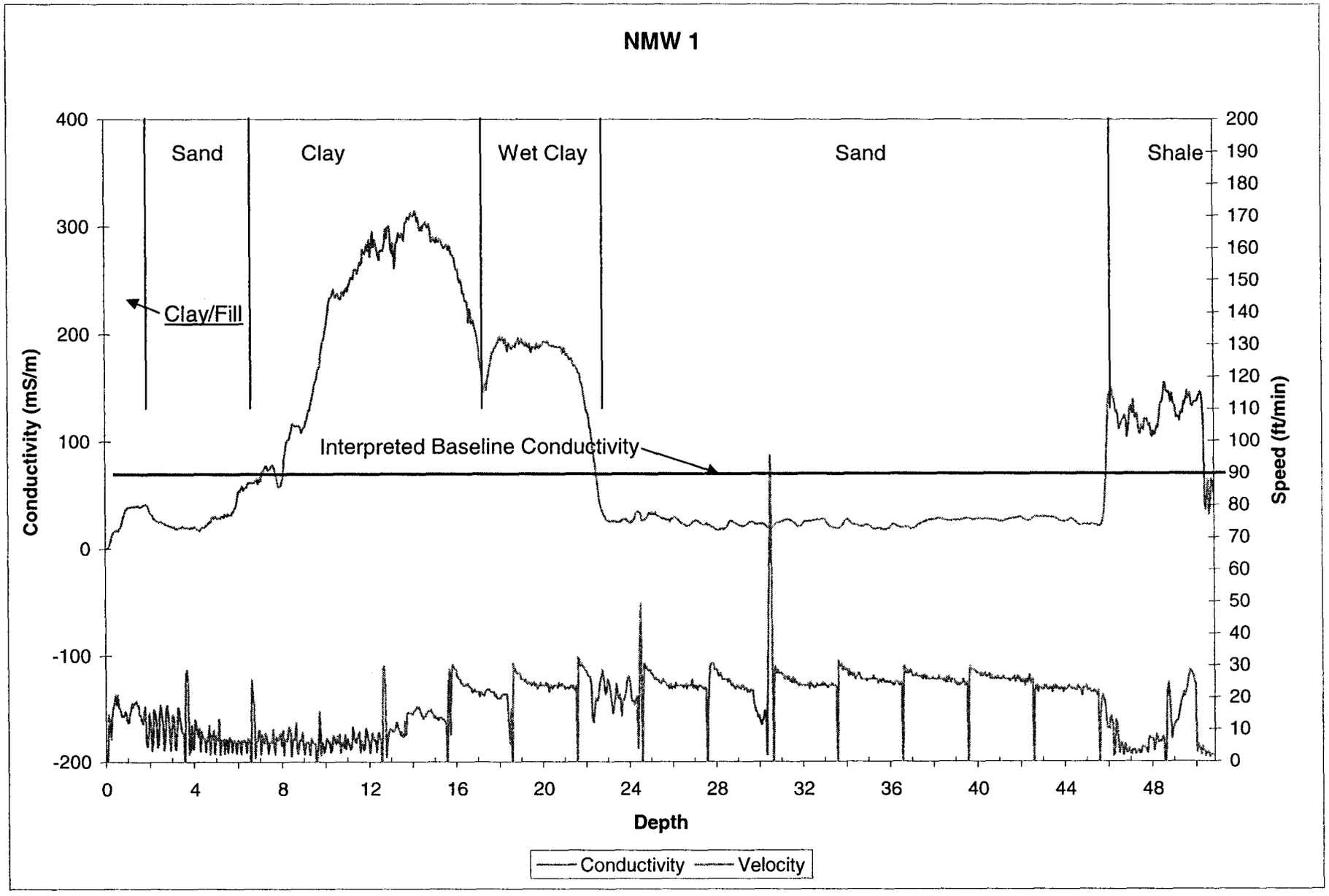
BOREHOLE LOG
NMW-01

Client: City of Wichita **Project Name:** Northern Industrial Corridor

Project Location: North of 37th and Bridgeport Ct., Wichita, KS **Project Number:** 2395-20456

Sample Type	Sample Number	Sample Recovery (Inches)	Elev. Depth (ft.)	Field Instrument Reading (ppm)	Blows per 6 Inches	Graphic Log	Stratum Designation	Material Description
			-20.0 / 20					20-24.4' CL. Clay; mottled tan to dark brown; some orange staining; silty to sandy; stiff; dense; moderately plastic. Moist. Apparent very low permeability. Some thin millimeter width layering and white nodules apparent between 20 and 22 feet.
			-25.0 / 25					24.4-24.5' SW/SP. Sand; tan; fine to coarse; moderate to poorly sorted; mostly quartz; moderate to well rounded. Wet. Apparent good permeability.
								24.5-25' NO RECOVERY - suspected to to be fine to coarse sand.
								25-25.7' SP. Sand; tan to tan-orange; fine to medium; moderate to good sorting; mostly quartz; moderate to well rounded. Wet. Apparent good to excellect permeability.
			-30.0 / 30					25.7-30' NO RECOVERY - based upon auger cuttings, suspected to be very fine to coarse sand.
								30-31' SW. Sand; tan; fine to very coarse; moderately to poorly sorted; mostly quartz; moderate to well rounded. Wet. Apparent good to very good permeability.
								31-32' SP. Sand; tan; fine to coarse; moderately to poorly sorted; mostly quartz; moderate to well rounded. Wet. Apparent good to very good permeability.
			-35.0 / 35					32-35' NO RECOVERY - based upon auger cuttings, suspected to be fine to very coarse sand; locally granular.
								35-40' NO RECOVERY - based upon auger cuttings, suspected to be fine to very coarse sand; locally granular.
			-40.0 / 40					40-45' NO RECOVERY - based upon auger cuttings, suspected to be fine to very coarse sand; locally granular.
			-45.0 / 45					45-48' NO RECOVERY - based upon auger cuttings, suspected to be fine to very coarse sand; locally granular.
								48-48.5' CH. Weathered Wellington Shale. Clay, blue-gray, silty, stiff, dense, plastic. Moist. Contact depth estimated. Actual contact could be between 46 and 48 feet.
			-50.0 / 50					
			-55.0 / 55					
			-60.0					


NMW 1
Sand
Clay
Wet Clay
Sand
Shale
Clay/Fill
Interpreted Baseline Conductivity
Conductivity (mS/m)
Speed (ft/min)
Depth
400
300
200
100
0
-100
-200
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
0
4
8
12
16
20
24
28
32
36
40
44
48
Conductivity
Velocity

CAMP DRESSER & McKEE

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BOREHOLE LOG
NMW-31

Client: City of Wichita
Project Location: 11th and Wabash, Wichita, KS
Project Name: Northern Industrial Corridor
Project Number: 2395-20456

Drilling Contractor:
Drilling Method/Rig: /
Drillers:
Drilling Date: Start: 12/11/00 **End:** 12/11/00
Borehole Coordinates:
N E

Surface Elevation (ft.): 0
Total Depth (ft.): 34
Depth to Initial Water Level (ft. BGS):
Abandonment Method:
Field Screening Instrument:
Logged By: Darren Brown

Sample Type	Sample Number	Sample Recovery (Inches)	Elev. Depth (ft.)	Field Instrument Reading (ppm)	Blows per 6 Inches	Graphic Log	Stratum Designation	Material Description
			0.0					
			0					0-1' CL - Clay; dark brown; silty to sandy; dense; not plastic; root zone 0 - 2-inches; moist. Upper 6 inches more of a sandy silty clay loam. Apparent low permeability.
								1-2' CL - Clay; dark brown; silty to sandy; dense; not plastic; roots; moist. Apparent low permeability.
								2-2.5' CL - Clay; dark brown; silty to sandy; dense; not plastic; roots; moist. Apparent low permeability.
			-5.0 / 5					2.5-5' NO RECOVERY - suspected to be clayey sand or sandy clay (CL/SC).
								5-6' CL - Clay; tan brown; very sandy and silty; poorly sorted; dense; moist. Apparent low permeability.
								6-7.4' SC/SM - Sand; tan brown; very fine to fine; very silty to light clayey; poorly sorted; dense; moist. Apparent moderate to moderately low permeability.
								7.4-7.5' SW - Sand; tan; very fine to fine sand; well sorted; mostly quartz; moderately well rounded. Moist. Apparent moderate permeability.
			-10.0 / 10					7.5-10' NO RECOVERY - suspected to be fine sand (SW).
								10-12.5' SP/SW - Sand; tan; fine to coarse sand; moderately sorted; mostly quartz; well rounded. Moist. Apparent good permeability.
								12.5-15' NO RECOVERY - suspected to be fine to coarse sand (SP/SW).
			-15.0 / 15					15-17' SP - Sand; tan; fine to medium; mostly quartz, well rounded. Wet at 16 feet. Very moist 15 to 16 feet. Apparent good permeability.
								17-20' NO RECOVERY - Based upon auger cuttings, suspected to be sand (SW) - fine to medium sand. Wet.
			-20.0					

EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
SSA - Solid Stem Auger
HA - Hand Auger
AR - Air Rotary
DTR - Dual Tube Rotary
FR - Foam Rotary
MR - Mud Rotary
RC - Reverse Circulation
CT - Cable Tool
JET - Jetting
D - Driving
DTC - Drill Through Casing

SAMPLING TYPES:
AS - Auger/Grab Sample
CS - California Sampler
BX - 1.5" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
OTHER:
AGS - Above Ground Surface

REMARKS

Reviewed by: **Date:**

CAMP DRESSER & McKEE

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BOREHOLE LOG
NMW-31

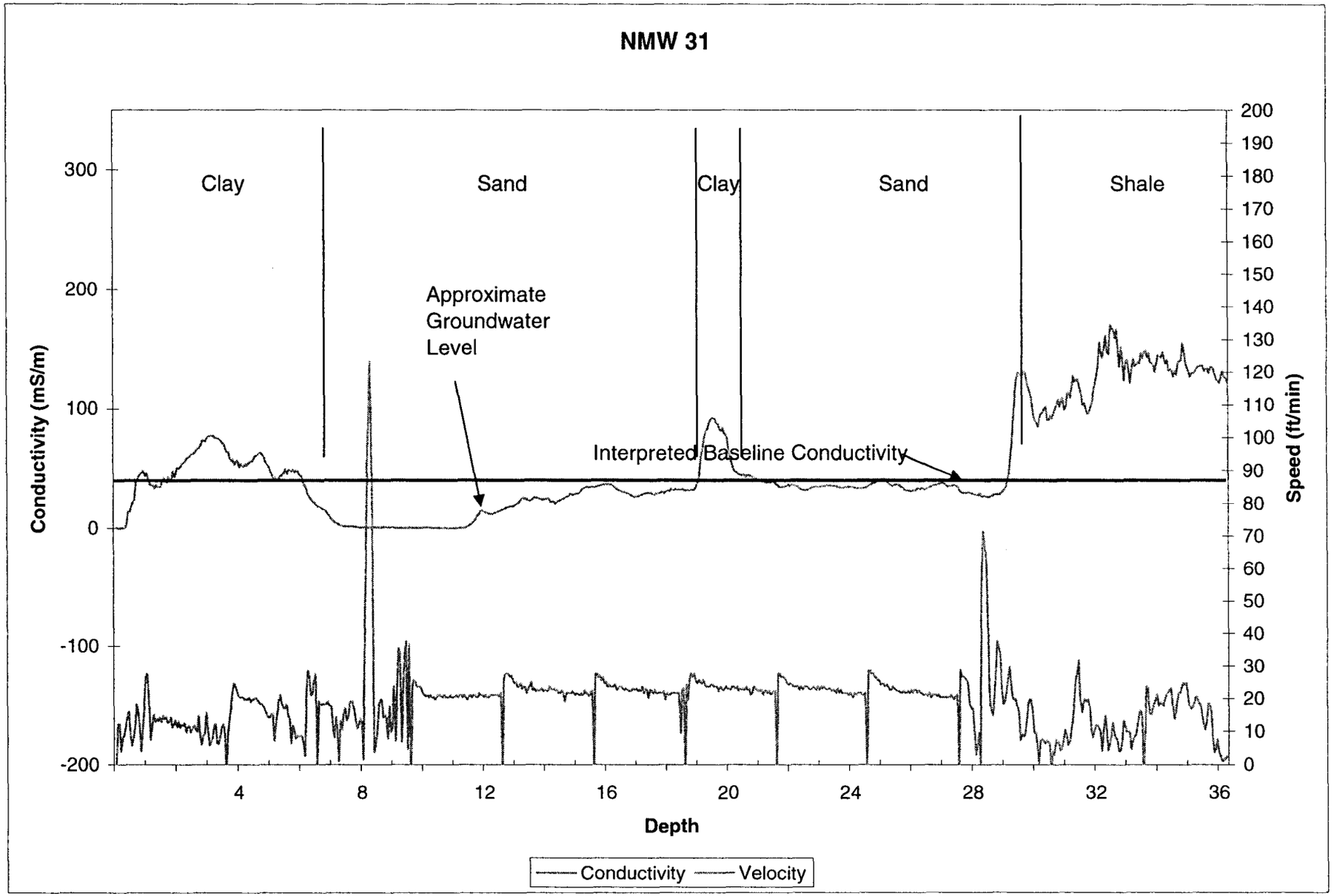
Client: City of Wichita

Project Name: Northern Industrial Corridor

Project Location: 11th and Wabash, Wichita, KS

Project Number: 2395-20456

Sample Type	Sample Number	Sample Recovery (Inches)	Elev. Depth (ft.)	Field Instrument Reading (ppm)	Blows per 6 Inches	Graphic Log	Stratum Designation	Material Description
			-20.0					
			20					20-21' SP - Sand; tan; fine to medium; moderately well sorted, mostly quartz; well rounded. Wet. Apparent good permeability.
								21-21.5' CL - Clay; dark brown to tan-gray; very silty and sandy; moderately plastic; not stiff; saturated.
								21.5-22.3' SP. Sand; dark brown; fine to medium grained; well sorted, mostly quartz, well rounded. Wet. Apparent moderate to low moderate permeability.
			-25.0 / 25					22.3-22.5' SP. Sand; dark brown; medium to coarse-grained; well sorted, mostly quartz, well rounded. Wet. Apparent good permeability.
								22.5-33' NO RECOVERY (bedrock at +/- 33' - driller) - only slough. Cuttings are sand - fine to very coarse, tan to tan-brown (SW). Apparent high permeability.
			-30.0 / 30					
								33-34' CH. Weathered Wellington Shale. Clay - silty; stiff, dense, plastic. Apparent very low permeability.
			-35.0 / 35					
			-40.0 / 40					
			-45.0 / 45					
			-50.0 / 50					
			-55.0 / 55					
			-60.0					


NMW 31
Clay
Sand
Clay
Sand
Shale
Approximate Groundwater Level
Interpreted Baseline Conductivity
Conductivity (mS/m)
Speed (ft/min)
Depth
300
200
100
0
-100
-200
4
8
12
16
20
24
28
32
36
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
Conductivity
Velocity

CAMP DRESSER & McKEE

CDM

BOREHOLE LOG
NMW-47

Client: City of Wichita
Project Name: Northern Industrial Corridor
Project Location: South of 26th and Washington, Wichita, KS
Project Number: 2395-20456

Drilling Contractor:
Surface Elevation (ft.): 0
Drilling Method/Rig: /
Total Depth (ft.): 38.5
Drillers:
Depth to Initial Water Level (ft. BGS):
Drilling Date: Start: 12/11/00 **End:** 12/12/00
Abandonment Method:
Borehole Coordinates:
Field Screening Instrument:
N E
Logged By: Darren Brown

Sample Type	Sample Number	Sample Recovery (Inches)	Elev. Depth (ft.)	Field Instrument Reading (ppm)	Blows per 6 Inches	Graphic Log	Stratum Designation	Material Description
			0.0					
			0					0-2' CL. Clay; silty and sandy; loam. Damp. Roots.
								2-2.5' NO RECOVERY. Suspected to clay or clayey sand (CL/SC).
								2-4.5' CL. Clay; brown with orange mottling; very silty and sandy; moderately stiff; moderately dense. Damp. Roots.
			-5.0 / 5					4.5-5' SC. Sand; tan to tan-orange; fine to very fine; clayey and silty matrix; poorly sorted. Damp to moist. Roots. Orange and black staining around root holes.
								5-5.7' CL/SC. Clay; tan brown; very silty; locally sandy. Damp. Roots. Apparent low permeability.
								5.7-6' SC. Sand; tan brown; very fine to fine; very silty; clayey. Moist. Apparent lower moderate permeability.
								6-7.75' CL. Clay; tan brown to orange tan, with black specks; silty; locally sandy; moderately plastic. Moist. Apparent low permeability.
			-10.0 / 10					7.75-10' NO RECOVERY. Suspected to be silty sandy clay (CL).
								10-12' CL. Clay; dark brown with orange mottling; silty to very silty; locally very sandy; stiff; dense; lightly to moderately plastic. Moist. Apparent low permeability.
								12-14.5' SP/SM. Sand; tan-brown; very fine to fine sand; dense; moderately sorted; mostly quartz; moderately well rounded. May have 5 - 10 percent silt. Very moist to wet. Apparent moderate to low permeability.
			-15.0 / 15					14.5-15' SP. Sand; tan-brown; medium sand; well sorted; mostly quartz; well rounded. Very moist to wet. Apparent good permeability.
								15-18' SW/SP. Sand; tan; fine to coarse; moderately sorted; mostly quartz; well rounded. Wet. Apparent good permeability.
								18-20' NO RECOVERY - Based upon auger cuttings, suspected to be fine to coarse sand (SW/SP).
			-20.0					

EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
- HSA - Hollow Stem Auger
- SSA - Solid Stem Auger
- HA - Hand Auger
- AR - Air Rotary
- DTR - Dual Tube Rotary
- FR - Foam Rotary
- MR - Mud Rotary
- RC - Reverse Circulation
- CT - Cable Tool
- JET - Jetting
- D - Driving
- DTC - Drill Through Casing

SAMPLING TYPES:
- AS - Auger/Grab Sample
- CS - California Sampler
- BX - 1.5" Rock Core
- NX - 2.1" Rock Core
- GP - Geoprobe
- HP - Hydro Punch
- SS - Split Spoon
- ST - Shelby Tube
- WS - Wash Sample

OTHER:
- AGS - Above Ground Surface

REMARKS

Reviewed by: **Date:**

CAMP DRESSER & McKEE

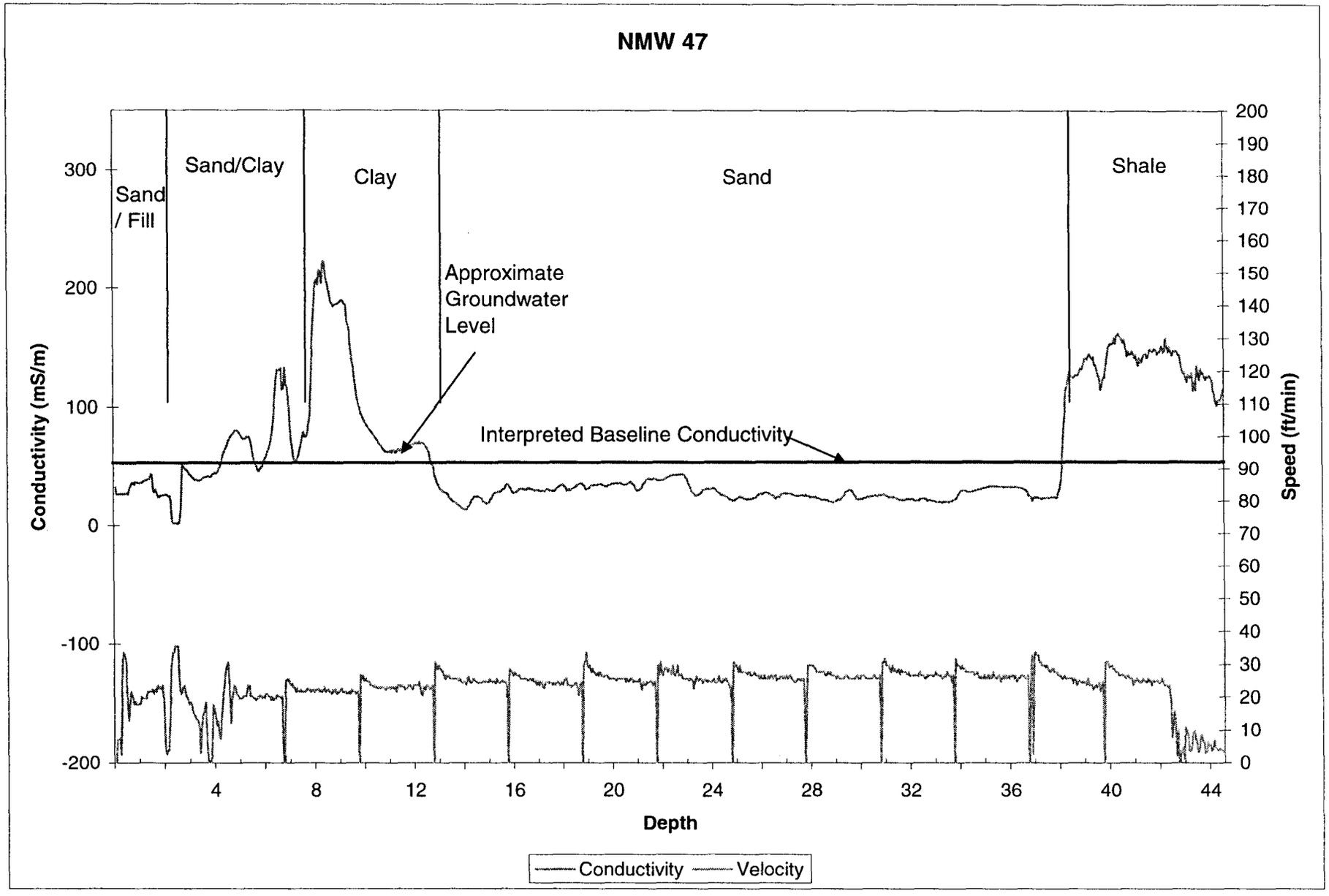
CDM

BOREHOLE LOG
NMW-47

Client: City of Wichita **Project Name:** Northern Industrial Corridor

Project Location: South of 26th and Washington, Wichita, KS **Project Number:** 2395-20456

Sample Type	Sample Number	Sample Recovery (Inches)	Elev. Depth (ft.)	Field Instrument Reading (ppm)	Blows per 6 Inches	Graphic Log	Stratum Designation	Material Description
			-20.0					
			20					20-20.5' SW. Sand; tan; fine to very course; granular; poorly sorted; mostly quartz and chert; well rounded. Wet. Apparent good permeability.
								20.5-25' NO RECOVERY - Based upon auger cuttings, suspected to be fine to very coarse sand (SW).
			-25.0					
			25					25-25.7' SW. Sand; tan; fine to very course; granular; poorly sorted; mostly quartz and chert; well rounded. Wet. Apparent good permeability.
								25.7-30' NO RECOVERY - Based upon auger cuttings, suspected to be fine to very coarse sand (SW).
			-30.0					
			30					30-30.5' SW. Sand; tan; fine to very course; granular; (less fines than above); moderately to poorly sorted; mostly quartz and chert; well rounded. Wet. Apparent excellent permeability.
								30.5-35' NO RECOVERY - Based upon auger cuttings, suspected to be fine to very coarse; granular; mostly quartz; well rounded. Wet. Believed to have excellent permeability (SW).
			-35.0					
			35					35-38' NO RECOVERY - Based upon auger cuttings, suspected to be fine to very coarse; granular; mostly quartz; well rounded. Wet. Believed to have excellent permeability (SW).
								38-38.5' CH. Weathered Wellington Shale. Clay, blue-gray silty, stiff, dense, plastic. Contact depth estimated. Actual contact may be between 36.5 and 38 feet.
			-40.0					
			40					
			-45.0					
			45					
			-50.0					
			50					
			-55.0					
			55					
			-60.0					


NMW 47
Sand / Fill
Sand/Clay
Clay
Sand
Shale
Approximate Groundwater Level
Interpreted Baseline Conductivity
Conductivity (mS/m)
Speed (ft/min)
Depth
Conductivity
Velocity

North Industrial Corridor Site
Proposed Intervals for Discrete Soil Sampling
01/04/00

All Samples to be submitted for TOC analysis unless otherwise noted
Bag and Label All Unused Portions of Samples for Lithologic Description
Photograph and Attempt Lithologic **Description** of **All Samples** Submitted for TOC Analyses.

Monitoring Well/ General Location	**Target Sampling Depth**	**Anticipated Lithology**	**Observed Lithology**
NMW-01 Bridgeport Court and 37th	5 to 7 feet	Clay	4 ' – 6': Silt, very light tan to dark brown, w/ a little vfg sand, some roots and tr. Charcoal.
	12 to 15 feet	Clay	19'-21': Clay, very dark brownish gray, slightly silty, firm.
	20 to 22 feet	Clay	24'-26': Sand, fg-mg, w/ a little cg and tr. gavel to ¼", and tr. dark brown fines.
	30 to 32 feet	Sand	34'-36': Sand, fg-mg.
NMW-47 26th and Washington, 600' south	6 to 8 feet	Clay	
	15 to 18 feet	Clay	
	30 to 30.5 feet	Sand	
	38 to 38.5 feet	Wellington Shale	
NMW-31 11th and Wabash	5 to 6 feet	Clay	
	6 to 7.4 feet	Sand, silty/clayey	
	15 to 17 feet	Sand	
	21 to 21.5 feet	Clay	
	21.5 to 22.5	Sand	
NMW-03 25th (projected) and New York	4 to 6 feet	Clay, silty/sandy	Silt, light tan to brown, slightly clayey w/ tr. of vfg sand, tr. Charcoal. Dry
	19 to 21 feet	Sand	No recovery (traces of sand)
	24 to 26 feet	Clay	Clay, dark brown, sly plastic. Tr. Charcoal.
	34 to 36 feet	Sand	Sand, fg w/ some mg & cg, with interbeds of firm light to medium gray clay.
NWL-04 Santa Fe and 19th	6 to 8 feet	Clay	Clay and fg sand, dark brown with some silt & tr. Charcoal.
	13 to 15 feet	Sand (Dry)	Sand, fg with some mg and tr. of brown silt.
	24 to 26 feet	Sand	Sand, mg, with a little fg - cg & gravel to ¼". Tr. gray fines.
	34 to 36 feet	Sand	Sand, mg w/ some fg - cg & gravel to ¾".

Monitoring Well/ General Location	Target Sampling Depth	Anticipated Lithology	Observed Lithology
NWL-07 17th and I-135, west side	10 to 12 feet	Clay, silty	Silt, very dark brown, w/ a little clay and tr. Fg sand. Tr. charcoal.
	20 to 22 feet	Sand	Sand, mg, W/ some fg & a little Cg. Tr. gravel to ¼".
	25 to 27 feet	Clay	Clay, brownish gray, moderately plastic.
	31 to 33 feet	Sand	Missing.
	33 to 34 feet	Wellington Shale – Lithology observation only	Clay, light brownish gray to medium gray, w/ some FeO mottling. Firm, sly plastic.
NMW-22 220' south of 9th and Wichita	6 to 8 feet	Sand (Dry)	Sand, light orange, fg, w/ a little mg, dry.
	15 to 17 feet	Clay/Clayey Sand	Sand, orangish brown, fg – mg.
	22 to 24 feet	Only Clay for TOC	Clay, med. Gray, soft & wet. Changing to Sand, cg, W/ some fg-mg and 3/8" gravel.
	28 to 30 feet	Sand	Only tr. sand recovered.
	36 to 38 feet	Sand	Sand, mg. W/ a little brownish gray silt. 38 – 40': Sand, mg-cg, and Tr. gravel to ¼" with soft dark gray sandy clay.
NMW-35 11th and Emporia	6 to 8 feet	Sandy Clay/Clayey sand	Sand vfg and Silt, orangish light brown. Tr. charcoal.
	16 to 18 feet	Silty Sand	Missing.
	24 to 26 feet	Sand	Sand, orangish brown, fg w/ some cg and gravel to ½".
	33 to 35 feet	Confirm clay, send in Sand for TOC	Sand, mg. w/ some fg and a little cg.
NMW-19 15th and Topeka	16 to 18 feet	Sand	Sand, fg – mg.
	23 to 25 feet	Sand	Sand, fg w/ some mg.
NMW-24	22 to 24 feet		Sand, mg, w/some cg and a little fg and a little gravel to ½".
	24 to 26 feet		Sand, fg – cg W/ a little gravel to ¾".
	25 to 27 feet		Sand, mg, W/ some cg and a little gravel to ½".
NMW-29	32 to 33.5 feet		Clay, grayish tan, plastic.
	33.5 to 34 feet		Clay, brownish gray, plastic.
	34 feet		Clay, gray, soft, plastic w/ interbed of fg sand.
	34.5 to 35.5		Sand, light to medium orangish brown, fg-mg, w/ tr. cg and gravel to ¼".
	35.5 to 36 feet		Clay, orange/ olive grading gray to dark gray. Bedrock.

Monitoring Well/ General Location	Target Sampling Depth	Anticipated Lithology	Observed Lithology
NMW-31S	19 to 19.5 feet		Sand, yellowish gray, fg-cg.
	19.5 to 20 feet		Clay, brownish gray, soft, plastic.
NMW-40 20th (projected) and Mosley NOT DONE YET – Anticipated sample depths/lithologies	<10	Clay	
	10 – 20	Clay	
	20 – 30	Sand	
	>30	Sand	

CAMP DRESSER & McKEE

CDM

BOREHOLE LOG
GP10C-01

Client: City of Wichita
Project Location: Wichita, KS
Project Name: Northern Industrial Corridor
Project Number:

Drilling Contractor: EPS
Drilling Method/Rig: Geoprobe/
Drillers: Doug Roy
Drilling Date: Start: 1/18/01 **End:** 1/18/01
Borehole Coordinates:
N E
Surface Elevation (ft.): 0
Total Depth (ft.): 17
Depth to Initial Water Level (ft. BGS):
Abandonment Method:
Field Screening Instrument: None
Logged By: Darren Brown

Sample Type	Sample Number	Sample Recovery (Inches)	Elev. Depth (ft.)	Field Instrument Reading (ppm)	Blows per 6 Inches	Graphic Log	Stratum Designation	Material Description
			0.0					
			0					0-4' 2' of Clay/sc/cl/moist material moist to damp. Tan. 0-2' Clay fill. 2-3' Sludge. 3-4' Saturated with petroleum hydrocarbons. Fine to medium sand (probable fill).
GP		/36/48	-5.0 5					4-8' Oil saturated sand. Metal blockage. Sludge.
GP		/8/48	-10.0 10					8-12' Covered in sludge, but empty. 10-13' Oil saturated debris and sand.
GP		/18/48	-15.0 15					13-14' Sludge (may be slough). Saturated oil debris (plastic and wood). 14-15.5' Fine-medium sand. Oil and water saturated below the water table. 15.5-16' Fine to coarse sand, oil and water saturated. Less oil contamination below water table. 13-17' Oil saturated sand below 1' of product (slough).
GP		/36/48	-20.0					

EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
SSA - Solid Stem Auger
HA - Hand Auger
AR - Air Rotary
DTR - Dual Tube Rotary
FR - Foam Rotary
MR - Mud Rotary
RC - Reverse Circulation
CT - Cable Tool
JET - Jetting
D - Driving
DTC - Drill Through Casing

SAMPLING TYPES:
AS - Auger/Grab Sample
CS - California Sampler
BX - 1.5" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
OTHER:
AGS - Above Ground Surface

REMARKS

Reviewed by: **Date:**

CAMP DRESSER & McKEE

CDM

BOREHOLE LOG
GP10C-02

Client: City of Wichita
Project Location: Wichita, KS
Project Name: Northern Industrial Corridor
Project Number:

Drilling Contractor: EPS
Drilling Method/Rig: Geoprode/
Drillers: Doug Roy, Chris Jump
Drilling Date: Start: 1/19/01 **End:** 1/19/01
Borehole Coordinates:
N E
Surface Elevation (ft.):
Total Depth (ft.): 16
Depth to Initial Water Level (ft. BGS):
Abandonment Method:
Field Screening Instrument: None
Logged By: Darren Brown

Sample Type	Sample Number	Sample Recovery (Inches)	Elev. Depth (ft.)	Field Instrument Reading (ppm)	Blows per 6 Inches	Graphic Log	Stratum Designation	Material Description
			0					0-1.5' GC/SP/CL-Mixed. Mixed gravel, sand, and clay with wood debris. Tan to dark brown. Strong petroleum odor.
								1.5-4' No recovery.
		/18/48						4-5.5' Product mixed with dark brown and brown silty sandy clay. Heavy staining. Strong odor. CL.
			5					5.5-6' CL. Tan to tan-brown silty sandy clay. Damp to dry. Strong petroleum odor. Slough!
								6-8' No recovery. Note 8-12' had 1.5' product.
		/24/48						8-8.5' Tan-brown to olive brown silty sandy clay. (CL). Moist. Petroleum odor.
								8.5-10.5' Tan, fine to medium sand (SW/SP). Possibly minor silt. Moderately well sorted. Petroleum odor. Damp to moist.
			10					
		/30/48						12-13' SW. Brown fine to very coarse sand. Water at 13'.
								13-13.3' SW. Black oil stained fine to very coarse sand.
								13.3-13.8' SW. Brown fine to very coarse sand. Stained.
								13.8-14.3' SW. Brown fine to coarse sand. Stained.
			15					14.3-14.5' Tan fine sand. SP. No staining.
		/42/48						14.5-15.5' Tan fine to coarse sand. No staining.

EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
SSA - Solid Stem Auger
HA - Hand Auger
AR - Air Rotary
DTR - Dual Tube Rotary
FR - Foam Rotary
MR - Mud Rotary
RC - Reverse Circulation
CT - Cable Tool
JET - Jetting
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DTC - Drill Through Casing

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NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
OTHER:
AGS - Above Ground Surface

REMARKS

Reviewed by: **Date:**

CAMP DRESSER & McKEE

CDM

BOREHOLE LOG
GP10C-03

Client: City of Wichita
Project Location: Wichita, KS
Project Name: Northern Industrial Corridor
Project Number: GP10C-03

Drilling Contractor: EPS
Drilling Method/Rig: Geoprobe/
Drillers: Doug Roy, Chris Jump
Drilling Date: Start: 1/19/01 **End:** 1/19/01
Borehole Coordinates:
N E
Surface Elevation (ft.): 0
Total Depth (ft.): 15
Depth to Initial Water Level (ft. BGS):
Abandonment Method:
Field Screening Instrument: None
Logged By: Darren Brown

Sample Type	Sample Number	Sample Recovery (Inches)	Elev. Depth (ft.)	Field Instrument Reading (ppm)	Blows per 6 Inches	Graphic Log	Stratum Designation	Material Description
			0.0					
			0					0-3.5' GC/CL/SP - Fill Mixed sand, gravel and clay fill. Mostly sand-tan fine to coarse. Moderate petroleum odor.
								3.5-5' Tan and black product saturated sand, clay, gravel fill. Sludge. Tar-like. Strong petroleum odor.
			-5.0 5					5-6' Product-saturated clay, sand, and gravel fill. Sludge present in pore spaces. Strong petroleum odor.
								6-8' No Recovery. Sludge?
								8-9' Product sludge in place or slough.
								9-10' Product saturated fine to medium sand.
			-10.0 10					10-11.3' Orange tan to tan-brown fine to very coarse sand. Some pebbles. Strong petroleum odor.
								12-16' 2' recovery. Gray-brown to gray product saturated fine to very coarse sand. Native.
			-15.0 15					
			-20.0					

EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
SSA - Solid Stem Auger
HA - Hand Auger
AR - Air Rotary
DTR - Dual Tube Rotary
FR - Foam Rotary
MR - Mud Rotary
RC - Reverse Circulation
CT - Cable Tool
JET - Jetting
D - Driving
DTC - Drill Through Casing

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BX - 1.5" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
OTHER:
AGS - Above Ground Surface

REMARKS

Reviewed by: **Date:**

CAMP DRESSER & McKEE

CDM

BOREHOLE LOG
GP10D-01

Client: City Of Wichita
Project Location: Wichita, KS
Project Name: Northern Industrial Corridor
Project Number:

Drilling Contractor: EPS
Drilling Method/Rig: Geoprobe/
Drillers: Doug Roy, Chris Jump
Drilling Date: Start: 1/19/01 **End:** 1/19/01
Borehole Coordinates:
N E
Surface Elevation (ft.): 0
Total Depth (ft.): 16
Depth to Initial Water Level (ft. BGS):
Abandonment Method:
Field Screening Instrument: None
Logged By: Darren Brown

Sample Type	Sample Number	Sample Recovery (Inches)	Elev. Depth (ft.)	Field Instrument Reading (ppm)	Blows per 6 Inches	Graphic Log	Stratum Designation	Material Description
			0.0					
			0					0-2' CL-Fill. Black to dark brown and brown sandy silty clay. Stiff dense. Well compacted. Strong petroleum odor.
								2-4' CL-Fill. As above with some gravel.
		/18/48	-5.0 / 5					4-6' SP/CL-Fill. Interbedded clay (black, dark brown and brown sandy silty clay) with sand (tan-brown fine to very fine silty sand). Strong petroleum odor.
								6-8' SP. Tan-brown fine to medium sand (fill?). Moderate hydrocarbon odor with 3" layer of silty clay (CH). Dark gray.
		/24/48						8-9.5' SP-Fill? Tan-brown fine to medium sand with 3" layer of black silty clay (CL). Clay has moderately strong pertoleum odor. Sand has moderate petroleum odor.
			-10.0 / 10					9.5-10.5' Sampled interval. SP. Gray-brown fine to medium sand stained. Some petroleum odor.
								10.5-12' SP/SW. Tan and gray brown very fine to medium sand. Some gravel. Apparent silt in matrix. Petroleum odor.
		/30/48						12-13.7' 3" Dark brown to black silty sandy clay (CL) (possible slough). Rest is tan-brown fine to medium sand. Apparent silt is matrix.
			-15.0 / 15					13.7-16' Saturated. SW. Moderate brown to dark tan brown fine to coarse sand. Some granules. Moderately strong pertroleum odor. Native Material.
		/42/48						
			-20.0					

EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
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HA - Hand Auger
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DTR - Dual Tube Rotary
FR - Foam Rotary
MR - Mud Rotary
RC - Reverse Circulation
CT - Cable Tool
JET - Jetting
D - Driving
DTC - Drill Through Casing

SAMPLING TYPES:
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BX - 1.5" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
OTHER:
AGS - Above Ground Surface

REMARKS

Reviewed by: **Date:**

CAMP DRESSER & McKEE

CDM

BOREHOLE LOG
GP10D-02

Client: City of Wichita
Project Location: Wichita, KS
Project Name: Northern Industrial Corridor
Project Number:

Drilling Contractor: EPS
Drilling Method/Rig: Geoprobe/
Drillers: Doug Roy, Chris Jump
Drilling Date: Start: 1/18/01 **End:** 1/18/01
Borehole Coordinates:
N E
Surface Elevation (ft.): 0
Total Depth (ft.): 16
Depth to Initial Water Level (ft. BGS):
Abandonment Method:
Field Screening Instrument: None
Logged By: Darren Brown

Sample Type	Sample Number	Sample Recovery (Inches)	Elev. Depth (ft.)	Field Instrument Reading (ppm)	Blows per 6 Inches	Graphic Log	Stratum Designation	Material Description
			0.0					
			0					0-2' CL-Fill. Tan to tan brown sandy silty clay. Low to moderate plastic.
								2-4' Cl-Fill. Tan brown to brown. Very silty very sandy clay. Some gravel. Low plastics. No petroleum odor.
		/48/48	-5.0 5					4-5.5' Cl-Fill. Dark brown sandy silty clay. Moderate plastic. Moderate stiff light petroleum odor.
								5.5-6' SP-Fill. Tan brown fine to medium sand. Moderately well sorted. Light petroleum odor.
		/48/48						6-10' Mixed SP/CL - Fill. Interbedded clay (mixed brown, tan, dark brown and olive sandy silty clay) and sand (tan, brown fine to medium sand). No hydrocarbon odor.
			-10.0 10					10-10.8' Sampled. CL-Dark brown sandy silty clay (the liner) moderate product odor. Possibly stained.
		/48/48						10.8-14' Mixed SP/CL - Fill Interbedded clay (well mixed brown, tan, olive, and dark brown sandy silty clay) and sand (tan-brown fine to medium sand). Faint hydrocarbon odor.
			-15.0 15					14.5 - 16' SP/CL. Tan-brown fine to medium sand. Moderately well sorted. Faint hydrocarbon odor. Saturated to very moist.
		/48/48						
			-20.0					

EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
SSA - Solid Stem Auger
HA - Hand Auger
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CT - Cable Tool
JET - Jetting
D - Driving
DTC - Drill Through Casing

SAMPLING TYPES:
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CS - California Sampler
BX - 1.5" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
OTHER:
AGS - Above Ground Surface

REMARKS

Reviewed by: **Date:**

CAMP DRESSER & McKEE

CDM

BOREHOLE LOG
GP10D-03

Client: City of Wichita
Project Location: Wichita, KS
Project Name: Northern Industrial Corridor
Project Number:

Drilling Contractor: EPS
Drilling Method/Rig: GeoProbe/
Drillers: Doug Roy, Chris Jump
Drilling Date: Start: 1/22/01 **End:** 1/22/01
Borehole Coordinates:
N E
Surface Elevation (ft.): 0
Total Depth (ft.): 15
Depth to Initial Water Level (ft. BGS):
Abandonment Method:
Field Screening Instrument: Photo Ionization Detector
Logged By: Darren Brown

Sample Type	Sample Number	Sample Recovery (Inches)	Elev. Depth (ft.)	Field Instrument Reading (ppm)	Blows per 6 Inches	Graphic Log	Stratum Designation	Material Description
			0.0					
			0					0 - 1' Well mixed orange tan, tan, and olive Sandy gravelly clay fill. No petroleum odor.
								1-1.5' Fill. Darkbrown and brown CL - sandy and clay with trash. Mostly clay. No odor.
								1.5-3' Fill. Orange red cenerbed sand 4" with dark brown sandy clay loam. Cloth and metal debris. Slight petroleum odor.
GP		/36/48						3.2-4' No recovery.
			-5.0 / 5					4.0-4.2' Fill. SP orange fine to medium sand.
								4.2-7' Sludge. Petroleum dark brown to black saturated clay fill. Strong petroleum odor.
								7-8' No recovery.
GP		/42/48						8-10' Interbedded clay fill and pure petroleum hydrocarbon sludge. CL - silty sandy clay.
			-10.0 / 10					10-10.5' Black petroleum sludge saturated sandy clay.
								10.5-11' Sampled. Product-sludge. Tar like.
								11-11.5' SW. Sludge saturated fine to coarse sand.
		/44.4/48						11.5-11.7' SW. Tan-fine to coarse sand.
								11.7-12' No recovery.
								12-13.7' Tan fine to coarse sand. Appears wet at 13.2. Tried groundwater sample 14-16, not enough water. 1.9' Slough product in 12-16' may not be slough.
			-15.0 / 15					
		/48/48						
			-20.0					

EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
- HSA - Hollow Stem Auger
- SSA - Solid Stem Auger
- HA - Hand Auger
- AR - Air Rotary
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- FR - Foam Rotary
- MR - Mud Rotary
- RC - Reverse Circulation
- CT - Cable Tool
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SAMPLING TYPES:
- AS - Auger/Grab Sample
- CS - California Sampler
- BX - 1.5" Rock Core
- NX - 2.1" Rock Core
- GP - Geoprobe
- HP - Hydro Punch
- SS - Split Spoon
- ST - Shelby Tube
- WS - Wash Sample

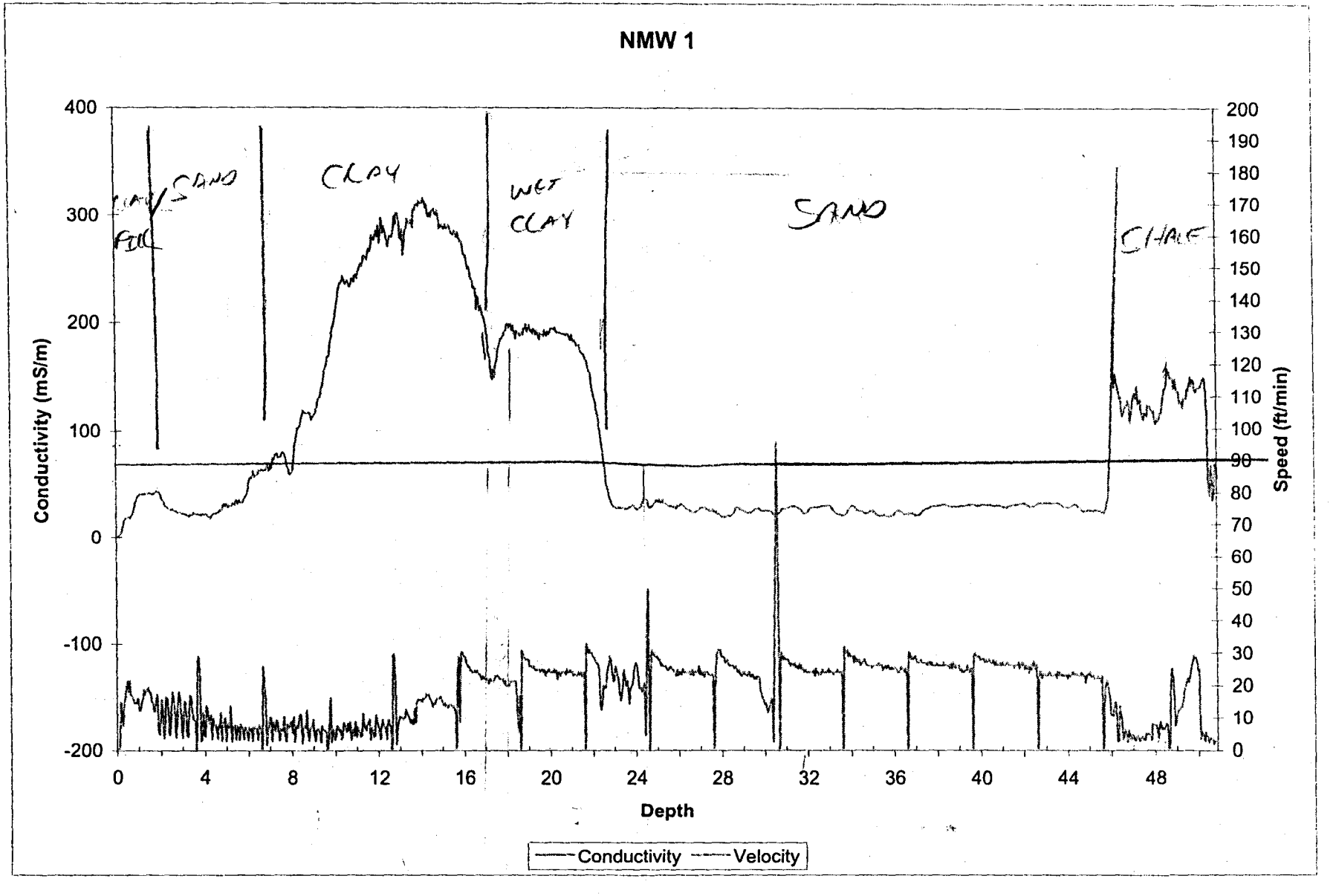
OTHER:
- AGS - Above Ground Surface

REMARKS

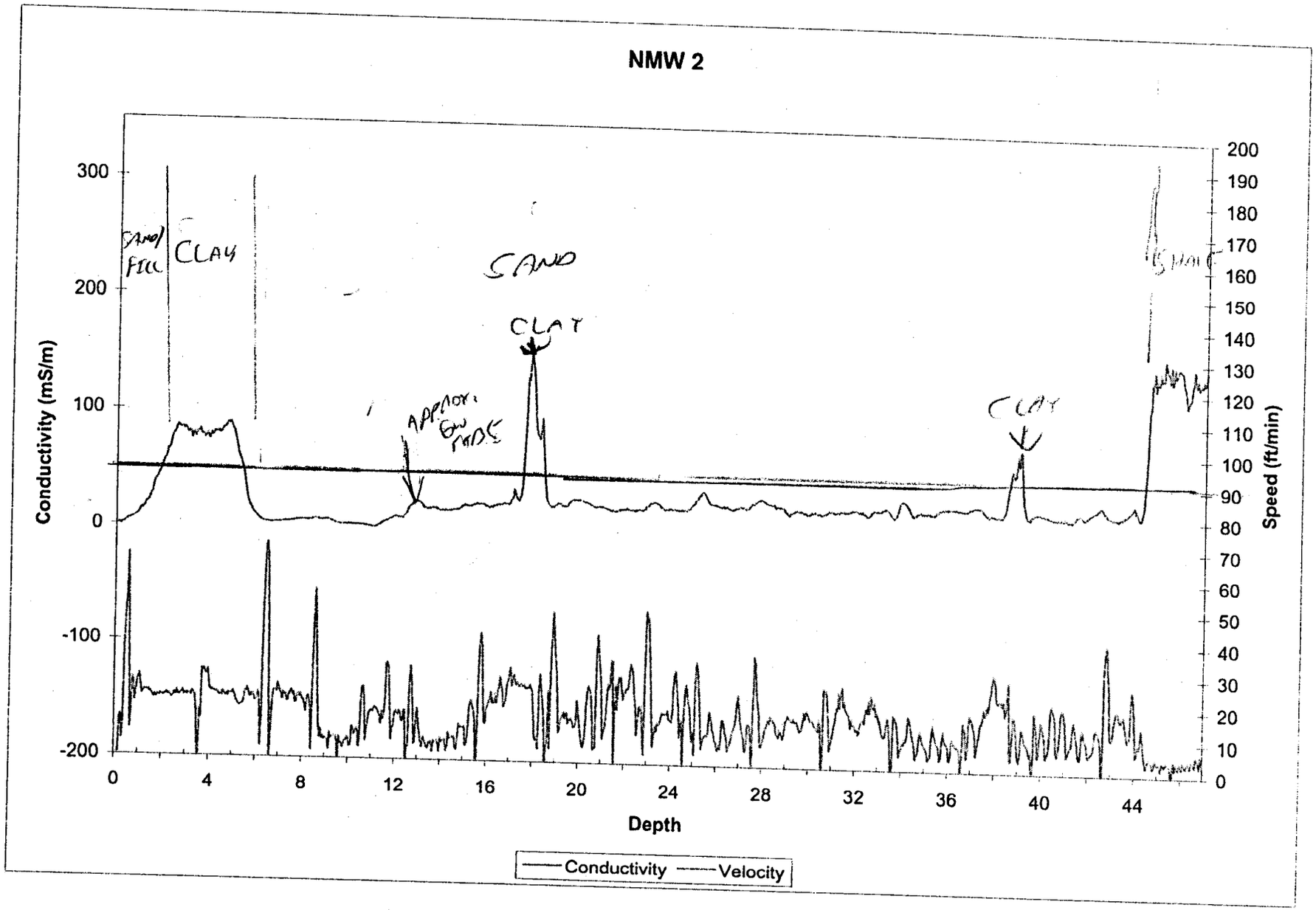
Reviewed by: **Date:**

Appendix E-2
Electrical Conductance Logs

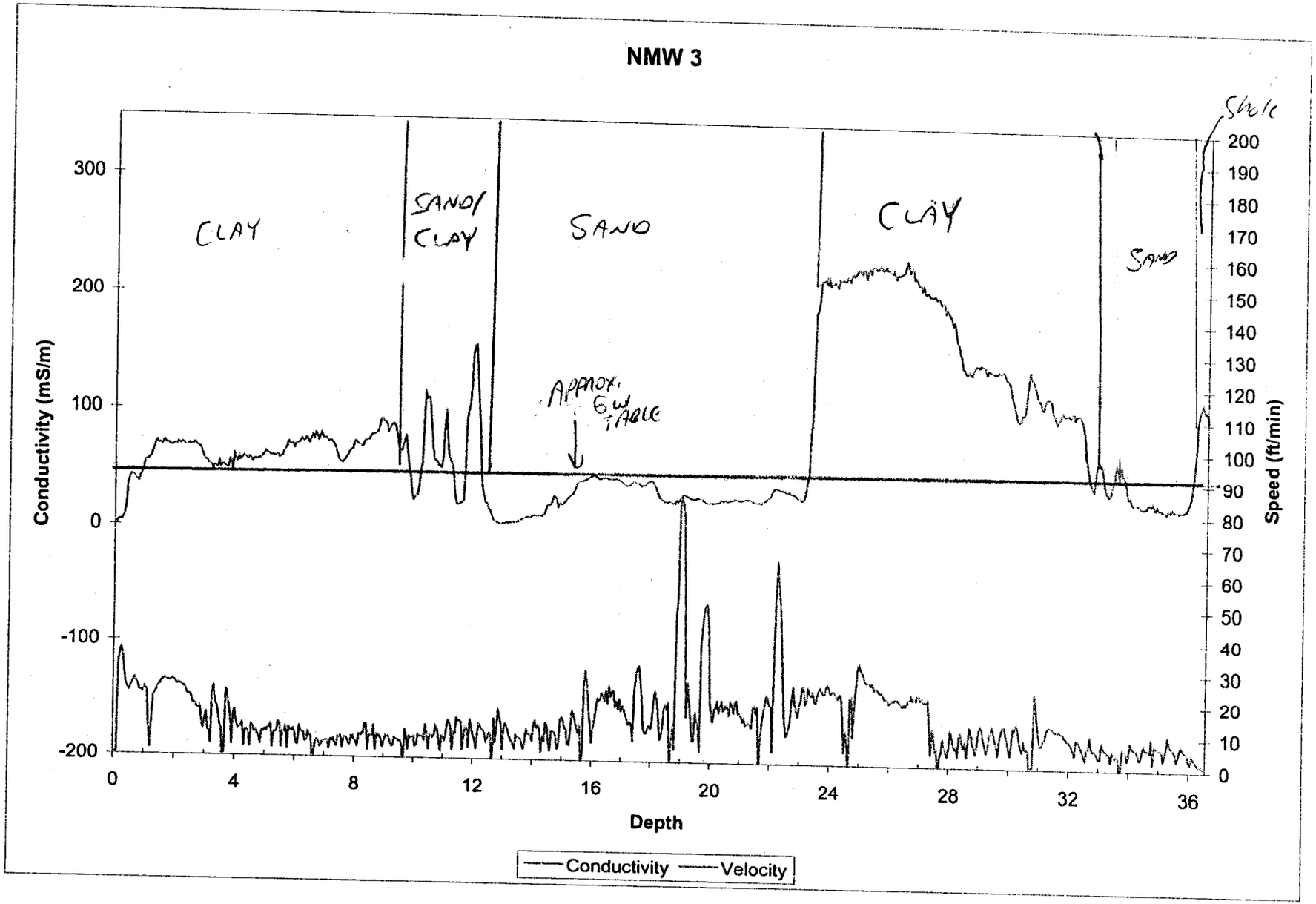
X

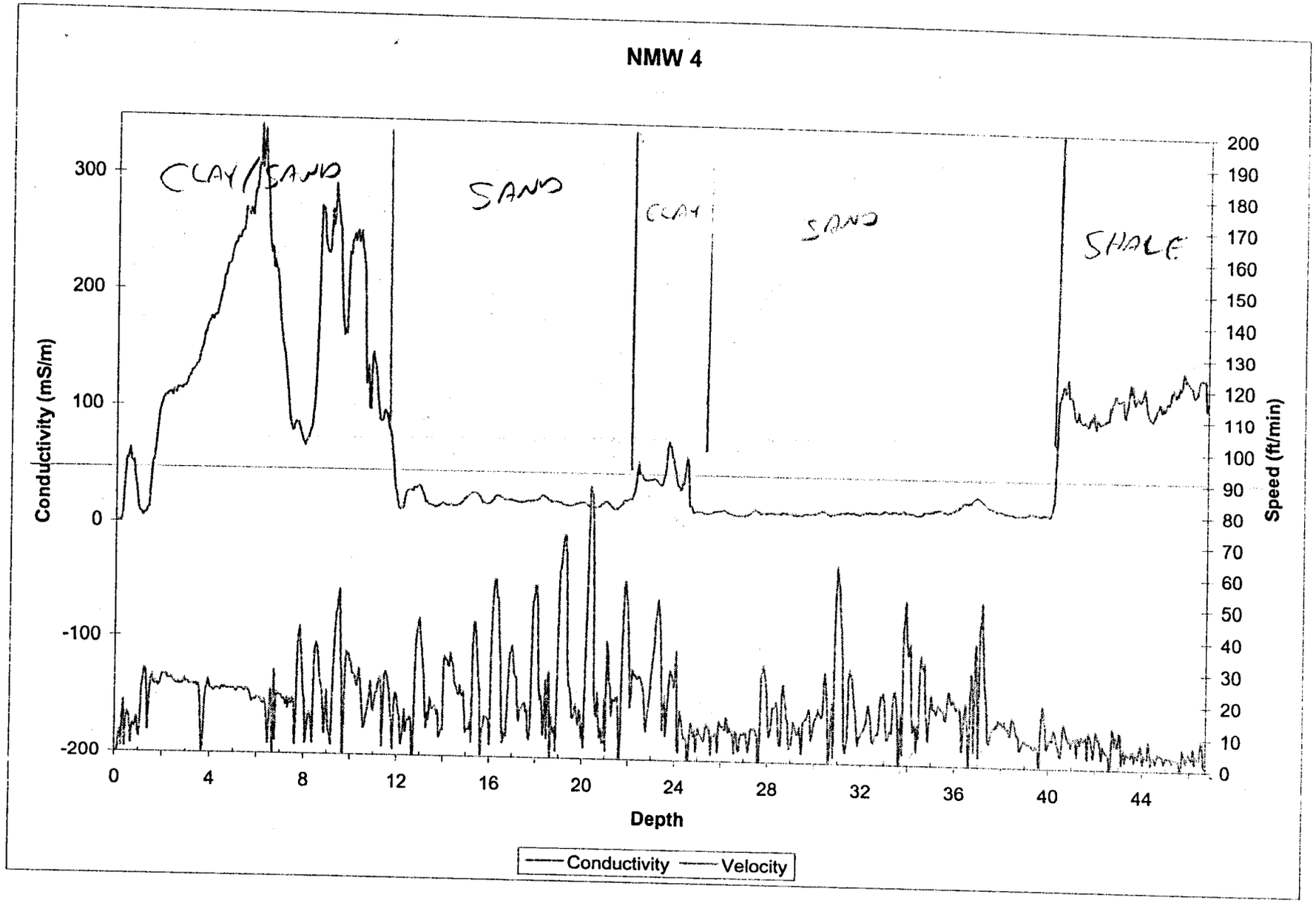

NMW 1
Conductivity (mS/m)
Speed (ft/min)
Depth
Conductivity
Velocity
CLAY/SAND FILL
CLAY
WET CLAY
SAND
SHALE
400
300
200
100
0
-100
-200
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
0
4
8
12
16
20
24
28
32
36
40
44
48

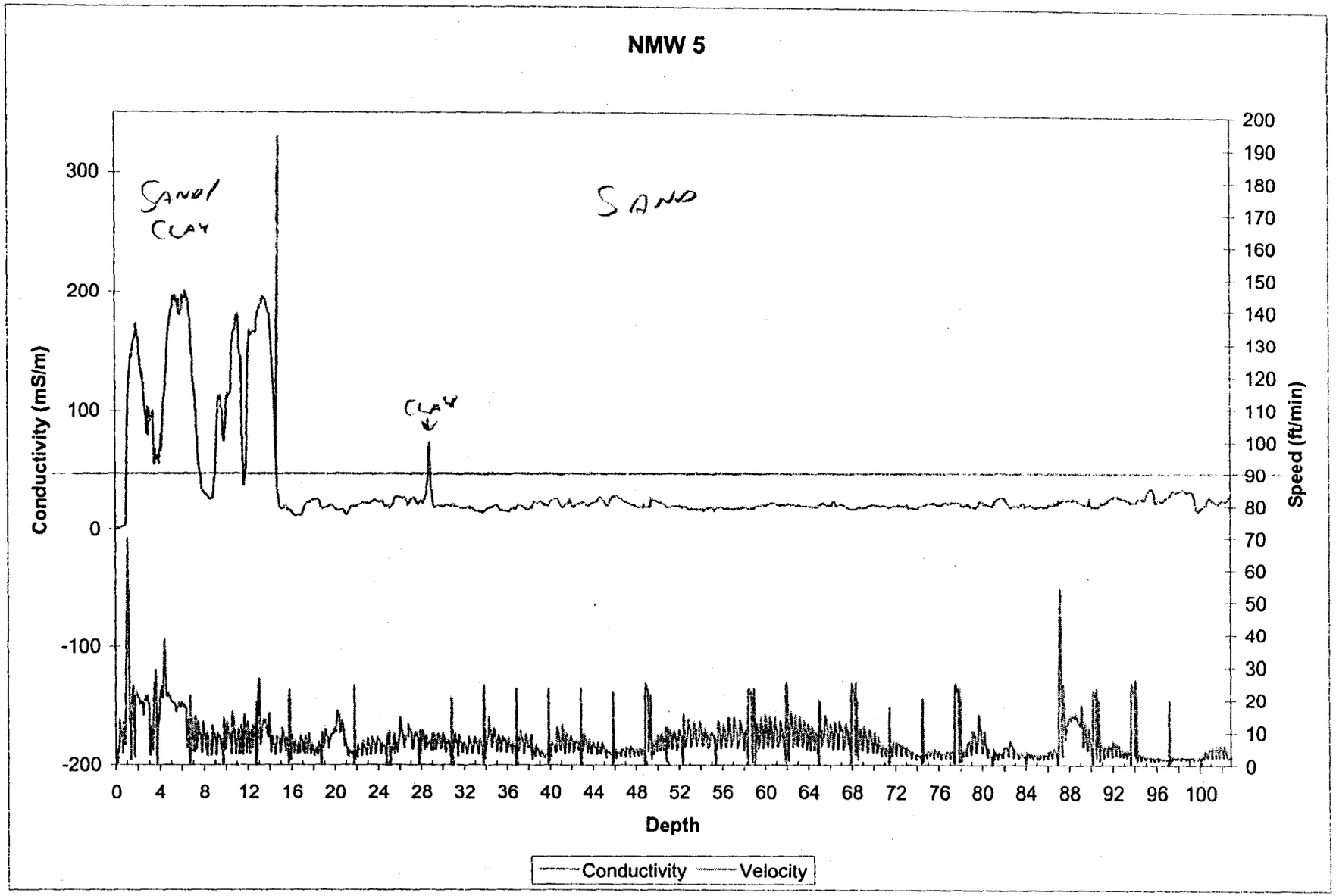
X

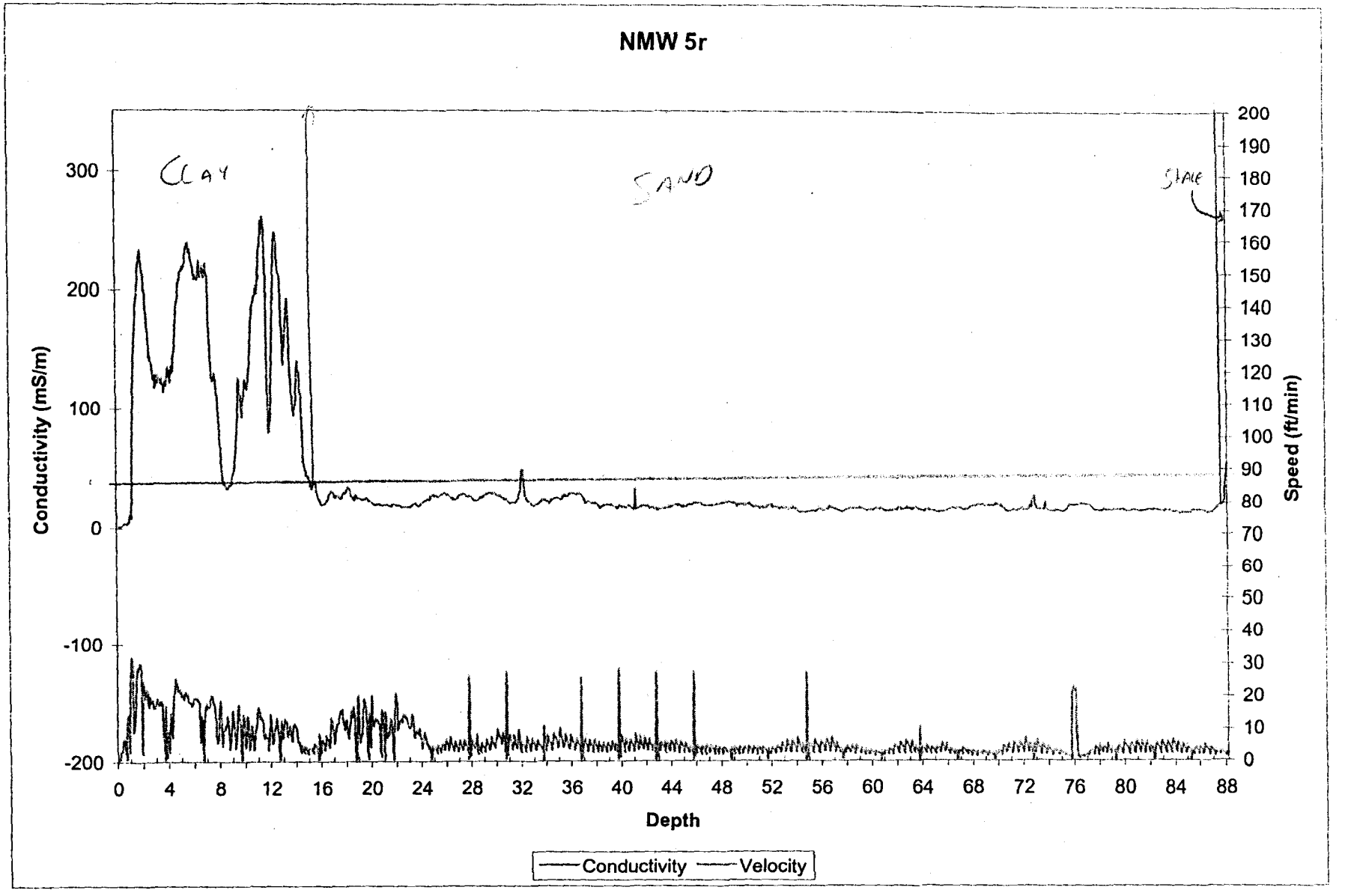

NMW 2
Conductivity (mS/m)
Speed (ft/min)
Depth
CLAY
SAND
CLAY
CLAY
Conductivity
Velocity

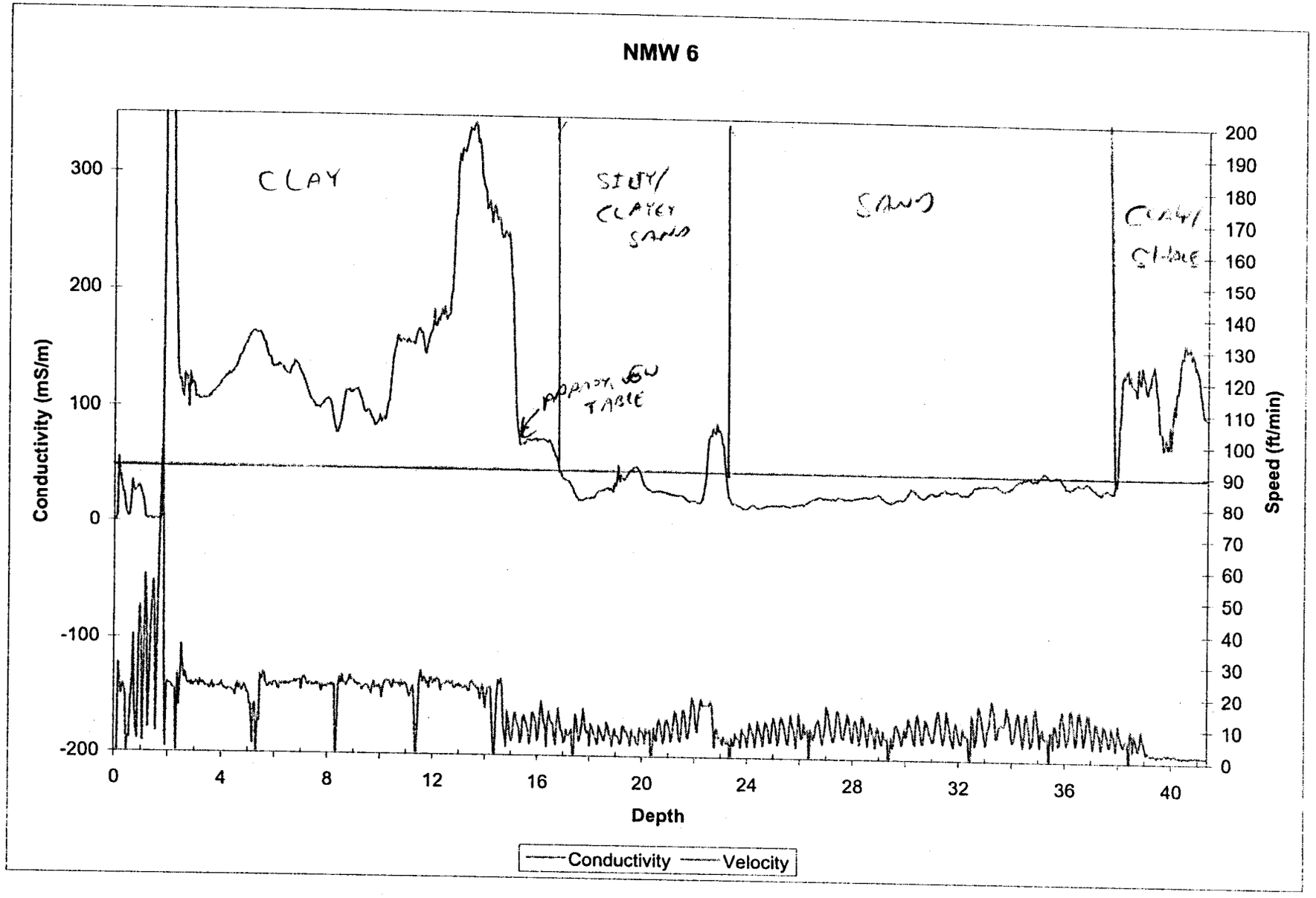
X

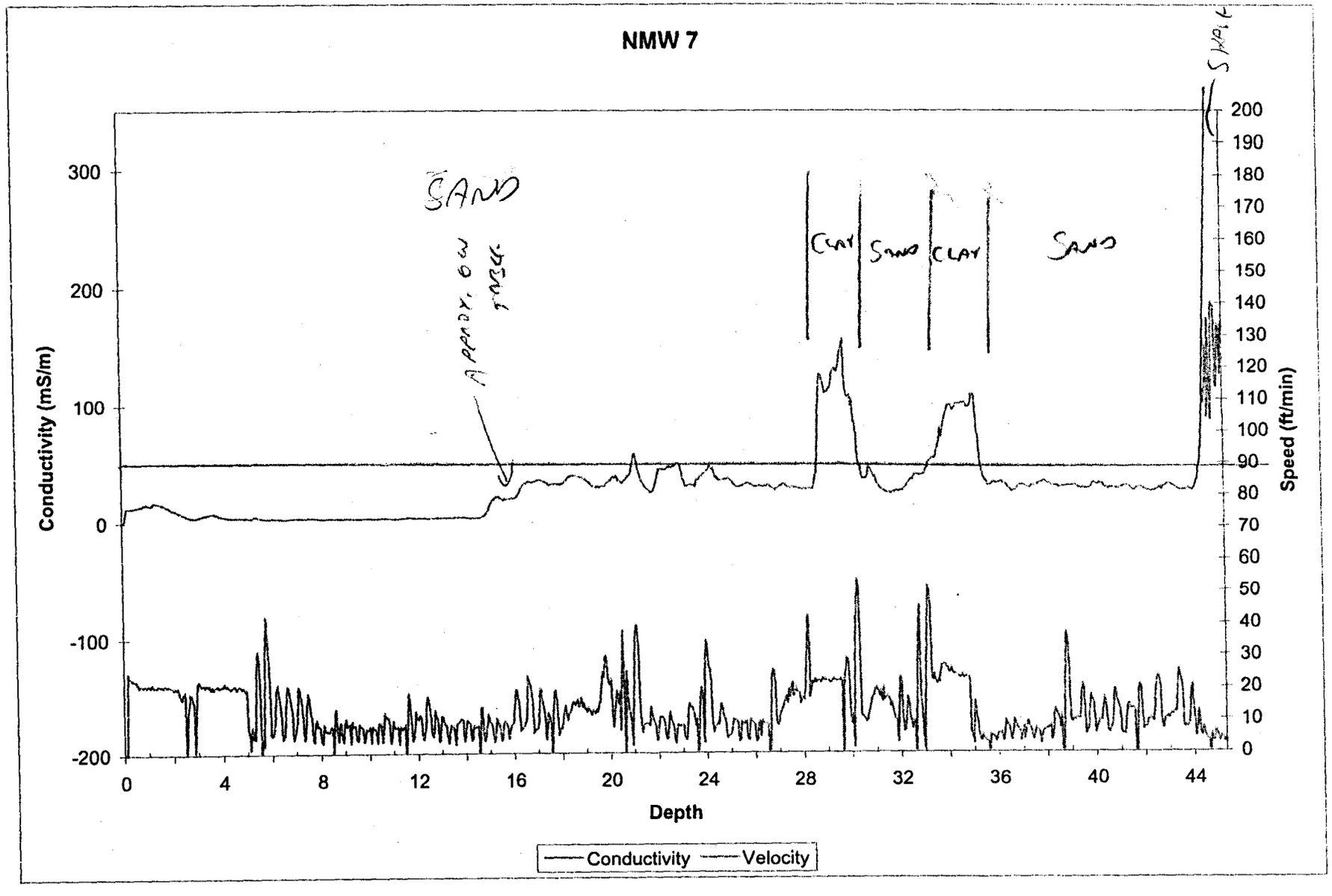

NMW 3
CLAY
SAND/ CLAY
SAND
CLAY
SAND
Shale
APPROX. GW TABLE
Conductivity (mS/m)
300
200
100
0
-100
-200
Speed (ft/min)
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
0
4
8
12
16
20
24
28
32
36
Depth
Conductivity
Velocity


NMW 4
CLAY/SAND
SAND
CLAY
SAND
SHALE
Conductivity (mS/m)
300
200
100
0
-100
-200
Speed (ft/min)
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
0
4
8
12
16
20
24
28
32
36
40
44
Depth
Conductivity
Velocity

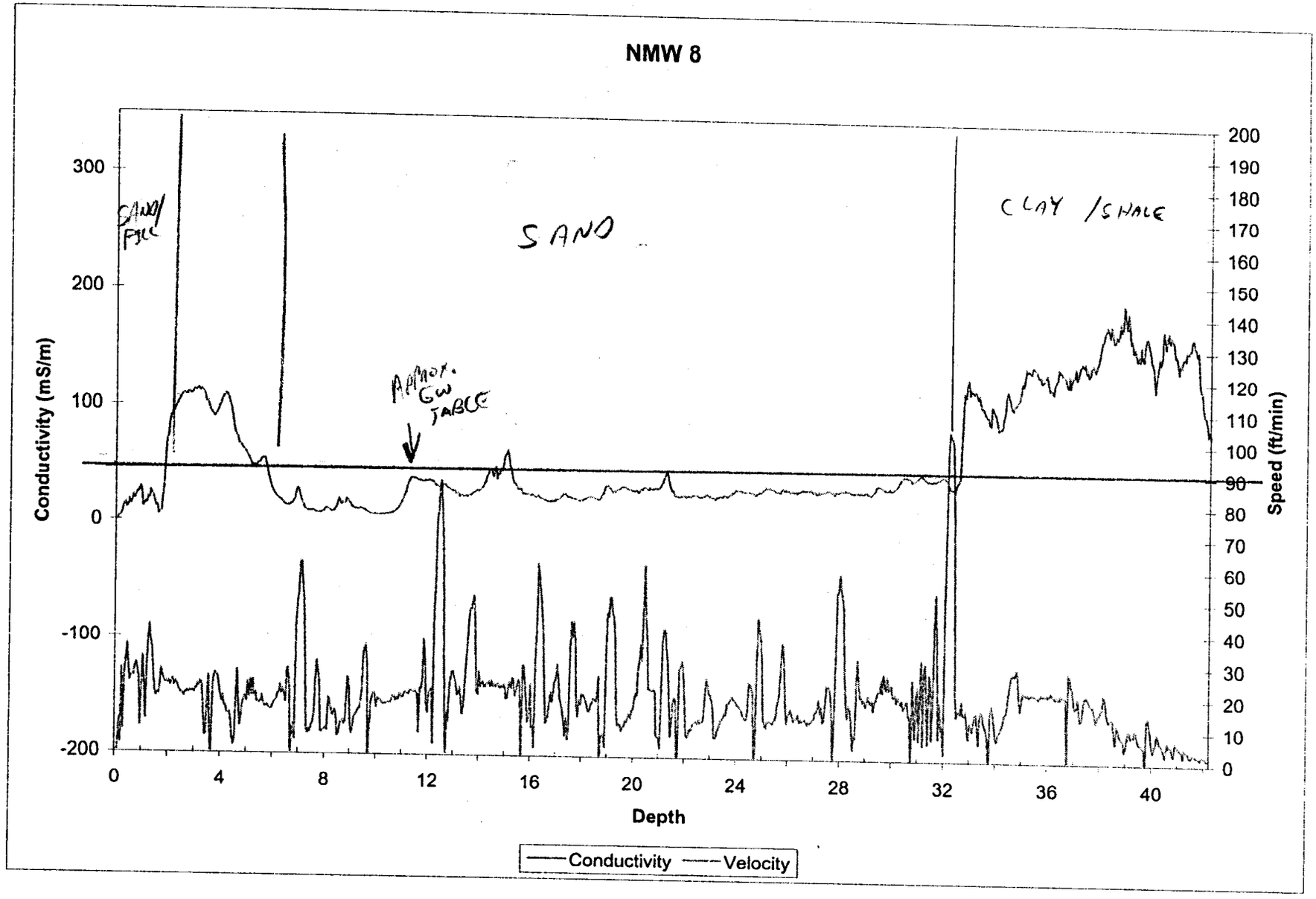

NMW 5
SANDY CLAY
SAND
CLAY
Conductivity (mS/m)
Speed (ft/min)
Depth
Conductivity
Velocity

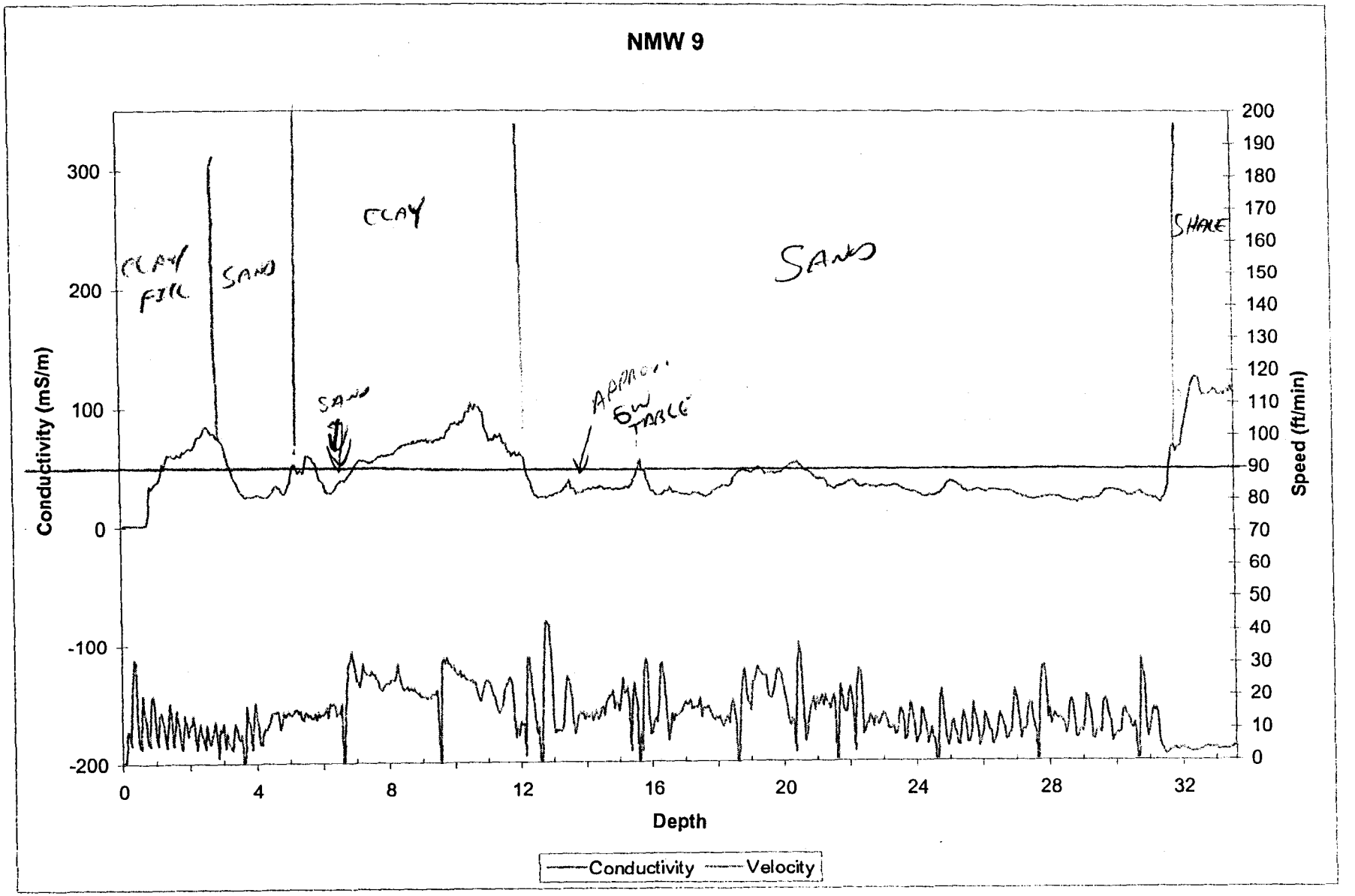

NMW 5r
CLAY
SAND
SHALE
Conductivity (mS/m)
300
200
100
0
-100
-200
Speed (ft/min)
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 60 64 68 72 76 80 84 88
Depth
Conductivity
Velocity

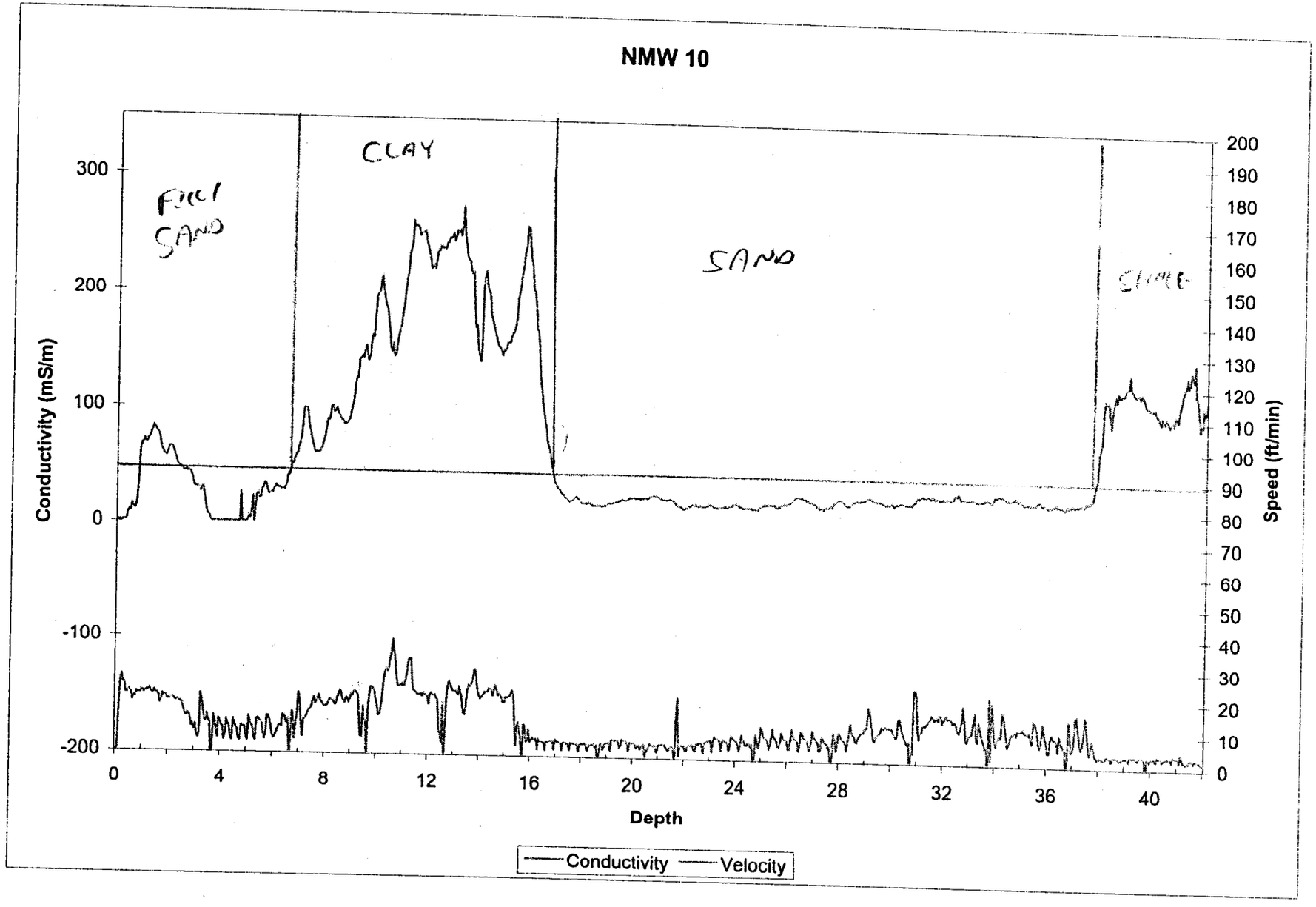

NMW 6
CLAY
SILTY/ CLAYEY SAND
SAND
CLAY/ SILTY
APPROX GW TABLE
Conductivity (mS/m)
Speed (ft/min)
Depth
Conductivity
Velocity


NMW 7
SAND
CLAY
SAND
CLAY
SAND
Conductivity (mS/m)
Speed (ft/min)
Depth
Conductivity
Velocity

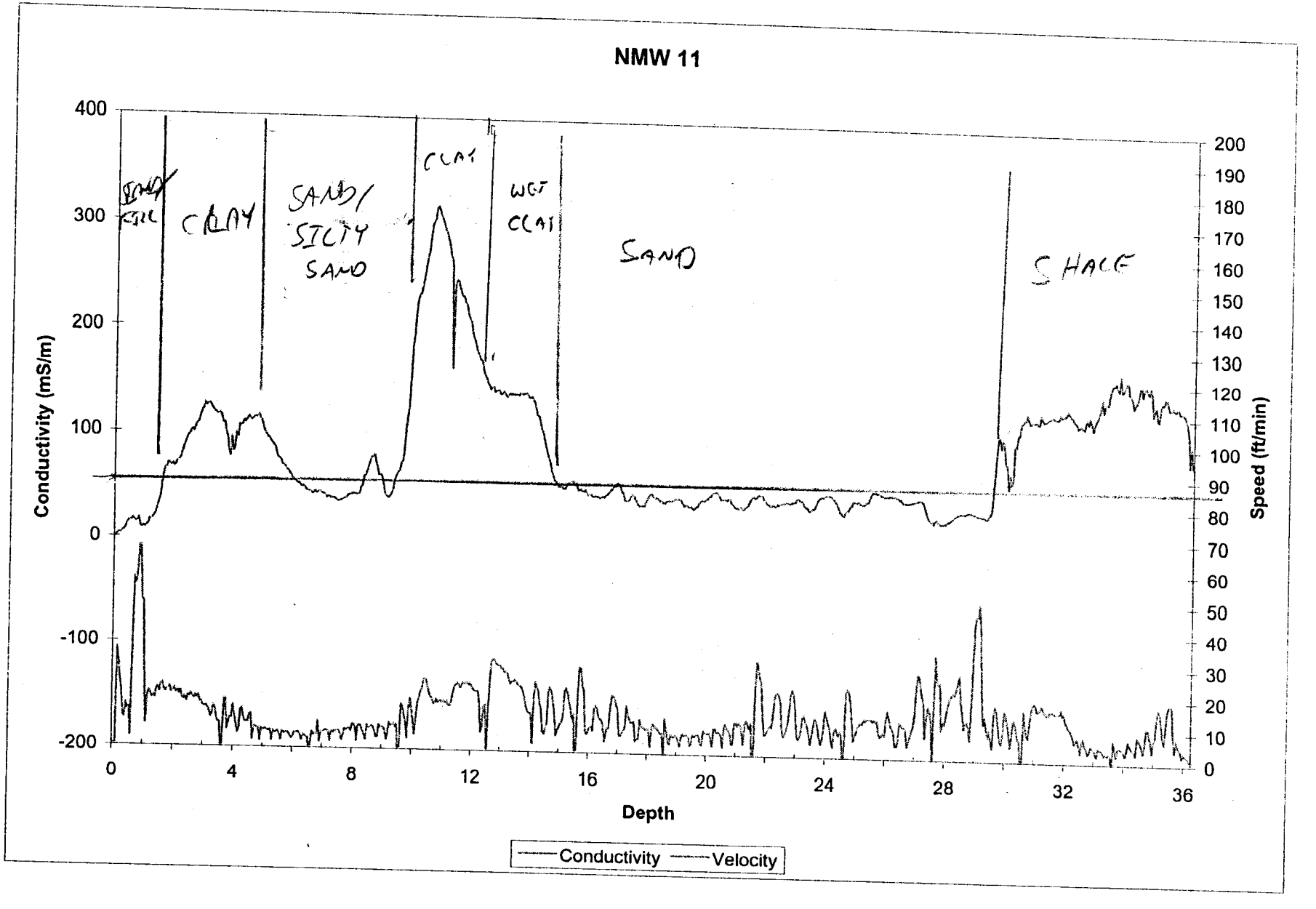
X

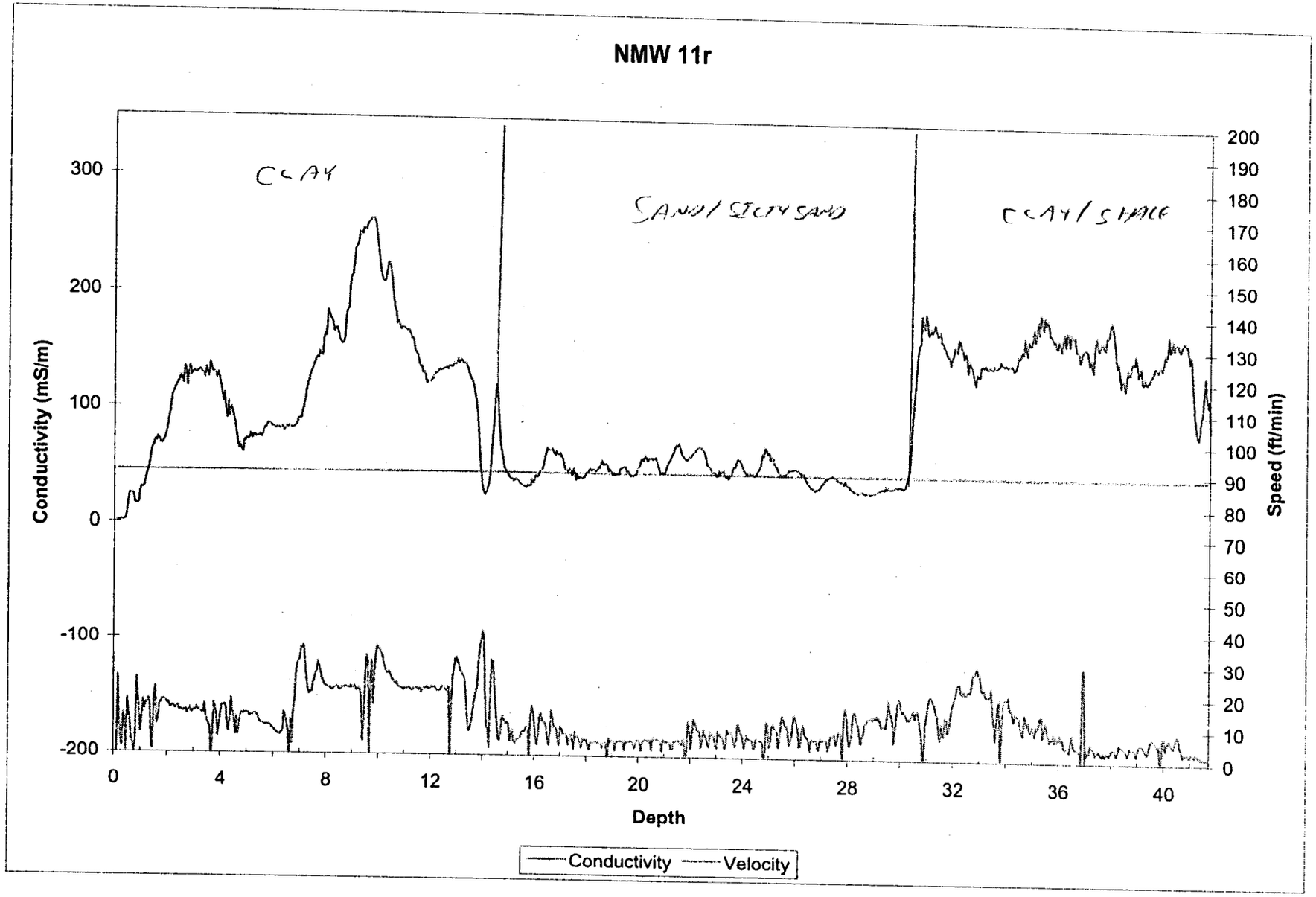

NMW 8
SAND/ FILL
SAND
CLAY /SHALE
APPROX. GW TABLE
Conductivity (mS/m)
Speed (ft/min)
Depth
300
200
100
0
-100
-200
0
4
8
12
16
20
24
28
32
36
40
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
Conductivity
Velocity


NMW 9
Conductivity (mS/m)
Speed (ft/min)
Depth
CLAY FILL
SAND
CLAY
SAND
SAND
APPROX GW TABLE
SHALE
Conductivity
Velocity

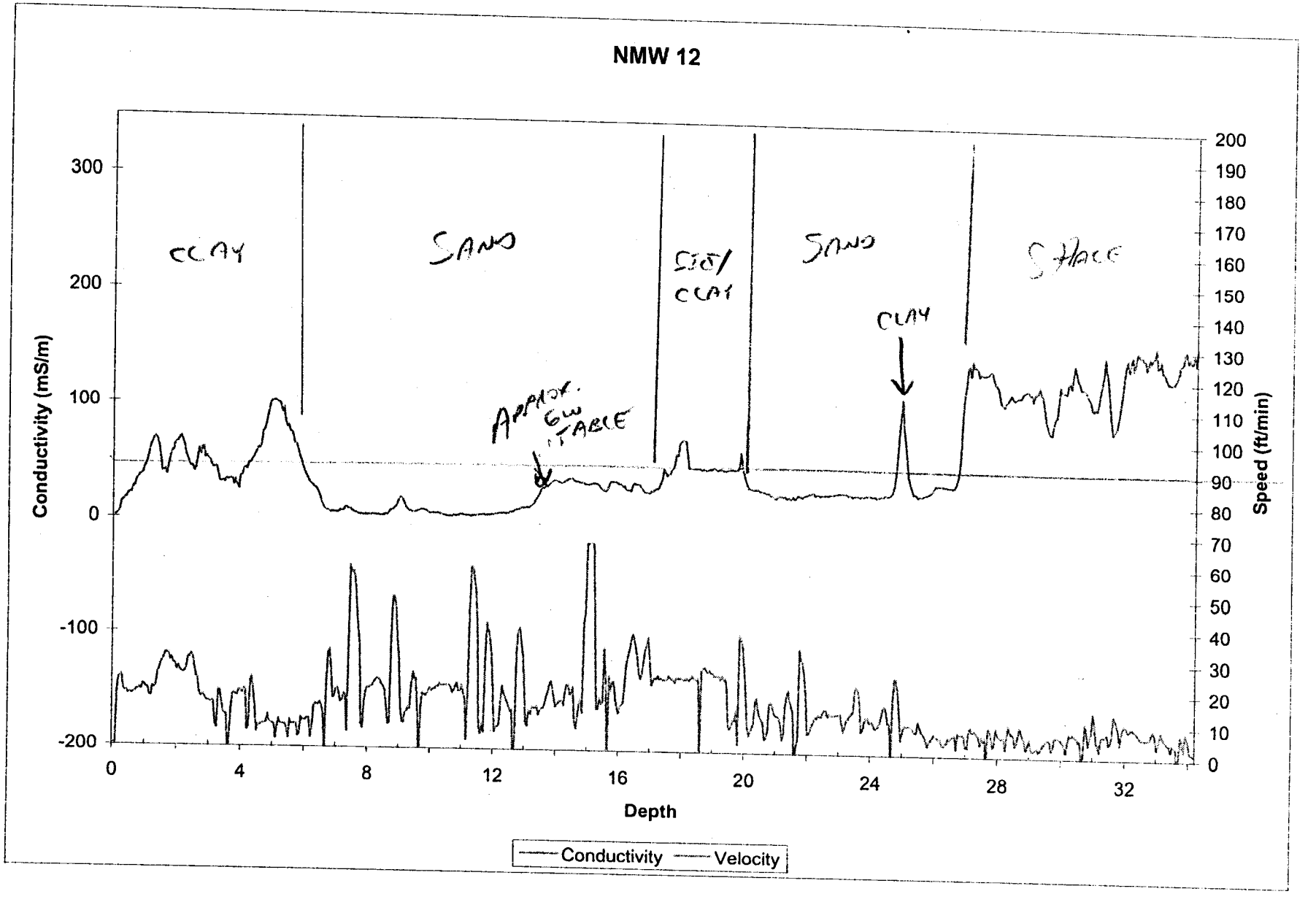

NMW 10
FINE SAND
CLAY
SAND
SHALE
Conductivity (mS/m)
300
200
100
0
-100
-200
Speed (ft/min)
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
0
4
8
12
16
20
24
28
32
36
40
Depth
Conductivity
Velocity

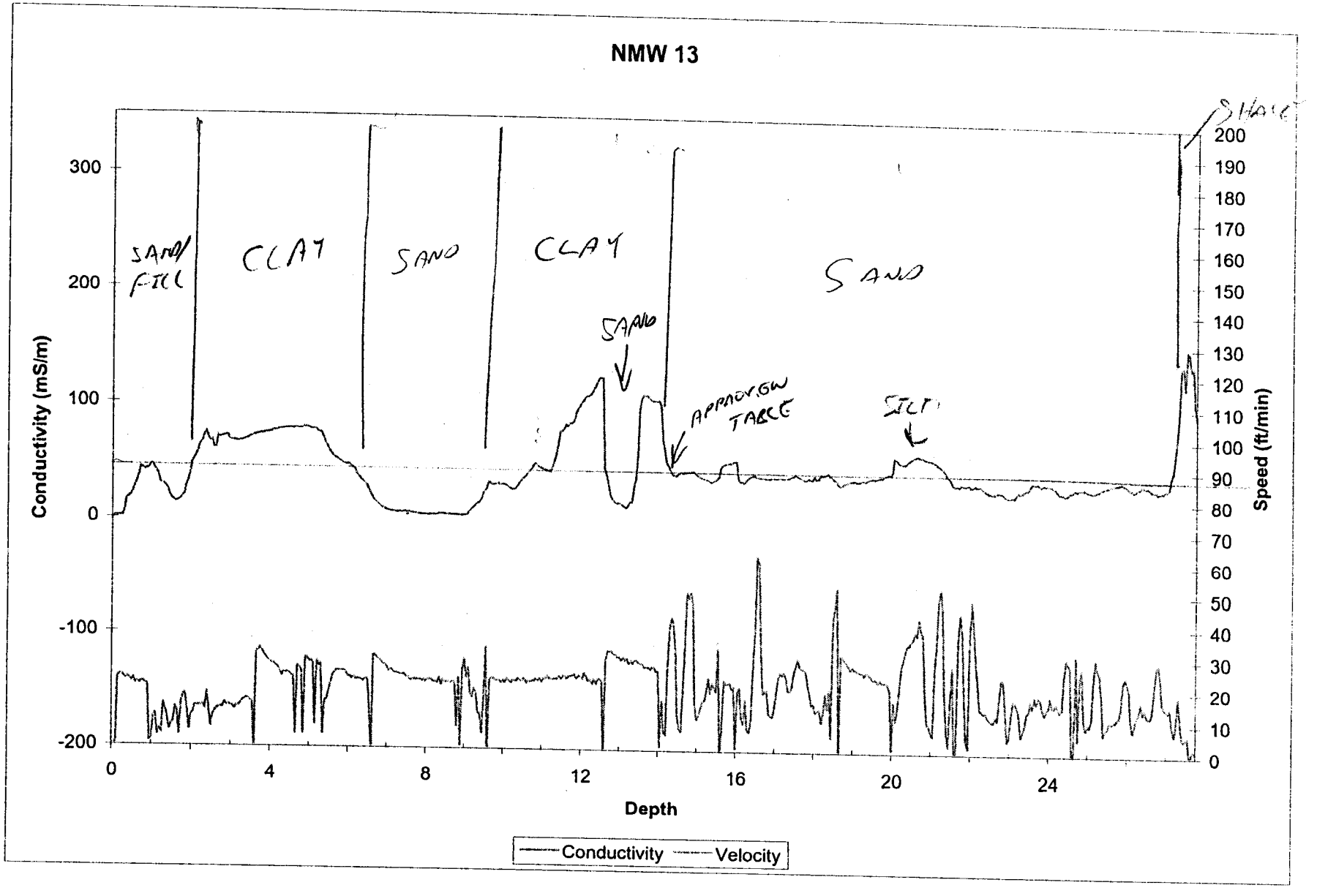
A

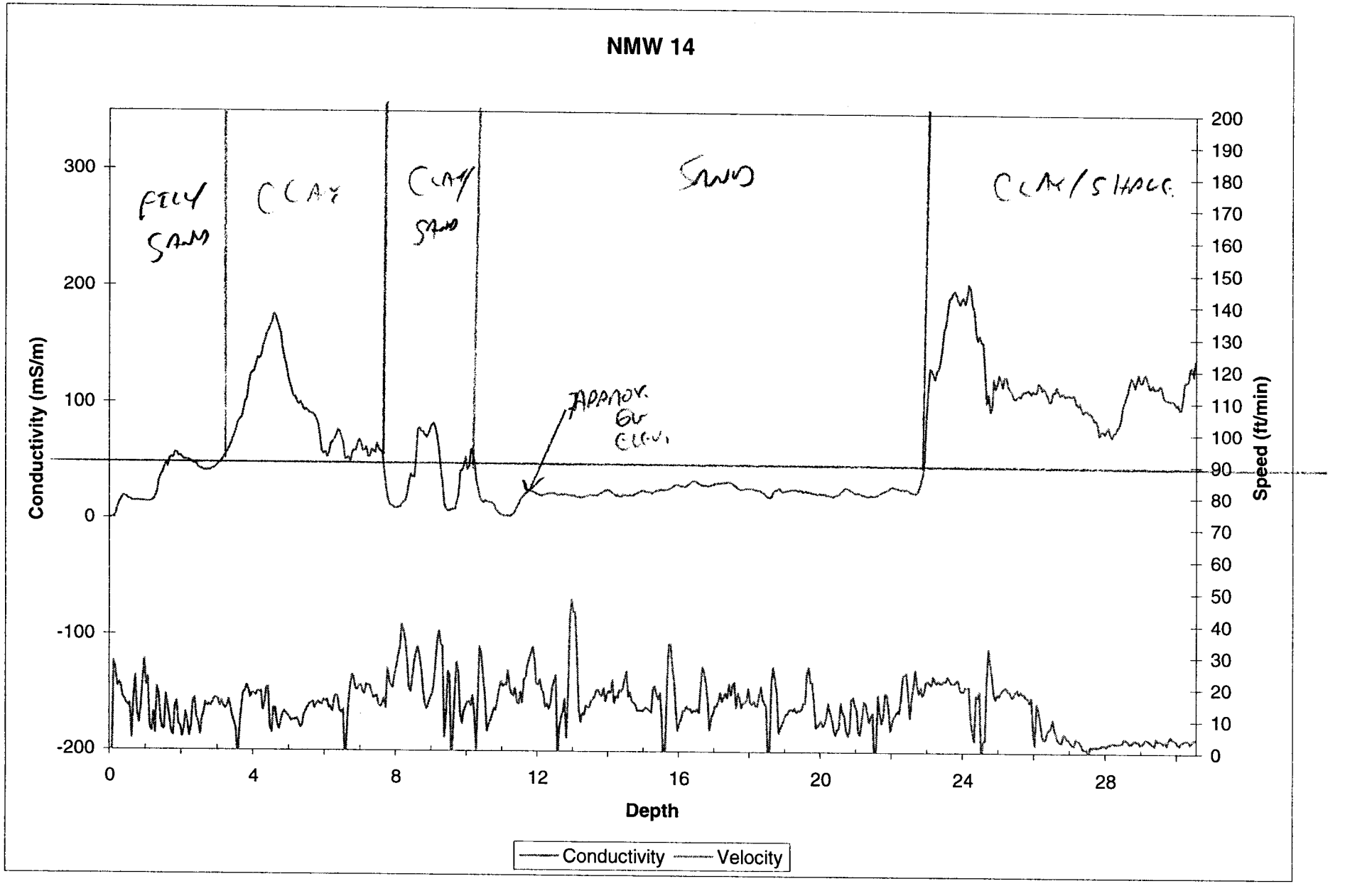

NMW 11
Conductivity (mS/m)
Speed (ft/min)
Depth
Conductivity
Velocity
CLAY
SANDY SILTY SAND
CLAY
WET CLAY
SAND
SHALE


NMW 11r
CLAY
SAND/SILTY SAND
CLAY/SHALE
Conductivity (mS/m)
300
200
100
0
-100
-200
Speed (ft/min)
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
0
4
8
12
16
20
24
28
32
36
40
Depth
Conductivity
Velocity

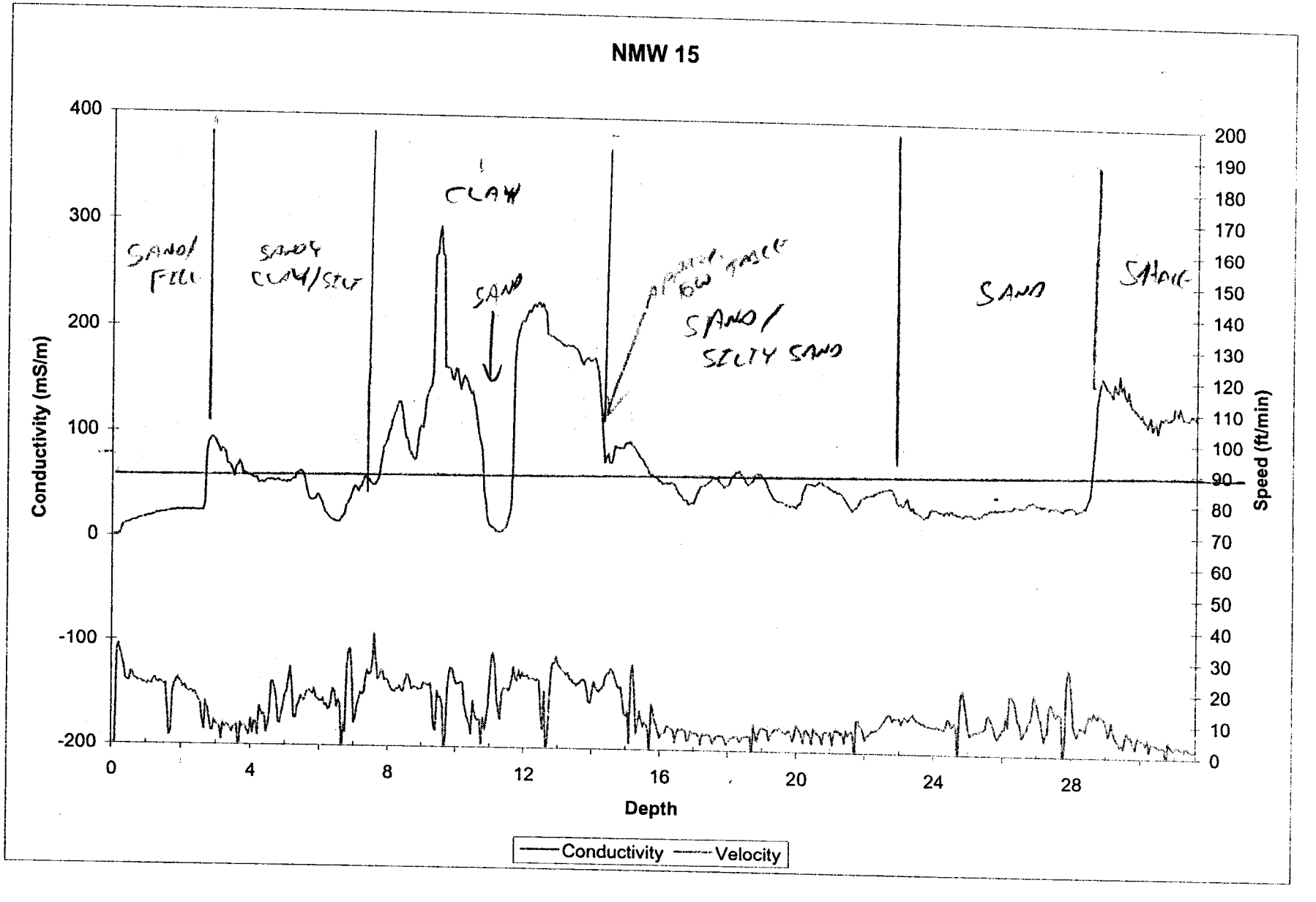
X


NMW 12
CLAY
SAND
SILT/ CLAY
SAND
CLAY
SHALE
APPROX. GW TABLE
Conductivity (mS/m)
Speed (ft/min)
Depth
Conductivity
Velocity

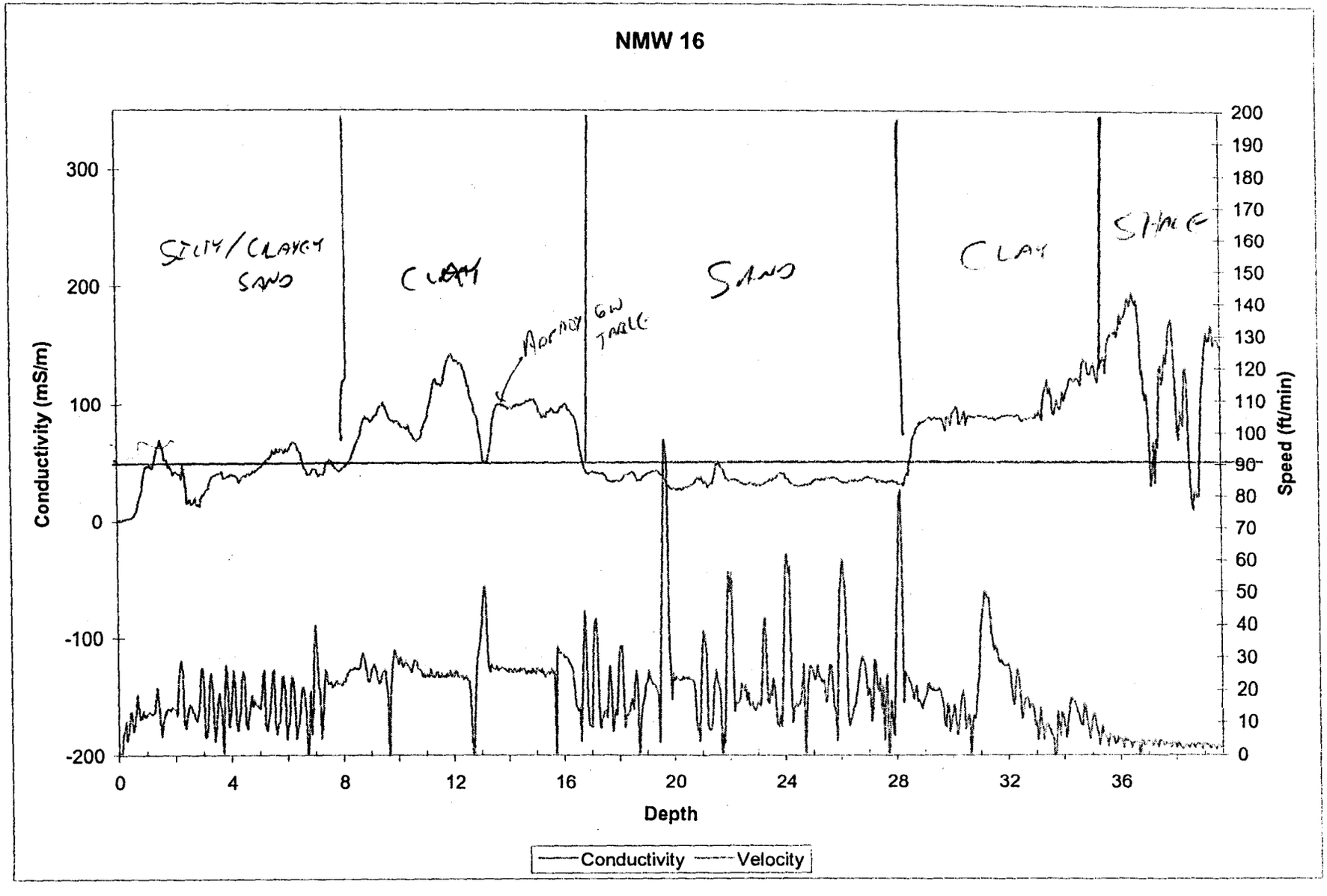

NMW 13
SAND/ FILL
CLAY
SAND
CLAY
SAND
SAND
APPROX GW TABLE
SILT
SHALE
Conductivity (mS/m)
Speed (ft/min)
Depth
Conductivity
Velocity

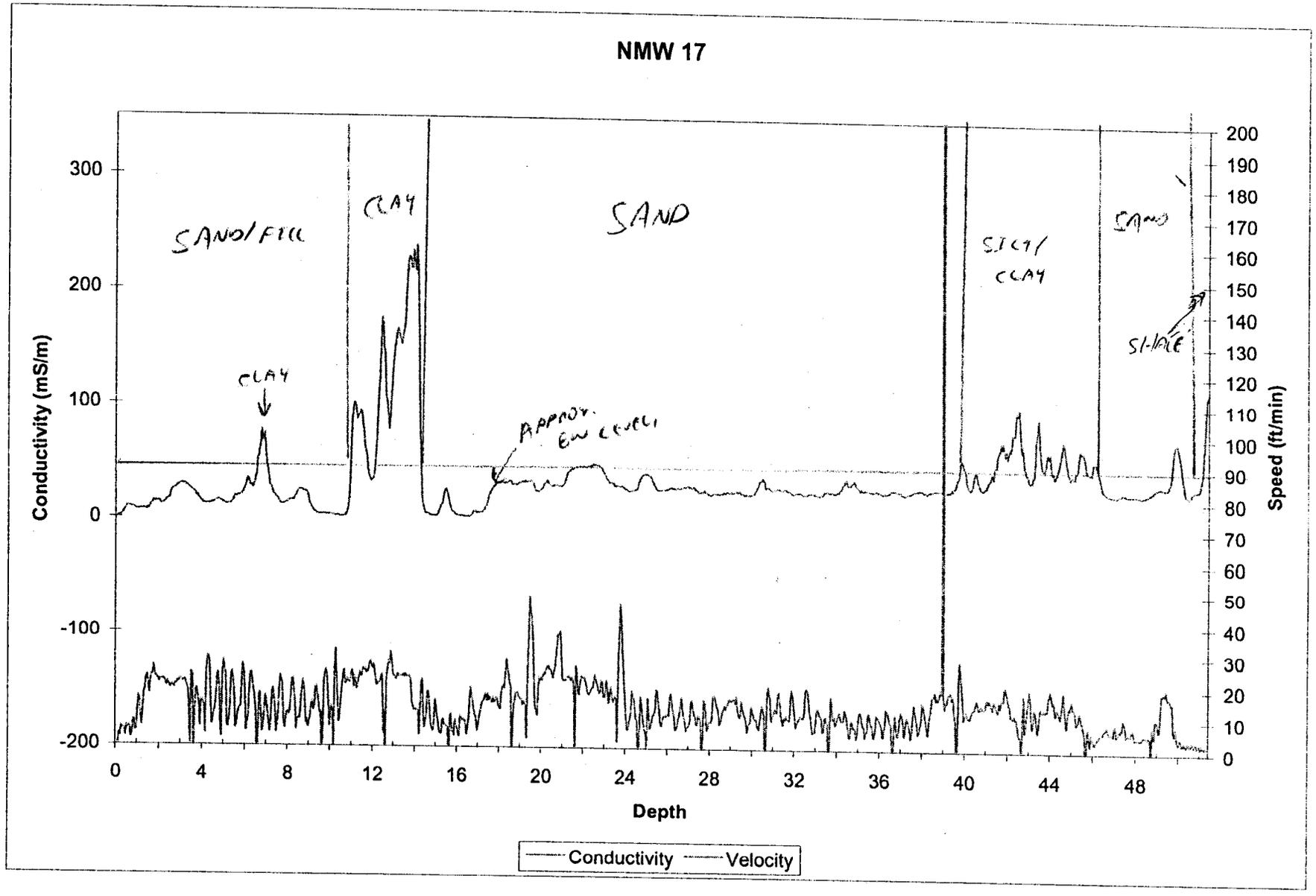

NMW 14
Conductivity (mS/m)
Speed (ft/min)
Depth
Conductivity
Velocity
300
200
100
0
-100
-200
0
4
8
12
16
20
24
28
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0

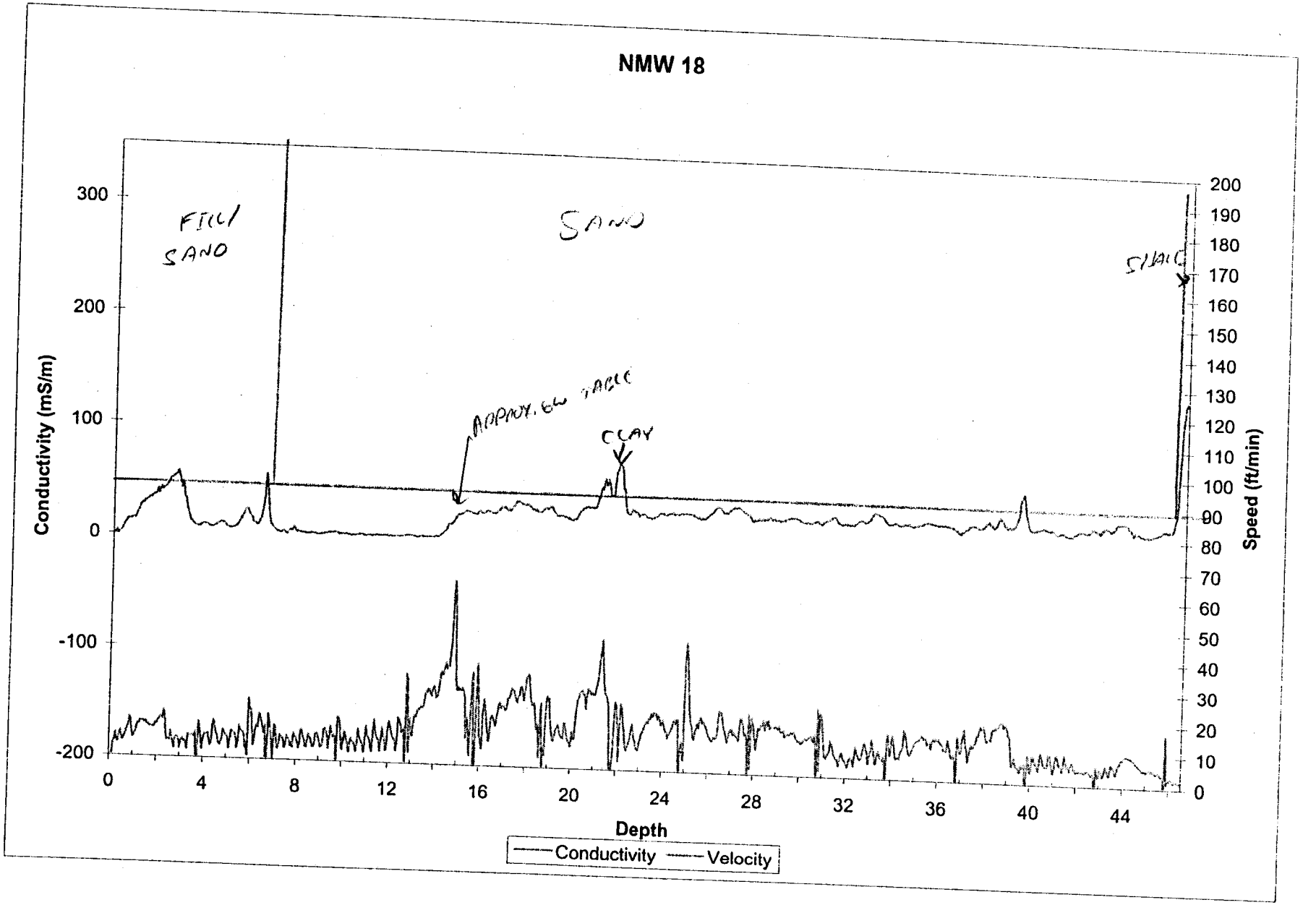
X

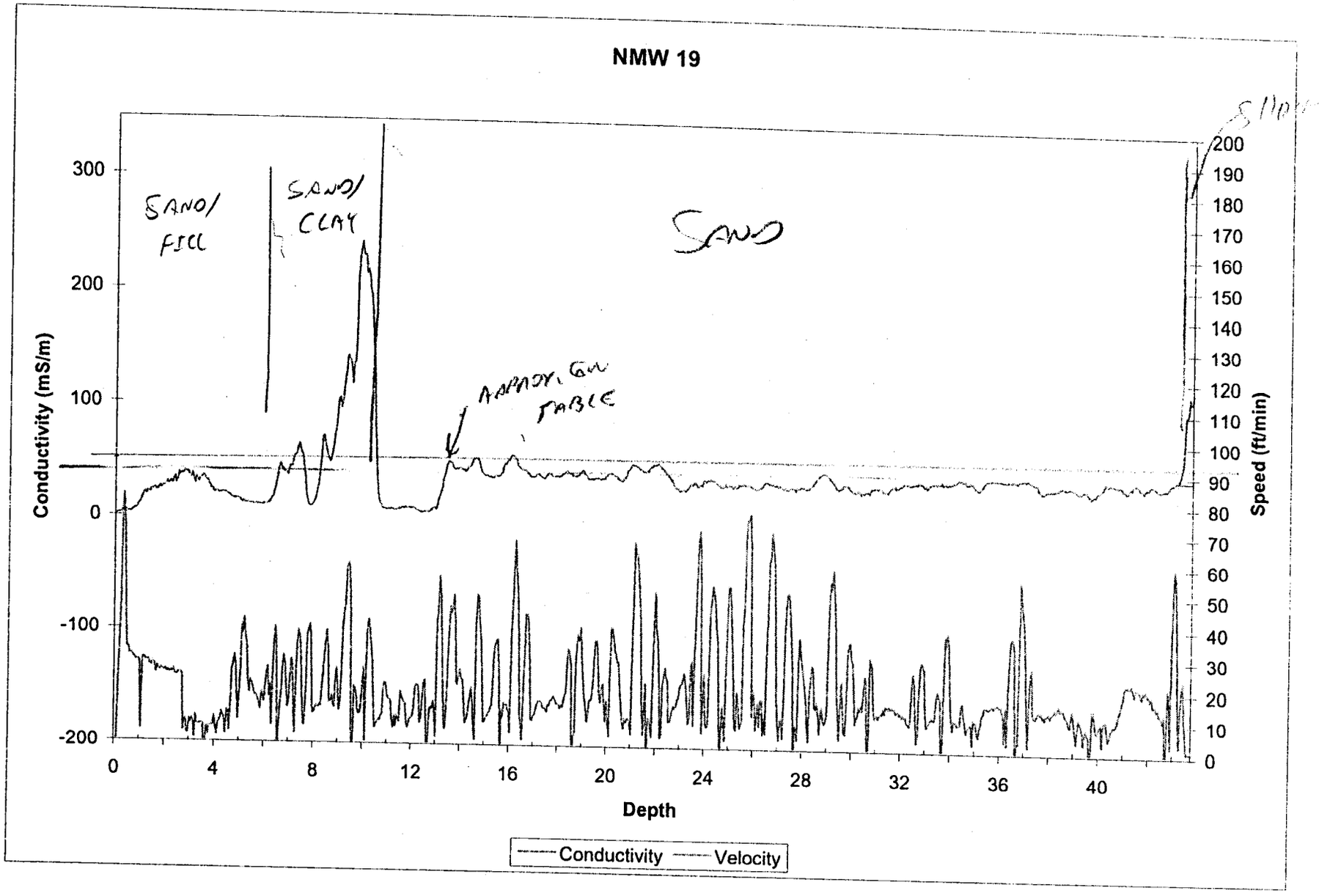

NMW 15
Conductivity (mS/m)
Speed (ft/min)
Depth
Conductivity
Velocity
SAND/ FILL
SANDY CLAY/SILT
CLAY
SAND
SAND/ SILTY SAND
SAND
400
300
200
100
0
-100
-200
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
0
4
8
12
16
20
24
28

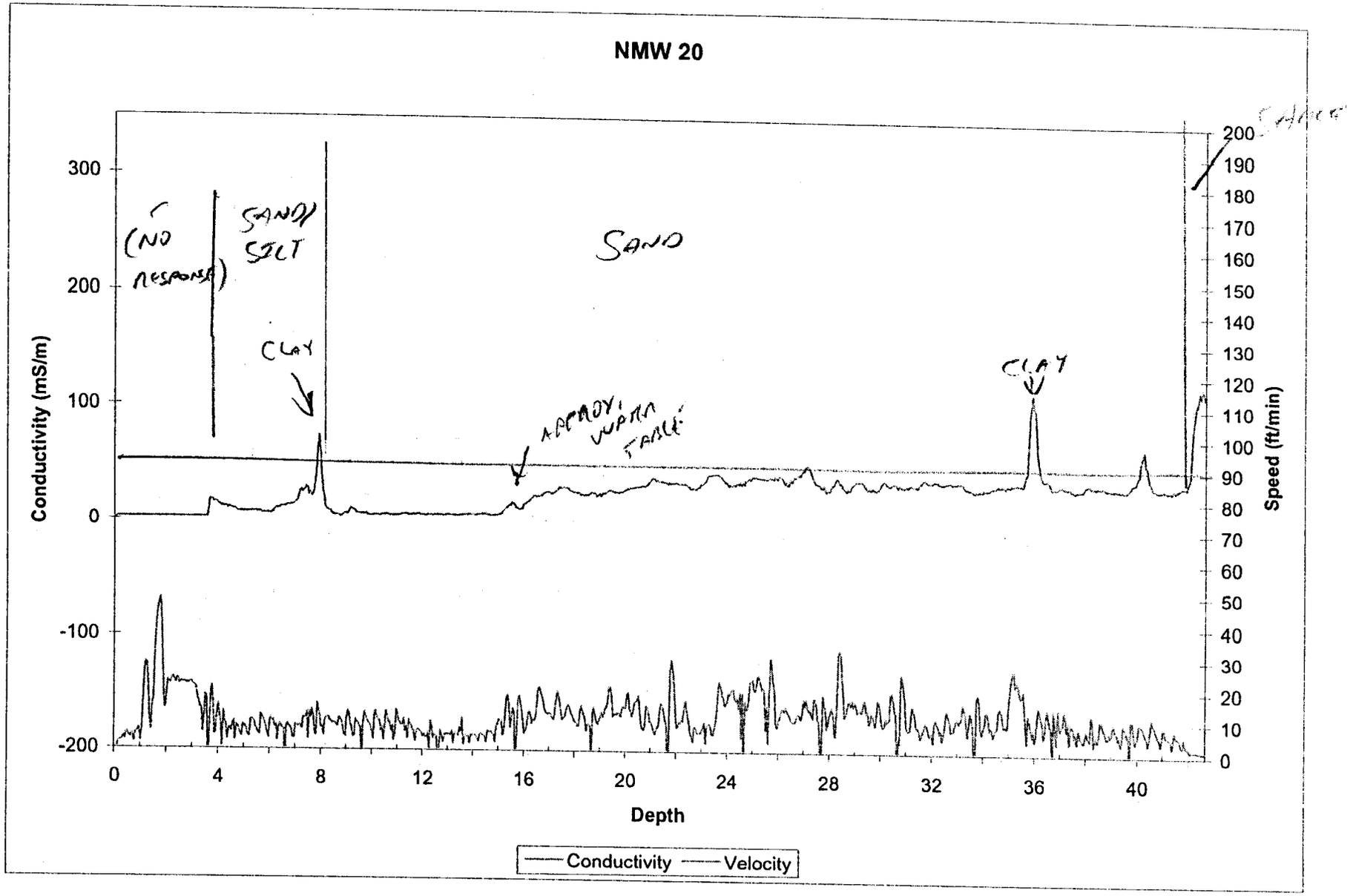
X

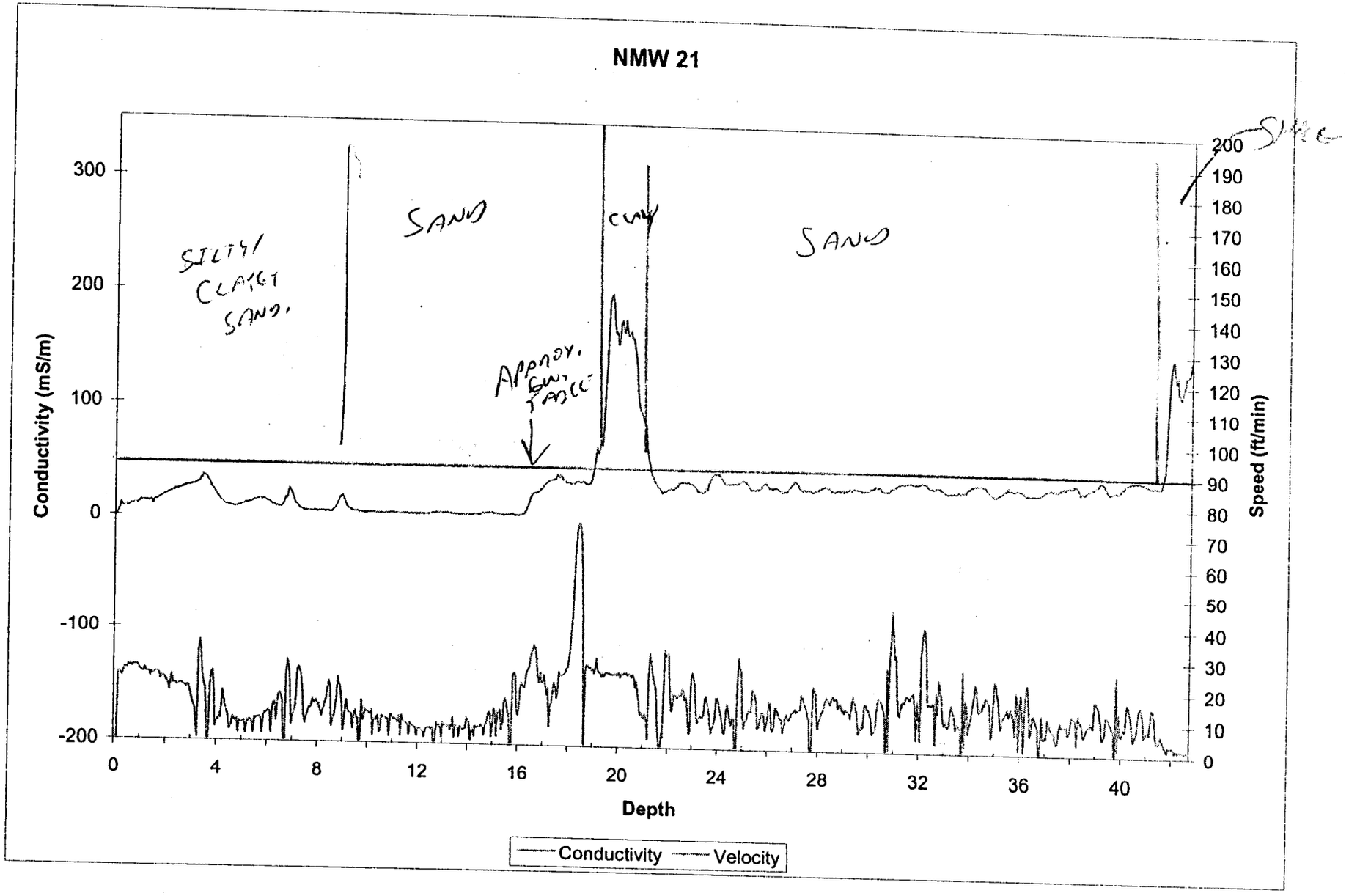

NMW 16
Conductivity (mS/m)
Speed (ft/min)
Depth
Conductivity
Velocity
SILTY/CLAYEY SAND
CLAY
SAND
CLAY
SHALE
APPROX GW TABLE

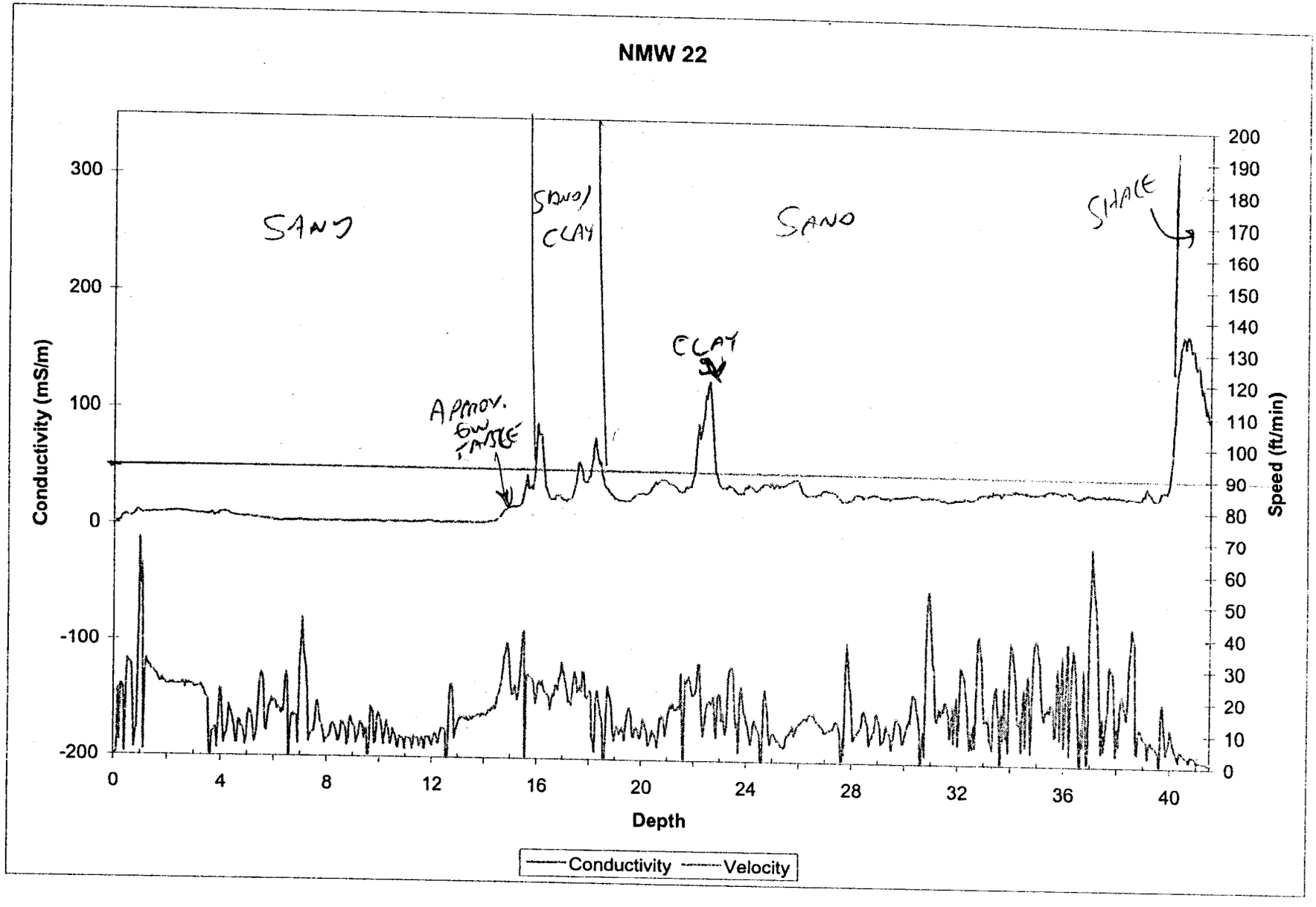

NMW 17
Conductivity (mS/m)
Speed (ft/min)
Depth
SAND/FILL
CLAY
SAND
SILTY/ CLAY
SAND
SHALE
CLAY
APPROX. EW LEVEL
Conductivity
Velocity

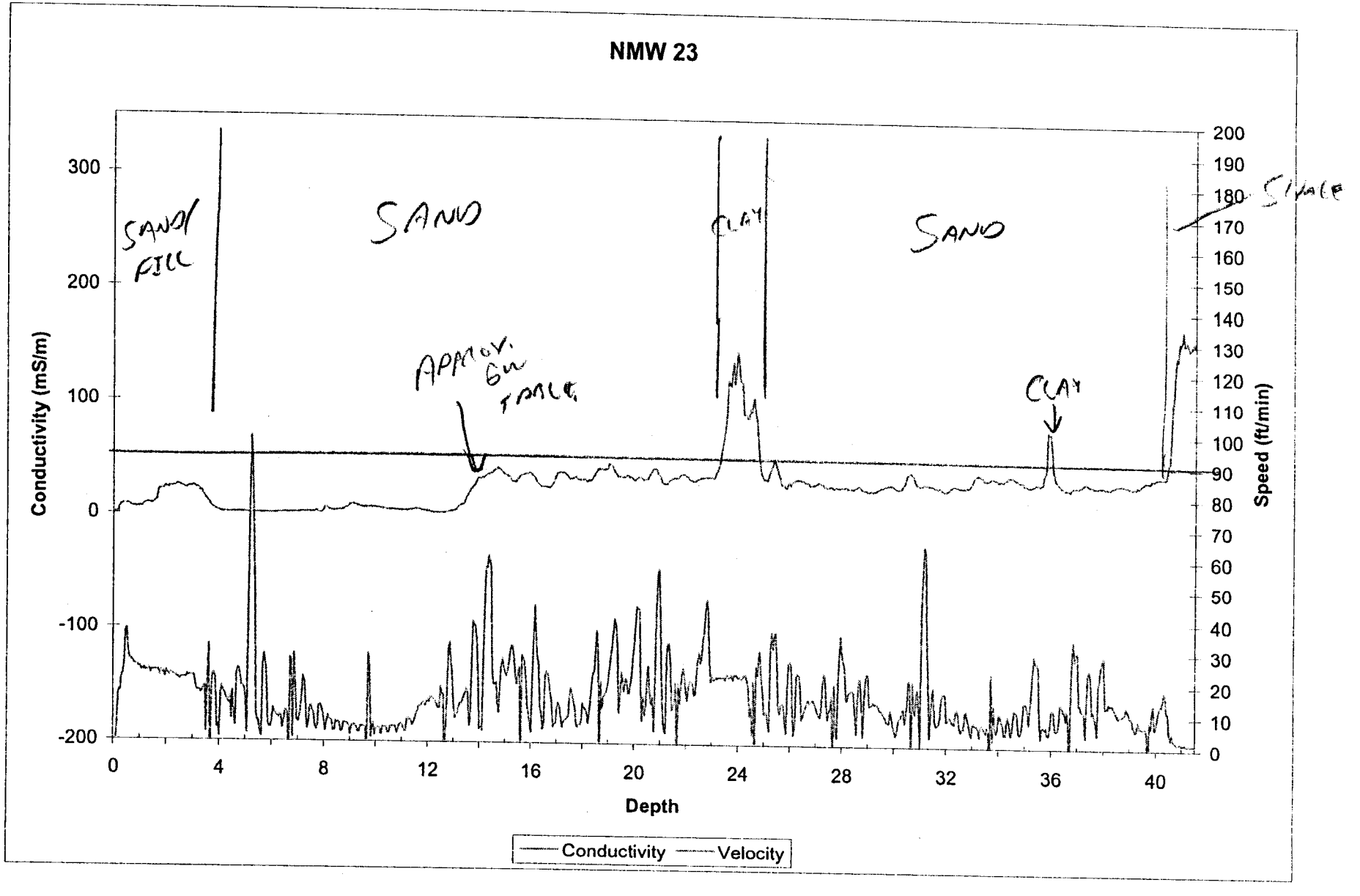

NMW 18
FILL SAND
SAND
APPROX. GW TABLE
CLAY
SHALE
Conductivity (mS/m)
Speed (ft/min)
Depth
Conductivity
Velocity
300
200
100
0
-100
-200
0
4
8
12
16
20
24
28
32
36
40
44
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0

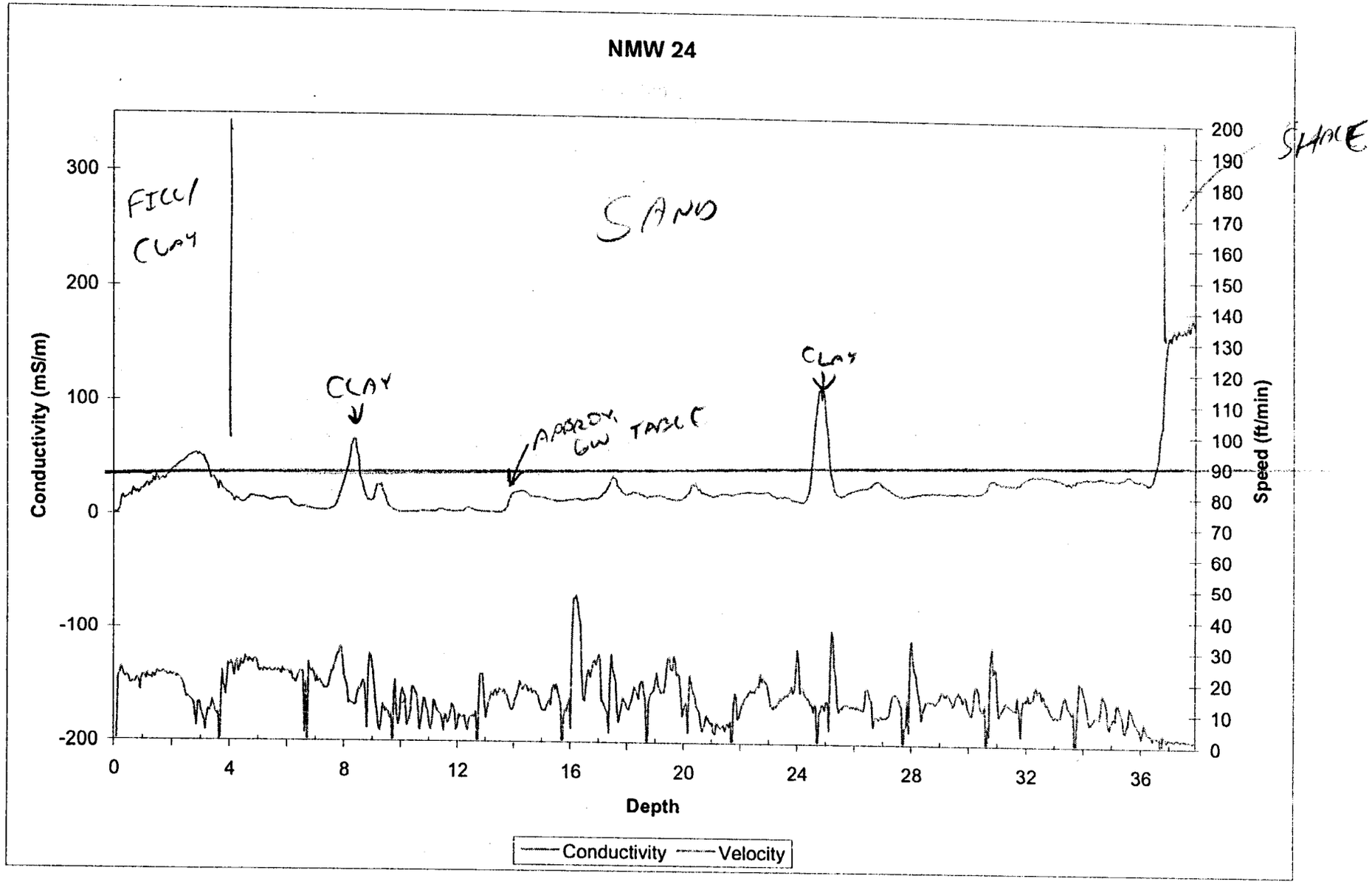

NMW 19
SAND/ FILL
SAND/ CLAY
SAND
APPROX. GW TABLE
Conductivity (mS/m)
Speed (ft/min)
Depth
Conductivity
Velocity

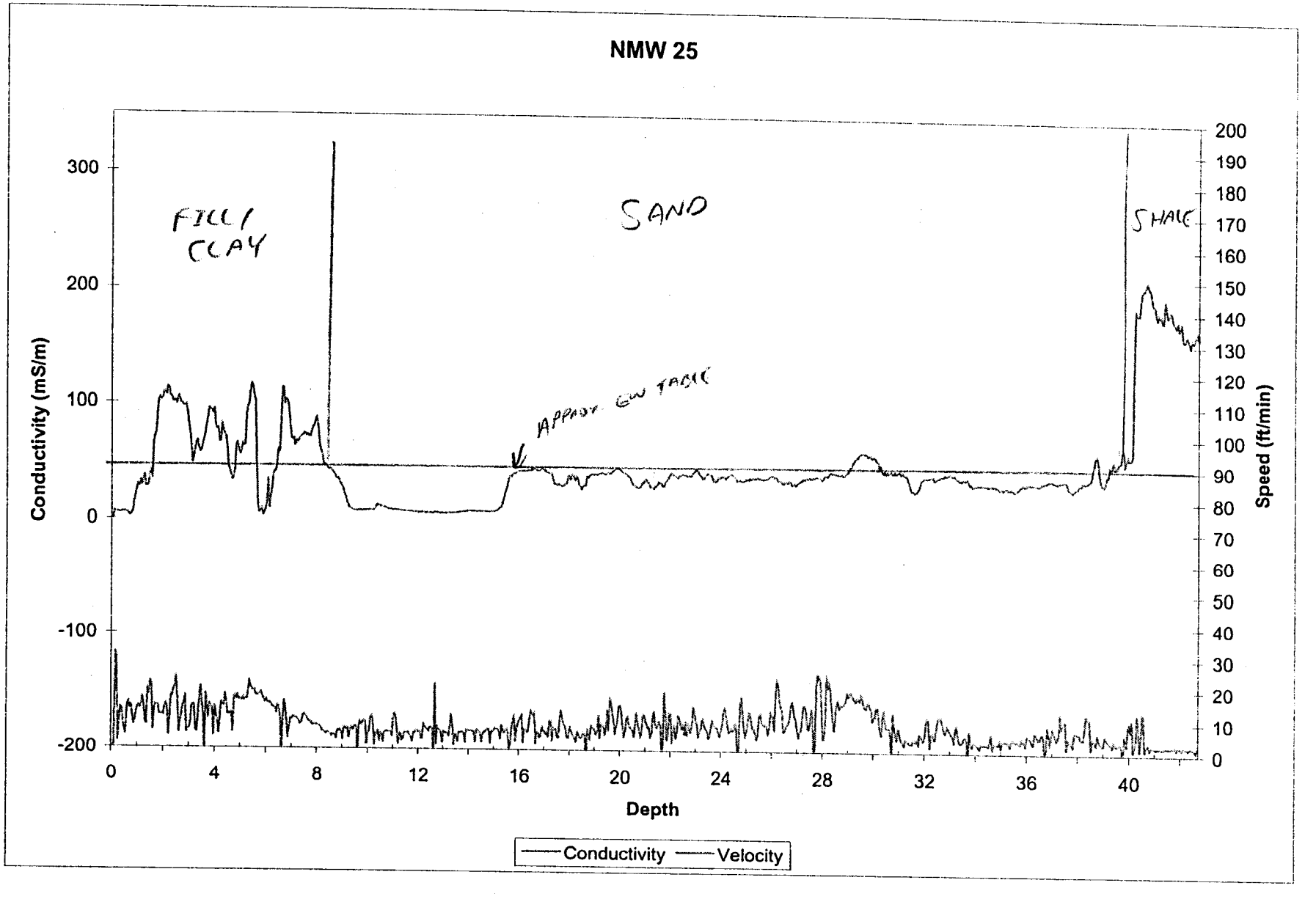

NMW 20
Conductivity (mS/m)
Speed (ft/min)
Depth
300
200
100
0
-100
-200
0
4
8
12
16
20
24
28
32
36
40
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
(NO RESPONSE)
SANDY SILT
SAND
CLAY
APPROX. WATER TABLE
CLAY
Conductivity
Velocity

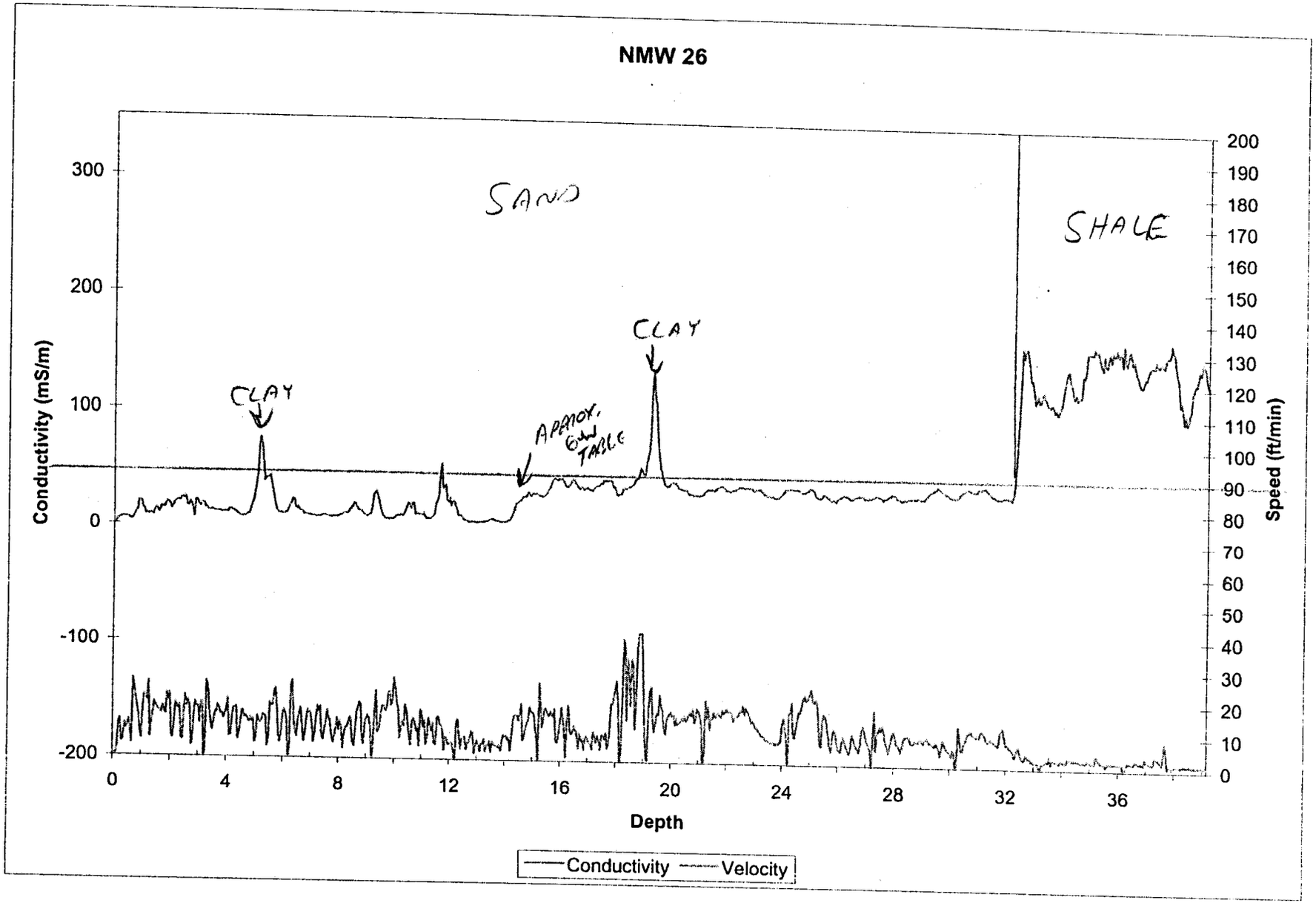

NMW 21
Conductivity (mS/m)
Speed (ft/min)
Depth
Conductivity
Velocity
SILTY/ CLAYEY SAND.
SAND
CLAY
SAND
APPROX. GW. TABLE
SURF

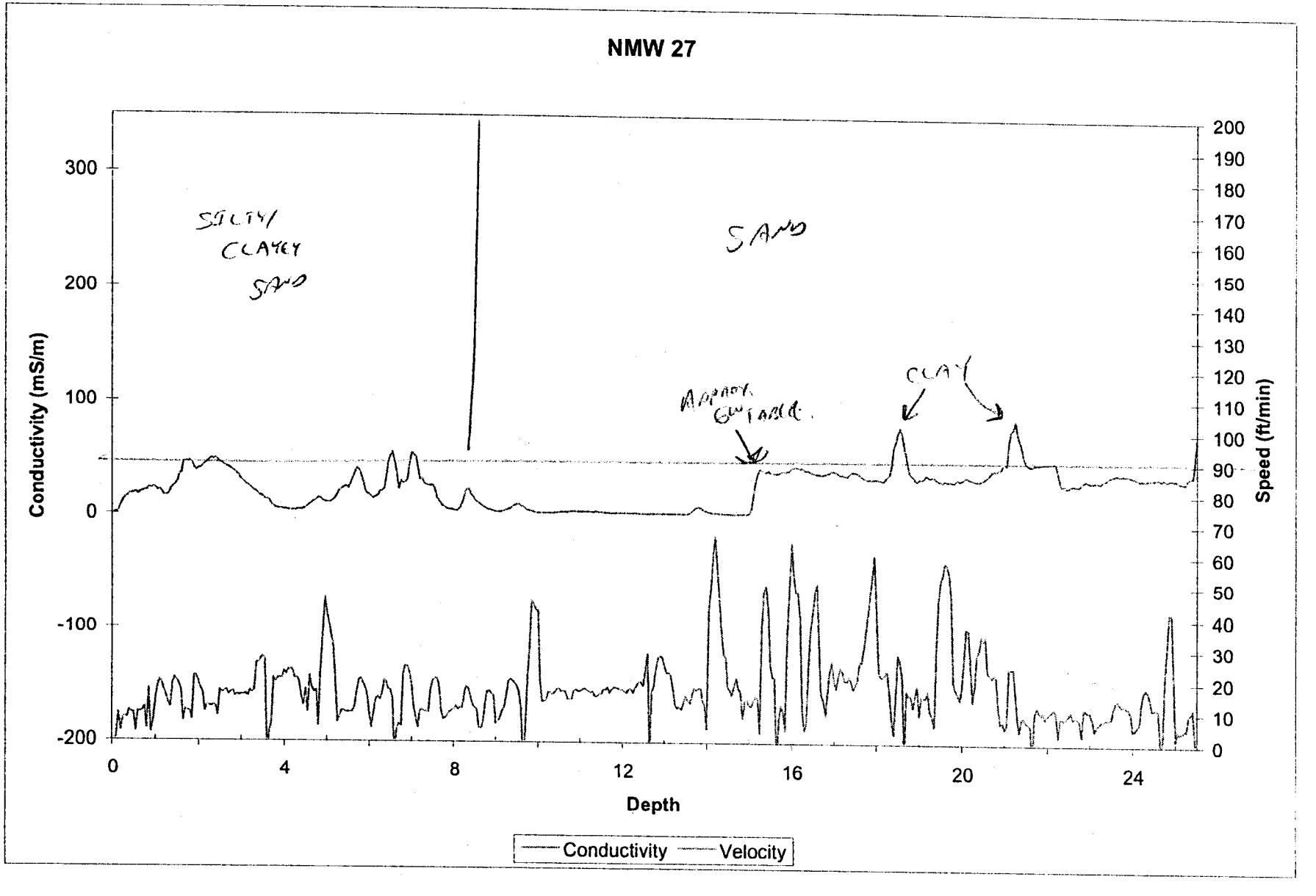

NMW 22
SAND
SANDY CLAY
SAND
SHALE
CLAY
APPROX. GW TABLE
Conductivity (mS/m)
Speed (ft/min)
Depth
Conductivity
Velocity

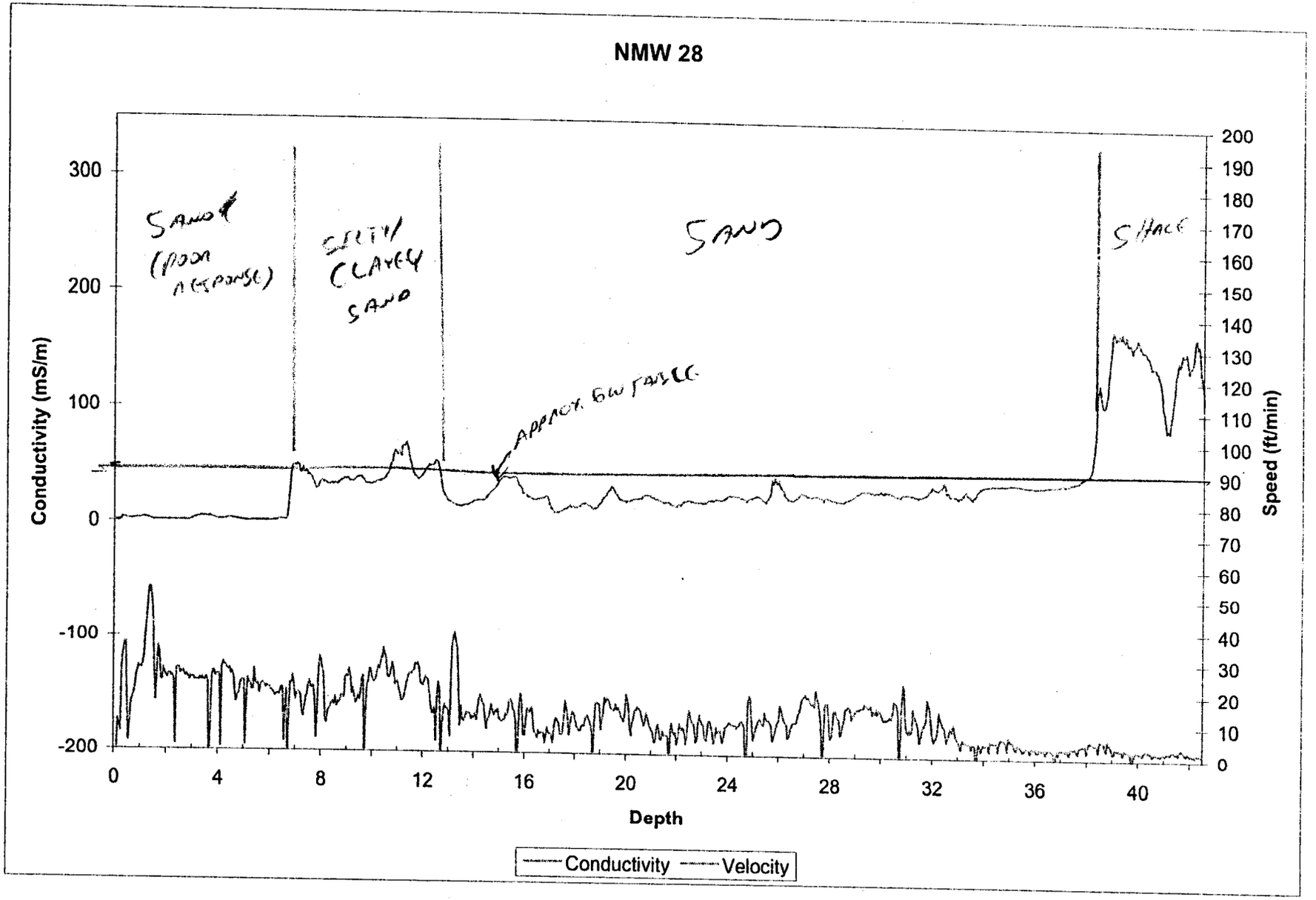

NMW 23
SAND/ FILL
SAND
CLAY
SAND
CLAY
APPROX. GW TABLE
SHALE
Conductivity (mS/m)
Speed (ft/min)
Depth
Conductivity
Velocity

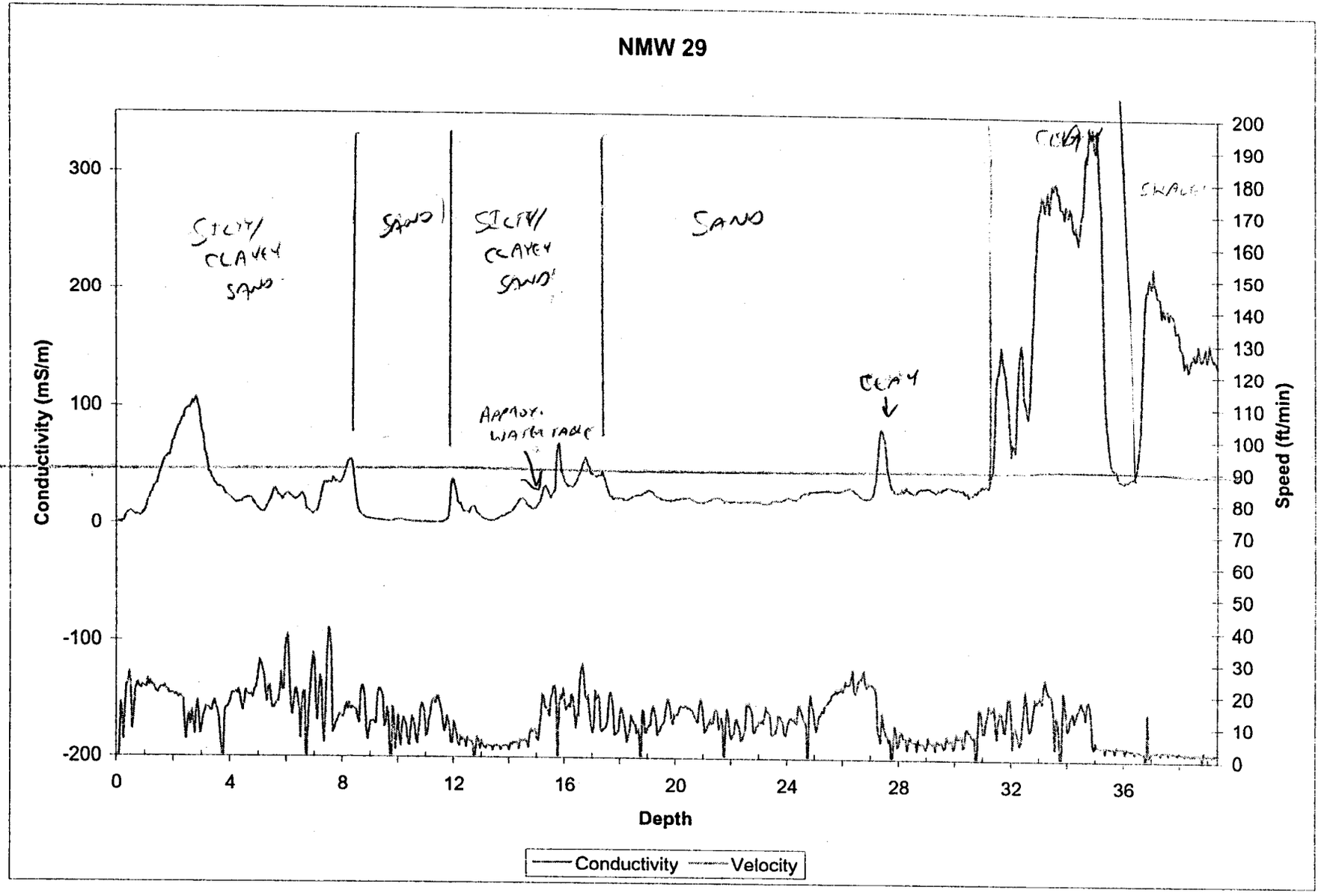

NMW 24
FILL/ CLAY
SAND
CLAY
CLAY
APPROX. GW TABLE
SHALE
Conductivity (mS/m)
Speed (ft/min)
Depth
Conductivity
Velocity

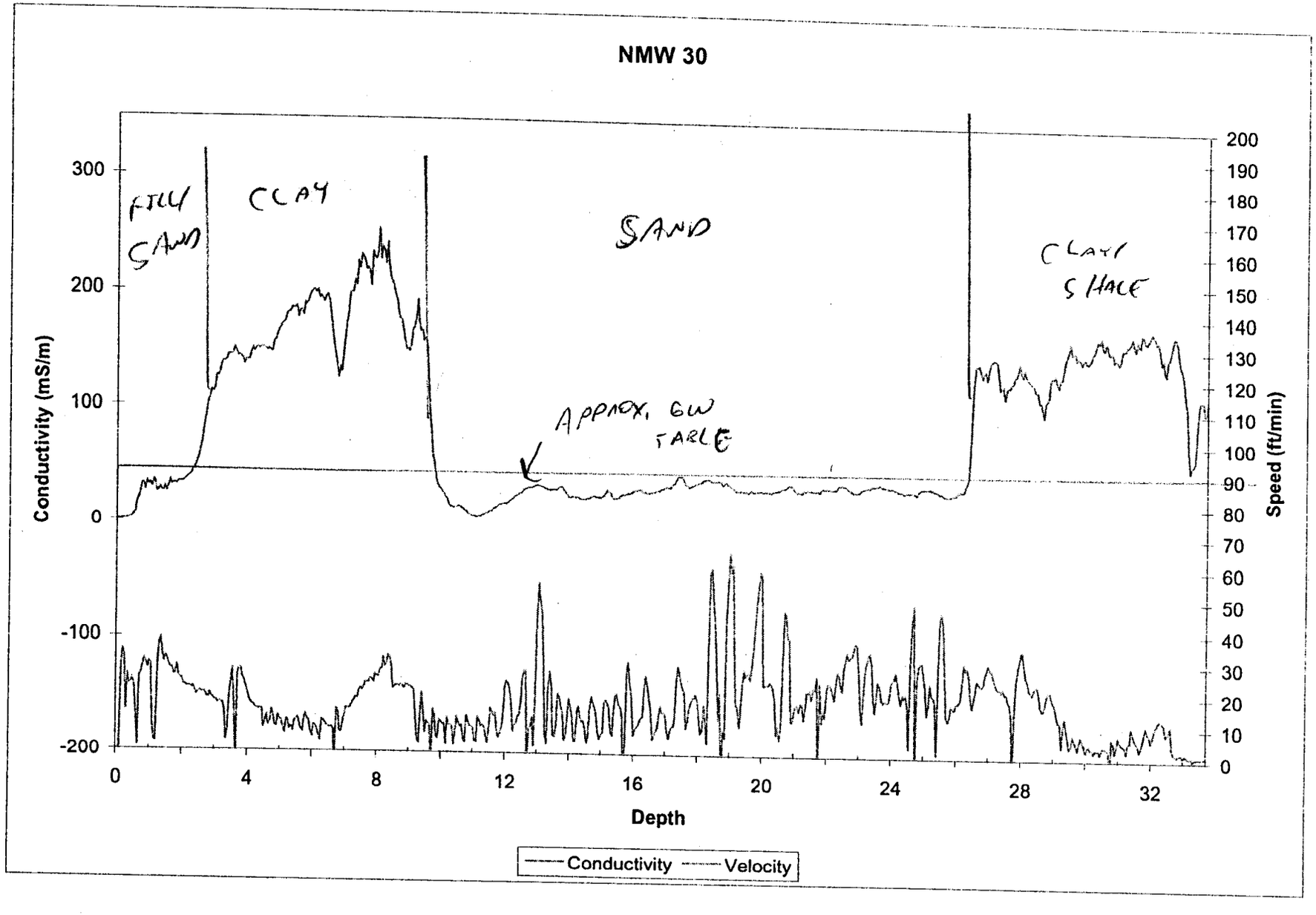

NMW 25
FILL / CLAY
SAND
SHALE
APPROX. GW TABLE
Conductivity (mS/m)
Speed (ft/min)
Depth
300
200
100
0
-100
-200
0
4
8
12
16
20
24
28
32
36
40
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
Conductivity
Velocity


NMW 26
SAND
SHALE
CLAY
CLAY
APPROX. GW TABLE
Conductivity (mS/m)
Speed (ft/min)
Depth
300
200
100
0
-100
-200
0
4
8
12
16
20
24
28
32
36
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
Conductivity
Velocity

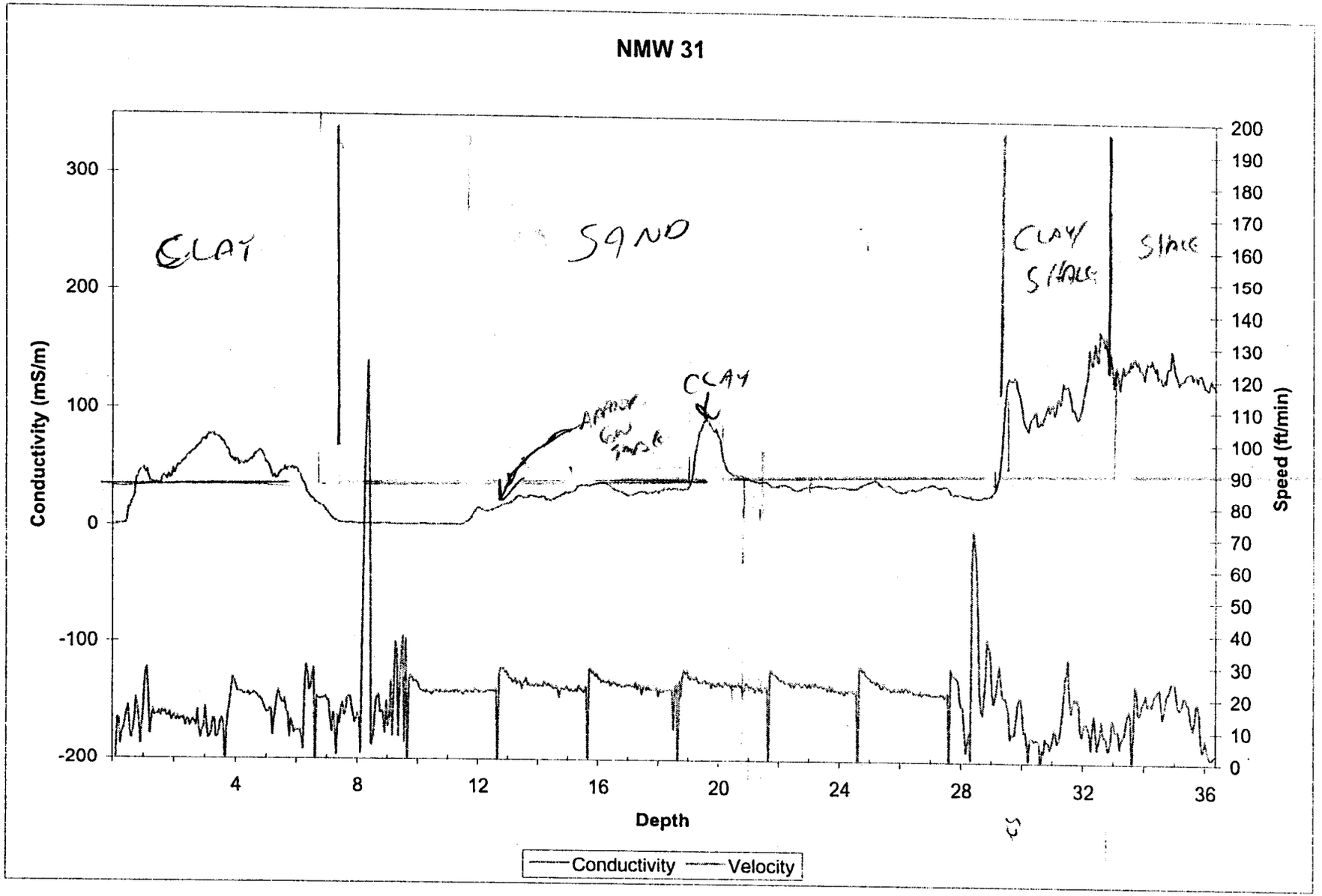

NMW 27
SILTY/
CLAYEY
SAND
SAND
APPROX.
GW TABLE.
CLAY
Conductivity (mS/m)
Speed (ft/min)
Depth
300
200
100
0
-100
-200
0
4
8
12
16
20
24
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
Conductivity
Velocity

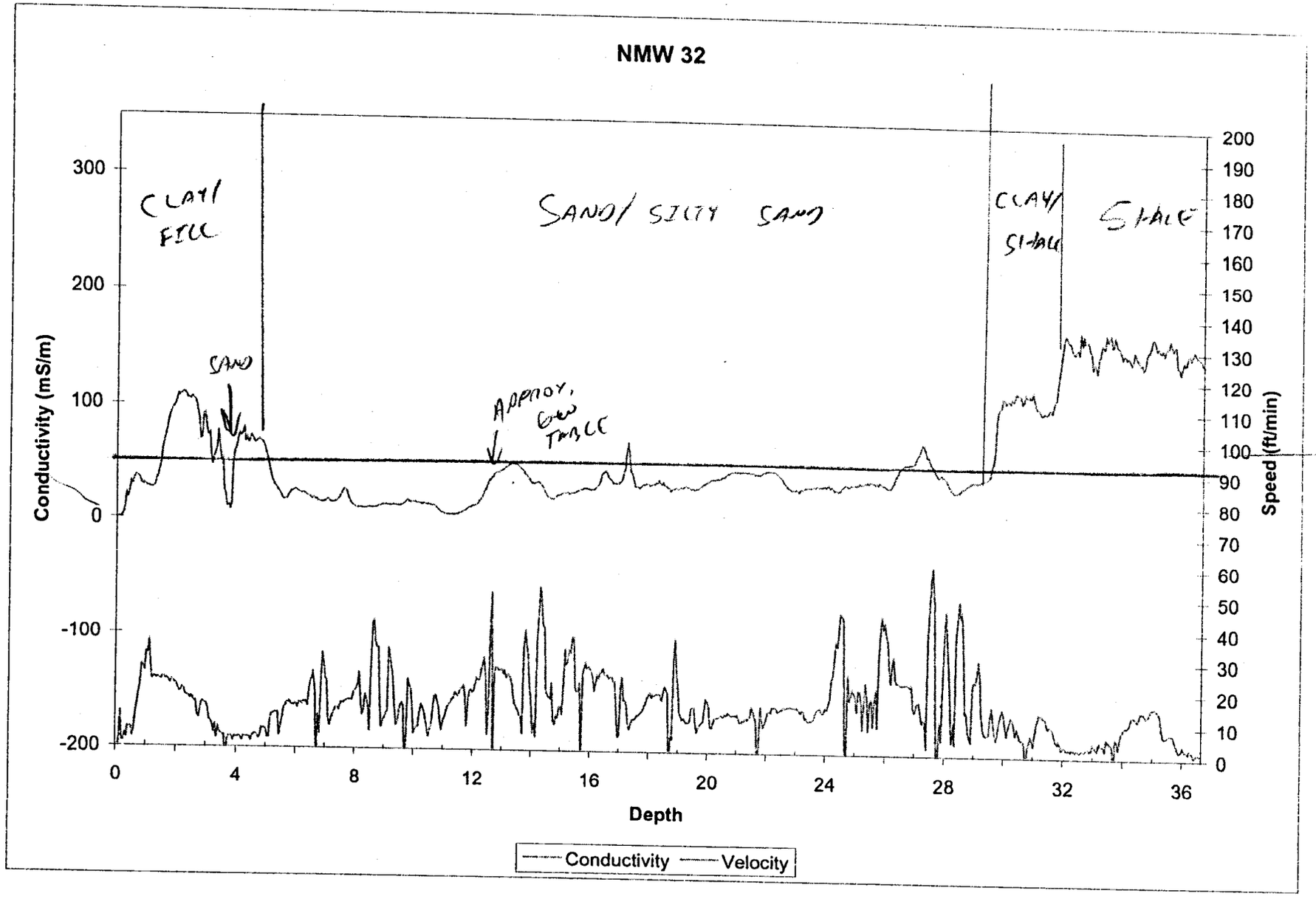

NMW 28
Conductivity (mS/m)
Speed (ft/min)
Depth
SAND (POOR RESPONSE)
SILTY CLAYEY SAND
SAND
APPROX. GW TABLE
SLACK
Conductivity
Velocity

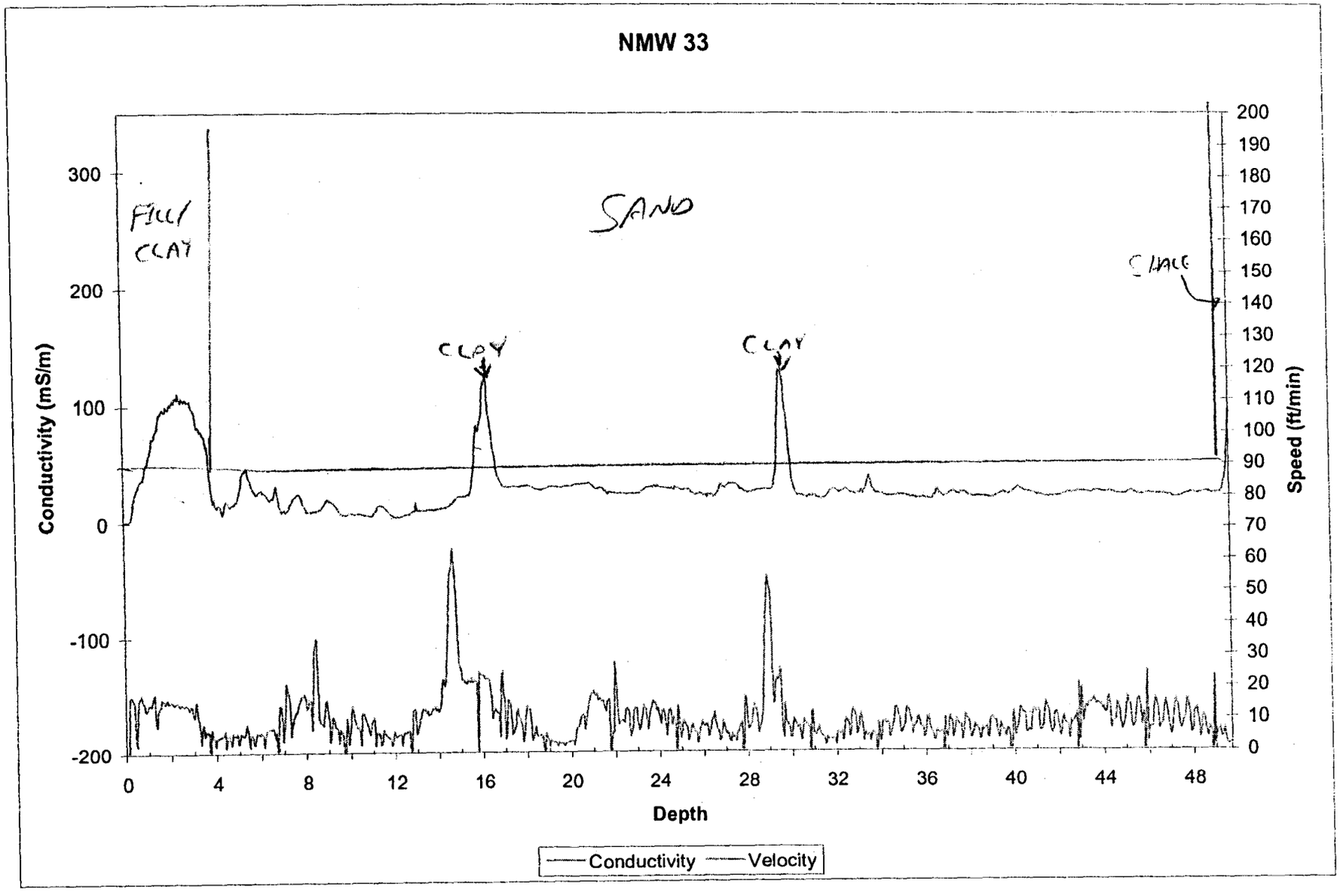

NMW 29
Conductivity (mS/m)
Speed (ft/min)
Depth
SILTY/ CLAYEY SAND
SAND
SILTY/ CLAYEY SAND
SAND
CLAY
APPROX. WATER TABLE
CLAY
SHALE
Conductivity
Velocity

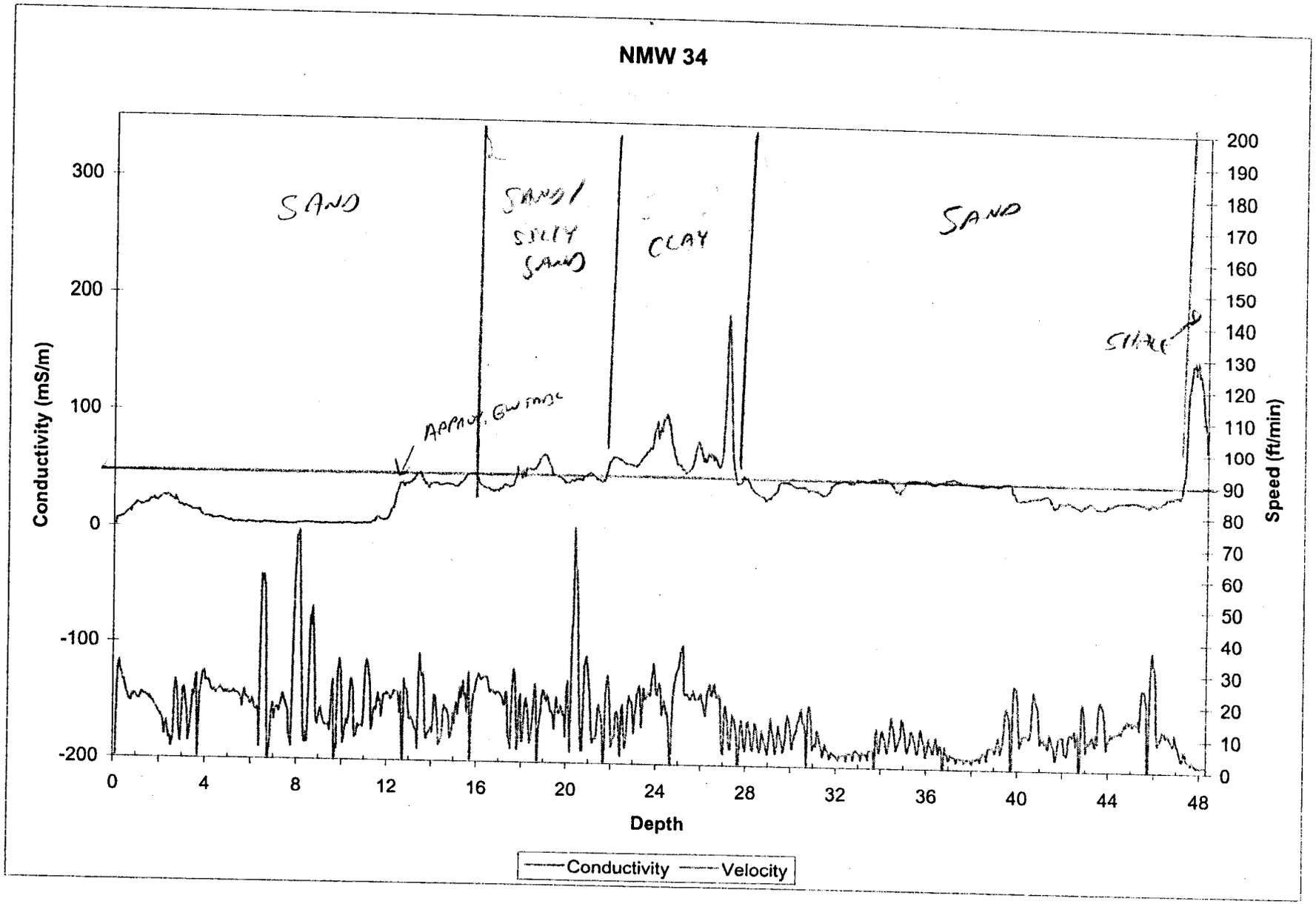

NMW 30
Conductivity (mS/m)
Speed (ft/min)
Depth
FILL SAND
CLAY
SAND
CLAY SHALE
APPROX. GW TABLE
Conductivity
Velocity

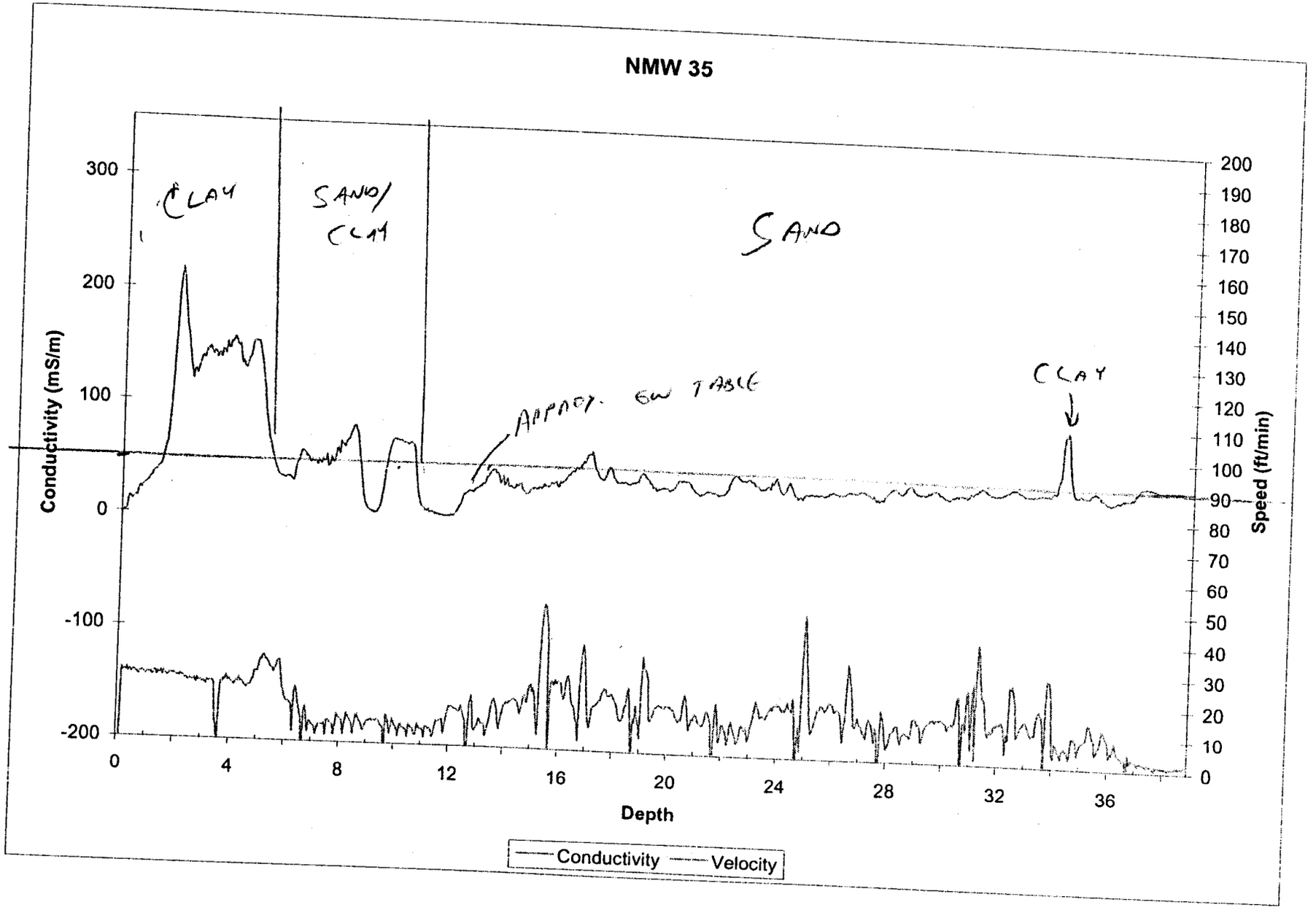
X

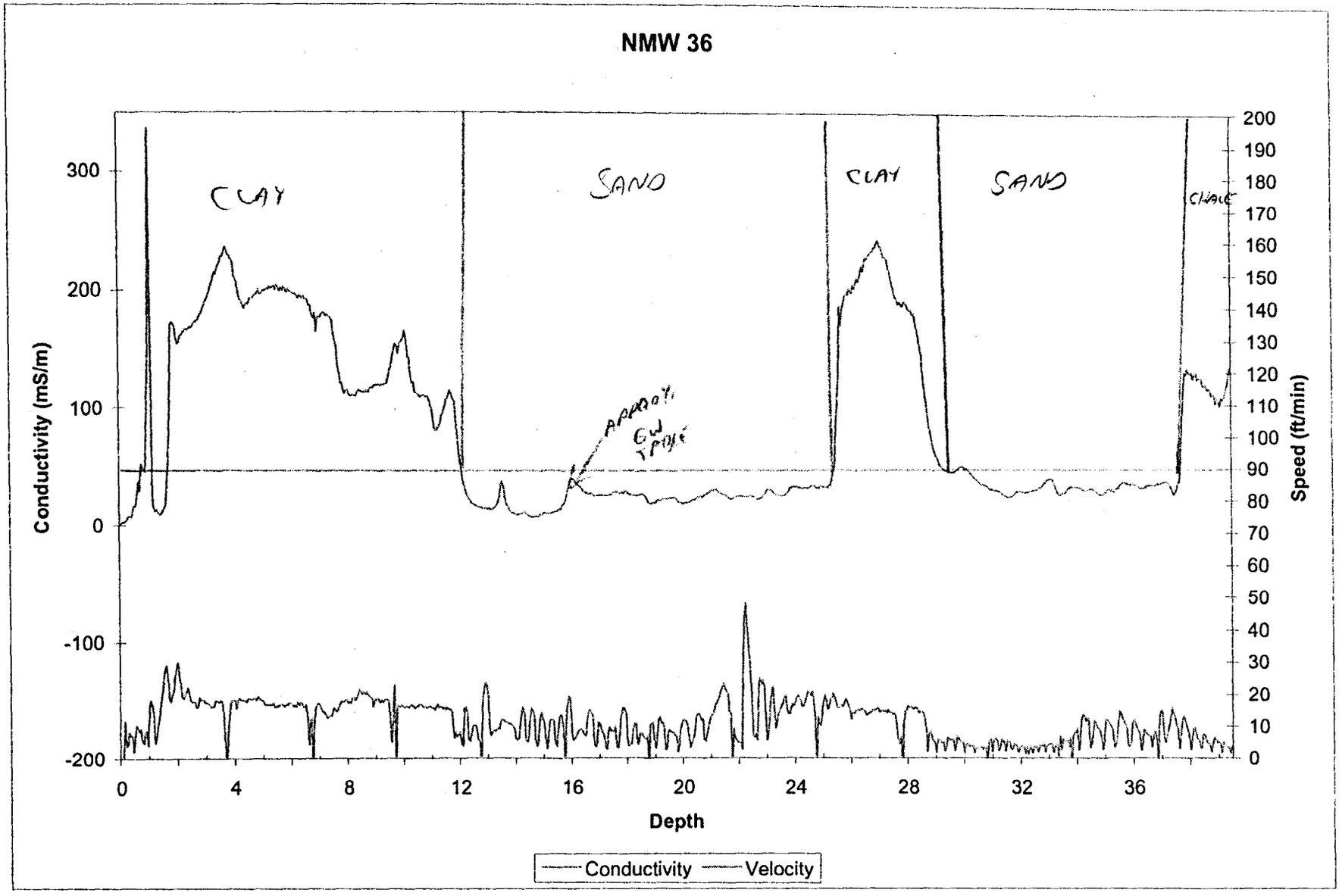

NMW 31
CLAY
SAND
CLAY
CLAY SHALE
SHALE
Conductivity (mS/m)
Speed (ft/min)
Depth
Conductivity
Velocity

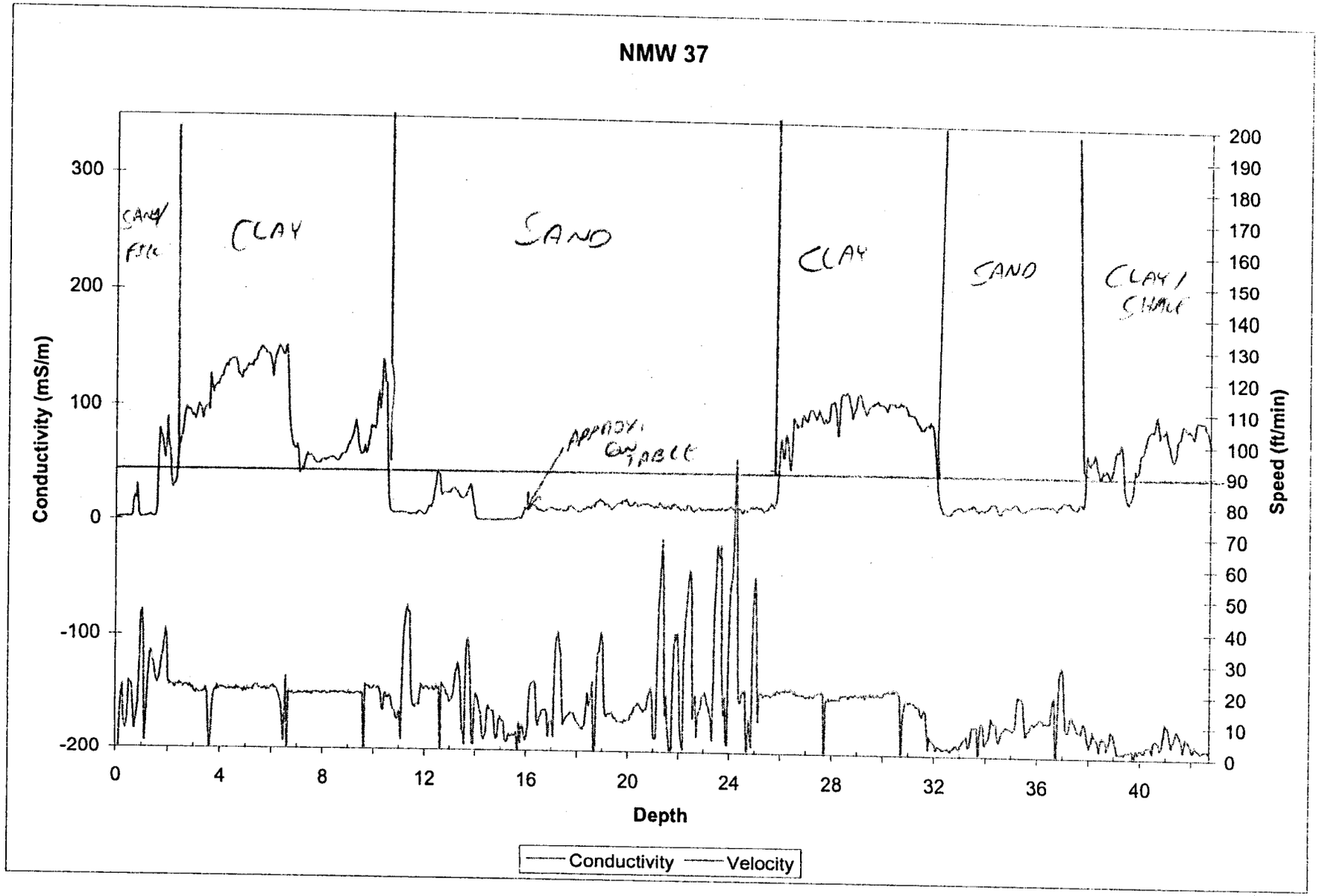

NMW 32
CLAY/ FILL
SAND/ SILTY SAND
CLAY/ SHALE
SHALE
SAND
APPROX. GW TABLE
Conductivity (mS/m)
Speed (ft/min)
Depth
Conductivity
Velocity

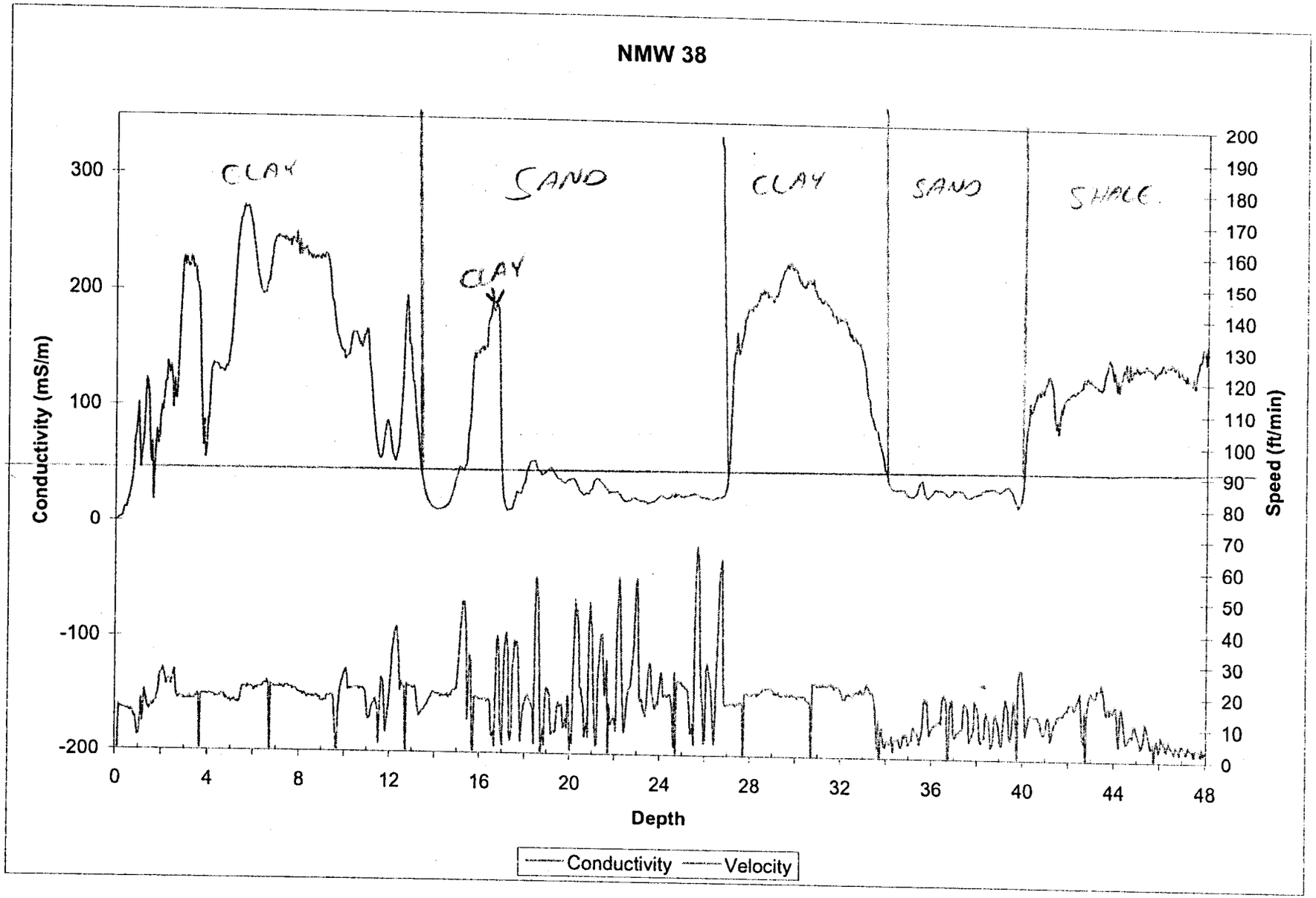

NMW 33
FILL/ CLAY
SAND
CLAY
CLAY
SHALE
Conductivity (mS/m)
Speed (ft/min)
Depth
300
200
100
0
-100
-200
0
4
8
12
16
20
24
28
32
36
40
44
48
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
Conductivity
Velocity

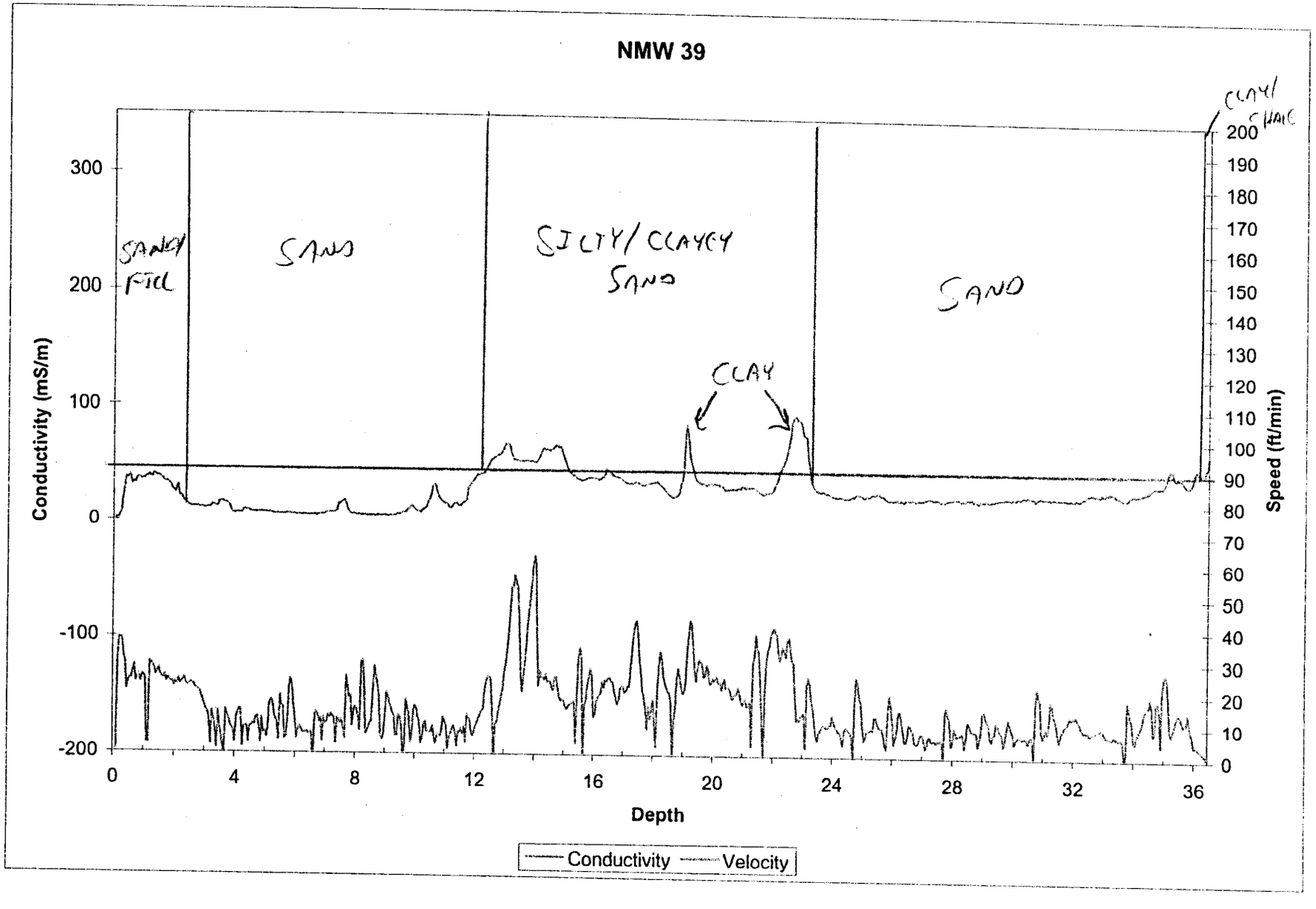

NMW 34
SAND
SAND/ SILTY SAND
CLAY
SAND
SHALE
APPROX. GW TABLE
Conductivity (mS/m)
Speed (ft/min)
Depth
Conductivity
Velocity

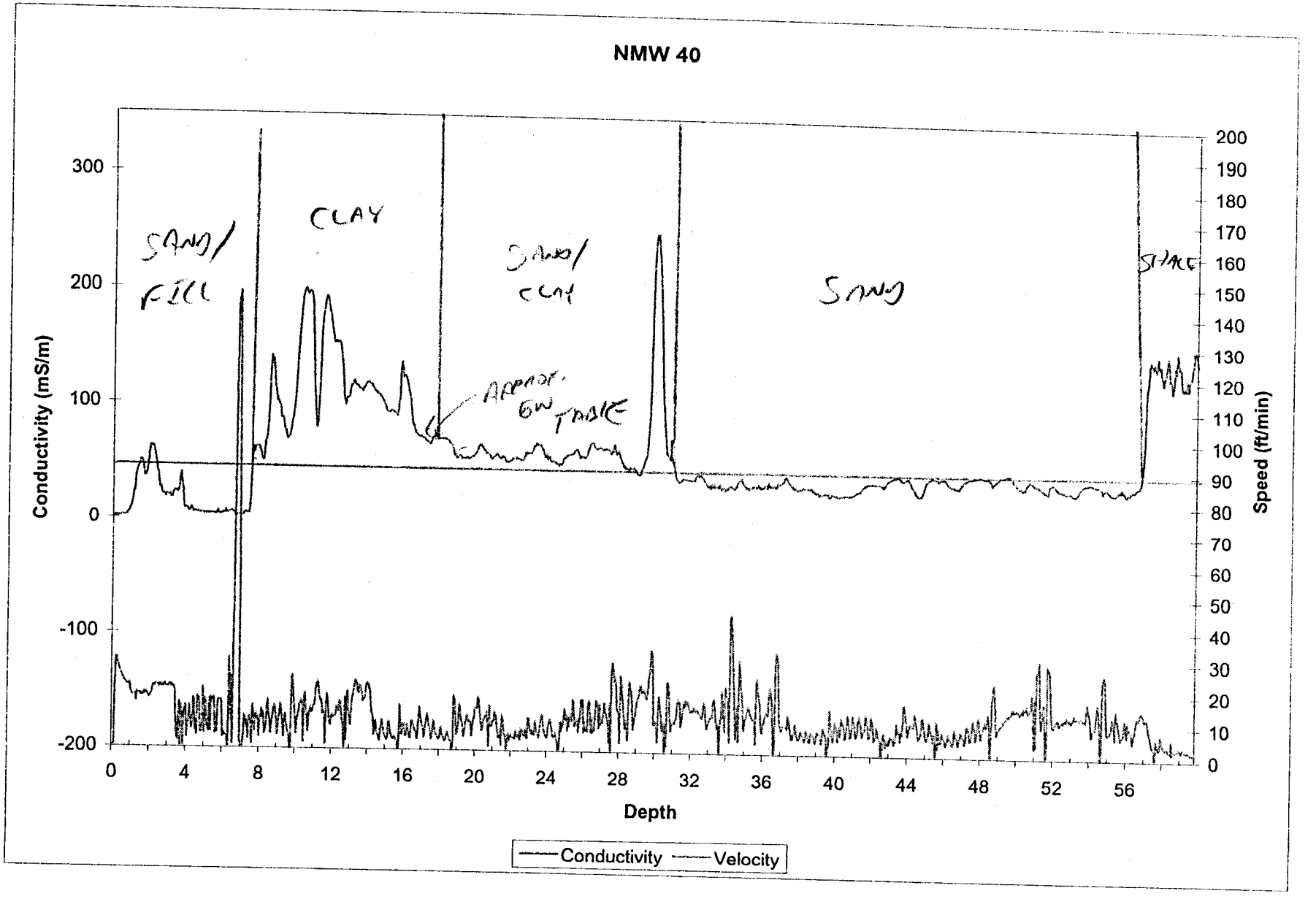

NMW 35
CLAY
SAND/ CLAY
SAND
APPROX. GW TABLE
CLAY
Conductivity (mS/m)
Speed (ft/min)
Depth
Conductivity
Velocity


NMW 36
CLAY
SAND
CLAY
SAND
CHALK
Conductivity (mS/m)
Speed (ft/min)
Depth
Conductivity
Velocity

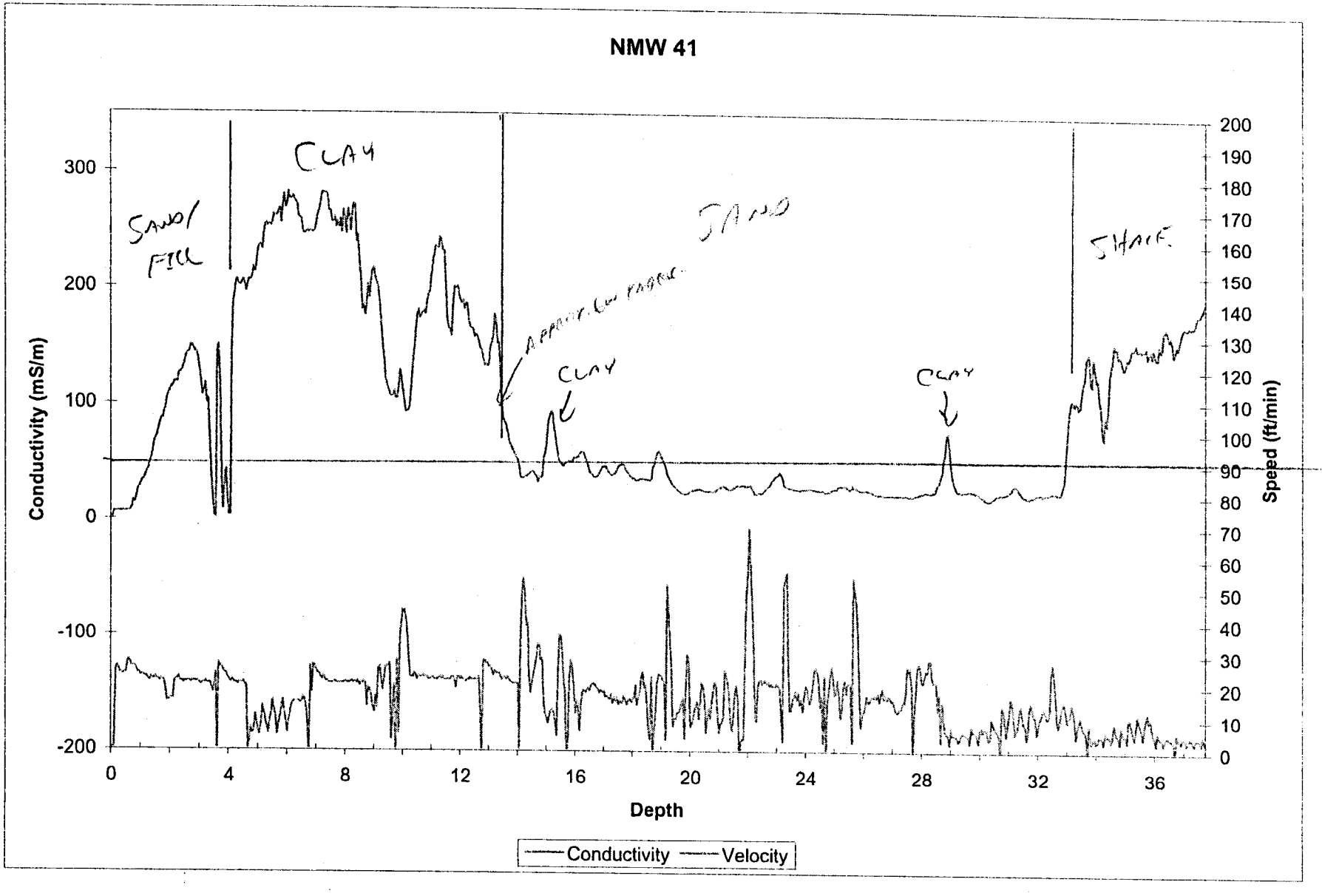

NMW 37
Conductivity (mS/m)
Speed (ft/min)
Depth
SANDY FILL
CLAY
SAND
CLAY
SAND
CLAY / SHALE
APPROX. GW TABLE
Conductivity
Velocity

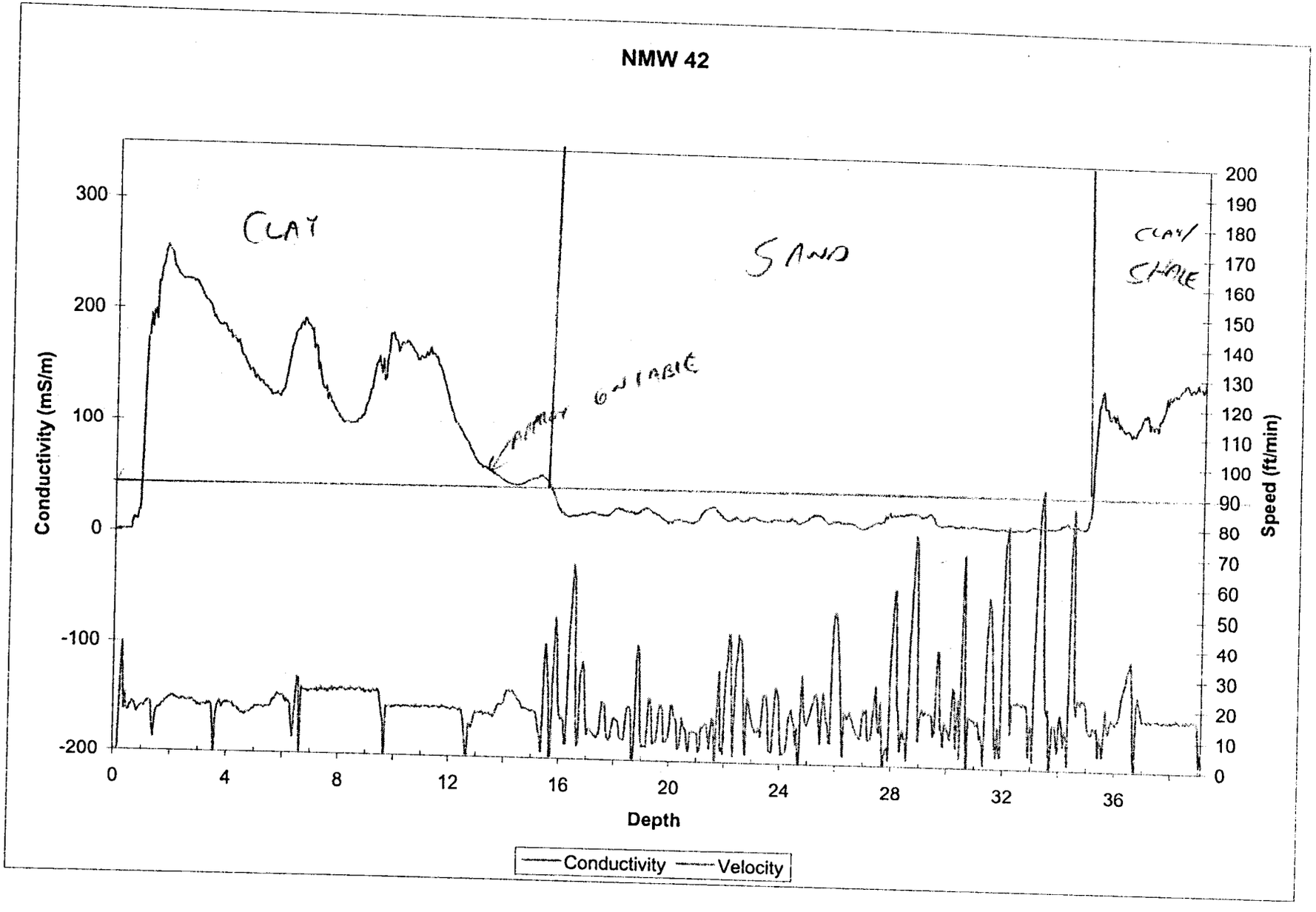

NMW 38
CLAY
SAND
CLAY
CLAY
SAND
SHALE
Conductivity (mS/m)
Speed (ft/min)
Depth
Conductivity
Velocity

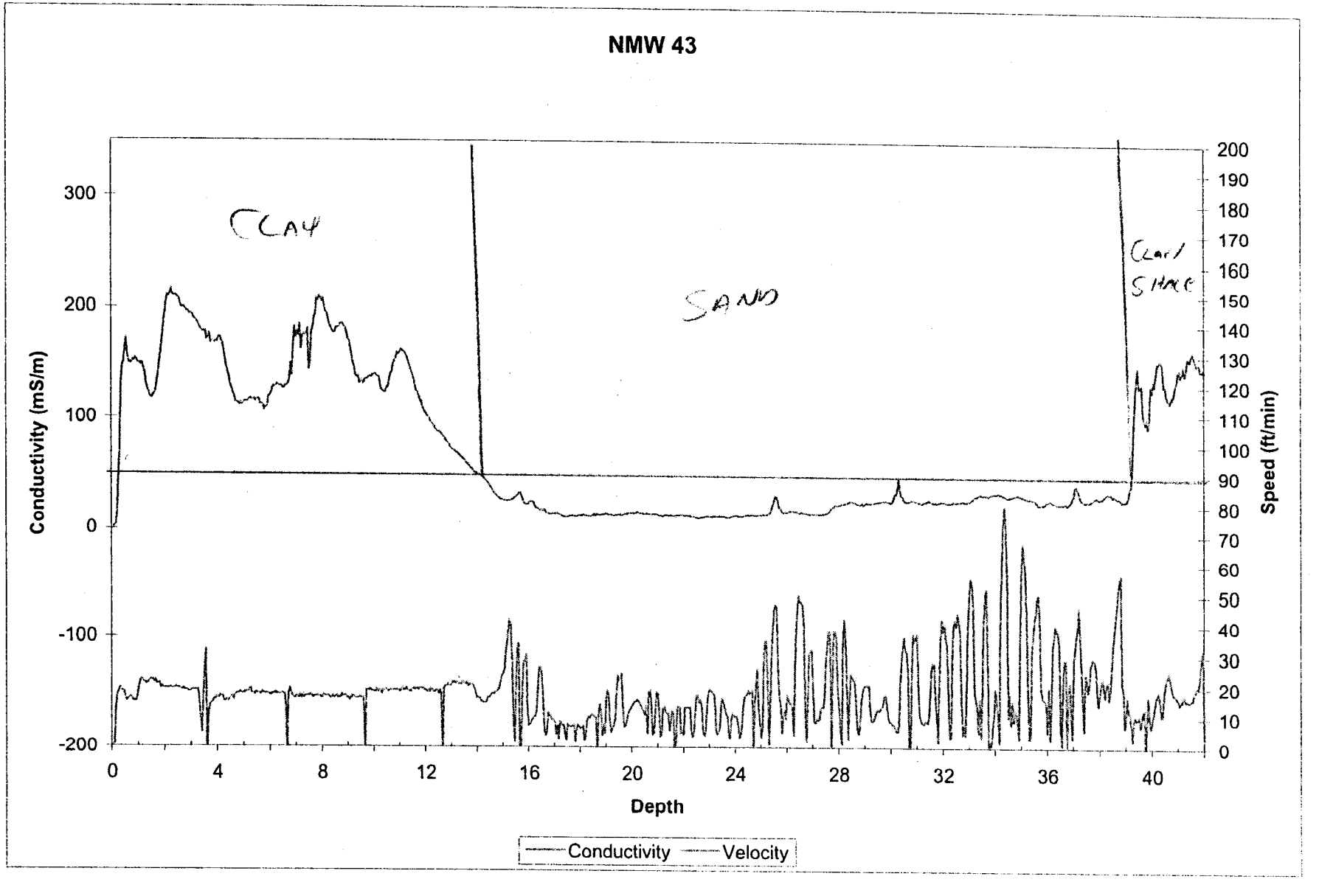

NMW 39
SANDY FILL
SAND
SILTY/CLAYEY SAND
CLAY
SAND
CLAY/SHALE
Conductivity (mS/m)
300
200
100
0
-100
-200
Speed (ft/min)
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
0
4
8
12
16
20
24
28
32
36
Depth
Conductivity
Velocity

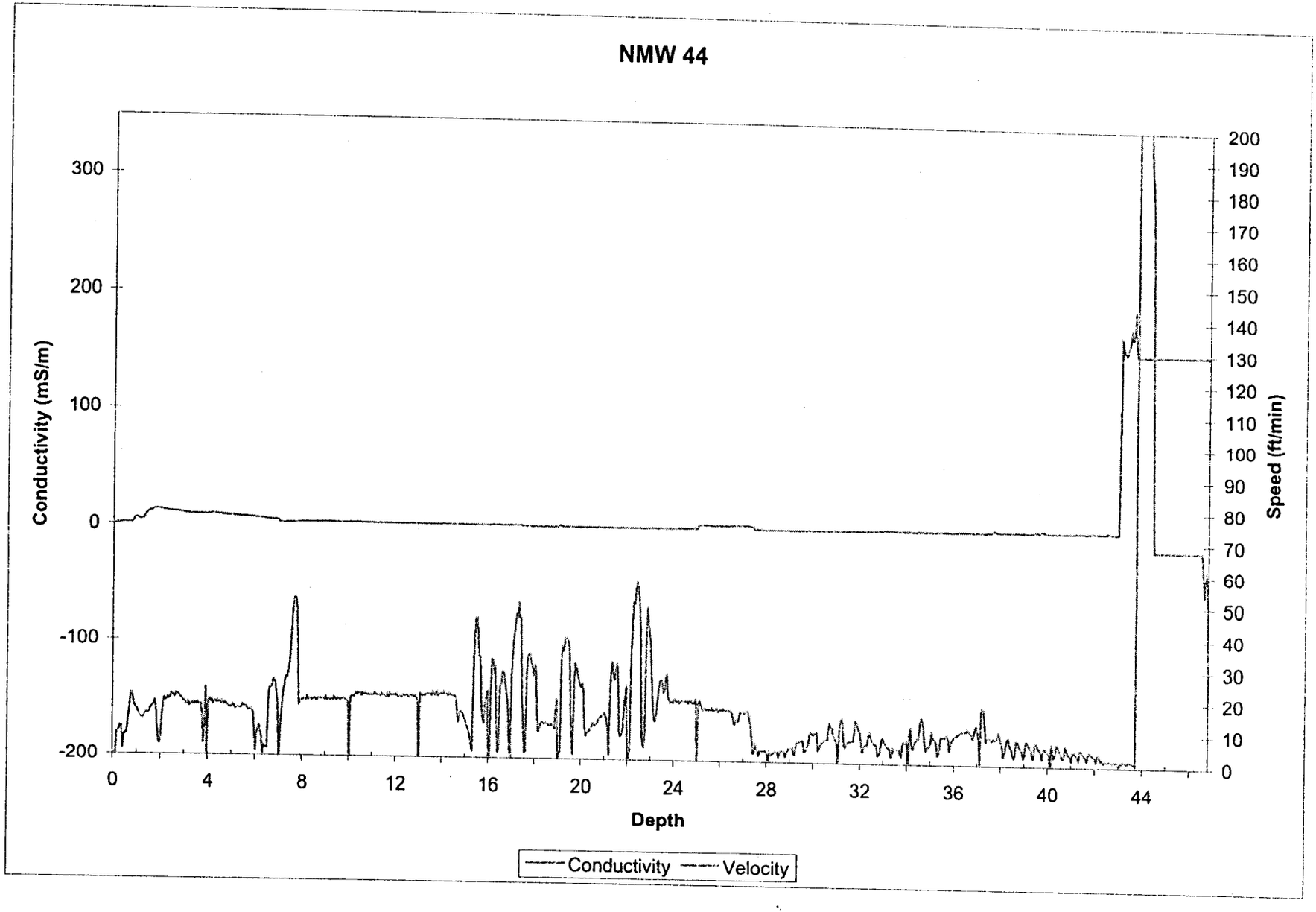

NMW 40
SAND/ FILL
CLAY
SAND/ CLAY
SAND
SAND
APPROX. GW TABLE
Conductivity (mS/m)
Speed (ft/min)
Depth
Conductivity
Velocity

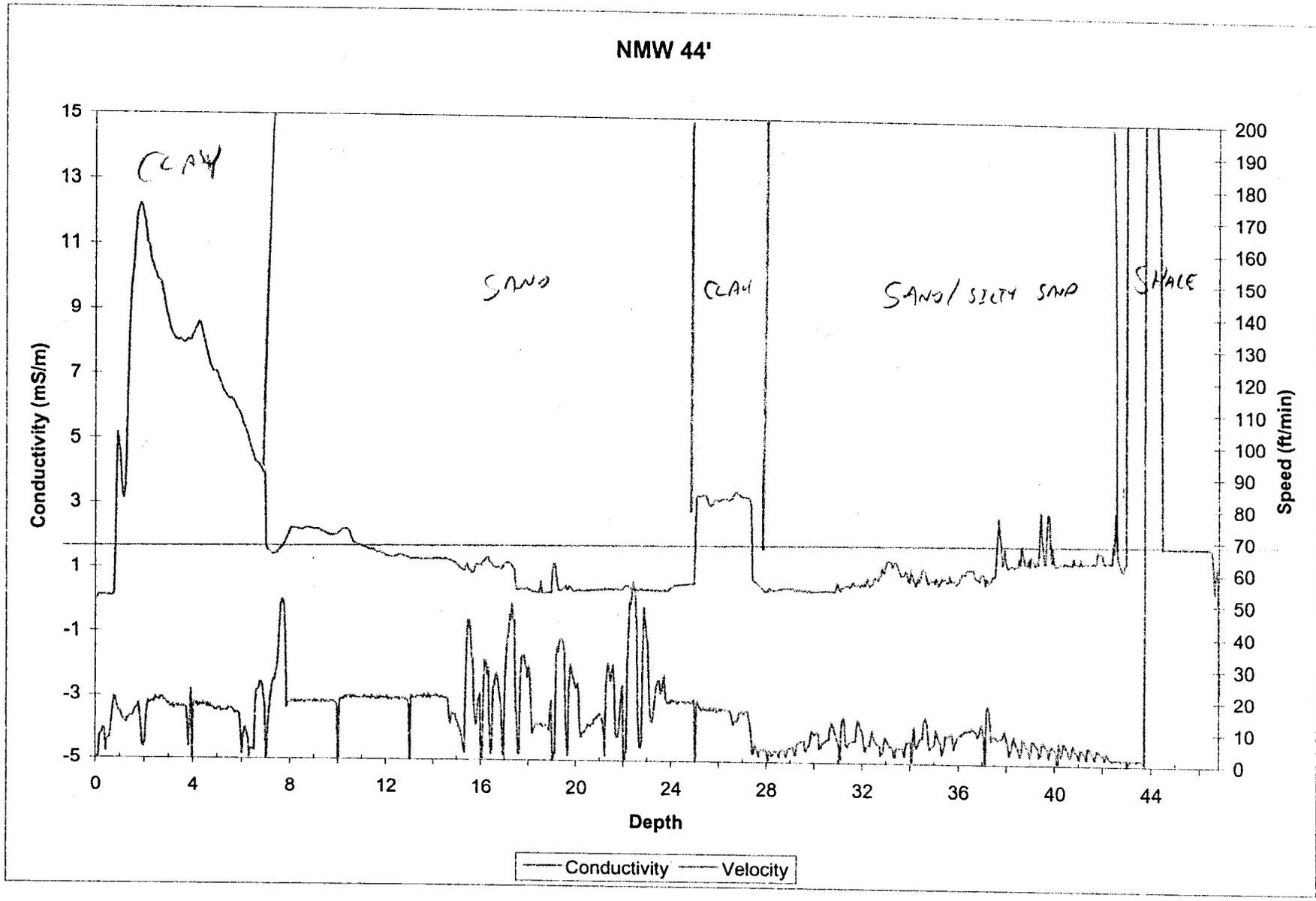
X

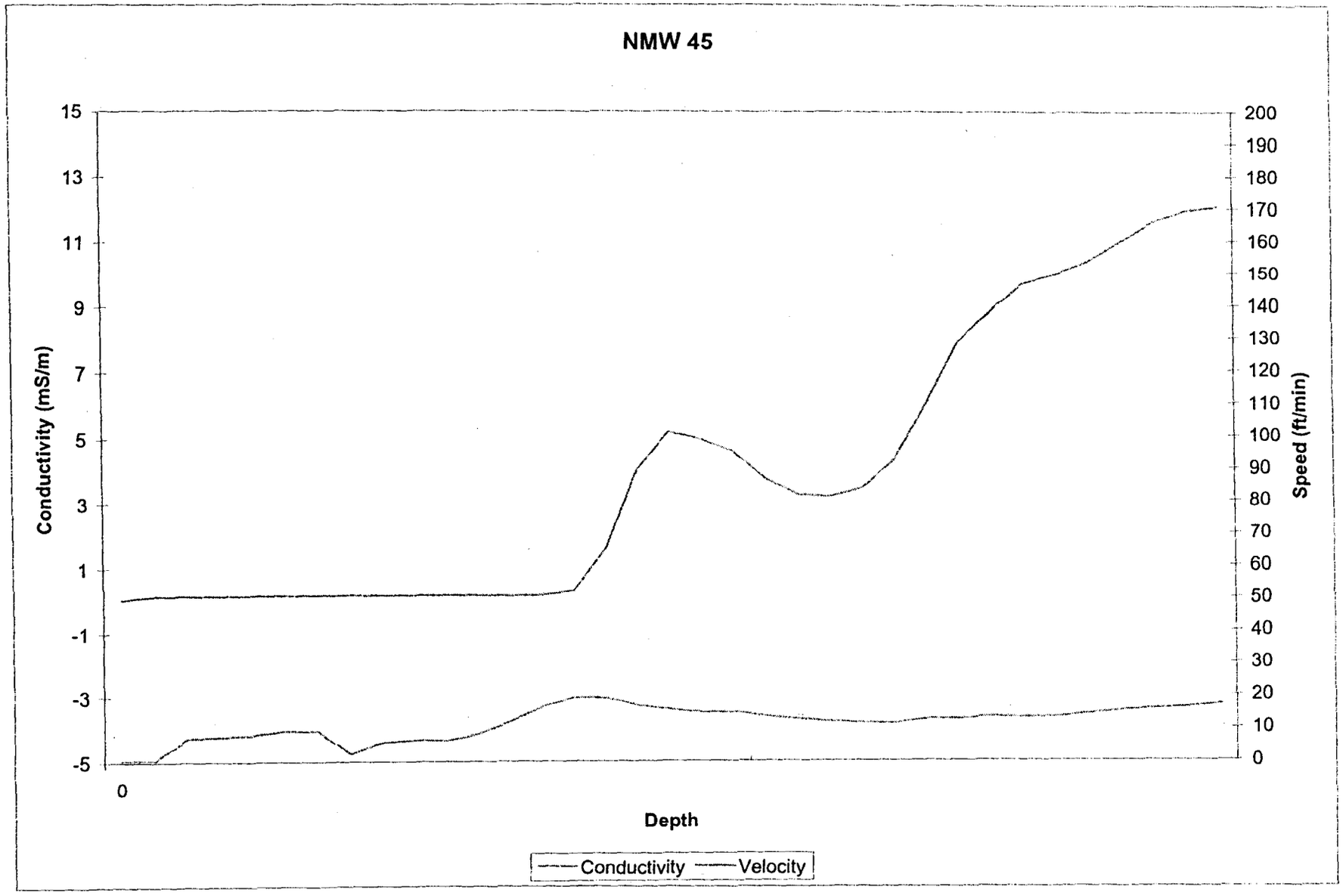

NMW 41
Conductivity (mS/m)
Speed (ft/min)
Depth
Conductivity
Velocity
SAND/ FILL
CLAY
SAND
CLAY
CLAY
SHALE
300
200
100
0
-100
-200
0
4
8
12
16
20
24
28
32
36
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0

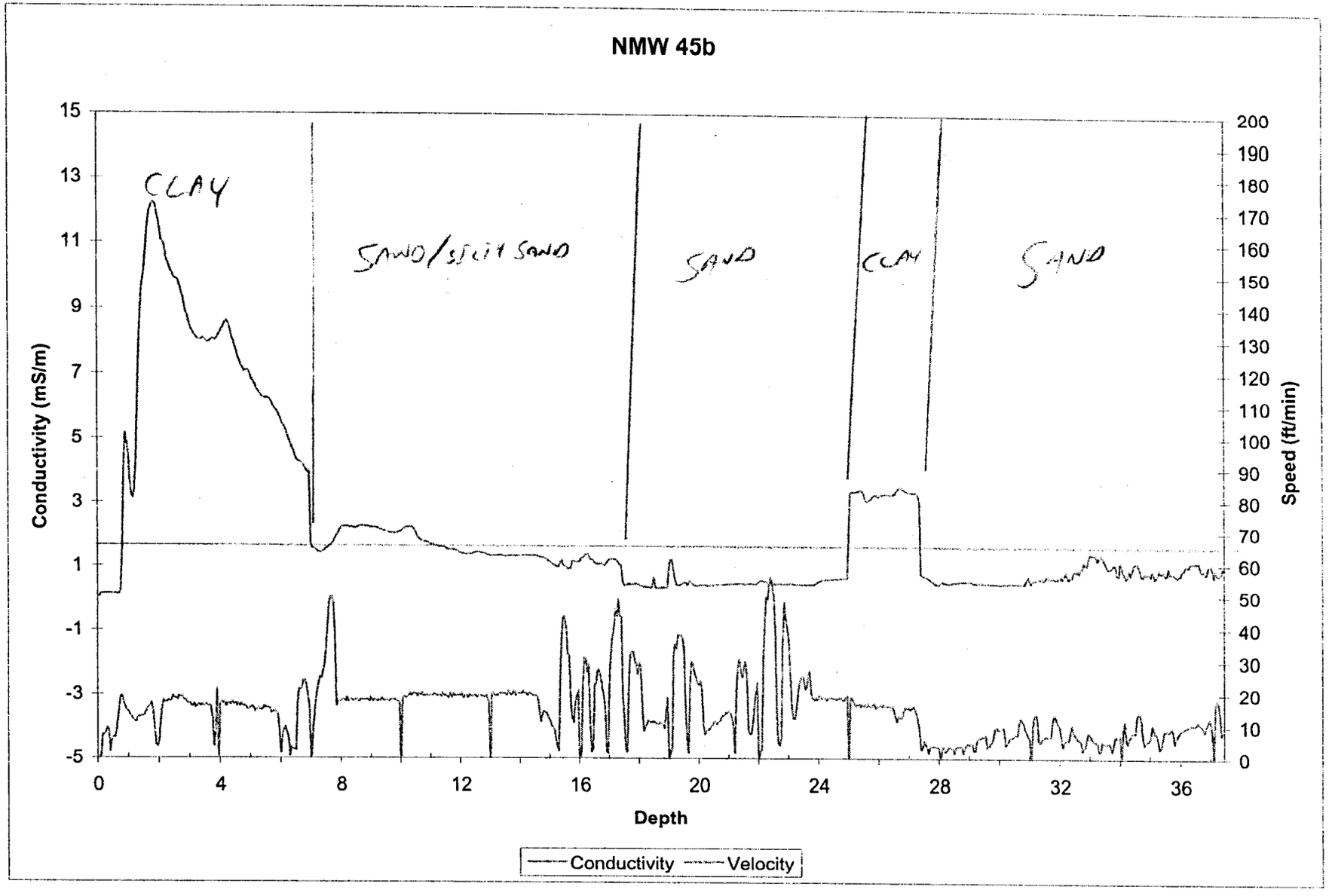

NMW 42
CLAY
SAND
CLAY/
SHALE
WATER TABLE
Conductivity (mS/m)
Speed (ft/min)
Depth
300
200
100
0
-100
-200
0
4
8
12
16
20
24
28
32
36
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
Conductivity
Velocity


NMW 43
CLAY
SAND
Clay/
Shale
Conductivity (mS/m)
Speed (ft/min)
Depth
300
200
100
0
-100
-200
0
4
8
12
16
20
24
28
32
36
40
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
Conductivity
Velocity

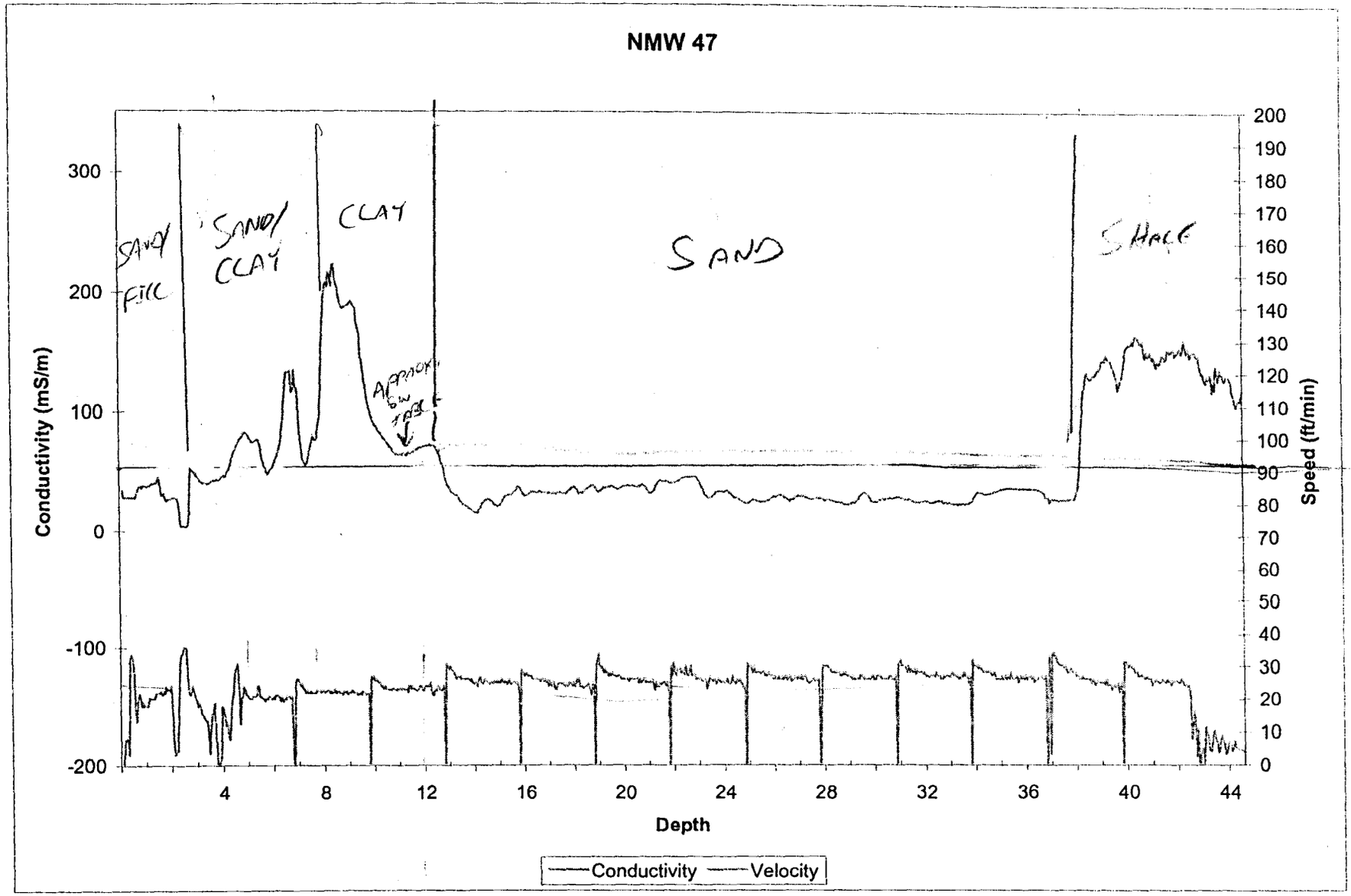

NMW 44
Conductivity (mS/m)
300
200
100
0
-100
-200
Speed (ft/min)
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
0
4
8
12
16
20
24
28
32
36
40
44
Depth
Conductivity
Velocity

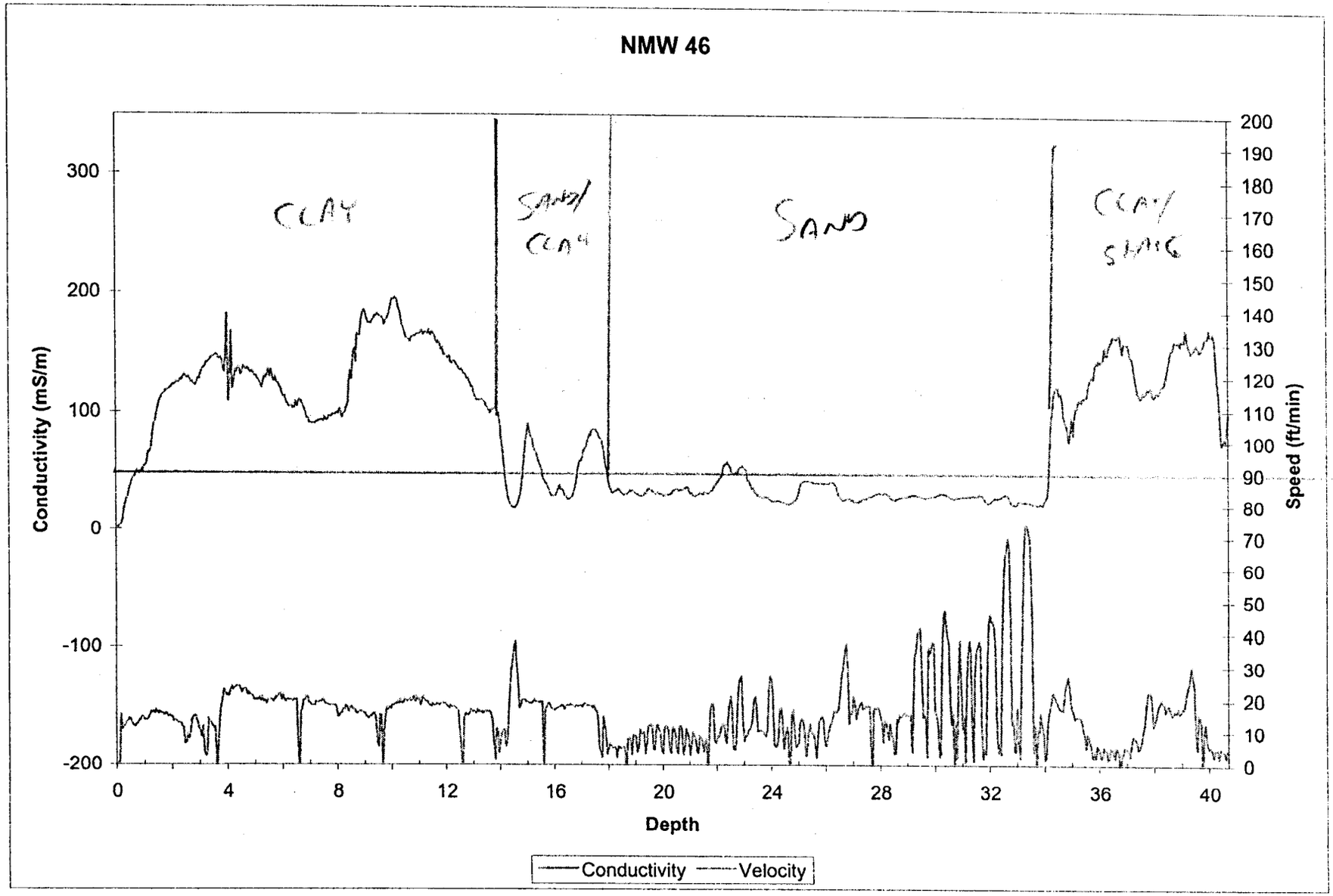

NMW 44'
CLAY
SAND
CLAY
SAND/ SILTY SAND
SHALE
Conductivity (mS/m)
Speed (ft/min)
Depth
15
13
11
9
7
5
3
1
-1
-3
-5
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
0
4
8
12
16
20
24
28
32
36
40
44
Conductivity
Velocity

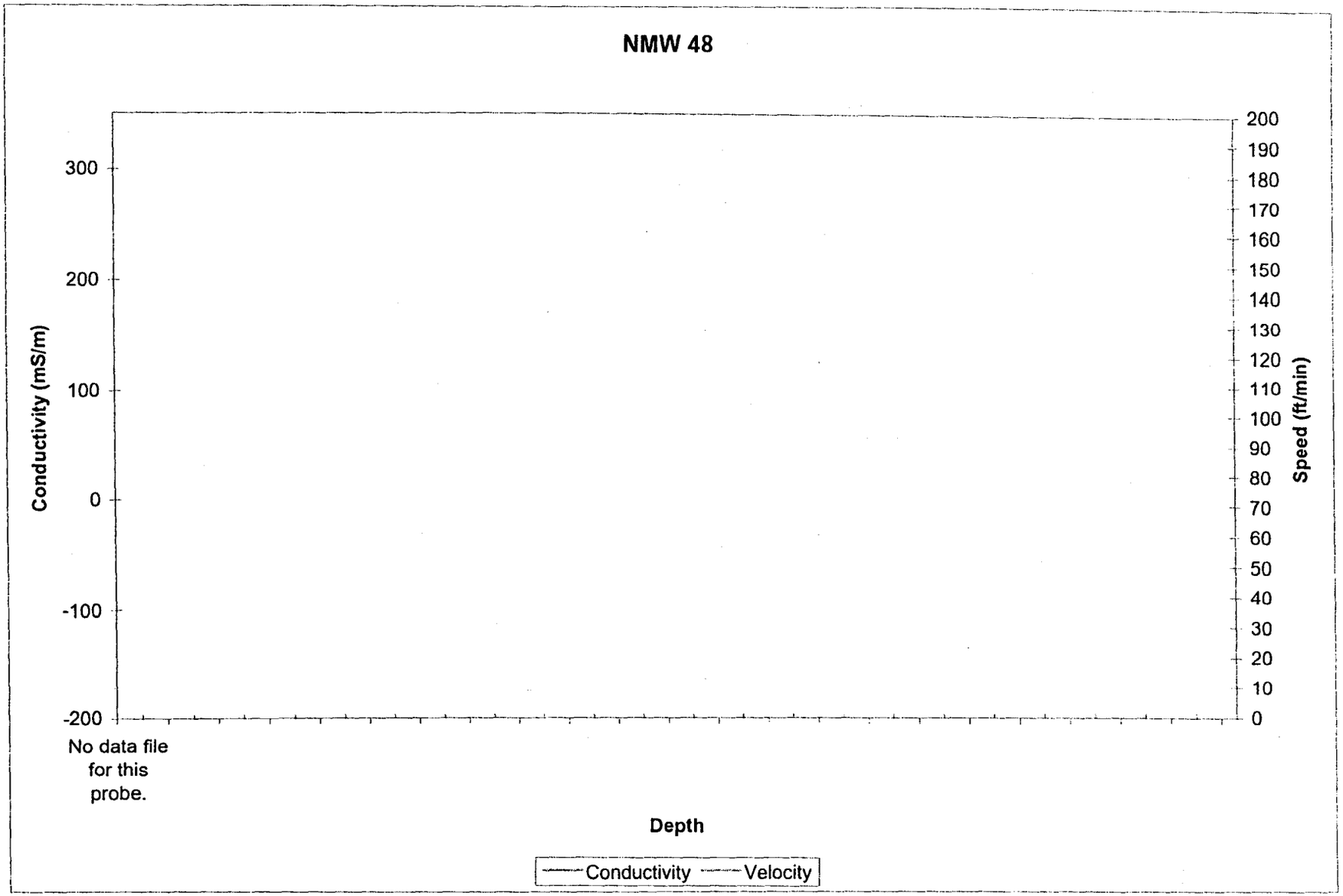

NMW 45
Conductivity (mS/m)
15
13
11
9
7
5
3
1
-1
-3
-5
Speed (ft/min)
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
0
Depth
Conductivity
Velocity

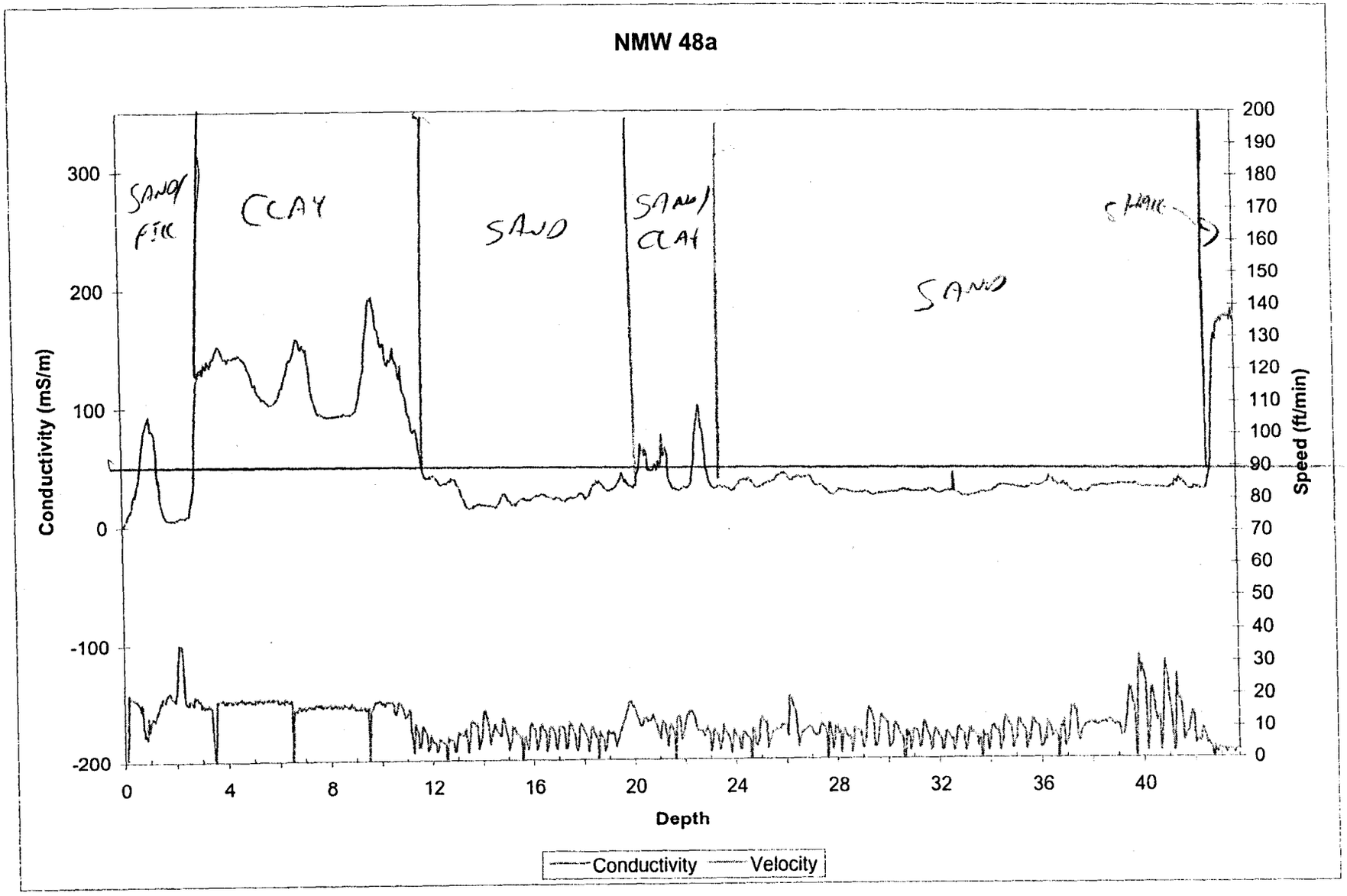

NMW 45b
CLAY
SAND/SILT SAND
SAND
CLAY
SAND
Conductivity (mS/m)
Speed (ft/min)
Depth
Conductivity
Velocity
15
13
11
9
7
5
3
1
-1
-3
-5
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
0
4
8
12
16
20
24
28
32
36

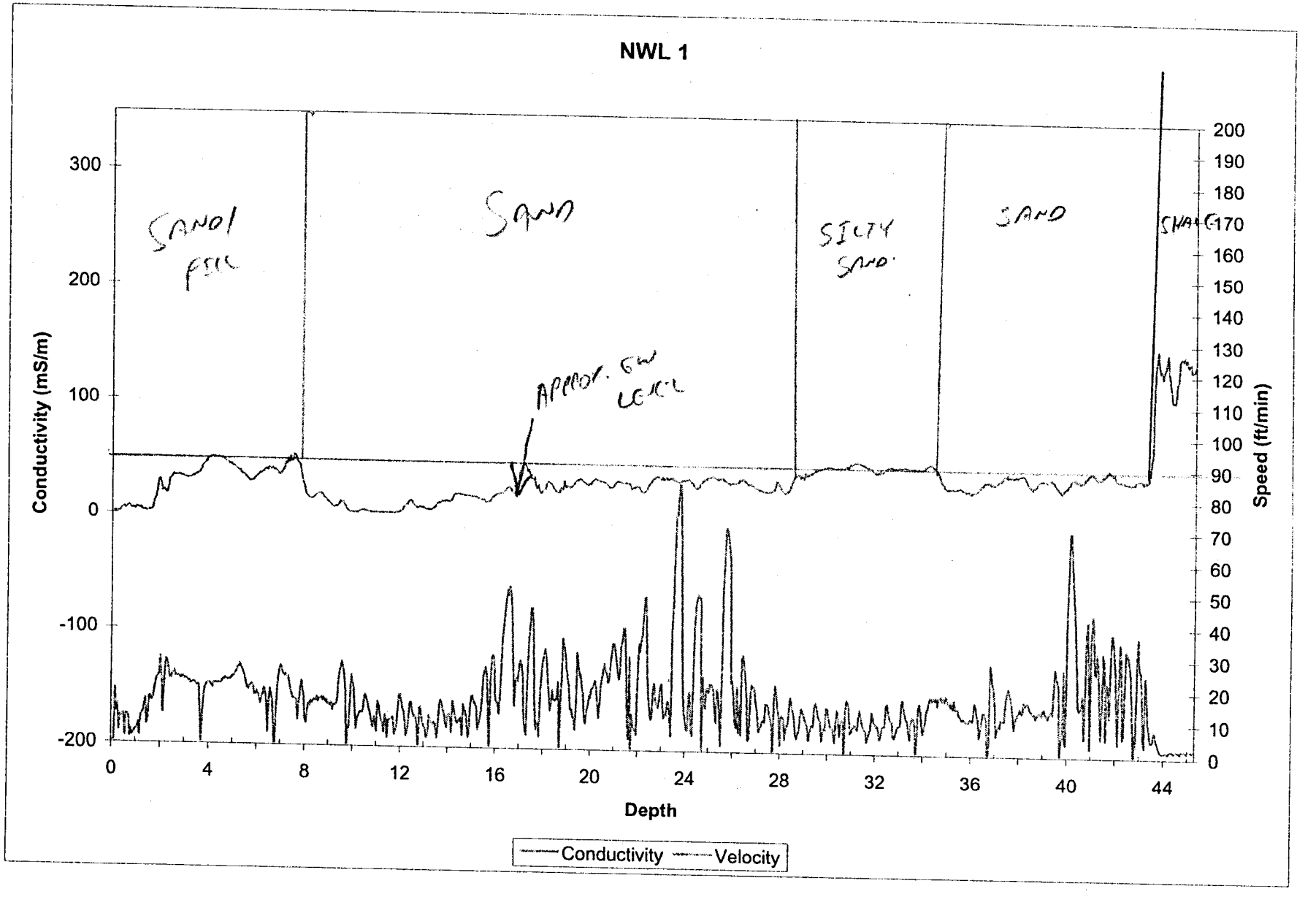
X

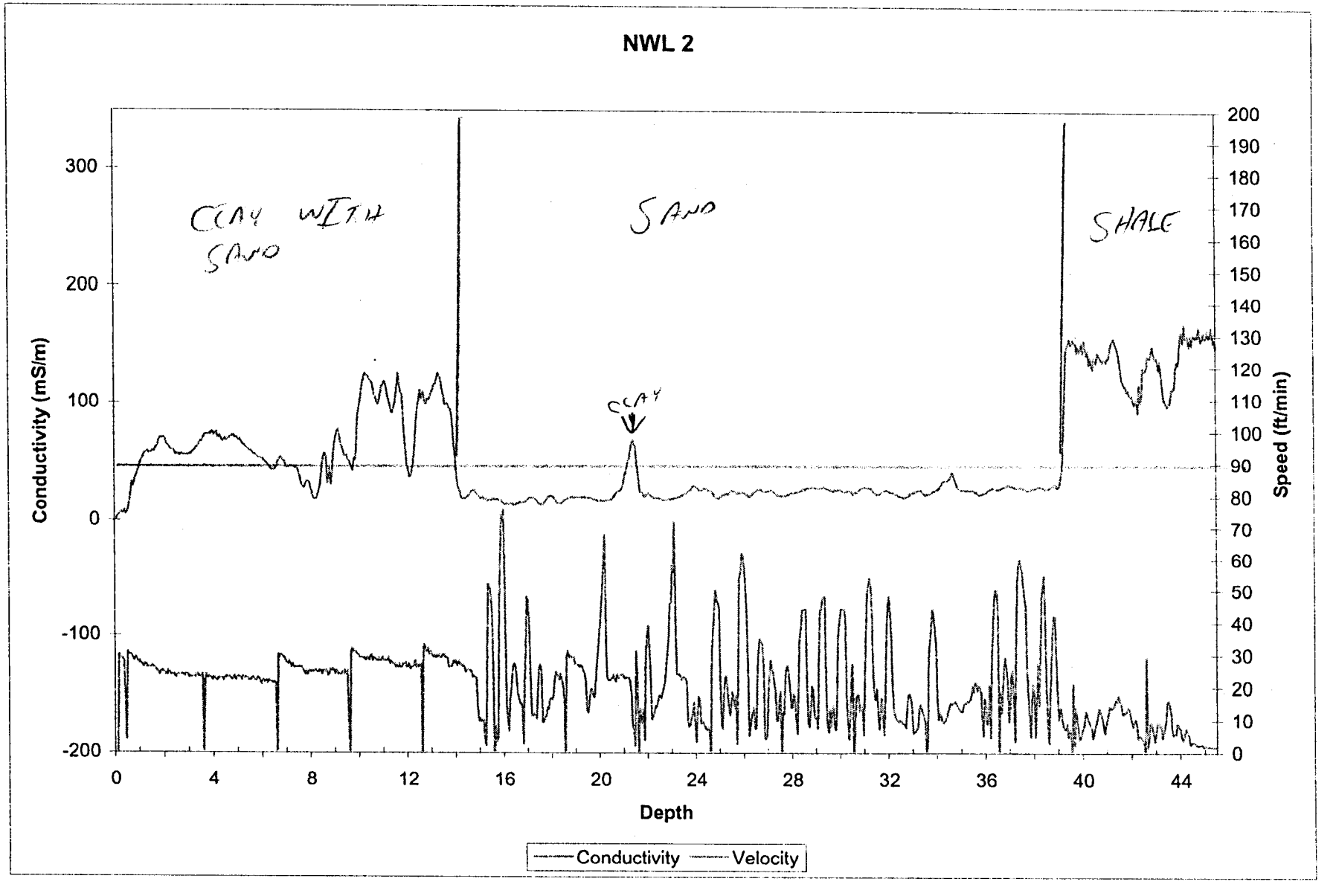

NMW 47
Conductivity (mS/m)
Speed (ft/min)
Depth
SANDY FILL
SANDY CLAY
CLAY
SAND
SHALE
Conductivity
Velocity

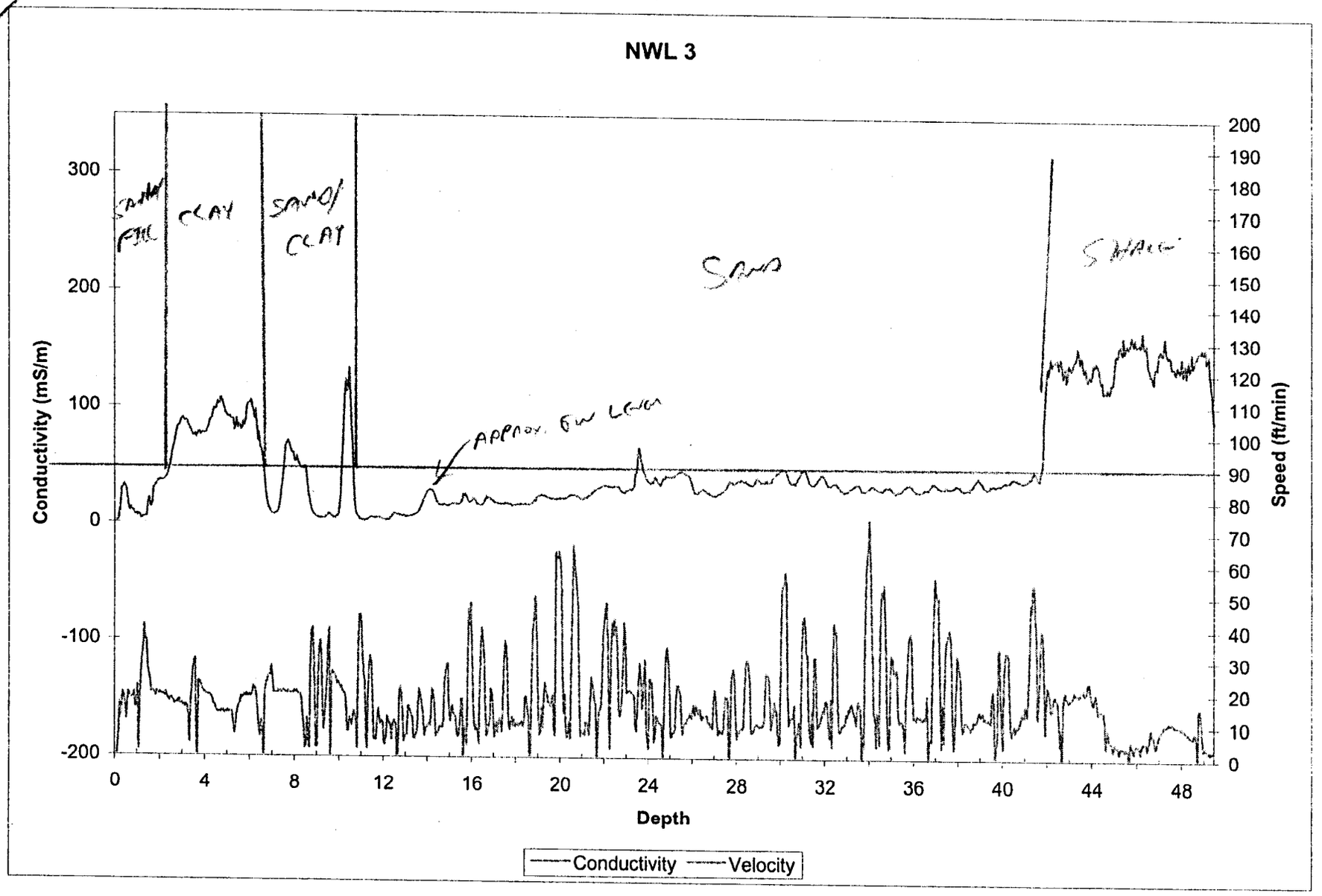

NMW 46
CLAY
SANDY CLAY
SAND
CLAY SHALE
Conductivity (mS/m)
Speed (ft/min)
Depth
300
200
100
0
-100
-200
0
4
8
12
16
20
24
28
32
36
40
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
Conductivity
Velocity


NMW 48
Conductivity (mS/m)
300
200
100
0
-100
-200
Speed (ft/min)
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
No data file for this probe.
Depth
Conductivity
Velocity

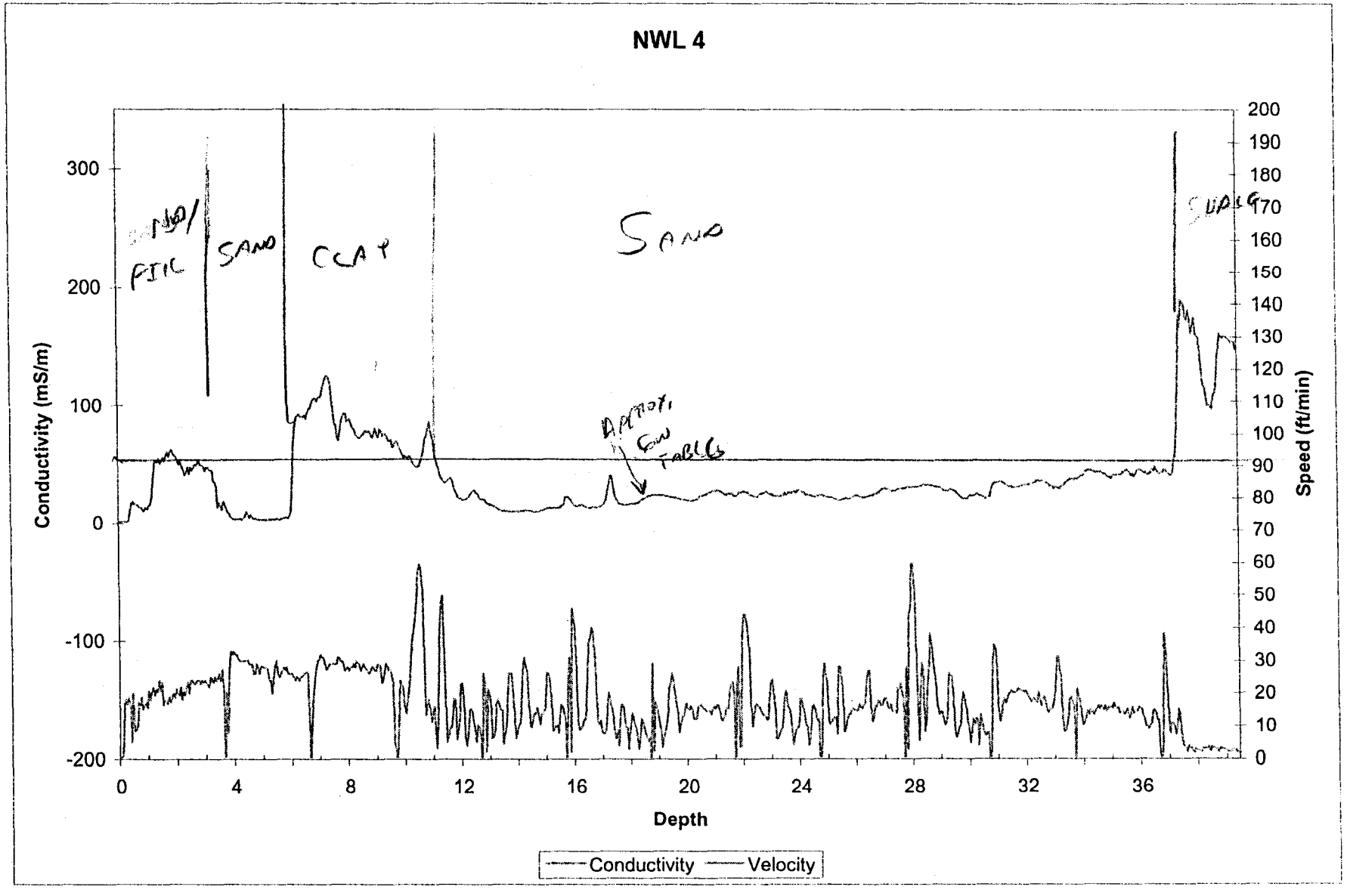

NMW 48a
SAND/ FINE
CLAY
SAND
SAND/ CLAY
SAND
SHALE
Conductivity (mS/m)
Speed (ft/min)
Depth
Conductivity
Velocity

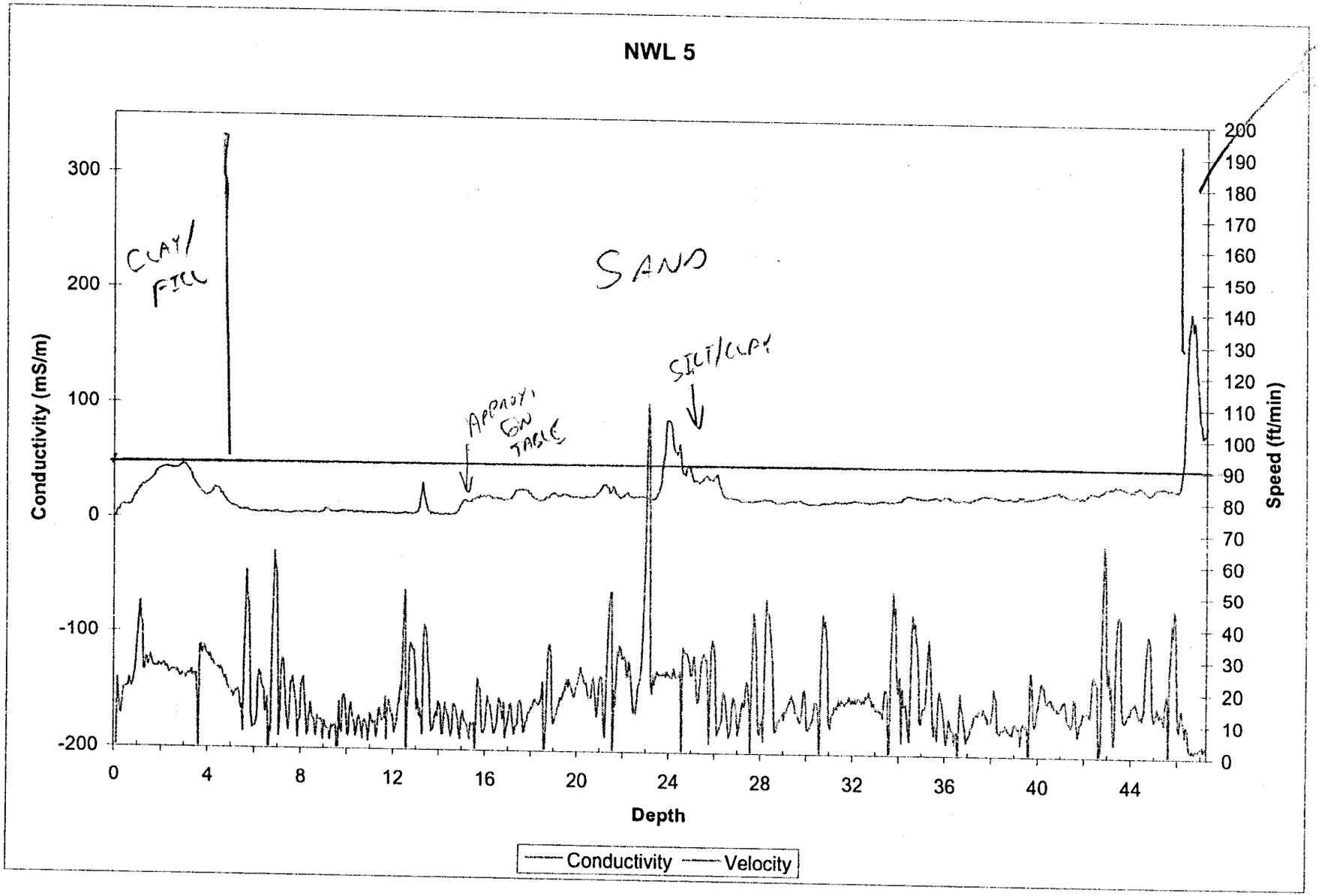

NWL 1
Conductivity (mS/m)
Speed (ft/min)
Depth
Conductivity
Velocity
SANDY FILL
SAND
SILTY SAND
SAND
SHALE
APPROX. GW LEVEL

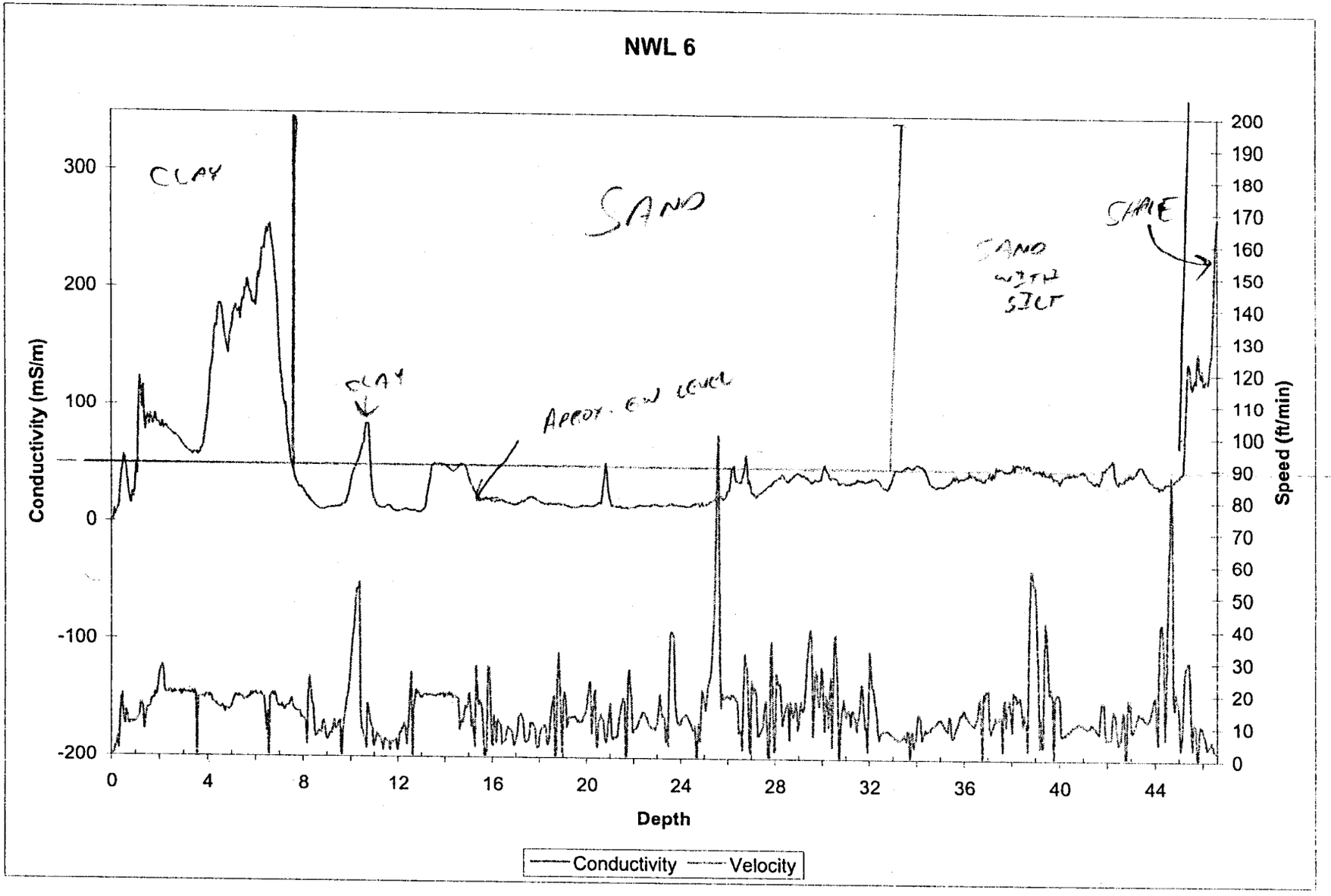

NWL 2
CLAY WITH SAND
SAND
SHALE
CLAY
Conductivity (mS/m)
Speed (ft/min)
Depth
300
200
100
0
-100
-200
0
4
8
12
16
20
24
28
32
36
40
44
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
Conductivity
Velocity

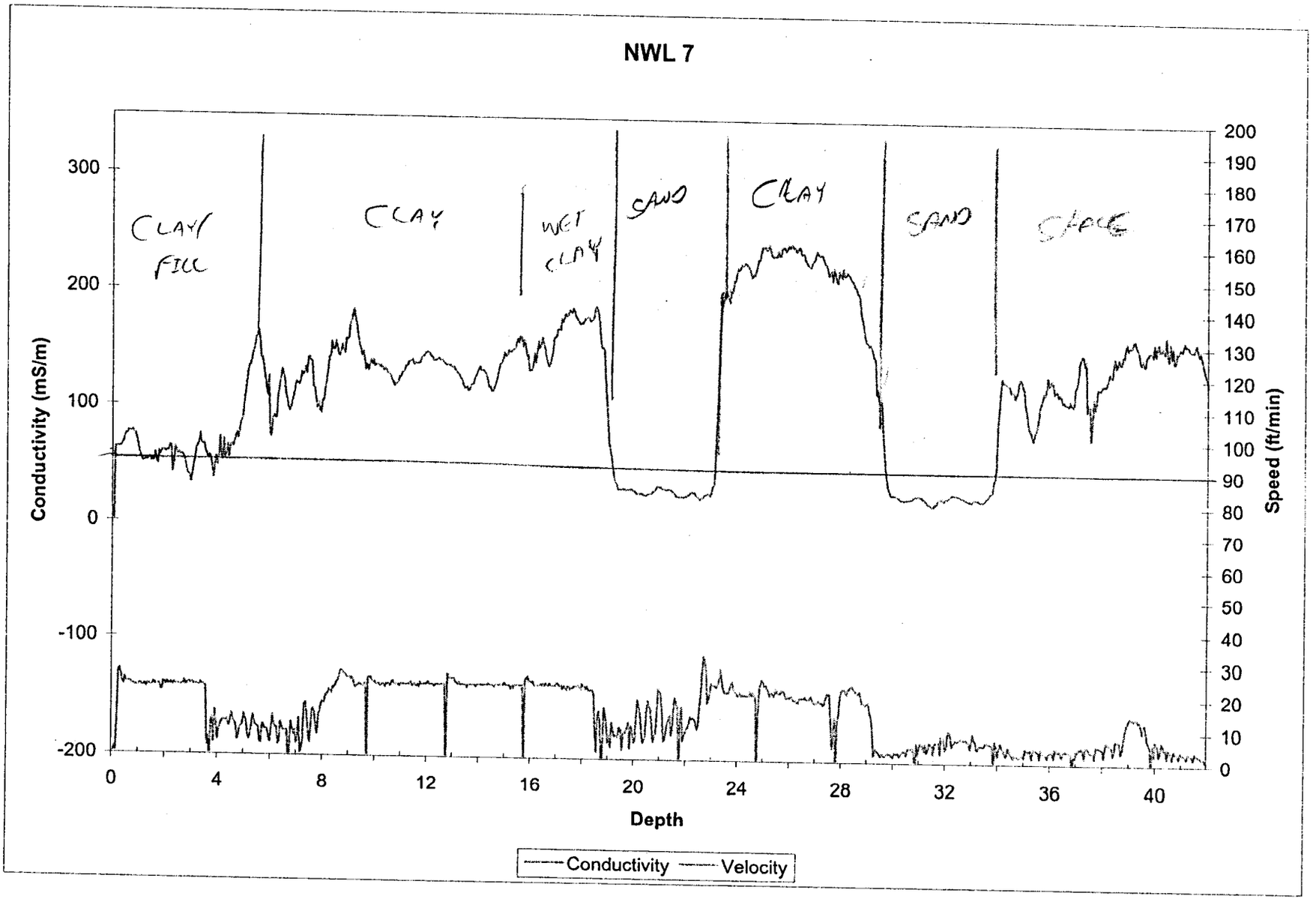

NWL 3
Conductivity (mS/m)
Speed (ft/min)
Depth
300
200
100
0
-100
-200
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
0
4
8
12
16
20
24
28
32
36
40
44
48
CLAY
SAND/
CLAY
SAND
Conductivity
Velocity

X

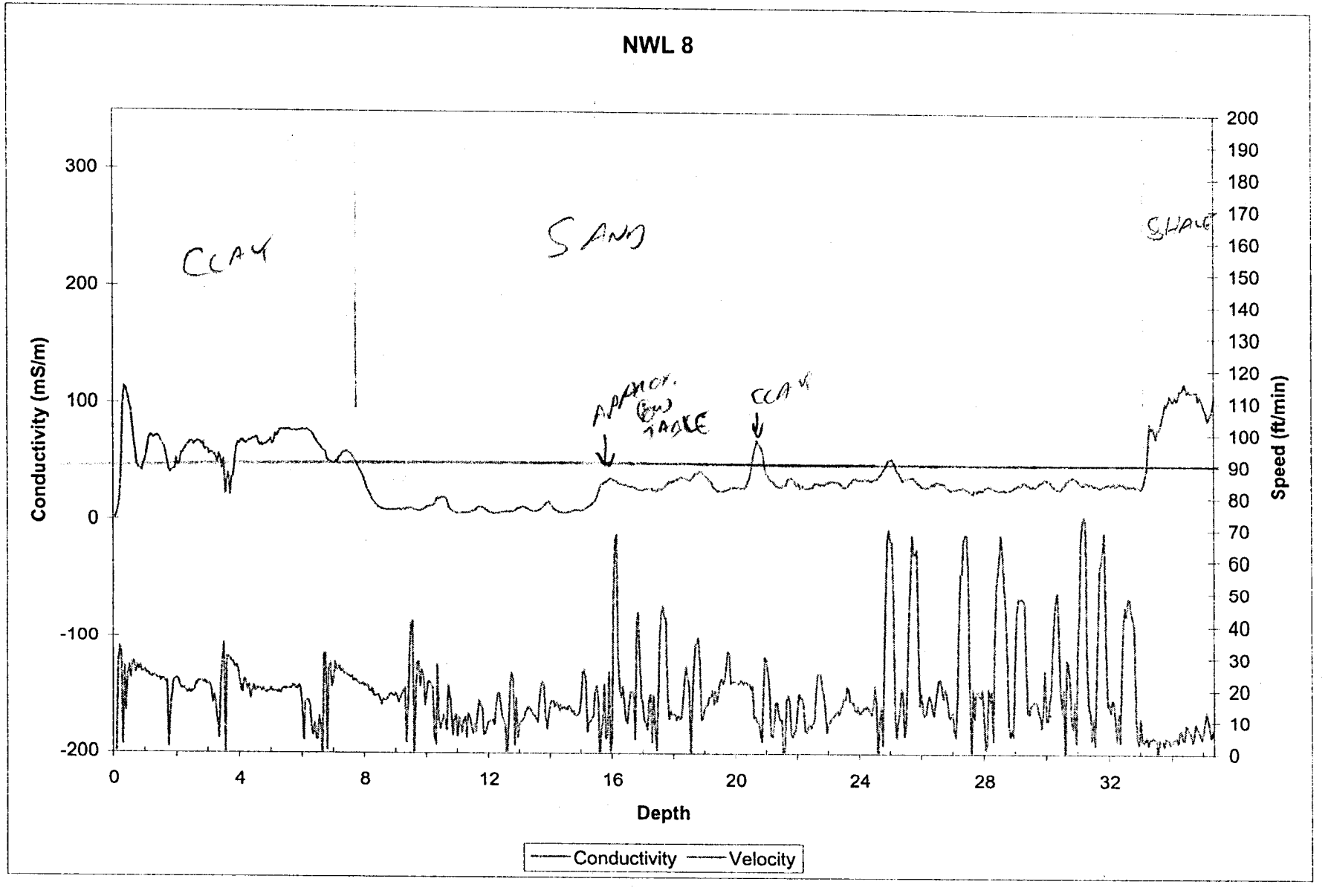

NWL 4
Conductivity (mS/m)
Speed (ft/min)
Depth
Conductivity
Velocity
SAND
CLAY
SAND
300
200
100
0
-100
-200
0
4
8
12
16
20
24
28
32
36
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0

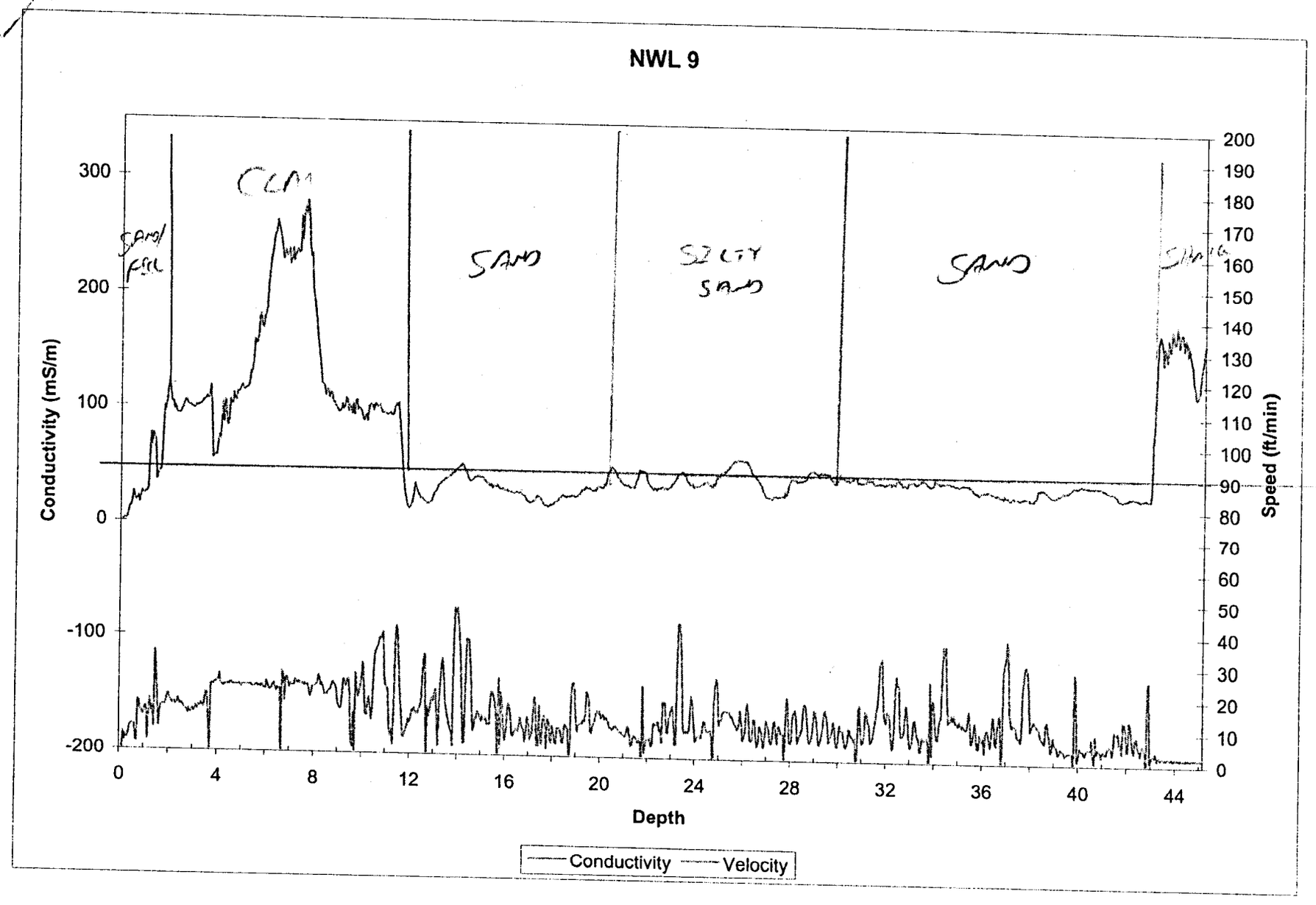

NWL 5
CLAY/ FILL
SAND
SILT/CLAY
APPROX. GW TABLE
Conductivity (mS/m)
Speed (ft/min)
Depth
Conductivity
Velocity

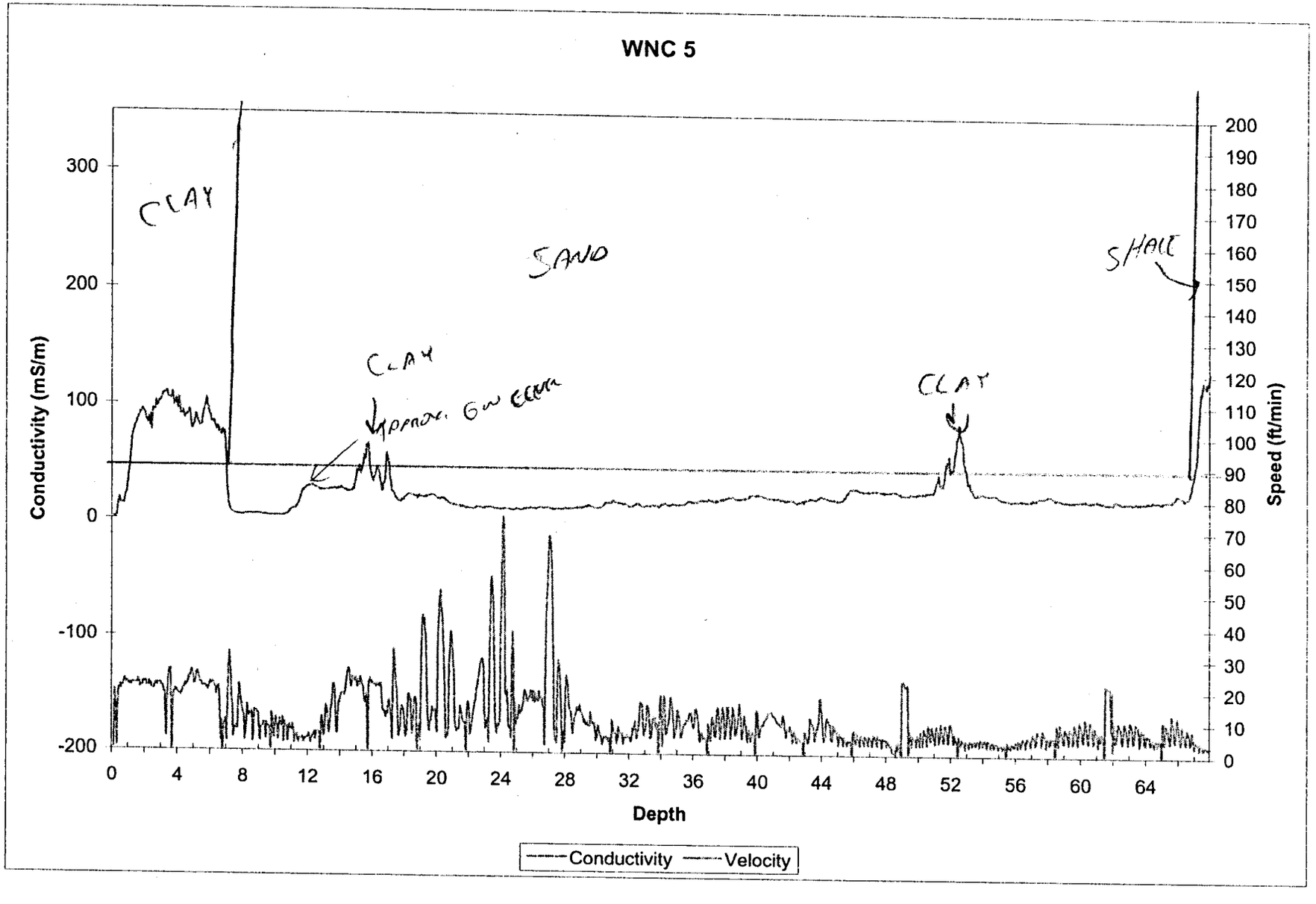

NWL 6
CLAY
SAND
CLAY
APPROX. GW LEVEL
SAND WITH SILT
SHALE
Conductivity (mS/m)
Speed (ft/min)
Depth
Conductivity
Velocity

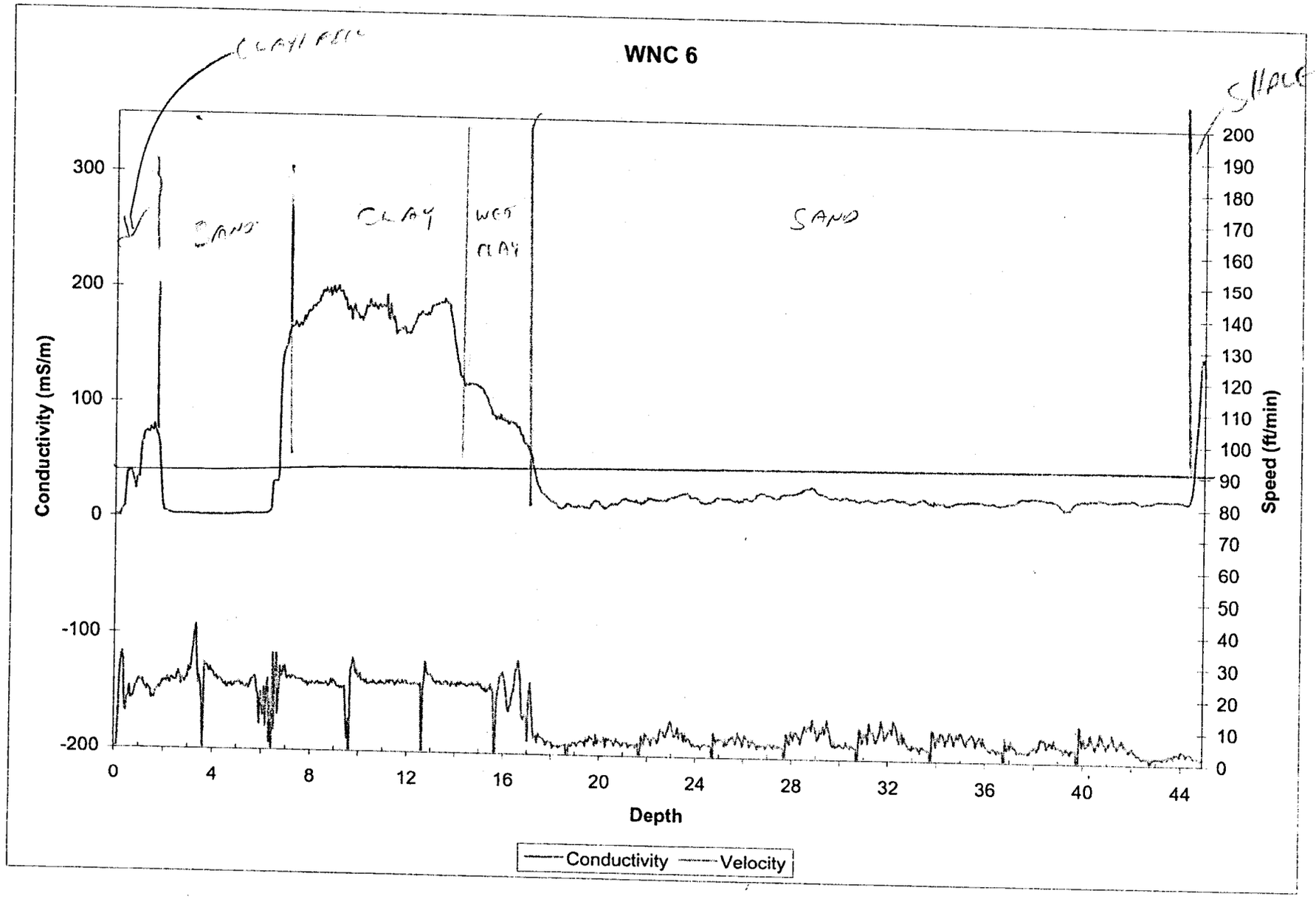

NWL 7
CLAY FILL
CLAY
WET CLAY
SAND
CLAY
SAND
CLAY
Conductivity (mS/m)
300
200
100
0
-100
-200
Speed (ft/min)
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
0
4
8
12
16
20
24
28
32
36
40
Depth
Conductivity
Velocity

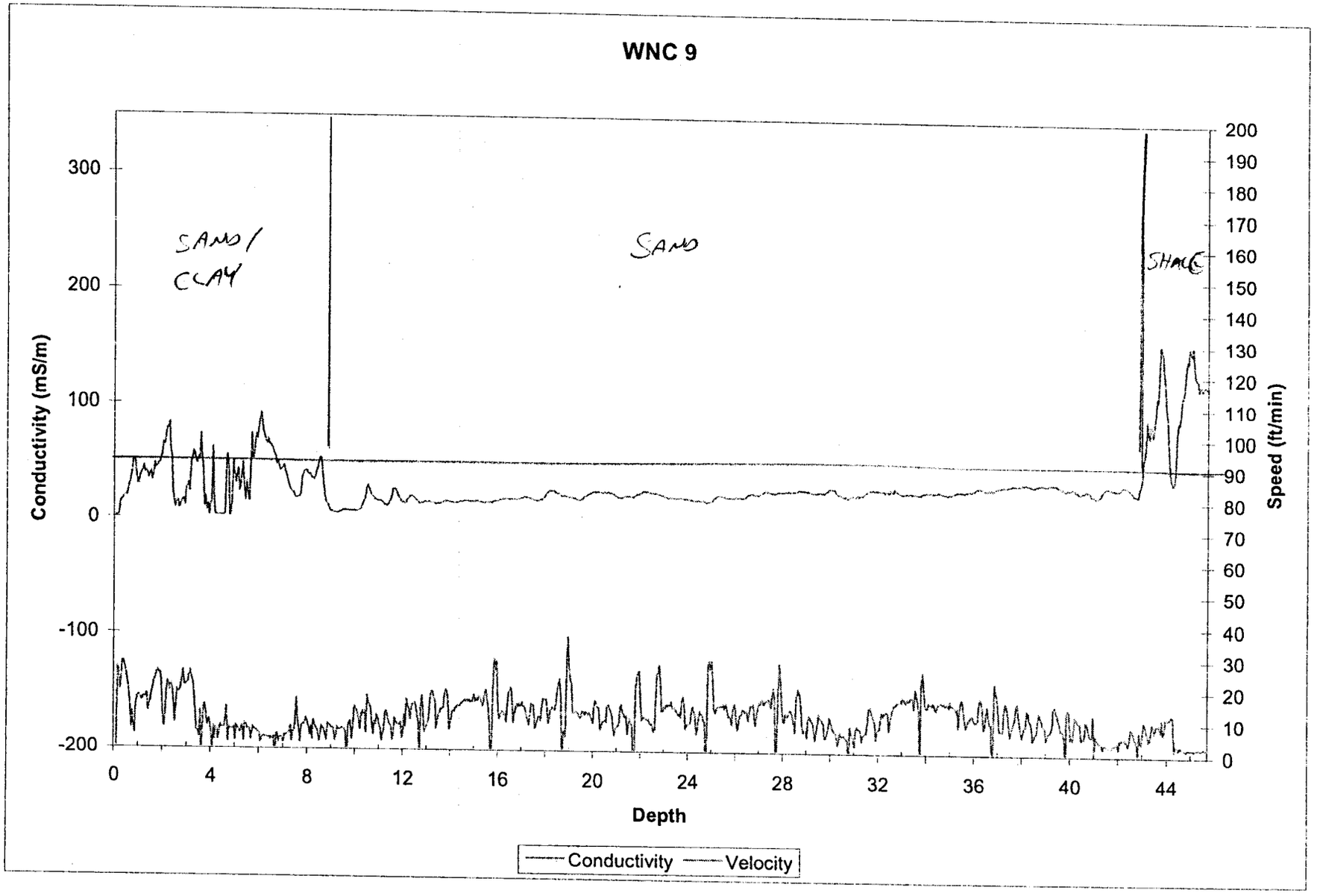
X

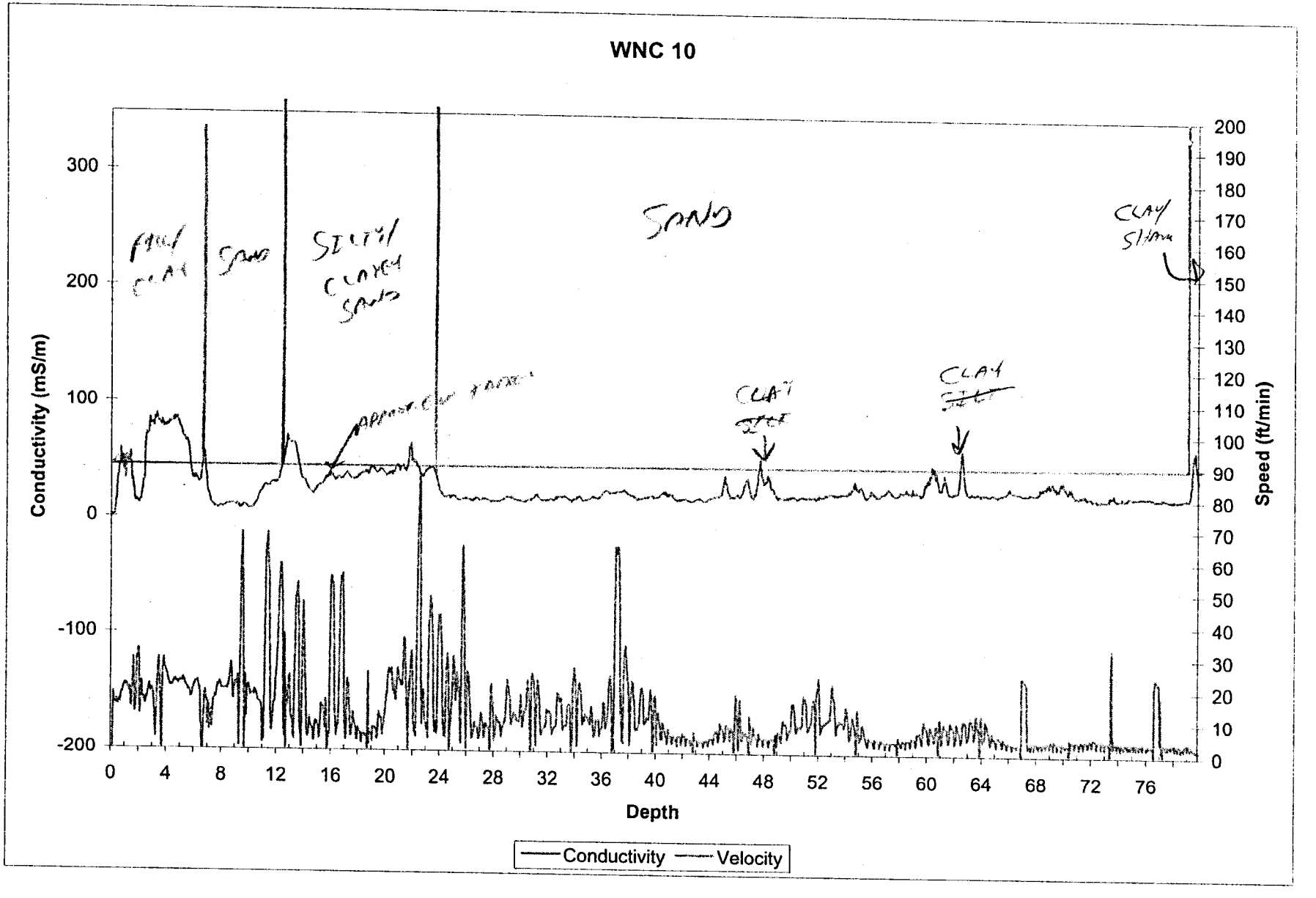

NWL 8
CLAY
SAND
SHALE
APPROX. (?) TABLE
CLAY
Conductivity (mS/m)
Speed (ft/min)
Depth
300
200
100
0
-100
-200
0
4
8
12
16
20
24
28
32
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
Conductivity
Velocity

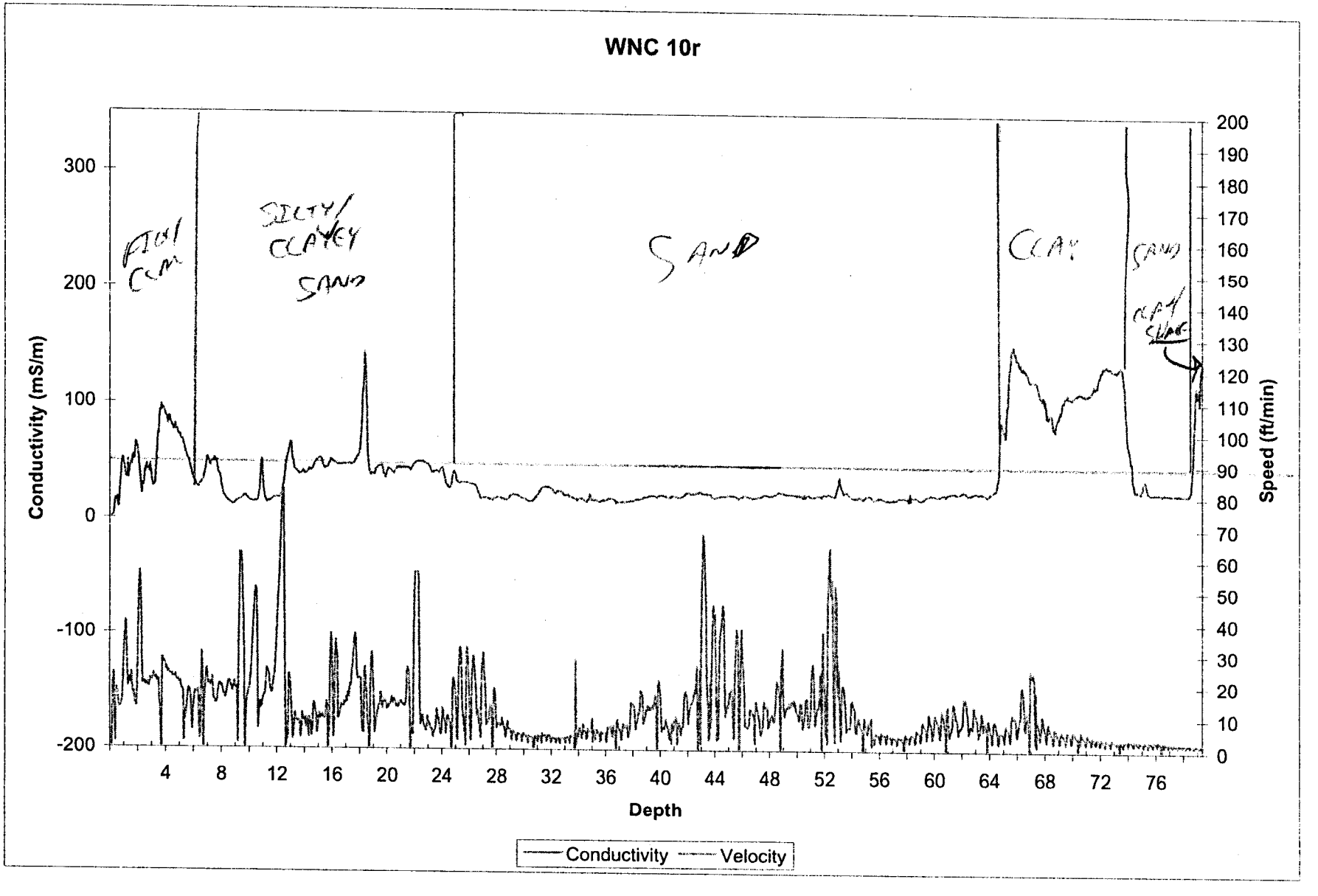

NWL 9
Conductivity (mS/m)
Speed (ft/min)
Depth
300
200
100
0
-100
-200
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
0
4
8
12
16
20
24
28
32
36
40
44
SAND/ FILL
CLAY
SAND
SILTY SAND
SAND
SHALE
Conductivity
Velocity

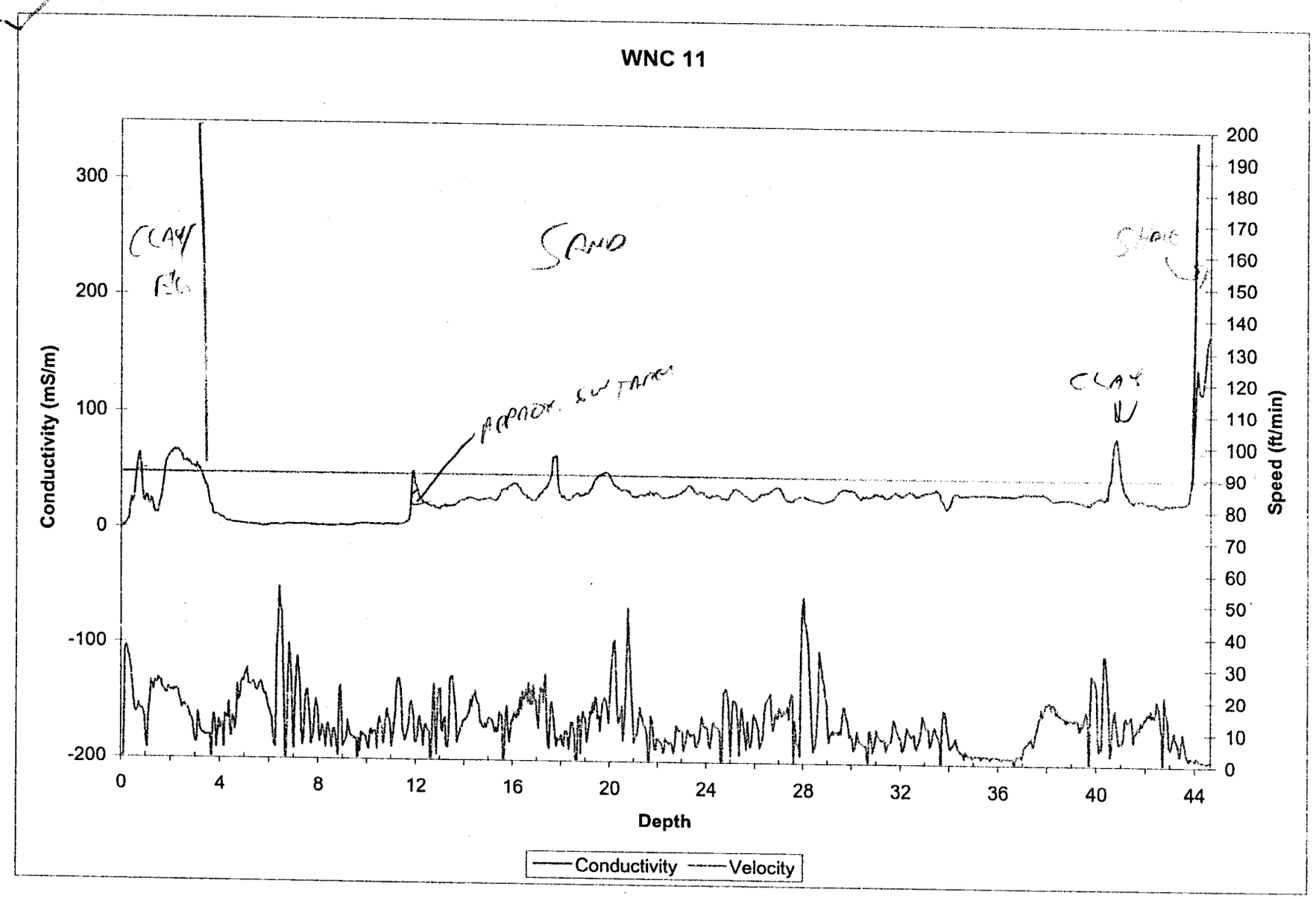

WNC 5
CLAY
SAND
SHALE
CLAY
CLAY
Conductivity (mS/m)
Speed (ft/min)
Depth
Conductivity
Velocity

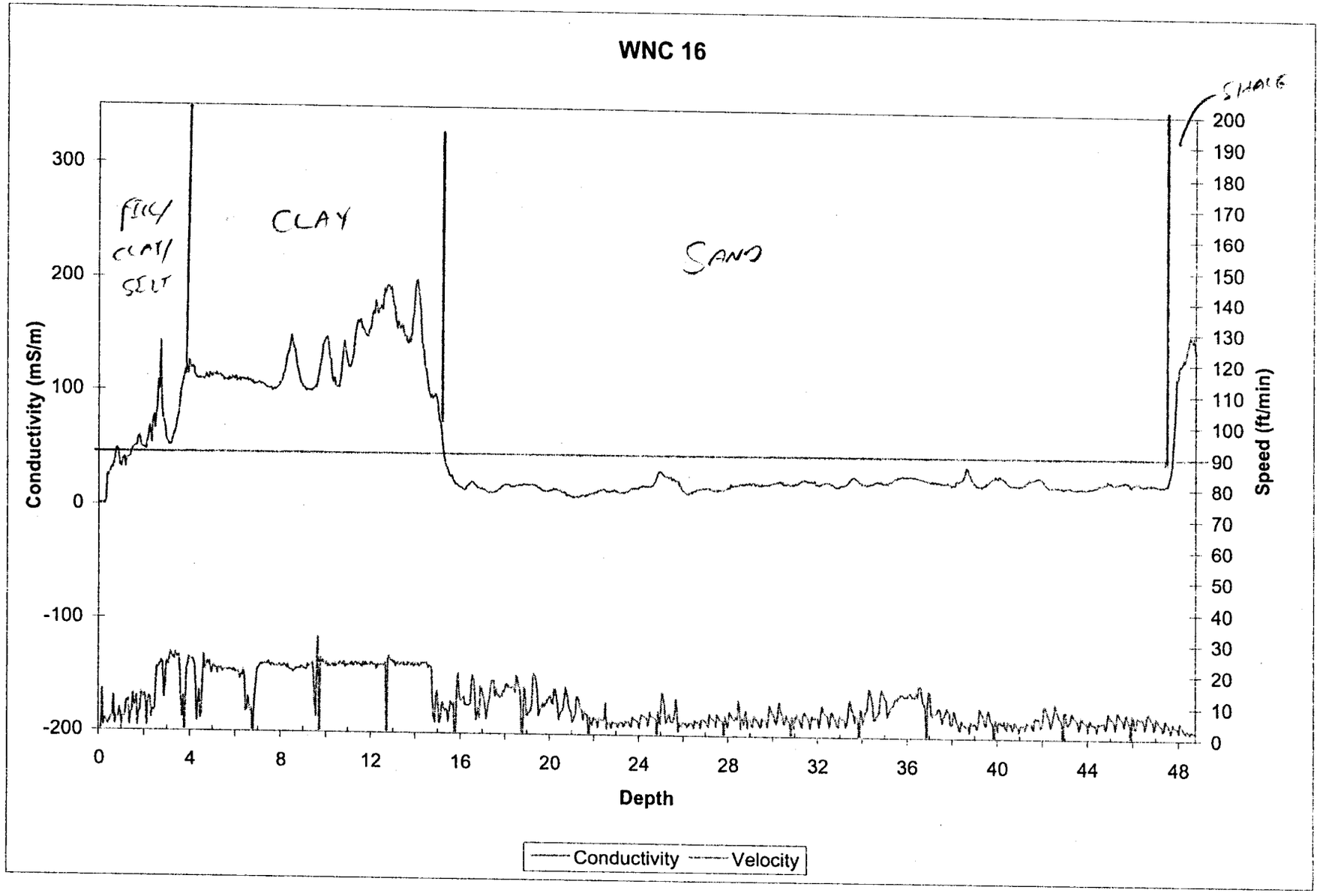

WNC 6
CLAY FILL
SHALE
SAND
CLAY
WET CLAY
SAND
Conductivity (mS/m)
Speed (ft/min)
Depth
Conductivity
Velocity

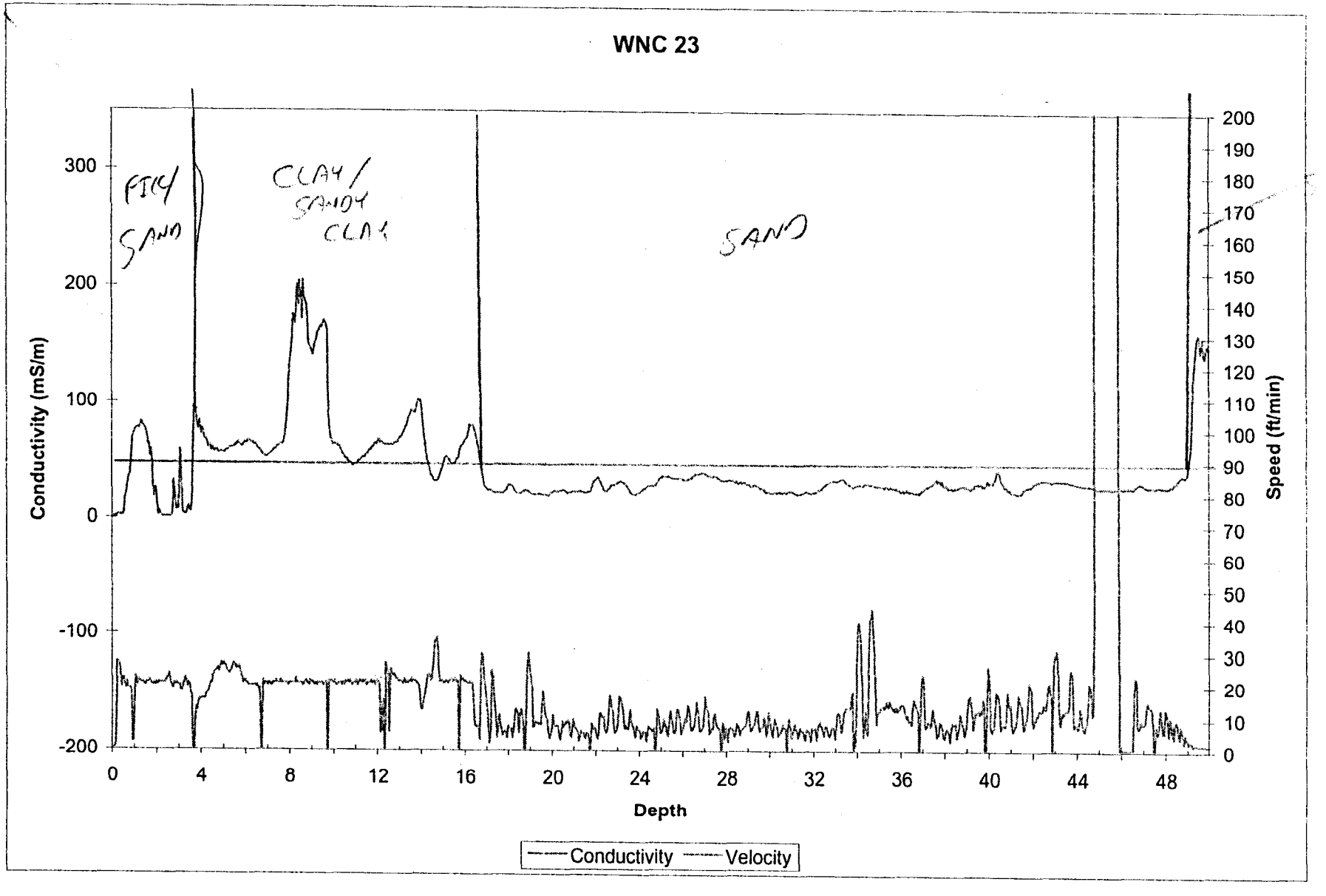

WNC 9
SAND/
CLAY
SAND
SHALE
Conductivity (mS/m)
Speed (ft/min)
Depth
300
200
100
0
-100
-200
0
4
8
12
16
20
24
28
32
36
40
44
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
Conductivity
Velocity

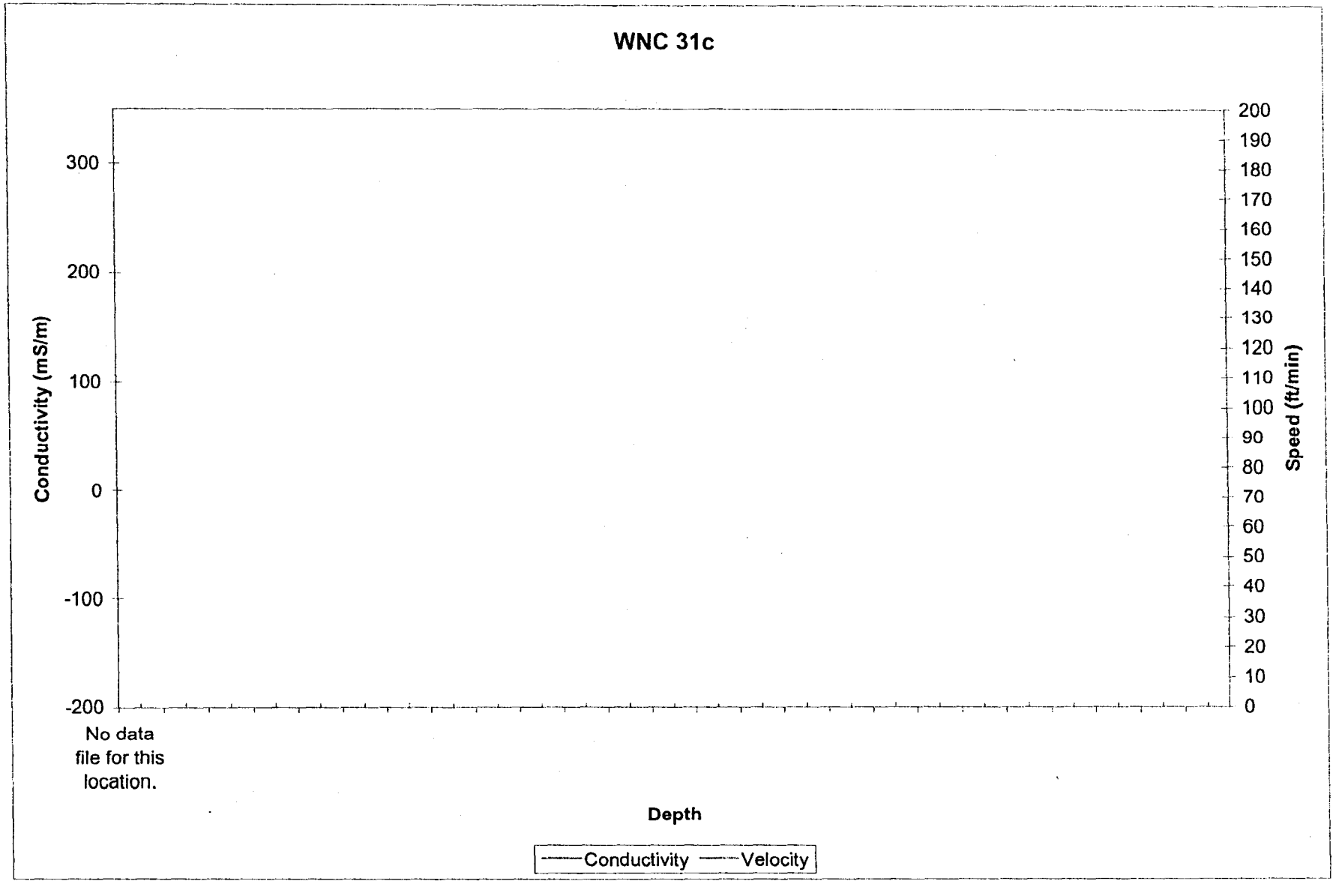

WNC 10
Conductivity (mS/m)
Speed (ft/min)
Depth
Conductivity
Velocity
SAND
CLAY/SILT
CLAY/SILT
300
200
100
0
-100
-200
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
0
4
8
12
16
20
24
28
32
36
40
44
48
52
56
60
64
68
72
76

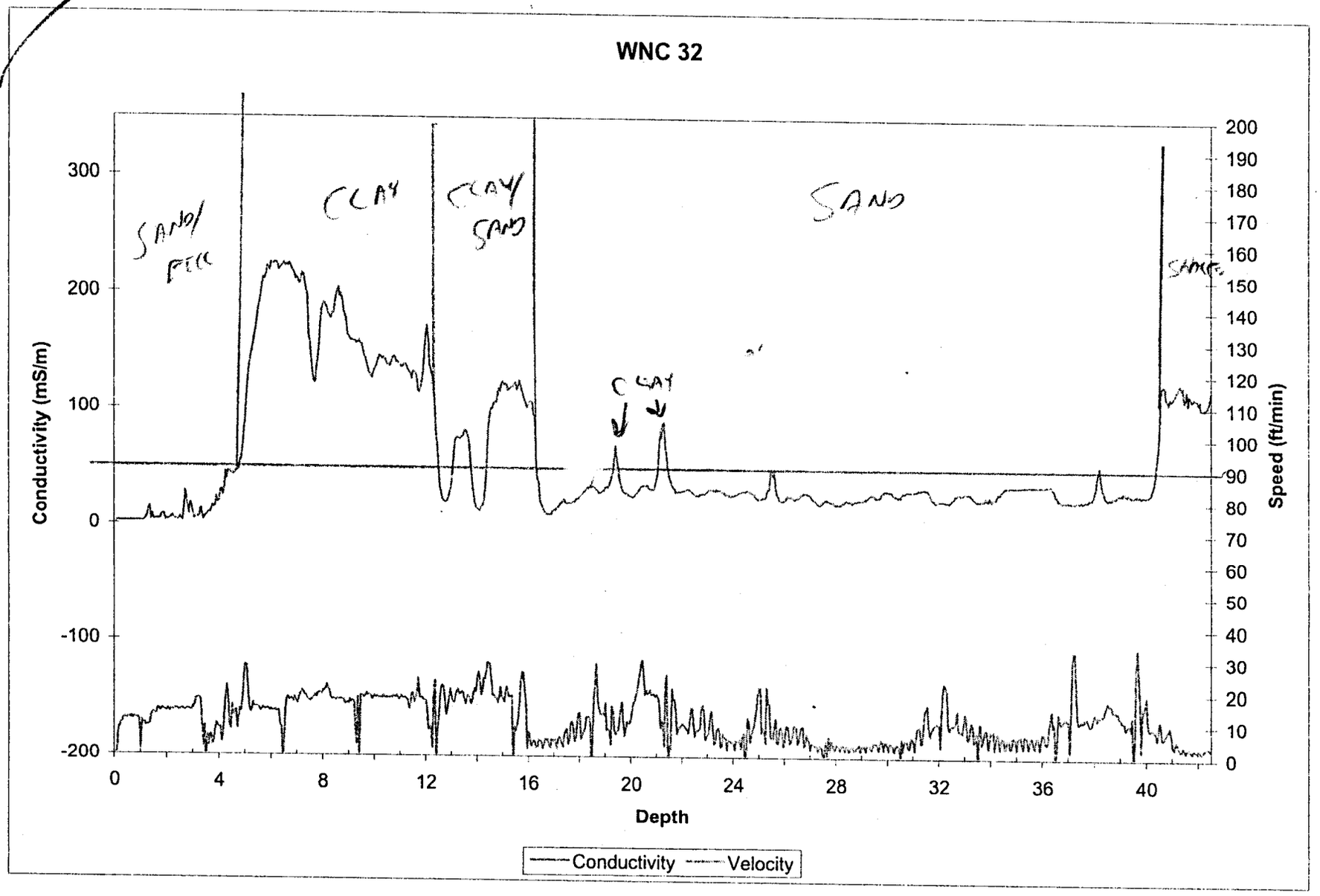

WNC 10r
Conductivity (mS/m)
Speed (ft/min)
Depth
Conductivity
Velocity
SILTY/ CLAYEY SAND
SAND
CLAY
SAND

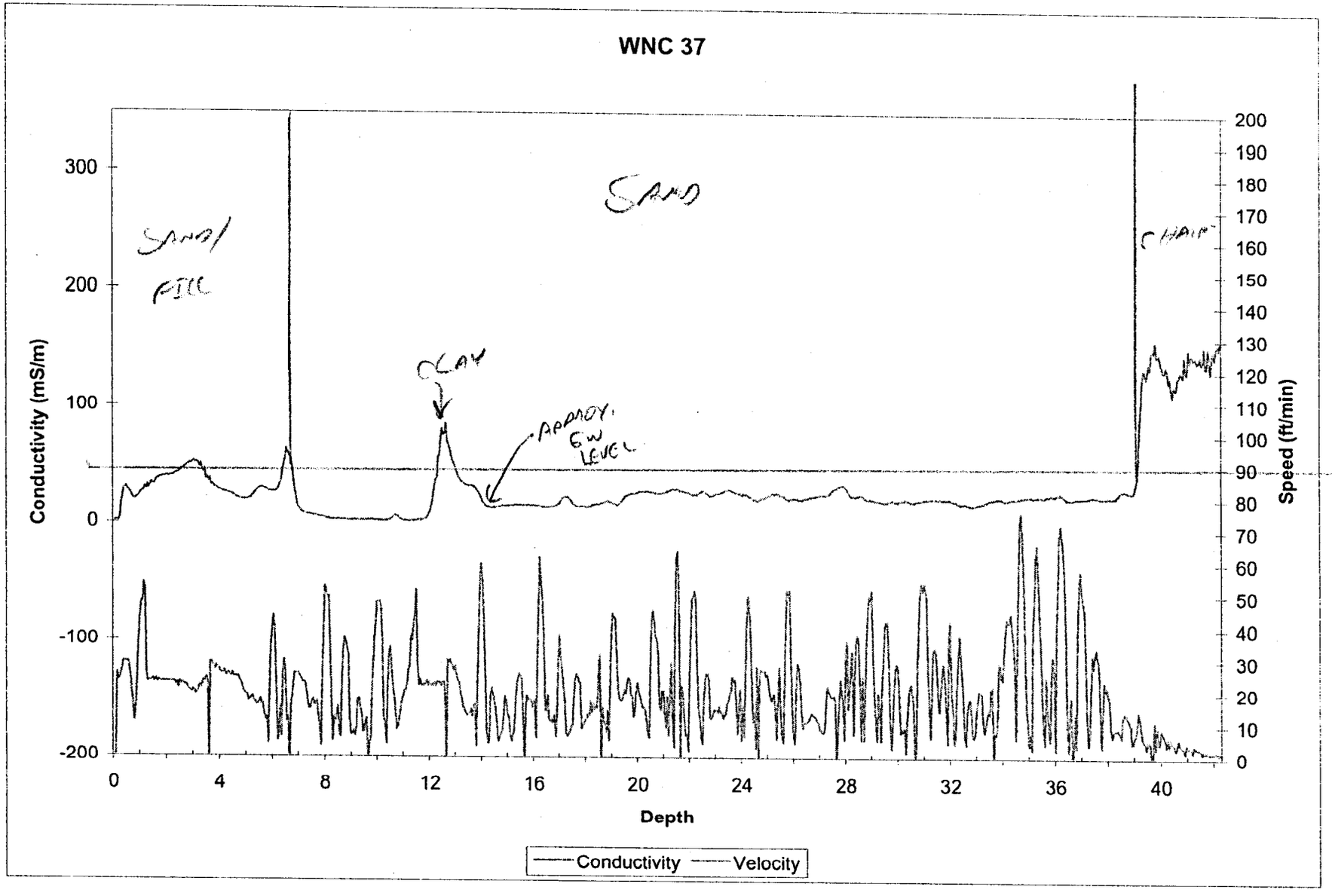

WNC 11
Conductivity (mS/m)
Speed (ft/min)
Depth
Conductivity
Velocity
CLAY
SAND
CLAY
300
200
100
0
-100
-200
0
4
8
12
16
20
24
28
32
36
40
44
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0

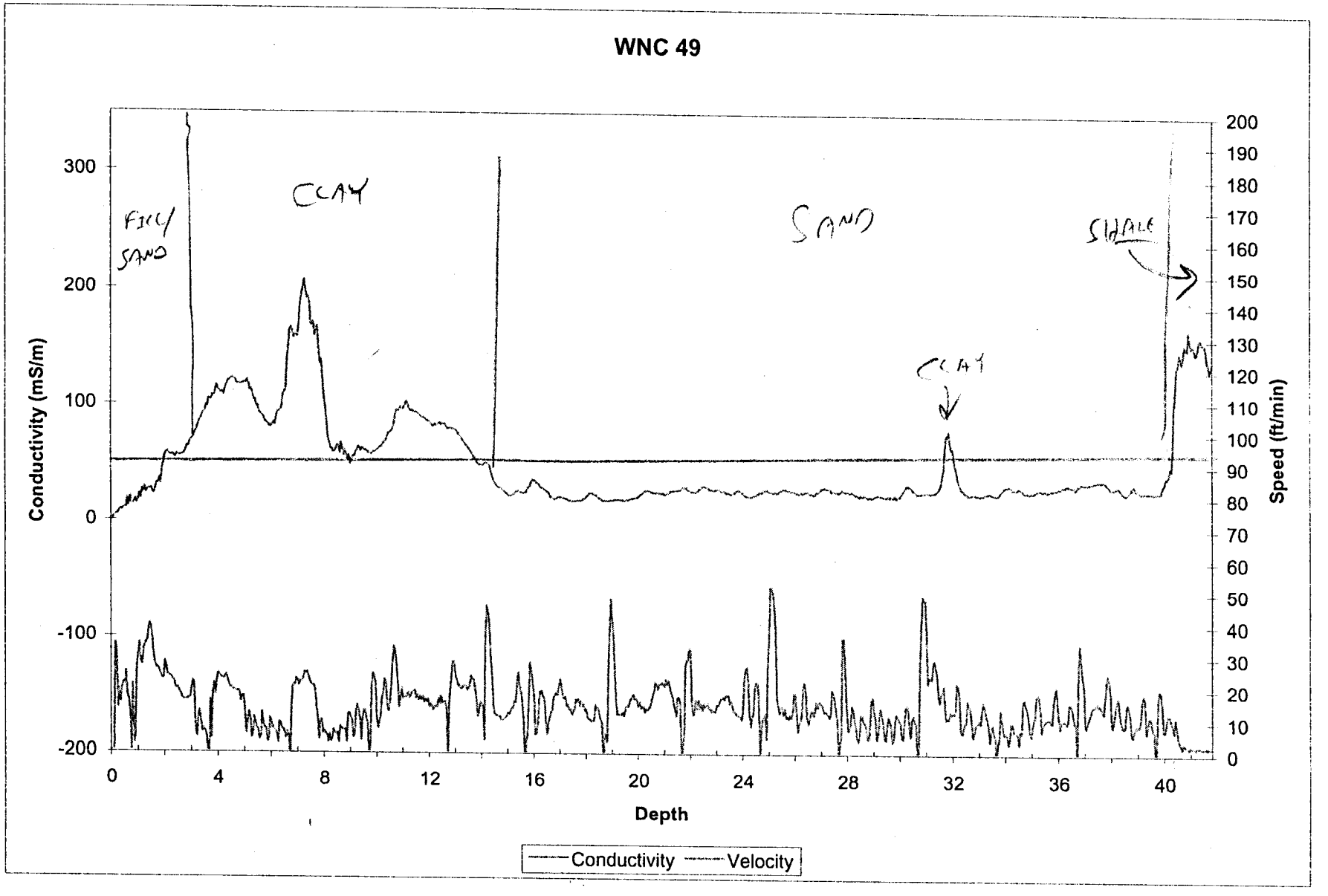

WNC 16
SHALE
FILL/
CLAY/
SILT
CLAY
SAND
Conductivity (mS/m)
300
200
100
0
-100
-200
Speed (ft/min)
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
0
4
8
12
16
20
24
28
32
36
40
44
48
Depth
Conductivity
Velocity


WNC 23
FINE SAND
CLAY / SANDY CLAY
SAND
Conductivity (mS/m)
Speed (ft/min)
Depth
Conductivity
Velocity


WNC 31c
Conductivity (mS/m)
300
200
100
0
-100
-200
Speed (ft/min)
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
No data file for this location.
Depth
Conductivity
Velocity


WNC 32
SAND/ PEAT
CLAY
CLAY/ SAND
SAND
CLAY
SAND
Conductivity (mS/m)
Speed (ft/min)
Depth
Conductivity
Velocity


WNC 37
Conductivity (mS/m)
Speed (ft/min)
Depth
SAND
SAND/ FILL
CLAY
APPROX. GW LEVEL
CHAIN
Conductivity
Velocity


WNC 49
Conductivity (mS/m)
Speed (ft/min)
Depth
FILL/ SAND
CLAY
SAND
CLAY
SHALE
Conductivity
Velocity

Appendix E-3a
Bottom of Aquifer and Saturated Thickness Data

North Industrial Corridor (NIC) Site
Bottom of Aquifer Data

Well/Boring	Bottom of Aquifer Depth (feet)	Bottom of Aquifer Data Source	Bottom of Aquifer Elevation (feet MSL)	Bottom of Aquifer Comment	Bottom of Aquifer Elevation (feet MSL old datum)	Ground Surface Elevation (old datum feet MSL)	Ground Surface Elevation (feet MSL)	Ground Surface Elevation Comments	Measuring Point Elevation (old datum feet MSL)	Measuring Point Elevation (feet MSL)	Stickup (feet above ground surface)	Measuring Point Comment
29M-SB01	33	Boring Log	1273.5			1305.99	1306.54			1306.54		
29M-SB02	35	Boring Log	1273.2			1307.65	1308.20			1308.20		
29M-SB03	35	Boring Log	1271.4			1305.83	1306.38			1306.38		
29M-SB04	37	Boring Log	1270.1			1306.59	1307.14			1307.14		
29M-SB05	33	Boring Log	1276.2			1308.67	1309.22			1309.22		
29M-SB06	43	Boring Log	1268.8			1311.28	1311.83			1311.83		
29M-SB07	38	Boring Log	1269.4			1306.80	1307.35			1307.35		
29M-SB08	40	Boring Log	1275.8			1315.24	1315.79			1315.79		
29M-SB09	38	Boring Log	1275.3			1312.71	1313.26			1313.26		
29M-SB10	41	Boring Log	1272.8			1313.26	1313.81			1313.81		
29M-SB11	37	Boring Log	1272.0			1308.45	1309.00			1309.00		
29M-SB12	38	Boring Log	1274.7			1312.16	1312.71			1312.71		
29M-SB13	40	Boring Log	1272.6			1312.08	1312.63			1312.63		
29M-SB14	42	Boring Log	1273.3			1314.77	1315.32			1315.32		
29M-SB15	48	Boring Log	1268.7			1316.19	1316.74			1316.74		
29M-SB16	44	Boring Log	1280.0			1323.40	1323.95			1323.95		
29M-SB17	33	Boring Log	1273.9			1306.36	1306.91			1306.91		
29M-SB18	46	Boring Log	1266.1			1311.51	1312.06			1312.06		
29M-SB19	42	Boring Log	1275.1			1316.52	1317.07			1317.07		
29M-SB20	37	Boring Log	1276.3			1312.77	1313.32			1313.32		
29M-SB21	40	Boring Log	1277.6			1317.04	1317.59			1317.59		
29M-SB22	39	Boring Log	1277.5			1315.95	1316.50			1316.50		
29M-SB23	47	Boring Log	1272.2			1318.65	1319.20			1319.20		
29M-SB24	41	Boring Log	1272.9			1313.34	1313.89			1313.89		
29M-SB25	45	Boring Log	1271.3			1315.79	1316.34			1316.34		
29M-SB26	40	Boring Log	1275.5			1314.91	1315.46			1315.46		
29M-SB27	44	Boring Log	1274.3			1317.78	1318.33			1318.33		
29M-SB28	45	Boring Log	1270.1			1314.52	1315.07			1315.07		
29M-SB29	47	Boring Log	1269.0			1315.41	1315.96			1315.96		
29M-SB30	44	Boring Log	1268.3			1311.71	1312.26			1312.26		
29M-SB31	39	Boring Log	1274.5			1312.91	1313.46			1313.46		
29M-SB32	40	Boring Log	1270.8			1310.26	1310.81			1310.81		
CN-51,52	43	Boring Log	1275.8			1318.27	1318.84	Assumed 1'	1319.27	1319.84	1.0	Assumed 1'
CN-53,54	41	Boring Log	1274.8			1315.26	1315.83	Assumed 1'	1316.26	1316.83	1.0	Assumed 1'
CN-61,62	43	Boring Log	1276.8			1319.20	1319.77	Assumed 1'	1320.20	1320.77	1.0	Assumed 1'
CN-63,64	48	Boring Log	1271.9			1319.36	1319.93	Assumed 1'	1320.36	1320.93	1.0	Assumed 1'
CN-67,68	47	Boring Log	1269.9			1316.34	1316.91	Assumed 1'	1317.34	1317.91	1.0	Assumed 1'
CNE-NE1D	35.5	Boring Log	1288.6			1323.57	1324.14	Assumed -0.3	1323.27	1323.84	-0.3	Assumed -0.3
CNE-NE2D	37.5	Boring Log	1284.8			1321.71	1322.28	Assumed -0.3	1321.41	1321.98	-0.3	Assumed -0.3
CNE-NE3D	37.5	Boring Log	1284.7			1321.67	1322.24	Assumed -0.3	1321.37	1321.94	-0.3	Assumed -0.3
CNE-NE4D	38.5	Boring Log	1282.5				1320.95			1320.78 *	-0.17	
CNE-NE5D	35.5	Boring Log	1284.4			1319.36	1319.93	Assumed -0.3	1319.06	1319.63	-0.3	Assumed -0.3
CNE-NE6D	36.5	Boring Log	1282.8				1319.3			1319.11 *	-0.19	
CNE-NE7D	36	Boring Log	1284.7				1320.74			1320.75 *	0.01	
CNE-NE08I	41.5	Boring Log	1279.5				1320.98			1320.48 *	-0.50	
CNE-NE9D	41.5	Boring Log	1276.4				1317.94			1317.43 *	-0.51	
CNE-NE11D	41.5	Boring Log	1274.7				1316.23			1315.74 *	-0.49	
CNE-NE12I	42.5	Boring Log	1276.7				1319.20			1318.92 *	-0.28	

North Industrial Corridor (NIC) Site
Bottom of Aquifer Data

Well/Boring	Bottom of Aquifer Depth (feet)	Bottom of Aquifer Data Source	Bottom of Aquifer Elevation (feet MSL)	Bottom of Aquifer Comment	Bottom of Aquifer Elevation (feet MSL old datum)	Ground Surface Elevation (old datum feet MSL)	Ground Surface Elevation (feet MSL)	Ground Surface Elevation Comments	Measuring Point Elevation (old datum feet MSL)	Measuring Point Elevation (feet MSL)		Stickup (feet above ground surface)	Measuring Point Comment
CNE-MW-6D	37.5	Boring Log	1287.8			1324.7	1325.27		1324.43	1325.00		-0.27	
CNE-MW-7D	37.5	Boring Log	1286.1				1323.58			1323.45	*	-0.13	
CNE-MW-8D	39.5	Boring Log	1288.7			1327.66	1328.23		1327.35	1327.92		-0.31	
CNE-MW-9D	39.5	Boring Log	1290.7			1329.63	1330.2		1329.26	1329.83		-0.37	
CNE-MW-10D	42.5	Boring Log	1281.5			1323.42	1323.99		1322.98	1323.55		-0.44	
CNE-MW-11D	39	Boring Log	1284.2			1322.65	1323.22		1322.29	1322.86		-0.36	
CNE-MW-12D	39.5	Boring Log	1284.4				1323.94			1323.67	*	-0.27	
CNE-MW-13D	42.5	Boring Log	1283.3			1325.22	1325.79		1324.75	1325.32		-0.47	
CNE-MW-14D	34.5	Boring Log	1291.8			1325.69	1326.26		1325.35	1325.92		-0.34	
CNE-MW-15D	38.5	Boring Log	1284.5			1322.38	1322.95		1324.42	1324.99		2.04	2' Bad Stickup
CNE-MW-16D	39	Boring Log	1285.2			1323.58	1324.15	Assumed -0.3	1323.28	1323.85		-0.30	Assumed -0.3
CNE-MW-17D	37	Boring Log	1287.8			1324.27	1324.84	Assumed -0.3	1323.97	1324.54		-0.30	Assumed -0.3
CNE-MW-18D	38.5	Boring Log	1286.6			1324.54	1325.11	Assumed -0.3	1324.24	1324.81		-0.30	Assumed -0.3
CNE-MW-19D	35.5	Boring Log	1289.1			1324.00	1324.57	Assumed -0.3	1323.70	1324.27		-0.30	Assumed -0.3
CNE-MW-20D	35	Boring Log	1289.5			1323.93	1324.5	Assumed -0.3	1323.63	1324.20		-0.30	Assumed -0.3
CNE-MW-21D	36.5	Boring Log	1288.1			1323.98	1324.55	Assumed -0.3	1323.68	1324.25		-0.30	Assumed -0.3
CNE-MW-22D	34.5	Boring Log	1289.6			1323.52	1324.09	Assumed -0.3	1323.22	1323.79		-0.30	Assumed -0.3
CTC-01	41	Boring Log	1283.1				1324.08			1327.13	*	3.05	
CTC-02	44	Boring Log	1281.2				1325.15			1324.96	*	-0.19	
CTC-04D	46	Boring Log	1278.7			1324.14	1324.70		1327.00	1327.56		2.86	
CTC-05D	46	Boring Log	1277.8			1323.24	1323.80		1323.84	1324.40		0.60	
DRB-MW40	38	WWC5 Log	1276.0				1313.98	Assumed +2		1315.98			
DRB-MW250	23	Boring Log	1289.1			1311.95	1312.14			1314.20	*	2.06	
DRB-MW270	27	Boring Log	1285.3			1311.82	1312.31		1317.90	1318.39		6.08	Bad GS Elev?
DRB-MW280	25.5	Boring Log	1286.5			1311.46	1311.95		1315.88	1316.37		4.42	Bad GS Elev?
DRB-MW330	22	Boring Log	1290.3			1311.81	1312.30		1313.81	1314.30		2.00	
DBR-MW340	26.25	Boring Log	1284.6			1310.4	1310.89		1312.40	1312.89		2.00	
EXC-MW02B	42.5	Boring Log	1272.8				1315.30			1315.00	*	-0.30	
EXC-MW03B	43	Boring Log	1273.7			1315.97	1316.68		1315.79	1316.50		-0.18	
EXC-MW04B	48	Boring Log	1270.0				1317.98			1317.75	*	-0.23	
EXC-MW05B	47.7	Boring Log	1268.9				1316.57			1316.36	*	-0.21	
EXC-MW06B	43.5	Boring Log	1269.9				1313.41			1313.12	*	-0.29	
EXC-MW07B	42	Boring Log	1272.1				1314.06			1313.81	*	-0.25	
EXC-MW08B	46	Boring Log	1266.7			1311.95	1312.66		1311.73	1312.44		-0.22	
EXC-MW10B	44	Boring Log	1271.9			1315.19	1315.90		1314.89	1315.60		-0.30	
GPC-HC3	26.5	Boring Log	1291.2			1317.13	1317.68		1319.21	1319.76		2.08	
GPC-HC7	25.5	Boring Log	1289.2			1314.14	1314.69		1316.16	1316.71		2.02	
HOC-RW1	38	Boring Log	1265.4	clay from 38-TD			1303.38			1304.69		1.31	
HOC-RW2	38	Boring Log	1264.3				1302.26			1303.72		1.46	

North Industrial Corridor (NIC) Site
Bottom of Aquifer Data

Well/Boring	Bottom of Aquifer Depth (feet)	Bottom of Aquifer Data Source	Bottom of Aquifer Elevation (feet MSL)	Bottom of Aquifer Comment	Bottom of Aquifer Elevation (feet MSL old datum)	Ground Surface Elevation (old datum feet MSL)	Ground Surface Elevation (feet MSL)	Ground Surface Elevation Comments	Measuring Point Elevation (old datum feet MSL)	Measuring Point Elevation (feet MSL)	Stickup (feet above ground surface)	Measuring Point Comment
NMW-01_S,D	46	EC Log	1282.8				1328.75			1328.75 *	0.00	
NMW-02_S,D	44	EC Log	1272.1				1316.13			1315.65 *	-0.48	
NMW-03_S,D	36	EC Log	1280.3	Possibly 23' DTB			1316.26			1315.98 *	-0.28	
NMW-04_S,D	40	EC Log	1272.4				1312.44			1316.30 *	3.86	
NMW-05_S,D	46	Field Observati	1270.4	88' EC Bad DTB			1316.41			1316.08 *	-0.33	
NMW-06_S,D	38	EC Log	1276.8				1314.82			1314.82 *	0.00	
NMW-07_S,D	44.5	EC Log	1269.0				1313.45			1313.18 *	-0.27	
NMW-08_S,D	32.5	EC Log	1274.7				1307.18			1306.90 *	-0.28	
NMW-09_S,D	31.5	EC Log	1275.7				1307.19			1306.89 *	-0.30	
NMW-10_S,D	38	EC Log	1272.0				1309.97			1309.63 *	-0.34	
NMW-11_S,D	30.5	EC Log	1275.9				1306.36			1306.24 *	-0.12	
NMW-12_S,D	26.5	EC Log	1278.8				1305.27			1304.83 *	-0.44	
NMW-13_S,D	27.5	EC Log	1277.2				1304.73			1304.34 *	-0.39	
NMW-14_S,D	23	EC Log	1280.0				1303.03			1302.78 *	-0.25	
NMW-15_S,D	28.5	EC Log	1274.9				1303.40			1303.40 *	0.00	
NMW-16_S,D	34	EC Log	1268.8				1302.82			1306.19 *	3.37	
NMW-17_S,D	51.5	EC Log	1261.5				1312.96			1312.63 *	-0.33	
NMW-18_S,D	46	EC Log	1262.1				1308.05			1307.78 *	-0.27	
NMW-19_S,D	43.5	EC Log	1264.9				1308.35			1308.13 *	-0.22	
NMW-20_S,D	42	EC Log	1264.8				1306.82			1306.65 *	-0.17	
NMW-21_S,D	41.5	EC Log	1264.8				1306.31			1306.03 *	-0.28	
NMW-22_S,D	40	EC Log	1264.4				1304.40			1304.40 *	0.00	
NMW-23_S,D	40.5	EC Log	1264.2				1304.68			1304.68 *	0.00	
NMW-24_S,D	36.7	EC Log	1266.4				1303.06			1303.06 *	0.00	
NMW-25_S,D	40	EC Log	1260.9				1300.92			1300.66 *	-0.26	
NMW-26_S,D	32.5	EC Log	1266.5				1299.02			1298.71 *	-0.31	
NMW-27_S,D	25.2	EC Log	1275.0	Weak EC DTB			1300.16			1299.89 *	-0.27	
NMW-28_S,D	38.2	EC Log	1261.4				1299.64			1299.25 *	-0.39	
NMW-29_S,D	36.5	EC Log	1263.9				1300.41			1300.13 *	-0.28	
NMW-30_S,D	26.5	EC Log	1273.5				1300.04			1299.73 *	-0.31	
NMW-31_S,D	29.5	EC Log	1274.3				1303.83			1303.69 *	-0.14	
NMW-32_S,D	29.5	EC Log	1274.5				1304.00			1303.61 *	-0.39	
NMW-33_S,D	49.5	EC Log	1269.8				1319.26			1322.43 *	3.17	
NMW-34_S,D	47	EC Log	1268.1				1315.10			1314.69 *	-0.41	
NMW-35_S,D	37	EC Log	1267.0	Weak EC DTB			1304.01			1303.74 *	-0.27	
NMW-36_S,D	37.5	EC Log	1281.1				1318.60			1318.44 *	-0.16	
NMW-37_S,D	38	EC Log	1280.3				1318.30			1318.15 *	-0.15	
NMW-38_S,D	40	EC Log	1280.0				1320.00			1319.83 *	-0.17	
NMW-39_S,D	36	EC Log	1272.6	Weak EC DTB			1308.58			1308.19 *	-0.39	
NMW-40_S,D	38.5	Well Refusal	1271.9	57' EC Bad DTB			1310.35			1313.97 *	3.62	
NMW-41_S,D	33	EC Log	1272.6				1305.58			1305.13 *	-0.45	
NMW-42_S,D	35	EC Log	1277.6				1312.60			1315.68 *	3.08	
NMW-43_S,D	39	EC Log	1271.5				1310.50			1314.24 *	3.74	
NMW-44_S,D	37.5	EC Log	1274.8	Weak EC DTB			1312.30			1315.81 *	3.51	
NMW-45_S,D	32	EC Log	1278.7				1310.66			1314.17 *	3.51	
NMW-46_S,D	34	EC Log	1275.6				1309.60			1309.30 *	-0.30	
NMW-47_S,D	38	EC Log	1272.8				1310.81			1310.59 *	-0.22	
NMW-48_S,D	42.5	EC Log	1269.2				1311.70			1311.29 *	-0.41	

North Industrial Corridor (NIC) Site
Bottom of Aquifer Data

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NWL-01_S,D	43.5	EC Log	1269.6				1313.10			1313.10 *	0.00	
NWL-02_S,D	39	EC Log	1270.5				1309.53			1309.32 *	-0.21	
NWL-03S	42	EC Log	1269.5				1311.51			1311.28 *	-0.23	
NWL-04S	37	EC Log	1269.9				1306.92			1306.63 *	-0.29	
NWL-05S	46	EC Log	1265.6				1311.56			1311.20 *	-0.36	
NWL-06S	45	EC Log	1266.5				1311.50			1314.82 *	3.32	
NWL-07_S,D	34	EC Log	1273.7				1307.72			1307.48 *	-0.24	
NWL-08_S,D	33	EC Log	1275.7				1308.72			1308.47 *	-0.25	
NWL-09_S,D	43	EC Log	1267.9				1310.87			1310.60 *	-0.27	
SK-MW-1D	38	Boring Log	1277.9	11' of clay above BR			1315.87			1315.61 *	-0.26	
SK-MW-2D	36.5	Boring Log	1277.3				1313.77	Assumed -0.3'		1313.47 *	-0.30	Assumed -0.3'
SK-MW-3D	36	Boring Log	1277.7	2' of clay above BR			1313.67	Assumed -0.3'		1313.37 *	-0.30	Assumed -0.3'
SK-MW-5D	35	Boring Log	1279.0	1' of clay above BR			1313.95	Assumed -0.3'		1313.65 *	-0.30	Assumed -0.3'
UCL-SB03	30	Boring Log	1318.4			1347.80	1348.39					
UCL-SB04	13	Boring Log		9.5' of clay above BR								
UCL-SB05	0.5	Boring Log		27.5' of clay above BR								
UCL-SB06	9.5	Boring Log	1335.4	16' of clay above BR		1344.30	1344.89					
UCL-SB07	2.5	Boring Log	1346.3	25.5' of clay above BR		1348.20	1348.79					
UCL-SB08	8.5	Boring Log		12.5' of clay above BR								
UCL-SB09	26.5	Boring Log	1320.7			1346.60	1347.19					
UCL-SB10	25	Boring Log		12' clay/dbrk								
UCL-SB11	0	Boring Log	1336.6	23' of clay above BR		1336.00	1336.59					
UCL-SB12	20.5	Boring Log	1328.5	7.5' of clay above BR		1348.40	1348.99					
UCL-SB13	25.5	Boring Log		4.5' of clay above BR								
UCL-DP-01	28	Boring Log	1320.7			1348.08	1348.67					
UCL-DP-02	28	Boring Log	1320.8			1348.19	1348.78					
UCL-DP-03	10.5	Boring Log	1338.1			1347.99	1348.58					
UCL-DP-04	11	Boring Log	1338.3			1348.68	1349.27					
UCL-DP-05	25	Boring Log	1324.4	24' of clay above BR		1348.78	1349.37					
UCL-DP-06	19.5	Boring Log	1329.0	5' of clay above BR		1347.92	1348.51					
UCL-DP-07	0	Boring Log	1348.4	30' of clay above BR		1347.83	1348.42					
UCL-DP-08	0	Boring Log	1347.7	17.75' of clay above BR		1347.15	1347.74					
UCL-DP-09	0	Boring Log	1348.0	26' of clay above BR		1347.39	1347.98					
UCL-DP-10	0	Boring Log	1348.2	21.5' of clay above BR		1347.63	1348.22					
UCL-DP-11	26	Boring Log	1322.0			1347.41	1348.00					
UCL-DP-12	9	Boring Log	1338.6			1347.04	1347.63					
UCL-DP-13	8.75	Boring Log	1337.2			1345.40	1345.99					
UCL-DP-14	0	Boring Log	1348.8	1.5' of clay above BR		1348.23	1348.82					
UCL-DP-15	0	Boring Log	1346.7			1346.09	1346.68					
UCL-DP-16	0	Boring Log	1346.7	4.5' of clay above BR		1346.08	1346.67					
UCL-DP-17	0.5	Boring Log	1345.1	2.25' of clay above BR		1345.04	1345.63					
UCL-DP-18	0	Boring Log	1345.8	0.75' of clay above BR		1345.17	1345.76					
UCL-DP-19	1.75	Boring Log	1344.5	2.5' of clay above BR		1345.66	1346.25					
UCL-DP-20	6	Boring Log	1342.1			1347.52	1348.11					
UCL-DP-21	26.5	Boring Log	1324.5			1350.36	1350.95					
UCL-DP-25	0.5	Boring Log	1346.7	35.5' of clay above BR		1346.63	1347.22					
UCL-DP-33	11.75	Boring Log	1337.6	11' of clay above BR		1348.78	1349.37					
UCL-DP-39	0	Boring Log	1345.1	6' of clay above BR		1344.55	1345.14					

North Industrial Corridor (NIC) Site
Bottom of Aquifer Data

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UCL-MW-02	27	Est from Elev	1322.1	FROM HL BR MAP	1321.469	1348.49	1349.08	Assumed -0.3'	1348.21	1348.80		-0.30	Assumed -0.3'
UCL-MW-03	3	Est from Elev	1343.5	FROM HL BR MAP	1342.88	1345.88	1346.47	Assumed -0.3'	1345.51	1346.10		-0.30	Assumed -0.3'
UCL-MW-04	14	Est from Elev	1335.3	FROM HL BR MAP	1334.68	1348.18	1348.77	Assumed -0.3'	1347.95	1348.54		-0.30	Assumed -0.3'
UCL-MW-05	10	Est from Elev	1339.2	FROM HL BR MAP	1338.6		1349.07	Assumed -0.3'	1348.18	1348.77		-0.30	Assumed -0.3'
UCL-MW-08	10	Est from Elev	1318.3	FROM HL BR MAP	1317.71		1328.60	Assumed -0.3'	1327.71	1328.30		-0.30	Assumed -0.3'
UCL-MW-10	35	Est from Elev	1303.5	FROM HL BR MAP	1302.9		1338.72	Assumed -0.3'	1337.83	1338.42		-0.30	Assumed -0.3'
UCL-MW-11	11	Est from Elev	1316.9	FROM HL BR MAP	1316.3		1327.58		1325.80	1327.30	*	-0.28	
UCL-MW-12	41	Est from Elev	1304.8	FROM HL BR MAP	1304.2		1346.09		1347.79	1348.39	*	2.30	
UCL-MW-14	25	Est from Elev	1325.9	FROM HL BR MAP	1325.31		1350.40	Assumed -0.3'	1349.51	1350.10		-0.30	Assumed -0.3'
UCL-MW-15	7	Est from Elev	1339.2	FROM HL BR MAP	1338.56		1345.70	Assumed -0.3'	1344.81	1345.40		-0.30	Assumed -0.3'
UCL-MW-16	25	Est from Elev	1325.8	FROM HL BR MAP	1325.25		1350.44	Assumed -0.3'	1349.55	1350.14		-0.30	Assumed -0.3'
UCL-MW-20	17	Est from Elev	1315.2	FROM HL BR MAP	1314.65		1332.23	Assumed -0.3'	1331.34	1331.93		-0.30	Assumed -0.3'
UCL-MW-22	23	Est from Elev	1304.8	FROM HL BR MAP	1304.23		1328.05		1327.23	1327.81	*	-0.24	
UCL-R-05	22	Est from Elev	1317.1	FROM HL BR MAP	1316.54		1339.21	Assumed -0.3'	1338.32	1338.91		-0.30	Assumed -0.3'
UCL-TW-01	27	Est from Elev	1320.7	FROM HL BR MAP	1320.13	1346.63	1347.22	Assumed -0.3'	1346.25	1346.84		-0.30	Assumed -0.3'
UCL-TW-03	27	Est from Elev	1320.9	FROM HL BR MAP	1320.35	1347.35	1347.94	Assumed -0.3'	1346.96	1347.55		-0.30	Assumed -0.3'
UPRF-MW01	>25	Boring Log											
USD-P3	0	Boring Log		24' of clay above BR									
USD-P4	0	Boring Log		20' of clay above BR									
USD-P31	8	Boring Log		5' of clay above BR									
USD-P37	0	Boring Log		12' of clay above BR									
USD-P38	0	Boring Log		24.5' of clay above BR									
USD-P40	0	Boring Log		23' of clay above BR									
USD-P41	0	Boring Log		19.5' of clay above BR									
USD-P42	0	Boring Log		18' of clay above BR									
USD-P43	0	Boring Log		18' of clay above BR									
USD-P44	0	Boring Log		20' of clay above BR									
USD-P45	0	Boring Log		13' of clay above BR									
USD-P46	0	Boring Log		21.5' of clay above BR									
USD-P61	0	Boring Log		18.5' of clay above BR									
USD-P62	0	Boring Log		5' of clay above BR									
USD-P63	0	Boring Log		11.5' of clay above BR									
USD-P65	24	Boring Log											
USD-P66	10	Boring Log		28' of clay above BR									
USD-MW-1	23	Boring Log	1310.3	4' of clay above BR			1333.25			1332.92	*	-0.33	
USD-MW-2D	41	Boring Log	1294.3	10' of clay above BR		1334.91	1335.31	Assumed -0.3	1334.61	1335.01		-0.30	Assumed -0.3
USD-MW-3	25	Boring Log											
USD-MW-4D	28	Boring Log	1300.7			1328.27	1328.67	Assumed -0.3	1327.97	1328.37		-0.30	Assumed -0.3
USD-MW-5D	27	Boring Log	1301.2	7' of clay above BR			1328.20			1327.80	*	-0.40	
USD-MW-6D	31	Boring Log	1300.6			1331.19	1331.59	Assumed -0.3	1330.89	1331.29		-0.30	Assumed -0.3
USD-MW-7D	24	Boring Log	1325.0				1348.95			1348.70	*	-0.25	
USD-MW-8	0	Boring Log		23.5' of clay above BR									
USD-MW-9	25	Boring Log		7' of clay above BR									
USD-MW-10D	28	Boring Log	1302.8	6.5' of clay above BR			1330.83			1330.68	*	-0.15	
VWRS-MW-2D	41	Boring Log	1272.6				1313.58			1313.42	*	-0.16	
VWRS-MW-4D	35.5	Boring Log											
VWRS-MW-5D	36	Boring Log											
VWRS-MW-7D	37.5	Boring Log	1272.4				1309.88			1309.52	*	-0.36	
VWRS-MW-8D	37.5	Boring Log											

North Industrial Corridor (NIC) Site
Bottom of Aquifer Data

Well/Boring	Bottom of Aquifer Depth (feet)	Bottom of Aquifer Data Source	Bottom of Aquifer Elevation (feet MSL)	Bottom of Aquifer Comment	Bottom of Aquifer Elevation (feet MSL old datum)	Ground Surface Elevation (old datum feet MSL)	Ground Surface Elevation (feet MSL)	Ground Surface Elevation Comments	Measuring Point Elevation (old datum feet MSL)	Measuring Point Elevation (feet MSL)		Stickup (feet above ground surface)	Measuring Point Comment
WNC-05D	46	Well Refusal	1268.7	67' EC Bad DTB			1314.71			1318.20	*	3.49	
WNC-06D	44.5	EC Log	1280.6				1325.14			1328.12	*	2.98	
WNC-09_S,D	44.3	EC Log	1271.2				1315.47			1315.14	*	-0.33	
WNC-10D	43	BF Observation	1274.1				1317.14			1316.81	*	-0.33	
WNC-11D	44	EC Log	1270.6				1314.61			1314.36	*	-0.25	
WNC-16D	47.5	EC Log	1266.4				1313.87			1313.61	*	-0.26	
WNC-23D	45	EC Refusal	1270.1				1315.06			1318.61	*	3.55	
WNC-31D	39.5	EC Log	1279.0				1318.50			1318.31	*	-0.19	
WNC-32D	40.5	EC Log	1278.1				1318.60			1318.82	*	0.22	
WNC-37SR	39	EC Log	1272.9				1311.89			1315.18	*	3.29	
WNC-49SR	40.5	EC Log	1267.9				1308.42			1308.22	*	-0.20	
WND-01S	>27	Boring Log					1324.92			1326.57	*	1.65	
WND-02_S,D	43	Boring Log	1269.0				1312.02			1311.53	*	-0.49	
WND-03S	>25	Boring Log					1314.09			1316.50	*	2.41	
WND-04S	>22	Boring Log					1316.87			1319.04	*	2.17	
WND-05	>23	Boring Log					1315.65			1317.74	*	2.09	
WND-06S	>27	Boring Log					1324.86			1327.75	*	2.89	
WND-07S	24	Boring Log	1296.8				1320.77			1321.37	*	0.60	
WND-08S	>22	Boring Log					1316.23			1315.72	*	-0.51	
WND-09	>22	Boring Log					1315.44	Used WNC GS	1317.3	1317.81		2.37	
WND-10S	>20	Boring Log					1316.53			1318.58	*	2.05	
WND-11S	>23	Boring Log					1314.64			1316.77	*	2.13	
WND-12_S,D	>22	Boring Log					1316.34			1315.76	*	-0.58	
WND-13_S,D	39	Boring Log	1271.9				1310.89			1313.55	*	2.66	
WND-14_S,D	41	Boring Log	1276.1				1317.13	pad		1317.70	*	0.57	
WND-15_S,D	30	Boring Log	1276.9				1306.88	rim		1306.76	*	-0.12	
WND-16S	>22	Boring Log					1313.87			1313.47	*	-0.40	
WND-17_S,D	46	Boring Log	1264.6				1310.55	Assumed -0.3'	1309.70	1310.25		-0.30	Assumed -0.3'
WND-18_S,D	44	Boring Log	1267.3				1311.34			1310.95	*	-0.39	
WND-19_S,D	34	Boring Log	1273.2				1307.16			1306.73	*	-0.43	
WND-20S	>25	Boring Log					1311.94			1314.05	*	2.11	
WND-21_S,D	37	Boring Log	1272.6				1309.58			1309.31	*	-0.27	
WND-22_S,D	42	Boring Log	1279.5				1321.46			1323.36	*	1.90	
WND-23S	>23	Boring Log					1315.50			1317.73	*	2.23	
WND-24_S,D	31	Boring Log	1276.2				1307.15			1306.88	*	-0.27	
WND-25_S,D	>25	Boring Log					1316.31			1318.73	*	2.42	
WND-26_S,D	40	Boring Log	1273.5				1313.45	pad		1315.61	*	2.16	
WND-27S	>25	Boring Log					1312.90			1315.01	*	2.11	
WND-28S	>22	Boring Log					1318.35			1320.72	*	2.37	
WND-29S,D	>25	Boring Log					1317.29			1319.64	*	2.35	
WND-30D	34	Boring Log	1279.7				1313.68			1315.70	*	2.02	
WND-31S	>25	Boring Log					1318.30			1317.26	*	-1.04	
WND-32S	>25	Boring Log					1318.70			1317.68	*	-1.02	
WND-33_S,D	40	Boring Log	1271.2				1311.18			1310.58	*	-0.60	
WND-34_S,D	42	Boring Log	1269.6				1311.56	pad		1314.34	*	2.78	
WND-35_S,D	45	Boring Log	1268.6				1313.63			1315.35	*	1.72	
WND-36_S,D	43	Boring Log	1269.2				1312.23	pad		1314.75	*	2.52	
WND-37_S,D	39	Boring Log	1272.7				1311.72	pad		1314.75	*	3.03	
WND-38S,D	39	Boring Log	1268.8				1307.79			1307.48	*	-0.31	
WND-39S,D	36	Boring Log	1272.5				1308.54			1308.31	*	-0.23	

North Industrial Corridor (NIC) Site
Bottom of Aquifer Data

Well/Boring	Bottom of Aquifer Depth (feet)	Bottom of Aquifer Data Source	Bottom of Aquifer Elevation (feet MSL)	Bottom of Aquifer Comment	Bottom of Aquifer Elevation (feet MSL old datum)	Ground Surface Elevation (old datum feet MSL)	Ground Surface Elevation (feet MSL)	Ground Surface Elevation Comments	Measuring Point Elevation (old datum feet MSL)	Measuring Point Elevation (feet MSL)		Stickup (feet above ground surface)	Measuring Point Comment
WND-40S,D	31.9	Boring Log	1270.9				1302.77			1302.64	*	-0.13	
WND-41S,D	35	Boring Log	1272.2				1307.23			1306.97	*	-0.26	
WND-42	40	Boring Log	1264.8				1304.79			1303.64	*	-1.15	
WND-43S,D	32.8	Boring Log	1274.8				1307.59			1307.54	*	-0.05	
WND-44S,D	35.5	Boring Log	1267.8				1303.27			1303.27	*	0.00	
WND-45S,D	39	Boring Log	1266.7				1305.72			1305.66	*	-0.06	
WND-46S,D	41	Boring Log	1264.1				1305.05			1304.98	*	-0.07	
WND-47S,D	32.5	Boring Log	1272.4				1304.90			1304.81	*	-0.09	
WND-48S,D	39.5	Boring Log	1261.9				1301.42			1301.01	*	-0.41	
WND-49D	38.3	Boring Log	1270.1				1308.39	Survey GS Bad		1308.14	*	-0.25	
WU-MW-2D	33	Boring Log	1273.9			1306.36	1306.91		1306.16	1306.71		-0.2	Assumed -0.2
WU-MW-3D	34	Boring Log	1273.3			1306.72	1307.27		1306.52	1307.07		-0.2	Assumed -0.2
WU-MW-4D	32	Boring Log	1275.6			1306.94	1307.59			1307.36	*	-0.23	
WU-MW-5D	37	Boring Log	1270.8			1307.23	1307.77			1307.65	*	-0.12	
WU-MW-6D	36	Boring Log	1271.7			1307.17	1307.72		1306.97	1307.52		-0.2	Assumed -0.2
WU-MW-7D	35	Boring Log	1272.9			1307.39	1307.94		1307.19	1307.74		-0.2	Assumed -0.2
WU-MW-8D	38	Boring Log	1270.2			1307.66	1308.21		1307.46	1308.01		-0.2	Assumed -0.2
WU-MW-9D	40	Boring Log	1267.1			1306.51	1307.06		1306.31	1306.86		-0.2	Assumed -0.2

Notes:
Boldface type indicates borings used to generate Plate 4-3-Bottom of Aquifer Map. Available logs for these borings are included in Appendix E-1 and E-3b.
BR= Bedrock
DTB= Depth to Bedrock
TD= Total Depth
EC= Electrical Conductivity
GS= Ground Surface
HL= Harding Lawson Associates Phase III Investigation Technical Memorandum for UCL
WWC5= Kansas Geological Survey Water Well Completion Records Database

* = Surveyed by CSM

North Industrial Corridor (NIC) Site
Saturated Thickness Data

Well/Boring	Bottom of Aquifer Elevation (feet MSL)	Ground Surface Elevation (old datum feet MSL)	Ground Surface Elevation (feet MSL)	Ground Surface Elevation Comments	Measuring Point Elevation (old datum feet MSL)	Measuring Point Elevation (feet MSL)		Stickup (feet above ground surface)	Measuring Point Comment	Depth to Water (feet below ground surface)	Depth to Water (feet below measuring point)	Depth to Water	Water Level Elevation (feet MSL)	Saturated Thickness (feet)
29M-SB01	1273.5	1305.99	1306.54			1306.54				13.8		6/90	1292.8	19.2
29M-SB02	1273.2	1307.65	1308.20			1308.20				13.9		6/90	1294.4	21.2
29M-SB03	1271.4	1305.83	1306.38			1306.38				12.9		6/90	1293.5	22.1
29M-SB04	1270.1	1306.59	1307.14			1307.14				11.8		6/90	1295.3	25.2
29M-SB05	1276.2	1308.67	1309.22			1309.22				14.5		6/90	1294.7	18.5
29M-SB06	1268.8	1311.28	1311.83			1311.83				15.9		6/90	1296.0	27.1
29M-SB07	1269.4	1306.80	1307.35			1307.35				--		--	--	--
29M-SB08	1275.8	1315.24	1315.79			1315.79				12.1		6/90	1303.7	27.9
29M-SB09	1275.3	1312.71	1313.26			1313.26				12.2		6/90	1301.1	25.8
29M-SB10	1272.8	1313.26	1313.81			1313.81				13.4		6/90	1300.4	27.6
29M-SB11	1272.0	1308.45	1309.00			1309.00				13.2		6/90	1295.8	23.8
29M-SB12	1274.7	1312.16	1312.71			1312.71				11.8		6/90	1301.0	26.3
29M-SB13	1272.6	1312.08	1312.63			1312.63				12.4		6/90	1300.2	27.6
29M-SB14	1273.3	1314.77	1315.32			1315.32				12.5		6/90	1302.8	29.5
29M-SB15	1268.7	1316.19	1316.74			1316.74				14.0		6/90	1302.7	34.0
29M-SB16	1280.0	1323.40	1323.95			1323.95				16.2		6/90	1307.8	27.8
29M-SB17	1273.9	1306.36	1306.91			1306.91				13.2		6/90	1293.7	19.8
29M-SB18	1266.1	1311.51	1312.06			1312.06				17.3		6/90	1294.8	28.7
29M-SB19	1275.1	1316.52	1317.07			1317.07				--		--	--	--
29M-SB20	1276.3	1312.77	1313.32			1313.32				11.3		6/90	1302.0	25.7
29M-SB21	1277.6	1317.04	1317.59			1317.59				14.2		7/90	1303.4	25.8
29M-SB22	1277.5	1315.95	1316.50			1316.50				16.5		7/90	1300.0	22.5
29M-SB23	1272.2	1318.65	1319.20			1319.20				14.2		7/90	1305.0	32.8
29M-SB24	1272.9	1313.34	1313.89			1313.89				12.2		7/90	1301.7	28.8
29M-SB25	1271.3	1315.79	1316.34			1316.34				14.6		7/90	1301.7	30.4
29M-SB26	1275.5	1314.91	1315.46			1315.46				11.2		7/90	1304.3	28.8
29M-SB27	1274.3	1317.78	1318.33			1318.33				12.0		7/90	1306.3	32.0
29M-SB28	1270.1	1314.52	1315.07			1315.07				11.7		7/90	1303.4	33.3
29M-SB29	1269.0	1315.41	1315.96			1315.96				16.6		7/90	1299.4	30.4
29M-SB30	1268.3	1311.71	1312.26			1312.26				--	--	--	--	--
29M-SB31	1274.5	1312.91	1313.46			1313.46				13.6		7/90	1299.9	25.4
29M-SB32	1270.8	1310.26	1310.81			1310.81				12.8		7/90	1298.0	27.2
CN-51,52	1275.8	1318.27	1318.84	Assumed 1'	1319.27	1319.84		1.0	Assumed 1'	12.6	13.55	5/98	1306.3	30.5
CN-53,54	1274.8	1315.26	1315.83	Assumed 1'	1316.26	1316.83		1.0	Assumed 1'	11.7	12.65	5/98	1304.2	29.3
CN-61,62	1276.8	1319.20	1319.77	Assumed 1'	1320.20	1320.77		1.0	Assumed 1'	11.4	12.39	5/98	1308.4	31.6
CN-63,64	1271.9	1319.36	1319.93	Assumed 1'	1320.36	1320.93		1.0	Assumed 1'	12.1	13.14	5/98	1307.8	35.9
CN-67,68	1269.9	1316.34	1316.91	Assumed 1'	1317.34	1317.91		1.0	Assumed 1'	12.1	13.14	5/98	1304.8	34.9
CNE-NE1D	1288.6	1323.57	1324.14	Assumed -0.3	1323.27	1323.84		-0.3	Assumed -0.3	16.7	16.39	10/97	1307.5	18.8
CNE-NE2D	1284.8	1321.71	1322.28	Assumed -0.3	1321.41	1321.98		-0.3	Assumed -0.3	15.2	14.90	10/97	1307.1	22.3
CNE-NE3D	1284.7	1321.67	1322.24	Assumed -0.3	1321.37	1321.94		-0.3	Assumed -0.3	15.3	14.97	10/97	1307.0	22.2
CNE-NE4D	1282.5		1320.95			1320.78	*	-0.17		14.1	13.92	3/01	1306.9	24.4
CNE-NE5D	1284.4	1319.36	1319.93	Assumed -0.3	1319.06	1319.63		-0.3	Assumed -0.3	13.2	12.92	10/97	1306.7	22.3
CNE-NE6D	1282.8		1319.3			1319.11	*	-0.19		14.0	13.79	3/01	1305.3	22.5

North Industrial Corridor (NIC) Site
Saturated Thickness Data

Well/Boring	Bottom of Aquifer Elevation (feet MSL)	Ground Surface Elevation (old datum feet MSL)	Ground Surface Elevation (feet MSL)	Ground Surface Elevation Comments	Measuring Point Elevation (old datum feet MSL)	Measuring Point Elevation (feet MSL)		Stickup (feet above ground surface)	Measuring Point Comment	Depth to Water (feet below ground surface)	Depth to Water (feet below measuring point)	Depth to Water	Water Level Elevation (feet MSL)	Saturated Thickness (feet)
CNE-NE7D	1284.7		1320.74			1320.75	*	0.01		14.4	14.42	3/01	1306.3	21.6
CNE-NE08I	1279.5		1320.98			1320.48	*	-0.50		16.2	15.71	3/01	1304.8	25.3
CNE-NE9D	1276.4		1317.94			1317.43	*	-0.51		13.4	12.90	3/01	1304.5	28.1
CNE-NE11D	1274.7		1316.23			1315.74	*	-0.49		12.1	11.56	3/01	1304.2	29.5
CNE-NE12I	1276.7		1319.20			1318.92	*	-0.28		14.1	13.83	3/01	1305.1	28.4
CNE-MW-6D	1287.8	1324.7	1325.27		1324.43	1325.00		-0.27		16.1	15.85	5/98	1309.2	21.4
CNE-MW-7D	1286.1		1323.58			1323.45	*	-0.13		15.3	15.21	3/01	1308.2	22.2
CNE-MW-8D	1288.7	1327.66	1328.23		1327.35	1327.92		-0.31		19.4	19.09	5/98	1308.8	20.1
CNE-MW-9D	1290.7	1329.63	1330.2		1329.26	1329.83		-0.37		21.5	21.08	5/98	1308.8	18.1
CNE-MW-10D	1281.5	1323.42	1323.99		1322.98	1323.55		-0.44		15.5	15.03	5/98	1308.5	27.0
CNE-MW-11D	1284.2	1322.65	1323.22		1322.29	1322.86		-0.36		14.7	14.30	5/98	1308.6	24.3
CNE-MW-12D	1284.4		1323.94			1323.67	*	-0.27		14.7	14.39	3/01	1309.3	24.8
CNE-MW-13D	1283.3	1325.22	1325.79		1324.75	1325.32		-0.47		15.3	14.82	5/98	1310.5	27.2
CNE-MW-14D	1291.8	1325.69	1326.26		1325.35	1325.92		-0.34		13.5	13.12	5/98	1312.8	21.0
CNE-MW-15D	1284.5	1322.38	1322.95		1324.42	1324.99		2.04	2' Bad Stickup	12.4	14.46	5/98	1310.5	26.1
CNE-MW-16D	1285.2	1323.58	1324.15	Assumed -0.3	1323.28	1323.85		-0.30	Assumed -0.3	15.8	15.51	5/98	1308.3	23.2
CNE-MW-17D	1287.8	1324.27	1324.84	Assumed -0.3	1323.97	1324.54		-0.30	Assumed -0.3	16.6	16.28	5/98	1308.3	20.4
CNE-MW-18D	1286.6	1324.54	1325.11	Assumed -0.3	1324.24	1324.81		-0.30	Assumed -0.3	16.9	16.59	5/98	1308.2	21.6
CNE-MW-19D	1289.1	1324.00	1324.57	Assumed -0.3	1323.70	1324.27		-0.30	Assumed -0.3	16.7	16.37	5/98	1307.9	18.8
CNE-MW-20D	1289.5	1323.93	1324.5	Assumed -0.3	1323.63	1324.20		-0.30	Assumed -0.3	17.0	16.70	5/98	1307.5	18.0
CNE-MW-21D	1288.1	1323.98	1324.55	Assumed -0.3	1323.68	1324.25		-0.30	Assumed -0.3	16.6	16.30	5/98	1308.0	19.9
CNE-MW-22D	1289.6	1323.52	1324.09	Assumed -0.3	1323.22	1323.79		-0.30	Assumed -0.3	15.2	14.87	5/98	1308.9	19.3
CTC-01	1283.1		1324.08			1327.13	*	3.05		13.9	16.94	3/01	1310.2	27.1
CTC-02	1281.2		1325.15			1324.96	*	-0.19		--	--	--	--	--
CTC-04D	1278.7	1324.14	1324.70		1327.00	1327.56		2.86		13.3	16.14	4/98	1311.4	32.7
CTC-05D	1277.8	1323.24	1323.80		1323.84	1324.40		0.60		12.7	13.32	4/98	1311.1	33.3
DRB-MW40	1276.0		1313.98								18.48		1295.5	
DRB-MW250	1289.1	1311.95	1312.14			1314.20	*	2.06		14.3	16.33	8/01	1297.9	8.7
DRB-MW270	1285.3	1311.82	1312.31		1317.90	1318.39		6.08	Bad GS Elev?	14.5	20.63	3/01	1297.8	12.5
DRB-MW280	1286.5	1311.46	1311.95		1315.88	1316.37		4.42	Bad GS Elev?	16.6	21.01	3/01	1295.4	8.9
DRB-MW330	1290.3	1311.81	1312.30		1313.81	1314.30		2.00		13.2	15.15	3/01	1299.2	8.8
DBR-MW340	1284.6	1310.4	1310.89		1312.40	1312.89		2.00		13.6	15.58	3/01	1297.3	12.7
EXC-MW02B	1272.8		1315.30			1315.00	*	-0.30		12.4	12.08	8/01	1302.9	30.1
EXC-MW03B	1273.7	1315.97	1316.68		1315.79	1316.50		-0.18		12.8	12.66	4/98	1303.8	30.2
EXC-MW04B	1270.0		1317.98			1317.75	*	-0.23		15.6	15.34	8/01	1302.4	32.4
EXC-MW05B	1268.9		1316.57			1316.36	*	-0.21		14.6	14.43	8/01	1301.9	33.1
EXC-MW06B	1269.9		1313.41			1313.12	*	-0.29		11.8	11.46	8/01	1301.7	31.7
EXC-MW07B	1272.1		1314.06			1313.81	*	-0.25		13.2	12.91	8/01	1300.9	28.8
EXC-MW08B	1266.7	1311.95	1312.66		1311.73	1312.44		-0.22		10.8	10.54	8/01	1301.9	35.2
EXC-MW10B	1271.9	1315.19	1315.90		1314.89	1315.60		-0.30		11.7	11.40	8/01	1304.2	32.3
GPC-HC3	1291.2	1317.13	1317.68		1319.21	1319.76		2.08		--	--	--	--	--
GPC-HC7	1289.2	1314.14	1314.69		1316.16	1316.71		2.02		--	--	--	--	--
HOC-RW1	1265.4		1303.38			1304.69		1.31		--	--	--	--	--
HOC-RW2	1264.3		1302.26			1303.72		1.46		--	--	--	--	--

North Industrial Corridor (NIC) Site
Saturated Thickness Data

Well/Boring	Bottom of Aquifer Elevation (feet MSL)	Ground Surface Elevation (old datum feet MSL)	Ground Surface Elevation (feet MSL)	Ground Surface Elevation Comments	Measuring Point Elevation (old datum feet MSL)	Measuring Point Elevation (feet MSL)		Stickup (feet above ground surface)	Measuring Point Comment	Depth to Water (feet below ground surface)	Depth to Water (feet below measuring point)	Depth to Water	Water Level Elevation (feet MSL)	Saturated Thickness (feet)
NMW-01_S,D	1282.8		1328.75			1328.75	*	0.00		20.5	20.45	8/01	1308.30	25.6
NMW-02_S,D	1272.1		1316.13			1315.65	*	-0.48		14.3	13.85	8/01	1301.80	29.7
NMW-03_S,D	1280.3		1316.26			1315.98	*	-0.28		16.6	16.30	8/01	1299.68	19.4
NMW-04_S,D	1272.4		1312.44			1316.30	*	3.86		12.9	16.80	8/01	1299.50	27.1
NMW-05_S,D	1270.4		1316.41			1316.08	*	-0.33		14.4	14.09	8/01	1301.99	31.6
NMW-06_S,D	1276.8		1314.82			1314.82	*	0.00		18.0	18.00	8/01	1296.82	20.0
NMW-07_S,D	1269.0		1313.45			1313.18	*	-0.27		16.9	16.66	8/01	1296.52	27.6
NMW-08_S,D	1274.7		1307.18			1306.90	*	-0.28		12.1	11.83	8/01	1295.07	20.4
NMW-09_S,D	1275.7		1307.19			1306.89	*	-0.30		12.7	12.36	8/01	1294.53	18.8
NMW-10_S,D	1272.0		1309.97			1309.63	*	-0.34		15.4	15.03	8/01	1294.60	22.6
NMW-11_S,D	1275.9		1306.36			1306.24	*	-0.12		15.3	15.17	8/01	1291.07	15.2
NMW-12_S,D	1278.8		1305.27			1304.83	*	-0.44		14.1	13.65	8/01	1291.18	12.4
NMW-13_S,D	1277.2		1304.73			1304.34	*	-0.39		14.7	14.30	8/01	1290.04	12.8
NMW-14_S,D	1280.0		1303.03			1302.78	*	-0.25		12.4	12.17	8/01	1290.61	10.6
NMW-15_S,D	1274.9		1303.40			1303.40	*	0.00		14.3	14.32	8/01	1289.08	14.2
NMW-16_S,D	1268.8		1302.82			1306.19	*	3.37		14.6	17.98	8/01	1288.21	19.4
NMW-17_S,D	1261.5		1312.96			1312.63	*	-0.33		17.8	17.43	8/01	1295.20	33.7
NMW-18_S,D	1262.1		1308.05			1307.78	*	-0.27		14.3	14.03	8/01	1293.75	31.7
NMW-19_S,D	1264.9		1308.35			1308.13	*	-0.22		13.6	13.42	8/01	1294.71	29.9
NMW-20_S,D	1264.8		1306.82			1306.65	*	-0.17		15.7	15.50	8/01	1291.15	26.3
NMW-21_S,D	1264.8		1306.31			1306.03	*	-0.28		16.2	15.96	8/01	1290.07	25.3
NMW-22_S,D	1264.4		1304.40			1304.40	*	0.00		14.6	14.64	8/01	1289.76	25.4
NMW-23_S,D	1264.2		1304.68			1304.68	*	0.00		13.6	13.57	8/01	1291.11	26.9
NMW-24_S,D	1266.4		1303.06			1303.06	*	0.00		13.9	13.88	8/01	1289.18	22.8
NMW-25_S,D	1260.9		1300.92			1300.66	*	-0.26		15.9	15.68	8/01	1284.98	24.1
NMW-26_S,D	1266.5		1299.02			1298.71	*	-0.31		15.7	15.35	8/01	1283.36	16.8
NMW-27_S,D	1275.0		1300.16			1299.89	*	-0.27		15.4	15.10	8/01	1284.79	9.8
NMW-28_S,D	1261.4		1299.64			1299.25	*	-0.39		13.4	12.96	8/01	1286.29	24.8
NMW-29_S,D	1263.9		1300.41			1300.13	*	-0.28		15.8	15.47	8/01	1284.66	20.8
NMW-30_S,D	1273.5		1300.04			1299.73	*	-0.31		13.9	13.62	8/01	1286.11	12.6
NMW-31_S,D	1274.3		1303.83			1303.69	*	-0.14		12.7	12.57	8/01	1291.12	16.8
NMW-32_S,D	1274.5		1304.00			1303.61	*	-0.39		14.0	13.59	8/01	1290.02	15.5
NMW-33_S,D	1269.8		1319.26			1322.43	*	3.17		13.0	16.21	8/01	1306.22	36.5
NMW-34_S,D	1268.1		1315.10			1314.69	*	-0.41		12.6	12.15	8/01	1302.54	34.4
NMW-35_S,D	1267.0		1304.01			1303.74	*	-0.27		12.5	12.25	8/01	1291.49	24.5
NMW-36_S,D	1281.1		1318.60			1318.44	*	-0.16		17.1	16.98	8/01	1301.46	20.4
NMW-37_S,D	1280.3		1318.30			1318.15	*	-0.15		17.5	17.40	8/01	1300.75	20.5
NMW-38_S,D	1280.0		1320.00			1319.83	*	-0.17		19.2	19.05	8/01	1300.78	20.8
NMW-39_S,D	1272.6		1308.58			1308.19	*	-0.39		13.1	12.74	8/01	1295.45	22.9
NMW-40_S,D	1271.9		1310.35			1313.97	*	3.62		13.9	17.55	8/01	1296.42	24.6
NMW-41_S,D	1272.6		1305.58			1305.13	*	-0.45		12.5	12.10	8/01	1293.03	20.5
NMW-42_S,D	1277.6		1312.60			1315.68	*	3.08		12.8	15.90	8/01	1299.78	22.2
NMW-43_S,D	1271.5		1310.50			1314.24	*	3.74		13.2	16.90	8/01	1297.34	25.8

North Industrial Corridor (NIC) Site
Saturated Thickness Data

Well/Boring	Bottom of Aquifer Elevation (feet MSL)	Ground Surface Elevation (old datum feet MSL)	Ground Surface Elevation (feet MSL)	Ground Surface Elevation Comments	Measuring Point Elevation (old datum feet MSL)	Measuring Point Elevation (feet MSL)		Stickup (feet above ground surface)	Measuring Point Comment	Depth to Water (feet below ground surface)	Depth to Water (feet below measuring point)	Depth to Water	Water Level Elevation (feet MSL)	Saturated Thickness (feet)
NMW-44_S,D	1274.8		1312.30			1315.81	*	3.51		13.7	17.22	8/01	1298.59	23.8
NMW-45_S,D	1278.7		1310.66			1314.17	*	3.51		13.9	17.38	8/01	1296.79	18.1
NMW-46_S,D	1275.6		1309.60			1309.30	*	-0.30		14.6	14.32	8/01	1294.98	19.4
NMW-47_S,D	1272.8		1310.81			1310.59	*	-0.22		10.7	10.43	8/01	1300.16	27.3
NMW-48_S,D	1269.2		1311.70			1311.29	*	-0.41		13.3	12.85	8/01	1298.44	29.2
NWL-01_S,D	1269.6		1313.10			1313.10	*	0.00		14.5	14.49	8/01	1298.61	29.0
NWL-02_S,D	1270.5		1309.53			1309.32	*	-0.21		12.2	12.03	8/01	1297.29	26.8
NWL-03S	1269.5		1311.51			1311.28	*	-0.23		14.6	14.39	8/01	1296.89	27.4
NWL-04S	1269.9		1306.92			1306.63	*	-0.29		10.7	10.39	8/01	1296.24	26.3
NWL-05S	1265.6		1311.56			1311.20	*	-0.36		15.2	14.88	8/01	1296.32	30.8
NWL-06S	1266.5		1311.50			1314.82	*	3.32		15.1	18.43	8/01	1296.39	29.9
NWL-07_S,D	1273.7		1307.72			1307.48	*	-0.24		15.2	15.00	8/01	1292.48	18.8
NWL-08_S,D	1275.7		1308.72			1308.47	*	-0.25		16.4	16.18	8/01	1292.29	16.6
NWL-09_S,D	1267.9		1310.87			1310.60	*	-0.27		14.7	14.45	8/01	1296.15	28.3
SK-MW-1D	1277.9		1315.87			1315.61	*	-0.26		16.4	16.09	4/01	1299.52	21.7
SK-MW-2D	1277.3		1313.77	Assumed -0.3'		1313.47	*	-0.30	Assumed -0.3'	14.5	14.16	4/01	1299.31	22.0
SK-MW-3D	1277.7		1313.67	Assumed -0.3'		1313.37	*	-0.30	Assumed -0.3'	14.2	13.85	4/01	1299.52	21.8
SK-MW-5D	1279.0		1313.95	Assumed -0.3'		1313.65	*	-0.30	Assumed -0.3'	14.3	13.98	4/01	1299.67	20.7
UCL-SB03	1318.4	1347.80	1348.39											
UCL-SB04														
UCL-SB05														
UCL-SB06	1335.4	1344.30	1344.89											
UCL-SB07	1346.3	1348.20	1348.79											
UCL-SB08														
UCL-SB09	1320.7	1346.60	1347.19											
UCL-SB10														
UCL-SB11	1336.6	1336.00	1336.59											
UCL-SB12	1328.5	1348.40	1348.99											
UCL-SB13														
UCL-DP-01	1320.7	1348.08	1348.67											
UCL-DP-02	1320.8	1348.19	1348.78											
UCL-DP-03	1338.1	1347.99	1348.58											
UCL-DP-04	1338.3	1348.68	1349.27											
UCL-DP-05	1324.4	1348.78	1349.37											
UCL-DP-06	1329.0	1347.92	1348.51											
UCL-DP-07	1348.4	1347.83	1348.42											
UCL-DP-08	1347.7	1347.15	1347.74											
UCL-DP-09	1348.0	1347.39	1347.98											
UCL-DP-10	1348.2	1347.63	1348.22											
UCL-DP-11	1322.0	1347.41	1348.00											
UCL-DP-12	1338.6	1347.04	1347.63											
UCL-DP-13	1337.2	1345.40	1345.99											
UCL-DP-14	1348.8	1348.23	1348.82											

North Industrial Corridor (NIC) Site
Saturated Thickness Data

Well/Boring	Bottom of Aquifer Elevation (feet MSL)	Ground Surface Elevation (old datum feet MSL)	Ground Surface Elevation (feet MSL)	Ground Surface Elevation Comments	Measuring Point Elevation (old datum feet MSL)	Measuring Point Elevation (feet MSL)		Stickup (feet above ground surface)	Measuring Point Comment	Depth to Water (feet below ground surface)	Depth to Water (feet below measuring point)	Depth to Water	Water Level Elevation (feet MSL)	Saturated Thickness (feet)
UCL-DP-15	1346.7	1346.09	1346.68											
UCL-DP-16	1346.7	1346.08	1346.67											
UCL-DP-17	1345.1	1345.04	1345.63											
UCL-DP-18	1345.8	1345.17	1345.76											
UCL-DP-19	1344.5	1345.66	1346.25											
UCL-DP-20	1342.1	1347.52	1348.11											
UCL-DP-21	1324.5	1350.36	1350.95											
UCL-DP-25	1346.7	1346.63	1347.22											
UCL-DP-33	1337.6	1348.78	1349.37											
UCL-DP-39	1345.1	1344.55	1345.14											
UCL-MW-02	1322.1	1348.49	1349.08	Assumed -0.3'	1348.21	1348.80		-0.30	Assumed -0.3'	5.9	5.59	4/98	1343.21	21.2
UCL-MW-03	1343.5	1345.88	1346.47	Assumed -0.3'	1345.51	1346.10		-0.30	Assumed -0.3'	2.5	2.24	4/98	1343.86	0.4
UCL-MW-04	1335.3	1348.18	1348.77	Assumed -0.3'	1347.95	1348.54		-0.30	Assumed -0.3'	7.8	7.51	4/98	1341.03	5.8
UCL-MW-05	1339.2		1349.07	Assumed -0.3'	1348.18	1348.77		-0.30	Assumed -0.3'	4.2	3.88	4/98	1344.89	5.7
UCL-MW-08	1318.3		1328.60	Assumed -0.3'	1327.71	1328.30		-0.30	Assumed -0.3'	3.2	2.90	4/98	1325.40	7.1
UCL-MW-10	1303.5		1338.72	Assumed -0.3'	1337.83	1338.42		-0.30	Assumed -0.3'	8.9	8.61	4/98	1329.81	26.3
UCL-MW-11	1316.9		1327.58		1325.80	1327.30	*	-0.28		5.8	5.56	8/01	1321.74	4.8
UCL-MW-12	1304.8		1346.09		1347.79	1348.39	*	2.30		17.2	19.53	8/01	1328.86	24.1
UCL-MW-14	1325.9		1350.40	Assumed -0.3'	1349.51	1350.10		-0.30	Assumed -0.3'	7.8	7.45	10/97	1342.65	16.7
UCL-MW-15	1339.2		1345.70	Assumed -0.3'	1344.81	1345.40		-0.30	Assumed -0.3'	6.1	5.82	10/97	1339.58	0.4
UCL-MW-16	1325.8		1350.44	Assumed -0.3'	1349.55	1350.14		-0.30	Assumed -0.3'	17.3	16.99	9/97	1333.15	7.3
UCL-MW-20	1315.2		1332.23	Assumed -0.3'	1331.34	1331.93		-0.30	Assumed -0.3'	11.6	11.27	4/98	1320.66	5.4
UCL-MW-22	1304.8		1328.05		1327.23	1327.81	*	-0.24		12.2	11.94	8/01	1315.87	11.1
UCL-R-05	1317.1		1339.21	Assumed -0.3'	1338.32	1338.91		-0.30	Assumed -0.3'	9.6	9.25	10/97	1329.66	12.5
UCL-TW-01	1320.7	1346.63	1347.22	Assumed -0.3'	1346.25	1346.84		-0.30	Assumed -0.3'	10.7	10.38	10/97	1336.46	15.7
UCL-TW-03	1320.9	1347.35	1347.94	Assumed -0.3'	1346.96	1347.55		-0.30	Assumed -0.3'	10.0	9.69	10/97	1337.86	16.9
UPRF-MW01										--	--	--	--	--
USD-P3														
USD-P4														
USD-P31														
USD-P37														
USD-P38														
USD-P40														
USD-P41														
USD-P42														
USD-P43														
USD-P44														
USD-P45														
USD-P46														
USD-P61														
USD-P62														
USD-P63														
USD-P65														

North Industrial Corridor (NIC) Site
Saturated Thickness Data

Well/Boring	Bottom of Aquifer Elevation (feet MSL)	Ground Surface Elevation (old datum feet MSL)	Ground Surface Elevation (feet MSL)	Ground Surface Elevation Comments	Measuring Point Elevation (old datum feet MSL)	Measuring Point Elevation (feet MSL)		Stickup (feet above ground surface)	Measuring Point Comment	Depth to Water (feet below ground surface)	Depth to Water (feet below measuring point)	Depth to Water	Water Level Elevation (feet MSL)	Saturated Thickness (feet)
USD-P66														
USD-MW-1	1310.3		1333.25			1332.92	*	-0.33		21.8	21.44	8/01	1311.48	1.2
USD-MW-2D	1294.3	1334.91	1335.31	Assumed -0.3	1334.61	1335.01		-0.30	Assumed -0.3	8.5	8.15	4/98	1326.86	32.6
USD-MW-3										--	--	--	--	--
USD-MW-4D	1300.7	1328.27	1328.67	Assumed -0.3	1327.97	1328.37		-0.30	Assumed -0.3	15.1	14.75	4/98	1313.62	13.0
USD-MW-5D	1301.2		1328.20			1327.80	*	-0.40		19.0	18.58	8/01	1309.22	8.0
USD-MW-6D	1300.6	1331.19	1331.59	Assumed -0.3	1330.89	1331.29		-0.30	Assumed -0.3	19.4	19.12	4/98	1312.17	11.6
USD-MW-7D	1325.0		1348.95			1348.70	*	-0.25		7.9	7.68	8/01	1341.02	16.1
USD-MW-8										--	--	--	--	--
USD-MW-9										--	--	--	--	--
USD-MW-10D	1302.8		1330.83			1330.68	*	-0.15		8.5	8.35	8/01	1322.33	19.5
VWRS-MW-2D	1272.6		1313.58			1313.42	*	-0.16		17.4	17.24	8/01	1296.18	23.6
VWRS-MW-4D										--	--	--	--	--
VWRS-MW-5D										--	--	--	--	--
VWRS-MW-7D	1272.4		1309.88			1309.52	*	-0.36		13.8	13.39	8/01	1296.13	23.7
VWRS-MW-8D										--	--	--	--	--
WNC-05D	1268.7		1314.71			1318.20	*	3.49		12.1	15.61	8/01	1302.59	33.9
WNC-06D	1280.6		1325.14			1328.12	*	2.98		17.6	20.62	8/01	1307.50	26.9
WNC-09_S,D	1271.2		1315.47			1315.14	*	-0.33		12.2	11.89	8/01	1303.25	32.1
WNC-10D	1274.1		1317.14			1316.81	*	-0.33		13.4	13.06	8/01	1303.75	29.6
WNC-11D	1270.6		1314.61			1314.36	*	-0.25		12.1	11.88	8/01	1302.48	31.9
WNC-16D	1266.4		1313.87			1313.61	*	-0.26		13.3	13.04	8/01	1300.57	34.2
WNC-23D	1270.1		1315.06			1318.61	*	3.55		12.2	15.70	8/01	1302.91	32.8
WNC-31D	1279.0		1318.50			1318.31	*	-0.19		17.6	17.42	8/01	1300.89	21.9
WNC-32D	1278.1		1318.60			1318.82	*	0.22		18.1	18.32	8/01	1300.50	22.4
WNC-37SR	1272.9		1311.89			1315.18	*	3.29		13.3	16.59	8/01	1298.59	25.7
WNC-49SR	1267.9		1308.42			1308.22	*	-0.20		13.5	13.33	8/01	1294.89	27.0
WND-01S			1324.92			1326.57	*	1.65		17.8	19.46	8/01	1307.11	--
WND-02_S,D	1269.0		1312.02			1311.53	*	-0.49		14.1	13.65	8/01	1297.88	28.9
WND-03S			1314.09			1316.50	*	2.41		13.2	15.63	8/01	1300.87	--
WND-04S			1316.87			1319.04	*	2.17		14.9	17.10	8/01	1301.94	--
WND-05			1315.65			1317.74	*	2.09		13.1	15.16	8/01	1302.58	--
WND-06S			1324.86			1327.75	*	2.89		17.4	20.34	8/01	1307.41	--
WND-07S	1296.8		1320.77			1321.37	*	0.60		15.3	15.89	8/01	1305.48	8.7
WND-08S			1316.23			1315.72	*	-0.51		12.9	12.40	8/01	1303.32	--
WND-09			1315.44	Used WNC GS	1317.3	1317.81		2.37		11.5	13.90	10/97	1303.91	
WND-10S			1316.53			1318.58	*	2.05		11.8	13.84	3/01	1304.74	--
WND-11S			1314.64			1316.77	*	2.13		12.2	14.30	8/01	1302.47	--
WND-12_S,D			1316.34			1315.76	*	-0.58		13.5	12.96	8/01	1302.80	--
WND-13_S,D	1271.9		1310.89			1313.55	*	2.66		10.1	12.71	3/01	1300.84	28.9
WND-14_S,D	1276.1		1317.13	pad		1317.70	*	0.57		15.1	15.66	8/01	1302.04	25.9
WND-15_S,D	1276.9		1306.88	rim		1306.76	*	-0.12		14.4	14.28	8/01	1292.48	15.6
WND-16S			1313.87			1313.47	*	-0.40		13.4	13.04	8/01	1300.43	--

North Industrial Corridor (NIC) Site
Saturated Thickness Data

Well/Boring	Bottom of Aquifer Elevation (feet MSL)	Ground Surface Elevation (old datum feet MSL)	Ground Surface Elevation (feet MSL)	Ground Surface Elevation Comments	Measuring Point Elevation (old datum feet MSL)	Measuring Point Elevation (feet MSL)		Stickup (feet above ground surface)	Measuring Point Comment	Depth to Water (feet below ground surface)	Depth to Water (feet below measuring point)	Depth to Water	Water Level Elevation (feet MSL)	Saturated Thickness (feet)
WND-17_S,D	1264.6		1310.55	Assumed -0.3'	1309.70	1310.25		-0.30	Assumed -0.3'	--	--	--	--	--
WND-18_S,D	1267.3		1311.34			1310.95	*	-0.39		15.7	15.35	8/01	1295.60	28.3
WND-19_S,D	1273.2		1307.16			1306.73	*	-0.43		12.1	11.66	8/01	1295.07	21.9
WND-20S			1311.94			1314.05	*	2.11		15.0	17.09	8/01	1296.96	--
WND-21_S,D	1272.6		1309.58			1309.31	*	-0.27		12.4	12.08	8/01	1297.23	24.7
WND-22_S,D	1279.5		1321.46			1323.36	*	1.90		13.4	15.25	8/01	1308.11	28.6
WND-23S			1315.50			1317.73	*	2.23		12.6	14.80	8/01	1302.93	--
WND-24_S,D	1276.2		1307.15			1306.88	*	-0.27		13.1	12.80	8/01	1294.08	17.9
WND-25_S,D			1316.31			1318.73	*	2.42		13.3	15.73	8/01	1303.00	--
WND-26_S,D	1273.5		1313.45	pad		1315.61	*	2.16		13.1	15.28	8/01	1300.33	26.9
WND-27S			1312.90			1315.01	*	2.11		12.2	14.27	8/01	1300.74	--
WND-28S			1318.35			1320.72	*	2.37		13.2	15.57	8/01	1305.15	--
WND-29S,D			1317.29			1319.64	*	2.35		14.3	16.62	8/01	1303.02	--
WND-30D	1279.7		1313.68			1315.70	*	2.02		13.6	15.58	8/01	1300.12	20.4
WND-31S			1318.30			1317.26	*	-1.04		18.0	16.97	8/01	1300.29	--
WND-32S			1318.70			1317.68	*	-1.02		18.7	17.70	8/01	1299.98	--
WND-33_S,D	1271.2		1311.18			1310.58	*	-0.60		13.5	12.86	8/01	1297.72	26.5
WND-34_S,D	1269.6		1311.56	pad		1314.34	*	2.78		12.5	15.23	8/01	1299.11	29.6
WND-35_S,D	1268.6		1313.63			1315.35	*	1.72		14.2	15.91	3/01	1299.44	30.8
WND-36_S,D	1269.2		1312.23	pad		1314.75	*	2.52		12.0	14.49	8/01	1300.26	31.0
WND-37_S,D	1272.7		1311.72	pad		1314.75	*	3.03		13.1	16.14	8/01	1298.61	25.9
WND-38S,D	1268.8		1307.79			1307.48	*	-0.31		11.8	11.53	8/01	1295.95	27.2
WND-39S,D	1272.5		1308.54			1308.31	*	-0.23		12.6	12.35	8/01	1295.96	23.4
WND-40S,D	1270.9		1302.77			1302.64	*	-0.13		12.3	12.13	8/01	1290.51	19.6
WND-41S,D	1272.2		1307.23			1306.97	*	-0.26		12.7	12.45	8/01	1294.52	22.3
WND-42	1264.8		1304.79			1303.64	*	-1.15		15.7	14.52	8/01	1289.12	24.3
WND-43S,D	1274.8		1307.59			1307.54	*	-0.05		13.6	13.51	8/01	1294.03	19.2
WND-44S,D	1267.8		1303.27			1303.27	*	0.00		13.6	13.55	8/01	1289.72	22.0
WND-45S,D	1266.7		1305.72			1305.66	*	-0.06		12.7	12.62	8/01	1293.04	26.3
WND-46S,D	1264.1		1305.05			1304.98	*	-0.07		12.2	12.14	8/01	1292.84	28.8
WND-47S,D	1272.4		1304.90			1304.81	*	-0.09		12.4	12.30	8/01	1292.51	20.1
WND-48S,D	1261.9		1301.42			1301.01	*	-0.41		12.9	12.53	8/01	1288.48	26.6
WND-49D	1270.1		1308.39	Survey GS Bad		1308.14	*	-0.25		13.5	13.23	8/01	1294.91	24.8
WU-MW-2D	1273.9	1306.36	1306.91		1306.16	1306.71		-0.2	Assumed -0.2	--	--	--	--	--
WU-MW-3D	1273.3	1306.72	1307.27		1306.52	1307.07		-0.2	Assumed -0.2	--	--	--	--	--
WU-MW-4D	1275.6	1306.94	1307.59			1307.36	*	-0.23		13.1	12.88	8/01	1294.48	18.9
WU-MW-5D	1270.8	1307.23	1307.77			1307.65	*	-0.12		12.7	12.59	8/01	1295.06	24.3
WU-MW-6D	1271.7	1307.17	1307.72		1306.97	1307.52		-0.2	Assumed -0.2	--	--	--	--	--
WU-MW-7D	1272.9	1307.39	1307.94		1307.19	1307.74		-0.2	Assumed -0.2	--	--	--	--	--
WU-MW-8D	1270.2	1307.66	1308.21		1307.46	1308.01		-0.2	Assumed -0.2	--	--	--	--	--
WU-MW-9D	1267.1	1306.51	1307.06		1306.31	1306.86		-0.2	Assumed -0.2	--	--	--	--	--

* = Surveyed by CSM

CDM

Appendix E-3b
Boring Logs from Others

Well No. SB-1

DRILLING LO

Project: WNID | Owner: WIC

Location: NE 17th & CLEVELAND | Project Number: 042209670-03

Date Drilled: 6/20/90 | Total Depth: 35' | Diameter: 7.25"

Surface Elevation: | Water depth (init.): 13.75 | 24-hrs.: 13.77

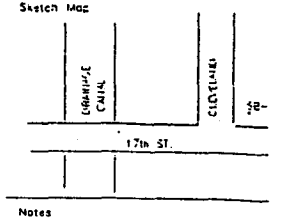
Screen: Dia. 2" | Length 10' | Slot Size 0.01

Casing: Dia 2" | Length 20' | Type PVC

Drilling Company GROUNDWATER TECH. | Drilling Method HOLLOW STEM

Driller G. Kurtz | Log by P. Osborn | Sampling Method CONTINUOUS

Sketch Map



Notes

Depth (ft)	Well Construction	Notes	PID/OVA (ppm)	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
0					Dark brown, moist, stiff, medium plastic, fine grained, sandy CLAY.
					Brown, wet, clayey, fine grained SAND.
10					Light brown, wet, medium to fine grained SAND.
					Light brown, saturated, medium to fine SAND, with a trace of coarse SAND.
20					
30					
					Dark gray, moist, very stiff, silty CLAY with a trace of gypsum. (weathered shale) EOH=35'
40					

Page 1 of 1

GROUNDWATER TECHNOLOGY, INC.

Well No. SB-2

DRILLING LOG

Project: WNID | Owner: WIC

Location: SE of 18th & WASHINGTON | Project Number: 042209670-03

Date Drilled: 6/21/90 | Total Depth: 35' | Diameter: 7.25"

Surface Elevation: | Water depth (init.): 13.80 | 24-hrs.: 13.85

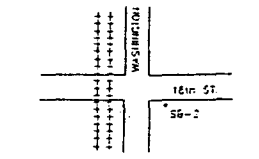
Screen: Dia. 2" | Length 10' | Slot Size 0.01

Casing: Dia. 2" | Length 20' | Type PVC

Drilling Company GROUNDWATER TECH. | Drilling Method HOLLOW STEM

Driller G. Kurtz | Log by P. Osborn | Sampling Method CONTINUOUS

Sketch Map



Notes

Depth (ft)	Well Construction	Notes	PID/OVA (ppm)	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
0					Dark brown, moist to wet, medium stiff, plastic, fine grained sandy, CLAY.
10					Brown, moist, silty, medium to fine grained SAND.
					Light brown, saturated, coarse to fine grained SAND with a trace of fine gravel.
20					
30					
					Gray, Dark gray, moist, hard, silty, CLAY. EOH=35'
40					

Page 1 of 1

GROUNDWATER TECHNOLOGY, INC.

Well No. SB-3

DRILLING LOG

Project WNID | Owner WIC

Location NE of 18th & NEW YORK | Project Number 042209670-03

Date Drilled 6/21/90 | Total Depth 35' | Diameter 7.25"

Surface Elevation _____ | Water depth (init.) 13.00' | 24-hrs. 12.92'

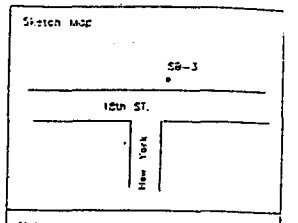
Screen: Dia. 2" | Length 10' | Slot Size 0.01

Casing: Dia. 2" | Length 26' | Type PVC

Drilling Company GROUNDWATER TECH. | Drilling Method HOLLOW STEM

Driller G Kurtz | Log by P Osborn | Sampling Method CONTINUOUS

Sketch Map



Notes

Depth (ft)	Well Construction	Notes	PID/OVA (ppm)	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
0					Dark brown, moist, slightly plastic, medium stiff, silty CLAY.
					Brown, moist, fine grained sandy CLAY.
					Gray / Brown, moist to wet, slightly plastic, medium stiff, fine grained sandy CLAY.
10					Same as above with medium to fine grained sandy CLAY.
20					Light brown, saturated, coarse to fine grained SAND with a trace of fine gravel.
30					
40					Dark gray, moist, silty, hard, CLAY. BOH=35'

Page 1 of 1

GROUNDWATER TECHNOLOGY, INC.

Well No. SB-4

DRILLING LOG

Project WNID | Owner WIC

Location N of 19th & SANTA FE | Project Number 042209670-03

Date Drilled 6/22/90 | Total Depth 39' | Diameter 7.25"

Surface Elevation _____ | Water depth (init.) 11.8' | 24-hrs. _____

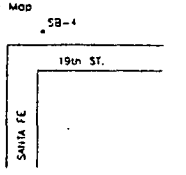
Screen: Dia. 2" | Length 10' | Slot Size 0.01

Casing: Dia. 2" | Length 6' | Type PVC

Drilling Company GROUNDWATER TECH. | Drilling Method HOLLOW STEM

Driller G Kurtz | Log by P Osborn | Sampling Method CONTINUOUS

Sketch Map



Notes

Depth (ft)	Well Construction	Notes	PID/OVA (ppm)	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
0					Dark brown, moist, medium stiff, slightly plastic, silty CLAY, with a trace of medium sand and gravel
					Reddish brown, moist, medium stiff, plastic, fine grained sandy CLAY.
					Brown, moist to wet, silty, fine grained SAND.
10					Light brown, moist to wet, poorly sorted, coarse to fine grained SAND.
20					Light brown, saturated, coarse to fine grained SAND with a trace of fine gravel.
30					
40					Gray/Olive green, moist, very stiff, silty CLAY (weathered shale). BOH=39'

Page 1 of 1

GROUNDWATER TECHNOLOGY, INC.

Well No. SB-5

DRILLING LOG

Project: WHC
Owner: WHC
Location: NE of 19th & MISSOURI
Project Number: 042209670-03
Date Drilled: 8/22/90
Total Depth: 34'
Diameter: 7.25"
Surface Elevation:
Water depth (init.): 14.5
24-hrs:
TEMPORARY
Screen: Dia.: 2"
Length: 10'
Slot Size: 0.01
Casing: Dia.: 2"
Length: 24'
Type: PVC
Drilling Company: GROUNDWATER TECH.
Drilling Method: HOLLOW STEM
Driller: G. Kurtz
Log by: P. Osborn
Sampling Method: CONTINUOUS

Sketch Map

Notes

Depth (ft)	Well Construction	Notes	PID/OVA (ppm)	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
0					Dark brown, moist, plastic, medium stiff, fine grained sandy CLAY.
10					Brown, same as above, with a trace of medium grained sand from 9' to 14'.
20					Light brown, saturated, coarse to fine grained SAND with a trace of fine gravel with depth.
30					Gray, moist, very stiff, silty CLAY. BOH=34'
40					

Page 1 of 1

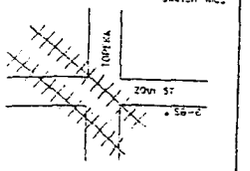
GROUNDWATER TECHNOLOGY, INC.

Well No. SB-6

DRILLING LOG

Project: WHC
Owner: WHC
Location: SE of 20th & TOPEKA
Project Number: 042209670-03
Date Drilled: 8/23/90
Total Depth: 45'
Diameter: 7.25"
Surface Elevation:
Water depth (init.): 16'
24-hrs: 15.88
Screen: Dia.: 2"
Length: 10'
Slot Size: 0.01
TEMPORARY
Casing: Dia.: 2"
Length: 25'
Type: PVC
Drilling Company: GROUNDWATER TECH.
Drilling Method: HOLLOW STEM
Driller: G. Kurtz
Log by: P. Osborn
Sampling Method: CONTINUOUS

Sketch Map



Notes

Depth (ft)	Well Construction	Notes	PID/OVA (ppm)	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
0					Dark brown, moist, plastic, medium stiff, fine grained sandy CLAY with some gravel from 0' to 1'.
					Brown, moist, plastic, medium stiff, fine grained sandy CLAY with a trace of fine gravel.
10					Light brown, moist to wet, silty, fine grained SAND.
					Gray brown, wet to saturated, soft, medium plastic, fine grained sandy CLAY, with thin beds of silty fine sand.
					Light gray, saturated, silty, medium to fine grained SAND.
20					Light brown, saturated, coarse to fine grained SAND with a trace of fine gravel.
30					
40					Dark gray, moist, hard, silty CLAY. BOH=45'

Page 1 of 1

GROUNDWATER TECHNOLOGY, INC.

Well No. SB-7

DRILLING LOG

Project: WNID Owner: WIC

Location: NE of 19th & WASHINGTON Project Number: 042209670-03

Date Drilled: 6/25/90 Total Depth: 39' Diameter: 7.25"

Surface Elevation: ____ Water depth (int.): ____ 24-hrs: ____

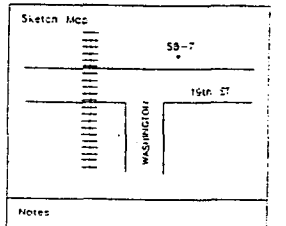
TEMPORARY Screen: Dia. 2" Length: 10' Slot Size: 0.01

Casing: Dia 2" Length: 21' Type: PVC

Drilling Company: GROUNDWATER TECH Drilling Method: HOLLOW STEM

Driller: G. Kurtz Log by: P. Osborn Sampling Method: CONTINUOUS

Sketch Map



Notes

Depth (ft)	Well Construction	Filter	PID/OVA (ppm)	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
0					Dark brown, dry to moist, medium stiff, slightly plastic CLAY.
10					Brown, moist to wet, clayey, fine grained SAND, with some soft gray clay lenses from 12' to 15'
20					Light brown, saturated, coarse to fine grained SAND with a trace of gravel.
30					
40					Dark gray, moist, hard, silty CLAY with a trace of gypsum. (weathered shale) BOH=39'

Page 1 of 1

GROUNDWATER TECHNOLOGY, INC.

Well No. SB-8

DRILLING LOG

Project: WNID Owner: WIC

Location: NW of 29th & OHIO Project Number: 042209670-03

Date Drilled: 6/25/90 Total Depth: 40' Diameter: 7.25"

Surface Elevation: ____ Water depth (int.): 12.10 24-hrs: ____

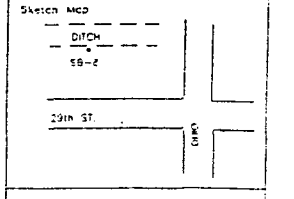
Screen: Dia. 2" Length: 10' Slot Size: 0.01

Casing: Dia 2" Length: 29' Type: PVC

Drilling Company: GROUNDWATER TECH. Drilling Method: HOLLOW STEM

Driller: G. Kurtz Log by: P. Osborn Sampling Method: CONTINUOUS

Sketch Map



Notes

Depth (ft)	Well Construction	Filter	PID/OVA (ppm)	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
0					Dark brown, dry to moist, stiff, slightly plastic, fine grained sandy CLAY.
					Brown, moist, silty, fine grained SAND.
10					Light brown, moist, medium to fine grained SAND.
20					Light brown, saturated, coarse to fine SAND with trace of fine gravel
30					
40					Dark gray, moist, very stiff, silty CLAY. BOH=40'

Page 1 of 1

GROUNDWATER TECHNOLOGY, INC.

Well No. SB-9

DRILLING LOG

Project: WIID | Owner: WIC
Location: | Project Number: 042209670-03
Date Drilled: 6/26/90 | Total Depth: 33' | Diameter: 7.25"
Surface Elevation: | Water depth (int.): 10.15 | 24-hrs:
Screen Dia. (TEMPORARY): 2" | Length: 10' | Slot Size: 0.01
Casing Dia.: 2" | Length: 23' | Type: PVC
Drilling Company: GROUNDWATER TECH | Drilling Method: HOLLOW STEM
Driller: G. Kurtz | Log by: P. Osborn | Sampling Method: CONTINUOUS

Sketch Map

Notes

Depth (ft)	Well Construction	Notes	PID/OVA (ppm)	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
0					Dark brown, moist, stiff, slightly plastic, fine sandy CLAY.
					Reddish brown, moist, clayey fine grained SAND.
10					Light gray, wet, slightly plastic, medium stiff, fine grained sandy CLAY.
					Brown, wet, silty, fine grained SAND.
					Light brown, saturated, coarse to fine grained SAND, with a trace of fine gravel.
					Gray/dark gray, moist, hard, silty CLAY, (weathered shale)
					BOH=40'

Page 1 of 1

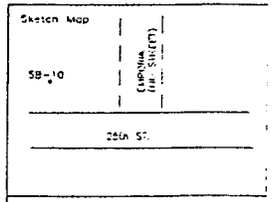
GROUNDWATER TECHNOLOGY, INC.

Well No. SB-10

DRILLING LOG

Project: WIID | Owner: WIC
Location: NW of 25th & EMPORIA | Project Number: 042209670-03
Date Drilled: 6/26/90 | Total Depth: 42' | Diameter: 7.25"
Surface Elevation: | Water depth (int.): 13.4' | 24-hrs.:
Screen Dia.: 2" | Length: 10' | Slot Size:
Casing Dia.: 2" | Length: 30' | Type: PVC
Drilling Company: GROUNDWATER TECH | Drilling Method: HOLLOW STEM
Driller: G. Kurtz | Log by: P. Osborn | Sampling Method: CONTINUOUS

Sketch Map



Notes

Depth (ft)	Well Construction	Notes	PID/OVA (ppm)	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
0					Crushed LIMESTONE fill.
					Dark gray/brown, moist, medium stiff, medium plastic fine grained sandy CLAY, with gasoline petroleum odor
					Dark gray/brown, moist, medium stiff, plastic, fine grained sandy CLAY.
10					Dark gray, saturated, silty, medium to fine grained SAND with a strong petroleum odor and visable product
					Light gray, saturated, coarse to fine grained SAND with a trace of gravel, light brown with depth.
20					
30					
40					Olive green/light brown, moist, hard, silty CLAY, (weathered shale).
					BOH=42'

Page 1 of 1

GROUNDWATER TECHNOLOGY, INC.

Well No. SB-11

DRILLING LOG

Project: WNID | Owner: WIC

Location: SW of 21st & MOSLEY | Project Number: 042209670-03

Date Drilled: 6/22/90 | Total Depth: 38' | Diameter: 7.25"

Surface Elevation: | Water depth (init.): 13.0' | 24-hrs:

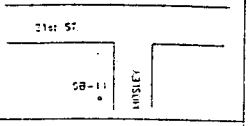
Screen: Dia: 2" | Length: 10' | Slot Size: 0.01

Casing: Dia: 2" | Length: 28' | Type: PVC

Drilling Company: GROUNDWATER TECH | Drilling Method: HOLLOW STEM

Driller: G. Kurtz | Log by: P. Osborn | Sampling Method: CONTINUOUS

Sketch Map



Notes

Depth (ft)	Well Construction	Notes	PID/OVA (ppm)	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
0					Crushed LIMESTONE fill.
					Dark brown, moist, slightly plastic, medium stiff, fine grained sandy CLAY.
					Brown/gray, moist, stiff, plastic, silty CLAY with little fine grained SAND.
10					Light brown, moist to wet, silty, fine grained SAND.
					Brown/gray, saturated, coarse to fine grained SAND, with petroleum odor.
20					Dark gray, saturated, soft, slightly plastic, fine grained sandy CLAY.
					Brown, saturated, coarse to fine grained SAND with a trace of fine gravel.
30					
40					Dark gray, moist, hard, silty CLAY, (weathered shale).
					EOH=38'

GROUNDWATER TECHNOLOGY, INC.

Well No. SB-12

DRILLING LOG

Project: WNID | Owner: WIC

Location: NE of 24th & MEAD | Project Number: 042209670-03

Date Drilled: 6/27/90 | Total Depth: 41' | Diameter: 7.25"

Surface Elevation: | Water depth (init.): 11.75' | 24-hrs:

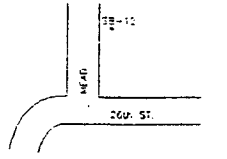
TEMPORARY Screen: Dia: 2" | Length: 10' | Slot Size: 0.01

Casing: Dia: 2" | Length: 22' | Type: PVC

Drilling Company: GROUNDWATER TECH | Drilling Method: HOLLOW STEM

Driller: G. Kurtz | Log by: P. Osborn | Sampling Method: CONTINUOUS

Sketch Map



Notes

Depth (ft)	Well Construction	Notes	PID/OVA (ppm)	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
0					Brown, dry to moist, stiff, slightly plastic, fine grained sandy CLAY.
					Light brown, moist, silty, fine grained SAND.
					Brown/gray, moist, stiff, slightly plastic, fine grained sandy CLAY.
10					Brown, wet, clayey, fine grained SAND.
					Light brown, saturated, coarse to fine grained SAND, with a trace of gravel past 15'.
20					
30					
40					Gray/dark olive green, hard, silty CLAY, (weathered shale).
					EOH=40'

GROUNDWATER TECHNOLOGY, INC.

Well No. SB-13

DRILLING LOG

Project: WIIC | Owner: WIC

Location: SE of 28th & MEAD | Project Number: 04220667C-03

Date Drilled: 6/27/90 | Total Depth: 40' | Diameter: 7.25"

Surface Elevation: | Water depth (int.): 12.4 | 24-hrs:

TEMP

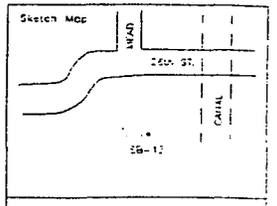
Screen. Dia: 2" | Length: 10' | Slot Size: 0.01

Casing: Dia: 2" | Length: 30' | Type: PVC

Drilling Company: GROUNDWATER TECH. | Drilling Method: HOLLOW STEM

Driller: G. Kurtz | Log by: P. Osborn | Sampling Method: CONTINUOUS

Sketch Map



Notes

Depth (ft)	Well Construction	Holes	PID/OVA (ppm)	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
0					Dark brown, dry to moist, stiff, non plastic, fine sandy CLAY.
					Light brown, moist, silty, fine grained SAND.
10					Light gray/brown, saturated, coarse to fine grained SAND, with a trace of fine grained gravel, with a strong gasoline odor.
					Lighter brown with depth.
20					
30					
40					Olive green, moist, very stiff, silty CLAY with a trace of gypsum (weathered shale).
					BOH=40'

Page 1 of 1

GROUNDWATER TECHNOLOGY, INC.

Well No. SB-14

DRILLING LOG

Project: WIIC | Owner: WIC

Location: SE of 29th & ST. FRANCIS | Project Number: 04220667C-03

Date Drilled: 6/27/90 | Total Depth: 43' | Diameter: 7.25"

Surface Elevation: | Water depth (int.): 12.5 | 24-hrs:

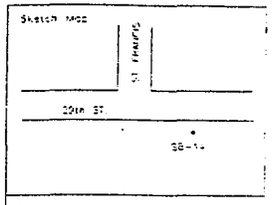
Screen. Dia: 2" | Length: 10' | Slot Size: 0.01

Casing: Dia: 2" | Length: 30' | Type: PVC

Drilling Company: GROUNDWATER TECH. | Drilling Method: HOLLOW STEM

Driller: G. Kurtz | Log by: P. Osborn | Sampling Method: CONTINUOUS

Sketch Map



Notes

Depth (ft)	Well Construction	Holes	PID/OVA (ppm)	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
0					Dark brown, moist, stiff, slightly plastic, fine grained sandy CLAY.
					Reddish brown, same as above.
					Reddish brown, moist to wet, silty, fine grained SAND.
10					Brown, moist to wet, medium stiff, medium plastic, fine grained sandy CLAY.
					Brown, saturated, clayey, fine grained SAND.
					Light brown, saturated, coarse to fine grained SAND.
20					
30					
40					Olive green/brown, moist, very stiff, silty CLAY with some thin lamination, weathered shale.
					BOH=43'

Page 1 of 1

GROUNDWATER TECHNOLOGY, INC.

Well No. SB-15

DRILLING LOG

Project: WNID | Owner: WIC

Location: SE of 29th & BROADWAY | Project Number: 042209670-03

Date Drilled: 6/25/90 | Total Depth: 48' | Diameter: 7.25"

Surface Elevation: | Water depth (Init.): 14.0' | 24-hrs:

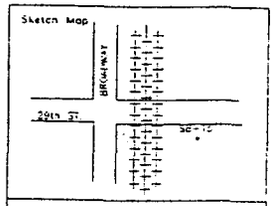
Screen: Dia. 2" | Length: 10' | Slot Size: 0.01

Casing: Dia. 2" | Length: 35' | Type: PVC

Drilling Company: GROUNDWATER TECH. | Driling Method: HOLLOW STEM

Driller: G. Kurtz | Log by: P. Osborn | Sampling Method: CONTINUOUS

Sketch Map



Notes

Depth (ft)	Well Construction	Notes	PID/OVA (ppm)	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
0					Dark brown, dry to moist, medium stiff, slightly plastic, fine grained sandy CLAY.
					Reddish brown, same as above.
10					Light brown, moist, silty, fine grained SAND.
					Light brown, saturated, medium to fine grained SAND with slight oil odor.
20					Light brown, saturated, coarse to fine grained SAND
30					
40					Gray/dark gray, moist, hard, silty CLAY with a trace of gypsum (weathered shale) BOH=48'

Page 1 of 1

GROUNDWATER TECHNOLOGY, INC.

Well No. SB-16

DRILLING LOG

Project: WNID | Owner: WIC

Location: SE of 37th & OHIO | Project Number: 042209670-03

Date Drilled: 6/25/90 | Total Depth: 48' | Diameter: 7.25"

Surface Elevation: | Water depth (Init.): 16.0 | 24-hrs:

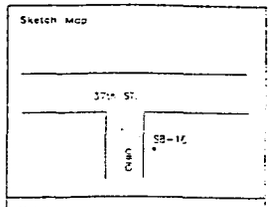
Screen: Dia. 2" | Length: 10' | Slot Size: 0.01

Casing: Dia. 2" | Length: 35' | Type: PVC

Drilling Company: GROUNDWATER TECH. | Driling Method: HOLLOW STEM

Driller: G. Kurtz | Log by: P. Osborn | Sampling Method: CONTINUOUS

Sketch Map



Notes

Depth (ft)	Well Construction	Notes	PID/OVA (ppm)	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
0					Dark brown, moist, medium stiff, slightly plastic, fine grained sandy CLAY.
10					Brown, same as above.
					Brown, wet, soft, slightly plastic, medium to fine grained sandy CLAY
20					Brown, saturated, medium to fine grained SAND with a trace of coarse SAND.
30					
					Gray, saturated, medium stiff CLAY.
40					Light brown, saturated, coarse to fine grained SAND, with a trace of fine gravel.
					Olive green/reddish brown, moist, hard, silty CLAY (weathered shale) BOH=48

Page 1 of 1

GROUNDWATER TECHNOLOGY, INC.

Well No. SB-17

DRILLING LOG

Project: WNID | Owner: WIC

Location: NE of 17th & WINSLEY | Project Number: 042209670-03

Date Drilled: 6/29/90 | Total Depth: 34' | Diameter: 7.25"

Surface Elevation: | Water depth (init.): 13.20 | 24-hrs:

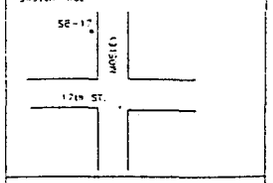
Screen: Dia. 2" | Length 10' | Slot Size 0.01

Casing: Dia 2" | Length 24' | Type PVC

Drilling Company GROUNDWATER TECH. | Drilling Method HOLLOW STEM

Driller G. Kurtz | Log by P. Osborn | Sampling Method CONTINUOUS

Sketch Map



Notes

Depth (ft)	Well Construction	Notes	PID/OVA (ppm)	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
0					Dark brown, moist, medium stiff, slightly plastic, fine grained sandy CLAY
					Reddish brown, moist, silty, fine grained SAND. Light brown, same as above.
10					Light brown, saturated, coarse to fine grained SAND, with a trace of fine gravel
20					
30					Olive green/dark gray, moist, hard, silty CLAY (weathered shale) BOH=34'
40					

Page 1 of 1

GROUNDWATER TECHNOLOGY, INC.

Well No. SB-18

DRILLING LOG

Project: WNID | Owner: WIC

Location: NE of 18th & TOPEKA | Project Number: 042209670-03

Date Drilled: 6/29/90 | Total Depth: 47' | Diameter: 7.25"

Surface Elevation: | Water depth (init.): 17.3 | 24-hrs:

TEMP.

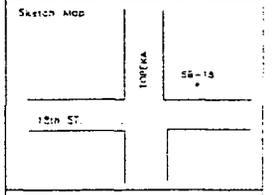
Screen: Dia. 2" | Length 10' | Slot Size 0.01

Casing: Dia 2" | Length 36' | Type PVC

Drilling Company GROUNDWATER TECH. | Drilling Method HOLLOW STEM

Driller G. Kurtz | Log by P. Osborn | Sampling Method CONTINUOUS

Sketch Map



Notes

Depth (ft)	Well Construction	Notes	PID/OVA (ppm)	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
0					Crushed LIMESTONE fill
					Dark brown, moist, medium stiff, slightly plastic, fine sandy CLAY.
					Brown, moist, silty, fine grained SAND
10					Light brown, moist, medium to fine grained SAND
20					Light brown, saturated, medium to fine grained SAND with a trace of fine gravel, coarser SAND with depth
30					
40					Olive green/reddish brown, moist, hard, silty CLAY with some thin laminations (weathered shale) BOH=47'

Page 1 of 1

GROUNDWATER TECHNOLOGY, INC

Well No. SB-19

DRILLING LOG

Project: WNID Owner: WIC

Location: NW of 33rd & OHIO Project Number: 04220967D-03

Date Drilled: 6/29/90 Total Depth: 44' Diameter: 7.25"

Surface Elevation: ____ Water depth (init.): ____ 24-hrs.: ____

TEMP

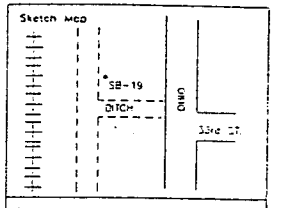
Screen: Dia. 2" Length: 10' Slot Size: 0.01

Casing: Dia 2" Length: 23' Type: PVC

Drilling Company: GROUNDWATER TECH. Drilling Method: HOLLOW STEM

Driller: G. Kurtz Log by: P. Osborn Sampling Method: CONTINUOUS

Sketch Map



Notes

Depth (ft)	Well Construction	Notes	PID/OVA (ppm)	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
0					Dark brown, moist, stiff, slightly plastic, fine grained sandy CLAY.
					Brown, same as above.
10					Brown, moist to wet, silty, fine grained SAND.
					Light brown, saturated, coarse to fine grained SAND.
20					
30					
40					Dark gray/gray, moist, hard, silty CLAY, with some lamination (weathered shale).

Page 1 of 1

GROUNDWATER TECHNOLOGY, INC

Well No. SB-20

DRILLING LOG

Project: WNID Owner: WIC

Location: SW of 29th & MEAD Project Number: 04220967D-03

Date Drilled: 6/29/90 Total Depth: 38' Diameter: 7.25"

Surface Elevation: ____ Water depth (init.): 11.3 24-hrs.: ____

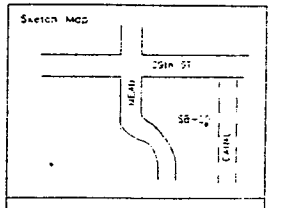
Screen: Dia. 2" Length: 10' Slot Size: 0.01

Casing: Dia 2" Length: ____ Type: PVC

Drilling Company: GROUNDWATER TECH. Drilling Method: HOLLOW STEM

Driller: G. Kurtz Log by: P. Osborn Sampling Method: CONTINUOUS

Sketch Map



Notes

Depth (ft)	Well Construction	Notes	PID/OVA (ppm)	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
0					Dark brown, moist, medium stiff, slightly plastic, fine grained sandy CLAY.
					Reddish brown, same as above.
					Brown, moist, clayey, fine grained SAND.
10					Light brown, wet, silty, fine grained SAND.
					Light brown, saturated, coarse to fine grained SAND, with a trace of fine gravel.
20					
30					
40					Olive green/brown, moist, hard, silty CLAY, (weathered shale).
					BOH=38

Page 1 of 1

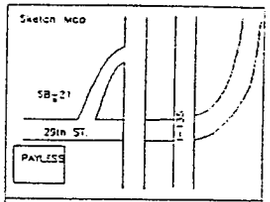
GROUNDWATER TECHNOLOGY, INC.

Well No. SB-21

DRILLING LOG

Project: WNID
Owner: WIC
Location: NW of 29th & I-135
Project Number: 042209670-03
Date Drilled: 7/2/90
Total Depth: 42'
Diameter: 7.25"
Surface Elevation:
Water depth (init.): 14.15'
24-hrs:
Screen: Dia. 2" Length 10' Slot Size 0.01
Casing: Dia 2" Length 30' Type PVC
Drilling Company: GROUNDWATER TECH. Drilling Method: HOLLOW STEM
Driller: G. Kurtz Log by: P. Osborn Sampling Method: CONTINUOUS

Sketch MCD



Notes

Depth (ft)	Well Construction	Notes	PID/OVA (ppm)	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
0					Dark brown, moist, medium stiff, slightly plastic, fine sandy CLAY.
					Light brown/gray, same as above.
10					Gray/brown, moist to wet, clayey, fine grained SAND.
					Light brown, saturated, medium to fine grained SAND, with a trace of coarse SAND.
20					
30					
40					Olive green, moist, very stiff, silty CLAY.
					Gray, moist, hard, silty CLAY, (weathered shale).
					BOH=42'

Page 1 of 1

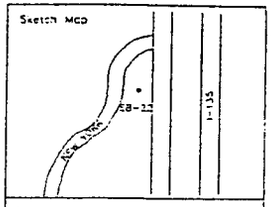
GROUNDWATER TECHNOLOGY, INC.

Well No. SB-22

DRILLING LOG

Project: WNID
Owner: WIC
Location: NORTH OF DERBY REF ON NEW YORK
Project Number: 042209670-03
Date Drilled: 7/3/90
Total Depth: 41.5'
Diameter: 7.25"
Surface Elevation:
Water depth (init.): 16.5'
24-hrs:
TEMPORARY
Screen: Dia. 2" Length 10' Slot Size 0.01
Casing: Dia 2" Length 30' Type PVC
Drilling Company: GROUNDWATER TECH. Drilling Method: HOLLOW STEM
Driller: G. Kurtz Log by: P. Osborn Sampling Method: CONTINUOUS

Sketch MCD



Notes

Depth (ft)	Well Construction	Notes	PID/OVA (ppm)	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
0					Dark brown, moist, medium stiff, slightly plastic, fine grained sandy CLAY.
					Brown, moist, clayey, fine grained SAND.
10					Light brown, moist to wet, silty fine grained SAND.
					Light brown, saturated, coarse to fine grained SAND, with a trace of fine gravel
20					
30					
40					Gray, moist, hard, silty CLAY with weathered shale fragments.
					BOH=41.5'

Page 1 of 1

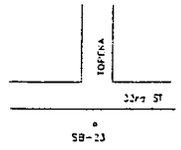
GROUNDWATER TECHNOLOGY, INC.

Well No. SB-23

DRILLING LOG

Project: WNID
Owner: WIC
Location: SE of 33rd & TOPEKA
Project Number: 042209670-03
Date Drilled: 7/3/90
Total Depth: 47'
Diameter: 7.25"
Surface Elevation:
Water depth (int.): 14.2'
24-hrs.:
TEMPORARY
Screen: Dia. 2" Length 10' Slot Size 0.01
Casing: Dia. 2" Length 36' Type PVC
Drilling Company: GROUNDWATER TECH. Drilling Method: HOLLOW STEM
Driller: C. Kurtz Log by: P. Osborn Sampling Method: CONTINUOUS

Sketch Map



Notes

Depth (ft)	Well Construction	Holes	PID/OVA (ppm)	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
0					Dark brown, moist, medium stiff, plastic, fine grained sandy CLAY.
					Reddish brown, moist, medium stiff, slightly plastic, fine grained sandy CLAY.
10					Light brown, moist, siolty, fine grained SAND
					Light brown, saturated, coarse to fine grained SAND with a trace of fine gravel.
20					
30					
40					Olive green, moist, hard, silty CLAY (weathered shale) EOH=47'

Page 1 of 1

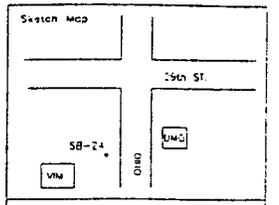
GROUNDWATER TECHNOLOGY, INC.

Well No. SB-24

DRILLING LOG

Project: WNID
Owner: WIC
Location: SW of 29th & OHIO
Project Number: 042209670-03
Date Drilled: 7/3/90
Total Depth: 43'
Diameter: 7.25"
Surface Elevation:
Water depth (int.):
24-hrs.:
TEMPORARY
Screen: Dia. 2" Length 10' Slot Size 0.01
Casing: Dia. 2" Length 33' Type PVC
Drilling Company: GROUNDWATER TECH. Drilling Method: HOLLOW STEM
Driller: C. Kurtz Log by: P. Osborn Sampling Method: CONTINUOUS

Sketch Map



Notes

Depth (ft)	Well Construction	Holes	PID/OVA (ppm)	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
0					Brown, moist, stiff, slightly plastic, fine grained sandy CLAY.
10					Light brown, wet, fine grained SAND.
					Light brown, saturated, medium to fine grained SAND, with a trace of coarse SAND at 19' to 41'.
20					
30					
40					Gray, moist, hard, silty CLAY with dark gray angular shale fragments, with a trace of gypsum (weathered shale). EOH=43'

Page 1 of 1

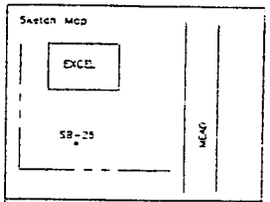
GROUNDWATER TECHNOLOGY, INC.

Well No. SB-25

DRILLING LOG

Project: WNIC
Owner: WIC
Location: SW CORNER OF EXCEL PROP
Project Number: 042209670-03
Date Drilled: 7/3/90
Total Depth: 47'
Diameter: 7.25"
Surface Elevation:
Water depth (Init.): 14.5'
24-hrs:
TEMPORARY
Screen: Dia: 2"
Length: 10'
Slot Size: 0.01
Casing: Dia: 2"
Length:
Type: PVC
Drilling Company: GROUNDWATER TECH.
Drilling Method: HOLLOW STEM
Driller: G. Kurtz
Log by: P. Osborn
Sampling Method: CONTINUOUS

Sketch Map



Notes

Depth (ft)	Well Construction	Notes	PID/OVA (ppm)	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
0					Brown, moist, medium stiff, slightly plastic, fine grained sandy CLAY with a trace of fine gravel.
					Light brown, same as above, with no gravel.
					Reddish brown, moist, slightly plastic, medium stiff, fine grained sandy CLAY.
10					Brown, wet, clayey, fine grained SAND.
					Light brown, saturated, medium to fine grained SAND.
20					Light brown, saturated, coarse to fine grained SAND.
30					
40					Olive green/reddish brown, moist, hard, silty CLAY with some lamination (weathered shale). EOH=47'

Page 1 of 1

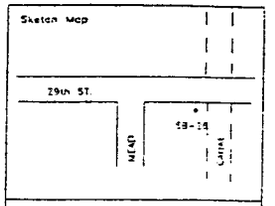
GROUNDWATER TECHNOLOGY, INC.

Well No. SB-26

DRILLING LOG

Project: WNIC
Owner: WIC
Location: E-SE of 29th & ME-D
Project Number: 042209670-03
Date Drilled: 7/3/90
Total Depth: 41'
Diameter: 7.25"
Surface Elevation:
Water depth (Init.): 11.20'
24-hrs:
TEMPORARY
Screen: Dia: 2"
Length: 10'
Slot Size: 0.01
Casing: Dia: 2"
Length: 30'
Type: PVC
Drilling Company: GROUNDWATER TECH.
Drilling Method: HOLLOW STEM
Driller: G. Kurtz
Log by: P. Osborn
Sampling Method: CONTINUOUS

Sketch Map



Notes

Depth (ft)	Well Construction	Notes	PID/OVA (ppm)	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
0					Dark brown/brown, dry to moist, medium stiff, slightly plastic, fine grained sandy CLAY.
					Reddish brown, moist, clayey fine SAND.
10					Brown, moist to wet, silty fine grained SAND.
					Light brown, saturated, medium to fine grained SAND with trace of coarse SAND.
20					
30					
40					Olive green/gray, moist, hard, silty CLAY with some thin lamination (weathered shale). EOH=41'

Page 1 of 1

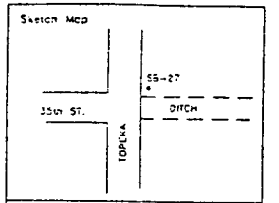
GROUNDWATER TECHNOLOGY, INC.

Well No. SB-27

DRILLING LOG

Project: WNID
Owner: WIC
Location: NE of 35th & TOPEKA
Project Number: 042209670-03
Date Drilled: 7/5/90
Total Depth: 45'
Diameter: 7.25"
Surface Elevation:
Water depth (inst.): 12.0'
24-hrs:
TEMPORARY
Screen: Dia. 2" Length 10' Slot Size 0.01
Casing: Dia. 2" Length 36' Type PVC
Drilling Company: GROUNDWATER TECH. Drilling Method: HOLLOW STEM
Driller: G. Kurtz Log by: P. Osborn Sampling Method: CONTINUOUS

Sketch Map



Notes

Depth (ft)	Well Construction	Notes	PID/OVA (ppm)	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
0					Dark brown, moist, stiff, slightly plastic, fine grained sandy CLAY with little coarse SAND.
					Reddish brown, moist, medium stiff, slightly plastic, fine grained sandy CLAY.
					Reddish brown, moist to wet, clayey, fine grained SAND.
10					Light brown, wet, silty medium to fine grained SAND.
					Light brown, saturated, coarse to fine grained SAND with a trace of fine gravel.
20					
30					
40					Olive green/gray, moist, hard, silty, CLAY (weathered shale).
					BOH=46'

Page 1 of 1

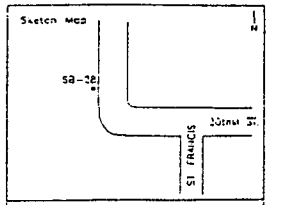
GROUNDWATER TECHNOLOGY, INC.

Well No. SB-28

DRILLING LOG

Project: WNID
Owner: WIC
Location: NW of 30th & ST. FRANCIS
Project Number: 042209670-03
Date Drilled: 7/5/90
Total Depth: 47'
Diameter: 7.25"
Surface Elevation:
Water depth (inst.): 11.7'
24-hrs.:
TEMPORARY
Screen: Dia. 2" Length 10' Slot Size 0.01
Casing: Dia. 2" Length 37' Type PVC
Drilling Company: GROUNDWATER TECH. Drilling Method: HOLLOW STEM
Driller: G. Kurtz Log by: P. Osborn Sampling Method: CONTINUOUS

Sketch Map



Notes

Depth (ft)	Well Construction	Notes	PID/OVA (ppm)	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
0					Reddish brown, moist, slightly plastic, medium stiff, fine sandy CLAY.
					Brown/gray, wet, clayey, fine grained SAND.
					Brown/gray, moist, medium stiff, plastic, fine grained sandy CLAY.
10					Brown, wet, clayey, fine grained SAND.
					Light brown, saturated, medium to fine grained SAND, with a trace of coarse SAND.
20					
30					
40					Gray/dark gray, moist, hard, silty CLAY with a trace of gypsum (weathered shale).
					BOH=47'

Page 1 of 1

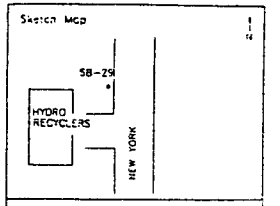
GROUNDWATER TECHNOLOGY, INC.

Well No. SB-29

DRILLING LOG

Project: WNIC
Owner: WIC
Location: W. of NEWYORK IN 29th BL
Project Number: 042209670-03
Date Drilled: 7/5/90
Total Depth: 48.5
Diameter: 7.25"
Surface Elevation:
Water depth (init.): 15.5'
24-hrs:
TEMPORARY
Screen: Dia: 2"
Length: 10'
Slot Size: 0.01
Casing: Dia: 2"
Length: 38'
Type: PVC
Drilling Company: GROUNDWATER TECH.
Drilling Method: HOLLOW STEM
Driller: G. Kurtz
Log by: P. Osborn
Sampling Method: CONTINUOUS

Sketch Map



Notes

Depth (ft)	Well Construction	Notes	PID/OVA (ppm)	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
0					Dark brown, moist, medium stiff, slightly plastic, fine grained sandy CLAY.
					Reddish brown, same as above.
10					Brown, moist to wet, clayey, fine grained SAND.
					Reddish brown, saturated, silty, medium to fine grained SAND with a trace of coarse SAND.
20					
					Light brown, saturated, medium to fine grained SAND with a trace coarse SAND.
30					
40					Gray, moist, hard, silty CLAY (weathered shale). EOH=48.5'

Page 1 of 1

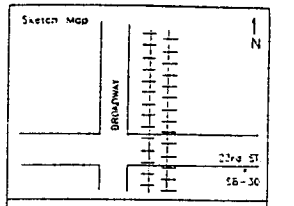
GROUNDWATER TECHNOLOGY, INC.

Well No. SB-30

DRILLING LOG

Project: WNIC
Owner: TPC
Location: SE of 23rd & BROADWAY
Project Number: 042209670-03
Date Drilled: 7/6/90
Total Depth: 45'
Diameter: 7.25"
Surface Elevation:
Water depth (init.): 15.5'
24-hrs:
TEMPORARY
Screen: Dia: 2"
Length: 10'
Slot Size: 0.01
Casing: Dia: 2"
Length: 26'
Type: PVC
Drilling Company: GROUNDWATER TECH.
Drilling Method: HOLLOW STEM
Driller: G. Kurtz
Log by: P. Osborn
Sampling Method: CONTINUOUS

Sketch Map



Notes

Depth (ft)	Well Construction	Notes	PID/OVA (ppm)	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
0					Brown, moist, medium stiff, slightly plastic, fine grained sandy CLAY with a trace of gravel.
					Dark brown, wet, silty, fine grained SAND.
10					Brown, wet, silty, fine grained SAND.
					Brown, saturated, silty, medium to fine grained SAND, with a trace of coarse SAND
20					Light brown SAND, coarser with depth, with a trace of fine gravel.
30					
40					Gray, moist, hard, silty CLAY (weathered shale). EOH=45'

Page 1 of 1

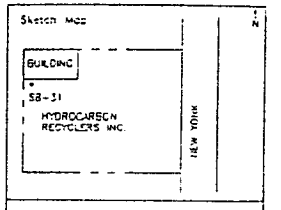
GROUNDWATER TECHNOLOGY, INC.

Well No. SB-31

DRILLING LOG

Project: WNID
Owner: WIC CMS
Location: 2525 N. NEW YORK
Project Number: 042209670-03
Date Drilled: 7/6/90
Total Depth: 42'
Diameter: 7.25"
Surface Elevation:
Water depth (init.): 13.60'
24-hrs.:
TEMPORARY
Screen: Dia: 2"
Length: 10'
Slot Size: 0.01
Casing: Dia: 2"
Length: 30'
Type: PVC
Drilling Company: GROUNDWATER TECH.
Drilling Method: HOLLOW STEM
Driller: G. Kurtz
Log by: P. Osborn
Sampling Method: CONTINUOUS

Sketch Map



Notes

Depth (ft)	Well Construction	Notes	PID/OVA (ppm)	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
0					Crushed limestone fill.
					Dark brown, moist, medium stiff, plastic, silty CLAY.
					Reddish brown, moist, medium stiff, slightly plastic, fine sandy CLAY.
10					Gray/brown, moist to wet, plastic, stiff, fine grained sandy CLAY.
20					Brown, saturated, silty, medium to fine SAND with a trace of coarse SAND
30					
40					Gray, wet, stiff, plastic, silty CLAY.
					Gray/greenish gray, moist, hard, silty CLAY with some thin laminated structure with a trace of gypsum. BOH=42'

Page 1 of 1

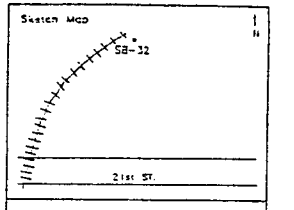
GROUNDWATER TECHNOLOGY, INC.

Well No. SB-32

DRILLING LOG

Project: WNID
Owner: WIC
Location: KAMEN PROP. N END
Project Number: 042209670-03
Date Drilled: 7/6/90
Total Depth: 44'
Diameter: 7.25"
Surface Elevation:
Water depth (init.): 12.5'
24-hrs.:
TEMPORARY
Screen: Dia: 2"
Length: 10'
Slot Size: 0.01
Casing: Dia: 2"
Length: 34'
Type: PVC
Drilling Company: GROUNDWATER TECH.
Drilling Method: HOLLOW STEM
Driller: G. Kurtz
Log by: P. Osborn
Sampling Method: CONTINUOUS

Sketch Map



Notes

Depth (ft)	Well Construction	Notes	PID/OVA (ppm)	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
0					Brown, dry, stiff, nonplastic, fine sandy CLAY.
					Dark brown, moist, stiff, slightly plastic, fine sandy CLAY.
					Light reddish brown, moist to wet, medium stiff, plastic, fine grained sandy CLAY.
10					Gray, same as above.
					Light brown, saturated, medium to fine grained SAND with a trace of coarse SAND and fine gravel.
20					
30					
40					Dark gray, wet, stiff, plastic, silty CLAY.
					Gray/gray green, moist, hard, silty CLAY with some thin lamination (weathered shale).
					EOH =44'

Page 1 of 1

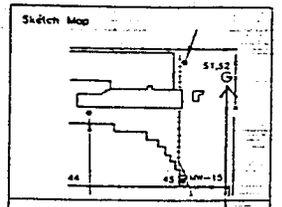
GROUNDWATER TECHNOLOGY, INC.

DRILLING LOG

Well No. MW-51

Project: Coleman North Plant | Owner: The Coleman Co. Inc.
Location: 801 E. 37th N. Wichita | Project Number: 422-135-9733
Date Drilled: 12-13-89 | Total Depth: 45' | Diameter: 12"
Surface Elevation: | Water depth (init.): 15' | 24-hrs.: 15.7'
Screen: Dia. 4" | Length: 10' | Slot Size: .01
Casing: Dia. 4" | Length: 16.5' | Type: Sch. 40 PVC
Drilling Company: McClelland | Drilling Method: Hollow Stem Auger
Driller: T. Placek | Log by: M. Thompson | Sampling Method: Split Spoon

Sketch Map



Notes

MW-51

Depth (ft)	Well Construction	Notes	PID/OVA (ppm)	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
0		Locking cap			Black silty CLAY, damp, low plastic
		concrete grout			Brown silty CLAY, moist, medium plastic
10		casing			Brown silty, fine grained sand, damp
		bentonite			
					SAND, as above, grading medium to coarse grained, saturated at 15'
		sand pack			
30		screen			SAND, as above, predominantly coarse grained
40					
					Gray, weathered SHALE
					TD=45'

JC
43'

Page 1 of 1

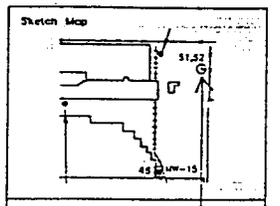
GROUNDWATER TECHNOLOGY, INC.

DRILLING LOG

Well No. MW-52

Project: Coleman North Plant | Owner: The Coleman Co. Inc.
Location: 801 E. 37th N. Wichita | Project Number: 422-135-9733
Date Drilled: 12-14-89 | Total Depth: 25' | Diameter: 12"
Surface Elevation: | Water depth (init.): 13.52 | 24-hrs.:
Screen: Dia. 4" | Length: 10' | Slot Size: .01
Casing: Dia. 4" | Length: 16.5' | Type: Sch. 40 PVC
Drilling Company: McClelland | Drilling Method: Hollow Stem Auger
Driller: T. Placek | Log by: M. Thompson | Sampling Method: Split Spoon

Sketch Map



Notes

MW-52

Depth (ft)	Well Construction	Notes	PID/OVA (ppm)	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
0		Locking cap			Black silty CLAY, damp, low plastic
4		casing			
7		concrete grout			Brown, silty CLAY, moist medium plastic
12		bentonite			Brown, silty, SAND, fine grained
14		sand pack			
16		screen			
20					SAND, as above, grading medium to coarse grained
25					TD=25'

Page 1 of 1

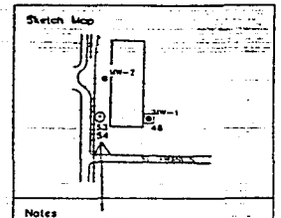
GROUNDWATER TECHNOLOGY, INC.

Well No. MW-53

DRILLING LOG

Project: Coleman North Plant | Owner: The Coleman Co. Inc.
Location: 801 E. 37th N. Wichita | Project Number: 422-135-9733
Date Drilled: 12-18-89 | Total Depth: 43.0' | Diameter: 12"
Surface Elevation: | Water depth (init.): 14.5' | 24-hrs.:
Screen: Dia. 4" | Length 15.0' | Slot Size .01
Casing: Dia. 4" | Length 28.0' | Type Sch. 40 PVC
Drilling Company: McClelland | Drilling Method: Hollow Stem Auger
Driller: T. Placek | Log by: B. McFarland | Sampling Method: Split Spoon

Sketch Map



Notes
MW-53

Depth (ft)	Well Construction	Notes	PID/OVA (ppm)	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
0		manhole cover			Very dark brown, SILTY CLAY, moist, medium plastic medium stiff
		concrete grout			SILTY CLAY, as above, but reddish brown, medium-plastic
10		casing			Reddish brown to light reddish brown, SANDY CLAY, wet-very wet, medium plastic, soft to medium stiff
		bentonite	▼		Light brown, SILTY SAND, some silt and clay, very wet to saturated, medium to fine grained, medium dense
20		sand pack			
		bentonite			Light brown-light yellowish brown, SAND, saturated, medium to coarse grained, medium dense, with occasional silt and clay seams
30		screen			
40					Light brown weathered SHALE, moist, high plastic, stiff
					TD=43'

SC 41

Page ___ of ___

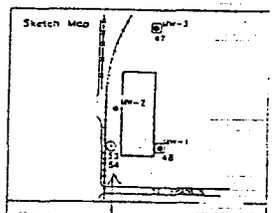
GROUNDWATER TECHNOLOGY, INC.

Well No. MW-54

DRILLING LOG

Project: Coleman North Plant | Owner: The Coleman Co. Inc.
Location: 801 E. 37th N. Wichita | Project Number: 422-135-9733
Date Drilled: 12-18-89 | Total Depth: 25' | Diameter: 12"
Surface Elevation: | Water depth (init.): 14.5' | 24-hrs.:
Screen: Dia. 4" | Length 10' | Slot Size .01
Casing: Dia 4" | Length 15' | Type Sch. 40 PVC
Drilling Company: McClelland | Drilling Method: Hollow Stem Auger
Driller: T. Placek | Log by: B. McFarland | Sampling Method: Split Spoon

Sketch Map



Notes
MW-54

Depth (ft)	Well Construction	Notes	PID/OVA (ppm)	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
0		manhole cover			Very dark brown, silty CLAY, moist, medium plastic, medium stiff
5		casing			CLAY, as above, but reddish brown, medium-high plastic
7		concrete grout			Reddish brown, sandy CLAY, wet-very wet medium plastic, soft to medium stiff
12		bentonite			
15		sand pack	▼		Light brown, silty SAND, some silt and clay, very wet to saturated, medium to fine grained, medium dense
		screen			
					Light brown-light yellowish brown, SAND, saturated, medium to coarse grained, medium dense

Page ___

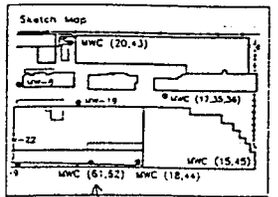
GROUNDWATER TECHNOLOGY, INC.

Well No. MW-61

DRILLING LOG

Project: COLEMAN NORTH PLANT | Owner: The Coleman Co., Inc.
Location: 801 E. 37th St. N | Project Number: 04220973301
Date Drilled: 4-9-90 | Total Depth: 24.0' | Diameter: 11.75"
Surface Elevation: 1320.20' | Water depth (Init.): 14.0' | 24-hrs.: 14.42'
Screen: Dia. 4.0" | Length: 10.0' | Slot Size: 0.01"
Casing: Dia 4.0" | Length: 17.0' | Type: PVC
Drilling Company: GTI | Drilling Method: Hollow Stem Auger
Driller: G. Kurtz | Log by: B. McFarland | Sampling Method: Continuous

Sketch Map



Notes

Depth (ft)	Well Construction	Notes	PID/OVA (ppm)	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
0		locking cap; concrete grout; casing			Dark grayish brown, silty CLAY, wet, medium plastic, medium stiff-stiff.
					Brown, mottled grayish brown, sandy CLAY, little fine sand, wet, low plastic, medium stiff.
10					Brown, SILT, wet, medium dense.
					Light brown, SAND, fine grained, wet to very wet, medium dense
20					As above, but fine and medium grained, saturated.
					EOH=24'

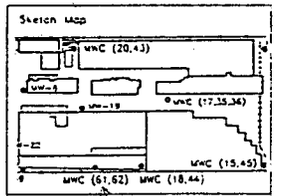
GROUNDWATER TECHNOLOGY, INC.

Well No. MW-62

DRILLING LOG

Project: COLEMAN NORTH PLANT | Owner: The Coleman Co., Inc.
Location: 801 E. 37th St. N. | Project Number: 04220973301
Date Drilled: 4-6-90 | Total Depth: 44.5' | Diameter: 11.75"
Surface Elevation: 1320.20' | Water depth (Init.): 14.0' | 24-hrs.: 14.42'
Screen: Dia. 4.0" | Length: 15.0' | Slot Size: 0.01"
Casing: Dia 4.0" | Length: 32.5' | Type: PVC
Drilling Company: GTI | Drilling Method: Hollow Stem Auger
Driller: G. Kurtz | Log by: B. McFarland | Sampling Method: Continuous

Sketch Map



Notes

Depth (ft)	Well Construction	Notes	PID/OVA (ppm)	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
0		locking cap; concrete grout; casing			Dark grayish brown, silty CLAY, wet, medium plastic, medium stiff-stiff.
					Brown, mottled grayish brown, sandy CLAY, little fine sand, wet, low plastic, medium stiff.
10					Brown, SILT, wet, medium dense.
					Light brown, SAND, fine grained, wet to very wet, medium dense
20					As above, but fine and medium grained, saturated.
30					Yellowish brown, SAND, medium and coarse grained, saturated, medium dense
40					

JL
43

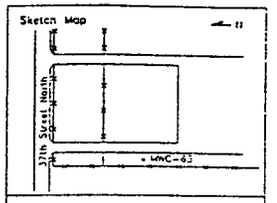
GROUNDWATER TECHNOLOGY, INC.

Well No. MW-63

DRILLING LOG

Project: COLEMAN NORTH PLANT Owner: The Coleman Company
Location: 801 E. 37th St. N. Project Number: 04220973301
Date Drilled: 4-6-90 Total Depth: 48.5' Diameter: 11.75"
Surface Elevation: 1322.31' Water depth (init.): 14.5' 24-hrs.: 15.70'
Screen: Dia. 4.0" Length: 15.0' Slot Size: 0.01"
Casing: Dia. 4.0" Length: 36.5' Type: PVC SCH 40
Drilling Company: GTI Drilling Method: Hollow Stem Auger
Driller: G. Kurtz Log by: B. McFarland Sampling Method: Continuous

Sketch Map



Notes

Depth (ft)	Well Construction	Notes	PID/OVA (ppm)	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
2		locking cap			ASPHALT and subgrade.
0		grout			Very dark grayish brown, silty CLAY, moist, medium plastic, medium stiff to stiff.
2					
4					Grayish brown, sandy CLAY, little fine sand, wet, low plastic, medium stiff.
6		casing			
8					
10		bentonite			Light grayish brown, SILT, wet, medium dense, trace fine sand.
12					Light brown, SAND, fine grained, wet to very wet, medium dense.
14					
16					As above, but fine and medium grained, saturated.
18					
20					
22					
24		sand pack			Yellowish brown, SAND, medium and coarse grained, saturated, medium dense.
26					
28					
30					
32		bentonite			
34		screen			
36					
38		sand pack			
40					
42					
44					
46					
48					Gray weathered SHALE with gypsum.
					End exploration at 48.5'

Page 1 of

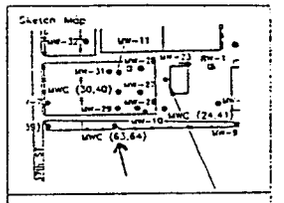
GROUNDWATER TECHNOLOGY

Well No. MW-64

DRILLING LOG

Project: COLEMAN NORTH PLANT Owner: The Coleman Co., Inc.
Location: 801 E. 37th St. N. Project Number: 04220973301
Date Drilled: 4-6-90 Total Depth: 24.0' Diameter: 11.75"
Surface Elevation: 1322.15' Water depth (init.): 15.0' 24-hrs.: 15.38'
Screen: Dia. 4.0" Length: 10.0' Slot Size: 0.01"
Casing: Dia. 4.0" Length: 17.0' Type: PVC
Drilling Company: GTI Drilling Method: Hollow Stem Auger
Driller: G. Kurtz Log by: B. McFarland Sampling Method: Continuous

Sketch Map



Notes

Depth (ft)	Well Construction	Notes	PID/OVA (ppm)	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
0		locking cap			
		concrete grout			Asphalt and subgrade
		casing			Very dark grayish brown, silty CLAY, moist, medium plastic, medium stiff to stiff.
					Grayish brown, sandy CLAY, little fine sand, wet, low plastic, medium stiff.
10		bentonite			Light grayish brown, SILT, wet, med. dense, tr. fine sand.
					Light brown, SAND, fine grained, wet to very wet, medium dense.
					As above, but fine and medium grained, saturated.
		sand pack			
		screen			Bottom

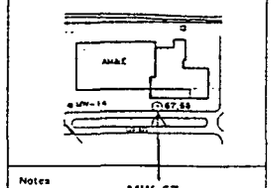
GROUNDWATER TECHNOLOGY, INC.

Well No. MW-67

DRILLING LOG

Project: Coleman North Plant | Owner: The Coleman Co. Inc.
Location: 801 E. 37th N. Wichita | Project Number: 422-135-9733
Date Drilled: 12-19-89 | Total Depth: 46.5' | Diameter: 12"
Surface Elevation: | Water depth (init.): 15' | 24-hrs.:
Screen: Dia. 4" | Length 15' | Slot Size .01
Casing: Dia 4" | Length 31.5' | Type Sch. 40 PVC
Drilling Company: McClelland | Drilling Method: Hollow Stem Auger
Driller: T. Placek | Log by: B. McFarland | Sampling Method: Split Spoon

Sketch Map



Notes

MW-67

Depth (ft)	Well Construction	Notes	PID/OVA (ppm)	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
0		manhole cover			Very dark brown, SILTY CLAY, moist, medium plastic, medium stiff
		concrete grout			CLAY, as above, but reddish brown
10		casing			Light brown, SILTY SAND, some silt and clay, wet to very wet, fine to medium grained, medium dense
		bentonite	▼		Light yellowish brown, SAND, very wet to saturated at 15.0 feet, fine to medium grained, medium dense
		sand pack			SAND, as above, but to coarse grained, with occasional clay seams
		bentonite			
		screen			
					Light Brown, sandy weathered SHALE, moist, stiff
					Light brown SHALE, moist, high plastic, very stiff
					TD=46.5'

Page 1 of 1

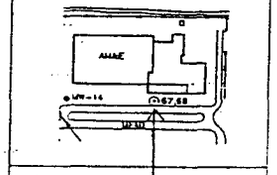
GROUNDWATER TECHNOLOGY, INC.

Well No. MW-68

DRILLING LOG

Project: Coleman North Plant | Owner: The Coleman Co. Inc.
Location: 801 E. 37th N. Wichita | Project Number: 422-135-9733
Date Drilled: 12-19-89 | Total Depth: 25' | Diameter: 12"
Surface Elevation: | Water depth (init.): 15' | 24-hrs.:
Screen: Dia. 4" | Length 10' | Slot Size .01
Casing: Dia. 4" | Length 15' | Type Sch. 40 PVC
Drilling Company: McClelland | Drilling Method: Hollow Stem Auger
Driller: T. Placek | Log by: B. McFarland | Sampling Method: Split Spoon

Sketch Map



Notes

MW-68

Depth (ft)	Well Construction	Notes	PID/OVA (ppm)	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
0		manhole cover			Very dark brown, Silty CLAY, moist, medium plastic, medium stiff
		casing			
		concrete grout			As above, but reddish brown
					Light brown, Silty SAND, some silt and clay, wet to very wet, fine to medium grained, medium dense
		bentonite			
		sand pack	▼		Light yellowish brown, Sand, very wet to saturated at 15 ft; fine to medium grained, medium dense
		screen			
					As above, but medium to coarse grained, with occasional clay seams
					TD=25'

Page 1 of 1

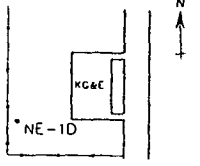
GROUNDWATER TECHNOLOGY, INC.

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	BORING NO.	PAGE
OK0530.001	COLEMAN, NE	WICHITA, KS	NE-1D	1 of 2

DRILLING METHOD: HOLLOW STEM AUGER
SAMPLING METHOD: CONTINUOUS CORE BARREL
DRILLING START: 7-18-95 FINISH: 7-18-95
DEVEL. START: FINISH:
STATIC DTW: DTO: TIME: DATE:
DRILLED BY: LAYNE WESTERN
ELEVATION TOC: 1323.27 GL:
LOGGED BY: DMM

WELL LOCATION



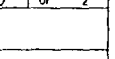
LITHOLOGIC LOG	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	W.C.	HNU (PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV. %	TYPE
					TOPSOIL, HIGH OM	D	BG	1		-	95	CB
	1	CL	SILTY CLAY	BK	25-30% SILT, LOOSE, FRIABLE,							
	2				TR-SOME FE OXIDE STAINING.							
					HOMOGENOUS TO 5'							
	3											
	4											
	5					D	BG	2		-	100	CB
	6	CL	SILTY CLAY	LT BR/	MOLTED, 40-50% SILT, SOME CY							
				OR	BANDING AND FE OXIDE STAINING.							
	7				LOOSE, FRIABLE							
	8											
	9											
	10	CL	SILTY CLAY	BR	MOLTED, 15-20% SILT, FRIABLE	M	BG	3		-	100	CB
	11				HOMOGENEOUS TO 15', MOISTURE							
					INCREASING W/ DEPTH							
	12											
	13											
	14											
	15	CL	SILTY CLAY	BR	SILTY 30-40% SAND STRINGER	M	BG	4		-	70	CB
			W/ SAND		AT 16.5, MG-VCG POORLY SORTED							
	16											
	17											
	18	CL	SANDY CLAY	BR	15-20% SAND, FG-MG, SOME							
					CG POORLY SORTED	S						
	19	CL	SANDY CLAY	BR	MG-VCG, SOME GRAVEL CLASTS							
					POORLY SORTED, SATURATED							

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	BORING NO.	PAGE
OK0530.001	COLEMAN, NE	WICHITA, KS	NE-1D	2 of 2

DRILLING METHOD: SEE PAGE 1
SAMPLING METHOD: SEE PAGE 1
DRILLING START: SEE PAGE 1 FINISH: -
DEVEL. START: SEE PAGE 1 FINISH: -
STATIC DTW: SEE PAGE 1 DTO: - TIME: - DATE: SEE PAGE 1
DRILLED BY: SEE PAGE 1
ELEVATION TOC: SEE PAGE 1 GL: -
LOGGED BY: SEE PAGE 1

WELL LOCATION



SEE PAGE 1

LITHOLOGIC LOG	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	W.C.	HNU (PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV. %	TYPE
		CL	SILTY CLAY	BR/BK		S	BG	5			30	CB
	21											
	22	SW	SAND	BR	FG-MG, W/ SOME CG & VCG.							
	23				TR PEA GRAVEL & CLEAR QTZ							
					POORLY SORTED							
	24											
	25				SAND HEAVED IN AUGER @ 3.5-4'							CU
	26				LOG CUTTINGS TO BEDROCK							
	27											
	28											
	29											
	30											
	31	SP	SAND	BR	MG-CG SAND VFG TR PEA	S						CU
					GRAVEL, POORLY SORTED							
	32											
	33											
	34											
	35		WEATHERED	GY	WEATHERED SHALE, GY TR SOME	S						
	36		SHALE		SAND							
	37		SHALE	GY	GY-OLIVE, FIRM, BEDDING PRESENT	S						
	38				TD=37.5'							
	39											

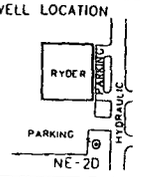
35.5

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	BORING NO.	PAGE
OK0530.001	COLEMAN, NE	WICHITA, KS	NE-2D	1 OF 2

DRILLING METHOD: HOLLOW STEM AUGER	SAMPLING METHOD: CONTINUOUS CORE BARREL
DRILLING START 4/6/95 FINISH 4/6/95	DEVEL START / FINISH
STATIC DTW / DTO / TIME / DATE	DRILLED BY: LAYNE WESTERN
ELEVATION TOC / GL	LOGGED BY: DMM

WELL LOCATION



LITHOLOGIC LOG	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	W.C.	HNU (PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV. %	TYPE
					TOP SOIL, HIGH OM							
	1					D	BG	1		-	100	CB
		ML	SILTY CLAY	BR	50-60% SILT, LOOSE, HIGH							
	2				OM, SILT DECREASING W/ DEPTH							
					(PAINT FLAKES)							
	3											
	4	CL	SILTY CLAY	BR	20-25% SILT, FIRM, TR MG SAND	D		1		-		CB
					WELL ROUNDED							
	5											
		CL	CLAYEY SILT	LT BR	10-20% SILT, TR-SOME FG-MG SAND	D	BG	2		-	100	CB
	6				FIRM, SMALL CARBONATE							
					CONCENTRATIONS, STIFF							
	7											
	8											
	9											
	10	CL	CLAYEY SILT	LT BR	AS ABOVE, GUMBO CLAY, FIRM	D	BG	3		-	100	CB
	11				STIFF, LITTLE TO NO SAND							
					TRACE LOOSE GRAVEL							
	12											
	13											
	14											
	15	CL	CLAY W/ SILT	LT BR	AS ABOVE, SAND INCREASING	M	BG	4		-	65	CB
	16				W/ DEPTH							
	17	CL	SANDY CLAY	BR	SAND 40-50%, FG-MG, MOD SORTED	W						
					SAND INCREASING W/ DEPTH							
	18	SP	SAND	BR	FG-MG, WELL ROUNDED, MOD							
	19				SORTED							

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	BORING NO.	PAGE
KS0530.001	COLEMAN, NE	WICHITA, KS	NE-2D	2 OF 2

DRILLING METHOD: SEE PAGE 1	SAMPLING METHOD: SEE PAGE 1
DRILLING START SEE PAGE 1 FINISH -	DEVEL START SEE PAGE 1 / FINISH -
STATIC DTW SEE PAGE 1 / DTO - / TIME - / DATE SEE PAGE 1	DRILLED BY: SEE PAGE 1
ELEVATION TOC SEE PAGE 1 / GL -	LOGGED BY: SEE PAGE 1

WELL LOCATION

N

SEE PAGE 1

LITHOLOGIC LOG	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	W.C.	HNU (PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV. %	TYPE
	21	SW	SAND	BR	FG-CG, SOME CLEAR QTZ, WELL	W	BG	5		-	40	CB
	22				ROUNDED, POORLY SORTED, SAND							
					HEAVED IN AUGER, LOG CUTTINGS							
	23				TO BEDROCK							
	24											
	25											
	26											
	27	SW	SAND	BR	AS ABOVE, FG-CG, WELL ROUNDED	W	BG	-	-	-	-	CU
					POORLY SORTED							
	28											
	29											
	30											
	31											
	32	SW	SAND	BR	AS ABOVE, DECREASING IN FG	W	BG	-	-	-	-	CU
	33											
	34											
	35											
	36	SP	SAND	BR	MG-CG, MOD SORTED,							
					WELL ROUNDED							
	37				STARTED DRILLING SLOW							
					WEATHERED SHALE							
	38											
	39		SHALE	GY	WEATHERED SHALE, LAMINATED	W		-		-	-	CU
					STRIATIONS, SAMPLE FROM AUGERS							

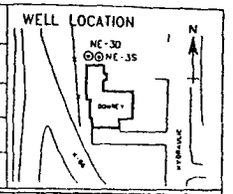
BS
37.5

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	BORING NO.	PAGE
OK0530.001	COLEMAN, NE	WICHITA, KS	NE-3D	1 OF 2

DRILLING METHOD: HOLLOW STEM AUGER	SAMPLING METHOD: CONTINUOUS CORE BARREL
DRILLING START 4/3/95 FINISH 4/3/95	DEVEL. START FINISH
STATIC DTW DTO TIME DATE	DRILLED BY: LAYNE WESTERN
ELEVATION TOC GL	LOGGED BY: DMM

WELL LOCATION



LITHOLOGIC LOG	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	W.C.	HNU (PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV. %	TYPE
						D	BG	1		-	100	CB
	1	ML	SILTY CLAY	BR	TOPSOIL, HIGH SILT AND OM							
	2											
	3	CL	SILTY CLAY	BR	30-40% SILT, FIRM, TR VEF SAND							
	4											
	5	CL	SILTY CLAY	BR	15-20% SILT, INCREASE IN SAND	D	BG	2		-	70	CB
	6		W/SAND		FG-MG, LOOSE							
	7	CL	SILTY CLAY	BR	DECREASE IN SAND, 30-40% SILT,	M						
	8				MOIST							
	9											
	10											
	11											
	12	CL	SILTY CLAY	BR	AS ABOVE, INCREASE IN SAND,	M	BG	3		-	40	CB
	13				MG-CG, WELL ROUNDED, MOISTURE							
	14				INCREASES W/ DEPTH							
	15	CL	CLAY/SILT	GY	CLAY W/ SILT, FIRM COMPACTED,	M	BG	4		-	40	CB
	16				10-15% SILT, SAND INCREASES							
	17				W/DEPTH							
	18	SW	SAND	BR	FG-CG, POORLY SORTED,	W						
	19				SATURATED, LOOSE							

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	BORING NO.	PAGE
KS0530.001	COLEMAN, NE	WICHITA, KS	NE-3D	2 OF 2

DRILLING METHOD: SEE PAGE 1	SAMPLING METHOD: SEE PAGE 1
DRILLING START SEE PAGE 1 FINISH -	DEVEL. START SEE PAGE 1 FINISH -
STATIC DTW SEE PAGE 1 DTO - TIME - DATE SEE PAGE 1	DRILLED BY: SEE PAGE 1
ELEVATION TOC SEE PAGE 1 GL -	LOGGED BY: SEE PAGE 1

WELL LOCATION

SEE PAGE 1

LITHOLOGIC LOG	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	W.C.	HNU (PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV. %	TYPE
	21	SW	SAND	BR	FG-CG, SOME SAND, CLEAR QTZ	W	BG	5		-	25	CB
	22				AND PEA GRAVEL, POORLY							
	23				SORTED, SATURATED							
	24				SAND HEAVED IN AUGERS, LOG							
	25				CUTTINGS TO BEDROCK							
	26	SW	SAND	BR	AS ABOVE, FG-CG, WELL ROUNDED	W	-	-	-	-	-	CU
	27				SOME CLEAR QTZ, POORLY SORTED							
	28											
	29											
	30											
	31	SW	SAND	BR	AS ABOVE, DECREASE IN FG	W	-	-	-	-	-	CU
	32											
	33											
	34											
	35											
	36	SP	SAND	BR	LITTLE TO NO FG, MG-CG,	W	-	-	-	-	-	CU
	37				MODERATELY SORTED							
	38		SHALE	GY	WEATHERED SHALE							
	39				SAMPLES FROM AUGERS							
					BLUE GRAY, STIFF							

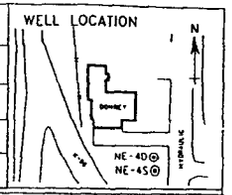
BOS
37.5

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	BORING NO.	PAGE
OK0530.001	COLEMAN, NE	WICHITA, KS	NE-4D	1 of 3

DRILLING METHOD: HOLLOW STEM AUGER	SAMPLING METHOD: SPLIT SPOON
DRILLING START: 2/23/95 FINISH: 2/23/95	DEVEL. START: FINISH:
STATIC DTW: DTO: TIME: DATE:	DRILLED BY: GEOCORE
ELEVATION TOC: GL:	LOGGED BY: DMM

WELL LOCATION



LITHOLOGIC LOG	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	W.C.	HNU (PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV. %	TYPE
					TOPSOIL, HIGH OM	D	BG	1		-	100	CB
	1											
	2	ML	SILTY CLAY	BR	30-40% SILTY, FIRM, TR FE STAIN	D	-	-	-	-	-	CU
	3											
	4											
	5	CL	SILTY CLAY	BR	LOOSE, 40% SILT, SOME FG SAND	D	BG	1		-	22	SS
	6											
	7	SP	SAND	TAN	FG W/ SILT, WELL SORTED	D	-	-	-	-	-	CU
	8				WELL ROUNDED							
	9											
	10	CL	SANDY CLAY	LT BR	50% CLAY, FG-MG, WELL SORTED	D	BG	2		-	100	SS
	11				WELL ROUNDED SAND INCREASING							
	12				W/ DEPTH							
	13	CL	SILTY CLAY	DK BR	20-30% SILT, TR FG SAND	M	BG	3		-	20	SS
	14											
	15	SD	SAND	BR	FG-MG, SOME CLEAR QTZ AND PEA	W	-	-	-	-	-	CU
	16				GRAVEL, POORLY SORTED							
	17	SW	SAND	BR	FG-MG, SOME CLEAR QTZ AND	W	1.0	4		-	65	SS
	18				PEA GRAVEL, POORLY SORTED							
	19	SW	SAND	BR	AS ABOVE, DECREASING IN FINES	W	2.0	5		-	25	SS

JOB NUMBER	CLIENT	LOCATION	BORING NO.	PAGE
OK0530.001	COLEMAN, NE	WICHITA, KS	NE-4D	2 of 3

DRILLING METHOD: SEE PAGE 1	SAMPLING METHOD: SEE PAGE 1
DRILLING START: SEE PAGE 1 FINISH: -	DEVEL. START: SEE PAGE 1 FINISH: -
STATIC DTW: SEE PAGE 1 DTO: - TIME: - DATE: SEE PAGE 1	DRILLED BY: SEE PAGE 1
ELEVATION TOC: SEE PAGE 1 GL: -	LOGGED BY: SEE PAGE 1

WELL LOCATION

N

SEE PAGE 1

LITHOLOGIC LOG	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	W.C.	HNU (PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV. %	TYPE
	21	SW	SAND	BR	MG-CG, ABUNDANT CLEAR QTZ	W	1.5	6		-	65	SS
	22				LITTLE TO NO FINES							
	23	SW	SAND	BR	AS ABOVE	W	86	7		-	70	SS
	24											
	25											
	26				SAND HEAVED, NO CORE ATTEMPT							
	27											
	28	SW	SAND	BR	MG-CG, POORLY SORTED	W	-	-	-	-	-	CU
	29											
	30											
	31	SW	SAND	BR	AS ABOVE, INCREASE IN CLAY	W	-	-	-	-	-	CU
	32				CONTENT							
	33	CL	SAND/CLAY	BR	CG-MG, POORLY SORTED 50-60%	W		-	-	-	-	CU
	34				CLAY							
	35											
	36											
	37											
	38	CL	CLAY	GY	FIRM, DECREASE IN FINES	W	-	-	-	-	-	CU
	39				SOME CLEAR QTZ							

BOS
38.5

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	BORING NO.	PAGE
KS0530.001	COLEMAN, NE	WICHITA, KS	NE-4D	3 OF 3

DRILLING METHOD: SEE PAGE 1	SAMPLING METHOD: SEE PAGE 1
DRILLING START: SEE PAGE 1 FINISH: -	DEVEL START: SEE PAGE 1 FINISH: -
STATIC DTW: SEE PAGE 1 TIME: - DTO: - DATE: SEE PAGE 1	DRILLED BY: SEE PAGE 1
ELEVATION TOC: SEE PAGE 1 GL: -	LOGGED BY: SEE PAGE 1

WELL LOCATION: SEE PAGE 1 (N)

LITHOLOGIC LOG	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	W.C.	HNU (PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV. %	TYPE
	41	CL	CLAY W/ SAND	GY	FIRM, MG-CG (SAMPLE FROM AUGERS)	W	-	-	-	-	-	CU
	42											
	43											
	44	CL	CLAY	GY	STARTED DRILLING HARD, QTZ INTERBEDDED. FIRM	W	-	-	-	-	-	CU
	45											
	46											
	47	CL	CLAY W/ SAND	GY	MG-CG, 60% CLAY FIRM. TR PEA GRAVEL IS CLEAR QTZ	W	-	-	-	-	-	CU
	48											
	49											
	50											
	51											
	52	CL	CLAY W/ SAND	GY	AS ABOVE, LESS FIRM	W	-	-	-	-	-	
	53											
	54											
	55											
	56											
	57											
	58											
	59											

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	BORING NO.	PAGE
OK0530.001	COLEMAN, NE	WICHITA, KS	NE-50	1 OF 2

DRILLING METHOD: HOLLOW STEM AUGER	SAMPLING METHOD: CONTINUOUS CORE BARREL
DRILLING START: 2/28/95 FINISH: 2/25/95	DEVEL START: FINISH:
STATIC DTW: TIME: DTO: DATE:	DRILLED BY: LAYNE WESTERN
ELEVATION TOC: GL:	LOGGED BY: T.LLOYD

WELL LOCATION: NE-50 (N)
WHITE STAR; GRAVEL; CONCRETE; HYDRAULIC

LITHOLOGIC LOG	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	W.C.	HNU (PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV. %	TYPE
			FILL	OK BR	GRAVEL FILL WITH FINES	M	BG					
	1											
	2	CL	SILTY CLAY	LT BR	UP TO 40% SILT, CRUMBLY, BEDDING STRUCTURE, SOME VERY FINE GRAINED SAND	M	BG					CB
	3											
	4											
	5	CL	SILTY CLAY	LT BR	40% SILT, INCREASING VF-FG SAND CONTENT	M	BG					CB
	6											
	7											
	8											
	9	SP	SILTY SAND	LT BR	FG SAND, MOD TO WELL SORTED, WELL ROUNDED W/ SOME SILT & VERY THIN (UP TO 2mm) CLAY LENSES, SUBTLE BEDDING STRUCTURE	M	BG					
	10											CB
	11											
	12											
	13	SC	CLAYEY SAND	LT BR	UP TO 50% CLAY, W/ FG SAND WELL ROUNDED, SAND INCREASES WITH DEPTH	M	BG					
	14											
	15		SILTY CLAY	LT BR	LENSES 2 IN THICK, LITTLE SAND	M						
		SW	SAND		FG-MG SAND, WELL ROUNDED, WELL SORTED	M						CB
	16	SP	SAND	LT BR	MG-CG SAND W/ LITTLE FG SAND CLAY & SILT FINES, MOD WELL ROUNDED, POORLY SORTED	W	BG					
	17											
	18	SW	SAND	LT BR	FG-CG SAND, POORLY SORTED	W	BG					
	19											

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	BORING NO.	PAGE
K50530.001	COLEMAN, NE	WICHITA, KS	NE-5D	2 OF 2

DRILLING METHOD: SEE PAGE 1	SAMPLING METHOD: SEE PAGE 1
DRILLING START: SEE PAGE 1 FINISH: -	DEVEL. START: SEE PAGE 1 FINISH: -
STATIC DTW: SEE PAGE 1 DTO: - TIME: - DATE: SEE PAGE 1	DRILLED BY: SEE PAGE 1
ELEVATION TOC: SEE PAGE 1 GL: -	LOGGED BY: SEE PAGE 1

WELL LOCATION: SEE PAGE 1

N

LITHOLOGIC LOG	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	W.C.	HNU (PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV.%	TYPE
		SW	SAND	LT BR	FG-CG SAND, MOD WELL ROUNDED,	W	BG	-		-	-	CB
	21				POORLY SORTED, TRACE GRANULES							
					1-2 FT HEAVE IN AUGERS							
	22											
	23											
	24											
	25	SW	SAND	LT BR	MG-CG SAND W/ LITTLE FG SAND	W	BG	-		-	-	CB
					POORLY SORTED W/ TRACE FINES							
	26				GRANULES. 7 FT HEAVE IN AUGERS							
	27											
	28											
	29											
	30	SW	SAND	LT BR	MG-CG SAND W/ LITTLE FG SAND	W	BG	-		-	-	CU
	31				POORLY SORTED W/ GRANULES &							
					PEBBLES, SUB-ROUNDED							
	32											
	33											
	34											
	35	CL	CLAY	BL	WEATHERED SHALE, FIRM							CU
	36											
	37		SHALE		TOUGHER TO DRILL, WEATHERED							CU
	38				SHALE, BEDDING STRUCTURES							
	39											
					TD=40 FT							

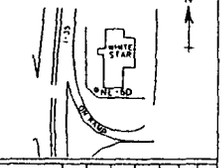
BGS 35.5

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	BORING NO.	PAGE
OK0530.001	COLEMAN, NE	WICHITA, KS	NE-6D	1 OF 2

DRILLING METHOD: HOLLOW STEM AUGER	SAMPLING METHOD: CONTINUOUS CORE BARREL
DRILLING START: 1200 FINISH: 1340	DEVEL. START: FINISH:
STATIC DTW: DTO: TIME: DATE: 3/6/95	DRILLED BY: LAYNE WESTERN
ELEVATION TOC: GL:	LOGGED BY: DMM

WELL LOCATION



LITHOLOGIC LOG	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	W.C.	HNU (PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV.%	TYPE
				BR	FILL, SAND W/ CLAY, FE STAINED							
	1					M	BG	1			100	CB
	2	CL	SILTY CLAY	DK BR	40%-50% SILT, FIRM, MOTTLED	M	BG					
					UPPER 1", TR-SOME FG SAND							
	3											
	4											
	5	CL	SILTY CLAY	BR	20-30% SILT, SOME SAND	M	BG	2			100	CB
	6				LOWER 2", FIRM							
	7	CL	SILTY CLAY	TAN	FG-MG, 40% SILT, SOME							
					SAND, LOOSE							
	8	CL	SILTY CLAY	TAN	DECREASE IN SAND, INCREASE							
	9				IN FINES (SILT) FIRM							
	10	SP	SAND	TAN	FG SAND, MOD-WELL SORTED, SOME	M	BG	3			50	CB
	11				SILT, QTZ LENS 2-3" THICK AT 13							
	12											
	13	CL	SILTY CLAY	BL	30-40% CLAY, FG SAND, WELL							
	14		W/ SAND		ROUNDED, INCREASED SAND							
					W/ DEPTH							
	15	SW	SAND	BR	FG-MG, WELL ROUNDED	M	BG	4			30	CB
	16				WELL SORTED							
	17	SP	SAND	BR	FG-CG, WELL ROUNDED	W						
					POORLY SORTED							
	18	SW	SAND	BR	FG-MG, WELL ROUNDED							
	19				MOD SORTED, SATURATED							

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	BORING NO.	PAGE
KS0530.001	COLEMAN, NE	WICHITA, KS	NE-6D	2 OF 2

DRILLING METHOD: SEE PAGE 1	SAMPLING METHOD: SEE PAGE 1
DRILLING START: SEE PAGE 1 FINISH: -	DEVEL. START: SEE PAGE 1 FINISH: -
STATIC DTW: SEE PAGE 1 DTO: - TIME: - DATE: SEE PAGE 1	DRILLED BY: SEE PAGE 1
ELEVATION TOC: SEE PAGE 1 GL: -	LOGGED BY: SEE PAGE 1

WELL LOCATION

N

SEE PAGE 1

LITHOLOGIC LOG	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	W.C.	HNU (PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV. %	TYPE
	21	SW	SAND	BR	FG-CG SAND, WELL ROUNDED,	W	BG	5		-	40	CB
					POORLY SORTED, TRACE-SOME							
	22				CLEAR QTZ, SAND HEAVED 1.5 FT							
	23											
	24											
	25	SW	SAND	BR	DECREASE IN FINES, MG-CG, WELL	W	BG	6		-	40	CB
	26				ROUNDED, POORLY SORTED							
	27											
	28											
	29											
	30	SW	SAND	BR	AS ABOVE MG-CG POORLY SORTED	W	BG	-	-	-	-	CU
	31				SAND HEAVED, SAMPLE FROM							
					CUTTINGS							
	32											
	33											
	34											
	35											
	36	CL	CLAY	GY	BLUE/GRAY SHALE, WEEATHERED	-	-	-	-	-	-	CU
	37				FIRM, LAYERED							
	38		SHALE	GY	BEDROCK, LAYERED, MORE	-	-	-	-	-	-	CU
	39				DIFFICULT TO DRILL							
					TD=39 FT							

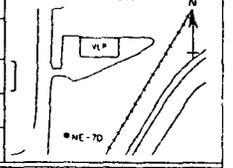
BGS
36.5

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	BORING NO.	PAGE
OK0530.001	COLEMAN, NE	WICHITA, KS	NE-7D	1 OF 2

DRILLING METHOD: HOLLOW STEM AUGER	SAMPLING METHOD: CONTINUOUS CORE BARREL
DRILLING START: 3/2/95 FINISH: 3/3/95	DEVEL. START: FINISH:
STATIC DTW: DTO: TIME: DATE:	DRILLED BY: LAYNE WESTERN
ELEVATION TOC: GL:	LOGGED BY: T. LLOYD

WELL LOCATION



LITHOLOGIC LOG	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	W.C.	HNU (PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV. %	TYPE
					GRASS ON SURFACE							
	1	CL	SILTY CLAY	DK BR	LESS THAN 30% SILT, SILT	M	BG				100	CB
					CONTENT INCREASES W/ DEPTH,							
	2				ROOTLETS, FIRM.							
	3											
	4											
	5	CL	SILTY CLAY	DK BR	30% SILT, FIRM	M	BG				100	CB
	6											
	7											
	8											
	9											
	10	CL	SILTY CLAY	DK BR	30% SILT, FIRM	M	BG				100	CB
	11											
	12											
	13											
	14	ML	SILTY SAND	LT BR	GREATER THAN 50% SILT W/SOME						50	CB
	15				VF GRAINED SAND & SOME CLAY							
					SAND INCREASES W/ DEPTH							
	16			LT BR	TR LT GR ROCK FRAGS-GYPSUM	W	BG					
		SP	SAND	LT BR	VFG-CG SAND, SUB-ROUNDED							
	17				POORLY SORTED, 1 FT HEAVE IN							
					AUGERS							
	18											
	19											

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	BORING NO.	PAGE
OK0530.001	COLEMAN, NE	WICHITA, KS	NE-70	2 of 2

DRILLING METHOD: SEE PAGE 1	SAMPLING METHOD: SEE PAGE 1
DRILLING START: SEE PAGE 1 FINISH: -	DEVEL START: SEE PAGE 1 FINISH: -
STATIC DTW: SEE PAGE 1 DTO: - TIME: - DATE: SEE PAGE 1	DRILLED BY: SEE PAGE 1
ELEVATION TOC: SEE PAGE 1 GL: -	LOGGED BY: SEE PAGE 1

WELL LOCATION: SEE PAGE 1

N

LITHOLOGIC LOG	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	H.C.	HNU (PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV %	TYPE
		SP	SAND	LT BR	VFG-MG SAND W/ LITTLE COARSE	W	BG	-		-	20	CB
	21				SAND AND TRACE GRANULES.							
					SUB-ROUNDED, POORLY SORTED							
	22				6-7 FT HEAVE AFTER PULLING							
					SAMPLE							
	23											
	24											
	25	SP	SAND	LT BR	VFG-CG SAND W/TRACE GRANULES	W	-	-		-		CU
	26				& PEBBLES, SUB-ROUNDED							
					POORLY SORTED							
	27											
	28											
	29											
	30											
	31											
	32											
	33											
	34											
	35		CLAY	BL GR	WITH WEATHERED SHALE FRAGS		-	-		-		CU
	36				NOTICEABLE DIFFERENCE							
					IN DRILLING							
	37				TD=37 FT							
	38											
	39											

BOS 35.5

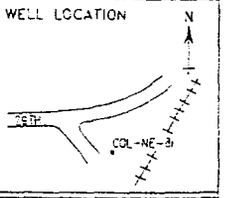
CNE

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	WELL NO.	PAGE
OK0626.011	COLEMAN, NE	WICHITA, KS	COL-NE-8i	1 of 3

DRILLING METHOD: HOLLOW STEM AUGER	SAMPLING METHOD: CONTINUOUS CORE BARREL
DRILLING START: 3/7/96 FINISH: 3/7/96	DEVEL START: - FINISH: -
STATIC DTW: - DTO: - TIME: - DATE: -	DRILLED BY: LAYNE WESTERN
ELEVATION TOC: - GL: -	LOGGED BY: DMM

WELL LOCATION



WELL CONSTRUCTION	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	H.C.	HNU (PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV %	TYPE
					TOPSOIL/GRASS	M	BK	1		-	100	CB
	1	CL	SILTY CLAY	BK	30-50% SILT BLOCKY, LEAN							
	2				TO 5' BGS							
	3											
	4											
	5	CL	SILTY CLAY	BK	SILTY, 30-40% BLOCKY, SILT	M	BK	2		-	100	CB
	6				DECREASING W/ DEPTH							
	7											
	8	CL	SILTY CLAY	BK	LEAN, LESS BLOCKY 15-20% SILT							
					MOLTED W/ ORGANIC STREAKS							
	9											
	10	CL	SILTY CLAY	TAN	MOLTED, LEAN, ORGANIC & FE	M	BK	3		-	-	CB
	11				STAINING THROUGHOUT							
	12	CL	SILTY CLAY	TAN	MOLTED, LEAN, SOME FG-MG SAND,							
	13				SAND & MOISTURE INCREASING							
					W/ DEPTH							
	14											
	15	CL	SILTY CLAY	TAN	MOLTED, LEAN, ORGANIC STREAKS	M	BK	50		-	100	CB
	16				THROUGHOUT, SOME FG SAND							
	17	CL	SILTY CLAY	DY	SILTY, BLOCKY W/ TRACE SAND							
	18				MILD HC ODOR							
	19											

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	WELL NO.	PAGE
CK0625.001	COLEMAN, NE	WICHITA, KS	COL-NE-3i	2 OF 3

DRILLING METHOD –
SAMPLING METHOD –
DRILLING START SEE PAGE 1 FINISH –
DEVEL START SEE PAGE 1 FINISH –
STATIC DTW SEE PAGE 1 DTO – TIME SEE PAGE 1 DATE –
DRILLED BY SEE PAGE 1
ELEVATION TOC SEE PAGE 1 GL –
LOGGED BY SEE PAGE 1

WELL LOCATION
SEE PAGE ONE
N

WELL CONSTRUCTION

DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	M.C.	HNU (PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV. %	TYPE
	CL	SILTY CLAY	GY	SILTY, BLOCKY, SATURATED, FREE	W	68	6		–	100	CS
21				STANDING PRODUCT (BROWN) DIESEL?							
				IN UPPER 2'							
22	SC	SAND	BN	FG W/ SOME MG, WELL SORTED							
23											
24	CL	SANDY CLAY	GY	SILTY, 30-40% FG SD, FAINT HC ODOR							
25	SC	SAND	GY	FG, W/ SOME MG, MOD SORTED	W	15	7		–	40	CS
26	SC	SAND	BR	FG - MG, MOD SORTED, FE STAINED							
27	SW	SAND	TAN	FG-CG, SOME CLEAR QTZ &							
28				PEA GRAVEL							
29											
30	SW	SAND	TAN	FG-CG, SOME CLEAR QTZ & PEA	W	BK	2		–	20	CS
31				GRAVEL, POORLY SORTED, POOR							
				RECOVERY, SD HEAVED IN AUGER							
32											
33											
34											
35	SW	SAND	TAN	FG-CG, SOME CLEAR QTZ & PEA	W	–	–		–	–	CU
36				GRAVEL, POORLY SORTED, POOR							
				RECOVERY, SD HEAVED IN AUGER							
37				LOGGED CUTTINGS							
38											
39											

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	WELL NO.	PAGE
CK0626.001	COLEMAN, NE	WICHITA, KS	COL-NE-3i	3 OF 3

DRILLING METHOD SEE PAGE 1
SAMPLING METHOD SEE PAGE 1
DRILLING START SEE PAGE 1 FINISH –
DEVEL START SEE PAGE 1 FINISH –
STATIC DTW SEE PAGE 1 DTO – TIME SEE PAGE 1 DATE –
DRILLED BY SEE PAGE 1
ELEVATION TOC SEE PAGE 1 GL –
LOGGED BY SEE PAGE 1

WELL LOCATION
SEE PAGE ONE
N

WELL CONSTRUCTION

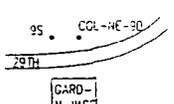
DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	M.C.	HNU (PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV. %	TYPE
	SW	SAND	TAN	FG-CG, SOME PEA GRAVEL & COBBLES	W	–	–		–	–	CU
41		SHALE	OLIVE	BEDROCK, BEDDING, PRESENT AUGER							
42				REFUSAL AT 42.5' SAMPLES							
				FROM AUGER BIT							
43											
44											
45											
46											
47											
48											
49											
50											
51											
52											
53											
54											
55											
56											
57											
58											
59											

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	WELL NO.	PAGE
OK0626.011	COLEMAN NE	WICHITA, KS	COL-NE-9D	1 of 3

DRILLING METHOD: HOLLOW STEM AUGER	SAMPLING METHOD: CONTINUOUS CORE BARREL
DRILLING START 3/7/96 FINISH 3/7/96	DEVEL START - FINISH -
STATIC DTW - DTG - TIME - DATE -	DRILLED BY: LAYNE WESTERN
ELEVATION TOC - GL -	LOGGED BY: DMM

WELL LOCATION



WELL CONSTRUCTION	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	W.C.	HNU (PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV. %	TYPE
					TOPSOIL/GRASS	M	BK	1		-	100	CB
	1	CL	SILTY CLAY	TAN	MOLTED W/ ORGANIC STREAKS							
	2	CL	SILTY CLAY	BK	SILTY, 20-30% SILT, BLOCKY,							
	3				LOOSE, FRIABLE							
	4											
	5	CL	SILTY CLAY	BK	SILTY, 20-30%, BLOCKY, LEAN	M	BK	2		-	100	CB
	6				TO 10' BGS TRACE SD, LOWER 2-3"							
	7											
	8											
	9											
	10	CL	SILTY CLAY	BK	SILTY 20-30%, BLOCKY, LEAN	M	BK	3		-	100	CB
	11				MOISTURE INCREASING W/ DEPTH							
	12											
	13											
	14	CL	SILTY CLAY	TAN	MOLTED, BLK STREAKS, SOME SAND							
			W/ SAND		FG-MG, MOIST							
	15	CL	SILTY CLAY	TAN	MOLTED W/ ORGANIC STREAKS, SAND	M	BK	4		-	100	CB
	16		W/ SAND		& MOISTURE INCREASING W/ DEPTH							
	17	CL	SANDY CLAY	GY	30-40% SAND, FG, WELL SORTED	W						
	18				GR SIZE INCREASING W/ DEPTH							
	19	SM	SAND	TAN	FG-MG, SOME CLR QTZ - GR SIZE	W	BK	5		-	100	CB
					INCREASING, MOD SORTED							

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	WELL NO.	PAGE
OK0626.001	COLEMAN NE	WICHITA, KS	COL-NE-9D	2 of 3

DRILLING METHOD -	SAMPLING METHOD -
DRILLING START SEE PAGE 1 FINISH -	DEVEL START SEE PAGE 1 FINISH -
STATIC DTW SEE PAGE 1 DTG - TIME SEE PAGE 1 DATE -	DRILLED BY: SEE PAGE 1
ELEVATION TOC SEE PAGE 1 GL -	LOGGED BY: SEE PAGE 1

WELL LOCATION

SEE PAGE ONE

WELL CONSTRUCTION	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	W.C.	HNU (PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV. %	TYPE
		SM	SAND	TAN	FG-MG, MOD SORTED, GR SIZE	W	BK	5		-	25	CB
	21				INCREASES W/ DEPTH							
	22											
		SW	SAND	TAN	FG-CG, SOME CLEAR QTZ AND PEA							
	23				GRAVEL, WELL ROUNDED, POORLY							
					SORTED, POOR RECOVERY - SAND							
	24				BEGAN TO HEAVE							
	25											
		SW	SAND	TAN	FG-CG, CLEAR QTZ	W	BK	6		-	25	CB
	26											
		CL	SANDY CLAY	TAN	FG W/ SOME MG, MODERATELY							
	27				SORTED, LEAN							
	28	SW	SAND	TAN	FG - CG, SOME CLEAR QTZ AND PEA							
					GRAVEL, POORLY SORTED							
	29											
	30											
		SW	SAND	TAN	FG - CG, SOME CLEAR QTZ AND PEA	W	BK	7		-	10	CB
	31				GRAVEL, POORLY SORTED							
	32											
	33											
	34											
	35											
		SW	SAND	TAN	FG - CG, SOME CLEAR QTZ AND PEA	W	BK	-		-	-	CU
	36				GRAVEL, NO SAMPLE IN CB,							
					LOGGED CUTTINGS							
	37											
	38											
	39											

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	WELL NO.	PAGE
OK0626.001	COLEMAN, NE	WICHITA, KS	COL-NE-90	3 OF 3

DRILLING METHOD SEE PAGE 1	SAMPLING METHOD SEE PAGE 1
DRILLING START SEE PAGE 1 FINISH -	DEVEL START SEE PAGE 1 FINISH -
STATIC DTW SEE PAGE 1 DTO - TIME SEE PAGE 1 DATE -	DRILLED BY SEE PAGE 1
ELEVATION TOC SEE PAGE 1 GL -	LOGGED BY SEE PAGE 1

WELL LOCATION

SEE PAGE ONE

N

WELL CONSTRUCTION	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	W.C.	THRU (PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV. %	TYPE
					SAND HEAVES, 24'	M	-	-	X	-	-	CU
	41		SHALE	OLIVE	BEDROCK, LAMINATED, FIRM, SAMPLE				X			
	42				FROM AUGER BIT				X			
					TD - AUGER REFUSAL				X			
	43											
	44											
	45											
	46											
	47											
	48											
	49											
	50											
	51											
	52											
	53											
	54											
	55											
	56											
	57											
	58											
	59											

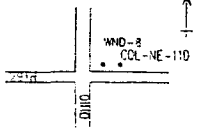
41.5

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	WELL NO.	PAGE
OK0626.011	COLEMAN, NE	WICHITA, KS	COL-NE-11D	1 OF 3

DRILLING METHOD HOLLOW STEM AUGER	SAMPLING METHOD CONTINUOUS CORE BARREL
DRILLING START 8/6/96 FINISH 8/6/96	DEVEL START - FINISH -
STATIC DTW - DTO - TIME - DATE -	DRILLED BY LAYNE WESTERN
ELEVATION TOC - GL -	LOGGED BY DMM

WELL LOCATION



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WELL CONSTRUCTION	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	W.C.	THRU (PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV. %	TYPE
					TOPSOIL/GRASS	M	BG	1	X	-	40	CB
	1	CL	SILTY CLAY W/SAND	BK	SOME SAND, FG-MG, SUBANGULAR,				X			
					LOOSE, MOD SORTED, SAND				X			
	2				INCREASING W/ DEPTH				X			
	3								X			
	4								X			
	5	CL	SANDY CLAY	TAN	ABUNDANT SAND, FG, SOME MG SAND	M	BG	2	X	-	100	CB
	6				INCREASING W/ DEPTH, LOOSE				X			
	7	SC	SANDY CLAY	TAN	SOME CLAY, SAND FG, SOME MG				X			
					MOD SORTED				X			
	8	SM	SAND	TAN	FG, WELL SORTED, SOME MG, WELL				X			
	9				ROUNDED, TR CLEAR QTZ				X			
	10	SM	SAND	TAN	AS ABOVE, GR SIZE INCREASING	M	BG	3	X	-	50	CB
	11				W/ DEPTH				X			
	12	SC	SANDY CLAY	TAN	SOME CLAY, LEAN				X			
					MG-CG SAND, MOD SORTED				X			
	13	SW	SAND	TAN	FG-CG, SOME CLEAR QTZ AND PEA	W			X			
	14				GRAVEL, SATURATED, SAND				X			
					BEGAN TO HEAVE				X			
	15	SW	SAND	TAN	AS ABOVE, FG-CG, SOME CLEAR QTZ	W	BG	4	X	-	10	CB
	16				AND PEA GRAVEL, POORLY SORTED				X			
					POOR RECOVERY				X			
	17								X			
	18								X			
	19								X			

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	WELL NO.	PAGE
OK0626.001	COLEMAN, NE	WICHITA, KS	COL-NE-110	2 OF 3

WELL LOCATION: SEE PAGE ONE (N)

DRILLING METHOD –	SAMPLING METHOD –
DRILLING START SEE PAGE 1 / FINISH –	DEVEL. START SEE PAGE 1 / FINISH –
STATIC DTW SEE PAGE 1 / DTO – / TIME SEE PAGE 1 / DATE –	DRILLED BY SEE PAGE 1
ELEVATION TOC SEE PAGE 1 / GL –	LOGGED BY SEE PAGE 1

WELL CONSTRUCTION	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	M.C.	THD (PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV. %	TYPE
		SW	SAND	TAN	FG-CG, SOME CLEAR QTZ AND PEA	W	BK	5		–	–	CU
	21				GRAVEL, NO SAMPLE IN CB (W/							
					SAND CATCHER) LOGGED CUTTINGS							
	22											
	23											
	24											
	25	SW	SAND	TAN	FG-CG, SUBANGULAR TO WELL	W	BK	6		–	15	CB
	26				ROUNDED, POORLY SORTED, SOME							
					CLEAR QTZ AND PEA GRAVEL, TR							
	27				COBBLES							
	28											
	29											
	30	SW	SAND	TAN	AS ABOVE, POORLY SORTED, SOME	W	BK	7		–	10	CB
	31				CLEAR QTZ AND PEA GRAVEL, POOR							
					RECOVERY							
	32											
	33											
	34											
	35	SW	SAND	TAN	NO SAMPLE IN CB, LOGGED CUTTINGS	W	BK	8		–	–	CU
	36				FG-CG SAND, POORLY SORTED, SOME							
					CLEAR QTZ AND PEA GRAVEL							
	37				SUBANGULAR							
	38											
	39											

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	WELL NO.	PAGE
OK0626.001	COLEMAN, NE	WICHITA, KS	COL-NE-110	3 OF 3

WELL LOCATION: SEE PAGE ONE (N)

DRILLING METHOD SEE PAGE 1	SAMPLING METHOD SEE PAGE 1
DRILLING START SEE PAGE 1 / FINISH –	DEVEL. START SEE PAGE 1 / FINISH –
STATIC DTW SEE PAGE 1 / DTO – / TIME SEE PAGE 1 / DATE –	DRILLED BY SEE PAGE 1
ELEVATION TOC SEE PAGE 1 / GL –	LOGGED BY SEE PAGE 1

WELL CONSTRUCTION	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	M.C.	THD (PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV. %	TYPE
					STARTED DRILLING HARD	W	–	9		–	50	CB
	41		SHALE	OLIVE	BEDROCK, FIRM, BEDDING, PRESENT							
	42				AUGER REFUSAL							
	43											
	44											
	45											
	46											
	47											
	48											
	49											
	50											
	51											
	52											
	53											
	54											
	55											
	56											
	57											
	58											
	59											

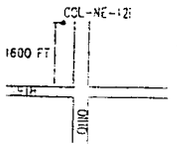
5.5

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	WELL NO.	PAGE
OK0626.011	COLEMAN, NE	WICHITA, KS	COL-NE-12	1 OF 3

DRILLING METHOD: HOLLOW STEM AUGER	SAMPLING METHOD: CONTINUOUS CORE BARREL
DRILLING START 3/5/96 FINISH 3/5/96	DEVEL START - FINISH -
STATIC DTW - DTO - TIME - DATE -	DRILLED BY: LAYNE WESTERN
ELEVATION TOC - GL -	LOGGED BY: DMM

WELL LOCATION



WELL CONSTRUCTION	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	M.C.	HNU (PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV. %	TYPE
		CL	SILTY CLAY	BK	SILT, LOOSE TOPSOIL, HIGH OM	M	BG	1		-	10	CB
	1											
	2	CL	SILTY CLAY	BR	30-40% SILT, LOOSE, POOR RECOVERY							
	3											
	4											
	5	CL	SILTY CLAY	BK	30% SILT, INCREASING SAND W/ DEPTH	M	BG	2		-	25	CB
	6											
	7	SM	SAND	TAN	MG-FG, VERY LITTLE CG,							
	8				SUBANGULAR, LOOSE, MOD. SORTED							
	9											
	10	SM	SAND	TAN	MG-FG, VERY LITTLE CG, MOD. SORTED	M	BG	3		-	40	CB
	11				MOISTURE INCREASING W/ DEPTH							
	12											
	13											
	14											
	15	SM	SAND	TAN	FG-MG AS ABOVE, GRAIN SIZE	M	BG	4		-	40	CB
	16				INCREASING W/ DEPTH							
	17	SW	SAND	TAN	FG-CG POORLY SORTED, SUBANGULAR	W						
	18				SOME CLEAR QTZ AND PEA GRAVEL							
	19											

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	WELL NO.	PAGE
OK0626.001	COLEMAN, NE	WICHITA, KS	COL-NE-12	2 OF 3

DRILLING METHOD -	SAMPLING METHOD -
DRILLING START SEE PAGE 1 FINISH -	DEVEL START SEE PAGE 1 FINISH -
STATIC DTW SEE PAGE 1 DTO - TIME SEE PAGE 1 DATE -	DRILLED BY: SEE PAGE 1
ELEVATION TOC SEE PAGE 1 GL -	LOGGED BY: SEE PAGE 1

WELL LOCATION

SEE PAGE ONE

N

WELL CONSTRUCTION	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	M.C.	HNU (PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV. %	TYPE
		SW	SAND	TAN	FG-CG, SUBANGULAR, SOME	W	BK	5		-	40	CB
	21				CLEAR QTZ AND PEA GRAVEL							
					POORLY SORTED, SATURATED							
	22											
	23											
	24											
	25	SW	SAND	TAN	FG-CG, SUBANGULAR, SOME	W	BK	6		-	35	CB
	26				WELL ROUNDED, ABUND. CLEAR QTZ							
					AND GRAVEL, SAND HEAVED IN							
	27				AUGERS 27'							
	28											
	29											
	30	SW	SAND	TAN	AS ABOVE, UNABLE TO USE CB	-	-	-		-	-	CU
	31				DUE TO HEAVING SAND, LOGGED							
					CUTTINGS TO BEDROCK							
	32											
	33											
	34											
	35	SW	SAND	TAN	AS ABOVE TO 42' BGS	-	-	-		-	-	CU
	36											
	37											
	38	SW	SAND	TAN	AS ABOVE	-	-	-		-	-	CU
	39											

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	WELL NO.	PAGE
OK0626.001	COLEMAN, NE	WICHITA, KS	COL-NE-12N	3 OF 3

WELL LOCATION — N

SEE PAGE ONE

DRILLING METHOD SEE PAGE 1	SAMPLING METHOD SEE PAGE 1
DRILLING START SEE PAGE 1 FINISH -	DEVEL. START SEE PAGE 1 FINISH -
STATIC DTW SEE PAGE 1 DTO - TIME SEE PAGE 1 DATE -	DRILLED BY SEE PAGE 1
ELEVATION TOC SEE PAGE 1 GL -	LOGGED BY SEE PAGE 1

WELL CONSTRUCTION	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	W.C.	HNU (PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV. %	TYPE
		SW	SAND	TAN	FG-CG, SOME PEA GRAVEL &	W	BK	-		-	-	CU
	41				CLEAR QTZ							
	42		SHALE	OLIVE	BEDROCK, LAMINATED, FIRM,	W	-	-		-	-	CU
	43				AUGER REFUSAL							
	44											
	45											
	46											
	47											
	48											
	49											
	50											
	51											
	52											
	53											
	54											
	55											
	56											
	57											
	58											
	59											

9.26

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GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	WELL NO.	PAGE
OK376.01	COLEMAN	WICHITA, KANSAS	MW-6D	1 OF 2

WELL LOCATION — N

DRILLING METHOD HOLLOW STEM AUGER	SAMPLING METHOD CME CORE BARREL
DRILLING START 11-15-92 FINISH 11-15-92	DEVEL. START FINISH
STATIC DTW 1310.10 DTO TIME DATE 12-1-92	DRILLED BY LAYNE WESTERN
ELEVATION TOC 1324.43 GL 1324.70	LOGGED BY OMAR ALMOUSLLI

WELL CONSTR.	LITHOLOGY	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	W.C.	HNU (PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV. (FT.)	TYPE
	2"			TOPSOIL	DKBR	CLAY RICH, ROOTS	D						CB
		1											
		2	ML	SILT	BR	10% CLAY, TRACE VFG SD,	D	BKG					
		3				TRACE GRVL							
		4											
		5	ML	SILT	BR	SAME, SOME MOTTLING							
			SP	SAND	LTBR	VFG, SOME CLAY, SOME GRVL	D	BKG				100	CB
		6											
		7					D	BKG					
		8											
		9											
		10	SP	SAND	LTBR	LOOSE FG, TRACE OF	D	BKG				100	CB
		11				SILT/CLAY							
		12											
		13					D	BKG					
		14											
		15	SP	SAND	LTBR	FG, SOME MOTTLED CLAYEY	D	BKG				80	CB
		16				SAND - FE STAIN							
						INCREASE CLAY/SILT TO 18"							
		17					D	BKG					
		18	SP	SAND		FG, TRACE SILT/CLAY							
		19				SHELL FRAGS	M						

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	WELL NO.	PAGE
OK376.01	COLEMAN	WICHITA, KANSAS	MW-6D	2 OF 2

WELL LOCATION

DRILLING METHOD: HOLLOW STEM AUGER	SAMPLING METHOD: CME CORE BARREL
DRILLING START: 11-15-92 FINISH: 11-15-92	DEVEL. START: FINISH:
STATIC DTW: DTO: TIME: DATE:	DRILLED BY: LAYNE WESTERN
ELEVATION TOC: GL:	LOGGED BY: OMAR ALMOUSLLI

WELL CONSTR.	LITHOLOGY	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	W.C.	(PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV. (FT.)	TYPE
						SAME	W	BKG				90	CB
		21											
		22											
		23					W	BKG					
		24											
		25	SP	SAND	ORBR	MG.10% VFG. LOOSE	W	BKG				90	CB
		26											
		27											
		28					W	BKG					
		29											
		30	SP	SAND	ORBR	FG-CG. TRACE SILT/CLAY	W	BKG				60	CB
		31											
		32											
		33											
		34											
		35										0	CB
		36											
		37											
		38		SHALE	GY								
					GYGR								
	TD	39				TD = 38.5'							

BOS
37.5

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	WELL NO.	PAGE
OK376.01	COLEMAN	WICHITA, KANSAS	MW-7D	1 OF 2

WELL LOCATION

DRILLING METHOD: HOLLOW STEM AUGER	SAMPLING METHOD: CME CORE BARREL
DRILLING START: 11-16-92 FINISH: 11-16-92	DEVEL. START: FINISH:
STATIC DTW: 1309.86 DTO: TIME: DATE: 12-1-92	DRILLED BY: LAYNE WESTERN
ELEVATION TOC: 1323.15 GL: 1323.56	LOGGED BY: WARREN FRENCH

WELL CONSTR.	LITHOLOGY	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	W.C.	(PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV. (FT.)	TYPE
	2"			BACKFILL	BR	BACKFILL	D					100	CB
		1											
		2	CL	CLAY	DKBR	20% SILT, SLI FIRM							
							D	BKG					
		3											
		4											
		5					D	BKG					
												100	CB
		6											
		7	CL	CLAY	DKBR	SAME AS ABOVE - FIRM	D	BKG					
		8	ML	CLAYEY SILT	BR	40% CLAY, TRACE VFG SD							
						SLI FIRM							
		9			BR	60% CLAY, NO SD							
		10					D	BKG					
												100	CB
		11	ML	CLAYEY SILT	BR	40% CLAY, 15% VFG SD							
		12					D	BKG					
		13	CL	CLAY	BR								
		14											
		15	CL	SILTY CLAY	BR	30% SILT, 15% VFG SD	D	0.6				100	CB
		16											
		17	CL	CLAY	BR	25% SILT	D	0.5					
		18	ML	SDY SILT	GYGR	20% CLAY, 30% VFG SD	M						
		19	SP	SAND	GYGR	VF-FT. RND QTZ GRNS.							
						SRTD. MOTTLED FE STAIN	M	0.5					

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	WELL NO.	PAGE
OK376.01	COLEMAN	WICHITA, KANSAS	MW-7D	2 OF 2

WELL LOCATION N

DRILLING METHOD: HOLLOW STEM AUGER	SAMPLING METHOD: CME CORE BARREL
DRILLING START 11-16-92 FINISH 11-16-92	DEVEL. START FINISH
STATIC DTW DTO / TIME DATE	DRILLED BY: LAYNE WESTERN
ELEVATION TOC GL	LOGGED BY: WARREN FRENCH

WELL CONSTR.	LITHOLOGY	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	W.C.	(PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV (FT.)	TYPE
			SW	SAND	LTBR	40% MG, 50% CG, 10% VCG,	W					30	CB
		21				TRACE PEA GRVL, CLEAR QTZ							
						GRNS, 15% ARKOSIC		80					
		22											
		23											
		24											
		25	SP	SAND	LTBR	60% MG, 40% CG, WELL	W					30	CB
		26				RND, SRTD, 20% ARKOSIC							
								25					
		27											
		28											
		29											
		30				NO CORE ATTEMPTED							
		31				30 - 37.5'							
		32											
		33											
		34											
		35											
		36											
		37		SHALE	DKGY	SAMPLE FROM AUGERS							
		38				TD = 37.5'							
		39											

BGS 37.5

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	WELL NO.	PAGE
OK376.01	COLEMAN	WICHITA, KANSAS	MW-8D	1 OF 2

WELL LOCATION N

DRILLING METHOD: HOLLOW STEM AUGER	SAMPLING METHOD: CME CORE BARREL
DRILLING START 11-16-92 FINISH 11-16-92	DEVEL. START FINISH
STATIC DTW 1309.65 DTO / TIME DATE 12-1-92	DRILLED BY: LAYNE WESTERN
ELEVATION TOC 1327.35 GL 1327.66	LOGGED BY: WARREN FRENCH

WELL CONSTR.	LITHOLOGY	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	W.C.	HNU (PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV (FT.)	TYPE
	2"			ROCK/FILL								100	CB
		1											
		2					D	165					
		3	CL	CLAY	BR	SLI FIRM							
		4											
							D	65					
		5	CL	CLAY	DKBR	DENSE/FIRM						100	CB
		6			BK	SAME							
							D	10					
		7											
		8					D	18					
		9				HNU = 50 PPM IN AUGER							
						6' ABOVE G.S - WINDY	D	160					
		10	CL	CLAY	BK	SULPHURIC/BAD EGGS ODOR						100	CB
		11					D	10					
		12					D	10					
		13											
		14					D	8					
		15	CL	CLAY	BK	SAME - NO ODOR						100	CB
		16					M	BKG					
		17											
		18					M	BKG					
		19											
			CL	CLAY		SAME	M	BKG					

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	WELL NO.	PAGE
OK376.01	COLEMAN	WICHITA, KANSAS	MW-8D	2 OF 2

WELL LOCATION N

DRILLING METHOD: HOLLOW STEM AUGER	SAMPLING METHOD: CME CORE BARREL
DRILLING START 11-16-92 FINISH 11-16-92	DEVEL. START FINISH
STATIC DTW DTO / TIME DATE	DRILLED BY: LAYNE WESTERN
ELEVATION TOC GL	LOGGED BY: WARREN FRENCH

WELL CONSTR.	LITHOLOGY	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	W.C.	(PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV (FT.)	TYPE
			CL	CLAY	BK		W	1.0				100	CB
		21											
		22	CL	SILTY CLAY	GYGR	20% SILT, MOTTLED, w/							
						Fe STAIN							
		23	SM	SILTY SAND	GYGR	50% VFG SD, 30% SILT	W	60					
						20% CLAY							
		24	SP	SAND	LTBR	50% MG, 40% CG-VCG							
						SD, TRACE PEA GRVL RND							
		25	SP	SAND	LTBR	75% CG-VCG, 20% MG						40	CB
						TRACE PEA GRVL, TRACE 1"							
		26				PEBBLES, 10% ARKOSIC	W	30					
		27											
		28											
		29											
		30	SW	SAND	LTBR	30% FG, 30% MG, 40% CG-VCG	W	18				40	CB
		31				SD, LOOSE, RND QTZ							
						GRNS, SOME FE STAIN							
		32			LTBR	CG - VCG w/ PEA GRVL	W	BKG					
		33											
		34											
		35	SP	SAND		80% CG - VCG, 10% MG,						20	CB
		36				10% GRVL, PEA GRVL	W	BKG					
		37											
		38											
		39		SHALE	DKGY	SAMPLE FROM AUGERS							
						TD = 40'							

BS
39.5

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	WELL NO.	PAGE
OK376.01	COLEMAN	WICHITA, KANSAS	MW-9D	1 OF 2

WELL LOCATION N

DRILLING METHOD: HOLLOW STEM AUGER	SAMPLING METHOD: CME CORE BARREL
DRILLING START 11-23-92 FINISH 11-23-92	DEVEL. START FINISH
STATIC DTW 1308.60 DTO / TIME DATE 12-1-92	DRILLED BY: LAYNE WESTERN
ELEVATION TOC 1329.26 GL 1329.63	LOGGED BY: OMAR ALMOUSLLI

WELL CONSTR.	LITHOLOGY	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	W.C.	(PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV (FT.)	TYPE
	2"			FILL								90	CB
		1	CL	SANDY CLAY	LT	25% FG, 10% SILT							
					GYBR								
		2	SC	CLAYEY SAND	LTBR	60% CG, 20% MG	D	0.4					
		3											
		4					D	0.4					
		5	CL	SANDY SILT	DKBR	70% SILT, 20% VFG SD,						100	CB
						10% CLAY							
		6	CL	SILTY CLAY	BR	10% VFG SD, MOTTLED							
		7					D	0.3					
		8											
		9											
		10	SC	CLAYEY SAND	BR	VF-FG SD	D	0.4				100	CB
		11											
		12	CL	SANDY CLAY	DK	FIRM TO DENSE	D	0.3					
		13			GYBR								
		14	CL	CLAY	DKBR		D	0.3					
		15		SILT	LTBR	10% VFG SD, 10% CLAY						100	CB
		16											
		17	CL	CLAY	BR	DENSE, VEINS OF DK GY							
		18				CLAY, CHERT NODULES		0.3					
		19											
			CL	CLAY	GYBR		D	BKG					

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	WELL NO.	PAGE
OK376.01	COLEMAN	WICHITA, KANSAS	MW-9D	2 of 2

WELL LOCATION

DRILLING METHOD: HOLLOW STEM AUGER	SAMPLING METHOD: CME CORE BARREL
DRILLING START 11-23-92 FINISH 11-23-92	DEVEL. START FINISH
STATIC DTW DTO TIME DATE	DRILLED BY LAYNE WESTERN
ELEVATION TOC GL	LOGGED BY OMAR ALMOUSLLI

WELL CONSTR.	LITHOLOGY	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	W.C.	(PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV. (FT.)	TYPE
			CL	CLAY		SAME AS ABOVE						80	CB
		21											
		22					M	BKG					
		23					M	BKG					
		24	SC	SAND	LTBR	70% FG, 10% MG, 10% CLAY							
		25	SP	SAND	LTBR	80% CG, 20% MG	W					40	CB
		26											
		27	GP	GRAVEL	BR	VCG POORLY GRADED	W	BKG					
		28											
		29											
		30											
		31											
		32	SP	SAND	LTBR	90% MG, 5% CG	W					60	CB
		33	SC	CLAYEY SAND	LTBR	FG-MG, FIRM		BKG					
		34	SP	SAND	LTBR	90% MG, FE STAINED CG							
		35	SP	SAND	LTBR	MG w/ FE STAIN	W	BKG				50	CB
		36											
		37					W	BKG	0.3'				
		38											
		39		SHALE	DKGY	DENSE SAMPLE FROM AUGER TD = 39.5'							

BOS 39.5

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	WELL NO.	PAGE
OK376.01	COLEMAN	WICHITA, KANSAS	MW-10D	1 of 3

WELL LOCATION

DRILLING METHOD HOLLOW STEM AUGER	SAMPLING METHOD CME CORE BARREL
DRILLING START 11-21-92 FINISH 11-21-92	DEVEL. START FINISH
STATIC DTW 1308.27 DTO TIME DATE 12-1-92	DRILLED BY LAYNE WESTERN
ELEVATION TOC 1322.98 GL 1323.42	LOGGED BY WARREN FRENCH/ OMAR ALMOUSLLI

WELL CONSTR.	LITHOLOGY	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	W.C.	(PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV. (FT.)	TYPE
	2'			BACKFILL								50	CB
		1											
		2	CL	CLAY	DKBR		D	BKG					
		3											
		4											
		5	CL	CLAY	DKBR	DENSE, HOMOGENOUS	D	BKG				100	CB
		6											
		7											
		8					D	BKG					
		9											
		10	CL	CLAY	DKBR	SAME	D	BKG				100	CB
		11											
		12											
		13					D	BKG					
		14											
		15	CL	CLAY	DKBR	FIRM	M	BKG				100	CB
		16											
		17											
		18					M	BKG					
		19	CL	SILTY CLAY	GY		W						
			SM	SAND	GY	40% VFG, 30% FG, 10% MG, RND CLEAR QTZ GRNS, 20% SILT/CLAY							

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	WELL NO.	PAGE
OK376.01	COLEMAN	WICHITA, KANSAS	MW-10D	2 OF 3

WELL LOCATION

N

DRILLING METHOD: HOLLOW STEM AUGER	SAMPLING METHOD: CME CORE BARREL
DRILLING START: 11-21-92 FINISH: 11-21-92	DEVEL. START FINISH
STATIC DTW / DTO — TIME / DATE	DRILLED BY: LAYNE WESTERN
ELEVATION TOC / GL	LOGGED BY: WARREN FRENCH/ OMAR ALMOUSLLI

WELL CONSTR.	LITHOLOGY	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	W.C.	(PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV.(FT.)	TYPE
			SP	SAND	YWBR	80% CG, 20% FG - MG	W	0.3				20	CB
						LOOSE							
		21											
		22											
		23											
		24											
		25	SP	SAND	YWBR	FG - MG, CONSOLIDATED w/						95	CB
						10% SILT							
		26											
		27											
		28	SC	SAND	YWBR	FG - MG, LOOSE. 30% CLAY	W	0.4					
						w/ FE STAIN							
		29											
		30	SP	SAND	YWBR	80% MG, 20% FG	W	0.3				45	CB
		31											
		32						0.3					
		33											
		34											
		35	SP	SAND	YWBR	65% CG, 10% VCG, 10% MG,	W					40	CB
						15% VFG, VERY LOOSE							
		36											
		37					W	0.5					
		38											
		39											

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	WELL NO.	PAGE
OK376.01	COLEMAN	WICHITA, KANSAS	MW-10D	3 OF 3

WELL LOCATION

N

DRILLING METHOD: HOLLOW STEM AUGER	SAMPLING METHOD: CME CORE BARREL
DRILLING START: 11-21-92 FINISH: 11-21-92	DEVEL. START FINISH
STATIC DTW / DTO — TIME / DATE	DRILLED BY: LAYNE WESTERN
ELEVATION TOC / GL	LOGGED BY: WARREN FRENCH/ OMAR ALMOUSLLI

WELL CONSTR.	LITHOLOGY	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	W.C.	(PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV.(FT.)	TYPE
			SP	SAND			W					95	CB
		41											
		42	SP	SAND	YWBR	90% CG-VCG, 10% FG-MG							
		43	CL	SHALE	DKGY	SOFT DRILLING @ 42.5'							
						GYPSUM NODULES							
		44											
		45				TD = 45'							
		46											
		47											
		48											
		49											
		50											
		51											
		52											
		53											
		54											
		55											
		56											
		57											
		58											
		59											

BOB
42.5

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

COMPOSITE MW11D (0-20') + ORGANIC B-11D (20-40')

JOB NUMBER	CLIENT	LOCATION	WELL NO.	PAGE
OK376.01	COLEMAN	WICHITA, KANSAS	MW-11D	1 OF 2

WELL LOCATION N

DRILLING METHOD: HOLLOW STEM AUGER
SAMPLING METHOD: CME CORE BARREL
DRILLING START: 11-17-92
FINISH: 11-17-92
DEVEL. START
FINISH
STATIC DTW: 1308.01
DTO
TIME
DATE: 12-1-92
DRILLED BY: LAYNE WESTERN
ELEVATION TOC: 1322.29
GL: 1322.65
LOGGED BY: WARREN FRENCH

WELL CONSTR.	LITHOLOGY	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	W.C.	(PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV. (FT.)	TYPE
	2'		CL	CLAY	DKBR		D	BKG					CB
		1											
			CL	CLAY	BR								
		2	ML	SILT		40% CLAY, 20% VFG SD	D	BKG					
						LOOSE							
		3											
		4											
			ML	SILT	LTBR	SAME	D	BKG					
		5	ML	SANDY SILT	LTBR	30% VFG SD, 30% CLAY						50	CB
		6	SM	SILTY SAND		60% VFG SD, 30% SILT,							
						LOOSE							
		7					M	BKG					
		8											
		9											
		10	SM	SILTY SAND	LTBR	SAME	M	BKG				70	CB
		11	SP	SAND	BR	70% VFG, 20% MG, 10%							
						SILT/CLAY, RND QTZ GRNS							
		12	CL	CLAY	DKGY	DENSE, HOMOGENEOUS							
		13					M	BKG					
		14											
		15	CL	CLAY		SAME						100	CB
		16											
		17					M	BKG					
		18	CL	CLAY	DKGY	SAME							
		19	SP	SAND	GY	70% FG, 20% SILT, 10% CL	W						
						40% FG, 20% MG, 20% CG							
					RDBR	QTZ GRNS, RND, 5% ARKOSIC		BKG					

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	WELL NO.	PAGE
OK376.01	COLEMAN	WICHITA, KANSAS	MW-11D	2 OF 2

WELL LOCATION N

DRILLING METHOD: HOLLOW STEM AUGER
SAMPLING METHOD: CME CORE BARREL
DRILLING START: 11-17-92
FINISH: 11-17-92
DEVEL. START
FINISH
STATIC DTW
DTO
TIME
DATE
DRILLED BY: LAYNE WESTERN
ELEVATION TOC
GL
LOGGED BY: WARREN FRENCH

WELL CONSTR.	LITHOLOGY	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	W.C.	(PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV. (FT.)	TYPE
			SP	SAND	LTBR	FG-CG, RND QTZ GRNS, TR	W	BKG				50	CB
		21				ARKOSIC GRNS							
		22					W	BKG					
		23											
		24											
		25	SP	SAND	LTBR	FG-MG, RND QTZ GRNS,	W	BKG				70	CB
		26				LITTLE ARKOSIC GRNS							
		27											
		28					W	1.5					
		29											
		30	SP	SAND	LTBR	65% MG, 15% CG, RND	W	1.0				80	CB
		31				QTZ GRNS, 20% SILT/CLAY							
						MINOR ARKOSIC GRNS							
		32											
		33					W	1.5					
		34											
		35	SP	SAND	LTBR	MG-CG, WELL RND QTZ	W	3.5				100	CB
		36				GRNS, 15% ARKOSIC							
		37											
						70% MG, 20% CG, 10% GRVL							
		38											
						WELL RND							
		39	SP	SAND	RDBR	CG-PEA GRVL, 40% ARKOSIC	W	2.0					
				SHALE	GYGN	REDUCED-MOTTLED GYGN							
					GYBK	IN GYBK SHALE TD = 40.0'							

BOS
39

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	WELL NO.	PAGE
OK376.01	COLEMAN	WICHITA, KANSAS	MW-12D	1 OF 3

WELL LOCATION

DRILLING METHOD: HOLLOW STEM AUGER	SAMPLING METHOD: CME CORE BARREL
DRILLING START 11-12-92 FINISH 12-13-92	DEVEL. START FINISH
STATIC DTW 1308.38 DTO; TIME; DATE 12-1-92	DRILLED BY: LAYNE WESTERN
ELEVATION TOC 1323.27 GL 1323.59	LOGGED BY: WARREN FRENCH

WELL CONSTR	LITHOLOGY	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	M.C.	(PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV (FT.)	TYPE
2"			CL	CLAY	BR	BACKFILL ?	D					90	CB
		1											
		2	CL	CLAY	DKBR	FIRM - SOME BK ORGANICS	D	BKG					
		3	ML	SILT	BR	VERTICAL BURROWS							
		4					D	BKG					
		5	ML	SILT	LTBR -GY							100	CB
		6	CL	CLAY	DKBR	FIRM							
		7					D	BKG					
		8											
		9	CL	CLAY	BR								
		10					D	BKG					
			CL	CLAY	DKBR	FIRM WITH RX CLASTS						100	CB
		11											
		12	CL	CLAY	BR	FIRM	D	BKG					
		13											
		14											
		15					D	BKG					
			CL	CLAY	BR	FIRM - VERY FIRM	M					100	CB
		16											
		17				SOME CLASTS OF LTGY SOFT RX GYPSUM ?	M	BKG					
		18	CL	CLAY	BR	DENSE							
		19	SW	SAND	GY-	CG, 10% GRVL, DKBR FE STAIN	W						
								BKG					

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	WELL NO.	PAGE
OK376.01	COLEMAN	WICHITA, KANSAS	MW-12D	2 OF 3

WELL LOCATION

DRILLING METHOD: HOLLOW STEM AUGER	SAMPLING METHOD: CME CORE BARREL
DRILLING START 11-12-92 FINISH 11-13-92	DEVEL. START FINISH
STATIC DTW DTO; TIME; DATE	DRILLED BY: LAYNE WESTERN
ELEVATION TOC GL	LOGGED BY: WARREN FRENCH

WELL CONSTR.	LITHOLOGY	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	M.C.	(PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV (FT.)	TYPE
			SP	SAND	BR	FG-MG, 10% SILT/CLAY.						20	CB
		21				RND QTZ GRNS w/ 10%	W	BKG					
						ARKOSIC AND FE MG GRNS							
		22				LOOSE							
		23											
		24											
		25	SP	SAND	BR	SAME AS ABOVE	W					95	CB
						4" OF MG-CG w/ PEA GRVL							
		26	CL	CLAY	GY	DENSE							
		27			GYBK	VERY DENSE		BKG					
		28											
		29	CL	CLAY	GYBK		W	BKG					
		30	SP	SAND	GYBR	MG-CG, FE STAIN, RND QTZ GRNS						80	CB
		31	SP	SAND	GYBR	MG, TRACE CG, WELL SRTD, RND, 10% SILT/CLAY	W	0.4					
		32				5% ARKOSIC GRNS							
		33				MG - CG							
		34					W	BKG					
		35	SP	SAND	LTBR	70% MG, 20% CG, 10% SILT/CLAY, MOD SRTD.	W	BKG				50	CB
		36				RND QTZ GRNS, 10% ARKOSIC							
		37					W	BKG					
		38											
		39	SP	SAND		CG-PEA GRVL, 1" RND PEBBLES							
				SHALE	GYGR	DENSE WEATHERED SHALE							

-BK AT 39.8'

BOS 39.5

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	WELL NO.	PAGE
OK376.01	COLEMAN	WICHITA, KANSAS	MW-12D	3 of 3

WELL LOCATION (N)

DRILLING METHOD: HOLLOW STEM AUGER	SAMPLING METHOD: CME CORE BARREL
DRILLING START 11-12-92 FINISH 11-13-92	DEVEL. START FINISH
STATIC DTW / DTO — TIME / DATE	DRILLED BY: LAYNE WESTERN
ELEVATION TOC / GL	LOGGED BY: WARREN FRENCH

WELL CONSTR.	LITHOLOGY	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	W.C.	(PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV.(FT.)	TYPE
				SHALE		2' OF SAND FILL w/						100	CB
						3' OF SHALE							
		41											
		42											
		43					W	BKG					
		44											
						TD = 45'0"							
		45											
		46											
		47											
		48											
		49											
		50											
		51											
		52											
		53											
		54											
		55											
		56											
		57											
		58											
		59											

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	WELL NO.	PAGE
OK376.01	COLEMAN	WICHITA, KANSAS	MW-13D	1 of 3

WELL LOCATION (N)

DRILLING METHOD: HOLLOW STEM AUGER	SAMPLING METHOD: CME CORE BARREL
DRILLING START 11-14-92 FINISH 11-14-92	DEVEL. START FINISH
STATIC DTW 1309.32 / DTO — TIME / DATE 12-1-92	DRILLED BY: LAYNE WESTERN
ELEVATION TOC 1324.75 / GL 1325.22	LOGGED BY: WARREN FRENCH

WELL CONSTR.	LITHOLOGY	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	W.C.	(PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV.(FT.)	TYPE
	2"		ML	SILT	BR	PLASTIC						40	CB
		1											
		2	ML	SILT	DKBR		D	BKG					
		3											
		4											
		5	CL	SILTY CLAY	DKBR	PLASTIC						100	CB
		6											
		7	CL	CLAY	BR	FIRM - VERY FIRM MOTTLED,	D	BKG					
		8				w/ FE STAIN							
		9											
		10	CL	CLAY	BR	SOME SILT. DENSE	D	BKG					
						HOMOGENOUS						100	CB
		11											
		12											
		13					D	BKG					
		14											
		15	CL	CLAY	BR	SAME AS ABOVE	D	BKG					
												80	CB
		16											
		17					M	BKG					
		18	SP	SAND	BR	FG. 20% MC. RND QTZ GRNS							
		19				w/ FE STAIN	W	BKG					

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	WELL NO.	PAGE
DK376.01	COLEMAN	WICHITA, KANSAS	MW-13D	2 OF 3

WELL LOCATION

N

DRILLING METHOD: HOLLOW STEM AUGER	SAMPLING METHOD: CME CORE BARREL
DRILLING START: 11-14-92 FINISH: 11-14-92	DEVEL. START FINISH
STATIC DTW / DTO — TIME / DATE	DRILLED BY: LAYNE WESTERN
ELEVATION TOC / GL	LOGGED BY: WARREN FRENCH

WELL CONSTR.	LITHOLOGY	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	W.C.	(PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV.(FT.)	TYPE
			SP	SAND	LTBR	MG, WELL SRTD, RND QTZ	W	BKG				40	CB
						GRNS, 15% ARKOSIC							
		21											
			SW	SAND	GYBK	25% MG, 50% CG, 25%	W	240					
		22				GRVL TO PEA GRVL/PEBBLE							
						RND QTZ GRNS, STRONG							
		23				HC ODOR w/ BLK STAIN							
		24											
		25	SP	SAND	GYBK	FG-MG, 10% CG, RND						20	CB
						QTZ GRNS, SRTD w/	W	19					
		26				10% ARKOSIC GRNS							
		27											
		28											
		29											
		30	SW	SAND	LTBR	50% MG, 40% CG, 10%	W	2.0				40	CB
						VCG, RND QTZ GRNS w/							
		31				15% ARKOSIC AND 5%							
						MAFIC GRNS	W	1.0					
		32											
		33											
		34											
		35	SP	SAND	LTBR	80% MG, 20% CG, SRTD,	W	0.6				60	CB
		36				RND QTZ GRNS w/ 15%							
						ARKOSIC AND TRACE MAFIC							
		37				GRNS, TRACE OF PEA GRVL							
		38					W	0.4					
		39											

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	WELL NO.	PAGE
DK376.01	COLEMAN	WICHITA, KANSAS	MW-13D	3 OF 3

WELL LOCATION

N

DRILLING METHOD: HOLLOW STEM AUGER	SAMPLING METHOD: CME CORE BARREL
DRILLING START: 11-14-92 FINISH: 11-14-92	DEVEL. START FINISH
STATIC DTW / DTO — TIME / DATE	DRILLED BY: LAYNE WESTERN
ELEVATION TOC / GL	LOGGED BY: WARREN FRENCH

WELL CONSTR.	LITHOLOGY	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	W.C.	(PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV.(FT.)	TYPE
			SP	SAND		10% FG, 80% MG, 10% CG	W					40	CB
		41											
						80% CG, 20% VCG, TRACE PEA	W	1.4					
		42		SHALE		PULLED HARD - NO RECVRY							
		43											
		44											
		45				TD = 45.0'							
		46											
		47											
		48											
		49											
		50											
		51											
		52											
		53											
		54											
		55											
		56											
		57											
		58											
		59											

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	WELL NO.	PAGE
OK376.01	COLEMAN	WICHITA, KANSAS	MW-14D	1 OF 2

WELL LOCATION N

DRILLING METHOD: HOLLOW STEM AUGER	SAMPLING METHOD: CME CORE BARREL
DRILLING START 11-14-92 FINISH 11-14-92	DEVEL. START FINISH
STATIC DTW 1310.76 DTO TIME DATE 12-1-92	DRILLED BY: LAYNE WESTERN
ELEVATION TOC 1325.35 GL 1325.69	LOGGED BY: OMAR ALMOUSLLI

WELL CONSTR.	LITHOLOGY	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	N.C.	(PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV.(FT.)	TYPE
2"			CL	CLAY	DKBR	SOME SILT							
		1											
		2				CUTTINGS	D	0.9					
		3											
		4	CL	CLAY	DKBR	SAME						40	CB
		5					D	0.6					
		6											
		7	CL	CLAY	DKBR	SAME							
		8											
		9	CL	CLAY	DKBR	15% SILT							
			ML	SILT	BR	LITTLE GRVL AND CG SD						100	CB
		10				SOME ODOR	D	1.1					
		11	CL	CLAY	DK YWBR	10% SILT, LITTLE GRVL							
		12											
		13					D	0.9					
		14	SC	CLAYEY SAND	GYBR	CLAY, SILT, VERY LOOSE SD						100	CB
		15				SOME GRVLS, WELL GRADED	D	45					
		16											
		17	SW	SAND	GYBR	WELL GRADED, SOME HC							
		18				ODOR	W	0.5					
		19	SP	SAND		POORLY GRADED, SOME CG SD							
						STRONG HC ODOR						50	CB

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	WELL NO.	PAGE
OK376.01	COLEMAN	WICHITA, KANSAS	MW-14D	2 OF 2

WELL LOCATION N

DRILLING METHOD: HOLLOW STEM AUGER	SAMPLING METHOD: CME CORE BARREL
DRILLING START 11-14-92 FINISH 11-14-92	DEVEL. START FINISH
STATIC DTW DTO TIME DATE	DRILLED BY: LAYNE WESTERN
ELEVATION TOC GL	LOGGED BY: OMAR ALMOUSLLI

WELL CONSTR.	LITHOLOGY	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	N.C.	(PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV.(FT.)	TYPE
			SP	SAND		SAME STRONG HC ODOR	W	260					
		21											
		22											
		23											
		24	SP	SAND	DK YWOR	FG-MG, MOTTLED w/ FE STAIN						100	CB
		25					W	BKG					
		26											
		27											
		28					W	BKG					
		29	SP	SAND	GYBR	VCG, SOME MOTTLED GYGR TO YW CLAY						45	CB
		30					W	BKG					
		31											
		32											
		33											
		34		SHALE	GYBK	SOME GY GR, DENSE						100	CB
		35				DENSE WEATHERED SHALE	W	0.6					
		36											
		37											
		38					W	1.6					
		39					W	2.6					
						TD = 39.0'							

BOS
34.5

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	WELL NO.	PAGE
OK376.01	COLEMAN	WICHITA, KANSAS	MW-15D	1 OF 2

WELL LOCATION (N)

DRILLING METHOD: HOLLOW STEM AUGER	SAMPLING METHOD: CME CORE BARREL
DRILLING START: 11-22-92 FINISH: 11-22-92	DEVEL. START / FINISH
STATIC DTW: 1308.25 DTO: TIME / DATE: 12-1-92	DRILLED BY: LAYNE WESTERN
ELEVATION TOC: 1324.42 GL: 1322.38	LOGGED BY: OMAR ALMOUSLLI

WELL CONSTR. | LITHOLOGY

DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS	W.C.	HNU (PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV. (FT.)	TYPE
				ASPHALT						100	CB
1	CL	SANDY CLAY	LTBR	50% CLAY, 25% SILT, 25% SD							
2	SP	SAND	BRBK	80% VFG SD, 20% SILT,							
				TRACE GRVLS							
3					D	0.3					
4											
5					D	0.3					
	CL	SILTY CLAY	BRBK	90% SILT/CLAY, 10% VFG SD,	D	0.5				60	CB
6				SOME GRVLS							
	CL	CLAY	YWBR	20% SILT, DENSE							
7											
8					D	10					
9											
10	CL	SILTY CLAY	GYBR	20% SILT, 5% VFG SD						100	CB
11											
12											
13					D	18					
14											
15					D	10					
										100	CB
16	SL	CLAYEY SAND	GYBR	VFG SD, 30% CLAY							
17			LTBR	FG SD, 40% CLAY							
18					D	54					
19	SP	SAND	LTBR	MG							
				CG	W						
			LTBR	VCG SD, PEA GRVLS	W	10					

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	WELL NO.	PAGE
OK376.01	COLEMAN	WICHITA, KANSAS	MW-15D	2 OF 2

WELL LOCATION (N)

DRILLING METHOD: HOLLOW STEM AUGER	SAMPLING METHOD: CME CORE BARREL
DRILLING START: 11-22-92 FINISH: 11-22-92	DEVEL. START / FINISH
STATIC DTW / DTO: TIME / DATE	DRILLED BY: LAYNE WESTERN
ELEVATION TOC / GL	LOGGED BY: OMAR ALMOUSLLI

WELL CONSTR. | LITHOLOGY

DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS	W.C.	(PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV. (FT.)	TYPE
	SP	SAND	LTBR	VCG, GRVL	W	10				10	CB
21											
22											
23											
24											
25	SP	SAND	LTBR	80% VFG, 20% FG	W						
26											
27											
28					W	40					
29											
30	SP	SAND		MG TO CG	W	80					
	SP	SAND		90% MG, 10% CG						70	CB
31											
32					W	15					
33					W	4.8					
34											
35	SP	SAND	LTBR	90% MG, 10% CG						80	CB
36					W	11					
37				70% CG, 30% MG							
38				VCG	W	4.5					
39	GP	GRAVEL	LTBR	POORLY GRADED							
		SHALE	DKBL	VERY DENSE							
			GY	T.D. AT 45 FT							

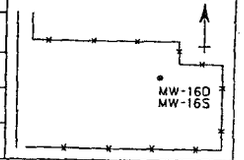
BOS
38.5

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	BORING NO.	PAGE
OK0376.003	COLEMAN NE	WICHITA, KS	MW-16D	1 of 2

DRILLING METHOD: HOLLOW STEM AUGER	SAMPLING METHOD: CONTINUOUS SAMPLER & SPLIT SPOON
DRILLING START 1/11/94 FINISH 1/11/94	DEVEL START - FINISH -
STATIC DTW - TIME - DTO - DATE -	DRILLED BY: LAYNE WESTERN
ELEVATION TOC - GL -	LOGGED BY: R. FACE

WELL LOCATION



LITHOLOGIC LOG	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	W.C.	THIU (PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV. (FT)	TYPE
					WHEAT FIELD AT SURFACE	M	0					CB
	1	CL	SILTY CLAY	DK BR	SILTY CLAY, IRON STAINING IN							
					UPPER 2', SILTY AT SURFACE,							
	2				LESS SILT WITH DEPTH							
	3											
	4											
	5	CL	CLAY/SILT		AS ABOVE. SMALL CARBONATE	M	0					CB
	6				CONCRETIONS. CLAY WITH SILT							
	7											
	8											
	9											
	10	CL	CLAY/SILT		10-15' LOST SHOE IN SAMPLER.	M	0					CB
	11				RECOVERED WITH PART OF CORE.							
					SAME AS ABOVE							
	12											
	13											
	14											
	15	CL	CLAY/SILT		AS ABOVE, WET	W	0					SS
	16											
	17											
	18											
	19											

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	BORING NO.	PAGE
OK0376.003	COLEMAN NE	WICHITA, KS.	MW-16D	2 of 2

DRILLING METHOD: SEE PAGE 1	SAMPLING METHOD: SEE PAGE 1
DRILLING START SEE PAGE 1 FINISH -	DEVEL. START SEE PAGE 1 FINISH -
STATIC DTW SEE PAGE 1 TIME - DTO - DATE SEE PAGE 1	DRILLED BY: SEE PAGE 1
ELEVATION TOC SEE PAGE 1 GL -	LOGGED BY: SEE PAGE 1

WELL LOCATION

N

SEE PAGE 1

LITHOLOGIC LOG	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	W.C.	THIU (PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV. (FT)	TYPE
					20-25' NO RETURN	W	0				0	SS
	21											
	22											
	23											
	24											
	25	SP	SAND/SILT	RD BR	25-27' FINE TO MED. GRAINED SAND						100	SS
					26.5' SOME BROWN SILT FEW FINES	W	0					
	26				26.5-27' REDDISH BROWN							
	27											
	28											
	29											
	30	SP	SND/GRVL		30-32' SAND WITH GRAVEL. FEW	W	0				100	SS
					FINES, MOSTLY QUARTZ SOME							
	31				FELDSPAR GRAVEL UP TO .5"							
	32											
	33											
	34											
	35	SP	SND/GRVL		35-37' AS ABOVE, LITTLE	W	0					SS
					MORE GRAVEL AT 37'							
	36											
	37											
	38											
	39				SHALE AT 39'							SS
					DT AT 40' - DARK GRAY SHALE							

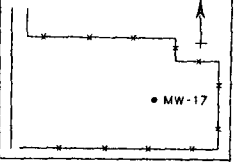
BLS 39

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	BORING NO.	PAGE
OK0376.003	COLEMAN NE	WICHITA, KS.	MW-17D	1 OF 2

DRILLING METHOD: HOLLOW STEM AUGER
SAMPLING METHOD: SPLIT SPOON
DRILLING START 1/13/94 FINISH 1/13/94
DEVEL. START - FINISH -
STATIC DTW - TIME - DTO - DATE -
DRILLED BY: LAYNE WESTERN
ELEVATION TOC - GL -
LOGGED BY: R. FACE

WELL LOCATION



LITHOLOGIC LOG	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	W.C.	HNU (PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV. (FT)	TYPE
		ML	SILTY CLAY	DK BR	0-5' CUTTINGS WERE SILT & CLAY							
	1				BK. TO DARK BROWN - NO RETURN							
					IN SAMPLER							
	2											
	3											
	4											
	5	CL	CLAY/SILT	BR	5-7' CLAY IN SILT, BROWN.	M	0				100	SS
	6				SMALL CARBONATE CONCRETIONS.							
					VERY STIFF							
	7											
	8											
	9											
	10	CL	CLAY/SILT	BR	10-12' AS ABOVE WITH SEVERAL	M	0				100	SS
	11				SMALL PIECES OF LS GRAVEL							
	12											
	13											
	14											
	15	CL	CLAY/SILT	DK BR	15-17' AS ABOVE, DARK BROWN	M	0				100	SS
	16											
	17											
	18											
	19											

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	BORING NO.	PAGE
OK0376.003	COLEMAN NE	WICHITA, KS.	MW-17D	2 OF 2

DRILLING METHOD: SEE PAGE 1
SAMPLING METHOD: SEE PAGE 1
DRILLING START SEE PAGE 1 FINISH -
DEVEL. START SEE PAGE 1 FINISH -
STATIC DTW SEE PAGE 1 TIME - DTO - DATE SEE PAGE 1
DRILLED BY: SEE PAGE 1
ELEVATION TOC SEE PAGE 1 GL -
LOGGED BY: SEE PAGE 1

WELL LOCATION

SEE PAGE 1

LITHOLOGIC LOG	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	W.C.	HNU (PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV. (FT)	TYPE
		SW	SAND	BR	20-22' WELL GRADED SAND,	W	1					SS
	21				COARSE TO FINE GRAINED QUARTZ,							
					FELDSPAR, WELL ROUNDED							
	22											
	23											
	24											
	25	SW	SAND	BR	25-27' BROWN, FINE TO MEDIUM	W	2					SS
	26				SAND, FEW FINES, WET							
	27											
	28											
	29											
	30	SW	SAND	BR	30-32' FINE TO COARSE SAND, FEW	W	2					SS
	31				FINES, QUARTZ & FELDSPAR,							
					ROUNDED							
	32											
	33											
	34											
	35											
	36	SP	SAND	BR	35-37' MEDIUM TO COARSE SAND,	W	0					SS
					TO 36.5' THEN LT GRAY CLAY							
	37				WITH VERY LITTLE SILT							
					SHALE AT 37'							
	38											
	39											

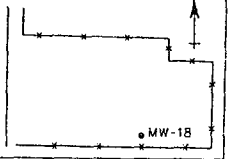
BOS
37

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	BORING NO.	PAGE
OK0376.003	COLEMAN NE	WICHITA, KS.	MW-18D	1 OF 2

DRILLING METHOD: HOLLOW STEM AUGER	SAMPLING METHOD: CONTINUOUS SAMPLER & SPLIT SPOON
DRILLING START 1/17/94 FINISH 1/17/94	DEVEL. START - FINISH -
STATIC DTW - DTO - TIME - DATE -	DRILLED BY: LAYNE WESTERN
ELEVATION TOC - GL -	LOGGED BY: R.FACE

WELL LOCATION



LITHOLOGIC LOG	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	W.C.	HNU (PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV.(FT)	TYPE
		CL	SILTY CLAY	BR	SILTY CLAY TO CLAY W/ SILT	M	0				100	CB
	1				BROWN AT SURFACE TO DK BROWN							
					IRON STAINING IN UPPER 3'							
	2											
	3											
	4											
	5	CL	CLAY/SILT	DK BR	5-10 DARK BROWN CLAY W/ SILT	M	0				100	CB
	6				STIFF, SMALL CARBONATE CONCRE-							
					TIONS, LITTLE IRON STAINING							
	7											
	8											
	9											
	10	CL	CLAY/SILT	DK BR	10-15 AS ABOVE, SLIGHTLY LESS	M	0				75	CB
	11				SILT							
	12											
	13											
	14											
	15	CL	SILTY CLAY	DK BR	15-19 FROM SILT TO CLAY, MOSTLY	W	0				100	CB
	16				SILTY CLAY, LITTLE SAND & TRACE							
					GRAVEL, DARK BROWN 19-19.5'							
	17				CLAY W/ SAND, 19.5-20' SAND							
					FINE TO MEDIUM WOME FINES,							
	18				CLEANER W/ DEPTH							
	19	CL	CLAY/SAND	BR								
		SP	SAND/SILT	BR								

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	BORING NO.	PAGE
OK0376.003	COLEMAN NE	WICHITA, KS.	MW-18D	2 OF 2

DRILLING METHOD: SEE PAGE 1	SAMPLING METHOD: SEE PAGE 1
DRILLING START SEE PAGE 1 FINISH -	DEVEL. START SEE PAGE 1 FINISH -
STATIC DTW SEE PAGE 1 DTO - TIME - DATE SEE PAGE 1	DRILLED BY: SEE PAGE 1
ELEVATION TOC SEE PAGE 1 GL -	LOGGED BY: SEE PAGE 1

WELL LOCATION

SEE PAGE 1

LITHOLOGIC LOG	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	W.C.	HNU (PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV.(FT)	TYPE
	21											
	22											
	23											
	24											
	25	SW	SAND	BR	25-27' FINE TO COARSE SAND	W	0	S			40	SS
					WITH GRAVEL, QUARTZ &							
	26				FELDSPAR, NO FINES							
	27											
	28											
	29											
	30	SW	SAND	BR	30-32' FINE TO COARSE SAND	W	1.1				30	SS
	31				QUARTZ & FELDSPAR,							
					WELL ROUNDED							
	32											
	33											
	34											
	35				35-37' FINE TO COARSE SAND	W	0.5				30	SS
	36				AS ABOVE							
	37											
	38											
					38.5' SHALE							
	39											
					TD 40'							

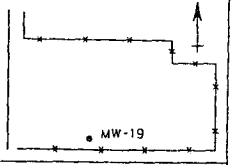
BDS 38.5

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	BORING NO.	PAGE
OK0376.003	COLEMAN NE	WICHITA, KS.	MW-19D	1 of 2

DRILLING METHOD: HOLLOW STEM AUGER	SAMPLING METHOD: CONTINUOUS SAMPLER & SPLIT SPOON
DRILLING START 1/19/94 FINISH 1/19/94	DEVEL START - FINISH -
STATIC DTW - DTO - TIME - DATE -	DRILLED BY: LAYNE WESTERN
ELEVATION TOC - GL -	LOGGED BY: R. FACE

WELL LOCATION



LITHOLOGIC LOG	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	W.C.	HNU (PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV (FT)	TYPE
					WINTER WHEAT FIELD- CHUNKS							
	1				OF CONCRETE AT SURFACE							
					0-4.5' NO RETURN							
	2											
	3											
	4											
	5	CL	SILTY CLAY	DK BR	4.5-9.5' DARK BROWN, SILTY	M	0	1			100	CB
					CLAY, SOME IRON STAINING,							
	6				SMALL CARBONATE CONCRETIONS							
	7											
	8											
	9											
	10	CL	SILTY CLAY	DK BR	9.5-14.5' CLAY WITH SILT, DARK	M	0	1			75	CB
					BROWN, VERY TIGHT							
	11											
	12											
	13											
	14											
	15	CL	CLAY/SILT	DK BR	14.5-19.5' AS ABOVE, AT 18-19' LT	W	0	1			90	CB
					BROWN SILT W/ CLAY & VERY							
	16				FINE SAND, 19-19.5' FINE TO							
					MEDIUM SAND FEW FINES, WET							
	17				BROWN SAND W/ QUARTZ &							
					FELDSPAR							
	18											
	19	SP	SAND/SILT	BR								

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	BORING NO.	PAGE
OK0376.003	COLEMAN NE	WICHITA, KS.	MW-19D	2 of 2

DRILLING METHOD: SEE PAGE 1	SAMPLING METHOD: SEE PAGE 1
DRILLING START SEE PAGE 1 FINISH -	DEVEL START SEE PAGE 1 FINISH -
STATIC DTW SEE PAGE 1 DTO - TIME - DATE SEE PAGE 1	DRILLED BY: SEE PAGE 1
ELEVATION TOC SEE PAGE 1 GL -	LOGGED BY: SEE PAGE 1

WELL LOCATION

SEE PAGE 1

LITHOLOGIC LOG	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	W.C.	HNU (PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV (FT)	TYPE
	21											
	22											
	23											
	24											
	25	SW	SAND	BR	24.5-26.5' FINE TO COARSE SAND	W	0				75	SS
					QUARTZ & FELDSPAR, SEVERAL							
	26				PIECES OF GRAVEL PRESENT							
					BROWN							
	27											
	28											
	29											
	30				29.5-31.5' AS ABOVE TO 31	W	0				60	SS
					THEN LAYER GRAVEL 2" THICK							
	31				OVERLYING SAND WITH LARGE							
					FRACTION OF SILT & CLAY/SAND							
	32				BELOW							
	33											
	34											
	35	SP	SAND	BR	34.5-36' FINE TO COARSE SAND	W	0				60	SS
					TO 35.5' THEN GRAY WEATHERED							
	36		SHALE	GY	SHALE							
	37											
	38											
					35.5-39' DRILLED ALTER. HARD							
	39				+/SOFT. AT 39' GRAY SHALE							
					LAMINATED LESS WEATHERED THAN	39						
					39' TO							

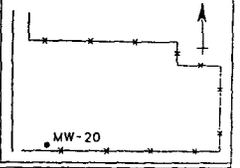
BOS 35.5

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	BORING NO.	PAGE
OK0376.003	COLEMAN NE	WICHITA, KS.	MW-20D	1 OF 2

DRILLING METHOD: HOLLOW STEM AUGER
SAMPLING METHOD: CONTINUOUS SAMPLER & SPLIT SPOON
DRILLING START 1/20/94 FINISH 1/20/94
DEVEL. START - FINISH -
STATIC DTW - TIME - DTO - DATE -
DRILLED BY: LAYNE WESTERN
ELEVATION TOC - GL -
LOGGED BY: R. FACE

WELL LOCATION



LITHOLOGIC LOG	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	W.C.	HNU (PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV (ft)	TYPE
		CL	SILTY CLAY	BR	0-5' BROWN, SILTY CLAY							
	1				IRON STAINING	M	0	1			80	CB
	2											
	3											
	4											
	5	CL	SILTY CLAY	DK BR	5-10' DARK BROWN GRADING TO	M	0	1			100	CB
	6				BROWN SILTY CLAY							
	7											
	8											
	9											
	10	CL	SILTY CLAY	BR	10-15' BROWN SILTY CLAY, WET AT	M	0	1			100	CB
	11				BOTTOM. SEVERAL PIECES OF							
					CARBONATE, UP TO 1/2"							
	12					W						
	13											
	14											
	15	CL	SILTY CLAY	BR	15-20' AS ABOVE, AT 18' FINE	W	0	1			75	CB
	16				TO COARSE SAND, QUARTZ &							
					FELDSPAR, SHARP CONTRAST							
	17											
	18	SP	SAND	BR								
	19											

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	BORING NO.	PAGE
OK0376.003	COLEMAN NE	WICHITA, KS.	MW-20D	2 OF 2

DRILLING METHOD: SEE PAGE 1
SAMPLING METHOD: SEE PAGE 1
DRILLING START SEE PAGE 1 FINISH -
DEVEL. START SEE PAGE 1 FINISH -
STATIC DTW SEE PAGE 1 TIME - DTO - DATE SEE PAGE 1
DRILLED BY: SEE PAGE 1
ELEVATION TOC SEE PAGE 1 GL -
LOGGED BY: SEE PAGE 1

WELL LOCATION

N

SEE PAGE 1

LITHOLOGIC LOG	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	W.C.	HNU (PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV (ft)	TYPE
	21											
	22											
	23											
	24											
	25	SW	SAND	BR	25-27' FINE TO COARSE SAND	W	0				50	SS
	26				SOME GRAVEL, LITTLE TO NO							
					FINES							
	27											
	28											
	29											
	30	SW	SAND	BR	AS ABOVE	W	0				50	SS
	31											
	32											
	33				STARTED DRILLING HARD AT 33'							
	34											
	35	SH	SHALE	GY	35-37' WEATHERED GRAY SHALE	W	0				40	SS
	36				LAMINATIONS PRESENT							
	37											
	38											
	39											

BDS
35

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	BORING NO.	PAGE
OK0376.003	COLEMAN NE	WICHITA, KS.	MW-21D	1 OF 2

WELL LOCATION N

DRILLING METHOD: HOLLOW STEM AUGER	SAMPLING METHOD: CONTINUOUS SAMPLER & SPLIT SPOON
DRILLING START 1/19/94 FINISH 1/19/94	DEVEL. START - FINISH -
STATIC DTW - DTO - TIME - DATE -	DRILLED BY: LAYNE WESTERN
ELEVATION TOC - GL -	LOGGED BY: J. O'NEAL

LITHOLOGIC LOG	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	W.C.	HNU (PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV.(FT)	TYPE
		CL	SILTY CLAY	BR	ROOTLETS, 0-3' ALTERNATING	D	0	1			5	CB
	1				LAYERS OF SILT SEDIMENT.							
					0-1' NON PLASTIC							
	2				1-5' MEDIUM PLASTICITY							
	3											
	4											
	5	CL	SILTY CLAY	BR	ABUNDANT CLAY	D	0	2			5	CB
					SOME GYPSUM LENSES AT 3.0-9.5							
	6				MEDIUM PLASTICITY							
	7											
	8											
	9											
	10	CL	SILTY CLAY	BR	SAME AS ABOVE	D	0	3			5	CB
	11											
	12											
	13											
	14											
	15	CL	SILTY CLAY	BR	SAME AS ABOVE	D	1	4			2.5	CB
	16	SC	SAND	T/BR	SAND WITH SOME FINES	M						
	17	SP	CLEAN SAND	TAN	GRAVEL LENSE AT 17.0 - 18.3	W						
	18						0					
	19	SP	CLEAN SAND	TAN	MEDIUM GRAINED	W						

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	BORING NO.	PAGE
OK0376.003	COLEMAN NE	WICHITA, KS.	MW-21D	2 OF 2

WELL LOCATION N

SEE PAGE 1

DRILLING METHOD: SEE PAGE 1	SAMPLING METHOD: SEE PAGE 1
DRILLING START SEE PAGE 1 FINISH -	DEVEL. START SEE PAGE 1 FINISH -
STATIC DTW SEE PAGE 1 DTO - TIME - DATE SEE PAGE 1	DRILLED BY: SEE PAGE 1
ELEVATION TOC SEE PAGE 1 GL -	LOGGED BY: SEE PAGE 1

LITHOLOGIC LOG	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	W.C.	HNU (PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV.(FT)	TYPE
		SP	CLEAN SAND	TAN	GRAVEL AT 21-22', SOME MED &	W	0	5			2	SS
	21				FINE GRAINED DISTRIBUTED							
					THROUGHOUT, POORLY SORTED							
	22											
	23											
	24											
	25	SP	CLEAN SAND	TAN	25.5-26' GRAVEL LENSE	W	1	6			1.5	SS
	26				SOME FELOSPAR IN 26-27.5							
					MEDIUM GRAINED TO COARSE							
	27				GRAINED SAND							
	28											
	29											
	30	SP	CLEAN SAND	TAN	GRAVEL WITH MED GRAINED SAND.	W	0	7			1.5	SS
	31				POORLY SORTED							
	32											
	33											
	34											
	35	SP	CLEAN SAND	TAN	35.0-35.5' MED GRAINED SAND.	W	0	8			1.5	SS
	36				35.5-36.5' GRAVEL.							
					MODERATELY SORTED							
	37		SHALE		BEDROCK AT 36.5'							
					WEATHERED SHALE							
	38											
	39											

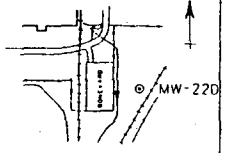
BDS
36.5

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	BORING NO.	PAGE
OK0530.001	COLEMAN, NE	WICHITA, KS	MW-22D	1 of 2

DRILLING METHOD: HOLLOW STEM AUGER	SAMPLING METHOD: SPLIT SPOON
DRILLING START 1015 FINISH 1220	DEVEL START FINISH
STATIC DTW DTO; TIME DATE 2/22/95	DRILLED BY: GEOCORE
ELEVATION TOC GL	LOGGED BY: DMM

WELL LOCATION



LITHOLOGIC LOG	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	W.C.	HNU (PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV %	TYPE
	1	CL	SILTY CLAY	BK	SILTY, 30-40% SILT, FIRM	D	-	-	-	-	-	CU
	2											
	3	CL	SILTY CLAY	BK	AS ABOVE							
	4											
	5	CL	SILTY CLAY	BK	20-30% SILT, FIRM, DENSE	D	BG	1		-	100	SS
	6											
	7											
	8											
	9											
	10	CL	CLAY	BR	MOTTLED, 10-20% SILT, TR FG-MG	D	BG	2		-	100	SS
	11				SAND, SOME FE STAINING, FIRM							
	12											
	13											
	14	CL	CLAY W/	BR	SAND INCREASES W/ DEPTH,							
	15		SAND		CG-VCG, LOOSE	M	BG	3		-	100	SS
	16	SP	SAND	BR	SAND STRINGERS 4" CG-VCG,							
					POORLY SORTED, WELL ROUNDED							
	17	CL	SANDY CLAY	BR	SANDY CLAY, MG-FG, DECREASE							
					IN CG SAND, LOOSE							
	18											
	19											

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	BORING NO.	PAGE
OK0530.001	COLEMAN, NE	WICHITA, KS	MW-22D	2 of 2

DRILLING METHOD: SEE PAGE 1	SAMPLING METHOD: SEE PAGE 1
DRILLING START SEE PAGE 1 FINISH -	DEVEL START SEE PAGE 1 FINISH -
STATIC DTW SEE PAGE 1 DTO - ; TIME - DATE SEE PAGE 1	DRILLED BY: SEE PAGE 1
ELEVATION TOC SEE PAGE 1 GL -	LOGGED BY: SEE PAGE 1

WELL LOCATION

N

SEE PAGE 1

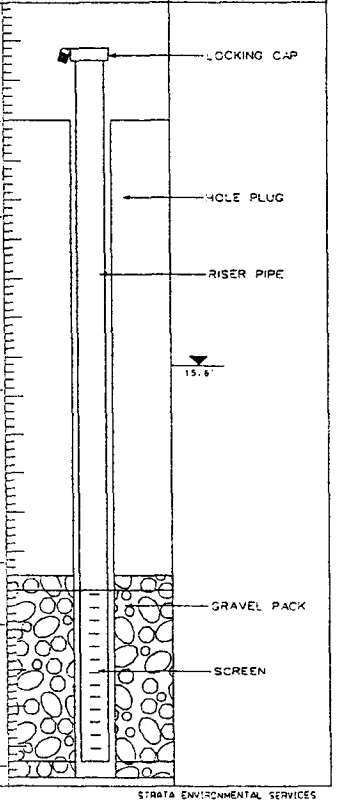
LITHOLOGIC LOG	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	W.C.	HNU (PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV %	TYPE
	21	SW	SAND	BR	POORLY SORTED, MG-CG, 15-20% FG,	W	BG	4		-	90	SS
					TRACE PEA GRAVEL, SOME CLEAR							
					QTZ, ROUNDED, LOOSE							
	22	SP	SAND	BR	MG-CG SAND, WELL ROUNDED	W	2	5		-	95	SS
	23				DECREASE IN FG							
	24	SP	SAND	BR	FG-MG, DECREASE IN CG	W	2	6		-	45	SS
	25				WELL ROUNDED							
		CL	SANDY CLAY	LT BR	40-60% CLAY, FG SAND, INCREASES	W	2	6		-	45	SS
	26				W/DEPTH, FIRM CLAY (STRINGER 6")							
		SP	SANDY CLAY	BR	MG-FG, WELL ROUNDED CLAY	W	BG	7		-	80	SS
	27				STRINGER 3-4" BR GY							
		SP	SAND	BR	FE STAINED, FG-MG, TR CLEAR							
	28				QTZ, ROUNDED							
		SP	SAND	BR	AS ABOVE	W	BG	8		-	65	SS
	29											
	30	SP	SAND	BR	FG-MG, ROUNDED SOME CLEAR QTZ	W	BG	9		-	60	SS
	31											
	32	CL	SAND CLAY	GY	OLIVE, WEATHERED SHALE							
					STIFF, FE STAINED							
	33				SAND HEAVED, NO SAMPLE							
	34											
	35		SHALE	GY	1 WEATHERED SHALE LAYER							
					STRATIFIED, LAYERED, SAMPLE							
	36				FROM AUGERS							
	37		CLAY/SHALE	GY	CLAY, BLUISH GRAY CLAY							
			W/ SAND		WEATHERED SHALE, SOME FG-MG							
	38				SAND							
			SHALE	GY	STRATIFIED, FIRM, BEDROCK							
	39				TD=38 FT							

34.5 BDS

Well No. MW#1

MONITORING WELL SHEET	PROJECT NUMBER G139-91	8. DRILLING AGENCY HARP WELL AND PUMP SERVICE — SHEET 1 OF 1 SHEETS
1. PROJECT CONTINENTAL TANK CAR CORP.		9. DRILLING METHOD HOLLOW STEM AUGER
2. LOCATION 1136 E. 37 ST. N.		10. DEVELOPMENT METHOD & DATE 8/24/1988 PUMPING
WICHITA, KS		11. ELEVATION OF MEASURING POINT 1325.51
3. WELL NO. (as shown on drawing title and file number) MW#1		12. ELEVATION GROUND WATER 1307.97
4. TYPE OF COMPLETION ☒ ABOVE GROUND ☐ FLUSH MOUNT		13. DATE HOLE 8/24/1988 — STARTED NA — COMPLETED NA
5. WELL CASING SIZE & TYPE 2 INCH PVC		14. ELEVATION TOP OF GROUND 1323.57
6. SCREEN LENGTH & TYPE 12 FEET 2 INCH PVC		15. SIGNATURE OF INSPECTOR DAVID COMBS
7. TOTAL DEPTH OF HOLE 42.0 FEET		

DEPTH (FT.)	LEGEND	VISUAL CLASSIFICATION OF MATERIALS	WELL CONSTRUCTION	NOTES
3, 5		CLAY (CH) (2.0 - 6.0) BLACK/BROWN.		
10, 15		CLAY (CH) (6.0 - 17.0) BROWN.		
22, 25		SAND (SP) (17.0 - 29.0) FINE TO COARSE GRAINED SAND AND COARSE GRAVELS.		
30		CLAY (CH) (29.0 - 32.0) TAN.		
35, 40		SAND (SP) (32.0 - 41.0) FINE TO COARSE GRAINED SAND AND COARSE GRAVELS.		
		SHALE (SH) (41.0 - 42.0) BLACK.		



STRATA ENVIRONMENTAL SERVICES

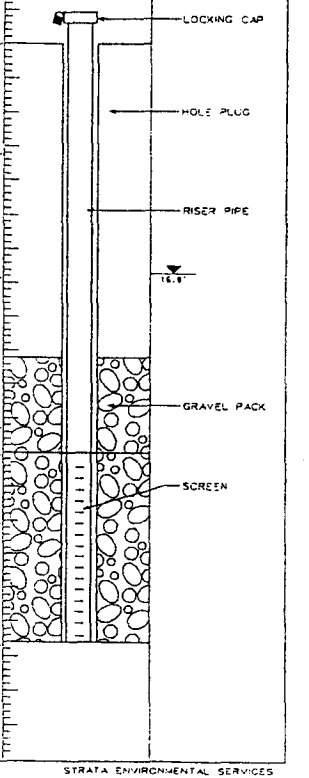
FIGURE 13A

BOS 41

Well No. MW#2

MONITORING WELL SHEET	PROJECT NUMBER G-139-91	8. DRILLING AGENCY HARP WELL AND PUMP SERVICE — SHEET 1 OF 1 SHEETS
1. PROJECT CONTINENTAL TANK CAR CORP.		9. DRILLING METHOD HOLLOW STEM AUGER
2. LOCATION 1136 E. 37 ST. N.		10. DEVELOPMENT METHOD & DATE 8/24/1988 PUMPING
WICHITA, KS		11. ELEVATION OF MEASURING POINT 1326.15
3. WELL NO. (as shown on drawing title and file number) MW#2		12. ELEVATION GROUND WATER 1309.35
4. TYPE OF COMPLETION ☒ ABOVE GROUND ☐ FLUSH MOUNT		13. DATE HOLE 8/24/1988 — STARTED NA — COMPLETED NA
5. WELL CASING SIZE & TYPE 2 INCH PVC		14. ELEVATION TOP OF GROUND 1323.47
6. SCREEN LENGTH & TYPE 14.0 FEET 2 INCH PVC		15. SIGNATURE OF INSPECTOR DAVID COMBS
7. TOTAL DEPTH OF HOLE 44.0 FEET		

DEPTH (FT.)	LEGEND	VISUAL CLASSIFICATION OF MATERIALS	WELL CONSTRUCTION	NOTES
2, 5		CLAY (CH) (0.0 - 8.0) BLACK/BROWN.		
12, 15		CLAY (CH) (8.0 - 17.0) BROWN.		
20, 25		SAND (SP) (17.0 - 28.0) FINE TO COARSE GRAINED SAND AND COARSE GRAVELS.		
30		CLAY (CH) (28.0 - 30.0) TAN.		
35		SAND (SP) (30.0 - 35.0) FINE TO COARSE GRAINED SAND AND MEDIUM GRAVELS.		
40		SAND (SP) (35.0 - 44.0) COARSE GRAINED SAND AND GRAVELS.		
45, 50		SHALE (SH) (44.0)		



STRATA ENVIRONMENTAL SERVICES

FIGURE 13B

BOS 44

Well No. MW-4-D

MONITORING WELL SHEET	PROJECT NUMBER G-139-91	8. DRILLING AGENCY LAYNE-WESTERN; SHEET 1 OF 1 SHEETS
1. PROJECT CONTINENTAL TANK CAR CORP.		9. DRILLING METHOD HOLLOW STEM AUGER
2. LOCATION 1126 E. 37 ST. N. WICHITA, KS		10. DEVELOPMENT METHOD & DATE 5/7/1993 PUMPING
3. WELL NO. (As shown on drawing title and file number) MW-4-D		11. ELEVATION OF MEASURING POINT 1325.44
		12. ELEVATION GROUND WATER 1305.14
4. TYPE OF COMPLETION ☒ ABOVE GROUND ☐ FLUSH MOUNT		13. DATE HOLE 4/27/1993; STARTED 1220; COMPLETED 1600
5. WELL CASING SIZE & TYPE 2 INCH PVC		14. ELEVATION TOP OF GROUND 1324.14
6. SCREEN LENGTH & TYPE 5.0 FEET 2 INCH PVC		15. SIGNATURE OF INSPECTOR DAVID COMBS
7. TOTAL DEPTH OF HOLE 47.0 FEET		

DEPTH (ft)	LEGEND	VISUAL CLASSIFICATION OF MATERIALS	WELL CONSTRUCTION	NOTES
0			LOCKING CAP	
2		CLAY (CH) (0.2 - 8.0) BLACK, STIFF.		
5		TCE <1.0 UG/KG	CEMENT GROUT	
10		CLAY (CH) (8.0 - 17.0) BROWN. TCE <1.0 UG/KG	RISER PIPE	
15		TCE 1.2 UG/KG		
20		SAND (SP) (17.0 - 32.0) MEDIUM GRAINED. TCE 2.6 UG/KG	BENTONITE 19.0'	
25				
30		TCE <1.0 UG/KG		
35		CLAY (CH) (32.0 - 36.0)		
40		SAND (SP) (36.0 - 46.0) MEDIUM TO COARSE GRAINED. TCE <1.0 UG/KG	SAND PACK; SCREEN	
45		SHALE (SH) (46.0 - 47.0)		
50				

STRATA ENVIRONMENTAL SERVICES

FIGURE 13E

B05 46

Well No. MW-5-D

MONITORING WELL SHEET	PROJECT NUMBER G-139-91	8. DRILLING AGENCY LAYNE-WESTERN; SHEET 1 OF 1 SHEETS
1. PROJECT CONTINENTAL TANK CAR CORP.		9. DRILLING METHOD HOLLOW STEM AUGER
2. LOCATION 1126 E. 37 ST. N. WICHITA, KS		10. DEVELOPMENT METHOD & DATE 5/7/1993 PUMPING
3. WELL NO. (As shown on drawing title and file number) MW-5-D		11. ELEVATION OF MEASURING POINT 1323.29
		12. ELEVATION GROUND WATER 1304.24
4. TYPE OF COMPLETION ☐ ABOVE GROUND ☒ FLUSH MOUNT		13. DATE HOLE 4/22/1994; STARTED 1540; COMPLETED 1830
5. WELL CASING SIZE & TYPE 2 INCH PVC		14. ELEVATION TOP OF GROUND 1323.24
6. SCREEN LENGTH & TYPE 5.0 FEET 2 INCH PVC		15. SIGNATURE OF INSPECTOR DAVID COMBS
7. TOTAL DEPTH OF HOLE 46.0 FEET		

DEPTH (ft)	LEGEND	VISUAL CLASSIFICATION OF MATERIALS	WELL CONSTRUCTION	NOTES
0			LOCKING CAP	
2		CLAY (CH) (0.0 - 5.0) BLACK, STIFF.		
5		TCE <1.0 UG/KG	CEMENT GROUT	
10		CLAY (CH) (5.0 - 17.0) BROWN.	RISER PIPE	
15		TCE <1.0 UG/KG		
20		SAND (SC) (17.0 - 21.0) CLAYEY. TCE 2.5 UG/KG	19.0'	
25		SAND (SP) (21.0 - 29.0) MEDIUM GRAINED.	BENTONITE	
30		SAND (SP) (29.0 - 40.0) MEDIUM TO COARSE GRAINED.		
35				
40		SAND (SP) (40.0 - 46.0) COARSE GRAINED.	SAND PACK; SCREEN	
45		SHALE (SH) (46.0)		
50				

STRATA ENVIRONMENTAL SERVICES

FIGURE 13G

B05 46

KGS Hydrology | Water Well Database Query | Specific Water Well Detail

"E"

Well T27S, R1E, Sec. 4, CSSESE, Action: Constructed

Location Info	
County: Sedgwick	**Location:** T27S, R1E, Sec. 4, CSSESE
Owner: DERBY REFINERY	**Status:** Constructed
Directions: NEAR CLEVELAND & 21ST STREET IN WICHITA	
Longitude: -97.31935	**Latitude:** 37.72441
View section on interactive map This link will create a new window and display an interactive map of this well and its neighbors.	

General Info	
Well Depth: 34 ft.	**Elevation:** ft.
Static Water Level: 17 ft.	**Well Use:** Other
Est. Yield: 0 gpm	**Other ID:**

Driller Info	
Driller: Richard Henkle Drilling & Supply Co. Inc.	**License #:** 145
Comp. Date: 10-Oct-1988	**DWR Applic. #:** 88910
Chemical Sample Submitted?: N	

Casing Info
Casing Type: PVC
Diam: 12 in. to 34 ft.
Diam: 0 in. to 0 ft.
Diam: 0 in. to 0 ft.

Grout Info
Grout used: BENTONITE
From: 0 to 13 ft.
From: 0 to 0 ft.
From: 0 to 0 ft.

Contamination Info	
Contamination type: FUEL STORAGE	
Direction:	**Distance:** 0

Screen and Perforation Info	
Screen Type: TORCH CUT	**Screen Openings:** MILL SLOT
From: 14 ft. to 24 ft.	**From:** 0 ft. to 0 ft.
From: 0 ft. to 0 ft.	**From:** 0 ft. to 0 ft.

Lithologic Log	
From: 0 ft. to 18 ft.	**Type:** CLAY
From: 18 ft. to 19 ft.	**Type:** SANDY CLAY
From: 19 ft. to 24 ft.	**Type:** MEDIUM SAND
From: 24 ft. to 28 ft.	**Type:** CLAY
From: 28 ft. to 38 ft.	**Type:** MEDIUM SAND
From: 38 ft. to 39 ft.	**Type:** SHALE

Kansas Geological Survey
Comments to webadmin@kgs.ku.edu
URL=http://www.kgs.ku.edu/Magellan/WaterWell/index.html
Display Programs Updated March 25, 2003
Data added continuously.

Elev ~~1312~~
- 38
1274

BII-17-93

SB-17-93
MW-250

PAGE 1 OF 1

CLIENT: Coastal Refining & Marketing

PROJECT NO.: 3401

DATE DRILLED: 8-20-93

SITE: Wichita Refinery

LOCATION: 100' W of Tank #9 Adjacent to Road in N portion of Refinery

DRILLING COMPANY: Layne-Western

RIG: Mobile B-57

BOREHOLE: 8" O.D.

LOGGED BY: Mark Clemence

DRILLING METHOD: Hollow Stem Auger

FLUID: None

SAMPLING PROCEDURE: Split Barrel

INTERVAL: Continuous

TOTAL DEPTH: 23'

	MATERIAL	DIAMETER	SIZE	INTERVAL (FROM LAND SURFACE, ft.)
CASING:	Sch. 40 PVC	2"	N/A	+2'-8'
SCREEN:	Sch. 40 PVC	2"	0.020.	8'-23'
FILTER PACK:	Sand	N/A	8-20	6'-23'
SEAL:	Bentonite	N/A	Pellets	4'-6'
GROUT:	Cement	N/A	N/A	0-4'

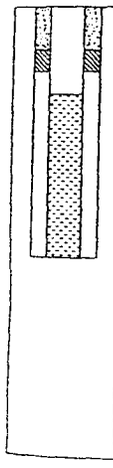
N/A - NOT APPLICABLE

DEVELOPMENT: Used Submersible Pump-Removed Approx 20 Gallons

NOTES:

ELEVATIONS: G.L. 1311.95 T.O.C. 1313.95 RISER HT. 2'

WELL CONSTRUCTION



DEPTH (FT.)	LITHOLOGY	USCS	LITHOLOGIC DESCRIPTION/COMMENTS	SAMPLE	ORGANIC VAPOR READINGS (ppm)
		CL	0-2' FILL: Rocks, concrete fragments		
5		CL	2'-4' CLAY: Black, medium to high plasticity, slightly moist, odor		
		CL	4'-7' CLAY: Silty, green-gray, medium to low plasticity, some iron oxide, slightly moist, odor, grades to sandy clay @ 5.25'		
10		CL	7'-9' CLAY: Green-gray, hard, high plasticity, moist, odor		9
15		CL	9'-20' CLAY: Sandy green-gray, fine grained, low to medium plasticity, moist, odor, grades to clayey sand @ 10.5', light brown layer from 10.25' to 10.5', moist, odor, black mottling throughout		
20		SM	20'-22' SAND: Green-gray, fine to medium grained, fair sorting, wet, odor, small rounded cobble sized clasts		21
		SM	22'-23' SAND: Very coarse clasts filling auger-unable to use sample from this point to total depth		
25		CL	23' CLAY		
			T.D. = 23'		
30					
35					
40					

BDS 23

BII 20-93
MW-270

PAGE 1 OF 1

CLIENT: Coastal Refining & Marketing

PROJECT NO.: 3401

DATE DRILLED: 8-23-93

SITE: Wichita Refinery

LOCATION: NE Corner of Berm @ AST #102

DRILLING COMPANY: Layne-Western

RIG: Mobile B-57

BOREHOLE: 8" O.D.

LOGGED BY: Mark Clemence

DRILLING METHOD: Hollow Stem Auger

FLUID: None

SAMPLING PROCEDURE: Split Barrel

INTERVAL: Continuous

TOTAL DEPTH: 29'

	MATERIAL	DIAMETER	SIZE	INTERVAL (FROM LAND SURFACE, ft.)
CASING:	Sch. 40 PVC	2"	N/A	+2'-12'
SCREEN:	Sch. 40 PVC	2"	0.020"	12'-27'
FILTER PACK:	Sand	N/A	8-20	10'-29'
SEAL:	Bentonite	N/A	Pellets	8'-10'
GROUT:	Cement	N/A	N/A	0-8'

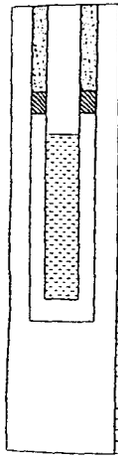
N/A - NOT APPLICABLE

DEVELOPMENT: Used Submersible Pump-Removed Approx 20 Gallons

NOTES:

ELEVATIONS: G.L. 1311.82 T.O.C. 1313.82 RISER HT. 2'

WELL CONSTRUCTION



DEPTH (FT.)	LITHOLOGY	USCS	LITHOLOGIC DESCRIPTION/COMMENTS	SAMPLE	ORGANIC VAPOR READINGS (ppm)
		CL	0-1.25' SURFACE FILL 1.25'-3' CLAY: Black, medium to high plasticity, moist, no odor		26.5
5		CL	3'-6' CLAY: Silty, green-gray, black mottling, medium plasticity, moist, odor		
		CL	6'-9.2' CLAY: Green-gray, medium plasticity, moist, odor		30.1
10		CL	9.2'-9.75' CLAY: Silty, green-gray, medium plasticity, moist, odor		
		SM	9.75'-13.25' SAND: Clayey, green-gray, black mottling, fine grained, well sorted, moist, odor		
		SM	13.25'-14' SAND: Light brown, medium grained, fair to poor sorting, moist, odor 14'-15' NO RECOVERY		
15		SM	15'-17.5' SAND: Medium grained, color change @ 17' to green-gray, strong odor		633
			17.5'-20.5' NO RECOVERY 20.5'-20.75' SAND: Very fine grained, green-gray, well sorted, wet		
20		SM	20.75'-22' SAND: Fine to medium grained, green-gary, fair sorting, wet		
		SM	22'-25' NO RECOVERY 25'-25.75' SAND: Light brown, fine grained, well sorted, wet		
25		SM	25.75'-27' SAND: Light brown, medium to coarse grained, poor sorting, wet		
		SM			
		CL	27'-29' CLAY T.D. = 29'		
30					
35					
40					

BH22-93
MW-280

PAGE 1 OF 1

CLIENT: Coastal Refining & Marketing
PROJECT NO.: 3401
DATE DRILLED: 8-24-93
SITE: Wichita Refinery
LOCATION: Eastern Edge of Refinery @ NE Corner of AST # 101
DRILLING COMPANY: Layne-Western
RIG: Mobile B-57
BOREHOLE: 8" O.D.
LOGGED BY: Mark Clemence
DRILLING METHOD: Hollow Stem Auger
FLUID: None
SAMPLING PROCEDURE: Split Barrel
INTERVAL: Continuous
TOTAL DEPTH: 27'

	MATERIAL	DIAMETER	SIZE	INTERVAL (FROM LAND SURFACE, ft.)
CASING:	Sch. 40 PVC	2"	N/A	+2'-14'
SCREEN:	Sch. 40 PVC	2"	0.020"	14'-24'
FILTER PACK:	Sand	N/A	8-20	12'-27'
SEAL:	Bentonite	N/A	Pellets	10'-12'
GROUT:	Cement	N/A	N/A	0-10'

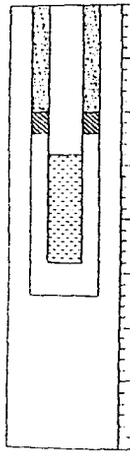
N/A - NOT APPLICABLE

DEVELOPMENT: Used Submersible Pump-Removed Approx 20 Gallons

NOTES:

ELEVATIONS: G.L. 1311.46 T.O.C. 1313.46 RISER HT. 2'

WELL CONSTRUCTION



DEPTH (FT.)	LITHOLOGY	USCS	LITHOLOGIC DESCRIPTION/COMMENTS	SAMPLE	ORGANIC VAPOR READINGS (ppm)
			0-1.5' SURFACE: Fill, rocks		
5		CL	1.5'-6.25' CLAY: Black, medium plasticity, moist, faint odor		16
		CL	6.25'-12.5' CLAY: Silty, green-brown, black mottling, medium plasticity, moist, odor		12
10		SM	12.5'-14' SAND: Light tan, very fine grained, well sorted, dry to moist, slight odor		3
			14'-15' NO RECOVERY		
15		SM	15'-17' SAND: Light tan-brown, fine to medium grained, well to fair sorting, coarsens downward, moist to wet, odor, some pebbles in coarsen section		
			17'-20' NO RECOVERY		
20		SM	20'-20.75' SAND: Green-gray, very fine grained, well sorted, wet, odor		
		SM	20.75'-22' SAND: Light brown, coarse to medium grained, poorly sorted, wet, odor		
25		SM	22'-25.5' SAND: Light brown, medium grained, fair sorting, wet, odor		
		CL	25.5'-27' CLAY		
			T.D. = 27'		
30					
35					
40					

BH27-93
MW-330

PAGE 1 OF 1

CLIENT: Coastal Refining & Marketing
PROJECT NO.: 3401
DATE DRILLED: 8-26-93
SITE: Wichita Refinery
LOCATION: 35' E of Cleveland Ave. 600' WSW of AST #7
DRILLING COMPANY: Layne-Western
RIG: Mobile B-57
BOREHOLE: 8" O.D.
LOGGED BY: Mark Clemence
DRILLING METHOD: Hollow Stem Auger
FLUID: None
SAMPLING PROCEDURE: Split Barrel
INTERVAL: Continuous
TOTAL DEPTH: 32'

	MATERIAL	DIAMETER	SIZE	INTERVAL (FROM LAND SURFACE, ft.)
CASING:	Sch. 40 PVC	2"	N/A	+2'-12.5'
SCREEN:	Sch. 40 PVC	2"	0.020"	12.5'-27.5'
FILTER PACK:	Sand	N/A	8-20	10'-32'
SEAL:	Bentonite	N/A	Pellets	7'-10'
GROUT:	Cement	N/A	N/A	0-7'

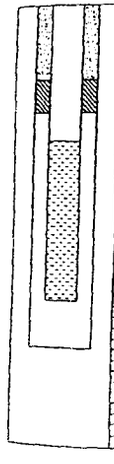
N/A - NOT APPLICABLE

DEVELOPMENT: Used Submersible Pump-Removed Approx 20 Gallons

NOTES:

ELEVATIONS: G.L. 1311.81 T.O.C. 1313.81 RISER HT. 2'

WELL CONSTRUCTION



DEPTH (FT.)	LITHOLOGY	USCS	LITHOLOGIC DESCRIPTION/COMMENTS	SAMPLE	ORGANIC VAPOR READINGS (ppm)
			0-1.5' SURFACE: Slag, rock fragments, brick fragments, fill		
			1.5'-5' NO RECOVERY		
5			5'-6.5' FILL: Slag, rock fragments, brick fragments		
		CL	6.5'-13.75' CLAY: Silty, yellow-brown, grades down to green-gray, black mottling, very hard, medium to low plasticity, moist, odor		336
10					
15		SM	13.75'-16.5' SAND: Clayey, green-gray, fine grained, very hard, wet, strong odor		531
		SM	16.5'-20' SAND: Fine to coarse grained, green-gray, poorly sorted, wet, odor, with granules and cobbles		
20		SM	20'-22' SAND: Light brown, very fine to medium grained, some granules, coarsens from 20.75'-21.5', fair sorting, wet, odor		
			22'-25'		
25			25'-27' NO RECOVERY		
30		CL	27'-32' CLAY		
			T.D. = 32'		
35					
40					

B1128-93
MW-340

PAGE 1 OF 1

CLIENT: Coastal Refining & Marketing
PROJECT NO: 3401
DATE DRILLED: 8-26-93
SITE: Wichita Refinery
LOCATION: NE Corner of Berm @ AST #4
DRILLING COMPANY: Layne-Western
RIG: Mobile B-57
BOREHOLE: 8" O.D.
LOGGED BY: Mark Clemence
DRILLING METHOD: Hollow Stem Auger
FLUID: None
SAMPLING PROCEDURE: Split Barrel
INTERVAL: Continuous
TOTAL DEPTH: 27'

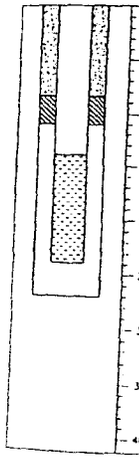
	MATERIAL	DIAMETER	SIZE	INTERVAL (FROM LAND SURFACE, ft.)
CASING:	Sch. 40 PVC	2"	N/A	+2'-14'
SCREEN:	Sch. 40 PVC	2"	0.020"	14'-24'
FILTER PACK:	Sand	N/A	8-20	11'-27'
SEAL:	Bentonite	N/A	Pellets	8.5'-11'
GROUT:	Cement	N/A	N/A	0-8.5'

N/A - NOT APPLICABLE

DEVELOPMENT: Used Submersible Pump-Removed Approx. 20 Gallons

NOTES:

ELEVATIONS: G.L. 1310.40 T.O.C. 1312.40 RISER HT. 2'



DEPTH (FT.)	USCS	LITHOLOGIC DESCRIPTION/COMMENTS	SAMPLE	ORGANIC VAPOR READINGS (ppm)
	CL	0-1.25' FILL: Rock fragments 1.25'-3.5' CLAY: Black, high plasticity, moist, odor		321
5	CL	3.5'-13.75' CLAY: Silty, green-gray, black mottling, medium to low plasticity, slightly, moist, odor, with iron oxide staining and calcium crbonate nodules throughout		190
10				422
15	SM	13.75'-15.25' SAND: Clayey, green-gray, fine grained, moist, odor		
	SM	15.25'-17.75' SAND: Fine to medium grained, gree-gray, coarsens downward, wet, odor		
		17.75'-20' NO RECOVERY		
20	SM	20'-22' SAND: Green-gray, fine to medium grained, fair sorting, some small gravelles, wet, odor		
25	SM	22'-26.25' SAND: Fine to medium grained, fines downward, green-gray, fair sorting, some cobbles, wet, odor		
	CL	26.25'-27' CLAY T.D. = 27'		
30				
35				
40				

Drilling Log

Project Name	EXCEL	Boring No.	MW-2B-91
Project No.	89-148-4-006	Page	1 of 3
Ground Elevation	1314.47	Location	29TH & MEAD SITE
Total Footage	46.5		

Drilling Type	Hole Size	Overburden Footage	Bedrock Footage	No. of Samples	No. Core Boxes	Depth To Water	Date Measured
HSA	8-1/4"	42.5	4.0	9	0	see remarks	

Drilling Co.	Layne-Western, Wichita, Kansas	Driller (s)	Buck Blank, Andy Contreras
Drilling Rig.	Mobile B-57	Type of Penetration Test	Standard
Date	4/17/91 To 4/17/91	Field Observer (s)	Mike McKinley, K. Simmons

Depth	Description	Class.	Blow Count	Recov.	Sample or Box No.	Remarks
1 2 3	Silty Clay, dusky yellowish brown 10 YR 2/2, dry to damp, medium plasticity, roots, very stiff	CL				Start at 9:05 am OVM used for vapor monitoring 2.75 TSF (CL) 0 ppm in breathing zone
4 5	Clayey Silt, moderate yellowish brown 10 YR 5/4, dry, medium density, trace plasticity, hard	ML	7 15 26 25	1.3 2.0	SS-1	>4 TSF (ML) H.S. = 0 ppm (headspace OVM reading of splitspoon)
6	Medium grained Sand, moderate brown 5 YR 4/4, dry, dense, poorly graded	SP				
7 8 9	Silty Clay, dusky yellowish brown 10 YR 2/2, and moderate yellowish brown 10 YR 5/4, mottled, hard, dry	CL				very hard augering
10 11 12 13	Medium to very coarse Sand, damp, loose, well graded, subrounded, with some fine gravel	SW	4 5 6 7	1.9 2.0	SS-2	H.S. = 0 ppm water level 13.2' G.S. 12:20 pm 4/17/91

090280 Burns & McDonnell Form TS-GT-2-1

Drilling Log, continued

Project Name	EXCEL
Project No.	89-148-4-006
Boring No.	MW-2B-91
Page	2 of 3
Date	4/17/91

Depth	Description	Log or Class	Blow Count	Core Recov. & Loss	Box or Sample No.	Remarks
14						
15	Coarse Sand, moderate yellowish brown 10 YR 5/4, wet, subrounded to rounded, with some medium sand and fine gravel, well graded	SW	3 / 4 / 5 / 5	1.4 / 2.0	SS-3	H.S. - 0 ppm
16						
17						
18						
19						
20			4 / 6 / 10 / 10	1.4 / 2.0	SS-4	H.S. - 0 ppm
21						
22						0 ppm Breathing zone
23						
24	Coarse Sand to fine Gravel, light brown 5 YR 5/6, wet, loose, subround to rounded, well graded, with some medium gravel					
25			4 / 4 / 6 / 11	1.5 / 2.0	SS-5	H.S - 0 ppm
26						
27						
28						
29						
30			1 / 3 / 5 / 7	1.8 / 2.0	SS-6	H.S. - 0 ppm

051281 Burns & McDonnell Form TS-GT-2-2

Drilling Log, continued

Project Name	EXCEL
Project No.	89-148-4-006
Boring No.	MW-2B-91
Page	3 of 3
Date	4/17/91

Depth	Description	Log or Class	Blow Count	Core Recov. & Loss	Box or Sample No.	Remarks
31		SW			SS-6	
32	Coarse Sand to fine Gravel, light brown 5 YR 5/6, wet, loose, well graded, subrounded to rounded with some medium gravel					0 ppm Breathing zone
33						
34						
35	Coarse Sand, light brown 5 YR 5/6, wet, loose, well graded, subrounded to rounded with trace of flat and rounded fine to medium gravel at base of sample, also trace clay balls		2 / 3 / 6 / 6	1.8 / 2.0	SS-7	H.S. - 0 ppm
36						
37						
38						
39						
40			2 / 2 / 3 / 3	1.5 / 2.0	SS-8	H.S. - 0 ppm
41						Organic vapor monitor readings in the borehole or breathing zone are 0 ppm, unless otherwise noted in the remarks.
42						
43	Clay (very weathered Shale), dark gray, N3, moist, stiff, highly plastic	CH				
44						
45			2 / 3 / 3 / 4	1.8 / 2.0	SS-9	H.S. - 0 ppm 1.65 TSF (CL) Sample from 4' of heave inside auger
46	Shale, light olive gray 5 Y 5/2, layered, damp, strong, hard, calcareous					
47	Total depth 46.5' Installed monitoring well					stopped at 11:48 am see well completion diagram for details

051281 Burns & McDonnell Form TS-GT-2-2

Drilling Log

Project Name	EXCEL	Boring No.	MW-3B-91
Project No.	89-148-4-006	Page	1 of 3
Ground Elevation	1315.97	Location	29TH & MEAD SITE
Total Footage	44.0		

Drilling Type	Hole Size	Overburden Footage	Bedrock Footage	No. of Samples	No. Core Boxes	Depth To Water	Date Measured
HSA	8-1/4"	43.0	1.0	8	0	see remarks	

Drilling Co.	Layne-Western, Wichita, Kansas	Driller (s)	Buck Blank, Andy Contreras
Drilling Rig.	Mobile B-57	Type of Penetration Test	Standard
Date	4/18/91 To 4/18/91	Field Observer (s)	Mike McKinley, K. Simmons

Depth	Description	Class.	Blow Count	Recov.	Sample or Box No.	Remarks
1	Silty Clay, dusky yellowish brown 10 YR 2/2, damp, trace plasticity, stiff, roots	CL				Start @ 8:20 am (1.5 TSF)
2 3	Silty Clay, dark yellowish brown 10 YR 4/2, damp to moist, medium consistency, medium plasticity					OVM used for vapor monitoring (0.8 TSF)
4	Silty Clay, dusky yellowish brown 10 YR 2/2, moist, stiff, medium plasticity					0 ppm in breathing zone
5 6			14 19 15 15	1.1 2.0	SS-1	H.S. - 0 ppm (1.0 TSF)
7 8 9						
10 11			3 3 5 6	1.6 2.0	SS-2	H.S. - 0 ppm (1.8 TSF)
12 13	Silty Clay, moderate yellowish brown 10 YR 5/4, moist, stiff, medium plasticity, mottled, calcareous, iron staining with some pea-size calcite nodules					

090280 Burns & McDonnell Form TS-GT-2-1

Drilling Log, continued

Project Name	EXCEL	Boring No.	MW-3B-91
Project No.	89-148-4-006	Page	2 of 3
		Date	4/18/91

Depth	Description	Log or Class	Blow Count	Core Recov. & Loss	Box or Sample No.	Remarks
14 15	Silty Clay, moderate yellowish brown 10 YR 5/4, stiff, medium plasticity, mottled, calcareous	CL				(2.3 TSF) H.S. - 0 ppm
16	Fine to medium Sand, dark yellowish oragne 10 YR 6/6, wet, loose, poorly graded, with some coarse sand and trace clay balls	SP	4 5 7 7	1.8 2.0	SS-3	water level 15.3' G.S. 12:15 pm 4/18/91
17 18 19						0 ppm breathing zone
20 21	Coarse to very coarse Sand, dark yellowish orange 10 YR 6/6, wet, loose, well graded, subrounded	SW	3 2 2 3	1.5 2.0	SS-4	H.S. - 0 pmm
22 23	Fine to medium Sand, moderate yellowish brown 10 YR 5/4, wet, loose, poorly graded	SP				
24	Coarse to very coarse Sand, dark yellowish orange 10 YR 6/6, wet, loose, subrounded, poorly graded	SP				
25			3 3 4 3	2.0 2.0	SS-5	H.S - 0 ppm
26	Fine to medium Sand, dusky yellowish brown 10 YR 2/2, wet, loose, poorly graded	SP				
27	Very clayey Silt, dusky yellowish brown 10 YR 2/2, moist, medium plasticity, medium consistency	ML				(0.8 TSF)
28 29	Fine to medium Sand, pale yellowish brown 10 YR 6/2, wet, loose, poorly graded with some coarse sand	SP				0 ppm breathing zone
30			4 4 2 2	1.8 2.0	SS-6	H.S. - 0 ppm

051281 Burns & McDonnell Form TS-GT-2-2

Drilling Log, continued

Project Name	EXCEL
Project No.	89-148-4-006
Boring No.	MW-3B-91
Page	3 of 3
Date	4/18/91

Depth	Description	Log or Class	Blow Count	Core Recov. & Loss	Box or Sample No.	Remarks
31		SP			SS-6	
32	Clayey Silt, dusky yellowish brown 10 YR 2/2, moist, medium consistency, medium plasticity	ML				(0.75 TSF)
33						
34						0 ppm breathing zone
35	Medium to coarse Sand, light brown 5 YR 5/6, wet, loose, with some fine to medium gravel, well graded	SW				
36						
37			4			H.S. = 0 ppm
38			5 / 6 / 10	1.7 / 2.0	SS-7	
39						
40						
41						
42						
43						
44	Shale, dark yellowish orange 10 YR 6/6 and light olive gray 5 YR 5/2, layered, damp, strong, silty, calcareous		4 / 9 / 24 / 34	0.8 / 1.0	SS-8	H.S. = 17.2 ppm
45						
46	Total depth 44.0'					stopped at 11:48 am Installed monitoring well
47						see well completion diagram for details

031281 Burns & McDonnell Form TS-GT-2-2

Drilling Log

Project Name	EXCEL	Boring No.	MW-4B-91
Project No.	89-148-4-006	Page	1 of 4
Ground Elevation	1317.46	Location	29TH & MEAD SITE
Total Footage	49.0		

Drilling Type	Hole Size	Overburden Footage	Bedrock Footage	No. of Samples	No. Core Boxes	Depth To Water	Date Measured
HSA	6-1/4"	48.0	1.0	6	0		

Drilling Co.	Layne-Western, Wichita, Kansas	Driller (s)	Mike Gornic , Dirk Richard
Drilling Rig.	Mobile B-57	Type of Penetration Test	Standard
Date	9/10/91 To 9/10/91	Field Observer (s)	P. Niebergall, J. Brayfield

Depth	Description	Class.	Blow Count	Recov.	Sample or Box No.	Remarks
	Concrete (6")					
1	SAND, w/gravel, grayish yellow 5 Y 8/4, loose, moist, poorly graded	SP				Start at 1:50 pm Hnu used for vapor screening
2			Cont. Sample	4.0 / 5.0		
3	SILT, black N1, stiff, moist	ML				Breathing zone = 0 ppm Downhole= 0 ppm
4					SS-1	2:00 pm H.S. = 0 ppm (headspace OVM reading of sample)
5						at 3:30 pm Sample for VOC, TPH, and TOC
6					SS-2	2:15 pm
7			Cont. Sample	5.0 / 5.0		H.S. = 0 ppm at 3:30 pm
8	CLAY, w/silt, light olive gray 5 Y 6/1, stiff, moist	CL				
9					SS-3	2:30 pm H.S. = 0 ppm at 3:32 pm
10						Sample for PI
11						
12	SAND, fine w/ silt, light olive gray 5 Y 6/1, loose	SM	Cont. Sample	3.0 / 5.0		
13						

090280 Burns & McDonnell Form TS-GT-2-1

Drilling Log, continued

		Boring No.	MW-4B-91
Project Name	EXCEL	Page	2 of 4
Project No.	89-148-4-006	Date	9/10/91

Depth	Description	Log or Class	Blow Count	Core Recov. & Loss	Box or Sample No.	Remarks
14	SAND, fine, silty, light olive gray 5 Y 6/1, loose, wet	SM			SS-4	2:00 pm H.S. = 0 ppm at 3:32 pm
15						
16			Cont. / Samp.	3.0 / 5.0		
17						
18						
19	SAND, medium, brownish gray 5 YR 4/1, loose, saturated, well graded	SW			SS-5	2:45 pm H.S. = 4.1 at 4:33 pm Sample for VOC
20						
21						
22			Cont. / Samp.	0.5 / 5.0		
23						
24						
25					SS-6	3:00 pm H.S. = 2.8 ppm at 3:35 pm
26						stop boring at 3:00 pm
27						Started again at 4:15 pm
28						stopped continuous sampling at 25 feet
29						
30						

Drilling Log, continued

		Boring No.	MW-4B-91
Project Name	EXCEL	Page	3 of 4
Project No.	89-148-4-006	Date	9/10/91

Depth	Description	Log or Class	Blow Count	Core Recov. & Loss	Box or Sample No.	Remarks
31						
32	SAND, medium, brownish gray 5 YR 4/1, loose, saturated, well graded	SW				
33						
34						
35						
36						
37						
38						
39						
40						
41						
42						
43						
44	SAND, coarse to medium, browinsh gray 5 YR 4/1, well graded, saturated	SP				
45						
46						
47						

Drilling Log, continued

Project Name	EXCEL
Project No.	89-148-4-006
Boring No.	MW-4B-91
Page	4 of 4
Date	9/10/91

Depth	Description	Log or Class	Blow Count	Core Recov. & Loss		Box or Sample No.	Remarks
48	SHALE, gray at 48'						
49	Total depth 49.0'						stopped at 5:00 pm. installed monitor well, finished at 6:30 pm. see well completion diagram for details
50							
51							
52							
53							
54							
55							
56							
57							
58							
59							
60							
61							
62							
63							
64							

Drilling Log

Project Name	EXCEL	Boring No.	MW-5B-91
Project No.	89-148-4-006	Page	1 of 4
Ground Elevation	1315.88	Location	29TH & MEAD SITE
Total Footage	49.0		

Drilling Type	Hole Size	Overburden Footage	Bedrock Footage	No. of Samples	No. Core Boxes	Depth To Water	Date Measured
HSA	8-1/4"	47.7	1.3	10	0	see remarks	

Drilling Co.	Layne-Western, Wichita, Kansas	Driller (s)	Tom Atherton, Mike Stone
Drilling Rig.	Mobile B-57	Type of Penetration Test	Standard
Date	4/22/91 To 4/22/91	Field Observer (s)	K. Simmons, M. McKinley

Depth	Description	Class.	Blow Count	Recov.		Sample or Box No.	Remarks
1	Clayey Silt, dusky brown, 5 YR 2/2, moist, soft, low plasticity, high organic content, root and grass material, topsoil	ML					Start at 2:00 pm
2	Concrete rubble at 2.5						OVM used for vapor screening
3							
4							
5	Clayey Silt, dark yellowish brown 10 YR 4/2, moist, medium consistency, dense, low to medium plasticity, some root material, trace iron nodules		4 / 8 / 15 / 14	1.0 / 2.0		SS-1	H.S. = 0 ppm (headspace OVM reading of splitspoon) 2:20 pm
6							
7							
8							
9							
10			8 / 7 / 12 / 18	1.1 / 2.0		SS-2	H.S. = 0 ppm 2:30 pm
11							
12							
13	Silty Sand, moderate yellowish brown 10 YR 5/4, moist to wet, medium density, poorly graded, fine sand to silt	SP					

Drilling Log, continued

Project Name	EXCEL	Boring No.	MW-5B-91
Project No.	89-148-4-006	Page	2 of 4
		Date	4/22/91

Depth	Description	Log or Class	Blow Count	Core Recov. & Loss	Box or Sample No.	Remarks
14		SP				free water on spoon at appr. 14'
15	Sand, grayish orange 10 YR 7/4, wet, medium dense, coarse to fine grained with some very coarse grains, well graded, trace pebbles	SW	2 / 5 / 6 / 20	1.1 / 2.0	SS-3	H.S. = 0 ppm VOC from SS-3 Sieve from SS-3 2:45 pm
16						
17						
18						
19						
20			4 / 6 / 6 / 5	0.8 / 2.0	SS-4	H.S. = 0 ppm 3:05 pm
21						
22						
23						
24						3:20 pm re-sampled
25	Sand, grayish orange 10 YR 7/4, saturated, loose to medium dense, well graded, very coarse to fine grained, with pebbles, clay seams and clay balls, some coal grains		3 / 4 / 4 / 4	0.0 / 2.0	SS-5	2.0 recovery 2.0 H.S. = 3.6 ppm from clay ball
26						
27						
28						
29						
30			4 / 4 / 11 / 10	1.3 / 2.0	SS-6	3:35pm H.S. = 0 ppm

Drilling Log, continued

Project Name	EXCEL	Boring No.	MW-5B-91
Project No.	89-148-4-006	Page	3 of 4
		Date	4/22/91

Depth	Description	Log or Class	Blow Count	Core Recov. & Loss	Box or Sample No.	Remarks
31	Sand, grayish orange 10 YR 7/4, saturated, medium to dense, well graded, very coarse to fine grained, with pebbles, clay seams and clay balls, some coal grains	SW			SS-6	
32						
33						
34						
35			3 / 5 / 11 / 30	1.2 / 2.0	SS-7	H.S. = 0 ppm 3:45 pm
36						
37						
38						
39						
40			15 / 18 / 30	1.0 / 1.5	SS-8	H.S. = 0 ppm 4:00 pm
41						split spoon refusal at 1.5'
42						
43						
44						
45			14 / 12 / 29 / 29	1.1 / 2.0	SS-9	H.S. = 0 ppm 4:10 pm
46						
47	Shale, light olive 5 Y 5/2, moist, very weathered, weak		12 / 13 / 14	1.2 / 1.5	SS-10	H.S. = 3.6 ppm 4:45 pm, sieve & VOC form SS-10, pulled augers & reamed to 49'

Drilling Log, continued

Boring No.	MW-5B-91
Project Name	EXCEL
Page	4 of 4
Project No.	89-148-4-006
Date	4/22/91

Depth	Description	Log or Class	Blow Count	Core Recov. & Loss		Box or Sample No.	Remarks
48	Shale, light olive 5 Y 5/2, moist, very weathered, weak						
49	Total depth 49.0'						Stop drilling at 4:55 pm, began setting well see well completion diagram for details
50							
51							
52							
53							
54							
55							
56							
57							
58							
59							
60							
61							
62							
63							
64							

031281 Burns & McDonnell Form TS-GT-2-2

Drilling Log

Project Name	EXCEL	Boring No.	MW-6B-91
Project No.	89-148-4-006	Page	1 of 3
Ground Elevation	1312.61	Location	29TH & MEAD SITE
Total Footage	45.0		

Drilling Type	Hole Size	Overburden Footage	Bedrock Footage	No. of Samples	No. Core Boxes	Depth To Water	Date Measured
HSA	8-1/4"	43.5	1.5	9	0	see remarks	

Drilling Co.	Layne-Western, Wichita, Kansas	Driller (s)	Tom Atherton, Mike Stone
Drilling Rig.	Mobile B-57	Type of Penetration Test	Standard
Date	4/23/91 To 4/23/91	Field Observer (s)	K. Simmons, M. McKinley

Depth	Description	Class.	Blow Count	Recov.		Sample or Box No.	Remarks
1 2	Sandy silty Clay, dusky brown 5 YR 2/2, moist, medium consistency, medium plasticity, fine grained sand portion, with concrete rubble and root material (fill and topsoil)	CL					Start at 9:20 am ambient air OVM 0 ppm, H.S. - headspace OVM, OVM background 0 to 6.2 ppm
3 4	Very sandy Clay, moderate yellowish brown 10 YR 5/4, moist, dense, low plasticity, fine grained sand portion with micaceous grains						
5 6			9 20 20 22	0.8 2.0		SS-1	H.S. - 0 ppm, >4.5 TSF pocket penetrometer 9:30 am
7 8 9	Sand, grayish orange 10 YR 7/4, moist, poorly graded, medium grained, medium density	SP					
10 11	Sand, grayish orange 10 YR 7/4, moist, well graded, coarse to fine grained, some very coarse grains	SW	5 9 13 13	1.3 2.0		SS-2	H.S. - 0 ppm portion of sieve sample from SS-2 10:08 am
12 13							wet at approx. 13.5 feet

090280 Burns & McDonnell Form TS-GT-2-1

Drilling Log, continued

Project Name	EXCEL	Boring No.	MW-6B-91
Project No.	89-148-4-006	Page	2 of 3
		Date	4/23/91

Depth	Description	Log or Class	Blow Count	Core Recov. & Loss	Box or Sample No.	Remarks
14						free water on spoon
15	Sand, grayish orange 10 YR 7/4, saturated, well graded, loose to very loose, very coarse to fine grained, with some pebbles and dark mineral grains, trace clay balls or seams <0.1', coarsens downward	SW	1 / 4 / 5 / 6	1.7 / 2.0	SS-3	H.S. = 13.0 ppm VOC, duplicate & sieve sample from SS-3, 10:15 am Sample SS-10 is a duplicate of SS-3
16						
17						
18						
19						
20			1 / 1 / 2 / 3	1.8 / 2.0	SS-4	H.S. = 0 pmm 10:25 am
21						
22						
23						
24						
25			9 / 13 / 5 / 4	1.6 / 2.0	SS-5	first 1' of blow count is sluff in augers, 5 + 4 = n-value (9) H.S. = 0 ppm VOC sample from SS-5 10:35 am
26						
27						
28						
29						
30	Gravelly Sand, grayish orange 10 YR 7/4, saturated, well graded, loose, medium gravel to medium sand		3 / 4 / 5 / 6	0.8 / 2.0	SS-6	H.S. = 0 ppm 10:50 am

Drilling Log, continued

Project Name	EXCEL	Boring No.	MW-6B-91
Project No.	89-148-4-006	Page	3 of 3
		Date	4/23/91

Depth	Description	Log or Class	Blow Count	Core Recov. & Loss	Box or Sample No.	Remarks
31		SW			SS-6	
32	Gravely Sand, grayish orange 10 YR 7/4, saturated, well graded, loose, medium gravel to coarse sand, 0.15' very silty clay seam at 39.8' to 40.0'					
33						
34						
35			5 / 3 / 1 / 3	0.3 / 2.0	SS-7	H.S. = 0 ppm 11:05 am
36						
37						
38						
39						
40			12 / 16 / 7 / 6	0.9 / 2.0	SS-8	H.S. = 0 ppm 1.3 TSF on clay seam, 11:10 am
41						
42						
43						
44	Shale, light olive gray 5 Y 5/2, moist, very weathered, weak, poorly bedded		20 / 18 / 20 / 52 / @2"	0.4 / 1.2	SS-9	20 blows for sluff 18 sample shale 20 52 blows for 2" 3.5 TSF stopped drilling 11:25 am, hole reamed to 44', plug removed. Began setting well. see well completion diagram for details
45						
46	Total depth 45.2'					
47						

Drilling Log

Project Name	EXCEL	Boring No.	MW-7B-91
Project No.	89-148-4-006	Page	1 of 3
Ground Elevation	1313.37	Location	29TH & MEAD SITE
Total Footage	43.0		

Drilling Type	Hole Size	Overburden Footage	Bedrock Footage	No. of Samples	No. Core Boxes	Depth To Water	Date Measured
HSA	8"	42.0	1.0	9	0		

Drilling Co.	Layne-Western, Wichita, Kansas	Driller (s)	Tom Butler, Jeff Gould
Drilling Rig.	Acker AD-2	Type of Penetration Test	Standard
Date	4/19/91 To 4/19/91	Field Observer (s)	Mike McKinley

Depth	Description	Class.	Blow Count	Recov.	Sample or Box No.	Remarks
1	Silty Clay, dusky yellowish brown 10 YR 2/2, damp, stiff, medium consistency, trace plasticity, roots	CL				Start at 8:05 am OVM used for vapor monitoring
2						
3	Silty Clay, light brown 5 YR 5/6 and dark yellowish brown 10 YR 4/2, mottled, damp, hard, medium plasticity, with iron staining					0 ppm in breathing zone
4			5/10/13/13	1.3/2.0	SS-1	(>4.5 TSF) H.S. = 0 ppm (headspace OVM reading of splitspoon)
5						
6						
7						
8						
9	Silty Clay, moderate yellowish brown 10 YR 5/4, moist, soft, trace plasticity		8/3/5/7	1.2/2.0	SS-2	H.S. = 0 ppm (1.75 TSF)
10						
11						
12	Fine Sand, moderate yellowish brown 10 YR 5/4, moist, loose, poorly graded, with some silt	SP				
13			6/7/8/9	1.5/2.0	SS-3	H.S. = 0 ppm

090280 Burns & McDonnell Form TS-GT-2-1

Drilling Log, continued

Project Name	EXCEL	Boring No.	MW-7B-91
Project No.	89-148-4-006	Page	2 of 3
		Date	4/19/91

Depth	Description	Log or Class	Blow Count	Core Recov. & Loss	Box or Sample No.	Remarks
14					SS-3	H.S. = 6.5 ppm
15	Fine to coarse Sand, pale yellowish brown 10 YR 6/2, wet, loose, well graded, subrounded	SW				
16						
17						
18						
19			6/3/8/5	1.4/2.0	SS-4	H.S. = 32.5 ppm
20						
21						
22						
23						(CL = 1.5 TSF)
24	Silty Clay, dark yellowish brown 10 YR 4/2, moist, medium plasticity, stiff	CL	7/8/15/15	2.0/2.0	SS-5	H.S. = 44.2 ppm
25	Medium Sand, pale yellowish brown 10 YR 6/2, wet, medium density, poorly graded, with some fine and coarse sand	SP				
26						
27						
28						
29	Coarse Sand, pale yellowish brown 10 YR 6/2, wet, loose, well graded, with fine to medium sand and trace fine gravel	SW	10/6/6/9	2.0/2.0	SS-6	H.S. = 11.2 ppm
30						

051281 Burns & McDonnell Form TS-GT-2-2

Drilling Log, continued

Project Name	EXCEL
Project No.	89-148-4-006
Boring No.	MW-7B-91
Page	3 of 3
Date	4/19/91

Depth	Description	Log or Class	Blow Count	Core Recov. & Loss	Box or Sample No.	Remarks
31		SW				
32	Medium Sand, pale yellowish brown 10 YR 2/2, wet, loose, poorly graded	SP				
33			5 / 3	2.0	SS-7	H.S. = 16.1 ppm
34			5 / 10	2.0		
35	Coarse Sand, medium dark gray N 4, wet, loose, well graded, with fine to medium sand and fine gravel	SW				
36						
37						7' of sand heave in augers. Washed out with potable water from service truck
38	Coarse Sand, dark yellowish orange 10 YR 6/6, wet, medium density, subrounded to rounded, with fine to medium sand and fine to medium gravel, well graded	SW	20 / 21	1.7	SS-8	H.S. = 0 ppm
39			20 / 10	2.0		
40						
41						
42	Clay (weathered shale) olive gray 5 Y 4/1, moist, soft, medium plasticity	CL				
43	Shale, olive gray 5 Y 4/1, dry, hard slightly calcareous, with some silt and iron staining		20 / 21	1.2	SS-9	Split spoon driven to 45'
44			14 / 42	2.0		H.S. = 0 ppm
45	Total auger depth 43.0'					stopped at 9:54am
46						Installed monitoring well
47						see well completion diagram for details

051251

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Form TS-GT-2-2

Drilling Log

Project Name	EXCEL	Boring No.	MW-8B-91
Project No.	89-148-4-006	Page	1 of 3
Ground Elevation	1311.95	Location	29TH & MEAD SITE
Total Footage	47.5		

Drilling Type	Hole Size	Overburden Footage	Bedrock Footage	No. of Samples	No. Core Boxes	Depth To Water	Date Measured
HSA	8-1/4"	46.0	1.5	9	0	see remarks	

Drilling Co.	Layne-Western, Wichita, Kansas	Driller (s)	Buck Blank, Andy Contreras
Drilling Rig.	Mobile B-57	Type of Penetration Test	Standard
Date	4/19/91 To 4/19/91	Field Observer (s)	Ken Simmons

Depth	Description	Class.	Blow Count	Recov.	Sample or Box No.	Remarks
1	Silty Sand, dark yellowish brown 10 YR 4/2, moist to damp, very fine to coarse grained, well graded (fill)	SW				Start at 7:55 am OVM used for vapor screening
2						
3	Clayey Silt, dark yellowish brown 10 YR 4/2, damp to moist, stiff, low plasticity (fill)	ML				
4						
5	Sandy Silt, moderate yellowish brown 10 YR 5/4, damp, non-plastic, very stiff, very fine to coarse sand		4 / 6 / 8 / 20	1.5 / 2.0	SS-1	H.S. = 0 ppm (headspace OVM reading of splitspoon) 8:30 Am
6						
7	Silt with sand seams, pale to moderate yellowish brown 10 YR 6/2 to 5/4, moist, medium consistency, low plasticity, sand seams are about 0.1' thick, dark yellowish orange 10 YR 6/6, medium grained, poorly graded					
8						
9						
10			7 / 7 / 4 / 6	1.0 / 2.0	SS-2	H.S. = 0 ppm hydrometer test on silt portion 8:35 am
11						
12						
13					▼	water level 13.44' G.S. 8:45 am 4/19/92

090280

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Form TS-GT-2-1

Drilling Log, continued

Project Name	EXCEL	Boring No.	MW-8B-91
Project No.	89-148-4-006	Page	2 of 3
		Date	4/19/91

Depth	Description	Log or Class	Blow Count	Core Recov. & Loss	Box or Sample No.	Remarks
14	Clayey Silt, grayish brown 5 YR 3/2, moist, stiff, medium plasticity, trace sand	ML				free water on spoon at 15'
15	Sand, moderate yellowish brown 10 YR 5/4, saturated, very fine to very coarse grained, well graded, loose	SW	6 5 6 8	1.3 2.0	SS-3	H.S. = 0 ppm VOC & sieve from sand 9:00 am
16						
17						
18						
19						
20	Sand, moderate yellowish brown 10 YR 5/4, saturated, very coarse to medium grained, well graded, very loose, some pebbles, some silty clay seams and clay balls		3 2 2 2	1.0 2.0	SS-4	H.S. = 0 ppm added sample SS-4 to sieve sample SS-3 9:10 am
21						
22						
23						
24						
25			3 2 2 2	1.5 2.0	SS-5	H.S = 0 ppm 9:22 am
26						
27						
28						
29						
30			1 0 4 5	2.0 2.0	SS-6	VOC & TOC from SS-6 H.S. = 0 ppm 9:30 am

Drilling Log, continued

Project Name	EXCEL	Boring No.	MW-8B-91
Project No.	89-148-4-006	Page	3 of 3
		Date	4/19/91

Depth	Description	Log or Class	Blow Count	Core Recov. & Loss	Box or Sample No.	Remarks
31		SW			SS-6	
32	Sand, moderate yellowish brown 10 YR 5/4, saturated, very loose, very coarse to medium grained, well graded, some pebbles, trace clay balls, becomes loose downward					
33						
34						
35			6 4 4 10	2.0 2.0	SS-7	H.S. = 0 ppm 9:45 am
36						
37						
38						
39						
40	Sand, moderate yellowish brown 10 YR 5/4, saturated, medium dense, coarse to medium grained, well graded, trace pebbles, trace very weathed shale fragments		12 9 6 4	1.3 2.0	SS-8	H.S. = 0 ppm 9:55 am
41						
42						
43						
44						
45			7 5 8 16	2.0 2.0	SS-9	H.S. = 0 ppm VOC & sieve from SS-9 10:10 am
46	Shale, light olive gray 5 Y 5/2, moist, very weathered, very silty, weak, stiff, poorly bedded					stopped at 10:10 am installed monitoring well, see well completion diagram for details
47	Total depth 47.5'					

Drilling Log

Project Name	EXCEL	Boring No.	MW-10B-91
Project No.	89-148-4-006	Page	1 of 3
Ground Elevation	1315.19	Location	29TH & MEAD SITE
Total Footage	45.0		

Drilling Type	Hole Size	Overburden Footage	Bedrock Footage	No. of Samples	No. Core Boxes	Depth To Water	Date Measured
HSA	6-1/4"	44.0	1.0	7	0	see remarks	

Drilling Co.	Layne-Western, Wichita, Kansas	Driller (s)	Mike Gornick, Dirk Richard
Drilling Rig.	Mobile B-57	Type of Penetration Test	Standard
Date	9/11/91 To 9/11/91	Field Observer (s)	P. Niebergall

Depth	Description	Class.	Blow Count	Recov.	Sample or Box No.	Remarks
	Concrete (6")					Start @ 1:15 pm OVM used for vapor screening Breathing zone = 0 ppm Downhole= 0 ppm
1	SAND, coarse to medium w/gravel, grayish orange 10YR 7/3, poorly graded	SP				
2	SILT, black N1, trace plasticity, stiff, high organic content	ML	Cont. Sample	4.5 / 5.0	SS-1	1:30 pm H.S. = 0 ppm (headspace OVM reading of sample) at 4:19 pm
3						
4	SILT w/clay, dark yellowish brown 10 YR 4/2, stiff moist, high plasticity	MH				
5						
6						
7			Cont. Sample	3.0 / 5.0	SS-2	1:38 pm H.S. = 0 at 4:19 pm
8						
9	SAND, fine w/ silt, pale yellowish brown 10 YR 6/2, loose	SW				
10						
11	SILT, medium light gray N6, mottled w/ iron staining, stiff, moist, high plasticity	MH				
12			Cont. Sample	3.0 / 5.0	SS-3	1:45 pm H.S. = 0.3 ppm at 4:20 pm
13						

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Drilling Log, continued

Project Name	EXCEL	Boring No.	MW-10B-91
Project No.	89-148-4-006	Page	2 of 3
		Date	9/11/91

Depth	Description	Log or Class	Blow Count	Core Recov. & Loss	Box or Sample No.	Remarks
14	SAND, fine, pale yellow brown 10 YR 6/2, some black organic staining, loose, moist, well graded	SW				water level 14.0 at 5:50 pm
15						Stop continuous sampling, began split spoon sampling
16						
17						breathing zone = 0 ppm downhole = 0 ppm
18						
19	SAND, fine to coarse, medium dark gray N4, loose, some gravel, poorly graded, saturated	SP		2.0 / 2.0	SS-4	2:05 pm H.S. = 2.1 at 4:20 pm
20						
21						
22						
23						
24	SAND, fine to coarse, olive gray 5 Y 4/1, poorly graded, saturated			2.0 / 2.0	SS-5	2:50 pm H.S. = 0 ppm at 4:21 pm
25						
26						
27						
28						
29	SAND, coarse, uniform size grains, tan, no fines, probable sand in auger with fines washed out, saturated	SW		2.0 / 2.0	SS-6	3:05 pm H.S. = 4 ppm at 4:22 pm
30						3 feet of sand in auger

051281 Burns & McDonnell Form TS-GT-2-2

Drilling Log, continued

		Boring No.	MW-10B-91
Project Name	EXCEL	Page	3 of 3
Project No.	89-148-4-006	Date	9/11/91

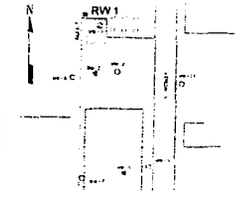
Depth	Description	Log or Class	Blow Count	Core Recov. & Loss	Box or Sample No.	Remarks
31						
32						
33						
34	SAND, coarse, clean, no fines	SW		2.0 / 2.0	SS-7	3:32 pm stopped split spoon sampling 4 feet of sand in auger
35						
36						
37						
38						
39						
40						
41						
42						
43						
44						
45	SHALE, weathered, gray					stopped at 4:15 pm. installed monitor well, finished at 5:30 pm. see well completion diagram for details
46	Total depth 45.0'					
47						

Mud Return HSA ... next to well

GeoCore Services, Inc.

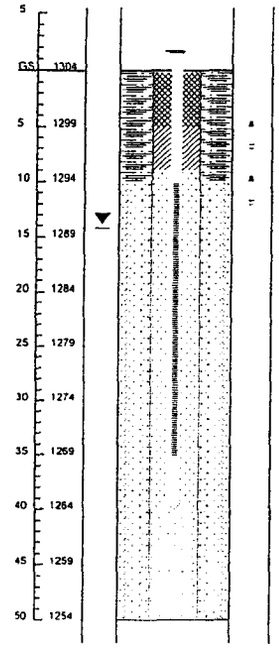
P.O. Box 386, 2775 Arnold Road, Salina, Kansas 67402
Phone: 913-826-1616 Fax: 913-826-9508

Page 1



Drilling Log for RW1 at House Oil for House Oil Company, Inc			
190' SW of the SW corner of 10th and Mosley			
	GeoCore 80	KDHE U2 087 525	
	Drilled 11/22/94	Geologist: K. Hoeffner	
	Failing 1250 Drill Rig	Driller: J. Watkins	
10' x 8" PVC Casing	Hollow Stem Auger	Survey: Carlson	SE 1/4, SE 1/4, NW 1/4,
25' x 8" PVC 0.040 Mill Slot Scm	Split Spoon	Boring was Completed as Recovery Well	S16, T27S, R1E
Coarse Grade Gravel Pack	Boring Diameter: 14"	Total Depth: 40'	SWL: NA
Abovegrade	TOC Elev: 1305.13	GS/Bolt Elev: 1303.89	SWL: NA

GRAPHIC LOG



SAMPLE DATA

SS from 5' to 7': ND ppmv with PID

SS from 10' to 12': 9.6 ppmv with PID

LITHOLOGIC DESCRIPTION

0' - 1': **Asphalt**

1' - 9': Medium Brown **Clay**, very silty, slight fine to coarse grained sand, sand to gravel sized calcareous material

9' - 10': Medium Gray **Clay**, very silty, very sandy, very fine to fine grained, slight medium to coarse grains

10' - 11': Yellow Brown **Sand**, very fine to coarse grained, gravel, very silty, very slight gray clay, poorly sorted, subround to subangular

11' - 48': Yellow Brown **Sand**, very fine to coarse grained, gravel, very silty, poorly sorted, subround to subangular, slight sheen on mud returns at 20 feet, odor at 24 feet

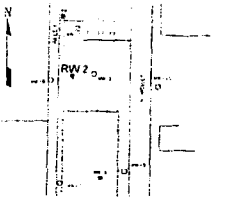
48' - 50': Very Dark Gray **Sand**, very fine to coarse grained, gravel, mottled with yellow brown

LEGEND

SAND (POORLY GRADED)
SAND (WELL GRADED)
CLAY
SILT
LIMESTONE
SHALE
CONCRETE
BENTONITE
SAND
PRODUCT LEVEL
STATIC WATER LEVEL (SWL)
WATER ENCOUNTERED WHILE DRILLING
H-NU PID
OVA PID
MICROTIP
DRAGER
SPLIT SPOON
SHELBY TUBE
SIEVE
ABOVE GROUND COVER
FLUSH MOUNT COVER
SANITARY WELL SEAL

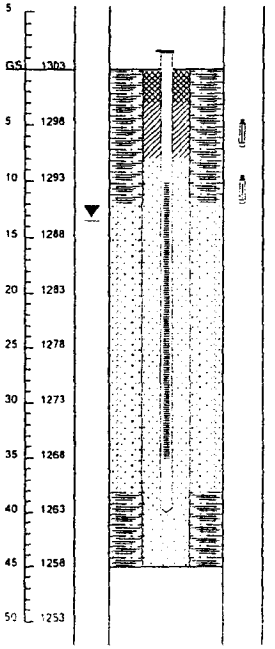
GeoCore Services, Inc.

P.O. Box 366, 2775 Arnold Road, Salina, Kansas 67402
Phone: 913-826-1616 Fax: 913-826-9508



Drilling Log for RW2 at House Oil for House Oil Company, Inc			
260' SW of the SW corner of 10th and Mosley			
GeoCore 80		KDHE U2 087 525	
Drilled 11/8/94		Geologist: K. Hoeffner	
Failing 1250 Drill Rig		Driller: J. Watkins	
10' x 8" PVC Casing	Hollow Stem Auger	Survey: Carlson	SE 1/4, SE 1/4, NW 1/4,
25' x 8" PVC 0.040 Mill Slot Scrn	Split Spoon	Boring was Completed as Recovery Well	S16, T27S, R1E
Coarse Grade Gravel Pack	Boring Diameter: 14"	Total Depth: 40'	SWL: NA
Abovegrade	TOC Elev: 1304.69	GS/Bolt Elev: 1303.38	SWL: NA

GRAPHIC LOG



SAMPLE DATA

SS from 5' to 7': ND ppmv with PID

SS from 10' to 12': ND ppmv with PID

LITHOLOGIC DESCRIPTION

0' - 1': Light Brown Clay, very silty, very sandy, fine to coarse grained, slight gravel, slight chunks of asphalt

1' - 6': Dark Brown Clay, very silty, slight fine to coarse sand, slight gravel, slight sand sized calcareous material

6' - 10': Light Yellow Brown Clay, very silty, slight very fine sand, trace of coarse grains, slightly plastic, slight sand sized calcareous material

10' - 12': Light Gray Brown Clay, very sandy, fine to medium grained, slight coarse grains, very silty, slightly plastic

12' - 18': Yellow Brown Sand, very fine to coarse grained, subround to subangular, poorly sorted

18' - 38': Yellow Brown Sand, moderate gravel, strong gas odor and sheen on pit, poorly sorted, subround to subangular

38' - 45': Blue Green Clay, very silty, tight

LEGEND

SAND (POORLY GRADED), SAND (WELL GRADED), CLAY, SILT, LIMESTONE, SHALE, CONCRETE, BENTONITE, SAND, PRODUCT LEVEL, STATIC WATER LEVEL (SWL), WATER ENCOUNTERED WHILE DRILLING, H-NU PID, OVA FID, MICROTIP, DRAGER, SPLIT SPOON, SHELBY TUBE, SIEVE, ABOVE GROUND COVER, FLUSH MOUNT COVER, SANITARY WELL SEAL

SAFETY-KLEEN CONSULTING — LOG

BORING NO.
WELL NO. SK-1D

CLIENT: Safety-Kleen		JOB NO.: 96323'	
PROJECT: Safety-Kleen (Wichita), Inc. Facility	LOCATION: Wichita, KS		
DRILLED BY: Geotechnical Services	DRILLER: R. Lewis	METHOD: Auger-CME-75	
START DATE: 10/23/00	COMP. DATE: 10/23/00	SURF. EL.: 1315.87	TD: 40.0 FT. BGS
LOGGED BY: Nick Malakar	MEAS. PT ELEV.: 1315.61	D. T. WATER: 15.65 FT. BGS	

WELL DIAGRAM	DPT	DESCRIPTION	GRAPHIC LOG USCS CODE	OVM	BLOW COUNT	SAMPLE ANALYSIS
		0.8 Concrete				
		Advanced augers to 15.0' below ground surface to begin sampling. Descriptions taken from soil cuttings on augers. Dark brown, fat clay (70% clay, 30% silt), slightly moist, no odor.	CL-ML			
	5	5.0'-17.8' Light brown, clay (70% clay, 15% silt, 15% sand) slightly moist, no odor	CL			
	10					
	15	Light medium brown, sandy clay (50% clay, 30% fine sand, 20% silt) moist, no odor.		0.0	1-2-3	
		17.8' Brown, poorly graded sand (75% med sand, 20% fine sand, 5% coarse sand) wet, no odor, becoming poorly graded coarse sand, silt stringer at 20.5'		0.0	3-3-4	
	20			0.0	4-4-5	
			SP	0.0	5-8-11	
		Same as above, wet, no odor, 5 gal. H20 added to borehole to prevent flowing sand.		0.0	5-7-11	Sieve Analysis
	25	Brown, well graded sand, 95% sand (fine to coarse grained), 5% silt, slightly moist, no odor or stain.		0.0	4-4-4	
		26.8'-29.0' Gray, stiff, clay, slightly moist, no odor or staining.	CL			
	30	29.0'-40.0' Brown poorly graded sand (75% fine sand, 20% med sand, 5% silt), wet, no odor or stain.		0.0	5-15-20	
				0.0	7-10-15	
			SP			
	35	Becoming poorly graded medium sand at 35.0' (70% med sand, 10% fine sand, 20% coarse sand).		0.0	5-11-10	Sieve Analysis
		Becoming poorly graded coarse sand (80% coarse, 20% med) at 37.0'		0.0	7-15-28	
		38.0'-39.0' Shale, weathered, bluish gray, dry	BDRK			
	40	Total Depth 39'				
		30 gal H20 added to borehole during drilling. 3 bags #12-20 sand 4 bags Aqua guard bentonite grout 1 4" long, PVC, 2" dia., threaded end cap 1 5' long joint of 2" dia. schd. 40, PVC screen, 10-slot 34' of 2" dia., schd. 40, PVC riser 1 J-plug 1 8" dia. x 12" deep surface well monument				
	45					
	50					

JOB NUMBER: 96323I

SAFETY-KLEEN CONSULTING — LOG — BORING NO. WELL NO. SK-2D

CLIENT: Safety-Kleen		JOB NO.: 96323	
PROJECT: Safety-Kleen (Wichita), Inc. Facility	LOCATION: Wichita, KS		
DRILLED BY: Geotechnical Services	DRILLER: S. Genster	METHOD: Auger-CME-75	
START DATE: 10/24/00	COMP. DATE: 10/24/00	SURF. EL.: 1313.75	TD: 36.0 FT. BGS
LOGGED BY: Phil Cavendor	MEAS. PT ELEV.: 1313.47	D. T. WATER: 14.62 FT. BGS	

WELL DIAGRAM	DPT	DESCRIPTION	GRAPHIC LOG USCS CODE	OVM	BLOW COUNT	SAMPLE ANALYSIS
		0.0'-3.0' Lean clay with silt, dark grayish brown (10YR2/3) 80% clay, 20% silt, dry, low plasticity, no odor or stain.	CL	0.0		
	5	3.0'-9.0' Lean clay, dark yellowish brown (10YR4/4) 85% clay, 15% silt, medium plasticity, low strength, dry, no odor or stain.	CL	0.0		
	10	9.0'-14.0' Poorly graded sand, yellowish brown (10YR5/6) 90% sand (very fine to fine grained), silt 10%, dry, no odor or stain, slight precipitation between 15-16'.	SP	0.0		
	15	14.0'-25.0' Well graded sand, yellowish brown (10YR5/4) 20% gravel, 75% sand (very fine to coarse), 5% silt, moist at 18', no odor or stain. Wet at 18'	SW	0.0		
	20			0.0		
	25	25.0'-27.5' Upper clay layer. Lean clay with silt, dark yellowish brown (10YR4/6), Lean clay 60%, 40% silt, stiff, low plasticity, med. hardness, no odor or stain, dry.	CL			
	30	27.5'-36.5' Poorly sorted sand, brown to yellowish brown, 80% sand, (very fine to coarse), 10% silt, wet, no stain or odor.	SP	0.0		
	35	36.5'-38.0' Weathered zone, lean clay, brown (10YR4/3) 50% clay, low plasticity, stiff, med. hardness, dry, no odor or stain.	CL	0.0		
	40	Total Depth 38.0				
	45	4 bags #12-20 silica sand 4 bags Aqua guard powdered bentonite 2 bags sackrete cement 1 4" long, 2" dia., schd 40, PVC, threaded end cap 5' 2" dia., schd 40, PVC, threaded screen, 10-slot 33' 2" dia., schd 40, PVC, threaded riser 1 J-plug 1 8" dia. x 12" deep surface well monument				
	50					

JOB NUMBER 96323

SAFETY-KLEEN CONSULTING — LOG — BORING NO. WELL NO. SK-3D

CLIENT: Safety-Kleen		JOB NO.: 96323	
PROJECT: Safety-Kleen (Wichita), Inc. Facility	LOCATION: Wichita, KS		
DRILLED BY: Geotechnical Services	DRILLER: R. Lewis	METHOD: Auger-CME-75	
START DATE: 10/24/00	COMP. DATE: 10/24/00	SURF. EL.: 1313.67	TD: 40.0 FT. BGS
LOGGED BY: Nick Malakar	MEAS. PT ELEV.: 1313.37	D. T. WATER: 13.25 FT. BGS	

WELL DIAGRAM	DPT	DESCRIPTION	GRAPHIC LOG USCS CODE	OVM	BLOW COUNT	SAMPLE ANALYSIS
		Advanced augers to 20' below ground surface prior to sampling. Soils logged from cuttings from SK-3S.				
	5	Dark gray, clay, medium strength, high plasticity, slightly moist, petroleum odor, no stain.	CL			
	10	8.0'-23.5' Brown, poorly graded sand, 70% coarse, 25% medium, 5% fine sand, wet, petroleum odor, no staining.	SP			
	15					
	20			0.0	5-5-6	Sieve Analysis
				0.0	6-8-6	
	25	23.5'-27.0' Brown, clay, medium strength, medium plasticity, occasional sub-rounded, sub-angular fine gravel, slightly moist, no odor or stain.	CL	0.0	6-6-7	
	30	27.0'-38.0' Brown, well graded sand, 85% sand (fine to coarse grained), 15% clay, wet, no odor, stained. Could not sample because of blowback in the augers, continued to drill to bedrock.	SW	0.0	7-16-20	
				0.0	8-14-20	Sieve Analysis
	35	36.0'-38.0' Olive green/gray, clay, high strength, low plasticity, slightly moist, no odor or stain.	CL			
		38.0'-40.0' Shale bedrock.	BDRK			
	40	Total Depth 40.0'				
	45	4 bags #12-20 silica sand 2 bags bentonite grout 1 4" long, 2" dia., schd 40, PVC, threaded end cap 7' 2" dia., schd 40, PVC, threaded screen, 10-slot 33' 2" dia., schd 40, PVC, threaded riser 1 J-plug 1 8" dia. x 12" deep surface well monument				
	50					

JOB NUMBER 96323

SAFETY-KLEEN CONSULTING

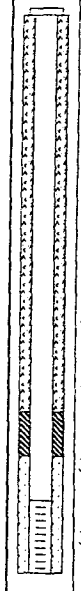
LOG

BORING NO.

WELL NO. SK-5D

CLIENT: Safety-Kleen		JOB NO.: 963231	
PROJECT: Safety-Kleen (Wichita), Inc. Facility	LOCATION: Wichita, KS		
DRILLED BY: Geotechnical Services	DRILLER: R. Lewis	METHOD: Auger-CME-75	
START DATE: 10/24/00	COMP. DATE: 10/24/00	SURF. EL.: 1313.96	TD: 37.5 FT. BGS
LOGGED BY: Nick Malakar	MEAS. PT ELEV.: 1313.55	D. T. WATER: 14.21 FT. BGS	

WELL DIAGRAM



DPT	DESCRIPTION	GRAPHIC LOG USCS CODE	OVM	BLOW COUNT	SAMPLE ANALYSIS
	0-8' Advanced augers to 15.0 feet bgs, then began continuous soil sampling. Clay brown, medium strength, medium plasticity, no odor or stain. Fill.	CL	0.0		
5			0.0		
	8-12.5' Sandy clay, reddish brown, 60% clay, 30% silt, 10% fine sand, soft, no odor or stain.		0.0		
10			0.0		
	12.5'-23.2'		0.0		
15	15-17.5' Brown poorly graded sand, 60% coarse sand, 30% medium sand, 10% silt, wet, no odor or stain.	SP	0.0	6-7-7	
	17.5-20' Same as above. Poorly graded sand, 90% coarse sand, 10% medium sand, wet, no odor or stain.		0.0	2-2-2	
20	20-23.2' Poorly graded sand as above, gray, 95% fine, 5% clay, wet, no odor or stain.		0.0	2-2-2	Sieve Analysis
			0.0	3-5-6	
25	23.2'-29.0' Reddish brown clay, 90% clay, 10% silt, minor coarse sand, slightly moist, no odor or stain.	CL	0.0	4-6-6	
	Same as above except, gray clay with light gray seams, high plasticity, medium strength, stained.		0.0	4-6-11	
	26.0'-28.0' Gray well graded sand, 90% sand (fine to coarse grained), 10% clay, clay stringer throughout, wet, no odor or stain.				
30	29.0'-35.0' Reddish brown, wet graded sand, 90% sand, (fine to coarse grained), 10% clay, 1" thick, green, fine sand at 28.9', moist.	SM	0.0	6-13-15	Sieve Analysis
			0.0	8-12-15	
	Same as above, clay stringers throughout.				
35	Same as above. 8" clay sand seam from 32.5-33.2', moist, no odor or stain.	CL	0.0	8-14-15	
	35.0'-36.0' Olive clay, 80% clay, 20% silt, slightly moist, no odor or stain.	BDRK			
40	36.0'-37.5' Bedrock, shale, bluish gray, moist to dry.				
	Total Depth 37.5'				
45	3 bags #12-20 silica sand 3 bags aquagel 1.4' long, 2" dia., scnd 40, PVC, threaded end cap 15' 2" dia, scnd 40, PVC, threaded screen, 10-slot 22.5' 2" dia, scnd 40, PVC, threaded riser 1 J-plug 1.8' dia x 12" deep surface well monument				
50					

JOB NUMBER: 963231

BORING LOG

B-9

PROJECT NAME	Unocal Chemicals Division	SHEET	1 of 2
PROJECT LOCATION	Wichita, Kansas	PROJECT NO.	91C5303T
LOGGED BY	B. Hedenkamp	DRILLED BY	Layne-Western
SURFACE ELEVATION	1346.6	ELEVATION DATUM	Wichita City Datum
GROUND WATER OBSERVATIONS	None detected ATD	TASK NO.	
		DATE	7/31/91
		RIG	Mobile B-57

DEPTH, ft.	SAMPLE TYPE	RECOVERY	RESISTANCE	PP, KSF	DESCRIPTION	SYMBOL	ELEVATION	FIELD NOTES
0					Gravel fill			Boring advanced with 6-1/4" dia. HSA
	CS		P		Medium, dark brown, highly plastic, Silty CLAY with trace of fine sand (CH)		1345	Continuously drilled inside of augers; HSA CA = 3-1/4" Hollow Stem Auger Continuous Sampler
					Becoming stiff			
5								
	CS		P		Becoming light reddish-brown, sandy, and silty		1340	WC>PL
					Medium, light reddish-tan, fine, Sandy, Clayey SILT (ML)			WC<PL
10								
	CS		P		Medium to stiff, orange-brown, highly plastic, Silty CLAY with sand (CH)		1335	
					Becoming light gray and sandy			WC>PL Strong organic odor HNu = 1-10 ppm
15								
	CS		P		Soft-medium, gray, Clayey SILT with fine sand (ML)		1330	Very moist
					Medium to stiff, gray, highly plastic, Silty CLAY with trace of fine sand (CH)			Organic readings vary from 10-120 ppm (15-20')
20								
	CS		P				1325	
					Medium, gray with brown mottling, fine to medium SAND with silt (SM)			Very moist
25								

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Figure No. A-15

BORING LOG

B-9

PROJECT NAME: Unocal Chemicals Division
PROJECT LOCATION: Wichita, Kansas
LOGGED BY: B. Hedenkamp DRILLED BY: Layne-Western
SURFACE ELEVATION: 1346.6 ELEVATION DATUM: Wichita City Datum
GROUND WATER: None detected ATD
OBSERVATIONS:

SHEET 2 of 2
PROJECT NO. 91C5303T
TASK NO.
DATE 7/31/91
RIG Mobile B-57

DEPTH, ft.	SAMPLE TYPE	SAMPLE RECOVERY	SAMPLE RESISTANCE	SAMPLE PP, KSF	DESCRIPTION	SYMBOL	ELEVATION	FIELD NOTES
25					SAME: Medium, gray with brown mottling, fine to medium SAND with silt (SM)			
	CS		P		Medium to stiff, gray, highly plastic, fine to medium-grained, Sandy CLAY (CH)		1320	
					Becoming olive-tan and blocky shale residuum			
30					Medium, bluish-gray, Silty SAND (SP)			Bottom of Boring 30.0' Temporary well TW-1 installed upon completion of boring
							1315	
35							1310	
40							1305	
45							1300	
50								

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Figure No. A-16

BORING LOG

B-10

PROJECT NAME: Unocal Chemicals Division
PROJECT LOCATION: Wichita, Kansas
LOGGED BY: B. Hedenkamp DRILLED BY: Layne-Western
SURFACE ELEVATION: ELEVATION DATUM: Wichita City Datum
GROUND WATER: None detected ATD
OBSERVATIONS:

SHEET 1 of 2
PROJECT NO. 91C5303T
TASK NO.
DATE 8/1/91
RIG Mobile B-57

DEPTH, ft.	SAMPLE TYPE	SAMPLE RECOVERY	SAMPLE RESISTANCE	SAMPLE PP, KSF	DESCRIPTION	SYMBOL	ELEVATION	FIELD NOTES
0					Gravel fill			Boring advanced with 6-1/4" dia. HSA Continuously drilled inside of augers; HSA CA=3-1/4" Hollow Stem Auger Continuous Sampler
	CS		P		Very stiff, dark brown, Clayey, Sandy SILT (ML)			
					Dense, dark reddish-brown, Clayey SAND (SC)			WC>PL
5	CS		P		Stiff, dark reddish-brown, highly plastic, Silty CLAY with fine sand (CH)			WC>PL
					Becoming medium and light reddish-brown			
10	CS		P		With trace of fine sand			WC>PL
15	CS		P		Becoming soft and with fine to medium sand			
20	CS		P					WC>>PL
					Becoming medium			WC>>PL
25								

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Figure No. A-17

BORING LOG

B-10

PROJECT NAME: Unocal Chemicals Division
PROJECT LOCATION: Wichita, Kansas
LOGGED BY: B. Hedenkamp DRILLED BY: Layne-Western
SURFACE ELEVATION: ELEVATION DATUM: Wichita City Datum
GROUND WATER: None detected ATD
OBSERVATIONS:

SHEET 2 of 2
PROJECT NO. 91C5303T
TASK NO.
DATE 8/1/91
RIG Mobile B-57

DEPTH, ft.	SAMPLE TYPE	SAMPLE RECOVERY	SAMPLE RESISTANCE	SAMPLE PP, KSF	DESCRIPTION	SYMBOL	ELEVATION	FIELD NOTES
25					SAME: Medium to stiff, reddish-tan, highly plastic, Silty CLAY with fine to medium sand (CH)			
	CS		P		Becoming grayish-tan with carbonate (?) nodules Becoming sandy			WC>PL
					Alt 32 Becoming olive-green with brown mottling			
30								
	CS		P		Becoming blocky and dry			WC<PL
					With high angle fractures lined with manganese (?)			
35								
	CS		P		SHALE: Stiff, dark grayish-black, weathered (SH)			
40								Bottom of Boring 40.0' Monitoring well TW-3 installed upon completion of boring
45								
50								

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Figure No. A-18

MW-2

BORING LOG

B-7

PROJECT NAME: Unocal Chemicals Division
PROJECT LOCATION: Wichita, Kansas
LOGGED BY: B. Hedenkamp DRILLED BY: Layne-Western
SURFACE ELEVATION: 1348.2 ELEVATION DATUM: Wichita City Datum
GROUND WATER: None detected ATD
OBSERVATIONS:

SHEET 1 of 2
PROJECT NO. 91C5303T
TASK NO.
DATE 8/2/91
RIG Mobile B-57

DEPTH, ft.	SAMPLE TYPE	SAMPLE RECOVERY	SAMPLE RESISTANCE	SAMPLE PP, KSF	DESCRIPTION	SYMBOL	ELEVATION	FIELD NOTES
0					Soft-medium, dark brown, Clayey SILT with trace of fine sand (OL)			Boring advanced with 6-1/4" dia. HSA
	CS		P		2.5'			
					Stiff, dark reddish-brown, highly plastic, Silty CLAY with fine sand and desiccation fractures (CH)		1345	Continuously drilled inside of augers; HSA CA = 3-1/4" Hollow Stem Auger Continuous Sampler WC<PL
5								
	CS		P		Becoming brownish-red with trace of fine sand			WC>PL
					Becoming medium with high angle fracture		1340	
10								
	CS		P		Becoming tannish-gray			WC>>PL
					Becoming soft		1335	
15								
					Becoming light gray			
	CS		P	16.5	Soft, light gray, Clayey SILT with trace of fine sand (ML)		1330	
				18?	Loose, gray with iron mottling, Silty, Clayey, fine to medium-grained, SAND (SM)			
20								
	CS		P	22	Medium, gray, highly plastic, fine to medium, Sandy CLAY with calcareous, gravelly lenses (CH)		1325	WC>PL
					Becoming stiff, bluish-tan, and with trace of fine sand			
25								

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Figure No. A-12

MW-2

BORING LOG

B-7

PROJECT NAME: Unocal Chemicals Division
PROJECT LOCATION: Wichita, Kansas
LOGGED BY: B. Hedenkamp DRILLED BY: Layne-Western
SURFACE ELEVATION: 1348.2 ELEVATION DATUM: Wichita City Datum
GROUND WATER: None detected ATD
OBSERVATIONS:

SHEET 2 of 2
PROJECT NO. 91C5303T
TASK NO.
DATE 8/2/91
RIG Mobile B-57

DEPTH, ft.	SAMPLE TYPE	SAMPLE RECOVERY	SAMPLE RESISTANCE	PP, KSF	DESCRIPTION	SYMBOL	ELEVATION	FIELD NOTES
25					SAME: Stiff, bluish-tan, highly plastic CLAY with trace of fine sand (CH)			
	CS		P		Becoming olive-brown, blocky, weathered residuum shale		1320	
30								
	CS		P	33				
					SHALE: Stiff, dark bluish-gray, blocky, weathered (SH)		1315	
35								Bottom of Boring 35.0' Temporary well MW-2 installed upon completion of boring
							1310	
40								
							1305	
45								
							1300	
50								

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Figure No. A-13

MW-3

BORING LOG

B-5

PROJECT NAME: Unocal Chemicals Division
PROJECT LOCATION: Wichita, Kansas
LOGGED BY: B. Hedenkamp DRILLED BY: Layne-Western
SURFACE ELEVATION: ELEVATION DATUM: Wichita City Datum
GROUND WATER: Water enters @ 20.0' ATD
OBSERVATIONS:

SHEET 1 of 2
PROJECT NO. 91C5303T
TASK NO.
DATE 7/31/91
RIG Mobile B-57

DEPTH, ft.	SAMPLE TYPE	SAMPLE RECOVERY	SAMPLE RESISTANCE	PP, KSF	DESCRIPTION	SYMBOL	ELEVATION	FIELD NOTES
0					Soft, dark brown, Clayey SILT with roots (OL)			Boring advanced with 6-1/4" dia. HSA
	CS		P		Stiff, light olive-gray, highly plastic, Silty CLAY with trace of fine sand (CH)			Continuously drilled inside of augers; HSA CA=3-1/4" Hollow Stem Auger Continuous Sampler
					With fine-medium sand and gravel-sized carbonate (?) nodules			WC>PL
5								WC<PL
	CS		P		With high angle fractures lined with manganese (?)			
10					Becoming medium			
	CS		P		Becoming reddish-brown			WC<PL
15					Becoming olive-gray with thin laminae residuum appearance			
					Becoming very dark reddish-brown			
	CS		P		Becoming olive-gray			WC<PL
20								∇ Water detected ATD
	CS		P		Becoming soft with occasional 1-2" gypsum seams			WC>PL
25								

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Figure No. A-8

BORING LOG

B-5

PROJECT NAME: Unocal Chemicals Division
PROJECT LOCATION: Wichita, Kansas
LOGGED BY: B. Hedenkamp — DRILLED BY: Layne-Western
SURFACE ELEVATION: — ELEVATION DATUM: Wichita City Datum
GROUND WATER: Water enters @ 20.0' ATD
OBSERVATIONS:

SHEET 2 of 2
PROJECT NO. 91C5303T
TASK NO.
DATE 7/31/91
RIG Mobile B-57

DEPTH, ft.	SAMPLE TYPE	SAMPLE RECOVERY	SAMPLE RESISTANCE	SAMPLE PP, KSF	DESCRIPTION	SYMBOL	ELEVATION	FIELD NOTES
25	CS		P		SAME: Soft, olive-gray, highly plastic, Silty CLAY with 4" gypsum seam (CH)			
					SHALE: Medium to stiff, dark grayish-black with occasional very hard zones containing gypsum (SH)			
30								Bottom of Boring 30.0' Boring grouted to surface upon completion
35								
40								
45								
50								

Woodward-Clyde Consultants

Figure No. A-9

MW-4

BORING LOG

B-1

PROJECT NAME: Unocal Chemicals Division
PROJECT LOCATION: Wichita, Kansas
LOGGED BY: B. Hedenkamp — DRILLED BY: Layne-Western
SURFACE ELEVATION: 1348.2 — ELEVATION DATUM: Wichita City Datum
GROUND WATER: Water enters @ 12.0' ATD
OBSERVATIONS:

SHEET 1 of 1
PROJECT NO. 91C5303T
TASK NO.
DATE 3/5/90
RIG Mobile B-61

DEPTH, ft.	SAMPLE TYPE	SAMPLE RECOVERY	SAMPLE RESISTANCE	SAMPLE PP, KSF	DESCRIPTION	SYMBOL	ELEVATION	FIELD NOTES
0	CS		P		Loose, dark brown, Clayey SILT (OL)			Boring advanced with 6-1/4" dia. HSA
					Firm-stiff, dark brown to dark gray, low plastic, Silty CLAY (CL)		1345	Continuously drilled inside of augers HSA CA=3-1/4" Hollow Stem Auger Continuous Sampler
5	CS		P		Becoming soft-firm and medium grayish-brown Showing desiccation partings			WC<PL
					Becoming stiff with iron staining (?) and calcareous (?) nodules Becoming firm-stiff, reddish-brown, with fine to medium-grained sand		1340	
10	CS		P		Very stiff, gray, highly plastic CLAY with some silt (CH)			WC>PL
					Medium dense, medium to coarse-grained, poorly graded SAND, coarsening downward (SP)		1335	Water detected ATD
15	CS		P		SHALE: Very stiff, blue-gray, highly weathered, with iron (?) partings (SH)			WC<PL
					Becoming blocky and less weathered		1330	
20							1325	Bottom of Boring 18.7' Boring grouted to surface upon completion
25								

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Figure No. A-1

Nov 11, '93

MAUDE ENVIRONMENTAL | FIELD BOREHOLE LOG | BOREHOLE NUMBER MW-5

PROJECT NUMBER 91-1113.03
PROJECT NAME UNOCAL-WICHITA
LOCATION 2100 EAST 37TH STREET, WICHITA, KS
DRILLING COMPANY LAYNE, INC.
RIG TYPE & NUMBER MOBILE B-57
DRILLING METHOD 4.25" HOLLOWSTEM AUGER
WEATHER CLEAR
FIELD PARTY JAR, JPH
GEOLOGIST SAME
DATE BEGUN 10/30/92 DATE COMPLETED 10/30/92

FIELD BOOK NO
TOTAL DEPTH 27'
GROUND SURFACE ELEVATION 1348.10 FT AMSL
SHEET 1 OF 2

STATIC WATER LEVEL (BLS)		
	While Drilling	After Boring
Depth(ft)	12.6 MD	7.89 AB
Time		
Date		

DEPTH	HEADSPACE CONCENTRATION (PPM) 0 1 1000	SAMPLE TYPE	SAMPLE INTERVAL	LITHOLOGY DESCRIPTION	LITHOLOGY	WELL INSTALLATION
0				Flush-mount casing protector with locking well cap installed at ground surface 4-inch Schedule 40 stainless steel casing with 4-inch stainless steel screen (0.010-inch slot size)		
		B-1		ORGANIC CLAY Black, moist-wet, organic, silty CLAY (cl), with trace fine sand and root fragments		
4.0		SS-1		SILTY CLAY Tan-olive mottled, silty CLAY (cl), sl moist with trace fine sand		
5				FAT CLAY Tan-lt orange, sl moist, highly plastic, CLAY (ch)		
7.0		B-2		SILTY CLAY Tan, silty, sl moist, CLAY (cl), trace coarse/fine sand. -increasing coarse sand at 6.5' -becomes blocky at 9.5', with olive-tan mottling sl moist-wet at 12.0' -tan, clayey silt lens from 12.2-12.4' -becomes olive-bluish olive at 12.4' -sl moist-wet at 12.7'. -hard cemented clay nodules at 12.9' -becomes reddish tan and blocky at 14.5, with olive-tan mottling at 15.5' -hard cemented clay nodules at 17.0', 17.5', and 18.5' -becomes dryer and blockyer with depth, trace shale fragments, becomes moist-wet at 21.0'		
10		SS-2				
		CR-3				
15		SS-3				
20		B-4				
23.0		B-5		WEATHERED SHALE Black, sl moist, silty, weathered SHALE (SH), with interbedded hard shale layers at 23'. -tan-olive mottling at 23.5'		
25						

w. alt BR at 9.5

alt WAD-SH 23

Nov 11 '93

MW-5

MAUDE ENVIRONMENTAL | FIELD BOREHOLE LOG | BOREHOLE NUMBER MW-5

PROJECT NUMBER 91-1113.03
PROJECT NAME UNOCAL-WICHITA
LOCATION 2100 EAST 37TH STREET, WICHITA, KS
DRILLING COMPANY LAYNE, INC.
RIG TYPE & NUMBER MOBILE B-57
DRILLING METHOD
WEATHER CLEAR
FIELD PARTY JAR, JPH
GEOLOGIST SAME
DATE BEGUN 10/30/92 DATE COMPLETED 10/30/92

FIELD BOOK NO
TOTAL DEPTH 27'
GROUND SURFACE ELEVATION 1348.10 FT AMSL
SHEET 2 OF 2

STATIC WATER LEVEL (BLS)		
	While Drilling	After Boring
Depth(ft)	12.6 MD	7.89 AB
Time		
Date		

DEPTH	HEADSPACE CONCENTRATION (PPM) 0 1 1000	SAMPLE TYPE	SAMPLE INTERVAL	LITHOLOGY DESCRIPTION	LITHOLOGY	WELL INSTALLATION
25		SS-4		WEATHERED SHALE -becomes blocky with depth		
				Boring Terminated at 27'		
30						
35						
40						
45						
50						

Nov 11, 93

MAUDE ENVIRONMENTAL — FIELD BOREHOLE LOG

BOREHOLE NUMBER: MW-8

PROJECT NUMBER: 91-1113.03
PROJECT NAME: UNOCAL-WICHITA
LOCATION: 2100 EAST 37TH STREET, WICHITA, KS
DRILLING COMPANY: LATNE, INC.
RIG TYPE & NUMBER: MOBILE B-57
DRILLING METHOD:
WEATHER: CLEAR
FIELD PARTY: JAR, JPH
GEOLOGIST: BANE
DATE BEGUN: 10/28/92 DATE COMPLETED: 10/28/92

FIELD BOOK NO:
TOTAL DEPTH: 20'
GROUND SURFACE ELEVATION: 1328.00 FT AMSL
SHEET 1 OF 1

STATIC WATER LEVEL (BLS)		
	While Drilling	After Boring
Depth(ft)	13.0 WD	3.06 AB
Time		
Date		

DEPTH	HEADSPACE CONCENTRATION (PPM) 0.1 – 1000	SAMPLER TYPE	SAMPLE INTERVAL	LITHOLOGY DESCRIPTION	LITHOLOGY	WELL INSTALLATION
0		R-1		Flush-mount casing protector with locking well cap installed at ground surface. 2-inch Schedule 40 stainless steel casing with 2-inch stainless steel screen (0.010-inch slot size)		
				ORGANIC CLAY: Black, silty, organic CLAY, with some fine sand and root fragments (ol)		
5		SS-1		SILTY CLAY: Orange-brown, silty CLAY, some med-fine sand (cl). -becomes olive-tan at 2.5' with iron staining. -dk brown mottling at 5.5'		
7.0		R-2		FAT CLAY: Tan-dk brown highly plastic CLAY from 7.0-7.2' (ch)		
9.5				SILTY CLAY: Tan, silty, CLAY, with trace fine shale fragments (cl)		
10		SS-2		WEATHERED SHALE: Black-dk gray, silty, clayey weathered SHALE (SH). -increasing moist, silty clay at 11.3' -with moist-wet, white-orange gypsum seam at 13.0' -becomes dry, with olive-gray mottling at 14.0' -wet, white-orange gypsum seams at 15.5 and 17.0' -becomes hard at 17.0', with interbedded, dry gypsum seams		
15		R-3				
		R-4				
20				Boring Terminated at 20'		

Nov 11, 93

MAUDE ENVIRONMENTAL — FIELD BOREHOLE LOG

BOREHOLE NUMBER: MW-10

PROJECT NUMBER: 91-1113.03
PROJECT NAME: UNOCAL-WICHITA
LOCATION: 2100 EAST 37TH STREET, WICHITA, KS
DRILLING COMPANY: LATNE, INC.
RIG TYPE & NUMBER: MOBILE B-57
DRILLING METHOD: 4.25" HOLLOWSTEM AUGER
WEATHER: CLEAR
FIELD PARTY: JAR, JPH
GEOLOGIST: BANE
DATE BEGUN: 10/31/92 DATE COMPLETED: 10/31/92

FIELD BOOK NO:
TOTAL DEPTH: 40'
GROUND SURFACE ELEVATION: 1337.90 FT AMSL
SHEET 1 OF 2

STATIC WATER LEVEL (BLS)		
	While Drilling	After Boring
Depth(ft)	14.5 WD	11.21 AB
Time		
Date		

DEPTH	HEADSPACE CONCENTRATION (PPM) 0.1 – 1000	SAMPLER TYPE	SAMPLE INTERVAL	LITHOLOGY DESCRIPTION	LITHOLOGY	WELL INSTALLATION
0		R-1		Flush-mount casing protector with locking well cap installed at ground surface. 2-inch Schedule 40 stainless steel casing with 2-inch stainless steel screen (0.010-inch slot size)		
				ORGANIC CLAY: Black, silty, organic CLAY, with trace fine sand and root fragments (ol)		
5		SS-1		SILTY CLAY: Tan-gray mottled, silty CLAY, with some coarse-fine sand, with black, organic root fragments from 1.0-3.0' (cl) -slightly moist at 5.0' -increasing silt at 7.0', becoming dryer with depth -increasing silt at 11.0'		
10		R-2				
12.0		SS-2		FAT CLAY: Tan-gray, mottled, highly plastic, sl moist CLAY (ch)		
13.0		R-3		SILTY CLAY: Tan, silty, CLAY (cl), increased coarse-fine sand, becoming moist-wet at 14.5' -black, organic mottling, becoming blocky and wet at 18.0', with well graded white calcareous gravel at 18.5' -increased med-fine sand at 22.0'		
15						
20		R-4				
22.5		R-5		SAND: Tan, wet, coarse-fine, well graded SAND (sw) with coarse-fine well graded, well rounded gravel at 24.0'		
24.0				SILTY CLAY: Tan-lt brown, silty CLAY, with some coarse-fine sand from 24-25' (cl)		

Nov 11, 93

MAUDE ENVIRONMENTAL — FIELD BOREHOLE LOG

BOREHOLE NUMBER: MW-10

PROJECT NUMBER 91-1113.03
PROJECT NAME UNOCAL-WICHITA
LOCATION 2100 EAST 37TH STREET, WICHITA, KS
DRILLING COMPANY LAYNE, INC.
RIG TYPE & NUMBER MOBILE B-57
DRILLING METHOD
WEATHER CLEAR
FIELD PARTY JAR, JSH
GEOLOGIST BAKE
DATE BEGUN 10/31/92 DATE COMPLETED 10/31/92

FIELD BOOK NO
TOTAL DEPTH 40'
GROUND SURFACE ELEVATION 1337.90 FT AMSL
SHEET 2 OF 2

STATIC WATER LEVEL (BLS)		
	WO-While Drilling	AB-After Boring
Depth(ft)	14.3 WO	11.21 AB
Time		
Date		

DEPTH	HEADSPACE CONCENTRATION (PPM) 0.1 – 1000	SAMPLER TYPE	SAMPLE INTERVAL	LITHOLOGY DESCRIPTION	LITHOLOGY	WELL INSTALLATION
26.5		R-6		SAND Tan, coarse-fine, well graded SAND and gravel, with interbedded olive-gray mottled silty clay and clayey sand, trace white, well rounded, calcareous nodules (sw)		
31.0		R-7		SILTY CLAY Olive-tan, silty CLAY, trace fine sand from 30.0-31.0' (cl)		
33.0		R-8		SAND Olive-tan, silty, clayey, well graded SAND, with interbedded olive, silty clay, with trace white snail shells and white gypsum crystals (sw) med-fine, cemented sand at contact (33')		
				WEATHERED SHALE Olive-tan, silty, clayey, weathered SHALE, trace white gypsum crystals -becomes hard, black and blocky at 34.5' (SH) -moist-wet at 37.0' with increased silt and clay -becomes hard with trace gypsum crystals at 38.0' Boring terminated at 40'		

Nov 11, 93

MAUDE ENVIRONMENTAL — FIELD BOREHOLE LOG

BOREHOLE NUMBER: MW-11

PROJECT NUMBER 91-1113.03
PROJECT NAME UNOCAL-WICHITA
LOCATION 2100 EAST 37TH STREET, WICHITA, KS
DRILLING COMPANY LAYNE, INC.
RIG TYPE & NUMBER MOBILE B-57
DRILLING METHOD 4.25" HOLLOWSTEM AUGER
WEATHER CLEAR
FIELD PARTY JAR, JSH
GEOLOGIST BAKE
DATE BEGUN 10/29/92 DATE COMPLETED 10/29/92

FIELD BOOK NO
TOTAL DEPTH 34'
GROUND SURFACE ELEVATION 1325.80 FT AMSL
SHEET 1 OF 2

STATIC WATER LEVEL (BLS)		
	WO-While Drilling	AB-After Boring
Depth(ft)	13.0 WO	8.84 AB
Time		
Date		

DEPTH	HEADSPACE CONCENTRATION (PPM) 0.1 – 1000	SAMPLER TYPE	SAMPLE INTERVAL	LITHOLOGY DESCRIPTION	LITHOLOGY	WELL INSTALLATION
1.0		R-1		Flush-mount casing protector with locking well cap installed at ground surface 2-inch Schedule 40 stainless steel casing with 2-inch stainless steel screen (0.010-inch slot size)		
3.0		SS-1		ORGANIC CLAY Black, silty, organic CLAY, with trace fine sand and root fragments (oil)		
5		R-2		SILTY CLAY Tan-black, silty, CLAY, sl moist with trace med-fine sand (cl)		
9.5		R-3		SAND Tan-orange, moist-wet, silty, well graded, coarse-fine SAND (sw), with interbedded clayey sand from 3.0-3.5' -becomes dk brown-gray at 4.0' -becomes orange-tan at 4.5' with increasing silt at 6.0'		
		R-4		SILTY CLAY Tan, moist-wet, silty CLAY, with trace orange mottling and increasing silt at 13.0' (cl) -silty, wet, orange sand lens at 17.0' -becomes dk tan with increased coarse-medium sand at 17.5' -becomes tan-olive at 19.0' with trace coarse-fine sand and white calcareous pebble inclusions -becomes bluish-olive with white snail shells at 20.5' -becomes hard and blocky at 25.0' with decreasing coarse sand at 27.0', with trace fine shale fragments, wood fragments, and fine white calcareous inclusions		
		R-5				

alt WBR at 9.5

Nov 11,93

MAUDE ENVIRONMENTAL — FIELD BOREHOLE LOG

BOREHOLE NUMBER: MW-11

PROJECT NUMBER 91-1113.03
PROJECT NAME UNOCAL-WICHITA
LOCATION 2100 EAST 37TH STREET, WICHITA KS
DRILLING COMPANY LAYNE, INC.
RIG TYPE & NUMBER MOBILE B-57
DRILLING METHOD
WEATHER CLEAR
FIELD PARTY JAR, JRH
GEOLOGIST BAKE
DATE BEGUN 10/29/92 DATE COMPLETED 10/29/92

FIELD BOOK NO
TOTAL DEPTH 34'
GROUND SURFACE ELEVATION 1325.80 FT AMSL
SHEET 2 OF 2

STATIC WATER LEVEL (BLS)		
	While Drilling	After Boring
Depth(ft)	3.0 WD	2.84 AB
Time		
Date		

DEPTH	HEADSPACE CONCENTRATION (PPM) 0.1 – 1000	SAMPLER TYPE	SAMPLE INTERVAL	LITHOLOGY DESCRIPTION	LITHOLOGY	WELL INSTALLATION
0						
5		R-6				
10		R-7		WEATHERED SHALE — Bluish-gray, silty clayey weathered SHALE (SH). -Becomes stiff-blocky at 33.0' with interbedded lt gray, sl moist silt		
35				Boring Terminated at 34'		
40						
45						
50						

Nov 11,93

MAUDE ENVIRONMENTAL — FIELD BOREHOLE LOG

BOREHOLE NUMBER: MW-12S

PROJECT NUMBER 91-1113.03
PROJECT NAME UNOCAL-WICHITA
LOCATION 2100 EAST 37TH STREET, WICHITA KS
DRILLING COMPANY LAYNE, INC.
RIG TYPE & NUMBER MOBILE B-40
DRILLING METHOD 4.25" HOLLOWSTEM AUGER
WEATHER CLEAR
FIELD PARTY JAR, JRH
GEOLOGIST BAKE
DATE BEGUN 11/03/92 DATE COMPLETED 11/03/92

FIELD BOOK NO
TOTAL DEPTH 22'
GROUND SURFACE ELEVATION 1345.30 FT AMSL
SHEET 1 OF 1

STATIC WATER LEVEL (BLS)		
	While Drilling	After Boring
Depth(ft)	13.5 WD	17.29 AB
Time		
Date		

DEPTH	HEADSPACE CONCENTRATION (PPM) 0.1 – 1000	SAMPLER TYPE	SAMPLE INTERVAL	LITHOLOGY DESCRIPTION	LITHOLOGY	WELL INSTALLATION
0				Protective well casing with locking well cap installed approximately 2.5 feet above grade. 2-inch Schedule 40 stainless steel casing with 2-inch stainless steel screen (0.010-inch slot size)		
				0 ORGANIC CLAY — Black, silty, organic CLAY, with trace fine sand and root fragments (ol)		
5				1 SILTY CLAY — Tan, silty, sl moist CLAY with trace coarse-fine sand (cl). trace organic root fragments. -increasing coarse-fine sand at 3.5' and dk brown organic mottling at 5.0'		
10				11' SAND — Tan, silty, moist, well graded coarse-fine SAND, with interbedded silty clay. -increasing silt at 16.0' with white calcareous mottling (sm)		
15				16' SILTY CLAY — Tan, silty, moist CLAY (cl). -decreasing sand with depth. -trace gray-black mottling at 21.0'		
20				Boring Terminated at 22'		

Nov 11, 93

MAUDE ENVIRONMENTAL	FIELD BOREHOLE LOG	BOREHOLE NUMBER MW-120

PROJECT NUMBER 91-1113.03
PROJECT NAME UNOCAL-WICHITA
LOCATION 2100 EAST 37TH STREET, WICHITA, KS
DRILLING COMPANY LAYNE, INC.
RIG TYPE & NUMBER MOBILE B-40
DRILLING METHOD
WEATHER CLEAR
FIELD PARTY JAR, JRH
GEOLOGIST BAKE
DATE BEGUN 11/01/92 DATE COMPLETED 11/01/92

FIELD BOOK NO
TOTAL DEPTH 45'
GROUND SURFACE ELEVATION 1345.20 FT AMSL
SHEET 1 OF 2

STATIC WATER LEVEL (BLS)		
	WD=While Drilling	AB=After Boring
Depth(ft)	13.9 WD	17.50 AB
Time		
Date		

DEPTH	HEADSPACE CONCENTRATION (PPM) 0.1 – 1000	SAMPLER TYPE	SAMPLE INTERVAL	LITHOLOGY DESCRIPTION	LITHOLOGY	WELL INSTALLATION
0		B-1		Protective well casing with locking well cap installed approximately 2.5 feet above grade. 2-inch Schedule 40 stainless steel casing with 2-inch stainless steel screen (0.010-inch slot size)		
		SS-1		0 ORGANIC CLAY Black, silty, organic CLAY, with trace fine sand and root fragments (oil)		
5		B-2		1 SILTY CLAY Tan, silty, sl moist CLAY with trace coarse-fine sand (cl). trace organic root fragments. -increasing coarse-fine sand at 3.5' and dk brown organic mottling at 6.0'		
10		SS-2		11 SAND Tan, silty, moist, well graded, coarse-fine SAND, with interbedded silty clay. -increasing silt at 16.0' with white calcareous mottling (sw)		
15		B-3		16 SILTY CLAY Tan, silty, moist CLAY (cl). -decreasing sand with depth. -trace gray-black mottling at 21.0' -increasing silt, moist-wet at 27.0'. trace black, fine shale fragments		
20		B-4				
25		B-5				

Nov 11, 93

MAUDE ENVIRONMENTAL	FIELD BOREHOLE LOG	BOREHOLE NUMBER MW-120

PROJECT NUMBER 91-1113.03
PROJECT NAME UNOCAL-WICHITA
LOCATION 2100 EAST 37TH STREET, WICHITA, KS
DRILLING COMPANY LAYNE, INC.
RIG TYPE & NUMBER MOBILE B-40
DRILLING METHOD
WEATHER CLEAR
FIELD PARTY JAR, JRH
GEOLOGIST BAKE
DATE BEGUN 11/01/92 DATE COMPLETED 11/01/92

FIELD BOOK NO
TOTAL DEPTH 45'
GROUND SURFACE ELEVATION 1345.20 FT AMSL
SHEET 2 OF 2

STATIC WATER LEVEL (BLS)		
	WD=While Drilling	AB=After Boring
Depth(ft)	13.9 WD	17.33 AB
Time		
Date		

DEPTH	HEADSPACE CONCENTRATION (PPM) 0.1 – 1000	SAMPLER TYPE	SAMPLE INTERVAL	LITHOLOGY DESCRIPTION	LITHOLOGY	WELL INSTALLATION
30		B-6				
		B-7		32 33		
35				35 SAND Tan-orange, moist-wet, silty, well graded, coarse-fine SAND (sw) with interbedded tan mottled silty clay and well graded, coarse fine gravel		
40		B-8		41 WEATHERED SHALE Terra-olive, silty clayey, weathered SHALE (SH), with interbedded lt gray, sl moist, silt. -becomes dk gray-black, unweathered, hard shale at 43.5' 43		
45		B-9		Boring Terminated at 45'		

Canonie Phase II

BORING LOG

PROJECT No. 94-153-0102
BORING No. MW-14
LOGGED BY CAt
PAGE No. 1 of 1

PROJECT NAME UNOCAL - WICHITA , KANSAS
BORING LOCATION N 5364.606 E 4847.851 SURFACE ELEVATION 1349.81
DRILLER JOHN GORNICK-LAYNE, INC. DATE: START 9/7/94 FINISH 9/7/94

DEPTH	SAMPLE No.	TYPE	INTERVAL FROM	TO	BLOW COUNT 0" 6" / 6" 12"	12" 18" / 18" 24"	REC (in)	USCS SOIL TYPE	PID (ppm)	CONTACT DEPTH	SOIL DESCRIPTION AND REMARKS	PIEZO
											dark brown organic clayey silt, (roots), some gravel, dry, compacted fill material	
5	1	CS	0.0	5.0			36		0	5.0		
								CL			mottled, moderate yellowish brown to light brown silty clay, moist	
10	2	CS	5.0	10.0			60		0			
										12.0	light brown silty clay with trace fine sand, moist	
								SC			dark yellowish brown clayey medium to coarse sand, trace light olive gray clay, strong odor, wet	
15	3	CS	10.0	15.0			60		200			
										18.0		
								SP			pale yellowish brown to olive gray medium	
20	4	CS	15.0	20.0			24		160	20.0	sand with trace coarse sand and clay,	
								GP			subrounded, wet	
										21.8	moderate yellowish brown coarse sand and gravel	
								CL		22.4	up to 1-inch diameter trace clay, saturated	
								CL/SC		24.5	moderate brown clay with trace sand	
25	5	CS	20.0	25.0			56		11.8		mottled, brown and olive silty clay with trace sand, at 24 feet 6-inch layer of clayey sand	
									4.3	27.0	mottled, olive and brown weathered bedrock, difficult drilling	
30	6	CS	25.0	27.0			24				Bottom of boring at 27 feet	
											Monitoring well MW-14 installed at a total depth of 27 feet. Refer to Appendix A for completion details.	
35											Photoionization Detector (PID) readings are from jar headspace analysis of grab samples from drill cuttings	
40											CS = continuous sampler	

Rev. 8-88

Canonie Phase II

BORING LOG

PROJECT No. 94-153-0104
BORING No. MW-15
LOGGED BY CAt/LAP
PAGE No. 1 of 1

PROJECT NAME UNOCAL - WICHITA , KANSAS
BORING LOCATION N 5683.025 E 4499.931 SURFACE ELEVATION 1345.06
DRILLER JOHN GORNICK-LAYNE, INC. DATE: START 9/7/94 FINISH 9/7/94

DEPTH	SAMPLE No.	TYPE	INTERVAL FROM	TO	BLOW COUNT 0" 6" / 6" 12"	12" 18" / 18" 24"	REC (in)	USCS SOIL TYPE	PID (ppm)	CONTACT DEPTH	SOIL DESCRIPTION AND REMARKS	PIEZO
											Topsoil-hard, dark organic, dry	
										2.0		
								CL			hard, dark yellowish orange to light olive gray silty clay, damp	
5	1	CS	0.0	5.0			60		0			
										6.5		
								ML			very stiff, light olive gray clayey silt, slightly cemented, fractured, at 6.9 feet 6-inch dark reddish brown clayey silt	
10	2	CS	5.0	10.0			60		0			
										14.5	very stiff, mottled, light olive gray to dark yellowish orange clayey silt, slightly cemented, fractured, damp	
15	3	CS	10.0	15.0			60	CL	0		hard, yellowish gray silty clay, damp, at 14.8 feet 1-inch thick cemented layer	
											hard, mottled, yellowish gray and light olive gray silty clay, laminated, slightly cemented, damp	
20	4	CS	15.0	20.0			60		0			
										21.0	as above	
											weathered shale	
	5	CS	20.0	23.0			36		0	23.0	difficult drilling at 22 feet, light olive gray shale	
											Bottom of boring at 23 feet	
25											Monitoring well MW-15 installed at a total depth of 23 feet. Refer to Appendix A for completion details.	
30											Photoionization Detector (PID) readings are from jar headspace analysis of grab samples from drill cuttings	
											no water encountered during drilling	
35												
40											CS = continuous sampler	

Rev. 8-88

Lanonie Phase II

BORING LOG

PROJECT No. 94-153-0104
BORING No. MW-16/SB-11
LOGGED BY LAP
PAGE No. 1 of 2

PROJECT NAME UNOCAL - WICHITA , KANSAS
BORING LOCATION N 5371.563 E 4848.635 SURFACE ELEVATION 1349.75
DRILLER JOHN GORNICK-LAYNE, INC. DATE: START 9/8/94 FINISH 9/27/94

DEPTH	SAMPLE No.	TYPE	INTERVAL FROM	INTERVAL TO	BLOW COUNT 0"-6"	6"-12"	12"-18"	18"-24"	REC (in)	USCS SOIL TYPE	PID (ppm)	CONTACT DEPTH	SOIL DESCRIPTION AND REMARKS	PIEZO
												4.0	Fill material	
5	1	SS	3.0	5.0	2	4	4	8		CL	0		stiff, moderate yellowish brown silty clay, trace sand, moist	
10											3.1	11.0		
	2	SS	10.0	12.0	3	5	7	8		CL		14.0	stiff, moderate yellowish brown to dark yellowish brown fine to medium sandy clay, moist	
15										SW	200	16.6	very loose, light olive gray medium to coarse sand and fine gravel up to 0.5-inch diameter, subrounded, saturated	
	3	SS	15.0	17.0	3	2	2	2		SC		19.0	light olive gray clayey sand (stained?)	
20										SW	60	21.5	loose, light brown medium to coarse sand and fine gravel up to 0.5-inch diameter, subrounded, saturated	
	4	SS	20.0	22.0	1	4	6	5		CL		24.5	light brown sandy clay, wet	
25											17.8	29.0	hard, mottled, dusky yellow to light olive brown weathered shale,	
	5	SS	25.0	27.0	5	8	17	23						
30	6	SS	30.0	31.5	13	26	27				3.8	32.5	hard, medium dark gray shale, laminated, damp	
35	7	SS	35.0	36.0	9	13					19.6		hard, dark gray blocky shale, less laminated, damp	
40	8	SS	40.0	41.0	10	15					10		as above	

Rev. 8-88

Lanonie Phase II

BORING LOG

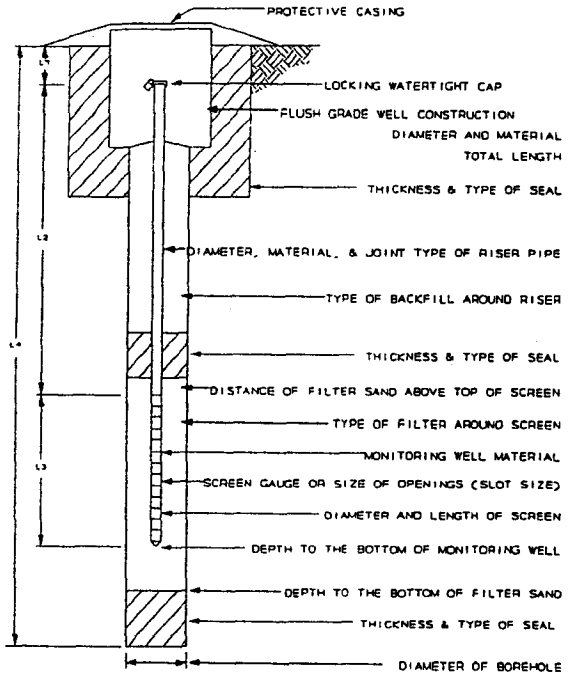
PROJECT No. 94-153-0104
BORING No. MW-16/SB-11
LOGGED BY LAP
PAGE No. 2 of 2

PROJECT NAME UNOCAL - WICHITA , KANSAS
BORING LOCATION N 5371.563 E 4848.635 SURFACE ELEVATION 1349.75
DRILLER JOHN GORNICK-LAYNE, INC. DATE: START 9/8/94 FINISH 9/27/94

DEPTH	SAMPLE No.	TYPE	INTERVAL FROM	INTERVAL TO	BLOW COUNT 0"-6"	6"-12"	12"-18"	18"-24"	REC (in)	USCS SOIL TYPE	PID (ppm)	CONTACT DEPTH	SOIL DESCRIPTION AND REMARKS	PIEZO
													dark gray shale, damp to moist	
45														
50													as above	
55														
60													as above	
												62.7		
													Bottom of boring at 62.7 feet	
65													Monitoring well MW-16 installed at a total depth of 62.7 feet. Refer to Appendix A for completion details.	
70													Photoionization Detector (PID) readings are from jar headspace analysis of grab samples from drill cuttings	
75													Drilled with 10.25-inch ID hollow stem augers to 40 feet on 9/8/94. Drilled with air rotary to 62.7 feet on 9/27/94. Descriptions from 41 feet to total depth based on observations of drill cuttings.	
80													Soil samples SB/SB-11/4-4.5/1 and SB/SB-11/26-26.5/2 collected from 4 to 4.5 and 26 to 26.5 feet for VOC laboratory analysis.	
													SS = split spoon sampler	

Rev. 8-88

Project	Unocal	Monitoring Well No.	MW-20
	Wichita, Kansas	Elevations:	
		Top of Riser:	1331.34
Delta No.	F095-157-1.0900	Ground Level:	1331.65



DIAMETER AND MATERIAL	8" Steel Vault
TOTAL LENGTH	1'
THICKNESS & TYPE OF SEAL	1' Concrete
DIAMETER, MATERIAL, & JOINT TYPE OF RISER PIPE	2" Stainless Steel/threaded
TYPE OF BACKFILL AROUND RISER	Concrete
THICKNESS & TYPE OF SEAL	2.9' Bentonite chips
DISTANCE OF FILTER SAND ABOVE TOP OF SCREEN	2.4 feet
TYPE OF FILTER AROUND SCREEN	20/40 sand
MONITORING WELL MATERIAL	Stainless Steel
SCREEN GAUGE OR SIZE OF OPENINGS (SLOT SIZE)	.010 slot
DIAMETER AND LENGTH OF SCREEN	2 inch/15 feet
DEPTH TO THE BOTTOM OF MONITORING WELL	24.5 feet
DEPTH TO THE BOTTOM OF FILTER SAND	24.5 feet
THICKNESS & TYPE OF SEAL	None
DIAMETER OF BOREHOLE	8"

L1 = .31 FT
L2 = 6.4 FT
L3 = 15 FT
L4 = 24.5 FT

Installation Completed
Date: 06/30/95
Time: 05:40

Delta Environmental Consultants, Inc.

Monitoring Well Water Level Measurements		
Date	Time	Water Level*
06/30/95	06:00	12.53

* Measure Point TOC

Delta Environmental Consultants Inc.

DRILLING LOG: MW-22

WELL LOCATION DIAGRAM

PLEASE SEE SITE MAPS

Boring/Monitoring Well Log sheet 1 of 2

Boring/Well No. MW-22
Client Name UNOCAL WICHITA
Site Location COLEMAN WAREHOUSE
Project No. F0-95-157-1.0900 Drilling Method 8" HOLLOW STEM AUGER
Logged By STEVE DAVIS/DENV. Sample Method CONT. SAMPLE
Drilling Co. LAYNE WESTERN INC. Date Surveyed 6/28/95
Driller JOHN GARNICK Surface Elevation
Date Drilled 6-28-95 Top of Casing Elevation

DEPTH IN FEET	WELL CONSTRUCTION DETAIL	OVA (ppm)	SAMPLE NO.	GRAPHIC LOG	SOIL CLASSIFICATION/DESCRIPTION (COLOR, TEXTURE, STRUCTURES)	SAMPLE RECOVERY
0					CONCRETE PAVEMENT	
		0.0	1	CL	SANDY CLAY-Med. Brown With Orange to Yellow Coloration; Sand Is M.G. to E.G. Quartz; Possible Fill.	
		0.0	2	CL	SILTY CLAY-Minor (≤ 10%)VFG Sand Present; Lt. Brown to Yellowish Brown; Soft; Plastic; Moderately Adhesive; No Odor Or Stain.	
		0.0	3			
		0.0	4	SM	SILTY SAND-Very Orangish Brown Color; Damp to Moist; No Stain Or Odor; Sand Is M.G. And Extremely Well Sorted.	
5		2.2	5			
		2.2	6	CL	CLAY-Slightly Silty Locally; Med. Brown; Damp to Dry; No Stain Or Odor.	
		2.2	7	CL	VERY SANDY CLAY-Trace Of Silt; Mottled Greyish Brown Color; Crumbly And Friable; No Odor Or Stain.	
		1.7	8	CL	SANDY CLAY-As Above, But With Much Lower Sand Content; Pure Clay(No Sand) At 7.5 Ft.; Extremely Firm And Hard; Dry to Damp; Mottled Brown/Grey Color.	
		1.7	9			
10		1.7	10	CL	CLAY-Very Firm/Very Hard/Non-Plastic; Stiff; Dry; Non Adhesive.	
		0.0	11	CL	SILTY CLAY-Dense; Mottled Light to Medium Brown Color.	
		0.0	12			
		0.0	13			
		0.0	14			
15		0.0	15	SM?CS	SILTY SAND/CLAYEY SAND-Extremely Wet; Light Brown; No Stain Or Odor.	

SILICA SAND
BENTONITE
PVC SCREEN
PVC BLANK
GROUNDWATER CONTACT 10.99'

CDM CRD TECHNOLOGY INC. 09.18.1995 16:42 NO.31 P. 7

Delta Environmental Consultants Inc.

DRILLING LOG: MW-22

Boring/Monitoring Well Log — sheet 2 of 2

Boring/Well No. MW-22
Project No. F0-95-157-1.0900 Site Location WICHITA KANSAS DISTRIB. FAC.

DEPTH IN FEET	WELL CONSTRUCTION DETAIL (CONT.)	OVA (ppm)	SAMPLE NO.	GRAPHIC LOG	SOIL CLASSIFICATION/DESCRIPTION (COLOR, TEXTURE, STRUCTURES)	SAMPLE RECOVERY
15					15	
		0.0	16	ML	SILTY SAND-Silt=20-30%; Sand Is Mostly F.G. With Occasional M.G.; Light Brown.	
		0.0	17	CL	SANDY CLAY WITH SILT-Firm And Dryer Than Surrounding Sands.	
		0.0	18	ML	SILTY SANDS-Flowing And Saturated; Light Brown; Silt=10-25% Locally; Interlayered Clay Beds (< 1") Are Present Near 20 Ft. And Are Dryer And Harder Than The Silty Sand.	
		0.0	19			
20		0.1	20		20	
		0.1	21	ML	CLAYEY TO SILTY SAND-(Gravel Up to 1.2" Present(Subangular) Below 22.0 Ft.); Very Wet; Saturated; Flowing Sand.	
		0.1	22			
		0.1	23			
		0.1	24	CL	SHALE-Weathered; Very Hard; Olive Grey To Greyish Tan Color.	
25		0.1	25	CL	SHALE-Slightly Weathered; Dark Olive Grey; Extremely Hard. 25	

TOTAL DEPTH DRILLED=24.4'

SILICA SAND
BENTONITE
PVC SCREEN
PVC BLANK
GROUNDWATER CONTACT 10.09'

Canonie Phase II

BORING LOG

PROJECT No. 94-153-0102
BORING No. R-5
LOGGED BY LAP
PAGE No. 1 of

PROJECT NAME UNOCAL - WICHITA , KANSAS
BORING LOCATION N 4517.318 E 4460.692 SURFACE ELEVATION 1337.54
DRILLER JOHN GORNICK-LAYNE, INC. DATE: START 9/15/94 FINISH 9/15/94

DEPTH	SAMPLE No.	TYPE	INTERVAL FROM	TO	BLOW COUNT 0" 6" / 6" 12"	6" 12" / 12" 18"	12" 18" / 18" 24"	REC (in)	USCS SOIL TYPE	PID (ppm)	CONTACT DEPTH	SOIL DESCRIPTION AND REMARKS	PIEZO
												Fill material	
5													
												moderate yellowish brown silty clay, plastic, moist	
10										1.8			
												moderate yellowish brown silty clay with trace fine sand and gravel up to 0.25-inch, sticky, wet	
15										9			
20											21.0	weathered bedrock, difficult drilling	
25											25.2	Bottom of boring at 25.2 feet	
30												Extraction well R-5 installed at a total depth of 25.2 feet. Refer to Appendix A for completion details.	
35												Photoionization Detector (PID) readings are from jar headspace analysis of grab samples from drill cuttings	
40												Boring log descriptions based on observations of drill cuttings	

Rev. 8-88

POLLUTION CONTROL INC.
Remedial Services

LOG

BORING NO.

WELL NO. WW-1 Union Pacific

CLIENT: Union Pacific Railroad		JOB NUMBER: 96255
PROJECT: Wichita Fueling Drip Pans	LOCATION: Wichita, Kansas	
DRILLED BY: Layne Western Co	DRILLER: John Gornick	METHOD: 6 1/4" HSA
DATE START: 5-12-92	DATE COMP: 5-13-92	SURF. EL: TD: 25.0'
LOGGED BY: Bruce Zuccaro	APPROVED BY:	DEPTH TO WATER: 19.35'

WELL COMP	DPT	DESCRIPTION	GRAPHIC LOG USCS CODE	BLOW COUNT	OVH	SAMPLE NUMBER	TPH
	0	0.0' - 0.7' Fill,gravel & ocs coal slag;dry	AF, GC		0.5-0.8		
		0.7' - 2.3' GRAVEL; bk & v dk bn,sl porous,abdt Clay,fm, sl ptc,sl org,sl Silty;dry,pos sl oil stain	OL		0.2-0.5		
	5	2.3' - 3.7' CLAY; bk,fm,sl ptc,sl org,sl Silty; dry,pos oil stain	CL		0.5-0.8		
		3.7' - 7.4' CLAY; v dk bn,ocs dk rdsh-orng,clean, fm,sl ptc,inorg,lo perm;dry	CL		0.2-0.5	WW1-11	
	10	7.4' - 9.5' CLAY; dk bn & v dk gysh-gn,clean,fm, sl ptc,inorg,lo perm;sl moist	SW, CL		0.2-0.5		
		9.5' - 10.4' CLAY; dk bn,sft,sl ptc,inorg,abdt Silt, sl porous,sl perm;moist	CL		0.2-0.5	WW1-16 WW1-26 (Dup)	
	15	10.4' - 13.0' SAND; med gy & dk bn,med grn,wl-gdd,lse, v porous;v moist,sl gasoline odor	SW		0.2-0.5		
	20	13.0' - 15.9' CLAY; dk gnsh-bn,sft-fm,sl ptc,inorg, ocs Silt,sl porous;moist	SP		8.6-8.0		
		15.9' - 18.2' SAND; dk-lt bn,med grn,wl-gdd,lse, porous & perm;moist,sl gasoline odor	SP		1.9-8.0		
	25	18.2' - 20.6' SAND; dk bn,cs grn,wl-gdd,lse,porous & perm; wet,sl gasoline odor			0.0-0.2		
		20.6' - 25.0' SAND; med bnsh-orng,cs-med grn,ply-gdd,lse, porous & perm;wet,sl gasoline odor			5.0-3.8		
	30	Total Depth = 25.0'			28.6-43.0		
					60-128		
					7.0-39.0		
					5.4-8.0		
	35				8.0		
	40						

LOG OF BORING NO. P-3

OWNER: USD 259	ARCHITECT/ENGINEER
SITE: SCHOOL SERVICE CENTER WICHITA, KANSAS	PROJECT: USD 259 RI

Surface Elev.: ft.

GRAPHIC LOG	DESCRIPTION	DEPTH (FT.)	USCS SYMBOL	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES RECOVERY	SAMPLES SPT - N BLOWS / FT.	TESTS MOISTURE, %	TESTS FIELD VAPOR TEST (ppm)
	LEAN CLAY Loose, medium pack, brown.			1					ND
				2					1
		5							
	8.0								
	FAT CLAY Olive @ 8'-9', red brown @ 9'-10'			3					1
		10							
	13.0								
	LEAN CLAY Olive-red brown, trace fine sand.			4					ND
		15							
	18.0								
	LEAN CLAY Olive, trace fine sand.			5					ND
		20							
	23.0								
	24.0 LEAN CLAY Sandy @ 23' limey shale @ 24',probe refusal.			6					1
	SHALE GRay, limey								
	BOTTOM OF PROBE @ 24'								
	Soil descriptions based on visual								

Continued Next Page

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

WATER LEVEL OBSERVATIONS		
WL	▼	▼
WL		
WL		

Terracon

BORING STARTED	10-10-94
BORING COMPLETED	10-10-94
RIG GEOPROBE	FOREMAN MDN
APPROVED DAA	JOB # 52935037

LOG OF BORING NO. P-3

OWNER: USD 259

ARCHITECT/ENGINEER:

SITE: SCHOOL SERVICE CENTER, WICHITA, KANSAS

PROJECT: USD 259 RI

GRAPHIC LOG	DESCRIPTION	DEPTH (FT.)	USCS SYMBOL	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY	SAMPLES: SPT - N BLOWS / FT.	TESTS: MOISTURE, %	TESTS: FIELD VAPOR TEST (ppm)		
	and tactual observations of disturbed soil samples. Laboratory analysis or engineering classification may indicate different material types.										

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

WATER LEVEL OBSERVATIONS		
WL	▽	▼
WL		
WL		

Terracon

BORING STARTED	10-10-94
BORING COMPLETED	10-10-94
RIG GEOPROBE	FOREMAN MDN
APPROVED DAA	JOB # 52935037

LOG OF BORING NO. P-4

OWNER: USD 259

ARCHITECT/ENGINEER:

SITE: SCHOOL SERVICE CENTER, WICHITA, KANSAS

PROJECT: USD 259 RI

GRAPHIC LOG	DESCRIPTION	DEPTH (FT.)	USCS SYMBOL	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY	SAMPLES: SPT - N BLOWS / FT.	TESTS: MOISTURE, %	TESTS: FIELD VAPOR TEST (ppm)		
	Surface Elev.: ft.										
	TOPSOIL loose, roots, medium brown.			1					ND		
	3.0										
	LEAN CLAY Mediun brown, stiff			2					ND		
	8.0	5									
	LEAN-FAT CLAY 8-9' olive, 9-10' red brown.			3					ND		
	13.0	10									
	LEAN-FAT CLAY Olive, soft			4					ND		
	18.0 ▽	15									
	19.0 LEAN-FAT CLAY 20.0 Olive			5					ND		
	SHALE Limey, charcoal gray	20									
	Probe refusal @ 20'.										
	BOTTOM OF PROBE @ 20'										

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

WATER LEVEL OBSERVATIONS		
WL	▽ 18	▼
WL		
WL		

Terracon

BORING STARTED	10-10-94
BORING COMPLETED	10-10-94
RIG GEOPROBE	FOREMAN MDN
APPROVED DAA	JOB # 52935037

LOG OF BORING NO. P-31

OWNER: USD 259
ARCHITECT/ENGINEER:
SITE: SCHOOL SERVICE CENTER, WICHITA, KANSAS
PROJECT: USD 259 RI

GRAPHIC LOG	DESCRIPTION (Surface Elev.: ft.)	DEPTH (FT.)	USCS SYMBOL	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY	SAMPLES: SPT - N BLOWS / FT.	TESTS: MOISTURE, %	TESTS: FIELD VAPOR TEST (ppm)		
	SAND Gravel to .75', medium grain .75-2'. 3.0										
	SAND Medium grain 8.0	5									
	CLAY Olive gray, very soft, silty, red mottling, dry to wet shale 13.0	10									
	SHALE Olive gray 17.0	15									
	BOTTOM OF PROBE @ 17' Soil descriptions based on visual and tactual observations of disturbed soil samples. Laboratory analysis or engineering classification may indicate different material types.										

BOS 8

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

WATER LEVEL OBSERVATIONS		
WL	▽ 15	▼
WL		
WL		

Terracon

BORING STARTED	10-19-94
BORING COMPLETED	10-19-94
RIG GEOPROBE	FOREMAN RW
APPROVED DAA	JOB # 52935037

LOG OF BORING NO. P-37

OWNER: USD 259
ARCHITECT/ENGINEER:
SITE: SCHOOL SERVICE CENTER, WICHITA, KANSAS
PROJECT: USD 259 RI

GRAPHIC LOG	DESCRIPTION (Surface Elev.: ft.)	DEPTH (FT.)	USCS SYMBOL	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY	SAMPLES: SPT - N BLOWS / FT.	TESTS: MOISTURE, %	TESTS: FIELD VAPOR TEST (ppm)		
	0.5 CONCRETE PAVING			1					ND		
	0.8 GRAVEL To .75' 3.0										
	CLAY Dk. gray, mottled, olive gray, silty, moist, firm to 2'.	5		2					ND		
	CLAY Dk. gray brown, very soft, moist, firm. 8.0										
	CLAY Gray brown, mottled, black, very soft, moist, blocky, some fine to medium sand. 13.0	10		3					ND		
	SHALE Olive gray to brown, weathered. 18.0	15		4					ND		
	SHALE Olive gray, weathered. 21.0	20		5					ND		
	Refusal @ 21' BOTTOM OF PROBE @ 21' Soil descriptions based on visual and tactual observations of disturbed soil samples. Laboratory analysis or engineering classification may indicate different material types.										

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

WATER LEVEL OBSERVATIONS		
WL	▽	▼
WL		
WL		

Terracon

BORING STARTED	10-20-94
BORING COMPLETED	10-20-94
RIG GEOPROBE	FOREMAN MDN
APPROVED DAA	JOB # 52935037

LOG OF BORING NO. P-38

OWNER: USD 259
ARCHITECT/ENGINEER:
SITE: SCHOOL SERVICE CENTER, WICHITA, KANSAS
PROJECT: USD 259 RI

GRAPHIC LOG	DESCRIPTION	DEPTH (FT.)	USCS SYMBOL	SAMPLES: NUMBER	TYPE	RECOVERY	SPT - N BLOWS / FT.	TESTS: MOISTURE, %	FIELD VAPOR TEST (ppm)
	Surface Elev.: ft.								
	0.5 CONCRETE			1					ND
	CLAY 3.0 Dk. brown, sandy.								
	CLAY Dk. brown to black			2					ND
		5							
				3					ND
		10							
				4					ND
		15							
	20.0	20		5					ND
	CLAY 22.0 Light olive, with gravel size caliche nodules.								
	CLAY? No sampling below GW. 25.0								
	SHALE Hard, stiff.	25							
		30							

Continued Next Page

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

WATER LEVEL OBSERVATIONS		
WL	▽ 23	▼
WL		
WL		

Terracon

BORING STARTED	10-18-94		
BORING COMPLETED	10-18-94		
RIG	GEOPROBE	FOREMAN	MDN
APPROVED	DAA	JOB #	52935037

LOG OF BORING NO. P-38

OWNER: USD 259
ARCHITECT/ENGINEER:
SITE: SCHOOL SERVICE CENTER, WICHITA, KANSAS
PROJECT: USD 259 RI

GRAPHIC LOG	DESCRIPTION	DEPTH (FT.)	USCS SYMBOL	SAMPLES: NUMBER	TYPE	RECOVERY	SPT - N BLOWS / FT.	TESTS: MOISTURE, %	FIELD VAPOR TEST (ppm)
		35							
	36.0								
	Refusal @ 36' very hard, limestone on tip. BOTTOM OF PROBE @ 36' Soil descriptions based on visual and tactual observations of disturbed soil samples. Laboratory analysis or engineering classification may indicate different material types.								

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

WATER LEVEL OBSERVATIONS		
WL	▽ 23	▼
WL		
WL		

Terracon

BORING STARTED	10-18-94		
BORING COMPLETED	10-18-94		
RIG	GEOPROBE	FOREMAN	MDN
APPROVED	DAA	JOB #	52935037

LOG OF BORING NO. P-40

OWNER: USD 259
ARCHITECT/ENGINEER:
SITE: SCHOOL SERVICE CENTER, WICHITA, KANSAS
PROJECT: USD 259 RI

GRAPHIC LOG	DESCRIPTION	DEPTH (FT.)	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY	SPT - N BLOWS / FT.	MOISTURE, %	TESTS FIELD VAPOR TEST (ppm)		
	Surface Elev.: ft.										
	LEAN FAT CLAY Asphalt paving 0-.5', dark brown.			1					ND		
	3.0										
	CLAY Dk. brown, moist, plastic.			2					ND		
		5									
				3					ND		
		10									
	13.0										
	FAT CLAY TRACE FINE SAND Olive with yellow mottling.			4					ND		
		15									
	18.0										
	CLAY Light to medium gray, soft, plastic, dry.			5					ND		
		20									
	23.0										
	SHALE Dark charcoal. Refusal										
	BOTTOM OF PROBE @ 23'										
	Soil descriptions based on visual and tactual observations of disturbed soil samples.										

Continued Next Page

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

WATER LEVEL OBSERVATIONS		
WL	▽	▼
WL		
WL		

Terracon

BORING STARTED	10-20-94
BORING COMPLETED	10-20-94
RIG GEOPROBE	FOREMAN MDN
APPROVED DAA	JOB # 52935037

LOG OF BORING NO. P-40

OWNER: USD 259
ARCHITECT/ENGINEER:
SITE: SCHOOL SERVICE CENTER, WICHITA, KANSAS
PROJECT: USD 259 RI

GRAPHIC LOG	DESCRIPTION	DEPTH (FT.)	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY	SPT - N BLOWS / FT.	MOISTURE, %	TESTS FIELD VAPOR TEST (ppm)		
	Laboratory analysis or engineering classification may indicate different material types.										

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

WATER LEVEL OBSERVATIONS		
WL	▽	▼
WL		
WL		

Terracon

BORING STARTED	10-20-94
BORING COMPLETED	10-20-94
RIG GEOPROBE	FOREMAN MDN
APPROVED DAA	JOB # 52935037

LOG OF BORING NO. P-41

OWNER: USD 259
ARCHITECT/ENGINEER:
SITE: SCHOOL SERVICE CENTER, WICHITA, KANSAS
PROJECT: USD 259 RI

GRAPHIC LOG	DESCRIPTION (Surface Elev.: ft.)	DEPTH (FT.)	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY	SPT - N BLOWS / FT.	MOISTURE, %	TESTS FIELD VAPOR TEST (ppm)
	0.5 ASPHALT PAVING			1					ND
	LEAN-FAT CLAY Dk. brown, moist, soft.								
	3.0 LEAN-FAT CLAY Dk. brown, moist, plastic.	5		2					ND
	8.0 LEAN-FAT CLAY Olive.	10		3					ND
	20.0 SHALE Charcoal gray. Refusal	15		4					ND
	BOTTOM OF PROBE @ 20'	20							

Soil descriptions based on visual and tactual observations of disturbed soil samples. Laboratory analysis or engineering classification may indicate different material types.

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

WATER LEVEL OBSERVATIONS		
WL	▽ 18	▽
WL		
WL		

Terracon

BORING STARTED
BORING COMPLETED
RIG GEOPROBE FOREMAN MDN
APPROVED DAA JOB # 52935037

LOG OF BORING NO. P-42

OWNER: USD 259
ARCHITECT/ENGINEER:
SITE: SCHOOL SERVICE CENTER, WICHITA, KANSAS
PROJECT: USD 259 RI

GRAPHIC LOG	DESCRIPTION (Surface Elev.: ft.)	DEPTH (FT.)	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY	SPT - N BLOWS / FT.	MOISTURE, %	TESTS FIELD VAPOR TEST (ppm)
	CLAY Dk. gray, sandy, silty, loam.			1					ND
	3.0 CLAY Gray brown, silty, moist, stiff.	5		2					ND
	8.0 FAT CLAY Olive gray.	10		3					ND
		15		4					ND
	18.0 SHALE Dk. gray, gypsum crystals.	20		5					ND
	21.0 BOTTOM OF PROBE @ 21'								

Soil descriptions based on visual and tactual observations of disturbed soil samples. Laboratory analysis or engineering classification may indicate different material types.

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

WATER LEVEL OBSERVATIONS		
WL	▽ 20	▽
WL		
WL		

Terracon

BORING STARTED
BORING COMPLETED
RIG GEOPROBE FOREMAN RW
APPROVED DAA JOB # 52935037

LOG OF BORING NO. P-43

OWNER: USD 259

ARCHITECT/ENGINEER:

SITE: SCHOOL SERVICE CENTER, WICHITA, KANSAS

PROJECT: USD 259 R1

GRAPHIC LOG	DESCRIPTION	DEPTH (FT.)	USCS SYMBOL	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY	SAMPLES: SPT - N BLOWS / FT.	TESTS: MOISTURE, %	TESTS: FIELD VAPOR TEST (ppm)		
	Surface Elev.: ft.										
	TOPSOIL Vegetation, roots, lean clay, hard, dry.										
	3.0										
	LEAN-FAT CLAY Dk. brown, dry, crumbly, hard.	5									
	8.0										
	CLAY Olive, lean-fat, weathered shale, red brown mottling to black.	10									
	13.0										
	CLAY Olive, red brown to black mottling, weathered shale.	15									
	21.0	20									
	SHALE Dark charcoal gray with gypsum streaks. Refusal BOTTOM OF PROBE @ 21' Soil descriptions based on visual and tactual observations of disturbed soil samples. Laboratory analysis or										

Continued Next Page

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

WATER LEVEL OBSERVATIONS		
WL	▽	▼
WL		
WL		

Terracon

BORING STARTED	10-20-94
BORING COMPLETED	10-20-94
RIG GEOPROBE	FOREMAN MDN
APPROVED DAA	JOB # 52935037

LOG OF BORING NO. P-43

OWNER: USD 259

ARCHITECT/ENGINEER:

SITE: SCHOOL SERVICE CENTER, WICHITA, KANSAS

PROJECT: USD 259 R1

GRAPHIC LOG	DESCRIPTION	DEPTH (FT.)	USCS SYMBOL	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY	SAMPLES: SPT - N BLOWS / FT.	TESTS: MOISTURE, %	TESTS: FIELD VAPOR TEST (ppm)		
	engineering classification may indicate different material types.										

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

WATER LEVEL OBSERVATIONS		
WL	▽	▼
WL		
WL		

Terracon

BORING STARTED	10-20-94
BORING COMPLETED	10-20-94
RIG GEOPROBE	FOREMAN MDN
APPROVED DAA	JOB # 52935037

LOG OF BORING NO. P-44

OWNER: USD 259

ARCHITECT/ENGINEER:

SITE: SCHOOL SERVICE CENTER, WICHITA, KANSAS

PROJECT: USD 259 RI

GRAPHIC LOG	DESCRIPTION (Surface Elev.: ft.)	DEPTH (FT.)	USCS SYMBOL	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY	SAMPLES: SPT - N BLOWS / FT.	TESTS: MOISTURE, %	TESTS: FIELD VAPOR TEST (ppm)		
	1.0 CONCRETE PAVING Medium grain sand sub grade.			1					ND		
	3.0 CLAY Dk. brown.										
	CLAY Dk. brown, fat, moist, plastic. 8.0	5		2					11		
	CLAY Olive, slightly moist, soft. 13.0	10		3					ND		
	CLAY Olive, soft, moist, plastic. 21.0	15 20		4					ND		
	SHALE Dark charcoal. Refusal BOTTOM OF PROBE @ 21' Soil descriptions based on visual and tactual observations of disturbed soil samples. Laboratory analysis or engineering classification may										

Continued Next Page

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

WATER LEVEL OBSERVATIONS		
WL	▽ 20	▽
WL		
WL		

Terracon

BORING STARTED	10-20-94		
BORING COMPLETED	10-20-94		
RIG	GEOPROBE	FOREMAN	MDN
APPROVED	DAA	JOB #	52935037

LOG OF BORING NO. P-44

OWNER: USD 259

ARCHITECT/ENGINEER:

SITE: SCHOOL SERVICE CENTER, WICHITA, KANSAS

PROJECT: USD 259 RI

GRAPHIC LOG	DESCRIPTION	DEPTH (FT.)	USCS SYMBOL	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY	SAMPLES: SPT - N BLOWS / FT.	TESTS: MOISTURE, %	TESTS: FIELD VAPOR TEST (ppm)		
	indicate different material types.										

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

WATER LEVEL OBSERVATIONS		
WL	▽ 20	▽
WL		
WL		

Terracon

BORING STARTED	10-20-94		
BORING COMPLETED	10-20-94		
RIG	GEOPROBE	FOREMAN	MDN
APPROVED	DAA	JOB #	52935037

LOG OF BORING NO. P-45

OWNER: USD 259

ARCHITECT/ENGINEER:

SITE: SCHOOL SERVICE CENTER, WICHITA, KANSAS

PROJECT: USD 259 R1

Surface Elev.: ft.

Depth (ft.)	Description	USCS Symbol	Samples: Number	Type	Recovery	SPT - N Blows / ft.	Tests: Moisture, %	Field Vapor Test (ppm)
	CLAY Sandy, silty loam.							
3.0	CLAY Sandy, silty, dry.							
5								
8.0	SAND Fill							
10								
13.0	SHALE Olive gray							
15.0	BOTTOM OF PROBE @ 15'							
15								

Soil descriptions based on visual and tactual observations of disturbed soil samples. Laboratory analysis or engineering classification may indicate different material types.

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

WATER LEVEL OBSERVATIONS		
WL	▽	▽
WL		
WL		

Terracon

BORING STARTED	
BORING COMPLETED	
RIG GEOPROBE	FOREMAN RW
APPROVED DAA	JOB # 52935037

LOG OF BORING NO. P-46

OWNER: USD 259

ARCHITECT/ENGINEER:

SITE: SCHOOL SERVICE CENTER, WICHITA, KANSAS

PROJECT: USD 259 R1

Surface Elev.: ft.

Depth (ft.)	Description	USCS Symbol	Samples: Number	Type	Recovery	SPT - N Blows / ft.	Tests: Moisture, %	Field Vapor Test (ppm)
0.5	TOPSOIL Roots, vegetation.		1					ND
3.0	LEAN-FAT CLAY Dk. brown, dry, hard.							
	CLAY Dk. brown hard, dry.		2					ND
5								
8.0	CLAY Olive, moist, crumbly, weathered shale.		3					ND
10								
15								
20								
22.0	SHALE Dark charcoal gray. Refusal							
	BOTTOM OF PROBE @ 22'							

Soil descriptions based on visual and tactual observations of disturbed soil samples. Laboratory analysis or

Continued Next Page

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

WATER LEVEL OBSERVATIONS		
WL	▽ 20	▽
WL		
WL		

Terracon

BORING STARTED	10-20-94
BORING COMPLETED	10-20-94
RIG GEOPROBE	FOREMAN MDN
APPROVED DAA	JOB # 52935037

LOG OF BORING NO. P-46

OWNER: USD 259
ARCHITECT/ENGINEER:
SITE: SCHOOL SERVICE CENTER, WICHITA, KANSAS
PROJECT: USD 259 RI

GRAPHIC LOG	DESCRIPTION	DEPTH (FT.)	USCS SYMBOL	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY	SAMPLES: SPT - N BLOWS / FT.	TESTS: MOISTURE, %	TESTS: FIELD VAPOR TEST (ppm)		
	engineering classification may indicate different material types.										

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

WATER LEVEL OBSERVATIONS		
WL	▽ 20	▼
WL		
WL		

Terracon

BORING STARTED	10-20-94		
BORING COMPLETED	10-20-94		
RIG	GEOPROBE	FOREMAN	MDN
APPROVED	DAA	JOB #	52935037

LOG OF BORING NO. P-61

OWNER: USD 259
ARCHITECT/ENGINEER:
SITE: SCHOOL SERVICE CENTER, WICHITA, KANSAS
PROJECT: USD 259 RI

GRAPHIC LOG	DESCRIPTION	DEPTH (FT.)	USCS SYMBOL	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY	SAMPLES: SPT - N BLOWS / FT.	TESTS: MOISTURE, %	TESTS: FIELD VAPOR TEST (ppm)		
	Surface Elev.: ft.										
	0.5 TOPSOIL Vegetation, roots, dark brown. LEAN FAT CLAY Medium to dark brown, dry, hard.										
	8.0 CLAY Light red brown, silty, moist, plastic.	5 10 15									
	19.0 SHALE Olive with red brown, fine sand bands.	20									
	21.0 BOTTOM OF PROBE @ 21' Soil descriptions based on visual and tactual observations of disturbed soil samples. Laboratory analysis or engineering classification may indicate different material types.										

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDART LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

WATER LEVEL OBSERVATIONS		
WL	▽ 15	▼
WL		
WL		

Terracon

BORING STARTED	10-24-94		
BORING COMPLETED	10-24-94		
RIG	GEOPROBE	FOREMAN	MDN
APPROVED	DAA	JOB #	52935037

LOG OF BORING NO. P-62

OWNER: USD 259
ARCHITECT/ENGINEER:
SITE: SCHOOL SERVICE CENTER, WICHITA, KANSAS
PROJECT: USD 259 RI

GRAPHIC LOG	DESCRIPTION (Surface Elev.: ft.)	DEPTH (FT.)	USCS SYMBOL	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY	SAMPLES: SPT - N BLOWS / FT.	TESTS: MOISTURE, %	TESTS: FIELD VAPOR TEST (ppm)		
	TOPSOIL Roots, vegetation, dark brown.										
	3.0 CLAY Dk. brown, dry, hard.	5									
	8.0 SHALE Light olive, weathered, crumbles when crushed.	10									
	10.0 Refusal BOTTOM OF PROBE @ 10'										

Soil descriptions based on visual and tactual observations of disturbed soil samples. Laboratory analysis or engineering classification may indicate different material types.

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

WATER LEVEL OBSERVATIONS		
WL	▽	▽
WL		
WL		

Terracon

BORING STARTED	10-24-94		
BORING COMPLETED	10-24-94		
RIG	GEOPROBE	FOREMAN	MDN
APPROVED	DAA	JOB #	52935037

LOG OF BORING NO. P-63

OWNER: USD 259
ARCHITECT/ENGINEER:
SITE: SCHOOL SERVICE CENTER, WICHITA, KANSAS
PROJECT: USD 259 RI

GRAPHIC LOG	DESCRIPTION (Surface Elev.: ft.)	DEPTH (FT.)	USCS SYMBOL	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY	SAMPLES: SPT - N BLOWS / FT.	TESTS: MOISTURE, %	TESTS: FIELD VAPOR TEST (ppm)		
	0.5 TOPSOIL Roots, vegetation, medium to dark brown.			1					ND		
	LEAN-FAT CLAY Light olive, dry, crumbles easily.	5		2					ND		
		10		3					ND		
	12.0 SHALE Olive @ 12', red brown @ 12.5-13'. ▽	15		4					ND		
	18.0 Refusal BOTTOM OF PROBE @ 18'										

Soil descriptions based on visual and tactual observations of disturbed soil samples. Laboratory analysis or engineering classification may indicate different material types.

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

WATER LEVEL OBSERVATIONS		
WL	▽ 13	▽
WL		
WL		

Terracon

BORING STARTED	10-24-94		
BORING COMPLETED	10-24-94		
RIG	GEOPROBE	FOREMAN	MDN
APPROVED	DAA	JOB #	52935037

LOG OF BORING NO. P-65

OWNER: USD 259
ARCHITECT/ENGINEER:
SITE: SCHOOL SERVICE CENTER, WICHITA, KANSAS
PROJECT: USD 259 R1

GRAPHIC LOG	DESCRIPTION	DEPTH (FT.)	USCS SYMBOL	SAMPLES: NUMBER	TYPE	RECOVERY	SPT - N BLOWS / FT.	TESTS: MOISTURE, %	FIELD VAPOR TEST (ppm)
	Surface Elev.: ft.								
	TOPSOIL Roots, vegetation, dark brown.								
	3.0								
	LEAN-FAT CLAY Red brown, sandy, mottled black & rusty red.	5							
	8.0								
	FAT CLAY Light brown, moist, plastic.	10							
	13.0								
	SAND Light brown, medium grain, wet.	15							
		20							
	24.0								
	SHALE BOTTOM OF PROBE @ 24' probably on shale. Soil descriptions based on visual and tactual observations of disturbed soil samples.								

Continued Next Page

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

WATER LEVEL OBSERVATIONS		
WL	▽ 11	▽
WL		
WL		

Terracon

BORING STARTED	10-18-94
BORING COMPLETED	10-18-94
RIG GEOPROBE	FOREMAN MDN
APPROVED DAA	JOB # 52935037

LOG OF BORING NO. P-65

OWNER: USD 259
ARCHITECT/ENGINEER:
SITE: SCHOOL SERVICE CENTER, WICHITA, KANSAS
PROJECT: USD 259 R1

GRAPHIC LOG	DESCRIPTION	DEPTH (FT.)	USCS SYMBOL	SAMPLES: NUMBER	TYPE	RECOVERY	SPT - N BLOWS / FT.	TESTS: MOISTURE, %	FIELD VAPOR TEST (ppm)
	Laboratory analysis or engineering classification may indicate different material types.								

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

WATER LEVEL OBSERVATIONS		
WL	▽ 11	▽
WL		
WL		

Terracon

BORING STARTED	10-18-94
BORING COMPLETED	10-18-94
RIG GEOPROBE	FOREMAN MDN
APPROVED DAA	JOB # 52935037

LOG OF BORING NO. P-66

OWNER: USD 259
ARCHITECT/ENGINEER:
SITE: SCHOOL SERVICE CENTER, WICHITA, KANSAS
PROJECT: USD 259 RI

GRAPHIC LOG	DESCRIPTION	DEPTH (FT.)	USCS SYMBOL	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY	SAMPLES: SPT - N BLOWS / FT.	TESTS: MOISTURE, %	TESTS: FIELD VAPOR TEST (ppm)		
	Surface Elev.: ft.										
	CLAY 1.5 Dk. gray, silty loam.										
	CLAYEY SAND Orange brown, some lamina, firm.	5									
	10.0 CLAY Gray brown.	10									
		15									
		20									
		25									
		30									

Continued Next Page

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

WATER LEVEL OBSERVATIONS		
WL	▽ 13	▼
WL		
WL		

Terracon

BORING STARTED
BORING COMPLETED
RIG GEOPROBE FOREMAN MDN
APPROVED DAA JOB # 52935037

LOG OF BORING NO. P-66

OWNER: USD 259
ARCHITECT/ENGINEER:
SITE: SCHOOL SERVICE CENTER, WICHITA, KANSAS
PROJECT: USD 259 RI

GRAPHIC LOG	DESCRIPTION	DEPTH (FT.)	USCS SYMBOL	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY	SAMPLES: SPT - N BLOWS / FT.	TESTS: MOISTURE, %	TESTS: FIELD VAPOR TEST (ppm)		
		35									
	38.0 SHALE BOTTOM OF PROBE @ 38' Soil descriptions based on visual and tactual observations of disturbed soil samples. Laboratory analysis or engineering classification may indicate different material types.										

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

WATER LEVEL OBSERVATIONS		
WL	▽ 13	▼
WL		
WL		

Terracon

BORING STARTED
BORING COMPLETED
RIG GEOPROBE FOREMAN MDN
APPROVED DAA JOB # 52935037

LOG OF BORING NO. MW-1

OWNER: USD 259
ARCHITECT/ENGINEER:
SITE: SCHOOL SERVICE CENTER, WICHITA, KANSAS
PROJECT: USD 259 RI

TOP OF PROTECTOR PIPE: FLUSH MOUNT ft
TOP OF CASING: ft
GROUND SURFACE ELEV.: 1332.6 ft

DESCRIPTION	Depth	Elev.
SANDY LEAN TO FAT CLAY Dark brown.	3.0	1329.6
LEAN TO FAT CLAY Dark brown.	8.0	1324.6
SILTY LEAN TO FAT CLAY Dark brown, moist.	18.5	1314.1
SILTY FAT CLAY Olive.	19.0	1313.6
CLAYEY FINE TO MEDIUM SAND Olive, moist.	23.0	1309.6
FAT CLAY Olive, Weathered Shale.	27.0	1305.6
SHALE Dark gray, white gypsum stringers; wet.	29.0	1303.6

Depth (FT.)	USCS Symbol	Number	Type	Recovery, IN.	SPT - N Blows / FT.	Moisture, %	Field Vapor Tests (ppm)
		1	SS	18"			ND
			HS				
5		2	SS	18"			ND
			HS				
10		3	SS	18"			ND
			HS				
15		4	SS	14"			ND
			HS				
20		5	SS	18"			ND
			HS				
25		6	SS	18"			ND
			HS				

Continued Next Page

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

BOREHOLE DIA.: 9 in
WELL DIA.: 2 in

WATER LEVEL OBSERVATIONS

WL	▽ 28'	▽16.03'
WL		
WL		

Terracon

BORING STARTED	8-16-95
BORING COMPLETED	8-16-95
RIG CME-75	FOREMAN MDN
APPROVED DAA	JOB # 52935037

LOG OF BORING NO. MW-1

OWNER: USD 259
ARCHITECT/ENGINEER:
SITE: SCHOOL SERVICE CENTER, WICHITA, KANSAS
PROJECT: USD 259 RI

SHALE

Bottom of boring at 29'

Soil descriptions based on visual and tactual observations of disturbed soil samples. Laboratory analysis or engineering classification may indicate different material types.

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

WATER LEVEL OBSERVATIONS

WL	▽ 28'	▽16.03'
WL		
WL		

Terracon

BORING STARTED	8-16-95
BORING COMPLETED	8-16-95
RIG CME-75	FOREMAN MDN
APPROVED DAA	JOB # 52935037

LOG OF BORING NO. MW-2D

OWNER: USD 259

ARCHITECT/ENGINEER:

SITE: SCHOOL SERVICE CENTER, WICHITA, KANSAS

PROJECT: USD 259 RI

TOP OF PROTECTOR PIPE: FLUSH MOUNT ft
TOP OF CASING: ft
GROUND SURFACE ELEV.: 1334.6 ft

GRAPHIC LOG	DESCRIPTION	DEPTH (FT.)	USCS SYMBOL	NUMBER	TYPE	RECOVERY, IN.	SPT - N BLOWS / FT.	MOISTURE, %	FIELD VAPOR TESTS (ppm)
	CLAYEY FINE SAND Light gray with red mottling.				HS				
				1	SS	18"			ND
		5			HS				
	8.0 1326.6								
	CLAYEY MEDIUM SAND Light gray with rust and black mottling, moist to wet.			2	SS	18"			ND
		10			HS				
				3	SS	18"			ND
		15			HS				
	18.0 1316.6								
	MEDIUM TO COARSE SAND			4	SS	12			ND
	20.0 1314.6	20			HS				
	CLAYEY SAND Gray.								
		25							
		30							

Continued Next Page

WELL DETAIL

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

BOREHOLE DIA.: 9 in
WELL DIA.: 2 in

WATER LEVEL OBSERVATIONS		
WL	▽ 13'	▼ 10.2'
WL		
WL		

Terracon

BORING STARTED	8-17-95		
BORING COMPLETED	8-17-95		
RIG	CME-75	FOREMAN	MDN
APPROVED	DAA	JOB #	52935037

LOG OF BORING NO. MW-2D

OWNER: USD 259

ARCHITECT/ENGINEER:

SITE: SCHOOL SERVICE CENTER, WICHITA, KANSAS

PROJECT: USD 259 RI

GRAPHIC LOG	DESCRIPTION	DEPTH (FT.)	USCS SYMBOL	NUMBER	TYPE	RECOVERY, IN.	SPT - N BLOWS / FT.	MOISTURE, %	FIELD VAPOR TESTS (ppm)
		35							
	41.0 1293.6	40							
	FAT CLAY Olive to gray, some sand.	45							
	51.0 1283.6	50							
	SHALE Dark gray, gypsum stringers.								
	54.5 1280.1								
	Bottom of boring at 54.5'								
	Soil descriptions based on visual and tactual observations of disturbed soil samples. Laboratory analysis or engineering classification may indicate different material types.								

WELL DETAIL

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

WATER LEVEL OBSERVATIONS		
WL	▽ 13'	▼ 10.2'
WL		
WL		

Terracon

BORING STARTED	8-17-95		
BORING COMPLETED	8-17-95		
RIG	CME-75	FOREMAN	MDN
APPROVED	DAA	JOB #	52935037

LOG OF BORING NO. MW-3

OWNER: USD 259
ARCHITECT/ENGINEER:
SITE: SCHOOL SERVICE CENTER, WICHITA, KANSAS
PROJECT: USD 259 RI

TOP OF PROTECTOR PIPE: FLUSH MOUNT
TOP OF CASING:
GROUND SURFACE ELEV.: 1327.7 ft

Depth	Description	Elev.	Sample Type	Recovery, in.	Field Vapor Tests (ppm)
0.5	TOPSOIL	1327.2	HS		
3.0	FAT CLAY — Dark brown, trace fine sand.	1324.7			
	FAT CLAY — Dark brown.		SS #1	18"	ND
			HS		
8.0		1319.7			
	FAT CLAY — Brown, trace fine sand, slightly moist.		SS #2	18"	ND
			HS		
			SS #3	14"	ND
			HS		
18.0		1309.7			
19.0	FAT CLAY — Olive to gray, with rust red mottling.	1308.7	SS #4	18"	ND
	MEDIUM TO COARSE SAND — Brown.		HS		
			SS		
25.0		1302.7			
	SHALE — Dark gray.		HS		
28.0		1299.7			

Bottom of boring at 28'

Continued Next Page

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

BOREHOLE DIA.: 9 in
WELL DIA.: 2 in

WATER LEVEL OBSERVATIONS: WL 19' ; 12.1'

Terracon

BORING STARTED 8-18-95
BORING COMPLETED 8-18-95
RIG CME-75 FOREMAN MDN
APPROVED DAA JOB # 52935037

LOG OF BORING NO. MW-3

OWNER: USD 259
ARCHITECT/ENGINEER:
SITE: SCHOOL SERVICE CENTER, WICHITA, KANSAS
PROJECT: USD 259 RI

Soil descriptions based on visual and tactual observations of disturbed soil samples. Laboratory analysis or engineering classification may indicate different material types.

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

WATER LEVEL OBSERVATIONS: WL 19' ; 12.1'

Terracon

BORING STARTED 8-18-95
BORING COMPLETED 8-18-95
RIG CME-75 FOREMAN MDN
APPROVED DAA JOB # 52935037

LOG OF BORING NO. MW-4D

OWNER: USD 259

ARCHITECT/ENGINEER:

SITE: SCHOOL SERVICE CENTER, WICHITA, KANSAS

PROJECT: USD 259 kl

TOP OF PROTECTOR PIPE: FLUSH MOUNT ft
TOP OF CASING: ft
GROUND SURFACE ELEV.: 1328.0 ft

Depth (ft.)	Description	Elevation	USCS Symbol	Number	Type	Recovery, in.	SPT - N Blows / ft.	Moisture, %	Field Vapor Tests (ppm)
0.5	TOPSOIL	1327.5							
	FAT CLAY Dark brown, trace fine sand.				HS				
				1	SS	18"			ND
5					HS				
8.0		1320.0							
	FAT CLAY Brown.			2	SS	18"			ND
10					HS				
13.0		1315.0							
	FAT CLAY Brown, trace fine sand.			3	SS	18"			ND
15					HS				
18.0		1310.0							
	FAT CLAY Olive to gray, with rust red and black mottling, trace fine sand, moist.			4	SS	18"			ND
20					HS				
23.0		1305.0							
	MEDIUM TO COARSE SAND Brown, trace gravel, wet.			5	SS	18"			ND
25					HS				
28.0		1300.0							
	WEATHERED SHALE WITH MEDIUM SAND Gray.			6	SS	14"			ND
30									

Continued Next Page

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

BOREHOLE DIA.: 9 in
WELL DIA.: 2 in

WATER LEVEL OBSERVATIONS		
WL	▽ 19'	▽13.65'
WL		
WL		

Terracon

BORING STARTED	8-18-95
BORING COMPLETED	8-18-95
RIG	CME-75
FOREMAN	MDN
APPROVED	DAA
JOB #	52935037

LOG OF BORING NO. MW-4D

OWNER: USD 259

ARCHITECT/ENGINEER:

SITE: SCHOOL SERVICE CENTER, WICHITA, KANSAS

PROJECT: USD 259 RI

Depth (ft.)	Description	Elevation	USCS Symbol	Number	Type	Recovery, in.	SPT - N Blows / ft.	Moisture, %	Field Vapor Tests (ppm)
					HS				
34.5		1293.5		7	SS	6"			ND
	SHALE Dark gray, gypsum streaks.				HS				
35									
37.0		1291.0							

Bottom of boring at 37'

Soil descriptions based on visual and tactual observations of disturbed soil samples. Laboratory analysis or engineering classification may indicate different material types.

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

WATER LEVEL OBSERVATIONS		
WL	▽ 19'	▽13.65'
WL		
WL		

Terracon

BORING STARTED	8-18-95
BORING COMPLETED	8-18-95
RIG	CME-75
FOREMAN	MDN
APPROVED	DAA
JOB #	52935037

LOG OF BORING NO. MW-5D

OWNER: USD 259

ARCHITECT/ENGINEER:

SITE: SCHOOL SERVICE CENTER, WICHITA, KANSAS

PROJECT: USD 259 RI

TOP OF PROTECTOR PIPE: FLUSH MOUNT ft
TOP OF CASING: ft
GROUND SURFACE ELEV.: 1327.5 ft

Depth	Description	Elev.
0.5	TOPSOIL	1327.0
	FAT CLAY Dark brown, trace fine sand.	
8.0		1319.5
	FAT CLAY Brown, slightly moist.	
18.0		1309.5
19.5	FAT CLAY Brown with rust red and black mottling, trace fine sand, calcite stringers.	1308.0
23.0	CLAYEY MEDIUM SAND Olive brown.	1304.5
	MEDIUM TO COARSE SAND WITH GRAVEL Wet.	
27.0		1300.5
	SANDY FAT CLAY Olive gray, firm, wet.	

Continued Next Page

Depth (ft.)	USCS Symbol	Number	Type	Recovery, in.	SPT - N Blows / ft.	Moisture, %	Field Vapor Tests (ppm)
			HS				
		1	SS	18"			ND
5			HS				
		2	SS	18"			ND
10			HS				
		3	SS	18"			ND
15			HS				
		4	SS	18"			ND
20			HS				
		5	SS	18"			38
25			HS				
		6	SS	14"			ND
30							

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

BOREHOLE DIA.: 9 in
WELL DIA.: 2 in

WATER LEVEL OBSERVATIONS		
WL	▽ 18'	▼ 14.8'
WL		
WL		

Terracon

BORING STARTED	8-21-95
BORING COMPLETED	8-21-95
RIG CME-75	FOREMAN MDN
APPROVED DAA	JOB # 52935037

LOG OF BORING NO. MW-5D

OWNER: USD 259

ARCHITECT/ENGINEER:

SITE: SCHOOL SERVICE CENTER, WICHITA, KANSAS

PROJECT: USD 259 RI

Depth	Description	Elev.
34.0		1293.5
	HIGHLY WEATHERED SHALE Dark gray.	
43.0		1284.5
44.0	SHALE Dark gray, gypsum stringers, platy.	1283.5

Bottom of boring at 44'

Soil descriptions based on visual and tactual observations of disturbed soil samples. Laboratory analysis or engineering classification may indicate different material types.

Depth (ft.)	USCS Symbol	Number	Type	Recovery, in.	SPT - N Blows / ft.	Moisture, %	Field Vapor Tests (ppm)
			HS				
		7	SS	14"			ND
35			HS				
		8	SS	12"			ND
40			HS				
		9	SS	6"			ND

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

WATER LEVEL OBSERVATIONS		
WL	▽ 18'	▼ 14.8'
WL		
WL		

Terracon

BORING STARTED	8-21-95
BORING COMPLETED	8-21-95
RIG CME-75	FOREMAN MDN
APPROVED DAA	JOB # 52935037

LOG OF BORING NO. MW-6D

OWNER: USD 259

ARCHITECT/ENGINEER:

SITE: SCHOOL SERVICE CENTER, WICHITA, KANSAS

PROJECT: USD 259 RI

TOP OF PROTECTOR PIPE: FLUSH MOUNT ft
TOP OF CASING: ft
GROUND SURFACE ELEV.: 1330.9 ft

Description	Elevation	Depth (ft.)	USCS Symbol	Number	Type	Recovery, in.	SPT - N Blows / ft.	Moisture, %	Field Vapor Tests (ppm)
TOPSOIL	3.0 / 1327.9				HS				
FAT CLAY Dark brown.	8.0 / 1322.9	5		1	SS	18"			ND
					HS				
FAT CLAY Brown.	13.0 / 1317.9	10		2	SS	18"			ND
					HS				
FAT CLAY Brown, trace fine sand, slightly moist.	18.0 / ▼ 1312.9	15		3	SS	18"			ND
					HS				
FAT CLAY Brown, with rust red and black mottling, trace fine sand, moist.	23.0 / ▽ 1307.9	20		4	SS	18"			ND
					HS				
FAT CLAY WITH FINE TO MEDIUM SAND Olive gray, wet.	28.0 / 1302.9	25		5	SS	18"			ND
					HS				
FINE TO MEDIUM SAND	30.0 / 1300.9	30		6	SS	0			

Continued Next Page

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

BOREHOLE DIA.: 9 in
WELL DIA.: 2 in

WATER LEVEL OBSERVATIONS

WL	▽ 23'	▼ 17.8'
WL		
WL		

Terracon

BORING STARTED	8-22-95		
BORING COMPLETED	8-22-95		
RIG	CME-75	FOREMAN	MDN
APPROVED	DAA	JOB #	52935037

LOG OF BORING NO. MW-6D

OWNER: USD 259

ARCHITECT/ENGINEER:

SITE: SCHOOL SERVICE CENTER, WICHITA, KANSAS

PROJECT: USD 259 RI

Description	Elevation	Depth (ft.)	USCS Symbol	Number	Type	Recovery, in.	SPT - N Blows / ft.	Moisture, %	Field Vapor Tests (ppm)
31.0 MEDIUM TO COARSE SAND WITH GRAVEL Brown.	1299.9				HS				
HIGHLY WEATHERED SHALE Dark gray.	38.0 / 1292.9	35							
SHALE Dark gray, gypsum stringers.	41.0 / 1289.9	40							

Bottom of boring at 41'

Soil descriptions based on visual and tactual observations of disturbed soil samples. Laboratory analysis or engineering classification may indicate different material types.

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

WATER LEVEL OBSERVATIONS

WL	▽ 23'	▼ 17.8'
WL		
WL		

Terracon

BORING STARTED	8-22-95		
BORING COMPLETED	8-22-95		
RIG	CME-75	FOREMAN	MDN
APPROVED	DAA	JOB #	52935037

LOG OF BORING NO. MW-7D

OWNER: USD 259
ARCHITECT/ENGINEER:
SITE: SCHOOL SERVICE CENTER, WICHITA, KANSAS
PROJECT: USD 259 RI

TOP OF PROTECTOR PIPE: FLUSH MOUNT ft
TOP OF CASING: ft
GROUND SURFACE ELEV.: 1348.3 ft

Depth	Description	Elev.	Sample Type	Field Vapor Tests (ppm)
0.5	TOPSOIL	1347.8	HS	
	SILTY FAT CLAY Dark brown, mild odor.			
			1 SS	ND
5.0		1343.3		
	SILTY FAT CLAY Brown to gray, mild odor.		HS	
8.0		1340.3		
	SILTY FAT CLAY Light gray, strong odor.		2 SS	1312
			HS	
13.0		1335.3		
	CLAYEY MEDIUM TO COARSE SAND Gray, odor, wet.		3 SS	439
			HS	
18.0		1330.3		
	CLAYEY FINE TO MEDIUM SAND Olive, with rust red mottling, odor, wet.		4 SS	224
			HS	
23.0		1325.3		
24.0	CLAYEY SAND Olive, with red mottling, wet.	1324.3	5 SS	32
	HIGHLY WEATHERED SHALE Olive, wet.		HS	
			6 SS	ND
29.5		1318.8		
	SHALE			

Continued Next Page

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

BOREHOLE DIA.: 9 in
WELL DIA.: 2 in

WATER LEVEL OBSERVATIONS: WL 12' 4.2'

Terracon

BORING STARTED 8-23-95
BORING COMPLETED 8-23-95
RIG CME-75 FOREMAN MDN
APPROVED DAA JOB # 52935037

LOG OF BORING NO. MW-7D

OWNER: USD 259
ARCHITECT/ENGINEER:
SITE: SCHOOL SERVICE CENTER, WICHITA, KANSAS
PROJECT: USD 259 RI

Depth	Description	Elev.	Sample Type	Field Vapor Tests (ppm)
32.0	Dark gray, gypsum stringers.	1316.3	HS	

Bottom of boring at 32'

Soil descriptions based on visual and tactual observations of disturbed soil samples. Laboratory analysis or engineering classification may indicate different material types.

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

WATER LEVEL OBSERVATIONS: WL 12' 4.2'

Terracon

BORING STARTED 8-23-95
BORING COMPLETED 8-23-95
RIG CME-75 FOREMAN MDN
APPROVED DAA JOB # 52935037

LOG OF BORING NO. MW-8

OWNER: USD 259
ARCHITECT/ENGINEER:
SITE: SCHOOL SERVICE CENTER, WICHITA, KANSAS
PROJECT: USD 259 RI

TOP OF PROTECTOR PIPE: FLUSH MOUNT ft
TOP OF CASING: ft
GROUND SURFACE ELEV.: 1332.4 ft

Depth	Description	Elevation	Sample Number	Type	Recovery, in.	SPT - N Blows / Ft.	Moisture, %	Field Vapor Tests (ppm)
1.0	TOPSOIL	1331.4	1	SS	12"			ND
				HS				
3.0	SILTY LEAN TO FAT CLAY Dark brown.	1329.4						
	FAT CLAY Dark brown.		2	HS	18"			ND
				HS				
8.0		1324.4						
	FAT CLAY Dark brown, trace fine sand, slightly moist.		3	SS	18"			25
				HS				
13.0		1319.4						
	FAT CLAY Brown with rust red mottling, slightly moist, faint odor, trace fine sand.		4	SS	18"			48
				HS				
			5	SS	18"			115
				HS				
23.0		1309.4						
24.5	FAT CLAY Olive gray, wet.	1307.9	6	SS	12"			115
				HS				
27.0	SHALE Dark gray, gypsum stringers.	1305.4						

Bottom of boring at 27'

Soil descriptions based on visual

Continued Next Page

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

BOREHOLE DIA.: 9 in
WELL DIA.: 2 in

WATER LEVEL OBSERVATIONS		
WL	14'	14.9'
WL		
WL		

Terracon

BORING STARTED	8-24-95
BORING COMPLETED	8-24-95
RIG: CME-75	FOREMAN: MDN
APPROVED: DAA	JOB #: 52935037

LOG OF BORING NO. MW-8

OWNER: USD 259
ARCHITECT/ENGINEER:
SITE: SCHOOL SERVICE CENTER, WICHITA, KANSAS
PROJECT: USD 259 RI

and tactual observations of disturbed soil samples. Laboratory analysis or engineering classification may indicate different material types.

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

WATER LEVEL OBSERVATIONS		
WL	14'	14.9'
WL		
WL		

Terracon

BORING STARTED	8-24-95
BORING COMPLETED	8-24-95
RIG: CME-75	FOREMAN: MDN
APPROVED: DAA	JOB #: 52935037

LOG OF BORING NO. MW-9

OWNER: USD 259
ARCHITECT/ENGINEER:
SITE: SCHOOL SERVICE CENTER, WICHITA, KANSAS
PROJECT: USD 259 RI

TOP OF PROTECTOR PIPE: FLUSH MOUNT ft
TOP OF CASING: ft
GROUND SURFACE ELEV.: 1332.6 ft

Depth	Description	Elev.	Sample Type	Recovery, in.	Field Vapor Tests (ppm)
0.5	ASPHALT	1332.1			
1.0	SUB-GRADE	1331.6			
3.0	FILL	1329.6	HS		
4.0	CLAYEY FINE TO MEDIUM SAND. Olive.	1328.6	SS #1	18"	ND
	FAT CLAY. Dark brown.		HS		
8.0	FAT CLAY. Dark brown, trace fine sand.	1324.6	SS #2	18"	ND
			HS		
13.0	FAT CLAY. Olive brown, trace fine sand, slightly moist.	1319.6	SS #3	18"	ND
			HS		
			SS #4	18"	ND
			HS		
23.0	MEDIUM TO COARSE SAND WITH GRAVEL. Brown, wet.	1309.6	SS #5	18"	ND
25.0	FAT CLAY. Olive.	1307.6	HS		
			SS #6	18"	ND

Continued Next Page

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

BOREHOLE DIA.: 9 in
WELL DIA.: 2 in

WATER LEVEL OBSERVATIONS

WL	▽ 19'	▽ 19.2'
WL		
WL		

Terracon

BORING STARTED	8-24-95		
BORING COMPLETED	8-24-95		
RIG	CME-75	FOREMAN	MDN
APPROVED	DAA	JOB #	52935037

LOG OF BORING NO. MW-9

OWNER: USD 259
ARCHITECT/ENGINEER:
SITE: SCHOOL SERVICE CENTER, WICHITA, KANSAS
PROJECT: USD 259 RI

Depth	Description	Elev.	Sample Type	Recovery, in.	Field Vapor Tests (ppm)
32.0		1300.6	HS		
	SHALE		SS #7	2	ND
34.0	Dark gray, gypsum stringers.	1298.6	HS		

Soil descriptions based on visual and tactual observations of disturbed soil samples. Laboratory analysis or engineering classification may indicate different material types.

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

WATER LEVEL OBSERVATIONS

WL	▽ 19'	▽ 19.2'
WL		
WL		

Terracon

BORING STARTED	8-24-95		
BORING COMPLETED	8-24-95		
RIG	CME-75	FOREMAN	MDN
APPROVED	DAA	JOB #	52935037

LOG OF BORING NO. MW-10D

OWNER: USD 259

ARCHITECT/ENGINEER:

SITE: SCHOOL SERVICE CENTER, WICHITA, KANSAS

PROJECT: USD 259 RI

TOP OF PROTECTOR PIPE: FLUSH MOUNT ft
TOP OF CASING: ft
GROUND SURFACE ELEV.: 1330.3 ft

Depth (ft.)	Description	Elevation	USCS Symbol	Number	Type	Recovery, in.	SPT - N Blows / ft.	Moisture, %	Field Vapor Tests (ppm)
1.0	TOPSOIL	1329.3		1	SS	12"			ND
					HS				
3.0	SILTY LEAN CLAY Dark brown.	1327.3							
	FAT CLAY Olive with red and black mottling, trace fine sand.			2	HS	18"			ND
5					HS				
8.0		1322.3							
	FAT CLAY Brown with rust red and black mottling, trace fine sand, very moist.			3	SS	18"			ND
10					HS				
13.0		1317.3							
	CLAYEY FINE TO MEDIUM SAND Brown, wet.			4	SS	18"			ND
15					HS				
				5	SS	18"			ND
20					HS				
				6	SS	18"			ND
25					HS				
28.0		1302.3							
	FAT CLAY Olive to gray.			7	SS	14"			ND
30									

Continued Next Page

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

BOREHOLE DIA.: 9 in
WELL DIA.: 2 in

WATER LEVEL OBSERVATIONS

WL	12'	5.7'
WL		
WL		

Terracon

BORING STARTED	8-24-95		
BORING COMPLETED	8-24-95		
RIG	CME-75	FOREMAN	MDN
APPROVED	DAA	JOB #	52935037

LOG OF BORING NO. MW-10D

OWNER: USD 259

ARCHITECT/ENGINEER:

SITE: SCHOOL SERVICE CENTER, WICHITA, KANSAS

PROJECT: USD 259 RI

Depth (ft.)	Description	Elevation	USCS Symbol	Number	Type	Recovery, in.	SPT - N Blows / ft.	Moisture, %	Field Vapor Tests (ppm)
					HS				
34.5		1295.8		8	SS	10"			ND
35	SHALE Dark gray, gypsum stringers.				HS				
37.0		1293.3							

Bottom of boring at 37'

Soil descriptions based on visual and tactual observations of disturbed soil samples. Laboratory analysis or engineering classification may indicate different material types.

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

WATER LEVEL OBSERVATIONS

WL	12'	5.7'
WL		
WL		

Terracon

BORING STARTED	8-24-95		
BORING COMPLETED	8-24-95		
RIG	CME-75	FOREMAN	MDN
APPROVED	DAA	JOB #	52935037

SECOR INTERNATIONAL INCORPORATED

BORING LOG

Drill Rig:	CME-75	Date Drilled:	6/6/98	Logged By:
Boring Dia:	8.25 Inches	Boring Number:	MW-2D	L. Peters

Sample	Percent Retained	Completion	OVA (ppm)	Depth Feet	Lithology	Description
	20%		1.0			Fill SAND, dry
						GRAVEL, dry, 10YR 2/1
				5		Silty SAND, dry, 10YR 2/1
	90%		0			
				10		SAND, fine to medium, dry, 10YR 5/6
	50%		1.5			
				15		SILT, dry, 10YR 4/3
						SAND, fine to medium, dry, 7.5YR 5/4
	50%		1.5			Sandy SILT, saturated, 10YR 5/4
						Clayey SILT, saturated, 10YR 4/2
				20		
	0%		0			
				25		
	20% (4,5,6,8)		0			CLAY, saturated, 2.5YR 3/0
	20%		0			SAND with fine GRAVEL, saturated, medium to coarse
	40%		0	30		
	0%		NA			
	30%		0			
				35		
	0%		NA			
	35%		0			

Completion Notes:

Site:
Van Waters and Rogers
Mosely Avenue
Wichita, KS

Project No60013-001-01 | Page 1

SECOR INTERNATIONAL INCORPORATED

BORING LOG

Drill Rig:	CME-75	Date Drilled:	6/6/98	Logged By:
Boring Dia:	8.25 Inches	Boring Number:	MW-2D	L. Peters

Sample	Percent Retained	Completion	OVA (ppm)	Depth Feet	Lithology	Description
	NA		NA			SHALE, saturated
				45		
				50		
				55		
				60		
				65		
				70		
				75		

BOS
41

Completion Notes:

Site:
Van Waters and Rogers
Mosely Avenue
Wichita, KS

Project No60013-001-01 | Page 2

SECOR INTERNATIONAL INCORPORATED

BORING LOG

Drill Rig:	CME-75	Date Drilled:	6/8/98	Logged By:
Boring Dia:	8.25 Inches	Boring Number:	MW-4D	L. Peters

Sample	Percent Retained	Completion	OVA (ppm)	Depth Feet	Lithology	Description
	80%		0			Clayey SILT, dry, 5YR 2.5/1
	25%		0-1	5		SAND, fine to medium, moderately sorted, dry, 10YR 5/4; saturated at 14 feet below grade
	20%		0	10		
	0%		NA	15		
	40% (1,2,1,6)		0	20		SAND, fine to coarse, poorly sorted, saturated
	50% (4,6,1,1)		0			CLAY, saturated, 7.5YR 3/0
	30% (10,13,2,1)		0	25		SAND with gravel, fine to coarse, poorly sorted, saturated, 10YR 5/4
	50% (13,16,16,3)		0			
	50% (7,15,14,7)		0	30		SAND with gravel, medium to coarse, moderately sorted, saturated, 10YR 5/4
	50% (17,17,50)		0			
	40% (18,42,50)		0			
	30% (7,29,43,17)		0	35		
						SHALE

BDS

3le

Completion Notes:

Site:

Van Waters and Rogers
Mosely Avenue
Wichita, KS

Project No80013-001-01 | Page 1

SECOR INTERNATIONAL INCORPORATED

BORING LOG

Drill Rig:	CME-75	Date Drilled:	6/4/98	Logged By:
Boring Dia:	8.25 Inches	Boring Number:	MW-5D	L. Peters

Sample	Percent Retained	Completion	OVA (ppm)	Depth Feet	Lithology	Description
						ASPHALT
	100%		0			Silty SAND, moderately sorted, dry, 5YR 2.5/1
	30%		0	5		SAND, fine to medium, moderately sorted, dry, 10YR 5/6
	40%		0	10		Silty SAND, moderately sorted, moist, 10YR 4/3
	50%		0	15		SAND, fine to medium, moderately sorted, saturated, 10YR 5/6
	80% (4,2,2,3)		0	20		SAND with gravel, medium to coarse, some clay, moderately sorted, saturated, 10YR 6/3
	10% (4,3,3,5)		0			Silty CLAY, saturated, 2.5YR 3/0
	40% (5,6,8,9)		0	25		
	50% (2,2,2,3)		0			SAND, medium to coarse, trace fines, saturated, 5YR 6/6
	40% (17,50,29,15)		0.5	30		
	0%		0			
	80% (8,65,60)		1.0			
	65% (20,25,23,24)		1.5	35		SAND with fine GRAVEL, medium to coarse, trace fines, saturated, 5YR 6/6
						SHALE

Completion Notes:

Site:

Van Waters and Rogers
Mosely Avenue
Wichita, KS

Project No80013-001-01 | Page 1

SECOR INTERNATIONAL INCORPORATED

BORING LOG

Drill Rig:	CME-75	Date Drilled:	6/5/98	Logged By:
Boring Dia:	8.25 Inches	Boring Number:	MW-7D	L. Peters

Sample	Percent Retained	Completion	OVA (ppm)	Depth Feet	Lithology	Description
						ASPHALT
	85%		0			Sandy CLAY/SILT, dry, 7.5YR 3/3, grades into silty sand at 4.0 to 4.5
				5		SAND, fine, well sorted, dry, 7.5YR 5/8
	60%		0			SAND, fine to medium, moderately sorted, dry, 7.5YR 5/8
				10		Silty SAND, fine to medium, moderately sorted, dry, 7.5YR 5/8
						Sandy SILT, dry, 7.5YR 5/8
	70%		0			Silty SAND, fine to medium, moderately sorted, saturated, 7.5YR 5/8
						Sandy SILT, saturated, 7.5YR 5/8
				15		Silty SAND, fine to medium, moderately sorted, saturated, 7.5YR 5/8, coarsens with depth
	20%		0			
				20		SAND, medium to coarse, some fine gravel moderately sorted, saturated, 5YR 5/8
	80% (2,2,4,5)		0			Sandy SILT, saturated, 7.5YR 5/4
						Silty SAND, fine to medium, moderately sorted, saturated, 7.5YR 5/4
	60% (5,5,9,13)		0			Sandy SILT, saturated, 7.5YR 5/4
						Silty SAND, fine to medium, moderately sorted, saturated, 7.5YR 5/4
	50% (4,5,6,6)		0	25		Sandy SILT, saturated, 7.5YR 5/4
						Silty SAND, fine to medium, moderately sorted, saturated, 7.5YR 5/4
	40% (20,18,16,13)		0			SAND, fine to medium, moderately sorted, saturated, 7.5YR 5/4
	30% (20,25,18,13)		0			SAND, fine to coarse, with fine GRAVEL, saturated, 7.5YR 5/4
	15% (20,16,15,12)		0	30		
	40% (15,18,20,17)		0			
	50% (16,40,25,7)		0	35		
	60% (17,50,59)		0			SHALE

Completion Notes:

Site:
Van Waters and Rogers
Mosely Avenue
Wichita, KS

Project No80013-001-01 | Page 1

SECOR INTERNATIONAL INCORPORATED

BORING LOG

Drill Rig:	CME-75	Date Drilled:	6/2/98	Logged By:
Boring Dia:	8.25 Inches	Boring Number:	MW-8D	L. Peters

Sample	Percent Retained	Completion	OVA (ppm)	Depth Feet	Lithology	Description
						ASPHALT
	90%		0-0.5			Sandy SILT, dry, 5YR 3/3, grades into silty sand at 5.0
				5		Silty SAND, fine, well sorted, dry, 5YR 3/3
	100%		0-0.8			SAND, fine to medium, moderately sorted, dry, 5YR 5/4
				10		
	60%		0			Silty SAND, fine to medium, moderately sorted, saturated, 10YR 5/3
						SAND, medium to coarse, moderately sorted, saturated, 10YR 6/4
				15		
	60% (2,3,4,6)		0			
	50% (8,10,7,6)		0			
	60% (20,25,16,14)		0	20		SAND with fine GRAVEL, medium to coarse, moderately sorted, saturated, 10YR 6/4
	50% (20,19,14,12)		0			
	50% (15,10,9,7)		0			
				25		Sandy silty CLAY, saturated, 7.5YR 5/8
	50% (8,16,12,15)		0			SAND with fine GRAVEL, medium to coarse, moderately sorted, saturated, 10YR 6/4
	(20,25,18,17)		0			
	50% (6,12,10,9)		0	30		
	40% (17,21,23,10)		0			
	5% (17,21,18,17)		0			
				35		
	15% (20,21,18,17)		0			
	20% (15, 50+)		0			SHALE

BGS 37.5

Completion Notes:

Site:
Van Waters and Rogers
Mosely Avenue
Wichita, KS

Project No80013-001-01 | Page 1

Well No. WND-1

DRILLING LOG

Project W.N.I.D. Owner W.N.I.D.

Location Wichita, KS Project Number 042209670

Date Drilled 3/22/91 Total Depth 27' Diameter 7.25"

Surface Elevation _____ Water depth (init.) 17.9' 24-hrs. _____

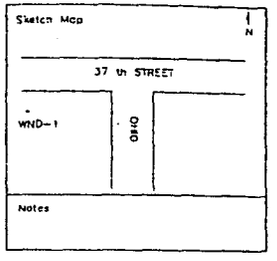
Screen: Dia. 2" Length 10' Slot Size .01"

Casing: Dia. 2" Length 18' Type SCH 40 PVC

Drilling Company G.T.I. Drilling Method HOLLOW STEM AUGER

Driller G. KURTZ Log by P. OSBORN Sampling Method 5' CONTINUOUS

Sketch Map



Notes

Depth (ft)	Well Construction	Notes	Sample No. & Blow Count	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44		above ground well protector with lock; neat cement grout; casing; bentonite pellets; screen; sand pack			Silty CLAY, dark brown, wet, medium soft, slightly plastic with a trace of fine sand.
					Silty CLAY, dark brown, moist, stiff, non-plastic, with a trace of fine sand.
					Sandy CLAY, brown, moist, stiff, non-plastic, with some fine grained sand.
					Silty CLAY, brown, moist, stiff, slightly plastic, with a trace of fine sand and white 1/4" nodules.
					Clayey SAND, brown, moist, medium to fine grained sand, trace coarse grained sand and fine gravel.
					Silty SAND, reddish brown, wet, medium - fine grained
					Silty SAND, brown, saturated, coarse to fine grained sand and a trace of fine gravel.
					BOH = 27'

GROUNDWATER TECHNOLOGY

Well No. WND-2

DRILLING LOG

Project W.N.I.D. Owner W.N.I.D.

Location Wichita, KS Project Number 042209670

Date Drilled 3/25/91 Total Depth 25' Diameter 7.25"

Surface Elevation _____ Water depth (init.) 17' 24-hrs. _____

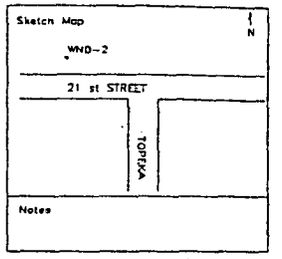
Screen: Dia. 2" Length 10' Slot Size .01"

Casing: Dia. 2" Length 14' Type SCH 40 PVC

Drilling Company G.T.I. Drilling Method HOLLOW STEM AUGER

Driller G. KURTZ Log by P. OSBORN Sampling Method 5' CONTINUOUS

Sketch Map



Notes

Depth (ft)	Well Construction	Notes	Sample No. & Blow Count	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25		flush mount cover; neat cement grout; casing; bentonite pellets; screen sand pack			Clayey SAND, dark brown, moist, fine grained sand.
					Silty SAND, light brown, moist, fine grained sand.
					Sandy CLAY, brown, moist, medium stiff, slightly plastic, with some fine grained sand.
					Silty SAND, light brown, moist, fine grained sand.
					Silty SAND, light brown, moist, medium to fine grained.
					Sandy CLAY, brown, wet, stiff, slightly plastic, with some fine gained sand.
					Silty SAND, light brown, wet, medium to fine grained sand, with a trace of coarse grained sand.
					Same as above, reddish brown.
					Silty SAND, gray, saturated, coarse to fine grained sand.
					BOH = 25'

GROUNDWATER TECHNOLOGY

GROUNDWATER TECHNOLOGY

Drilling Log

Monitoring Well WND-2D

Project WNID PHASE II — Owner WNID PRP GROUP
Location Wichita, KS — Project No. 042206913 — Date drilled 4/30/92
Surface Elev. — Total Hole Depth 43 ft. — Diameter .666 ft.
Top of Casing — Water Level Initial 16 ft. — Static 16.30 ft.
Screen: Dia 2 in. — Length 10 ft. — Type/Size PVC mill slot/.010" in.
Casing: Dia 2 in. — Length 32 ft. — Type Sched. 40 PVC
Filter Pack Material NATURAL SAND PACK — Rig/Core Type CME 57
Drilling Company GTI — Method Hollow Stem Auger — Permit # 517
Driller Glen Kurtz — Log By Steve Mitchell
Checked By — License No.

See Site Map For Boring Location

COMMENTS:
3' west of shallow well

Depth (ft.)	Well Completion	PID (ppm)	Sample ID Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2						
0						START EXPLORATION @ 14:25
2		0.6				CLAY-dark brown, soft, plastic, dry.
4					CH	CLAY-brown, soft, silty, plastic, dry, sand in shoe.
6		0				
8					SW	SAND-light brown, very fine grain, well sorted, subrounded, well sorted, saturated.
10		0			CH	CLAY-brown, soft, plastic, silty.
12						SAND-brown, fine grain, well sorted, subrounded, dry.
14						SAND-light tan grading to orange, fine to medium grain, well sorted, subrounded, saturated at 17'.
16		0				
18						
20						
22						
24						
26		19.0				
28					SW	
30						
32						
34						
36						
38						
40						
42						
44		14.8			SH	SHALE-olive green and gray, weathered, soft and wet. END EXPLORATION @ 15:47
46						
48						
50						

GROUNDWATER TECHNOLOGY

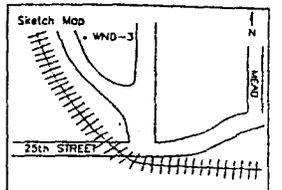
.1

Well No. WND-3

DRILLING LOG

Project W.N.I.D. — Owner W.N.I.D.
Location Wichita, KS — Project Number 042209670
Date Drilled 3/25/91 — Total Depth 25' — Diameter 7.25"
Surface Elevation — Water depth (init.) 14.5' — 24-hrs.
Screen: Dia. 2" — Length 10' — Slot Size .01"
Casing: Dia. 2" — Length 14.5' — Type SCH 40 PVC
Drilling Company G.T.I. — Drilling Method HOLLOW STEM AUGER
Driller G. KURTZ — Log by P. OSBORN — Samping Method 5' CONTINUOUS

Sketch Map



Notes

Depth (ft)	Well Construction	Notes	Sample No. & Blow Count	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
1		above ground well protector with lock			
0					Silty CLAY, dark brown, moist, medium stiff, slightly plastic with a trace of fine grained sand.
1					
2		neat cement grout			
3		casing			
4					
5					Reddish brown, same as above.
6					
7					Silty SAND, reddish brown, moist, fine grained sand.
8					
9					Silty CLAY, reddish brown mottled gray, moist, stiff, slightly plastic with some fine grained sand.
10					
11		bentonite pellets			Silty SAND, brown, wet, fine grained sand.
12					
13					Silty SAND, brown, wet, medium to fine grained.
14					
15					Silty SAND, gray, saturated, medium to fine grained sand with a trace of coarse grained sand with depth. Slight petroleum odor.
16		screen sand pack			
17					
18					
19					
20					
21					
22					
23					
24					BOH = 25'

GROUNDWATER TECHNOLOGY

Well No. WND-4

DRILLING LOG

Project: W.N.I.D. | Owner: W.N.I.D.

Location: Wichita, KS | Project Number: 042209670

Date Drilled: 3/25/91 | Total Depth: 22' | Diameter: 7.25"

Surface Elevation: | Water depth (init.): 15.9' | 24-hrs.:

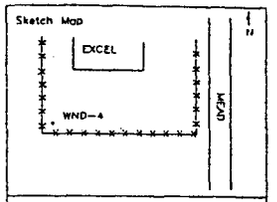
Screen: Dia. 2" | Length 10' | Slot Size .01"

Casing: Dia. 2" | Length 14' | Type SCH 40 PVC

Drilling Company: G.T.I. | Drilling Method: HOLLOW STEM AUGER

Driller: G. KURTZ | Log by: P. OSBORN | Sampling Method: 5' CONTINUOUS

Sketch Map



Notes

Depth (ft)	Well Construction	Notes	Sample No. & Blow Count	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
1, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24		above ground well protector with lock; neat cement grout; casing; bentonite pellets; screen sand pack			Silty CLAY, dark brown, moist, stiff, slightly plastic with some fine grained sand.
					Clayey SAND, brown, moist, fine grained sand.
					Silty CLAY, dark brown, moist, medium stiff, slightly plastic.
					Clayey SAND, reddish brown, moist, fine grained sand.
					Silty CLAY, some as above.
					Silty SAND, brown, wet, fine grained sand.
					Silty SAND, brown, saturated, medium to fine grained.
					Trace of coarse sand, same as above.
					Silty SAND, brown, saturated, coarse to fine grained sand.
					BOH = 22'

Page 1 of 1

GROUNDWATER TECHNOLOGY

Well No. WND-5

DRILLING LOG

Project: W.N.I.D. | Owner: W.N.I.D.

Location: Wichita, KS | Project Number: 042209670

Date Drilled: 3/25/91 | Total Depth: 23' | Diameter: 7.25"

Surface Elevation: | Water depth (init.): 14' | 24-hrs.:

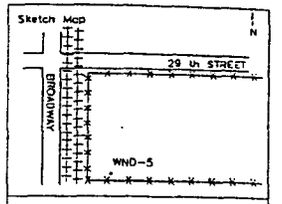
Screen: Dia. 2" | Length 10' | Slot Size .01"

Casing: Dia. 2" | Length 14' | Type SCH 40 PVC

Drilling Company: G.T.I. | Drilling Method: HOLLOW STEM AUGER

Driller: G. KURTZ | Log by: P. OSBORN | Sampling Method: 5' CONTINUOUS

Sketch Map



Notes

Depth (ft)	Well Construction	Notes	Sample No. & Blow Count	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
1, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24		above ground well protector with lock; neat cement grout; casing; bentonite pellets; screen sand pack			Sandy CLAY, dark brown, moist, medium stiff, slightly plastic, with some fine grained sand.
					Silty CLAY, brown, moist, stiff, non-plastic with trace of fine grained sand.
					Silty SAND, light brown, moist, medium to fine grained.
					Silty SAND, light reddish brown, wet, medium to fine grained sand.
					Silty SAND, gray, saturated, medium to fine grained sand with trace of coarse sand. Petroleum odor.
					BOH = 23'

Page 1 of 1

GROUNDWATER TECHNOLOGY

Well No. WND-6

DRILLING LOG

Project: W.N.I.D. Owner: W.N.I.D.

Location: Wichita, KS Project Number: 042209670

Date Drilled: 3/26/91 Total Depth: 27' Diameter: 7.25"

Surface Elevation: Water depth (init.): 18.6' 24-hrs.:

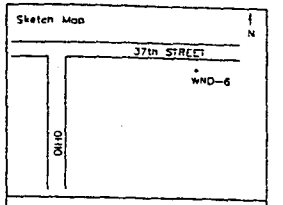
Screen: Dia. 2" Length 10' Slot Size .01"

Casing: Dia. 2" Length 18' Type SCH 40 PVC

Drilling Company G.T.I. Drilling Method HOLLOW STEM AUGER

Driller G. KURTZ Log by P. OSBORN Sampling Method 5' CONTINUOUS

Sketch Map



Notes

Depth (ft)	Well Construction	Notes	Sample No. & Blow Count	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
2, 0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44		above ground well protector with lock; neat cement grout; casing; bentonite pellets; screen; sand pack			Silty CLAY, dark brown, moist with some concrete fill.
					Silty CLAY, dark brown, moist, stiff, slightly plastic.
					Silty CLAY, brown, moist, stiff, slightly plastic, with a trace of coarse grained concretions at 9' to 10.5'.
					Clayey SAND, brown, wet, medium to fine grained with a trace of coarse sand.
					Silty SAND, light brown, coarse to fine grained, saturated at 19'. Trace of gravel with depth.
					BOH = 27.0'

Page 1 of 1

GROUNDWATER TECHNOLOGY

Well No. WND-7

DRILLING LOG

Project: W.N.I.D. Owner: W.N.I.D.

Location: Wichita, KS Project Number: 042209670

Date Drilled: 3/26/91 Total Depth: 25' Diameter: 7.25"

Surface Elevation: Water depth (init.): 15' 24-hrs.:

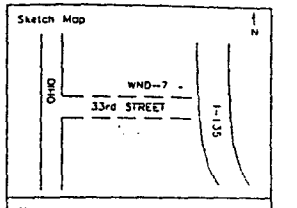
Screen: Dia. 2" Length 10' Slot Size .01"

Casing: Dia. 2" Length 16' Type SCH 40 PVC

Drilling Company G.T.I. Drilling Method HOLLOW STEM AUGER

Driller G. KURTZ Log by P. OSBORN Sampling Method 5' CONTINUOUS

Sketch Map



Notes

Depth (ft)	Well Construction	Notes	Sample No. & Blow Count	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
1, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24		above ground well protector with lock; neat cement grout; casing; bentonite pellets; screen; sand pack			Silty CLAY, dark brown, moist, stiff, non-plastic, with trace of fine sand.
					Sandy CLAY, brown, moist, medium stiff, slightly plastic, fine grained sand.
					Light brown, same as above.
					Silty CLAY, light brown / gray, moist, medium stiff, slightly plastic, with some fine grained sand.
					Clayey SAND, brown, saturated, medium to fine grained sand.
					Silty SAND, brown, saturated, medium to fine grained sand with a trace of coarse sand.
					Silty CLAY, brown, wet, medium stiff, plastic.
					BOH = 25'

Page 1 of 1

GROUNDWATER TECHNOLOGY

Well No. WND-8

DRILLING LOG

Project W.N.I.D. Owner W.N.I.D.

Location Wichita, KS Project Number 042209670

Date Drilled 3/26/91 Total Depth 22' Diameter 7.25"

Surface Elevation Water depth (init.) 13.9' 24-hrs.

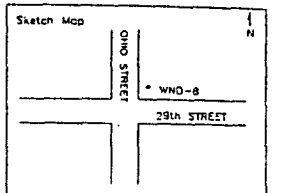
Screen: Dia. 2" Length 10' Slot Size .01"

Casing: Dia. 2" Length 14' Type SCH 40 PVC

Drilling Company G.T.I. Drilling Method HOLLOW STEM AUGER

Driller G. KURTZ Log by P. OSBORN Sampling Method 5' CONTINUOUS

Sketch Map



Notes

Depth (ft)	Well Construction	Notes	Sample No. & Count	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
1, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24		above ground well protector with lock; neat cement grout; casing; bentonite pellets; screen; sand pack			Silty CLAY, dark brown, moist, stiff, non plastic, with a trace of fine grained sand.
					Brown, same as above.
					Clayey SAND, brown, moist, fine graine sand.
					Silty SAND, brown, wet, medium to fine grained sand.
					SAND, light brown, wet, medium to fine grained sand.
					SAND, light brown, saturated, medium to fine grained sand with a trace of coarse sand and fine gravel.
					BOH = 22'

GROUNDWATER TECHNOLOGY

Well No. WND-9

DRILLING LOG

Project W.N.I.D. Owner W.N.I.D.

Location Wichita, KS Project Number 042209670

Date Drilled 3/26/91 Total Depth 22' Diameter 7.25"

Surface Elevation Water depth (init.) 13.2' 24-hrs.

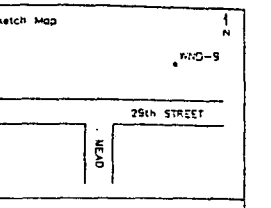
Screen: Dia. 2" Length 10' Slot Size .01"

Casing: Dia. 2" Length 13' Type SCH 40 PVC

Drilling Company G.T.I. Drilling Method HOLLOW STEM AUGER

Driller G. KURTZ Log by P. OSBORN Sampling Method 5' CONTINUOUS

Sketch Map



Notes

Depth (ft)	Well Construction	Notes	Sample No. & Count	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
1, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24		above ground well protector with lock; neat cement grout; casing; bentonite pellets; screen; sand pack			Crushed limestone rock fill.
					Silty CLAY, dark brown, moist, stiff, slightly plastic, with some fine sand.
					Brown, same as above.
					Clayey SAND, brown, wet, medium to fine grained sand.
					Silty SAND, brown, wet, fine grained sand.
					SAND, light brown, saturated at 13', medium to fine grained with some coarse grained sand and trace of fine gravel.
					BOH = 22'

GROUNDWATER TECHNOLOGY

Well No. WND-10

DRILLING LOG

Project W.N.I.D. Owner W.N.I.D.

Location Wichita, KS Project Number 042209670

Date Drilled 3/27/91 Total Depth 20' Diameter 7.25"

Surface Elevation _____ Water depth (Init.) 13.5' 24-hrs. _____

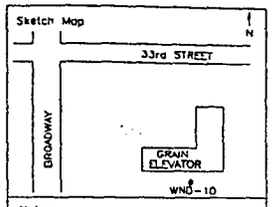
Screen: Dia. 2" Length 10' Slot Size .01"

Casing: Dia. 2" Length 12' Type SCH 40 PVC

Drilling Company G.T.I. Drilling Method HOLLOW STEM AUGER

Driller G. KURTZ Log by P. OSBORN Samping Method 5' CONTINUOUS

Sketch Map



Notes

Depth (ft)	Well Construction	Notes	Sample No. & Blow Count	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
1, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24		above ground well protector with lock; neat cement grout; casing; bentonite pellets; screen; sand pack			Silty CLAY, dark brown, moist, medium stiff, slightly plastic.
					Silty CLAY, brown, dry, stiff, slightly plastic with some fine grained sand.
					Silty SAND, light brown, dry, stiff, slightly plastic with some fine grained sand and silt.
					Silty SAND, light brown, wet, fine grained sand with a trace of medium sand.
					Silty SAND, light brown, saturated, medium to fine grained, with a trace of coarse sand and fine gravel from 15' – 20'.
					BOH = 20'

GROUNDWATER TECHNOLOGY

Well No. WND-11

DRILLING LOG

Project W.N.I.D. Owner W.N.I.D.

Location Wichita, KS Project Number 042209670

Date Drilled 3/27/91 Total Depth 23' Diameter 7.25"

Surface Elevation _____ Water depth (Init.) 13.5' 24-hrs. _____

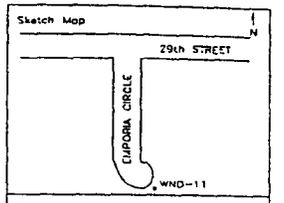
Screen: Dia. 2" Length 10' Slot Size .01"

Casing: Dia. 2" Length 13' Type SCH 40 PVC

Drilling Company G.T.I. Drilling Method HOLLOW STEM AUGER

Driller G. KURTZ Log by P. OSBORN Samping Method 5' CONTINUOUS

Sketch Map



Notes

Depth (ft)	Well Construction	Notes	Sample No. & Blow Count	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
1, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24		above ground well protector with lock; neat cement grout; casing; bentonite pellets; screen; sand pack			Sandy CLAY, dark brown, moist, medium stiff, slightly plastic, with fine grained sand.
					Brown, same as above.
					Silty SAND, light reddish brown, moist, fine grained sand with some medium grained sand.
					Wet, same as above.
					Silty SAND, gary, saturated, fine grained sand with a trace of medium grained sand, petroleum odor.
					Silty SAND, brown, saturated, coarse to fine grained sand with a trace of fine gravel.
					BOH = 23'

GROUNDWATER TECHNOLOGY

Well No. WND-12

DRILLING LOG

Project W.N.I.D. Owner W.N.I.D.

Location Wichita, KS Project Number 042209670

Date Drilled 3/27/91 Total Depth 22' Diameter 7.25"

Surface Elevation _____ Water depth (init.) 14.5' 24-hrs. _____

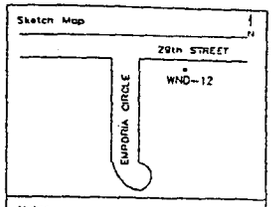
Screen: Dia. 2" Length 10' Slot Size .01"

Casing: Dia. 2" Length 13' Type SCH 40 PVC

Drilling Company G.T.I. Drilling Method HOLLOW STEM AUGER

Driller G. KURTZ Log by P. OSBORN Samping Method 5' CONTINUOUS

Sketch Map



Notes

Depth (ft)	Well Construction	Notes	Sample No. & Blow Count	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
		flush mount manhole cover			
0					Silty CLAY, dark brown, dry, stiff, slightly plastic, with a trace of fine grained sand.
1		neat cement grout			
2					
3		casing			Same as above, brown and moist.
4					
5					
6					
7		bentonite pellets			Clayey SAND, brown, moist, fine grained sand.
8					
9					Silty SAND, gray, wet, fine grained sand with some clay, and slight petroleum odor.
10					
11					
12					Silty SAND, brown, wet, fine grained sand, strong petroleum odor, saturatred at 14'.
13					
14					
15					
16		screen			
17					Silty SAND, brown, saturtaed, medium to fine grained, with a trace of coarse sand at approximately 20'.
18					
19		sand pack			
20					
21					
22					
23					BOH = 22'
24					

Page 1 of 1

GROUNDWATER TECHNOLOGY

Well No. WND-13

DRILLING LOG

Project W.N.I.D. Owner W.N.I.D.

Location Wichita, KS Project Number 042209670

Date Drilled 3/27/91 Total Depth 22' Diameter 7.25"

Surface Elevation _____ Water depth (init.) 13.8' 24-hrs. _____

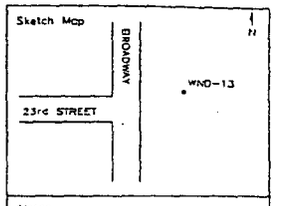
Screen: Dia. 2" Length 10' Slot Size .01"

Casing: Dia. 2" Length 14' Type SCH 40 PVC

Drilling Company G.T.I. Drilling Method HOLLOW STEM AUGER

Driller G. KURTZ Log by P. OSBORN Samping Method 5' CONTINUOUS

Sketch Map



Notes

Depth (ft)	Well Construction	Notes	Sample No. & Blow Count	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
1		above ground well protector with lock			
0					Sandy CLAY, brown moist, fine grained sand.
1		neat cement grout			
2					Same as above with red brick and concrete fill.
3		casing			
4					
5					Silty SAND, brown, moist with a trace of clay.
6					
7		bentonite pellets			Silty SAND, brown, moist with a trace of clay.
8					
9					
10					Sandy CLAY, light gray, wet, fine grained sand.
11					
12					Silty SAND, wet, medium to fine grained sand, saturated at 14', some coarse sand with depth.
13					
14					
15					
16		screen			
17					
18					
19		sand pack			
20					
21					
22					
23					BOH = 22'
24					

Page 1 of 1

GROUNDWATER TECHNOLOGY

Drilling Log

GROUNDWATER TECHNOLOGY

Monitoring Well **WND-13D**

Project WNID PHASE II — Owner WNID PRP GROUP
Location Wichita, KS — Project No. 042206913 — Date drilled 5/01/92
Surface Elev. — Total Hole Depth 39 ft. — Diameter .666 ft.
Top of Casing — Water Level Initial 14 ft. — Static 15.50 ft.
Screen: Dia 2 in. — Length 10 ft. — Type/Size PVC mill slot/.010" in.
Casing: Dia 2 in. — Length 29 ft. — Type Sched. 40 PVC
Filter Pack Material NATURAL SAND PACK — Rig/Core Type CME 57
Drilling Company GTI — Method Hollow Stem Auger — Permit # 51?
Driller Glen Kurtz — Log By Steve Mitchell
Checked By — License No.

See Site Map For Boring Location

COMMENTS:
Auger refusal four time above 5'. 130' is 23' NW of shallow well.

Depth (ft.)	Well Completion	PID (ppm)	Sample ID Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2						
0						START EXPLORATION @ 13:56
2		0.6				CLAY-black, sandy, moderately stiff, dry.
4					CH	CLAY-brown to dark brown, sandy, soft, damp.
6						
8						SAND-light brown, fine grain, well sorted, subrounded, damp.
10					SW	
12		0				
14		0			SP	SAND-light brown, medium grain, well sorted, subrounded to angular, some gravel, saturated.
16						
18						
20						
22						
24						
26					SW	
28						
30						
32						
34						
36						
38						SHALE-dark gray, fissile, dry. END EXPLORATION @ 16:10
40					SH	
42						

GROUNDWATER TECHNOLOGY

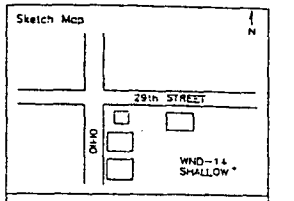
05/29/1992 Rlog-mar92

Page: 1 of 1

Well No. WND-14 SHALLOW **DRILLING LOG**

Project W.N.I.D. — Owner W.N.I.D.
Location Wichita, KS — Project Number 042209670
Date Drilled 3/28/91 — Total Depth 22' — Diameter 7.25"
Surface Elevation — Water depth (init.) 14.5' — 24-hrs.
Screen: Dia. 2" — Length 10' — Slot Size .01"
Casing: Dia. 2" — Length 14' — Type SCH 40 PVC
Drilling Company G.T.I. — Drilling Method HOLLOW STEM AUGER
Driller G. KURTZ — Log by P. OSBORN — Samping Method 5' CONTINUOUS

Sketch Map



Notes

Depth (ft)	Well Construction	Notes	Sample No. & Blow Count	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
1		above ground well protector with lock			
0					Silty CLAY, dark brown, moist, stiff, slightly plastic.
1		neat cement grout			
2					
3					Sandy CLAY, brown, wet, medium stiff, with some fine grained sand.
4		casing			
5					
6					
7					
8		bentonite pellets			
9					
10					
11					
12					
13					Silty SAND, brown, wet, fine grained sand.
14					
15		screen			Silty SAND, brown, saturated, medium to fine grained sand, with a trace of coarse sand.
16					
17					
18		sand pack			
19					
20					
21					
22					
23					BOH = 22'
24					

Page 1 of 1

GROUNDWATER TECHNOLOGY

Well No. WND-14 DEEP

DRILLING LOG

Project: W.N.I.D. Owner: W.N.I.D.

Location: Wichita, KS Project Number: 042209670

Date Drilled: 3/29/91 Total Depth: 49' Diameter: 11.25"

Surface Elevation: Water depth (init.): 14.5' 24-hrs.:

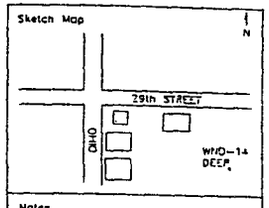
Screen: Dia. 2" Length 10' Slot Size .01"

Casing: Dia. 2" Length 38' Type SCH 40 PVC

Drilling Company G.T.I. Drilling Method HOLLOW STEM AUGER

Driller G. KURTZ Log by P. OSBORN Sampling Method 5' CONTINUOUS

Sketch Map



Notes

Depth (ft)	Well Construction	Notes	Sample No. & Blow Count	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
2, 0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48		above ground well protector with lock; neat cement grout; casing; bentonite pellets; screen; sand pack			Silty CLAY, dark brown, moist, stiff, slightly plastic.
					Sandy CLAY, brown, wet, medium stiff, with some fine grained sand.
					Silty SAND, brown, wet, fine grained sand.
					Silty SAND, brown, saturated, medium to fine grained sand, with a trace of coarse sand. More coarse with depth.
					Silty SAND, brown, saturated, coarse to fine grained sand.
					Silty CLAY, gray, moist, soft, plastic, with some gypsum.
					Silty CLAY, olive green / brown, stiff, plastic, (weathered shale).
					BOH = 49'

Page 1 of 1

GROUNDWATER TECHNOLOGY

Well No. WND-15 SHALLOW

DRILLING LOG

Project: W.N.I.D. Owner: W.N.I.D.

Location: Wichita, KS Project Number: 042209670

Date Drilled: 3/29/91 Total Depth: 23' Diameter: 7.25"

Surface Elevation: Water depth (init.): 14.2' 24-hrs.:

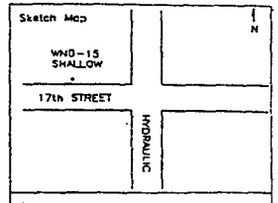
Screen: Dia. 2" Length 10' Slot Size .01"

Casing: Dia. 2" Length 12' Type SCH 40 PVC

Drilling Company G.T.I. Drilling Method HOLLOW STEM AUGER

Driller G. KURTZ Log by P. OSBORN Sampling Method 5' CONTINUOUS

Sketch Map



Notes

Depth (ft)	Well Construction	Notes	Sample No. & Blow Count	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25		flush mount cover; neat cement grout; casing; bentonite pellets; screen; sand pack			Silty CLAY, dark brown with concrete, brick and glass fill.
					Silty CLAY, dark brown, moist, medium stiff, slightly plastic, with a trace of fine grained sand
					Sandy CLAY, brown moist, fine grained sand.
					Silty SAND, brown, moist, fine grained sand.
					Silty CLAY, gray, wet, medium stiff, slightly plastic.
					Silty SAND, brown, saturated, medium to fine grained, with a trace of coarse sand.
					BOH = 23'

Page 1 of 1

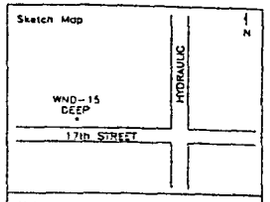
GROUNDWATER TECHNOLOGY

Well No. WND-15 DEEP

DRILLING LOG

Project: W.N.I.D. | Owner: W.N.I.D.
Location: Wichita, KS | Project Number: 042209670
Date Drilled: 3/29/91 | Total Depth: 32' | Diameter: 11.25"
Surface Elevation: | Water depth (init.): 14.2' | 24-hrs.:
Screen: Dia. 2" | Length: 10' | Slot Size: .01"
Casing: Dia. 2" | Length: 21' | Type: SCH 40 PVC
Drilling Company: G.T.I. | Drilling Method: HOLLOW STEM AUGER
Driller: G. KURTZ | Log by: P. OSBORN | Sampling Method: 5' CONTINUOUS

Sketch Map



Notes

Depth (ft)	Well Construction	Notes	Sample No. & Blow Count	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
2, 0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48		above ground well protector with lock; neat cement grout; casing; bentonite pellets; screen; sand pack			Silty CLAY, dark brown, with concrete, brick and glass fill.
					Silty CLAY, dark brown, moist, medium stiff, slightly plastic, with a trace fine grained
					Sandy CLAY, dark brown, moist, fine grained sand.
					Silty SAND, brown, moist, fine grained sand.
					Silty CLAY, gray, wet, medium stiff, slightly plastic.
					Silty SAND, brown, saturated, medium to fine grained, with trace of coarse sand.
					Silty SAND, brown, saturated, coarse to fine grained sand.
					Silty CLAY, olive green / gray, stiff, very plastic.
					Same as above, dark gray to gray (weathered shale).
					BOH = 32'

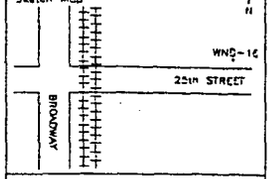
GROUNDWATER TECHNOLOGY

Well No. WND-16

DRILLING LOG

Project: W.N.I.D. | Owner: W.N.I.D.
Location: Wichita, KS | Project Number: 042209570
Date Drilled: 3/29/91 | Total Depth: 22' | Diameter: 7.25"
Surface Elevation: | Water depth (init.): 15' | 24-hrs.:
Screen: Dia. 2" | Length: 10' | Slot Size: .01"
Casing: Dia. 2" | Length: 11.5' | Type: SCH 40 PVC
Drilling Company: G.T.I. | Drilling Method: HOLLOW STEM AUGER
Driller: G. KURTZ | Log by: P. OSBORN | Sampling Method: 5' CONTINUOUS

Sketch Map



Notes

Depth (ft)	Well Construction	Notes	Sample No. & Blow Count	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25		flush mount cover; neat cement grout; casing; bentonite pellets; screen; sand pack			Crushed limestone fill.
					Silty CLAY, dark brown, moist, slightly plastic, and medium stiff.
					Silty SAND, brown, moist, medium to fine grained.
					Sandy CLAY, gray, moist, stiff, slightly plastic, fine grained sand, petroleum odor.
					Clayey SAND, gray, wet, fine grained, strong petroleum odor.
					Clayey SAND, product stained, medium to fine grained
					Silty SAND, dark gray, saturated, medium to fine grained, with some coarse sand and a trace of gravel.
					BOH = 22'

GROUNDWATER TECHNOLOGY

Well No. WND-17 SHALLOW

DRILLING LOG

Project W.N.I.D. Owner W.N.I.D.

Location Wichita, KS Project Number 042209670

Date Drilled 4/1/91 Total Depth 25' Diameter 7.25"

Surface Elevation _____ Water depth (init.) 17.5' 24-hrs. _____

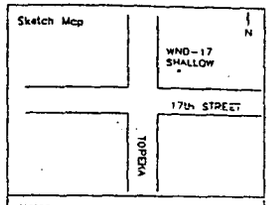
Screen: Dia. 2" Length 10' Slot Size .01"

Casing: Dia. 2" Length 15' Type SCH 40 PVC

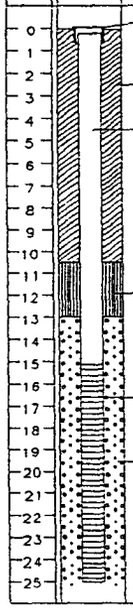
Drilling Company G.T.I. Drilling Method HOLLOW STEM AUGER

Driller G. KURTZ Log by P. OSBORN Samping Method 5' CONTINUOUS

Sketch Map



Notes

Depth (ft)	Well Construction	Notes	Sample No. & Blow Count	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
0–25		flush mount cover; neat cement grout; casing; bentonite pellets; screen; sand pack			SAND and gravel fill.
					Silty CLAY, brown, moist, stiff, slightly plastic.
					Silty SAND, brown, moist, fine grained sand and silt.
					SAND, light brown, moist, medium to fine grained sand with a trace of fine gravel.
					SAND, light brown, saturated, coarse to fine fine grained sand with a trace of fine gravel.
					BOH = 25'

GROUNDWATER TECHNOLOGY

Well No. WND-17 DEEP

DRILLING LOG

Project W.N.I.D. Owner W.N.I.D.

Location Wichita, KS Project Number 042209670

Date Drilled 4/1/91 Total Depth 46' Diameter 11.25"

Surface Elevation _____ Water depth (init.) 17.5' 24-hrs. _____

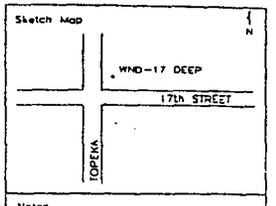
Screen: Dia. 2" Length 10' Slot Size .01"

Casing: Dia. 2" Length 35' Type SCH 40 PVC

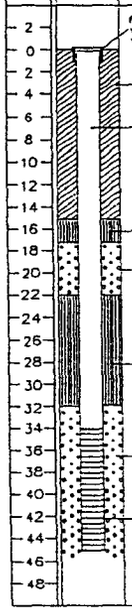
Drilling Company G.T.I. Drilling Method HOLLOW STEM AUGER

Driller G. KURTZ Log by P. OSBORN Samping Method 5' CONTINUOUS

Sketch Map



Notes

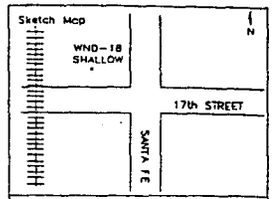
Depth (ft)	Well Construction	Notes	Sample No. & Blow Count	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
2–48		flush mount well protector with lock; neat cement grout; casing; bentonite pellets; native sand pack; bentonite pellets; sand pack; screen			SAND and gravel fill.
					Silty CLAY, brown, moist, stiff, slightly plastic.
					Silty SAND, brown, moist, fine grained sand and silt.
					SAND, light brown, moist, medium to fine grained sand with a trace of gravel.
					SAND, light brown, saturated, coarse to fine grained sand with a trace of fine gravel.
					Silty CLAY, olive green, moist, stiff, plastic (weathered shale)
					BOH = 46'

GROUNDWATER TECHNOLOGY

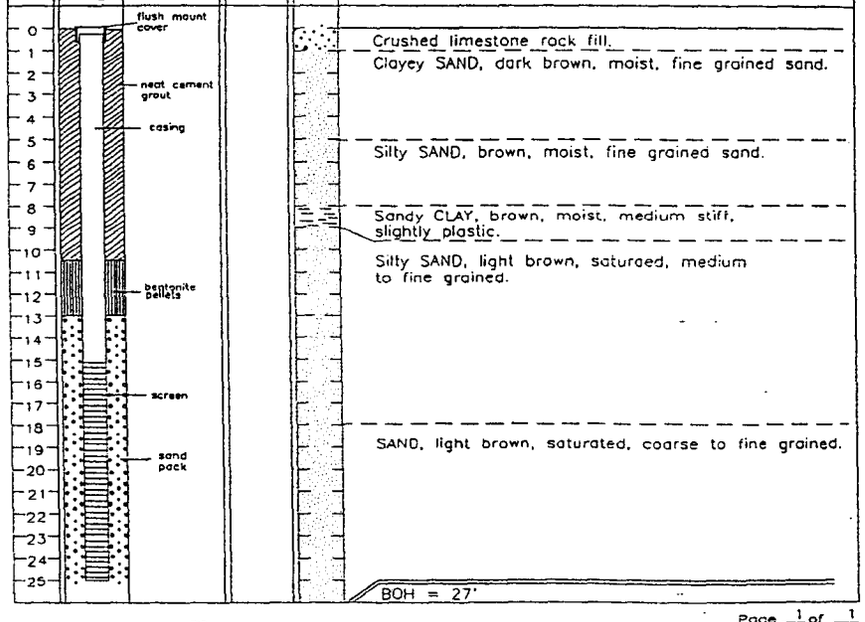
Well No. WND-18 SHALLOW DRILLING LOG

Project: W.N.I.D. | Owner: W.N.I.D.
Location: Wichita, KS | Project Number: 042209670
Date Drilled: 4/2/91 | Total Depth: 27' | Diameter: 7.25"
Surface Elevation: | Water depth (init.): 18.2' | 24-hrs.:
Screen: Dia. 2" | Length 10' | Slot Size .01"
Casing: Dia. 2" | Length 15' | Type SCH 40 PVC
Drilling Company G.T.I. | Drilling Method HOLLOW STEM AUGER
Driller G. KURTZ | Log by P. OSBORN | Sampling Method 5' CONTINUOUS

Sketch Map



Notes

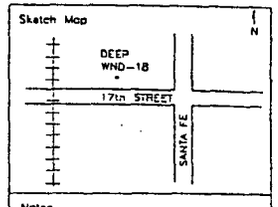


GROUNDWATER TECHNOLOGY

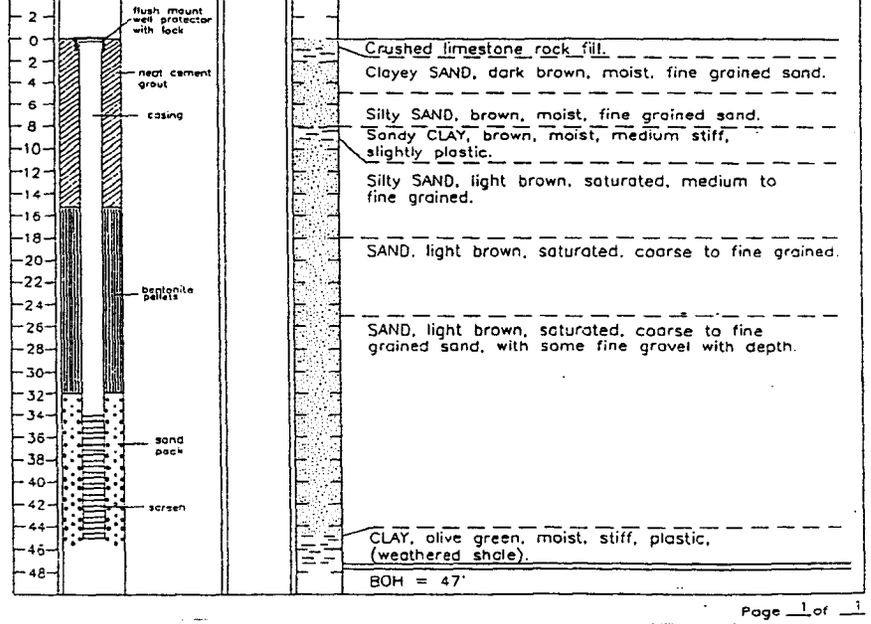
Well No. WND-18 DEEP DRILLING LOG

Project: W.N.I.D. | Owner: W.N.I.D.
Location: Wichita, KS | Project Number: 042209670
Date Drilled: 4/1/91 | Total Depth: 47' | Diameter: 11.25"
Surface Elevation: | Water depth (init.): 18.2' | 24-hrs.:
Screen: Dia. 2" | Length 10' | Slot Size .01"
Casing: Dia. 2" | Length 36' | Type SCH 40 PVC
Drilling Company G.T.I. | Drilling Method HOLLOW STEM AUGER
Driller G. KURTZ | Log by P. OSBORN | Sampling Method 5' CONTINUOUS

Sketch Map



Notes

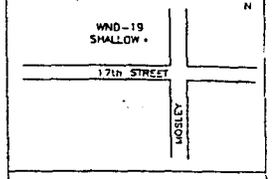


GROUNDWATER TECHNOLOGY

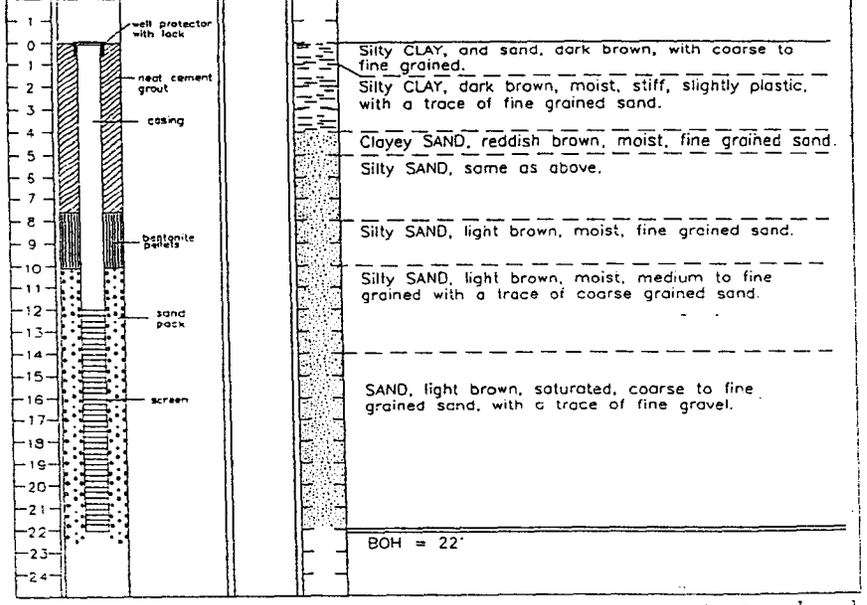
Well No. WND-19 SHALLOW DRILLING LOG

Project W.N.I.D. Owner W.N.I.D.
Location Wichita KS Project Number 042209670
Date Drilled 4/2/91 Total Depth 22' Diameter 7.25"
Surface Elevation _____ Water depth (init.) 14.2' 24-hrs. _____
Screen: Dia. 2" Length 10' Slot Size .01"
Casing: Dia. 2" Length 12 Type SCH 40 PVC
Drilling Company G.T.I. Drilling Method HOLLOW STEM AUGER
Driller G. KURTZ Log by P. OSBORN Sampling Method 5' CONTINUOUS

Sketch Map



Notes



Description/Soil Classification (Color, Texture, Structure)

Silty CLAY, and sand, dark brown, with coarse to fine grained.
Silty CLAY, dark brown, moist, stiff, slightly plastic, with a trace of fine grained sand.
Clayey SAND, reddish brown, moist, fine grained sand.
Silty SAND, same as above.
Silty SAND, light brown, moist, fine grained sand.
Silty SAND, light brown, moist, medium to fine grained with a trace of coarse grained sand.
SAND, light brown, saturated, coarse to fine grained sand, with a trace of fine gravel.
BOH = 22'

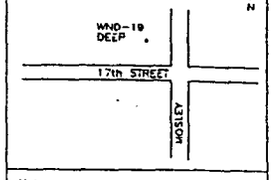
Page 1 of 1

GROUNDWATER TECHNOLOGY

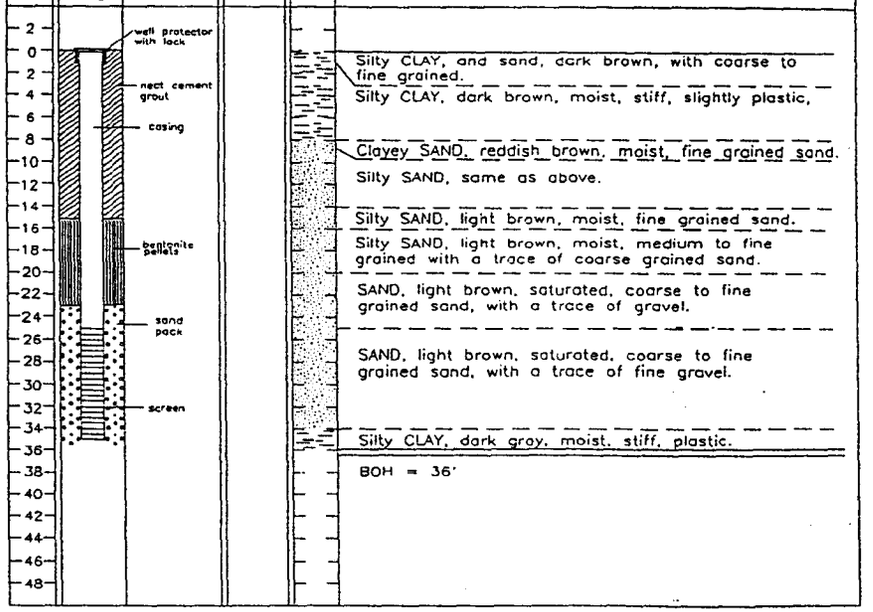
Well No. WND-19 DEEP DRILLING LOG

Project W.N.I.D. Owner W.N.I.D.
Location Wichita KS Project Number 042209670
Date Drilled 4/2/91 Total Depth 36' Diameter 11.25"
Surface Elevation _____ Water depth (init.) 14.2' 24-hrs. _____
Screen: Dia. 2" Length 10' Slot Size .01"
Casing: Dia. 2" Length 25' Type SCH 40 PVC
Drilling Company G.T.I. Drilling Method HOLLOW STEM AUGER
Driller G. KURTZ Log by P. OSBORN Sampling Method 5' CONTINUOUS

Sketch Map



Notes



Description/Soil Classification (Color, Texture, Structure)

Silty CLAY, and sand, dark brown, with coarse to fine grained.
Silty CLAY, dark brown, moist, stiff, slightly plastic,
Clayey SAND, reddish brown, moist, fine grained sand.
Silty SAND, same as above.
Silty SAND, light brown, moist, fine grained sand.
Silty SAND, light brown, moist, medium to fine grained with a trace of coarse grained sand.
SAND, light brown, saturated, coarse to fine grained sand, with a trace of gravel.
SAND, light brown, saturated, coarse to fine grained sand, with a trace of fine gravel.
Silty CLAY, dark gray, moist, stiff, plastic.
BOH = 36'

Page 1 of 1

GROUNDWATER TECHNOLOGY

Well No. WND-20

DRILLING LOG

Project W.N.I.D. Owner W.N.I.D.

Location Wichita, KS Project Number 042209670

Date Drilled 4/3/91 Total Depth 25' Diameter 7.25"

Surface Elevation Water depth (init.) 17' 24-hrs.

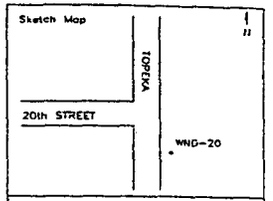
Screen: Dia. 2" Length 10' Slot Size .01"

Casing: Dia. 2" Length 16' Type SCH 40 PVC

Drilling Company G.T.I. Drilling Method HOLLOW STEM AUGER

Driller G. KURTZ Log by P. OSBORN Samping Method 5' CONTINUOUS

Sketch Map



Notes

Depth (ft)	Well Construction	Notes	Sample No. & Blow Count	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
1, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24	above ground well protector; neat cement grout; casing; bentonite pellets; screen; sand pack				Silty CLAY, dark brown, moist, medium stiff, slightly plastic with some fine grained sand.
					Silty CLAY, brown, moist, stiff, plastic.
					Dark brown, same as above.
					Silty SAND, brown, saturated, medium to fine grained with a trace of coarse sand.
					Silty SAND, brown, saturated, medium to fine grained with a trace of coarse sand.
					BOH = 25'

GROUNDWATER TECHNOLOGY

Well No. WND-21

DRILLING LOG

Project W.N.I.D. Owner W.N.I.D.

Location Wichita, KS Project Number 042209670

Date Drilled 4/3/91 Total Depth 25' Diameter 7.25"

Surface Elevation Water depth (init.) 14' 24-hrs.

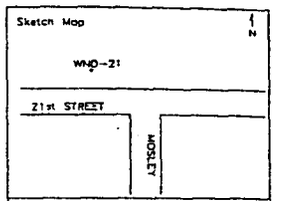
Screen: Dia. 2" Length 10' Slot Size .01"

Casing: Dia. 2" Length 12' Type SCH 40 PVC

Drilling Company G.T.I. Drilling Method HOLLOW STEM AUGER

Driller G. KURTZ Log by P. OSBORN Samping Method 5' CONTINUOUS

Sketch Map



Notes

Depth (ft)	Well Construction	Notes	Sample No. & Blow Count	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25	flush mount cover; neat cement grout; casing; bentonite pellets; screen; sand pack				ASPHALT
					CONCRETE and red brick.
					Silty CLAY, dark brown, moist, medium stiff, plastic.
					Sandy CLAY, brown / dark brown, moist, medium stiff, slightly plastic.
					Clayey SAND, gray, saturated, fine grained sand.
					Sandy CLAY, dark gray, wet, soft.
					Silty SAND, gray, saturated, medium to fine grained sand with gasoline odor.
					Brown, with a trace of coarse sand, same as above.
					BOH = 25'

GROUNDWATER TECHNOLOGY

GROUNDWATER TECHNOLOGY

Drilling Log

Monitoring Well WND-21D

Project WNID PHASE II — Owner WNID PRP GROUP
Location Wichita, KS — Project No. 042206913-6401 — Date drilled 5/21/92
Surface Elev. — Total Hole Depth 37 ft. — Diameter .868 ft.
Top of Casing — Water Level Initial 13.13 ft. — Static 13.13 ft.
Screen: Dia 2 in. — Length 10 ft. — Type/Size PVC mill slot/ 010" in.
Casing: Dia 2 in. — Length 27 ft. — Type Sch. 40 PVC
Filter Pack Material NATURAL SAND PACK — Rig/Core Type CME 57
Drilling Company GTI — Method Hollow Stem Auger — Permit # 517
Driller Glen Kurtz — Log By Steve Mitchell
Checked By — License No.

See Site Map For Boring Location

COMMENTS:
3' North of shallow well in driveway

Depth (ft.)	Well Completion	PID (ppm)	Sample ID Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2						
0						START EXPLORATION @ 10:40
2		0			ASP	ASPHALT AND FILL SAND-oil stained, fair odor (oil). CLAY-black, soft, plastic, some fine grain sand.
4						
6						
8		0			CH	CLAY-black, soft, plastic, saturated.
10						
12		0				SAND-light brown, medium grain, well sorted, subrounded to angular, saturated, strong hydrocarbon odor.
14						
16						
18						
20						
22						
24						
26					SW	
28						
30						
32						
34						
36						
38					SH	SHALE-dark gray, fissile, dry. END EXPLORATION @ 11:30
40						
42						
44						
46						
48						
50						

GROUNDWATER TECHNOLOGY

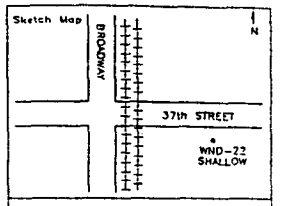
06/29/1992 ltrlog - mar 92

DRILLING LOG

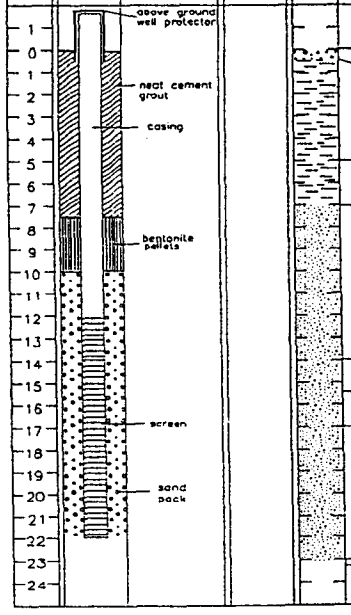
Well No. WND-22 SHALLOW

Project W.N.I.D. — Owner W.N.I.D.
Location Wichita, KS — Project Number 042209670
Date Drilled 4/3/91 — Total Depth 23' — Diameter 7.25"
Surface Elevation — Water depth (init.) 15' — 24-hrs.
Screen: Dia. 2" — Length 10' — Slot Size .01"
Casing: Dia. 2" — Length 14' — Type SCH 40 PVC
Drilling Company G.T.I. — Drilling Method HOLLOW STEM AUGER
Driller G. KURTZ — Log by P. OSBORN — Samping Method 5' CONTINUOUS

Sketch Map



Notes



Depth (ft)	Well Construction	Notes	Sample No. & Blow Count	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
1					
0					Crushed limestone rock fill.
1					Silty CLAY, dark brown, moist, stiff, slightly plastic.
2					
3					
4					
5					
6					Brown, same as above.
7					Clayey SAND, brown, wet, fine grained sand.
8					
9					
10					
11					
12					
13					
14					Silty SAND, light gray, wet, medium to fine grained.
15					
16					Sandy CLAY, gray, wet, fine grained sand, soft, plastic.
17					
18					Silty SAND, gray and brown with depth, saturated, coarse to fine grained sand, with a trace of fine gravel.
19					
20					
21					
22					
23					
24					BOH = 23'

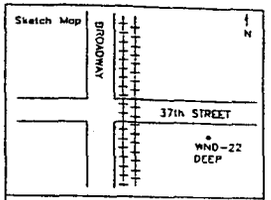
GROUNDWATER TECHNOLOGY

Well No. WND-22 DEEP

DRILLING LOG

Project: W.N.I.D. | Owner: W.N.I.D.
Location: Wichita, KS | Project Number: 042209670
Date Drilled: 4/4/91 | Total Depth: 44' | Diameter: 11.25"
Surface Elevation: | Water depth (init.): 15' | 24-hrs.:
Screen: Dia. 2" | Length 10' | Slot Size .01"
Casing: Dia. 2" | Length 35' | Type SCH 40 PVC
Drilling Company: G.T.I. | Drilling Method: HOLLOW STEM AUGER
Driller: G. KURTZ | Log by: P. OSBORN | Sampling Method: 5' CONTINUOUS

Sketch Map



Notes

Depth (ft)	Well Construction	Notes	Sample No. & Blow Count	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
2, 0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48		above ground well protector with lock; neat cement grout; casing; bentonite pellets; screen; sand pack			Crushed limestone rock fill.
					Silty CLAY, dark brown, moist, stiff, slightly plastic.
					Brown, same as above.
					Clayey SAND, brown, wet, fine grained sand.
					Silty SAND, light gray, wet, medium to fine grained.
					Sandy CLAY, gray, wet, fine grained sand, soft, plastic.
					Silty SAND, gray, saturated, coarse to fine grained sand with a trace of fine gravel.
					Brown, same as above.
					Silty SAND, brown, saturated, coarse to fine grained sand with a trace of fine gravel.
					Silty CLAY, gray, wet, soft, plastic.
					Silty CLAY, olive green / brown, moist, stiff, plastic, (weathered shale).
					BOH = 44'

Page 1 of 1

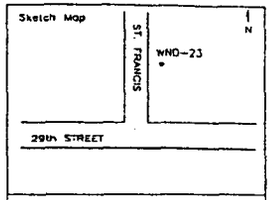
GROUNDWATER TECHNOLOGY

Well No. WND-23

DRILLING LOG

Project: W.N.I.D. | Owner: W.N.I.D.
Location: Wichita, KS | Project Number: 042209670
Date Drilled: 4/3/91 | Total Depth: 23' | Diameter: 7.25"
Surface Elevation: | Water depth (init.): 14' | 24-hrs.:
Screen: Dia. 2" | Length 10' | Slot Size .01"
Casing: Dia. 2" | Length 14' | Type SCH 40 PVC
Drilling Company: G.T.I. | Drilling Method: HOLLOW STEM AUGER
Driller: G. KURTZ | Log by: P. OSBORN | Sampling Method: 5' CONTINUOUS

Sketch Map



Notes

Depth (ft)	Well Construction	Notes	Sample No. & Blow Count	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
1, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24		above ground well protector; neat cement grout; casing; bentonite pellets; screen; sand pack			Crushed limestone rock fill.
					Sandy SILT, moist, light brown, fine grained sand.
					Silty CLAY, light brown, moist, stiff, medium plastic.
					Silty SAND, brown, moist, medium to fine grained sand.
					SAND, light brown, saturated, coarse to fine grained sand with a trace of fine gravel.
					BOH = 23'

Page 1 of 1

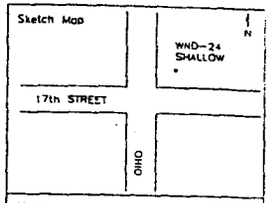
GROUNDWATER TECHNOLOGY

Well No. WND-24 SHALLOW

DRILLING LOG

Project: W.N.I.D. | Owner: W.N.I.D.
Location: Wichita, KS | Project Number: 042209670
Date Drilled: 4/5/91 | Total Depth: 22' | Diameter: 7.25"
Surface Elevation: | Water depth (init.): 14.5' | 24-hrs.:
Screen: Dia. 2" | Length 10' | Slot Size .01"
Casing: Dia. 2" | Length 12' | Type SCH 40 PVC
Drilling Company: G.T.I. | Drilling Method: HOLLOW STEM AUGER
Driller: G. KURTZ | Log by: P. OSBORN | Samping Method: 5' CONTINUOUS

Sketch Map



Notes

Depth (ft)	Well Construction	Notes	Sample No. & Blow Count	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
0–25		flush mount cover; neat cement grout; casing; bentonite pellets; screen; sand pack			Organic fill with roots and crushed limestone fill.
					Sandy CLAY, brown, moist, fine grained sand with a trace of clay.
					Silty SAND, brown, moist, fine grained sand with a trace of clay.
					Slity SAND, light brown, saturated, medium to fine grained.
					SAND, light brown, saturated, coarse to fine grained with a trace of fine gravel.
					BOH = 22'

Page 1 of 1

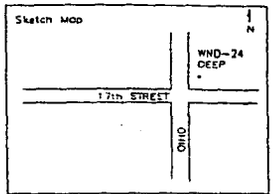
GROUNDWATER TECHNOLOGY

Well No. WND-24 DEEP

DRILLING LOG

Project: W.N.I.D. | Owner: W.N.I.D.
Location: Wichita, KS | Project Number: 042209670
Date Drilled: 4/4/91 | Total Depth: 33' | Diameter: 11.25"
Surface Elevation: | Water depth (init.): 14.5' | 24-hrs.:
Screen: Dia. 2" | Length 10' | Slot Size .01"
Casing: Dia. 2" | Length 22' | Type SCH 40 PVC
Drilling Company: G.T.I. | Drilling Method: HOLLOW STEM AUGER
Driller: G. KURTZ | Log by: P. OSBORN | Samping Method: 5' CONTINUOUS

Sketch Map



Notes

Depth (ft)	Well Construction	Notes	Sample No. & Blow Count	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
2–48		well protector with lock; neat cement grout; casing; bentonite pellets; sand pack; screen			Organic fill with roots and crushed limestone fill.
					Sandy CLAY, brown, moist, stiff, medium plastic.
					Silty SAND, brown, moist, fine grained sand with a trace of clay.
					Silty SAND, light brown, saturated, medium to fine grained.
					SAND, light brown, saturated, coarse to fine grained with a trace of fine gravel.
					SAND, light brown, saturated, coarse to fine grained sand with a trace of gravel.
					Silty CLAY, dark gray, wet, stiff, plastic.
					BOH = 33'

Page 1 of 1

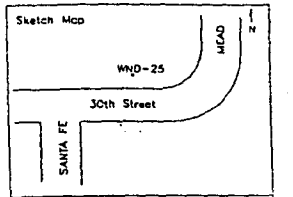
GROUNDWATER TECHNOLOGY

DRILLING LOG

Well No. WND-25

Project: W.N.I.D. | Owner: W.N.I.D.
Location: Wichita, KS | Project Number: 042209670
Date Drilled: 4/15/91 | Total Depth: 25' | Diameter: 7.25"
Surface Elevation: | Water depth (Init.): 14.1' | 24-hrs.:
Screen: Dia. 2" | Length: 10' | Slot Size: .01"
Casing: Dia. 2" | Length: 14' | Type: SCH 40 PVC
Drilling Company: G.T.I. | Drilling Method: HOLLOW STEM AUGER
Driller: G. KURTZ | Log by: P. OSBORN | Sampling Method: 5' CONTINUOUS

Sketch Map



Notes

Depth (ft)	Well Construction	Notes	Sample No. & Blow Count	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
1, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24		above ground well protector with lock; neat cement grout; casing; bentonite pellets; screen; sand pack			Silty CLAY, dark brown, dry, stiff, slightly plastic.
					Clayey SAND, reddish brown, moist with some fine grained sand.
					Silty SAND, gray / brown, wet, fine grained sand and silt.
					Silty CLAY, gray brown, wet, medium stiff, plastic.
					Clayey SAND, brown / gray, wet, medium to fine grained SAND.
					Sandy CLAY, brown gray, wet, medium stiff, plastic, fine grained sand.
					Clayey SAND, saturated, fine grained sand and silt.
					SAND, light brown, saturated, coarse to fine grained with trace of gravel.
					BOH = 25'

Page 1 of 1

GROUNDWATER TECHNOLOGY

GROUNDWATER TECHNOLOGY

Drilling Log

Monitoring Well **WND-25D**

Project: COU Litigation | Owner: WNID PRP GROUP
Location: Wichita, KS | Project No. 042206375-6401 | Date drilled: 5/27/92
Surface Elev. | Total Hole Depth: 43 ft. | Diameter: .666 ft.
Top of Casing | Water Level Initial: 15 ft. | Static: 16.46 ft.
Screen: Dia 2 in. | Length: 10 ft. | Type/Size: PVC mill slot/.010" in.
Casing: Dia 2 in. | Length: 33 ft. | Type: Sched. 40 PVC
Filter Pack Material: NATURAL SAND PACK | Rig/Core Type: CME 57
Drilling Company: GTI | Method: Hollow Stem Auger | Permit #: 517
Driller: Kevin Simons | Log By: Steve Mitchell
Checked By | License No.

See Site Map For Boring Location

COMMENTS:

East of WND-25 Shallow

Depth (ft.)	Well Completion	PID (ppm)	Sample ID Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2, 0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42		0.4; 0.2; 0.8; 0; 0.4; 0			CH; SW; SW; SH	START EXPLORATION @ 6:19 (grab samples from auger cuttings) CLAY-black, brown, plastic, dry.
						CLAY-brown, soft, silty, plastic, damp.
						SAND-brown, very fine grain, well sorted, subrounded grains, well sorted, saturated.
						SAND-brown, medium grain, subrounded to angular, fair sorting, saturated.
						SHALE-dark gray, fissile, dry. END EXPLORATION @ 7:04

GROUNDWATER TECHNOLOGY

08/29/1992 lltnlog-mar92

Well No. WND-26 SHALLOW

DRILLING LOG

Project: W.N.I.D. Owner: W.N.I.D.

Location: Wichita, KS Project Number: 042209670

Date Drilled: 4/15/91 Total Depth: 25' Diameter: 7.25"

Surface Elevation: Water depth (Init.): 13.8' 24-hrs.:

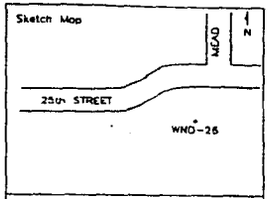
Screen: Dia. 2" Length 10' Slot Size .01"

Casing: Dia. 2" Length 14.5 Type SCH 40 PVC

Drilling Company G.T.I. Drilling Method HOLLOW STEM AUGER

Driller G. KURTZ Log by P. OSBORN Samping Method 5' CONTINUOUS

Sketch Map



Notes

Depth (ft)	Well Construction	Notes	Sample No. & Blow Count	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
1, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24		above ground well protector with lock; neat cement grout; casing; bentonite pellets; screen; sand pack			Silty CLAY, and fill, dark brown, moist with glass.
					Sandy CLAY, dark brown, moist, medium stiff, slightly plastic, with fine grained sand.
					Brown, same as above.
					Silty SAND, light brown, moist, fine gained sand.
					Silty SAND, light brown, moist, medium to fine grained sand.
					Silty SAND, light brown, saturated, coarse to fine grained sand.
					BOH = 25'

Well No. WND-26 DEEP

DRILLING LOG

Project: W.N.I.D. Owner: W.N.I.D.

Location: Wichita, KS Project Number: 042209670

Date Drilled: 4/16/91 Total Depth: 42' Diameter: 11.25"

Surface Elevation: Water depth (Init.): 13.8' 24-hrs.:

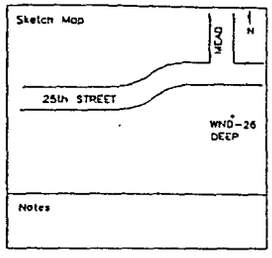
Screen: Dia. 2" Length 10' Slot Size .01"

Casing: Dia. 2" Length 34' Type SCH 40 PVC

Drilling Company G.T.I. Drilling Method HOLLOW STEM AUGER

Driller G. KURTZ Log by P. OSBORN Samping Method 5' CONTINUOUS

Sketch Map



Notes

Depth (ft)	Well Construction	Notes	Sample No. & Blow Count	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
1, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24		above ground well protector with lock; neat cement grout; casing; bentonite pellets			Silty CLAY, and fill, dark brown, moist with glass.
					Sandy CLAY, dark brown, moist, medium stiff, slightly plastic, with fine grained sand.
					Brown, same as above.
					Silty SAND, light brown, moist, fine gained sand.
					Silty SAND, light brown, moist, medium to fine grained sand.
					Silty SAND, light brown, saturated, coarse to fine grained sand.

GROUNDWATER TECHNOLOGY

Well No. WND-26 DEEP

DRILLING LOG

Project W.N.I.D. Owner W.N.I.D.

Location Wichita, Ks. Project Number 0422009670

Date Drilled 4/16/91 Total Depth 42' Diameter 11.25"

Depth (ft)	Well Construction	Notes	PID (ppm)	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
25–55		bentonite pellets; casing; screen; sand pack			Silty SAND, light brown, saturated, coarse to fine grained sand with a trace of gravel.
40–42					CLAY, gray / olive green, moist, stiff, plastic (weathered shale).
					BOH = 42'

GROUNDWATER TECHNOLOGY

Well No. WND-27

DRILLING LOG

Project W.N.I.D. Owner W.N.I.D.

Location Wichita, KS. Project Number 042209670

Date Drilled 5/9/91 Total Depth 25.0' Diameter 7.25"

Surface Elevation Water depth (init.) 13.7' 24-hrs.

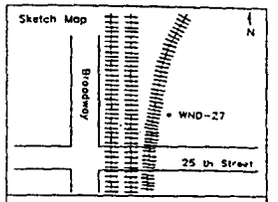
Screen: Dia. 2" Length 10' Slot Size .01"

Casing: Dia. 2" Length 14' Type SCH 40 PVC

Drilling Company G.T.I. Drilling Method HOLLOW STEM AUGER

Driller G. KURTZ Log by P. OSBORN Sampling Method 5' CONTINUOUS

Sketch Map



Notes
SW,SW,NW, SEC 4, T27S, 1E

Depth (ft)	Well Construction	Notes	Sample No. & Blow Count	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
		above ground well protector			
0					GRAVEL and SAND fill, moist.
1		neat cement grout			Silty CLAY, dark brown, moist, stiff, plastic with a trace of medium to fine grained sand.
3		casing			Silty CLAY, dark brown / brown, moist, stiff, plastic.
7		bentonite pellets			
8					Sandy CLAY, brown, moist, medium stiff, slightly plastic.
10					Clayey SILT, light brown, wet, with some fine grained sand.
12					Same as above, gray.
13		screen			Silty SAND, light brown, wet, medium to fine grained.
16–24		sand pack			SAND, light brown, saturated, medium to fine grained with trace of coarse sand and fine gravel with depth.
					BOH = 25'

GROUNDWATER TECHNOLOGY

Well No. WND-28

DRILLING LOG

Project W.N.I.D. Owner W.N.I.D.

Location Wichita, KS Project Number 042209670

Date Drilled 5/9/91 Total Depth 22' Diameter 7.25"

Surface Elevation Water depth (init.) 14.75' 24-hrs.

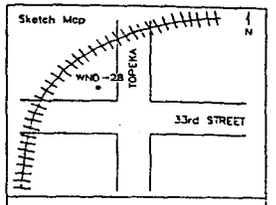
Screen: Dia. 2" Length 10' Slot Size .01"

Casing: Dia. 2" Length 12' Type SCH 40 PVC

Drilling Company G.T.I. Drilling Method HOLLOW STEM AUGER

Driller G. KURTZ Log by P. OSBORN Sampling Method 5' CONTINUOUS

Sketch Map



Notes
SW,SW,NW,SEC.33,T26S,R1E

Depth (ft)	Well Construction	Notes	Sample No. & Blow Count	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
1, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24	above ground well protector; neat cement grout; casing; bentonite pellets; screen; sand pack				Silty CLAY, dark brown, moist, slightly plastic, medium stiff.
					Sandy CLAY, brown, moist, fine grained sand.
					Silty SAND, brown, moist, fine grained sand.
					SAND, light brown, saturated, fine grained with a trace of coarse to medium grained sand.
					BOH = 22'

GROUNDWATER TECHNOLOGY

Well No. WND-29

DRILLING LOG

Project W.N.I.D. Owner W.N.I.D.

Location Wichita, KS Project Number 042209670

Date Drilled 5/17/91 Total Depth 25' Diameter 7.25"

Surface Elevation Water depth (init.) 14' 24-hrs.

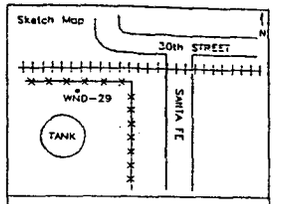
Screen: Dia. 2" Length 10' Slot Size .01"

Casing: Dia. 2" Length 15.5' Type SCH 40 PVC

Drilling Company G.T.I. Drilling Method HOLLOW STEM AUGER

Driller G. KURTZ Log by P. OSBORN Sampling Method 5' CONTINUOUS

Sketch Map



Notes

Depth (ft)	Well Construction	Notes	Sample No. & Blow Count	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24	above ground well protector with lock; neat cement grout; casing; bentonite pellets; screen; sand pack				Silty CLAY, dark brown, moist, slightly plastic, medium stiff with a trace of fine grained sand.
					Reddish brown, same as above.
					Silty CLAY, brown, moist, stiff, plastic.
					Silty CLAY, gray / brown, moist, medium stiff, plastic.
					Sandy CLAY, dark gray, wet, some medium to fine grained sand, slightly plastic, medium stiff with diesel odor.
					Silty SAND, gray, wet, medium to fine grained with diesel odor.
					Silty SAND, saturated, light brown, medium to fine grained with a trace of coarse sand with depth.
					BOH = 25'

GROUNDWATER TECHNOLOGY

GROUNDWATER TECHNOLOGY

Drilling Log

Monitoring Well WND-29D

Project Coleman COU Litigation Owner Coleman company
Location Wichita, KS Project No. 042207043 Date drilled 8/11/92
Surface Elev. ____ Total Hole Depth 47 ft. Diameter .604 ft.
Top of Casing ____ Water Level Initial 16.5 ft. Static 16.51 ft.
Screen: Dia 2 in. Length 10 ft. Type/Size PVC mill slot/.010 in.
Casing: Dia 2 in. Length 37 ft. Type Sched. 40 PVC
Filter Pack Material 10-20 SAND Rig/Core Type CME 57
Drilling Company GTI Method Hollow Stem Auger Permit # ____
Driller Glenn Kurtz Log By Steve Mitchell
Checked By ____ License No. ____

See Site Map For Boring Location

COMMENTS:

Depth (ft.)	Well Completion	PID (ppm)	Sample ID Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2						
0						START EXPLORATION @ 9:02
2		7.4			CL	CLAY-dark brown, stiff, and gray, fine fill sand with slight odor.
4						CLAY-brown, slightly plastic, dry, no odor.
6		0			CL	
8						CLAY-brown, slightly plastic, dry, sandy and silty from 8.5-9'.
10		12.4				
12					CL	
14						
16		3				SAND-brown, fine to medium grain, fair sorting, subrounded, saturated, trace of black stain.
18						
20					SW	
22						
24						

GROUNDWATER TECHNOLOGY

Drilling Log

Monitoring Well WND-29D

Project Coleman COU Litigation Owner Coleman company
Location Wichita, KS Project No. 042207043 Date drilled 8/11/92

Depth (ft.)	Well Completion	PID (ppm)	Sample ID Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
24					SW	SAND-brown, medium grain, fair sorting, subrounded, saturated.
26		0.8				
28					SW	
30		0.6				SAND-as above with pink feldspar.
32						
34					SW	
36						
38		5				SAND-brown, medium grain, fair sorting, subrounded, saturated, some black stain.
40						
42		2			SW	
44						
46					CL	CLAY-gray, soft, saturated.
		6			SH	SHALE-black, wet, fissile, slight odor.
48						END EXPLORATION @ 11:59
50						
52						
54						
56						

Well No. WND-30

DRILLING LOG

Project W.N.I.D. Owner W.N.I.D.

Location Wichita, KS Project Number 042209670

Date Drilled 5/17/91 Total Depth 37.5' Diameter 7.25"

Surface Elevation ____ Water depth (Init.) ____ 24-hrs. ____

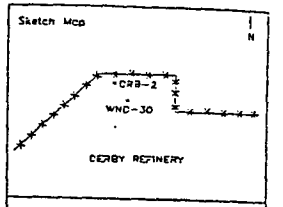
Screen: Dia. 2" Length 10' Slot Size .01"

Casing: Dia. 2" Length 29' Type SCH 40 PVC

Drilling Company G.T.I. Drilling Method HOLLOW STEM AUGER

Driller G. KURTZ Log by P. OSBORN Sampling Method 5' CONTINUOUS

Sketch Map



Notes

Depth (ft)	Well Construction	Notes	Sample No. & Blow Count	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
2, 0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48		above ground well protector with lock; neat cement grout; casing; bentonite pellets; sand pack; screen			Silty CLAY, dark brown, wet, slightly plastic, medium stiff, with gravel fill from 1'-1.5', slight oil odor.
					Sandy CLAY, reddish brown / gray, moist, some fine grained sand, medium stiff with slight odor.
					Silty CLAY, gray / brown, moist, stiff, plastic.
					Slightly plastic, samme as above, with a trace of fine sand.
					Clayey SAND, gray, saturated, medium to fine sand.
					Silty SAND, saturated, light brown, medium to fine sand.
					Coarse to fine sand at ~25'.
					Silty SAND, saturated, coarse to fine grained.
					CLAY, olive green, stiff, plastic, (weathered shale).
					Gray, same as above.
					BOH = 37.5'

Page 1 of 1

GROUNDWATER TECHNOLOGY

Well No. WND-31

DRILLING LOG

Project WNID Owner WNID

Location WICHITA, KANSAS Project Number 042209670

Date Drilled 7/24/91 Total Depth 25' Diameter 7.25"

Surface Elevation — Water depth (Init.) — 24-hrs. —

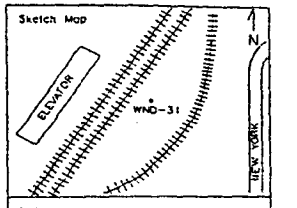
Screen: Dia. 2" Length 10' Slot Size 0.01"

Casing: Dia. 2" Length 14' Type pvc sch 40

Drilling Company GTI Drilling Method HOLLOW STEM AUGER

Driller G.Kurtz Log by P.Osborn Sampling Method Continuous

Sketch Map



Notes

Depth (ft)	Well Construction	Notes	Sample No. & Blow Count	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25		manhole; neat cement grout; casing; bentonite pellets; screen; sand pack			CONCRETE, gravel and silt fill material.
					Sandy CLAY, brown, wet, soft, slightly plastic with fine grained sand.
					Silty CLAY, dark brown, moist, medium stiff, slightly plastic, with a trace of fine grained sand.
					Sandy CLAY, brown, mottled reddish brown, moist, medium stiff, slightly plastic, with fine grained sand.
					Silty SAND, brown, moist, fine grained sand with a trace of clay.
					SAND, light brown, wet, medium to fine grained.
					SAND, light brown, saturated, coarse to fine grained sand.
					BOH = 25'

Page 1 of 1

GROUNDWATER TECHNOLOGY

Well No. WND-32

DRILLING LOG

Project WNID | Owner WNID

Location WICHITA, KANSAS | Project Number 042209670

Date Drilled 7/24/91 | Total Depth 25' | Diameter 7.25"

Surface Elevation — | Water depth (init.) — | 24-hrs. —

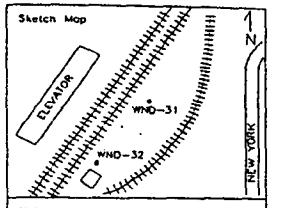
Screen: Dia. 2" | Length 10' | Slot Size 0.01"

Casing: Dia. 2" | Length 14' | Type pvc sch 40

Drilling Company GTI | Drilling Method HOLLOW STEM AUGER

Driller G.Kurtz | Log by P.Osborn | Sampling Method Continuous

Sketch Map



Notes

Depth (ft)	Well Construction	Notes	Sample No. & Blow Count	Graphic Log	Description/Soil Classification (Color, Texture, Structure)
0		manhole			GRAVEL FILL material
1		neat cement grout			CONCRETE
2					
3					
4		casing			
5					Silty CLAY, dark brown, moist, medium stiff, slightly plastic, with a trace of fine grained sand.
6					
7					
8					
9					Same as above, brown.
10		bentonite pellets			
11					Silty SAND, brown, moist, fine grained sand with a trace of clay.
12					
13					
14					
15		screen			SAND, light brown, wet, medium to fine grained.
16					
17					
18		sand pack			
19					SAND, light brown, saturated at 19', coarse to fine grained sand.
20					
21					
22					
23					
24					
25					BOH = 25'

Page 1 of 1

GROUNDWATER TECHNOLOGY

GROUNDWATER TECHNOLOGY

Drilling Log

Monitoring Well WND-33S

Project WNID PHASE II | Owner WNID PRP GROUP

Location Wichita, KS | Project No. 042208913-6401 | Date drilled 5/29/92

Surface Elev. — | Total Hole Depth 25 ft. | Diameter .666 ft.

Top of Casing — | Water Level Initial 15 ft. | Static 14.55 ft.

Screen: Dia 2 in. | Length 10 ft. | Type/Size PVC mill slot/.010" in.

Casing: Dia 2 in. | Length 15 ft. | Type Sched. 40 PVC

Filter Pack Material NATURAL SAND PACK | Rig/Core Type CME 55

Drilling Company GTI | Method Hollow Stem Auger | Permit # 517

Driller Glen Kurtz | Log By Steve Witchet

Checked By — | License No. —

See Site Map For Boring Location

COMMENTS:

4' west of WND-33D, near Sutherland Lumber

Depth (ft.)	Well Completion	PID (ppm)	Sample ID Blow Count/% Recovery	Graphic Log	USCS Class	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2						
0						START EXPLORATION @ 7:45
2		0				CLAY-black, soft, plastic, sandy in parts, wet.
4					CH	
6		0				CLAY-dark gray, soft, sandy, plastic, damp, stained.
8		0				SAND-gray, fine grain, well sorted, subrounded, moist, gray stain
10		0			SW	SAND-gray, medium grain, subrounded, fair sorting, dry.
12		0				
14						SAND-as above, wet in shoe. END EXPLORATION @ 8:20
16						
18					SW	
20						
22						
24						
26						
28						
30						
32						
34						
36						
38						
40						
42						

GROUNDWATER TECHNOLOGY

06/29/1992 Mhag-mar92

Page: 1 of 1

GROUNDWATER TECHNOLOGY

Drilling Log

Monitoring Well WND-33D

Project WNID PHASE II — Owner WNID PRP GROUP
Location Wichita, KS — Project No. 042206913-6401 — Date drilled 5/29/92
Surface Elev. — Total Hole Depth 40 ft. — Diameter 666 ft.
Top of Casing — Water Level Initial 15 ft. — Static 14.60 ft.
Screen: Dia 2 in. — Length 10 ft. — Type/Size PVC mill slot/.010" in.
Casing: Dia 2 in. — Length 30 ft. — Type Sched. 40 PVC
Filter Pack Material NATURAL SAND PACK — Rig/Core Type CME 57
Drilling Company GTI — Method Hollow Stem Auger — Permit # 517
Driller Glen Kurtz — Log By Steve Mitchell
Checked By — License No.

See Site Map For Boring Location

COMMENTS:
East of WND-33 Shallow, near Sutherland Lumber.

Depth (ft.)	Well Completion	PID (ppm)	Sample ID Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2						
0						START EXPLORATION @ 8:30
2		0				CLAY-black, soft, plastic, sandy in parts, wet.
4					CH	
6		0				CLAY-dark gray, soft, sandy, plastic, damp, stained.
8		0				SAND-gray, fine grain, well sorted, subrounded, moist, gray stain
10		0			SW	SAND-gray, medium grain, subrounded, fair sorting, dry.
12		0				SAND-as above, wet in shoe.
14						
16						
18						
20						
22						
24					SW	
26						
28						
30						
32						
34						
36						
38						
40		2			SH	SHALE-dark gray, fissile, dry. END EXPLORATION @ 9:52
42						

GROUNDWATER TECHNOLOGY

GROUNDWATER TECHNOLOGY

Drilling Log

Monitoring Well WND-34S

Project WNID PHASE II — Owner WNID PRP GROUP
Location Wichita, KS — Project No. 042206913-6401 — Date drilled 5/29/92
Surface Elev. — Total Hole Depth 25 ft. — Diameter 666 ft.
Top of Casing — Water Level Initial 16.5 ft. — Static 16.80 ft.
Screen: Dia 2 in. — Length 10 ft. — Type/Size PVC mill slot/.010" in.
Casing: Dia 2 in. — Length 15 ft. — Type Sched. 40 PVC
Filter Pack Material NATURAL SAND PACK — Rig/Core Type CME 57
Drilling Company GTI — Method Hollow Stem Auger — Permit # 517
Driller Glen Kurtz — Log By Steve Mitchell
Checked By — License No.

See Site Map For Boring Location

COMMENTS:
3' west of shallow well

Depth (ft.)	Well Completion	PID (ppm)	Sample ID Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2						
0						START EXPLORATION @ 9:00
2		0			CH	CLAY-dark brown, slightly plastic, damp.
4		0				SAND-orange brown, very fine grain, well sorted, clay matrix, subrounded, damp.
6		0			SW	SAND-light brown, very fine grain, well sorted, subrounded, with black banding 7-10'
8		0				
10						SAND-light brown, medium grain, well sorted, subrounded to angular, dry.
12		0				SAND-as above, saturated at 14.5'. END EXPLORATION @ 9:56
14		0.2				
16						
18					SW	
20						
22						
24						
26						
28						
30						
32						
34						
36						
38						
40						
42						

GROUNDWATER TECHNOLOGY

Drilling Log

Monitoring Well WND-34D

Project WNID PHASE II — Owner WNID PRP GROUP
Location Wichita, KS — Project No. 042206913-5401 — Date drilled 5/29/92
Surface Elev. ____ — Total Hole Depth 42 ft. — Diameter .666 ft.
Top of Casing ____ — Water Level Initial 16.0 ft. — Static 16.35 ft.
Screen: Dia 2 in. — Length 10 ft. — Type/Size PVC mill slot/.010" in.
Casing: Dia 2 in. — Length 32 ft. — Type Sched. 40 PVC
Filter Pack Material NATURAL SAND PACK — Rig/Core Type CME 55
Drilling Company GTI — Method Hollow Stem Auger — Permit # 517
Driller Glen Kurtz — Log By Steve Mitchell
Checked By ____ — License No. ____

See Site Map For Boring Location

COMMENTS:

Depth (ft.)	Well Completion	PID (ppm)	Sample ID Blow Count/ % Recovery	Graphic Log	USCS Class	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2						
0						START EXPLORATION @ 10:07
2		0			CH	CLAY-dark brown, slightly plastic, damp.
4		0.0				SAND-orange brown, very fine grain, well sorted, clay matrix, subrounded, damp.
6		0			SW	SAND-light brown, very fine grain, well sorted, subrounded, with black banding 7-10'
8		0				
10						SAND-light brown, medium grain, well sorted, subrounded to angular, dry.
12		0				
14		0.2				SAND-as above, saturated at 14.5'.
16						
18						
20						
22						
24						
26					SW	
28						
30						
32						
34						
36						
38						
40						
42		0.2			SM	SHALE-dark gray, fissile, dry. END EXPLORATION @ 11:30
44						
46						
48						
50						

GROUNDWATER TECHNOLOGY

06/29/1992 NWlog-mar92

GROUNDWATER TECHNOLOGY

Drilling Log

Monitoring Well WND-35S

Project WNID PHASE II — Owner WNID PRP GROUP
Location Wichita, KS — Project No. 042206913-5401 — Date drilled 4/30/92
Surface Elev. ____ — Total Hole Depth 27 ft. — Diameter .666 ft.
Top of Casing ____ — Water Level Initial 18 ft. — Static 20.44 ft.
Screen: Dia 2 in. — Length 10 ft. — Type/Size PVC mill slot/.010" in.
Casing: Dia 2 in. — Length 17 ft. — Type Sched. 40 PVC
Filter Pack Material NATURAL SAND PACK — Rig/Core Type CME 55
Drilling Company GTI — Method Hollow Stem Auger — Permit # 517
Driller Glen Kurtz — Log By Steve Mitchell
Checked By ____ — License No. ____

See Site Map For Boring Location

COMMENTS:

south of OSHE plant
173' west of TPC-2

Depth (ft.)	Well Completion	PID (ppm)	Sample ID Blow Count/ % Recovery	Graphic Log	USCS Class	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2						
0						START EXPLORATION @ 9:45
2		0				TRASH-concrete, rusted metal and sand debris, wood.
4					TR	
6		0.2				
8						CLAY-dark brown, very sandy at 8-9, soft, damp, plastic.
10		0			CH	
12						SAND-dark brown, fine grain, well sorted, subrounded, damp.
14						SAND-light brown, very fine grain, grading to gray, fine grain, well sorted, subrounded, "mild odor", saturated in shoe.
16		0			SW	END EXPLORATION @ 10:48
18						
20						
22					SW	
24						
26						
28						
30						
32						
34						
36						
38						
40						
42						

06/30/1992 NWlog-mar92

GROUNDWATER TECHNOLOGY

Drilling Log

Monitoring Well WND-35D

Project WNID PHASE II — Owner WNID PRP GROUP
Location Wichita, KS — Project No. 042206913-6401 — Date drilled 4/30/92
Surface Elev. ____ — Total Hole Depth 45 ft. — Diameter .666 ft.
Top of Casing ____ — Water Level Initial 19 ft. — Static 20.43 ft.
Screen: Dia 2 in. — Length 10 ft. — Type/Size PVC mill slot/.010" in.
Casing: Dia 2 in. — Length 35 ft. — Type Sched. 40 PVC
Filter Pack Material NATURAL SAND PACK — Rig/Core Type CME 57
Drilling Company GTI — Method Hollow Stem Auger — Permit # 517
Driller Glen Kurtz — Log By Steve Mitchell
Checked By ____ — License No. ____

See Site Map For Boring Location

COMMENTS:
south of GSHE plant 175' west of TPC-2

Depth (ft.)	Well Completion	PID (ppm)	Sample ID Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2						
0						START EXPLORATION @ 11:05
2		0				TRASH-concrete, rusted metal and sand debris, wood.
4					TR	
6		0.2				
8						CLAY-dark brown, very sandy at 8-9, soft, damp, plastic.
10		0			CH	
12						SAND-dark brown, fine grain, well sorted, subrounded, damp.
14						SAND-light brown, very fine grain, grading to gray, fine grain,
16		0			SW	well sorted, subrounded, "mild odor", saturated in shoe.
18						
20						
22						
24						
26						
28						
30						
32					SW	
34						
36						
38						
40						
42						
44						
46		0			SM	SHALE-dark gray, fissile, dry.
48						END EXPLORATION @ 13:15
50						

GROUNDWATER TECHNOLOGY

GROUNDWATER TECHNOLOGY

Drilling Log

Monitoring Well WND-36S

Project WNID PHASE II — Owner WNID PRP GROUP
Location Wichita, KS — Project No. 042206913-6401 — Date drilled 5/27/92
Surface Elev. ____ — Total Hole Depth 25 ft. — Diameter .666 ft.
Top of Casing ____ — Water Level Initial 14 ft. — Static 15.41 ft.
Screen: Dia 2 in. — Length 10 ft. — Type/Size PVC mill slot/.010" in.
Casing: Dia 2 in. — Length 15 ft. — Type Sched. 40 PVC
Filter Pack Material NATURAL SAND PACK — Rig/Core Type CME 57
Drilling Company GTI — Method Hollow Stem Auger — Permit # 517
Driller Glen Kurtz — Log By Steve Mitchell
Checked By ____ — License No. ____

See Site Map For Boring Location

COMMENTS:
4' North of deep well

Depth (ft.)	Well Completion	PID (ppm)	Sample ID Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2						
0						START EXPLORATION @ 12:20
2		0				CLAY-black, brown, slightly plastic, moderately stiff, dry.
4		0.0			CH	
6						CLAY-brown, very stiff, nonplastic, caliche.
8		0				SAND-light brown, very fine grain, well sorted, subrounded, dry.
10		0				
12		0			SW	SAND-brown sand as above, soft plastic clay, wet. (poor return)
14						SAND-gray stained, medium grain, fair sorting, subrounded, gray
16		36				and green hydrocarbon staining, trace of free product (oil/gas),
18						strong odor.
20					SW	END EXPLORATION @ 13:18
22						
24						
26						
28						
30						
32						
34						
36						
38						
40						
42						

Drilling Log

GROUNDWATER TECHNOLOGY

Monitoring Well WND-36D

Project WNID PHASE II — Owner WNID PRP GROUP
Location Wichita, KS — Project No. 04220G913-6401 — Date drilled 5/27/92
Surface Elev. ____ — Total Hole Depth 43 ft. — Diameter 6.66 ft.
Top of Casing ____ — Water Level Initial 14 ft. — Static 15.34 ft.
Screen: Dia 2 in. — Length 10 ft. — Type/Size PVC mill slot/.010" in.
Casing: Dia 2 in. — Length 33 ft. — Type Sched. 40 PVC
Filter Pack Material NATURAL SAND PACK — Rig/Core Type CME 57
Drilling Company GTI — Method Hollow Stem Auger — Permit # 517
Driller Glen Kurtz — Log By Steve Mitchell
Checked By ____ — License No. ____

See Site Map For Boring Location

COMMENTS:

Bedrock PID reading may be inaccurate due to upper cuttings contamination

Depth (ft.)	Well Completion	PID (ppm)	Sample ID Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2						
0		0				START EXPLORATION @ 13:20 CLAY-black, brown, slightly plastic, moderately stiff, dry.
2		0.0			CH	
4						CLAY-brown, very stiff, nonplastic, caliche.
6		0				SAND-light brown, very fine grain, well sorted, subrounded, dry.
8		0				
10		0			SW	SAND-brown sand as above, soft plastic clay, wet. (poor return)
12						
14						SAND-gray stained, medium grain, fair sorting, subrounded, gray and green hydrocarbon staining, trace of free product (oil/gas), strong odor.
16		36				
18						
20						
22						
24						
26						
28					SW	
30						
32						
34						
36						
38						
40		40				
42						SHALE-dark gray, fissile, dry. END EXPLORATION @ 14:30
44					SH	
46						
48						
50						

GROUNDWATER TECHNOLOGY

Drilling Log

GROUNDWATER TECHNOLOGY

Monitoring Well WND-37S

Project WNID PHASE II — Owner WNID PRP GROUP
Location Wichita, KS — Project No. 04220G913-6401 — Date drilled 5/29/92
Surface Elev. ____ — Total Hole Depth 25 ft. — Diameter 6.66 ft.
Top of Casing ____ — Water Level Initial 14.5 ft. — Static 16.55 ft.
Screen: Dia 2 in. — Length 10 ft. — Type/Size PVC mill slot/.010" in.
Casing: Dia 2 in. — Length 15 ft. — Type Sched. 40 PVC
Filter Pack Material NATURAL SAND PACK — Rig/Core Type CME 57
Drilling Company GTI — Method Hollow Stem Auger — Permit # 517
Driller Glen Kurtz — Log By Steve Mitchell
Checked By ____ — License No. ____

See Site Map For Boring Location

COMMENTS:

Depth (ft.)	Well Completion	PID (ppm)	Sample ID Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2						
0						START EXPLORATION @ 12:38 CLAY-black, dark brown, very stiff, dry, trash.
2		0			CH	CLAY-brown, very silty, dry, nonplastic.
4		0				
6					ML	SILT-golden brown, very fine, dry.
8		0				SAND-light brown, very fine grain, well sorted, subrounded, dry, black banding.
10		0			SW	SAND-brown sand as above, wet at 12.5'
12						
14		0				SAND-brown, fine to medium grain, well sorted, subrounded, black staining at 15', 2" clay stringer at 14.5', saturated at clay. END EXPLORATION @ 13:30
16						
18						
20					SW	
22						
24						
26						
28						
30						
32						
34						
36						
38						
40						
42						

GROUNDWATER TECHNOLOGY

Drilling Log

Monitoring Well **WND-37D**

Project: WNID PHASE II — Owner: WNID PRP GROUP
Location: Wichita, KS — Project No. 042206913-6401 — Date drilled: 5/29/92
Surface Elev. ____ — Total Hole Depth: 40 ft. — Diameter: 6⅝ in.
Top of Casing ____ — Water Level Initial: 16.5 ft. — Static: 16.45 ft.
Screen: Dia 2 in. — Length: 30 ft. — Type/Size: PVC mill slot/.010 in.
Casing: Dia 2 in. — Length: 30 ft. — Type: Sched. 40 PVC
Filter Pack Material: NATURAL SAND PACK — Rig/Core Type: CME 55
Drilling Company: GT — Method: Hollow Stem Auger — Permit #: 517
Driller: Glen Kurtz — Log By: Steve Mitchell
Checked By ____ — License No. ____

See Site Map For Boring Location

COMMENTS:

Depth (ft.)	Well Completion	PID (ppm)	Sample ID Blow Count/ % Recovery	Graphic Log	USCS Class	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2						START EXPLORATION @ 10:07
0		0				CLAY-black, dark brown, very stiff, dry, trash.
2		0			CH	CLAY-brown, very silty, dry, nonplastic.
4						SILT-golden brown, very fine, dry.
6		0			ML	
8		0				SAND-light brown, very fine grain, well sorted, subrounded, dry, black banding.
10					SW	SAND-brown sand as above, wet at 12.5'
12		0				SAND-brown, fine to medium grain, well sorted, subrounded, black staining at 15', 2" clay stringer at 14.5', saturated at clay.
14		0				
16						
18						
20						
22						
24						
26					SW	
28						
30						
32						
34						
36						
38						
40		1			SH	SHALE-dark grey, fissile, dry. END EXPLORATION @ 15:30
42						
44						
46						
48						
50						

GROUNDWATER TECHNOLOGY

06/29/1992 Mrlog-mar92

LOCATION OF WATER WELL:	Fraction	Section Number	Township Number	Range Number
County: Sedgwick	SW ¼ SE ¼ NW ¼	9	T 27 S	R 1 E/W

Distance and direction from nearest town or city street address of well if located within city?
708 E 18th Wichita Ks — WND-38 shallow

WATER WELL OWNER: City of Wichita
R.R., St. Address, Box #:
City, State, ZIP Code:
Board of Agriculture, Division of Water Resources Application Number:

LOCATE WELL'S LOCATION WITH "X" IN SECTION BOX: (N / NW / NE / W / E / SW / SE / S)

4 DEPTH OF COMPLETED WELL: 18 ft. ELEVATION:
Depth(s) Groundwater Encountered 1. 13' ft. 2. ft. 3. ft.
WELL'S STATIC WATER LEVEL ft. below land surface measured on mo/day/yr
Pump test data: Well water was ft. after hours pumping gpm
Est. Yield gpm: Well water was ft. after hours pumping gpm
Bore Hole Diameter in. to ft., and in. to
WELL WATER TO BE USED AS: 1 Domestic 2 Irrigation 3 Feedlot 4 Industrial 5 Public water supply 6 Oil field water supply 7 Lawn and garden only 8 Air conditioning 9 Dewatering (10) Monitoring well 11 Injection well 12 Other (Specify below)
Was a chemical/bacteriological sample submitted to Department? Yes No X; If yes, mo/day/yr sample was submitted
Water Well Disinfected? Yes No X

TYPE OF BLANK CASING USED: 1 Steel 2 PVC 3 RMP (SR) 4 ABS 5 Wrought iron 6 Asbestos-Cement 7 Fiberglass 8 Concrete tile 9 Other (specify below)
CASING JOINTS: Glued Clamped Welded Threaded X
Blank casing diameter 2" in. to 8' ft., Dia in. to ft., Dia in. to
Casing height above land surface 0 in., weight lbs./ft. Wall thickness or gauge No.

TYPE OF SCREEN OR PERFORATION MATERIAL: 1 Steel 2 Brass 3 Stainless steel 4 Galvanized steel 5 Fiberglass 6 Concrete tile 7 PVC 8 RMP (SR) 9 ABS 10 Asbestos-cement 11 Other (specify) 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE: 1 Continuous slot 2 Louvered shutter 3 Mill slot 4 Key punched 5 Gauzed wrapped 6 Wire wrapped 7 Torch cut 8 Saw cut 9 Drilled holes 10 Other (specify) 11 None (open hole)
SCREEN-PERFORATED INTERVALS: From 18 ft. to 8 ft., From ft. to
From ft. to ft., From ft. to
GRAVEL PACK INTERVALS: From 18 ft. to 7 ft., From ft. to
From ft. to ft., From ft. to

GROUT MATERIAL: 1 Neat cement (2) Cement grout (3) Bentonite 4 Other
Grout Intervals: From 7 ft. to 6 ft., From 6 ft. to 0 ft., From ft. to ft.
What is the nearest source of possible contamination: 1 Septic tank 2 Sewer lines 3 Watertight sewer lines 4 Lateral lines 5 Cess pool 6 Seepage pit 7 Pit privy 8 Sewage lagoon 9 Feedyard 10 Livestock pens 11 Fuel storage 12 Fertilizer storage 13 Insecticide storage 14 Abandoned water well 15 Oil well/Gas well (16) Other (specify below) GROUNDWATER
Direction from well? How many feet?

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
	1	Fill - Limestone			
	3	CLAY Dark Brown Sandy			
	10.25	CLAY Dark Brown			
10.25	12	CLAY, Silty Brown			
12	13.5	Silty Sand			
13.5	14	CLAY Silty			
14	20	Sand - Med - Coarse trace Gravel			

CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 3/24/93 and this record is true to the best of my knowledge and belief. Kansas Well Contractor's License No. 517 This Water Well Record was completed on (mo/day/yr) 4-2-93
under the business name of Groundwater Technology by (signature) Dennis White

INSTRUCTIONS: Use typewriter or ball point pen. PLEASE PRESS FIRMLY and PRINT clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Topeka, Kansas 66620-0001, Telephone: 913-296-5545. Send one to WATER WELL OWNER and retain one for your records.

000218

LOCATION OF WATER WELL: County: | Fraction: SW ¼ SE ¼ NW ¼ | Section Number: 9 | Township Number: T 27 S | Range Number: R 1 E/W

Distance and direction from nearest town or city street address of well if located within city?: 708 E 18th Wichita, Ks

WND-38 deep

WATER WELL OWNER: City of Wichita

RR#, St. Address, Box #:

City, State, ZIP Code:

Board of Agriculture, Division of Water Resources Application Number:

LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX: N, W, E, S, NW, NE, SW, SE, X

4 DEPTH OF COMPLETED WELL: 40 ft. ELEVATION:

Depth(s) Groundwater Encountered 1: 13' ft. 2: ft. 3:

WELL'S STATIC WATER LEVEL: ft. below land surface measured on mo/day/yr

Pump test data: Well water was ft. after hours pumping gpm

Est. Yield gpm: Well water was ft. after hours pumping gpm

Bore Hole Diameter in. to ft., and in. to

WELL WATER TO BE USED AS: 1 Domestic 2 Irrigation 3 Feedlot 4 Industrial 5 Public water supply 6 Oil field water supply 7 Lawn and garden only 8 Air conditioning 9 Dewatering 10 Monitoring well 11 Injection well 12 Other (Specify below)

Was a chemical/bacteriological sample submitted to Department? Yes No: X; If yes, mo/day/yr sample was submitted

Water Well Disinfected? Yes No: X

5 TYPE OF BLANK CASING USED: 1 Steel 2 PVC 3 RMP (SR) 4 ABS 5 Wrought iron 6 Asbestos-Cement 7 Fiberglass 8 Concrete tile 9 Other (specify below)

CASING JOINTS: Glued Clamped Welded Threaded: X

Blank casing diameter 2 in. to 25' ft., Dia in. to ft., Dia in. to

Casing height above land surface 0 in., weight lbs./ft. Wall thickness or gauge No.

TYPE OF SCREEN OR PERFORATION MATERIAL: 7 PVC 1 Steel 2 Brass 3 Stainless steel 4 Galvanized steel 5 Fiberglass 6 Concrete tile 8 RMP (SR) 9 ABS 10 Asbestos-cement 11 Other (specify) 12 None used (open hole)

SCREEN OR PERFORATION OPENINGS ARE: 1 Continuous slot 2 Louvered shutter 3 Mill slot 4 Key punched 5 Gauzed wrapped 6 Wire wrapped 7 Torch cut 8 Saw cut 9 Drilled holes 10 Other (specify) 11 None (open hole)

SCREEN-PERFORATED INTERVALS: From 40 ft. to 25 ft., From ft. to ft.; From ft. to ft., From ft. to ft.

GRAVEL PACK INTERVALS: From 40 ft. to 23 ft., From ft. to ft.; From ft. to ft., From ft. to ft.

GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite 4 Other

Grout Intervals: 3 From 23 ft. to 22 ft. 2 From 22 ft. to 0 ft., From ft. to ft.

What is the nearest source of possible contamination: 1 Septic tank 2 Sewer lines 3 Watertight sewer lines 4 Lateral lines 5 Cess pool 6 Seepage pit 7 Pit privy 8 Sewage lagoon 9 Feedyard 10 Livestock pens 11 Fuel storage 12 Fertilizer storage 13 Insecticide storage 14 Abandoned water well 15 Oil well/Gas well 16 Other (specify below) Groundwater

How many feet?

Direction from well?

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	1	Fill (Limestone Gravel)			
1	3	Clay Dark Brown Sandy			
3	10.25	Clay Dark Brown			
10.25	12	Clay, silty Gray			
12	13.5	Silty Sand			
13.5	14	Clay, silty			
14	39	Sand - Med to Coarse trace Gravel			
39	40	Shale Weathered			

CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 3/24/93 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 517 This Water Well Record was completed on (mo/day/yr) 4-2-93 under the business name of Groundwater Technology by (signature) Dennis White

INSTRUCTIONS: Use typewriter or ball point pen. PLEASE PRESS FIRMLY and PRINT clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Topeka, Kansas 66620-0001. Telephone: 913-296-5545. Send one to WATER WELL OWNER and retain one for your records.

000219

WATER WELL RECORD Form WWC-5 KSA 82a-1212

LOCATION OF WATER WELL: | Fraction: SE ¼ NE ¼ NW ¼ | Section Number: 9 | Township Number: T 27 S | Range Number: R 1 E/W

Distance and direction from nearest town or city street address of well if located within city?: 2005 N Mosley Wichita, Kansas

WND-39 shallow

WATER WELL OWNER: City of Wichita

RR#, St. Address, Box #:

City, State, ZIP Code:

Board of Agriculture, Division of Water Resources Application Number:

LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX: N, W, E, S, NW, NE, SW, SE, X

4 DEPTH OF COMPLETED WELL 18.5 ft. ELEVATION:

Depth(s) Groundwater Encountered 1: 12 ft. 2: ft. 3: ft.

WELL'S STATIC WATER LEVEL: ft. below land surface measured on mo/day/yr

Pump test data: Well water was ft. after hours pumping gpm

Est. Yield gpm: Well water was ft. after hours pumping gpm

Bore Hole Diameter in. to ft., and in. to ft.

WELL WATER TO BE USED AS: 1 Domestic 2 Irrigation 3 Feedlot 4 Industrial 5 Public water supply 6 Oil field water supply 7 Lawn and garden only 8 Air conditioning 9 Dewatering 10 Monitoring well 11 Injection well 12 Other (Specify below)

Was a chemical/bacteriological sample submitted to Department? Yes No: X; If yes, mo/day/yr sample was submitted

Water Well Disinfected? Yes: X No

TYPE OF BLANK CASING USED: 1 Steel 2 PVC 3 RMP (SR) 4 ABS 5 Wrought iron 6 Asbestos-Cement 7 Fiberglass 8 Concrete tile 9 Other (specify below)

CASING JOINTS: Glued Clamped Welded Threaded: X

Casing diameter 2 in. to 8.5 ft., Dia in. to ft., Dia in. to ft.

Casing height above land surface 0 in., weight lbs./ft. Wall thickness or gauge No.

TYPE OF SCREEN OR PERFORATION MATERIAL: 7 PVC 1 Steel 2 Brass 3 Stainless steel 4 Galvanized steel 5 Fiberglass 6 Concrete tile 8 RMP (SR) 9 ABS 10 Asbestos-cement 11 Other (specify) 12 None used (open hole)

SCREEN OR PERFORATION OPENINGS ARE: 1 Continuous slot 2 Louvered shutter 3 Mill slot 4 Key punched 5 Gauzed wrapped 6 Wire wrapped 7 Torch cut 8 Saw cut 9 Drilled holes 10 Other (specify) 11 None (open hole)

SCREEN-PERFORATED INTERVALS: From 18.5 ft. to 8.5 ft., From ft. to ft.; From ft. to ft., From ft. to ft.

GRAVEL PACK INTERVALS: From 18.5 ft. to 7.5 ft., From ft. to ft.; From ft. to ft., From ft. to ft.

GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite 4 Other

Grout Intervals: 3 From 7.5 ft. to 5.5 ft., From ft. to ft., From ft. to ft.

What the nearest source of possible contamination: 1 Septic tank 2 Sewer lines 3 Watertight sewer lines 4 Lateral lines 5 Cess pool 6 Seepage pit 7 Pit privy 8 Sewage lagoon 9 Feedyard 10 Livestock pens 11 Fuel storage 12 Fertilizer storage 13 Insecticide storage 14 Abandoned water well 15 Oil well/Gas well 16 Other (specify below) Chemical Storage

How many feet? 100'

Direction from well? N

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	4'	Clay Dark Brown			
4	5.5	Sandy Clay, Brown			
5.5	7.9	Sand, Medium to Coarse			
7.9	20	Sandy Clay			

CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 3/24/93 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 517 This Water Well Record was completed on (mo/day/yr) 4-2-93 under the business name of Groundwater Technology by (signature) Dennis White

INSTRUCTIONS: Use typewriter or ball point pen. PLEASE PRESS FIRMLY and PRINT clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Topeka, Kansas 66620-0001. Telephone: 913-296-5545. Send one to WATER WELL OWNER and retain one for your records.

000216

Fraction	Section Number	Township Number	Range Number
SEDGWICK — SE ¼ NE ¼ NW ¼	9	T 27 S	R 1 E/W

and direction from nearest town or city street address of well if located within city? 2005 N MOSLEY, WICHITA, KANSAS — WND-39Deep

ER WELL OWNER: CITY OF WICHITA

Address, Box # :

State, ZIP Code :

Board of Agriculture, Division of Water Resourc

Application Number:

TE WELL'S LOCATION WITH "X" IN SECTION BOX: NW X, NE, SW, SE

DEPTH OF COMPLETED WELL 39 ft. ELEVATION:

Depth(s) Groundwater Encountered 1. 12' ft. 2. ft. 3. ft.

WELL'S STATIC WATER LEVEL ft. below land surface measured on mo/day/yr

Pump test data: Well water was ft. after hours pumping gpm

Est. Yield gpm: Well water was ft. after hours pumping gpm

Bore Hole Diameter in. to ft., and in. to ft

WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well; 1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below); 2 Irrigation 4 Industrial 7 Lawn and garden only (10) Monitoring well

Was a chemical/bacteriological sample submitted to Department? Yes No X; If yes, mo/day/yr sample was sub mitted Water Well Disinfected? Yes No X

OF BLANK CASING USED: 5 Wrought iron 8 Concrete tile CASING JOINTS: Glued Clamped; Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded; (PVC) 4 ABS 7 Fiberglass Threaded X

ing diameter 2 in. to 24 ft., Dia in. to ft., Dia in. to ft.

ight above land surface 0 in., weight lbs./ft. Wall thickness or gauge No.

OF SCREEN OR PERFORATION MATERIAL: (7) PVC 10 Asbestos-cement; Steel 3 Stainless steel 5 Fiberglass 8 RMP (SR) 11 Other (specify); Brass 4 Galvanized steel 6 Concrete tile 9 ABS 12 None used (open hole)

EN OR PERFORATION OPENINGS ARE: 5 Gauzed wrapped 8 Saw cut 11 None (open hole); Continuous slot (3) Mill slot 6 Wire wrapped 9 Drilled holes; Louvered shutter 4 Key punched 7 Torch cut 10 Other (specify)

PERFORATED INTERVALS: From 39 ft. to 24 ft., From ft. to ft.; From ft. to ft., From ft. to ft.

GRAVEL PACK INTERVALS: From 39 ft. to 22 ft., From ft. to ft.; From ft. to ft., From ft. to ft.

OUT MATERIAL: 1 Neat cement (2) Cement grout (3) Bentonite 4 Other

vals: 3 From 22 ft. to 21 ft. 2 From 21 ft. to 0 ft., From ft. to ft.

e nearest source of possible contamination: 10 Livestock pens 14 Abandoned water well; Septic tank 4 Lateral lines 7 Pit privy 11 Fuel storage 15 Oil well/Gas well; Sewer lines 5 Cess pool 8 Sewage lagoon 12 Fertilizer storage 16 Other (specify below); Watertight sewer lines 6 Seepage pit 9 Feedyard 13 Insecticide storage Chemical Storage

from well? North How many feet? 700'

TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
4'	CLAY DARK BROWN			
5.5	SANDY CLAY, BROWN			
18	SAND - MEDIUM COARSE			
19	SANDY CLAY			
36	SAND - MEDIUM TO COARSE			
39	SHALE - WEATHERED, BLACK			

ACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was ed on (mo/day/year) 3-24-93 and this record is true to the best of my knowledge and belief. Kansas Contractor's License No. 517 This Water Well Record was completed on (mo/day/yr) 4-7-93

usiness name of GROUNDWATER TECHNOLOGY by (signature) Dennis White

RUCTIONS: Use typewriter or ball point pen. PLEASE PRESS FIRMLY and PRINT clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department and Environment, Bureau of Water, Topeka, Kansas 66620-0001. Telephone: 913-296-5545. Send one to WATER WELL OWNER and retain one for your records.

000215

Fraction	Section Number	Township Number	Range Number
SEDGWICK — SE ¼ NE ¼ NW ¼	16	T 27 S	R E/W

ce and direction from nearest town or city street address of well if located within city? 1060 N MOSLEY, WICHITA KS — WND-40Shallow

TER WELL OWNER: CITY OF WICHITA

St. Address, Box # :

State, ZIP Code :

Board of Agriculture, Division of Water Resourc

Application Number:

ATE WELL'S LOCATION WITH "X" IN SECTION BOX: NW X, NE, SW, SE

DEPTH OF COMPLETED WELL 18' ft. ELEVATION:

Depth(s) Groundwater Encountered 1. 13 ft. 2. ft. 3. ft.

WELL'S STATIC WATER LEVEL ft. below land surface measured on mo/day/yr

Pump test data: Well water was ft. after hours pumping gpm

Est. Yield gpm: Well water was ft. after hours pumping gpm

Bore Hole Diameter in. to ft., and in. to ft

WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well; 1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below); 2 Irrigation 4 Industrial 7 Lawn and garden only (10) Monitoring well

Was a chemical/bacteriological sample submitted to Department? Yes No X; If yes, mo/day/yr sample was sub mitted Water Well Disinfected? Yes No X

E OF BLANK CASING USED: 5 Wrought iron 8 Concrete tile CASING JOINTS: Glued Clamped; Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded; PVC 4 ABS 7 Fiberglass Threaded X

sing diameter 2 in. to 8 ft., Dia in. to ft., Dia in. to ft.

height above land surface 0 in., weight lbs./ft. Wall thickness or gauge No.

E OF SCREEN OR PERFORATION MATERIAL: (7) PVC 10 Asbestos-cement; Steel 3 Stainless steel 5 Fiberglass 8 RMP (SR) 11 Other (specify); Brass 4 Galvanized steel 6 Concrete tile 9 ABS 12 None used (open hole)

EEN OR PERFORATION OPENINGS ARE: 5 Gauzed wrapped 8 Saw cut 11 None (open hole); Continuous slot (3) Mill slot 6 Wire wrapped 9 Drilled holes; Louvered shutter 4 Key punched 7 Torch cut 10 Other (specify)

PERFORATED INTERVALS: From 18 ft. to 8 ft., From ft. to ft.; From ft. to ft., From ft. to ft.

GRAVEL PACK INTERVALS: From 18 ft. to 7 ft., From ft. to ft.; From ft. to ft., From ft. to ft.

OUT MATERIAL: 1 Neat cement (2) Cement grout (3) Bentonite 4 Other

ervals: 3 From 7 ft. to 6 ft. 2 From 6 ft. to 0 ft., From ft. to ft.

he nearest source of possible contamination: 10 Livestock pens 14 Abandoned water well; Septic tank 4 Lateral lines 7 Pit privy 11 Fuel storage 15 Oil well/Gas well; Sewer lines 5 Cess pool 8 Sewage lagoon 12 Fertilizer storage (16) Other (specify below); Watertight sewer lines 6 Seepage pit 9 Feedyard 13 Insecticide storage GROUNDWATER

from well? How many feet?

TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
3	CLAY, DARK BROWN			
5.25	SILTY CLAY, TRACE SAND			
8.6	SILTY SAND, TRACE GRAVEL			
9	CLAY			
11	SILTY SAND			
18	~~WEATHERED SHALE~~			
	SAND MEDIUM TO COARSE			
	WITH GRAVEL			

ACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was ed on (mo/day/year) 4/2/93 and this record is true to the best of my knowledge and belief. Kansas Contractor's License No. 517 This Water Well Record was completed on (mo/day/yr) 4/3/93

usiness name of GROUNDWATER TECHNOLOGY by (signature) Dennis White

RUCTIONS: Use typewriter or ball point pen. PLEASE PRESS FIRMLY and PRINT clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department and Environment, Bureau of Water, Topeka, Kansas 66620-0001. Telephone: 913-296-5545. Send one to WATER WELL OWNER and retain one for your records.

WATER WELL RECORD Form WWC-5 KSA 82a-1212

LOCATION OF WATER WELL:	Fraction	Section Number	Township Number	Range Number
Sedgwick	SE ¼ NE ¼ NW ¼	16	T 27 S	R 1 E/W

and direction from nearest town or city street address of well if located within city?
1060 N Mosley Wichita, Ks WND-40 deep

WATER WELL OWNER: City of Wichita
R.R., St. Address, Box # :
City, State, ZIP Code :

Board of Agriculture, Division of Water Resources
Application Number:

ESTIMATE WELL'S LOCATION WITH "X" IN SECTION BOX: N, NW, NE, W, E, SW, SE, S

DEPTH OF COMPLETED WELL 32 ft. ELEVATION:
Depth(s) Groundwater Encountered 1. 12 ft. 2. ft. 3. ft.
WELL'S STATIC WATER LEVEL ft. below land surface measured on mo/day/yr
Pump test data: Well water was ft. after hours pumping gpm
Est. Yield gpm: Well water was ft. after hours pumping gpm
Bore Hole Diameter in. to ft., and in. to ft.
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Lawn and garden only (10) Monitoring well
Was a chemical/bacteriological sample submitted to Department? Yes No X; If yes, mo/day/yr sample was submitted
Water Well Disinfected? Yes No X

TYPE OF BLANK CASING USED: 5 Wrought iron 8 Concrete tile CASING JOINTS: Glued Clamped
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded
(2) PVC 4 ABS 7 Fiberglass Threaded X
Casing diameter 2 in. to 17 ft., Dia in. to ft., Dia in. to ft.
Casing height above land surface 0 in., weight lbs./ft. Wall thickness or gauge No.

TYPE OF SCREEN OR PERFORATION MATERIAL: (7) PVC 10 Asbestos-cement
1 Steel 3 Stainless steel 5 Fiberglass 8 RMP (SR) 11 Other (specify)
2 Brass 4 Galvanized steel 6 Concrete tile 9 ABS 12 None used (open hole)

SCREEN OR PERFORATION OPENINGS ARE: 5 Gauzed wrapped 8 Saw cut 11 None (open hole)
1 Continuous slot (3) Mill slot 6 Wire wrapped 9 Drilled holes
2 Louvered shutter 4 Key punched 7 Torch cut 10 Other (specify)

SCREEN-PERFORATED INTERVALS: From 32 ft. to 17 ft., From ft. to ft.
From ft. to ft., From ft. to ft.
GRAVEL PACK INTERVALS: From 32 ft. to 15 ft., From ft. to ft.
From ft. to ft., From ft. to ft.

GROUT MATERIAL: 1 Neat cement (2) Cement grout (3) Bentonite 4 Other
Grout Intervals: From 15 ft. to 14 ft., From 14 ft. to 0 ft., From ft. to ft.

What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 14 Abandoned water well
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 15 Oil well/Gas well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer storage (16) Other (specify below)
13 Insecticide storage Groundwater
Direction from well? How many feet?

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	3	Clay, Dark Brown			
3	5.25	Silty Clay, trace fine Sand			
5.25	8.50	Silty Sand trace Gravel			
8.50	9	Clay			
9	11	Silty Sand			
11	31.9	Sand, Med to Coarse, with Gravel			
31.9	32	Weathered Shale			

CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 4/28/93 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 517 This Water Well Record was completed on (mo/day/yr) 4/30/93
under the business name of Groundwater Technology by (signature) Dennis White

INSTRUCTIONS: Use typewriter or ball point pen. PLEASE PRESS FIRMLY and PRINT clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Topeka, Kansas 66620-0001, Telephone 913-296-5545. Send one to WATER WELL OWNER and retain one for your records.

WATER WELL RECORD Form WWC-5 KSA 82a-1212

LOCATION OF WATER WELL:	Fraction	Section Number	Township Number	Range Number
	NE ¼ NE ¼ SW ¼	9	T 27 S	R E/W

and direction from nearest town or city street address of well if located within city?
1665 N. Mosley, Wichita Ks WND-41 shallow

WATER WELL OWNER: City of Wichita
R.R., St. Address, Box # :
City, State, ZIP Code :

Board of Agriculture, Division of Water Resources
Application Number:

ESTIMATE WELL'S LOCATION WITH "X" IN SECTION BOX: N, NW, NE, W, E, SW, SE, S

DEPTH OF COMPLETED WELL 18 ft. ELEVATION:
Depth(s) Groundwater Encountered 1. 13 ft. 2. ft. 3. ft.
WELL'S STATIC WATER LEVEL ft. below land surface measured on mo/day/yr
Pump test data: Well water was ft. after hours pumping gpm
Est. Yield gpm: Well water was ft. after hours pumping gpm
Bore Hole Diameter in. to ft., and in. to ft.
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Lawn and garden only (10) Monitoring well
Was a chemical/bacteriological sample submitted to Department? Yes No X; If yes, mo/day/yr sample was submitted
Water Well Disinfected? Yes No X

TYPE OF BLANK CASING USED: 5 Wrought iron 8 Concrete tile CASING JOINTS: Glued Clamped
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded
2 PVC 4 ABS 7 Fiberglass Threaded X
Casing diameter 2 in. to 8' ft., Dia in. to ft., Dia in. to ft.
Casing height above land surface in., weight lbs./ft. Wall thickness or gauge No.

TYPE OF SCREEN OR PERFORATION MATERIAL: (7) PVC 10 Asbestos-cement
1 Steel 3 Stainless steel 5 Fiberglass 8 RMP (SR) 11 Other (specify)
2 Brass 4 Galvanized steel 6 Concrete tile 9 ABS 12 None used (open hole)

SCREEN OR PERFORATION OPENINGS ARE: 5 Gauzed wrapped 8 Saw cut 11 None (open hole)
1 Continuous slot (3) Mill slot 6 Wire wrapped 9 Drilled holes
2 Louvered shutter 4 Key punched 7 Torch cut 10 Other (specify)

SCREEN-PERFORATED INTERVALS: From 18 ft. to 8 ft., From ft. to ft.
From ft. to ft., From ft. to ft.
GRAVEL PACK INTERVALS: From 18 ft. to 7 ft., From ft. to ft.
From ft. to ft., From ft. to ft.

GROUT MATERIAL: 1 Neat cement (2) Cement grout (3) Bentonite 4 Other
Grout Intervals: From 7 ft. to 5 ft. From 5 ft. to 0 ft., From ft. to ft.

What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 14 Abandoned water well
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 15 Oil well/Gas well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer storage 16 Other (specify below)
13 Insecticide storage
Direction from well? How many feet?

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
	8"	Asphalt			
	5'	Clay, Dark Brown			
	8	Silty, Sandy Clay			
	11	Sand, Med-Coarse			
	11.25	Silty Sand			
	18	Sand, Medium-Coarse with Gravel			

CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 3/26/93 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 517 This Water Well Record was completed on (mo/day/yr) 4/3/93
under the business name of Groundwater Technology by (signature) Dennis White

INSTRUCTIONS: Use typewriter or ball point pen. PLEASE PRESS FIRMLY and PRINT clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Topeka, Kansas 66620-0001, Telephone 913-296-5545. Send one to WATER WELL OWNER and retain one for your records.

000243

WATER WELL RECORD

LOCATION OF WATER WELL: County: Sedgwick	Fraction: NE ¼ NE ¼ SW ¼	Section Number: 9	Township Number: T 27 S	Range Number: R 1 E/W

Distance and direction from nearest town or city street address of well if located within city?: 1655 N. Mosley, Wichita, Kansas

WND-410ccp

WATER WELL OWNER: City of Wichita

RR#, St. Address, Box #:

City, State, ZIP Code:

Board of Agriculture, Division of Water Resources Application Number:

LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX: N, NW, NE, W, E, X, SW, SE, S

4 DEPTH OF COMPLETED WELL: 35' ft. ELEVATION:

Depth(s) Groundwater Encountered 1. 13 ft. 2. ft. 3. ft.

WELL'S STATIC WATER LEVEL ft. below land surface measured on mo/day/yr

Pump test data: Well water was ft. after hours pumping gpm

Est. Yield gpm: Well water was ft. after hours pumping gpm

Bore Hole Diameter in. to ft., and in. to

WELL WATER TO BE USED AS: 1 Domestic 2 Irrigation 3 Feedlot 4 Industrial 5 Public water supply 6 Oil field water supply 7 Lawn and garden only 8 Air conditioning 9 Dewatering 10 Monitoring well 11 Injection well 12 Other (Specify below)

Was a chemical/bacteriological sample submitted to Department? Yes No X; If yes, mo/day/yr sample was submitted

Water Well Disinfected? Yes No X

5 TYPE OF BLANK CASING USED: 1 Steel 2 PVC 3 RMP (SR) 4 ABS 5 Wrought iron 6 Asbestos-Cement 7 Fiberglass 8 Concrete tile 9 Other (specify below)

CASING JOINTS: Glued Clamped Welded Threaded X

Blank casing diameter 2 in. to 20 ft., Dia in. to ft., Dia in. to

Casing height above land surface 0 in., weight lbs./ft. Wall thickness or gauge No.

TYPE OF SCREEN OR PERFORATION MATERIAL: 1 Steel 2 Brass 3 Stainless steel 4 Galvanized steel 5 Fiberglass 6 Concrete tile 7 PVC 8 RMP (SR) 9 ABS 10 Asbestos-cement 11 Other (specify) 12 None used (open hole)

SCREEN OR PERFORATION OPENINGS ARE: 1 Continuous slot 2 Louvered shutter 3 Mill slot 4 Key punched 5 Gauzed wrapped 6 Wire wrapped 7 Torch cut 8 Saw cut 9 Drilled holes 10 Other (specify) 11 None (open hole)

SCREEN-PERFORATED INTERVALS: From 35 ft. to 20 ft., From ft. to; From ft. to ft., From ft. to

GRAVEL PACK INTERVALS: From 35 ft. to 17 ft., From ft. to; From ft. to ft., From ft. to

GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite 4 Other

Grout Intervals: From 17 ft. to 16 ft., From 16 ft. to 0 ft., From ft. to

What is the nearest source of possible contamination: 1 Septic tank 2 Sewer lines 3 Watertight sewer lines 4 Lateral lines 5 Cess pool 6 Seepage pit 7 Pit privy 8 Sewage lagoon 9 Feedyard 10 Livestock pens 11 Fuel storage 12 Fertilizer storage 13 Insecticide storage 14 Abandoned water well 15 Oil well/Gas well 16 Other (specify below) Groundwater

Direction from well? How many feet?

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0'	8"	Asphalt			
8"	5'	Clay, Dark Brown			
5	8	Silty Sandy Clay,			
8	11	Sand, Med-Coarse			
11	11.25	Silty Sand			
11.25	3.5	Sand - Med-Coarse with Gravel			
3.5'		Weathered Shale			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 3/26/93 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 517 This Water Well Record was completed on (mo/day/yr) 4/3/93 under the business name of Groundwater Technology by (signature) Dennis White

INSTRUCTIONS: Use typewriter or ball point pen. PLEASE PRESS FIRMLY and PRINT clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Topeka, Kansas 66620-0001. Telephone: 913-296-5545. Send one to WATER WELL OWNER and retain one for your records.

000242

WATER WELL RECORD Form WWC-5 KSA 82a-1212

LOCATION OF WATER WELL: County: Sedgwick	Fraction: NW ¼ NE ¼ SW ¼	Section Number: 16	Township Number: T 27 S	Range Number: R 1 E/W

Distance and direction from nearest town or city street address of well if located within city?: 918 N Santa Fe Wichita Ks

WND-428 Shal

WATER WELL OWNER: City of Wichita

RR#, St. Address, Box #:

City, State, ZIP Code:

Board of Agriculture, Division of Water Resources Application Number:

LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX: N, NW, NE, W, E, X, SW, SE, S

4 DEPTH OF COMPLETED WELL: 20 ft. ELEVATION:

Depth(s) Groundwater Encountered 1. 13 ft. 2. ft. 3. ft.

WELL'S STATIC WATER LEVEL ft. below land surface measured on mo/day/yr

Pump test data: Well water was ft. after hours pumping gpm

Est. Yield gpm: Well water was ft. after hours pumping gpm

Bore Hole Diameter in. to ft., and in. to ft.

WELL WATER TO BE USED AS: 1 Domestic 2 Irrigation 3 Feedlot 4 Industrial 5 Public water supply 6 Oil field water supply 7 Lawn and garden only 8 Air conditioning 9 Dewatering 10 Monitoring well 11 Injection well 12 Other (Specify below)

Was a chemical/bacteriological sample submitted to Department? Yes No X; If yes, mo/day/yr sample was submitted

Water Well Disinfected? Yes No X

5 TYPE OF BLANK CASING USED: 1 Steel 2 PVC 3 RMP (SR) 4 ABS 5 Wrought iron 6 Asbestos-Cement 7 Fiberglass 8 Concrete tile 9 Other (specify below)

CASING JOINTS: Glued Clamped Welded Threaded X

Blank casing diameter 2 in. to 10 ft., Dia in. to ft., Dia in. to ft.

Casing height above land surface in., weight lbs./ft. Wall thickness or gauge No.

TYPE OF SCREEN OR PERFORATION MATERIAL: 1 Steel 2 Brass 3 Stainless steel 4 Galvanized steel 5 Fiberglass 6 Concrete tile 7 PVC 8 RMP (SR) 9 ABS 10 Asbestos-cement 11 Other (specify) 12 None used (open hole)

SCREEN OR PERFORATION OPENINGS ARE: 1 Continuous slot 2 Louvered shutter 3 Mill slot 4 Key punched 5 Gauzed wrapped 6 Wire wrapped 7 Torch cut 8 Saw cut 9 Drilled holes 10 Other (specify) 11 None (open hole)

SCREEN-PERFORATED INTERVALS: From 20 ft. to 10 ft., From ft. to; From ft. to ft., From ft. to

GRAVEL PACK INTERVALS: From 20 ft. to 8 ft., From ft. to; From ft. to ft., From ft. to

GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite 4 Other

Grout Intervals: From 8 ft. to 7 ft., From 7 ft. to 0 ft., From ft. to

What is the nearest source of possible contamination: 1 Septic tank 2 Sewer lines 3 Watertight sewer lines 4 Lateral lines 5 Cess pool 6 Seepage pit 7 Pit privy 8 Sewage lagoon 9 Feedyard 10 Livestock pens 11 Fuel storage 12 Fertilizer storage 13 Insecticide storage 14 Abandoned water well 15 Oil well/Gas well 16 Other (specify below) Groundwater

Direction from well? How many feet? 0

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
	0.5	Asphalt			
0.5	3	Fill Material			
3	4	Clay Dark Brown			
4	6	Silty Clay			
6	8	Silty Sand			
8	10.5	Silty Sandy Clay			
10.5	14	Silty Clay			
14	20	Sand Med-Coarse with Gravel			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 3/26/93 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 517 This Water Well Record was completed on (mo/day/yr) 4/3/93 under the business name of Groundwater Technology by (signature) Dennis White

INSTRUCTIONS: Use typewriter or ball point pen. PLEASE PRESS FIRMLY and PRINT clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Topeka, Kansas 66620-0001. Telephone: 913-296-5545. Send one to WATER WELL OWNER and retain one for your records.

WATER WELL RECORD Form WWC-5 KSA 82a-1212

LOCATION OF WATER WELL: County: Sedgwick | Fraction: SW ¼ SW ¼ NE ¼ | Section Number: 9 | Township Number: T 27 S | Range Number: R 1 E/W

Distance and direction from nearest town or city street address of well if located within city?: 1705 N Wabash, Wichita Ks

WND-43 Shallow

WATER WELL OWNER: City of Wichita

RR#, St. Address, Box #:

City, State, ZIP Code:

Board of Agriculture, Division of Water Resources Application Number:

LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX: N, W, E, S; NW, NE, SW, SE; X

(4) DEPTH OF COMPLETED WELL 20 ft. ELEVATION:

Depth(s) Groundwater Encountered 1. 13 ft. 2. ft. 3. ft.

WELL'S STATIC WATER LEVEL ft. below land surface measured on mo/day/yr

Pump test data: Well water was ft. after hours pumping gpm

Est. Yield gpm: Well water was ft. after hours pumping gpm

Bore Hole Diameter in. to ft., and in. to ft.

WELL WATER TO BE USED AS: 1 Domestic 2 Irrigation 3 Feedlot 4 Industrial 5 Public water supply 6 Oil field water supply 7 Lawn and garden only 8 Air conditioning 9 Dewatering 10 Monitoring well 11 Injection well 12 Other (Specify below)

Was a chemical/bacteriological sample submitted to Department? Yes No; If yes, mo/day/yr sample was submitted

Water Well Disinfected? Yes No

TYPE OF BLANK CASING USED: 1 Steel 2 PVC 3 RMP (SR) 4 ABS 5 Wrought iron 6 Asbestos-Cement 7 Fiberglass 8 Concrete tile 9 Other (specify below)

CASING JOINTS: Glued Clamped Welded Threaded X

Blank casing diameter 2 in. to 10 ft., Dia in. to ft., Dia in. to ft.

Casing height above land surface 0 in., weight lbs./ft. Wall thickness or gauge No. Sch 40

TYPE OF SCREEN OR PERFORATION MATERIAL: 1 Steel 2 Brass 3 Stainless steel 4 Galvanized steel 5 Fiberglass 6 Concrete tile 7 PVC 8 RMP (SR) 9 ABS 10 Asbestos-cement 11 Other (specify) 12 None used (open hole)

SCREEN OR PERFORATION OPENINGS ARE: 1 Continuous slot 2 Louvered shutter 3 Mill slot 4 Key punched 5 Gauzed wrapped 6 Wire wrapped 7 Torch cut 8 Saw cut 9 Drilled holes 10 Other (specify) 11 None (open hole)

SCREEN-PERFORATED INTERVALS: From 20 ft. to 10 ft., From ft. to; From ft. to ft., From ft. to

GRAVEL PACK INTERVALS: From 20 ft. to 9 ft., From ft. to; From ft. to ft., From ft. to

GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite 4 Other

Grout Intervals: From 9 ft. to 7 ft., From 7 ft. to 0 ft., From ft. to

What is the nearest source of possible contamination: 1 Septic tank 2 Sewer lines 3 Watertight sewer lines 4 Lateral lines 5 Cess pool 6 Seepage pit 7 Pit privy 8 Sewage lagoon 9 Feedyard 10 Livestock pens 11 Fuel storage 12 Fertilizer storage 13 Insecticide storage 14 Abandoned water well 15 Oil well/Gas well 16 Other (specify below) Groundwater

Direction from well? How many feet?

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	0.5	Asphalt			
0.5	5.5	Clay			
5.5	8	Silty Clay			
8	20	Sand, med to Coarse with Gravel			

CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 3/26/93 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 517 This Water Well Record was completed on (mo/day/yr) 4/3/93 under the business name of Groundwater Technology by (signature) Dennis White

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WATER WELL RECORD Form WWC-5 KSA 82a-1212

LOCATION OF WATER WELL: County: Sedgwick | Fraction: SW ¼ SW ¼ NE ¼ | Section Number: 9 | Township Number: T 27 S | Range Number: R 1 E/W

Distance and direction from nearest town or city street address of well if located within city?: 1705 N Wabash Wichita, Ks

WND-43 Deep

WATER WELL OWNER: City of Wichita

RR#, St. Address, Box #:

City, State, ZIP Code:

Board of Agriculture, Division of Water Resources Application Number:

LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX: N, W, E, S; NW, NE, SW, SE; X

(4) DEPTH OF COMPLETED WELL 33 ft. ELEVATION:

Depth(s) Groundwater Encountered 1. 13 ft. 2. ft. 3. ft.

WELL'S STATIC WATER LEVEL ft. below land surface measured on mo/day/yr

Pump test data: Well water was ft. after hours pumping gpm

Est. Yield gpm: Well water was ft. after hours pumping gpm

Bore Hole Diameter in. to ft., and in. to

WELL WATER TO BE USED AS: 1 Domestic 2 Irrigation 3 Feedlot 4 Industrial 5 Public water supply 6 Oil field water supply 7 Lawn and garden only 8 Air conditioning 9 Dewatering 10 Monitoring well 11 Injection well 12 Other (Specify below)

Was a chemical/bacteriological sample submitted to Department? Yes No X; If yes, mo/day/yr sample was submitted

Water Well Disinfected? Yes No X

TYPE OF BLANK CASING USED: 1 Steel 2 PVC 3 RMP (SR) 4 ABS 5 Wrought iron 6 Asbestos-Cement 7 Fiberglass 8 Concrete tile 9 Other (specify below)

CASING JOINTS: Glued Clamped Welded Threaded X

Blank casing diameter 2 in. to 18 ft., Dia in. to ft., Dia in. to ft.

Casing height above land surface 0 in., weight lbs./ft. Wall thickness or gauge No. Sch 40

TYPE OF SCREEN OR PERFORATION MATERIAL: 1 Steel 2 Brass 3 Stainless steel 4 Galvanized steel 5 Fiberglass 6 Concrete tile 7 PVC 8 RMP (SR) 9 ABS 10 Asbestos-cement 11 Other (specify) 12 None used (open hole)

SCREEN OR PERFORATION OPENINGS ARE: 1 Continuous slot 2 Louvered shutter 3 Mill slot 4 Key punched 5 Gauzed wrapped 6 Wire wrapped 7 Torch cut 8 Saw cut 9 Drilled holes 10 Other (specify) 11 None (open hole)

SCREEN-PERFORATED INTERVALS: From 33 ft. to 18 ft., From ft. to; From ft. to ft., From ft. to

GRAVEL PACK INTERVALS: From 33 ft. to 16 ft., From ft. to; From ft. to ft., From ft. to

GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite 4 Other

Grout Intervals: From 16 ft. to 15 ft., From 15 ft. to 0 ft., From ft. to

What is the nearest source of possible contamination: 1 Septic tank 2 Sewer lines 3 Watertight sewer lines 4 Lateral lines 5 Cess pool 6 Seepage pit 7 Pit privy 8 Sewage lagoon 9 Feedyard 10 Livestock pens 11 Fuel storage 12 Fertilizer storage 13 Insecticide storage 14 Abandoned water well 15 Oil well/Gas well 16 Other (specify below) Groundwater

Direction from well? How many feet? 0

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	0.5	Asphalt			
0.5	5.5	Clay			
5.5	8	Silty Clay			
8	32.75	Sand, med-Coarse with gravel			
32.75	35	Weathered Shale			

CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 3/26/93 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 517 This Water Well Record was completed on (mo/day/yr) 4/3/93 under the business name of Groundwater Technology by (signature) Dennis White

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WATER WELL RECORD Form WWC-5 KSA 82a-1212

LOCATION OF WATER WELL:	Fraction	Section Number	Township Number	Range Number
County: Sedgwick	NW ¼ NW ¼ SW ¼	16	T 27 S	R 1 E/W

Distance and direction from nearest town or city street address of well if located within city? 9th & Santa Fe, Wichita, Ks

WND-44 shallow

WATER WELL OWNER: City of Wichita

RR#, St. Address, Box #:

City, State, ZIP Code:

Board of Agriculture, Division of Water Resources Application Number:

LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX: N / NW / NE / SW / SE / E / S

4 DEPTH OF COMPLETED WELL 22 ft. ELEVATION:

Depth(s) Groundwater Encountered 1. 14 ft. 2. ft. 3. ft.

WELL'S STATIC WATER LEVEL ft. below land surface measured on mo/day/yr

Pump test data: Well water was ft. after hours pumping gpm

Est. Yield gpm: Well water was ft. after hours pumping gpm

Bore Hole Diameter in. to ft., and in. to

WELL WATER TO BE USED AS: 1 Domestic 2 Irrigation 3 Feedlot 4 Industrial 5 Public water supply 6 Oil field water supply 7 Lawn and garden only 8 Air conditioning 9 Dewatering 10 Monitoring well 11 Injection well 12 Other (Specify below)

Was a chemical/bacteriological sample submitted to Department? Yes No X; If yes, mo/day/yr sample was submitted

Water Well Disinfected? Yes No X

TYPE OF BLANK CASING USED: 1 Steel 2 PVC 3 RMP (SR) 4 ABS 5 Wrought iron 6 Asbestos-Cement 7 Fiberglass 8 Concrete tile 9 Other (specify below)

CASING JOINTS: Glued Clamped Welded Threaded X

Blank casing diameter 2 in. to 12 ft., Dia in. to ft., Dia in. to

Casing height above land surface 0 in., weight lbs./ft. Wall thickness or gauge No. Sch 40

TYPE OF SCREEN OR PERFORATION MATERIAL: 1 Steel 2 Brass 3 Stainless steel 4 Galvanized steel 5 Fiberglass 6 Concrete tile 7 PVC 8 RMP (SR) 9 ABS 10 Asbestos-cement 11 Other (specify) 12 None used (open hole)

SCREEN OR PERFORATION OPENINGS ARE: 1 Continuous slot 2 Louvered shutter 3 Mill slot 4 Key punched 5 Gauzed wrapped 6 Wire wrapped 7 Torch cut 8 Saw cut 9 Drilled holes 10 Other (specify) 11 None (open hole)

SCREEN-PERFORATED INTERVALS: From 22 ft. to 12 ft., From ft. to; From ft. to ft., From ft. to

GRAVEL PACK INTERVALS: From 22 ft. to 10 ft., From ft. to; From ft. to ft., From ft. to

GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite 4 Other

Grout intervals: From 10 ft. to 8 ft., From 8 ft. to 0 ft., From ft. to

What's the nearest source of possible contamination: 1 Septic tank 2 Sewer lines 3 Watertight sewer lines 4 Lateral lines 5 Cess pool 6 Seepage pit 7 Pit privy 8 Sewage lagoon 9 Feedyard 10 Livestock pens 11 Fuel storage 12 Fertilizer storage 13 Insecticide storage 14 Abandoned water well 15 Oil well/Gas well 16 Other (specify below) Groundwater

How many feet? 0'

Direction from well?

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
	2	Fill Material			
	8	Silty Clay			
	22	Sand, med-Coarse, with Gravel			

CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 3/26/93 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 517 This Water Well Record was completed on (mo/day/yr) 4/3/93

under the business name of Groundwater Technology by (signature) Dennis White

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WATER WELL RECORD Form WWC-5 KSA 82a-1212

LOCATION OF WATER WELL:	Fraction	Section Number	Township Number	Range Number
County: Sedgwick	NW ¼ NW ¼ SW ¼	16	T 27 S	R 1 E/W

Distance and direction from nearest town or city street address of well if located within city? 9th & Santa Fe, Wichita Ks

WND-44 deep

WATER WELL OWNER: City of Wichita

RR#, St. Address, Box #:

City, State, ZIP Code:

Board of Agriculture, Division of Water Resources Application Number:

LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX: N / NW / NE / X / SW / SE / E / S

4 DEPTH OF COMPLETED WELL 36 ft. ELEVATION:

Depth(s) Groundwater Encountered 1. 13 ft. 2. ft. 3. ft.

WELL'S STATIC WATER LEVEL ft. below land surface measured on mo/day/yr

Pump test data: Well water was ft. after hours pumping gpm

Est. Yield gpm: Well water was ft. after hours pumping gpm

Bore Hole Diameter in. to ft., and in. to

WELL WATER TO BE USED AS: 1 Domestic 2 Irrigation 3 Feedlot 4 Industrial 5 Public water supply 6 Oil field water supply 7 Lawn and garden only 8 Air conditioning 9 Dewatering 10 Monitoring well 11 Injection well 12 Other (Specify below)

Was a chemical/bacteriological sample submitted to Department? Yes No X; If yes, mo/day/yr sample was submitted

Water Well Disinfected? Yes No X

TYPE OF BLANK CASING USED: 1 Steel 2 PVC 3 RMP (SR) 4 ABS 5 Wrought iron 6 Asbestos-Cement 7 Fiberglass 8 Concrete tile 9 Other (specify below)

CASING JOINTS: Glued Clamped Welded Threaded X

Blank casing diameter 2 in. to 21 ft., Dia in. to ft., Dia in. to

Casing height above land surface 0 in., weight lbs./ft. Wall thickness or gauge No. Sch 40

TYPE OF SCREEN OR PERFORATION MATERIAL: 1 Steel 2 Brass 3 Stainless steel 4 Galvanized steel 5 Fiberglass 6 Concrete tile 7 PVC 8 RMP (SR) 9 ABS 10 Asbestos-cement 11 Other (specify) 12 None used (open hole)

SCREEN OR PERFORATION OPENINGS ARE: 1 Continuous slot 2 Louvered shutter 3 Mill slot 4 Key punched 5 Gauzed wrapped 6 Wire wrapped 7 Torch cut 8 Saw cut 9 Drilled holes 10 Other (specify) 11 None (open hole)

SCREEN-PERFORATED INTERVALS: From 36 ft. to 21 ft., From ft. to; From ft. to ft., From ft. to

GRAVEL PACK INTERVALS: From 36 ft. to 18 ft., From ft. to; From ft. to ft., From ft. to

GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite 4 Other

Grout intervals: From 18 ft. to 17 ft., From 17 ft. to 0 ft., From ft. to

What's the nearest source of possible contamination: 1 Septic tank 2 Sewer lines 3 Watertight sewer lines 4 Lateral lines 5 Cess pool 6 Seepage pit 7 Pit privy 8 Sewage lagoon 9 Feedyard 10 Livestock pens 11 Fuel storage 12 Fertilizer storage 13 Insecticide storage 14 Abandoned water well 15 Oil well/Gas well 16 Other (specify below) Groundwater

How many feet? 0

Direction from well?

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
	2	Fill Material			
	8	Silty Clay			
	35.5	Sand med-Fine Grained with Gravel			
35	36	Weathered Shale			

CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 3/26/93 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 517 This Water Well Record was completed on (mo/day/yr) 4/3/93

under the business name of Groundwater Technology by (signature) Dennis White

INSTRUCTIONS: Use typewriter or ball point pen. PLEASE PRESS FIRMLY and PRINT clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Topeka, Kansas 66620-0001, Telephone: 913-296-5545. Send one to WATER WELL OWNER and retain one for your records.

WATER WELL RECORD Form WWC-5 KSA 82a-1212

LOCATION OF WATER WELL:	Fraction	Section Number	Township Number	Range Number
County: Sedgwick	NE ¼ NE ¼ NE ¼	17	T 27 S	R 1 E/W

Distance and direction from nearest town or city street address of well if located within city?
404 E. 13th Wichita Ks

WND-45shallow

WATER WELL OWNER: City of Wichita

RR#, St. Address, Box # : Board of Agriculture, Division of Water Resourc

City, State, ZIP Code : Application Number:

LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX: N / NW / NE / SW / SE / E / S — X

4 DEPTH OF COMPLETED WELL 18 ft. ELEVATION:

Depth(s) Groundwater Encountered 1. 12 ft. 2. ft. 3. ft.

WELL'S STATIC WATER LEVEL ft. below land surface measured on mo/day/yr

Pump test data: Well water was ft. after hours pumping gp

Est. Yield gpm: Well water was ft. after hours pumping gp

Bore Hole Diameter in. to ft., and in. to

WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Lawn and garden only (10) Monitoring well

Was a chemical/bacteriological sample submitted to Department? Yes No X; If yes, mo/day/yr sample was submitted

Water Well Disinfected? Yes No X

TYPE OF BLANK CASING USED: 5 Wrought iron 8 Concrete tile CASING JOINTS: Glued Clamped
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded
2 PVC 4 ABS 7 Fiberglass Threaded X

Blank casing diameter in. to ft., Dia in. to ft., Dia in. to

Casing height above land surface in., weight lbs./ft. Wall thickness or gauge No. Sch 40

TYPE OF SCREEN OR PERFORATION MATERIAL: (7) PVC 10 Asbestos-cement
1 Steel 3 Stainless steel 5 Fiberglass 8 RMP (SR) 11 Other (specify)
2 Brass 4 Galvanized steel 6 Concrete tile 9 ABS 12 None used (open hole)

SCREEN OR PERFORATION OPENINGS ARE: 5 Gauzed wrapped 8 Saw cut 11 None (open hole)
1 Continuous slot (3) Mill slot 6 Wire wrapped 9 Drilled holes
2 Louvered shutter 4 Key punched 7 Torch cut 10 Other (specify)

SCREEN-PERFORATED INTERVALS: From 18 ft. to 8 ft., From ft. to
From ft. to ft., From ft. to

GRAVEL PACK INTERVALS: From 18 ft. to 7 ft., From ft. to
From ft. to ft., From ft. to

GROUT MATERIAL: 1 Neat cement (2) Cement grout (3) Bentonite 4 Other

Grout Intervals: From 7 ft. to 5 ft., From 2 ft. to 0 ft., From ft. to

What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 14 Abandoned water well
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 15 Oil well/Gas well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer storage (16) Other (specify below) Groundwater
13 Insecticide storage

Direction from well? How many feet?

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
	1	Base Rock			
	3	Clay Dark Brown			
	8	Silty Sandy Clay			
	18	Sand Medium to Coarse			
	18.25	Silt			
	20	Sand Medium to Coarse			

CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 3/30/93 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 517 This Water Well Record was completed on (mo/day/yr) 4/3/93
under the business name of Groundwater Technology by (signature) Donna White

INSTRUCTIONS: Use typewriter or ball point pen. PLEASE PRESS FIRMLY and PRINT clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Topeka, Kansas 66620-0001 Telephone: 913-296-5545. Send one to WATER WELL OWNER and retain one for your records.

WATER WELL RECORD Form WWC-5 KSA 82a-1212

LOCATION OF WATER WELL:	Fraction	Section Number	Township Number	Range Number
County: Sedgwick	NE ¼ NE ¼ NE ¼	17	T 27 S	R 1 E/W

Distance and direction from nearest town or city street address of well if located within city?
404 E 13th Wichita Ks

WND-45deep

WATER WELL OWNER: City of Wichita

RR#, St. Address, Box # : Board of Agriculture, Division of Water Resourc

City, State, ZIP Code : Application Number:

LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX: N / NW / NE / SW / SE / E / S — X

4 DEPTH OF COMPLETED WELL 39 ft. ELEVATION:

Depth(s) Groundwater Encountered 1. 13 ft. 2. ft. 3. ft.

WELL'S STATIC WATER LEVEL ft. below land surface measured on mo/day/yr

Pump test data: Well water was ft. after hours pumping gp

Est. Yield gpm: Well water was ft. after hours pumping gp

Bore Hole Diameter in. to ft., and in. to

WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering (12) Other (Specify below)
2 Irrigation 4 Industrial 7 Lawn and garden only (10) Monitoring well

Was a chemical/bacteriological sample submitted to Department? Yes No X; If yes, mo/day/yr sample was submitted

Water Well Disinfected? Yes No X

TYPE OF BLANK CASING USED: 5 Wrought iron 8 Concrete tile CASING JOINTS: Glued Clamped
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded
2 PVC 4 ABS 7 Fiberglass Threaded X

Blank casing diameter 2 in. to 24 ft., Dia in. to ft., Dia in. to

Casing height above land surface 0 in., weight lbs./ft. Wall thickness or gauge No. Sch 40

TYPE OF SCREEN OR PERFORATION MATERIAL: 7 PVC 10 Asbestos-cement
1 Steel 3 Stainless steel 5 Fiberglass 8 RMP (SR) 11 Other (specify)
2 Brass 4 Galvanized steel 6 Concrete tile 9 ABS 12 None used (open hole)

SCREEN OR PERFORATION OPENINGS ARE: 5 Gauzed wrapped 8 Saw cut 11 None (open hole)
1 Continuous slot 3 Mill slot 6 Wire wrapped 9 Drilled holes
2 Louvered shutter 4 Key punched 7 Torch cut 10 Other (specify)

SCREEN-PERFORATED INTERVALS: From 39 ft. to 24 ft., From ft. to
From ft. to ft., From ft. to

GRAVEL PACK INTERVALS: From 39 ft. to 22 ft., From ft. to
From ft. to ft., From ft. to

GROUT MATERIAL: 1 Neat cement (2) Cement grout (3) Bentonite 4 Other

Grout Intervals: From 22 ft. to 21 ft., From 21 ft. to 0 ft., From ft. to

What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 14 Abandoned water well
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 15 Oil well/Gas well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer storage (16) Other (specify below) Groundwater
13 Insecticide storage

Direction from well? How many feet? 0'

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
	1	Base Rock			
	3	Clay Dark Brown			
	8	Silty Sandy Clay			
	18	Sand Med Coarse			
	18.25	Silt			
	39	Sand Med-Coarse with Gravel			
	40	Weathered Shale			

CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 3/30/93 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 517 This Water Well Record was completed on (mo/day/yr) 4/3/93
under the business name of Groundwater Technology by (signature) Donna White

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WATER WELL RECORD Form WWC-5 KSA 82a-1212

LOCATION OF WATER WELL: County: Sedgwick	Fraction: SE ¼ SW ¼ SW ¼	Section Number: 9	Township Number: T 27 S	Range Number: R 1 E/W

Distance and direction from nearest town or city street address of well if located within city?
650 E 13th, Wichita Ks WND-46 shallow

WATER WELL OWNER: City of Wichita
R.R., St. Address, Box #: 1900 E 9th
City, State, ZIP Code: Wichita, Ks

Board of Agriculture, Division of Water Resources
Application Number:

LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N / NW / NE / W / E / SW / SE / S — X

4 DEPTH OF COMPLETED WELL: 20 ft. ELEVATION:
Depth(s) Groundwater Encountered 1. 13 ft. 2. ft. 3. ft.
WELL'S STATIC WATER LEVEL ft. below land surface measured on mo/day/yr
Pump test data: Well water was ft. after hours pumping gpm
Est. Yield gpm: Well water was ft. after hours pumping gpm
Bore Hole Diameter in. to ft., and in. to ft.
WELL WATER TO BE USED AS: 1 Domestic 2 Irrigation 3 Feedlot 4 Industrial 5 Public water supply 6 Oil field water supply 7 Lawn and garden only 8 Air conditioning 9 Dewatering 10 Monitoring well 11 Injection well 12 Other (Specify below)
Was a chemical/bacteriological sample submitted to Department? Yes No X; If yes, mo/day/yr sample was submitted
Water Well Disinfected? Yes No X

TYPE OF BLANK CASING USED: 1 Steel 2 PVC 3 RMP (SR) 4 ABS 5 Wrought iron 6 Asbestos-Cement 7 Fiberglass 8 Concrete tile 9 Other (specify below)
CASING JOINTS: Glued Clamped Welded Threaded X
Blank casing diameter in. to ft., Dia in. to ft., Dia in. to ft.
Casing height above land surface in., weight lbs./ft. Wall thickness or gauge No.

TYPE OF SCREEN OR PERFORATION MATERIAL: 1 Steel 2 Brass 3 Stainless steel 4 Galvanized steel 5 Fiberglass 6 Concrete tile 7 PVC 8 RMP (SR) 9 ABS 10 Asbestos-cement 11 Other (specify) 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE: 1 Continuous slot 2 Louvered shutter 3 Mill slot 4 Key punched 5 Gauzed wrapped 6 Wire wrapped 7 Torch cut 8 Saw cut 9 Drilled holes 10 Other (specify) 11 None (open hole)
SCREEN-PERFORATED INTERVALS: From 20 ft. to 10 ft., From ft. to ft.; From ft. to ft., From ft. to ft.
GRAVEL PACK INTERVALS: From 20 ft. to 7.5 ft., From ft. to ft.; From ft. to ft., From ft. to ft.

GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite 4 Other
Intervals: 3 From 7.5 ft. to 6 ft., 2 From 6 ft. to 0 ft., From ft. to ft.
What is the nearest source of possible contamination: 1 Septic tank 2 Sewer lines 3 Watertight sewer lines 4 Lateral lines 5 Cess pool 6 Seepage pit 7 Pit privy 8 Sewage lagoon 9 Feedyard 10 Livestock pens 11 Fuel storage 12 Fertilizer storage 13 Insecticide storage 14 Abandoned water well 15 Oil well/Gas well 16 Other (specify below) Groundwater
How many feet? 0
Direction from well?

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
	1	Asphalt			
1	2.5	Clay, Dark Brown			
2.5	4	Silty Clay Sand			
4	7	Silty Sand			
7	8.25	Clay, with			
8.25	10.75	Sand, Silty			
10.75	20	Sand, med coarse with gravel			

CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 3/31/93 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 517 This Water Well Record was completed on (mo/day/yr) 4-4-93
under the business name of Groundwater Technology by (signature) Dennis White

INSTRUCTIONS: Use typewriter or ball point pen. PLEASE PRESS FIRMLY and PRINT clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Topeka, Kansas 66620-0001. Telephone: 913-296-5545. Send one to WATER WELL OWNER and retain one for your records.

WATER WELL RECORD Form WWC-5 KSA 82a-1212

LOCATION OF WATER WELL: County: Sedgwick	Fraction: SE ¼ SW ¼ SW ¼	Section Number: 9	Township Number: T 27 S	Range Number: R 1 E/W

Distance and direction from nearest town or city street address of well if located within city?
650 E 13th, Wichita, Ks WND-46 Deep

WATER WELL OWNER: City of Wichita
R.R., St. Address, Box #: 1900 E 9th
City, State, ZIP Code: Wichita Ks

Board of Agriculture, Division of Water Resources
Application Number:

LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N / NW / NE / W / E / SW / SE / S — X

4 DEPTH OF COMPLETED WELL: 41 ft. ELEVATION:
Depth(s) Groundwater Encountered 1. 13 ft. 2. ft. 3. ft.
WELL'S STATIC WATER LEVEL ft. below land surface measured on mo/day/yr
Pump test data: Well water was ft. after hours pumping gpm
Est. Yield gpm: Well water was ft. after hours pumping gpm
Bore Hole Diameter in. to ft., and in. to ft.
WELL WATER TO BE USED AS: 1 Domestic 2 Irrigation 3 Feedlot 4 Industrial 5 Public water supply 6 Oil field water supply 7 Lawn and garden only 8 Air conditioning 9 Dewatering 10 Monitoring well 11 Injection well 12 Other (Specify below)
Was a chemical/bacteriological sample submitted to Department? Yes No X; If yes, mo/day/yr sample was submitted
Water Well Disinfected? Yes No X

TYPE OF BLANK CASING USED: 1 Steel 2 PVC 3 RMP (SR) 4 ABS 5 Wrought iron 6 Asbestos-Cement 7 Fiberglass 8 Concrete tile 9 Other (specify below)
CASING JOINTS: Glued Clamped Welded Threaded X
Blank casing diameter 2 in. to 26 ft., Dia in. to ft., Dia in. to ft.
Casing height above land surface in., weight lbs./ft. Wall thickness or gauge No. Sch. 40

TYPE OF SCREEN OR PERFORATION MATERIAL: 1 Steel 2 Brass 3 Stainless steel 4 Galvanized steel 5 Fiberglass 6 Concrete tile 7 PVC 8 RMP (SR) 9 ABS 10 Asbestos-cement 11 Other (specify) 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE: 1 Continuous slot 2 Louvered shutter 3 Mill slot 4 Key punched 5 Gauzed wrapped 6 Wire wrapped 7 Torch cut 8 Saw cut 9 Drilled holes 10 Other (specify) 11 None (open hole)
SCREEN-PERFORATED INTERVALS: From 41 ft. to 26 ft., From ft. to ft.; From ft. to ft., From ft. to ft.
GRAVEL PACK INTERVALS: From 41 ft. to 23 ft., From ft. to ft.; From ft. to ft., From ft. to ft.

GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite 4 Other
Intervals: 3 From 23 ft. to 22 ft., 2 From 22 ft. to 0 ft., From ft. to ft.
What is the nearest source of possible contamination: 1 Septic tank 2 Sewer lines 3 Watertight sewer lines 4 Lateral lines 5 Cess pool 6 Seepage pit 7 Pit privy 8 Sewage lagoon 9 Feedyard 10 Livestock pens 11 Fuel storage 12 Fertilizer storage 13 Insecticide storage 14 Abandoned water well 15 Oil well/Gas well 16 Other (specify below) Groundwater
How many feet? 0
Direction from well?

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
	1	Asphalt			
1	2.5	Clay, Dark Brown			
2.5	4	Silty Clay Sandy			
4	7	Silty Sand			
7	8.25	Clay with trace Sand			
8.25	10.75	Sand, Silty			
10.75	41	Sand, medium/coarse			
41	42	Weathered Shale			

CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 3/31/93 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 517 This Water Well Record was completed on (mo/day/yr) 4/4/93
under the business name of Groundwater Technology by (signature) Dennis White

INSTRUCTIONS: Use typewriter or ball point pen. PLEASE PRESS FIRMLY and PRINT clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Topeka, Kansas 66620-0001. Telephone: 913-296-5545. Send one to WATER WELL OWNER and retain one for your records.

WATER WELL RECORD Form WWC-5 KSA 82a-1212

LOCATION OF WATER WELL:	Fraction	Section Number	Township Number	Range Number
County: Sedgwick	NW ¼ NW ¼ NE ¼	16	T 27 S	R 1 E/W

Distance and direction from nearest town or city street address of well if located within city?
1001 E. 13th, Wichita Ks

WND-47 shallow

WATER WELL OWNER: City of Wichita
RR#, St. Address, Box #:
City, State, ZIP Code:

Board of Agriculture, Division of Water Resources
Application Number:

LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX: N, NW, NE, SW, SE, E, S — X

DEPTH OF COMPLETED WELL 19 ft. ELEVATION:
Depth(s) Groundwater Encountered 1. 13 ft. 2. ft. 3. ft.
WELL'S STATIC WATER LEVEL ft. below land surface measured on mo/day/yr
Pump test data: Well water was ft. after hours pumping gpm
Est. Yield gpm: Well water was ft. after hours pumping gpm
Bore Hole Diameter in. to ft., and in. to
WELL WATER TO BE USED AS: 1 Domestic 2 Irrigation 3 Feedlot 4 Industrial 5 Public water supply 6 Oil field water supply 7 Lawn and garden only 8 Air conditioning 9 Dewatering 10 Monitoring well 11 Injection well 12 Other (Specify below)
Was a chemical/bacteriological sample submitted to Department? Yes No X; If yes, mo/day/yr sample was submitted
Water Well Disinfected? Yes No X

TYPE OF BLANK CASING USED: 1 Steel 2 PVC 3 RMP (SR) 4 ABS 5 Wrought iron 6 Asbestos-Cement 7 Fiberglass 8 Concrete tile 9 Other (specify below)
CASING JOINTS: Glued Clamped Welded Threaded X
Blank casing diameter 2 in. to 9 ft., Dia in. to ft., Dia in. to
Casing height above land surface in., weight lbs./ft. Wall thickness or gauge No. Sch. 40

TYPE OF SCREEN OR PERFORATION MATERIAL: 1 Steel 2 Brass 3 Stainless steel 4 Galvanized steel 5 Fiberglass 6 Concrete tile 7 PVC 8 RMP (SR) 9 ABS 10 Asbestos-cement 11 Other (specify) 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE: 1 Continuous slot 2 Louvered shutter 3 Mill slot 4 Key punched 5 Gauzed wrapped 6 Wire wrapped 7 Torch cut 8 Saw cut 9 Drilled holes 10 Other (specify) 11 None (open hole)
SCREEN-PERFORATED INTERVALS: From 19 ft. to 9 ft., From ft. to
From ft. to ft., From ft. to
GRAVEL PACK INTERVALS: From 19 ft. to 7 ft., From ft. to
From ft. to ft., From ft. to

GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite 4 Other
Grout Intervals: From 7 ft. to 6 ft., From 6 ft. to 0 ft., From ft. to
What is the nearest source of possible contamination: 1 Septic tank 2 Sewer lines 3 Watertight sewer lines 4 Lateral lines 5 Cess pool 6 Seepage pit 7 Pit privy 8 Sewage lagoon 9 Feedyard 10 Livestock pens 11 Fuel storage 12 Fertilizer storage 13 Insecticide storage 14 Abandoned water well 15 Oil well/Gas well 16 Other (specify below) Groundwater
How many feet? 0

FORM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
	0.5	Asphalt			
	3	Clay, Dark Brown			
	5.25	Silty Clay Trace Sand			
	9.5	Silty Sand			
	20	Sand - med to Coarse with Gravel			

CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 3/31/93 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 517 This Water Well Record was completed on (mo/day/yr) 4/9/93
under the business name of Groundwater Technology by (signature) Dennis White

INSTRUCTIONS: Use typewriter or ball point pen. PLEASE PRESS FIRMLY and PRINT clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Topeka, Kansas 66620-0001. Telephone: 913-296-5545. Send one to WATER WELL OWNER and retain one for your records.

WATER WELL RECORD Form WWC-5 KSA 82a-1212

LOCATION OF WATER WELL:	Fraction	Section Number	Township Number	Range Number
County: Sedgwick	NW ¼ NW ¼ NE ¼	16	T 27 S	R 1 E/W

Distance and direction from nearest town or city street address of well if located within city?
001 E. 13th, Wichita, Kansas

WND-47 deep

WATER WELL OWNER: City of Wichita
RR#, St. Address, Box #:
City, State, ZIP Code:

Board of Agriculture, Division of Water Resources
Application Number:

LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX: N, NW, NE, SW, SE, E, S — X

DEPTH OF COMPLETED WELL 33 ft. ELEVATION:
Depth(s) Groundwater Encountered 1. 13 ft. 2. ft. 3. ft.
WELL'S STATIC WATER LEVEL ft. below land surface measured on mo/day/yr
Pump test data: Well water was ft. after hours pumping gpm
Est. Yield gpm: Well water was ft. after hours pumping gpm
Bore Hole Diameter in. to ft., and in. to
WELL WATER TO BE USED AS: 1 Domestic 2 Irrigation 3 Feedlot 4 Industrial 5 Public water supply 6 Oil field water supply 7 Lawn and garden only 8 Air conditioning 9 Dewatering 10 Monitoring well 11 Injection well 12 Other (Specify below)
Was a chemical/bacteriological sample submitted to Department? Yes No X; If yes, mo/day/yr sample was submitted
Water Well Disinfected? Yes No X

TYPE OF BLANK CASING USED: 1 Steel 2 PVC 3 RMP (SR) 4 ABS 5 Wrought iron 6 Asbestos-Cement 7 Fiberglass 8 Concrete tile 9 Other (specify below)
CASING JOINTS: Glued Clamped Welded Threaded X
Blank casing diameter 2 in. to 18 ft., Dia in. to ft., Dia in. to
Casing height above land surface 0 in., weight lbs./ft. Wall thickness or gauge No. Sch. 40

TYPE OF SCREEN OR PERFORATION MATERIAL: 1 Steel 2 Brass 3 Stainless steel 4 Galvanized steel 5 Fiberglass 6 Concrete tile 7 PVC 8 RMP (SR) 9 ABS 10 Asbestos-cement 11 Other (specify) 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE: 1 Continuous slot 2 Louvered shutter 3 Mill slot 4 Key punched 5 Gauzed wrapped 6 Wire wrapped 7 Torch cut 8 Saw cut 9 Drilled holes 10 Other (specify) 11 None (open hole)
SCREEN-PERFORATED INTERVALS: From 33 ft. to 18 ft., From ft. to
From ft. to ft., From ft. to
GRAVEL PACK INTERVALS: From 33 ft. to 17 ft., From ft. to
From ft. to ft., From ft. to

GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite 4 Other
Grout Intervals: From 17 ft. to 16 ft., From 16 ft. to 0 ft., From ft. to
What is the nearest source of possible contamination: 1 Septic tank 2 Sewer lines 3 Watertight sewer lines 4 Lateral lines 5 Cess pool 6 Seepage pit 7 Pit privy 8 Sewage lagoon 9 Feedyard 10 Livestock pens 11 Fuel storage 12 Fertilizer storage 13 Insecticide storage 14 Abandoned water well 15 Oil well/Gas well 16 Other (specify below) Groundwater
How many feet? 0

FORM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
	0.5	Asphalt			
	3	Clay Dark Brown			
	5.25	Silty Clay, trace Sand			
	9.5	Silty Sand			
	32.5	Sand med to Coarse with Gravel			
	35	Weathered Shale			

CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 3/31/93 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 517 This Water Well Record was completed on (mo/day/yr) 4/9/93
under the business name of Groundwater Technology by (signature) Dennis White

INSTRUCTIONS: Use typewriter or ball point pen. PLEASE PRESS FIRMLY and PRINT clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Topeka, Kansas 66620-0001. Telephone: 913-296-5545. Send one to WATER WELL OWNER and retain one for your records.

WATER WELL RECORD Form WWC-5 KSA 82a-1212

LOCATION OF WATER WELL:	Fraction	Section Number	Township Number	Range Number
Sedgwick	SE ¼ NE ¼ SW ¼	16	T 27 S	R 1 E/W

City and direction from nearest town or city street address of well if located within city?
SW Corner Mosley & Murdock Wichita Ks WND-48shallow

WATER WELL OWNER: City of Wichita
RR#, St. Address, Box # :
City, State, ZIP Code :

Board of Agriculture, Division of Water Resources
Application Number:

LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX: N / NW / NE / W / E / SW X / SE / S

DEPTH OF COMPLETED WELL 20 ft. ELEVATION:
Depth(s) Groundwater Encountered 1 13 ft. 2 ft. 3 ft.
WELL'S STATIC WATER LEVEL ft. below land surface measured on mo/day/yr
Pump test data: Well water was ft. after hours pumping gpm
Est. Yield gpm: Well water was ft. after hours pumping gpm
Bore Hole Diameter in. to ft., and in. to
WELL WATER TO BE USED AS: 1 Domestic 2 Irrigation 3 Feedlot 4 Industrial 5 Public water supply 6 Oil field water supply 7 Lawn and garden only 8 Air conditioning 9 Dewatering 10 Monitoring well 11 Injection well 12 Other (Specify below)
Was a chemical/bacteriological sample submitted to Department? Yes No X; If yes, mo/day/yr sample was submitted
Water Well Disinfected? Yes No X

TYPE OF BLANK CASING USED: 1 Steel 2 PVC 3 RMP (SR) 4 ABS 5 Wrought iron 6 Asbestos-Cement 7 Fiberglass 8 Concrete tile 9 Other (specify below)
CASING JOINTS: Glued Clamped Welded Threaded X
Blank casing diameter 2 in. to 10 ft., Dia in. to ft., Dia in. to
Casing height above land surface 0 in., weight lbs./ft. Wall thickness or gauge No. Sch. 40

TYPE OF SCREEN OR PERFORATION MATERIAL: 1 Steel 2 Brass 3 Stainless steel 4 Galvanized steel 5 Fiberglass 6 Concrete tile 7 PVC 8 RMP (SR) 9 ABS 10 Asbestos-cement 11 Other (specify) 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE: 1 Continuous slot 2 Louvered shutter 3 Mill slot 4 Key punched 5 Gauzed wrapped 6 Wire wrapped 7 Torch cut 8 Saw cut 9 Drilled holes 10 Other (specify) 11 None (open hole)
SCREEN-PERFORATED INTERVALS: From 20 ft. to 10 ft., From ft. to
From ft. to ft., From ft. to
GRAVEL PACK INTERVALS: From 20 ft. to 9 ft., From ft. to
From ft. to ft., From ft. to

GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite 4 Other
Grout Intervals: 1 From 9 ft. to 8 ft. 2 From 8 ft. to 0 ft., From ft. to

What is the nearest source of possible contamination: 1 Septic tank 2 Sewer lines 3 Watertight sewer lines 4 Lateral lines 5 Cess pool 6 Seepage pit 7 Pit privy 8 Sewage lagoon 9 Feedyard 10 Livestock pens 11 Fuel storage 12 Fertilizer storage 13 Insecticide storage 14 Abandoned water well 15 Oil well/Gas well 16 Other (specify below) Groundwater
How many feet? 0
Direction from well?

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	3	Clay, Dark Brown			
3	5.5	Clay trace Sand			
5.5	7.75	Silty Sand - trace Gravel			
7.75	12	Sandy Silt			
12	20	Sand med-Coarse with Gravel			

CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 4/2/93 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 517 This Water Well Record was completed on (mo/day/yr) 4/4/93 under the business name of Groundwater Technology by (signature) Dennis White

INSTRUCTIONS: Use typewriter or ball point pen. PLEASE PRESS FIRMLY and PRINT clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Topeka, Kansas 66620-0001. Telephone: 913-296-5545. Send one to WATER WELL OWNER and retain one for your records.

WATER WELL RECORD Form WWC-5 KSA 82a-1212

LOCATION OF WATER WELL:	Fraction	Section Number	Township Number	Range Number
Sedgwick	SE ¼ NE ¼ SW ¼	16	T 27 S	R 1 E/W

City and direction from nearest town or city street address of well if located within city?
SW Corner Mosley & Murdock Wichita Ks WND-48deep

WATER WELL OWNER: City of Wichita
RR#, St. Address, Box # :
City, State, ZIP Code :

Board of Agriculture, Division of Water Resources
Application Number:

LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX: N / NW / NE / W / E / SW X / SE / S

DEPTH OF COMPLETED WELL 40 ft. ELEVATION:
Depth(s) Groundwater Encountered 1 13 ft. 2 ft. 3 ft.
WELL'S STATIC WATER LEVEL ft. below land surface measured on mo/day/yr
Pump test data: Well water was ft. after hours pumping gpm
Est. Yield gpm: Well water was ft. after hours pumping gpm
Bore Hole Diameter in. to ft., and in. to
WELL WATER TO BE USED AS: 1 Domestic 2 Irrigation 3 Feedlot 4 Industrial 5 Public water supply 6 Oil field water supply 7 Lawn and garden only 8 Air conditioning 9 Dewatering 10 Monitoring well 11 Injection well 12 Other (Specify below)
Was a chemical/bacteriological sample submitted to Department? Yes No X; If yes, mo/day/yr sample was submitted
Water Well Disinfected? Yes No X

TYPE OF BLANK CASING USED: 1 Steel 2 PVC 3 RMP (SR) 4 ABS 5 Wrought iron 6 Asbestos-Cement 7 Fiberglass 8 Concrete tile 9 Other (specify below)
CASING JOINTS: Glued Clamped Welded Threaded X
Blank casing diameter 2 in. to 25 ft., Dia in. to ft., Dia in. to
Casing height above land surface 0 in., weight lbs./ft. Wall thickness or gauge No. Sch. 40

TYPE OF SCREEN OR PERFORATION MATERIAL: 1 Steel 2 Brass 3 Stainless steel 4 Galvanized steel 5 Fiberglass 6 Concrete tile 7 PVC 8 RMP (SR) 9 ABS 10 Asbestos-cement 11 Other (specify) 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE: 1 Continuous slot 2 Louvered shutter 3 Mill slot 4 Key punched 5 Gauzed wrapped 6 Wire wrapped 7 Torch cut 8 Saw cut 9 Drilled holes 10 Other (specify) 11 None (open hole)
SCREEN-PERFORATED INTERVALS: From 40 ft. to 25 ft., From ft. to
From ft. to ft., From ft. to
GRAVEL PACK INTERVALS: From 40 ft. to 22 ft., From ft. to
From ft. to ft., From ft. to

GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite 4 Other
Grout Intervals: 1 From 22 ft. to 21 ft. 3 From 21 ft. to 0 ft., From ft. to

What is the nearest source of possible contamination: 1 Septic tank 2 Sewer lines 3 Watertight sewer lines 4 Lateral lines 5 Cess pool 6 Seepage pit 7 Pit privy 8 Sewage lagoon 9 Feedyard 10 Livestock pens 11 Fuel storage 12 Fertilizer storage 13 Insecticide storage 14 Abandoned water well 15 Oil well/Gas well 16 Other (specify below) Groundwater
How many feet? 0
Direction from well?

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	3	Clay, Dark Brown			
3	5.5	Clay, trace Sand			
5.5	7.75	Silty Sand - trace gravel			
7.75	12	Sandy Silt			
12	39.5	Sand - med Coarse - with Gravel			
39.5	40	Weathered Shale			

CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 4/2/93 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 517 This Water Well Record was completed on (mo/day/yr) 4/4/93 under the business name of Groundwater Technology by (signature) Dennis White

INSTRUCTIONS: Use typewriter or ball point pen. PLEASE PRESS FIRMLY and PRINT clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Topeka, Kansas 66620-0001. Telephone: 913-296-5545. Send one to WATER WELL OWNER and retain one for your records.

WATER WELL RECORD Form WWC-5 KSA 82a-1212

LOCATION OF WATER WELL:	Fraction	Section Number	Township Number	Range Number
SEDGWICK	SW ¼ NE ¼ SW ¼	9	T 27 S	R 1 E/W

Distance and direction from nearest town or city street address of well if located within city?
0' NE Corner 15th & Santa Fe Wichita Ks WWD-49 Deep

WATER WELL OWNER: City of Wichita

RR#, St. Address, Box # :

City, State, ZIP Code :

Board of Agriculture, Division of Water Resources Application Number:

LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX: N / NW / NE / SW X / SE / W / E / S

DEPTH OF COMPLETED WELL 38 ft. ELEVATION:

Depth(s) Groundwater Encountered 1. 13 ft. 2. ft. 3. ft.

WELL'S STATIC WATER LEVEL ft. below land surface measured on mo/day/yr

Pump test data: Well water was ft. after hours pumping gpm

Est. Yield gpm: Well water was ft. after hours pumping gpm

Bore Hole Diameter in. to ft., and in. to

WELL WATER TO BE USED AS: 1 Domestic 2 Irrigation 3 Feedlot 4 Industrial 5 Public water supply 6 Oil field water supply 7 Lawn and garden only 8 Air conditioning 9 Dewatering 10 Monitoring well 11 Injection well 12 Other (Specify below)

Was a chemical/bacteriological sample submitted to Department? Yes No Y; If yes, mo/day/yr sample was submitted

Water Well Disinfected? Yes No X

TYPE OF BLANK CASING USED: 1 Steel 2 PVC 3 RMP (SR) 4 ABS 5 Wrought iron 6 Asbestos-Cement 7 Fiberglass 8 Concrete tile 9 Other (specify below)

CASING JOINTS: Glued Clamped Welded Threaded X

Blank casing diameter 2 in. to 23 ft., Dia in. to ft., Dia in. to

Casing height above land surface 0 in., weight lbs./ft. Wall thickness or gauge No. Sch 40

TYPE OF SCREEN OR PERFORATION MATERIAL: 1 Steel 2 Brass 3 Stainless steel 4 Galvanized steel 5 Fiberglass 6 Concrete tile 7 PVC 8 RMP (SR) 9 ABS 10 Asbestos-cement 11 Other (specify) 12 None used (open hole)

SCREEN OR PERFORATION OPENINGS ARE: 1 Continuous slot 2 Louvered shutter 3 Mill slot 4 Key punched 5 Gauzed wrapped 6 Wire wrapped 7 Torch cut 8 Saw cut 9 Drilled holes 10 Other (specify) 11 None (open hole)

SCREEN-PERFORATED INTERVALS: From 38 ft. to 23 ft., From ft. to
From ft. to ft., From ft. to

GRAVEL PACK INTERVALS: From 38 ft. to 22 ft., From ft. to
From ft. to ft., From ft. to

GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite 4 Other

Grout Intervals: From 22 ft. to 21 ft. From 21 ft. to 0 ft., From ft. to

What is the nearest source of possible contamination: 1 Septic tank 2 Sewer lines 3 Watertight sewer lines 4 Lateral lines 5 Cess pool 6 Seepage pit 7 Pit privy 8 Sewage lagoon 9 Feedyard 10 Livestock pens 11 Fuel storage 12 Fertilizer storage 13 Insecticide storage 14 Abandoned water well 15 Oil well/Gas well 16 Other (specify below) Groundwater

How many feet? 0

Direction from well?

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	3	Clay, Dark Brown			
3	7.5	Clay, Brown			
7.5	38.25	Sand - Med - Coarse with Gravel			
38.25	40.5	Weathered Shale			

CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 4/2/93 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 5171 This Water Well Record was completed on (mo/day/yr) 4/4/93 under the business name of Groundwater Technology by (signature) Donna White

INSTRUCTIONS: Use typewriter or ball point pen. PLEASE PRESS FIRMLY and PRINT clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Topeka, Kansas 66620-0001, Telephone: 913-296-5545. Send one to WATER WELL OWNER and retain one for your records.

BORING LOG

Project: Site Characterization
1707 North Masley
Wichita, KS

No. MW-2D

Client: Western Uniform & Towel Service, Inc.
Wichita, KS

File No.: 58-4129
Date: 09/13/97
Drilling Co.: Davis Env. Drilling
Supervisor: Jody Jarman
Type Rig: CME-75
Surface Elevation: 1,306.36
Logged by: RSB

LABORATORY TEST DATA: Moisture Content (%)	Atterberg Test: Liquid Limit (%)	Atterberg Test: Plastic Index (%)	% Finer Than #200 Sieve	Other	FIELD DATA: Organic Vapor Meter (1) (ppm)	Penetrometer (Tons/sq.ft) or Std Pen. Test (blows/foot)	Sampling	Depth (feet)	Water Level	Screen Interval	BORING DATA
											Concrete bit: 0" to 6" Post-hole digger: 6" to 4' Hollow-Stem Augers (6.25"ID, 10.25"OD): 4' to 34' Start Time: 0730 Finish Time: 0910
											4" Concrete
											Boring not logged due to close proximity to MW-2S
								5			
								10			
								15			NOTE: Drilling conditions changed at 22'. Upon removal of the lead auger, a weathered shale was found.
								20			Wooden plugs in auger
								25			
								30			
											SHALE
								35			Boring terminated at 34' and completed as monitor well MW-2D
								40			

■ Continuous Sampler
⊠ Split-Spoon Sampler
▥ Auger Cuttings
⊘ No Recovery

Stratification is Inferred And May Not Be Exact.
Soil Classification Based on Visual-Manual Procedure.

NP Non Plastic
• No Penetrometer or SPT Value

G&E ENGINEERING
ENVIRONMENTAL CONSULTANTS

BORING LOG

Project: Site Characterization
1707 North Mosley
Wichita, KS

No. MW-3D

Client: Western Uniform & Towel Service, Inc.
Wichita, KS

File No.: 58-4129
Date: 09/13/97
Drilling Co.: Davis Env. Drilling
Supervisor: Jody Jarman
Type Rig: CME-75
Surface Elevation: 1,306.72
Logged by: RSB

LABORATORY TEST DATA					FIELD DATA						BORING DATA
Moisture Content (%)	Atterberg Test: Liquid Limit (%)	Atterberg Test: Plastic Index (%)	% Finer than #200 Sieve	Other	Organic Vapor Meter (1) (ppm)	Penetrometer (Tons/sq.ft) or Std Pen. Test (blows/foot)	Sampling	Depth (feet)	Water Level	Screen Interval	Post-hole digger: 0' to 4' Hollow-Stem Augers (8.25"ID, 10.25"OD): 4' to 35' Start Time: 1145 Finish Time: 1415
											Boring not logged due to close proximity to MW-3S
								5			
								10			Hydrocarbon odor noted while drilling. Wooden plug in augers.
								15			
								20			NOTE: Drilling conditions changed at 24'. Upon retrieval of the lead auger, a weathered shale was found.
								25			
								30			
								35			SHALE Boring terminated at 35' and completed as monitor well MW-3D
								40			

- Continous Sampler
- Split-Spoon Sampler
- Auger Cuttings
- No Recovery

Stratification is Inferred And May Not Be Exact.
Soil Classification Based on Visual-Manual Procedure.

NP Non Plastic
* No Penetrometer or SPT Value

G&E ENGINEERING
ENVIRONMENTAL CONSULTANTS

BORING LOG

Project: Site Characterization
1707 North Mosley
Wichita, KS

No. MW-4D

Client: Western Uniform & Towel Service, Inc.
Wichita, KS

File No.: 58-4129
Date: 09/13/97
Drilling Co.: Davis Env. Drilling
Supervisor: Jody Jarman
Type Rig: CME-75
Surface Elevation: 1,306.94
Logged by: RSB

LABORATORY TEST DATA					FIELD DATA						BORING DATA
Moisture Content (%)	Atterberg Test: Liquid Limit (%)	Atterberg Test: Plastic Index (%)	% Finer than #200 Sieve	Other	Organic Vapor Meter (1) (ppm)	Penetrometer (Tons/sq.ft) or Std Pen. Test (blows/foot)	Sampling	Depth (feet)	Water Level	Screen Interval	Concrete bit: 0' to 6" Post-hole digger: 6" to 4' Hollow-Stem Augers (8.25"ID, 10.25"OD): 4' to 33' Start Time: 0930 Finish Time: 1210
											Boring not logged due to close proximity to MW-4S
								5			
								10			Wooden plug in augers.
								15			
								20			
								25			NOTE: Drilling conditions changed at 22'. Upon retrieval of the lead auger, a weathered shale was found.
								30			SHALE
								35			Boring terminated at 33' and completed as monitor well MW-4D
								40			

- Continous Sampler
- Split-Spoon Sampler
- Auger Cuttings
- No Recovery

Stratification is Inferred And May Not Be Exact.
Soil Classification Based on Visual-Manual Procedure.

NP Non Plastic
* No Penetrometer or SPT Value

G&E ENGINEERING
ENVIRONMENTAL CONSULTANTS

BORING LOG

Project: Site Characterization
1707 North Mosley
Wichita, KS

No. MW-5D

Client: Western Uniform & Towel Service, Inc.
Wichita, KS

File No.: SB-4129
Date: 09/12/97
Drilling Co.: Davis Env. Drilling
Supervisor: Jody Jarman
Type Rig: CME-75
Surface Elevation: 1,307.23
Logged by: RSB

LABORATORY TEST DATA					FIELD DATA						BORING DATA
Moisture Content (%)	Atterberg Test: Liquid Limit (%)	Atterberg Test: Plastic Index (%)	% Finer than #200 Sieve	Other	Organic Vapor Meter (1) (ppm)	Penetrometer (Tons/sq.ft) or Std Pen. Test (blows/foot)	Sampling	Depth (feet)	Water Level	Screen Interval	Concrete bit: 0' to 4' Post-hole digger: 4' to 4' Hollow-Stem Augers (8.25"ID, 10.25"OD): 4' to 38' Start Time: 1715 Finish Time: 2000
											Boring not logged due to close proximity to MW-5S
								5			
								10			
								15			
								20			Wooden plug in augers.
											NOTE: Drilling conditions changed at 37'. Upon retrieval of the lead auger, a weathered shale was found.
								25			
								30			
								35			
											SHALE Boring terminated at 38' and completed as monitor well MW-5D
								40			

■ Continous Sampler
⊠ Split-Spoon Sampler
▥ Auger Cuttings
⊘ No Recovery

Stratification is Inferred And May Not Be Exact.
Soil Classification Based on Visual-Manual Procedure.

NP Non Plastic
* No Penetrometer or SPT Value

G&E ENGINEERING
ENVIRONMENTAL CONSULTANTS

BORING LOG

Project: Site Characterization
1707 North Mosley
Wichita, KS

No. MW-6D

Client: Western Uniform & Towel Service, Inc.
Wichita, KS

File No.: SB-4129
Date: 09/14/97
Drilling Co.: Davis Env. Drilling
Supervisor: Jody Jarman
Type Rig: CME-75
Surface Elevation: 1,307.17
Logged by: RSB

LABORATORY TEST DATA					FIELD DATA						BORING DATA
Moisture Content (%)	Atterberg Test: Liquid Limit (%)	Atterberg Test: Plastic Index (%)	% Finer than #200 Sieve	Other	Organic Vapor Meter (1) (ppm)	Penetrometer (Tons/sq.ft) or Std Pen. Test (blows/foot)	Sampling	Depth (feet)	Water Level	Screen Interval	Concrete bit: 0' to 6" Post-hole digger: 6" to 4' Hollow-Stem Augers (8.25"ID, 10.25"OD): 4' to 37' Start Time: 0750 Finish Time: 0830
											Boring not logged due to close proximity to MW-6S
								5			
											Wooden plug in the augers.
								10			
								15			
								20			
											NOTE: Drilling conditions changed at 36'. Upon retrieval of the lead auger, a weathered shale was found.
								25			
								30			
								35			
											SHALE Boring terminated at 37' and completed as monitor well MW-6D
								40			

■ Continous Sampler
⊠ Split-Spoon Sampler
▥ Auger Cuttings
⊘ No Recovery

Stratification is Inferred And May Not Be Exact.
Soil Classification Based on Visual-Manual Procedure.

NP Non Plastic
* No Penetrometer or SPT Value

G&E ENGINEERING
ENVIRONMENTAL CONSULTANTS

BORING LOG

Project: Site Characterization
1707 North Mosley
Wichita, KS

No. MW-7D

Client: Western Uniform & Towel Service, Inc.
Wichita, KS

File No.: SB-4129
Date: 09/13/97
Drilling Co.: Davis Env. Drilling
Supervisor: Jody Jarman
Type Rig: CME-75
Surface Elevation: 1,307.39
Logged by: RSB

LABORATORY TEST DATA					FIELD DATA						BORING DATA
Moisture Content (%)	Atterberg Test: Liquid Limit (%)	Atterberg Test: Plastic Index (%)	% Finer than #200 Sieve	Other	Organic Vapor Meter (1) (ppm)	Penetrometer (Tons/sq.ft) or Std Pen. Test (blows/foot)	Sampling	Depth (feet)	Water Level	Screen Interval	Concrete bit: 0" to 6" Post-hole digger: 6" to 4' Hollow-Stem Augers (8.25"ID, 10.25"OD): 4' to 36' Start Time: 1545 Finish Time: 1730
											Boring not logged due to presence of overhead utility lines.
								5			
											Wooden plug in the augers.
								10			
								15			
								20			NOTE: Drilling conditions changed at 36'. Upon retrieval of the lead auger, a weathered shale was found.
								25			
								30			
								35			SHALE Boring terminated at 36' and completed as monitor well MW-7D.
								40			

- Continous Sampler
- Split-Spoon Sampler
- Auger Cuttings
- No Recovery

Stratification is Inferred And May Not Be Exact.
Soil Classification Based on Visual-Manual Procedure.

NP Non Plastic
* No Penetrometer or SPT Value

G&E ENGINEERING
ENVIRONMENTAL CONSULTANTS

BORING LOG

Project: Site Characterization
1707 North Mosley
Wichita, KS

No. MW-8D

Client: Western Uniform & Towel Service, Inc.
Wichita, KS

File No.: SB-4129
Date: 09/12/97
Drilling Co.: Davis Env. Drilling
Supervisor: Jody Jarman
Type Rig: CME-75
Surface Elevation: 1,307.68
Logged by: RSB

LABORATORY TEST DATA					FIELD DATA						BORING DATA
Moisture Content (%)	Atterberg Test: Liquid Limit (%)	Atterberg Test: Plastic Index (%)	% Finer than #200 Sieve	Other	Organic Vapor Meter (1) (ppm)	Penetrometer (Tons/sq.ft) or Std Pen. Test (blows/foot)	Sampling	Depth (feet)	Water Level	Screen Interval	Concrete bit: 0" to 4" Post-hole digger: 4" to 4' Hollow-Stem Augers (8.25"ID, 10.25"OD): 4' to 36' Start Time: 1500 Finish Time: 1700
											4" Gravel Boring not logged due to close proximity to MW-8S.
								5			
								10			
								15			
								20			Wooden plug in augers.
								25			NOTE: Drilling conditions changed at 36'. Upon retrieval of the lead auger, a weathered shale was found.
								30			
								35			SHALE Boring terminated at 36' and completed as monitor well MW-8D
								40			

- Continous Sampler
- Split-Spoon Sampler
- Auger Cuttings
- No Recovery

Stratification is Inferred And May Not Be Exact.
Soil Classification Based on Visual-Manual Procedure.

NP Non Plastic
* No Penetrometer or SPT Value

G&E ENGINEERING
ENVIRONMENTAL CONSULTANTS

BORING LOG

Project: Site Characterization
1707 North Mosley
Wichita, KS

No. MW-9D
Page 1 of 2

Client: Western Uniform & Towel Service, Inc.
Wichita, KS

File No.: SB-4129
Date: 09/11/97
Drilling Co.: Davis Env. Drilling
Supervisor: Jody Jarman
Type Rig: CME-75
Surface Elevation: 1,306.51
Logged by: RSB

LABORATORY TEST DATA					FIELD DATA						BORING DATA
Moisture Content (%)	Atterberg Test: Liquid Limit (%)	Atterberg Test: Plastic Index (%)	% Finer than #200 Sieve	Other	Organic Vapor Meter (1) (ppm)	Penetrometer (Tons/sq.ft) or Std Pen. Test (blows/foot)	Sampling	Depth (feet)	Water Level	Screen Interval	Concrete bit: 0' to 6" Post-hole digger: 6" to 4' Hollow-Stem Augers (8.25"ID, 10.25"OD): 4' to 45' Start Time: 0930 Finish Time: 1100
											Boring not logged due to close proximity to MW-9S.
								5			
								10			
								15			
								20			Wooden plug in augers.
								25			NOTE: Drilling conditions changed at 40'. Upon retrieval of the lead auger, a weathered shale was found.
								30			
								35			
								40			Log continued on next page.

■ Continuous Sampler
☒ Split-Spoon Sampler
▥ Auger Cuttings
▧ No Recovery

Stratification is Inferred And May Not Be Exact.
Soil Classification Based on Visual-Manual Procedure.

NP Non Plastic
* No Penetrometer or SPT Value

G&E ENGINEERING
ENVIRONMENTAL CONSULTANTS

BORING LOG

Project: Site Characterization
1707 North Mosley
Wichita, KS

No. MW-9D
Page 2 of 2

Client: Western Uniform & Towel Service, Inc.
Wichita, KS

File No.: SB-4129
Date: 09/11/97
Drilling Co.: Davis Env. Drilling
Supervisor: Jody Jarman
Type Rig: CME-75
Surface Elevation: 1,306.51
Logged by: RSB

LABORATORY TEST DATA					FIELD DATA						BORING DATA
Moisture Content (%)	Atterberg Test: Liquid Limit (%)	Atterberg Test: Plastic Index (%)	% Finer than #200 Sieve	Other	Organic Vapor Meter (1) (ppm)	Penetrometer (Tons/sq.ft) or Std Pen. Test (blows/foot)	Sampling	Depth (feet)	Water Level	Screen Interval	Concrete bit: 0' to 6" Post-hole digger: 6" to 4' Hollow-Stem Augers (8.25"ID, 10.25"OD): 4' to 45' Start Time: 0930 Finish Time: 1100
											SHALE
								45			Boring terminated at 45' and completed as monitor well MW-9D. NOTE: Well drilled on 09/11/97 and then re-drilled on 09/12/97 w/ 11.25"OD augers.
								50			
								55			
								60			
								65			
								70			
								75			
								80			

■ Continuous Sampler
☒ Split-Spoon Sampler
▥ Auger Cuttings
▧ No Recovery

Stratification is Inferred And May Not Be Exact.
Soil Classification Based on Visual-Manual Procedure.

NP Non Plastic
* No Penetrometer or SPT Value

G&E ENGINEERING
ENVIRONMENTAL CONSULTANTS

Appendix E-4
Cross Section Data Table

North Industrial Corridor (NIC) Site
Data Used in Cross Sections

	Well/Boring	Ground Surface Elevation (feet MSL)	BOS (bgs)	DTW (bgs)	SAND (Top)	CLAY2 (Top-Bottom)	CLAY3 (Top)	Bedrock (Top)	Boring TD	Shallow Well Screen	Deep Well Screen
A-A'											
N	CTC-2	1325.2	44	--	17	28-30	No	44	44	-	30-40
	CTC-4	1324.7	46	13.3	17	32-36	No	46	47	21.5-31.5	40.5-45.5
	CTC-5	1323.8	46	12.7	17	No	No	46	47	23.5-33.5	40.5-45.5
	CN-61,62	1319.8	43	11.4	10	No	No	43	44.5	14-24	29.5-44.5
	CN-67,68	1316.9	44	12.1	8	No	No	44	46.5	15-25	31.5-46.5
	CN-53,54	1315.8	42	11.7	12	No	No	42	43	15-25	28-43
	WNC-23/WND-23S	1315.1	45	12.2	17	No	44	45	45	11.5-21.5	28.4-38.1
	29M-SB14	1315.3	42	12.5	14	No	42	>43	43	-	30-40
	EXC-MW4	1318.0	48	15.6	12	No	No	48	49		
	EXC-MW6	1313.4	43.5	11.8	7	No	No	43.5	45.2		
	EXC-MW7	1314.1	42	13.2	12	No	42	42.5	43		
	WND-36	1312.2	43	12.0	7	No	No	43	43	15-25	33-43
	WND-34	1311.6	42	12.5	2	No	No	42	p	15-25	32-42
	WND-37	1311.7	39	13.1	7.5	No	No	39	40	15-25	30-40
	WND-21	1309.6	37	12.4	6.5	10-14	No	37	37	12-22	27-37
	29M-SB11	1309.0	37	13.2	9	19-21	37	>38	38	-	28-38
	NMW-40	1310.4	38.5	13.9	16	29.5-30.5	38.5	>38.5	38.5	9.9-19.7	27.2-37
	WND-39	1308.5	36	12.6	5.5	18-19	No	36	39	8.5-18.5	24-39
	WND-19	1307.2	34	12.1	8	No	34	>36	36	12-22	25-35
	WU-MW8	1308.2	38	--	8	ND	ND	38	39	?-18	29-38.5
	WND-41	1307.2	35	12.7	8	No	No	35	35	8-18	20-35
	WND-47	1304.9	32.5	12.4	5.25	No	No	32.5	35	9-19	18-33
	NMW-31	1303.8	29.5	12.7	6	19-20	29.5	36.5	36.5	8.8-18.7	22.1-29.4
	WND-40	1302.8	31.9	12.3	5.25	8.5-9	No	31.9	32	8-18	17-32
	WND-48	1301.4	39.5	12.9	5.5	No	No	39.5	40	10-20	25-40
S	NMW-28	1299.6	38.2	13.4	ND	No	38.2	42.5	42.5	12-21.8	28.6-38.4

North Industrial Corridor (NIC) Site
Data Used in Cross Sections

	Well/Boring	Ground Surface Elevation (feet MSL)	BOS (bgs)	DTW (bgs)	SAND (Top)	CLAY2 (Top-Bottom)	CLAY3 (Top)	Bedrock (Top)	Boring TD	Shallow Well Screen	Deep Well Screen
B-B'											
N	USD-7	1348.95	24	7.9	13	No	24	29.5	31	3-18	19-30
	UCL-14,16	1350.40	25	--	--	--	--	--	--		
	UCL-2	1349.08	22	5.9	18.5	No	22	27	35	18-22.63	
	UCL-R5	1339.21	22	--	--	--	--	--	--		
	UCL-10	1338.72	35	--	--	--	--	--	--		
	UCL-11	1327.58	10.7	5.8	--	--	--	--	--		
	CNE-6	1325.27	37.5	16.1	5	No	No	37.5	38.5	-	27.3-37.3
	CNE-8	1328.23	39	19.4	23	No	No	39	40	-	28.8-38.8
	CNE-16	1324.15	38.5	15.8	17	No	No	39	40		
	CNE-19	1324.57	35.5	16.7	19	No	No	35.5	39		
	CNE-NE6	1319.3	36	14.0	15	No	No	36	39		
	CNE-NE9	1317.94	41	13.4	19	26-27	No	41	42.5	17-27	30-40
	WND-14	1317.13	41	15.1	13	No	41	>49	49	12-22	36-46
	WNC-32/WND-32S	1318.50	40.5	17.6	16	18.5-19, 21-21.5	40.5	42	42	14-24	29.6-38.1
	NMW-42	1312.60	35	12.8	12.5	No	35	39	39	9.1-18.9	24.7-34.5
	DRB-MW330	1312.3	27	13.2	13.75	No	27	>32	32	-	12.5-27.5
S	DRB-MW340	1310.89	26	13.6	13.75	No	26	>27	27	-	14-24
C-C'											
W	WND-22	1321.46	42	13.4	8	16-17	42	>44	44	12-22	33-43
	CN-63,64	1319.93	48.5	12.1	10	No	No	48.5	48.5	14-24	32-48.5
	CTC-5	1323.8	46	12.7	17	No	No	46	47	23.5-33.5	40.5-45.5
	CTC-1	1324.08	41	13.9	17	28-32	No	41	42	-	30-48
	WNC-6/WND-6	1325.14	44.5	17.6	17.1	No	44.5	45	45	17-27	33.8-43.6
	CNE-14	1326.26	34	13.5	14	No	No	34	39		
	USD-4	1328.67	28	15.1	23	No	No	28	30.5		

North Industrial Corridor (NIC) Site
Data Used in Cross Sections

	Well/Boring	Ground Surface Elevation (feet MSL)	BOS (bgs)	DTW (bgs)	SAND (Top)	CLAY2 (Top-Bottom)	CLAY3 (Top)	Bedrock (Top)	Boring TD	Shallow Well Screen	Deep Well Screen
	UCL-4	1348.77	14	7.8	12	No	No	14	18.5	14.5-19.2	-
E	UCL-2	1349.08	22	5.9	18.5	No	22	27	35	18-22.63	-
D-D'											
W	29M-SB10	1313.8	41	13.4	13	No	41	>42	42	-	30-40
	WND-36	1312.2	43	12.0	7	No	No	43	43	15-25	33-43
	WND-26	1313.5	40	13.1	5	No	40	>42	42	12-22	30-40
	NMW-47	1310.8	38	10.7	10	No	38	45	45	10.2-20	28.3-38.1
	WND-30	1313.7	34	13.6	17	No	34	>37.5	37.5	-	27.5-37.5
	SK-MW-5	1314.0	35	14.3	12.5	23.2-26	35	36	37.5		
E	SK-MW-1	1315.9	38	16.4	18	27-29	No	38	39	12-27	33-38
E-E'											
W	NMW-7	1313.5	44.5	16.9	ND	28.5-30.2,33.5-35.3	44.5	45.5	45.5	13.1-22.9	37.4-44.7
	NWL-6	1311.5	45	15.1	7.5	No	45	46.5	46.5	10.7-20.5	-
	29M-SB4	1307.1	37	11.8	5	No	37	>39	39	6-16	-
	WND-39	1308.5	36	12.6	5.5	18-19	No	36	39	8.5-18.5	24-39
	29M-SB7	1307.4	38	--	4	No	38	>39	39	-	21-31
	NMW-8	1307.2	32.5	12.1	5.5	No	32.5	42.1	42.1	9.1-18.9	22.7-32.5
	NMW-9	1307.2	31.5	12.7	12	No	31.5	33.5	33.5	10.2-20	21.5-31.3
E	29M-SB5	1309.2	33	14.5	14	No	33	>34	34	-	24-34
F-F'											
W	NMW-21	1306.3	41.5	16.2	ND	19.2-21.2	41.5	43	43	12.8-22.6	31.5-41.3
	NMW-22	1304.4	40	14.6	ND	15.5-16,17-18, 21.5-22.5	40	41.5	41.5	13-22.8	30.1-39.9

North Industrial Corridor (NIC) Site
Data Used in Cross Sections

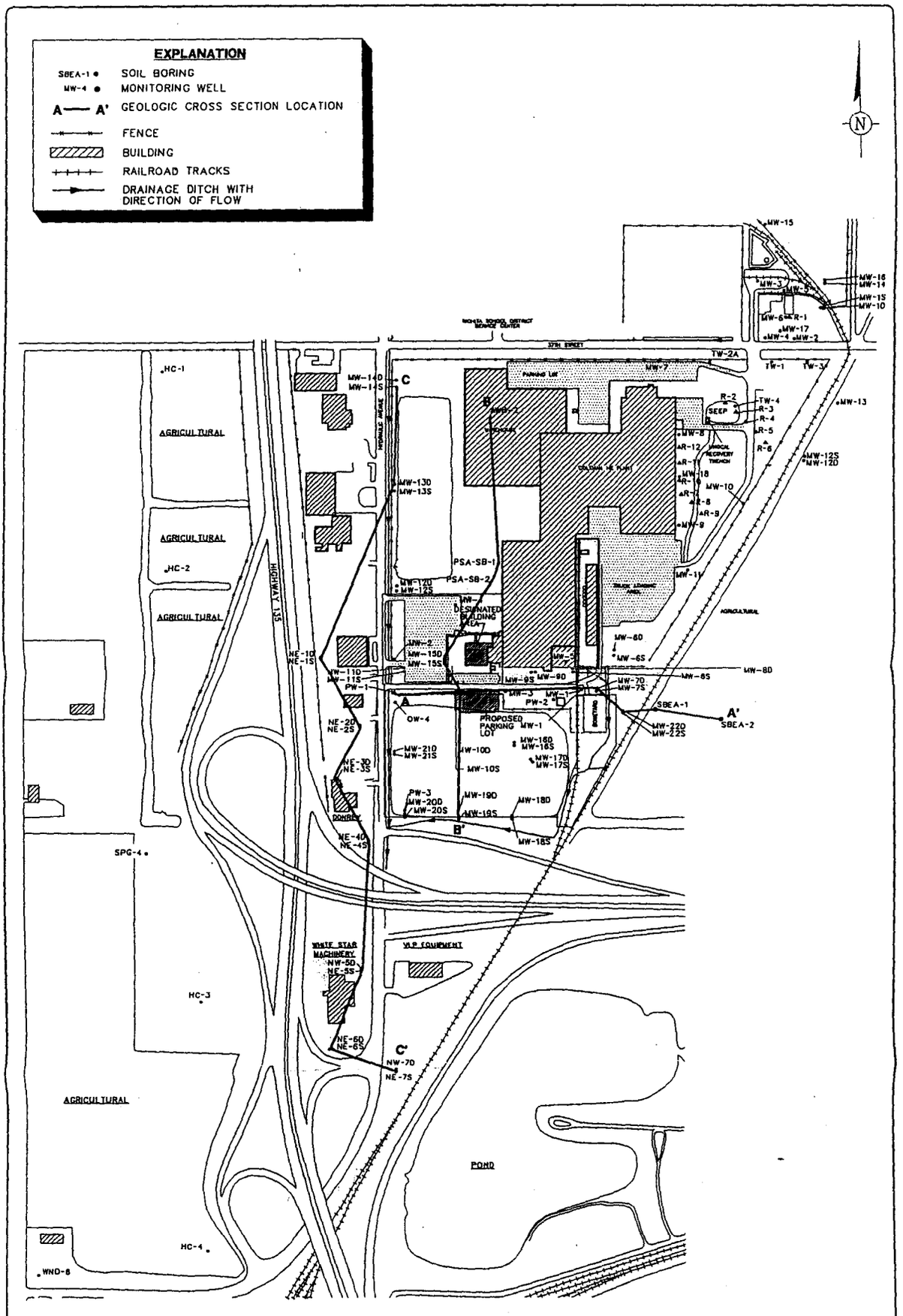
	Well/Boring	Ground Surface Elevation (feet MSL)	BOS (bgs)	DTW (bgs)	SAND (Top)	CLAY2 (Top-Bottom)	CLAY3 (Top)	Bedrock (Top)	Boring TD	Shallow Well Screen	Deep Well Screen
	NMW-24	1303.1	36.7	13.9	No	24.2-25.2	36.7	38	38	12.4-22.2	25.7-35.5
	WND-44	1303.3	35.5	13.6	8	No	No	35.5	36	12-22	21-36
	HOC-RW2	1302.3	38	--	12	No	38	>45	45	-	10-35
	WND-40	1302.8	31.9	12.3	5.25	8.5-9	No	31.9	32	8-18	17-32
	NMW-31	1303.8	29.5	12.7	6	19-20	29.5	36.5	36.5	8.8-18.7	22.1-29.4
	NMW-32	1304.0	29.5	14.0	5	No	29.5	37	37	9.9-19.7	21.8-29.1
	NMW-15	1303.4	28.5	14.3	10.7	11.5-14.2	28.5	31.5	31.5	10.1-19.9	20.7-28
E	NMW-16	1302.8	28.5	14.6	16.5	No	28.5	39.5	39.5	9.9-19.7	21.9-29.2

CLAY2 = Intermediate depth clays (within Sand Unit)
CLAY3 = Deep clays (on top of Bedrock)
TD = Total Depth

Appendix E-5
Cross Sections from Selected Facilities

North Industrial Corridor (NIC) Site
Appendix E-5, List of Facilities

Abbreviation	Facility
CNE	Coleman Northeast
GPC	Glacier Park Company
PPL	Phillips Pipe Line
UCL	Unocal Chemicals
UPRR	Union Pacific Rail Road
VWRS	Van Waters and Rogers (South)
29M	29th and Mead Site



GERAGHTY & MILLER, INC.
Environmental Services

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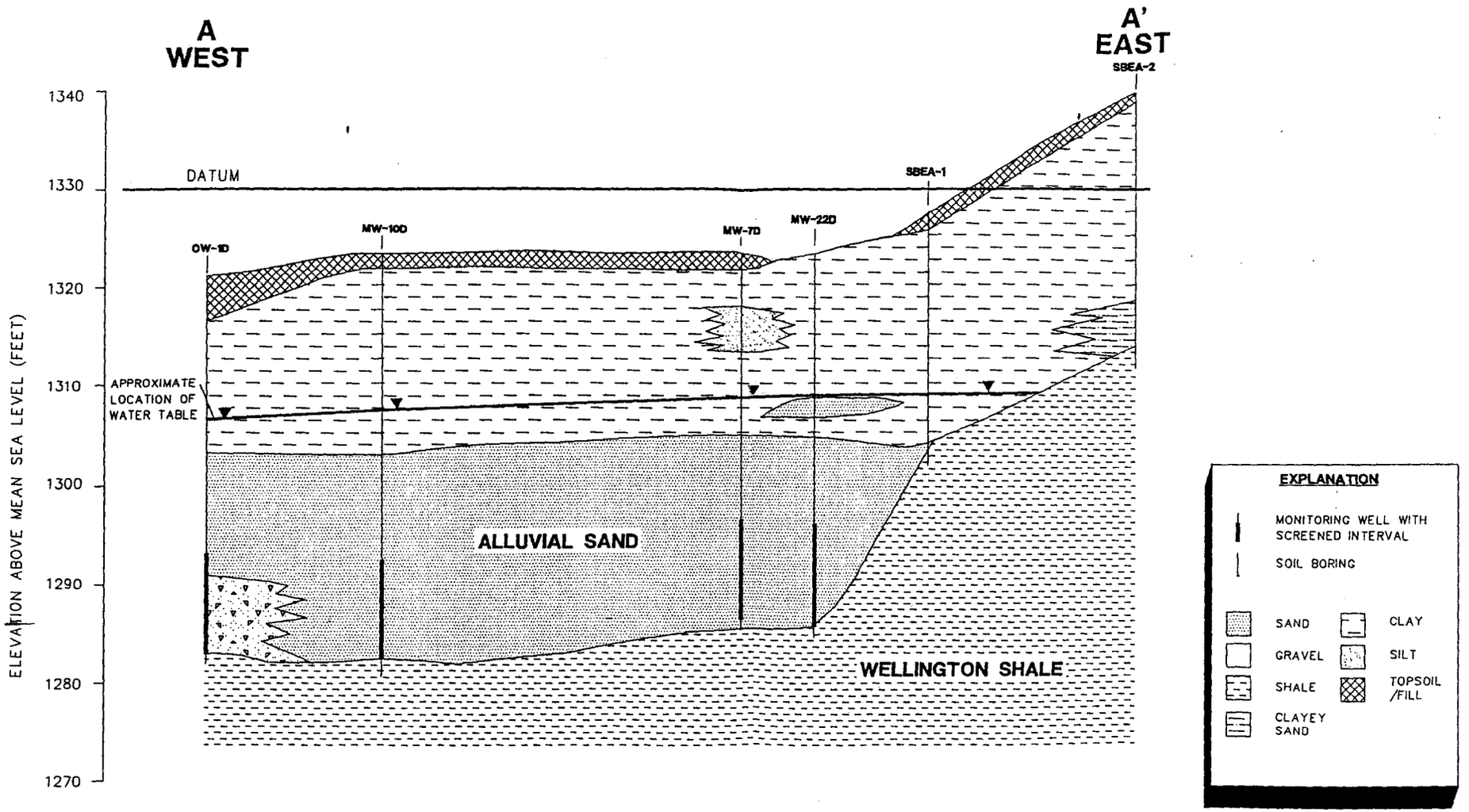
SCALE VERIFICATION

LOCATION OF HYDROGEOLOGIC CROSS-SECTIONS, A-A' THRU C-C'

Coleman — COLEMAN NORTHEAST PLANT, WICHITA, KANSAS

FIGURE 4-1

CNE



EXPLANATION

SCREENED INTERVAL

GERAGHTY & MILLER, INC.
Environmental Services
A Heidemij Company

0 200 FT.

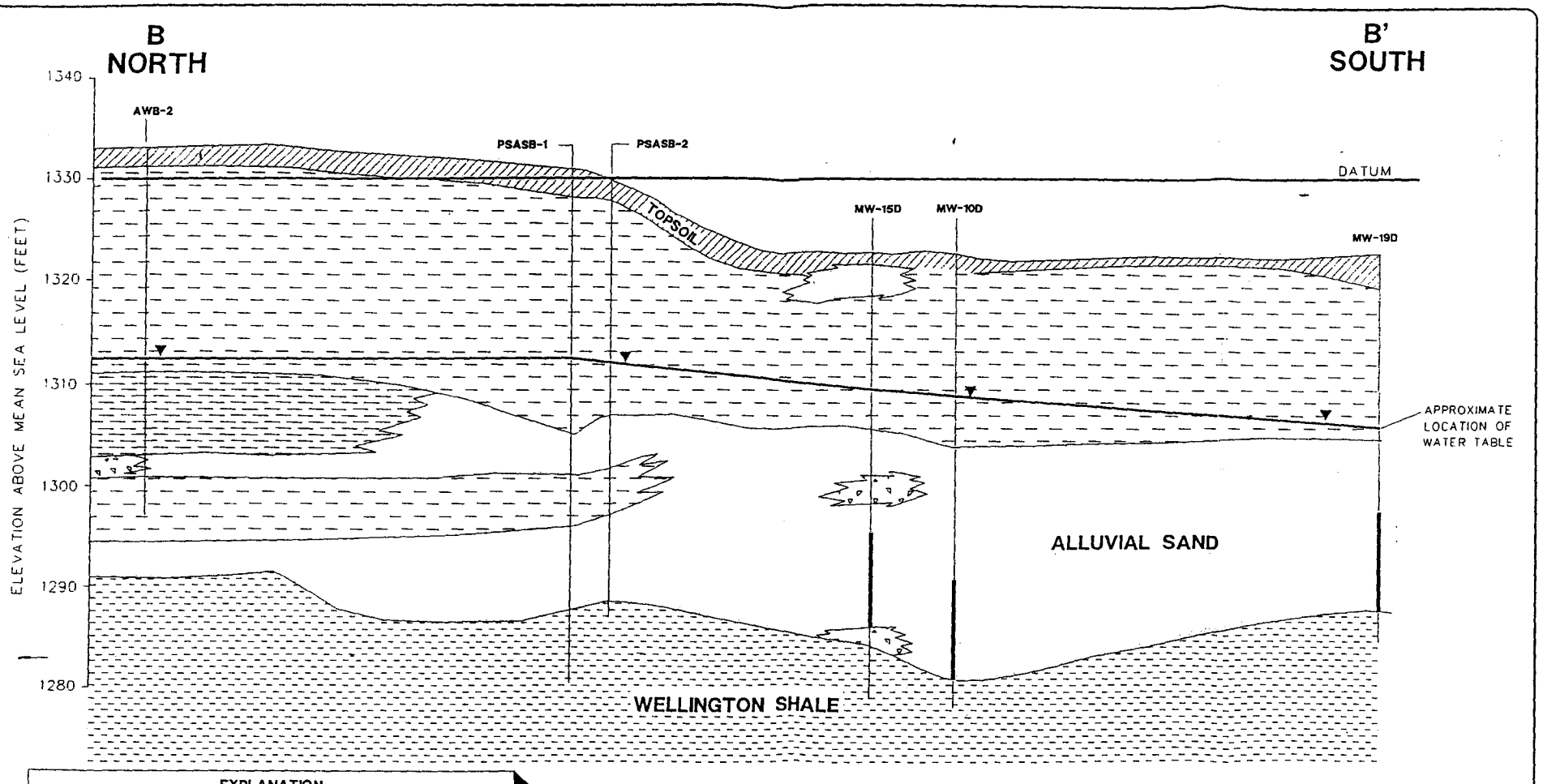
HYDROGEOLOGIC CROSS-SECTION A-A'

Coleman COLEMAN NORTHEAST PLANT WICHITA, KANSAS

CNE

FIGURE 4-2

DRAWN DATE: 1/95 | PROJECT NO.: CK0530.001 | FILE NO.: - | DRAWING: SECTIONE | CHECKED: DAVID MINELLY | APPROVED: JOHN SHONFELT | DRAFTER: JIM HAJ | JN



EXPLANATION

- MONITORING WELL WITH SCREENED INTERVAL
- SOIL BORING
- TOPSOIL/FILL
- CLAY
- CLAYEY SAND
- SILT
- SAND
- GRAVEL
- SHALE

GERAGHTY & MILLER, INC.
Environmental Services
A Heidemij Company

0 200 FT.

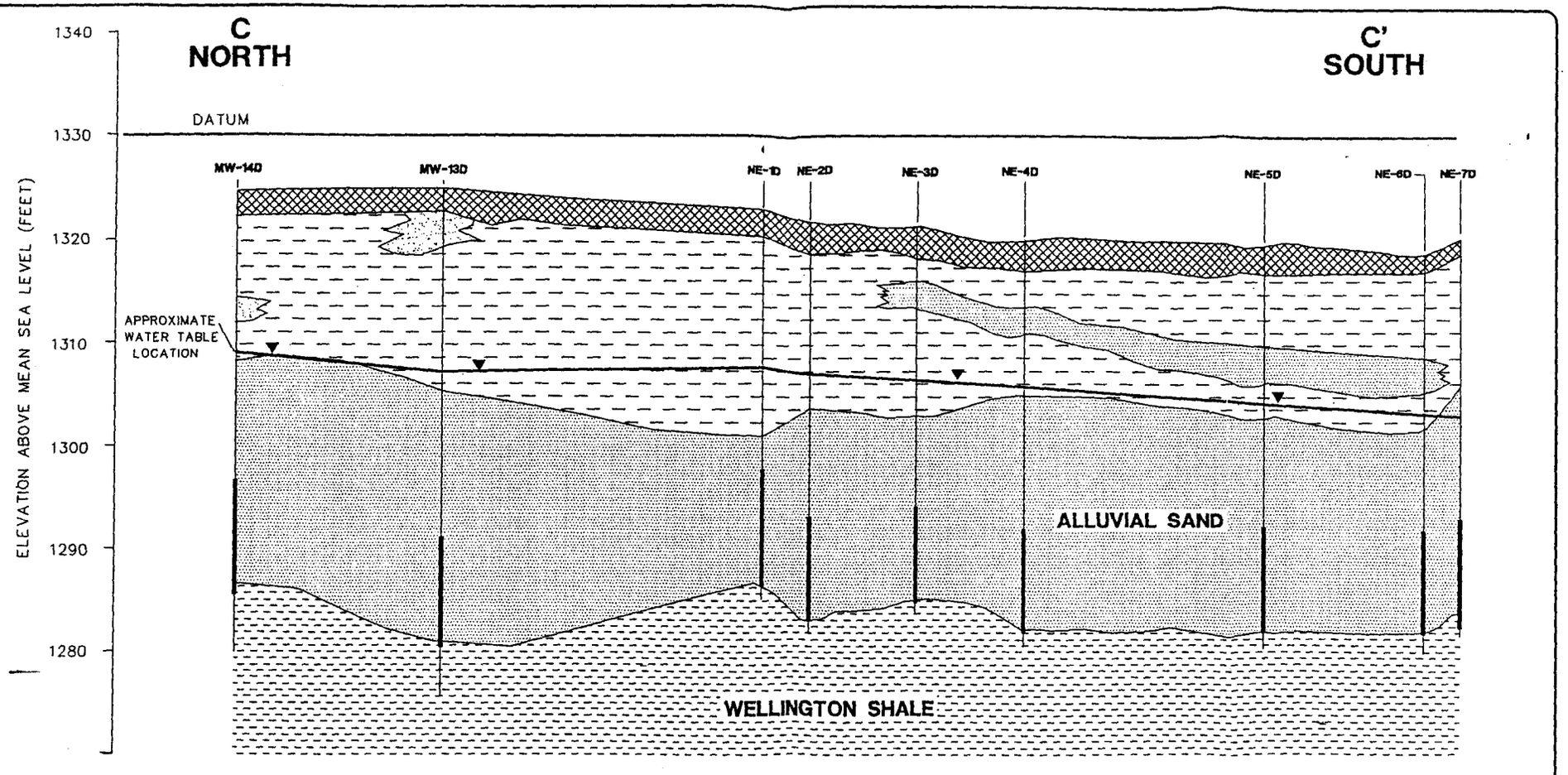
HYDROGEOLOGIC CROSS-SECTION B-B'

COLEMAN NORTHEAST PLANT
WICHITA, KANSAS

CNE

FIGURE 4-3

DRAWING SECTIONO | CHECKED: DAVID MINIELLY | APPROVED: JOHN SHONFELT | DRAFTER: CINDY



EXPLANATION

- MONITORING WELL WITH SCREENED INTERVAL
- SOIL BORING
- TOPSOIL/FILL
- CLAY
- SILT
- SAND
- GRAVEL
- SHALE

GERAGHTY & MILLER, INC.
Environmental Services
A Heidemij Company

0 — 300 FT.

HYDROGEOLOGIC CROSS-SECTION C-C'

Coleman COLEMAN NORTHEAST PLANT WICHITA, KANSAS

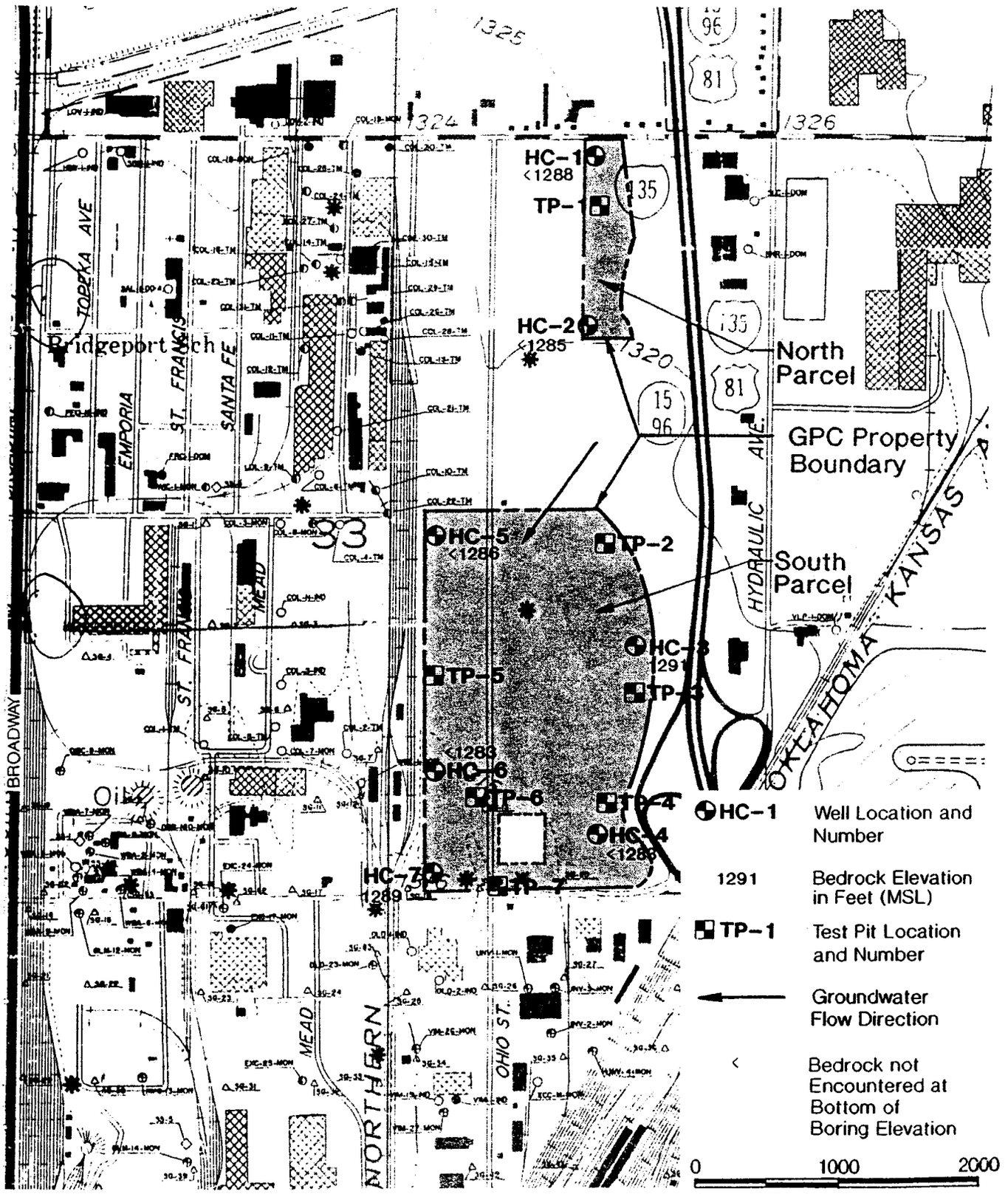
CNE

FIGURE 4-4

DRAFTER: CINDY | APPROVED: JOHN SHONFELT | CHECKED: DAVID MINIELLY | DRAWING: SECTION | FILE NO.: - | PRJCT NO.: OK0530.001

Interpreted Bedrock Elevation

GPC Wichita, Kansas Properties



GPC

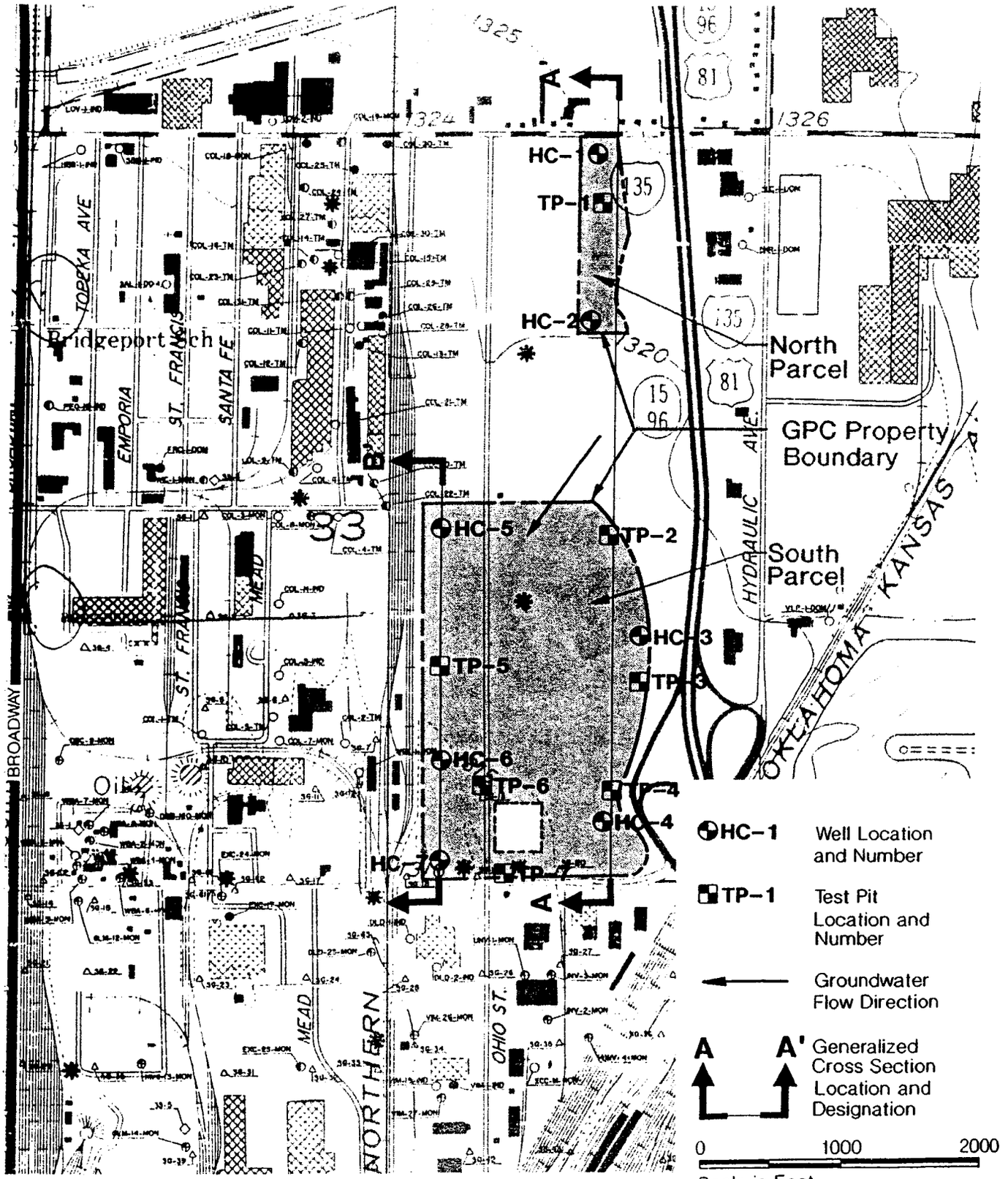
HARTCROWSER

J-3221 6/91

Figure 5

Site and Exploration Plan

GPC Wichita, Kansas Properties



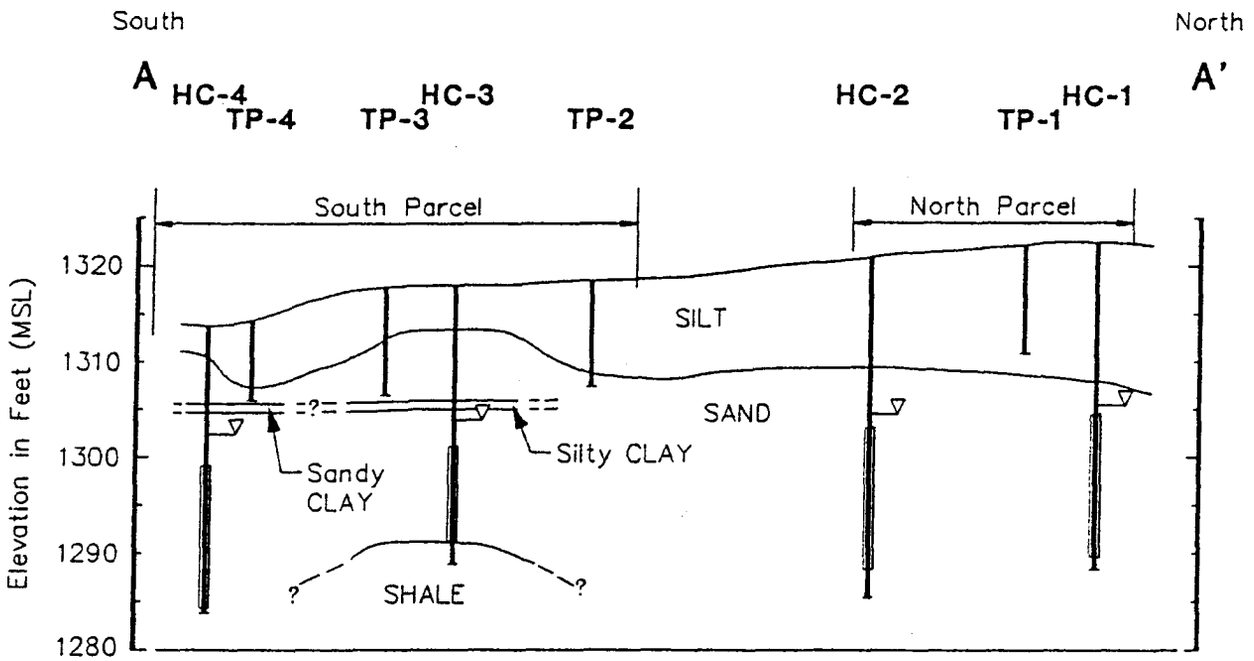
GPC

HARTCROWSER

J-3221 6/91

Figure 2

Generalized Geologic Cross Section A-A'



Note: Contacts between soil units are based upon interpolation between explorations and represent our interpretation of subsurface conditions based on currently available data.

HC-4 Well Number

Well Location

Water Level (April 14, 1991)

Screened Interval

TP-3 Test Pit Number

Test Pit Location

SILT – Generally comprised of stiff to very stiff, slightly sandy to sandy, clayey SILT (Loess).

SAND – Generally comprised of medium dense, fine to coarse SAND and occasionally gravelly SAND. Generally becomes coarser with depth or alternating fine and coarse sand layers (Alluvium).

SHALE – Gray, clayey SHALE (Bedrock).

Horizontal Scale in Feet

0 1000 2000

0 20 40

Vertical Scale in Feet

Vertical Exaggeration x 50

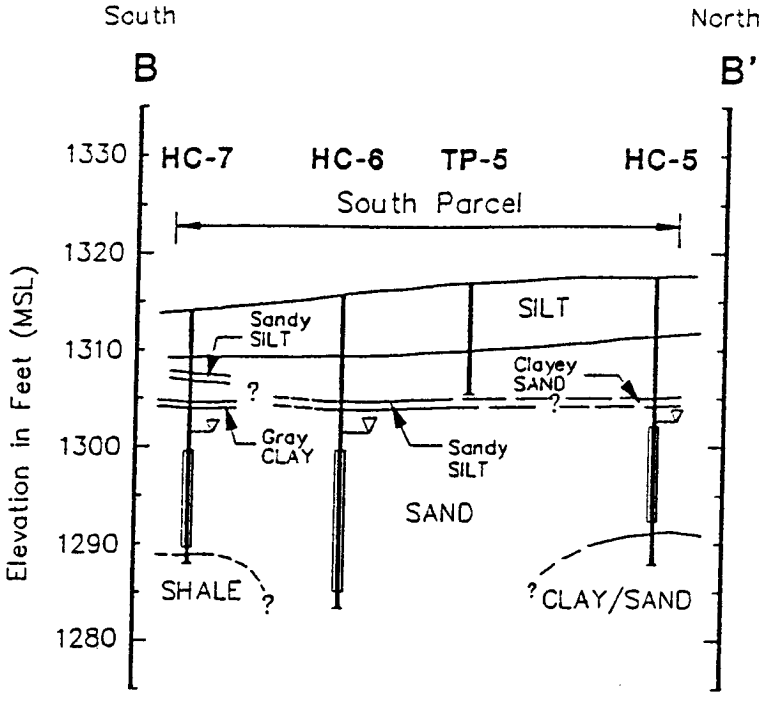
HARTCROWSER

J-3221 6/91

Figure 3

GPC

Generalized Geologic Cross Section B-B'



Note: Contacts between soil units are based upon interpolation between explorations and represent our interpretation of subsurface conditions based on currently available data.

HC-7 Well Number

Well Location

Water Level (April 14, 1991)

Screened Interval

TP-5 Test Pit Number

Test Pit Location

SILT – Generally comprised of stiff to very stiff, slightly sandy to sandy, clayey SILT (Loess).

SAND – Generally comprised of medium dense, fine to coarse SAND and occasionally gravelly SAND. Generally becomes coarser with depth or alternating fine and coarse sand layers (Alluvium).

CLAY/SAND – Silty, sandy CLAY grading to a slightly clayey SAND.

SHALE – Gray, clayey SHALE (Bedrock).

Horizontal Scale in Feet

0 1000 2000

0 20 40

Vertical Scale in Feet

Vertical Exaggeration x 50

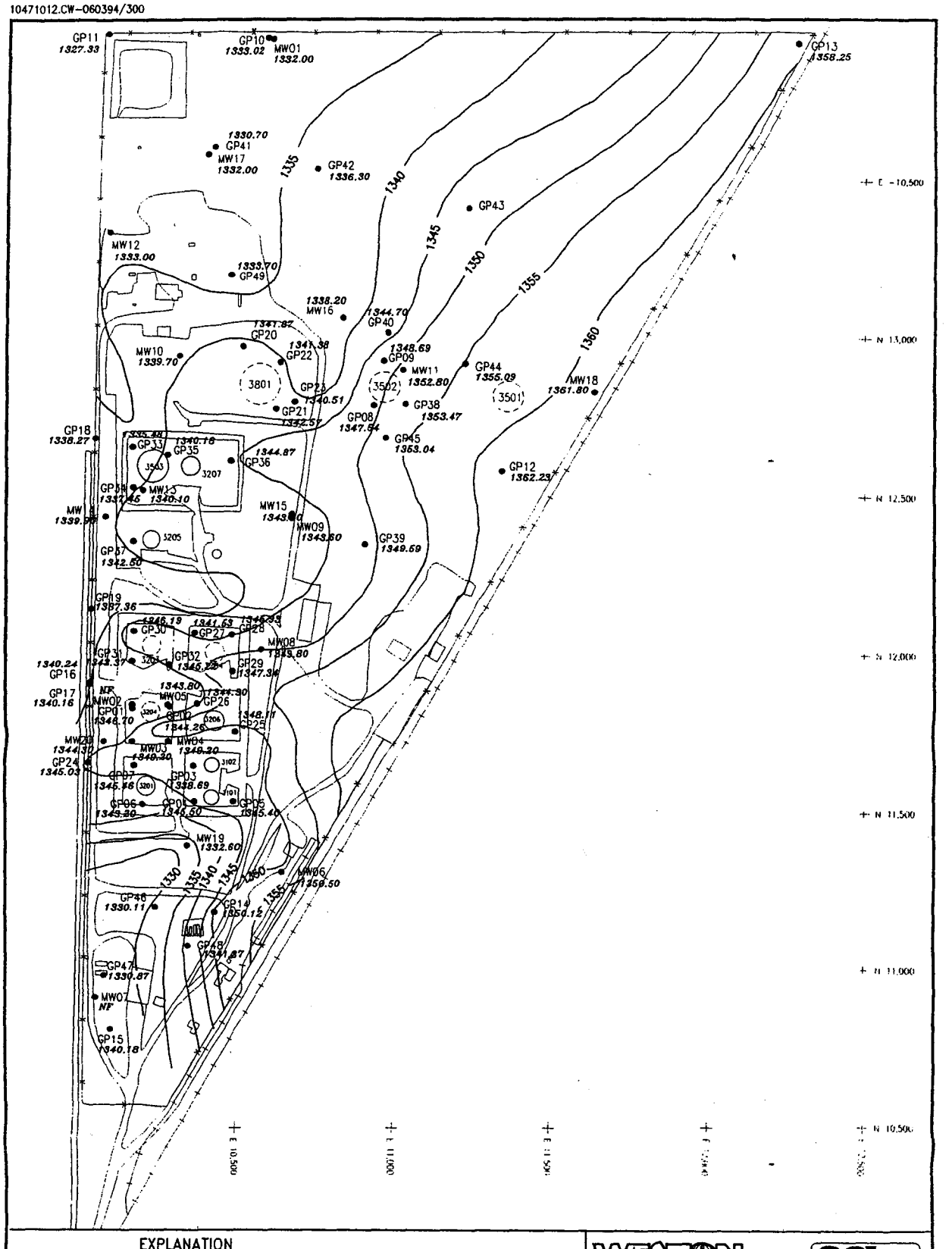
HARTCROWSER

J-3221 6/91

Figure 4

GPC

10471012.CW-060394/300



EXPLANATION

- EXISTING TANK LOCATION
- FORMER TANK LOCATION
- MW16 MONITORING WELL
- GP16 GEOPROBE
- 3000 BEDROCK ELEVATION (FT ABOVE MEAN SEA LEVEL)
- 100 BEDROCK ELEVATION CONTOUR (CONTOUR INTERVAL = 5')

N

SCALE: 1 INCH = 300 FEET

300' 0 300'

NOTE
GEOPROBE AND MONITOR WELL LOCATIONS HAVE BEEN SURVEYED;
BUILDINGS, TANKS AND ROADS HAVE BEEN DIGITIZED FROM 1974 AERIAL PHOTOGRAPHS.

WESTON MANAGERS DESIGNERS/CONSULTANTS

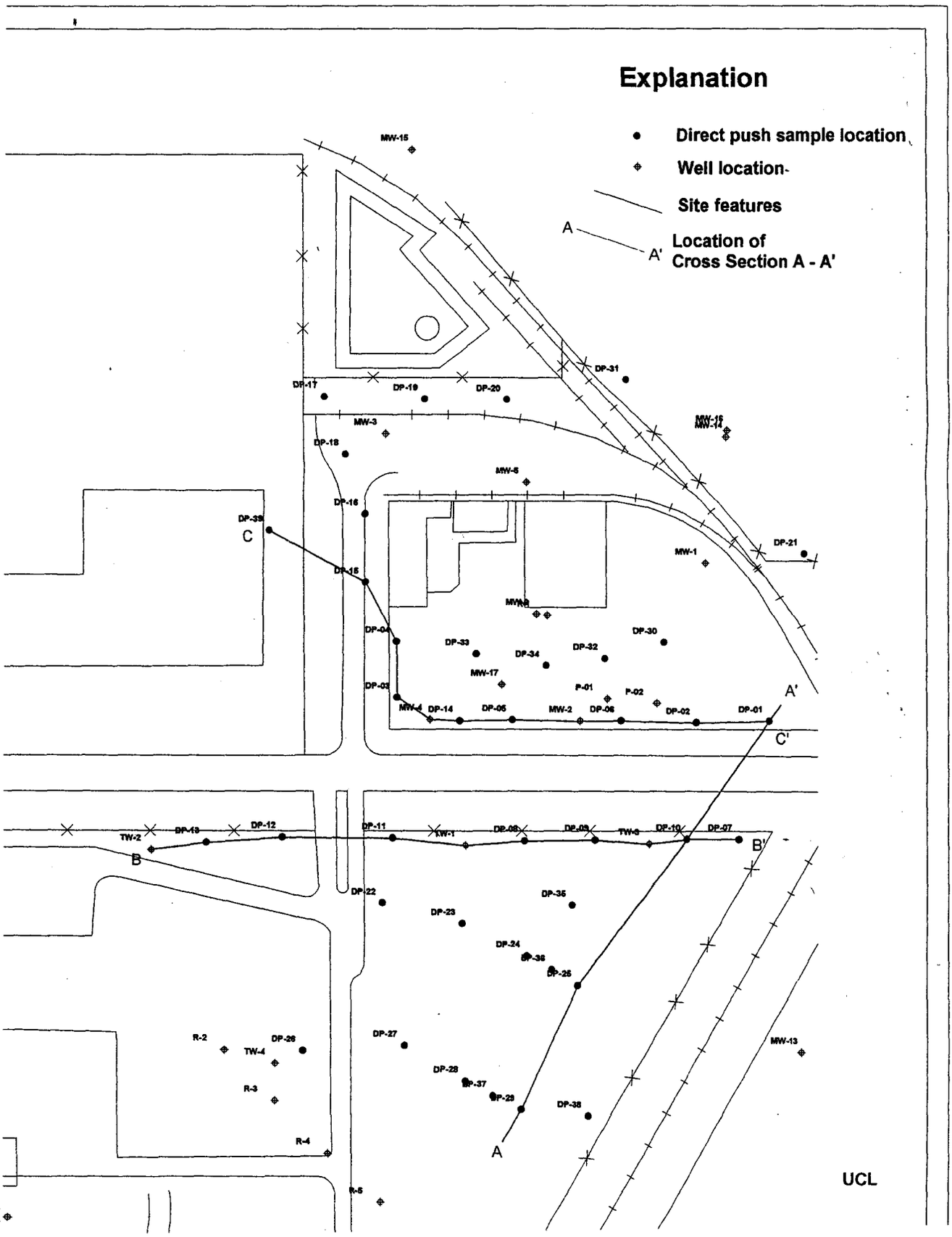
PPL PHILLIPS PIPE LINE COMPANY

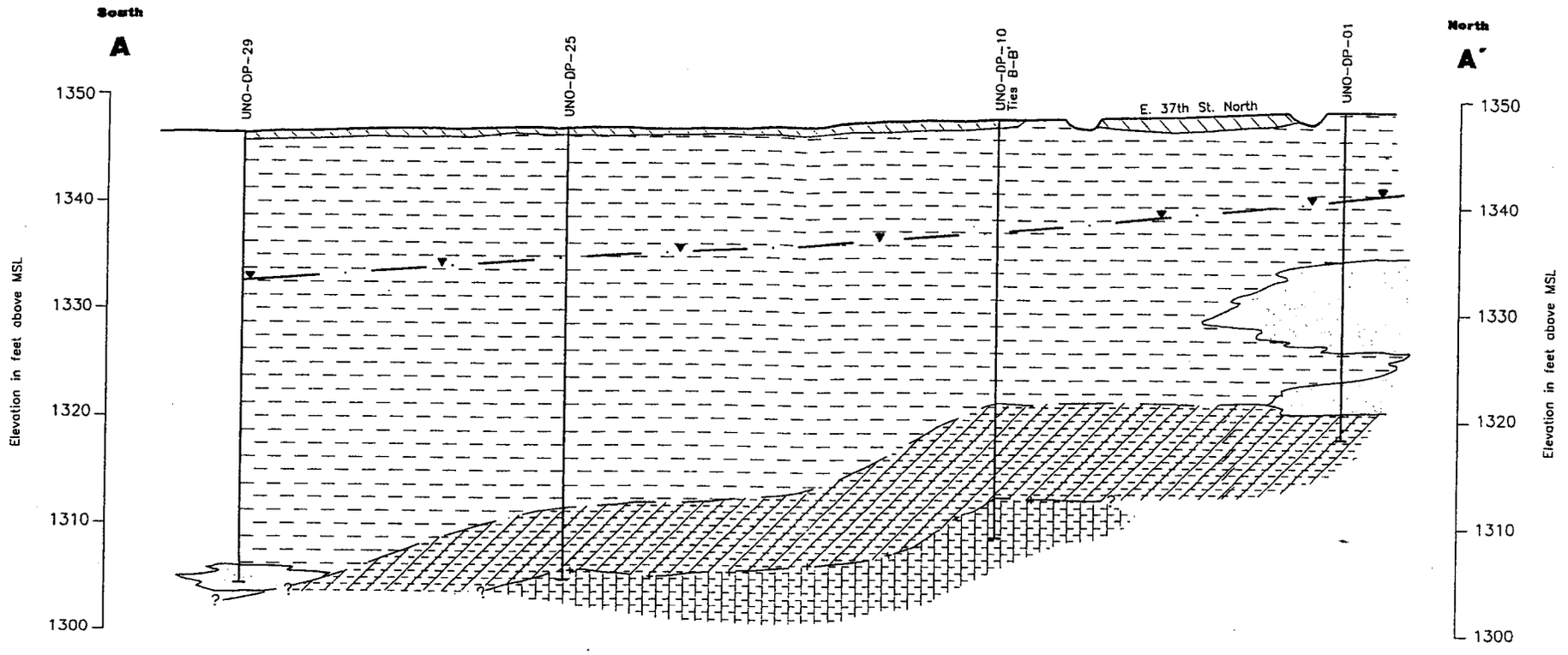
WICHITA TERMINAL
Wichita, Kansas

PPL

FIGURE 3-2

BEDROCK TOPOGRAPHY MAP


Explanation
Direct push sample location
Well location
Site features
Location of Cross Section A - A'
A
A'
B
B'
C
C'
MW-15
DP-31
DP-17
DP-19
DP-20
MW-3
DP-18
MW-5
DP-16
DP-39
DP-21
MW-1
DP-15
DP-04
DP-33
DP-34
DP-32
DP-30
MW-17
DP-03
P-01
P-02
MW-4
DP-14
DP-05
MW-2
DP-06
DP-02
DP-01
TW-2
DP-13
DP-12
DP-11
TW-1
DP-08
DP-09
TW-3
DP-10
DP-07
DP-22
DP-35
DP-23
DP-24
DP-36
DP-25
R-2
DP-26
TW-4
R-3
DP-27
DP-28
DP-37
DP-29
DP-38
MW-13
R-4
R-5
UCL



Explanation

MSL	Mean Sea Level
▼	Approximate ground water table (Non-pumping conditions [September 1997])
	Top of weathered bedrock
+	Top of unweathered bedrock
UNO-DP-29	Direct Push Identification
	Bore Hole Interval

- Fill
- Sand
- Clay and Silt
- Weathered Bedrock (Wellington Shale)
- Unweathered Bedrock (Wellington Shale)

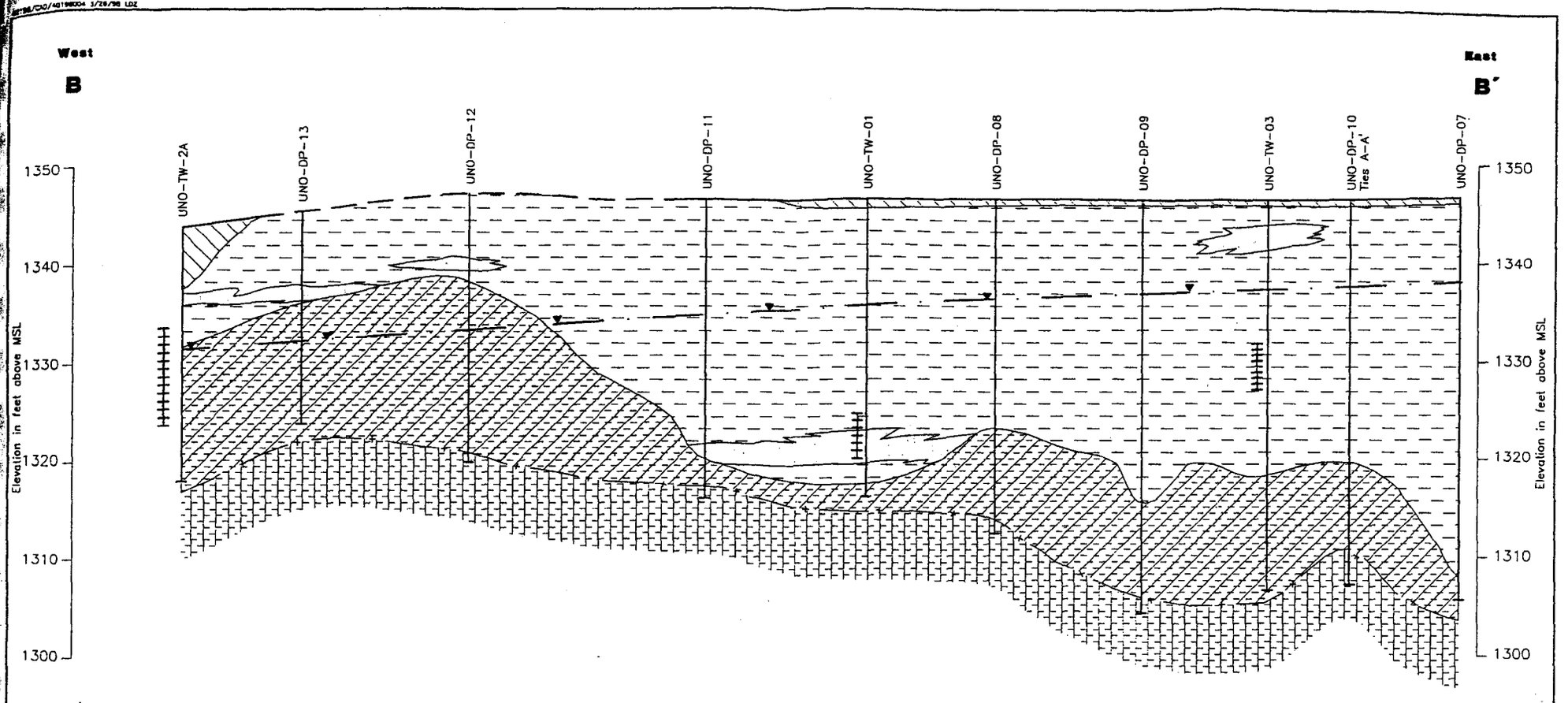
10
0
0 50
Scale in feet
Vertical exaggeration = 5x

Harding Lawson Associates
Engineering and Environmental Services

Geologic Cross Section A-A'
Former Unocal Chemicals Distribution Facility
Wichita, Kansas

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
SLJ	40196.40.01	JMS	3/98	

FIGURE **6** UCL



Explanation

MSL	Mean Sea Level
—— ▼ ——	Approximate ground water table (Non-pumping conditions [September 1997])
—— ——	Top of weathered bedrock
—— + ——+	Top of unweathered bedrock

Fill
Sand
Clay and Silt
Weathered Bedrock (Wellington Shale)
Unweathered Bedrock (Wellington Shale)

UNO-DP-29 — Direct Push Identification; Bore Hole Interval

UNO-TW-01 — Monitoring Well Identification; Bore Hole Interval; Screened Interval

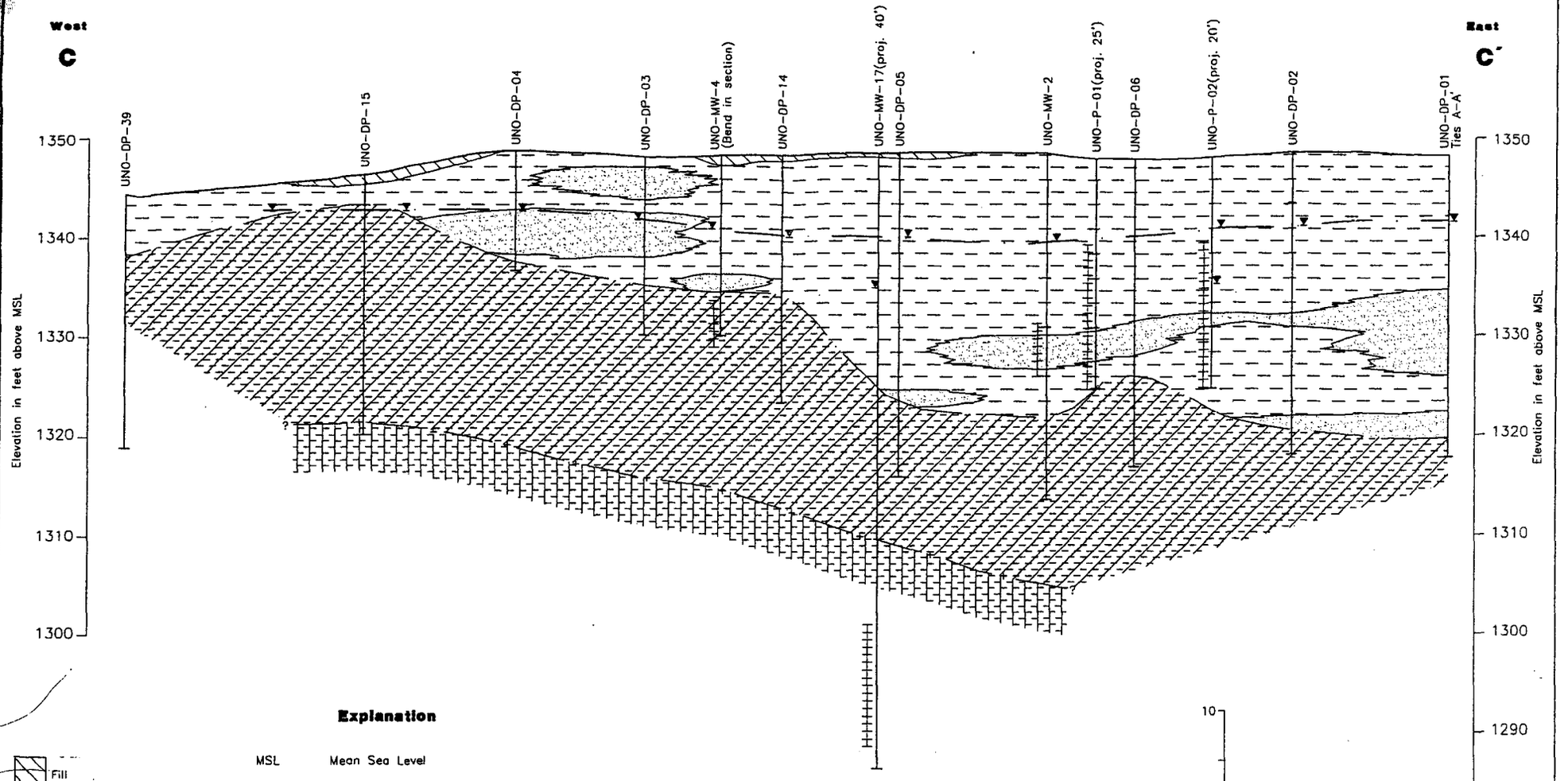
10
0
0 50
Scale in feet
Vertical exaggeration = 5x

Harding Lawson Associates
Engineering and Environmental Services

Geologic Cross Section B-B'
Former Unocal Chemicals Distribution Facility
Wichita, Kansas

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
SLJ	40196.04.01		3/98	

FIGURE **7** UCL



Explanation

Fill

Sand

Clay and Silt

Weathered Bedrock (Wellington Shale)

Unweathered Bedrock (Wellington Shale)

MSL Mean Sea Level

Approximate ground water table (Non-pumping conditions [September 1997])

Top of weathered bedrock

Top of unweathered bedrock

UNO-DP-29 Direct Push Identification

Bore Hole Interval

UNO-TW-01 Monitoring Well Identification

Bore Hole Interval

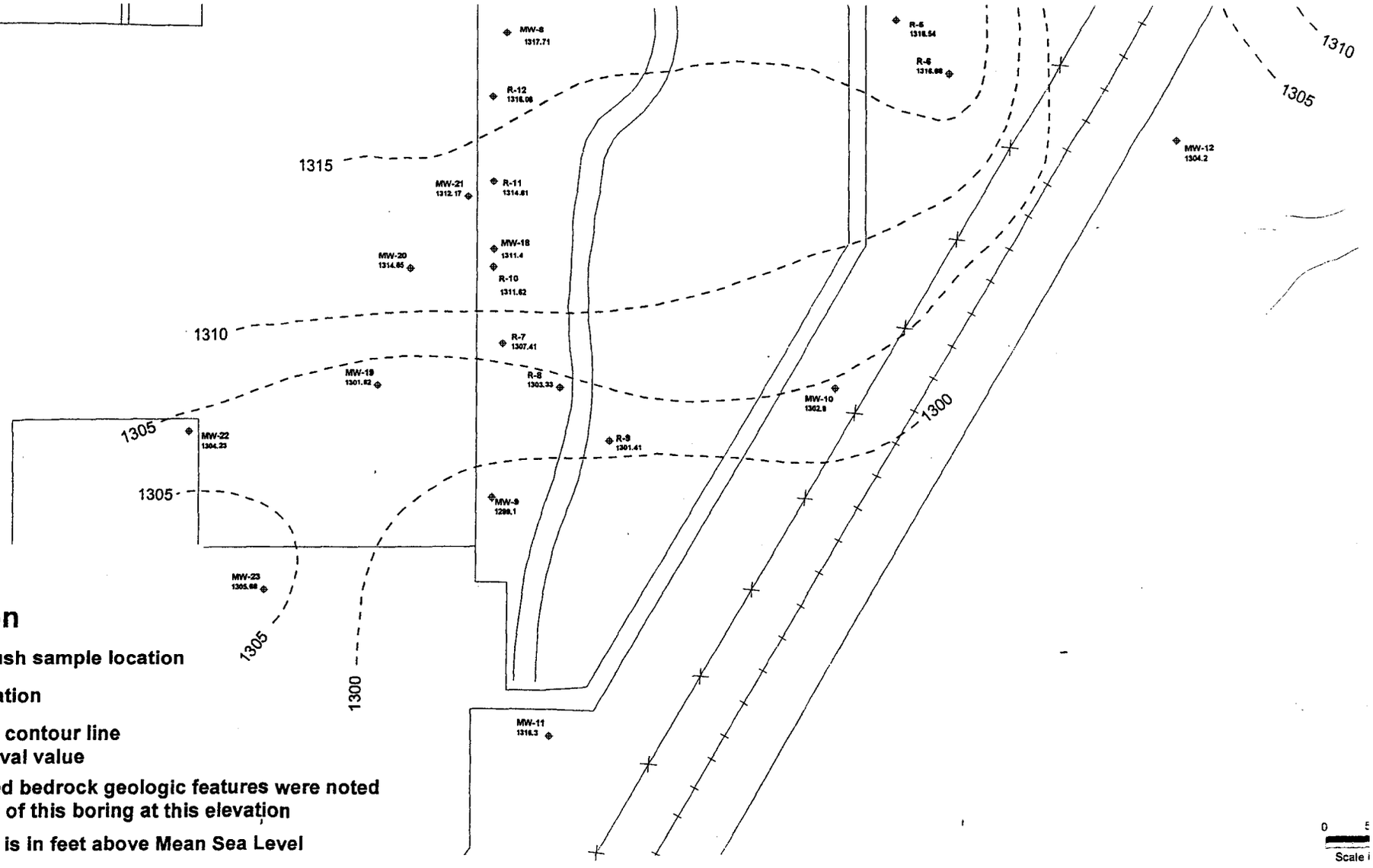
Screened Interval

Harding Lawson Associates
Engineering and Environmental Services

Geologic Cross Section C-C'
Former Unocal Chemicals Distribution Facility
Wichita, Kansas

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
SLJ	40196.04.01		3/98	

FIGURE **8** UCL



Explanation

- • Direct push sample location
- ⌖ Well location
- 1300 - - Isometric contour line with interval value
- # Weathered bedrock geologic features were noted in the log of this boring at this elevation

Elevation is in feet above Mean Sea Level

NL Not lithologically logged

<1329.7 Weathered bedrock not encountered during sampling; therefore top of weathered bedrock elevation is less than total depth sampled

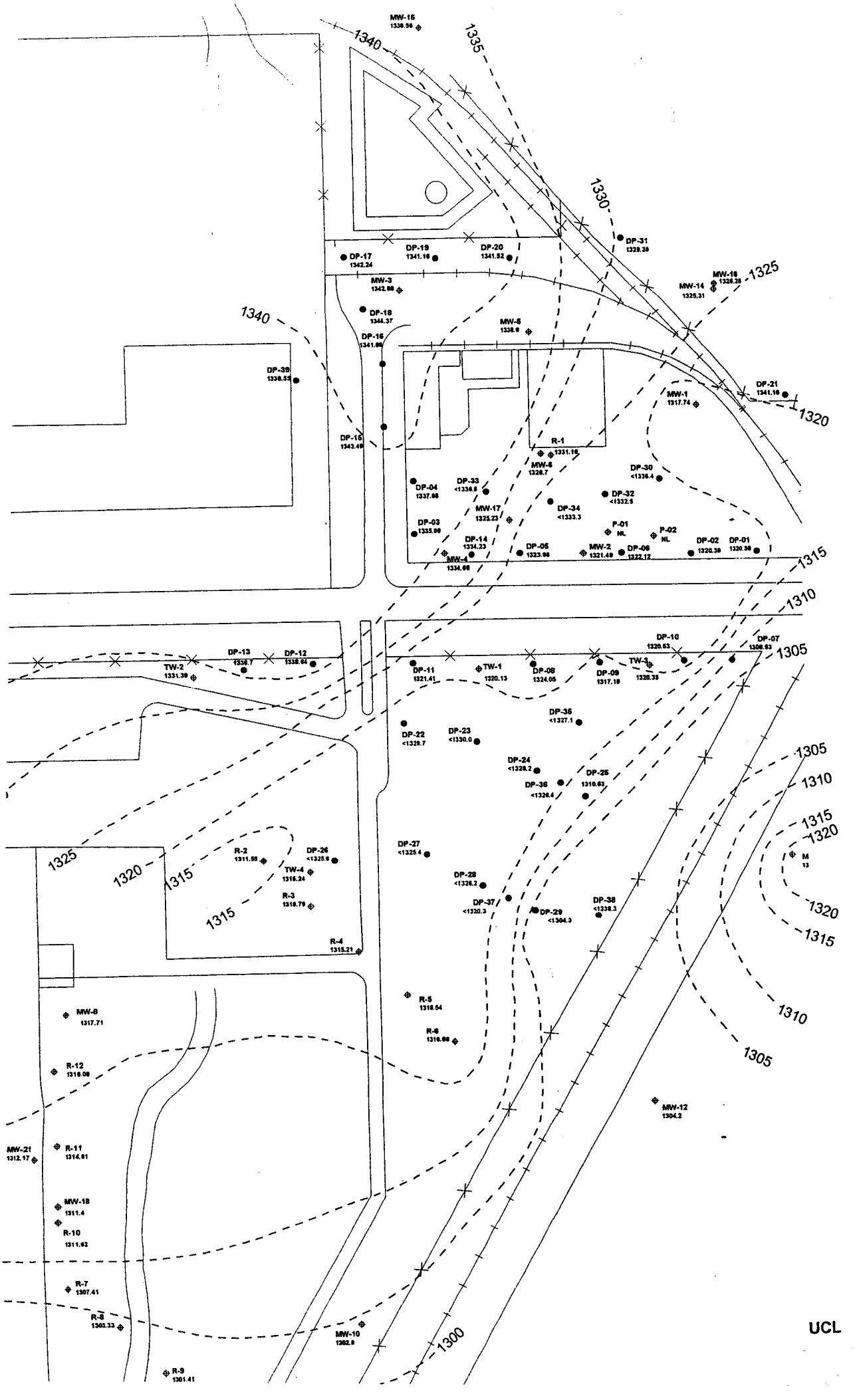
0 5
Scale i

UCL

Harding Lawson Associates
Engineering and Environmental Services

Top of Weathered Bedrock Elevation Contou
Former Unocal Chemicals Distribution Facil
Wichita, Kansas

DRAWN	JOB NUMBER	APPROVED	DATE
DJS	40196 04.01		


1340
1335
1330
1325
1320
1315
1310
1305
1300
MW-15
1338.56
DP-17
1342.24
DP-19
1341.16
DP-20
1341.52
DP-31
1328.39
MW-3
1342.88
MW-14
1325.31
MW-16
1326.39
DP-18
1344.37
MW-5
1338.8
DP-16
1341.88
DP-39
1338.55
DP-21
1341.16
MW-1
1317.74
DP-15
1343.49
R-1
1331.16
MW-6
1328.7
DP-30
<1336.4
DP-04
1337.88
DP-33
<1336.6
DP-32
<1332.5
MW-17
1325.23
DP-34
<1333.3
DP-03
1335.88
P-01
NL
P-02
NL
DP-14
1334.23
DP-05
1323.88
MW-2
1321.48
DP-06
1322.12
DP-02
1320.38
DP-01
1320.58
MW-4
1334.68
DP-13
1336.7
DP-12
1338.64
TW-2
1331.39
DP-11
1321.41
TW-1
1320.13
DP-08
1324.05
DP-09
1317.18
TW-3
1320.39
DP-10
1320.63
DP-07
1308.63
DP-35
<1327.1
DP-22
<1329.7
DP-23
<1330.0
DP-24
<1328.2
DP-25
1310.63
DP-36
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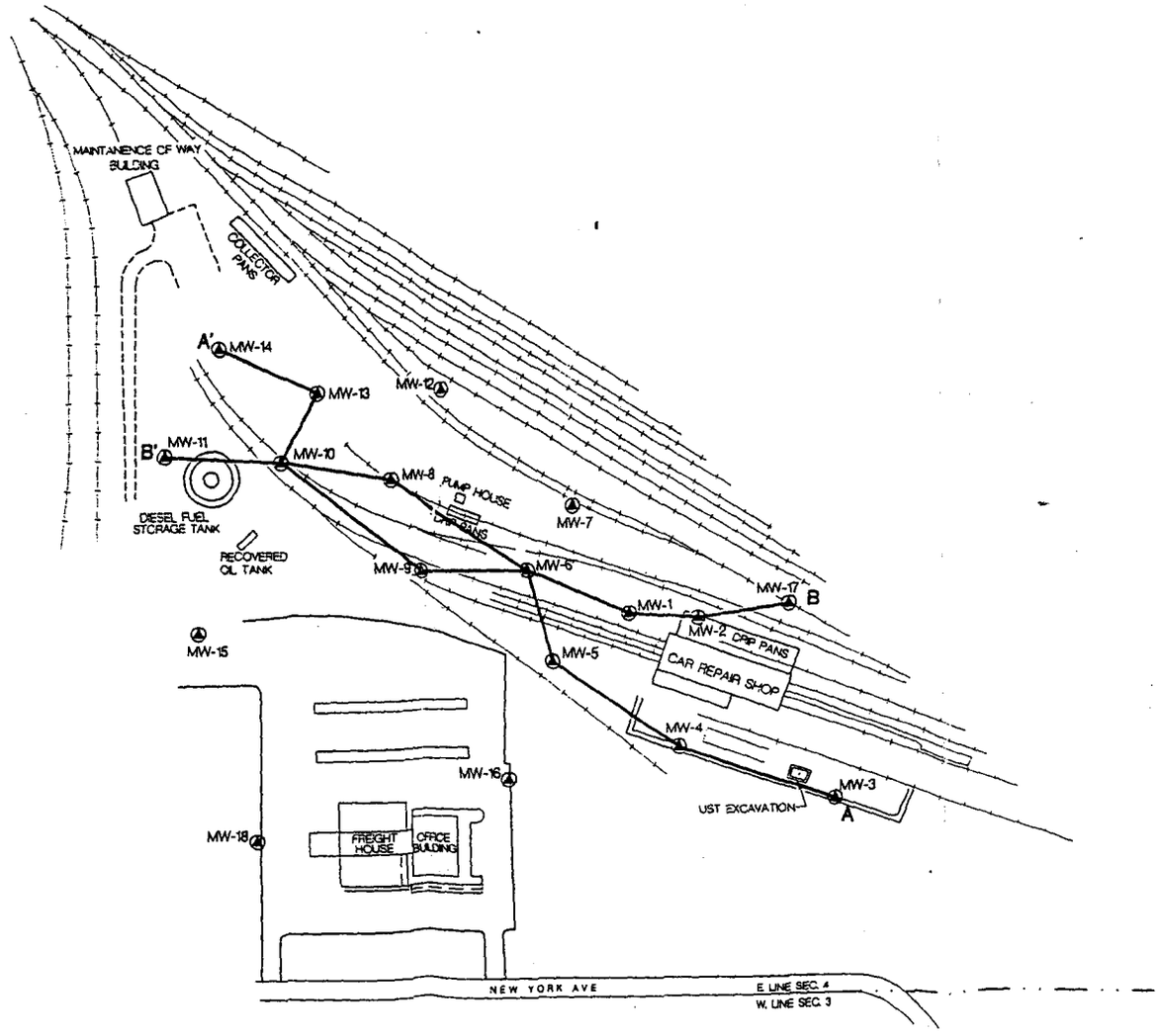
DP-27
<1325.4
R-2
1311.95
DP-26
<1325.6
TW-4
1316.24
R-3
1318.79
R-4
1315.21
DP-28
<1326.2
DP-37
<1320.3
DP-29
<1304.3
DP-38
<1338.3
R-5
1318.54
R-6
1318.88
MW-8
1317.71
R-12
1316.08
MW-12
1304.2
MW-21
1312.17
R-11
1314.81
MW-18
1311.4
R-10
1311.62
R-7
1307.41
R-8
1303.33
MW-10
1302.8
R-9
1301.41
UCL



LEGEND

MW-14 MONITORING WELL LOCATION

CROSS-SECTION LOCATION AND IDENTIFICATION

North

0 200 FEET

BY	DATE
DRAWN WRB	3/9/95
CHECKED	
APPROVED	
APPROVED	
APPROVED	

USPCI

FIGURE 4

WICHITA, KANSAS

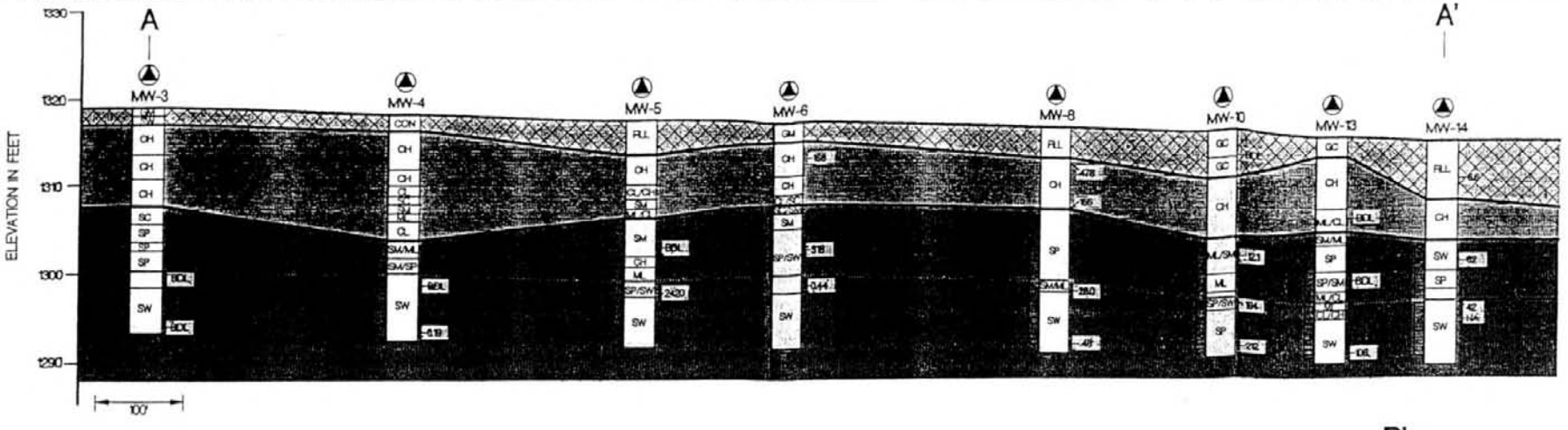
UPRR WICHITA FUELING FACILITY

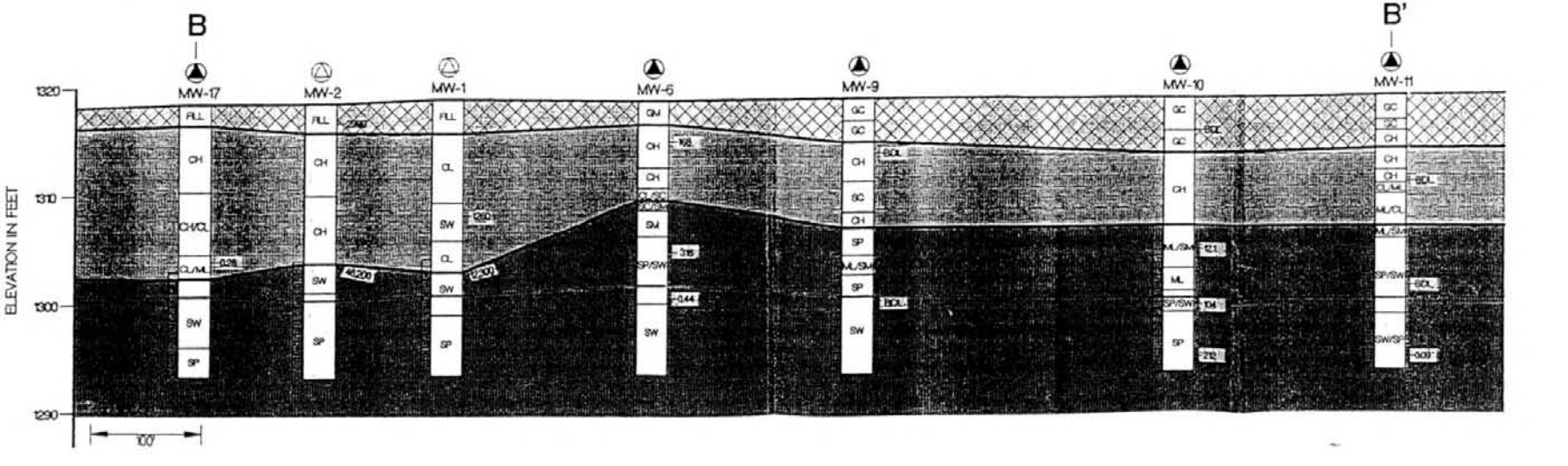
CROSS-SECTION LOCATION MAP

SCALE 1" = 200'

DWG. NO. 96258-28

UPRR





LEGEND

CON	CONCRETE
FLL	ARTIFICIAL FILL
GW	WELL GRADED GRAVELS
GP	POORLY GRADED GRAVELS
GM	SILTY GRAVELS
GC	CLAYEY GRAVELS
SW	WELL GRADED SANDS
SP	POORLY GRADED SANDS
SM	SILTY SANDS
SC	CLAYEY SANDS
ML	INORGANIC SILTS AND VERY FINE SANDS
CL	CLAY
MH	SILT
CH	FAT CLAY
OL	ORGANIC SILTS
OH	ORGANIC CLAYS
BDL	BELOW LABORATORY DETECTION LIMITS
NA	NOT ANALYZED
(52.1)	HYDROCARBONS, mg/kg
	C5 - C12 HYDROCARBONS GC METHOD CA DRAFT
	TOTAL PETROLEUM HYDROCARBON BY EPA METHOD 418.1
	ARTIFICIAL FILL
	AQUITARD
	AQUIFER ZONE
	SLOTTED SCREEN INTERVAL
7	STATIC WATER LEVEL - OCTOBER 7, 1994

BY	DATE
WRB	3/10/95

USPCI

FIGURE 5

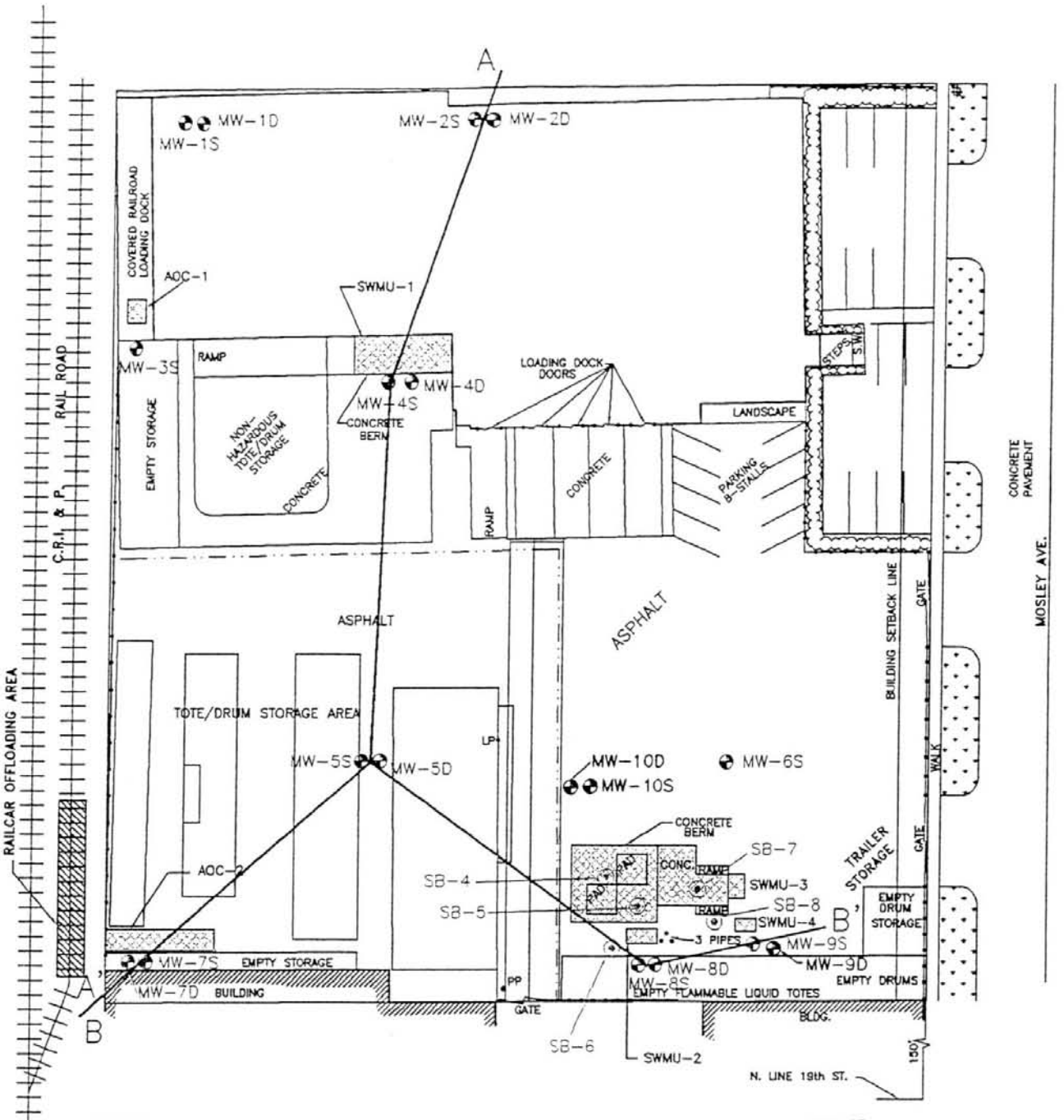
WICHITA, KANSAS

GEOLOGIC CROSS SECTIONS
C5 - C12 HYDROCARBONS

SCALE: AS NOTED

DWG NO. 96258-25

UPRR



LEGEND

PP	POWER POLE
LP	LIGHT POLE
	FENCE
SWMU-1	CONTAINER STORAGE UNIT/FORMER REPACK AREA
SWMU-2	FORMER ELEMENTARY NEUTRALIZATION TANK
SWMU-3	FORMER SATELLITE ACCUMULATION AREA/FORMER REPACK AREA
SWMU-4	FORMER WASTE LINER STORAGE AREA
AOC-1	FORMER HCL DRUM FILL AREA AND CHEMICAL LOADING DOCK
AOC-2	FORMER CAUSTIC AND SOLVENT UNLOADING AREA
	SOIL SAMPLE LOCATIONS
	MONITORING WELL LOCATIONS

N

0 30 60
SCALE IN FEET

SECOR
INTERNATIONAL INCORPORATED

VAN WATERS & ROGERS
MOSELY AVENUE, WICHITA, KANSAS

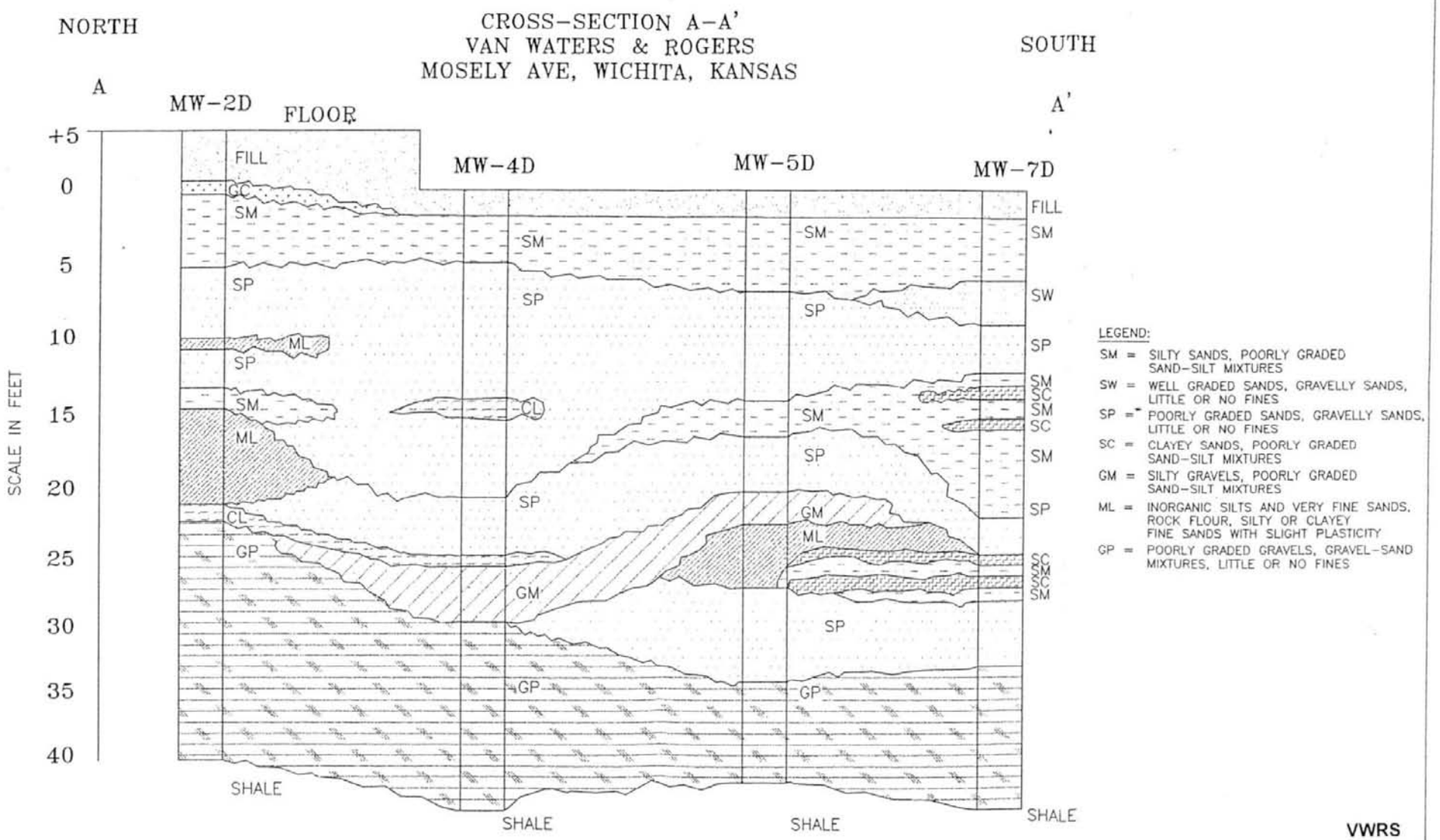
CROSS-SECTION LOCATION MAP

SECOR PROJECT #: 60013-001-03 | FILENAME: Vanwtr3a.dwg | DATE: 12/07/98

VWRS

FIGURE

11



						DESIGNED BY
						DRAWN BY
						APPROVED BY
REV.	DATE	DESCRIPTION	BY	CKD.	APP.	DATE

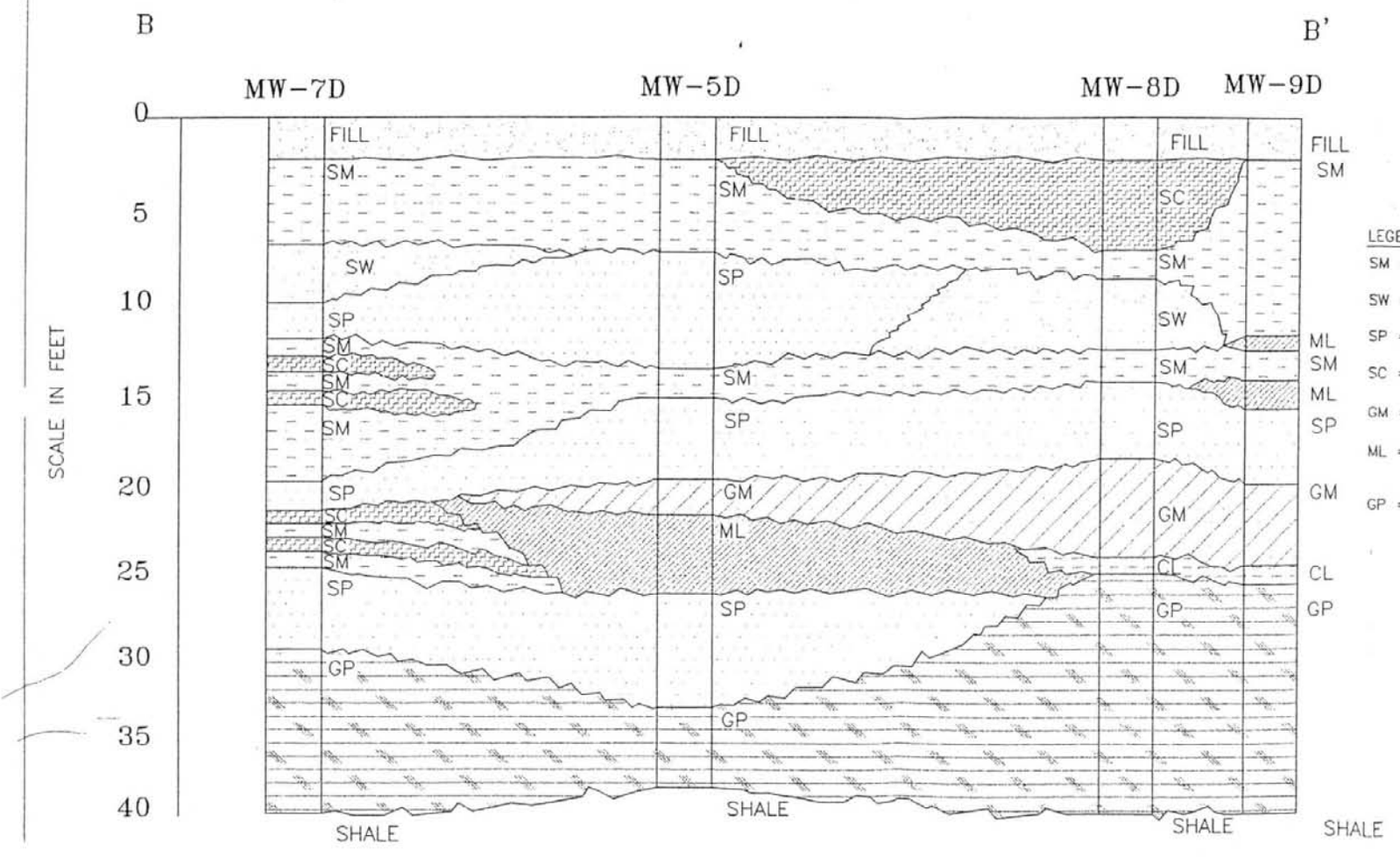
SECOR
INTERNATIONAL INCORPORATED
4463 WHITE BEAR PARKWAY, SUITE 106
WHITE BEAR LAKE, MINNESOTA 55110

VAN WATERS & ROGERS
MOSELEY AVENUE
WICHITA, KANSAS
CROSS SECTION A-A'

PROJECT NUMBER: 60013-001-01
CAD FILE NUMBER: VANROG_BOR.dwg
DATE: 12/14/98

FIGURE 12

CROSS-SECTION B-B'
VAN WATERS & ROGERS
MOSELY AVE, WICHITA, KANSAS



LEGEND:

- SM = SILTY SANDS, POORLY GRADED SAND-SILT MIXTURES
- SW = WELL GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
- SP = POORLY GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
- SC = CLAYEY SANDS, POORLY GRADED SAND-SILT MIXTURES
- GM = SILTY GRAVELS, POORLY GRADED SAND-SILT MIXTURES
- ML = INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS WITH SLIGHT PLASTICITY
- GP = POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES

VWRS

REV	DATE	DESCRIPTION	BY	CKD.	APP.

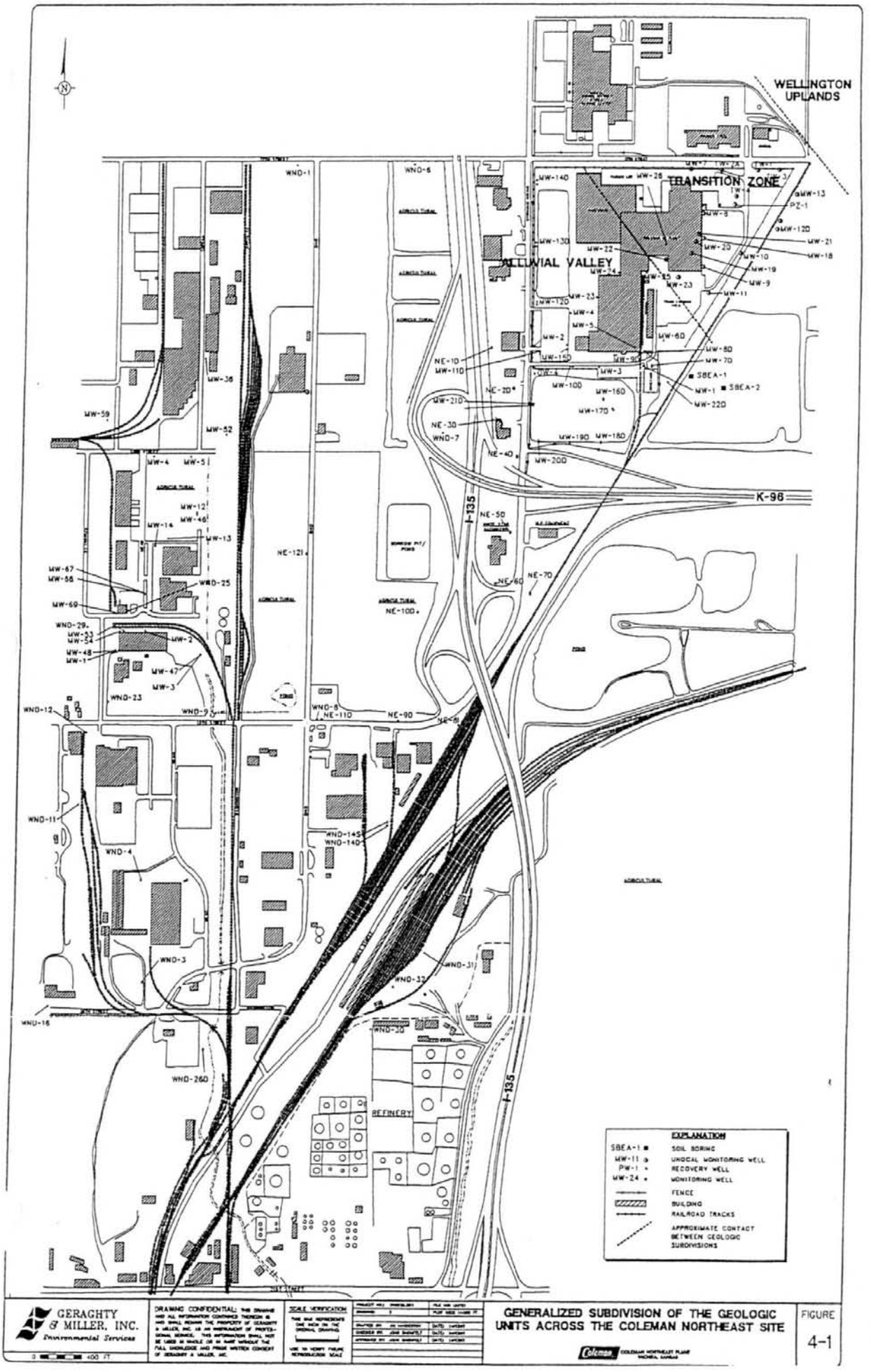
DESIGNED BY
DRAWN BY
APPROVED BY
DATE

SECOR
INTERNATIONAL INCORPORATED
4463 WHITE BEAR PARKWAY, SUITE 106
WHITE BEAR LAKE, MINNESOTA 55110

VAN WATERS & ROGERS
MOSELEY AVENUE
WICHITA, KANSAS
CROSS SECTION B-B'

PROJECT NUMBER: 60013-001-01
CAD FILE NUMBER: VANROG_BOR.dwg
DATE: 12/14/98

FIGURE 13



GERAGHTY & MILLER, INC.
Environmental Services

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SCALE VERIFICATION

USE TO VERIFY FUTURE REPRODUCTION SCALE

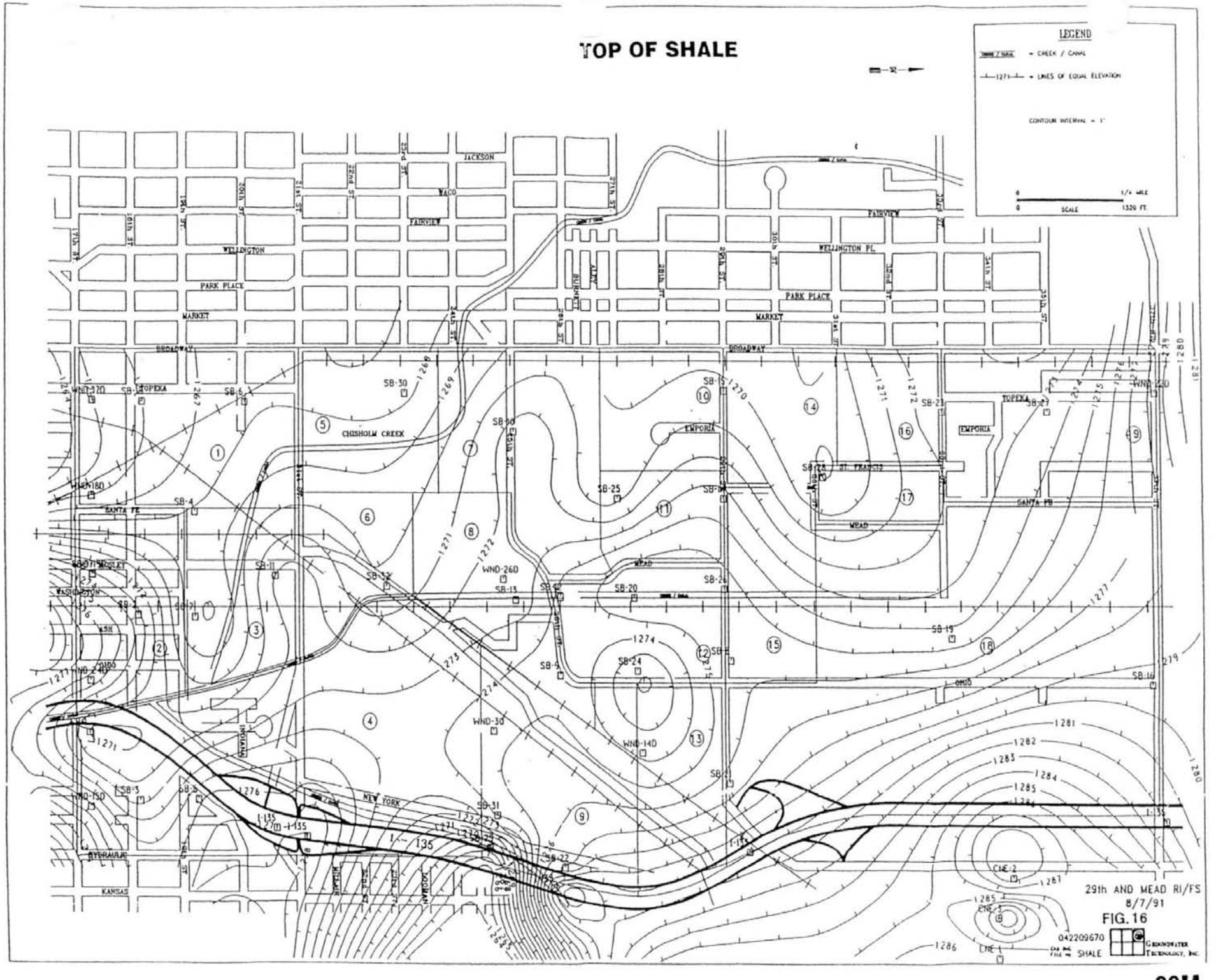
GENERALIZED SUBDIVISION OF THE GEOLOGIC UNITS ACROSS THE COLEMAN NORTHEAST SITE

Coleman COLEMAN NORTHEAST PLANT WICHITA, KANSAS

FIGURE 4-1

29M

TOP OF SHALE


LEGEND
= CREEK / CANAL
= LINES OF EQUAL ELEVATION
CONTOUR INTERVAL = 1'
SCALE
1/4 MILE
1320 FT.
JACKSON
WACO
FAIRVIEW
WELLINGTON
WELLINGTON PL
PARK PLACE
MARKET
BROADWAY
BURNETT
ALLEY
TOPEKA
EMPORIA
ST. FRANCIS
SANTA FE
WEAD
CHISHOLM CREEK
NEW YORK
I-135
29th AND MEAD RI/FS
8/7/91
FIG. 16
042209670
GROUNDWATER TECHNOLOGY, INC.
SHALE

Appendix E-6
Grain Size Analyses from Selected Facilities

SECOR
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DRAFT REMEDIAL INVESTIGATION REPORT
VAN WATERS & ROGERS, INC.
MOSLEY AVENUE FACILITY
WICHITA, KANSAS

Prepared by

SECOR International Incorporated

March 29, 1999

similar potentiometric surface elevations, indicating that the laterally discontinuous silty-clay to clay lenses do not cause a hydraulic separation between the shallow and deep zones of the aquifer underlying the Facility.

Groundwater elevation data have been collected at the Facility on two occasions. The first data collection event occurred in June 1998 prior to the collection of Phase I groundwater analytical samples. The second data collection event occurred in October 1998 prior to the collection of Phase II groundwater analytical samples. Data associated with these events for the shallow and deep zones are presented in the following sections.

5.8.1 Shallow Zone

Phase I groundwater elevation data indicated that shallow zone groundwater was present at elevations ranging between 1296.02 and 1295.67 feet above mean sea level (MSL). Groundwater movement was toward the southeast across the Facility, and exhibited a gradient of approximately 0.00090 feet per feet.

Phase II groundwater elevation data also indicated that shallow zone groundwater was present at elevations ranging between 1296.69 and 1296.36 feet above MSL. Groundwater movement during this event was also toward the southeast across the Facility, and exhibited a similar gradient to that of the Phase I event, being approximately 0.00087 feet per feet.

Figures 15 and 16 present groundwater elevation contour maps for the shallow zone associated with the Phase I and Phase II gauging events, respectively.

5.8.2 Deep Zone

Phase I groundwater elevation data indicated that deep zone groundwater was present at elevations ranging between 1295.99 to 1295.75 feet MSL. Groundwater movement was toward the southeast across the Facility, and exhibited a gradient of approximately 0.00063 feet per feet.

Phase II groundwater elevation data also indicated that deep zone groundwater was present at elevations ranging between 1296.67 and 1296.37 feet above MSL. Groundwater movement during this event was also toward the southeast across the Facility, and exhibited a similar gradient to that of the Phase I event, being approximately 0.00066 feet per feet.

Figures 17 and 18 present groundwater elevation contour maps for the deep zone associated with the Phase I and Phase II gauging events, respectively.

5.9 Permeability Assessment

5.9.1 Grainsize Distribution

Soil samples were collected for grain size distribution (and associated porosity, bulk density and moisture content) from six soil borings/monitoring well locations across the Facility (MW-1, MW-2, MW-4, MW-5, MW-7 and MW-8). Samples were collected at four general depth intervals ranging from 4 to 5 feet bgs to 31 to 32 feet bgs to assess variability in subsurface materials and provide a comparison between the shallow and deep aquifer zones. Unsaturated samples from the shallow zone were collected

at depths ranging between 4 to 10 feet bgs. Saturated shallow zone samples were collected at depths ranging from 9 to 19 feet bgs. Saturated deep zone samples were collected at depths ranging between 21 and 35 feet bgs. Samples collected from approximately 18 to 28 feet bgs typically corresponded to the transition zone materials that occurred between the shallow and deep zones of the aquifer. Hydraulic conductivity estimates were performed using the grain size distribution data associated with the 16 samples and utilizing the Hazen estimation method. Laboratory data sheets and a description of the methodology associated with these analyses are presented in Appendix B.

5.9.1.1 Shallow Zone Permeability

Four samples were collected from depth intervals equivalent to the unsaturated portion of the shallow aquifer zone. These samples exhibited hydraulic conductivity values that ranged between 1.7×10^{-2} to 1.0×10^{-4} centimeters per second (cm/sec). Three samples were collected from the saturated portion of the shallow aquifer zone. These samples exhibited hydraulic conductivity values that ranged between 2.9×10^{-2} to 4.0×10^{-3} cm/sec. Table 4 presents a summary of shallow zone grain size permeability estimates.

5.9.1.2 Deep Zone Permeability

Six samples were collected from depth intervals equivalent to the saturated portion of the deep aquifer zone. These samples exhibited hydraulic conductivity values that ranged between 1.0×10^{-1} to 6.3×10^{-2} cm/sec. Table 4 presents a summary of deep zone grain size permeability estimates.

5.9.1.3 Transition Zone Permeability

Three samples were collected from soils representative of the laterally discontinuous lenses of the transition zone that occurs between the shallow and deep aquifer zones. These samples exhibited hydraulic conductivity values that ranged between 8.0×10^{-3} to 1.0×10^{-4} cm/sec. Table 4 presents a summary of deep zone grain size permeability estimates.

5.10 In-situ Permeability Testing

Between August 4 and 7, 1998, a total of 12 monitoring wells (six shallow zone and six deep zone) were utilized for single well hydraulic conductivity tests (slug tests). During each test, data were collected under rising and falling head conditions caused by the instantaneous introduction or removal of 1¼ inch by 5-foot slug. Electronic data loggers (In-Situ Troll Model SP4000) were utilized for the collection of groundwater elevation changes associated with each of the tests.

5.10.1 Shallow Zone

The shallow zone monitoring wells utilized for the testing included MW-1S, MW-2S, MW-4S, MW-5S, MW-7S and MW-8S. Test data were reduced and analyzed with the use of computer driven software (Aqtesolv, Geraghty & Miller, Inc.). Test results indicate that permeability within the shallow zone of the aquifer range between approximately 1.1×10^{-2} to 9.2×10^{-2} cm/sec. Table 5 summarizes the test results. Test data and copies of each analysis are presented in Appendix C.

5.10.2 Deep Zone

The deep monitoring wells utilized for the testing included MW-1D, MW-2D, MW-4D, MW-5D, MW-7D and MW-8D. Test data were reduced and analyzed with the use of computer driven software (Aqtesolv, Geraghty & Miller, Inc.). Test results indicate that permeability within the deep portion of the aquifer ranged between $1.0x10^{-1}$ and $2.0x10^{-1}$ cm/sec. Table 5 summarizes the test results. Test data and copies of each analysis are presented in Appendix C.

5.11 Laboratory Analyses

Soil and groundwater samples were collected during the Phase I and Phase II investigative activities to assess subsurface conditions at the Facility. All laboratory analyses were performed by Quanterra Incorporated of Houston, Texas.

5.11.1 Soil Analyses

5.11.1.1 Volatile Organic Compounds

A total of 40 soil samples were collected and submitted for VOC analyses by USEPA Method 8260 during the Phase I and Phase II investigation activities. Phase I analytical results indicate that only two VOCs (TCE and Methylene Chloride) were detected at or above the analytical method detection limit. TCE detections were observed at soil boring/monitoring well or well pair locations MW-3 and MW-8 within the 4 to 5 foot bgs interval and 2 to 3 foot bgs interval, respectively, during the Phase I investigation activities. TCE concentrations detected at MW-3 were 5.2 mg/kg and TCE concentrations detected at MW-8 were 12 mg/kg. There were no detections at greater depths within these borings. Methylene Chloride was detected at soil boring/monitoring well MW-9 at a concentration of 5.5 mg/kg from a depth interval of 17 to 18 feet bgs. This detection is considered here to be a laboratory contaminant, as this compound is a common laboratory contaminant and was reported in several of the laboratory QA/QC samples at similar concentrations.

A summary of Phase I and Phase II VOC analytical results is presented in Tables 6 and 7. Figures 9 and 10 depict Phase I and Phase II soil boring locations. Laboratory analytical data sheets are presented in Appendix D.

5.11.1.2 Corrosivity

A total of 35 soil samples were collected and submitted for corrosivity (pH) analyses by USEPA Method 9045A during the Phase I and Phase II investigation activities. Analytical results indicate that corrosivity values range between 5.2 and 8.0 (unitless) at soil borings/monitoring wells MW-3 (13 to 14 feet bgs) and SB-1 (4 to 5 feet bgs), respectively.

A summary of Phase I and Phase II corrosivity analytical results is presented in Tables 6 and 7. Laboratory analytical data sheets are presented in Appendix D.

5.11.1.3 Cation Exchange Capacity

A total of 9 soil samples were collected and submitted for cation exchange capacity analyses by USEPA Method 9081 during the Phase I investigation activities. No cation exchange capacity samples were

collected for analyses during the Phase II investigation activities. Analytical results indicate that cation exchange capacity values range between 127 mg/kg to 2,480 mg/kg at soil borings/monitoring wells MW-5 (9 to 10 feet bgs) and MW-2 (18 to 19 feet bgs), respectively.

A summary of cation exchange capacity analytical results is presented in Table 6. Laboratory analytical data sheets are presented in Appendix D.

5.11.1.4 Total Organic Content

A total of 9 soil samples were collected and submitted for total organic content analyses by the SMCA Walkley-Bloc Method during the Phase I investigation activities. No total organic content samples were collected for analyses during the Phase II investigation activities. Analytical results indicate that total organic content concentrations were at non detectable levels for seven of the sample locations (MW-2 (4 to 5 feet bgs), MW-2 (18 to 19 feet bgs), MW-5 (9 to 10 feet bgs), MW-5 (25 to 26 feet bgs), MW-7 (20 to 22 feet bgs), MW-8 (7 to 8 feet bgs), and MW-8 (27 to 29 feet bgs). Total organic content concentration of 531 mg/kg and 619 mg/kg were detected at soil boring/monitoring well locations MW-8 (13 to 14 feet bgs) and MW-7 (9 to 10 feet bgs), respectively.

A summary of total organic content analytical results is presented in Table 6. Laboratory analytical data sheets are presented in Appendix D.

5.11.2 Groundwater Analyses

5.11.2.1 Shallow Zone

5.11.2.1.1 Volatile Organic Compounds

A total of 24 shallow zone groundwater samples (including two field blanks, one duplicate and two trip blanks) were collected and submitted for VOC analyses by USEPA Method 8260 during the Phase I and Phase II investigation activities. Analytical results as shown on Figures 19 through 32 indicate that nine VOCs; 1,1-DCA, 1,1-DCE, Cis-1,2-DCE, Trans-1,2-DCE, PCE, TCE, Vinyl Chloride, Chloroform and Methylene Chloride were detected at relatively low concentrations {at or below 270 micrograms per liter (ug/L)}.

1,1-DCA detections were observed at monitoring wells MW-1S, MW-6, MW-8S, MW-9S,and MW-10S. Detected concentrations ranged between 5.0 ug/L to 10.0 ug/L, at monitoring wells MW-6 and MW-10S, respectively.

1,1-DCE detections were observed at monitoring wells MW-1S, MW-7S, MW-8S, and MW-9S. Detected concentrations ranged between 7.8 ug/L and 9.5 ug/L, at monitoring wells MW-7S and MW-9S, respectively.

Cis-1,2-DCE detections were observed at MW-1S, MW-3, MW-4S, MW-5S, MW-6, MW-7S, MW-8S, MW-9S, and MW-10S. Detected concentrations ranged between 7.4 ug/L and 130 ug/L, at monitoring wells MW-3 and MW-1S, respectively.

Trans-1,2-DCE detections were observed at MW-1S and MW-9S. Detected concentrations ranged between 2.7 ug/L and 2.9 ug/L, at monitoring wells MW-9S and MW-1S, respectively.

PCE detections were observed at MW-4S, MW-6, MW-9S and MW-10S. Detected concentrations ranged between 5.9 ug/L and 230 ug/L, at monitoring wells MW-9S and MW-10S, respectively.

TCE detections were observed at MW-1S, MW-3, MW-4S, MW-5S, MW-6, MW-7S, MW-8S, MW-9S, and MW-10S. Detected concentrations ranged between 62 ug/L and 190 ug/L, at monitoring wells MW-4S and MW-8S, respectively.

Vinyl Chloride detections were observed only in upgradient monitoring well MW-1S. Detected concentrations ranged between 12 ug/L and 22 ug/L for Phase I and Phase II activities, respectively.

Chloroform detections were observed only at MW-5S. Detected concentrations ranged between 17 ug/L and 22 ug/L for Phase II and Phase I activities, respectively.

Methylene Chloride detections were only observed in the laboratory prepared trip blanks and the field blanks that were collected with laboratory supplied de-ionized water during the Phase I activities. Reported concentrations ranged between 16 ug/L and 60 ug/L (trip blank 1 and trip blank 2, respectively). These detections are considered to be a laboratory contaminant, as this compound is a common laboratory contaminant and was reported in several of the laboratory QA/QC samples.

A summary of Phase I and Phase II VOC analytical results is presented in Tables 8 and 9. Figure 14 depicts Phase I and Phase II monitoring well locations. Laboratory analytical data sheets are presented in Appendix D.

5.11.2.1.2 pH

A total of ten shallow zone groundwater samples (including one duplicate sample) were collected and submitted for pH analyses by USEPA Method 9040 during the Phase I and Phase II investigation activities. Analytical results indicate that pH values ranged between 6.7 and 7.2, at monitoring wells MW-4S and MW-6, and MW-4S and MW-5S and MW-7S, respectively.

A summary of Phase I pH analytical results is presented in Table 8. Figure 14 depicts Phase I and Phase II monitoring well locations. Laboratory analytical data sheets are presented in Appendix D.

5.11.2.1.3 Total Organic Content

Two shallow zone groundwater samples were collected and submitted for total organic content analyses by USEPA Method 9060 during the Phase I and Phase II investigation activities. Analytical results indicate that total organic content values ranged between 2.1 and 3.3 ug/L, at monitoring wells MW-4S and MW-1S, respectively.

A summary of total organic content analytical results is presented in Table 8. Figure 14 depicts Phase I and Phase II monitoring well locations. Laboratory analytical data sheets are presented in Appendix D.

5.11.2.2 Deep Zone

5.11.2.2.1 Volatile Organic Compounds

A total of 21 deep zone groundwater samples (including two field blanks, one duplicate and two trip blanks) were collected and submitted for VOC analyses by USEPA Method 8260 during the Phase I and Phase II investigation activities. Analytical results indicate that five VOCs (1,1-DCE, Cis-1,2-DCE, Vinyl Chloride and Methylene Chloride) were detected at relatively low concentrations (less than 760 ug/L), although at generally higher total VOC concentrations than the shallow zone.

1,1-DCE detections were observed at monitoring wells MW-1D, MW-2D, MW-4D, MW-5D, MW-7D, MW-8D, MW-9D and MW-10D. Detected concentrations ranged between 10 ug/L and 55 ug/l, at monitoring wells MW-10D and MW-1D, respectively.

Cis-1,2-DCE detections were observed at MW-1D, MW-2D, MW-4D, MW-5D, MW-7D, MW-8D, MW-9D, and MW-10D. Detected concentrations ranged between 55 ug/L and 180 ug/l, at monitoring wells MW-10D, and MW-1D and MW-4D, respectively.

TCE detections were observed at MW-1D, MW-2D, MW-4D, MW-5D, MW-7D, MW-8D, MW-9D, and MW-10D. Detected concentrations ranged between 160 ug/L and 760 ug/l, at monitoring wells MW-10D and MW-1D, respectively.

Vinyl Chloride detections were observed at MW-1D, MW-2D, MW-4D, MW-5D, MW-7D, MW-8D, MW-9D, and MW-10D. Detected concentrations ranged between 26 ug/L and 96 ug/l, at monitoring wells MW-10D and MW-2D, respectively.

A summary of Phase II VOC analytical results is presented in Tables 10 and 11. Figure 14 depicts Phase I and Phase II monitoring well locations. Laboratory analytical data sheets are presented in Appendix D.

5.11.2.2.2 pH

A total of six deep zone groundwater samples (including one duplicate sample) were collected and submitted for pH analyses by USEPA Method 9040 during the Phase I and Phase II investigation activities. Analytical results indicate that pH values ranged between 6.9 and 8.1, at monitoring wells MW-4Dand MW-MW-8D, respectively.

A summary of pH analytical results is presented in Table 10. Figure 14 depicts Phase I and Phase II monitoring well locations. Laboratory analytical data sheets are presented in Appendix D.

5.11.2.2.3 Total Organic Content

One deep zone groundwater sample was collected and submitted for total organic content analyses by USEPA Method 9060 during the Phase I and Phase II investigation activities. Analytical results indicate that the total organic content value was 5.0 ug/L, at monitoring well MW-8D.

A summary of total organic content analytical result is presented in Table 10. Figure 14 depicts Phase I and Phase II monitoring well locations. Laboratory analytical data sheets are presented in Appendix D.

TABLE 4
Grain Size Permeability Estimates
Van Waters & Rogers
Mosley Avenue Facility, Wichita, Kansas
SECOR Project No. 60013-001-01

Sample Locations, Depth in feet bgs	Aquifer Zone	Condition	K Value Hazen
MW-1, 7.5-8.5	Shallow	Unsaturated	2.9×10^{-2} cm/sec, 81.92 ft/day
MW-2, 14-15	Shallow	Saturated	4×10^{-3} cm/sec, 11.98 ft/day
MW-4, 4-5	Shallow	Unsaturated	1×10^{-4} cm/sec, 0.10 ft/day
MW-4, 9-10	Shallow	Saturated	2.9×10^{-2} cm/sec, 81.92 ft/day
MW-7, 4-5	Shallow	Unsaturated	1.7×10^{-2} cm/sec, 47.91 ft/day
MW-7, 17-19	Shallow	Saturated	4×10^{-2} cm/sec, 125.01 ft/day
MW-8, 8-10	Shallow	Unsaturated	2.9×10^{-2} cm/sec, 81.92 ft/day
MW-2, 18-19	Transition	Saturated	1×10^{-4} cm/sec, 0.07 ft/day
MW-4, 26-28	Transition	Saturated	9×10^{-3} cm/sec, 25.58 ft/day
MW-8, 14-15	Transition	Saturated	8×10^{-3} cm/sec, 21.95 ft/day
MW-2, 30-32	Deep	Saturated	7.8×10^{-2} cm/sec, 222.24 ft/day
MW-4, 30-32	Deep	Saturated	1.1×10^{-1} cm/sec, 308.69 ft/day
MW-5, 21-22	Deep	Saturated	6.3×10^{-2} cm/sec, 177.17 ft/day
MW-5, 34-35	Deep	Saturated	3.2×10^{-2} cm/sec, 91.84 ft/day
MW-7, 32-34	Deep	Saturated	1×10^{-1} cm/sec, 290.27 ft/day
MW-8, 29-31	Deep	Saturated	1.6×10^{-1} cm/sec, 453.54 ft/day

Hazen = permeability estimates obtained via the Hazen method
bgs = below ground surface
K = hydraulic conductivity
cm/sec = centimeters per second
ft/day = feet per day

TABLE 5
Summary of Slug Test Data Analysis
Van Waters & Rogers
Mosley Avenue Facility, Wichita, Kansas
SECOR Project No. 60013-001-01

Well Identification	SLUG IN Hydraulic Conductivity ft/min	SLUG OUT Hydraulic Conductivity ft/min	SLUG IN Hydraulic Conductivity cm/sec	SLUG OUT Hydraulic Conductivity cm/sec
MW-1S	7.44E-02	7.68E-02	3.78E-02	3.90E-02
MW-1D	2.31E-01	3.15E-01	1.17E-01	1.60E-01
MW-2S	1.81E-01	1.50E-01	9.19E-02	7.60E-02
MW-2D	3.80E-01	3.94E-01	1.93E-01	2.00E-01
MW-4S	9.62E-02	1.53E-01	4.89E-02	7.79E-02
MW-4D	3.14E-01	3.43E-01	1.60E-01	1.74E-01
MW-5S	1.48E-01	1.28E-01	7.49E-02	6.48E-02
MW-5D	2.66E-01	1.98E-01	1.35E-01	1.01E-01
MW-7S	2.18E-02	3.61E-02	1.11E-02	1.83E-02
MW-7D	2.84E-01	2.80E-01	1.44E-01	1.42E-01
MW-8S	1.32E-01	1.30E-01	6.71E-02	6.62E-02
MW-8D	2.66E-01	2.07E-01	1.35E-01	1.05E-01

TABLE 6
Phase I Soil Analytical Results
VOCs, TOC, CEC and Corrosivity
Van Waters & Rogers
Mosley Avenue Facility, Wichita, Kansas
SECOR Project No. 60013-001-01

Soil Boring Locations	MW-1	MW-1	MW-2	MW-2	MW-2	MW-3	MW-3	MW-4	MW-4	MW-4	MW-5	MW-5	MW-6	MW-6	MW-7	MW-7	MW-8	MW-8	MW-8	MW-8	MW-9	MW-9	SB-1	SB-1	SB-2	SB-2
Depth in feet bgs	7.5-8.5	12.5-13.5	4-5	14-15	18-19	4-5	13-14	4-5	9-10	12.5-13.5	9-10	25-26	4-5	9-10	9-10	20-22	2-3	7-8	13-14	27-29	3-5	7-9	4-5	9-10	3-4	9-10
TCE	ND	ND	ND	ND	ND	5.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	12.0	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TOC	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	ND	ND	NA	NA	619	ND	NA	ND	531	ND	NA	NA	NA	NA	NA	NA
CEC	NA	NA	463	NA	2480	NA	NA	NA	NA	NA	127	780	NA	NA	365	597	NA	898	759	363	NA	NA	NA	NA	NA	NA
Corrosivity (pH)	7.0	7.7	6.8	6.8	NA	7.1	5.2	7.9	8.2	7.7	7.3	7.8	7.8	7.6	NA	NA	7.0	6.6	NA	NA	7.2	7.4	8.0	7.1	6.4	7.4

bgs = Below Ground Surface
TCE = Trichloroethene [in micrograms per kilogram (mg/kg) equivalent to part per billion (ppb)] by USEPA Method 8260
TOC = Total Organic Carbon [in milligrams per kilogram (mg/kg) equivalent to part per million (ppm)] by SMCA Walkley-Bloc Method
CEC = Cation Exchange Capacity in mg/kg by USEPA Method 9081
Corrosivity = Equivalent to pH unitless by USEPA Method 9045
ND = Not Detected Above Analytical Detection Limit
NA = Not Analyzed For

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DRAFT REMEDIAL INVESTIGATION REPORT
VAN WATERS & ROGERS, INC.
MOSLEY AVENUE FACILITY
WICHITA, KANSAS

Prepared by

SECOR International Incorporated

March 29, 1999

APPENDIX B

LABORATORY DATA SHEETS - PARTICLE SIZE DISTRIBUTION

SECOR
International Incorporated
Geotechnical Laboratory
2205 Jolly Road
Suite A
Okemos, MI 48864

LABORATORY DATA

Sample:	MW 1D
Depth:	7.5-8.5
Date:	8/7/98

Sieve Analysis

Mass of soil used (g) = 579.4

Error due to lost material (%) = 0.10

Sieve Number	Opening Size (mm)	Sieve Mass (grams)	Total Mass (grams)	Soil Mass (grams)	Cum. Mass (grams)	Percent Passing
10	2.000	468.5	489.9	21.4	21.4	96.3
20	0.850	412.1	537.4	125.3	146.7	74.7
40	0.425	382.4	553.1	170.7	317.4	45.3
70	0.212	320.8	473.5	152.7	470.1	18.9
100	0.150	335.2	386.1	50.9	521	10.2
200	0.075	332.5	366.1	33.6	554.6	4.4
pan	--	376.6	402	25.4	580	0.0

Density Relations

Sample Condition	Disturbed (Bagged)

Volume Sampled (cm^3)	20.00
Mass of Tare (g)	1.44
Mass of $Sample_{Natural}$ + Tare (g)	37.06
Mass of $Sample_{Dry}$ + Tare (g)	33.82
Mass of $Sample_{Natural}$ (g)	35.62
Mass of $Sample_{Dry}$ (g)	32.38
Mass of Water (g)	3.24

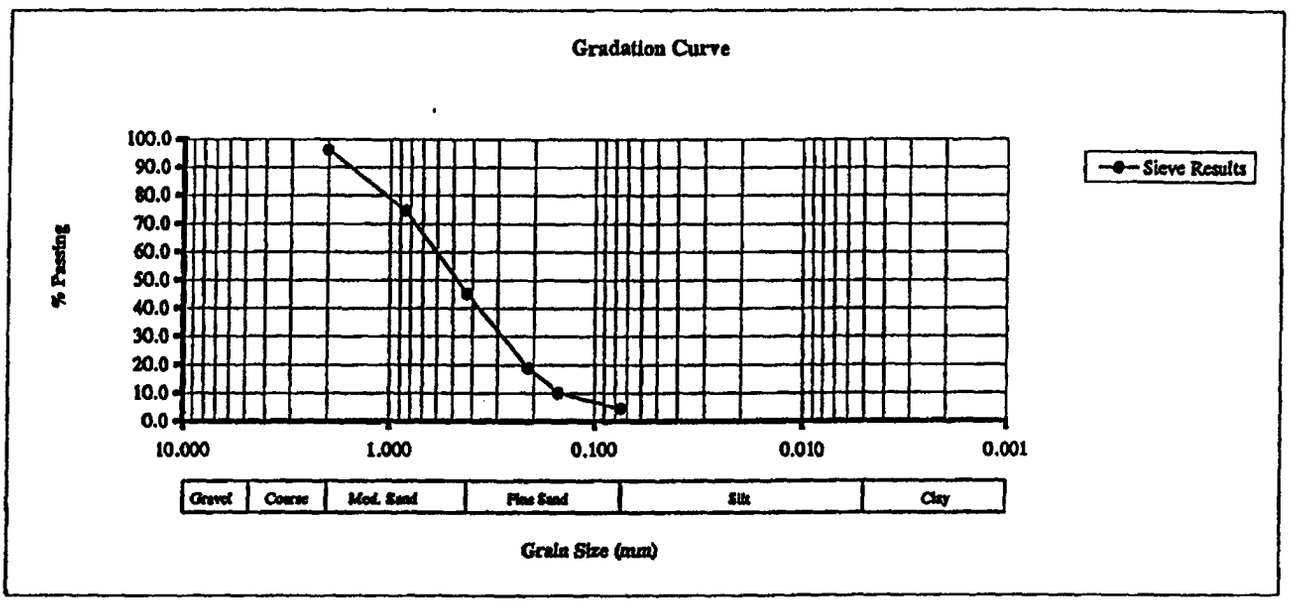
SECOR

International Incorporated
Geotechnical Laboratory
2205 Jolly Road
Suite A
Okemos, MI 48864

RESULTS

Sample:	MW 1D
Depth:	7.5-8.5
Date:	8/7/98

Sieve Analysis



Sieve Information

Sieve	Diameter, mm
4	4.750
10	2.000
20	0.850
40	0.425
70	0.210
100	0.150
200	0.075

Diameters Corresponding To % Passing (mm)	
D_5 =	0.075
D_{10} =	0.170
D_{15} =	0.190
D_{30} =	0.290
D_{60} =	0.600

Soil Grain Size Distribution By Sieve Analysis

Soil Fraction	Size Range	% of Total
Gravel	75mm to 4.75mm	0.0
Coarse Sand	4.75mm to 2.00mm	3.7
Medium Sand	2.00mm to .425mm	51.0
Fine Sand	.425mm to .075 mm	40.9
Silt-Clay	Material smaller than .075mm	4.4

Soil Grain Size Distribution By Hydrometer Analysis

Soil Fraction	Size Range	% of Total
Silt	.075mm to .005mm	NA
Clay	Material smaller than .005mm	NA

Shape Parameters

Coefficient Of Uniformity, C_u	3.5
Coefficient Of Curvature, C_c	0.8

USDA Soil Classification	NA

Density and Water Content

	lb/ft³	Mg/m³
Dry Density	101.1	1.6
Bulk Density	111.2	1.8

Water Content	10.0	%

SECOR
International Incorporated
Geotechnical Laboratory
2205 Jolly Road
Suite A
Okemos, MI 48864

LABORATORY DATA

Sample:	MW 2D
Depth:	14-15
Date:	8/6/98

Sieve Analysis

Mass of soil used (g) = 512.1

Error due to lost material (%) = 0.04

Sieve Number	Opening Size (mm)	Sieve Mass (grams)	Total Mass (grams)	Soil Mass (grams)	Cum. Mass (grams)	Percent Passing
10	2.000	469.0	500.4	31.4	31.4	93.9
20	0.850	412.5	489.2	76.7	108.1	78.9
40	0.425	382.2	476.3	94.1	202.2	60.5
70	0.212	320.8	428.3	107.5	309.7	39.5
100	0.150	335.1	400.2	65.1	374.8	26.8
200	0.075	332.5	406.6	74.1	448.9	12.4
pan	--	376.5	439.9	63.4	512.3	0.0

Density Relations

Sample Condition	Disturbed (Bagged)

Volume Sampled (cm^3)	20.00
Mass of Tare (g)	1.44
Mass of $Sample_{Natural}$ + Tare (g)	37.04
Mass of $Sample_{Dry}$ + Tare (g)	33.07
Mass of $Sample_{Natural}$ (g)	35.60
Mass of $Sample_{Dry}$ (g)	31.63
Mass of Water (g)	3.97

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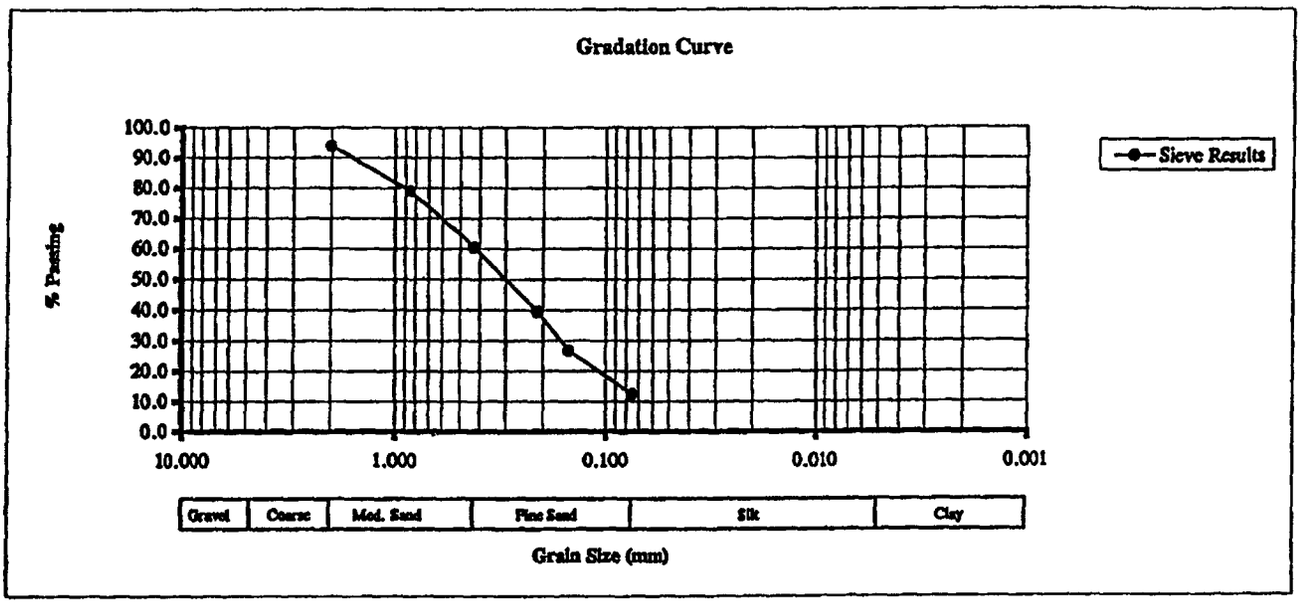
RESULTS

Sample:	MW 2D
Depth:	14-15
Date:	8/6/98

Sieve Analysis



Sieve Information

Sieve	Diameter, mm
4	4.750
10	2.000
20	0.850
40	0.425
70	0.210
100	0.150
200	0.075

Diameters Corresponding To % Passing (mm)	
D_5 =	–
D_{10} =	0.065
D_{15} =	0.085
D_{30} =	0.175
D_{60} =	0.430

Soil Grain Size Distribution By Sieve Analysis

Soil Fraction	Size Range	% of Total
Gravel	75mm to 4.75mm	0.0
Coarse Sand	4.75mm to 2.00mm	6.1
Medium Sand	2.00mm to .425mm	33.3
Fine Sand	.425mm to .075 mm	48.2
Silt-Clay	Material smaller than .075mm	12.4

Soil Grain Size Distribution By Hydrometer Analysis

Soil Fraction	Size Range	% of Total
Silt	.075mm to .005mm	NA
Clay	Material smaller than .005mm	NA

Shape Parameters

Coefficient Of Uniformity, C_u	6.6
Coefficient Of Curvature, C_c	1.1

USDA Soil Classification	NA

Density and Water Content

	lb/ft³	Mg/m³
Dry Density	98.8	1.6
Bulk Density	111.2	1.8

Water Content	12.6	%

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LABORATORY DATA

Sample:	MW 2D
Depth:	18-19
Date:	8/7/98

Sieve Analysis

Mass of soil used (g) = 210.20

Error due to lost material (%) = 0.14

Sieve Number	Opening Size (mm)	Sieve Mass (grams)	Total Mass (grams)	Soil Mass (grams)	Cum. Mass (grams)	Percent Passing
10	2.000	468.8	480.3	11.5	11.5	94.5
20	0.850	412.7	439.3	26.6	38.1	81.9
40	0.425	382.2	396.6	14.4	52.5	75.1
70	0.212	320.8	337.1	16.3	68.8	67.3
100	0.150	335.0	368.1	33.1	101.9	51.6
200	0.075	332.4	392.3	59.9	161.8	23.1
pan	--	376.5	425.2	48.7	210.5	0.0

Hydrometer Analysis

Mass of material before #40 sieving (g) = 210.20

Mass of material finer than #40 (g) = 157.65

Adjusted representative mass (g) = 66.67

Time (sec)	Temp. (°C)	R_{HYD}	R_{CONT}	R_{CORR}	L (cm)	Diameter (mm)	Percent Finer	Total % Passing
15	24.5	23.5	4.0	19.5	12.28	0.0957	39.0	29.3
30	24.5	19.0	4.0	15.0	13.02	0.0697	30.0	22.5
60	24.5	18.0	4.0	14.0	13.18	0.0496	28.0	21.0
120	24.5	16.3	4.0	12.3	13.47	0.0354	24.5	18.4
180	24.5	15.0	4.0	11.0	13.67	0.0291	22.0	16.5
300	24.5	14.0	4.0	10.0	13.84	0.0227	20.0	15.0
600	25.0	13.0	4.0	9.0	14.00	0.0162	18.0	13.5
1200	25.0	12.0	4.0	8.0	14.17	0.0115	16.0	12.0
1860	25.0	11.5	4.0	7.5	14.25	0.0093	15.0	11.3
4200	25.0	11.3	4.0	7.3	14.29	0.0062	14.5	10.9
12600	23.5	11.0	5.0	6.0	14.33	0.0036	12.0	9.0
65400	25.0	10.3	4.5	5.8	14.45	0.0016	11.5	8.6
194160	25.0	9.5	4.5	5.0	14.58	0.0009	10.0	7.5

Density Relations

Sample Condition	Disturbed (Bagged)

Volume Sampled (cm^3)	20.00
Mass of Tare (g)	1.45
Mass of $Sample_{Natural}$ + Tare (g)	41.99
Mass of $Sample_{Dry}$ + Tare (g)	34.43
Mass of $Sample_{Natural}$ (g)	40.54
Mass of $Sample_{Dry}$ (g)	32.98
Mass of Water (g)	7.56

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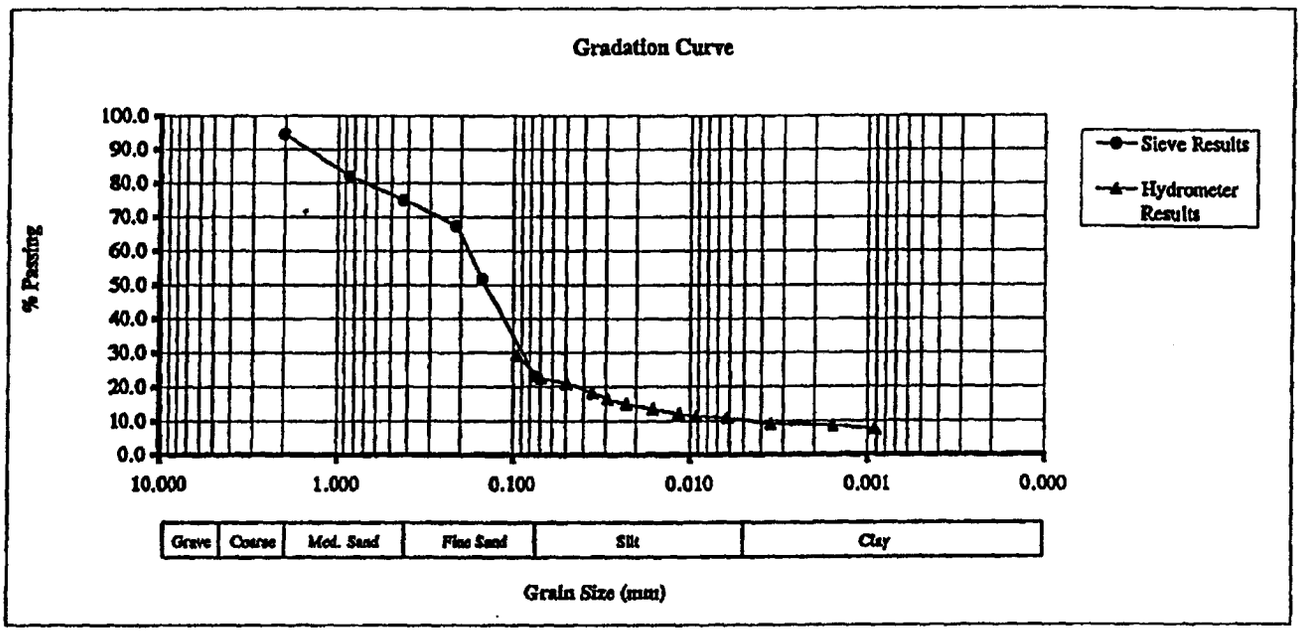
RESULTS

Sample:	MW 2D
Depth:	18-19
Date:	8/7/98

Sieve Analysis



Sieve Information

Sieve	Diameter, mm
4	4.750
10	2.000
20	0.850
40	0.425
70	0.210
100	0.150
200	0.075

Diameters Corresponding To % Passing (mm)	
D_5 =	--
D_{10} =	0.005
D_{15} =	0.022
D_{30} =	0.092
D_{60} =	0.175

Soil Grain Size Distribution By Sieve Analysis

Soil Fraction	Size Range	% of Total
Gravel	75mm to 4.75mm	0.0
Coarse Sand	4.75mm to 2.00mm	5.5
Medium Sand	2.00mm to .425mm	19.5
Fine Sand	.425mm to .075 mm	51.9
Silt-Clay	Material smaller than .075mm	23.1

Soil Grain Size Distribution By Hydrometer Analysis

Soil Fraction	Size Range	% of Total
Silt	.075mm to .005mm	13.5
Clay	Material smaller than .005mm	9.0

Shape Parameters

Coefficient Of Uniformity, C_u	35.0
Coefficient Of Curvature, C_c	9.7

USDA Soil Classification	Sandy Loam

Density and Water Content

	lb/ft³	Mg/m³
Dry Density	103.0	1.6
Bulk Density	126.6	2.0

Water Content	22.9	%

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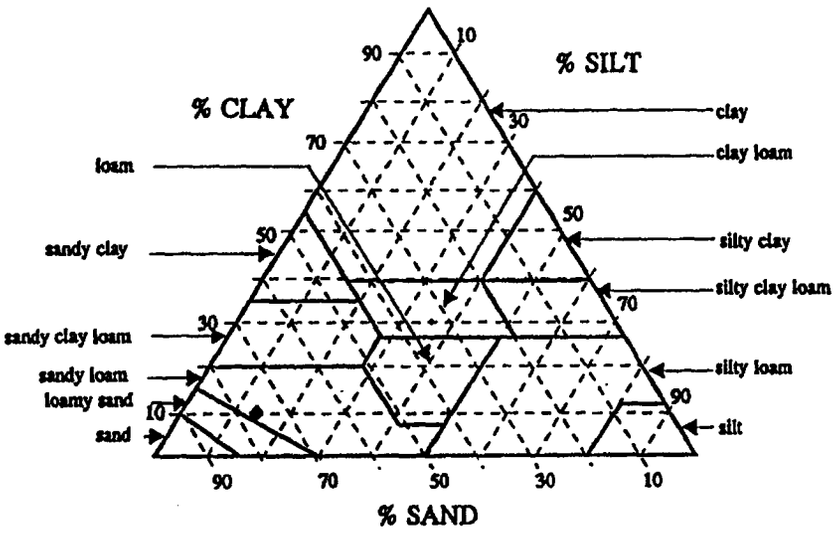
LABORATORY DATA

Sample:	MW 2D
Depth:	18-19
Date:	8/7/98

USDA SOIL TYPE



	Sand	Clay	Silt
%	76.9	9.0	13.5

USDA Soil Type: Sandy Loam

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LABORATORY DATA

Sample:	MW 2D
Depth:	30-32
Date:	8/6/98

Sieve Analysis

Mass of soil used (g) = 735.1

Error due to lost material (%) = 0.10

Sieve Number	Opening Size (mm)	Sieve Mass (grams)	Total Mass (grams)	Soil Mass (grams)	Cum. Mass (grams)	Percent Passing
10	2.000	468.6	653.0	184.4	184.4	74.9
20	0.850	412.6	651.0	238.4	422.8	42.5
40	0.425	382.1	544.9	162.8	585.6	20.4
70	0.212	320.7	438.1	117.4	703	4.5
100	0.150	335.0	349.3	14.3	717.3	2.5
200	0.075	332.4	341.0	8.6	725.9	1.3
pan	--	376.4	386.3	9.9	735.8	0.0

Density Relations

Sample Condition	Disturbed (Bagged)

Volume Sampled (cm^3)	20.00
Mass of Tare (g)	1.62
Mass of $Sample_{Natural}$ + Tare (g)	39.09
Mass of $Sample_{Dry}$ + Tare (g)	35.51
Mass of $Sample_{Natural}$ (g)	37.47
Mass of $Sample_{Dry}$ (g)	33.89
Mass of Water (g)	3.58

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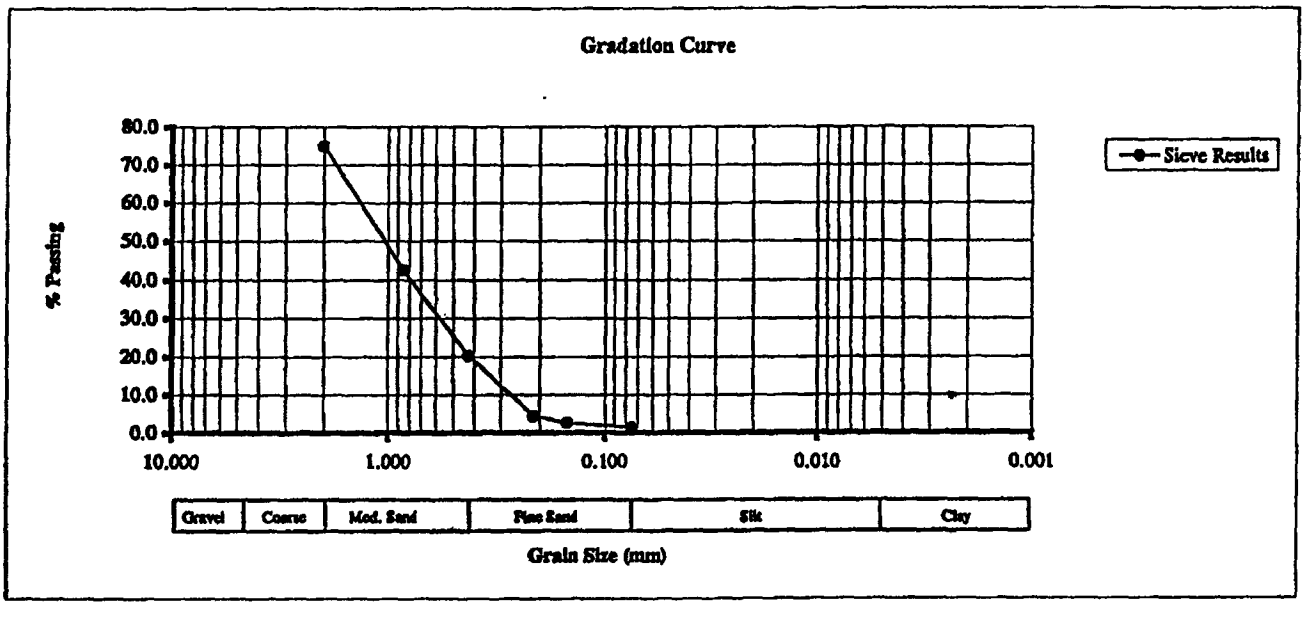
RESULTS

Sample:	MW 2D
Depth:	30-32
Date:	8/6/98

Sieve Analysis



Sieve Information

Sieve	Diameter, mm
4	4.750
10	2.000
20	0.850
40	0.425
70	0.210
100	0.150
200	0.075

Diameters Corresponding To % Passing (mm)	
D_5 =	0.230
D_{10} =	0.280
D_{15} =	0.350
D_{30} =	0.600
D_{60} =	1.450

Soil Grain Size Distribution By Sieve Analysis

Soil Fraction	Size Range	% of Total
Gravel	75mm to 4.75mm	0.0
Coarse Sand	4.75mm to 2.00mm	25.1
Medium Sand	2.00mm to .425mm	54.5
Fine Sand	.425mm to .075 mm	19.1
Silt-Clay	Material smaller than .075mm	1.3

Soil Grain Size Distribution By Hydrometer Analysis

Soil Fraction	Size Range	% of Total
Silt	.075mm to .005mm	NA
Clay	Material smaller than .005mm	NA

Shape Parameters

Coefficient Of Uniformity, C_u	5.2
Coefficient Of Curvature, C_c	0.9

USDA Soil Classification	NA

Density and Water Content

	lb/ft^3	Mg/m^3
Dry Density	105.8	1.7
Bulk Density	117.0	1.9

Water Content	10.6	%

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LABORATORY DATA

Sample:	MW 4D
Depth:	4-5
Date:	8/10/98

Sieve Analysis

Mass of soil used (g) = 261.12

Error due to lost material (%) = 0.11

Sieve Number	Opening Size (mm)	Sieve Mass (grams)	Total Mass (grams)	Soil Mass (grams)	Cum. Mass (grams)	Percent Passing
10	2.000	469.1	478.1	9.0	9.0	96.6
20	0.850	412.7	459.1	46.4	55.4	78.8
40	0.425	382.3	429.1	46.8	102.2	60.9
70	0.212	320.8	368.2	47.4	149.6	42.8
100	0.150	335.2	355.9	20.7	170.3	34.9
200	0.075	332.5	362.6	30.1	200.4	23.3
pan	--	376.5	437.5	61.0	261.4	0.0

Hydrometer Analysis

Mass of material before #40 sieving (g) = --

Mass of material finer than #40 (g) = --

Adjusted representative mass (g) = 134.20

Time (sec)	Temp. (°C)	R_{HYD}	R_{CONT}	R_{CORR}	L (cm)	Diameter (mm)	Percent Finer	Total % Passing
15	25.0	38.0	4.0	34.0	9.90	0.0859	68.0	25.3
30	25.0	37.0	4.0	33.0	10.06	0.0612	66.0	24.6
60	25.0	34.0	4.0	30.0	10.56	0.0444	60.0	22.4
120	25.0	29.0	4.0	25.0	11.38	0.0326	50.0	18.6
180	25.0	26.5	4.0	22.5	11.79	0.0271	45.0	16.8
300	25.0	24.0	4.0	20.0	12.20	0.0213	40.0	14.9
600	25.0	21.5	4.0	17.5	12.61	0.0153	35.0	13.0
1200	25.0	19.5	4.0	15.5	12.94	0.0110	31.0	11.5
3600	25.0	18.0	4.0	14.0	13.18	0.0064	28.0	10.4
11400	23.5	17.0	5.0	12.0	13.35	0.0036	24.0	8.9
64800	25.0	15.5	4.5	11.0	13.59	0.0015	22.0	8.2
193500	25.0	14.5	4.5	10.0	13.76	0.0009	20.0	7.5

Density Relations

Sample Condition	Disturbed (Bagged)

Volume Sampled (cm^3)	20.00
Mass of Tare (g)	1.67
Mass of $Sample_{Natural}$ + Tare (g)	37.15
Mass of $Sample_{Dry}$ + Tare (g)	31.84
Mass of $Sample_{Natural}$ (g)	35.48
Mass of $Sample_{Dry}$ (g)	30.17
Mass of Water (g)	5.31

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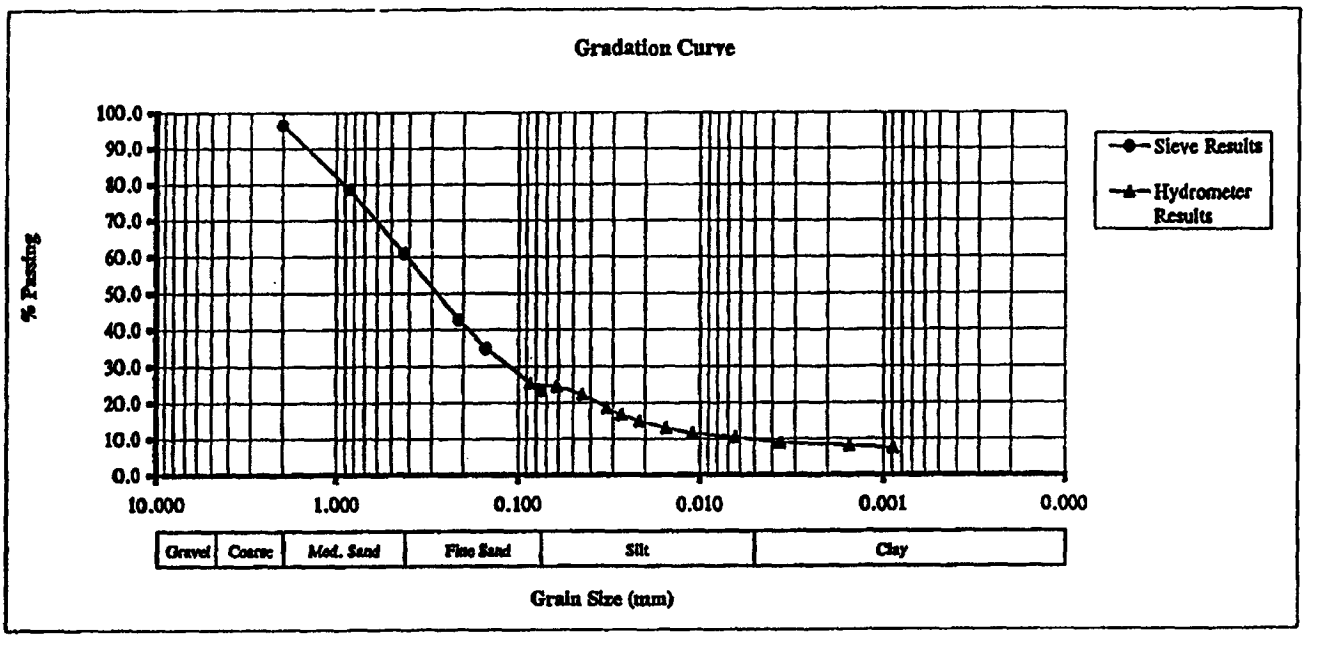
RESULTS

Sample:	MW 4D
Depth:	4-5
Date:	8/10/98

Sieve Analysis



Sieve Information

Sieve	Diameter, mm
4	4.750
10	2.000
20	0.850
40	0.425
70	0.210
100	0.150
200	0.075

Diameters Corresponding To % Passing (mm)	
D_5 =	--
D_{10} =	0.006
D_{15} =	0.023
D_{30} =	0.120
D_{60} =	0.400

Soil Grain Size Distribution By Sieve Analysis

Soil Fraction	Size Range	% of Total
Gravel	75mm to 4.75mm	0.0
Coarse Sand	4.75mm to 2.00mm	3.4
Medium Sand	2.00mm to .425mm	35.7
Fine Sand	.425mm to .075 mm	37.6
Silt-Clay	Material smaller than .075mm	23.3

Soil Grain Size Distribution By Hydrometer Analysis

Soil Fraction	Size Range	% of Total
Silt	.075mm to .005mm	14.2
Clay	Material smaller than .005mm	10.4

Shape Parameters

Coefficient Of Uniformity, C_u	66.7
Coefficient Of Curvature, C_c	6.0

USDA Soil Classification	Sandy Loam

Density and Water Content

	lb/ft³	Mg/m³
Dry Density	94.2	1.5
Bulk Density	110.8	1.8

Water Content	17.6	%

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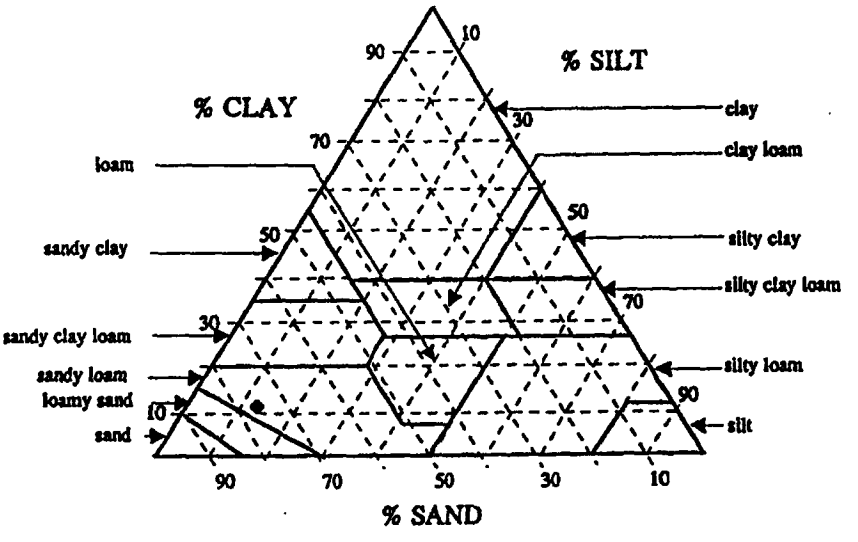
LABORATORY DATA

Sample:	MW 4D
Depth:	4-5
Date:	8/10/98

USDA SOIL TYPE



	Sand	Clay	Silt
%	76.7	10.4	14.2

USDA Soil Type: Sandy Loam

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LABORATORY DATA

Sample:	MW 4D
Depth:	9-10
Date:	8/10/98

Sieve Analysis

Mass of soil used (g) = 328.9

Error due to lost material (%) = 0.30

Sieve Number	Opening Size (mm)	Sieve Mass (grams)	Total Mass (grams)	Soil Mass (grams)	Cum. Mass (grams)	Percent Passing
10	2.000	469.3	473.8	4.5	4.5	98.6
20	0.850	412.5	428.3	15.8	20.3	93.8
40	0.425	382.1	471.6	89.5	109.8	66.7
70	0.212	320.7	477.8	157.1	266.9	19.1
100	0.150	334.9	377.9	43	309.9	6.1
200	0.075	332.4	347.9	15.5	325.4	1.4
pan	–	376.3	380.8	4.5	329.9	0.0

Density Relations

Sample Condition	Disturbed (Bagged)

Volume Sampled (cm^3)	20.00
Mass of Tare (g)	1.49
Mass of $Sample_{Natural}$ + Tare (g)	34.36
Mass of $Sample_{Dry}$ + Tare (g)	32.50
Mass of $Sample_{Natural}$ (g)	32.87
Mass of $Sample_{Dry}$ (g)	31.01
Mass of Water (g)	1.86

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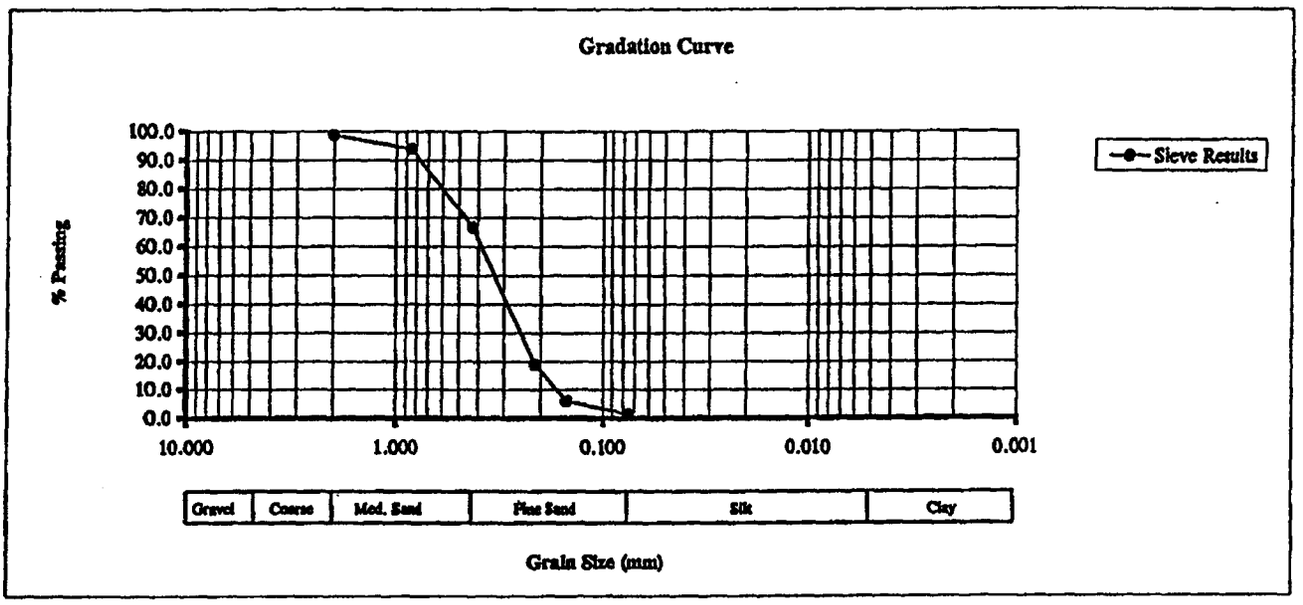
RESULTS

Sample:	MW 4D
Depth:	9-10
Date:	8/10/98

Sieve Analysis



Sieve Information

Sieve	Diameter, mm
4	4.750
10	2.000
20	0.850
40	0.425
70	0.210
100	0.150
200	0.075

Diameters Corresponding To % Passing (mm)	
D_5 =	0.140
D_{10} =	0.170
D_{15} =	0.19
D_{30} =	0.26
D_{60} =	0.39

Soil Grain Size Distribution By Sieve Analysis

Soil Fraction	Size Range	% of Total
Gravel	75mm to 4.75mm	0.0
Coarse Sand	4.75mm to 2.00mm	1.4
Medium Sand	2.00mm to .425mm	31.9
Fine Sand	.425mm to .075 mm	65.4
Silt-Clay	Material smaller than .075mm	1.4

Soil Grain Size Distribution By Hydrometer Analysis

Soil Fraction	Size Range	% of Total
Silt	.075mm to .005mm	NA
Clay	Material smaller than .005mm	NA

Shape Parameters

Coefficient Of Uniformity, C_u	2.3
Coefficient Of Curvature, C_c	1.0

USDA Soil Classification	NA

Density and Water Content

	lb/ft^3	Mg/m^3
Dry Density	96.8	1.6
Bulk Density	102.6	1.6

Water Content	6.0	%

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LABORATORY DATA

Sample:	MW 4D
Depth:	26-28
Date:	8/10/98

Sieve Analysis

Mass of soil used (g) = 137.7

Error due to lost material (%) = 0.00

Sieve Number	Opening Size (mm)	Sieve Mass (grams)	Total Mass (grams)	Soil Mass (grams)	Cum. Mass (grams)	Percent Passing
10	2.000	469.0	486.9	17.9	17.9	87.0
20	0.850	412.6	447.5	34.9	52.8	61.7
40	0.425	382.1	412.8	30.7	83.5	39.4
70	0.212	320.8	347.1	26.3	109.8	20.3
100	0.150	335.1	342.7	7.6	117.4	14.7
200	0.075	332.5	342.1	9.6	127	7.8
pan	–	376.4	387.1	10.7	137.7	0.0

Density Relations

Sample Condition	Disturbed (Bagged)

Volume Sampled (cm^3)	20.00
Mass of Tare (g)	1.48
Mass of $Sample_{Natural}$ + Tare (g)	41.34
Mass of $Sample_{Dry}$ + Tare (g)	32.44
Mass of $Sample_{Natural}$ (g)	39.86
Mass of $Sample_{Dry}$ (g)	30.96
Mass of Water (g)	8.90

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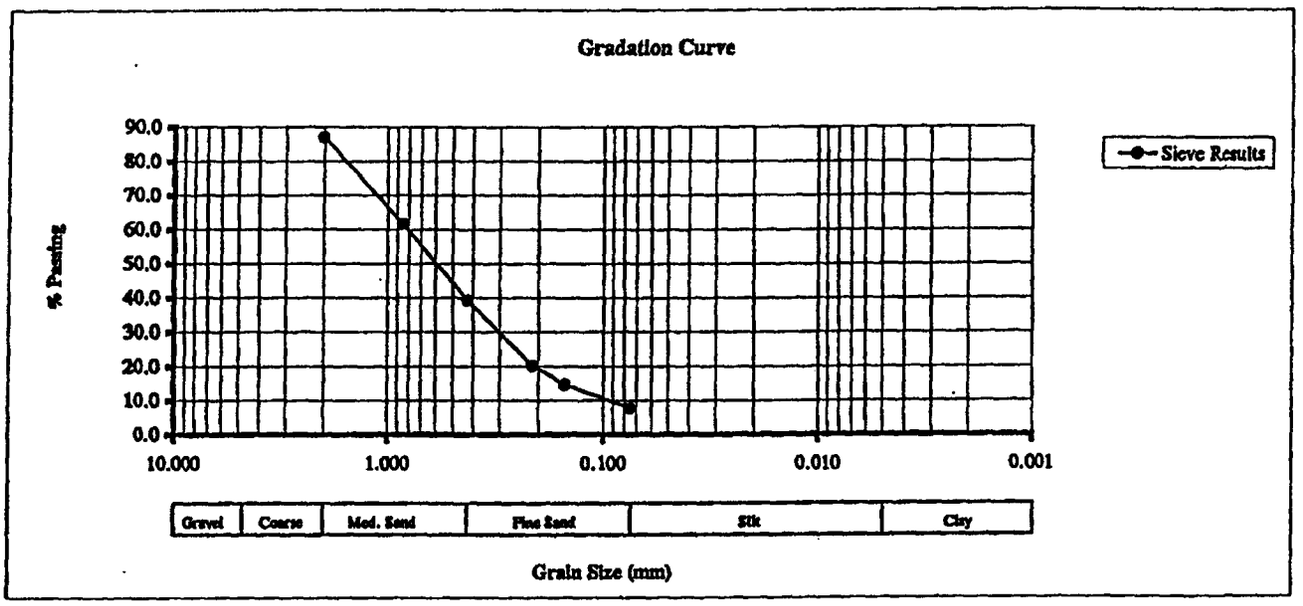
RESULTS

Sample:	MW 4D
Depth:	26-28
Date:	8/10/98

Sieve Analysis



Sieve Information

Sieve	Diameter, mm
4	4.750
10	2.000
20	0.850
40	0.425
70	0.210
100	0.150
200	0.075

Diameters Corresponding To % Passing (mm)	
D_5 =	–
D_{10} =	0.095
D_{15} =	0.17
D_{30} =	0.30
D_{60} =	0.85

Soil Grain Size Distribution By Sieve Analysis

Soil Fraction	Size Range	% of Total
Gravel	75mm to 4.75mm	0.0
Coarse Sand	4.75mm to 2.00mm	13.0
Medium Sand	2.00mm to .425mm	47.6
Fine Sand	.425mm to .075 mm	31.6
Silt-Clay	Material smaller than .075mm	7.8

Soil Grain Size Distribution By Hydrometer Analysis

Soil Fraction	Size Range	% of Total
Silt	.075mm to .005mm	NA
Clay	Material smaller than .005mm	NA

Shape Parameters

Coefficient Of Uniformity, C_u	8.9
Coefficient Of Curvature, C_c	1.1

USDA Soil Classification	NA

Density and Water Content

	lb/ft^3	Mg/m^3
Dry Density	96.7	1.5
Bulk Density	124.5	2.0

Water Content	28.7	%

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LABORATORY DATA

Sample:	MW 4D
Depth:	30-32
Date:	8/10/98

Sieve Analysis

Mass of soil used (g) = 397.4

Error due to lost material (%) = 0.10

Sieve Number	Opening Size (mm)	Sieve Mass (grams)	Total Mass (grams)	Soil Mass (grams)	Cum. Mass (grams)	Percent Passing
10	2.000	469.0	628.2	159.2	159.2	59.9
20	0.850	412.5	544.6	132.1	291.3	26.6
40	0.425	382.2	436.9	54.7	346	12.8
70	0.212	320.9	347.7	26.8	372.8	6.1
100	0.150	335.0	342.4	7.4	380.2	4.2
200	0.075	332.5	340.3	7.8	388	2.3
pan	--	376.5	385.5	9	397	0.0

Density Relations

Sample Condition	Disturbed (Bagged)

Volume Sampled (cm^3)	20.00
Mass of Tare (g)	1.67
Mass of $Sample_{Natural}$ + Tare (g)	37.70
Mass of $Sample_{Dry}$ + Tare (g)	35.10
Mass of $Sample_{Natural}$ (g)	36.03
Mass of $Sample_{Dry}$ (g)	33.43
Mass of Water (g)	2.60

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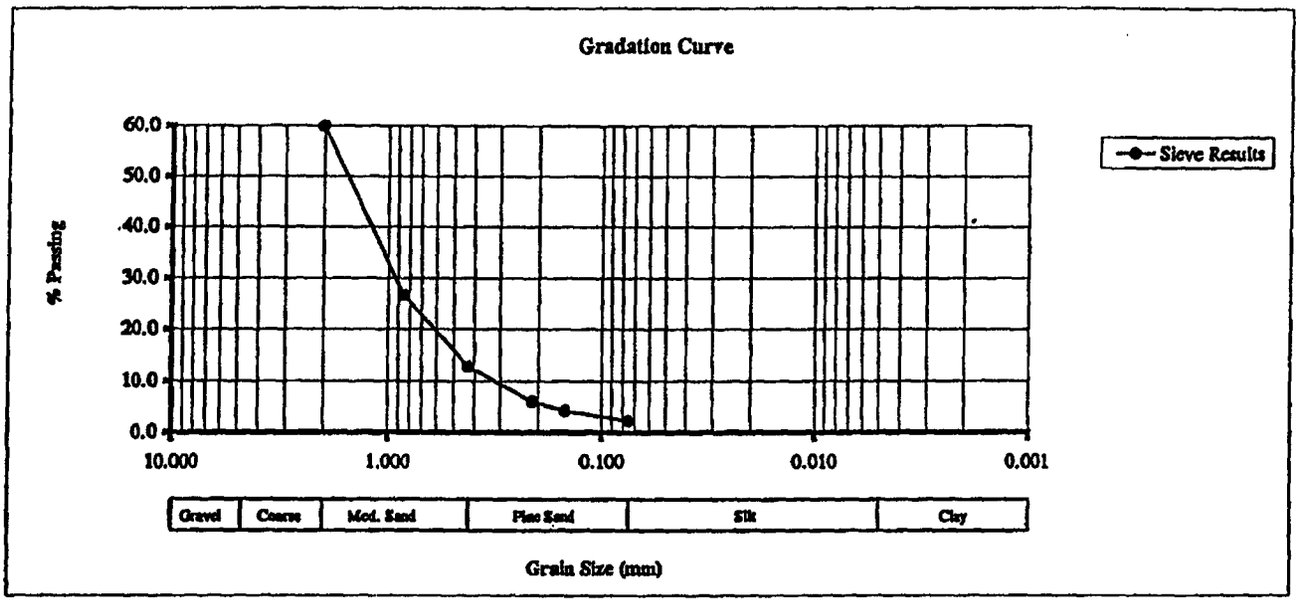
RESULTS

Sample:	MW 4D
Depth:	30-32
Date:	8/10/98

Sieve Analysis



Sieve Information

Sieve	Diameter, mm
4	4.750
10	2.000
20	0.850
40	0.425
70	0.210
100	0.150
200	0.075

Diameters Corresponding To % Passing (mm)	
D_5 =	0.190
D_{10} =	0.330
D_{15} =	0.45
D_{30} =	0.95
D_{60} =	2.00

Soil Grain Size Distribution By Sieve Analysis

Soil Fraction	Size Range	% of Total
Gravel	75mm to 4.75mm	0.0
Coarse Sand	4.75mm to 2.00mm	40.1
Medium Sand	2.00mm to .425mm	47.1
Fine Sand	.425mm to .075 mm	10.6
Silt-Clay	Material smaller than .075mm	2.3

Soil Grain Size Distribution By Hydrometer Analysis

Soil Fraction	Size Range	% of Total
Silt	.075mm to .005mm	NA
Clay	Material smaller than .005mm	NA

Shape Parameters

Coefficient Of Uniformity, C_u	6.1
Coefficient Of Curvature, C_c	1.4

USDA Soil Classification	NA

Density and Water Content

	lb/ft³	Mg/m³
Dry Density	104.4	1.7
Bulk Density	112.5	1.8

Water Content	7.8	%

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LABORATORY DATA

Sample:	MW 5D
Depth:	21-22
Date:	8/7/98

Sieve Analysis

Mass of soil used (g) = 359.1

Error due to lost material (%) = 0.19

Sieve Number	Opening Size (mm)	Sieve Mass (grams)	Total Mass (grams)	Soil Mass (grams)	Cum. Mass (grams)	Percent Passing
10	2.000	469.2	597.8	128.6	128.6	64.3
20	0.850	412.8	515.3	102.5	231.1	35.8
40	0.425	382.4	436.0	53.6	284.7	20.9
70	0.212	320.9	360.1	39.2	323.9	10.0
100	0.150	335.0	345.3	10.3	334.2	7.1
200	0.075	332.5	342.9	10.4	344.6	4.2
pan	--	376.5	391.7	15.2	359.8	0.0

Density Relations

Sample Condition	Disturbed (Bagged)

Volume Sampled (cm^3)	20.00
Mass of Tare (g)	1.40
Mass of $Sample_{Natural}$ + Tare (g)	41.60
Mass of $Sample_{Dry}$ + Tare (g)	33.18
Mass of $Sample_{Natural}$ (g)	40.20
Mass of $Sample_{Dry}$ (g)	31.78
Mass of Water (g)	8.42

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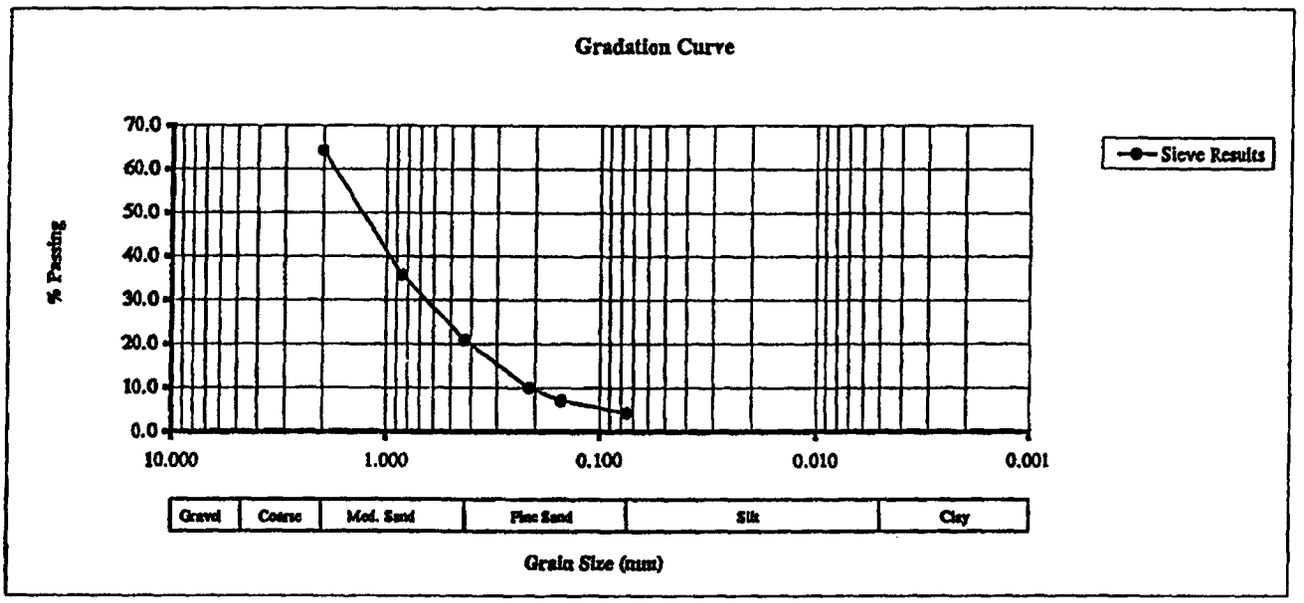
RESULTS

Sample:	MW 5D
Depth:	21-22
Date:	8/7/98

Sieve Analysis



Sieve Information

Sieve	Diameter, mm
4	4.750
10	2.000
20	0.850
40	0.425
70	0.210
100	0.150
200	0.075

Diameters Corresponding To % Passing (mm)	
D_5 =	0.08
D_{10} =	0.25
D_{15} =	0.30
D_{30} =	0.70
D_{60} =	1.85

Soil Grain Size Distribution By Sieve Analysis

Soil Fraction	Size Range	% of Total
Gravel	75mm to 4.75mm	0.0
Coarse Sand	4.75mm to 2.00mm	35.7
Medium Sand	2.00mm to .425mm	43.4
Fine Sand	.425mm to .075 mm	16.6
Silt-Clay	Material smaller than .075mm	4.2

Soil Grain Size Distribution By Hydrometer Analysis

Soil Fraction	Size Range	% of Total
Silt	.075mm to .005mm	NA
Clay	Material smaller than .005mm	NA

Shape Parameters

Coefficient Of Uniformity, C_u	7.4
Coefficient Of Curvature, C_c	1.0

USDA Soil Classification	NA

Density and Water Content

	lb/ft^3	Mg/m^3
Dry Density	99.2	1.6
Bulk Density	125.5	2.0

Water Content	26.5	%

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LABORATORY DATA

Sample:	MW 5D
Depth:	34-35
Date:	8/10/98

Sieve Analysis

Mass of soil used (g) = 281.7

Error due to lost material (%) = 0.00

Sieve Number	Opening Size (mm)	Sieve Mass (grams)	Total Mass (grams)	Soil Mass (grams)	Cum. Mass (grams)	Percent Passing
10	2.000	468.8	546.4	77.6	77.6	72.5
20	0.850	412.5	477.4	64.9	142.5	49.4
40	0.425	382.2	436.1	53.9	196.4	30.3
70	0.212	320.9	368.1	47.2	243.6	13.5
100	0.150	335.1	349.8	14.7	258.3	8.3
200	0.075	332.5	344.1	11.6	269.9	4.2
pan	–	376.5	388.3	11.8	281.7	0.0

Density Relations

Sample Condition	Disturbed (Bagged)

Volume Sampled (cm^3)	20.00
Mass of Tare (g)	1.62
Mass of $Sample_{Natural}$ + Tare (g)	39.60
Mass of $Sample_{Dry}$ + Tare (g)	36.72
Mass of $Sample_{Natural}$ (g)	37.98
Mass of $Sample_{Dry}$ (g)	35.10
Mass of Water (g)	2.88

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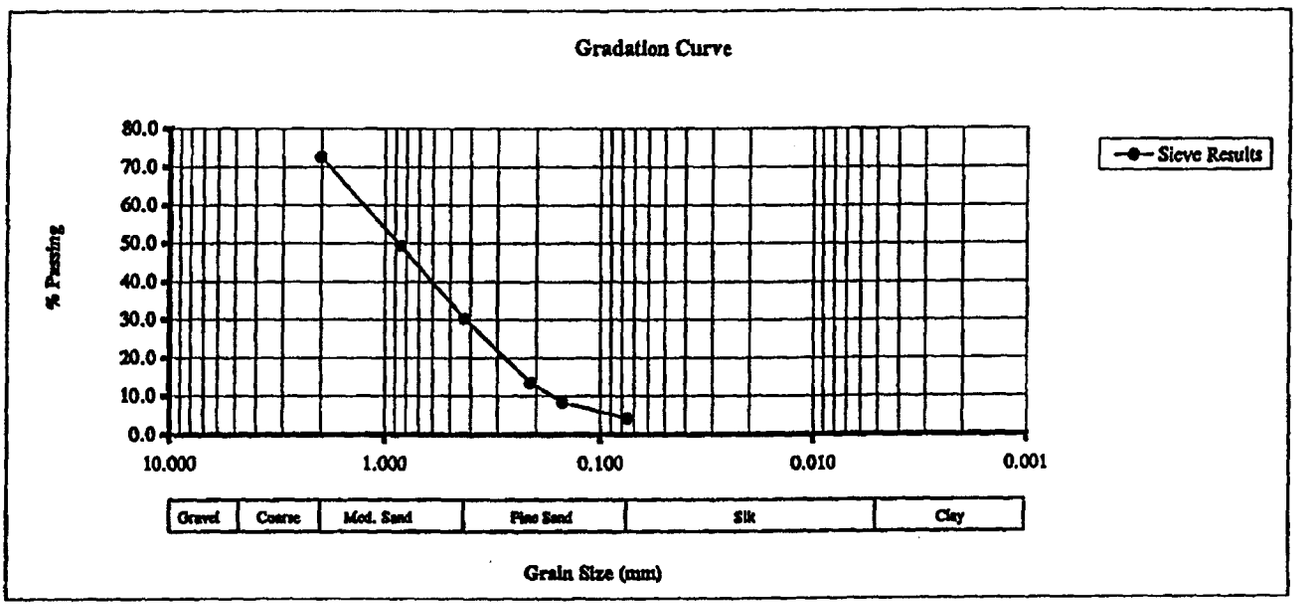
RESULTS

Sample:	MW 5D
Depth:	34-35
Date:	8/10/98

Sieve Analysis



Sieve Information

Sieve	Diameter, mm
4	4.750
10	2.000
20	0.850
40	0.425
70	0.210
100	0.150
200	0.075

Diameters Corresponding To % Passing (mm)	
D_5 =	0.09
D_{10} =	0.18
D_{15} =	0.24
D_{30} =	0.43
D_{60} =	1.30

Soil Grain Size Distribution By Sieve Analysis

Soil Fraction	Size Range	% of Total
Gravel	75mm to 4.75mm	0.0
Coarse Sand	4.75mm to 2.00mm	27.5
Medium Sand	2.00mm to .425mm	42.2
Fine Sand	.425mm to .075 mm	26.1
Silt-Clay	Material smaller than .075mm	4.2

Soil Grain Size Distribution By Hydrometer Analysis

Soil Fraction	Size Range	% of Total
Silt	.075mm to .005mm	NA
Clay	Material smaller than .005mm	NA

Shape Parameters

Coefficient Of Uniformity, C_u	7.4
Coefficient Of Curvature, C_c	0.8

USDA Soil Classification	NA

Density and Water Content

	lb/ft³	Mg/m³
Dry Density	109.6	1.8
Bulk Density	118.6	1.9

Water Content	8.2	%

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LABORATORY DATA

Sample:	MW 7D
Depth:	4-5
Date:	8/10/98

Sieve Analysis

Mass of soil used (g) = 616.2

Error due to lost material (%) = 0.05

Sieve Number	Opening Size (mm)	Sieve Mass (grams)	Total Mass (grams)	Soil Mass (grams)	Cum. Mass (grams)	Percent Passing
10	2.000	469.2	481.4	12.2	12.2	98.0
20	0.850	412.5	477.8	65.3	77.5	87.4
40	0.425	382.1	553.1	171	248.5	59.7
70	0.212	320.8	552.9	232.1	480.6	22.0
100	0.150	335.1	395.5	60.4	541	12.2
200	0.075	332.4	371.5	39.1	580.1	5.8
pan	--	376.4	412.2	35.8	615.9	0.0

Density Relations

Sample Condition	Disturbed (Bagged)

Volume Sampled (cm^3)	20.00
Mass of Tare (g)	1.44
Mass of $Sample_{Natural}$ + Tare (g)	33.80
Mass of $Sample_{Dry}$ + Tare (g)	30.75
Mass of $Sample_{Natural}$ (g)	32.36
Mass of $Sample_{Dry}$ (g)	29.31
Mass of Water (g)	3.05

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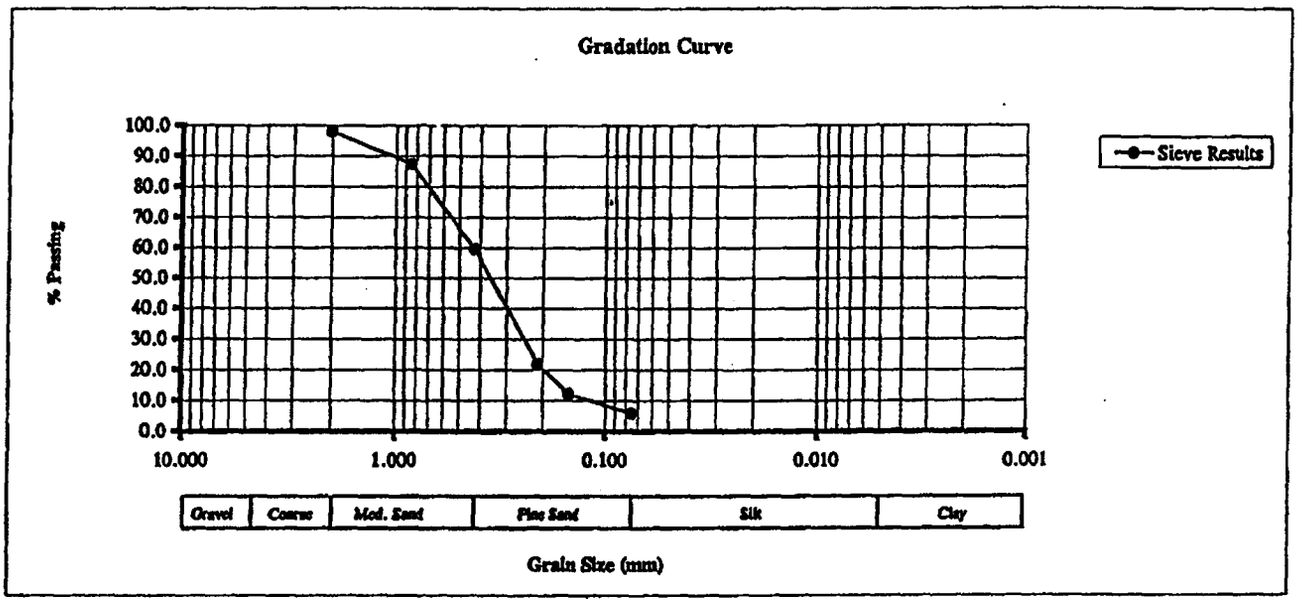
RESULTS

Sample:	MW 7D
Depth:	4-5
Date:	8/10/98

Sieve Analysis



Sieve Information

Sieve	Diameter, mm
4	4.750
10	2.000
20	0.850
40	0.425
70	0.210
100	0.150
200	0.075

Diameters Corresponding To % Passing (mm)	
D_5 =	–
D_{10} =	0.13
D_{15} =	0.17
D_{30} =	0.25
D_{60} =	0.45

Soil Grain Size Distribution By Sieve Analysis

Soil Fraction	Size Range	% of Total
Gravel	75mm to 4.75mm	0.0
Coarse Sand	4.75mm to 2.00mm	2.0
Medium Sand	2.00mm to .425mm	38.4
Fine Sand	.425mm to .075 mm	53.8
Silt-Clay	Material smaller than .075mm	5.8

Soil Grain Size Distribution By Hydrometer Analysis

Soil Fraction	Size Range	% of Total
Silt	.075mm to .005mm	NA
Clay	Material smaller than .005mm	NA

Shape Parameters

Coefficient Of Uniformity, C_u	3.5
Coefficient Of Curvature, C_c	1.1

USDA Soil Classification	NA

Density and Water Content

	lb/ft³	Mg/m³
Dry Density	91.5	1.5
Bulk Density	101.0	1.6

Water Content	10.4	%

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LABORATORY DATA

Sample:	MW 7D
Depth:	17-19
Date:	8/9/98

Sieve Analysis

Mass of soil used (g) = 499.1

Error due to lost material (%) = 0.04

Sieve Number	Opening Size (mm)	Sieve Mass (grams)	Total Mass (grams)	Soil Mass (grams)	Cum. Mass (grams)	Percent Passing
10	2.000	469.2	538.6	69.4	69.4	86.1
20	0.850	412.7	471.0	58.3	127.7	74.4
40	0.425	382.4	461.8	79.4	207.1	58.5
70	0.212	320.8	560.6	239.8	446.9	10.5
100	0.150	335.1	363.1	28	474.9	4.9
200	0.075	332.4	345.2	12.8	487.7	2.3
pan	–	376.5	388.1	11.6	499.3	0.0

Density Relations

Sample Condition	Disturbed (Bagged)

Volume Sampled (cm^3)	20.00
Mass of Tare (g)	1.46
Mass of $Sample_{Natural}$ + Tare (g)	39.40
Mass of $Sample_{Dry}$ + Tare (g)	34.14
Mass of $Sample_{Natural}$ (g)	37.94
Mass of $Sample_{Dry}$ (g)	32.68
Mass of Water (g)	5.26

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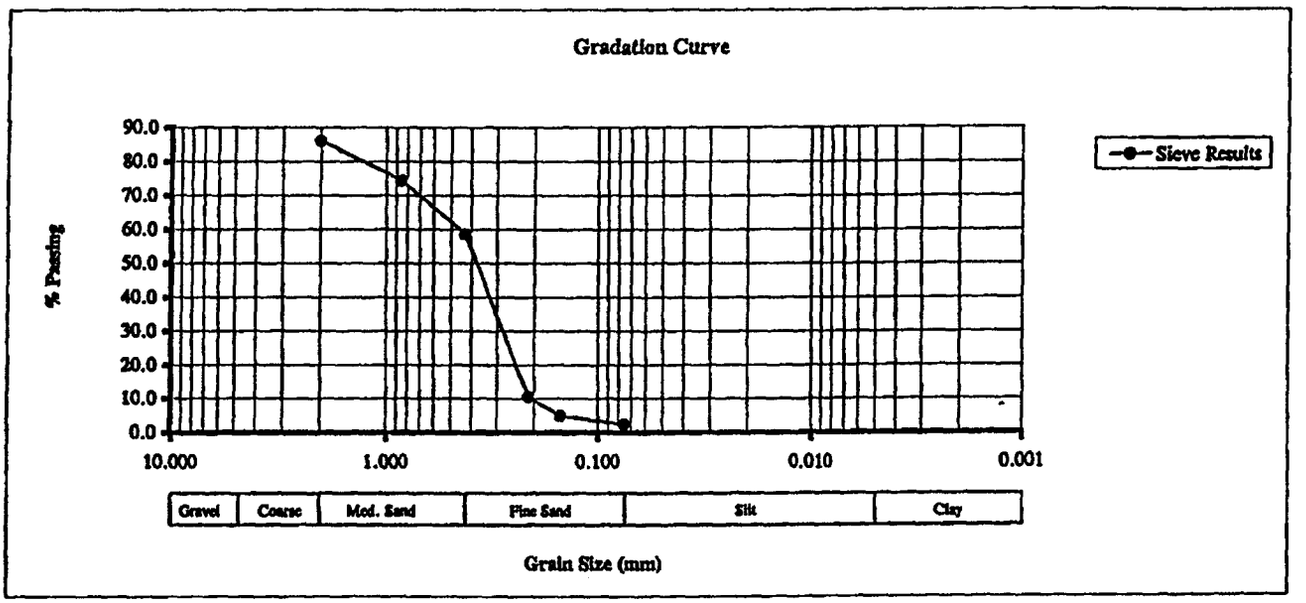
RESULTS

Sample:	MW 7D
Depth:	17-19
Date:	8/9/98

Sieve Analysis



Sieve Information

Sieve	Diameter, mm
4	4.750
10	2.000
20	0.850
40	0.425
70	0.210
100	0.150
200	0.075

Diameters Corresponding To % Passing (mm)	
D_5 =	0.16
D_{10} =	0.21
D_{15} =	0.23
D_{30} =	0.29
D_{60} =	0.45

Soil Grain Size Distribution By Sieve Analysis

Soil Fraction	Size Range	% of Total
Gravel	75mm to 4.75mm	0.0
Coarse Sand	4.75mm to 2.00mm	13.9
Medium Sand	2.00mm to .425mm	27.6
Fine Sand	.425mm to .075 mm	56.2
Silt-Clay	Material smaller than .075mm	2.3

Soil Grain Size Distribution By Hydrometer Analysis

Soil Fraction	Size Range	% of Total
Silt	.075mm to .005mm	NA
Clay	Material smaller than .005mm	NA

Shape Parameters

Coefficient Of Uniformity, C_u	2.1
Coefficient Of Curvature, C_c	0.9

USDA Soil Classification	NA

Density and Water Content

	lb/ft^3	Mg/m^3
Dry Density	102.0	1.6
Bulk Density	118.5	1.9

Water Content	16.1	%

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LABORATORY DATA

Sample:	MW 7D
Depth:	32-34
Date:	8/9/98

Sieve Analysis

Mass of soil used (g) = 361.0

Error due to lost material (%) = 0.08

Sieve Number	Opening Size (mm)	Sieve Mass (grams)	Total Mass (grams)	Soil Mass (grams)	Cum. Mass (grams)	Percent Passing
10	2.000	468.8	639.3	170.5	170.5	52.8
20	0.850	412.6	511.4	98.8	269.3	25.5
40	0.425	382.1	428.0	45.9	315.2	12.8
70	0.212	320.7	345.7	25	340.2	5.8
100	0.150	335.0	341.6	6.6	346.8	4.0
200	0.075	332.4	339.7	7.3	354.1	2.0
pan	--	376.5	383.7	7.2	361.3	0.0

Density Relations

Sample Condition	Disturbed (Bagged)

Volume Sampled (cm^3)	20.00
Mass of Tare (g)	1.49
Mass of $Sample_{Natural}$ + Tare (g)	39.46
Mass of $Sample_{Dry}$ + Tare (g)	36.80
Mass of $Sample_{Natural}$ (g)	37.97
Mass of $Sample_{Dry}$ (g)	35.31
Mass of Water (g)	2.66

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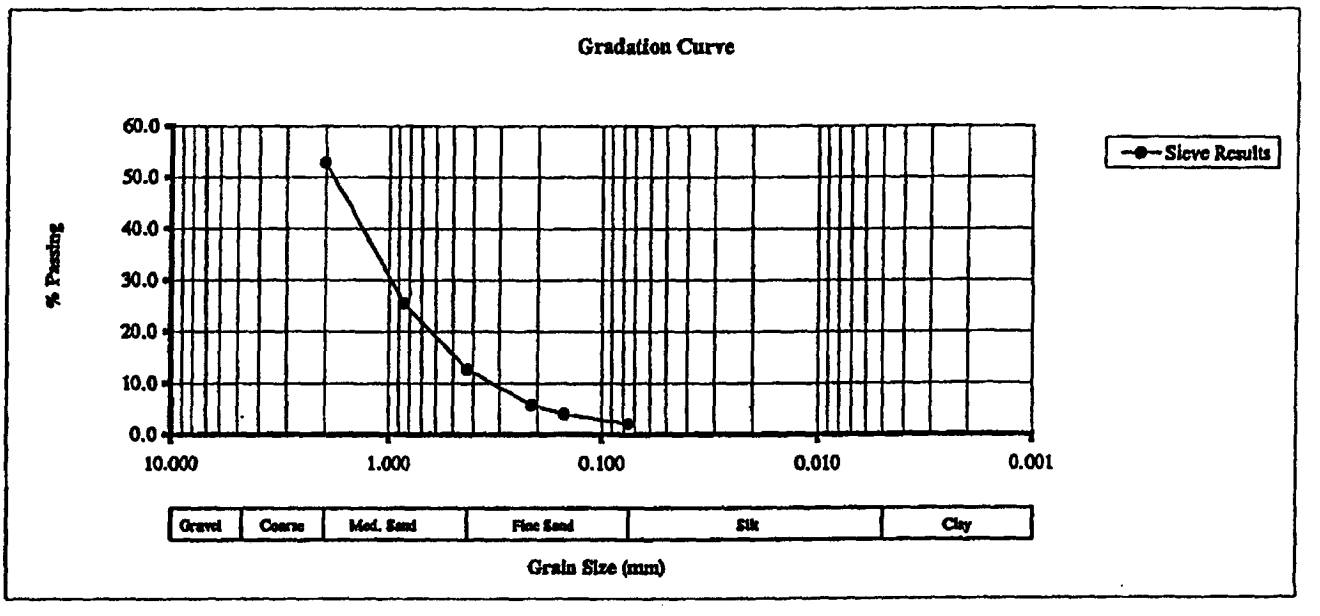
RESULTS

Sample:	MW 7D
Depth:	32-34
Date:	8/9/98

Sieve Analysis



Sieve Information

Sieve	Diameter, mm
4	4.750
10	2.000
20	0.850
40	0.425
70	0.210
100	0.150
200	0.075

Diameters Corresponding To % Passing (mm)	
D_5 =	0.17
D_{10} =	0.32
D_{15} =	0.49
D_{30} =	1.00
D_{60} =	2.60

Soil Grain Size Distribution By Sieve Analysis

Soil Fraction	Size Range	% of Total
Gravel	75mm to 4.75mm	0.0
Coarse Sand	4.75mm to 2.00mm	47.2
Medium Sand	2.00mm to .425mm	40.0
Fine Sand	.425mm to .075 mm	10.8
Silt-Clay	Material smaller than .075mm	2.0

Soil Grain Size Distribution By Hydrometer Analysis

Soil Fraction	Size Range	% of Total
Silt	.075mm to .005mm	NA
Clay	Material smaller than .005mm	NA

Shape Parameters

Coefficient Of Uniformity, C_u	8.1
Coefficient Of Curvature, C_c	1.2

USDA Soil Classification	NA

Density and Water Content

	lb/ft^3	Mg/m^3
Dry Density	110.3	1.8
Bulk Density	118.6	1.9

Water Content	7.5	%

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LABORATORY DATA

Sample:	MW 8D
Depth:	8-10
Date:	8/6/98

Sieve Analysis

Mass of soil used (g) = 440.9

Error due to lost material (%) = 0.00

Sieve Number	Opening Size (mm)	Sieve Mass (grams)	Total Mass (grams)	Soil Mass (grams)	Cum. Mass (grams)	Percent Passing
10	2.000	468.9	492.2	23.3	23.3	94.7
20	0.850	412.7	454.7	42	65.3	85.2
40	0.425	382.3	490.1	107.8	173.1	60.7
70	0.212	320.7	524.4	203.7	376.8	14.5
100	0.150	335.1	358.4	23.3	400.1	9.3
200	0.075	332.5	350.1	17.6	417.7	5.3
pan	--	376.5	399.7	23.2	440.9	0.0

Density Relations

Sample Condition	Disturbed (Bagged)

Volume Sampled (cm^3)	25.00
Mass of Tare (g)	1.34
Mass of $Sample_{Natural}$ + Tare (g)	47.88
Mass of $Sample_{Dry}$ + Tare (g)	40.77
Mass of $Sample_{Natural}$ (g)	46.54
Mass of $Sample_{Dry}$ (g)	39.43
Mass of Water (g)	7.11

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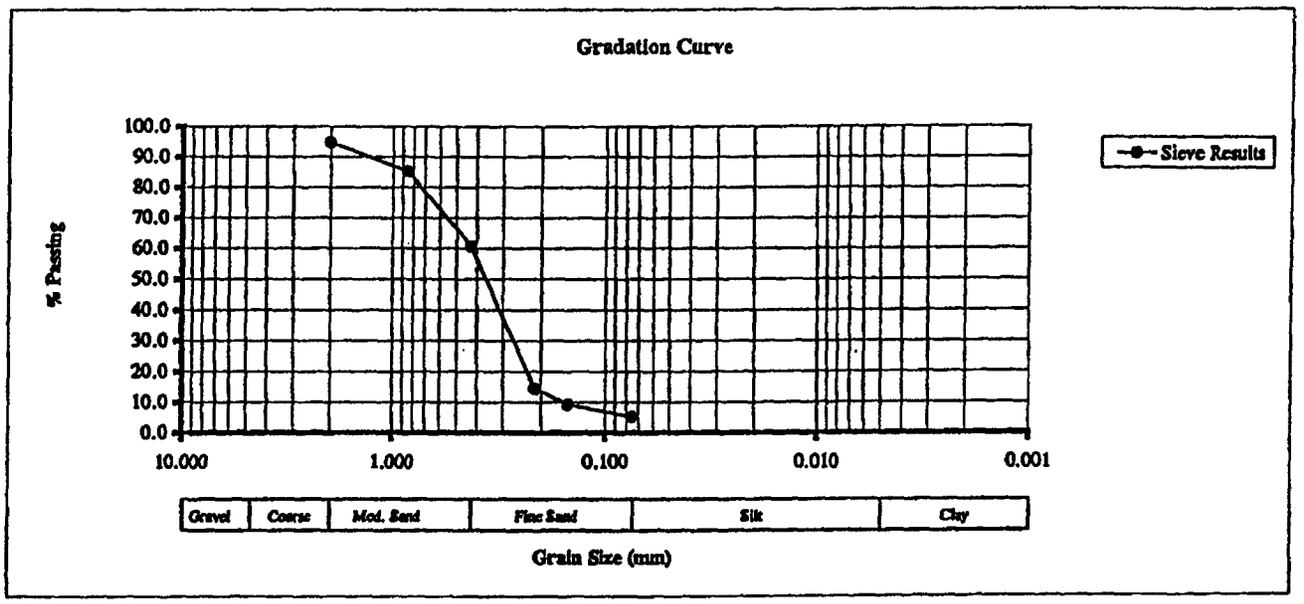
RESULTS

Sample:	MW 8D
Depth:	8-10
Date:	8/6/98

Sieve Analysis



Sieve Information

Sieve	Diameter, mm
4	4.750
10	2.000
20	0.850
40	0.425
70	0.210
100	0.150
200	0.075

Diameters Corresponding To % Passing (mm)	
D_5 =	0.08
D_{10} =	0.17
D_{15} =	0.23
D_{30} =	0.28
D_{60} =	0.45

Soil Grain Size Distribution By Sieve Analysis

Soil Fraction	Size Range	% of Total
Gravel	75mm to 4.75mm	0.0
Coarse Sand	4.75mm to 2.00mm	5.3
Medium Sand	2.00mm to .425mm	34.0
Fine Sand	.425mm to .075 mm	55.5
Silt-Clay	Material smaller than .075mm	5.3

Soil Grain Size Distribution By Hydrometer Analysis

Soil Fraction	Size Range	% of Total
Silt	.075mm to .005mm	NA
Clay	Material smaller than .005mm	NA

Shape Parameters

Coefficient Of Uniformity, C_u	2.6
Coefficient Of Curvature, C_c	1.0

USDA Soil Classification	NA

Density and Water Content

	lb/ft^3	Mg/m^3
Dry Density	98.5	1.6
Bulk Density	116.3	1.9

Water Content	18.0	%

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LABORATORY DATA

Sample:	MW 8D
Depth:	14-15
Date:	8/7/98

Sieve Analysis

Mass of soil used (g) = 733

Error due to lost material (%) = 0.03

Sieve Number	Opening Size (mm)	Sieve Mass (grams)	Total Mass (grams)	Soil Mass (grams)	Cum. Mass (grams)	Percent Passing
10	2.000	469.1	475.3	6.2	6.2	99.2
20	0.850	412.7	434.0	21.3	27.5	96.2
40	0.425	382.1	414.7	32.6	60.1	91.8
70	0.212	320.8	488.8	168	228.1	68.9
100	0.150	335	630.7	295.7	523.8	28.6
200	0.075	332.5	499.4	166.9	690.7	5.8
pan	--	376.6	419.1	42.5	733.2	0.0

Density Relations

Sample Condition	Disturbed (Bagged)

Volume Sampled (cm^3)	20.00
Mass of Tare (g)	1.64
Mass of $Sample_{Natural}$ + Tare (g)	40.43
Mass of $Sample_{Dry}$ + Tare (g)	32.49
Mass of $Sample_{Natural}$ (g)	38.79
Mass of $Sample_{Dry}$ (g)	30.85
Mass of Water (g)	7.94

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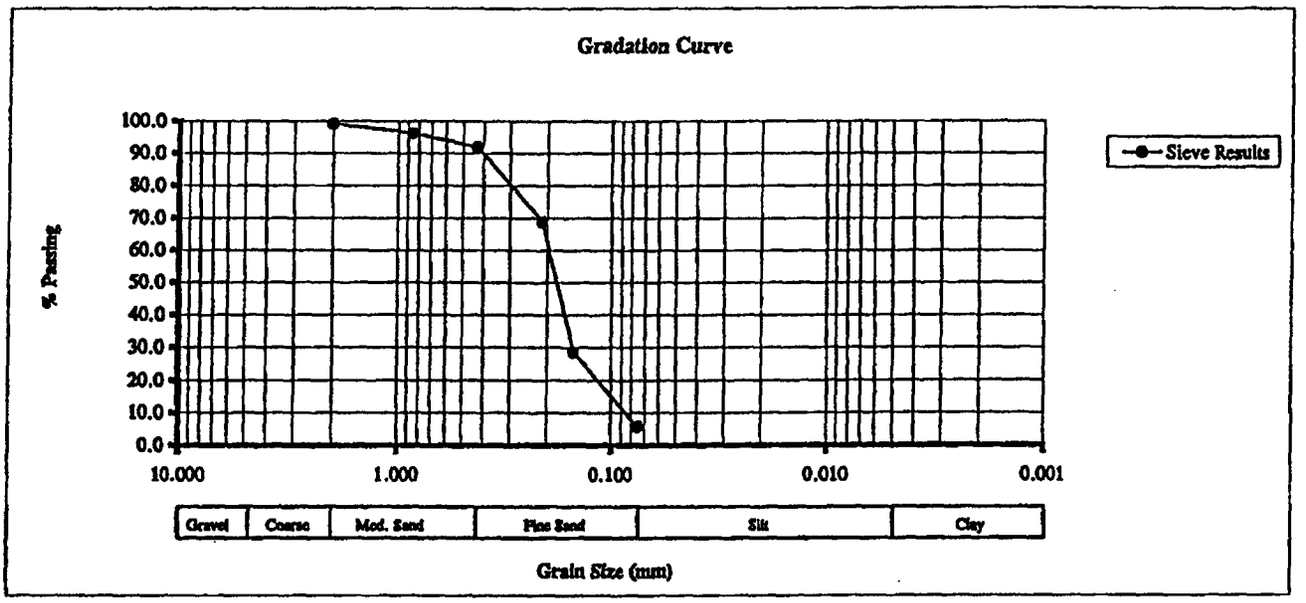
RESULTS

Sample:	MW 8D
Depth:	14-15
Date:	8/7/98

Sieve Analysis



Sieve Information

Sieve	Diameter, mm
4	4.750
10	2.000
20	0.850
40	0.425
70	0.210
100	0.150
200	0.075

Diameters Corresponding To % Passing (mm)	
D_5 =	0.075
D_{10} =	0.088
D_{15} =	0.100
D_{30} =	0.160
D_{60} =	0.200

Soil Grain Size Distribution By Sieve Analysis

Soil Fraction	Size Range	% of Total
Gravel	75mm to 4.75mm	0.0
Coarse Sand	4.75mm to 2.00mm	0.8
Medium Sand	2.00mm to .425mm	7.4
Fine Sand	.425mm to .075 mm	86.0
Silt-Clay	Material smaller than .075mm	5.8

Soil Grain Size Distribution By Hydrometer Analysis

Soil Fraction	Size Range	% of Total
Silt	.075mm to .005mm	NA
Clay	Material smaller than .005mm	NA

Shape Parameters

Coefficient Of Uniformity, C_u	2.3
Coefficient Of Curvature, C_c	1.5

USDA Soil Classification	NA

Density and Water Content

	lb/ft³	Mg/m³
Dry Density	96.3	1.5
Bulk Density	121.1	1.9

Water Content	25.7	%

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LABORATORY DATA

Sample:	MW 8D
Depth:	29-31
Date:	8/6/98

Sieve Analysis

Mass of soil used (g) = 462.3

Error due to lost material (%) = 0.06

Sieve Number	Opening Size (mm)	Sieve Mass (grams)	Total Mass (grams)	Soil Mass (grams)	Cum. Mass (grams)	Percent Passing
10	2.000	468.6	683.4	214.8	214.8	53.5
20	0.850	412.2	561.1	148.9	363.7	21.3
40	0.425	382.3	430.8	48.5	412.2	10.8
70	0.212	320.8	351.3	30.5	442.7	4.2
100	0.150	335.1	342.2	7.1	449.8	2.6
200	0.075	332.4	339.0	6.6	456.4	1.2
pan	–	376.6	382.2	5.6	462	0.0

Density Relations

Sample Condition	Disturbed (Bagged)

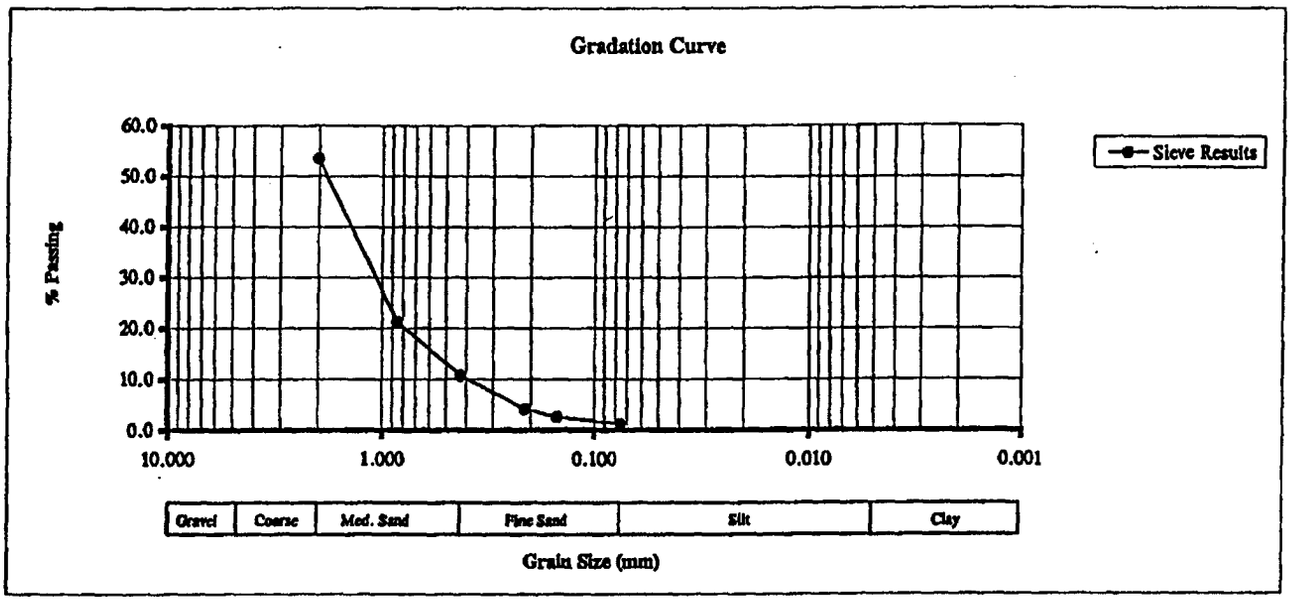
Volume Sampled (cm^3)	20.00
Mass of Tare (g)	1.38
Mass of $Sample_{Natural}$ + Tare (g)	36.56
Mass of $Sample_{Dry}$ + Tare (g)	34.61
Mass of $Sample_{Natural}$ (g)	35.18
Mass of $Sample_{Dry}$ (g)	33.23
Mass of Water (g)	1.95

SECOR
International Incorporated
Geotechnical Laboratory
2205 Jolly Road
Suite A
Okemos, MI 48864

RESULTS

Sample:	MW 8D
Depth:	29-31
Date:	8/6/98

Sieve Analysis



Sieve Information

Sieve	Diameter, mm
4	4.750
10	2.000
20	0.850
40	0.425
70	0.210
100	0.150
200	0.075

Diameters Corresponding To % Passing (mm)	
D_5 =	0.26
D_{10} =	0.40
D_{15} =	0.55
D_{30} =	1.20
D_{60} =	2.50

Soil Grain Size Distribution By Sieve Analysis

Soil Fraction	Size Range	% of Total
Gravel	75mm to 4.75mm	0.0
Coarse Sand	4.75mm to 2.00mm	46.5
Medium Sand	2.00mm to .425mm	42.7
Fine Sand	.425mm to .075 mm	9.6
Silt-Clay	Material smaller than .075mm	1.2

Soil Grain Size Distribution By Hydrometer Analysis

Soil Fraction	Size Range	% of Total
Silt	.075mm to .005mm	NA
Clay	Material smaller than .005mm	NA

Shape Parameters

Coefficient Of Uniformity, C_u	6.3
Coefficient Of Curvature, C_c	1.4

USDA Soil Classification	NA

Density and Water Content

	lb/ft³	Mg/m³
Dry Density	103.8	1.7
Bulk Density	109.8	1.8

Water Content	5.9	%

PROTOCOL FOR GRAIN SIZE ANALYSIS BY MECHANICAL SIEVING

ASTM Standard D422

The gradation distribution for coarse grained soils can be determined using mechanical sieves for particles with a minimum diameter of 0.075 mm. At least 500 grams of material is required for grain size analysis. The sample is dried in a laboratory oven, the water content is determined, and the material is separated into individual grains using a mortar and pestle. A set of sieves is then selected based on the nature of the sample; coarser-grained materials require sieves with larger openings to more accurately define that portion of the gradation curve while finer-grained materials require smaller gauge sieves. If the sample appears to have a wide range of particle sizes, two separate sets of sieves may need to be used to accurately define the material's gradation curve.

The sieves are stacked with the smallest-gauge sieve at the bottom and largest gauge at the top and the sample is placed in the top of the stack. The sieve sizes used are dependent on a visual inspection of the sample prior to analysis. A standard sieve distribution will be from #4 gauge (4.750 mm openings) to #200 gauge (0.075 mm openings) sieves in six steps. The sample is placed in the uppermost sieve and the sieve is mechanically agitated for approximately 15 minutes. The individual sieves are then separated and the cumulative percent retained by weight above each sieve is determined. The percent retained data is used to construct a gradation distribution curve and the coefficient of curvature and uniformity are calculated.

For fine-grained materials, the gradation curve may be more accurately defined by performing a hydrometer analysis which describes the grain size distribution for particles with diameters between 0.0002 mm and 0.2 mm.

The sieve analyses associated with this investigation were conducted at *SECOR*'s geotechnical laboratory on 16 soil samples collected during investigative activities at the Facility. The samples were analyzed in accordance with ASTM Method D 422 for particle size distribution. Two of the samples submitted (MW-2D, 18-19 and MW-4D, 4-5) contained greater than 20% fines by weight. These samples warranted that the hydrometer portion of the analysis be performed.

PROTOCOL FOR HYDRAULIC CONDUCTIVITY TESTING

ASTM Standard D5084-97, Method C

The hydraulic conductivity of a particular material can be determined for disturbed samples or undisturbed samples contained in 2.8-inch Shelby tubes or 1.4-inch brass sleeves. For undisturbed soils such as non-cohesive sands or remolded clays, the material is formed in a 1.4-inch diameter mold and consolidated to represent a sample from the desired depth below grade. Undisturbed samples received in Shelby tubes are cut to approximately seven inches in length while still in their container and ejected. The extruded sample is trimmed and squared in a miter box and the trimmings are used to determine the initial water content of the sample. The dimensions of the sample are determined using calipers and the sample is placed in the load cell.

The sample is confined by a flexible membrane around its perimeter and solid caps at the top and bottom which allow the flow of water through the sample to be controlled and monitored. The flexible membrane allows the entire sample to be confined at a constant pressure to represent the desired conditions that would exist *in situ*. The sample is saturated by applying back pressure to the system prior to initiating the falling head tests. Once the tests have begun, the data is examined periodically (the length of time varies depending on the conductivity of the material) to ensure that the observed hydraulic conductivity is constant. Once four consecutive hydraulic conductivity measurements fall within 25% of their mean value, the test may be considered to be operating under steady state conditions and the average value is reported. After the test has been concluded, a water content sample is taken to determine the final water content of the sample.

From a grain-size distribution curve, empirical formulas can be used to estimate hydraulic conductivity. All 16 samples were analyzed using the empirical equations for Hazen, commonly used empirical formulas for sandy materials. The method is applicable to sediments have a coefficient of uniformity (C_u) less than 5 and the effective grain size (D_{10}) is between approximately 0.1 and 3.0 millimeters. The Hazen formula is;

$$K = C(D_{10})^2$$

where;

K	is hydraulic conductivity in cm/sec
D_{10}	is the effective grain size in cm
C	is a coefficient based on the following table;

Very fine sand, poorly sorted	40-80
Fine sand with appreciable fines	40-80
Medium sand, well sorted	80-120
Coarse sand, poorly sorted	80-120
Coarse sand, well sorted, clean	120-150

Based on the results of the sieve analysis, 100 was used for C in the Hazen formula.

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Shepherd, R.G. Correlations of Permeability and Grain Size: Groundwater (1989) Volume 25 Number 5 p. 633-538.

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Groundwater Technology, Inc.
1950 South Florence, Wichita, KS 67209 USA
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Volumes I – V

VOLUME I

PRELIMINARY RESULTS FROM INVESTIGATION OF THE 29TH AND MEAD AREA

Project No. 040020138

August 27, 1991
Revised: June 12, 1992
Revised: June 13, 1996

Prepared For:

Wichita North Industrial District

Prepared By:

Fluor Daniel GTI
1950 S. Florence
Wichita, Kansas 67209

The elevation survey data for the existing on-site monitor wells and new monitor wells screened at the water table (**Table 2**) were entered into CPS-PC™ model software to construct a groundwater gradient map (**Figure 17**). As depicted in **Figure 17**, depressions in the water table show the influence of Evcon recovery well RW-1 (near 37th Street and Santa Fe), the Evcon north and south industrial wells (between 33rd Street and 30th Street on Mead), and the OHSE Meat Company industrial well (between 25th Street and 21st Street near Broadway). The well with the greatest influence appears to be the OHSE Meat Company industrial well. The map suggests that there may be active pumping wells in the area around wells WND-5 (Block 10) and GLM-14 (Block 7); however, the configuration shown is not due to pumping wells, but is a result of measured water levels and the mathematical algorithms used by CPS modeling program.

The general groundwater flow across the site is from north/northeast to south/southwest. As described above, the pumping wells have an influence on the local groundwater flow direction and gradient within the 29th and Mead Site.

3.8.1 GRAIN SIZE ANALYSIS

3.8.1.1 Shallow Part of the Aquifer

Samples were collected during the drilling of the 32 soil borings as described in section 2.1.1 at depths ranging from one to five feet below the water table for grain size analysis to represent the shallow part of the aquifer beneath the 29th and Mead Site. The samples were analyzed by Engineering Testing Company. The reports of grain size testing are included in **Appendix G**.

During installation of monitor wells during the long-term monitoring program, soil samples were collected from the shallow part of the aquifer in WND-24 (Block 2), WND-22 (Block 19), and WND-26 (Block 8), and submitted to Layne Western for grain size analysis. Results of the grain size analysis are presented in **Appendix G**. The grain size analyses indicate that the predominant aquifer grain size in the upper portion of the aquifer is very fine to very coarse sand as defined by the Wentworth Scale.

Utilizing the plots of representative grain size analyses and the Hazen equation, hydraulic conductivity (k) was estimated based on the square of the grain size, in millimeters, at which 90% of the sample is retained on a screen. The hydraulic conductivity of the shallow part of the aquifer was estimated to range from 350 to 1,400 gallons/day/foot^2 (gpd/ft^2). Average hydraulic conductivities determined by aquifer tests conducted in the area range from 1,050 to 3,250 gpd/ft^2 and are listed below:

Location	Hydraulic Conductivity	
COU (upper part of aquifer)	1,700 gal/day/ft^2	(Groundwater Technology, April 13, 1992)
COU (fully screened)	3,250 gal/day/ft^2	(Groundwater Technology, April 13, 1992)
Hydrocarbon Recyclers	1,050 gal/day/ft^2	(HWST, December 1990)
OHSE	1,400 gal/day/ft^2	(Groundwater Associates,Inc., June 27, 1987, **Appendix K**)

These ranges for average hydraulic conductivity seem appropriate when monitor well drilling logs in each respective area are examined for grain size and grain size distribution. Copies of the above listed reports detailing these aquifer analyses are on file at KDHE in Topeka, Kansas.

The velocity of groundwater flow for the shallow part of the aquifer can be determined by multiplying the hydraulic conductivity and hydraulic gradient, divided by the effective porosity of the formation (Freeze and Cherry, 1979). For this determination, 20 percent effective porosity was assumed and used (Freeze and Cherry, 1979). The hydraulic gradient was calculated from the groundwater gradient map (**Figure 17**) for the area bounded by 29th Street, 25th Street, Ohio Street, and I-135. This area appears least effected by the influence of pumping wells in the 29th and Mead area. The unaffected hydraulic gradient is calculated to be 0.0012 feet per foot. Based on the parameters outlined above, the groundwater flow velocity in the upper part of the aquifer ranges from 0.27 to 1.16 feet/day.

3.8.1.2 Deep Part of the Aquifer

Samples were collected at depths ranging from one to five feet above bedrock for grain size analysis during installation of monitor wells WND-22, WND-24, and WND-26 to represent the deep part of the aquifer beneath the 29th and Mead Site. Samples were submitted to Layne Western for analysis. Results of the grain size analysis are presented in **Appendix G**. These analyses identify the predominant aquifer grain size to be fine to very coarse sand as defined by the Wentworth Scale.

Utilizing the grain-size plots and the Hazen equation, hydraulic conductivity (k) was estimated based on the square of the grain size, in millimeters, at which 90% of the sample is retained on a screen. The hydraulic conductivity of the deep part of the aquifer was estimated to range from 1,200 to 1,400 gpd/ft^2. This range may be low for some areas of the aquifer when compared to the hydraulic conductivity for the COU of 3,250 gpd/ft^2 (see section 3.8.1.1).

The velocity of groundwater flow for the deep part of the aquifer was determined by multiplying the hydraulic conductivity and hydraulic gradient, divided by the effective porosity of the formation (Freeze and Cherry, 1979). For this determination, 25 percent effective porosity was used as

representative for sands (Freeze and Cherry, 1979) in the lower part of the aquifer. The unaffected hydraulic gradient was assumed to be the same as the water table gradient in the area bounded by 29th Street, 25th Street, Ohio Street, and I-135.

The hydraulic gradient for the deep part of the aquifer is assumed to be 0.0012 feet per foot. Based upon the parameters outlined above, the groundwater flow velocity in the lower part of the aquifer ranges from 0.79 to 2.1 feet/day.

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VOLUME IV

PRELIMINARY RESULTS FROM INVESTIGATION OF THE 29TH AND MEAD AREA

Prepared For:

Wichita North Industrial District

Prepared By:

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APPENDIX G

GRAIN SIZE ANALYSIS

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GTI WICHITA

REPORT ON GRAIN SIZE OF SOIL

Received 7-30-90 From

Reported to Groundwater Technology, Inc., 443 N. Maize Rd., Wichita, KS

Tests made by order of Groundwater Technology, PO#422-6530

Project Project No. 0422 09670-0301

Contractor

Laboratory No. Specimen marked

TEST RESULTS

Laboratory Number:	182857	182858	182859	182860
Test Hole Number:	SB-10	SB-16	SB-21	SB-31
Depth (Feet):	14' - 16'	14' - 16'	14' - 16'	14'-16'
Gravel +#10:	7.8	8.6	0	6.6
Coarse Sand: -#10, +#40	34.9	37.6	0.5	29.3
Fine Sand: -#40, +#200	34.7	37.6	35.4	36.0
Silt: -#200, +.005mm	13.3	5.4	50.6	7.6
Clay & Colloids: -.005mm	9.3	10.8	13.5	20.5
Colloids: -.001mm	6.0	7.0	10.0	16.5

Remarks

Copies: 3 Groundwater Technology, Inc.
1 file

Respectfully submitted,
ENGINEERING TESTING COMPANY
(Original Signed By)
R.A. Rothhammer
R.A. Rothhammer 8-6-90

FORM 10

ENGINEERING TESTING COMPANY

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REPORT ON GRAIN SIZE OF SOIL

Received 7-30-90 From

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Clay & Colloids: -.005mm	9.3	10.8	13.5	20.5
Colloids: -.001mm	6.0	7.0	10.0	16.5

Remarks

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Respectfully submitted,
ENGINEERING TESTING COMPANY
(Original Signed By)
R.A. Rothhammer
R.A. Rothhammer 8-6-90

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REPORT ON GRAIN SIZE OF SOIL

Received 7-30-90 From

Reported to Groundwater Technology, Inc., 443 N. Maize Rd., Wichita, KS

Tests made by order of Groundwater Technology, PO#422-6530

Project Project No. 0422 09670-0301

Contractor

Laboratory No. Specimen marked

TEST RESULTS

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Colloids: -.001mm	6.0	7.0	10.0	16.5

Remarks

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(Original Signed By)
R.A. Rothhammer
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Project: Project No. [illegible]
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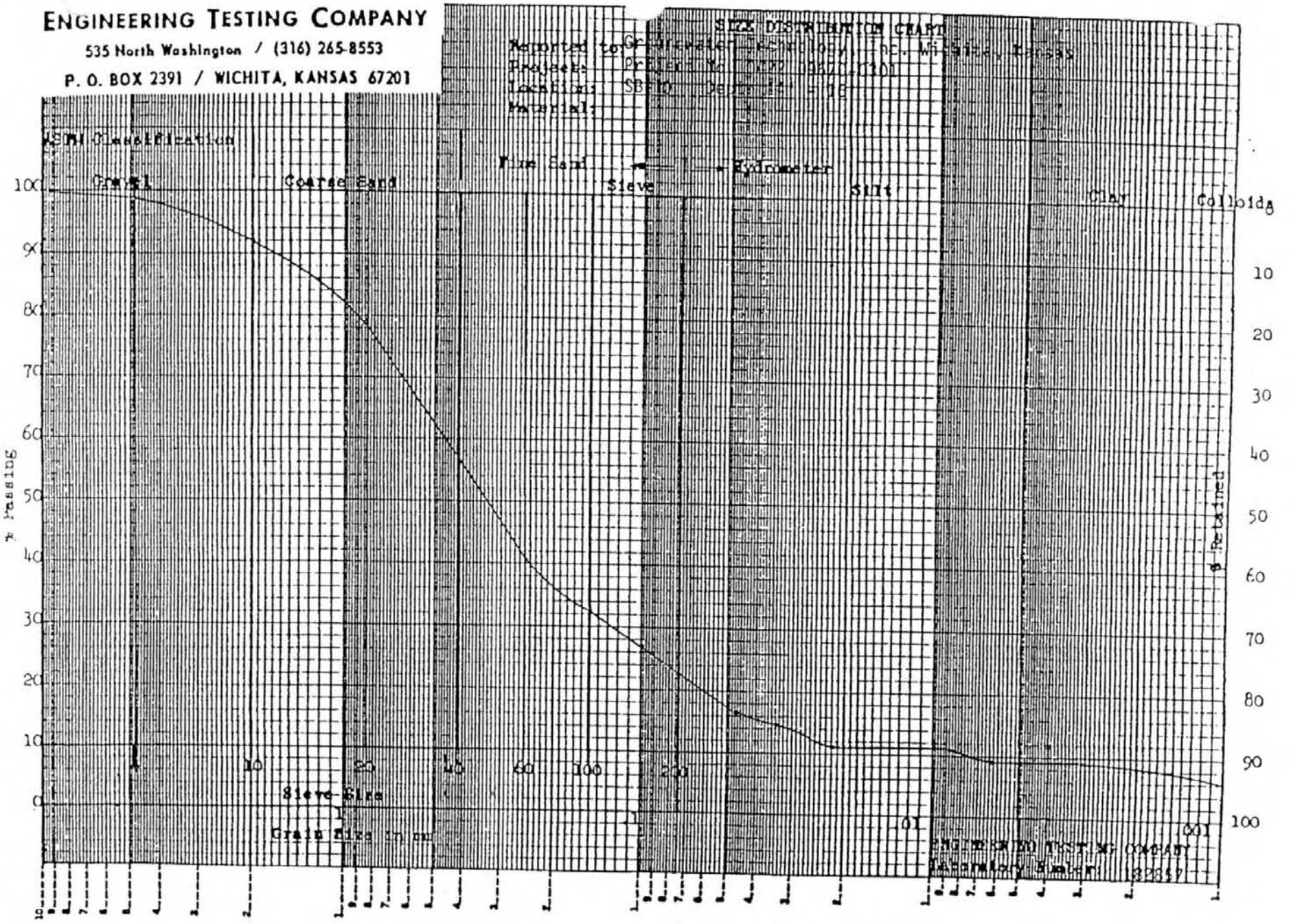

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Laboratory Number: 132857

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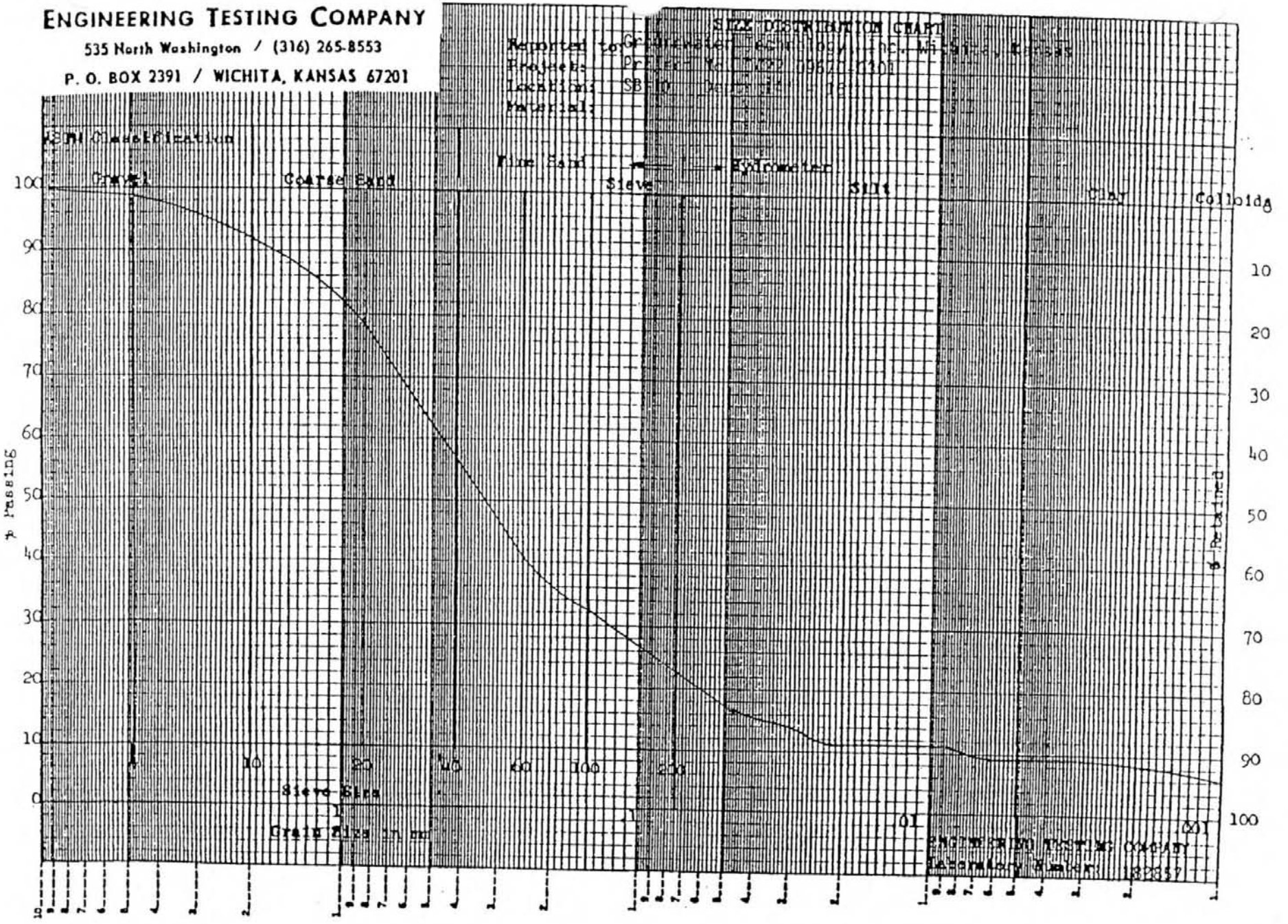

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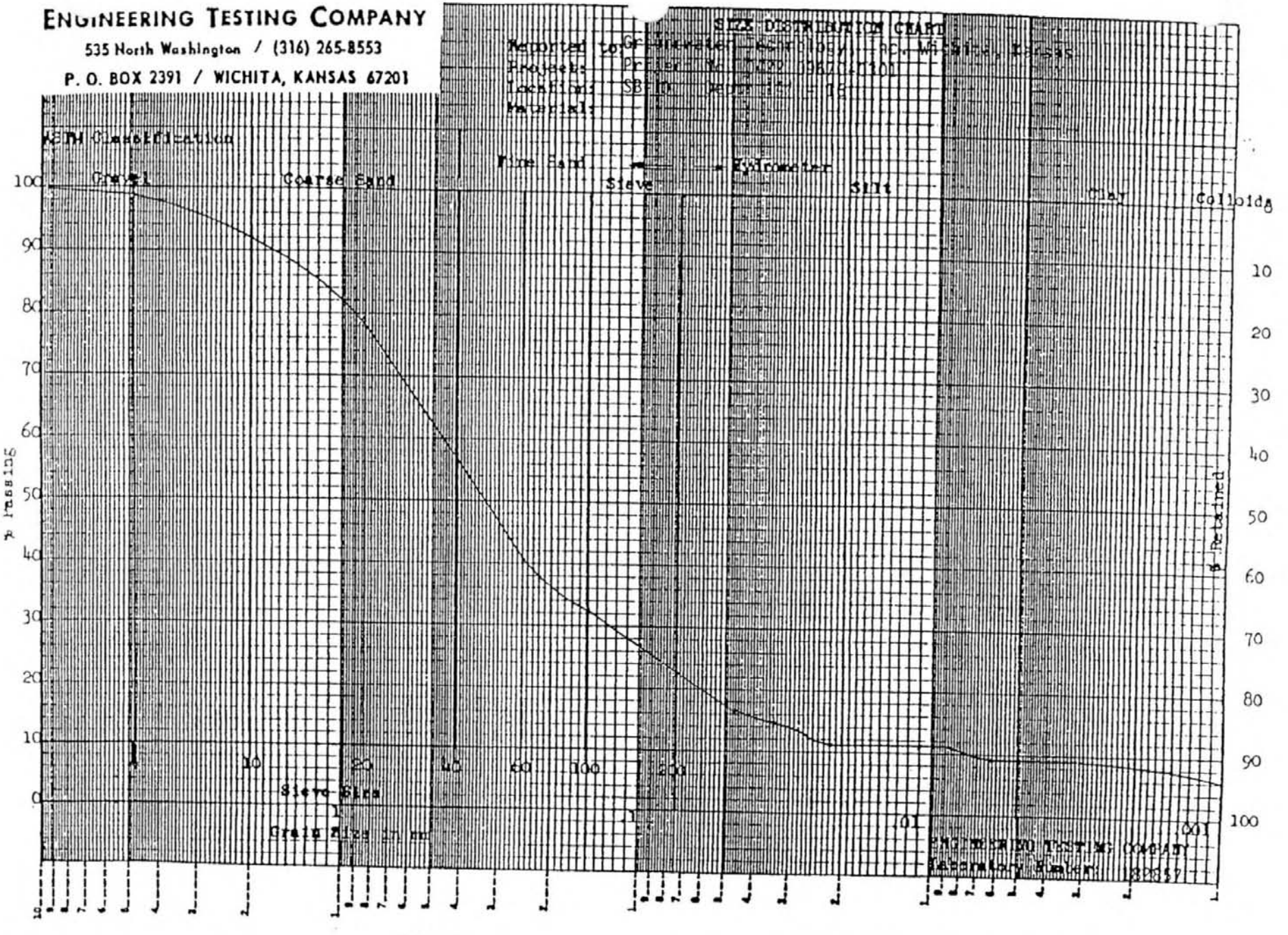

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Laboratory Number: [illegible]

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Project: Project No. 0422-09570-03
Location: B-16 Depth 11' - 16'
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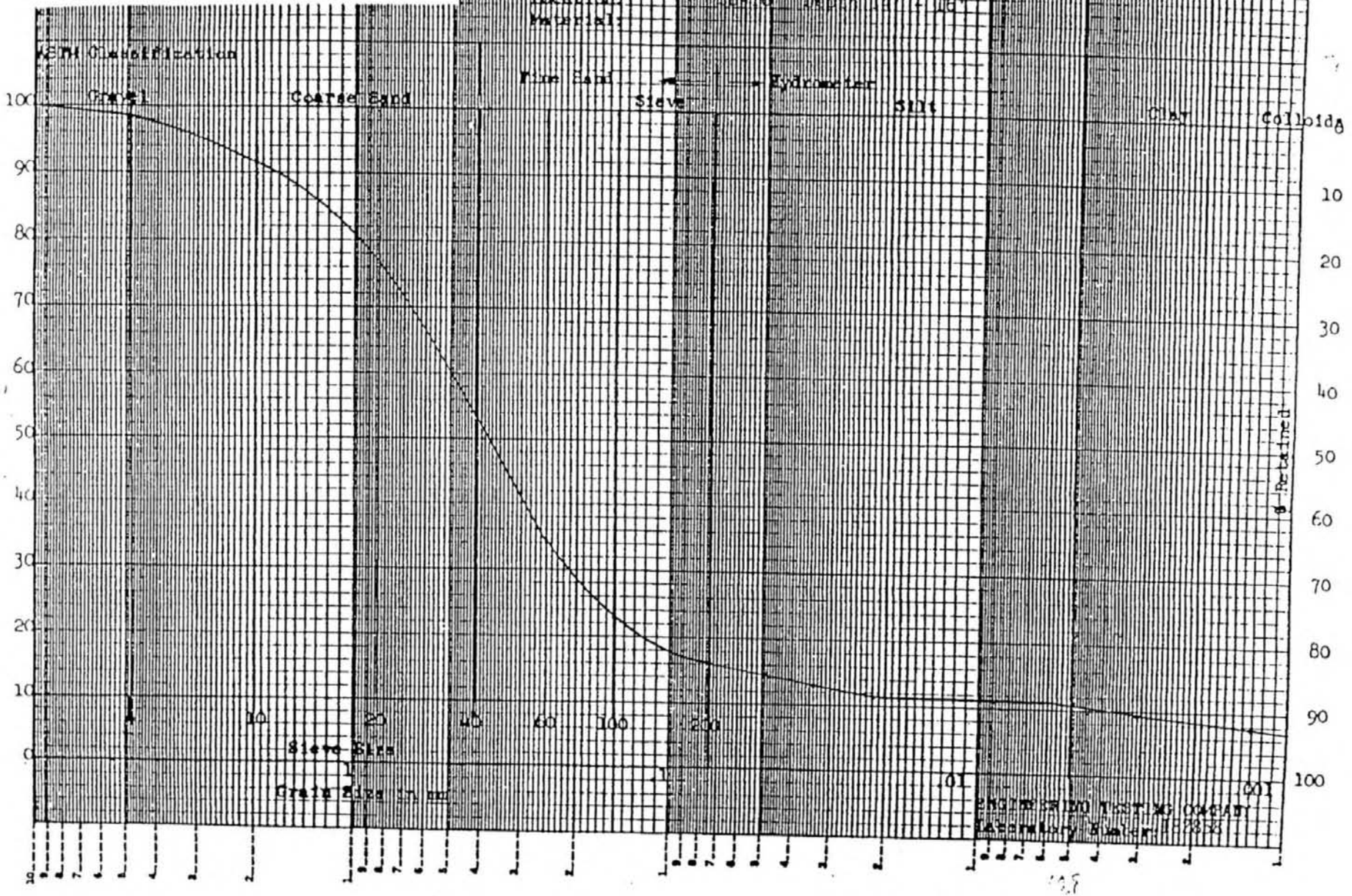

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Project: Project No. 042-09570-03
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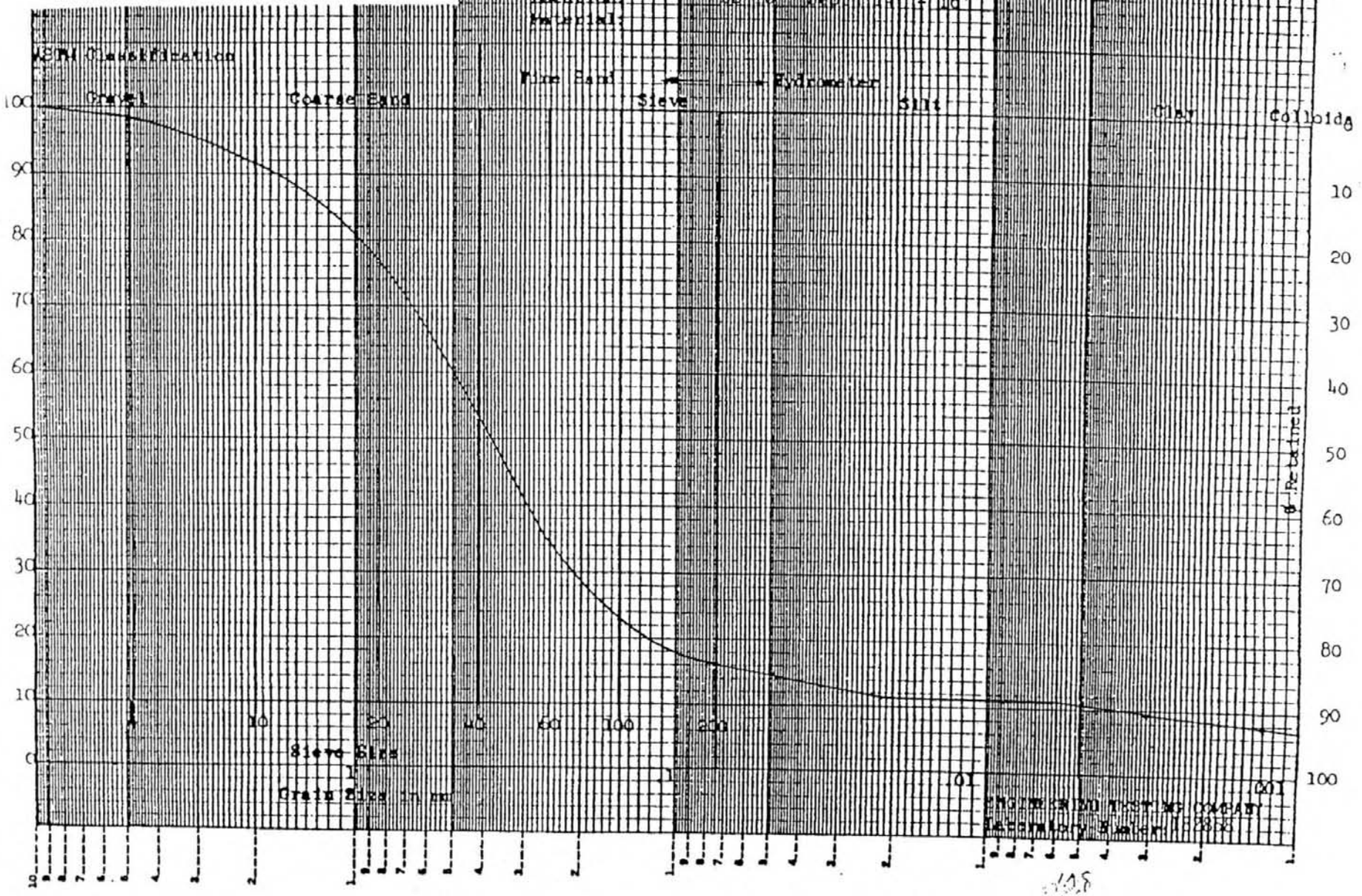
Material:



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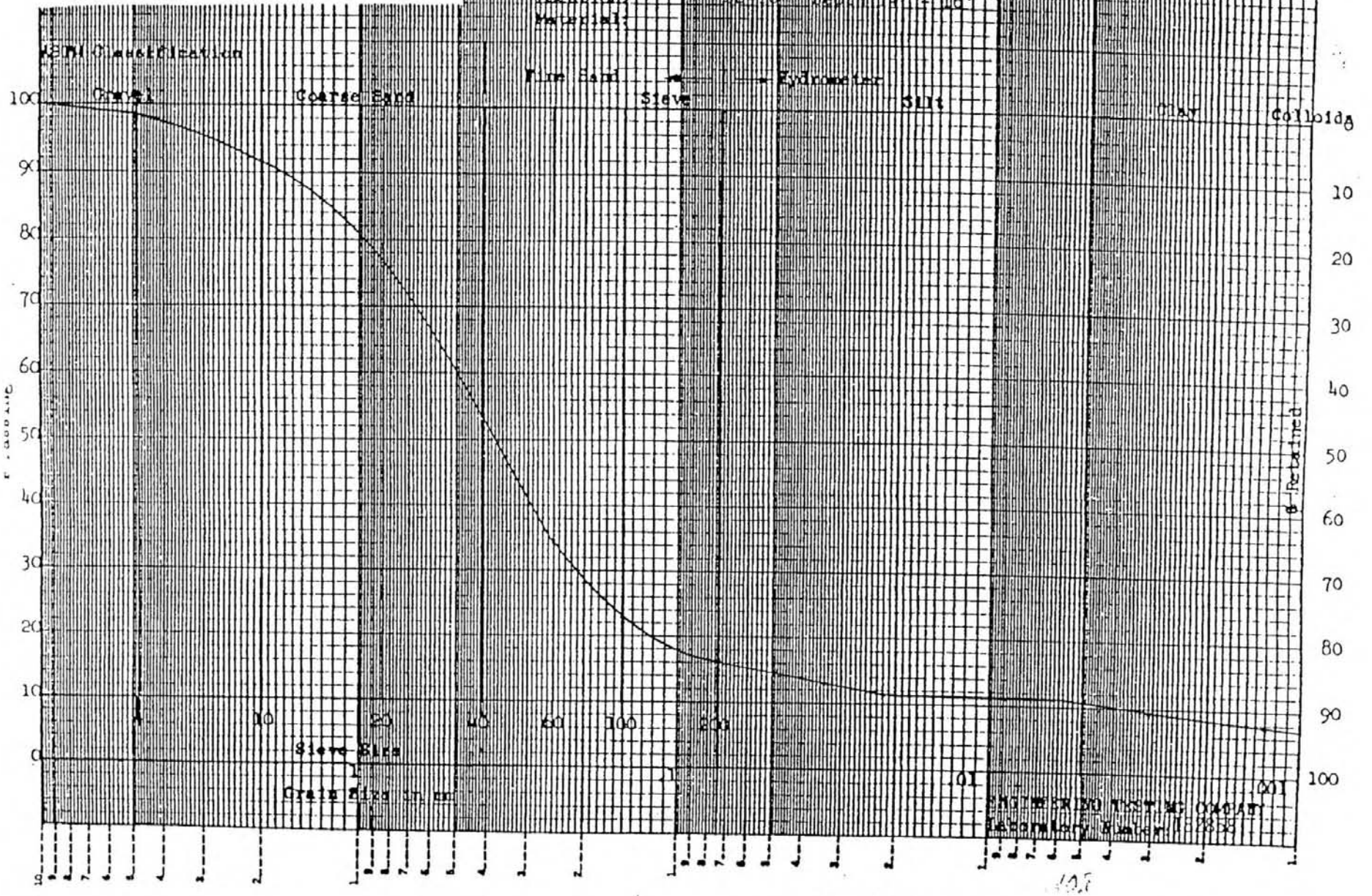

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Secondary Number: [illegible]

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Project: Project No. 0422-09670-02
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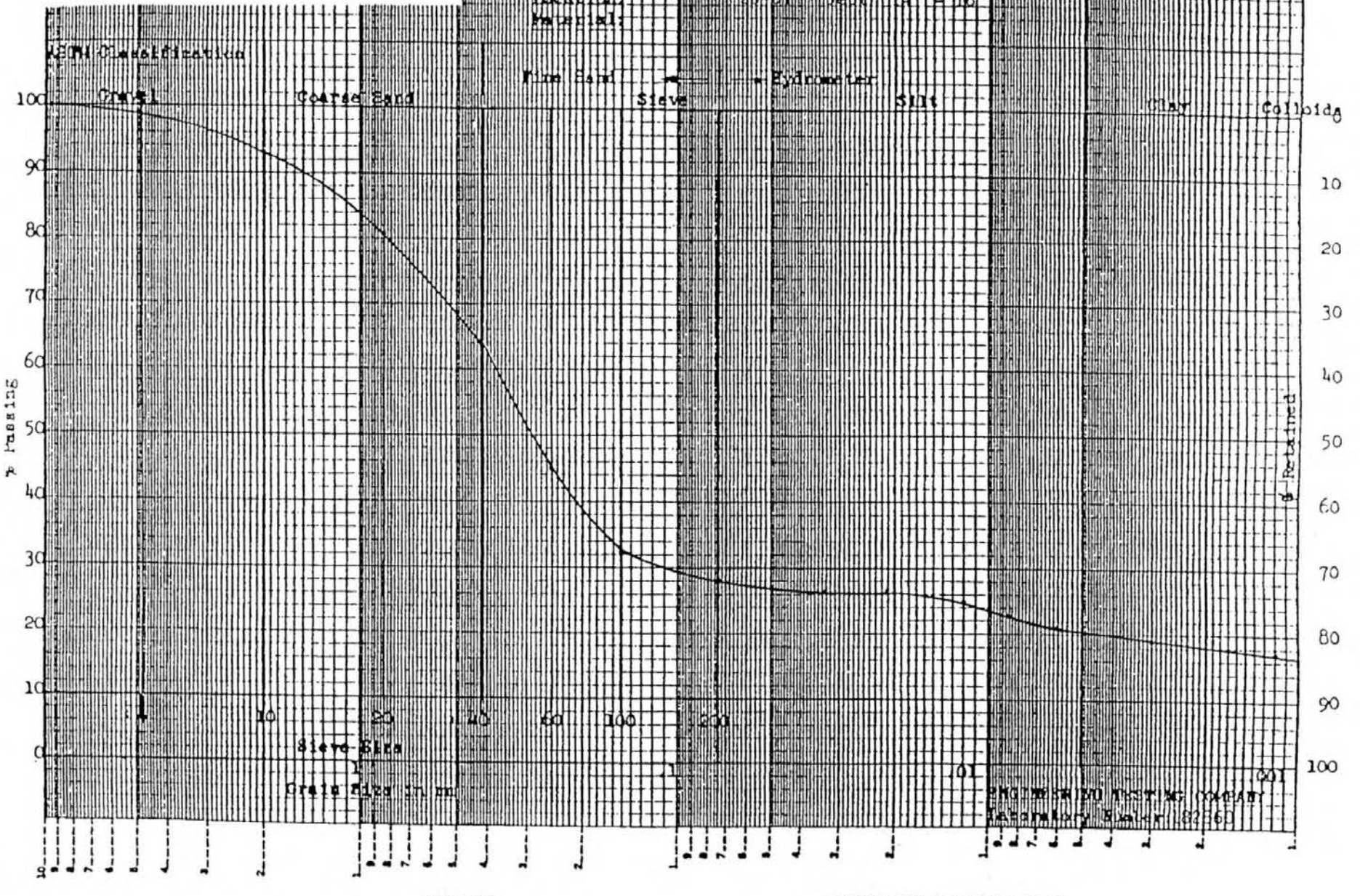

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Project: Project No. 1422-00670-
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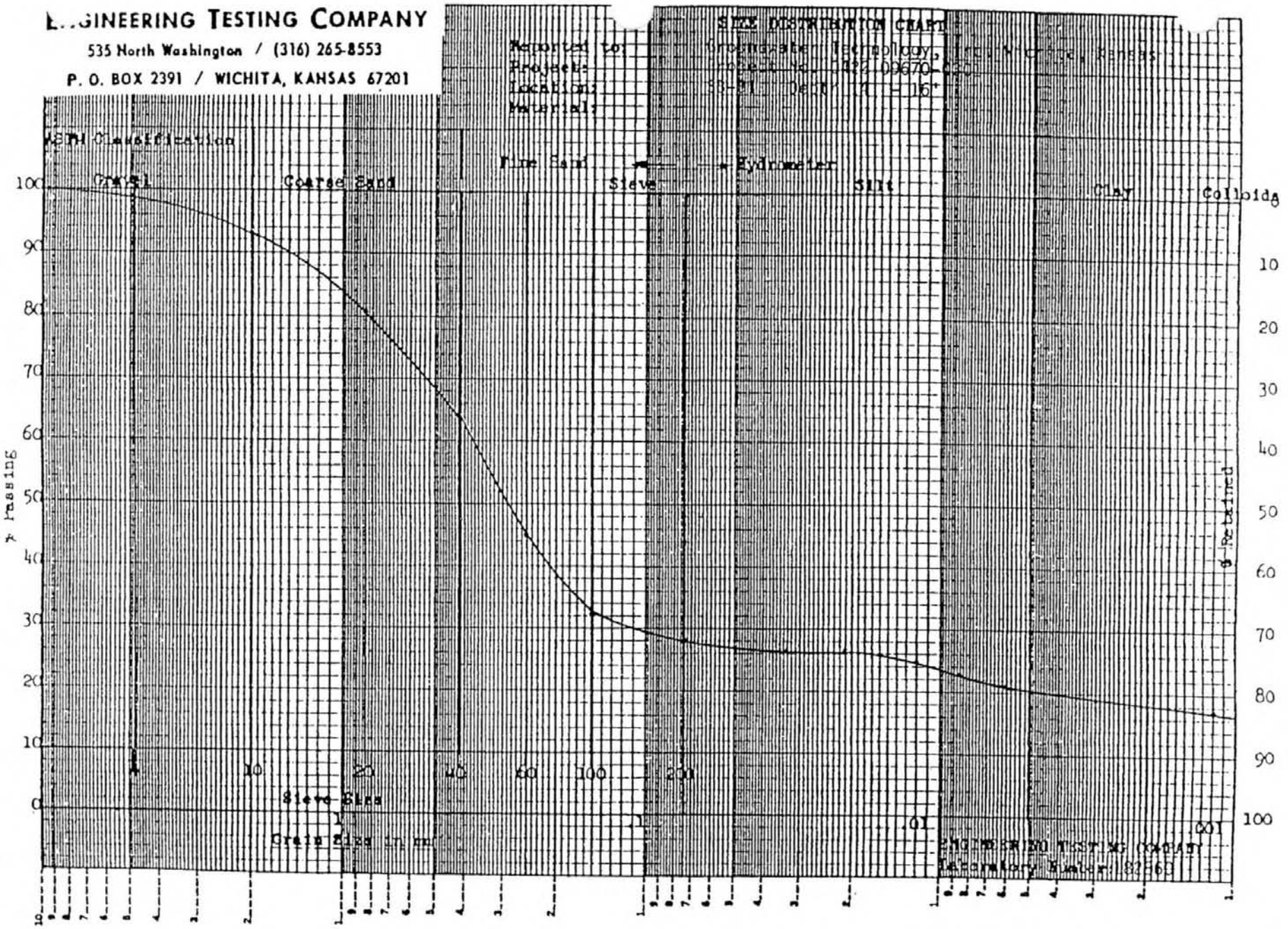

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Reported to: Groundwater Technology, Inc. Wichita, Kansas
Project: Project No. 0422-006670-C30
Location: 38-51 Depth 11 - 16'
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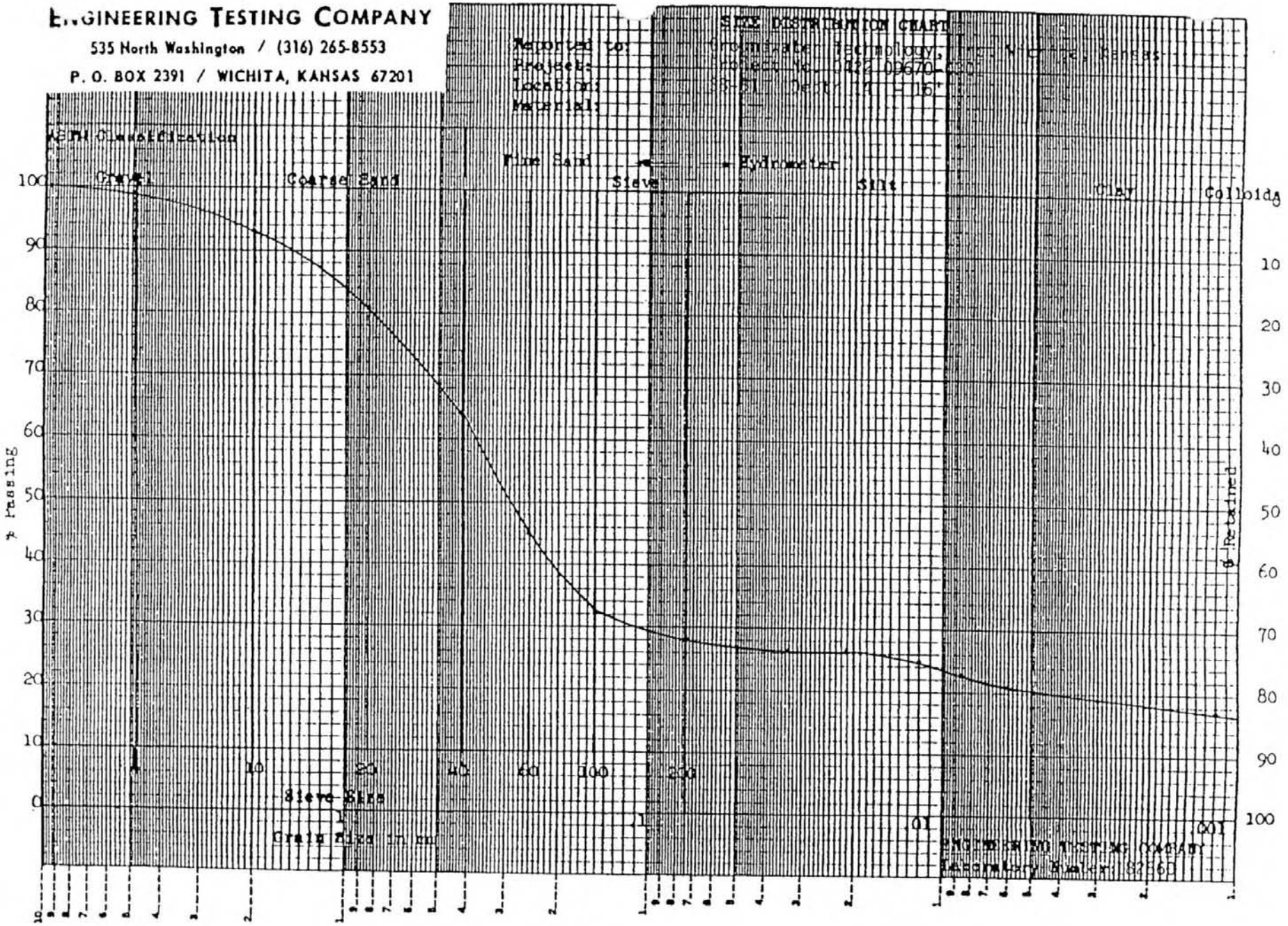

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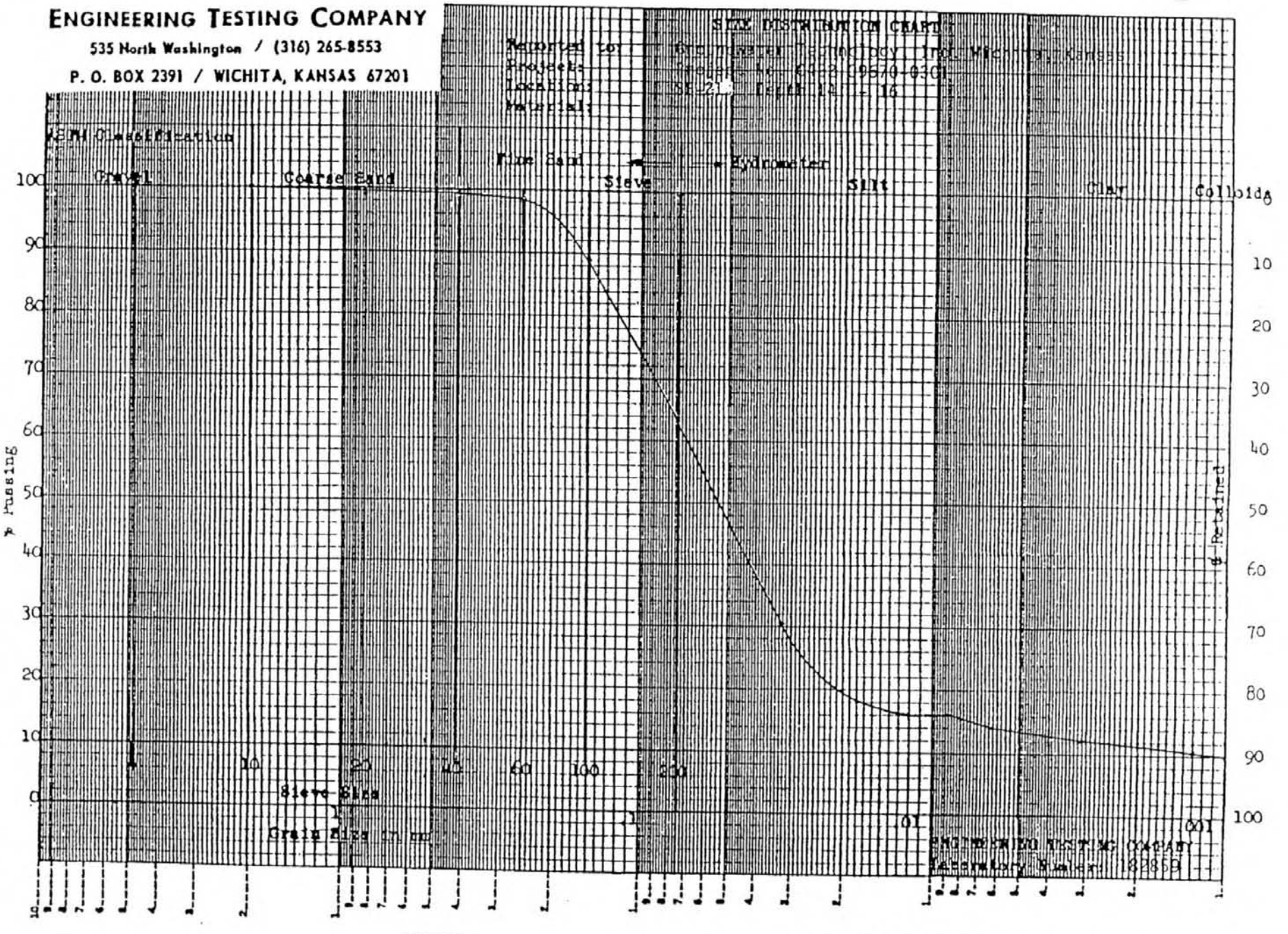

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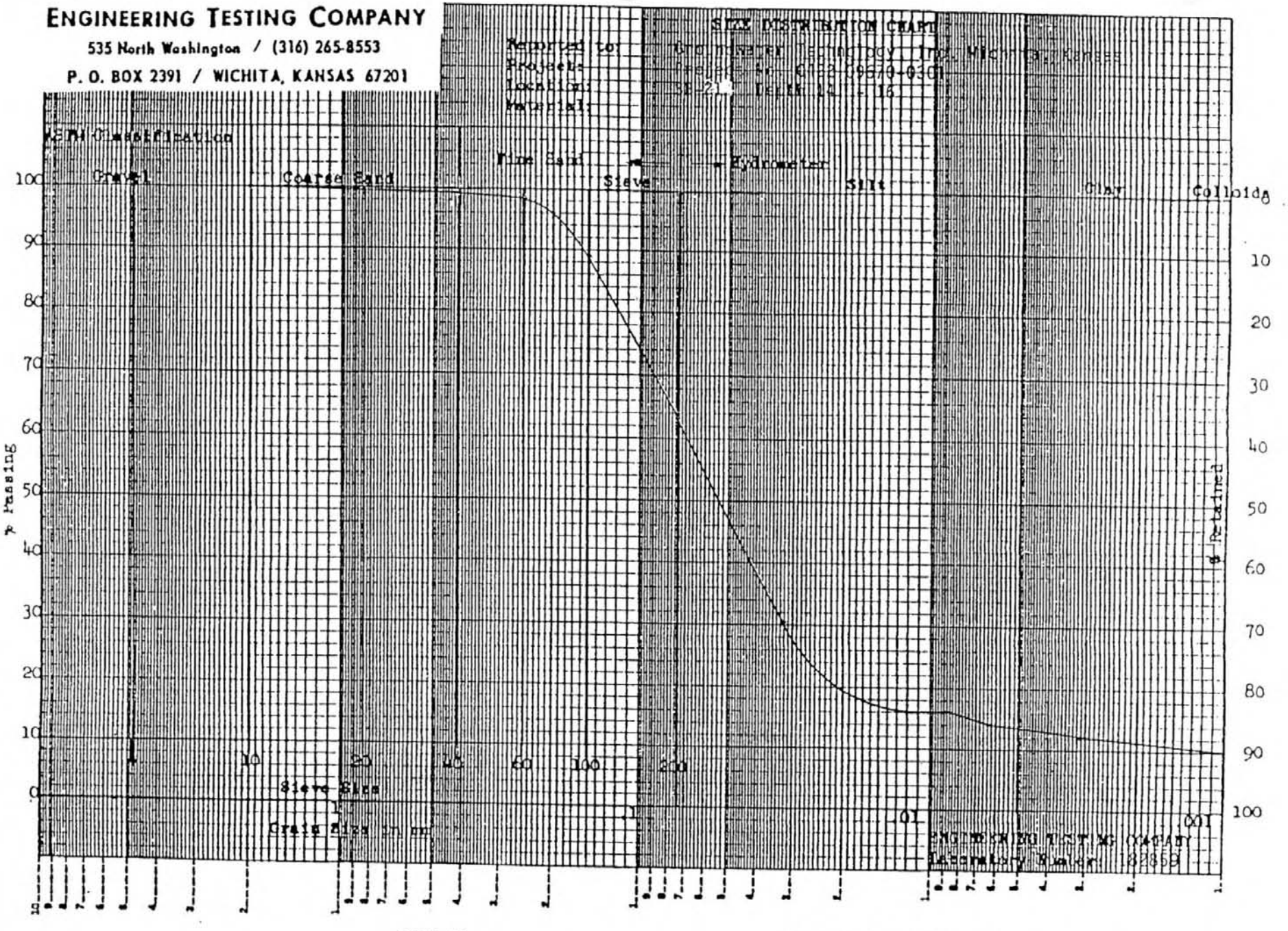

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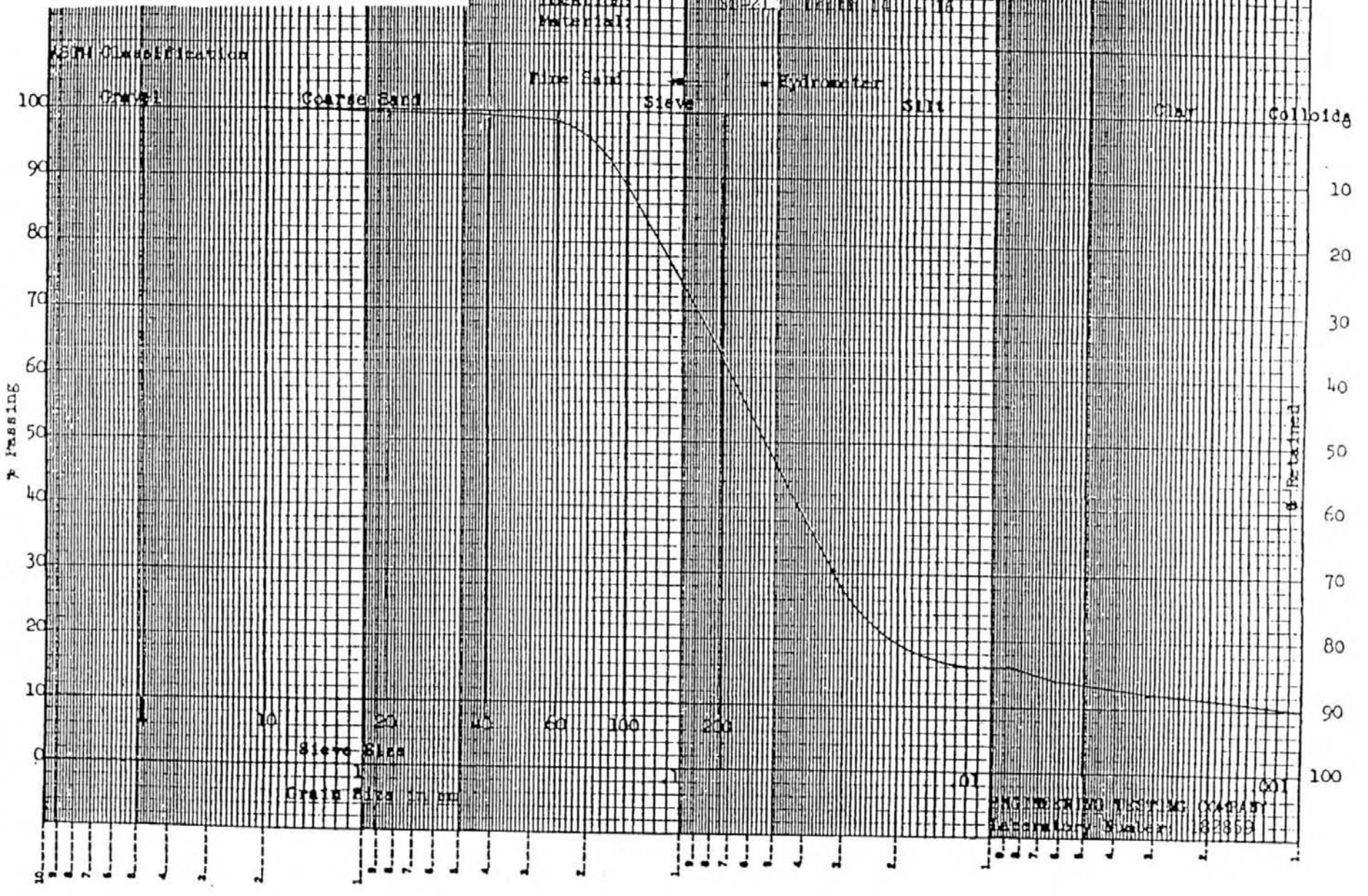
Project: [illegible] by [illegible] (9670-030)
Location: [illegible] SI-21 [illegible] Depth 14 - 16
Material:



FORM 1A

ENGINEERING TESTING COMPANY

535 North Washington / (316) 265-8553
P. O. BOX 2391 / WICHITA, KANSAS 67201

REPORT OF TESTS OF AGGREGATES

Material Sand & Silt
For Use _____ Project No. 042209670-0301
Date Received 7-30-90 From _____
Reported to Groundwater Technology, Inc. 443 N. Maize Rd., Wichita, KS 67212
Tests Made by Order of Groundwater Technology, Inc., PO #422-6530
Contractor _____
Source of Material Test Holes

Lab No.		182829	182830	182831	182832	182833	Specification
Sample No.		SB-1	SB-2	SB-3	SB-4	SB-5	
Sample From		14' - 16'	14' - 16'	14' - 16'	13' - 14'	14' - 16'	Requirement
Sieve Size mm	Sieve Size	% Ret	%Ret	%Ret	%Ret	%Ret	
19.0	3/4	0	0	0	0	0	
12.7	1/2	0	0.7	0.7	1.8	0.8	
9.5	3/8	0.4	0.7	1.9	5.1	0.8	
4.75	4	0.6	2.7	7.3	15.5	2.6	
2.36	8	2.4	6.9	17.7	24.5	8.4	
1.18	16	7.3	14.5	32.0	33.4	21.0	
.850	20	12.6	21.7	39.9	39.0	29.5	
.600	35	31.7	39.6	55.7	53.0	45.4	
.300	50	66.5	70.5	77.9	76.2	62.5	
.250	60	80.3	81.7	86.8	85.9	75.2	
.150	100	91.7	91.4	92.9	91.1	91.2	
.075	200	95.5	95.8	95.5	93.6	95.8	

Remarks:

Copies: 3 Groundwater Technology Inc.
1 File

Respectfully submitted,
ENGINEERING TESTING COMPANY
(Original Signed By)
R.A. Rothhammer, 8-2-90 cg

FORM 14

ENGINEERING TESTING COMPANY

535 North Washington / (316) 265-8553
P. O. BOX 2391 / WICHITA, KANSAS 67201

REPORT OF TESTS OF AGGREGATES

Material Sand & Silt
For Use _____ Project No. 042209670-0301
Date Received 7-30-90 From _____
Reported to Groundwater Technology, Inc. 443 N. Maize Rd., Wichita, KS 67212
Tests Made by Order of Groundwater Technology, Inc., PO #422-6530
Contractor _____
Source of Material Test Holes

Lab No.		182829	182830	182831	182832	182833	Specification
Sample No.		SB-1	SB-2	SB-3	SB-4	SB-5	
Sample From		14' - 16'	14' - 16'	14' - 16'	13' - 14'	14' - 16'	Requirement
Sieve Size mm	Sieve Size	% Ret	%Ret	%Ret	%Ret	%Ret	
19.0	3/4	0	0	0	0	0	
12.7	1/2	0	0.7	0.7	1.8	0.8	
9.	3/8	0.4	0.7	1.9	5.1	0.8	
.75	4	0.6	2.7	7.3	15.5	2.6	
2.36	8	2.4	6.9	17.7	24.5	8.4	
.18	16	7.3	14.5	32.0	33.4	21.0	
850	20	12.6	21.7	39.9	39.0	29.5	
.500	35	31.7	39.6	55.7	53.0	45.4	
300	50	66.5	70.5	77.9	76.2	62.5	
.250	60	80.3	81.7	86.8	85.9	75.2	
150	100	91.7	91.4	92.9	91.1	91.2	
.075	200	95.5	95.8	95.5	93.6	95.8	

Remarks:

Copies: 3 Groundwater Technology Inc.
1 File

Respectfully submitted.
ENGINEERING TESTING COMPANY
(Original Signed By)
R.A. Rothhammer
R.A. Rothhammer, 8-2-90 cg

FORM 18

ENGINEERING TESTING COMPANY

535 North Washington / (316) 265-8553
P. O. BOX 2391 / WICHITA, KANSAS 67201

REPORT OF TESTS OF AGGREGATES

Material Sand & Silt
For Use _____ Project No. 042209670-0301
Date Received 7-30-90 From _____
Reported to Groundwater Technology, Inc. 443 N. Maize Rd., Wichita, KS 67212
Tests Made by Order of Groundwater Technology, Inc., PO #422-6530
Contractor _____
Source of Material Test Holes

Lab No.		182829	182830	182831	182832	182833	Specification
Sample No.		SB-1	SB-2	SB-3	SB-4	SB-5	
Sample From		14' - 16'	14' - 16'	14' - 16'	13' - 14'	14' - 16'	Requirement
Sieve Size mm	Sieve Size	% Ret	%Ret	%Ret	%Ret	%Ret	
19.0	3/4	0	0	0	0	0	
[illegible]	1/2	0	0.7	0.7	1.8	0.8	
9.5	3/8	0.4	0.7	1.9	5.1	0.8	
.75	4	0.6	2.7	7.3	15.5	2.6	
2.36	8	2.4	6.9	17.7	24.5	8.4	
[illegible].18	16	7.3	14.5	32.0	33.4	21.0	
850	20	12.6	21.7	39.9	39.0	29.5	
.500	35	31.7	39.6	55.7	53.0	45.4	
300	50	66.5	70.5	77.9	76.2	62.5	
.250	60	80.3	81.7	86.8	85.9	75.2	
150	100	91.7	91.4	92.9	91.1	91.2	
075	200	95.5	95.8	95.5	93.6	95.8	

Remarks:

Copies: 3 Groundwater Technology Inc.
1 File

Respectfully submitted.
ENGINEERING TESTING COMPANY
(Original Signed By)
R.A. Rothhammer
R.A. Rothhammer, 8-2-90 cg

FORM 18

ENGINEERING TESTING COMPANY

535 North Washington / (316) 265-8553
P. O. BOX 2391 / WICHITA, KANSAS 67201

REPORT OF TESTS OF AGGREGATES

Material: Sand & Silt
For Use:
Project: No. 042209670-0301
Date Received: 7-30-90
From:
Reported to: Groundwater Technology, Inc. 443 N. Maize Rd., Wichita, KS 67212
Tests Made by Order of: Groundwater Technology, Inc., PO #422-6530
Contractor:
Source of Material: Test Holes

Lab No.		182834	182835	182836	182837	182838	Specification
Sample No.		SB-6	SB-7	SB-8	SB-9	SB-11	
Sample From		14' - 16'	14' - 16'	14' - 16'	14' - 16'	14' - 16'	Requirement
Sieve Size mm	Sieve Size	%Ret	%Ret	%Ret	%Ret	%Ret	
19.0	3/4	0	0	0	0	0	
?	1/2	0	0.9	0	0	0	
9.5	3/8	0	2.4	6.2	0.3	0	
4.75	4	0	7.9	14.1	4.0	2.0	
2.36	8	0.2	17.2	21.9	14.0	7.4	
1.18	16	0.8	31.2	33.6	29.6	24.4	
850	20	1.8	39.9	41.9	39.2	37.7	
500	35	4.9	59.0	60.5	56.2	59.9	
300	50	43.2	76.2	80.6	74.5	80.9	
250	60	70.1	86.1	88.3	83.3	89.7	
150	100	77.5	94.0	94.5	91.2	94.6	
075	200	80.7	96.4	97.4	95.7	97.1	

Remarks:

Copies: 3 Groundwater Technologies
1 File

Respectfully submitted.
ENGINEERING TESTING COMPANY
(Original Signed By)
R.A. Rothhammer

R.A. Rothhammer 8-2-90 cg

FORM 18

ENGINEERING TESTING COMPANY

535 North Washington / (316) 265-8553
P. O. BOX 2391 / WICHITA, KANSAS 67201

REPORT OF TESTS OF AGGREGATES

Material Sand & Silt
For Use _____ Project No. 042209670-0301
Date Received 7-30-90 From _____
Reported to Groundwater Technology, Inc. 443 N. Maize Rd., Wichita, KS 67212
Tests Made by Order of Groundwater Technology, Inc., PO #422-6530
Contractor _____
Source of Material Test Holes

Lab No.		182834	182835	182836	182837	182838	Specification
Sample No.		SB-6	SB-7	SB-8	SB-9	SB-11	
Sample From		14' - 16'	14' - 16'	14' - 16'	14' - 16'	14' - 16'	Requirement
Sieve Size mm	Sieve Size	%Ret	%Ret	%Ret	%Ret	%Ret	
9.0	3/4	0	0	0	0	0	
[illegible]	1/2	0	0.9	0	0	0	
9.5	3/8	0	2.4	6.2	0.3	0	
4.75	4	0	7.9	14.1	4.0	2.0	
2.36	8	0.2	17.2	21.9	14.0	7.4	
1.18	16	0.8	31.2	33.6	29.6	24.4	
850	20	1.8	39.9	41.9	39.2	37.7	
.500	35	4.9	59.0	60.5	56.2	59.9	
300	50	43.2	76.2	80.6	74.5	80.9	
.250	60	70.1	86.1	88.3	83.3	89.7	
150	100	77.5	94.0	94.5	91.2	94.6	
075	200	80.7	96.4	97.4	95.7	97.1	

Remarks:

Copies: 3 Groundwater Technologies
1 File

Respectfully submitted.
ENGINEERING TESTING COMPANY
(Original Signed By)
R A Rothhammer
R.A. Rothhammer 8-2-90 cg

FORM 13

ENGINEERING TESTING COMPANY

535 North Washington / (316) 265-8553
P. O. BOX 2391 / WICHITA, KANSAS 67201

REPORT OF TESTS OF AGGREGATES

Material: Sand & Silt
For Use: _____ Project: No. 042209670-0301
Date Received: 7-30-90 From: _____
Reported to: Groundwater Technology, Inc. 443 N. Maize Rd., Wichita, KS 67212
Tests Made by Order of: Groundwater Technology, Inc., PO #422-6530
Contractor: _____
Source of Material: Test Holes

Lab No.		182834	182835	182836	182837	182838	Specification
Sample No.		SB-6	SB-7	SB-8	SB-9	SB-11	
Sample From		14' - 16'	14' - 16'	14' - 16'	14' - 16'	14' - 16'	Requirement
Sieve Size mm	Sieve Size	%Ret	%Ret	%Ret	%Ret	%Ret	
9.0	3/4	0	0	0	0	0	
?	1/2	0	0.9	0	0	0	
9.5	3/8	0	2.4	6.2	0.3	0	
4.75	4	0	7.9	14.1	4.0	2.0	
2.36	8	0.2	17.2	21.9	14.0	7.4	
1.18	16	0.8	31.2	33.6	29.6	24.4	
850	20	1.8	39.9	41.9	39.2	37.7	
.500	35	4.9	59.0	60.5	56.2	59.9	
300	50	43.2	76.2	80.6	74.5	80.9	
.250	60	70.1	86.1	88.3	83.3	89.7	
.150	100	77.5	94.0	94.5	91.2	94.6	
075	200	80.7	96.4	97.4	95.7	97.1	

Remarks:

Copies: 3 Groundwater Technologies
1 File

Respectfully submitted,
ENGINEERING TESTING COMPANY
(Original Signed By)
R A Rothhammer
R.A. Rothhammer 8-2-90 cg

FORM 12

ENGINEERING TESTING COMPANY

535 North Washington / (316) 265-8553
P. O. BOX 2391 / WICHITA, KANSAS 67201

REPORT OF TESTS OF AGGREGATES

Material: Sand & Silt
For Use:
Project: No. 042209670-0301
Date Received: 7-30-90
From:
Reported to: Groundwater Technology, Inc. 443 N. Maize Rd., Wichita, KS 67212
Tests Made by Order of: Groundwater Technology, Inc., PO #422-6530
Contractor:
Source of Material: Test Holes

Lab No.		182839	182840	182841	182842	182843	Specification
Sample No.		SB-12	SB-13	SB-14	SB-15	SB-17	
Sample From		14' - 16'	14' - 16'	14' - 16'	14' - 16'	14' - 16'	Requirement
Sieve Size mm	Sieve Size	% Ret	%Ret	%Ret	%Ret	%Ret	
19.0	3/4	0	0	0	0	0	
	1/2	0	0	0	0	0.7	
9.5	3/8	0.7	0.7	0	0.9	1.5	
4.75	4	2.6	3.2	0.2	2.0	4.5	
2.36	8	7.7	11.5	3.9	4.0	13.7	
1.18	16	15.9	27.2	12.3	8.2	30.9	
.850	20	20.9	37.4	18.4	11.9	41.0	
.500	35	32.3	60.6	38.7	22.1	57.4	
.300	50	55.8	81.3	62.8	38.6	64.9	
.250	60	75.6	89.9	74.5	49.2	77.8	
.150	100	90.3	94.2	80.9	72.8	88.5	
.075	200	96.1	97.3	85.9	90.1	96.2	

Remarks:

Copies: 3 Groundwater Technologies, Inc.
1 file

Respectfully submitted.
ENGINEERING TESTING COMPANY
(Original Signed By)
R.A. Rothhammer
R.A. Rothhammer, 8-2-90 cg

FORM 12

ENGINEERING TESTING COMPANY

535 North Washington / (316) 265-8553
P. O. BOX 2391 / WICHITA, KANSAS 67201

REPORT OF TESTS OF AGGREGATES

Material: Sand & Silt
For Use: _____ Project: No. 042209670-0301
Date Received: 7-30-90 From: _____
Reported to: Groundwater Technology, Inc. 443 N. Maize Rd., Wichita, KS 67212
Tests Made by Order of: Groundwater Technology, Inc., PO #422-6530
Contractor: _____
Source of Material: Test Holes

Lab No.		182839	182840	182841	182842	182843	Specification
Sample No.		SB-12	SB-13	SB-14	SB-15	SB-17	
Sample From		14' - 16'	14' - 16'	14' - 16'	14' - 16'	14' - 16'	Requirement
Sieve Size mm	Sieve Size	% Ret	%Ret	%Ret	%Ret	%Ret	
9.0	3/4	0	0	0	0	0	
[illegible]	1/2	0	0	0	0	0.7	
9.5	3/8	0.7	0.7	0	0.9	1.5	
4.75	4	2.6	3.2	0.2	2.0	4.5	
2.36	8	7.7	11.5	3.9	4.0	13.7	
1.18	16	15.9	27.2	12.3	8.2	30.9	
.850	20	20.9	37.4	18.4	11.9	41.0	
.500	35	32.3	60.6	38.7	22.1	57.4	
.300	50	55.8	81.3	62.8	38.6	64.9	
.250	60	75.6	89.9	74.5	49.2	77.8	
.150	100	90.3	94.2	80.9	72.8	88.5	
.075	200	96.1	97.3	85.9	90.1	96.2	

Remarks:

Copies: 3 Groundwater Technologies, Inc.
1 file

Respectfully submitted.
ENGINEERING TESTING COMPANY
(Original Signed By)
R.A. Rothhammer, 8-2-90 cg

FORM 12

ENGINEERING TESTING COMPANY

535 North Washington / (316) 265-8553
P. O. BOX 2391 / WICHITA, KANSAS 67201

REPORT OF TESTS OF AGGREGATES

Material: Sand & Silt
For Use:
Project: No. 042209670-0301
Date Received: 7-30-90
From:
Reported to: Groundwater Technology, Inc. 443 N. Maize Rd., Wichita, KS 67212
Tests Made by Order of: Groundwater Technology, Inc., PO #422-6530
Contractor:
Source of Material: Test Holes

Lab No.		182839	182840	182841	182842	182843	Specification
Sample No.		SB-12	SB-13	SB-14	SB-15	SB-17	
Sample From		14' - 16'	14' - 16'	14' - 16'	14' - 16'	14' - 16'	Requirement
Sieve Size mm	Sieve Size	% Ret	%Ret	%Ret	%Ret	%Ret	
9.0	3/4	0	0	0	0	0	
[illegible]	1/2	0	0	0	0	0.7	
9.5	3/8	0.7	0.7	0	0.9	1.5	
4.75	4	2.6	3.2	0.2	2.0	4.5	
2.36	8	7.7	11.5	3.9	4.0	13.7	
1.18	16	15.9	27.2	12.3	8.2	30.9	
.850	20	20.9	37.4	18.4	11.9	41.0	
.500	35	32.3	60.6	38.7	22.1	57.4	
.300	50	55.8	81.3	62.8	38.6	64.9	
.250	60	75.6	89.9	74.5	49.2	77.8	
.150	100	90.3	94.2	80.9	72.8	88.5	
.075	200	96.1	97.3	85.9	90.1	96.2	

Remarks:

Copies: 3 Groundwater Technologies, Inc.
1 file

Respectfully submitted.
ENGINEERING TESTING COMPANY
(Original Signed By)
R.A. Rothhammer
R.A. Rothhammer, 8-2-90 cg

FORM 18

ENGINEERING TESTING COMPANY

535 North Washington / (316) 265-8553
P. O. BOX 2391 / WICHITA, KANSAS 67201

REPORT OF TESTS OF AGGREGATES

Material: Sand & Silt
For Use: _____ Project: No. 042209670-0301
Date Received: 7-30-90 From: _____
Reported to: Groundwater Technology, Inc., 443 N. Maize Rd., Wichita, Kansas 67212
Tests Made by Order of: Groundwater Technology, Inc., PO #422-6530
Contractor: _____
Source of Material: Test Holes

Lab No.		182843	182844	182845	182846	182847	Specification
Sample No.		SB-18	SB-19	SB-20	SB-22	SB-23	
Sample From		19' - 21'	14' - 16'	14' - 16'	14' - 16'	-------	Requirement
Sieve Size mm	Sieve size	%Ret	%Ret	%Ret	%Ret	%Ret	
[illegible].0	3/4	0	0	0	0	0	
[illegible].7	1/2	0.[illegible]	0	0	0	0	
[illegible]	3/8	0.[illegible]	0.4	0.9	0.5	0.3 [illegible].3	
75	4	0.2	2.6	1.7	3.2	4.7	
.36	8	1.4	13.9	7.7	8.9	16.4	
18	16	4.6	34.6	20.2	17.0	34.9	
850	20	6.6	46.7	28.7	21.1	45.6	
.00	35	13.0	66.1	47.7	28.4	64.1	
[illegible]00	50	44.7	75.1	68.9	43.4	70.6	
250	60	71.3	86.8	84.1	61.5	85.4	
50	100	89.4	96.3	94.2	87.0	92.9	
075	200	96.1	97.6	97.6	95.0	96.6	

Remarks:

Copies: 3 Groundwater Technology Inc.
1 File

Respectfully submitted.
ENGINEERING TESTING COMPANY
(Original Signed By)
R.A. Rothhammer
R.A. Rothhammer 8-2-90 cg

FORM 18

ENGINEERING TESTING COMPANY

535 North Washington / (316) 265-8553
P. O. BOX 2391 / WICHITA, KANSAS 67201

REPORT OF TESTS OF AGGREGATES

Material: Sand & Silt
For Use: Project: No. 042209670-0301
Date Received: 7-30-90 From:
Reported to: Groundwater Technology, Inc., 443 N. Maize Rd., Wichita, Kansas 67212
Tests Made by Order of: Groundwater Technology, Inc., PO #422-6530
Contractor:
Source of Material: Test Holes

Lab No.		182843	182844	182845	182846	182847	Specification
Sample No.		SB-18	SB-19	SB-20	SB-22	SB-23	
Sample From		19' - 21'	14' - 16'	14' - 16'	14' - 16'	-------	Requirement
Sieve Size mm	Sieve size	%Ret	%Ret	%Ret	%Ret	%Ret	
19.0	3/4	0	0	0	0	0	
[illegible]	1/2	[illegible]	0	0	0	0	
9.5	3/8	[illegible]	0.4	0.9	0.5	0.3 [illegible]	
.75	4	0.2	2.6	1.7	3.2	4.7	
2.36	8	1.4	13.9	7.7	8.9	16.4	
..18	16	4.6	34.6	20.2	17.0	34.9	
150	20	6.6	46.7	28.7	21.1	45.6	
500	35	13.0	66.1	47.7	28.4	64.1	
100	50	44.7	75.1	68.9	43.4	70.6	
250	60	71.3	86.8	84.1	61.5	85.4	
50	100	89.4	96.3	94.2	87.0	92.9	
075	200	96.1	97.6	97.6	95.0	96.6	

Remarks:

Copies: 3 Groundwater Technology Inc.
1 File

Respectfully submitted.
ENGINEERING TESTING COMPANY
(Original Signed By)
R A Rothhammer
R.A. Rothhammer 8-2-90 cg

FORM 12

ENGINEERING TESTING COMPANY

535 North Washington / (316) 265-8553
P. O. BOX 2391 / WICHITA, KANSAS 67201

REPORT OF TESTS OF AGGREGATES

Material Sand & Silt
For Use _____ Project No. 042209670-0301
Date Received 7-30-90 From _____
Reported to Groundwater Technology, Inc., 443 N. Maize Rd., Wichita, Kansas 67212
Tests Made by Order of Groundwater Technology, Inc., PO #422-6530
Contractor _____
Source of Material Test Holes

Lab No.		182843	182844	182845	182846	182847	Specification
Sample No.		SB-18	SB-19	SB-20	SB-22	SB-23	
Sample From		19' - 21'	14' - 16'	14' - 16'	14' - 16'	-------	Requirement
Sieve Size mm	Sieve size	%Ret	%Ret	%Ret	%Ret	%Ret	
9.0	3/4	0	0	0	0	0	
2.7	1/2	0.[illegible]	0	0	0	0	
1.5	3/8	0.[illegible]	0.4	0.9	0.5	0.3	0.3
.75	4	0.2	2.6	1.7	3.2	4.7	
2.36	8	1.4	13.9	7.7	8.9	16.4	
.18	16	4.6	34.6	20.2	17.0	34.9	
850	20	6.6	46.7	28.7	21.1	45.6	
500	35	13.0	66.1	47.7	28.4	64.1	
300	50	44.7	75.1	68.9	43.4	70.6	
250	60	71.3	86.8	84.1	61.5	85.4	
50	100	89.4	96.3	94.2	87.0	92.9	
075	200	96.1	97.6	97.6	95.0	96.6	

Remarks:

Copies: 3 Groundwater Technology Inc.
1 File

Respectfully submitted.
ENGINEERING TESTING COMPANY
(Original Signed By)
R.A. Rothhammer
R.A. Rothhammer 8-2-90 cg

FORM 1a

ENGINEERING TESTING COMPANY

535 North Washington / (316) 265-8553
P. O. BOX 2391 / WICHITA, KANSAS 67201

REPORT OF TESTS OF AGGREGATES

Material: Sand & Silt
For Use:
Project: No. 042209670-0301
Date Received: 7-30-90
From:
Reported to: Groundwater Technology, Inc., 443 N. Maize Rd., Wichita, Kansas 67212
Tests Made by Order of: Groundwater Technology, Inc., PO #422-6530
Contractor:
Source of Material: Test Holes

Lab No.		182849	182850	182851	182852	182853	Specification
Sample No.		SB-24	SB-25	SB-26	SB-27	SB-28	
Sample From		14' - 16'	14' - 16'	14' - 16'	14' - 16'	14' - 16'	Requirement
Sieve Size mm	Sieve size	%Ret	%Ret	%Ret	%Ret	%Ret	
25.4	1	0	0	0	0	0	
19.0	3/4	0	0		1.9	0	
	1/2	0	0	0	2.9	0	
9.5	3/8	0.4	0.5	0.4	3.1	0	
4.75	4	2.1	1.3	1.2	8.3	0.2	
2.36	8	7.8	3.8	5.0	19.3	3.5	
1.18	16	18.5	7.7	15.4	34.8	11.4	
.850	20	27.1	11.4	28.7	43.3	17.3	
.500	35	47.9	23.8	62.9	58.4	33.0	
.300	50	69.4	50.8	85.0	77.6	60.2	
.250	60	79.8	60.1	89.1	84.1	74.8	
.150	100	92.6	75.6	94.1	94.8	89.3	
.075	200	97.2	87.2	96.6	98.8	95.6	

Remarks:

Copies: 3 Groundwater Technology, Inc.
1 File

Respectfully submitted,
ENGINEERING TESTING COMPANY
(Original Signed By)
R.A. Rothhammer
R.A. Rothhammer, 8-3-90 cg

FORM 12

ENGINEERING TESTING COMPANY

535 North Washington / (316) 265-8553
P. O. BOX 2391 / WICHITA, KANSAS 67201

REPORT OF TESTS OF AGGREGATES

Material: Sand & Silt
For Use: Project No. 042209670-0301
Date Received: 7-30-90 From:
Reported to: Groundwater Technology, Inc., 443 N. Maize Rd., Wichita, Kansas 67212
Tests Made by Order of: Groundwater Technology, Inc., PO #422-6530
Contractor:
Source of Material: Test Holes

Lab No.		182849	182850	182851	182852	182853	Specification
Sample No.		SB-24	SB-25	SB-26	SB-27	SB-28	
Sample From		14' - 16'	14' - 16'	14' - 16'	14' - 16'	14' - 16'	Requirement
Sieve Size mm	Sieve size	%Ret	%Ret	%Ret	%Ret	%Ret	
25.4	1	0	0	0	0	0	
19.0	3/4	0	0		1.9	0	
12	1/2	0	0	0	2.9	0	
9.5	3/8	0.4	0.5	0.4	3.1	0	
4.75	4	2.1	1.3	1.2	8.3	0.2	
2.36	8	7.8	3.8	5.0	19.3	3.5	
1.18	16	18.5	7.7	15.4	34.8	11.4	
.850	20	27.1	11.4	28.7	43.3	17.3	
.500	35	47.9	23.8	62.9	58.4	33.0	
.300	50	69.4	50.8	85.0	77.6	60.2	
.250	60	79.8	60.1	89.1	84.1	74.8	
.150	100	92.6	75.6	94.1	94.8	89.3	
.075	200	97.2	87.2	96.6	98.8	95.6	

Remarks:

Copies: 3 Groundwater Technology, Inc.
1 File

Respectfully submitted,
ENGINEERING TESTING COMPANY
(Original Signed By)
R.A. Rothhammer

R.A. Rothhammer, 8-3-90 cg

FORM 14

ENGINEERING TESTING COMPANY

535 North Washington / (316) 265-8553
P. O. BOX 2391 / WICHITA, KANSAS 67201

REPORT OF TESTS OF AGGREGATES

Material: Sand & Silt
For Use: Project No. 042209670-0301
Date Received: 7-30-90 From:
Reported to: Groundwater Technology, Inc., 443 N. Maize Rd., Wichita, Kansas 67212
Tests Made by Order of: Groundwater Technology, Inc., PO #422-6530
Contractor:
Source of Material: Test Holes

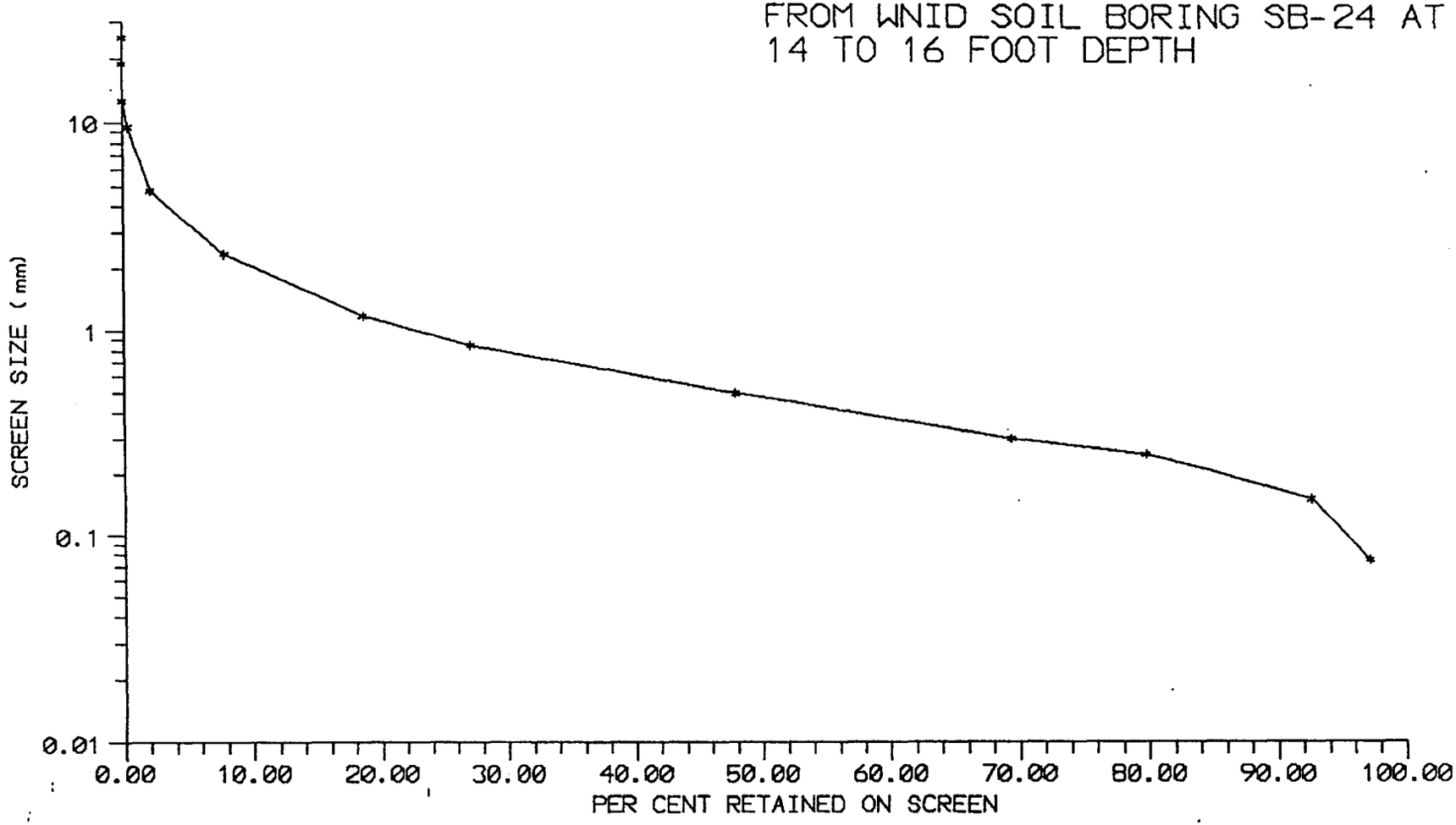
Lab No.		182849	182850	182851	182852	182853	Specification
Sample No.		SB-24	SB-25	SB-26	SB-27	SB-28	
Sample From		14' - 16'	14' - 16'	14' - 16'	14' - 16'	14' - 16'	Requirement
Sieve Size mm	Sieve size	%Ret	%Ret	%Ret	%Ret	%Ret	
25.4	1	0	0	0	0	0	
19.0	3/4	0	0		1.9	0	
12.7	1/2	0	0	0	2.9	0	
9.5	3/8	0.4	0.5	0.4	3.1	0	
4.75	4	2.1	1.3	1.2	8.3	0.2	
2.36	8	7.8	3.8	5.0	19.3	3.5	
1.18	16	18.5	7.7	15.4	34.8	11.4	
.850	20	27.1	11.4	28.7	43.3	17.3	
.500	35	47.9	23.8	62.9	58.4	33.0	
.300	50	69.4	50.8	85.0	77.6	60.2	
.250	60	79.8	60.1	89.1	84.1	74.8	
.150	100	92.6	75.6	94.1	94.8	89.3	
.075	200	97.2	87.2	96.6	98.8	95.6	

Remarks:

Copies: 3 Groundwater Technology, Inc.
1 File

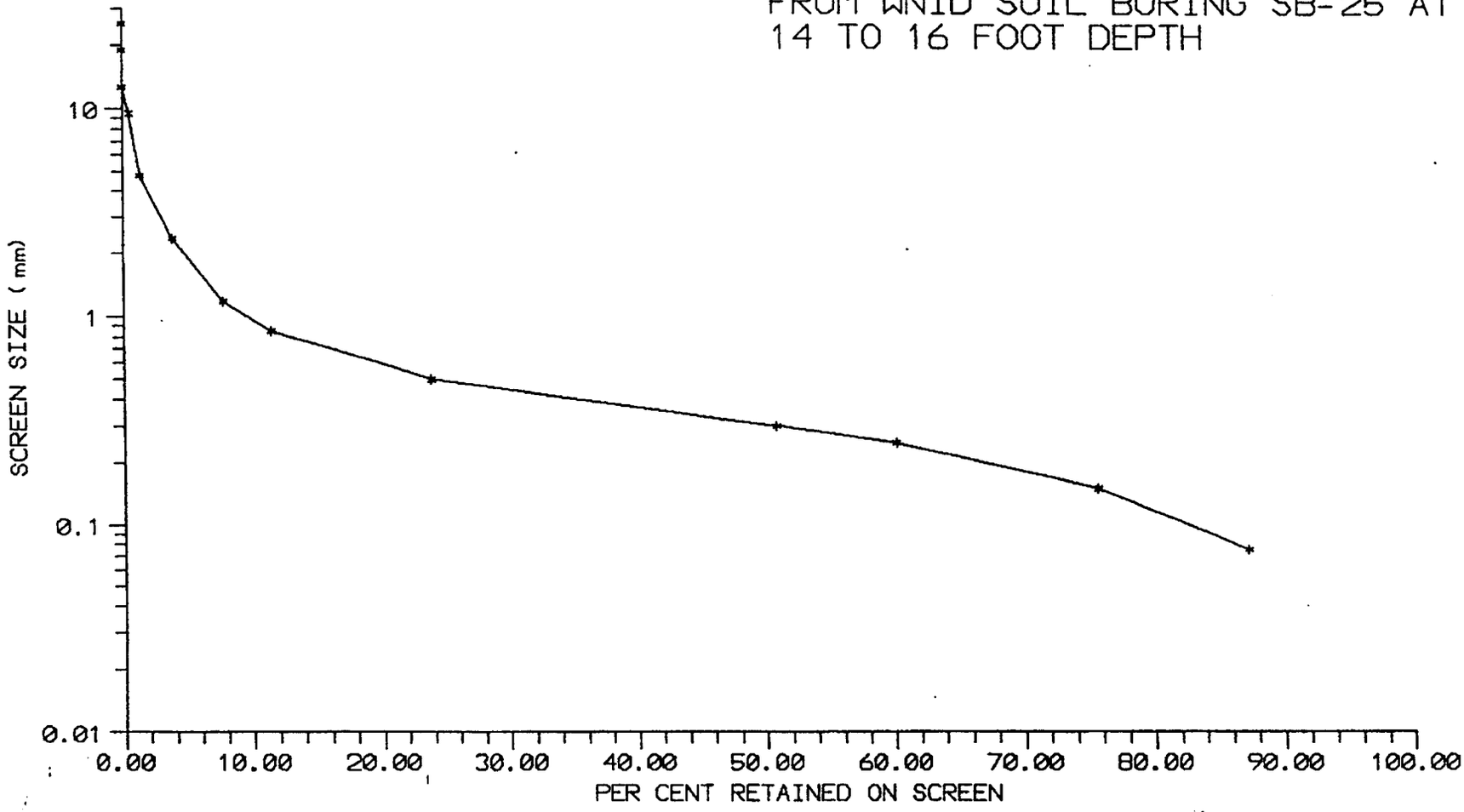
Respectfully submitted,
ENGINEERING TESTING COMPANY
(Original Signed By)
R A Rothhammer
R.A. Rothhammer, 8-3-90 cg

SIEVE ANALYSIS ON SOIL SAMPLES FROM WNID SOIL BORING SB-24 AT 14 TO 16 FOOT DEPTH



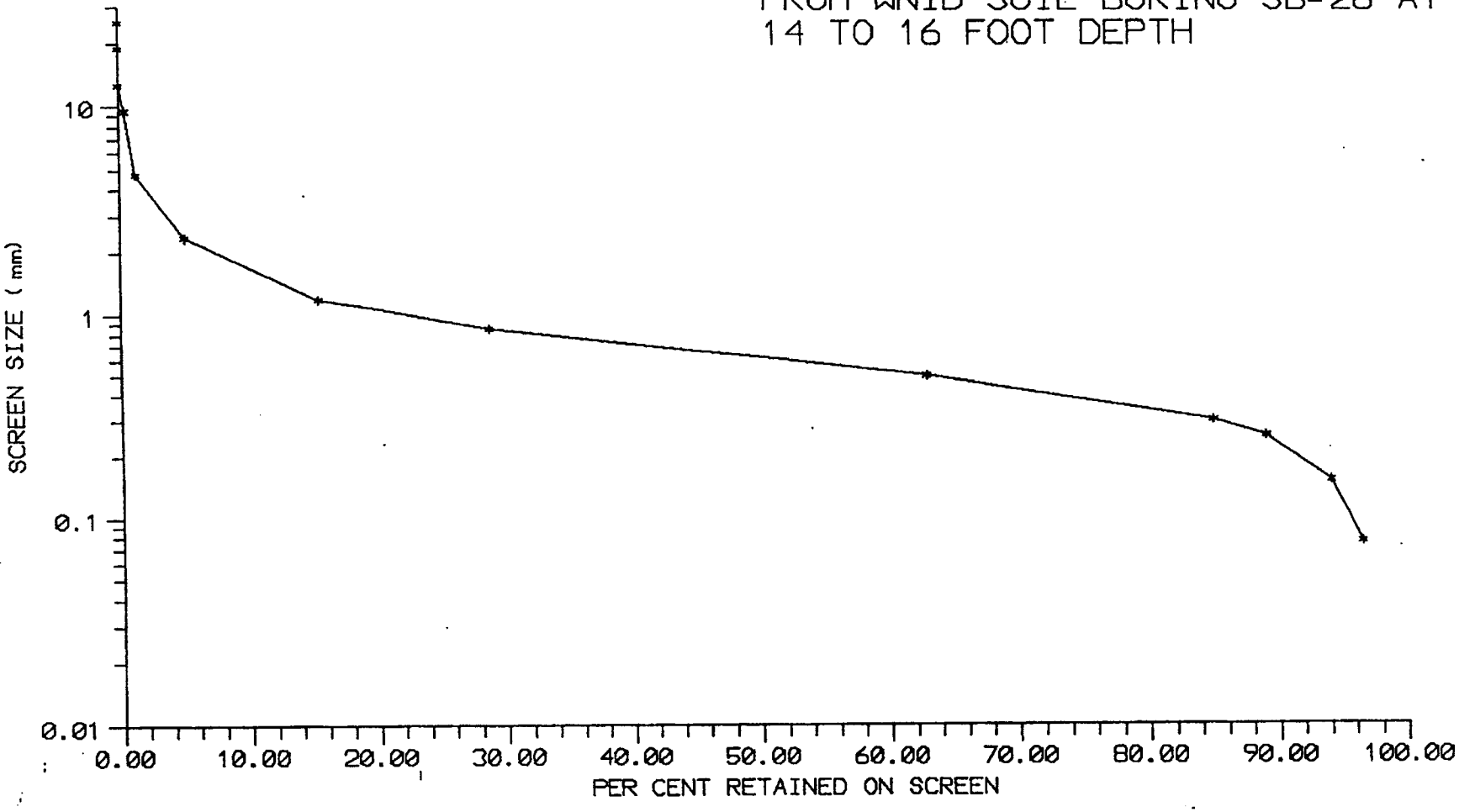
Prepared by:
GROUNDWATER TECHNOLOGY, INC.

SIEVE ANALYSIS ON SOIL SAMPLES FROM WNID SOIL BORING SB-25 AT 14 TO 16 FOOT DEPTH



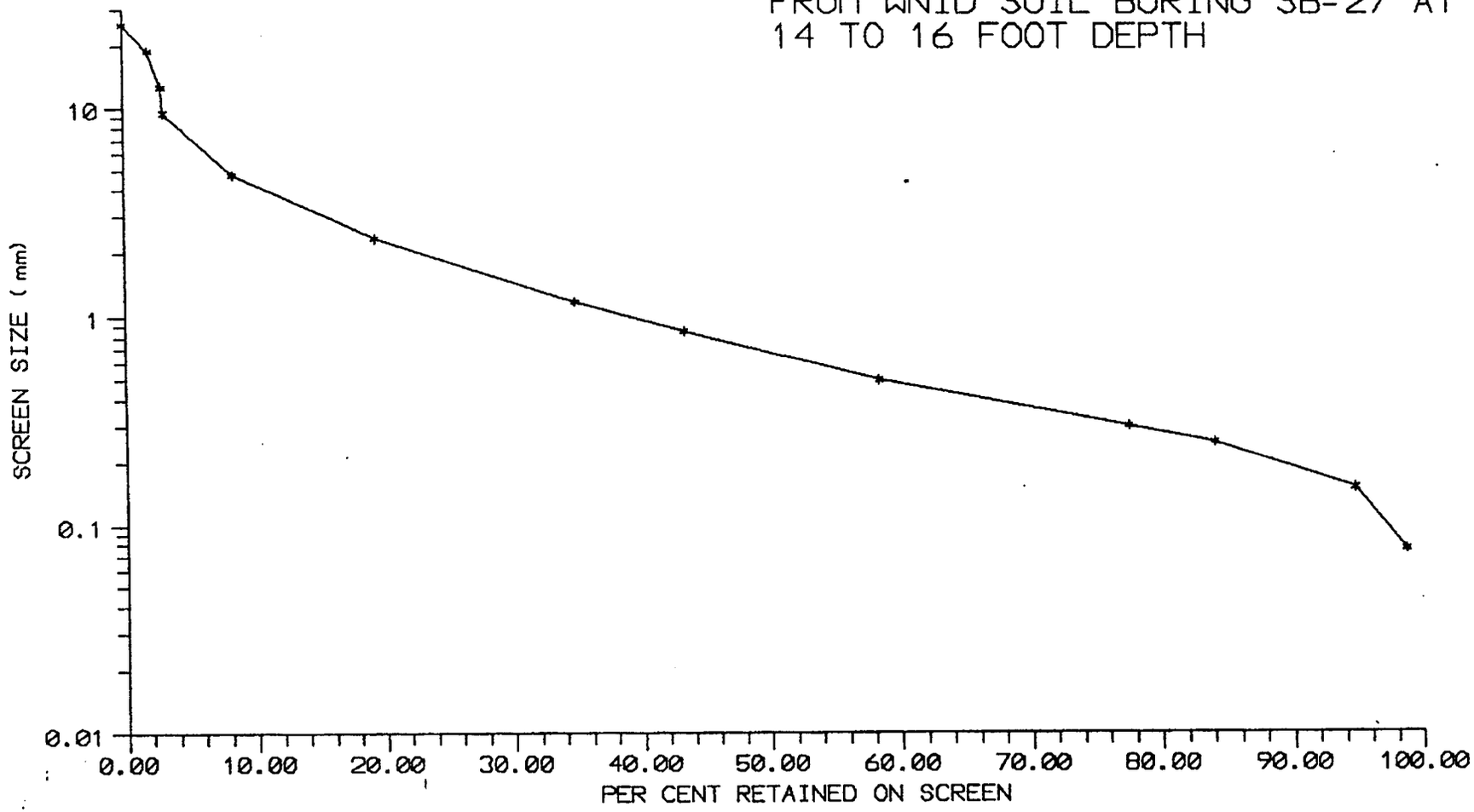
Prepared by:
GROUNDWATER TECHNOLOGY, INC.

SIEVE ANALYSIS ON SOIL SAMPLES FROM WNID SOIL BORING SB-26 AT 14 TO 16 FOOT DEPTH



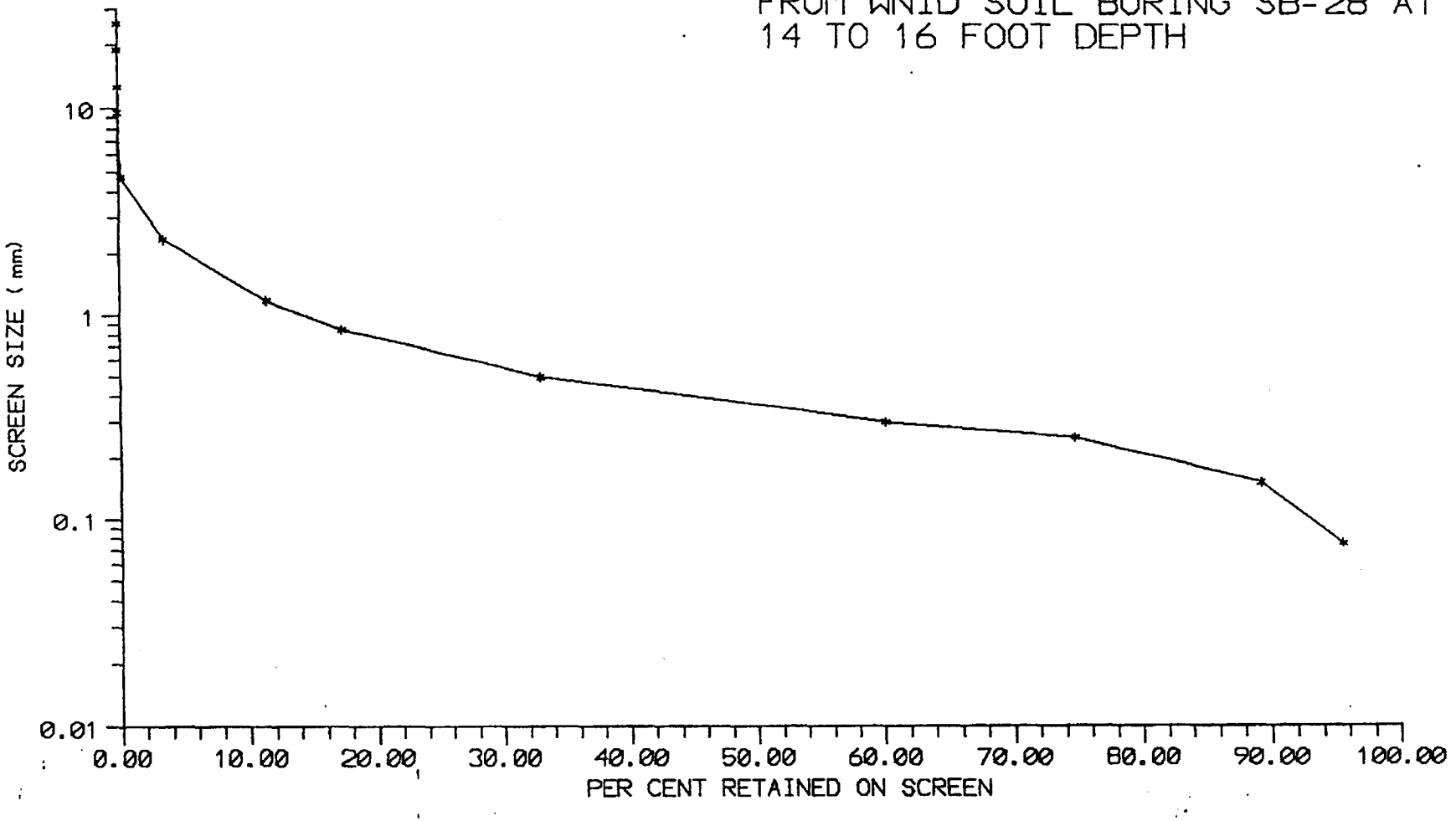
Prepared by:
GROUNDWATER TECHNOLOGY, INC.

SIEVE ANALYSIS ON SOIL SAMPLES FROM WNID SOIL BORING SB-27 AT 14 TO 16 FOOT DEPTH



Prepared by:
GROUNDWATER TECHNOLOGY, INC.

SIEVE ANALYSIS ON SOIL SAMPLES FROM WNID SOIL BORING SB-28 AT 14 TO 16 FOOT DEPTH



Prepared by:
GROUNDWATER TECHNOLOGY, INC.

FORM 15

ENGINEERING TESTING COMPANY

535 North Washington / (316) 265-8553
P. O. BOX 2391 / WICHITA, KANSAS 67201

REPORT OF TESTS OF AGGREGATES

Material Sand & Silt
For Use _____ Project No. 042209670-0301
Date Received 7-30-90 From _____
Reported to Groundwater Technology, Inc., 443 N. Maize Rd., Wichita, Kansas 67212
Tests Made by Order of Groundwater Technology, Inc., PO #422-6530
Contractor _____
Source of Material Test Holes

Lab No.		182854	182855	182856			Specification
Sample No.		SB-29	SB-30	SB-32			
Sample From		19' - 21'	14' - 16'	14' - 16'			Requirement
Sieve Size mm	Sieve size	%Ret	%Ret	%Ret			
19.0	3/4	0	0	0			
	1/2	2.7	0	0.4			
9.5	3/8	2.7	0.3	1.6			
.75	4	4.5	0.8	3.0			
2.36	8	7.7	2.3	6.6			
1.18	16	13.3	5.7	17.0			
850	20	18.5	8.8	26.3			
.500	35	30.8	20.4	51.8			
300	50	57.0	59.3	77.0			
.250	60	69.5	73.5	82.3			
150	100	80.8	88.1	90.9			
075	200	89.0	94.5	96.0			

Remarks:

Copies: 3 Groundwater Technology, Inc.
1 File

Respectfully submitted,
ENGINEERING TESTING COMPANY
(Original Signed By)
R A Rothhammer
R.A. Rothhammer. 8-3-90 cg

FORM 12

ENGINEERING TESTING COMPANY

535 North Washington / (316) 265-8553
P. O. BOX 2391 / WICHITA, KANSAS 67201

REPORT OF TESTS OF AGGREGATES

Material: Sand & Silt
For Use:
Project: No. 042209670-0301
Date Received: 7-30-90
From:
Reported to: Groundwater Technology, Inc., 443 N. Maize Rd., Wichita, Kansas 67212
Tests Made by Order of: Groundwater Technology, Inc., PO #422-6530
Contractor:
Source of Material: Test Holes

Lab No.		182854	182855	182856			Specification
Sample No.		SB-29	SB-30	SB-32			
Sample From		19' - 21'	14' - 16'	14' - 16'			Requirement
Sieve Size mm	Sieve size	%Ret	%Ret	%Ret			
19.0	3/4	0	0	0			
[illegible]	1/2	2.7	0	0.4			
9.5	3/8	2.7	0.3	1.6			
.75	4	4.5	0.8	3.0			
2.36	8	7.7	2.3	6.6			
[illegible].18	16	13.3	5.7	17.0			
850	20	18.5	8.8	26.3			
.500	35	30.8	20.4	51.8			
300	50	57.0	59.3	77.0			
.250	60	69.5	73.5	82.3			
150	100	80.8	88.1	90.9			
075	200	89.0	94.5	96.0			

Remarks:

Copies: 3 Groundwater Technology, Inc.
1 File

Respectfully submitted,
ENGINEERING TESTING COMPANY
(Original Signed By)
R.A. Rothhammer
R.A. Rothhammer. 8-3-90 cg

FORM 12

ENGINEERING TESTING COMPANY

535 North Washington / (316) 265-8553
P. O. BOX 2391 / WICHITA, KANSAS 67201

REPORT OF TESTS OF AGGREGATES

Material: Sand & Silt
For Use: _____ Project: No. 042209670-0301
Date Received: 7-30-90 From: _____
Reported to: Groundwater Technology, Inc., 443 N. Maize Rd., Wichita, Kansas 67212
Tests Made by Order of: Groundwater Technology, Inc., PO #422-6530
Contractor: _____
Source of Material: Test Holes

Lab No.		182854	182855	182856			Specification
Sample No.		SB-29	SB-30	SB-32			
Sample From		19' - 21'	14' - 16'	14' - 16'			Requirement
Sieve Size mm	Sieve size	%Ret	%Ret	%Ret			
19.0	3/4	0	0	0			
?	1/2	2.7	0	0.4			
9.5	3/8	2.7	0.3	1.6			
.75	4	4.5	0.8	3.0			
?.36	8	7.7	2.3	6.6			
1.18	16	13.3	5.7	17.0			
350	20	18.5	8.8	26.3			
.500	35	30.8	20.4	51.8			
300	50	57.0	59.3	77.0			
.250	60	69.5	73.5	82.3			
.50	100	80.8	88.1	90.9			
075	200	89.0	94.5	96.0			

Remarks:

Copies: 3 Groundwater Technology, Inc.
1 File

Respectfully submitted,
ENGINEERING TESTING COMPANY
(Original Signed By)
R.A. Rothhammer
R.A. Rothhammer. 8-3-90 cq

G R A I N S I Z E D I S T R I B U T I O N D A T A

Project Name: WNID

Location: WICHITA KANSAS

Test Hole No: WND-26 DEEP

SAMPLE DEPTH 15'-20'

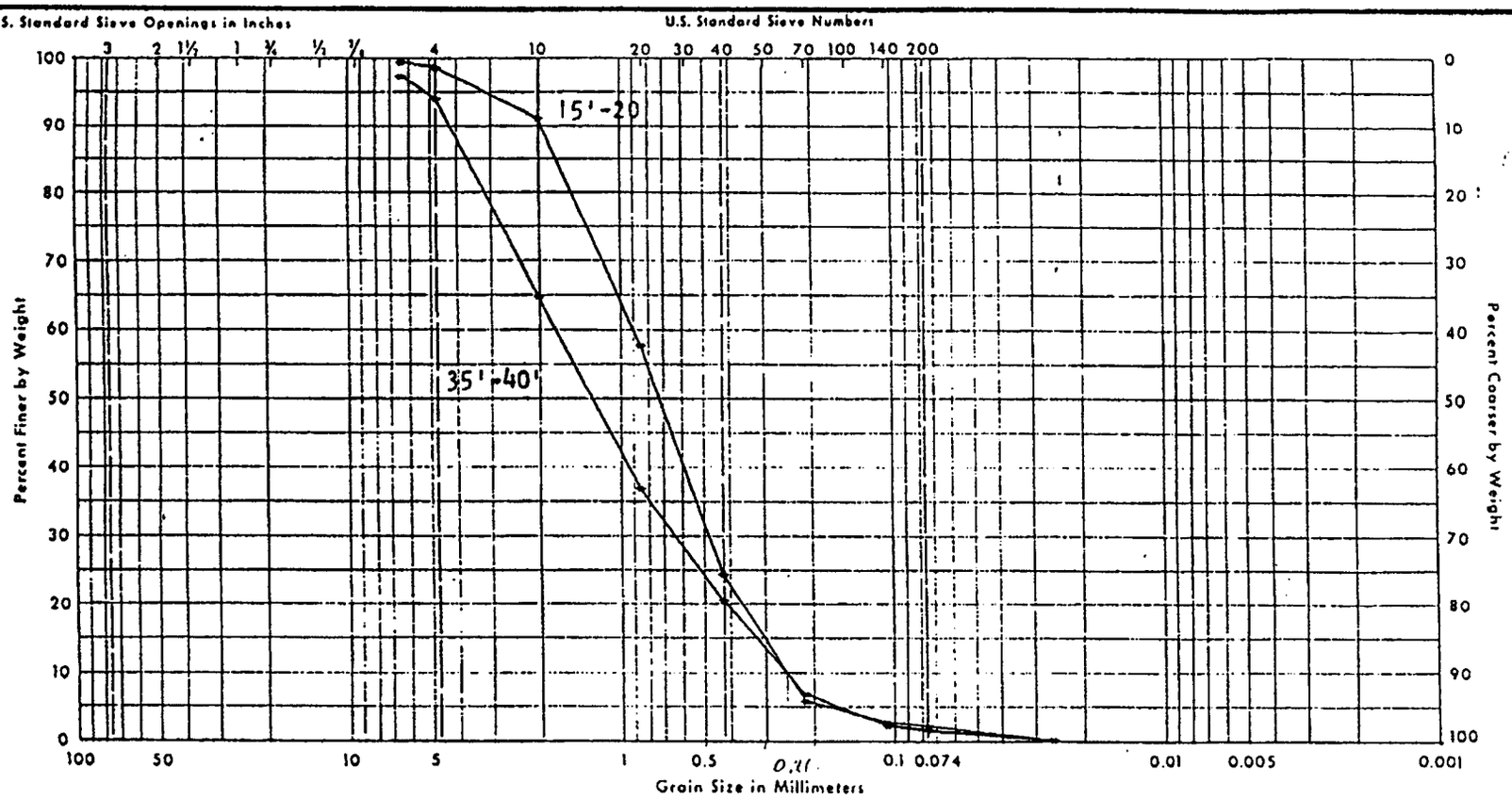
SIEVE SIZE (INCH)	WEIGHT RETAINED (GRAM)	PERCENT	CUMULATIVE PERCENT
0.2500	2.90	0.47	0.47
0.1870	4.80	0.77	1.24
0.0787 1.999	46.50	7.50	8.74
0.0331	207.40	33.45	42.19
0.0165	207.60	33.48	75.68
0.0083 0.2108	115.50	18.63	94.31
0.0041	19.70	3.18	97.48
0.0029	3.50	0.56	98.05
0.0010	12.10	1.95	100.00

Predominant Very Coarse Sand to Fine Sand

SAMPLE DEPTH 35'-40'

SIEVE SIZE (INCH)	WEIGHT RETAINED (GRAM)	PERCENT	CUMULATIVE PERCENT
0.2500	15.50	2.50	2.50
0.1870	20.60	3.33	5.83
0.0787 1.999	181.50	29.31	35.14
0.0331	172.90	27.92	63.06
0.0165	102.10	16.49	79.54
0.0083 [illegible]	84.80	13.69	93.23
0.0041	29.40	4.75	97.98
0.0029	4.20	0.68	98.66
0.0010	8.30	1.34	100.00

Predominant Very Coarse Sand to Fine Sand



UNIFIED	GRAVEL	COARSE SAND	MEDIUM SAND	FINE SAND	FINES	
AASHO	GRAVEL		COARSE SAND	FINE SAND	SILT	CLAY

Boring No.	Sample No.	Sample Depth	LL	w	PL	Classification
WND-26		15'-20'				
DEEP		35'-40'				

Project: WNID

Laboratory: LAYNE GEOSCIENCES, INC.
KANSAS CITY, KANSAS

Date Tested: 4-25-91

LAYNE GEOSCIENCES, INC.

NAME WNID (Wichita office) DATE: 4-25-91

JOB NO. 399990

WELL NO. T. H. NO. WND-26 Deep

DEPTH 15'-20' SAMPLE NO.			DEPTH 35'-40' SAMPLE NO.	
PAN NO. 12			PAN NO. 14	
US SIEVE NO.	FULL SIEVE	EMPTY SIEVE	FULL SIEVE	EMPTY SIEVE
1/4	829.3	826.4	841.9	826.4
4	808.4	803.6	824.2	803.6
10	727.6	681.1	862.6	681.1
20	833.1	625.7	798.6	625.7
40	777.7	570.1	672.2	570.1
70	651.3	535.8	620.6	535.8
140	535.0	515.3	544.7	515.3
200	504.6	501.1	505.3	501.1
Pan	491.2	479.1	487.4	479.1
TOTAL				

GTEL ENVIRONMENTAL LABORATORIES, INC.

Midwest Region
4211 May Avenue
Wichita, KS 67209

800-633-7936
FAX 316-945-0506

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

№ 74-7717

CUSTODY RECORD

Project Manager: Dave Daniels + Steve Persons
Phone #: 722-2266
FAX #:

Address: 443 - N. Maize Rd. Wichita KS 67212
Site location: Wichita

Project Number: 0422-0-9670-0303
Project Name: WNIB

I attest that the proper field sampling procedures were used during the collection of these samples.
Sampler Name (Print): Phil Osborn

Field Sample ID	Source of Sample	GTEL Lab # (Lab use only)	# CONTAINERS	Matrix: WATER	Matrix: SOIL	Matrix: AIR	Matrix: SLUDGE	Matrix: OTHER	Method Preserved: HCl	Method Preserved: HNO_3	Method Preserved: H_2SO_4	Method Preserved: ICE	Method Preserved: NONE	Method Preserved: OTHER	Sampling: DATE	Sampling: TIME	Grain Size
WND-26 Deep	15-20'		1		X								X		4-16	8:57	X
WND-26 Deep	35-40'		1		X								X		4-16	9:40	X

ANALYSIS REQUEST: BTEX 602 ☐ 8020 ☐ with MTBE ☐; BTEX/TPH Gas. 602/8015 ☐ 8020/8015 ☐ MTBE ☐; TPH as ☐ Gas ☐ Diesel ☐ Jet Fuel; Product I.D. by GC (SIMDIS) ☐; Total Oil & Grease: 413.1 ☐ 413.2 ☐ 503A ☐; Total Petroleum Hydrocarbons: 418.1 ☐ 503E ☐; EPA 601 ☐ 8010 ☐ DCA only ☐; EPA 602 ☐ 8020 ☐; EPA 608 ☐ 8080 ☐ PCBs only ☐; EPA 610 ☐ 8310 ☐; EPA 624 ☐ 8240 ☐ NBS +15 ☐; EPA 625 ☐ 8270 ☐ NBS +25 ☐; EPTOX: Metals ☐ Pesticides ☐ Herbicides ☐; TCLP Metals ☐ VOA ☐ Semi VOA ☐; EPA Priority Pollutant Metals ☐ HSL ☐; LEAD 7420 ☐ 7421 ☐ 239.2 ☐ 6010 ☐ Org. Lead ☐; CAM Metals ☐ STLC ☐ TTLC; Corrosivity ☐ Flashpoint ☐ Reactivity ☐

Received by: Dennis White	Received by: Tyler Meier	Received by Laboratory: W. R. Snodgrass - LGI
Date 4-16-91 Time 16:00	Date Time	Date 4-22-91 Time 10:00
Relinquished by Sampler:	Relinquished by: Dennis White	Relinquished by: Tyler Meier

Way bill #

SPECIAL HANDLING
24 HOURS ☐
EXPEDITED 48 Hours ☐
SEVEN DAY ☐
OTHER _____ (#) BUSINESS DAYS
QA/QC CLP Level ☐ Blue Level ☐
FAX ☐

SPECIAL DETECTION LIMITS (Specify)

SPECIAL REPORTING REQUIREMENTS (Specify)

REMARKS:

Lab Use Only Storage Location
Lot #: Work Order #:

G R A I N S I Z E D I S T R I B U T I O N D A T A

Project Name: WNID

Location: WICHITA KANSAS

Test Hole No: WND-22 DEEP

~~Range~~ Pebble to medium Silt

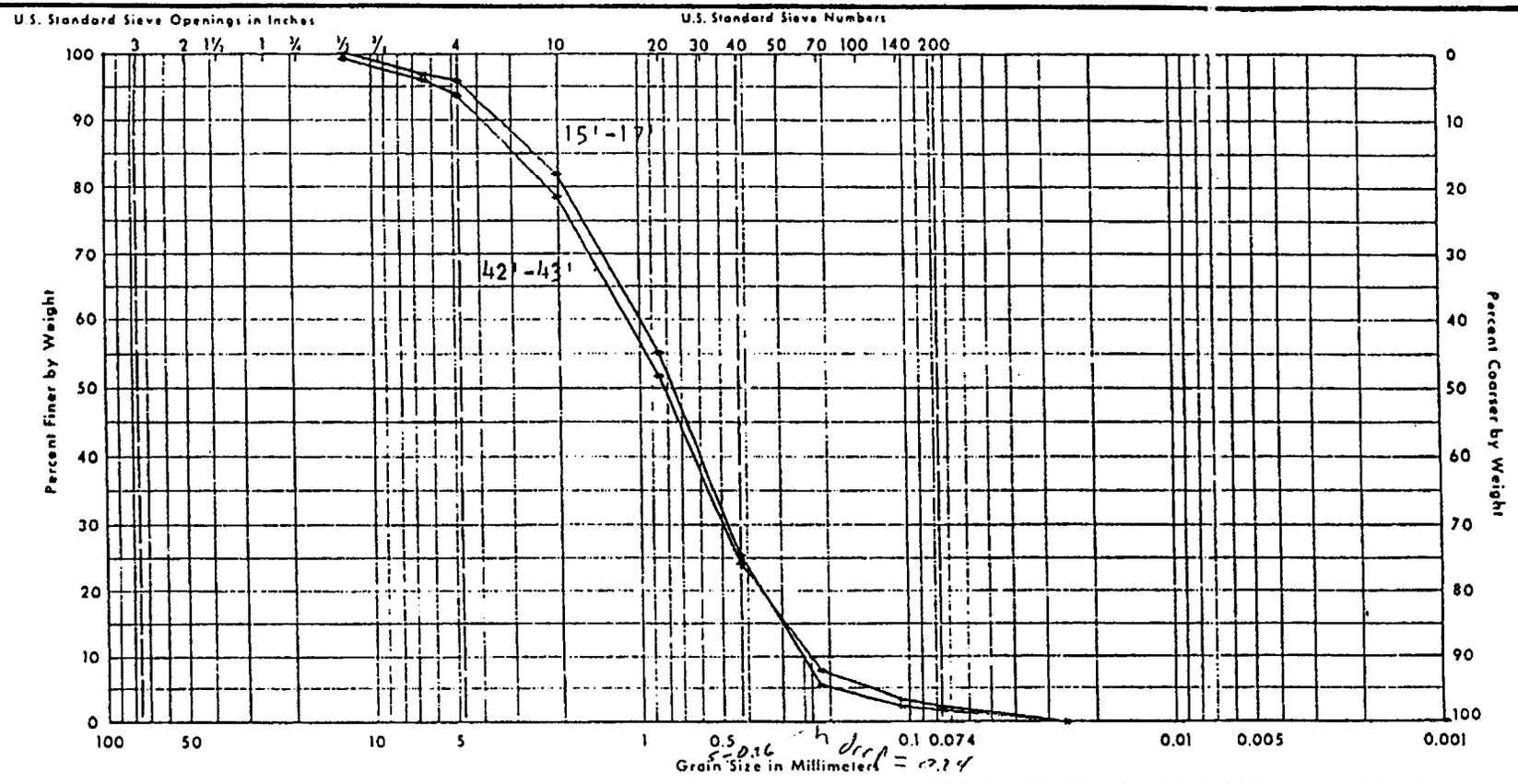
SAMPLE DEPTH 15'-17'

SIEVE SIZE (INCH)	(mm)	WEIGHT RETAINED (GRAM)		PERCENT	CUMULATIVE PERCENT
0.5000		0.00		0.00	0.00
0.2500	6.35	15.80		3.18	3.18
0.1870		5.00	Predominant Fine Sand to Very Coarse Sand	1.01	4.18
0.0787	1.999	69.00		13.87	18.05
0.0331		132.90		26.72	44.77
0.0165	0.4191	148.00		29.75	74.53
0.0083	0.211	98.80		19.86	94.39
0.0041		16.10		3.24	97.63
0.0029		3.40		0.68	98.31
0.0010	0.0254	8.40		1.69	100.00

SAMPLE DEPTH 42'-43'

SIEVE SIZE (INCH)		WEIGHT RETAINED (GRAM)		PERCENT	CUMULATIVE PERCENT
0.5000		3.70		0.88	0.88
0.2500		13.60		3.24	4.12
0.1870		9.60	Predominant fine sand to Very Coarse Sand	2.29	6.41
0.0787	1.999	63.20		15.06	21.47
0.0331		112.20		26.73	48.20
0.0165		115.90		27.61	75.82
0.0083	0.211	68.30		16.27	92.09
0.0041		18.70		4.46	96.55
0.0029		4.90		1.17	97.71
0.0010		9.60		2.29	100.00

419.7
359.6 81%



UNIFIED	GRAVEL	COARSE SAND	MEDIUM SAND	FINE SAND	FINES	
AASHO	GRAVEL		COARSE SAND	FINE SAND	SILT	CLAY

Boring No.	Sample No.	Sample Depth	LL	w	PL	Classification
WND-22		15'-17'				
DEEP		42'-43'				

Project: WNID

Laboratory: LAYNE GEOSCIENCES, INC.
KANSAS CITY, KANSAS

Date Tested: 4-19-91

LAYNE GEOSCIENCES, INC.

NAME WNID DATE: 4-19-91

JOB NO.

WELL NO. T. H. NO. WND-22 Deep

DEPTH 15'-17' SAMPLE NO.			DEPTH 42'-43' SAMPLE NO.	
PAN NO. 12			PAN NO. 14	
US SIEVE NO.	FULL SIEVE	EMPTY SIEVE	FULL SIEVE	EMPTY SIEVE
1/2	—	567.1	570.8	567.1
1/4	842.2	826.4	840.0	826.4
4	808.7	803.7	813.3	803.7
10	750.2	681.2	744.4	681.2
20	758.7	625.8	738.0	625.8
40	718.1	570.1	686.0	570.1
70	634.6	535.8	604.1	535.8
140	531.4	515.3	534.0	515.3
200	504.6	501.2	506.1	501.2
Pan	487.5	479.1	488.7	479.1
TOTAL				

G R A I N S I Z E D I S T R I B U T I O N D A T A

Project Name: WNID

Location: WICHITA KANSAS

Test Hole No: WND-24 DEEP

SAMPLE DEPTH 15'-17'

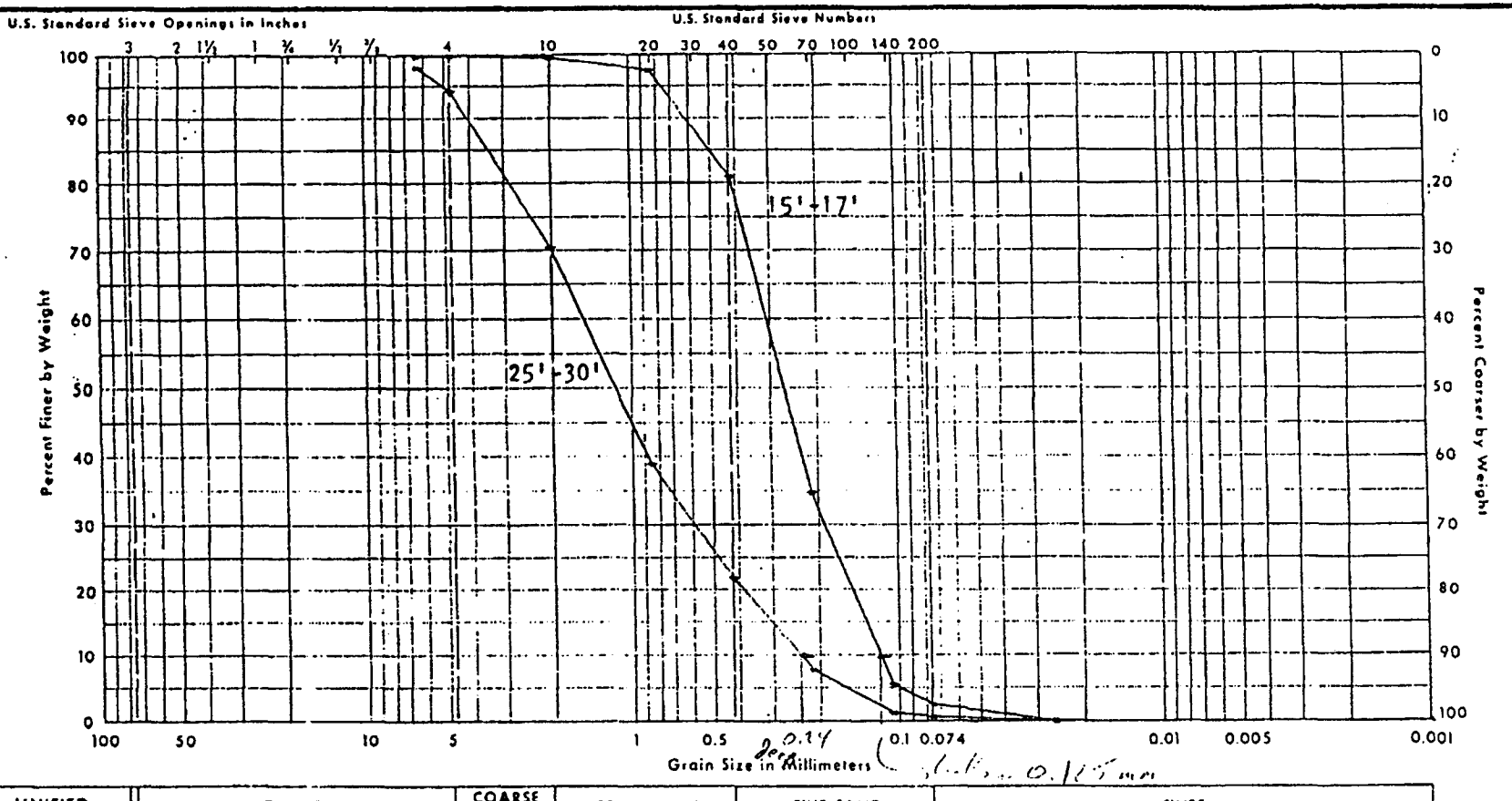
SIEVE SIZE (INCH)	(mm)	WEIGHT RETAINED (GRAM)	PERCENT	CUMULATIVE PERCENT
0.2500		0.00	0.00	0.00
0.1870		0.00	0.00	0.00
0.0787		0.60	0.29	0.29
0.0331		4.10	1.96	2.25
0.0165	0.4191	34.60	16.57	18.82
0.0083		96.80	46.36	65.18
0.0041	0.1041	61.00	29.21	94.40
0.0029		6.50	3.11	97.51
0.0010		5.20	2.49	100.00

Predominant medium sand to very fine sand

SAMPLE DEPTH 25'-30'

SIEVE SIZE (INCH)		WEIGHT RETAINED (GRAM)	PERCENT	CUMULATIVE PERCENT
0.2500		12.20	1.92	1.92
0.1870		23.40	3.68	5.60
0.0787	1.999	150.90	23.75	29.36
0.0331		200.70	31.59	60.95
0.0165		108.50	17.08	78.03
0.0083	0.2108	90.20	14.20	92.22
0.0041	0.1041	41.50	6.53	98.76
0.0029		3.80	0.60	99.35
0.0010		4.10	0.65	100.00

Predominant Very Coarse Sand to fine sand



UNIFIED	GRAVEL	COARSE SAND	MEDIUM SAND	FINE SAND	FINES	
AASHO	GRAVEL		COARSE SAND	FINE SAND	SILT	CLAY

Boring No.	Sample No.	Sample Depth	LL	w	PL	Classification
WND-24		15'-17'				
DEEP		25'-30'				

Project: WNID

Laboratory: LAYNE GEOSCIENCES, INC.
KANSAS CITY, KANSAS

Date Tested: 4-19-91

LAYNE GEOSCIENCES, INC.

W-681 4/4/89

NAME WNID DATE: 4-19-91

JOB NO.

WELL NO. T. H. NO. WND-24 Deep

DEPTH 15'-17' SAMPLE NO.			DEPTH 25'-30' SAMPLE NO.	
PAN NO. 15			PAN NO. 16	
US SIEVE NO.	FULL SIEVE	EMPTY SIEVE	FULL SIEVE	EMPTY SIEVE
1/2	—	—	—	—
1/4	—	826.4	838.6	826.4
4	—	803.7	827.1	803.7
10	681.8	681.2	832.1	681.2
20	629.9	625.8	826.5	625.8
40	604.7	570.1	678.6	570.1
70	632.6	535.8	626.0	535.8
140	576.3	515.3	556.8	515.3
200	507.7	501.2	505.0	501.2
Pan	484.3	479.1	483.2	479.1
TOTAL				

LAYNE GEOSCIENCES, INC.

GTEL ENVIRONMENTAL LABORATORIES, INC.

Midwest Region
4211 May Avenue
Wichita, KS 67209

800-633-7936
FAX 316-945-0506

C N-OF-CUSTODY RECORD AND ANALYSIS REQUEST

№ 74-7708

CUSTODY RECORD

Project Manager: Dave Danielk/Stevie Pierson

Phone #: 722-2266

FAX #:

Address: 443 N. Maize, Wichita

Site location: Wichita

Project Number: 042209670 -0303

Project Name: WNID

I attest that the proper field sampling procedures were used during the collection of these samples.

Sampler Name (Print): Phil Osborn

Field Sample ID	Source of Sample	GTEL Lab # (Lab use only)	# CONTAINERS	Matrix: WATER	Matrix: SOIL	Matrix: AIR	Matrix: SLUDGE	Matrix: OTHER	Method Preserved: HCl	Method Preserved: HNO_3	Method Preserved: H_2SO_4	Method Preserved: ICE	Method Preserved: NONE	Method Preserved: OTHER	Sampling: DATE	Sampling: TIME	GRAIN SIZE
WND-22 Deep	15-17'		1		X								X		4-4	9:40	X
WND-22 Deep	42-43		1		X								X		4-4	11:10	X
WND-24 Deep	15-17'		1		X								X		4-4	15:15	X
WND-24 Deep	25-30		1		X								X		4-4	16:45	X

ANALYSIS REQUEST: BTEX 602 ☐ 8020 ☐ with MTBE ☐; BTEX/TPH Gas. 602/8015 ☐ 8020/8015 ☐ MTBE ☐; TPH as ☐ Gas ☐ Diesel ☐ Jet Fuel; Product I.D. by GC (SIMDIS) ☐; Total Oil & Grease: 413.1 ☐ 413.2 ☐ 503A ☐; Total Petroleum Hydrocarbons: 418.1 ☐ 503E ☐; EPA 601 ☐ 8010 ☐ DCA only ☐; EPA 602 ☐ 8020 ☐; EPA 608 ☐ 8080 ☐ PCBs only ☐; EPA 610 ☐ 8310 ☐; EPA 624 ☐ 8240 ☐ NBS +15 ☐; EPA 625 ☐ 8270 ☐ - NBS +25 ☐; EPTOX: Metals ☐ Pesticides ☐ Herbicides ☐; TCLP Metals ☐ VOA ☐ Semi VOA ☐; EPA Priority Pollutant Metals ☐ HSL ☐; LEAD 7420 ☐ 7421 ☐ 239.2 ☐ 6010 ☐ Org. Lead ☐; CAM Metals ☐ STLC ☐ TTLC; Corrosivity ☐ Flashpoint ☐ Reactivity ☐

	Relinquished by Sampler:	Relinquished by:	Relinquished by:
Date	4-4-91	4-5-91	4-15-91
Time	17:00	10:35	8:40
Received by:		Received by:	Received by Laboratory:

Way bill # (LGI)

SPECIAL HANDLING

24 HOURS ☐

EXPEDITED 48 Hours ☐

SEVEN DAY ☐

OTHER _____ (#) BUSINESS DAYS

QA/QC CLP Level ☐ Blue Level ☐

FAX ☐

SPECIAL DETECTION LIMITS (Specify)

SPECIAL REPORTING REQUIREMENTS (Specify)

REMARKS:

Lab Use Only

Storage Location

Lot #:

Work Order #: