



Project Number: **08-03-009**

Client: <b>City of South Bend</b>	Drilling Method: <b>Hollow Stem Auger</b>
Project: <b>Hannover Property</b>	Sampling Method: <b>split spoon</b>
Location: <b>731 West Chippewa Avenue, South Bend, Indiana</b>	Elevation:
Logged By: <b>DWM</b>	Time Terminated: <b>1030</b> Weather: <b>sunny, 70's</b>
Drilling Company: <b>Earth Exploration</b> Drillers: <b>Craig, Joe</b>	Completion Date: <b>June 30, 2008</b>

Depth (feet)	SOIL DESCRIPTION	Sample	REMARKS	PID (ppm)	Depth (feet)	WELL DIAGRAM
0	ASPHALT	1		0	0	Surface Casing
0	fine grained SAND, moist, 10 YR 3/2 very dark grayish brown	2		0		
5	fine grained SAND, moist, 10YR 4/3 brown	3		0	5	
5	fine to medium grained SAND, wet, 10 YR 4/3 brown	4		0		
5		5		0		
10		6		0.6	10	
10		7		0		
15	fine to medium grained SAND, saturated at 14 feet, 10 YR 4/3 brown	8		0	15	
15		9		0		
20		10		0	20	
20		11		0		
25	fine grained SAND, saturated, 10 YR 4/3 brown	12		0	25	
25		13		0		
30		14		0	30	
30		15		0.5		
35		16		0	35	
35		17		0		
35		18		0.3	35	Bentonite Seal
40		19		0.3		
40	fine grained SAND, saturated, 10YR 4/6 dark yellowish brown	20		0.2	40	
40		21		0.4		
45		22		0.6	45	
45		23		0.3		
45	fine grained SAND, saturated, 10YR 4/3 brown	24		0.6	45	
50		25		0.3	50	

WELL LOG 08-03-009 HANNOVER.GPJ WELL LOG.GDT 12/2/08

(Continued)



Project Number: **08-03-009**

Client: <b>City of South Bend</b>	Drilling Method: <b>Hollow Stem Auger</b>
Project: <b>Hannover Property</b>	Sampling Method: <b>split spoon</b>
Location: <b>731 West Chippewa Avenue, South Bend, Indiana</b>	Elevation:
Logged By: <b>DWM</b>	Time Terminated: <b>1030</b> Weather: <b>sunny, 70's</b>
Drilling Company: <b>Earth Exploration</b> Drillers: <b>Craig, Joe</b>	Completion Date: <b>June 30, 2008</b>

Depth (feet)	SOIL DESCRIPTION	Sample	REMARKS	PID (ppm)	Depth (feet)	WELL DIAGRAM
	fine grained SAND, saturated, 10YR 4/6 dark yellowish brown (Continued)	26		0		
	medium to coarse grained SAND, saturated, 10 YR 4/3 brown	27		23		
55	fine grained SAND, saturated, 10YR 4/6 dark yellowish brown	28		3.3	55	
		29		0.7		
		30		0.3		
60		31		0	60	
		32		0		
65	medium to coarse grained SAND, saturated, 10YR 4/3 brown	33		0	65	
		34		0		
		35		0		
70		36		0	70	
		37		0		
75		38		0	75	
		39		0		
		40		0		
80		41		0	80	
		42		0		
85		43		0	85	
		44		0		
90	fine grained SAND, saturated, 10YR 5/4 yellowish brown	46		0	90	
	CLAY, (90% clay, 10% very fine grained sand), very plastic, very hard, saturated, 10 YR 5/1 gray	47	2 inch band of 10 YR 5/8 yellowish brown color at 91 feet	0		
95		48		0	95	
	Boring terminated at 96 ft					
100					100	

WELL LOG 08-03-009 HANNOVER.GPJ WELL LOG.GDT 12/2/08



Project Number: **08-03-009**

Client: <b>City of South Bend</b>	Drilling Method: <b>Hollow Stem Auger</b>
Project: <b>Hannover Property</b>	Sampling Method: <b>split spoon</b>
Location: <b>731 West Chippewa Avenue, South Bend, Indiana</b>	Elevation:
Logged By: <b>DWM</b>	Time Terminated: <b>900</b> Weather: <b>sunny, 70's</b>
Drilling Company: <b>Earth Exploration</b> Drillers: <b>Craig, Joe</b>	Completion Date: <b>July 2, 2008</b>

Depth (feet)	SOIL DESCRIPTION	Sample	REMARKS	PID (ppm)	Depth (feet)	WELL DIAGRAM
	ASPHALT/CONCRETE	1		1.4		Surface Casing
	fine grained SAND, dry, 10YR 3/2 very dark grayish brown	2		0.9		
5	fine grained SAND with CONCRETE, moist, 10YR 4/6 dark yellowish brown	3		5.9	5	
	fine grained SAND with CONCRETE, moist, 10YR 4/3 brown	4		15		
10	fine to medium grained SAND, wet, 10YR 4/6 dark yellowish brown	5		3.4	10	
	very fine grained SAND, moist, 10YR 6/6 brownish yellow	6		8.7		
	fine to medium grained SAND, very wet, 10YR 5/4 yellowish brown	7		3.8		
15	fine to medium grained SAND, saturated at 14 feet, 10YR 5/4 yellowish brown	8		0	15	
		9		0		
		10		0		
20		11		1.1	20	
		12		2.6		
25		13		7.7	25	
		14		9.8		
30		15		8.1	30	
		16		0		
35	very fine to fine grained SAND, saturated, 10YR 5/4 yellowish brown	17		0		
		18		0	35	Bentonite Seal
		19		0		
40		20		0	40	
		21		0		
45		22		0	45	
		23		0		
		24		0		
50		25		0	50	

WELL LOG 08-03-009 HANNOVER.GPJ WELL LOG.GDT 12/2/08

(Continued)



Project Number: **08-03-009**

Client: <b>City of South Bend</b>	Drilling Method: <b>Hollow Stem Auger</b>
Project: <b>Hannover Property</b>	Sampling Method: <b>split spoon</b>
Location: <b>731 West Chippewa Avenue, South Bend, Indiana</b>	Elevation:
Logged By: <b>DWM</b>	Time Terminated: <b>900</b> Weather: <b>sunny, 70's</b>
Drilling Company: <b>Earth Exploration</b> Drillers: <b>Craig, Joe</b>	Completion Date: <b>July 2, 2008</b>

Depth (feet)	SOIL DESCRIPTION	Sample	REMARKS	PID (ppm)	Depth (feet)	WELL DIAGRAM
55	very fine to fine grained SAND, saturated, 10YR 5/4 yellowish brown (Continued)	26		0	55	
		27		0		
		28		0		
60	coarse grained SAND, saturated, 10YR 5/4 yellowish brown	29		0	60	
		30		0		
65	very coarse grained SAND, saturated, 10YR 5/6 yellowish brown	31		1.2	65	
		32		0.6		
70	very coarse grained SAND, saturated, 10YR 4/3 brown	33		0.3	70	
		34		0.4		
		35		0.5		
75	fine grained SAND, 10 YR 5/4 yellowish brown	36		0.5	75	
		37		0.3		
80	coarse grained SAND, saturated, 10 YR 5/4 yellowish brown	38		0.5	80	
		39		0.2		
		40		0.6		
85	fine grained SAND, saturated, 10YR 5/4 dark yellowish brown	41		1.0	85	
		42		1.6		
90	coarse grained SAND, saturated, 10 YR 4/4 dark yellowish brown	43		0	90	
		44		0		
95	fine grained SAND, saturated, 10YR 4/6 dark yellowish brown	45		0	95	
		46		0		
100	CLAY (90% clay, 10% fine grained sand), saturated, 10YR 6/1 gray					
	Boring terminated at 92 ft					

WELL LOG 08-03-009 HANNOVER.GPJ WELL LOG.GDT 12/2/08



Project Number: **08-03-009**

Client: <b>City of South Bend</b>	Drilling Method: <b>Hollow Stem Auger</b>
Project: <b>Hannover Property</b>	Sampling Method: <b>split spoon</b>
Location: <b>731 West Chippewa Avenue, South Bend, Indiana</b>	Elevation:
Logged By: <b>DWM</b>	Time Terminated: <b>910</b> Weather: <b>sunny, 70's</b>
Drilling Company: <b>Earth Exploration</b> Drillers: <b>Craig, Joe</b>	Completion Date: <b>July 7, 2008</b>

Depth (feet)	SOIL DESCRIPTION	Sample	REMARKS	PID (ppm)	Depth (feet)	WELL DIAGRAM
	CONCRETE/ASPHALT	1		0		Surface Casing
	fine grained SAND, dry, 10 YR 2/1 black	2		0		
	fine grained SAND, dry, 10YR 3/3 dark brown	3		0	5	
5	SANDY CLAY LOAM, moist, 10YR 2/2 very dark brown	4		0		
		5		0		
10	fine grained SAND, wet, 10YR 2/2 very dark brown	6		0	10	
	SANDY CLAY LOAM, very wet, 10YR 2/2 very dark brown	7		25.6		
15	fine grained SAND, very wet, 10YR 4/1 dark gray	8		30.7	15	
	SANDY LOAM, saturated at 14 feet, 10YR 4/1 dark gray	9		315.7		
20	fine to medium grained SAND, saturated, 10YR 4/1 dark gray	10		148.7	20	
	medium to coarse grained SAND, saturated, 10YR 5/3 brown	11		651		
25	fine grained SAND, heavy odor, saturated, 10YR 5/3 brown	12		460	25	
		13		357		
30	fine to medium grained SAND, saturated, 10YR 5/3 brown	14		314	30	
	fine grained SAND, saturated, 10YR 5/2 grayish brown	15		45.6		
		16		50.7		
		17		71.0		
35		18		1.8	35	Bentonite Seal
		19		10.3		
40	fine grained SAND, saturated, 10YR 5/4 yellowish brown	20		6.2	40	
	fine grained SAND, saturated, 10YR 5/3 brown	21		6.2		
		22		35		
45		23		21	45	
	fine grained SAND, saturated, 10YR 4/4 dark yellowish brown	24		10.2		
		25		16.4	50	

WELL LOG 08-03-009 HANNOVER.GPJ WELL LOG.GDT 12/2/08

(Continued)



Project Number: **08-03-009**

Client: <b>City of South Bend</b>	Drilling Method: <b>Hollow Stem Auger</b>
Project: <b>Hannover Property</b>	Sampling Method: <b>split spoon</b>
Location: <b>731 West Chippewa Avenue, South Bend, Indiana</b>	Elevation:
Logged By: <b>DWM</b>	Time Terminated: <b>910</b> Weather: <b>sunny, 70's</b>
Drilling Company: <b>Earth Exploration</b> Drillers: <b>Craig, Joe</b>	Completion Date: <b>July 7, 2008</b>

Depth (feet)	SOIL DESCRIPTION	Sample	REMARKS	PID (ppm)	Depth (feet)	WELL DIAGRAM
55	fine grained SAND, saturated, 10YR 4/4 dark yellowish brown (Continued)	26		23.2	55	
		27		4.0		
		28		2.0		
		29		4.0		
		30		1.5		
60	fine grained SAND, saturated, 10YR 5/4 yellowish brown	31		1.6	60	
		32		4.6		
65	coarse grained SAND, saturated, 10YR 5/6 yellowish brown	33		3.7	65	
		34		4.0		
70	fine to medium grained SAND, 10YR 5/4 yellowish brown	35		2.2	70	
		36		2.9		
		37		5.6		
75	medium to coarse grained SAND, saturated, 10YR 4/3 brown	38		0.6	75	
		39		1.0		
		40		1.1		
80	fine grained SAND, saturated, 10YR 5/4 yellowish brown	41		1.4	80	
		42		5.6		
85	fine grained SAND, saturated, 10YR 4/3 brown	43		21.6	85	
		44		21.2		
90	coarse grained SAND, saturated, 10YR 4/3 brown	45		7.0	90	
		46		16.0		
		47		0		
95	CLAY (90% clay, 10% fine grained sand), moist, very plastic, very hard, 10YR 6/1 gray	48		0	95	
100	Boring terminated at 96 ft					

WELL LOG 08-03-009 HANNOVER.GPJ WELL LOG.GDT 12/2/08



Project Number: **08-03-009**

Client: <b>City of South Bend</b>	Drilling Method: <b>Hollow Stem Auger</b>
Project: <b>Hannover Property</b>	Sampling Method: <b>split spoon</b>
Location: <b>731 West Chippewa Avenue, South Bend, Indiana</b>	Elevation:
Logged By: <b>DWM</b>	Time Terminated: <b>915</b> Weather: <b>sunny, 70's</b>
Drilling Company: <b>Earth Exploration</b> Drillers: <b>Craig, Joe</b>	Completion Date: <b>July 8, 2008</b>

Depth (feet)	SOIL DESCRIPTION	Sample	REMARKS	PID (ppm)	Depth (feet)	WELL DIAGRAM
	TOPSOIL, dry, 10YR 2/2 very dark brown	1		16.3		← Surface Casing
	fine grained SAND, moist, 10YR 3/2 very dark grayish brown	2		0		
5	fine grained SAND, moist, 10 YR 4/3 brown	3		0	5	
		4		0		
	SANDY LOAM, wet, 10YR 3/1 very dark gray	5		53.7		
10		6		3.0	10	
	SANDY LOAM, wet, 10YR 3/3 dark brown	7		0		
	fine grained SAND, wet, 10YR 4/3 brown	8		0	15	
15		9		0		▼
	fine grained SAND, saturated at 16 feet, 10YR 4/3 brown	10		0	20	
20		11		78.7		
	fine grained SAND, saturated, 10 YR 5/4 yellowish brown	12		220		
		13		295	25	
25		14		476		
		15		523		
30		16		386	30	
	coarse grained SAND, saturated, 10 YR 5/4 yellowish brown	17		80.4		
		18		53.2	35	← Bentonite Seal
35		19		31.3		
		20		47.8		
40		21		22.7	40	
	fine grained SAND, saturated, 10YR 5/4 yellowish brown	22		23.7		
		23		15.2	45	
45		24		19.7		
		25		57.7	50	

WELL LOG 08-03-009 HANNOVER.GPJ WELL LOG.GDT 12/2/08

(Continued)



Project Number: **08-03-009**

Client: <b>City of South Bend</b>	Drilling Method: <b>Hollow Stem Auger</b>
Project: <b>Hannover Property</b>	Sampling Method: <b>split spoon</b>
Location: <b>731 West Chippewa Avenue, South Bend, Indiana</b>	Elevation:
Logged By: <b>DWM</b>	Time Terminated: <b>915</b> Weather: <b>sunny, 70's</b>
Drilling Company: <b>Earth Exploration</b> Drillers: <b>Craig, Joe</b>	Completion Date: <b>July 8, 2008</b>

Depth (feet)	SOIL DESCRIPTION	Sample	REMARKS	PID (ppm)	Depth (feet)	WELL DIAGRAM
55	fine grained SAND, saturated, 10YR 5/4 yellowish brown (Continued)	26		5.2	55	
		27		1.2		
		28		2.8		
60	fine grained SAND, saturated, 10YR 5/6 yellowish brown	29		0.6	60	
		30		1.3		
65	fine grained SAND, saturated, 10YR 5/4 yellowish brown	31		0.7	65	
		32	medium to coarse grained SAND, saturated, 10YR 4/6 dark yellowish brown	0.4		
		33	coarse grained SAND, saturated, 10YR 5/6 yellowish brown	0.4		
70	coarse grained SAND, saturated, 10YR 5/6 yellowish brown	34		0.4	70	
		35		0.3		
		36	NO RECOVERY			
75	coarse grained SAND, saturated, 10YR 5/6 yellowish brown	37		0	75	
		38		0		
		39		0		
80	fine grained SAND, saturated, 10YR 5/4 yellowish brown	40		0	80	← #5 Quartz Sand Pack
		41		0		
		42		0		
85	fine grained SAND, saturated, 10YR 5/4 yellowish brown	43		0	85	← 2" PVC Sch. 40 0.010 Slot Screen
		44		0		
		45		0		
90	coarse grained SAND, saturated, 10YR 4/3 brown	46		0	90	
		47		0		
95	CLAY (90% clay, 10% fine sand), very plastic, very hard, moist, 2.5YR 4/1 dark gray	48		0	95	
			Boring terminated at 96 ft			
100					100	

WELL LOG 08-03-009 HANNOVER.GPJ WELL LOG.GDT 12/2/08





Project Number: **08-03-009**

Client: <b>City of South Bend</b>	Drilling Method: <b>Hollow Stem Auger</b>
Project: <b>Hannover Property</b>	Sampling Method: <b>continuous</b>
Location: <b>731 West Chippewa Avenue, South Bend, Indiana</b>	Elevation:
Logged By: <b>DWM</b>	Time Terminated: <b>1020</b> Weather: <b>sunny, 70's</b>
Drilling Company: <b>Earth Exploration</b> Drillers: <b>Craig, Joe</b>	Completion Date: <b>July 11, 2008</b>

Depth (feet)	SOIL DESCRIPTION	Sample	REMARKS	PID (ppm)	Depth (feet)	WELL DIAGRAM
	CONCRETE, black	1		0		Surface Casing
	NO RECOVERY					
	fine grained SAND, dry, 10 YR 4/4 dark yellowish brown	2		0		
5	fine grained SANDY CLAY LOAM, moist, 10YR 3/2 very dark grayish brown	3		0	5	
	fine grained SANDY LOAM, moist, 10YR 2/1 black	4		13		
10	fine to medium grained SANDY LOAM, wet, 10YR 3/3 dark brown	5		10.1	10	
	fine grained SAND, moist, 10YR 3/2 very dark grayish brown	6		10.6		
	SILTY CLAY LOAM, very moist, 10YR 3/2 very dark grayish brown	7		5.5		
15	SANDY LOAM, very moist, 10YR 3/2 very dark grayish brown	8		11.8	15	
	SILTY CLAY LOAM, very moist, 10YR 4/4 dark yellowish brown	9		13.3		
20	fine grained SAND, wet, 10YR 3/3 dark brown	10	saturated at 18 feet	8.1	20	
	fine grained SANDY LOAM, very wet, 10YR 3/2 very dark grayish brown	11		9.0		
25	fine grained SAND, very wet, 10YR 3/3 dark brown	12		3.1	25	
	fine grained SAND, very wet, 10YR 5/6 yellowish brown	13		18.1		
	fine to medium grained SAND, saturated at 18 feet, 10YR 4/6 dark yellowish brown	14		10.3		
30	fine grained SAND, saturated, 10YR 4/6 dark yellowish brown	15		22.1	30	
	fine to medium grained SAND, saturated, 10YR 4/6 dark yellowish brown	16		20.8		
35	fine grained SAND, saturated, 10YR 4/4 dark yellowish brown	17		10.6	35	Bentonite Seal
	fine grained SAND, saturated, 10YR 5/4 yellowish brown	18		11.4		
	coarse grained SAND, saturated, 10YR 5/4 yellowish brown	19		16.2		
40	fine grained SAND, saturated, 10YR 5/4 yellowish brown	20		1.3	40	
	fine to medium grained SAND, saturated, 10YR 5/4 yellowish brown	21		2.0		
45	fine grained SAND, saturated, 10YR 5/6 yellowish brown	22		1.0	45	
	fine grained SAND, saturated, 10YR 5/4 yellowish brown	23		2.5		
		24		1.3		
50		25		0.9	50	

WELL LOG 08-03-009 HANNOVER.GPJ WELL LOG.GDT 12/2/08

(Continued)



QUALITY ENVIRONMENTAL  
PROFESSIONALS, INC.

1611 South Franklin Road  
Indianapolis, Indiana

LOG OF: **DQW-5**  
(2 of 2)

Project Number: **08-03-009**

Client: <b>City of South Bend</b>	Drilling Method: <b>Hollow Stem Auger</b>
Project: <b>Hannover Property</b>	Sampling Method: <b>continuous</b>
Location: <b>731 West Chippewa Avenue, South Bend, Indiana</b>	Elevation:
Logged By: <b>DWM</b>	Time Terminated: <b>1020</b> Weather: <b>sunny, 70's</b>
Drilling Company: <b>Earth Exploration</b> Drillers: <b>Craig, Joe</b>	Completion Date: <b>July 11, 2008</b>

Depth (feet)	SOIL DESCRIPTION	Sample	REMARKS	PID (ppm)	Depth (feet)	WELL DIAGRAM	
55 60 65 70 75 80 85 90 95 100	fine grained SAND, saturated, 10YR 5/4 yellowish brown	26		0			
		27		0			
		28		0			
		29		0			
		30		0			
		31		0			
		32		0			
		33		0			
		34	coarse grained SAND, saturated, 10YR 4/4 dark yellowish brown			0	
		35				0	
		36				0	
		37				0	
	38			0			
	39			0			
	40			0			
	41	fine grained SAND, saturated, 10YR 4/4 dark yellowish brown		9.9			
	42			5.3			
	43	coarse grained SAND, saturated, 10YR 4/3 brown		9.6			
	44	fine grained SAND, saturated, 10YR 5/4 yellowish brown		6.4			
	45	coarse grained SAND, saturated, 10YR 4/3 brown		9.4			
	46	CLAY (90% clay, 10% sand), very plastic, very hard, moist, 2.5 Y 4/1 dark gray		0			
		Boring terminated at 92 ft					

WELL LOG 08-03-009 HANNOVER.GPJ WELL LOG.GDT 12/2/08



Project Number: **08-03-009**

Client: <b>City of South Bend</b>	Drilling Method: <b>Hollow Stem Auger</b>
Project: <b>Hannover Property</b>	Sampling Method: <b>continuous</b>
Location: <b>731 West Chippewa Avenue, South Bend, Indiana</b>	Elevation:
Logged By: <b>DWM</b>	Time Terminated: <b>835</b> Weather: <b>sunny, 80's</b>
Drilling Company: <b>Earth Exploration</b> Drillers: <b>Craig, Joe</b>	Completion Date: <b>July 15, 2008</b>

Depth (feet)	SOIL DESCRIPTION	Sample	REMARKS	PID (ppm)	Depth (feet)	WELL DIAGRAM
	SANDY LOAM, dry, 10YR 4/4 dark yellowish brown	1		6.1		← Surface Casing
	SANDY LOAM, moist, 10YR 3/1 very dark gray	2		9.6		
5		3		10.9	5	
	fine grained SAND, moist, 10YR 4/6 dark yellowish brown	4		4.9		
10	fine grained SAND, wet, 10YR 5/6 yellowish brown	5		2.9	10	
		6		10.5		
		7		4.4		
15		8		14.7	15	
	fine grained SAND, very wet, 10YR 5/4 yellowish brown	9		16.6		
20	fine grained SAND, saturated at 18 feet, 10YR 5/4 yellowish brown	10	saturated at 18 feet	14.5	20	▼
		11		5.4		
25	fine grained SAND, saturated, 10YR 4/4 dark yellowish brown	12		5.7		
	fine grained SAND, saturated, 2.5Y 6/4 light yellowish brown	13		5.1	25	
	fine grained SAND, saturated, 10YR 4/4 dark yellowish brown	14		5.0		
30		15		8.6	30	
		16		10.5		← Bentonite Seal
		17		9.6		
35		18		11.0	35	
		19		8.4		
40	fine to medium grained SAND, saturated, 10YR 4/6 dark yellowish brown	20		7.4	40	
	fine grained SAND, saturated, 10YR 5/4 yellowish brown	21		12.8		
		22		11.8		
45		23		11.5	45	
		24		11.0		
50		25		13.1	50	

WELL LOG 08-03-009 HANNOVER.GPJ WELL LOG.GDT 12/2/08

(Continued)



QUALITY ENVIRONMENTAL  
PROFESSIONALS, INC.

1611 South Franklin Road  
Indianapolis, Indiana

LOG OF: **DQW-6**  
(2 of 2)

Project Number: **08-03-009**

Client: <b>City of South Bend</b>	Drilling Method: <b>Hollow Stem Auger</b>
Project: <b>Hannover Property</b>	Sampling Method: <b>continuous</b>
Location: <b>731 West Chippewa Avenue, South Bend, Indiana</b>	Elevation:
Logged By: <b>DWM</b>	Time Terminated: <b>835</b> Weather: <b>sunny, 80's</b>
Drilling Company: <b>Earth Exploration</b> Drillers: <b>Craig, Joe</b>	Completion Date: <b>July 15, 2008</b>

Depth (feet)	SOIL DESCRIPTION	Sample	REMARKS	PID (ppm)	Depth (feet)	WELL DIAGRAM
55	fine grained SAND, saturated, 10YR 5/4 yellowish brown (Continued)	26		16.1		
		27		19.0		
		28		24.4		
		29		30.9		
		30		25.5		
		31		31.6		
		32		6.5		
		33		6.0		
		34		28.5		
70		medium to coarse grained SAND, saturated, 10YR 4/3 brown	35			10.8
	36			3.1		
	37			2.3		
	38			9.8		
	39			23.2		
80	coarse grained SAND, saturated, 10YR 4/3 brown	40		3.7		
		41		19.7		
		42		7.6		
85	CLAY (90% clay, 10% sand), moist, very plastic, very hard, 10YR 5/4 yellowish brown	43		3.3		
		44		2.1		
		45		0		
90	CLAY (90% clay, 10% sand), moist, very plastic, very hard, 2.5Y 4/1 dark gray Boring terminated at 90 ft					
95						
100						

WELL LOG 08-03-009 HANNOVER.GPJ WELL LOG.GDT 12/2/08



Project Number: **08-03-009**

Client: <b>City of South Bend</b>	Drilling Method: <b>Hollow Stem Auger</b>
Project: <b>Hannover Property</b>	Sampling Method: <b>continuous</b>
Location: <b>731 West Chippewa Avenue, South Bend, Indiana</b>	Elevation:
Logged By: <b>DWM</b>	Time Terminated: <b>810</b> Weather: <b>sunny, 80's</b>
Drilling Company: <b>Earth Exploration</b> Drillers: <b>Craig, Joe</b>	Completion Date: <b>July 10, 2008</b>

Depth (feet)	SOIL DESCRIPTION	Sample	REMARKS	PID (ppm)	Depth (feet)	WELL DIAGRAM
	SANDY LOAM, dry, 10YR 3/1 very dark gray	1		0.6		<p>Surface Casing</p> <p>Bentonite Seal</p>
	SANDY LOAM, moist, 10YR 3/4 dark yellowish brown	2		0.6		
5	SANDY LOAM, moist, 10YR 3/2 very dark grayish brown	3		1.2		
		4		0.3		
10	CONCRETE	5		0.3		
	fine grained SAND, wet, 10YR 4/6 dark yellowish brown	6		0.4		
		7		1.7		
15	fine grained SAND, wet, 10YR 5/4 yellowish brown	8		2.4		
		9		0.6		
20	fine grained SAND, saturated at 18 feet, 10YR 5/4 yellowish brown	10	saturated at 18 feet	1.8		
		11		0		
		12		0		
25		13		0		
		14		0		
		15		0		
30		16		0		
		17		0		
35		18		0		
		19		0		
40		20		0		
		21		0		
45	coarse grained SAND, saturated, 10YR 5/4 yellowish brown	22		0		
	fine grained SAND, saturated, 10YR 5/4 yellowish brown	23		0		
		24		0		
50		25		0		

WELL LOG 08-03-009 HANNOVER.GPJ WELL LOG.GDT 12/2/08

(Continued)



Project Number: **08-03-009**

Client: <b>City of South Bend</b>	Drilling Method: <b>Hollow Stem Auger</b>
Project: <b>Hannover Property</b>	Sampling Method: <b>continuous</b>
Location: <b>731 West Chippewa Avenue, South Bend, Indiana</b>	Elevation:
Logged By: <b>DWM</b>	Time Terminated: <b>810</b> Weather: <b>sunny, 80's</b>
Drilling Company: <b>Earth Exploration</b> Drillers: <b>Craig, Joe</b>	Completion Date: <b>July 10, 2008</b>

Depth (feet)	SOIL DESCRIPTION	Sample	REMARKS	PID (ppm)	Depth (feet)	WELL DIAGRAM				
55 60 65 70 75 80 85 90 95 100	fine grained SAND, saturated, 10YR 5/4 yellowish brown (Continued)	26		0	55 60 65 70 75 80 85 90 95 100					
		27		0						
		28		0.6						
		29		0.6						
		30		0.3						
		31		2.0						
		32		0.3						
		65	SILT LOAM, saturated, 10YR 2/1 black	33				0.4	65	
		70 75 80 85 90 95 100	fine grained SAND, saturated, 10YR 5/4 yellowish brown	34				0.4	70 75 80 85 90 95 100	
				35				0.1		
				36				0.6		
				37				0.3		
				38				0.4		
				39				0.3		
				40				0.4		
				41				0.3		
				42				0.6		
				43				0.3		
				44				0.3		
				45				0.6		
				46				1.2		
				47				0.3		
		95	CLAY (90% clay, 10% sand), moist, 2.5Y 4/1 dark gray	48				0.4	95	
				49				0		
		100	Boring terminated at 98 ft						100	

WELL LOG 08-03-009 HANNOVER.GPJ WELL LOG.GDT 12/2/08



Project Number: **08-03-009**

Client: <b>City of South Bend</b>	Drilling Method: <b>Hollow Stem Auger</b>
Project: <b>Hannover Property</b>	Sampling Method: <b>continuous</b>
Location: <b>731 West Chippewa Avenue, South Bend, Indiana</b>	Elevation:
Logged By: <b>DWM</b>	Time Terminated: <b>945</b> Weather: <b>sunny, 70's</b>
Drilling Company: <b>Earth Exploration</b> Drillers: <b>Craig, Joe, Jeff</b>	Completion Date: <b>July 25, 2008</b>

Depth (feet)	SOIL DESCRIPTION	Sample	REMARKS	PID (ppm)	Depth (feet)	WELL DIAGRAM
	CONCRETE/ASPHALT	1		0.3		Surface Casing
	SANDY LOAM, dry, 10YR 3/3 dark brown					
	SANDY LOAM, moist, 10YR 4/6 dark yellowish brown	2		0.2		
5	SANDY LOAM, moist, 10YR 4/3 brown	3		0.3	5	
	fine grained SAND, moist, 10YR 5/6 yellowish brown	4		0.1		
	SANDY LOAM, wet, 10YR 3/2 very dark grayish brown	5		0	10	
10	SILT LOAM, wet, 10YR 3/1 very dark gray	6		0	10	
	SILT LOAM, wet, 10YR 3/3 dark brown	7		0		
	fine grained SAND, moist, 10YR 5/4 yellowish brown	8		0	15	
15	fine grained SAND, wet, 10 YR 4/4 dark yellowish brown	9	saturated at 17 feet	0		
	fine grained SAND, saturated at 17 feet, 10YR 4/4 dark yellowish brown	10		0	20	
20	fine grained SAND, saturated, 10YR 3/3 dark brown	11		0.1	20	
	fine grained SAND, saturated, 10YR 4/6 dark yellowish brown	12		0.3		
25	fine grained SAND, saturated, 10YR 5/4 yellowish brown	13		0.1	25	
	fine grained SAND, saturated, 10YR 5/3 brown	14		0		
		15		0	30	
30	fine grained SAND, saturated, 10YR 5/4 yellowish brown	16		0	30	
		17		1.3		Bentonite Seal
35	fine grained SANDY LOAM, saturated, 10YR 5/4 yellowish brown	18		0	35	
		19		0		
40	fine grained SAND, saturated, 10YR 5/4 yellowish brown	20		0	40	
		21		0		
		22		0	45	
45		23		0	45	
		24		0		
50		25		0	50	

WELL LOG 08-03-009 HANNOVER.GPJ WELL LOG.GDT 12/2/08

(Continued)



Project Number: **08-03-009**

Client: <b>City of South Bend</b>	Drilling Method: <b>Hollow Stem Auger</b>
Project: <b>Hannover Property</b>	Sampling Method: <b>continuous</b>
Location: <b>731 West Chippewa Avenue, South Bend, Indiana</b>	Elevation:
Logged By: <b>DWM</b>	Time Terminated: <b>945</b> Weather: <b>sunny, 70's</b>
Drilling Company: <b>Earth Exploration</b> Drillers: <b>Craig, Joe, Jeff</b>	Completion Date: <b>July 25, 2008</b>

Depth (feet)	SOIL DESCRIPTION	Sample	REMARKS	PID (ppm)	Depth (feet)	WELL DIAGRAM
		26		0		
	fine to medium grained SAND, saturated, 10YR 5/4 yellowish brown	27		0		
55	fine grained SAND, saturated, 10YR 5/4 yellowish brown	28		0	55	
		29		0		
		30		0		
60		31		0.1	60	
		32		0.1		
65		33		0.3	65	
	coarse grained SAND, saturated, 10YR 5/4 yellowish brown	34		0.8		
	coarse grained SAND, saturated, 10YR 3/3 dark brown	35		0.6		
70	fine to medium grained SAND, saturated, 10YR 4/3 brown	36		0.4	70	
		37		0.6		
75	SANDY CLAY LOAM, saturated, 10YR 5/4 yellowish brown	38		0.3	75	
	fine to medium grained SAND, saturated, 10YR 4/3 brown	39		0.5		
	fine to medium grained SAND, saturated, 10YR 4/4 dark yellowish brown	40		1.2		
80	fine grained SAND, saturated, 10YR 5/4 yellowish brown	41		0.3	80	
		42		0.3		
85		43		0.4	85	
	fine grained SAND, saturated, 10YR 5/3 brown	44		0.6		
	fine grained SAND, saturated, 10YR 4/3 brown	45		0.5		
90	CLAY (90% clay, 10% sand), moist, 2.5Y 4/1 dark gray	46		0	90	
	Boring terminated at 92 ft					
95					95	
100					100	

WELL LOG 08-03-009 HANNOVER.GPJ WELL LOG.GDT 12/2/08

#5 Quartz Sand Pack  
2" PVC Sch. 40 0.010 Slot Screen