

ATTACHMENT B

GROUNDWATER SAMPLING LOGS

GROUNDWATER SAMPLING LOGS

MAY 2011

**LOW FLOW SAMPLING
DATA SHEET**

Site: <u>JCRA Morris Canal</u>	Consulting Firm: <u>Dresdner Robin Enviromental Management</u>
Date: <u>2-May-11</u>	
Weather: <u>55°F / Cloudy</u>	Field Personnel: <u>JES/NK/ED</u>

Monitor Well #: <u>MW-7-01</u>	Well Depth (ft): <u>13.00</u>	Screened/Open Interval (ft): <u>3-13</u>
Well Permit #: <u>E201005274</u>	Well Diameter (in): <u>4</u>	

PID/FID Readings (ppm):		Background: <u>0.00</u>	Pump Intake Depth: <u>5.0</u> ft below TOC
		Beneath Outer Cap: <u>0.00</u>	
		Beneath Inner Cap: <u>8.80</u>	Depth to Water Before Pump Installation: <u>1.78</u> ft below TOC

Time	Purging	Sampling	pH (su)		Specific Conductivity (mS/cm)		REDOX Potential (mv)		Dissolved O2 (mg/L)		Turbidity (NTU)		Temperature (Degrees C)		Pump Rate (ml/min)	Depth to Water (Ft below TOC)
			Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading	Change		
1315	X		6.1	NA	99.90	NA	-52	NA	0.00	NA	9.5	NA	11.33	NA	225	1.82
1320	X		5.74	-0.4	99.90	0.00	-46	6	0.00	0	10.3	0.8	11.81	0.48	225	1.80
1325	X		5.82	0.08	99.90	0.00	-52	-6	0.00	0	7.3	-3	12.80	0.99	225	1.80
1330	X		6.11	0.29	2.34	-97.56	-55	-3	0.00	0	5.1	-2.2	13.19	0.39	225	1.80
1335	X		6.02	-0.09	4.23	1.89	-58	-3	0.00	0	4.9	-0.2	13.20	0.01	225	1.81
1340	X		5.97	-0.05	5.62	1.39	-65	-7	0.00	0	2.2	-2.7	13.22	0.02	225	1.81
1345	X		5.96	-0.01	4.86	-0.76	-67	-2	0.00	0	1.7	-0.5	13.23	0.01	225	1.80
1350	X		5.97	0.01	1.890	-2.97	-69	-2	0.00	0	1.7	0	13.27	0.04	225	1.80
1355	X		5.97	0.00	1.800	-0.09	-68	1	0.00	0	2	0.3	13.27	0	225	1.80
1400	X		5.98	0.01	1.82	0.020	-69	-1	0.00	0	1.8	-0.2	13.3	0.03	225	1.80
1405		X														

Indicator Parameters stabilize when 3 consecutive readings are within:

+/- 0.1	+/- 3%	+/- 10	+/- 10%	+/- 10%	+/- 3%
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Comments: Purged 2.5 gallons of groundwater
Clear with no odor and no sheen

**LOW FLOW SAMPLING
DATA SHEET**

Site: <u>JCRA Morris Canal</u>	Consulting Firm: <u>Dresdner Robin Enviromental Management</u>
Date: <u>2-May-11</u>	
Weather: <u>55°F / Cloudy</u>	Field Personnel: <u>JES/NK/ED</u>

Monitor Well #: <u>MW-8-01</u>	Well Depth (ft): <u>12.85</u>	Screened/Open Interval (ft): <u>3.0 to 13.0</u>
Well Permit #: <u>P201000649</u>	Well Diameter (in): <u>4</u>	

PID/FID Readings (ppm):

Background: <u>0.00</u>	Pump Intake Depth: <u>6.5</u> ft below TOC
Beneath Outer Cap: <u>0.00</u>	
Beneath Inner Cap: <u>0.00</u>	Depth to Water Before Pump Installation: <u>4.47</u> ft below TOC

Time	Purging	Sampling	pH (su)		Specific Conductivity (mS/cm)		REDOX Potential (mv)		Dissolved O2 (mg/L)		Turbidity (NTU)		Temperature (Degrees C)		Pump Rate (ml/min)	Depth to Water (Ft below TOC)
			Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading	Change		
1050	X		6.21	NA	99.90	NA	181	NA	1.88	NA	36.6	NA	13.47	NA	150	4.58
1055	X		6.46	0.25	99.90	0.00	162	-19	0.56	-1.32	35.1	-1.5	13.60	0.13	150	4.61
1100	X		6.54	0.08	99.90	0.00	142	-20	0.00	-0.56	24.4	-10.7	14.07	0.47	150	4.66
1105	X		6.71	0.17	99.90	0.00	122	-20	0.00	0	12.5	-11.9	14.59	0.52	150	4.71
1110	X		6.76	0.05	99.90	0.00	115	-7	0.00	0	9.3	-3.2	14.76	0.17	150	4.73
1115	X		6.80	0.04	99.90	0.00	105	-10	0.00	0	9.1	-0.2	14.91	0.15	150	4.73
1120	X		6.88	0.08	99.90	0.00	97	-8	0.00	0	7.8	-1.3	15.13	0.22	150	4.73
1125	X		6.95	0.07	34.300	-65.60	90	-7	0.00	0	7.1	-0.7	15.19	0.06	150	4.74
1130	X		7.05	0.10	2.200	-32.100	84	-6	0.00	0	5.8	-1.3	15.24	0.05	150	4.74
1135	X		7.11	0.06	1.26	-0.940	79	-5	0.00	0	5.4	-0.4	15.31	0.07	150	4.74
1140	X		7.13	0.02	1.15	-0.11	77	-2	0.00	0	5.9	0.5	15.36	0.05	150	4.74
1145	X		7.17	0.04	0.97	-0.18	69	-8	0.00	0	5.2	-0.7	15.4	0.04	150	4.75
1155		X														

Indicator Parameters stabilize when 3 consecutive readings are within:

+/- 0.1	+/- 3%	+/- 10	+/- 10%	+/- 10%	+/- 3%
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Comments: **Purged 2.0 gallons of groundwater**
Clear with no odor and no sheen

GROUNDWATER SAMPLING LOGS

JUNE 2011

**LOW FLOW SAMPLING
DATA SHEET**

Site: JCRA Morris Canal Consulting Firm: Dresdner Robin Environmental Management
 Date: 13-Jun-11
 Weather: 75-sunny Field Personnel: NK

Monitor Well #: MW-5-01 Well Depth (ft): 12.10 Screened/Open Interval (ft): 2 to 12
 Well Permit #: P2010000650 Well Diameter (in): 4

PID/FID Readings (ppm):
 Background: 0.00 Pump Intake Depth: 6.0 ft below TOC
 Beneath Outer Cap: 0.00
 Beneath Inner Cap: 0.00 Depth to Water Before Pump Installation: 2.85 ft below TOC

Time	Purging	Sampling	pH (su)		Specific Conductivity (mS/cm)		REDOX Potential (mv)		Dissolved O2 (mg/L)		Turbidity (NTU)		Temperature (Degrees C)		Pump Rate (ml/min)	Depth to Water (Ft below TOC)
			Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading	Change		
12:35	X		7.36	N/A	1.18	N/A	-135	N/A	0.44	N/A	0.7	N/A	19.25	N/A	375	2.90
12:40	X		6.97	-0.39	1.17	-0.01	-126	9.00	0.07	-0.37	2.6	1.90	20.01	0.76	375	2.98
12:45	X		6.94	-0.03	1.16	-0.01	-118	8.00	0.04	-0.03	5.1	2.50	20.92	0.91	375	3.17
12:50	X		6.91	-0.03	1.15	-0.01	-119	-1.00	0.00	-0.04	4.8	-0.30	21.32	0.40	375	3.19
12:55	X		6.92	0.01	1.16	0.01	-118	1.00	0.00	0.00	5.4	0.60	21.20	-0.12	375	3.19
13:00		X														

Indicator Parameters stabilize when 3 consecutive readings are within:

+/- 0.1	+/- 3%	+/- 10	+/- 10%	+/- 10%	+/- 3%
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Comments: Clear water, slight gray tone; no odor

**LOW FLOW SAMPLING
DATA SHEET**

Site: <u>JCRA Morris Canal</u>	Consulting Firm: <u>Dresdner Robin Environmental Management</u>
Date: <u>14-Jun-11</u>	
Weather: <u>70°F, Sunny</u>	Field Personnel: <u>NK/ED</u>

Monitor Well #: <u>MW-5-02</u>	Well Depth (ft): <u>12.00</u>	Screened/Open Interval (ft): <u>2 to 12</u>
Well Permit #: <u>P2010000551</u>	Well Diameter (in): <u>4</u>	

PID/FID Readings (ppm):

Background: <u>0.00</u>	Pump Intake Depth: <u>5.5</u> ft below TOC
Beneath Outer Cap: <u>0.00</u>	
Beneath Inner Cap: <u>0.00</u>	Depth to Water Before Pump Installation: <u>2.89</u> ft below TOC

Time	Purging	Sampling	pH (su)		Specific Conductivity (mS/cm)		REDOX Potential (mv)		Dissolved O2 (mg/L)		Turbidity (NTU)		Temperature (Degrees C)		Pump Rate (ml/min)	Depth to Water (Ft below TOC)
			Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading	Change		
10:35	X		12.78	N/A	8.75	N/A	-152	N/A	2.65	N/A	8.4	N/A	17.20	N/A	210	3.06
10:40	X		12.47	-0.31	9.69	0.94	-135	17.00	1.67	-0.98	3.8	-4.60	18.00	0.80	210	3.24
10:45	X		12.50	0.03	9.64	-0.05	-130	5.00	1.68	0.01	4.0	0.20	17.90	-0.10	210	3.37
10:50	X		12.48	-0.02	8.66	-0.98	-128	2.00	1.69	0.01	2.6	-1.40	19.00	1.10	210	3.48
10:55	X		12.54	0.06	6.51	-2.15	-133	-5.00	5.07	3.38	2.4	-0.20	20.20	1.20	210	3.54
11:00	X		12.55	0.01	5.87	-0.64	-131	2.00	5.08	0.01	2.6	0.20	19.80	-0.40	210	3.61
11:05	X		12.48	-0.07	5.25	-0.62	-128	3.00	4.78	-0.30	2.5	-0.10	19.80	0.00	210	3.65
11:10	X		12.37	-0.11	3.83	-1.42	-122	6.00	4.47	-0.31	3.1	0.60	19.70	-0.10	210	3.69
11:15	X		12.31	-0.06	3.53	-0.30	-119	3.00	4.03	-0.44	3.2	0.10	20.00	0.30	210	3.71
11:20	X		12.31	0.00	3.60	0.07	-119	0.00	3.92	-0.11	3.4	0.20	20.20	0.20	210	3.72
11:25		X														

Indicator Parameters stabilize when 3 consecutive readings are within:

+/- 0.1	+/- 3%	+/- 10	+/- 10%	+/- 10%	+/- 3%
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Comments: **Purged 2.5 gallons of groundwater**
No odor, slight sheen
Clear, green color

**LOW FLOW SAMPLING
DATA SHEET**

Site: JCRA Morris Canal Consulting Firm: Dresdner Robin Environmental Management
 Date: 14-Jun-11
 Weather: 65°F / Clear, Sunny Field Personnel: NK/ED

Monitor Well #: MW-7-01 Well Depth (ft): 13.0 Screened/Open Interval (ft): 3.0 to 13.0
 Well Permit #: E201005274 Well Diameter (in): 4

PID/FID Readings (ppm):
 Background: 0.00 Pump Intake Depth: 6.0 ft below TOC
 Beneath Outer Cap: 0.00
 Beneath Inner Cap: 4.50 Depth to Water Before Pump Installation: 3.1 ft below TOC

Time	Purging	Sampling	pH (su)		Specific Conductivity (mS/cm)		REDOX Potential (mv)		Dissolved O2 (mg/L)		Turbidity (NTU)		Temperature (Degrees C)		Pump Rate (ml/min)	Depth to Water (Ft below TOC)
			Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading	Change		
8:35	X		7.00	N/A	0.62	N/A	-65	N/A	0.18	N/A	10.6	N/A	15.83	N/A	290	3.11
8:40	X		6.73	-0.27	0.60	-0.02	-54	11.00	0.00	-0.18	7.0	-3.60	16.65	0.82	290	3.11
8:45	X		6.83	0.10	0.60	0.00	-59	-5.00	0.00	0.00	6.1	-0.90	16.97	0.32	290	3.11
8:50	X		6.89	0.06	0.62	0.02	-66	-7.00	0.00	0.00	5.5	-0.60	17.32	0.35	290	3.12
8:55	X		6.92	0.03	0.68	0.06	-70	-4.00	0.00	0.00	5.2	-0.30	17.76	0.44	290	3.12
9:00	X		6.92	0.00	0.69	0.01	-70	0.00	0.00	0.00	4.3	-0.90	17.90	0.14	290	3.12
9:05	X		6.92	0.00	0.71	0.02	-72	-2.00	0.00	0.00	4.6	0.30	18.12	0.22	290	3.12
9:10		X														

Indicator Parameters stabilize when 3 consecutive readings are within:

+/- 0.1	+/- 3%	+/- 10	+/- 10%	+/- 10%	+/- 3%
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Comments: **Purged 2.3 gallons of groundwater**
No odor and no sheen
Clear, slightly yellow color

**LOW FLOW SAMPLING
DATA SHEET**

Site: <u>JCRA Morris Canal</u>	Consulting Firm: <u>Dresdner Robin Environmental Management</u>
Date: <u>10-Jun-11</u>	
Weather: <u>Sun, slight clouds, 86°F</u>	Field Personnel: <u>NK</u>

Monitor Well #: <u>MW-7-02</u>	Well Depth (ft): <u>12.78</u>	Screened/Open Interval (ft): <u>3 to 12.78</u>
Well Permit #: <u>E201005275</u>	Well Diameter (in): <u>4</u>	

PID/FID Readings (ppm):

Background: <u>0.00</u>	Pump Intake Depth: <u>9.0</u> ft below TOC
Beneath Outer Cap: <u>0.00</u>	
Beneath Inner Cap: <u>159.00</u>	Depth to Water Before Pump Installation: <u>6.29</u> ft below TOC

Time	Purging	Sampling	pH (su)		Specific Conductivity (mS/cm)		REDOX Potential (mv)		Dissolved O2 (mg/L)		Turbidity (NTU)		Temperature (Degrees C)		Pump Rate (ml/min)	Depth to Water (Ft) below TOC
			Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading	Change		
12:25	X		6.71	N/A	1.12	N/A	-158	N/A	0.20	N/A	26.1	N/A	18.83	N/A	315	6.48
12:30	X		6.17	-0.54	1.07	-0.05	-167	-9.00	0.00	-0.20	39.7	13.60	19.55	0.72	315	6.61
12:35	X		6.13	-0.04	1.06	-0.01	-164	3.00	0.00	0.00	34.8	-4.90	20.41	0.86	315	6.61
12:40	X		6.16	0.03	1.06	0.00	-157	7.00	0.00	0.00	29.9	-4.90	21.76	1.35	315	6.61
12:45	X		6.19	0.03	1.05	-0.01	-162	-5.00	0.00	0.00	32.1	2.20	22.03	0.27	315	6.61
12:50	X		6.18	-0.01	1.05	0.00	-160	2.00	0.00	0.00	28.0	-4.10	22.10	0.07	315	6.61
12:55		X														

Indicator Parameters stabilize when 3 consecutive readings are within:

+/- 0.1	+/- 3%	+/- 10	+/- 10%	+/- 10%	+/- 3%
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Comments: Fuel odor, dark brown color which settles.
Purged 2.5 gallons.

**LOW FLOW SAMPLING
DATA SHEET**

Site: <u>JCRA Morris Canal</u>	Consulting Firm: <u>Dresdner Robin Environmental Management</u>
Date: <u>10-Jun-11</u>	
Weather: <u>77-Sunny</u>	Field Personnel: <u>NK</u>

Monitor Well #: <u>MW-8-01</u>	Well Depth (ft): <u>13.80</u>	Screened/Open Interval (ft): <u>4 to 14</u>
Well Permit #: <u>P201000649</u>	Well Diameter (in): <u>4</u>	

PID/FID Readings (ppm):

Background: <u>0.00</u>	Pump Intake Depth: <u>8 to 10</u> ft below TOC
Beneath Outer Cap: <u>0.00</u>	
Beneath Inner Cap: <u>0.00</u>	Depth to Water Before Pump Installation: <u>5.5</u> ft below TOC

Time	Purging	Sampling	pH (su)		Specific Conductivity (mS/cm)		REDOX Potential (mv)		Dissolved O2 (mg/L)		Turbidity (NTU)		Temperature (Degrees C)		Pump Rate (ml/min)	Depth to Water (Ft below TOC)
			Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading	Change		
10:30	X		9.39	N/A	0.342	N/A	-48	N/A	0.00	N/A	52.6	N/A	16.08	N/A	265	5.42
10:35	X		9.13	-0.26	0.340	0.00	-50	-2.00	0.00	0.00	47.1	-5.50	16.22	0.14	265	5.81
10:40	X		9.52	0.39	0.342	0.00	-99	-49.00	0.00	0.00	35.0	-12.10	17.99	1.77	265	5.87
10:45	X		10.26	0.74	0.363	0.02	-129	-30.00	0.00	0.00	86.1	51.10	18.79	0.80	265	5.93
10:50	X		10.48	0.22	0.396	0.03	-147	-18.00	0.00	0.00	161.0	74.90	19.15	0.36	265	5.93
10:55	X		10.96	0.48	0.460	0.06	-172	-25.00	0.00	0.00	226.0	65.00	19.84	0.69	265	5.94
11:00	X		10.98	0.02	0.588	0.13	-170	2.00	0.00	0.00	181.0	-45.00	19.85	0.01	265	5.95
11:05	X		10.96	-0.02	0.601	0.01	-175	-5.00	0.00	0.00	178	-3.00	19.92	0.07	265	5.95
11:10	X		10.98	0.02	0.600	0.00	-170	5.00	0.00	0.00	179	1.00	20.01	0.09	265	5.97
11:15	X		10.96	-0.02	0.599	0.00	-165	5.00	0.00	0.00	176	-3.00	20.08	0.07	265	6.00
11:20		X														

Indicator Parameters stabilize when 3 consecutive readings are within:

+/- 0.1	+/- 3%	+/- 10	+/- 10%	+/- 10%	+/- 3%
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Comments:	Water is clean, no odor. Become turbid, pump then raised but water did not clear Purged 3.5 gallons.
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**LOW FLOW SAMPLING
DATA SHEET**

Site: <u>JCRA Morris Canal</u>	Consulting Firm: <u>Dresdner Robin Environmental Management</u>
Date: <u>10-Jun-11</u>	
Weather: <u>82-Sunny</u>	Field Personnel: <u>NK</u>

Monitor Well #: <u>MW-10-01</u>	Well Depth (ft): <u>11.0</u>	Screened/Open Interval (ft): <u>1-11</u>
Well Permit #: <u>E201105768</u>	Well Diameter (in): <u>4</u>	

PID/FID Readings (ppm):

Background: <u>0.00</u>	Pump Intake Depth: <u>7.0</u> ft below TOC
Beneath Outer Cap: <u>4.00</u>	
Beneath Inner Cap: <u>147.90</u>	Depth to Water Before Pump Installation: <u>3.18</u> ft below TOC

Time	Purging	Sampling	pH (su)		Specific Conductivity (mS/cm)		REDOX Potential (mv)		Dissolved O2 (mg/L)		Turbidity (NTU)		Temperature (Degrees C)		Pump Rate (ml/min)	Depth to Water (Ft below TOC)
			Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading	Change	Reading	Change		
14:05	X		6.76	N/A	0.893	N/A	-128	N/A	0.00	N/A	9.0	N/A	19.69	N/A	320	3.15
14:10	X		6.40	-0.36	0.879	-0.01	-120	8.00	0.00	0.00	10.1	1.10	19.03	-0.66	320	3.18
14:15	X		6.42	0.02	0.877	0.00	-119	1.00	0.00	0.00	7.9	-2.20	18.91	-0.12	320	3.18
14:20	X		6.44	0.02	0.880	0.00	-110	9.00	0.00	0.00	6.5	-1.40	18.41	-0.50	320	3.18
14:25	X		6.45	0.01	0.866	-0.01	-105	5.00	0.00	0.00	5.1	-1.40	18.72	0.31	320	3.18
14:30	X		6.49	0.04	0.869	0.00	-103	2.00	0.00	0.00	4.0	-1.10	18.81	0.09	320	3.18
14:35	X		6.51	0.02	0.872	0.00	-108	-5.00	0.00	0.00	2.0	-2.00	18.95	0.14	320	3.18
14:40		X														

Indicator Parameters stabilize when 3 consecutive readings are within:

+/- 0.1	+/- 3%	+/- 10	+/- 10%	+/- 10%	+/- 3%
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Comments: 147.9 ppm, fuel odor, yellow fluorescent tint on interface probe tape
Cloudy water. Purged 3 gallons.

