Piezometer Development Record

Location: Ameren Labadie Plant DSI					*Date: 11/30/09*				
Piezometer:		*P-120*			*Initial Depth to Groundwater (ft, btoc):*		5.45 ft		
Borehole Diameter:		*10.25"*			*Base of Well (ft, btoc):*		37.39 ft		
Casing Diameter:		*4"*			*Filter Pack Hgt (ft):*		15.2 ft		
Development method:		*Submersible Pump/Bailer*			*Screened Interval Lithology: Very Fine-Coarse sand*				
Date/Time of each purge		*Purge Volume (cummulative) (gallons)*	*Casing Volume (gallons)*	*Annular Volume (gallons)*	*Tremie Volume (gallons)*	*Total Purge Volume (gallons)*	*Turbidity (visual)*	*Initial Water Level (ft., btoc)*	*Ending Water Level (ft., btoc)*
11/30	12:08		20.8	16.6	54	166		5.45	
11/30	12:14 - 12:31	170							6.01
11/30	12:32	10 (180)							6.00
Comments:									
Name:	*Travis Doll & Scott King*					*Company:*	Gredell Engineering Resources, Inc.		

Piezometer Development Record

Location: Ameren Labadie Plant DSI					*Date: 11/12/09*				
Piezometer:		*P-122*			*Initial Depth to Groundwater (ft, btoc):*		5.08 ft		
Borehole Diameter:		*8.25"*			*Base of Well (ft, btoc):*		37.44 ft		
Casing Diameter:		*2"*			*Filter Pack Hgt (ft):*		15.1 ft		
Development method:		*Submersible Pump/Bailer*			*Screened Interval Lithology: Very Fine-Fine sand*				
Date/Time of each purge		*Purge Volume (cummulative) (gallons)*	*Casing Volume (gallons)*	*Annular Volume (gallons)*	*Tremie Volume (gallons)*	*Total Purge Volume (gallons)*	*Turbidity (visual)*	*Initial Water Level (ft., btoc)*	*Ending Water Level (ft., btoc)*
11/12	1:22		5.2	6.5	42	77		5.08	
11/12	1:35 - 1:53	3							
11/12	1:55 - 2:06	20 (23)							
11/12	2:11 - 2:22	20 (43)							
11/12	2:28 - 2:40	20 (63)							5.09
Comments:									
Name:	*Scott King*					*Company:*	Gredell Engineering Resources, Inc.		

Piezometer Development Record

Location: Ameren Labadie Plant DSI					*Date: 12/03/09*				
Piezometer:		*P-124*			*Initial Depth to Groundwater (ft, btoc):*		6.35 ft		
Borehole Diameter:		*8.25"*			*Base of Well (ft, btoc):*		37.73 ft		
Casing Diameter:		*2"*			*Filter Pack Hgt (ft):*		15.2 ft		
Development method:		*Submersible Pump/Bailer*			*Screened Interval Lithology: Very Fine-Coarse sand*				
Date/Time of each purge		*Purge Volume (cummulative) (gallons)*	*Casing Volume (gallons)*	*Annular Volume (gallons)*	*Tremie Volume (gallons)*	*Total Purge Volume (gallons)*	*Turbidity (visual)*	*Initial Water Level (ft., btoc)*	*Ending Water Level (ft., btoc)*
12/3	3:57		5.0	6.5	48	83		6.35	
12/3	3:58 - 4:10	2							
12/3	4:11 - 4:22	20 (22)							
12/3	4:26 - 4:37	20 (42)							
12/3	4:41 - 4:53	20 (62)							
12/3	4:57 - 5:09	21 (83)							6.67
Comments:									
Name:	*Scott King*					*Company:*	Gredell Engineering Resources, Inc.		

Piezometer Development Record

Location: Ameren Labadie Plant DSI		*Date: 11/30/09*	
Piezometer:	*P-126*	*Initial Depth to Groundwater (ft, btoc):*	6.65 ft
Borehole Diameter:	*10.25"*	*Base of Well (ft, btoc):*	36.87 ft
Casing Diameter:	*4"*	*Filter Pack Hgt (ft):*	15.2 ft
Development method:	*Submersible Pump/Bailer*	*Screened Interval Lithology:*	*Very Fine-Medium sand*

Date/Time of each purge		*Purge Volume (cummulative) (gallons)*	*Casing Volume (gallons)*	*Annular Volume (gallons)*	*Tremie Volume (gallons)*	*Total Purge Volume (gallons)*	*Turbidity (visual)*	*Initial Water Level (ft., btoc)*	*Ending Water Level (ft., btoc)*
11/30	12:55		19.6	16.6	42	151		6.65	
11/30	12:57 - 1:14	160							7.95

Comments:

Name: *Travis Doll & Scott King* *Company:* Gredell Engineering Resources, Inc.

Piezometer Development Record

Location: Ameren Labadie Plant DSI		*Date: 11/12/09*	
Piezometer:	*P-128*	*Initial Depth to Groundwater (ft, btoc):*	6.23 ft
Borehole Diameter:	*10.25"*	*Base of Well (ft, btoc):*	37.39 ft
Casing Diameter:	*4"*	*Filter Pack Hgt (ft):*	15.2 ft
Development method:	*Submersible Pump/Bailer*	*Screened Interval Lithology: Medium sand*	

Date/Time of each purge		*Purge Volume (cummulative) (gallons)*	*Casing Volume (gallons)*	*Annular Volume (gallons)*	*Tremie Volume (gallons)*	*Total Purge Volume (gallons)*	*Turbidity (visual)*	*Initial Water Level (ft., btoc)*	*Ending Water Level (ft., btoc)*
11/12	9:30		20.3	16.6	72	182		6.23	
11/12	9:37 - 9:57	200							7.03

Comments:

Name: *Mike Carlson & Scott King* *Company:* Gredell Engineering Resources, Inc.

Piezometer Development Record

Location: Ameren Labadie Plant DSI		*Date: 10/26/09*	
Piezometer:	*P-130*	*Initial Depth to Groundwater (ft, btoc):*	6.31 ft
Borehole Diameter:	*8.25"*	*Base of Well (ft, btoc):*	37.35 ft
Casing Diameter:	*2"*	*Filter Pack Hgt (ft):*	15.5 ft
Development method:	*Submersible Pump/Bailer*	*Screened Interval Lithology: Coarse sand*	

Date/Time of each purge		*Purge Volume (cummulative) (gallons)*	*Casing Volume (gallons)*	*Annular Volume (gallons)*	*Tremie Volume (gallons)*	*Total Purge Volume (gallons)*	*Turbidity (visual)*	*Initial Water Level (ft., btoc)*	*Ending Water Level (ft., btoc)*
10/26	12:13		5.0	6.7	44	79		6.31	
10/26	12:15 - 12:25	20							
10/26	12:34 - 12:46	20 (40)							
10/26	12:52 - 1:05	20 (60)							
10/26	1:11 - 1:23	19 (79)							6.31

Comments:

Name: *Scott King* *Company:* Gredell Engineering Resources, Inc.

Piezometer Development Record

Location: Ameren Labadie Plant DSI		*Date: 11/03/09*	
Piezometer:	*P-132*	*Initial Depth to Groundwater (ft, btoc):*	4.33 ft
Borehole Diameter:	*8.25"*	*Base of Well (ft, btoc):*	37.71 ft
Casing Diameter:	*2"*	*Filter Pack Hgt (ft):*	15.0 ft
Development method:	*Submersible Pump/Bailer*	*Screened Interval Lithology: Fine-Medium sand*	

Date/Time of each purge		*Purge Volume (cummulative) (gallons)*	*Casing Volume (gallons)*	*Annular Volume (gallons)*	*Tremie Volume (gallons)*	*Total Purge Volume (gallons)*	*Turbidity (visual)*	*Initial Water Level (ft., btoc)*	*Ending Water Level (ft., btoc)*
11/3	9:50		5.3	6.5	56	91		4.33	
11/3	9:50 - 10:22	4							
11/3	10:24 - 10:36	20 (24)							
11/3	10:42 - 10:53	20 (44)							
11/3	10:57 - 11:08	20 (64)							
11/3	11:13 - 11:25	20 (84)							
11/3	11:30 - 11:35	7.5 (91.5)							4.47

Comments:

Name: *Scott King* *Company:* Gredell Engineering Resources, Inc.

Piezometer Development Record

Location: Ameren Labadie Plant DSI		*Date: 11/12/09*	
Piezometer:	*P-134*	*Initial Depth to Groundwater (ft, btoc):*	4.14 ft
Borehole Diameter:	*8.25"*	*Base of Well (ft, btoc):*	37.62 ft
Casing Diameter:	*2"*	*Filter Pack Hgt (ft):*	16.6 ft
Development method:	*Submersible Pump/Bailer*	*Screened Interval Lithology:*	*Gravelly sand*

Date/Time of each purge		*Purge Volume (cummulative) (gallons)*	*Casing Volume (gallons)*	*Annular Volume (gallons)*	*Tremie Volume (gallons)*	*Total Purge Volume (gallons)*	*Turbidity (visual)*	*Initial Water Level (ft., btoc)*	*Ending Water Level (ft., btoc)*
11/12	3:12		5.4	7.1	20	57		4.14	
11/12	3:19 - 3:43	5							
11/12	3:44 - 3:55	20 (25)							
11/12	4:01 - 4:12	20 (45)							
11/12	4:17 - 4:24	13 (58)							4.21

Comments:

Name: *Scott King* *Company:* Gredell Engineering Resources, Inc.

Piezometer Development Record

Location: Ameren Labadie Plant DSI		*Date: 11/30/09*	
Piezometer:	*P-136*	*Initial Depth to Groundwater (ft, btoc):*	4.43 ft
Borehole Diameter:	*10.25"*	*Base of Well (ft, btoc):*	37.63 ft
Casing Diameter:	*4"*	*Filter Pack Hgt (ft):*	14.7 ft
Development method:	*Submersible Pump/Bailer*	*Screened Interval Lithology: Medium-Gravelly sand*	

Date/Time of each purge		*Purge Volume (cummulative) (gallons)*	*Casing Volume (gallons)*	*Annular Volume (gallons)*	*Tremie Volume (gallons)*	*Total Purge Volume (gallons)*	*Turbidity (visual)*	*Initial Water Level (ft., btoc)*	*Ending Water Level (ft., btoc)*
11/30	2:50		21.6	16	70	183		4.43	
11/30	2:56 - 3:08	112.5							
11/30	3:08 - 3:18	73 (185.5)							5.76

Comments:

Name: *Travis Doll & Scott King* *Company:* Gredell Engineering Resources, Inc.

Piezometer Development Record

Location: Ameren Labadie Plant DSI		*Date: 12/21/09*	
Piezometer:	*P-138*	*Initial Depth to Groundwater (ft, btoc):*	7.27 ft
Borehole Diameter:	*8.25"*	*Base of Well (ft, btoc):*	37.05 ft
Casing Diameter:	*2"*	*Filter Pack Hgt (ft):*	15.1 ft
Development method:	*Submersible Pump/Bailer*	*Screened Interval Lithology:*	*Very Fine-Fine sand*

Date/Time of each purge		*Purge Volume (cummulative) (gallons)*	*Casing Volume (gallons)*	*Annular Volume (gallons)*	*Tremie Volume (gallons)*	*Total Purge Volume (gallons)*	*Turbidity (visual)*	*Initial Water Level (ft., btoc)*	*Ending Water Level (ft., btoc)*
12/21	2:33 - 2:50	3	4.8	6.5	44	78		7.27	
12/21	2:54 - 3:04	20 (23)							
12/21	3:09 - 3:19	20 (43)							
12/21	3:24 - 3:34	20 (63)							
12/21	3:39 - 3:46	18 (81)							7.48

Comments: Pad Cracked 12/21/09

Name: *Scott King* *Company:* Gredell Engineering Resources, Inc.

Piezometer Development Record

Location: Ameren Labadie Plant DSI						*Date: 11/11/09*			
Piezometer:		*P-140*				*Initial Depth to Groundwater (ft, btoc):*		6.07 ft	
Borehole Diameter:		*8.25"*				*Base of Well (ft, btoc):*		37.16 ft	
Casing Diameter:		*2"*				*Filter Pack Hgt (ft):*		14.6 ft	
Development method:		*Submersible Pump/Bailer*				*Screened Interval Lithology: Very Fine-Medium sand*			
Date/Time of each purge		*Purge Volume (cummulative) (gallons)*	*Casing Volume (gallons)*	*Annular Volume (gallons)*	*Tremie Volume (gallons)*	*Total Purge Volume (gallons)*	*Turbidity (visual)*	*Initial Water Level (ft., btoc)*	*Ending Water Level (ft., btoc)*
11/11	11:25		5.0	6.3	44	78		6.07	
11/11	11:26 - 11:44	3							
11/11	11:45 - 11:52	20 (23)							
11/11	12:00 - 12:13	20 (43)							
11/11	12:18 - 12:29	20 (63)							
11/11	12:36 - 12:45	15 (78)							6.07
Comments:									
Name:	*Scott King*					*Company:*	Gredell Engineering Resources, Inc.		

Piezometer Development Record

Location: Ameren Labadie Plant DSI		*Date: 12/01/09*	
Piezometer:	*P-142*	*Initial Depth to Groundwater (ft, btoc):*	6.01 ft
Borehole Diameter:	*8.25"*	*Base of Well (ft, btoc):*	37.56 ft
Casing Diameter:	*2"*	*Filter Pack Hgt (ft):*	15.0 ft
Development method:	*Submersible Pump/Bailer*	*Screened Interval Lithology: Fine-Gravelly sand*	

Date/Time of each purge		*Purge Volume (cummulative) (gallons)*	*Casing Volume (gallons)*	*Annular Volume (gallons)*	*Tremie Volume (gallons)*	*Total Purge Volume (gallons)*	*Turbidity (visual)*	*Initial Water Level (ft., btoc)*	*Ending Water Level (ft., btoc)*
12/1	4:08		5.0	6.5	63	97		6.01	
12/1	4:10 - 4:25	5							
12/1	4:26 - 4:37	20 (25)							
12/1	4:40 - 4:53	20 (45)							6.00
12/2	11:00							5.68	
12/2	11:06 - 11:17	20 (65)							
12/2	11:21 - 11:32	20 (85)							
12/2	11:36 - 11:44	13 (98)							6.03

Comments:

Name: *Scott King* *Company:* Gredell Engineering Resources, Inc.

Piezometer Development Record

Location: Ameren Labadie Plant DSI		*Date: 11/02/09*	
Piezometer:	*P-144*	*Initial Depth to Groundwater (ft, btoc):*	3.29 ft
Borehole Diameter:	*10.25"*	*Base of Well (ft, btoc):*	37.52 ft
Casing Diameter:	*4"*	*Filter Pack Hgt (ft):*	14.7 ft
Development method:	*Submersible Pump/Bailer*	*Screened Interval Lithology: Fine-Coarse sand*	

Date/Time of each purge		*Purge Volume (cummulative)* (gallons)	*Casing Volume* (gallons)	*Annular Volume* (gallons)	*Tremie Volume* (gallons)	*Total Purge Volume* (gallons)	*Turbidity (visual)*	*Initial Water Level* (ft., btoc)	*Ending Water Level* (ft., btoc)
11/2	11:37	240	22.2	16	96	211	clear	3.29	same

Comments:

Name: *Mike Carlson* *Company:* Gredell Engineering Resources, Inc.

Piezometer Development Record

Location:	*Ameren Labadie Plant DSI*	*Date:*	*12/02/09*
Piezometer:	*P-146*	*Initial Depth to Groundwater (ft, btoc):*	5.38 ft
Borehole Diameter:	*8.25"*	*Base of Well (ft, btoc):*	37.28 ft
Casing Diameter:	*2"*	*Filter Pack Hgt (ft):*	16.8 ft
Development method:	*Submersible Pump/Bailer*	*Screened Interval Lithology:*	*Gravelly sand*

Date/Time of each purge		*Purge Volume (cummulative) (gallons)*	*Casing Volume (gallons)*	*Annular Volume (gallons)*	*Tremie Volume (gallons)*	*Total Purge Volume (gallons)*	*Turbidity (visual)*	*Initial Water Level (ft., btoc)*	*Ending Water Level (ft., btoc)*
12/2	12:03		5.1	7.2	34	71		5.38	
12/2	12:05 - 12:19	2							
12/2	12:21 - 12:32	20 (22)							
12/2	1:02 - 1:13	20 (42)							
12/2	1:19 - 1:29	20 (62)							
12/2	1:32 - 1:38	10 (72)							5.46

Comments:

Name: *Scott King* *Company:* Gredell Engineering Resources, Inc.

Piezometer Development Record

Location: Ameren Labadie Plant DSI		*Date: 12/22/09*	
Piezometer:	*P-148*	*Initial Depth to Groundwater (ft, btoc):*	7.67 ft
Borehole Diameter:	*8.25"*	*Base of Well (ft, btoc):*	37.42 ft
Casing Diameter:	*2"*	*Filter Pack Hgt (ft):*	14.4 ft
Development method:	*Submersible Pump/Bailer*	*Screened Interval Lithology: Gravelly sand*	

Date/Time of each purge		*Purge Volume (cummulative) (gallons)*	*Casing Volume (gallons)*	*Annular Volume (gallons)*	*Tremie Volume (gallons)*	*Total Purge Volume (gallons)*	*Turbidity (visual)*	*Initial Water Level (ft., btoc)*	*Ending Water Level (ft., btoc)*
12/22	9:55 - 10:07	2	4.7	6.2	36	69		7.67	
12/22	10:08 - 10:18	20 (22)							
12/22	10:21 - 10:32	20 (42)							
12/22	10:38 - 10:54	28 (70)							7.68

Comments:

Name: *Scott King* *Company:* Gredell Engineering Resources, Inc.

Piezometer Development Record

Location: Ameren Labadie Plant DSI		*Date: 12/22/09*	
Piezometer:	*P-150*	*Initial Depth to Groundwater (ft, btoc):*	6.34 ft
Borehole Diameter:	*8.25"*	*Base of Well (ft, btoc):*	37.62 ft
Casing Diameter:	*2"*	*Filter Pack Hgt (ft):*	15.1 ft
Development method:	*Submersible Pump/Bailer*	*Screened Interval Lithology: Medium sand*	

Date/Time of each purge		*Purge Volume (cummulative) (gallons)*	*Casing Volume (gallons)*	*Annular Volume (gallons)*	*Tremie Volume (gallons)*	*Total Purge Volume (gallons)*	*Turbidity (visual)*	*Initial Water Level (ft., btoc)*	*Ending Water Level (ft., btoc)*
12/22	8:10 - 8:22	2	5.0	6.5	36	70	6.34		
12/22	8:31 - 8:45	20 (22)							
12/22	8:49 - 9:00	20 (42)							
12/22	9:04 - 9:14	20 (62)							
12/22	9:19 - 9:25	10 (72)							6.62

Comments:

Name: *Scott King* *Company:* Gredell Engineering Resources, Inc.

Piezometer Development Record

Location: Ameren Labadie Plant DSI						*Date: 12/21/09*			
Piezometer:		*P-152*				*Initial Depth to Groundwater (ft, btoc):*		6.39 ft	
Borehole Diameter:		*8.25"*				*Base of Well (ft, btoc):*		37.14 ft	
Casing Diameter:		*2"*				*Filter Pack Hgt (ft):*		15.3 ft	
Development method:		*Submersible Pump/Bailer*				*Screened Interval Lithology: Very Fine-Fine sand*			
Date/Time of each purge		*Purge Volume (cummulative) (gallons)*	*Casing Volume (gallons)*	*Annular Volume (gallons)*	*Tremie Volume (gallons)*	*Total Purge Volume (gallons)*	*Turbidity (visual)*	*Initial Water Level (ft., btoc)*	*Ending Water Level (ft., btoc)*
12/21	4:10 - 4:17	2	4.9	6.6	48	82		6.39	
12/21	4:18 - 4:28	20 (22)							
12/21	4:33 - 4:43	20 (42)							
12/21	4:47 - 4:58	20 (62)							
12/21	5:02 - 5:13	21 (83)							6.59
Comments:									
Name:	*Scott King*					*Company:*	Gredell Engineering Resources, Inc.		

Piezometer Development Record

Location: Ameren Labadie Plant DSI		*Date:* 11/04/09	
Piezometer:	P-155	*Initial Depth to Groundwater (ft, btoc):*	1.86 ft
Borehole Diameter:	8.25"	*Base of Well (ft, btoc):*	37.33 ft
Casing Diameter:	2"	*Filter Pack Hgt (ft):*	14.9 ft
Development method:	Submersible Pump/Bailer	*Screened Interval Lithology:*	Medium sand

Date/Time of each purge		*Purge Volume (cummulative) (gallons)*	*Casing Volume (gallons)*	*Annular Volume (gallons)*	*Tremie Volume (gallons)*	*Total Purge Volume (gallons)*	*Turbidity (visual)*	*Initial Water Level (ft., btoc)*	*Ending Water Level (ft., btoc)*
11/4	8:39		5.7	6.4	38	74		1.86	
11/4	8:41 - 9:05	5							
11/4	9:09 - 9:19	20 (25)							
11/4	9:25 - 9:37	20 (45)							
11/4	9:41 - 9:52	20 (65)							
11/4	9:57 - 10:05	9.5 (74.5)							1.90

Comments:

Name: Scott King *Company:* Gredell Engineering Resources, Inc.

Piezometer Development Record

Location: Ameren Labadie Plant DSI					*Date: 12/02/09*				
Piezometer:		*P-156*			*Initial Depth to Groundwater (ft, btoc):*		5.47 ft		
Borehole Diameter:		*8.25"*			*Base of Well (ft, btoc):*		37.24 ft		
Casing Diameter:		*2"*			*Filter Pack Hgt (ft):*		14.5 ft		
Development method:		*Submersible Pump/Bailer*			*Screened Interval Lithology: Very Fine-Coarse sand*				
Date/Time of each purge		*Purge Volume (cummulative) (gallons)*	*Casing Volume (gallons)*	*Annular Volume (gallons)*	*Tremie Volume (gallons)*	*Total Purge Volume (gallons)*	*Turbidity (visual)*	*Initial Water Level (ft., btoc)*	*Ending Water Level (ft., btoc)*
12/2	2:12		5.1	6.2	44	78		5.47	
12/2	2:15 - 2:35	5							
12/2	2:37 - 2:48	20 (25)							
12/2	2:53 - 3:04	20 (45)							
12/2	3:08 - 3:19	20 (65)							
12/2	3:24 - 3:31	13 (78)							5.60
Comments:									
Name:	*Scott King*					*Company:*	Gredell Engineering Resources, Inc.		

Piezometer Development Record

Location: Ameren Labadie Plant DSI		*Date: 12/03/09*	
Piezometer:	*P-158*	*Initial Depth to Groundwater (ft, btoc):*	5.83 ft
Borehole Diameter:	*8.25"*	*Base of Well (ft, btoc):*	37.64 ft
Casing Diameter:	*2"*	*Filter Pack Hgt (ft):*	14.6 ft
Development method:	*Submersible Pump/Bailer*	*Screened Interval Lithology: Very Fine sand*	

Date/Time of each purge		*Purge Volume (cummulative) (gallons)*	*Casing Volume (gallons)*	*Annular Volume (gallons)*	*Tremie Volume (gallons)*	*Total Purge Volume (gallons)*	*Turbidity (visual)*	*Initial Water Level (ft., btoc)*	*Ending Water Level (ft., btoc)*
12/3	1:40		5.1	6.3	40	74		5.83	
12/3	1:43 - 1:58	4							
12/3	2:00 - 2:11	20 (24)							
12/3	2:15 - 2:26	20 (44)							
12/3	2:30 - 2:41	20 (64)							
12/3	2:45 - 2:52	11 (75)							6.15

Comments:

Name: *Scott King* *Company:* Gredell Engineering Resources, Inc.

Piezometer Development Record

Location: Ameren Labadie Plant DSI		*Date: 12/22/09*	
Piezometer:	*P-160*	*Initial Depth to Groundwater (ft, btoc):*	6.74 ft
Borehole Diameter:	*8.25"*	*Base of Well (ft, btoc):*	37.90 ft
Casing Diameter:	*2"*	*Filter Pack Hgt (ft):*	15 ft
Development method:	*Submersible Pump/Bailer*	*Screened Interval Lithology: Fine-Medium sand*	

Date/Time of each purge		*Purge Volume (cummulative) (gallons)*	*Casing Volume (gallons)*	*Annular Volume (gallons)*	*Tremie Volume (gallons)*	*Total Purge Volume (gallons)*	*Turbidity (visual)*	*Initial Water Level (ft., btoc)*	*Ending Water Level (ft., btoc)*
12/22	7:31 - 7:35	1	5.0	6.5	50	84	cloudy	6.74	
12/22	7:39 - 7:54	26 (27)					cloudy/clear		
12/22	7:59 - 8:14	26 (53)					clear		
12/22	8:19 - 8:37	31 (84)					clear		6.77

Comments:

Name: *Travis Doll* *Company:* Gredell Engineering Resources, Inc.

Piezometer Development Record

Location:	*Ameren Labadie Plant DSI*	*Date:*	*12/16/09*
Piezometer:	*P-162*	*Initial Depth to Groundwater (ft, btoc):*	5.03 ft
Borehole Diameter:	*10.25"*	*Base of Well (ft, btoc):*	37.71 ft
Casing Diameter:	*4"*	*Filter Pack Hgt (ft):*	15.1 ft
Development method:	*Submersible Pump/Bailer*	*Screened Interval Lithology:*	*Very Fine-Fine sand*

Date/Time of each purge		*Purge Volume (cummulative) (gallons)*	*Casing Volume (gallons)*	*Annular Volume (gallons)*	*Tremie Volume (gallons)*	*Total Purge Volume (gallons)*	*Turbidity (visual)*	*Initial Water Level (ft., btoc)*	*Ending Water Level (ft., btoc)*
12/16	1:50	189	21.2	16.5	69	182	clear	5.03	5.10

Comments:

Name: *Travis Doll & Frank Phillips* *Company:* Gredell Engineering Resources, Inc.

Piezometer Development Record

Location: Ameren Labadie Plant DSI					*Date: 12/16/09*				
Piezometer:		*P-164*			*Initial Depth to Groundwater (ft, btoc):*		4.87 ft		
Borehole Diameter:		*10.25"*			*Base of Well (ft, btoc):*		37.26 ft		
Casing Diameter:		*4"*			*Filter Pack Hgt (ft):*		15.5 ft		
Development method:		*Submersible Pump/Bailer*			*Screened Interval Lithology: Very Fine-Coarse sand*				
Date/Time of each purge		*Purge Volume (cummulative) (gallons)*	*Casing Volume (gallons)*	*Annular Volume (gallons)*	*Tremie Volume (gallons)*	*Total Purge Volume (gallons)*	*Turbidity (visual)*	*Initial Water Level (ft., btoc)*	*Ending Water Level (ft., btoc)*
12/16	2:35	172	21.1	16.9	50	164	clear	4.87	4.92
Comments:									
Name:	*Travis Doll & Frank Phillips*					*Company:*	Gredell Engineering Resources, Inc.		

Piezometer Development Record

Location: Ameren Labadie Plant DSI					*Date: 11/30/09*				
Piezometer:		*P-165*			*Initial Depth to Groundwater (ft, btoc):*		4.41 ft		
Borehole Diameter:		*10.25"*			*Base of Well (ft, btoc):*		37.30 ft		
Casing Diameter:		*4"*			*Filter Pack Hgt (ft):*		15.1 ft		
Development method:		*Submersible Pump/Bailer*			*Screened Interval Lithology: Medium-Coarse sand*				
Date/Time of each purge		*Purge Volume (cummulative) (gallons)*	*Casing Volume (gallons)*	*Annular Volume (gallons)*	*Tremie Volume (gallons)*	*Total Purge Volume (gallons)*	*Turbidity (visual)*	*Initial Water Level (ft., btoc)*	*Ending Water Level (ft., btoc)*
11/30	3:36		21.4	16.5	60	174		4.41	
11/30	3:38 - 3:53	128.6							
11/30	3:53 - 4:00	48 (176.6)							4.81
Comments:									
Name:	*Travis Doll & Scott King*					*Company:*	Gredell Engineering Resources, Inc.		

Piezometer Development Record

Location: Ameren Labadie Plant DSI		*Date: 11/03/09*	
Piezometer:	*P-167*	*Initial Depth to Groundwater (ft, btoc):*	2.27 ft
Borehole Diameter:	*8.25"*	*Base of Well (ft, btoc):*	37.10 ft
Casing Diameter:	*2"*	*Filter Pack Hgt (ft):*	14.8 ft
Development method:	*Submersible Pump/Bailer*	*Screened Interval Lithology: Medium sand*	

Date/Time of each purge		*Purge Volume (cummulative) (gallons)*	*Casing Volume (gallons)*	*Annular Volume (gallons)*	*Tremie Volume (gallons)*	*Total Purge Volume (gallons)*	*Turbidity (visual)*	*Initial Water Level (ft., btoc)*	*Ending Water Level (ft., btoc)*
11/3	1:25		5.6	6.4	48	84		2.27	
11/3	1:27 - 1:55	5							
11/3	2:00 - 2:11	20 (25)							
11/3	2:15 - 2:24	20 (45)							
11/3	2:31 - 2:42	20 (65)							
11/3	2:47 - 2:59	19 (84)							2.29

Comments:

Name: *Scott King* *Company:* Gredell Engineering Resources, Inc.

Piezometer Development Record

Location: Ameren Labadie Plant DSI		*Date: 12/16/09*	
Piezometer:	*P-169*	*Initial Depth to Groundwater (ft, btoc):*	7.03 ft
Borehole Diameter:	*10.25"*	*Base of Well (ft, btoc):*	37.93 ft
Casing Diameter:	*4"*	*Filter Pack Hgt (ft):*	15.5 ft
Development method:	*Submersible Pump/Bailer*	*Screened Interval Lithology: Very Fine-Fine sand*	

Date/Time of each purge		*Purge Volume (cummulative) (gallons)*	*Casing Volume (gallons)*	*Annular Volume (gallons)*	*Tremie Volume (gallons)*	*Total Purge Volume (gallons)*	*Turbidity (visual)*	*Initial Water Level (ft., btoc)*	*Ending Water Level (ft., btoc)*
12/16	11:01	171	20.1	16.9	60	171	clear	7.03	7.08

Comments:

Name: *Travis Doll & Frank Phillips* *Company:* Gredell Engineering Resources, Inc.

Piezometer Development Record

Location: Ameren Labadie Plant DSI					*Date: 12/17/09*				
Piezometer:		*P-171*			*Initial Depth to Groundwater (ft, btoc):*		6.25 ft		
Borehole Diameter:		*8.25"*			*Base of Well (ft, btoc):*		37.70 ft		
Casing Diameter:		*2"*			*Filter Pack Hgt (ft):*		15.0 ft		
Development method:		*Submersible Pump/Bailer*			*Screened Interval Lithology: Very Fine-Fine sand*				
Date/Time of each purge		*Purge Volume (cummulative) (gallons)*	*Casing Volume (gallons)*	*Annular Volume (gallons)*	*Tremie Volume (gallons)*	*Total Purge Volume (gallons)*	*Turbidity (visual)*	*Initial Water Level (ft., btoc)*	*Ending Water Level (ft., btoc)*
12/17	2:50 - 2:54	2	5.1	6.5	40	75	silty	6.25	
12/17	2:58 - 3:13	30 (32)					silty/clear		
12/17	3:18 - 3:33	30 (62)					clear		
12/17	3:38 - 3:44	12 (74)					clear		6.29
Comments:									
Name:	*Travil Doll*					*Company:*	Gredell Engineering Resources, Inc.		

Piezometer Development Record

Location: Ameren Labadie Plant DSI					*Date: 12/22/09*				
Piezometer:		*P-173*			*Initial Depth to Groundwater (ft, btoc):*		6.47 ft		
Borehole Diameter:		*8.25"*			*Base of Well (ft, btoc):*		37.91 ft		
Casing Diameter:		*2"*			*Filter Pack Hgt (ft):*		14.1 ft		
Development method:		*Submersible Pump/Bailer*			*Screened Interval Lithology: Fine-Medium sand*				
Date/Time of each purge		*Purge Volume (cummulative) (gallons)*	*Casing Volume (gallons)*	*Annular Volume (gallons)*	*Tremie Volume (gallons)*	*Total Purge Volume (gallons)*	*Turbidity (visual)*	*Initial Water Level (ft., btoc)*	*Ending Water Level (ft., btoc)*
12/22	10:08 - 10:16	2	5.0	6.1	50	83	cloudy	6.47	
12/22	10:19 - 10:34	27 (29)					cloudy/vf sand		
12/22	10:39 - 10:54	27 (56)					clear		
12/22	10:59 - 22:14	27 (83)					clear		6.46
Comments:									
Name:	*Travis Doll*					*Company:*	Gredell Engineering Resources, Inc.		

Piezometer Development Record

Location: Ameren Labadie Plant DSI					*Date: 12/22/09*				
Piezometer:		*P-175*			*Initial Depth to Groundwater (ft, btoc):*		6.07 ft		
Borehole Diameter:		*8.25"*			*Base of Well (ft, btoc):*		37.79 ft		
Casing Diameter:		*2"*			*Filter Pack Hgt (ft):*		15.7 ft		
Development method:		*Submersible Pump/Bailer*			*Screened Interval Lithology: Very Fine-Fine sand*				
Date/Time of each purge		*Purge Volume (cummulative) (gallons)*	*Casing Volume (gallons)*	*Annular Volume (gallons)*	*Tremie Volume (gallons)*	*Total Purge Volume (gallons)*	*Turbidity (visual)*	*Initial Water Level (ft., btoc)*	*Ending Water Level (ft., btoc)*
12/22	8:50 - 8:55	1	5.1	6.8	56	91	cloudy	6.07	
12/22	8:58 - 9:13	28 (29)					cloudy		
12/22	9:18 - 9:33	28 (57)					clear		
12/22	9:38 - 9:56	34 (91)					clear		6.09
Comments:									
Name:	*Travis Doll*					*Company:*	Gredell Engineering Resources, Inc.		

Piezometer Development Record

Location: Ameren Labadie Plant DSI		*Date: 12/22/09*	
Piezometer:	*P-177*	*Initial Depth to Groundwater (ft, btoc):*	7.65 ft
Borehole Diameter:	*8.25"*	*Base of Well (ft, btoc):*	37.16 ft
Casing Diameter:	*2"*	*Filter Pack Hgt (ft):*	14.6 ft
Development method:	*Submersible Pump/Bailer*	*Screened Interval Lithology: Gravelly sand*	

Date/Time of each purge		*Purge Volume (cummulative) (gallons)*	*Casing Volume (gallons)*	*Annular Volume (gallons)*	*Tremie Volume (gallons)*	*Total Purge Volume (gallons)*	*Turbidity (visual)*	*Initial Water Level (ft., btoc)*	*Ending Water Level (ft., btoc)*
12/22	12:57 - 1:14	30	4.7	6.3	41	74		7.65	
12/22	1:18 - 1:38	30 (60)							
12/22	1:43 - 1:52	15 (75)							7.73

Comments:

Name: *Scott King* *Company:* Gredell Engineering Resources, Inc.

Piezometer Development Record

Location: Ameren Labadie Plant DSI		*Date: 12/17/09*	
Piezometer:	*P-179*	*Initial Depth to Groundwater (ft, btoc):*	6.54 ft
Borehole Diameter:	*8.25"*	*Base of Well (ft, btoc):*	37.97 ft
Casing Diameter:	*2"*	*Filter Pack Hgt (ft):*	15.6 ft
Development method:	*Submersible Pump/Bailer*	*Screened Interval Lithology: Fine-Coarse sand*	

Date/Time of each purge		*Purge Volume (cummulative) (gallons)*	*Casing Volume (gallons)*	*Annular Volume (gallons)*	*Tremie Volume (gallons)*	*Total Purge Volume (gallons)*	*Turbidity (visual)*	*Initial Water Level (ft., btoc)*	*Ending Water Level (ft., btoc)*
12/17	1:35 - 1:38	1	5.0	6.7	47	82	silty	6.54	
12/17	1:41 - 1:56	32 (33)					silty/clear		
12/17	2:01 - 2:16	32 (65)					clear		
12/17	2:21 - 2:29	17 (82)					clear		6.55

Comments:

Name: *Travis Doll* *Company:* Gredell Engineering Resources, Inc.

Piezometer Development Record

Location: Ameren Labadie Plant DSI					*Date: 12/17/09*				
Piezometer:		*P-181*			*Initial Depth to Groundwater (ft, btoc):*		6.80 ft		
Borehole Diameter:		*8.25"*			*Base of Well (ft, btoc):*		37.50 ft		
Casing Diameter:		*2"*			*Filter Pack Hgt (ft):*		15.2 ft		
Development method:		*Submersible Pump/Bailer*			*Screened Interval Lithology: Fine-Medium sand*				
Date/Time of each purge		*Purge Volume (cummulative) (gallons)*	*Casing Volume (gallons)*	*Annular Volume (gallons)*	*Tremie Volume (gallons)*	*Total Purge Volume (gallons)*	*Turbidity (visual)*	*Initial Water Level (ft., btoc)*	*Ending Water Level (ft., btoc)*
12/17	10:57 - 11:04	2	4.9	6.5	44	78	silty	6.80	
12/17	11:07 - 11:22	31 (33)					silty/clear		
12/17	11:27 - 11:42	31 (64)					clear		
12/17	11:47 - 11:54	14 (78)					clear		6.82
Comments:									
Name:	*Travis Doll*					*Company:*	Gredell Engineering Resources, Inc.		

Piezometer Development Record

Location: Ameren Labadie Plant DSI		*Date: 12/21/09*	
Piezometer:	*P-183*	*Initial Depth to Groundwater (ft, btoc):*	5.85 ft
Borehole Diameter:	*8.25"*	*Base of Well (ft, btoc):*	37.72 ft
Casing Diameter:	*2"*	*Filter Pack Hgt (ft):*	15.4 ft
Development method:	*Submersible Pump/Bailer*	*Screened Interval Lithology: Fine-Coarse sand*	

Date/Time of each purge		*Purge Volume (cummulative) (gallons)*	*Casing Volume (gallons)*	*Annular Volume (gallons)*	*Tremie Volume (gallons)*	*Total Purge Volume (gallons)*	*Turbidity (visual)*	*Initial Water Level (ft., btoc)*	*Ending Water Level (ft., btoc)*
12/21	3:19 - 3:23	1	5.1	6.6	40	75	cloudy	5.85	
12/21	3:26 - 3:41	29 (30)					cloudy/clear/vf sand		
12/21	3:46 - 4:01	29 (59)					clear		
12/21	4:06 - 4:14	15 (74)					clear		5.90

Comments:

Name: *Travis Doll* *Company:* Gredell Engineering Resources, Inc.

Piezometer Development Record

Location: Ameren Labadie Plant DSI					*Date: 12/21/09*				
Piezometer:		*P-185*			*Initial Depth to Groundwater (ft, btoc):*		6.31 ft		
Borehole Diameter:		*8.25"*			*Base of Well (ft, btoc):*		37.97 ft		
Casing Diameter:		*2"*			*Filter Pack Hgt (ft):*		14.5 ft		
Development method:		*Submersible Pump/Bailer*			*Screened Interval Lithology: Very Fine sand*				
Date/Time of each purge		*Purge Volume (cummulative) (gallons)*	*Casing Volume (gallons)*	*Annular Volume (gallons)*	*Tremie Volume (gallons)*	*Total Purge Volume (gallons)*	*Turbidity (visual)*	*Initial Water Level (ft., btoc)*	*Ending Water Level (ft., btoc)*
12/21	4:25 - 4:31	1	5.1	6.2	50	84	silty	6.31	
12/21	4:34 - 4:49	29 (30)					rusty/vf sand		
12/21	4:54 - 5:09	29 (59)					cloudy/clear		
12/21	5:14 - 5:27	25 (84)							6.38
Comments:									
Name:	*Travis Doll*					*Company:*	Gredell Engineering Resources, Inc.		

Piezometer Development Record

Location: Ameren Labadie Plant DSI					*Date: 12/01/09*				
Piezometer:		*P-187*			*Initial Depth to Groundwater (ft, btoc):*		3.32 ft		
Borehole Diameter:		*8.25"*			*Base of Well (ft, btoc):*		36.42 ft		
Casing Diameter:		*2"*			*Filter Pack Hgt (ft):*		14.4 ft		
Development method:		*Submersible Pump/Bailer*			*Screened Interval Lithology: Very Fine sand*				
Date/Time of each purge		*Purge Volume (cummulative) (gallons)*	*Casing Volume (gallons)*	*Annular Volume (gallons)*	*Tremie Volume (gallons)*	*Total Purge Volume (gallons)*	*Turbidity (visual)*	*Initial Water Level (ft., btoc)*	*Ending Water Level (ft., btoc)*
12/1	12:45		5.2	6.2	60	94		3.32	
12/1	12:47 - 1:06	5							
12/1	1:08 - 1:19	20 (25)							
12/1	1:23 - 1:34	20 (45)							
12/1	1:39 - 1:50	20 (65)							
12/1	1:54 - 2:04	20 (85)							
12/1	2:09 - 2:15	10 (95)							3.26
Comments:									
Name:	*Scott King*					*Company:*	Gredell Engineering Resources, Inc.		

Piezometer Development Record

Location: Ameren Labadie Plant DSI		*Date: 11/03/09*	
Piezometer:	*P-189*	*Initial Depth to Groundwater (ft, btoc):*	3.63 ft
Borehole Diameter:	*8.25"*	*Base of Well (ft, btoc):*	37.11 ft
Casing Diameter:	*2"*	*Filter Pack Hgt (ft):*	15.8 ft
Development method:	*Submersible Pump/Bailer*	*Screened Interval Lithology: Medium-Coarse sand*	

Date/Time of each purge		*Purge Volume (cummulative) (gallons)*	*Casing Volume (gallons)*	*Annular Volume (gallons)*	*Tremie Volume (gallons)*	*Total Purge Volume (gallons)*	*Turbidity (visual)*	*Initial Water Level (ft., btoc)*	*Ending Water Level (ft., btoc)*
11/3	11:55		5.4	6.8	25	61		3.63	
11/3	11:57 - 12:20	5							
11/3	12:22 - 12:33	20 (25)							
11/3	12:37 - 12:49	20 (45)							
11/3	12:54 - 1:06	16.5 (61.5)							3.63

Comments:

Name: *Scott King* *Company:* Gredell Engineering Resources, Inc.

Piezometer Development Record

Location: Ameren Labadie Plant DSI					*Date: 12/17/09*				
Piezometer:		*P-191*			*Initial Depth to Groundwater (ft, btoc):*		6.56 ft		
Borehole Diameter:		*8.25"*			*Base of Well (ft, btoc):*		37.68 ft		
Casing Diameter:		*2"*			*Filter Pack Hgt (ft):*		15.2 ft		
Development method:		*Submersible Pump/Bailer*			*Screened Interval Lithology: Fine-Coarse sand*				
Date/Time of each purge		*Purge Volume (cummulative) (gallons)*	*Casing Volume (gallons)*	*Annular Volume (gallons)*	*Tremie Volume (gallons)*	*Total Purge Volume (gallons)*	*Turbidity (visual)*	*Initial Water Level (ft., btoc)*	*Ending Water Level (ft., btoc)*
12/17	9:38 - 9:44	2	5.0	6.5	44	79	silty	6.56	
12/17	9:47 - 10:02	31 (33)					silty/clear		
12/17	10:07 - 10:22	31 (64)					clear		
12/17	10:27 - 10:39	25 (89)					clear		6.58
Comments:									
Name:	*Travis Doll*					*Company:*	Gredell Engineering Resources, Inc.		

Piezometer Development Record

Location: Ameren Labadie Plant DSI		*Date: 12/16/09*	
Piezometer:	*P-193*	*Initial Depth to Groundwater (ft, btoc):*	6.01 ft
Borehole Diameter:	*10.25"*	*Base of Well (ft, btoc):*	37.19 ft
Casing Diameter:	*4"*	*Filter Pack Hgt (ft):*	15.5 ft
Development method:	*Submersible Pump/Bailer*	*Screened Interval Lithology:*	*Very Fine-Fine sand*

Date/Time of each purge		*Purge Volume (cummulative) (gallons)*	*Casing Volume (gallons)*	*Annular Volume (gallons)*	*Tremie Volume (gallons)*	*Total Purge Volume (gallons)*	*Turbidity (visual)*	*Initial Water Level (ft., btoc)*	*Ending Water Level (ft., btoc)*
12/16	10:14	165	20.3	16.9	5.3	164	clear	6.01	6.14

Comments:

Name: *Travis Doll & Frank Phillips* *Company:* Gredell Engineering Resources, Inc.

Piezometer Development Record

Location: Ameren Labadie Plant DSI					*Date: 12/21/09*				
Piezometer:	*P-195*				*Initial Depth to Groundwater (ft, btoc):*	5.90 ft			
Borehole Diameter:	*8.25"*				*Base of Well (ft, btoc):*	38.14 ft			
Casing Diameter:	*2"*				*Filter Pack Hgt (ft):*	14.6 ft			
Development method:	*Submersible Pump/Bailer*				*Screened Interval Lithology: Very Fine-Fine sand*				
Date/Time of each purge		*Purge Volume (cummulative) (gallons)*	*Casing Volume (gallons)*	*Annular Volume (gallons)*	*Tremie Volume (gallons)*	*Total Purge Volume (gallons)*	*Turbidity (visual)*	*Initial Water Level (ft., btoc)*	*Ending Water Level (ft., btoc)*
12/21	1:49 - 2:04	2	5.2	6.3	50	84	vf sand/silty	5.90	
12/21	2:09 - 2:24	25 (27)					gray		
12/21	2:29 - 2:44	28 (55)					clear/vf sand		
12/21	2:49 - 3:05	29 (84)					clear		5.99
Comments:									
Name:	*Travis Doll*					*Company:*	Gredell Engineering Resources, Inc.		

Piezometer Development Record

Location: Ameren Labadie Plant DSI			*Date: 12/16/09*
Piezometer:	*P-197*		*Initial Depth to Groundwater (ft, btoc):* 4.85 ft
Borehole Diameter:	*10.25"*		*Base of Well (ft, btoc):* 37.12 ft
Casing Diameter:	*4"*		*Filter Pack Hgt (ft):* 15.4 ft
Development method:	*Submersible Pump/Bailer*		*Screened Interval Lithology: Fine-Medium sand*

Date/Time of each purge		*Purge Volume (cummulative) (gallons)*	*Casing Volume (gallons)*	*Annular Volume (gallons)*	*Tremie Volume (gallons)*	*Total Purge Volume (gallons)*	*Turbidity (visual)*	*Initial Water Level (ft., btoc)*	*Ending Water Level (ft., btoc)*
12/16	1:02	167	21.0	16.8	52	165	clear	4.85	5.11

Comments:

Name: *Travis Doll & Frank Phillips* *Company:* Gredell Engineering Resources, Inc.

Piezometer Development Record

Location: Ameren Labadie Plant DSI		*Date: 12/16/09*	
Piezometer:	*P-199*	*Initial Depth to Groundwater (ft, btoc):*	7.40 ft
Borehole Diameter:	*10.25"*	*Base of Well (ft, btoc):*	37.72 ft
Casing Diameter:	*4"*	*Filter Pack Hgt (ft):*	15.1 ft
Development method:	*Submersible Pump/Bailer*	*Screened Interval Lithology:*	*Very Fine-Coarse sand*

Date/Time of each purge		*Purge Volume (cummulative) (gallons)*	*Casing Volume (gallons)*	*Annular Volume (gallons)*	*Tremie Volume (gallons)*	*Total Purge Volume (gallons)*	*Turbidity (visual)*	*Initial Water Level (ft., btoc)*	*Ending Water Level (ft., btoc)*
12/16	8:54	165	19.7	16.5	56	165	clear	7.40	7.51

Comments:

Name: *Travis Doll & Frank Phillips* *Company:* Gredell Engineering Resources, Inc.

Piezometer Development Record

Location: Ameren Labadie Plant DSI					*Date: 12/17/09*				
Piezometer:		*P-201*			*Initial Depth to Groundwater (ft, btoc):*		6.71 ft		
Borehole Diameter:		*8.25"*			*Base of Well (ft, btoc):*		38.16 ft		
Casing Diameter:		*2"*			*Filter Pack Hgt (ft):*		15.0 ft		
Development method:		*Submersible Pump/Bailer*			*Screened Interval Lithology: Very Fine-Medium sand*				
Date/Time of each purge		*Purge Volume (cummulative) (gallons)*	*Casing Volume (gallons)*	*Annular Volume (gallons)*	*Tremie Volume (gallons)*	*Total Purge Volume (gallons)*	*Turbidity (visual)*	*Initial Water Level (ft., btoc)*	*Ending Water Level (ft., btoc)*
12/17	7:35 - 7:52	5	5.0	6.5	38	72	silty	6.71	
12/17	8:18 - 8:33	33 (38)					clear/silty		
12/17	8:38 - 8:53	35 (73)					clear		6.71
Comments:									
Name:	*Travis Doll*					*Company:*	Gredell Engineering Resources, Inc.		

AMEREN - Labadie Plant DSI - Well Development Field Data Sheet

Well ID	Date Drilled	Total Depth (BTOC)	Csg Dia. (inches)	Filter Sand Hgt (feet)	Initial WL (BTOC)	Initial WL Date/Time	Water Column Height feet	Annular Volume gallons	Casing Volume gallons	Tremie Volume gallons	Total Purge Volume gallons	Remarks
9	10/20/09	37.97	4	15.5	7.65	11-2/2:34	30.32	16.9	19.7	56	166	Developed 11/2 MCC
12	09/16/09	36.76	2	14.3	14.36	10-13/3:00	22.40	6.1	3.6	25	54	Developed 10/13
15	09/17/09	37.55	2	14.2	13.89	10-13/9:46	23.66	6.1	3.8	30	60	Developed 10/13
17	09/16/09	37.59	2	14.1	14.22	10-13/11:19	23.37	6.1	3.7	30	59	Developed 10/13
19	10/16/09	37.33	4	14.9	6.17	11-2/10:46	31.16	16.2	20.3	53	162	Developed 11/2 MCC
20	09/17/09	37.50	2	14.7	13.46	10-13/8:27	24.04	6.3	3.8	25	56	Developed 10/13
22	10/07/09	37.50	4	13.5	13.21	10-14/2:11	24.29	14.7	15.8	36	128	Developed 10/14
24	09/16/09	37.61	2	14.2	13.78	10-12/1:48	23.83	6.1	3.8	35	65	Developed 10/12
27	09/17/09	38.27	2	14.9	13.25	10-12/3:30	25.02	6.4	4.0	40	71	Developed 10/12
29	09/15/09	37.54	2	14.2	12.12	10-14/10:20	25.42	6.1	4.1	35	66	Developed 10/14
31	10/12/09	37.09	4	15.0	7.81	11-11/5:10	29.28	16.4	19.0	50	156	Developed 11/11 MCC/SK
33	09/14/09	37.30	2	14.3	15.40	10-7/10:43	21.90	6.1	3.5	30	59	Developed 10/7
35	09/15/09	36.41	2	13.7	12.36	10-12/5:35	24.05	5.9	3.8	50	79	Developed 10/12
36	09/15/09	37.49	2	15.3	12.80	10-14/11:47	24.69	6.6	4.0	30	62	Developed 10/14
38	09/22/09	37.16	2	15.3	11.34	10-12/9:20	25.82	6.6	4.1	40	72	Developed 10/12
40	10/12/09	37.73	2	16.0	5.01	11-2/10:08	32.72	6.9	5.2	38	74	Developed 11/2
42	10/06/09	37.40	4	14.8	8.60	10-28/1:31	28.80	16.1	18.7	48	153	Developed 10/28 MCC
43	09/17/09	37.20	2	14.7	9.19	10-19/9:40	28.01	6.3	4.5	35	67	Developed 10/19
45	09/18/09	37.44	2	15.2	10.30	10-15/10:50	27.14	6.5	4.3	40	73	Developed 10/15
47	09/18/09	37.09	2	14.5	10.26	10-15/9:13	26.83	6.2	4.3	50	82	Developed 10/15
49	10/14/09	37.81	2	15.5	6.07	11-2/1:22	31.74	6.7	5.1	38	73	Developed 11/2
51	10/14/09	37.32	2	16.3	8.13	10-26/2:35	29.19	7.0	4.7	40	75	Developed 11/2
53	10/15/09	37.10	4	15.0	7.57	10-29/8:17	29.53	16.4	19.2	53	160	Developed 11/2
55	10/14/09	37.01	2	15.1	6.33	11-2/3:21	30.68	6.5	4.9	40	74	Developed 11/2
57	10/15/09	37.28	4	15.4	7.71	10-29/10:05	29.57	16.8	19.2	69	177	Developed 11/2
59	09/21/09	37.37	2	14.6	7.87	10-19/11:19	29.50	6.3	4.7	38	71	Developed 10/19
61	10/26/09	37.53	4	14.7	6.41	11-12/8:15	31.12	16.0	20.2	50	159	Developed 11/12 MCC/SK
63	09/21/09	37.29	2	15.1	9.17	10-19/1:29	28.12	6.5	4.5	50	83	Developed 10/19
65	10/13/09	37.64	2	14.6	7.08	11-4/10:48	30.56	6.3	4.9	40	74	Developed 11/4
67	10/13/09	37.15	2	14.8	4.23	11-4/12:55	32.92	6.4	5.3	40	75	Developed 11/4
69	10/13/09	37.54	2	14.7	3.94	11-4/2:45	33.60	6.3	5.4	40	75	Developed 11/4
71	10/21/09	37.62	2	14.8	8.03	11-10/2:06	29.59	6.4	4.7	48	81	Developed 11/10
73	11/05/09	36.84	4	14.7	7.51	11-12/8:56	29.33	16.0	19.1	40	145	Developed 11/12 MCC/SK
75	09/28/09	37.23	2	14.6	8.64	10-19/4:23	28.59	6.3	4.6	31	64	Developed 10/19
77	09/28/09	37.45	2	15.1	8.01	10-19/3:18	29.44	6.5	4.7	31	65	Developed 10/19
79	10/28/09	37.60	2	14.7	5.86	11-6/9:32	31.74	6.3	5.1	56	90	Developed 11/6
81	10/28/09	37.43	4	14.8	7.66	11-11/2:07	29.77	16.1	19.4	53	159	Developed 11/11 MCC/SK
83	11/10/09	37.14	2	14.8	5.48	12-1/2:41	31.66	6.4	5.1	30	64	Developed 12/1
85	11/10/09	36.71	4	15.3	4.61	11-30/2:08	32.10	16.7	20.9	50	163	Developed 11/30 TD/SK
87	10/26/09	36.17	2	15.4	6.92	11-9/3:37	29.25	6.6	4.7	50	84	Developed 11-10
88	11/06/09	37.01	2	14.0	4.97	11-20/1:10	32.04	6.0	5.1	60	93	Developed 11/20

AMEREN - Labadie Plant DSI - Well Development Field Data Sheet

Well ID	Date Drilled	Total Depth (BTOC)	Csg Dia. (inches)	Filter Sand Hgt (feet)	Initial WL (BTOC)	Initial WL Date/Time	Water Column Height feet	Annular Volume gallons	Casing Volume gallons	Tremie Volume gallons	Total Purge Volume gallons	Remarks
90	09/28/09	37.01	2	15.0	8.10	10-20/11:45	28.91	6.5	4.6	31	64	Developed 10/20
93	10/20/09	36.90	2	14.5	4.88	11-6/11:16	32.02	6.2	5.1	69	103	Developed 11/6
95	10/20/09	37.12	2	14.6	6.11	11-6/1:18	31.01	6.3	5.0	60	94	Developed 11/6
97	10/21/09	36.85	2	14.8	5.98	11-6/3:32	30.87	6.4	4.9	66	100	Developed 11/6
99	10/21/09	36.55	2	15.0	4.36	11-9/1:47	32.19	6.5	5.2	60	95	Developed 11/9
102	09/29/09	35.87	2	14.9	7.15	10-20/2:52	28.72	6.4	4.6	31	64	Developed 10/20
104	10/05/09	37.34	4	15.0	5.14	11-11/2:47	32.20	16.4	20.9	39	151	Developed 11/11 MCC/SK
106	10/29/09	37.78	2	14.9	4.99	11-9/11:59	32.79	6.4	5.2	50	85	Developed 11/9
108	11/04/09	37.45	2	15.0	5.70	11-10/3:48	31.75	6.5	5.1	44	79	Developed 11-10
110	11/04/09	37.01	2	14.9	6.33	11-11/7:11	30.68	6.4	4.9	38	72	Developed 11/11
112	11/04/09	36.70	2	15.3	6.33	11-11/8:55	30.37	6.6	4.9	31	65	Developed 11/11
114	11/12/09	37.54	4	14.7	4.75	11-30/1:31	32.79	16.0	21.3	78	190	Developed 11/30 TD/SK
116	09/29/09	37.48	2	15.2	7.38	10-26/4:21	30.10	6.5	4.8	25	59	Developed 10/26
118	09/29/09	37.96	2	15.3	5.16	11-12/11:16	32.80	6.6	5.2	28	63	Developed 11/12
120	10/22/09	37.39	4	15.2	5.45	11-30/12:08	31.94	16.6	20.8	54	166	Developed 11/30 TD/SK
122	11/10/09	37.44	2	15.1	5.08	11-12/1:22	32.36	6.5	5.2	42	77	Developed 11/12
124	11/11/09	37.73	2	15.2	6.35	12-3/3:57	31.38	6.5	5.0	48	83	Developed 12/3 SK
126	11/11/09	36.87	4	15.2	6.65	11-30/12:55	30.22	16.6	19.6	42	151	Developed 11/30 TD/SK
128	11/07/09	37.39	4	15.2	6.23	11-12/9:30	31.16	16.6	20.3	72	182	Developed 11/12 MCC/SK
130	09/30/09	37.35	2	15.5	6.31	10-26/12:13	31.04	6.7	5.0	44	79	Developed 10/26
132	10/15/09	37.71	2	15.0	4.33	11-3/9:50	33.38	6.5	5.3	56	91	Developed 11/3
134	11/10/09	37.62	2	16.6	4.14	11-12/3:12	33.48	7.1	5.4	20	57	Developed 11/12
136	11/11/09	37.63	4	14.7	4.43	11-30/2:50	33.20	16.0	21.6	70	183	Developed 11/30 TD/SK
138	11/12/09	37.05	2	15.1	7.27	12-21/2:33	29.78	6.5	4.8	44	78	Developed 12/21 SK
140	10/27/09	37.16	2	14.6	6.07	11-11/11:25	31.09	6.3	5.0	44	78	Developed 11/11
142	11/06/09	37.56	2	15.0	6.01	12-1/4:08	31.55	6.5	5.0	63	97	Developed 12/2
144	09/30/09	37.52	4	14.7	3.29	11-2/11:37	34.23	16.0	22.2	96	211	Developed 11/2 MCC
146	11/09/09	37.28	2	16.8	5.38	12-2/12:03	31.90	7.2	5.1	34	71	Developed 12/2
148	11/09/09	37.42	2	14.4	7.67	12-22/9:55	29.75	6.2	4.8	36	69	Developed 12/22 SK
150	11/14/09	37.62	2	15.1	6.34	12-22/8:10	31.28	6.5	5.0	36	70	Developed 12/22 SK
152	11/12/09	37.14	2	15.3	6.39	12-21/4:10	30.75	6.6	4.9	48	82	Developed 12/21 SK
155	09/30/09	37.33	2	14.9	1.86	11-4/8:39	35.47	6.4	5.7	38	74	Developed 11/4
156	11/09/09	37.24	2	14.5	5.47	12-2/2:12	31.77	6.2	5.1	44	78	Developed 12/2 SK
158	11/13/09	37.64	2	14.6	5.83	12-2/1:40	31.81	6.3	5.1	40	74	Developed 12/3 SK
160	12/11/09	37.90	2	15.0	6.74	12-22/7:31	31.16	6.5	5.0	50	84	Developed 12/22 TAD
162	12/10/09	37.71	4	15.1	5.03	12-16/1:50	32.68	16.5	21.2	69	182	Developed 12/16 TD/FP
164	12/04/09	37.26	4	15.5	4.87	12-16/2:35	32.39	16.9	21.1	50	164	Developed 12/16 TD/FP
165	11/13/09	37.30	4	15.1	4.41	11-30/3:36	32.89	16.5	21.4	60	174	Developed 11/30 TD/SK
167	10/05/09	37.10	2	14.8	2.27	11-3/1:25	34.83	6.4	5.6	48	84	Developed 11/3
169	12/02/09	37.93	4	15.5	7.03	12-16/11:01	30.90	16.9	20.1	60	171	Developed 12/16 TD/FP
171	12/02/09	37.70	2	15.0	6.25	12-17/2:54	31.45	6.5	5.0	40	74	Developed 12/17 TD
173	12/12/09	37.91	2	14.1	6.47	12-22/10:08	31.44	6.1	5.0	50	83	Developed 12/22 TD

AMEREN - Labadie Plant DSI - Well Development Field Data Sheet

Well ID	Date Drilled	Total Depth (BTOC)	Csg Dia. (inches)	Filter Sand Hgt (feet)	Initial WL (BTOC)	Initial WL Date/Time	Water Column Height feet	Annular Volume gallons	Casing Volume gallons	Tremie Volume gallons	Total Purge Volume gallons	Remarks
175	12/15/09	37.79	2	15.7	6.07	12-22/8:50	31.72	6.8	5.1	56	91	Developed 12/22 TD
177	11/13/09	37.16	2	14.6	7.65	12-22/12:57	29.51	6.3	4.7	41	74	Developed 12/22 SK
179	12/03/09	37.97	2	15.6	6.54	12-17/1:38	31.43	6.7	5.0	47	82	Developed 12/17 TD
181	12/03/09	37.50	2	15.2	6.80	12-17/11:04	30.70	6.5	4.9	44	78	Developed 12/17 TD
183	12/11/09	37.72	2	15.4	5.85	12-21/3:19	31.87	6.6	5.1	40	75	Developed 12/21 TD
185	12/15/09	37.97	2	14.5	6.31	12-21/4:25	31.66	6.2	5.1	50	84	Developed 12/21 TD
187	10/28/09	36.42	2	14.4	3.32	12-1/12:45	33.10	6.2	5.3	60	94	Developed 12/1 SK
189	10/12/09	37.11	2	15.8	3.63	11-3/11:56	33.48	6.8	5.4	25	61	Developed 11/3
191	12/03/09	37.68	2	15.2	6.56	12-17/9:44	31.12	6.5	5.0	44	79	Developed 12/17 TD
193	12/04/09	37.19	4	15.5	6.01	12-16/10:14	31.18	16.9	20.3	53	164	Developed 12/16 TD/FP
195	12/11/09	38.14	2	14.6	5.90	12-21/1:49	32.24	6.3	5.2	50	84	Developed 12/21 TD
197	12/05/09	37.12	4	15.4	4.85	12-16/1:02	32.27	16.8	21.0	52	165	Developed 12/16 TD/FP
199	12/01/09	37.72	4	15.1	7.40	12-16/8:54	30.32	16.5	19.7	56	165	Developed 12/16 TD/FP
201	12/01/09	38.16	2	15.0	6.71	12-17/7:52	31.45	6.5	5.0	38	72	Developed 12/17 TD

Conversions:
Water Column Height = Total Depth - Initial WL

For 2" wells
Annular Volume = filter sand hgt X 0.43
Casing Volume = water column hgt X 0.16

For 4" wells
Annular Volume = filter sand hgt X 1.09
Casing Volume = water column hgt X 0.65

Purge Volume = ((Annular Vol + Csg Volume)*3)+Tremie Volume

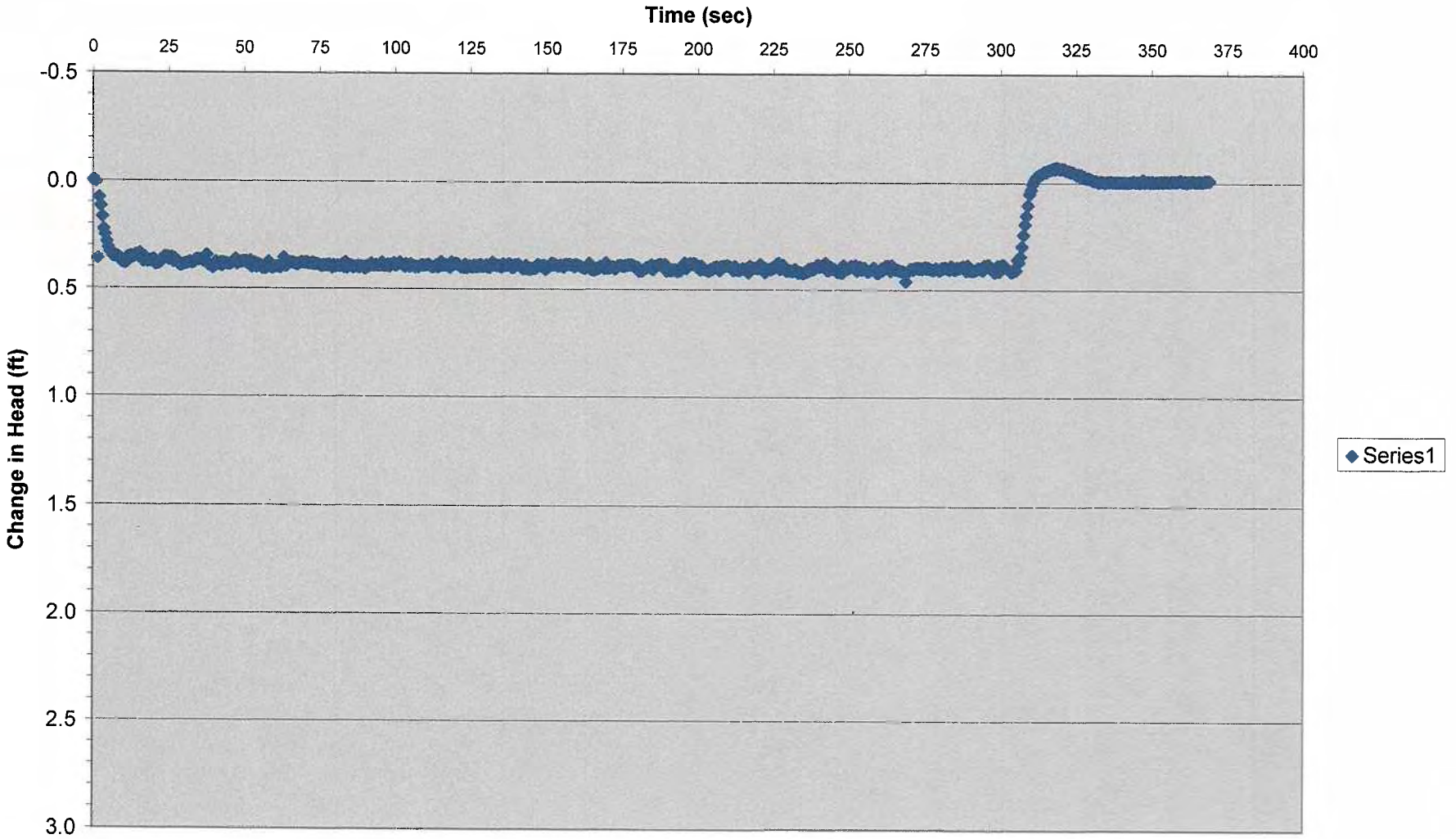
Appendix 9

Aquifer Test Data

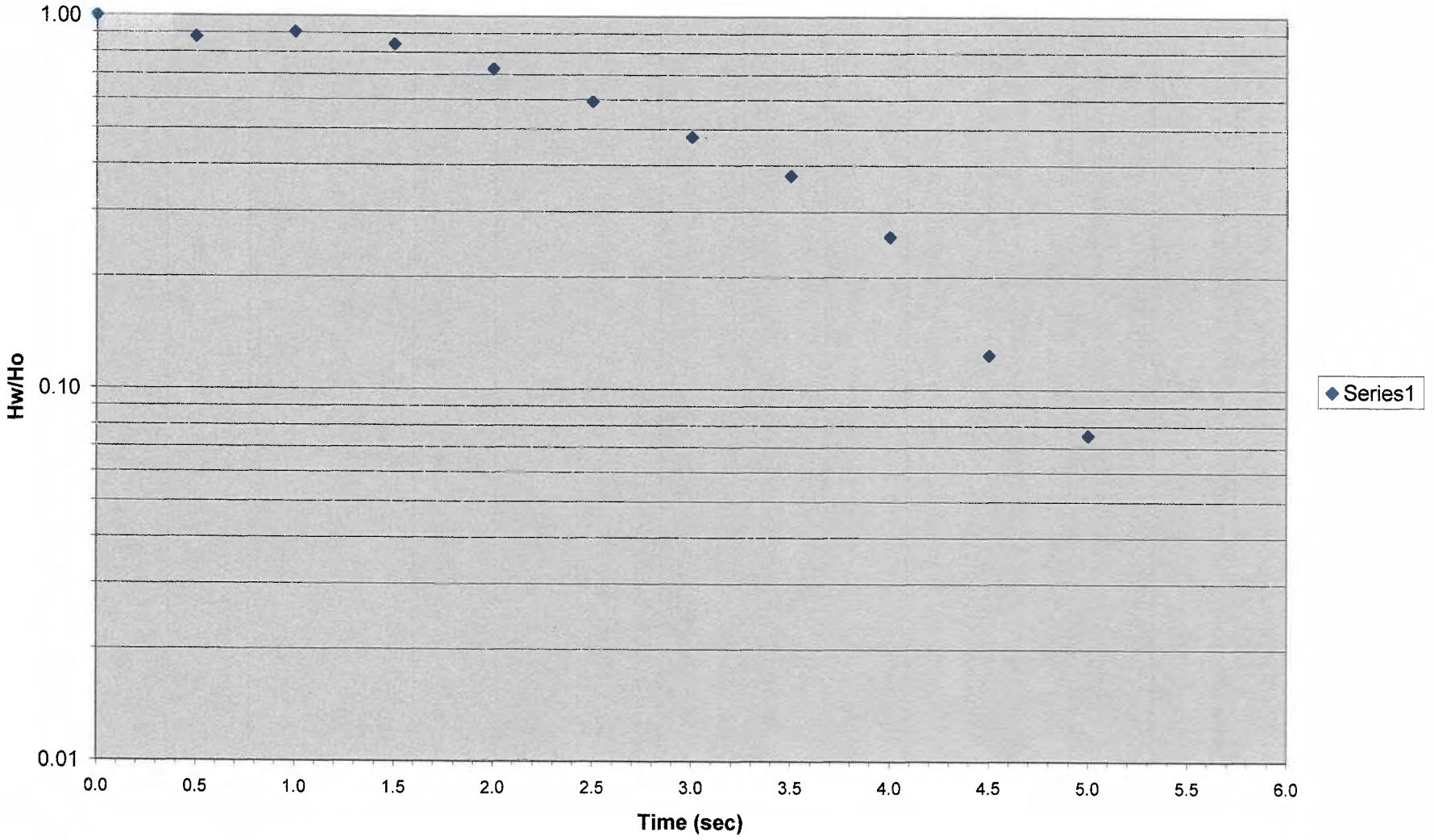
Detailed Site Investigation
Proposed Utility Waste Disposal Area
Ameren Labadie Power Plant

Prepared by: GREDELL Engineering Resources, Inc.

Detailed Site Investigation - Ameren Labadie Power Plant
Drawdown Curve - P9



Detailed Site Investigation - Ameren Labadie Power Plant
Plot of 90% Recovery Curve - P9



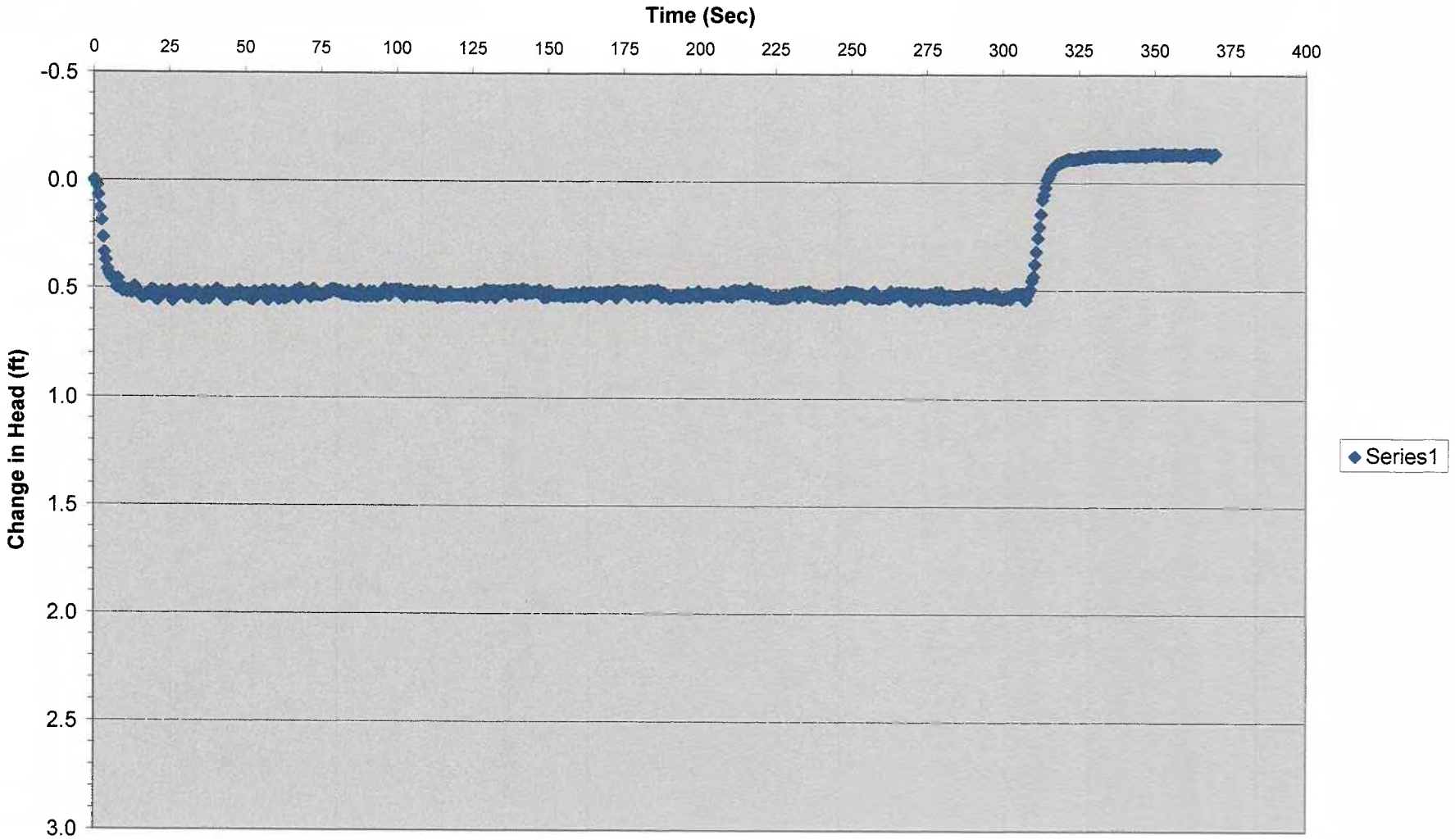
Detailed Site Investigation
Proposed Utility Waste Disposal Area
Ameren Labadie Power Plant
Franklin County, Missouri

Recovery Data Table for P-9 Aquifer Test

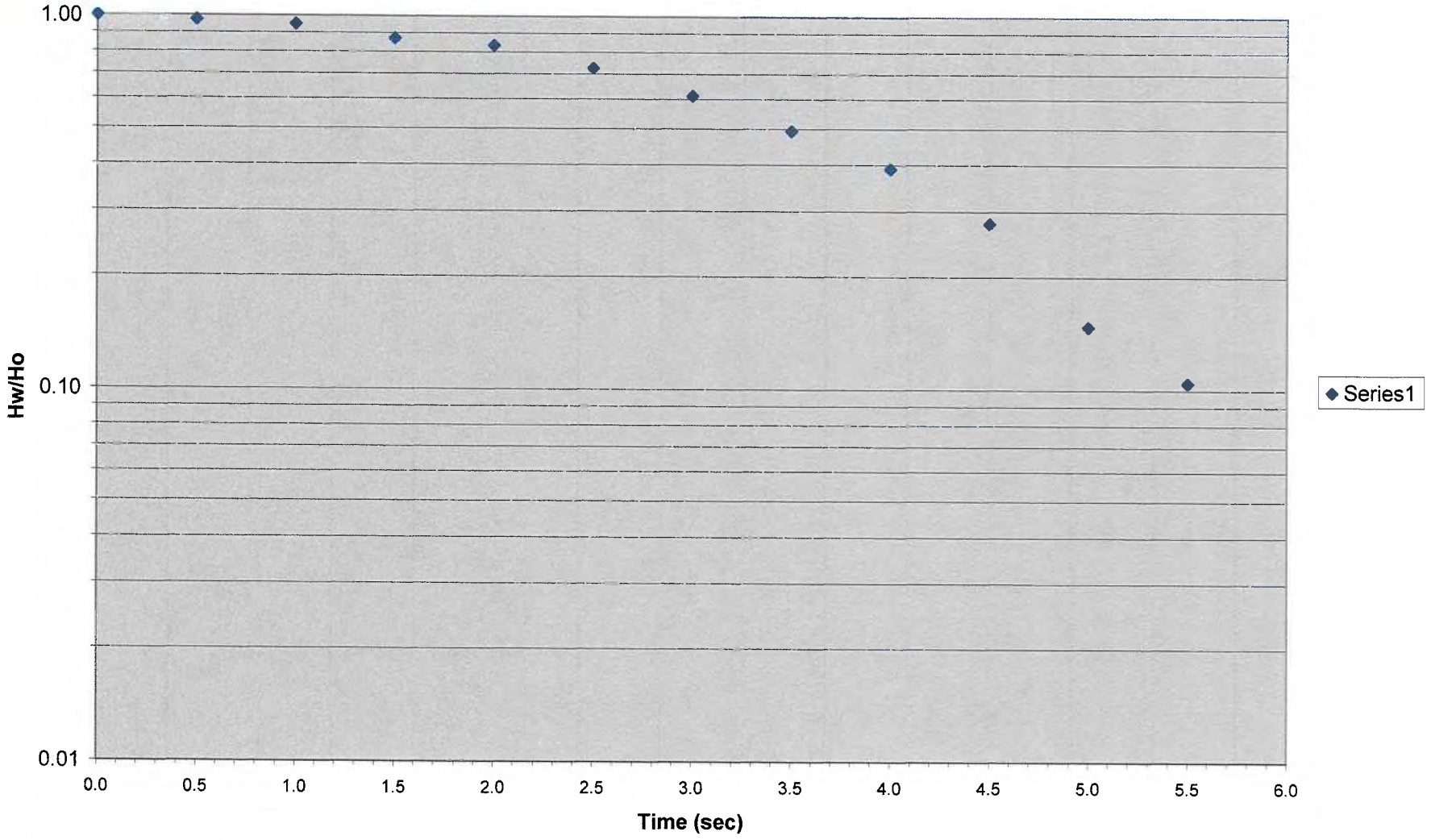
H_o (ft)	H_w (ft)	ET (sec)	H_w/H_o	Log(H_w/H_o)	ET (sec)
0.406	0.41	0.0	1.00	0.00	0.0
0.406	0.36	0.5	0.88	-0.06	0.5
0.406	0.37	1.0	0.91	-0.04	1.0
0.406	0.34	1.5	0.84	-0.08	1.5
0.406	0.29	2.0	0.73	-0.14	2.0
0.406	0.24	2.5	0.59	-0.23	2.5
0.406	0.19	3.0	0.48	-0.32	3.0
0.406	0.15	3.5	0.38	-0.43	3.5
0.406	0.10	4.0	0.26	-0.59	4.0
0.406	0.05	4.5	0.12	-0.91	4.5
0.406	0.03	5.0	0.08	-1.12	5.0
0.406	0.01	5.5	0.01	-1.85	5.5

ET Seconds	SWL (ft, btoc)	Depth Feet	Relative Change Feet		
0.0	15.6000	7.2841	0.000	SWL=	15.60
0.5	15.5978	7.2862	-0.002	Pump On	
0.0	16.0061	6.8779	0.406	Pump Off	
0.5	15.9565	6.9275	0.357		
1.0	15.9676	6.9164	0.368		
1.5	15.9415	6.9425	0.341		
2.0	15.8944	6.9896	0.294		
2.5	15.8408	7.0432	0.241		
3.0	15.7933	7.0907	0.193		
3.5	15.7523	7.1317	0.152		
4.0	15.7044	7.1796	0.104		
4.5	15.6501	7.2339	0.050	88% Recovery	
5.0	15.6307	7.2533	0.031	92% Recovery	
5.5	15.6058	7.2782	0.006	99% Recovery	

Detailed Site Investigation - Ameren Labadie Power Plant
Drawdown Curve - P19



Detailed Site Investigation - Ameren Labadie Power Plant
Plot of 90% Recovery Curve - P19



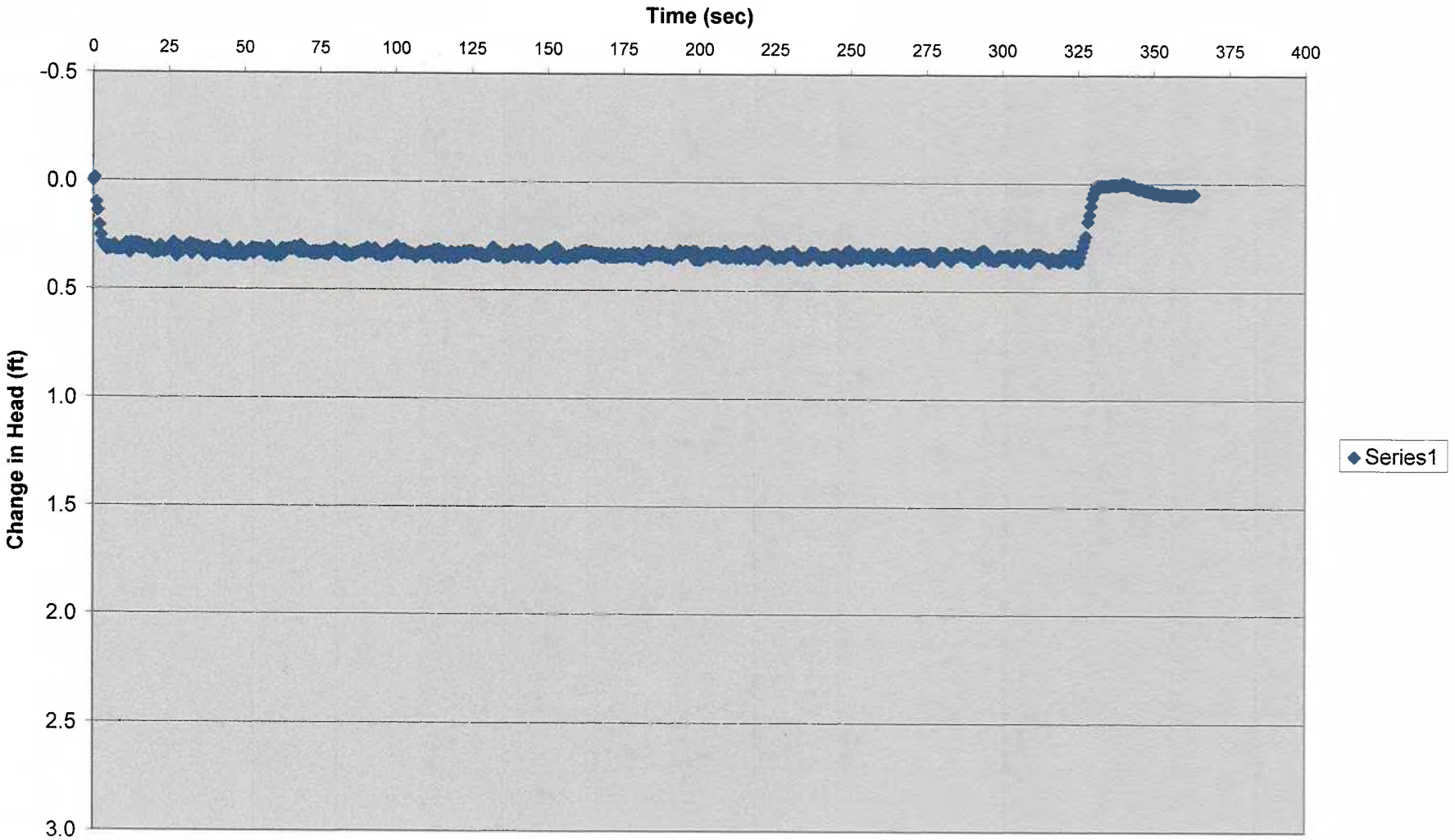
Detailed Site Investigation
Proposed Utility Waste Disposal Area
Ameren Labadie Power Plant
Franklin County, Missouri

Recovery Data Table for P-19 Aquifer Test

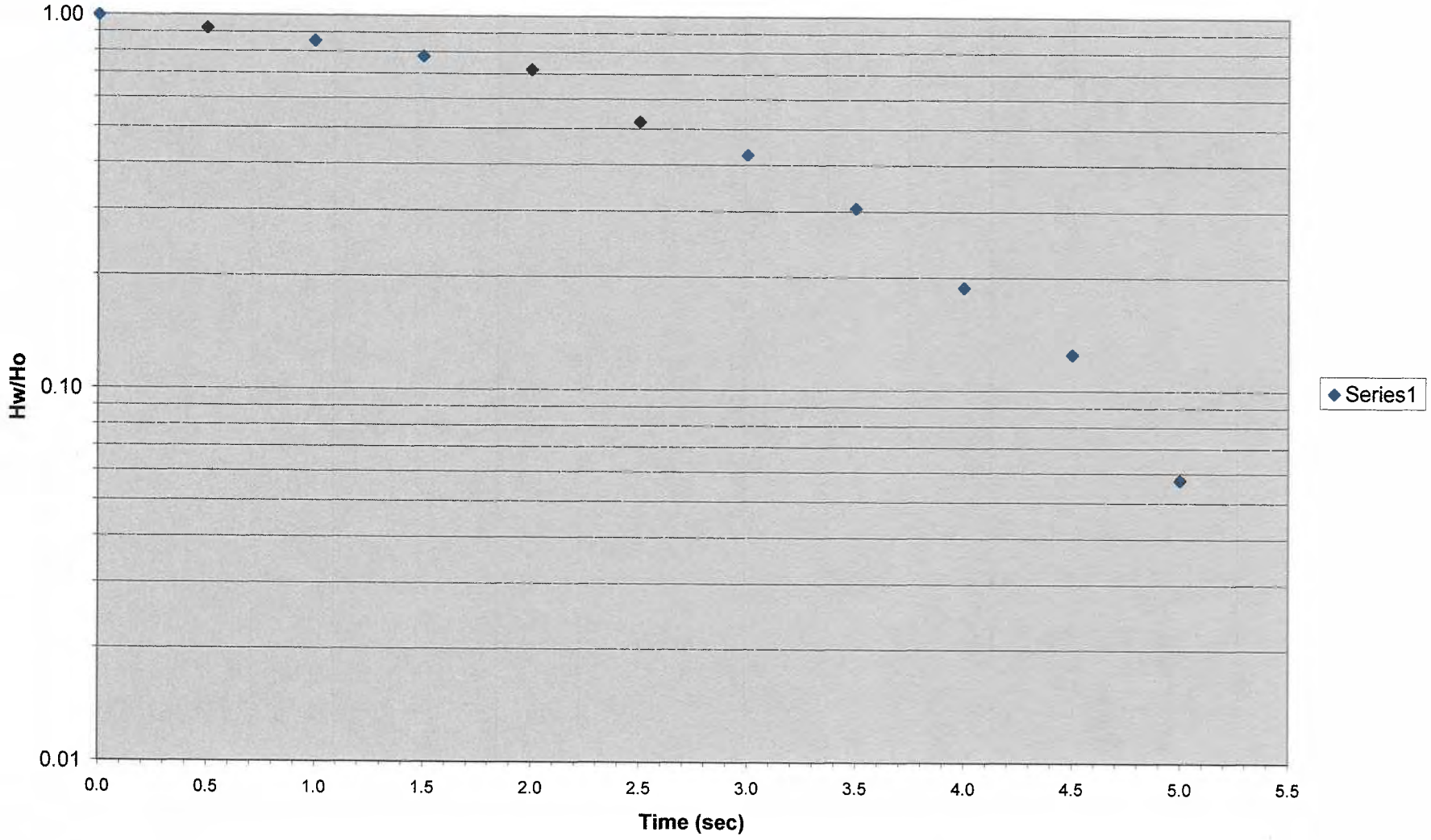
H_o (ft)	H_w (ft)	ET (sec)	H_w/H_o	Log(H_w/H_o)	ET (sec)
0.520	0.52	0.0	1.00	0.00	0.0
0.520	0.51	0.5	0.97	-0.01	0.5
0.520	0.49	1.0	0.95	-0.02	1.0
0.520	0.45	1.5	0.87	-0.06	1.5
0.520	0.43	2.0	0.83	-0.08	2.0
0.520	0.38	2.5	0.73	-0.14	2.5
0.520	0.32	3.0	0.61	-0.21	3.0
0.520	0.26	3.5	0.49	-0.31	3.5
0.520	0.20	4.0	0.39	-0.41	4.0
0.520	0.14	4.5	0.28	-0.55	4.5
0.520	0.08	5.0	0.15	-0.83	5.0
0.520	0.05	5.5	0.10	-0.98	5.5
0.520	0.02	6.0	0.04	-1.40	6.0

ET Seconds	SWL (ft, btoc)	Depth Feet	Relative Change Feet		
0.0	11.43	6.07	0.000	SWL=	11.43
0.5	11.43	6.07	0.002	Pump On	
0.0	11.95	5.55	0.520	Pump Off	
0.5	11.94	5.57	0.507		
1.0	11.92	5.58	0.494		
1.5	11.88	5.62	0.453		
2.0	11.86	5.64	0.434		
2.5	11.81	5.70	0.378		
3.0	11.75	5.76	0.319		
3.5	11.69	5.82	0.256		
4.0	11.63	5.87	0.203		
4.5	11.57	5.93	0.145		
5.0	11.51	6.00	0.077		
5.5	11.48	6.02	0.054	90% Recovery	
6.0	11.45	6.05	0.020	96% Recovery	

Detailed Site Investigation - Ameren Labadie Power Plant
Drawdown Curve - P22



Detailed Site Investigation - Ameren Labadie Power Plant
Plot of 90% Recovery Curve - P22



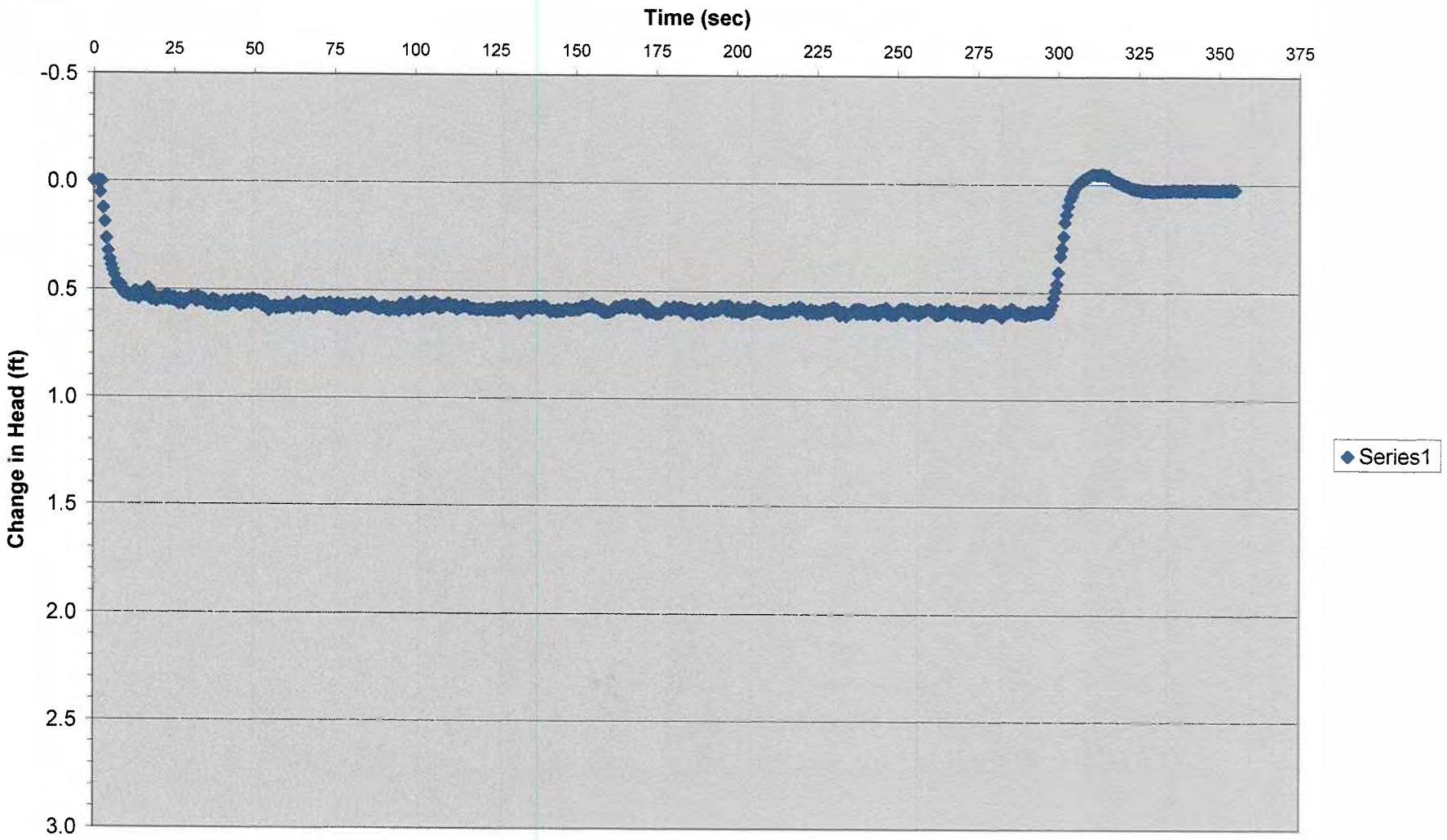
Detailed Site Investigation
Proposed Utility Waste Disposal Area
Ameren Labadie Power Plant
Franklin County, Missouri

Recovery Data Table for P-22 Aquifer Test

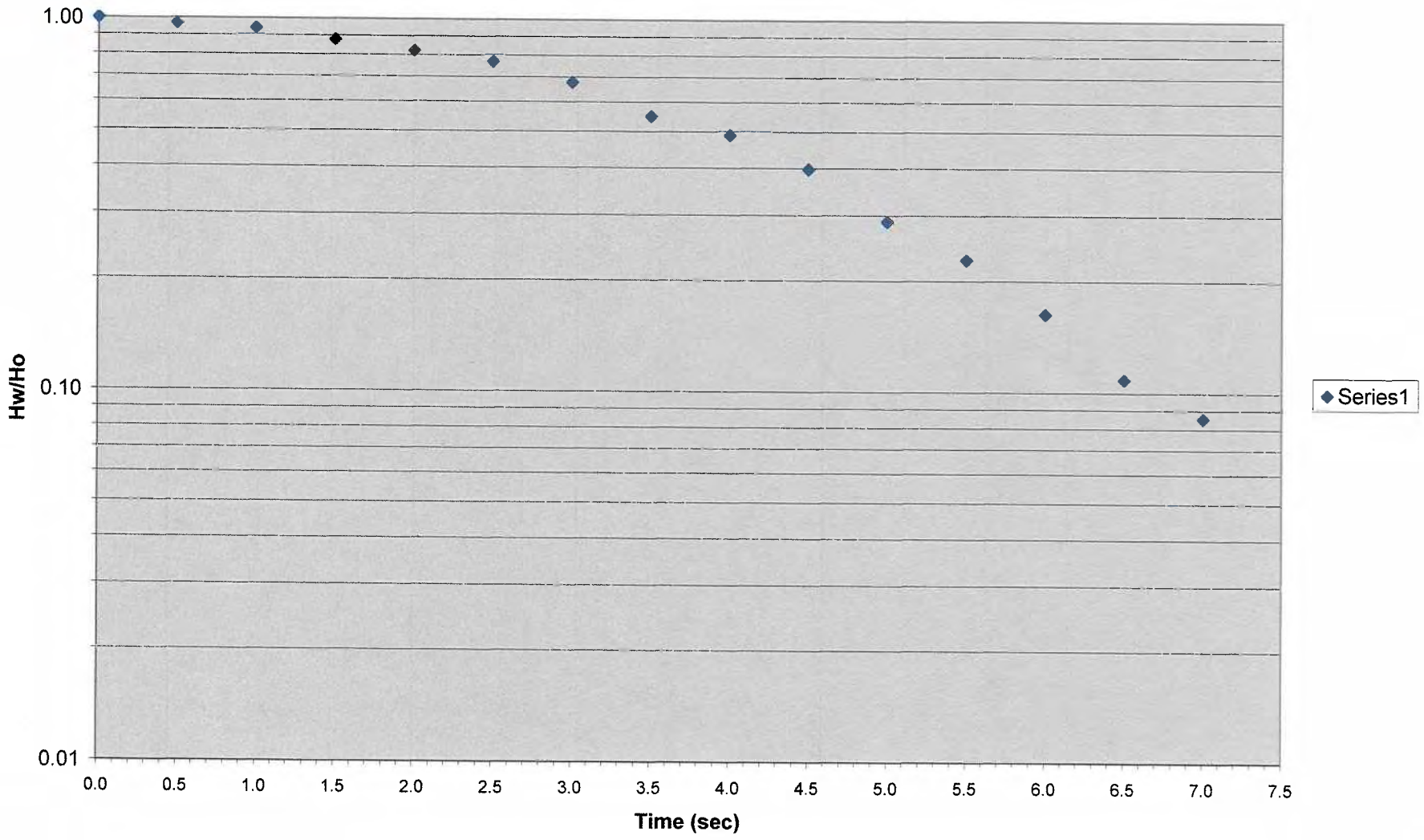
H_o (ft)	H_w (ft)	ET (sec)	H_w/H_o	Log(H_w/H_o)	ET (sec)
0.338	0.34	0.0	1.00	0.00	0.0
0.338	0.31	0.5	0.92	-0.04	0.5
0.338	0.29	1.0	0.85	-0.07	1.0
0.338	0.26	1.5	0.78	-0.11	1.5
0.338	0.24	2.0	0.72	-0.14	2.0
0.338	0.18	2.5	0.52	-0.28	2.5
0.338	0.14	3.0	0.42	-0.37	3.0
0.338	0.10	3.5	0.31	-0.52	3.5
0.338	0.06	4.0	0.19	-0.73	4.0
0.338	0.04	4.5	0.13	-0.90	4.5
0.338	0.02	5.0	0.06	-1.24	5.0
0.338	0.01	5.5	0.04	-1.43	5.5
0.338	0.01	6.0	0.02	-1.67	6.0
0.338	0.01	6.5	0.04	-1.44	6.5
0.338	0.01	7.0	0.02	-1.66	7.0
0.338	0.01	7.5	0.03	-1.49	7.5
0.338	0.01	8.0	0.03	-1.57	8.0
0.338	0.01	8.5	0.03	-1.50	8.5
0.338	0.01	9.0	0.03	-1.50	9.0
0.338	0.01	9.5	0.03	-1.53	9.5
0.338	0.01	10.0	0.02	-1.76	10.0
0.338	0.01	10.5	0.02	-1.75	10.5
0.338	0.01	11.0	0.02	-1.72	11.0
0.338	0.00	11.5	0.01	-1.92	11.5

ET Seconds	SWL (ft, btoc)	Depth Feet	Relative Change Feet		
0.0	12.36	6.00	0.000	SWL=	12.36
0.5	12.35	6.02	-0.012	Pump On	
0.0	12.70	5.67	0.338	Pump Off	
0.5	12.67	5.69	0.313		
1.0	12.65	5.72	0.289		
1.5	12.62	5.74	0.264		
2.0	12.60	5.76	0.244		
2.5	12.54	5.83	0.177		
3.0	12.50	5.86	0.144		
3.5	12.46	5.90	0.104		
4.0	12.42	5.94	0.064		
4.5	12.40	5.96	0.043		
5.0	12.38	5.98	0.020	94% Recovery	
5.5	12.37	5.99	0.013	96% Recovery	
6.0	12.37	6.00	0.008		
6.5	12.37	5.99	0.013		
7.0	12.37	6.00	0.008		
7.5	12.37	5.99	0.012		
8.0	12.37	5.99	0.010		
8.5	12.37	5.99	0.012		
9.0	12.37	5.99	0.012		
9.5	12.37	5.99	0.011		
10.0	12.37	6.00	0.007		
10.5	12.37	6.00	0.007		
11.0	12.37	6.00	0.007		
11.5	12.36	6.00	0.005	99% Recovery	

Detailed Site Investigation - Ameren Labadie Power Plant
Drawdown Curve - P31



Detailed Site Investigation - Ameren Labadie Power Plant
Plot of 90% Recovery Curve - P31



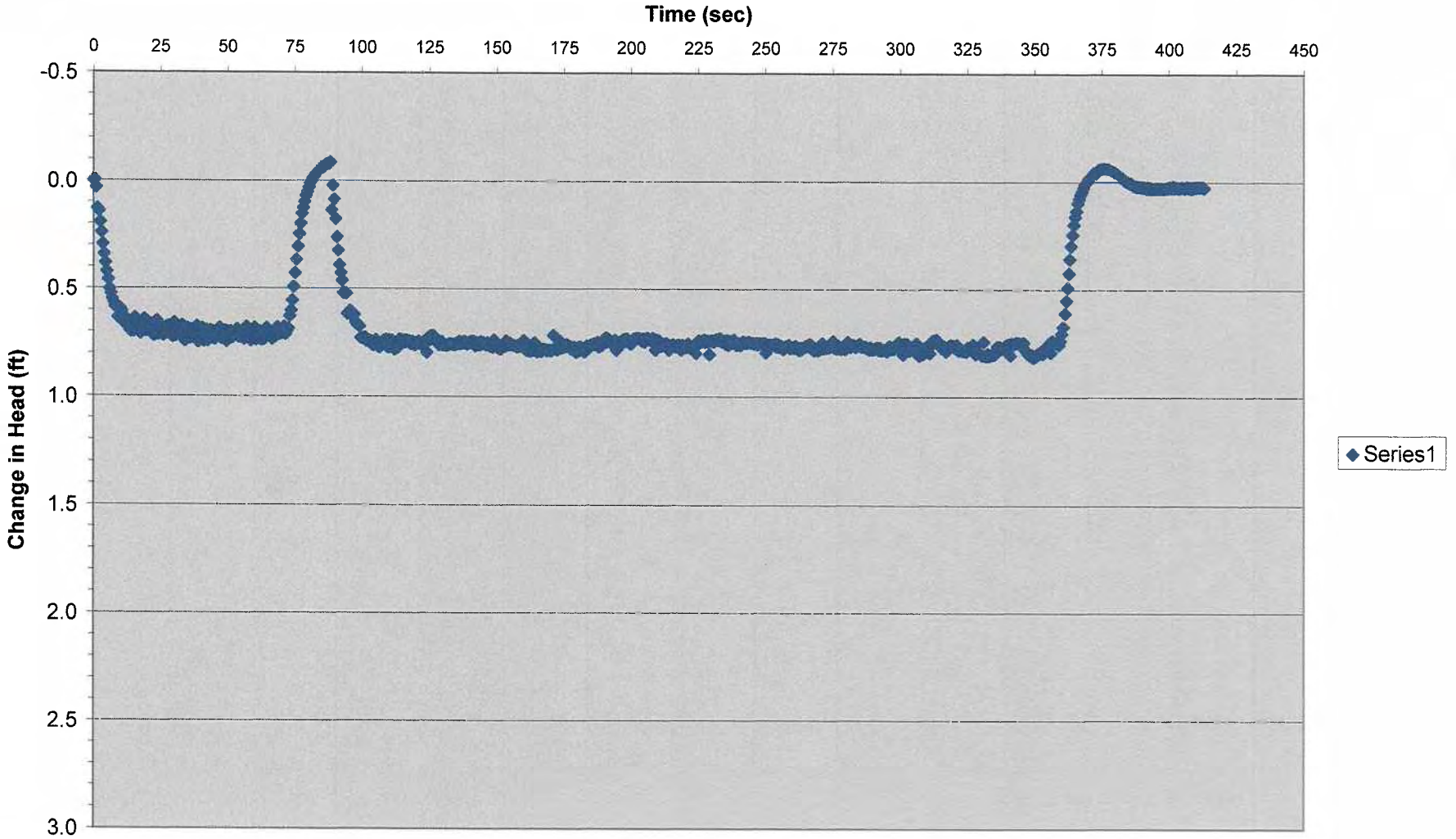
Detailed Site Investigation
Proposed Utility Waste Disposal Area
Ameren Labadie Power Plant
Franklin County, Missouri

Recovery Data Table for P-31 Aquifer Test

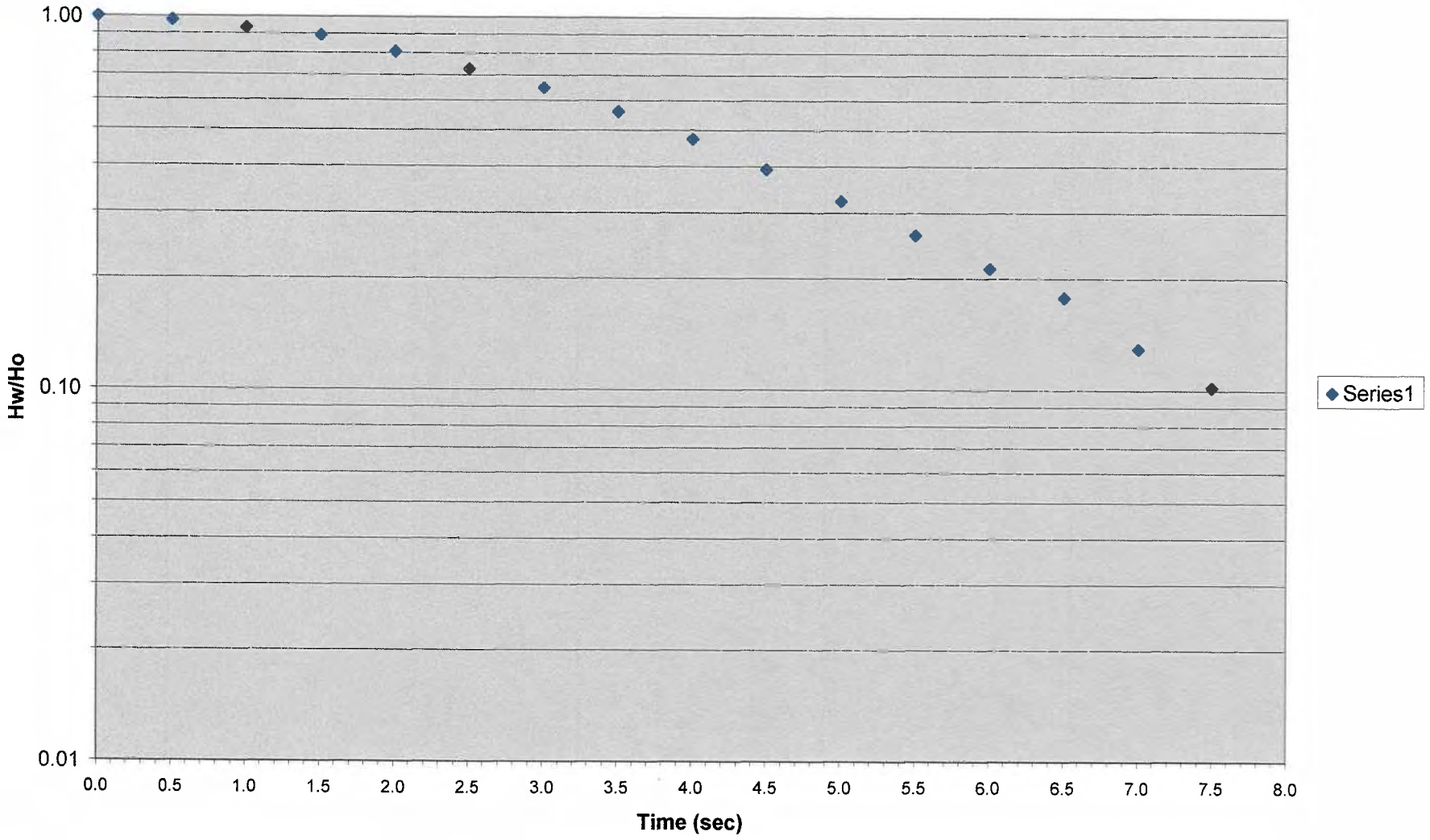
H_o (ft)	H_w (ft)	ET (sec)	H_w/H_o	$Log(H_w/H_o)$	ET (sec)
0.595	0.59	0.0	1.00	0.00	0.0
0.595	0.57	0.5	0.96	-0.02	0.5
0.595	0.56	1.0	0.94	-0.03	1.0
0.595	0.52	1.5	0.88	-0.06	1.5
0.595	0.49	2.0	0.82	-0.08	2.0
0.595	0.46	2.5	0.77	-0.12	2.5
0.595	0.40	3.0	0.68	-0.17	3.0
0.595	0.33	3.5	0.55	-0.26	3.5
0.595	0.29	4.0	0.49	-0.31	4.0
0.595	0.24	4.5	0.40	-0.40	4.5
0.595	0.17	5.0	0.29	-0.54	5.0
0.595	0.14	5.5	0.23	-0.64	5.5
0.595	0.10	6.0	0.16	-0.79	6.0
0.595	0.06	6.5	0.11	-0.96	6.5
0.595	0.05	7.0	0.09	-1.07	7.0
0.595	0.03	7.5	0.05	-1.29	7.5
0.595	0.02	8.0	0.03	-1.60	8.0
0.595	0.01	8.5	0.01	-1.96	8.5
0.595	0.00	9.0	0.00	-3.17	9.0

ET Seconds	SWL (ft, btoc)	Depth Feet	Relative Change Feet		
0.0	11.23	11.68	0.000	SWL=	11.23
0.5	11.24	11.68	0.005	Pump On	
0.0	11.82	11.09	0.595	Pump Off	
0.5	11.80	11.11	0.574		
1.0	11.79	11.13	0.557		
1.5	11.75	11.16	0.523		
2.0	11.72	11.19	0.490		
2.5	11.69	11.23	0.456		
3.0	11.63	11.28	0.403		
3.5	11.56	11.36	0.326		
4.0	11.52	11.39	0.290		
4.5	11.47	11.45	0.237		
5.0	11.40	11.51	0.172		
5.5	11.37	11.55	0.135		
6.0	11.33	11.59	0.097		
6.5	11.29	11.62	0.065		
7.0	11.28	11.63	0.051	91% Recovery	
7.5	11.26	11.65	0.030	95% Recovery	
8.0	11.25	11.67	0.015		
8.5	11.24	11.68	0.006	99% Recovery	
9.0	11.23	11.68	0.000		

Detailed Site Investigation - Ameren Labadie Power Plant
Drawdown Curve - P42



Detailed Site Investigation - Ameren Labadie Power Plant
Plot of 90% Recovery Curve - P42



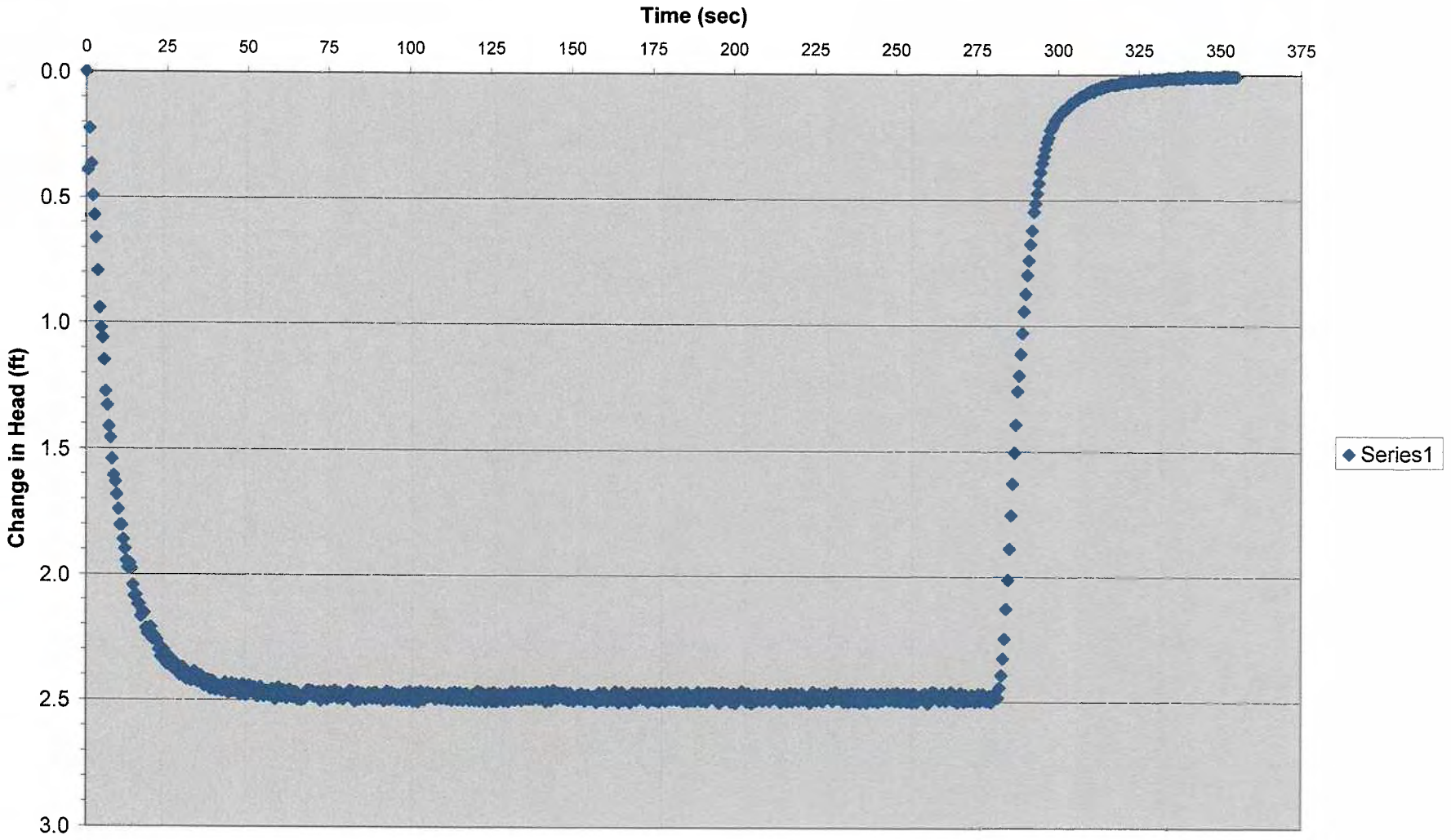
Detailed Site Investigation
Proposed Utility Waste Disposal Area
Ameren Labadie Power Plant
Franklin County, Missouri

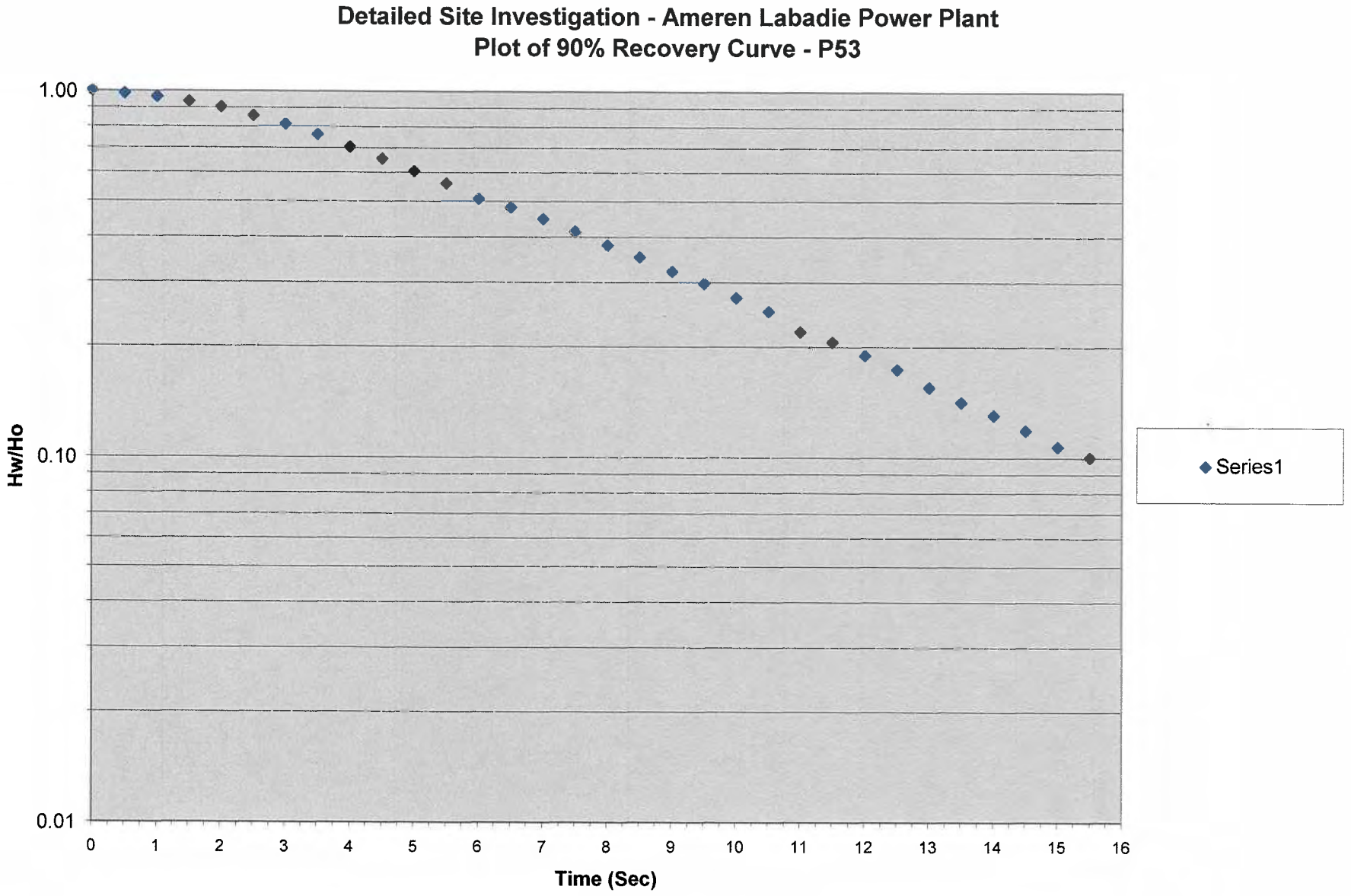
Recovery Data Table for P-42 Aquifer Test

H_o (ft)	H_w (ft)	ET (sec)	H_w/H_o	$Log(H_w/H_o)$	ET (sec)
0.755	0.76	0.0	1.00	0.00	0.0
0.755	0.74	0.5	0.98	-0.01	0.5
0.755	0.70	1.0	0.93	-0.03	1.0
0.755	0.67	1.5	0.89	-0.05	1.5
0.755	0.61	2.0	0.81	-0.09	2.0
0.755	0.55	2.5	0.73	-0.14	2.5
0.755	0.49	3.0	0.65	-0.19	3.0
0.755	0.42	3.5	0.56	-0.25	3.5
0.755	0.36	4.0	0.47	-0.32	4.0
0.755	0.30	4.5	0.39	-0.41	4.5
0.755	0.24	5.0	0.32	-0.49	5.0
0.755	0.20	5.5	0.26	-0.58	5.5
0.755	0.16	6.0	0.21	-0.67	6.0
0.755	0.13	6.5	0.18	-0.75	6.5
0.755	0.10	7.0	0.13	-0.89	7.0
0.755	0.08	7.5	0.10	-0.99	7.5
0.755	0.06	8.0	0.08	-1.12	8.0
0.755	0.04	8.5	0.06	-1.24	8.5
0.755	0.03	9.0	0.04	-1.45	9.0
0.755	0.01	9.5	0.01	-1.83	9.5
0.755	0.00	10.0	0.01	-2.26	10.0

ET Seconds	SWL (ft, btoc)	Depth Feet	Relative Change Feet		
0.0	10.52	6.32	0.000	SWL=	10.52
0.5	10.52	6.32	-0.002	Pump On	
0.0	11.28	5.56	0.755	Pump Off	
0.5	11.26	5.58	0.737		
1.0	11.22	5.61	0.704		
1.5	11.19	5.65	0.673		
2.0	11.13	5.71	0.609		
2.5	11.07	5.77	0.549		
3.0	11.01	5.83	0.489		
3.5	10.94	5.90	0.423		
4.0	10.88	5.96	0.357		
4.5	10.82	6.02	0.297		
5.0	10.76	6.08	0.244		
5.5	10.72	6.12	0.197		
6.0	10.68	6.16	0.161		
6.5	10.65	6.18	0.134		
7.0	10.62	6.22	0.098		
7.5	10.60	6.24	0.077	90% Recovery	
8.0	10.58	6.26	0.057		
8.5	10.56	6.28	0.043		
9.0	10.55	6.29	0.027	96% Recovery	
9.5	10.53	6.31	0.011	99% Recovery	
10.0	10.52	6.31	0.004		

Detailed Site Investigation - Ameren Labadie Power Plant
Drawdown Curve - P53




Detailed Site Investigation - Ameren Labadie Power Plant
Plot of 90% Recovery Curve - P53
1.00
0.10
0.01
Hw/Ho
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
Time (Sec)
Series1

Detailed Site Investigation
Proposed Utility Waste Disposal Area
Ameren Labadie Power Plant
Franklin County, Missouri

Recovery Data Table for P-53 Aquifer Test

H_o (ft)	H_w (ft)	ET (s	H_w/H_o	ET (s	Log(H_w/H_o)
2.482	2.48	0.0	1.00	0.0	0.00
2.482	2.44	0.5	0.98	0.5	-0.01
2.482	2.39	1.0	0.96	1.0	-0.02
2.482	2.33	1.5	0.94	1.5	-0.03
2.482	2.25	2.0	0.91	2.0	-0.04
2.482	2.13	2.5	0.86	2.5	-0.07
2.482	2.01	3.0	0.81	3.0	-0.09
2.482	1.89	3.5	0.76	3.5	-0.12
2.482	1.75	4.0	0.71	4.0	-0.15
2.482	1.63	4.5	0.66	4.5	-0.18
2.482	1.50	5.0	0.61	5.0	-0.22
2.482	1.39	5.5	0.56	5.5	-0.25
2.482	1.26	6.0	0.51	6.0	-0.30
2.482	1.19	6.5	0.48	6.5	-0.32
2.482	1.11	7.0	0.45	7.0	-0.35
2.482	1.03	7.5	0.41	7.5	-0.38
2.482	0.94	8.0	0.38	8.0	-0.42
2.482	0.87	8.5	0.35	8.5	-0.45
2.482	0.80	9.0	0.32	9.0	-0.49
2.482	0.74	9.5	0.30	9.5	-0.53
2.482	0.68	10.0	0.27	10.0	-0.57
2.482	0.62	10.5	0.25	10.5	-0.60
2.482	0.55	11.0	0.22	11.0	-0.66
2.482	0.51	11.5	0.21	11.5	-0.69
2.482	0.47	12.0	0.19	12.0	-0.72
2.482	0.43	12.5	0.17	12.5	-0.76
2.482	0.39	13.0	0.16	13.0	-0.81
2.482	0.35	13.5	0.14	13.5	-0.85
2.482	0.32	14.0	0.13	14.0	-0.88
2.482	0.30	14.5	0.12	14.5	-0.92
2.482	0.27	15.0	0.11	15.0	-0.97

ET Seconds	SWL (ft, btoc)	Depth (in)	Depth (ft)	Relative Change Feet		
0.0	7.57	104.630	8.719	0.000	SWL=	7.57
0.5	7.96	99.940	8.328	0.391	Pump On	
0.0	10.05	74.842	6.237	2.482	Pump Off	
0.5	10.01	75.314	6.276	2.443		
1.0	9.96	75.900	6.325	2.394		
1.5	9.90	76.704	6.392	2.327		
2.0	9.82	77.660	6.472	2.247		
2.5	9.70	79.101	6.592	2.127		
3.0	9.58	80.491	6.708	2.011		
3.5	9.46	81.992	6.833	1.886		
4.0	9.32	83.601	6.967	1.752		
4.5	9.20	85.107	7.092	1.627		
5.0	9.07	86.586	7.215	1.504		
5.5	8.96	87.930	7.328	1.391		
6.0	8.83	89.535	7.461	1.258		
6.5	8.76	90.290	7.524	1.195		
7.0	8.68	91.303	7.609	1.110		
7.5	8.60	92.299	7.692	1.027		
8.0	8.51	93.327	7.777	0.942		
8.5	8.44	94.152	7.846	0.873		
9.0	8.37	95.043	7.920	0.799		
9.5	8.31	95.752	7.979	0.740		
10.0	8.25	96.522	8.043	0.676		
10.5	8.19	97.194	8.100	0.619		
11.0	8.12	98.084	8.174	0.545		
11.5	8.08	98.486	8.207	0.512		
12.0	8.04	98.974	8.248	0.471		
12.5	8.00	99.456	8.288	0.431		
13.0	7.96	99.996	8.333	0.386		
13.5	7.92	100.408	8.367	0.352		
14.0	7.89	100.730	8.394	0.325		
14.5	7.87	101.084	8.424	0.295		
15.0	7.84	101.423	8.452	0.267		

Detailed Site Investigation
Proposed Utility Waste Disposal Area
Ameren Labadie Power Plant
Franklin County, Missouri

Recovery Data Table for P-53 Aquifer Test

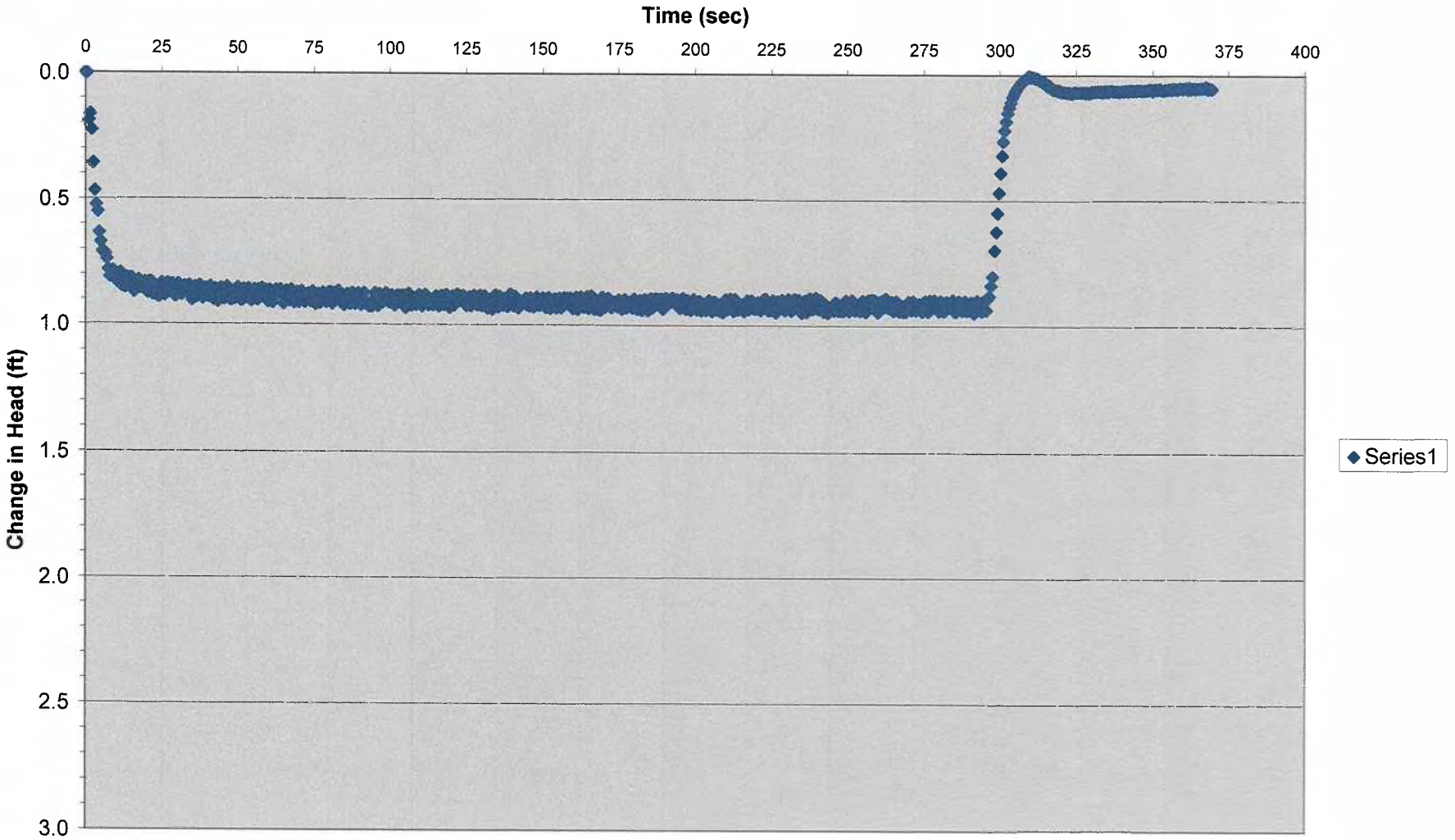
2.482	0.25	15.5	0.10	15.5	-1.00	15.5	7.82	101.635	8.470	0.249	90% Recovery
2.482	0.22	16.0	0.09	16.0	-1.05	16.0	7.79	101.992	8.499	0.220	
2.482	0.21	16.5	0.08	16.5	-1.07	16.5	7.78	102.114	8.509	0.210	
2.482	0.20	17.0	0.08	17.0	-1.10	17.0	7.77	102.246	8.521	0.198	
2.482	0.18	17.5	0.07	17.5	-1.14	17.5	7.75	102.448	8.537	0.182	
2.482	0.18	18.0	0.07	18.0	-1.15	18.0	7.75	102.515	8.543	0.176	
2.482	0.16	18.5	0.07	18.5	-1.18	18.5	7.73	102.659	8.555	0.164	
2.482	0.16	19.0	0.06	19.0	-1.20	19.0	7.73	102.750	8.562	0.157	
2.482	0.15	19.5	0.06	19.5	-1.22	19.5	7.72	102.819	8.568	0.151	
2.482	0.14	20.0	0.06	20.0	-1.25	20.0	7.71	102.943	8.579	0.140	
2.482	0.14	20.5	0.06	20.5	-1.25	20.5	7.71	102.956	8.580	0.139	
2.482	0.13	21.0	0.05	21.0	-1.27	21.0	7.70	103.040	8.587	0.132	95% Recovery
2.482	0.13	21.5	0.05	21.5	-1.28	21.5	7.70	103.075	8.590	0.129	
2.482	0.12	22.0	0.05	22.0	-1.31	22.0	7.69	103.181	8.598	0.121	
2.482	0.11	22.5	0.05	22.5	-1.35	22.5	7.68	103.286	8.607	0.112	
2.482	0.11	23.0	0.04	23.0	-1.35	23.0	7.68	103.310	8.609	0.110	
2.482	0.10	23.5	0.04	23.5	-1.38	23.5	7.67	103.373	8.614	0.105	
2.482	0.10	24.0	0.04	24.0	-1.40	24.0	7.67	103.450	8.621	0.098	
2.482	0.10	24.5	0.04	24.5	-1.40	24.5	7.67	103.450	8.621	0.098	
2.482	0.09	25.0	0.04	25.0	-1.45	25.0	7.66	103.566	8.630	0.089	
2.482	0.09	25.5	0.04	25.5	-1.45	25.5	7.66	103.583	8.632	0.087	
2.482	0.08	26.0	0.03	26.0	-1.48	26.0	7.65	103.632	8.636	0.083	
2.482	0.08	26.5	0.03	26.5	-1.48	26.5	7.65	103.644	8.637	0.082	
2.482	0.08	27.0	0.03	27.0	-1.50	27.0	7.65	103.691	8.641	0.078	
2.482	0.07	27.5	0.03	27.5	-1.55	27.5	7.64	103.786	8.649	0.070	
2.482	0.07	28.0	0.03	28.0	-1.55	28.0	7.64	103.789	8.649	0.070	
2.482	0.06	28.5	0.03	28.5	-1.59	28.5	7.63	103.868	8.656	0.063	
2.482	0.06	29.0	0.02	29.0	-1.61	29.0	7.63	103.893	8.658	0.061	
2.482	0.07	29.5	0.03	29.5	-1.57	29.5	7.64	103.826	8.652	0.067	
2.482	0.06	30.0	0.02	30.0	-1.65	30.0	7.63	103.955	8.663	0.056	
2.482	0.06	30.5	0.02	30.5	-1.65	30.5	7.63	103.964	8.664	0.055	
2.482	0.05	31.0	0.02	31.0	-1.67	31.0	7.62	103.993	8.666	0.053	
2.482	0.06	31.5	0.02	31.5	-1.65	31.5	7.63	103.966	8.664	0.055	
2.482	0.04	32.0	0.02	32.0	-1.74	32.0	7.61	104.090	8.674	0.045	
2.482	0.05	32.5	0.02	32.5	-1.70	32.5	7.62	104.036	8.670	0.049	

Detailed Site Investigation
Proposed Utility Waste Disposal Area
Ameren Labadie Power Plant
Franklin County, Missouri

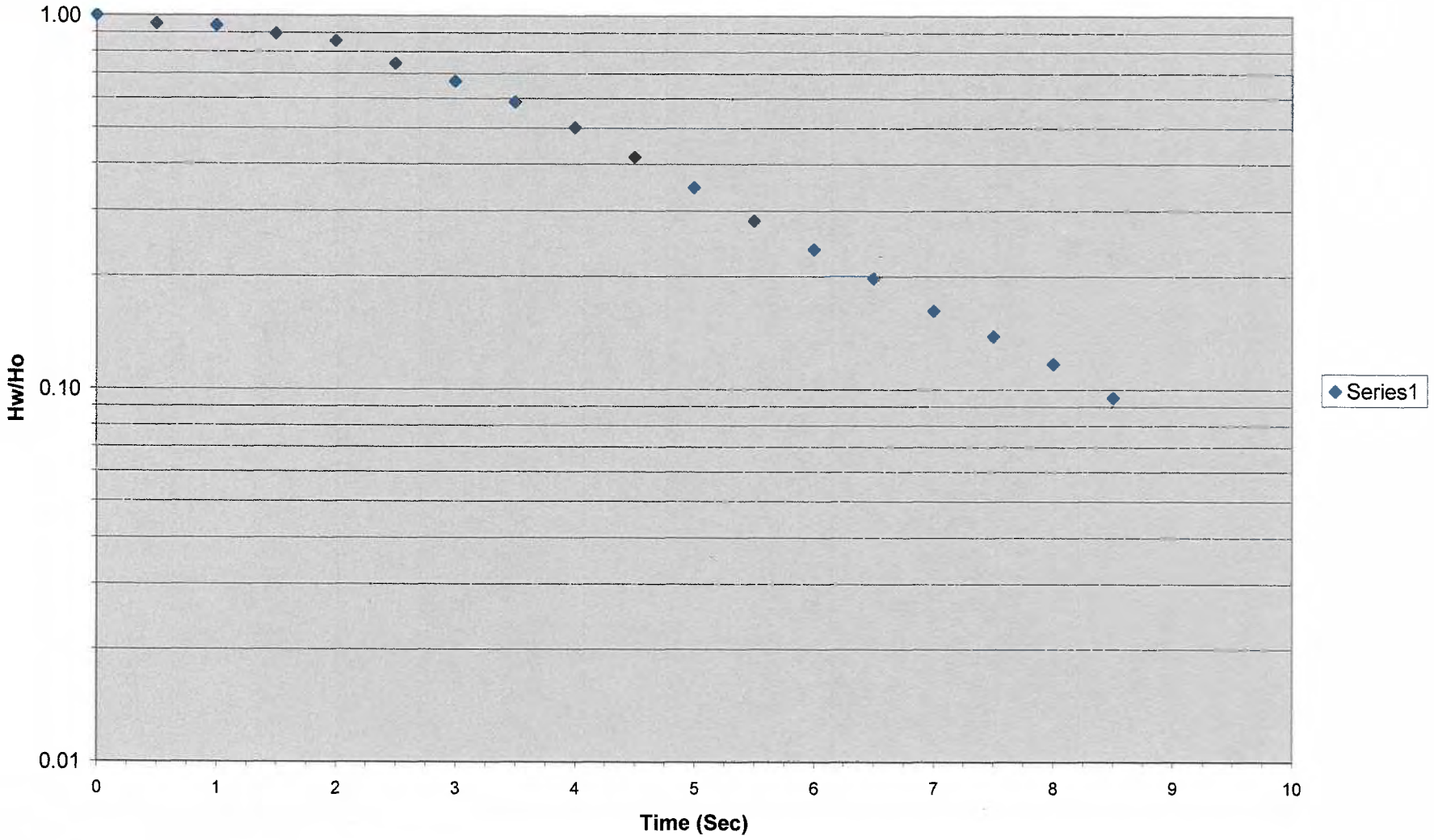
Recovery Data Table for P-53 Aquifer Test

2.482	0.04	33.0	0.02	33.0	-1.75	33.0	7.61	104.102	8.675	0.044	
2.482	0.04	33.5	0.02	33.5	-1.77	33.5	7.61	104.120	8.677	0.042	
2.482	0.04	34.0	0.02	34.0	-1.76	34.0	7.61	104.114	8.676	0.043	
2.482	0.04	34.5	0.02	34.5	-1.79	34.5	7.61	104.147	8.679	0.040	
2.482	0.04	35.0	0.02	35.0	-1.81	35.0	7.61	104.172	8.681	0.038	
2.482	0.04	35.5	0.02	35.5	-1.80	35.5	7.61	104.159	8.680	0.039	
2.482	0.04	36.0	0.02	36.0	-1.80	36.0	7.61	104.155	8.680	0.039	
2.482	0.04	36.5	0.02	36.5	-1.81	36.5	7.61	104.164	8.680	0.039	
2.482	0.04	37.0	0.02	37.0	-1.80	37.0	7.61	104.159	8.680	0.039	
2.482	0.03	37.5	0.01	37.5	-1.89	37.5	7.60	104.247	8.687	0.032	99% Recovery

Detailed Site Investigation - Ameren Labadie Power Plant
Drawdown Curve - P57



Detailed Site Investigation - Ameren Labadie Power Plant
Plot of 90% Recovery Curve - P57



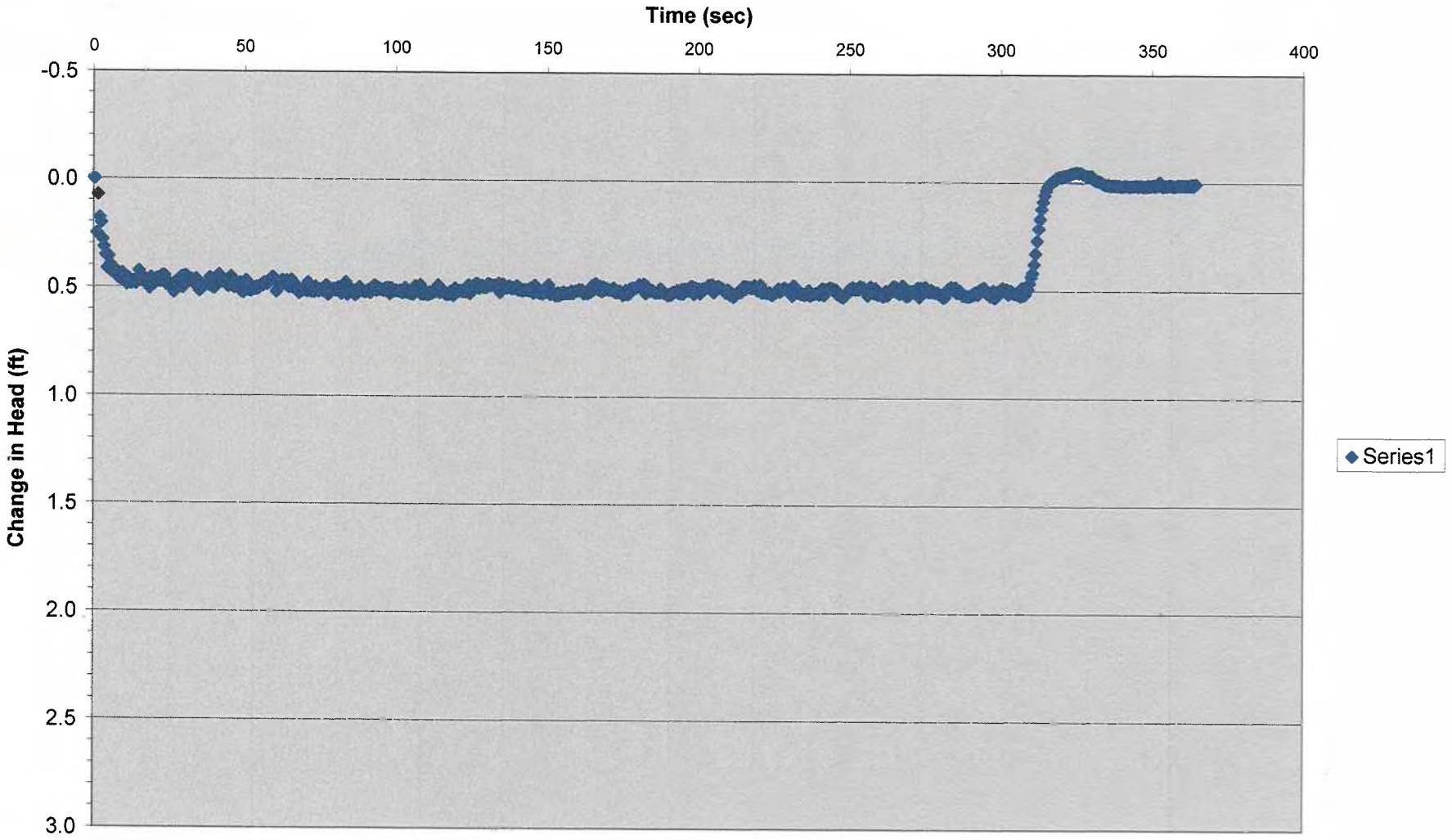
Detailed Site Investigation
Proposed Utility Waste Disposal Area
Ameren Labadie Power Plant
Franklin County, Missouri

Recovery Data Table for P-57 Aquifer Test

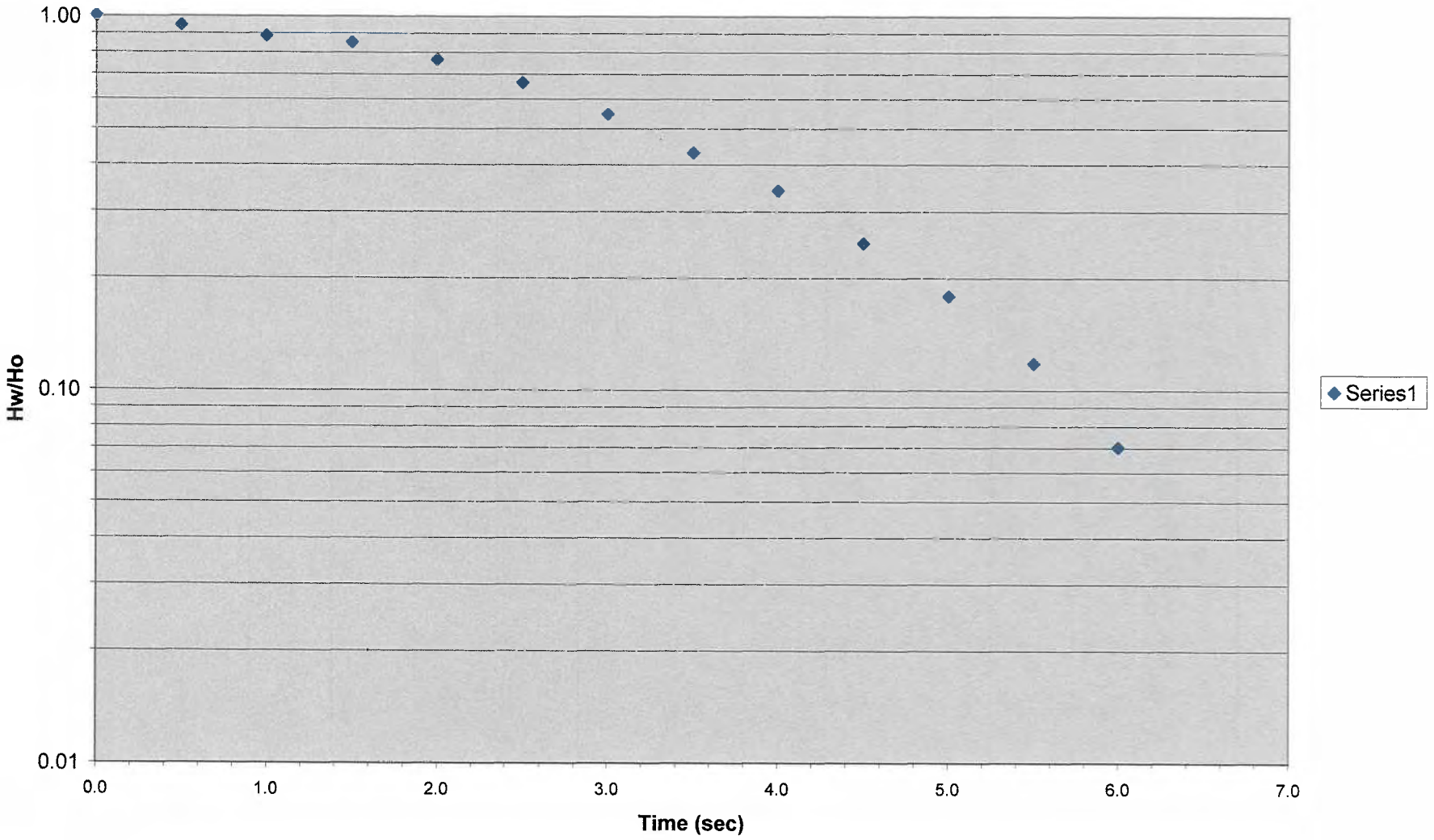
H_o (ft)	H_w (ft)	ET (sec)	H_w/H_o	Log(H_w/H_o)	ET (sec)
0.935	0.93	0.0	1.00	0.00	0.0
0.935	0.89	0.5	0.95	-0.02	0.5
0.935	0.88	1.0	0.94	-0.03	1.0
0.935	0.84	1.5	0.90	-0.05	1.5
0.935	0.80	2.0	0.86	-0.07	2.0
0.935	0.70	2.5	0.75	-0.13	2.5
0.935	0.62	3.0	0.67	-0.18	3.0
0.935	0.55	3.5	0.59	-0.23	3.5
0.935	0.47	4.0	0.50	-0.30	4.0
0.935	0.39	4.5	0.42	-0.38	4.5
0.935	0.32	5.0	0.35	-0.46	5.0
0.935	0.26	5.5	0.28	-0.55	5.5
0.935	0.22	6.0	0.24	-0.63	6.0
0.935	0.18	6.5	0.20	-0.70	6.5
0.935	0.15	7.0	0.16	-0.79	7.0
0.935	0.13	7.5	0.14	-0.86	7.5
0.935	0.11	8.0	0.12	-0.93	8.0
0.935	0.09	8.5	0.10	-1.02	8.5
0.935	0.08	9.0	0.08	-1.09	9.0
0.935	0.06	9.5	0.07	-1.16	9.5
0.935	0.05	10.0	0.06	-1.24	10.0
0.935	0.05	10.5	0.05	-1.32	10.5
0.935	0.03	11.0	0.04	-1.43	11.0
0.935	0.03	11.5	0.03	-1.49	11.5
0.935	0.02	12.0	0.02	-1.66	12.0
0.935	0.02	12.5	0.02	-1.68	12.5
0.935	0.01	13.0	0.01	-1.89	13.0
0.935	0.01	13.5	0.01	-1.99	13.5

ET Seconds	SWL (ft, btoc)	Depth Inches	Depth Feet	Relative Change Feet		
0.0	7.71	100.606	8.384	0.000	SWL=	7.71
0.5	7.71	100.594	8.383	0.001	Pump On	
0.0	8.64	89.392	7.449	0.935	Pump Off	
0.5	8.60	89.938	7.495	0.889		
1.0	8.59	90.053	7.504	0.880		
1.5	8.55	90.554	7.546	0.838		
2.0	8.51	90.988	7.582	0.802		
2.5	8.41	92.237	7.686	0.698		
3.0	8.33	93.116	7.760	0.624		
3.5	8.26	94.011	7.834	0.550		
4.0	8.18	94.977	7.915	0.469		
4.5	8.10	95.916	7.993	0.391		
5.0	8.03	96.737	8.061	0.323		
5.5	7.97	97.441	8.120	0.264		
6.0	7.93	97.964	8.164	0.220		
6.5	7.89	98.394	8.199	0.185		
7.0	7.86	98.795	8.233	0.151		
7.5	7.84	99.057	8.255	0.129		
8.0	7.82	99.295	8.275	0.109		
8.5	7.80	99.539	8.295	0.089	90% Recovery	
9.0	7.79	99.687	8.307	0.077		
9.5	7.77	99.829	8.319	0.065		
10.0	7.76	99.964	8.330	0.054		
10.5	7.76	100.066	8.339	0.045	95% Recovery	
11.0	7.74	100.191	8.349	0.035		
11.5	7.74	100.248	8.354	0.030		
12.0	7.73	100.363	8.364	0.020		
12.5	7.73	100.374	8.364	0.020		
13.0	7.72	100.464	8.372	0.012	99% Recovery	
13.5	7.72	100.492	8.374	0.010		

Detailed Site Investigation - Ameren Labadie Power Plant
Drawdown Curve - P61



Detailed Site Investigation - Ameren Labadie Power Plant
Plot of 90% Recovery Curve - P61



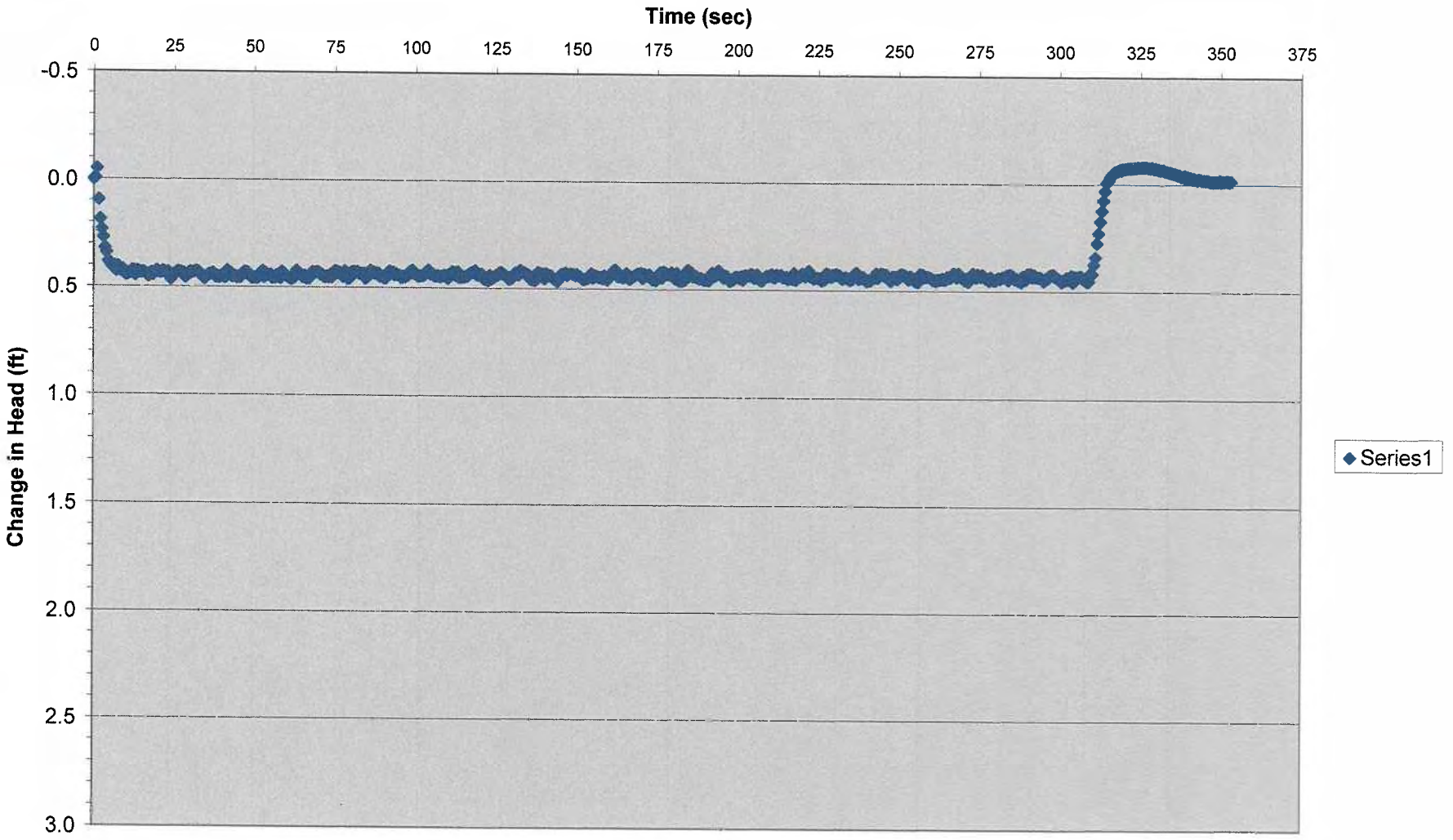
Detailed Site Investigation
Proposed Utility Waste Disposal Area
Ameren Labadie Power Plant
Franklin County, Missouri

Recovery Data Table for P-61 Aquifer Test

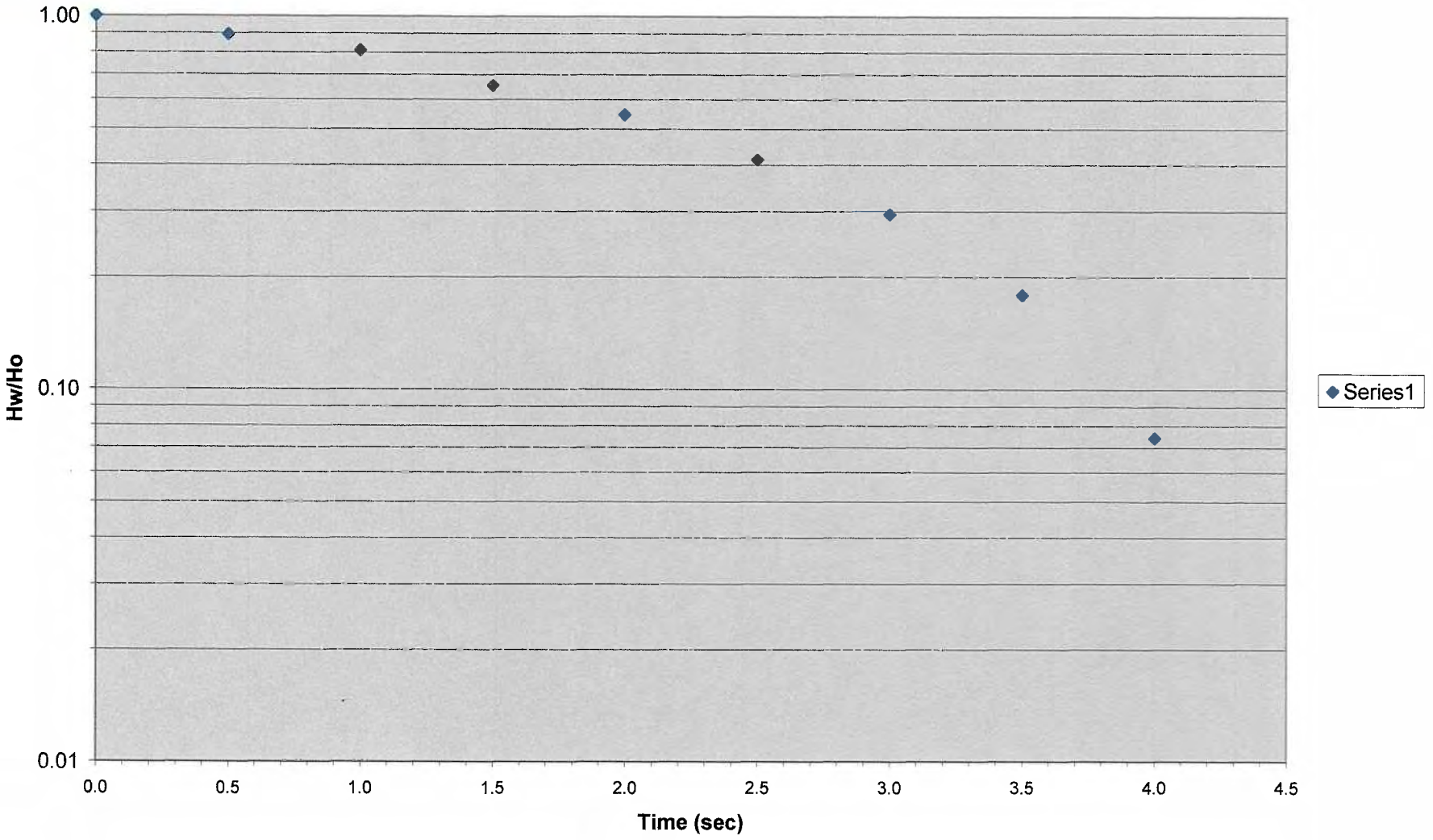
H_o (ft)	H_w (ft)	ET (sec)	H_w/H_o	$Log(H_w/H_o)$	ET (sec)
0.489	0.49	0.0	1.00	0.00	0.0
0.489	0.46	0.5	0.95	-0.02	0.5
0.489	0.43	1.0	0.89	-0.05	1.0
0.489	0.42	1.5	0.85	-0.07	1.5
0.489	0.38	2.0	0.77	-0.12	2.0
0.489	0.33	2.5	0.67	-0.18	2.5
0.489	0.27	3.0	0.55	-0.26	3.0
0.489	0.21	3.5	0.43	-0.37	3.5
0.489	0.17	4.0	0.34	-0.47	4.0
0.489	0.12	4.5	0.25	-0.61	4.5
0.489	0.09	5.0	0.18	-0.75	5.0
0.489	0.06	5.5	0.12	-0.93	5.5
0.489	0.03	6.0	0.07	-1.15	6.0
0.489	0.02	6.5	0.03	-1.46	6.5
0.489	0.01	7.0	0.02	-1.79	7.0

ET Seconds	SWL (ft, btoc)	Depth Feet	Relative Change Feet		
0.0	9.43	8.34	0.000	SWL=	9.43
0.5	9.43	8.33	0.003	Pump On	
0.0	9.92	7.85	0.489	Pump Off	
0.5	9.89	7.87	0.463		
1.0	9.86	7.90	0.434		
1.5	9.85	7.92	0.415		
2.0	9.81	7.96	0.375		
2.5	9.76	8.01	0.326		
3.0	9.70	8.07	0.267		
3.5	9.64	8.13	0.211		
4.0	9.60	8.17	0.167		
4.5	9.55	8.22	0.121		
5.0	9.52	8.25	0.088		
5.5	9.49	8.28	0.058		
6.0	9.46	8.30	0.034	93% Recovery	
6.5	9.45	8.32	0.017	97% Recovery	
7.0	9.44	8.33	0.008		

Detailed Site Investigation - Ameren Labadie Power Plant
Drawdown Curve - P73



Detailed Site Investigation - Ameren Labadie Power Plant
Plot of 90% Recovery Curve - P73



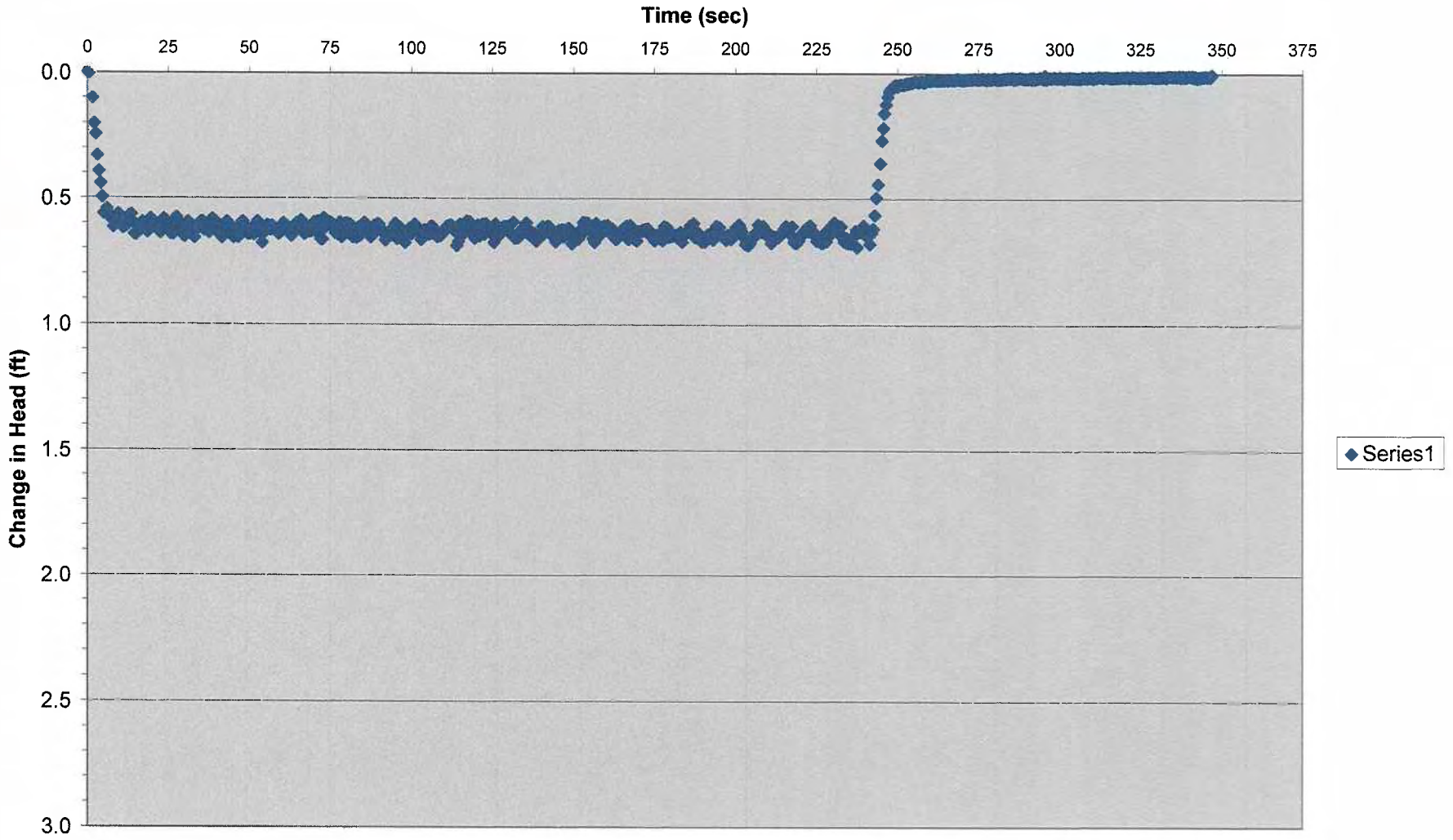
Detailed Site Investigation
Proposed Utility Waste Disposal Area
Ameren Labadie Power Plant
Franklin County, Missouri

Recovery Data Table for P-73 Aquifer Test

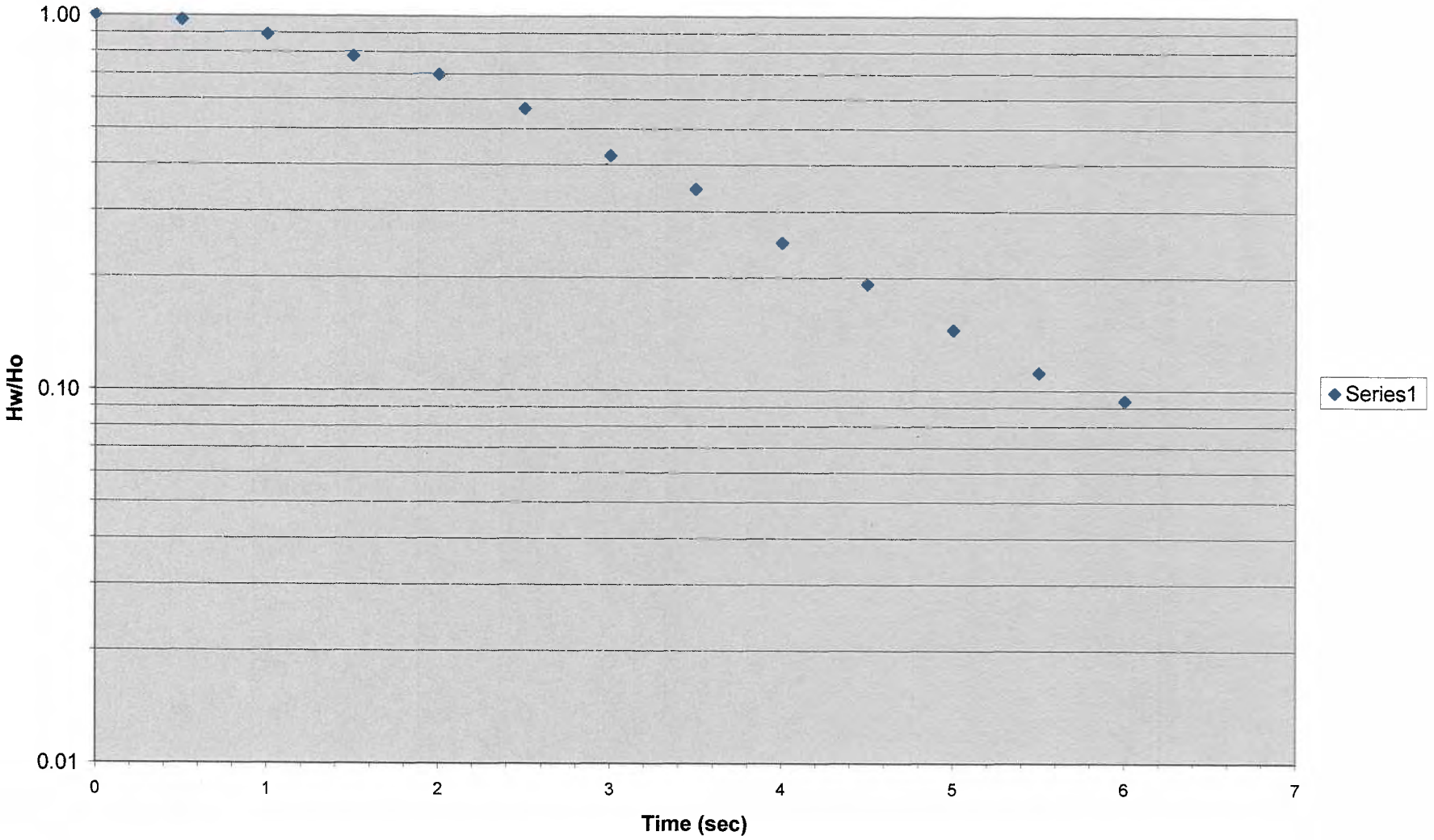
H_o (ft)	H_w (ft)	ET (sec)	H_w/H_o	Log(H_w/H_o)	ET (sec)
0.416	0.42	0.0	1.00	0.00	0.0
0.416	0.37	0.5	0.89	-0.05	0.5
0.416	0.34	1.0	0.81	-0.09	1.0
0.416	0.27	1.5	0.66	-0.18	1.5
0.416	0.23	2.0	0.54	-0.26	2.0
0.416	0.17	2.5	0.41	-0.38	2.5
0.416	0.12	3.0	0.29	-0.53	3.0
0.416	0.07	3.5	0.18	-0.75	3.5
0.416	0.03	4.0	0.07	-1.13	4.0
0.416	-0.01	4.5	-0.02	#NUM!	4.5
0.416	-0.02	5.0	-0.04	#NUM!	5.0

ET Seconds	SWL (ft, btoc)	Depth Feet	Relative Change Feet		
0.0	10.62	6.50	0.000	SWL=	10.62
0.5	10.61	6.50	-0.005	Pump On	
0.0	11.04	6.08	0.416	Pump Off	
0.5	10.99	6.13	0.372		
1.0	10.96	6.16	0.338		
1.5	10.89	6.23	0.273		
2.0	10.85	6.27	0.226		
2.5	10.79	6.33	0.172		
3.0	10.74	6.38	0.122		
3.5	10.69	6.42	0.074		
4.0	10.65	6.47	0.031	93% Recovery	
4.5	10.61	6.50	-0.007		
5.0	10.60	6.51	-0.017		

Detailed Site Investigation - Ameren Labadie Power Plant
Drawdown Curve - P81



Detailed Site Investigation - Ameren Labadie Power Plant
Plot of 90% Recovery Curve - P81



Detailed Site Investigation
Proposed Utility Waste Disposal Area
Ameren Labadie Power Plant
Franklin County, Missouri

Recovery Data Table for P-81 Aquifer Test

H_o (ft)	H_w (ft)	ET (sec)	H_w/H_o	$Log(H_w/H_o)$	ET (sec)
0.635	0.63	0.0	1.00	0.00	0.0
0.635	0.62	0.5	0.97	-0.01	0.5
0.635	0.56	1.0	0.89	-0.05	1.0
0.635	0.49	1.5	0.78	-0.11	1.5
0.635	0.44	2.0	0.70	-0.16	2.0
0.635	0.36	2.5	0.56	-0.25	2.5
0.635	0.27	3.0	0.42	-0.37	3.0
0.635	0.22	3.5	0.34	-0.46	3.5
0.635	0.16	4.0	0.25	-0.61	4.0
0.635	0.12	4.5	0.19	-0.72	4.5
0.635	0.09	5.0	0.15	-0.84	5.0
0.635	0.07	5.5	0.11	-0.95	5.5
0.635	0.06	6.0	0.09	-1.03	6.0
0.635	0.05	6.5	0.09	-1.07	6.5
0.635	0.05	7.0	0.07	-1.13	7.0
0.635	0.04	7.5	0.07	-1.16	7.5
0.635	0.05	8.0	0.08	-1.11	8.0
0.635	0.05	8.5	0.07	-1.15	8.5
0.635	0.04	9.0	0.07	-1.18	9.0
0.635	0.04	9.5	0.07	-1.16	9.5
0.635	0.04	10.0	0.07	-1.16	10.0
0.635	0.04	10.5	0.06	-1.21	10.5
0.635	0.04	11.0	0.06	-1.23	11.0
0.635	0.04	11.5	0.06	-1.22	11.5
0.635	0.04	12.0	0.06	-1.25	12.0

ET Seconds	SWL (ft, btoc)	Depth Feet	Relative Change Feet		
0.0	10.27	7.45	0.000	SWL=	10.27
0.5	10.27	7.45	0.004	Pump On	
0.0	10.90	6.82	0.635	Pump Off	
0.5	10.89	6.84	0.619		
1.0	10.83	6.89	0.565		
1.5	10.76	6.96	0.494		
2.0	10.71	7.01	0.441		
2.5	10.63	7.10	0.358		
3.0	10.54	7.19	0.268		
3.5	10.49	7.24	0.218		
4.0	10.43	7.30	0.158		
4.5	10.39	7.33	0.122		
5.0	10.36	7.36	0.092		
5.5	10.34	7.38	0.071		
6.0	10.33	7.40	0.060	91% Recovery	
6.5	10.32	7.40	0.054		
7.0	10.32	7.41	0.047		
7.5	10.3141	7.41	0.044		
8.0	10.3198	7.41	0.050		
8.5	10.3153	7.41	0.045		
9.0	10.3119	7.41	0.042		
9.5	10.3139	7.41	0.044		
10.0	10.3138	7.41	0.044		
10.5	10.3091	7.42	0.039		
11.0	10.3074	7.42	0.037		
11.5	10.3080	7.42	0.038		
12.0	10.3054	7.42	0.035		

Detailed Site Investigation - Ameren Labadie Power Plant
Drawdown Curve - P85