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**APPENDIX A.6**  
**D9 AREA GEOTECHNICAL BORINGS**  
**D908 THROUGH D911**

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# BORING LOG

<b>CLIENT:</b> Confidential <b>SITE NAME:</b> Cottage Grove, MN Facility <b>PROJECT NO.:</b> 02181-002-050-0001 <b>Area Name:</b> D9 DISPOSAL AREA <b>Drilling Contractor:</b> AET <b>Drilling Equipment:</b> ATV Auger Rig <b>Logged By:</b> J. Hunter <b>Area Description:</b> Along the perimeter fence at north end of D9	<b>SITE ID:</b> D908 <b>DATE:</b> 12/9/2008 <b>ELEV (gnd):</b> <b>NORTHING:</b> <b>EASTING:</b> Depth to Water (ft bgs): na Total Boring Depth (ft bgs): 54 Depth to Refusal (ft bgs): na Boring Diameter (inches): 6.5 Location Type: ( ) GeoProbe ( ) Well (X ) Soil Boring ( ) Other: Completion Zone: (X) Overburden ( ) Bedrock Completion Type: ( ) Monitoring Well (X) Abandoned by Grout ( ) Other (Provide Comments)
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Core Interval	Sample Interval (ft bgs)	Blow Count			n-value	Recovery	Moisture	Color	Strength	PID	Column	Lithologic Description
		6"	6"	6"								
0-2	0 2	3	6	5	8	11	Dry		Soft			Dark brown sandy CLAY
2-4	2 4	9	10	11	11	21	Dry		Soft	0.0		Light brown silty SAND, some organics
4-6	4 5	8	9	9	10	18	Dry		Soft	0.0		As above
6-8	5 6								Soft	0.0		Tan sandy SILT
8-10	6 7.5	8	8	9	12	17	Dry		Soft	0.0		Tan sandy SILT
10-12	7.5 8								Soft	0.0		Black organic sandy CLAY, rooty
12-14	8 10	6	6	6	7	12	Mst		Soft	0.0		Black organic sandy CLAY, rooty with red iron staining
14-16	10 12	7	7	8	9	15	Mst		Soft	0.0		As above, darker SILT, iron staining
16-18	12 12.5	3	4	8	8	12	Dry		Soft	0.0		As above
18-20	13 14						Dry		Soft	0.0		Brown m.g. SAND, loose, to tan to very light brown f.g. sandy SILT, mottled
20-22	14 16	5	7	8	8	15	Dry		Soft	0.0		Dark brown to light brown to black interlayered sandy SILT and poorly sorted f.g. to c.g. SAND
22-24	16 18	5	6	6	7	12	Dry		Soft	0.1		Black as above, slight solvent odor. Gray sand at 17.75 fbg
24-26	18 20	4	4	4	3	8	Mst		Soft	0.1		Gray to black SAND, slight solvent odor, some silt
26-28	20 22					21.5	Mst		Soft			SHELBY TUBE, Gray m.g. to f.g. silty SAND
28-30	22 24	4	4	4	3	8	Mst		Soft	0.6		Black sandy SILT, slight solvent odor
30-32	24 26	2	4	4	4	8			Loose	1.1		Black silty SAND, solvent odor
32-34	26 28	3	4	4	4	8			Loose	2.8		Black silty SAND, solvent odor
34-36	28 30	3	3	4	4	7			Loose	4.0		Black silty SAND, solvent odor
36-38	30 32	3	4	4	5	8			Soft	7.6		Black silty SAND, solvent odor, some gray clay nodules
38-40	32 34					0			Soft	5.0		SHELBY TUBE, No Recovery
	34 36	3	5	5	5	10			Soft			Black silty SAND, solvent odor
	36 38	3	3	3	3	22			Soft	1.8		SHELBY TUBE, Black sandy clayey SILT
	38 40	5	8	10	9	18			Soft			Black silty SAND, solvent odor
	39.5 40											Brown m.g. SAND with gravel

Location: Boring at turn in fence north of Well 107

f.g., m.g., c.g. : Fine-, Medium-, and Coarse- f.bgs. : feet below ground surface  
 Moisture: Dry, Moist (Mst), Wet, Saturate Strength: Very Soft (V. Sft), Soft, Firm, Very Firm (V. F. Firm)

# BORING LOG

**SITE ID:** D908

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12/9/2008

**DATE:** 12/9/2008

**ELEV (gnd):** \_\_\_\_\_

**NORTHING:** \_\_\_\_\_

**EASTING:** \_\_\_\_\_

**Location Type:** ( ) GeoProbe ( ) Well  
(X) Soil Boring ( ) Other:

**Completion Zone:** (X) Overburden ( ) Bedrock

**Completion Type:** ( ) Monitoring Well  
(X) Abandoned by Grout  
( ) Other (Provide Comments)

**CLIENT:** Confidential

**SITE NAME:** Cottage Grove, MN Facility

**PROJECT NO.:** 02181-002-050-0001

**Area Name:** D9 DISPOSAL AREA

**Drilling Contractor:** AET

**Drilling Equipment:** ATV Auger Rig

**Logged By:** J. Hunter

**Area Description:** Along the perimeter fence at north end of D9

**Depth to Water (ft bgs):** na

**Total Boring Depth (ft bgs):** 54

**Depth to Refusal (ft bgs):** na

**Boring Diameter (inches):** 6.5

Core Interval	Sample Interval (ft bgs)	Blow Count				n-value	Recovery	Moisture	Color	Strength	PID	Column	Lithologic Description
		6"	6"	6"	6"								
40-42	40-42	4	5	7	6	12		Dry		Loose	0.3		Brown m.g. SAND, some silt
42-44	42-44	6	7	6	9	13		Dry		Loose	0.1		Light brown m.g. to f.g. SAND, some silt
44-46	44-46	7	8	7	8	15		Dry		Loose	0.3		Light brown m.g. to f.g. SAND, some silt
46-48	46-48	6	6	6	7	12		Dry		Loose	0.0		Light brown m.g. to f.g. SAND, some silt
48-50	48-50	7	8	8	12	16		Dry		Loose	0.0		Light brown m.g. to f.g. SAND, some silt
50-52	50-52	7	10	15	15	25		Dry		Loose	0.0		Light Grayish brown m.g. to f.g. SAND
52-54	52-54	11	11	13	15	24		Dry		Loose	0.0		Light Grayish brown m.g. to f.g. SAND
													Boring terminated at 54 fbg. Borehole abandoned with bentonite grout to the surface.

Location: Boring at turn in fence north of Well 107

f.g., m.g., c.g. : Fine-, Medium-, and Coarse- fbg. : feet below ground surface  
Moisture: Dry, Moist (Mst), Wet, Saturate Strength: Very Soft (V. Sft), Soft, Firm, Very Firm (V. Firm)

# BORING LOG

<b>CLIENT:</b> Confidential Cottage Grove, MN Facility <b>SITE NAME:</b> 02181-002-050-0001 <b>PROJECT NO.:</b> D9 DISPOSAL AREA <b>Area Name:</b> AET <b>Drilling Contractor:</b> ATV Auger Rig <b>Drilling Equipment:</b> J. Hunter <b>Logged By:</b> Along the perimeter fence at north end of D9 <b>Area Description:</b> Boring approximately 48 feet west along fence from D908.	<b>SITE ID:</b> D909 <b>DATE:</b> 12/9/2008 Page 1 of 1 <b>ELEV (gnd):</b> NORTHING: EASTING: Depth to Water (ft bgs) Total Boring Depth (ft bgs) Depth to Refusal (ft bgs) Boring Diameter (inches): Location Type: ( ) GeoProbe ( ) Well (X) Soil Boring ( ) Other: Completion Zone: (X) Overburden ( ) Bedrock Completion Type: ( ) Monitoring Well (X) Abandoned by Grout ( ) Other (Provide Comments)
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Core Interval	Sample Interval (ft bgs)	Blow Count			n-value	Recovery	Moisture	Color	Strength	PD	Column	Lithologic Description
		6"	6"	6"								
0-2	0	2	4	8	16	12	Mst	Munsell		0.0		Black organic silty SAND topsoil, frozen
2-4	2	4	14	15	12	11				0.0		Interlayered black and tan sandy SILT, rooty
4-6	4	6	8	10	10	12	Dry			0.0		As above, primarily tan sandy SILT, rooty, mottled color
6-8	6	8	5	7	9	9	Dry			0.0		Dark brown sandy SILT, red mottling due to iron staining
8-10	8	10	6	8	9	9	Dry			0.0		Dark brown sandy SILT with tan sand lenses
10-12	10	11.5	9	9	7	4	Dry			0.3		As above
12-14	12	14	5	4	5	5				0.0		Dark (stained) silty SAND, solvent odor
14-16	14	16.0	4	5	6	8	Dry			0.0		Black stained m.g. silty SAND, solvent odor
16-18	16	18	4	6	5	4				0.5		Black silty sand to sandy silt, solvent odor
18-20	18	20.0	4	4	4	5	Dry			2.8		Black silty sand to sandy silt, solvent odor, gravel at 17 fbs
20-22	20	22	3	3	2	3						Black Sand to silty sand, solvent odor
22-24	22	24	3	3	2	3	Dry			3.2		SHELBY TUBE, Black SAND to silty sand
24-26	24	26	2	2	3	4	Mst			4.5		Black silty sand, some gravel, solvent odor, no structure
26-28	26	28	1	3	3	3	Mst			14.7		Black silty SAND, solvent odor
28-30												Black silty sand to sandy silt, solvent odor
30-32	30	32	3	3	4	4				20.0		SHELBY TUBE, Black sandy silt
32-34	32	34	3	4	5	5				46.6		Black silty sand to sandy silt, solvent odor
34-36	34	36	4	4	5	5				13.9		Black silty sand to sandy silt, solvent odor, increased silt fraction
36-38	36	38	5	7	8	7				16.2		Black silty sand to sandy silt with gravel, poor recovery, solvent odor
38-40	38	40	4	5	6	7				13.4		Black sandy silt, solvent odor
40-42	40	42.0	4	5	5	6				6.9		Black to gray sandy silt, solvent odor
42-44	42	42.5	4	5	7	8				9.5		Black sandy silt to silt, solvent odor
42.5-43.5	42.5	43.5										Gray sand, may be natural soil
43.5-44	43.5	44										Brown c.g. to f.g. SAND
44-46	44	46	5	7	9	11				2.7		Brown c.g. to f.g. SAND, fine increase downward, some horizontal lamination and roots
53-55	53	55	7	10	10	10				0.1		Brown v.c.g. to f.g. SAND BORING TERMINATED AT 55 fbs

f.g., m.g., c.g. : Fine-, Medium-, and Coarse-gr. fbs. : feet below ground surface  
 Moisture: Dry, Moist (Mst), Wet, Saturated Strength: Very Soft (V. St), Soft, Firm, Very Firm (V. Fm)

# BORING LOG

<b>CLIENT:</b>	Confidential	<b>SITE ID:</b>	<b>D910</b>
<b>SITE NAME:</b>	Cottage Grove, MN Facility	<b>ELEV (gnd):</b>	
<b>PROJECT NO.:</b>	02181-002-050-0001	<b>NORTHING:</b>	
<b>Area Name:</b>	D9 DISPOSAL AREA	<b>EASTING:</b>	
<b>Drilling Contractor:</b>	AET	<b>Depth to Water (ft bgs):</b>	na
<b>Drilling Equipment:</b>	ATV Auger Rig	<b>Total Boring Depth (ft bgs):</b>	41
<b>Logged By:</b>	J. Hunter	<b>Depth to Refusal (ft bgs):</b>	na
<b>Area Description:</b>	Along the perimeter fence at north end of D9	<b>Boring Diameter (inches):</b>	8

Core Interval	Sample Interval (ft bgs)	Blow Count			n-Value	Recovery	Moisture	Color	Strength	PD	Column	Lithologic Description
		6"	6"	9"								
0-2	0-2	3	5	13	18		Dry	Firm	0.1			Dark brown organic sandy silt topsoil, rooty, mottled
2-4	2-4	10	13	14	27		Dry	Firm	0.0			Brown to light brown sandy silt to silt, rooty, frozen
4-6	4-6	9	10	8	18		Dry	Firm	0.3			Interlayered dark brown to tan silty sand and silt, some gravel, frozer
6-8	6-8	7	10	8	18		Dry	Soft	0.0			As above, not frozen
8-10	8-10	7	10	12	22		Dry	Soft	0.0			Interlayered dark brown to brown sandy silt and silt
10-12	10-12	10	10	10	20		Dry	Soft	0.0			Brown f.g. sand to silty sand, red iron staining
12-14	12-14	10	11	9	20		Dry	Soft	0.0			Brown sandy silt, abundant iron staining, some gravel
14-16	14-16	6	7	8	15		Dry	Soft	0.0			Brown sand to dark brown silty sand (no odor)
16-18	16-18	6	5	6	11		Dry	Soft	0.0			Dark brown sandy silt, gray clay laminae at 16.25 fbg, no odor
18-20	18-20	4	5	6	11		Mst	Soft	0.0			Dark brown sand to silty sand
20-22	20-22	4	5	4	9		Mst	Soft	0.0			As above with some m.g. gravel
22-24	22-24	4	5	5	10		Mst	Soft	0.0			Dark brown silty sand with gray silt laminae, some c.g. gravel and wood debris at 23.5 fbg.
24-26	24-26	5	4	6	10		Dry	Soft	0.0			As above
26-28	24.5-26	5	4	6	9		Dry	Soft	0.0			Brown to tan f.g. to c.g. sand, no apparent bedding features, no odor
28-30	26-28	5	4	6	10		Dry	Soft	0.0			Brown silty sand as above
30-32	28-30	7	5	5	10		Dry	Soft	0.0			Brown silty sand to sand, no apparent bedding features, no odor
32-34	34-36	6	26	20	46		Dry	Loose	0.0			As above
34-36	34-36	9	8	13	21		Dry	Loose	0.0			Brown c.g. to f.g. Sand
36-38	39-41											Boring terminated at 41 fbg.
38-40												Borehole abandoned with bentonite grout

Location: Boring approximately 37 feet east along fence from D908.

f.g., m.g., c.g. : Fine-, Medium-, and Coarse-gr. fbg. : feet below ground surface  
 Moisture: Dry, Moist (Mst), Wet, Saturated Strength: Very Soft (V. Sft), Soft, Firm, Very Firm (V. Frm)

# BORING LOG

<b>SITE ID:</b> D911	<b>Page 1 of 1</b>	<b>DATE:</b> 12/11/2008
<b>CLIENT:</b> Confidential		
<b>SITE NAME:</b> Cottage Grove, MIN Facility		
<b>PROJECT NO.:</b> 02181-002-050-0001		
<b>Area Name:</b> D9 DISPOSAL AREA		
<b>Drilling Contractor:</b> AET		
<b>Drilling Equipment:</b> ATV Auger Rig		
<b>Logged By:</b> J. Hunter		
<b>Area Description:</b> Along the perimeter fence at north end of D9		
<b>Location:</b> Boring approximately 92 feet west along fence from D908		
ELEV (gnd) _____ NORTHING: _____ EASTING: _____ Depth to Water (ft bgs) na Total Boring Depth (ft bgs) 31 Depth to Refusal (ft bgs) na Boring Diameter (inches): 8		
Location Type: ( ) GeoProbe ( ) Well (X) Soil Boring ( ) Other: Completion Zone: (X) Overburden ( ) Bedrock Completion Type: ( ) Monitoring Well (X) Abandoned by Grout ( ) Other (Provide Comments)		

Core Interval	Sample Interval (ft bgs)	Blow Count			n-value	Recovery	Moisture	Color	Strength	PID	Column	Lithologic Description
		6"	6"	6"								
0-9	0 9											Blind Drilled: Dark brown to brown sandy silt to silty sand, some roots, no odor
9-11	9 11	7	8	9	16		Dry	Soft	0.0			Dark brown silty sand, some roots and c.g. gravel
11-13	11 13	7	8	7	15		Dry	Soft	1.0			Dark brown silty sand, no odor
13-15	13 15	5	6	5	11		Dry	Soft	0.0			Dark brown silty sand with interlayers of tan to gray silt, some iron staining with trace c.g. gravel throughout, no odor
15-17	15 17	4	4	5	9		Mst	Soft	0.0			Dark brown silty sand, trace f.g. gravel
17-19	17 19	3	4	4	8		Mst	Soft	0.1			Dark brown silty sa, some iron staining, no odor
19-21	19 21	4	4	5	9		Dry	Soft	0.0			Dark brown sandy silt, some mottling due to iron staining
21-29	21 29											Blind Drilled
29-31	29 31	3	6	6	12		Dry	Loose	0.0			Brown to light brown sand, no apparent bedding features
												Boring terminated at 31.0
												Boring abandoned with bentonite grout.

f.g., m.g., c.g. : Fine-, Medium-, and Coarse-gr. frags. : feet below ground surface  
 Moisture: Dry, Moist (Mst), Wet, Saturated Strength: Very Soft (V. St), Soft, Firm, Very Firm (V. Frm)