TABLES

TABLE 2.1

SUMMARY OF ILLINOIS RIVER MONTHLY MEAN DISCHARGE DATA
NEAR MAPLETON, ILLINOIS
CATERPILLAR INC.
MAPLETON, ILLINOIS

YEAR	Monthly mean in cubic feet per second (cfs) (Calculation Period: 1980-01-01 -> 2010-09-30)												ANNUAL TOTALS	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Minimum	Maximum
1980	10,090	8,793	20,660	26,690	14,500	33,900	8,467	9,902	21,120	8,876	6,110	11,190	6,110	33,900
1981	5,702	10,390	12,260	24,080	36,830	31,520	18,840	23,410	14,570	12,840	9,657	12,110	5,702	36,830
1982	11,450	21,910	54,070	47,450	20,620	17,150	20,330	13,260	7,917	7,677	14,420	52,390	7,677	54,070
1983	24,300	18,630	19,650	55,630	39,960	16,110	14,980	8,014	9,246	8,002	11,190	24,870	8,002	55,630
1984	13,160	33,390	38,900	38,220	30,140	28,160	9,425	7,153	6,385	7,945	11,290	12,560	6,385	38,900
1985	18,210	17,460	52,680	36,910	10,860	9,395	7,627	8,257	7,189	9,272	37,100	36,450	7,189	52,680
1986	13,540	22,260	22,430	11,510	18,530	18,180	20,400	8,134	11,860	33,180	16,490	23,400	8,134	33,180
1987	10,800	13,210	11,160	15,180	16,220	13,230	7,784	14,010	13,370	9,160	9,543	20,860	7,784	20,860
1988	23,870	23,060	14,710	28,750	8,943	6,398	6,080	6,771	5,722	6,154	10,310	7,851	5,722	28,750
1989	10,580	6,897	11,820	11,500	7,822	15,440	7,631	7,316	23,360	8,055	9,652	6,635	6,635	23,360
1990	11,880	23,000	47,910	17,800	37,930	24,230	26,460	22,040	11,190	19,470	29,160	39,050	11,190	47,910
1991	36,770	29,960	36,570	38,540	31,800	19,770	6,315	6,610	6,122	9,272	16,360	21,340	6,122	38,540
1992	11,420	15,870	17,320	14,740	12,270	7,329	12,050	9,859	12,470	8,943	28,320	26,370	7,329	28,320
1993	44,480	23,220	37,120	48,340	27,290	32,770	46,130	28,440	34,620	31,250	20,200	21,010	20,200	48,340
1994	10,320	18,520	27,310	19,390	14,010	12,460	13,650	10,270	7,826	5,040	15,560	19,920	5,040	27,310
1995	23,070	13,600	17,490	30,480	37,100	28,880	10,430	10,480	5,141	6,186	13,570	7,681	5,141	37,100
1996	7,229	7,011	8,516	11,570	23,080	41,790	25,690	19,030	6,506	6,281	8,321	12,360	6,281	41,790
1997	10,910	27,740	44,520	19,430	14,050	21,790	9,861	10,250	6,818	5,116	6,624	8,689	5,116	44,520
1998	23,680	22,600	33,200	33,830	37,890	23,770	20,140	10,490	6,087	8,070	7,741	7,345	6,087	37,890
1999	12,820	29,710	18,950	26,080	33,320	26,250	10,940	7,150	5,100	5,742	4,101	6,171	4,101	33,320
2000	5,435	7,050	8,680	13,930	16,320	23,230	18,860	7,636	8,947	7,203	10,890	5,915	5,435	23,230
2001	7,094	35,180	29,310	19,160	11,740	21,710	9,314	7,877	10,690	21,970	17,760	14,850	7,094	35,180
2002	7,703	22,040	23,750	28,940	43,380	24,720	8,547	10,670	6,033	5,094	3,676	5,127	3,676	43,380
2003	4,306	4,642	6,450	10,970	22,780	10,040	22,970	10,630	5,399	4,553	16,950	15,900	4,306	22,970
2004	9,829	7,349	20,820	17,990	20,510	36,200	11,300	8,878	10,840	4,346	14,570	28,190	4,346	36,200
2005	37,420	27,360	20,100	16,420	9,696	5,627	4,068	4,351	3,867	3,931	5,222	5,832	3,867	37,420
2006	10,150	10,200	15,040	18,470	16,530	11,670	8,325	8,133	14,110	15,820	13,630	31,620	8,133	31,620
2007	32,870	13,980	36,790	32,430	20,740	10,200	9,120	21,750	21,090	7,953	8,770	20,970	7,953	36,790
2008	38,230	36,320	34,420	33,140	22,810	21,140	15,290	9,589	39,590	23,060	13,110	18,720	9,589	39,590
2009	29,110	25,040	53,630	42,330	44,460	35,490	18,800	9,087	8,251	12,920	25,460	21,350	8,251	53,630
2010	21,060	18,690	28,610	21,650	26,270	34,030	25,080	16,750	7,551				7,551	34,030
Minimum Monthly Discharge	4,306	4,642	6,450	10,970	7,822	5,627	4,068	4,351	3,867	3,931	3,676	5,127	**3,676**	
Maximum Monthly Discharge	44,480	36,320	54,070	55,630	44,460	41,790	46,130	28,440	39,590	33,180	37,100	52,390		**55,630**
Mean Monthly Discharge	17,338	19,196	26,608	26,179	23,497	21,374	14,674	11,490	11,580	10,779	13,859	18,224	**10,779**	**26,608**

TABLE 2.2

EXPANDED LEACHATE PARAMETER RESULTS SUMMARY
CATERPILLAR INC.
MAPLETON, ILLINOIS

Sample Location:		*L301*	*L301*	*L302*	*L302*	*L303*	*L303*	*L304*	*L304*	*L305*	*L305*
Sample ID:		*L301*	*L301*	*L302*	*L302*	*L303R*	*L303R*	*L304*	*L304*	*L305*	*L305*
Sample Date:		*5/25/2010*	*8/4/2010*	*5/26/2010*	*8/4/2010*	*5/27/2010*	*8/4/2010*	*5/26/2010*	*8/4/2010*	*5/25/2010*	*8/4/2010*
Metals	***Units***										
Aluminum	mg/L	ND (0.2)	-	ND (0.2)	-	1.1	-	ND (0.2)	-	ND (0.2)	-
Arsenic	mg/L	ND (0.001)	-	0.0071	-	0.003	-	ND (0.001)	-	0.0017	-
Barium	mg/L	0.16	0.13	0.11	0.088	0.036	0.078	0.036	0.038	0.018	0.015
Bromide	mg/L	1.5	-	3.4	-	1.8	-	1.6	-	2.7	-
Cadmium	mg/L	ND (0.0005)	ND (0.00050)	ND (0.0005)	ND (0.00050)	ND (0.0005)	ND (0.00050)	ND (0.0005)	ND (0.00050)	ND (0.0005)	ND (0.00050)
Calcium	mg/L	30	22	13	11	9.4	28	7.3	7.1	7.9	6.7
Chromium	mg/L	ND (0.01)	ND (0.010)	0.01	ND (0.010)	ND (0.01)	ND (0.010)	ND (0.01)	ND (0.010)	ND (0.01)	ND (0.010)
Copper	mg/L	ND (0.01)	ND (0.010)	ND (0.01)	ND (0.010)	ND (0.01)	ND (0.010)	ND (0.01)	ND (0.010)	ND (0.01)	ND (0.010)
Iron	mg/L	0.7	1.5	5.3	4.9	1.9	1.9	0.69	0.49	ND (0.2)	ND (0.20)
Lead	mg/L	0.0022	ND (0.00050)	0.0005	ND (0.00050)	0.0019	0.0010	0.0005	ND (0.00050)	ND (0.0005)	ND (0.00050)
Magnesium	mg/L	23	16	8.6	6.4	6.5	28	11	12	5.5	5.0
Manganese	mg/L	0.2	0.18	0.06	0.052	0.19	0.45	0.051	0.051	0.062	0.058
Potassium	mg/L	23	11	26	11	12	12	37	24	43	23
Selenium	mg/L	ND (0.0025)	ND (0.0025)	ND (0.0025)	ND (0.0025)	ND (0.005)	ND (0.0025)	ND (0.0025)	ND (0.0025)	ND (0.0025)	ND (0.0025)
Silicon	mg/L	9.6	9.0	14	13	8.9	7.8	6.3	6.2	4.9	4.6
Sodium	mg/L	440	420	660	570	440	400	350	370	440	400
Zinc	mg/L	ND (0.02)	ND (0.020)	ND (0.02)	ND (0.020)	ND (0.02)	ND (0.020)	ND (0.02)	ND (0.020)	ND (0.02)	ND (0.020)
General Chemistry											
Alkalinity, bicarbonate	mg/L	760	790	1000	880	680	720	690	690	510	550
Alkalinity, carbonate	mg/L	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	43	39
Ammonia-N	mg/L	6.7	-	18	-	2.5	-	1.8	-	1.9	-
Chloride	mg/L	130	130	430	380	52	21	110	100	170	160
Fluoride	mg/L	2.3	2.6	2.4	2.9	2.3	1.9	4.5	4.8	4.3	4.5
Nitrate (as N)	mg/L	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)
Nitrite (as N)	mg/L	ND (0.020)	ND (0.020)	ND (0.020)	ND (0.020)	ND (0.020)	ND (0.020)	ND (0.020)	ND (0.020)	ND (0.020)	ND (0.020)
Nitrite/Nitrate	mg/L	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)
Orthophosphate	mg/L	ND (0.20)	-	0.20	-	0.37	-	0.20	-	ND (0.20)	-
Phosphate, total	mg/L	-	1.4	-	1.2	-	0.26	-	0.45	-	0.35
Phosphorus	mg/L	-	0.47	-	0.39	-	0.084	-	0.15	-	0.11
Sulfate	mg/L	220	150	ND (5.0)	ND (5.0)	420	510	25	5.1	270	250
Sulfide	mg/L	1.4	1.1	ND (1.0)	1.1	ND (1.0)	ND (1.0)	ND (1.0)	1.2	ND (1.0)	ND (1.0)
Sulfite	mg/L	10.8	-	-	-	18.4	-	-	-	14.4	-
Total dissolved solids (TDS)	mg/L	1500	1400	2100	2000	1400	1400	1000	1100	1400	1300

Notes:
mg/L - milligrams per liter
ND (0.001) - analyte not detected at quantitation limit in parentheses

TABLE 3.1

SUMMARY OF MONITORING WELL CONSTRUCTION DATA
CATERPILLAR INC.
MAPLETON, ILLINOIS

Well No.	*Ground Surface Elevation (feet amsl)*	*Top of Casing Elevation (feet amsl)*	*Screened Interval Top/Bottom (feet bgs)*		*Screened Interval Top/Bottom (feet amsl)*		*Geologic Unit(s) Screened*
G101S	457.91	460.10	7	17	441	451	Clay
G102S	446.60	449.40	5	15	432	442	Clay, silty clay, shale bedrock
G103S	447.70	450.29	10	20	429	439	Clay, sand
G103D	448.20	451.30	31	36	412	417	Sand, clay
G104S	445.10	447.60	5	15	430	440	Sand, clay
G104D	444.90	447.30	42	47	398	403	Sand, clay
G105S	448.64	452.08	5	15	436	446	Sand, silt, clay
G106S	445.50	448.36	5	15	430	440	Sand, clay
G108S	460.72	463.76	27	37	424	434	Clay, sand, silty clay
G110S	459.19	462.24	19	24	435.2	440.2	Silty clay, gravel
G110D	459.19	462.28	45	50	409.2	414.2	Shale bedrock
G111S	460.50	463.50	20	25	435.5	440.5	Sand fill
G111D	460.50	463.30	55	60	400.5	405.5	Sand with clay
G112S	458.43	460.70	8	18	440.4	450.4	Clay, silt
G112D	458.43	461.36	30	40	418.4	428.4	Shale bedrock
G113S	458.10	461.30	14	19	439.1	444.1	Gravel
G113D	458.10	461.15	40	50	408.1	418.1	Shale bedrock

Notes
feet amsl - feet above mean sea level
feet bgs - feet below ground surface

TABLE 3.2

SUMMARY OF LEACHATE WELL CONSTRUCTION DATA
CATERPILLAR INC.
MAPLETON, ILLINOIS

Well No.	*Ground Surface Elevation feet amsl*	*Top of Casing Elevation feet amsl*	*Screened Interval Top/Bottom feet bgs*		*Screened Interval Top/Bottom feet amsl*	
L301	491.99	497.72	11.5	21.5	440.3	450.3
L302	498.67	503.02	10.9	20.9	441.9	451.9
L303R	491.30	497.92	36.5	46.5	442.8	452.8
L304R	493.09	496.40	40.0	50.0	443.0	453.0
L305	495.44	498.43	23.5	25.5	443.5	446.0
L306	464.62	465.82	9.5	19.5	440.5	450.5

Notes
feet amsl - feet above mean sea level
feet bgs - feet below ground surface

TABLE 3.3

SUMMARY OF LYSIMETER CONSTRUCTION DATA
CATERPILLAR INC.
MAPLETON, ILLINOIS

Lysimeter No.	*Ground Surface Elevation feet amsl*	*Top of Casing Elevation feet amsl*	*Screened Interval feet bgs*		*Screened Interval feet amsl*	
LS301	492.3	494.4	18.5	19	473.8	473.3
LS302	498.5	501.2	23.5	24	475.0	474.5
LS303	491.5	494.0	23.5	24	468.0	467.5
LS304	493.2	495.8	18.5	19	474.7	474.2
LS305	497.1	499.6	23.5	24	473.6	473.1

Notes
feet amsl - feet above mean sea level
feet bgs - feet below ground surface

TABLE 3.4

SUMMARY OF GROUNDWATER ELEVATION DATA
SHALLOW MONITORING WELLS
CATERPILLAR INC.
MAPLETON, ILLINOIS

			April 5, 2011		May 24, 2011		September 21, 2011		November 29, 2011		January 11, 2012	
Well No.	TOC[1] Elevation	Ground Surface Elevation	Depth to Water[2]	Water Elevation	Depth to Water[2]	Water Elevation	Depth to Water[2]	Water Elevation	Depth to Water[2]	Water Elevation	Depth to Water[2]	Water Elevation
G101S	460.10	457.91	8.93	451.17	8.54	451.56	10.91	449.19	10.59	449.51	9.71	450.39
G102S	449.44	446.59	5.18	444.26	5.43	444.01	6.84	442.60	5.14	444.30	4.98	444.46
G103S	450.21	448.19	6.46	443.75	5.91	444.30	8.63	441.58	7.51	442.70	6.91	443.30
G104S	447.43	444.88	5.00	442.43	3.38	444.05	7.47	439.96	7.27	440.16	6.89	440.54
G105S	452.08	448.64	8.82	443.26	7.20	444.88	11.08	441.00	11.20	440.88	10.94	441.14
G106S	447.99	445.65	6.71	441.28	4.82	443.17	11.36	436.63	10.68	437.31	9.60	438.39
G108S	463.76	460.72	21.71	442.05	19.70	444.06	26.61	437.15	26.34	437.42	24.30	439.46
G110S	462.24	459.19	14.34	447.90	13.91	448.33	15.67	446.57	15.34	446.90	14.39	447.85
G111S	463.50	460.50	18.35	445.15	17.53	445.97	20.33	443.17	19.96	443.54	19.01	444.49
G112S	460.70	458.43	6.09	454.61	6.21	454.49	8.75	451.95	5.63	455.07	5.89	454.81
G113S	461.30	458.10	12.50	448.80	12.19	449.11	12.81	448.49	12.09	449.21	12.33	448.97

Notes:
[1] TOC - top of casing
[2] Depth to water is provided in feet below the well TOC

TABLE 3.5

SUMMARY OF GROUNDWATER ELEVATION DATA
DEEP MONITORING WELLS
CATERPILLAR INC.
MAPLETON, ILLINOIS

Well No.	TOC[1] Elevation	Ground Surface Elevation	April 5, 2011		May 24, 2011		September 21, 2011		November 29, 2011		January 11, 2012	
			Depth to Water[2]	Water Elevation	Depth to Water[2]	Water Elevation	Depth to Water[2]	Water Elevation	Depth to Water[2]	Water Elevation	Depth to Water[2]	Water Elevation
Deep Wells												
G103D	451.34	448.19	11.10	440.24	9.35	441.99	13.91	437.43	13.98	437.36	13.75	437.59
G104D	447.28	444.88	8.63	438.65	5.13	442.15	15.99	431.29	12.19	435.09	13.52	433.76
G106D	448.00	445.65	9.65	438.35	6.10	441.90	17.21	430.79	13.25	434.75	14.65	433.35
G110D	462.28	459.19	15.21	447.07	15.34	446.94	16.16	446.12	16.27	446.01	15.67	446.61
G111D	463.30	460.50	24.71	438.59	21.02	442.28	32.21	431.09	28.38	434.92	29.68	433.62
G112D	461.36	458.43	*21.58*	*439.78*	9.22	452.14	9.98	451.38	12.43	448.93	8.83	452.53
G113D	461.15	458.10	*43.41*	*417.74*	20.20	440.95	17.14	444.01	22.74	438.41	22.24	438.91

Notes:
[1] TOC - top of casing
[2] Depth to water is provided in feet below the well TOC
Highlighted values in italics represent locations where water levels had not reached equilibrium

TABLE 3.6

SUMMARY OF GROUNDWATER ELEVATION DATA
LEACHATE WELLS
CATERPILLAR INC.
MAPLETON, ILLINOIS

			April 5, 2011		May 24, 2011		September 21, 2011		November 29, 2011		January 11, 2012	
Well No.	TOC[1] Elevation	Ground Surface Elevation	Depth to Water[2]	Water Elevation	Depth to Water[2]	Water Elevation	Depth to Water[2]	Water Elevation	Depth to Water[2]	Water Elevation	Depth to Water[2]	Water Elevation
Leachate Wells												
L301	497.72	491.99	36.24	461.48	35.79	461.93	36.23	461.49	37.36	460.36	36.56	461.16
L302	503.02	498.67	39.20	463.82	39.25	463.77	38.94	464.08	39.76	463.26	38.99	464.03
L303R	497.92	491.30	42.4	455.52	41.91	456.01	43.32	454.60	44.26	453.66	42.61	455.31
L304R	496.40	493.09	NM[3]	NM[3]	NM[3]	NM[3]	NM[3]	NM[3]	36.36	460.04	35.59	460.81
L305	498.43	495.44	NM[3]	NM[3]	NM[3]	NM[3]	NM[3]	NM[3]	47.44	450.99	45.65	452.78
L306	465.82	464.62	18.74	447.08	17.12	448.70	20.98	444.84	21.79	444.03	20.96	444.86

Notes:
[1] TOC - top of casing
[2] Depth to water is provided in feet below the well TOC
[3] NM - Not measured due to well being locked

TABLE 4.1

SUMMARY OF RESPONSE TEST HYDRAULIC CONDUCTIVITY DATA
CATERPILLAR INC.
MAPLETON, ILLINOIS

SHALLOW WELLS				*DEEP WELLS*			
MW-103S	Slug In	2.73E-04	cm/sec	**MW-103D**	Slug In	1.02E-03	cm/sec
		2.87E-04	cm/sec			1.03E-03	cm/sec
		2.83E-04	cm/sec			1.07E-03	cm/sec
	Slug Out	2.75E-04	cm/sec		Slug Out	1.05E-03	cm/sec
		2.95E-04	cm/sec			1.10E-03	cm/sec
		3.09E-04	cm/sec			1.13E-03	cm/sec
	Geomean K	**2.87E-04**	**cm/sec**		**Geomean K**	**1.07E-03**	**cm/sec**
MW-104S	Slug In	2.51E-03	cm/sec	**MW-104D**	Slug In	2.40E-04	cm/sec
		1.07E-03	cm/sec			2.49E-04	cm/sec
		1.25E-03	cm/sec			1.98E-04	cm/sec
	Slug Out	1.02 E-03	cm/sec		Slug Out	1.93E-04	cm/sec
		1.42E-03	cm/sec			1.82E-04	cm/sec
		1.40E-03	cm/sec			2.13E-04	cm/sec
	Geomean K	**1.47E-03**	**cm/sec**		**Geomean K**	**2.11E-04**	**cm/sec**
MW-110S	Slug In	1.97E-04	cm/sec	**MW-111D**	Slug In	1.37E-04	cm/sec
		3.18E-04	cm/sec			1.11E-04	cm/sec
		2.36E-04	cm/sec			1.02E-04	cm/sec
	Slug Out	1.30E-04	cm/sec		Slug Out	9.14E-05	cm/sec
		1.51E-04	cm/sec			9.35E-05	cm/sec
		1.55E-04	cm/sec			9.67E-05	cm/sec
	Geomean K	**1.88E-04**	**cm/sec**		**Geomean K**	**1.04E-04**	**cm/sec**
MW-111S	Slug In	1.59E-03	cm/sec	**Deep K Geomean:**		**2.86E-04**	**cm/sec**
		1.59E-03	cm/sec				
		1.69E-03	cm/sec				
	Slug Out	No Test	cm/sec				
		1.45E-03	cm/sec				
		5.32E-05	cm/sec				
	Geomean K	**8.01E-04**	**cm/sec**				
MW-112S	Slug In	1.01E-03	cm/sec				
		1.59E-03	cm/sec				
		1.42E-03	cm/sec				
	Slug Out	1.61E-03	cm/sec				
		No Test	cm/sec				
		1.64E-03	cm/sec				
	Geomean K	**1.43E-03**	**cm/sec**				
MW-113S	Slug In	7.92E-02	cm/sec				
		4.80E-02	cm/sec				
		7.53E-02	cm/sec				
	Slug Out	3.44E-02	cm/sec				
		3.26E-02	cm/sec				
		1.78E-02	cm/sec				
	Geomean K	**4.23E-02**	**cm/sec**				
Shallow K Geomean:		**1.25E-03**	**cm/sec**				

TABLE 4.2

SHALLOW GROUNDWATER ANALYTICAL RESULTS SUMMARY
CATERPILLAR INC.
MAPLETON, ILLINOIS

Sample Location:				*G101S*	*G101S*	*G101S*	*G102S*	*G102S*	*G102S*	*G102S*	*G103S*	*G103S*
Sample ID:				*GW-070102-040711-NH-018*	*GW-070102-040711-NH-019*	*GW-052511-TP-001*	*GW-070102-040611-NH-007*	*GW-070102-040611-NH-008*	*GW-052711-TP-014*	*GW-052711-TP-015*	*GW-070102-040511-NH-001*	*GW-052711-TP-016*
Sample Date:		*MALC Screening Values for Potentially Usable Waste*		*4/7/2011*	*4/7/2011*	*5/25/2011*	*4/6/2011*	*4/6/2011 (Duplicate)*	*5/27/2011*	*5/27/2011 (Duplicate)*	*4/5/2011*	*5/27/2011*
Parameters	*Units*	*Primary*	*Secondary*									
		a	*b*									
Volatile Organic Compounds												
1,1,1-Trichloroethane	mg/L	0.2	-	ND (0.001)	ND (0.001)	-	ND (0.001)	ND (0.001)	-	-	ND (0.001)	-
1,1-Dichloroethene	mg/L	0.007	-	ND (0.001)	ND (0.001)	-	ND (0.001)	ND (0.001)	-	-	ND (0.001)	-
1,2-Dichloroethane	mg/L	0.005	-	ND (0.001)	ND (0.001)	-	ND (0.001)	ND (0.001)	-	-	ND (0.001)	-
1,2-Dichloropropane	mg/L	0.005	-	ND (0.001)	ND (0.001)	-	ND (0.001)	ND (0.001)	-	-	ND (0.001)	-
Benzene	mg/L	0.005	-	ND (0.001)	ND (0.001)	-	ND (0.001)	ND (0.001)	-	-	ND (0.001)	-
Bromodichloromethane	mg/L	-	-	ND (0.001)	ND (0.001)	-	ND (0.001)	ND (0.001)	-	-	ND (0.001)	-
Bromoform	mg/L	-	-	ND (0.001)	ND (0.001)	-	ND (0.001)	ND (0.001)	-	-	ND (0.001)	-
Carbon tetrachloride	mg/L	0.005	-	ND (0.001)	ND (0.001)	-	ND (0.001)	ND (0.001)	-	-	ND (0.001)	-
Chlorobenzene	mg/L	0.1	-	ND (0.001)	ND (0.001)	-	ND (0.001)	ND (0.001)	-	-	ND (0.001)	-
Chloroform (Trichloromethane)	mg/L	-	-	ND (0.001)	ND (0.001)	-	ND (0.001)	ND (0.001)	-	-	ND (0.001)	-
cis-1,2-Dichloroethene	mg/L	0.07	-	ND (0.001)	ND (0.001)	-	ND (0.001)	ND (0.001)	-	-	ND (0.001)	-
Dibromochloromethane	mg/L	-	-	ND (0.001)	ND (0.001)	-	ND (0.001)	ND (0.001)	-	-	ND (0.001)	-
Ethylbenzene	mg/L	0.7	-	ND (0.001)	ND (0.001)	-	ND (0.001)	ND (0.001)	-	-	ND (0.001)	-
Styrene	mg/L	0.1	-	ND (0.001)	ND (0.001)	-	ND (0.001)	ND (0.001)	-	-	ND (0.001)	-
Tetrachloroethene	mg/L	0.005	-	ND (0.001)	ND (0.001)	-	ND (0.001)	ND (0.001)	-	-	ND (0.001)	-
Toluene	mg/L	1	-	ND (0.001)	ND (0.001)	-	ND (0.001)	ND (0.001)	-	-	ND (0.001)	-
trans-1,2-Dichloroethene	mg/L	0.1	-	ND (0.001)	ND (0.001)	-	ND (0.001)	ND (0.001)	-	-	ND (0.001)	-
Trichloroethene	mg/L	0.005	-	ND (0.001)	ND (0.001)	-	ND (0.001)	ND (0.001)	-	-	ND (0.001)	-
Trihalomethanes	mg/L	0.1	-	ND	ND	-	ND	ND	-	-	ND	-
Vinyl chloride	mg/L	0.002	-	ND (0.001)	ND (0.001)	-	ND (0.001)	ND (0.001)	-	-	ND (0.001)	-
Xylenes (total)	mg/L	10	-	ND (0.002)	ND (0.002)	-	ND (0.002)	ND (0.002)	-	-	ND (0.002)	-
Metals												
Arsenic	mg/L	0.05	-	ND (0.01)	ND (0.01)	0.0071 J	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	0.0314	0.021
Barium	mg/L	2	-	ND (0.2)	ND (0.2)	0.19	0.423	0.4	0.43	0.43	0.665	0.53
Cadmium	mg/L	0.005	-	ND (0.005)	ND (0.005)	0.0005 J	ND (0.005)	ND (0.005)	0.00085 J	0.00078 J	ND (0.005)	0.0008 J
Chromium	mg/L	0.1	-	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	0.0022 J	ND (0.01)	ND (0.01)	ND (0.01)
Copper	mg/L	-	5	ND (0.025)	ND (0.025)	ND (0.01)	ND (0.025)	ND (0.025)	ND (0.01)	ND (0.01)	ND (0.025)	0.011
Iron	mg/L	-	5	**12.2[b]**	**11[b]**	**11[b]**	1.87	2.04	1.5	1.5	**25.6[b]**	**21[b]**
Lead	mg/L	0.0075	-	ND (0.003)	ND (0.003)	ND (0.005)	ND (0.003)	ND (0.003)	ND (0.005)	ND (0.005)	ND (0.003)	ND (0.005)
Manganese	mg/L	-	0.15	**0.879[b]**	**0.808[b]**	**0.94[b]**	**1.25[b]**	**1.25[b]**	**0.85[b]**	**0.88[b]**	**1.65[b]**	**1.2[b]**
Selenium	mg/L	0.05	-	ND (0.005)	ND (0.005)	ND (0.01) U	ND (0.005)	ND (0.005)	ND (0.01)	0.0041 J	ND (0.005)	ND (0.01)
Zinc	mg/L	-	5	0.0359	0.0242	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)
General Chemistry												
Chloride	mg/L	-	250	5.9	6.9	13	**609[b]**	**548[b]**	**710[b]**	**700[b]**	**382[b]**	**450[b]**
Fluoride	mg/L	4	-	ND (1.0)	ND (1.0)	0.62	ND (1.0)	ND (1.0)	0.13 J	0.13 J	ND (1.0)	0.51
Nitrate (as N)	mg/L	10	-	ND (0.10)	ND (0.10)	0.11	ND (0.10)	ND (0.10)	ND (1)	ND (1)	ND (0.10)	ND (1)
Sulfate	mg/L	-	400	ND (1.0)	ND (1.0)	0.41	50.1	56.4	40	39	ND (1.0)	0.34
Total dissolved solids (TDS)	mg/L	-	1200	319	328	360	**1540[b]**	**1470[b]**	**1600[b]**	**1600[b]**	**1410[b]**	**1500[b]**

TABLE 4.2

SHALLOW GROUNDWATER ANALYTICAL RESULTS SUMMARY
CATERPILLAR INC.
MAPLETON, ILLINOIS

Sample Location:				*G104S*	*G104S*	*G105S*	*G105S*	*G106S*	*G106S*	*G108S*	*G108S*	*G108S*
Sample ID:				*GW-070102-040511-NH-002*	*GW-052611-TP-013*	*GW-070102-040611-NH-006*	*GW-052611-TP-011*	*GW-070102-040611-NH-005*	*GW-052611-TP-010*	*GW-070102-040611-NH-011*	*GW-052611-TP-006*	*GW-052611-TP-007*
Sample Date:		*MALC Screening Values for Potentially Usable Waste*		*4/5/2011*	*5/26/2011*	*4/6/2011*	*5/26/2011*	*4/6/2011*	*5/26/2011*	*4/6/2011*	*5/26/2011*	*5/26/2011 (Duplicate)*
Parameters	*Units*	*Primary*	*Secondary*									
		a	*b*									
Volatile Organic Compounds												
1,1,1-Trichloroethane	mg/L	0.2	-	ND (0.001)	-	ND (0.001)	-	ND (0.001)	-	ND (0.001)	-	-
1,1-Dichloroethene	mg/L	0.007	-	ND (0.001)	-	ND (0.001)	-	ND (0.001)	-	ND (0.001)	-	-
1,2-Dichloroethane	mg/L	0.005	-	ND (0.001)	-	ND (0.001)	-	ND (0.001)	-	ND (0.001)	-	-
1,2-Dichloropropane	mg/L	0.005	-	ND (0.001)	-	ND (0.001)	-	ND (0.001)	-	ND (0.001)	-	-
Benzene	mg/L	0.005	-	ND (0.001)	-	ND (0.001)	-	ND (0.001)	-	ND (0.001)	-	-
Bromodichloromethane	mg/L	-	-	ND (0.001)	-	ND (0.001)	-	ND (0.001)	-	ND (0.001)	-	-
Bromoform	mg/L	-	-	ND (0.001)	-	ND (0.001)	-	ND (0.001)	-	ND (0.001)	-	-
Carbon tetrachloride	mg/L	0.005	-	ND (0.001)	-	ND (0.001)	-	ND (0.001)	-	ND (0.001)	-	-
Chlorobenzene	mg/L	0.1	-	ND (0.001)	-	ND (0.001)	-	ND (0.001)	-	ND (0.001)	-	-
Chloroform (Trichloromethane)	mg/L	-	-	ND (0.001)	-	ND (0.001)	-	ND (0.001)	-	ND (0.001)	-	-
cis-1,2-Dichloroethene	mg/L	0.07	-	ND (0.001)	-	ND (0.001)	-	ND (0.001)	-	ND (0.001)	-	-
Dibromochloromethane	mg/L	-	-	ND (0.001)	-	ND (0.001)	-	ND (0.001)	-	ND (0.001)	-	-
Ethylbenzene	mg/L	0.7	-	ND (0.001)	-	ND (0.001)	-	ND (0.001)	-	ND (0.001)	-	-
Styrene	mg/L	0.1	-	ND (0.001)	-	ND (0.001)	-	ND (0.001)	-	ND (0.001)	-	-
Tetrachloroethene	mg/L	0.005	-	ND (0.001)	-	ND (0.001)	-	ND (0.001)	-	ND (0.001)	-	-
Toluene	mg/L	1	-	ND (0.001)	-	ND (0.001)	-	ND (0.001)	-	ND (0.001)	-	-
trans-1,2-Dichloroethene	mg/L	0.1	-	ND (0.001)	-	ND (0.001)	-	ND (0.001)	-	ND (0.001)	-	-
Trichloroethene	mg/L	0.005	-	ND (0.001)	-	ND (0.001)	-	ND (0.001)	-	ND (0.001)	-	-
Trihalomethanes	mg/L	0.1	-	ND	-	ND	-	ND	-	ND	-	-
Vinyl chloride	mg/L	0.002	-	ND (0.001)	-	ND (0.001)	-	ND (0.001)	-	ND (0.001)	-	-
Xylenes (total)	mg/L	10	-	ND (0.002)	-	ND (0.002)	-	ND (0.002)	-	ND (0.002)	-	-
Metals												
Arsenic	mg/L	0.05	-	0.0433	0.05	ND (0.01)	0.0031 J	ND (0.01)	0.014	ND (0.01)	ND (0.01)	0.003 J
Barium	mg/L	2	-	0.339	0.32	ND (0.2)	0.19	ND (0.2)	0.11	0.272	0.24	0.24
Cadmium	mg/L	0.005	-	ND (0.005)	0.00069 J	ND (0.005)	0.00062 J	ND (0.005)	0.00071 J	ND (0.005)	0.0011 J	0.00097 J
Chromium	mg/L	0.1	-	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)
Copper	mg/L	-	5	ND (0.025)	ND (0.01)	ND (0.025)	0.0015 J	ND (0.025)	0.002 J	ND (0.025)	ND (0.01)	ND (0.01)
Iron	mg/L	-	5	**14.3[b]**	4.8	**6.73[b]**	**12[b]**	2.44	4	**23.7[b]**	**23[b]**	**23[b]**
Lead	mg/L	0.0075	-	ND (0.003)	ND (0.005)	ND (0.003)	ND (0.005)	ND (0.003)	ND (0.005)	ND (0.003)	ND (0.005)	ND (0.005)
Manganese	mg/L	-	0.15	**1.28[b]**	**1.2[b]**	**1.14[b]**	**1.1[b]**	**1.51[b]**	**2.8[b]**	**0.275[b]**	**0.24[b]**	**0.24[b]**
Selenium	mg/L	0.05	-	ND (0.005)	ND (0.01) U	ND (0.005)	ND (0.01) U	ND (0.005)	ND (0.01) U	ND (0.005)	ND (0.01) U	ND (0.01) U
Zinc	mg/L	-	5	ND (0.02)	0.0094 J	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)
General Chemistry												
Chloride	mg/L	-	250	112	160	115	170	131	210	52.3	54	54
Fluoride	mg/L	4	-	**5.4[a]**	**4.2[a]**	2.3	3.9	3.6	3.7	ND (1.0)	0.15 J	0.17 J
Nitrate (as N)	mg/L	10	-	ND (0.10)	ND (0.1)	ND (0.10)	ND (0.1)	ND (0.10)	ND (0.1)	ND (0.10)	ND (0.1)	ND (0.1)
Sulfate	mg/L	-	400	20.8	41	8.0	1.8	81.5	30	ND (1.0)	0.26	0.3
Total dissolved solids (TDS)	mg/L	-	1200	1060	1100	1100	1200	1190	1200	921	870	810

TABLE 4.2

SHALLOW GROUNDWATER ANALYTICAL RESULTS SUMMARY
CATERPILLAR INC.
MAPLETON, ILLINOIS

Sample Location:				*G110S*	*G110S*	*G110S*	*G110S*	*G110S*	*G110S*	*G111S*	*G111S*	*G112S*	*G112S*
Sample ID:				*GW-070102-040711-NH-015*	*GW-052511-TP-002*	*GW-092211-TP-001*	*G110S*	*G110S-1*	*G110S-2*	*GW-070102-040611-NH-010*	*GW-052611-TP-009*	*GW-070102-040611-NH-012*	*GW-052611-TP-004*
Sample Date:		*MALC Screening Values for Potentially Usable Waste*		*4/7/2011*	*5/25/2011*	*9/22/2011*	*11/29/2011*	*1/10/2012*	*1/10/2012 (Duplicate)*	*4/6/2011*	*5/26/2011*	*4/6/2011*	*5/26/2011*
Parameters	*Units*	*Primary*	*Secondary*										
		a	*b*										
Volatile Organic Compounds													
1,1,1-Trichloroethane	mg/L	0.2	-	ND (0.001)	-	-	-	-	-	ND (0.001)	-	ND (0.001)	-
1,1-Dichloroethene	mg/L	0.007	-	ND (0.001)	-	-	-	-	-	ND (0.001)	-	ND (0.001)	-
1,2-Dichloroethane	mg/L	0.005	-	ND (0.001)	-	-	-	-	-	ND (0.001)	-	ND (0.001)	-
1,2-Dichloropropane	mg/L	0.005	-	ND (0.001)	-	-	-	-	-	ND (0.001)	-	ND (0.001)	-
Benzene	mg/L	0.005	-	ND (0.001)	-	-	-	-	-	ND (0.001)	-	ND (0.001)	-
Bromodichloromethane	mg/L	-	-	ND (0.001)	-	-	-	-	-	ND (0.001)	-	ND (0.001)	-
Bromoform	mg/L	-	-	ND (0.001)	-	-	-	-	-	ND (0.001)	-	ND (0.001)	-
Carbon tetrachloride	mg/L	0.005	-	ND (0.001)	-	-	-	-	-	ND (0.001)	-	ND (0.001)	-
Chlorobenzene	mg/L	0.1	-	ND (0.001)	-	-	-	-	-	ND (0.001)	-	ND (0.001)	-
Chloroform (Trichloromethane)	mg/L	-	-	ND (0.001)	-	-	-	-	-	ND (0.001)	-	ND (0.001)	-
cis-1,2-Dichloroethene	mg/L	0.07	-	ND (0.001)	-	-	-	-	-	ND (0.001)	-	ND (0.001)	-
Dibromochloromethane	mg/L	-	-	ND (0.001)	-	-	-	-	-	ND (0.001)	-	ND (0.001)	-
Ethylbenzene	mg/L	0.7	-	ND (0.001)	-	-	-	-	-	ND (0.001)	-	ND (0.001)	-
Styrene	mg/L	0.1	-	ND (0.001)	-	-	-	-	-	ND (0.001)	-	ND (0.001)	-
Tetrachloroethene	mg/L	0.005	-	ND (0.001)	-	-	-	-	-	ND (0.001)	-	ND (0.001)	-
Toluene	mg/L	1	-	ND (0.001)	-	-	-	-	-	ND (0.001)	-	ND (0.001)	-
trans-1,2-Dichloroethene	mg/L	0.1	-	ND (0.001)	-	-	-	-	-	ND (0.001)	-	ND (0.001)	-
Trichloroethene	mg/L	0.005	-	ND (0.001)	-	-	-	-	-	ND (0.001)	-	ND (0.001)	-
Trihalomethanes	mg/L	0.1	-	ND	-	-	-	-	-	ND	-	ND	-
Vinyl chloride	mg/L	0.002	-	ND (0.001)	-	-	-	-	-	ND (0.001)	-	ND (0.001)	-
Xylenes (total)	mg/L	10	-	ND (0.002)	-	-	-	-	-	ND (0.002)	-	ND (0.002)	-
Metals													
Arsenic	mg/L	0.05	-	0.0381	ND (0.01)	-	-	-	-	0.0176	0.024	ND (0.01)	ND (0.01)
Barium	mg/L	2	-	0.457	0.093	-	-	-	-	ND (0.2)	0.075	ND (0.2)	0.076
Cadmium	mg/L	0.005	-	**0.0091**[a]	0.0011 J	-	-	-	-	ND (0.005)	0.00052 J	ND (0.005)	0.0014 J
Chromium	mg/L	0.1	-	**0.128**[a]	ND (0.01)	-	-	-	-	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)
Copper	mg/L	-	5	0.24	0.002 J	-	-	-	-	ND (0.025)	ND (0.01)	ND (0.025)	ND (0.01)
Iron	mg/L	-	5	**138**[b]	3.8	-	-	-	-	**5.67**[b]	**6.1**[b]	0.203	0.1 J
Lead	mg/L	0.0075	-	**0.0747**[a]	ND (0.005)	-	-	-	-	ND (0.003)	ND (0.005)	ND (0.003)	ND (0.005)
Manganese	mg/L	-	0.15	**2.22**[b]	**0.46**[b]	-	-	-	-	**0.459**[b]	**0.37**[b]	**2.35**[b]	**2.2**[b]
Selenium	mg/L	0.05	-	0.0135	ND (0.01)	-	-	-	-	ND (0.005)	ND (0.01) U	ND (0.005)	ND (0.01)
Zinc	mg/L	-	5	0.4	ND (0.02)	-	-	-	-	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)
General Chemistry													
Chloride	mg/L	-	250	57.4	48	-	-	-	-	132	140	196	190
Fluoride	mg/L	4	-	ND (1.0)	0.13 J	-	-	-	-	3.5	3.7	ND (1.0)	0.096 J
Nitrate (as N)	mg/L	10	-	ND (0.10)	0.18	-	-	-	-	ND (0.10)	ND (0.1)	0.10	ND (0.1)
Sulfate	mg/L	-	400	197	180	-	-	-	-	ND (1.0)	0.14 J	204	200
Total dissolved solids (TDS)	mg/L	-	1200	1000	850	840	830	790	800	**1210**[b]	1200	1060	980

TABLE 4.2

SHALLOW GROUNDWATER ANALYTICAL RESULTS SUMMARY
CATERPILLAR INC.
MAPLETON, ILLINOIS

Sample Location:				*G112S*	*G112S*	*G112S*	*G113S*	*G113S*	*G113S*	*G113S*	*G113S*
Sample ID:				*GW-092211-TP-004*	*G112S*	*G112S*	*GW-070102-040611-NH-014*	*GW-052611-TP-005*	*GW-092211-TP-003*	*G113S*	*G113S*
Sample Date:		*MALC Screening Values for Potentially Usable Waste*		*9/22/2011*	*11/29/2011*	*1/11/2012*	*4/6/2011*	*5/26/2011*	*9/22/2011*	*11/29/2011*	*1/10/2012*
Parameters	*Units*	*Primary*	*Secondary*								
		a	*b*								
Volatile Organic Compounds											
1,1,1-Trichloroethane	mg/L	0.2	-	-	-	-	ND (0.001)	-	-	-	-
1,1-Dichloroethene	mg/L	0.007	-	-	-	-	ND (0.001)	-	-	-	-
1,2-Dichloroethane	mg/L	0.005	-	-	-	-	ND (0.001)	-	-	-	-
1,2-Dichloropropane	mg/L	0.005	-	-	-	-	ND (0.001)	-	-	-	-
Benzene	mg/L	0.005	-	-	-	-	ND (0.001)	-	-	-	-
Bromodichloromethane	mg/L	-	-	-	-	-	ND (0.001)	-	-	-	-
Bromoform	mg/L	-	-	-	-	-	ND (0.001)	-	-	-	-
Carbon tetrachloride	mg/L	0.005	-	-	-	-	ND (0.001)	-	-	-	-
Chlorobenzene	mg/L	0.1	-	-	-	-	ND (0.001)	-	-	-	-
Chloroform (Trichloromethane)	mg/L	-	-	-	-	-	ND (0.001)	-	-	-	-
cis-1,2-Dichloroethene	mg/L	0.07	-	-	-	-	ND (0.001)	-	-	-	-
Dibromochloromethane	mg/L	-	-	-	-	-	ND (0.001)	-	-	-	-
Ethylbenzene	mg/L	0.7	-	-	-	-	ND (0.001)	-	-	-	-
Styrene	mg/L	0.1	-	-	-	-	ND (0.001)	-	-	-	-
Tetrachloroethene	mg/L	0.005	-	-	-	-	ND (0.001)	-	-	-	-
Toluene	mg/L	1	-	-	-	-	ND (0.001)	-	-	-	-
trans-1,2-Dichloroethene	mg/L	0.1	-	-	-	-	ND (0.001)	-	-	-	-
Trichloroethene	mg/L	0.005	-	-	-	-	ND (0.001)	-	-	-	-
Trihalomethanes	mg/L	0.1	-	-	-	-	ND	-	-	-	-
Vinyl chloride	mg/L	0.002	-	-	-	-	ND (0.001)	-	-	-	-
Xylenes (total)	mg/L	10	-	-	-	-	ND (0.002)	-	-	-	-
Metals											
Arsenic	mg/L	0.05	-	-	-	-	0.0202	0.02	-	-	-
Barium	mg/L	2	-	-	-	-	ND (0.2)	0.15	-	-	-
Cadmium	mg/L	0.005	-	-	-	-	ND (0.005)	0.00098 J	-	-	-
Chromium	mg/L	0.1	-	-	-	-	ND (0.01)	0.0018 J	-	-	-
Copper	mg/L	-	5	-	-	-	ND (0.025)	ND (0.01)	-	-	-
Iron	mg/L	-	5	-	-	-	2.98	3.2	-	-	-
Lead	mg/L	0.0075	-	-	-	-	ND (0.003)	ND (0.005)	-	-	-
Manganese	mg/L	-	0.15	-	-	-	**2.4**[b]	**2.2**[b]	-	-	-
Selenium	mg/L	0.05	-	-	-	-	ND (0.005)	ND (0.01)	-	-	-
Zinc	mg/L	-	5	-	-	-	ND (0.02)	ND (0.02)	-	-	-
General Chemistry											
Chloride	mg/L	-	250	-	-	-	171	180	-	-	-
Fluoride	mg/L	4	-	-	-	-	ND (1.0)	ND (0.2)	-	-	-
Nitrate (as N)	mg/L	10	-	-	-	-	ND (0.10)	ND (0.1)	-	-	-
Sulfate	mg/L	-	400	-	-	-	105	110	-	-	-
Total dissolved solids (TDS)	mg/L	-	1200	1000	1000	950	805	790	750	750	780

Notes:
mg/L - milligrams per liter
J - Estimated concentration
ND (0.001) - analyte not detected at quantitation limit in parentheses
[a] - Represents an exceedance of the primary MALC for potentially usable wastes
[b] - Represents an exceedance of the secondary MALC for potentially usable wastes

TABLE 4.3

DEEP GROUNDWATER ANALYTICAL RESULTS SUMMARY
CATERPILLAR INC.
MAPLETON, ILLINOIS

Sample Location:				*G103D*	*G103D*	*G104D*	*G104D*	*G110D*	*G110D*	*G110D*	*G110D*	*G110D*
Sample ID:				*GW-070102-040511-NH-003*	*GW-052711-TP-017*	*GW-070102-040511-NH-004*	*GW-052611-TP-012*	*GW-070102-040611-NH-013*	*GW-052511-TP-003*	*GW-092211-TP-002*	*G110D*	*G110D*
Sample Date:				*4/5/2011*	*5/27/2011*	*4/5/2011*	*5/26/2011*	*4/6/2011*	*5/25/2011*	*9/22/2011*	*11/29/2011*	*1/10/2012*
Parameters	*Units*	*MALC Screening Values for Potentially Usable Waste Primary*	*Secondary*									
Volatile Organic Compounds		***a***	***b***									
1,1,1-Trichloroethane	mg/L	0.2	-	ND (0.001)	-	ND (0.001)	-	ND (0.001)	-	-	-	-
1,1-Dichloroethene	mg/L	0.007	-	ND (0.001)	-	ND (0.001)	-	ND (0.001)	-	-	-	-
1,2-Dichloroethane	mg/L	0.005	-	ND (0.001)	-	ND (0.001)	-	ND (0.001)	-	-	-	-
1,2-Dichloropropane	mg/L	0.005	-	ND (0.001)	-	ND (0.001)	-	ND (0.001)	-	-	-	-
Benzene	mg/L	0.005	-	ND (0.001)	-	ND (0.001)	-	ND (0.001)	-	-	-	-
Bromodichloromethane	mg/L	-	-	ND (0.001)	-	ND (0.001)	-	ND (0.001)	-	-	-	-
Carbon tetrachloride	mg/L	0.005	-	ND (0.001)	-	ND (0.001)	-	ND (0.001)	-	-	-	-
Chlorobenzene	mg/L	0.1	-	ND (0.001)	-	ND (0.001)	-	ND (0.001)	-	-	-	-
Chloroform (Trichloromethane)	mg/L	-	-	ND (0.001)	-	ND (0.001)	-	0.0023	-	-	-	-
cis-1,2-Dichloroethene	mg/L	0.07	-	ND (0.001)	-	ND (0.001)	-	ND (0.001)	-	-	-	-
Dibromochloromethane	mg/L	-	-	ND (0.001)	-	ND (0.001)	-	ND (0.001)	-	-	-	-
Ethylbenzene	mg/L	0.7	-	ND (0.001)	-	ND (0.001)	-	ND (0.001)	-	-	-	-
Styrene	mg/L	0.1	-	ND (0.001)	-	ND (0.001)	-	ND (0.001)	-	-	-	-
Tetrachloroethene	mg/L	0.005	-	ND (0.001)	-	ND (0.001)	-	ND (0.001)	-	-	-	-
Toluene	mg/L	1	-	ND (0.001)	-	ND (0.001)	-	ND (0.001)	-	-	-	-
trans-1,2-Dichloroethene	mg/L	0.1	-	ND (0.001)	-	ND (0.001)	-	ND (0.001)	-	-	-	-
Trichloroethene	mg/L	0.005	-	ND (0.001)	-	ND (0.001)	-	ND (0.001)	-	-	-	-
Trihalomethanes	mg/L	0.1	-	ND	-	ND	-	0.0023	-	-	-	-
Vinyl chloride	mg/L	0.002	-	ND (0.001)	-	ND (0.001)	-	ND (0.001)	-	-	-	-
Xylenes (total)	mg/L	10	-	ND (0.002)	-	ND (0.002)	-	ND (0.002)	-	-	-	-
Metals												
Arsenic	mg/L	0.05	-	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	-	-	-
Barium	mg/L	2	-	0.513	0.56	0.307	0.16	0.415	0.39	-	-	-
Cadmium	mg/L	0.005	-	ND (0.005)	0.00073 J	ND (0.005)	0.0011 J	ND (0.005)	0.00078 J	-	-	-
Chromium	mg/L	0.1	-	ND (0.01)	ND (0.01)	ND (0.01)	0.0081 J	**0.155[a]**	0.0051 J	-	-	-
Copper	mg/L	-	5	ND (0.025)	ND (0.01)	ND (0.025)	0.027	ND (0.025)	0.0057 J	-	-	-
Iron	mg/L	-	5	**20.7[b]**	**21[b]**	**15.6[b]**	**8.6[b]**	**9.55[b]**	1.7	-	-	-
Lead	mg/L	0.0075	-	ND (0.003)	ND (0.005)	ND (0.003)	ND (0.005)	ND (0.003)	ND (0.005)	-	-	-
Manganese	mg/L	-	0.15	**0.596[b]**	**0.91[b]**	**1.07[b]**	**0.37[b]**	0.129	0.036	-	-	-
Selenium	mg/L	0.05	-	ND (0.005)	ND (0.01)	ND (0.005)	ND (0.01) U	ND (0.005)	ND (0.01)	-	-	-
Zinc	mg/L	-	5	ND (0.02)	ND (0.02)	ND (0.02)	0.051	0.0499	0.014 J	-	-	-
General Chemistry												
Chloride	mg/L	-	250	189	180	29.1	72	**339[b]**	**350[b]**	-	-	-
Fluoride	mg/L	4	-	ND (1.0)	0.098 J	ND (1.0)	0.22	1.5	1.7	-	-	-
Nitrate (as N)	mg/L	10	-	ND (0.10)	ND (0.1)	ND (0.10)	1	1.0	ND (0.1)	-	-	-
Sulfate	mg/L	-	400	287	110	10.4	45	17.6	7.7	-	-	-
Total dissolved solids (TDS)	mg/L	-	1200	**1380[b]**	1100	654	400	**1370[b]**	**1300[b]**	**1300[b]**	**1400[b]**	**1300[b]**

TABLE 4.3

DEEP GROUNDWATER ANALYTICAL RESULTS SUMMARY
CATERPILLAR INC.
MAPLETON, ILLINOIS

Sample Location:				*G111D*	*G111D*	*G112D*	*G112D*	*G112D*	*G112D*	*G112D*	*G113D*	*G113D*	*G113D*
Sample ID:				*GW-070102-040611-NH-009*	*GW-052611-TP-008*	*GW-070102-040711-NH-016*	*GW-052711-TP-018*	*GW-092211-TP-005*	*G112D*	*G112D*	*GW-070102-040711-NH-017*	*GW-052711-TP-019*	*GW-092211-TP-006*
Sample Date:				*4/6/2011*	*5/26/2011*	*4/7/2011*	*5/27/2011*	*9/22/2011*	*11/29/2011*	*1/11/2012*	*4/7/2011*	*5/27/2011*	*9/22/2011*
Parameters	*Units*	*MALC Screening Values for Potentially Usable Waste*											
		Primary	*Secondary*										
Volatile Organic Compounds		*a*	*b*										
1,1,1-Trichloroethane	mg/L	0.2	-	ND (0.001)	-	ND (0.001)	-	-	-	-	ND (0.001)	-	-
1,1-Dichloroethene	mg/L	0.007	-	ND (0.001)	-	ND (0.001)	-	-	-	-	ND (0.001)	-	-
1,2-Dichloroethane	mg/L	0.005	-	ND (0.001)	-	ND (0.001)	-	-	-	-	ND (0.001)	-	-
1,2-Dichloropropane	mg/L	0.005	-	ND (0.001)	-	ND (0.001)	-	-	-	-	ND (0.001)	-	-
Benzene	mg/L	0.005	-	ND (0.001)	-	ND (0.001)	-	-	-	-	ND (0.001)	-	-
Bromodichloromethane	mg/L	-	-	ND (0.001)	-	0.0021	-	-	-	-	0.0014	-	-
Carbon tetrachloride	mg/L	0.005	-	ND (0.001)	-	ND (0.001)	-	-	-	-	ND (0.001)	-	-
Chlorobenzene	mg/L	0.1	-	ND (0.001)	-	ND (0.001)	-	-	-	-	ND (0.001)	-	-
Chloroform (Trichloromethane)	mg/L	-	-	ND (0.001)	-	0.0067	-	-	-	-	0.0084	-	-
cis-1,2-Dichloroethene	mg/L	0.07	-	ND (0.001)	-	ND (0.001)	-	-	-	-	ND (0.001)	-	-
Dibromochloromethane	mg/L	-	-	ND (0.001)	-	ND (0.001)	-	-	-	-	ND (0.001)	-	-
Ethylbenzene	mg/L	0.7	-	ND (0.001)	-	ND (0.001)	-	-	-	-	ND (0.001)	-	-
Styrene	mg/L	0.1	-	ND (0.001)	-	ND (0.001)	-	-	-	-	ND (0.001)	-	-
Tetrachloroethene	mg/L	0.005	-	ND (0.001)	-	ND (0.001)	-	-	-	-	ND (0.001)	-	-
Toluene	mg/L	1	-	ND (0.001)	-	ND (0.001)	-	-	-	-	ND (0.001)	-	-
trans-1,2-Dichloroethene	mg/L	0.1	-	ND (0.001)	-	ND (0.001)	-	-	-	-	ND (0.001)	-	-
Trichloroethene	mg/L	0.005	-	ND (0.001)	-	ND (0.001)	-	-	-	-	ND (0.001)	-	-
Trihalomethanes	mg/L	0.1	-	ND	-	0.0088	-	-	-	-	0.0098	-	-
Vinyl chloride	mg/L	0.002	-	ND (0.001)	-	ND (0.001)	-	-	-	-	ND (0.001)	-	-
Xylenes (total)	mg/L	10	-	ND (0.002)	-	ND (0.002)	-	-	-	-	ND (0.002)	-	-
Metals													
Arsenic	mg/L	0.05	-	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	-	-	-	0.0261	0.0052 J	-
Barium	mg/L	2	-	ND (0.2)	0.14	ND (0.2)	0.069	-	-	-	1.76	0.85	-
Cadmium	mg/L	0.005	-	ND (0.005)	0.0009 J	ND (0.005)	0.00052 J	-	-	-	ND (0.005)	0.001 J	-
Chromium	mg/L	0.1	-	0.0118	0.0016 J	0.0167	0.0019 J	-	-	-	**1.8[a]**	**0.24[a]**	-
Copper	mg/L	-	5	ND (0.025)	ND (0.01)	ND (0.025)	0.0015 J	-	-	-	0.138	0.033	-
Iron	mg/L	-	5	**13[b]**	**13[b]**	**8.67[b]**	0.52	-	-	-	**187[b]**	**56[b]**	-
Lead	mg/L	0.0075	-	ND (0.003)	ND (0.005)	ND (0.003)	ND (0.005)	-	-	-	**0.0707[a]**	**0.01[a]**	-
Manganese	mg/L	-	0.15	**2.27[b]**	**2.1[b]**	0.121	0.014	-	-	-	**2.78[b]**	**1[b]**	-
Selenium	mg/L	0.05	-	ND (0.005)	ND (0.01)	ND (0.005)	0.0076 J	-	-	-	0.0092	0.025	-
Zinc	mg/L	-	5	ND (0.02)	ND (0.02)	0.0362	0.011 J	-	-	-	0.512	0.14	-
General Chemistry													
Chloride	mg/L	-	250	58.6	63	115	110	-	-	-	126	220	-
Fluoride	mg/L	4	-	ND (1.0)	0.18 J	1.1	0.75	-	-	-	ND (10.0)	1.9	-
Nitrate (as N)	mg/L	10	-	ND (0.10)	ND (0.1)	2.4	1.1	-	-	-	3.9	0.99	-
Sulfate	mg/L	-	400	193 J	180	353	390	-	-	-	65.6	190	-
Total dissolved solids (TDS)	mg/L	-	1200	860	850	**1580[b]**	**1500[b]**	**1500[b]**	**1500[b]**	**1500[b]**	**3050[b]**	1100	870

TABLE 4.3

DEEP GROUNDWATER ANALYTICAL RESULTS SUMMARY
CATERPILLAR INC.
MAPLETON, ILLINOIS

Sample Location:				*G113D*	*G113D*	*G113D*	*G113D*
Sample ID:				*GW-092211-TP-007*	*G113D-1*	*G113D-2*	*G113D*
Sample Date:				*9/22/2011*	*11/29/2011*	*11/29/2011*	*1/10/2012*
Parameters	*Units*	*MALC Screening Values for Potentially Usable Waste*		*(Duplicate)*		*(Duplicate)*	
		Primary	*Secondary*				
Volatile Organic Compounds		*a*	*b*				
1,1,1-Trichloroethane	mg/L	0.2	-	-	-	-	-
1,1-Dichloroethene	mg/L	0.007	-	-	-	-	-
1,2-Dichloroethane	mg/L	0.005	-	-	-	-	-
1,2-Dichloropropane	mg/L	0.005	-	-	-	-	-
Benzene	mg/L	0.005	-	-	-	-	-
Bromodichloromethane	mg/L	-	-	-	-	-	-
Carbon tetrachloride	mg/L	0.005	-	-	-	-	-
Chlorobenzene	mg/L	0.1	-	-	-	-	-
Chloroform (Trichloromethane)	mg/L	-	-	-	-	-	-
cis-1,2-Dichloroethene	mg/L	0.07	-	-	-	-	-
Dibromochloromethane	mg/L	-	-	-	-	-	-
Ethylbenzene	mg/L	0.7	-	-	-	-	-
Styrene	mg/L	0.1	-	-	-	-	-
Tetrachloroethene	mg/L	0.005	-	-	-	-	-
Toluene	mg/L	1	-	-	-	-	-
trans-1,2-Dichloroethene	mg/L	0.1	-	-	-	-	-
Trichloroethene	mg/L	0.005	-	-	-	-	-
Trihalomethanes	mg/L	0.1	-	-	-	-	-
Vinyl chloride	mg/L	0.002	-	-	-	-	-
Xylenes (total)	mg/L	10	-	-	-	-	-
Metals							
Arsenic	mg/L	0.05	-	-	-	-	-
Barium	mg/L	2	-	-	-	-	-
Cadmium	mg/L	0.005	-	-	-	-	-
Chromium	mg/L	0.1	-	-	-	-	-
Copper	mg/L	-	5	-	-	-	-
Iron	mg/L	-	5	-	-	-	-
Lead	mg/L	0.0075	-	-	-	-	-
Manganese	mg/L	-	0.15	-	-	-	-
Selenium	mg/L	0.05	-	-	-	-	-
Zinc	mg/L	-	5	-	-	-	-
General Chemistry							
Chloride	mg/L	-	250	-	-	-	-
Fluoride	mg/L	4	-	-	-	-	-
Nitrate (as N)	mg/L	10	-	-	-	-	-
Sulfate	mg/L	-	400	-	-	-	-
Total dissolved solids (TDS)	mg/L	-	1200	920	1000	1100	950

Notes:
mg/L - milligrams per liter
J - Estimated concentration
ND (0.001) - analyte not detected at quantitation limit in parentheses
[a] - Represents an exceedance of the primary MALC for potentially usable wastes
[b] - Represents an exceedance of the secondary MALC for potentially usable wastes

TABLE 4.4

MAY AND OCTOBER 2011
LEACHATE ANALYTICAL RESULTS SUMMARY
CATERPILLAR INC.
MAPLETON, ILLINOIS

Sample Location:				*L301*	*L301*	*L302*	*L302*	*L303R*	*L303*	*L304*	*L304*	*L305*	*L305*
Sample ID:		*MALC Screening Values for*		*L301*	*L301*	*L302*	*L302*	*L303R*	*L303R*	*L304*	*L304R*	*L305*	*L305*
Sample Date:		*Potentially Usable Wastes*		*5/16/2011*	*10/10/2011*	*5/16/2011*	*10/11/2011*	*5/17/2011*	*10/11/2011*	*5/17/2011*	*10/11/2011*	*5/17/2011*	*10/10/2011*
		Primary	*Secondary*										
Parameters	*Units*												
		a	*b*										
Volatile Organic Compounds													
1,1,1-Trichloroethane	mg/L	0.2	-	ND (0.001) U	ND (0.001)	ND (0.001) U	ND (0.005)	ND (0.001) U	ND (0.001)	ND (0.001) U	ND (0.001)	ND (0.001) U	ND (0.001)
1,1-Dichloroethene	mg/L	0.007	-	ND (0.001) U	ND (0.001)	ND (0.001) U	ND (0.005)	ND (0.001) U	ND (0.001)	ND (0.001) U	ND (0.001)	ND (0.001) U	ND (0.001)
1,2-Dichloroethane	mg/L	0.005	-	ND (0.001) U	ND (0.001)	ND (0.001) U	ND (0.005)	ND (0.001) U	ND (0.001)	ND (0.001) U	ND (0.001)	ND (0.001) U	ND (0.001)
1,2-Dichloropropane	mg/L	0.005	-	ND (0.001) U	ND (0.001)	ND (0.001) U	ND (0.005)	ND (0.001) U	ND (0.001)	ND (0.001) U	ND (0.001)	ND (0.001) U	ND (0.001)
Benzene	mg/L	0.005	-	ND (0.0005) U	ND (0.0005)	0.013[a]	0.029[a]	ND (0.0005) U	ND (0.0005)	ND (0.0005) U	ND (0.0005)	ND (0.0005) U	ND (0.0005)
Bromodichloromethane	mg/L	-	-	ND (0.001) U	ND (0.001)	ND (0.001) U	ND (0.005)	ND (0.001) U	ND (0.001)	ND (0.001) U	ND (0.001)	ND (0.001) U	ND (0.001)
Bromoform	mg/L	-	-	ND (0.001) U	ND (0.001)	ND (0.001) U	ND (0.005)	ND (0.001) U	ND (0.001)	ND (0.001) U	ND (0.001)	ND (0.001) U	ND (0.001)
Carbon tetrachloride	mg/L	0.005	-	ND (0.001) U	ND (0.001)	ND (0.001) U	ND (0.005)	ND (0.001) U	ND (0.001)	ND (0.001) U	ND (0.001)	ND (0.001) U	ND (0.001)
Chlorobenzene	mg/L	0.1	-	ND (0.001) U	ND (0.001)	ND (0.001) U	ND (0.005)	ND (0.001) U	ND (0.001)	ND (0.001) U	ND (0.001)	ND (0.001) U	ND (0.001)
Chloroform	mg/L	-	-	ND (0.001) U	ND (0.001)	ND (0.001) U	ND (0.005)	ND (0.001) U	ND (0.001)	ND (0.001) U	ND (0.001)	ND (0.001) U	ND (0.001)
cis-1,2-Dichloroethene	mg/L	0.07	-	ND (0.001) U	ND (0.001)	ND (0.001) U	ND (0.005)	ND (0.001) U	ND (0.001)	ND (0.001) U	ND (0.001)	ND (0.001) U	ND (0.001)
Dibromochloromethane	mg/L	-	-	ND (0.001) U	ND (0.001)	ND (0.001) U	ND (0.005)	ND (0.001) U	ND (0.001)	ND (0.001) U	ND (0.001)	ND (0.001) U	ND (0.001)
Ethylbenzene	mg/L	0.7	-	ND (0.0005) U	ND (0.0005)	ND (0.0005) U	ND (0.0025)	ND (0.0005) U	ND (0.0005)	ND (0.0005) U	ND (0.0005)	ND (0.0005) U	ND (0.0005)
Styrene	mg/L	0.1	-	ND (0.001) U	ND (0.001)	ND (0.001) U	ND (0.005)	ND (0.001) U	ND (0.001)	ND (0.001) U	ND (0.001)	ND (0.001) U	ND (0.001)
Tetrachloroethene	mg/L	0.005	-	ND (0.001) U	ND (0.001)	ND (0.001) U	ND (0.005)	ND (0.001) U	ND (0.001)	ND (0.001) U	ND (0.001)	ND (0.001) U	ND (0.001)
Toluene	mg/L	1	-	ND (0.0005) U	ND (0.0005)	ND (0.0005) U	ND (0.0025)	ND (0.0005) U	ND (0.0005)	ND (0.0005) U	ND (0.0005)	ND (0.0005) U	ND (0.0005)
trans-1,2-Dichloroethene	mg/L	0.1	-	ND (0.001) U	ND (0.001)	ND (0.001) U	ND (0.005)	ND (0.001) U	ND (0.001)	ND (0.001) U	ND (0.001)	ND (0.001) U	ND (0.001)
Trichloroethene	mg/L	0.005	-	ND (0.0005) U	ND (0.0005)	ND (0.0005) U	ND (0.0025)	ND (0.0005) U	ND (0.0005)	ND (0.0005) U	ND (0.0005)	ND (0.0005) U	ND (0.0005)
Vinyl chloride	mg/L	0.002	-	ND (0.0005) U	ND (0.0005)	ND (0.0005) U	ND (0.0025)	ND (0.0005) U	ND (0.0005)	ND (0.0005) U	ND (0.0005)	ND (0.0005) U	ND (0.0005)
Xylenes (total)	mg/L	10	-	ND (0.001) U	ND (0.001)	ND (0.001) U	ND (0.005)	ND (0.001) U	ND (0.001)	ND (0.001) U	ND (0.001)	ND (0.001) U	ND (0.001)
Metals													
Arsenic	mg/L	0.05	-	0.0012	0.0013	0.0068	0.0058	0.0018	0.0015	0.0025	0.0024	0.0017	0.0017
Barium	mg/L	2	-	0.12	0.10	0.083	0.092	0.069	0.039	0.029	0.031	0.016	0.018
Cadmium	mg/L	0.005	-	ND (0.00050) U	ND (0.00050)	ND (0.00050) U	ND (0.00050)	ND (0.00050) U	ND (0.00050)	0.00091	0.00069	ND (0.00050) U	ND (0.00050)
Chromium	mg/L	0.1	-	ND (0.010) U	ND (0.010)	ND (0.010) U	ND (0.010)	ND (0.010) U	ND (0.010)	ND (0.010) U	ND (0.010)	ND (0.010) U	ND (0.010)
Copper	mg/L	-	5	ND (0.010) U	ND (0.010)	ND (0.010) U	ND (0.010)	ND (0.010) U	ND (0.010)	ND (0.010) U	ND (0.010)	ND (0.010) U	ND (0.010)
Iron	mg/L	-	5	3.2	4.2	3.3	3.8	3.4	1.3	0.98	0.29	ND (0.20) U	ND (0.20)
Lead	mg/L	0.0075	-	ND (0.00050) U	ND (0.00050)	ND (0.00050) U	ND (0.00050)	ND (0.00050) U	ND (0.00050)	0.00069	ND (0.00050)	ND (0.00050) U	ND (0.00050)
Manganese	mg/L	-	0.15	**0.17**[b]	0.13	0.040	0.043	**0.43**[b]	**0.25**[b]	0.084	0.074	0.060	0.071
Selenium	mg/L	0.05	-	ND (0.0025) U	ND (0.0025)	ND (0.0025) U	ND (0.0025)	ND (0.0025) U	ND (0.0025)	ND (0.0025) U	ND (0.0025)	ND (0.0025) U	ND (0.0025)
Zinc	mg/L	-	5	ND (0.020) U	ND (0.020)	ND (0.020) U	ND (0.020)	ND (0.020) U	ND (0.020)	ND (0.020) U	ND (0.020)	ND (0.020) U	ND (0.020)

TABLE 4.4

MAY AND OCTOBER 2011
LEACHATE ANALYTICAL RESULTS SUMMARY
CATERPILLAR INC.
MAPLETON, ILLINOIS

Sample Location:				*L301*	*L301*	*L302*	*L302*	*L303R*	*L303*	*L304*	*L304*	*L305*	*L305*
Sample ID:		*MALC Screening Values for*		*L301*	*L301*	*L302*	*L302*	*L303R*	*L303R*	*L304*	*L304R*	*L305*	*L305*
Sample Date:		*Potentially Usable Wastes*		*5/16/2011*	*10/10/2011*	*5/16/2011*	*10/11/2011*	*5/17/2011*	*10/11/2011*	*5/17/2011*	*10/11/2011*	*5/17/2011*	*10/10/2011*
		Primary	*Secondary*										
Parameters	*Units*												
		a	*b*										
General Chemistry													
Chloride	mg/L	-	250	120	110	**420[b]**	**510[b]**	120	15	110	110	220	**260[b]**
Fluoride	mg/L	4	-	2.8	2.8	2.8	2.5	2.4	2.5	**8.2[a]**	**7.7[a]**	3.5	3.1
Nitrate (as N)	mg/L	10	-	ND (0.10) U	ND (0.10)	ND (0.10) U	ND (0.10)	ND (0.10) U	ND (0.10)	ND (0.10) U	ND (0.10)	ND (0.10) U	ND (0.10)
Nitrite (as N)	mg/L	-	-	ND (0.020) U	ND (0.020)	ND (0.020) U	ND (0.020)	ND (0.020) U	ND (0.020)	ND (0.020) U	ND (0.020)	ND (0.020) U	ND (0.020)
Nitrite/Nitrate	mg/L	-	-	ND (0.10) U	ND (0.10)	ND (0.10) U	ND (0.10)	ND (0.10) U	ND (0.10)	ND (0.10) U	ND (0.10)	ND (0.10) U	ND (0.10)
Sulfate	mg/L	-	400	40	68	19	86	**410[b]**	160	32	86	130	140
Total dissolved solids (TDS)	mg/L	-	1200	**1300[b]**	ND (10)	**2000[b]**	**2200[b]**	1000	950	1200	1100	**1400[b]**	**1500[b]**

Notes:
mg/L - milligrams per liter
ND (0.001) - analyte not detected at quantitation limit in parentheses
ND (0.00050) U - qualified as not detected
[a] - Represents an exceedance of the primary MALC for potentially usable wastes
[b] - Represents an exceedance of the secondary MALC for potentially usable wastes

TABLE 4.5

LYSIMETER LEACHATE ANALYTICAL RESULTS SUMMARY
CATERPILLAR INC.
MAPLETON, ILLINOIS

Sample Location:				*LS301*	*LS301*	*LS302*	*LS302*	*LS302*	*LS302*
Sample ID:				*WL-053111-TP-006*	*WL-062211-JB-004*	*WL-052511-TP-001*	*WL-052511-TP-002*	*WL-062211-JB-002*	*WL-062211-JB-005*
Sample Date:		*MALC Screening Values for Potentially Usable Wastes*		*5/31/2011*	*06/22/11*	*5/25/2011*	*5/25/2011 (Duplicate)*	*06/22/11*	*06/22/11 (Duplicate)*
Parameters	*Units*	*Primary a*	*Secondary b*						
General Chemistry									
Total dissolved solids (TDS)	mg/L	-	1200	920	1100	730	1100	790	750

TABLE 4.5

LYSIMETER LEACHATE ANALYTICAL RESULTS SUMMARY
CATERPILLAR INC.
MAPLETON, ILLINOIS

Sample Location:				*LS303*	*LS303*	*LS304*	*LS304*	*LS305*
Sample ID:				*WL-052511-TP-004*	*WL-062211-JB-003*	*WL-052511-TP-003*	*WL-062211-JB-001*	*WL-053111-TP-005*
Sample Date:		*MALC Screening Values for Potentially Usable Wastes*		*5/25/2011*	*06/22/11*	*5/25/2011*	*06/22/11*	*5/31/2011*
Parameters	*Units*	*Primary a*	*Secondary b*					
General Chemistry								
Total dissolved solids (TDS)	mg/L	-	1200	780	950	**1400**[b]	**1500**[b]	1200

Notes:
mg/L - milligrams per liter
[a] - Represents an exceedance of the primary MALC for potentially usable wastes
[b] - Represents an exceedance of the secondary MALC for potentially usable wastes

TABLE 4.6

SUMMARY OF SURFACE WATER TDS RESULTS
CATERPILLAR INC.
MAPLETON, ILLINOIS

Sample Location		*SG-1*	*SG-1*	*SG-2*	*SG-2*
Sample ID		*SW-NH-001*	*WS-TP-002*	*SW-NH-002*	*WS-TP-001*
Sample Date		*04/05/11*	*5/25/2011*	*04/05/11*	*05/25/2011*
Sample Type		*Upstream*	*Upstream*	*Downstream*	*Downstream*
	Units				
Total Dissolved Solids (TDS)	mg/L	527	410	524	430

Notes:
mg/L - milligrams per liter

TABLE 6.1

STATISTICAL INTER-GROUP COMPARISON RESULTS
LEACHATE WELLS VERSUS LYSIMETER DATA
CATERPILLAR INC.
MAPLETON, ILLINOIS

	Reference Group			*Comparison Group*			*WRS/Mann-Whitney Test Result*		*Quantile Test* [1] *Result*			
	Group Identification	*Number of Samples*	*Percent Non-detect*	*Group Identification*	*Number of Samples*	*Percent Non-detect*	*P-value*	*Conclusion*	*Conclusion*	*Quantile*	*P-Value*	*Overall Conclusion*
Leachate Wells vs. Lysimeter Data -- Testing if Leachate > Lysimeters (1-sided)												
General Chemistry												
Total dissolved solids (TDS)	Lysimeters	9	0%	Leachate	20	5%	0.020	LW > LYS	LW > LYS	0.5, 0.75	<0.1,<0.05	LW > LYS

Notes:

NSD No significant difference -- The statistical test did not yield a significant (above 95 percent confidence) result.

LW > LYS Leachate wells above lysimeters -- The statistical test identified a significant (above 94 percent confidence) result.

(1) Quantile tests performed manually, using the method found in Section 3.3.2.1.2 of USEPA, 2006 (Data Quality Assessment: Statistical Methods for Practitioners, EPA QA/G-9S. United States Environmental Protection Agency EPA/240/B-06/003).

TABLE 6.2

SUMMARY OF CALCULATED BACKGROUND VALUES
CATERPILLAR INC.
MAPLETON, ILLINOIS

	MALC (mg/L)	*Number of Samples*	*Concentration Range (mg/L)*		*Number of Detects*	*Percent Non-Detect Samples*	*Number of Samples Below MALCs*	*Percent of Samples Below MALCs*	*Background Threshold Value (from ProUCL)*	
									BTV (mg/L)	*Method*
Upgradient Wells (G110S, G112S, G113S, G110D, G112D, G113D)										
Metals										
Arsenic	0.05	12	ND(0.01)	0.0381	5	58%	12	100%	**0.0543**	UTL (t)
Barium	2	12	ND(0.2)	1.76	9	25%	12	100%	**5.53**	WH UTL
Cadmium	0.005	12	ND (0.005)	0.0091	7	42%	11	92%	**0.0101**	KM UTL
Chromium	0.1	12	0.0018J	1.8	8	33%	8	67%	**4.606**	WH UTL
Copper	5	12	0.0015J	0.24	6	50%	12	100%	0.908	WH UTL
Iron	5	12	0.1J	138	12	0%	7	58%	**677.6**	WH UTL
Lead	0.0075	12	ND(0.003)	0.0747	3	75%	9	75%	**0.108**	KM UTL
Manganese	0.15	12	0.014	2.78	12	0%	4	33%	**2.78**	%ile Boot
Selenium	0.05	12	ND(0.005)	0.025	4	67%	12	100%	0.028	KM UTL
Zinc	5	12	ND(0.02)	0.14	7	42%	12	100%	2.361	WH UTL
General Chemistry										
Chloride	250	12	48	350	12	0%	10	83%	**533.2**	UTL (t)
Fluoride	4	12	0.096J	ND(10.0)	7	42%	12	100%	**6.262**	UTL (t)
Nitrate (as N)	10	12	ND(0.1)	3.9	7	42%	12	100%	5.348	UTL (t)
Sulfate	400	12	7.7	390	12	0%	12	100%	**610.9**	UTL (t)
Total dissolved solids (TDS	1200	24	750	3050	24	0%	15	63%	**2539**	WH UTL

Notes:

1. 95UCL and Background calculations were carried out using ProUCL v.4.1.01 (USEPA, 2010).
2. Background values are statistical upper tolerance limits (95% confidence) on the 99th percentile of the background population. For an explanation of UTL methods, please refer to the ProUCL Technical Guide (USEPA, 2010).
3. Highlighted cell denotes a calculated BTV above the corresponding MALC for potentially reusable waste

UTL (t): Based on the Student's t-statistic for a normally distributed data set.

WH UTL: Based on normal approximation to the gamma distribution (Wilson-Hilferty - WH approximation).

KM UTL: non-parametric UTL using the Kaplan-Meier (KM) method for treatment of non-detects.

%ile Boot: Based on the percentile bootstrap method for skewed datasets.

TABLE 6.3

STATISTICAL INTER-GROUP COMPARISON RESULTS
SHALLOW DOWNGRADIENT VERSUS UPGRADIENT GROUNDWATER
CATERPILLAR INC.
MAPLETON, ILLINOIS

	Reference Group			*Comparison Group*			*WRS/Mann-Whitney Test Result*		*Quantile Test*[1] *Result*			
	Group Identification	*Number of Samples*	*Percent Non-detect*	*Group Identification*	*Number of Samples*	*Percent Non-detect*	*P-value*	*Conclusion*	*Conclusion*	*Quantile*	*P-Value*	*Overall Conclusion*
Shallow Downgradient vs. Upgradient -- testing if DG > UG (1-sided)												
Metals												
Arsenic	Upgradient	12	58%	Downgradient	8	25%	0.149	NSD	NSD	--	--	NSD
Barium	Upgradient	12	25%	Downgradient	8	38%	0.851	NSD	NSD	--	--	NSD
Cadmium	Upgradient	12	42%	Downgradient	8	50%	0.636	NSD	NSD	--	--	NSD
Chromium	Upgradient	12	33%	Downgradient	8	100%	0.943	NSD	NSD	--	--	NSD
Copper	Upgradient	12	50%	Downgradient	8	75%	n/a	--	NSD	--	--	NSD
Iron	Upgradient	12	0%	Downgradient	8	0%	0.256	NSD	NSD	--	--	NSD
Lead	Upgradient	12	75%	Downgradient	8	100%	n/a	--	NSD	--	--	NSD
Manganese	Upgradient	12	0%	Downgradient	8	0%	0.454	NSD	NSD	--	--	NSD
Selenium	Upgradient	12	67%	Downgradient	8	100%	n/a	--	NSD	--	--	NSD
Zinc	Upgradient	12	42%	Downgradient	8	88%	0.943	NSD	NSD	--	--	NSD
General Chemistry												
Chloride	Upgradient	12	0%	Downgradient	8	0%	0.731	NSD	NSD	--	--	NSD
Fluoride	Upgradient	12[2]	42%	Downgradient	8	0%	1.6E-04	DG > UG	DG > UG	0.5, 0.75	<0.01, <0.01	DG > UG
Nitrate (as N)	Upgradient	12	42%	Downgradient	8	100%	0.971	NSD	NSD	--	--	NSD
Sulfate	Upgradient	12	0%	Downgradient	8	13%	0.999	NSD	NSD	--	--	NSD
Total dissolved solids (TDS)	Upgradient	24	0%	Downgradient	8	0%	0.180	NSD	NSD[3]	--	--	NSD

Notes:

NSD No significant difference -- The statistical test did not yield a significant (above 95 percent confidence) result.

n/a Not applicable -- The statistical test is not appropriate for use when both groups contain high levels (>50%) of non-detect results.

DG > UG Downgradient above upgradient -- The statistical test identified a significant (above 95 percent confidence, or otherwise indicated) result.

(1) Quantile tests performed manually, using the method found in Section 3.3.2.1.2 of USEPA, 2006 (Data Quality Assessment: Statistical Methods for Practitioners, EPA QA/G-9S. United States Environmental Protection Agency EPA/240/B-06/003).

(2) In the statistical tests, one result was excluded due to it being a non-detect with an elevated detection limit (higher than all other results).

(3) This analysis was performed using ProUCL V4.1.01, since the number of samples (24 upgradient and 8 downgradient) is outside of the tabulated values available in USEPA (2006) and the minimums recommended (15 per group) to use the normal approximation method (Box 3-35 of USEPA, 2006).

TABLE 6.4

STATISTICAL INTER-GROUP COMPARISON RESULTS
DEEP DOWNGRADIENT VERSUS UPGRADIENT GROUNDWATER
CATERPILLAR INC.
MAPLETON, ILLINOIS

	Reference Group			*Comparison Group*			*WRS/Mann-Whitney Test Result*		*Quantile Test*[1] *Result*			*Overall*
	Group Identification	*Number of Samples*	*Percent Non-detect*	*Group Identification*	*Number of Samples*	*Percent Non-detect*	*P-value*	*Conclusion*	*Conclusion*	*Quantile*	*P-Value*	*Conclusion*
Deep Downgradient vs. Upgradient -- testing if DG > UG (1-sided)												
Metals												
Arsenic	Upgradient	12	58%	Downgradient	6	100%	n/a	--	NSD	--	--	NSD
Barium	Upgradient	12	25%	Downgradient	6	17%	0.463	NSD	NSD	--	--	NSD
Cadmium	Upgradient	12	42%	Downgradient	6	50%	0.628	NSD	NSD	--	--	NSD
Chromium	Upgradient	12	33%	Downgradient	6	50%	0.869	NSD	NSD	--	--	NSD
Copper	Upgradient	12	50%	Downgradient	6	83%	n/a	--	NSD	--	--	NSD
Iron	Upgradient	12	0%	Downgradient	6	0%	0.147	NSD	DG > UG	0.5	<0.10	DG > UG
Lead	Upgradient	12	75%	Downgradient	6	100%	n/a	--	NSD	--	--	NSD
Manganese	Upgradient	12	0%	Downgradient	6	0%	0.888	NSD	NSD	--	--	NSD
Selenium	Upgradient	12	67%	Downgradient	6	100%	n/a	--	NSD	--	--	NSD
Zinc	Upgradient	12	42%	Downgradient	6	83%	0.826	NSD	NSD	--	--	NSD
General Chemistry												
Chloride	Upgradient	12	0%	Downgradient	6	0%	0.111	NSD	NSD	--	--	NSD
Fluoride	Upgradient	12[2]	42%	Downgradient	6	50%	0.896	NSD	NSD	--	--	NSD
Nitrate (as N)	Upgradient	12	42%	Downgradient	6	83%	0.888	NSD	NSD	--	--	NSD
Sulfate	Upgradient	12	0%	Downgradient	6	0%	0.543	NSD	NSD	--	--	NSD
Total dissolved solids (TDS)	Upgradient	24	0%	Downgradient	6	0%	0.911	NSD	NSD[3]	--	--	NSD

Notes:

NSD No significant difference -- The statistical test did not yield a significant (above 95 percent confidence) result.

n/a Not applicable -- The statistical test is not appropriate for use when both groups contain high levels (>50%) of non-detect results.

DG > UG Downgradient above upgradient -- The statistical test identified a significant (above 95 percent confidence, or otherwise indicated) result.

(1) Quantile tests performed manually, using the method found in Section 3.3.2.1.2 of USEPA, 2006 (Data Quality Assessment: Statistical Methods for Practitioners, EPA QA/G-9S. United States Environmental Protection Agency EPA/240/B-06/003).

(2) In the statistical tests, one result was excluded due to it being a non-detect with an elevated detection limit (higher than all other results).

(3) This analysis was performed using ProUCL V4.1.01, since the number of samples (24 upgradient and 6 downgradient) is outside of the tabulated values available in USEPA (2006) and the minimums recommended (15 per group) to use the normal approximation method (Box 3-35 of USEPA, 2006).

APPENDICES

APPENDIX A

TEST WELL STRATIGRAPHIC LOG

February 10, 1983
GEJaeger:mcw

MEMO TO FILE

Foundry Site
Test Wells

Log of Test Well -- 37 + 50 E and 38 + 00 N

0 - 9'	Brown soft clay
9 - 10'	Coarse gravel and driftwood
10 - 35'	Gray clay
35 - 40'	Sand & clay (50%) 1-1/2" mud loss 10 lb.
40 - 41'	Lime ledge or boulder
41 - 61'	Blue shale, few lime ledges
61 - 75'	Very hard black shale - 4 min/ft.
75 - 77'	Black lime
77 - 80'	Coal
80 - 93'	Gray shale
93 - 95'	Gray sandstone - hard
95 - 110'	Gray shale, few streaks of coal
110 - 114'	Coal
114 - 130'	Gray shale, few lime lenes
130 - 138'	Coal
138 - 155'	Gray shale
155 - 163'	White shale, few sandstone lenes
163 - 175'	Sandstone 2 min./ft.
175 - 190'	Shale with sandstone lenes
190 - 205'	Shale
205 - 208'	Coal with some shale
208 - 220'	Shale
220 - 239'	Light and dark shale
239 - 255'	Lime
255 - 260'	Limestone
260 - 290'	Silty, dirty, sandstone
290 - 310'	Sandy gray shale

(final depth)

APPENDIX B

ISGS WELL SEARCH RESULTS

ArcIMS HTML Viewer Map

SECTION 29
TWP 7N
RANGE 7E

Legend

Water and Related Wells

Well Status

- Water
- Dry
- Engineering
- Stratigraphic
- Observation
- Mineral Test
- Outcrop
- Mine-related
- Hazardous Waste or Leaking Tank

- Sections
- Townships
- Counties
- Lakes
- Municipalities

CUA 2005 UTM 16 (east)

RGB

- Red: Band_1
- Green: Band_2
- Blue: Band_3

DOQ 2005 UTM 16 (east)

Value

High : 255

Low : 0

DOQ 2005 UTM 15 (west)

Value

High : 254

Low : 0

ILLINOIS STATE GEOLOGICAL SURVEY

Noncommunity - Public Water Well	Top	Bottom
Total Depth		

Now Evonik

Permit Date: Permit #:

COMPANY

FARM Goldschmidt Chemical

DATE DRILLED NO.

ELEVATION 0 COUNTY NO. 34528

LOCATION NW NE SE

LATITUDE 40.559853 LONGITUDE -89.721648

COUNTY Peoria API 121433452800 29 - 7N - 7E

Page 1

ILLINOIS STATE GEOLOGICAL SURVEY

Noncommunity - Public Water Well	Top	Bottom
Total Depth		

NOW EVONIK

Permit Date: Permit #:

COMPANY

FARM Goldschmidt Tap

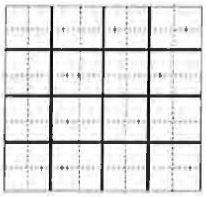
DATE DRILLED NO.

ELEVATION 0 COUNTY NO. 34530

LOCATION NE NE SE

LATITUDE 40.560147 LONGITUDE -89.719265

COUNTY Peoria API 121433453000 29 - 7N - 7E



ILLINOIS STATE GEOLOGICAL SURVEY

Noncommunity - Public Water Well	Top	Bottom
Total Depth		

NOW EVONIK

Permit Date: Permit #:

COMPANY

FARM Goldschmidt Tap

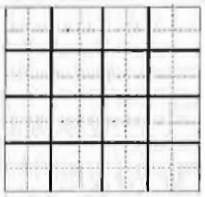
DATE DRILLED NO.

ELEVATION 0 COUNTY NO. 34529

LOCATION SE SE NE

LATITUDE 40.561383 LONGITUDE -89.71928

COUNTY Peoria API 121433452900 29 - 7N - 7E



ILLINOIS STATE GEOLOGICAL SURVEY

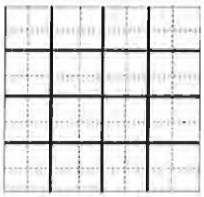
Water Well	Top	Bottom
silt, leached, oxidized, reddish brown	0	5
gvl,.25",sty,s,calc,ox,reddish-brown	5	15
gvl,gran/.25,sty,s,calc,ox,rdsh-brn	15	21
siltstone, mic,calc,lgt grnsh-gray	21	23
si,mic,calc,lgt grnsh gry,w/ ox frags	23	30
si,mic,calc,lgt grnsh gry,light gray	30	35
si,mic,calc,lgt grnsh gry,s,lgt gray	35	39
shale, carbonaceous, dark gray	39	45
sh,carb,dark gray, sandy	45	50
shale, carb, dark gray siderite frags	50	55
shale, carb, gray siderite fragments	55	60
Total Depth		60

Driller's Log filed
Survey Sample Study filed
Sample set # 7095 (0' - 60') Received: January 1, 1941

Location source: Location from the driller

Permit Date: Permit #:

COMPANY owner
FARM Mapleton Test
DATE DRILLED January 1, 1940 NO. 14
ELEVATION 452GL COUNTY NO. 00702
LOCATION 60'S line, 0'W line of NE NE
LATITUDE 40.563227 LONGITUDE -89.722864
COUNTY Peoria API 121430070200 29 - 7N - 7E



Condo on property east of Baldschmidt Chemical

ILLINOIS STATE GEOLOGICAL SURVEY

Test Hole	Top	Bottom
s.s. #34672	0	0
sand fill	0	5
silty loam	5	8
soft gray clay	8	20
soft blue clay	20	44
all grades gravel, little sand	44	53
all grades sand, some stones	53	68
fine-medium sand	68	72
all grades s, fine gvl, cl balls at 75'	72	75
shale	75	78
Total Depth		78

Casing: 4" CASING from 0' to 0'

Static level 4' below casing top which is 0' above GL

Driller's Log filed
Company Sample Study filed
Sample set # 34672 (5' - 78')

Location source: Location from the driller

Permit Date: Permit #:

COMPANY owner

FARM T. P. & W. Railroad

DATE DRILLED January 1, 1959 NO. 9

ELEVATION 445GL COUNTY NO. 00677

LOCATION 70'S line, 185'E line of NE

LATITUDE 40.561014 LONGITUDE -89.718751

COUNTY Peoria API 121430067700 29 - 7N - 7E

ILLINOIS STATE GEOLOGICAL SURVEY

Test Hole	Top	Bottom
s.s. #34673	0	0
fill	0	4
silty loam	4	7
soft gray clay	7	22
soft blue clay	22	49
all grades gravel, little sand	49	51
all grades, mostly medium, sand	51	57
fine-medium sand	57	62
all grades sand	62	72
cap rock	72	73
shale	73	75
Total Depth		75

Casing: 4" CASING from 0' to 0'

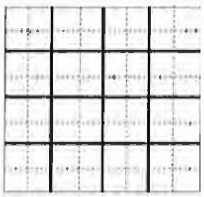
Static level 5' below casing top which is 0' above GL

Driller's Log filed
Company Sample Study filed
Sample set # 34673 (4' - 75')

Location source: Location from the driller

Permit Date: **Permit #:**

COMPANY owner
FARM T. P. & W. Railroad
DATE DRILLED January 1, 1959 **NO.** 10
ELEVATION 443GL **COUNTY NO.** 00678
LOCATION 20'S line, 680'E line of NE
LATITUDE 40.560682 **LONGITUDE** -89.720537
COUNTY Peoria **API** 121430067800 **29 - 7N - 7E**



ILLINOIS STATE GEOLOGICAL SURVEY

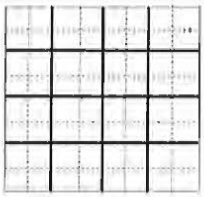
Test Hole	Top	Bottom
s.s. #7094	0	0
sandy loam	0	5
sandy clay	5	13
gray soapstone	13	30
Total Depth		30

Driller's Log filed
Company Sample Study filed
Sample set # 7094 (0' - 30')

Location source: Location from the driller

Permit Date: **Permit #:**

COMPANY owner
FARM T. P. & W. Railroad
DATE DRILLED January 1, 1940 **NO.** 13
ELEVATION 442GL **COUNTY NO.** 00691
LOCATION 715'S line, 75'W line of NE
LATITUDE 40.561859 **LONGITUDE** -89.727345
COUNTY Peoria **API** 121430069100 29 - 7N - 7E



ILLINOIS STATE GEOLOGICAL SURVEY

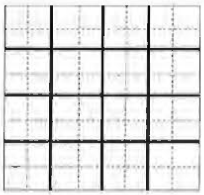
Test Hole	Top	Bottom
S.S. #7098	0	0
sandy loam	0	2
yellow clay	2	6
clay & gravel	6	14
soft gray sandstone	14	18
gray soapstone	18	26
Total Depth		**26**

Driller's Log filed
Company Sample Study filed
Sample set # 7098 (0' - 26')

Location source: Location from the driller

Permit Date: **Permit #:**

COMPANY owner
FARM T. P. & W. Railroad
DATE DRILLED January 1, 1940 **NO.** 17
ELEVATION 454GL **COUNTY NO.** 00693
LOCATION 1445'S line, 505'W line of NE
LATITUDE 40.564044 **LONGITUDE** -89.725789
COUNTY Peoria **API** 121430069300 29 - 7N - 7E



ILLINOIS STATE GEOLOGICAL SURVEY

Test Hole	Top	Bottom
s.s. #7099	0	0
sandy loam	0	4
sand & gravel	4	25
soapstone	25	33
sandy soapstone	33	47
gray soapstone	47	50
Total Depth		50

Driller's Log filed
Company Sample Study filed
Sample set # 7099 (0' - 50')

Location source: Location from the driller

Permit Date: Permit #:

COMPANY owner
FARM T. P. & W. Railroad
DATE DRILLED January 1, 1940 NO. 19
ELEVATION 458GL COUNTY NO. 00694
LOCATION 445'N line, 960'E line of section
LATITUDE 40.564505 LONGITUDE -89.721602
COUNTY Peoria API 121430069400 29 - 7N - 7E

ILLINOIS STATE GEOLOGICAL SURVEY

Test Hole	Top	Bottom
s.s. #7104	0	0
brown clay	0	10
gray clay	10	20
soft gray clay	20	66
coarse sand	66	68
dark shale	68	74
Total Depth		74

Pumping level 0' when pumping at 20 gpm for 0 hours

Driller's Log filed
Company Sample Study filed
Sample set # 7104 (0' - 74')

Location source: Location from the driller

Permit Date: Permit #:

COMPANY owner
FARM T. P. & W. Railroad
DATE DRILLED January 1, 1940 NO. 26
ELEVATION 442GL COUNTY NO. 00695
LOCATION 970'N line, 265'W line of SE
LATITUDE 40.557286 LONGITUDE -89.72665
COUNTY Peoria API 121430069500 29 - 7N - 7E

ILLINOIS STATE GEOLOGICAL SURVEY

Monitoring	Top	Bottom
gravel	0	1
SC sand, some clay, little silt & gravel	1	3
SP sand fine to medium grained brown	3	14
SW sand fine to coarse trace gvl, gray	14	14
no record	14	18
Total Depth		18

Casing: 2" SCH 40 PVC RISOR from 0' to 7'
2" SCH 40 PVC SCREEN from 7' to 17'

Screen: 10' of 2" diameter 8 slot

Grout: BENTONITE from 0 to 5.

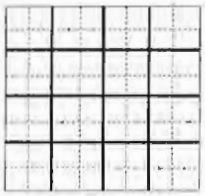
Water from sand at 12' to '.
Static level 14' below casing top which is 2' above GL

Address of well: 8826 Rte. 24 West
Mapleton, IL

Location source: Location from the driller

Permit Date: **Permit #:**

COMPANY Boart Longyear Co.
FARM Caterpillar
DATE DRILLED November 16, 1999 **NO.** MW-99C
ELEVATION 0 **COUNTY NO.** 34143
LOCATION NW NW SW
LATITUDE 40.558084 **LONGITUDE** -89.73596
COUNTY Peoria **API** 121433414300 29 - 7N - 7E



ArcIMS HTML Viewer Map

SECTION 30
TWP 7N
RANGE 7E

Legend

Water and Related Wells

Well Status

- Water
- Dry
- Engineering
- Stratigraphic
- Observation
- Mineral Test
- Outcrop
- Mine-related
- Hazardous Waste or Leaking Tank

- Sections
- Townships
- Counties
- Lakes
- Municipalities

CUA 2005 UTM 16 (east)

RGB

- Red: Band_1
- Green: Band_2
- Blue: Band_3

DOQ 2005 UTM 16 (east)

Value

High : 255

Low : 0

DOQ 2005 UTM 15 (west)

Value

High : 254

Low : 0

ILLINOIS STATE GEOLOGICAL SURVEY

Water Well for Commercial Operation	Top	Bottom
SS #64495(0'-37')	0	0
dirty sand & gravel	0	17
gray silty clay	17	30
allgrades & few stns	30	36
black shale	36	36
Total Depth		36

Casing: 6" BLK STEEL 19.91 from 0' to 32'

Screen: 4' of 6" diameter 14 slot

Grout: DRILL CUTTINGS from 0 to 20.

Size hole below casing: 0"

Water from sand at 30' to 36'.
Static level 21' below casing top which is 1' above GL
Pumping level 0' when pumping at 20 gpm for 3 hours

Permanent pump installed at 33' on December 27, 1982, with a capacity of 18 gpm

Sample set # 64495 (0' - 37')

Address of well:
Mapleton, IL

Location source: Location from permit

Now Growmark

Permit Date: October 21, 1982 **Permit #:** 105362

COMPANY Ebert, William M.
FARM C.F. Industries Inc.
DATE DRILLED December 27, 1982 **NO.** 1
ELEVATION 0 **COUNTY NO.** 22999
LOCATION 1000'N line, 1000'E line of SW
LATITUDE 40.556091 **LONGITUDE** -89.750173
COUNTY Peoria **API** 121432299900 30 - 7N - 7E

ILLINOIS STATE GEOLOGICAL SURVEY

Water Well for Commercial Operation	Top	Bottom
dark soil	0	3
fill	3	9
gray sticky clay	9	26
wood coal clay	26	35
sand & gravel	35	49
gray clay shale?	49	51
Total Depth		51

Casing: 6" STEEL from -2' to 4'
5" PVC from 4' to 51'
5" PVC SCREEN from 39' to 49'

Screen: 10' of 5" diameter 30 slot

Grout: BENTONITE from 0 to 37.

Water from sand & gravel at 39' to 49'.
Static level 14' below casing top which is 2' above GL
Pumping level 29' when pumping at 35 gpm for 2 hours

Permanent pump installed at 38' on , with a capacity of 35 gpm

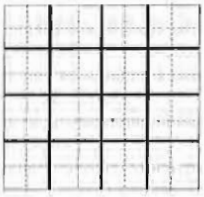
Address of well: 11122 S. Terminal Rd.
Mapleton, IL

Location source: Location from permit

NOW GROWMARK

Permit Date: August 23, 2000 **Permit #:**

COMPANY Cole, Steve
FARM CF Industries
DATE DRILLED December 16, 2000 NO. 2
ELEVATION 0 COUNTY NO. 34162
LOCATION NW SW SE
LATITUDE 40.554393 **LONGITUDE** -89.745393
COUNTY Peoria **API** 121433416200 30 - 7N - 7E



ILLINOIS STATE GEOLOGICAL SURVEY

Private Water Well	Top	Bottom
hard yellow clay	0	22
soft blue shale	22	25
hard limestone	25	27
soft blue shale	27	28
hard blue shale	28	33
hard limestone	33	35
hard blue shale	35	45
Total Depth		45

Casing: 6" SDR 21 PLASTIC from 0' to 18'
24" CONCRETE TILE from 18' to 45'

Water from soft blue shale at 27' to 28'.
Static level 24' below casing top which is 2' above GL
Pumping level 36' when pumping at 10 gpm for 1 hour

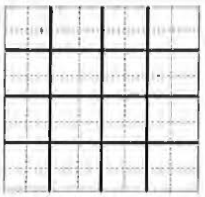
Address of well: same as above

Location source: Location from permit

NORTH OF HWY 24

Permit Date: January 27, 1998 **Permit #:** 143-W93

COMPANY Kuntz, John E.
FARM Chiotte, Steve
DATE DRILLED February 6, 1998 **NO.** 1
ELEVATION 0 **COUNTY NO.** 25866
LOCATION NW NW NW
LATITUDE 40.565125 **LONGITUDE** -89.754735
COUNTY Peoria **API** 121432586600 30 - 7N - 7E



ILLINOIS STATE GEOLOGICAL SURVEY

Engineering Test	Top	Bottom
Total Depth		25

Permit Date: Permit #:

COMPANY IL Dept. of Transportation

FARM Rt Bridge Abutment Little LaMarsh

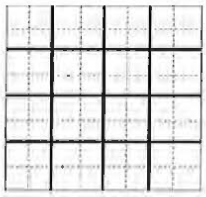
DATE DRILLED June 4, 1951 NO. 1

ELEVATION 459GL COUNTY NO. 25283

LOCATION SE NW NE

LATITUDE 40.563271 LONGITUDE -89.742993

COUNTY Peoria API 121432528300 30 - 7N - 7E



ILLINOIS STATE GEOLOGICAL SURVEY

Engineering Test	Top	Bottom
Total Depth		19

Permit Date: Permit #:

COMPANY IL Dept. of Transportation

FARM Little LaMarsh Creek

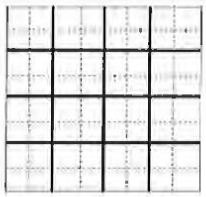
DATE DRILLED June 5, 1951 NO. 2

ELEVATION 457GL COUNTY NO. 25284

LOCATION SE NW NE

LATITUDE 40.563271 LONGITUDE -89.742993

COUNTY Peoria API 121432528400 30 - 7N - 7E

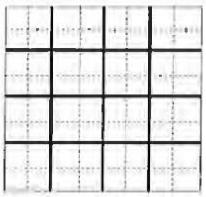


ILLINOIS STATE GEOLOGICAL SURVEY

Engineering Test	Top	Bottom
Total Depth		22

Permit Date: Permit #:

COMPANY IL Dept. of Transportation
FARM Little LaMarsh Creek
DATE DRILLED June 5, 1951 NO. 4
ELEVATION 459GL COUNTY NO. 25286
LOCATION SE NW NE
LATITUDE 40.563271 LONGITUDE -89.742993
COUNTY Peoria API 121432528600 30 - 7N - 7E



ILLINOIS STATE GEOLOGICAL SURVEY

Engineering Test	Top	Bottom
Total Depth		25

Permit Date: Permit #:

COMPANY IL Dept. of Transportation

FARM Little LaMarsh Creek

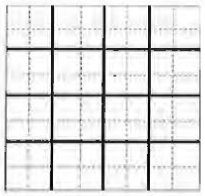
DATE DRILLED June 5, 1951 NO. 5

ELEVATION 460GL COUNTY NO. 25287

LOCATION SE NW NE

LATITUDE 40.563271 LONGITUDE -89.742993

COUNTY Peoria API 121432528700 30 - 7N - 7E



ILLINOIS STATE GEOLOGICAL SURVEY

Engineering Test	Top	Bottom
Total Depth		23

Permit Date: Permit #:

COMPANY IL Dept. of Transportation

FARM Little LaMarsh Creek

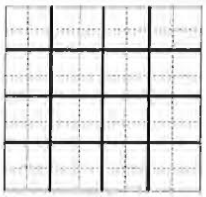
DATE DRILLED June 5, 1951 NO. 6

ELEVATION 461GL COUNTY NO. 25288

LOCATION SE NW NE

LATITUDE 40.563271 LONGITUDE -89.742993

COUNTY Peoria API 121432528800 30 - 7N - 7E



ILLINOIS STATE GEOLOGICAL SURVEY

Engineering Test	Top	Bottom
C #10753 (2'-28')	0	0
Total Depth		

Core #C 10753 (2' - 28') Received: January 1, 1976

Permit Date: **Permit #:**

COMPANY owner
FARM Rte.FA-10 Sta.496+86.55 Bo
DATE DRILLED NO. 3
ELEVATION 0 COUNTY NO. 24805
LOCATION NW NE
LATITUDE 40.564165 LONGITUDE -89.744161
COUNTY Peoria API 121432480500

30 - 7N - 7E

ILLINOIS STATE GEOLOGICAL SURVEY

Engineering Test	Top	Bottom
C #10752 (2'-15.5')	0	0
Total Depth		23

Core #C 10752 (2' - 15.5') Received: January 1, 1976

Additional location info: Lot: Subdivision: Elev updated - ABL

Permit Date: Permit #:

COMPANY owner

FARM Rte.FA-10 Sta.496+86.55 Bor

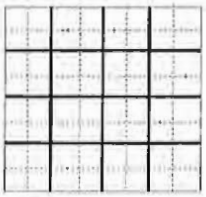
DATE DRILLED August 7, 1974 NO. 1

ELEVATION 457GL COUNTY NO. 24804

LOCATION NW NE

LATITUDE 40.564165 LONGITUDE -89.744161

COUNTY Peoria API 121432480400 30 - 7N - 7E



ILLINOIS STATE GEOLOGICAL SURVEY

Test Hole	Top	Bottom
S.S. #7091	0	0
sandy loam	0	12
sand & poor gravel	12	20
sand & gravel	20	22
very fine sand	22	25
pea gravel	25	28
blue clay	28	30
light soapstone	30	33
dark soapstone	33	55
gray soapstone	55	73
dark soapstone	73	75
soft shale	75	80
dark soapstone	80	89
dark limestone	89	91
coal	91	93
dark soapstone	93	95
Total Depth		95

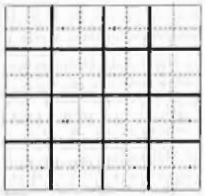
Pumping level 0' when pumping at 100 gpm for 0 hours

Driller's Log filed
Company Sample Study filed
Sample set # 7091 (0' - 95')

Location source: Location from the driller

Permit Date: **Permit #:**

COMPANY owner
FARM T. P. & W. Railroad
DATE DRILLED January 1, 1940 **NO.** 1
ELEVATION 449GL **COUNTY NO.** 00696
LOCATION 240'N line, 1300'W line of SE
LATITUDE 40.558169 **LONGITUDE** -89.741843
COUNTY Peoria **API** 121430069600 30 - 7N - 7E



ILLINOIS STATE GEOLOGICAL SURVEY

Test Hole	Top	Bottom
s.s. #7093	0	0
sandy loam	0	4
sandy clay	4	14
dirty sand	14	22
gray soapstone	22	30
dark soapstone	30	50
gray soapstone	50	68
dark soapstone	68	71
limestone & sandstone	71	71
dark soapstone	71	85
dark limestone	85	86
coal	86	88
dark soapstone	88	90
gray soapstone	90	94
Total Depth		94

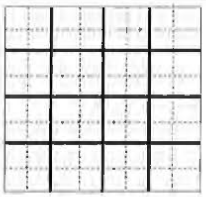
Pumping level 0' when pumping at 25 gpm for 0 hours

Driller's Log filed
Company Sample Study filed
Sample set # 7093 (5' - 94')

Location source: Location from the driller

Permit Date: **Permit #:**

COMPANY owner
FARM T. P. & W. Railroad
DATE DRILLED January 1, 1940 **NO.** 4
ELEVATION 446GL **COUNTY NO.** 00697
LOCATION 60'N line, 2370'W line of SE
LATITUDE 40.558657 **LONGITUDE** -89.73797
COUNTY Peoria **API** 121430069700 30 - 7N - 7E



ILLINOIS STATE GEOLOGICAL SURVEY

Test Hole	Top	Bottom
S.S. #7106	0	0
brown clay	0	10
brown sand	10	15
dirty gray sand	15	25
gray sand	25	40
gray clay	40	45
Total Depth		45

Pumping level 0' when pumping at 290 gpm for 0 hours

Driller's Log filed
Company Sample Study filed
Sample set # 7106 (' - 45') Received: January 1, 1941

Location source: Location from the driller

Permit Date: **Permit #:**

COMPANY owner
FARM T. P. & W. Railroad
DATE DRILLED January 1, 1940 **NO.** 28
ELEVATION 440GL **COUNTY NO.** 00698
LOCATION 2030'N line, 2180'W line of SE
LATITUDE 40.553223 **LONGITUDE** -89.738689
COUNTY Peoria **API** 121430069800 30 - 7N - 7E

ILLINOIS STATE GEOLOGICAL SURVEY

Test Hole	Top	Bottom
~~S.G. #7107~~	0	0
brown clay	0	10
dirty sand	10	22
green sand	22	30
clean green sand	30	42
gray sand	42	50
coarse gray sand	50	52
gray clay	52	56
Total Depth		56

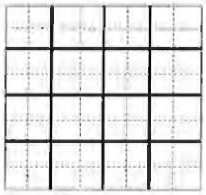
Pumping level 0' when pumping at 425 gpm for 0 hours

Driller's Log filed
Company Sample Study filed
Sample set # 7107 (0' - 56') Received: January 1, 1941

Location source: Location from the driller

Permit Date: **Permit #:**

COMPANY owner
FARM T. P. & W. Railroad
DATE DRILLED January 1, 1940 **NO.** 29
ELEVATION 459GL **COUNTY NO.** 00699
LOCATION 2020'N line, 1150'W line of SE
LATITUDE 40.55326 **LONGITUDE** -89.742415
COUNTY Peoria **API** 121430069900 30 - 7N - 7E



ILLINOIS STATE GEOLOGICAL SURVEY

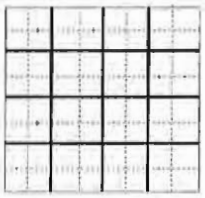
Test Hole	Top	Bottom
S.S. #7108 (0 - 122')	0	0
Total Depth		

Sample set # 7108 (0' - 122') Received: January 1, 1941

Location source: Location from the driller

Permit Date: Permit #:

COMPANY owner
FARM T.P. & W.R.R.
DATE DRILLED NO. 30
ELEVATION 0 COUNTY NO. 24302
LOCATION 200'S 1100'W NE/c SW
LATITUDE 40.558297 LONGITUDE -89.750525
COUNTY Peoria API 121432430200 30 - 7N - 7E



ILLINOIS STATE GEOLOGICAL SURVEY

Monitoring

	Top	Bottom
concrete, brown & gray fill	0	2
gray & tan silty clay	2	10
black fine silty sand	10	15
gray silt loam/sand	15	20
no record	20	26
Total Depth		26

Casing: 2" SCH. 40 PVC from 1' to 26'

Screen: 10' of 2" diameter .01 slot

Grout: BENTONITE from 1 to 13.

Size hole below casing: 8"

Water from sand at 18' to '.

Location source: Location from the driller

Permit Date: Permit #: none

COMPANY ESE

FARM Caterpiller

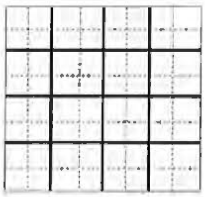
DATE DRILLED September 28, 1992 NO. MW-1

ELEVATION 0 COUNTY NO. 24520

LOCATION E2 E2

LATITUDE 40.558825 LONGITUDE -89.739494

COUNTY Peoria API 121432452000 30 - 7N - 7E



ILLINOIS STATE GEOLOGICAL SURVEY

Monitoring	Top	Bottom
concrete, brown/gray fill	0	5
olive silty clay dry-moist	5	15
gray changing to tan silt loam	15	20
gray to tan sand & gravel	20	25
Total Depth		26

Casing: 2" SCH. 40 PVC from 1' to 25'

Screen: 10' of 2" diameter .01 slot

Grout: BENTONITE from 1 to 13.

Size hole below casing: 8"

Water from sand at 17' to '.

Location source: Location from the driller

Permit Date: **Permit #:** none

COMPANY ESE

FARM Caterpillar

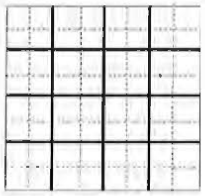
DATE DRILLED September 28, 1992 NO. MW-2

ELEVATION 0 COUNTY NO. 24521

LOCATION E2 E2

LATITUDE 40.558825 LONGITUDE -89.739494

COUNTY Peoria API 121432452100 30 - 7N - 7E



ILLINOIS STATE GEOLOGICAL SURVEY

Monitoring	Top	Bottom
concrete, fill sand/gravel	0	2
tan silty clay	2	4
black silty sand	4	20
gray poorly sorted sands	20	25
gray silty clay loam	25	26
Total Depth		26

Casing: 2" SCH. 40 PVC from 1' to 25'

Screen: 10' of 2" diameter .01 slot

Grout: BENTONITE from 1 to 13.

Size hole below casing: 8"

Water from sand at 17' to ',

Location source: Location from the driller

Permit Date: Permit #: none

COMPANY ESE

FARM Caterpillar, Inc.

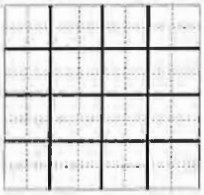
DATE DRILLED September 28, 1992 NO. MW-3

ELEVATION 0 COUNTY NO. 24522

LOCATION E2 E2

LATITUDE 40.558825 LONGITUDE -89.739494

COUNTY Peoria API 121432452200 30 - 7N - 7E



ILLINOIS STATE GEOLOGICAL SURVEY

Monitoring

	Top	Bottom
gravel	0	3
CL clay, little silt & gravel, gray	3	6
SP sand f to coarse grained, tr silt brn	6	15
CL clay some silt at	15	15
no record	15	18
Total Depth		18

Casing: 2" SCH 40 PVC RISOR from 0' to 8'
2" SCH 40 PVC SCREEN from 8' to 18'

Screen: 10' of 2" diameter 8 slot

Grout: BENTONITE from 0 to 6.

Water from sand/clay at 12' to '.
Static level 15' below casing top which is 3' above GL

Address of well: 8826 Rte. 24
Mapleton, IL

Location source: Location from the driller

Permit Date: Permit #:

COMPANY Boart Longyear Co.
FARM Caterpillar
DATE DRILLED November 15, 1999 NO. MW-99A
ELEVATION 0 COUNTY NO. 34144
LOCATION NE NW SE
LATITUDE 40.557946 LONGITUDE -89.743025
COUNTY Peoria API 121433414400 30 - 7N - 7E

ILLINOIS STATE GEOLOGICAL SURVEY

Monitoring	Top	Bottom
SP sand fine to medium grained moist	0	11
CL clay, some silt, trace f sand, gray	11	11
no record	11	18
Total Depth		18

Casing: 2" SCH 40 PVC SCREEN from 7' to 17'
2" PVC SCH 40 RISOR from 0' to 7'

Screen: 10' of 2" diameter 8 slot

Grout: BENTONITE from 0 to 5.

Water from clay at 16' to 17'.
Static level 19' below casing top which is 3' above GL

Address of well: 8826 Rte. 24 West
Mapleton, IL

Location source: Location from the driller

Permit Date: **Permit #:**

COMPANY Boart Longyear Co.
FARM Caterpillar
DATE DRILLED November 16, 1999 **NO.** MW-99B
ELEVATION 0 **COUNTY NO.** 34142
LOCATION NE NE SE
LATITUDE 40.557939 **LONGITUDE** -89.738326
COUNTY Peoria **API** 121433414200 30 - 7N - 7E

APPENDIX C

LEACHATE ANALYTICAL SUMMARY

APPENDIX C

LEACHATE ANALYTICAL RESULTS SUMMARY
CATERPILLAR INC.
MAPLETON, ILLINOIS

Sample Location:				*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*
Sample ID:				*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*
Sample Date:		*MALC Screening Values Potentially Usable Wastes*		*12/9/1997*	*2/23/1998*	*8/10/1998*	*2/22/1999*	*8/25/1999*	*2/10/2000*	*7/28/2000*	*2/20/2001*	*8/21/2001*	*1/29/2002*	*8/6/2002*	*2/19/2003*	*8/19/2003*	*2/10/2004*	*7/29/2004*	*2/22/2005*	*10/18/2005*	*4/25/2006*	*10/24/2006*	*5/8/2007*
Parameters	*Units*	*Primary a*	*Secondary b*																				
Volatile Organic Compounds																							
1,1,1-Trichloroethane	mg/L	0.2	-	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.0013) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00044) U	ND (0.00017) U	ND (0.00017) U	ND (0.001) U	ND (0.001) U
1,1-Dichloroethene	mg/L	0.007	-	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00041) U	ND (0.00025) U	ND (0.00025) U	ND (0.001) U	ND (0.001) U
1,2-Dibromo-3-chloropropane	mg/L	-	-	-	-	-	-	-	ND (0.005) U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Dichloroethane	mg/L	0.005	-	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.005) U	ND (0.0014) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00041) U	ND (0.00025) U	ND (0.00025) U	ND (0.001) U	ND (0.001) U
1,2-Dichloropropane	mg/L	0.005	-	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.002) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0004) U	ND (0.00019) U	ND (0.00019) U	ND (0.001) U	ND (0.001) U
Benzene	mg/L	0.005	-	**0.007[a]**	**0.009[a]**	**0.011[a]**	**0.011[a]**	**0.0089[a]**	**0.01[a]**	**0.006[a]**	0.005	0.005	0.004	0.0038	0.0026	0.0013	0.0013	0.0011	0.0013	ND (0.00023) U	ND (0.00023) U	ND (0.001) U	ND (0.001) U
Bromodichloromethane	mg/L	-	-	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.0014) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0004) U	ND (0.00022) U	ND (0.00022) U	ND (0.001) U	ND (0.001) U
Bromoform	mg/L	-	-	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.0018) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00036) U	ND (0.00032) U	ND (0.00032) U	ND (0.001) U	ND (0.001) U
Carbon tetrachloride	mg/L	0.005	-	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.005) U	ND (0.0007) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00046) U	ND (0.00034) U	ND (0.00034) U	ND (0.001) U	ND (0.001) U
Chlorobenzene	mg/L	0.1	-	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00037) U	ND (0.00015) U	ND (0.00015) U	ND (0.001) U	ND (0.001) U
Chloroform (Trichloromethane)	mg/L	-	-	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00039) U	ND (0.00014) U	ND (0.00014) U	ND (0.001) U	ND (0.001) U
cis-1,2-Dichloroethene	mg/L	0.07	-	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00039) U	ND (0.0002) U	ND (0.0002) U	ND (0.001) U	ND (0.001) U
Dibromochloromethane	mg/L	-	-	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00038) U	ND (0.00022) U	ND (0.00022) U	ND (0.001) U	ND (0.001) U
Ethylbenzene	mg/L	0.7	-	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.0005) U	ND (0.0005) U	0.0003	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00035) U	ND (0.00021) U	ND (0.00021) U	ND (0.001) U	ND (0.001) U
m&p-Xylenes	mg/L	-	-	-	-	-	-	-	ND (0.005) U	ND (0.005) U	-	-	-	-	-	-	-	-	-	-	-	-	-
o-Xylene	mg/L	-	-	-	-	-	-	-	ND (0.005) U	ND (0.005) U	-	-	-	-	-	-	-	-	-	-	-	-	-
Styrene	mg/L	0.1	-	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0003) U	ND (0.00018) U	ND (0.00018) U	ND (0.001) U	ND (0.001) U
Tetrachloroethene	mg/L	0.005	-	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.005) U	ND (0.0016) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	0.0006	0.00069	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00054) U	ND (0.00018) U	ND (0.00018) U	ND (0.001) U	ND (0.001) U
Toluene	mg/L	1	-	ND (0.001) U	ND (0.001) U	0.001	ND (0.001) U	ND (0.0012) U	ND (0.005) U	ND (0.005) U	0.0006	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00038) U	ND (0.00018) U	ND (0.00018) U	ND (0.001) U	ND (0.001) U
trans-1,2-Dichloroethene	mg/L	0.1	-	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.0018) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0004) U	ND (0.00029) U	ND (0.00029) U	ND (0.001) U	ND (0.001) U
Trichloroethene	mg/L	0.005	-	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.005) U	ND (0.0018) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	0.0006	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00038) U	ND (0.00013) U	ND (0.00013) U	ND (0.001) U	ND (0.001) U
Trihalomethanes	mg/L	0.1	-	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0004) U	ND (0.00032) U	ND (0.00032) U	ND (0.001) U	-
Vinyl chloride	mg/L	0.002	-	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00037) U	ND (0.00016) U	ND (0.00016) U	ND (0.001) U	ND (0.001) U
Xylenes (total)	mg/L	10	-	ND (0.003) U	ND (0.003) U	ND (0.003) U	ND (0.003) U	ND (0.003) U	ND (0.01) U	ND (0.01) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0011) U	ND (0.00054) U	ND (0.00054) U	ND (0.002) U	ND (0.002) U
Metals																							
Aluminum	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic	mg/L	0.05	-	0.002	ND (0.05) U	ND (0.05) U	ND (0.05) U	ND (0.05) U	ND (0.001) U	0.002	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	0.003	ND (0.002) U	0.0046	0.0042	0.0032	0.0034	0.0044	0.0051	0.0048
Barium	mg/L	2	-	0.099	0.1	0.1	0.12	0.12	0.1	0.091	0.117	0.11	0.133	0.11	0.13	0.14	0.15	0.14	0.15	0.15	0.16	0.18	0.17
Cadmium	mg/L	0.005	-	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.001) U	ND (0.001) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00015) U	ND (0.00011) U	ND (0.00011) U	ND (0.0005) U	ND (0.0005) U
Chromium	mg/L	0.1	-	ND (0.004) U	ND (0.004) U	ND (0.004) U	ND (0.004) U	ND (0.004) U	ND (0.004) U	ND (0.004) U	ND (0.01) U	ND (0.01) U	0.0037	0.0016	ND (0.01) U	ND (0.01) U	ND (0.01) U	ND (0.01) U	ND (0.0011) U	0.0021	ND (0.0013) U	ND (0.01) U	ND (0.01) U
Copper	mg/L	-	5	ND (0.003) U	ND (0.005) U	0.007	0.012	ND (0.005) U	ND (0.003) U	0.004	ND (0.01) U	0.0052	0.0086	ND (0.01) U	ND (0.01) U	0.0025	0.014	ND (0.01) U	ND (0.0022) U	ND (0.0021) U	ND (0.0021) U	ND (0.01) U	ND (0.01) U
Iron	mg/L	-	5	1.2	2.1	1.7	2.6	2.3	1.9	2.1	2.14	2.38	4.08	1.5	3.5	**5.3[b]**	**7.3[b]**	**5.3[b]**	**6.5[b]**	**6.6[b]**	**7.8[b]**	**7[b]**	**7.6[b]**
Lead	mg/L	0.0075	-	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.002) U	ND (0.001) U	ND (0.001) U	ND (0.002) U	0.0046	0.0023	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.00079) U	ND (0.0018) U	ND (0.0018) U	ND (0.002) U	ND (0.002) U
Magnesium	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Manganese	mg/L	-	0.15	**0.41[b]**	**0.52[b]**	**0.43[b]**	**0.39[b]**	**0.22[b]**	**0.17[b]**	0.13	**0.154[b]**	0.125	**0.171[b]**	0.1	**0.19[b]**	**0.26[b]**	**0.34[b]**	**0.23[b]**	**0.25[b]**	**0.21[b]**	**0.25[b]**	**0.23[b]**	**0.23[b]**
Potassium	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	mg/L	0.05	-	ND (0.001) U	0.001	ND (0.001) U	ND (0.001) U	ND (0.005) U	0.004	ND (0.001) U	ND (0.01) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	0.00097	ND (0.0006) U	ND (0.0014) U	ND (0.0014) U	ND (0.002) U	ND (0.002) U
Silicon	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	mg/L	-	5	0.025	ND (0.006) U	ND (0.006) U	ND (0.006) U	ND (0.006) U	ND (0.006) U	0.04	ND (0.01) U	0.015	0.0131	ND (0.02) U	0.018	ND (0.02) U	ND (0.02) U	ND (0.02) U	ND (0.0016) U	ND (0.0064) U	ND (0.0064) U	ND (0.02) U	ND (0.02) U
General Chemistry																							
Alkalinity, bicarbonate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, carbonate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia-N	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bromide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calcium	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	mg/L	-	250	28	45	41	44	24	23	18	41	65	130	35	31	47	41	46	50	69	99	130	130
Fluoride	mg/L	4	-	1.7	1.7	1.4	1.9	1.6	1.7	2.6	1.46	1.4	1.1	1.2	1.1	1.3	1.4	1.1	1.1	1.2	0.99	0.85	1.4
Nitrate (as N)	mg/L	10	-	0.05	ND (0.02) U	0.1	ND (0.02) U	ND (0.02) U	ND (0.020) U	0.053	ND (0.10) U	ND (0.10) U	ND (0.10) U	ND (0.10) U	ND (0.1) U	0.045	ND (0.10) U	ND (0.1) U	ND (0.057) U	0.037	ND (0.025) U	ND (0.10) U	ND (0.10) U
Nitrite (as N)	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

APPENDIX C

LEACHATE ANALYTICAL RESULTS SUMMARY
CATERPILLAR INC.
MAPLETON, ILLINOIS

Sample Location:				*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*
Sample ID:				*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*
Sample Date:		*MALC Screening Values Potentially Usable Wastes*		*12/9/1997*	*2/23/1998*	*8/10/1998*	*2/22/1999*	*8/25/1999*	*2/10/2000*	*7/28/2000*	*2/20/2001*	*8/21/2001*	*1/29/2002*	*8/6/2002*	*2/19/2003*	*8/19/2003*	*2/10/2004*	*7/29/2004*	*2/22/2005*	*10/18/2005*	*4/25/2006*	*10/24/2006*	*5/8/2007*
Parameters	*Units*	*Primary a*	*Secondary b*																				
Nitrite/Nitrate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Orthophosphate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphate, total	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorus	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulfate	mg/L	-	400	2	2	ND (1) U	ND (1) U	ND (1) U	ND (1.0) U	2	ND (5.00) U	3.1	ND (5.0) U	6.4	ND (5) U	7.0	3.7	27	8.6	2.0	ND (1.7) U	12	ND (5.0) U
Sulfide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulfite	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total dissolved solids (TDS)	mg/L	-	1200	680	710	650	700	620	200	570	600	770	750	1200	680	1000	780	790	1000	750	840	820	970

APPENDIX C

LEACHATE ANALYTICAL RESULTS SUMMARY
CATERPILLAR INC.
MAPLETON, ILLINOIS

Sample Location:				*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*
Sample ID:				*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*
Sample Date:		*MALC Screening Values Potentially Usable Wastes*		*11/21/2007*	*5/13/2008*	*11/5/2008*	*5/20/2009*	*10/14/2009*	*5/25/2010*	*8/4/2010*	*12/21/2010*	*5/16/2011*	*12/10/1997*	*2/23/1998*	*8/10/1998*	*2/23/1999*	*8/26/1999*	*2/11/2000*	*7/28/2000*	*2/22/2001*	*8/22/2001*	*1/28/2002*	*8/6/2002*
Parameters	*Units*	*Primary a*	*Secondary b*																				
Volatile Organic Compounds																							
1,1,1-Trichloroethane	mg/L	0.2	-	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001)	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.0013) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.005) U	ND (0.0005) U	ND (0.005) U
1,1-Dichloroethene	mg/L	0.007	-	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001)	ND (0.001) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	0.005	ND (0.005) U	ND (0.0005) U	ND (0.005) U	ND (0.0005) U	ND (0.005) U
1,2-Dibromo-3-chloropropane	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND (0.005) U	-	-	-	-	-
1,2-Dichloroethane	mg/L	0.005	-	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001)	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.005) U	ND (0.0014) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.005) U	ND (0.0005) U	ND (0.005) U
1,2-Dichloropropane	mg/L	0.005	-	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001)	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.002) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.005) U	ND (0.0005) U	ND (0.005) U
Benzene	mg/L	0.005	-	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001)	ND (0.0005) U	**0.013[a]**	**0.013[a]**	**0.018[a]**	**0.015[a]**	**0.025[a]**	**0.026[a]**	**0.021[a]**	**0.024[a]**	**0.022[a]**	**0.025[a]**	**0.022[a]**
Bromodichloromethane	mg/L	-	-	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001)	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.0014) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.005) U	ND (0.0005) U	ND (0.005) U
Bromoform	mg/L	-	-	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001)	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.0018) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.005) U	ND (0.0005) U	ND (0.005) U
Carbon tetrachloride	mg/L	0.005	-	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001)	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.005) U	ND (0.0007) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.005) U	ND (0.0005) U	ND (0.005) U
Chlorobenzene	mg/L	0.1	-	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001)	ND (0.001) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.005) U	ND (0.0005) U	ND (0.005) U
Chloroform (Trichloromethane)	mg/L	-	-	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001)	ND (0.001) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.005) U	ND (0.0005) U	ND (0.005) U
cis-1,2-Dichloroethene	mg/L	0.07	-	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001)	ND (0.001) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.005) U	ND (0.0005) U	ND (0.005) U
Dibromochloromethane	mg/L	-	-	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001)	ND (0.001) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.005) U	ND (0.0005) U	ND (0.005) U
Ethylbenzene	mg/L	0.7	-	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001)	ND (0.0005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	0.0022	ND (0.002) U	ND (0.002) U	ND (0.0005) U	ND (0.005) U	0.0005	ND (0.005) U
m&p-Xylenes	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND (0.005) U	ND (0.005) U	-	-	-	-
o-Xylene	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND (0.005) U	ND (0.005) U	-	-	-	-
Styrene	mg/L	0.1	-	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001)	ND (0.001) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.005) U	ND (0.0005) U	ND (0.005) U
Tetrachloroethene	mg/L	0.005	-	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001)	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.005) U	ND (0.0016) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.005) U	ND (0.0005) U	**0.0077[a]**
Toluene	mg/L	1	-	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001)	ND (0.0005) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.0012) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.005) U	ND (0.0005) U	ND (0.005) U
Trichloroethene	mg/L	0.005	-	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001)	ND (0.0005) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.005) U	ND (0.0018) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.005) U	0.0006	ND (0.005) U
Trihalomethanes	mg/L	0.1	-	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	-	-	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.005) U	ND (0.0005) U	ND (0.005) U
Vinyl chloride	mg/L	0.002	-	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001)	ND (0.0005) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	**0.004[a]**	ND (0.002) U	ND (0.0005) U	ND (0.005) U[a]	ND (0.0005) U	ND (0.005) U[a]
Xylenes (total)	mg/L	10	-	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	-	ND (0.002)	ND (0.001) U	0.004	0.004	0.003	ND (0.003) U	0.0069	ND (0.01) U	ND (0.01) U	ND (0.0005) U	ND (0.05) U	ND (0.0005) U	ND (0.005) U
Metals																							
Aluminum	mg/L	-	-	-	-	-	-	-	ND (0.2) U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic	mg/L	0.05	-	ND (0.002) U	ND (0.002) U	ND (0.001) U	ND (0.001) U	0.0011	ND (0.001) U	-	0.0023	0.0012	0.009	ND (0.05) U	ND (0.05) U	ND (0.05) U	0.05	0.008	0.011	0.0058	0.004	0.0047	ND (0.002) U
Barium	mg/L	2	-	0.2	0.2	0.16	0.16	0.12	0.16	0.13	0.13	0.12	0.18	0.16	0.12	0.14	0.13	0.15	0.16	0.166	0.153	0.155	0.18
Cadmium	mg/L	0.005	-	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00050)	ND (0.00050)	ND (0.00050) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.001) U	ND (0.001) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U
Chromium	mg/L	0.1	-	ND (0.01) U	ND (0.01) U	ND (0.01) U	ND (0.01) U	ND (0.01) U	ND (0.01) U	ND (0.010)	ND (0.010)	ND (0.010) U	0.01	ND (0.004) U	0.014	0.025	0.013	0.037	0.026	ND (0.05) U	0.0106	0.0096	0.011
Copper	mg/L	-	5	ND (0.01) U	ND (0.01) U	ND (0.01) U	ND (0.01) U	ND (0.01) U	ND (0.01) U	ND (0.010)	ND (0.010)	ND (0.010) U	0.02	ND (0.005) U	0.025	0.02	ND (0.005) U	0.014	0.034	ND (0.05) U	0.0057	0.0035	0.0048
Iron	mg/L	-	5	**7.5[b]**	1.2	0.74	1.2	1.7	0.7	1.5	2.2	3.2	4.6	**7.3[b]**	4.9	4.9	4.1	**6.1[b]**	**8.4[b]**	**7.18[b]**	4.25	4.48	**5.5[b]**
Lead	mg/L	0.0075	-	ND (0.002) U	ND (0.002) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	0.0022	ND (0.00050)	0.0017	ND (0.00050) U	0.003	0.002	ND (0.001) U	ND (0.001) U	ND (0.002) U	0.003	0.003	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U
Magnesium	mg/L	-	-	-	-	-	-	-	23	16	-	-	-	-	-	-	-	-	-	-	-	-	-
Manganese	mg/L	-	0.15	**0.31[b]**	**0.2[b]**	**0.2[b]**	**0.24[b]**	**0.16[b]**	**0.2[b]**	**0.18[b]**	0.14	**0.17[b]**	**1.2[b]**	**1.4[b]**	**0.33[b]**	**0.28[b]**	0.14	**0.21[b]**	**0.2[b]**	**0.189[b]**	0.0879	0.0891	0.11
Potassium	mg/L	-	-	-	-	-	-	-	23	11	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	mg/L	0.05	-	ND (0.002) U	ND (0.002) U	ND (0.0025) U	ND (0.0025) U	ND (0.0025) U	ND (0.0025) U	ND (0.0025)	ND (0.0025)	ND (0.0025) U	0.004	0.001	0.003	0.006	ND (0.005) U	0.03	0.007	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U
Silicon	mg/L	-	-	-	-	-	-	-	9.6	9.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	mg/L	-	-	-	-	-	-	-	440	420	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	mg/L	-	5	ND (0.02) U	ND (0.02) U	ND (0.02) U	ND (0.02) U	ND (0.02) U	ND (0.02) U	ND (0.020)	ND (0.020)	ND (0.020) U	0.024	ND (0.006) U	ND (0.006) U	ND (0.006) U	ND (0.006) U	ND (0.006) U	0.031	ND (0.05) U	0.0151	0.0062	0.011
General Chemistry																							
Alkalinity, bicarbonate	mg/L	-	-	-	-	-	-	-	760	790	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, carbonate	mg/L	-	-	-	-	-	-	-	ND (5.0) U	ND (5.0)	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia-N	mg/L	-	-	-	-	-	-	-	6.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bromide	mg/L	-	-	-	-	-	-	-	1.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calcium	mg/L	-	-	-	-	-	-	-	30	22	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	mg/L	-	250	170	180	160	160	130	130	130	130	120	**270[b]**	**270[b]**	**320[b]**	**370[b]**	**400[b]**	**430[b]**	**460[b]**	**560[b]**	**540[b]**	**800[b]**	**750[b]**
Fluoride	mg/L	4	-	1.3	1.5	1.9	2.2	2.3	2.3	2.6	2.7	2.8	2.6	2.6	2.1	2.9	2.7	2.10	2.6	2.48	2.1	2.7	1.8
Nitrate (as N)	mg/L	10	-	ND (0.10) U	ND (0.10) U	ND (0.10) U	ND (0.10) U	ND (0.10) U	ND (0.10) U	ND (0.10)	ND (0.10)	ND (0.10) U	0.03	ND (0.02) U	0.39	ND (0.02) U	ND (0.02) U	ND (0.020) U	ND (0.02) U	ND (0.10) U	ND (0.10) U	ND (0.10) U	ND (0.10) U
Nitrite (as N)	mg/L	-	-	ND (0.020) U	ND (0.020) U	ND (0.020) U	ND (0.020) U	ND (0.020) U	ND (0.020) U	ND (0.020)	ND (0.020)	ND (0.020) U	-	-	-	-	-	-	-	-	-	-	-

APPENDIX C

LEACHATE ANALYTICAL RESULTS SUMMARY
CATERPILLAR INC.
MAPLETON, ILLINOIS

Sample Location:				*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*
Sample ID:				*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L301*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*
Sample Date:		*MALC Screening Values Potentially Usable Wastes*		*11/21/2007*	*5/13/2008*	*11/5/2008*	*5/20/2009*	*10/14/2009*	*5/25/2010*	*8/4/2010*	*12/21/2010*	*5/16/2011*	*12/10/1997*	*2/23/1998*	*8/10/1998*	*2/23/1999*	*8/26/1999*	*2/11/2000*	*7/28/2000*	*2/22/2001*	*8/22/2001*	*1/28/2002*	*8/6/2002*
Parameters	*Units*	*Primary a*	*Secondary b*																				
Nitrite/Nitrate	mg/L	-	-	ND (0.10) U	ND (0.10) U	ND (0.10) U	ND (0.10) U	ND (0.10) U	ND (0.10) U	ND (0.10)	ND (0.10)	ND (0.10) U	-	-	-	-	-	-	-	-	-	-	-
Orthophosphate	mg/L	-	-	-	-	-	-	-	ND (0.20) U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphate, total	mg/L	-	-	-	-	-	-	-	-	1.4	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorus	mg/L	-	-	-	-	-	-	-	-	0.47	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulfate	mg/L	-	400	120	120	120	120	140	220	150	130	40	3	1	1	ND (1) U	1	ND (1.0) U	ND (1) U	13.7	19	ND (5.0) U	ND (5.0) U
Sulfide	mg/L	-	-	-	-	-	-	-	1.4	1.1	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulfite	mg/L	-	-	-	-	-	-	-	10.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total dissolved solids (TDS)	mg/L	-	1200	1200	1100	1100	1300[b]	1200	1500[b]	1400[b]	1400[b]	1300[b]	2300[b]	2100[b]	2400[b]	2500[b]	2500[b]	2500[b]	2600[b]	2800[b]	2700[b]	2700[b]	3200[b]

APPENDIX C

LEACHATE ANALYTICAL RESULTS SUMMARY
CATERPILLAR INC.
MAPLETON, ILLINOIS

Sample Location:				*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L303*	*L303*
Sample ID:				*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L303*	*L303*
Sample Date:		*MALC Screening Values Potentially Usable Wastes*		*2/19/2003*	*8/19/2003*	*2/10/2004*	*7/29/2004*	*2/22/2005*	*10/18/2005*	*4/25/2006*	*10/24/2006*	*5/8/2007*	*11/15/2007*	*5/13/2008*	*11/4/2008*	*5/14/2009*	*10/13/2009*	*5/26/2010*	*8/4/2010*	*12/21/2010*	*5/16/2011*	*12/9/1997*	*2/23/1998*
Parameters	*Units*	*Primary a*	*Secondary b*																			
Volatile Organic Compounds																						
1,1,1-Trichloroethane	mg/L	0.2	-	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00044) U	ND (0.00017) U	ND (0.00017) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001)	ND (0.001) U	ND (0.001) U	ND (0.001) U
1,1-Dichloroethene	mg/L	0.007	-	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00041) U	ND (0.00025) U	ND (0.00025) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001)	ND (0.001) U	ND (0.005) U	ND (0.005) U
1,2-Dibromo-3-chloropropane	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Dichloroethane	mg/L	0.005	-	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00041) U	ND (0.00025) U	ND (0.00025) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001)	ND (0.001) U	ND (0.001) U	ND (0.001) U
1,2-Dichloropropane	mg/L	0.005	-	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0004) U	ND (0.00019) U	ND (0.00019) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001)	ND (0.001) U	ND (0.001) U	ND (0.001) U
Benzene	mg/L	0.005	-	**0.034[a]**	**0.029[a]**	**0.032[a]**	**0.029[a]**	**0.028[a]**	**0.03[a]**	**0.034[a]**	**0.027[a]**	**0.029[a]**	**0.032[a]**	**0.021[a]**	**0.019[a]**	**0.024[a]**	**0.016[a]**	**0.015[a]**	-	**0.015[a]**	**0.013[a]**	**0.019[a]**	**0.028[a]**
Bromodichloromethane	mg/L	-	-	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0004) U	ND (0.00022) U	ND (0.00022) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001)	ND (0.001) U	ND (0.001) U	ND (0.001) U
Bromoform	mg/L	-	-	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00036) U	ND (0.00032) U	ND (0.00032) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001)	ND (0.001) U	ND (0.001) U	ND (0.001) U
Carbon tetrachloride	mg/L	0.005	-	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00046) U	ND (0.00034) U	ND (0.00034) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001)	ND (0.001) U	ND (0.001) U	ND (0.001) U
Chlorobenzene	mg/L	0.1	-	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00037) U	ND (0.00015) U	ND (0.00015) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001)	ND (0.001) U	ND (0.005) U	ND (0.005) U
Chloroform (Trichloromethane)	mg/L	-	-	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00039) U	ND (0.00014) U	ND (0.00014) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001)	ND (0.001) U	ND (0.005) U	ND (0.005) U
cis-1,2-Dichloroethene	mg/L	0.07	-	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00039) U	ND (0.0002) U	ND (0.0002) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001)	ND (0.001) U	ND (0.005) U	ND (0.005) U
Dibromochloromethane	mg/L	-	-	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00038) U	ND (0.00022) U	ND (0.00022) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001)	ND (0.001) U	ND (0.005) U	ND (0.005) U
Ethylbenzene	mg/L	0.7	-	0.00052	ND (0.0005) U	0.00053	0.00058	ND (0.00035) U	ND (0.00021) U	0.0006	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001)	ND (0.0005) U	ND (0.005) U	ND (0.005) U
m&p-Xylenes	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
o-Xylene	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Styrene	mg/L	0.1	-	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0003) U	ND (0.00018) U	ND (0.00018) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001)	ND (0.001) U	ND (0.005) U	ND (0.005) U
Tetrachloroethene	mg/L	0.005	-	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00054) U	ND (0.00018) U	ND (0.00018) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001)	ND (0.001) U	ND (0.001) U	ND (0.001) U
Toluene	mg/L	1	-	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00038) U	ND (0.00018) U	ND (0.00018) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001)	ND (0.0005) U	ND (0.001) U	ND (0.001) U
trans-1,2-Dichloroethene	mg/L	0.1	-	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0004) U	ND (0.00029) U	ND (0.00029) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001)	ND (0.001) U	ND (0.001) U	ND (0.001) U
Trichloroethene	mg/L	0.005	-	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00038) U	ND (0.00013) U	ND (0.00013) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001)	ND (0.0005) U	ND (0.001) U	ND (0.001) U
Trihalomethanes	mg/L	0.1	-	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0004) U	ND (0.00032) U	ND (0.00032) U	ND (0.001) U	-	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	-	-	ND (0.005) U	ND (0.005) U
Vinyl chloride	mg/L	0.002	-	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00037) U	ND (0.00016) U	ND (0.00016) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001)	ND (0.0005) U	ND (0.002) U	ND (0.002) U
Xylenes (total)	mg/L	10	-	0.00055	0.00065	0.00053	ND (0.0005) U	ND (0.0011) U	ND (0.00054) U	ND (0.00054) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	-	ND (0.002)	ND (0.001) U	ND (0.003) U	0.005
Metals																						
Aluminum	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND (0.2) U	-	-	-	-	-
Arsenic	mg/L	0.05	-	0.0076	0.0066	0.0093	0.0061	0.0073	0.0068	0.0075	0.0077	0.0054	0.008	0.0078	0.0086	0.0091	0.008	0.0071	-	0.0080	0.0068	0.006	ND (0.05) U
Barium	mg/L	2	-	0.19	0.22	0.19	0.18	0.19	0.17	0.15	0.14	0.14	0.15	0.13	0.13	0.15	0.11	0.11	0.088	0.098	0.083	0.1	0.076
Cadmium	mg/L	0.005	-	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00015) U	ND (0.00011) U	ND (0.00011) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00050)	ND (0.00050)	ND (0.00050) U	ND (0.002) U	ND (0.002) U
Chromium	mg/L	0.1	-	0.0056	0.0082	0.0065	0.0055	0.0072	0.0089	0.0068	ND (0.01) U	ND (0.01) U	ND (0.01) U	ND (0.01) U	ND (0.01) U	ND (0.01) U	ND (0.01) U	0.01	ND (0.010)	0.017	ND (0.010) U	0.005	ND (0.004) U
Copper	mg/L	-	5	0.0025	0.0045	0.0018	ND (0.01) U	0.0034	ND (0.0021) U	ND (0.0021) U	ND (0.01) U	ND (0.01) U	ND (0.01) U	ND (0.01) U	ND (0.01) U	ND (0.01) U	ND (0.01) U	ND (0.01) U	ND (0.010)	0.018	ND (0.010) U	0.018	ND (0.005) U
Iron	mg/L	-	5	4.7	**6.7[b]**	**5.5[b]**	**5.2[b]**	**5.5[b]**	**5.2[b]**	4.6	4.5	4.3	**5.8[b]**	4.7	**10[b]**	**12[b]**	**8[b]**	**5.3[b]**	4.9	**7.3[b]**	3.3	1.9	1.2
Lead	mg/L	0.0075	-	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.00079) U	ND (0.0018) U	ND (0.0018) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	0.0005	ND (0.00050)	0.0049	ND (0.00050) U	ND (0.001) U	ND (0.001) U
Magnesium	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.6	6.4	-	-	-	-
Manganese	mg/L	-	0.15	0.091	0.14	0.11	0.095	0.1	0.086	0.074	0.073	0.079	0.083	0.063	0.11	0.13	0.081	0.06	0.052	0.12	0.040	**0.33[b]**	**0.17[b]**
Potassium	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	26	11	-	-	-	-
Selenium	mg/L	0.05	-	ND (0.002) U	ND (0.002) U	0.002	0.00073	0.0033	ND (0.0014) U	ND (0.0014) U	ND (0.002) U	ND (0.002) U	ND (0.004) U	ND (0.002) U	ND (0.0025) U	ND (0.0025) U	ND (0.0025) U	ND (0.0025) U	ND (0.0025)	ND (0.0025)	ND (0.0025) U	0.003	ND (0.001) U
Silicon	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	13	-	-	-	-
Sodium	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	660	570	-	-	-	-
Zinc	mg/L	-	5	0.018	0.012	ND (0.02) U	ND (0.02) U	0.0038	ND (0.0064) U	ND (0.0064) U	ND (0.02) U	ND (0.02) U	ND (0.02) U	ND (0.02) U	ND (0.02) U	ND (0.02) U	ND (0.02) U	ND (0.02) U	ND (0.020)	ND (0.020)	ND (0.020) U	0.023	ND (0.006) U
General Chemistry																						
Alkalinity, bicarbonate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1000	880	-	-	-	-
Alkalinity, carbonate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND (5.0) U	ND (5.0)	-	-	-	-
Ammonia-N	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18	-	-	-	-	-
Bromide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	-	-	-	-	-
Calcium	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13	11	-	-	-	-
Chloride	mg/L	-	250	**750[b]**	**750[b]**	**720[b]**	**650[b]**	**560[b]**	**820[b]**	**840[b]**	**770[b]**	**960[b]**	**550[b]**	**580[b]**	**560[b]**	**540[b]**	**520[b]**	**430[b]**	**380[b]**	**470[b]**	**420[b]**	190	200
Fluoride	mg/L	4	-	1.9	2.2	2.4	1.9	2.2	2.1	1.9	1.7	2.1	2.0	2.1	2.0	2.2	2.5	2.4	2.9	3.0	2.8	2.7	3.1
Nitrate (as N)	mg/L	10	-	0.036	ND (0.10) U	ND (0.10) U	ND (0.1) U	ND (0.057) U	ND (0.025) U	ND (0.025) U	ND (0.10) U	ND (0.10) U	ND (0.10) U	ND (0.10) U	0.15	ND (0.10) U	ND (0.10) U	ND (0.10) U	ND (0.10)	ND (0.10)	ND (0.10) U	0.05	0.04
Nitrite (as N)	mg/L	-	-	-	-	-	-	-	-	-	-	-	ND (0.020) U	ND (0.020) U	ND (0.020) U	ND (0.020) U	ND (0.020) U	ND (0.020) U	ND (0.020)	ND (0.020)	ND (0.020) U	-	-

APPENDIX C

LEACHATE ANALYTICAL RESULTS SUMMARY
CATERPILLAR INC.
MAPLETON, ILLINOIS

Sample Location:				*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L303*	*L303*
Sample ID:				*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L302*	*L303*	*L303*
Sample Date:		*MALC Screening Values Potentially Usable Wastes*		*2/19/2003*	*8/19/2003*	*2/10/2004*	*7/29/2004*	*2/22/2005*	*10/18/2005*	*4/25/2006*	*10/24/2006*	*5/8/2007*	*11/15/2007*	*5/13/2008*	*11/4/2008*	*5/14/2009*	*10/13/2009*	*5/26/2010*	*8/4/2010*	*12/21/2010*	*5/16/2011*	*12/9/1997*	*2/23/1998*
Parameters	*Units*	*Primary a*	*Secondary b*																			
Nitrite/Nitrate	mg/L	-	-	-	-	-	-	-	-	-	-	-	ND (0.10) U	ND (0.10) U	0.15	ND (0.10) U	ND (0.10) U	ND (0.10) U	ND (0.10)	ND (0.10)	ND (0.10) U	-	-
Orthophosphate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.20	-	-	-	-	-
Phosphate, total	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.2	-	-	-	-
Phosphorus	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.39	-	-	-	-
Sulfate	mg/L	-	400	ND (5) U	2.1	6.6	7.8	13	9.5	14	ND (5.0) U	ND (5.0) U	ND (5.0) U	ND (5.0) U	6.0	6.5	7.2	ND (5.0) U	ND (5.0)	ND (5.0)	19	3	9
Sulfide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND (1.0) U	1.1	-	-	-	-
Sulfite	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total dissolved solids (TDS)	mg/L	-	1200	2900[b]	3100[b]	3100[b]	2800[b]	2600[b]	2800[b]	2700[b]	2500[b]	2600[b]	2200[b]	2200[b]	1900[b]	2100[b]	2400[b]	2100[b]	2000[b]	2200[b]	2000[b]	1500[b]	1400[b]

APPENDIX C

LEACHATE ANALYTICAL RESULTS SUMMARY
CATERPILLAR INC.
MAPLETON, ILLINOIS

Sample Location:				*L303*	*L303*	*L303*	*L303*	*L303*	*L303*	*L303*	*L303*	*L303*	*L303*	*L303*	*L303*	*L303*	*L303*	*L303*	*L303*	*L303*	*L303*	*L303*
Sample ID:				*L303*	*L303*	*L303*	*L303*	*L303*	*L303*	*L303*	*L303*	*L303*	*L303*	*L303*	*L303*	*L303*	*L303*	*L303*	*L303*	*L303*	*L303*	*L303*
Sample Date:		*MALC Screening Values*		*8/10/1998*	*2/23/1999*	*8/26/1999*	*2/11/2000*	*7/31/2000*	*2/20/2001*	*8/21/2001*	*1/28/2002*	*8/6/2002*	*2/19/2003*	*8/19/2003*	*2/10/2004*	*7/29/2004*	*2/22/2005*	*10/18/2005*	*4/25/2006*	*10/24/2006*	*5/8/2007*	*11/20/2007*	*5/13/2008*
		Potentially Usable Wastes																				
Parameters	*Units*	*Primary a*	*Secondary b*																			
Volatile Organic Compounds																						
1,1,1-Trichloroethane	mg/L	0.2	-	ND (0.001) U	ND (0.001) U	ND (0.0013) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00044) U	ND (0.00017) U	ND (0.00017) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U
1,1-Dichloroethene	mg/L	0.007	-	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00041) U	ND (0.00025) U	ND (0.00025) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U
1,2-Dibromo-3-chloropropane	mg/L	-	-	-	-	-	ND (0.005) U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Dichloroethane	mg/L	0.005	-	ND (0.001) U	ND (0.005) U	ND (0.0014) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00041) U	ND (0.00025) U	ND (0.00025) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U
1,2-Dichloropropane	mg/L	0.005	-	ND (0.001) U	ND (0.001) U	ND (0.002) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0004) U	ND (0.00019) U	ND (0.00019) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U
Benzene	mg/L	0.005	-	**0.032[a]**	**0.024[a]**	**0.033[a]**	**0.022[a]**	**0.027[a]**	**0.025[a]**	**0.035[a]**	**0.027[a]**	**0.026[a]**	**0.021[a]**	**0.025[a]**	**0.02[a]**	**0.023[a]**	**0.017[a]**	**0.012[a]**	0.0026	0.0013	0.0042	0.0025	0.0021
Bromodichloromethane	mg/L	-	-	ND (0.001) U	ND (0.001) U	ND (0.0014) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0004) U	ND (0.00022) U	ND (0.00022) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U
Bromoform	mg/L	-	-	ND (0.001) U	ND (0.001) U	ND (0.0018) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00036) U	ND (0.00032) U	ND (0.00032) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U
Carbon tetrachloride	mg/L	0.005	-	ND (0.001) U	ND (0.005) U	ND (0.0007) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00046) U	ND (0.00034) U	ND (0.00034) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U
Chlorobenzene	mg/L	0.1	-	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00037) U	ND (0.00015) U	ND (0.00015) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U
Chloroform (Trichloromethane)	mg/L	-	-	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00039) U	ND (0.00014) U	ND (0.00014) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U
cis-1,2-Dichloroethene	mg/L	0.07	-	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00039) U	ND (0.0002) U	ND (0.0002) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U
Dibromochloromethane	mg/L	-	-	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00038) U	ND (0.00022) U	ND (0.00022) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U
Ethylbenzene	mg/L	0.7	-	ND (0.005) U	ND (0.005) U	0.0026	ND (0.002) U	ND (0.002) U	0.0006	0.0008	0.0007	ND (0.005) U	ND (0.0005) U	0.00053	ND (0.0005) U	0.00078	ND (0.00035) U	ND (0.00021) U	ND (0.00021) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U
m&p-Xylenes	mg/L	-	-	-	-	-	ND (0.005) U	ND (0.005) U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
o-Xylene	mg/L	-	-	-	-	-	ND (0.005) U	ND (0.005) U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Styrene	mg/L	0.1	-	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0003) U	ND (0.00018) U	ND (0.00018) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U
Tetrachloroethene	mg/L	0.005	-	ND (0.001) U	ND (0.005) U	ND (0.0016) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00054) U	ND (0.00018) U	ND (0.00018) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U
Toluene	mg/L	1	-	ND (0.001) U	ND (0.001) U	0.0013	ND (0.005) U	ND (0.005) U	ND (0.0005) U	0.0002	ND (0.0005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	0.0007	ND (0.0005) U	ND (0.00038) U	ND (0.00018) U	ND (0.00018) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U
trans-1,2-Dichloroethene	mg/L	0.1	-	ND (0.001) U	ND (0.001) U	ND (0.0018) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0004) U	ND (0.00029) U	ND (0.00029) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U
Trichloroethene	mg/L	0.005	-	ND (0.001) U	ND (0.005) U	ND (0.0018) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00038) U	ND (0.00013) U	ND (0.00013) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U
Trihalomethanes	mg/L	0.1	-	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0004) U	ND (0.00032) U	ND (0.00032) U	ND (0.001) U	-	ND (0.001) U	ND (0.001) U
Vinyl chloride	mg/L	0.002	-	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.005) U[a]	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00037) U	ND (0.00016) U	ND (0.00016) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U
Xylenes (total)	mg/L	10	-	ND (0.003) U	ND (0.003) U	0.01	ND (0.01) U	ND (0.01) U	ND (0.0005) U	0.0006	0.0003	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0011) U	ND (0.00054) U	ND (0.00054) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U
Metals																							
Aluminum	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic	mg/L	0.05	-	ND (0.05) U	ND (0.05) U	0.05	0.008	0.012	ND (0.002) U	0.0038	0.0032	ND (0.002) U	0.0055	ND (0.002) U	0.0012	0.004	0.0011	0.0028	ND (0.002) U	0.0097	ND (0.002) U	0.0022	0.0043
Barium	mg/L	2	-	0.066	0.071	0.074	0.078	0.059	0.0626	0.0512	0.0481	0.059	0.06	0.059	0.056	0.059	0.064	0.062	0.069	0.066	0.067	0.082	0.1
Cadmium	mg/L	0.005	-	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.001) U	0.002	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00015) U	ND (0.00011) U	ND (0.00011) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U
Chromium	mg/L	0.1	-	0.006	0.009	ND (0.004) U	0.01	0.007	ND (0.05) U	0.0052	0.0048	0.0056	0.0041	0.0024	0.0029	0.0019	0.0013	0.0027	0.01	ND (0.01) U	ND (0.01) U	ND (0.01) U	ND (0.01) U
Copper	mg/L	-	5	0.013	0.008	0.007	0.004	0.007	ND (0.05) U	0.0043	ND (0.01) U	0.0045	0.0024	0.0045	0.0032	ND (0.01) U	0.0025	ND (0.0021) U	ND (0.0021) U	ND (0.01) U	ND (0.01) U	ND (0.01) U	ND (0.01) U
Iron	mg/L	-	5	1.8	2.7	3.6	5	2.9	3.09	2.07	1.78	0.96	0.64	2.9	3	4.1	4.7	4.1	2.5	4.5	4.3	4.4	4.8
Lead	mg/L	0.0075	-	ND (0.001) U	ND (0.001) U	ND (0.002) U	ND (0.001) U	ND (0.001) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.00079) U	ND (0.0018) U	ND (0.0018) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U
Magnesium	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Manganese	mg/L	-	0.15	0.06	0.089	0.069	0.098	0.058	0.051	0.0302	0.0287	0.02	0.045	0.096	0.045	0.065	0.11	0.053	0.14	0.081	0.15	0.047	0.044
Potassium	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	mg/L	0.05	-	ND (0.001) U	0.002	ND (0.005) U	0.007	0.003	ND (0.01) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	0.0015	ND (0.0006) U	ND (0.0014) U	ND (0.0014) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U
Silicon	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	mg/L	-	5	ND (0.006) U	ND (0.006) U	0.009	ND (0.006) U	ND (0.006) U	ND (0.05) U	0.0175	0.0172	ND (0.02) U	0.019	ND (0.02) U	ND (0.02) U	ND (0.02) U	0.003	ND (0.0064) U	ND (0.0064) U	ND (0.02) U	ND (0.02) U	ND (0.02) U	ND (0.02) U
General Chemistry																							
Alkalinity, bicarbonate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, carbonate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia-N	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bromide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calcium	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	mg/L	-	250	160	130	110	100	120	95	110	98	**680[b]**	67	47	43	29	27	33	39	47	60	140	180
Fluoride	mg/L	4	-	2.6	4.0	3	3.2	2.7	3.87	**4.9[a]**	**4.7[a]**	0.69	2.6	3.3	2.7	2.2	2.1	2.2	1.8	1.8	2.2	2.1	2.0
Nitrate (as N)	mg/L	10	-	0.22	ND (0.02) U	ND (0.02) U	ND (0.020) U	ND (0.02) U	ND (0.10) U	ND (0.10) U	ND (0.10) U	ND (0.10) U	ND (0.1) U	ND (0.10) U	ND (0.10) U	ND (0.1) U	ND (0.057) U	0.048	ND (0.025) U	ND (0.10) U	ND (0.10) U	ND (0.10) U	ND (0.10) U
Nitrite (as N)	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND (0.020) U	ND (0.020) U

APPENDIX C

LEACHATE ANALYTICAL RESULTS SUMMARY
CATERPILLAR INC.
MAPLETON, ILLINOIS

Sample Location:				*L303*	*L303*	*L303*	*L303*	*L303*	*L303*	*L303*	*L303*	*L303*	*L303*	*L303*	*L303*	*L303*	*L303*	*L303*	*L303*	*L303*	*L303*	*L303*	*L303*
Sample ID:				*L303*	*L303*	*L303*	*L303*	*L303*	*L303*	*L303*	*L303*	*L303*	*L303*	*L303*	*L303*	*L303*	*L303*	*L303*	*L303*	*L303*	*L303*	*L303*	*L303*
Sample Date:		*MALC Screening Values Potentially Usable Wastes*		*8/10/1998*	*2/23/1999*	*8/26/1999*	*2/11/2000*	*7/31/2000*	*2/20/2001*	*8/21/2001*	*1/28/2002*	*8/6/2002*	*2/19/2003*	*8/19/2003*	*2/10/2004*	*7/29/2004*	*2/22/2005*	*10/18/2005*	*4/25/2006*	*10/24/2006*	*5/8/2007*	*11/20/2007*	*5/13/2008*
Parameters	*Units*	*Primary a*	*Secondary b*																				
Nitrite/Nitrate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND (0.10) U	ND (0.10) U
Orthophosphate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphate, total	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorus	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulfate	mg/L	-	400	10	7	ND (1) U	4	ND (1) U	ND (5.00) U	12	ND (5.0) U	15	4.1	7.4	9.0	10	6.7	11	14	5.0	7.7	8.6	ND (5.0) U
Sulfide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulfite	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total dissolved solids (TDS)	mg/L	-	1200	1400[b]	1300[b]	1200	990	1100	1000	1100	1100	1600[b]	1000	1100	970	840	760	830	890	840	890	1100	1200

APPENDIX C

LEACHATE ANALYTICAL RESULTS SUMMARY
CATERPILLAR INC.
MAPLETON, ILLINOIS

Sample Location:				*L303*	*L303*	*L303*	*L303*	*L303*	*L303R*	*L303R*	*L303R*	*L304*	*L304*	*L304*	*L304*	*L304*	*L304*	*L304*	*L304*	*L304*	*L304*	*L304*
Sample ID:				*L303*	*L303*	*L303*	*L303*	*L303*	*L303R*	*L303R*	*L303R*	*L304*	*L304*	*L304*	*L304*	*L304*	*L304*	*L304*	*L304*	*L304*	*L304*	*L304*	*L304*
Sample Date:		*MALC Screening Values Potentially Usable Wastes*		*11/4/2008*	*5/14/2009*	*10/13/2009*	*1/13/2010*	*5/27/2010*	*8/4/2010*	*12/21/2010*	*5/17/2011*	*2/24/1999*	*8/27/1999*	*2/11/2000*	*8/2/2000*	*2/22/2001*	*8/22/2001*	*1/29/2002*	*8/7/2002*	*2/20/2003*	*8/19/2003*	*2/10/2004*	*7/29/2004*
Parameters	*Units*	*Primary a*	*Secondary b*																				
Volatile Organic Compounds																							
1,1,1-Trichloroethane	mg/L	0.2	-	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001) U	-	ND (0.001)	ND (0.001) U	-	ND (0.001) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U
1,1-Dichloroethene	mg/L	0.007	-	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001) U	-	ND (0.001)	ND (0.001) U	-	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U
1,2-Dibromo-3-chloropropane	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	ND (0.005) U	-	-	-	-	-	-	-	-	-
1,2-Dichloroethane	mg/L	0.005	-	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001) U	-	ND (0.001)	ND (0.001) U	-	ND (0.001) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	0.0004	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U
1,2-Dichloropropane	mg/L	0.005	-	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001) U	-	ND (0.001)	ND (0.001) U	-	ND (0.001) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U
Benzene	mg/L	0.005	-	ND (0.001) U	ND (0.001) U	0.0028	-	0.002	-	0.0011	ND (0.0005) U	ND (0.001) U	ND (0.001) U	0.0016	ND (0.001) U	0.0007	0.0006	0.0006	0.00061	0.00066	ND (0.0005) U	0.00062	0.00056
Bromodichloromethane	mg/L	-	-	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001) U	-	ND (0.001)	ND (0.001) U	-	ND (0.001) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U
Bromoform	mg/L	-	-	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001) U	-	ND (0.001)	ND (0.001) U	-	ND (0.001) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U
Carbon tetrachloride	mg/L	0.005	-	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001) U	-	ND (0.001)	ND (0.001) U	-	ND (0.001) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U
Chlorobenzene	mg/L	0.1	-	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001) U	-	ND (0.001)	ND (0.001) U	-	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U
Chloroform (Trichloromethane)	mg/L	-	-	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001) U	-	ND (0.001)	ND (0.001) U	-	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U
cis-1,2-Dichloroethene	mg/L	0.07	-	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001) U	-	ND (0.001)	ND (0.001) U	-	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U
Dibromochloromethane	mg/L	-	-	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001) U	-	ND (0.001)	ND (0.001) U	-	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U
Ethylbenzene	mg/L	0.7	-	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001) U	-	ND (0.001)	ND (0.0005) U	-	ND (0.005) U	ND (0.002) U	ND (0.002) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U
m&p-Xylenes	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	ND (0.005) U	ND (0.005) U	-	-	-	-	-	-	-	-
o-Xylene	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	ND (0.005) U	ND (0.005) U	-	-	-	-	-	-	-	-
Styrene	mg/L	0.1	-	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001) U	-	ND (0.001)	ND (0.001) U	-	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U
Tetrachloroethene	mg/L	0.005	-	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001) U	-	ND (0.001)	ND (0.001) U	-	ND (0.001) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U
Toluene	mg/L	1	-	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001) U	-	ND (0.001)	ND (0.0005) U	-	0.004	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U
trans-1,2-Dichloroethene	mg/L	0.1	-	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001) U	-	ND (0.001)	ND (0.001) U	-	ND (0.001) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U
Trichloroethene	mg/L	0.005	-	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001) U	-	ND (0.001)	ND (0.0005) U	-	ND (0.001) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U
Trihalomethanes	mg/L	0.1	-	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001) U	-	-	-	-	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U
Vinyl chloride	mg/L	0.002	-	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001) U	-	ND (0.001)	ND (0.0005) U	-	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U
Xylenes (total)	mg/L	10	-	ND (0.002) U	ND (0.002) U	ND (0.002) U	-	ND (0.002) U	-	ND (0.002)	ND (0.001) U	-	ND (0.003) U	ND (0.01) U	ND (0.01) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U
Metals																							
Aluminum	mg/L	-	-	-	-	-	-	1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic	mg/L	0.05	-	0.0034	0.0039	0.0021	0.0023	0.003	-	0.0035	0.0018	-	ND (0.05) U	ND (0.001) U	0.002	ND (0.002) U	ND (0.002) U	0.0039	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	0.0034
Barium	mg/L	2	-	0.17	0.13	0.1	0.088	0.036	0.078	0.097	0.069	-	0.063	0.039	0.032	ND (0.05) U	0.028	0.0768	0.029	0.027	0.031	0.028	0.032
Cadmium	mg/L	0.005	-	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00050)	ND (0.00050)	ND (0.00050) U	-	**0.038[a]**	0.004	**0.006[a]**	ND (0.0005) U	ND (0.0005) U	0.0015	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U
Chromium	mg/L	0.1	-	ND (0.01) U	ND (0.01) U	ND (0.01) U	ND (0.01) U	ND (0.01) U	ND (0.010)	0.012	ND (0.010) U	-	0.031	0.009	ND (0.004) U	ND (0.05) U	ND (0.01) U	**0.183[a]**	0.0016	ND (0.01) U	ND (0.01) U	0.0028	ND (0.01) U
Copper	mg/L	-	5	ND (0.01) U	0.012	ND (0.01) U	ND (0.01) U	ND (0.01) U	ND (0.010)	0.012	ND (0.010) U	-	0.049	0.006	0.005	ND (0.05) U	0.0046	0.212	0.0023	ND (0.01) U	0.0046	0.0018	ND (0.01) U
Iron	mg/L	-	5	4.6	1.5	1.2	0.99	1.9	1.9	**10[b]**	3.4	-	1.3	1.1	1.6	1.36	0.767	**52.2[b]**	0.77	1.8	0.81	0.51	0.74
Lead	mg/L	0.0075	-	ND (0.0005) U	0.003	ND (0.0005) U	ND (0.0005) U	0.0019	0.0010	0.0033	ND (0.00050) U	-	0.001	0.002	ND (0.001) U	ND (0.002) U	ND (0.002) U	**0.0539[a]**	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U
Magnesium	mg/L	-	-	-	-	-	-	6.5	28	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Manganese	mg/L	-	0.15	0.067	**0.2[b]**	0.073	0.051	**0.19[b]**	**0.45[b]**	**0.59[b]**	**0.43[b]**	-	0.12	0.061	0.045	ND (0.05) U	0.0248	**0.725[b]**	0.035	0.067	0.051	0.034	0.04
Potassium	mg/L	-	-	-	-	-	-	12	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	mg/L	0.05	-	ND (0.0025) U	ND (0.0025) U	ND (0.0025) U	ND (0.0025) U	ND (0.005) U	ND (0.0025)	ND (0.0025)	ND (0.0025) U	-	0.02	0.012	ND (0.001) U	ND (0.002) U	ND (0.002) U	ND (0.01) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U
Silicon	mg/L	-	-	-	-	-	-	8.9	7.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	mg/L	-	-	-	-	-	-	440	400	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	mg/L	-	5	ND (0.02) U	ND (0.02) U	ND (0.02) U	ND (0.02) U	ND (0.02) U	ND (0.020)	0.020	ND (0.020) U	-	0.047	ND (0.006) U	ND (0.006) U	ND (0.05) U	0.0122	0.124	ND (0.02) U	0.016	ND (0.02) U	ND (0.02) U	ND (0.02) U
General Chemistry																							
Alkalinity, bicarbonate	mg/L	-	-	-	-	-	-	680	720	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, carbonate	mg/L	-	-	-	-	-	-	ND (5.0) U	ND (5.0)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia-N	mg/L	-	-	-	-	-	-	2.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bromide	mg/L	-	-	-	-	-	-	1.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calcium	mg/L	-	-	-	-	-	-	9.4	28	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	mg/L	-	250	**260[b]**	**320[b]**	**270[b]**	190	52	21	22	120	-	150	19	140	160	120	140	100	96	150	120	110
Fluoride	mg/L	4	-	2.0	2.3	2.6	1.6	2.3	1.9	2.1	2.4	-	**5.2[a]**	**6[a]**	**6.6[a]**	**7.55[a]**	**6.8[a]**	**5.4[a]**	**5.6[a]**	**5.5[a]**	**5.7[a]**	**8.3[a]**	**6.7[a]**
Nitrate (as N)	mg/L	10	-	ND (0.10) U	ND (0.10) U	ND (0.10) U	ND (0.10) U	ND (0.10) U	ND (0.10)	ND (0.10)	ND (0.10) U	-	0.06	ND (0.02) U	ND (0.02) U	ND (0.10) U	ND (0.10) U	ND (0.10) U	ND (0.10) U	ND (0.1) U	ND (0.10) U	ND (0.10) U	ND (0.1) U
Nitrite (as N)	mg/L	-	-	ND (0.020) U	ND (0.020) U	ND (0.020) U	ND (0.020) U	ND (0.020) U	ND (0.020)	ND (0.020)	ND (0.020) U	-	-	-	-	-	-	-	-	-	-	-	-

APPENDIX C

LEACHATE ANALYTICAL RESULTS SUMMARY
CATERPILLAR INC.
MAPLETON, ILLINOIS

Sample Location:				*L303*	*L303*	*L303*	*L303*	*L303*	*L303R*	*L303R*	*L303R*	*L304*	*L304*	*L304*	*L304*	*L304*	*L304*	*L304*	*L304*	*L304*	*L304*	*L304*
Sample ID:				*L303*	*L303*	*L303*	*L303*	*L303*	*L303R*	*L303R*	*L303R*	*L304*	*L304*	*L304*	*L304*	*L304*	*L304*	*L304*	*L304*	*L304*	*L304*	*L304*
Sample Date:		*MALC Screening Values Potentially Usable Wastes*		*11/4/2008*	*5/14/2009*	*10/13/2009*	*1/13/2010*	*5/27/2010*	*8/4/2010*	*12/21/2010*	*5/17/2011*	*2/24/1999*	*8/27/1999*	*2/11/2000*	*8/2/2000*	*2/22/2001*	*8/22/2001*	*1/29/2002*	*8/7/2002*	*2/20/2003*	*8/19/2003*	*2/10/2004*	*7/29/2004*
Parameters	*Units*	*Primary a*	*Secondary b*																				
Nitrite/Nitrate	mg/L	-	-	ND (0.10) U	ND (0.10) U	ND (0.10) U	0.10	ND (0.10) U	ND (0.10)	ND (0.10)	ND (0.10) U	-	-	-	-	-	-	-	-	-	-	-	-
Orthophosphate	mg/L	-	-	-	-	-	-	0.37	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphate, total	mg/L	-	-	-	-	-	-	-	0.26	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phosphorus	mg/L	-	-	-	-	-	-	-	0.084	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulfate	mg/L	-	400	40	460[b]	290	340	420[b]	510[b]	170	410[b]	-	88	170	45	ND (5.00) U	37	16	72	31	38	46	61
Sulfide	mg/L	-	-	-	-	-	-	ND (1.0) U	ND (1.0)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulfite	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total dissolved solids (TDS)	mg/L	-	1200	1500[b]	2400[b]	2200[b]	1900[b]	1400[b]	1400[b]	1000	1000	1700[b]	1500[b]	1100	1400[b]	1200	1200	920	1200	950	1300[b]	1200	1100

APPENDIX C

LEACHATE ANALYTICAL RESULTS SUMMARY
CATERPILLAR INC.
MAPLETON, ILLINOIS

Sample Location:				*L304*	*L304*	*L304*	*L304*	*L304*	*L304*	*L304*	*L304*	*L304*	*L304*	*L304*	*L304*	*L304*	*L304R*	*L305*	*L305*	*L305*	*L305*	*L305*	*L305*
Sample ID:				*L304*	*L304*	*L304*	*L304*	*L304*	*L304*	*L304*	*L304*	*L304*	*L304*	*L304*	*L304*	*L304*	*L304R*	*L305*	*L305*	*L305*	*L305*	*L305*	*L305*
Sample Date:		*MALC Screening Values Potentially Usable Wastes*		*2/22/2005*	*10/18/2005*	*4/25/2006*	*10/24/2006*	*5/8/2007*	*11/15/2007*	*5/13/2008*	*11/4/2008*	*5/14/2009*	*10/14/2009*	*5/26/2010*	*8/4/2010*	*5/17/2011*	*12/20/2010*	*2/23/1999*	*8/27/1999*	*2/11/2000*	*8/2/2000*	*2/22/2001*	*8/22/2001*
Parameters	*Units*	*Primary a*	*Secondary b*																				
Volatile Organic Compounds																							
1,1,1-Trichloroethane	mg/L	0.2	-	ND (0.00044) U	ND (0.00017) U	ND (0.00017) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001) U	ND (0.001)	-	ND (0.001) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U
1,1-Dichloroethene	mg/L	0.007	-	ND (0.00041) U	ND (0.00025) U	ND (0.00025) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001) U	ND (0.001)	-	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U
1,2-Dibromo-3-chloropropane	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND (0.005) U	-	-	-
1,2-Dichloroethane	mg/L	0.005	-	ND (0.00041) U	ND (0.00025) U	ND (0.00025) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001) U	ND (0.001)	-	ND (0.001) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U
1,2-Dichloropropane	mg/L	0.005	-	ND (0.0004) U	ND (0.00019) U	ND (0.00019) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001) U	ND (0.001)	-	ND (0.001) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U
Benzene	mg/L	0.005	-	ND (0.0004) U	0.00074	0.00056	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.0005) U	ND (0.001)	ND (0.001) U	0.0025	0.0013	0.001	0.001	0.003
Bromodichloromethane	mg/L	-	-	ND (0.0004) U	ND (0.00022) U	ND (0.00022) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001) U	ND (0.001)	-	ND (0.001) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U
Bromoform	mg/L	-	-	ND (0.00036) U	ND (0.00032) U	ND (0.00032) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001) U	ND (0.001)	-	ND (0.001) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U
Carbon tetrachloride	mg/L	0.005	-	ND (0.00046) U	ND (0.00034) U	ND (0.00034) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001) U	ND (0.001)	-	ND (0.001) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U
Chlorobenzene	mg/L	0.1	-	ND (0.00037) U	ND (0.00015) U	ND (0.00015) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001) U	ND (0.001)	-	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U
Chloroform (Trichloromethane)	mg/L	-	-	ND (0.00039) U	ND (0.00014) U	ND (0.00014) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001) U	ND (0.001)	-	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U
cis-1,2-Dichloroethene	mg/L	0.07	-	ND (0.00039) U	ND (0.0002) U	ND (0.0002) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001) U	ND (0.001)	-	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U
Dibromochloromethane	mg/L	-	-	ND (0.00038) U	ND (0.00022) U	ND (0.00022) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001) U	ND (0.001)	-	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U
Ethylbenzene	mg/L	0.7	-	ND (0.00035) U	ND (0.00021) U	ND (0.00021) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.0005) U	ND (0.001)	-	ND (0.005) U	ND (0.002) U	ND (0.002) U	ND (0.0005) U	0.002
m&p-Xylenes	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND (0.005) U	ND (0.005) U	-	-
o-Xylene	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND (0.005) U	ND (0.005) U	-	-
Styrene	mg/L	0.1	-	ND (0.0003) U	ND (0.00018) U	ND (0.00018) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001) U	ND (0.001)	-	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U
Tetrachloroethene	mg/L	0.005	-	ND (0.00054) U	ND (0.00018) U	ND (0.00018) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001) U	ND (0.001)	-	ND (0.001) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U
Toluene	mg/L	1	-	ND (0.00038) U	ND (0.00018) U	ND (0.00018) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.0005) U	ND (0.001)	-	0.009	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U
trans-1,2-Dichloroethene	mg/L	0.1	-	ND (0.0004) U	ND (0.00029) U	ND (0.00029) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001) U	ND (0.001)	-	ND (0.001) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U
Trichloroethene	mg/L	0.005	-	ND (0.00038) U	ND (0.00013) U	ND (0.00013) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.0005) U	ND (0.001)	-	ND (0.001) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U
Trihalomethanes	mg/L	0.1	-	ND (0.0004) U	ND (0.00032) U	ND (0.00032) U	ND (0.001) U	-	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	-	-	-	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U
Vinyl chloride	mg/L	0.002	-	ND (0.00037) U	ND (0.00016) U	ND (0.00016) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.0005) U	ND (0.001)	-	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.0005) U	ND (0.0005) U
Xylenes (total)	mg/L	10	-	ND (0.0011) U	ND (0.00054) U	ND (0.00054) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	-	ND (0.001) U	ND (0.002)	-	ND (0.003) U	ND (0.01) U	ND (0.01) U	ND (0.0005) U	ND (0.0005) U
Metals																							
Aluminum	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	ND (0.2) U	-	-	-	-	-	-	-	-	-
Arsenic	mg/L	0.05	-	ND (0.00051) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	0.0025	0.0042	-	ND (0.05) U	ND (0.001) U	0.002	ND (0.002) U	0.0148
Barium	mg/L	2	-	0.026	0.025	0.03	0.029	0.034	0.027	0.024	0.026	0.031	0.032	0.036	0.038	0.029	0.043	-	0.052	0.038	0.028	ND (0.05) U	0.073
Cadmium	mg/L	0.005	-	ND (0.00015) U	ND (0.00011) U	ND (0.00011) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00050)	0.00091	0.00091	-	0.002	0.005	**0.007[a]**	ND (0.0005) U	**0.013[a]**
Chromium	mg/L	0.1	-	0.0023	0.0022	0.0027	ND (0.01) U	ND (0.01) U	ND (0.01) U	ND (0.01) U	ND (0.01) U	ND (0.01) U	ND (0.01) U	ND (0.01) U	ND (0.010)	ND (0.010) U	0.015	-	ND (0.004) U	0.004	0.014	ND (0.05) U	ND (0.01) U
Copper	mg/L	-	5	0.0035	0.0027	ND (0.0021) U	ND (0.01) U	ND (0.01) U	ND (0.01) U	ND (0.01) U	ND (0.01) U	ND (0.01) U	ND (0.01) U	ND (0.01) U	ND (0.010)	ND (0.010) U	0.045	-	0.006	0.005	0.024	ND (0.05) U	0.0076
Iron	mg/L	-	5	0.93	1.2	1.4	1.9	2.7	1.5	1.2	0.65	0.43	0.44	0.69	0.49	0.98	**10[b]**	-	3.3	1.4	**5.6[b]**	2.58	0.391
Lead	mg/L	0.0075	-	ND (0.00079) U	ND (0.0018) U	ND (0.0018) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	0.0005	ND (0.00050)	0.00069	**0.014[a]**	-	ND (0.001) U	0.001	0.003	ND (0.002) U	ND (0.002) U
Magnesium	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	11	12	-	-	-	-	-	-	-	-
Manganese	mg/L	-	0.15	0.04	0.043	0.054	0.068	0.084	0.061	0.051	0.041	0.044	0.038	0.051	0.051	0.084	**0.25[b]**	-	**0.25[b]**	**0.26[b]**	0.15	0.105	0.101
Potassium	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	37	24	-	-	-	-	-	-	-	-
Selenium	mg/L	0.05	-	ND (0.0006) U	ND (0.0014) U	ND (0.0014) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.0025) U	ND (0.0025) U	ND (0.0025) U	ND (0.0025) U	ND (0.0025)	ND (0.0025) U	ND (0.0025)	-	ND (0.005) U	0.006	ND (0.001) U	ND (0.01) U	ND (0.002) U
Silicon	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	6.3	6.2	-	-	-	-	-	-	-	-
Sodium	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	350	370	-	-	-	-	-	-	-	-
Zinc	mg/L	-	5	0.0016	0.34	ND (0.0064) U	ND (0.02) U	ND (0.02) U	ND (0.02) U	ND (0.02) U	ND (0.02) U	ND (0.02) U	ND (0.02) U	ND (0.02) U	ND (0.020)	ND (0.020) U	0.027	-	0.008	ND (0.006) U	0.052	ND (0.05) U	0.0137
General Chemistry																							
Alkalinity, bicarbonate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	690	690	-	-	-	-	-	-	-	-
Alkalinity, carbonate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	ND (5.0) U	ND (5.0)	-	-	-	-	-	-	-	-
Ammonia-N	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	-	-	-
Bromide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	1.6	-	-	-	-	-	-	-	-	-
Calcium	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	7.3	7.1	-	-	-	-	-	-	-	-
Chloride	mg/L	-	250	85	67	120	120	160	84	85	110	90	96	110	100	110	120	-	59	58	57	64	85
Fluoride	mg/L	4	-	**7.3[a]**	**6.3[a]**	**5.8[a]**	**5.9[a]**	**7.3[a]**	**6.0[a]**	**5.5[a]**	**4.7[a]**	**4.8[a]**	**4.4[a]**	**4.5[a]**	**4.8[a]**	**8.2[a]**	**7.8[a]**	-	3.5	**10[a]**	**8.2[a]**	**12.1[a]**	**4.9[a]**
Nitrate (as N)	mg/L	10	-	ND (0.057) U	ND (0.025) U	ND (0.025) U	ND (0.10) U	ND (0.10) U	ND (0.10) U	ND (0.10) U	ND (0.10) U	ND (0.10) U	ND (0.10) U	ND (0.10) U	ND (0.10)	ND (0.10) U	ND (0.10)	-	0.13	ND (0.020) U	ND (0.02) U	ND (0.10) U	ND (0.10) U
Nitrite (as N)	mg/L	-	-	-	-	-	-	-	ND (0.020) U	ND (0.020) U	ND (0.020) U	ND (0.020) U	ND (0.020) U	ND (0.020) U	ND (0.020)	ND (0.020) U	ND (0.020)	-	-	-	-	-	-

APPENDIX C

LEACHATE ANALYTICAL RESULTS SUMMARY
CATERPILLAR INC.
MAPLETON, ILLINOIS

Sample Location:				*L304*	*L304*	*L304*	*L304*	*L304*	*L304*	*L304*	*L304*	*L304*	*L304*	*L304*	*L304*	*L304*	*L304R*	*L305*	*L305*	*L305*	*L305*	*L305*	*L305*
Sample ID:				*L304*	*L304*	*L304*	*L304*	*L304*	*L304*	*L304*	*L304*	*L304*	*L304*	*L304*	*L304*	*L304*	*L304R*	*L305*	*L305*	*L305*	*L305*	*L305*	*L305*
Sample Date:		*MALC Screening Values Potentially Usable Wastes*		*2/22/2005*	*10/18/2005*	*4/25/2006*	*10/24/2006*	*5/8/2007*	*11/15/2007*	*5/13/2008*	*11/4/2008*	*5/14/2009*	*10/14/2009*	*5/26/2010*	*8/4/2010*	*5/17/2011*	*12/20/2010*	*2/23/1999*	*8/27/1999*	*2/11/2000*	*8/2/2000*	*2/22/2001*	*8/22/2001*
Parameters	*Units*	*Primary a*	*Secondary b*																				
Nitrite/Nitrate	mg/L	-	-	-	-	-	-	-	ND (0.10) U	ND (0.10) U	ND (0.10) U	ND (0.10) U	ND (0.10) U	ND (0.10) U	ND (0.10)	ND (0.10) U	ND (0.10)	-	-	-	-	-	-
Orthophosphate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	0.20	-	-	-	-	-	-	-	-	-
Phosphate, total	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	0.45	-	-	-	-	-	-	-	-
Phosphorus	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	0.15	-	-	-	-	-	-	-	-
Sulfate	mg/L	-	400	19	4.6	76	39	ND (5.0) U	15	7.8	24	12	41	25	5.1	32	ND (5.0)	-	35	3	220	390	370
Sulfide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	ND (1.0) U	1.2	-	-	-	-	-	-	-	-
Sulfite	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total dissolved solids (TDS)	mg/L	-	1200	1000	930	1100	980	1100	820	840	880	1000	1000	1000	1100	1200	1200	670	690	1000	880	1000	1500[8]

APPENDIX C

LEACHATE ANALYTICAL RESULTS SUMMARY
CATERPILLAR INC.
MAPLETON, ILLINOIS

Sample Location:				*L305*	*L305*	*L305*	*L305*	*L305*	*L305*	*L305*	*L305*	*L305*	*L305*	*L305*	*L305*	*L305*	*L305*	*L305*	*L305*	*L305*	*L305*	*L306*
Sample ID:				*L305*	*L305*	*L305*	*L305*	*L305*	*L305*	*L305*	*L305*	*L305*	*L305*	*L305*	*L305*	*L305*	*L305*	*L305*	*L305*	*L305*	*L305*	*L305*	*L306*
Sample Date:		*MALC Screening Values Potentially Usable Wastes*		*1/28/2002*	*8/7/2002*	*2/19/2003*	*8/19/2003*	*7/29/2004*	*2/22/2005*	*10/18/2005*	*4/25/2006*	*10/24/2006*	*5/8/2007*	*11/15/2007*	*5/13/2008*	*11/4/2008*	*5/14/2009*	*10/14/2009*	*5/25/2010*	*8/4/2010*	*12/21/2010*	*5/17/2011*	*2/24/1999*
Parameters	*Units*	*Primary a*	*Secondary b*																				
Volatile Organic Compounds																							
1,1,1-Trichloroethane	mg/L	0.2	-	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00044) U	ND (0.00017) U	ND (0.00017) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001)	ND (0.001) U	-
1,1-Dichloroethene	mg/L	0.007	-	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00041) U	ND (0.00025) U	ND (0.00025) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001)	ND (0.001) U	-
1,2-Dibromo-3-chloropropane	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Dichloroethane	mg/L	0.005	-	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00041) U	ND (0.00025) U	ND (0.00025) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	0.001	-	ND (0.001)	ND (0.001) U	-
1,2-Dichloropropane	mg/L	0.005	-	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0004) U	ND (0.00019) U	ND (0.00019) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001)	ND (0.001) U	-
Benzene	mg/L	0.005	-	0.0007	0.004	0.00089	0.0029	ND (0.0005) U	ND (0.0004) U	ND (0.00023) U	ND (0.00023) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001)	ND (0.0005) U	0.001
Bromodichloromethane	mg/L	-	-	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0004) U	ND (0.00022) U	ND (0.00022) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001)	ND (0.001) U	-
Bromoform	mg/L	-	-	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00036) U	ND (0.00032) U	ND (0.00032) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001)	ND (0.001) U	-
Carbon tetrachloride	mg/L	0.005	-	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00046) U	ND (0.00034) U	ND (0.00034) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001)	ND (0.001) U	-
Chlorobenzene	mg/L	0.1	-	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00037) U	ND (0.00015) U	ND (0.00015) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001)	ND (0.001) U	-
Chloroform (Trichloromethane)	mg/L	-	-	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00039) U	ND (0.00014) U	ND (0.00014) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001)	ND (0.001) U	-
cis-1,2-Dichloroethene	mg/L	0.07	-	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00039) U	ND (0.0002) U	ND (0.0002) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001)	ND (0.001) U	-
Dibromochloromethane	mg/L	-	-	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00038) U	ND (0.00022) U	ND (0.00022) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001)	ND (0.001) U	-
Ethylbenzene	mg/L	0.7	-	ND (0.0005) U	0.0039	ND (0.0005) U	0.00076	ND (0.0005) U	ND (0.00035) U	ND (0.00021) U	ND (0.00021) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001)	ND (0.0005) U	-
m&p-Xylenes	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
o-Xylene	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Styrene	mg/L	0.1	-	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0003) U	ND (0.00018) U	ND (0.00018) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001)	ND (0.001) U	-
Tetrachloroethene	mg/L	0.005	-	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00054) U	ND (0.00018) U	ND (0.00018) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001)	ND (0.001) U	-
Toluene	mg/L	1	-	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00038) U	ND (0.00018) U	ND (0.00018) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001)	ND (0.0005) U	-
trans-1,2-Dichloroethene	mg/L	0.1	-	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0004) U	ND (0.00029) U	ND (0.00029) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001)	ND (0.001) U	-
Trichloroethene	mg/L	0.005	-	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00038) U	ND (0.00013) U	ND (0.00013) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001)	ND (0.0005) U	-
Trihalomethanes	mg/L	0.1	-	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0004) U	ND (0.00032) U	ND (0.00032) U	ND (0.001) U	-	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	-	-	-
Vinyl chloride	mg/L	0.002	-	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00037) U	ND (0.00016) U	ND (0.00016) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.001) U	-	ND (0.001)	ND (0.0005) U	-
Xylenes (total)	mg/L	10	-	ND (0.0005) U	0.00037	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0011) U	ND (0.00054) U	ND (0.00054) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	-	ND (0.002)	ND (0.001) U	-
Metals																							
Aluminum	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND (0.2) U	-	-	-	-
Arsenic	mg/L	0.05	-	0.0063	0.005	ND (0.002) U	0.0092	ND (0.002) U	ND (0.00051) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	0.002	0.0019	0.002	0.0016	0.0017	-	0.0019	0.0017	-
Barium	mg/L	2	-	0.0633	0.042	0.075	0.089	0.03	0.02	0.022	0.012	0.01	0.021	0.018	0.018	0.016	0.015	0.017	0.018	0.015	0.018	0.016	-
Cadmium	mg/L	0.005	-	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00015) U	ND (0.00011) U	ND (0.00011) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	0.00065	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00050)	ND (0.00050)	ND (0.00050) U	-
Chromium	mg/L	0.1	-	0.004	0.0022	ND (0.01) U	0.0022	ND (0.01) U	ND (0.0011) U	0.0025	ND (0.0013) U	ND (0.01) U	ND (0.01) U	ND (0.01) U	ND (0.01) U	ND (0.01) U	ND (0.01) U	ND (0.01) U	ND (0.01) U	ND (0.010)	ND (0.010)	ND (0.010) U	-
Copper	mg/L	-	5	0.0075	0.002	ND (0.01) U	0.0033	ND (0.01) U	0.0028	ND (0.0021) U	ND (0.0021) U	ND (0.01) U	ND (0.01) U	ND (0.01) U	ND (0.01) U	ND (0.01) U	ND (0.01) U	ND (0.01) U	ND (0.01) U	ND (0.010)	ND (0.010)	ND (0.010) U	-
Iron	mg/L	-	5	2.67	ND (0.05) U	**5.5[b]**	1.6	0.18	0.086	0.15	0.078	0.15	0.12	0.15	0.12	0.13	0.12	0.19	ND (0.2) U	ND (0.20)	0.28	ND (0.20) U	-
Lead	mg/L	0.0075	-	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.00079) U	ND (0.0018) U	ND (0.0018) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.00050)	0.00089	ND (0.00050) U	-
Magnesium	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.5	5.0	-	-	-
Manganese	mg/L	-	0.15	**0.207[b]**	0.078	**0.71[b]**	**0.24[b]**	0.14	0.11	0.094	0.074	0.074	0.075	0.068	0.058	0.051	0.052	0.066	0.062	0.058	0.046	0.060	-
Potassium	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	43	23	-	-	-
Selenium	mg/L	0.05	-	ND (0.002) U	ND (0.002) U	0.0022	ND (0.002) U	0.00067	0.0017	ND (0.0014) U	ND (0.0014) U	ND (0.002) U	0.0021	ND (0.002) U	0.0026	ND (0.0025) U	ND (0.0025) U	ND (0.0025) U	ND (0.0025) U	ND (0.0025)	ND (0.0025)	ND (0.0025) U	-
Silicon	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.9	4.6	-	-	-
Sodium	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	440	400	-	-	-
Zinc	mg/L	-	5	0.0158	ND (0.02) U	0.019	ND (0.02) U	ND (0.02) U	0.0019	ND (0.0064) U	ND (0.0064) U	ND (0.02) U	ND (0.02) U	ND (0.02) U	ND (0.02) U	ND (0.02) U	ND (0.02) U	ND (0.02) U	ND (0.02) U	ND (0.020)	ND (0.020)	ND (0.020) U	-
General Chemistry																							
Alkalinity, bicarbonate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	510	550	-	-	-
Alkalinity, carbonate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	43	39	-	-	-
Ammonia-N	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-
Bromide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.7	-	-	-	-
Calcium	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.9	6.7	-	-	-
Chloride	mg/L	-	250	120	120	88	230	120	160	170	170	170	210	190	170	170	180	210	170	160	190	220	-
Fluoride	mg/L	4	-	**5.9[a]**	3.4	3.9	3.8	**7.1[a]**	**6.4[a]**	**5.5[a]**	**5.0[a]**	**4.4[a]**	**4.7[a]**	**4.1[a]**	**5.0[a]**	**5.5[a]**	**5.7[a]**	**5.0[a]**	**4.3[a]**	**4.5[a]**	**4.1[a]**	3.5	-
Nitrate (as N)	mg/L	10	-	ND (0.10) U	ND (0.10) U	ND (0.1) U	0.041	ND (0.1) U	ND (0.057) U	ND (0.025) U	ND (0.025) U	ND (0.10) U	ND (0.10) U	ND (0.10) U	ND (0.10) U	ND (0.10) U	ND (0.10) U	ND (0.10) U	ND (0.10) U	ND (0.10)	ND (0.10)	ND (0.10) U	-
Nitrite (as N)	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	ND (0.020) U	ND (0.020) U	ND (0.020) U	ND (0.020) U	ND (0.020) U	ND (0.020) U	ND (0.020)	ND (0.020)	ND (0.020) U	-

APPENDIX C

LEACHATE ANALYTICAL RESULTS SUMMARY
CATERPILLAR INC.
MAPLETON, ILLINOIS

Sample Location:				*L305*	*L305*	*L305*	*L305*	*L305*	*L305*	*L305*	*L305*	*L305*	*L305*	*L305*	*L305*	*L305*	*L305*	*L305*	*L305*	*L305*	*L305*	*L305*	*L306*
Sample ID:				*L305*	*L305*	*L305*	*L305*	*L305*	*L305*	*L305*	*L305*	*L305*	*L305*	*L305*	*L305*	*L305*	*L305*	*L305*	*L305*	*L305*	*L305*	*L305*	*L306*
Sample Date:		*MALC Screening Values Potentially Usable Wastes*		*1/28/2002*	*8/7/2002*	*2/19/2003*	*8/19/2003*	*7/29/2004*	*2/22/2005*	*10/18/2005*	*4/25/2006*	*10/24/2006*	*5/8/2007*	*11/15/2007*	*5/13/2008*	*11/4/2008*	*5/14/2009*	*10/14/2009*	*5/25/2010*	*8/4/2010*	*12/21/2010*	*5/17/2011*	*2/24/1999*
Parameters	*Units*	*Primary a*	*Secondary b*																				
Nitrite/Nitrate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	ND (0.10) U	ND (0.10) U	ND (0.10) U	ND (0.10) U	ND (0.10) U	ND (0.10) U	ND (0.10)	ND (0.10)	ND (0.10) U	-
Orthophosphate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND (0.20) U	-	-	-	-
Phosphate, total	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.35	-	-	-
Phosphorus	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.11	-	-	-
Sulfate	mg/L	-	400	200	120	560[b]	41	240	250	330	380	450[b]	510[b]	340	370	310	270	340	270	250	140	130	-
Sulfide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND (1.0) U	ND (1.0)	-	-	-
Sulfite	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14.4	-	-	-	-
Total dissolved solids (TDS)	mg/L	-	1200	1300[b]	1700[b]	1200	2100[b]	920	1200	1300[b]	1200	1300[b]	1500[b]	1400[b]	1300[b]	1300[b]	1300[b]	1400[b]	1400[b]	1300[b]	1300[b]	1400[b]	1600[b]

APPENDIX C

LEACHATE ANALYTICAL RESULTS SUMMARY
CATERPILLAR INC.
MAPLETON, ILLINOIS

Sample Location:				*L306*	*L306*	*L306*	*L306*	*L306*	*L306*	*L306*
Sample ID:				*L306*	*L306*	*L306*	*L306*	*L306*	*L306*	*L306*
Sample Date:		*MALC Screening Values*		*8/27/1999*	*2/10/2000*	*8/1/2000*	*2/20/2001*	*8/22/2001*	*1/29/2002*	*8/7/2002*
		Potentially Usable Wastes								
Parameters	*Units*	*Primary a*	*Secondary b*							
Volatile Organic Compounds										
1,1,1-Trichloroethane	mg/L	0.2	-	ND (0.001) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U
1,1-Dichloroethene	mg/L	0.007	-	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U
1,2-Dibromo-3-chloropropane	mg/L	-	-	-	ND (0.005) U	-	-	-	-	-
1,2-Dichloroethane	mg/L	0.005	-	ND (0.001) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U
1,2-Dichloropropane	mg/L	0.005	-	ND (0.001) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U
Benzene	mg/L	0.005	-	0.001	0.0036	0.002	0.001	0.002	0.001	0.0013
Bromodichloromethane	mg/L	-	-	ND (0.001) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U
Bromoform	mg/L	-	-	ND (0.001) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U
Carbon tetrachloride	mg/L	0.005	-	ND (0.001) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U
Chlorobenzene	mg/L	0.1	-	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U
Chloroform (Trichloromethane)	mg/L	-	-	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U
cis-1,2-Dichloroethene	mg/L	0.07	-	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U
Dibromochloromethane	mg/L	-	-	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U
Ethylbenzene	mg/L	0.7	-	ND (0.005) U	ND (0.002) U	ND (0.002) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U
m&p-Xylenes	mg/L	-	-	-	ND (0.005) U	ND (0.005) U	-	-	-	-
o-Xylene	mg/L	-	-	-	ND (0.005) U	ND (0.005) U	-	-	-	-
Styrene	mg/L	0.1	-	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U
Tetrachloroethene	mg/L	0.005	-	ND (0.001) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U
Toluene	mg/L	1	-	0.005	ND (0.005) U	ND (0.005) U	ND (0.0005) U	0.0007	0.0004	0.00044
trans-1,2-Dichloroethene	mg/L	0.1	-	ND (0.001) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U
Trichloroethene	mg/L	0.005	-	ND (0.001) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U
Trihalomethanes	mg/L	0.1	-	ND (0.005) U	ND (0.005) U	ND (0.005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U
Vinyl chloride	mg/L	0.002	-	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U	ND (0.0005) U
Xylenes (total)	mg/L	10	-	ND (0.003) U	ND (0.01) U	ND (0.01) U	0.002	0.004	0.002	0.0021
Metals										
Aluminum	mg/L	-	-	-	-	-	-	-	-	-
Arsenic	mg/L	0.05	-	ND (0.05) U	0.001	0.003	0.0046	0.0046	0.0131	ND (0.002) U
Barium	mg/L	2	-	0.077	0.03	0.032	ND (0.05) U	0.0456	0.0628	0.048
Cadmium	mg/L	0.005	-	0.004	0.004	**0.008[a]**	ND (0.0005) U	ND (0.0005) U	0.0047	ND (0.0005) U
Chromium	mg/L	0.1	-	ND (0.004) U	0.009	0.005	ND (0.05) U	0.019	0.0224	ND (0.01) U
Copper	mg/L	-	5	0.007	0.013	0.01	ND (0.05) U	0.0388	0.089	0.0035
Iron	mg/L	-	5	2.2	0.17	0.26	1.29	2.4	3.95	0.52
Lead	mg/L	0.0075	-	ND (0.001) U	ND (0.001) U	ND (0.001) U	ND (0.002) U	0.0035	0.0025	ND (0.002) U
Magnesium	mg/L	-	-	-	-	-	-	-	-	-
Manganese	mg/L	-	0.15	**0.5[b]**	0.058	0.07	**0.272[b]**	0.139	**0.232[b]**	0.14
Potassium	mg/L	-	-	-	-	-	-	-	-	-
Selenium	mg/L	0.05	-	0.003	0.017	0.002	ND (0.002) U	ND (0.002) U	ND (0.002) U	ND (0.002) U
Silicon	mg/L	-	-	-	-	-	-	-	-	-
Sodium	mg/L	-	-	-	-	-	-	-	-	-
Zinc	mg/L	-	5	ND (0.006) U	ND (0.006) U	ND (0.006) U	ND (0.05) U	0.0328	0.0347	ND (0.02) U
General Chemistry										
Alkalinity, bicarbonate	mg/L	-	-	-	-	-	-	-	-	-
Alkalinity, carbonate	mg/L	-	-	-	-	-	-	-	-	-
Ammonia-N	mg/L	-	-	-	-	-	-	-	-	-
Bromide	mg/L	-	-	-	-	-	-	-	-	-
Calcium	mg/L	-	-	-	-	-	-	-	-	-
Chloride	mg/L	-	250	230	240	200	93	160	56	200
Fluoride	mg/L	4	-	**6.6[a]**	**7.5[a]**	**6.2[a]**	**6.32[a]**	**7.2[a]**	**5.2[a]**	**4.4[a]**
Nitrate (as N)	mg/L	10	-	0.05	ND (0.02) U	ND (0.02) U	ND (0.10) U	ND (0.10) U	ND (0.10) U	ND (0.10) U
Nitrite (as N)	mg/L	-	-	-	-	-	-	-	-	-

APPENDIX C

LEACHATE ANALYTICAL RESULTS SUMMARY
CATERPILLAR INC.
MAPLETON, ILLINOIS

Sample Location:				*L306*	*L306*	*L306*	*L306*	*L306*	*L306*	*L306*
Sample ID:				*L306*	*L306*	*L306*	*L306*	*L306*	*L306*	*L306*
Sample Date:		*MALC Screening Values*		*8/27/1999*	*2/10/2000*	*8/1/2000*	*2/20/2001*	*8/22/2001*	*1/29/2002*	*8/7/2002*
		Potentially Usable Wastes								
Parameters	*Units*	*Primary*	*Secondary*							
		a	*b*							
Nitrite/Nitrate	mg/L	-	-	-	-	-	-	-	-	-
Orthophosphate	mg/L	-	-	-	-	-	-	-	-	-
Phosphate, total	mg/L	-	-	-	-	-	-	-	-	-
Phosphorus	mg/L	-	-	-	-	-	-	-	-	-
Sulfate	mg/L	-	400	180	3	3.2	ND (5.00) U	5.0	ND (5.0) U	260
Sulfide	mg/L	-	-	-	-	-	-	-	-	-
Sulfite	mg/L	-	-	-	-	-	-	-	-	-
Total dissolved solids (TDS)	mg/L	-	1200	**1700**[b]	**1400**[b]	**1400**[b]	980	**1300**[b]	1100	**1600**[b]

APPENDIX D

INVESTIGATION PROTOCOLS

1.0 INTRODUCTION

Conestoga-Rovers & Associates (CRA) prepared these protocols for the investigation activities at the Caterpillar Inc. (Caterpillar) Part 817 Landfill Site (Landfill) located in Mapleton, Illinois (Site). The Site investigation activities included monitoring well installation/groundwater monitoring, leachate well sampling, lysimeter installation/leachate sampling, surface water sampling, water-level monitoring, and single-well response tests. This document summarizes the protocols used during the investigation.

2.0 GENERAL FIELD PROTOCOLS

2.1 DECONTAMINATION PROCEDURES

2.1.1 DRILLING EQUIPMENT

Upon mobilization to the Site and prior to subsurface investigation activities, the drill rig and equipment was thoroughly cleaned to remove oil, grease, mud, and other foreign matter. Additionally, all cutting bits, augers, probes, rods, samplers, drill steel, buckets, and associated equipment scheduled to be reused were decontaminated prior to their use at subsequent testing locations.

Equipment decontamination was accomplished by flushing and wiping the components to remove all visible sediments followed by:

i) Steam cleaning and/or high pressure washing with potable water to remove particulate matter and surface films

ii) Rinsing thoroughly with potable water and Alconox™ or Liquinox™

The drill rig was decontaminated at a location that facilitated capture of the wash fluids by Caterpillar's industrial wastewater collection/treatment system.

2.1.2 SAMPLING EQUIPMENT

Sampling equipment was decontaminated before and after field utilization during the advancement of soil borings or the installation of permanent monitoring wells to prevent cross-contamination between locations. Whenever practicable, dedicated sampling equipment was used to minimize the potential for sample cross-contamination.

Decontamination of equipment used for collection of samples for laboratory analyses was performed as follows:

i) Wash with potable water and Alconox™, Liquinox™, or similar low-phosphate detergent using a brush, as necessary, to remove all visible foreign matter

ii) Rinse thoroughly with potable water

iii) Rinse thoroughly with distilled water

iv) Allow the equipment to air dry on a clean plastic sheet as long as possible

Following the final rinse, equipment was visually inspected by CRA field personnel to verify that it is free of soil particulates and other solid material that could contribute to possible sample cross-contamination.

Collected decontamination fluids were disposed of in Caterpillar's industrial sewer system.

2.2 FIELD LOG DOCUMENTATION

A dedicated field logbook was utilized for this project to detail the field activities conducted by CRA during investigation activities. The field logbook was a bound document with consecutively numbered pages. The entries for each day will commence on a new page, which was dated by the CRA field technician. All entries were made only in indelible ink.

The following information was recorded in the field logbook or field data forms for each sample collected:

i) Site location identification

ii) Unique sample identification number

iii) Date and time (in 2400-hour time format) of sample collection

iv) Weather conditions

v) Designation as to the type of sample (groundwater, leachate, etc.)

vi) Designation as to the means and methodologies for collection

vii) Name of the sampler

viii) Analyses to be performed on collected samples

ix) Any other relevant comments such as odor, staining, texture, filtering, preservation, etc.

x) Sample location

Records of equipment maintenance and calibration, and observations on equipment performance were recorded in the field logbook. Alternatively, standard forms were utilized to record information such as records of equipment maintenance, stratigraphy, well construction, and well development.

2.3 WASTE HANDLING PROTOCOLS

Investigation derived wastes (IDW) generated during the investigation included general refuse, soil cuttings, decontamination fluids, extracted groundwater, drilling fluids and materials, and monitoring well purging fluids. General refuse, including plastic sheeting, buckets, paper bags, etc., were disposed of in waste receptacles. Daily refuse and personal protective equipment (PPE) was collected in plastic bags and disposed of as necessary to keep the Site area clear of debris and refuse.

IDW generated from the Landfill during Site investigation activities including soil cuttings and purge water was placed back onto the Landfill near the point of generation. Soil cuttings and purge water generated during installation and sampling of the upgradient monitoring wells were not expected to be contaminated and were placed on the ground near the point of generation. Other decontamination fluids, purged groundwater, and sampling fluids was disposed of in Caterpillar's industrial sewer system.

2.4 UTILITY CLEARANCE

Prior to performing subsurface investigation activities, including the installation of monitoring wells, the JULIE one-call system was contacted to locate and identify any public subsurface utilities. No investigation activities began unless the public utilities have been properly marked. Caterpillar cleared the drilling locations for any private utility conflicts.

3.0 MONITORING WELL AND LYSIMETER INSTALLATION

3.1 MONITORING WELL INSTALLATION

Shallow and deep upgradient monitoring wells were installed using a rotary-sonic (rotosonic) drilling rig. Prior to monitoring well installation, continuous soil samples were obtained from borings advanced during investigation activities for the purposes of stratigraphic description and identification of saturated zones, and field screening. Soil samples were screened for the presence of organic vapors and documented on boring logs in the field. Headspace monitoring were performed using a photoionization detector (PID) equipped with a minimum 10.2 electron Volt (eV) lamp.

Soil samples were prepared for headspace monitoring by collecting a separate representative sample aliquot from the soil core intervals and placing the aliquot into a glass jar covered with aluminum foil or a zip-lock plastic bag. The headspace sample were allowed to equilibrate for a minimum of 5 minutes prior to headspace monitoring. Headspace monitoring were performed by inserting the tip of the PID through the foil cover or plastic bag and recording the highest reading observed. Headspace results were documented on boring logs in the field.

The monitoring wells were constructed of 2-inch diameter PVC material with 5 or 10 foot lengths of PVC slotted well screen and a sufficient length of PVC riser pipe to extend above the surface. A graded silica sand pack was installed in the annulus to a minimum of 2 feet above the well screen and sealed with a 1 foot hydrated bentonite seal to approximately 1 foot bgs. Natural fill materials were used for the remaining borehole annulus.

3.2 LYSIMETER INSTALLATION

Five lysimeters were installed (designated as LS301 through LS305) in the Landfill within 10 feet of the corresponding existing leachate monitoring wells using a rotary sonic drilling rig. (So, for example, lysimeter LS301 were installed adjacent to and within 10 feet of leachate well L301.) Each borehole were advanced to its target depth and the lysimeter were installed into the borehole through the drill casing. Once the lysimeter is in place the outer casing were removed while backfilling the borehole with foundry sand cuttings obtained during borehole advancement. A seal consisting of hydrated bentonite chips approximately were installed halfway up the borehole annulus and again at the surface to seal the borehole annulus. Each lysimeter were fitted with a locking protective surface casing.

Campbell Monoflex™ porous cup, deep-sampling lysimeters were installed and were designed for obtaining water samples from the vadose zone from depths greater than 20 feet. The lysimeters consist of a ceramic porous filter cup at the base, which is approximately 2 inches in diameter and 27 inches in length. The porous cup was threaded to a 2-inch diameter PVC outer casing that will extend to the surface. The lysimeters were equipped with two ports that extend from the surface to the cup inside the outer casing. One port allows for an application of a vacuum to draw the soil pore water into the cup and the other allows for the collection of a water sample using a suction pump.

4.0 SCREENING AND SAMPLING PROTOCOLS

4.1 GROUNDWATER AND LEACHATE WELL SAMPLING

Groundwater samples were collected from the monitoring well network during the investigation. Groundwater samples were collected using a low-flow (i.e. typhoon style) pump and dedicated tubing. During purging activities, a minimum of three well volumes were purged from the monitoring well based on gauging measurements and the well volume calculation. Groundwater samples were purged directly into laboratory supplied containers, placed on ice in a cooler, and submitted for laboratory analysis of VOCs.

4.2 LYSIMETER SAMPLING

Leachate samples were collected from the lysimeter network for total dissolved solids (TDS) during the investigation. Leachate samples were collected from the lysimeters using the procedures described below:

- Opened the vacuum/pressure (VP) valve and inserted a length of flexible tubing and closed the sample recovery valve on the lysimeter head assembly.
- Applied a gentle vacuum to the VP line until a reading of 18-21" Hg was reached on the VP gauge. The, quickly closed the VP valve.
- When the VP gauge read 10" Hg or less, sample recovery was be attempted.
- Once a suitable vacuum reading was attained, opened the VP and sample recovery valves.
- Applied a gentle pressure to the VP tubing until the sample flowed into the tubing and sample container.
- Closed all valves when sample recovery was completed.

4.3 SURFACE WATER SAMPLING

Surface water samples were collected for TDS analysis near the locations of two staff gauges that were installed at the bank of the Illinois River, one upstream location near the east property boundary (SG-1) and a second downstream location to the west (SG-2). Surface water samples were obtained at the downstream location first. Surface water samples were collected directly into the laboratory supplied container by gently dipping the container into the stream from the stream bank. Once filled, the sample container

was closed, labeled, and placed into an iced cooler. The sampler will then proceeded to the upstream location and repeated the procedure.

4.4 SAMPLE HANDLING AND DOCUMENTATION PROTOCOLS

4.4.1 SAMPLE LABELING

The samples were labeled with a unique sample number that will facilitate tracking and cross-referencing of sample information.

4.4.2 SAMPLE CONTAINERS AND HANDLING

All samples were placed in appropriate laboratory supplied sample containers, labeled, and properly sealed. Sample labels included sample number, date of collection, and analyses to be performed. Samples were carefully packed into shipping coolers by the use of bubble wrap or similar packing material and kept on ice while in custody.

Samples were shipped by commercial courier to the project laboratory. Samples collected on a Saturday, Sunday, or holiday were stored on ice in coolers, sealed, and kept under surveillance. Chain-of-custody tape was placed over the sealed sampling container and on the front and back of each shipping cooler prior to shipment to secure the lid and provide evidence that the samples have not been tampered with en route to the laboratory. Clear tape was placed over the seals to ensure that they are not accidentally broken during shipment. The sampler was responsible for packaging, sealing, and delivering the sample coolers to an overnight courier.

Upon receipt of the cooler at the laboratory, the cooler was inspected by the laboratory sample custodian. The sample custodian will note the condition of the cooler and seal on the chain-of-custody form. The sample custodian will document the date and time the cooler is received and signed the chain-of-custody forms.

4.4.3 CHAIN-OF-CUSTODY FORMS

Chain-of-custody records were used to track samples from the time of sampling to the arrival of samples at the laboratory. Each shipping container sent to the laboratory

contained an individual chain-of-custody form. The chain-of-custody form consisted of four copies, which are distributed to the sampler, to the shipper, to the contract laboratory, and to CRA's office files. Upon receipt of the samples, the laboratory completed the remaining copies. The laboratory maintained one copy for its records. The executed original was returned to CRA with the data deliverables package.

4.4.4 ANALYTICAL LABORATORY

Surface water, groundwater, and leachate samples from the investigation were submitted to the following laboratory for chemical analyses:

Test America Laboratories, Inc.
4101 Shuffel Drive NW
North Canton, Ohio 44720
Telephone: (330) 497-9396

4.5 WATER LEVEL MONITORING/WELL DEPTH SOUNDING

Prior to commencing well purging and groundwater/leachate well sampling, the water level was measured for hydraulic monitoring and to determine the well volume. Once the watertight cap is remove the well was allowed to stabilize for approximately 15 to 30 minutes. Once the water level has stabilized (i.e., is static) the correct water level was measured.

Water levels were measured to the nearest 0.01-inch using a battery-operated water level indicator with an audible and visual identification of water level.

The following procedures was used with electrical water level meters:

1. Check the proper operation of the meter by inserting the tip into water and noting if the contact is registered clearly (on some meters, the sensor is in the midpoint of the metal tips).
2. Slowly lower the tip into the well until contact with the water is indicated.
3. Slowly raise the tip until the light and/or buzzer just begins to deactivate. This indicates the static water level.
4. Using the thumb and index finger, grasp the tape at the reference point and note the reading to the nearest 0.01 foot.

5. Record the water level measurement in the field book and/or water level form.
6. Decontaminate the submerged end of the tape with distilled water.

4.6 SINGLE-WELL RESPONSE TESTS STANDARD OPERATING PROCEDURES

Single-well response (slug) tests were performed during the investigation in accordance with the procedures below.

i) Insert the pressure transducer to a sufficient depth below the water table so that upon insertion of a slug into the water column, the slug will not strike the pressure transducer. Check the operation of the transducer and data logger.

ii) Set the slug just above the static level.

iii) Release the slug instantaneously. It is important that the slug be completely submerged in the water column.

iv) Upon 90 percent recovery of the induced change, remove the slug rapidly and completely from the water column being careful not to inadvertently raise the pressure transducer.

v) Confirm the well has again recovered to 90 percent of the induced change and complete the test by removing the slug and transducer.

vi) Decontaminate the slug and transducer by cleaning with a non-phosphate detergent and rinsing with clear water prior to using on the next test

The data logger were used to record the slug test data was then be downloaded and data was returned to the office and incorporated into a computer program for further evaluation.

5.0 HEALTH AND SAFETY PLAN

A Site-Specific HASP was developed to address the investigation activities anticipated at the Site. All field activities were conducted in accordance with the health and safety protocols outlined in the HASP.

APPENDIX E

MONITORING AND LEACHATE WELL
STRATIGRAPHIC AND INSTRUMENTATION LOGS

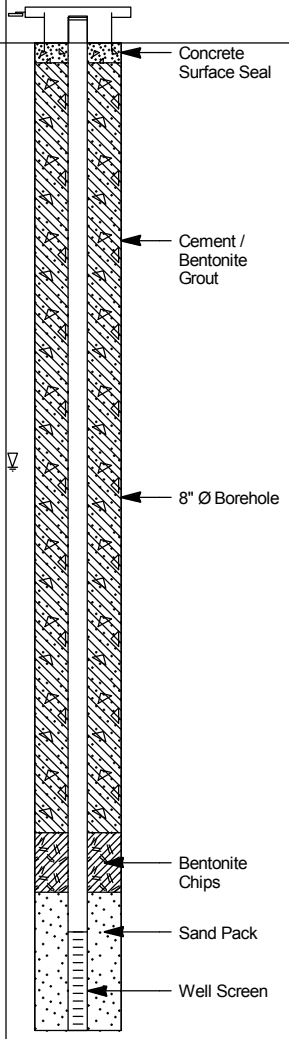
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Caterpillar 817 Landfill
PROJECT NUMBER: 070102
CLIENT: Caterpillar Inc.
LOCATION: Mapleton, Illinois
DRILLING CONTRACTOR: Boart Longyear

HOLE DESIGNATION: G110D
DATE COMPLETED: March 29, 2011
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: T. Pranger

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF CASING	462.3
	GROUND SURFACE	459.2
0	FILL, topsoil, clay, brown, roots	
5	- foundry sand, black at 4.0ft BGS	
10		
15		
15	CL-ML SILTY CLAY, firm, medium plasticity, brown, moist	444.2
20		
20	GP GRAVEL, with coarse grained sand, loose, coarse grained, poorly graded, tan/brown, saturated	437.7
25		
25	SHALE, intermixed with gravel, heavily weathered, greenish	434.2
30	- no gravel at 30.0ft BGS	
35		
40		
45		
45	- dark gray at 47.0ft BGS	
50		
50	END OF BOREHOLE @ 50.0ft BGS	409.2
55		
60		
65		

MONITOR INSTALLATION



WELL DETAILS
Screened interval:
414.2 to 409.2ft AMSL
45.0 to 50.0ft BGS
Length: 5ft
Diameter: 2in
Slot Size: No. 10
Material: PVC
Seal:
419.2 to 416.2ft AMSL
40.0 to 43.0ft BGS
Material: Bentonite
Sand Pack:
416.2 to 409.2ft AMSL
43.0 to 50.0ft BGS
Material: No. 5 Sand

SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
0-5'		5.0		0
5'-10'		5.0		6.6
10'-15'		3.0		3.3
15'-20'		5.0		0
20'-25'		5.0		0
25'-30'		5.0		0
30'-35'		5.0		0
35'-40'		5.0		0
40'-45'		5.0		0
45'-50'		5.0		0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ 3/29/11

OVERBURDEN LOG 070102-IND.GPJ CRA_CORP.GDT 6/24/11

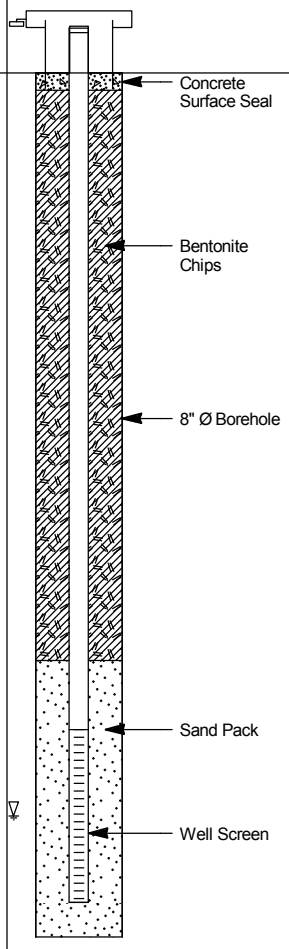
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Caterpillar 817 Landfill
PROJECT NUMBER: 070102
CLIENT: Caterpillar Inc.
LOCATION: Mapleton, Illinois
DRILLING CONTRACTOR: Boart Longyear

HOLE DESIGNATION: G110S
DATE COMPLETED: March 29, 2011
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: T. Pranger

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF CASING	462.2
	GROUND SURFACE	459.2
0	FILL, topsoil, clay, brown, roots	
4	- foundry sand, black at 4.0ft BGS	
16	CL-ML SILTY CLAY, firm, medium plasticity, brown, moist	444.2
22	GP GRAVEL, with coarse grained sand, loose, coarse grained, poorly graded, tan/brown, saturated	437.7
25	END OF BOREHOLE @ 25.0ft BGS	434.2

MONITOR INSTALLATION



WELL DETAILS
Screened interval:
440.2 to 435.2ft AMSL
19.0 to 24.0ft BGS
Length: 5ft
Diameter: 2in
Slot Size: No. 10
Material: PVC
Seal:
458.7 to 442.2ft AMSL
0.5 to 17.0ft BGS
Material: Bentonite
Sand Pack:
442.2 to 434.2ft AMSL
17.0 to 25.0ft BGS
Material: No. 5 Sand

SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
0-5'		5.0		0
5'-10'		5.0		6.6
10'-15'		3.0		3.3
15'-20'		5.0		0
20'-25'		5.0		0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ 3/29/11

OVERBURDEN LOG 070102-IND.GPJ CRA_CORP.GDT 6/24/11

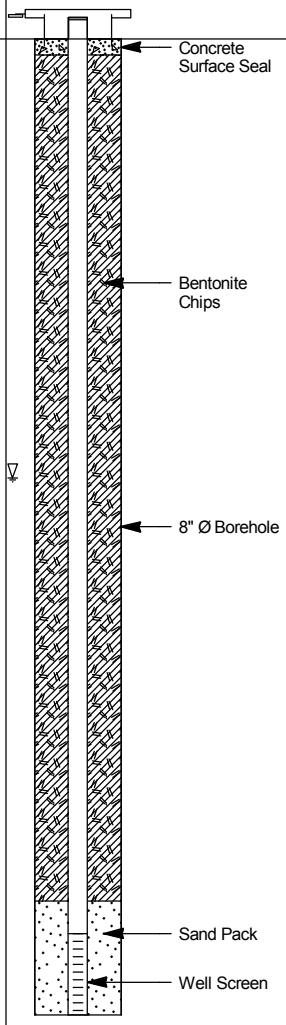
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Caterpillar 817 Landfill
PROJECT NUMBER: 070102
CLIENT: Caterpillar Inc.
LOCATION: Mapleton, Illinois
DRILLING CONTRACTOR: Boart Longyear

HOLE DESIGNATION: G111D
DATE COMPLETED: March 29, 2011
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: T. Pranger

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF CASING	463.3
	GROUND SURFACE	460.5
0	FILL, silty, low plasticity, brown - compact, fine grained, foundry sand, black at 1.0ft BGS	
10	SP SAND, silty, fine grained, tan/light gray	450.5
20	- loose, saturated, no recovery at 20.0ft BGS	
30	CL CLAY, firm, medium plasticity, light gray, wet/moist	433.5
50	SP-SC SAND WITH CLAY, trace gravel, loose, fine grained, brown/light gray, saturated	410.5
60	END OF BOREHOLE @ 60.0ft BGS	400.5

MONITOR INSTALLATION



WELL DETAILS
Screened interval:
405.5 to 400.5ft AMSL
55.0 to 60.0ft BGS
Length: 5ft
Diameter: 2in
Slot Size: No. 10
Material: PVC
Seal:
459.5 to 407.5ft AMSL
1.0 to 53.0ft BGS
Material: Bentonite
Sand Pack:
407.5 to 400.5ft AMSL
53.0 to 60.0ft BGS
Material: No. 5 Sand

SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
0-5'		2.5		0
5'-10'		5.0		2.7
10'-15'		5.0		0
15'-20'		5.0		0
20'-25'		0.0		0
25'-30'		0.0		0
30'-35'		2.0		0
35'-40'		5.0		0
40'-45'		5.0		0
45'-50'		5.0		0
50'-55'		5.0		0
55'60'		5.0		0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ 3/29/11

OVERBURDEN LOG 070102-IND.GPJ CRA_CORP.GDT 8/10/11

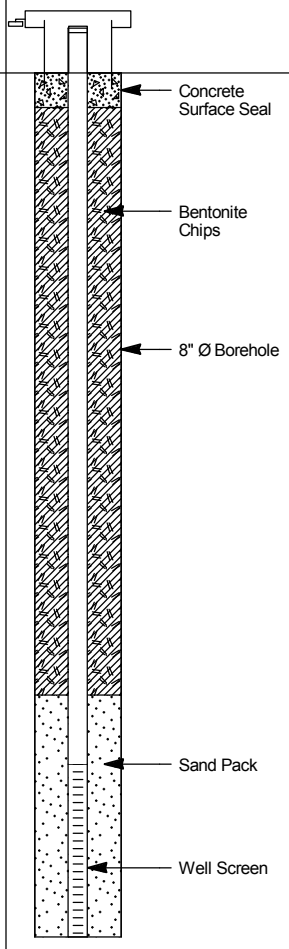
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Caterpillar 817 Landfill
PROJECT NUMBER: 070102
CLIENT: Caterpillar Inc.
LOCATION: Mapleton, Illinois
DRILLING CONTRACTOR: Boart Longyear

HOLE DESIGNATION: G111S
DATE COMPLETED: March 29, 2011
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: T. Pranger

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF CASING	463.5
	GROUND SURFACE	460.5
0	FILL, silty, low plasticity, brown	
2	- compact, fine grained, foundry sand, black at 1.0ft BGS	
10	- sand tan/light gray at 10.0ft BGS	
20	- loose, saturated, no recovery at 20.0ft BGS	
25	END OF BOREHOLE @ 25.0ft BGS	435.5

MONITOR INSTALLATION



WELL DETAILS
Screened interval:
440.5 to 435.5ft AMSL
20.0 to 25.0ft BGS
Length: 5ft
Diameter: 2in
Slot Size: No. 10
Material: PVC
Seal:
459.5 to 442.5ft AMSL
1.0 to 18.0ft BGS
Material: Bentonite
Sand Pack:
442.5 to 435.5ft AMSL
18.0 to 25.0ft BGS
Material: No. 5 Sand

SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
0-5'		2.5		0
5'-10'		5.0		2.7
10'-15'		5.0		0
15'-20'		5.0		0
20'-25'		0.0		0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 070102-IND.GPJ CRA_CORP.GDT 6/24/11

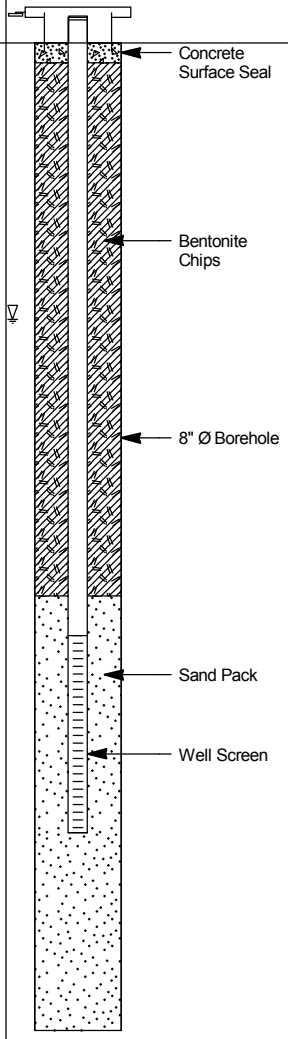
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Caterpillar 817 Landfill
PROJECT NUMBER: 070102
CLIENT: Caterpillar Inc.
LOCATION: Mapleton, Illinois
DRILLING CONTRACTOR: Boart Longyear

HOLE DESIGNATION: G112D
DATE COMPLETED: March 30, 2011
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: T. Pranger

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF CASING	461.4
	GROUND SURFACE	458.4
0	TOPSOIL	458.0
	ML SILT, clayey, firm, slight to low plasticity, brown, moist	
10	CL-ML SILTY CLAY, trace gravel, very stiff, low plasticity, brown, moist	448.4
15	ML CLAY, clayey, very stiff, slight to low plasticity, wet, light gray	444.4
20	SHALE, weathered, greenish	440.4
40	- black at 40.0ft BGS	
50	END OF BOREHOLE @ 50.0ft BGS	408.4

MONITOR INSTALLATION



WELL DETAILS
Screened interval:
428.4 to 418.4ft AMSL
30.0 to 40.0ft BGS
Length: 10ft
Diameter: 2in
Slot Size: No. 10
Material: PVC
Seal:
457.4 to 430.4ft AMSL
1.0 to 28.0ft BGS
Material: Bentonite
Sand Pack:
430.4 to 408.4ft AMSL
28.0 to 50.0ft BGS
Material: No. 5 Sand

SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
0-5'				0
5'-10'				0
10'-15'				0
15'-20'				0
20'-25'				0
25'-30'				0
30'-35'				0
35'-40'				0
40'-45'				0
45'-50'				0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ 3/30/11

OVERBURDEN LOG 070102-IND.GPJ CRA_CORP.GDT 6/24/11

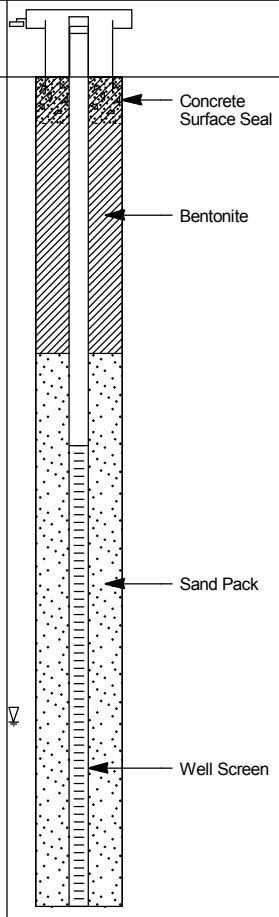
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Caterpillar 817 Landfill
PROJECT NUMBER: 070102
CLIENT: Caterpillar Inc.
LOCATION: Mapleton, Illinois
DRILLING CONTRACTOR: WDC

HOLE DESIGNATION: G112S
DATE COMPLETED: November 18, 2009
DRILLING METHOD: DPT/4 1/4" HSA
FIELD PERSONNEL: R. Bogat

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF CASING	460.7
	GROUND SURFACE	458.4
0	TOPSOIL	457.9
2	CL CLAY, silty, trace gravel, stiff to very stiff, low plasticity, brown, moist	
4	ML SILT, clayey, compact/firm, low plasticity, brown, moist	454.9
	CL CLAY, silty, trace gravel, very stiff to hard, low plasticity, brown, moist, iron staining	453.9
6		
8		
10	- firm to stiff, medium plasticity at 9.0ft BGS	
12		
14	ML SILT, clayey, hard/very dense, low plasticity, light gray, wet	444.4
16		
18	- refusal at 18.0ft BGS	440.4
	END OF BOREHOLE @ 18.0ft BGS	
20		
22		
24		
26		
28		

MONITOR INSTALLATION



WELL DETAILS
Screened interval:
450.4 to 440.4ft AMSL
8.0 to 18.0ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.01
Material: Factory-slotted Schedule 40 PVC
Seal:
458.4 to 452.4ft AMSL
0.0 to 6.0ft BGS
Material: Bentonite
Sand Pack:
452.4 to 440.4ft AMSL
6.0 to 18.0ft BGS
Material: #5 Sand

SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
1	P/S			0.1
2	P/S			0.1
3	P/S			0.2
4	P/S			0.4
5	P/S			0.7
6	P/S			0.5
7	P/S			0.4
8	P/S			0.3
9	P/S			0.4

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ 11/18/09

OVERBURDEN LOG 070102-IND.GPJ CRA_CORP.GDT 6/24/11

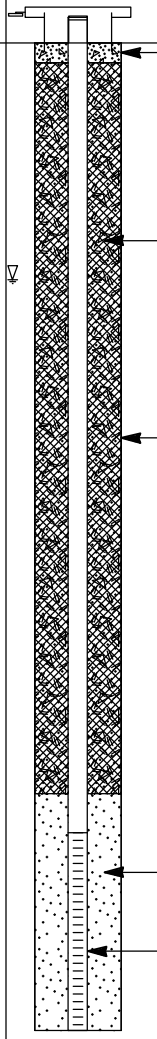
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Caterpillar 817 Landfill
PROJECT NUMBER: 070102
CLIENT: Caterpillar Inc.
LOCATION: Mapleton, Illinois
DRILLING CONTRACTOR: Boart Longyear

HOLE DESIGNATION: G113D
DATE COMPLETED: March 30, 2011
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: T. Pranger

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF CASING	461.2
	GROUND SURFACE	458.1
0	ASPHALT	457.9
	FILL, sand (60/40)	456.1
5	CL-ML SILTY CLAY, trace gravel, low plasticity, light brown	
10		
	GP GRAVEL, some cobbles, with coarse grained sand (12-15 ft), loose, coarse grained, gray to dark gray, saturated	446.1
15		
	CL-ML SILTY CLAY, stiff to very stiff, slightly friable, low plasticity, light brown, trace greenish color (shale?), dry	439.1
20		437.6
	SHALE, some clay, weathered zones, heavily weathered zones, greenish	
25		
30		
35		
40		
45		
50	END OF BOREHOLE @ 50.0ft BGS	408.1
55		
60		
65		

MONITOR INSTALLATION



WELL DETAILS
Screened interval:
418.1 to 408.1ft AMSL
40.0 to 50.0ft BGS
Length: 10ft
Diameter: 2in
Slot Size: No. 10
Material: PVC
Seal:
457.1 to 420.1ft AMSL
1.0 to 38.0ft BGS
Material: Bentonite
Sand Pack:
420.1 to 408.1ft AMSL
38.0 to 50.0ft BGS
Material: No. 5 Sand

SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
0-5'		5.0		0
5'-10'		5.0		0
10'-15'		4.0		0
15'-20'		5.0		0
20'-25'		5.0		0
25'-30'		5.0		0
30'-35'		5.0		0
35'-40'		5.0		0
40'-45'		5.0		0
45'-50'		5.0		0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ 3/30/11

OVERBURDEN LOG 070102-IND.GPJ CRA_CORP.GDT 6/24/11

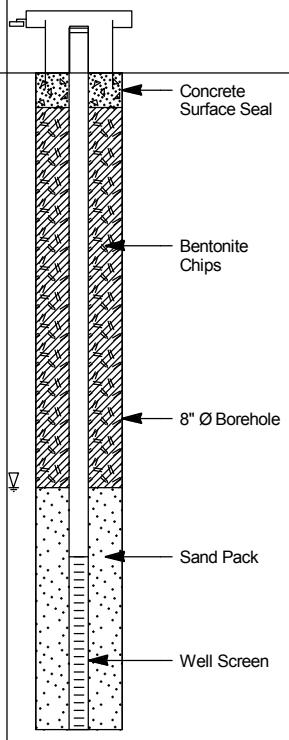
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Caterpillar 817 Landfill
PROJECT NUMBER: 070102
CLIENT: Caterpillar Inc.
LOCATION: Mapleton, Illinois
DRILLING CONTRACTOR: Boart Longyear

HOLE DESIGNATION: G113S
DATE COMPLETED: March 30, 2011
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: T. Pranger

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF CASING	461.3
	GROUND SURFACE	458.1
0	ASPHALT	457.9
	FILL, sand (60/40)	
2	CL-ML SILTY CLAY, trace gravel, low plasticity, light brown	456.1
12	GP GRAVEL, some cobbles, with coarse grained sand (12-15 ft), loose, coarse grained, gray to dark gray, saturated	446.1
19	END OF BOREHOLE @ 19.0ft BGS	439.1

MONITOR INSTALLATION



WELL DETAILS
Screened interval:
444.1 to 439.1ft AMSL
14.0 to 19.0ft BGS
Length: 5ft
Diameter: 2in
Slot Size: No. 10
Material: PVC
Seal:
457.1 to 446.1ft AMSL
1.0 to 12.0ft BGS
Material: Bentonite
Sand Pack:
446.1 to 439.1ft AMSL
12.0 to 19.0ft BGS
Material: No. 5 Sand

SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
0-5'		5.0		0
5'-10'		5.0		0
10'-15'		4.0		0
15'-19'		4.0		0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ 3/30/11

OVERBURDEN LOG 070102-IND.GPJ CRA_CORP.GDT 6/24/11

RMT

LOG OF TEST BORING

F-203 (R 01-87)

BORING NO. G-101S
SHEET NO. 1 OF 1
PROJECT NO. 2185.05
INSTALLATION 12/12/91
SURFACE ELEV. 458.4
BOREHOLE DIA. 9 IN.

PROJECT NAME CATERPILLAR
LOCATION Mapleton, IL
CONTRACTOR Midwest Eng. Svcs.
DRILLING METHOD HSA 4 1/4"

SAMPLING NOTES						VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS
INTERVAL NO.	TYPE	RECOVERY N	IN	MOISTURE	DEPTH	
1	SS	14	24	M		POORLY GRADED SAND (SP), black 10YR 2/1 (Foundry Sand).
2	SS	23	18			Same as above, some red sand intermixed.
3	SS	12	13	M	5	SANDY LEAN CLAY (CL), olive gray 5Y 5/2, plastic, stiff [Pp=1.5].
4	SS	24	17			Same as above, light olive gray 5Y 6/2, rock in way of spoon shreds sample.
5	SS	19	22	W		Same as above, yellowish brown 10YR 5/6.
6	SS	8	24	M	10	Wet sand in tip of spoon.
7	SS	2	24	M		LEAN CLAY (CL), dark gray 5Y 4/1, plastic, stiff [Pp=1.75].
8	SS	4	24	M	15	Same as above.
9	SS	7	24	M		
					20	End of Boring at 18 Ft.
					25	
					30	
					35	

GENERAL NOTES

DATE STARTED DEC 12 91
DATE COMPLETED DEC 12 91
RIG CME 55
CREW CHIEF T. Bartholomew
LOGGED R. Welch CHECKED

WATER LEVEL OBSERVATIONS

WHILE DRILLING ▽ 10.0 Ft.
AT COMPLETION ▽ 9.5 Ft.
AFTER DRILLING
CAVE-IN: DATE/TIME _____ DEPTH _____
WATER: DATE/TIME _____ DEPTH _____

RMT

LOG OF TEST BORING

F-203 (R 01-87)

BORING NO. G-102S
SHEET NO. 1 OF 1
PROJECT NAME CATERPILLAR
PROJECT NO. 2185.05
LOCATION Mapleton, IL
INSTALLATION 01/08/92
CONTRACTOR Midwest Eng. Svcs.
SURFACE ELEV. 447.0
DRILLING METHOD HSA 4 1/4"
BOREHOLE DIA. 9 IN.

SAMPLING NOTES						VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS
INTERVAL NO.	TYPE	RECOVERY N	IN	MOISTURE	DEPTH	
1	SS					SANDY LEAN CLAY (CL), dark yellow brown 10YR 4/4, slightly plastic, stiff [Pp=2.0].
2	SS	8	12			
3	SS	8	14		5	Same with wood fragments.
4	SS	12	15	W		
5	SS	5	13	W	▽	1" sand seam, wet.
6	SS	3	16	W	10	SANDY SILTY CLAY (CL-ML), gray 10YR 5/1, slightly plastic, medium dense. Same as above, but wet.
7	SS	128	12			SHALE, bedrock.
8	SS	80	8		15	
						End of Boring at 16 Ft.
					20	
					25	
					30	
					35	

GENERAL NOTES

DATE STARTED JAN 8 92
DATE COMPLETED JAN 8 92
RIG CME 55
CREW CHIEF T. Bartholomew
LOGGED R. Welch CHECKED G. Sodini

WATER LEVEL OBSERVATIONS

WHILE DRILLING ▽ 8.0 Ft.
AT COMPLETION ▼
AFTER DRILLING
CAVE-IN: DATE/TIME DEPTH
WATER: DATE/TIME DEPTH

RMT

LOG OF TEST BORING

F-203 (R 01-87)

BORING NO. G-103D
SHEET NO. 1 OF 1
PROJECT NO. 2185.05
INSTALLATION 12/20/91
SURFACE ELEV. 448.2
BOREHOLE DIA. 9 IN.

PROJECT NAME CATERPILLAR
LOCATION Mapleton, IL
CONTRACTOR Midwest Eng. Svcs.
DRILLING METHOD HSA 4 1/4"

SAMPLING NOTES						VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS
INTERVAL NO.	TYPE	RECOVERY N	IN	MOISTURE	DEPTH	
1	SS	10	16	M		LEAN CLAY (CL), brown 10YR 5/3, plastic, stiff [Pp=1.75] (Fill).
2	SS	15	24			
3	SS	26	14	M	5	POORLY GRADED SAND (SP), black 10YR 2/1 (Foundry Sand).
4	SS	12	16			
5	SS	4	17	M		SILTY CLAY (ML/CL), dark gray 10YR 4/1, plastic, stiff [Pp=.75-1.0].
6	SS	4	18		10	
7	SS	7	24		▽	Same as above, very moist.
8	SS	7	22			POORLY GRADED SAND (SP), brown 10YR 5/3, loose.
9	SS	3	20	M	15	LEAN CLAY (CL), gray 10YR 5/1, plastic, stiff [Pp=1.75].
10	SS	3	20			SILTY CLAY (ML-CL), dark gray 10YR 4/1, slightly plastic, medium stiff.
11	SS	2	16	W	20	
12	SS	3	18			Same as above.
13	SS	3	16		25	
14	SS	4	16			
15	SS	3	14			Same as above.
16	SS	3	16	M-W	30	LEAN CLAY (CL), gray 10YR 5/1, plastic, stiff.
17	SS	8	18			
18	SS	36	12	W	35	WELL GRADED SAND (SW), grayish brown 10YR 5/2, dense.
19	SS	6	0	M		
20	SS	13				LEAN CLAY (CL), gray 10YR 6/1, plastic, stiff.
					40	End of Boring at 40 Ft.

GENERAL NOTES

DATE STARTED DEC 19 91
DATE COMPLETED DEC 20 91
RIG CME 55
CREW CHIEF R. Burton
LOGGED R. Welch CHECKED C. Sch

WATER LEVEL OBSERVATIONS

WHILE DRILLING ▽ 12.0 Ft.
AT COMPLETION ▼
AFTER DRILLING
CAVE-IN: DATE/TIME ____ DEPTH ____
WATER: DATE/TIME ____ DEPTH ____

LOG OF TEST BORING

F-203 (R 01-87)

BORING NO. G-104D
SHEET NO. 1 OF 2
PROJECT NO. 2185.05
INSTALLATION 01/10/92
SURFACE ELEV. 445.3
BOREHOLE DIA. 9 IN.

PROJECT NAME CATERPILLAR
LOCATION Mapleton, IL
CONTRACTOR Midwest Eng. Svcs.
DRILLING METHOD HSA 4 1/4"

SAMPLING NOTES						VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS
INTERVAL NO.	INTERVAL TYPE	RECOVERY N	RECOVERY IN	MOISTURE	DEPTH	
	SS					Grass (Topsoil).
1	SS	11	14	M		POORLY GRADED SAND (SP), dark yellow brown 10YR 4/4, medium dense (Fluvial).
2	SS	8	14	W	5	WELL GRADED SAND (SW), dark gray 5Y 4/1, loose (Fluvial).
3	SS	7	12			Same as above, but very dark gray 10YR 3/1.
4	SS	5	18			Same as above, but dark gray 10YR 4/1.
5	SS	2	22	M	10	FAT CLAY (CH), gray 5Y 5/1, medium stiff [Pp=1.0], plastic to very plastic.
6	SS	2	14			
7	SS	2	17		15	
8	ST		24	M		
9	SS	4				
10	SS	8	14	W	20	Same as above.
11	SS	8	18			
12	SS	6	22		25	
13	SS	8	22			
14	SS	4	24			Same as above.
15	SS	4	18		30	
						Silt layer (ML), 1' thick.
16	SS	5	16			SILTY CLAY (ML/CL), gray 10YR 5/1, slightly plastic, medium stiff [Pp=.75-1.0].
17	SS	8	20		35	
18	SS	8	19			
19	SS	6	18			
					40	POORLY GRADED SAND (SP), dark gray 10YR 4/1, loose (Fluvial).

GENERAL NOTES

DATE STARTED JAN 9 92
DATE COMPLETED JAN 10 92
RIG CME 55
CREW CHIEF T. Bartholomew
LOGGED R. Welch CHECKED

WATER LEVEL OBSERVATIONS

WHILE DRILLING ▽ 4.0 Ft.
AT COMPLETION ▼
AFTER DRILLING
CAVE-IN: DATE/TIME DEPTH
WATER: DATE/TIME DEPTH

RMT

LOG OF TEST BORING

F-203 (R 01-87)

BORING NO. G-104D
SHEET NO. 2 OF 2
PROJECT NAME CATERPILLAR
PROJECT NO. 2185.05
LOCATION Mapleton, IL
INSTALLATION 01/10/92
CONTRACTOR Midwest Eng. Svcs.
SURFACE ELEV. 445.3
DRILLING METHOD HSA 4 1/4"
BOREHOLE DIA. 9 IN.

SAMPLING NOTES						VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS
INTERVAL NO.	TYPE	RECOVERY N	IN	MOISTURE	DEPTH	
20	SS	19				
21	SS	19	20			
22	SS	46	20		45	WELL GRADED SAND (SW), gray 10YR 5/1, stiff.
23	SS	15	20			SILTY CLAY and sand layers.
24	SS	7	17			LEAN CLAY (CL), gray 5Y 5/1, plastic, medium stiff [Pp=1.0].
25	SS	6	16		50	
26	ST		16			
27	SS	7	19		55	
28	SS	6				
29	SS	6				Same as above.
					60	
						SHALE, bedrock.
						End of Boring at 62 Ft.
					65	
					70	
					75	
					80	
					85	

RMT

LOG OF TEST BORING

F-203 (R 01-87)

BORING NO. G-105S
SHEET NO. 1 OF 1
PROJECT NO. 2185.05
INSTALLATION 01/13/92
SURFACE ELEV. 449.0
BOREHOLE DIA. 9 IN.

PROJECT NAME CATERPILLAR
LOCATION Mapleton, IL
CONTRACTOR Midwest Eng. Svcs.
DRILLING METHOD HSA 4 1/4"

SAMPLING NOTES						VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS
INTERVAL		RECOVERY		MOISTURE		
NO.	TYPE	N	IN		DEPTH	
1	SS	14	20	M		POORLY GRADED SAND (SP), light yellowish brown 10YR 6/4, medium dense (Fluvial).
2	SS	10	20		5	
3	SS	2	22			
4	SS	4	14	M		CLAYEY SILT (CL/ML), very dark gray 7.5YR N3/ (wet above clay layer, moist below), loose.
5	SS	6	16	W	10	POORLY GRADED SAND (SP), dark gray 10YR 4/1, loose (Fluvial).
6	SS	4	16			LEAN CLAY (CL), gray 10YR 5/1, plastic, medium stiff [Pp=1.0].
7	SS	5			15	
					20	End of Boring at 17 Ft.
					25	
					30	
					35	

GENERAL NOTES

DATE STARTED JAN 13 92
DATE COMPLETED JAN 13 92
RIG CME 55
CREW CHIEF T. Bartholomew
LOGGED R. Welch CHECKED E. Soltys

WATER LEVEL OBSERVATIONS

WHILE DRILLING ▽ 10.0 Ft.
AT COMPLETION ▽ 9.2 Ft.
AFTER DRILLING
CAVE-IN: DATE/TIME _____ DEPTH _____
WATER: DATE/TIME _____ DEPTH _____

LOG OF TEST BORING

F-203 (R 01-87)

BORING NO. G-106D
SHEET NO. 1 OF 2

PROJECT NAME CATERPILLAR
LOCATION Mapleton, IL
CONTRACTOR Midwest Eng. Svcs.
DRILLING METHOD HSA 4 1/4"

PROJECT NO. 2185.05
INSTALLATION 12/17/91
SURFACE ELEV. 445.6
BOREHOLE DIA. 9 IN.

SAMPLING NOTES						VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS
INTERVAL NO.	TYPE	RECOVERY N	IN	MOISTURE	DEPTH	
1	SS	5	12	M		POORLY GRADED SAND WITH SILT (SP-SM), yellow brown 10YR 5/6 (Fluvial).
2	SS	12	14			
3	SS	14	14		5	Same as above.
4	SS	13	20	M		
5	SS	8	20		▽	
6	SS	4	20		10	SILTY CLAY (ML/CL), gray brown 10YR 5/2, stiff [Pp=1.5], plastic.
7	SS	2	22			
8	SS	6	14		15	
9	SS	3	14			Same as above.
10	SS	7	24			
11	SS	7	24		20	
12	SS	3	22			SILTY CLAY (ML/CL), light brown gray 10YR 4/2, stiff, plastic.
13	SS	4	20		25	
14	SS	4	20			Same as above.
15	SS	2	21			
16	SS	2	16		30	
17	SS	2	14			
18	SS	7	12	W	35	POORLY GRADED SAND (SP), dark brown 10YR 4/2, loose (Fluvial).
19	SS	18	14	W		
20	SS	24				

GENERAL NOTES

DATE STARTED DEC 17 92
DATE COMPLETED DEC 17 92
RIG D-50
CREW CHIEF R. Burton
LOGGED R. Welch CHECKED

WATER LEVEL OBSERVATIONS

WHILE DRILLING ▽ 8.5 Ft.
AT COMPLETION ▼
AFTER DRILLING
CAVE-IN: DATE/TIME DEPTH
WATER: DATE/TIME DEPTH

RMT

LOG OF TEST BORING

F-203 (R 01-87)

PROJECT NAME CATERPILLAR
LOCATION Mapleton, IL
CONTRACTOR Midwest Eng. Svcs.
DRILLING METHOD HSA 4 1/4"

BORING NO. G-106D
SHEET NO. 2 OF 2
PROJECT NO. 2185.05
INSTALLATION 12/17/91
SURFACE ELEV. 445.6
BOREHOLE DIA. 9 IN.

SAMPLING NOTES						VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS
INTERVAL NO.	TYPE	RECOVERY N	IN	MOISTURE	DEPTH	
21	SS					
22	SS	16		W	45	POORLY GRADED SAND (SP), brown 10YR 5/3, medium dense.
						End of Boring at 46 Ft.
					50	
					55	
					60	
					65	
					70	
					75	
					80	
					85	

LOG OF TEST BORING

F-203 (R 01-87)

BORING NO. G-107S
SHEET NO. 1 OF 1
PROJECT NAME CATERPILLAR
PROJECT NO. 2185.05
LOCATION Mapleton, IL
INSTALLATION 12/17/91
CONTRACTOR Midwest Eng. Svcs.
SURFACE ELEV. 444.5
DRILLING METHOD HSA 4 1/4"
BOREHOLE DIA. 9 IN.

SAMPLING NOTES						VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS
INTERVAL		RECOVERY		MOISTURE		
NO.	TYPE	N	IN		DEPTH	
1	SS	8	12	M		POORLY GRADED SAND (SP), yellow brown 10YR 5/4 (fluvial).
2	SS	9	16			6 in. clay layer at 2.5 ft.
3	SS	14	24		5	
4	SS	13	24	W		LEAN CLAY (CL), dark gray 10YR 4/1, stiff, plastic, [Pp=1.0].
5	SS	4	16			
6	SS	4	24		10	
7	SS	4	24			
8	SS	5	24		15	
						End Of Boring at 16.0 ft.
					20	
					25	
					30	
					35	

GENERAL NOTES

DATE STARTED DEC 17 91
DATE COMPLETED DEC 17 91
RIG D-50
CREW CHIEF R. Barton
LOGGED R. Welch CHECKED

WATER LEVEL OBSERVATIONS

WHILE DRILLING ▽ 10.0 Ft.
AT COMPLETION ▼ 3.5 Ft.
AFTER DRILLING
CAVE-IN: DATE/TIME _____ DEPTH _____
WATER: DATE/TIME _____ DEPTH _____

LOG OF TEST BORING

F-203 (R 01-87)

PROJECT NAME: CATERPILLAR, INC.
LOCATION: MAPLETON, ILLINOIS
CONTRACTOR: MIDWEST ENGINEERING SERVICES
DRILLING METHOD: 4.25" ID HSA

BORING NO. 107SR
SHEET NO. 1 OF 1
PROJECT NO. 2185.45
INSTALLATION 10/19/95
SURFACE ELEV. 444.3
BOREHOLE DIA. 9 IN.

SAMPLING NOTES						VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS
INTERVAL NO.	INTERVAL TYPE	RECOVERY N	RECOVERY %	MOISTURE	DEPTH	
1	SS	4	50	M		POORLY GRADED SAND (SP), non-plastic, brown, no odor, very loose.
2	SS	6	100	M		CLAYEY SAND (SC), non-plastic, dark brown, no odor, loose.
3	SS	5	75	M	5	LEAN CLAY (CL), plastic, dark brown no odor, medium stiff, trace amount of silt.
4	SS	4	83	M		LEAN CLAY (CL), plastic, dark brown, no odor, soft.
5	SS	2	83	M		Same As Above.
6	SS	1	58	W	▽ 10	LEAN CLAY (CL), plastic, dark brown, no odor soft groundwater at 10' below ground surface.
7	SS	3	100	W		LEAN CLAY (CL), plastic, brown, no odor, soft.
8	SS	3	100	W	15	Same As Above.
9	SS	3	100	W		Same As Above.
10	SS	2	100	W		Same As Above.
						End of Boring at 19.0 Ft.

GENERAL NOTES

DATE STARTED: OCT 19 95
DATE COMPLETED: OCT 19 95
RIG: Diedrich D-120
CREW CHIEF:
LOGGED Sonny Samu CHECKED: RCG

WATER LEVEL OBSERVATIONS

WHILE DRILLING ▽ 10.0 Ft.
AT COMPLETION ▼
AFTER DRILLING
CAVE-IN: DATE/TIME DEPTH
WATER: DATE/TIME DEPTH

LOG OF TEST BORING

F-203 (R 01-87)

BORING NO. G-108S
SHEET NO. 1 OF 1
PROJECT NAME CATERPILLAR
PROJECT NO. 2185.05
LOCATION Mapleton, IL
INSTALLATION 01/13/92
CONTRACTOR Midwest Eng. Svcs.
SURFACE ELEV. 461.1
DRILLING METHOD HSA 4 1/4"
BOREHOLE DIA. 9 IN.

SAMPLING NOTES						VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS
INTERVAL		RECOVERY		MOISTURE		
NO.	TYPE	N	IN		DEPTH	
1	SS	24	18	M		POORLY GRADED SAND (SP), black 10YR 2/1, medium dense (Fill).
2	SS	16	19	M	5	POORLY GRADED SAND (SP), dark yellow brown 10YR 4/6, medium dense (Fluvial).
3	SS	12	24	M		LEAN CLAY (CL), gray 10YR 5/1, very stiff [Pp=4.0], slightly plastic (Fluvial).
4	SS	11	24			Same as above but sandy.
5	SS	4	24		10	
6	SS	8	24			
7	SS	15	24		15	
8	SS	9	24			
9	SS	12	24			
10	SS	7	24	M	20	LEAN CLAY (CL), dark gray 10YR 4/1, very stiff [Pp=2.0], plastic.
11	SS	8	24			
12	ST				25	
13	SS	10	2			
14	SS	4	24			Same as above.
15	SS	7	24	W	▽ 30	
16	SS	4	24			Same as above but wet.
17	SS	6			35	Same as above.
						POORLY GRADED SAND (SP), dark gray 5Y 4/1, loose (Fluvial).
					40	SILTY CLAY, dark gray 7.5YR N4/, very stiff [Pp=1.75], slightly plastic.
						End of Boring at 37 Ft.

GENERAL NOTES

DATE STARTED JAN 13 92
DATE COMPLETED JAN 13 92
RIG CME 55
CREW CHIEF T. Bartholomew
LOGGED R. Welch CHECKED

WATER LEVEL OBSERVATIONS

WHILE DRILLING ▽ 30.0 Ft.
AT COMPLETION ▼
AFTER DRILLING
CAVE-IN: DATE/TIME DEPTH
WATER: DATE/TIME DEPTH

RMT

LOG OF TEST BORING

F-203 (R 01-87)

BORING NO. P-109S
SHEET NO. 1 OF 1
PROJECT NO. 2185.12
INSTALLATION 06/29/92
SURFACE ELEV. 450.0
BOREHOLE DIA. 10 IN.

PROJECT NAME Caterpillar, Inc.
LOCATION Mapleton, Illinois
CONTRACTOR Midwest Engineering
DRILLING METHOD HSA 4 1/4"

SAMPLING NOTES						VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS	GENERAL WELL CONSTRUCT.
INTERVAL NO.	TYPE	RECOVERY N	IN	MOISTURE	DEPTH		
1	SS	60/3"	6	D		LEAN CLAY (CL), pale brown 10YR 6/3, stiff [Pp=2.0], plastic (Fill). Auger refusal, large fragment steel.	
2	SS	18	20	D		POORLY GRADED SAND (SP), light gray 2.5Y 7/2, well rounded.	
3	SS	9	20	M	5	POORLY GRADED SAND (SP), black 10YR 2/1, well rounded (Foundry sand).	
4	SS	6	22	M			
5	SS	3	20	W	▽	SILTY CLAY (CL-ML), dark grayish brown 2.5Y 4/2, very stiff [Pp=2.5], slightly plastic.	
6	SS		20	W	10	LEAN CLAY (CL), grayish brown 2.5Y 5/2, plastic, stiff [Pp=1.5], sand in bottom 2" of sample.	
7	SS		22	M		POORLY GRADED SAND (SP), yellowish brown 10YR 5/4, well rounded (Fluvial).	
8	SS		20			LEAN CLAY (CL), gray brown 2.5Y 5/2, plastic, stiff [Pp=1.5].	
					15	Sand as above.	
						Clay as above.	
						Clay as above.	
						End of Boring at 17 Ft.	

GENERAL NOTES

DATE STARTED JUN 29 92
DATE COMPLETED JUN 29 92
RIG CME 55
CREW CHIEF Bartholomew
LOGGED R. Welch CHECKED

WATER LEVEL OBSERVATIONS

WHILE DRILLING ▽ 9.0 Ft.
AT COMPLETION ▼
AFTER DRILLING
CAVE-IN: DATE/TIME DEPTH
WATER: DATE/TIME DEPTH

Illinois Environmental Protection Agency — **Well Completion Report**

Site #: 1438050004 County: Peoria Well #: TG101S

Site Name: Caterpillar, Inc. Mapleton Plant Grid Coordinate: Northing 4984.03 Easting 4454.12

Drilling Contractor: Midwest Engineering Services, Inc. Date Drilled Start: 12-17-91

Driller: T. Bartholemew Geologist: R. Welch (CRMT, Inc.) Date Completed: 12-17-91

Drilling Method: Hollow-stem augers Drilling Fluids (type): None

Annular Space Details

Type of Surface Seal: Concrete

Type of Annular Sealant: Bentonite Chips

Amount of cement: # of bags ____ lbs. per bag ____

Amount of bentonite: # of bags 1 lbs. per bag 50

Type of Bentonite Seal (~~Granular~~ Pellet): Pure Gold

Amount of bentonite: # of Bags 0.5 lbs. per bag 50

Type of Sand Pack: # 30

Source of Sand: "Red Flint"

Amount of Sand: # of bags 7.5 lbs. per bag 50

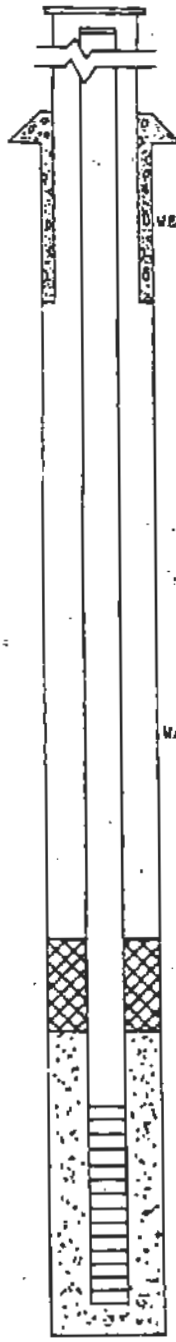
Well Construction Materials

	Stainless Steel Specify Type	Teflon Specify Type	PVC Specify Type	Other Specify Type
Riser coupling joint	—			
Riser pipe above w.t.	304			
Riser pipe below w.t.	304			
Screen	304			
Coupling joint screen to riser	—			
Protective casing	—			Steel

Measurements

to .01 ft. (where applicable)

Riser pipe length	10 ft
Protective casing length	4 ft
Screen length	10 ft
Bottom of screen to end cap	—
Top of screen to first joint	—
Total length of casing	30 ft
Screen slot size	0.010 inches
% of openings in screen	—
Diameter of borehole (in)	9 inches
ID of riser pipe (in)	2 inches



Elevations — .01 ft.

____ ____ MSL Top of Protective Casing
460.52 MSL Top of Riser Pipe
2.1 ft. Casing Stickup

458.4 MSL Ground Surface
457.4 ft. Top of annular sealant

WELL DEVELOPMENT

METHODS

(BAILING) PUMPING, (SURGING) COMPRESSED AIR

OTHER ____

APPROXIMATE WATER VOLUME:

REMOVED 30gal. ADDED None

DURATION OR VOLUME PUMPED: 45 min.

WATER CLARITY:

BEFORE DEVELOPMENT CLEAR/TURBID/(OPAQUE)

AFTER DEVELOPMENT CLEAR/TURBID/(OPAQUE)

ODOR: YES or (NO)

WATER LEVEL SUMMARY

DEPTH FROM TOP OF CASING AFTER DEVELOPMENT? ____ FT. OR (DRY)

OTHER MEASUREMENTS (T.O.C.):

DATE/TIME Feb. 4, 1992 DEPTH 11.8 FT
3/16/92 11.5

455.4 ft. Top of Seal

2.5 ft. Total Seal Interval

452.9 ft. Top of Sand

450.9 ft. Top of Screen

____ 10 ft. Total Screen Interval

440.9 ft. Bottom of Screen

440.4 ft. Bottom of Borehole

Completed by: B. Socha (CRMT, Inc.) Surveyed by: Daily + Associates Ill. registration # 2628
Douglas E. Mullen

Illinois Environmental Protection Agency — **Well Completion Report**

Site #: 1438050004 County: Peoria Well #: TG102 S

Site Name: Caterpillar, Inc. Mapleton Plant Grid Coordinate: Northing 5162.54 Easting 6279.34

Drilling Contractor: Midwest Engineering Services, Inc. Date Drilled Start: 1-8-92

Driller: T. Bartholemew Geologist: R. Welch (CRMT, Inc.) Date Completed: 1-8-92

Drilling Method: Hollow-stem augers Drilling Fluids (type): None

Annular Space Details

Type of Surface Seal: Concrete

Type of Annular Sealant: Bentonite Chips

Amount of cement: # of bags ____ lbs. per bag ____

Amount of bentonite: # of bags 1 lbs. per bag 50

Type of Bentonite Seal (~~Granular~~, Pellet): Volclay

Amount of bentonite: # of Bags 1 lbs. per bag 50

Type of Sand Pack: # 30

Source of Sand: "Red Flint"

Amount of Sand: # of bags 6 lbs. per bag 50

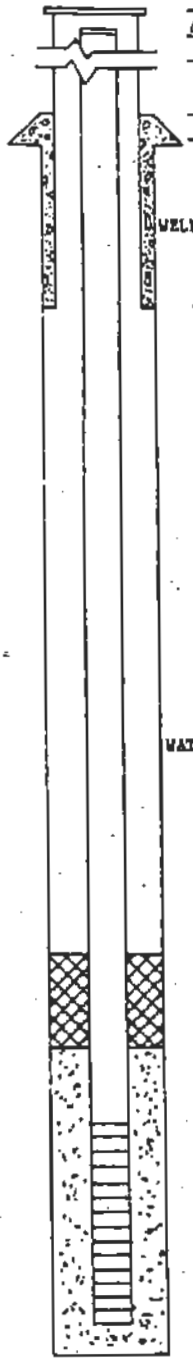
Well Construction Materials

	Stainless Steel Specify Type	Teflon Specify Type	PVC Specify Type	Other Specify Type
Riser coupling joint	—			
Riser pipe above w.t.	304			
Riser pipe below w.t.	304			
Screen	304			
Coupling joint screen to riser	—			
Protective casing	—			Steel

Measurements

to .01 ft. (where applicable)

Riser pipe length	7.6 ft
Protective casing length	4 ft
Screen length	10 ft
Bottom of screen to end cap	—
Top of screen to first joint	—
Total length of casing	17.6 ft
Screen slot size	0.010 inches
# of openings in screen	—
Diameter of borehole (in)	9 inches
ID of riser pipe (in)	2 inches



Elevations — .01 ft.

449.59 MSL Top of Protective Casing
MSL Top of Riser Pipe
2.6 ft. Casing Stickup

447.0 MSL Ground Surface
446.0 ft. Top of annular sealant

WELL DEVELOPMENT

METHODS

(BAILING) PUMPING, (SURGING) COMPRESSED AIR

OTHER ____

APPROXIMATE WATER VOLUME:

REMOVED 30gal. ADDED None

DURATION OR VOLUME PUMPED: 45 min.

WATER CLARITY:

BEFORE DEVELOPMENT CLEAR/TURBID/(OPAQUE)

AFTER DEVELOPMENT CLEAR/TURBID/(OPAQUE)

ODOR: YES or (NO)

WATER LEVEL SUMMARY

DEPTH FROM TOP OF CASING AFTER DEVELOPMENT? 8.2 FT. OR DRY

OTHER MEASUREMENTS (T.O.C.):

DATE/TIME 3/16/92 DEPTH 6.2 FT

446.0 ft. Top of Seal

2.0 ft. Total Seal Interval

444.0 ft. Top of Sand

442.0 ft. Top of Screen

10.0 ft. Total Screen Interval

432.0 ft. Bottom of Screen

433.0 ft. Bottom of Borehole

Completed by: B Socha (CRMT, Inc.) Surveyed by: Daily + Associates Ill. registration # 2628

Douglas E. Mullen

Illinois Environmental Protection Agency — **Well Completion Report**

Site #: 1438050004 County Peoria Well # +G10 3 S

Site Name: Caterpillar, Inc. Mapleton Plant Grid Coordinate: Northing 4497.28 Easting 6276.93

Drilling Contractor: Midwest Engineering Services, Inc. Date Drilled Start: 1-8-92

Driller: T. Bartholemew Geologist: R. Welch (CRMT, Inc.) Date Completed: 1-8-92

Drilling Method: Hollow-stem augers Drilling Fluids (type): None

Annular Space Details

Type of Surface Seal: Concrete

Type of Annular Sealant: Bentonite Chips

Amount of cement: # of bags ____ lbs. per bag ____

Amount of bentonite: # of bags 2 lbs. per bag 50

Type of Bentonite Seal (~~Granular~~, Pellet): Volclay

Amount of bentonite: # of Bags 1 lbs. per bag 50

Type of Sand Pack: # 30

Source of Sand: "Red Flint"

Amount of Sand: # of bags 6 lbs. per bag 50

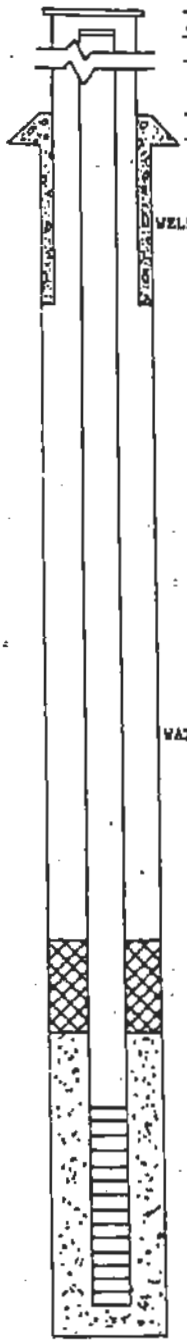
Well Construction Materials

	Stainless Steel Specify Type	Teflon Specify Type	PVC Specify Type	Other Specify Type
Riser coupling joint	—			
Riser pipe above w.t.	304			
Riser pipe below w.t.	304			
Screen	304			
Coupling joint screen to riser	—			
Protective casing	—			Steel

Measurements

to .01 ft. (where applicable)

Riser pipe length	12 ft.
Protective casing length	4 ft.
Screen length	10 ft.
Bottom of screen to end cap	—
Top of screen to first joint	—
Total length of casing	20 ft.
Screen slot size	0.010 inches
# of openings in screen	—
Diameter of borehole (in)	9 inches
ID of riser pipe (in)	2 inches



Elevations — .01 ft.

____ ____ MSL Top of Protective Casing
450 . 07 MSL Top of Riser Pipe
2 . 3 ft. Casing Stickup
447 . 8 MSL Ground Surface
445 . 8 ft. Top of annular sealant

WELL DEVELOPMENT

METHODS

(BAILING), PUMPING, (SURGING), COMPRESSED AIR

OTHER ____

APPROXIMATE WATER VOLUME:

REMOVED 30gal. ADDED None

DURATION OR VOLUME PUMPED: 45 min.

WATER CLARITY:

BEFORE DEVELOPMENT CLEAR/(TURBID)/(OPAQUE)

AFTER DEVELOPMENT CLEAR/(TURBID)/OPAQUE

ODOR: YES or (NO)

WATER LEVEL SUMMARY

DEPTH FROM TOP OF CASING AFTER DEVELOPMENT? 8.2 FT. OR DRY

OTHER MEASUREMENTS (T.O.C.):

DATE/TIME Before development 3/16/92 DEPTH 6.4 FT +.6

441 . 8 ft. Top of Seal

2 . 0 ft. Total Seal Interval

439 . 8 ft. Top of Sand

437 . 8 ft. Top of Screen

10 . 0 ft. Total Screen Interval

427 . 8 ft. Bottom of Screen

427 . 8 ft. Bottom of Borehole

Completed by: B. Socha (CRMT, Inc.) Surveyed by: Daily + Associates Ill. registration # 2628

Douglas E. Mullen

Illinois Environmental Protection Agency — **Well Completion Report**

Site #: 1438050004 County Peoria Well # +G103D

Site Name: Caterpillar, Inc. Mapleton Plant Grid Coordinate: Northing 4509.51 Easting 6279.55

Drilling Contractor: Midwest Engineering Services, Inc. Date Drilled Start: 12-20-91

Driller: T. Barthelemew Geologist: R. Welch (CRMT, Inc.) Date Completed: 12-20-91

Drilling Method: Hollow-stem augers Drilling Fluids (type): None

Annular Space Details

Type of Surface Seal: Concrete

Type of Annular Sealant: Bentonite slurry

Amount of cement: # of bags ____ lbs. per bag ____

Amount of bentonite: # of bags 3 lbs. per bag 50

Type of Bentonite Seal (Granular, Pellet): Very thick slurry

Amount of bentonite: # of Bags ____ lbs. per bag ____

Type of Sand Pack: #30

Source of Sand: "Red Flint"

Amount of Sand: # of bags 4 lbs. per bag 50

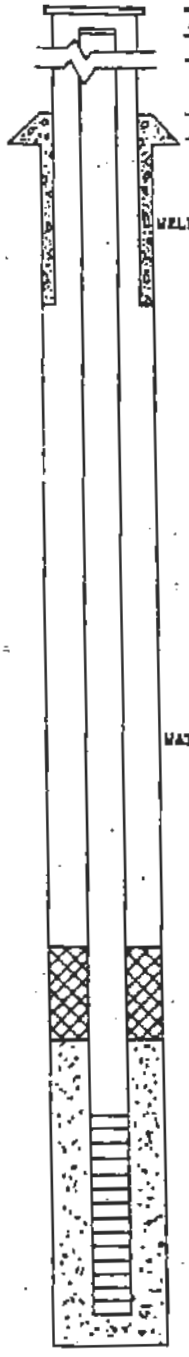
Well Construction Materials

	Stainless Steel Specify Type	Teflon Specify Type	PVC Specify Type	Other Specify Type
Riser coupling joint	—			
Riser pipe above w.t.	304			
Riser pipe below w.t.	304			
Screen	304			
Coupling joint screen to riser	—			
Protective casing	—			Steel

Measurements

to .01 ft. (where applicable)

Riser pipe length	33.5 ft
Protective casing length	4 ft
Screen length	5 ft
Bottom of screen to end cap	—
Top of screen to first joint	—
Total length of casing	38.5 ft.
Screen slot size	0.010 inches
% of openings in screen	—
Diameter of borehole (in)	9 inches
ID of riser pipe (in)	2 inches



Elevations — .01 ft.

____ MSL Top of Protective Casing
450.66 MSL Top of Riser Pipe
2.5 ft. Casing Stickup
448.2 MSL Ground Surface
448.2 ft. Top of annular sealant

WELL DEVELOPMENT

METHODS

(BAILING) PUMPING, (SURGING) COMPRESSED AIR

OTHER ____

APPROXIMATE WATER VOLUME:

REMOVED 50 gal. ADDED None

DURATION OR VOLUME PUMPED: 75 min.

WATER CLARITY:

BEFORE DEVELOPMENT CLEAR/TURBID/(OPAQUE)

AFTER DEVELOPMENT CLEAR/TURBID/(OPAQUE)

ODOR: YES or (NO)

WATER LEVEL SUMMARY

DEPTH FROM TOP OF CASING AFTER DEVELOPMENT? 28.3 FT. OR DRY

OTHER MEASUREMENTS (T.O.C.):

DATE/TIME 3/16/92 DEPTH 11.6 FT

421.2 ft. Top of Seal

2.0 ft. Total Seal Interval

419.2 ft. Top of Sand

417.2 ft. Top of Screen

5.0 ft. Total Screen Interval

412.2 ft. Bottom of Screen

410.2 ft. Bottom of Borehole

Completed by: B. Socha (CRMT, Inc.) Surveyed by: Daily + Associates Douglas E. Mullen Ill. registration # 2628

Illinois Environmental Protection Agency — **Well Completion Report**

Site #: 1438050004 County Peoria Well # +G104S

Site Name: Caterpillar, Inc. Mapleton Plant Grid Coordinate: Northing 3755.84 Easting 6300.99

Drilling Contractor: Midwest Engineering Services, Inc. Date Drilled Start: 1-10-92

Driller: T. Bartholemew Geologist: R. Welch (CRMT, Inc.) Date Completed: 1-10-92

Drilling Method: Hollow-Stem augers Drilling Fluids (type): None

Annular Space Details

Type of Surface Seal: Concrete

Type of Annular Sealant: Bentonite pellets

Amount of cement: # of bags ____ lbs. per bag ____

Amount of bentonite: # of bags — lbs. per bag —

Type of Bentonite Seal (~~Granular~~ Pellet): Volclay

Amount of bentonite: # of Bags 1 lbs. per bag 50

Type of Sand Pack: # 30

Source of Sand: "Red Flint"

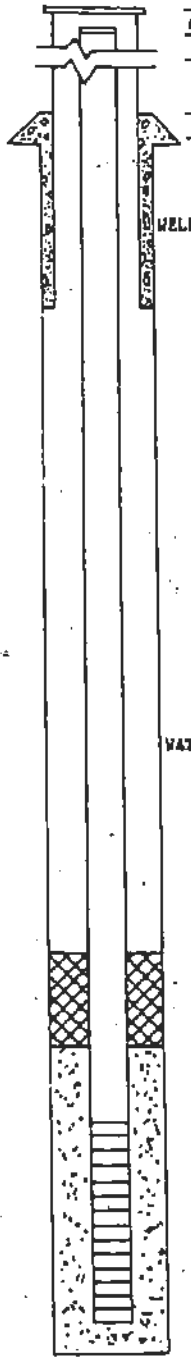
Amount of Sand: # of bags 6 lbs. per bag 50

Well Construction Materials

	Stainless Steel Specify Type	Teflon Specify Type	PVC Specify Type	Other Specify Type
Riser coupling joint	—			
Riser pipe above w.t.	304			
Riser pipe below w.t.	304			
Screen	304			
Coupling joint screen to riser	—			
Protective casing	—			Steel

Measurements to .01 ft. (where applicable)

Riser pipe length	7.5 ft.
Protective casing length	4 ft.
Screen length	10 ft.
Bottom of screen to end cap	—
Top of screen to first joint	—
Total length of casing	15 ft.
Screen slot size	0.010 inches
% of openings in screen	—
Diameter of borehole (in)	9 inches
ID of riser pipe (in)	2 inches



Elevations — .01 ft.

447.57 MSL Top of Protective Casing
447.57 MSL Top of Riser Pipe
3.5 ft. Casing Stickup

445.1 MSL Ground Surface
443.1 ft. Top of annular sealant

WELL DEVELOPMENT

METHODS

(BAILING) PUMPING, (SURGING) COMPRESSED AIR

OTHER ____

APPROXIMATE WATER VOLUME:

REMOVED 30 gal. ADDED None

DURATION OR VOLUME PUMPED: 40 min.

WATER CLARITY:

BEFORE DEVELOPMENT CLEAR/(TURBID)/OPAQUE

AFTER DEVELOPMENT CLEAR/(TURBID)/OPAQUE

ODOR: YES or (NO)

WATER LEVEL SUMMARY

DEPTH FROM TOP OF CASING AFTER DEVELOPMENT: 9.4 FT. OR DRY

OTHER MEASUREMENTS (T.O.C.):

DATE/TIME Before development 1/16/92 DEPTH 6.1 / 7.1 FT

443.1 ft. Top of Seal

2.0 ft. Total Seal Interval

442.1 ft. Top of Sand

440.1 ft. Top of Screen

10.0 ft. Total Screen Interval

430.1 ft. Bottom of Screen

430.1 ft. Bottom of Borehole

Completed by: B. Socha (CRMT, Inc.) Surveyed by: Daily + Associates Douglas E. Mullen Ill. registration # 0628

Illinois Environmental Protection Agency — **Well Completion Report**

Site #: 1438050004 County: Peoria Well #: + G104D

Site Name: Caterpillar, Inc. Mapleton Plant Grid Coordinate: Northing 3762.03 Easting 6300.02

Drilling Contractor: Midwest Engineering Services, Inc. Date Drilled Start: 1-10-92

Driller: T. Bartholemew Geologist: R. Welch (CRMT, Inc.) Date Completed: 1-10-92

Drilling Method: Hollow-stem augers Drilling Fluids (type): None

Annular Space Details

Type of Surface Seal: Concrete

Type of Annular Sealant: Bentonite slurry

Amount of cement: # of bags ____ lbs. per bag ____

Amount of bentonite: # of bags 3 lbs. per bag 50

Type of Bentonite Seal (~~Granular~~, Pellet): Volclay

Amount of bentonite: # of Bags 1 lbs. per bag 50

Type of Sand Pack: # 30

Source of Sand: "Red Flint"

Amount of Sand: # of bags 4 lbs. per bag 50

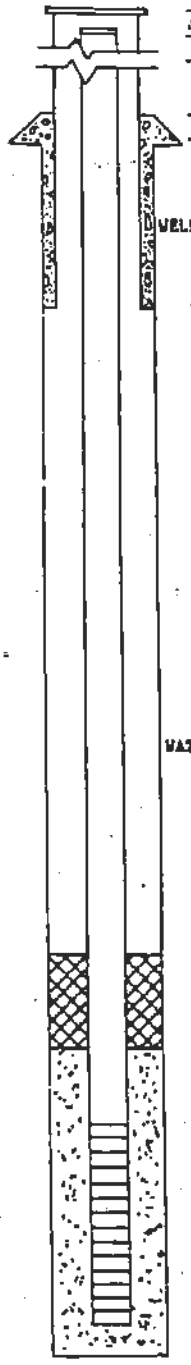
Well Construction Materials

	Stainless Steel Specify Type	Teflon Specify Type	PVC Specify Type	Other Specify Type
Riser coupling joint	—			
Riser pipe above w.t.	304			
Riser pipe below w.t.	304			
Screen	304			
Coupling joint screen to riser	—			
Protective casing	—			Steel

Measurements

to .01 ft. (where applicable)

Riser pipe length	43ft.
Protective casing length	4 ft.
Screen length	5 ft.
Bottom of screen to end cap	—
Top of screen to first joint	—
Total length of casing	48 ft.
Screen slot size	0.010 inches
% of openings in screen	—
Diameter of borehole (in)	9 inches
ID of riser pipe (in)	2 inches



Elevations — .01 ft.

447.36 MSL Top of Protective Casing

447.36 MSL Top of Riser Pipe

0.1 ft. Casing Stickup

445.3 MSL Ground Surface

443.3 ft. Top of annular sealant

WELL DEVELOPMENT

METHODS

(BAILING) PUMPING, (SURGING) COMPRESSED AIR

OTHER ____

APPROXIMATE WATER VOLUME:

REMOVED 60 gal. ADDED None

DURATION OR VOLUME PUMPED: 90 min.

WATER CLARITY:

BEFORE DEVELOPMENT CLEAR (TURBID) OPAQUE

AFTER DEVELOPMENT CLEAR (TURBID) OPAQUE

ODOR: YES or (NO)

WATER LEVEL SUMMARY

DEPTH FROM TOP OF CASING AFTER DEVELOPMENT: 19.5 FT. OR DRY

OTHER MEASUREMENTS (T.O.C.):

DATE/TIME Before development 3/12/92 DEPTH 11.2 FT 9.6

407.3 ft. Top of Seal

3.0 ft. Total Seal Interval

405.3 ft. Top of Sand

403.3 ft. Top of Screen

5.0 ft. Total Screen Interval

398.3 ft. Bottom of Screen

397.3 ft. Bottom of Borehole

Completed by: B. Socha (CRMT, Inc.) Surveyed by: Daily + Associates, Douglas E. Mullen Ill. registration # 2628

Illinois Environmental Protection Agency — **Well Completion Report**

Site #: 1438050004 County Peoria Well # G105 S

Site Name: Caterpillar, Inc. Mapleton Plant Grid Coordinate: Northing 3352.31 Easting 5710.69

Drilling Contractor: Midwest Engineering Services, Inc. Date Drilled Start: 1-13-92

Driller: T. Bartholemew Geologist: R. Welch (CRMT, Inc.) Date Completed: 1-13-92

Drilling Method: Hollow-stem augers Drilling Fluids (type): None

Annular Space Details

Type of Surface Seal: Concrete

Type of Annular Sealant: Bentonite chips

Amount of cement: # of bags _____ lbs. per bag _____

Amount of bentonite: # of bags 1 lbs. per bag 50

Type of Bentonite Seal (~~Granular~~, Pellet): Volclay

Amount of bentonite: # of Bags 1 lbs. per bag 50

Type of Sand Pack: # 30

Source of Sand: "Red Flint"

Amount of Sand: # of bags 6 lbs. per bag 50

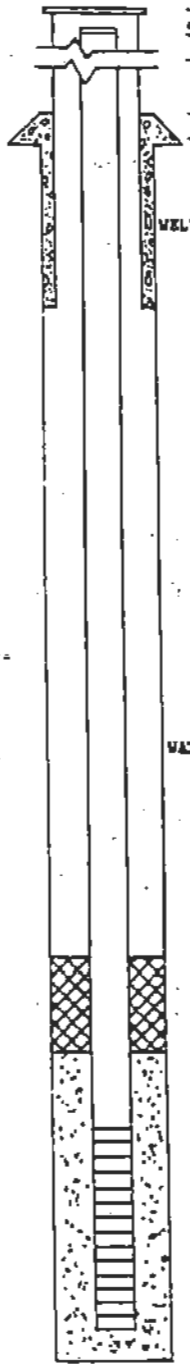
Well Construction Materials

	Stainless Steel Specify Type	Teflon Specify Type	PVC Specify Type	Other Specify Type
Riser coupling joint	—			
Riser pipe above w.t.	304			
Riser pipe below w.t.	304			
Screen	304			
Coupling joint screen to riser	—			
Protective casing	—			Steel

Measurements

to .01 ft. (where applicable)

Riser pipe length	10 ft.
Protective casing length	4 ft.
Screen length	10 ft
Bottom of screen to end cap	—
Top of screen to first joint	—
Total length of casing	20.5 ft
Screen slot size	0.010 inches
% of openings in screen	—
Diameter of borehole (in)	9 inches
ID of riser pipe (in)	2 inches



Elevations — .01 ft.

___ ___ MSL Top of Protective Casing
452 . 40 MSL Top of Riser Pipe
3 . 5 ft. Casing Stickup
449 . 0 MSL Ground Surface
447 . 0 ft. Top of annular sealant

WELL DEVELOPMENT

METHODS

(BAILING) PUMPING, (SURGING) COMPRESSED AIR

OTHER _____

APPROXIMATE WATER VOLUME:

REMOVED 9 gal. ADDED None

DURATION OR VOLUME PUMPED:

30 min

WATER CLARITY:

BEFORE DEVELOPMENT CLEAR/(TURBID)/OPAQUE

AFTER DEVELOPMENT CLEAR/(TURBID)/OPAQUE

ODOR: YES or (NO)

WATER LEVEL SUMMARY

DEPTH FROM TOP OF CASING AFTER DEVELOPMENT? _____ FT. OR (DRY)

OTHER MEASUREMENTS (T.O.C.):

DATE/TIME 3/16/92 DEPTH 12.4 FT

446 . 0 ft. Top of Seal

2 . 0 ft. Total Seal Interval

444 . 0 ft. Top of Sand

442 . 0 ft. Top of Screen

10 . 0 ft. Total Screen Interval

432 . 0 ft. Bottom of Screen

432 . 0 ft. Bottom of Borehole

Completed by: B Socha (CRMT, Inc.) Surveyed by: Daily + Associates Ill. registration # 2678

Douglas E. Mullen

Illinois Environmental Protection Agency — **Well Completion Report**

Site #: 1438050004 County Peoria Well # G106 S

Site Name: Caterpillar, Inc. Mapleton Plant Grid Coordinate: Northing 3152.46 Easting 5001.47

Drilling Contractor: Midwest Engineering Services, Inc. Date Drilled Start: 12-18-91

Driller: T. Bartholemew Geologist: R. Welch (CRMT, Inc.) Date Completed: 12-18-91

Drilling Method: Hollow-stem augers Drilling Fluids (type): None

Annular Space Details

Type of Surface Seal: Concrete

Type of Annular Sealant: Bentonite chips

Amount of cement: # of bags ____ lbs. per bag ____

Amount of bentonite: # of bags 1 lbs. per bag 50

Type of Bentonite Seal (~~Granular~~, Pellet): Volclay

Amount of bentonite: # of Bags 1 lbs. per bag 50

Type of Sand Pack: # 30

Source of Sand: "Red Flint"

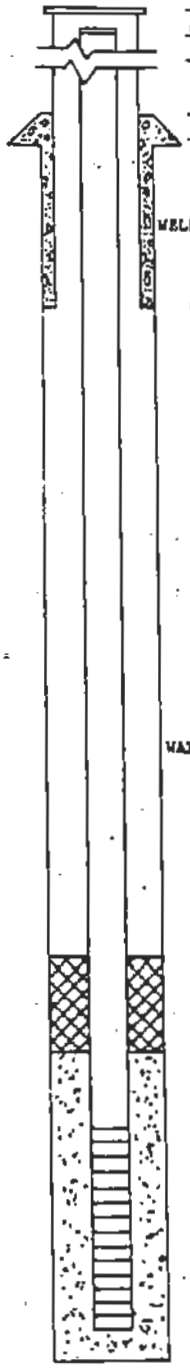
Amount of Sand: # of bags 6.5 lbs. per bag 50

Well Construction Materials

	Stainless Steel Specify Type	Teflon Specify Type	PVC Specify Type	Other Specify Type
Riser coupling joint	—			
Riser pipe above w.t.	304			
Riser pipe below w.t.	304			
Screen	304			
Coupling joint screen to riser	—			
Protective casing	—			Steel

Measurements to .01 ft. (where applicable)

Riser pipe length	8 ft.
Protective casing length	4 ft
Screen length	10 ft.
Bottom of screen to end cap	—
Top of screen to first joint	—
Total length of casing	8 ft
Screen slot size	0.010 inches
# of openings in screen	—
Diameter of borehole (in)	9 inches
ID of riser pipe (in)	2 inches



Elevations — .01 ft.

___ ___ MSL Top of Protective Casing
448 . 26 MSL Top of Riser Pipe
3.0 ft. Casing Stickup

445 . 3 MSL Ground Surface
444 . 3 ft. Top of annular sealant

WELL DEVELOPMENT

METHODS

(BAILING) PUMPING, (SURGING) COMPRESSED AIR

OTHER ____

APPROXIMATE WATER VOLUME:

REMOVED 30 gal. ADDED None

DURATION OR VOLUME PUMPED: 45 min.

WATER CLARITY:

BEFORE DEVELOPMENT CLEAR/(TURBID)/OPAQUE

AFTER DEVELOPMENT CLEAR/(TURBID)/OPAQUE

ODOR: YES or (NO)

WATER LEVEL SUMMARY

DEPTH FROM TOP OF CASING AFTER DEVELOPMENT? 8.2 FT. OR DRY

OTHER MEASUREMENTS (T.O.C.):

DATE/TIME 3/16/92 DEPTH 9.4 FT

444 . 3 ft. Top of Seal

2.0 ft. Total Seal Interval

442 . 3 ft. Top of Sand

440 . 3 ft. Top of Screen

10 . 0 ft. Total Screen Interval

430 . 3 ft. Bottom of Screen
430 . 3 ft. Bottom of Borehole

Completed by: B. Socha (CRMT, Inc.) Surveyed by: Daily + Associates Ill. registration # 2628
Douglas E. Mullen

Illinois Environmental Protection Agency — **Well Completion Report**

Site #: 1438050004 County Peoria Well # G106D

Site Name: Caterpillar, Inc. Mapleton Plant Grid Coordinate: Northing 3141.35 Easting 5003.11

Drilling Contractor: Midwest Engineering Services, Inc. Date Drilled Start: 12-18-91

Driller: T. Bartholemew Geologist: R. Welch (CRMT, Inc.) Date Completed: 12-18-91

Drilling Method: Hollow-stem augers Drilling Fluids (type): None

Annular Space Details

Type of Surface Seal: Concrete

Type of Annular Sealant: Bentonite slurry

Amount of cement: # of bags ____ lbs. per bag ____

Amount of bentonite: # of bags 5 lbs. per bag 50

Type of Bentonite Seal ~~Granular, Pellet~~: Very thick slurry

Amount of bentonite: # of Bags — lbs. per bag —

Type of Sand Pack: # 30

Source of Sand: "Red Flint"

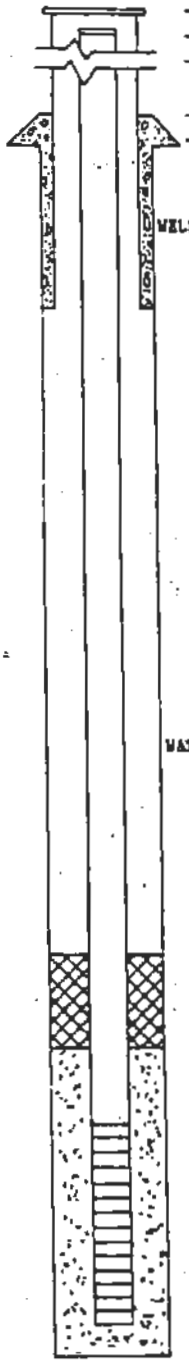
Amount of Sand: # of bags 4 lbs. per bag 50

Well Construction Materials

	Stainless Steel Specify Type	Teflon Specify Type	PVC Specify Type	Other Specify Type
Riser coupling joint	—			
Riser pipe above w.t.	304			
Riser pipe below w.t.	304			
Screen	304			
Coupling joint screen to riser	—			
Protective casing	—			Steel

Measurements to .01 ft. (where applicable)

Riser pipe length	41.6 ft
Protective casing length	4 ft.
Screen length	5 ft.
Bottom of screen to end cap	—
Top of screen to first joint	—
Total length of casing	46.6 ft
Screen slot size	0.010 inches
# of openings in screen	—
Diameter of borehole (in)	9 inches
ID of riser pipe (in)	2 inches



Elevations — .01 ft.

— MSL Top of Protective Casing
448.24 MSL Top of Riser Pipe
2.6 ft. Casing Stickup
445.6 MSL Ground Surface
444.6 ft. Top of annular sealant

WELL DEVELOPMENT

METHODS

(BAILING), PUMPING, (SURGING) COMPRESSED AIR

OTHER ____

APPROXIMATE WATER VOLUME:

REMOVED 60gal. ADDED ____

DURATION OR VOLUME PUMPED: 90 min.

WATER CLARITY:

BEFORE DEVELOPMENT CLEAR/TURBID/(OPAQUE)

AFTER DEVELOPMENT CLEAR/TURBID/(OPAQUE)

ODOR: YES or (NO)

WATER LEVEL SUMMARY

DEPTH FROM TOP OF CASING AFTER DEVELOPMENT? 12.2 FT. OR DRY

OTHER MEASUREMENTS (T.O.C.):

DATE/TIME 3/16/92 DEPTH 10.5 FT

410.6 ft. Top of Seal

2.0 ft. Total Seal Interval

408.6 ft. Top of Sand

406.6 ft. Top of Screen

5.0 ft. Total Screen Interval

401.6 ft. Bottom of Screen

400.6 ft. Bottom of Borehole

Completed by: B. Socha (CRMT, Inc.) Surveyed by: Daily + Associates Douglas E. Mullen Ill. registration # 2628

Illinois Environmental Protection Agency — **Well Completion Report**

Site #: 1438050004 County: Peoria Well #: G107 S

Site Name: Caterpillar, Inc. Mapleton Plant Grid Coordinate: Northing 2992.10 Easting 4369.21

Drilling Contractor: Midwest Engineering Services, Inc. Date Drilled Start: 12-17-91

Driller: T. Bartholemew Geologist: R. Welch (CRMT, Inc.) Date Completed: 12-17-91

Drilling Method: Hollow-stem augers Drilling Fluids (type): None

Annular Space Details

Type of Surface Seal: Concrete

Type of Annular Sealant: Bentonite pellets

Amount of cement: # of bags ____ lbs. per bag ____

Amount of bentonite: # of bags — lbs. per bag —

Type of Bentonite Seal (~~Granular~~, Pellet): Volclay

Amount of bentonite: # of Bags 1 lbs. per bag 50

Type of Sand Pack: # 30

Source of Sand: "Red Flint"

Amount of Sand: # of bags 6 lbs. per bag 50

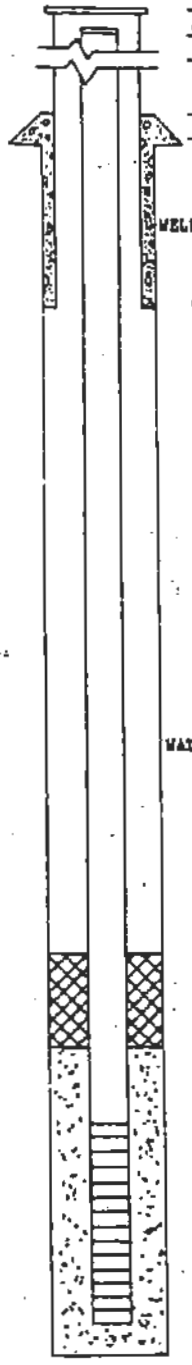
Well Construction Materials

	Stainless Steel Specify Type	Teflon Specify Type	PVC Specify Type	Other Specify Type
Riser coupling joint	—			
Riser pipe above w.t.	304			
Riser pipe below w.t.	304			
Screen	304			
Coupling joint screen to riser	—			
Protective casing	—			Steel

Measurements

to .01 ft. (where applicable)

Riser pipe length	8 ft.
Protective casing length	4 ft.
Screen length	10 ft.
Bottom of screen to end cap	—
Top of screen to first joint	—
Total length of casing	18 ft.
Screen slot size	0.010 inches
% of openings in screen	—
Diameter of borehole (in)	9 inches
ID of riser pipe (in)	2 inches



Elevations — .01 ft.

____ MSL Top of Protective Casing
447.36 MSL Top of Riser Pipe
2.9 ft. Casing Stickup
444.5 MSL Ground Surface
443.5 ft. Top of annular sealant

WELL DEVELOPMENT

METHODS

(BAILING) PUMPING, (SURGING) COMPRESSED AIR

OTHER ____

APPROXIMATE WATER VOLUME:

REMOVED 30 gal. ADDED ____

DURATION OR VOLUME PUMPED: 40 min.

WATER CLARITY:

BEFORE DEVELOPMENT CLEAR/TURBID/(OPAQUE)

AFTER DEVELOPMENT CLEAR/TURBID/(OPAQUE)

ODOR: YES or (NO)

WATER LEVEL SUMMARY

DEPTH FROM TOP OF CASING AFTER DEVELOPMENT?
6.5 FT. OR DRY

OTHER MEASUREMENTS (T.O.C.):

DATE/TIME 3/4/92 DEPTH 7.4 FT

443.5 ft. Top of Seal

2.0 ft. Total Seal Interval

441.5 ft. Top of Sand

439.5 ft. Top of Screen

10.0 ft. Total Screen Interval

429.5 ft. Bottom of Screen

429.0 ft. Bottom of Borehole

Completed by: B. Socha (CRMT, Inc.) Surveyed by: Daily + Associates Ill. registration # 2628

Douglas E. Mullen

Illinois Environmental Protection Agency — **Well Completion Report**

Site #: 1438050004 County: Peoria Well #: G107SR

Site Name: Caterpillar, Inc. Grid Coordinate: Northing 2985.47 Easting 4368.41

Drilling Contractor: Midwest Engineering Services Date Drilled Start: 10-19-95

Driller: T. Barthalemew Geologist: Sonny Samu (RMT) Date Completed: 10-19-95

Drilling Method: Hollow stem anger Drilling Fluids (type): None

Annular Space Details

Type of Surface Seal: Concrete

Type of Annular Sealant: Bentonite Pellets

Amount of cement: # of bags ____ lbs. per bag ____

Amount of bentonite: # of bags 5 buckets lbs. per bag 50

Type of Bentonite Seal (Granular, Pellet): Hole Plug chips 3/8" dia

Amount of bentonite: # of Bags 2 lbs. per bag 50

Type of Sand Pack: #30

Source of Sand: Red Flint

Amount of Sand: # of bags 8 lbs. per bag 50

Well Construction Materials

	Stainless Steel Specify Type	Teflon Specify Type	PVC Specify Type	Other Specify Type
	304			
Riser coupling joint	Threaded			
Riser pipe above w.t.	304			
Riser pipe below w.t.	304			
Screen	304			
Coupling joint screen to riser				
Protective casing				steel

Measurements to .01 ft. (where applicable)

Riser pipe length	10ft.
Protective casing length	5ft.
Screen length	10ft.
Bottom of screen to end cap	—
Top of screen to first joint	—
Total length of casing	20ft.
Screen slot size	0.010ft.
# of openings in screen	—
Diameter of borehole (in)	9 inches
ID of riser pipe (in)	2 inches

Elevations — .01 ft.

—	—	MSL Top of Protective Casing
2'	425.96	MSL Top of Riser Pipe
2'	—	ft. Casing Stickup
444.25	—	MSL Ground Surface
2'	442.25	ft. Top of annular sealant
4'	440.25	ft. Top of Seal
2'	—	ft. Total Seal Interval
6'	438.25	ft. Top of Sand
8'	436.25	ft. Top of Screen
10'	—	ft. Total Screen Interval
18'	426.25	ft. Bottom of Screen
19'	425.25	ft. Bottom of Borehole

Completed by: Sonny Samu (RMT) Inc. Surveyed by: Douglas E. Mullen, IL registration # 2628
LPLS Daily & Assoc.

Illinois Environmental Protection Agency — **Well Completion Report**

Site #: 1438050004 County Peoria Well # G 108 S

Site Name: Caterpillar, Inc. Mapleton Plant Grid Coordinate: Northing 3854.16 Easting 3949.06

Drilling Contractor: Midwest Engineering Services, Inc. Date Drilled Start: 1-14-92

Driller: T. Bartholemew Geologist: R. Welch (CRMT, Inc.) Date Completed: 1-14-92

Drilling Method: Hollow-stem augers Drilling Fluids (type): None

Annular Space Details

Type of Surface Seal: Concrete

Type of Annular Sealant: Bentonite slurry

Amount of cement: # of bags ____ lbs. per bag ____

Amount of bentonite: # of bags 3.5 lbs. per bag 50

Type of Bentonite Seal (Granular, Pellet): Very thick Slurry

Amount of bentonite: # of Bags — lbs. per bag —

Type of Sand Pack: # 30

Source of Sand: "Red Flint"

Amount of Sand: # of bags 6 lbs. per bag 50

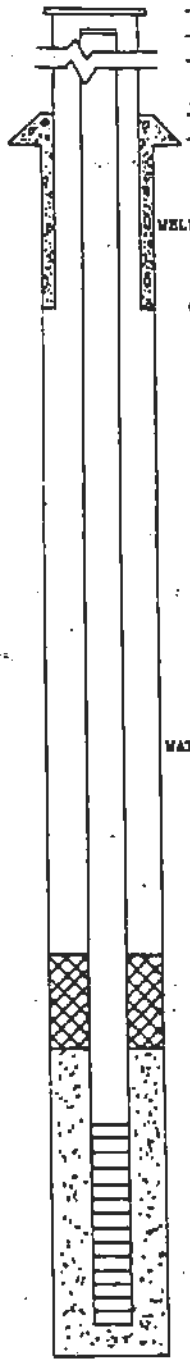
Well Construction Materials

	Stainless Steel Specify Type	Teflon Specify Type	PVC Specify Type	Other Specify Type
Riser coupling joint	—			
Riser pipe above w.t.	304			
Riser pipe below w.t.	304			
Screen	304			
Coupling joint screen to riser	—			
Protective casing	—			Steel

Measurements

to .01 ft. (where applicable)

Riser pipe length	30 ft.
Protective casing length	4 ft.
Screen length	10 ft.
Bottom of screen to end cap	—
Top of screen to first joint	—
Total length of casing	40 ft.
Screen slot size	0.010 inches
% of openings in screen	—
Diameter of borehole (in)	9 inches
ID of riser pipe (in)	2 inches



Elevations — .01 ft.

____	MSL Top of Protective Casing
464.04	MSL Top of Riser Pipe
2.9	ft. Casing Stickup
461.1	MSL Ground Surface
460.1	ft. Top of annular sealant

WELL DEVELOPMENT

METHODS

(BAILING) PUMPING (SURGING) COMPRESSED AIR

OTHER ____

APPROXIMATE WATER VOLUME:

REMOVED 45 gal. ADDED ____

DURATION OR VOLUME PUMPED: 60 min.

WATER CLARITY:

BEFORE DEVELOPMENT CLEAR (TURBID) OPAQUE

AFTER DEVELOPMENT CLEAR (TURBID) OPAQUE

ODOR: YES or (NO)

WATER LEVEL SUMMARY

DEPTH FROM TOP OF CASING AFTER DEVELOPMENT?
27.9 FT. OR DRY

OTHER MEASUREMENTS (T.O.C.):

DATE/TIME Before development 3/14/92 DEPTH 23.9 FT 23.9

438.2	ft. Top of Seal
2.0	ft. Total Seal Interval
436.2	ft. Top of Sand
434.1	ft. Top of Screen
10.0	ft. Total Screen Interval
424.1	ft. Bottom of Screen
424.1	ft. Bottom of Borehole

Completed by: B. Socha (CRMT, Inc.) Surveyed by: Daily + Associates Douglas E. Mullen Ill. registration # 2628

Illinois Environmental Protection Agency — Well Completion Report

Site #: 1438050004 County: Peoria Well #: P109S

Site Name: Caterpillar, Inc., Mapleton Plant Grid Coordinate: Northing 4649.20 Easting 4088.58

Drilling Contractor: Midwest Engineering Services, Inc. Date Drilled Start:

Driller: T. Bartholomew Geologist: R. Welch (RMT, Inc.) Date Completed: 6-29-92

Drilling Method: Hollow-stem Augers Drilling Fluids (type): None

Annular Space Details

Type of Surface Seal: Bentonite Chips - Med.

Type of Annular Sealant: Bentonite Chips - Med.

Amount of cement: # of bags — lbs. per bag —

Amount of bentonite: # of bags — lbs. per bag —

Type of Bentonite Seal (Granular, Pellet): American Colloid Co. - Pure Gold Bentonite Chips

Amount of bentonite: # of Bags 1 lbs. per bag 50

Type of Sand Pack: #30

Source of Sand: "Red Flint"

Amount of Sand: # of bags 4 lbs. per bag 50

Well Construction Materials

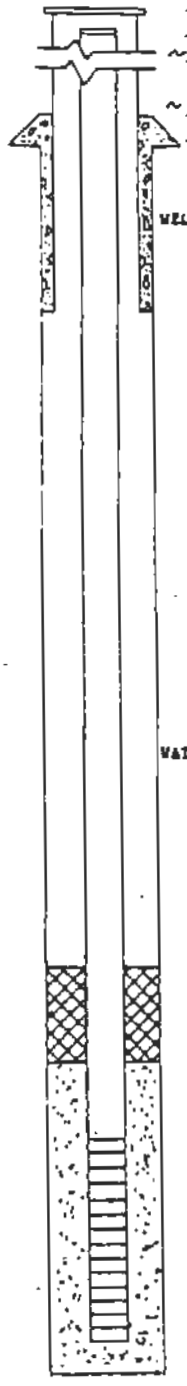
	Stainless Steel Specify Type	Teflon Specify Type	PVC Specify Type	Other Specify Type
Riser coupling joint	—			
Riser pipe above w.t.	304			
Riser pipe below w.t.	304			
Screen	304			
Coupling joint screen to riser	—			
Protective casing	—			Steel

Measurements

to .01 ft. (where applicable)

Riser pipe length	10 feet
Protective casing length	4 feet
Screen length	10 feet
Bottom of screen to end cap	—
Top of screen to first joint	—
Total length of casing	20 feet
Screen slot size	0.010 inches
% of openings in screen	—
Diameter of borehole (in)	9 inches
ID of riser pipe (in)	2 inches

Elevations — .01 ft.



452.09 MSL Top of Protective Casing

MSL Top of Riser Pipe

~2.0 ft. Casing Stickup

~450.0 MSL Ground Surface

449.0 ft. Top of annular sealant

WELL DEVELOPMENT

METHODS

(BAILING) PUMPING, (SURGING) COMPRESSED AIR

OTHER

APPROXIMATE WATER VOLUME:

REMOVED 45 gal. ADDED

DURATION OR VOLUME PUMPED: 1 hr.

WATER CLARITY:

BEFORE DEVELOPMENT CLEAR/TURBID/(OPAQUE)

AFTER DEVELOPMENT CLEAR/(TURBID)/OPAQUE

ODOR: YES or (NO)

WATER LEVEL SUMMARY

DEPTH FROM TOP OF CASING AFTER DEVELOPMENT: 12.05 FT. OR DRY

OTHER MEASUREMENTS (T.O.C.):

DATE/TIME 6-30-92 DEPTH 9.94 FT

447.0 ft. Top of Seal

2.0 ft. Total Seal Interval

445.5 ft. Top of Sand

443.0 ft. Top of Screen

10.0 ft. Total Screen Interval

433.0 ft. Bottom of Screen

433.0 ft. Bottom of Borehole

Completed by: B. Socha (RMT, Inc.) Surveyed by: Daily + Associates Ill. registration # 2628

Douglas E. Mullen

LOG OF TEST BORING

RMT

BORING NO. L301
SHEET NO. 1 OF 2

PROJECT NAME Caterpiller - Mapleton Foundry Landfill
LOCATION Mapleton, IL.
CONTRACTOR Midwest Engineering Services
DRILLING METHOD 4.25" HSA

PROJECT NO. 2185.57
INSTALLATION 11-10-97
SURFACE ELEV. 461.8
BOREHOLE DIA. 8.3 IN.

SAMPLING NOTES						VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS	WELL CONSTR
INTERVAL NO.	TYPE	RECOVERY N	IN	MOISTURE	DEPTH		
1	SS	13 8 13 12			5	SILTY SAND (SM), foundry sand, 10 YR 2/1 black, mottled with 10 YR 1/3 brown 10 R 3/3 dusky red, no odor, moist. (fill)	
2	SS	10 7 6 5				AS ABOVE, less mottled, 10 YR 5/3 brown.	
3	SS	1 2 1 1			10	AS ABOVE, no mottling, wet.	
4	SS	1 1 1 1				AS ABOVE, wet, occasional fragments of sand core, (hard reddish plus greenish fragments).	
5	SS	1 1 1 1			15	AS ABOVE, no core fragments very wet.	
6	SS	1 1 1 1				NO RECOVERY	

GENERAL NOTES

DATE STARTED 11-10-97
DATE COMPLETED 11-10-97
RIG Diedrich D-120
CREW CHIEF
LOGGED M.Westover CHECKED A.J.S.

WATER LEVEL OBSERVATIONS

WHILE DRILLING ▽ feet
AT COMPLETION ▼
AFTER DRILLING
CAVE-IN: DATE/TIME DEPTH
WATER: DATE/TIME DEPTH

N3LBW 2185 11-26-97

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LOG OF TEST BORING

RMT

BORING NO. L301
SHEET NO. 2 OF 2
PROJECT NO. 2185.57
INSTALLATION 11-10-97
SURFACE ELEV. 461.8
BOREHOLE DIA. 8.3 IN.

PROJECT NAME Caterpiller - Mapleton Foundry Landfill
LOCATION Mapleton, IL.
CONTRACTOR Midwest Engineering Services
DRILLING METHOD 4.25" HSA

SAMPLING NOTES						VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS	WELL CONSTR
INTERVAL NO.	TYPE	RECOVERY N	IN	MOISTURE	DEPTH		
	SS	3 1 3 5				AS ABOVE, (foundry sand).	
7					20	Last 6" of borehole was sealed with bentonite.	
	SS	3 3 5 6					
8						FAT CLAY (CH), trace fine gravel, plastic, 10 Yr 4/3 brown, mottled, moist	
						END OF BORING AT 22 FEET	
					25		
					30		
					35		

N3LBW 2185 11-26-97

LOG OF TEST BORING

RMT

BORING NO. L302
SHEET NO. 1 OF 2
PROJECT NO. 2185.57
INSTALLATION 11-11-97
SURFACE ELEV. 462.8
BOREHOLE DIA. 8.3 IN.

PROJECT NAME Caterpiller - Mapleton Foundry Landfill
LOCATION Mapleton, IL.
CONTRACTOR Midwest Engineering Services
DRILLING METHOD 4.25" HSA

SAMPLING NOTES						VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS	WELL CONSTR
INTERVAL NO.	TYPE	RECOVERY N	IN	MOISTURE	DEPTH		
1	SS	8 6 4 4				**SILTY SAND (SM)**, foundry sand, non-plastic, 10 YR 2/1 black, moist, core fragments 10 YR 5/1 dusky red and light gray.	
2	SS	7 5 7 7			5	**AS ABOVE**, no core fragments, slightly plastic, moist.	
3	SS	6 3 2 2			10	**AS ABOVE**, non-plastic, occasional core 10 YR 5/3 brown, wet.	
4	SS	6 3 2 2				**AS ABOVE**, wet, fine gravel, core fragments (5% to 10%). Last 6" 10 YR 5/3 brown core.	
5	SS	5 4 6 6			15	**POORLY GRADED SAND (SP)**, foundry sand, 5% silt, non-plastic, 10 Yr 4/1 dark gray, wet, occasional metal fragment (1 seen).	
	SS	1 4				**AS ABOVE** , core fragments.	

GENERAL NOTES

DATE STARTED 11-11-97
DATE COMPLETED 11-11-97
RIG Diedrich D-120
CREW CHIEF
LOGGED M. Westover CHECKED A.J.S.

WATER LEVEL OBSERVATIONS

WHILE DRILLING ▽ feet
AT COMPLETION ▼
AFTER DRILLING
CAVE-IN: DATE/TIME DEPTH
WATER: DATE/TIME DEPTH

N3LBW 2185 11-26-97

LOG OF TEST BORING

RMT, INC.

BORING NO. L302
SHEET NO. 2 OF 2
PROJECT NO. 2185.57
INSTALLATION 11-11-97
SURFACE ELEV. 462.8
BOREHOLE DIA. 8.3 IN.

PROJECT NAME Caterpiller - Mapleton Foundry Landfill
LOCATION Mapleton, IL.
CONTRACTOR Midwest Engineering Services
DRILLING METHOD 4.25" HSA

SAMPLING NOTES						VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS	WELL CONSTR
INTERVAL NO.	TYPE	RECOVERY N	IN	MOISTURE	DEPTH		
6	SS	2 2				AS ABOVE, 20% to 30 % silt, slightly plastic, 10 YR 2/1 black.	
		2 3				AS ABOVE, 5% to 10% silt, (SP fill).	
7		3 4			20		
						FAT CLAY (CH), 20% to 30% silt, trace fine sand, trace gravel, plastic, 10 YR 5/1 gray, moist.	
						END OF BORING AT 21 FEET	
					25		
					30		
					35		

N3LBW 2185 11-26-97

LOG OF TEST BORING

RMT, Inc.

BORING NO. L303
SHEET NO. 1 OF 2
PROJECT NO. 2185.57
INSTALLATION 11-10-97
SURFACE ELEV. 467.2
BOREHOLE DIA. 8.3 IN.

PROJECT NAME Caterpiller - Mapleton Foundry Landfill
LOCATION Mapleton, IL.
CONTRACTOR Midwest Engineering Services
DRILLING METHOD 4.25" HSA

SAMPLING NOTES						VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS	WELL CONSTR
INTERVAL NO.	TYPE	RECOVERY N	IN	MOISTURE	DEPTH		
1	SS	6 10 6 8				**SILTY SAND (SM)**, foundry sand, non-plastic, 10 YR 7/1 black. (fill)	
					5		
2	SS	10 9 9 10				**AS ABOVE**, trace core fragments, 10 YR 3/3 dusky red. Slightly plastic last 6", 10% to 25% silt.	
					10		
3	SS	1 1 1 1				**AS ABOVE**, slightly plastic 20% silt. Wet	
4	SS	1 1 1 1					
					15		
5	SS	4 5 8 8				Moist	
	SS	4 8					

GENERAL NOTES

DATE STARTED 11-10-97
DATE COMPLETED 11-10-97
RIG Diedrich D-120
CREW CHIEF
LOGGED M. Westover CHECKED A.J.S.

WATER LEVEL OBSERVATIONS

WHILE DRILLING ▽ feet
AT COMPLETION ▼
AFTER DRILLING
CAVE-IN: DATE/TIME DEPTH
WATER: DATE/TIME DEPTH

N3LBW 2185 11-28-97

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LOG OF TEST BORING

RMT, Inc.

BORING NO. L303
SHEET NO. 2 OF 2

PROJECT NAME Caterpiller - Mapleton Foundry Landfill
PROJECT NO. 2185.57
LOCATION Mapleton, IL.
INSTALLATION 11-10-97
CONTRACTOR Midwest Engineering Services
SURFACE ELEV. 467.2
DRILLING METHOD 4.25" HSA
BOREHOLE DIA. 8.3 IN.

SAMPLING NOTES						VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS	WELL CONSTR
INTERVAL NO.	TYPE	RECOVERY N	IN	MOISTURE	DEPTH		
6		8 4					
	SS	2 2					
7		3 3			20		
	SS	2 3					
8		4 3				0.2' core (gray sand).	
	SS	3 4					
9		7 4					
					25	CLAY (CL), 10% to 20% silt, 10 YR 4/3 brown, trace roots, plastic, moist.	
					30		
					35		

N3LBW 2185 11-28-97

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Illinois Environmental Protection Agency

Field Boring Log

Site ID No. 143805004 Federal ID No.

Site Name: Caterpillar Inc. Mapleton Foundry Landfill

Quadrangle: Pekin Sec. 30 T. 7N R. 7E

UTM (or State Plane) Coord. N. (X) E. (Y)

Latitude: Longitude:

Boring Location: L303R

Drilling Equipment: Hollow stem augers

Midwest Engineering and Testing

County: Peoria

Boring No. L303R Monitoring Well No. L303R

Surface Elevation: 492.0 Completion Depth: 48.2

Auger Depth: 50.0 Rotary Depth:

Date: Start: 5/13/2010 Finish: 5/14/2010

Personnel

G - Tom Koch, RMT
D - Steve Turner, MET
H - Zach, MET
H -

Elev.	Description of Material	Graphic Log	Depth In Feet	Sample No.	Sample Type	Sample Recovery (X)	Penetrometer	N Values (Blow Counts)	OVA or HNU Readings	REMARKS
	(Geologic description for elevation interval 492 to 467 is based on auger cuttings)									
487	Silty SAND, foundry sand, gray to black		5							
482	Same as above		10							
477	Same as above		15							
472	Same as above		20							
467	(Geologic description for elevation interval 467 to 452 is taken from boring log for L303) Silty SAND, foundry sand, non-plastic 10YR 7/1 black, (fill)		25							
462	Same as above, trace core fragments, 10YR 3/3 dusky red		30							
457	Same as above, slightly plastic 20% silt		35							
452	Foundry sand, silty fine SAND (black), wet, no odor.		40	1	SS	24		6/10/12		
447	Same as above		45	2	SS	24		6/4/5/6		
	Same as above to 46.4 feet; changes to clayey silty SAND with trace gravel, yellowish brown (till)			3	SS	24		3/3/9/11		
442			50	4	SS	24		5/6/7/10		

Illinois Environmental Protection Agency — **Field Boring Log** — L304 — Page 1 of 2

Site File No. _____ County Peoria — Boring No. TP-3B — Monitor Well No. TP-3B

Site File Name Mapleton Caterpillar, 2185.67 — Surface Elevation 473.9 — Completion Depth 36.0

Fed. ID. No. _____ — Auger Depth 36 — Rotary Depth _____

Quadrangle Pekin — Sec. 29/30 T. 7N R. 7E — Date: Start 10/28/98 — Finish 10/28/98

UTM (or State Plane) Coord. N.(X) 4124.7 E.(Y) 5588.7

Latitude ° ' " Longitude ° ' "

Boring Location _____

Drilling Equipment Diedrich D 50

PERSONNEL: G - R. Hafemeister; D - T. Bartholomew; H - ; H -

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES: SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
472.9			1							
471.9	**FOUNDRY SAND (FILL)**, very fine grained, black 10YR 2/1, dry, medium dense.		2	1		16		16		
470.9			3							
469.9			4							
468.9			5	2		24		11		
467.9			6							
466.9	Same as above, but moist.		7	3		20		34		
465.9			8							
464.9			9	4		24		30		
463.9			10							
462.9			11	5		24		13		
461.9			12							
460.9	**FOUNDRY SAND (FILL)**, moist.		13	6		2		13		
459.9			14							
458.9	Same as above, but very moist to wet.		15	7		24		15		
457.9			16							
456.9	Moist to wet.		17	8		12		N/A		
455.9			18							
454.9	Same as above, wet.		19	9		22		24		
453.9			20							
452.9	**FOUNDRY SAND (FILL)**, but dry.		21	10		24		26		

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Illinois Environmental Protection Agency — **Field Boring Log** — Page 2 of 2

L304

Site File No. _____ County Peoria — Boring No. TP-3B — Monitor Well No. TP-3B

Site File Name Mapleton Caterpillar, 2185.67 — Surface Elevation 473.9 — Completion Depth 36.0

Fed. ID. No. _____ — Auger Depth 36 — Rotary Depth _____

Quadrangle Pekin — Sec. 29/30 T. 7N R. 7E — Date: Start 10/28/98 — Finish 10/28/98

UTM (or State Plane) Coord. N.(X) 4124.7 E.(Y) 5588.7

Latitude ° ' " Longitude ° ' "

Boring Location _____

Drilling Equipment Diedrich D 50

PERSONNEL
G - R. Hafemeister
D - T. Bartholomew
H -
H -

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES: SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
450.9	Same as above, but wet, dense.		23	11		24		44		
449.9			24							
448.9	Same as above, but medium dense.		25	12		24		18		
447.9			26							
446.9	Same as above, dense, wet.		27	13		24		32		
445.9			28							
444.9	Same as above, medium dense, wet.		29	14		24		12		
443.9			30							
442.9	Same as above, but loose, wet.		31	15		24		6		
441.9			32							
440.9	**LEAN CLAY (CL),** plastic, olive grey 5Y 4/2, moist, medium stiff.		33	16		24		5		
439.9			34							
438.9	Moist.		35	17		24		7		
	End of boring at 36.0'									

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Illinois Environmental Protection Agency **Field Boring Log** L305 Page 1 of 1

Site File No. _____ County Peoria Boring No. TP-1A Monitor Well No. TP-1A

Site File Name Mapleton Caterpillar, 2185.67 Surface Elevation 469.0 Completion Depth 25.5

Fed. ID. No. _____ Auger Depth 25.5 Rotary Depth _____

Quadrangle Pekin Sec. 29/30 T. 7N R. 7E Date: Start 10/30/98 Finish 10/30/98

UTM (or State Plane) Coord. N.(X) 3815.1 E.(Y) 5545.8

Latitude ° ' " Longitude ° ' "

Boring Location _____

Drilling Equipment Diedrich D-50

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES: SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS
468.0	Drilled with no sampling. See Log of Test Boring for TP-1B.		1						
467.0			2						
466.0			3						
465.0			4						
464.0			5						
463.0			6						
462.0			7						
461.0			8						
460.0			9						
459.0			10						
458.0			11						
457.0			12						
456.0			13						
455.0			14						
454.0			15						
453.0			16						
452.0			17						
451.0			18						
450.0			19						
449.0			20						
448.0			21						
447.0			22						
446.0			23						
445.0			24						
444.0			25						
	End of boring at 25.5'.								

PERSONNEL
G - T. BARTHOLOMEW
D - M.E.S.
H -
H -

REMARKS

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Illinois Environmental Protection Agency — **Field Boring Log** — L305 Location

Site File No. _____ County Peoria Boring No. TP-1B Monitor Well No. TP-1B

Site File Name Mapleton Caterpillar, 2185.67 Surface Elevation 468.8 Completion Depth 30.0

Fed. ID. No. _____ Auger Depth 30 Rotary Depth _____

Quadrangle Pekin Sec. 29/30 T. 7N R. 7E Date: Start 10/29/98 Finish 10/29/98

UTM (or State Plane) Coord. N.(X) 3812.6 E.(Y) 5440.3

Latitude ° ' " Longitude ° ' "

Boring Location _____

Drilling Equipment Diedrich D-50

PERSONNEL
G - R. Hafemeister
D - T. Bartholomew
H -
H -

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES: SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
467.8			1							
466.8			2	1		20		12		
465.8	**FOUNDRY SAND (FILL),** black 10YR 2/1, dry, medium dense.		3							
464.8			4	2		20		17		
463.8	Moist		5							
462.8			6	3		24		12		
461.8			7							
460.8			8	4		24		6		
459.8	Same as above, but very moist to wet at 9-10'.		9							
458.8			10	5		24		21		
457.8	Wet		11							
456.8			12	6		24		43		
455.8	**FOUNDRY SAND (FILL,)** black 10YR 2/1, dry.		13							
454.8			14	7		24		26		
453.8	Dry		15							

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Illinois Environmental Protection Agency — **Field Boring Log** — Page 2 of 2

L305 location

Site File No. _____ County Peoria — Boring No. TP-1B — Monitor Well No. TP-1B

Site File Name Mapleton Caterpillar, 2185.67 — Surface Elevation 468.8 — Completion Depth 30.0

Fed. ID. No. _____ — Auger Depth 30 — Rotary Depth _____

Quadrangle Pekin — Sec. 29/30 T. 7N R. 7E — Date: Start 10/29/98 — Finish 10/29/98

UTM (or State Plane) Coord. N.(X) 3812.6 E.(Y) 5440.3

Latitude ° ' " Longitude ° ' "

Boring Location _____

Drilling Equipment Diedrich D-50

PERSONNEL: G - R. Hafemeister; D - T. Bartholomew; H - ; H -

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS
451.8	**FOUNDRY SAND (FILL)**, black 10YR 2/1, dry.		17	8		24		64	
450.8			18	9		24		22	
449.8	Wet		19						
448.8			20	10		16		N/A	
447.8			21						
446.8			22	11		24		58	
445.8	Moist		23						
444.8			24	12		24		49	
443.8	Moist		25						
442.8			26	13		22		33	
441.8	**POORLY GRADED SAND (SP)**, olive grey 5Y 4/2, wet, dense.		27						
440.8			28	14		24		9	
439.8	**LEAN CLAY (CL)**, olive grey 5Y 4/2, stiff, moist.		29						
	End of boring at 30.'								

REMARKS

(950226)

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Illinois Environmental Protection Agency — **Field Boring Log** — Page 1 of 1

L306

Site File No. _____ County Peoria — Boring No. TP-2A — Monitor Well No. TP-2A

Site File Name Mapleton Caterpillar, 2185.67 — Surface Elevation 460.0 — Completion Depth 19.5

Fed. ID. No. _____ — Auger Depth 19.5 — Rotary Depth _____

Quadrangle Pekin — Sec. 29/30 T. 7N R. 7E — Date: Start 10/29/98 — Finish 10/29/98

UTM (or State Plane) Coord. N.(X) 3533.3 E.(Y) 5581.0

Latitude ° ' " Longitude ° ' "

Boring Location _____

Drilling Equipment Diedrich D-50

PERSONNEL
G - R. Hafemeister
D - T. Bartholomew
H -
H -

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES: SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
	Drilled with no samples 0'-20'. See log of TP-2B for soil description.									
459.0			1							
458.0			2							
457.0			3							
456.0			4							
455.0			5							
454.0			6							
453.0			7							
452.0			8							
451.0			9							
450.0			10							
449.0			11							
448.0			12							
447.0			13							
446.0			14							
445.0			15							
444.0			16							
443.0			17							
442.0			18							
441.0			19							
	End of boring at 19.5.									

(950226)

Illinois Environmental Protection Agency — **Field Boring Log** — L306 location

Site File No. _____ County Peoria — Boring No. TP-2B — Monitor Well No. TP-2B

Site File Name Mapleton Caterpillar, 2185.67 — Surface Elevation 460.1 — Completion Depth 25.5

Fad. ID. No. _____ — Auger Depth 25.5 — Rotary Depth _____

Quadrangle Pekin — Sec. 29/30 T. 7N R. 7E — Date: Start 10/29/98 — Finish 10/29/98

UTM (or State Plane) Coord. N.(X) 3531.0 E.(Y) 5573.5

Latitude ° ' " Longitude ° ' "

Boring Location _____

Drilling Equipment Diedrich D-50

PERSONNEL: G - R. Hafemeister; D - T. Bartholomew; H - ; H -

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
459.1			1							
458.1			2	1		12		46		
457.1	**FOUNDRY SAND (FILL)**, black 10YR 2/1, moist, dense.		3							
456.1			4							
455.1	Moist		5	2		18		47		
454.1			6							
453.1	Moist		7	3		24		56		
452.1			8							
	1" poorly graded sand at 8.5'.									
451.1	Moist		9	4		18		39		
450.1			10							
449.1	Moist		11	5		20		40		
448.1			12							
447.1	**FOUNDRY SAND (FILL)**, moist.		13	6		16		40		
446.1			14							

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Illinois Environmental Protection Agency — **Field Boring Log** —

L306 location

Site File No. _____ County Peoria — Boring No. TP-2B — Monitor Well No. TP-2B

Site File Name Mapleton Caterpillar, 2185.67 — Surface Elevation 460.1 — Completion Depth 25.5

Fed. ID. No. _____ — Auger Depth 25.5 — Rotary Depth _____

Quadrangle Pekin — Sec. 29/30 T. 7N R. 7E — Date: Start 10/29/98 — Finish 10/29/98

UTM (or State Plane) Coord. N.(X) 3531.0 E.(Y) 5573.5

Latitude ° ' " Longitude ° ' "

Boring Location _____

Drilling Equipment Diedrich D-50

PERSONNEL
G - R. Hafemeister
D - T. Bartholomew
H -
H -

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES: SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
	FOUNDRY SAND (FILL), but with very dense casting mold pieces.			7		18		89		
444.1			16							
443.1	Same as above, no mold pieces.		17	8		16		60		
442.1			18							
441.1	Same as above, 1" poorly graded sand at 19.0'		19	9		22		54		
440.1			20							
439.1	**WELL GRADED SAND (SW)**, fine to medium grained, olive grey 5Y 4/2, dense, wet.		21	10		24		33		
438.1			22							
437.1	Same as above, wet, trace of gravel, wood chip on end of spoon, medium dense.		23	11		24		13		
436.1			24							
435.1	Same as above.		25	12		24		21		
	LEAN CLAY, wet									
	End of boring at 25.5.									

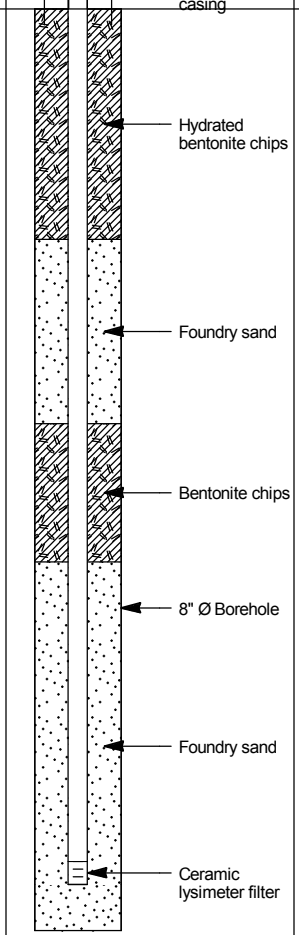
(950226)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Caterpillar 817 Landfill
PROJECT NUMBER: 070102
CLIENT: Caterpillar Inc.
LOCATION: Mapleton, Illinois
DRILLING CONTRACTOR: Boart Longyear

HOLE DESIGNATION: LS301
DATE COMPLETED: May 18, 2011
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: T. Pranger

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	LYSIMETER	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	494.4 492.3	PVC slip cap / Aluminum protective casing				
0	FILL, foundry sand						
20	END OF BOREHOLE @ 20.0ft BGS	472.3					



WELL DETAILS
Screened interval:
473.8 to 473.3ft AMSL
18.5 to 19.0ft BGS
Length: 0.5ft
Diameter: 2in
Material: Ceramic Filter
Seal:
492.3 to 487.3ft AMSL
0.0 to 5.0ft BGS
Material: Hydrated bentonite chips

Seal:
483.3 to 480.3ft AMSL
9.0 to 12.0ft BGS
Material: Bentonite chips

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 070102-IND.GPJ CRA_CORP.GDT 6/24/11

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Caterpillar 817 Landfill
PROJECT NUMBER: 070102
CLIENT: Caterpillar Inc.
LOCATION: Mapleton, Illinois
DRILLING CONTRACTOR: Boart Longyear

HOLE DESIGNATION: LS302
DATE COMPLETED: May 17, 2011
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: T. Pranger

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	LYSIMETER	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING	501.2	PVC slip cap / Aluminum protective casing				
	GROUND SURFACE	498.5					
0	FILL, foundry sand		Hydrated bentonite chips				
2							
4							
6							
8			Foundry sand				
10							
12			Bentonite chips				
14							
16							
18			8" Ø Borehole				
20							
22			Foundry sand				
24			Ceramic lysimeter filter				
25	END OF BOREHOLE @ 25.0ft BGS	473.5					
26							
28							
30							
32							
34							

WELL DETAILS
Screened interval:
475.0 to 474.5ft AMSL
23.5 to 24.0ft BGS
Length: 0.5ft
Diameter: 2in
Material: Ceramic Filter
Seal:
498.5 to 493.5ft AMSL
0.0 to 5.0ft BGS
Material: Hydrated bentonite chips

Seal:
487.5 to 484.0ft AMSL
11.0 to 14.5ft BGS
Material: Bentonite chips

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 070102-IND.GPJ CRA_CORP.GDT 6/24/11

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Caterpillar 817 Landfill
PROJECT NUMBER: 070102
CLIENT: Caterpillar Inc.
LOCATION: Mapleton, Illinois
DRILLING CONTRACTOR: Boart Longyear

HOLE DESIGNATION: LS303
DATE COMPLETED: May 18, 2011
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: T. Pranger

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	LYSIMETER	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	494.0 491.5	PVC slip cap / Aluminum protective casing				
0	FILL, foundry sand		Hydrated bentonite chips				
2							
4							
6							
8			Foundry sand				
10							
12			Bentonite chips				
14							
16							
18			8" Ø Borehole				
20							
22			Foundry sand				
24			Ceramic lysimeter filter				
25	END OF BOREHOLE @ 25.0ft BGS	466.5					
26							
28							
30							
32							
34							

WELL DETAILS
Screened interval:
468.0 to 467.5ft AMSL
23.5 to 24.0ft BGS
Length: 0.5ft
Diameter: 2in
Material: Ceramic Filter
Seal:
491.5 to 486.5ft AMSL
0.0 to 5.0ft BGS
Material: Hydrated bentonite chips

Seal:
480.5 to 477.5ft AMSL
11.0 to 14.0ft BGS
Material: Bentonite chips

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

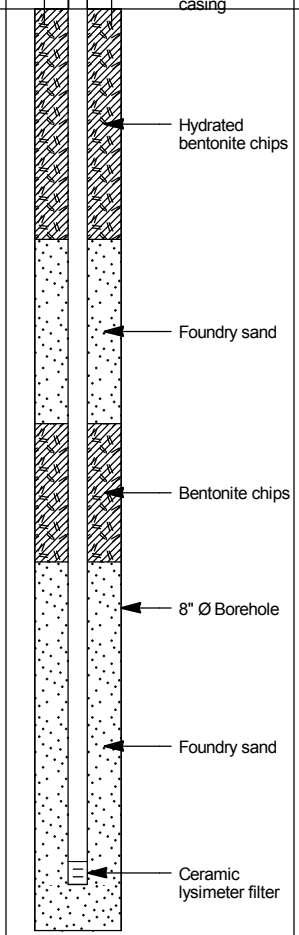
OVERBURDEN LOG 070102-IND.GPJ CRA_CORP.GDT 6/24/11

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Caterpillar 817 Landfill
PROJECT NUMBER: 070102
CLIENT: Caterpillar Inc.
LOCATION: Mapleton, Illinois
DRILLING CONTRACTOR: Boart Longyear

HOLE DESIGNATION: LS304
DATE COMPLETED: May 27, 2011
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: T. Pranger

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	LYSIMETER	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING	495.8	PVC slip cap / Aluminum protective casing				
	GROUND SURFACE	493.2					
0	FILL, foundry sand						
20	END OF BOREHOLE @ 20.0ft BGS	473.2					



WELL DETAILS
Screened interval:
474.7 to 474.2ft AMSL
18.5 to 19.0ft BGS
Length: 0.5ft
Diameter: 2in
Material: Ceramic Filter
Seal:
493.2 to 488.2ft AMSL
0.0 to 5.0ft BGS
Material: Hydrated bentonite chips

Seal:
484.2 to 481.2ft AMSL
9.0 to 12.0ft BGS
Material: Bentonite chips

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 070102-IND.GPJ CRA_CORP.GDT 6/24/11

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Caterpillar 817 Landfill
PROJECT NUMBER: 070102
CLIENT: Caterpillar Inc.
LOCATION: Mapleton, Illinois
DRILLING CONTRACTOR: Boart Longyear

HOLE DESIGNATION: LS305
DATE COMPLETED: May 18, 2011
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: T. Pranger

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	LYSIMETER	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING	499.6	PVC slip cap / Aluminum protective casing				
	GROUND SURFACE	497.1					
0	FILL, foundry sand		Hydrated bentonite chips				
2							
4							
6							
8			Foundry sand				
10							
12			Bentonite chips				
14							
16							
18			8" Ø Borehole				
20							
22			Foundry sand				
24			Ceramic lysimeter filter				
25.0	END OF BOREHOLE @ 25.0ft BGS	472.1					
26							
28							
30							
32							
34							

WELL DETAILS
Screened interval:
473.6 to 473.1ft AMSL
23.5 to 24.0ft BGS
Length: 0.5ft
Diameter: 2in
Material: Ceramic Filter
Seal:
497.1 to 492.1ft AMSL
0.0 to 5.0ft BGS
Material: Hydrated bentonite chips

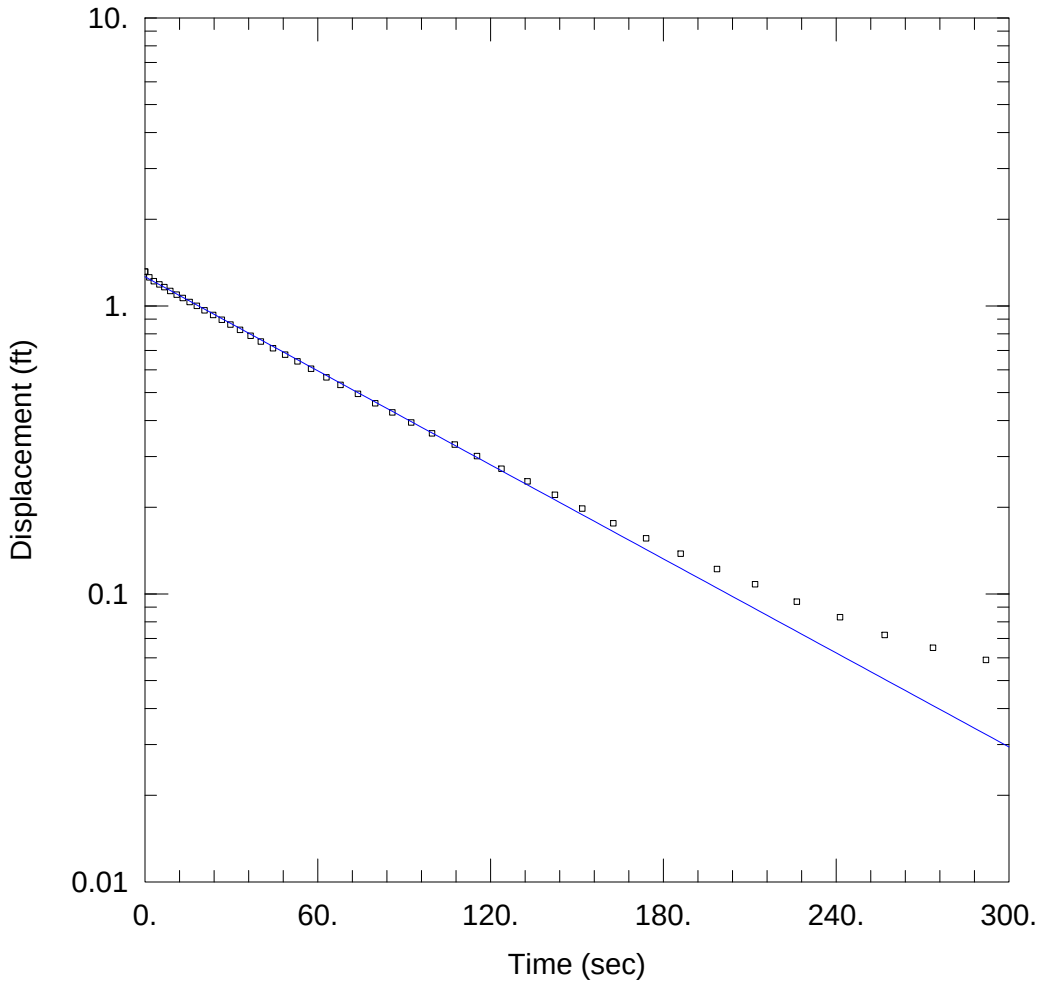
Seal:
486.1 to 483.1ft AMSL
11.0 to 14.0ft BGS
Material: Bentonite chips

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 070102-IND.GPJ CRA_CORP.GDT 6/24/11

APPENDIX F

RESPONSE TEST DATA SHEETS



G103S

Data Set: I:\...\G103S Slug In Test 1.aqt
Date: 08/05/11 Time: 07:30:48

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Well: G111S
Test Date: April 11, 2011

AQUIFER DATA

Saturated Thickness: 16. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (G103S)

Initial Displacement: 1.315 ft
Total Well Penetration Depth: 16. ft
Casing Radius: 0.08333 ft
Static Water Column Height: 16. ft
Screen Length: 10. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.0002731 cm/sec
y0 = 1.263 ft

Data Set: I:\WP\6-chars\07----\0701--\070102\070102-MISC\070102-Response Test Data-062711\G103S\G103S Slug
Title: G103S
Date: 08/05/11
Time: 07:31:09

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Date: April 11, 2011
Test Well: G111S

AQUIFER DATA

Saturated Thickness: 16. ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: G103S

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 1.315 ft
Static Water Column Height: 16. ft
Casing Radius: 0.08333 ft
Well Radius: 0.08333 ft
Well Skin Radius: 0.08333 ft
Screen Length: 10. ft
Total Well Penetration Depth: 16. ft

No. of Observations: 44

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
0.1	1.315	67.94	0.532
1.513	1.256	73.95	0.495
3.111	1.218	79.94	0.459
5.01	1.188	85.93	0.427
6.771	1.162	92.45	0.394
8.81	1.127	99.71	0.361
11.01	1.095	107.6	0.33
13.13	1.066	115.3	0.301
15.53	1.032	123.8	0.272
18.05	1.001	132.8	0.246
20.69	0.966	142.4	0.221
23.68	0.93	151.9	0.198
26.68	0.895	162.7	0.176
29.69	0.861	174.1	0.156
33.05	0.826	186.1	0.138
36.69	0.788	198.7	0.122
40.25	0.752	211.9	0.108
44.45	0.713	226.4	0.094
48.7	0.677	241.4	0.083
52.95	0.642	256.9	0.072
57.7	0.605	273.6	0.065
63.05	0.565	292.1	0.059

SOLUTION

Slug Test
Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
ln(Re/rw): 3.995

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.0002731	cm/sec
y0	1.263	ft

T = T*b = 0.1332 cm²/sec

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error	Approx. C.I.	t-Ratio	
K	0.0002731	2.4E-6	+/- 4.844E-6	113.8	cm/sec
y0	1.263	0.005045	+/- 0.01018	250.3	ft

C.I. is approximate 95% confidence interval for parameter
t-ratio = estimate/std. error
No estimation window

T = T*b = 0.1332 cm²/sec

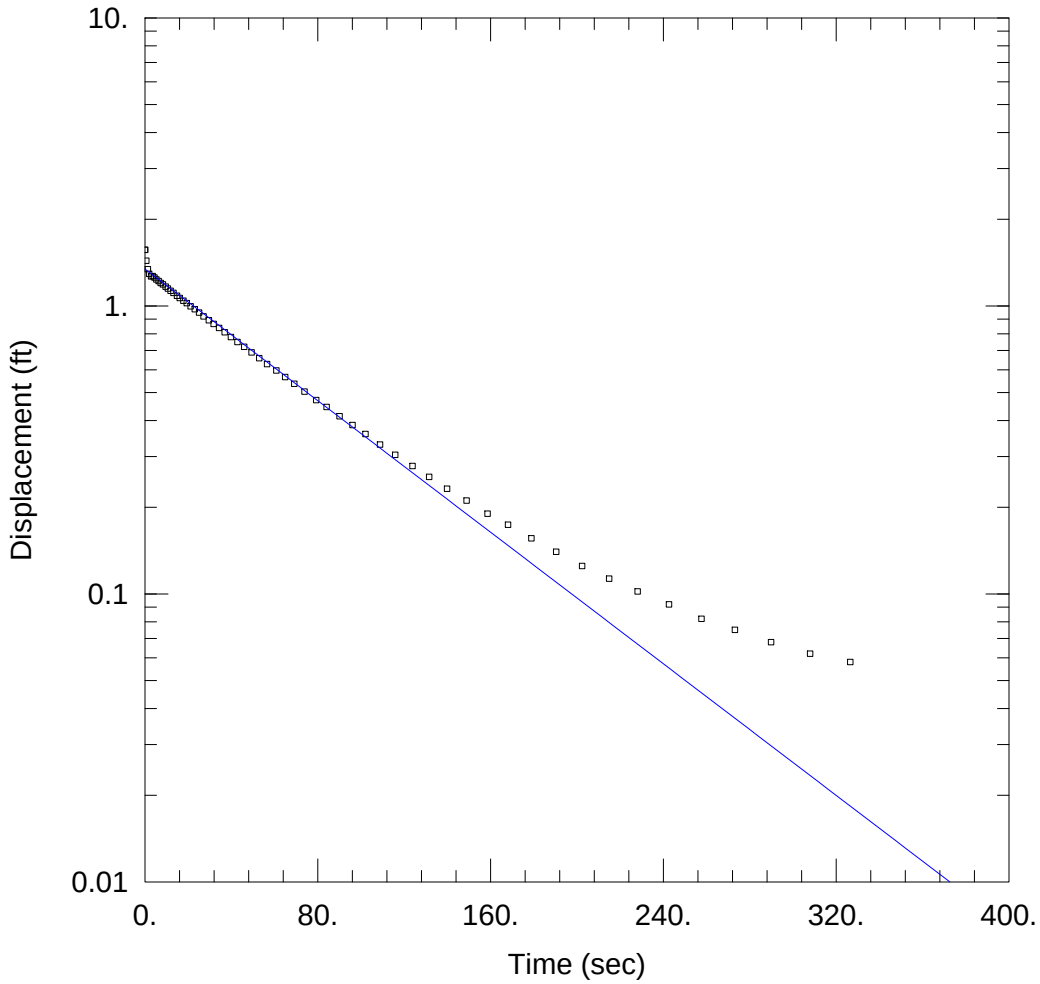
Parameter Correlations

	K	y0
K	1.00	0.65
y0	0.65	1.00

Residual Statistics

for weighted residuals

Sum of Squares . . . . . 0.008521 ft^2
Variance . . . . . 0.0002029 ft^2
Std. Deviation . . . . . 0.01424 ft
Mean . . . . . 0.003398 ft
No. of Residuals 44
No. of Estimates 2



G103S

Data Set: I:\...\G103S Slug In Test 2.aqt
Date: 08/05/11 Time: 07:32:04

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Well: G111S
Test Date: April 11, 2011

AQUIFER DATA

Saturated Thickness: 16.02 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (G103S)

Initial Displacement: 1.566 ft
Total Well Penetration Depth: 16.02 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 16.02 ft
Screen Length: 10. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.0002867 cm/sec
y0 = 1.342 ft

Data Set: I:\WP\6-chars\07----\0701--\070102\070102-MISC\070102-Response Test Data-062711\G103S\G103S Slug
Title: G103S
Date: 08/05/11
Time: 07:32:31

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Date: April 11, 2011
Test Well: G111S

AQUIFER DATA

Saturated Thickness: 16.02 ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: G103S

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 1.566 ft
Static Water Column Height: 16.02 ft
Casing Radius: 0.08333 ft
Well Radius: 0.08333 ft
Well Skin Radius: 0.08333 ft
Screen Length: 10. ft
Total Well Penetration Depth: 16.02 ft

No. of Observations: 61

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
0.1	1.566	52.92	0.659
0.603	1.435	56.58	0.628
1.336	1.341	60.83	0.597
1.98	1.292	64.92	0.566
2.826	1.266	69.12	0.537
3.578	1.27	73.92	0.504
4.38	1.255	79.33	0.471
5.33	1.236	84.12	0.446
6.329	1.22	90.12	0.414
7.326	1.202	96.12	0.386
8.322	1.187	102.1	0.359
9.575	1.167	108.8	0.33
10.62	1.149	115.9	0.304
11.88	1.129	123.9	0.278
13.2	1.11	131.6	0.255
14.83	1.085	139.9	0.232
16.14	1.066	148.9	0.211
17.81	1.042	158.6	0.19
19.38	1.022	168.1	0.174
21.18	0.997	178.9	0.156
23.04	0.974	190.4	0.14
25.08	0.948	202.4	0.125
27.18	0.92	214.9	0.113
29.57	0.892	228.1	0.102
31.82	0.866	242.6	0.092
34.32	0.839	257.6	0.082
36.96	0.81	273.1	0.075
39.81	0.78	289.9	0.068
42.82	0.749	307.9	0.062

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
45.96	0.721	326.5	0.058
49.33	0.69		

SOLUTION

Slug Test
Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
ln(Re/rw): 3.995

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.0002867	cm/sec
y0	1.342	ft

T = T*b = 0.14 cm²/sec

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error	Approx. C.I.	t-Ratio	
K	0.0002867	5.634E-6	+/- 1.127E-5	50.88	cm/sec
y0	1.342	0.01044	+/- 0.02089	128.6	ft

C.I. is approximate 95% confidence interval for parameter
t-ratio = estimate/std. error
No estimation window

T = T*b = 0.14 cm²/sec

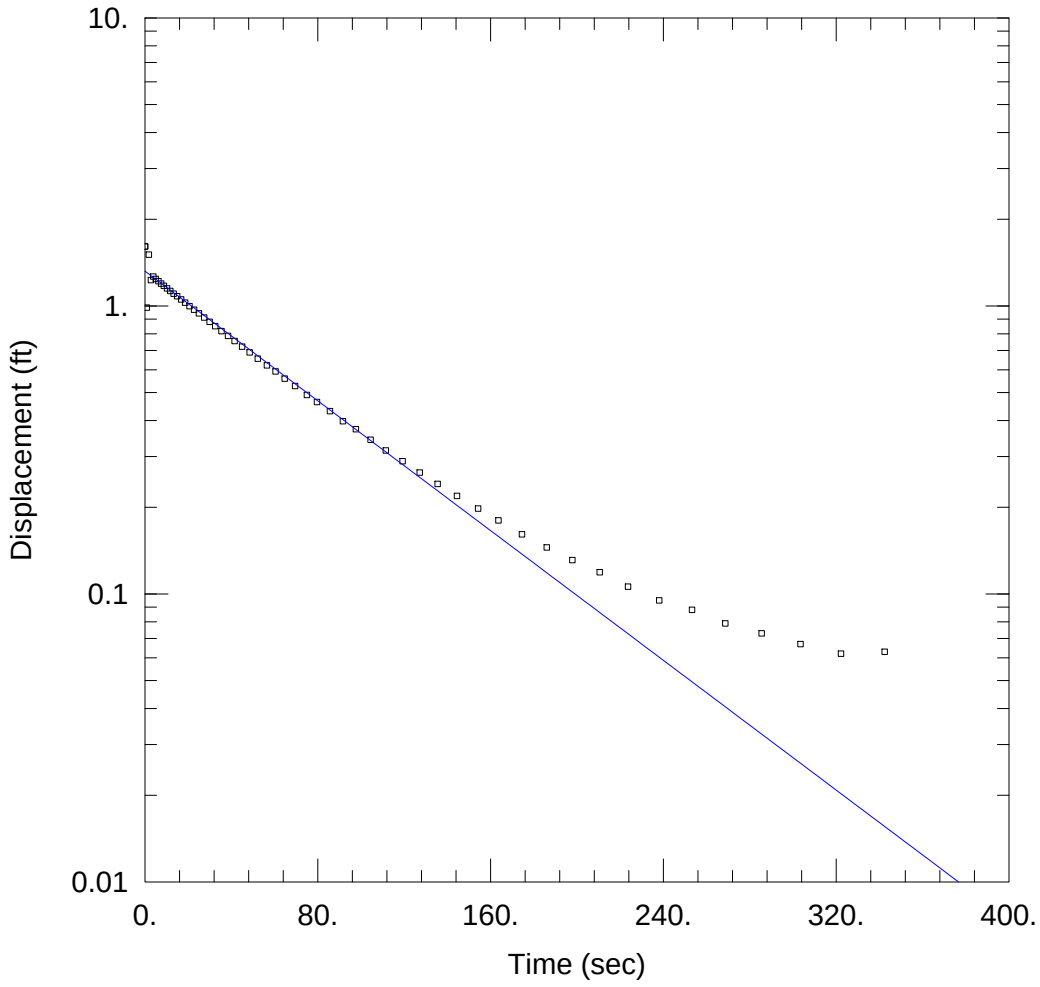
Parameter Correlations

	K	y0
K	1.00	0.63
y0	0.63	1.00

Residual Statistics

for weighted residuals

Sum of Squares . . . . . 0.08726 ft^2
Variance . . . . . 0.001479 ft^2
Std. Deviation . . . . . 0.03846 ft
Mean . . . . . 0.006259 ft
No. of Residuals 61
No. of Estimates 2



G103S

Data Set: I:\...\G103S Slug In Test 3.aqt
Date: 08/05/11 Time: 07:33:03

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Well: G111S
Test Date: April 11, 2011

AQUIFER DATA

Saturated Thickness: 16.03 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (G103S)

Initial Displacement: 1.608 ft
Total Well Penetration Depth: 16.03 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 16.03 ft
Screen Length: 10. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.0002827 cm/sec
y0 = 1.321 ft

Data Set: I:\WP\6-chars\07----\0701--\070102\070102-MISC\070102-Response Test Data-062711\G103S\G103S Slug
Title: G103S
Date: 08/05/11
Time: 07:33:21

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Date: April 11, 2011
Test Well: G111S

AQUIFER DATA

Saturated Thickness: 16.03 ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: G103S

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 1.608 ft
Static Water Column Height: 16.03 ft
Casing Radius: 0.08333 ft
Well Radius: 0.08333 ft
Well Skin Radius: 0.08333 ft
Screen Length: 10. ft
Total Well Penetration Depth: 16.03 ft

No. of Observations: 56

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
0.1	1.608	60.5	0.592
0.859	0.987	64.7	0.559
1.827	1.506	69.52	0.527
2.778	1.23	75.	0.491
3.859	1.265	79.7	0.464
5.006	1.241	85.7	0.431
6.251	1.219	91.7	0.398
7.495	1.196	97.7	0.373
8.778	1.174	104.5	0.343
10.25	1.15	111.5	0.315
11.72	1.127	119.3	0.289
13.28	1.103	127.2	0.264
14.96	1.081	135.5	0.241
16.76	1.053	144.5	0.219
18.62	1.027	154.3	0.198
20.66	0.998	163.7	0.18
22.8	0.971	174.5	0.161
24.98	0.942	186.	0.145
27.47	0.911	197.9	0.131
29.98	0.88	210.5	0.119
32.54	0.851	223.7	0.106
35.48	0.818	238.1	0.095
38.48	0.787	253.3	0.088
41.54	0.755	268.7	0.079
44.98	0.722	285.5	0.073
48.5	0.69	303.5	0.067
52.22	0.656	322.2	0.062
56.47	0.622	342.5	0.063

SOLUTION

Slug Test
Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
ln(Re/rw): 3.996

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.0002827	cm/sec
y0	1.321	ft

T = T*b = 0.1381 cm²/sec

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error	Approx. C.I.	t-Ratio	
K	0.0002827	1.052E-5	+/- 2.109E-5	26.88	cm/sec
y0	1.321	0.02054	+/- 0.04118	64.3	ft

C.I. is approximate 95% confidence interval for parameter
t-ratio = estimate/std. error
No estimation window

T = T*b = 0.1381 cm²/sec

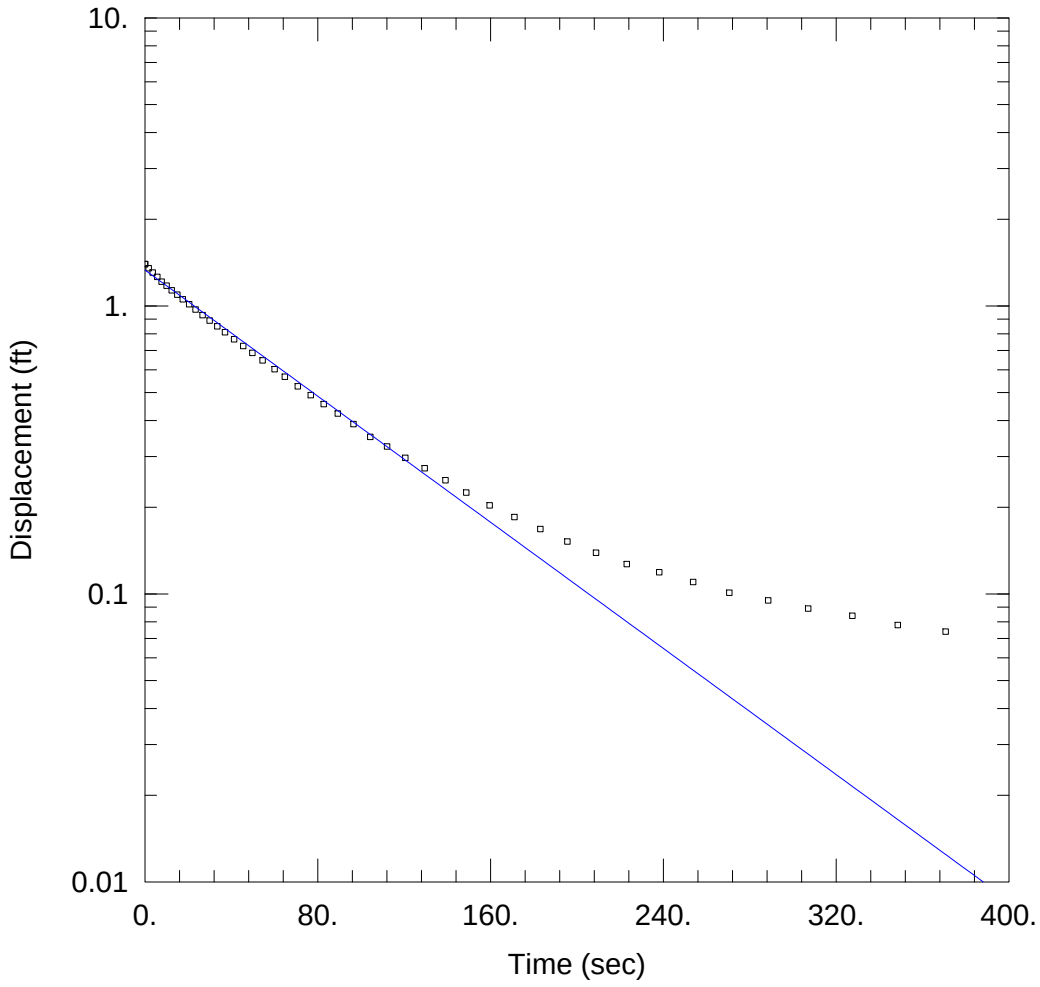
Parameter Correlations

	K	y0
K	1.00	0.64
y0	0.64	1.00

Residual Statistics

for weighted residuals

Sum of Squares . . . . . 0.255 ft^2
Variance . . . . . 0.004722 ft^2
Std. Deviation . . . . . 0.06872 ft
Mean . . . . . 0.006765 ft
No. of Residuals 56
No. of Estimates 2



G103S

Data Set: I:\...\G103S Slug Out Test 1.aqt
Date: 08/05/11 Time: 09:27:07

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Well: G111S
Test Date: April 11, 2011

AQUIFER DATA

Saturated Thickness: 16.02 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (G103S)

Initial Displacement: 1.398 ft
Total Well Penetration Depth: 16.02 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 16.02 ft
Screen Length: 10. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.0002748 cm/sec
y0 = 1.332 ft

Data Set: I:\WP\6-chars\07----\0701--\070102\070102-MISC\070102-Response Test Data-062711\G103S\G103S Slug
Title: G103S
Date: 08/05/11
Time: 09:27:46

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Date: April 11, 2011
Test Well: G111S

AQUIFER DATA

Saturated Thickness: 16.02 ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: G103S

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 1.398 ft
Static Water Column Height: 16.02 ft
Casing Radius: 0.08333 ft
Well Radius: 0.08333 ft
Well Skin Radius: 0.08333 ft
Screen Length: 10. ft
Total Well Penetration Depth: 16.02 ft

No. of Observations: 46

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
0.1	1.398	82.77	0.456
1.759	1.351	89.3	0.423
3.62	1.305	96.53	0.389
5.754	1.262	104.3	0.351
7.765	1.214	112.1	0.325
10.01	1.175	120.5	0.297
12.38	1.133	129.5	0.273
15.	1.094	139.2	0.248
17.54	1.055	148.8	0.225
20.48	1.013	159.6	0.203
23.47	0.972	171.1	0.185
26.72	0.929	183.1	0.168
29.97	0.89	195.6	0.152
33.5	0.85	208.8	0.139
37.1	0.81	223.1	0.127
41.3	0.766	238.1	0.119
45.5	0.726	253.8	0.11
49.74	0.687	270.6	0.101
54.5	0.647	288.5	0.095
60.01	0.603	307.1	0.089
64.77	0.568	327.5	0.084
70.77	0.526	348.5	0.078
76.77	0.49	370.7	0.074

SOLUTION

Slug Test
Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

ln(Re/rw): 3.995

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.0002748	cm/sec
y0	1.332	ft

T = T*b = 0.1342 cm²/sec

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error	Approx. C.I.	t-Ratio	
K	0.0002748	5.688E-6	+/- 1.146E-5	48.32	cm/sec
y0	1.332	0.01284	+/- 0.02587	103.8	ft

C.I. is approximate 95% confidence interval for parameter
t-ratio = estimate/std. error
No estimation window

T = T*b = 0.1342 cm²/sec

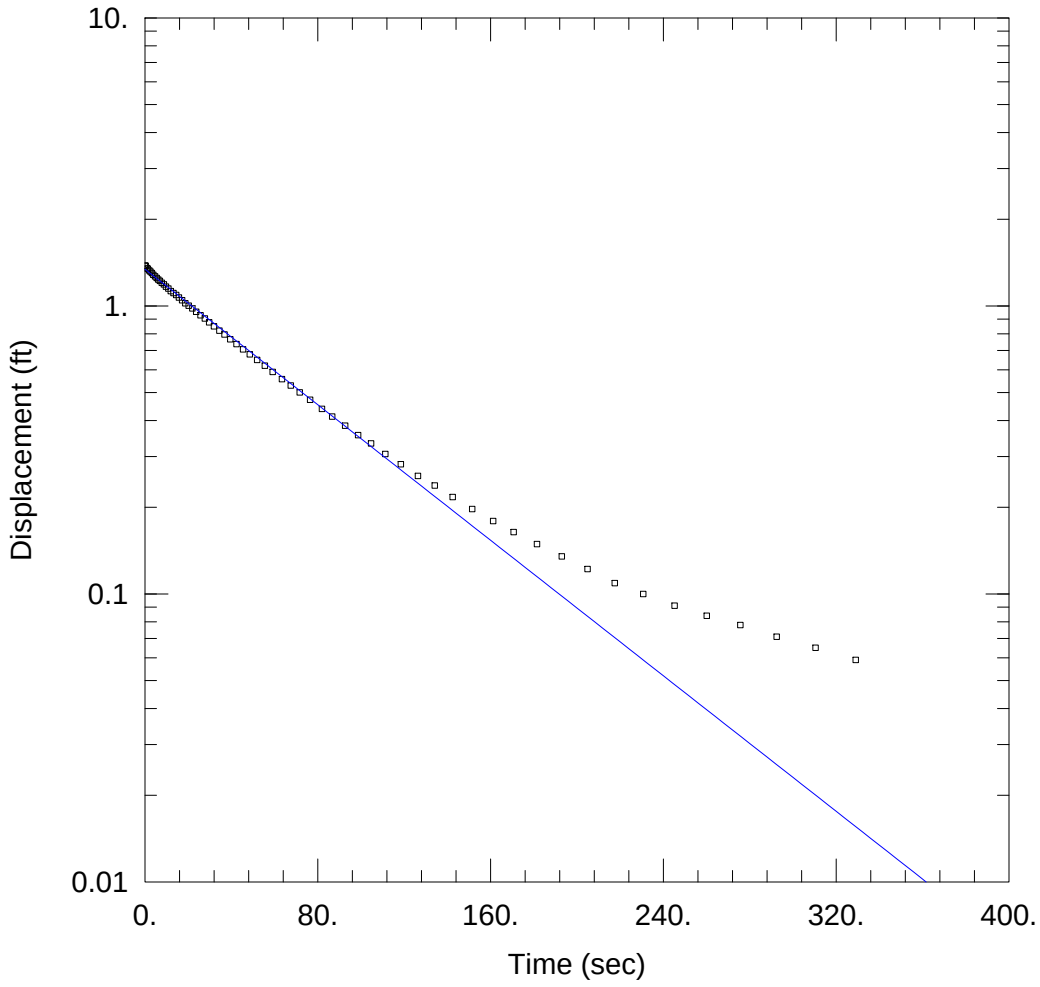
Parameter Correlations

	K	y0
K	1.00	0.66
y0	0.66	1.00

Residual Statistics

for weighted residuals

Sum of Squares . . . . . 0.05317 ft^2
Variance . . . . . 0.001208 ft^2
Std. Deviation . . . . . 0.03476 ft
Mean . . . . . 0.01205 ft
No. of Residuals 46
No. of Estimates 2



G103S

Data Set: I:\...\G103S Slug Out Test 2.aqt
Date: 08/05/11 Time: 09:28:11

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Well: G111S
Test Date: April 11, 2011

AQUIFER DATA

Saturated Thickness: 16.02 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (G103S)

Initial Displacement: 1.379 ft
Total Well Penetration Depth: 16.02 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 16.02 ft
Screen Length: 10. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
K = 0.0002952 cm/sec y0 = 1.341 ft

Data Set: I:\WP\6-chars\07----\0701--\070102\070102-MISC\070102-Response Test Data-062711\G103S\G103S Slug
Title: G103S
Date: 08/05/11
Time: 09:28:25

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Date: April 11, 2011
Test Well: G111S

AQUIFER DATA

Saturated Thickness: 16.02 ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: G103S

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 1.379 ft
Static Water Column Height: 16.02 ft
Casing Radius: 0.08333 ft
Well Radius: 0.08333 ft
Well Skin Radius: 0.08333 ft
Screen Length: 10. ft
Total Well Penetration Depth: 16.02 ft

No. of Observations: 66

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
0.1	1.379	45.44	0.707
0.348	1.378	48.53	0.679
0.988	1.354	51.94	0.649
1.368	1.345	55.49	0.62
2.006	1.328	59.18	0.59
2.587	1.315	63.43	0.557
3.218	1.3	67.49	0.529
3.856	1.282	71.69	0.501
4.709	1.266	76.49	0.472
5.464	1.25	81.93	0.439
6.216	1.234	86.69	0.413
6.948	1.221	92.69	0.384
7.848	1.203	98.69	0.356
8.808	1.187	104.7	0.333
9.768	1.166	111.3	0.306
10.85	1.149	118.5	0.282
11.99	1.126	126.4	0.257
13.23	1.109	134.2	0.238
14.48	1.091	142.5	0.217
15.77	1.069	151.5	0.197
17.23	1.047	161.2	0.179
18.73	1.021	170.7	0.164
20.27	1.002	181.5	0.149
21.95	0.98	193.	0.135
23.75	0.954	205.	0.122
25.73	0.928	217.5	0.109
27.73	0.904	230.7	0.1
29.75	0.877	245.2	0.091
31.97	0.85	260.1	0.084

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
34.49	0.821	275.7	0.078
36.89	0.796	292.5	0.071
39.53	0.766	310.5	0.065
42.43	0.737	329.1	0.059

SOLUTION

Slug Test
Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
ln(Re/rw): 3.995

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.0002952	cm/sec
y0	1.341	ft

T = T*b = 0.1442 cm²/sec

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error	Approx. C.I.	t-Ratio	
K	0.0002952	3.468E-6	+/- 6.929E-6	85.13	cm/sec
y0	1.341	0.005953	+/- 0.01189	225.2	ft

C.I. is approximate 95% confidence interval for parameter
t-ratio = estimate/std. error
No estimation window

T = T*b = 0.1442 cm²/sec

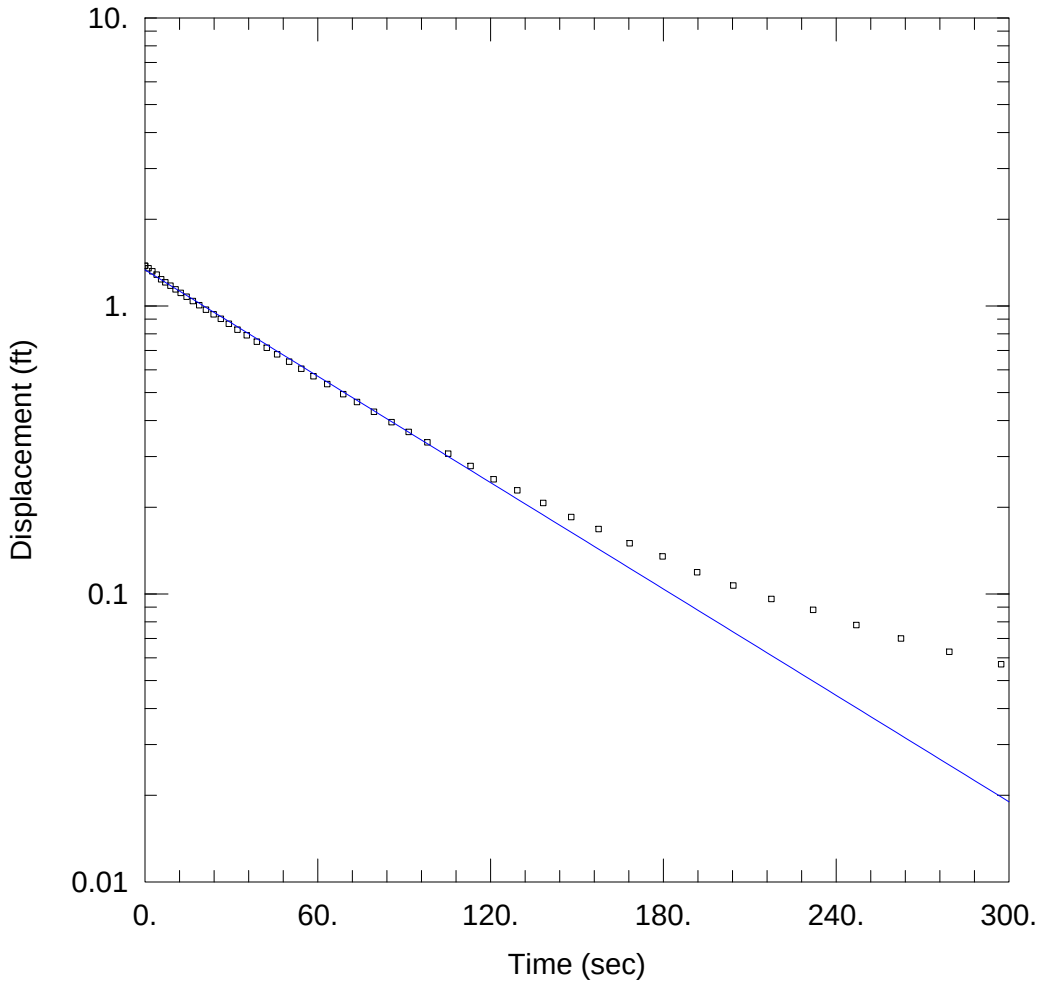
Parameter Correlations

	K	y0
K	1.00	0.62
y0	0.62	1.00

Residual Statistics

for weighted residuals

Sum of Squares . . . . . 0.03588 ft^2
Variance . . . . . 0.0005607 ft^2
Std. Deviation . . . . . 0.02368 ft
Mean . . . . . 0.006825 ft
No. of Residuals 66
No. of Estimates 2



G103S

Data Set: I:\...\G103S Slug Out Test 3.aqt
Date: 08/05/11 Time: 09:28:52

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Well: G111S
Test Date: April 11, 2011

AQUIFER DATA

Saturated Thickness: 16.02 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (G103S)

Initial Displacement: 1.377 ft
Total Well Penetration Depth: 16.02 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 16.02 ft
Screen Length: 10. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.0003091 cm/sec
y0 = 1.335 ft

Data Set: I:\WP\6-chars\07----\0701--\070102\070102-MISC\070102-Response Test Data-062711\G103S\G103S Slug
Title: G103S
Date: 08/05/11
Time: 09:29:08

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Date: April 11, 2011
Test Well: G111S

AQUIFER DATA

Saturated Thickness: 16.02 ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: G103S

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 1.377 ft
Static Water Column Height: 16.02 ft
Casing Radius: 0.08333 ft
Well Radius: 0.08333 ft
Well Skin Radius: 0.08333 ft
Screen Length: 10. ft
Total Well Penetration Depth: 16.02 ft

No. of Observations: 48

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
0.1	1.377	63.3	0.535
1.26	1.352	68.86	0.494
2.58	1.319	73.62	0.464
4.059	1.284	79.5	0.429
5.612	1.238	85.63	0.395
7.102	1.207	91.61	0.365
8.859	1.175	98.1	0.336
10.62	1.142	105.3	0.307
12.43	1.11	113.1	0.278
14.46	1.077	121.1	0.25
16.61	1.04	129.3	0.229
18.86	1.006	138.3	0.207
21.18	0.971	148.	0.185
23.85	0.935	157.5	0.168
26.34	0.902	168.3	0.15
29.16	0.867	179.8	0.135
32.16	0.827	191.7	0.119
35.34	0.791	204.3	0.107
38.86	0.751	217.5	0.096
42.3	0.716	232.	0.088
45.9	0.679	247.	0.078
50.1	0.64	262.5	0.07
54.3	0.605	279.3	0.063
58.5	0.57	297.3	0.057

SOLUTION

Slug Test
Aquifer Model: Unconfined

Solution Method: Bouwer-Rice
ln(Re/rw): 3.995

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.0003091	cm/sec
y0	1.335	ft

T = T*b = 0.1509 cm²/sec

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error	Approx. C.I.	t-Ratio	
K	0.0003091	3.997E-6	+/- 8.046E-6	77.33	cm/sec
y0	1.335	0.00775	+/- 0.0156	172.2	ft

C.I. is approximate 95% confidence interval for parameter
t-ratio = estimate/std. error
No estimation window

T = T*b = 0.1509 cm²/sec

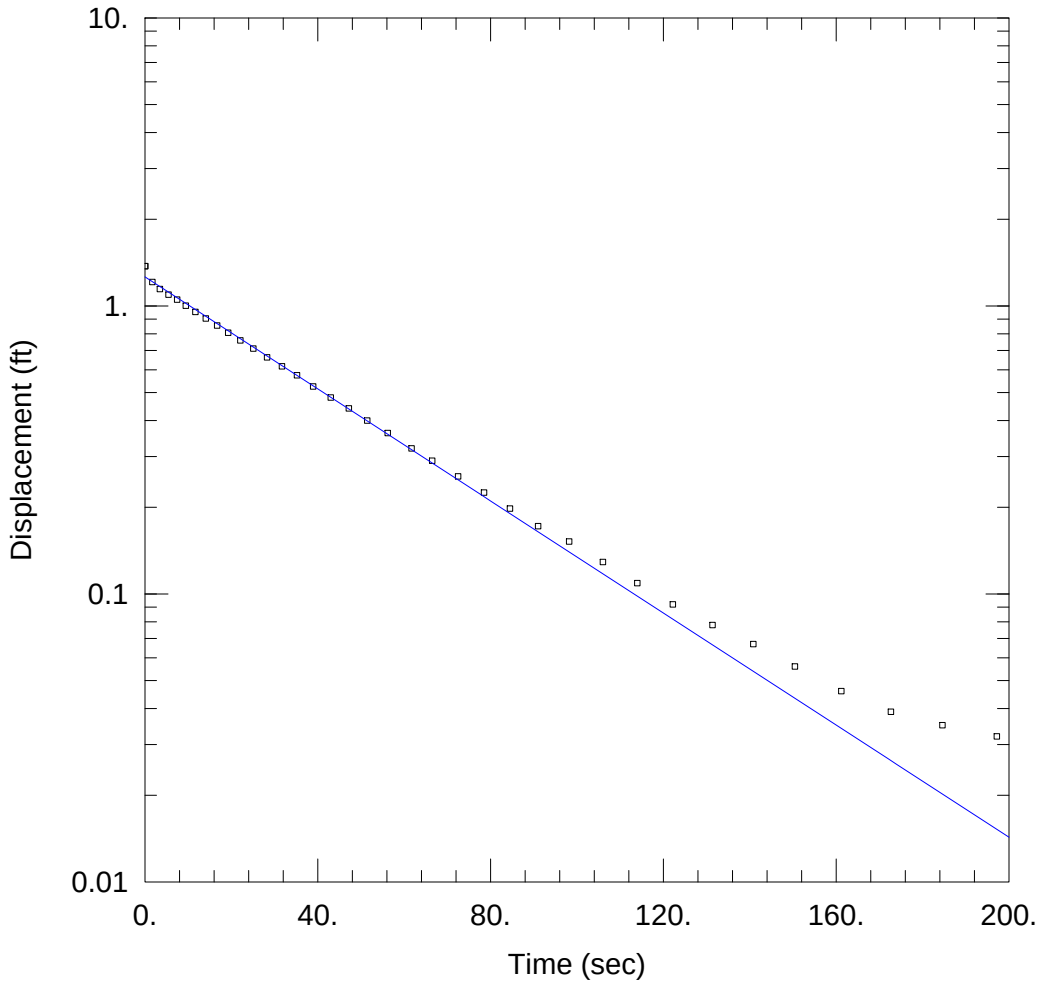
Parameter Correlations

	K	y0
K	1.00	0.65
y0	0.65	1.00

Residual Statistics

for weighted residuals

Sum of Squares . . . . . 0.02347 ft^2
Variance . . . . . 0.0005102 ft^2
Std. Deviation . . . . . 0.02259 ft
Mean . . . . . 0.006682 ft
No. of Residuals 48
No. of Estimates 2



G103D

Data Set: I:\...\G103D Slug In Test 1.aqt
Date: 07/26/11 Time: 13:57:00

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Well: G111D
Test Date: April 11, 2011

AQUIFER DATA

Saturated Thickness: 4. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (G103D)

Initial Displacement: 1.375 ft
Total Well Penetration Depth: 27.19 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 27.19 ft
Screen Length: 5. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 0.001019 cm/sec
y0 = 1.262 ft

Data Set: I:\WP\6-chars\07----\0701--\070102\070102-MISC\070102-Response Test Data-062711\G103D\G103D Slug
Title: G103D
Date: 07/26/11
Time: 13:57:21

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Date: April 11, 2011
Test Well: G111D

AQUIFER DATA

Saturated Thickness: 4. ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: G103D

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 1.375 ft
Static Water Column Height: 27.19 ft
Casing Radius: 0.08333 ft
Well Radius: 0.08333 ft
Well Skin Radius: 0.08333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 27.19 ft

No. of Observations: 37

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
0.1	1.375	56.22	0.362
1.704	1.21	61.74	0.32
3.48	1.144	66.49	0.29
5.472	1.095	72.5	0.256
7.473	1.052	78.5	0.225
9.48	1.002	84.5	0.198
11.7	0.953	91.02	0.172
14.1	0.905	98.22	0.152
16.71	0.855	106.	0.129
19.26	0.807	114.	0.109
22.08	0.759	122.2	0.092
25.08	0.711	131.4	0.078
28.26	0.663	140.8	0.067
31.72	0.617	150.5	0.056
35.22	0.574	161.2	0.046
38.96	0.525	172.7	0.039
43.02	0.481	184.6	0.035
47.22	0.441	197.2	0.032
51.48	0.4		

SOLUTION

Slug Test
Aquifer Model: Confined
Solution Method: Bouwer-Rice
ln(Re/rw): 4.169

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.001019	cm/sec
y0	1.262	ft

T = T*b = 0.1242 cm²/sec

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error	Approx. C.I.	t-Ratio	
K	0.001019	1.618E-5	+/- 3.284E-5	62.99	cm/sec
y0	1.262	0.01006	+/- 0.02043	125.4	ft

C.I. is approximate 95% confidence interval for parameter
t-ratio = estimate/std. error
No estimation window

T = T*b = 0.1242 cm²/sec

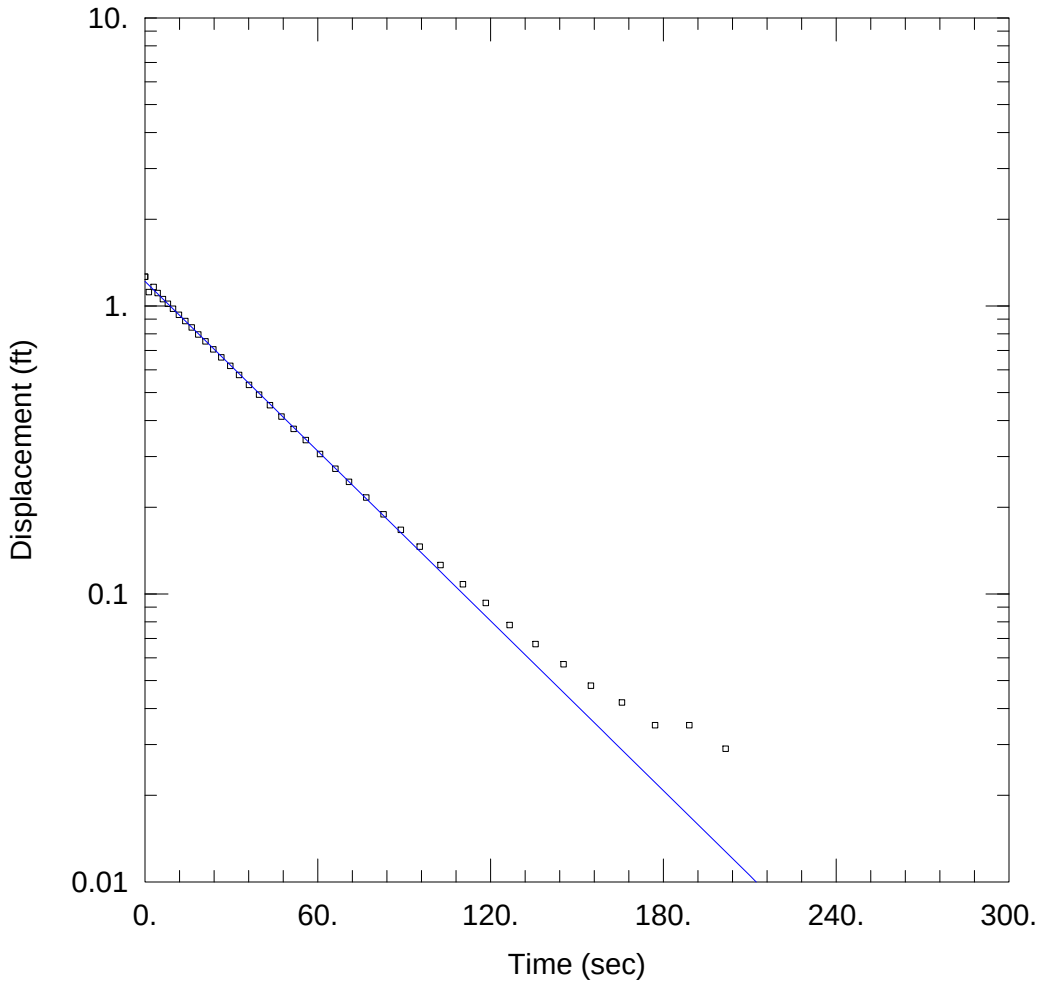
Parameter Correlations

	K	y0
K	1.00	0.67
y0	0.67	1.00

Residual Statistics

for weighted residuals

Sum of Squares . . . . . 0.01823 ft^2
Variance . . . . . 0.000521 ft^2
Std. Deviation . . . . . 0.02282 ft
Mean . . . . . 0.003495 ft
No. of Residuals 37
No. of Estimates 2



G103D

Data Set: I:\...\G103D Slug In Test 2.aqt
Date: 07/26/11 Time: 13:58:37

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Well: G111D
Test Date: April 11, 2011

AQUIFER DATA

Saturated Thickness: 4. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (G103D)

Initial Displacement: 1.263 ft
Total Well Penetration Depth: 27.19 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 27.19 ft
Screen Length: 5. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 0.001029 cm/sec
y0 = 1.217 ft

Data Set: I:\WP\6-chars\07----\0701--\070102\070102-MISC\070102-Response Test Data-062711\G103D\G103D Slug
Title: G103D
Date: 07/26/11
Time: 13:59:03

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Date: April 11, 2011
Test Well: G111D

AQUIFER DATA

Saturated Thickness: 4. ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: G103D

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 1.263 ft
Static Water Column Height: 27.19 ft
Casing Radius: 0.08333 ft
Well Radius: 0.08333 ft
Well Skin Radius: 0.08333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 27.19 ft

No. of Observations: 40

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
0.1	1.263	51.66	0.374
1.363	1.117	55.84	0.342
3.003	1.164	60.78	0.306
4.422	1.108	66.14	0.272
6.254	1.056	70.84	0.245
7.992	1.018	76.84	0.216
9.763	0.978	82.84	0.189
11.8	0.932	88.84	0.167
14.	0.886	95.44	0.146
16.25	0.842	102.7	0.126
18.52	0.796	110.4	0.108
21.04	0.753	118.3	0.093
23.74	0.707	126.6	0.078
26.5	0.663	135.6	0.067
29.63	0.619	145.4	0.057
32.68	0.576	154.8	0.048
36.14	0.532	165.6	0.042
39.64	0.492	177.1	0.035
43.4	0.452	189.	0.035
47.44	0.413	201.6	0.029

SOLUTION

Slug Test
Aquifer Model: Confined
Solution Method: Bouwer-Rice
ln(Re/rw): 4.169

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.001029	cm/sec
y0	1.217	ft

T = T*b = 0.1255 cm²/sec

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error	Approx. C.I.	t-Ratio	
K	0.001029	1.101E-5	+/- 2.229E-5	93.44	cm/sec
y0	1.217	0.006392	+/- 0.01294	190.5	ft

C.I. is approximate 95% confidence interval for parameter
t-ratio = estimate/std. error
No estimation window

T = T*b = 0.1255 cm²/sec

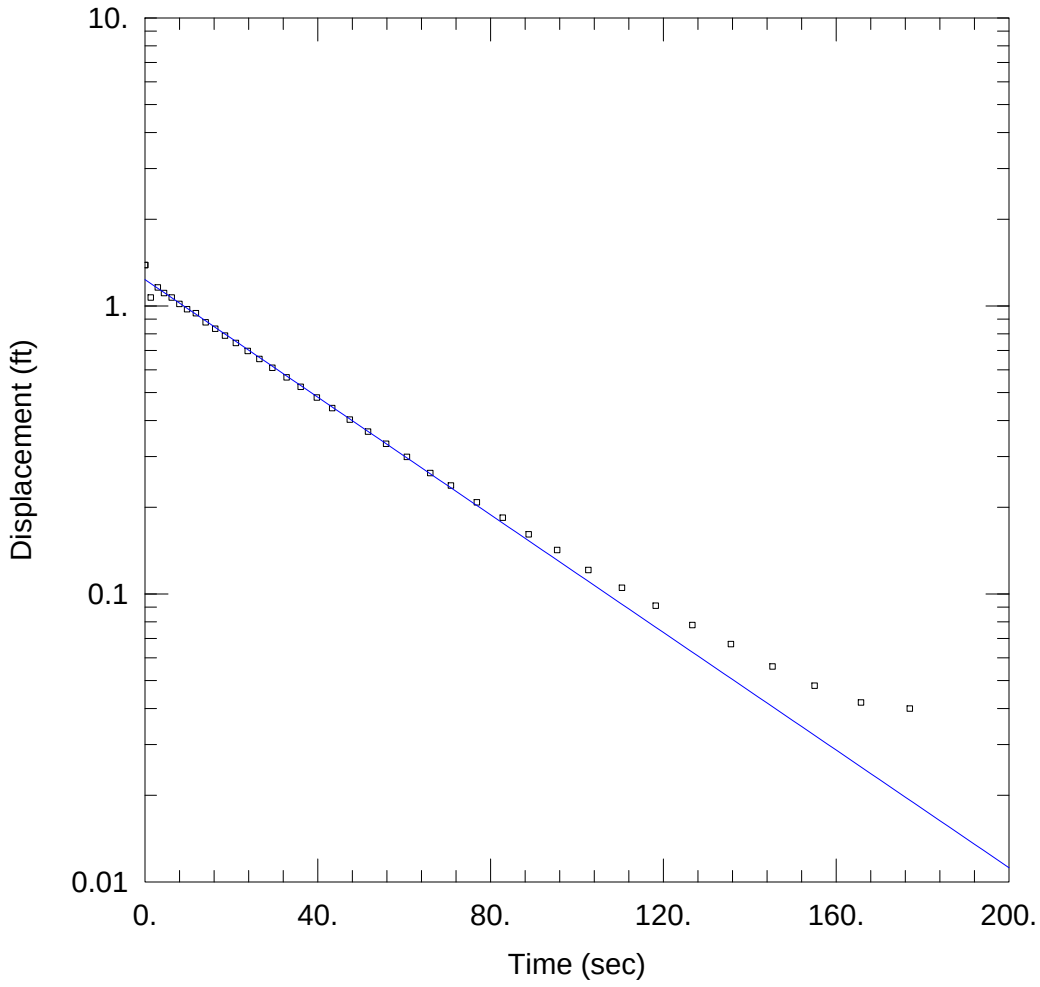
Parameter Correlations

	K	y0
K	1.00	0.66
y0	0.66	1.00

Residual Statistics

for weighted residuals

Sum of Squares . . . . . 0.008974 ft^2
Variance . . . . . 0.0002362 ft^2
Std. Deviation . . . . . 0.01537 ft
Mean . . . . . 0.002623 ft
No. of Residuals 40
No. of Estimates 2



G103D

Data Set: I:\...\G103D Slug In Test 3.aqt
Date: 07/26/11 Time: 14:00:29

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Well: G111D
Test Date: April 11, 2011

AQUIFER DATA

Saturated Thickness: 4. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (G103D)

Initial Displacement: 1.387 ft
Total Well Penetration Depth: 27.19 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 27.19 ft
Screen Length: 5. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 0.00107 cm/sec
y0 = 1.234 ft

Data Set: I:\WP\6-chars\07----\0701--\070102\070102-MISC\070102-Response Test Data-062711\G103D\G103D Slug
Title: G103D
Date: 07/26/11
Time: 14:00:51

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Date: April 11, 2011
Test Well: G111D

AQUIFER DATA

Saturated Thickness: 4. ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: G103D

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 1.387 ft
Static Water Column Height: 27.19 ft
Casing Radius: 0.08333 ft
Well Radius: 0.08333 ft
Well Skin Radius: 0.08333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 27.19 ft

No. of Observations: 38

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
0.1	1.387	47.44	0.403
1.364	1.069	51.64	0.366
2.977	1.159	55.84	0.332
4.424	1.108	60.64	0.299
6.22	1.07	66.05	0.263
7.981	1.016	70.84	0.238
9.764	0.974	76.84	0.208
11.8	0.944	82.84	0.184
14.04	0.877	88.84	0.161
16.29	0.833	95.44	0.142
18.52	0.789	102.6	0.121
21.04	0.744	110.4	0.105
23.79	0.698	118.2	0.091
26.5	0.654	126.7	0.078
29.5	0.61	135.6	0.067
32.79	0.565	145.3	0.056
36.04	0.524	155.	0.048
39.78	0.481	165.8	0.042
43.35	0.442	177.	0.04

SOLUTION

Slug Test
Aquifer Model: Confined
Solution Method: Bouwer-Rice
ln(Re/rw): 4.169

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.00107	cm/sec
y0	1.234	ft

T = T*b = 0.1304 cm²/sec

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error	Approx. C.I.	t-Ratio	
K	0.00107	2.577E-5	+/- 5.226E-5	41.51	cm/sec
y0	1.234	0.01466	+/- 0.02973	84.2	ft

C.I. is approximate 95% confidence interval for parameter
t-ratio = estimate/std. error
No estimation window

T = T*b = 0.1304 cm²/sec

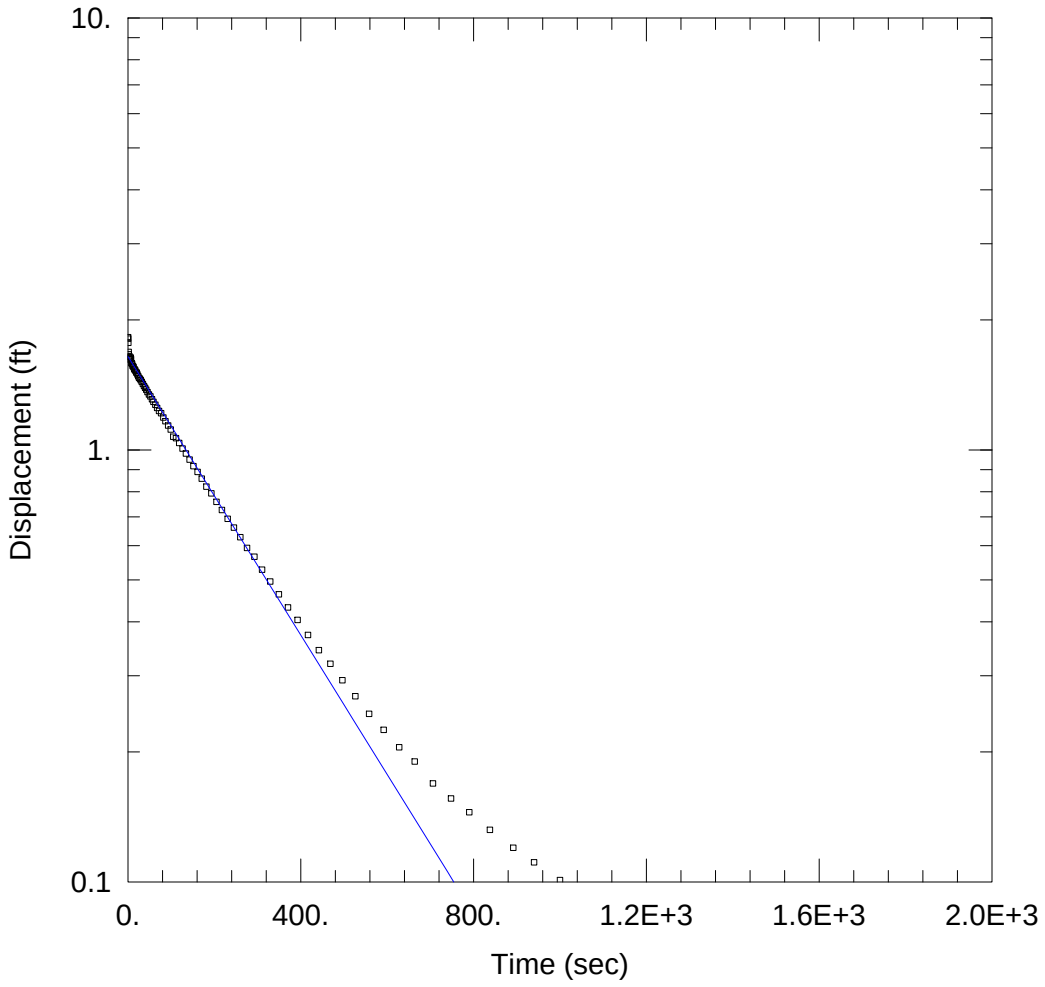
Parameter Correlations

	K	y0
K	1.00	0.66
y0	0.66	1.00

Residual Statistics

for weighted residuals

Sum of Squares . . . . . 0.04354 ft^2
Variance . . . . . 0.00121 ft^2
Std. Deviation . . . . . 0.03478 ft
Mean . . . . . 0.003388 ft
No. of Residuals 38
No. of Estimates 2



G111D

Data Set: I:\...\G103D Slug Out Test 1.aqt
Date: 07/26/11 Time: 14:47:43

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Well: G111D
Test Date: April 11, 2011

AQUIFER DATA

Saturated Thickness: 10. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (G111D)

Initial Displacement: 1.824 ft
Total Well Penetration Depth: 36.8 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 36.8 ft
Screen Length: 10. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 9.135E-5 cm/sec
y0 = 1.645 ft

Data Set: I:\WP\6-chars\07----\0701--\070102\070102-MISC\070102-Response Test Data-062711\G103D\G103D Slug
Title: G111D
Date: 07/26/11
Time: 14:48:18

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Date: April 11, 2011
Test Well: G111D

AQUIFER DATA

Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: G111D

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 1.824 ft
Static Water Column Height: 36.8 ft
Casing Radius: 0.08333 ft
Well Radius: 0.08333 ft
Well Skin Radius: 0.08333 ft
Screen Length: 10. ft
Total Well Penetration Depth: 36.8 ft

No. of Observations: 85

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
0.1	1.824	86.97	1.165
0.48	1.81	92.97	1.139
1.069	1.77	98.98	1.115
1.5	1.686	105.	1.073
2.1	1.664	111.4	1.065
2.707	1.649	118.6	1.038
3.464	1.645	126.4	1.007
4.053	1.629	134.3	0.981
4.68	1.622	142.6	0.95
5.46	1.619	151.6	0.917
6.299	1.636	161.3	0.889
7.18	1.623	170.8	0.858
7.98	1.588	181.6	0.822
8.94	1.587	193.1	0.793
9.932	1.579	205.1	0.758
10.98	1.564	217.6	0.726
12.19	1.561	230.9	0.693
13.32	1.553	245.2	0.661
14.7	1.538	260.2	0.628
15.95	1.534	275.8	0.593
17.34	1.526	292.6	0.566
18.95	1.512	310.6	0.528
20.4	1.509	329.3	0.496
22.21	1.495	349.6	0.463
23.95	1.481	370.6	0.432
25.74	1.469	392.8	0.404
27.78	1.461	416.8	0.373
29.88	1.45	442.	0.344
32.15	1.438	468.5	0.32

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
34.5	1.421	496.6	0.293
37.15	1.406	526.6	0.269
39.66	1.393	558.4	0.245
42.48	1.379	592.	0.225
45.48	1.361	628.	0.205
48.66	1.344	664.	0.19
52.17	1.33	706.	0.169
55.67	1.31	748.	0.156
59.22	1.292	790.	0.145
63.42	1.272	838.	0.132
67.69	1.251	892.	0.12
71.94	1.231	940.	0.111
76.71	1.216	1000.	0.101
82.21	1.188		

SOLUTION

Slug Test
Aquifer Model: Confined
Solution Method: Bouwer-Rice
ln(Re/rw): 4.51

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	9.135E-5	cm/sec
y0	1.645	ft

T = T*b = 0.02784 cm²/sec

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error	Approx. C.I.	t-Ratio	
K	9.135E-5	1.38E-6	+/- 2.745E-6	66.2	cm/sec
y0	1.645	0.007642	+/- 0.0152	215.2	ft

C.I. is approximate 95% confidence interval for parameter
t-ratio = estimate/std. error
No estimation window

T = T*b = 0.02784 cm²/sec

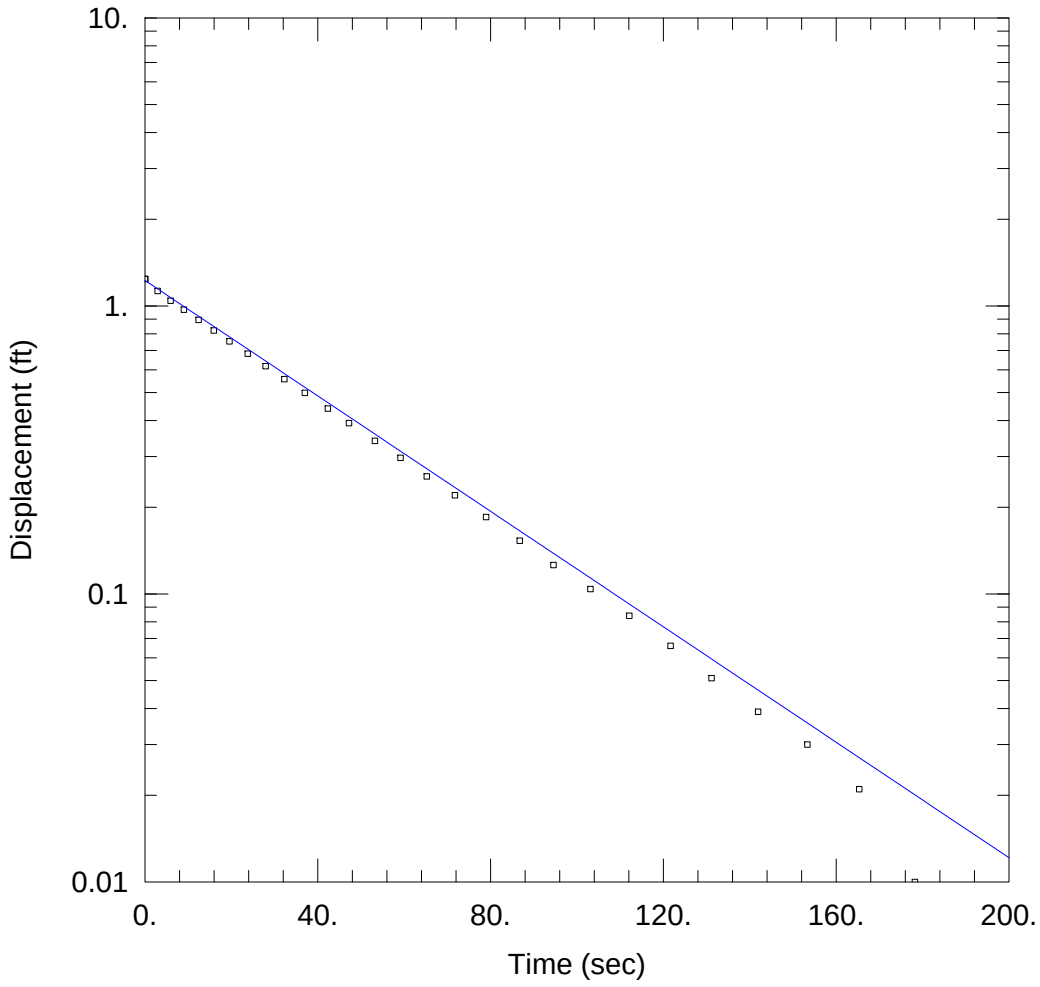
Parameter Correlations

	K	y0
K	1.00	0.56
y0	0.56	1.00

Residual Statistics

for weighted residuals

Sum of Squares . . . . . 0.1429 ft^2
Variance . . . . . 0.001722 ft^2
Std. Deviation . . . . . 0.04149 ft
Mean . . . . . 0.006111 ft
No. of Residuals 85
No. of Estimates 2



G103D

Data Set: I:\...\G103D Slug Out Test 2.aqt
Date: 07/26/11 Time: 14:48:45

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Well: G111D
Test Date: April 11, 2011

AQUIFER DATA

Saturated Thickness: 4. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (G103D)

Initial Displacement: 1.24 ft
Total Well Penetration Depth: 27.19 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 27.19 ft
Screen Length: 5. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 0.00105 cm/sec
y0 = 1.226 ft

Data Set: I:\WP\6-chars\07----\0701--\070102\070102-MISC\070102-Response Test Data-062711\G103D\G103D Slug
Title: G103D
Date: 08/05/11
Time: 07:28:24

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Date: April 11, 2011
Test Well: G111D

AQUIFER DATA

Saturated Thickness: 4. ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: G103D

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 1.24 ft
Static Water Column Height: 27.19 ft
Casing Radius: 0.08333 ft
Well Radius: 0.08333 ft
Well Skin Radius: 0.08333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 27.19 ft

No. of Observations: 28

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
0.1	1.24	59.16	0.297
2.933	1.127	65.24	0.256
5.934	1.042	71.76	0.22
9.001	0.971	78.99	0.185
12.44	0.894	86.76	0.153
15.96	0.822	94.56	0.126
19.56	0.753	103.1	0.104
23.78	0.683	112.1	0.084
27.96	0.618	121.7	0.066
32.28	0.557	131.2	0.051
37.03	0.499	142.	0.039
42.36	0.44	153.4	0.03
47.25	0.392	165.4	0.021
53.23	0.34	178.2	0.01

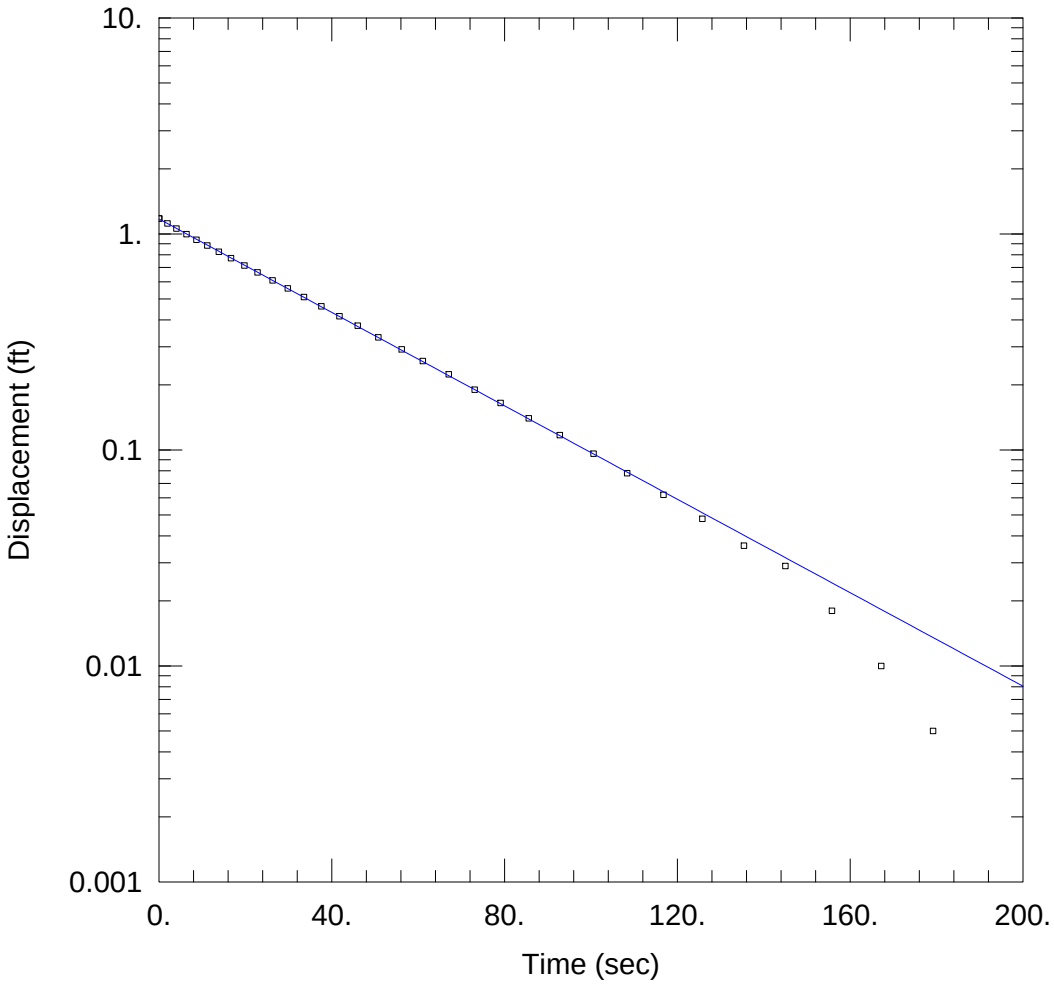
SOLUTION

Slug Test
Aquifer Model: Confined
Solution Method: Bouwer-Rice
ln(Re/rw): 4.169

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.00105	cm/sec
y0	1.226	ft



G103D

Data Set: I:\...\G103D Slug Out Test 3.aqt
Date: 08/05/11 Time: 07:29:14

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Well: G111D
Test Date: April 11, 2011

AQUIFER DATA

Saturated Thickness: 4. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (G103D)

Initial Displacement: 1.178 ft
Total Well Penetration Depth: 27.19 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 27.19 ft
Screen Length: 5. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 0.001133 cm/sec
y0 = 1.173 ft

Data Set: I:\WP\6-chars\07----\0701--\070102\070102-MISC\070102-Response Test Data-062711\G103D\G103D Slug
Title: G103D
Date: 08/05/11
Time: 07:29:30

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Date: April 11, 2011
Test Well: G111D

AQUIFER DATA

Saturated Thickness: 4. ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: G103D

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 1.178 ft
Static Water Column Height: 27.19 ft
Casing Radius: 0.08333 ft
Well Radius: 0.08333 ft
Well Skin Radius: 0.08333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 27.19 ft

No. of Observations: 33

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
0.1	1.178	56.21	0.292
1.967	1.119	61.11	0.258
4.067	1.059	67.11	0.224
6.384	0.997	73.11	0.19
8.688	0.94	79.1	0.165
11.21	0.884	85.61	0.14
13.88	0.827	92.81	0.117
16.67	0.772	100.6	0.096
19.8	0.714	108.4	0.078
22.85	0.663	116.8	0.062
26.31	0.609	125.8	0.048
29.82	0.559	135.4	0.036
33.57	0.51	145.	0.029
37.61	0.462	155.8	0.018
41.81	0.416	167.2	0.01
46.01	0.376	179.2	0.005
50.81	0.332		

SOLUTION

Slug Test
Aquifer Model: Confined
Solution Method: Bouwer-Rice
ln(Re/rw): 4.169

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.001133	cm/sec
y0	1.173	ft

T = T*b = 0.1381 cm²/sec

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error	Approx. C.I.	t-Ratio	
K	0.001133	3.25E-6	+/- 6.626E-6	348.6	cm/sec
y0	1.173	0.001748	+/- 0.003565	670.8	ft

C.I. is approximate 95% confidence interval for parameter
t-ratio = estimate/std. error
No estimation window

T = T*b = 0.1381 cm²/sec

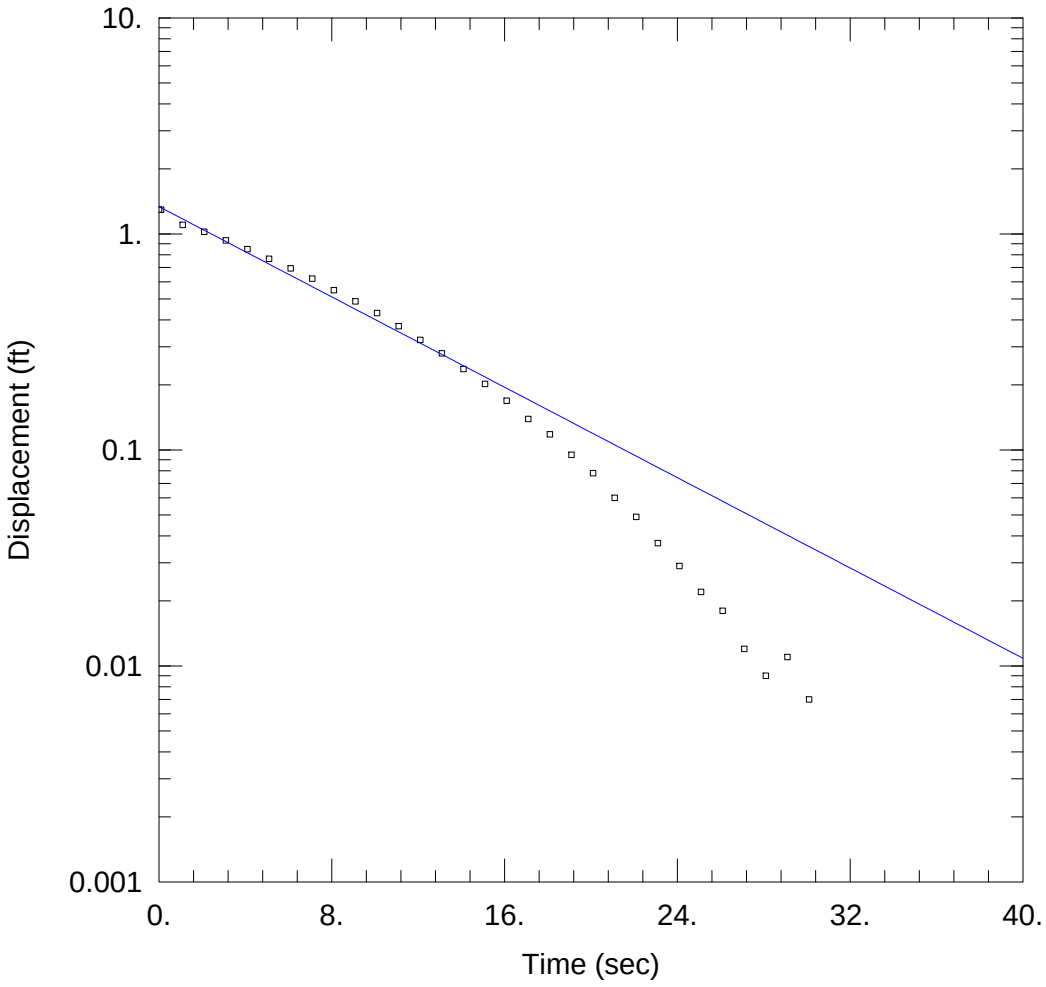
Parameter Correlations

	K	y0
K	1.00	0.67
y0	0.67	1.00

Residual Statistics

for weighted residuals

Sum of Squares . . . . . 0.0004043 ft^2
Variance . . . . . 1.304E-5 ft^2
Std. Deviation . . . . . 0.003611 ft
Mean . . . . . -0.0007296 ft
No. of Residuals 33
No. of Estimates 2



G104S

Data Set: I:\...\G104S Slug In Test 1.aqt
Date: 08/05/11 Time: 09:34:58

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Well: G111S
Test Date: April 11, 2011

AQUIFER DATA

Saturated Thickness: 12.32 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (G104S)

Initial Displacement: 1.294 ft
Total Well Penetration Depth: 12.32 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 12.32 ft
Screen Length: 10. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.002514 cm/sec
y0 = 1.338 ft

Data Set: I:\WP\6-chars\07----\0701--\070102\070102-MISC\070102-Response Test Data-062711\G104S\G104S Slug
Title: G104S
Date: 08/05/11
Time: 09:35:18

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Date: April 11, 2011
Test Well: G111S

AQUIFER DATA

Saturated Thickness: 12.32 ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: G104S

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 1.294 ft
Static Water Column Height: 12.32 ft
Casing Radius: 0.08333 ft
Well Radius: 0.08333 ft
Well Skin Radius: 0.08333 ft
Screen Length: 10. ft
Total Well Penetration Depth: 12.32 ft

No. of Observations: 31

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
0.1	1.294	16.1	0.169
1.1	1.102	17.1	0.139
2.1	1.024	18.1	0.118
3.1	0.933	19.1	0.095
4.1	0.849	20.1	0.078
5.1	0.767	21.1	0.06
6.1	0.692	22.1	0.049
7.1	0.621	23.1	0.037
8.1	0.549	24.1	0.029
9.1	0.487	25.1	0.022
10.1	0.43	26.1	0.018
11.1	0.374	27.1	0.012
12.1	0.323	28.1	0.009
13.1	0.28	29.1	0.011
14.1	0.237	30.1	0.007
15.1	0.202		

SOLUTION

Slug Test
Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
ln(Re/rw): 3.827

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate

K	0.002514	cm/sec
y0	1.338	ft

T = T*b = 0.9439 cm²/sec

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error	Approx. C.I.	t-Ratio	
K	0.002514	6.863E-5	+/- 0.0001403	36.63	cm/sec
y0	1.338	0.02421	+/- 0.0495	55.29	ft

C.I. is approximate 95% confidence interval for parameter
t-ratio = estimate/std. error
No estimation window

T = T*b = 0.9439 cm²/sec

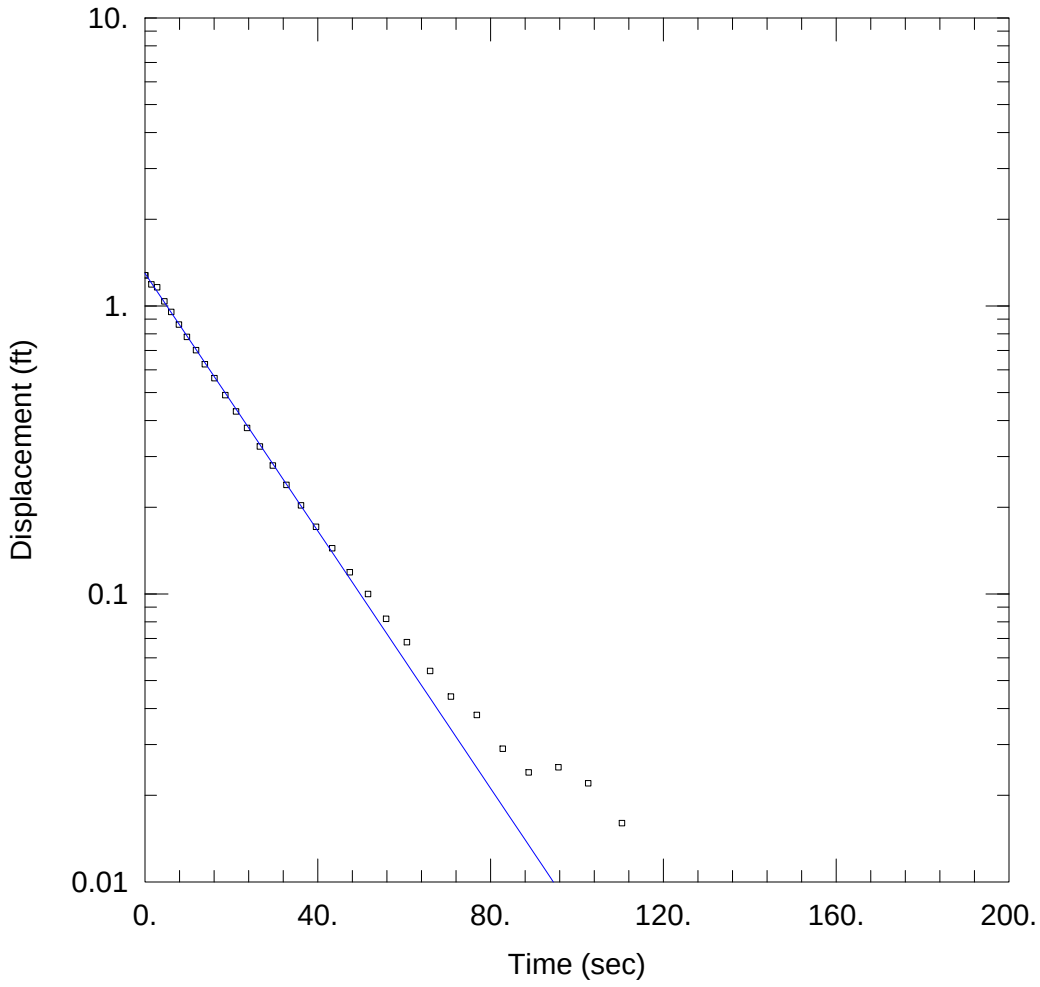
Parameter Correlations

	K	y0
K	1.00	0.68
y0	0.68	1.00

Residual Statistics

for weighted residuals

Sum of Squares . . . . . 0.04175 ft^2
Variance . . . . . 0.00144 ft^2
Std. Deviation . . . . . 0.03794 ft
Mean . . . . . -0.01176 ft
No. of Residuals 31
No. of Estimates 2



G104S

Data Set: I:\...\G104S Slug In Test 2.aqt
Date: 08/05/11 Time: 09:35:44

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Well: G111S
Test Date: April 11, 2011

AQUIFER DATA

Saturated Thickness: 12.28 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (G104S)

Initial Displacement: 1.277 ft
Total Well Penetration Depth: 12.28 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 12.28 ft
Screen Length: 10. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.001074 cm/sec
y0 = 1.297 ft

Data Set: I:\WP\6-chars\07----\0701--\070102\070102-MISC\070102-Response Test Data-062711\G104S\G104S Slug
Title: G104S
Date: 08/05/11
Time: 09:35:58

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Date: April 11, 2011
Test Well: G111S

AQUIFER DATA

Saturated Thickness: 12.28 ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: G104S

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 1.277 ft
Static Water Column Height: 12.28 ft
Casing Radius: 0.08333 ft
Well Radius: 0.08333 ft
Well Skin Radius: 0.08333 ft
Screen Length: 10. ft
Total Well Penetration Depth: 12.28 ft

No. of Observations: 31

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
0.1	1.277	36.11	0.203
1.498	1.187	39.62	0.171
2.836	1.16	43.37	0.144
4.511	1.037	47.42	0.119
6.076	0.953	51.63	0.1
7.876	0.861	55.82	0.082
9.736	0.781	60.66	0.068
11.84	0.702	66.02	0.054
13.88	0.627	70.82	0.044
16.1	0.561	76.82	0.038
18.59	0.49	82.82	0.029
21.09	0.43	88.82	0.024
23.66	0.377	95.71	0.025
26.6	0.325	102.6	0.022
29.6	0.279	110.4	0.016
32.76	0.239		

SOLUTION

Slug Test
Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
ln(Re/rw): 3.825

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate

K	0.001074	cm/sec
y0	1.297	ft

T = T*b = 0.402 cm²/sec

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error	Approx. C.I.	t-Ratio	
K	0.001074	9.851E-6	+/- 2.015E-5	109.	cm/sec
y0	1.297	0.006432	+/- 0.01315	201.6	ft

C.I. is approximate 95% confidence interval for parameter
t-ratio = estimate/std. error
No estimation window

T = T*b = 0.402 cm²/sec

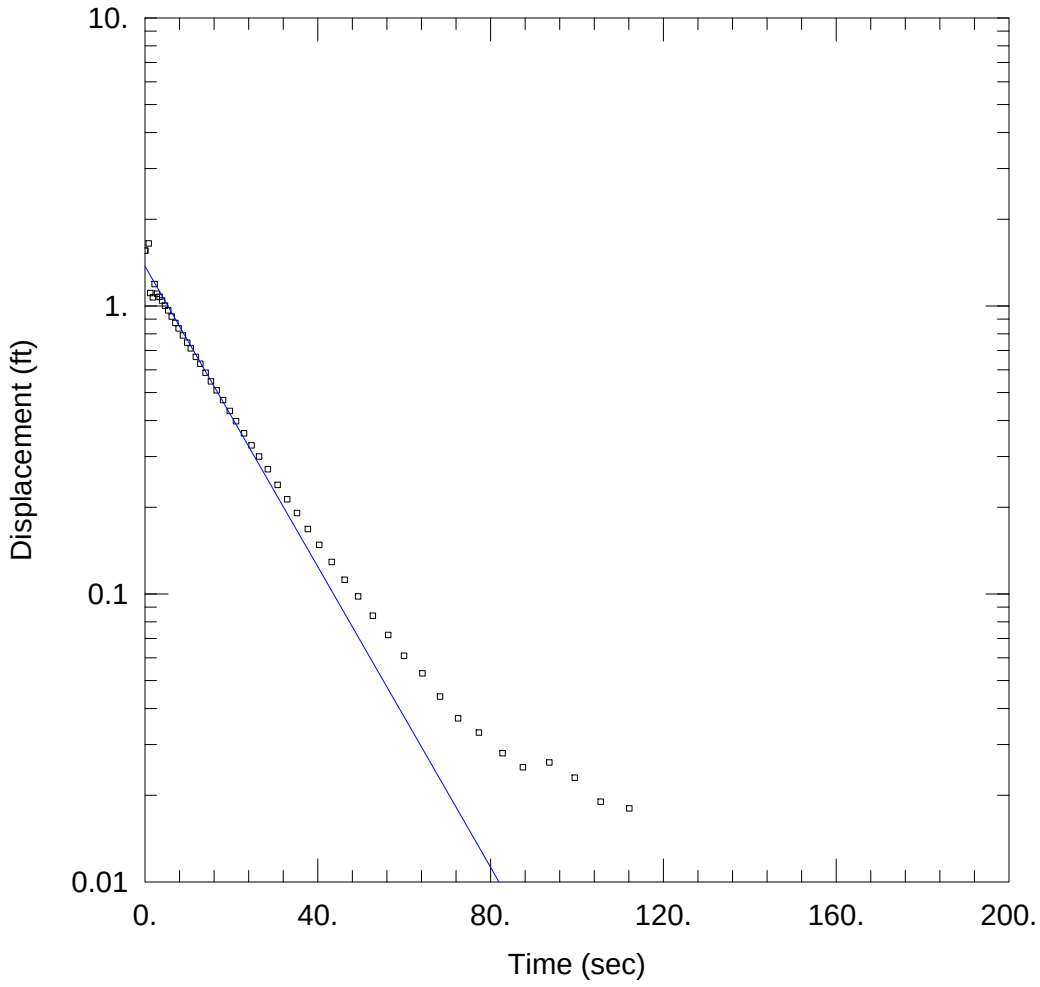
Parameter Correlations

	K	y0
K	1.00	0.67
y0	0.67	1.00

Residual Statistics

for weighted residuals

Sum of Squares . . . . . 0.003919 ft^2
Variance . . . . . 0.0001351 ft^2
Std. Deviation . . . . . 0.01163 ft
Mean . . . . . 0.003505 ft
No. of Residuals 31
No. of Estimates 2



G104S

Data Set: I:\...\G104S Slug In Test 3.aqt
Date: 08/05/11 Time: 09:36:22

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Well: G111S
Test Date: April 11, 2011

AQUIFER DATA

Saturated Thickness: 12.28 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (G104S)

Initial Displacement: 1.556 ft Static Water Column Height: 12.28 ft
Total Well Penetration Depth: 12.28 ft Screen Length: 10. ft
Casing Radius: 0.08333 ft Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
K = 0.001254 cm/sec y0 = 1.374 ft

Data Set: I:\WP\6-chars\07----\0701--\070102\070102-MISC\070102-Response Test Data-062711\G104S\G104S Slug
Title: G104S
Date: 08/05/11
Time: 09:36:37

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Date: April 11, 2011
Test Well: G111S

AQUIFER DATA

Saturated Thickness: 12.28 ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: G104S

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 1.556 ft
Static Water Column Height: 12.28 ft
Casing Radius: 0.08333 ft
Well Radius: 0.08333 ft
Well Skin Radius: 0.08333 ft
Screen Length: 10. ft
Total Well Penetration Depth: 12.28 ft

No. of Observations: 49

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
0.1	1.556	24.7	0.328
0.86	1.648	26.43	0.3
1.252	1.108	28.48	0.271
1.841	1.071	30.71	0.239
2.233	1.191	32.96	0.213
2.795	1.103	35.21	0.191
3.395	1.075	37.72	0.168
3.995	1.044	40.35	0.148
4.655	1.002	43.23	0.129
5.375	0.965	46.24	0.112
6.211	0.918	49.35	0.098
7.052	0.873	52.74	0.084
7.801	0.836	56.31	0.072
8.802	0.79	60.	0.061
9.804	0.746	64.26	0.053
10.6	0.712	68.31	0.044
11.81	0.665	72.52	0.037
12.82	0.63	77.31	0.033
14.06	0.586	82.79	0.028
15.28	0.547	87.52	0.025
16.59	0.509	93.61	0.026
18.07	0.471	99.52	0.023
19.63	0.432	105.5	0.019
21.09	0.398	112.1	0.018
22.94	0.361		

SOLUTION

Slug Test

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
ln(Re/rw): 3.825

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.001254	cm/sec
y0	1.374	ft

T = T*b = 0.4693 cm²/sec

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error	Approx. C.I.	t-Ratio	
K	0.001254	5.334E-5	+/- 0.0001073	23.5	cm/sec
y0	1.374	0.02868	+/- 0.0577	47.91	ft

C.I. is approximate 95% confidence interval for parameter
t-ratio = estimate/std. error
No estimation window

T = T*b = 0.4693 cm²/sec

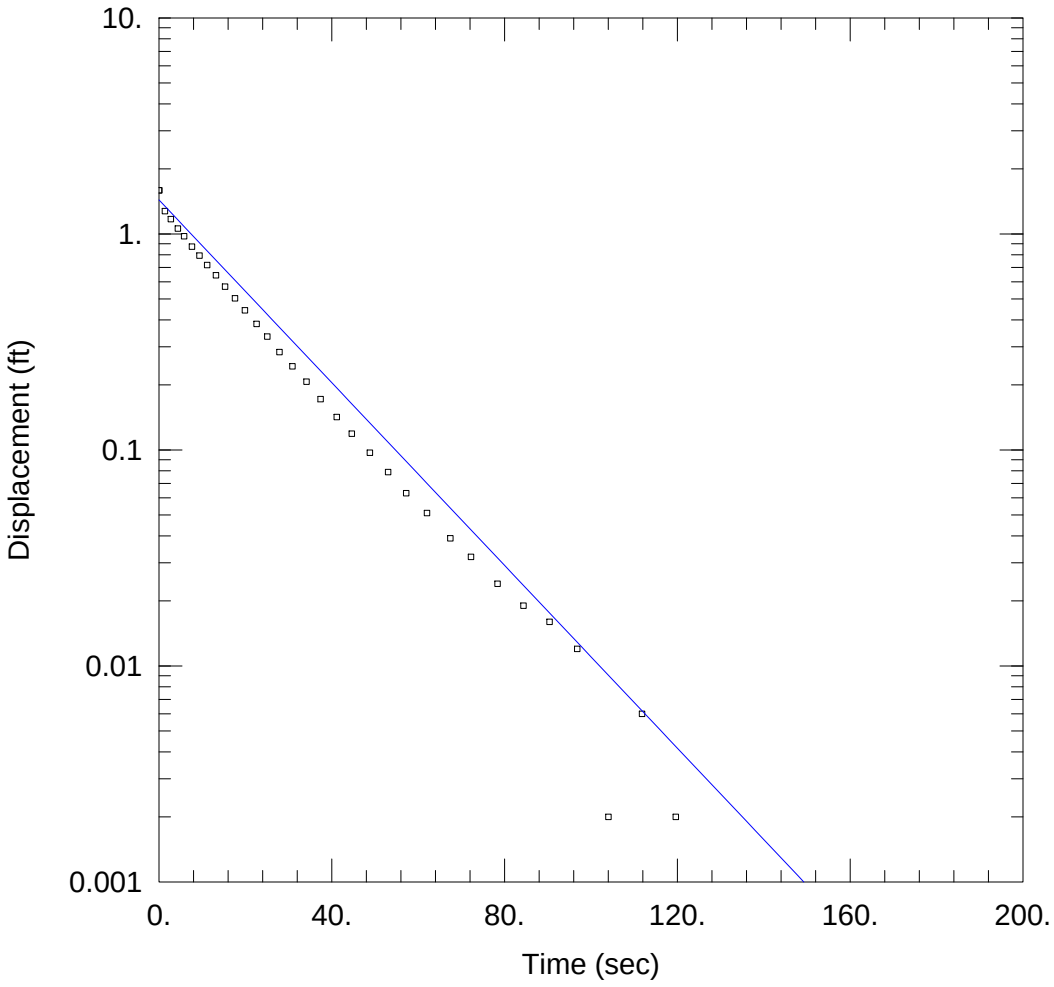
Parameter Correlations

	K	y0
K	1.00	0.68
y0	0.68	1.00

Residual Statistics

for weighted residuals

Sum of Squares . . . . . 0.2319 ft^2
Variance . . . . . 0.004933 ft^2
Std. Deviation . . . . . 0.07024 ft
Mean . . . . . 0.00836 ft
No. of Residuals 49
No. of Estimates 2



G104S

Data Set: I:\...\G104S Slug Out Test 1.aqt
Date: 08/05/11 Time: 09:37:35

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Well: G111S
Test Date: April 11, 2011

AQUIFER DATA

Saturated Thickness: 12.32 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (G104S)

Initial Displacement: 1.592 ft
Total Well Penetration Depth: 12.32 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 12.32 ft
Screen Length: 10. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.001017 cm/sec
y0 = 1.436 ft

Data Set: I:\WP\6-chars\07----\0701--\070102\070102-MISC\070102-Response Test Data-062711\G104S\G104S Slug
Title: G104S
Date: 08/05/11
Time: 09:37:50

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Date: April 11, 2011
Test Well: G111S

AQUIFER DATA

Saturated Thickness: 12.32 ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: G104S

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 1.592 ft
Static Water Column Height: 12.32 ft
Casing Radius: 0.08333 ft
Well Radius: 0.08333 ft
Well Skin Radius: 0.08333 ft
Screen Length: 10. ft
Total Well Penetration Depth: 12.32 ft

No. of Observations: 33

Observation Data

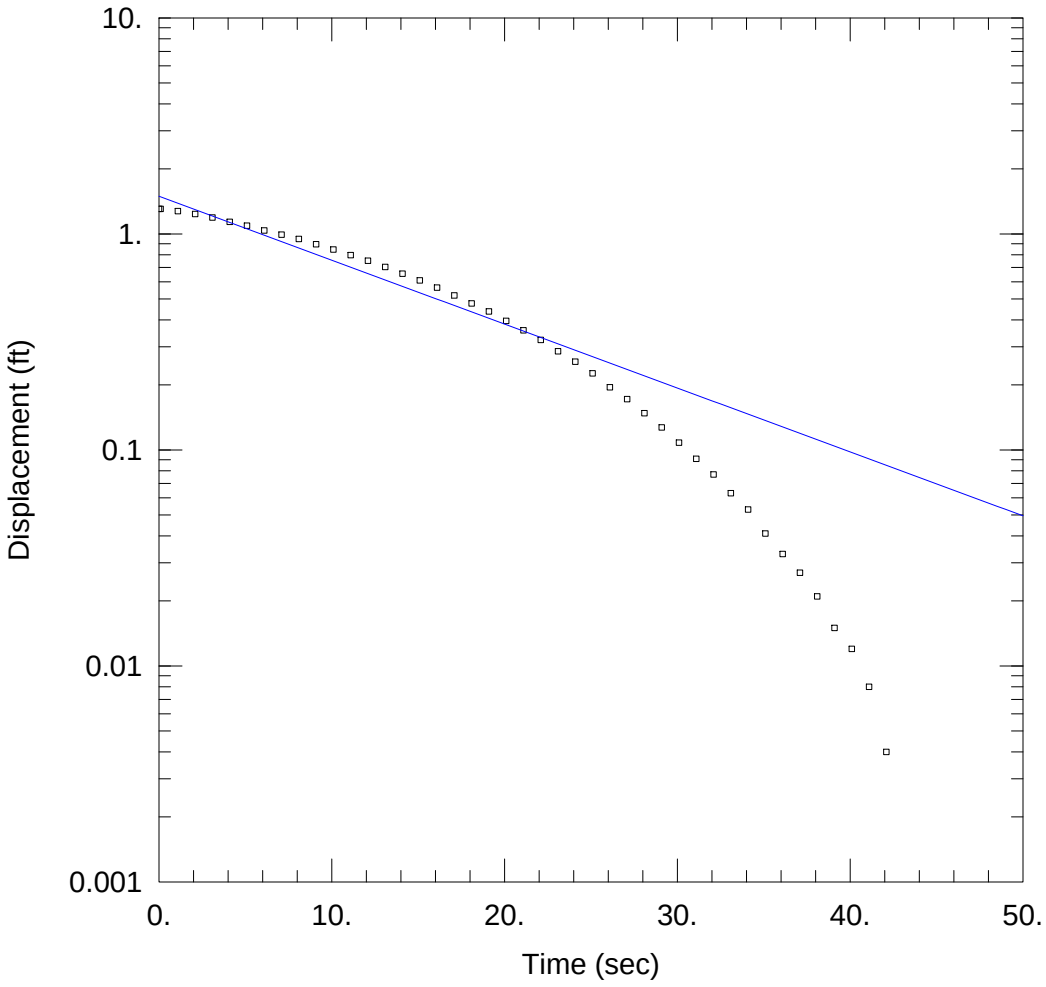
Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
0.1	1.592	37.44	0.172
1.388	1.276	41.16	0.142
2.759	1.17	44.66	0.119
4.392	1.059	48.84	0.097
5.819	0.976	53.04	0.079
7.649	0.873	57.24	0.063
9.4	0.793	62.04	0.051
11.16	0.718	67.44	0.039
13.2	0.644	72.24	0.032
15.3	0.57	78.39	0.024
17.59	0.503	84.4	0.019
19.92	0.443	90.41	0.016
22.6	0.383	96.84	0.012
25.11	0.335	104.	0.002
27.9	0.284	111.8	0.006
30.9	0.244	119.6	0.002
34.15	0.207		

SOLUTION

Slug Test
Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
ln(Re/rw): 3.827

VISUAL ESTIMATION RESULTS

Estimated Parameters



G104S

Data Set: I:\...\G104S Slug Out Test 2.aqt
Date: 08/05/11 Time: 09:38:11

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Well: G111S
Test Date: April 11, 2011

AQUIFER DATA

Saturated Thickness: 12.32 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (G104S)

Initial Displacement: 1.306 ft
Total Well Penetration Depth: 12.32 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 12.32 ft
Screen Length: 10. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.001423 cm/sec
y0 = 1.493 ft

Data Set: I:\WP\6-chars\07----\0701--\070102\070102-MISC\070102-Response Test Data-062711\G104S\G104S Slug
Title: G104S
Date: 08/05/11
Time: 09:39:12

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Date: April 11, 2011
Test Well: G111S

AQUIFER DATA

Saturated Thickness: 12.32 ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: G104S

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 1.306 ft
Static Water Column Height: 12.32 ft
Casing Radius: 0.08333 ft
Well Radius: 0.08333 ft
Well Skin Radius: 0.08333 ft
Screen Length: 10. ft
Total Well Penetration Depth: 12.32 ft

No. of Observations: 43

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
0.1	1.306	22.1	0.323
1.1	1.275	23.1	0.286
2.1	1.236	24.1	0.256
3.1	1.192	25.1	0.226
4.1	1.137	26.1	0.195
5.1	1.092	27.1	0.172
6.1	1.037	28.1	0.148
7.1	0.992	29.1	0.127
8.1	0.947	30.1	0.108
9.1	0.896	31.1	0.091
10.1	0.847	32.1	0.077
11.1	0.798	33.1	0.063
12.1	0.752	34.1	0.053
13.1	0.703	35.1	0.041
14.1	0.655	36.1	0.033
15.1	0.609	37.1	0.027
16.1	0.564	38.1	0.021
17.1	0.519	39.1	0.015
18.1	0.477	40.1	0.012
19.1	0.438	41.1	0.008
20.1	0.396	42.1	0.004
21.1	0.358		

SOLUTION

Slug Test
Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
ln(Re/rw): 3.827

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.001423	cm/sec
y0	1.493	ft

T = T*b = 0.5342 cm²/sec

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error	Approx. C.I.	t-Ratio	
K	0.001423	5.786E-5	+/- 0.0001169	24.59	cm/sec
y0	1.493	0.04007	+/- 0.08095	37.26	ft

C.I. is approximate 95% confidence interval for parameter
t-ratio = estimate/std. error
No estimation window

T = T*b = 0.5342 cm²/sec

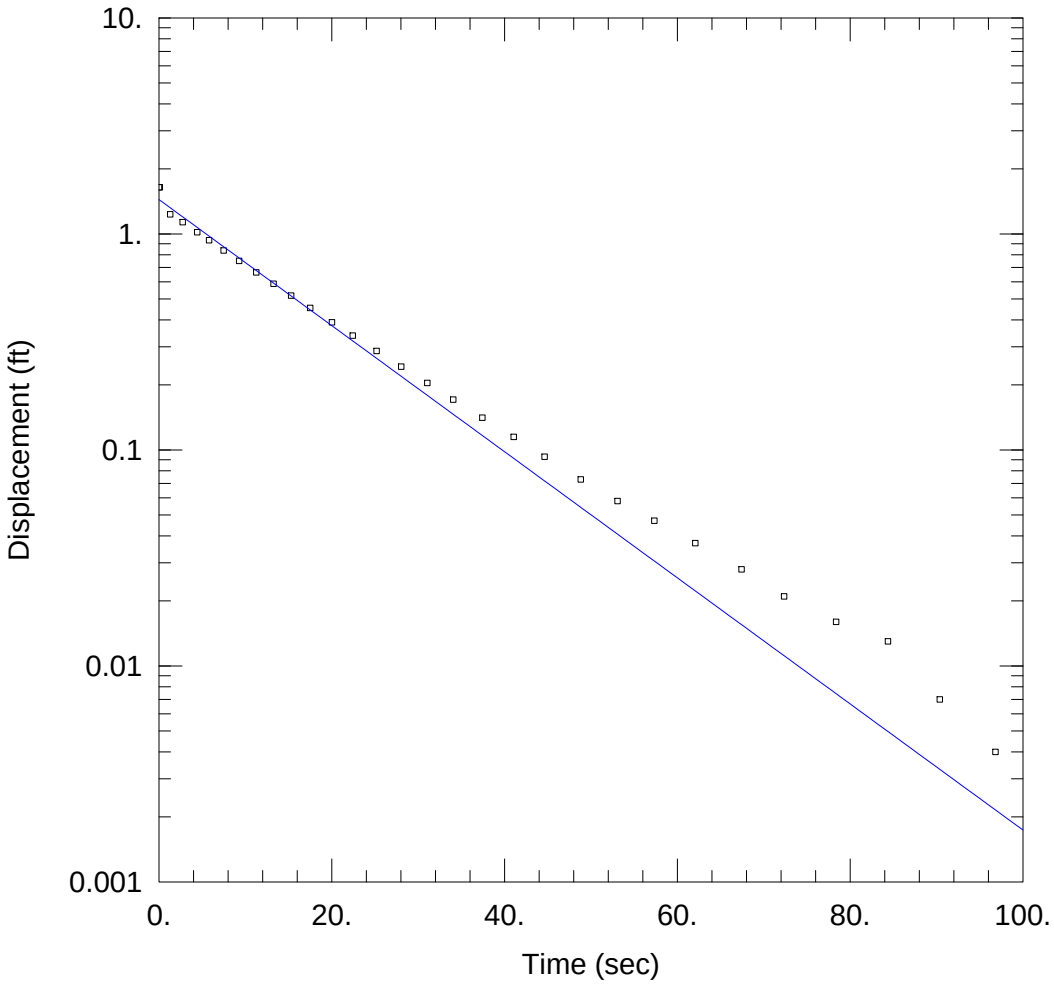
Parameter Correlations

	K	y0
K	1.00	0.70
y0	0.70	1.00

Residual Statistics

for weighted residuals

Sum of Squares . . . . . 0.2582 ft^2
Variance . . . . . 0.006298 ft^2
Std. Deviation . . . . . 0.07936 ft
Mean . . . . . -0.0187 ft
No. of Residuals 43
No. of Estimates 2



G104S

Data Set: I:\...\G104S Slug Out Test 3.aqt
Date: 08/05/11 Time: 09:39:38

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Well: G111S
Test Date: April 11, 2011

AQUIFER DATA

Saturated Thickness: 12.32 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (G104S)

Initial Displacement: 1.644 ft
Total Well Penetration Depth: 12.32 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 12.32 ft
Screen Length: 10. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.001404 cm/sec
y0 = 1.443 ft

Data Set: I:\WP\6-chars\07----\0701--\070102\070102-MISC\070102-Response Test Data-062711\G104S\G104S Slug
Title: G104S
Date: 08/05/11
Time: 09:39:53

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Date: April 11, 2011
Test Well: G111S

AQUIFER DATA

Saturated Thickness: 12.32 ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: G104S

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 1.644 ft
Static Water Column Height: 12.32 ft
Casing Radius: 0.08333 ft
Well Radius: 0.08333 ft
Well Skin Radius: 0.08333 ft
Screen Length: 10. ft
Total Well Penetration Depth: 12.32 ft

No. of Observations: 30

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
0.1	1.644	31.06	0.204
1.313	1.232	34.07	0.171
2.759	1.134	37.43	0.141
4.429	1.018	41.06	0.115
5.813	0.935	44.63	0.093
7.494	0.838	48.83	0.073
9.293	0.75	53.09	0.058
11.27	0.664	57.34	0.047
13.27	0.588	62.09	0.037
15.31	0.518	67.43	0.028
17.51	0.454	72.36	0.021
20.03	0.39	78.38	0.016
22.43	0.338	84.38	0.013
25.2	0.287	90.38	0.007
28.04	0.243	96.83	0.004

SOLUTION

Slug Test
Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
ln(Re/rw): 3.827

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.001404	cm/sec

y0	1.443	ft

T = T*b = 0.5271 cm²/sec

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error	Approx. C.I.	t-Ratio	
K	0.001404	5.217E-5	+/- 0.0001069	26.9	cm/sec
y0	1.443	0.02965	+/- 0.06073	48.65	ft

C.I. is approximate 95% confidence interval for parameter
t-ratio = estimate/std. error
No estimation window

T = T*b = 0.5271 cm²/sec

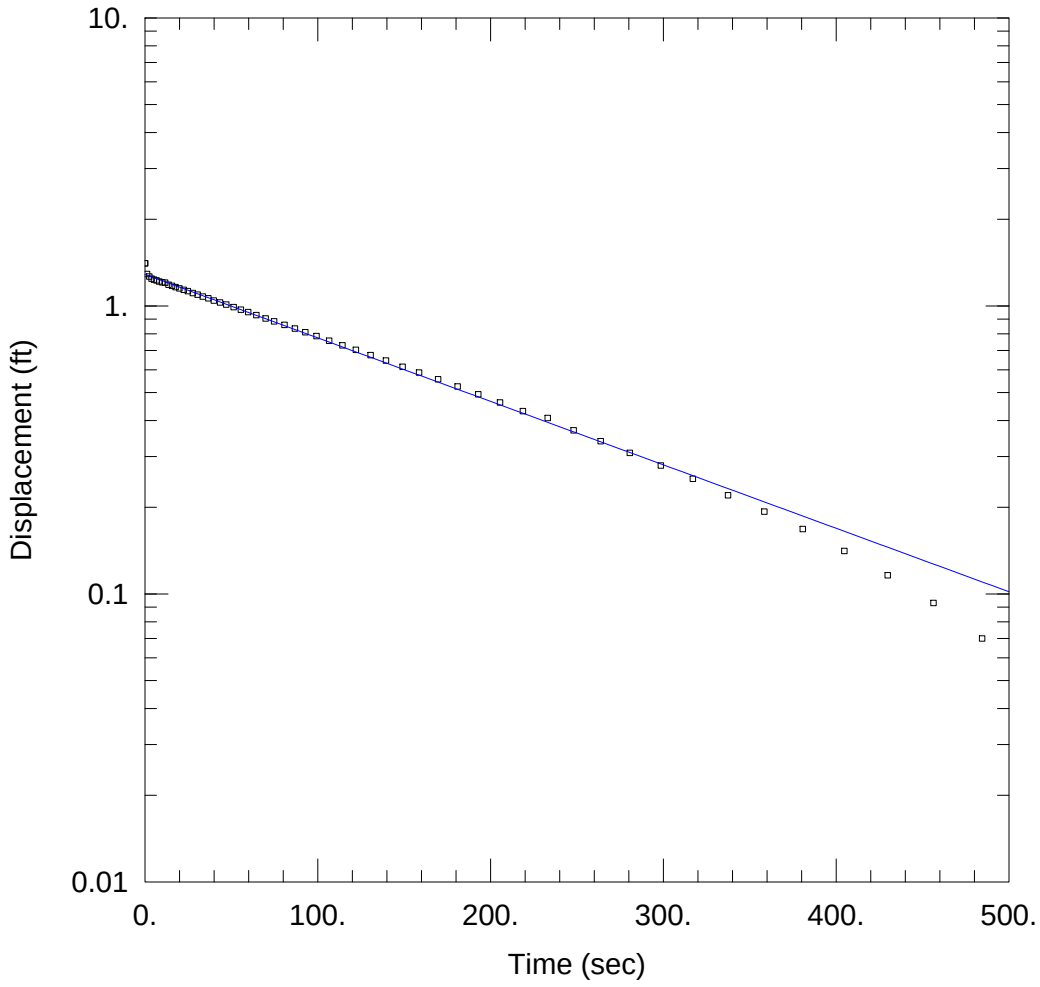
Parameter Correlations

	K	y0
K	1.00	0.66
y0	0.66	1.00

Residual Statistics

for weighted residuals

Sum of Squares . . . . . 0.069 ft^2
Variance . . . . . 0.002464 ft^2
Std. Deviation . . . . . 0.04964 ft
Mean . . . . . 0.007148 ft
No. of Residuals 30
No. of Estimates 2



G104D

Data Set: I:\...\G104D Slug In Test 1.aqt
Date: 08/05/11 Time: 09:29:52

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Well: G111D
Test Date: April 11, 2011

AQUIFER DATA

Saturated Thickness: 10. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (G104D)

Initial Displacement: 1.407 ft
Total Well Penetration Depth: 39.76 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 39.76 ft
Screen Length: 5. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 0.0002427 cm/sec
y0 = 1.286 ft

Data Set: I:\WP\6-chars\07----\0701--\070102\070102-MISC\070102-Response Test Data-062711\G104D\G104D Slug
Title: G104D
Date: 08/05/11
Time: 09:30:10

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Date: April 11, 2011
Test Well: G111D

AQUIFER DATA

Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: G104D

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 1.407 ft
Static Water Column Height: 39.76 ft
Casing Radius: 0.08333 ft
Well Radius: 0.08333 ft
Well Skin Radius: 0.08333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 39.76 ft

No. of Observations: 57

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
0.1	1.407	86.8	0.834
1.249	1.29	92.81	0.81
2.506	1.265	99.32	0.786
3.81	1.243	106.6	0.757
5.255	1.234	114.3	0.73
6.754	1.226	122.1	0.704
8.279	1.216	130.6	0.675
10.03	1.207	139.5	0.646
11.76	1.204	149.1	0.615
13.69	1.184	158.7	0.587
15.7	1.174	169.7	0.556
17.76	1.162	180.9	0.525
19.98	1.151	193.	0.493
22.45	1.137	205.5	0.462
24.9	1.126	218.7	0.431
27.73	1.108	233.1	0.408
30.47	1.094	248.1	0.37
33.47	1.078	263.8	0.339
36.73	1.062	280.6	0.309
39.9	1.044	298.6	0.279
43.5	1.028	317.1	0.251
47.1	1.011	337.5	0.22
51.3	0.99	358.5	0.193
55.5	0.97	380.7	0.168
59.76	0.952	404.7	0.141
64.52	0.929	429.9	0.116
69.9	0.905	456.3	0.093
74.78	0.884	484.5	0.07
80.8	0.859		

SOLUTION

Slug Test
Aquifer Model: Confined
Solution Method: Bouwer-Rice
ln(Re/rw): 4.383

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.0002427	cm/sec
y0	1.286	ft

T = T*b = 0.07397 cm²/sec

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error	Approx. C.I.	t-Ratio	
K	0.0002427	2.711E-6	+/- 5.432E-6	89.54	cm/sec
y0	1.286	0.005275	+/- 0.01057	243.8	ft

C.I. is approximate 95% confidence interval for parameter
t-ratio = estimate/std. error
No estimation window

T = T*b = 0.07397 cm²/sec

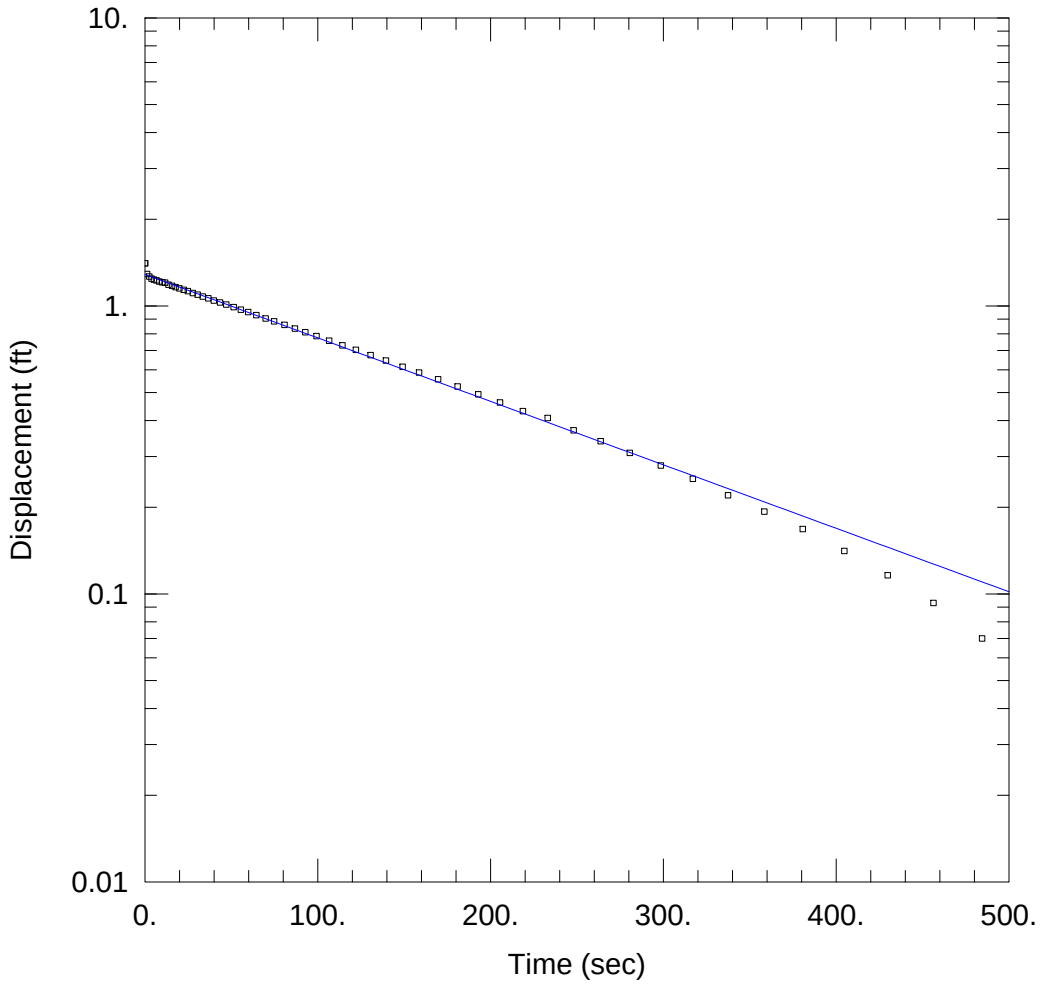
Parameter Correlations

	K	y0
K	1.00	0.62
y0	0.62	1.00

Residual Statistics

for weighted residuals

Sum of Squares . . . . . 0.02448 ft^2
Variance . . . . . 0.0004451 ft^2
Std. Deviation . . . . . 0.0211 ft
Mean . . . . . -0.001444 ft
No. of Residuals 57
No. of Estimates 2



G104D

Data Set: I:\...\G104D Slug In Test 2.aqt
Date: 08/05/11 Time: 09:30:34

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Well: G111D
Test Date: April 11, 2011

AQUIFER DATA

Saturated Thickness: 10. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (G104D)

Initial Displacement: 1.407 ft
Total Well Penetration Depth: 39.76 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 39.76 ft
Screen Length: 5. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 0.0002427 cm/sec
y0 = 1.286 ft

Data Set: I:\WP\6-chars\07----\0701--\070102\070102-MISC\070102-Response Test Data-062711\G104D\G104D Slug
Title: G104D
Date: 08/05/11
Time: 09:30:54

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Date: April 11, 2011
Test Well: G111D

AQUIFER DATA

Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: G104D

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 1.407 ft
Static Water Column Height: 39.76 ft
Casing Radius: 0.08333 ft
Well Radius: 0.08333 ft
Well Skin Radius: 0.08333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 39.76 ft

No. of Observations: 57

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
0.1	1.407	86.8	0.834
1.249	1.29	92.81	0.81
2.506	1.265	99.32	0.786
3.81	1.243	106.6	0.757
5.255	1.234	114.3	0.73
6.754	1.226	122.1	0.704
8.279	1.216	130.6	0.675
10.03	1.207	139.5	0.646
11.76	1.204	149.1	0.615
13.69	1.184	158.7	0.587
15.7	1.174	169.7	0.556
17.76	1.162	180.9	0.525
19.98	1.151	193.	0.493
22.45	1.137	205.5	0.462
24.9	1.126	218.7	0.431
27.73	1.108	233.1	0.408
30.47	1.094	248.1	0.37
33.47	1.078	263.8	0.339
36.73	1.062	280.6	0.309
39.9	1.044	298.6	0.279
43.5	1.028	317.1	0.251
47.1	1.011	337.5	0.22
51.3	0.99	358.5	0.193
55.5	0.97	380.7	0.168
59.76	0.952	404.7	0.141
64.52	0.929	429.9	0.116
69.9	0.905	456.3	0.093
74.78	0.884	484.5	0.07
80.8	0.859		

SOLUTION

Slug Test
Aquifer Model: Confined
Solution Method: Bouwer-Rice
ln(Re/rw): 4.383

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.0002427	cm/sec
y0	1.286	ft

T = T*b = 0.07397 cm²/sec

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error	Approx. C.I.	t-Ratio	
K	0.0002427	2.711E-6	+/- 5.432E-6	89.54	cm/sec
y0	1.286	0.005275	+/- 0.01057	243.8	ft

C.I. is approximate 95% confidence interval for parameter
t-ratio = estimate/std. error
No estimation window

T = T*b = 0.07397 cm²/sec

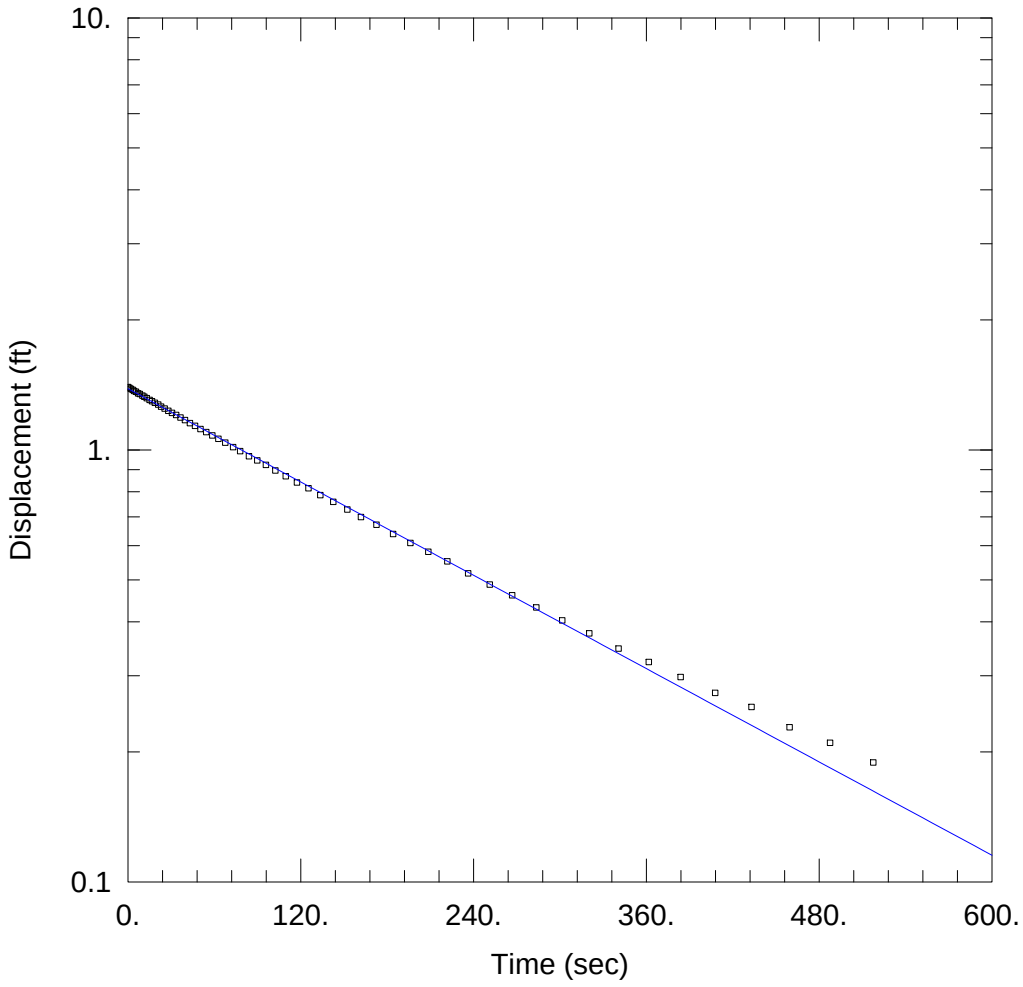
Parameter Correlations

	K	y0
K	1.00	0.62
y0	0.62	1.00

Residual Statistics

for weighted residuals

Sum of Squares . . . . . 0.02448 ft^2
Variance . . . . . 0.0004451 ft^2
Std. Deviation . . . . . 0.0211 ft
Mean . . . . . -0.001444 ft
No. of Residuals 57
No. of Estimates 2



G104D

Data Set: I:\...\G104D Slug In Test 3.aqt
Date: 08/05/11 Time: 09:31:26

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Well: G111D
Test Date: April 11, 2011

AQUIFER DATA

Saturated Thickness: 10. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (G104D)

Initial Displacement: 1.397 ft
Total Well Penetration Depth: 39.76 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 39.76 ft
Screen Length: 5. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 0.0001982 cm/sec
y0 = 1.386 ft

Data Set: I:\WP\6-chars\07----\0701--\070102\070102-MISC\070102-Response Test Data-062711\G104D\G104D Slug
Title: G104D
Date: 08/05/11
Time: 09:31:41

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Date: April 11, 2011
Test Well: G111D

AQUIFER DATA

Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: G104D

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 1.397 ft
Static Water Column Height: 39.76 ft
Casing Radius: 0.08333 ft
Well Radius: 0.08333 ft
Well Skin Radius: 0.08333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 39.76 ft

No. of Observations: 61

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
0.1	1.397	84.	0.967
1.001	1.392	89.8	0.946
2.003	1.385	95.8	0.923
3.276	1.378	102.4	0.896
4.302	1.369	109.6	0.869
5.562	1.364	117.4	0.841
7.01	1.352	125.3	0.815
8.322	1.347	133.6	0.786
10.01	1.336	142.6	0.758
11.38	1.328	152.4	0.728
13.06	1.318	161.9	0.699
15.02	1.305	172.6	0.671
16.76	1.297	184.2	0.639
18.76	1.286	196.2	0.609
21.03	1.273	208.6	0.581
23.08	1.259	221.8	0.552
25.48	1.247	236.2	0.518
28.04	1.232	251.2	0.488
30.64	1.218	266.8	0.461
33.46	1.205	283.6	0.432
36.46	1.189	301.6	0.403
39.64	1.172	320.3	0.376
43.06	1.154	340.7	0.347
46.6	1.137	361.7	0.323
50.34	1.118	383.8	0.298
54.4	1.1	407.8	0.274
58.6	1.08	433.	0.254
62.81	1.061	459.5	0.228
67.6	1.04	487.6	0.21

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
73.	1.015	517.6	0.189
78.	0.994		

SOLUTION

Slug Test
Aquifer Model: Confined
Solution Method: Bouwer-Rice
ln(Re/rw): 4.383

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.0001982	cm/sec
y0	1.386	ft

T = T*b = 0.06042 cm²/sec

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error	Approx. C.I.	t-Ratio	
K	0.0001982	9.703E-7	+/- 1.941E-6	204.3	cm/sec
y0	1.386	0.002306	+/- 0.004615	600.9	ft

C.I. is approximate 95% confidence interval for parameter
t-ratio = estimate/std. error
No estimation window

T = T*b = 0.06042 cm²/sec

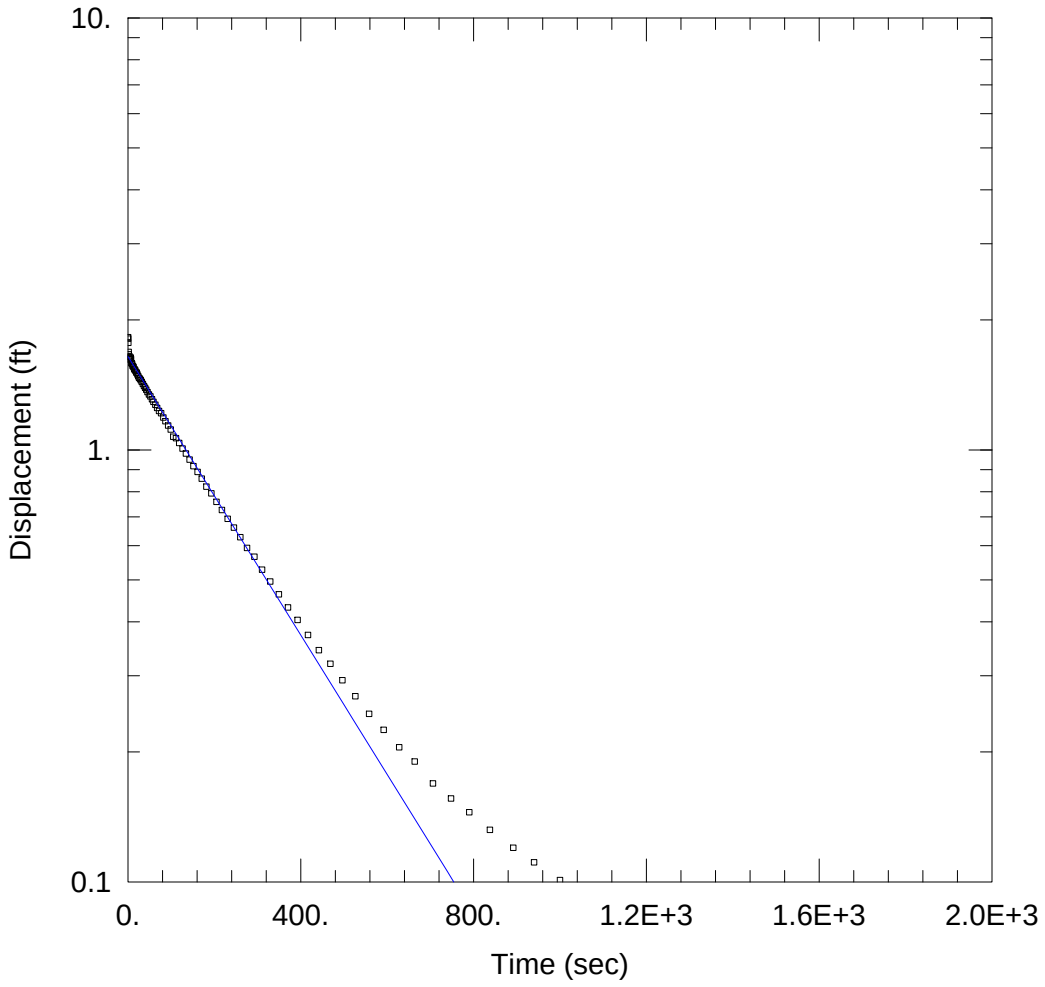
Parameter Correlations

	K	y0
K	1.00	0.61
y0	0.61	1.00

Residual Statistics

for weighted residuals

Sum of Squares . . . . . 0.006071 ft^2
Variance . . . . . 0.0001029 ft^2
Std. Deviation . . . . . 0.01014 ft
Mean . . . . . 0.001231 ft
No. of Residuals 61
No. of Estimates 2



G111D

Data Set: I:\...\G104D Slug Out Test 1.aqt
Date: 08/05/11 Time: 09:32:19

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Well: G111D
Test Date: April 11, 2011

AQUIFER DATA

Saturated Thickness: 10. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (G111D)

Initial Displacement: 1.824 ft
Total Well Penetration Depth: 36.8 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 36.8 ft
Screen Length: 10. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 9.135E-5 cm/sec
y0 = 1.645 ft

Data Set: I:\WP\6-chars\07----\0701--\070102\070102-MISC\070102-Response Test Data-062711\G104D\G104D Slug
Title: G111D
Date: 08/05/11
Time: 09:32:35

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Date: April 11, 2011
Test Well: G111D

AQUIFER DATA

Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: G111D

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 1.824 ft
Static Water Column Height: 36.8 ft
Casing Radius: 0.08333 ft
Well Radius: 0.08333 ft
Well Skin Radius: 0.08333 ft
Screen Length: 10. ft
Total Well Penetration Depth: 36.8 ft

No. of Observations: 85

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
0.1	1.824	86.97	1.165
0.48	1.81	92.97	1.139
1.069	1.77	98.98	1.115
1.5	1.686	105.	1.073
2.1	1.664	111.4	1.065
2.707	1.649	118.6	1.038
3.464	1.645	126.4	1.007
4.053	1.629	134.3	0.981
4.68	1.622	142.6	0.95
5.46	1.619	151.6	0.917
6.299	1.636	161.3	0.889
7.18	1.623	170.8	0.858
7.98	1.588	181.6	0.822
8.94	1.587	193.1	0.793
9.932	1.579	205.1	0.758
10.98	1.564	217.6	0.726
12.19	1.561	230.9	0.693
13.32	1.553	245.2	0.661
14.7	1.538	260.2	0.628
15.95	1.534	275.8	0.593
17.34	1.526	292.6	0.566
18.95	1.512	310.6	0.528
20.4	1.509	329.3	0.496
22.21	1.495	349.6	0.463
23.95	1.481	370.6	0.432
25.74	1.469	392.8	0.404
27.78	1.461	416.8	0.373
29.88	1.45	442.	0.344
32.15	1.438	468.5	0.32

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
34.5	1.421	496.6	0.293
37.15	1.406	526.6	0.269
39.66	1.393	558.4	0.245
42.48	1.379	592.	0.225
45.48	1.361	628.	0.205
48.66	1.344	664.	0.19
52.17	1.33	706.	0.169
55.67	1.31	748.	0.156
59.22	1.292	790.	0.145
63.42	1.272	838.	0.132
67.69	1.251	892.	0.12
71.94	1.231	940.	0.111
76.71	1.216	1000.	0.101
82.21	1.188		

SOLUTION

Slug Test
Aquifer Model: Confined
Solution Method: Bouwer-Rice
ln(Re/rw): 4.51

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	9.135E-5	cm/sec
y0	1.645	ft

T = T*b = 0.02784 cm²/sec

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error	Approx. C.I.	t-Ratio	
K	9.135E-5	1.38E-6	+/- 2.745E-6	66.2	cm/sec
y0	1.645	0.007642	+/- 0.0152	215.2	ft

C.I. is approximate 95% confidence interval for parameter
t-ratio = estimate/std. error
No estimation window

T = T*b = 0.02784 cm²/sec

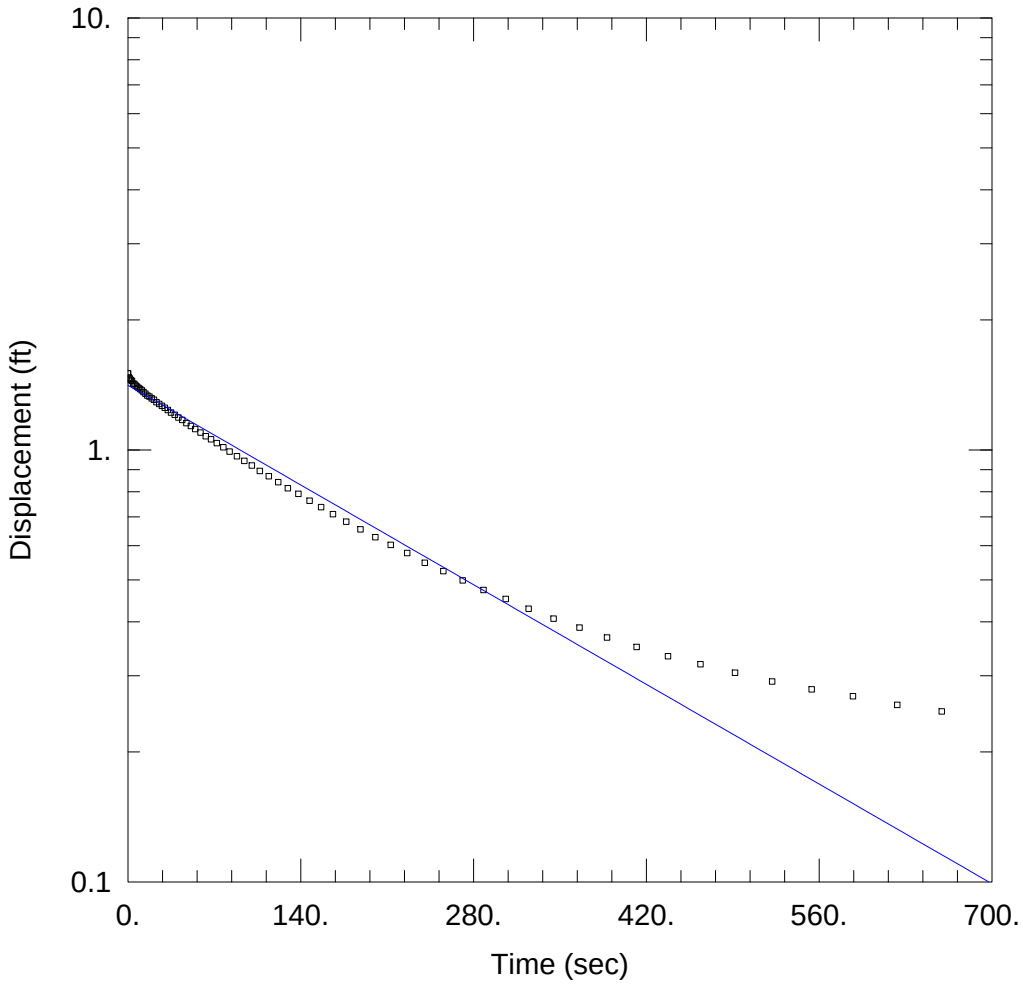
Parameter Correlations

	K	y0
K	1.00	0.56
y0	0.56	1.00

Residual Statistics

for weighted residuals

Sum of Squares . . . . . 0.1429 ft^2
Variance . . . . . 0.001722 ft^2
Std. Deviation . . . . . 0.04149 ft
Mean . . . . . 0.006111 ft
No. of Residuals 85
No. of Estimates 2



G104D

Data Set: I:\...\G104D Slug Out Test 2.aqt
Date: 08/05/11 Time: 09:33:01

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Well: G111D
Test Date: April 11, 2011

AQUIFER DATA

Saturated Thickness: 10. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (G104D)

Initial Displacement: 1.504 ft
Total Well Penetration Depth: 39.76 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 39.76 ft
Screen Length: 5. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 0.0001815 cm/sec
y0 = 1.411 ft

Data Set: I:\WP\6-chars\07----\0701--\070102\070102-MISC\070102-Response Test Data-062711\G104D\G104D Slug
Title: G104D
Date: 08/05/11
Time: 09:33:18

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Date: April 11, 2011
Test Well: G111D

AQUIFER DATA

Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: G104D

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 1.504 ft
Static Water Column Height: 39.76 ft
Casing Radius: 0.08333 ft
Well Radius: 0.08333 ft
Well Skin Radius: 0.08333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 39.76 ft

No. of Observations: 70

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
0.1	1.504	82.32	0.991
0.779	1.472	88.32	0.967
1.622	1.462	94.33	0.943
2.399	1.451	100.3	0.92
3.299	1.445	106.9	0.894
4.259	1.424	114.1	0.869
5.219	1.422	121.8	0.842
6.299	1.409	129.5	0.815
7.439	1.401	138.1	0.791
8.639	1.392	147.1	0.763
9.915	1.383	156.5	0.737
11.24	1.374	166.2	0.71
12.66	1.361	176.9	0.682
14.17	1.35	188.4	0.655
15.76	1.336	200.5	0.628
17.4	1.329	212.9	0.603
19.3	1.317	226.2	0.577
21.06	1.307	240.5	0.548
23.1	1.29	255.5	0.524
25.32	1.278	271.3	0.499
27.59	1.265	288.	0.474
29.86	1.252	306.1	0.452
32.34	1.237	324.6	0.429
34.98	1.22	344.9	0.407
37.92	1.206	365.9	0.388
40.93	1.188	388.2	0.368
43.98	1.173	412.2	0.35
47.34	1.154	437.5	0.333
50.96	1.136	463.8	0.319

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
54.54	1.118	491.9	0.305
58.75	1.097	521.9	0.291
63.02	1.076	553.9	0.279
67.28	1.058	587.5	0.269
72.04	1.037	623.3	0.257
77.34	1.014	659.3	0.248

SOLUTION

Slug Test
Aquifer Model: Confined
Solution Method: Bouwer-Rice
ln(Re/rw): 4.383

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.0001815	cm/sec
y0	1.411	ft

T = T*b = 0.05533 cm²/sec

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error	Approx. C.I.	t-Ratio	
K	0.0001815	3.953E-6	+/- 7.885E-6	45.93	cm/sec
y0	1.411	0.01001	+/- 0.01997	141.	ft

C.I. is approximate 95% confidence interval for parameter
t-ratio = estimate/std. error
No estimation window

T = T*b = 0.05533 cm²/sec

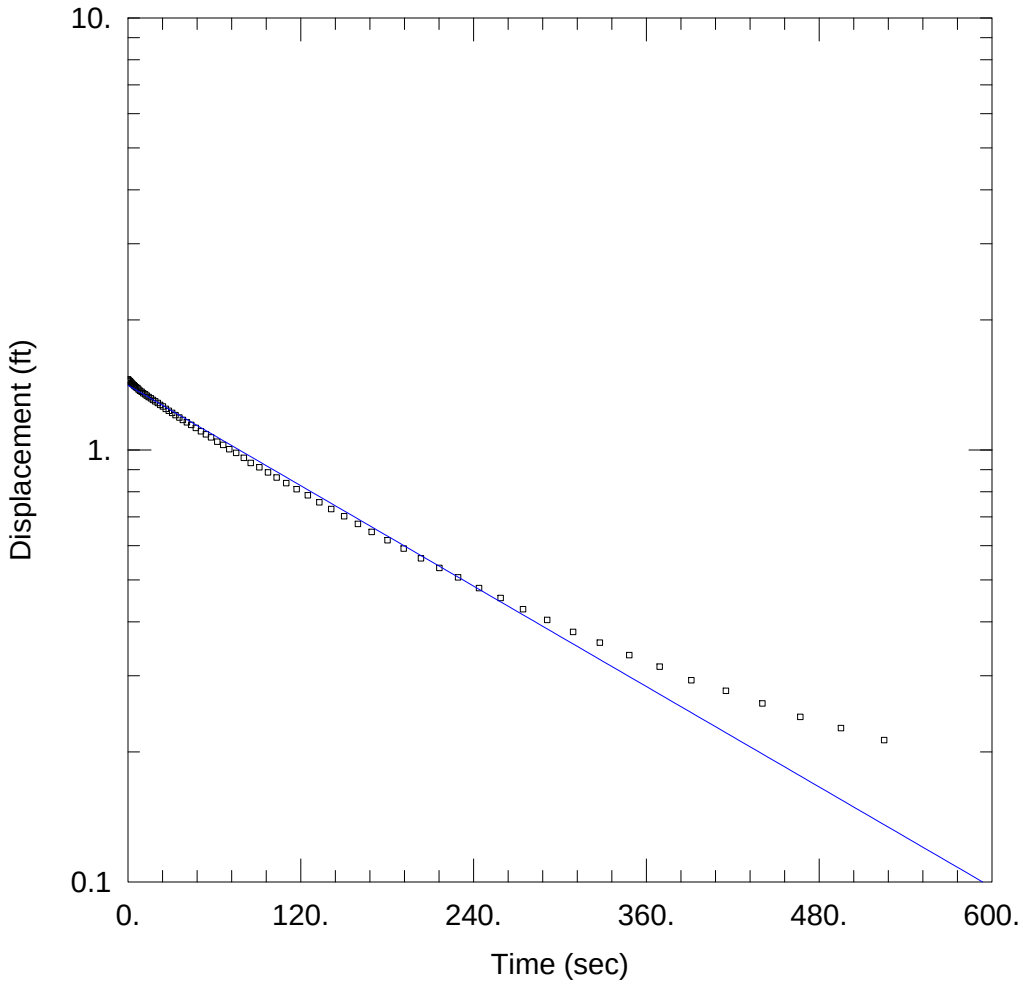
Parameter Correlations

	K	y0
K	1.00	0.59
y0	0.59	1.00

Residual Statistics

for weighted residuals

Sum of Squares . . . . . 0.1602 ft^2
Variance . . . . . 0.002355 ft^2
Std. Deviation . . . . . 0.04853 ft
Mean . . . . . 0.00709 ft
No. of Residuals 70
No. of Estimates 2



G104D

Data Set: I:\...\G104D Slug Out Test 3.aqt
Date: 08/05/11 Time: 09:33:54

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Well: G111D
Test Date: April 11, 2011

AQUIFER DATA

Saturated Thickness: 10. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (G104D)

Initial Displacement: 1.456 ft
Total Well Penetration Depth: 39.76 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 39.76 ft
Screen Length: 5. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 0.0002133 cm/sec
y0 = 1.411 ft

Data Set: I:\WP\6-chars\07----\0701--\070102\070102-MISC\070102-Response Test Data-062711\G104D\G104D Slug
Title: G104D
Date: 08/05/11
Time: 09:34:12

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Date: April 11, 2011
Test Well: G111D

AQUIFER DATA

Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: G104D

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 1.456 ft
Static Water Column Height: 39.76 ft
Casing Radius: 0.08333 ft
Well Radius: 0.08333 ft
Well Skin Radius: 0.08333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 39.76 ft

No. of Observations: 71

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
0.1	1.456	66.12	1.027
0.619	1.448	70.34	1.004
1.329	1.443	75.12	0.984
1.8	1.437	80.52	0.959
2.46	1.429	85.32	0.933
3.18	1.421	91.32	0.912
4.066	1.412	97.32	0.887
4.74	1.405	103.3	0.863
5.657	1.396	109.9	0.838
6.658	1.39	117.1	0.811
7.44	1.38	124.9	0.785
8.4	1.37	132.9	0.756
9.48	1.363	141.2	0.73
10.66	1.353	150.2	0.702
11.94	1.345	159.7	0.674
13.08	1.336	169.3	0.646
14.41	1.326	180.2	0.618
15.94	1.317	191.5	0.591
17.41	1.305	203.5	0.561
18.95	1.295	216.3	0.533
20.68	1.284	229.3	0.507
22.42	1.271	243.8	0.479
24.24	1.26	258.8	0.454
26.28	1.245	274.4	0.428
28.43	1.232	291.1	0.404
30.7	1.218	309.1	0.379
33.	1.204	327.7	0.358
35.7	1.189	348.2	0.335
38.16	1.173	369.2	0.315

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
40.98	1.158	391.3	0.293
43.98	1.143	415.3	0.277
47.16	1.124	440.6	0.259
50.72	1.104	466.9	0.241
54.12	1.087	495.1	0.227
57.73	1.069	525.1	0.213
62.01	1.045		

SOLUTION

Slug Test
Aquifer Model: Confined
Solution Method: Bouwer-Rice
ln(Re/rw): 4.383

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.0002133	cm/sec
y0	1.411	ft

T = T*b = 0.06502 cm²/sec

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error	Approx. C.I.	t-Ratio	
K	0.0002133	2.709E-6	+/- 5.405E-6	78.73	cm/sec
y0	1.411	0.005691	+/- 0.01135	248.	ft

C.I. is approximate 95% confidence interval for parameter
t-ratio = estimate/std. error
No estimation window

T = T*b = 0.06502 cm²/sec

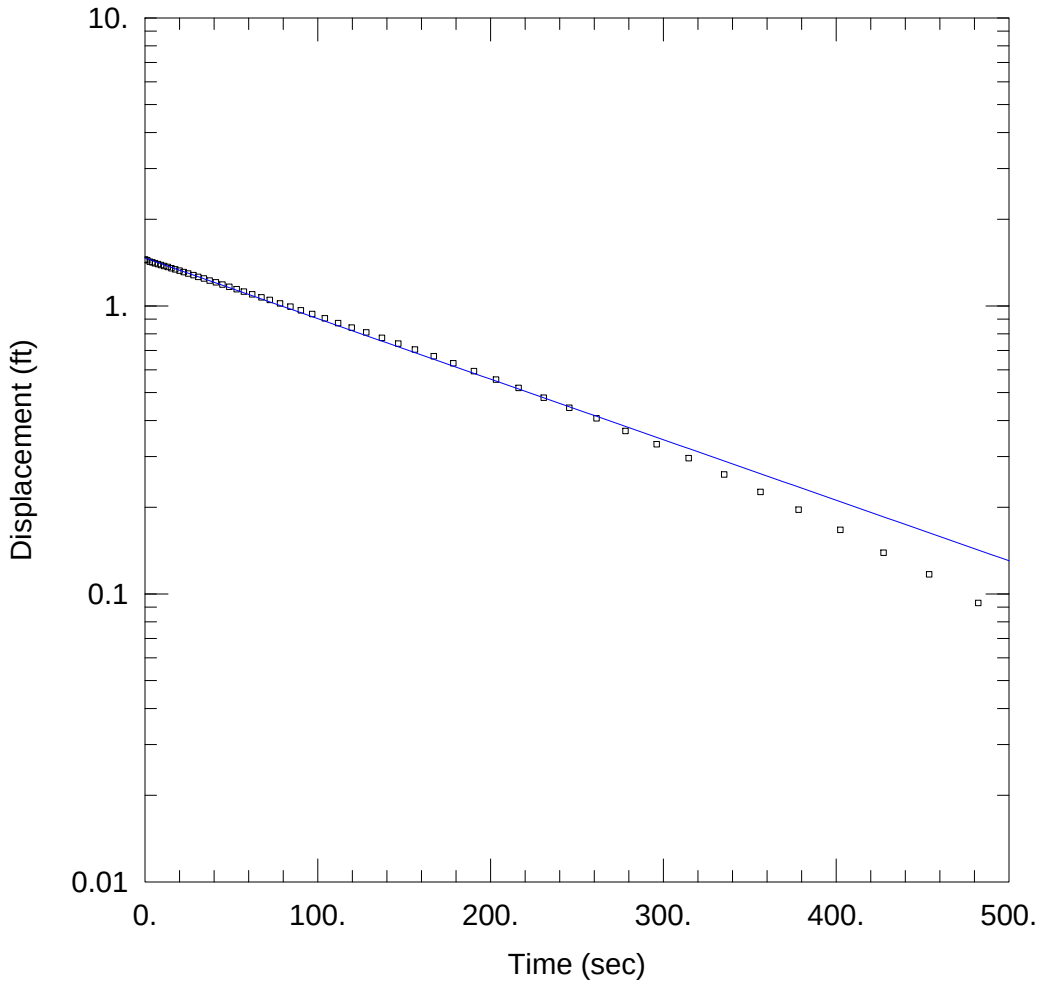
Parameter Correlations

	K	y0
K	1.00	0.59
y0	0.59	1.00

Residual Statistics

for weighted residuals

Sum of Squares . . . . . 0.05544 ft^2
Variance . . . . . 0.0008035 ft^2
Std. Deviation . . . . . 0.02835 ft
Mean . . . . . 0.003669 ft
No. of Residuals 71
No. of Estimates 2



G110S

Data Set: I:\...\G110S Slug In 1.aqt
Date: 08/05/11 Time: 09:41:03

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Well: G111S
Test Date: April 11, 2011

AQUIFER DATA

Saturated Thickness: 5. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (G110S)

Initial Displacement: 1.448 ft
Total Well Penetration Depth: 12.75 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 12.75 ft
Screen Length: 5. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 0.0001967 cm/sec
y0 = 1.465 ft

Data Set: I:\WP\6-chars\07----\0701--\070102\070102-MISC\070102-Response Test Data-062711\G110S\G110S Slug
Title: G110S
Date: 08/05/11
Time: 09:41:19

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Date: April 11, 2011
Test Well: G111S

AQUIFER DATA

Saturated Thickness: 5. ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: G110S

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 1.448 ft
Static Water Column Height: 12.75 ft
Casing Radius: 0.08333 ft
Well Radius: 0.08333 ft
Well Skin Radius: 0.08333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 12.75 ft

No. of Observations: 55

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
0.1	1.448	90.24	0.966
1.32	1.44	96.84	0.938
2.802	1.424	104.1	0.906
4.26	1.417	111.8	0.872
5.823	1.407	119.6	0.841
7.564	1.397	128.1	0.809
9.3	1.387	137.1	0.775
11.16	1.376	146.6	0.74
13.2	1.365	156.2	0.706
15.3	1.352	167.2	0.669
17.58	1.339	178.4	0.632
20.08	1.326	190.4	0.594
22.44	1.311	203.2	0.555
25.09	1.296	216.2	0.519
28.09	1.279	230.8	0.48
30.9	1.262	245.6	0.443
34.1	1.245	261.3	0.407
37.44	1.225	278.1	0.368
41.06	1.208	296.1	0.331
44.82	1.186	314.6	0.296
48.84	1.165	335.2	0.26
53.08	1.143	356.2	0.226
57.24	1.122	378.2	0.196
62.09	1.097	402.4	0.167
67.44	1.071	427.5	0.139
72.24	1.049	453.8	0.117
78.24	1.02	482.2	0.093
84.24	0.994		

SOLUTION

Slug Test
Aquifer Model: Confined
Solution Method: Bouwer-Rice
ln(Re/rw): 3.725

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.0001967	cm/sec
y0	1.465	ft

T = T*b = 0.02998 cm²/sec

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error	Approx. C.I.	t-Ratio	
K	0.0001967	1.867E-6	+/- 3.745E-6	105.4	cm/sec
y0	1.465	0.005136	+/- 0.0103	285.3	ft

C.I. is approximate 95% confidence interval for parameter
t-ratio = estimate/std. error
No estimation window

T = T*b = 0.02998 cm²/sec

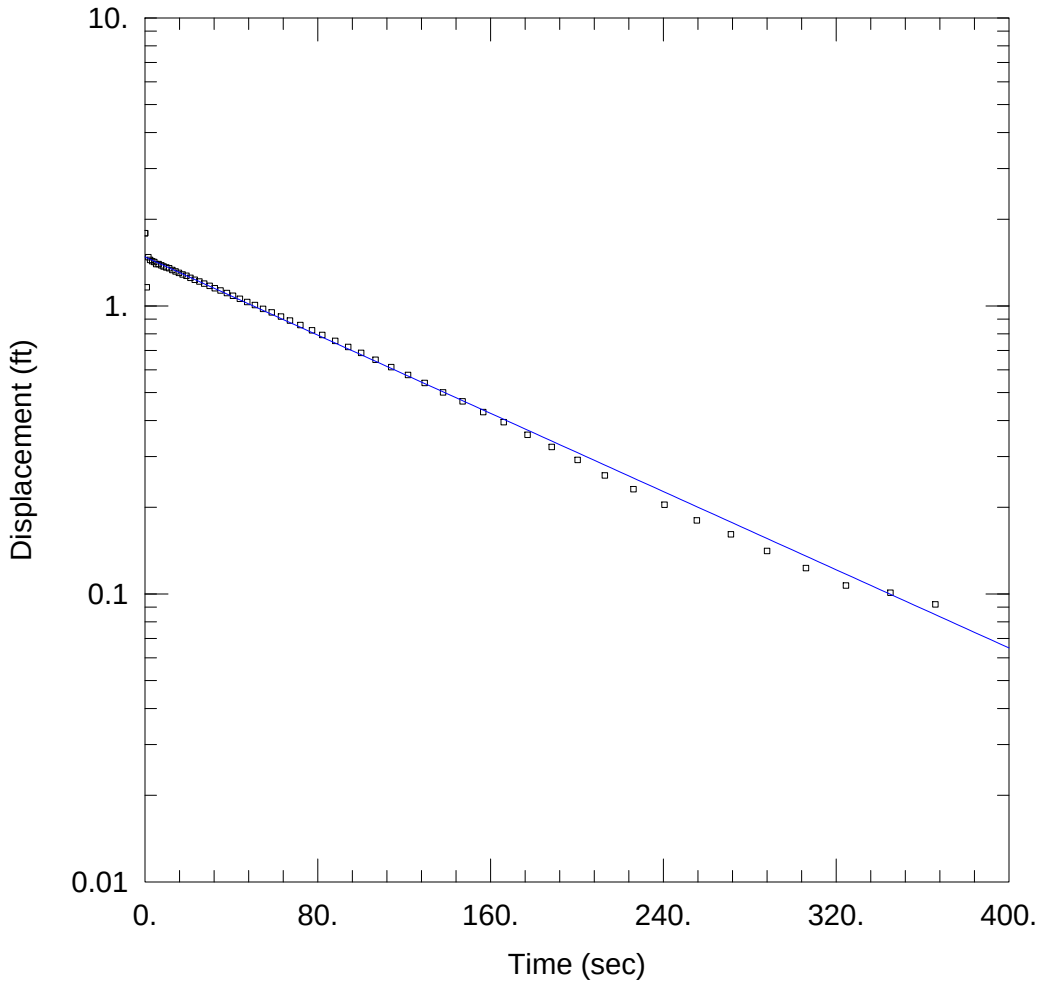
Parameter Correlations

	K	y0
K	1.00	0.63
y0	0.63	1.00

Residual Statistics

for weighted residuals

Sum of Squares . . . . . 0.02147 ft^2
Variance . . . . . 0.0004051 ft^2
Std. Deviation . . . . . 0.02013 ft
Mean . . . . . -0.002889 ft
No. of Residuals 55
No. of Estimates 2



G110S

Data Set: I:\...\G110S Slug In 2.aqt
Date: 08/05/11 Time: 09:41:50

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Well: G111S
Test Date: April 11, 2011

AQUIFER DATA

Saturated Thickness: 5. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (G110S)

Initial Displacement: 1.789 ft
Total Well Penetration Depth: 12.75 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 12.75 ft
Screen Length: 5. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 0.0003177 cm/sec
y0 = 1.479 ft

Data Set: I:\WP\6-chars\07----\0701--\070102\070102-MISC\070102-Response Test Data-062711\G110S\G110S Slug
Title: G110S
Date: 08/05/11
Time: 09:42:05

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Date: April 11, 2011
Test Well: G111S

AQUIFER DATA

Saturated Thickness: 5. ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: G110S

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 1.789 ft
Static Water Column Height: 12.75 ft
Casing Radius: 0.08333 ft
Well Radius: 0.08333 ft
Well Skin Radius: 0.08333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 12.75 ft

No. of Observations: 60

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
0.1	1.789	58.73	0.95
0.852	1.16	63.03	0.919
1.601	1.476	67.13	0.89
2.394	1.444	71.97	0.858
3.358	1.43	77.33	0.823
4.361	1.42	82.13	0.793
5.214	1.398	88.13	0.756
6.362	1.398	94.13	0.72
7.609	1.383	100.1	0.687
8.634	1.371	106.8	0.65
9.894	1.36	114.	0.613
11.21	1.351	121.8	0.576
12.71	1.333	129.6	0.54
14.15	1.317	138.1	0.501
15.71	1.302	147.1	0.466
17.46	1.285	156.6	0.428
19.19	1.272	166.1	0.395
21.05	1.251	177.1	0.357
23.09	1.233	188.3	0.324
25.19	1.215	200.3	0.292
27.47	1.195	212.9	0.258
29.97	1.174	226.2	0.231
32.33	1.152	240.5	0.204
34.99	1.132	255.5	0.18
37.99	1.108	271.3	0.161
40.79	1.085	288.	0.141
44.	1.059	306.1	0.123
47.33	1.032	324.5	0.107
50.94	1.007	345.1	0.101

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
54.69	0.977	365.9	0.092

SOLUTION

Slug Test
Aquifer Model: Confined
Solution Method: Bouwer-Rice
ln(Re/rw): 3.725

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.0003177	cm/sec
y0	1.479	ft

T = T*b = 0.04841 cm²/sec

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error	Approx. C.I.	t-Ratio	
K	0.0003177	8.443E-6	+/- 1.69E-5	37.63	cm/sec
y0	1.479	0.01453	+/- 0.02908	101.8	ft

C.I. is approximate 95% confidence interval for parameter
t-ratio = estimate/std. error
No estimation window

T = T*b = 0.04841 cm²/sec

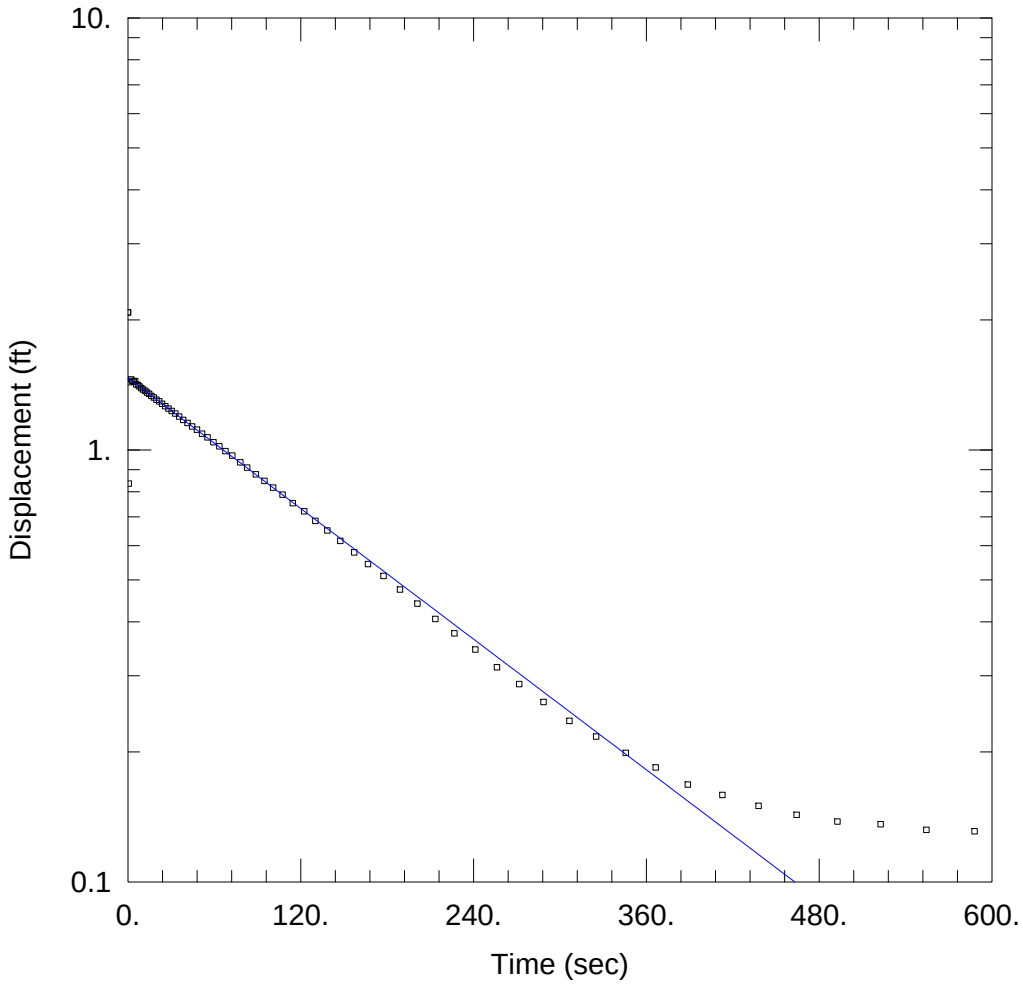
Parameter Correlations

	K	y0
K	1.00	0.62
y0	0.62	1.00

Residual Statistics

for weighted residuals

Sum of Squares . . . . . 0.2002 ft^2
Variance . . . . . 0.003452 ft^2
Std. Deviation . . . . . 0.05875 ft
Mean . . . . . -0.001322 ft
No. of Residuals 60
No. of Estimates 2



G110S

Data Set: I:\...\G110S Slug In 3.aqt
Date: 08/05/11 Time: 09:42:28

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Well: G111S
Test Date: April 11, 2011

AQUIFER DATA

Saturated Thickness: 5. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (G110S)

Initial Displacement: 2.081 ft
Total Well Penetration Depth: 12.75 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 12.75 ft
Screen Length: 5. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 0.0002358 cm/sec
y0 = 1.467 ft

Data Set: I:\WP\6-chars\07----\0701--\070102\070102-MISC\070102-Response Test Data-062711\G110S\G110S Slug
Title: G110S
Date: 08/05/11
Time: 09:42:42

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Date: April 11, 2011
Test Well: G111S

AQUIFER DATA

Saturated Thickness: 5. ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: G110S

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 2.081 ft
Static Water Column Height: 12.75 ft
Casing Radius: 0.08333 ft
Well Radius: 0.08333 ft
Well Skin Radius: 0.08333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 12.75 ft

No. of Observations: 69

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
0.1	2.081	78.05	0.936
0.608	0.836	82.8	0.91
1.444	1.435	88.81	0.878
2.285	1.456	94.81	0.848
3.008	1.445	100.8	0.818
4.016	1.439	107.3	0.788
5.007	1.443	114.5	0.753
5.828	1.418	122.4	0.721
7.011	1.413	130.1	0.685
8.048	1.402	138.5	0.651
9.265	1.39	147.5	0.616
10.51	1.38	157.2	0.579
12.02	1.37	166.7	0.544
13.27	1.358	177.5	0.511
14.78	1.348	189.	0.475
16.33	1.333	201.	0.441
18.03	1.322	213.5	0.406
19.81	1.306	226.7	0.376
21.67	1.295	241.3	0.345
23.71	1.279	256.3	0.314
25.96	1.263	271.7	0.287
28.21	1.247	288.6	0.261
30.43	1.231	306.7	0.236
32.97	1.214	325.2	0.217
35.59	1.195	345.7	0.199
38.41	1.173	366.5	0.184
41.41	1.155	388.8	0.168
44.59	1.133	412.8	0.159
47.99	1.114	437.9	0.15

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
51.55	1.09	464.4	0.143
55.25	1.069	492.7	0.138
59.35	1.042	522.7	0.136
63.55	1.019	554.5	0.132
67.78	0.994	588.	0.131
72.55	0.97		

SOLUTION

Slug Test
Aquifer Model: Confined
Solution Method: Bouwer-Rice
ln(Re/rw): 3.725

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.0002358	cm/sec
y0	1.467	ft

T = T*b = 0.03593 cm²/sec

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error	Approx. C.I.	t-Ratio	
K	0.0002358	1.122E-5	+/- 2.239E-5	21.02	cm/sec
y0	1.467	0.02446	+/- 0.04882	59.99	ft

C.I. is approximate 95% confidence interval for parameter
t-ratio = estimate/std. error
No estimation window

T = T*b = 0.03593 cm²/sec

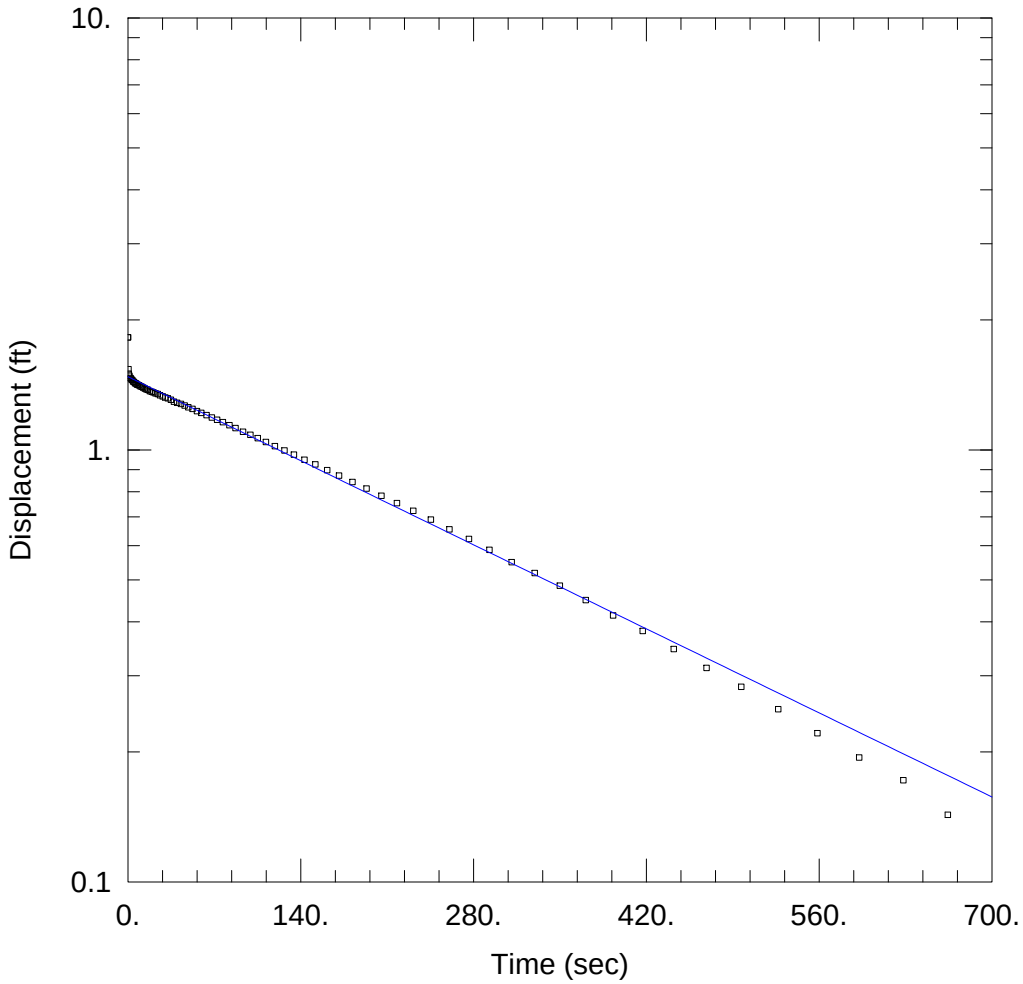
Parameter Correlations

	K	y0
K	1.00	0.60
y0	0.60	1.00

Residual Statistics

for weighted residuals

Sum of Squares . . . . . 0.797 ft^2
Variance . . . . . 0.0119 ft^2
Std. Deviation . . . . . 0.1091 ft
Mean . . . . . 0.003537 ft
No. of Residuals 69
No. of Estimates 2



G110S

Data Set: I:\...\G110S Slug Out 1.aqt
Date: 08/05/11 Time: 09:43:42

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Well: G111S
Test Date: April 11, 2011

AQUIFER DATA

Saturated Thickness: 5. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (G110S)

Initial Displacement: 1.822 ft Static Water Column Height: 12.75 ft
Total Well Penetration Depth: 12.75 ft Screen Length: 5. ft
Casing Radius: 0.08333 ft Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Confined Solution Method: Bouwer-Rice
K = 0.0001301 cm/sec y0 = 1.477 ft

Data Set: I:\WP\6-chars\07----\0701--\070102\070102-MISC\070102-Response Test Data-062711\G110S\G110S Slug
Title: G110S
Date: 08/05/11
Time: 09:43:59

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Date: April 11, 2011
Test Well: G111S

AQUIFER DATA

Saturated Thickness: 5. ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: G110S

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 1.822 ft
Static Water Column Height: 12.75 ft
Casing Radius: 0.08333 ft
Well Radius: 0.08333 ft
Well Skin Radius: 0.08333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 12.75 ft

No. of Observations: 79

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
0.1	1.822	67.95	1.189
0.394	1.538	72.21	1.174
0.734	1.501	76.96	1.159
1.274	1.485	82.27	1.141
1.862	1.469	87.23	1.123
2.354	1.463	93.25	1.102
2.954	1.455	99.25	1.084
3.56	1.451	105.3	1.065
4.214	1.44	111.8	1.043
4.934	1.436	119.	1.02
5.824	1.427	126.8	0.997
6.521	1.425	134.5	0.975
7.334	1.417	143.1	0.949
8.234	1.414	151.9	0.926
9.194	1.411	161.5	0.898
10.2	1.404	171.1	0.872
11.23	1.4	181.9	0.843
12.37	1.394	193.4	0.814
13.7	1.387	205.4	0.783
14.94	1.381	217.9	0.753
16.2	1.377	231.2	0.723
17.71	1.368	245.5	0.69
19.21	1.363	260.5	0.655
20.72	1.359	276.3	0.622
22.33	1.352	292.9	0.587
24.22	1.347	310.9	0.55
26.	1.338	329.6	0.519
28.22	1.33	349.9	0.485
30.23	1.322	370.9	0.449

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
32.35	1.317	393.1	0.414
34.75	1.306	417.1	0.381
37.27	1.293	442.3	0.346
39.91	1.286	468.8	0.313
42.91	1.278	496.9	0.283
45.92	1.267	526.9	0.251
48.93	1.255	558.7	0.221
52.27	1.244	592.4	0.194
55.93	1.23	628.3	0.172
59.47	1.218	664.3	0.143
63.7	1.204		

SOLUTION

Slug Test
Aquifer Model: Confined
Solution Method: Bouwer-Rice
ln(Re/rw): 3.725

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.0001301	cm/sec
y0	1.477	ft

T = T*b = 0.01982 cm²/sec

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error	Approx. C.I.	t-Ratio	
K	0.0001301	2.364E-6	+/- 4.707E-6	55.02	cm/sec
y0	1.477	0.007747	+/- 0.01542	190.7	ft

C.I. is approximate 95% confidence interval for parameter
t-ratio = estimate/std. error
No estimation window

T = T*b = 0.01982 cm²/sec

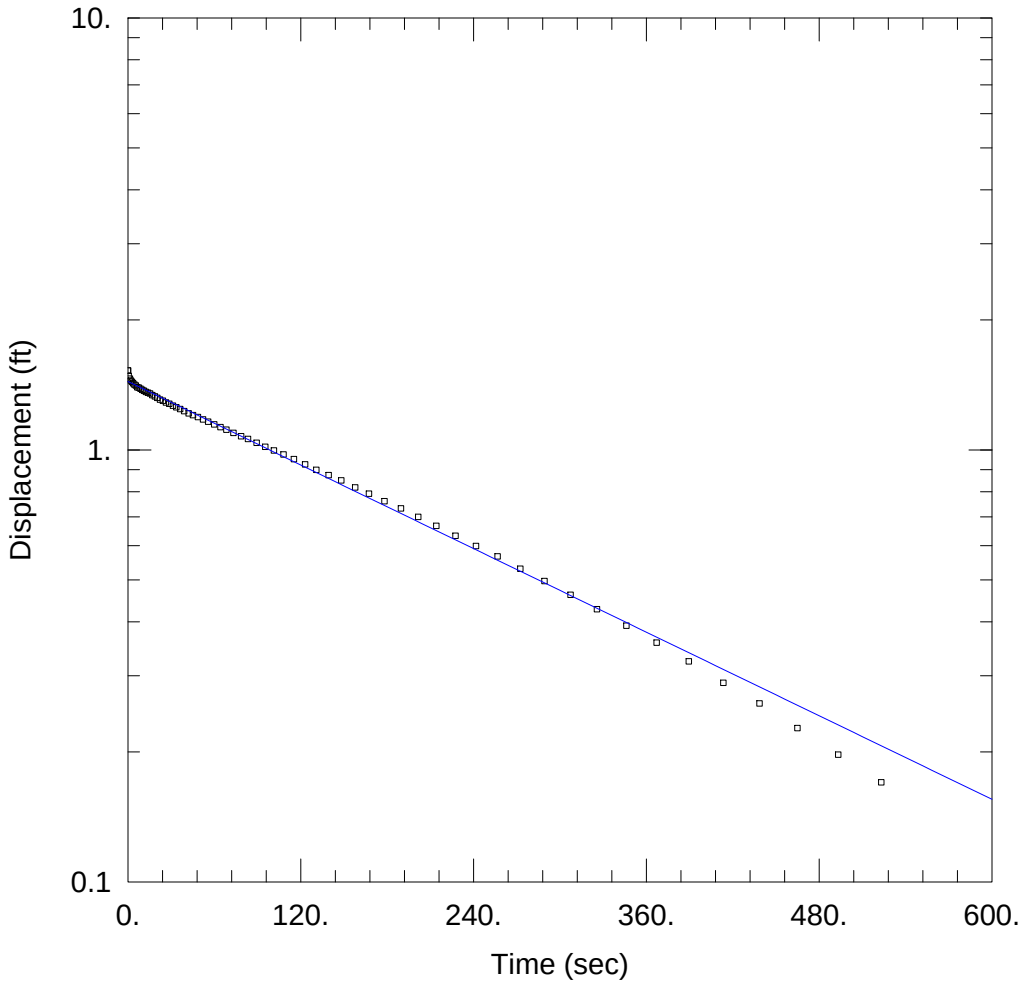
Parameter Correlations

	K	y0
K	1.00	0.56
y0	0.56	1.00

Residual Statistics

for weighted residuals

Sum of Squares . . . . . 0.1461 ft^2
Variance . . . . . 0.001898 ft^2
Std. Deviation . . . . . 0.04356 ft
Mean . . . . . -0.0008849 ft
No. of Residuals 79
No. of Estimates 2



G110S

Data Set: I:\...\G110S Slug Out 2.aqt
Date: 08/05/11 Time: 09:44:31

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Well: G111S
Test Date: April 11, 2011

AQUIFER DATA

Saturated Thickness: 5. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (G110S)

Initial Displacement: 1.527 ft
Total Well Penetration Depth: 12.75 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 12.75 ft
Screen Length: 5. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 0.0001509 cm/sec
y0 = 1.44 ft

Data Set: I:\WP\6-chars\07----\0701--\070102\070102-MISC\070102-Response Test Data-062711\G110S\G110S Slug
Title: G110S
Date: 08/05/11
Time: 09:44:55

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Date: April 11, 2011
Test Well: G111S

AQUIFER DATA

Saturated Thickness: 5. ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: G110S

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 1.527 ft
Static Water Column Height: 12.75 ft
Casing Radius: 0.08333 ft
Well Radius: 0.08333 ft
Well Skin Radius: 0.08333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 12.75 ft

No. of Observations: 68

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
0.1	1.527	68.37	1.114
0.508	1.484	73.25	1.095
1.344	1.462	78.57	1.076
2.008	1.447	83.37	1.06
2.788	1.437	89.37	1.039
3.628	1.426	95.37	1.017
4.528	1.417	101.4	0.997
5.488	1.41	108.	0.976
6.448	1.396	115.3	0.952
7.528	1.394	123.1	0.926
8.688	1.386	130.8	0.899
9.936	1.378	139.3	0.874
11.19	1.37	148.2	0.85
12.45	1.362	157.9	0.819
13.96	1.356	167.4	0.792
15.39	1.351	178.2	0.761
16.95	1.339	189.6	0.732
18.71	1.33	201.6	0.7
20.43	1.32	214.2	0.667
22.29	1.308	227.5	0.633
24.33	1.3	241.8	0.599
26.43	1.288	256.8	0.567
28.73	1.279	272.5	0.531
31.23	1.266	289.3	0.497
33.61	1.255	307.3	0.462
36.23	1.243	325.8	0.428
39.03	1.23	346.2	0.392
42.2	1.215	367.2	0.358
45.21	1.204	389.5	0.324

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
48.57	1.192	413.5	0.289
52.22	1.176	438.6	0.259
55.77	1.162	465.	0.227
59.98	1.146	493.3	0.197
64.25	1.129	523.2	0.17

SOLUTION

Slug Test
Aquifer Model: Confined
Solution Method: Bouwer-Rice
ln(Re/rw): 3.725

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.0001509	cm/sec
y0	1.44	ft

T = T*b = 0.023 cm²/sec

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error	Approx. C.I.	t-Ratio	
K	0.0001509	1.308E-6	+/- 2.612E-6	115.3	cm/sec
y0	1.44	0.003858	+/- 0.007705	373.3	ft

C.I. is approximate 95% confidence interval for parameter
t-ratio = estimate/std. error
No estimation window

T = T*b = 0.023 cm²/sec

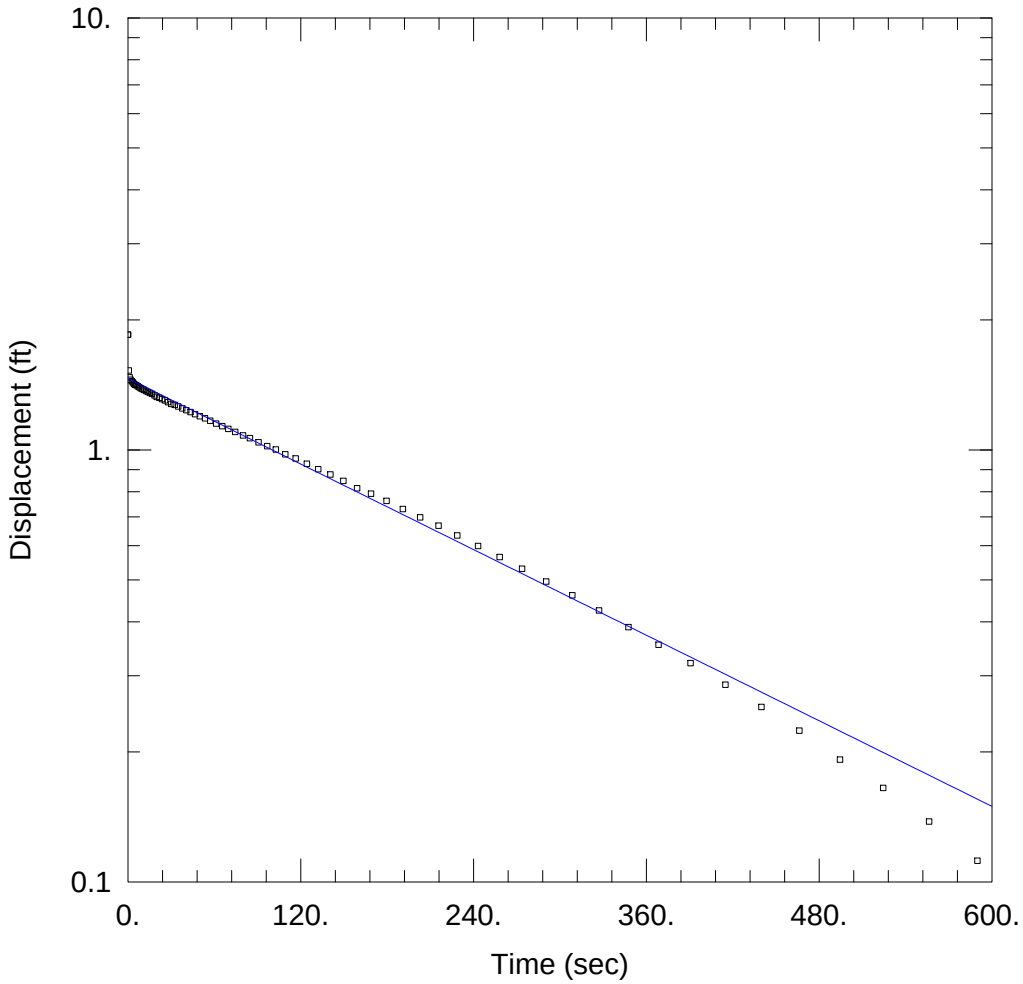
Parameter Correlations

	K	y0
K	1.00	0.59
y0	0.59	1.00

Residual Statistics

for weighted residuals

Sum of Squares . . . . . 0.02423 ft^2
Variance . . . . . 0.0003671 ft^2
Std. Deviation . . . . . 0.01916 ft
Mean . . . . . -0.0008089 ft
No. of Residuals 68
No. of Estimates 2



G110S

Data Set: I:\...\G110S Slug Out 3.aqt
Date: 08/05/11 Time: 09:45:19

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Well: G111S
Test Date: April 11, 2011

AQUIFER DATA

Saturated Thickness: 5. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (G110S)

Initial Displacement: 1.848 ft
Total Well Penetration Depth: 12.75 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 12.75 ft
Screen Length: 5. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 0.0001545 cm/sec
y0 = 1.463 ft

Data Set: I:\WP\6-chars\07----\0701--\070102\070102-MISC\070102-Response Test Data-062711\G110S\G110S Slug
Title: G110S
Date: 08/05/11
Time: 09:45:34

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Date: April 11, 2011
Test Well: G111S

AQUIFER DATA

Saturated Thickness: 5. ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: G110S

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 1.848 ft
Static Water Column Height: 12.75 ft
Casing Radius: 0.08333 ft
Well Radius: 0.08333 ft
Well Skin Radius: 0.08333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 12.75 ft

No. of Observations: 72

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
0.1	1.848	69.72	1.119
0.6	1.527	74.52	1.101
1.207	1.472	79.92	1.08
1.86	1.454	84.76	1.065
2.695	1.442	90.75	1.041
3.445	1.433	96.77	1.02
4.201	1.422	102.8	1.002
4.98	1.416	109.3	0.977
5.88	1.412	116.5	0.955
6.84	1.403	124.3	0.929
7.823	1.397	132.1	0.902
8.88	1.389	140.6	0.877
10.02	1.383	149.6	0.848
11.22	1.377	159.1	0.815
12.48	1.369	168.9	0.792
13.8	1.362	179.6	0.762
15.24	1.355	190.9	0.73
16.74	1.348	202.9	0.698
18.47	1.337	215.7	0.668
19.98	1.327	228.7	0.634
21.78	1.32	243.1	0.599
23.73	1.311	258.1	0.565
25.73	1.302	273.8	0.531
27.78	1.29	290.6	0.496
30.	1.278	308.6	0.461
32.49	1.271	327.1	0.425
34.92	1.26	347.6	0.389
37.75	1.248	368.5	0.354
40.5	1.236	390.7	0.321

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
43.5	1.223	414.9	0.286
46.56	1.21	439.9	0.254
49.92	1.197	466.3	0.224
53.52	1.183	494.5	0.192
57.12	1.168	524.5	0.165
61.32	1.151	556.4	0.138
65.52	1.135	589.9	0.112

SOLUTION

Slug Test
Aquifer Model: Confined
Solution Method: Bouwer-Rice
ln(Re/rw): 3.725

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.0001545	cm/sec
y0	1.463	ft

T = T*b = 0.02355 cm²/sec

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error	Approx. C.I.	t-Ratio	
K	0.0001545	3.388E-6	+/- 6.756E-6	45.6	cm/sec
y0	1.463	0.009981	+/- 0.0199	146.6	ft

C.I. is approximate 95% confidence interval for parameter
t-ratio = estimate/std. error
No estimation window

T = T*b = 0.02355 cm²/sec

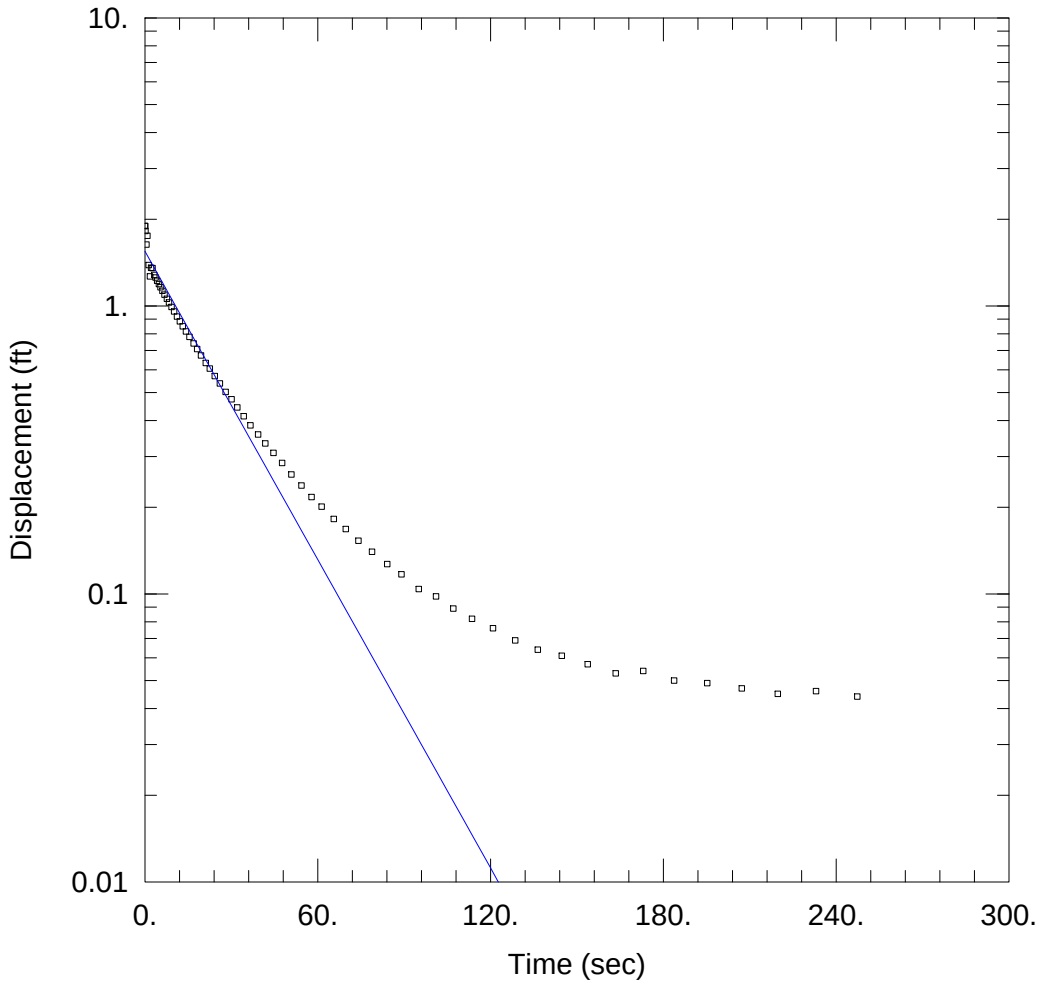
Parameter Correlations

	K	y0
K	1.00	0.58
y0	0.58	1.00

Residual Statistics

for weighted residuals

Sum of Squares . . . . . 0.181 ft^2
Variance . . . . . 0.002586 ft^2
Std. Deviation . . . . . 0.05085 ft
Mean . . . . . -0.001086 ft
No. of Residuals 72
No. of Estimates 2



G111S

Data Set: I:\...\G111S Slug In Test 1.aqt
Date: 08/05/11 Time: 10:43:45

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Well: G111S
Test Date: April 11, 2011

AQUIFER DATA

Saturated Thickness: 9.66 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (G111S)

Initial Displacement: 1.895 ft
Total Well Penetration Depth: 9.66 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 9.66 ft
Screen Length: 5. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.001594 cm/sec
y0 = 1.547 ft

Data Set: I:\WP\6-chars\07----\0701--\070102\070102-MISC\070102-Response Test Data-062711\G111S\G111S Slug
Title: G111S
Date: 08/05/11
Time: 10:44:00

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Date: April 11, 2011
Test Well: G111S

AQUIFER DATA

Saturated Thickness: 9.66 ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: G111S

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 1.895 ft
Static Water Column Height: 9.66 ft
Casing Radius: 0.08333 ft
Well Radius: 0.08333 ft
Well Skin Radius: 0.08333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 9.66 ft

No. of Observations: 67

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
0.1	1.895	34.31	0.414
0.203	1.82	36.64	0.385
0.524	1.633	39.32	0.358
0.884	1.752	41.83	0.333
1.304	1.386	44.62	0.309
1.724	1.266	47.62	0.285
2.144	1.357	50.84	0.26
2.624	1.353	54.34	0.238
3.277	1.281	57.85	0.217
3.669	1.255	61.36	0.201
4.244	1.223	65.56	0.182
4.844	1.191	69.76	0.168
5.444	1.16	74.12	0.153
6.104	1.129	78.88	0.14
6.824	1.095	84.16	0.127
7.628	1.059	89.07	0.117
8.384	1.028	95.08	0.104
9.224	0.992	101.1	0.098
10.13	0.957	107.1	0.089
11.13	0.919	113.6	0.082
12.13	0.884	120.9	0.076
13.13	0.85	128.6	0.069
14.26	0.815	136.4	0.064
15.46	0.781	144.8	0.061
16.9	0.741	153.8	0.057
18.14	0.708	163.5	0.053
19.48	0.673	173.	0.054
21.15	0.634	183.8	0.05
22.54	0.606	195.2	0.049

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
24.22	0.571	207.2	0.047
26.05	0.538	219.8	0.045
28.05	0.503	233.	0.046
30.06	0.474	247.4	0.044
32.06	0.444		

SOLUTION

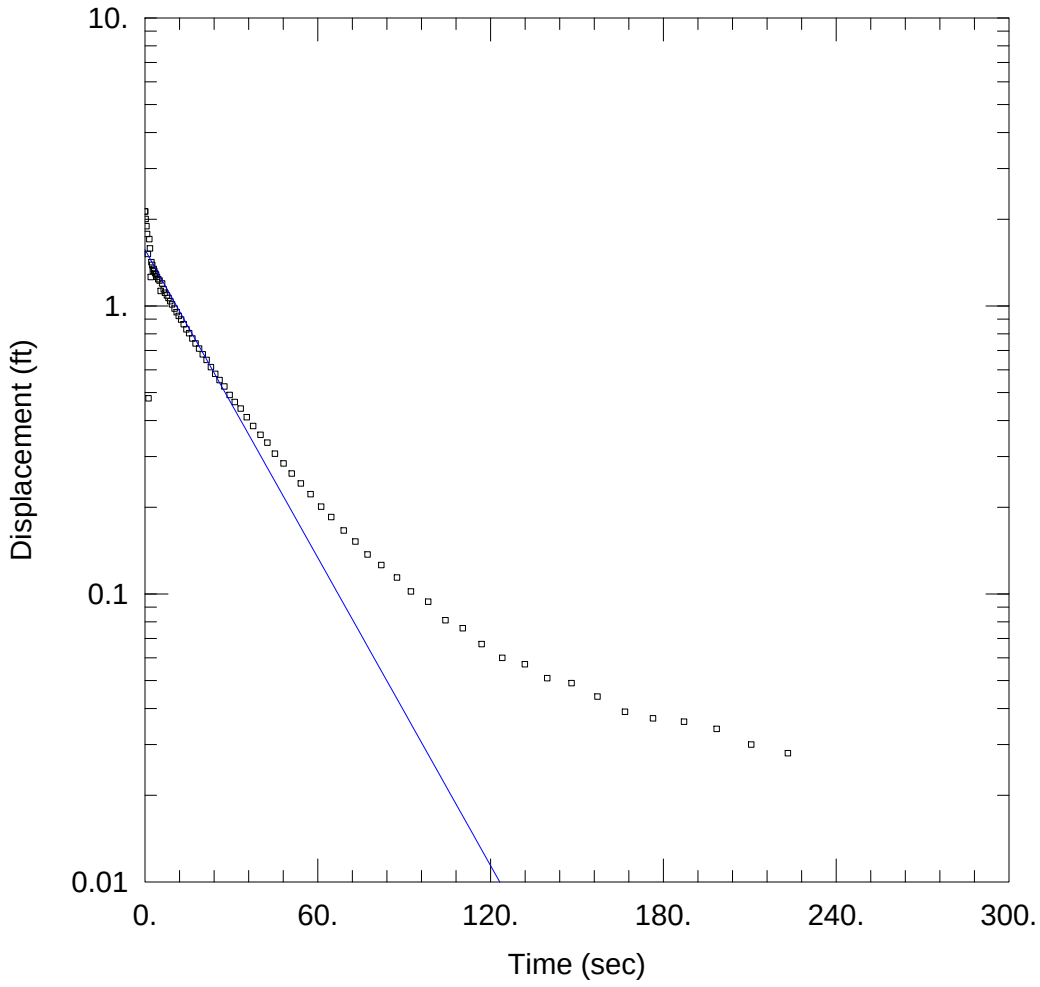
Slug Test
Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
ln(Re/rw): 3.555

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.001594	cm/sec
y0	1.547	ft

$T = T*b = 0.4694$ cm²/sec



G111S

Data Set: I:\...\G111S Slug In Test 2.aqt
Date: 08/05/11 Time: 10:44:32

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Well: G111S
Test Date: April 11, 2011

AQUIFER DATA

Saturated Thickness: 9.66 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (G111S)

Initial Displacement: 2.128 ft
Total Well Penetration Depth: 9.7 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 9.7 ft
Screen Length: 5. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.001593 cm/sec
y0 = 1.567 ft

Data Set: I:\WP\6-chars\07----\0701--\070102\070102-MISC\070102-Response Test Data-062711\G111S\G111S Slug
Title: G111S
Date: 08/05/11
Time: 10:44:57

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Date: April 11, 2011
Test Well: G111S

AQUIFER DATA

Saturated Thickness: 9.66 ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: G111S

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 2.128 ft
Static Water Column Height: 9.7 ft
Casing Radius: 0.08333 ft
Well Radius: 0.08333 ft
Well Skin Radius: 0.08333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 9.7 ft

No. of Observations: 78

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
0.1	2.128	22.92	0.613
0.25	2.005	24.43	0.581
0.5	1.893	25.93	0.553
0.75	1.778	27.56	0.525
1.	1.514	29.43	0.491
1.25	0.478	31.22	0.464
1.5	1.706	33.26	0.44
1.75	1.583	35.37	0.411
2.	1.26	37.58	0.383
2.25	1.418	40.12	0.357
2.5	1.389	42.5	0.335
2.75	1.325	45.14	0.307
3.	1.345	48.14	0.284
3.25	1.322	50.96	0.262
3.5	1.3	54.14	0.242
3.86	1.286	57.5	0.222
4.22	1.262	61.2	0.201
4.64	1.238	64.7	0.185
5.06	1.224	69.05	0.166
5.48	1.127	73.1	0.152
5.96	1.197	77.31	0.137
6.5	1.142	82.1	0.126
6.98	1.111	87.5	0.114
7.626	1.087	92.34	0.102
8.18	1.065	98.34	0.094
8.78	1.038	104.3	0.081
9.44	1.012	110.4	0.076
10.28	0.979	116.9	0.067
11.	0.951	124.1	0.06

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
11.76	0.923	131.9	0.057
12.56	0.896	139.7	0.051
13.46	0.864	148.1	0.049
14.42	0.829	157.1	0.044
15.38	0.804	166.7	0.039
16.46	0.771	176.4	0.037
17.6	0.741	187.2	0.036
18.8	0.711	198.5	0.034
20.06	0.679	210.5	0.03
21.42	0.649	223.3	0.028

SOLUTION

Slug Test
Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
ln(Re/rw): 3.558

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.001593	cm/sec
y0	1.567	ft

T = T*b = 0.4691 cm²/sec

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error	Approx. C.I.	t-Ratio	
K	0.001593	0.0001122	+/- 0.0002235	14.2	cm/sec
y0	1.567	0.04258	+/- 0.08483	36.8	ft

C.I. is approximate 95% confidence interval for parameter
t-ratio = estimate/std. error
No estimation window

T = T*b = 0.4691 cm²/sec

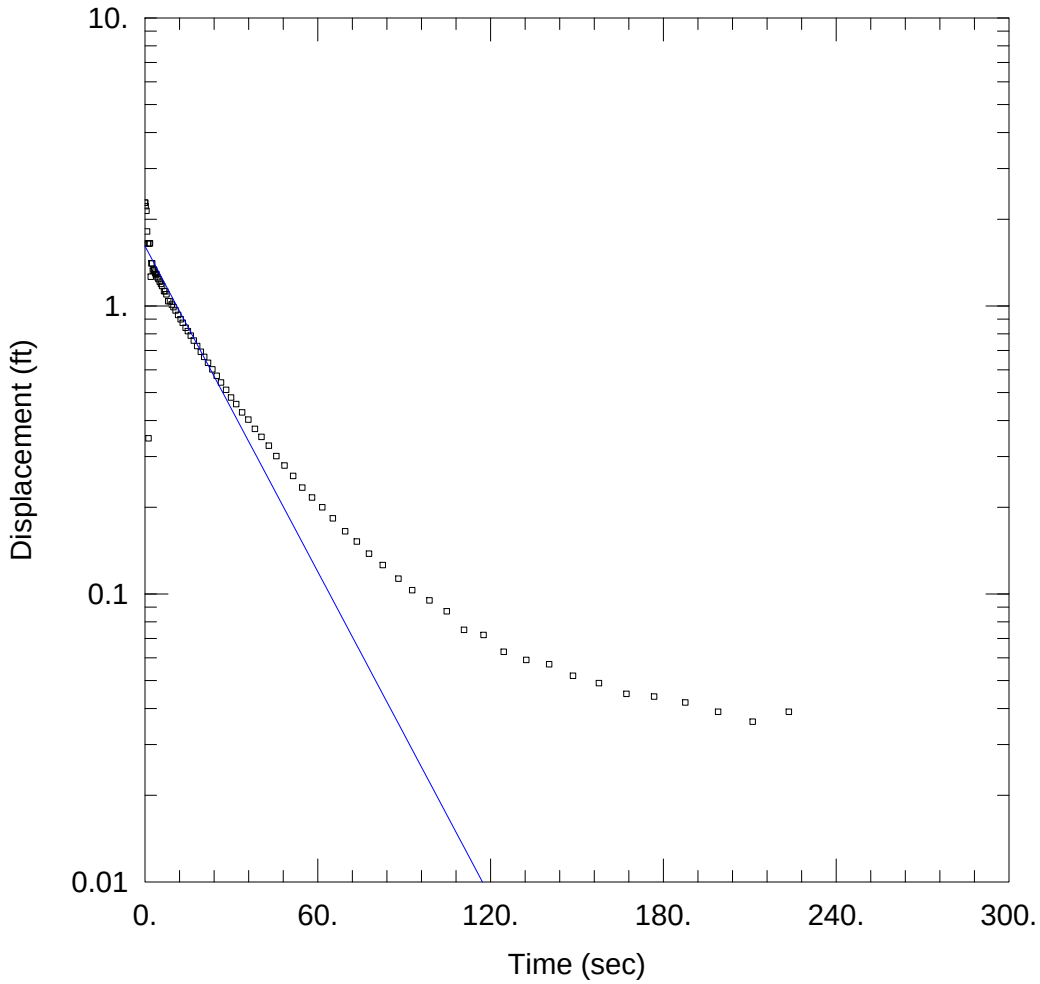
Parameter Correlations

	K	y0
K	1.00	0.64
y0	0.64	1.00

Residual Statistics

for weighted residuals

Sum of Squares . . . . . 2.034 ft^2
Variance . . . . . 0.02676 ft^2
Std. Deviation . . . . . 0.1636 ft
Mean . . . . . 0.01811 ft
No. of Residuals 78
No. of Estimates 2



G111S SLUG IN 3

Data Set: I:\...\G111S Slug In Test 3.aqt
Date: 08/05/11 Time: 10:45:20

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Well: G111S
Test Date: April 11, 2011

AQUIFER DATA

Saturated Thickness: 6.7 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (G111S)

Initial Displacement: 2.283 ft
Total Well Penetration Depth: 6.7 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 6.7 ft
Screen Length: 5. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Confined Solution Method: Bouwer-Rice

K = 9.88E-5 ft/sec y0 = 1.613 ft

Data Set: I:\WP\6-chars\07----\0701--\070102\070102-MISC\070102-Response Test Data-062711\G111S\G111S Slug
Title: G111S Slug In 3
Date: 08/05/11
Time: 10:45:38

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Date: April 11, 2011
Test Well: G111S

AQUIFER DATA

Saturated Thickness: 6.7 ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: G111S

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 2.283 ft
Static Water Column Height: 6.7 ft
Casing Radius: 0.08333 ft
Well Radius: 0.08333 ft
Well Skin Radius: 0.08333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 6.7 ft

No. of Observations: 80

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
0.1	2.283	21.92	0.635
0.25	2.221	23.42	0.602
0.5	2.138	24.92	0.572
0.75	1.815	26.42	0.542
1.	1.646	28.17	0.511
1.25	0.347	29.93	0.481
1.5	1.646	31.72	0.456
1.75	1.651	33.76	0.427
2.	1.263	35.94	0.403
2.25	1.405	38.19	0.374
2.5	1.406	40.48	0.351
2.75	1.325	43.	0.327
3.	1.34	45.64	0.301
3.25	1.33	48.46	0.279
3.5	1.304	51.46	0.257
3.75	1.285	54.64	0.234
4.	1.288	58.	0.216
4.36	1.257	61.6	0.2
4.72	1.239	65.27	0.183
5.14	1.214	69.53	0.165
5.56	1.193	73.6	0.152
5.98	1.172	77.8	0.138
6.623	1.125	82.6	0.126
7.	1.124	88.05	0.113
7.48	1.097	92.8	0.103
8.095	1.038	98.8	0.095
8.68	1.038	104.8	0.087
9.28	1.011	110.8	0.075
9.94	0.99	117.6	0.072

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
10.66	0.964	124.6	0.063
11.5	0.93	132.4	0.059
12.39	0.899	140.4	0.057
13.14	0.874	148.6	0.052
14.14	0.84	157.6	0.049
14.92	0.818	167.2	0.045
15.9	0.789	176.8	0.044
16.96	0.758	187.6	0.042
18.16	0.726	199.	0.039
19.41	0.693	211.	0.036
20.56	0.665	223.6	0.039

SOLUTION

Slug Test
Aquifer Model: Confined
Solution Method: Bouwer-Rice
ln(Re/rw): 3.327

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	9.88E-5	ft/sec
y0	1.613	ft

K = 0.003011 cm/sec
T = T*b = 0.0006619 ft²/sec (0.615 sq. cm/sec)

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error	Approx. C.I.	t-Ratio	
K	9.88E-5	8.093E-6	+/- 1.611E-5	12.21	ft/sec
y0	1.613	0.05128	+/- 0.1021	31.46	ft

C.I. is approximate 95% confidence interval for parameter
t-ratio = estimate/std. error
No estimation window

K = 0.003011 cm/sec
T = T*b = 0.0006619 ft²/sec (0.615 sq. cm/sec)

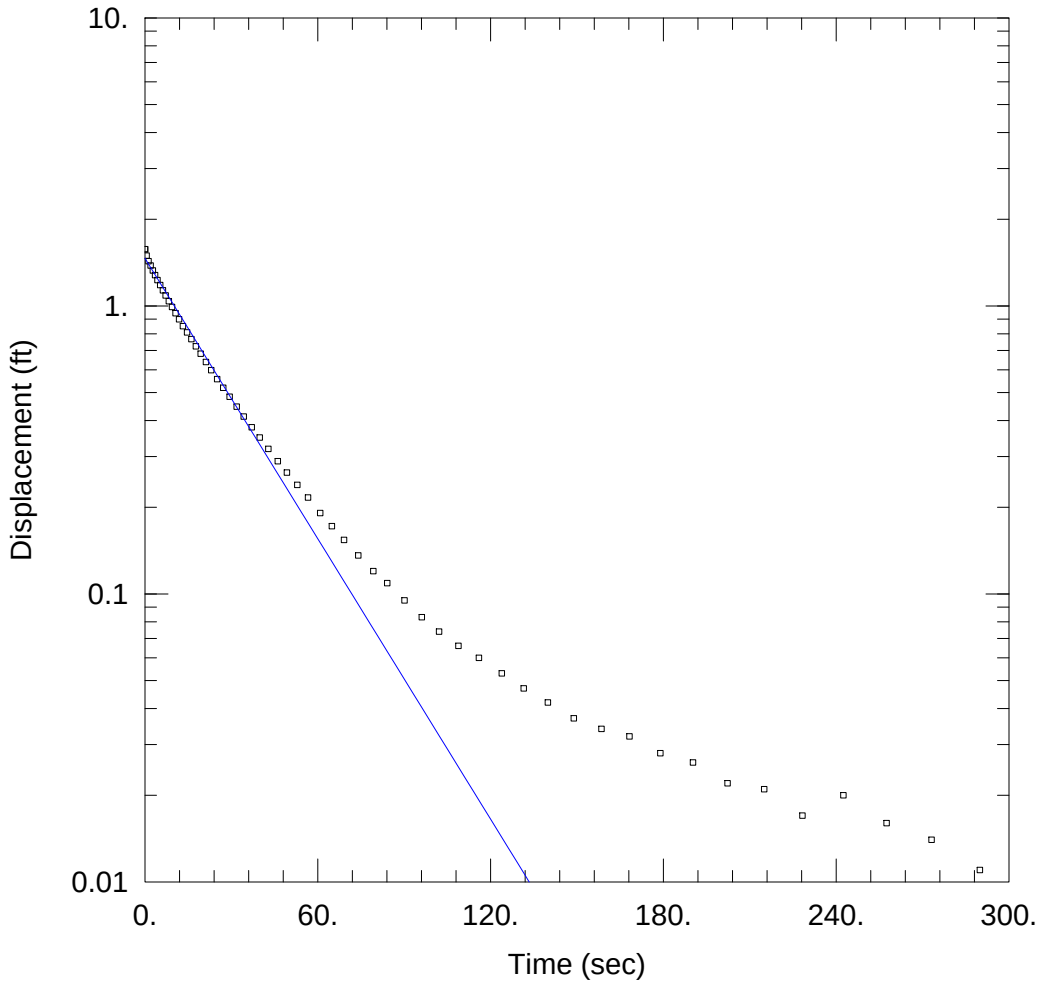
Parameter Correlations

	K	y0
K	1.00	0.64
y0	0.64	1.00

Residual Statistics

for weighted residuals

Sum of Squares . . . . . 3.005 ft^2
Variance . . . . . 0.03853 ft^2
Std. Deviation . . . . . 0.1963 ft
Mean . . . . . 0.02173 ft
No. of Residuals 80
No. of Estimates 2



G111S

Data Set: I:\...\G111S Slug Out Test 2.aqt
Date: 08/05/11 Time: 10:48:17

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Well: G111S
Test Date: April 11, 2011

AQUIFER DATA

Saturated Thickness: 9.7 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (G111S)

Initial Displacement: 1.573 ft
Total Well Penetration Depth: 9.7 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 9.7 ft
Screen Length: 5. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.001451 cm/sec y0 = 1.463 ft

Data Set: I:\WP\6-chars\07----\0701--\070102\070102-MISC\070102-Response Test Data-062711\G111S\G111S Slug
Title: G111S
Date: 08/05/11
Time: 10:49:23

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Date: April 11, 2011
Test Well: G111S

AQUIFER DATA

Saturated Thickness: 9.7 ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: G111S

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 1.573 ft
Static Water Column Height: 9.7 ft
Casing Radius: 0.08333 ft
Well Radius: 0.08333 ft
Well Skin Radius: 0.08333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 9.7 ft

No. of Observations: 59

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
0.1	1.573	49.32	0.264
0.6	1.496	52.92	0.239
1.26	1.429	56.63	0.216
1.98	1.381	60.88	0.191
2.76	1.327	64.92	0.172
3.54	1.279	69.12	0.154
4.38	1.23	74.08	0.136
5.28	1.181	79.32	0.12
6.24	1.133	84.12	0.109
7.2	1.087	90.12	0.095
8.28	1.039	96.12	0.083
9.42	0.992	102.1	0.074
10.62	0.944	108.9	0.066
11.88	0.899	116.	0.06
13.2	0.851	123.9	0.053
14.64	0.809	131.5	0.047
16.14	0.767	139.9	0.042
17.7	0.724	148.9	0.037
19.38	0.683	158.5	0.034
21.18	0.639	168.2	0.032
23.04	0.598	179.	0.028
25.08	0.557	190.3	0.026
27.18	0.52	202.3	0.022
29.4	0.484	215.	0.021
31.84	0.447	228.3	0.017
34.32	0.413	242.5	0.02
37.1	0.379	257.5	0.016
39.85	0.349	273.1	0.014
42.86	0.319	289.9	0.011

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
46.11	0.289		

SOLUTION

Slug Test
Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
ln(Re/rw): 3.558

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.001451	cm/sec
y0	1.463	ft

T = T*b = 0.4289 cm²/sec

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error	Approx. C.I.	t-Ratio	
K	0.001451	2.796E-5	+/- 5.598E-5	51.89	cm/sec
y0	1.463	0.01322	+/- 0.02646	110.7	ft

C.I. is approximate 95% confidence interval for parameter
t-ratio = estimate/std. error
No estimation window

T = T*b = 0.4289 cm²/sec

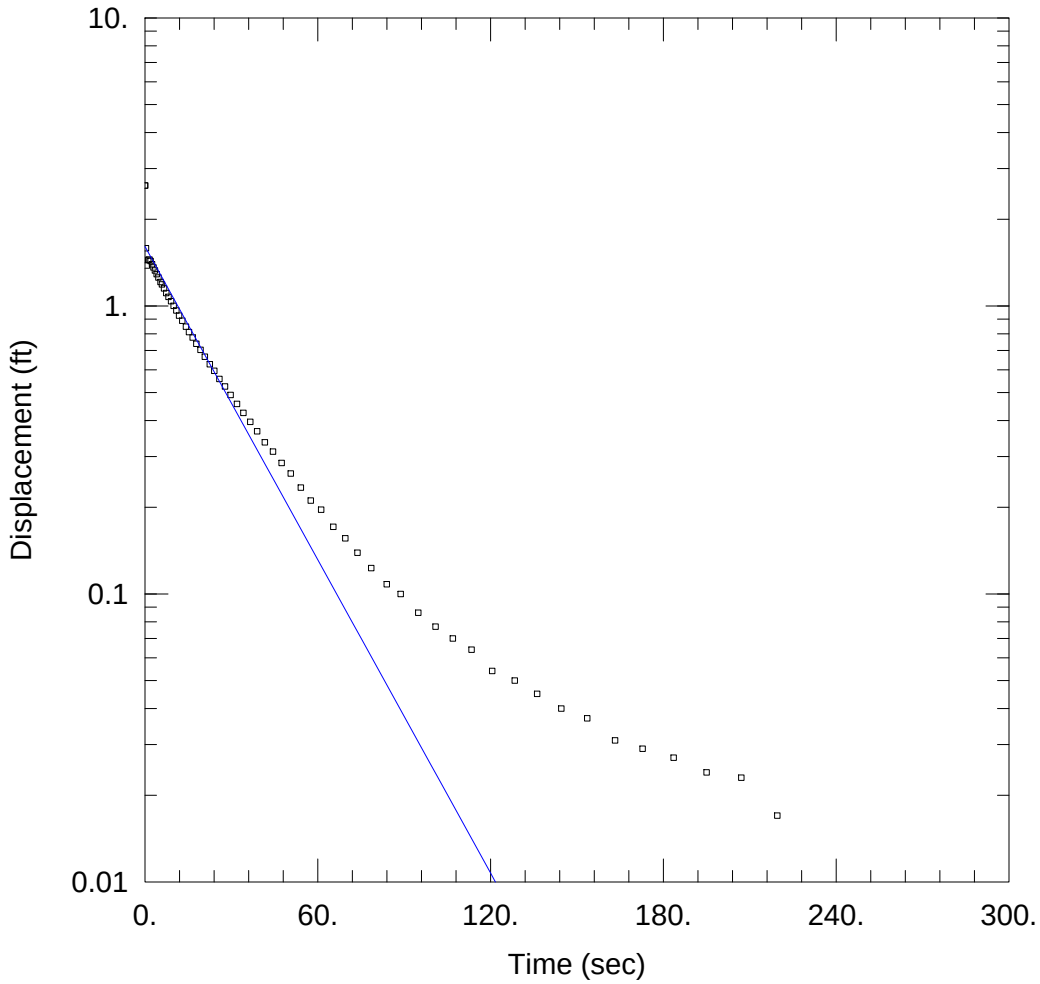
Parameter Correlations

	K	y0
K	1.00	0.66
y0	0.66	1.00

Residual Statistics

for weighted residuals

Sum of Squares . . . . . 0.07083 ft^2
Variance . . . . . 0.001243 ft^2
Std. Deviation . . . . . 0.03525 ft
Mean . . . . . 0.01368 ft
No. of Residuals 59
No. of Estimates 2



G111S SLUG OUT 3

Data Set: I:\...\G111S Slug Out Test 3.aqt
Date: 08/05/11 Time: 10:50:03

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Well: G111S
Test Date: April 11, 2011

AQUIFER DATA

Saturated Thickness: 9.7 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (G111S)

Initial Displacement: 2.619 ft
Total Well Penetration Depth: 9.7 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 9.7 ft
Screen Length: 5. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 5.318E-5 ft/sec
y0 = 1.608 ft

Data Set: I:\WP\6-chars\07----\0701--\070102\070102-MISC\070102-Response Test Data-062711\G111S\G111S Slug
Title: G111S Slug Out 3
Date: 08/05/11
Time: 10:50:19

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Date: April 11, 2011
Test Well: G111S

AQUIFER DATA

Saturated Thickness: 9.7 ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: G111S

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 2.619 ft
Static Water Column Height: 9.7 ft
Casing Radius: 0.08333 ft
Well Radius: 0.08333 ft
Well Skin Radius: 0.08333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 9.7 ft

No. of Observations: 64

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
0.1	2.619	31.96	0.457
0.359	1.586	34.21	0.425
0.72	1.381	36.57	0.396
1.139	1.444	39.	0.367
1.559	1.448	41.64	0.336
1.979	1.432	44.46	0.312
2.46	1.396	47.46	0.285
2.999	1.36	50.64	0.262
3.479	1.328	54.16	0.234
4.079	1.289	57.6	0.211
4.679	1.255	61.2	0.196
5.415	1.211	65.42	0.171
5.939	1.187	69.6	0.156
6.659	1.15	73.8	0.139
7.439	1.109	78.6	0.123
8.219	1.075	84.	0.108
9.059	1.038	88.8	0.1
9.959	1.001	94.89	0.086
10.92	0.964	100.9	0.077
11.88	0.925	106.9	0.07
12.96	0.888	113.4	0.064
14.26	0.847	120.6	0.054
15.3	0.811	128.4	0.05
16.56	0.777	136.2	0.045
17.88	0.739	144.6	0.04
19.32	0.704	153.6	0.037
20.82	0.666	163.2	0.031
22.52	0.627	172.8	0.029
24.06	0.595	183.6	0.027

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
25.86	0.558	195.	0.024
27.79	0.525	207.1	0.023
29.76	0.491	219.6	0.017

SOLUTION

Slug Test
Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
ln(Re/rw): 3.558

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	5.318E-5	ft/sec
y0	1.608	ft

K = 0.001621 cm/sec
T = T*b = 0.0005158 ft²/sec (0.4792 sq. cm/sec)

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error	Approx. C.I.	t-Ratio	
K	5.318E-5	3.45E-6	+/- 6.897E-6	15.41	ft/sec
y0	1.608	0.0455	+/- 0.09095	35.35	ft

C.I. is approximate 95% confidence interval for parameter
t-ratio = estimate/std. error
No estimation window

K = 0.001621 cm/sec
T = T*b = 0.0005158 ft²/sec (0.4792 sq. cm/sec)

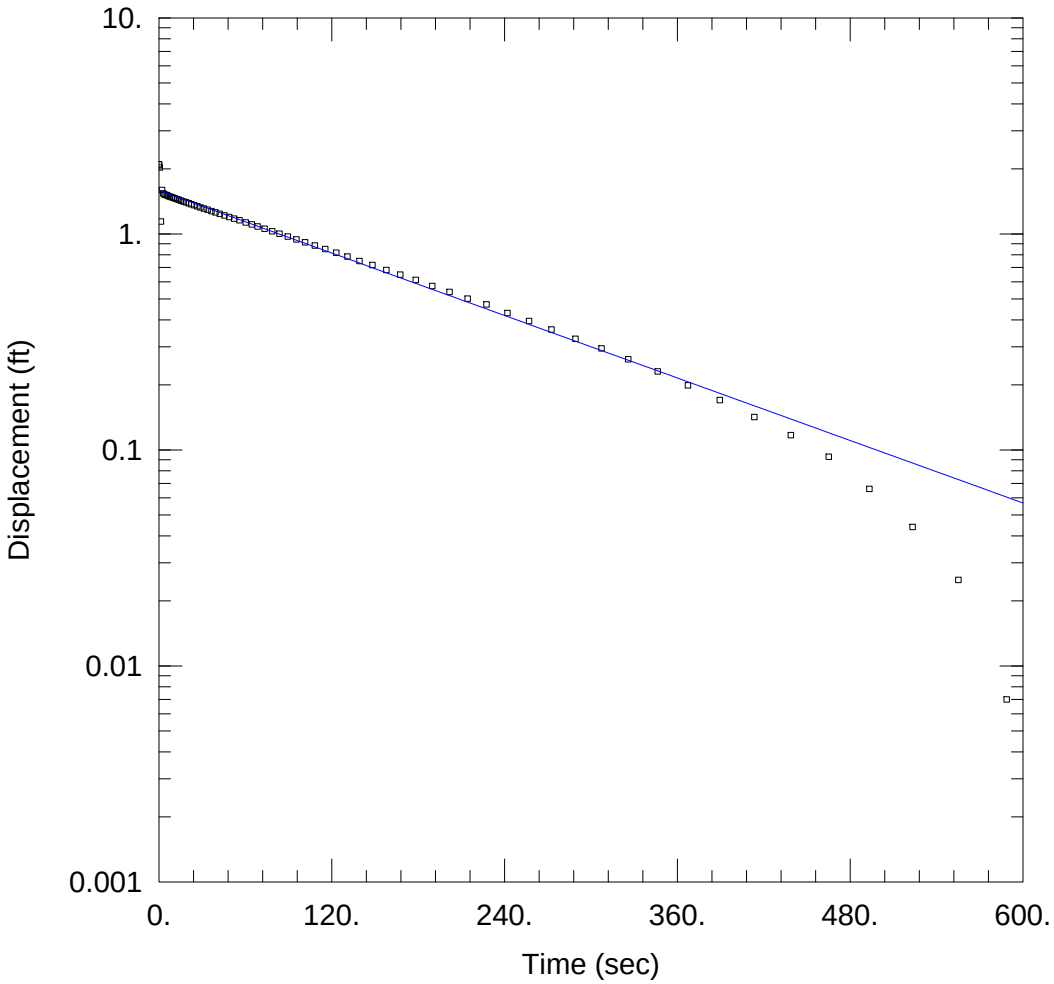
Parameter Correlations

	K	y0
K	1.00	0.65
y0	0.65	1.00

Residual Statistics

for weighted residuals

Sum of Squares . . . . . 1.23 ft^2
Variance . . . . . 0.01984 ft^2
Std. Deviation . . . . . 0.1408 ft
Mean . . . . . 0.01821 ft
No. of Residuals 64
No. of Estimates 2



G111D

Data Set: I:\...\G111D Slug In Test 1.aqt
Date: 08/05/11 Time: 10:16:01

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Well: G111D
Test Date: April 11, 2011

AQUIFER DATA

Saturated Thickness: 10. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (G111D)

Initial Displacement: 2.099 ft Static Water Column Height: 37.62 ft
Total Well Penetration Depth: 37.62 ft Screen Length: 10. ft
Casing Radius: 0.08333 ft Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Confined Solution Method: Bouwer-Rice
K = 0.000137 cm/sec y0 = 1.588 ft

Data Set: I:\WP\6-chars\07----\0701--\070102\070102-MISC\070102-Response Test Data-062711\G111D\G111D Slug
Title: G111D
Date: 08/05/11
Time: 10:16:21

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Date: April 11, 2011
Test Well: G111D

AQUIFER DATA

Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: G111D

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 2.099 ft
Static Water Column Height: 37.62 ft
Casing Radius: 0.08333 ft
Well Radius: 0.08333 ft
Well Skin Radius: 0.08333 ft
Screen Length: 10. ft
Total Well Penetration Depth: 37.62 ft

No. of Observations: 70

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
0.1	2.099	73.44	1.057
0.659	2.033	78.72	1.028
1.379	1.142	83.71	1.002
2.159	1.596	89.52	0.973
2.939	1.54	95.52	0.943
3.829	1.522	101.5	0.914
4.679	1.515	108.2	0.883
5.639	1.512	115.5	0.851
6.599	1.497	123.1	0.819
7.679	1.489	130.9	0.786
8.82	1.479	139.3	0.749
10.02	1.469	148.3	0.718
11.28	1.458	157.9	0.681
12.74	1.446	167.6	0.648
14.04	1.438	178.4	0.612
15.54	1.425	189.9	0.574
17.1	1.413	201.9	0.539
18.78	1.4	214.4	0.502
20.75	1.386	227.5	0.472
22.5	1.372	242.	0.43
24.51	1.358	257.	0.395
26.76	1.341	272.6	0.361
28.8	1.327	289.3	0.327
31.27	1.311	307.3	0.295
33.78	1.294	325.9	0.263
36.53	1.275	346.4	0.231
39.28	1.257	367.4	0.199
42.29	1.239	389.5	0.17
45.55	1.217	413.5	0.142

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
48.81	1.197	438.8	0.117
52.33	1.177	465.1	0.093
55.92	1.157	493.4	0.066
60.23	1.13	523.4	0.044
64.49	1.106	555.1	0.025
68.52	1.083	588.7	0.007

SOLUTION

Slug Test
Aquifer Model: Confined
Solution Method: Bouwer-Rice
ln(Re/rw): 4.523

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.000137	cm/sec
y0	1.588	ft

T = T*b = 0.04176 cm²/sec

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error	Approx. C.I.	t-Ratio	
K	0.000137	5.525E-6	+/- 1.102E-5	24.8	cm/sec
y0	1.588	0.02207	+/- 0.04403	71.95	ft

C.I. is approximate 95% confidence interval for parameter
t-ratio = estimate/std. error
No estimation window

T = T*b = 0.04176 cm²/sec

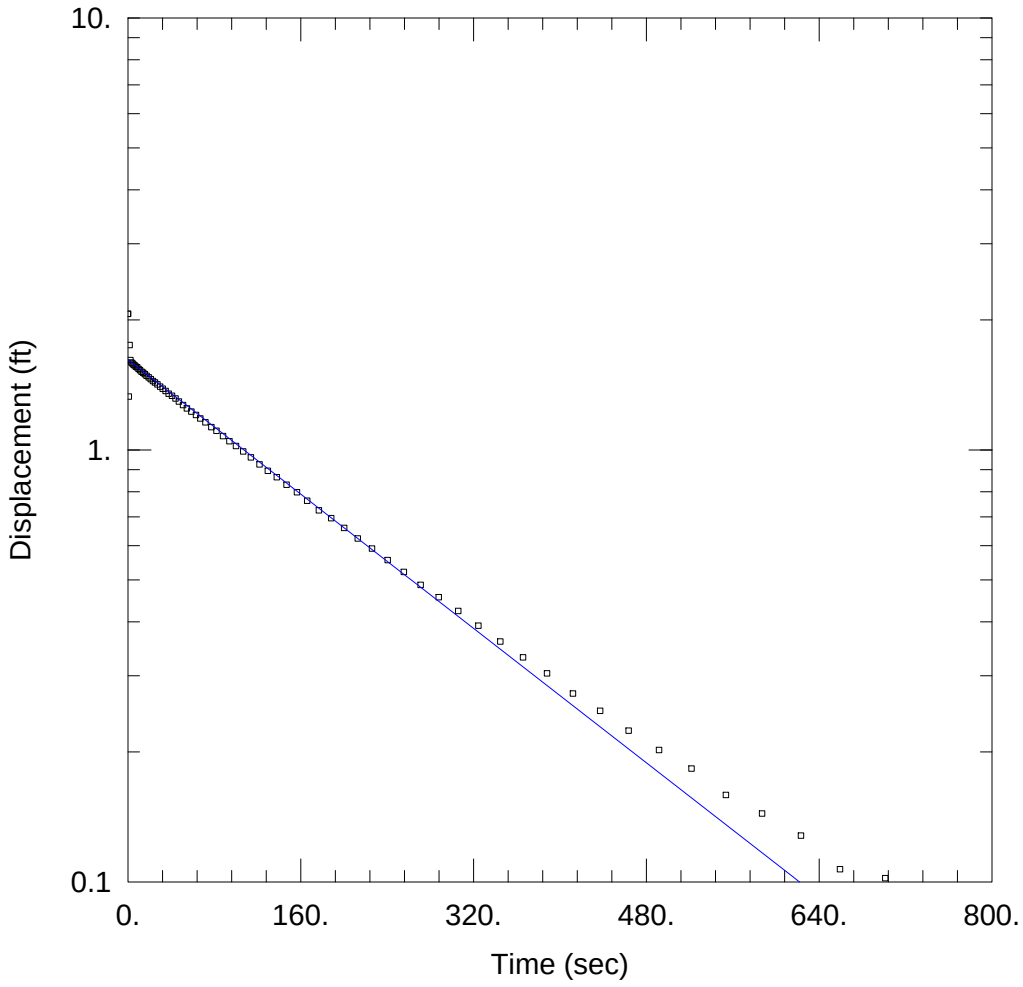
Parameter Correlations

	K	y0
K	1.00	0.60
y0	0.60	1.00

Residual Statistics

for weighted residuals

Sum of Squares . . . . . 0.6908 ft^2
Variance . . . . . 0.01016 ft^2
Std. Deviation . . . . . 0.1008 ft
Mean . . . . . -0.001779 ft
No. of Residuals 70
No. of Estimates 2



G111D

Data Set: I:\...\G111D Slug In Test 2.aqt
Date: 08/05/11 Time: 10:16:43

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Well: G111D
Test Date: April 11, 2011

AQUIFER DATA

Saturated Thickness: 10. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (G111D)

Initial Displacement: 2.066 ft
Total Well Penetration Depth: 37.6 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 37.6 ft
Screen Length: 10. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 0.0001105 cm/sec
y0 = 1.617 ft

Data Set: I:\WP\6-chars\07----\0701--\070102\070102-MISC\070102-Response Test Data-062711\G111D\G111D Slug
Title: G111D
Date: 08/05/11
Time: 10:16:59

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Date: April 11, 2011
Test Well: G111D

AQUIFER DATA

Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: G111D

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 2.066 ft
Static Water Column Height: 37.6 ft
Casing Radius: 0.08333 ft
Well Radius: 0.08333 ft
Well Skin Radius: 0.08333 ft
Screen Length: 10. ft
Total Well Penetration Depth: 37.6 ft

No. of Observations: 71

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
0.1	2.066	88.06	1.077
0.756	1.329	94.05	1.048
1.508	1.749	100.1	1.021
2.31	1.614	106.8	0.992
3.21	1.594	113.8	0.961
4.17	1.586	121.8	0.926
5.13	1.576	129.6	0.895
6.21	1.57	137.8	0.865
7.35	1.559	146.8	0.831
8.55	1.554	156.5	0.798
9.81	1.54	166.	0.763
11.15	1.53	176.8	0.725
12.66	1.517	188.3	0.695
14.15	1.509	200.3	0.66
15.65	1.497	212.8	0.624
17.31	1.485	226.	0.591
19.15	1.472	240.5	0.556
21.14	1.458	255.5	0.522
23.14	1.444	271.	0.487
25.13	1.432	287.8	0.456
27.33	1.418	305.8	0.424
29.88	1.401	324.4	0.392
32.25	1.386	344.8	0.36
34.89	1.369	365.8	0.331
37.77	1.35	388.1	0.304
40.77	1.335	412.1	0.273
44.01	1.315	437.3	0.249
47.25	1.294	463.7	0.224
51.02	1.27	491.8	0.202

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
54.54	1.248	521.8	0.183
58.79	1.227	553.6	0.159
63.03	1.205	587.2	0.144
67.05	1.182	623.2	0.128
71.85	1.158	659.3	0.107
77.25	1.129	701.2	0.102
82.06	1.107		

SOLUTION

Slug Test
Aquifer Model: Confined
Solution Method: Bouwer-Rice
ln(Re/rw): 4.523

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.0001105	cm/sec
y0	1.617	ft

T = T*b = 0.03367 cm²/sec

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error	Approx. C.I.	t-Ratio	
K	0.0001105	2.917E-6	+/- 5.819E-6	37.87	cm/sec
y0	1.617	0.01445	+/- 0.02883	111.9	ft

C.I. is approximate 95% confidence interval for parameter
t-ratio = estimate/std. error
No estimation window

T = T*b = 0.03367 cm²/sec

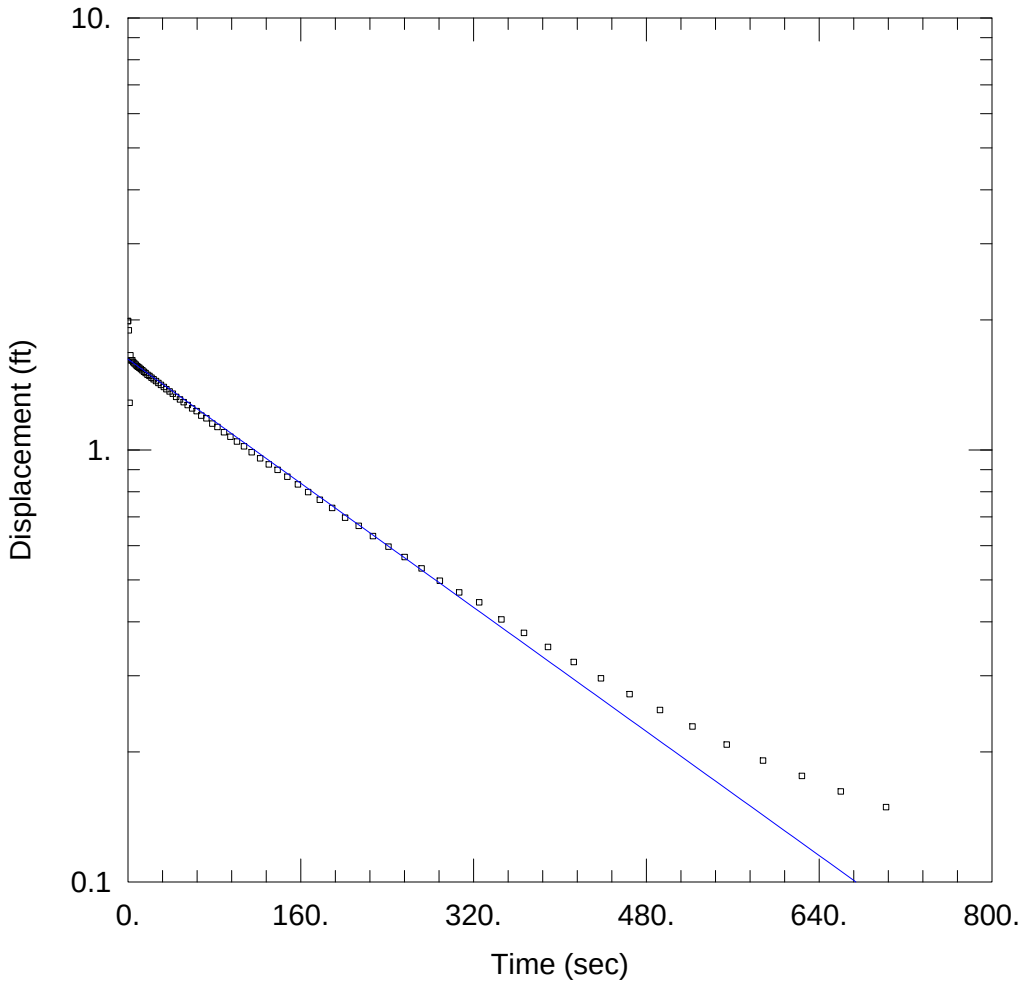
Parameter Correlations

	K	y0
K	1.00	0.59
y0	0.59	1.00

Residual Statistics

for weighted residuals

Sum of Squares . . . . . 0.3161 ft^2
Variance . . . . . 0.004581 ft^2
Std. Deviation . . . . . 0.06769 ft
Mean . . . . . 0.002789 ft
No. of Residuals 71
No. of Estimates 2



G111D

Data Set: I:\...\G111D Slug In Test 3.aqt
Date: 08/05/11 Time: 10:18:44

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Well: G111D
Test Date: April 11, 2011

AQUIFER DATA

Saturated Thickness: 10. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (G111D)

Initial Displacement: 1.988 ft Static Water Column Height: 37.55 ft
Total Well Penetration Depth: 37.55 ft Screen Length: 10. ft
Casing Radius: 0.08333 ft Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Confined Solution Method: Bouwer-Rice
K = 0.000102 cm/sec y0 = 1.622 ft

Data Set: I:\WP\6-chars\07----\0701--\070102\070102-MISC\070102-Response Test Data-062711\G111D\G111D Slug
Title: G111D
Date: 08/05/11
Time: 10:18:59

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Date: April 11, 2011
Test Well: G111D

AQUIFER DATA

Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: G111D

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 1.988 ft
Static Water Column Height: 37.55 ft
Casing Radius: 0.08333 ft
Well Radius: 0.08333 ft
Well Skin Radius: 0.08333 ft
Screen Length: 10. ft
Total Well Penetration Depth: 37.55 ft

No. of Observations: 72

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
0.1	1.988	82.91	1.13
0.823	1.892	88.93	1.099
1.5	1.285	94.93	1.073
2.28	1.656	100.9	1.046
3.238	1.61	107.5	1.019
4.02	1.613	114.7	0.988
4.98	1.595	122.5	0.956
5.94	1.585	130.4	0.926
7.146	1.576	138.7	0.899
8.16	1.564	147.7	0.867
9.401	1.557	157.4	0.832
10.62	1.55	166.9	0.799
11.94	1.539	177.7	0.767
13.44	1.528	189.1	0.734
14.95	1.517	201.1	0.697
16.44	1.507	213.7	0.667
18.2	1.493	226.9	0.632
19.95	1.484	241.3	0.597
21.78	1.47	256.3	0.565
23.82	1.457	272.	0.532
25.96	1.444	288.8	0.498
28.21	1.429	306.8	0.468
30.54	1.414	325.3	0.444
33.22	1.399	345.8	0.405
35.7	1.382	366.8	0.377
38.52	1.366	389.	0.35
41.52	1.349	412.9	0.323
44.7	1.327	438.1	0.296
48.24	1.309	464.5	0.272

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
51.66	1.29	492.7	0.25
55.26	1.27	522.7	0.229
59.46	1.248	554.5	0.208
63.66	1.23	588.1	0.191
67.9	1.201	624.1	0.176
72.66	1.183	660.1	0.162
78.15	1.151	702.1	0.149

SOLUTION

Slug Test
Aquifer Model: Confined
Solution Method: Bouwer-Rice
ln(Re/rw): 4.522

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.000102	cm/sec
y0	1.622	ft

T = T*b = 0.03109 cm²/sec

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error	Approx. C.I.	t-Ratio	
K	0.000102	2.802E-6	+/- 5.587E-6	36.41	cm/sec
y0	1.622	0.01471	+/- 0.02934	110.2	ft

C.I. is approximate 95% confidence interval for parameter
t-ratio = estimate/std. error
No estimation window

T = T*b = 0.03109 cm²/sec

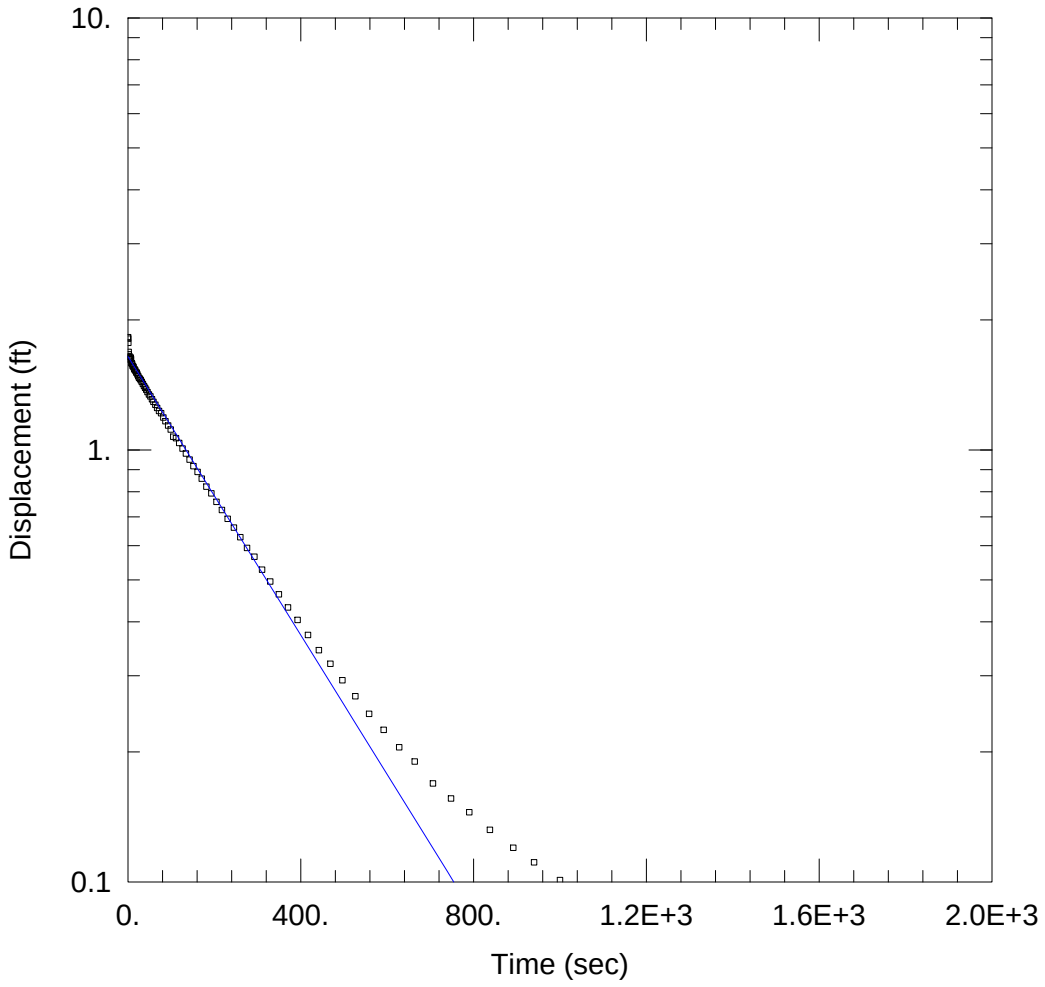
Parameter Correlations

	K	y0
K	1.00	0.59
y0	0.59	1.00

Residual Statistics

for weighted residuals

Sum of Squares . . . . . 0.3535 ft^2
Variance . . . . . 0.00505 ft^2
Std. Deviation . . . . . 0.07106 ft
Mean . . . . . 0.004237 ft
No. of Residuals 72
No. of Estimates 2



G111D

Data Set: I:\...\G111D Slug Out Test 1.aqt
Date: 08/05/11 Time: 10:41:12

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Well: G111D
Test Date: April 11, 2011

AQUIFER DATA

Saturated Thickness: 10. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (G111D)

Initial Displacement: 1.824 ft
Total Well Penetration Depth: 36.8 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 36.8 ft
Screen Length: 10. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 9.135E-5 cm/sec
y0 = 1.645 ft

Data Set: I:\WP\6-chars\07----\0701--\070102\070102-MISC\070102-Response Test Data-062711\G111D\G111D Slug
Title: G111D
Date: 08/05/11
Time: 10:41:27

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Date: April 11, 2011
Test Well: G111D

AQUIFER DATA

Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: G111D

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 1.824 ft
Static Water Column Height: 36.8 ft
Casing Radius: 0.08333 ft
Well Radius: 0.08333 ft
Well Skin Radius: 0.08333 ft
Screen Length: 10. ft
Total Well Penetration Depth: 36.8 ft

No. of Observations: 85

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
0.1	1.824	86.97	1.165
0.48	1.81	92.97	1.139
1.069	1.77	98.98	1.115
1.5	1.686	105.	1.073
2.1	1.664	111.4	1.065
2.707	1.649	118.6	1.038
3.464	1.645	126.4	1.007
4.053	1.629	134.3	0.981
4.68	1.622	142.6	0.95
5.46	1.619	151.6	0.917
6.299	1.636	161.3	0.889
7.18	1.623	170.8	0.858
7.98	1.588	181.6	0.822
8.94	1.587	193.1	0.793
9.932	1.579	205.1	0.758
10.98	1.564	217.6	0.726
12.19	1.561	230.9	0.693
13.32	1.553	245.2	0.661
14.7	1.538	260.2	0.628
15.95	1.534	275.8	0.593
17.34	1.526	292.6	0.566
18.95	1.512	310.6	0.528
20.4	1.509	329.3	0.496
22.21	1.495	349.6	0.463
23.95	1.481	370.6	0.432
25.74	1.469	392.8	0.404
27.78	1.461	416.8	0.373
29.88	1.45	442.	0.344
32.15	1.438	468.5	0.32

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
34.5	1.421	496.6	0.293
37.15	1.406	526.6	0.269
39.66	1.393	558.4	0.245
42.48	1.379	592.	0.225
45.48	1.361	628.	0.205
48.66	1.344	664.	0.19
52.17	1.33	706.	0.169
55.67	1.31	748.	0.156
59.22	1.292	790.	0.145
63.42	1.272	838.	0.132
67.69	1.251	892.	0.12
71.94	1.231	940.	0.111
76.71	1.216	1000.	0.101
82.21	1.188		

SOLUTION

Slug Test
Aquifer Model: Confined
Solution Method: Bouwer-Rice
ln(Re/rw): 4.51

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	9.135E-5	cm/sec
y0	1.645	ft

T = T*b = 0.02784 cm²/sec

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error	Approx. C.I.	t-Ratio	
K	9.135E-5	1.38E-6	+/- 2.745E-6	66.2	cm/sec
y0	1.645	0.007642	+/- 0.0152	215.2	ft

C.I. is approximate 95% confidence interval for parameter
t-ratio = estimate/std. error
No estimation window

T = T*b = 0.02784 cm²/sec

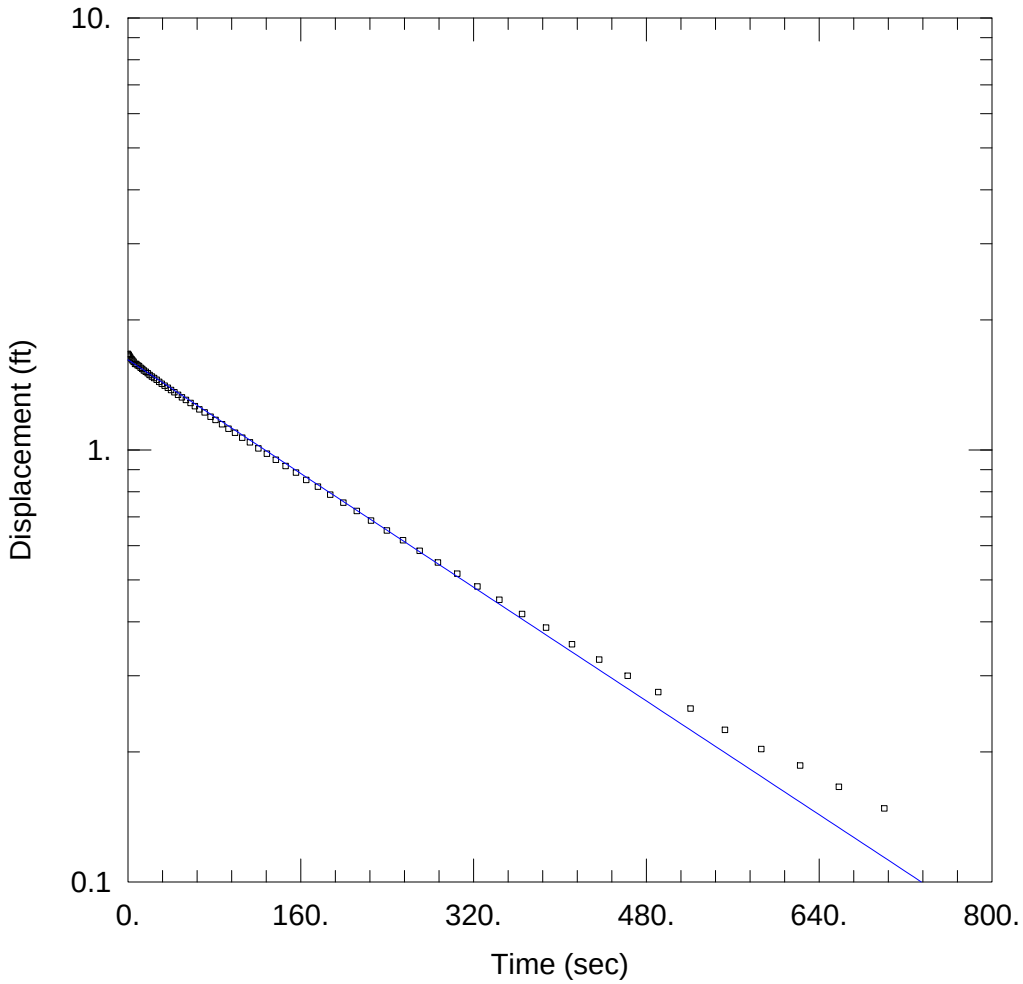
Parameter Correlations

	K	y0
K	1.00	0.56
y0	0.56	1.00

Residual Statistics

for weighted residuals

Sum of Squares . . . . . 0.1429 ft^2
Variance . . . . . 0.001722 ft^2
Std. Deviation . . . . . 0.04149 ft
Mean . . . . . 0.006111 ft
No. of Residuals 85
No. of Estimates 2



G111D

Data Set: I:\...\G111D Slug Out Test 2.aqt
Date: 08/05/11 Time: 10:42:11

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Well: G111D
Test Date: April 11, 2011

AQUIFER DATA

Saturated Thickness: 10. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (G111D)

Initial Displacement: 1.667 ft
Total Well Penetration Depth: 37.65 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 37.65 ft
Screen Length: 10. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 9.351E-5 cm/sec
y0 = 1.617 ft

Data Set: I:\WP\6-chars\07----\0701--\070102\070102-MISC\070102-Response Test Data-062711\G111D\G111D Slug
Title: G111D
Date: 08/05/11
Time: 10:42:26

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Date: April 11, 2011
Test Well: G111D

AQUIFER DATA

Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: G111D

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 1.667 ft
Static Water Column Height: 37.65 ft
Casing Radius: 0.08333 ft
Well Radius: 0.08333 ft
Well Skin Radius: 0.08333 ft
Screen Length: 10. ft
Total Well Penetration Depth: 37.65 ft

No. of Observations: 70

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
0.1	1.667	87.17	1.147
0.755	1.658	93.17	1.12
1.51	1.646	99.17	1.096
2.331	1.635	105.9	1.067
3.291	1.623	113.	1.041
4.251	1.611	120.8	1.008
5.331	1.6	128.7	0.98
6.52	1.582	137.	0.949
7.765	1.581	146.	0.918
9.01	1.57	155.7	0.886
10.25	1.564	165.2	0.852
11.78	1.549	176.	0.822
13.19	1.54	187.4	0.788
14.78	1.527	199.5	0.755
16.53	1.517	212.	0.722
18.23	1.505	225.2	0.686
20.09	1.491	239.7	0.651
22.13	1.479	254.7	0.618
24.23	1.467	270.2	0.584
26.52	1.453	287.	0.549
29.03	1.437	305.	0.517
31.37	1.423	323.6	0.483
34.02	1.408	344.	0.45
37.02	1.393	365.	0.417
39.99	1.376	387.2	0.388
43.01	1.36	411.2	0.355
46.48	1.341	436.4	0.327
49.97	1.323	462.8	0.3
53.71	1.305	491.	0.275

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
57.95	1.284	521.	0.252
61.97	1.263	552.8	0.225
66.17	1.241	586.4	0.203
70.97	1.221	622.4	0.186
76.47	1.194	658.4	0.166
81.17	1.173	700.4	0.148

SOLUTION

Slug Test
Aquifer Model: Confined
Solution Method: Bouwer-Rice
ln(Re/rw): 4.524

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	9.351E-5	cm/sec
y0	1.617	ft

T = T*b = 0.0285 cm²/sec

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error	Approx. C.I.	t-Ratio	
K	9.351E-5	6.579E-7	+/- 1.313E-6	142.1	cm/sec
y0	1.617	0.003748	+/- 0.007478	431.3	ft

C.I. is approximate 95% confidence interval for parameter
t-ratio = estimate/std. error
No estimation window

T = T*b = 0.0285 cm²/sec

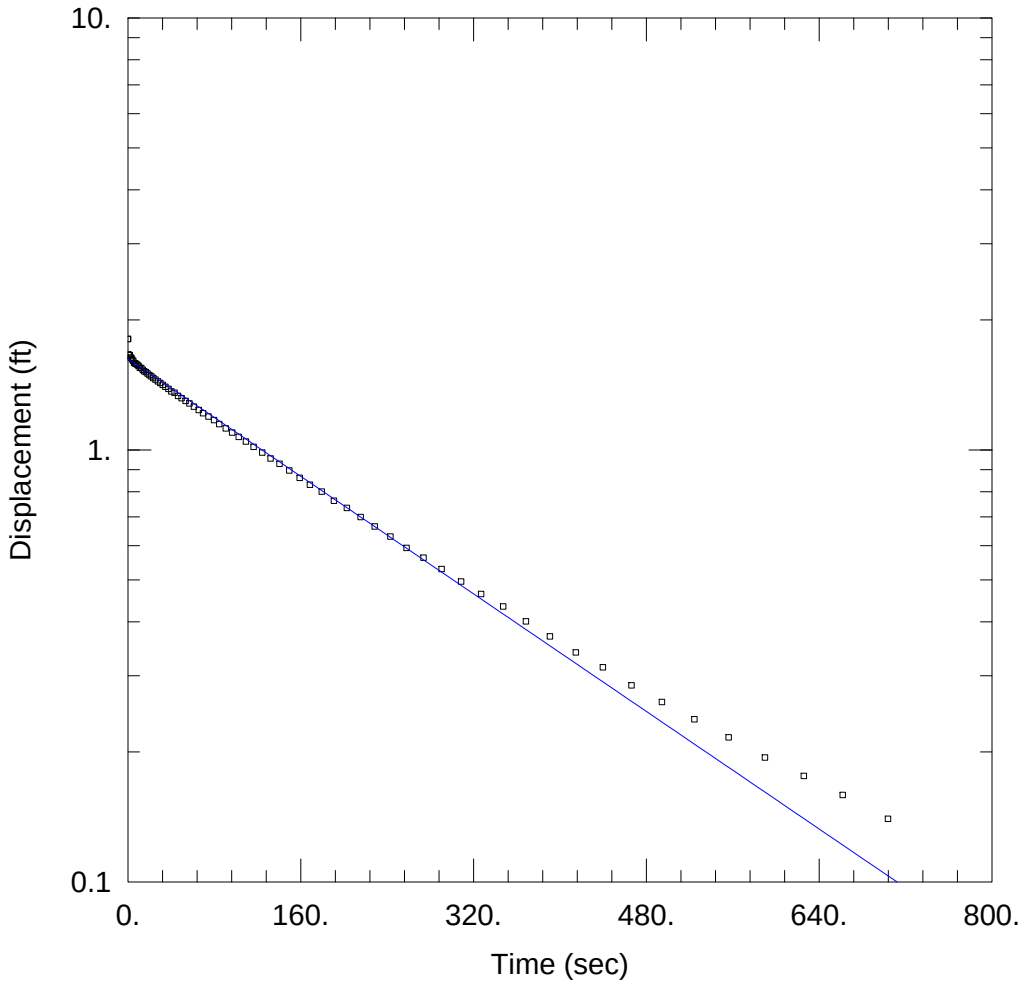
Parameter Correlations

	K	y0
K	1.00	0.59
y0	0.59	1.00

Residual Statistics

for weighted residuals

Sum of Squares . . . . . 0.02202 ft^2
Variance . . . . . 0.0003238 ft^2
Std. Deviation . . . . . 0.01799 ft
Mean . . . . . 0.002333 ft
No. of Residuals 70
No. of Estimates 2



G111D

Data Set: I:\...\G111D Slug Out Test 3.aqt
Date: 08/05/11 Time: 10:42:50

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Well: G111D
Test Date: April 11, 2011

AQUIFER DATA

Saturated Thickness: 10. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (G111D)

Initial Displacement: 1.806 ft
Total Well Penetration Depth: 37.65 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 37.65 ft
Screen Length: 10. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 9.667E-5 cm/sec
y0 = 1.626 ft

Data Set: I:\WP\6-chars\07----\0701--\070102\070102-MISC\070102-Response Test Data-062711\G111D\G111D Slug
Title: G111D
Date: 08/05/11
Time: 10:43:04

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Date: April 11, 2011
Test Well: G111D

AQUIFER DATA

Saturated Thickness: 10. ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: G111D

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 1.806 ft
Static Water Column Height: 37.65 ft
Casing Radius: 0.08333 ft
Well Radius: 0.08333 ft
Well Skin Radius: 0.08333 ft
Screen Length: 10. ft
Total Well Penetration Depth: 37.65 ft

No. of Observations: 75

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
0.1	1.806	79.77	1.172
0.454	1.665	84.57	1.148
1.055	1.657	90.57	1.122
1.714	1.658	96.57	1.097
2.539	1.636	102.6	1.072
3.214	1.633	109.3	1.046
3.994	1.62	116.4	1.017
4.952	1.608	124.3	0.986
5.734	1.589	132.1	0.955
6.694	1.586	140.4	0.929
7.654	1.582	149.4	0.896
8.856	1.573	159.	0.862
9.874	1.564	168.6	0.831
11.07	1.55	179.5	0.801
12.33	1.547	190.8	0.763
13.65	1.533	202.8	0.734
15.11	1.521	215.5	0.699
16.63	1.514	228.6	0.665
18.15	1.502	243.1	0.63
19.87	1.49	258.	0.593
21.63	1.48	273.7	0.563
23.49	1.467	290.4	0.53
25.53	1.455	308.5	0.496
27.76	1.441	327.	0.464
30.01	1.429	347.5	0.434
32.25	1.414	368.5	0.401
34.77	1.4	390.7	0.37
37.5	1.385	414.7	0.34
40.23	1.366	439.8	0.314

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
43.23	1.356	466.3	0.285
46.5	1.333	494.5	0.261
49.77	1.318	524.5	0.238
53.4	1.299	556.3	0.216
56.97	1.281	589.8	0.194
61.17	1.259	625.8	0.176
65.56	1.237	661.8	0.159
69.58	1.216	703.8	0.14
74.54	1.195		

SOLUTION

Slug Test
Aquifer Model: Confined
Solution Method: Bouwer-Rice
ln(Re/rw): 4.524

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	9.667E-5	cm/sec
y0	1.626	ft

T = T*b = 0.02947 cm²/sec

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error	Approx. C.I.	t-Ratio	
K	9.667E-5	1.055E-6	+/- 2.103E-6	91.63	cm/sec
y0	1.626	0.005633	+/- 0.01123	288.6	ft

C.I. is approximate 95% confidence interval for parameter
t-ratio = estimate/std. error
No estimation window

T = T*b = 0.02947 cm²/sec

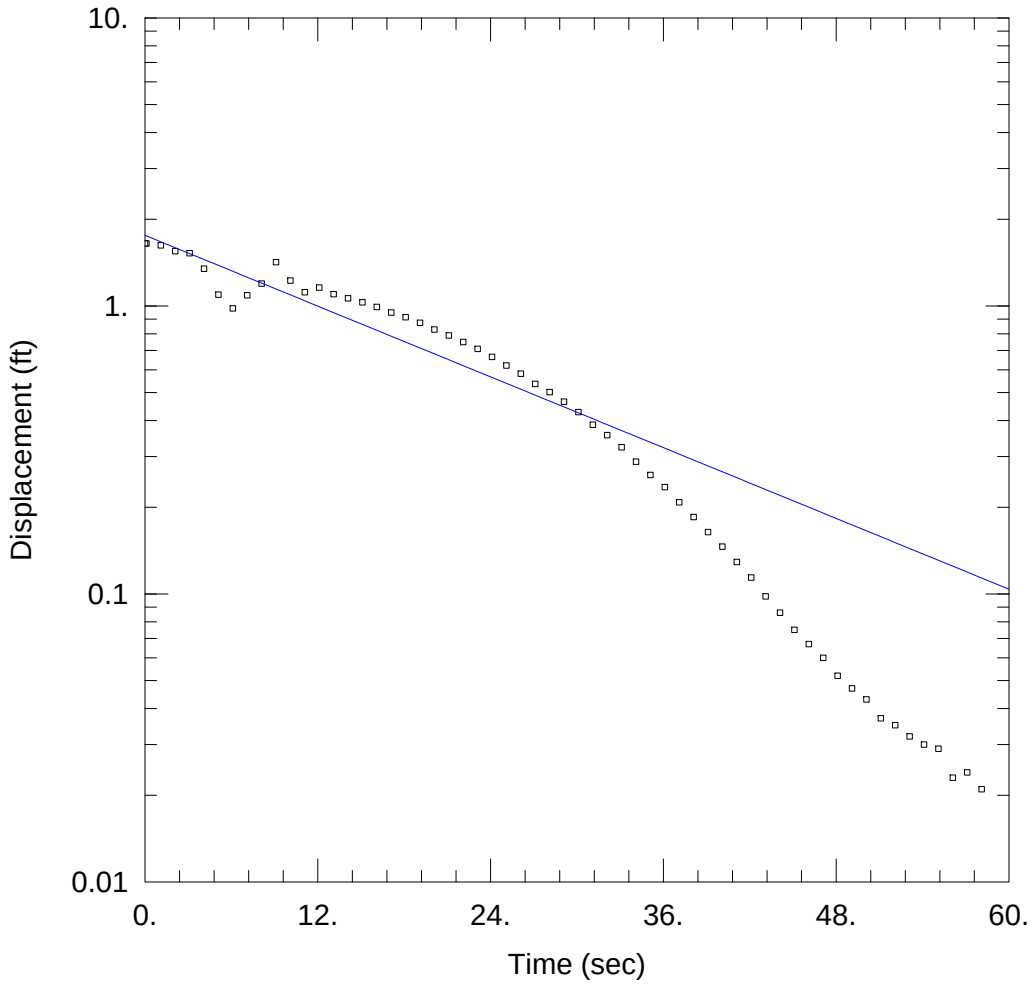
Parameter Correlations

	K	y0
K	1.00	0.58
y0	0.58	1.00

Residual Statistics

for weighted residuals

Sum of Squares . . . . . 0.06016 ft^2
Variance . . . . . 0.0008241 ft^2
Std. Deviation . . . . . 0.02871 ft
Mean . . . . . 0.002754 ft
No. of Residuals 75
No. of Estimates 2



G112S

Data Set: I:\...\G112S Slug In 1.aqt
Date: 08/05/11 Time: 10:51:14

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Well: G112S
Test Date: April 11, 2011

AQUIFER DATA

Saturated Thickness: 4. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (G112S)

Initial Displacement: 1.647 ft
Total Well Penetration Depth: 14.7 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 14.7 ft
Screen Length: 10. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 0.001014 cm/sec
y0 = 1.758 ft

Data Set: I:\WP\6-chars\07----\0701--\070102\070102-MISC\070102-Response Test Data-062711\G112S\G112S Slug
Title: G112S
Date: 08/05/11
Time: 10:51:31

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Date: April 11, 2011
Test Well: G112S

AQUIFER DATA

Saturated Thickness: 4. ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: G112S

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 1.647 ft
Static Water Column Height: 14.7 ft
Casing Radius: 0.08333 ft
Well Radius: 0.08333 ft
Well Skin Radius: 0.08333 ft
Screen Length: 10. ft
Total Well Penetration Depth: 14.7 ft

No. of Observations: 59

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
0.1	1.647	30.1	0.428
1.1	1.622	31.1	0.387
2.1	1.549	32.1	0.356
3.1	1.524	33.1	0.323
4.1	1.347	34.1	0.288
5.1	1.095	35.1	0.259
6.1	0.98	36.1	0.235
7.1	1.089	37.1	0.208
8.1	1.195	38.1	0.185
9.1	1.418	39.1	0.164
10.1	1.224	40.1	0.146
11.1	1.115	41.1	0.129
12.1	1.158	42.1	0.114
13.1	1.099	43.1	0.098
14.1	1.062	44.1	0.086
15.1	1.029	45.1	0.075
16.1	0.992	46.1	0.067
17.1	0.948	47.1	0.06
18.1	0.914	48.1	0.052
19.1	0.874	49.1	0.047
20.1	0.828	50.1	0.043
21.1	0.79	51.1	0.037
22.1	0.749	52.1	0.035
23.1	0.709	53.1	0.032
24.1	0.665	54.1	0.03
25.1	0.621	55.1	0.029
26.1	0.582	56.1	0.023
27.1	0.536	57.1	0.024
28.1	0.502	58.1	0.021

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
29.1	0.465		

SOLUTION

Slug Test
Aquifer Model: Confined
Solution Method: Bouwer-Rice
ln(Re/rw): 3.941

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.001014	cm/sec
y0	1.758	ft

T = T*b = 0.1236 cm²/sec

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error	Approx. C.I.	t-Ratio	
K	0.001014	4.917E-5	+/- 9.844E-5	20.62	cm/sec
y0	1.758	0.0563	+/- 0.1127	31.23	ft

C.I. is approximate 95% confidence interval for parameter
t-ratio = estimate/std. error
No estimation window

T = T*b = 0.1236 cm²/sec

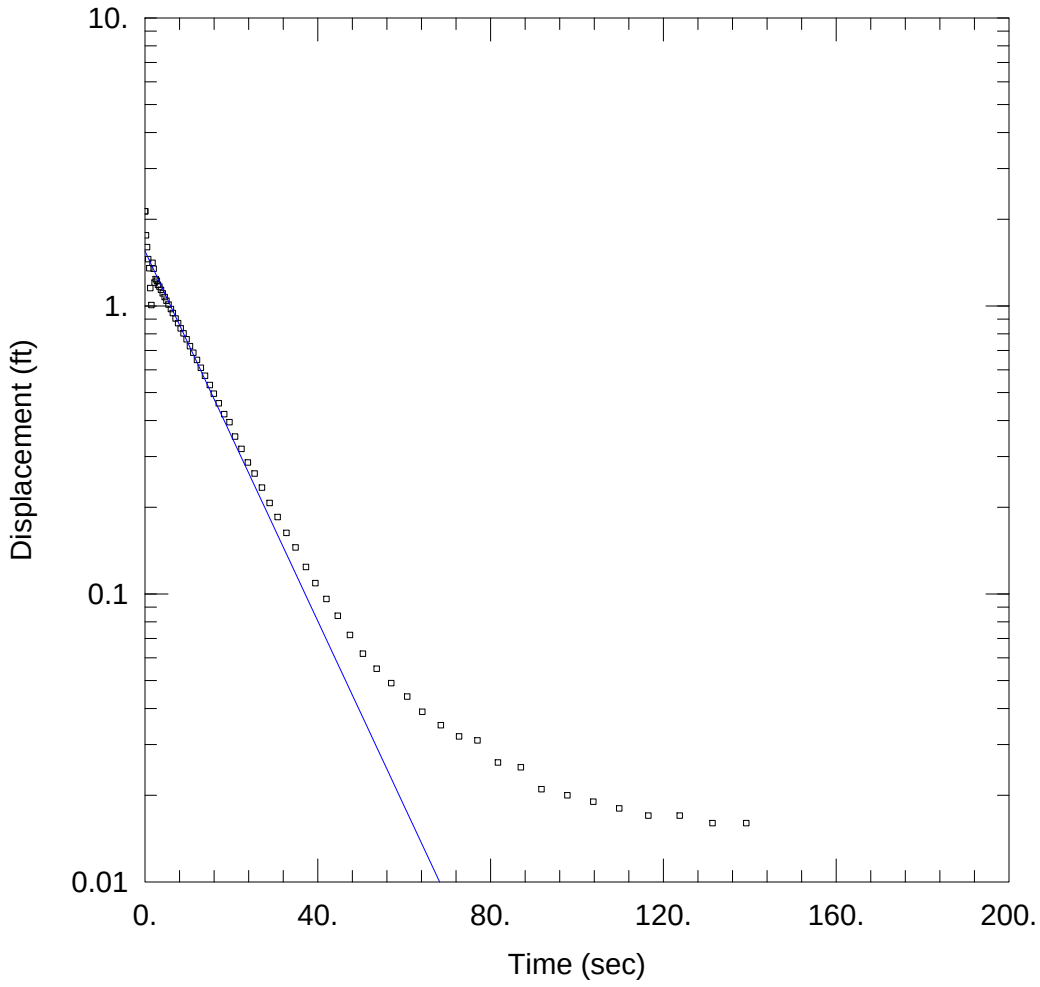
Parameter Correlations

	K	y0
K	1.00	0.71
y0	0.71	1.00

Residual Statistics

for weighted residuals

Sum of Squares . . . . . 0.9828 ft^2
Variance . . . . . 0.01724 ft^2
Std. Deviation . . . . . 0.1313 ft
Mean . . . . . -0.02264 ft
No. of Residuals 59
No. of Estimates 2



G112S

Data Set: I:\...\G112S Slug In 2.aqt
Date: 08/05/11 Time: 10:51:53

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Well: G112S
Test Date: April 11, 2011

AQUIFER DATA

Saturated Thickness: 4. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (G112S)

Initial Displacement: 2.131 ft
Total Well Penetration Depth: 14.7 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 14.7 ft
Screen Length: 10. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 0.00159 cm/sec
y0 = 1.55 ft

Data Set: I:\WP\6-chars\07----\0701--\070102\070102-MISC\070102-Response Test Data-062711\G112S\G112S Slug
Title: G112S
Date: 08/05/11
Time: 10:52:09

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Date: April 11, 2011
Test Well: G112S

AQUIFER DATA

Saturated Thickness: 4. ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: G112S

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 2.131 ft
Static Water Column Height: 14.7 ft
Casing Radius: 0.08333 ft
Well Radius: 0.08333 ft
Well Skin Radius: 0.08333 ft
Screen Length: 10. ft
Total Well Penetration Depth: 14.7 ft

No. of Observations: 68

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
0.1	2.131	18.34	0.421
0.25	1.759	19.56	0.395
0.5	1.601	20.88	0.352
0.75	1.454	22.33	0.319
1.	1.352	23.85	0.286
1.25	1.154	25.38	0.262
1.5	1.007	27.1	0.234
1.75	1.411	28.86	0.207
2.	1.346	30.72	0.185
2.25	1.204	32.76	0.163
2.5	1.239	34.86	0.145
2.75	1.223	37.27	0.124
3.	1.185	39.48	0.109
3.36	1.166	42.03	0.096
3.72	1.137	44.64	0.084
4.14	1.105	47.46	0.072
4.56	1.073	50.46	0.062
4.98	1.042	53.64	0.055
5.46	1.011	57.	0.049
6.	0.975	60.72	0.044
6.48	0.945	64.2	0.039
7.08	0.905	68.48	0.035
7.68	0.872	72.73	0.032
8.28	0.836	76.98	0.031
8.94	0.803	81.73	0.026
9.66	0.766	87.	0.025
10.44	0.725	91.8	0.021
11.22	0.688	97.8	0.02
12.06	0.649	103.8	0.019

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
12.96	0.61	109.8	0.018
13.92	0.572	116.5	0.017
15.01	0.531	123.8	0.017
15.96	0.496	131.4	0.016
17.1	0.459	139.2	0.016

SOLUTION

Slug Test
Aquifer Model: Confined
Solution Method: Bouwer-Rice
ln(Re/rw): 3.941

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.00159	cm/sec
y0	1.55	ft

T = T*b = 0.1939 cm²/sec

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error	Approx. C.I.	t-Ratio	
K	0.00159	7.749E-5	+/- 0.0001547	20.52	cm/sec
y0	1.55	0.03264	+/- 0.06518	47.5	ft

C.I. is approximate 95% confidence interval for parameter
t-ratio = estimate/std. error
No estimation window

T = T*b = 0.1939 cm²/sec

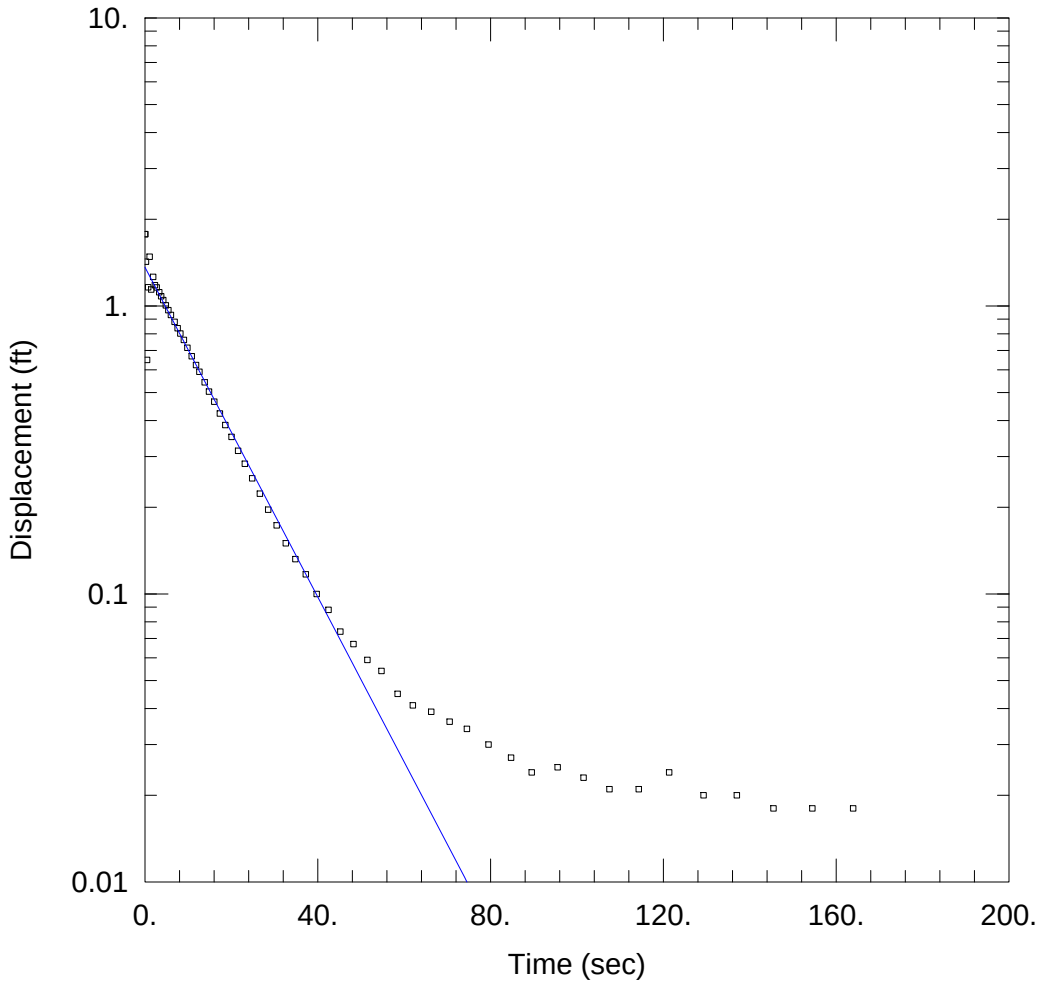
Parameter Correlations

	K	y0
K	1.00	0.66
y0	0.66	1.00

Residual Statistics

for weighted residuals

Sum of Squares . . . . . 0.6892 ft^2
Variance . . . . . 0.01044 ft^2
Std. Deviation . . . . . 0.1022 ft
Mean . . . . . 0.009543 ft
No. of Residuals 68
No. of Estimates 2



G112S

Data Set: I:\...\G112S Slug In 3.aqt
Date: 08/05/11 Time: 10:52:30

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Well: G112S
Test Date: April 11, 2011

AQUIFER DATA

Saturated Thickness: 4. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (G112S)

Initial Displacement: 1.774 ft
Total Well Penetration Depth: 14.69 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 14.69 ft
Screen Length: 10. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 0.001417 cm/sec
y0 = 1.361 ft

Data Set: I:\WP\6-chars\07----\0701--\070102\070102-MISC\070102-Response Test Data-062711\G112S\G112S Slug
Title: G112S
Date: 08/05/11
Time: 10:52:46

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Date: April 11, 2011
Test Well: G112S

AQUIFER DATA

Saturated Thickness: 4. ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: G112S

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 1.774 ft
Static Water Column Height: 14.69 ft
Casing Radius: 0.08333 ft
Well Radius: 0.08333 ft
Well Skin Radius: 0.08333 ft
Screen Length: 10. ft
Total Well Penetration Depth: 14.69 ft

No. of Observations: 62

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
0.1	1.774	24.85	0.252
0.25	1.425	26.61	0.223
0.5	0.649	28.53	0.196
0.75	1.16	30.51	0.173
1.11	1.482	32.61	0.15
1.47	1.14	34.83	0.132
1.89	1.262	37.26	0.117
2.31	1.18	39.75	0.1
2.729	1.159	42.49	0.088
3.311	1.116	45.25	0.074
3.749	1.08	48.26	0.067
4.229	1.048	51.51	0.059
4.83	1.005	54.75	0.054
5.43	0.967	58.52	0.045
6.03	0.93	62.02	0.041
6.86	0.88	66.28	0.039
7.585	0.837	70.53	0.036
8.189	0.802	74.55	0.034
9.018	0.762	79.53	0.03
9.84	0.716	84.75	0.027
10.84	0.669	89.55	0.024
11.84	0.623	95.55	0.025
12.63	0.591	101.5	0.023
13.84	0.543	107.6	0.021
14.85	0.504	114.3	0.021
16.05	0.465	121.3	0.024
17.35	0.423	129.3	0.02
18.63	0.386	137.	0.02
20.07	0.351	145.5	0.018

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
21.59	0.314	154.5	0.018
23.13	0.283	163.9	0.018

SOLUTION

Slug Test
Aquifer Model: Confined
Solution Method: Bouwer-Rice
ln(Re/rw): 3.94

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.001417	cm/sec
y0	1.361	ft

T = T*b = 0.1728 cm²/sec

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error	Approx. C.I.	t-Ratio	
K	0.001417	8.787E-5	+/- 0.0001757	16.13	cm/sec
y0	1.361	0.03797	+/- 0.07594	35.85	ft

C.I. is approximate 95% confidence interval for parameter
t-ratio = estimate/std. error
No estimation window

T = T*b = 0.1728 cm²/sec

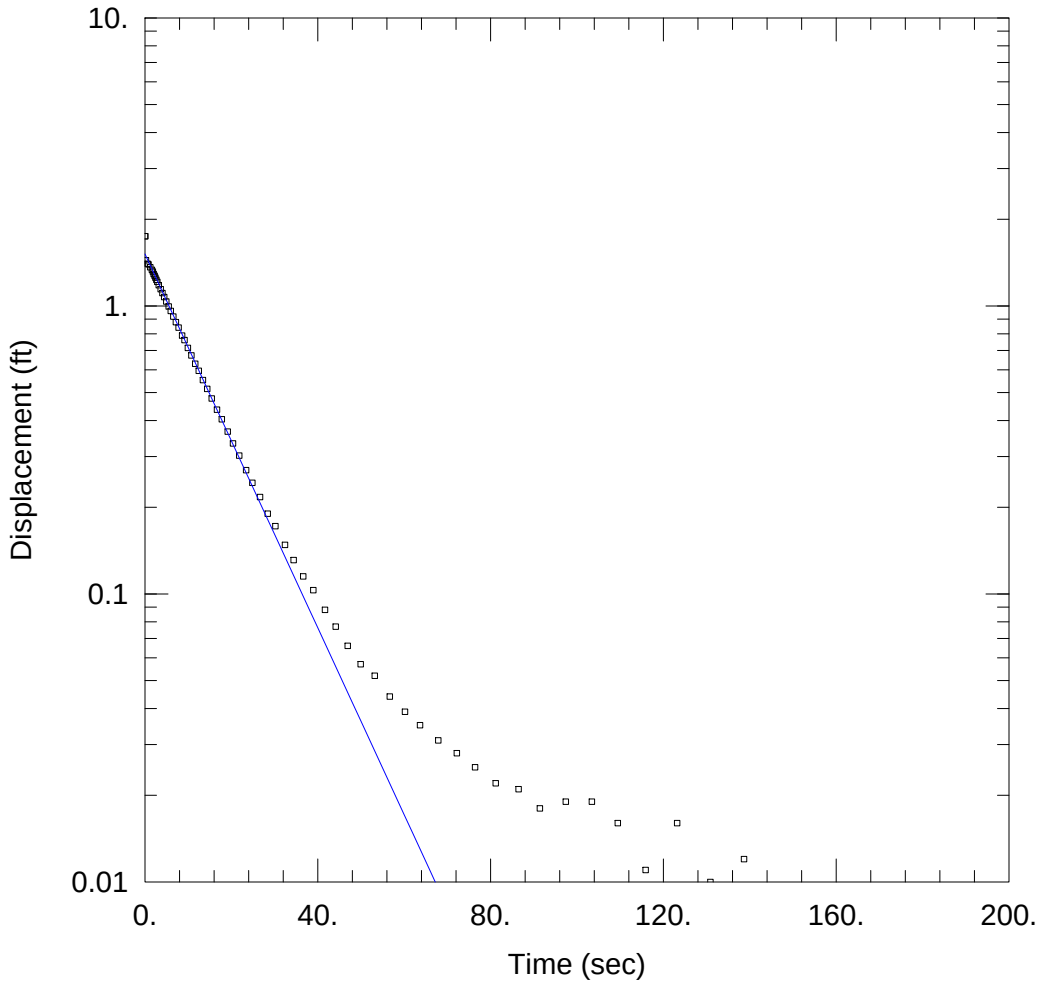
Parameter Correlations

	K	y0
K	1.00	0.64
y0	0.64	1.00

Residual Statistics

for weighted residuals

Sum of Squares . . . . . 0.7225 ft^2
Variance . . . . . 0.01204 ft^2
Std. Deviation . . . . . 0.1097 ft
Mean . . . . . 0.005637 ft
No. of Residuals 62
No. of Estimates 2



G112S

Data Set: I:\...\G112S Slug Out 1.aqt
Date: 08/05/11 Time: 10:53:23

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Well: G111S
Test Date: April 11, 2011

AQUIFER DATA

Saturated Thickness: 4. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (G112S)

Initial Displacement: 1.746 ft Static Water Column Height: 14.7 ft
Total Well Penetration Depth: 14.7 ft Screen Length: 10. ft
Casing Radius: 0.08333 ft Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Confined Solution Method: Bouwer-Rice
K = 0.001607 cm/sec y0 = 1.514 ft

Data Set: I:\WP\6-chars\07----\0701--\070102\070102-MISC\070102-Response Test Data-062711\G112S\G112S Slug
Title: G112S
Date: 08/05/11
Time: 10:53:38

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Date: April 11, 2011
Test Well: G111S

AQUIFER DATA

Saturated Thickness: 4. ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: G112S

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 1.746 ft
Static Water Column Height: 14.7 ft
Casing Radius: 0.08333 ft
Well Radius: 0.08333 ft
Well Skin Radius: 0.08333 ft
Screen Length: 10. ft
Total Well Penetration Depth: 14.7 ft

No. of Observations: 66

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
0.1	1.746	19.16	0.366
0.25	1.441	20.41	0.333
0.636	1.4	21.82	0.302
0.838	1.394	23.41	0.269
1.227	1.362	24.88	0.243
1.617	1.335	26.66	0.217
1.821	1.316	28.42	0.19
2.024	1.291	30.22	0.172
2.227	1.272	32.42	0.148
2.43	1.253	34.41	0.131
2.633	1.232	36.66	0.115
2.86	1.212	38.98	0.103
3.22	1.18	41.67	0.088
3.64	1.143	44.18	0.077
4.06	1.108	46.96	0.066
4.48	1.073	49.96	0.057
4.96	1.036	53.2	0.052
5.5	0.996	56.69	0.044
5.98	0.96	60.2	0.039
6.58	0.919	63.7	0.035
7.18	0.878	67.9	0.031
7.78	0.841	72.19	0.028
8.609	0.789	76.44	0.025
9.16	0.761	81.2	0.022
9.94	0.715	86.5	0.021
10.77	0.673	91.44	0.018
11.66	0.63	97.44	0.019
12.46	0.595	103.4	0.019
13.42	0.553	109.5	0.016

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
14.42	0.515	115.9	0.011
15.46	0.477	123.2	0.016
16.67	0.436	130.9	0.01
17.8	0.404	138.7	0.012

SOLUTION

Slug Test
Aquifer Model: Confined
Solution Method: Bouwer-Rice
ln(Re/rw): 3.941

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.001607	cm/sec
y0	1.514	ft

T = T*b = 0.1959 cm²/sec

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error	Approx. C.I.	t-Ratio	
K	0.001607	2.754E-5	+/- 5.502E-5	58.34	cm/sec
y0	1.514	0.01141	+/- 0.02279	132.8	ft

C.I. is approximate 95% confidence interval for parameter
t-ratio = estimate/std. error
No estimation window

T = T*b = 0.1959 cm²/sec

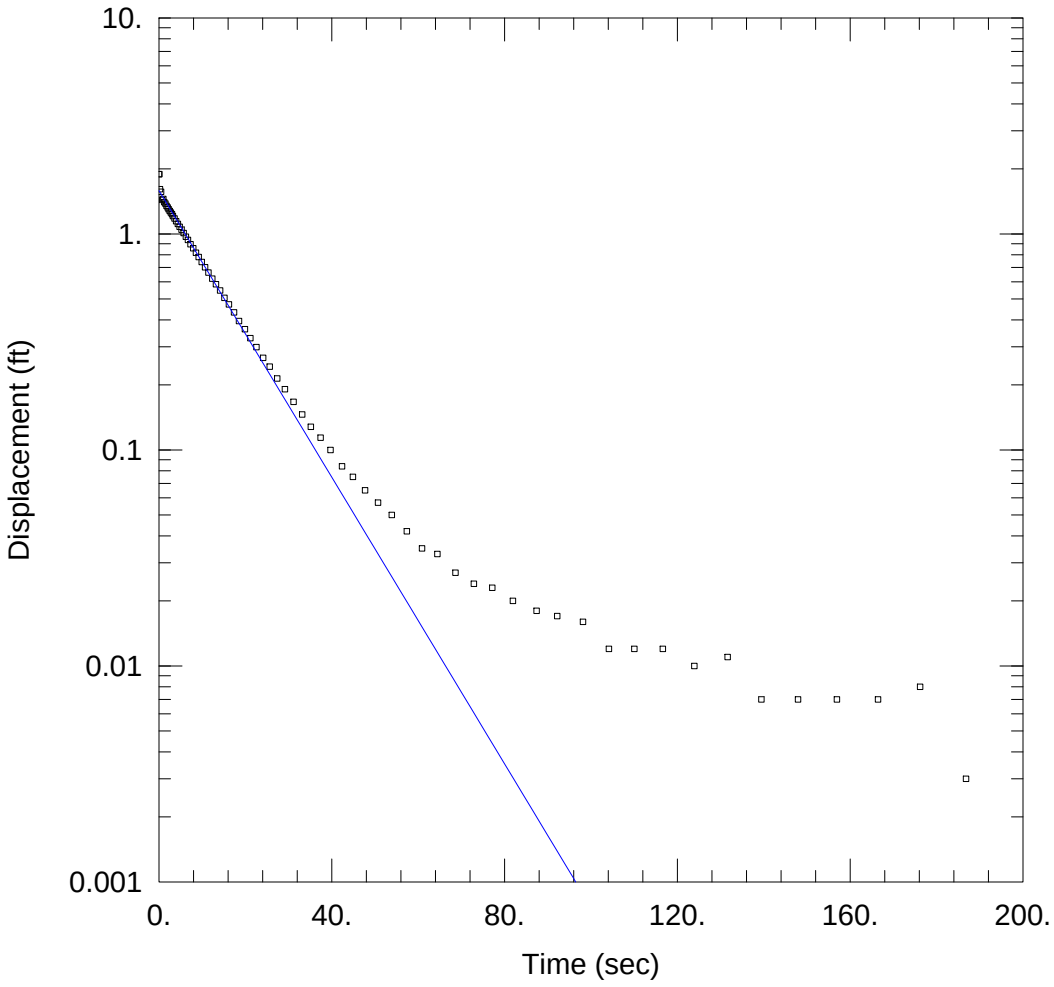
Parameter Correlations

	K	y0
K	1.00	0.67
y0	0.67	1.00

Residual Statistics

for weighted residuals

Sum of Squares . . . . . 0.07501 ft^2
Variance . . . . . 0.001172 ft^2
Std. Deviation . . . . . 0.03423 ft
Mean . . . . . 0.006694 ft
No. of Residuals 66
No. of Estimates 2



G112S

Data Set: I:\...\G112S Slug Out 3.aqt
Date: 08/05/11 Time: 10:54:01

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Well: G111S
Test Date: April 11, 2011

AQUIFER DATA

Saturated Thickness: 4. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (G112S)

Initial Displacement: 1.892 ft
Total Well Penetration Depth: 14.7 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 14.7 ft
Screen Length: 10. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 0.001643 cm/sec
y0 = 1.587 ft

Data Set: I:\WP\6-chars\07----\0701--\070102\070102-MISC\070102-Response Test Data-062711\G112S\G112S Slug
Title: G112S
Date: 08/05/11
Time: 10:54:16

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Date: April 11, 2011
Test Well: G111S

AQUIFER DATA

Saturated Thickness: 4. ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: G112S

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 1.892 ft
Static Water Column Height: 14.7 ft
Casing Radius: 0.08333 ft
Well Radius: 0.08333 ft
Well Skin Radius: 0.08333 ft
Screen Length: 10. ft
Total Well Penetration Depth: 14.7 ft

No. of Observations: 74

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
0.1	1.892	21.15	0.329
0.25	1.611	22.57	0.299
0.5	1.568	24.15	0.267
0.75	1.437	25.63	0.243
1.	1.452	27.39	0.214
1.25	1.402	29.18	0.191
1.5	1.381	31.16	0.167
1.75	1.35	33.16	0.146
2.	1.326	35.16	0.128
2.25	1.302	37.41	0.114
2.501	1.278	39.73	0.1
2.751	1.256	42.4	0.084
3.001	1.234	44.91	0.075
3.251	1.21	47.71	0.065
3.61	1.179	50.71	0.057
3.971	1.146	53.9	0.05
4.39	1.113	57.4	0.042
4.81	1.079	60.91	0.035
5.23	1.047	64.45	0.033
5.711	1.009	68.65	0.027
6.25	0.971	72.92	0.024
6.73	0.938	77.17	0.023
7.33	0.896	81.93	0.02
7.93	0.859	87.43	0.018
8.589	0.818	92.19	0.017
9.19	0.782	98.17	0.016
9.91	0.741	104.2	0.012
10.69	0.701	110.1	0.012
11.47	0.662	116.7	0.012

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
12.36	0.621	123.9	0.01
13.21	0.585	131.7	0.011
14.17	0.547	139.4	0.007
15.15	0.506	147.9	0.007
16.21	0.472	156.9	0.007
17.4	0.433	166.4	0.007
18.55	0.395	176.2	0.008
19.91	0.362	186.8	0.003

SOLUTION

Slug Test
Aquifer Model: Confined
Solution Method: Bouwer-Rice
ln(Re/rw): 3.941

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.001643	cm/sec
y0	1.587	ft

T = T*b = 0.2003 cm²/sec

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error	Approx. C.I.	t-Ratio	
K	0.001643	3.312E-5	+/- 6.6E-5	49.6	cm/sec
y0	1.587	0.0139	+/- 0.02769	114.2	ft

C.I. is approximate 95% confidence interval for parameter
t-ratio = estimate/std. error
No estimation window

T = T*b = 0.2003 cm²/sec

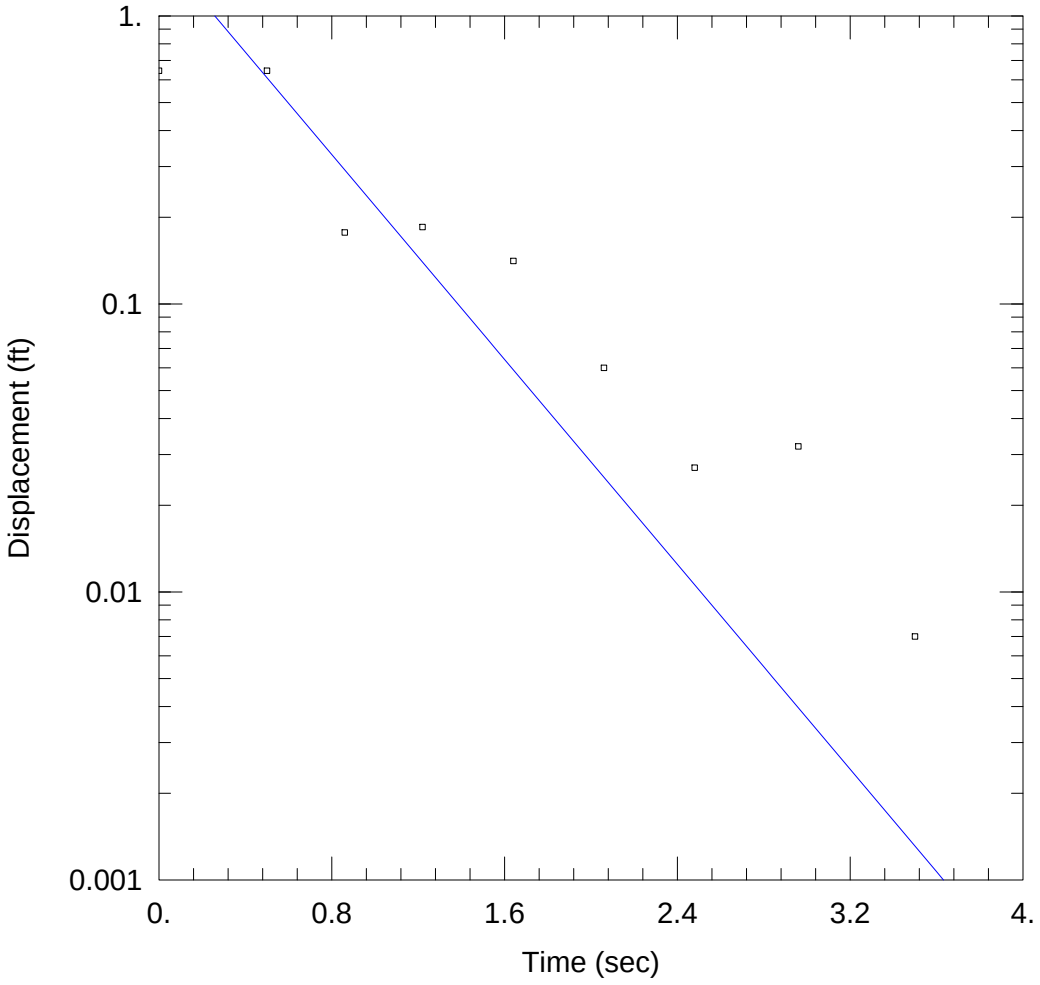
Parameter Correlations

	K	y0
K	1.00	0.67
y0	0.67	1.00

Residual Statistics

for weighted residuals

Sum of Squares . . . . . 0.1348 ft^2
Variance . . . . . 0.001872 ft^2
Std. Deviation . . . . . 0.04327 ft
Mean . . . . . 0.007105 ft
No. of Residuals 74
No. of Estimates 2



G113S

Data Set: I:\...\G113S Slug In Test 1.aqt
Date: 08/05/11 Time: 10:54:55

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Well: G111S
Test Date: April 11, 2011

AQUIFER DATA

Saturated Thickness: 7. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (G113S)

Initial Displacement: 0.645 ft Static Water Column Height: 9.494 ft
Total Well Penetration Depth: 9.494 ft Screen Length: 5. ft
Casing Radius: 0.08333 ft Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
K = 0.07921 cm/sec y0 = 1.699 ft

Data Set: I:\WP\6-chars\07----\0701--\070102\070102-MISC\070102-Response Test Data-062711\G113S\G113S Slug
Title: G113S
Date: 08/05/11
Time: 10:55:10

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Date: April 11, 2011
Test Well: G111S

AQUIFER DATA

Saturated Thickness: 7. ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: G113S

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 0.645 ft
Static Water Column Height: 9.494 ft
Casing Radius: 0.08333 ft
Well Radius: 0.08333 ft
Well Skin Radius: 0.08333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 9.494 ft

No. of Observations: 8

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
0.5	0.645	2.06	0.06
0.86	0.177	2.48	0.027
1.22	0.185	2.96	0.032
1.641	0.141	3.5	0.007

SOLUTION

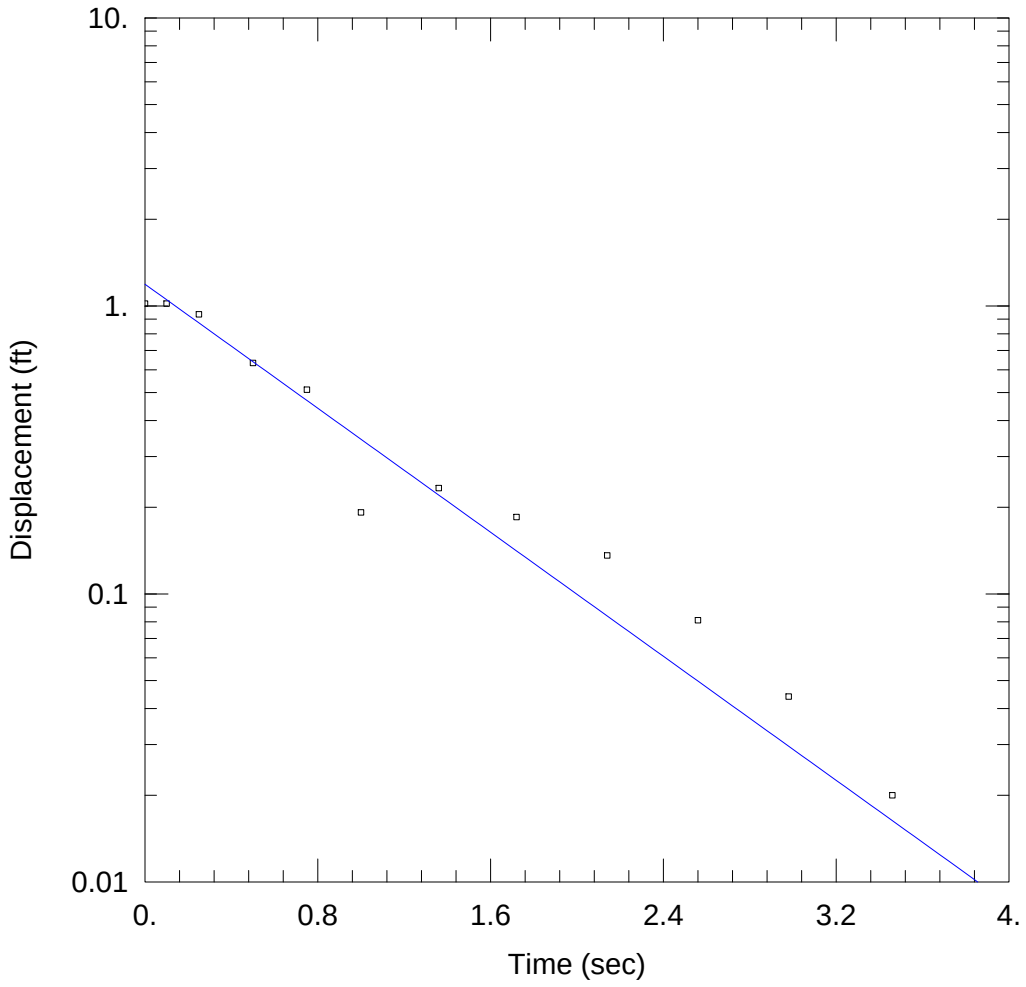
Slug Test
Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
ln(Re/rw): 3.545

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.07921	cm/sec
y0	1.699	ft

T = T*b = 16.9 cm²/sec



G113S

Data Set: I:\...\G113S Slug In Test 2.aqt
Date: 08/05/11 Time: 10:55:32

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Well: G111S
Test Date: April 11, 2011

AQUIFER DATA

Saturated Thickness: 7. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (G113S)

Initial Displacement: 1.019 ft
Total Well Penetration Depth: 9.49 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 9.693 ft
Screen Length: 5. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.04795 cm/sec
y0 = 1.19 ft

Data Set: I:\WP\6-chars\07----\0701--\070102\070102-MISC\070102-Response Test Data-062711\G113S\G113S Slug
Title: G113S
Date: 08/05/11
Time: 10:55:45

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Date: April 11, 2011
Test Well: G111S

AQUIFER DATA

Saturated Thickness: 7. ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: G113S

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 1.019 ft
Static Water Column Height: 9.693 ft
Casing Radius: 0.08333 ft
Well Radius: 0.08333 ft
Well Skin Radius: 0.08333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 9.49 ft

No. of Observations: 11

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
0.1	1.019	1.72	0.185
0.25	0.935	2.14	0.136
0.5	0.634	2.56	0.081
0.75	0.512	2.98	0.044
1.	0.192	3.46	0.02
1.36	0.233		

SOLUTION

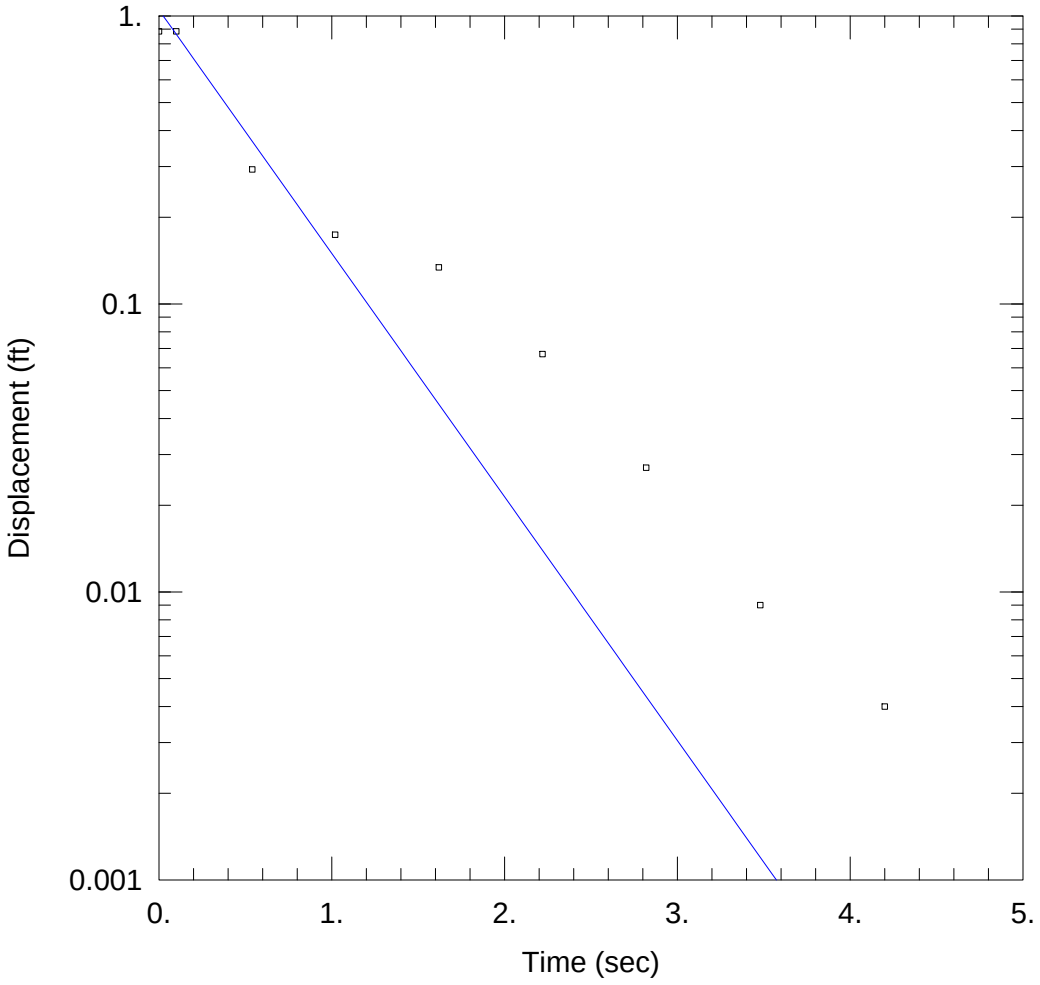
Slug Test
Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
ln(Re/rw): 3.544

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.04795	cm/sec
y0	1.19	ft

$T = T*b = 10.23\ cm^2/sec$



G113S

Data Set: I:\...\G113S Slug In Test 3.aqt
Date: 08/05/11 Time: 10:56:11

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Well: G111S
Test Date: April 11, 2011

AQUIFER DATA

Saturated Thickness: 7. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (G113S)

Initial Displacement: 0.884 ft
Total Well Penetration Depth: 9.49 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 9.69 ft
Screen Length: 5. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.07529 cm/sec
y0 = 1.049 ft

Data Set: I:\WP\6-chars\07----\0701--\070102\070102-MISC\070102-Response Test Data-062711\G113S\G113S Slug
Title: G113S
Date: 08/05/11
Time: 10:56:28

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Date: April 11, 2011
Test Well: G111S

AQUIFER DATA

Saturated Thickness: 7. ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: G113S

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 0.884 ft
Static Water Column Height: 9.69 ft
Casing Radius: 0.08333 ft
Well Radius: 0.08333 ft
Well Skin Radius: 0.08333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 9.49 ft

No. of Observations: 8

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
0.1	0.884	2.22	0.067
0.54	0.293	2.82	0.027
1.02	0.174	3.48	0.009
1.62	0.134	4.2	0.004

SOLUTION

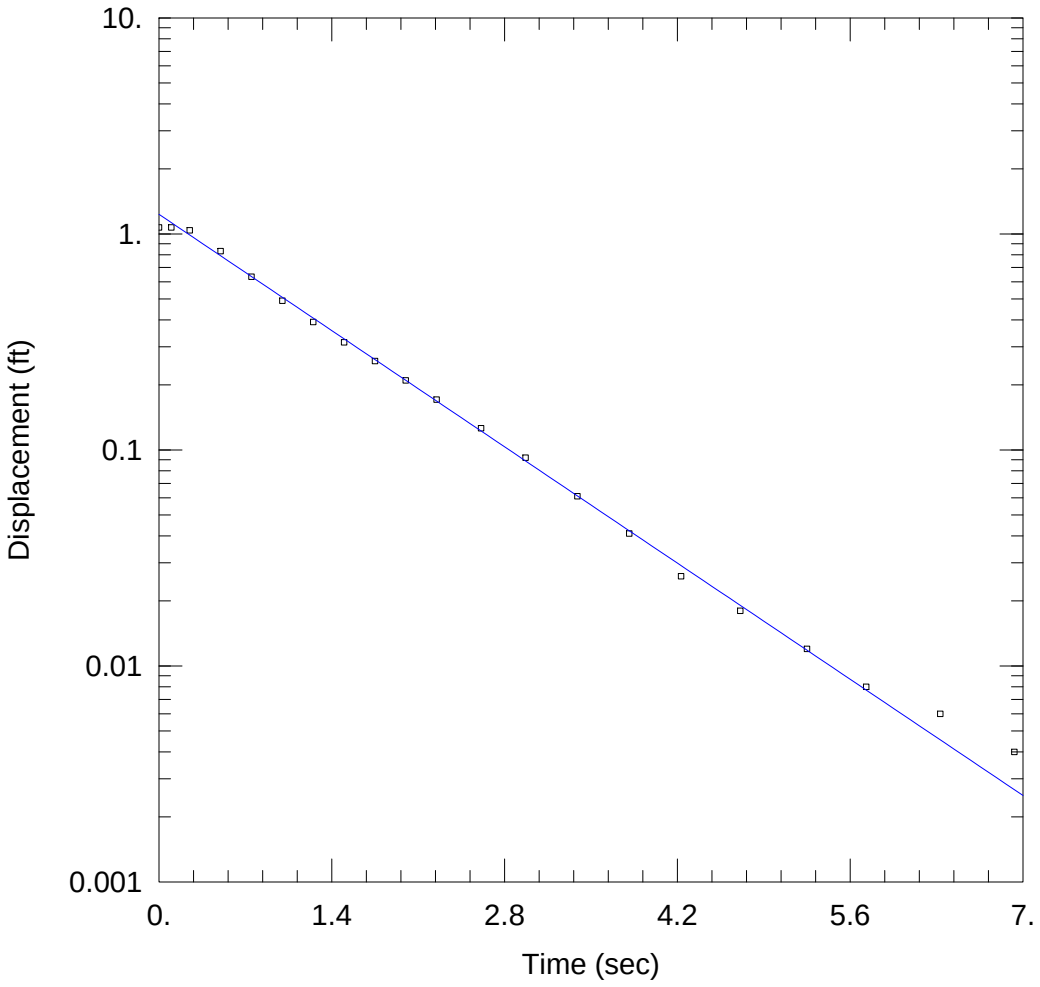
Slug Test
Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
ln(Re/rw): 3.544

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.07529	cm/sec
y0	1.049	ft

T = T*b = 16.06 cm²/sec



G113S

Data Set: I:\...\G113S Slug Out Test 1.aqt
Date: 08/05/11 Time: 10:57:01

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Well: G111S
Test Date: April 11, 2011

AQUIFER DATA

Saturated Thickness: 7. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (G113S)

Initial Displacement: 1.071 ft
Total Well Penetration Depth: 9.694 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 9.694 ft
Screen Length: 5. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.03436 cm/sec
y0 = 1.232 ft

Data Set: I:\WP\6-chars\07----\0701--\070102\070102-MISC\070102-Response Test Data-062711\G113S\G113S Slug
Title: G113S
Date: 08/05/11
Time: 10:57:16

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Date: April 11, 2011
Test Well: G111S

AQUIFER DATA

Saturated Thickness: 7. ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: G113S

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 1.071 ft
Static Water Column Height: 9.694 ft
Casing Radius: 0.08333 ft
Well Radius: 0.08333 ft
Well Skin Radius: 0.08333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 9.694 ft

No. of Observations: 20

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
0.1	1.071	2.61	0.126
0.25	1.04	2.97	0.092
0.5	0.832	3.39	0.061
0.75	0.634	3.81	0.041
1.	0.491	4.23	0.026
1.25	0.391	4.71	0.018
1.5	0.315	5.25	0.012
1.75	0.258	5.73	0.008
2.	0.21	6.33	0.006
2.25	0.171	6.93	0.004

SOLUTION

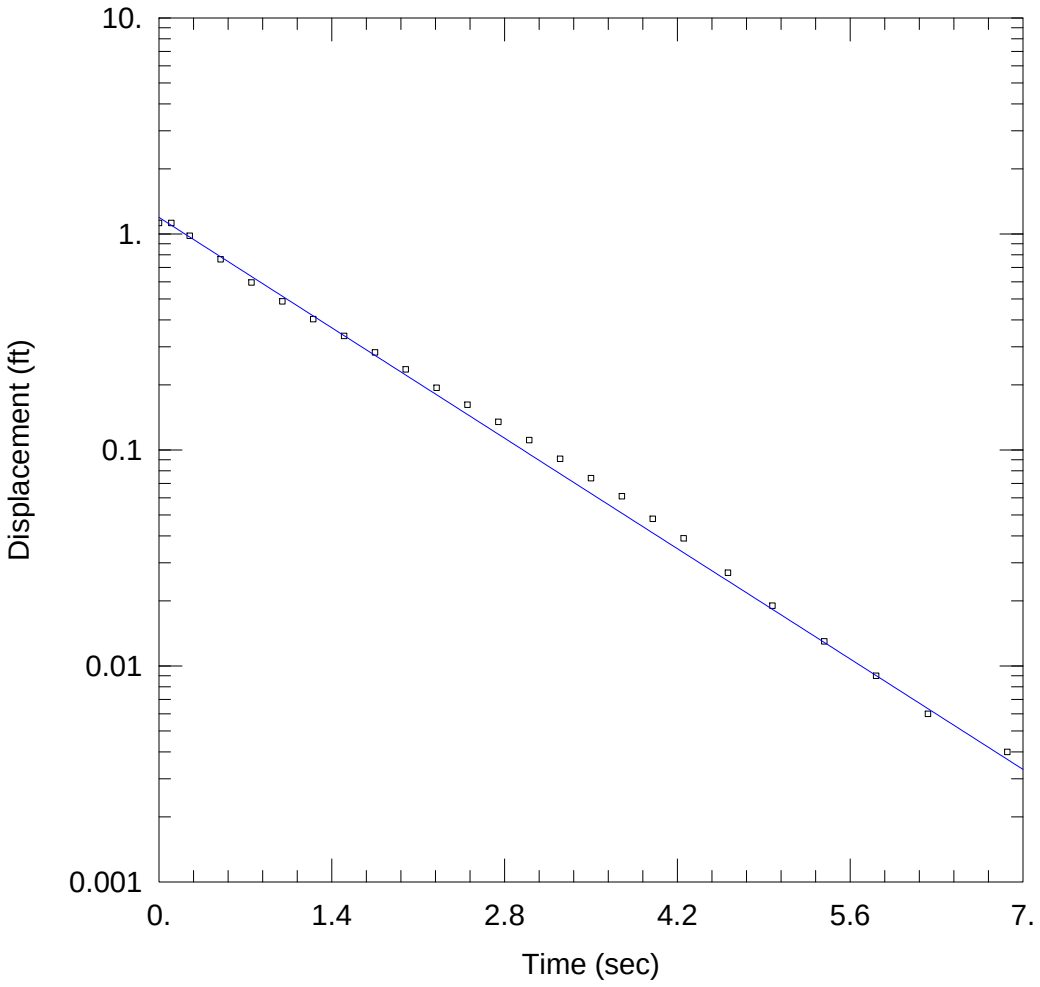
Slug Test
Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
ln(Re/rw): 3.558

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.03436	cm/sec
y0	1.232	ft

$T = T*b = 7.331$ cm²/sec



G113S

Data Set: I:\...\G113S Slug Out Test 2.aqt
Date: 08/05/11 Time: 10:57:39

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Well: G111S
Test Date: April 11, 2011

AQUIFER DATA

Saturated Thickness: 7. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (G113S)

Initial Displacement: 1.124 ft
Total Well Penetration Depth: 9.695 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 9.695 ft
Screen Length: 5. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.03263 cm/sec
y0 = 1.192 ft

Data Set: I:\WP\6-chars\07----\0701--\070102\070102-MISC\070102-Response Test Data-062711\G113S\G113S Slug
Title: G113S
Date: 08/05/11
Time: 10:57:53

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Date: April 11, 2011
Test Well: G111S

AQUIFER DATA

Saturated Thickness: 7. ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: G113S

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 1.124 ft
Static Water Column Height: 9.695 ft
Casing Radius: 0.08333 ft
Well Radius: 0.08333 ft
Well Skin Radius: 0.08333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 9.695 ft

No. of Observations: 24

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
0.1	1.124	3.	0.111
0.25	0.98	3.25	0.091
0.5	0.763	3.501	0.074
0.75	0.596	3.751	0.061
1.	0.487	4.001	0.048
1.25	0.403	4.251	0.039
1.5	0.337	4.61	0.027
1.75	0.283	4.97	0.019
2.	0.236	5.39	0.013
2.25	0.194	5.81	0.009
2.5	0.162	6.23	0.006
2.75	0.135	6.874	0.004

SOLUTION

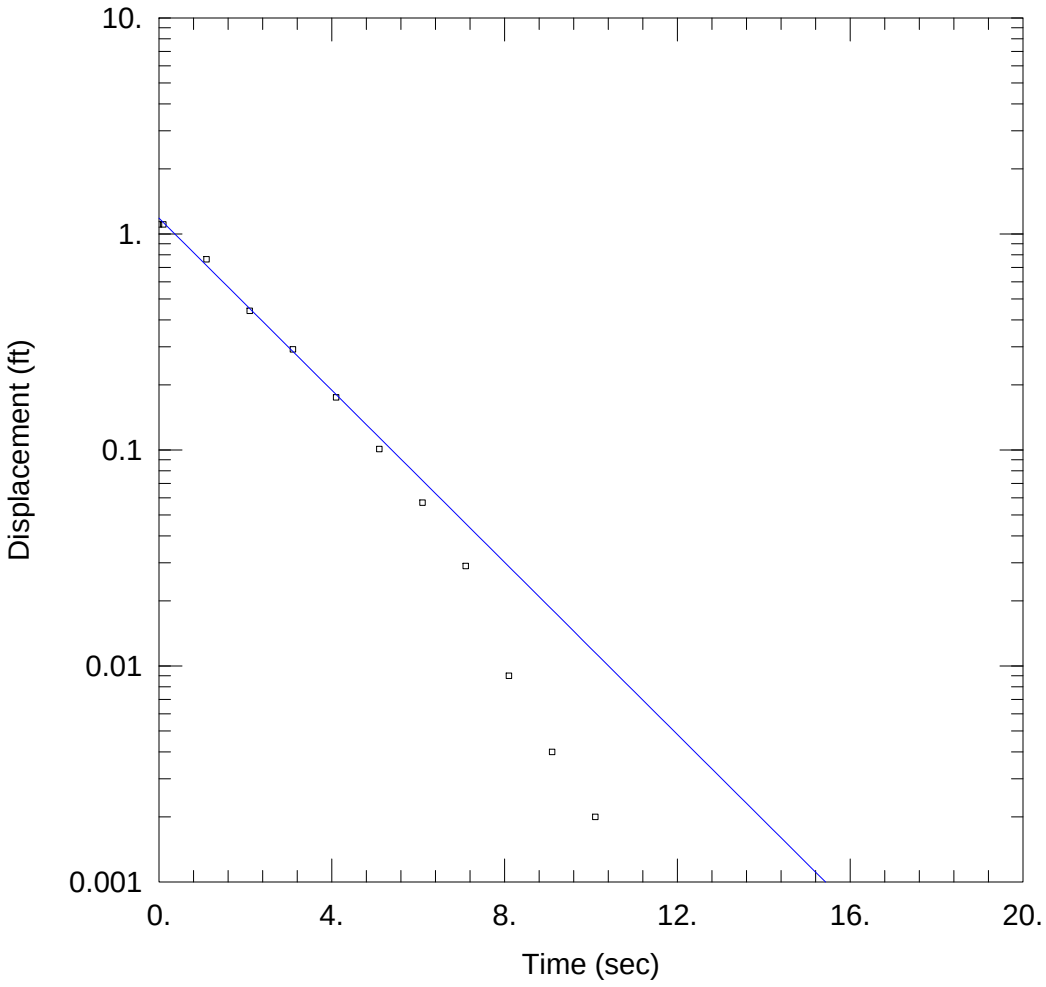
Slug Test
Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
ln(Re/rw): 3.558

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.03263	cm/sec
y0	1.192	ft

T = T*b = 6.963 cm²/sec



G113S

Data Set: I:\...\G113S Slug Out Test 3.aqt
Date: 08/05/11 Time: 10:58:15

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Well: G111S
Test Date: April 11, 2011

AQUIFER DATA

Saturated Thickness: 7. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (G113S)

Initial Displacement: 1.106 ft
Total Well Penetration Depth: 9.695 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 9.695 ft
Screen Length: 5. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.0178 cm/sec
y0 = 1.183 ft

Data Set: I:\WP\6-chars\07----\0701--\070102\070102-MISC\070102-Response Test Data-062711\G113S\G113S Slug
Title: G113S
Date: 08/05/11
Time: 10:58:31

PROJECT INFORMATION

Company: CRA
Client: Caterpillar, Inc.
Project: 070102
Location: Mapleton, Illinois
Test Date: April 11, 2011
Test Well: G111S

AQUIFER DATA

Saturated Thickness: 7. ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: G113S

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 1.106 ft
Static Water Column Height: 9.695 ft
Casing Radius: 0.08333 ft
Well Radius: 0.08333 ft
Well Skin Radius: 0.08333 ft
Screen Length: 5. ft
Total Well Penetration Depth: 9.695 ft

No. of Observations: 11

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
0.1	1.106	6.1	0.057
1.1	0.763	7.1	0.029
2.1	0.441	8.1	0.009
3.1	0.292	9.1	0.004
4.1	0.175	10.1	0.002
5.1	0.101		

SOLUTION

Slug Test
Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
ln(Re/rw): 3.558

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.0178	cm/sec
y0	1.183	ft

$T = T*b = 3.798$ cm²/sec

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error	Approx. C.I.	t-Ratio

K	0.0178	0.0005709	+/- 0.001291	31.18	cm/sec
y0	1.183	0.02244	+/- 0.05076	52.71	ft

C.I. is approximate 95% confidence interval for parameter
t-ratio = estimate/std. error
No estimation window

T = T*b = 3.798 cm^2/sec

Parameter Correlations

	K	y0
K	1.00	0.59
y0	0.59	1.00

Residual Statistics

for weighted residuals

Sum of Squares . . . . . 0.004488 ft^2
Variance . . . . . 0.0004987 ft^2
Std. Deviation . . . . . 0.02233 ft
Mean . . . . . -0.006609 ft
No. of Residuals 11
No. of Estimates 2