CDM Camp Dresser & McKee

Report

SE ROCKFORD

BORING LOGS & MW INSTALL. LOGS

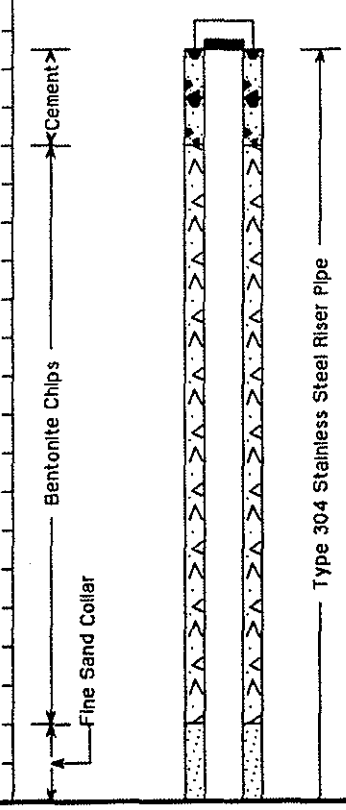
CAMP DRESSER & McKEE
CDM
233 South Wacker Drive, Suite 450
Chicago, Illinois 60606-5306

MONITORING WELL DETAIL
MW-134A

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Hollow-stem auger/BK81
Development Method: Bailing & surge block
Top of Riser Elevation: 799.09 Ft.
Total Depth: 28 Ft.
Field Screening Instrument: OVM
Logged By: M. Nugent

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 08-24-93 End 08-24-93
Drillers: Paul Dickinson, Mike Nelson
Development Date: Start 10-11-93 End 10-12-93
Surface Elevation: 799.1 Ft.
Depth To Initial Water Level (GS): ~10.5 Ft.
Well Coordinates:
N: 2028676.820 E: 2602291.372

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. DEPTH	WELL CONSTRUCTION DETAIL
				Note: See MW-134C for geologic log.		799.1 / 0	
						794.1 / 5	
						789.1 / 10	
						784.1 / 15	



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 - 1.6" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample

OTHER:
BGS - Below Ground Surface

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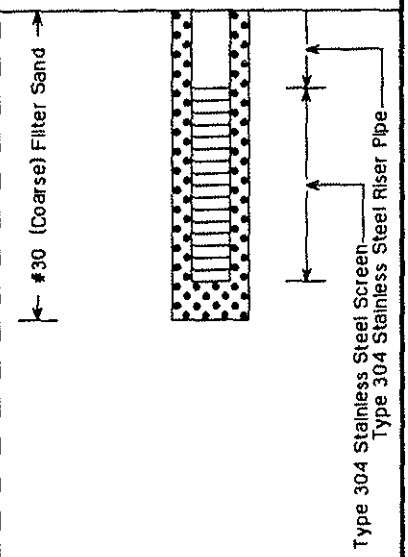
MONITORING WELL DETAIL

MW-134A

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. DEPTH	WELL CONSTRUCTION DETAIL
						774.1 / 25	#30 (Coarse) Filter Sand; Type 304 Stainless Steel Riser Pipe; Type 304 Stainless Steel Screen
				Bottom of Boring @ 28 feet.		769.1 / 30	
						764.1 / 35	
						759.1 / 40	
						754.1 / 45	
						749.1 / 50	
						744.1 / 55	



CAMP DRESSER & McKEE
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233 South Wacker Drive, Suite 450
Chicago, Illinois 60606-5306

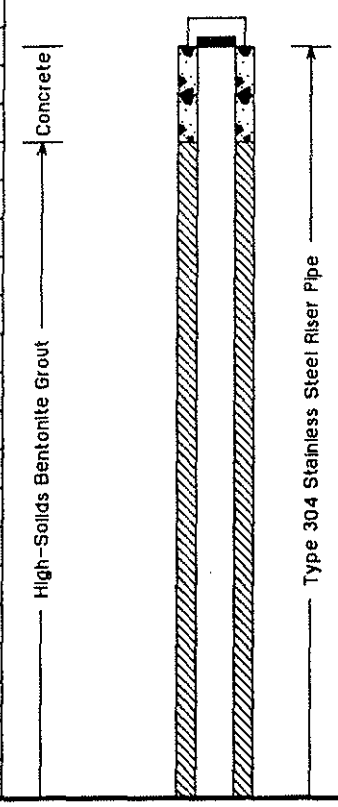
MONITORING WELL DETAIL

MW-134B

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Hollow-stem auger/BK81
Development Method: Pumping (Grundfos) & surge block
Top of Riser Elevation: 798.80 Ft.
Total Depth: 46 Ft.
Field Screening Instrument: OVM
Logged By: M. Nugent

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 08-24-93 End 08-24-93
Drillers: Paul Dickinson, Mike Nelson
Development Date: Start 10-08-93 End 10-08-93
Surface Elevation: 799.9 Ft.
Depth To Initial Water Level (GS): ~10.5 Ft.
Well Coordinates:
N: 2028674.166 E: 2602294.015

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. DEPTH	WELL CONSTRUCTION DETAIL
				Note: See MW-134C for geologic log.		799.9 / 0	
						794.9 / 5	
						789.9 / 10	
						784.9 / 15	



EXPLANATION OF ABBREVIATIONS

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

SAMPLING TYPES:
AS - Auger/Grab Sample
CS - California Sampler
BX - 1.6" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample

OTHER:
BGS - Below Ground Surface

CAMP DRESSER & McKEE

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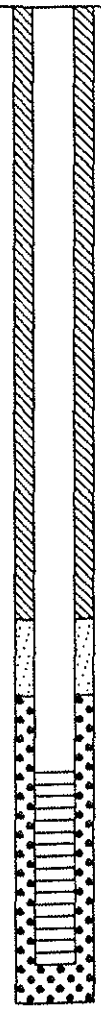
MONITORING WELL DETAIL

MW-134B

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. DEPTH	WELL CONSTRUCTION DETAIL
						774.9 / 25	High-Solids Bentonite Grout
						769.9 / 30	
						764.9 / 35	
						759.9 / 40	Fine Sand Collar; #30 (Coarse) Filter Sand
						754.9 / 45	
				Bottom of Boring @ 46 feet.		749.9 / 50	Type 304 Stainless Steel Riser Pipe; Type 304 Stainless Steel Screen
						744.9 / 55	



CAMP DRESSER & McKEE
CDM
233 South Wacker Drive, Suite 450
Chicago, Illinois 60606-5306

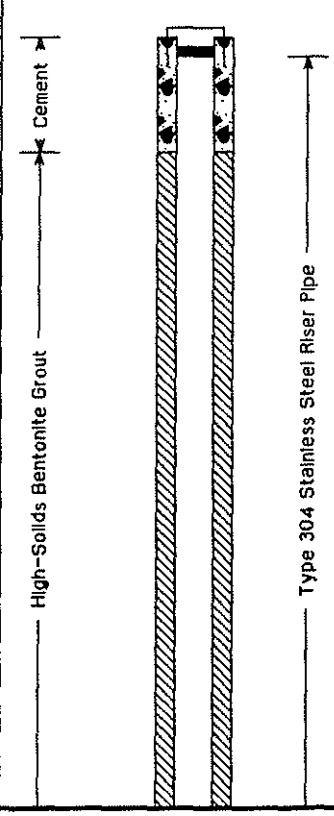
MONITORING WELL DETAIL
MW-134C

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Mud Rotary/BK81
Development Method: Pumping (Grundfos) & surge block
Top of Riser Elevation: 799.11 Ft.
Total Depth: 67.5 Ft.
Field Screening Instrument: HNU
Logged By: S. S. Bhagat & M. Nugent

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 08-19-93 End 08-23-93
Drillers: Paul Dickinson, Mike Nelson
Development Date: Start 10-11-93 End 10-11-93
Surface Elevation: 799.2 Ft.
Depth To Initial Water Level (GS): ~10.5 Ft.
Well Coordinates:
N: 2028674.267 E: 2602289.057

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. DEPTH
			ML	Topsoil		799.2 / 0
						794.2 / 5
	2 ppm	14 20 18 16		Brown/reddish brown coarse sand & gravel; saturated. Gravel is angular to rounded. Saturated.		789.2 / 10
	6 ppm	9 12 24 32		Tan gravelly fine to med sand.		784.2 / 15
	2 ppm	8 10		Top 18" is gravel, rounded to angular. Bottom		

WELL CONSTRUCTION DETAIL



EXPLANATION OF ABBREVIATIONS

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WS - Wash Sample

OTHER:
BGS - Below Ground Surface

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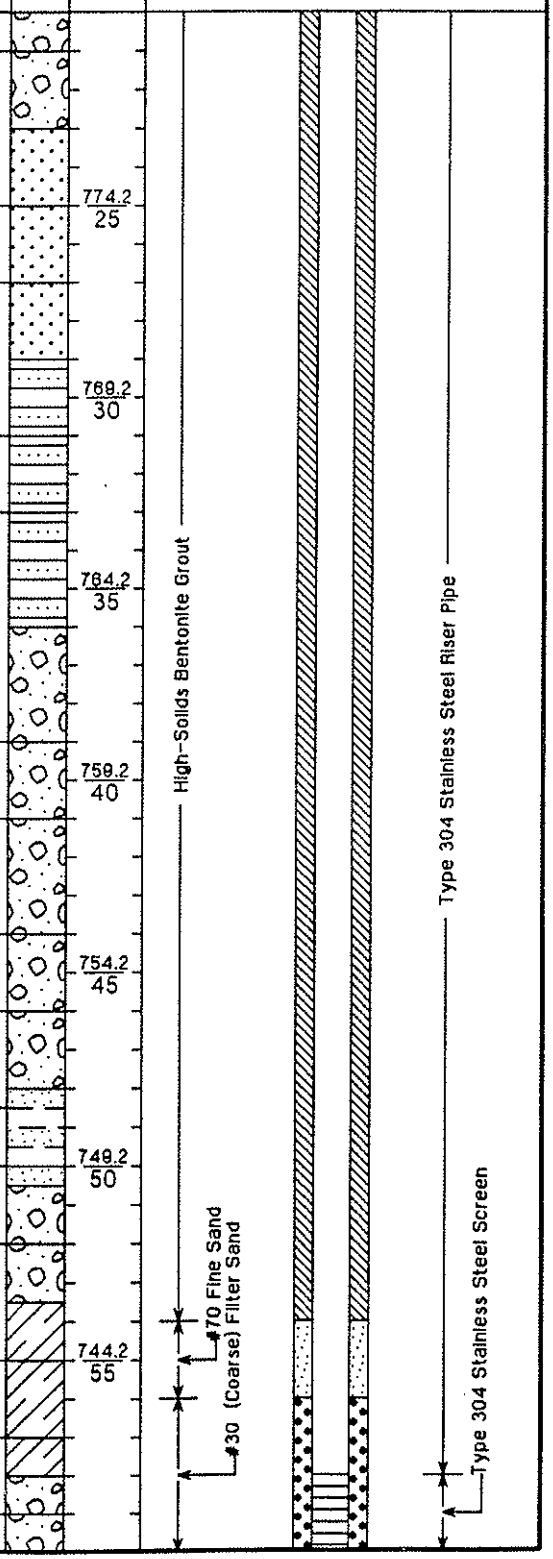
MONITORING WELL DETAIL

MW-134C

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	ELEV. DEPTH
	2 ppm	13 17		5" is fine sand, gray, gravelly in places.	
					774.2 / 25
	.5 ppm	6 6 7 8		Tan fine sand, very well sorted.	
					769.2 / 30
	0 ppm	8 10 10 12		Top 2" is Brown fine sandy clay; remainder of sample is brown plastic clay.	
					764.2 / 35
	0 ppm	10 13 17 19		Tan coarse sand and gravel; gravel is subangular to rounded.	759.2 / 40
	0 ppm	8 8 6 8		Dark brown to black piece of weathered rock, probably mafic-rich.	754.2 / 45
HP				Hydro Punch Sample 48.5-50', VP134A.	749.2 / 50
	0 ppm	6 3 3 6		Top 5" is tan/brown silty fine sand. Bottom 13" is gray gravelly fine sand. Contact is sharp.	
	0 ppm	5 6 7 10		Gray silty and gravelly fine sand.	744.2 / 55
	0 ppm	3 10		Tan to brown coarse sand and gravel.	



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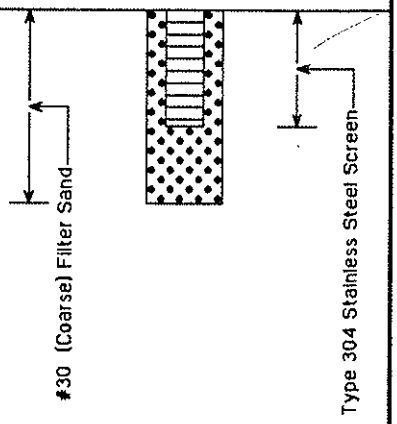
MONITORING WELL DETAIL

MW-134C

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. DEPTH
	0 ppm	15 16				
HP				Hydro Punch Sample 63.5-65', VP134B.		734.2 / 65
				Bedrock		
				Bottom of Boring @ 67.5 feet.		

WELL CONSTRUCTION DETAIL



729.2 / 70
724.2 / 75
719.2 / 80
714.2 / 85
709.2 / 90
704.2 / 95

CAMP DRESSER & McKEE
CDM
233 South Wacker Drive, Suite 450
Chicago, Illinois 60606-6306

BOREHOLE LOG
SB9/10-201

Client: ILLINOIS EPA
Project Location: ROCKFORD, ILLINOIS
Project Name: SE ROCKFORD SOURCE CONTROL OPERABLE UNIT
Project Number: 1681-11110-014.RI

Drilling Contractor: TERRACON CONSULTANTS, INC.
Drilling Method/Rig: HSA and MR/CME 75
Drillers: Dave Bowers, Scott Zeien
Drilling Date: Start 6/27/96 **End** 6/28/96
Borehole Coordinates:
N Not Surveyed **E** Not Surveyed

Surface Elevation (ft. MSL): 729
Total Depth (ft. BGS): 101
Depth to Initial Water Level (ft. BGS): 32
Abandonment Method:: Bentonite Grout
Field Screening Instrument: Foxboro OVA 128
Logged By: SNEHAL S. BHAGAT and ANDREW R. KEAR

Sample Type	Sample Number	Organic Vapor (ppm)	Recov./ Adv.	Blows per 6 Inches	Elev. Depth (ft.)	Graphic Log	Material Description
					729.0 / 0		0'-0.3': Gravel FILL;
SS	SB9/10-201-001	3.4	15"/24"	4;2; 2;1;			0.3'-6.8': Dark brown, well sorted, med. SAND; clayey; dry; some gravel 5'-6.8';
SS	SB9/10-201-002	4.4	16"/24"	1;1; 2;2;			
					724.0 / 5		
SS	SB9/10-201-003	2.6	19"/24"	1;2; 2;6;			
SS	SB9/10-201-004	1.1	15"/24"	3;3; 3;3;			6.8'-10.6': Brown, well sorted, med. to coarse SAND; dry;
SS	SB9/10-201-005	2.4	15"/24"	2;4; 5;12;	719.0 / 10		
SS	SB9/10-201-006	3.8	18"/24"	7;9; 9;10;			10.6'-16.6': Brown, gravelly, coarse SAND; dry;
SS	SB9/10-201-007	1.7	15"/24"	5;7; 19;12;			
					714.0 / 15		
SS	SB9/10-201-008	3.9	14"/24"	4;7; 8;10;			
SS	SB9/10-201-009	3.1	20"/24'	3;5; 8;7;			16.6'-20.6': Brown, well sorted, coarse SAND;
SS	SB9/10-201-010	4.0	15"/24"	2;2; 3;3;	709.0 / 20		
SS	SB9/10-201-011	4.5	16"/24"	2;4; 6;8;			20.6'-30.8': Brown, well sorted, med. SAND; moist;
SS	SB9/10-201-012	3.3	20"/24'	4;5; 9;10;			

EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
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DTR - Dual Tube Rotary
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DTC - Drill Through Casing

SAMPLING TYPES:
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CS - California Sampler
BX - 1.6" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
OTHER:
WOH - Weight of Hammer

REMARKS

Surface elevation estimated from Rockford South Quadrangle (U.S. Geological Survey).

Organic vapor measurements collected from soil headspace.

NAPL - Non-Aqueous Phase Liquid

Reviewed by: **Date:**

CAMP DRESSER & McKEE

CDM

233 South Wacker Drive, Suite 450
Chicago, Illinois 60606-6306

BOREHOLE LOG
SB9/10-201

Client: ILLINOIS EPA

Project Name: SE ROCKFORD SOURCE CONTROL OPERABLE UNIT

Project Location: ROCKFORD, ILLINOIS

Project Number: 1681-11110-014.RI

Sample Type	Sample Number	Organic Vapor (ppm)	Recov./ Adv.	Blows per 6 Inches	Elev. Depth (ft.)	Graphic Log	Material Description
SS	SB9/10-201-013	2.4	18"/24"	7;7; 12;14;			
SS	SB9/10-201-014	3.9	18"/24"	6;6; 9;10;			
SS	SB9/10-201-015	3.0	18"/24"	3;4; 7;8;	699.0 / 30		
SS	SB9/10-201-016	4.2	15"/24"	8;13; 13;10;			30.8'-32.7': Brown, well sorted, coarse SAND; trace gravel; Saturated at 32';
SS	SB9/10-201-017	8.8	16"/24"	6;12; 13;10;			32.7'-34.7': Brown, coarse SAND and GRAVEL;
SS	SB9/10-201-018	2.8	18"/24"	1;2; 2;2;	694.0 / 35		34.7'-38.6': Brown, med. to coarse SAND; some gravel;
SS	SB9/10-201-019	46	15"/24"	7;12; 22;25;			
SS	SB9/10-201-020	36	14"/24"	13;24; 20;13;	689.0 / 40		38.6'-44.8': Brown/gray, gravelly, coarse SAND; Sample SB9/10-201-022 tested negative for NAPL using Sudan IV dye;
SS	SB9/10-201-021	52	14"/24"	6;10; 14;15;			
SS	SB9/10-201-022	64	18"/24"	8;16; 18;13;			
SS	SB9/10-201-023	9.6	14"/24"	7;7; 11;13;	684.0 / 45		44.8'-48.4': Gray, gravelly, coarse SAND;
SS	SB9/10-201-024	9.4	10"/24"	10;18; 19;18;			
SS	SB9/10-201-025	7.0	13"/24"	13;13; 14;13;	679.0 / 50		48.4'-54.6': Gray/brown, gravelly, coarse SAND;
SS	SB9/10-201-026	4.0	11"/24"	8;6; 7;7;			
SS	SB9/10-201-027	2.6	13"/24"	10;12; 15;16;			
SS	SB9/10-201-028	7.2	14"/24"	9;17; 21;21;	674.0 / 55		54.6'-64.6': Brown, fine to med. to coarse SAND; some gravel;
SS	SB9/10-201-029	7.0	13"/24"	12;20; 26;28;			
SS	SB9/10-201-030	2.4	18"/24"	13;13; 13;14;	669.0 / 60		
SS	SB9/10-201-031	6.6	13"/24"	13;15; 13;12;			
SS	SB9/10-201-032	5.2	13"/24"	9;11; 12;12;			

CAMP DRESSER & McKEE

CDM

233 South Wacker Drive, Suite 450
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BOREHOLE LOG
SB9/10-201

Client: ILLINOIS EPA

Project Name: SE ROCKFORD SOURCE CONTROL OPERABLE UNIT

Project Location: ROCKFORD, ILLINOIS

Project Number: 1681-11110-014.RI

Sample Type	Sample Number	Organic Vapor (ppm)	Recov./ Adv.	Blows per 6 Inches	Elev. / Depth (ft.)	Graphic Log	Material Description
SS	SB9/10-201-033	3.4	15"/24"	9;12; 13;14;			64.6'-70.6': Brown, gravelly, coarse SAND;
SS	SB9/10-201-034	3.4	16"/24"	8;12; 15;18;			
SS	SB9/10-201-035	1.4	13"/24"	8;12; 18;16;	659.0 / 70		
SS	SB9/10-201-036	1.0	12"/24"	13;17; 20;16;			70.6'-78.6': Brown, fine to med. SAND;
SS	SB9/10-201-037	3.0	16"/24"	6;9; 18;21;			
SS	SB9/10-201-038	2.0	14"/24"	15;17; 18;20;	654.0 / 75		
SS	SB9/10-201-039	1.4	14"/24"	8;11; 19;24;			
SS	SB9/10-201-040	4.2	13"/24"	14;15; 13;13;	649.0 / 80		78.6'-82.6': Brown, med. to coarse SAND;
SS	SB9/10-201-041	7.4	13"/24"	12;19; 22;20;			
SS	SB9/10-201-042	7.8	17"/24"	9;21; 32;44;			82.6'-96.9': Brown, fine SAND; trace gravel from 95'-96.9';
SS	SB9/10-201-043	0.6	18"/24"	16;17; 19;19;	644.0 / 85		
SS	SB9/10-201-044	5.8	18"/24"	15;27; 31;30;			
SS	SB9/10-201-045	2.4	19"/24"	13;18; 24;28;	639.0 / 90		
SS	SB9/10-201-046	1.4	20"/24"	14;16; 18;30;			
SS	SB9/10-201-047	3.6	19"/24"	14;25; 27;27;			
SS	SB9/10-201-048	4.4	22"/24"	13;25; 24;26;	634.0 / 95		
SS	SB9/10-201-049	2.6	18"/24"	19;37; 39;32;			96.9'-100.8': Brown, gravelly, coarse SAND;
SS	SB9/10-201-050	2.8	22"/24"	21;35; 48;43;	629.0 / 100		
							101': Bottom of Boring

CAMP DRESSER & McKEE
CDM
125 South Wacker Drive, Suite 600
Chicago, Illinois 60606

BOREHOLE LOG
GP-301

Client: IEPA
Project Name: Area 4
Project Location: 2630 Marshall Street, Rockford IL
Project Number: 1681-40475

Drilling Contractor: Soil Essentials
Surface Elevation (ft.):
Drilling Method/Rig: Direct Push/Geoprobe
Total Depth (ft.): 36
Drillers: Corey Johnson
Depth to Initial Water Level (ft. BGS): 32
Drilling Date: Start: 3/3/04 **End:** 3/3/04
Abandonment Method: Tremied Bentonite Slurry
Borehole Coordinates:
Field Screening Instrument: PID
N E
Logged By: David de Courcy-Bower

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				CONC	5" CONCRETE
GP	1	48/48		0.0			SM	SANDY SILT - reddish-black, dry to moist, very soft, piece of metal @ 1'
GP	2	48/42	5	0.0			SP	SAND - orangish brown, fine to medium grained, moist, loose
GP	3	48/42	10	1.2				
GP	4	48/48		20.8			SP	SAND - yellowish brown, fine to medium grained, moist to wet, loose, hydrocarbon odor, free product in layers, layers containing product are stained grey, layers are between 1" and 12" in thickness
			15					
GP	5	48/48		16.2				

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HSA - Hollow Stem Auger
SSA - Solid Stem Auger
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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

Soil sample GP-301D sampled from 14-16 feet below ground surface - submitted to laboratory for analysis of VOCs

Reviewed by: **Date:**

CAMP DRESSER & McKEE
CDM
125 South Wacker Drive, Suite 600
Chicago, Illinois 60606

BOREHOLE LOG
GP-301

Client: IEPA
Project Name: Area 4
Project Location: 2630 Marshall Street, Rockford IL
Project Number: 1681-40475

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				SP	
GP	6	48/48		8.2				
			25					
GP	7	48/48		16.4				
GP	8	48/48	30	19.7				
							SP	SAND - yellowish brown, fine to coarse grained, wet, loose, slight hydrocarbon odor
GP	9	48/48		1.2				
			35					
								End of boring @ 36 feet below ground surface
			40					
			45					
			50					
			55					

CAMP DRESSER & McKEE
CDM
125 South Wacker Drive, Suite 600
Chicago, Illinois 60606

BOREHOLE LOG
GP-302

Client: IEPA
Project Name: Area 4
Project Location: 2630 Marshall Street, Rockford IL
Project Number: 1681-40475

Drilling Contractor: Soil Essentials
Surface Elevation (ft.):
Drilling Method/Rig: Direct Push/Geoprobe
Total Depth (ft.): 36
Drillers: Corey Johnson
Depth to Initial Water Level (ft. BGS): 32
Drilling Date: Start: 3/3/04 **End:** 3/3/04
Abandonment Method: Tremied Bentonite Slurry
Borehole Coordinates:
Field Screening Instrument: PID
N E
Logged By: David de Courcy-Bower

Sample Type	Sample Number	Sample Recovery (Inches)	Elev. Depth (ft.)	Field Instrument Reading (ppm)	Blows per 6 Inches	Graphic Log	Stratum Designation	Material Description
GP	1	48/48	0	0.0			CONC SM	4" CONCRETE SANDY SILT - reddish brown, dry to moist, very soft
GP	2	48/48	5	0.0			SP	SAND - yellowish brown, fine to medium grained, moist, loose
GP	3	48/48	10	0.0				
GP	4	48/48	15	0.0				
GP	5	48/42		0.0				

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

Soil sample GP-302H taken from 28-30 feet below ground surface - submitted to laboratory for analysis of VOCs

Reviewed by: **Date:**

CAMP DRESSER & McKEE
CDM
125 South Wacker Drive, Suite 600
Chicago, Illinois 60606

BOREHOLE LOG
GP-302

Client: IEPA
Project Name: Area 4
Project Location: 2630 Marshall Street, Rockford IL
Project Number: 1681-40475

Sample Type	Sample Number	Sample Recovery (Inches)	Elev. Depth (ft.)	Field Instrument Reading (ppm)	Blows per 6 Inches	Graphic Log	Stratum Designation	Material Description
GP	6	48/42	20	0.0			SP	
GP	7	48/48	25	0.0				
GP	8	48/42	30	0.0				
GP	9	48/48	35	0.0			SP	SAND - yellowish brown, fine to medium grained, wet, loose
			40					End of boring @ 36 feet below ground surface
			45					
			50					
			55					

CAMP DRESSER & McKEE
CDM
125 South Wacker Drive, Suite 600
Chicago, Illinois 60606

BOREHOLE LOG
GP-303

Client: IEPA
Project Name: Area 4
Project Location: 2630 Marshall Street, Rockford IL
Project Number: 1681-40475

Drilling Contractor: Soil Essentials
Surface Elevation (ft.):
Drilling Method/Rig: Direct Push/Geoprobe
Total Depth (ft.): 36
Drillers: Corey Johnson
Depth to Initial Water Level (ft. BGS): 32
Drilling Date: Start: 3/3/04 **End:** 3/3/04
Abandonment Method: Tremied Bentonite Slurry
Borehole Coordinates:
Field Screening Instrument: PID
N E
Logged By: David de Courcy-Bower

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				CONC	5" CONCRETE
							FILL	FILL - reddish-black, dry to moist, gravel and sand
GP	1	48/42		0.0			SM	SANDY SILT - reddish-black, dry to moist, very soft
GP	2	48/42	5	0.0			SP	SAND - yellowish-brown, fine to medium grained, moist, loose
GP	3	48/46	10	0.0				
GP	4	48/36	15	0.0				
GP	5	48/48		0.0				

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

Soil sample GP-303H taken from 28-30 feet below ground surface - submitted to laboratory for analysis of VOCs

Reviewed by: **Date:**

CAMP DRESSER & McKEE

CDM

125 South Wacker Drive, Suite 600
Chicago, Illinois 60606

BOREHOLE LOG
GP-303

Client: IEPA
Project Name: Area 4
Project Location: 2630 Marshall Street, Rockford IL
Project Number: 1681-40475

Sample Type	Sample Number	Sample Recovery (inches)	Elev. Depth (ft.)	Field Instrument Reading (ppm)	Blows per 6 Inches	Graphic Log	Stratum Designation	Material Description
GP	6	48/42	20	0.0			SP	
GP	7	48/36	25	0.0			SP	SAND - yellowish-brown, fine grained, moist, dense
GP	8	48/48	30	0.0			SP	SAND - yellowish-brown, fine to medium grained, moist, loose
GP	9	48/48	35	0.0			SP	SAND - yellowish-brown, fine to medium grained, wet, loose
			40					End of boring @ 36 feet below ground surface
			45					
			50					
			55					

CAMP DRESSER & McKEE
CDM
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Chicago, Illinois 60606

BOREHOLE LOG
GP-304

Client: IEPA
Project Name: Area 4
Project Location: 2630 Marshall Street, Rockford IL
Project Number: 1681-40475

Drilling Contractor: Soil Essentials
Surface Elevation (ft.):
Drilling Method/Rig: Direct Push/Geoprobe
Total Depth (ft.): 36
Drillers: Corey Johnson
Depth to Initial Water Level (ft. BGS): 32
Drilling Date: Start: 3/3/04 **End:** 3/3/04
Abandonment Method: Tremied Bentonite Slurry
Borehole Coordinates:
Field Screening Instrument: PID
N E
Logged By: David de Courcy-Bower

Sample Type	Sample Number	Sample Recovery (Inches)	Elev. Depth (ft.)	Field Instrument Reading (ppm)	Blows per 6 Inches	Graphic Log	Stratum Designation	Material Description
GP	1	48/42	0	0.0			ASPH	1" ASPHALT
							SM	SANDY SILT - brownish-yellow, dry to moist, soft to firm
GP	2	48/42	5	0.0			SP	SAND - brownish-yellow, fine to medium grained, dry to moist, loose
GP	3	48/46	10	0.0				
GP	4	48/46	15	0.0				
GP	5	48/42		0.0				

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

Soil sample GP-304H taken from 28-30 feet below ground surface - submitted to laboratory for analysis of VOCs

Reviewed by: **Date:**

CAMP DRESSER & McKEE

CDM

125 South Wacker Drive, Suite 600
Chicago, Illinois 60606

BOREHOLE LOG
GP-304

Client: IEPA
Project Name: Area 4
Project Location: 2630 Marshall Street, Rockford IL
Project Number: 1681-40475

Sample Type	Sample Number	Sample Recovery (Inches)	Elev. / Depth (ft.)	Field Instrument Reading (ppm)	Blows per 6 Inches	Graphic Log	Stratum Designation	Material Description
GP	6	48/48	20	0.0			SP	
GP	7	48/42	25	0.0				
GP	8	48/46	30	0.0				
GP	9	48/48	35	0.0			SP	SAND - brownish-yellow, fine to medium grained, wet, loose
			40					End of boring @ 36 feet below ground surface
			45					
			50					
			55					

CAMP DRESSER & McKEE
CDM
125 South Wacker Drive, Suite 600
Chicago, Illinois 60606

BOREHOLE LOG
GP-305

Client: IEPA
Project Name: Area 4
Project Location: 2630 Marshall Street, Rockford IL
Project Number: 1681-40475

Drilling Contractor: Soil Essentials
Surface Elevation (ft.):
Drilling Method/Rig: Direct Push/Geoprobe
Total Depth (ft.): 36
Drillers: Corey Johnson
Depth to Initial Water Level (ft. BGS): 31
Drilling Date: Start: 3/3/04 **End:** 3/3/04
Abandonment Method: Tremied Bentonite Slurry
Borehole Coordinates:
Field Screening Instrument: PID
N E
Logged By: David de Courcy-Bower

Sample Type	Sample Number	Sample Recovery (Inches)	Elev. Depth (ft.)	Field Instrument Reading (ppm)	Blows per 6 Inches	Graphic Log	Stratum Designation	Material Description
GP	1	48/42	0	0.0			ASPH SM	1" ASPHALT SANDY SILT - reddish-black, dry to moist, soft
GP	2	48/42	5	0.0			SP	SAND - brownish yellow, fine to medium grained, dry to moist, loose
GP	3	48/46	10	0.0				
GP	4	48/48	15	0.0				
GP	5	48/48		0.0				

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

Soil sample GP-305H taken from 28-30 feet below ground surface - submitted to laboratory for analysis of VOCs

Reviewed by: **Date:**

CAMP DRESSER & McKEE
CDM
125 South Wacker Drive, Suite 600
Chicago, Illinois 60606

BOREHOLE LOG
GP-305

Client: IEPA
Project Name: Area 4
Project Location: 2630 Marshall Street, Rockford IL
Project Number: 1681-40475

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				SP	
GP	6	48/48		0.0			SP	SAND - brownish yellow, fine grained, moist, dense
			25					
GP	7	48/48		0.0			SP	SAND - brownish yellow, fine to medium grained, moist, loose
GP	8	48/48	30	0.0				
							SP	SAND - brownish yellow, fine to medium grained, wet, loose
GP	9	48/48		0.0				
			35					
								End of boring @ 36 feet below ground surface
			40					
			45					
			50					
			55					

CAMP DRESSER & McKEE
CDM
125 South Wacker Drive, Suite 600
Chicago, Illinois 60606

BOREHOLE LOG
GP-309

Client: IEPA
Project Location: 2630 Marshall Street, Rockford IL
Project Name: Area 4
Project Number: 1681-40475

Drilling Contractor: Soil Essentials
Drilling Method/Rig: Direct Push/Geoprobe
Drillers: Corey Johnson
Drilling Date: Start: 3/4/04 **End:** 3/4/04
Borehole Coordinates:
N E

Surface Elevation (ft.):
Total Depth (ft.): 16
Depth to Initial Water Level (ft. BGS): Not Encountered
Abandonment Method: Tremied Bentonite Slurry
Field Screening Instrument: PID
Logged By: David de Courcy-Bower

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				FILL	FILL - Gravel
GP		48/36					SM	SANDY SILT - reddish-black, moist to wet, soft, hydrocarbon odor/free product
GP		48/48	5				SP	SAND - blackish-yellow, fine to medium grained, moist to wet, loose, hydrocarbon odor/free product
GP		48/48	10					
GP		48/42	15					
								End of boring @ 16 feet below ground surface.

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

Soil boring advanced to identify extent of product west of GP-301

Reviewed by: **Date:**

...mp, Dresser & McKee, Inc. One Center Plaza, Boston, Massachusetts 02108

...oil Boring Log — Well Installation and Completion Data

...lient ICEPA Site Southeast Rockford Job No. 1681-3 Surveyed Elevation: Ground 764.06

...e Drilled 6/18 to 6/26/91 Well No. MW101B Boring Co. John Mathes Top of Casing 766.62 Screen Length 10'

...al Depth 151' Boring Method Used Mud rotary (0-136'); air rotary (136-151') Piezometer Casing Size & Type 2" stainless 304

...ield Geologist M Sorensen Organic Vapor Instruments Used OVA Water Table Depth 46'

Depth (feet)	Samp. No.	Blows per 6" ____ lbs.	Sample Interval	Adv./ Recov.	Org. Vap. - PPM	Sample Description	Strata. Change	Equipment Installed
10								
20		N.A.	17-19'	24"/?		Sample consists of probable fall-in material: gravel & drilling mud	GW?	
30		N.A.	27-29'	refusal ~~24"/?~~	M.S.	[No recovery]		
40		N.A.	37-39'	24"/?		Sample consists of probable fall-in material: fine to med sand, some gravel, & bentonite mud.	SW-GW?	42'?
50		N.A.	47-49'		b.g.	Mod. yel bn silt w/ little to some clay; one pebble "drop-stone." Saturated.	ML	
		N.A.	57-59'		b.g.	Mod bn gray clayey silt, plastic, saturated; tr subang grans. Probably a till.	MH	

...emarks:

Camp, Dresser & McKee, Inc. One Center Plaza, Boston, Massachusetts 02108

Soil Boring Log — **Well Installation and Completion Data**

Client _____ Site _____ Job No. _____ Surveyed Elevation: Ground _____

Date Drilled _____ Well No. MW101B Boring Co. _____ Top of Casing _____ Screen Length _____

Total Depth _____ Boring Method Used _____ Piezometer Casing Size & Type _____

Field Geologist _____ Organic Vapor Instruments Used _____ Water Table Depth _____

Depth (feet)	Samp. No.	Blows per 6" ____ lbs.	Sample Interval	Adv./ Recov.	Org. Vap. - PPM	Sample Description	Strata. Change	Equipment Installed
								Depth of stratig. contact
60 →								
		N.A.	67-69'	24/15"	b.g.	67.0-67.5': mod bn gray clayey SILT, tr subang pebbs, plastic	MH	67.5'
70						67.5-68.2': Fine to med SAND, lt yel bn, mod well sorted, subang to ang; 95% Qtz w/ access feld, mafics & carbonate grains. Saturated.	SP	
		N.A.	78-80'	24/2"	b.g.	78-78.2': Coarse to fine SAND SW well graded, saturated; sim. in other respects to above sand	SW	
80								
		N.A.	87-89'	24"/13"	b.g.; but head space = 0.1 ppm	87-88.1': Med to fine SAND, lt yel bn, mod. well sorted, subang; tr silt/clay. Saturated. Note: At 94' cuttings are 60% silt/clay.	SP	? 89'?
90								
		N.A.	97-99'	24"/3"	—	97-97.3': broken gravel. Note: drilling action suggests gvl ends at 99'.	ML-GW?	99'
100								
		N.A.	102-104'	24/16"	b.g.	102-102.5': clayey SILT, mod brn gray to gray bn, tr ang to subangular pebbs & grans; a small wood twig & a marcasite grain; WET	SP-ML (mixed)	
		N.A.	107-109'	24/7"	—	102.5-103.3': c. to fn. SAND, gy bn, tr to little ~~g~~ subang & subrdd grans/pebbs; tr gy clay/silt; Saturated		110'
110								
	[next page begins at 110']							
						107-107.1': Clayey SILT, gy bn, w/ trace grans/pebbs		
						107.1-107.6': Fn to c SAND, gy bn, tr grans/pebbs, wet. SW.		

Remarks:

amp, Dresser & McKee, Inc. One Center Plaza, Boston, Massachusetts 02108

oil Boring Log

Well Installation and Completion Data

ent _____ Site _____ Job No. _____ Surveyed Elevation: Ground _____

te Drilled _____ Well No. MW101B Boring Co. _____ Top of Casing _____ Screen Length _____

al Depth _____ Boring Method Used _____ Piezometer Casing Size & Type _____

ield Geologist _____ Organic Vapor Instruments Used _____ Water Table Depth _____

Depth (feet)	Samp. No.	Blows per 6" ____ lbs.	Sample Interval	Adv./ Recov.	Org. Vap. - PPM	Sample Description	Strata. Change	Equipment Installed
110						Note: Drilling slows below 110'; also at this depth see gy bn clayey silt in cuttings	ML	110'
		N.A.	117-119'	24/24"	—	117-119': clayey SILT, bn gray (exc. at 117.0-117.1 where it's mod bn), ~5% subang to ang grans & pebbs w/ no preferred orienta; no bedding; saturated to moist	ML	
120								
		N.A.	127-129'	24/6"	—	127-129': clayey SILT, dk bn (org-rich?) to gy bn; 5% grans & pebbs, some > 1.5"	ML	
130								
						Drilling slows at 134'; soon get cuttings of lt gy to buff gy limestone/dolomite, angular.	Lime-stone (mod-lt gy)	134'
		Cuttings log	136-139'	NA	—	136-139': Limestone/dol, mod-lt gy, finely xln, some brown coatings that cause water to be rusty brown (this is ground water). LS is mod bn near 139'	(mod bn)	
140								

emarks:

Note: Mud rotary method used for drilling 0-136'; air rotary w/ down-the-hole air hammer used to drill 136-151' (T.D.).

amp, Dresser & McKee, Inc. One Center Plaza, Boston, Massachusetts 02108

Soil Boring Log

Well Installation and Completion Data

Client _____ Site _____ Job No. _____ Surveyed Elevation: Ground _____

Date Drilled _____ Well No. MW101B Boring Co. _____ Top of Casing _____ Screen Length _____

Total Depth _____ Boring Method Used _____ Piezometer Casing Size & Type _____

Field Geologist _____ Organic Vapor Instruments Used _____ Water Table Depth _____

Depth (feet)	Samp. No.	Blows per 6" _____ lbs.	Sample Interval	Adv./ Recov.	Org. Vap. - PPM	Sample Description	Strata. Change	Equipment Installed
140		[Log of cuttings]				139-147': mod bn limest/dol at 139-140' grades into a hard, mod dk gy limest/dol w/ thin (≤ ½ mm) laminae & veinlets of blk material; some mottling of same. Few (<1%) blk chips, siliceous. Saturated & producing a tan-colored water. Slow drilling.	(mod-dk gy) (bn) (buff)	
150								
151'						147-151': the above gy ls/dol grades to a brown ls near 147', which soon yields to a buff ls, finely xln; some chips are fine to v finely granular & porous; some rusty bn coatgs; rel. soft (drills faster than 139-147'). Saturated, rapidly producing a milky water.		151' E.O.B. Screened interval 141-151'
160								

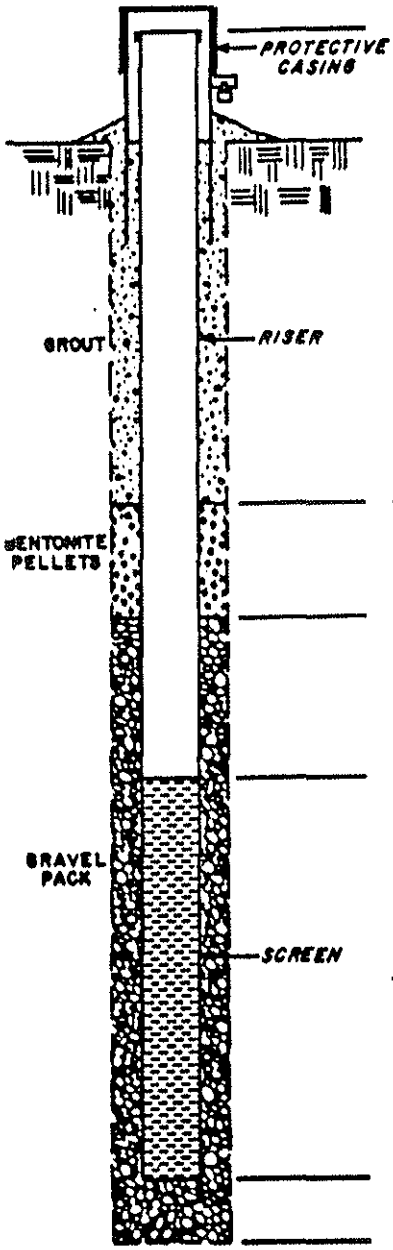
Remarks:

CDM

environmental engineers, scientists, planners & management consultants

WELL CONSTRUCTION SUMMARY

Project: SE Rockford Client: IEPA Well No: MW101A



DRILLING SUMMARY

Drilling Co: J. Matthes & Assoc. Drillers: Tim Crank

Drill Rig Make/Model: CME 75

Borehole Diameters: 8.25" Drilling Fluid: NA

Bits/Depths: 4.25" HSA

Total Depth: 90' Depth to Water: 46'

Supervisory Geologist: R. Lantz

WELL DESIGN

Casing Material: 304 Stainless Diameter: 2" Length: ~90.5'

Screen Material: 304 Stainless Diameter: 2" Length: 10'

Slot Size: 0.010" Setting: 78'-88'

Filter Material: Silica Sand Setting: 76'-90' (20-40 sieve); 74.5'-76' (no sieve)

Seals Material: Setting:

Grout: Volclay Setting: 3'-74.5'

Surface Casing Material: 5.5" steel Setting: -2 to 3'; set in concrete

TIME LOG

	Started	Completed
Drilling:	6/27/91 @ 1615	6/27/91 @ 1730
Installation:	6/27/91 @ 1820	6/28/91 @ 0950
Development:	7/28/91 @ 1030	7/28/91 @ 1330

WELL DEVELOPMENT

Method: dual-line air lift

Static Depth to Water: ~46'

Pumping Depth to Water: not measured

Pumping Rate: 1.7 gpm Specific Capacity: n.a.

Volume Pumped: 300 gal

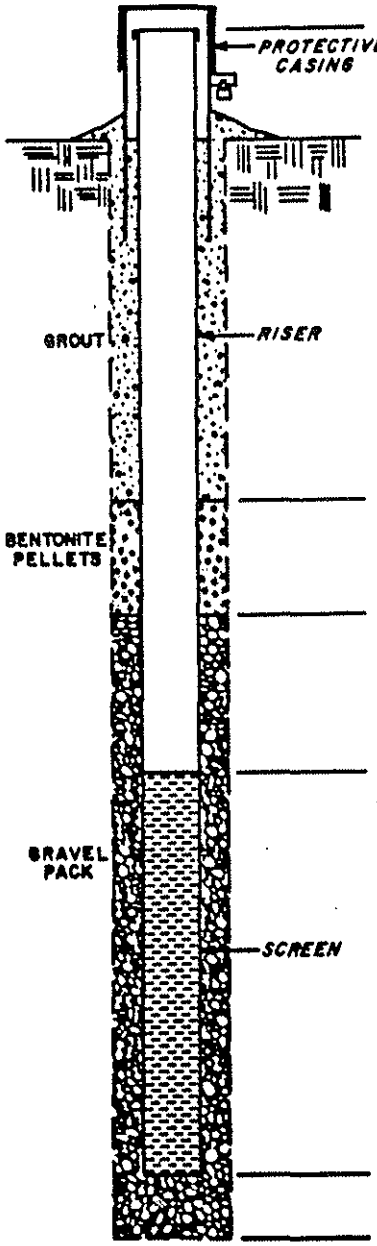
NY-5

CDM

environmental engineers, scientists, planners & management consultants

WELL CONSTRUCTION SUMMARY

Project: SE Rockford Client: IEPA Well No: MW-101B



DRILLING SUMMARY

Drilling Co: John Mathes & Assoc. Drillers: Ed Clark

Drill Rig Make/Model: Gus Pech Brat 22R

Borehole Diameters: 0-136': 11"; 136-151': 6" Drilling Fluid: 0-136': bentonite; 136-151': air

Bits/Depths: 0-136': 11" tri-cone rotary; 136-151': 6" down-the-hole air hammer

Total Depth: 151' Depth to Water: 45.8' (bedrock ag

Supervisory Geologist: Mark Sorensen, CDM-Chicago

WELL DESIGN

Casing Material: 6" steel / type 304 stainless Diameter: 6" / 2" Length: 138' (set at 136') / 143'

Screen Material: wire-wound 304 ss Diameter: 2" Length: 10'

Slot Size: 0.010" Setting: 140.1 - 150.1'

Filter Material: 140-151': med sand (20/40 sieve sizes) / 139-140': fine sand (100 sieve size) ~~Setting:~~

~~Seal Material:~~ Volclay Setting: 0 - 139'

Grout: Cement-bentonite Setting: 0 - 136' (outside the 6" casing only)

Surface Casing Material: 6" blk pipe Setting: -2.8 to 136'

(this outer casing is grouted w/ cement/bentonite grout in its annular space)

TIME LOG

	Started	Completed
Drilling:	6/18/91	6/26/91 @ 1310
Installation:	6/26/91, 1510	6/27/91, 0930
Development:	7/28/91, 1130	7/28/91, 1345

WELL DEVELOPMENT

Method: dual-line air lift

Static Depth to Water: ~46'

Pumping Depth to Water: unknown

Pumping Rate: 2.5 gpm Specific Capacity: unknown

Volume Pumped: 300 gal.

NY-5

CAMP DRESSER & McKEE
CDM
233 South Wacker Drive, Suite 450
Chicago, Illinois 60606-5306

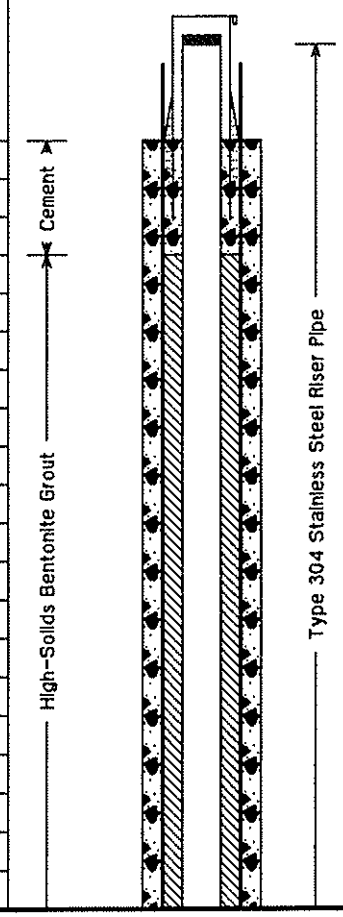
MONITORING WELL DETAIL

MW-101C

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Mud Rotary/BK81
Development Method: Air lift using nitrogen & surge block
Top of Riser Elevation: 766.48 Ft.
Total Depth: 173.4 Ft.
Field Screening Instrument: HNU
Logged By: S. S. Bhagat

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 07-24-93 End 07-27-93
Drillers: Paul Dickinson, Mike Nelson, Paul Cranfield
Development Date: Start 07-27-93 End 07-27-93
Surface Elevation: 764.0 Ft.
Depth To Initial Water Level (GS): Not Measured
Well Coordinates:
N: 2029675.694 E: 2598076.007

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. / DEPTH	WELL CONSTRUCTION DETAIL
				Note: Refer to MW101B and MW101D for geologic logs.		764 / 0	
						759 / 5	
						754 / 10	
						749 / 15	



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 - 1.6" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample

OTHER:
BGS - Below Ground Surface

CAMP DRESSER & McKEE

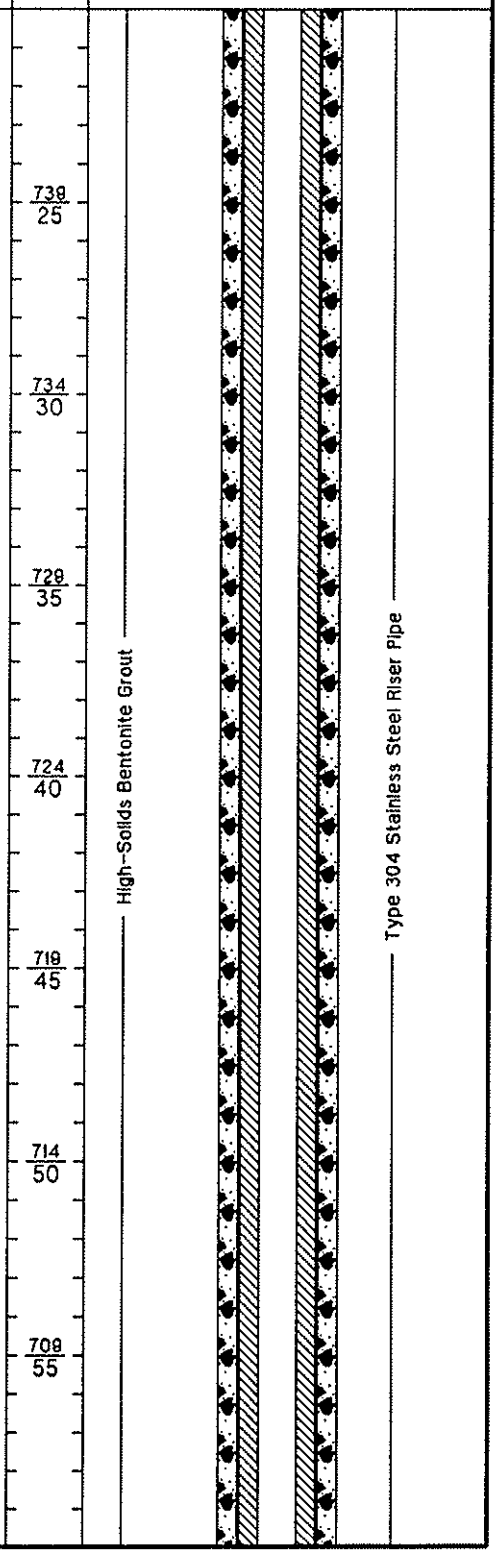
CDM

233 South Wacker Drive, Suite 450
Chicago, Illinois 60606-5306

MONITORING WELL DETAIL

MW-101C

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. / DEPTH	WELL CONSTRUCTION DETAIL

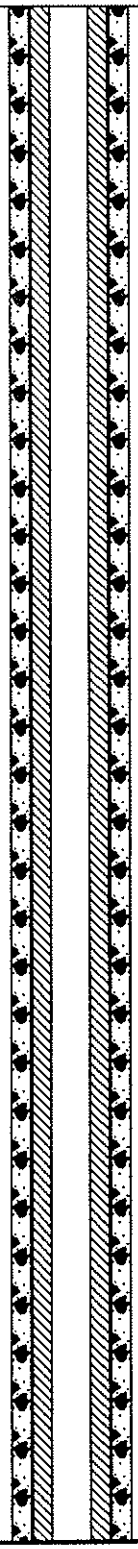


CAMP DRESSER & McKEE
CDM
233 South Wacker Drive, Suite 450
Chicago, Illinois 60606-5306

MONITORING WELL DETAIL

MW-101C

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. DEPTH	WELL CONSTRUCTION DETAIL
						699/65	High-Solids Bentonite Grout; Type 304 Stainless Steel Riser Pipe
						694/70	
						689/75	
						684/80	
						679/85	
						674/90	
						669/95	



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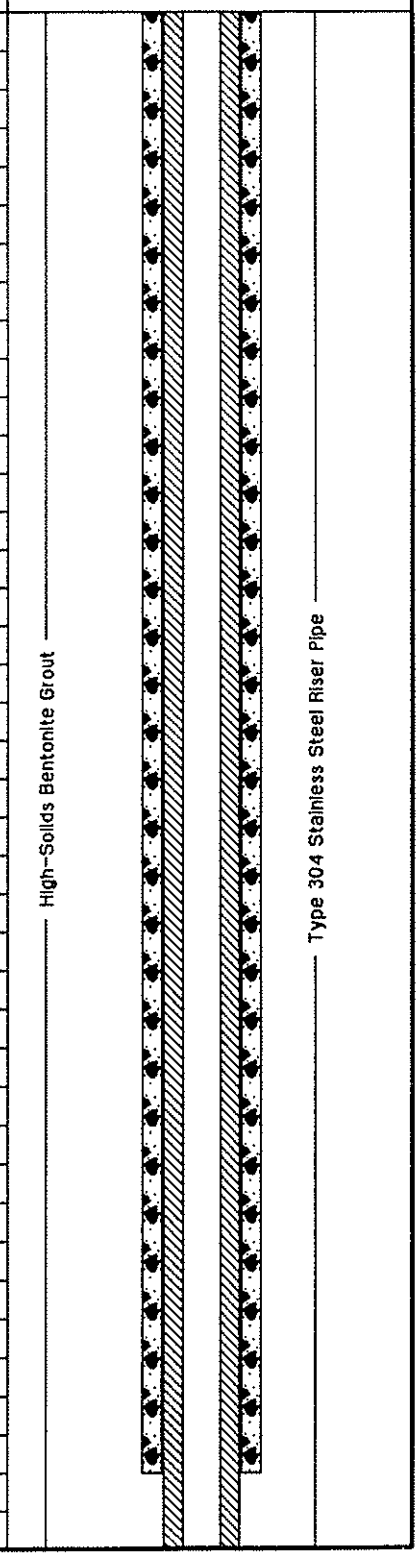
Chicago, Illinois 60606-5306

MONITORING WELL DETAIL

MW-101C

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. / DEPTH	WELL CONSTRUCTION DETAIL
						659 / 105	
						654 / 110	
						649 / 115	
						644 / 120	
						639 / 125	
						634 / 130	
				Top of Bedrock		629 / 135	

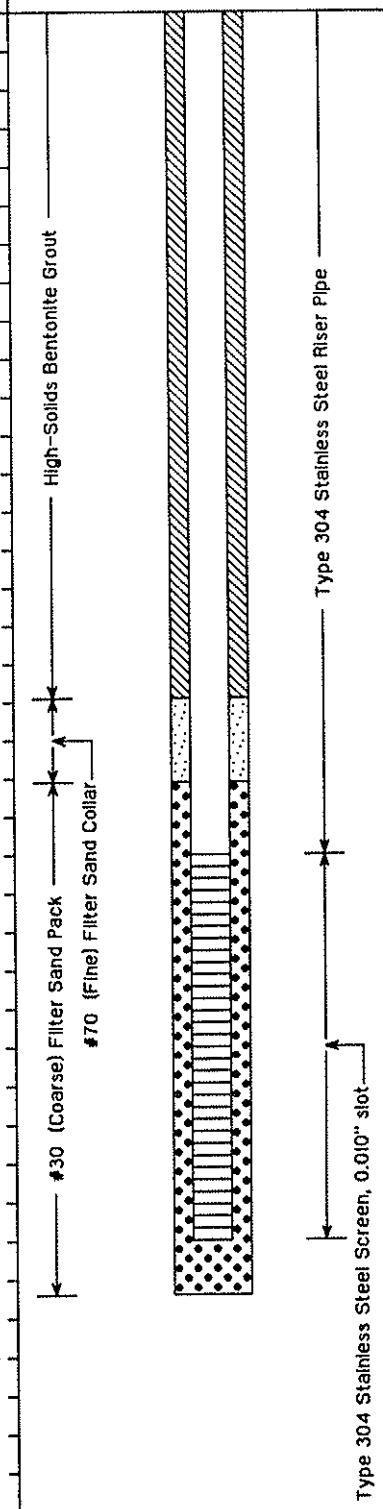


CAMP DRESSER & McKEE
CDM
233 South Wacker Drive, Suite 450
Chicago, Illinois 60606-5306

MONITORING WELL DETAIL

MW-101C

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. DEPTH	WELL CONSTRUCTION DETAIL
						619 / 145	
						614 / 150	
						609 / 155	
						604 / 160	
						599 / 165	
						594 / 170	
				Bottom of Boring @ 173.4 feet		589 / 175	



USGS Rev 1-91

WELL COMPLETION RECORD

MW101D

Site: S.E. ROCKFORD County: Winnebago Well No.: BH1

Site Name: Laude east of 22nd Latitude 42° 14' 04" N Longitude 89° 03' 10" W

Drilling Contractor: U.S.G.S. Coal Branch Date Drilling Started: 11-06-92

Driller: Todd Hunter Geologist: Scott Prinos Date Drilling Ended: 11-30-92

Drilling Method: Mud Rotary / Air Hammer Drilling Fluid (type): Bentonite Mud / Water

ANNULAR SPACE DETAILS:

Type of Surface Seal: Concrete

Type of Annular Sealant: Concrete / Grout

Borehole Plug: Bentonite Chips

Amount of Cement # of bags 2 lbs. per bag 94

Amount of Bentonite # of bags 2 lbs. per bag 50

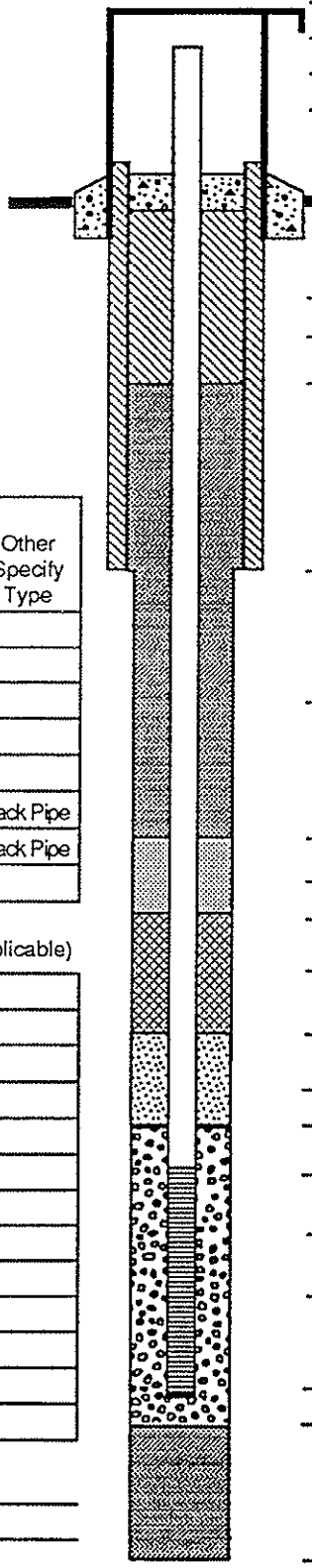
Type of volclay grout (granular, pellets): Granular

Amount of bentonite: # of bags 29 lbs. per bag 50

Type of Sand Pack: Pea Gravel

Source of Sand: Rockford gravel quarry

Amount of pea gravel: 1 barrel lbs. per BBL: 135



ELEVATION - 0.01 ft.

758.35 MSL Top of Protective Casing

758.30 **MSL Top of Riser Pipe**

0.88 Ft. of Protective Casing Stickup

0.83 **Ft. of Riser Stickup**

757.47 MSL Ground Surface

3.0 Ft. Bottom of Surface plug

2.0 Ft. Total Concrete

3.0 Ft. Total Bentonite Chips

5.0 Ft. Top of Volclay Grout

138.0 Ft. Bottom of Surface Casing

183.0 Ft. Total Volclay Grout

188.0 Ft. Top of Fine Sand

4.0 Ft. Total Sand Interval

192.0 Ft. Top of Seal

6.4 Ft. Total Seal Interval

198.4 Ft. Top of SandPack

2.6 Ft. Total Sand Interval

201.0 Ft. Top of Pea Gravel

202.8 Ft. Top of Screen

13.8 Ft. Total Pea Gravel Interval

10.0 Ft. Total Screen Interval

212.8 Ft. Bottom of Screen

214.8 Ft. Top of Bentonite Chips

220.6 Ft. Bottom of Borehole

WELL CONSTRUCTION MATERIALS:

Date of Construction: 12-23-92	Stainless Steel Specify Type	Teflon Specify Type	PVC Specify Type	Other Specify Type
Riser Coupling Joint	T304			
Riser pipe above W.T.	T304			
Riser pipe below W.T.	T304			
Screen	T304			
Coupling joint screen to riser	T304			
Protective Casing				Black Pipe
Surface Casing				Black Pipe

MEASUREMENTS

to 0.01 ft. (where applicable)

Riser pipe length	203.6 ft
Protective casing length	3.0 ft
Screen length	10.0 ft.
Bottom of screen to end cap	0.8 ft.
Top of screen to first joint	10.0 ft.
Total length of casing	6in. x 138 ft.
Screen slot size	10 slot
No. of opening in screen	N/A
I D of Riser Pipe	2.0 in.
Diameter of bore hole	12.25 in.} 0.00 ft -138.0 ft
	6.00 in.}138.0 ft - 220.6 ft.

Well Constructed By: Scott Prinos, Jim Rouman

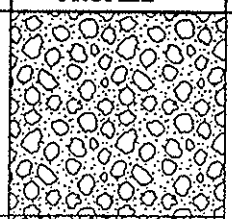
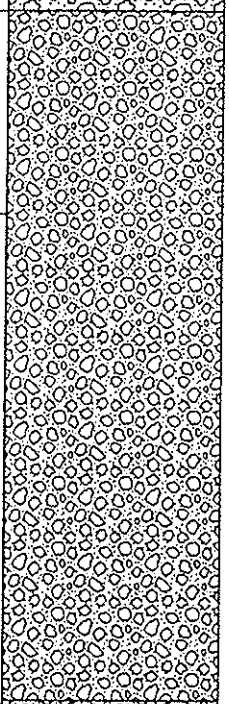
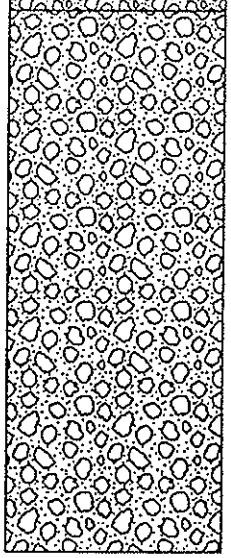
Surveyed By: Scott Prinos, Steve Robinson

Form Completed By: Scott Prinos

Project: S. E. Rockford | Boring No.: BH-1 | LSE: 757.5

Sampling Method(s): Return of Cuttings | Description by: Scott T. Prinos

Location: NE SW NW Sec.6,T43N,R2E: 42° 14'04"N 89° 03'10"W | Date: Nov. 30, 1992 | Sheet 1 of 7

DEPTH (ft)	DESCRIPTION	PROFILE	REMARKS
5 ft.	0-5 ft. 90% medium pebble sized gravel, 10% tan coarse sand, moderately sorted. Gravel is rounded to angular and composed of 90% carbonate, 10% chert, granite and other lithics. Sand is angular to subrounded mostly limestone fragments.		Samples taken at 5 foot intervals. Some depths of contacts approximate.
10 ft.	5-10 ft. Sand and Gravel.		Ground Elev. @ BH-1 ~764'
15 ft. 20 ft. 25 ft. 30 ft. 35 ft.	10-45 ft. Sand and Gravel. Coarse sand and fine pebble sized gravel, grading downward to medium pebble sized gravel and coarse sand. Poorly sorted, dark yellow to tan, well rounded to subangular. Gravel clasts: 85% carbonate, 5% quartz, 5% chert, 2% orthoclase feldspar, <1% each of granite, shale, and greenstone. Faint trend toward discoidal form in gravel.		26-28 ft. Very smooth drilling compared to that above and below.

Project:	S. E. Rockford	Boring No.: BH-1	LSE: 757.5
Sampling Method(s):	Return of Cuttings	Description by: Scott T. Prinos	
Location: NE SW NW Sec.6,T43N,R2E: 42° 14'04"N 89° 03'10"W		Date: Nov. 30, 1992	Sheet 2 of 7

DEPTH (ft)	DESCRIPTION	PROFILE	REMARKS
40 ft. 45 ft.			37-44 ft. Very rough and slow drilling, possible boulders and cobbles in hole.
50 ft.	45-50 ft. Fine gravel and sand. 60% fine pebble sized gravel, 40% coarse sand. Tan, poorly sorted. Gravel clasts: Predominantly carbonate, 2% gneiss, 1% chert, trace granite.		
55 ft.	50-55 ft. Glacial Till. 98% fine to medium pebble sized gravel, 2% clay. Trace quantities of fine to coarse sand. Sand is tan, moderatley sorted, angular. Gravel is 95% carbonate, 2% granite, 2% chert, <1% greenstone and quartz.		
60 ft. 65 ft. 70 ft.	55-95 ft. Glacial Till. 70-90% poorly sorted sand and gravel, 10-30% lt. tan to lt. brown silty clay. Clay content reaches maximum of 30% from 60-80 ft., then decreases sharply. Fining downward trend from medium pebble sized gravel at 55 ft. to fine pebble sized gravel at 95 ft. Clasts rounded to angular. Clast composition 95% carbonate, 2% chert, 1% greenstone, 2% other lithics.		

Project: S. E. Rockford | Boring No.: BH-1 | LSE: 757.5

Sampling Method(s): Return of Cuttings | Description by: Scott T. Prinos

Location: NE SW NW Sec.6,T43N,R2E: 42° 14'04"N 89° 03'10"W | Date: Nov. 30, 1992 | Sheet 3 of 7

DEPTH (ft)	DESCRIPTION	PROFILE	REMARKS
75 ft.			
80 ft.			
85 ft.			
90 ft.			90-95 ft. Average drilling rate is 2.5 ft./min.
95 ft.			95 ft. Sharp decrease in drilling rate.
100 ft.	95-112 ft. Fine Gravel. Moderately sorted fine to very fine gravel with some coarse sand and trace brown clay, grading downward to very fine pebble sized gravel and very coarse sand with up to 10% brown clay. Lithology is much more varied. Composition of gravel is 80% carbonate,10% chert, 3% quartzite, 3% gneiss, 2% quartz, 2% orthoclase feldspar.		97 ft. Drill rate less than 1 in./min. 97-98 ft. Slight increase in drill rate. 99 ft. Drilling rate increased sharply and is drilling smoother.
105 ft			

Project: S. E. Rockford | Boring No.: BH-1 | LSE: 757.5

Sampling Method(s): Return of Cuttings | Description by: Scott T. Prinos

Location: NE SW NW Sec.6,T43N,R2E: 42° 14'04"N 89° 03'10"W | Date: Nov. 30, 1992 | Sheet 4 of 7

DEPTH (ft)	DESCRIPTION	PROFILE	REMARKS
110 ft.			105-124 ft. Average drilling rate is 1 ft./min.
115 ft.	112-133 ft. 60% dark brown, moderately plastic, silty, sandy clay. 40% fine pebble sized gravel imbedded in clay matrix. Gravel is poorly sorted and angular to subangular.		
120 ft.			
125 ft.			124 ft. Drilling rough and slow, possible boulders in the hole.
			Some wood mixed in with cuttings.
130 ft.			Drill rate increased to 0.6 ft./min.
			133 ft. Bedrock. ⇒ 631' elev
135 ft.	133-143 ft. Tan and lt. gray dolomite. Highly weathered in upper 2 ft. Abundant chert.		Periodic HNU screening indicated nothing above background to this point.
			137 ft. Sharp increase in drilling rate.
140 ft			

Project: S. E. Rockford | Boring No.: BH-1 | LSE: 757.5

Sampling Method(s): Return of Cuttings | Description by: Scott T. Prinos

Location: NE SW NW Sec.6,T43N,R2E: 42° 14'04"N 89° 03'10"W | Date: Nov. 30, 1992 | Sheet 5 of 7

DEPTH (ft)	DESCRIPTION	PROFILE	REMARKS
			142 ft. Water color tan, cloudy.
145 ft.	143-150 ft. Gray to dark gray mottled dolomite with some calcite veins and shale partings.		144 ft. Very little water from formation. 145 ft. Drill rate is 0.8 ft./min.
150 ft.			149 ft. Drilling rate increased sharply.
	150-158 ft. Lt. tan fine grained dolomite.		150 ft. Water produced from formation increased to 3 gpm.
155 ft.			155 ft. Drilling rate is 0.83 ft./min.
			157 ft. Drilling rate slowed.
160 ft.	158-164 ft. Mottled lt. gray sucrosic dolomite with shale partings.		158 ft. Drilling rate increased sharply for several inches. Increase in water flow from formation. Water color gray to tan.
165 ft.			163 ft. Water color milky tan, flow 20-25 gpm.
	164-210 ft. Tan to gray, mottled dolomite with abundant crinoid stems, some pelycepods. Iron oxide and limonite coatings present throughout but most abundant at 170 ft. and 185 ft. Red clay at 170 ft. Shale partings occur at 175 ft., 185ft., and 195-210 ft. Thin lt. tan limestone and white quartz sandstone interbedded from 200-205 ft. Calcite in veins at 205 ft.		165 ft. Flow 50 gpm.
170 ft.			170-175 ft. Drilling rate is 0.71 ft./min.
175 ft			

Project: S. E. Rockford | Boring No.: BH-1 | LSE: 757.5

Sampling Method(s): Return of Cuttings | Description by: Scott T. Prinos

Location: NE SW NW Sec.6,T43N,R2E: 42° 14'04"N 89° 03'10"W | Date: Nov. 30, 1992 | Sheet 6 of 7

DEPTH (ft)	DESCRIPTION	PROFILE	REMARKS
180 ft.			180 ft. Much slower drilling for a few inches.
185 ft.			185 ft. Water flow over 60 gpm.
190 ft.			185-190 ft. Drilling rate is 0.71 ft./min.
195 ft.			
200 ft.			
205 ft.			204 ft. Water flow is over 70 gpm. Water color lt. tan. HNU not working.
210 ft			

Project: S. E. Rockford | Boring No.: BH-1 | LSE: 757.5

Sampling Method(s): Return of Cuttings | Description by: Scott T. Prinos

Location: NE SW NW Sec.6,T43N,R2E: 42 14'04"N 89 03'10"W | Date: Nov. 30, 1992 | Sheet 7 of 7

DEPTH (ft)	DESCRIPTION	PROFILE	REMARKS
	210-215 ft. 60% lt. gray dolomite with medium well rounded quartz sand and shale partings. 40% lt. gray mottled dolomite.		
215 ft.			549' elev
	215-220 ft. Tan and gray, highly agrillaceous, dolomite with fine, well rounded sand and abundant pyrite.		
220 ft.			
	220 ft. End of boring.		220 ft. Sharp increase in drilling rate.
			Periodic HNU screening showed no contamination while it was working.

544' elev.

WELL COMPLETION RECORD

USGS Rev 1-91

MW103D

Site: S.E. ROCKFORD County: Winnebago Well No.: BH2

Site Name: Balsam at Eidelweiss Latitude 42° 13' 53" N Longitude 89° 02' 42" W

Drilling Contractor: U.S.G.S. Coal Branch Date Drilling Started: 10-29-92

Driller: Todd Hunter Geologist: Bob Kay, Scott Prinos Date Drilling Ended: 11-03-92

Drilling Method: Mud Rotary / Air Hammer Drilling Fluid (type): Bentonite Mud / Water

ANNULAR SPACE DETAILS:

Type of Surface Seal: Concrete

Type of Annular Sealant: Concrete

Borehole Plug: Bentonite Chips

Amount of Cement # of bags 1.5 lbs. per bag 94

Amount of Bentonite # of bags 2 lbs. per bag 50

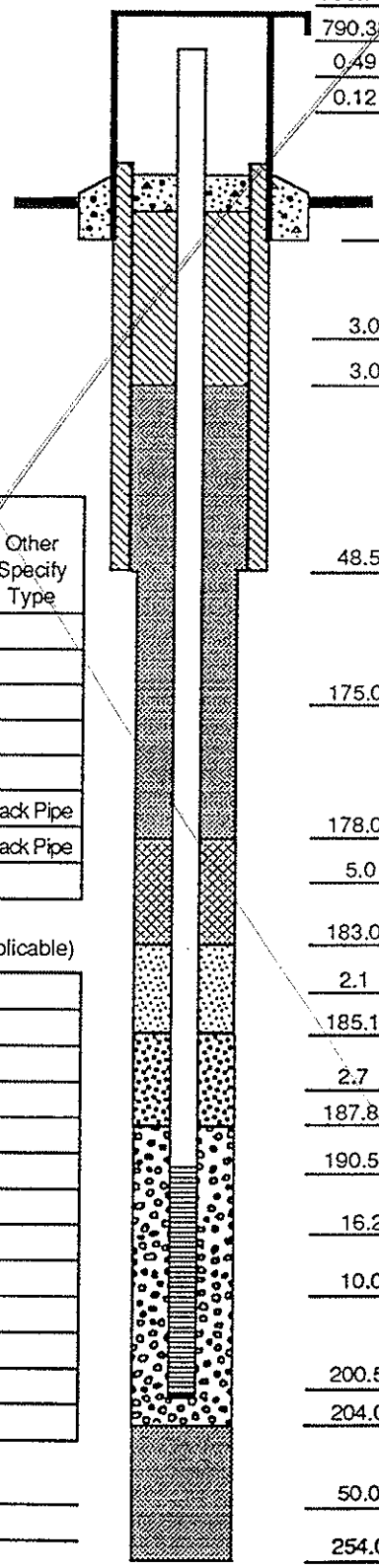
Type of volclay grout (granular, pellets): Granular

Amount of bentonite: # of bags 17 lbs. per bag 50

Type of Sand Pack: Pea Gravel

Source of Sand: Rockford gravel quarry

Amount of pea gravel: 1 barrel lbs. per BBL: 150



ELEVATION - 0.01 ft.

790.70 MSL Top of Protective Casing

790.33 **MSL Top of Riser Pipe**

0.49 Ft. of Protective Casing Stickup

0.12 **Ft. of Riser Stickup**

790.21 MSL Ground Surface

3.0 Ft. Bottom of Surface plug

3.0 Ft. Total Portland Cement

3.0 Ft. Top of Volclay Grout

48.5 Ft. Bottom of Surface Casing

175.0 Ft. Total Volclay Grout

178.0 Ft. Top of Seal

5.0 Ft. Total Seal Interval

183.0 Ft. Top of SandPack

2.1 Ft. Total Fine Sand Interval

185.1 Ft. Top of Coarse Sand

2.7 Ft. Total Coarse Sand Interval

187.8 Ft. Top of Pea Gravel

190.5 Ft. Top of Screen

16.2 Ft. Total Pea Gravel Interval

10.0 Ft. Total Screen Interval

200.5 Ft. Bottom of Screen

204.0 Ft. Top of Bentonite Chips

50.0 Ft. Total Bentonite Chips

254.0 Ft. Bottom of Borehole

WELL CONSTRUCTION MATERIALS:

Date of Construction: 1-07-93	Stainless Steel Specify Type	Teflon Specify Type	PVC Specify Type	Other Specify Type
Riser Coupling Joint	T304			
Riser pipe above W.T.	T304			
Riser pipe below W.T.	T304			
Screen	T304			
Coupling joint screen to riser	T304			
Protective Casing				Black Pipe
Surface Casing				Black Pipe

MEASUREMENTS

to 0.01 ft. (where applicable)

Riser pipe length	191.0 ft
Protective casing length	5.0 ft
Screen length	10.0 ft.
Bottom of screen to end cap	0.5 ft.
Top of screen to first joint	10.0 ft.
Total length of casing	8in. x 48.9 ft.
Screen slot size	10 slot
No. of opening in screen	N/A
I D of Riser Pipe	2.0 in.
Diameter of bore hole	12.25 in.} 0.00 ft.- 48.5 ft.
	6.00 in.} 48.5 ft.- 254.0 ft.

Well Constructed By: Scott Prinos; Jim Rouman

Surveyed By: Scott Prinos, Jim Rouman

Form Completed By: Scott Prinos

amp, Dresser & McKee, Inc. One Center Plaza, Boston, Massachusetts 02108

il Boring Log

Well Installation and Completion Data

MW102A: 786.47
B: 786.60

nt IEPA Site SE ROCKFORD Job No. 1681 Surveyed Elevation: Ground A

Date Drilled 6/18-6/20/91 Well No. MW102B Boring Co. J. MATHES Top of Casing MW102A: 788.43 B: 788.61 Screen Length 10'

al Depth _____ Boring Method Used 4.25" HSA Piezometer Casing Size & Type 2" STAINLESS

ed Geologist R. LANTZ Organic Vapor Instruments Used HNu Water Table Depth 23'

epth (feet)	Samp. No.	Blows per 6" ____ lbs.	Sample Interval	Adv./ Recov.	Org. Vap. - PPM	Sample Description	Strata. Change	Equipment Installed
10		4/9/6/5	8'-10'	10"	0.5	Black, sandy clay w/ roots.	CL	
							?	13
0								▽ 23'
								25
0		9/12/20/22	28'-30'	—	0	Uniform grayish tan, fine to med sand.	SP	10ZA
								35
0		6/15/26/45	38'-40'	12"	—	Gray to brown, silty clay till w/ gravel.	?	~38
		10/28/20/15	43'-45'	18"	0	Sandy clay and coarse sand & gravel, grayish brown	CL-SP	
0		21/48/50+	48'-50'	12"	0	Sand and silty clay till, brown to gray		
		9/17/13/17	53'-55'	—	0	Tan, sandy gravel	GP	
0		9/18/18/25	58'-60'	18"	0	Gray, silty clay till	CL-ML	57

emarks:

CDM

environmental engineers, scientists, planners & management consultants

BORING NUMBER: MW102B

Log of Boring

Depth (feet)	Samp. No.	Blows per 6" lbs.	Sample Interval	Adv./ Recov.	Org. Vap. (PPM)	Sample Description	Strata Change	Remarks (Time of Day)
		11/11/14/15	63'-65'	24"	0	Gray, silty clay till		
70		6/11/18/19	68'-70'	—	0	Gray, silty clay till	CL-ML	
		1/3/2/4	73'-75'	—	0	Light gray, fine to med sand.		73'
80		7/12/21/10	78'-80'	—	0	Light gray, fine to med sand	SP	
		21/50+	83'-85'	12"	0	Gravelly clay & clayey coarse sand.	SM	
90		16/34/50/50	88'-90'	15"	0	Light gray, fine to med sand		88
		15/12/12/13	93'-95'	—	0	Coarse sand and gravel	SP	102B
100		2/4/22/20	98'-100'	12"	0	Coarse sand & gravel. Lower 8": Uniform gray clay.		98 98.3'
		8/11/18/27	103'-105'	12"	0	Dark to med gray, moist, stiff clay	CL	
110		9/21/37/22	108'-110'	12"	0	Dark to med gray, moist, stiff clay		
		1/2/2/8	113'-115'	9"	0	Grayish brown, med to coarse sand & gravel	SP	
120		6/12/31/25	118'-120'	21"	0	Brownish gray, well sorted med sand. Lower 14": Brownish gray silty clay till		118.6'
		5/16/25/28	123'-125'	14"	0	Greenish gray, pliable silt	ML	
130		7/12/28/34	128'-130'	13"	0	Greenish gray, pliable silt		
		2/3/4/21	133'-135'	15"	0	Interbedded med/fine sand & silt	SP-ML	
140		9/6/7/15	138'-140'	13"	0.25	Light greenish gray, pliable silt	ML	

NY-2

CDM

environmental engineers, scientists, planners & management consultants

BORING NUMBER: MW102B

Log of Boring

Depth (feet)	Samp. No.	Blows per 6" lbs.	Sample Interval	Adv./ Recov.	Org. Vap. (PPM)	Sample Description	Strata Change	Remarks (Time of Day)
140		5/6/11/22	143'-145'	16"	0	Laminated dark grayish brown clay	CL	
150		9/22/50(5")	148'-150'	10"	0	Med sand and sandy gravel.	SP	EOB 148.9'
						[see MW102C log for description of 150-185']		

Camp, Dresser & McKee, Inc. One Center Plaza, Boston, Massachusetts 02108

Soil Boring Log — **Well Installation and Completion Data**

Client IEPA Site SE Rockford Job No. 1681-3 Surveyed Elevation: Ground 787.6

Date Drilled 8/5-8/7/91 Well No. MW102C Boring Co. Mathes Top of Casing 789.87 Screen Length 10'

Total Depth 185 Boring Method Used mud rotary & air rotary Piezometer Casing Size & Type 2" stainless

Field Geologist M Sorensen Organic Vapor Instruments Used OVA Water Table Depth ~25 shallow aquifer; swl in bedrock aq.: 48.6'.

Depth (feet)	Samp. No.	Blows per 6" ____ lbs.	Sample Interval	Adv./ Recov.	Org. Vap. - PPM	Sample Description	Strata. Change	Equipment Installed
						[see MW102B log for upper 150 feet]		
150			150-157' (cuttings sample)			150-157': Cuttings show a mixed zone of buff limestone (45% at 157'), yellow-bn silty till (~35%) and multilithologic granules (20%)	ML-GW (mixed zone)	
155								
		N.A.	157-159' (split spoon)	4/4"	not working	157-159': Mixture of subangular limestone cobbles (~60%) and lt gy bn to yel bn sandy silt containing subrounded to rounded pebbles of various lithologies.	ML-GW	
160								
162.5								

Remarks:

CDM

environmental engineers, scientists, planners & management consultants

BORING NUMBER: MW 102 C

Log of Boring

Depth (feet)	Samp. No.	Blows per 6" lbs.	Sample Interval	Adv./ Recov.	Org. Vap. (PPM)	Sample Description	Strata Change	Remarks (Time of Day)
162.5							ML-GW	
165			164.5-168.5' (cuttings)			164.5-168.5': Cuttings show buff limestone chips w/ ≤5% cream-colored silt containing granules	Lime-stone	
167.5								
170			168.5-170.5' (cuttings)			168.5-170.5': Brownish gray to grayish brown limestone, lithographic (cryptocrystalline) and without intergranular porosity. Producing brownish water at ~10 gpm.	(buff) (bn gy to gy bn)	6" steel casing set at 168.5'
172.5			170.5-180.5' (cuttings samples, collected on the foot)			170.5-180.5': Lithographic to vfine-grained limestone w/o intergranular porosity, loc. shaly (gen. <1%). Color at 171 & 172' is bn gray to gy bn, both containing dk gy shadowy wisps. At 173-180' color is lt gy bn; 5% dk bn shale at 173'. Produces tan to gray water at 20 gpm.	(lt gy bn)	dk bn shale (5%)
175								174
177.5								102C
180			180.5-185.0' (cuttings samples, collected on the foot)			180.5-185.0': Vfine limestone, loc. finely sucrosic but mainly w/o intergranular porosity. At 181 & 182' color is lt gy bn and there is ~10% dk bn shaly limestone.		~10% dk bn shaly limestone
182.5								

NY-2

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BORING NUMBER: MW102C

Log of Boring

Depth (feet)	Samp. No.	Blows per 6" lbs.	Sample Interval	Adv./ Recov.	Org. Vap. (PPM)	Sample Description	Strata Change	Remarks (Time of Day)
182.5						180.5–185.0 cuttings (cont'd.) At 183' color is lt gy bn w/ some bluish gray mottling; at 184 & 185' color shifts to lt gy w/ some bluish gray mottling; sl argillaceous. Produces lt gy water at ~30 gpm.	(lt gy bn) (lt gy)	102C 184 ← sl. argillaceous
185.0 (T.D.)							T.D. = 185'	

NY-2

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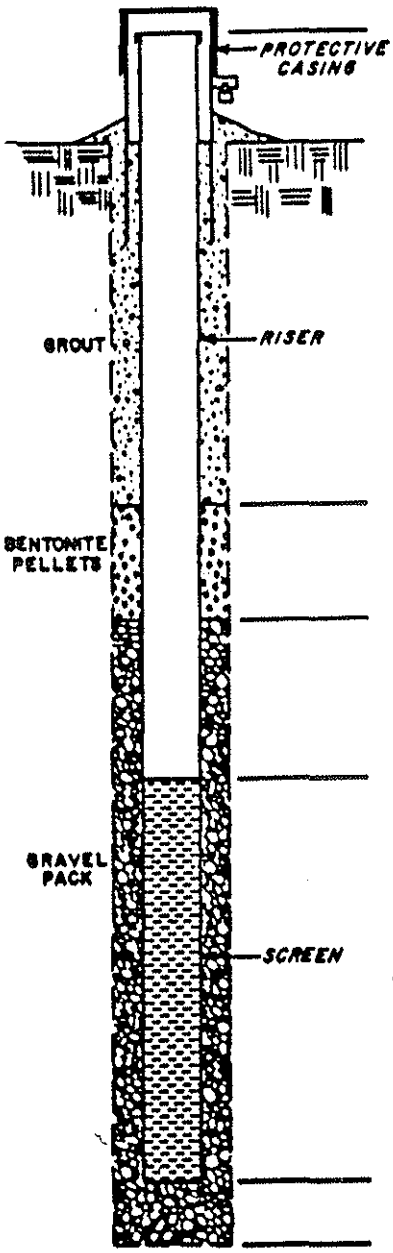
WELL CONSTRUCTION SUMMARY

Project: SE ROCKFORD Client: IEPA Well No: MW102A



DRILLING SUMMARY

Drilling Co: J. MATHES & ASSOC. Drillers: TIM CRANK

Drill Rig Make/Model: CME 75

Borehole Diameters: 8.25" Drilling Fluid: N/A

Bits/Depths: 4.25" HSA

Total Depth: 56.5' Depth to Water: ~28'

Supervisory Geologist: R. LANTZ

WELL DESIGN

Casing Material: 304 STAINLESS Diameter: 2" Length: ~28'

Screen Material: 304 STAINLESS Diameter: 2" Length: 10'

Slot Size: 0.010" Setting: 25'-35'

Filter Material: SILICA SAND Setting: 23.5'-35.5' (20-40 SIEVE); 21.5'-23.5' (100 SIEVE)

Seals Material: BENTONITE (PURE GOLD) Setting: 35.5'-56.5'

Grout: VOLCLAY Setting: 3'-21.5'

Surface Casing Material: 5.5" steel Setting: -2 to 3' (set in concrete)

TIME LOG	Started	Completed
Drilling:	6/18/91 @ 1355	6/18/91 @ 1505
Installation:	6/24/91 @ 1530	6/24/91 @ 1820
Development:	7/29/91 @ 1400	~~7/29~~ 7/30/91 @ 1145

WELL DEVELOPMENT

Method: dual-line air lift

Static Depth to Water: ~28'

Pumping Depth to Water: not measured

Pumping Rate: 8 gal/hr Specific Capacity: n.a.

Volume Pumped: 62 gal

NY-5

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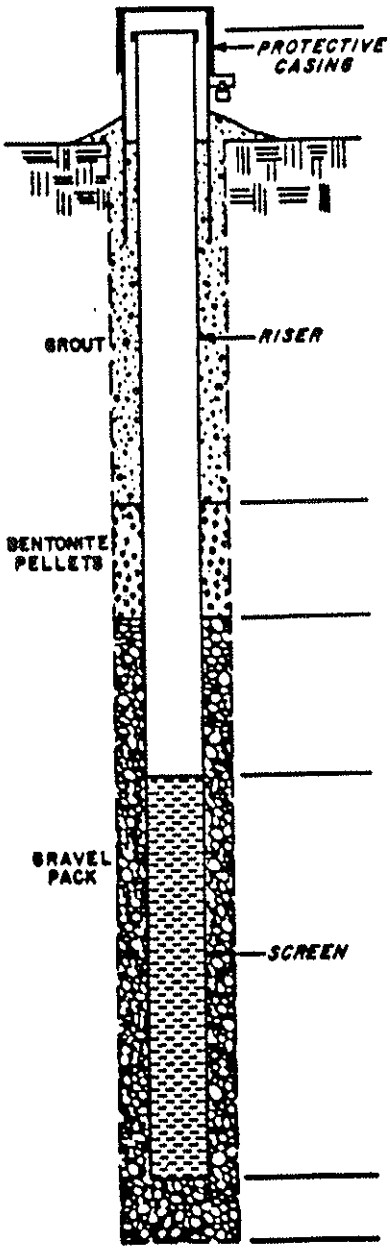
WELL CONSTRUCTION SUMMARY

Project: SE ROCKFORD Client: IEPA Well No: MW102B



DRILLING SUMMARY

Drilling Co: J. MATHES & ASSOC. Drillers: TIM CRANK

Drill Rig Make/Model: CME 75

Borehole Diameters: 8.25" Drilling Fluid: NA

Bits/Depths: 4.25" HSA

Total Depth: 100' Depth to Water:

Supervisory Geologist: R. LANTZ

WELL DESIGN

Casing Material: 304 STAINLESS Diameter: 2" Length: ~91'

Screen Material: 304 STAINLESS Diameter: 2" Length: 10'

Slot Size: 0.010" Setting: 88'-98'

Filter Material: SILICA SAND Setting: 86'-100' (20-40 SIEVE); 84'-86' (100 SIEVE)

Seals Material: Setting:

Grout: VOLCLAY Setting: 3'-84'

Surface Casing Material: 5.5" steel Setting: -2 to 3'; set in concrete

TIME LOG	Started	Completed
Drilling:	6/25/91 @ 0825	6/25/91 @ 0920
Installation:	6/25/91 @ 1000	6/25/91 @ 1510
Development:	7/29/91 @ 1400	7/29/91 @ 1615

WELL DEVELOPMENT

Method: dual-line air lift

Static Depth to Water: ~40'

Pumping Depth to Water: not measured

Pumping Rate: 300 gal/hr Specific Capacity: n.a.

Volume Pumped: 675 gal

NY-5

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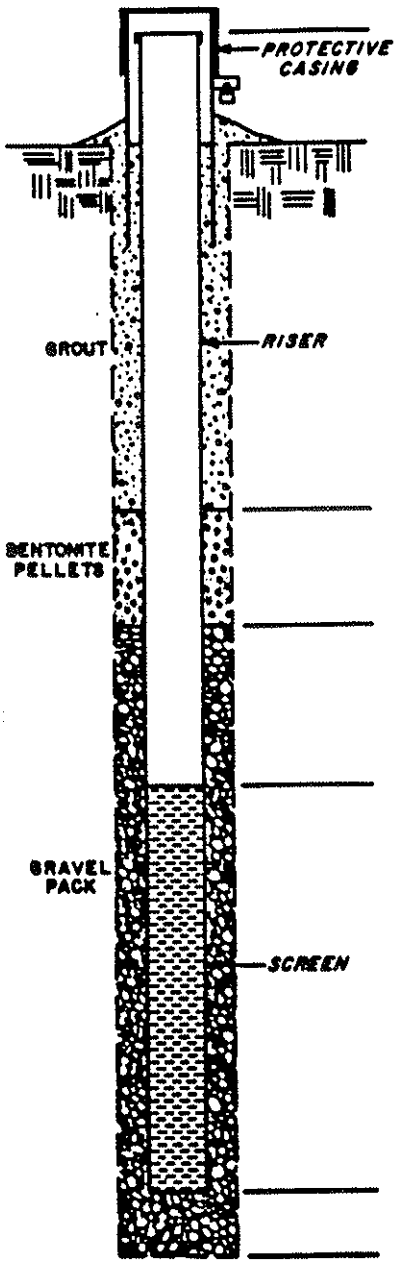
WELL CONSTRUCTION SUMMARY

Project: SE Rockford Client: IEPA Well No: MW102C



DRILLING SUMMARY

Drilling Co: Mathes Drillers: E Clark, Q Nowak, J McMullen

Drill Rig Make/Model: Gus Pech Brat 22R

Borehole Diameters: 12" to 168.5'; 6" to 185' Drilling Fluid: bentonite mud

Bits/Depths: 12" tricone roller bit 0-168.5'; 6" air hammer 168.5-185.0'

Total Depth: 185.0' Depth to Water: 43.5' swl (bedrock) ~25' to w.t.

Supervisory Geologist: M Sorensen

WELL DESIGN

Casing Material:	6" steel / type 304 ss	Diameter:	6" / 2"	Length:	170' (set at 168') / 176'
Screen Material:	wire-wound ty. 304	Diameter:	2"	Length:	10'8" (incl. plug)
Slot Size:	0.010"	Setting:	174.3-184.3'		
Filter Material:	coarse sand / fine sand	Setting:	172-185' / 171-172'		
~~Seal Material~~	cement-bentonite	Setting:	3-168' (outside the 6" casing only)		
Grout:	Volclay	Setting:	3-171'		
Surface Casing Material:	5.5" steel	Setting:	-2.5 to 2.5', set in concrete and welded to 6" casing		

TIME LOG

	Started	Completed
Drilling:	8/5/91 @ 1100	8/7/91 @ 1840
Installation:	8/8/91 @ 0920	8/8/91 @ 1330
Development:		

WELL DEVELOPMENT

Method: dual-line air-lift

Static Depth to Water: 43.6'

Pumping Depth to Water: unknown

Pumping Rate: Specific Capacity: unknown

Volume Pumped:

NY-5

amp, Dresser & McKee, Inc. One Center Plaza, Boston, Massachusetts 02108

Soil Boring Log — Well Installation and Completion Data

ent IEPA Site SE ROCKFORD Job No. 1681 Surveyed Elevation: Ground 790.49'

Date Drilled 6/30-7/1/91 Well No. MW103A Boring Co. J. MATHES Top of Casing 792.56' Screen Length 10'

tal Depth 44.5' Boring Method Used 4.25" HSA Piezometer Casing Size & Type 2" STAINLESS

Field Geologist R. LANTZ Organic Vapor Instruments Used HNu Water Table Depth 18.9'

Depth (feet)	Samp. No.	Blows per 6" ____ lbs.	Sample Interval	Adv./ Recov.	Org. Vap. - PPM	Sample Description	Strata. Change	Equipment Installed
5						Beige, clayey fine sand w/pebbles, moist, uniform, plastic	SC	clayey fine sand
10		2/4/5/6	9'-11'	15"	0			
15								?
20		4/7/10/12	19'-21'	21"	BG	Beige, fine sandy clay till w/ pebbles and rare sand seams. moist, plastic.		▽ 18.9'
25		18/40/38/30	24'-26'	18"	0	Brown, sandy silt till w/occasional cobbles & fine gravel.	ML	Brown sandy & silty till
30		14/24/18/20	29'-31'	24"	0	Reddish brown silty till w/gravel. Clay common in top 1'. Cobbles rare in bottom 1'.		?
35		-/-/6/12	34'-36'	24"	—	Reddish tan, fine to med. & coarse sand	SP	Med to coarse sand
40		22/55/71+	39'-41'	18"		Tan/yellow, coarse sand to fine sandy gravel. Mostly dolomite gravel; angular.		39.5' weathered zone
45		85 (for 6")	44'-44.5'	6"		Yellowish tan fractured, rubbley dolomite w/fine sand.		44.5' Auger refusal.
						[see log of MW103B/C for description of 45-110' interval]		

Remarks: 34'-36' spoon sank 12" by its own weight.
Auger refusal @ 44.5'.

Camp, Dresser & McKee, Inc. **200 W. Adams, Suite 1600 Chicago, Illinois 60606**

Soil Boring Log **Well Installation and Completion Data**

Client IEPA Site Southeast Rockford Job No. 1681-3 Surveyed Elevation: Ground MW103B: 790.36 MW103C: 790.2

Date Drilled 7/1-7/16/91 Well No. MW103B/C Boring Co. Mathes Top of Casing MW103B: 792.39 MW103C: 792.35 Screen Length 10'

Total Depth 110' Boring Method Used 0-48': Hollow-stem auger 48-110': Air hammer Piezometer Casing Size & Type 2" type 304 ss

Field Geologist M Sorensen Organic Vapor Instruments Used none (air drilling) Water Table Depth ~20'

Depth (feet)	Samp. No.	Blows per 6' ____ lbs.	Sample Interval	Adv./ Recov.	Org. Vap. - PPM	Sample Description	Strata. Change	Equipment Installed
						See MW103A log for description of 0-45' interval		
44								
							weathered zone	
48							Limestone	
			48.3-51' (bedrock cuttings samples collected on the foot)			48.3-51': Buff to lt gray limestone fine to med. crystalline but loc. sandy (incl. many granules in cuttings); ~15% bn clay, bentonitic		bn bentonitic clay
52			51-61' (bedrock cuttings samples collected on the foot)			51-61': Buffish gray limestone, finely to med crystalline w/ sandy texture (incl. crinoid stem frags) on margins of many chips (~1 sandy margin per ½ inch). Bn bentonitic clay is 15% at 52', 10% at 56', tr to 4% elsewhere; tr chalk @52'.	(grayish buff)	
56								
60								
			61-71' (bedrock cuttings samples collected on the foot)			61-71': Limestone as above, grayish buff to buffish gray. Bn bentonitic clay: 5% at 62, 63 & 71'; tr to 2% elsewhere. Chalk/bn gray chert composite chips are 20% at 67', 5% at 70'	Limestone	
64								

Remarks:

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BORING NUMBER: MW103 B/C

Log of Boring

Depth (feet)	Samp. No.	Blows per 6" lbs.	Sample Interval	Adv./ Recov.	Org. Vap. (PPM)	Sample Description	Strata Change	Remarks (Time of Day)
64							Lime-stone	
								chert
68								
			71-81' (bedrock cuttings collected on the samples foot)			71-81': Buffish gray to grayish buff limestone as above, but somewhat more sandy in texture. Bu bentonitic clay ~8% at 72', 5% at 81'.		
72								
76								
							Lime-stone (grayish buff)	
80			81-91' (bedrock cuttings collected on the samples foot)			81-91': grayish buff limestone as above; bu bentonitic clay ~5% at 82', <2% elsewhere (probably falling in from above, even at 82'); chalk/chert chips are 40% at 90', 10% at 88', 1% at 89', tr to none elsewhere		
84								
88								
								chert
			91-101' (bedrock cuttings on the samples collected of foot)			91-101': grayish buff to buffish gray limestone as above, exc. limestone is yel bu & more fractured at 96'. Bu bent'ic clay is 5% at 91', tr elsewhere; chert/chalk chips are 90% at 93', 20% at 97', 30% at 99 & 100'		
92								chert
96							Lime-stone	

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BORING NUMBER: MW103 B/C

Log of Boring

Depth (feet)	Samp. No.	Blows per 6" lbs.	Sample Interval	Adv./ Recov.	Org. Vap. (PPM)	Sample Description	Strata Change	Remarks (Time of Day)
96							Limestone	chert
								chert
100			101-110' (bedrock cuttings samples collected on the foot)			101-110': Limestone as above, exc. color is grayish buff at 102-106', bn gray at 107-109', mod gray at 110'; blk carbonac. coatings at 107-110'.		
104							Lime-stone	
							(grayish buff)	
							(bn gray)	
108								
110							(mod gray)	T.D. = 110' (MW103C)

NY-2

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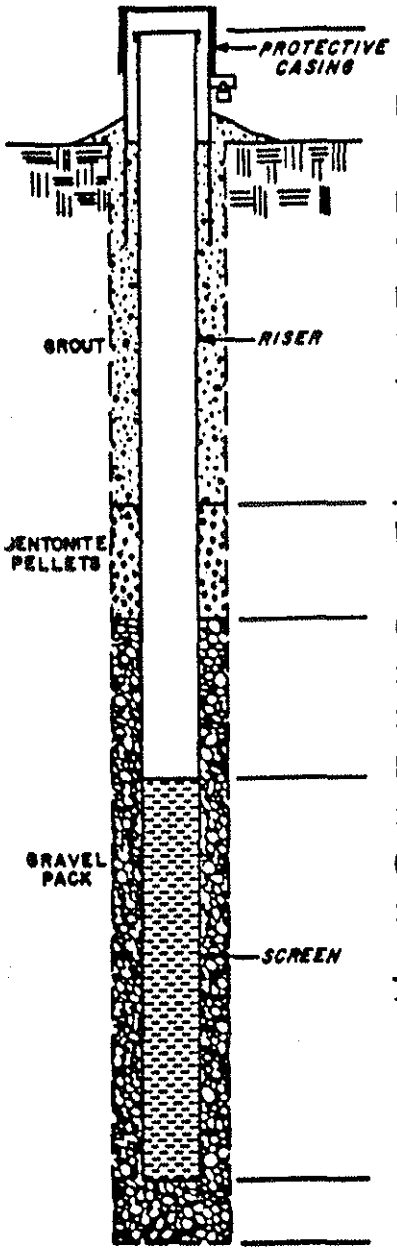
WELL CONSTRUCTION SUMMARY

Project: SE Rockford Client: IEPA Well No: MW103A



DRILLING SUMMARY

Drilling Co: J-Matthes & Assoc. Drillers: Tim Crank

Drill Rig Make/Model: CME 75

Borehole Diameters: 8.25" Drilling Fluid: NA

Bits/Depths: 4.25" HSA

Total Depth: 44.5' Depth to Water: ~21'

Supervisory Geologist: R. Lantz

WELL DESIGN

Casing Material: 304 Stainless Diameter: 2" Length: ~34'

Screen Material: 304 Stainless Diameter: 2" Length: 10'

Slot Size: 0.010" Setting: 31'-41'

Filter Material: Silica Sand Setting: 29'-42' (20-40 sieve); 28'-29' (100 sieve)

Seals Material: Bentonite (Pure Gold) Setting: 42'-44.5'

Grout: Volclay Setting: 2'-28'

Surface Casing Material: 5.5" steel Setting: ~2 to 3'; set in concrete

TIME LOG	Started	Completed
Drilling:	6/30/91 @ 1255	6/30/91 @ 1540
Installation:	6/30/91 @ 1605	7/1/91 @ 1145
Development:	7/27/91 @ 1430	7/27/91 @ 1645

WELL DEVELOPMENT

Method: dual-line air lift

Static Depth to Water: ~21'

Pumping Depth to Water: not measured

Pumping Rate: 0.2 gpm Specific Capacity: n.a.

Volume Pumped: 24 gal

NY-5

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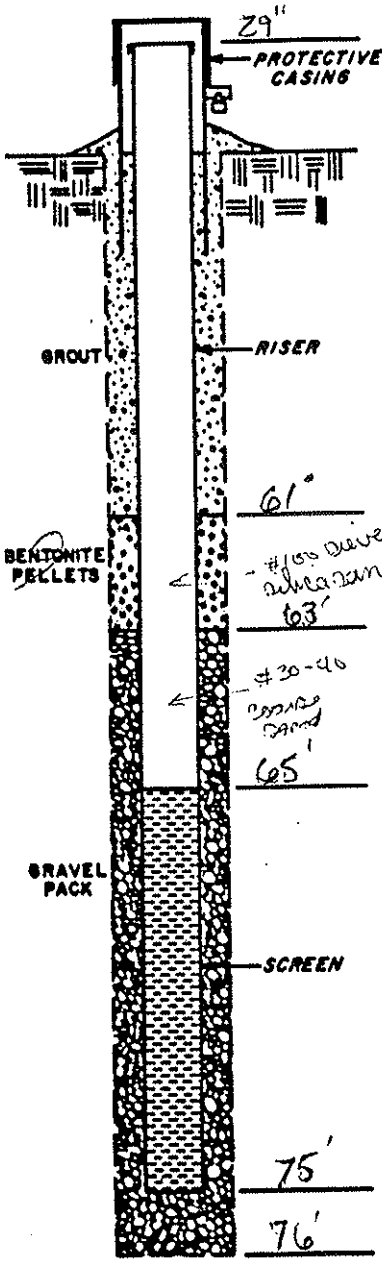
WELL CONSTRUCTION SUMMARY

Project: SOUTHEAST ROCKFORD Client: IEPA Well No: MW-103B



DRILLING SUMMARY

Drilling Co: JOHN MATHES and ASSOC. Drillers: ED CLARK

Drill Rig Make/Model: GUSPECH BRAT 22R

Borehole Diameters: 0-50.5': 8.25"; 50.5-76': 6" Drilling Fluid: 50.5-76': air

Bits/Depths: 0-50.5': 8.25" HSA; 50.5-76': 6" down-the-hole air hammer

Total Depth: 76' Depth to Water: ~20'

Supervisory Geologist: TROY CARLSON CDM-CHICAGO

WELL DESIGN

Casing Material: black pipe / type 304 SS Diameter: 6" / 2" Length: 53' / 67'

Screen Material: WIRE-WRAPPED SS Diameter: 2" Length: 10.8'

Slot Size: 0.010" Setting: 65-75'

Filter Material: 63-76' med sand / 61-63' fine sand Setting: 20-40 sieve size / 100 sieve size

~~Seals Material~~: VOLCLAY Setting: 0-61'

Grout: CEMENT-BENTONITE Setting: 0-50.5' (outside 6" casing only)

Surface Casing Material: 6" blk pipe Setting: -2.42' to 50.5' (seated in bedrock)

THIS OUTER CASING IS GROUTED WITH CEMENT/BENTONITE GROUT IN ITS ANNULAR SPACE

TIME LOG	Started	Completed
Drilling:	7/1/91 @ 1320	7/16/91 @ 1550
Installation:	7/16/91 @ 1600	7/17/91
Development:	7/27/91 @ 1515	7/27/91 @ 1645

WELL DEVELOPMENT

Method: dual-line air lift

Static Depth to Water: ~20'

Pumping Depth to Water: unknown

Pumping Rate: 1.7 gpm Specific Capacity: unknown

Volume Pumped: 150 gallons

NY-5

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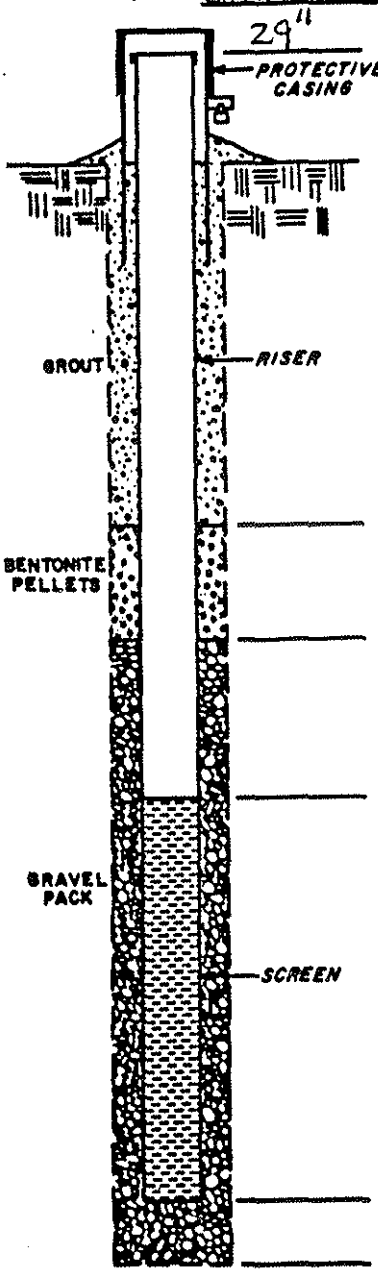
WELL CONSTRUCTION SUMMARY

Project: SOUTHEAST ROCKFORD Client: IEPA Well No: MW403C



DRILLING SUMMARY

Drilling Co: JOHN MATHES & ASSOC. Drillers: ED CLARK

Drill Rig Make/Model: GUS PECK BRAT 22R

Borehole Diameters: 0-48.3: 8.25"; 48.3-110.11": 6" Drilling Fluid: 0-48.3 HSA, 48.3-110'11" air

Bits/Depths: 8.25" HSA TO 48.3'; 48.3 TO 110'11": 6" downthehole air hammer

Total Depth: 110'11" Depth to Water: 19.5'

Supervisory Geologist: TROY CARLSON CDM-CHICAGO

WELL DESIGN

Casing Material: blackpipe / TYPE 304 STAINLESS Diameter: 6" / 2" Length: 51' / 107'11"

Screen Material: WIREWOUND 304 SS Diameter: 2" Length: 10'

Slot Size: 0.010" Setting: 97.9'-107.9'

Filter Material: 96-110'11" 94.5-96' MED SAND FINE SAND Setting: 20-40 SIEVE SIZE 100 SIEVE SIZE

~~Seal Material~~: VOLCLAY Setting: 0-94.5'

Grout: cement-bentonite Setting: 0-48.3' (outside the 6" casing only)

Surface Casing Material: 6" ELK PIPE Setting: -2.42-48.3'

THIS OUTER CASING IS GROUTED WITH CEMENT BENTONITE GROUT IN ITS ANNULAR SPACE.

TIME LOG	Started	Completed
Drilling:	7/2/91 @ 1325	7/15/91 @ 1730
Installation:	7/15/91 @ 1745	7/16/91 / 7/17/91
Development:	7/28/91 @ 0830	7/28/91 @ 1015

WELL DEVELOPMENT

Method: dual-line air lift

Static Depth to Water: 19.5'

Pumping Depth to Water: unknown

Pumping Rate: 1.7 gpm Specific Capacity: unknown

Volume Pumped: 250 gal.

NY-5

USGS Rev 1-91

WELL COMPLETION RECORD

MW103D ~~BH2~~

Site: S.E. ROCKFORD County: Winnebago Well No.:

Site Name: Balsam at Eidelweiss Latitude 42° 13' 53" N Longitude 89° 02' 42" W

Drilling Contractor: U.S.G.S. Coal Branch Date Drilling Started: 10-29-92

Driller: Todd Hunter Geologist: Bob Kay, Scott Prinos Date Drilling Ended: 11-03-92

Drilling Method: Mud Rotary / Air Hammer Drilling Fluid (type): Bentonite Mud / Water

ANNULAR SPACE DETAILS:

Type of Surface Seal: Concrete

Type of Annular Sealant: Concrete

Borehole Plug: Bentonite Chips

Amount of Cement # of bags 1.5 lbs. per bag 94

Amount of Bentonite # of bags 2 lbs. per bag 50

Type of volclay grout (granular, pellets): Granular

Amount of bentonite: # of bags 17 lbs. per bag 50

Type of Sand Pack: Pea Gravel

Source of Sand: Rockford gravel quarry

Amount of pea gravel: 1 barrel lbs. per BBL: 150

WELL CONSTRUCTION MATERIALS:

Date of Construction: 1-07-93	Stainless Steel Specify Type	Teflon Specify Type	PVC Specify Type	Other Specify Type
Riser Coupling Joint	T304			
Riser pipe above W.T.	T304			
Riser pipe below W.T.	T304			
Screen	T304			
Coupling joint screen to riser	T304			
Protective Casing				Black Pipe
Surface Casing				Black Pipe

MEASUREMENTS

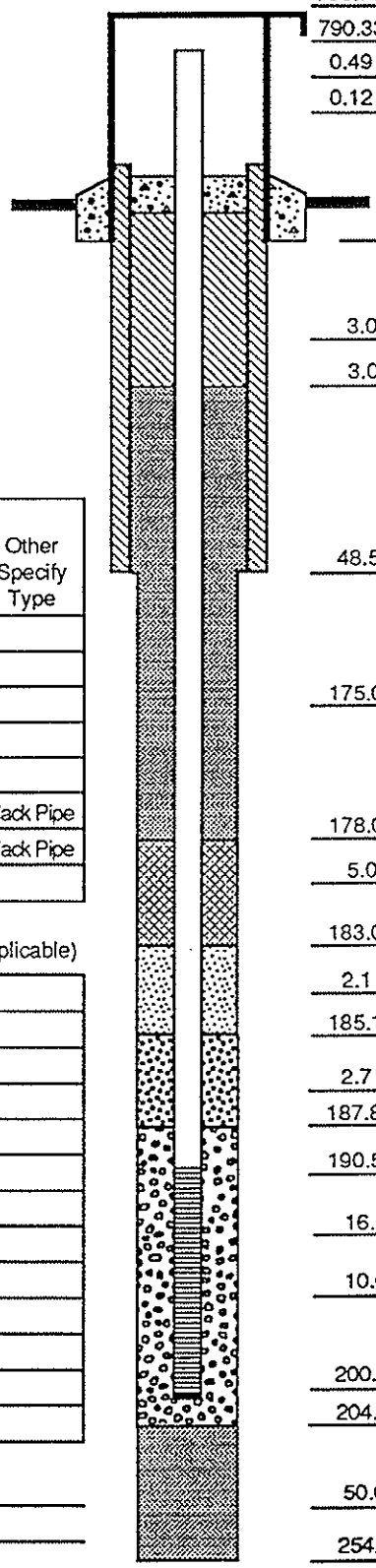
to 0.01 ft. (where applicable)

Riser pipe length	191.0 ft
Protective casing length	5.0 ft
Screen length	10.0 ft.
Bottom of screen to end cap	0.5 ft.
Top of screen to first joint	10.0 ft.
Total length of casing	8in. x 48.9 ft.
Screen slot size	10 slot
No. of opening in screen	N/A
I D of Riser Pipe	2.0 in.
Diameter of bore hole	12.25 in.} 0.00 ft.- 48.5 ft.
	6.00 in.} 48.5 ft.- 254.0 ft.

Well Constructed By: Scott Prinos; Jim Rouman

Surveyed By: Scott Prinos, Jim Rouman

Form Completed By: Scott Prinos



ELEVATION - 0.01 ft.

790.70 MSL Top of Protective Casing

790.33 **MSL Top of Riser Pipe**

0.49 Ft. of Protective Casing Stickup

0.12 **Ft. of Riser Stickup**

790.21 MSL Ground Surface

3.0 Ft. Bottom of Surface plug

3.0 Ft. Total Portland Cement

3.0 Ft. Top of Volclay Grout

48.5 Ft. Bottom of Surface Casing

175.0 Ft. Total Volclay Grout

178.0 Ft. Top of Seal

5.0 Ft. Total Seal Interval

183.0 Ft. Top of SandPack

2.1 Ft. Total Fine Sand Interval

185.1 Ft. Top of Coarse Sand

2.7 Ft. Total Coarse Sand Interval

187.8 Ft. Top of Pea Gravel

190.5 Ft. Top of Screen

16.2 Ft. Total Pea Gravel Interval

10.0 Ft. Total Screen Interval

200.5 Ft. Bottom of Screen

204.0 Ft. Top of Bentonite Chips

50.0 Ft. Total Bentonite Chips

254.0 Ft. Bottom of Borehole

MW103D

Project: S. E. Rockford | Boring No.: ~~BH-2~~ | LSE: 790.33

Sampling Method(s): Return of Cuttings | Description by: Scott T. Prinos

Location: NE NW SE Sec.6,T43N,R2E: 42° 14'02"N 89° 02'42"W | Date: Oct. 28, 1992 | Sheet 1 of 8

DEPTH (ft)	DESCRIPTION	PROFILE	REMARKS
	0-2 ft. Top soil.		Samples taken at 5 foot intervals. Some depths of contacts approximate.
5 ft.	2-10 ft. Black organic rich clay loam. Sand is well rounded to subangular.		
10 ft.	10-15 ft. 80% tan glacial till. 70% corse to very fine pebble sized gravel, 10% coarse to fine sand, 20% silt and clay. Clasts are well rounded to angular, 40% carbonate, 30% chert, 30% quartz, <1% granite, quartzite, etc. 20% black clay loam, same as at 5 ft.		13 ft. Drilling rate increased.
15 ft.	15-25 ft. Tan glacial till. 75% tan silty clay, 20% coarse to fine sand, 5% medium pebble sized gravel. Clasts are well rounded to very angular, 60% quartz, 30% carbonate, 5% green shale, 5% orthoclase feldspar. Gravel content increases to 40% from 20 to 25 ft. Trace amounts of darl gray marble at 20 ft. Fining downward starting at 20 ft.		15 ft. Drilling rate decreased.
20 ft.			19 ft. Nothing on HNU above background.
25 ft.			
30 ft.	25-35 ft. Tan clay, sand, and gravel. 50% subangular to well rounded fine to very fine pebble sized gravel. 35% fine to very coarse subrounded to angular sand, 15% silt and clay. Clasts are 65% carbonate, 20% quartz, 10% chert, 2% orthoclase feldspar,3% schist, quartzite, shale, etc.		26-27 ft. Iron oxide in cuttings.
35 ft.			Significant amount of organic matter (leaves, twigs, etc.) from 0 to 48 ft.

MW 103D

Project: S. E. Rockford | Boring No.: ~~RH-2~~ | LSE: 790.33

Sampling Method(s): Return of Cuttings | Description by: Scott T. Prinos

Location: NE NW SE Sec.6,T43N,R2E: 42° 14'02"N 89° 02'42"W | Date: Oct. 28, 1992 | Sheet 2 of 8

DEPTH (ft)	DESCRIPTION	PROFILE	REMARKS
40 ft. 45 ft.	35-48 ft. Dark brown glacial till. 50% silty dark brown clay, 30% fine to very fine angular to well rounded pebble sized gravel, 20% fine to very coarse subrounded to angular sand. Clasts are 65% carbonate, 20% quartz, 10% chert, 5% orthoclase feldspar, <1% granite and other lithics. Grading downward to fine pebble sized gravel, angular to subrounded, 80% carbonate, 20% chert, <1% mafies. Percentage of dolomite increased until mostly dolomite at 47 ft.		742' elev
50 ft. 55 ft.	48 ft. Bedrock. 50-57 ft. 70% lt. tan microcrystalline vuggy limestone, 30% dark gray microcrystalline limestone, grading to 95% tan, 5% dark gray limestone.		Nothing on the HNU above background.
60 ft. 65 ft. 70 ft.	57-110 ft. Gray-tan, vuggy, sucrosic dolomite with lt. tan highly corroded dolomite. Cherty from 90 to 105 ft.		733' elev

MW 103D

Project: S. E. Rockford | Boring No.: ~~BH-2~~ | LSE: 790.33

Sampling Method(s): Return of Cuttings | Description by: Scott T. Prinos

Location: NE NW SE Sec.6,T43N,R2E: 42° 14'02"N 89° 02'42"W | Date: Oct. 28, 1992 | Sheet 3 of 8

DEPTH (ft)	DESCRIPTION	PROFILE	REMARKS
75 ft.			Average drilling rate 75-80 ft. is 1.67 ft./min.
80 ft.			
85 ft.			
90 ft.			Average drilling rate 90-95 ft. is 1.67 ft./min.
95 ft.			Increased water return from 95 to 105 ft.
100 ft.			
105 ft.			

Project: S. E. Rockford

Boring No.: ~~BH-2~~ MW 103D

LSE: 790.33

Sampling Method(s): Return of Cuttings

Description by: Scott T. Prinos

Location: NE NW SE Sec.6,T43N,R2E: 42° 14'02"N 89° 02'42"W

Date: Oct. 28, 1992

Sheet 4 of 8

DEPTH (ft)	DESCRIPTION	PROFILE	REMARKS
110 ft.			110 ft. Decreased water return. 680' elev
	110-135 ft. Gray, sucrosic dolomite. Moderately vuggy, less corroded than above. Minor shale partings at 110 ft. increasing in frequency downward.		Average drilling rate 110-115 ft. is 1.43 ft./min.
115 ft.			
120 ft.			Average drilling rate 120-125 ft. is 1.37 ft./min.
125 ft.			
130 ft.			
135 ft.			655' elev
	135-145 ft. Tan dolomite. Slightly vuggy, coated with limonite and iron oxide at 135 ft.		
140 ft.			

MW103D

Project: S. E. Rockford | Boring No.: ~~BH-2~~ | LSE: 790.33

Sampling Method(s): Return of Cuttings | Description by: Scott T. Prinos

Location: NE NW SE Sec.6,T43N,R2E: 42° 14'02"N 89° 02'42"W | Date: Oct. 28, 1992 | Sheet 5 of 8

DEPTH (ft)	DESCRIPTION	PROFILE	REMARKS
			Water flow from formation is 20 gpm.
145 ft.			645' elev.
	145-203 ft. Alternating beds of tan to dark gray dolomite. Generally sucrosic and mottled with shale partings. Cherty at 145 ft. Fossiliferous at 170 ft. Limonite coated at 170 ft.		
150 ft.			
155 ft.			
160 ft.			
165 ft.			
170 ft.			Average drilling rate 170-175 ft. is 0.88 ft./min.
175 ft.			

Project: S. E. Rockford | Boring No.: ~~BH-2~~ MW103D | LSE: 790.33

Sampling Method(s): Return of Cuttings | Description by: Scott T. Prinos

Location: NE NW SE Sec.6,T43N,R2E: 42° 14'02"N 89° 02'42"W | Date: Oct. 28, 1992 | Sheet 6 of 8

DEPTH (ft)	DESCRIPTION	PROFILE	REMARKS
180 ft.			Average drilling rate 180-185 ft. is 0.98 ft./min.
185 ft.			183-185 ft. Drilling rate increased.
190 ft.			Average drilling rate 190-195 ft. is 0.97 ft./min.
195 ft.			Average drilling rate 190-195 ft. is 0.83 ft./min.
200 ft.			
			— 587' elev
205 ft.	203-230 ft. Light gray sucrosic dolomite with shale partings, trace pyrite, fossiliferous, with minor yellow/tan limestone at 225 ft.		
210 ft.			

MW103D

Project: S. E. Rockford | Boring No.: ~~BH-2~~ | LSE: 790.33

Sampling Method(s): Return of Cuttings | Description by: Scott T. Prinos

Location: NE NW SE Sec.6,T43N,R2E: 42° 14'02"N 89° 02'42"W | Date: Oct. 28, 1992 | Sheet 7 of 8

DEPTH (ft)	DESCRIPTION	PROFILE	REMARKS
215 ft.			Average drilling rate 210-215 ft. is 0.86 ft./min.
220 ft.			Average drilling rate 220-225 ft. is 0.91 ft./min.
225 ft.			Periodic HNU screening shows no contamination to this point.
230 ft.			560' elev
235 ft.	230-245 ft. Light gray/tan dolomite. Shale partings at 230 ft.		
240 ft.			
245 ft.			

MW103D

Project: S. E. Rockford | Boring No.: ~~BH-2~~ | LSE: 790.33

Sampling Method(s): Return of Cuttings | Description by: Scott T. Prinos

Location: NE NW SE Sec.6,T43N,R2E: 42° 14'02"N 89° 02'42"W | Date: Oct. 28, 1992 | Sheet 8 of 8

DEPTH (ft)	DESCRIPTION	PROFILE	REMARKS
	245 ft. Dark gray sucrosic dolomite with shale partings.		
250 ft.			540' elev
	250 ft. Dark gray/brown dolomite with medium well rounded quartz sand and some pyrite, argillaceous.		
255 ft.			536' elev
	254 ft. Dark gray sandy dolomite. Fine, well rounded quartz sand, minor pyrite and some dark gray dolomite with medium well rounded sand.		
	254 ft. End of Boring.		

Camp, Dresser & McKee, Inc. **200 W. Adams, Suite 1600 Chicago, Illinois 60606**

Soil Boring Log **Well Installation and Completion Data**

Client IEPA Site SE ROCKFORD Job No. 1681-3 Surveyed Elevation: Ground 815.94

Date Drilled 7/22/91 Well No. MW104A Boring Co. J. MATTHES & ASSOC Top of Casing 818.10 Screen Length 10'

Total Depth 77' Boring Method Used 4.25" HSA Piezometer Casing Size & Type 2" TYPE 304

Field Geologist T. CARLSON Organic Vapor Instruments Used _____ Water Table Depth ~38'

Depth (feet)	Samp. No.	Blows per 6' _____ lbs.	Sample Interval	Adv./ Recov.	Org. Vap. - PPM	Sample Description	Strata. Change	Equipment Installed
5								
10								
15								
20								
25								
30								
35								
40						Brown, very fine sandy silt with ~5% pebbles		
45		18/25/27/24	44-46	95%				
50		for 5.5" 9/30/47/50	49-51	90%		Brown, very fine sand silt		
55		9/16/36/47	54-56			Brown silty sand with gravel		

Remarks:

Camp, Dresser & McKee, Inc. One Center Plaza, Boston, Massachusetts 02108

Soil Boring Log — **Well Installation and Completion Data**

MW104B: 815.22
MW104C: 816

Client: IEPA Site: SE Rockford Job No. 1681-3 Surveyed Elevation: Ground B: 817.37 C: 818.25

Date Drilled: 6/27-6/29/91 Well No. MW104 Boring Co. Mathes Top of Casing Screen Length 10'

Total Depth: 146.5' Boring Method Used: mud rotary 0-79'; air rotary 79-146.5' Piezometer Casing Size & Type: 2" stainless

Field Geologist: M Sorensen Organic Vapor Instruments Used: OVA Water Table Depth

Depth (feet)	Samp. No.	Blows per 6" ____ lbs.	Sample Interval	Adv./ Recov.	Org. Vap. - PPM	Sample Description	Strata. Change	Equipment Installed
0							Fill: dk bn loam	
							Sand	
10								
20		N.A.	18-20'	24/15"	—	18-20': V.fn. sandy silt, mod. or bn, w/ ~8% ang. to subang. pebb's & gran's; moist	ML	
						Note: cuttings at 25-35' are largely sand & gvl		
30		N.A.	28-30'	24/4"	—	28-~~30'~~ 28.3': Sand & gravl, silty, mod. or. bn, moist	SW-GW	
40		N.A.	38-40'	24/5"	b.g.	38-38.4': Silty, vfn SAND, w/ ~8% subang to ang gran's & pebb's; mod or bn; moist. No discernible bedding, suggesting till.	SM-ML	
50		N.A.	48-50'	8"/4"	b.g.	48-48.3': Silty, vfn SAND, or vfn sandy silt w/ ~8% pebb's & gran's which are subang & of random orientation; sand is vfn to coarse; mod or bn w/ some Fe ox spots & films; not cohesive; moist.	SM-ML	
		[continued at 50' on next page]						

Remarks:

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BORING NUMBER: MW104

Log of Boring

Depth (feet)	Samp. No.	Blows per 6" lbs.	Sample Interval	Adv./ Recov.	Org. Vap. (PPM)	Sample Description	Strata Change	Remarks (Time of Day)
50						Cuttings at 50-63' are sand & gravel w/ some silty till, ~~bn~~ as above		
55							GW-ML	
			58-60'	24/<1"	b.g.	58-58.05': Silty sand, or bn, and loose slufted gvl		
60								
						Cuttings at 63 to ~68' are gray clayey sandy silt w/ ~10% subrdd to subang gran's & pebb's; pebb's are largely carbonate & chert, possibly suggesting bedrock is near	ML	
65								
			68-70'	24/11"	b.g.	68.0-68.3': vfn sandy, clayey SILT w/ some (~10%) gran's & pebb's which are carb, cht & dk gy phyllitic shale (soft); many pebb's subhoriz. & a few vertical; sl plastic; moist; gray at 68-68.05' but otherwise mod or-bn	SW	
70							ML	
75						68.3-68.6': gravelly SAND, med to c-gr, saturated	GW	
						68.6-68.9': same as 68.0-68.3'		6" casing seated @ 79'.
			77-91' cuttings samples collected on the foot			75-77' cuttings show subrounded gravel	Limestone (buff)	
80						Cuttings in bedrock		
						77-91': Limestone, dolomitic, buff, finely to vfinely xln to finely sandy & porous; rare (<<1%) white to bn gray chips (comm. zoned like a chert nodule w/ bn gy inside white) which are cht (bn gy) surrounded or adj. to partly silic to unsilic limestone (the white zones)		Brown clay (50%)
85							Limestone	
90								

[cont'd.]

NY-2

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BORING NUMBER: MW104

Log of Boring

Depth (feet)	Samp. No.	Blows per 6" lbs.	Sample Interval	Adv./ Recov.	Org. Vap. (PPM)	Sample Description	Strata Change	Remarks (Time of Day)
90			91-101' cuttings samples collected on the foot			Cuttings at 77-91' (cont'd.) At 82' & below is loc abun. clay, shaly, chocolate bn w/ common laminae or irreg. zones of dk yel bn clay, on submillimeter scale; soft; 50% of cuttings at 83' and 10-40% elsewhere. Producing 55-60 gpm; water is or bn @ 79-85' & tan 85-91'.	Limestone (buff)	
95								
100			101-111' cuttings samples collected on the foot			91-101' cuttings: same as 81-91', exc. bn clay (bentonitic?) is ~30% of cuttings at 92' and 2-10% elsewhere. Aquifer water is tan, & production similar to 81-91'.		
105								
110			111-121' cuttings samples collected on the foot			101-111' cuttings: same as 81-91', exc. 15% white/bn gy zoned carb/cht frags (many frag's lack the chert) at 111'. Bn clay: 20% at 102 & 106'; 1-10% elsewhere. Water production > 60 gpm & clarity similar.	Chert (15% of cuttings) Chert 5%	
115								
120			121-131' cuttings samples collected on the foot			111-121': same as 81-91' exc. 5% cht at 113 & 120', elsewhere tr to ~2%; bn clay 20% at 116', elsewhere 1-10%; see loc greenish-gray spots in the bn clay. Water production high, color milky tan.	(buff) (buff to gy buff)	←Chert 5% Chert (8%) gray-gn shale (trace; first appearance)
125						121-131': same as 81-91' exc. color is buff to grayish buff; 8% white/bn gy carb/chert at 123'; bn clay is tr exc. @ 131' where it's 3%; tr soft grayish gn shale below 123'; some echinoderm frag's	Lime-stone	
130								

NY-2

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BORING NUMBER: MW104

Log of Boring

Depth (feet)	Samp. No.	Blows per 6" lbs.	Sample Interval	Adv./ Recov.	Org. Vap. (PPM)	Sample Description	Strata Change	Remarks (Time of Day)
130			131-141' cuttings samples collected on the foot			Cuttings log: 121-131' (cont'd.) Water production high; color a milky tan. 131-141': same as 81-91' exc. bn clay (~3%) and gy-gn shale (trace) uniform throughout; rare fe oxide coatings; no chert or silic. zones. Water production high; sl. milky.	(buff to gy buff) (buff) Lime-stone	
135								
140			141-146.5' cuttings samples collected on the foot			141-146.5': dol'ic limestone as in 81-91' exc. that color is lt-mod bn gy (transition zone at 141-142'); few echinoderm frag's; grn gy shale tr exc @ 146', where it's 8-10% — could be a marker bed.	(lt-mod bn gy)	Screen @ 136-146'
145								grayish green shale (8%)
150							T.D. 146.5'	

NY-2

Camp, Dresser & McKee, Inc.
Soil Boring Log

200 W. Adams, Suite 1600 Chicago, Illinois 60606
Well Installation and Completion Data

MW105A: 783.31
B: 783.58
C: 783.52

Client IEPA Site SE ROCKFORD Job No. 1681-3 Surveyed Elevation: Ground

7/12/91 and 7/25-7/27/91 Date Drilled LOCATION Well No. MW 105 Boring Co. J. MATHES & ASSOC. Top of Casing A: 785.57 B: 785.78 C: 785.66 Screen Length 10 ft.

Total Depth 104 ft Boring Method Used HOLLOW-STEM AUGER (4¼") Piezometer Casing Size & Type 2 in. 304 STAINLESS S

Field Geologist S. BHAGAT Organic Vapor Instruments Used HNu Water Table Depth ~6' during dri

Depth (feet)	Samp. No.	Blows per 6' _____ lbs.	Sample Interval	Adv./ Recov.	Org. Vap. - PPM	Sample Description	Strata. Change	Depth of Stratigraphic Contact
5		1/3/3/4	4'-6'	6"	BG	Brown, med sand with gravel. Bottom 2" is brown, clayey silt & fine sand with rare gravel.		
10								
15		4/9/12/16	14'-16'	24"	BG	Brown, med to coarse sand with some gravel. Very moist.	SP	
20		4/5/7/10	19'-21'	21"	BG	Brown, med to coarse sand with rare gravel.		
25		2/4/6/7	24'-26'	18"	BG	Brown/tan, well-sorted fine sand; some clay in bottom 3".		
30		13/7/7/7	29'-31'	20"	BG	Brown/reddish brown, silty clay; somewhat plastic. Note of spoon contains gray, plastic clay.		25.3'
35		4/6/9/13	34'-36'	23"	BG	Dark gray, plastic clay.	CH	
40		5/10/11/18	39'-41'	60%	BG	Top 12": dark gray clay. Bottom 4": fine to coarse sand with silt & clay.		
45		5/10/18/23	44'-46'	80%	BG	Tan/brown coarse sand with pebbles (10%)		40'
50		6/15/23/17	49'-51'	65%		Brown, med to coarse sand + gravel w/ tr. Fe-oxide.	SP -GP	
55		10/15/11/13	54'-56'	16"	BG	Top 8": BROWN COARSE SAND & GRAVEL; ROUNDED. LIMESTONE PEBBLES 3-4cm.		54.7'
						Bottom 8": GRAY PLASTIC CLAY WITH GRANULES AND RARE PEBBLES. PEBBLES ANGULAR-ROUNDED.	CH	

Remarks: page 1 of 2.

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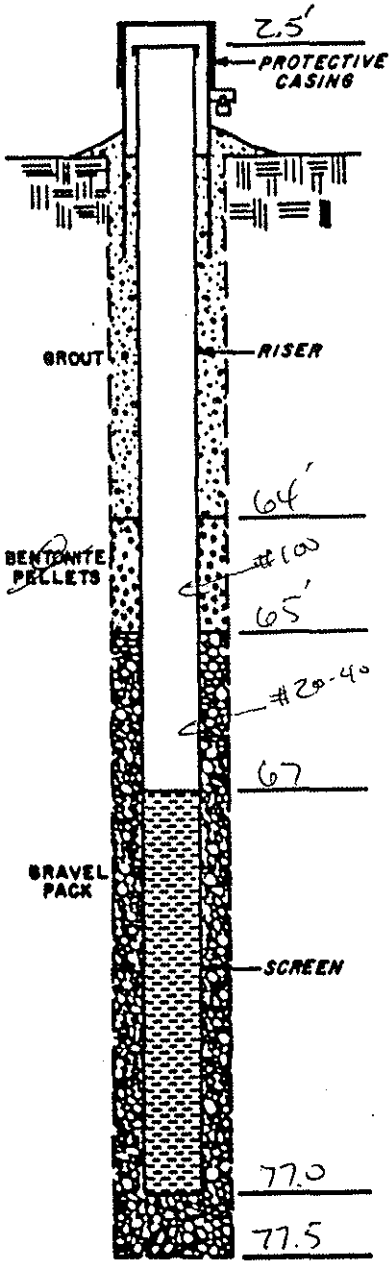
WELL CONSTRUCTION SUMMARY

Project: SOUTHEAST ROCKFORD Client: IEPA Well No: MW 104A



DRILLING SUMMARY

Drilling Co: JOHN MATHES & ASSOC. Drillers: TIM CRANK

Drill Rig Make/Model: CV75

Borehole Diameters: 4.25" HSA Drilling Fluid: 0-77' HSA

Bits/Depths: 4.25" HSA

Total Depth: 77.5' Depth to Water: 37.4'

Supervisory Geologist: TROY CARLSON - CDM

WELL DESIGN

Casing Material: TYPE 304 S.S. Diameter: 2" Length: 8.0'

Screen Material: WIREWOUND 304 S.S. Diameter: 2" Length: 10'

Slot Size: 0.010" Setting: 67-77'

Filter Material: 65-77' MED. SAND #20-40 SIEVE SAND; 64-65' FINE SAND Setting: #100 SIEVE SAND

Seals Material: VOLCLAY Setting: 3-64'

Grout: VOLCLAY Setting: 3-64'

Surface Casing Material: 5.5" protective casing Setting: -2.5 → 2.5' (set in concrete)

TIME LOG	Started	Completed
Drilling:	7-22-91 @ 1120	7-22-91 @ 1455
Installation:	7-22-91 @ 1545	7-23-91 @ 0900
Development:	7-26-91 @ 1315	7-26-91 @ 1545

WELL DEVELOPMENT

Method: dual-line air lift

Static Depth to Water: 37.4'

Pumping Depth to Water: not measured

Pumping Rate: not measured Specific Capacity:

Volume Pumped:

NY-5

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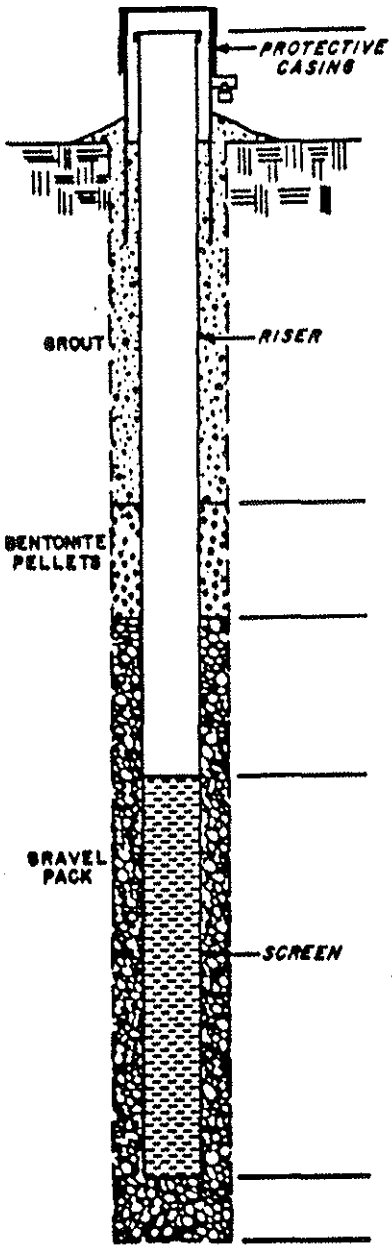
WELL CONSTRUCTION SUMMARY

Project: SE Rockford Client: IEPA Well No: MW104B



DRILLING SUMMARY

Drilling Co: Mathes Drillers: E Clark, J McMullan, Q Nowak

Drill Rig Make/Model: Gus Peck Brat 22R

Borehole Diameters: 0-109.5': 12"; 109.5-124': 6" Drilling Fluid: 0-109.5': bentonite; 109.5-124

Bits/Depths: 0-109.5': 12" tri-cone rotary; 109.5-124': air hammer

Total Depth: 124' Depth to Water: ~~37.4~~ 38.6'

Supervisory Geologist: M Sorensen

WELL DESIGN

Casing Material: 6" steel / 304 stainless Diameter: 6" / 2" Length: 111' (to 109.4') / 114'

Screen Material: 304 stainless Diameter: 2" Length: 10'

Slot Size: 0.010" Setting: 111.9' - 121.9'

Filter Material: coarse sand Setting: 112-123'

Seals Material: fine sand; bentonite chips Setting: 111-112'; 110.5-111.0'

Grout: Volclay; cement-bentonite outside 6" casing Setting: 2-110.5'; 2-109.4'

Surface Casing Material: 5.5" steel Setting: -3 to 2; welded to 6" casing and set in concrete

TIME LOG	Started	Completed
Drilling:	7/12/91 @ 1148	7/14/91 @ 1030
Installation:	7/14/91 @ 1045	7/15/91 @ 0830
Development:	7/28/91 @ 1445	7/28/91 @ 1800

WELL DEVELOPMENT

Method: dual-line air lift

Static Depth to Water: 38.6'

Pumping Depth to Water: not measured

Pumping Rate: 100 gal/hour Specific Capacity: not measured

Volume Pumped: 325 gal.

NY-5

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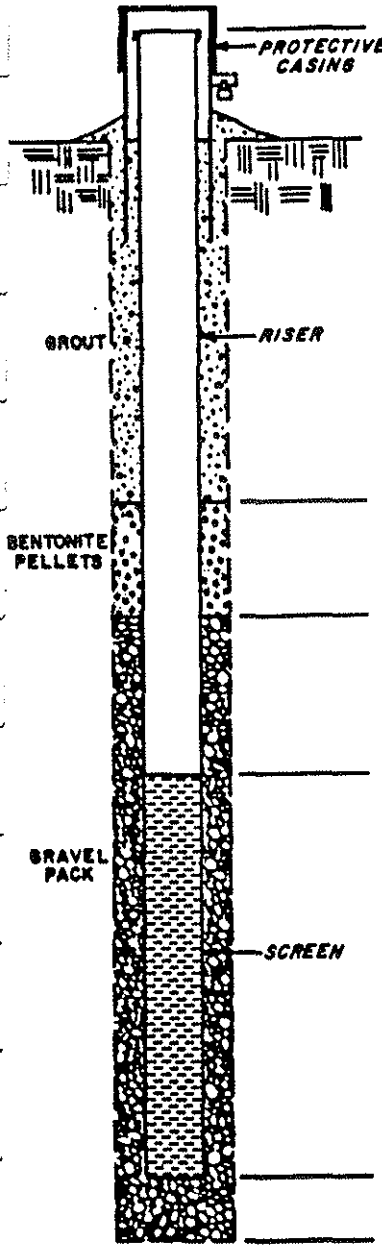
WELL CONSTRUCTION SUMMARY

Project: SE Rockford Client: IEPA Well No: MW104 C (deep)



DRILLING SUMMARY

Drilling Co: Mathes Drillers: E Clark

Drill Rig Make/Model: Gus Pech Brat 22R

Borehole Diameters: 16": 0-6'; 11": 6-79'; 6" @ 79-146.5' Drilling Fluid: bentonitic mud 6-79' air 79-146.5'

Bits/Depths: 11" mud rotary @ 6-79'; 6" down-the-hole air hammer @ 79-146.5'

Total Depth: 146.5' Depth to Water: 37.4'

Supervisory Geologist: M Sorensen, S Bhagat

WELL DESIGN

Casing Material: blackpipe / type 304 stainless Diameter: 6" / 2" Length: 81' (set at 79' depth) / 139'

Screen Material: " " Diameter: 2" Length: 10'

Slot Size: 0.010" Setting: 136-146'

Filter Material: Coarse sand / Fine sand Setting: 133-146.5' / 130.8-133.0'

~~Seals Material:~~ Volclay Setting: 3-130.8'

Grout: cement-bentonite Setting: 3-79' (only outside the 6" casing)

Surface Casing Material: 5.5" steel Setting: -2 to 3'; welded to 6" casing and set in concrete

TIME LOG	Started	Completed
Drilling:	6/28/91 @ 0930	6/29/91 @ 1735
Installation:	6/30/91 @ 1115	7/1/91 @ 0825
Development:	7/28/91 @ 1430	7/28/91 @ 1700

WELL DEVELOPMENT

Method: dual-line air lift

Static Depth to Water: 37.4'

Pumping Depth to Water: unknown

Pumping Rate: 1.25 gpm Specific Capacity: unknown

Volume Pumped: 185 gals.

NY-5

Camp, Dresser & McKee, Inc. **200 W. Adams, Suite 1600 Chicago, Illinois 60606**

Soil Boring Log **Well Installation and Completion Data**

Client IEPA Site SE ROCKFORD Job No. 1681-3 Surveyed Elevation: Ground _____

Date Drilled 7/16/91 and 7/25-7/27/91 Well No. LOCATION MW105 Boring Co. J. MATHES & ASSOC. Top of Casing _____ Screen Length _____

Total Depth 104ft Boring Method Used 4¼" HSA Piezometer Casing Size & Type 2in. STAINLESS STEEL

Field Geologist S. BHAGAT Organic Vapor Instruments Used HNu Water Table Depth _____

Depth (feet)	Samp. No.	Blows per 6' _____ lbs.	Sample Interval	Adv./ Recov.	Org. Vap. - PPM	Sample Description	Strata. Change	Equipment Installed
60		10/12/14/21	59'-61'	18"	BG	GRAY CLAY TILL WITH ANGULAR, V. COARSE TO GRANULE-SIZED CLASTS. REDDISH LAMINATIONS IN UPPER 8".		
65		4/5/6/9	64'-66'	24"	BG	GRAY CLAY TILL WITH ANGULAR TO WELL-ROUNDED CLASTS, VERY COARSE SAND through 1 INCH. VARIABLE LITHOLOGY.	CH	
70		13/30/50 (4")	69'-71'	15"	BG	→ GRAY CLAY TILL. No clasts.		
75		8/20/35/37	74'-76'	17"	BG	Top 7": Tan/brown, well sorted fine sand. Bottom 7": Coarse sand + gravel.		~72.5'
80		20/27/32/30	79'-81'	18"	BG	Tan/brown, well-sorted med sand to coarse sand + gravel.		
85		14/28/33/43	84'-86'	20"	BG	Tan/gray, well sorted, med to coarse sand and some gravel.		
90		27/47/51/46	89'-91'	20"	BG	Brown/gray, well sorted med sand. Bottom 9": Gray med sand + gravel.	SP	
95		17/21/25/28	94'-96'	13"	BG	Tan/gray coarse sand + gravel.		
100		25/25/20/23	99'-101'	12"	BG	Gray/tan coarse sand + gravel.		
105		12/24/38/48	104'-106'	18"	BG	Tan/gray, well sorted, med. to coarse sand. Thin gravel layer, subrounded to rounded.		105.5' = E.O.B.
						[see log of MW105D for description of 106-158' interval]		

Remarks: page 2 of 2.

Camp, Dresser & McKee, Inc.
Soil Boring Log

200 W. Adams, Suite 1600 Chicago, Illinois 60606
Well Installation and Completion Data

Client IEPA Site SE Rockford Job No. 1681-3 Surveyed Elevation: Ground 784.09

Date Drilled 8/21-8/24/91 Well No. MW105 D Boring Co. Mathes Top of Casing 786.21 Screen Length 10'

Total Depth 158' Boring Method Used 0-139': mud rotary; 139-158': air rotary Piezometer Casing Size & Type 2" I.D. stainless

Field Geologist M Sorensen Organic Vapor Instruments Used — Water Table Depth ~6'

Depth (feet)	Samp. No.	Blows per 6' ____ lbs.	Sample Interval	Adv./ Recov.	Org. Vap. - PPM	Sample Description	Strata. Change	Equipment Installed
						Note: See other MW105 log for description of 0 to 106' interval; no split-spoon samples were collected from this boring, & so this log is based only on cuttings and gamma.		
106						106-110': brown silty till		
108							ML	
						110-113.5': sand & gravel		~110'
112						113-113.5': boulder		
						113.5-136.5': sand & gravel (tougher drilling at 117-124' indicates higher proportion of gravel)	SP	
116								
							SP-GP	
120								
124								

Remarks:

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BORING NUMBER: MW105D

Log of Boring

Depth (feet)	Samp. No.	Blows per 6" lbs.	Sample Interval	Adv./ Recov.	Org. Vap. (PPM)	Sample Description	Strata Change	Remarks (Time of Day)
124							SP	
128								
132								
136			136.5-158' [cuttings samples collected on the foot]				SP	136.5'
140						136.5-158': Limestone, finely to v. finely crystalline; texture is predominantly not sucrosic, except at 144-147' & 155-158'; color ranges from lt grayish bn (@136.5-143, 146, 147, 151, 152') to lt yel bn (@ 144, 145, 157 & 158) to bn gray (at 148, 149, 150, 154, 155 & 156) to gray (@ 153'). Some rusty stains at 142-144'; a few black surficial coatings at 148-150'.	Lime-stone (lt gy bn)	6" steel casing set at 139'; 139-158' interval drilled by air rotary method
144							(lt yel bn)	
148							(lt gy bn)	
152							(bn gy)	
156							(lt gy bn)	
158							(gy)	
							(bn gy)	
							(lt yel bn)	T.D. = 158'

NY-2

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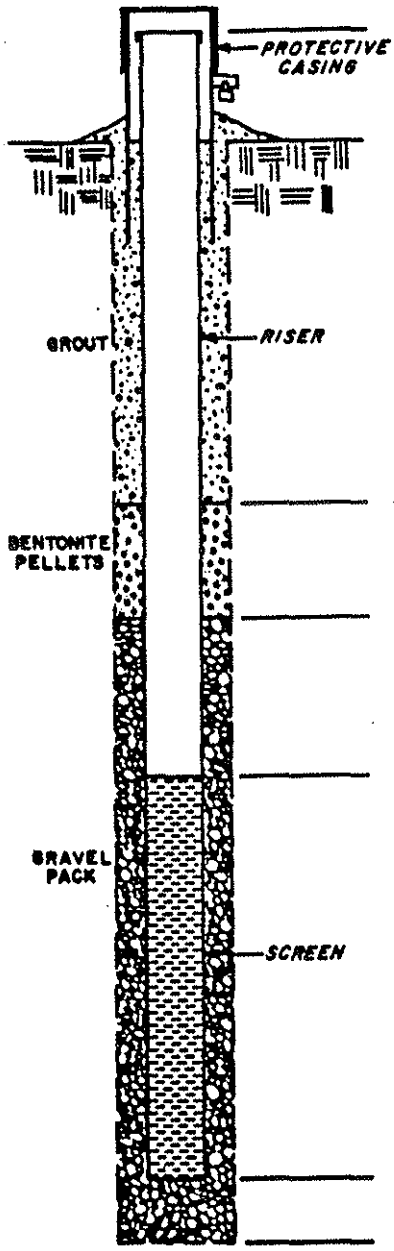
WELL CONSTRUCTION SUMMARY

Project: SE Rockford Client: IEPA Well No: MW105A



DRILLING SUMMARY

Drilling Co: J. Mathes & Assoc. Drillers: Tim Crank

Drill Rig Make/Model: CME 75

Borehole Diameters: 8.25" Drilling Fluid: NA

Bits/Depths: 4.25" HSA down to

Total Depth: 34' Depth to Water: ~6 ft. during drilling

Supervisory Geologist: S. Bhagat

WELL DESIGN

Casing Material: Type 304 Stainless Diameter: 2 inch Length: feet

Screen Material: Type 304 Stainless Diameter: 2 inch Length: 10 feet

Slot Size: 0.010" Setting: 12'-22'

Filter Material: Silica Sand (20-40 sieve) Setting: 10'-23'

Seals Material: Silica Sand (100 sieve) Setting: 9'-10'

Grout: Volclay Setting: 3'-9'

Surface Casing Material: 5.5" steel Setting: -2 to 3' (set in concrete)

Hole Plug from 23'-34' (backfill)

TIME LOG

	Started	Completed
Drilling:	7/16/91 @ 0905	7/16/91 @ 1025
Installation:	7/16/91 @ 1330	7/16/91 @ 1520
Development:	8/5/91 @ 1330	8/5/91 @ 1545

WELL DEVELOPMENT

Method: dual-line air lift

Static Depth to Water: 6 ft.

Pumping Depth to Water: not measured

Pumping Rate: 100 gal/hr Specific Capacity: not measured

Volume Pumped: 225 gal.

NY-5

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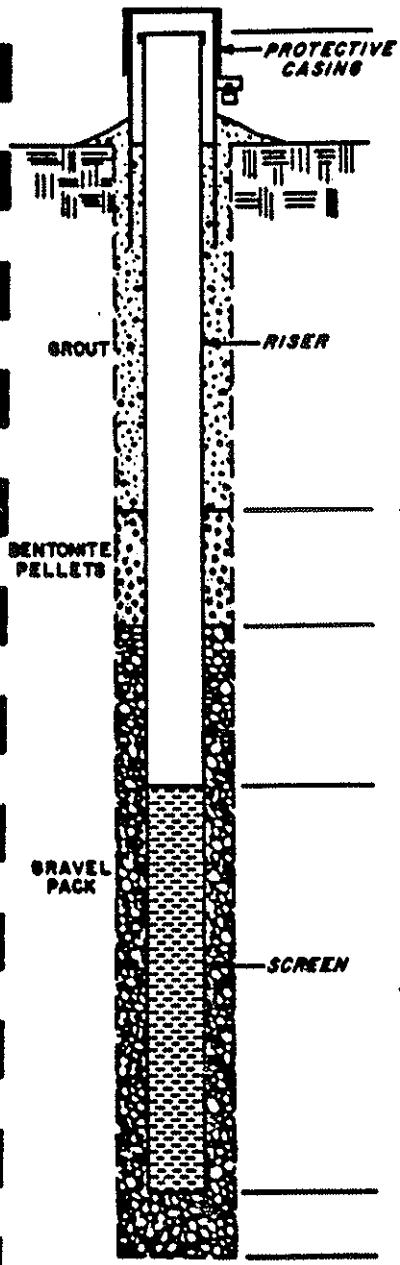
environmental engineers, scientists, planners & management consultants

WELL CONSTRUCTION SUMMARY

Project: SE. ROCKFORD Client: IEPA Well No: MW105B



DRILLING SUMMARY

Drilling Co: J. MATHES & ASSOC. Drillers: TIM CRANK

Drill Rig Make/Model: CME 75

Borehole Diameters: 8.25" Drilling Fluid: NA

Bits/Depths: 4.25" HSA down to 57 feet.

Total Depth: 57 ft. Depth to Water: ~5'

Supervisory Geologist: S. BHAGAT

WELL DESIGN

Casing Material: TYPE 304 STAINLESS STEEL Diameter: 2" Length: 46.5'

Screen Material: TYPE 304 STAINLESS Diameter: 2" Length: 10'

Slot Size: 0.010" Setting: 44'-54'

Filter Material: SILICA SAND (20-40 SIEVE) Setting: 42'-57'

Seals Material: SILICA SAND (100 SIEVE) Setting: 41'-42'

Grout: VOLCLAY Setting: 3'-41'

Surface Casing Material: 5.5" steel Setting: -2 to 3'; set in concrete

TIME LOG

	Started	Completed
Drilling:	7/27/91 @ 1015	7/27/91 @ 1122
Installation:	7/27/91 @ 1325	7/27/91 @ 1530
Development:	8/5/91 @ 1500	8/5/91 @ 1630

WELL DEVELOPMENT

Method: dual-line air lift

Static Depth to Water: 5'

Pumping Depth to Water: not measured

Pumping Rate: 300 gal/hr Specific Capacity: not measured

Volume Pumped: ~450 gal

NY-5

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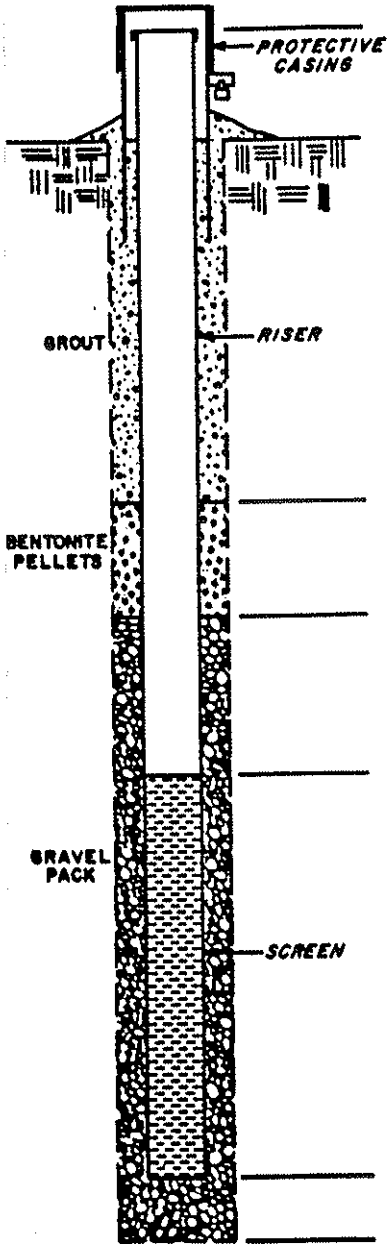
WELL CONSTRUCTION SUMMARY

Project: SE Rockford Client: IEPA Well No: MW 105C



DRILLING SUMMARY

Drilling Co: J. Mathes & Assoc. Drillers: Tim Crank

Drill Rig Make/Model: CME 75

Borehole Diameters: 8.25 in Drilling Fluid: NA

Bits/Depths: 4.25 in HSA down to 104 feet.

Total Depth: 104 ft. Depth to Water: ~5'

Supervisory Geologist: T. Carlson and S. Bhagat

WELL DESIGN

Casing Material: Type 304 Stainless Diameter: 2 inch Length: 87.5 feet

Screen Material: 304 Stainless Diameter: 2 inch Length: 10 feet

Slot Size: 0.010 in Setting: 85-95 ft.

Filter Material: Silica Sand (20-40 sieve) Setting: 82-95 ft.

Seals Material: Silica Sand (100 sieve) Setting: 81-82 ft.

Grout: Volclay Setting: Surface - 81 ft.

Surface Casing Material: 5.5" steel Setting: -2 to 3 feet

TIME LOG	Started	Completed
Drilling:	7/25/91 @ 1635	7/26/91 @ 1650
Installation:	7/26/91 @ 1745	7/27/91 @ 0930
Development:	8/5/91 @ 1330	8/5/91 @ 1500

WELL DEVELOPMENT

Method: dual-line air lift

Static Depth to Water: ~5'

Pumping Depth to Water: not measured

Pumping Rate: 300 gal/hr Specific Capacity: not measured

Volume Pumped: ~450 gal.

NY-5

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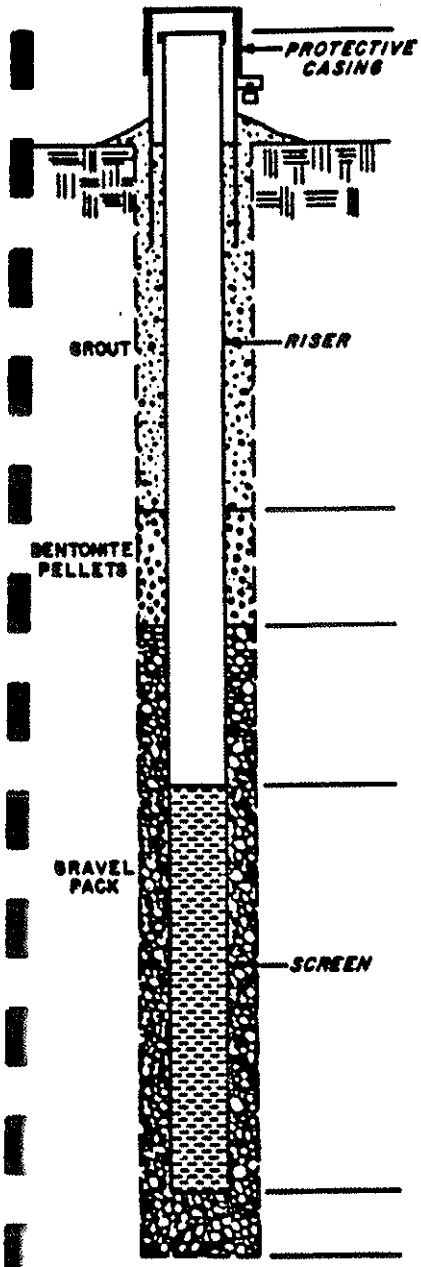
WELL CONSTRUCTION SUMMARY

Project: SE Rockford Client: IEPA Well No: MW105D



DRILLING SUMMARY

Drilling Co: Mathes Drillers: E Clark, J McMullan, Q Nowak

Drill Rig Make/Model: Gus Pech Brat 22R

Borehole Diameters: 0-139': 12"; 139-158': 6" Drilling Fluid: bentonite mud; r

Bits/Depths: 0-139': 12" tri-cone rotary; 139-158': 6" air hammer

Total Depth: 158' Depth to Water:

Supervisory Geologist: M Sorensen

WELL DESIGN

Casing Material: steel / type 304 stainless Diameter: 6" / 2" Length: 141' (set at 139' dep) / 149'

Screen Material: wire-wound stainless Diameter: 2" Length: 10'

Slot Size: 0.010" Setting: 146.8-156.8 (plug at bottom extends to 1. 8)

Filter Material: coarse sand / fine sand Setting: 145-158 / ~~144-145~~ 139-145 - M.S.

~~Seals Material~~: Volclay Setting: 2-139'

Grout: cement-bentonite Setting: 2-139' (only outside the 6" casing)

Surface Casing Material: 5.5" steel Setting: -3 to 2 (welded to 6" casing and set in concrete)

TIME LOG

	Started	Completed
Drilling:	8/21/91, 1640	8/24/91 @ 1110
Installation:	8/24/91 @ 1435	8/24/91 @ 1730
Development:	8/26/91 @ 1700	8/26/91 @ 1900

WELL DEVELOPMENT

Method: dual-line air lift

Static Depth to Water: ~8'

Pumping Depth to Water: unknown

Pumping Rate: 100 gal/hr Specific Capacity: unknown

Volume Pumped: ~180 gal

NY-5

Camp, Dresser & McKee, Inc. One Center Plaza, Boston, Massachusetts 02108

Soil Boring Log — Well Installation and Completion Data

Client IEPA Site Southeast Rockford Job No. 1681-3 Surveyed Elevation: Ground 803.70

Date Drilled 6/29-6/30/91 Well No. MW106A Boring Co. Mathes Top of Casing 805.71 Screen Length 10'

Total Depth 68' Boring Method Used Hollow-stem auger Piezometer Casing Size & Type 2" ty. 304 ss

Field Geologist R. Lautz Organic Vapor Instruments Used _____ Water Table Depth _____

Depth (feet)	Samp. No.	Blows per 6" ____ lbs.	Sample Interval	Adv./Recov.	Org. Vap. - PPM	Sample Description	Strata Change	Equipment Installed
								Depth of observed stratigraphic contact
		2/2/2/1	4-6	3"		orangish brn well-sorted medium sand	SP	
10		6/15/15/15	9-11	15"		Lt Orangish Tan fine to med sand (some cross-bedding) rare pebbles		
		20/[illegible]/67+	14-16	16"		Tan fine sandy silt till w. gravel, tightly packed, w. subangular lms pebbles	ML	
20		20/25/37/32	19-21			Tan Fe-stained fine to med sand w. thin silt laminae	SP-SM	▽ SWL = 18.4
		5/23/31/27	24-26	15"		Top 7": Tan med to coarse sand & Gravel; Bot. 8": Tightly packed silty sand & gravel w. abundant cobbles	SM	24.6'
30		8/25/22/18	29-31	17"		Tan poorly sorted coarse sand & Gravel w. Cobbles	SP-GP	
		6/12/17/19	34-36	14"		Dk gray coarse sand & gravel		
40		6/17/18/23	39-41	15"		Tan to brown med to coarse sand & Gravel		
		14/26/30/37	44-46	17"		Lt tan coarse sand & gravel; bottom 3" is moist brn silty till w/ gravel		45.5'
50		6/8/12/13	49-51	19"		Dk Gray moist plastic clayey silt w/ coarse sand & gravel grains	MH	
		6/14/29/16	54-56	21"		Dk gray plastic moist clayey silt w. gravel and 1 small sand seam		
		9/13/17/21	59-61	16"		Laminated Dk gray clay w thin silt strata		

Remarks: pg 1 of 2.

Camp, Dresser & McKee, Inc.
Soil Boring Log

200 W. Adams, Suite 1600 Chicago, Illinois 60606
Well Installation and Completion Data

Client _____ Site _____ Job No. _____ Surveyed Elevation: Ground _____

Date Drilled _____ Well No. MW106A Boring Co. _____ Top of Casing _____ Screen Length _____

Total Depth _____ Boring Method Used _____ Piezometer Casing Size & Type _____

Field Geologist _____ Organic Vapor Instruments Used _____ Water Table Depth _____

Depth (feet)	Samp. No.	Blows per 6' _____ lbs.	Sample Interval	Adv./ Recov.	Org. Vap. - PPM	Sample Description	Strata. Change	Equipment Installed
60		7/20/32/55	64'-66'	21"		Reddish brown, well sorted, med sand grading to poorly sorted coarse sand. Bottom 13" is tan silty till with gravel, pebbles, & local Fe-staining.	MH	
65							SP-SW	64.7'
							MH	
70						Drilling obstruction encountered at ~68' — Auger Refusal.		T.D. = 68'
						[see log of MW106B/C for description of 68-120.5' interval]		

Remarks: page 2 of 2.

Camp, Dresser & McKee, Inc. **200 W. Adams, Suite 1600 Chicago, Illinois 60606**

Soil Boring Log **Well Installation and Completion Data**

Client IEPA Site SE Rockford Job No. 1681-3 Surveyed Elevation: Ground MW106B: 803.59 MW106C: 803.3

Date Drilled 8/11-8/12 Well No. MW106 B & C Boring Co. Mathes Top of Casing B: 805.52 C: 805.40 Screen Length 10'

Total Depth 120.5 Boring Method Used Hollow-stem auger (unconsolidated) Air hammer (bedrock) Piezometer Casing Size & Type 2" type 304 stainless

Field Geologist M Sorensen Organic Vapor Instruments Used — Water Table Depth 20'

Depth (feet)	Samp. No.	Blows per 6' ____ lbs.	Sample Interval	Adv./ Recov.	Org. Vap. - PPM	Sample Description	Strata. Change	Equipment Installed
						See MW106A for log of 0-71'; log of 71'-76.5' given here is based on cuttings from MW106B; log of 76.5-120.5' based on MW106C cuttings.		
70								
72			71-76.5' [cuttings samples collected on the foot]			71-76.5': Fine to med.-crystalline limestone, lt yellow brown, somewhat sucrosic (i.e., with intergranular porosity); ~~brown~~ dk bn bentonite (containing yellow bn laminations & veinlets) constitutes 15% of cuttings at 72 & 73', 10% at 74', 5% at 75', <1% ~~below 75'~~ at 76' (sluffed below 73', most likely).	Limestone (lt yel bn)	dk bn bentonite
74								
76			76.5-80.5' [cuttings collected on the foot]			76.5-80.5': uniform pale yel bn limestone, finely crystalline, somewhat sucrosic, and w/ some rusty bn staining.		
78								
80								
82			80.5-90.5' [cuttings collected on the foot]			80.5-90.5': Limestone as in 76.5-80.5 interval, but with bentonite chips up to 7 mm wide, 15% at 81-83', 0-3% at 84-89', 20% at 90'. Tr chert at 84 & 86'.		dk bn bentonite
84								chert
86								

Remarks:

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BORING NUMBER: MW106 B/C

Log of Boring

Depth (feet)	Samp. No.	Blows per 6" lbs.	Sample Interval	Adv./ Recov.	Org. Vap. (PPM)	Sample Description	Strata Change	Remarks (Time of Day)
86							Lime-stone	
88								
90								dk bn bentonite
			90.5-100.5' [cuttings collected on the foot]			90.5-100.5': Limestone as in 76.5-80.5 interval, w/ bentonite comprising 15% of cuttings at 91', 2-4% at 92-94', rare elsewhere; zoned white to lt bn gray chips are partly silicified limestone & chert respectively, and constitute 35% of rock at 99', 5% at 100'.		
92								
94								
96								
98								chert
100			100.5-110.5' [cuttings samples collected on the foot]			100.5-110.5': Limestone as in 76.5-80.5' interval, but chert comprises 95% at 106', 25% at 108', 2% at 109'; soft, olive green shale is 0.5 to 1% at 106 to 110'; ~3% bentonite at 101', tr elsewhere. Rusty coatings on chert at 106'; tr ochre at 103 & 108'.		
102								
104								
106								olive gn shale; chert
108								chert; olive gn shale
110			110.5-120.5' [cuttings samples collected on the foot]			110.5-120.5': Limestone as in 76.5-80.5' zone, exc. that color is pale yel bn at 110.5-116' and then lt bn gray at 117-120'. 90% chert/ptly. sil. limestone at 112', 15% at 113'. The gray zones have dk gray films on many chips.		
112								chert
114							Lime-stone	
116							(lt yel bn)	color change
118							(lt bn gray)	
120.5								T.D. = 120.5'

NY-2

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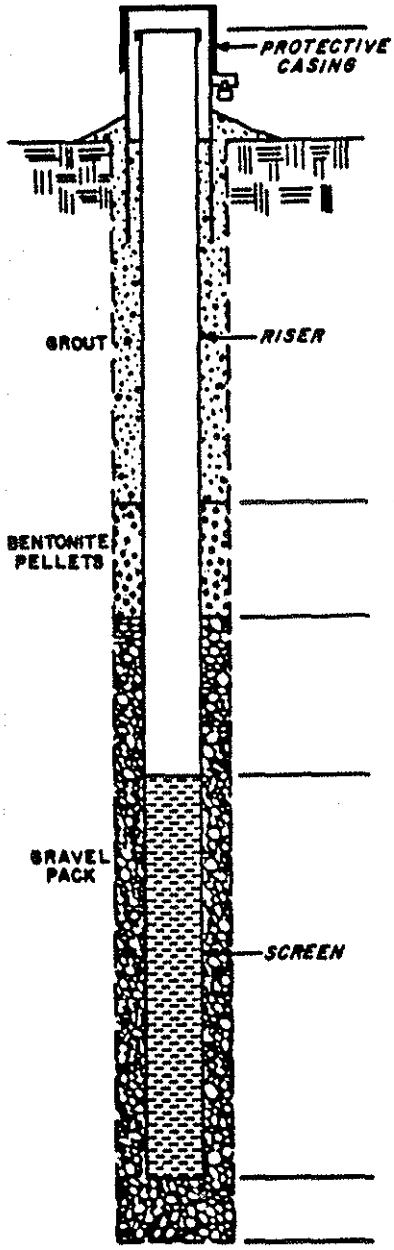
WELL CONSTRUCTION SUMMARY

Project: SE ROCKFORD Client: IEPA Well No: MW106A



DRILLING SUMMARY

Drilling Co: J. MATHES & ASSOC. Drillers: TIM CRANK

Drill Rig Make/Model: CME/75

Borehole Diameters: 8.25" Drilling Fluid: NA

Bits/Depths: 4.25" HSA down to 40.5'

Total Depth: 40.5' Depth to Water: ~20'

Supervisory Geologist: R. LANTZ

WELL DESIGN

Casing Material: 304 STAINLESS Diameter: 2" Length: 32.5'

Screen Material: 304 STAINLESS Diameter: 2" Length: 10'

Slot Size: 0.010" Setting: 30'-40'

Filter Material: SILICA SAND (20-40 SIEVE) Setting: 27'-40.5'

Seals Material: SILICA SAND (100 SIEVE) Setting: 26'-27'

Grout: VOLCLAY Setting: 0'-26'

Surface Casing Material: " steel Setting: -2 to 3' (set in concrete)

TIME LOG

	Started	Completed
Drilling:	6/29/91 @ 1710	6/30/91 @ 0830
Installation:	6/30/91 @ 0830	6/30/91 @ 1110
Development:	8/5/91 @ 1630	8/5/91 @ 1825

WELL DEVELOPMENT

Method: dual-line air lift

Static Depth to Water: ~20'

Pumping Depth to Water: not measured

Pumping Rate: 2.0 gpm Specific Capacity: not measured

Volume Pumped: 230 gal.

NY-5

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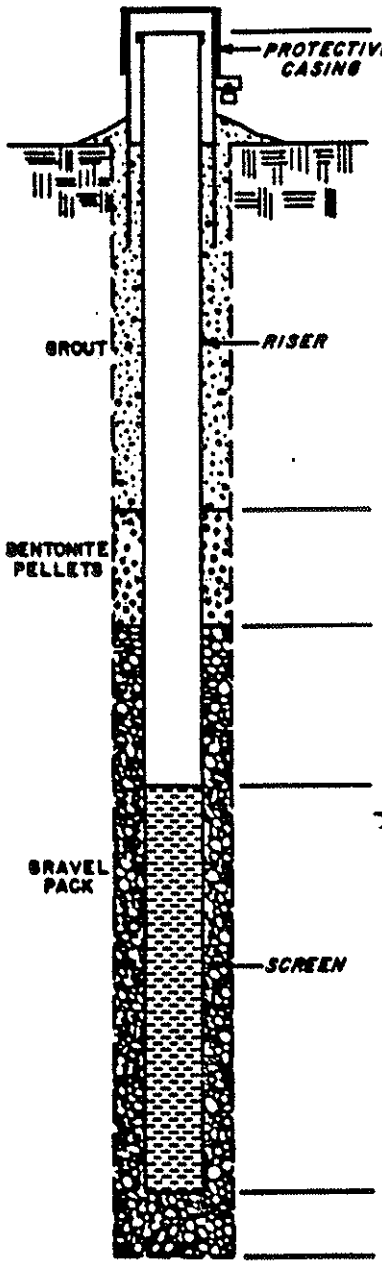
WELL CONSTRUCTION SUMMARY

Project: SE Rockford Client: IEPA Well No: MW106B



DRILLING SUMMARY

Drilling Co: Mathes Drillers: E Clark, J McMullan, Q Nowak

Drill Rig Make/Model: Gus Pech Brat 22R

Borehole Diameters: 0-67: 12" 67-71: 8" 71-88': 6" Drilling Fluid: 0-67': none (augered); 67-71: bentonite; 71- air

Bits/Depths: 0-67': 8¼ auger; 67-71': 8" tri-cone; 71-88': 6" air hammer

Total Depth: 88' Depth to Water: 25.68 (TIC)

Supervisory Geologist: M Sorensen

WELL DESIGN

Casing Material: 6" black pipe / type 304 stainless Diameter: 6" / 2" Length: 73' (-2 to 71') / 80'

Screen Material: " " Diameter: 2" Length: 10'7"

Slot Size: 0.010 Setting: 76.4-87.0' (incl. 0.6' plug @ bottom)

Filter Material: coarse sand / fine sand Setting: 75-88 / 74-75

~~Seal Material~~ cement-bentonite Setting: 3-71' (only outside 6" casing)

Grout: Volclay Setting: 3-74'

Surface Casing Material: 5.5" steel Setting: -3 to 2 (welded to 6" pipe and set in concrete)

TIME LOG

	Started	Completed
Drilling:	8-12-91 at 1330	8-12-91 at 1405
Installation:	8-12-91 at 1415	8/12/91 at 1630
Development:	8/26/91 at ~1300	8/26/91 at 1515

WELL DEVELOPMENT

Method: dual-line air lift

Static Depth to Water: ~24'

Pumping Depth to Water: unknown

Pumping Rate: 200 gal/hr Specific Capacity: unknown

Volume Pumped: ~300 gal

NY-5

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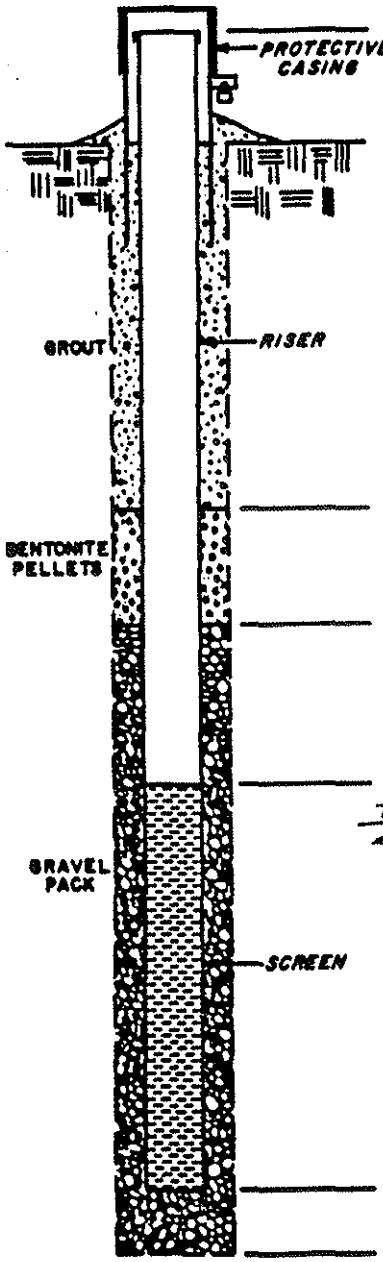
WELL CONSTRUCTION SUMMARY

Project: # SE Rockford Client: IEPA Well No: MW106C



DRILLING SUMMARY

Drilling Co: Mathes Drillers: E Clark, J McMullen, Q Nowa

Drill Rig Make/Model: Gus Pech Brat 22R

Borehole Diameters: 0-76.5': 12"; 76.5-120.5: 6" Drilling Fluid: 0-67: none (auger); 6 - 76.5: bentonite; 76.5-120.5: r.

Bits/Depths: 0-67': 8¼" auger; 67-76.5': 8" rotary; 76.5-120.5': air hammer

Total Depth: 120.5' Depth to Water: ~23'

Supervisory Geologist: M Sorensen

WELL DESIGN

Casing Material: blackpipe / type 304 stainless Diameter: 6" / 2" Length: 80' (set at 2' de) / 112'

Screen Material: " " Diameter: 2" Length: 10'7" (incl. pl)

Slot Size: 0.010 Setting: 109.4-120.0'

Filter Material: coarse sand / fine sand Setting: 107-120' / 106-107'

~~Seals Material:~~ cement-bentonite grout Setting: 3-78' (outside the 6" casing o)

Grout: Volclay Setting: 3-106'

Surface Casing Material: 5.5" steel Setting: -3 to 2' (welded to 6" casing and both set in concrete, 0 to 3')

TIME LOG

	Started	Completed
Drilling:	8/11/91 at 1540	8/11/91 at 1735
Installation:	8/12/91 at 0935	8/12/91 at 1145
Development:	8/26/91 at ~1300	8/26/91 at 1515

WELL DEVELOPMENT

Method: dual-line air lift

Static Depth to Water: ~23'

Pumping Depth to Water: unknown

Pumping Rate: 200 gal/hr. Specific Capacity: unknown

Volume Pumped: ~300 gal.

NY-5

Camp, Dresser & McKee, Inc. **200 W. Adams, Suite 1600 Chicago, Illinois 60606**

Soil Boring Log **Well Installation and Completion Data**

MW107A: 809.29
MW107B: 809.28

Client IEPA Site Southeast Rockford Job No. 1681-3 Surveyed Elevation: Ground MW107A: 808.86 B: 808.87

Date Drilled 7/11-7/13/91 Well No. MW107B/A Boring Co. Mathes Top of Casing Screen Length 10'

Total Depth 71' Boring Method Used Hollow-stem auger Piezometer Casing Size & Type 2" type 304 ss

Field Geologist RLautz, MRys Organic Vapor Instruments Used Water Table Depth 17'

Depth (feet)	Samp. No.	Blows per 6' ____ lbs.	Sample Interval	Adv./ Recov.	Org. Vap. - PPM	Sample Description	Strata. Change	Equipment Installed
5		4/4/6/7	4'-6'	10"		Black silty to med sandy clay with oranglish tan sand seam.		
10							ML-SM	
15		5/12/19/16	14'-16'	20"		Tan silty med-sand with abundant gravel.		
20		10/20/22/20	19'-21'	22"		Tan sandy silt w/abundant fine to med angular gravel. Bottom 2" is gray silty clay w/abundant gravel.		
25		5/16/20/16	24'-26'	18"		Top 3" is gray silty clay. Middle 3" is beige sandy silt w/gravel. Bottom 12" is coarse angular sandy gravel.		24.5'
30		8/20/18/24	29'-31'	20"		Beige, med to coarse sand & sandy gravel.	SP	
35		22/30/37/43	34'-36'	24"		Interbedded med to coarse subang. sand, mostly well sorted. Bottom 10" is cobbles + gravel in fine sand + silt matrix.		
40		15/28/37/37	39'-41'	22"		Poorly sorted med to coarse sand. Lower 12" has abund. cobbles + gravel.		
45		28/28/21/17	44'-46'	16"		Med to coarse gravel & cobbles	SP-GP	
50		2/3/15/16	49'-51'	24"		Top 10": Tight sandy clay with pebbles. Mid 2": Brown silty sand. Bottom 5": Fine to coarse cobbles.		~46'
55		21/24/26/21	54'-56'	90%		Top 4": Sandy clay with pebbles. Bottom 18": Coarse cobbles & some coarse sand; some Fe staining (top & bottom).	ML-SM	54.3'
60		16/30/26/28	59'-61'	90%		Coarse sand and pebbles.	SP-GP	

Remarks: Page 1 of 2.

Camp, Dresser & McKee, Inc. **200 W. Adams, Suite 1600 Chicago, Illinois 60606**

Soil Boring Log **Well Installation and Completion Data**

Client _____ Site _____ Job No. _____ Surveyed Elevation: Ground _____

Date Drilled _____ Well No. MW107B/A Boring Co. _____ Top of Casing _____ Screen Length _____

Total Depth _____ Boring Method Used _____ Piezometer Casing Size & Type _____

Field Geologist _____ Organic Vapor Instruments Used _____ Water Table Depth _____

Depth (feet)	Samp. No.	Blows per 6' _____ lbs.	Sample Interval	Adv./ Recov.	Org. Vap. - PPM	Sample Description	Strata. Change	Equipment Installed
						Fine to coarse pebbles.		
65		24/36/26/12	64'-66'	75%			GP	
						Sandy clay w/small pebble.		67'
70		7/4/22/30	69'-71'	18"			ML	
						Note: Samples from 74 to 91' were collected from the auger-drilled portion of MW107C.		
75		11/22/33/50	74-76'	23"	b.g.	Dk bn to rd bn sandy silt w/ 5% grans & pebbs		
80		13/28/36/32	79-81'	23"	b.g.	Dk bn sandy silt w/~5% pebbs		
85		17/21/28/31	84-86'	23"	b.g.	Dk bn clayey silt w/ ~10% pebbs		
90		12/20/27/55	89-91	22.5"	b.g.	Top 6": Dk bn clayey silt w/~10% pebbs Bottom 16.5": gray sandy clay w/ ~5% pebbs	ML	
						[see log of MW107C for depths greater than 91']		

Remarks: Page 2 of 2.

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Soil Boring Log — Well Installation and Completion Data

Client IEPA Site SE Rockford Job No. 1681-3 Surveyed Elevation: Ground 809.16

Date Drilled 7/28/91-7/31/91 (for 91-142') Well No. MW107C Boring Co. Mathes Top of Casing 808.70 Screen Length 10'8"

Total Depth 142' Boring Method Used Mud rotary (91-126'); air rotary (126-142') Piezometer Casing Size & Type 2" stainless 34

Field Geologist M Sorensen Organic Vapor Instruments Used OVA Water Table Depth ~10.8' in unconsolida aquifer

Depth (feet)	Samp. No.	Blows per 6" ____ lbs.	Sample Interval	Adv./ Recov.	Org. Vap. - PPM	Sample Description	Strata. Change	Equipment Installed
			(Split spoon)					
						[see MW107B log for description of 0 to 91-foot interval of depth]		
90								
						91-98': Cuttings show ~40% buff limestone chips & fragments, ~50% sand & granules (multilithologic), and ~10% till, incl. bn sandy silt & gray clayey silt.	GM-SM?	
95								
		N.A.	98-100'	12/5"	b.g.	98-98.4': Fine SAND (SW) with ~20% subrounded pebbs (fine to coarse) and ~15% silt or clay. Mod yel bn to orange bn. Also contains 2 buff limestone chips > 2" diameter.	SM	
100								
							GM-SM?	
105						98-108: Cuttings same as 91-98' interval.		
		N.A.	108-110'	24/18"	b.g.	108-108.2': Sandy clay, tan, plastic, w/ ~15% fine pebbs	SM	CL
110						108.2-109.5': Silty sand, mod tan-bn exc for 2 zones 3 & 5" thick of orange bn. Contains ~25-30% silt/clay & ~10% granules & pebbs. Sand is vfine to med., mainly fine; SM. Saturated.		
115						108-115': Cuttings are same as 91-98' interval.		

Remarks:

page 1 of 2

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BORING NUMBER: MW107C

Log of Boring

Depth (feet)	Samp. No.	Blows per 6" lbs.	Sample Interval	Adv./ Recov.	Org. Vap. (PPM)	Sample Description	Strata Change	Remarks (Time of Day)
115						115-120': Cuttings are same as 91-98' interval	SM?	
120			120-126' [bedrock cuttings collected on the		samples foot]	120-126': Cuttings are buff limestone & white to bn-gray chert/chalk chips, with small proportions (quickly decreasing to 5%) subrounded gravel (greenstone, qtz & jasper) and bn & gy silt/clay	Limestone; chert (local) @ 120-126'	
125			126-131' [bedrock cuttings collected on the		samples foot]	126-131': Buff limestone, v fn to med xln, comm sucrosic texture & w/ local small vugs; a few Fe-stained surfaces, mainly at 126', where color overall is yel bn.	buff; lt gray	126-131' produces water at ~30 gpm; tan color
130			131-137' [bedrock cuttings collected on the		samples foot]	131-137': Lt gray (131-134') to buff (135') to lt buffish gray (136 & 137') limestone that is fine-med xln, comm sucrosic & has loc sm vugs. At 134' are ~½ mm laminations of black carbonac. material interbdd w/ the limestone.	dk gy laminae	131-137' drills slowly, produces milky gray water at ~30 gpm
135			137-142' [Bedrock cuttings collected on the		samples foot]		Limestone	T.D. = 142'
140		Lithologic sample @ 140'						
145						137-142': Lt gy limestone as above, exc. laminae are wavy, dk gy & up to 1mm; some dk bn films on a few chips; at 142' color is a mod bluish gy; at 141 & 142' are tr yel bn chips; dk gy laminae mainly at 138-140' (~5% of cuttings).		137-142' drills slowly & produces milky gray water at ~40 gpm
						Note: No shale or bentonite		

NY-2

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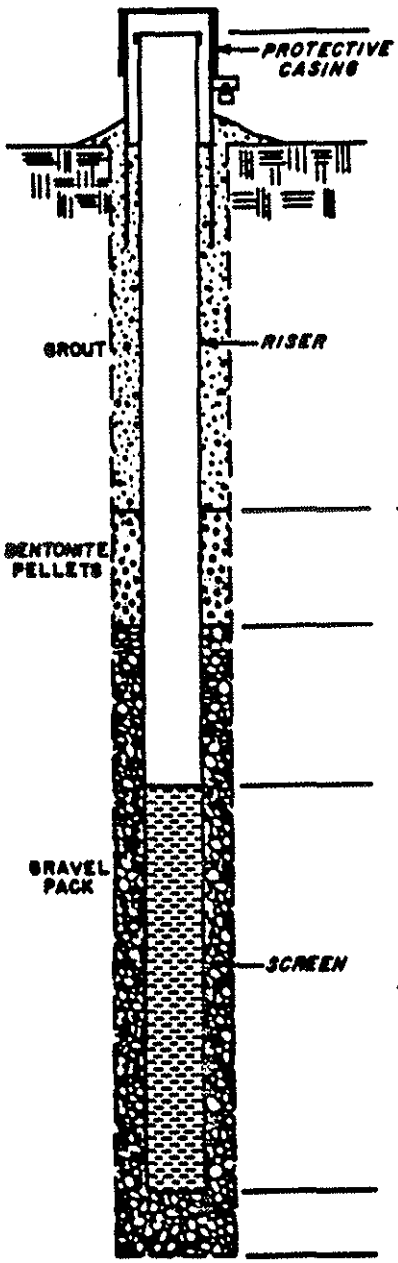
WELL CONSTRUCTION SUMMARY

Project: SE ROCKFORD Client: IEPA Well No: MW107A



DRILLING SUMMARY

Drilling Co: J. MATHES & ASSOC. Drillers: T. CRANK

Drill Rig Make/Model: CME 75

Borehole Diameters: 8.25" Drilling Fluid: NA

Bits/Depths: 4.25" HSA

Total Depth: 38.5' Depth to Water: 15'

Supervisory Geologist: S. BHAGAT

WELL DESIGN

Casing Material: 304 STAINLESS Diameter: 2" Length: ~30.5'

Screen Material: 304 STAINLESS Diameter: 2" Length: 10'

Slot Size: 0.010" Setting: 28'-38'

Filter Material: SILICA SAND (20-40 and 100 SIEVE) Setting: 24'-38.5'

Seals Material: Setting:

Grout: VOLCLAY ; CONCRETE Setting: 1'-24' ; 0-1'

Surface Casing Material: none (flush mounted) Setting:

TIME LOG

	Started	Completed
Drilling:	7/14/91 @ 0935	7/14/91 @ 1010
Installation:	7/14/91 @ 1025	7/14/91 @ 1340
Development:	8/6/91 @ 1530	8/6/91 @ 1830

WELL DEVELOPMENT

Method: dual-line air lift

Static Depth to Water: 15'

Pumping Depth to Water: not measured

Pumping Rate: 0.5 gpm Specific Capacity: not measured

Volume Pumped: 90 gal

NY-5

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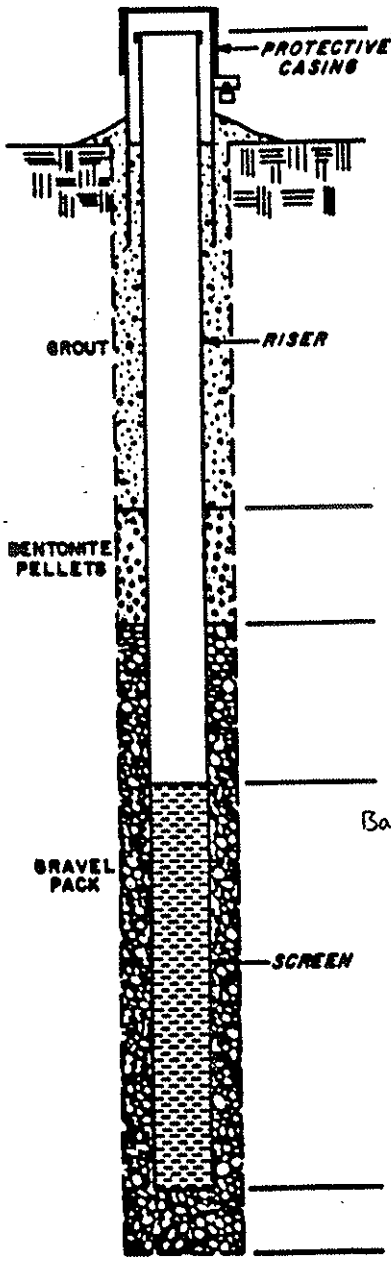
WELL CONSTRUCTION SUMMARY

Project: SE ROCKFORD Client: IEPA Well No: MW 107B



DRILLING SUMMARY

Drilling Co: J. MATHES & ASSOC. Drillers: TIM CRANE

Drill Rig Make/Model: CME 75

Borehole Diameters: 8.25" Drilling Fluid: NA

Bits/Depths: 4.25" HSA down to 69'

Total Depth: 69' Depth to Water: ~12' during drilling

Supervisory Geologist: R. E. LANTZ, M. G. RYS.

WELL DESIGN

Casing Material: 304 STAINLESS Diameter: 2" Length: ~58.5'

Screen Material: 304 STAINLESS Diameter: 2" Length: 10'

Slot Size: 0.010" Setting: 56'-66'

Filter Material: SILICA SAND (20-40 and 100 SIEVE) Setting: 53'-66.5'

Backfill Material: BENTONITE CHIPS Setting: 66.5'-69'

Grout: VOLCLAY Setting: 0'-53'

Surface Casing Material: none (flush-mounted) Setting:

TIME LOG

NOTE: No drilling occurred 7/12/91 — rig down.

	Started	Completed
Drilling:	7/11/91 @ 1515	7/13/91 @ 1328
Installation:	7/13/91 @ 1456	7/13/91 @ 1721
Development:	8/6/91 @ 1530	8/6/91 @ 1745

WELL DEVELOPMENT

Method: dual-line air lift

Static Depth to Water: 12'

Pumping Depth to Water: not measured

Pumping Rate: 2.5 gpm Specific Capacity: not measured

Volume Pumped: 338 gal

NY-5

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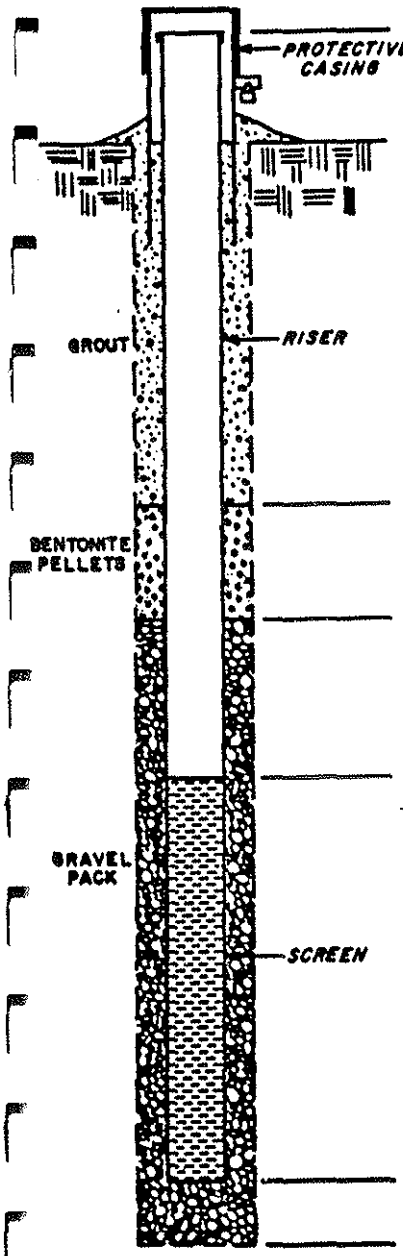
WELL CONSTRUCTION SUMMARY

Project: SE Rockford Client: IEPA Well No: MW107C



DRILLING SUMMARY

Drilling Co: Mathes Drillers: E Clark, Q Nowak, J Crank

Drill Rig Make/Model: Gus Pech / Brat 22R

Borehole Diameters: 0-126': 12"; 126-142': 6" Drilling Fluid: 0-126': bentonite mud; 126-142': air

Bits/Depths: 0-126': 12" tri-cone rotary; 126-142': air hammer

Total Depth: 142' Depth to Water: 16.7'

Supervisory Geologist: M Sorensen

WELL DESIGN

Casing Material: black pipe (outer casing) type 304 stainless Diameter: 6" / 2" Length: 125.5' / 130'

Screen Material: wire-wound ty. 304 Diameter: 2" Length: 10'

Slot Size: 0.010" Setting: 130'5" - 141'1" (incl. 8" plug @ bottom)

Filter Material: coarse sand, fine sand Setting: 129-142', 128-129'

~~Seals Material:~~ Volclay grout Setting: 3-128'

Grout: cement-bentonite Setting: 3-125.5 (only outside the 6" casing)

Surface Casing Material: 5.5" steel Setting: welded onto 6" casing, which extends from 0.5' to 126'.

TIME LOG	Started	Completed
Drilling:	7/24/91 @ 1610	7/31/91, 0745
Installation:	7/31/91, 0800	7/31/91, 1100
Development:	8/6/91 @ 1745	8/6/91, 1945

WELL DEVELOPMENT

Method: air lift & surge

Static Depth to Water: 16.7'

Pumping Depth to Water: unknown

Pumping Rate: 2.5 gpm Specific Capacity: unknown

Volume Pumped: 300 gal.

NY-5

Camp, Dresser & McKee, Inc. **200 W. Adams, Suite 1600 Chicago, Illinois 60606**

Soil Boring Log **Well Installation and Completion Data**

MW108A: 823.06
MW108B: 823.00

Client IEPA Site SE Rockford Job No. 1681-3 Surveyed Elevation: Ground A

MW108A: 825.16
B: 824.90

Date Drilled 7/14-7/15/91 Well No. MW108B/A Boring Co. Mathes Top of Casing A Screen Length 10'

Total Depth 66' Boring Method Used Hollow-stem auger Piezometer Casing Size & Type 2" type 304 ss

Field Geologist S Bhagat Organic Vapor Instruments Used _____ Water Table Depth ~27'

Depth (feet)	Samp. No.	Blows per 6' _____ lbs.	Sample Interval	Adv./ Recov.	Org. Vap. - PPM	Sample Description	Strata. Change	Equipment Installed
20		8/18/30/32	19'-21'	19"		Top 13": Tan, well sorted, med to fine sand. Bottom 6": Reddish brown med sand with pebbles. Dry.	SP	
30		22/26/29/30	29'-31'	20"		Brown/tan, coarse sand & gravel. Gravel dominant in bottom 8". Moist.	CL	(26-29': clayey zone identified in gamma log)
35		10/20/20/21	34'-36'	18"		Brown/tan, med to coarse sand and gravel. Saturated.	SP-GP	
40		16/30/30/50	39'-41'	24"		Brown, coarse sand + gravel.		
45		15/28/22/26	44'-46'	19"	BG	Brown, med to coarse sand and gravel. Gravel common in top 13".		
50		3/10/14/19	49'-51'	14"	BG	Brown, coarse sand and gravel		
55		12/17/18/18	54'-56'	17"	BG	Brown, coarse sand and gravel	SP-GP	
60		14/23/32/32	59'-61'	18"	BG	Tan/brown, med to coarse sand and gravel, mostly in bottom 14".		
65		16/16/18/26	64'-66'	12"	BG	Dark gray silty till with gravel.	ML	T.D. (MW-108B) = 66'
70						[See log of MW108C for description of 66-137' interval]		

Remarks: Top 17' at location MW108 is fill material. Therefore, first split-spoon was taken 19'-21'. Fill is mostly dk brwn/black, clayey, fine sand to silt.

ımp, Dresser & McKee, Inc. One Center Plaza, Boston, Massachusetts 02108

Soil Boring Log

Well Installation and Completion Data

Client IEPA Site SE Rockford Job No. 1681-3 Surveyed Elevation: Ground 827.88

Date Drilled 7/24-7/26/91 Well No. MW108C Boring Co. Mathes Top of Casing 824.93 Screen Length 10'8 1/4

Total Depth 137' Boring Method Used Mud rotary (0-119.5'), air rotary (119.5-137') Piezometer Casing Size & Type 2" type 304 stai's.

Field Geologist M Sorensen Organic Vapor Instruments Used OVA Water Table Depth ~26.5

Depth (feet)	Samp. No.	Blows per 6" ____ lbs.	Sample Interval	Adv./ Recov.	Org. Vap. - PPM	Sample Description	Strata. Change	~~Equipment Installed~~ Drilling Notes
						Note: see MW108B/A log for details regarding depths of 0-66 feet.		
66							ML	
							GM?	Much gravel in cuttings
70							CL	gray silty clay in cuttings
80							GM?	Many gray limestone & black shale pebbles in cuttings
	—	N.A.	87-89'	18"/2"	b.g.	87-87.2': Sandy gravelly clay, mod. gray & loc. grayish white, containing several lg. limestone chunks	CL-GM	
90								
	—	N.A.	97-99'	12"/6"	b.g.	97-97.5': Sand & gvl; sand is fine to coarse; gvl is subang. to rounded pebbs & cobbles of limestone, qtz/jasper, shale, & granite	SP-GM?	Subrounded gravel w/ ~20% gray silty till in cuttings
100								
						106.5-110': hard drilling accompanied by an increase in lt gray to white limest. chips	Limestone boulder?	
110						110-117' cuttings show mixed gravel (subrdd.) & limest. chips	GP	
	—	N.A.	117-119'	2"/1"		117-117.1': buff sandy limestone chips	Limestone boulder?	

Remarks:

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BORING NUMBER: MW108C

Log of Boring

Depth (feet)	Samp. No.	Blows per 6" lbs.	Sample Interval	Adv./ Recov.	Org. Vap. (PPM)	Sample Description	Strata Change	Remarks (Time of Day)
120							GP	6" casing set @ 119.2'
			122-131' [bedrock cuttings collected on the foot]			122-131' cuttings: Limestone/dolomite, buff, med. to v fine crystalline, sucrosic in texture; loc. echino frag's & brach molds. Remainder of cuttings consist of compound frags of chalky white limestone, loc. ptly silic'd., that sometimes grade to a bluish-gray zone; and in fewer cases, grade further to brownish-gray chert w/ forams or other fossil frags comm visible. These compound chips comprise trace to none at 122-125', 5% at 126', 128 & 129', & 15% at 127', 130 & 131'; the chips themselves are more cherty at 130-131 than above (~50% chert cf. ~~5% cht)	Lime-stone (buff)	122-131' interval produces much water (~100 gpm) that is milky brown to tan; produces most water @ 122' & 130'
130			131-137' [bedrock cuttings collected on the foot]				chert	T.D. = 137'
140						131-137': Buff, sucrosic limestone/dol'ite as above. Note also that the fossils in the compound chalk/chert chips are preferent. silic'd. Propor. of compd chalk/chert chips: 20% at 132'; 5% 133'; 30% 134'; 15% 135'; 5% 136'; 30% 137'. Note: No bentonite or shale observed		131-137' zone produces ≥100 gpm water that is milky & slightly tan.

NY-c

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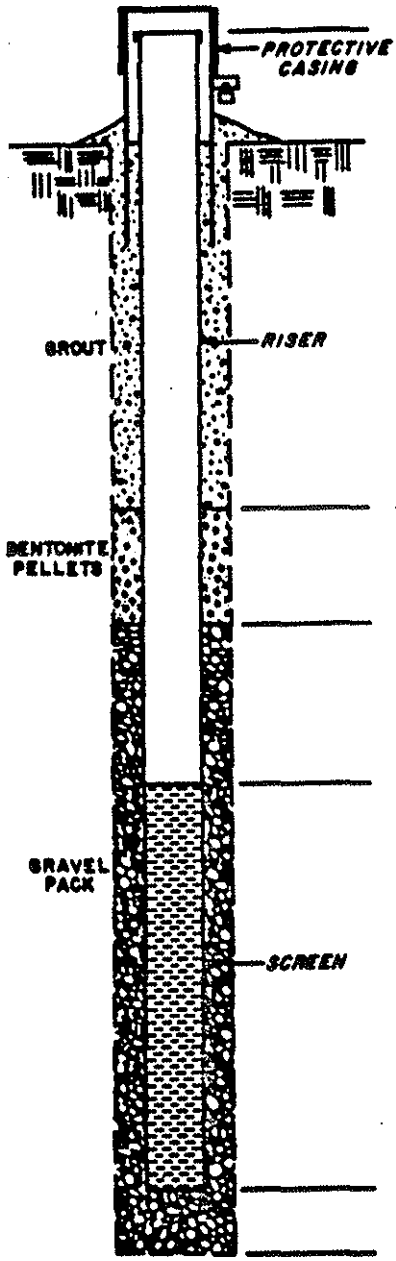
WELL CONSTRUCTION SUMMARY

Project: SE ROCKFORD Client: IEPA Well No: MW108A



DRILLING SUMMARY

Drilling Co: J. MATHES & ASSOC. Drillers: TIM CRANK

Drill Rig Make/Model: CME 75

Borehole Diameters: 8.25" Drilling Fluid: NA

Bits/Depths: 4.25" HSA to 40'

Total Depth: 40' Depth to Water: ~28'

Supervisory Geologist: S. BHAGAT

WELL DESIGN

Casing Material: 304 STAINLESS Diameter: 2" Length: ~31.5'

Screen Material: 304 STAINLESS Diameter: 2" Length: 10'

Slot Size: 0.010" Setting: 29'-39'

Filter Material: SILICA SAND Setting: 26'-27' (100 SIEVE); 27'-40' (20-40 SIEVE)

Seals Material: Setting:

Grout: VOLCLAY Setting: 2'-26'

Surface Casing Material: 5.5" steel Setting: ~2 to 3'; set in concrete (0-2')

TIME LOG

	Started	Completed
Drilling:	7/15/91 @ 1425	7/15/91 @ 1452
Installation:	7/15/91 @ 1510	7/15/91 @ 1730
Development:	8/6/91 @ 1000	8/6/91 @ 1400

WELL DEVELOPMENT

Method: dual-line air lift

Static Depth to Water: ~28'

Pumping Depth to Water: not measured

Pumping Rate: 0.3 gpm Specific Capacity: not measured

Volume Pumped: 75 gal

NY-5

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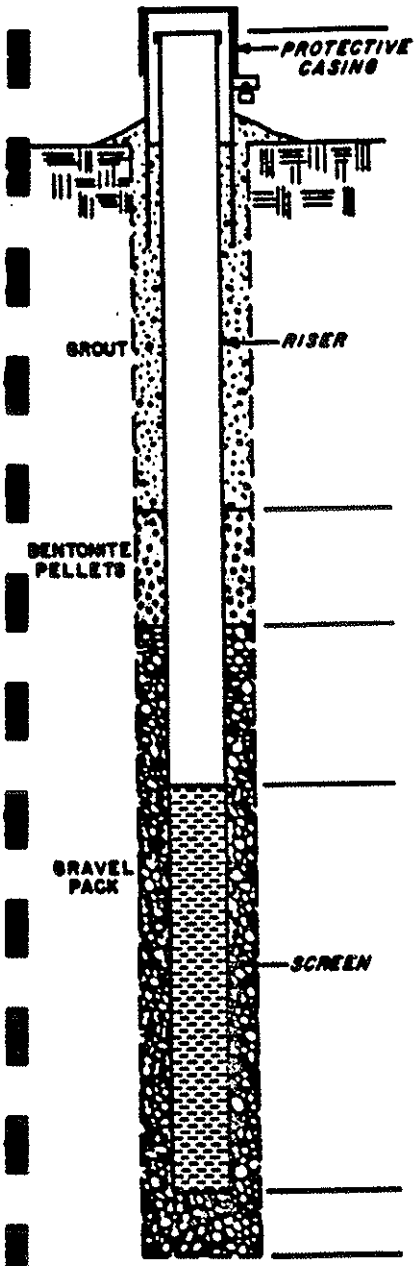
WELL CONSTRUCTION SUMMARY

Project: SE ROCKFORD Client: IEPA Well No: MW108B



DRILLING SUMMARY

Drilling Co: J. MATHES & ASSOC. Drillers: TIM CRANK

Drill Rig Make/Model: CME 75

Borehole Diameters: 8.25" Drilling Fluid: NA

Bits/Depths: 4.25" HSA to 64'

Total Depth: 64' Depth to Water: ~28'

Supervisory Geologist: S. BHAGAT

WELL DESIGN

Casing Material: 304 STAINLESS Diameter: 2" Length: ~53.5'

Screen Material: 304 STAINLESS Diameter: 2" Length: 10'

Slot Size: 0.010" Setting: 51'-61'

Filter Material: SILICA SAND Setting: 47'-49' (100 SIEVE); 49'-62' (20-40 SIEVE)

Seals Material: BENTONITE CHIPS Setting: 62'-64'

Grout: VOLCLAY Setting: 2'-47'

Surface Casing Material: 5.5" steel Setting: -2 to ~3'; set in concrete (0-3')

TIME LOG

	Started	Completed
Drilling:	7/14/91 @ 1515	7/15/91 @ 1015
Installation:	7/15/91 @ 1120	7/15/91 @ 1330
Development:	8/6/91 @ 0730	8/6/91 @ 1230

WELL DEVELOPMENT

Method: dual-line air lift

Static Depth to Water: ~28'

Pumping Depth to Water: not measured

Pumping Rate: 2.5 gpm Specific Capacity: not measured

Volume Pumped: 750 gal

NY-5

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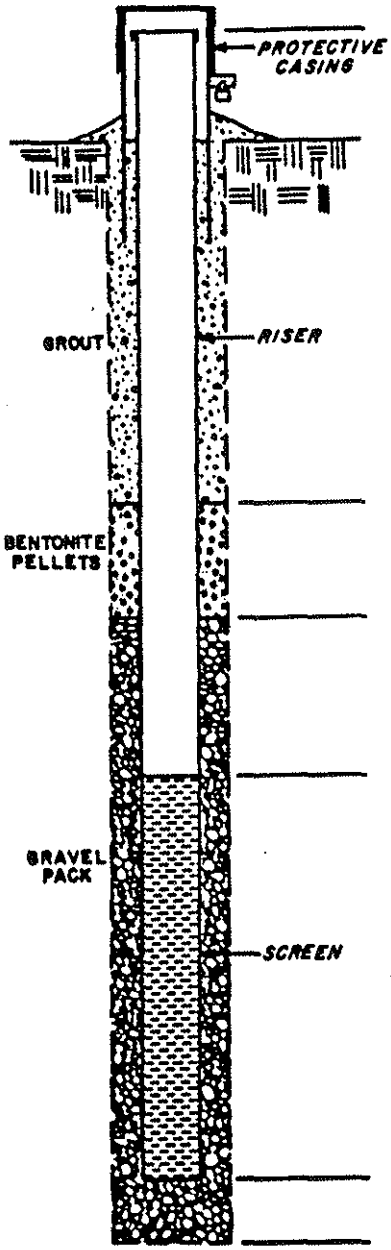
WELL CONSTRUCTION SUMMARY

Project: SE Rockford Client: IEPA Well No: MW108C



DRILLING SUMMARY

Drilling Co: Mathes Drillers: E Clark, G Nowak, J Crack

Drill Rig Make/Model: Gus Pech Brat 22R

Borehole Diameters: 0-7': 16"; 7-119.5': 12"; 119.5-137': 6" Drilling Fluid: 0-119.5': bentonite; 119.5-137': air

Bits/Depths: 0-119.5': 12" rotary; 119.5-137': 6" air hammer

Total Depth: 137' Depth to Water: ~26.5'

Supervisory Geologist: M Sorensen

WELL DESIGN

Casing Material: black pipe / type 304 stainless Diameter: 6" / 2" Length: 121.5' (set at 119.5) / 126'

Screen Material: " " Diameter: 2" Length: 10'

Slot Size: 0.010" Setting: 124.3 - 134.3'

Filter Material: coarse sand / fine sand Setting: 124-135' / 122-124'

Seals Material: Setting:

Grout: Volclay; cement-bentonite Setting: 3-122'; 3-119.5' (c-b grout is outside casing only)

Surface Casing Material: 5.5" steel Setting: -3 to 2; welded to 6" pipe and set in concrete (0-3')

TIME LOG	Started	Completed
Drilling:	7/24/91 @ 1310	7/26/91 @ 1530
Installation:	7/26/91 @ 1630	7/27/91 @ 1510
Development:	8/6/91 @ 0730	8/6/91 @ 1000

WELL DEVELOPMENT

Method: dual-line air lift

Static Depth to Water: ~26.5'

Pumping Depth to Water: unknown

Pumping Rate: 5 gpm Specific Capacity: unknown

Volume Pumped: 700 gal

NY-5

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oil Boring Log — Well Installation and Completion Data

ent IEPA Site SE ROCKFORD Job No. 1681 Surveyed Elevation: Ground 848.68'

Date Drilled 6/28/91 Well No. MW109A Boring Co. J. MATHES Top of Casing 850.89' Screen Length 10'

Total Depth 32.5' Boring Method Used 4.25" HSA Piezometer Casing Size & Type 2" STAINLESS

ld Geologist R. LANTZ Organic Vapor Instruments Used HNu Water Table Depth 25.2'

Depth (feet)	Samp. No.	Blows per 6" ____ lbs.	Sample Interval	Adv./ Recov.	Org. Vap. - PPM	Sample Description	Strata. Change	Equipment Installed
5		2/2/2/3	4'-6'	16"	0	Reddish brown sandy clay w/pebbles	CL	
10		6/12/18/32	9'-11'	—	0.5	Tan, fine to med sand w/subang. pebbles		
15		20/67/97+	14'-16'	14"		Tan, sandy gravel w/cobbles	SP-GP	
20		22/75+	19'-21'	8"	0	Brown silty clay till w/gravel.		
25		44/105	24'-26'	10"		Brown sandy clay till with fine gravel and fine to med sand w/clay and gravel.	CL-SP (mixed)	▽ 25.2'
30		26/100+	29'-31'	10"	0	Tan/brown, fine to med sand & sandy clay. Lower 6": Fe-stained, tan dolomite gravel.		
								32.5' Auger refusal
						[see log of MW109 B/C for description of 40-86' interval]		

emarks:

Camp, Dresser & McKee, Inc.
Soil Boring Log

200 W. Adams, Suite 1600 Chicago, Illinois 60606
Well Installation and Completion Data

Client IEPA Site Southeast Rockford Job No. 1681-3 Surveyed Elevation: Ground MW109B: 848.51 C: 848.3

Date Drilled 7/22-7/23/91 Well No. MW109B/C Boring Co. Mathes Top of Casing MW109B: 850.47 C: 850.47 Screen Length 10'

Total Depth 86' Boring Method Used {Hollow-stem auger (surface to bedrock) Air rotary (bedrock interval) Piezometer Casing Size & Type 2" type 304 ss

Field Geologist S. Bhagat Organic Vapor Instruments Used none (air drilling) Water Table Depth ~28'

Depth (feet)	Samp. No.	Blows per 6' ____ lbs.	Sample Interval	Adv./ Recov.	Org. Vap. - PPM	Sample Description	Strata. Change	Equipment Installed
						See log of MW109A for description of 0-40' interval.		
40			40-50' samples of bedrock collected on the foot			40-50': Limestone, tan, exc. @ 42' (tan to bn) and 43-44' (lt bn to bn); soft drilling at 42-43' prob. corresponds to more fractured zone (cuttings finer); bn bentonitic clay is 50% of cuttings at 43', 40% at 44', 15% at 45', 10% at 46 & 47', trace at 48-50'.	Limestone (tan) (tan-bn) (lt bn-bn) (tan)	more-fractured zone; bn clay
44								
48								
52			51-60' samples of bedrock collected on the foot			51-60': Tan limestone with ~15% bn clay exc. @ 59 & 60', where it is trace; color tan exc. @ 58' (brownish tan) & @ 59 & 60' (yellowish tan)	Limestone (tan)	bn clay
56								

Remarks:

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BORING NUMBER: MW109 B/C

Log of Boring

Depth (feet)	Samp. No.	Blows per 6" lbs.	Sample Interval	Adv./ Recov.	Org. Vap. (PPM)	Sample Description	Strata Change	Remarks (Time of Day)
56							(tan) (bn tan)	bn clay
60			61-70' cuttings of bedrock collected on the foot			61-70': Limestone; color grades from a yellowish tan (61-63') to creamy gray (64') to lt gray (65') to mod gray (66-70'). Bn clay tr to absent.	(yel tan) (creamy gray) (lt gray) (gray)	
64								
68							Lime-stone	
72			71-80' cuttings of bedrock collected on the foot			71-80': Limestone; mod gray exc. at 80' (yellowish gray); also, cuttings are smaller at 80'		
76								
80			81-86' cuttings of bedrock collected on the foot			81-86': Limestone, mod gray; ~10% is silicified (white to vitreous gray) at 82' and 5% at 84'	(gray) (yel gray) (gray)	more-fractured zone
84							Lime-stone	silicification
86								T.D. = 86'

NY-2

Camp, Dresser & McKee, Inc. **200 W. Adams, Suite 1600 Chicago, Illinois 60606**

Soil Boring Log **Well Installation and Completion Data**

Client IEPA Site SE ROCKFORD Job No. 1681-3 Surveyed Elevation: Ground 844.16'

Date Drilled 7/16-7/17/91 Well No. MW 110A Boring Co. Mathes Top of Casing 846.65' Screen Length 10'

Total Depth 43' Boring Method Used Hollow-stem auger Piezometer Casing Size & Type 2" type 304 ss

Field Geologist S. Bhagat Organic Vapor Instruments Used _____ Water Table Depth ~30'

Depth (feet)	Samp. No.	Blows per 6" lbs.	Sample Interval	Adv./ Recov.	Org. Vap. - PPM	Sample Description	Strata. Change	Equipment Installed
5		1/2/2/1	4'-6'	7"	BG	Reddish brown, well sorted, med to coarse sand.	SP	
10								
15		5/13/14/20	14'-16'	15"	BG	Top 14": Reddish brown, med sand and gravel. Bottom 1": tan/brown, coarse sand and gravel		
20								
25		10/19/25/30	24'-26'	19"	BG	Tan, poor to mod sorted, coarse sand with common gravel. Bottom 3" is reddish brown and slightly moist.		
30								
35		40/57 (4")	34'-36'	18"	BG	Top 8" is blow in. Bottom 10" is brown sand with some gravel, esp. in bottom 5". Moist.	SP	
40		8/25/25/34	39'-41'	16"	BG	Tan sand & gravel. Sand is coarse and poorly sorted. Gravel is mostly limestone and angular.	SP-GP	
45		spoon refusal 25/34/50/2.5"	43'-45'	12"	BG	Tan/reddish brown, poorly sorted coarse sand & gravel. Gravel is mostly Fe-oxide stained limestone. Bottom 3" is mostly dark reddish brown-stained limestone.		44'
						[see log of MW110 B/C for description of 45-115' interval]		

Remarks: Both auger refusal (4.25") and spoon refusal occurred at ~43'.

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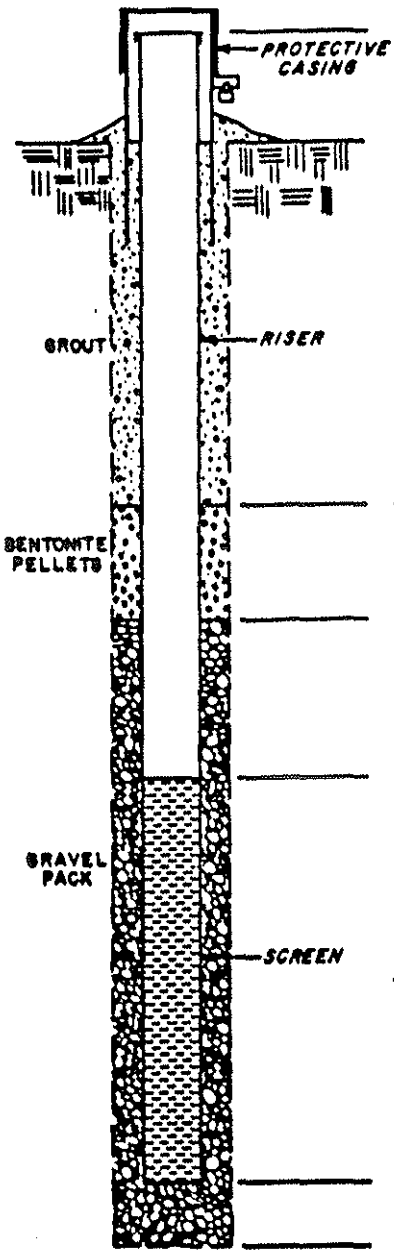
WELL CONSTRUCTION SUMMARY

Project: SE ROCKFORD Client: IEPA Well No: MW109A



DRILLING SUMMARY

Drilling Co: J. MATHES & ASSOC. Drillers: TIM CRANK

Drill Rig Make/Model: CME 75

Borehole Diameters: 8.25" Drilling Fluid: NA

Bits/Depths: 4.25" HSA

Total Depth: 32.5' Depth to Water: ~25'

Supervisory Geologist: R. LANTZ

WELL DESIGN

Casing Material: 304 STAINLESS Diameter: 2" Length: ~25'

Screen Material: 304 STAINLESS Diameter: 2" Length: 10'

Slot Size: 0.010" Setting: 22'-32'

Filter Material: SILICA SAND Setting: 20'-32.5' (20-40 SIEVE); 19'-20' (100 SIEVE)

Seals Material: Setting:

Grout: VOLCLAY Setting: 2'-19'

Surface Casing Material: 5.5" steel Setting: -2 to 3; set in concrete (0-2')

TIME LOG	Started	Completed
Drilling:	6/28/91 @ 1125	6/28/91 @ 1355
Installation:	6/28/91 @ 1500	6/28/91 @ 1720
Development:	7/30/91 @ 1630	7/30/91 @ 1800

WELL DEVELOPMENT

Method: DUAL LINE AIR LIFT.

Static Depth to Water: 25'

Pumping Depth to Water: not measured

Pumping Rate: 1.3 GPM Specific Capacity: not measured

Volume Pumped: 113 gal.

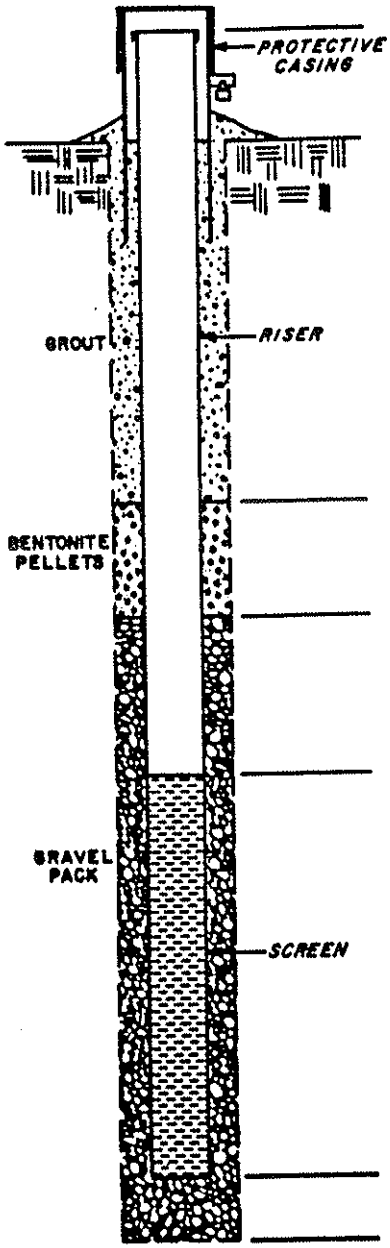
NY-5

CDM

environmental engineers, scientists, planners & management consultants

WELL CONSTRUCTION SUMMARY

Project: SE Rockford Client: IEPA Well No: MW109B



DRILLING SUMMARY

Drilling Co: J. Matites & Assoc. Drillers: Ed Clark, Tim Crank.

Drill Rig Make/Model: CME 75 (0'-39.5')

Borehole Diameters: 12" from 0-39.5'; 6" below Drilling Fluid: MUD (30'-39.5') AIR (39.5'-61')

Bits/Depths: 0-39.5': 8 1/4" auger; 39.5-61': 6" air hammer

Total Depth: 61' Depth to Water: ~28'

Supervisory Geologist: R. Lantz, S. Bhagat

WELL DESIGN

Casing Material: black pipe / 304 Stainless Diameter: 6" / 2" Length: 41.5' / ~53'

Screen Material: 304 Stainless Diameter: 2" Length: 10'

Slot Size: 0.010" Setting: 50'-60'

Filter Material: Silica Sand (20-40 sieve) Setting: 48'-61'

Seals Material: Silica Sand (100 sieve) Setting: 47'-48'

Grout: Volclay; cement-bentonite Setting: 2-47'; 2-39.5' (outside 6" casing only)

Surface Casing Material: 5.5" steel Setting: -2 to 3'; welded to 6" casing and set in concrete (0-2')

TIME LOG

	Started	Completed
Drilling:	7/23/91 @ 1115	7/23/91 @ 1420
Installation:	7/23/91 @ 1450	7/23/91 @ 1800
Development:	7/30/91 @ 1330	7/30/91 @ 1600

WELL DEVELOPMENT

Method: dual-line air lift

Static Depth to Water: ~28'

Pumping Depth to Water: not measured

Pumping Rate: 0.6 GPM Specific Capacity: not measured

Volume Pumped: 94 gal

NY-5

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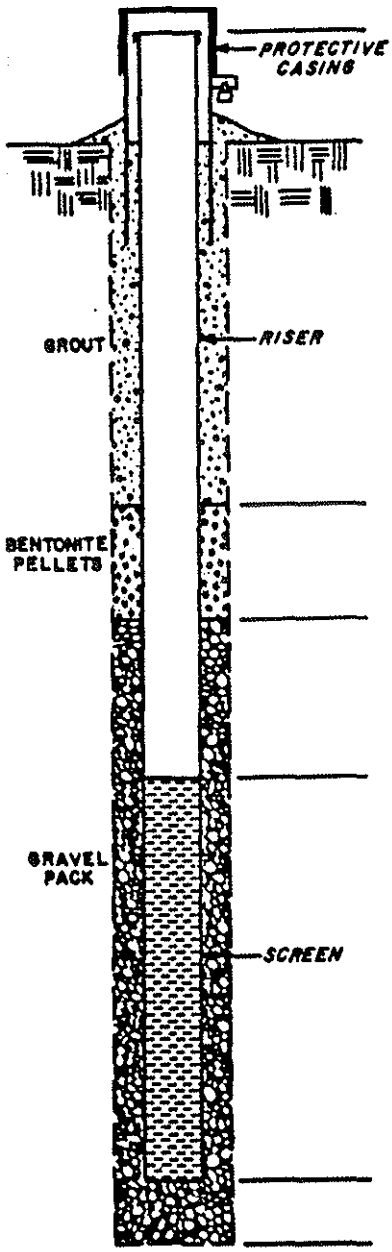
WELL CONSTRUCTION SUMMARY

Project: SE Rockford Client: IEPA Well No: MW109C



DRILLING SUMMARY

Drilling Co: J. MATHES ASSOC. Drillers: ED CLARK, T. CRANK

Drill Rig Make/Model: CME 75 (0'-39'); GUS PECH BRAT 22R (39'-86')

Borehole Diameters: 12.25" (0'-30'); 8" (30'-39'); 6" (39'-86') Drilling Fluid: MUD (30'-39') AIR (39'-86')

Bits/Depths: 8.25" hollow-stem auger (0-30'); 8" tri-cone; 6" air hammer

Total Depth: 86 ft. Depth to Water: ~28'

Supervisory Geologist: S. BHAGAT, R. LANTZ

WELL DESIGN

Casing Material: black pipe / 304 STAINLESS Diameter: 6 in. / 2 in. Length: ~41 ft. / ~78 ft

Screen Material: 304 STAINLESS Diameter: 2 in. Length: 10 ft.

Slot Size: 0.010" Setting: 75'-85'

Filter Material: SILICA SAND (20-40 SIEVE) Setting: 73'-86'

Seals Material: SILICA SAND (100 SIEVE) Setting: 72'-73'

Grout: Volclay; cement-bentonite Setting: 2-72'; 2-39' (outside 6" casing only)

Surface Casing Material: 5.5" steel Setting: -2 to 3'; welded to 6" casing and set in concrete (0-2')

TIME LOG	Started	Completed
Drilling:	7/22/91 @ 1330	7/22/91 @ 1630
Installation:	7/22/91 @ 1645	7/23/91 @ 0910
Development:	7/30/91 @ 1630	7/30/91 @ 1800

WELL DEVELOPMENT

Method: dual-line air lift

Static Depth to Water: ~28'

Pumping Depth to Water: not measured

Pumping Rate: 0.8 GPM Specific Capacity: not measured

Volume Pumped: 75 gal

NY-5

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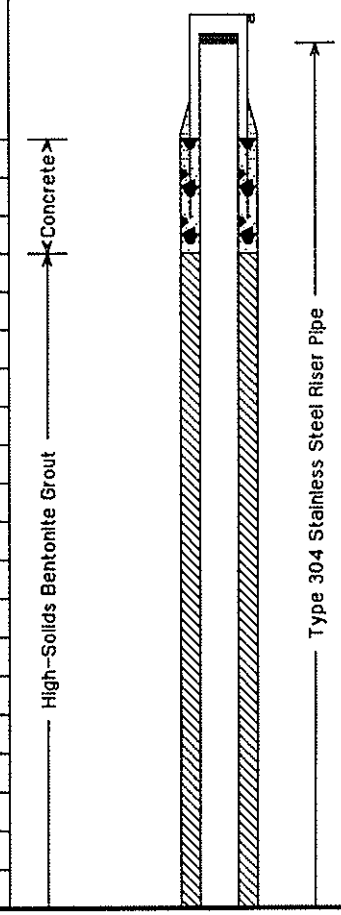
233 South Wacker Drive, Suite 450
Chicago, Illinois 60606-5306

MONITORING WELL DETAIL
MW-109D

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Mud Rotary/Diedrich 50
Development Method: Air lift using nitrogen, & surge block
Top of Riser Elevation: 850.65 Ft.
Total Depth: 44 Ft.
Field Screening Instrument: HNU
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 07-27-93 End 07-28-93
Drillers: Rick O' Gorman, Mark Thorson
Development Date: Start 10-05-93 End 10-05-93
Surface Elevation: 848.0 Ft.
Depth To Initial Water Level (GS): 22 Ft.
Well Coordinates:
N: 2026849.601 E: 2604568.541

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. / DEPTH	WELL CONSTRUCTION DETAIL
				Note: See Phase I well logs MW-109A & MW-109B for geologic log for this location.		848 / 0	
						843 / 5	
						838 / 10	
						833 / 15	



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 - 1.6" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample

OTHER:
BGS - Below Ground Surface

CAMP DRESSER & McKEE

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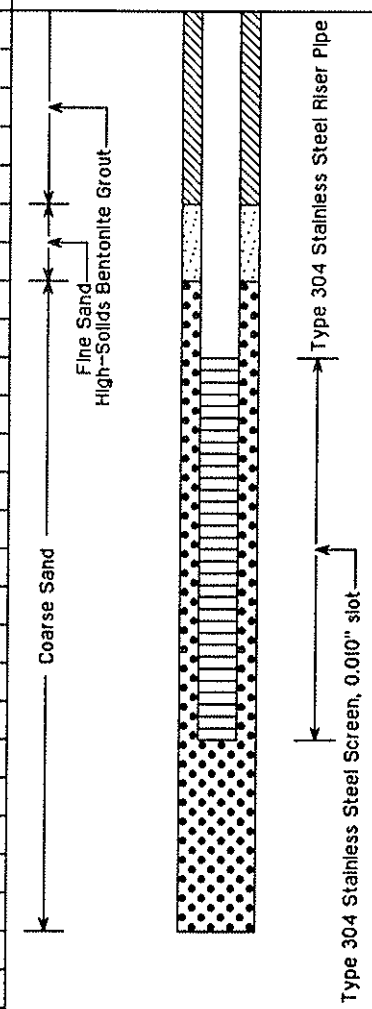
233 South Wacker Drive, Suite 450
Chicago, Illinois 60606-5306

MONITORING WELL DETAIL

MW-109D

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. / DEPTH	WELL CONSTRUCTION DETAIL
						823 / 25	
						818 / 30	
						813 / 35	
						808 / 40	
				Bottom of Boring at 44 feet.		803 / 45	
						798 / 50	
						793 / 55	



Camp, Dresser & McKee, Inc. **200 W. Adams, Suite 1600 Chicago, Illinois 60606**

Soil Boring Log **Well Installation and Completion Data**

Client IEPA Site SE ROCKFORD Job No. 1681-3 Surveyed Elevation: Ground 844.16'

Date Drilled 7/16-7/17/91 Well No. MW 110A Boring Co. Mathes Top of Casing 846.65' Screen Length 10'

Total Depth 43' Boring Method Used Hollow-stem auger Piezometer Casing Size & Type 2" type 304 ss

Field Geologist S. Bhagat Organic Vapor Instruments Used _____ Water Table Depth ~30'

Depth (feet)	Samp. No.	Blows per 6" _____ lbs.	Sample Interval	Adv./ Recov.	Org. Vap. - PPM	Sample Description	Strata. Change	Equipment Installed
5		1/2/2/1	4'-6'	7"	BG	Reddish brown, well sorted, med to coarse sand.	SP	
10								
15		5/13/14/20	14'-16'	15"	BG	Top 14": Reddish brown, med sand and gravel. Bottom 1": tan/brown, coarse sand and gravel		
20								
25		10/19/25/30	24'-26'	19"	BG	Tan, poor to mod sorted, coarse sand with common gravel. Bottom 3" is reddish brown and slightly moist.		
30								
35		40/57 (4")	34'-36'	18"	BG	Top 8" is blowin. Bottom 10" is brown sand with some gravel, esp. in bottom 5". Moist.	SP	
40		8/25/25/34	39'-41'	16"	BG	Tan sand & gravel. Sand is coarse and poorly sorted. Gravel is mostly limestone and angular.	SP-GP	
45		spoon refusal 25/34/50/2.5"	43'-45'	12"	BG	Tan/reddish brown, poorly sorted coarse sand + gravel. Gravel is mostly Fe-oxide stained limestone. Bottom 3" is mostly dark reddish brown-stained limestone.		44'
						[see log of MW110B/C for description of 45-115' interval]		

Remarks: Both auger refusal (4.25") and spoon refusal occurred at ~43'.

Camp, Dresser & McKee, Inc.
Soil Boring Log

200 W. Adams, Suite 1600 Chicago, Illinois 60606
Well Installation and Completion Data

MW110B: 844.0
C: 844.18

Client IEPA Site SE Rockford Job No. 1681-3 Surveyed Elevation: Ground _____
MW110B: 846.18
Date Drilled 8/19-8/21/91 Well No. MW110C and B Boring Co. Mathes Top of Casing C: 846.24 Screen Length 10'

Total Depth 115' Boring Method Used mud & air rotary Piezometer Casing Size & Type 2" stainless steel

Field Geologist M Sorensen Organic Vapor Instruments Used — Water Table Depth ~30'

Note: For depths of 0 to 44', see log for MW110A

Depth (feet)	Samp. No.	Blows per 6' _____ lbs.	Sample Interval	Adv./ Recov.	Org. Vap. - PPM	Sample Description	Strata. Change	Equipment Installed
						Note: All descriptions are based on cuttings from mud rotary (44-80) and air rotary (80-115); see log of MW110A for log of 0-44 ft.		
44						44 to 46': zone with limestone boulders or cobbles	GP	
						46 to ~57': coarse to medium gravel, tough-drilling.		
48								
52								
56							GP	
						57 to 74.5': gravel and sand; gravel is medium to fine	GW	
60								
64								

Remarks:

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BORING NUMBER: MW110C

Log of Boring

Depth (feet)	Samp. No.	Blows per 6" lbs.	Sample Interval	Adv./ Recov.	Org. Vap. (PPM)	Sample Description	Strata Change	Remarks (Time of Day)
96						92', and tr chert/pt. silic. limestone at 101'. Few scattered coral & bryo fossils.	lt-mod gray	
							#	bryozoans (scattered)
							yel bn	
100						101 to 111': Limestone as above w/ rare chert and fossils; color is yel bn.		chert
104								
108								
						111-115': Limestone as above, but color is yel bn at 114 & 115', gray at 113', and mixed yel bn & gray at 112'; rare chert; some rusty stains at 115'.		
112							gray	
							yel bn	
								T.D.
116						Note: Drillhole produced water at 5 to 10 gpm throughout zone drilled by air rotary (80-115')		

NY-2

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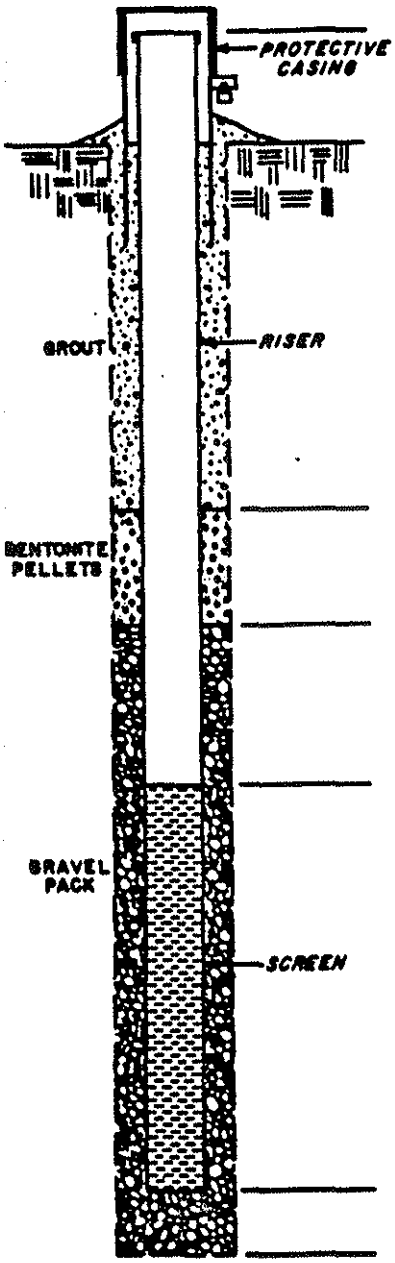
WELL CONSTRUCTION SUMMARY

Project: SE Rockford Client: IEPA Well No: MW110A



DRILLING SUMMARY

Drilling Co: J. Mathes & Assoc. Drillers: Tim Crank

Drill Rig Make/Model: CME 75

Borehole Diameters: 8.25" Drilling Fluid: NA

Bits/Depths: 4.25" HSA down to 43'

Total Depth: 43' Depth to Water: ~26.5' during drilling

Supervisory Geologist: S. Bitagat

WELL DESIGN

Casing Material: 304 Stainless Diameter: 2" Length: 32.5'

Screen Material: 304 Stainless Diameter: 2" Length: 10'

Slot Size: 0.010" Setting: 30'-40'

Filter Material: Silica Sand (20-40 sieve) Setting: 28'-43'

Seals Material: Silica Sand (100 sieve) Setting: 27'-28'

Grout: Volclay Setting: 2'-27'

Surface Casing Material: 5.5" steel Setting: -2 to 3'; set in concrete

TIME LOG

	Started	Completed
Drilling:	7/16/91 @ 1650	7/17/91 @ 0848
Installation:	7/17/91 @ 0940	7/17/91 @ 1125
Development:	7/27/91 @ 1130	7/27/91 @ 1400

WELL DEVELOPMENT

Method: dual-line air lift

Static Depth to Water: ~26.5'

Pumping Depth to Water: not measured

Pumping Rate: not measured Specific Capacity: not measured

Volume Pumped: not measured

NY-5

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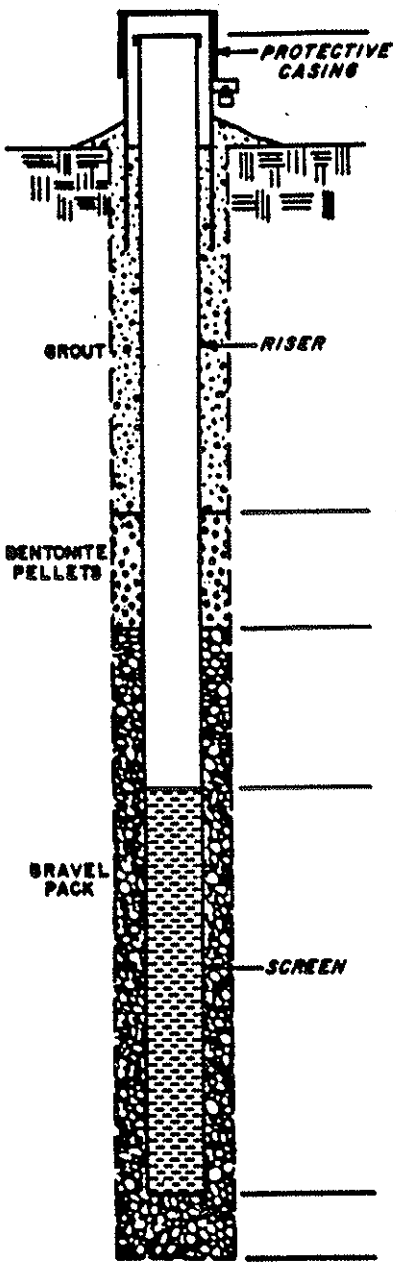
WELL CONSTRUCTION SUMMARY

Project: SE Rockford Client: IEPA Well No: MW110B



DRILLING SUMMARY

Drilling Co: Mathes Drillers: E Clark, J McMullan, Q Nowak

Drill Rig Make/Model: Gus Pech Brat 22R

Borehole Diameters: 0-46.5': 12"; 46.5-76.5': 6" Drilling Fluid: 0-46.5': none (auger); 46.5-76.5': bentonite mud

Bits/Depths: 0-46.5': 8 1/4" auger; 46.5-76.5': 5 7/8" tricone rotary

Total Depth: 76.5' Depth to Water: ~35'

Supervisory Geologist: M Sorensen

WELL DESIGN

Casing Material: type 304 stainless Diameter: 2" Length: 64'

Screen Material: wire-wound stainless Diameter: 2" Length: 10'

Slot Size: 0.010" Setting: 61.3 - 71.3' (bottom cap is 0.7')

Filter Material: coarse sand / fine sand Setting: 59-72 / 58-59

Seals Material: Setting:

Grout: Volclay Setting: 3 - 58'

Surface Casing Material: 5.5" steel Setting: -2.5 to 2.5'; set in concrete (~0 to 2')

TIME LOG	Started	Completed
Drilling:	7/23/91, 1300	8/13/91, 1710
Installation:	8/13/91, 1800	8/14/91, 1055
Development:		

WELL DEVELOPMENT

Method: dual-line air lift

Static Depth to Water: ~35'

Pumping Depth to Water: not measured

Pumping Rate: Specific Capacity: not measured

Volume Pumped:

NY-5

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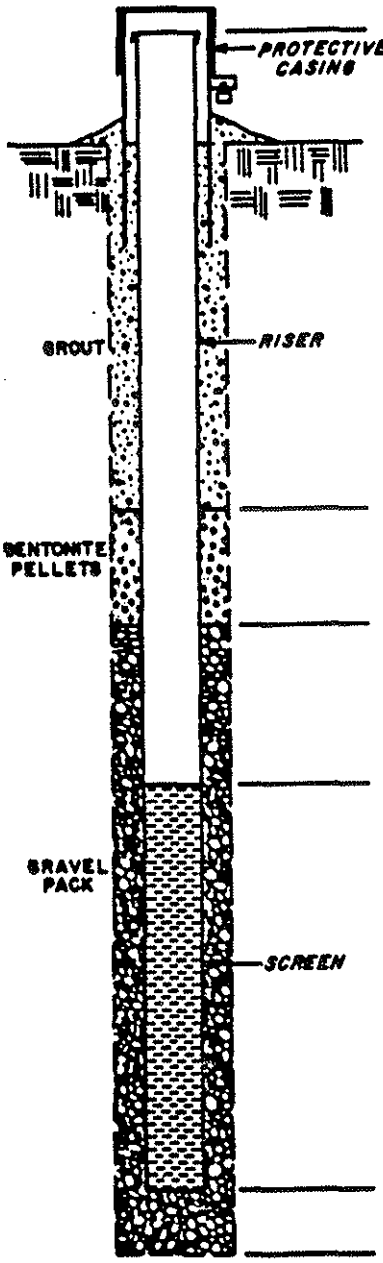
WELL CONSTRUCTION SUMMARY

Project: SE Rockford Client: IEPA Well No: MW110C



DRILLING SUMMARY

Drilling Co: Mathes Drillers: E Clark, Q Nowak, J McMullen

Drill Rig Make/Model: Gus Pech Brat 22R

Borehole Diameters: 0-80': 12" 80-115': 6" Drilling Fluid: bentonite mud: 0-80 air: 80-115'

Bits/Depths: 0-80': 12" tri-cone rotary; 80-115': 6" air hammer

Total Depth: 115' Depth to Water: ~35'

Supervisory Geologist: M Sorensen

WELL DESIGN

Casing Material: blackpipe / type 304 stainless Diameter: 6" / 2" Length: 82' (-2 to 80) / 104'

Screen Material: wire-wound stainless Diameter: 2" Length: 10'

Slot Size: 0.010" Setting: 101.4 - 111.4 (the 7" bottom plug rests at 112')

Filter Material: coarse sand Setting: 99-115

~~Seal~~ Material: fine sand Setting: 98-99

Grout: cement-bentonite (outside 6" casing) Volclay Setting: ~2-80 (outside the 6" casing only) ~2-98

Surface Casing Material: 5.5" steel Setting: 3 to -2 (welded to 6" pipe and set in concrete, 0-2')

TIME LOG

	Started	Completed
Drilling:	8/19/91, 1125	8/21/91, 0955
Installation:	8/21/91, 1020	8/21/91, 1435
Development:		

WELL DEVELOPMENT

Method: dual-line air lift

Static Depth to Water: ~35'

Pumping Depth to Water: unknown

Pumping Rate: Specific Capacity: unknown

Volume Pumped:

NY-5

Camp, Dresser & McKee, Inc. One Center Plaza, Boston, Massachusetts 02108

Soil Boring Log

Well Installation and Completion Data

MW111A: 830.7'
B: 830.1

Client IEPA Site Southeast Rockford Job No. 1681-3 Surveyed Elevation: Ground ↑

Date Drilled 6/25-6/27/91 Well No. MW111A/B Boring Co. Mathes Top of Casing MW111A: 832.84 B: 832.44 Screen Length 10'

Total Depth 59' Boring Method Used Hollow-stem auger Piezometer Casing Size & Type 2"

Field Geologist R. Lautz Organic Vapor Instruments Used _____ Water Table Depth ~20'

Depth (feet)	Samp. No.	Blows per 6" _____ lbs.	Sample Interval	Adv./ Recov.	Org. Vap. - PPM	Sample Description	Strata. Change	Equipment Installed
		5/6/5/4	1'-3'	10"		DK. brown silty soil.		
5		2/2/3/5	4'-6'	10"		Reddish brown, moist silty clay w/gravel.	CL	
10		6/12/20/21	9'-11'	16"	0	Brown/tan sandy clay till with gravel		
15		20/52/62/66	14'-16'	20"	0	Brown sandy clay till with gravel.		
20		19/18/18/21	19'-21'	18"	0.25	Top 7": Brown sandy clay till w/pebbles. Bottom 11": Tan, well-sorted, fine to med. sand with 4" mixed sand + clay.	CL	~19.6'
25		for 5" 7/27/79/75	24'-26'	24"		Top 14": Orangish tan, well sorted, med sand w/4" gravel zone. Bottom 10": Orangish tan sandy clay till w/pebbles.	SP-ML (mixed)	
30		16/31/35/34	29'-31'	24"	0	Orangish tan, well sorted med sand and silt and pebbly silt.		
35		-/29/29/23	34'-36'	22"	0	Tan, med to coarse sand and silty sand with gravel.	SP-SM	
40		9/30/40/54	39'-41'	24"	0	Tan, poorly sorted, med to coarse sand and lt tan pebbly silt	SP-ML	
45		6/18/22/40	44'-46'	22"	0	Orangish tan, interbedded med sand and fine silty sand		
50		for 3" 14/50/50	49'-51'	16"	0	Mixed sand and gravel.	SP-SM	
55		(1 foot only) 65/100	54'-56'	12"	0	Tan, med. to coarse silty sand & gravel.		
60		10/40/62	59'-61'	18"		Brown/tan, silt, sand and gravel	ML-SM	

E.O.B. = 60.5'

Remarks: Auger refusal at ~59'.

[see log of MW111C for description of 60-99' interval]

Camp, Dresser & McKee, Inc. **200 W. Adams, Suite 1600 Chicago, Illinois 60606**

Soil Boring Log **Well Installation and Completion Data**

Client IEPA Site SE Rockford Job No. 1681-3 Surveyed Elevation: Ground 830.65

Date Drilled 8/9-8/10/91 Well No. MW 111C Boring Co. Mathes Top of Casing 833.26 Screen Length 10'

Total Depth 99' Boring Method Used Mud rotary 0-65.5' Air rotary 65.5-99' Piezometer Casing Size & Type 2" stainless 30'

Field Geologist M Sorensen Organic Vapor Instruments Used OVA Water Table Depth 20.3' (8/26)

swl (bedrock) = 22.70 (8/10/01)

Depth (feet)	Samp. No.	Blows per 6' N.A. lbs.	Sample Interval	Adv./ Recov.	Org. Vap. - PPM	Sample Description	Strata. Change	~~Equipment Installed~~ Remarks
						[see MW 111B log for description of 0 to 60 feet]		
60						(0 to 65.5' drilled by mud rotary) 60-65.5' cuttings show ~80% buff limestone, 10% white chert/part. silicified limestone, ~10% jasper/rhyolite & granules and mafic pebbles. The latter are comm. rounded, while the limestone & chert are mainly angular chips.	Limestone, buff	SP/SM
64								65.5-99' drilled by air rotary
68								chert
72						65.5-71.0': Buff limestone, vfine-grained, sucrosic in part, a few small vugs; ~10% throughout of zoned chips of chert (lt bn gray) - part. silicified limestone (white). A few exotic subrdd pebbs (mafic & grout).		
76								

Remarks:

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environmental engineers, scientists, planners & management consultants

BORING NUMBER: MW 111C

Log of Boring

Depth (feet)	Samp. No.	Blows per 6" lbs.	Sample Interval	Adv./ Recov.	Org. Vap. (PPM)	Sample Description	Strata Change	Remarks (Time of Day)
76						71-81': V. fine to fine-grained limestone, yellow brown (71-79') to buffish gray (80-81'); rare chert; quite sucrosic throughout; from 76-80', ~10% of chips have rusty coatings.	(yellow brown) (buffish gray)	rusty coatings
80						81-91': V. fine to medium-grained limestone, buffish gray (81-85' and 87-91') and buff (at 86'-ie, yel bn). Fairly sucrosic & with a few micro-vugs. At 85' are ~15% zoned chert - part. silic. limest. (lt bn gray - white)	(buff)	chert/partly silicified limestone
84								
88								
92						91-99': Limestone as above, but color is buffish gray at 92', buff at 93-96', and grayish buff at 97-99'. Trace bn shale 94-99'; tr echinoderm & brachiopod casts/molds	(buffish gray) (buff)	
96							(grayish buff)	tr bn shale
100								T.D. = 99'

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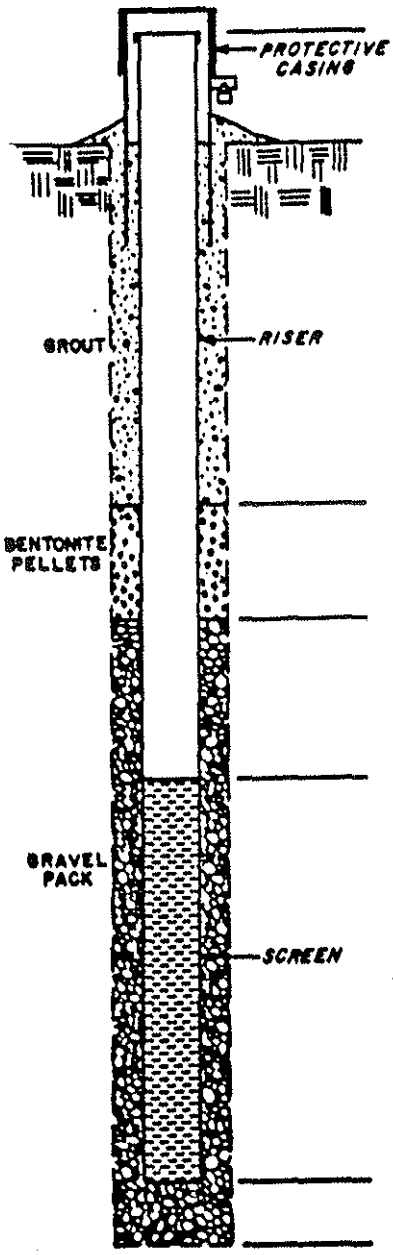
WELL CONSTRUCTION SUMMARY

Project: SE ROCKFORD Client: IEPA Well No: MW111A



DRILLING SUMMARY

Drilling Co: J. MATHES & ASSOC. Drillers: TIM CRANK

Drill Rig Make/Model: CME 75

Borehole Diameters: 8.25" Drilling Fluid: NA

Bits/Depths: 4.25" HSA

Total Depth: 37' Depth to Water: 23'

Supervisory Geologist: R. LANTZ

WELL DESIGN

Casing Material: 304 STAINLESS Diameter: 2" Length: ~27.5'

Screen Material: 304 STAINLESS Diameter: 2" Length: 10'

Slot Size: 0.010" Setting: 25'-35'

Filter Material: SILICA SAND Setting: 23'-37' (20-40 SIEVE); 22'-23' (100 SIEVE)

Seals Material: Setting:

Grout: VOLCLAY Setting: 3'-22'

Surface Casing Material: 5.5" steel Setting: -2 to 3'; set in concrete

TIME LOG	Started	Completed
Drilling:	6/26/91 @ 1720	6/27/91 @ 0800
Installation:	6/27/91 @ 0810	6/27/91 @ 1030
Development:	7/26/91 @ 1625	7/27/91 @ 1115

WELL DEVELOPMENT

Method: dual-line air lift

Static Depth to Water: ~23'

Pumping Depth to Water: not measured

Pumping Rate: 8 gal/hr Specific Capacity: not measured

Volume Pumped: 45 gal

NY-5

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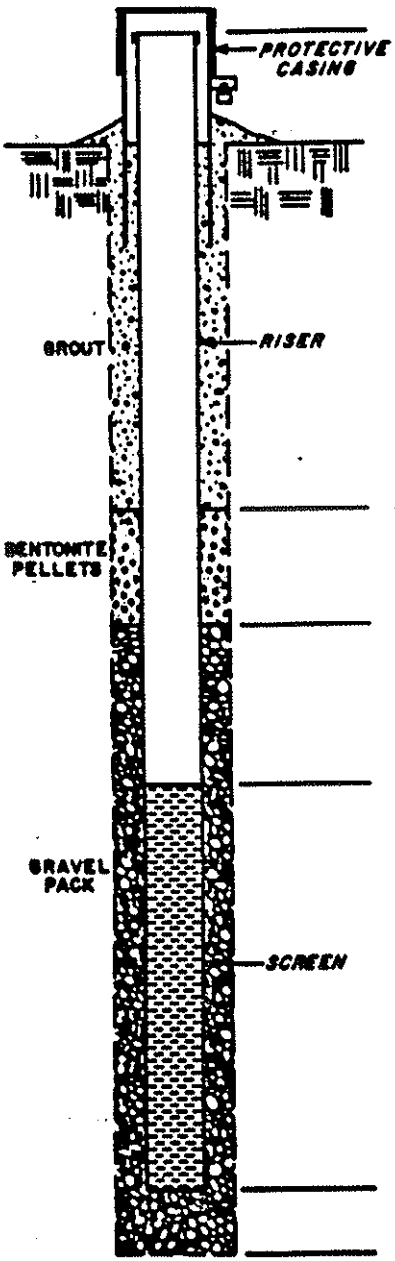
WELL CONSTRUCTION SUMMARY

Project: SE Rockford Client: IEPA Well No: MW 111B



DRILLING SUMMARY

Drilling Co: J. Mathes & Assoc. Drillers: Tim Crank

Drill Rig Make/Model: CME 75

Borehole Diameters: 8.25" Drilling Fluid: NA

Bits/Depths: 4.25" HSA

Total Depth: 59' Depth to Water: ~23'

Supervisory Geologist: R. Lantz

WELL DESIGN

Casing Material: 304 Stainless Diameter: 2" Length: ~50.5'

Screen Material: 304 Stainless Diameter: 2" Length: 10'

Slot Size: 0.010" Setting: 48'-58'

Filter Material: Silica Sand Setting: 46'-58' (20-40 sieve); 45'-46' (100 sieve)

Seals Material: Setting:

Grout: Volclay Setting: 3'-45'

Surface Casing Material: 5.5" steel Setting: -2 to 3'; set in concrete

TIME LOG

	Started	Completed
Drilling:	6/25/91 @ 1655	6/26/91 @ 1250
Installation:	6/26/91 @ 1425	6/26/91 @ 1700
Development:	7/26/91 @ 1625	7/26/91 @ 1900

WELL DEVELOPMENT

Method: dual-line air lift

Static Depth to Water: 23'

Pumping Depth to Water: not measured

Pumping Rate: ~55 gal/hr Specific Capacity: not measured

Volume Pumped: 140 gal

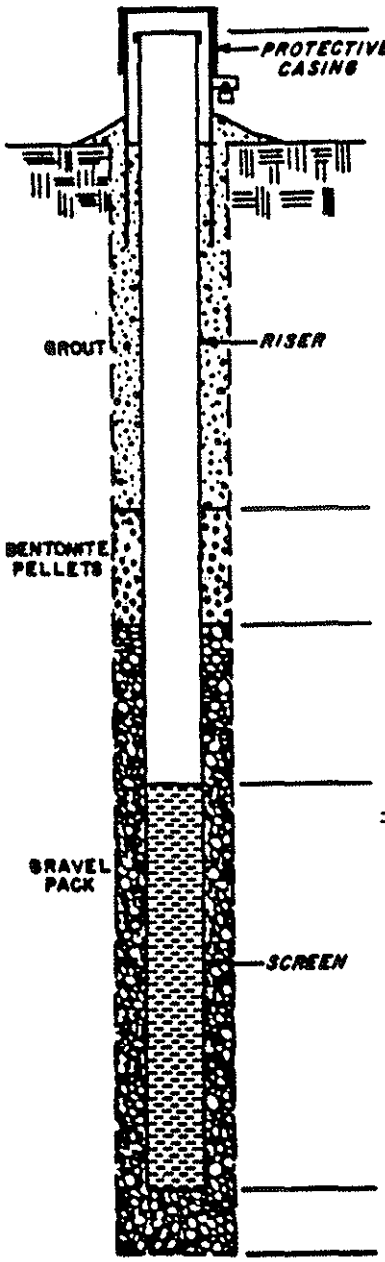
NY-5

CDM

environmental engineers, scientists, planners & management consultants

WELL CONSTRUCTION SUMMARY

Project: SE Rockford Client: IEPA Well No: MW111C



DRILLING SUMMARY

Drilling Co: Mathes Drillers: E Clark, Q Nowak, J McMullen

Drill Rig Make/Model: Gus Pech Brat 22R

Borehole Diameters: 0-65.5': 12"; 65.5-99': 6" Drilling Fluid: 0-65.5': mud; 65.5-99': air

Bits/Depths: 0-65.5': 12" tricone rotary; 65.5-99': 6" air hammer

Total Depth: 99' Depth to Water: 20.3'; swl in bedrock: 22.7'

Supervisory Geologist: M Sorensen

WELL DESIGN

Casing Material: blackpipe / type 304 stainless Diameter: 6" / 2" Length: 67' (to 65.2' depth) / 90'

Screen Material: wire-wound stainls. Diameter: 2" Length: 10'

Slot Size: 0.010" Setting: 87.3 - 98.0' (incl. 0.7' plug @ bottom)

Filter Material: coarse sand (20/40 sieve) / fine sand (100 sieve) Setting: 85-98' / 84-85'

~~Seals Material:~~ Cement-bentonite Setting: 3-65.5' (outside the 6" casing only)

Grout: Volclay Setting: 3-84'

Surface Casing Material: 5.5" steel Setting: -2 to 3 (welded to 6" casing; concrete fills hole from 0-3')

TIME LOG

	Started	Completed
Drilling:	8/9/91 at 0840	8/10/91 at 1355
Installation:	8/10/91 at 1440	8/10/91 at 1630
Development:		

WELL DEVELOPMENT

Method: dual-line air lift

Static Depth to Water: ~20'

Pumping Depth to Water: unknown

Pumping Rate: Specific Capacity: unknown

Volume Pumped:

NY-5

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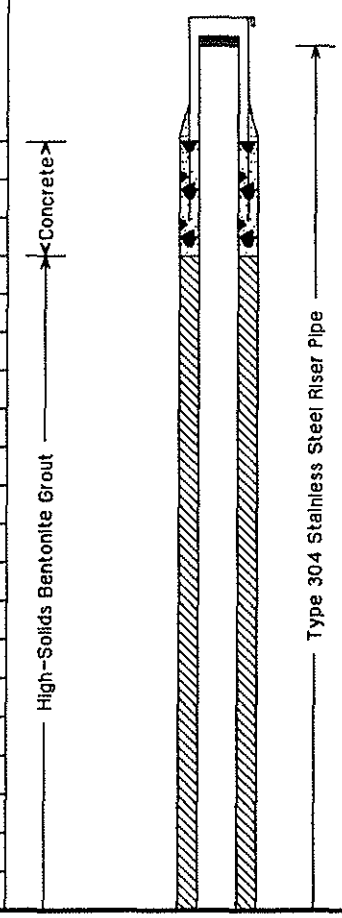
MONITORING WELL DETAIL
MW-112A

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Hollow stem-auger/BK81
Development Method: Air lift using nitrogen & surge block
Top of Riser Elevation: 802.58 Ft.
Total Depth: 36 Ft.
Field Screening Instrument: OVM
Logged By: S. S. Bhagat

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 09-08-93 End 09-08-93
Drillers: Paul Dickinson, Mike Nelson
Development Date: Start 10-01-93 End 10-01-93
Surface Elevation: 799.9 Ft.
Depth To Initial Water Level (GS): ~5.68 Ft.
Well Coordinates:
N: 2028750.226 E: 2602843.351

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. DEPTH	WELL CONSTRUCTION DETAIL
				Note: See MW112C for geologic log.		799.9 / 0	
						794.9 / 5	
						789.9 / 10	
						784.9 / 15	



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 - 1.6" Rock Core
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GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample

OTHER:
BGS - Below Ground Surface

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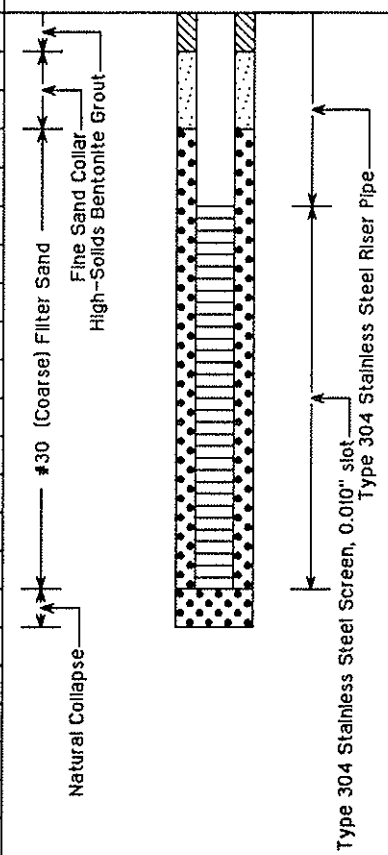
MONITORING WELL DETAIL

MW-112A

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. / DEPTH	WELL CONSTRUCTION DETAIL
						774.9 / 25	
						769.9 / 30	
						764.9 / 35	
				Bottom of Boring @ 36 feet		759.9 / 40	
						754.9 / 45	
						749.9 / 50	
						744.9 / 55	



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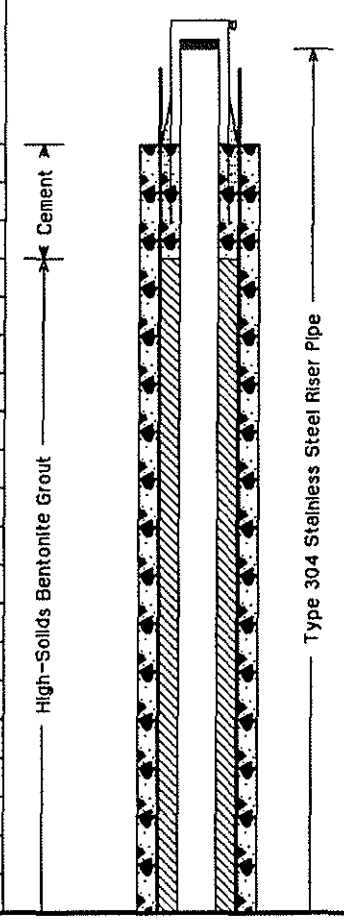
MONITORING WELL DETAIL

MW-112B

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Mud Rotary/BK81
Development Method: Air lift using nitrogen & surge block
Top of Riser Elevation: 803.05 Ft.
Total Depth: 96 Ft.
Field Screening Instrument: HNU
Logged By: S. S. Bhagat

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 09-09-93 End 09-16-93
Drillers: Paul Dickinson, Mike Nelson
Development Date: Start 10-01-93 End 10-01-93
Surface Elevation: 800.3 Ft.
Depth To Initial Water Level (GS): Not Measured
Well Coordinates:
N: 2028744.421 E: 2602840.294

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. DEPTH	WELL CONSTRUCTION DETAIL
				Note: See MW112C for geologic log.		800.3 / 0	
						785.3 / 5	
						790.3 / 10	
						785.3 / 15	



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DTC - Drill Through Casing

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GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample

OTHER:
BGS - Below Ground Surface

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MONITORING WELL DETAIL

MW-112B

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. DEPTH	WELL CONSTRUCTION DETAIL
						775.3 / 25	High-Solids Bentonite Grout; Type 304 Stainless Steel Riser Pipe
						770.3 / 30	
						765.3 / 35	
						760.3 / 40	
						755.3 / 45	
						750.3 / 50	
						745.3 / 55	

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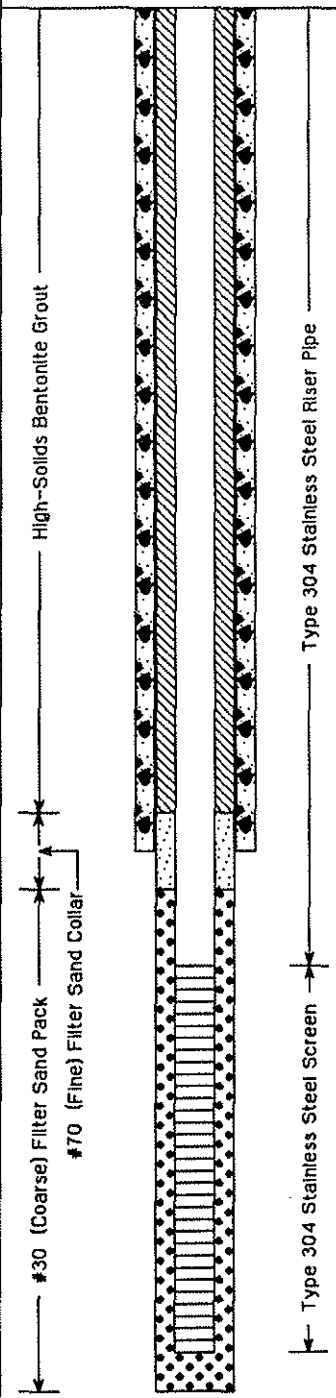
MONITORING WELL DETAIL

MW-112B

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. / DEPTH	WELL CONSTRUCTION DETAIL
						735.3 / 65	
						730.3 / 70	
						725.3 / 75	
						720.3 / 80	
						715.3 / 85	
						710.3 / 90	
						705.3 / 95	
				Bottom of Boring @ 96 feet			



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MONITORING WELL DETAIL

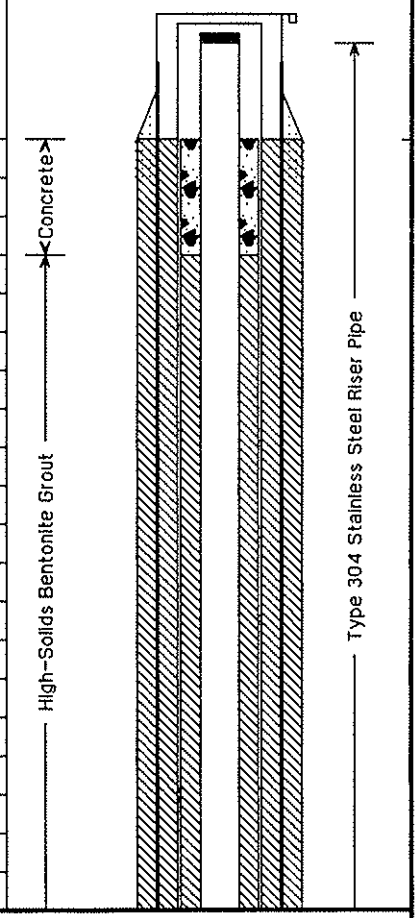
MW-112C

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: MR/BK81;AR/Canterra CT-350
Development Method: Air lift using nitrogen & surge block
Top of Riser Elevation: 802.83 Ft.
Total Depth: 302 Ft.
Field Screening Instrument: HNU
Logged By: S. S. Bhagat

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 08-23-93 End 09-02-93
Drillers: Chuck Blount, Paul Dickinson
Development Date: Start 10-01-93 End 10-01-93
Surface Elevation: 800.2 Ft.
Depth To Initial Water Level (GS): ~17 Ft.
Well Coordinates:
N: 2028747.020 E: 2602834.050

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. DEPTH
				Topsoil		800.2 / 0
SS	BG	6 8 8 12		5-7': Brown/tan gravelly, silty fine sand.		795.2 / 5
SS	BG	30 90 100 /0.5'		10-12': Tan, gravelly silty sand, fine.		790.2 / 10
SS	BG	37 78 100 /0.4'		15-17': Tan, v well sorted; fine to med sand. Moist but probably not saturated. Tip of spoon possibly saturated.		785.2 / 15

WELL CONSTRUCTION DETAIL



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OTHER:
BGS - Below Ground Surface

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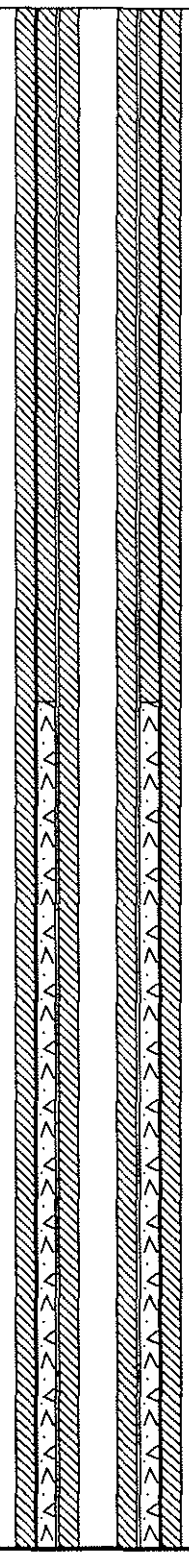
MONITORING WELL DETAIL

MW-112C

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	ELEV. DEPTH
SS	BG	34 84 100		20-22': Tan, v well sorted; fine to med sand; bottom 1" is silty fine sand; bedding defined by reddish color laminae in places.	
					775.2 / 25
SS		69 100 /0.2'		25-27': Tan, gravelly & silty fine sand. Note: Field instrument readings from 25-47' not shown because of high humidity affecting HNU.	
					770.2 / 30
SS		51 89 100 /0.3'		30-32': Gray, gravelly & silty fine/med sand. Moist, possibly saturated.	
					765.2 / 35
SS		59 47 52 79		35-37': Top 8" tan coarse sand & gravel. Lower 6" is med, tan sand. Saturated.	
					760.2 / 40
SS		88 100 /0.4'		40-42': Gray, gravelly clay; very hard; dry; angular to rounded clasts.	
				44.5-46.5': No recovery.	755.2 / 45
SS		40 51 68 79		45-47': Brown coarse sand and gravel. Gray zone in middle 4".	
HP	-			Hydro Punch Sample 48-49.5'.	
					750.2 / 50
SS	-	88 100 /0.5'		50-52': No recovery.	
SS	BG	74 56 57 69		53-55': Tan/brown coarse sand & gravel. Sample SB112C-B collected for VOC's and TOC only.	
					745.2 / 55

WELL CONSTRUCTION DETAIL



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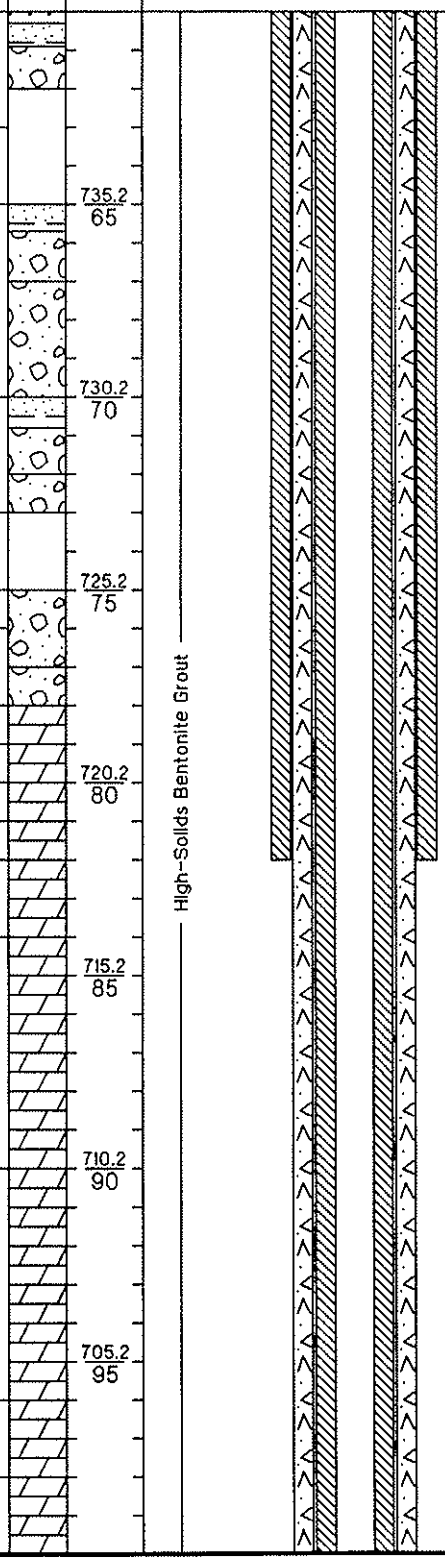
MONITORING WELL DETAIL

MW-112C

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	ELEV. DEPTH
SS	BG	27 40 35 51		60-62': Gray fine & med sand; well sorted; Top 3" med, well sorted sand. Middle 8" silty fine sand; bottom 6" gravelly med sand. Coarse layers define bedding.	
HP	-			Hydro Punch Sample 63-64.5'.	
SS	BG	26 35 52 40		65-67': Top 7" gray silty fine sand grading downward to gray plastic clay 1" thick (6-7" from top). Bottom 8" brown coarse sand & gravel; rounded clasts mostly; sharp contact. Bedding defined by grain size variations.	735.2 65
SS	BG	20 41 45 52		70-72': Top 8" gray gravelly, silty fine sand; bottom 11" gray coarse sand & gravel. Bedding defined by grain size variation in lower 11"; faint bedding visible in upper 8".	730.2 70
HP	-			Hydro Punch Sample 73-73.5'.	
SS	BG	47 100 /0.3'		75-76': Reddish brown (oxide stain) gravelly, med/coarse sand; gravel mostly dolomite.	725.2 75
				Top of Bedrock @ 76'.	
				78': Cuttings are 90-95% angular, tan, limestone (dolomite) with trace amounts white/gray chert & dark-colored fragments.	
				79': Cuttings are 95% dolomite w/ trace amounts of white/gray chert & dark lithics.	720.2 80
				80': Cuttings same as above.	
				81': Cuttings same as above.	
				82': Cuttings same as above.	
				84-88': Cuttings contain 100% tan dolomite w/ sucrosic texture w/ 1-2% having oxide (reddish color) stain. Water color is brown/reddish.	715.2 85
				90-94': Cuttings contain 100% tan dolomite w/sucrosic texture. Water color is reddish brown to brown.	710.2 90
					705.2 95
				96': Cuttings same as above.	
				98': 20% white/gray chert, 80% tan dolomite.	



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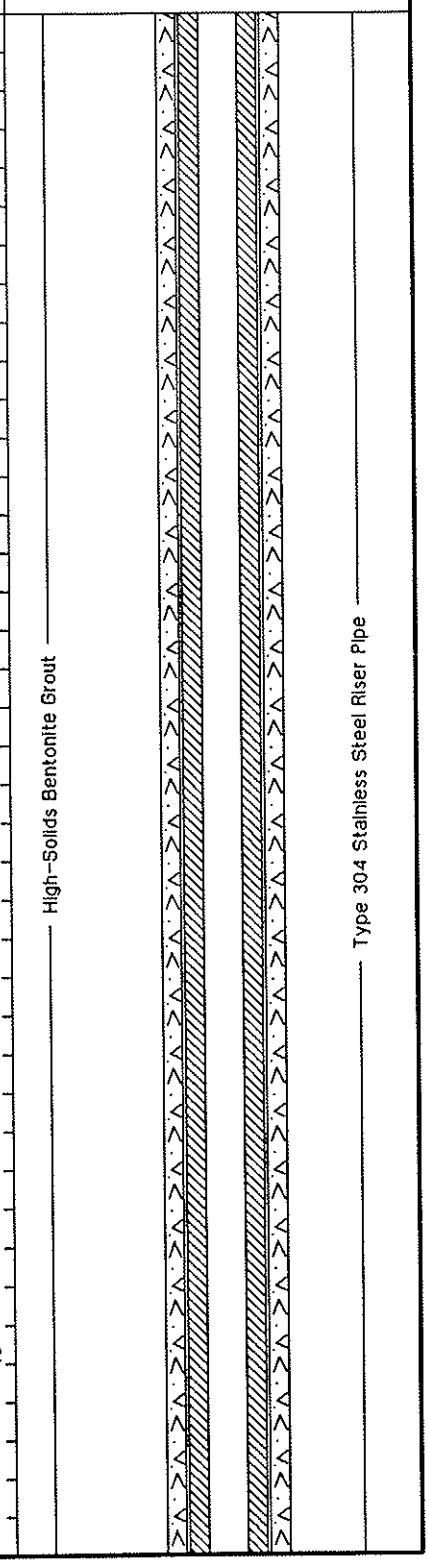
MONITORING WELL DETAIL

MW-112C

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. / DEPTH
				100': 10% white/gray chert, 80% tan dolomite.		
				102': 100% tan dolomite.		
				104': 100% reddish brown clayey shaly material. Water turned deep reddish brown color starting @ 104'.		695.2 / 105
				106': 40% brown clay/shale, 60% tan dolomite.		
				108': 15% brown clay, 85% tan dolomite.		690.2 / 110
				110': 65% tan dolomite, 15% gray/white chert, 20% brown clay. Deep reddish brown color of water essentially diminished @ ~108'.	CHER	
				112': 5% brown clay, 10% gray/white chert, 85% tan dolomite.		
				114': 2% brown clay, 98% tan dolomite.		685.2 / 115
				116': Cuttings are 2% brown clay, 98% tan dolomite. Water color @ 108-116' is brown to reddish brown.		
				118': 5% brown clay, 95% tan dolomite.		680.2 / 120
				120': 3% brown clay, 98% tan dolomite.		
				122': 1% brown clay, 99% tan dolomite.		
				124': 100% tan/buff dolomite.		675.2 / 125
				126': 98% tan dolomite, 2% brown clay. Dolomite has sucrosic texture & is fossiliferous.		
				128': 100% tan dolomite as above. Trace silicification visible. Water is milky brown color.		670.2 / 130
				130': 50% tan dolomite, 48% gray dolomite, 2% brown clay/shale; dolomite is fossiliferous.		
				132': 90% gray dolomite, some is argillaceous, 10% tan dolomite, and trace brown clay.		
				134': 90% gray dolomite, 8% tan dolomite, 2% brown clay.		665.2 / 135
				136': 90% gray dolomite (somewhat argillaceous, 10% tan dolomite, trace brown clay.		
				138': 85% gray dolomite, 10% dark gray argillaceous, v fossiliferous dolomite/limestone, 5% brown clay.		

WELL CONSTRUCTION DETAIL



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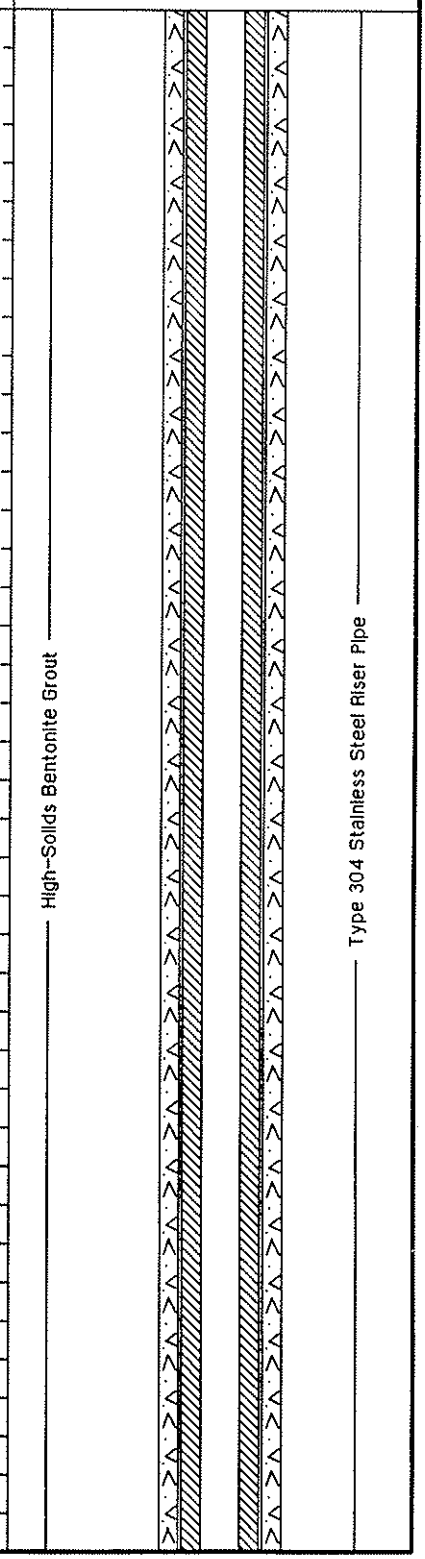
MONITORING WELL DETAIL

MW-112C

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. DEPTH
				Gray dolomite is fossiliferous & calcarenitic.		
				140': 93% gray, fossiliferous dolomite, 5% tan dolomite, 2% brown clay/shale. Argillaceous coating on some gray dolomite.		
				142': 95% gray fossiliferous dolomite containing blue gray silicification of fossils, 5% brown shale and argillaceous, dark gray dolomite. Gray dolomite is calcarenitic.		
				144': Water is dark reddish brown. Cuttings 50% gray calcarenitic fossiliferous dolomite (some blue-gray mottling); 50% tan/reddish brown dolomite, appears non-fossiliferous;; trace amounts of white chert.		655.2 / 145
				146': 90% gray lithographic dolomite, platy fragments; 10% reddish brown clay/shale.		
				148': 98% gray lithographic dolomite w/rare blue-gray specks of mottling and/or silicification; 2% brown clay, v soft. Dolomite cuttings are platy. Water color is now yellowish brown.		650.2 / 150
				150': 100% gray lithographic dolomite; platy cuttings, rare blue-gray mottling & some argillaceous coatings (dark gray); trace brown clay.		
				152': 100% gray to dark gray, lithographic dolomite, platy fragments; trace brown clay. Argillaceous coatings not observed.		645.2 / 155
				154': Same as @ 152'.		
				156': 100% gray to dark gray, platy lithographic dolomite w/ rare blue gray mottling; rare argillaceous coatings; trace brown clay.		
				158': Same as above w/ addition of trace argillaceous dolomite.		
				160': Gray to dark gray lithographic dolomite w/ blue-gray mottling; fragments more blocky/equant than above; trace brown clay.		640.2 / 160
				162': 100% mixed light gray and dark gray dolomite; lt gray is calcarenitic; dark gray is lithographic, w/ blue gray mottling; trace brown clay. Argillaceous coatings on dolomite.		
				164': 100% lt gray to brown/gray, calcarenitic dolomite, poorly fossiliferous; trace of very dark gray shale (1 fragment) & ubiquitious brown clay.		635.2 / 165
				166': Same as above. Except trace sandstone.		
				168': 100% lt gray to brown/gray, calcarenitic dolomite; trace of reddish yellow/tan sandstone (3 fragments); trace brown clay.		
				170': 95% dark gray lithogrphic dolomite, poorly fossiliferous; 5% brown clay. Dolomite has blue gray mottling.		630.2 / 170
				172': 100% gray to dark gray, lithographic dolomite, blue gray mottling; trace brown clay. Ground water is still milky brown color.		
				174': 96% gray to dark gray, lithographic, blue gray mottled dolomite; 4% reddish brown sandstone & brown to reddish brown clay (soft, plastic).		625.2 / 175
				176': 100% gray & dark gray, argillaceous dolomite, some fragments v fossiliferous & others lithographic, non-fossiliferous; trace tan/reddish brown ss & brown laminated shale. Blue-gray mottling is lithographic fragments.		
				178': 95% gray to dark gray lithographic dolomite,		

WELL CONSTRUCTION DETAIL



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MONITORING WELL DETAIL

MW-112C

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. DEPTH	WELL CONSTRUCTION DETAIL
				blue gray mottled; 5% tan/reddish brown sandstone & brown soft shale.			
				180': 95% gray/dark gray, lithographic, blue gray mottled dolomite; 5% tan/reddish brown sandstone & trace brown soft shale/clay.			
				182': 97% gray/dark gray, lithographic, blue gray mottled dolomite; 3% tan/reddish brown sandstone.			
				184: 95% gray/dark gray, lithographic, blue gray mottled dolomite; 5% mixed v dark gray, argillaceous, fossiliferous.		615.2 / 185	
				186': 90% gray/dark gray, lithographic, blue gray mottled dolomite; 10% v dark gray argillaceous & fossiliferous dolomite/limestone as well as brown soft shale/clay.			
				188': Same as @ 186'. Bryozoan & echinoderm fragments visible. Trace tan/reddish brown sandstone.		610.2 / 190	
				190': Same as @ 188'; pyritic, shaly parting on 1 fragment.			
				192': 95% gray/dark gray, lithographic, blue gray mottled dolomite; 5% v dark gray, argillaceous, fossiliferous dolomite/limestone, trace brown soft shale/clay & tan/reddish brown coarse sandstone.			
				194': Same as @ 192'.		605.2 / 195	
				196': Same as @ 192' except proportions are 90% lithographic dolomite, 5% argillaceous & fossiliferous dolomite/limestone, & 5% brown soft shale/clay & tan/reddish brown sandstone.			High-Solids Bentonite Grout
				198': Same as @ 196'.			
				200': Same as @ 195 & 198'. Water is milky light brown color.		600.2 / 200	
				202': 90% gray/dark gray, lithographic, blue gray mottled dolomite; 7% tan/brown fossiliferous, calcarenitic, partly silicified dolomite; 3% brown clay/soft shale. Trace tan/reddish brown, coarse sandstone.			
				204': Similar to 202' except 90% gray/dark gray, gray mottled lithographic dolomite; 4% tan/brown calcarenitic dolomite; 4% v dark gray argillaceous & fossiliferous dolomite/limestone; 2% brown soft shale/clay; trace tan reddish/brown coarse sandstone.		595.2 / 205	
				206': Same as @ 204'.			
				208': 100% gray/dark gray, lithographic, blue gray mottled dolomite; fragments are more platy than above. Trace dark brown fossiliferous shale or shaly dolomite/limestone.		590.2 / 210	
				210': Same lithologies & proportion as @ 208'.			
				212': Same as @ 210'.			
				214': 85% gray/dark gray, lithographic, blue gray mottled dolomite; 15% tan fossiliferous, calcarenitic, argillaceous dolomite; trace tan/reddish brown, coarse sandstone & brown soft shale/clay.		585.2 / 215	
				216': 95% gray/dark gray, lithographic, blue gray mottled dolomite; 5% brown clay/soft shale.			
				218': 93% gray, blue gray, partly lithographic dolomite; 4% tan/reddish brown stained sandstone; 3% brown clay/soft shale.			Type 304 Stainless Steel Riser Pipe

CAMP DRESSER & McKEE
CDM
233 South Wacker Drive, Suite 450
Chicago, Illinois 60606-5306

MONITORING WELL DETAIL

MW-112C

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. DEPTH	WELL CONSTRUCTION DETAIL
				Sandstone is quartzose, possibly dolomite. Water is lt brown color.			
				220': 95% gray, blue gray, partly lithographic dolomite; pyritic 5% brown clay/soft shale; trace quartzose sandstone.			
				222': 100% blue gray dolomite, mottled & argillaceous in places; trace tan quartz sandstone & brown clay/shale.			
				224': 92% gray, blue gray mottled, poorly lithographic dolomite; 4% tan quartz sandstone/dolomite sandstone; 4% brown clay/soft shale.		575.2 / 225	
				226': 95% gray, blue gray mottled dolomite; 5% brown clay; trace tan quartz sandstone dolomite slightly argillaceous.			
				228': Same as @ 226'.			
				230': 90% gray, blue gray mottled dolomite; 10% brown soft shale, laminated/fissile; trace tan, quartz sandstone.		570.2 / 230	
				232': 95% gray, blue gray mottled fossiliferous & argillaceous dolomite; 5% brown soft shale.			
				234': 95% gray, blue gray mottled fossiliferous & argillaceous dolomite; 5% mix of calcarenite (brown gray), brown soft shale, & tan quartz sandstone.		565.2 / 235	
				236': Same as @ 234' except less argillaceous & some sandstone has deep reddish brown color.			
				238': Same as @ 236'.			
				240': Same as @ 236 & 238'.		560.2 / 240	
				242': Same as @ 236, 238, & 240'.			
				244': Same as @ 236, 238, 240, & 242'.		555.2 / 245	
				246': Same as @ 244'.			
				248': 85% gray, blue gray mottled dolomite, slightly fossiliferous & argillaceous; 10% brown soft shale; 5% tan quartz sandstone, sometimes w/reddish brown oxide stain. Sandstone is dolomite.		550.2 / 250	
				250': Same as @ 248'.			
				252': Same as @ 248 & 250'.			
				254': Same as @ 248, 250, & 252'.		545.2 / 255	
				256': Same as @ 248-254' except that proportions are 95% dolomite; 5% brown clay; & trace dolomite sandstone w/reddish brown oxide stain.			
				258': 60% gray, blue gray mottled dolomitic; 40% med quartz sandstone in fine-grained matrix, green gray.			

High-Solids Bentonite Grout

Type 304 Stainless Steel Riser Pipe

CAMP DRESSER & McKEE
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233 South Wacker Drive, Suite 450
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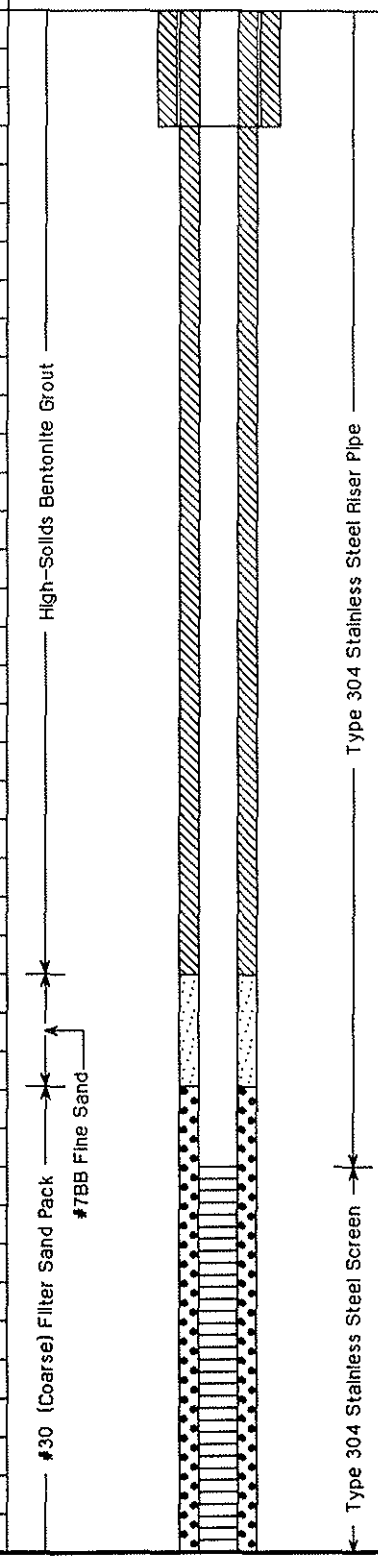
MONITORING WELL DETAIL

MW-112C

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	ELEV. DEPTH
				258.5': Same as above but w/ addition of greenish silty dolomitic shale; ~50% gray dolomite; 30% greenish shale; 20% green gray sandstone fine-grained matrix.	
				259': 50% greenish silty shale; 50% brown soft shale.	
				262': 100% green, silty, shale.	
				263': 100% green, silty, shale.	535.2
				265': 100% green, pyritic shale, silty & possibly dolomitic. Drill bit is advancing rapidly.	265
				267': 100% green, pyritic silty shale.	530.2 270
				272': 100% green to gray/green, pyritic silty to fine sandy shale. Drill bit advancement is so rapid that it is difficult to collect samples @ regular 2' intervals.	
				273': 100% green, pyritic silty shale/dolomite.	525.2
				274': 100% green, pyritic silty shale/dolomite.	275
				276': 100% green, pyritic silty to sandy shale. Water is milky white.	
				278': 85% green, pyritic silty to sandy shale; 15% gray, pyritic silty to sandy dolomite.	520.2
				280': 80% green, pyritic silty to sandy shale; 20% gray, pyritic sandy dolomite or dolomitic sandstone.	280
				282': 60% green, pyritic silty/sandy shale; 20% gray, pyritic sandy dolomite; 20% dark gray dolomite, pyritic med sandstone.	
				284': Same lithologies as @ 282' except proportions are 33% green shale, 33% gray dolomite & 34% dark gray sandstone.	515.2 285
				284.5-285': Lithology changed. Driller notes fracture @ ~283'. Increased water production. The cuttings noted above (i.e. 264-284') disappeared. From 284.5-288' had v fine grained material that passed through wire mesh strainer.	
				288': Very small amount of pure quartz sand; clear to white; fine to med grained.	510.2 290
				290': 100% white/lt gray, fine quartz sandstone.	
				292': Same as @ 290'. Drill bit is advancing @ ~2' per minute.	
				294': Same as @ 290 & 292'.	505.2 295

WELL CONSTRUCTION DETAIL



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MONITORING WELL DETAIL

MW-112C

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. DEPTH	WELL CONSTRUCTION DETAIL
				301': Discrete samples are difficult to obtain because of rapid advancement (~3' per minute) and fine-grained nature of the sandstone. Cuttings from 296-301' consist of white, fine-grained sandstone w/ some larger fragments of pyritic sandstone. *Bottom of Boring @ 302 feet*		495.2 / 305 490.2 / 310 485.2 / 315 480.2 / 320 475.2 / 325 470.2 / 330 465.2 / 335	#30 (Coarse) Filter Sand Pack

CAMP DRESSER & McKEE
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233 South Wacker Drive, Suite 450
Chicago, Illinois 60606-5306

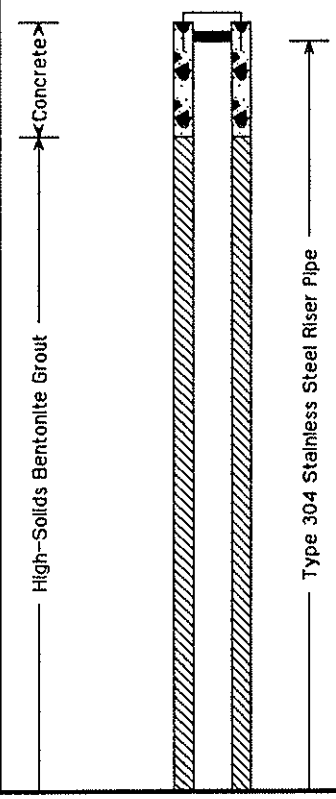
MONITORING WELL DETAIL
MW-113A

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Mud Rotary/Diedrich 50
Development Method: Air lift using nitrogen & surge block
Top of Riser Elevation: 766.54 Ft.
Total Depth: 105 Ft.
Field Screening Instrument: HNU & OVA
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 07-21-93 End 07-24-93
Drillers: Rick O'Gorman, Mark Thorson
Development Date: Start 09-29-93 End 09-29-93
Surface Elevation: 767.0 Ft.
Depth To Initial Water Level (GS): ~50 Ft.
Well Coordinates:
N: 2029869.641 E: 2596096.439

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. DEPTH
			ML	Topsoil		767 / 0
			ML	Drilling action & cuttings here and @ MW18 (ISWS well) suggests brown sandy clay w/ some gravel from ~1' to 36'. The sand @ 20' is apparently a thin layer.		762 / 5; 757 / 10; 752 / 15

WELL CONSTRUCTION DETAIL



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 - 1.6" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample

OTHER:
BGS - Below Ground Surface

CAMP DRESSER & McKEE
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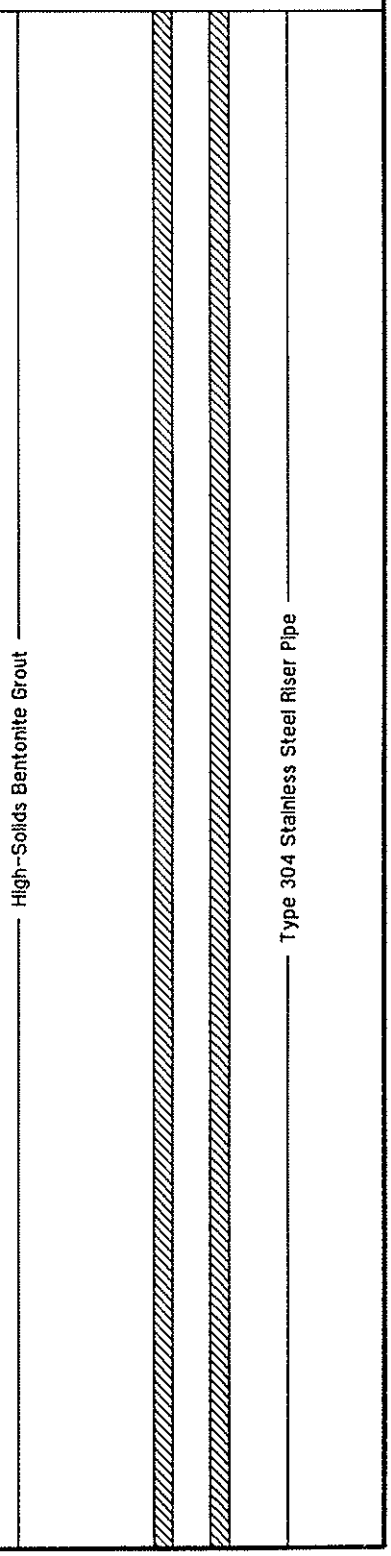
Chicago, Illinois 60606-5306

MONITORING WELL DETAIL

MW-113A

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	ELEV. / DEPTH
SS	0 ppm	15 50 0.3'	SW-GW	Gravelly sand, SW-GW; the sand is very coarse to medium & poorly sorted. Gravel is ~25% of sample & ranges from granules to large pebbles which are rounded to subrounded; gravel lithology is ~75% carbonate & chert, & ~25% igneous (incl. basalt, granite); moist not wet.	
			ML	Drilling action & cuttings here and @ MW18 (ISWS well) suggests brown sandy clay w/ some gravel from ~1' to 36'. The sand @ 20' is apparently a thin layer.	742 / 25 737 / 30 732 / 35
			SW-GW		727 / 40
SS	0 ppm	6 10 14 16	SW-GW	Lt. bn sand, SW-GW w/~15% gravel; the sand is v coarse to medium & poorly sorted; gravel is granules to medium pebbles which are subrounded to rounded; moist not wet. Drilling action indicates sand & gravel from 40-55'.	722 / 45 717 / 50
			SP	Drilling action indicates sand from 55-60'.	712 / 55

WELL CONSTRUCTION DETAIL



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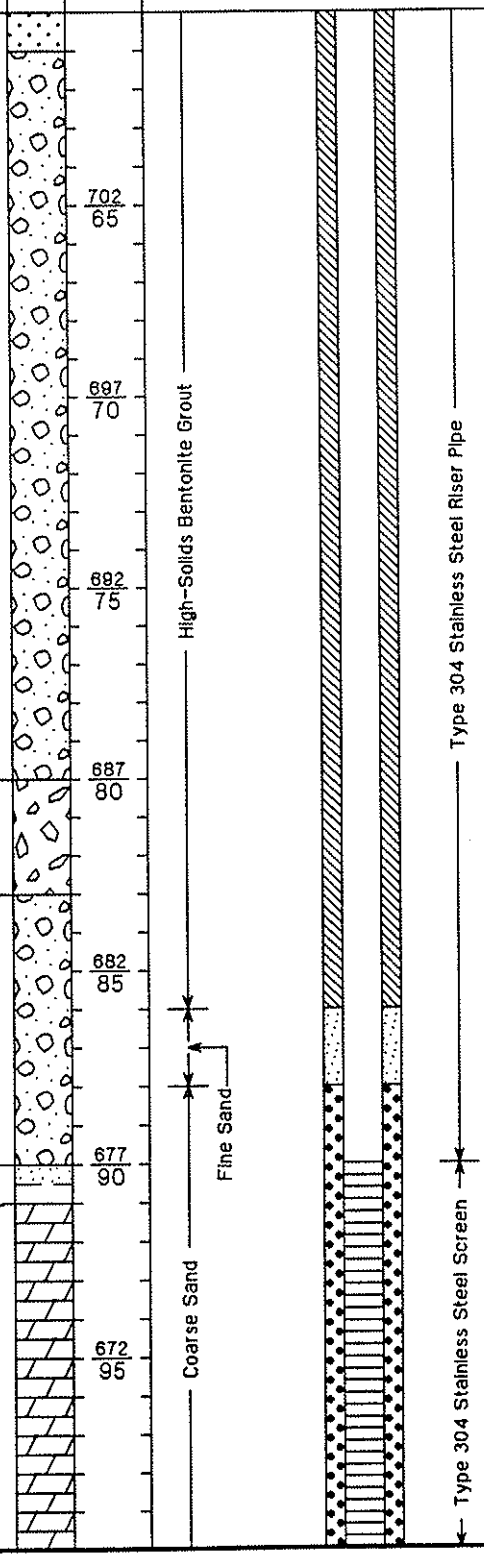
MONITORING WELL DETAIL

MW-113A

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION
SS	0 ppm	6 12 31 11	SP	Lt. bn sand, SP, fine to medium; @ 60.10-60.12' has lt bn silty clay matrix, but elsewhere has no visible clay, silt, or gravel. Well sorted; has one horizontal rusty-colored zone. Saturated. Drilling action indicates mostly sand & gravel from 60-80'.
			SP-GP	
			GP	Drilling action indicates boulder @ 80-83'.
			SP-GP	Drilling action indicates sand & gravel @ 83-90'.
SS	0 ppm	58 0.3'	SM	90.0-90.2' & 90.25-90.3': Lt bn sand, very fine, silty. 90.2-90.25 is dark bn to med bn clay. 91-100' (cuttings): Lt yel bn to lt gy bn dolomite/limestone w/fine to to medium grained sucrosic (sandy) texture & ranging to a finely crystalline compact (i.e. non-sucrosic) texture. Contains ~3% chert.



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MONITORING WELL DETAIL

MW-113A

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. DEPTH	WELL CONSTRUCTION DETAIL
				100-105' (cuttings): Lt yel bn to lt gy bn dolomite with sucrosic to compact texture;~8% chert			Coarse Sand
				Bottom of Boring @ 105 feet.		662/105	
						657/110	
						652/115	
						647/120	
						642/125	
						637/130	
						632/135	

Type 304 Stainless Steel Screen, 0.010" slot

CAMP DRESSER & McKEE
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233 South Wacker Drive, Suite 450
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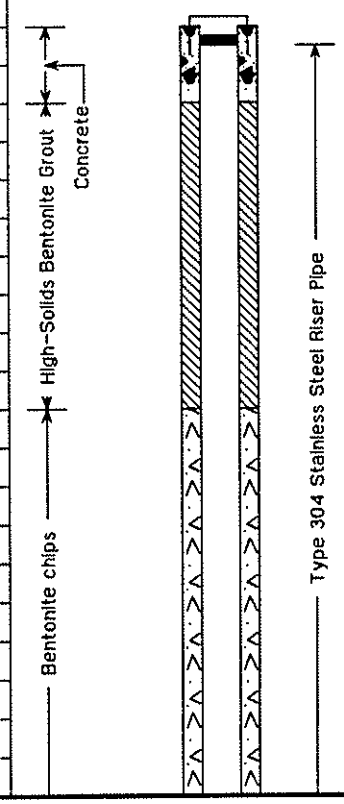
MONITORING WELL DETAIL
MW-113B

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Mud Rotary/Diedrich 50
Development Method: Air lift using nitrogen & surge block
Top of Riser Elevation: 766.65 Ft.
Total Depth: 160 Ft.
Field Screening Instrument: HNU & OVA
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 09-20-93 End 10-12-93
Drillers: Rick O'Gorman, Mark Thorson
Development Date: Start 10-14-93 End 10-14-93
Surface Elevation: 766.4 Ft.
Depth To Initial Water Level (GS): ~50 Ft.
Well Coordinates:
N: 2029873.559 E: 2596088.180

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. DEPTH
			ML	Topsoil		766.4 / 0
			ML	Drilling action & cuttings here and @ MW18 (ISWS well) suggests brown sandy clay w/ some gravel from ~1' to 36'. The sand @ 20' is apparently a thin layer.		761.4 / 5; 756.4 / 10; 751.4 / 15

WELL CONSTRUCTION DETAIL



EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
SSA - Solid Stem Auger
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DTC - Drill Through Casing

SAMPLING TYPES:
AS - Auger/Grab Sample
CS - California Sampler
BX - 1.6" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample

OTHER:
BGS - Below Ground Surface

CAMP DRESSER & McKEE
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MONITORING WELL DETAIL

MW-113B

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	ELEV. DEPTH
SS	0 ppm	15 50 0.3'	SW-GW	Gravelly sand, SW-GW; the sand is very coarse to medium & poorly sorted. Gravel is ~25% of sample & ranges from granules to large pebbles which are rounded to subrounded; gravel lithology is ~75% carbonate & chert, & ~25% igneous (incl. basalt, granite); moist not wet.	
			ML	Drilling action & cuttings here and @ MW18 (ISWS well) suggests brown sandy clay w/ some gravel from ~1' to 36'. The sand @ 20' is apparently a thin layer.	741.4 / 25; 736.4 / 30; 731.4 / 35
			SW-GW		726.4 / 40
SS	0 ppm	6 10 14 16	SW-GW	Lt. bn sand, SW-GW w/~15% gravel; the sand is v coarse to medium & poorly sorted; gravel is granules to medium pebbles which are subrounded to rounded; moist not wet. Drilling action indicates sand & gravel from 40-55'.	721.4 / 45; 716.4 / 50
			SP	Drilling action indicates sand from 55-60'.	711.4 / 55

GRAPHIC LOG

WELL CONSTRUCTION DETAIL

Bentonite chips

Type 304 Stainless Steel Riser Pipe

CAMP DRESSER & McKEE
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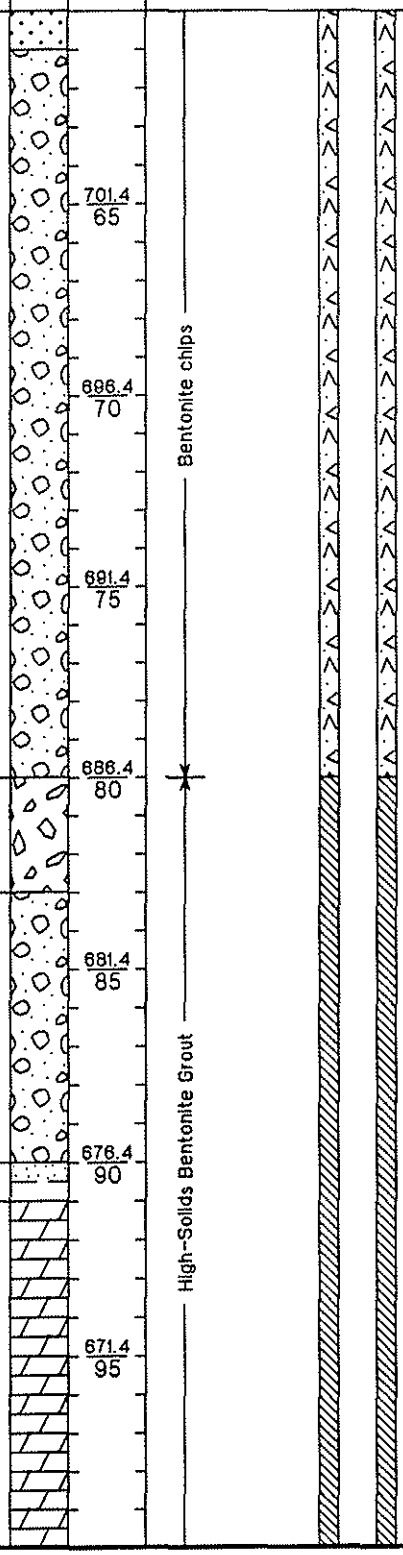
233 South Wacker Drive, Suite 450
Chicago, Illinois 60606-5306

MONITORING WELL DETAIL

MW-113B

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION
SS	0 ppm	6 12 31 11	SP	Lt. bn sand, SP, fine to medium; @ 60.10-60.12' has lt bn silty clay matrix, but elsewhere has no visible clay, silt, or gravel. Well sorted; has one horizontal rusty-colored zone. Saturated.
			SP-GP	Drilling action indicates mostly sand & gravel from 60-80'.
			GP	Drilling action indicates boulder @ 80-83'.
			SP-GP	Drilling action indicates sand & gravel @ 83-90'.
SS	0 ppm	58 0.3'	SM	90.0-90.2' & 90.25-90.3': Lt bn sand, very fine, silty. 90.2-90.25 is dark bn to med bn clay.
				91-100' (cuttings): Lt yel bn to lt gy bn dolomite/limestone w/fine to to medium grained sucrosic (sandy) texture & ranging to a finely crystalline compact (i.e. non-sucrosic) texture. Contains ~3% chert.



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MONITORING WELL DETAIL

MW-113B

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. DEPTH	WELL CONSTRUCTION DETAIL
				100-110' (cuttings): Lt yel bn to lt gy bn dolomite with sucrosic to compact texture;~8% chert			
				103-104.5 zone is soft, contains gravel (up to lg pebbles) along w/ bedrock chips & produces much water; therefore appears to be a void in the bedrock subsequently filled w/gravel.	CAVITY	661.4 / 105	High-Solids Bentonite Grout
				110-120' (cuttings): Lt yel bn to bn gy dolomite/limestone w/~10% chert present mainly as zoned chips that are white on outside & gy bn on inside. ~10% of cuttings are rounded granules & pebbles, probably coming in from 103-104.5' zone		656.4 / 110 651.4 / 115	Bentonite chips
				120-130' (cuttings): Lt yel bn dolomite/limestone, w/color also lt gy @ 125-130' (20% is lt gy); contains ~10% chert & 8% rounded granules & pebbles of igneous rocks & quartz. Producing ~100 gpm. Texture of dolomite/limestone is crystalline to sucrosic & fine to micritic.		646.4 / 120 641.4 / 125	
				130-140' (cuttings): Lt yel bn & lt gy dolomite/limestone, w/~15% chert & ~7% gravel as pebbles of igneous rocks & quartz. Texture is v finely crystalline (~70% of dolomite/lime) to finely sucrosic (~30%). Produces water @ >100 gpm.		636.4 / 130 631.4 / 135	Natural sand pack Type 304 Stainless Steel Riser Pipe

CAMP DRESSER & McKEE
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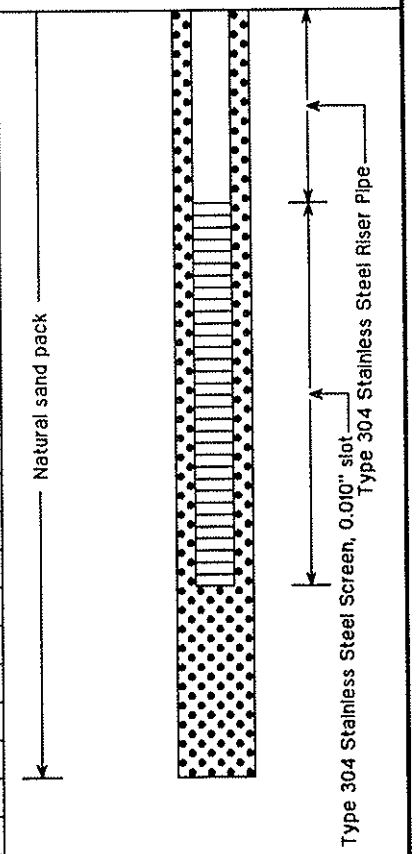
MONITORING WELL DETAIL

MW-113B

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. DEPTH
				140-150' (cuttings): Lt yel bn & lt gy dolomite/limestone, w/~20% chert & 8% exotic (granite, basalt, shale/slate, quartz, etc.) subrounded granules & chips of sm pebbles. Texture of dolomite/limestone is v finely crystalline to finely sucrosic (~25% of dolomite/limestone).	CHERT	621.4 / 145
				150-160' (cuttings): 150-151' is dolomite/limestone as above. At 151-160' get abundant soft, chocolate-brown mudstone (metabentonite?; easily compressed by hand) as 2-5 mm chips w/ some large as 1x1x2cm; these are 70% of cuttings in 151-157' interval and 50% @ 157-160'. At 151-157' the remainder is 15% chert, 10% dolomite/limestone, and 5% granules & small rounded pebbles of non-sedimentary origin.	CHERT	616.4 / 150
					CHERT	611.4 / 155
				At 157-160' the above proportions are 25%, 15% and 10% respectively.	CHERT	606.4 / 160
				Bottom of Boring @ 160 feet.		601.4 / 165
						596.4 / 170
						591.4 / 175

WELL CONSTRUCTION DETAIL



CAMP DRESSER & McKEE
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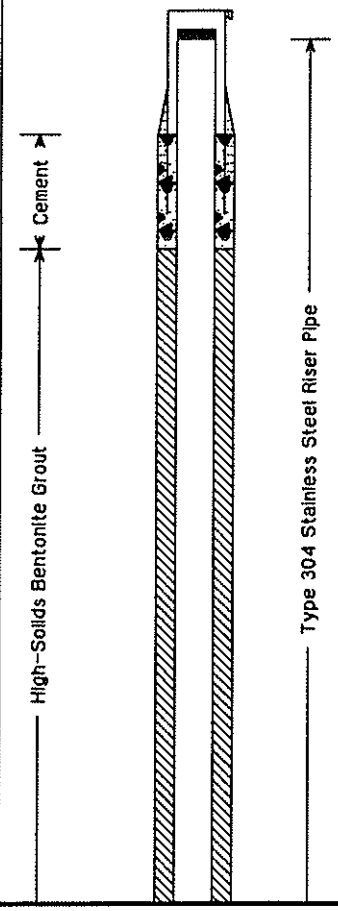
MONITORING WELL DETAIL

MW-114A

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Mud Rotary/BK81
Development Method: Air lift using nitrogen & surge block
Top of Riser Elevation: 726.89 Ft.
Total Depth: 97 Ft.
Field Screening Instrument: HNU
Logged By: S. S. Bhagat

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 08-11-93 End 08-12-93
Drillers: Paul Dickinson, Mike Nelson
Development Date: Start 09-14-93 End 09-15-93
Surface Elevation: 724.9 Ft.
Depth To Initial Water Level (GS): Not measured
Well Coordinates:
N: 2030016.183 E: 2593333.104

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. DEPTH	WELL CONSTRUCTION DETAIL
				Note: See MW-114B for geologic log.		724.9 / 0	
						719.9 / 5	
						714.9 / 10	
						709.9 / 15	



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 - 1.6" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample

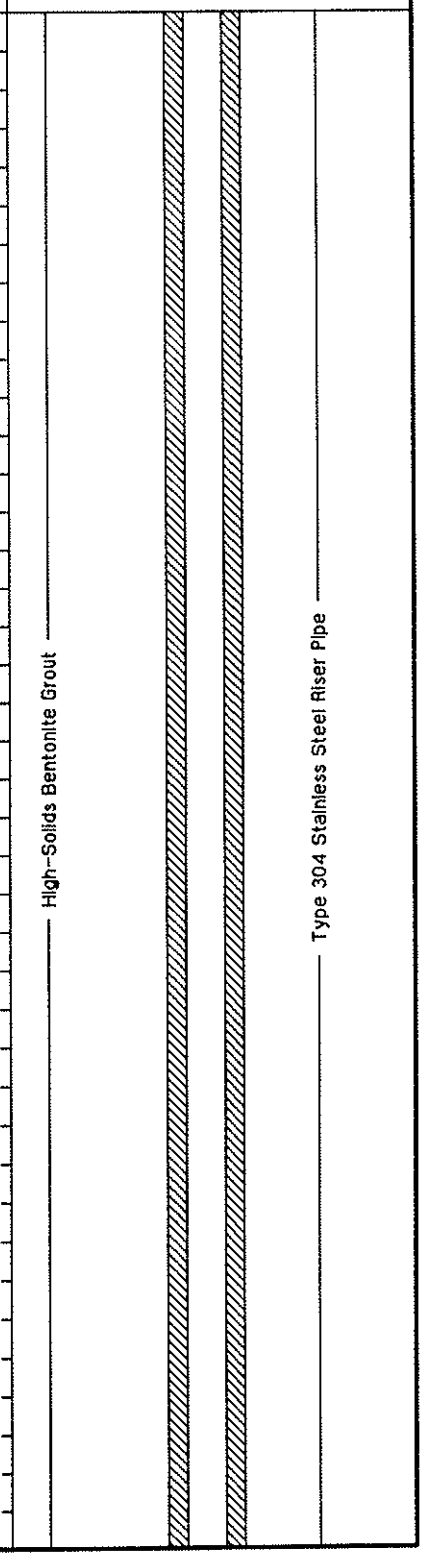
OTHER:
BGS - Below Ground Surface

CAMP DRESSER & McKEE
CDM
233 South Wacker Drive, Suite 450
Chicago, Illinois 60606-5306

MONITORING WELL DETAIL

MW-114A

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. DEPTH	WELL CONSTRUCTION DETAIL
						699.9 / 25	
						694.9 / 30	
						689.9 / 35	
						684.9 / 40	
						679.9 / 45	
						674.9 / 50	
						669.9 / 55	



CAMP DRESSER & McKEE

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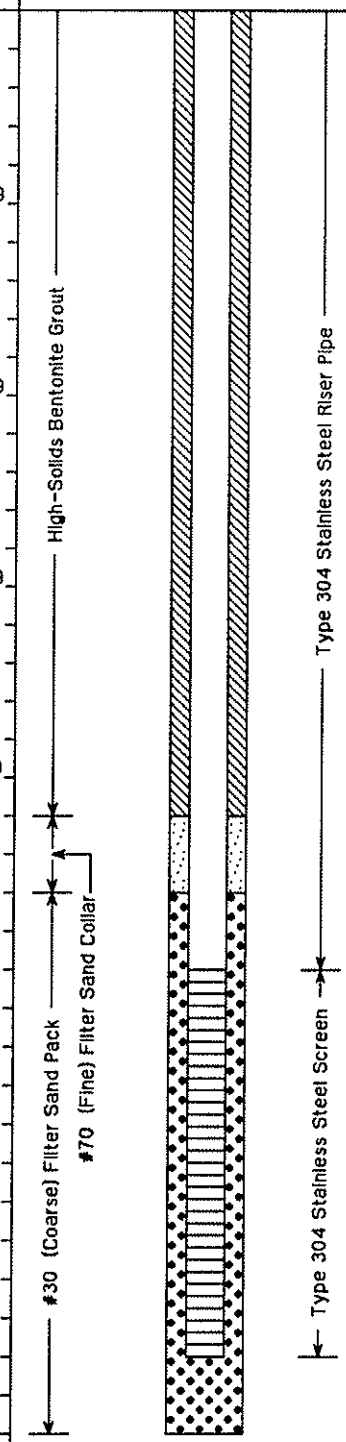
MONITORING WELL DETAIL

MW-114A

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. DEPTH	WELL CONSTRUCTION DETAIL
						659.9 / 65	
						654.9 / 70	
						649.9 / 75	
						644.9 / 80	
						639.9 / 85	
						634.9 / 90	
						629.9 / 95	
				Bottom of Boring @ 97 feet.			



CAMP DRESSER & McKEE
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233 South Wacker Drive, Suite 450
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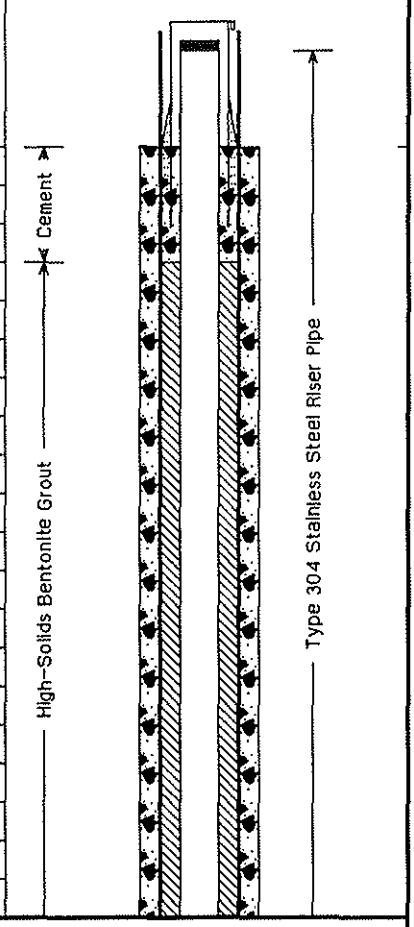
MONITORING WELL DETAIL
MW-114B

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: MR/BK81;AR/Canterra CT-350
Development Method: Air lift using nitrogen & surge block
Top of Riser Elevation: 727.42 Ft.
Total Depth: 233 Ft.
Field Screening Instrument: HNU
Logged By: S. S. Bhagat/M. Nugent

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 08-02-93 End 08-30-93
Drillers: Paul Dickinson, Chuck Blount
Development Date: Start 09-15-93 End 09-15-93
Surface Elevation: 725.2 Ft.
Depth To Initial Water Level (GS): ~25 Ft.
Well Coordinates:
N: 2030023.507 E: 2593338.004

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. DEPTH
				Topsoil		725.2 / 0
						720.2 / 5
SS	BG	2 2 3 3		9-11': Tan, well sorted, fine-med sand; dry.		715.2 / 10
						710.2 / 15
SS	BG	3 2		19-21': Tan, well sorted, fine-med sand; dry.		

WELL CONSTRUCTION DETAIL



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 - 1.6" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample

OTHER:
BGS - Below Ground Surface

CAMP DRESSER & McKEE

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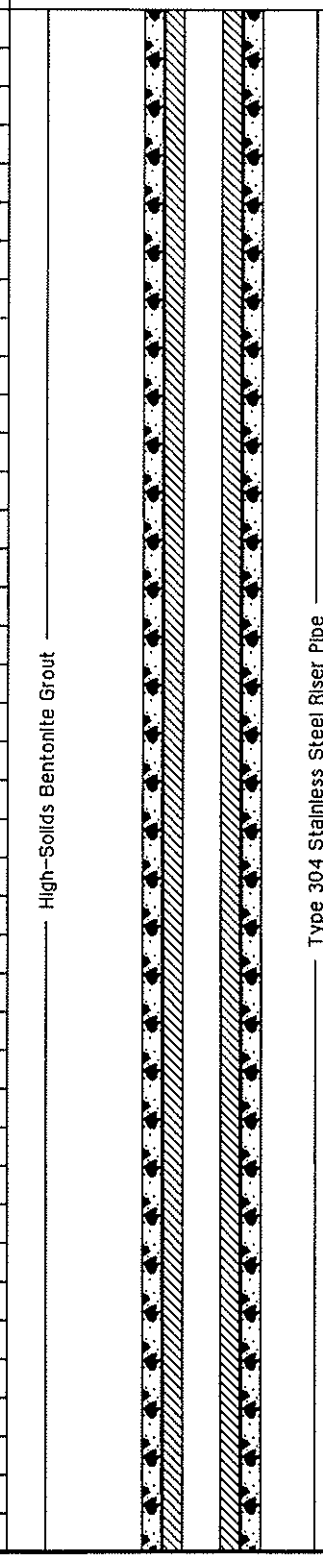
233 South Wacker Drive, Suite 450
Chicago, Illinois 60606-5306

MONITORING WELL DETAIL

MW-114B

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	ELEV. / DEPTH
SS	BG	3 2			
					700.2 / 25
SS	-	2 2 2 2		29-31': Spoon consisting of blow-in, med sand w/gravel. Possibly saturated. Water table is probably between 21-29'.	695.2 / 30
					690.2 / 35
SS	BG	3 3 2 5		39-41': Brown, med sand & gravel. Saturated.	685.2 / 40
					680.2 / 45
SS	BG	8 8 5 5		49-51': Tan, coarse sand & gravel.	675.2 / 50
					670.2 / 55
SS	BG	13 23		59-61': Tan/brown, well sorted, med sand.	

WELL CONSTRUCTION DETAIL



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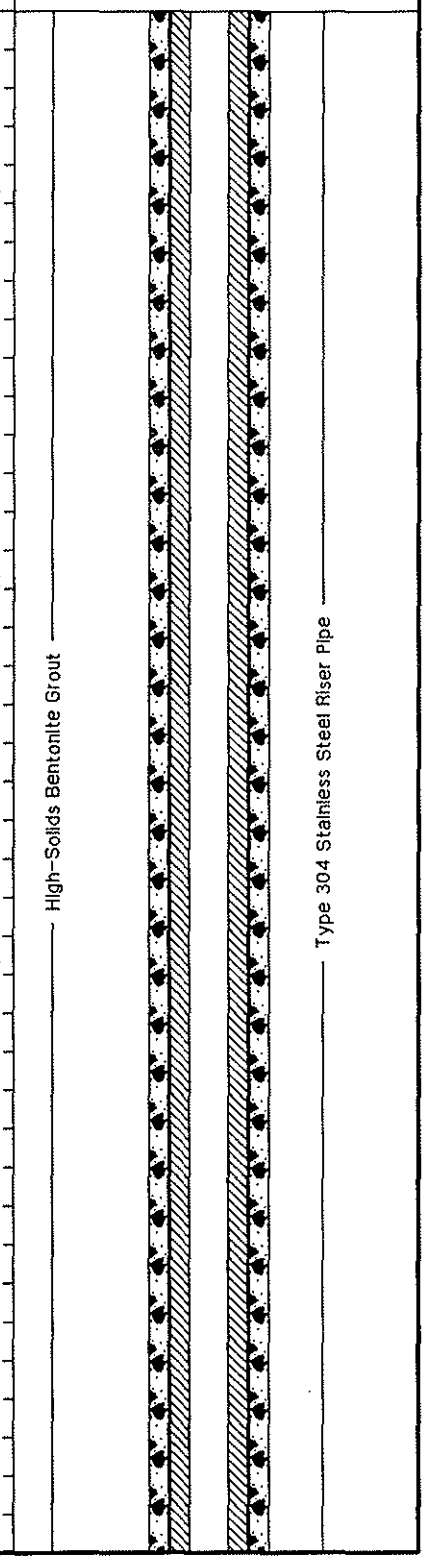
MONITORING WELL DETAIL

MW-114B

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	ELEV. DEPTH
SS	BG	30 35			660.2 / 65
SS	BG	10 15 21 25		69-71': Gray, interbedded silty fine sand & silty clay. Sand is moist to saturated & clay is essentially dry. Contacts between clay & sand are distinct. No bedding observed within each lithology; no clasts observed.	655.2 / 70
					650.2 / 75
					645.2 / 80
SS	BG	12 16 16 22		81-83': Tan, well sorted fine sand; saturated.	640.2 / 85
SS	BG	16 47 109 113		86-88': Tan, well sorted med sand.	635.2 / 90
HP	-			90.5-92': Hydro Punch Sample.	630.2 / 95
SS	BG	10 10		99-101': Tan, well sorted med sand.	

WELL CONSTRUCTION DETAIL



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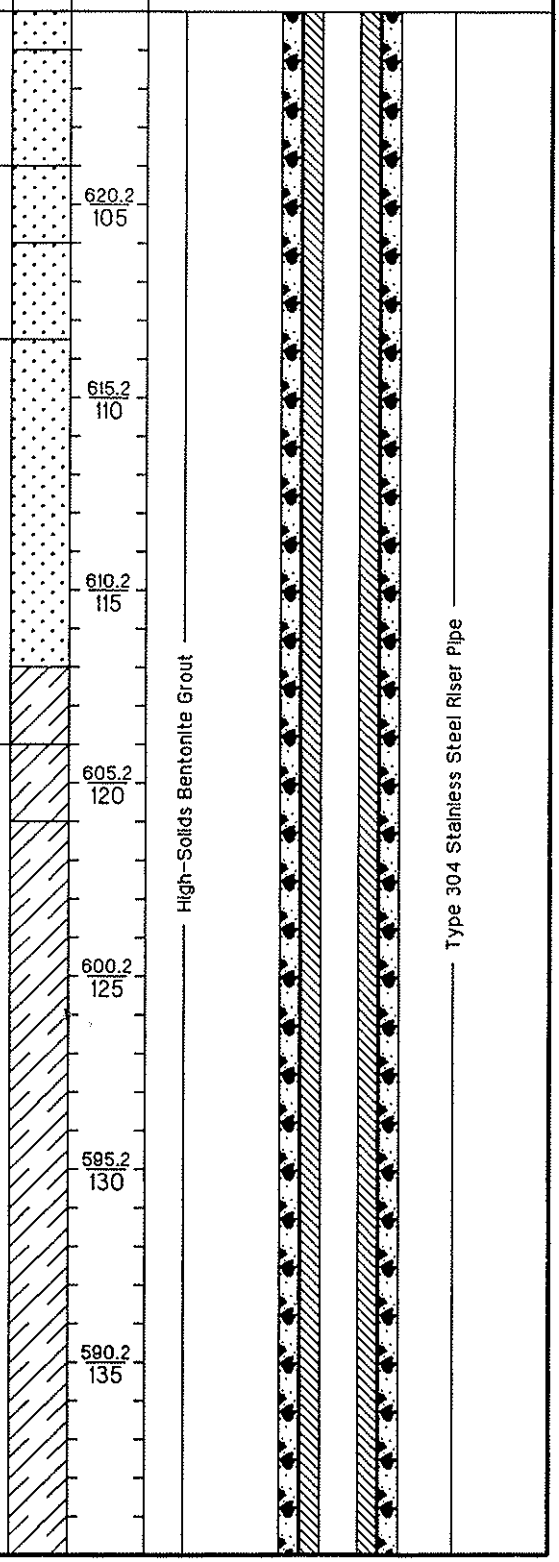
MONITORING WELL DETAIL

MW-114B

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	ELEV. DEPTH
SS	BG	12 12			
SS	BG	13 13 14 13		104-106': Tan, well sorted med sand; rare gravel.	620.2 / 105
HP	-			108.5-110': Hydro Punch Sample.	615.2 / 110
					610.2 / 115
SS	BG	7 8 6 11		119-121': Gray, silty clay; dry. P Dickinson noticed drilling change @ ~117', top of silty clay layer.	605.2 / 120
					600.2 / 125
					595.2 / 130
					590.2 / 135



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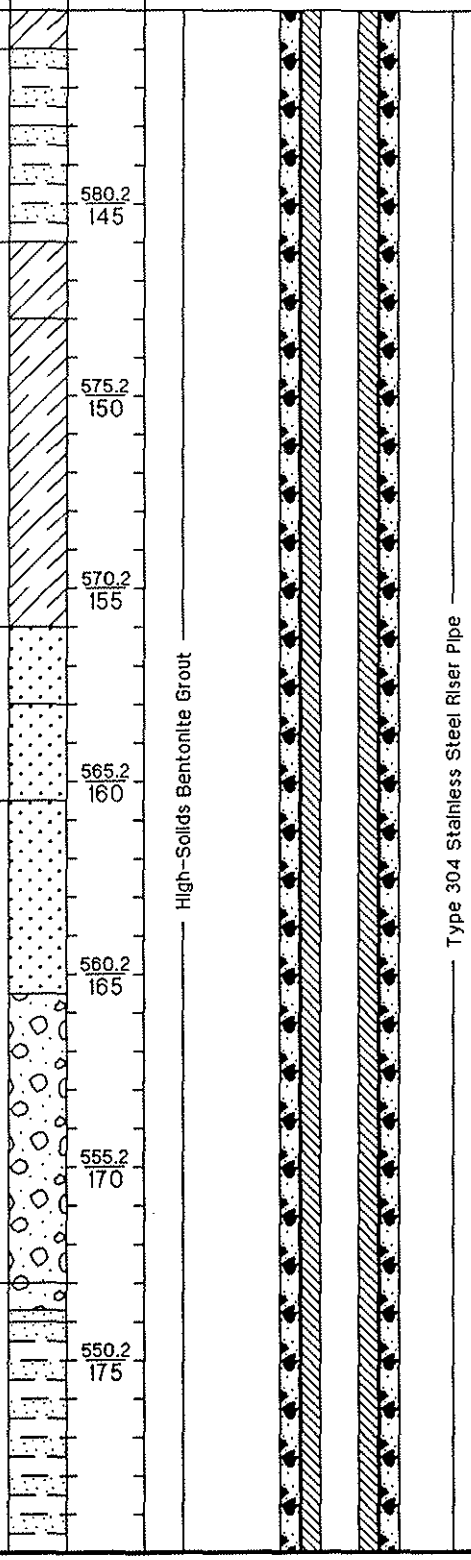
MONITORING WELL DETAIL

MW-114B

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	ELEV. DEPTH
SS	BG	16 16 17 13		141-143': Gray, silty very fine sand; moist.	
					580.2 / 145
SS	BG	7 7 7 10		146-148': Gray, silty & gravelly clay; dry; probably a "till".	
					575.2 / 150
					570.2 / 155
SS	BG	15 20 18 16		156-158': Gray, well sorted med sand.	
					565.2 / 160
HP	-			160.5-162': Hydro Punch Sample.	
					560.2 / 165
					555.2 / 170
SS	BG	21 18 26 17		173-175': Gray, gravelly fine-med sand from 173-173.7'. Gray, silty, v fine sand from 173.7-174.	
					550.2 / 175

WELL CONSTRUCTION DETAIL



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MONITORING WELL DETAIL

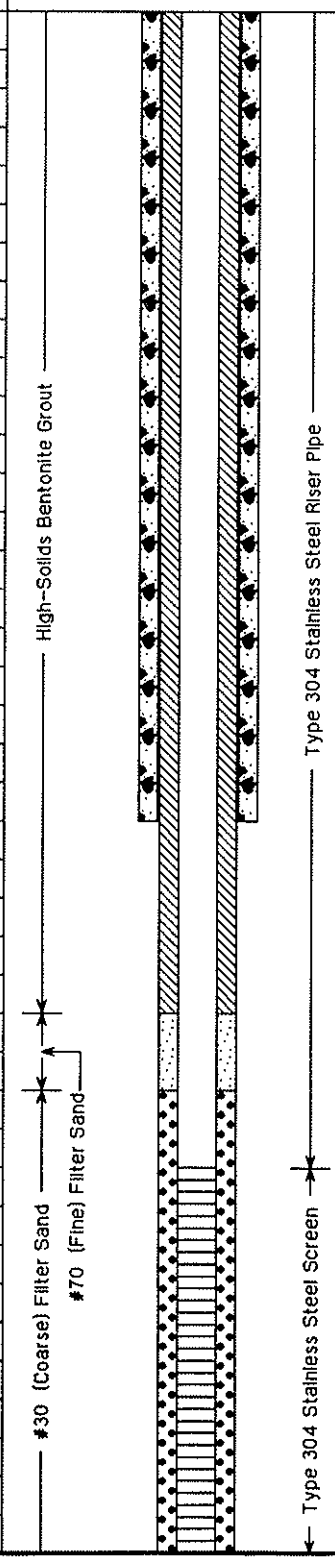
MW-114B

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION
SS	-	65 /6"		183-185': Gray & tan gravel; coarse sand in upper 2". Contains large limestone fragments.
				190-201.5': Predominantly limestone (65-80%) and lesser amounts of lithic fragments (including igneous & metamorphics) and quartz. This interval most likely is a rubbly zone containing mostly limestone.
SS	BG	50 /zero		201-203': Complete refusal.

GRAPHIC LOG

ELEV. / DEPTH: 540.2 / 185; 535.2 / 190; 530.2 / 195; 525.2 / 200; 520.2 / 205; 515.2 / 210; 510.2 / 215

WELL CONSTRUCTION DETAIL



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MONITORING WELL DETAIL

MW-114B

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. DEPTH	WELL CONSTRUCTION DETAIL
						500.2 / 225	#30 (Coarse) Filter Sand
						495.2 / 230	
				Bottom of Boring @ 233 feet.		490.2 / 235	
						485.2 / 240	
						480.2 / 245	
						475.2 / 250	
						470.2 / 255	

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MONITORING WELL DETAIL
MW-115A

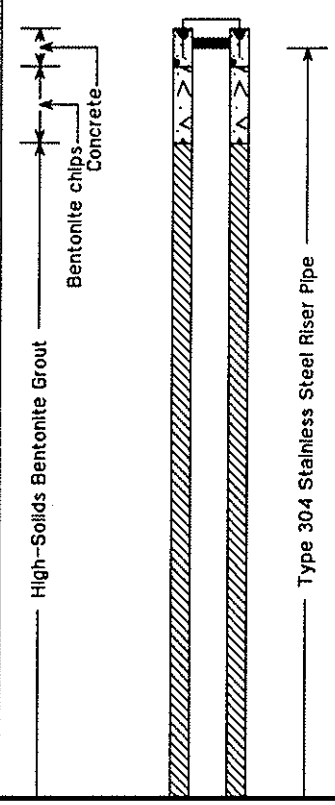
Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Mud Rotary/Diedrich 50
Development Method: Bailing & surge block
Top of Riser Elevation: 801.33 Ft.
Total Depth: 102 Ft.
Field Screening Instrument: OVM
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 07-25-93 End 08-10-93
Drillers: Rick O'Gorman, Mark Thorson
Development Date: Start 10-05-93 End 10-11-93
Surface Elevation: 801.9 Ft.
Depth To Initial Water Level (GS): ~85 Ft.
Well Coordinates:
N: 2031331.502 E: 2598719.361

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	ELEV. DEPTH
			ML	Topsoil	801.9 / 0
			ML		796.9 / 5
SS	0 ppm	20 16 50 /0.5'	ML	10-12': Clayey gravelly sandy silt, mod yellow bn. Gravel is ~15% & is med pebbles to granules, subangular to angular, and with no preferred orientation. Silt & clay is ~75% & forms matrix to gravel & sand. No bedding; moist.	791.9 / 10
			ML		786.9 / 15

GRAPHIC LOG

WELL CONSTRUCTION DETAIL



EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
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SSA - Solid Stem Auger
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ST - Shelby Tube
WS - Wash Sample

OTHER:
BGS - Below Ground Surface

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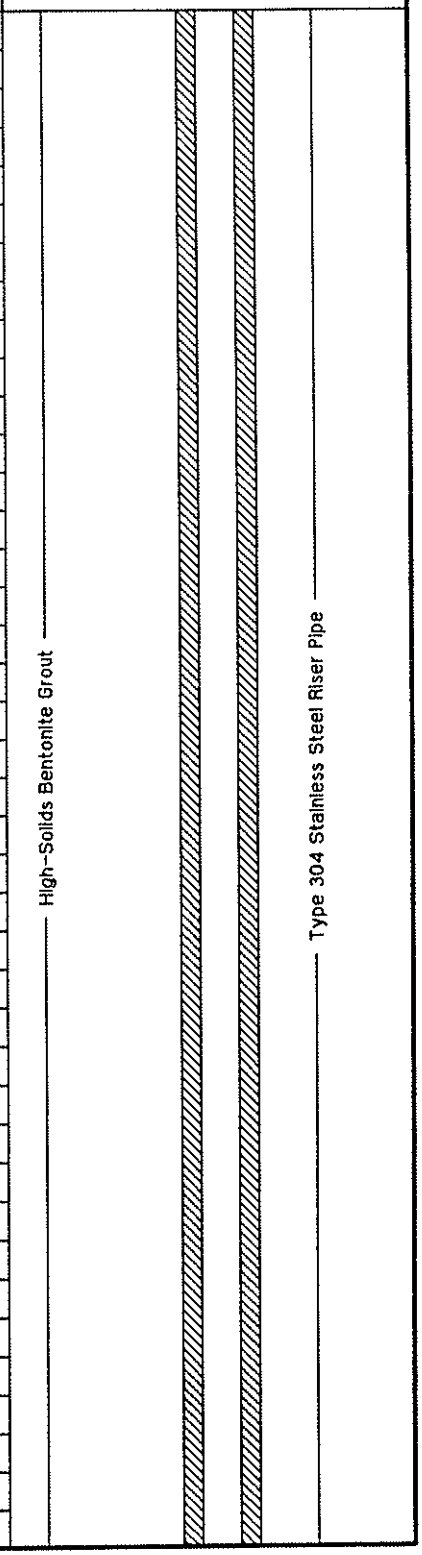
MONITORING WELL DETAIL

MW-115A

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	ELEV. DEPTH
SS	0 ppm	14 10 15 18	ML	20-22': Clayey gravelly sandy silt, mod yellow bn to med gy bn; otherwise same as 10-12' sample.	
			ML		776.9 / 25
					771.9 / 30
SS	0 ppm	9 12 10 17	ML	30-32': Clayey gravelly sandy silt, mod gy bn to med yellow bn; otherwise same as 10-12' sample.	
					766.9 / 35
			GP	39-45': A dolomite boulder (no sample)	761.9 / 40
					756.9 / 45
			GP	45-52': Gravel (based on drilling action & cuttings; no sample)	
					751.9 / 50
			GP-SP	52-55': Sandy gravel (no sample)	
					746.9 / 55
			GP	55-57': Gravel (no sample)	
			GP-SP	57-60': Sandy gravel (no sample)	

GRAPHIC LOG

WELL CONSTRUCTION DETAIL



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MONITORING WELL DETAIL

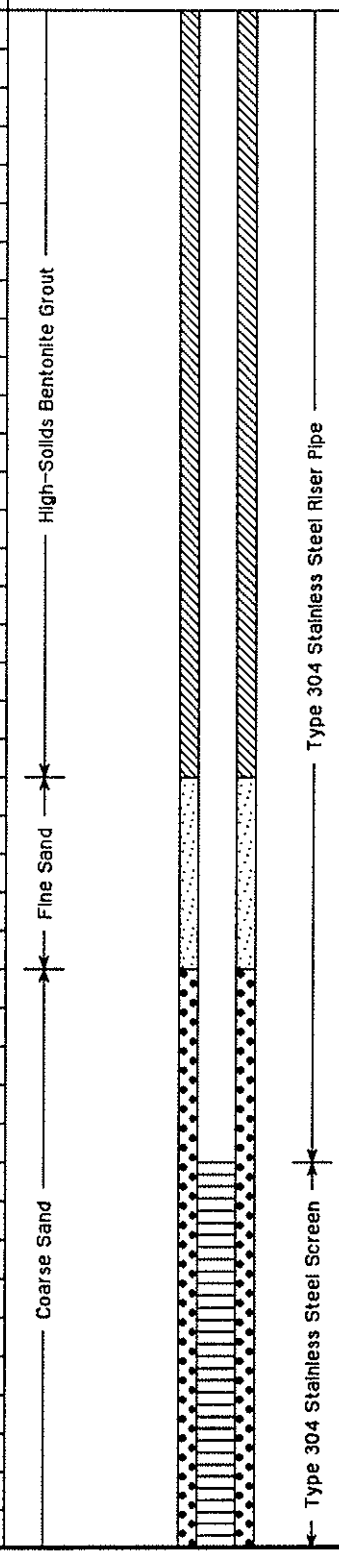
MW-115A

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION
SS	0 ppm	16 13 19	SP	60-61.5': Gravelly sand, v.coarse to med, mod bn; gravel is subrounded sm. - lg. pebbles & is carbonate, chert, igneous & meta rock fragments & quartz; wet but not quite saturated
			SP	
			ML-SP	67-69': Silt or clay, based on cuttings & drilling action
			ML	70-70.4': Clayey gravelly silt, mod gy bn; gravel is sm pebbles, subang.
			SP	70.4-71.3': Gravelly sand, bn; sand is coarse to fine; gravel is large to sm pebbles which are subrounded to subangular; moist.
			SP	
SS	0 ppm	32 50 /0.4'	SP-SW	80-82': Gravelly sand, mod or bn; sand is coarse to fine; gravel is subrounded to subang., sm - lg pebbles; ~3% silt/clay; wet but not saturated.
			SP-GP	82-88': Sand & Gravel (based on drilling action, cuttings)
			SP	88-90': Sand (drilling action)
SS	0 ppm	20 25 50 /0.4'	SP	90-90.9': Lt bn sand, fine exc. @ 90-90.2' which is med,; subhoriz. laminae of dark min'l concentrations.
			ML	90.9-91.5': Mod or bn to lt bn sandy silt, loc clayey; numerous subhoriz. laminae, like varves; the sand is v.fine; saturated.
			SP	91.5-100': Sand (drilling action)

GRAPHIC LOG

ELEV. / DEPTH
736.9 / 65
731.9 / 70
726.9 / 75
721.9 / 80
716.9 / 85
711.9 / 90
706.9 / 95

WELL CONSTRUCTION DETAIL



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MONITORING WELL DETAIL

MW-115A

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. DEPTH	WELL CONSTRUCTION DETAIL
SS	0 ppm		SP	100-101.5': Lt bn sand, coarse to med exc. @ 100-100.3 where it is fine; mod well sorted; saturated.			Coarse Sand
				Bottom of Boring @ 102 feet.			

696.9 / 105

691.9 / 110

686.9 / 115

681.9 / 120

676.9 / 125

671.9 / 130

666.9 / 135

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MONITORING WELL DETAIL

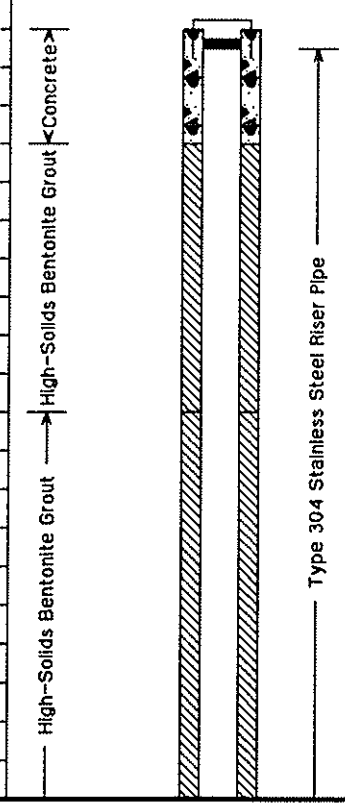
MW-115B

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Mud Rotary/Diedrich 50
Development Method: Bailing & surge block
Top of Riser Elevation: 802.26 Ft.
Total Depth: 102 Ft.
Field Screening Instrument: OVM
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 07-26-93 End 08-05-93
Drillers: Rick O'Gorman, Mark Thorson
Development Date: Start 10-05-93 End 10-11-93
Surface Elevation: 802.9 Ft.
Depth To Initial Water Level (GS): ~85 Ft.
Well Coordinates:
N: 2031347.023 E: 2598719.166

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	ELEV. DEPTH
			ML	Topsoil	802.9 / 0
			ML		797.9 / 5
SS	0 ppm	20 16 50 /0.5'	ML	10-12': Clayey gravelly sandy silt, mod yellow bn. Gravel is ~15% & is med pebbles to granules, subangular to angular, and with no preferred orientation. Silt & clay is ~75% & forms matrix to gravel & sand. No bedding; moist.	792.9 / 10
			ML		787.9 / 15

WELL CONSTRUCTION DETAIL



EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
SSA - Solid Stem Auger
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MR - Mud Rotary
RC - Reverse Circulation
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DTC - Drill Through Casing

SAMPLING TYPES:
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CS - California Sampler
BX - 1.6" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample

OTHER:
BGS - Below Ground Surface

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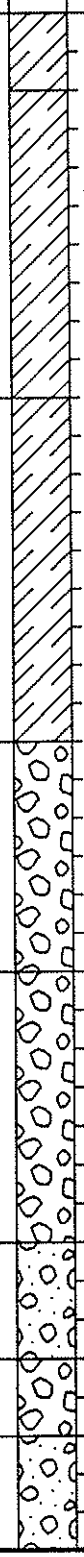
MONITORING WELL DETAIL

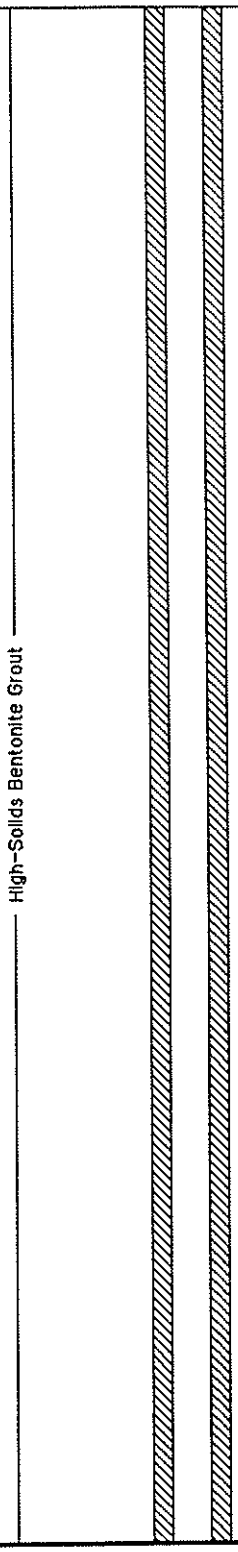
MW-115B

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	ELEV. DEPTH
SS	0 ppm	14 10 15 18	ML	20-22': Clayey gravelly sandy silt, mod yellow bn to med gy bn; otherwise same as 10-12' sample.	
			ML		777.9 / 25
					772.9 / 30
SS	0 ppm	9 12 10 17	ML	30-32': Clayey gravelly sandy silt, mod gy bn to med yellow bn; otherwise same as 10-12' sample.	
					767.9 / 35
			GP	38-45': A dolomite boulder (no sample)	762.9 / 40
					757.9 / 45
			GP	45-52': Gravel (based on drilling action & cuttings; no sample)	
					752.9 / 50
			GP-SP	52-55': Sandy gravel (no sample)	
					747.9 / 55
			GP	55-57': Gravel (no sample)	
			GP-SP	57-60': Sandy gravel (no sample)	

GRAPHIC LOG



WELL CONSTRUCTION DETAIL



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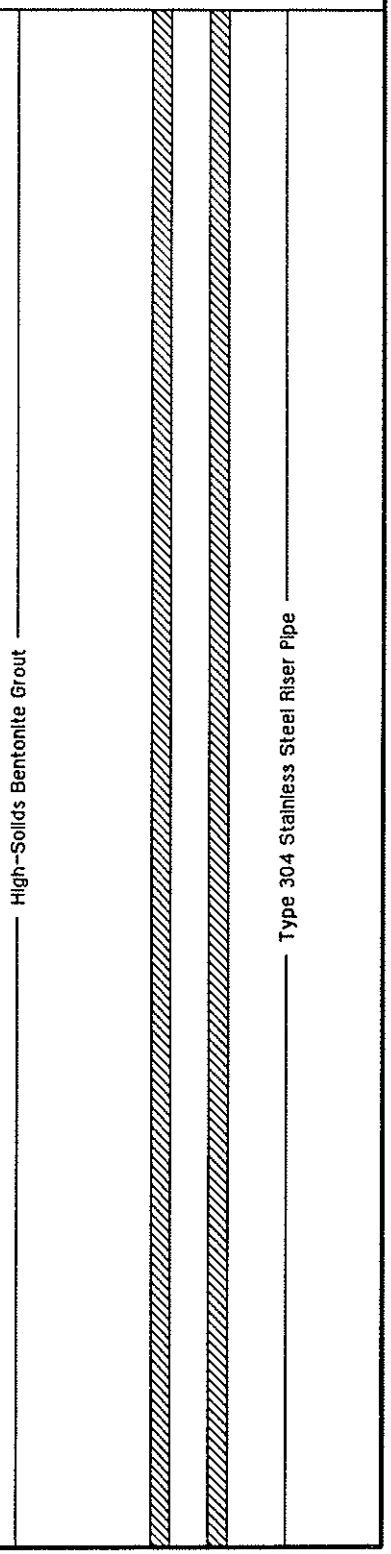
MONITORING WELL DETAIL

MW-115B

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	ELEV. DEPTH
SS	0 ppm	16 13 19	SP	60-81.5': Gravelly sand, v.coarse to med, mod bn; gravel is subrounded sm. - lg. pebbles & is carbonate, chert, igneous & meta rock fragments & quartz; wet but not quite saturated	
			SP		737.9 / 65
			ML-SP	67-69': Silt or clay, based on cuttings & drilling action	
			ML	70-70.4': Clayey gravelly silt, mod gy bn; gravel is sm pebbles, subang.	732.9 / 70
			SP	70.4-71.3': Gravelly sand, bn; sand is coarse to fine; gravel is large to sm pebbles which are subrounded to subangular; moist.	
			SP		727.9 / 75
					722.9 / 80
SS	0 ppm	32 50 /0.4'	SP-SW	80-82': Gravelly sand, mod or bn; sand is coarse to fine; gravel is subrounded to subang., sm - lg pebbles; ~3% silt/clay; wet but not saturated.	
			SP-GP	82-88': Sand & Gravel (based on drilling action, cuttings)	717.9 / 85
			SP	88-90': Sand (drilling action)	712.9 / 90
SS	0 ppm	20 25 50 /0.4'	SP	90-90.9': Lt bn sand, fine exc. @ 90-90.2' which is med,; subhoriz. laminae of dark min'l concentrations.	
			ML	90.9-91.5': Mod or bn to lt bn sandy silt, loc clayey; numerous subhoriz. laminae, like varves; the sand is v.fine; saturated.	
			SP	91.5-100': Sand (drilling action)	707.9 / 95

WELL CONSTRUCTION DETAIL



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MONITORING WELL DETAIL

MW-115B

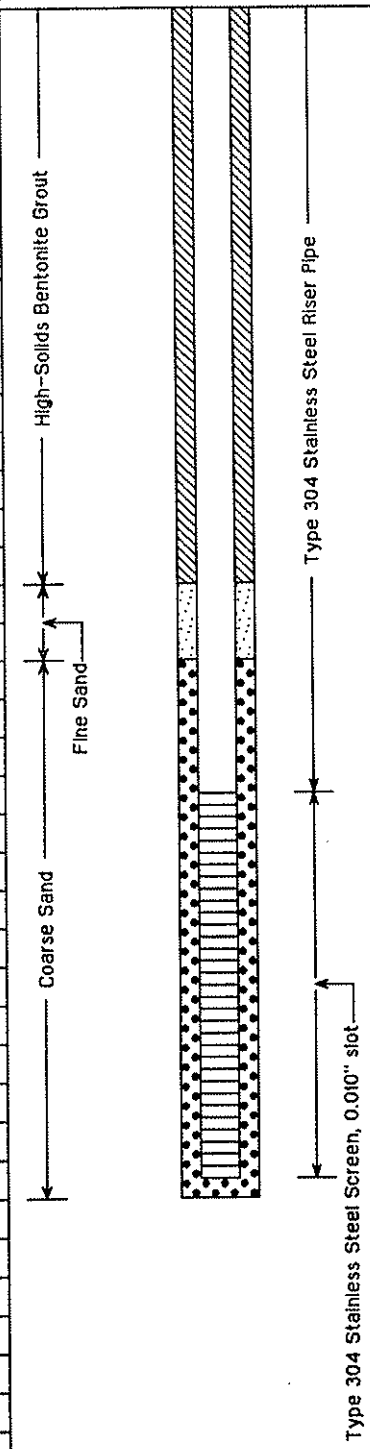
SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION
SS	0 ppm	16 22 22 10	SP	100-101.5': Lt bn sand, coarse to med exc. @ 100-100.3 where it is fine; mod well sorted; saturated.
			SP	101.5-110': Sand (drilling action)
SS	0 ppm	16 32 33 15	SP	110-110.7': Lt gy bn sand, fine; saturated.
			SP	110.7-111.4': Lt gy bn sand, med-coarse; few pebbles @ base; saturated.
			SP	111.4-120': Sand (drilling action)
SS	0 ppm	32 40 50 /0.4'	SP	120-121.2': Lt gy bn sand, med to coarse, mod well sorted; saturated.
			SP	121.2-124': Sand (drilling action)
			GP	124-130': Coarse sand or gravel
SS	0 ppm	36 40 50 16	GP	130-131': Mod bn to or bn sandy gravel, ~3% or bn to bn silt/clay; sand is coarse to med & ~40% of sample; gravel is large to sm pebbles, generally subrounded; flattish pebbles tend to have subhorizontal orientation; saturated.

Bottom of Boring @ 131 feet.

GRAPHIC LOG

ELEV. DEPTH: 697.9 / 105; 692.9 / 110; 687.9 / 115; 682.9 / 120; 677.9 / 125; 672.9 / 130; 667.9 / 135

WELL CONSTRUCTION DETAIL



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MONITORING WELL DETAIL

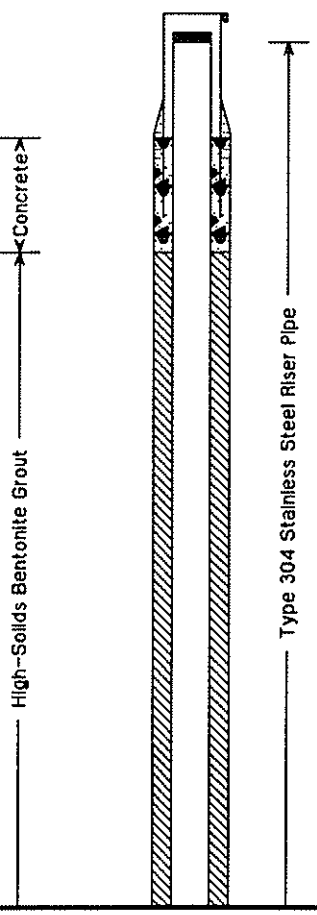
MW-116A

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Mud Rotary/Diedrich 50
Development Method: Air lift using nitrogen & surge block
Top of Riser Elevation: 736.24 Ft.
Total Depth: 82 Ft.
Field Screening Instrument: HNU
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 07-11-93 End 07-12-93
Drillers: Rick O'Gorman, Mark Thorson
Development Date: Start 09-14-93 End 09-14-93
Surface Elevation: 733.7 Ft.
Depth To Initial Water Level (GS): 35 Ft.
Well Coordinates:
N: 2032217.563 E: 2589306.154

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	ELEV. DEPTH
			ML	Topsoil	733.7 / 0
			SP		728.7 / 5
SS	0 ppm	8 10 22 16	SP	Lt gy bn SAND, medium to coarse w/~15% small (up to 2cm) subrounded pebbles, moist.	723.7 / 10
			SP		718.7 / 15

WELL CONSTRUCTION DETAIL



EXPLANATION OF ABBREVIATIONS

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

SAMPLING TYPES:
AS - Auger/Grab Sample
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BX - 1.6" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample

OTHER:
BGS - Below Ground Surface

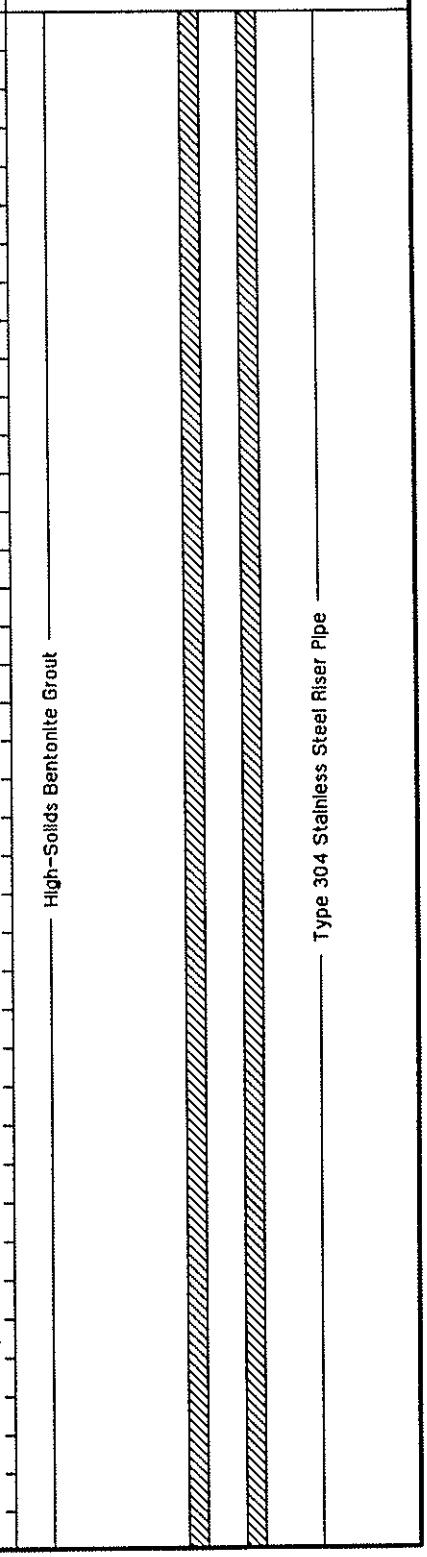
CAMP DRESSER & McKEE
CDM
233 South Wacker Drive, Suite 450
Chicago, Illinois 60606-5306

MONITORING WELL DETAIL

MW-116A

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	ELEV. DEPTH
SS	0 ppm	11 12 11 18	SP	Lt bn SAND, medium to fine-grained, trace (<5%) granules & pebbles; loose, moist; sand grains are angular; no silt or clay visible.	708.7 / 25
SS	0 ppm	7 12 8 28	SP	Lt gy bn SAND, fine to coarse, w/~10% gravel as small pebbles which are subrounded to subangular & concentrated in discrete beds; loose, moist.	703.7 / 30; 698.7 / 35
SS	0 ppm	10 15 17 13	SP	Lt bn SAND, fine to coarse , w/ 5% gravel (in several layers, especially @ 40.0-40.3') as granules & small pebbles that are subrounded to subangular; wet.	693.7 / 40; 688.7 / 45
SS	0 ppm	6 14 14 40	SP	Lt bn SAND, w/10% gravel; sand is fine to coarse w/ loc abundant granules in horizontal layers; gravel is mainly small subrounded to angular pebbles which are carbonate, chert, igneous & jasper; no silt or clay observed; saturated.	683.7 / 50; 678.7 / 55

WELL CONSTRUCTION DETAIL



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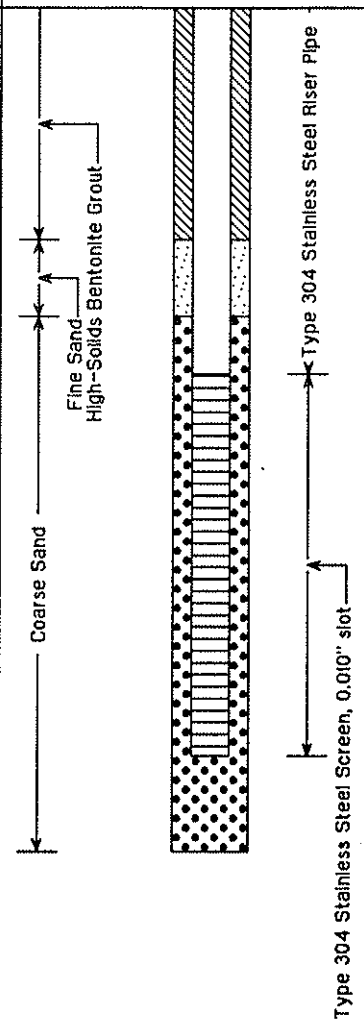
MONITORING WELL DETAIL

MW-116A

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. DEPTH
SS	0 ppm	25 22 18 26	SP	Lt bn SAND, fine to med w/ some coarse @ 60.0-60.2'; trace sm pebbles; up to 15% granules @ 60.0-60.2. Subhorizontal bedding; loose; saturated.		668.7 / 65
SS	-	100 /0.3'	SP	(No recovery - rock)		663.7 / 70
						658.7 / 75
SS	0 ppm	10 12 14 14	SP	Lt bn SAND, w/ ~20% gravel; sand is fine to coarse; gravel is subrounded to subangular small pebbles of same lithology as @ 50-52'; wet.		653.7 / 80
				Bottom of Boring @ 82 feet		648.7 / 85
						643.7 / 90
						638.7 / 95

WELL CONSTRUCTION DETAIL



CAMP DRESSER & McKEE
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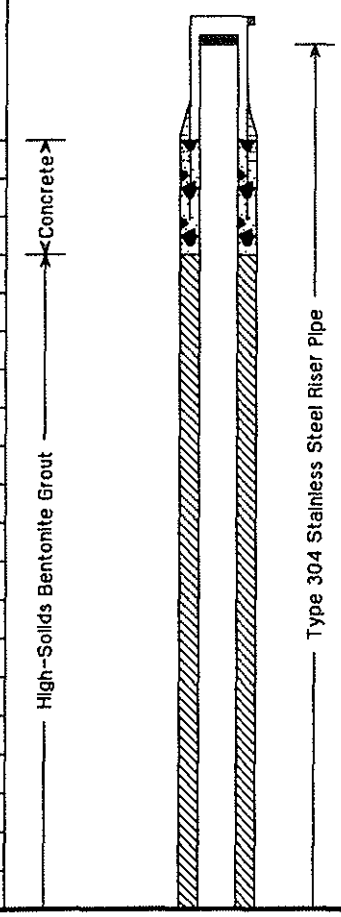
MONITORING WELL DETAIL

MW-116B

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Mud Rotary/Diedrich 50
Development Method: Air lift using nitrogen & surge block
Top of Riser Elevation: 736.35 Ft.
Total Depth: 169 Ft.
Field Screening Instrument: HNU
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 07-07-93 End 07-10-93
Drillers: Rick O'Gorman, Mark Thorson
Development Date: Start 10-07-93 End 10-07-93
Surface Elevation: 733.8 Ft.
Depth To Initial Water Level (GS): ~35 Ft.
Well Coordinates:
N: 2032217.424 E: 2589294.698

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. DEPTH
			ML	Topsoil		733.8 / 0
			SP			728.8 / 5
SS	0 ppm	8 10 22 16		Lt gy bn SAND, medium to coarse w/~15% small (up to 2cm) subrounded pebbles, moist.		723.8 / 10
			SP			718.8 / 15



EXPLANATION OF ABBREVIATIONS

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HSA - Hollow Stem Auger
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OTHER:
BGS - Below Ground Surface

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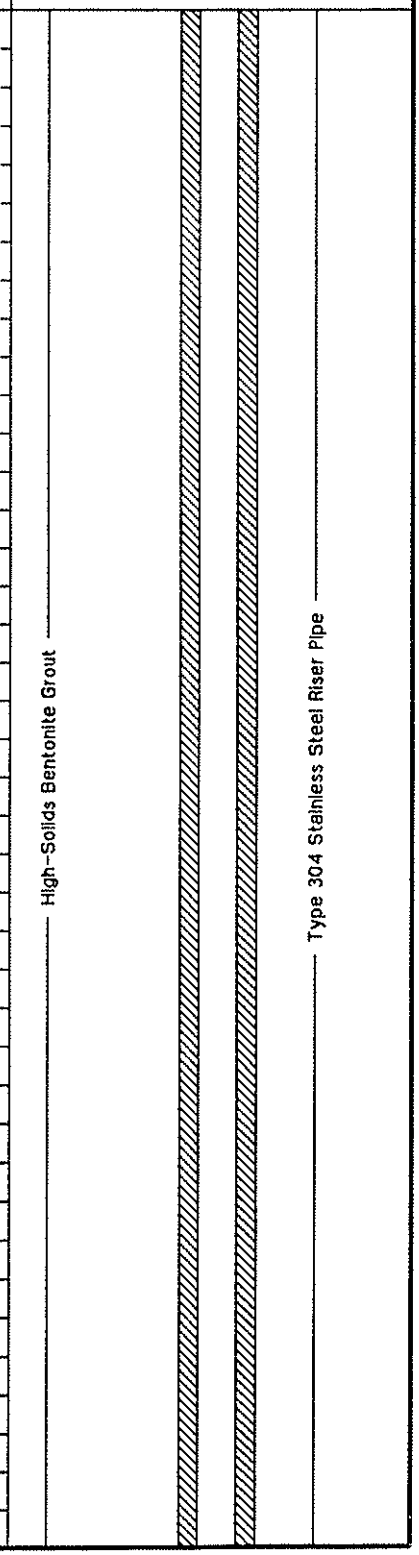
MONITORING WELL DETAIL

MW-116B

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. DEPTH
SS	0 ppm	11 12 11 18	SP	Lt bn SAND, medium to fine-grained, trace (<5%) granules & pebbles; loose, moist; sand grains are angular; no silt or clay visible.		708.8 / 25
SS	0 ppm	7 12 9 28	SP	Lt gy bn SAND, fine to coarse, w/~10% gravel as small pebbles which are subrounded to subangular & concentrated in discrete beds; loose, moist.		703.8 / 30; 698.8 / 35
SS	0 ppm	10 15 17 13	SP	Lt bn SAND, fine to coarse , w/ 5% gravel (in several layers, especially @ 40.0-40.3') as granules & small pebbles that are subrounded to subangular; wet.		693.8 / 40; 688.8 / 45
SS	0 ppm	6 14 14 40	SP	Lt bn SAND, w/10% gravel; sand is fine to coarse w/ loc abundant granules in horizontal layers; gravel is mainly small subrounded to angular pebbles which are carbonate, chert, igneous & jasper; no silt or clay observed; saturated.		683.8 / 50; 678.8 / 55

WELL CONSTRUCTION DETAIL



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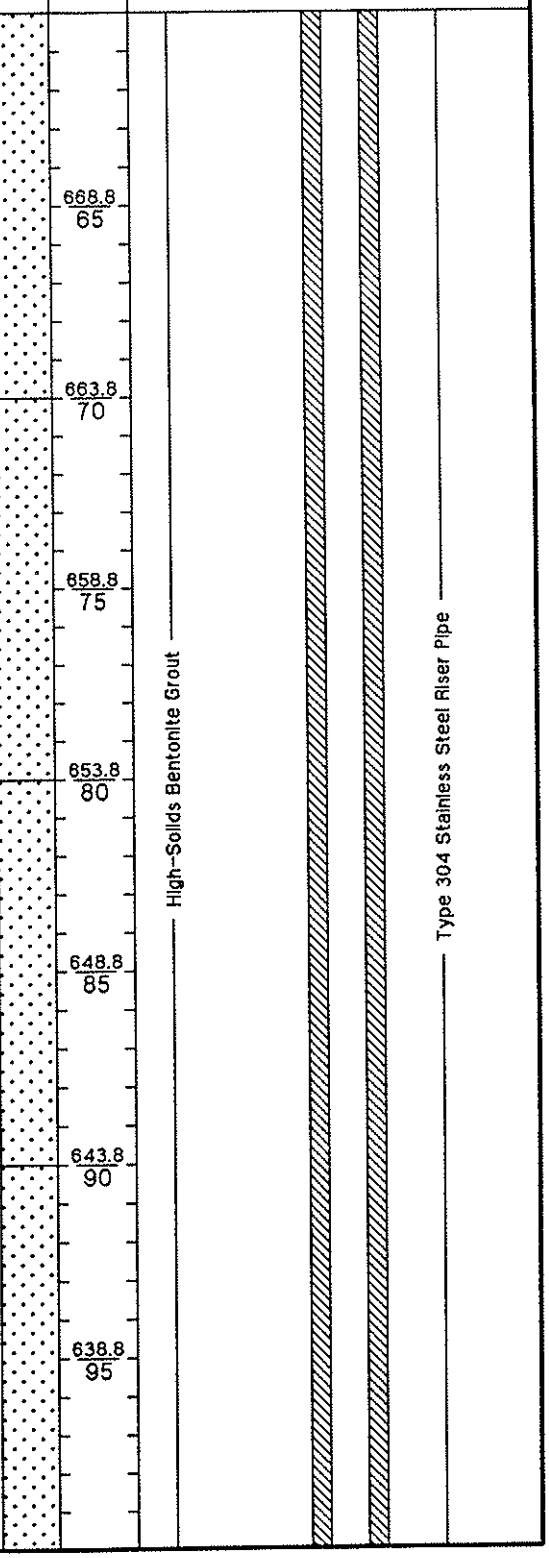
MONITORING WELL DETAIL

MW-116B

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	ELEV. DEPTH
SS	0 ppm	25 22 18 26	SP	Lt bn SAND, fine to med w/ some coarse @ 60.0-60.2'; trace sm pebbles; up to 15% granules @ 60.0-60.2. Subhorizontal bedding; loose; saturated.	668.8 / 65
SS	-	100 /0.3'	SP	(No recovery - rock)	663.8 / 70
SS	0 ppm	10 12 14 14	SP	Lt bn SAND, w/ ~20% gravel; sand is fine to coarse; gravel is subrounded to subangular small pebbles of same lithology as @ 50-52'; wet.	658.8 / 75
SS	0 ppm	23 17 18 28	SP	Lt bn SAND, w/~10% gravel 80.0-80.3' is med sand w/~5% pebbles; 80.3-80.6: coarse sand w/~25% gravel; 80.6-80.9: fine to v.fine SAND. The gravel is small subrounded to subangular pebbles of same lithology as @ 50-52'; wet.	653.8 / 80
					648.8 / 85
					643.8 / 90
					638.8 / 95

GRAPHIC LOG

WELL CONSTRUCTION DETAIL



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MONITORING WELL DETAIL

MW-116B

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	ELEV. DEPTH
			SP		628.8 / 105
SS	0 ppm	16 23 28 30	SP-GP	Lt gy bn gravelly SAND, sand is coarse to fine; gravel is large to small subrounded to subangular pebbles which are ~75-80% carbonate & chert, remainder being largely igneous (granite, basalt, rhyolite, diorite).	
			GP	Note: Drilling action suggests large cobbles @ 107-113'	623.8 / 110
			SP		618.8 / 115
			GP	Note: Drilling action suggests large cobbles @ 115-119'	
			SP		613.8 / 120
SS	0 ppm	26 33 38 42	SP-GP	Lt gy bn gravelly SAND; sand is coarse to fine, subrounded to subangular & predominantly quartz; gravel is cobbles to small pebbles, subrounded & of same lithology as @ 105-107', wet.	608.8 / 125
					603.8 / 130
			CL-SM	Note: Drilling action suggests silty clay begins @ 132'.	598.8 / 135
SS	0 ppm	16 36 24 50	CL-SM	Silty clay and silty v.fine sand; Detailed description: 135.0-135.1': Lt bn to or bn SAND, med to coarse, iron-stained near base. 135.1-135.8': Mod bn gy to or bn silty clay (or bn @ 135.1-135.4'), with horizontal laminated bedding occasionally marked by silty partings or charcoal fragments. 135.8-135.8': Laminated clayey SILT (lt gy) & silty clay (mod bn gy), possibly glaciolacustrine varves; 135.8-136.1: silty clay as	

WELL CONSTRUCTION DETAIL

High-Solids Bentonite Grout

Type 304 Stainless Steel Riser Pipe

CAMP DRESSER & McKEE
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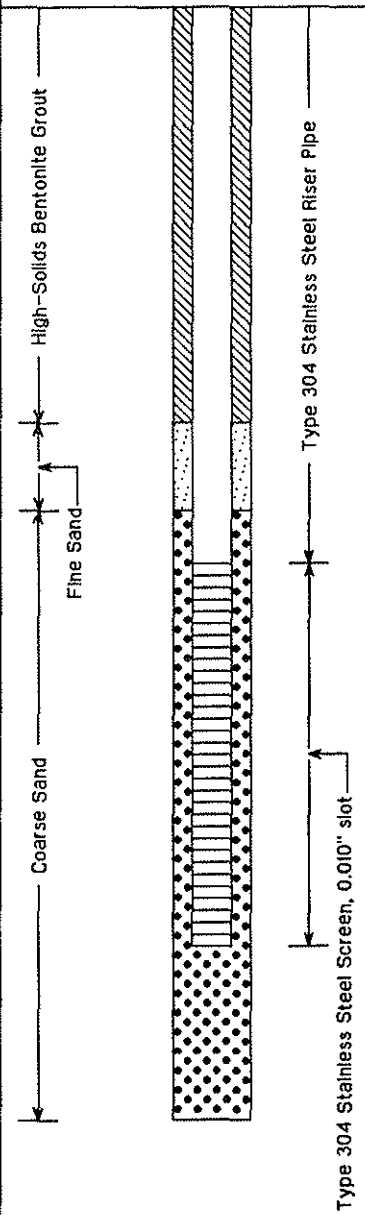
MONITORING WELL DETAIL

MW-116B

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	ELEV. DEPTH
			CL-SM	In 135.1-135.8; 136.1-136.3: mod-lt gy silty v.fine sand	
			SP	Note: Drilling action suggests silty clay ends @ 144'	588.8 / 145
SS	0 ppm	20 25 30 18	SP	Lt bn gy SAND, med to fine, trace (~2%) medium pebbles; subhorizontal bdg; no silt/clay observed; sand is subrounded to angular, ~95% qtz; wet.	583.8 / 150
					578.8 / 155
					573.8 / 160
					568.8 / 165
SS	0 ppm	23 27 25 19	SP-GP	Lt bn SAND, w/some gravel (up to 20%); sand is coarse to med.; gravel is mainly small pebbles which are subrounded & of same lithology as 105-107' sample.	
				Bottom of Boring @ 169 feet	563.8 / 170
					558.8 / 175



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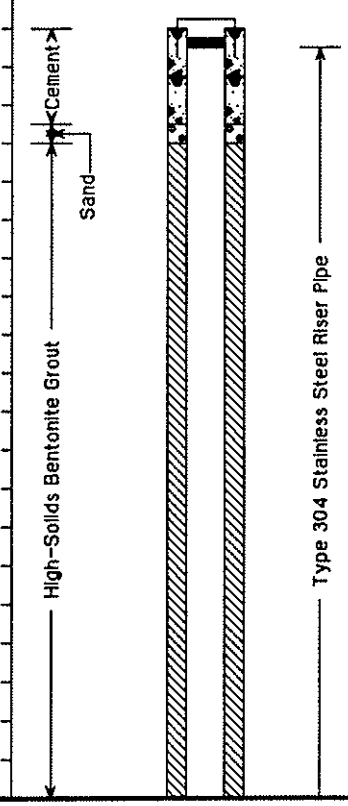
MONITORING WELL DETAIL

MW-117A

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Hollow-stem auger/BK81
Development Method: Air lift using nitrogen & surge block
Top of Riser Elevation: 696.19 Ft.
Total Depth: 40 Ft.
Field Screening Instrument: HNU
Logged By: S. S. Bhagat

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 07-22-93 End 07-22-93
Drillers: Paul Dickinson, Mike Nelson
Development Date: Start 09-22-93 End 09-22-93
Surface Elevation: 696.4 Ft.
Depth To Initial Water Level (GS): ~3 Ft.
Well Coordinates:
N: 2028106.575 E: 2586529.157

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. DEPTH	WELL CONSTRUCTION DETAIL
				Note: See MW-117C for geologic log.		696.4 / 0	
						691.4 / 5	
						686.4 / 10	
						681.4 / 15	



EXPLANATION OF ABBREVIATIONS

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CDM
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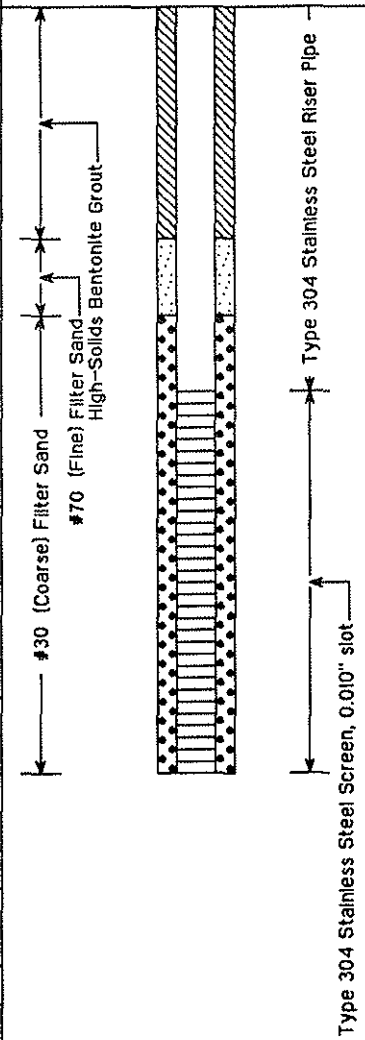
MONITORING WELL DETAIL

MW-117A

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. / DEPTH	WELL CONSTRUCTION DETAIL
						671.4 / 25	
						666.4 / 30	
						661.4 / 35	
				Bottom of Boring @ 40 feet		656.4 / 40	
						651.4 / 45	
						646.4 / 50	
						641.4 / 55	



CAMP DRESSER & McKEE
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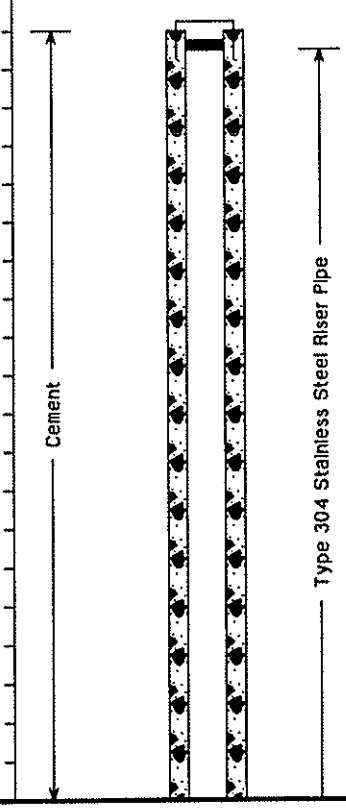
MONITORING WELL DETAIL
MW-117B

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Mud Rotary/BK81
Development Method: Air lift using nitrogen & surge block
Top of Riser Elevation: 696.26 Ft.
Total Depth: 90 Ft.
Field Screening Instrument: HNU
Logged By: S. S. Bhagat

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 07-13-93 End 07-19-93
Drillers: Paul Dickinson, Mike Nelson
Development Date: Start 09-17-93 End 09-22-93
Surface Elevation: 696.4 Ft.
Depth To Initial Water Level (GS): Not Measured
Well Coordinates:
N: 2028092.927 E: 2586515.638

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. DEPTH	WELL CONSTRUCTION DETAIL
				Note: See MW-117C for geologic log.		696.4 / 0	
						691.4 / 5	
						686.4 / 10	
						681.4 / 15	



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OTHER:
BGS - Below Ground Surface

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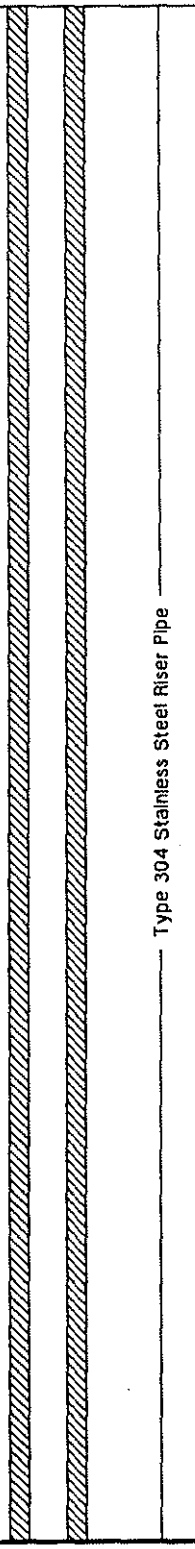
MONITORING WELL DETAIL

MW-117B

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. / DEPTH	WELL CONSTRUCTION DETAIL
						671.4 / 25	High-Solids Bentonite Grout
						666.4 / 30	
						661.4 / 35	
						656.4 / 40	
						651.4 / 45	
						646.4 / 50	
						641.4 / 55	



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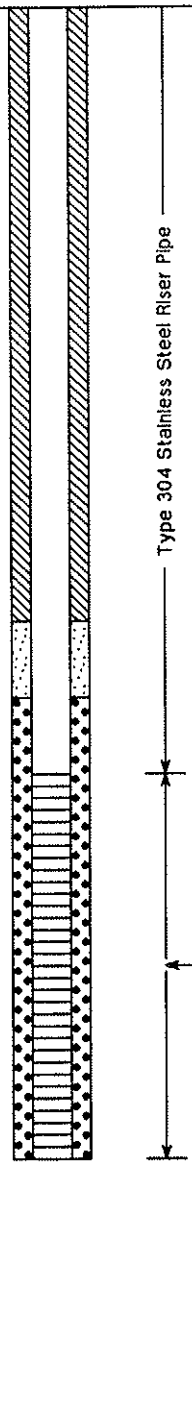
MONITORING WELL DETAIL

MW-117B

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. DEPTH	WELL CONSTRUCTION DETAIL
						631.4 / 65	High-Solids Bentonite Grout
						626.4 / 70	
						621.4 / 75	
						616.4 / 80	#70 (Fine) Filter Sand Collar
						611.4 / 85	#30 (Coarse) Filter Sand Pack
						606.4 / 90	
				Bottom of Boring @ 90 feet		601.4 / 95	



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233 South Wacker Drive, Suite 450
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MONITORING WELL DETAIL

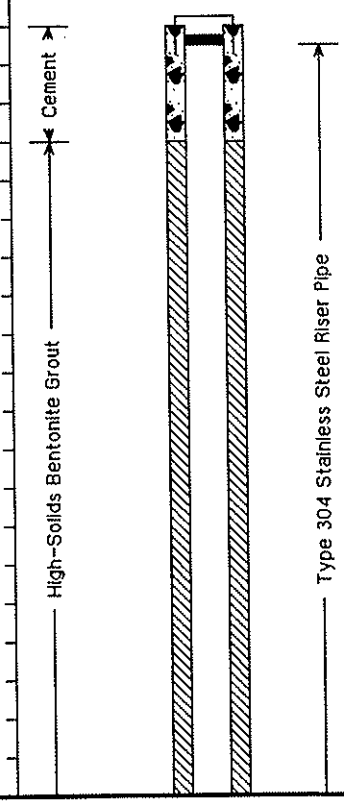
MW-117C

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Mud Rotary/BK81
Development Method: Air lift using nitrogen & surge block
Top of Riser Elevation: 696.11 Ft.
Total Depth: 162 Ft.
Field Screening Instrument: HNU
Logged By: S. S. Bhagat

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 07-19-93 End 07-22-93
Drillers: Paul Dickinson, Mike Nelson, Paul Cranfield
Development Date: Start 10-07-93 End 10-08-93
Surface Elevation: 696.4 Ft.
Depth To Initial Water Level (GS): Not Measured Ft.
Well Coordinates: .
N: 2028099.948 E: 2586522.277

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	ELEV. DEPTH
				Topsoil	696.4 / 0
SS	BG	2 2 1 2		5-7': Gray/brown, gravelly med sand.	691.4 / 5
SS	BG	1 1 1 1		10-12': Gray/brown, well sorted med sand. Saturated.	686.4 / 10
SS	BG	3 3 5 6		15-17': Brown, gravelly med sand.	681.4 / 15

WELL CONSTRUCTION DETAIL



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MONITORING WELL DETAIL

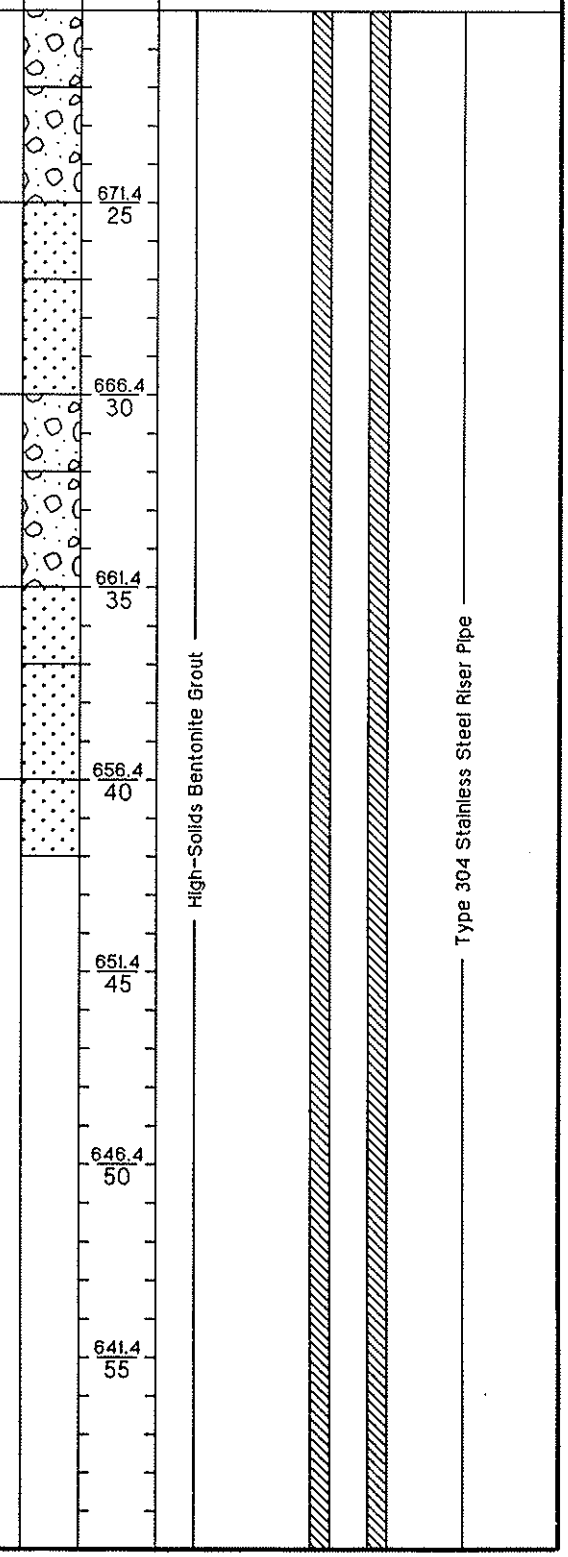
MW-117C

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION
SS	BG	3 5 5 7		20-22': Brown, med-coarse sand & gravel.
SS	BG	3 5 7 6		25-27': Brown, well sorted, med sand; rare gravel.
SS	BG	5 5 8 10		30-32': Gray/brown, gravelly med sand from 30-30.3'. Brown/tan, gravelly med sand from 30.3-31'.
SS	BG	5 5 7 13		35-37': Gravel blow in w/ angular to rounded clasts from 35-35'; tan/brown well sorted med sand from 36-36.5'.
SS	BG	4 8 11 13		40-42': Gravel blow in from 40-41.1'; angular to rounded; tan, well sorted, med sand from 41.1' to 41.9'; rare gravel.
SS	BG	2 3 5 8		
SS	BG	7 8 8 8		
SS	BG	6 8 12 13		

GRAPHIC LOG

ELEV. / DEPTH: 671.4 / 25; 666.4 / 30; 661.4 / 35; 656.4 / 40; 651.4 / 45; 646.4 / 50; 641.4 / 55

WELL CONSTRUCTION DETAIL



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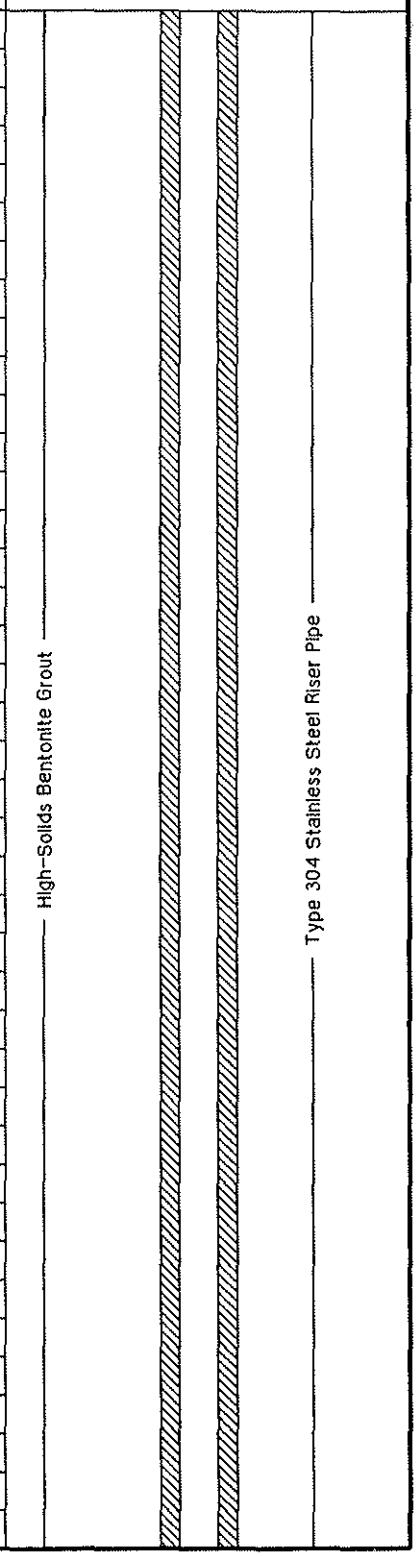
MONITORING WELL DETAIL

MW-117C

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. DEPTH
SS	BG	7 14 22 25				
SS	BG	7 14 12 18		65-67': Tan/brown, well sorted, fine-med sand; rare gravel.		631.4 / 65
SS	BG	30 40 21 22		70-72': Tan/brown coarse sand & gravel.		626.4 / 70
SS	BG	25 40 21 22		75-77': Tan, med-coarse sand & gravel.		621.4 / 75
SS	BG	31 39 51 46		80-82': Tan, coarse sand & gravel.		616.4 / 80
	-	150		85-87': No recovery - hit a rock.		611.4 / 85
SS	BG	10 20 24 26		90-92': Tan fine sand, well sorted; rare gravel.		606.4 / 90
SS	BG	18 21 17 25		95-97': Reddish brown, coarse sand; gravelly.		601.4 / 95

WELL CONSTRUCTION DETAIL



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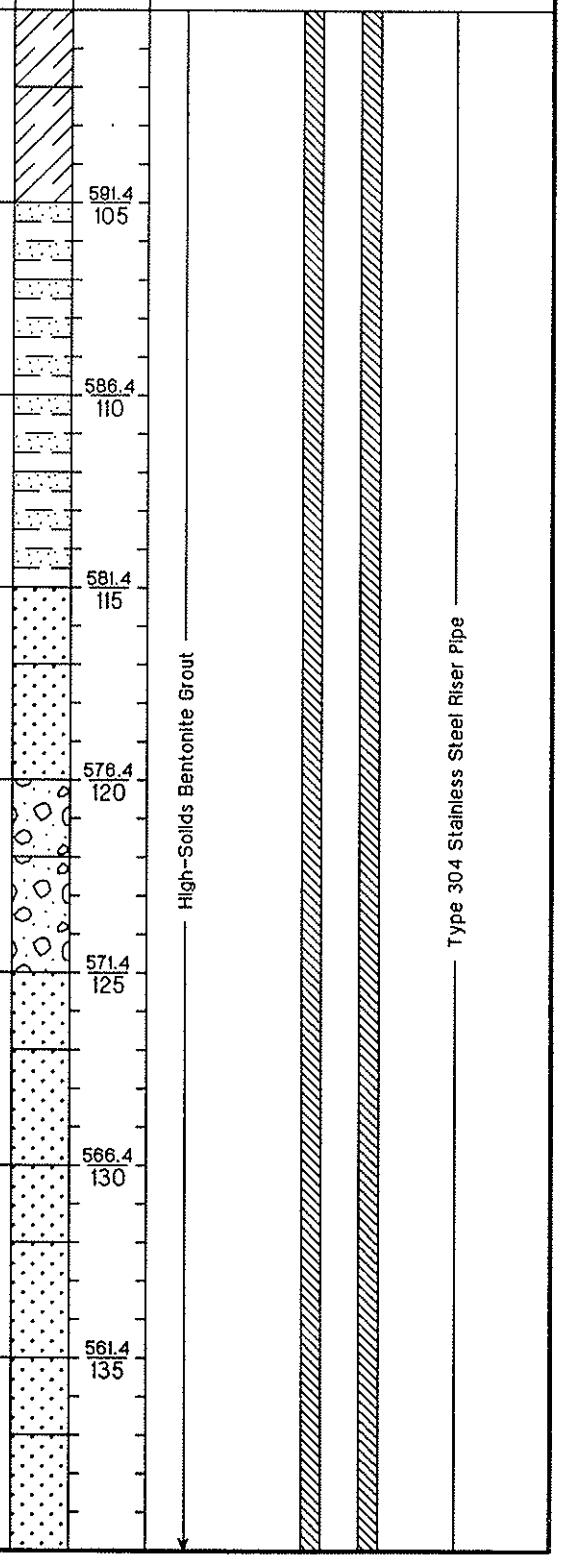
MONITORING WELL DETAIL

MW-117C

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	ELEV. DEPTH
SS	BG	16 20 20 21		100-102': Gray, moist, silt; slight clay in top 3".	
SS	BG	12 17 22 30		105-107': Tan/brown silty v fine sand; moist. Top 3" fine sand, oxide-stained. Oxide laminations visible throughout, but are most prominent in uppermost 3". Rare gravel (1 clast).	591.4 / 105
SS	BG	8 10 18 25		110-112': Tan/brown, v fine sand, silty; also gravelly; fine laminae visible - appears to be oxide staining. High blow counts & presence of gravel do not favor this material staying in a Shelby Tube.	586.4 / 110
SS	BG	12 16 16 20		115-117': Top 11" reddish brown, bedded, well sorted, fine to med sand w/ 1" gravel zone. Bottom 6" tan/brown, well sorted, med sand; rare gravel; bedding is enhanced by oxide staining, especially in upper 11".	581.4 / 115
SS	BG	15 10 10 13		120-122': Reddish brown, coarse sand & gravel; mostly rounded clasts.	576.4 / 120
SS	BG	8 11 13 15		125-127': Reddish brown, med well sorted; bedded med coarse sand; red color probably oxide.	571.4 / 125
SS	BG	8 8 12 18		130-132': Top 6" tan, well sorted, med coarse sand; Bottom 6" reddish brown, well sorted, med is sand.	566.4 / 130
SS	BG	15 50 - -		135-137': Spoon advanced 8" only. Deep reddish brown, well sorted, fine med sand.	561.4 / 135

WELL CONSTRUCTION DETAIL



CAMP DRESSER & McKEE
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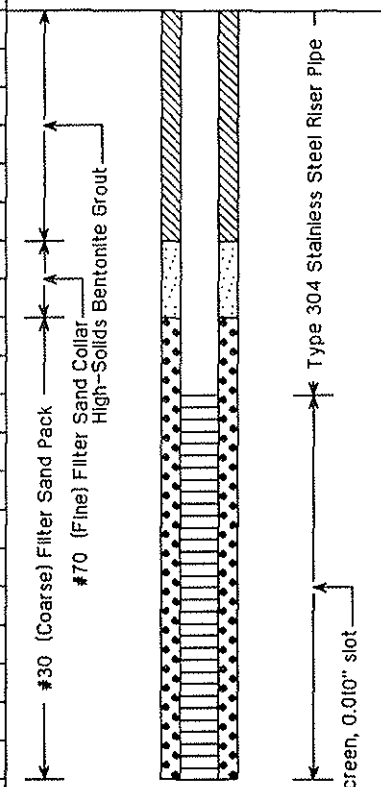
MONITORING WELL DETAIL

MW-117C

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	ELEV. DEPTH
SS	BG	15 30 30 28		140-142': Reddish tan, gravelly med-coarse sand.	
				145-147': Reddish tan, bedded, med sand; gravel in bottom 2". Red color probably oxide. Upper 6" well sorted.	551.4 / 145
SS	BG	15 20 23 25		150-152': Reddish tan, bedded, gravelly, med to coarse sand. Oxide staining defines bedding.	546.4 / 150
SS	BG	23 40 40 45		155-157': Top 9" tan, coarse sand & gravel; Bottom 9" reddish tan, coarse sand & gravel; bedding visible throughout, especially in lower 9".	541.4 / 155
SS	BG	12 20 25 37		160-162': Reddish brown, well sorted, bedded, med sand.	536.4 / 160
				Bottom of Boring @ 162 feet	531.4 / 165
					526.4 / 170
					521.4 / 175



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MONITORING WELL DETAIL

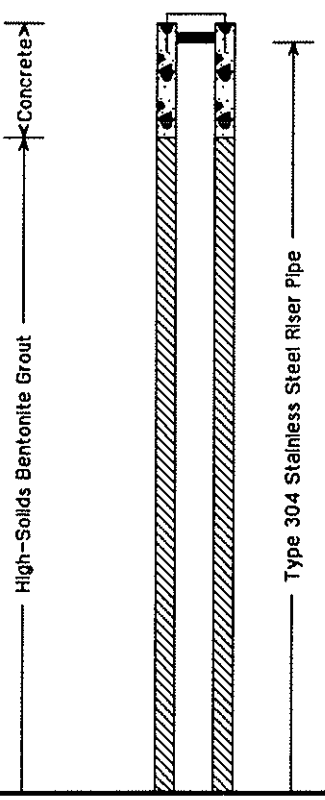
MW-118

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Mud Rotary/Diedrich 50
Development Method: Air lift using nitrogen & surge block
Top of Riser Elevation: 717.59 Ft.
Total Depth: 145 Ft.
Field Screening Instrument: HNU
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 07-13-93 End 07-20-93
Drillers: Rick O'Gorman, Mark Thorson
Development Date: Start 09-14-93 End 09-14-93
Surface Elevation: 717.9 Ft.
Depth To Initial Water Level (GS): ~30 Ft.
Well Coordinates:
N: 2028580.339 E: 2592071.628

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. DEPTH
			ML	Topsoil		717.9 / 0
			SP			712.9 / 5
						707.9 / 10
						702.9 / 15

WELL CONSTRUCTION DETAIL



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

SAMPLING TYPES:
AS - Auger/Grab Sample
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BX - 1.6" Rock Core
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OTHER:
BGS - Below Ground Surface

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MONITORING WELL DETAIL

MW-118

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION
SS	0 ppm	8 7 16 29	SP	Lt bn gravelly SAND, SP; contains ~20% gravel as rounded to subangular small to medium pebbles; the sand is coarse to med.
			SP	Note: Drilling action suggests sand with gravelly zones from 20-53'.
SS		100 /0.1'		(No recovery - rock) Note: Drilling action suggests sand with gravelly zones from 20-53'.
			CH	Note: Drilling action suggests clay from 53-60.2'.

GRAPHIC LOG

ELEV. / DEPTH: 692.9 / 25; 687.9 / 30; 682.9 / 35; 677.9 / 40; 672.9 / 45; 667.9 / 50; 662.9 / 55

WELL CONSTRUCTION DETAIL

High-Solids Bentonite Grout

Type 304 Stainless Steel Riser Pipe

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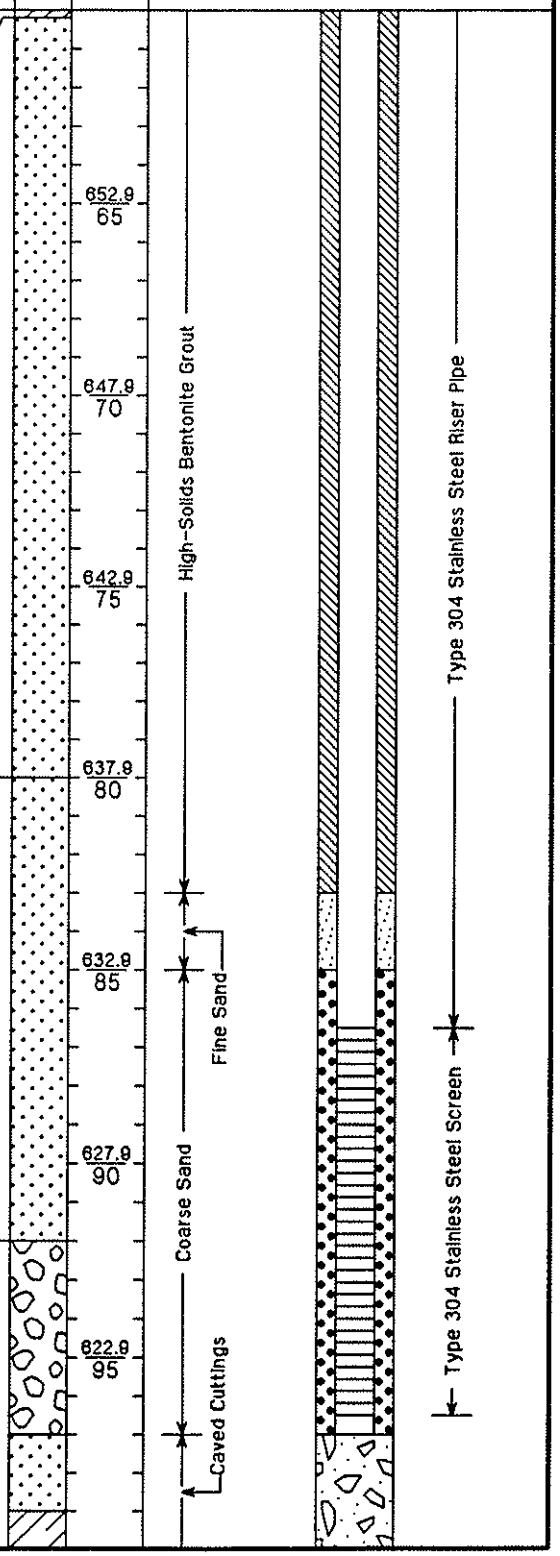
MONITORING WELL DETAIL

MW-118

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION
SS	0 ppm	12 14 28 33	CH	60.0-60.2': Lt bn gy silty clay, CH; plastic & sticky; no pebbles observed; saturated
			SP	60.2-61.5': mod gy bn SAND, SP; med to fine, tr sm subangular pebbles; saturated
SS	0 ppm	18 17 23 33	SP	Lt bn gy sand, SP; med to fine, trace pebbles; wet
			GP-SP	Note: Drilling action suggests gravelly zone @ 92-97' & clayey/silty @ 99-103'; sandy @ 60.2 to 92' & 97-99'.
			SP	
			CH	



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MONITORING WELL DETAIL

MW-118

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION
SS	Inop.	17 10 17 12	CH	100.0-100.3': Lt gy SAND, SP; fine, w/some mod dk gy subhorizontal laminations. 100.3-101.0': Bn gy silty clay to clayey silt w/horizontal partings-possible lacustrine sediment; saturated in the silty lower half, but moist in clayey upper half. 101.0-101.1': Lt gy silty v.fine sand, saturated. 101.1-101.5': Silty clay CH as in 100.3-101.0'.
			SP-CH	
SS	Inop.	11 12 20 17	CH	115.0-115.2': mod gy silty SAND, fine, SW, saturated. 115.2-116.8': mod gn gy clayey silt w/~10% pebbles & granules, and trace wood frags. Pebbles are angular to subangular. Moist; no bedding visible; looks like a till. Note: Drilling action indicates clay/silt continues to 133.5'.
			SW	Note: Drilling action indicates sand starts @ 133.5'.

GRAPHIC LOG

ELEV. DEPTH: 612.9 / 105; 607.9 / 110; 602.9 / 115; 597.9 / 120; 592.9 / 125; 587.9 / 130; 582.9 / 135

WELL CONSTRUCTION DETAIL

Caved Cuttings

Figure No.

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MONITORING WELL DETAIL

MW-118

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. DEPTH	WELL CONSTRUCTION DETAIL
SS	Inop.	25 28 30 9	SP	140-141.3': Mod bn gy SAND, SP; med to fine w/<5% subangular to subrounded pebbles, only @ top; wet.			Caved Cuttings
			SP			572.9 145	
				Bottom of Boring @ 145 feet.			
						567.9 150	
						562.9 155	
						557.9 160	
						552.9 165	
						547.9 170	
						542.9 175	

Figure No.

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MONITORING WELL DETAIL
MW-119

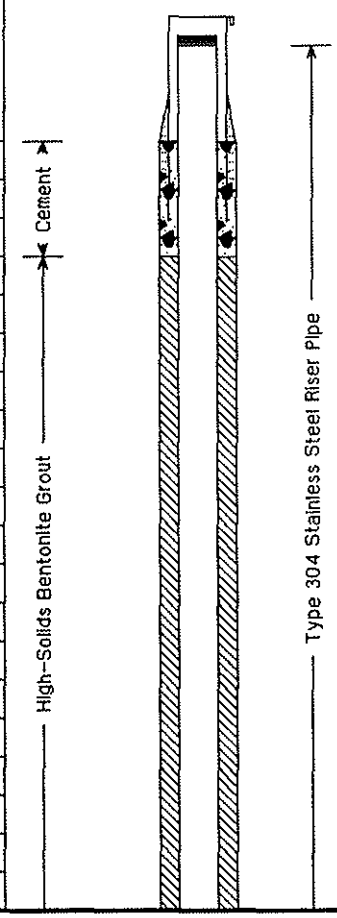
Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Hollow stem-auger/BK81
Development Method: Air lift using nitrogen & surge block
Top of Riser Elevation: 718.97 Ft.
Total Depth: 64 Ft.
Field Screening Instrument: HNU
Logged By: S. S. Bhagat

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 07-07-93 End 07-08-93
Drillers: Paul Dickinson, Mike Nelson
Development Date: Start 10-01-93 End 10-01-93
Surface Elevation: 716.5 Ft.
Depth To Initial Water Level (GS): ~22 Ft.
Well Coordinates:
N: 2027137.222 E: 2589374.238

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	ELEV. DEPTH
				Topsoil	716.5 / 0
SS	Not meas.	3 4 4 4		4-6': Brown, med sand, mostly quartz.	711.5 / 5
SS	BG	4 8 9 21		9-11': Brown quartz sand (med) upper 4". Bottom 10" med coarse tan, quartz sand. Unsaturated.	706.5 / 10
SS	BG	6 12 19 23		14-16': Brown/tan med quartz sand. Well sorted.	701.5 / 15
SS	BG	4 11		19-21': Tan, well sorted, med quartz sand. Unsaturated.	

GRAPHIC LOG

WELL CONSTRUCTION DETAIL



EXPLANATION OF ABBREVIATIONS

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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:
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CS - California Sampler
BX - 1.6" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample

OTHER:
BGS - Below Ground Surface

CAMP DRESSER & McKEE
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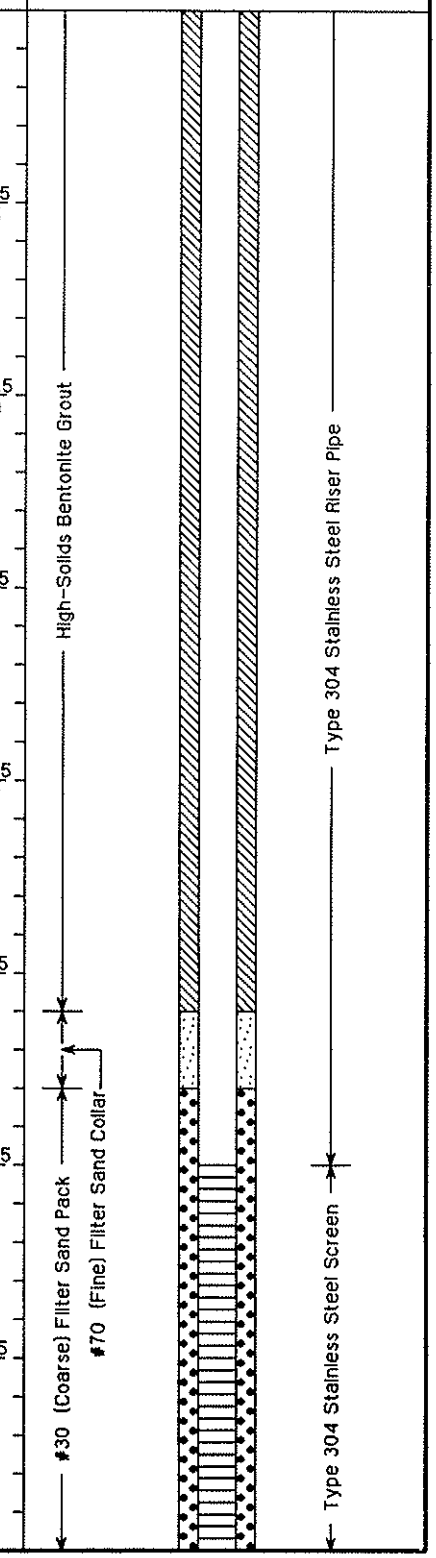
MONITORING WELL DETAIL

MW-119

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	ELEV. DEPTH
SS	BG	16 4			
				Water encountered @ 22'.	
SS	BG	6 15 24 31		24-26': Tan, well sorted, med quartz sand. Saturated.	691.5 25
HP				26-30': Hydro Punch Sample. VP119A	
SS	BG	8 12 16 32		29-31': Top 8" fine brown sand; mid 8" fine-med brown sand; lower 8" fine sand, brown, well sorted. Upper 16" containing small pebbles.	686.5 30
SS	BG	16 23 27 51		34-36': Tan, med-coarse sand, well sorted but with two pebble horizons.	681.5 35
HP				36-40': Hydro Punch Sample. VP119B	
SS	BG	42 18 12 12		39-41': Brown, med sand; well sorted. Gravelly @ bottom 1".	676.5 40
SS	BG	40 42 30 52	-	44-46': Tan/brown, med quartz sand, well sorted.	671.5 45
HP				46-50': Hydro Punch Sample. VP119C	
SS	BG	2 3 3 6		49-51': Tan/brown, med grained, well sorted sand.	666.5 50
SS		22 26 28 33		54-56: No recovery	661.5 55
HP	none			56-60': Hydro Punch Sample. VP119E	
SS	none	5 6		59-61': Brown, coarse sand; pebbly.	



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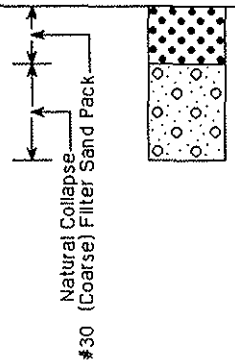
MONITORING WELL DETAIL

MW-119

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. DEPTH
SS	none	8 12				
SS	BG	8 12 16 24		64-66': Tan, med sand grading downward to gravelly coarse sand, tan.		651.5 65
				Bottom of Boring @ 66 feet		
						646.5 70
						641.5 75
						636.5 80
						631.5 85
						626.5 90
						621.5 95

WELL CONSTRUCTION DETAIL



CAMP DRESSER & McKEE
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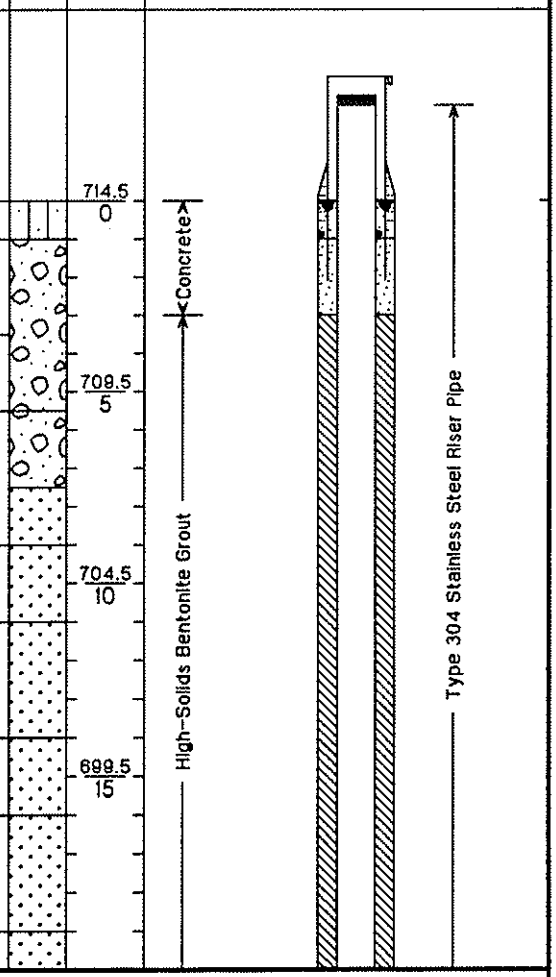
MONITORING WELL DETAIL

MW-121

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Hollow-stem auger/BK81
Development Method: Air lift using nitrogen & surge block
Top of Riser Elevation: 716.98 Ft.
Total Depth: 66 Ft.
Field Screening Instrument: HNU
Logged By: S. S. Bhagat

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 07-08-93 End 07-10-93
Drillers: Paul Dickinson, Mike Nelson
Development Date: Start 09-14-93 End 09-14-93
Surface Elevation: 714.5 Ft.
Depth To Initial Water Level (GS): ~18 Ft.
Well Coordinates:
N: 2030898.781 E: 2587523.446

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	ELEV. DEPTH
			ML	Topsoil	714.5 / 0
SS	0 ppm	7 6 7 8	SP	Reddish brown, well sorted, med sand for top 6". Bottom 6" is tan, med to coarse sand and gravel. Dry.	709.5 / 5
SS	0 ppm	5 8 16 21	SP	Tan, Fine to med, very well sorted sand. Dry.	704.5 / 10
SS	0 ppm	9 16 14 22	SP	Tan, well sorted, medium sand.	699.5 / 15
SS	0 ppm	6 21	SP	Brown, well sorted, medium sand with rare	



EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
SSA - Solid Stem Auger
HA - Hand Auger
AR - Air Rotary
DTR - Dual Tube Rotary
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JET - Jetting
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DTC - Drill Through Casing

SAMPLING TYPES:
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CS - California Sampler
BX - 1.6" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample

OTHER:
BGS - Below Ground Surface

CAMP DRESSER & McKEE
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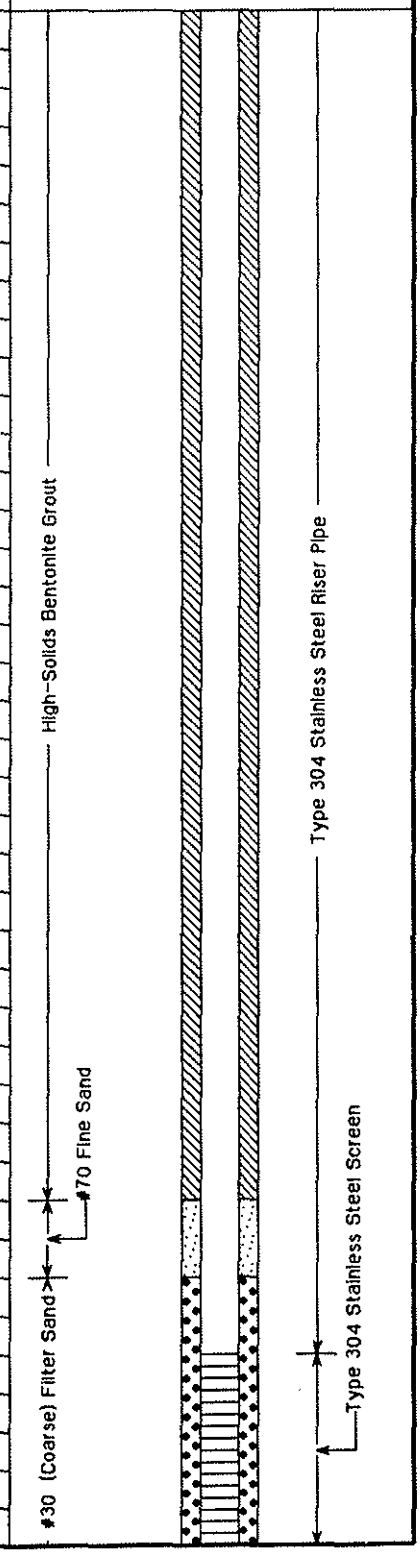
MONITORING WELL DETAIL

MW-121

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	ELEV. DEPTH
SS	0 ppm	26 31	SP	pebbles. Saturated.	
HP				Hydro Punch Sample 23.5-25'.	
SS	0 ppm	5 5 8 18	SP		689.5 / 25
SS	0 ppm	3 4 4 6	SP	Brown, well sorted, fine to med sand, with rare pebbles. Lower 8" is brown, coarse sand and gravel.	684.5 / 30
HP				Hydro Punch Sample 33.5-35'.	
SS	0 ppm	17 15 10 18	GP	Top 13" Brown, fine to med gravel, well sorted. Coarse sand and gravel 5" thick below top 13" rare pebbles in both 6"	679.5 / 35
SS	0 ppm	4 4 20 33	SP	Brown, coarse sand, gravelly for top 3" rare pebbles 3"-14".	674.5 / 40
HP				Hydro Punch Sample 43.5-45'.	
SS	0 ppm	15 100 100 95	GP	Brown, coarse sand and gravel.	669.5 / 45
SS	0 ppm	69 37 42 50	GP-SP	Brown/Tan, Gravelly coarse sand.	664.5 / 50
HP				Hydro Punch Sample 53.5-55'.	
SS	0 ppm	3 4 10 30	SP	Tan/Brown, med sand, gravelly in places.	659.5 / 55
SS	0 ppm	10 6	SP	Tan/Brown, med sand, gravel rare to common.	



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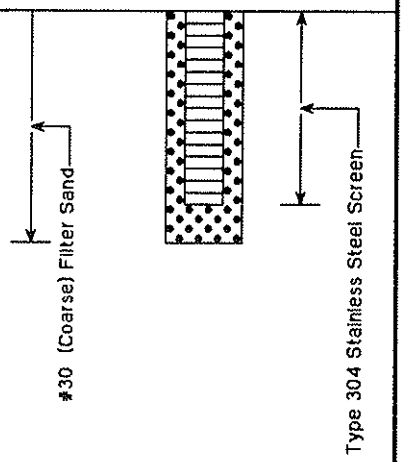
MONITORING WELL DETAIL

MW-121

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. / DEPTH
SS	0 ppm	8 / 11	SP			
HP				Hydro Punch Sample 63.5-65'.		649.5 / 65
				Bottom of Boring @ 66 feet.		
						644.5 / 70
						639.5 / 75
						634.5 / 80
						629.5 / 85
						624.5 / 90
						619.5 / 95

WELL CONSTRUCTION DETAIL



CAMP DRESSER & McKEE
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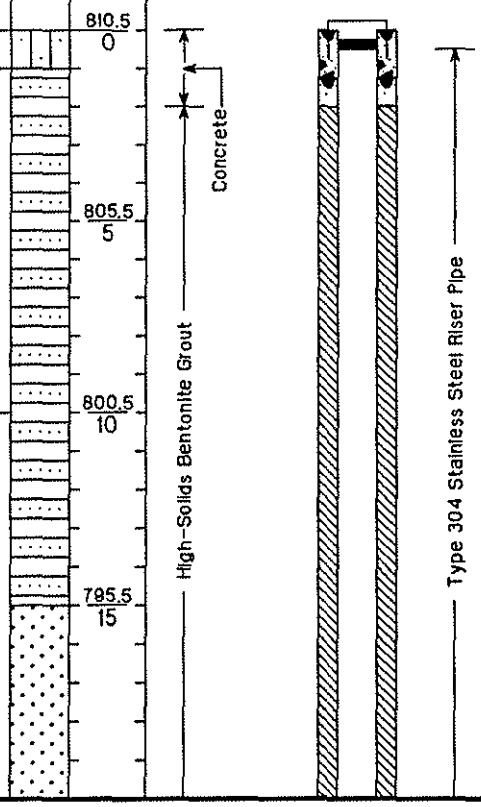
MONITORING WELL DETAIL
MW-122A

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Mud Rotary/Diedrich 50
Development Method: Air lift using nitrogen & surge block
Top of Riser Elevation: 810.47 Ft.
Total Depth: 62 Ft.
Field Screening Instrument: OVM
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 09-09-93 End 09-10-93
Drillers: Rick O'Gorman, Mark Thorson
Development Date: Start 09-15-93 End 09-15-93
Surface Elevation: 810.5 Ft.
Depth To Initial Water Level (GS): ~15 Ft.
Well Coordinates:
N: 2029604.787 E: 2603165.498

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	ELEV. DEPTH
			ML	Topsoil	810.5 / 0
			ML		805.5 / 5
SS	Inop.	5 8 8 11		10.0-10.8': Lt olive bn (2.5Y 5/4) clayey sandy gravelly SILT; clay-sand-gravel-silt proportions estimated @ 30-20-15-35. The sand is v coarse to v fine & is mainly rock fragments. Gravel is subangular to subrounded & has no preferred orientation of individual pebbles. The sand & gravel both are matrix-supported; poorly sorted overall. Moist; looks like a till.	800.5 / 10
			SP		795.5 / 15



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ST - Shelby Tube
WS - Wash Sample

OTHER:
BGS - Below Ground Surface

CAMP DRESSER & McKEE

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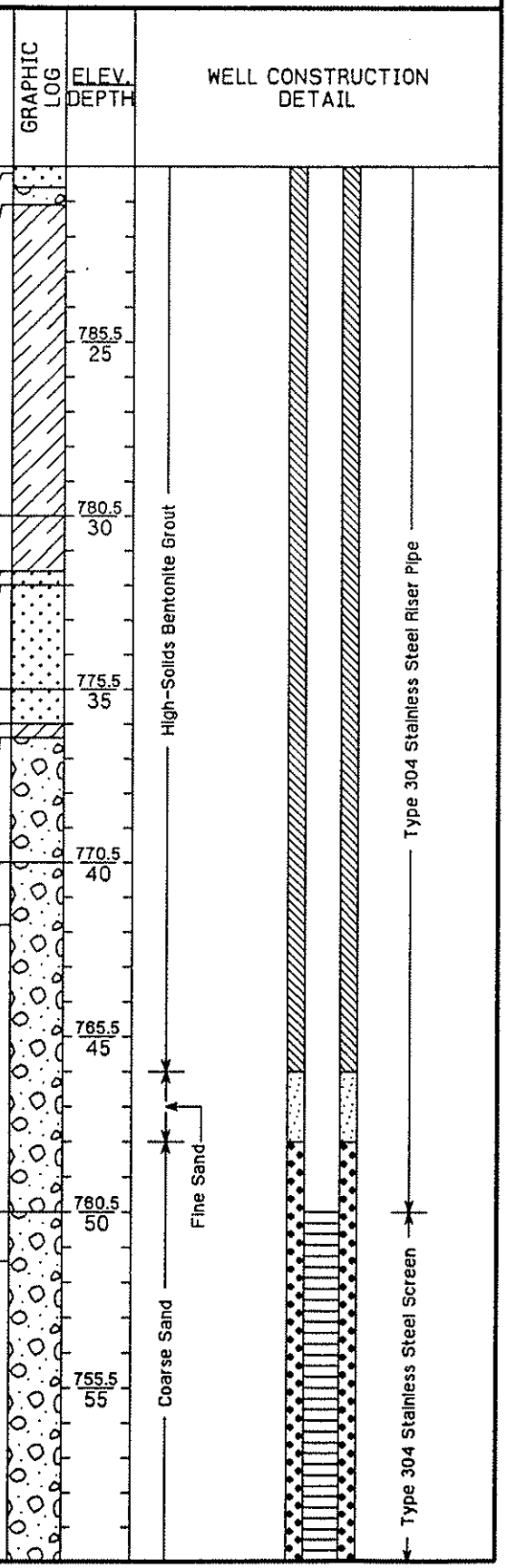
MONITORING WELL DETAIL

MW-122A

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION
SS	Inop.	8 12 13 15	SP	20.0-20.2': Lt yel bn (2.5Y 6/4) SAND, fine to med, wet.
			SP-GP	20.2-21.1': Gravelly SAND, lt yel bn (2.5Y 6/4) sand is coarse, ranging from v coarse to med; gravel is subrounded to subangular med pebbles to granules, wet.
			ML	
SS	0 ppm	15 21 23 30	ML	30.0-31.6': Lt olive bn (2.5Y 5/3 to 5/4) clayey sandy gravelly SILT; respective proportions are 30-20-15-35%; Sand is ~60% quartz, 40% sedimentary & igneous rock fragments. Gravel is subangular to subrounded small pebbles, granules & med pebbles.
			SP	
			SP	31.6-32.0': Lt yel bn (2.5Y 6/4) SAND, coarse to v coarse, bedded; ~5% subangular to subrounded sm pebbles & granules. Wet.
SS	0 ppm	12 14 10 12	SP-SW	35.0-36.0': Lt yel bn (10YR 6/4) gravelly SAND, coarse to v coarse; Gravel is subrounded to angular granules to med pebbles. Wet.
			ML	
			SP-GW	36.0-36.4': Yel bn (10YR 5/4) to brown (10YR 5/3) clayey sandy SILT, w/~10% gravel. Clay, sand & silt estimated @ 35-15-40%. Wet @ 36.0-36.1', moist elsewhere. Sand is v fine to v coarse & >=50% non-quartz (i.e. rock fragment grains). Gravel is angular to subrounded granules to sm pebbles. Poorly sorted. There are no preferred orientations or concentrations of gravel or sand, and they are matrix supported. There are numerous Fe-oxide-coated surfaces, many of them subvertical.
SS	0 ppm	14 18 22 16		
			SP-GW	40.0-41.8': Reddish yel (7.5YR 6/6) to bn yel (10YR 6/6) gravelly sand; sand is v coarse to coarse, & some med., & is mainly (80%) quartz; gravel is subrounded to subangular granules to lg pebbles & is ~50% of sample; gravel lithology is ~60% carbonate, 20% chert, 10% mafic igneous, 4% jasper, 4% quartz, & ~2% combined of granite, diorite, shale/slate, quartzite. Local traces silt/clay. Largest pebbles are carbonate. Wet.
SS	0 ppm	7 8 9 9		50.0-51.4': Bn yellow (10YR 6/6) gravelly sand to sandy gravel. Gravel & sand ~50% each. Gravel is mainly subrounded to large pebbles & granules, & is of similar lithology as at 40'. Wet.
			SP-GW	



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233 South Wacker Drive, Suite 450
Chicago, Illinois 60606-5306

MONITORING WELL DETAIL

MW-122A

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. DEPTH	WELL CONSTRUCTION DETAIL
SS	0 ppm	5 6 10 12	SP-GW SW-SP	60-60.7': Lt olive bn (2.5Y 5/4) gravelly SAND, SW, mod sorting; sand is coarse, ranging v coarse to med,; gravel is ~25% & is subrdd granules & sm pebbles. Wet.			
				60.7-61.2': Yel bn SAND (10YR5/4), SP, med, ranging coarse to fine. Two wet, plastic, clayey silt (MH) layers 4mm & 6mm thick, @ 60.8 & 60.9', lt olive bn (2.5Y 5/3).			Coarse Sand
				Bottom of Boring @ 62 feet.		745.5 / 65	
						740.5 / 70	
						735.5 / 75	
						730.5 / 80	
						725.5 / 85	
						720.5 / 90	
						715.5 / 95	

CAMP DRESSER & McKEE
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MONITORING WELL DETAIL

MW-122B

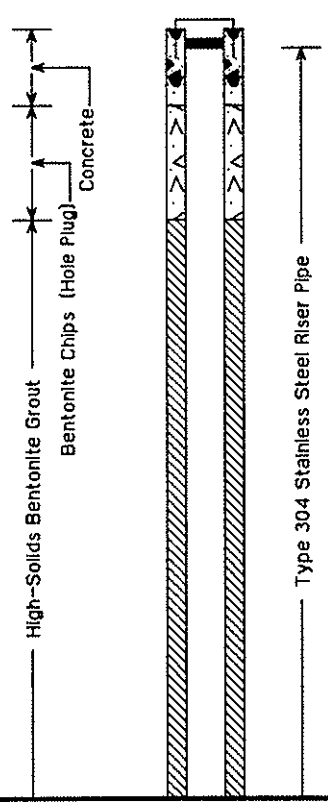
Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Mud Rotary/Diedrich 50
Development Method: Air lift using nitrogen & surge block
Top of Riser Elevation: 810.33 Ft.
Total Depth: 144 Ft.
Field Screening Instrument: OVM
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 09-02-93 End 09-09-93
Drillers: Rick O'Gorman, Mark Thorson
Development Date: Start 09-15-93 End 10-01-93
Surface Elevation: 810.6 Ft.
Depth To Initial Water Level (GS): ~15 Ft.
Well Coordinates:
N: 2029612.614 E: 2603164.677

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	ELEV. DEPTH
			ML	Topsoil	810.6 / 0
			ML		805.6 / 5
SS	Inop.	5 9 9 11		10.0-10.8': Lt olive bn (2.5Y 5/4) clayey sandy gravelly SILT; clay-sand-gravel-silt proportions estimated @ 30-20-15-35. The sand is v coarse to v fine & is mainly rock fragments. Gravel is subangular to subrounded & has no preferred orientation of individual pebbles. The sand & gravel both are matrix-supported; poorly sorted overall. Moist; looks like a till.	800.6 / 10
			SP		795.6 / 15

GRAPHIC LOG

WELL CONSTRUCTION DETAIL



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 - 1.6" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample

OTHER:
BGS - Below Ground Surface

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MONITORING WELL DETAIL

MW-122B

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	ELEV. DEPTH
SS	Inop.	8 12 13 15	SP	20.0-20.2': Lt yel bn (2.5Y 6/4) SAND, fine to med, wet.	
			SP-GP	20.2-21.1': Gravelly SAND, lt yel bn (2.5Y 6/4) sand is coarse, ranging from v coarse to med; gravel is subrounded to subangular med pebbles to granules, wet.	
			ML		785.6 / 25
SS	0 ppm	15 21 23 30	ML	30.0-31.6': Lt olive bn (2.5Y 5/3 to 5/4) clayey sandy gravelly SILT; respective proportions are 30-20-15-35%; Sand is ~60% quartz, 40% sedimentary & igneous rock fragments. Gravel is subangular to subrounded small pebbles, granules & med pebbles.	780.6 / 30
			SP		
			SP	31.6-32.0': Lt yel bn (2.5Y 6/4) SAND, coarse to v coarse, bedded; ~5% subangular to subrounded sm pebbles & granules. Wet.	775.6 / 35
SS	0 ppm	12 14 10 12	SP-SW	35.0-36.0': Lt yel bn (10YR 6/4) gravelly SAND, coarse to v coarse; Gravel is subrounded to angular granules to med pebbles. Wet.	
			ML		
			SP-GW	36.0-36.4': Yel bn (10YR 5/4) to brown (10YR 5/3) clayey sandy SILT, w/~10% gravel. Clay, sand & silt estimated @ 35-15-40%. Wet @ 36.0-36.1', moist elsewhere. Sand is v fine to v coarse & >=50% non-quartz (i.e. rock fragment grains). Gravel is angular to subrounded granules to sm pebbles. Poorly sorted. There are no preferred orientations or concentrations of gravel or sand, and they are matrix supported. There are numerous Fe-oxide-coated surfaces, many of them subvertical.	770.6 / 40
SS	0 ppm	14 18 22 16	SP-GW	40.0-41.8': Reddish yel (7.5YR 6/6) to bn yel (10YR 6/6) gravelly sand; sand is v coarse to coarse, & some med., & is mainly (90%) quartz; gravel is subrounded to subangular granules to lg pebbles & is ~50% of sample; gravel lithology is ~60% carbonate, 20% chert, 10% mafic igneous, 4% jasper, 4% quartz, & ~2% combined of granite, diorite, shale/slate, quartzite. Local traces silt/clay. Largest pebbles are carbonate. Wet.	765.6 / 45
SS	0 ppm	7 8 9 9		50.0-51.4': Bn yellow (10YR 6/6) gravelly sand to sandy gravel. Gravel & sand ~50% each. Gravel is mainly subrounded to large pebbles & granules, & is of similar lithology as at 40'. Wet.	760.6 / 50
			SP-GW		755.6 / 55

GRAPHIC LOG

WELL CONSTRUCTION DETAIL

High-Solids Bentonite Grout

Type 304 Stainless Steel Riser Pipe

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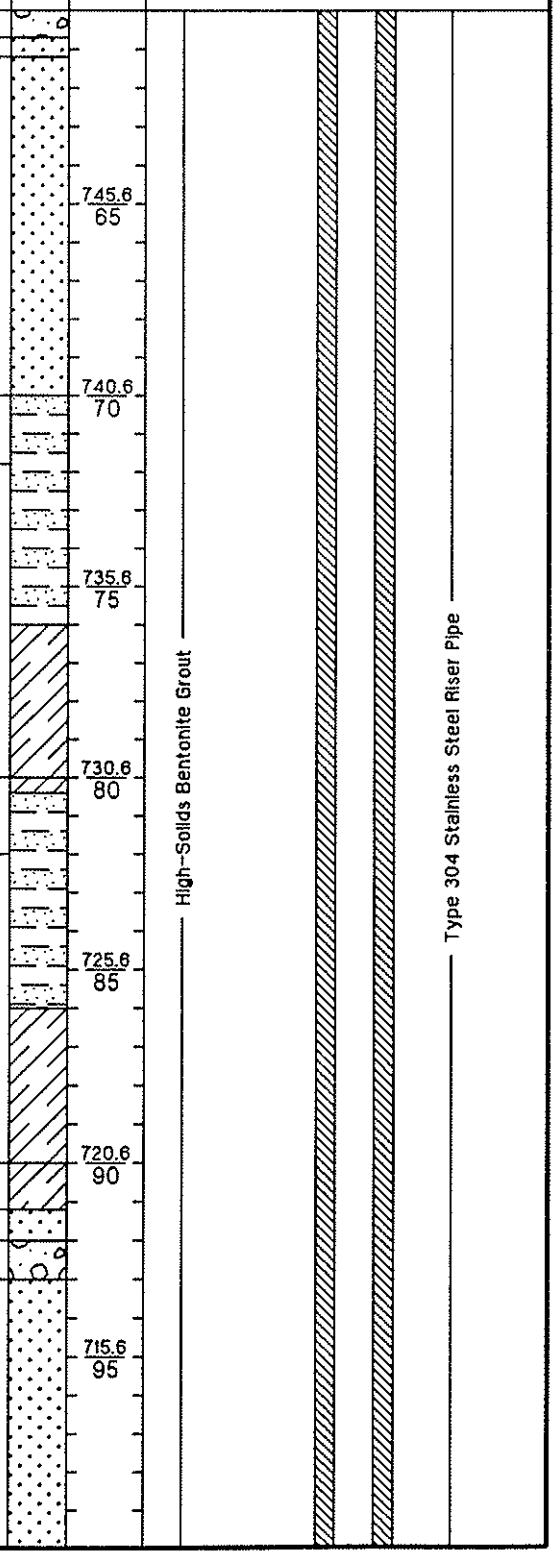
MONITORING WELL DETAIL

MW-122B

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	ELEV. DEPTH
SS	0 ppm	5 6 10 12	SP-GW / SW-SP	60-60.7': Lt olive bn (2.5Y 5/4) gravelly SAND, SW, mod sorting; sand is coarse, ranging v coarse to med,; gravel is ~25% & is subrdd granules & sm pebbles. Wet.	
			SW-SP	60.7-61.2': Yel bn SAND (10YR5/4), SP, med, ranging coarse to fine. Two wet, plastic, clayey silt (MH) layers 4mm & 6mm thick, @ 60.8 & 60.9', lt olive bn (2.5Y 5/3).	745.6 / 65
SS	0 ppm	8 10 10 11	SM	70-71.8': Gray (10YR 5/1) v fine SAND, with numerous silty interbeds @ 71.4-71.8'. Laminated; wet; sm pebbles ~10% @70.4'; trace (~0.5%) granules elsewhere. The silty interbeds are 1-5mm, & are about half the thickness of adjoining sand layers.	740.6 / 70
			ML		735.6 / 75
SS	0 ppm	8 10 14 20	ML / SM	80-80.4': Gray to gy bn (10YR 5/1-5/2) silty clay w/~10% each of gravel & sand; gravel is small subang to subrdd pebbles; sand mainly fine; moist @ 80-80.3', wet @ 80.3-80.4'. Poorly sorted. 80.4-82': Gray to gy bn (10YR 5/1-5/2) silty v fine SAND, wet.	730.6 / 80
			ML		725.6 / 85
SS	0 ppm	10 15 19 25	ML / SP / SP-GP	90-90.6': Gray (10YR 5/1) to gn gy (5GY 6/1) silty clay (gray) to clayey silt (gn gy), finely laminated in horizontal beds. Clayey beds ~70% & silt ~20% of the thickness; ~1% sand is a 2mm bed @ 90.2'. 90.6-90.7': Gy bn (10YR 5/2) SAND, SW, medium. 90.7-91.1': Same as 90-90.6'	720.6 / 90
			SP	91.1-92': Gy bn (10YR 5/2) SAND, med @ 91.1-91.3' & coarse to v coarse @ 91.3-92'. Latter zone gravelly w/~15% rounded to subrounded sm pebbles & granules. All zones wet.	715.6 / 95
				92-93': Drilling action suggests sand & gravel.	
				93-100': Drilling action smoother, suggesting mainly sand.	

WELL CONSTRUCTION DETAIL



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MONITORING WELL DETAIL

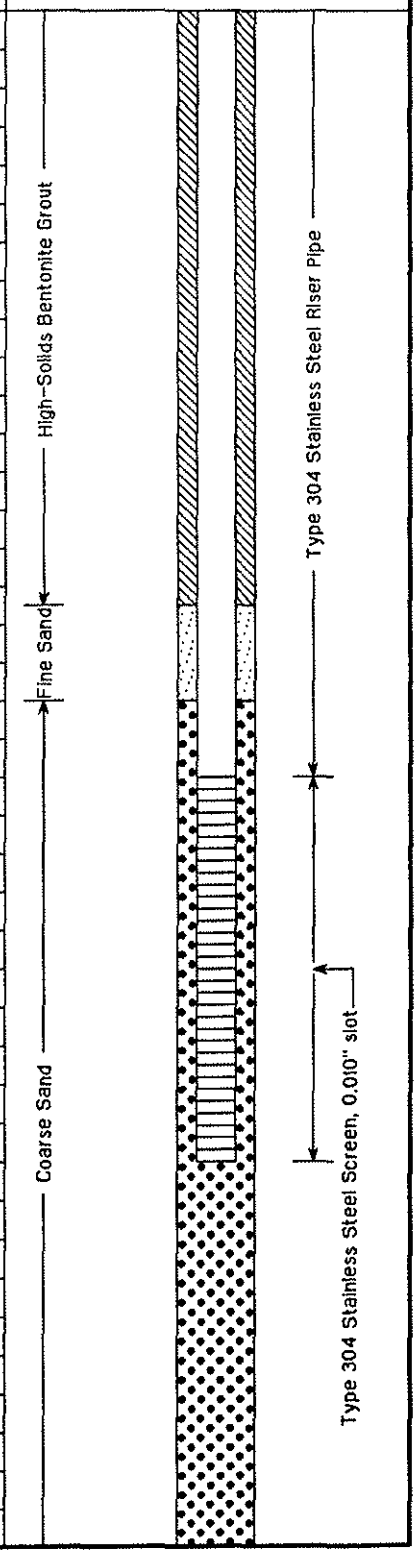
MW-122B

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION
SS	0 ppm	11 15 24 32	SP	100-100.3': Gray (10YR 5/1) SAND, SP, v coarse to med, gravelly w/~15% subang to subrdd sm pebbles & granules. Wet. 100.3-100.5': Gy bn (10YR 5/2) to gy (10YR 5/1) silty clay (the gy bn) to clayey silt (gy), bedded horizontally. Wet. 100.5-101': Gy fine to v fine SAND. Wet. 101-101.2': Gy med to coarse SAND. Wet.
			GP	102-~110': Drilling action indicates heavy gravel or a boulder.
			SP-GP	
SS	0 ppm	14 14 20 25	SP-GP	115-116.8': Lt bn gy (10YR 6/2) gravelly SAND; sand is coarse & mixed w/gravel exc. for two med sand beds (each 2-3cm) which are free of gravel. Gravel is subrounded to rounded, fine pebbles & granules. Wet.
SS	0 ppm	30 32 39 -	SP-GP	120-121.5': Lt bn gy (10YR 6/2) gravelly SAND to sandy GRAVEL, SW-GW; sand is coarse, ranging from v coarse to med; gravel is med pebbles to granules, subrounded to subangular, & lithology is ~80% carbonate/chert, with remainder being mafic igneous, jasper, quartz, shale. Trace (~5%) yel bn silt/clay. Wet. Gravel & sand both ~50%.
SS	0 ppm	12 14 14 16	SP-SW	130-131.5': Lt bn gy (10YR 6/2) gravelly SAND, SP-SW; sand is mainly v coarse, ranging to med; gravel (45%) is subang to subrdd granules to sm pebbles which are same lithology as in 120' sample, but here carbonate/chert proportion is ~65%; in addition, granite is present. Wet.
			ML	Drilling action indicates sand-silt contact @ 136'.

GRAPHIC LOG

ELEV. DEPTH: 705.6 / 105; 700.6 / 110; 695.6 / 115; 690.6 / 120; 685.6 / 125; 680.6 / 130; 675.6 / 135

WELL CONSTRUCTION DETAIL



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MONITORING WELL DETAIL

MW-122B

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. DEPTH	WELL CONSTRUCTION DETAIL
SS	0 ppm	12 14 16 18	ML	140-142': Dk gy bn to dk gy (10YR 4/2-4/1) clayey sandy SILT, ML, moist & not wet'; ~6% gravel as subang granules to sm pebbles. Sand (~14%) ranges from v fine to v coarse; sand is mainly dispersed, but forms several concentrations of sorted (>90%) sand in the form of discontinuous lenses, tubes & spherules 1-5mm thick (<1% of sample). Lithology of sand: ~60% lithic fragments of carbonate, chert & igneous rock, w/mica in fine fraction (remainder is quartz). Gravel is largely carbonate. Also contains three wood fragments & a peaty tabular zone 2-3mm thick.		665.6 / 145	Coarse Sand
				Bottom of Boring @ 144 feet.		660.6 / 150	
						655.6 / 155	
						650.6 / 160	
						645.6 / 165	
						640.6 / 170	
						635.6 / 175	

CAMP DRESSER & McKEE
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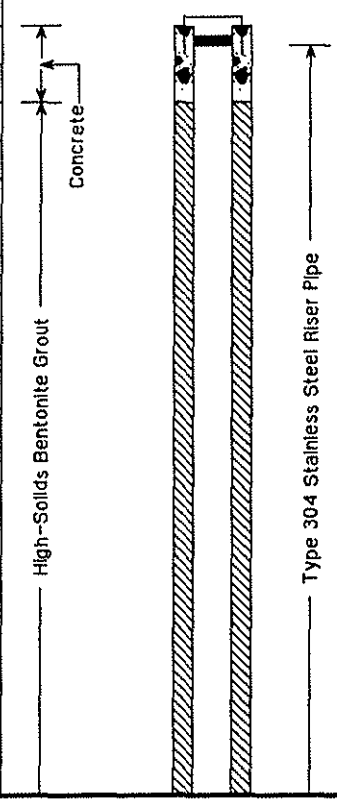
MONITORING WELL DETAIL
MW-123

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Mud Rotary/Diedrich 50
Development Method: Air lift using nitrogen & surge block
Top of Riser Elevation: 729.52 Ft.
Total Depth: 69 Ft.
Field Screening Instrument: OVM
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 08-11-93 End 08-12-93
Drillers: Rick O'Gorman, Mark Thorson
Development Date: Start 09-16-93 End 09-17-93
Surface Elevation: 729.9 Ft.
Depth To Initial Water Level (GS): ~23 Ft.
Well Coordinates:
N: 2030827.585 E: 2589855.903

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	ELEV. DEPTH
			ML	Topsoil	729.9 / 0
			SP		724.9 / 5
SS	0 ppm	1 3 6 7	SP	5.0-7.0': Lt bn SAND, medium, loose, dry; subhorizontal bedding visible.	
			SP		719.9 / 10
SS	0 ppm	8 11 20 19	SP	15-17.0': Lt bn SAND, trace gravel (<5%). Gravel is sm to med pebbles oriented subhorizontally. Dry.	714.9 / 15



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 - 1.6" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample

OTHER:
BGS - Below Ground Surface

Figure No.

CAMP DRESSER & McKEE
CDM
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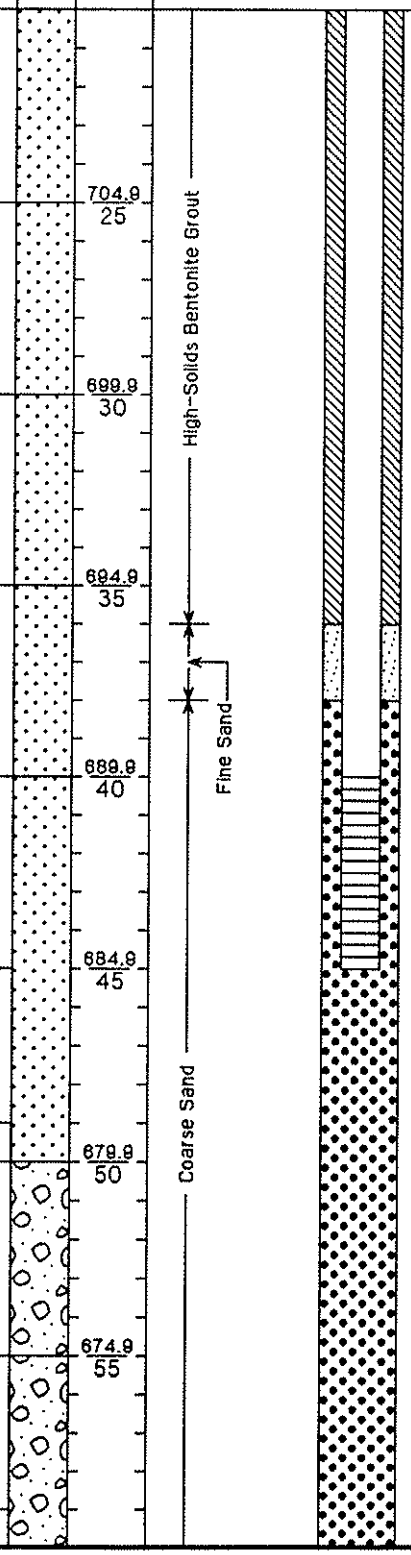
MONITORING WELL DETAIL

MW-123

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	ELEV. DEPTH
			SP		704.9 / 25
SS	0 ppm	5 5 10 11	SP	25-27.0': Lt bn SAND, med to fine; trace sm pebbles. Saturated.	699.9 / 30
SS	0 ppm	10 13 18 28	SP	30-32.0': Lt gy bn SAND, some gravel (10% average, ranging from trace to 30%); gravel is subang to subrdd med to sm pebbles which are mainly chert & carbonate; sand is coarse to med.	694.9 / 35
SS	0 ppm	6 7 11 21	SP	35-37.0': Lt gy bn SAND, w/some (7%) gravel which is sm to med pebbles.	689.9 / 40
SS	0 ppm	5 5 10 10	SP	40-42.0': Lt gy bn SAND, some (12%) gravel; sand is coarse to med; gravel is sm to med pebbles which are subrdd to subangular.	684.9 / 45
SS				No recovery	
				Hydropunch @ 49'	679.9 / 50
SS	0 ppm	12 12 20 15	SP-GP	50-52.0': Lt gy bn gravelly SAND; gravel is sm to med subrounded pebbles; sand is modally coarse, but ranges to fine. Saturated.	674.9 / 55
SS	0 ppm	8 12 9 15	SP-GP	55-57.0': Lt gy bn gravelly SAND; gravel (20%) is sm to lg subrdd pebbles of carbonate & chert; sand is coarse to med. Saturated.	
				Hydropunch @ 59'	

GRAPHIC LOG



WELL CONSTRUCTION DETAIL

Figure No.

CAMP DRESSER & McKEE
CDM
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Chicago, Illinois 60606-5306

MONITORING WELL DETAIL

MW-123

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. DEPTH	WELL CONSTRUCTION DETAIL
SS	0 ppm	8 12 18 15	SP	60-62.0': Lt gy bn SAND w/some (8%) gravel; sand is med, ranging from coarse to fine; gravel as in 55-57' sample. Saturated.			Coarse Sand
SS	0 ppm	8 8 14 18	SP	65-67.0': Lt gy bn SAND w/~7% gravel; sand is coarse to med; gravel is sm to med subrounded pebbles; saturated w/ a lt bn silty water.		664.9 / 65	
				Hydropunch @ 69'			
				Bottom of Boring @ 69 feet.		659.9 / 70	
						654.9 / 75	
						649.9 / 80	
						644.9 / 85	
						639.9 / 90	
						634.9 / 95	

Figure No.

CAMP DRESSER & McKEE
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233 South Wacker Drive, Suite 450
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MONITORING WELL DETAIL

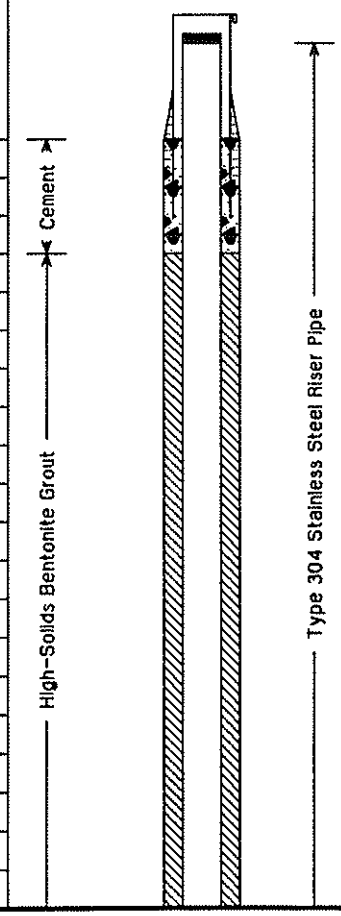
MW-124

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Mud Rotary/BK81
Development Method: Air lift using nitrogen & surge block
Top of Riser Elevation: 731.30 Ft.
Total Depth: 100.5 Ft.
Field Screening Instrument: HNU
Logged By: S. S. Bhagat

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 09-16-93 End 09-21-93
Drillers: Paul Dickinson, Mike Nelson
Development Date: Start 10-08-93 End 10-12-93
Surface Elevation: 729.0 Ft.
Depth To Initial Water Level (GS): ~25 Ft.
Well Coordinates:
N: 2030300.319 E: 2590224.674

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. DEPTH
			ML	Topsoil		728 / 0
						724 / 5
SS	0 ppm	3 3 4 5		Tan/Brown, well sorted, med sand, rare gravel. Dry.		719 / 10
						714 / 15
SS	0 ppm			Tan/Brown, well sorted, med sand. Dry.		

WELL CONSTRUCTION DETAIL



EXPLANATION OF ABBREVIATIONS

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HSA - Hollow Stem Auger
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HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample

OTHER:
BGS - Below Ground Surface

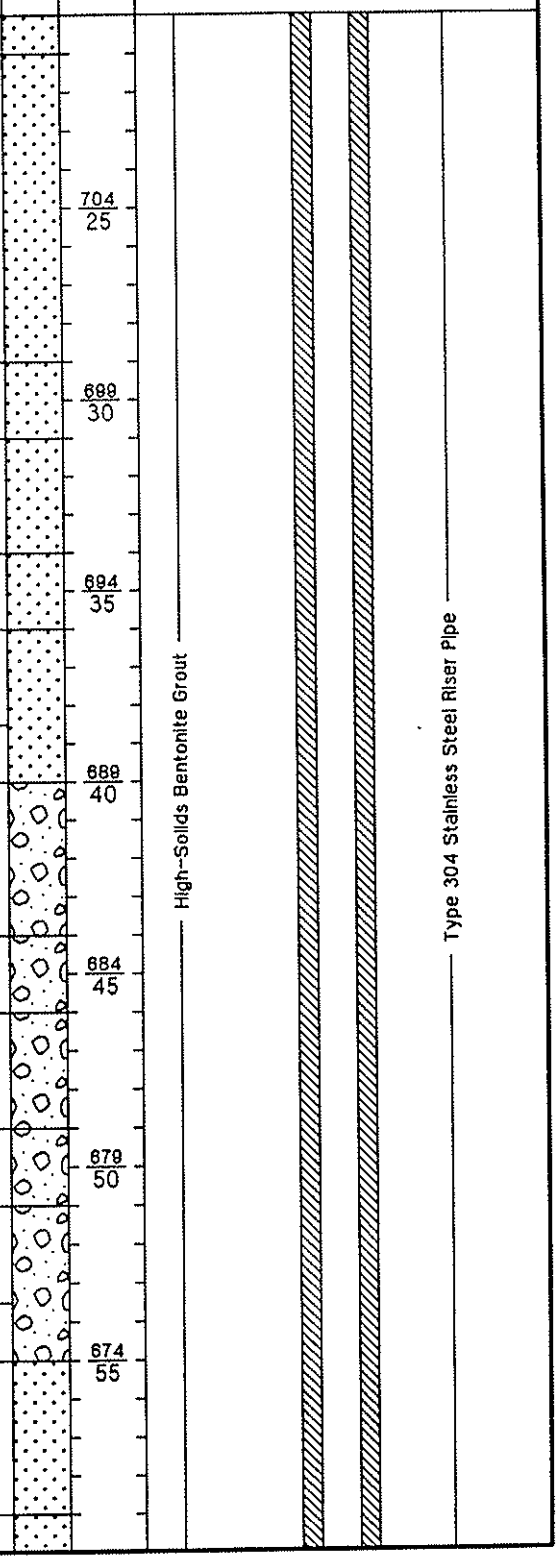
CAMP DRESSER & McKEE
CDM
233 South Wacker Drive, Suite 450
Chicago, Illinois 60606-5306

MONITORING WELL DETAIL

MW-124

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	ELEV. DEPTH
SS	0 ppm				
					704 / 25
SS	0 ppm	6 8 8 6		Tan/Brown, well sorted, med sand. Saturated.	699 / 30
SS	0 ppm	5 8 8 11		Tan/Brown, well sorted, med sand, rare gravel.	694 / 35
HP				Hydro Punch Sample VP124A.	689 / 40
SS	0 ppm	8 10 12 10		Tan/Brown, gravelly, med to coarse sand.	684 / 45
SS	1 ppm	15 14 12 12		Tan/Brown, coarse sand and gravel	679 / 50
HP				Hydro Punch Sample VP124B.	674 / 55
SS	.2 ppm			Tan/Brown, poorly sorted, coarse sand, rare	

WELL CONSTRUCTION DETAIL



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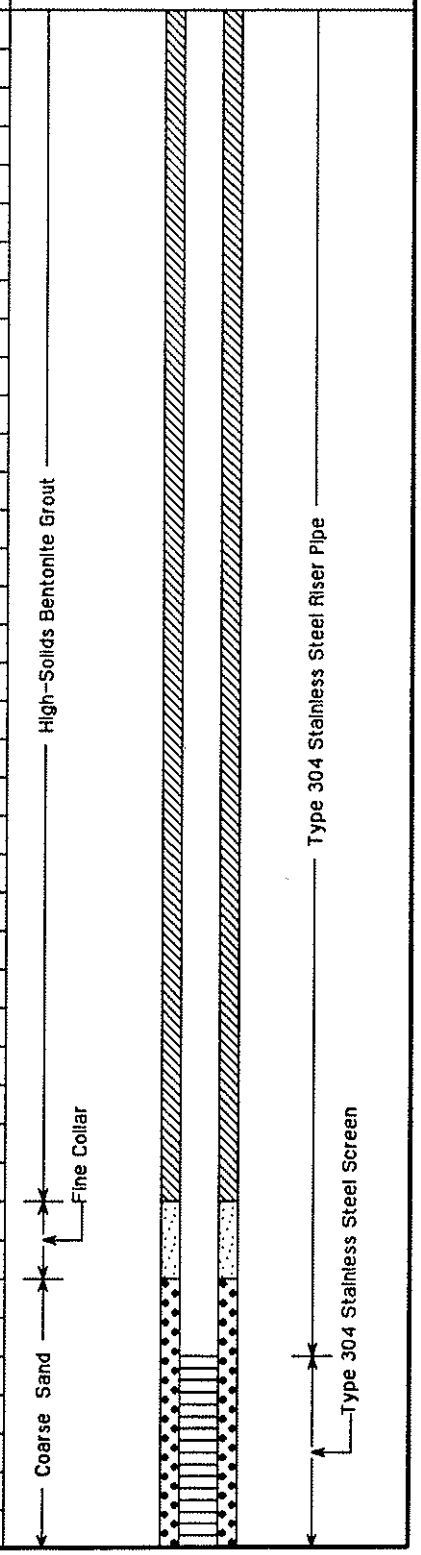
MONITORING WELL DETAIL

MW-124

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	ELEV. DEPTH
SS	.2 ppm			gravel.	
SS	.2 ppm	7 10 11 10		Tan/Brown, well sorted, med sand.	664 / 65
HP				Hydro Punch Sample VP124D.	659 / 70
SS	.3 ppm	23 15 13 16		Tan/Brown, coarse sand and gravel.	654 / 75
SS	-	50		No Recovery	649 / 80
					644 / 85
				Beginning of clay layer based on driller's observation.	
SS	0 ppm	5 8 7 7		Dark gray, plastic clay.	639 / 90
				End of clay layer based on driller's observation.	
SS	0 ppm	13 23 26 32		Reddish Brown, med to coarse sand, rare gravel.	634 / 95
HP				Hydro Punch Sample VP124F.	
SS	.3 ppm			Tan/Brown, coarse sand, gravelly in places.	

WELL CONSTRUCTION DETAIL



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MONITORING WELL DETAIL

MW-124

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. DEPTH	WELL CONSTRUCTION DETAIL
SS	.3 ppm						Natural Collapse
				Bottom of Boring @ 101 feet.			
						624/105	
						619/110	
						614/115	
						609/120	
						604/125	
						599/130	
						594/135	

CAMP DRESSER & McKEE
CDM
233 South Wacker Drive, Suite 450
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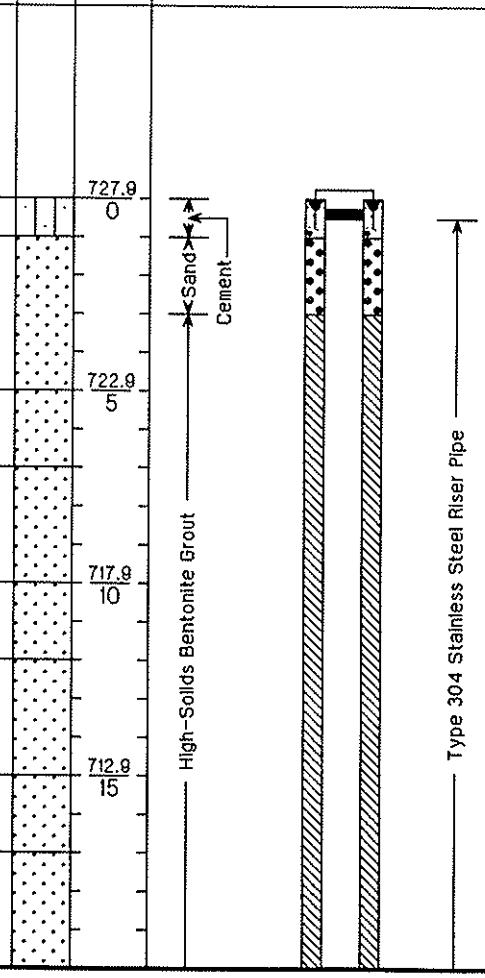
MONITORING WELL DETAIL
MW-125

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Hollow-stem auger/BK81
Development Method: Air lift, bailing, & surge block
Top of Riser Elevation: 727.31 Ft.
Total Depth: 47 Ft.
Field Screening Instrument: HNU
Logged By: S. S. Bhagat

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 07-09-93 End 07-09-93
Drillers: Paul Dickinson, Mike Nelson
Development Date: Start 09-21-93 End 09-21-93
Surface Elevation: 727.9 Ft.
Depth To Initial Water Level (GS): ~31 Ft.
Well Coordinates:
N: 2030992.041 E: 2590996.582

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	ELEV. DEPTH
			ML	Dark Brown Topsoil	727.9 / 0
SS	0 ppm	2 3 3 4		Reddish brown, fine to med sand; very well sorted. Dry.	722.9 / 5
SS	0 ppm	3 5 7 9		Tan, med sand; well sorted.	717.9 / 10
SS	0 ppm	4 5 12 13		Tan, fine sand; well sorted.	712.9 / 15



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 - 1.6" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample

OTHER:
BGS - Below Ground Surface

CAMP DRESSER & McKEE
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Chicago, Illinois 60606-5306

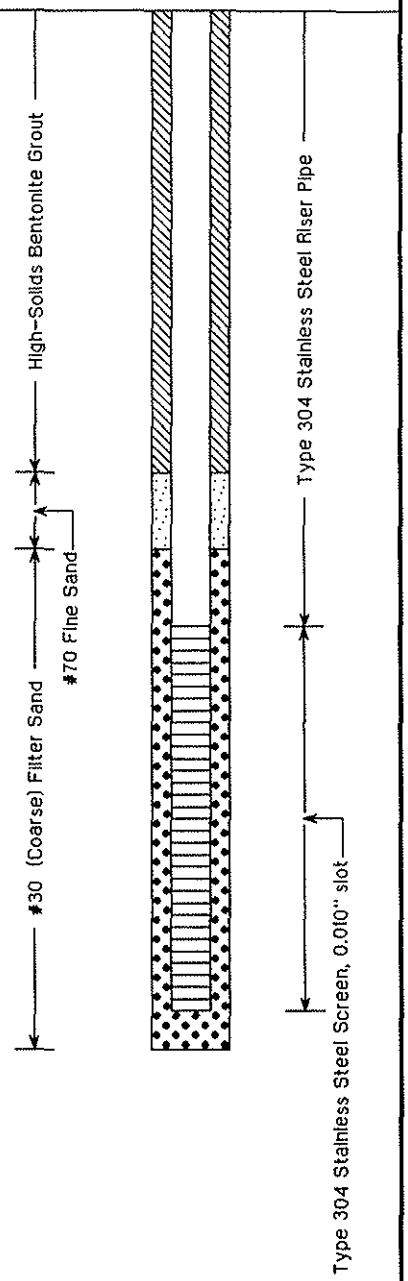
MONITORING WELL DETAIL

MW-125

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	ELEV. DEPTH
SS	0 ppm	6 7 8 15		Tan, fine sand; very well sorted.	
					702.9 / 25
SS	0 ppm	3 5 10 16			
					697.9 / 30
SS	0 ppm	6 10 14 16		Tan, well sorted, med sand, w/some gravel in bottom 2" of sample.	
					692.9 / 35
SS	0 ppm	4 9 20 51		Brown, med sand, gravelly sand @ 36-37'. Saturated.	
					687.9 / 40
SS	0 ppm	10 51 48 46		Brown, coarse sand, well sorted from 40-41'. Gravelly from 41-42'.	
					682.9 / 45
SS	0 ppm	6 24 52 47		Brown, med and coarse sand, gravelly @ 46-47'.	
				Bottom of Boring @ 47 feet.	
					677.9 / 50
					672.9 / 55

GRAPHIC LOG

WELL CONSTRUCTION DETAIL



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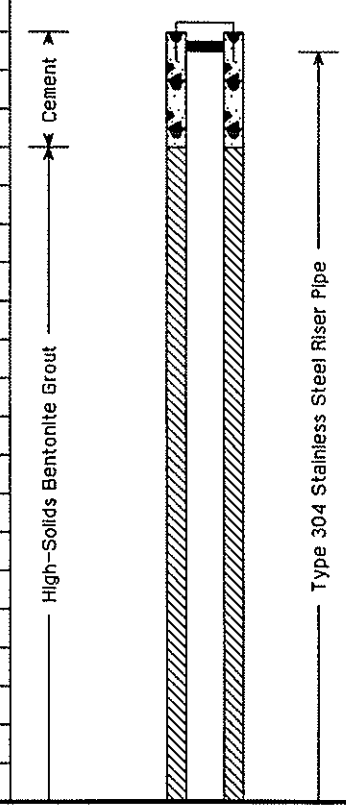
MONITORING WELL DETAIL

MW-126A

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Hollow-stem auger/BK81
Development Method: Bailing & surging
Top of Riser Elevation: 727.62 Ft.
Total Depth: 56 Ft.
Field Screening Instrument: HNU
Logged By: S. S. Bhagat

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 07-11-93 End 07-11-93
Drillers: Paul Dickinson, Mike Nelson
Development Date: Start 10-12-93 End 10-14-93
Surface Elevation: 727.9 Ft.
Depth To Initial Water Level (GS): ~31 Ft.
Well Coordinates:
N: 2030750.547 E: 2591003.188

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. DEPTH	WELL CONSTRUCTION DETAIL
				Note: See MW-126B for geologic log.		727.9 / 0	
						722.9 / 5	
						717.9 / 10	
						712.9 / 15	



EXPLANATION OF ABBREVIATIONS

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WS - Wash Sample

OTHER:
BGS - Below Ground Surface

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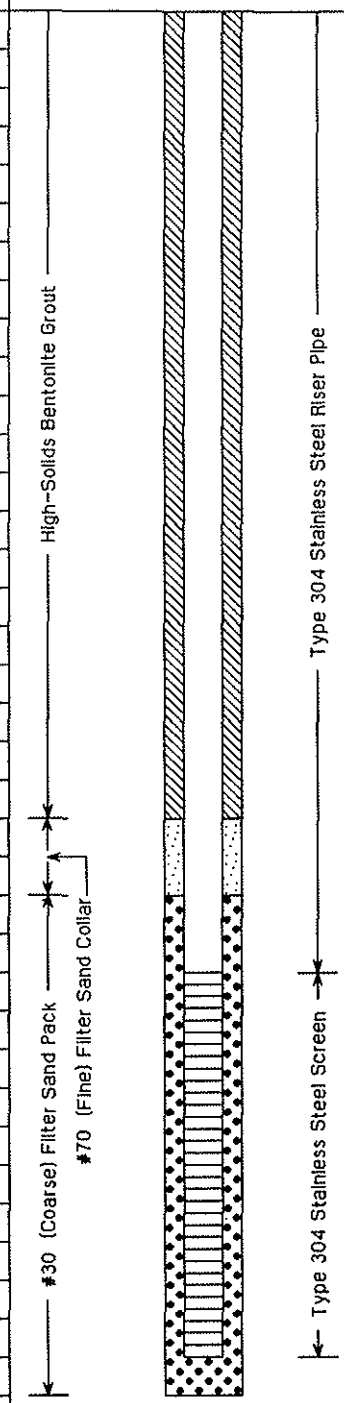
MONITORING WELL DETAIL

MW-126A

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. / DEPTH
						702.9 / 25
						697.9 / 30
						692.9 / 35
						687.9 / 40
ST				45-47': Shelby Tube Sample OT126A. See MW-126B for sample description.		682.9 / 45
						677.9 / 50
						672.9 / 55
				Bottom of Boring @ 56 feet		

WELL CONSTRUCTION DETAIL



CAMP DRESSER & McKEE
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MONITORING WELL DETAIL
MW-126B

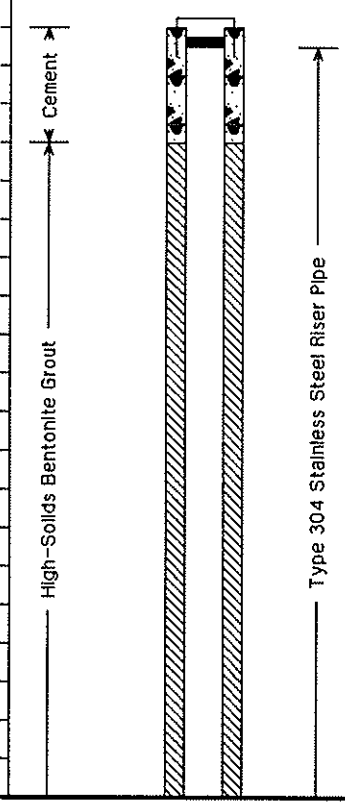
Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Mud Rotary/BK81
Development Method: Air lift using nitrogen & surge block
Top of Riser Elevation: 727.60 Ft.
Total Depth: 87 Ft.
Field Screening Instrument: HNU
Logged By: S. S. Bhagat

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 07-11-93 End 07-12-93
Drillers: Paul Dickinson, Mike Nelson
Development Date: Start 10-08-93 End 10-08-93
Surface Elevation: 727.9 Ft.
Depth To Initial Water Level (GS): ~31 Ft.
Well Coordinates:
N: 2030742.648 E: 2591003.420

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	ELEV. DEPTH
				Topsoil	727.9 / 0
SS	BG	3 4 5 10		10-12': Tan/brown, well sorted, med sand; rare gravel.	717.9 / 10

GRAPHIC LOG

WELL CONSTRUCTION DETAIL



EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
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NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample

OTHER:
BGS - Below Ground Surface

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MONITORING WELL DETAIL

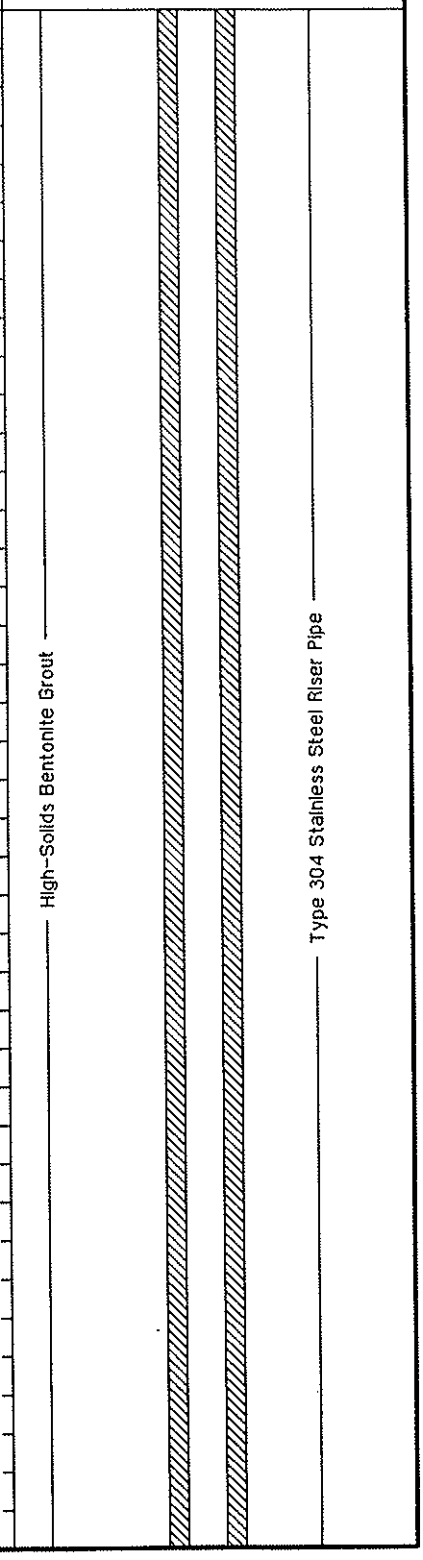
MW-126B

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION
SS	BG	3 6 8 13		20-22': Tan/brown, well sorted, med sand.
SS	BG	9 13 19 20		30-32': Tan, med sand; gravelly med sand from 31-32'.
SS	BG	5 6 11 32		35-37': Tan/brown, med sand, gravelly from 36-37'. Saturated.
SS	BG	3 14 26 46		40-42': Tan/brown, well sorted, med sand from 40-41.5'; gravel from 41.5-42'.
SS	BG	11 12 11 14		45-47': Tan/brown, gravelly med sand; gravel common from 46-47'.
SS	BG	7 7 16 21		50-52': Tan/brown, gravelly med sand.
ST				52-54': No recovery - the saturated sand & gravelly sand will not stay in the tube. Shelby Tube deformed slightly by the formation.
SS	BG	17 16 24 54		54-56': Tan/brown, gravelly med sand.

GRAPHIC LOG

ELEV. / DEPTH: 702.9 / 25; 687.9 / 30; 692.9 / 35; 687.9 / 40; 682.9 / 45; 677.9 / 50; 672.9 / 55

WELL CONSTRUCTION DETAIL



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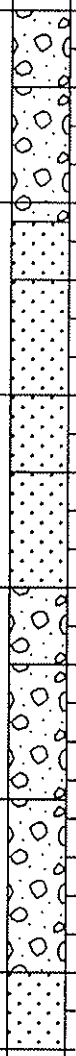
MONITORING WELL DETAIL

MW-126B

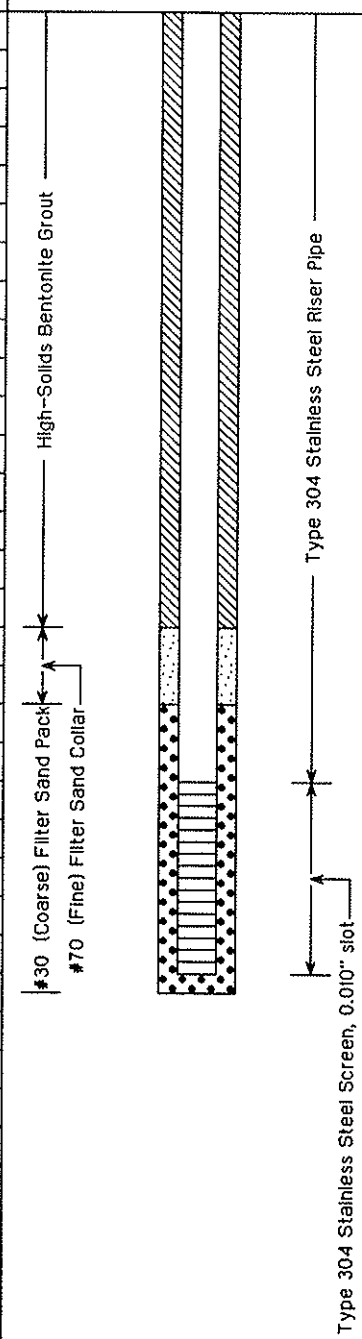
SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION
SS	BG	30 53 54 51		60-62': Tan/brown, gravelly med sand.
SS	BG	21 56 68 70		65-67': Tan/brown, gravelly med sand from 65-65.5'; tan/brown, well sorted, med sand from 65.5-66'.
SS	BG	8 11 15 18		70-72': Tan/brown, well sorted med sand; rare gravel.
SS	BG	18 27 26 23		75-77': Tan/brown, gravelly med sand. Clasts are primarily limestone, often silicified & fossiliferous; also have granitic clasts & rare fine-grained siliciclastic fragments.
SS	BG	82 38 37 28		80.5-82.5': Tan/brown coarse sand & gravel.
SS /ST	BG	16 26 28 30		85-87': Tan/brown coarse sand 85-85.3'; Tan/brown med to fine sand, well sorted from 85.3-86'. Collect Shelby Tube Sample OT126B.
				Bottom of Boring @ 87 feet

GRAPHIC LOG



ELEV. / DEPTH: 662.9 / 65; 657.9 / 70; 652.9 / 75; 647.9 / 80; 642.9 / 85; 637.9 / 90; 632.9 / 95

WELL CONSTRUCTION DETAIL



CAMP DRESSER & McKEE
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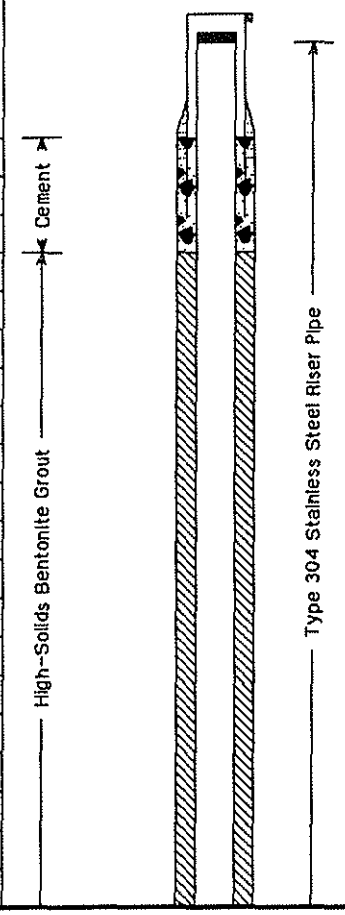
MONITORING WELL DETAIL
MW-127

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Mud Rotary/Diedrich 50
Development Method: Air lift using nitrogen & surge block
Top of Riser Elevation: 728.59 Ft.
Total Depth: 44 Ft.
Field Screening Instrument: HNU
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 07-20-93 End 07-20-93
Drillers: Rick O'Gorman, Mark Thorson
Development Date: Start 09-14-93 End 09-15-93
Surface Elevation: 726.2 Ft.
Depth To Initial Water Level (GS): ~23 Ft.
Well Coordinates:
N: 2031361.511 E: 2592021.970

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	ELEV. DEPTH
			ML	Topsoil	726.2 / 0
			ML		
SS	0 ppm	9 6 4 5	ML	5.0-5.2': Dk bn to black topsoil w/some coal (from railroad bed)	721.2 / 5
			SP	5.2-5.7': Dk to mod or bn SAND, w/~15% gravel & little to trace clay (<10%) The sand is med to coarse, gravel is sm to med pebbles that are subrounded to rounded. Moist, not wet.	
SS	0 ppm	6 10 10 12	SP	10-11.0': Mod to lt bn SAND, med to coarse; trace granules & pebbles; loose; dry.	716.2 / 10
SS	0 ppm	7 8 12 15	SP	15-16.1': Lt bn SAND, med to fine, w/subhorizontal dark laminations; loose; dry.	711.2 / 15

WELL CONSTRUCTION DETAIL



EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
SSA - Solid Stem Auger
HA - Hand Auger
AR - Air Rotary
DTR - Dual Tube Rotary
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MR - Mud Rotary
RC - Reverse Circulation
CT - Cable Tool
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SAMPLING TYPES:
AS - Auger/Grab Sample
CS - California Sampler
BX - 1.6" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample

OTHER:
BGS - Below Ground Surface

Figure No.

CAMP DRESSER & McKEE
CDM
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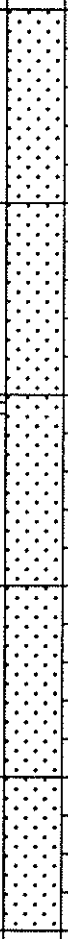
MONITORING WELL DETAIL

MW-127

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	ELEV. DEPTH
SS	0 ppm	6 13 20 17	SP	20-21.0': Lt bn SAND, med to coarse w/ a gravelly zone (30% pebbles) @ 20.2-20.3'. Pebbles are subrounded. Moist.	
SS	0 ppm	8 17 12 21	SP	25-26.1': Lt bn SAND, coarse to med w/~8% subangular sm pebbles & granules. Wet.	701.2 / 25
SS	0 ppm	6 7 8 15	SP	30-30.2': Coarse to med SAND w/few sm pebbles 30.2-30.5': Gravel w/no sand 30.5-31.2': Lt bn SAND, coarse to med w/~5% small subrounded pebbles & granules; wet.	696.2 / 30
SS	0 ppm	8 7 9 16	SP	35-36.0': Lt bn SAND, med to coarse, ~5% sm subrounded pebbles; wet.	691.2 / 35
SS	0 ppm	4 5 9 28	SP	40-41.0': Same as 35-36' but w/ ~8% gravel.	686.2 / 40
				Bottom of Boring @ 44 feet.	681.2 / 45
					676.2 / 50
					671.2 / 55

GRAPHIC LOG



WELL CONSTRUCTION DETAIL

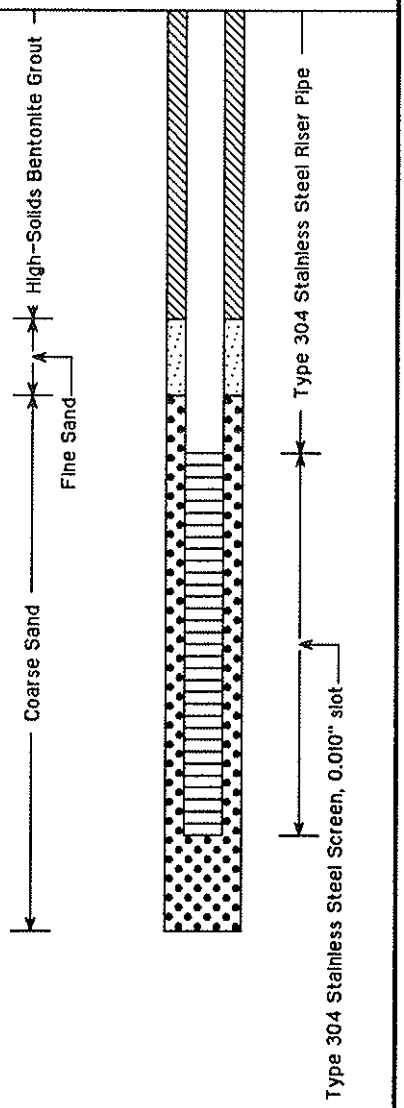


Figure No.

CAMP DRESSER & McKEE
CDM
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Chicago, Illinois 60606-5306

MONITORING WELL DETAIL
MW-128

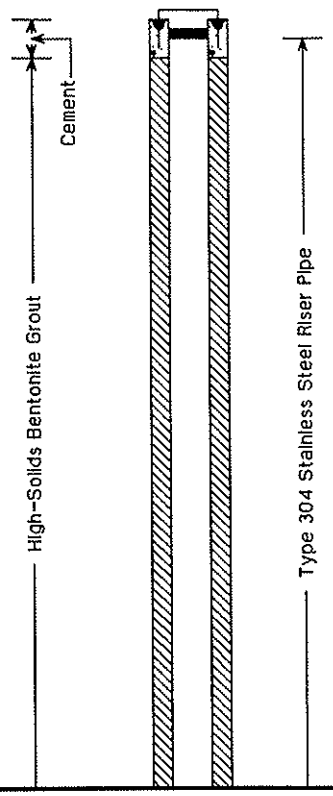
Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Mud Rotary/BK81
Development Method: Air lift using nitrogen & surge block
Top of Riser Elevation: 728.40 Ft.
Total Depth: 62 Ft.
Field Screening Instrument: HNU/OVM
Logged By: M. Nugent and S. S. Bhagat

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 09-01-93 End 09-02-93
Drillers: Paul Dickinson, Mike Nelson
Development Date: Start 10-13-93 End 10-13-93
Surface Elevation: 728.8 Ft.
Depth To Initial Water Level (GS): ~25 Ft.
Well Coordinates:
N: 2031300.815 E: 2593097.852

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	ELEV. DEPTH
				Topsoil	728.8 / 0
SS	0 ppm	3 4 6 9		5-7': Brownish yel (10YR 6/6) med well sorted sand unsaturated.	723.8 / 5
SS	3.2 ppm	4 7 11 20		10-12': Brownish yel (10YR 6/6) med, well sorted sand, unsaturated.	718.8 / 10
SS	6.4 ppm	7 10 11 12		15-17': Lt olive brown (2.5YR 5/6) fine to v fine well sorted sand, unsaturated.	713.8 / 15

GRAPHIC LOG

WELL CONSTRUCTION DETAIL



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HSA - Hollow Stem Auger
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GP - Geoprobe
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SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample

OTHER:
BGS - Below Ground Surface

CAMP DRESSER & McKEE

CDM

233 South Wacker Drive, Suite 450
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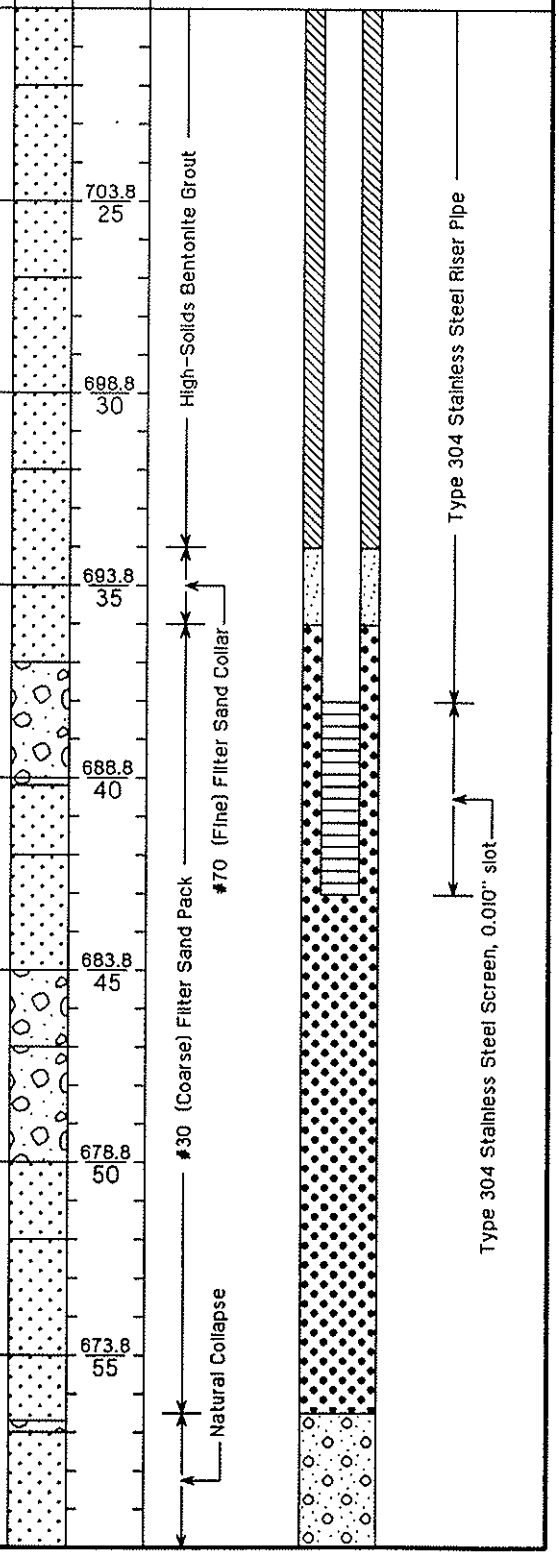
MONITORING WELL DETAIL

MW-128

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	ELEV. DEPTH
SS	5.4 ppm	4 7 9 11		20-22': Lt yel brown (10YR 6/4) med to fine well sorted sand.	
SS	3.8 ppm	6 6 12 12		25-27': Lt brownish gray (10YR 6/2) med to fine well sorted sand.	703.8 / 25
SS	5 ppm	11 15 15 20		30-32': Lt yel brown (10YR 6/4) coarse to med poorly sorted sand with some gravel.	698.8 / 30
SS	200 ppm	7 15 19 21		35-37': Lt yel brown (10YR 6/4) coarse to med poorly sorted sand with some gravel.	693.8 / 35
SS	300 ppm	8 17 23 26		40-42': Gray , well sorted coarse sand. Top 2" gray gravelly coarse sand.	688.8 / 40
SS	35 ppm	10 11 14 17		45-47': Gray, gravelly coarse sand. Gravel is rounded.	683.8 / 45
SS	30 ppm	10 20 18 18		50-52': Gray, gravelly coarse sand.	678.8 / 50
SS	6 ppm	9 8 7 11		55-57': Dark gray, coarse sand; gravelly in lower 3".	673.8 / 55



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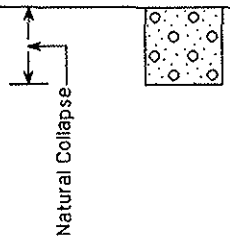
MONITORING WELL DETAIL

MW-128

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. DEPTH	WELL CONSTRUCTION DETAIL
SS	4 ppm	12 20 18 23		60-62': Dark, gray coarse sand; rare gravel.			
				Bottom of Boring @ 62 feet			



663.8 / 65

658.8 / 70

653.8 / 75

648.8 / 80

643.8 / 85

638.8 / 90

633.8 / 95

CAMP DRESSER & McKEE
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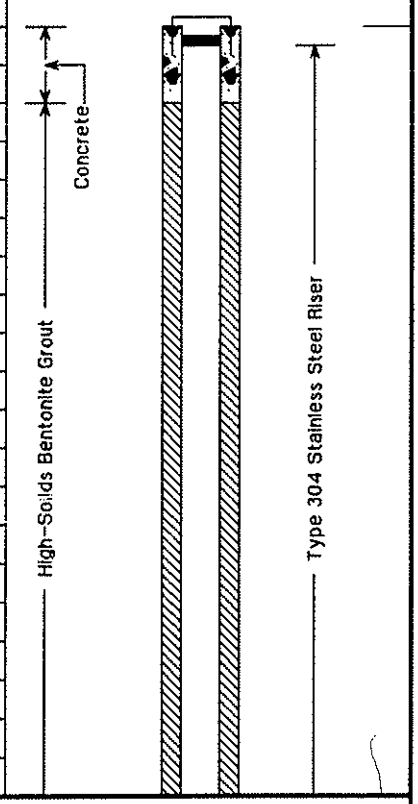
233 South Wacker Drive, Suite 450
Chicago, Illinois 60606-5306

MONITORING WELL DETAIL
MW-129

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Mud Rotary/Diedrich 50
Development Method: Bailing & surge block
Top of Riser Elevation: 732.12 Ft.
Total Depth: 37 Ft.
Field Screening Instrument: HNU
Logged By: Craig Almanza

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 08-24-93 End 08-24-93
Drillers: Rick O' Gorman, Mark Thorson
Development Date: Start 10-14-93 End 10-15-93
Surface Elevation: 732.1 Ft.
Depth To Initial Water Level (GS): ~19 Ft.
Well Coordinates:
N: 2031344.813 E: 2593910.535

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	ELEV. DEPTH
SS	0 ppm	4 4 5 5		Brown med sand & gravel fill	732.1 / 0
				Dark brown sandy silt, dry.	
SS	0 ppm	6 8 9 12		Brown fine sand, dry.	727.1 / 5
SS	0 ppm	5 6 10 12		Light brown fine sand, dry.	722.1 / 10
SS	0 ppm	3 4 8 8		Light brown fine sand, dry.	717.1 / 15



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WS - Wash Sample

OTHER:
BGS - Below Ground Surface

CAMP DRESSER & McKEE
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Chicago, Illinois 60606-5306

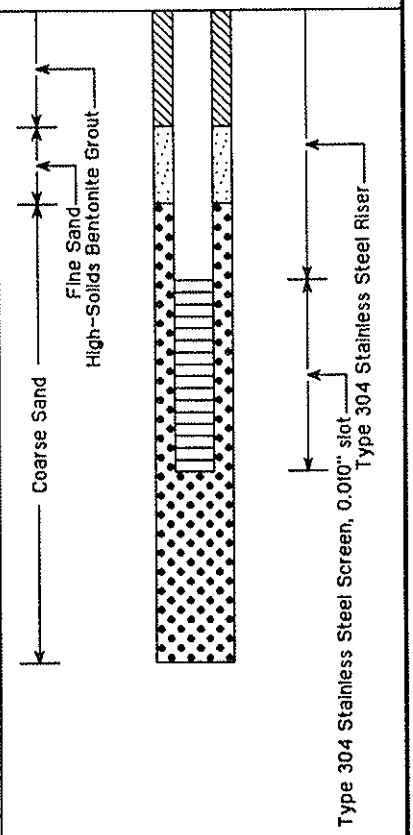
MONITORING WELL DETAIL

MW-129

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	ELEV. DEPTH
SS	0 ppm	5 5 7 10		Brown fine sand w/sm gravel – water between 17-20'.	
					707.1 / 25
SS	0 ppm	5 6 12 13		Brown fine to med sand, saturated; no gravel.	
					702.1 / 30
SS	0 ppm	8 9 10 12		Brown fine to med sand, saturated; no gravel.	
					697.1 / 35
SS	0 ppm	7 6 8 11		Brown fine to med sand w/sm gravel (quartz, chert, feldspar)	
				Bottom of Boring at 37 feet.	
					692.1 / 40
					687.1 / 45
					682.1 / 50
					677.1 / 55

GRAPHIC LOG

WELL CONSTRUCTION DETAIL



CAMP DRESSER & McKEE
CDM
233 South Wacker Drive, Suite 450
Chicago, Illinois 60606-5306

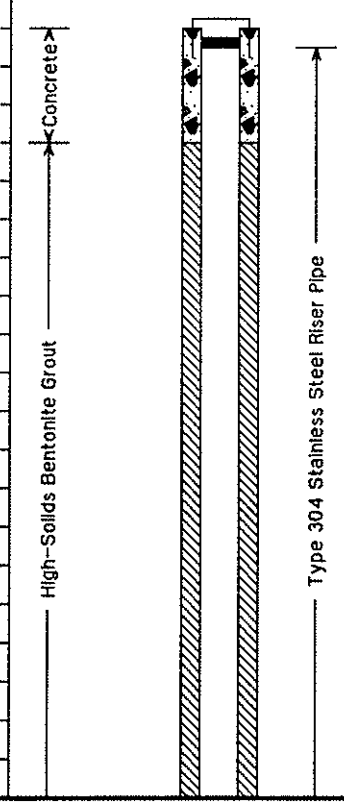
MONITORING WELL DETAIL
MW-130

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Mud Rotary/Diedrich 50
Development Method: Air lift using nitrogen & surge block
Top of Riser Elevation: 727.95 Ft.
Total Depth: 42 Ft.
Field Screening Instrument: OVM
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 07-24-93 End 07-25-93
Drillers: Rick O'Gorman, Mark Thorson
Development Date: Start 10-14-93 End 10-14-93
Surface Elevation: 728.0 Ft.
Depth To Initial Water Level (GS): ~23 Ft.
Well Coordinates:
N: 2030701.267 E: 2594440.108

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	ELEV. / DEPTH
			ML	Topsoil	728 / 0
			ML		
SS	0 ppm	1 1 1 2	ML	5.0-5.2': Dk bn loamy soil	723 / 5
			SM	5.2-6.2': Mod-dk bn silty SAND, fine, moist.	
			SP	6.2-7.0': Mod bn SAND, coarse to med, very moist.	
SS	0 ppm	2 2 2 4	SP	10-10.8': Mod-lt bn SAND, med; no silt, clay or gravel observed; mod well sorted; moist.	718 / 10
SS	0 ppm	2 2 4 4	SP	15-15.7': Lt bn SAND, med to coarse, mod well sorted, moist.	713 / 15

GRAPHIC LOG



WELL CONSTRUCTION DETAIL

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 - 1.6" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample

OTHER:
BGS - Below Ground Surface

Figure No.

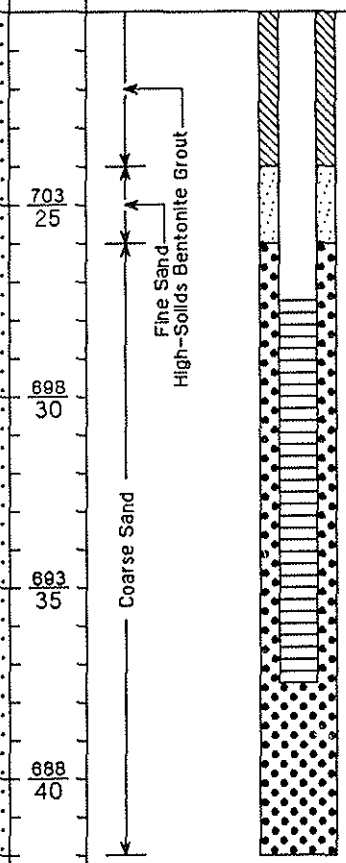
CAMP DRESSER & McKEE
CDM
233 South Wacker Drive, Suite 450
Chicago, Illinois 60606-5306

MONITORING WELL DETAIL

MW-130

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION
SS	0 ppm	7 8 7 9	SP	20-20.8': Lt bn SAND, med, wet.
SS	0 ppm	7 9 6 10	SP	25-26.0': Lt bn SAND, coarse to med; 25.0-25.5' zone has ~15% sm pebbles; wet. Sampled: SB130E
SS	0 ppm	10 13 19 19	SP	30-31.3': Lt bn SAND, coarse to v coarse, w/ 10-15% sm pebbles; wet.
SS	0 ppm	7 10 9 12	SP	35-36.5': Lt bn SAND, coarse to v coarse, w/ 10-15% sm to lg pebbles; wet. Sampled: SB130G
SS	0 ppm	16 23 11 10	SP	40-41.5': Lt bn SAND, coarse to med, w/ ~8% lg to sm subrounded pebbles. A zone @ 40.4-40.55' has sm pebbles & granules, subangular to angular & mainly chert, carbonate, basalt & quartz. Sampled: SB130H *Bottom of Boring @ 42 feet.*

GRAPHIC LOG



ELEV. / DEPTH: 703/25, 698/30, 693/35, 688/40, 683/45, 678/50, 673/55

WELL CONSTRUCTION DETAIL

Figure No.

CAMP DRESSER & McKEE
CDM
233 South Wacker Drive, Suite 450
Chicago, Illinois 60606-5306

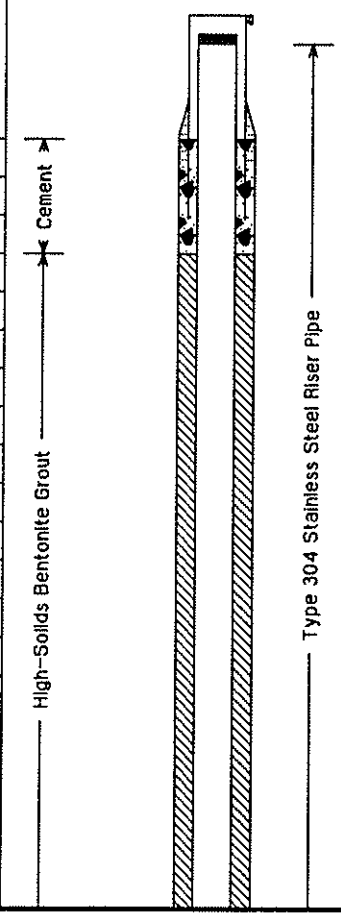
MONITORING WELL DETAIL

MW-131

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Mud Rotary/Diedrich 50
Development Method: Bailing & surge block
Top of Riser Elevation: 736.95 Ft.
Total Depth: 37 Ft.
Field Screening Instrument: OVM
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 08-23-93 End 08-23-93
Drillers: Rick O'Gorman, Mark Thorson
Development Date: Start 10-14-93 End 10-15-93
Surface Elevation: 734.4 Ft.
Depth To Initial Water Level (GS): ~ 19 Ft.
Well Coordinates:
N: 2034470.960 E: 2594407.030

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	ELEV. DEPTH
			ML	Topsoil	734.4 / 0
			SP		
SS	0 ppm	2 2 2 3	SP	5.0-5.9': Mod-dk yel bn SAND, med to fine, well sorted exc. @ base (5.8-5.9') where it contains dk gy wet silty clay in matrix. Elsewhere is moist, not wet.	729.4 / 5
SS	0 ppm	3 4 6 7	SP	10-11.0': Lt yel bn SAND, fine, well sorted, moist.	724.4 / 10
SS	0 ppm	6 8 8 7	SP-SM	15-16.0': Lt-mod yel bn SAND, fine; ~4mm thick layers of silty sand alternating w/ the fine sand @ 15.3-15.8'; moist (particularly the silty sand).	719.4 / 15



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 - 1.6" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample

OTHER:
BGS - Below Ground Surface

Figure No.

CAMP DRESSER & McKEE
CDM
233 South Wacker Drive, Suite 450
Chicago, Illinois 60606-5306

MONITORING WELL DETAIL

MW-131

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION
SS	0 ppm	7 9 8 11	SP	20-21.6': Lt-mod yel bn SAND, v fine @ 20-20.8; fine @ 20.8-21.4; fine to med @ 21.4-21.6' Saturated.
SS	0 ppm	8 8 8 12	SP	25-25.8': Lt-mod yel bn SAND, med to fine, saturated. A mod-dk bn zone @ 25.0-25.03' is clayey.
SS		11 18 25 15	SP	30-30.8': Mod yel bn SAND, med, wet; 30.8-31.1': Mod-lt yel bn SAND, v fine, sl silty (~10% silt), moist.
SS	0 ppm	8 8 11 13	SP	35-35.7': Mod yel bn SAND, med to coarse, w/ 5% gravel as med pebbles to granules; saturated.
				Bottom of Boring @ 37 feet.

GRAPHIC LOG

ELEV. DEPTH: 709.4 / 25; 704.4 / 30; 699.4 / 35; 694.4 / 40; 689.4 / 45; 684.4 / 50; 679.4 / 55

WELL CONSTRUCTION DETAIL

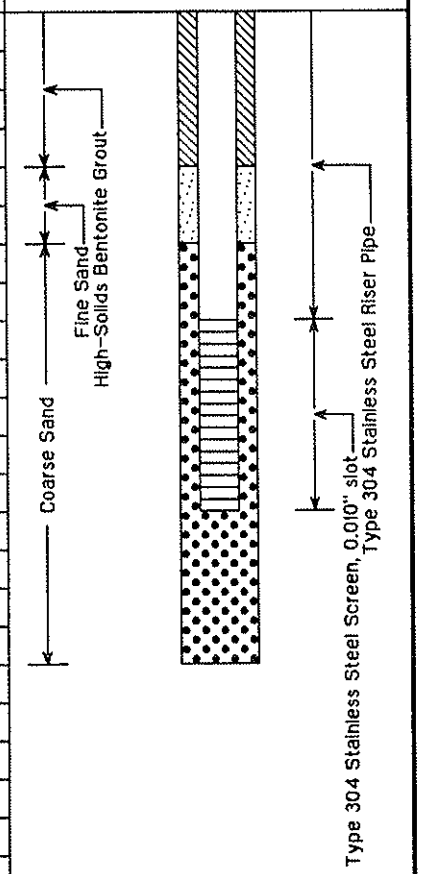


Figure No.

CAMP DRESSER & McKEE
CDM
233 South Wacker Drive, Suite 450
Chicago, Illinois 60606-5306

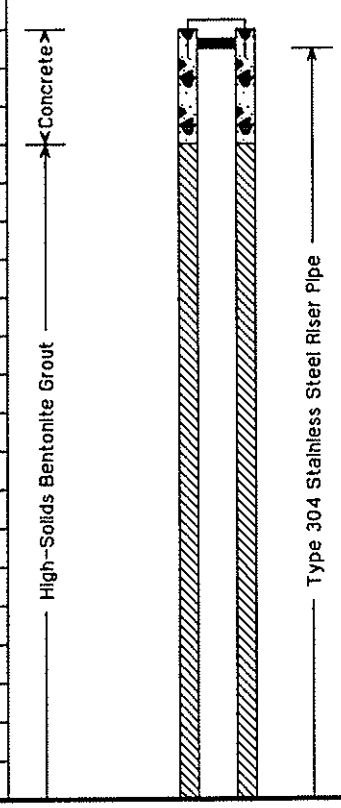
MONITORING WELL DETAIL
MW-132

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Mud Rotary/Diedrich 50
Development Method: Bailing & surge block
Top of Riser Elevation: 728.73 Ft.
Total Depth: 35 Ft.
Field Screening Instrument: OVM
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 08-23-93 End 08-24-93
Drillers: Rick O'Gorman, Mark Thorson
Development Date: Start 10-12-93 End 10-13-93
Surface Elevation: 728.7 Ft.
Depth To Initial Water Level (GS): ~18.5 Ft.
Well Coordinates:
N: 2033567.152 E: 2593223.923

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	ELEV. DEPTH
			ML	Topsoil	728.7 / 0
			SP		723.7 / 5
SS	0 ppm	1 1 2 9	SP	5.0-5.8': Mod to lt yel bn SAND, med to coarse; moist to dry.	
SS	0 ppm	4 5 6 10	SP	10-11.0': Lt yel bn SAND, med, nearly dry.	718.7 / 10
SS	0 ppm	10 9 10 15	SP	15-15.9': Lt yel bn SAND, fine to v fine. Many greenish brown to rusty brown laminations 0.5 to 3mm thick @ 15.4-15.9'; these are sl.silty; moist to dry.	713.7 / 15

WELL CONSTRUCTION DETAIL



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 - 1.6" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample

OTHER:
BGS - Below Ground Surface

Figure No.

CAMP DRESSER & McKEE
CDM
233 South Wacker Drive, Suite 450
Chicago, Illinois 60606-5306

MONITORING WELL DETAIL

MW-132

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION
SS		6 5 12 15	SP	20-21.7': Mod yel bn SAND, fine to med, wet.
SS	0 ppm	5 6 9 13	SP	25-25.8': Mod-lt yel bn SAND, med to fine, wet.
			GP	Note: Drilling action indicates gravel @ 29-30'.
SS	0 ppm	5 5 6 10	SP	30-31.0': Mod bn SAND, coarse w/~10% gravel as med pebbles to granules which are rounded to subangular & show preferred horizontal orientation of the tabular-shaped pebbles.
SS	0 ppm	5 6 8 10	SP-GP	35-36.3': Mod gray bn SAND, contains ~35% gravel @ 36.0-36.3' and a sm pebble-gravel zone @ 35.2-35.3', w/ no sand. The sand is coarse. Gravel is ~75% carbonate & chert, remainder igneous, jasper, quartz, sandstone, & gravel is subrounded.

Bottom of Boring @ 37 feet.

GRAPHIC LOG

ELEV. DEPTH: 703.7 / 25; 698.7 / 30; 693.7 / 35; 688.7 / 40; 683.7 / 45; 678.7 / 50; 673.7 / 55

WELL CONSTRUCTION DETAIL

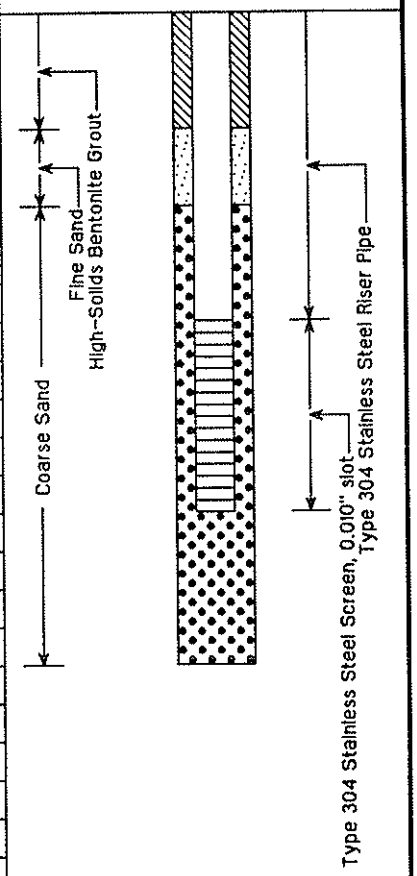


Figure No.

CAMP DRESSER & McKEE
CDM
233 South Wacker Drive, Suite 450
Chicago, Illinois 60606-5306

MONITORING WELL DETAIL

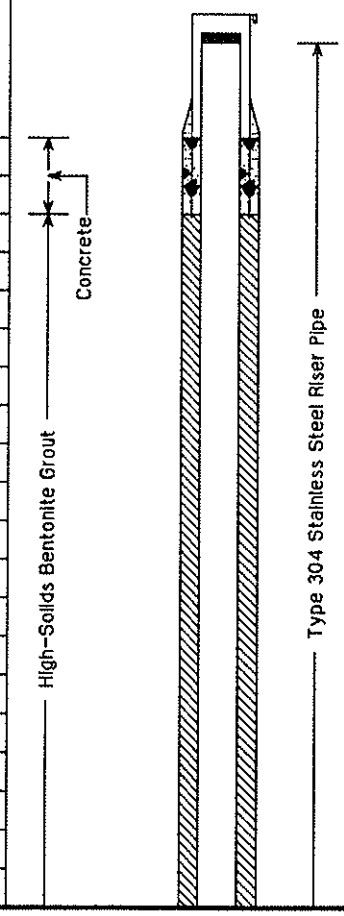
MW-133A

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Mud Rotary/Diedrich 50
Development Method: Bailing & surge block
Top of Riser Elevation: 780.18 Ft.
Total Depth: 35 Ft.
Field Screening Instrument: OVM
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 08-20-93 End 08-20-93
Drillers: Rick O'Gorman, Mark Thorson
Development Date: Start 10-15-93 End 10-15-93
Surface Elevation: 777.6 Ft.
Depth To Initial Water Level (GS): ~18.5 Ft.
Well Coordinates:
N: 2028900.383 E: 2600083.739

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	ELEV. DEPTH
			ML	Topsoil	777.6 / 0
			ML-CL		772.6 / 5
SS	0 ppm	3 5 6 8	CL	10-12': Tan silty gravelly sandy clay, w/ orange-bn streaks & films along certain zones. Gravel (~15%) is predominantly subangular to subrounded granules to lg pebbles. Sand is ~15%, silt & clay ~35% each. Both the gravel & sand are randomly dispersed throughout the silty clay matrix, & also show no preferred orientation. Variably moist to wet; mod low plasticity.	767.6 / 10
SS	0 ppm	6 8 9 10	ML	15-15.5': Gray-bn to orange-bn clayey gravelly sandy SILT, slightly plastic, moist. Gravel (~15% of sample) is subangular to subrounded sm to lg pebbles randomly oriented & distributed throughout the matrix. Sand (10%) v coarse to fine & also randomly distributed. Remaining 75% are silt & clay.	762.6 / 15

Note: Slow drilling 15-20, suggesting the same ML (till) unit as @ 15.0-15.5'.



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 - 1.6" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample

OTHER:
BGS - Below Ground Surface

Figure No.

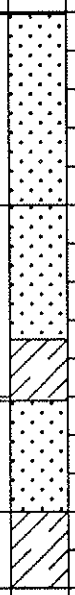
CAMP DRESSER & McKEE
CDM
233 South Wacker Drive, Suite 450
Chicago, Illinois 60606-5306

MONITORING WELL DETAIL

MW-133A

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION
SS	0 ppm	10 8 8 15	ML	20-20.05': Mod or bn clayey gravelly sandy SILT as above.
			SP	20.05-22.0': Lt -mod gy bn gravelly SAND; sand is mainly coarse, & ranges to fine; gravel (25%) is rounded to subangular sm to lg pebbles which are ~75% carbonate & chert; remainder are igneous, jasper & quartz. Saturated. Note: Drilled easily from 20-25', suggesting sand throughout.
SS	0 ppm	8 9 12 15	SP	25-27.0': Lt gy bn to lt gn gy SAND, fine to v fine; upper portion (25.0-25.4') has sand interfingering w/ lenses of lt gn gy saturated SILT. The sand here is lt gy bn. Saturated throughout.
			ML	30-30.1': Or bn to lt gy clayey gravelly SILT.
SS	0 ppm	7 9 10 16	SP	30.1-32.0': Mod or bn to gy bn gravelly sand; sand is coarse, ranging to fine. Gravel (15%) is rounded to subangular sm to lg pebbles w/lithology as in 20.1-22.0' zone. Saturated.
			ML	Drilling action indicates silt or clay @ 33-35'.
				Bottom of Boring @ 35 feet.

GRAPHIC LOG



ELEV. DEPTH: 752.6 / 25; 747.6 / 30; 742.6 / 35; 737.6 / 40; 732.6 / 45; 727.6 / 50; 722.6 / 55

WELL CONSTRUCTION DETAIL

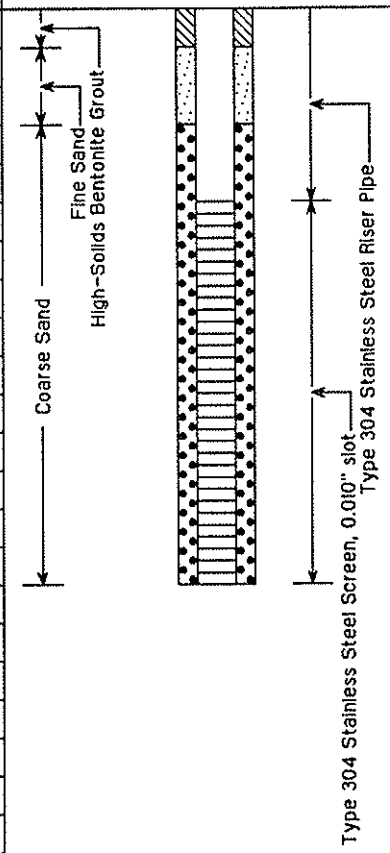


Figure No.

CAMP DRESSER & McKEE
CDM
233 South Wacker Drive, Suite 450
Chicago, Illinois 60606-5306

MONITORING WELL DETAIL
MW-133B

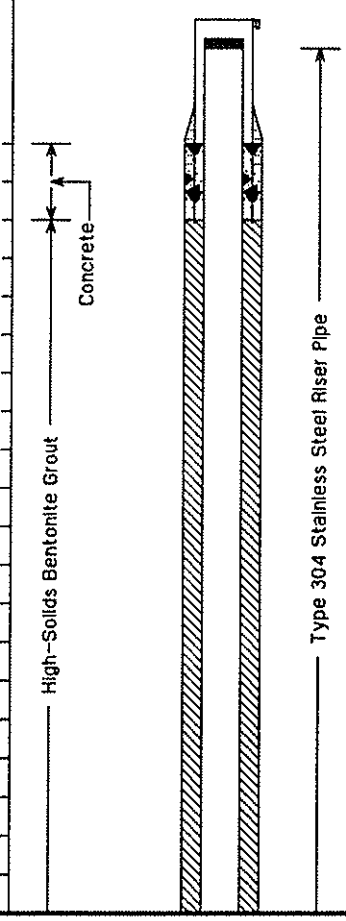
Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Mud Rotary/Diedrich 50
Development Method: Pumping (Grundfos) & surge block
Top of Riser Elevation: 780.33 Ft.
Total Depth: 60 Ft.
Field Screening Instrument: OVM
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 08-19-93 End 08-20-93
Drillers: Rick O'Gorman, Mark Thorson
Development Date: Start 10-15-93 End 10-15-93
Surface Elevation: 777.5 Ft.
Depth To Initial Water Level (GS): ~18.5 Ft.
Well Coordinates:
N: 2028906.975 E: 2600084.587

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	ELEV. DEPTH
			ML	Topsoil	777.5 / 0
			ML/CL		772.5 / 5
SS	0 ppm	3 5 6 8	CL	10-12': Tan silty gravelly sandy clay, w/ orange-bn streaks & films along certain zones. Gravel (~15%) is predominantly subangular to subrounded granules to lg pebbles. Sand is ~15%, silt & clay ~35% each. Both the gravel & sand are randomly dispersed throughout the silty clay matrix, & also show no preferred orientation. Variably moist to wet; mod low plasticity.	767.5 / 10
SS	0 ppm	6 8 9 10	ML	15-15.5': Gray-bn to orange-bn clayey gravelly sandy SILT, slightly plastic, moist. Gravel (~15% of sample) is subangular to subrounded sm to lg pebbles randomly oriented & distributed throughout the matrix. Sand (10%) v coarse to fine & also randomly distributed. Remaining 75% are silt & clay. Note: Slow drilling 15-20, suggesting the same ML (till) unit as @ 15.0-15.5'.	762.5 / 15

GRAPHIC LOG

WELL CONSTRUCTION DETAIL



EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
SSA - Solid Stem Auger
HA - Hand Auger
AR - Air Rotary
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BX - 1.6" Rock Core
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GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample

OTHER:
BGS - Below Ground Surface

Figure No.

CAMP DRESSER & McKEE
CDM
233 South Wacker Drive, Suite 450
Chicago, Illinois 60606-5306

MONITORING WELL DETAIL

MW-133B

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION
SS	0 ppm	10 8 8 15	ML	20-20.05': Mod or bn clayey gravelly sandy SILT as above.
			SP	20.05-22.0': Lt -mod gy bn gravelly SAND; sand is mainly coarse, & ranges to fine; gravel (25%) is rounded to subangular sm to lg pebbles which are ~75% carbonate & chert; remainder are igneous, jasper & quartz. Saturated. Note: Drilled easily from 20-25', suggesting sand throughout.
SS	0 ppm	8 9 12 15	SP	25-27.0': Lt gy bn to lt gn gy SAND, fine to v fine; upper portion (25.0-25.4') has sand interfingering w/ lenses of lt gn gy saturated SILT. The sand here is lt gy bn. Saturated throughout.
			ML	
SS	0 ppm	7 9 10 16	SP	30-30.1': Or bn to lt gy clayey gravelly SILT. 30.1-32.0': Mod or bn to gy bn gravelly sand; sand is coarse, ranging to fine. Gravel is (15%) rounded to subangular sm to lg pebbles w/lithology as in 20.1-22.0' zone. Saturated.
			ML	Drilling action indicates silt or clay @ 33-35'.
SS	0 ppm	10 20 18 16	ML	35-35.1':Or bn clayey gravelly sandy SILT, moist to wet; could be sluff, but appears to be in place.
			SP SM	35.1-36.5': Or bn to gy bn SAND, w/ ~7% gravel as subrounded sm to lg pebbles; sand is med to fine & locally silty to clayey; silt/clay ranges from trace to 30% & average is ~5%. Wet.
SS	0 ppm	13 12 18 10	SP GP	40-41.4': Lt to mod gray gravelly SAND, locally silty (there is one 2cm greenish gray silty fine sand lens @ 41.2'); Gravel is lg to sm subrounded to subangular pebbles & is ~40% of sample. Sand is coarse. Saturated.
			ML	Note: Drilling action suggests we entered SILT @ ~ 44.0'
SS	0 ppm	12 9 18 10	ML	45.0-46.8': Clayey gravelly sandy SILT, lt gn gy w/ or bn along certain planes of parting (which are inclined @ about 40 degrees). Gravel is sm to med subrounded to angular pebbles of lithographic proportions in 20.1-22.0' zone; gravel has no preferred orientations and floats unsupported in matrix. Gravel ~15%, sand ~10%, clay ~25% silt ~50%; based on apparent permeability, clay <10% @ 45.0-45.6'.
			SP	
SS	0 ppm	15 20 32 10	SP	46.8-47.0': Or bn to dk gy SAND, med; colors are in distinct lenticular zones. 50.0-50.9': Lt gy bn SAND, med to fine; ~3% subrounded sm to med pebbles; local horizons have subhoriz mod-dk or bn & dk gy color bands. 50.9-51.0': A subhorizontal bed of v fine sandy SILT, mod gy bn.
SS	0 ppm	12 29 32 18	SP	51.0-51.4': Lt gy bn SAND, same as 50.0-50.9' exc color is predom. the mod-dk or bn & dk gy.
			ML	55.0-55.4': Lt bn gy gravelly SAND; gravel is mainly sm pebbles & granules, w/ one sm cobble, & is subangular to subrdd. 55.4-57': Lt gy bn to mod yel bn SILT, locally sandy (at 56.8-57' sand is ~30%; sand is trace elsewhere); bedded subhorizontally; saturated.

GRAPHIC LOG

ELEV. DEPTH: 752.5 / 25; 747.5 / 30; 742.5 / 35; 737.5 / 40; 732.5 / 45; 727.5 / 50; 722.5 / 55

WELL CONSTRUCTION DETAIL

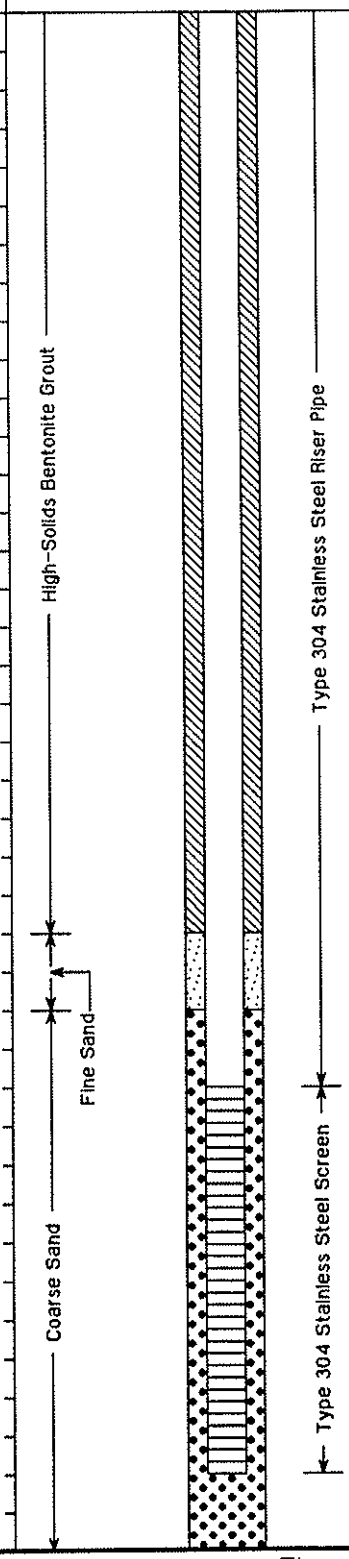


Figure No.

CAMP DRESSER & McKEE
CDM
233 South Wacker Drive, Suite 450
Chicago, Illinois 60606-5306

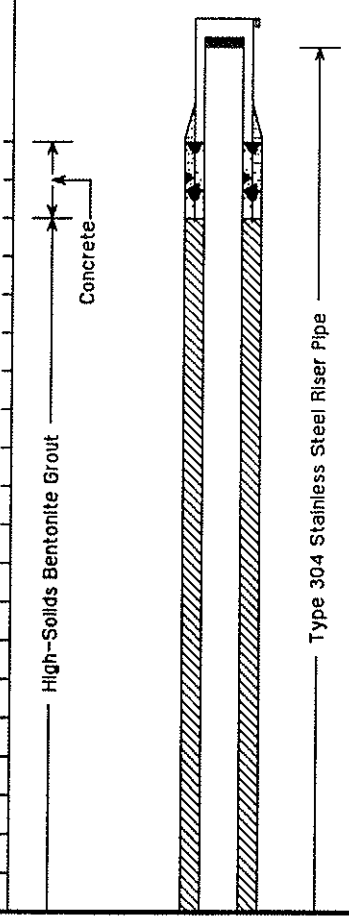
MONITORING WELL DETAIL
MW-133C

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Mud Rotary/Diedrich 50
Development Method: Pumping (Grundfos) & surge block
Top of Riser Elevation: 780.29 Ft.
Total Depth: 100 Ft.
Field Screening Instrument: OVM
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 08-17-93 End 08-19-93
Drillers: Rick O'Gorman, Mark Thorson
Development Date: Start 10-15-93 End 10-15-93
Surface Elevation: 777.7 Ft.
Depth To Initial Water Level (GS): ~18 Ft.
Well Coordinates:
N: 2028901.637 E: 2600090.106

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. DEPTH
			ML	Topsoil		777.7 / 0
			ML/CL			772.7 / 5
SS	0 ppm	3 5 6 8	CL	10-12': Tan silty gravelly sandy clay, w/ orange-bn streaks & films along certain zones. Gravel (~15%) is predominantly subangular to subrounded granules to lg pebbles. Sand is ~15%, silt & clay ~35% each. Both the gravel & sand are randomly dispersed throughout the silty clay matrix, & also show no preferred orientation. Variably moist to wet; mod low plasticity.		767.7 / 10
SS	0 ppm	6 8 9 10	ML	15-15.5': Gray-bn to orange-bn clayey gravelly sandy SILT, slightly plastic, moist. Gravel (~15% of sample) is subangular to subrounded sm to lg pebbles randomly oriented & distributed throughout the matrix. Sand (10%) v coarse to fine & also randomly distributed. Remaining 75% are silt & clay.		762.7 / 15

Note: Slow drilling 15-20, suggesting the same ML (till) unit as @ 15.0-15.5'.



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 - 1.6" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample

OTHER:
BGS - Below Ground Surface

Figure No.

CAMP DRESSER & McKEE
CDM
233 South Wacker Drive, Suite 450
Chicago, Illinois 60606-5306

MONITORING WELL DETAIL

MW-133C

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	ELEV. DEPTH
SS	0 ppm	10 8 8 15	ML	20-20.05': Mod or bn clayey gravelly sandy SILT as above. Sampled: SB133C-B	
			SP	20.05-22.0': Lt -mod gy bn gravelly SAND; sand is mainly coarse, & ranges to fine; gravel (25%) is rounded to subangular sm to lg pebbles which are ~75% carbonate & chert; remainder are igneous, jasper & quartz. Saturated.	752.7 / 25
SS	0 ppm	8 9 12 15	SP	Note: Drilled easily from 20-25', suggesting sand throughout. 25-27.0': Lt gy bn to lt gn gy SAND, fine to v fine; upper portion (25.0-25.4') has sand interfingering w/ lenses of lt gn gy saturated SILT. The sand here is lt gy bn. Saturated throughout.	
			ML		747.7 / 30
SS	0 ppm	7 9 10 16	SP	30-30.1': Or bn to lt gy clayey gravelly SILT. Sampled: SB133C-D	
			ML	30.1-32.0': Mod or bn to gy bn gravelly sand; sand is coarse, ranging to fine. Gravel is (15%) rounded to subangular sm to lg pebbles w/lithology as in 20.1-22.0' zone. Saturated. Drilling action indicates silt or clay @ 33-35'.	742.7 / 35
SS	0 ppm	10 20 18 16	ML	35-35.1':Or bn clayey gravelly sandy SILT, moist to wet; could be sluff, but appears to be in place.	
			SP SM	35.1-36.5': Or bn to gy bn SAND, w/ ~7% gravel as subrounded sm to lg pebbles; sand is med to fine & locally silty to clayey; silt/clay ranges from trace to 30% & average is ~5%. Wet.	737.7 / 40
SS	0 ppm	13 12 18 10	SP GP	40-41.4': Lt to mod gray gravelly SAND, locally silty (there is one 2cm greenish gray silty fine sand lens @ 41.2'); Gravel is lg to sm subrounded to subangular pebbles & is ~40% of sample. Sand is coarse. Saturated. Note: Drilling action suggests we entered SILT @ ~ 44.0'	
			ML		732.7 / 45
SS	0 ppm	12 9 18 10	ML	45.0-46.8': Clayey gravelly sandy SILT, lt gn gy w/ or bn along certain planes of parting (which are inclined @ about 40 degrees). Gravel is sm to med subrounded to angular pebbles of lithographic proportions in 20.1-22.0' zone; gravel has no preferred orientations and floats unsupported in matrix. Gravel ~15%, sand ~10%, clay ~25% silt ~50%; based on apparent permeability, clay <10% @ 45.0-45.6'.	
			SP		727.7 / 50
SS	0 ppm	15 20 32 10	SP	46.8-47.0': Or bn to dk gy SAND, med; colors are in distinct lenticular zones. 50.0-50.9': Lt gy bn SAND, med to fine; ~3% subrounded sm to med pebbles; local horizons have subhoriz mod-dk or bn & dk gy color bands. Sampled: SB133C-H 50.9-51.0': A subhorizontal bed of v fine sandy SILT, mod gy bn.	
SS	0 ppm	12 29 32 18	SP	51.0-51.4': Lt gy bn SAND, same as 50.0-50.9' exc color is predom. the mod-dk or bn & dk gy.	722.7 / 55
			ML	55.0-55.4': Lt bn gy gravelly SAND; gravel is mainly sm pebbles & granules, w/ one sm cobble, & is subangular to subrdd. 55.4-57': Lt gy bn to mod yel bn SILT, locally sandy (at 56.8-57' sand is ~30%; sand is trace elsewhere); bedded subhorizontally; saturated.	

GRAPHIC LOG

WELL CONSTRUCTION DETAIL

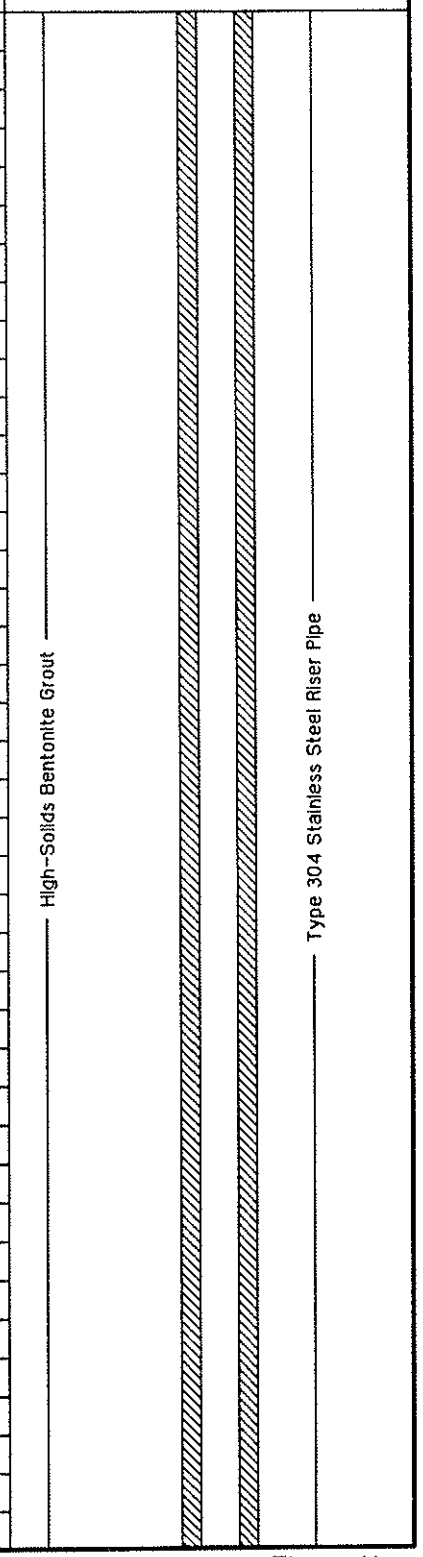


Figure No.

CAMP DRESSER & McKEE

CDM

233 South Wacker Drive, Suite 450
Chicago, Illinois 60606-5306

MONITORING WELL DETAIL

MW-133C

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	ELEV. DEPTH
SS	0 ppm	22 13 32 17	ML SP-SM	60.0-60.3': Lt gy bn gravelly SAND; gravel (30%) is subrounded sm to lg pebbles; wet.	
			SP	60.3-61.1': Mod pinkish bn clayey sandy gravelly SILT, moist; gravel (8%) is subangular to subrdd sm pebbles in matrix of sample. Sand (20%) is coarse to fine; clay & silt ~36% each, based on mod low plasticity.	
				61.1-61.3': Yel bn clayey gravelly silty SAND (~20%, 20%, 10%, 50% respectively).	712.7 65
				61.3-61.4': Gravelly sand, yel bn to nearly white. Gravel is subrounded and is friable sucrosic to soft micritic dolomite. Could mark an ancient soil. Moist.	
				65': Sample attempted, but no recovery due to probable bedrock.	707.7 70
				75': Cuttings are ~98% yel bn dolomite/limestone & bn to white chert (~20% chert); remainder is rounded sand, representing minor cave-in.	702.7 75
				80': Cuttings show ~80% yel bn dolomite/limestone somewhat sucrosic; ~20% white to bn gray chert (color variations sometimes seen on individual chips - i.e., zoned); trace (<1%) dk bn lithographic limestone/dolomite; tr lt gn gy shaly limestone/dolomite.	697.7 80
				87.5': Cuttings same as @ 80'.	692.7 85
				90': Cuttings same as @ 80'.	687.7 90
				95': Cuttings similar to 80', but ~90% dolomite & ~10% chert.	682.7 95
				97': Cuttings similar to 80', but ~95% dolomite/limestone & 5% chert.	

GRAPHIC LOG

WELL CONSTRUCTION DETAIL

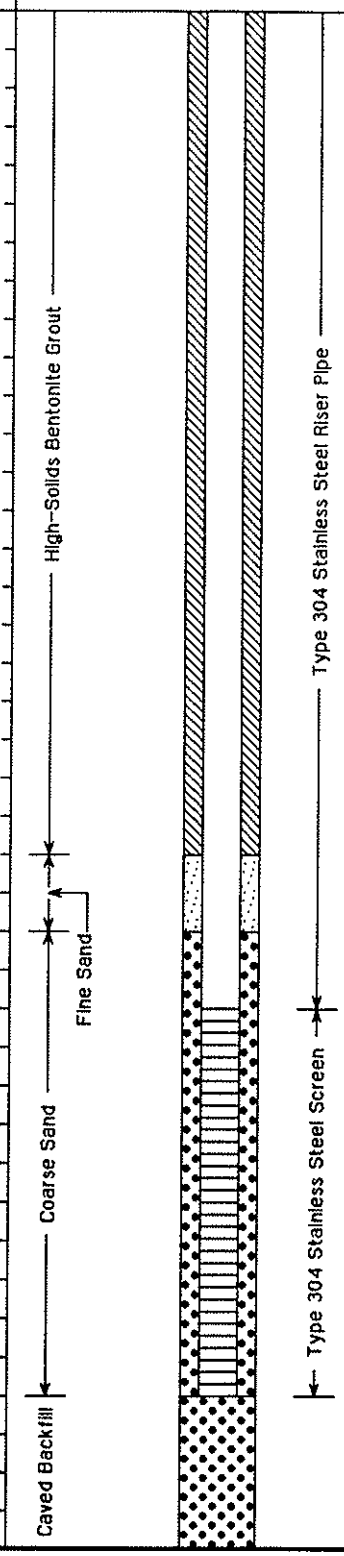


Figure No.

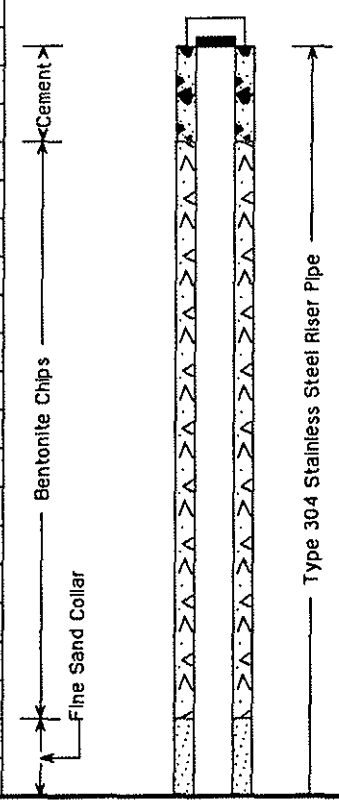
CAMP DRESSER & McKEE
CDM
233 South Wacker Drive, Suite 450
Chicago, Illinois 60606-5306

MONITORING WELL DETAIL
MW-134A

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Hollow-stem auger/BK81
Development Method: Bailing & surge block
Top of Riser Elevation: 799.09 Ft.
Total Depth: 28 Ft.
Field Screening Instrument: OVM
Logged By: M. Nugent

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 08-24-93 End 08-24-93
Drillers: Paul Dickinson, Mike Nelson
Development Date: Start 10-11-93 End 10-12-93
Surface Elevation: 799.1 Ft.
Depth To Initial Water Level (GS): ~10.5 Ft.
Well Coordinates:
N: 2028676.820 E: 2602291.372

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. DEPTH	WELL CONSTRUCTION DETAIL
				Note: See MW-134C for geologic log.		799.1 / 0	
						794.1 / 5	
						789.1 / 10	
						784.1 / 15	



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 - 1.6" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample

OTHER:
BGS - Below Ground Surface

CAMP DRESSER & McKEE
CDM
233 South Wacker Drive, Suite 450
Chicago, Illinois 60606-5306

MONITORING WELL DETAIL

MW-134A

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. DEPTH	WELL CONSTRUCTION DETAIL
						774.1 / 25	#30 (Coarse) Filter Sand; Type 304 Stainless Steel Screen; Type 304 Stainless Steel Riser Pipe
				Bottom of Boring @ 28 feet.		769.1 / 30	
						764.1 / 35	
						759.1 / 40	
						754.1 / 45	
						749.1 / 50	
						744.1 / 55	

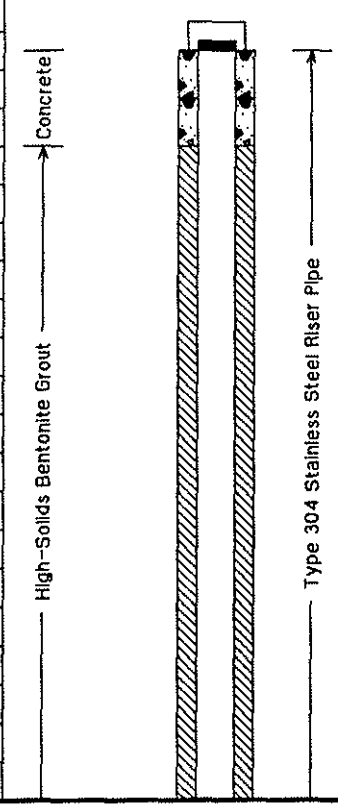
CAMP DRESSER & McKEE
CDM
233 South Wacker Drive, Suite 450
Chicago, Illinois 60606-5306

MONITORING WELL DETAIL
MW-134B

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Hollow-stem auger/BK81
Development Method: Pumping (Grundfos) & surge block
Top of Riser Elevation: 798.80 Ft.
Total Depth: 46 Ft.
Field Screening Instrument: OVM
Logged By: M. Nugent

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 08-24-93 End 08-24-93
Drillers: Paul Dickinson, Mike Nelson
Development Date: Start 10-08-93 End 10-08-93
Surface Elevation: 799.9 Ft.
Depth To Initial Water Level (GS): ~10.5 Ft.
Well Coordinates:
N: 2028674.166 E: 2602294.015

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. DEPTH	WELL CONSTRUCTION DETAIL
				Note: See MW-134C for geologic log.		799.9 / 0	
						794.9 / 5	
						789.9 / 10	
						784.9 / 15	



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
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DTC - Drill Through Casing

SAMPLING TYPES:
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CS - California Sampler
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NX - 2.1" Rock Core
GP - Geoprobe
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SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample

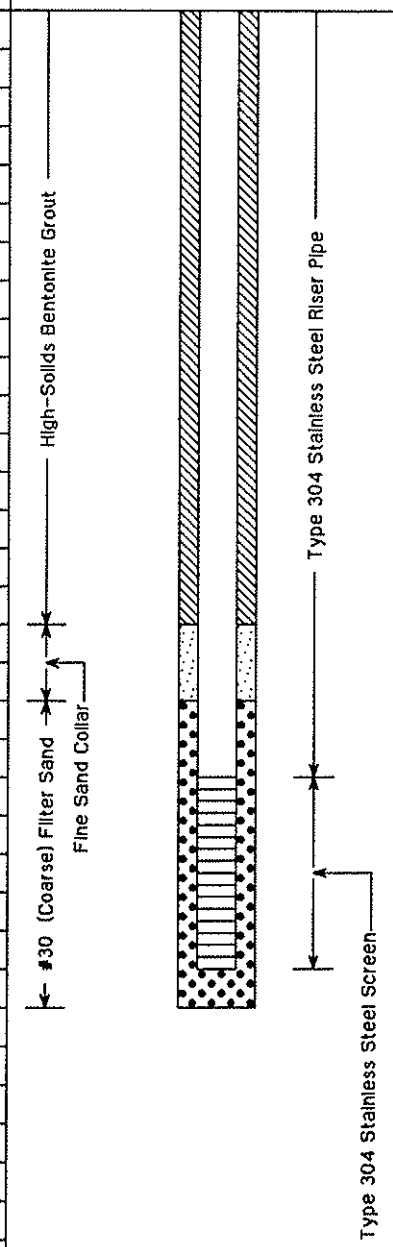
OTHER:
BGS - Below Ground Surface

CAMP DRESSER & McKEE
CDM
233 South Wacker Drive, Suite 450
Chicago, Illinois 60606-5306

MONITORING WELL DETAIL

MW-134B

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. DEPTH	WELL CONSTRUCTION DETAIL
						774.9 / 25	High-Solids Bentonite Grout
						769.9 / 30	Type 304 Stainless Steel Riser Pipe
						764.9 / 35	
						759.9 / 40	#30 (Coarse) Filter Sand; Fine Sand Collar
						754.9 / 45	Type 304 Stainless Steel Screen
				Bottom of Boring @ 46 feet.			
						749.9 / 50	
						744.9 / 55	



CAMP DRESSER & McKEE
CDM
233 South Wacker Drive, Suite 450
Chicago, Illinois 60606-5306

MONITORING WELL DETAIL

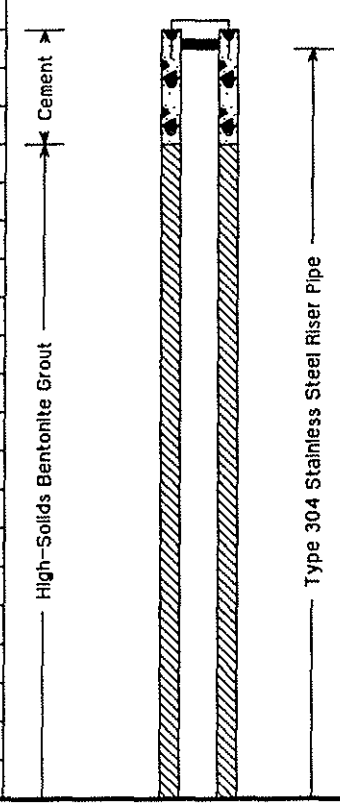
MW-134C

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Mud Rotary/BK81
Development Method: Pumping (Grundfos) & surge block
Top of Riser Elevation: 799.11 Ft.
Total Depth: 67.5 Ft.
Field Screening Instrument: HNU
Logged By: S. S. Bhagat & M. Nugent

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 08-19-93 End 08-23-93
Drillers: Paul Dickinson, Mike Nelson
Development Date: Start 10-11-93 End 10-11-93
Surface Elevation: 799.2 Ft.
Depth To Initial Water Level (GS): ~10.5 Ft.
Well Coordinates:
N: 2028674.267 E: 2602289.057

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. DEPTH
			ML	Topsoil		799.2 / 0
						794.2 / 5
	2 ppm	14 20 18 16		Brown/reddish brown coarse sand & gravel; saturated. Gravel is angular to rounded. Saturated.		789.2 / 10
	6 ppm	9 12 24 32		Tan gravelly fine to med sand.		784.2 / 15
	2 ppm	8 10		Top 18" is gravel, rounded to angular. Bottom		

WELL CONSTRUCTION DETAIL



EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
SSA - Solid Stem Auger
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AR - Air Rotary
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DTC - Drill Through Casing

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BX - 1.6" Rock Core
NX - 2.1" Rock Core
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ST - Shelby Tube
WS - Wash Sample

OTHER:
BGS - Below Ground Surface

CAMP DRESSER & McKEE

CDM

233 South Wacker Drive, Suite 450
Chicago, Illinois 60606-5306

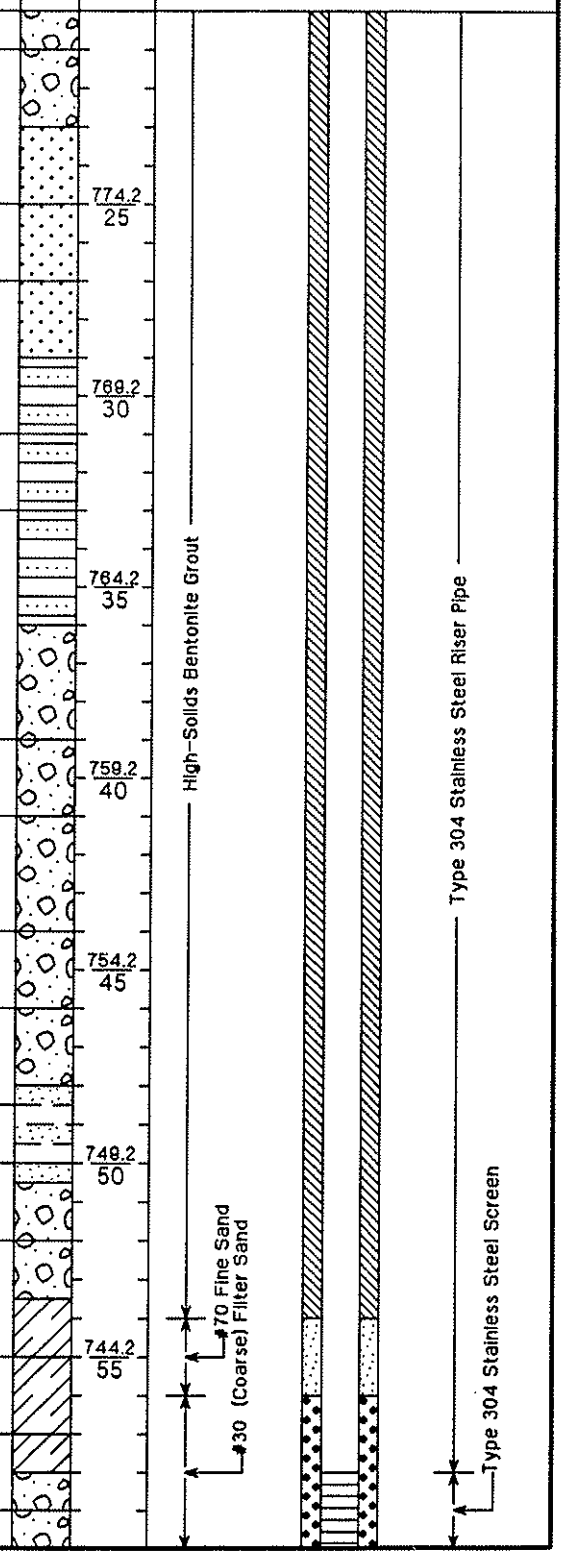
MONITORING WELL DETAIL

MW-134C

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	ELEV. DEPTH
	2 ppm	13 17		5" is fine sand, gray, gravelly in places.	
	.5 ppm	6 6 7 8		Tan fine sand, very well sorted.	774.2 / 25
	0 ppm	8 10 10 12		Top 2" is Brown fine sandy clay; remainder of sample is brown plastic clay.	769.2 / 30
	0 ppm	10 13 17 19		Tan coarse sand and gravel; gravel is subangular to rounded.	764.2 / 35
	0 ppm	8 8 6 8		Dark brown to black piece of weathered rock, probably mafic-rich.	759.2 / 40
HP				Hydro Punch Sample 48.5-50', VP134A.	754.2 / 45
	0 ppm	6 3 3 6		Top 5" is tan/brown silty fine sand. Bottom 13" is gray gravelly fine sand. Contact is sharp.	749.2 / 50
	0 ppm	5 6 7 10		Gray silty and gravelly fine sand.	744.2 / 55
	0 ppm	3 10		Tan to brown coarse sand and gravel.	

GRAPHIC LOG

WELL CONSTRUCTION DETAIL



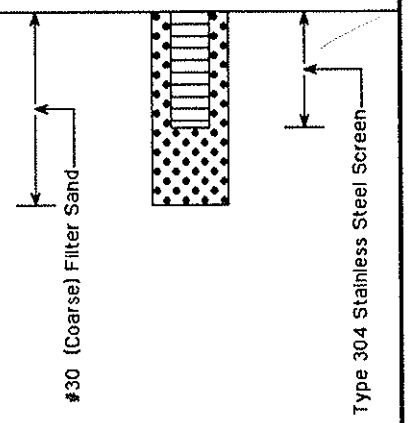
CAMP DRESSER & McKEE
CDM
233 South Wacker Drive, Suite 450
Chicago, Illinois 60606-5306

MONITORING WELL DETAIL

MW-134C

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. DEPTH
	0 ppm	15 16				
HP				Hydro Punch Sample 63.5-65', VP134B.		734.2 / 65
				Bedrock		
				Bottom of Boring @ 67.5 feet.		

WELL CONSTRUCTION DETAIL



729.2 / 70
724.2 / 75
719.2 / 80
714.2 / 85
709.2 / 90
704.2 / 95

CAMP DRESSER & McKEE
CDM
233 South Wacker Drive, Suite 450
Chicago, Illinois 60606-5306

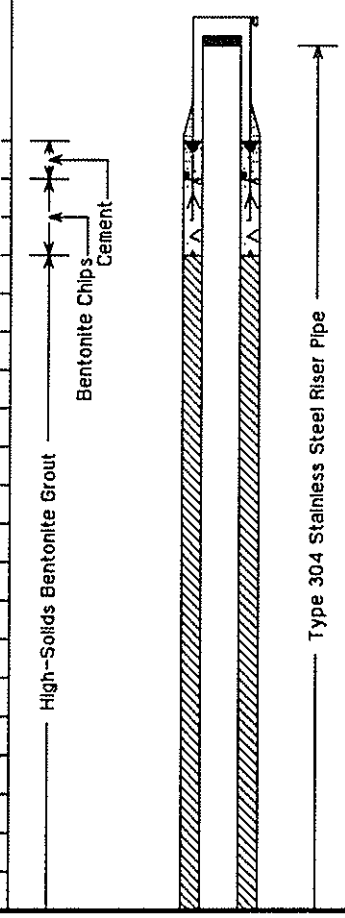
MONITORING WELL DETAIL
MW-135

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Mud Rotary/Diedrich 50
Development Method: Bailing & surge block
Top of Riser Elevation: 835.19 Ft.
Total Depth: 38 Ft.
Field Screening Instrument: OVM
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 08-16-93 End 08-16-93
Drillers: Rick O'Gorman, Mark Thorson
Development Date: Start 10-08-93 End 10-08-93
Surface Elevation: 832.8 Ft.
Depth To Initial Water Level (GS): ~28 Ft.
Well Coordinates:
N: 2027883.103 E: 2602492.753

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	ELEV. DEPTH
			ML	Topsoil	832.8 / 0
			ML		
SS	0 ppm	4 6 8 13	ML	5.0-6.2': Clayey gravelly sandy SILT, mod yel bn, moist; gravel is sm - lg angular to subrounded pebbles distributed randomly in the matrix & w/ no preferred orientation. Gravel ~15%, sand ~15% w/ remainder being silt & clay	827.8 / 5
			ML		
SS	0 ppm	6 7 22 8	ML ML	10-10.3': Mod yellow bn gravelly SILT, not plastic, saturated. 10.3-11.4': Mod yel bn to mod gy bn clayey gravelly sandy SILT as in 5-7'. Includes one large granite pebble or cobble (>2x2") that is weathered in place. Moist.	822.8 / 10
			ML		
SS	0 ppm	13 10 18 12	ML	15-17': Clayey gravelly sandy SILT, mod gy bn to mod yel bn, somewhat plastic; nature & proportion of gravel & sand as in 5-7'. Moist.	817.8 / 15
			ML		

WELL CONSTRUCTION DETAIL



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 - 1.6" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample

OTHER:
BGS - Below Ground Surface

Figure No.

CAMP DRESSER & McKEE
CDM
233 South Wacker Drive, Suite 450
Chicago, Illinois 60606-5306

MONITORING WELL DETAIL

MW-135

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION
SS	0 ppm	15 10 22 12	ML SP	20-20.1': Mod bn silty clay w/ 7% small subangular to angular pebbles. Moist. Contains black partings parallel to contact w/underlying sand, both @ 25 degree angle to horizontal
			SP	20.1-21': Lt bn SAND, med to fine, w/subhorizontal bedding, moist.
			ML	
SS	0 ppm	15 32 38 10	ML SP	25-25.2': Mod yel bn v fine sandy SILT, wet. 25.2-25.3': Mod to dk yel bn clayey SILT, moist.
			SP	25.3-26.3': Mod to lt yel bn SAND, med to coarse, w/ ~4% subrounded to subangular, small pebbles & granules; moist to dry.
SS	0 ppm	22 37 50 /0.3'	SP	30-31': Mod gy bn SAND, coarse to med, saturated; ~10% rounded to subangular sm to lg pebbles. Contains one silt lens (wet) 2-4cm thick
SS	0 ppm	50 /0.1'		35-35.1': Chips of lt bn dolomite w/cream-colored, partly silicified zones irregularly cutting the rock.
				Bottom of Boring @ 38 feet.

GRAPHIC LOG

ELEV. DEPTH

807.8 / 25
802.8 / 30
797.8 / 35
792.8 / 40
787.8 / 45
782.8 / 50
777.8 / 55

WELL CONSTRUCTION DETAIL

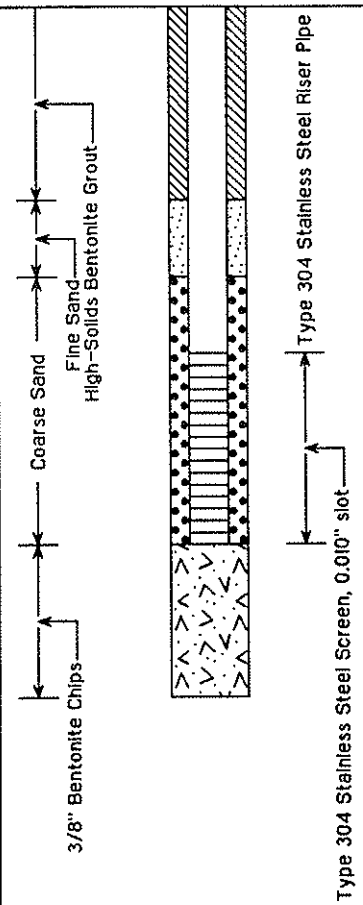


Figure No.

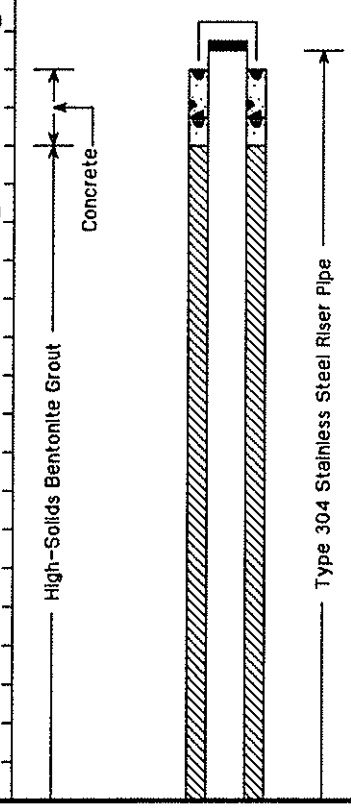
CAMP DRESSER & McKEE
CDM
233 South Wacker Drive, Suite 450
Chicago, Illinois 60606-5305

MONITORING WELL DETAIL
MW-136

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Mud Rotary/Air Rotary
Development Method: Air lift using nitrogen & surge block
Top of Riser Elevation: 834.77 Ft.
Total Depth: 61.5 Ft.
Field Screening Instrument: OVM
Logged By: S. S. Bhagat

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 08-13-93 End 08-19-93
Drillers: Paul Dickinson, Mike Nelson
Development Date: Start 08-19-93 End 08-19-93
Surface Elevation: 834.9 Ft.
Depth To Initial Water Level (GS): ~28 Ft.
Well Coordinates:
N: 2027821.674 E: 2603572.259

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. DEPTH	WELL CONSTRUCTION DETAIL



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 - 1.6" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample

OTHER:
BGS - Below Ground Surface

CAMP DRESSER & McKEE
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MONITORING WELL DETAIL

MW-136

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. DEPTH	WELL CONSTRUCTION DETAIL
				Top of Bedrock		809.9 / 25 804.9 / 30 799.9 / 35 794.9 / 40 789.9 / 45 784.9 / 50 779.9 / 55	High-Solids Bentonite Grout #70 Fine Sand #30 Filter Sand Bentonite Chips Type 304 Stainless Steel Riser Pipe Type 304 Stainless Steel Screen, 0.010" slot

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MONITORING WELL DETAIL

MW-136

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	GRAPHIC LOG	ELEV. / DEPTH	WELL CONSTRUCTION DETAIL
				Bottom of Boring @ 61.5 feet.		769.9 / 65	Bentonite Chips
						764.9 / 70	
						759.9 / 75	
						754.9 / 80	
						749.9 / 85	
						744.9 / 90	
						739.9 / 95	

CAMP DRESSER & McKEE
CDM
233 South Wacker Drive, Suite 450
Chicago, Illinois 60606-5306

MONITORING WELL DETAIL
MW-138

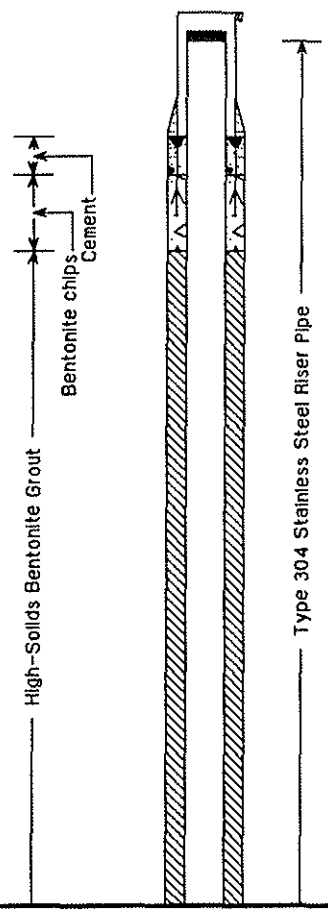
Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Mud Rotary/Diedrich 50
Development Method: Air lift using nitrogen & surge block
Top of Riser Elevation: 734.79 Ft.
Total Depth: 42 Ft.
Field Screening Instrument: OVM
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 08-10-93 End 08-11-93
Drillers: Rick O'Gorman, Mark Thorson
Development Date: Start 09-15-93 End 10-12-93
Surface Elevation: 732.3 Ft.
Depth To Initial Water Level (GS): ~28 Ft.
Well Coordinates:
N: 2031962.469 E: 2594148.912

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	ELEV. DEPTH
			ML	Topsoil	732.3 / 0
			SW		
SS	0 ppm	7 7 10 11	SW / SP	5.0-5.4': Mod bn SAND, v fine, slightly silty 5.4-6.5': Lt bn SAND, med, loose, dry.	727.3 / 5
			SP		
SS	0 ppm	6 13 23 14	SP	10-11.5': Lt bn SAND, med, loose, dry.	722.3 / 10
			SP		
SS	0 ppm	8 16 20 12	SP	15-16.3': Lt bn SAND, med ranging from coarse to fine, loose, moist.	717.3 / 15
			SP		

GRAPHIC LOG

WELL CONSTRUCTION DETAIL



EXPLANATION OF ABBREVIATIONS

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HSA - Hollow Stem Auger
SSA - Solid Stem Auger
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AR - Air Rotary
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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:
BGS - Below Ground Surface

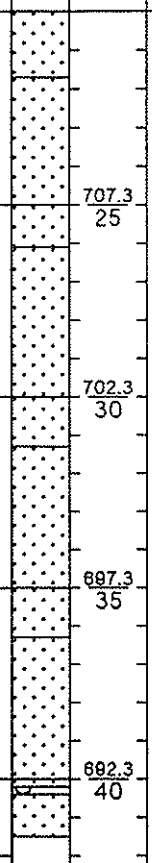
CAMP DRESSER & McKEE
CDM
233 South Wacker Drive, Suite 450
Chicago, Illinois 60606-5306

MONITORING WELL DETAIL

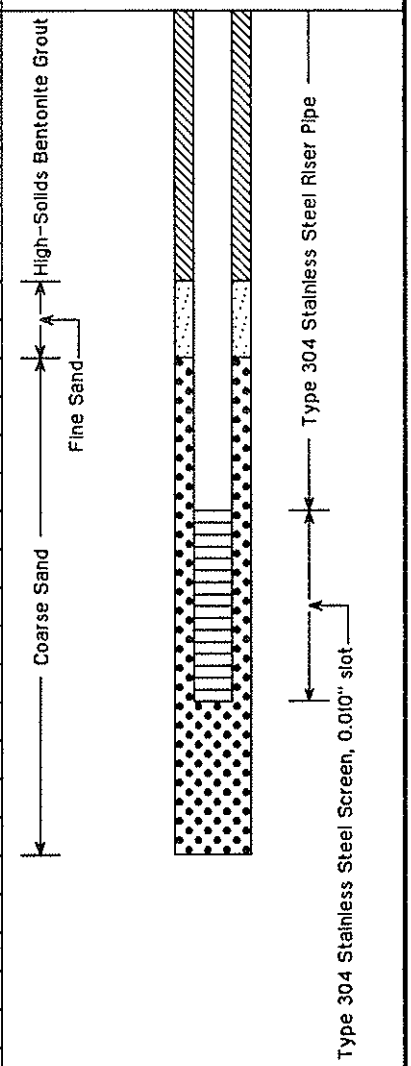
MW-138

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION
SS	0 ppm	10 14 18 25	SP	20-21.7': Lt bn SAND, med, trace sm pebbles, locally saturated only (20.0-20.8'only)
			SP	
SS	0 ppm	8 11 18 12	SP	25-26.1': Lt bn SAND, med to fine, moist to wet, loose.
			SP	
SS	0 ppm	6 11 18 22	SP	30-31.3': Lt bn SAND, med to coarse, saturated.
			SP	
SS	0 ppm	6 8 16 16	SP	35-36.3': Lt bn SAND, med, saturated.
			SP	
SS	0 ppm	6 10 15 25	SP / SP-GP / SP	40-40.2': Lt gy bn SAND, med to coarse; 40.2-40.4': sandy gravel. Saturated. 40.4-41.5': Lt gy bn SAND, med to coarse.
				Bottom of Boring @ 42 feet.

GRAPHIC LOG / ELEV. DEPTH



WELL CONSTRUCTION DETAIL



CAMP DRESSER & McKEE
CDM
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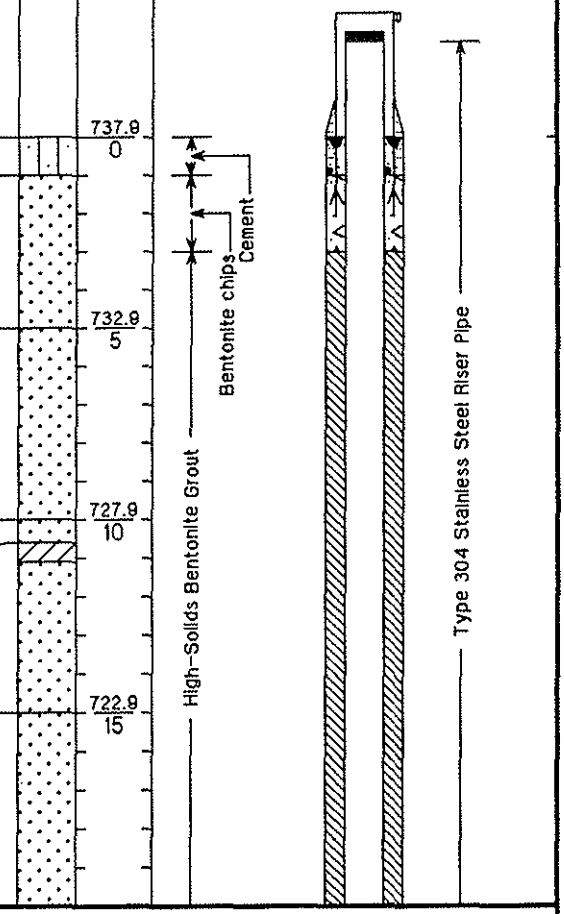
Chicago, Illinois 60606-5306

MONITORING WELL DETAIL
MW-140

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Mud Rotary/Diedrich 50
Development Method: Bailing & surge block
Top of Riser Elevation: 739.71 Ft.
Total Depth: 42 Ft.
Field Screening Instrument: OVM
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 08-12-93 End 08-13-93
Drillers: Rick O'Gorman, Mark Thorson
Development Date: Start 10-12-93 End 10-14-93
Surface Elevation: 737.9 Ft.
Depth To Initial Water Level (GS): ~23 Ft.
Well Coordinates:
N: 2031858.145 E: 2595405.195

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	ELEV. DEPTH
			ML	Topsoil	737.9 / 0
			SP		
SS	0 ppm	6 8 8 12	SP	5-5.6': Lt bn SAND, fine; contains three brown silty clay layers, each <= 1mm & oriented subhorizontally. Dry.	732.9 / 5
SS	0 ppm	4 7 3 6	SP	10-10.6': Lt bn SAND, fine to med, moist.	727.9 / 10
			SP-ML	10.6-11.1': Interbedded vfine SAND, lt bn & saturated, and mod bn clayey silt; sand is loc saturated just above clay; otherwise moist.	
			SP		
SS	0 ppm	6 8 5 6	SP	15-15.8': Lt bn SAND, fine to med, well sorted, moist.	722.9 / 15



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 - 1.6" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample

OTHER:
BGS - Below Ground Surface

CAMP DRESSER & McKEE
CDM
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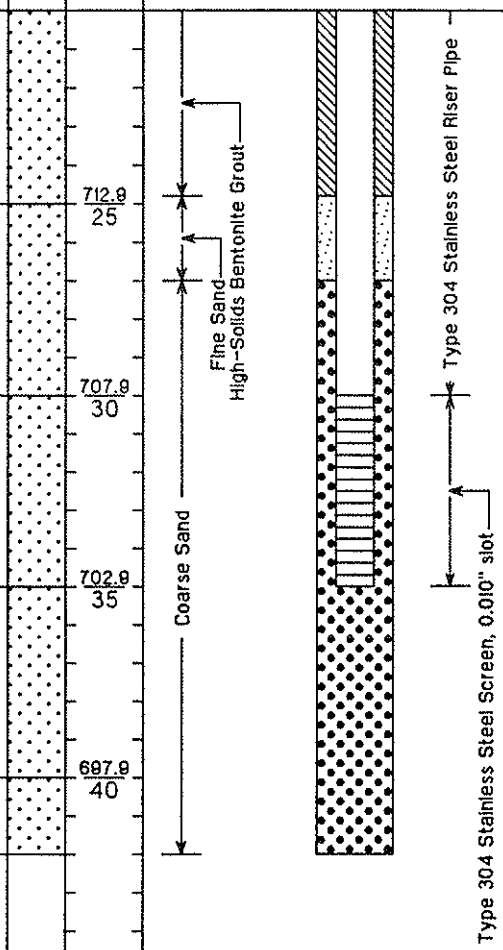
MONITORING WELL DETAIL

MW-140

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	ELEV. DEPTH
SS	0 ppm	9 7 10 12	SP	20-21': Lt bn SAND, fine to med,; there is one 2.5mm-thick mod bn clayey silt layer @ 20.8'; above 20.8' the sand is saturated, but dry below.	
					712.9 / 25
SS	0 ppm	5 5 7 11	SP	25-25.8': Lt. bn SAND, fine to med, saturated.	
					707.9 / 30
SS	0 ppm	7 8 6 13	SP	30-30.9': Lt. bn SAND, med; a few lt bn silty clay clots (not layers); tr granules.	
					702.9 / 35
SS	0 ppm	7 7 9 13	SP	35-36': Lt bn SAND, med to coarse, trace granules & pebbles, saturated.	
					697.9 / 40
SS	0 ppm	7 12 13 20	SP	40-41.3': Lt bn SAND, med (ranges from coarse to fine); 4% small to med subrdd pebbles; bedding visible @ 15% angle to horizontal; saturated.	
				Bottom of Boring @ 42 feet.	
					692.9 / 45
					687.9 / 50
					682.9 / 55

GRAPHIC LOG



CAMP DRESSER & McKEE
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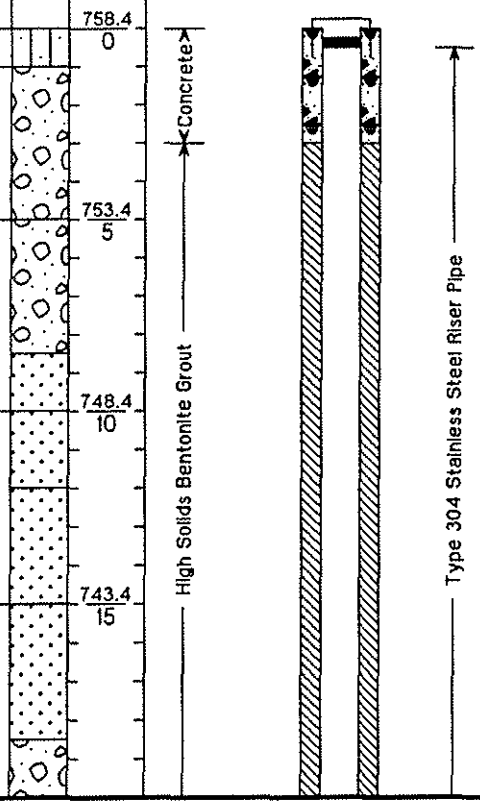
MONITORING WELL DETAIL
MW-141

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Mud Rotary/BK81
Development Method: Air lift using nitrogen & surge block
Top of Riser Elevation: 758.06 Ft.
Total Depth: 52 Ft.
Field Screening Instrument: HNU & OVM
Logged By: Michael Nugent

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 08-31-93 End 09-01-93
Drillers: Paul Dickinson & Mike Nelson
Development Date: Start 10-11-93 End 10-11-93
Surface Elevation: 758.4 Ft.
Depth To Initial Water Level (GS): ~38 Ft.
Well Coordinates:
N: 2031908.715 E: 2596997.420

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	ELEV. DEPTH
			ML	Topsoil	758.4 / 0
SS	0.0	18 20 23 19	SW	Lt gy (2.5Y 7/2) gravelly SAND, w/some yel bn (10YR 5/8) silty layers. Sand is poorly sorted and subangular to subrounded; gravel is subangular to subrounded & up to 3 cm; unsaturated.	753.4 / 5
SS	8.0	26 40 36 43	SW	Same as @ 5-7', except no silty layers present.	748.4 / 10
SS	1.0	8 17 20 26	SW	Same as @ 5-7'.	743.4 / 15
			SW		



EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
SSA - Solid Stem Auger
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SAMPLING TYPES:
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NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample

OTHER:
BGS - Below Ground Surface

CAMP DRESSER & McKEE

CDM

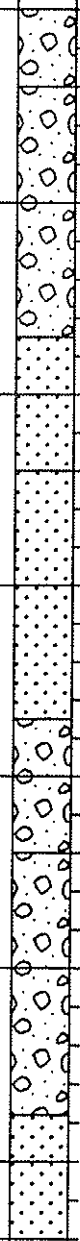
233 South Wacker Drive, Suite 450
Chicago, Illinois 60606-5306

MONITORING WELL DETAIL

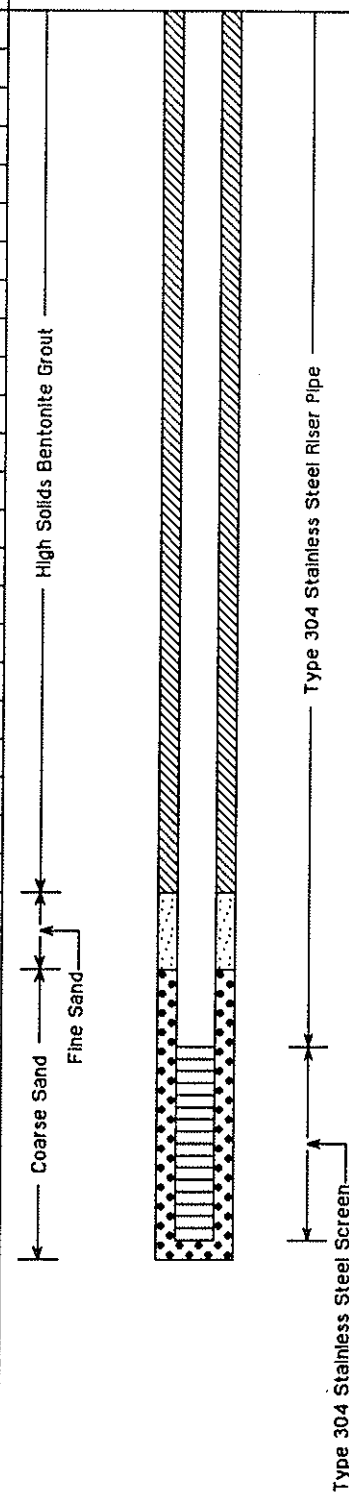
MW-141

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	ELEV. DEPTH
SS	0.0	12 15 16 16	SW	Lt gy (2.5Y 7/2) to dk yel bn (10YR 3/6) gravelly sand, coarse to fine; poorly sorted; some silty layers; gravel up to 5 cm thick; moist.	
SS	0.0	12 12 17 18	SW	Lt yel bn (10YR 6/4) gravelly sand, med to fine; poorly sorted; less gravel than @ 20-22'; moist.	733.4 / 25
SS	0.0	11 14 16 18	SW	Yel bn (10YR 5/4) sand, fine to medium; some gravel & coarse sand; moderate sorting; moist.	728.4 / 30
SS	1.0	17 17 17 17	SP	Yel bn (10YR 5/6) fine sand, well sorted; moist.	723.4 / 35
SS	0.0	40 46 38 36	SW	Yel (10YR 7/8) to yel red (5YR 5/8) silty sand w/some gravel & cobbles; poorly sorted; sand & gravel are subangular to subrounded.	718.4 / 40
SS	0.0	17 16 15 23	SW	Yel bn (10YR 5/6) gravelly sand, poorly sorted; sand & gravel are subangular to subrounded.	713.4 / 45
SS	0.0	10 13 16 20	SW-ML	Lt yel bn (10YR 6/4) sand w/little gravel in top 5"; bottom 7" is bn yel (10YR 6/6) med to fine sand in layers alternating w/two silty clay layers, each one inch thick.	708.4 / 50
				Bottom of Boring @ 52.5 feet.	703.4 / 55

GRAPHIC LOG



WELL CONSTRUCTION DETAIL



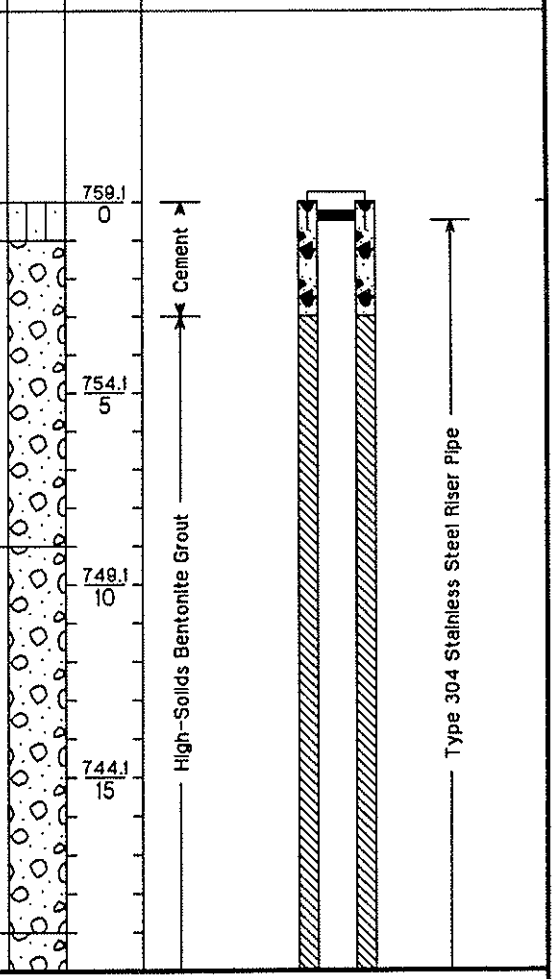
CAMP DRESSER & McKEE
CDM
233 South Wacker Drive, Suite 450
Chicago, Illinois 60606-5306

MONITORING WELL DETAIL
MW-142

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Mud Rotary/BK81
Development Method: Bailing & surge block
Top of Riser Elevation: 758.73 Ft.
Total Depth: 54 Ft.
Field Screening Instrument: OVM
Logged By: S. S. Bhagat

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 09-07-93 End 09-07-93
Drillers: Paul Dickinson, Mike Nelson
Development Date: Start 10-14-93 End 10-14-93
Surface Elevation: 759.1 Ft.
Depth To Initial Water Level (GS): ~37.5 Ft.
Well Coordinates:
N: 2031501.414 E: 2597255.734

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	ELEV. DEPTH
			ML	Topsoil	759.1 / 0
					754.1 / 5
SS	0 ppm	12 18 15 11		Tan to reddish brown, med to coarse sand & gravel; dry; gravel is primarily dolomite.	749.1 / 10
					744.1 / 15
SS	0 ppm	8 11		Tan to reddish brown, med to coarse sand and	



EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
SSA - Solid Stem Auger
HA - Hand Auger
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GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample

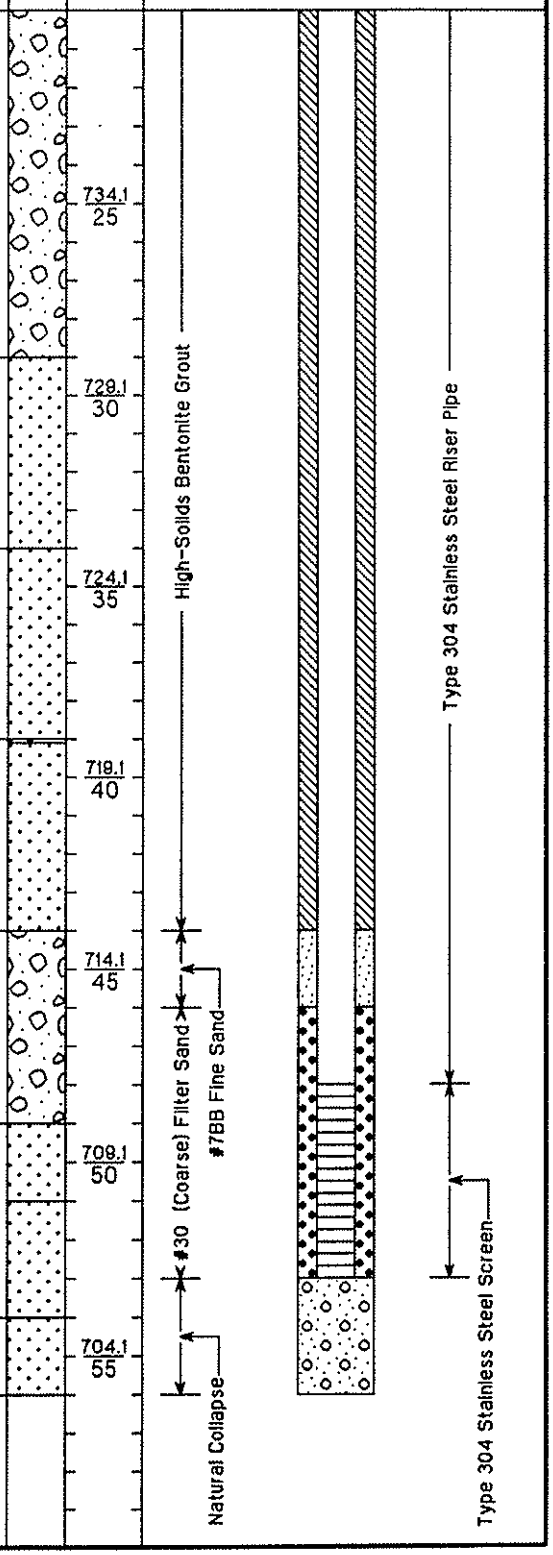
OTHER:
BGS - Below Ground Surface

CAMP DRESSER & McKEE
CDM
233 South Wacker Drive, Suite 450
Chicago, Illinois 60606-5306

MONITORING WELL DETAIL

MW-142

SAMPLE TYPE	FIELD INSTRU. READING	BLOWS PER 6 INCH	USCS CLASS.	MATERIAL DESCRIPTION	ELEV. DEPTH
SS	0 ppm	13 12		gravel; dry; gravel is tan & dark grey dolomite, mostly angular to subangular.	734.1 / 25
SS	0 ppm	13 13 13 15		Brown, fine to med sand, well sorted; dry; very fine sand in lowermost 1" of sample.	729.1 / 30
SS	0 ppm	9 11 13 13		Tan, well sorted med sand; dry; rare gravel in places; bedding visible; rare fine sand layers (<.5" thick).	724.1 / 35
SS	0 ppm	6 9 8 10		Brown, well sorted med sand, saturated. Top 1" of sample is gravelly.	719.1 / 40
SS	0 ppm	8 8 11 14		Brown, gravelly coarse sand, saturated.	714.1 / 45
SS	0 ppm	15 13 13 10		Brown, well sorted med sand, saturated.	709.1 / 50
SS	0 ppm	8 10 14 14		Brown, well sorted med sand; saturated.	704.1 / 55
				Bottom of Boring @ 56 feet.	



CAMP DRESSER & McKEE
CDM
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BOREHOLE LOG
SB02-01

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Hollow-stem auger/Diedrich 50
Surface Elevation: ~705 Ft.
Field Screening Instrument: HNU (scan/headspace)
Abandonment Method: Backfilled cuttings & bentonite chips
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 06-30-93 End 06-30-93
Drillers: Rick O'Gorman, Mark Thorson
Total Depth: 22 Ft.
Depth To Initial Water Level (GS): ~18 Ft.
Borehole Coordinates:
N: E: [none]

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
			705 / 0				ML	Topsoil
							ML	
			700 / 5				ML	
SS		2.0' /2.0'		0/0 ppm	8 2 4 3		SP	5-5.4': Dk bn topsoil; 5.4-7.0': mod bn sand, coarse to fine, moist.
			695 / 10					
SS		2.0' /2.0'		0/0 ppm	8 2 4 7		SP	10-12': Mod-lt bn SAND, coarse to med, tr (3%) pebbles, moist.
			690 / 15					
SS	SB02-01C	2.0' /2.0'		0/0 ppm	1 1 2 4		SP	15-17': Mod lt bn SAND, coarse, w/~8% subrounded pebbles, moist.
								Note: Water @ 18'.

EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
SSA - Solid Stem Auger
HA - Hand Auger
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GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample

OTHER:
AGS - Above Ground Surface

CAMP DRESSER & McKEE

CDM

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Chicago, Illinois 60606-5306

BOREHOLE LOG

SB02-01

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
SS		1.4' /2.0'		0/0 ppm	3 7 8 10		SP-SW	Mod gy bn sand, tr silt/clay, ~8% pebbles, saturated.
								Bottom of Boring @ 22 feet.
			680/25					
			675/30					
			670/35					
			665/40					
			660/45					
			655/50					
			650/55					

CAMP DRESSER & McKEE
CDM
233 South Wacker Drive, Suite 450
Chicago, Illinois 60606-5306

BOREHOLE LOG
SB02-02

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Hollow-stem auger/Diedrich 50
Surface Elevation: ~705 Ft.
Field Screening Instrument: HNU (scan/headspace)
Abandonment Method: Backfilled cuttings & bentonite chips
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 06-30-93 End 06-30-93
Drillers: Rick O'Gorman, Mark Thorson
Total Depth: 22 Ft.
Depth To Initial Water Level (GS): ~18 Ft.
Borehole Coordinates:
N: E: [none]

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
			705 / 0				ML	Topsoil
							ML	
SS		2.0' /2.0'	700 / 5	0/0 ppm	5 2 4 5		ML / SP	5.0-5.5': Dk bn sandy loam (topsoil), moist; 5.5-7.0: mod bn SAND, coarse to med, moist, loose.
			695 / 10					
SS		1.5' /2.0'		0/0 ppm	1 1 2 3		SP	Mod-lt bn SAND, coarse, moist.
			690 / 15					
SS	SB02-02C	1.6' /2.0'		0/0 ppm	2 2 2 4		SP	Mod-lt bn SAND, coarse, w/few pebbles (~5%) & loc silty/clayey zones; moist.

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 - 1.6" 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

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BOREHOLE LOG
SB02-02

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
SS		1.5' /2.0'		0/0 ppm	1 1 1 6		SP	Lt mod bn SAND, coarse to med, saturated; tr gravel (<2%).
								Bottom of Boring @ 22 feet.
			680/25					
			675/30					
			670/35					
			665/40					
			660/45					
			655/50					
			650/55					

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BOREHOLE LOG
SB02-03

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Hollow-stem auger/Diedrich 50
Surface Elevation: ~705 Ft.
Field Screening Instrument: HNU (scan/headspace)
Abandonment Method: Backfilled cuttings & bentonite chips
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 06-30-93 End 06-30-93
Drillers: Rick O'Gorman, Mark Thorson
Total Depth: 19 Ft.
Depth To Initial Water Level (GS): ~17 Ft.
Borehole Coordinates:
N: E: [none]

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
			705 / 0				ML	Topsoil
							ML	
SS		2.0' /2.0'	700 / 5	0/0 ppm	4 3 5 7		ML / SP	5-6.4': Dk bn loam (topsoil); 6.4-7.0': mod bn SAND, med-coarse, w/~10% subrounded pebbles; moist.
SS		1.4' /2.0'	695 / 10	0/0 ppm	1 1 2 8		SP	Mod-lt bn SAND, coarse, w/a few brown silty/clayey beds; moist.
SS		1.8' /2.0'	690 / 15	0/0 ppm	5 4 5 6		SP	Same as @ 10-12'.
SS	SB02-03D	2.0' /2.0'		0/0 ppm	3 6 11 9		SP	Lt bn SAND, coarse, saturated, ~5% subrounded pebbles.
								Bottom of Boring @ 19 feet.

EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
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SAMPLING TYPES:
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CS - California Sampler
BX - 1.6" 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

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BOREHOLE LOG
SB04-01

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Mud Rotary/Diedrich 50
Surface Elevation: ~735 Ft.
Field Screening Instrument: HNU (scan/headspace)
Abandonment Method: Backfilled cuttings & bentonite chips
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 06-28-93 End 06-28-93
Drillers: Rick O'Gorman, Mark Thorson
Total Depth: 37 Ft.
Depth To Initial Water Level (GS): ~28 Ft.
Borehole Coordinates:
N: E: [none]

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
			735 / 0					Asphalt
			730 / 5				ML	
SS		2.0' /2.0'		0/0 ppm	7 6 8 13		SM-SP	5-5.7': Dk bn gray loam (topsoil); 5.7-7': mod bn to lt bn SAND, moist to nearly dry, fine to med.
			725 / 10				SM / SP	
SS		2.0' /2.0'		0/0 ppm	3 3 6 19			10-10.2': Mod bn silty sand; 10.2-12': Lt bn SAND, fine to med, dry.
			720 / 15					
SS		2.0' /2.0'		0/0 ppm	6 7 7 11		SP	15-17': Lt bn SAND, fine to med, nearly dry, loose.

EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
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WS - Wash Sample

OTHER:
AGS - Above Ground Surface

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BOREHOLE LOG
SB04-01

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
SS	SB04-01D	2.0' /2.0'		0/0 ppm	1 1 4 15		SP	20-22': SAND as in 15-17'.
			710 / 25					
SS		2.0' /2.0'		1.8 /0.5	2 3 7 7		SP	25-25.8': SAND, fine-med, lt bn. 25.8-26.3': SAND, bn, v fine, moist to wet. 26.3-27': SAND as in 15-17'.
			705 / 30					
SS	SB04-01F	2.0' /2.0'		90 /50	4 4 4 5		SP	SAND, med-coarse w/few (4%) pebbles; gray & w/ solvent-like odor; saturated.
			700 / 35					
SS		2.0' /2.0'		75 /34	1 6 9 8		SP	SAND as in 30-32' sample. Odor.
								Bottom of Boring @ 37 feet.
			695 / 40					
			690 / 45					
			685 / 50					
			680 / 55					

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BOREHOLE LOG
SB04-02

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Mud Rotary/Diedrich 50
Surface Elevation: ~735 Ft.
Field Screening Instrument: HNU (scan/headspace)
Abandonment Method: Backfilled cuttings & bentonite chips
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 06-29-93 End 06-29-93
Drillers: Rick O'Gorman, Mark Thorson
Total Depth: 37 Ft.
Depth To Initial Water Level (GS): ~28 Ft.
Borehole Coordinates:
N: E: [none]

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
			735 / 0					Asphalt
							SP	
			730 / 5					
SS	SB04-02A	2.0' /2.0'		3/0 ppm	1 1 3 9		SP	Mod lt bn SAND, medium, w/a clayey sandy silt @ 6.5-6.6', moist; SAND is nearly dry & loose.
							ML	
							SP	
			725 / 10					
SS		1.8' /2.0'		0/0 ppm	4 8 8 5		SP	SAND, lt bn to mod bn, fine to coarse, the 10.5-11.3 zone being coarse, moist to dry.
			720 / 15					
SS		1.8' /2.0'		0/0 ppm	5 5 10 9		SP	Lt bn SAND, fine to med, sl moist, loose.
							SP	

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 - 1.6" Rock Core
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GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample

OTHER:
AGS - Above Ground Surface

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BOREHOLE LOG
SB04-02

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
SS	SB04-02D	1.8' /2.0'		0.2 /0 ppm	11 10 12 13		SP	SAND as above, but with a thin gray clayey interbed of <1mm @ 20.5'.
			710 / 25					
SS		1.9' /2.0'		0/0 ppm	5 4 7 6		SP	Lt bn SAND, med but ranging from coarse to fine; nearly dry; loose.
			705 / 30					
SS		1.7' /2.0'		0/0 ppm	10 7 7 11		SP	SAND as above but saturated. Note it is not stained gray like the saturated odoriferous samples @ SB04-01.
			700 / 35					
SS		2.0' /2.0'		not taken	12 16 33 50		SP	SAND as above.
			695 / 40					*Bottom of Boring @ 37 feet.*
			690 / 45					
			685 / 50					
			680 / 55					

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BOREHOLE LOG
SB04-03

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Mud Rotary/Diedrich 50
Surface Elevation: ~735 Ft.
Field Screening Instrument: HNU (scan/headspace)
Abandonment Method: Backfilled cuttings & bentonite chips
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 06-29-93 End 06-29-93
Drillers: Rick O'Gorman, Mark Thorson
Total Depth: 32 Ft.
Depth To Initial Water Level (GS): ~28 Ft.
Borehole Coordinates:
N: E: [none]

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
			735 / 0					Asphalt
							Fill	
			730 / 5				SP	Lt-mod bn SAND, med to fine, moist to dry, loose; 5.0-5.4' is mainly asphalt, brick, stone & sand fill.
SS		2.0' /2.0'		0/0 ppm	10 11 9 13			
			725 / 10					
SS		1.8' /2.0'		0/0 ppm	4 7 9 7		SP	Lt bn SAND, med-fine, moist to dry, loose.
			720 / 15					
SS		2.0' /2.0'		0/0 ppm	4 4 3 5		SP	Lt bn SAND, fine to med, dry, loose.

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 - 1.6" 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

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BOREHOLE LOG
SB04-03

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
SS		1.7' /2.0'		0/0 ppm	10 10 11 15		SP	Lt bn SAND, med to fine, moist to dry, loose.
			710 / 25					
SS	SB04-03E	1.9' /2.0'		0/0 ppm	7 1 5 7		SP	Lt bn SAND, med, dry to moist, loose.
			705 / 30					
SS		1.9' /2.0'		0/0 ppm	5 6 13 17		SP	Lt bn SAND, coarse to med, saturated, loose.
								Bottom of Boring @ 32 feet.
			700 / 35					
			695 / 40					
			690 / 45					
			685 / 50					
			680 / 55					

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BOREHOLE LOG
SB04-04

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Mud Rotary/Diedrich 50
Surface Elevation: ~735 Ft.
Field Screening Instrument: HNU (scan/headspace)
Abandonment Method: Backfilled cuttings & bentonite chips
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 06-29-93 End 06-29-93
Drillers: Rick O'Gorman, Mark Thorson
Total Depth: 32 Ft.
Depth To Initial Water Level (GS): ~28 Ft.
Borehole Coordinates:
N: E: [none]

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
			735 / 0					Asphalt
SS		2.0' /2.0'	730 / 5	0/0 ppm	5 5 7 7		ML / SP	5-5.5': Black silty topsoil; 5.5-7': mod-lt bn SAND, moist to dry, coarse to med, loose.
SS		2.0' /2.0'	725 / 10	0/0 ppm	10 6 8 11		SP	10-12': Lt bn SAND, med to fine, dry to moist, loose.
SS		2.0' /2.0'	720 / 15	0/0 ppm	7 11 11 7		SP	15-17': Lt bn SAND, fine to med, moist, loose.
							SP	

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 - 1.6" 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

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BOREHOLE LOG
SB04-04

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
SS		1.8' /2.0'		0/0 ppm	3 10 4 9		SP	20-22': Mod-lt bn SAND, med to fine, moist to dry, loose; contains a <1mm silty sand zone @ 20.5'.
			710 / 25					
SS	SB04-04E	2.0' /2.0'		0/0 ppm	7 8 7 7		SP	Lt bn SAND, med to fine, moist to dry, loose.
			705 / 30					
SS		2.0' /2.0'		0/0 ppm	6 4 6 11		SP	Lt bn SAND, saturated; 30-31' is med to fine; 31-32' is coarse to med w/trace (2%) sm pebbles.
								Bottom of Boring @ 32 feet.
			700 / 35					
			695 / 40					
			690 / 45					
			685 / 50					
			680 / 55					

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BOREHOLE LOG
SB04-05

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Mud Rotary/Diedrich 50
Surface Elevation: ~735 Ft.
Field Screening Instrument: HNU (scan/headspace)
Abandonment Method: Backfilled cuttings & bentonite chips
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 06-29-93 End 06-29-93
Drillers: Rick O'Gorman, Mark Thorson
Total Depth: 37 Ft.
Depth To Initial Water Level (GS): ~28 Ft.
Borehole Coordinates:
N: E: [none]

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
			735 / 0					Asphalt
							ML	
			730 / 5					
SS		2.0' /2.0'		0/0 ppm	2 2 4 11		ML / SP	5.0-5.7': Dk bn silty clayey loam (topsoil); 5.7-7.0': lt-mod bn SAND, med-fine, dry, loose.
			725 / 10					
SS		1.8' /2.0'		0/0 ppm	4 6 8 8		SP	SAND as in 5.7-7.0'.
			720 / 15					
SS		1.8' /2.0'		0/0 ppm	6 4 7 6		SP	Same as in 5.7-7.0', but w/color lt bn & w/some mod bn & heavy mineral laminae @ ~25 degrees to horizontal.

EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
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SAMPLING TYPES:
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GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample

OTHER:
AGS - Above Ground Surface

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BOREHOLE LOG
SB04-05

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
SS		2.0' /2.0'		0/0 ppm	3 6 22 21		SP	20-22': Lt-mod bn SAND, med to fine, moist, loose.
			710 / 25					
SS	SB04-05E	1.6' /2.0'		0 /0.5	8 6 8 9		SP	SAND as in 20-22', but moist to dry.
			705 / 30					
SS	SB04-05F	2.0' /2.0'		44 /34	6 7 8 6		SP	Mod bn to mod gy SAND, med to coarse & saturated; 30-30.6' is brown & has a sewer-like odor; 30.6-32' is gray & has a solvent-like odor; the gradation @ 30.6' is gradual.
			700 / 35					
SS		2.0' /2.0'		70 /53	8 4 22 16		SP	35-36.8': Mod gy bn SAND, coarse to med & w/~5% sm chert pebbles; HNU scan on this interval: 25ppm; 36.8-37': SAND as above exc for color (gray) & HNU scan (70 ppm).
								Bottom of Boring @ 37 feet.
			695 / 40					
			690 / 45					
			685 / 50					
			680 / 55					

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BOREHOLE LOG
SB04-06

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Mud Rotary/Diedrich 50
Surface Elevation: ~735 Ft.
Field Screening Instrument: OVM (scan/headspace)
Abandonment Method: Backfilled cuttings & Bentonite chips
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 10-14-93 End 10-14-93
Drillers: Rick O'Gorman, Mark Thorson
Total Depth: 42 Ft.
Depth To Initial Water Level (GS): ~24 Ft.
Borehole Coordinates:
N: E: [none]

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
			735 / 0					Asphalt
								1-25': Sand, based on drilling action & cuttings.
			730 / 5					
			725 / 10					
			720 / 15					

EXPLANATION OF ABBREVIATIONS

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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 - 1.6" 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

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BOREHOLE LOG
SB04-06

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
			710 / 25					
SS		2.0 /0.8'		0/0.5	6 12 10 10		SP	25-25.8': Yel bn (10 YR 5/4) to olive yel (2.5 Y 6/6) SAND, med in the 25.0-25.6' zone (yel bn zone) & fine @ 25.6-25.8' (olive yel zone); the latter zone has a sewer-like odor; saturated. Subhorizontal bedding present.
			705 / 30					
SS		2.0 /0.9'		95.5 /91.4	7 11 13 18		SP-SW	30-30.9': Grayish bn to lt olive bn (2.5 Y 5/2-5/3) SAND, med to coarse, solvent odor, saturated.
			700 / 35					
SS		2.0 /1.2'		60.5 /42.2	8 12 14 16		SP-SW	35-36.2': Black (2.5 Y 2.5/1) @ 35.1-35.4, grading to gy bn (2.5 Y 5/2) @ 35.4-35.8, grading to lt yel bn (10 YR 6/4) SAND, coarse (med to vcoarse) w/~5% subrdd to subangular sm pebbles. Strong solvent odor; saturated. VOC readings are highest in the black & gy bn zones, 20-60 ppm; 5-20 ppm in the lt yel bn (bottom) zone.
			695 / 40					
SS		2.0 /1.0'		4.2 /0.5	7 8 12 10		SP-SW	40.0-41.0': Pale bn to lt yel bn (10 YR 6/3-6/4) SAND, slight odor @ top & none near base; 40-40.3' has VOC concentrations of 2-4 ppm; 40.3-40.5' has ~0.5 to 2 ppm, & 40.5-41.0' has <0.5 ppm VOC's; sand is med to coarse; ~8% gravel as sm subrdd to subangular pebbles. Saturated throughout.
			690 / 45					*Bottom of Boring @ 42 feet.*
			685 / 50					
			680 / 55					

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BOREHOLE LOG
SB07-01

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Hollow-stem auger/Diedrich 50
Surface Elevation: 805.52 Ft.
Field Screening Instrument: HNU (headspace)
Abandonment Method: Backfilled cuttings & bentonite chips
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 06-21-93 End 06-21-93
Drillers: Rick O'Gorman, Mark Thorson
Total Depth: 27 Ft.
Depth To Initial Water Level (GS): ~15.5 Ft.
Borehole Coordinates:
N: 2028360.02 E: 2602553.98

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
			805.5 / 0					
SS		2.0' /2.0'		0 ppm	1 1 1 1		ML	0-2.0': Dark brown loam w/ 2 small sand seams.
			800.5 / 5					
SS		2.0' /2.0'		0 ppm	5 3 6 9			5-7': Not recorded
			795.5 / 10					
SS		2.0' /2.0'		0 ppm	4 4 7 9		SW	10-12': Light brown silty sand w/ some gravel.
			790.5 / 15					
SS		2.0' /2.0'		0 ppm	12 20 28 16		SW-GM	15-17': Brown sand and gravel (~40% gravel), silty @ top. Wet @ 15.5'.

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 - 1.6" 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

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BOREHOLE LOG
SB07-01

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
SS	SB07-02E	2.0' /2.0'		50 ppm	12 12 18 22		SW-GW	20-22': Light brown sand & gravel, wet.
			780.5 / 25					
SS	SB07-02F	2.0' /2.0'		18 ppm	8 12 12 19		SW-GW	25-27': Light brownish gray sand & gravel (~15% gravel), wet.
								Bottom of Boring @ 27 feet.
			775.5 / 30					
			770.5 / 35					
			765.5 / 40					
			760.5 / 45					
			755.5 / 50					
			750.5 / 55					

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BOREHOLE LOG
SB07-02

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Hollow-stem auger/Diedrich 50
Surface Elevation: 798.26 Ft.
Field Screening Instrument: HNU (headspace)
Abandonment Method: Backfilled cuttings & bentonite chips
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 06-21-93 End 06-21-93
Drillers: Rick O'Gorman, Mark Thorson
Total Depth: 27 Ft.
Depth To Initial Water Level (GS): ~23 Ft.
Borehole Coordinates:
N: 2028664.26 E: 2602540.02

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
SS		2.0' /2.0'	798.3 0	0 ppm	2 4 2 6		ML	0-0.5': Black loam w/roots; 0.5-2.0': black loam
SS		2.0' /2.0'	793.3 5	0 ppm	4 3 8 3		ML SM	5-5.5': Black loam; 5.5-5.7': Bn silty sand, coarse. Water @ 5.5'
SS		2.0' /2.0'	788.3 10	7 ppm	3 4 7 3		ML	Gray sandy silt w/trace of clay, moist.
							SP	
SS	SB07-02D	2.0' /2.0'	783.3 15	11 ppm	11 11 8 15		SP	15-16.5' Brn coarse sand w/gravel; 16.5-17': sandy silt, gray.
							ML SM	

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 - 1.6" 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

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BOREHOLE LOG
SB07-02

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
SS		2.0' /2.0'		3 ppm	6 15 18 16		SM ML SP SP ML	20-20.5': Gray silty sand, wet; 20.5-21.6': lt brown clayey sandy silt; 21.6-22.0': sand & gravel, moist.
			773.3 / 25					
SS	SB07-02F	1.0' /2.0'		0 ppm	11 12 24 18		ML	Brown to gray sandy clayey silt w/ gravel.
								Bottom of Boring @ 27 feet.
			768.3 / 30					
			763.3 / 35					
			758.3 / 40					
			753.3 / 45					
			748.3 / 50					
			743.3 / 55					

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BOREHOLE LOG
SB07-03

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Hollow-stem auger/Diedrich 50
Surface Elevation: 806.76 Ft.
Field Screening Instrument: HNU (headspace)
Abandonment Method: Backfilled cuttings & bentonite chips
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 06-22-93 End 06-22-93
Drillers: Rick O'Gorman, Mark Thorson
Total Depth: 32 Ft.
Depth To Initial Water Level (GS): ~23 Ft.
Borehole Coordinates:
N: 2028482.79 E: 2602664.25

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
SS		1.8' /2.0'	806.8 0	0 ppm	1 2 3 2		ML SM	0-0.8': Dk bn topsoil. 0.8-1.8': Lt bn silty sand.
SS		1.4' /2.0'	801.8 5	0 ppm	6 20 22 25		SM	Lt bn, v fine silty sand, moist but not wet.
SS		2.0' /2.0'	796.8 10	0 ppm	4 16 24 40		SP ML	10-11.6': Lt bn, v fine sand, locally wet. 11.6-12.0': Lt bn clayey sandy silt
SS		0.8' /2.0'	791.8 15	0 ppm	18 50 /0.3'		SM	15-15.8': Mod bn silty sand w/gravel; limestone cobble @ base

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 - 1.6" 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

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BOREHOLE LOG
SB07-03

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
SS		2.0' /2.0'		6 ppm	18 20 22 25		SP	20-21': Mod brown sand; 21-22': Mod grayish brown sandy clayey silt w/ ~8% gravel.
							ML	
			781.8 / 25				SP	
SS	SB07-03F	1.0' /2.0'		10.5 ppm	23 22 25 38		SP	25-25.5: Mod bn SAND, well-sorted, med grained; 25.5-26: same as above but fine-grained; wet.
			776.8 / 30					
SS	SB07-03G	0.8 /2.0'		0.1 ppm	10 18 20		SP-SC	30-30.1: Sandy clay, gray. 30.1-30.8': Bn sand w/ gravel (30% gravel @ top, tr @ bottom); wet.
								Bottom of Boring @ 32 feet.
			771.8 / 35					
			766.8 / 40					
			761.8 / 45					
			756.8 / 50					
			751.8 / 55					

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BOREHOLE LOG
SB07-04

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Hollow-stem auger/Diedrich 50
Surface Elevation: 802.65 Ft.
Field Screening Instrument: HNU (headspace)
Abandonment Method: Backfilled cuttings & bentonite chips
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 06-22-93 End 06-22-93
Drillers: Rick O'Gorman, Mark Thorson
Total Depth: 37 Ft.
Depth To Initial Water Level (GS): ~10 Ft.
Borehole Coordinates:
N: 2028457.71 E: 2602461.92

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. / DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
SS		2.0' /2.0'	802.7 / 0	0.1 ppm	1 1 2 4		ML / ML	0-1.5': Dk bn topsoil; 1.5-2.0' is sandy gravelly silt, moist.
SS		1.8' /2.0'	797.7 / 5	9 ppm	1 2 5 6		ML	Dk bn fill, loc wet, mixed w/med sand
SS		2.0' /2.0'	792.7 / 10	35 ppm	7 7 11 12		SM	Gy to bn silty sand w/some gravel; wet.
SS		0.6' /2.0'	787.7 / 15	30 ppm	10 8 20 25		ML	Clayey sandy silt w/~5% sm gravel; lt gy bn; wet.

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 - 1.6" 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

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BOREHOLE LOG
SB07-04

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
SS	SB07-04E	1.0' /2.0'		52 ppm	12 30 35 18		ML SP	20-20.5': Lt bn gy sandy clayey silt w/8% gravel; 20.5-21.0': bn gy sand & gravel (20% gvl).
			777.7 25					
SS		1.1' /2.0'		8 ppm	10 18 29 15		SP	Mod bn sand & gravel (~30% gravel, including lg chunks).
			772.7 30					
SS		2.0' /2.0'		6 ppm	12 13 18 23		SP ML	30-30.5': Med bn sand w/fine gravel; 30.5-32': grey stiff silt.
			767.7 35					
SS	SB07-04H	1.5' /2.0'		0 ppm	6 8 17 19		ML	35-35.5': Grey stiff silt; 35.5-36.5': bn sand & gravel.
								Bottom of Boring @ 37 feet.
			762.7 40					
			757.7 45					
			752.7 50					
			747.7 55					

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BOREHOLE LOG
SB07-05

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Hollow-stem auger/Diedrich 50
Surface Elevation: 806.39 Ft.
Field Screening Instrument: HNU (headspace)
Abandonment Method: Backfilled cuttings & bentonite chips
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 06-22-93 End 06-22-93
Drillers: Rick O'Gorman, Mark Thorson
Total Depth: 37 Ft.
Depth To Initial Water Level (GS): ~16 Ft.
Borehole Coordinates:
N: 2028379.85 E: 2602668.27

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
SS		2.0' /2.0'	806.4 0	0 ppm	1 1 2 8		ML	Black topsoil grading to black silty sand.
SS	SB07-05B	2.0' /2.0'	801.4 5	0 ppm	2 4 6 8		ML	5.0-5.2': Mod bn SAND w/some (8%) gravel, moist; 5.2-7': Lt bn sandy clayey SILT w/few pebbles; moist to wet.
SS		2.0' /2.0'	796.4 10	9 ppm	2 4 7 10		ML	10-12': Bn gy to gy bn sandy clayey SILT w/few pebbles; moist to wet.
SS		2.0' /2.0'	791.4 15	90 ppm	5 18 20 12		ML	15-17': Mod bn gy sandy clayey SILT w/var amounts of gravel; a sandy gravel @ 16.2-16.3' is wet & has slight odor.

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 - 1.6" 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

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BOREHOLE LOG
SB07-05

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
SS	SB07-05E	1.0' /2.0'		90 ppm	8 8 30 25		SP-GP	20-21': Mod bn gy sand and gravel, saturated.
			781.4 / 25					
SS		2.0' /2.0'		30 ppm	11 15 22 19		SP-GP	25-26.5': Coarse SAND & gravel, v coarse @ base; 26.5-27': fine SAND w/few sm pebbles; wet; mod gy.
			776.4 / 30					No recovery due to blow-in
			771.4 / 35					No recovery due to blow-in
								Bottom of Boring @ 37 feet.
			766.4 / 40					
			761.4 / 45					
			756.4 / 50					
			751.4 / 55					

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BOREHOLE LOG
SB07-06

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Hollow-stem auger/Diedrich 50
Surface Elevation: 807.24 Ft.
Field Screening Instrument: HNU (headspace)
Abandonment Method: Backfilled cuttings & bentonite chips
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 06-22-93 End 06-22-93
Drillers: Rick O'Gorman, Mark Thorson
Total Depth: 37 Ft.
Depth To Initial Water Level (GS): ~16 Ft.
Borehole Coordinates:
N: 2028284.54 E: 2602678.54

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
SS		2.0' /2.0'	807.2 0	0 ppm	1 1 2 2		ML	0-1.5': Dk bn loam (topsoil); 1.5-2.0': Mod bn sandy clayey silt.
							ML	
SS		2.0' /2.0'	802.2 5	0 ppm	6 10 15 18		SM	Mod or bn silty fine SAND; wet.
SS		2.0' /2.0'	797.2 10	0 ppm	10 9 22 14		ML	10-12': Lt bn sandy gravelly SILT; moist but not wet.
SS		1.6' /2.0'	792.2 15	0 ppm	4 15 27 10		SM	15-16': Mod bn silty SAND w/ 10% gravel; 16.0-16.6': Mod gy bn sandy gravelly SILT, moist; SAND is wet.
							ML	

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 - 1.6" 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

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BOREHOLE LOG
SB07-06

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
SS		1.0' /2.0'		2 ppm	9 9 18 23		SP-GP ML	20.0-20.4': Mod bn sand & gravel; 20.4-21.0': mod gray sandy gravelly SILT w/some clay.
			782.2 / 25					
SS	SB07-06F	1.2' /2.0'		3 ppm	6 12 12 14		ML	Mod bn gy sandy clayey SILT w/~10% gravel; moist.
			777.2 / 30					
SS		0.7' /0.8'		0.5 ppm	25 100 /0.4'		SP-GP	Mod or bn sand & gravel (40% subrdd gravel); wet.
			772.2 / 35					
SS	SB07-06H	1.4' /2.0'		0.2 ppm	8 15 22 16		SP-GP	Mod or bn sand & gravel; wet.
								Bottom of Boring @ 37 feet.
			767.2 / 40					
			762.2 / 45					
			757.2 / 50					
			752.2 / 55					

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BOREHOLE LOG
SB07-07

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Hollow-stem auger/Diedrich 50
Surface Elevation: 809.99 Ft.
Field Screening Instrument: HNU (headspace)
Abandonment Method: Backfilled cuttings & bentonite chips
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 06-23-93 End 06-23-93
Drillers: Rick O'Gorman, Mark Thorson
Total Depth: 47 Ft.
Depth To Initial Water Level (GS): ~6.5 Ft.
Borehole Coordinates:
N: 2028185.47 E: 2602672.02

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. / DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
SS		1.8' /2.0'	810 / 0	0 ppm	1 1 2 4		ML / SP	Dk bn loam (topsoil) grading to fine bn sand.
SS		1.4' /2.0'	805 / 5	0 ppm	3 3 5 8		SP	Mod or bn SAND, fine, loose, moist; wet @ 6.5'.
SS		2.0' /2.0'	800 / 10	0 ppm	6 10 18 14		SP / ML	10-11.5': SAND as above, wet; 11.5-12': Sandy clayey SILT w/~10% gravel; moist.
SS		1.5' /2.0'	795 / 15	40 ppm	15 19 30 18		SP-SM	Mod bn to dk gy SAND, medium, w/ var amounts gravel & clay. Odor.

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 - 1.6" 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

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BOREHOLE LOG
SB07-07

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
SS		2.0' /2.0'		10 ppm	23 30 18 20		SP	Dk gy SAND, medium, well-sorted, wet, slight odor; sandy clayey SILT @ base (21.8-22.0').
							ML	
			785 / 25					
SS	SB07-07F	2.0' /2.0'		55 ppm	10 13 21 28		ML	25-26.2': Mod bn gy clayey SILT w/~10% gravel; 26.2-27': sand & gravel.
							SP	
			780 / 30					
SS		2.0' /2.0'		11 ppm	5 13 22 25		ML	30-30.4': Lt gy bn clayey sandy SILT w/10% gravel; 30.4-32': sand & gravel, mod bn to gray-stained.
							SP	
			775 / 35					
SS		0.8' /2.0'		7.5 ppm	7 18 13 15		ML SP-GP	35-35.3': Gy bn clayey sandy SILT (last 4 samples have been wet); 35.3-35.8': gy bn sand & gravel.
			770 / 40					
SS	SB07-07I	1.1' /2.0'		8 ppm	18 30 22 17		SP-GP	Bn to gy sand & gravel, wet. Note: The SILTS @ 30 & 35' may be sluff.
			765 / 45					
SS		1.0' /2.0'		not taken	23 30 16 28		SP ?	Sample is sand w/some gravel but may be blow-in.
			760 / 50					*Bottom of Boring @ 47 feet.*
			755 / 55					

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BOREHOLE LOG
SB07-08

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Hollow-stem auger/Diedrich 50
Surface Elevation: 811.54 Ft.
Field Screening Instrument: HNU (headspace)
Abandonment Method: Backfilled cuttings & bentonite chips
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 06-23-93 End 06-23-93
Drillers: Rick O'Gorman, Mark Thorson
Total Depth: 47 Ft.
Depth To Initial Water Level (GS): ~13 Ft.
Borehole Coordinates:
N: 2028137.60 E: 2602622.14

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. / DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
SS		1.6' /2.0'	811.5 / 0	0.3 ppm	3 5 4 3		ML	Dk bn clayey loam (topsoil), moist.
SS		2.0' /2.0'	806.5 / 5	1 ppm	3 7 6 5		ML / SP	5.0-5.5': Topsoil; 5.5-7.0': mod or bn sand, med, loose, moist.
SS		2.0' /2.0'	801.5 / 10	66 ppm	7 9 14 17		SP	Mod to lt bn sand, fine to med, moist to wet; some gravel (~4%).
SS	SB07-08D	2.0' /2.0'	796.5 / 15	130 ppm	7 19 22 18		SP-GP	Sand and gravel w/strong odor; saturated.

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 - 1.6" 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

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BOREHOLE LOG
SB07-08

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
SS		2.0' /2.0'		110 ppm	12 11 15 5		SP-GP ML	20-20.2': Sand & gravel; 20.2-22': lt by bn clayey sandy SILT.
			786.5 25					
SS		2.0' /2.0'		60 ppm	6 10 14 17		SP-GP	Sand & gravel, wet, w/odor; ~20% gravel.
			781.5 30					
SS		1.4' /2.0'		58 ppm	9 13 16 5		SM-GP	Sand & gravel, wet, w/solvent odor, loc silty.
			776.5 35					
SS		1.0' /2.0'		30 ppm	7 14 16 9		SP-GP	Sand & gravel, mod gray, w/solvent odor. ~15% gravel.
			771.5 40					
			766.5 45					
SS	SB07-08I	0.5' /2.0'		11 ppm	9 16 16 35		SP-GP	45-45.5': Lt gy bn sand & gravel.
			761.5 50					*Bottom of Boring @ 47 feet.*
			756.5 55					

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BOREHOLE LOG
SB07-09

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Hollow-stem auger/Diedrich 50
Surface Elevation: 814.88 Ft.
Field Screening Instrument: HNU (headspace)
Abandonment Method: Backfilled cuttings & bentonite chips
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 06-23-93 End 06-23-93
Drillers: Rick O'Gorman, Mark Thorson
Total Depth: 47 Ft.
Depth To Initial Water Level (GS): ~15.5 Ft.
Borehole Coordinates:
N: 2028077.80 E: 2602775.29

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
SS		1.6' /2.0'	814.9 0	0 ppm	4 4 2 2		ML	Mod to dk bn clayey loam (topsoil).
SS		0.0' /2.0'	809.9 5	N/A	6 7 17 17		?	No recovery (8" cobble in the way)
SS		1.6' /2.0'	804.9 10	0.5 ppm	9 19 14 10		SP	Mod to lt bn SAND, med to fine, loose, moist, w/2 narrow silty zones.
SS		1.6' /2.0'	799.9 15	10 ppm	5 10 15 10		SP	Mod bn sand w/20% gravel, wet @ 15.5'.

EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
SSA - Solid Stem Auger
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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 - 1.6" Rock Core
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GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample

OTHER:
AGS - Above Ground Surface

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BOREHOLE LOG
SB07-09

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. / DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
SS	SB07-09E	1.0' /2.0'		150 ppm	10 6 18 27		ML	Mod gy bn sandy silt w/some clay & ~7% gravel, wet; odor.
			789.9 / 25					
SS		0.6' /2.0'		18 ppm	25 35 / /		SP-GP	Gy-stained sand & gravel w/odor; tr clay & silt
			784.9 / 30					
SS		1.0' /2.0'		17 ppm	5 10 30 10		SP-GP	30-30.5': Gy sand & gravel, not as darkly stained as above.
			779.9 / 35					
SS		1.2' /2.0'		1 ppm	1 6 9 8		ML	Mod bn clayey sandy silt w/some (~8%) gravel.
			774.9 / 40					
SS		1.1' /2.0'		9 ppm	7 9 10 12		SP-GP ML	40-40.5': Mod bn sand & gravel; 40.5-41.5': bn to gy clayey SILT w/~7% gravel, probably a till: gy below 40.7'; loc. sandy zones.
			769.9 / 45					
SS	SB07-09J	1.4' /2.0'		1 ppm	9 17 22 13		ML	Mod bn to gy clayey SILT w/~8% gravel; a sandy interval @ 46-46.1' & w/sl HNU kick (0.3 ppm); bg HNU on SILT.
			764.9 / 50					*Bottom of Boring @ 47 feet.*
			759.9 / 55					

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BOREHOLE LOG
SB07-10

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Hollow-stem auger/Diedrich 50
Surface Elevation: 817.41 Ft.
Field Screening Instrument: HNU (headspace)
Abandonment Method: Backfilled cuttings & bentonite chips
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 06-23-93 End 06-23-93
Drillers: Rick O'Gorman, Mark Thorson
Total Depth: 42 Ft.
Depth To Initial Water Level (GS): ~20.8 Ft.
Borehole Coordinates:
N: 2027988.03 E: 2602677.46

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
			817.4 / 0				ML	Topsoil
SS	SB07-10A	1.5' /2.0'	812.4 / 5	45 ppm	1 2 3 4		SP	Blk-stained sand, med, v strong odor.
SS		1.8' /2.0'	807.4 / 10	60 ppm	6 12 18 18		ML SP	10-10.8': Olive bn sandy SILT w/some clay; moist; 10.8-11.8' bn SAND, loose, moist.
SS		1.5' /2.0'	802.4 / 15	65 ppm	9 14 18 22		ML SP	15.0-15.5': Lt bn sandy SILT, moist. 15.5-16.5': Lt bn SAND, loose, moist.

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 - 1.6" 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

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BOREHOLE LOG
SB07-10

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
SS		2.0' /2.0'		45 ppm	6 12 18 22		SP / SP-GP	20-20.8': Or bn SAND, med, loose, moist. 20.8-22.0': Lt bn sand & gravel, wet; HNU scan of sample peaks out at 160 ppm.
			792.4 / 25					
SS		1.0' /2.0'		30 ppm	5 13 32 22		ML	Lt gy bn sandy SILT w/~8% gravel; HNU scan 15 ppm. Wet.
			787.4 / 30					
SS		1.4' /2.0'		16 ppm	5 10 15 18		ML	Same as above but bn gy to gy bn; HNU scan 3 ppm. Moist to wet.
			782.4 / 35					
SS		1.0' /2.0'		28 ppm	8 15 25 10		ML	Same as above but HNU scan 9.5 ppm.
			777.4 / 40					
SS		1.0' /2.0'		15 ppm	1 8 12 22		SP-GP	Sand & gravel, mod bn, wet, loc silty/clayey zones
								Bottom of Boring @ 42 feet.
			772.4 / 45					
			767.4 / 50					
			762.4 / 55					

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BOREHOLE LOG
SB07-11

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Hollow-stem auger/Diedrich 50
Surface Elevation: 820.64 Ft.
Field Screening Instrument: HNU (headspace)
Abandonment Method: Backfilled cuttings & bentonite chips
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 06-24-93 End 06-24-93
Drillers: Rick O'Gorman, Mark Thorson
Total Depth: 32 Ft.
Depth To Initial Water Level (GS): ~20.5 Ft.
Borehole Coordinates:
N: 2028071.17 E: 2602873.91

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. / DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
			820.6 / 0				ML	Topsoil
SS		2.0' /2.0'	815.6 / 5	0 ppm	2 11 17 22		ML SP-GP	5-5.3' Dk loam (topsoil); 5.3-7': Lt-mod bn sand & gravel; sand is med to coarse.
SS		1.1' /2.0'	810.6 / 10	0 ppm	10 30 22 10		SM	Silty sand w/~15% gravel; moist & not wet.
SS		2.0' /2.0'	805.6 / 15	0.5 ppm	6 22 22 28		ML SP	15-15.6': Mod bn clayey sandy SILT. 15.6-17': Lt bn to or bn SAND, coarse, moist, loose.

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
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SAMPLING TYPES:
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CS - California Sampler
BX - 1.6" 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

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BOREHOLE LOG
SB07-11

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
SS	SB07-11D	1.5' /2.0'		0.5 ppm	5 15 18 10		SP	Lt bn to or bn SAND, med-grained, wet @ 20.5'; loose.
			785.6 / 25					
SS		1.7' /2.0'		0.5 ppm	10 17 28 18		SP / SP-GP	25-25.8': Lt bn SAND, med, wet; 25.8-26.7': Or bn SAND & gravel, silty @ 26.4' & dry below that.
			790.6 / 30					
SS		1.4' /2.0'		0.2 ppm	10 16 20 15		SP	Mod or bn sand, med to coarse w/some sm pebbles, wet; several lg pebbles @ base.
								Bottom of Boring @ 32 feet.
			785.6 / 35					
			780.6 / 40					
			775.6 / 45					
			770.6 / 50					
			765.6 / 55					

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BOREHOLE LOG
SB07-12

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Hollow-stem auger/Diedrich 50
Surface Elevation: 818.12 Ft.
Field Screening Instrument: HNU (scan/headspace)
Abandonment Method: Backfilled cuttings & bentonite chips
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 06-24-93 End 06-24-93
Drillers: Rick O'Gorman, Mark Thorson
Total Depth: 32 Ft.
Depth To Initial Water Level (GS): ~16.5 Ft.
Borehole Coordinates:
N: 2028090.23 E: 2602523.40

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
			818.1 / 0				ML	Topsoil
			813.1 / 5					
SS		1.6' /2.0'		0/0	4 4 8 9		SP	Mod-lt bn SAND, loose, nearly dry.
			808.1 / 10					
SS		1.8' /2.0'		not working /0	15 20 24 15		SP	Mod or bn to lt bn SAND, loose, nearly dry; a silt layer, moist, @ 10.4-10.42'.
			803.1 / 15					
SS		2.0' /2.0'		not working /0	8 20 30 15		SP	Mod-lt or bn SAND, med, moist to wet @ 16.5'; silty & gravelly (~10% gravel) @ 16-17'.

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 - 1.6" 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

CAMP DRESSER & McKEE

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BOREHOLE LOG

SB07-12

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
SS	SB07-12D	1.0' /2.0'		not working /0	28 33 / /		SP ML	20-20.5': Mod bn sand, wet, med-coarse; 20.5-21.0': Mod bn gravelly SILT, moist to dry.
			793.1 / 25					
SS		1.3' /2.0'		0/0.3	3 9 23 27		SP-GR ML	25-25.7': Mod bn sand, med, wet; 25.7-26': sand & gravel, wet; 26-26.3': gravelly SILT, sl clayey, wet.
			788.1 / 30					
SS		1.3' /2.0'		0/0.2	9 20 27 19		SP ML-CL ML-CL	30-30.1': Bn sand & gravel, wet; 30.1-31.3': clayey SILT to silty CLAY, w/~10% subangular pebbles & granules; moist & not wet; tough.
								Bottom of Boring @ 32 feet.
			783.1 / 35					
			778.1 / 40					
			773.1 / 45					
			768.1 / 50					
			763.1 / 55					

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BOREHOLE LOG
SB07-13

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Hollow-stem auger/Diedrich 50
Surface Elevation: 823.80 Ft.
Field Screening Instrument: HNU (headspace)
Abandonment Method: Backfilled cuttings & bentonite chips
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 06-24-93 End 06-24-93
Drillers: Rick O'Gorman, Mark Thorson
Total Depth: 27 Ft.
Depth To Initial Water Level (GS): ~23 Ft.
Borehole Coordinates:
N: 2027887.43 E: 2602576.65

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
			823.8 / 0				ML	Topsoil
			818.8 / 5					
SS		2.0' /2.0'		0 ppm	1 2 3 15		ML / SP	5-6.6': Clayey SILT, moist; color grades from dk bn gy @ 5' to mod bn @ 6.6'; 6.6-7.0' is lt bn sand, med, dry.
			813.8 / 10					
SS		2.0' /2.0'		0 ppm	5 7 17 9		ML / SP	10-10.2': Clayey to sandy SILT, moist; 10.2-12': or bn to lt bn SAND, medium, loose, nearly dry.
			808.8 / 15					
SS		2.0' /2.0'		0.2 ppm	3 6 13 15		ML	15-16.5': Clayey sandy SILT, moist to wet, w/~10% subang gravel. 16.5-17': Clayey SILT to silty clay, laminated like varves, moist.

EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
SSA - Solid Stem Auger
HA - Hand Auger
AR - Air Rotary
DTR - Dual Tube Rotary
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MR - Mud Rotary
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ST - Shelby Tube
WS - Wash Sample

OTHER:
AGS - Above Ground Surface

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BOREHOLE LOG
SB07-13

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
SS		1.6' /2.0'		0.2 ppm	10 17 30 20		ML SP	20-21': Clayey to sandy SILT, moist to wet, several subhoriz layers. 21-21.6': Or bn SAND, med, loose, moist.
			798.8 / 25					
SS	SB07-13E	1.3' /2.0'		0.1 ppm	11 17 20 12		SM SP	25-25.6': Mod yel bn silty v fine sand w/few pebbles, saturated. 25.6-26.3': Mod yel bn wet SAND, w/~15% gravel, subrounded.
								Bottom of Boring @ 28 feet.
			793.8 / 30					
			788.8 / 35					
			783.8 / 40					
			778.8 / 45					
			773.8 / 50					
			768.8 / 55					

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BOREHOLE LOG
SB07-14

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Hollow-stem auger/Diedrich 50
Surface Elevation: 826.87 Ft.
Field Screening Instrument: HNU (scan/headspace)
Abandonment Method: Backfilled cuttings & bentonite chips
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 06-29-93 End 06-29-93
Drillers: Rick O'Gorman, Mark Thorson
Total Depth: 22 Ft.
Depth To Initial Water Level (GS): ~14 Ft.
Borehole Coordinates:
N: 2027783.56 E: 2602635.76

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
			826.9 / 0				ML	Topsoil & fill
SS		2.0' /2.0'	821.9 / 5	0.4 /0	3 4 2 9		ML / ML	5-5.5': Dk bn silty clayey loam, moist & w/some string/yarn fill; 5.5-7.0': tan to olive bn v fine sandy SILT w/few (~10%) subang pebbles; moist to wet.
SS		1.4' /2.0'	816.9 / 10	0/0 ppm	38 51 41 23		SW	10-11.4': Lt-mod bn SAND, poorly sorted, ranging from v coarse to med, & w/~15% subrdd pebbles including a weathered diorite; moist to dry.
SS	SB07-14C	2.0' /2.0'	811.9 / 15	2/4 ppm	12 18 28 11		ML / SP / ML	15-15.5': Mod bn v fine sandy silt, wet; 15.5-16.9': mod bn SAND, med, wet; 16.9-17': silt as in 15.0-15.5', wet.

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
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SAMPLING TYPES:
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GP - Geoprobe
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SS - Split Spoon
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OTHER:
AGS - Above Ground Surface

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BOREHOLE LOG
SB07-14

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
SS	SB07-14D	-		15 /32	N/A		SP-SW	Auger cuttings @ about 20-22' are greenish-gray SAND, fine to med, wet, solvent-like odor; somewhat cohesive due to solvent, or may have trace silt/clay.
								Bottom of Boring @ 22 feet.
			801.9 / 25					
			796.9 / 30					
			791.9 / 35					
			786.9 / 40					
			781.9 / 45					
			776.9 / 50					
			771.9 / 55					

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BOREHOLE LOG
SB07-15

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Hollow-stem auger/BK81
Surface Elevation: 803.97 Ft.
Field Screening Instrument: OVM (headspace)
Abandonment Method: Backfilled cuttings & bentonite chips
Logged By: S. S. Bhagat

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 09-23-93 End 09-23-93
Drillers: Paul Dickinson, Mike Nelson
Total Depth: 26 Ft.
Depth To Initial Water Level (GS): ~14.5 Ft.
Borehole Coordinates:
N: 2028687.19 E: 2602759.36

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. / DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
			804 / 0				ML	Topsoil
SS		18" /24"	799 / 5	0 ppm	4 5 5 10		SM-GM	Brown, gravelly & silty med sand; dry.
SS		18" /24"	794 / 10	0 ppm	2 10 8 8		SM-GM CH SM	Top 12" is brown, gravelly & silty fine to med sand, bottom 6" is brown, plastic clay containing a 1" thick gravelly $ silty fine to med sand layer; entire sample is dry.
SS		18" /24"	789 / 15	0 ppm	3 10 11 13		SP	Top 4" is brown, gravelly & silty med sand that is dry; next 5" is tan, silty fine sand w/color laminations; next 6" is tan, mod well sorted coarse sand; lowermost 3" is tan fine sand. Bottom 14" is moist. Saturated zone appears to be ~14.5' below grade.
SS		22" /24"		0 ppm	4 14		SP	Interbedded brown/tan, fine and med sand; gravelly in places;

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 - 1.6" 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

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BOREHOLE LOG
SB07-15

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
SS		22" /24"		0 ppm	24 67		SP	sand is generally well sorted. Tan "till" in nose of spoon.
							SP-ML	
SS	SB7-15A	24" /24"	779 / 25	0 ppm	21 28 33 45		SP	Tan, well sorted med sand.
								Bottom of Boring @ 26 feet.

774 / 30
769 / 35
764 / 40
759 / 45
754 / 50
749 / 55

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BOREHOLE LOG
SB07-16

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Hollow-stem auger/BK81
Surface Elevation: 802.86 Ft.
Field Screening Instrument: OVM (headspace)
Abandonment Method: Backfilled cuttings & bentonite chips
Logged By: S. S. Bhagat

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 09-23-93 End 09-23-93
Drillers: Paul Dickinson, Mike Nelson
Total Depth: 36 Ft.
Depth To Initial Water Level (GS): ~23 Ft.
Borehole Coordinates:
N: 2028682.12 E: 2602658.20

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. / DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
			802.9 / 0				ML	Topsoil
SS		18" /24"	797.9 / 5	0 ppm	2 4 4 3		SM-GM	Lt Brown/tan, gravelly & silty fine sand. Dry.
SS		23" /24"	792.9 / 10	0 ppm	2 7 8 12		SM-GM	Brown, gravelly & silty fine sand; dry.
SS		24" /24"	787.9 / 15	0 ppm	6 14 13 15		SM-GM	Brown, gravelly & silty fine sand; dry. Reddish brown oxide (?) stain present in most of the sample. Dry.
SS		17" /24"		0 ppm	2 6		SM-GM	Top 9" is brown, gravelly & silty fine sand grading

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:
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CS - California Sampler
BX - 1.6" 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

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BOREHOLE LOG
SB07-16

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. / DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
SS		17" /24"		0 ppm	9 14		SM-GM	downward to gray, gravelly & silty fine sand. Not saturated, but slightly moist.
SS		14" /24"	777.9 / 25	0 ppm	5 11 17 13		SP	Tan/brown, well sorted fine sand; saturated. Have gravel clasts, broken up from pounding spoon, in upper 8", lower 6" is fine sand, saturated.
SS		8" /24"	772.9 / 30	0 ppm	6 9 15 19		SP	Brown, well sorted fine sand.
SS		9" /24"	767.9 / 35	0 ppm	4 6 7 7		SP	Brown, well sorted, med sand.
			762.9 / 40					*Bottom of Boring @ 36 feet.*
			757.9 / 45					
			752.9 / 50					
			747.9 / 55					

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BOREHOLE LOG
SB07-17

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Hollow-stem auger/BK81
Surface Elevation: 805.04 Ft.
Field Screening Instrument: OVM (headspace)
Abandonment Method: Backfilled cuttings & bentonite chips
Logged By: S. S. Bhagat

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 09-23-93 End 09-23-93
Drillers: Paul Dickinson, Mike Nelson
Total Depth: 31 Ft.
Depth To Initial Water Level (GS): ~14.5 Ft.
Borehole Coordinates:
N: 2028582.97 E: 2602664.25

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. / DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
			805 / 0				ML	Topsoil
SS		15" /24"	800 / 5	0 ppm	2 2 2 3		SM-GM	Top 1" is dk brown topsoil; bottom 14" is brown, gravelly & silty fine sand. Dry.
SS		21" /24"	795 / 10	0 ppm	4 6 7 7		SC-CL	Interbedded clayey fine sand and brown, plastic clay. Sand is brown. Dry.
SS		20" /24"	790 / 15	0 ppm	3 2 2 3		SC-SP	Brown, clayey fine sand in upper 6"; lower 14" is brown to reddish brown, fine sand, saturated. Clayey sand is dry.
SS		15" /24"		0 ppm	2 4		SM	Brown, silty fine sand; rare gravel.

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 - 1.6" 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

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BOREHOLE LOG
SB07-17

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. / DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
SS		15" /24"		0 ppm	5 5		SM	
SS		12" /24"	780 / 25	0 ppm	3 5 5 8		SP	Brown, fine sand.
SS	SB7-17A	14" /24"	775 / 30	0 ppm	2 8 10 12		SP / CL	Top 3" is brown, fine to med sand, well sorted; bottom 11" is brown, gravelly & sandy clay. Sample SB7-17A collected. VOC's primarily from sandy portion; metals and semi-VOC's primarily from clay-rich portion of spoon.
			770 / 35					*Bottom of Boring @ 31 feet.*
			765 / 40					
			760 / 45					
			755 / 50					
			750 / 55					

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BOREHOLE LOG
SB07-18

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Hollow-stem auger/Diedrich 50
Surface Elevation: 795.98 Ft.
Field Screening Instrument: OVM (scan/headspace)
Abandonment Method: Backfilled cuttings & bentonite chips
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 10-12-93 End 10-12-93
Drillers: Rick O'Gorman, Mark Thorson
Total Depth: 22 Ft.
Depth To Initial Water Level (GS): ~13 Ft.
Borehole Coordinates:
N: 2028671.59 E: 2602401.42

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
			796 / 0				ML	Topsoil
SS		2.0' /2.0'	791 / 5	0/0	1 2 4 2		ML-SM	5.0-5.2': Dk bn gy loam (soil); 5.2-5.5': Lt bn gy (10 YR 6/2) sandy gravelly clay; 5.5-7.0': Yel bn (10 YR 5/6) sandy gravelly silt, moist.
SS		1.0' /2.0'	786 / 10	0/0	4 5 9 8		ML	10-10.7': Bn yel (10 YR 6/6) SILT, w/few granules & sm pebbles, partly laminated; saturated. 10.7-11.0': Bn yel (10 YR 6/6) v fine sandy silt, moist & not wet.
SS		2.0' /2.0'	781 / 15	0/3.0	4 2 6 7		SP	15-15.4': Bn yel fine SAND, wet; 15.4-17.0': Lt yel bn (10 YR 6/4) to bn (10 YR 5/3) sand, coarse to med, wet.

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

SAMPLING TYPES:
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BX - 1.6" Rock Core
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GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample

OTHER:
AGS - Above Ground Surface

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BOREHOLE LOG

SB07-18

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
SS		2.0' /2.0'		0/0.6	12 13 9 15			20-22': Sample is sluff, & contains bn yel (10 YR 6/6) SAND, med, some coarse; wet.
								Bottom of Boring @ 22 feet.
			771 / 25					
			766 / 30					
			761 / 35					
			756 / 40					
			751 / 45					
			746 / 50					
			741 / 55					

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BOREHOLE LOG
SB07-19

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Hollow-stem auger/Diedrich 50
Surface Elevation: 798.81 Ft.
Field Screening Instrument: OVM (scan/headspace)
Abandonment Method: Backfilled cuttings & bentonite chips
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 10-12-93 End 10-12-93
Drillers: Rick O'Gorman, Mark Thorson
Total Depth: 27 Ft.
Depth To Initial Water Level (GS): ~8 Ft.
Borehole Coordinates:
N: 2028586.86 E: 2602340.48

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. / DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
			798.8 / 0					Topsoil
SS		2.0' /2.0'	793.8 / 5	74 /88.8	4 9 7 9		SW / ML-SW / SP	5.0-5.2': Dk bn gy loam (soil); 5.2-5.5': V pale bn (10 YR 7/4) sand, gravelly (15%), med; 5.5-6.0': Bn yel (10 YR 6/8) silt, loc laminated, w/v fine SAND; 6.0-6.9': lt bn gray (10 YR 6/2) SILT & v fine SAND & has the 74 ppm scan; organic vapor peak above 6.0' is 0.5 ppm. 6.9-7.0': V pale bn SAND, med.
SS	SB7-19B	2.0' /2.0'	788.8 / 10	198 /139.2	5 10 10 10		SP	10-12': Olive gray to olive (5 Y 4/2 - 5 Y 4/4) SAND, med to coarse, wet, strong odor (solvent-type).
SS		2.0' /2.0'	783.8 / 15	283 /274	5 12 20 12		SP / SM-GM	15-15.4': Olive gy (5 Y 4/2) SAND, med; 15.4-17.0': Olive gy (5 Y 5/2) SAND, v fine to fine, silty & gravelly (~15% each), wet, strong odor.

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 - 1.6" 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

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BOREHOLE LOG
SB07-19

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. / DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
SS		2.0' /2.0'		187 /269	2 13 17 21		SP / SP-GP	20-20.9': Lt olive bn (2.5 Y 5/3) SAND, med. 20.9-22.0': Olive (5 Y 4/3 to 5/3) gravelly sand to sandy gravel; wet; both zones have strong odor.
			773.8 / 25					
SS		1.1' /2.0'		194 /256	10 18 13 26		SW	25-25.4': Olive SAND, coarse to med, wet, odor. 25.4-26.1': Lt olive bn SAND, v fine to fine, silty & gravelly (~15% each) wet & w/ strong odor.
								Bottom of Boring @ 27 feet.
			768.8 / 30					
			763.8 / 35					
			758.8 / 40					
			753.8 / 45					
			748.8 / 50					
			743.8 / 55					

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BOREHOLE LOG
SB07-20

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Hollow-stem auger/Diedrich 50
Surface Elevation: 803.55 Ft.
Field Screening Instrument: OVM (scan/headspace)
Abandonment Method: Backfilled cuttings & bentonite chips
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 10-13-93 End 10-13-93
Drillers: Rick O'Gorman, Mark Thorson
Total Depth: 27 Ft.
Depth To Initial Water Level (GS): 16.5 Ft.
Borehole Coordinates:
N: 2028525.48 E: 2602279.06

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
			803.5 / 0					Topsoil
			798.5 / 5					
SS		2.0' /2.0'		0/0	2 6 10 9		CL / ML	5.0-5.4': Yel bn (10 YR 5/4) silty clay w/ ~4% granules & sm pebbles; moist, plastic. 5.4-7.0': Bn yel v fine sandy SILT, moist.
			793.5 / 10					
SS		1.4' /2.0'		2.8 /0.5	6 12 16 21		SP	10-11.4': Yel (10 YR 7/6 - 8/6) SAND, med, nearly dry.
			788.5 / 15					
SS		2.0' /2.0'		0.5 /0.1	6 18 20 10		SP / SM	15-17': Yel (10 YR 7/6) to bn yel (10 YR 6/8) SAND, med to coarse; silty v fine sand interbeds @ 15.4-16.5' Wet below 16.5, moist above. Also a clay lens @ 15.35'.

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:
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BX - 1.6" Rock Core
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HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample

OTHER:
AGS - Above Ground Surface

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BOREHOLE LOG
SB07-20

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
SS		1.3' /2.0'		13.3 18.2	15 10 19 13		SW-SM ML	20-20.8': Yel (10 YR 8/6 - 7/6) SAND, med, sl silty (~10%), saturated. 20.8-21.3': vpale bn (10 YR 7/4) sandy gravelly SILT w/ trace (~8%) clay, moist; gravel is subangular sm pebbles randomly distributed & oriented in sample; looks like a till. 20.8-21.3' zone has the highest organic vapor concentrations.
			778.5 / 25					
SS		0.9' /2.0'		0.1 /7.2	18 13 21 17		SW ML	25-25.4': Yel (10 YR 7/6) SAND, med to fine, sl silty (to 15% locally, avg <10%), trace granules (~4%), wet; 25.4-25.9': Lt yel bn (10 YR 6/4) sandy clayey SILT, moist; sand is v fine to coarse; poorly sorted & no bedding.
								Bottom of Boring @ 27 feet.
			773.5 / 30					
			768.5 / 35					
			763.5 / 40					
			758.5 / 45					
			753.5 / 50					
			748.5 / 55					

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BOREHOLE LOG
SB07-21

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Mud Rotary/Diedrich 50
Surface Elevation: 808.64 Ft.
Field Screening Instrument: OVM (scan/headspace)
Abandonment Method: Backfilled cuttings & bentonite chips
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 10-13-93 End 10-13-93
Drillers: Rick O'Gorman, Mark Thorson
Total Depth: 17 Ft.
Depth To Initial Water Level (GS): not encountered
Borehole Coordinates:
N: 2028228.27 E: 2602622.27

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
			808.6 / 0				ML	Topsoil
			803.6 / 5					
SS		1.2' /2.0'		2.2 /13.7	8 10 12 10		SW	5.0-6.2': Yel bn (10 YR 5/6) gravelly SAND, coarse, moist; gravel is subrounded granules to med pebbles & ~20%.
			798.6 / 10					
SS		1.8' /2.0'		188 /170	18 19 26 17		ML	10.0-11.8': Lt yel bn (2.5 YR 6/3-6/4) to olive (5 Y 5/3) sandy gravelly clayey silt, moist, hard; sand & gravel sizes vary widely; gravel (~15%) is subangular and, like sand, is randomly distributed throughout sample & randomly oriented. Looks like till.
			793.6 / 15					
SS		2.0' /2.0'		256 /123	12 14 16 12		SM	15-17': Gy bn (2.5 Y 5/2) to black (2.5 Y 2.5/1) silty gravelly SAND, moist, w/ solvent odor; sand is v fine to coarse; gravel (~15%) is granules to med pebbles; unsorted & no bedding; some lenses or spheres of med to coarse sand are present.
								Bottom of Boring @ 17 feet.

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
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GP - Geoprobe
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SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample

OTHER:
AGS - Above Ground Surface

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BOREHOLE LOG
SB07-22

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Hollow-stem auger/Diedrich 50
Surface Elevation: 809.62 Ft.
Field Screening Instrument: OVM (scan/headspace)
Abandonment Method: Backfilled cuttings & bentonite chips
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 10-13-93 End 10-13-93
Drillers: Rick O'Gorman, Mark Thorson
Total Depth: 23.5 Ft.
Depth To Initial Water Level (GS): ~9 Ft.
Borehole Coordinates:
N: 2028171.05 E: 2602574.18

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
			809.6 / 0				ML	Topsoil
			804.6 / 5					
SS		2.0' /2.0'		0 /1.3	2 3 2 4		ML SP SW	5.0-5.3': Dk bn gy loam (soil); 5.3-6.3': bn yel (10 YR 6/6) SAND, fine @ top grading to v fine @ base; moist. 6.3-7.0': Bn yel (10 YR 6/6 to 6/8) SAND, med to coarse, moist, loc silty.
			799.6 / 10					
SS		1.3' /2.0'		6.8 /14.7	8 10 12 17		SW ML	10-11.1': Bn yel (10 YR 6/6) to lt olive bn (2.5 Y 5/4) SAND, wet, fine to v coarse, bedded, loc silty & loc gravelly (up to 15%, each in different zones); 11.1-11.3': bn yel (10 YR 6/6) sandy gravelly SILT, w/trace clay; not bedded, moist.
			794.6 / 15					
SS		1.3' /2.0'		10.6 /3	22 38 50 /0.3'		SP ML	15.0-15.3': Lt yel bn (10 YR 6/4) SAND, med to coarse; gravelly @ top 0.1'; wet. 15.3-16.3': Lt yel bn (2.5 Y 6/4-6/3) sandy clayey SILT w/~8% gravel as subangular sm pebbles which are randomly distributed & oriented (i.e. not having preferred orientation) in sample; sand is v fine to v coarse; poorly sorted, moist.

EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
SSA - Solid Stem Auger
HA - Hand Auger
AR - Air Rotary
DTR - Dual Tube Rotary
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SAMPLING TYPES:
AS - Auger/Grab Sample
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BX - 1.6" 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

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BOREHOLE LOG
SB07-22

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
SS	SB07-22D	0.8' /2.0'		132 /201	19 50 /0.3'		ML-SW	20-20.5': Lt olive bn (2.5 Y 5/3-5/4) sandy gravelly silt w/trace (~10% estimated) clay. 20.5-20.6': Olive bn (2.5 Y 4/3) gravelly SAND, wet, med to coarse. 20.6-20.8': Lt olive bn sandy gravelly silt as @ 20.0-20.5'.
								Bottom of Boring @ 23.5 feet.

784.6 / 25
779.6 / 30
774.6 / 35
769.6 / 40
764.6 / 45
759.6 / 50
754.6 / 55

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BOREHOLE LOG
SB07-23

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Mud Rotary/Diedrich 50
Surface Elevation: 812.28 Ft.
Field Screening Instrument: OVM
Abandonment Method: Backfilled cuttings & bentonite chips
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 10-14-93 End 10-14-93
Drillers: Rick O'Gorman, Mark Thorson
Total Depth: 42 Ft.
Depth To Initial Water Level (GS): ~10.5 Ft.
Borehole Coordinates:
N: 2028133.48 E: 2602722.35

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. / DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
			812.3 / 0				ML	Topsoil
SS		1.3' /2.0'	807.3 / 5	0/2.4	15 9 12 13		SW	5.0-6.3': Yel (10 YR 7/8) sand, v coarse to med @ 5.0-5.5' & med @ 5.5-6.3'; moist.
SS		1.3' /2.0'	802.3 / 10	0.5 /3.7	15 15 20 17		SM-ML	10-10.2': Bn yel (10 YR 6/6) SAND, moist, med to coarse. 10.2-10.5': Bn yel (10 YR 6/8) sandy gravelly SILT, moist; gravel is subangular; not bedded. 10.5-11.3': Bn yel (10 YR 6/6) SAND, coarse @ 10.5-10.6', med @ 10.6-11.1' & grading to a silty v fine sand @ 11.1-11.3; the latter zone is ~50-50% silt-sand. Note: wet @ 10.5' & below.
SS		1.2' /2.0'	797.3 / 15	222 /167	20 38 50 /0.2'		ML	15-16.2': Lt bn gy to lt olive bn (2.5 Y 6/2-5/6) sandy silt w/some (~8%) gravel & clay (<10%). Sand is v fine to v coarse; poorly sorted; gravel is granules to med pebbles & subangular; moist; a fracture @ 15.8 has the highest organic vapor concentrations; 10-100 ppm organic vapors elsewhere.

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 - 1.6" 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

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BOREHOLE LOG
SB07-23

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
SS		0.8' /2.0'		195 /144	48 50 /0.2'		ML ML	20-20.8': Lt olive bn (2.5 Y 5/4-5/6) sandy gravelly SILT as in 15-17' sample but gravel ~15%; probably a till.
			787.3 / 25					
SS		2.0' /2.0'		13.3 /60.5	4 3 6 8		ML	25-27': Gy bn (2.5 Y 5/2) to olive bn (2.5 Y 5/3) sandy clayey gravelly silt (~25,25,15,35%); sand is v fine to v coarse; gravel is granules to sm pebbles, subangular & multilithologic (carbonate, chert, igneous); organic vapor concentrations roughly constant; moist to wet.
			782.3 / 30				GW	
SS		1.5' /2.0'		63.3 /34.2	15 23 22 28		GW-SW	30-31.5': Olive to olive gray (5 Y 4/3) sandy gravel (30.0-30.8) to gravelly sand (30.8-31.5'), saturated, strong odor. Gravel is med pebbles to granules & is subangular to subrounded; 60% gravel in top (30-30.8), 25% below 30.8; sand v coarse to med in upper zone, coarse in lower zone.
			777.3 / 35					
SS		1.5' /2.0'		22.5 /14.4	15 15 22 13		GW-GW	35-36.5': Lt olive bn to olive yel (2.5 Y 5/3-6/6) gravelly sand to sandy gravel; sand is med to v coarse; saturated; slight odor; gravel is rounded to subangular granules to med pebbles, & is 5-50% of sample (avg 25%); highest VOC's are in 35.0-35.8 & 36.4-36.5' zones.
			772.3 / 40					
SS	SB7-23G	1.6' /2.0'		9.8 /4.4	15 20 22 25		SW	40-41.6': Lt yel bn gravelly SAND (2.5 Y 6/4); sand is v coarse to med, avg coarse; gravel is rounded to subangular granules to med pebbles. Saturated; v slight odor @ top.
			767.3 / 45					Note: 9.8 ppm organic vapors only @ 40.0-40.3'; below 40.3 concentrations are 0.0-2.2, most below 1.5 ppm
			762.3 / 50					*Bottom of Boring @ 42 feet.*
			757.3 / 55					

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BOREHOLE LOG
SB07-24

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Hollow-stem auger/BK81
Surface Elevation: 791.23 Ft.
Field Screening Instrument: OVM (headspace)
Abandonment Method: Backfilled cuttings & bentonite chips
Logged By: S. S. Bhagat

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 09-24-93 End 09-24-93
Drillers: Paul Dickinson, Mike Nelson
Total Depth: 26 Ft.
Depth To Initial Water Level (GS): ~4 Ft.
Borehole Coordinates:
N: E: [none]

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. / DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
			791.2 / 0					Upper 4' is black muck with strong solvent-like odor.
SS	SB7-24A	20" /24"	786.2 / 5	22 ppm	2 1 3 4		SM-GM	Brown, gravelly & silty fine sand; appears saturated. Water observed in bore hole @~3' depth.
SS		20" /24"	781.2 / 10	18 ppm	4 4 4 5		SM-GM	Brown, gravelly & silty fine sand. Odor is still present.
SS		19" /24"	776.2 / 15	2 ppm	6 8 8 8		SM-GM	Brown, gravelly & silty fine sand.
SS		16" /24"		0.2 ppm	6 10		SP	Top 2" is brown, well sorted fine to med sand;

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 - 1.6" 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

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BOREHOLE LOG
SB07-24

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
SS		16" /24"		0.2 ppm	11 13		ML	Bottom 14" is gray, gravelly silt. Appears dry to slightly moist.
SS	SB7-24B (silt zone)	19" /24"	766.2 / 25	BG & 5 ppm	10 10 14 17		SM-ML	Upper 12" is brown, gravelly and silty fine sand; lower 7" is gray silt. Brown sand & silt headspace measured separately. Silt is essentially dry & sand is moist. Silt headspace=BG; Sand headspace=5ppm.
								Bottom of Boring @ 26 feet.

761.2 / 30
756.2 / 35
751.2 / 40
746.2 / 45
741.2 / 50
736.2 / 55

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BOREHOLE LOG
SB11-01

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Mud Rotary/Diedrich 50
Surface Elevation: ~730 Ft.
Field Screening Instrument: OVM (scan/headspace)
Abandonment Method: Backfilled cuttings & bentonite chips
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 08-25-93 End 08-25-93
Drillers: Rick O'Gorman, Mark Thorson
Total Depth: 52 Ft.
Depth To Initial Water Level (GS): ~28 Ft.
Borehole Coordinates:
N: E: [none]

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. / DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
			730 / 0				ML	Topsoil
			725 / 5					
SS		1.0' /2.0'		0 ppm	5 5 7 12		SP	Brown fine to med sand; dry.
			720 / 10					
SS		1.0' /2.0'		0 ppm	5 5 7 15		SP	Brown fine to med sand; dry.
			715 / 15					
SS		1.5' /2.0'		0 ppm	9 18 25 13		SP	Brown fine to med sand; dry.

EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
SSA - Solid Stem Auger
HA - Hand Auger
AR - Air Rotary
DTR - Dual Tube Rotary
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SAMPLING TYPES:
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CS - California Sampler
BX - 1.6" 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

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BOREHOLE LOG

SB11-01

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. / DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
SS		1.5' /2.0'		0 ppm	5 8 12 15		SP	Brown fine to med sand; dry.
			705 / 25					
SS		1.5' /2.0'		4.2 /0.4	7 8 12 16		SP	Grey med to coarse sand; moist; odor.
			700 / 30					
SS		1.1' /2.0'		3.3 /0.8	6 10 17 18		SP	30.0-30.4': Grey SAND, fine; 30.4-31.1: grey sand, med to coarse; saturated.
			695 / 35					
SS	SB11-01G	1.1' /2.0'		80.5 /134.4	10 11 12 10		SP	Mod-dk gray sand, sticky & odoriferous, coarse-med, wet. Some gravel (~20%).
			690 / 40					
SS		1.2' /2.0'		26.7 /16.6	10 12 16 15		SP-GP	Mod-dk gy SAND, gravelly, similar odor but not as intense as 35' sample; gravel ~25% & is subrdd pebbles; saturated.
			685 / 45					
SS		1.4' /2.0'		13.3 /0.4	7 8 18 10		SP-GP	Sand, gravelly, as above but less odor than @ 40'.
			680 / 50					
SS	SB11-01J	1.2' /2.0'		0/0	10 11 16 23		SP	Mod grayish bn SAND, ~8% gvl (subrdd), coarse-med; no odor; wet.
			675 / 55					*Bottom of Boring @ 52 feet.*

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BOREHOLE LOG
SB11-02

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Mud Rotary/Diedrich 50
Surface Elevation: ~730 Ft.
Field Screening Instrument: OVM (scan/headspace)
Abandonment Method: Backfilled cuttings & bentonite chips
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 08-25-93 End 08-25-93
Drillers: Rick O'Gorman, Mark Thorson
Total Depth: 32 Ft.
Depth To Initial Water Level (GS): ~24 Ft.
Borehole Coordinates:
N: E: [none]

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
			730 / 0				ML	Topsoil
SS		1.2' /2.0'	725 / 5	0/0 ppm	4 5 8 11		SW	5.0-5.4': Dk bn SAND, med-coarse, sl silty; 5.4-6.2': Mod-lt bn SAND, med-coarse, dry.
SS		1.3' /2.0'	720 / 10	0/0 ppm	3 6 12 10		SP	Lt yel bn SAND, slightly moist, med to fine.
SS		1.3' /2.0'	715 / 15	0/0 ppm	12 28 25 19		SP	Lt yel bn SAND, fine to med, moist to dry.

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
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SAMPLING TYPES:
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BX - 1.6" 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

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BOREHOLE LOG
SB11-02

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
SS	SB11-02D	1.1' /2.0'		0/0 ppm	7 10 12 17		SP	Lt yel bn SAND, med to fine, moist to dry.
			705 / 25					
SS		1.0' /2.0'		0/0 ppm	7 9 10 12		SP	Mod yel bn SAND, med, tr subang pebbles, saturated & "flowing". No odor.
			700 / 30					
SS		0.8' /2.0'		0/0 ppm	8 9 15 10		SP	Lt gy bn SAND, coarse to v coarse, w/~8% subrounded-subang gravel mainly in 15 degree (angle to horizontal) interbeds w/gravel-free sand. Wet.
								Bottom of Boring @ 32 feet.
			695 / 35					
			690 / 40					
			685 / 45					
			680 / 50					
			675 / 55					

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BOREHOLE LOG
SB11-03

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Mud Rotary/Diedrich 50
Surface Elevation: ~730 Ft.
Field Screening Instrument: OVM (scan/headspace)
Abandonment Method: Backfilled cuttings & bentonite chips
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 08-26-93 End 08-26-93
Drillers: Rick O'Gorman, Mark Thorson
Total Depth: 32 Ft.
Depth To Initial Water Level (GS): ~20 Ft.
Borehole Coordinates:
N: E: [none]

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
			730 / 0				ML	Topsoil
SS		1.2' /2.0'	725 / 5	0/0 ppm	3 6 4 9		SP	Mod-lt bn SAND, coarse to med, nearly dry.
SS		0.8' /2.0'	720 / 10	0/0 ppm	7 9 10 13		SP	Lt yel bn SAND, med, w/ 1-2mm orange-bn laminations @ ~15 degree angle to horizontal; nearly dry.
SS		1.1' /2.0'	715 / 15	0/0 ppm	7 8 10 15		SP	15.0-15.5': Mod yel bn SAND, med-fine, moist. 15.5-16.1': Lt yel bn SAND, med-coarse, tr (~2%) subrdd pebbles, dry.

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
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DTC - Drill Through Casing

SAMPLING TYPES:
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CS - California Sampler
BX - 1.6" 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

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BOREHOLE LOG
SB11-03

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. / DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
SS	SB11-03D	1.0' /2.0'		0/0 ppm	7 10 16 13		SP-SW	Mod yel bn SAND, tr bn silt; coarse to med, exc. 20.7-21.0' which is med-fine. Wet.
			705 / 25					
SS		1.0' /2.0'		0/0 ppm	6 10 20 8		SP	Mod yel bn SAND, med to coarse; flows easily, due to high water content.
			700 / 30					
SS		1.2' /2.0'		0/0 ppm	5 8 6 18			Mod gy bn to yel bn SAND, coarse & ranging from med to v coarse; bedded; ~3% granules & sm pebbles, subrdd.
								Bottom of Boring @ 32 feet.
			695 / 35					
			690 / 40					
			685 / 45					
			680 / 50					
			675 / 55					

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BOREHOLE LOG
SB11-04

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Mud Rotary/Diedrich 50
Surface Elevation: ~730 Ft.
Field Screening Instrument: OVM (scan/headspace)
Abandonment Method: Backfilled cuttings & bentonite chips
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 08-26-93 End 08-26-93
Drillers: Rick O'Gorman, Mark Thorson
Total Depth: 62 Ft.
Depth To Initial Water Level (GS): ~22 Ft.
Borehole Coordinates:
N: E: [none]

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. / DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
			730 / 0				ML	Topsoil
			725 / 5					
SS		1.3' /2.0'		0/0	3 3 6 10		SP	Lt yel bn SAND, coarse to med, nearly dry.
			720 / 10					
SS		1.1' /2.0'		0/0	4 8 13 6		SP	Lt yel bn SAND, med, v well sorted, nearly dry.
			715 / 15					
SS		1.0' /2.0'		0/0	10 12 16 9		SP	Mod-lt yel bn, SAND, med, nearly dry; contains fine bedding laminations <= 1mm thick.

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
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CT - Cable Tool
JET - Jetting
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DTC - Drill Through Casing

SAMPLING TYPES:
AS - Auger/Grab Sample
CS - California Sampler
BX - 1.6" 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

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BOREHOLE LOG
SB11-04

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
SS		1.3' /2.0'		0/0	12 18 20 5		SP-GP	Mod-lt yel bn gravelly SAND, w/sand being med to coarse; gravel is sm-med pebbles & granules which are rounded to subangular. One cm fine-v fine sand layer @ 21.1'; it has rusty-colored margins top & bottom. Moist but not saturated.
			705 / 25				SP	
SS		1.5' /2.0'		0/0	7 18 22 13			Brown med to fine sand w/small gravel in top .5' of sample; saturated.
			700 / 30					
SS		1.5' /2.0'		20 /45	8 10 19 13		SP	Brown med to fine sand, solvent odor; saturated.
			695 / 35					
SS	SB11-04G	2.0' /2.0'		223 /247	8 14 22 13		SP	Brown med to fine sand and coarse gravel in top .5' of sample. Strong solvent odor; saturated.
			690 / 40					
SS		1.5' /2.0'		40 /57	9 18 12 15		SP	Grey sand, med to fine, w/sm gravel mostly quartz; solvent odor not strong; saturated.
			685 / 45					
SS		2.0' /2.0'		8 /34	6 14 30 22		SP	Brown grey coarse sand w/ med gravel & rocks; no odor; saturated.
			680 / 50					
SS		2.0' /2.0'		8 /27	12 14 16 16		SP	Brown fine to med sand; no odor; saturated.
			675 / 55					
SS		2.0' /2.0'		0/7	12 14 18 18		SP	Brown fine to med sand w/sm gravel; no odor; saturated.
							SP	

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BOREHOLE LOG
SB11-04

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
SS	SB11-04L	2.0' /2.0'		0/1.5	6 8 19 12		SP	Brown fine sand; no gravel; no odor.
								Bottom of boring @ 62 feet.
			665/65					
			660/70					
			655/75					
			650/80					
			645/85					
			640/90					
			635/95					

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BOREHOLE LOG
SB11-05

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Mud Rotary/Diedrich 50
Surface Elevation: ~730 Ft.
Field Screening Instrument: OVM (scan/headspace)
Abandonment Method: Backfilled cuttings & bentonite chips
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 08-26-93 End 08-26-93
Drillers: Rick O'Gorman, Mark Thorson
Total Depth: 57 Ft.
Depth To Initial Water Level (GS): ~15 Ft.
Borehole Coordinates:
N: E: [none]

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
			730 / 0				ML	Topsoil
SS		0.9' /2.0'	725 / 5	0/0 ppm	3 6 4 10		SP	Mod-lt yel bn SAND, med, tr pebbles, sm & subrdd, nearly dry.
SS		0.7' /2.0'	720 / 10	0/0 ppm	4 4 5 8		SP	Lt yel bn SAND, coarse to med, tr sm subrdd pebbles, nearly dry.
SS		1.4' /2.0'	715 / 15	14.3 /3.2	6 10 8 11		SP	Mod yel bn to mod gray SAND, v fine to coarse, w/ moderate solvent/oil odor; the brown is clean, but the gray (sharp color gradation w/gray below 15.5') is the VOC-bearing zone. 15.0-15.3' is fine yel bn SAND, 15.3-15.5' is v fine yel bn SAND, 15.5-16.2' is v fine gray SAND, laminated & VOC-bearing, 16.2-16.4' is med-coarse lt-mod gy SAND, VOC-bearing. Saturated w/ product, water below 15.5'; apparently water-saturated above that.

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 - 1.6" 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

CAMP DRESSER & McKEE

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BOREHOLE LOG
SB11-05

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
SS		0.8' /2.0'		1.8 /4.6	8 12 18 15		SP	Mod bn gy SAND, med to coarse; contains 3 subhoriz dk gy zones that register the higher VOC values, each 1-3 mm thick. Wet.
			705 / 25					
SS		1.1' /2.0'		3.6 /9.2	9 14 18 10		SP	Mod bn gy SAND, med to coarse, wet w/water & some product.
			700 / 30					
SS		1.3' /2.0'		16.6 7.4	11 18 10 14		SP-SW	Mod bn gy to mod by SAND, coarse & ranging from v coarse (mainly @ 31.0-31.3') to med. Wet. Highest VOC's are @ 30.7-31.3'.
			695 / 35					
SS		1.4' /2.0'		102 /86.8	8 9 14 11		SP	Mod gray SAND, fine to coarse, ~5% sm pebbles. VOC's throughout; wet.
			690 / 40					
SS	SB11-05H	1.3' /2.0'		120 /87.5	12 14 10 13		SP-SW	Mod gy SAND, v coarse to med, w/~10% gravel as subrounded to subang granules to med pebbles. Highest VOC's are 40.4-41.3', esp. 40.8-41.3' which has sticky & silty interstices & is med-grained (the finest zone).
			685 / 45					
SS		1.4' /2.0'		1.8 /9.2	10 14 18 13		SP	Mod gy SAND, v coarse to med; a granule & sm pebb zone (subang) @ 45.2-45.4' has ~1 ppm VOC's; 45.4-45.7' has 1.8 ppm, & the zones above 45.2 & below 45.7' have < 0.5 ppm, even though odor is mod stong & color is mod gray, particular in lower zone (upper zone is bn gy).
			680 / 50					
SS		1.1' /2.0'		0.4 /2.3	14 18 19 13		SP	Mod bn gy to mod gy SAND, v coarse to med. The 50.0-50.2' zone is mod gy bn SAND, coarse; 50.2-50.3' is granules & sm pebbles, subang-subrdd; 50.3-51.1' is mod bn gy SAND, v coarse to med & contains the 0.4 ppm hit. Also has ~10% subrdd med-sm pebbles.
			675 / 55					
SS	SB11-05K	1.4' /2.0'		0.8 /2.7	10 30 25 20		SP	Mod bn gy SAND, med to v coarse, ~2% pebbles; wet & has slight odor.
								Bottom of Boring @ 57 feet.

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BOREHOLE LOG
SB11-06

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Mud Rotary/Diedrich 50
Surface Elevation: ~730 Ft.
Field Screening Instrument: OVM (scan/headspace)
Abandonment Method: Backfilled cuttings & bentonite chips
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 08-30-93 End 08-31-93
Drillers: Rick O'Gorman, Mark Thorson
Total Depth: 47 Ft.
Depth To Initial Water Level (GS): ~19 Ft.
Borehole Coordinates:
N: E: [none]

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
			730 / 0				ML	Topsoil
SS		1.0' /2.0'	725 / 5	0/0	2 3 3 5		SP	Lt yel bn SAND, med to coarse, dry.
SS		1.1' /2.0'	720 / 10	0/0	3 4 6 8		SP	Mod-lt yel bn SAND, med, nearly dry; contains some rusty-colored spots, each ~1-3mm.
SS		1.5' /2.0'	715 / 15	0/0	7 16 21 28		SP	Mod-lt yel bn SAND, med-coarse @ 15.0-15.6' & med-fine @15.6-16.5'. Subhoriz. laminations visible; moist.

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 - 1.6" 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

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BOREHOLE LOG
SB11-06

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
SS		1.5' /2.0'		0/0	10 13 17 32		SP	Mod-lt bn SAND, med-coarse; saturated; tr subrounded pebbles (~2%), med-sm.
			705 / 25					
SS		1.2' /2.0'		0/0	5 14 15 19		SP	Mod-lt bn SAND, coarse-med; moist but not saturated; tr sm pebbles, subrdd (~2%).
			700 / 30					
SS		1.2' /2.0'		0 /3.2	5 10 14 15		SP	Mod-lt yel bn SAND, med to coarse, ~5% subrdd sm pebbles w/ subhorizontal orientation; saturated.
			695 / 35					
SS	SB11-06G	1.0' /2.0'		79.9 /40.2	7 7 10 17		SP	Mod gy to mod yel bn SAND, v coarse to coarse @ 35.0-35.4' & med @ 35.4-36.0'. The grey zone (35.2-36.0') is from product, & emits odor & has the VOC hits. Highest hit @ 35.3' where there's a clayey v coarse sand. Elsewhere up to 11.2 ppm.
			690 / 40					
SS		1.5' /2.0'		20.9 /33.1	8 11 12 19		SP	Mod gy sand w/ some (10%) gravel; sand is v coarse to coarse; tr (~5%) gray silt/clay; gravel is subrdd to subang sm-med pebbles; saturated.
			685 / 45					
SS	SB11-06I	1.4' /2.0'		0 /0.4	9 12 16 20		SP	Mod yel bn SAND, coarse to med, some zones of v coarse sand & granules as subhoriz layers; gravel trace (~7%) as subrounded sm-med pebbles; saturated.
			680 / 50					*Bottom of Boring @ 47 feet.*
			675 / 55					

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BOREHOLE LOG
SB11-07

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Mud Rotary/Diedrich 50
Surface Elevation: ~730 Ft.
Field Screening Instrument: OVM (scan/head space)
Abandonment Method: Backfilled cuttings & bentonite chips
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 08-31-93 End 09-01-93
Drillers: Rick O'Gorman, Mark Thorson
Total Depth: 57 Ft.
Depth To Initial Water Level (GS): ~28 Ft.
Borehole Coordinates:
N: E: [none]

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
			730 / 0				ML	Topsoil
SS		1.3' /2.0'	725 / 5	0/0	2 4 6 7		SP	Lt yel bn SAND, coarse to med. Dry.
SS		1.3' /2.0'	720 / 10	0/0	3 3 5 6		SP	Lt yel bn SAND, coarse to med. Dry.
SS		1.2' /2.0'	715 / 15	0/0	9 11 24 28		SP	Lt yel bn SAND, med, nearly dry; low angle bedding (~15%) visible.

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
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CT - Cable Tool
JET - Jetting
D - Driving
DTC - Drill Through Casing

SAMPLING TYPES:
AS - Auger/Grab Sample
CS - California Sampler
BX - 1.6" 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

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BOREHOLE LOG
SB11-07

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
SS		1.2' /2.0'		0/0	10 11 17 23		SP	Lt to mod yel bn SAND, med, moist.
			705 / 25					
SS		1.2' /2.0'		0/-	8 12 15 17		SP	Lt yel bn SAND, med from 25-25.8' & coarse from 25.8-26.2'. Med zone is moist to wet; coarse zone is dry. Trace subrdd pebbles (~5%) in med zone. The 25.8' transition from med to coarse is sharp & horizontal.
			700 / 30					
SS		1.3' /2.0'		3.2/330	10 12 19 25		SP	Lt gy bn SAND, coarse to v coarse, wet; ~5% subrdd sm to med pebbles.
			695 / 35					
SS	SB11-7G	1.5' /2.0'		>1000 />1000	8 8 14 20		SP	Gy bn SAND, coarse to v coarse, ~10% gravel as granules to med pebbles; strong odor.
			690 / 40					
SS		1.6' /2.0'		>1000 />1000	11 17 22 29		SW	Mod gy SAND, gravelly (subrdd med to sm pebbles ~15%); sand is coarse & not well sorted, ranging from med to v coarse; strong odor.
			685 / 45					
SS		1.5' /2.0'		20.8 /79.9	8 10 14 18		SW	Mod gy gravelly SAND, coarse & ranging from med to v coarse sand; gravel is ~20% & is subrdd med to sm pebbles; odor; saturated.
			680 / 50					
SS		1.6' /2.0'		43.5 /91.9	9 13 15 22		SP	Mod gy SAND w/~10% gravel as subrdd sm pebbles & granules; sand is coarse, ranging med to v coarse. Wet.
			675 / 55					
SS	SB11-7K	1.3' /2.0'		8.0 /53.3	14 26 37 41		SP	Mod bn gy SAND, coarse to v coarse @ 55.0-55.4'; med @ 55.4-55.8'; med to coarse @ 55.8-56.3'. Wet.
								Bottom of Boring @ 57 feet.

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BOREHOLE LOG
SB11-08

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Mud Rotary/Diedrich 50
Surface Elevation: ~730 Ft.
Field Screening Instrument: OVM (scan/headspace)
Abandonment Method: Backfilled cuttings & bentonite chips
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 08-30-93 End 08-30-93
Drillers: Rick O'Gorman, Mark Thorson
Total Depth: 47 Ft.
Depth To Initial Water Level (GS): ~24 Ft.
Borehole Coordinates:
N: E: [none]

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
			730 / 0				ML	Topsoil
SS		0.9' /2.0'	725 / 5	0/0	3 3 4 7		SP	Lt yel bn SAND, med-coarse, nearly dry.
SS		0.9' /2.0'	720 / 10	0/0	4 5 4 7		SP	Lt yel bn SAND, med, nearly dry; contains mod yel bn laminations @ 20 degree angle to horizontal; each ~2mm thick.
SS		1.0' /2.0'	715 / 15	0/0	8 13 24 26		SP	Sand as in 10-12' sample but laminations are subhorizontal; moist.

EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
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CT - Cable Tool
JET - Jetting
D - Driving
DTC - Drill Through Casing

SAMPLING TYPES:
AS - Auger/Grab Sample
CS - California Sampler
BX - 1.6" 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

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BOREHOLE LOG
SB11-08

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
SS		1.2' /2.0'		0/0	8 10 14 20		SP	Lt yel bn SAND, med @ 20.0-20.5' & coarse @ 20.5-21.2'; moist. Tr pebbles, <2%.
			705 / 25					
SS		1.2' /2.0'		0/0	6 13 18 21		SP	Lt bn SAND, coarse to med, tr gravel as granules & sm pebbles (~2%); saturated.
			700 / 30					
SS		1.3' /2.0'		0 /11.2	5 9 12 17		SP	Mod gy bn SAND, gravelly (~15%) w/ med pebbles to granules, subrounded to subang; sand coarse, ranging from med to v coarse; saturated.
			695 / 35					
SS	SB11-08G	1.4' /2.0'		2509 /394	9 15 17 18		SP-GP	35-36.2': Mod-dk grey, gravelly SAND; sand is coarse to v coarse & gravel is subrdd to subang med-sm pebbles. 36.2-36.4' is med-coarse sand, lt bn & w/OVM readings of ~175 ppm. The zone 35.4-36.2' has readings of up tp 2509 ppm & slight odor, but not the diesel-type odor noted @ borings SB11-01 & SB11-05. In head-space reading, this high-VOC zone is diluted by lower-VOC zones. Saturated.
			690 / 40					
SS		1.6' /2.0'		30.6 /3.2	10 15 17 19		SP	Lt bn SAND, coarse, ranging from v coarse to med; ~8% subrdd gravel as med to sm pebbles. Saturated.
			685 / 45					
SS	SB11-08I	1.4' /2.0'		1.6 /9.6	9 14 15 15		SP	Lt bn-mod bn SAND, med-coarse, tr gravel as sm pebbles, saturated. Local zones only have elevated VOC's.
			680 / 50					*Bottom of Boring @ 47 feet.*
			675 / 55					

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BOREHOLE LOG
SB11-09

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Mud Rotary/Diedrich 50
Surface Elevation: ~730 Ft.
Field Screening Instrument: OVM (scan/head space)
Abandonment Method: Backfilled cuttings & bentonite chips
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 08-31-93 End 08-31-93
Drillers: Rick O'Gorman, Mark Thorson
Total Depth: 42 Ft.
Depth To Initial Water Level (GS): ~24 Ft.
Borehole Coordinates:
N: E: [none]

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
			730 / 0				ML	Topsoil
SS		1.3' /2.0'	725 / 5	0/0	3 5 6 8		SP	Lt yel bn SAND, med to coarse, dry; subhorizontal layering.
SS		1.0' /2.0'	720 / 10	0/0.4	2 5 8 13		SP	Lt yel bn SAND, med, nearly dry.
SS		1.2' /2.0'	715 / 15	0/0.8	5 10 12 16		SP	Lt yel bn SAND, med, trace (~2%) subrdd sm to med pebbles; moist.

EXPLANATION OF ABBREVIATIONS

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HSA - Hollow Stem Auger
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SAMPLING TYPES:
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BX - 1.6" 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

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BOREHOLE LOG
SB11-09

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
SS		1.1' /2.0'		0/0.4	6 8 11 18		SP	Lt yel bn SAND, med to fine, bedding @ 25 degrees to horizontal; dry.
			705 / 25					
SS		1.2' /2.0'		0/0.4	5 7 12 14		SP	Lt-mod yel bn SAND, med, w/heavy mineral concentrations in laminae @ 20 degrees to horizontal; saturated.
			700 / 30					
SS		1.2' /2.0'		0/1.3	11 11 15 21		SP	Lt-mod gy bn SAND, med @ 30.0-30.7' & coarse to v coarse @ 30.7-31.2'; few subrdd pebbles @ 30.7-31.2'; saturated. Pebbles also subangular as well as subrdd.
			695 / 35					
SS	↑ SB11-9G ↓	1.2' /2.0'		0/4.4	9 14 15 11		SP	Lt-mod gy bn SAND, some gravel (10%) as subrdd granules to med pebbles; sand is coarse & ranges from v coarse to med. Wet.
			690 / 40					
SS		1.4' /2.0'		0/4.4	6 8 13 14		SP	SAND as above; Saturated.
			685 / 45					*Bottom of Boring @ 42 feet.*
			680 / 50					
			675 / 55					

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BOREHOLE LOG
SB11-10

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Mud Rotary/Diedrich 50
Surface Elevation: ~730 Ft.
Field Screening Instrument: OVM (scan/headspace)
Abandonment Method: Backfilled cuttings & bentonite chips
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 09-01-93 End 09-01-93
Drillers: Rick O'Gorman, Mark Thorson
Total Depth: 52 Ft.
Depth To Initial Water Level (GS): ~28 Ft.
Borehole Coordinates:
N: E: [none]

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
			730 / 0				ML	Topsoil
SS		1.0' /2.0'	725 / 5	0/0	2 5 6 6		SP	Bn Med SAND, sm gravel; dry.
SS		1.0' /2.0'	720 / 10	0/0	4 10 11 13		SP	Bn med well sorted sand; dry.
SS		2.0' /2.0'	715 / 15	0.7 /0.1	7 10 13 15		SP	15-15.4': Mod yel bn SAND, v fine, wet. 15.4-16': mod to dk gray v fine SAND, wet to moist; 16-17': Lt bn med SAND, moist to dry.

EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
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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:
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CS - California Sampler
BX - 1.6" 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

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BOREHOLE LOG
SB11-10

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
SS		1.2' /2.0'		3.2 /0.1	5 8 16 18		SP	Lt yel bn SAND, med, nearly dry.
			705 / 25					
SS		1.1' /2.0'		5.0 /0.4	6 11 11 13		SP	Lt bn gy SAND, med to coarse; moist; odor.
			700 / 30					
SS		1.2' /2.0'		13.0 /5.6	7 9 15 24		SP	Mod bn gy SAND, coarse but ranging from v coarse to med; ~8% subrdd sm pebbles & granules; wet & has odor.
			695 / 35					
SS	SB11-10G	1.4' /2.0'		500 /320	9 10 13 17		SP	Mod bn gy gravelly SAND, coarse to v coarse; gravel is ~20% & is subrdd med to sm pebbles. Strong diesel-like odor.
			690 / 40					
SS		1.2' /2.0'		450 /280	8 10 17 24		SP	Mod bn gray SAND, coarse to med; gravel is ~10% & is subrdd pebbles, sm to med. Strong odor. Wet.
			685 / 45					
SS		1.3' /2.0'		20 /11	10 12 18 23		SP-SW	Mod bn gy gravelly SAND; gravel is subrdd to rounded sm to med pebbles & granules, & is 40% of sample. Sand is coarse to v coarse. Wet. Odor.
			680 / 50					
SS	SB11-10J	1.0' /2.0'		1.5 /18	8 12 16 21		SP	Mod gy bn SAND, coarse to v coarse, w/~8% subrdd gravel as granules to sm pebbles; slight odor; wet.
			675 / 55					*Bottom of Boring @ 52 feet.*

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BOREHOLE LOG
SB12-01

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Mud Rotary/Diedrich 50
Surface Elevation: 735 Ft.
Field Screening Instrument: OVM (scan/headspace)
Abandonment Method: Backfilled cuttings & bentonite chips
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 12-01-93 End 12-01-93
Drillers: Scott Buttke, Chad Willemsen
Total Depth: 47 Ft.
Depth To Initial Water Level (GS): ~33 Ft.
Borehole Coordinates:
N: E: [none]

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. / DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
			735 / 0				GC	Gravel (parking lot)
SS		1.5' /2.0'	730 / 5	4.3 /6.0	1 1 2 3		CL-SC	Mod-dk bn silty sandy clay, moist, w/some coal & cinders
SS		1.8' /2.0'	725 / 10	38.4 /30.0	1 1 1 1		SP	Mod bn SAND, med to fine, wet but not saturated.
SS		1.7' /2.0'	720 / 15	44.0 /7.0	4 5 6 6		SP	Lt yel bn SAND, nearly dry, med to fine; organic vapor hits are in the interval of 15.0-16.5'.

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 - 1.6" 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

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BOREHOLE LOG
SB12-01

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
SS	SB12-01D	1.8' /2.0'		158 /73.0	3 7 14 23		SP-SM	Mod to lt bn SAND, med to fine & w/a silty vfine sand @ 20.4-20.6 that is wet; elsewhere moist.
			710 / 25					
SS		1.8' /2.0'		54.5 /62.0	3 11 18 24		SP-SM	25.0-25.2': Silty vfine yel bn SAND, wet. 25.2-26.8': Lt yel bn SAND, med., moist.
			705 / 30					
SS		1.5' /2.0'		29.3 /16.0	11 24 30 26		SP	Lt yel bn SAND, med to fine, si moist.
			700 / 35					
SS		1.5' /2.0'		58.0 /115	7 13 14 18		SP	Mod to lt yel bn SAND, med to fine, saturated throughout.
			695 / 40					
SS	SB12-01H	2.0' /2.0'		10.4 /8.0	1 1 7 8		SP	Mod grayish bn SAND, coarse to med, trace (~2%) sm subangular to subrounded pebbles; saturated.
			690 / 45					No sample collected due to 7' of heave in hole.
								Bottom of Boring @ 47 feet.
			685 / 50					
			680 / 55					

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BOREHOLE LOG
SB12-02

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Mud Rotary/Diedrich 50
Surface Elevation: 735 Ft.
Field Screening Instrument: OVM (headspace)
Abandonment Method: Backfilled cuttings & bentonite chips
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 12-01-93 End 12-01-93
Drillers: Scott Buttke, Chad Willemsen
Total Depth: 42 Ft.
Depth To Initial Water Level (GS): ~33 Ft.
Borehole Coordinates:
N: E: [none]

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
			735 / 0				ML	Topsoil
SS		1.2' /2.0'	730 / 5	0.0	1 2 2 2		SC	Mod bn clayey silty sand, moist.
SS	SB12-02B	1.4' /2.0'	725 / 10	0.0	3 4 6 6		SP	Lt yel bn fine to med sand; nearly dry.
SS		1.5' /2.0'	720 / 15	0.0	3 4 4 5		SP	Lt yel bn med to fine sand; moist.

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 - 1.6" 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

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BOREHOLE LOG
SB12-02

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
SS		1.6' /2.0'		0.0	3 5 7 10		SP	Lt yel bn med sand, moist.
			710 / 25					
SS		1.6' /2.0'		0.0	5 13 14 25		SP	Lt yel bn SAND, med to fine, moist.
			705 / 30					
SS		1.7' /2.0'		1.0	7 12 18 21		SP	Lt yel bn SAND, med to fine, sl moist; no silt or clay observed here or in any samples @10' & below
			700 / 35					
SS		1.8' /2.0'		9.0	8 11 13 10		SP	Mod to lt yel bn SAND, med to fine, saturated.
			695 / 40					
SS	SB12-02H	1.6' /2.0'		22.0	5 3 7 13		SP	Mod to lt yel bn SAND, coarse (ranges from vcoarse to med); ~5% subrounded gravel as med to sm pebbles; saturated. No odor or discoloration.
								Bottom of Boring @ 42 feet.
			690 / 45					
			685 / 50					
			680 / 55					

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BOREHOLE LOG
SB12-03

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Mud Rotary/Diedrich 50
Surface Elevation: 735 Ft.
Field Screening Instrument: OVM (scan/headspace)
Abandonment Method: Backfilled cuttings & bentonite chips
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 12-01-93 End 12-01-93
Drillers: Scott Buttke, Chad Willemsen
Total Depth: 42 Ft.
Depth To Initial Water Level (GS): ~33 Ft.
Borehole Coordinates:
N: E: [none]

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
			735 / 0				GC	Gravel (parking lot)
SS		1.7' /2.0'	730 / 5	203 /108	3 3 4 6		CL-SM	Dk grayish bn silty sandy clay, moist.
SS	SB12-03B	2.0' /2.0'	725 / 10	438 /178	2 3 4 5		SP	Mod-dark bn gray SAND, med; has strong solvent odor, discoloration & sticky consistency, especially @ 11.5-12.0'
SS		1.8' /2.0'	720 / 15	308 /188	3 2 3 4		SP	Dark to mod bn gray SAND, med to fine, w/solvent odor & consistency but OVM readings mostly <75ppm (considerably less than at 10-12' throughout length of sample)

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 - 1.6" 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

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BOREHOLE LOG
SB12-03

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
SS		1.5' /2.0'		15.4 /24	3 2 3 4		SP-SM	20.0-20.3': Yel bn saturated silty v fine sand, contains VOC concentrations of 1.0-15.4ppm. 20.3-21.5': Lt yel bn SAND med to fine, sl moist; contains VOC's at 0-1.8ppm.
			710 / 25					
SS		1.6' /2.0'		5.1 /5.1	7 11 13 14		SP	Lt yel bn SAND, med to fine, sl moist.
			705 / 30					
SS		1.7' /2.0'		17.7 /12.8	8 13 15 21		SP	Lt yel bn SAND, med to fine, w/several v thin (<=1mm) mod bn v fine sand laminae, subhorizontal. Moist.
			700 / 35					
SS		1.7' /2.0'		30.8 /-	3 3 5 7		SP	Mod yel bn SAND, med w/~3% subrounded med-sized pebbles; saturated.
			695 / 40					
SS	SB12-03H	1.5' /2.0'		34.4 /-	5 7 8 13		SP	Mod grayish bn SAND, med to coarse, ~7% med subrounded pebbles; saturated.
			690 / 45					*Bottom of Boring @ 42 feet.*
			685 / 50					
			680 / 55					

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BOREHOLE LOG
SB12-04

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Mud Rotary/Diedrich 50
Surface Elevation: ~735 Ft.
Field Screening Instrument: OVM (scan/headspace)
Abandonment Method: Backfilled cuttings & bentonite chips
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 12-02-93 End 12-02-93
Drillers: Scott Buttke, Chad Willemsen
Total Depth: 42 Ft.
Depth To Initial Water Level (GS): ~33 Ft.
Borehole Coordinates:
N: E: [none]

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
			735 / 0				GC	Gravel (parking lot)
SS		0.2' /2.0'	730 / 5	0/0	4 3 3 4		ML	Dk gray bn silty sandy clay soil, moist.
SS		1.5' /2.0'	725 / 10	0/0	4 6 8 8		SP	Lt yel bn SAND, med to fine, nearly dry.
SS		1.8' /2.0'	720 / 15	0/0	3 4 6 8		SP	Lt yel bn SAND, med, loose, nearly dry.

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 - 1.6" 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

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BOREHOLE LOG
SB12-04

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
SS		1.6' /2.0'		3.0 /9.0	5 7 8 10		SP-SM	Lt yel bn SAND, med to fine, moist loose, w/several layers of 5-30mm each of silty, v fine sand, wet, and a 2mm silty clay, also wet.
			710 / 25					
SS		1.8' /2.0'		17.4 /10.0	5 8 14 18		SP-SM	Lt yel bn SAND, med to fine, moist; a silty v fine sand, wet, @ 25.2-25.3'.
			705 / 30					
SS	SB12-04F	1.6' /2.0'		11.3 /0.0	9 15 21 24		SP	Lt yel bn SAND, med to fine, nearly dry.
			700 / 35					
SS		1.8' /2.0'		10.0 /40.4	4 3 5 8		SP	Mod yel bn SAND, med grained & ranging from coarse to fine, saturated.
			695 / 40					
SS	SB12-04H	1.4' /2.0'		7.2 /33.0	3 5 6 8		SP	Mod yel bn SAND, med to coarse, w/~4% gravel as sm to med subrounded pebbles.
			690 / 45					*Bottom of Boring @ 42 feet.*
			685 / 50					
			680 / 55					

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BOREHOLE LOG
SB12-05

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Mud Rotary/Diedrich 50
Surface Elevation: ~735 Ft.
Field Screening Instrument: OVM (scan/headspace)
Abandonment Method: Backfilled cuttings & bentonite chips
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 12-02-93 End 12-02-93
Drillers: Scott Buttke, Chad Willemsen
Total Depth: 42 Ft.
Depth To Initial Water Level (GS): 35.3 Ft.
Borehole Coordinates:
N: E: [none]

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
			735 / 0				ML	Topsoil
SS		1.6' /2.0'	730 / 5	0.0 /0.0	4 5 6 11		ML-SM	Dk gy bn clayey sandy silt, slightly moist; soil.
SS		2.0' /2.0'	725 / 10	0.0 /0.0	4 3 4 5		SP	Mod yel bn sand, med @ 10.0-10.8' & med to fine @10.8-12.0; moist.
SS		2.0' /2.0'	720 / 15	0.0 /5.0	2 1 1 1		SP	Dk gray bn SAND, med to fine, wet w/dk gray slightly sticky material that gives no response on OVM, so may be degraded organic peat/muck.

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 - 1.6" 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

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BOREHOLE LOG
SB12-05

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
SS	SB12-05D	1.4' /2.0'		1.4 /9.0	1 2 3 3		SP-SM SM SP SP	20-20.5': Greenish-gray sand, sticky & wet; 20.5-20.9': Mod grayish bn silty vfine sand, wet. 20.9-21.4': Lt yel bn sand, moist.
			710 / 25					
SS		1.4' /2.0'		0.0 /0.0	2 4 6 9		SP	Lt yel bn SAND, med to fine, nearly dry.
			705 / 30					
SS	SB12-05F	1.5' /2.0'		0.0 /0.0	5 8 16 14		SP	Lt yel bn SAND, med to fine, sl moist, loose.
			700 / 35					
SS		1.6' /2.0'		5.5 /68.0	3 4 5 9		SP	Mod yel bn SAND, med; trace (~3%) sm pebbles; saturated @35.3'.
			695 / 40					
SS		1.5' /2.0'		3.2 /53.0	5 7 9 14		SP	Mod yel bn SAND, med to coarse; ~8% sm subrounded pebbles; saturated.
			690 / 45					*Bottom of Boring @ 42 feet.*
			685 / 50					
			680 / 55					

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BOREHOLE LOG
SB12-06

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Mud Rotary/Diedrich 50
Surface Elevation: ~735 Ft.
Field Screening Instrument: OVM (scan/headspace)
Abandonment Method: Backfilled cuttings & bentonite chips
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 12-02-93 End 12-02-93
Drillers: Scott Buttke, Chad Willemsen
Total Depth: 42 Ft.
Depth To Initial Water Level (GS): ~33 Ft.
Borehole Coordinates:
N: E: [none]

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
			735 / 0				ML	Topsoil
SS		1.5' /2.0'	730 / 5	0.0 /0.0	3 2 3 4		SC-SM / SP	5.0-5.4': Dk bn clayey silty sand, moist; 5.4-6.5': Mod bn sand, med, loose, sl moist.
SS		1.3' /2.0'	725 / 10	0.0 /0.0	3 4 7 9		SP	Lt yel bn sand, med to fine, loose, nearly dry.
SS		1.8' /2.0'	720 / 15	0.0 /0.0	4 3 4 6		SP	Lt yel bn sand, med to fine, loose, nearly dry.

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 - 1.6" 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

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BOREHOLE LOG
SB12-06

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. / DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
SS		1.6' /2.0'		0.0 /0.6	5 5 5 6			Lt yel bn sand, med to fine, loose, nearly dry.
			710 / 25					
SS		1.5' /2.0'		0.0 /0.2	4 5 7 8		SP	Lt yel bn SAND, med, loose, nearly dry.
			705 / 30					
SS	SB12-06F	1.5' /2.0'		0.0 /2.2	4 5 7 19		SP	Lt yel bn sand, med to coarse, loose, sl moist.
			700 / 35					
SS		1.8' /2.0'		2.2 /13.3	5 7 9 14		SP-SM SP	35-35.5': Fine (35.0-35.3') to slity vfine (35.3-35.5) SAND, saturated. 35.5-36.8': Mod yel bn SAND, coarse to vcoarse & w/trace granules. Wet.
			695 / 40					
SS	SB12-06H	0.7' /2.0'		0.2 /5.5	6 10 11 14		SP	Mod bn SAND, coarse to med, saturated.
								Bottom of Boring @ 42 feet.
			690 / 45					
			685 / 50					
			680 / 55					

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BOREHOLE LOG
SB12-07

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Mud Rotary/Diedrich 50
Surface Elevation: ~735 Ft.
Field Screening Instrument: OVM (scan/headspace)
Abandonment Method: Backfilled cuttings & bentonite chips
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 12-03-93 End 12-03-93
Drillers: Scott Buttke, Chad Willemsen
Total Depth: 42 Ft.
Depth To Initial Water Level (GS): ~33 Ft.
Borehole Coordinates:
N: E: [none]

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
			735 / 0				ML	Topsoil
SS		1.9' /2.0'	730 / 5	0.0 /0.0	3 5 6 6		ML / SP	5.0-6.2': Black to bn clayey sandy silt topsoil. 6.2-6.9': Mod bn SAND, med to fine, moist, loose.
SS		1.4' /2.0'	725 / 10	0.0 /0.0	2 1 1 2		SW-SC / SP / SW-SC / SP	10-10.5' & 10.9-11.4': Mod bn SAND, fine to med, slightly clayey, moist. 10.5-10.9': Lt yel bn SAND, med, sl moist.
			720 / 15					[No recovery]

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
JET - Jetting
D - Driving
DTC - Drill Through Casing

SAMPLING TYPES:
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BX - 1.6" Rock Core
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GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample

OTHER:
AGS - Above Ground Surface

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BOREHOLE LOG
SB12-07

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
SS		0.8' /2.0'		1.0 /0.0	7 5 11 12		SP	Lt yel bn SAND, med to fine, moist.
			710 / 25					
SS		1.5' /2.0'		0.0 /0.0	6 11 13 16		SP	Lt yel bn SAND, med, loose, sl moist.
			705 / 30					
SS	SB12-07F	1.4' /2.0'		0.0 /0.0	5 7 11 9		SP	Lt yel bn SAND, med to fine, loose, slightly moist.
			700 / 35					
SS		2.0' /2.0'		0.0 /0.0	5		SP	Lt yel bn SAND, med to coarse, w/~3% subrounded pebbles which are mainly @ 36.2-36.4'; saturated.
			695 / 40					
SS	SB12-07H	2.0' /2.0'		0.0 /0.2	5 10 15 17		SP	Lt to mod yel bn SAND, coarse, w/~12% gravel as sm to med pebbles which are subrounded & concentrated in certain beds; saturated.
			690 / 45					*Bottom of Boring @ 42 feet.*
			685 / 50					
			680 / 55					

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BOREHOLE LOG
SB14-01

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Hollow-stem auger/Diedrich 50
Surface Elevation: ~730 Ft.
Field Screening Instrument: HNU (scan/headspace)
Abandonment Method: Backfilled cuttings & bentonite chips
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 06-25-93 End 06-25-93
Drillers: Rick O'Gorman, Mark Thorson
Total Depth: 37 Ft.
Depth To Initial Water Level (GS): ~33 Ft.
Borehole Coordinates:
N: E: [none]

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
			730 / 0					Asphalt
SS		2.0' /2.0'	725 / 5	0/0 ppm	5 10 4 11		Fill SP	5-5.6': Blk topsoil w/brick frags; 5.6-7.0': Or bn to lt bn sand, med, loose, moist.
SS		2.0' /2.0'	720 / 10	0/0 ppm	3 5 8 16		SP	10-12': Or bn to lt bn SAND, fine to med, moist esp @ 10-10.5', loose, w/horizontal laminae
SS		2.0' /2.0'	715 / 15	0/0 ppm	15 7 9 14		SP	15-17': Lt bn SAND, med grained, moist, w/mod bn narrow bands @ 25 degree angle.

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 - 1.6" 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

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BOREHOLE LOG
SB14-01

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
SS		2.0' /2.0'		0/0 ppm	15 11 14 10		SP	20-22': Lt bn SAND, med to coarse, moist but not wet.
			705 / 25					
SS		2.0' /2.0'		0/0 ppm	13 9 12 20		SP	25-27': SAND as above.
			700 / 30					
SS		2.0' /2.0'		0/0 ppm	10 11 8 22		SP	30-32': SAND as above.
			695 / 35					
SS	SB14-01G	2.0' /2.0'		0/0 ppm	6 6 6 5		SP	35-37': SAND as above, but a few cobbles up to 2" diameter; saturated.
								Bottom of Boring @ 37 feet.
			690 / 40					
			685 / 45					
			680 / 50					
			675 / 55					

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BOREHOLE LOG
SB14-02

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Hollow-stem auger/Diedrich 50
Surface Elevation: ~730 Ft.
Field Screening Instrument: HNU (scan/headspace)
Abandonment Method: Backfilled cuttings & bentonite chips
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 06-25-93 End 06-28-93
Drillers: Rick O'Gorman, Mark Thorson
Total Depth: 52 Ft.
Depth To Initial Water Level (GS): ~33 Ft.
Borehole Coordinates:
N: E: [none]

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
			730 / 0				ML	Asphalt
SS		2.0' /2.0'	725 / 5	0/0 ppm	21 4 6 10		SP	Mod-lt bn SAND, fine to med, loose, nearly dry.
SS		2.0' /2.0'	720 / 10	0/0 ppm	6 3 5 8		SP	10-12': SAND as above.
SS		2.0' /2.0'	715 / 15	0/0 ppm	40 10 10 14		SP	SAND as above, fine @ 15-15.5' & medium @ 15.5-17'.

EXPLANATION OF ABBREVIATIONS

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HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample

OTHER:
AGS - Above Ground Surface

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BOREHOLE LOG
SB14-02

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
			705/25					
SS		2.0'/2.0'		0.5/-	6 2 4 16		SP	SAND as @ 5-7'.
			700/30					
SS	SB14-02E	2.0'/2.0'		1/0	2 2 6 16		SP	SAND as @ 5-7'.
			695/35					
SS		2.0'/2.0'		2/15	4 4 6 13		SP	SAND as @ 5-7', but gray & w/an odor; saturated.
			690/40					
SS		2.0'/2.0'		2/2	7 10 12 8		SP	SAND as @ 5-7', w/odor & containing a few (5%) pebbles.
			685/45					
SS		2.0'/2.0'		not working/3	16 23 19 28		SP	SAND as @ 5-7', sl odor; med to coarse; lt to med gray.
			680/50					
SS								Sample not collected because of leakage of sand into hole along joints of augers.
			675/55					*Bottom of Boring @ 52 feet.*

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BOREHOLE LOG
SB14-03

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Hollow-stem auger/Diedrich 50
Surface Elevation: ~730 Ft.
Field Screening Instrument: HNU (scan/headspace)
Abandonment Method: Backfilled cuttings & bentonite chips
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 06-28-93 End 06-28-93
Drillers: Rick O'Gorman, Mark Thorson
Total Depth: 17 Ft.
Depth To Initial Water Level (GS): Not encountered
Borehole Coordinates:
N: E: [none]

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
			730 / 0					Asphalt
SS	SB14-03A		725 / 5	1/1.5	16 24 18 30		SM / SP	Black oil-saturated silty sand @ 5-6.2'; sharp transition there to a moist to wet bn sand, med to fine.
SS			720 / 10	0.2/0	8 6 8 11		SP	Lt bn sand, fine to med, nearly dry, exc moist @ top.
SS	SB14-03C		715 / 15	0/0	21 13 11 12		SP	Lt bn sand, med to fine, nearly dry.
								Bottom of Boring @ 17 feet.

EXPLANATION OF ABBREVIATIONS

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FR - Foam Rotary
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SAMPLING TYPES:
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CS - California Sampler
BX - 1.6" 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

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BOREHOLE LOG
SB14-04

Client: IEPA
Project Number: 1681-007
Drilling Contractor: WTD Environmental Drilling
Drilling Method/Rig: Hollow-stem auger/Diedrich 50
Surface Elevation: ~730 Ft.
Field Screening Instrument: HNU (scan/headspace)
Abandonment Method: Backfilled cuttings & bentonite chips
Logged By: Mark Sorensen

Project Name: Southeast Rockford
Project Location: Rockford, IL
Drilling Date: Start 06-28-93 End 06-28-93
Drillers: Rick O'Gorman, Mark Thorson
Total Depth: 37 Ft.
Depth To Initial Water Level (GS): ~33 Ft.
Borehole Coordinates:
N: E: [none]

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. / DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
			730 / 0				ML	Topsoil
			725 / 5					
SS				0/0 ppm	20 4 3 10		SP-SM	Mod-lt bn SAND, moist, w/several dk bn gy silty loam layers (subhorizontal).
			720 / 10					
SS				0/0 ppm	12 4 3 6		ML / SP	10-10.5': Dk bn sandy clayey SILT, w/several sand layers; 10.5-11.5': mod bn SAND, fine, moist; 11.5-12.0': lt bn SAND, coarse-med, nearly dry.
			715 / 15					
SS				0/0 ppm	4 3 4 8		SP	15-17': Lt bn SAND, med-coarse, nearly dry, some bedding visible @ ~15 degree angle to horizontal.

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
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GP - Geoprobe
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BOREHOLE LOG
SB14-04

SAMPLE TYPE	SAMPLE NUMBER	SAMPLE RECOVERY	ELEV. DEPTH	FIELD INSTRU. READING	BLOWS PER 6 INCH	GRAPHIC LOG	USCS CLASS.	MATERIAL DESCRIPTION
			705 / 25					
SS				0/0 ppm	3 2 5 8		SP	SAND as @ 15-17', but moist & nearly saturated. 2 very thin, fine interbeds.
			700 / 30					
SS				0/0 ppm	8 7 13 20		SP	30-32': SAND as @ 15-17', moist, w/numerous interbeds of sl finer & darker grains (heavy minis).
			695 / 35					
SS	SB14-04F			0/0 ppm	6 4 12 15		SP	SAND as @ 15-17', saturated.
			690 / 40					*Bottom of Boring @ 37 feet.*
			685 / 45					
			680 / 50					
			675 / 55					