Appendix G

Well Inventory

Appendix H

Borehole Log

Driller's Report

Well Location	QTR SEC TWP RGE E [ ] W [ ]	GPS Reading
	R. Lot 70 Parish St. Paul	Lat. N° 49° 59' 43.99"
	Remarks	Long W° 96° 59' 09.76"
Well Owner	Name R.M. of East St. Paul	Location Sketch of Well
	Address c/o Stantec Consulting Phone	
	Cell Phone	
Well Identification		
Well Use	Production [X] Test Well [ ] Recharge [ ] Observation [ ]	
Water Use	Domestic [ ] Livestock [ ] Industrial [ ] Irrigation [ ]	
	Air-condition [ ] Other [X] Specify Municipal	
Date well completed	December 19, 2011	

Depth Below Ground in Feet		DESCRIPTION WELL LOG	Water Record
0	18	Clay	
18	48	Glacial Till	
48	54	Limestone Rubble	
54	120	Limestone	

WELL CONSTRUCTION

Depth Below Ground Level		Casing	Open Hole	Perfor-ations	Gravel Pack	Casing Grout	Inside Diameter	Outside Diameter	Screen Slot size	TYPE	MATERIAL	MAKE
0	54	x						10		ERW Steel	Black	
54	120		x					9 3/4		Open Hole		

Top of Casing 2.5 Feet above [ ] Below [ ]

REMARKS:

R.M. of East St Paul - Bray Road Supply Well
See report - Friesen Drillers Ltd.

PUMPING TEST

Date of Test:	March 13, 2012			
Pumping [X]	Flowing [ ]	Rate	408 I.G.P.M.	
Water level before pumping	35.33	Above [ ]	Below [X]	
Pumping level at end of test	38.33	Above [ ]	Below [X]	
Duration of test	72 HRS	Minutes		
Recommended pumping rate	350	I.G.P.M.		
With pump intake at	50	Feet below ground level		

CONTRACTOR

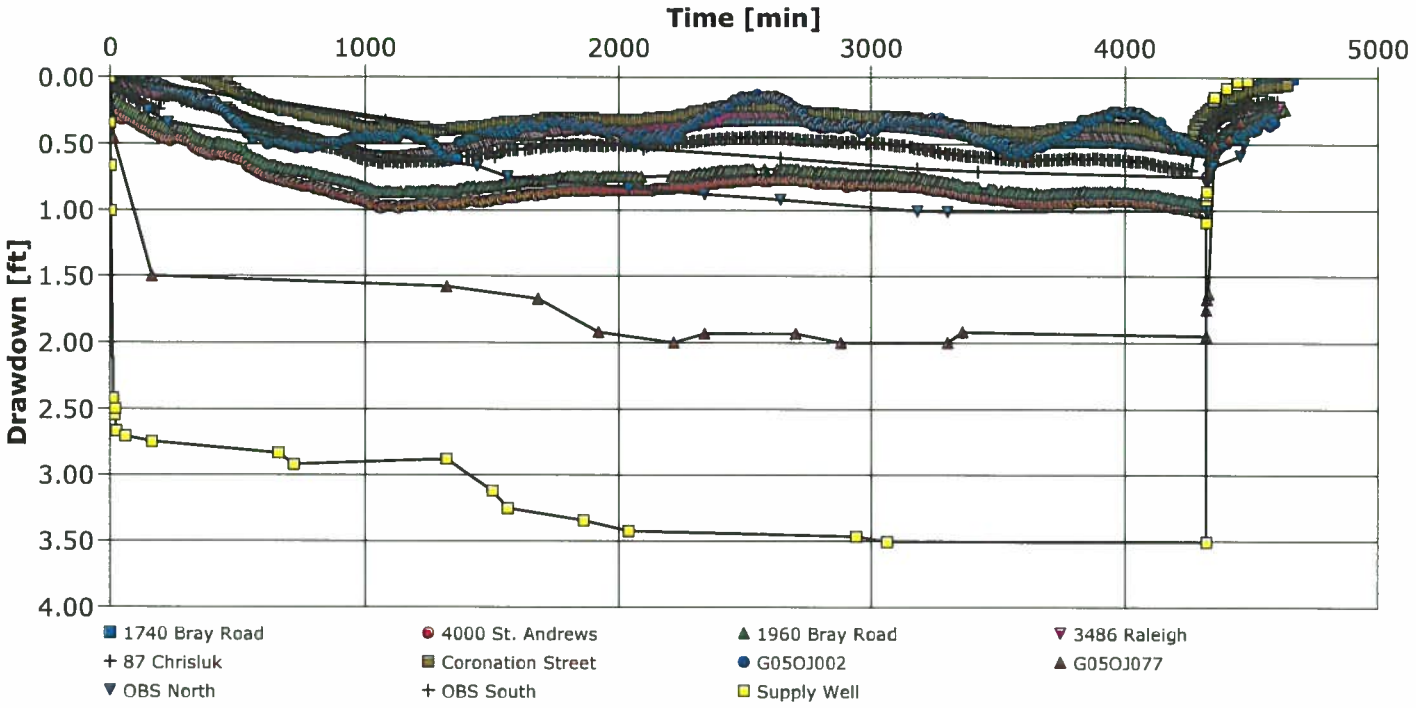
License Number	607 12
Name	Friesen Drillers Ltd.
Address	307 PTH 12 N Steinbach, MB. R5G 1T8
Drill Operator	

Appendix I

Transducer Plots

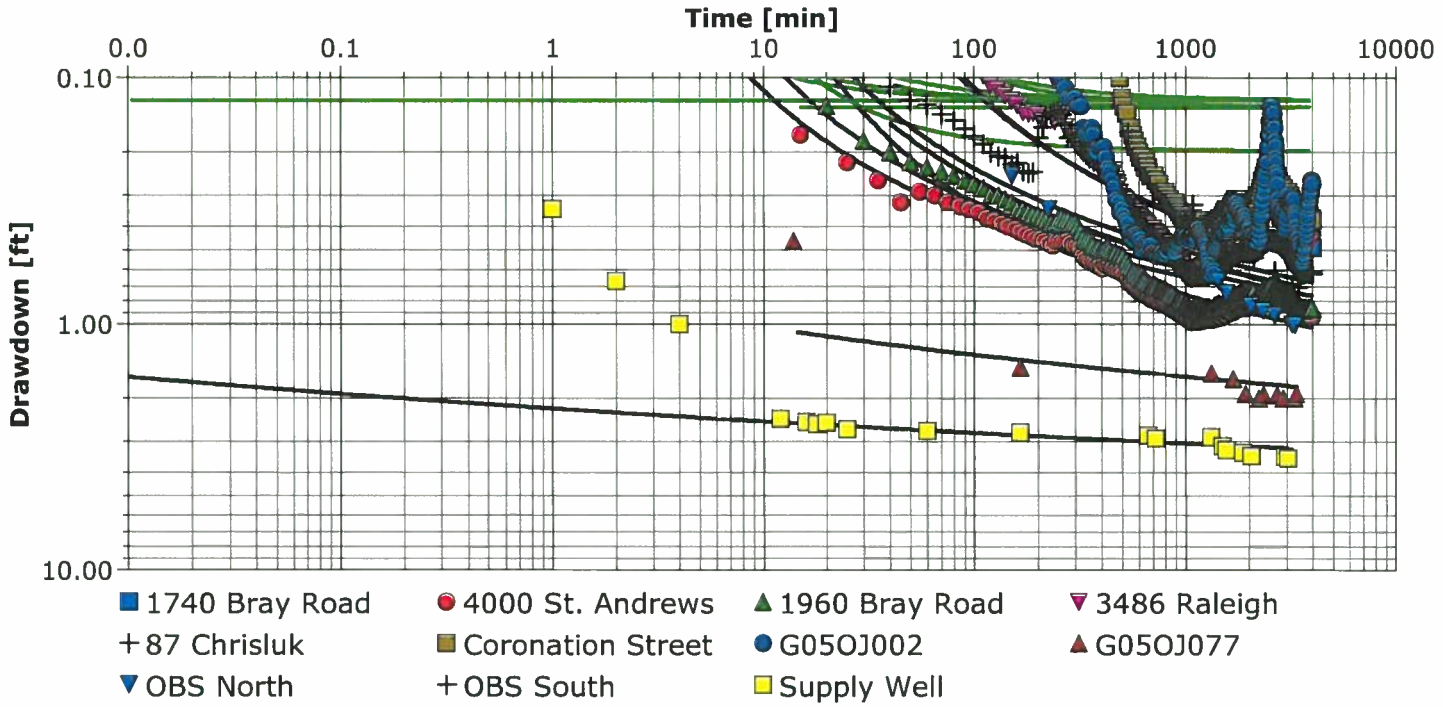
Friesen Drillers Ltd. 307 PTH 12 N Steinbach, Manitoba R5G 1T8	**Pumping Test Analysis Report**
	Project: RM of East St. Paul - Bray Road Water Supply
	Number: 2010-095-011
	Client: Stantec Consulting Inc.

Location: Bray Road - RM of East St. Paul	Pumping Test: Pumping Test 1	Pumping Well: Supply Well
Test Conducted by: Chris Wilson		Test Date: 3/13/2012
Analysis Performed by: Jeff Bell, P.Eng.	Drawdown vs Time	Analysis Date: 8/20/2012
Aquifer Thickness: 344.00 ft	Discharge: variable, average rate 459.12 [U.S. gal/min]	



Friesen Drillers Ltd. 307 PTH 12 N Steinbach, Manitoba R5G 1T8	**Pumping Test Analysis Report**
	Project: RM of East St. Paul - Bray Road Water Supply
	Number: 2010-095-011
	Client: Stantec Consulting Inc.

Location: Bray Road - RM of East St. Paul	Pumping Test: Pumping Test 1	Pumping Well: Supply Well
Test Conducted by: Chris Wilson		Test Date: 3/13/2012
Analysis Performed by: Jeff Bell, P.Eng.	Theis Analysis	Analysis Date: 8/24/2012
Aquifer Thickness: 344.00 ft	Discharge: variable, average rate 459.12 [U.S. gal/min]	

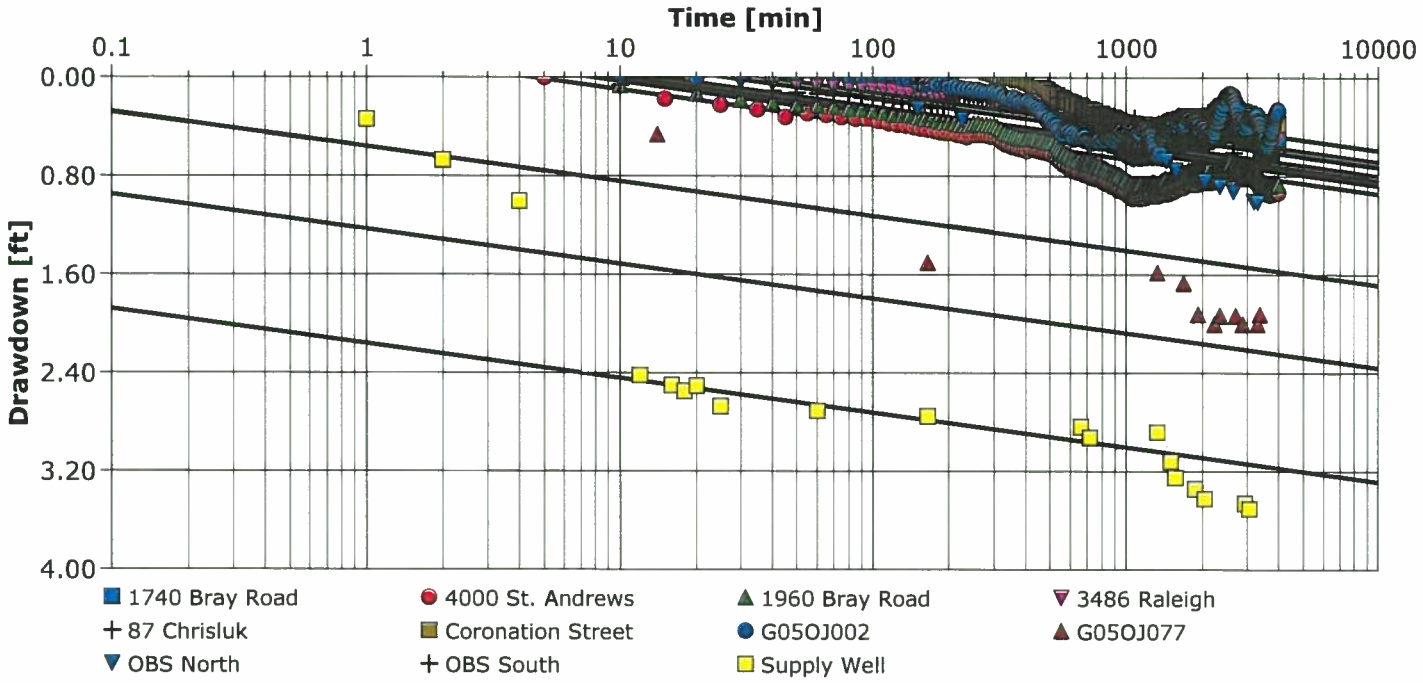


Calculation after Theis

Observation Well	Transmissivity [U.S. gal/d-ft]	Hydraulic Conductivity [U.S. gal/d-ft²]	Storage coefficient	Radial Distance to PW [m]	
1740 Bray Road	4.29×10^5	1.25×10^3	3.48×10^{-5}	808.55	
4000 St. Andrews	4.29×10^5	1.25×10^3	1.06×10^{-3}	203.06	
1960 Bray Road	2.67×10^5	7.77×10^2	2.56×10^{-3}	207.71	
3486 Raleigh	4.29×10^5	1.25×10^3	1.36×10^{-4}	1778.59	
87 Chrisluk	4.29×10^5	1.25×10^3	1.50×10^{-4}	954.09	
Coronation Street	4.29×10^5	1.25×10^3	2.96×10^{-5}	1476.92	
G05OJ002	4.01×10^5	1.17×10^3	6.89×10^{-5}	2576.02	
G05OJ077	4.01×10^5	1.17×10^3	4.47×10^{-6}	82.24	
OBS North	4.01×10^5	1.17×10^3	1.00×10^{-4}	1089.75	
OBS South	4.29×10^5	1.25×10^3	6.89×10^{-5}	1176.6	
Supply Well	4.29×10^5	1.25×10^3	8.85×10^{-6}	0.12	
Average	4.07×10^5	1.18×10^3	3.84×10^{-4}		

Friesen Drillers Ltd. 307 PTH 12 N Steinbach, Manitoba R5G 1T8	**Pumping Test Analysis Report**
	Project: RM of East St. Paul - Bray Road Water Supply
	Number: 2010-095-011
	Client: Stantec Consulting Inc.

Location: Bray Road - RM of East St. Paul	Pumping Test: Pumping Test 1	Pumping Well: Supply Well
Test Conducted by: Chris Wilson		Test Date: 3/13/2012
Analysis Performed by: Jeff Bell, P.Eng.	Cooper-Jacob Method	Analysis Date: 8/24/2012
Aquifer Thickness: 344.00 ft	Discharge: variable, average rate 459.12 [U.S. gal/min]	

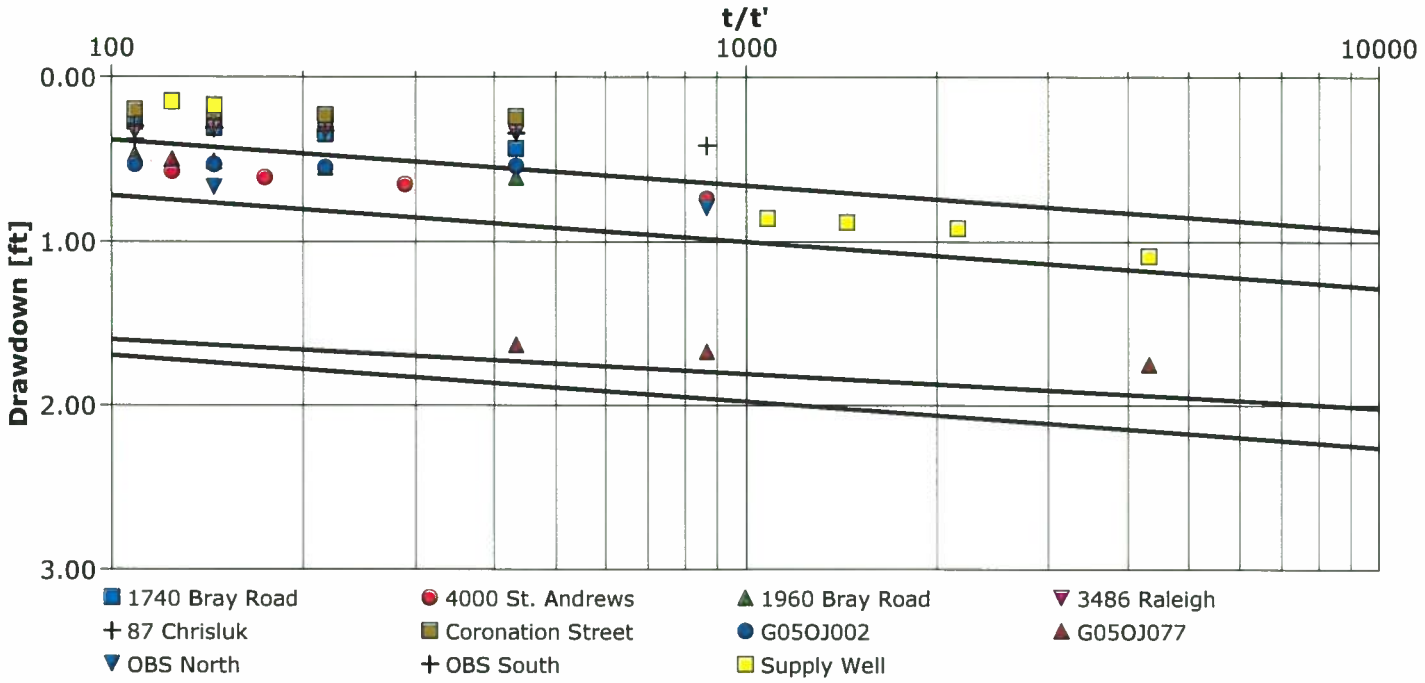


Calculation after Cooper & Jacob

Observation Well	Transmissivity [U.S. gal/d-ft]	Hydraulic Conductivity [U.S. gal/d-ft²]	Storage coefficient	Radial Distance to PW [m]	
1740 Bray Road	4.29×10^{5}	1.25×10^{3}	1.00×10^{-4}	808.55	
4000 St. Andrews	4.29×10^{5}	1.25×10^{3}	8.92×10^{-9}	203.06	
1960 Bray Road	4.29×10^{5}	1.25×10^{3}	8.73×10^{-4}	207.71	
3486 Raleigh	4.29×10^{5}	1.25×10^{3}	1.00×10^{-4}	1778.59	
87 Chrisluk	4.29×10^{5}	1.25×10^{3}	1.00×10^{-4}	954.09	
Coronation Street	4.29×10^{5}	1.25×10^{3}	1.00×10^{-4}	1476.92	
G05OJ002	4.29×10^{5}	1.25×10^{3}	1.00×10^{-4}	2576.02	
G05OJ077	4.29×10^{5}	1.25×10^{3}	1.28×10^{-5}	82.24	
OBS North	4.29×10^{5}	1.25×10^{3}	1.00×10^{-4}	1089.75	
OBS South	4.29×10^{5}	1.25×10^{3}	4.80×10^{-5}	1176.6	
Supply Well	4.29×10^{5}	1.25×10^{3}	1.28×10^{-5}	0.12	
Average	4.29×10^{5}	1.25×10^{3}	1.41×10^{-4}		

Friesen Drillers Ltd. 307 PTH 12 N Steinbach, Manitoba R5G 1T8	**Pumping Test Analysis Report**
	Project: RM of East St. Paul - Bray Road Water Supply
	Number: 2010-095-011
	Client: Stantec Consulting Inc.

Location: Bray Road - RM of East St. Paul	Pumping Test: Pumping Test 1	Pumping Well: Supply Well
Test Conducted by: Chris Wilson		Test Date: 3/13/2012
Analysis Performed by: Jeff Bell, P.Eng.	Theis Recovery Analysis	Analysis Date: 8/24/2012
Aquifer Thickness: 344.00 ft	Discharge: variable, average rate 459.12 [U.S. gal/min]	



Calculation after Theis & Jacob

Observation Well	Transmissivity [U.S. gal/d-ft]	Hydraulic Conductivity [U.S. gal/d-ft²]	Radial Distance to PW [m]	
1740 Bray Road	4.35×10^5	1.26×10^3	808.55	
4000 St. Andrews	4.29×10^5	1.25×10^3	203.06	
1960 Bray Road	4.29×10^5	1.25×10^3	207.71	
3486 Raleigh	4.29×10^5	1.25×10^3	1778.59	
87 Chrisluk	4.29×10^5	1.25×10^3	954.09	
Coronation Street	4.29×10^5	1.25×10^3	1476.92	
G05OJ002	4.29×10^5	1.25×10^3	2576.02	
G05OJ077	4.29×10^5	1.25×10^3	82.24	
OBS North	4.29×10^5	1.25×10^3	1089.75	
OBS South	4.29×10^5	1.25×10^3	1176.6	
Supply Well	5.79×10^5	1.68×10^3	0.12	
Average	4.43×10^5	1.29×10^3		

Appendix J

Pumping Test Data

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, Manitoba
R5G 1T8

Pumping Test - Water Level Data

Project: RM of East St. Paul - Bray Road Water Supply

Number: 2010-095-011

Client: Stantec Consulting Inc.

Location: Bray Road - RM of East St. Paul	Pumping Test: Pumping Test 1	Pumping Well: Supply Well
Test Conducted by: Chris Wilson	Test Date: 3/13/2012	Discharge: variable, average rate 459.12 [U.S. gal/min]
Observation Well: 1740 Bray Road	Static Water Level [ft]: 27.00	Radial Distance to PW [m]: 808.55

	Time [min]	Water Level [ft]	Drawdown [ft]
1	1530	27.4419	0.4419
2	1540	27.4508	0.4508
3	1550	27.4472	0.4472
4	1560	27.4416	0.4416
5	1570	27.4321	0.4321
6	1580	27.4226	0.4226
7	1590	27.4229	0.4229
8	1600	27.4183	0.4183
9	1610	27.4108	0.4108
10	1620	27.4088	0.4088
11	1630	27.4042	0.4042
12	1640	27.4012	0.4012
13	1650	27.3986	0.3986
14	1660	27.3989	0.3989
15	1670	27.397	0.397
16	1680	27.393	0.393
17	1690	27.3914	0.3914
18	1700	27.3911	0.3911
19	1710	27.3848	0.3848
20	1720	27.3829	0.3829
21	1730	27.3835	0.3835
22	1740	27.3829	0.3829
23	1750	27.3753	0.3753
24	1760	27.375	0.375
25	1770	27.3704	0.3704
26	1780	27.3688	0.3688
27	1790	27.3648	0.3648
28	1800	27.3622	0.3622
29	1810	27.3648	0.3648
30	1820	27.3635	0.3635
31	1830	27.3596	0.3596
32	1840	27.3606	0.3606
33	1850	27.3586	0.3586
34	1860	27.3602	0.3602
35	1870	27.357	0.357
36	1880	27.3583	0.3583
37	1890	27.3576	0.3576
38	1900	27.355	0.355
39	1910	27.357	0.357
40	1920	27.3547	0.3547
41	1930	27.3583	0.3583
42	1940	27.3553	0.3553
43	1950	27.353	0.353
44	1960	27.3573	0.3573
45	1970	27.3579	0.3579
46	1980	27.355	0.355
47	1990	27.3563	0.3563
48	2000	27.3553	0.3553
49	2010	27.3527	0.3527
50	2020	27.3556	0.3556
51	2030	27.3537	0.3537

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, Manitoba
R5G 1T8

Pumping Test - Water Level Data

Project: RM of East St. Paul - Bray Road Water Supply

Number: 2010-095-011

Client: Stantec Consulting Inc.

	Time [min]	Water Level [ft]	Drawdown [ft]
52	2040	27.3579	0.3579
53	2050	27.353	0.353
54	2060	27.3501	0.3501
55	2070	27.3514	0.3514
56	2080	27.3537	0.3537
57	2090	27.3576	0.3576
58	2100	27.351	0.351
59	2110	27.3517	0.3517
60	2120	27.3537	0.3537
61	2130	27.3556	0.3556
62	2140	27.3576	0.3576
63	2150	27.3527	0.3527
64	2160	27.352	0.352
65	2170	27.353	0.353
66	2180	27.3553	0.3553
67	2190	27.353	0.353
68	2200	27.3514	0.3514
69	2210	27.3573	0.3573
70	2220	27.3524	0.3524
71	2230	27.354	0.354
72	2240	27.3507	0.3507
73	2250	27.352	0.352
74	2260	27.3451	0.3451
75	2270	27.3487	0.3487
76	2280	27.3468	0.3468
77	2290	27.3461	0.3461
78	2300	27.3448	0.3448
79	2310	27.3356	0.3356
80	2320	27.333	0.333
81	2330	27.335	0.335
82	2340	27.3363	0.3363
83	2350	27.3323	0.3323
84	2360	27.3287	0.3287
85	2370	27.3287	0.3287
86	2380	27.3274	0.3274
87	2390	27.3294	0.3294
88	2400	27.3264	0.3264
89	2410	27.3278	0.3278
90	2420	27.3225	0.3225
91	2430	27.3232	0.3232
92	2440	27.3215	0.3215
93	2450	27.3209	0.3209
94	2460	27.3166	0.3166
95	2470	27.3209	0.3209
96	2480	27.3238	0.3238
97	2490	27.3235	0.3235
98	2500	27.3153	0.3153
99	2510	27.3199	0.3199
100	2520	27.3195	0.3195
101	2530	27.3153	0.3153
102	2540	27.3163	0.3163
103	2550	27.3199	0.3199
104	2560	27.3215	0.3215
105	2570	27.3176	0.3176
106	2580	27.3186	0.3186
107	2590	27.3179	0.3179

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, Manitoba
R5G 1T8

Project: RM of East St. Paul - Bray Road Water Supply

Number: 2010-095-011

Client: Stantec Consulting Inc.

	Time [min]	Water Level [ft]	Drawdown [ft]
108	2600	27.3163	0.3163
109	2610	27.3179	0.3179
110	2620	27.3176	0.3176
111	2630	27.3179	0.3179
112	2640	27.3186	0.3186
113	2650	27.3153	0.3153
114	2660	27.3159	0.3159
115	2670	27.313	0.313
116	2680	27.3176	0.3176
117	2690	27.3159	0.3159
118	2700	27.3163	0.3163
119	2710	27.3225	0.3225
120	2720	27.3218	0.3218
121	2730	27.3179	0.3179
122	2740	27.3255	0.3255
123	2750	27.3274	0.3274
124	2760	27.3274	0.3274
125	2770	27.3307	0.3307
126	2780	27.3327	0.3327
127	2790	27.3337	0.3337
128	2800	27.335	0.335
129	2810	27.3373	0.3373
130	2820	27.335	0.335
131	2830	27.3389	0.3389
132	2840	27.3369	0.3369
133	2850	27.3409	0.3409
134	2860	27.3415	0.3415
135	2870	27.3455	0.3455
136	2880	27.3448	0.3448
137	2890	27.3455	0.3455
138	2900	27.3465	0.3465
139	2910	27.3481	0.3481
140	2920	27.3553	0.3553
141	2930	27.3504	0.3504
142	2940	27.3504	0.3504
143	2950	27.3537	0.3537
144	2960	27.355	0.355
145	2970	27.3524	0.3524
146	2980	27.3501	0.3501
147	2990	27.3514	0.3514
148	3000	27.3547	0.3547
149	3010	27.3563	0.3563
150	3020	27.353	0.353
151	3030	27.3583	0.3583
152	3040	27.3615	0.3615
153	3050	27.3596	0.3596
154	3060	27.3609	0.3609
155	3070	27.3573	0.3573
156	3080	27.3606	0.3606
157	3090	27.3635	0.3635
158	3100	27.3645	0.3645
159	3110	27.3642	0.3642
160	3120	27.3671	0.3671
161	3130	27.3717	0.3717
162	3140	27.3727	0.3727
163	3150	27.373	0.373

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, Manitoba
R5G 1T8

Project: RM of East St. Paul - Bray Road Water Supply

Number: 2010-095-011

Client: Stantec Consulting Inc.

	Time [min]	Water Level [ft]	Drawdown [ft]
164	3160	27.3766	0.3766
165	3170	27.3796	0.3796
166	3180	27.3776	0.3776
167	3190	27.3812	0.3812
168	3200	27.3839	0.3839
169	3210	27.3878	0.3878
170	3220	27.3865	0.3865
171	3230	27.3878	0.3878
172	3240	27.3914	0.3914
173	3250	27.3934	0.3934
174	3260	27.3966	0.3966
175	3270	27.398	0.398
176	3280	27.3999	0.3999
177	3290	27.4049	0.4049
178	3300	27.4091	0.4091
179	3310	27.4134	0.4134
180	3320	27.4098	0.4098
181	3330	27.4147	0.4147
182	3340	27.4196	0.4196
183	3350	27.4196	0.4196
184	3360	27.4236	0.4236
185	3370	27.4262	0.4262
186	3380	27.4327	0.4327
187	3390	27.4298	0.4298
188	3400	27.439	0.439
189	3410	27.438	0.438
190	3420	27.4432	0.4432
191	3430	27.4436	0.4436
192	3440	27.4439	0.4439
193	3450	27.4462	0.4462
194	3460	27.4459	0.4459
195	3470	27.4485	0.4485
196	3480	27.4468	0.4468
197	3490	27.4547	0.4547
198	3500	27.4531	0.4531
199	3510	27.4544	0.4544
200	3520	27.4596	0.4596
201	3530	27.4619	0.4619
202	3540	27.46	0.46
203	3550	27.4632	0.4632
204	3560	27.4715	0.4715
205	3570	27.4659	0.4659
206	3580	27.4662	0.4662
207	3590	27.4695	0.4695
208	3600	27.4705	0.4705
209	3610	27.4737	0.4737
210	3620	27.4744	0.4744
211	3630	27.4744	0.4744
212	3640	27.4783	0.4783
213	3650	27.477	0.477
214	3660	27.4826	0.4826
215	3670	27.4803	0.4803
216	3680	27.4859	0.4859
217	3690	27.4819	0.4819
218	3700	27.4833	0.4833
219	3710	27.4806	0.4806

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, Manitoba
R5G 1T8

Project: RM of East St. Paul - Bray Road Water Supply

Number: 2010-095-011

Client: Stantec Consulting Inc.

	Time [min]	Water Level [ft]	Drawdown [ft]
220	3720	27.4803	0.4803
221	3730	27.4833	0.4833
222	3740	27.4797	0.4797
223	3750	27.4819	0.4819
224	3760	27.4849	0.4849
225	3770	27.4829	0.4829
226	3780	27.4833	0.4833
227	3790	27.4803	0.4803
228	3800	27.4787	0.4787
229	3810	27.4806	0.4806
230	3820	27.476	0.476
231	3830	27.479	0.479
232	3840	27.479	0.479
233	3850	27.4803	0.4803
234	3860	27.4754	0.4754
235	3870	27.4777	0.4777
236	3880	27.4846	0.4846
237	3890	27.4797	0.4797
238	3900	27.4819	0.4819
239	3910	27.4856	0.4856
240	3920	27.48	0.48
241	3930	27.4823	0.4823
242	3940	27.4793	0.4793
243	3950	27.4816	0.4816
244	3960	27.4813	0.4813
245	3970	27.4869	0.4869
246	3980	27.4879	0.4879
247	3990	27.4872	0.4872
248	4000	27.4905	0.4905
249	4010	27.4885	0.4885
250	4020	27.4892	0.4892
251	4030	27.4924	0.4924
252	4040	27.4895	0.4895
253	4050	27.4924	0.4924
254	4060	27.4961	0.4961
255	4070	27.4993	0.4993
256	4080	27.4974	0.4974
257	4090	27.5006	0.5006
258	4100	27.5013	0.5013
259	4110	27.4997	0.4997
260	4120	27.5043	0.5043
261	4130	27.5026	0.5026
262	4140	27.5082	0.5082
263	4150	27.5082	0.5082
264	4160	27.5131	0.5131
265	4170	27.5138	0.5138
266	4180	27.5171	0.5171
267	4190	27.5256	0.5256
268	4200	27.5249	0.5249
269	4210	27.5282	0.5282
270	4220	27.5266	0.5266
271	4230	27.5312	0.5312
272	4240	27.5348	0.5348
273	4250	27.5374	0.5374
274	4260	27.5371	0.5371
275	4270	27.542	0.542

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, Manitoba
R5G 1T8

Project: RM of East St. Paul - Bray Road Water Supply

Number: 2010-095-011

Client: Stantec Consulting Inc.

	Time [min]	Water Level [ft]	Drawdown [ft]
276	4280	27.5417	0.5417
277	4290	27.5476	0.5476
278	4300	27.5495	0.5495
279	4310	27.5512	0.5512
280	4320	27.5538	0.5538
281	4330	27.434	0.434
282	4340	27.3478	0.3478
283	4350	27.3097	0.3097
284	4360	27.272	0.272
285	4370	27.2388	0.2388
286	4380	27.2192	0.2192
287	4390	27.211	0.211
288	4400	27.1949	0.1949
289	4410	27.1834	0.1834
290	4420	27.1722	0.1722
291	4430	27.1611	0.1611
292	4440	27.1506	0.1506
293	4450	27.144	0.144
294	4460	27.1171	0.1171
295	4470	27.1063	0.1063
296	4480	27.102	0.102
297	4490	27.0915	0.0915
298	4500	27.0794	0.0794
299	4510	27.0725	0.0725
300	4520	27.0646	0.0646
301	4530	27.0587	0.0587
302	4540	27.0541	0.0541
303	4550	27.0453	0.0453
304	4560	27.042	0.042
305	4570	27.0394	0.0394
306	4580	27.0348	0.0348
307	4590	27.0305	0.0305
308	4600	27.0266	0.0266
309	4610	27.0177	0.0177
310	4620	27.0151	0.0151
311	4630	27.0115	0.0115
312	4640	27.0085	0.0085
313	4650	27.0082	0.0082
314	4660	27.0036	0.0036

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, Manitoba
R5G 1T8

Pumping Test - Water Level Data

Project: RM of East St. Paul - Bray Road Water Supply

Number: 2010-095-011

Client: Stantec Consulting Inc.

Location: Bray Road - RM of East St. Paul	Pumping Test: Pumping Test 1	Pumping Well: Supply Well
Test Conducted by: Chris Wilson	Test Date: 3/13/2012	Discharge: variable, average rate 459.12 [U.S. gal/min]
Observation Well: 4000 St. Andrews	Static Water Level [ft]: 35.37	Radial Distance to PW [m]: 203.06

	Time [min]	Water Level [ft]	Drawdown [ft]
1	0	35.37	0.00
2	5	35.37	0.00
3	15	35.54	0.17
4	25	35.59	0.22
5	35	35.63	0.26
6	45	35.69	0.32
7	55	35.66	0.29
8	65	35.67	0.30
9	75	35.69	0.32
10	85	35.70	0.33
11	95	35.71	0.34
12	105	35.72	0.35
13	115	35.74	0.37
14	125	35.75	0.38
15	135	35.76	0.39
16	145	35.77	0.40
17	155	35.78	0.41
18	165	35.79	0.42
19	175	35.80	0.43
20	185	35.81	0.44
21	195	35.82	0.45
22	205	35.82	0.45
23	215	35.83	0.46
24	225	35.84	0.47
25	235	35.85	0.48
26	245	35.83	0.46
27	255	35.83	0.46
28	265	35.83	0.46
29	275	35.83	0.46
30	285	35.84	0.47
31	295	35.85	0.48
32	305	35.85	0.48
33	315	35.86	0.49
34	325	35.89	0.52
35	335	35.91	0.54
36	345	35.92	0.55
37	355	35.93	0.56
38	365	35.93	0.56
39	375	35.94	0.57
40	385	35.95	0.58
41	395	35.95	0.58
42	405	35.96	0.59
43	415	35.94	0.57
44	425	35.95	0.58
45	435	35.95	0.58
46	445	35.96	0.59
47	455	35.96	0.59
48	465	35.97	0.60
49	475	35.97	0.60
50	485	35.98	0.61
51	495	35.98	0.61

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, Manitoba
R5G 1T8

Project: RM of East St. Paul - Bray Road Water Supply

Number: 2010-095-011

Client: Stantec Consulting Inc.

	Time [min]	Water Level [ft]	Drawdown [ft]
52	505	35.99	0.62
53	525	36.00	0.63
54	535	36.03	0.66
55	545	36.05	0.68
56	555	36.05	0.68
57	565	36.07	0.70
58	575	36.08	0.71
59	585	36.09	0.72
60	595	36.10	0.73
61	605	36.11	0.74
62	615	36.12	0.75
63	625	36.12	0.75
64	635	36.13	0.76
65	645	36.13	0.76
66	655	36.14	0.77
67	665	36.14	0.77
68	675	36.15	0.78
69	685	36.16	0.79
70	695	36.16	0.79
71	705	36.16	0.79
72	715	36.17	0.80
73	725	36.17	0.80
74	735	36.18	0.81
75	745	36.18	0.81
76	755	36.19	0.82
77	765	36.19	0.82
78	775	36.19	0.82
79	785	36.19	0.82
80	795	36.20	0.83
81	805	36.21	0.84
82	815	36.21	0.84
83	825	36.22	0.85
84	835	36.22	0.85
85	845	36.23	0.86
86	855	36.23	0.86
87	865	36.24	0.87
88	875	36.25	0.88
89	885	36.25	0.88
90	895	36.25	0.88
91	905	36.26	0.89
92	915	36.26	0.89
93	925	36.27	0.90
94	935	36.28	0.91
95	945	36.28	0.91
96	955	36.28	0.91
97	965	36.29	0.92
98	975	36.29	0.92
99	985	36.30	0.93
100	995	36.30	0.93
101	1005	36.31	0.94
102	1015	36.32	0.95
103	1025	36.33	0.96
104	1035	36.33	0.96
105	1045	36.33	0.96
106	1055	36.35	0.98
107	1065	36.35	0.98

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, Manitoba
R5G 1T8

Project: RM of East St. Paul - Bray Road Water Supply

Number: 2010-095-011

Client: Stantec Consulting Inc.

	Time [min]	Water Level [ft]	Drawdown [ft]
108	1075	36.34	0.97
109	1085	36.34	0.97
110	1095	36.34	0.97
111	1105	36.34	0.97
112	1115	36.34	0.97
113	1125	36.35	0.98
114	1135	36.35	0.98
115	1145	36.34	0.97
116	1155	36.34	0.97
117	1165	36.34	0.97
118	1175	36.34	0.97
119	1185	36.34	0.97
120	1195	36.34	0.97
121	1205	36.33	0.96
122	1215	36.33	0.96
123	1225	36.33	0.96
124	1235	36.33	0.96
125	1245	36.33	0.96
126	1255	36.33	0.96
127	1265	36.32	0.95
128	1275	36.33	0.96
129	1285	36.32	0.95
130	1295	36.33	0.96
131	1305	36.33	0.96
132	1315	36.33	0.96
133	1325	36.33	0.96
134	1335	36.33	0.96
135	1345	36.32	0.95
136	1355	36.32	0.95
137	1365	36.32	0.95
138	1375	36.32	0.95
139	1385	36.31	0.94
140	1395	36.31	0.94
141	1405	36.30	0.93
142	1415	36.30	0.93
143	1425	36.30	0.93
144	1435	36.29	0.92
145	1445	36.31	0.94
146	1455	36.31	0.94
147	1465	36.31	0.94
148	1475	36.30	0.93
149	1485	36.30	0.93
150	1495	36.30	0.93
151	1505	36.29	0.92
152	1515	36.29	0.92
153	1525	36.29	0.92
154	1535	36.29	0.92
155	1545	36.28	0.91
156	1555	36.28	0.91
157	1565	36.28	0.91
158	1575	36.28	0.91
159	1585	36.27	0.90
160	1595	36.27	0.90
161	1605	36.26	0.89
162	1615	36.26	0.89
163	1625	36.26	0.89

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, Manitoba
R5G 1T8

Pumping Test - Water Level Data

Project: RM of East St. Paul - Bray Road Water Supply

Number: 2010-095-011

Client: Stantec Consulting Inc.

	Time [min]	Water Level [ft]	Drawdown [ft]
164	1635	36.26	0.89
165	1645	36.25	0.88
166	1655	36.25	0.88
167	1665	36.25	0.88
168	1675	36.26	0.89
169	1685	36.25	0.88
170	1695	36.25	0.88
171	1705	36.25	0.88
172	1715	36.24	0.87
173	1725	36.24	0.87
174	1735	36.24	0.87
175	1745	36.24	0.87
176	1755	36.24	0.87
177	1765	36.23	0.86
178	1775	36.23	0.86
179	1785	36.23	0.86
180	1795	36.23	0.86
181	1805	36.23	0.86
182	1815	36.22	0.85
183	1825	36.22	0.85
184	1835	36.23	0.86
185	1845	36.23	0.86
186	1855	36.23	0.86
187	1865	36.22	0.85
188	1875	36.23	0.86
189	1885	36.22	0.85
190	1895	36.22	0.85
191	1905	36.22	0.85
192	1915	36.22	0.85
193	1925	36.22	0.85
194	1935	36.23	0.86
195	1945	36.22	0.85
196	1955	36.22	0.85
197	1965	36.22	0.85
198	1975	36.22	0.85
199	1985	36.22	0.85
200	1995	36.22	0.85
201	2005	36.22	0.85
202	2015	36.22	0.85
203	2025	36.22	0.85
204	2035	36.22	0.85
205	2045	36.22	0.85
206	2055	36.22	0.85
207	2065	36.22	0.85
208	2075	36.22	0.85
209	2085	36.22	0.85
210	2095	36.22	0.85
211	2105	36.22	0.85
212	2115	36.22	0.85
213	2125	36.22	0.85
214	2135	36.22	0.85
215	2145	36.21	0.84
216	2155	36.21	0.84
217	2165	36.21	0.84
218	2175	36.21	0.84
219	2185	36.21	0.84

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, Manitoba
R5G 1T8

Project: RM of East St. Paul - Bray Road Water Supply

Number: 2010-095-011

Client: Stantec Consulting Inc.

	Time [min]	Water Level [ft]	Drawdown [ft]
220	2195	36.21	0.84
221	2205	36.21	0.84
222	2215	36.21	0.84
223	2225	36.20	0.83
224	2235	36.20	0.83
225	2245	36.20	0.83
226	2255	36.20	0.83
227	2265	36.20	0.83
228	2275	36.20	0.83
229	2285	36.20	0.83
230	2295	36.19	0.82
231	2305	36.19	0.82
232	2315	36.19	0.82
233	2325	36.19	0.82
234	2335	36.18	0.81
235	2345	36.18	0.81
236	2355	36.17	0.80
237	2365	36.17	0.80
238	2375	36.17	0.80
239	2385	36.17	0.80
240	2395	36.16	0.79
241	2405	36.16	0.79
242	2415	36.16	0.79
243	2425	36.16	0.79
244	2435	36.16	0.79
245	2445	36.16	0.79
246	2455	36.16	0.79
247	2465	36.15	0.78
248	2475	36.15	0.78
249	2485	36.15	0.78
250	2495	36.15	0.78
251	2505	36.15	0.78
252	2515	36.15	0.78
253	2525	36.14	0.77
254	2535	36.14	0.77
255	2545	36.14	0.77
256	2555	36.14	0.77
257	2565	36.14	0.77
258	2575	36.15	0.78
259	2585	36.14	0.77
260	2595	36.15	0.78
261	2605	36.14	0.77
262	2615	36.14	0.77
263	2625	36.14	0.77
264	2635	36.14	0.77
265	2645	36.14	0.77
266	2655	36.14	0.77
267	2665	36.14	0.77
268	2675	36.14	0.77
269	2685	36.13	0.76
270	2695	36.14	0.77
271	2705	36.14	0.77
272	2715	36.14	0.77
273	2725	36.15	0.78
274	2735	36.15	0.78
275	2745	36.15	0.78

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, Manitoba
R5G 1T8

Pumping Test - Water Level Data

Project: RM of East St. Paul - Bray Road Water Supply

Number: 2010-095-011

Client: Stantec Consulting Inc.

	Time [min]	Water Level [ft]	Drawdown [ft]
276	2755	36.15	0.78
277	2765	36.16	0.79
278	2775	36.16	0.79
279	2785	36.17	0.80
280	2795	36.16	0.79
281	2805	36.16	0.79
282	2815	36.17	0.80
283	2825	36.17	0.80
284	2835	36.16	0.79
285	2845	36.17	0.80
286	2855	36.17	0.80
287	2865	36.17	0.80
288	2875	36.17	0.80
289	2885	36.17	0.80
290	2895	36.17	0.80
291	2905	36.19	0.82
292	2915	36.18	0.81
293	2925	36.18	0.81
294	2935	36.18	0.81
295	2945	36.17	0.80
296	2955	36.17	0.80
297	2965	36.18	0.81
298	2975	36.18	0.81
299	2985	36.17	0.80
300	2995	36.17	0.80
301	3005	36.18	0.81
302	3015	36.18	0.81
303	3025	36.18	0.81
304	3035	36.18	0.81
305	3045	36.18	0.81
306	3055	36.18	0.81
307	3065	36.18	0.81
308	3075	36.18	0.81
309	3085	36.18	0.81
310	3095	36.18	0.81
311	3105	36.18	0.81
312	3115	36.19	0.82
313	3125	36.19	0.82
314	3135	36.19	0.82
315	3145	36.19	0.82
316	3155	36.19	0.82
317	3165	36.19	0.82
318	3175	36.19	0.82
319	3185	36.20	0.83
320	3195	36.20	0.83
321	3205	36.20	0.83
322	3215	36.21	0.84
323	3225	36.21	0.84
324	3235	36.21	0.84
325	3245	36.22	0.85
326	3255	36.22	0.85
327	3265	36.22	0.85
328	3275	36.22	0.85
329	3285	36.23	0.86
330	3295	36.23	0.86
331	3305	36.23	0.86

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, Manitoba
R5G 1T8

Project: RM of East St. Paul - Bray Road Water Supply

Number: 2010-095-011

Client: Stantec Consulting Inc.

	Time [min]	Water Level [ft]	Drawdown [ft]
332	3315	36.24	0.87
333	3325	36.24	0.87
334	3335	36.24	0.87
335	3345	36.25	0.88
336	3355	36.25	0.88
337	3365	36.26	0.89
338	3375	36.26	0.89
339	3385	36.26	0.89
340	3395	36.27	0.90
341	3405	36.27	0.90
342	3415	36.27	0.90
343	3425	36.27	0.90
344	3435	36.28	0.91
345	3445	36.28	0.91
346	3455	36.28	0.91
347	3465	36.28	0.91
348	3475	36.29	0.92
349	3485	36.29	0.92
350	3495	36.29	0.92
351	3505	36.29	0.92
352	3515	36.29	0.92
353	3525	36.29	0.92
354	3535	36.30	0.93
355	3545	36.30	0.93
356	3555	36.30	0.93
357	3565	36.30	0.93
358	3575	36.31	0.94
359	3585	36.31	0.94
360	3595	36.31	0.94
361	3605	36.31	0.94
362	3615	36.31	0.94
363	3625	36.31	0.94
364	3635	36.31	0.94
365	3645	36.32	0.95
366	3655	36.32	0.95
367	3665	36.32	0.95
368	3675	36.32	0.95
369	3685	36.32	0.95
370	3695	36.32	0.95
371	3705	36.31	0.94
372	3715	36.32	0.95
373	3725	36.31	0.94
374	3735	36.31	0.94
375	3745	36.31	0.94
376	3755	36.31	0.94
377	3765	36.31	0.94
378	3775	36.31	0.94
379	3785	36.30	0.93
380	3795	36.31	0.94
381	3805	36.30	0.93
382	3815	36.30	0.93
383	3825	36.30	0.93
384	3835	36.30	0.93
385	3845	36.30	0.93
386	3855	36.30	0.93
387	3865	36.29	0.92

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, Manitoba
R5G 1T8

Pumping Test - Water Level Data

Project: RM of East St. Paul - Bray Road Water Supply

Number: 2010-095-011

Client: Stantec Consulting Inc.

	Time [min]	Water Level [ft]	Drawdown [ft]
388	3875	36.30	0.93
389	3885	36.30	0.93
390	3895	36.30	0.93
391	3905	36.30	0.93
392	3915	36.30	0.93
393	3925	36.30	0.93
394	3935	36.30	0.93
395	3945	36.29	0.92
396	3955	36.29	0.92
397	3965	36.30	0.93
398	3975	36.30	0.93
399	3985	36.30	0.93
400	3995	36.30	0.93
401	4005	36.30	0.93
402	4015	36.30	0.93
403	4025	36.30	0.93
404	4035	36.30	0.93
405	4045	36.31	0.94
406	4055	36.31	0.94
407	4065	36.31	0.94
408	4075	36.31	0.94
409	4085	36.31	0.94
410	4095	36.31	0.94
411	4105	36.31	0.94
412	4115	36.32	0.95
413	4125	36.32	0.95
414	4135	36.32	0.95
415	4145	36.33	0.96
416	4155	36.33	0.96
417	4165	36.33	0.96
418	4175	36.34	0.97
419	4185	36.34	0.97
420	4195	36.35	0.98
421	4205	36.35	0.98
422	4215	36.35	0.98
423	4225	36.35	0.98
424	4235	36.36	0.99
425	4245	36.36	0.99
426	4255	36.36	0.99
427	4265	36.37	1.00
428	4275	36.37	1.00
429	4285	36.38	1.01
430	4295	36.38	1.01
431	4305	36.38	1.01
432	4315	36.38	1.01
433	4325	36.11	0.74
434	4335	36.02	0.65
435	4345	35.98	0.61
436	4355	35.94	0.57
437	4365	35.91	0.54
438	4375	35.89	0.52
439	4385	35.87	0.50
440	4395	35.85	0.48

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, Manitoba
R5G 1T8

Pumping Test - Water Level Data

Project: RM of East St. Paul - Bray Road Water Supply

Number: 2010-095-011

Client: Stantec Consulting Inc.

Location: Bray Road - RM of East St. Paul	Pumping Test: Pumping Test 1	Pumping Well: Supply Well
Test Conducted by: Chris Wilson	Test Date: 3/13/2012	Discharge: variable, average rate 459.12 [U.S. gal/min]
Observation Well: 1960 Bray Road	Static Water Level [ft]: 33.66	Radial Distance to PW [m]: 207.71

	Time [min]	Water Level [ft]	Drawdown [ft]
1	0	33.66	0.00
2	10	33.72	0.06
3	20	33.79	0.13
4	30	33.84	0.18
5	40	33.86	0.20
6	50	33.88	0.22
7	60	33.89	0.23
8	70	33.90	0.24
9	80	33.91	0.25
10	90	33.92	0.26
11	100	33.93	0.27
12	110	33.94	0.28
13	120	33.96	0.30
14	130	33.96	0.30
15	140	33.97	0.31
16	150	33.98	0.32
17	160	34.00	0.34
18	170	34.00	0.34
19	180	34.01	0.35
20	190	34.02	0.36
21	200	34.02	0.36
22	210	34.03	0.37
23	220	34.04	0.38
24	230	34.05	0.39
25	240	34.05	0.39
26	250	34.03	0.37
27	260	34.03	0.37
28	270	34.04	0.38
29	280	34.04	0.38
30	290	34.05	0.39
31	300	34.05	0.39
32	310	34.06	0.40
33	320	34.08	0.42
34	330	34.11	0.45
35	340	34.12	0.46
36	350	34.12	0.46
37	360	34.14	0.48
38	370	34.14	0.48
39	380	34.15	0.49
40	390	34.15	0.49
41	400	34.16	0.50
42	410	34.16	0.50
43	420	34.15	0.49
44	430	34.15	0.49
45	440	34.16	0.50
46	450	34.17	0.51
47	460	34.17	0.51
48	470	34.17	0.51
49	480	34.18	0.52
50	490	34.18	0.52
51	500	34.19	0.53

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, Manitoba
R5G 1T8

Pumping Test - Water Level Data

Project: RM of East St. Paul - Bray Road Water Supply

Number: 2010-095-011

Client: Stantec Consulting Inc.

	Time [min]	Water Level [ft]	Drawdown [ft]
52	510	34.19	0.53
53	530	34.21	0.55
54	540	34.24	0.58
55	550	34.25	0.59
56	560	34.27	0.61
57	570	34.27	0.61
58	580	34.28	0.62
59	590	34.29	0.63
60	600	34.30	0.64
61	610	34.31	0.65
62	620	34.32	0.66
63	630	34.32	0.66
64	640	34.32	0.66
65	650	34.33	0.67
66	660	34.34	0.68
67	670	34.34	0.68
68	680	34.35	0.69
69	690	34.35	0.69
70	700	34.35	0.69
71	710	34.35	0.69
72	720	34.36	0.70
73	730	34.36	0.70
74	740	34.37	0.71
75	750	34.37	0.71
76	760	34.37	0.71
77	770	34.38	0.72
78	780	34.38	0.72
79	790	34.38	0.72
80	800	34.39	0.73
81	810	34.39	0.73
82	820	34.40	0.74
83	830	34.40	0.74
84	840	34.41	0.75
85	850	34.41	0.75
86	860	34.42	0.76
87	870	34.42	0.76
88	880	34.43	0.77
89	890	34.43	0.77
90	900	34.43	0.77
91	910	34.44	0.78
92	920	34.45	0.79
93	930	34.45	0.79
94	940	34.45	0.79
95	950	34.46	0.80
96	960	34.46	0.80
97	970	34.47	0.81
98	980	34.48	0.82
99	990	34.48	0.82
100	1000	34.49	0.83
101	1010	34.50	0.84
102	1020	34.50	0.84
103	1030	34.51	0.85
104	1040	34.52	0.86
105	1050	34.52	0.86
106	1060	34.53	0.87
107	1070	34.53	0.87

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, Manitoba
R5G 1T8

Project: RM of East St. Paul - Bray Road Water Supply

Number: 2010-095-011

Client: Stantec Consulting Inc.

	Time [min]	Water Level [ft]	Drawdown [ft]
108	1080	34.52	0.86
109	1090	34.52	0.86
110	1100	34.52	0.86
111	1110	34.53	0.87
112	1120	34.53	0.87
113	1130	34.53	0.87
114	1140	34.52	0.86
115	1160	34.52	0.86
116	1170	34.52	0.86
117	1180	34.52	0.86
118	1190	34.52	0.86
119	1200	34.53	0.87
120	1210	34.52	0.86
121	1220	34.52	0.86
122	1230	34.52	0.86
123	1240	34.52	0.86
124	1250	34.52	0.86
125	1260	34.51	0.85
126	1270	34.51	0.85
127	1280	34.51	0.85
128	1290	34.51	0.85
129	1300	34.52	0.86
130	1310	34.52	0.86
131	1320	34.52	0.86
132	1330	34.52	0.86
133	1340	34.52	0.86
134	1350	34.52	0.86
135	1360	34.51	0.85
136	1370	34.50	0.84
137	1380	34.50	0.84
138	1390	34.50	0.84
139	1400	34.49	0.83
140	1410	34.49	0.83
141	1420	34.49	0.83
142	1430	34.48	0.82
143	1440	34.50	0.84
144	1450	34.49	0.83
145	1460	34.49	0.83
146	1470	34.49	0.83
147	1480	34.49	0.83
148	1490	34.48	0.82
149	1500	34.48	0.82
150	1510	34.48	0.82
151	1520	34.48	0.82
152	1530	34.47	0.81
153	1540	34.47	0.81
154	1550	34.46	0.80
155	1560	34.46	0.80
156	1570	34.46	0.80
157	1580	34.46	0.80
158	1590	34.46	0.80
159	1600	34.45	0.79
160	1610	34.45	0.79
161	1620	34.44	0.78
162	1630	34.44	0.78
163	1640	34.44	0.78

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, Manitoba
R5G 1T8

Pumping Test - Water Level Data

Project: RM of East St. Paul - Bray Road Water Supply

Number: 2010-095-011

Client: Stantec Consulting Inc.

	Time [min]	Water Level [ft]	Drawdown [ft]
220	2320	34.38	0.72
221	2330	34.39	0.73
222	2340	34.38	0.72
223	2350	34.39	0.73
224	2360	34.38	0.72
225	2370	34.37	0.71
226	2380	34.37	0.71
227	2390	34.37	0.71
228	2400	34.36	0.70
229	2410	34.36	0.70
230	2420	34.37	0.71
231	2430	34.36	0.70
232	2440	34.36	0.70
233	2450	34.36	0.70
234	2460	34.36	0.70
235	2470	34.36	0.70
236	2480	34.36	0.70
237	2490	34.36	0.70
238	2500	34.35	0.69
239	2510	34.35	0.69
240	2520	34.35	0.69
241	2530	34.35	0.69
242	2580	34.35	0.69
243	2630	34.35	0.69
244	2640	34.35	0.69
245	2650	34.35	0.69
246	2660	34.35	0.69
247	2670	34.35	0.69
248	2680	34.35	0.69
249	2690	34.35	0.69
250	2700	34.35	0.69
251	2710	34.35	0.69
252	2730	34.36	0.70
253	2740	34.36	0.70
254	2750	34.37	0.71
255	2760	34.36	0.70
256	2770	34.37	0.71
257	2780	34.38	0.72
258	2790	34.37	0.71
259	2800	34.37	0.71
260	2810	34.38	0.72
261	2820	34.37	0.71
262	2830	34.38	0.72
263	2840	34.38	0.72
264	2850	34.38	0.72
265	2860	34.38	0.72
266	2870	34.38	0.72
267	2880	34.38	0.72
268	2890	34.38	0.72
269	2900	34.38	0.72
270	2910	34.39	0.73
271	2920	34.39	0.73
272	2930	34.39	0.73
273	2940	34.39	0.73
274	2950	34.39	0.73
275	2960	34.39	0.73

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, Manitoba
R5G 1T8

Project: RM of East St. Paul - Bray Road Water Supply

Number: 2010-095-011

Client: Stantec Consulting Inc.

	Time [min]	Water Level [ft]	Drawdown [ft]
164	1650	34.44	0.78
165	1660	34.43	0.77
166	1670	34.44	0.78
167	1680	34.44	0.78
168	1690	34.44	0.78
169	1700	34.43	0.77
170	1710	34.43	0.77
171	1720	34.43	0.77
172	1730	34.43	0.77
173	1740	34.43	0.77
174	1750	34.42	0.76
175	1760	34.42	0.76
176	1770	34.41	0.75
177	1780	34.42	0.76
178	1790	34.42	0.76
179	1800	34.41	0.75
180	1810	34.41	0.75
181	1820	34.41	0.75
182	1830	34.41	0.75
183	1840	34.41	0.75
184	1850	34.42	0.76
185	1860	34.41	0.75
186	1870	34.41	0.75
187	1880	34.41	0.75
188	1890	34.41	0.75
189	1900	34.41	0.75
190	1910	34.41	0.75
191	1920	34.42	0.76
192	1930	34.42	0.76
193	1940	34.41	0.75
194	1950	34.41	0.75
195	1960	34.41	0.75
196	1970	34.41	0.75
197	1980	34.41	0.75
198	1990	34.41	0.75
199	2000	34.41	0.75
200	2010	34.41	0.75
201	2020	34.41	0.75
202	2030	34.41	0.75
203	2040	34.41	0.75
204	2050	34.41	0.75
205	2060	34.41	0.75
206	2070	34.41	0.75
207	2080	34.42	0.76
208	2090	34.41	0.75
209	2210	34.40	0.74
210	2220	34.40	0.74
211	2230	34.40	0.74
212	2240	34.40	0.74
213	2250	34.40	0.74
214	2260	34.40	0.74
215	2270	34.40	0.74
216	2280	34.40	0.74
217	2290	34.39	0.73
218	2300	34.39	0.73
219	2310	34.39	0.73

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, Manitoba
R5G 1T8

Project: RM of East St. Paul - Bray Road Water Supply

Number: 2010-095-011

Client: Stantec Consulting Inc.

	Time [min]	Water Level [ft]	Drawdown [ft]
276	2970	34.39	0.73
277	2980	34.39	0.73
278	2990	34.39	0.73
279	3000	34.39	0.73
280	3010	34.39	0.73
281	3020	34.39	0.73
282	3030	34.39	0.73
283	3040	34.39	0.73
284	3050	34.39	0.73
285	3060	34.39	0.73
286	3070	34.39	0.73
287	3080	34.39	0.73
288	3090	34.39	0.73
289	3100	34.39	0.73
290	3110	34.40	0.74
291	3120	34.40	0.74
292	3130	34.40	0.74
293	3140	34.41	0.75
294	3150	34.41	0.75
295	3160	34.41	0.75
296	3170	34.41	0.75
297	3180	34.41	0.75
298	3190	34.41	0.75
299	3200	34.42	0.76
300	3210	34.42	0.76
301	3220	34.43	0.77
302	3230	34.43	0.77
303	3240	34.43	0.77
304	3250	34.43	0.77
305	3260	34.44	0.78
306	3270	34.44	0.78
307	3280	34.44	0.78
308	3290	34.45	0.79
309	3300	34.45	0.79
310	3310	34.46	0.80
311	3320	34.45	0.79
312	3330	34.46	0.80
313	3340	34.46	0.80
314	3350	34.47	0.81
315	3360	34.48	0.82
316	3370	34.48	0.82
317	3380	34.48	0.82
318	3390	34.48	0.82
319	3400	34.48	0.82
320	3410	34.49	0.83
321	3420	34.49	0.83
322	3460	34.50	0.84
323	3470	34.50	0.84
324	3480	34.50	0.84
325	3490	34.51	0.85
326	3510	34.51	0.85
327	3530	34.52	0.86
328	3540	34.51	0.85
329	3550	34.52	0.86
330	3560	34.52	0.86
331	3570	34.52	0.86

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, Manitoba
R5G 1T8

Project: RM of East St. Paul - Bray Road Water Supply

Number: 2010-095-011

Client: Stantec Consulting Inc.

	Time [min]	Water Level [ft]	Drawdown [ft]
332	3580	34.52	0.86
333	3590	34.53	0.87
334	3600	34.53	0.87
335	3610	34.53	0.87
336	3620	34.53	0.87
337	3630	34.53	0.87
338	3650	34.53	0.87
339	3660	34.54	0.88
340	3670	34.54	0.88
341	3680	34.54	0.88
342	3690	34.54	0.88
343	3700	34.54	0.88
344	3710	34.53	0.87
345	3720	34.53	0.87
346	3730	34.53	0.87
347	3740	34.53	0.87
348	3750	34.53	0.87
349	3760	34.53	0.87
350	3770	34.53	0.87
351	3780	34.53	0.87
352	3790	34.52	0.86
353	3800	34.53	0.87
354	3810	34.52	0.86
355	3820	34.52	0.86
356	3830	34.52	0.86
357	3840	34.51	0.85
358	3850	34.52	0.86
359	3860	34.52	0.86
360	3870	34.52	0.86
361	3880	34.52	0.86
362	3890	34.52	0.86
363	3900	34.52	0.86
364	3910	34.52	0.86
365	3920	34.52	0.86
366	3930	34.52	0.86
367	3940	34.51	0.85
368	3950	34.52	0.86
369	3960	34.53	0.87
370	3970	34.52	0.86
371	3980	34.52	0.86
372	3990	34.52	0.86
373	4000	34.52	0.86
374	4010	34.52	0.86
375	4020	34.53	0.87
376	4030	34.53	0.87
377	4040	34.53	0.87
378	4050	34.53	0.87
379	4060	34.54	0.88
380	4070	34.53	0.87
381	4080	34.54	0.88
382	4090	34.54	0.88
383	4100	34.54	0.88
384	4110	34.54	0.88
385	4120	34.54	0.88
386	4130	34.54	0.88
387	4140	34.55	0.89

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, Manitoba
R5G 1T8

Project: RM of East St. Paul - Bray Road Water Supply

Number: 2010-095-011

Client: Stantec Consulting Inc.

	Time [min]	Water Level [ft]	Drawdown [ft]
388	4150	34.56	0.90
389	4160	34.56	0.90
390	4170	34.56	0.90
391	4180	34.56	0.90
392	4190	34.57	0.91
393	4200	34.58	0.92
394	4210	34.58	0.92
395	4220	34.58	0.92
396	4230	34.58	0.92
397	4240	34.59	0.93
398	4250	34.59	0.93
399	4260	34.59	0.93
400	4270	34.60	0.94
401	4280	34.60	0.94
402	4290	34.60	0.94
403	4300	34.60	0.94
404	4310	34.61	0.95
405	4320	34.61	0.95
406	4330	34.27	0.61
407	4340	34.21	0.55
408	4350	34.17	0.51
409	4360	34.13	0.47
410	4370	34.11	0.45
411	4380	34.08	0.42
412	4390	34.07	0.41
413	4400	34.05	0.39
414	4410	34.04	0.38
415	4420	34.03	0.37
416	4430	34.01	0.35
417	4440	34.00	0.34
418	4450	33.99	0.33
419	4460	33.99	0.33
420	4470	33.98	0.32
421	4480	33.97	0.31
422	4490	33.97	0.31
423	4500	33.96	0.30
424	4510	33.95	0.29
425	4520	33.94	0.28
426	4530	33.94	0.28
427	4540	33.93	0.27
428	4550	33.93	0.27
429	4560	33.92	0.26
430	4570	33.92	0.26
431	4580	33.92	0.26
432	4590	33.92	0.26
433	4600	33.91	0.25
434	4610	33.91	0.25
435	4620	33.90	0.24
436	4630	33.90	0.24

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, Manitoba
R5G 1T8

Pumping Test - Water Level Data

Project: RM of East St. Paul - Bray Road Water Supply

Number: 2010-095-011

Client: Stantec Consulting Inc.

Location: Bray Road - RM of East St. Paul	Pumping Test: Pumping Test 1	Pumping Well: Supply Well
Test Conducted by: Chris Wilson	Test Date: 3/13/2012	Discharge: variable, average rate 459.12 [U.S. gal/min]
Observation Well: 3486 Raleigh	Static Water Level [ft]: 30.56	Radial Distance to PW [m]: 1778.59

	Time [min]	Water Level [ft]	Drawdown [ft]
1	0	30.557	0.00
2	10	30.57	0.013
3	20	30.581	0.024
4	30	30.59	0.033
5	40	30.599	0.042
6	50	30.614	0.057
7	60	30.618	0.061
8	70	30.622	0.065
9	80	30.631	0.074
10	90	30.642	0.085
11	100	30.649	0.092
12	110	30.655	0.098
13	120	30.665	0.108
14	130	30.669	0.112
15	140	30.675	0.118
16	150	30.681	0.124
17	160	30.686	0.129
18	170	30.695	0.138
19	180	30.697	0.14
20	190	30.696	0.139
21	200	30.699	0.142
22	210	30.707	0.15
23	240	30.707	0.15
24	250	30.698	0.141
25	260	30.705	0.148
26	270	30.716	0.159
27	290	30.731	0.174
28	300	30.739	0.182
29	310	30.747	0.19
30	320	30.754	0.197
31	330	30.757	0.20
32	340	30.76	0.203
33	350	30.772	0.215
34	360	30.77	0.213
35	370	30.778	0.221
36	390	30.787	0.23
37	400	30.789	0.232
38	410	30.79	0.233
39	420	30.798	0.241
40	430	30.809	0.252
41	440	30.81	0.253
42	450	30.818	0.261
43	460	30.794	0.237
44	470	30.815	0.258
45	480	30.832	0.275
46	490	30.849	0.292
47	500	30.862	0.305
48	510	30.865	0.308
49	520	30.87	0.313
50	530	30.88	0.323
51	550	30.896	0.339

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, Manitoba
R5G 1T8

Pumping Test - Water Level Data

Project: RM of East St. Paul - Bray Road Water Supply

Number: 2010-095-011

Client: Stantec Consulting Inc.

	Time [min]	Water Level [ft]	Drawdown [ft]
52	560	30.898	0.341
53	570	30.906	0.349
54	580	30.908	0.351
55	590	30.917	0.36
56	600	30.92	0.363
57	610	30.926	0.369
58	620	30.934	0.377
59	630	30.938	0.381
60	640	30.944	0.387
61	650	30.947	0.39
62	660	30.954	0.397
63	670	30.968	0.411
64	680	30.968	0.411
65	690	30.969	0.412
66	700	30.968	0.411
67	710	30.978	0.421
68	720	30.983	0.426
69	730	30.988	0.431
70	740	30.998	0.441
71	750	31.001	0.444
72	760	31.006	0.449
73	770	31.017	0.46
74	780	31.018	0.461
75	790	31.025	0.468
76	800	31.027	0.47
77	810	31.037	0.48
78	820	31.041	0.484
79	830	31.054	0.497
80	840	31.053	0.496
81	850	31.055	0.498
82	860	31.064	0.507
83	870	31.068	0.511
84	880	31.073	0.516
85	890	31.08	0.523
86	900	31.086	0.529
87	910	31.09	0.533
88	920	31.095	0.538
89	930	31.104	0.547
90	940	31.11	0.553
91	950	31.117	0.56
92	960	31.124	0.567
93	970	31.134	0.577
94	980	31.144	0.587
95	990	31.148	0.591
96	1000	31.151	0.594
97	1010	31.159	0.602
98	1020	31.16	0.603
99	1030	31.16	0.603
100	1040	31.153	0.596
101	1050	31.158	0.601
102	1060	31.167	0.61
103	1070	31.168	0.611
104	1080	31.157	0.60
105	1090	31.157	0.60
106	1100	31.163	0.606
107	1110	31.156	0.599

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, Manitoba
R5G 1T8

Project: RM of East St. Paul - Bray Road Water Supply

Number: 2010-095-011

Client: Stantec Consulting Inc.

	Time [min]	Water Level [ft]	Drawdown [ft]
108	1120	31.157	0.60
109	1130	31.156	0.599
110	1140	31.16	0.603
111	1150	31.155	0.598
112	1160	31.152	0.595
113	1170	31.15	0.593
114	1180	31.155	0.598
115	1190	31.145	0.588
116	1200	31.138	0.581
117	1210	31.145	0.588
118	1220	31.146	0.589
119	1230	31.134	0.577
120	1240	31.14	0.583
121	1250	31.138	0.581
122	1260	31.136	0.579
123	1270	31.131	0.574
124	1280	31.126	0.569
125	1290	31.126	0.569
126	1300	31.123	0.566
127	1310	31.121	0.564
128	1320	31.111	0.554
129	1330	31.111	0.554
130	1340	31.103	0.546
131	1350	31.101	0.544
132	1360	31.096	0.539
133	1370	31.122	0.565
134	1380	31.089	0.532
135	1390	31.083	0.526
136	1400	31.083	0.526
137	1410	31.083	0.526
138	1420	31.074	0.517
139	1430	31.071	0.514
140	1440	31.078	0.521
141	1450	31.065	0.508
142	1460	31.061	0.504
143	1470	31.053	0.496
144	1480	31.059	0.502
145	1490	31.046	0.489
146	1500	31.045	0.488
147	1510	31.043	0.486
148	1520	31.033	0.476
149	1530	31.03	0.473
150	1540	31.025	0.468
151	1550	31.018	0.461
152	1560	31.017	0.46
153	1570	31.016	0.459
154	1580	31.016	0.459
155	1590	31.011	0.454
156	1600	31.003	0.446
157	1610	31.009	0.452
158	1620	31.007	0.45
159	1630	31.005	0.448
160	1640	31.002	0.445
161	1650	30.995	0.438
162	1660	30.998	0.441
163	1670	30.995	0.438

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, Manitoba
R5G 1T8

Project: RM of East St. Paul - Bray Road Water Supply

Number: 2010-095-011

Client: Stantec Consulting Inc.

	Time [min]	Water Level [ft]	Drawdown [ft]
164	1680	30.993	0.436
165	1690	30.989	0.432
166	1700	30.982	0.425
167	1710	30.973	0.416
168	1720	30.971	0.414
169	1730	30.971	0.414
170	1740	30.975	0.418
171	1750	30.966	0.409
172	1760	30.965	0.408
173	1770	30.965	0.408
174	1780	30.962	0.405
175	1790	30.972	0.415
176	1800	30.96	0.403
177	1810	30.956	0.399
178	1820	30.956	0.399
179	1830	30.956	0.399
180	1840	30.955	0.398
181	1850	30.948	0.391
182	1860	30.955	0.398
183	1870	30.951	0.394
184	1880	30.948	0.391
185	1890	30.953	0.396
186	1900	30.952	0.395
187	1910	30.945	0.388
188	1920	30.951	0.394
189	1930	30.948	0.391
190	1940	30.952	0.395
191	1950	30.947	0.39
192	1960	30.951	0.394
193	1970	30.945	0.388
194	1980	30.948	0.391
195	1990	30.943	0.386
196	2000	30.939	0.382
197	2010	30.938	0.381
198	2020	30.937	0.38
199	2030	30.943	0.386
200	2040	30.939	0.382
201	2050	30.943	0.386
202	2060	30.938	0.381
203	2070	30.94	0.383
204	2080	30.942	0.385
205	2090	30.941	0.384
206	2100	30.935	0.378
207	2110	30.937	0.38
208	2120	30.936	0.379
209	2130	30.933	0.376
210	2140	30.934	0.377
211	2150	30.934	0.377
212	2160	30.931	0.374
213	2170	30.93	0.373
214	2180	30.932	0.375
215	2190	30.928	0.371
216	2200	30.93	0.373
217	2210	30.93	0.373
218	2220	30.923	0.366
219	2230	30.923	0.366

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, Manitoba
R5G 1T8

Pumping Test - Water Level Data

Project: RM of East St. Paul - Bray Road Water Supply

Number: 2010-095-011

Client: Stantec Consulting Inc.

	Time [min]	Water Level [ft]	Drawdown [ft]
220	2240	30.922	0.365
221	2250	30.92	0.363
222	2260	30.915	0.358
223	2270	30.914	0.357
224	2280	30.914	0.357
225	2290	30.914	0.357
226	2300	30.909	0.352
227	2310	30.917	0.36
228	2320	30.92	0.363
229	2330	30.909	0.352
230	2340	30.908	0.351
231	2350	30.906	0.349
232	2360	30.901	0.344
233	2370	30.906	0.349
234	2380	30.899	0.342
235	2390	30.896	0.339
236	2400	30.893	0.336
237	2410	30.854	0.297
238	2420	30.847	0.29
239	2430	30.843	0.286
240	2440	30.838	0.281
241	2460	30.841	0.284
242	2470	30.833	0.276
243	2480	30.837	0.28
244	2490	30.842	0.285
245	2500	30.841	0.284
246	2510	30.839	0.282
247	2520	30.835	0.278
248	2530	30.836	0.279
249	2540	30.835	0.278
250	2550	30.839	0.282
251	2560	30.831	0.274
252	2570	30.837	0.28
253	2580	30.833	0.276
254	2590	30.837	0.28
255	2600	30.84	0.283
256	2610	30.836	0.279
257	2620	30.838	0.281
258	2630	30.833	0.276
259	2640	30.834	0.277
260	2650	30.836	0.279
261	2660	30.835	0.278
262	2670	30.837	0.28
263	2680	30.843	0.286
264	2690	30.838	0.281
265	2700	30.842	0.285
266	2710	30.842	0.285
267	2720	30.842	0.285
268	2730	30.845	0.288
269	2740	30.85	0.293
270	2750	30.844	0.287
271	2760	30.849	0.292
272	2770	30.848	0.291
273	2780	30.848	0.291
274	2790	30.85	0.293
275	2800	30.851	0.294

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, Manitoba
R5G 1T8

Project: RM of East St. Paul - Bray Road Water Supply

Number: 2010-095-011

Client: Stantec Consulting Inc.

	Time [min]	Water Level [ft]	Drawdown [ft]
276	2810	30.85	0.293
277	2820	30.855	0.298
278	2830	30.863	0.306
279	2840	30.861	0.304
280	2850	30.851	0.294
281	2860	30.852	0.295
282	2870	30.856	0.299
283	2880	30.871	0.314
284	2890	30.88	0.323
285	2900	30.857	0.30
286	2910	30.857	0.30
287	2920	30.873	0.316
288	2930	30.857	0.30
289	2940	30.861	0.304
290	2950	30.858	0.301
291	2960	30.86	0.303
292	2970	30.865	0.308
293	2980	30.865	0.308
294	2990	30.868	0.311
295	3000	30.865	0.308
296	3010	30.865	0.308
297	3020	30.868	0.311
298	3030	30.87	0.313
299	3040	30.872	0.315
300	3050	30.891	0.334
301	3060	30.884	0.327
302	3070	30.891	0.334
303	3080	30.88	0.323
304	3090	30.886	0.329
305	3100	30.884	0.327
306	3110	30.885	0.328
307	3120	30.889	0.332
308	3130	30.893	0.336
309	3140	30.897	0.34
310	3150	30.901	0.344
311	3160	30.905	0.348
312	3170	30.905	0.348
313	3180	30.914	0.357
314	3190	30.916	0.359
315	3200	30.915	0.358
316	3210	30.921	0.364
317	3220	30.921	0.364
318	3230	30.925	0.368
319	3240	30.929	0.372
320	3250	30.933	0.376
321	3260	30.943	0.386
322	3270	30.938	0.381
323	3280	30.944	0.387
324	3290	30.95	0.393
325	3300	30.949	0.392
326	3310	30.965	0.408
327	3320	30.963	0.406
328	3330	30.965	0.408
329	3340	30.958	0.401
330	3350	30.966	0.409
331	3360	30.969	0.412

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, Manitoba
R5G 1T8

Pumping Test - Water Level Data

Project: RM of East St. Paul - Bray Road Water Supply

Number: 2010-095-011

Client: Stantec Consulting Inc.

	Time [min]	Water Level [ft]	Drawdown [ft]
332	3370	30.965	0.408
333	3380	30.976	0.419
334	3390	30.967	0.41
335	3400	30.976	0.419
336	3410	30.967	0.41
337	3420	30.975	0.418
338	3430	30.973	0.416
339	3440	30.995	0.438
340	3450	30.98	0.423
341	3460	30.98	0.423
342	3470	30.988	0.431
343	3480	30.982	0.425
344	3490	30.997	0.44
345	3500	30.988	0.431
346	3510	30.99	0.433
347	3520	30.989	0.432
348	3530	30.989	0.432
349	3540	30.995	0.438
350	3550	30.992	0.435
351	3560	30.993	0.436
352	3570	31.00	0.443
353	3580	31.003	0.446
354	3590	31.013	0.456
355	3600	31.00	0.443
356	3610	30.998	0.441
357	3620	30.995	0.438
358	3630	30.997	0.44
359	3640	31.004	0.447
360	3650	30.997	0.44
361	3660	31.00	0.443
362	3670	30.995	0.438
363	3680	31.00	0.443
364	3690	30.996	0.439
365	3700	30.997	0.44
366	3710	30.999	0.442
367	3720	30.997	0.44
368	3730	30.995	0.438
369	3740	30.997	0.44
370	3750	31.002	0.445
371	3760	30.997	0.44
372	3770	31.004	0.447
373	3780	30.997	0.44
374	3790	30.997	0.44
375	3800	30.996	0.439
376	3810	30.998	0.441
377	3820	31.003	0.446
378	3830	31.00	0.443
379	3840	31.00	0.443
380	3850	31.00	0.443
381	3860	30.999	0.442
382	3870	30.999	0.442
383	3880	31.001	0.444
384	3890	31.00	0.443
385	3900	31.003	0.446
386	3910	31.004	0.447
387	3920	31.01	0.453

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, Manitoba
R5G 1T8

Project: RM of East St. Paul - Bray Road Water Supply

Number: 2010-095-011

Client: Stantec Consulting Inc.

	Time [min]	Water Level [ft]	Drawdown [ft]
388	3930	31.006	0.449
389	3940	31.006	0.449
390	3950	31.008	0.451
391	3960	31.009	0.452
392	3970	31.014	0.457
393	3980	31.01	0.453
394	3990	31.013	0.456
395	4000	31.022	0.465
396	4010	31.02	0.463
397	4020	31.02	0.463
398	4030	31.022	0.465
399	4040	31.025	0.468
400	4050	31.026	0.469
401	4060	31.024	0.467
402	4070	31.034	0.477
403	4080	31.037	0.48
404	4090	31.037	0.48
405	4100	31.042	0.485
406	4110	31.043	0.486
407	4120	31.049	0.492
408	4130	31.054	0.497
409	4140	31.053	0.496
410	4150	31.058	0.501
411	4160	31.057	0.50
412	4170	31.061	0.504
413	4180	31.061	0.504
414	4190	31.068	0.511
415	4200	31.074	0.517
416	4210	31.07	0.513
417	4220	31.072	0.515
418	4230	31.077	0.52
419	4240	31.079	0.522
420	4250	31.079	0.522
421	4260	31.082	0.525
422	4270	31.02	0.463
423	4280	30.986	0.429
424	4290	30.951	0.394
425	4300	30.938	0.381
426	4310	30.917	0.36
427	4320	30.903	0.346
428	4330	30.898	0.341
429	4340	30.883	0.326
430	4350	30.87	0.313
431	4360	30.889	0.332
432	4370	30.86	0.303
433	4380	30.857	0.30
434	4390	30.852	0.295
435	4400	30.844	0.287
436	4410	30.842	0.285
437	4420	30.836	0.279
438	4430	30.83	0.273
439	4440	30.826	0.269
440	4450	30.83	0.273
441	4460	30.822	0.265
442	4470	30.82	0.263
443	4480	30.819	0.262

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, Manitoba
R5G 1T8

Project: RM of East St. Paul - Bray Road Water Supply

Number: 2010-095-011

Client: Stantec Consulting Inc.

	Time [min]	Water Level [ft]	Drawdown [ft]
444	4490	30.816	0.259
445	4500	30.805	0.248
446	4510	30.798	0.241
447	4520	30.784	0.227
448	4530	30.779	0.222
449	4540	30.772	0.215
450	4550	30.782	0.225
451	4560	30.772	0.215
452	4570	30.77	0.213
453	4580	30.772	0.215
454	4590	30.786	0.229
455	4600	30.78	0.223
456	4610	30.777	0.22

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, Manitoba
R5G 1T8

Pumping Test - Water Level Data

Project: RM of East St. Paul - Bray Road Water Supply

Number: 2010-095-011

Client: Stantec Consulting Inc.

Location: Bray Road - RM of East St. Paul	Pumping Test: Pumping Test 1	Pumping Well: Supply Well
Test Conducted by: Chris Wilson	Test Date: 3/13/2012	Discharge: variable, average rate 459.12 [U.S. gal/min]
Observation Well: 87 Chrisluk	Static Water Level [ft]: 22.30	Radial Distance to PW [m]: 954.09

	Time [min]	Water Level [ft]	Drawdown [ft]
1	0	22.3429	0.0429
2	10	22.3629	0.0629
3	20	22.3774	0.0774
4	30	22.3947	0.0947
5	40	22.4092	0.1092
6	50	22.4239	0.1239
7	60	22.4292	0.1292
8	70	22.441	0.141
9	80	22.4485	0.1485
10	90	22.461	0.161
11	100	22.4722	0.1722
12	110	22.4846	0.1846
13	120	22.4997	0.1997
14	130	22.5069	0.2069
15	140	22.5106	0.2106
16	150	22.5237	0.2237
17	160	22.5207	0.2207
18	170	22.5384	0.2384
19	180	22.5424	0.2424
20	190	22.5411	0.2411
21	200	22.4754	0.1754
22	210	22.4581	0.1581
23	220	22.4436	0.1436
24	230	22.4403	0.1403
25	240	22.4374	0.1374
26	250	22.4361	0.1361
27	260	22.4403	0.1403
28	270	22.4554	0.1554
29	280	22.4748	0.1748
30	290	22.4715	0.1715
31	300	22.4817	0.1817
32	320	22.4899	0.1899
33	330	22.4991	0.1991
34	340	22.5046	0.2046
35	350	22.5066	0.2066
36	360	22.501	0.201
37	370	22.5112	0.2112
38	380	22.5099	0.2099
39	390	22.5191	0.2191
40	400	22.5207	0.2207
41	410	22.527	0.227
42	420	22.5361	0.2361
43	470	22.548	0.248
44	480	22.5722	0.2722
45	490	22.5873	0.2873
46	500	22.6021	0.3021
47	510	22.6106	0.3106
48	520	22.6175	0.3175
49	530	22.6306	0.3306
50	540	22.6378	0.3378
51	550	22.6431	0.3431

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, Manitoba
R5G 1T8

Pumping Test - Water Level Data

Project: RM of East St. Paul - Bray Road Water Supply

Number: 2010-095-011

Client: Stantec Consulting Inc.

	Time [min]	Water Level [ft]	Drawdown [ft]
52	560	22.6533	0.3533
53	570	22.6602	0.3602
54	580	22.668	0.368
55	590	22.6752	0.3752
56	600	22.6864	0.3864
57	610	22.6913	0.3913
58	620	22.6936	0.3936
59	630	22.7015	0.4015
60	640	22.7028	0.4028
61	650	22.7087	0.4087
62	660	22.7186	0.4186
63	670	22.7271	0.4271
64	680	22.7294	0.4294
65	690	22.7297	0.4297
66	700	22.7359	0.4359
67	710	22.7422	0.4422
68	720	22.7504	0.4504
69	730	22.751	0.451
70	740	22.7612	0.4612
71	750	22.7642	0.4642
72	760	22.7786	0.4786
73	770	22.7789	0.4789
74	780	22.7848	0.4848
75	790	22.7911	0.4911
76	800	22.7953	0.4953
77	810	22.7983	0.4983
78	820	22.8114	0.5114
79	830	22.8196	0.5196
80	840	22.8186	0.5186
81	850	22.8278	0.5278
82	860	22.8311	0.5311
83	870	22.834	0.534
84	880	22.8376	0.5376
85	890	22.8439	0.5439
86	900	22.8468	0.5468
87	910	22.8613	0.5613
88	920	22.8688	0.5688
89	930	22.8718	0.5718
90	940	22.88	0.58
91	950	22.8905	0.5905
92	960	22.8964	0.5964
93	970	22.9082	0.6082
94	980	22.9092	0.6092
95	990	22.92	0.62
96	1000	22.9249	0.6249
97	1010	22.9292	0.6292
98	1020	22.9249	0.6249
99	1030	22.9292	0.6292
100	1040	22.9312	0.6312
101	1050	22.9387	0.6387
102	1060	22.9403	0.6403
103	1070	22.9439	0.6439
104	1080	22.9348	0.6348
105	1090	22.9341	0.6341
106	1100	22.9354	0.6354
107	1110	22.9407	0.6407

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, Manitoba
R5G 1T8

Project: RM of East St. Paul - Bray Road Water Supply

Number: 2010-095-011

Client: Stantec Consulting Inc.

	Time [min]	Water Level [ft]	Drawdown [ft]
108	1120	22.9357	0.6357
109	1130	22.9387	0.6387
110	1140	22.9397	0.6397
111	1150	22.9374	0.6374
112	1160	22.9331	0.6331
113	1170	22.9302	0.6302
114	1180	22.9354	0.6354
115	1190	22.9318	0.6318
116	1200	22.9328	0.6328
117	1210	22.9249	0.6249
118	1220	22.9334	0.6334
119	1230	22.9279	0.6279
120	1240	22.9292	0.6292
121	1250	22.9321	0.6321
122	1260	22.9305	0.6305
123	1270	22.9325	0.6325
124	1280	22.9354	0.6354
125	1290	22.9266	0.6266
126	1300	22.9262	0.6262
127	1310	22.9226	0.6226
128	1330	22.9118	0.6118
129	1340	22.902	0.602
130	1350	22.9062	0.6062
131	1360	22.901	0.601
132	1370	22.90	0.60
133	1380	22.8987	0.5987
134	1400	22.898	0.598
135	1410	22.8987	0.5987
136	1420	22.8924	0.5924
137	1430	22.8911	0.5911
138	1440	22.8842	0.5842
139	1450	22.8852	0.5852
140	1460	22.877	0.577
141	1470	22.8737	0.5737
142	1480	22.8757	0.5757
143	1490	22.8711	0.5711
144	1500	22.8682	0.5682
145	1510	22.9016	0.6016
146	1520	22.8649	0.5649
147	1530	22.8632	0.5632
148	1540	22.8593	0.5593
149	1550	22.8498	0.5498
150	1560	22.8514	0.5514
151	1570	22.8501	0.5501
152	1580	22.8422	0.5422
153	1590	22.8403	0.5403
154	1600	22.8432	0.5432
155	1630	22.8403	0.5403
156	1640	22.8383	0.5383
157	1650	22.838	0.538
158	1660	22.8317	0.5317
159	1670	22.8272	0.5272
160	1690	22.8298	0.5298
161	1700	22.8216	0.5216
162	1710	22.8209	0.5209
163	1720	22.8199	0.5199

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, Manitoba
R5G 1T8

Project: RM of East St. Paul - Bray Road Water Supply

Number: 2010-095-011

Client: Stantec Consulting Inc.

	Time [min]	Water Level [ft]	Drawdown [ft]
164	1730	22.8176	0.5176
165	1740	22.8107	0.5107
166	1750	22.8137	0.5137
167	1760	22.8091	0.5091
168	1770	22.8111	0.5111
169	1780	22.8114	0.5114
170	1790	22.8124	0.5124
171	1800	22.8084	0.5084
172	1810	22.8075	0.5075
173	1820	22.8052	0.5052
174	1830	22.8039	0.5039
175	1840	22.8042	0.5042
176	1850	22.8058	0.5058
177	1860	22.8065	0.5065
178	1870	22.8127	0.5127
179	1880	22.8068	0.5068
180	1890	22.8078	0.5078
181	1900	22.8075	0.5075
182	1910	22.8114	0.5114
183	1920	22.8071	0.5071
184	1930	22.8101	0.5101
185	1940	22.8137	0.5137
186	1950	22.8117	0.5117
187	1960	22.8081	0.5081
188	1970	22.8045	0.5045
189	1980	22.8065	0.5065
190	1990	22.8055	0.5055
191	2000	22.8058	0.5058
192	2010	22.8052	0.5052
193	2020	22.8075	0.5075
194	2030	22.8124	0.5124
195	2040	22.8088	0.5088
196	2050	22.8081	0.5081
197	2060	22.8062	0.5062
198	2070	22.8101	0.5101
199	2090	22.8029	0.5029
200	2100	22.8144	0.5144
201	2110	22.8183	0.5183
202	2120	22.8091	0.5091
203	2130	22.8002	0.5002
204	2140	22.8071	0.5071
205	2150	22.8035	0.5035
206	2160	22.8012	0.5012
207	2170	22.8022	0.5022
208	2180	22.8029	0.5029
209	2190	22.8039	0.5039
210	2200	22.795	0.495
211	2210	22.7943	0.4943
212	2220	22.7937	0.4937
213	2230	22.7894	0.4894
214	2240	22.7947	0.4947
215	2250	22.7861	0.4861
216	2260	22.7802	0.4802
217	2270	22.7845	0.4845
218	2280	22.7878	0.4878
219	2290	22.7806	0.4806

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, Manitoba
R5G 1T8

Project: RM of East St. Paul - Bray Road Water Supply

Number: 2010-095-011

Client: Stantec Consulting Inc.

	Time [min]	Water Level [ft]	Drawdown [ft]
220	2300	22.7809	0.4809
221	2310	22.7773	0.4773
222	2320	22.777	0.477
223	2330	22.7753	0.4753
224	2340	22.7724	0.4724
225	2350	22.7674	0.4674
226	2360	22.7688	0.4688
227	2370	22.7619	0.4619
228	2380	22.7655	0.4655
229	2390	22.7642	0.4642
230	2400	22.7569	0.4569
231	2410	22.7645	0.4645
232	2420	22.7612	0.4612
233	2430	22.7537	0.4537
234	2440	22.7569	0.4569
235	2450	22.7533	0.4533
236	2460	22.7553	0.4553
237	2470	22.7569	0.4569
238	2480	22.7514	0.4514
239	2490	22.7556	0.4556
240	2500	22.754	0.454
241	2510	22.7514	0.4514
242	2520	22.7448	0.4448
243	2530	22.7533	0.4533
244	2540	22.7455	0.4455
245	2550	22.7556	0.4556
246	2560	22.7501	0.4501
247	2570	22.7514	0.4514
248	2580	22.7497	0.4497
249	2590	22.7504	0.4504
250	2600	22.7458	0.4458
251	2610	22.7481	0.4481
252	2620	22.754	0.454
253	2630	22.7494	0.4494
254	2640	22.7504	0.4504
255	2650	22.7563	0.4563
256	2660	22.754	0.454
257	2670	22.7556	0.4556
258	2680	22.7632	0.4632
259	2690	22.7583	0.4583
260	2700	22.7648	0.4648
261	2710	22.7622	0.4622
262	2720	22.7701	0.4701
263	2730	22.7694	0.4694
264	2740	22.7691	0.4691
265	2750	22.7697	0.4697
266	2760	22.7704	0.4704
267	2770	22.7743	0.4743
268	2780	22.7733	0.4733
269	2790	22.773	0.473
270	2800	22.7737	0.4737
271	2810	22.776	0.476
272	2820	22.7806	0.4806
273	2830	22.777	0.477
274	2840	22.7753	0.4753
275	2850	22.7776	0.4776

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, Manitoba
R5G 1T8

Project: RM of East St. Paul - Bray Road Water Supply

Number: 2010-095-011

Client: Stantec Consulting Inc.

	Time [min]	Water Level [ft]	Drawdown [ft]
276	2860	22.7802	0.4802
277	2870	22.7891	0.4891
278	2880	22.7875	0.4875
279	2890	22.7852	0.4852
280	2900	22.7858	0.4858
281	2910	22.7838	0.4838
282	2920	22.7822	0.4822
283	2930	22.7815	0.4815
284	2940	22.7888	0.4888
285	2950	22.7884	0.4884
286	2980	22.796	0.496
287	2990	22.7937	0.4937
288	3000	22.7897	0.4897
289	3010	22.7927	0.4927
290	3020	22.7927	0.4927
291	3030	22.7907	0.4907
292	3040	22.7901	0.4901
293	3050	22.7973	0.4973
294	3070	22.8022	0.5022
295	3080	22.8022	0.5022
296	3090	22.8104	0.5104
297	3100	22.8098	0.5098
298	3110	22.8127	0.5127
299	3120	22.8114	0.5114
300	3130	22.8111	0.5111
301	3150	22.8189	0.5189
302	3160	22.8203	0.5203
303	3170	22.8294	0.5294
304	3180	22.8298	0.5298
305	3190	22.837	0.537
306	3200	22.834	0.534
307	3210	22.8426	0.5426
308	3220	22.8442	0.5442
309	3230	22.8455	0.5455
310	3240	22.8508	0.5508
311	3250	22.859	0.559
312	3260	22.8544	0.5544
313	3270	22.8629	0.5629
314	3290	22.8652	0.5652
315	3300	22.875	0.575
316	3310	22.8705	0.5705
317	3320	22.8747	0.5747
318	3330	22.8741	0.5741
319	3340	22.8764	0.5764
320	3350	22.8833	0.5833
321	3360	22.8833	0.5833
322	3370	22.8872	0.5872
323	3380	22.8875	0.5875
324	3390	22.8865	0.5865
325	3400	22.8911	0.5911
326	3410	22.8898	0.5898
327	3420	22.8941	0.5941
328	3430	22.8954	0.5954
329	3440	22.899	0.599
330	3450	22.8938	0.5938
331	3460	22.9026	0.6026

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, Manitoba
R5G 1T8

Project: RM of East St. Paul - Bray Road Water Supply

Number: 2010-095-011

Client: Stantec Consulting Inc.

	Time [min]	Water Level [ft]	Drawdown [ft]
332	3470	22.9016	0.6016
333	3490	22.9072	0.6072
334	3500	22.9062	0.6062
335	3510	22.9092	0.6092
336	3520	22.9065	0.6065
337	3530	22.9138	0.6138
338	3540	22.9144	0.6144
339	3550	22.9118	0.6118
340	3560	22.9151	0.6151
341	3570	22.9203	0.6203
342	3580	22.9174	0.6174
343	3590	22.9207	0.6207
344	3600	22.9239	0.6239
345	3610	22.9279	0.6279
346	3620	22.9229	0.6229
347	3630	22.9236	0.6236
348	3640	22.9239	0.6239
349	3650	22.919	0.619
350	3660	22.921	0.621
351	3670	22.918	0.618
352	3680	22.9161	0.6161
353	3690	22.9161	0.6161
354	3700	22.9193	0.6193
355	3710	22.917	0.617
356	3720	22.9128	0.6128
357	3730	22.9161	0.6161
358	3740	22.9131	0.6131
359	3750	22.9161	0.6161
360	3760	22.9121	0.6121
361	3770	22.9088	0.6088
362	3780	22.9082	0.6082
363	3790	22.9085	0.6085
364	3800	22.9072	0.6072
365	3810	22.9141	0.6141
366	3820	22.9125	0.6125
367	3830	22.9134	0.6134
368	3840	22.917	0.617
369	3850	22.9125	0.6125
370	3860	22.9121	0.6121
371	3870	22.9072	0.6072
372	3880	22.9075	0.6075
373	3890	22.9075	0.6075
374	3900	22.9108	0.6108
375	3910	22.9102	0.6102
376	3920	22.9157	0.6157
377	3930	22.9131	0.6131
378	3940	22.9177	0.6177
379	3950	22.917	0.617
380	3960	22.9193	0.6193
381	3970	22.9154	0.6154
382	3980	22.9154	0.6154
383	3990	22.9216	0.6216
384	4000	22.9216	0.6216
385	4010	22.9249	0.6249
386	4020	22.9289	0.6289
387	4030	22.9259	0.6259

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, Manitoba
R5G 1T8

Pumping Test - Water Level Data

Project: RM of East St. Paul - Bray Road Water Supply

Number: 2010-095-011

Client: Stantec Consulting Inc.

	Time [min]	Water Level [ft]	Drawdown [ft]
388	4040	22.9275	0.6275
389	4050	22.9295	0.6295
390	4060	22.9302	0.6302
391	4070	22.9302	0.6302
392	4080	22.9361	0.6361
393	4090	22.9417	0.6417
394	4100	22.9433	0.6433
395	4110	22.9462	0.6462
396	4120	22.9489	0.6489
397	4130	22.9587	0.6587
398	4140	22.963	0.663
399	4150	22.9636	0.6636
400	4160	22.9617	0.6617
401	4170	22.9718	0.6718
402	4180	22.9718	0.6718
403	4190	22.9791	0.6791
404	4200	22.98	0.68
405	4210	22.982	0.682
406	4220	22.9859	0.6859
407	4230	22.9892	0.6892
408	4240	22.9873	0.6873
409	4250	22.9895	0.6895
410	4260	22.9945	0.6945
411	4280	22.7868	0.4868
412	4290	22.7432	0.4432
413	4300	22.712	0.412
414	4310	22.6851	0.3851
415	4320	22.6641	0.3641
416	4330	22.6421	0.3421
417	4340	22.6273	0.3273
418	4350	22.6106	0.3106
419	4360	22.5998	0.2998
420	4370	22.5893	0.2893
421	4380	22.5801	0.2801
422	4390	22.5719	0.2719
423	4400	22.563	0.263
424	4410	22.5585	0.2585
425	4420	22.5519	0.2519
426	4430	22.5407	0.2407
427	4440	22.5348	0.2348
428	4450	22.5263	0.2263
429	4460	22.5217	0.2217
430	4470	22.5155	0.2155
431	4480	22.5155	0.2155
432	4490	22.5073	0.2073
433	4500	22.5056	0.2056
434	4510	22.5014	0.2014
435	4520	22.4964	0.1964
436	4530	22.4941	0.1941
437	4540	22.4941	0.1941
438	4550	22.4882	0.1882
439	4560	22.4807	0.1807
440	4570	22.4794	0.1794
441	4580	22.4797	0.1797
442	4590	22.4817	0.1817
443	4600	22.4777	0.1777

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, Manitoba
R5G 1T8

Pumping Test - Water Level Data

Project: RM of East St. Paul - Bray Road Water Supply

Number: 2010-095-011

Client: Stantec Consulting Inc.

Location: Bray Road - RM of East St. Paul	Pumping Test: Pumping Test 1	Pumping Well: Supply Well
Test Conducted by: Chris Wilson	Test Date: 3/13/2012	Discharge: variable, average rate 459.12 [U.S. gal/min]
Observation Well: Coronation Street	Static Water Level [ft]: 30.19	Radial Distance to PW [m]: 1476.92

	Time [min]	Water Level [ft]	Drawdown [ft]
1	0	30.19	0.00
2	130	30.07	-0.12
3	140	30.07	-0.12
4	150	30.06	-0.13
5	160	30.07	-0.12
6	170	30.08	-0.11
7	180	30.09	-0.10
8	190	30.08	-0.11
9	200	30.09	-0.10
10	210	30.09	-0.10
11	220	30.09	-0.10
12	230	30.10	-0.09
13	240	30.10	-0.09
14	250	30.11	-0.08
15	260	30.11	-0.08
16	270	30.13	-0.06
17	280	30.14	-0.05
18	290	30.15	-0.04
19	300	30.16	-0.03
20	310	30.17	-0.02
21	320	30.17	-0.02
22	330	30.18	-0.01
23	340	30.19	0.00
24	350	30.19	0.00
25	360	30.19	0.00
26	370	30.20	0.01
27	380	30.20	0.01
28	390	30.21	0.02
29	400	30.22	0.03
30	410	30.23	0.04
31	420	30.24	0.05
32	430	30.25	0.06
33	440	30.25	0.06
34	450	30.26	0.07
35	460	30.23	0.04
36	470	30.27	0.08
37	480	30.28	0.09
38	490	30.29	0.10
39	500	30.31	0.12
40	510	30.32	0.13
41	520	30.33	0.14
42	530	30.33	0.14
43	540	30.35	0.16
44	550	30.35	0.16
45	560	30.36	0.17
46	570	30.37	0.18
47	580	30.38	0.19
48	590	30.38	0.19
49	600	30.39	0.20
50	610	30.40	0.21
51	620	30.40	0.21

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, Manitoba
R5G 1T8

Project: RM of East St. Paul - Bray Road Water Supply

Number: 2010-095-011

Client: Stantec Consulting Inc.

	Time [min]	Water Level [ft]	Drawdown [ft]
52	630	30.41	0.22
53	640	30.42	0.23
54	650	30.41	0.22
55	660	30.42	0.23
56	670	30.43	0.24
57	680	30.44	0.25
58	690	30.44	0.25
59	700	30.44	0.25
60	710	30.44	0.25
61	720	30.45	0.26
62	730	30.45	0.26
63	740	30.46	0.27
64	750	30.46	0.27
65	760	30.48	0.29
66	770	30.48	0.29
67	780	30.48	0.29
68	790	30.48	0.29
69	800	30.48	0.29
70	810	30.49	0.30
71	820	30.50	0.31
72	830	30.50	0.31
73	840	30.50	0.31
74	850	30.51	0.32
75	860	30.51	0.32
76	870	30.51	0.32
77	880	30.51	0.32
78	890	30.51	0.32
79	900	30.52	0.33
80	910	30.53	0.34
81	920	30.53	0.34
82	930	30.54	0.35
83	940	30.54	0.35
84	950	30.55	0.36
85	960	30.55	0.36
86	970	30.56	0.37
87	980	30.56	0.37
88	990	30.57	0.38
89	1000	30.57	0.38
90	1010	30.58	0.39
91	1020	30.57	0.38
92	1030	30.58	0.39
93	1040	30.57	0.38
94	1050	30.58	0.39
95	1060	30.58	0.39
96	1070	30.59	0.40
97	1080	30.56	0.37
98	1090	30.57	0.38
99	1100	30.57	0.38
100	1110	30.57	0.38
101	1120	30.57	0.38
102	1130	30.58	0.39
103	1140	30.58	0.39
104	1150	30.57	0.38
105	1160	30.57	0.38
106	1170	30.57	0.38
107	1180	30.58	0.39

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, Manitoba
R5G 1T8

Project: RM of East St. Paul - Bray Road Water Supply

Number: 2010-095-011

Client: Stantec Consulting Inc.

	Time [min]	Water Level [ft]	Drawdown [ft]
108	1190	30.58	0.39
109	1200	30.58	0.39
110	1210	30.57	0.38
111	1220	30.57	0.38
112	1230	30.57	0.38
113	1240	30.59	0.40
114	1250	30.60	0.41
115	1260	30.60	0.41
116	1270	30.60	0.41
117	1280	30.59	0.40
118	1290	30.59	0.40
119	1300	30.59	0.40
120	1310	30.59	0.40
121	1320	30.59	0.40
122	1330	30.59	0.40
123	1340	30.58	0.39
124	1350	30.58	0.39
125	1360	30.58	0.39
126	1370	30.58	0.39
127	1380	30.57	0.38
128	1390	30.57	0.38
129	1400	30.57	0.38
130	1410	30.57	0.38
131	1420	30.57	0.38
132	1430	30.56	0.37
133	1440	30.56	0.37
134	1450	30.56	0.37
135	1460	30.56	0.37
136	1470	30.56	0.37
137	1480	30.56	0.37
138	1490	30.55	0.36
139	1500	30.55	0.36
140	1510	30.55	0.36
141	1520	30.54	0.35
142	1530	30.54	0.35
143	1540	30.54	0.35
144	1550	30.53	0.34
145	1560	30.54	0.35
146	1570	30.53	0.34
147	1580	30.53	0.34
148	1590	30.53	0.34
149	1600	30.53	0.34
150	1610	30.53	0.34
151	1620	30.53	0.34
152	1630	30.52	0.33
153	1640	30.52	0.33
154	1650	30.52	0.33
155	1660	30.52	0.33
156	1670	30.52	0.33
157	1680	30.51	0.32
158	1690	30.51	0.32
159	1700	30.51	0.32
160	1710	30.50	0.31
161	1720	30.50	0.31
162	1730	30.50	0.31
163	1740	30.51	0.32

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, Manitoba
R5G 1T8

Project: RM of East St. Paul - Bray Road Water Supply

Number: 2010-095-011

Client: Stantec Consulting Inc.

	Time [min]	Water Level [ft]	Drawdown [ft]
164	1750	30.50	0.31
165	1760	30.50	0.31
166	1770	30.51	0.32
167	1780	30.51	0.32
168	1790	30.51	0.32
169	1800	30.50	0.31
170	1810	30.50	0.31
171	1820	30.50	0.31
172	1830	30.50	0.31
173	1840	30.50	0.31
174	1850	30.51	0.32
175	1860	30.50	0.31
176	1870	30.51	0.32
177	1880	30.51	0.32
178	1890	30.51	0.32
179	1900	30.50	0.31
180	1910	30.51	0.32
181	1920	30.51	0.32
182	1930	30.51	0.32
183	1940	30.51	0.32
184	1950	30.51	0.32
185	1960	30.51	0.32
186	1970	30.51	0.32
187	1980	30.51	0.32
188	1990	30.51	0.32
189	2000	30.51	0.32
190	2010	30.51	0.32
191	2020	30.51	0.32
192	2030	30.51	0.32
193	2040	30.51	0.32
194	2050	30.51	0.32
195	2060	30.52	0.33
196	2070	30.51	0.32
197	2080	30.51	0.32
198	2090	30.51	0.32
199	2100	30.51	0.32
200	2110	30.51	0.32
201	2120	30.50	0.31
202	2130	30.50	0.31
203	2140	30.50	0.31
204	2150	30.50	0.31
205	2160	30.50	0.31
206	2170	30.49	0.30
207	2180	30.50	0.31
208	2190	30.50	0.31
209	2200	30.49	0.30
210	2210	30.49	0.30
211	2220	30.49	0.30
212	2230	30.49	0.30
213	2240	30.48	0.29
214	2250	30.47	0.28
215	2260	30.47	0.28
216	2270	30.47	0.28
217	2280	30.47	0.28
218	2290	30.46	0.27
219	2300	30.45	0.26

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, Manitoba
R5G 1T8

Project: RM of East St. Paul - Bray Road Water Supply

Number: 2010-095-011

Client: Stantec Consulting Inc.

	Time [min]	Water Level [ft]	Drawdown [ft]
220	2310	30.45	0.26
221	2320	30.45	0.26
222	2330	30.44	0.25
223	2340	30.44	0.25
224	2350	30.44	0.25
225	2360	30.43	0.24
226	2370	30.43	0.24
227	2380	30.43	0.24
228	2390	30.42	0.23
229	2400	30.42	0.23
230	2410	30.42	0.23
231	2420	30.42	0.23
232	2430	30.42	0.23
233	2440	30.41	0.22
234	2450	30.41	0.22
235	2460	30.41	0.22
236	2470	30.41	0.22
237	2480	30.41	0.22
238	2490	30.41	0.22
239	2500	30.41	0.22
240	2510	30.41	0.22
241	2520	30.41	0.22
242	2530	30.41	0.22
243	2540	30.40	0.21
244	2550	30.41	0.22
245	2560	30.40	0.21
246	2570	30.41	0.22
247	2580	30.41	0.22
248	2590	30.41	0.22
249	2600	30.41	0.22
250	2610	30.41	0.22
251	2620	30.41	0.22
252	2630	30.41	0.22
253	2640	30.41	0.22
254	2650	30.41	0.22
255	2660	30.41	0.22
256	2670	30.42	0.23
257	2680	30.43	0.24
258	2690	30.45	0.26
259	2700	30.44	0.25
260	2710	30.44	0.25
261	2720	30.45	0.26
262	2730	30.45	0.26
263	2740	30.45	0.26
264	2750	30.46	0.27
265	2760	30.46	0.27
266	2770	30.46	0.27
267	2780	30.46	0.27
268	2790	30.47	0.28
269	2800	30.47	0.28
270	2810	30.47	0.28
271	2820	30.47	0.28
272	2830	30.46	0.27
273	2840	30.46	0.27
274	2850	30.46	0.27
275	2860	30.47	0.28

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, Manitoba
R5G 1T8

Project: RM of East St. Paul - Bray Road Water Supply

Number: 2010-095-011

Client: Stantec Consulting Inc.

	Time [min]	Water Level [ft]	Drawdown [ft]
276	2870	30.47	0.28
277	2880	30.47	0.28
278	2890	30.47	0.28
279	2900	30.47	0.28
280	2910	30.47	0.28
281	2920	30.47	0.28
282	2930	30.48	0.29
283	2940	30.48	0.29
284	2950	30.48	0.29
285	2960	30.48	0.29
286	2970	30.48	0.29
287	2980	30.48	0.29
288	2990	30.48	0.29
289	3000	30.48	0.29
290	3010	30.48	0.29
291	3020	30.48	0.29
292	3030	30.48	0.29
293	3040	30.48	0.29
294	3050	30.48	0.29
295	3060	30.49	0.30
296	3070	30.49	0.30
297	3080	30.49	0.30
298	3090	30.49	0.30
299	3100	30.50	0.31
300	3110	30.49	0.30
301	3120	30.50	0.31
302	3130	30.49	0.30
303	3140	30.50	0.31
304	3150	30.50	0.31
305	3160	30.50	0.31
306	3170	30.51	0.32
307	3180	30.50	0.31
308	3190	30.51	0.32
309	3200	30.51	0.32
310	3210	30.51	0.32
311	3220	30.51	0.32
312	3230	30.52	0.33
313	3240	30.52	0.33
314	3250	30.53	0.34
315	3260	30.53	0.34
316	3270	30.53	0.34
317	3280	30.53	0.34
318	3290	30.54	0.35
319	3300	30.54	0.35
320	3310	30.55	0.36
321	3320	30.55	0.36
322	3330	30.55	0.36
323	3340	30.55	0.36
324	3350	30.56	0.37
325	3360	30.57	0.38
326	3370	30.57	0.38
327	3380	30.57	0.38
328	3390	30.57	0.38
329	3400	30.57	0.38
330	3410	30.58	0.39
331	3420	30.57	0.38

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, Manitoba
R5G 1T8

Project: RM of East St. Paul - Bray Road Water Supply

Number: 2010-095-011

Client: Stantec Consulting Inc.

	Time [min]	Water Level [ft]	Drawdown [ft]
332	3430	30.57	0.38
333	3440	30.58	0.39
334	3450	30.58	0.39
335	3460	30.59	0.40
336	3470	30.59	0.40
337	3480	30.59	0.40
338	3490	30.59	0.40
339	3500	30.60	0.41
340	3510	30.60	0.41
341	3520	30.60	0.41
342	3530	30.59	0.40
343	3540	30.60	0.41
344	3550	30.60	0.41
345	3560	30.60	0.41
346	3570	30.60	0.41
347	3580	30.60	0.41
348	3590	30.60	0.41
349	3600	30.60	0.41
350	3610	30.61	0.42
351	3620	30.61	0.42
352	3630	30.61	0.42
353	3640	30.61	0.42
354	3650	30.60	0.41
355	3660	30.61	0.42
356	3670	30.59	0.40
357	3680	30.59	0.40
358	3690	30.59	0.40
359	3700	30.59	0.40
360	3710	30.58	0.39
361	3720	30.58	0.39
362	3730	30.58	0.39
363	3740	30.58	0.39
364	3750	30.58	0.39
365	3760	30.57	0.38
366	3770	30.57	0.38
367	3780	30.56	0.37
368	3790	30.56	0.37
369	3800	30.56	0.37
370	3810	30.56	0.37
371	3820	30.56	0.37
372	3830	30.56	0.37
373	3840	30.56	0.37
374	3850	30.56	0.37
375	3860	30.56	0.37
376	3870	30.56	0.37
377	3880	30.55	0.36
378	3890	30.55	0.36
379	3900	30.56	0.37
380	3910	30.56	0.37
381	3920	30.56	0.37
382	3930	30.56	0.37
383	3940	30.56	0.37
384	3950	30.56	0.37
385	3960	30.56	0.37
386	3970	30.56	0.37
387	3980	30.56	0.37

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, Manitoba
R5G 1T8

Project: RM of East St. Paul - Bray Road Water Supply

Number: 2010-095-011

Client: Stantec Consulting Inc.

	Time [min]	Water Level [ft]	Drawdown [ft]
388	3990	30.57	0.38
389	4000	30.57	0.38
390	4010	30.57	0.38
391	4020	30.57	0.38
392	4030	30.57	0.38
393	4040	30.58	0.39
394	4050	30.58	0.39
395	4060	30.57	0.38
396	4070	30.58	0.39
397	4080	30.58	0.39
398	4090	30.59	0.40
399	4100	30.59	0.40
400	4110	30.60	0.41
401	4120	30.61	0.42
402	4130	30.62	0.43
403	4140	30.62	0.43
404	4150	30.62	0.43
405	4160	30.62	0.43
406	4170	30.63	0.44
407	4180	30.64	0.45
408	4190	30.65	0.46
409	4200	30.64	0.45
410	4210	30.65	0.46
411	4220	30.65	0.46
412	4230	30.66	0.47
413	4240	30.66	0.47
414	4250	30.66	0.47
415	4260	30.67	0.48
416	4270	30.59	0.40
417	4280	30.54	0.35
418	4290	30.51	0.32
419	4300	30.48	0.29
420	4310	30.47	0.28
421	4320	30.45	0.26
422	4330	30.43	0.24
423	4340	30.42	0.23
424	4350	30.40	0.21
425	4360	30.39	0.20
426	4370	30.38	0.19
427	4380	30.37	0.18
428	4390	30.36	0.17
429	4400	30.35	0.16
430	4410	30.35	0.16
431	4420	30.35	0.16
432	4430	30.33	0.14
433	4440	30.33	0.14
434	4450	30.32	0.13
435	4460	30.31	0.12
436	4470	30.31	0.12
437	4480	30.30	0.11
438	4490	30.29	0.10
439	4500	30.29	0.10
440	4510	30.29	0.10
441	4520	30.28	0.09
442	4530	30.28	0.09
443	4540	30.28	0.09

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, Manitoba
R5G 1T8

Pumping Test - Water Level Data

Project: RM of East St. Paul - Bray Road Water Supply

Number: 2010-095-011

Client: Stantec Consulting Inc.

	Time [min]	Water Level [ft]	Drawdown [ft]
444	4550	30.26	0.07
445	4560	30.26	0.07
446	4570	30.26	0.07
447	4580	30.26	0.07
448	4590	30.26	0.07
449	4600	30.26	0.07
450	4610	30.25	0.06
451	4620	30.25	0.06
452	4630	30.25	0.06
453	4640	30.24	0.05

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, Manitoba
R5G 1T8

Pumping Test - Water Level Data

Project: RM of East St. Paul - Bray Road Water Supply

Number: 2010-095-011

Client: Stantec Consulting Inc.

Location: Bray Road - RM of East St. Paul	Pumping Test: Pumping Test 1	Pumping Well: Supply Well
Test Conducted by: Chris Wilson	Test Date: 3/13/2012	Discharge: variable, average rate 459.12 [U.S. gal/min]
Observation Well: G05OJ002	Static Water Level [ft]: 33.78	Radial Distance to PW [m]: 2576.02

	Time [min]	Water Level [ft]	Drawdown [ft]
1	0	33.78	0.00
2	10	33.76	-0.02
3	20	33.78	0.00
4	30	33.76	-0.02
5	40	33.76	-0.02
6	50	33.75	-0.03
7	60	33.74	-0.04
8	70	33.75	-0.03
9	80	33.77	-0.01
10	90	33.77	-0.01
11	100	33.77	-0.01
12	110	33.77	-0.01
13	120	33.76	-0.02
14	130	33.79	0.01
15	140	33.80	0.02
16	150	33.83	0.05
17	160	33.84	0.06
18	170	33.83	0.05
19	180	33.84	0.06
20	190	33.83	0.05
21	200	33.86	0.08
22	210	33.85	0.07
23	220	33.86	0.08
24	230	33.87	0.09
25	240	33.87	0.09
26	250	33.88	0.10
27	260	33.88	0.10
28	270	33.89	0.11
29	280	33.90	0.12
30	290	33.90	0.12
31	300	33.90	0.12
32	310	33.91	0.13
33	320	33.91	0.13
34	330	33.94	0.16
35	340	33.95	0.17
36	350	33.95	0.17
37	360	33.94	0.16
38	370	33.95	0.17
39	380	33.98	0.20
40	390	33.97	0.19
41	400	33.97	0.19
42	410	33.97	0.19
43	420	33.99	0.21
44	430	34.01	0.23
45	440	34.02	0.24
46	450	34.04	0.26
47	460	34.06	0.28
48	470	34.09	0.31
49	480	34.10	0.32
50	490	34.13	0.35
51	500	34.12	0.34

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, Manitoba
R5G 1T8

Project: RM of East St. Paul - Bray Road Water Supply

Number: 2010-095-011

Client: Stantec Consulting Inc.

	Time [min]	Water Level [ft]	Drawdown [ft]
52	510	34.14	0.36
53	520	34.16	0.38
54	530	34.17	0.39
55	540	34.20	0.42
56	550	34.21	0.43
57	560	34.24	0.46
58	570	34.21	0.43
59	580	34.21	0.43
60	590	34.22	0.44
61	600	34.23	0.45
62	610	34.23	0.45
63	620	34.28	0.50
64	630	34.25	0.47
65	640	34.27	0.49
66	650	34.26	0.48
67	660	34.27	0.49
68	670	34.28	0.50
69	680	34.26	0.48
70	690	34.29	0.51
71	700	34.29	0.51
72	710	34.30	0.52
73	720	34.30	0.52
74	730	34.31	0.53
75	740	34.29	0.51
76	750	34.30	0.52
77	760	34.30	0.52
78	770	34.30	0.52
79	780	34.29	0.51
80	790	34.31	0.53
81	800	34.30	0.52
82	810	34.29	0.51
83	820	34.29	0.51
84	830	34.27	0.49
85	840	34.27	0.49
86	850	34.27	0.49
87	860	34.27	0.49
88	870	34.27	0.49
89	880	34.27	0.49
90	890	34.29	0.51
91	900	34.27	0.49
92	910	34.26	0.48
93	920	34.25	0.47
94	930	34.25	0.47
95	940	34.24	0.46
96	950	34.23	0.45
97	960	34.22	0.44
98	970	34.23	0.45
99	980	34.23	0.45
100	990	34.23	0.45
101	1000	34.23	0.45
102	1010	34.22	0.44
103	1020	34.23	0.45
104	1030	34.24	0.46
105	1040	34.23	0.45
106	1050	34.22	0.44
107	1060	34.23	0.45

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, Manitoba
R5G 1T8

Pumping Test - Water Level Data

Project: RM of East St. Paul - Bray Road Water Supply

Number: 2010-095-011

Client: Stantec Consulting Inc.

	Time [min]	Water Level [ft]	Drawdown [ft]
108	1070	34.22	0.44
109	1080	34.22	0.44
110	1090	34.23	0.45
111	1100	34.23	0.45
112	1110	34.23	0.45
113	1120	34.24	0.46
114	1130	34.23	0.45
115	1140	34.20	0.42
116	1150	34.19	0.41
117	1160	34.20	0.42
118	1170	34.20	0.42
119	1180	34.21	0.43
120	1190	34.22	0.44
121	1200	34.23	0.45
122	1210	34.24	0.46
123	1220	34.25	0.47
124	1230	34.25	0.47
125	1240	34.25	0.47
126	1250	34.26	0.48
127	1260	34.28	0.50
128	1270	34.29	0.51
129	1280	34.32	0.54
130	1290	34.35	0.57
131	1300	34.37	0.59
132	1310	34.41	0.63
133	1320	34.40	0.62
134	1330	34.41	0.63
135	1340	34.39	0.61
136	1350	34.38	0.60
137	1360	34.40	0.62
138	1370	34.27	0.49
139	1380	34.27	0.49
140	1390	34.26	0.48
141	1400	34.25	0.47
142	1410	34.24	0.46
143	1420	34.23	0.45
144	1430	34.23	0.45
145	1440	34.22	0.44
146	1450	34.21	0.43
147	1460	34.20	0.42
148	1470	34.21	0.43
149	1480	34.20	0.42
150	1490	34.19	0.41
151	1500	34.19	0.41
152	1510	34.20	0.42
153	1520	34.20	0.42
154	1530	34.18	0.40
155	1540	34.20	0.42
156	1550	34.20	0.42
157	1560	34.18	0.40
158	1570	34.19	0.41
159	1580	34.17	0.39
160	1590	34.19	0.41
161	1600	34.18	0.40
162	1610	34.16	0.38
163	1620	34.16	0.38

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, Manitoba
R5G 1T8

Pumping Test - Water Level Data

Project: RM of East St. Paul - Bray Road Water Supply

Number: 2010-095-011

Client: Stantec Consulting Inc.

	Time [min]	Water Level [ft]	Drawdown [ft]
164	1630	34.14	0.36
165	1640	34.15	0.37
166	1650	34.15	0.37
167	1660	34.13	0.35
168	1670	34.14	0.36
169	1680	34.15	0.37
170	1690	34.15	0.37
171	1700	34.16	0.38
172	1710	34.14	0.36
173	1720	34.11	0.33
174	1730	34.11	0.33
175	1740	34.12	0.34
176	1750	34.10	0.32
177	1760	34.12	0.34
178	1770	34.11	0.33
179	1780	34.12	0.34
180	1790	34.14	0.36
181	1800	34.13	0.35
182	1810	34.13	0.35
183	1820	34.13	0.35
184	1830	34.15	0.37
185	1840	34.14	0.36
186	1850	34.15	0.37
187	1860	34.16	0.38
188	1870	34.15	0.37
189	1880	34.14	0.36
190	1890	34.14	0.36
191	1900	34.15	0.37
192	1910	34.18	0.40
193	1920	34.16	0.38
194	1930	34.17	0.39
195	1940	34.19	0.41
196	1950	34.19	0.41
197	1960	34.20	0.42
198	1970	34.18	0.40
199	1980	34.18	0.40
200	1990	34.18	0.40
201	2000	34.19	0.41
202	2010	34.19	0.41
203	2020	34.21	0.43
204	2030	34.23	0.45
205	2040	34.23	0.45
206	2050	34.24	0.46
207	2060	34.24	0.46
208	2070	34.24	0.46
209	2080	34.21	0.43
210	2090	34.22	0.44
211	2100	34.21	0.43
212	2110	34.25	0.47
213	2120	34.24	0.46
214	2130	34.23	0.45
215	2140	34.23	0.45
216	2150	34.22	0.44
217	2160	34.21	0.43
218	2170	34.23	0.45
219	2180	34.22	0.44

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, Manitoba
R5G 1T8

Project: RM of East St. Paul - Bray Road Water Supply

Number: 2010-095-011

Client: Stantec Consulting Inc.

	Time [min]	Water Level [ft]	Drawdown [ft]
220	2190	34.25	0.47
221	2200	34.25	0.47
222	2210	34.20	0.42
223	2220	34.19	0.41
224	2230	34.23	0.45
225	2240	34.20	0.42
226	2250	34.18	0.40
227	2260	34.16	0.38
228	2270	34.16	0.38
229	2280	34.15	0.37
230	2290	34.13	0.35
231	2300	34.14	0.36
232	2310	34.11	0.33
233	2320	34.10	0.32
234	2330	34.08	0.30
235	2340	34.08	0.30
236	2350	34.08	0.30
237	2360	34.06	0.28
238	2370	34.03	0.25
239	2380	34.04	0.26
240	2390	34.03	0.25
241	2400	34.00	0.22
242	2410	34.00	0.22
243	2420	34.01	0.23
244	2430	34.00	0.22
245	2440	34.00	0.22
246	2450	33.97	0.19
247	2460	33.95	0.17
248	2470	33.95	0.17
249	2480	33.95	0.17
250	2490	33.93	0.15
251	2500	33.94	0.16
252	2510	33.95	0.17
253	2520	33.93	0.15
254	2530	33.93	0.15
255	2540	33.92	0.14
256	2550	33.91	0.13
257	2560	33.94	0.16
258	2570	33.94	0.16
259	2580	33.93	0.15
260	2590	33.92	0.14
261	2600	33.93	0.15
262	2610	33.93	0.15
263	2620	33.92	0.14
264	2630	33.94	0.16
265	2640	33.94	0.16
266	2650	33.96	0.18
267	2660	33.96	0.18
268	2670	33.97	0.19
269	2680	33.99	0.21
270	2690	34.00	0.22
271	2700	34.03	0.25
272	2710	34.02	0.24
273	2720	34.03	0.25
274	2730	34.05	0.27
275	2740	34.09	0.31

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, Manitoba
R5G 1T8

Project: RM of East St. Paul - Bray Road Water Supply

Number: 2010-095-011

Client: Stantec Consulting Inc.

	Time [min]	Water Level [ft]	Drawdown [ft]
276	2750	34.12	0.34
277	2760	34.11	0.33
278	2770	34.14	0.36
279	2780	34.14	0.36
280	2790	34.12	0.34
281	2800	34.16	0.38
282	2810	34.15	0.37
283	2820	34.16	0.38
284	2830	34.13	0.35
285	2840	34.14	0.36
286	2850	34.15	0.37
287	2860	34.14	0.36
288	2870	34.16	0.38
289	2880	34.16	0.38
290	2890	34.14	0.36
291	2900	34.12	0.34
292	2910	34.14	0.36
293	2920	34.13	0.35
294	2930	34.16	0.38
295	2940	34.16	0.38
296	2950	34.16	0.38
297	2960	34.19	0.41
298	2970	34.17	0.39
299	2980	34.15	0.37
300	2990	34.16	0.38
301	3000	34.14	0.36
302	3010	34.18	0.40
303	3020	34.16	0.38
304	3030	34.14	0.36
305	3040	34.14	0.36
306	3050	34.10	0.32
307	3060	34.11	0.33
308	3070	34.08	0.30
309	3080	34.10	0.32
310	3090	34.12	0.34
311	3100	34.10	0.32
312	3110	34.10	0.32
313	3120	34.10	0.32
314	3130	34.11	0.33
315	3140	34.10	0.32
316	3150	34.11	0.33
317	3160	34.10	0.32
318	3170	34.10	0.32
319	3180	34.10	0.32
320	3190	34.11	0.33
321	3200	34.12	0.34
322	3210	34.12	0.34
323	3220	34.11	0.33
324	3230	34.10	0.32
325	3240	34.09	0.31
326	3250	34.12	0.34
327	3260	34.10	0.32
328	3270	34.09	0.31
329	3280	34.13	0.35
330	3290	34.13	0.35
331	3300	34.14	0.36

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, Manitoba
R5G 1T8

Project: RM of East St. Paul - Bray Road Water Supply

Number: 2010-095-011

Client: Stantec Consulting Inc.

	Time [min]	Water Level [ft]	Drawdown [ft]
332	3310	34.16	0.38
333	3320	34.15	0.37
334	3330	34.15	0.37
335	3340	34.18	0.40
336	3350	34.18	0.40
337	3360	34.18	0.40
338	3370	34.20	0.42
339	3380	34.20	0.42
340	3390	34.22	0.44
341	3400	34.24	0.46
342	3410	34.23	0.45
343	3420	34.26	0.48
344	3430	34.25	0.47
345	3440	34.26	0.48
346	3450	34.27	0.49
347	3460	34.26	0.48
348	3470	34.28	0.50
349	3480	34.25	0.47
350	3490	34.27	0.49
351	3500	34.31	0.53
352	3510	34.27	0.49
353	3520	34.29	0.51
354	3530	34.27	0.49
355	3540	34.31	0.53
356	3550	34.34	0.56
357	3560	34.31	0.53
358	3570	34.33	0.55
359	3580	34.34	0.56
360	3590	34.33	0.55
361	3600	34.31	0.53
362	3610	34.34	0.56
363	3620	34.31	0.53
364	3630	34.32	0.54
365	3640	34.30	0.52
366	3650	34.29	0.51
367	3660	34.30	0.52
368	3670	34.30	0.52
369	3680	34.28	0.50
370	3690	34.26	0.48
371	3700	34.27	0.49
372	3710	34.24	0.46
373	3720	34.24	0.46
374	3730	34.23	0.45
375	3740	34.23	0.45
376	3750	34.22	0.44
377	3760	34.20	0.42
378	3770	34.20	0.42
379	3780	34.17	0.39
380	3790	34.17	0.39
381	3800	34.18	0.40
382	3810	34.16	0.38
383	3820	34.14	0.36
384	3830	34.10	0.32
385	3840	34.10	0.32
386	3850	34.11	0.33
387	3860	34.10	0.32

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, Manitoba
R5G 1T8

Project: RM of East St. Paul - Bray Road Water Supply

Number: 2010-095-011

Client: Stantec Consulting Inc.

	Time [min]	Water Level [ft]	Drawdown [ft]
388	3870	34.09	0.31
389	3880	34.10	0.32
390	3890	34.08	0.30
391	3900	34.08	0.30
392	3910	34.07	0.29
393	3920	34.06	0.28
394	3930	34.06	0.28
395	3940	34.07	0.29
396	3950	34.04	0.26
397	3960	34.04	0.26
398	3970	34.04	0.26
399	3980	34.05	0.27
400	3990	34.05	0.27
401	4000	34.05	0.27
402	4010	34.06	0.28
403	4020	34.04	0.26
404	4030	34.04	0.26
405	4040	34.05	0.27
406	4050	34.05	0.27
407	4060	34.05	0.27
408	4070	34.07	0.29
409	4080	34.07	0.29
410	4090	34.09	0.31
411	4100	34.10	0.32
412	4110	34.11	0.33
413	4120	34.12	0.34
414	4130	34.13	0.35
415	4140	34.12	0.34
416	4150	34.17	0.39
417	4160	34.18	0.40
418	4170	34.20	0.42
419	4180	34.22	0.44
420	4190	34.22	0.44
421	4200	34.24	0.46
422	4210	34.23	0.45
423	4220	34.27	0.49
424	4230	34.28	0.50
425	4240	34.26	0.48
426	4250	34.27	0.49
427	4260	34.28	0.50
428	4270	34.30	0.52
429	4280	34.32	0.54
430	4290	34.30	0.52
431	4300	34.32	0.54
432	4310	34.33	0.55
433	4320	34.33	0.55
434	4330	34.32	0.54
435	4340	34.33	0.55
436	4350	34.31	0.53
437	4360	34.31	0.53
438	4370	34.29	0.51
439	4380	34.29	0.51
440	4390	34.27	0.49
441	4400	34.27	0.49
442	4410	34.25	0.47
443	4420	34.24	0.46

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, Manitoba
R5G 1T8

Pumping Test - Water Level Data

Project: RM of East St. Paul - Bray Road Water Supply

Number: 2010-095-011

Client: Stantec Consulting Inc.

	Time [min]	Water Level [ft]	Drawdown [ft]
444	4430	34.23	0.45
445	4440	34.24	0.46
446	4450	34.21	0.43
447	4460	34.22	0.44
448	4470	34.20	0.42
449	4480	34.19	0.41
450	4490	34.18	0.40
451	4500	34.17	0.39
452	4510	34.18	0.40
453	4520	34.17	0.39
454	4530	34.13	0.35
455	4540	34.12	0.34
456	4550	34.12	0.34
457	4560	34.10	0.32
458	4570	34.14	0.36
459	4580	34.09	0.31
460	4590	34.12	0.34

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, Manitoba
R5G 1T8

Pumping Test - Water Level Data

Project: RM of East St. Paul - Bray Road Water Supply

Number: 2010-095-011

Client: Stantec Consulting Inc.

Location: Bray Road - RM of East St. Paul	Pumping Test: Pumping Test 1	Pumping Well: Supply Well
Test Conducted by: Chris Wilson	Test Date: 3/13/2012	Discharge: variable, average rate 459.12 [U.S. gal/min]
Observation Well: G05OJ077	Static Water Level [ft]: 36.00	Radial Distance to PW [m]: 82.24

	Time [min]	Water Level [ft]	Drawdown [ft]
1	14	36.46	0.46
2	165	37.50	1.50
3	1320	37.58	1.58
4	1680	37.67	1.67
5	1920	37.92	1.92
6	2220	38.00	2.00
7	2340	37.93	1.93
8	2700	37.93	1.93
9	2880	38.00	2.00
10	3300	38.00	2.00
11	3360	37.92	1.92
12	4320	37.95	1.95
13	4321	37.75	1.75
14	4325	37.67	1.67
15	4330	37.63	1.63
16	4355	36.50	0.50
17	4410	36.45	0.45
18	4455	36.33	0.33

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, Manitoba
R5G 1T8

Pumping Test - Water Level Data

Project: RM of East St. Paul - Bray Road Water Supply

Number: 2010-095-011

Client: Stantec Consulting Inc.

Location: Bray Road - RM of East St. Paul	Pumping Test: Pumping Test 1	Pumping Well: Supply Well
Test Conducted by: Chris Wilson	Test Date: 3/13/2012	Discharge: variable, average rate 459.12 [U.S. gal/min]
Observation Well: OBS North	Static Water Level [ft]: 32.33	Radial Distance to PW [m]: 1089.75

	Time [min]	Water Level [ft]	Drawdown [ft]
1	40	32.33	0.00
2	150	32.58	0.25
3	225	32.67	0.34
4	1440	33.00	0.67
5	1560	33.08	0.75
6	2040	33.167	0.837
7	2340	33.2083	0.8783
8	2640	33.25	0.92
9	3180	33.333	1.003
10	3300	33.34	1.01
11	4320	33.33	1.00
12	4325	33.125	0.795
13	4350	33.00	0.67
14	4455	32.92	0.59
15	4470	32.83	0.50

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, Manitoba
R5G 1T8

Pumping Test - Water Level Data

Project: RM of East St. Paul - Bray Road Water Supply

Number: 2010-095-011

Client: Stantec Consulting Inc.

Location: Bray Road - RM of East St. Paul	Pumping Test: Pumping Test 1	Pumping Well: Supply Well
Test Conducted by: Chris Wilson	Test Date: 3/13/2012	Discharge: variable, average rate 459.12 [U.S. gal/min]
Observation Well: OBS South	Static Water Level [ft]: 34.58	Radial Distance to PW [m]: 1176.6

	Time [min]	Water Level [ft]	Drawdown [ft]
1	150	34.63	0.0467
2	540	34.75	0.1667
3	1080	34.91	0.3267
4	1500	35.04	0.4567
5	1980	35.08	0.4967
6	2100	35.12	0.5367
7	2640	35.19	0.6067
8	3180	35.27	0.6867
9	3420	35.29	0.7067
10	4320	35.33	0.7467
11	4325	35.00	0.4167
12	4360	34.96	0.3767
13	4485	34.75	0.1667

Friesen Drillers Ltd.
307 PTH 12 N
Steinbach, Manitoba
R5G 1T8

Pumping Test - Water Level Data

Project: RM of East St. Paul - Bray Road Water Supply

Number: 2010-095-011

Client: Stantec Consulting Inc.

Location: Bray Road - RM of East St. Paul	Pumping Test: Pumping Test 1	Pumping Well: Supply Well
Test Conducted by: Chris Wilson	Test Date: 3/13/2012	Discharge: variable, average rate 459.12 [U.S. gal/min]
Observation Well: Supply Well	Static Water Level [ft]: 35.33	Radial Distance to PW [m]: -

	Time [min]	Water Level [ft]	Drawdown [ft]
1	0	35.333	0.003
2	1	35.67	0.34
3	2	36.00	0.67
4	4	36.333	1.003
5	12	37.75	2.42
6	16	37.83	2.50
7	18	37.88	2.55
8	20	37.8333	2.5033
9	25	38.00	2.67
10	60	38.04	2.71
11	165	38.08	2.75
12	660	38.167	2.837
13	720	38.25	2.92
14	1320	38.21	2.88
15	1500	38.45	3.12
16	1560	38.58	3.25
17	1860	38.67	3.34
18	2040	38.75	3.42
19	2940	38.79	3.46
20	3060	38.8333	3.5033
21	4320	38.8333	3.5033
22	4321	36.42	1.09
23	4322	36.25	0.92
24	4323	36.21	0.88
25	4324	36.19	0.86
26	4350	35.50	0.17
27	4355	35.48	0.15
28	4400	35.41	0.08
29	4444	35.38	0.05
30	4446	35.36	0.03
31	4485	35.35	0.02

Appendix K

Analytical Laboratory Data

Stantec Consulting (Winnipeg)
ATTN: Jeff Bell, P Eng
Friesen Drillers
307 Pth 12 N
Steinbach MB R5G 1T8

Date Received: 16-MAR-12
Report Date: 29-MAR-12 15:45 (MT)
Version: FINAL

Client Phone: 204-326-2485

Certificate of Analysis

Lab Work Order #: L1124801
Project P.O. #: NOT SUBMITTED
Job Reference: RM OF EAST ST PAUL
C of C Numbers:
Legal Site Desc:

Paul Nicolas
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1124801-1 RM OF EAST ST PAUL (72HRS)							
Sampled By: CLIENT on 16-MAR-12 @ 08:00							
Matrix: WATER							
MB Conservation test 72D							
Alkalinity							
Alkalinity, Total (as CaCO3)	325		20	mg/L		16-MAR-12	R2339224
Bicarbonate (HCO3)	397		24	mg/L		16-MAR-12	R2339224
Carbonate (CO3)	<12		12	mg/L		16-MAR-12	R2339224
Hydroxide (OH)	<6.8		6.8	mg/L		16-MAR-12	R2339224
Ammonia by colour							
Ammonia, Total (as N)	0.031		0.010	mg/L		21-MAR-12	R2339917
Carbons							
Total Carbon	83.8		1.0	mg/L		19-MAR-12	R2339674
Total Inorganic Carbon	82.6		1.0	mg/L		19-MAR-12	R2339674
Total Organic Carbon	1.2		1.0	mg/L		19-MAR-12	R2339674
Chloride by Ion Chromatography							
Chloride	16.9		0.20	mg/L		19-MAR-12	R2340150
Colour, True							
Colour, True	<5.0		5.0	CU		16-MAR-12	R2338959
Conductivity							
Conductivity	934		20	umhos/cm		16-MAR-12	R2339224
Fluoride by Ion Chromatography							
Fluoride	0.186		0.020	mg/L		19-MAR-12	R2340150
Ion Balance Calculation							
Ion Balance	92.5			%		21-MAR-12	
TDS (Calculated)	645			mg/L		21-MAR-12	
Hardness (as CaCO3)	474			mg/L		21-MAR-12	
Langelier Index 4C							
Langelier Index (4 C)	0.58					21-MAR-12	
Langelier Index 60C							
Langelier Index (60 C)	1.3					21-MAR-12	
Nitrate as N by Ion Chromatography							
Nitrate-N	<0.0050		0.0050	mg/L		19-MAR-12	R2340150
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.0051		0.0051	mg/L		16-MAR-12	
Nitrite as N by Ion Chromatography							
Nitrite-N	<0.0010		0.0010	mg/L		19-MAR-12	R2340150
Sulfate by Ion Chromatography							
Sulfate	244		0.50	mg/L		19-MAR-12	R2340150
Total Dissolved Solids							
Total Dissolved Solids	682		5.0	mg/L		19-MAR-12	R2340412
Total Kjeldahl Nitrogen							
Total Kjeldahl Nitrogen	0.25		0.20	mg/L	21-MAR-12	27-MAR-12	R2343184
Total Metals by ICP-MS							
Aluminum (Al)-Total	<0.0050		0.0050	mg/L	20-MAR-12	20-MAR-12	R2340302
Antimony (Sb)-Total	<0.00020		0.00020	mg/L	20-MAR-12	20-MAR-12	R2340302
Arsenic (As)-Total	0.00069		0.00020	mg/L	20-MAR-12	20-MAR-12	R2340302
Barium (Ba)-Total	0.0247		0.00020	mg/L	20-MAR-12	20-MAR-12	R2340302
Beryllium (Be)-Total	<0.00020		0.00020	mg/L	20-MAR-12	20-MAR-12	R2340302
Bismuth (Bi)-Total	<0.00020		0.00020	mg/L	20-MAR-12	20-MAR-12	R2340302
Boron (B)-Total	0.055		0.010	mg/L	20-MAR-12	20-MAR-12	R2340302
Cadmium (Cd)-Total	0.000010		0.000010	mg/L	20-MAR-12	20-MAR-12	R2340302
Calcium (Ca)-Total	83.9		0.10	mg/L	20-MAR-12	20-MAR-12	R2340302
Cesium (Cs)-Total	<0.00010		0.00010	mg/L	20-MAR-12	20-MAR-12	R2340302
Chromium (Cr)-Total	<0.0010		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Cobalt (Co)-Total	<0.00020		0.00020	mg/L	20-MAR-12	20-MAR-12	R2340302

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1124801-1 RM OF EAST ST PAUL (72HRS)							
Sampled By: CLIENT on 16-MAR-12 @ 08:00							
Matrix: WATER							
Total Metals by ICP-MS							
Copper (Cu)-Total	0.00075		0.00020	mg/L	20-MAR-12	20-MAR-12	R2340302
Iron (Fe)-Total	<0.10		0.10	mg/L	20-MAR-12	20-MAR-12	R2340302
Lead (Pb)-Total	<0.000090		0.000090	mg/L	20-MAR-12	20-MAR-12	R2340302
Lithium (Li)-Total	0.0791		0.0020	mg/L	20-MAR-12	20-MAR-12	R2340302
Magnesium (Mg)-Total	64.2		0.010	mg/L	20-MAR-12	20-MAR-12	R2340302
Manganese (Mn)-Total	0.0143		0.00030	mg/L	20-MAR-12	20-MAR-12	R2340302
Molybdenum (Mo)-Total	0.00094		0.00020	mg/L	20-MAR-12	20-MAR-12	R2340302
Nickel (Ni)-Total	<0.0020		0.0020	mg/L	20-MAR-12	20-MAR-12	R2340302
Phosphorus (P)-Total	<0.20		0.20	mg/L	20-MAR-12	20-MAR-12	R2340302
Potassium (K)-Total	3.87		0.020	mg/L	20-MAR-12	20-MAR-12	R2340302
Rubidium (Rb)-Total	0.00146		0.00020	mg/L	20-MAR-12	20-MAR-12	R2340302
Selenium (Se)-Total	<0.0010		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Silicon (Si)-Total	6.00		0.050	mg/L	20-MAR-12	20-MAR-12	R2340302
Silver (Ag)-Total	<0.00010		0.00010	mg/L	20-MAR-12	20-MAR-12	R2340302
Sodium (Na)-Total	36.6		0.030	mg/L	20-MAR-12	20-MAR-12	R2340302
Strontium (Sr)-Total	0.446		0.00010	mg/L	20-MAR-12	20-MAR-12	R2340302
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	20-MAR-12	20-MAR-12	R2340302
Thallium (Tl)-Total	<0.00010		0.00010	mg/L	20-MAR-12	20-MAR-12	R2340302
Thorium (Th)-Total	<0.00010		0.00010	mg/L	20-MAR-12	20-MAR-12	R2340302
Tin (Sn)-Total	<0.00020		0.00020	mg/L	20-MAR-12	20-MAR-12	R2340302
Titanium (Ti)-Total	0.00097		0.00020	mg/L	20-MAR-12	20-MAR-12	R2340302
Tungsten (W)-Total	<0.0010		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Uranium (U)-Total	0.00572		0.00010	mg/L	20-MAR-12	20-MAR-12	R2340302
Vanadium (V)-Total	<0.00020		0.00020	mg/L	20-MAR-12	20-MAR-12	R2340302
Zinc (Zn)-Total	<0.0050		0.0050	mg/L	20-MAR-12	20-MAR-12	R2340302
Zirconium (Zr)-Total	<0.00040		0.00040	mg/L	20-MAR-12	20-MAR-12	R2340302
Transmittance, UV (254 nm)							
Transmittance, UV (254 nm)	94.6		1.0	% T	22-MAR-12	22-MAR-12	R2341032
Turbidity							
Turbidity	0.28		0.10	NTU		16-MAR-12	R2338738
pH							
pH	7.91		0.10	pH units		16-MAR-12	R2339224
TCA, TCE							
Trichloroethylene	<0.00010		0.00010	mg/L		28-MAR-12	R2343705
Tetrachloroethylene	<0.00010		0.00010	mg/L		28-MAR-12	R2343705
Surrogate: Toluene-d8 (SURR)	116.9		50-150	%		28-MAR-12	R2343705

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-TOT-WP	Water	Alkalinity	APHA 2320B

Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. It is determined by titration with a standard solution of strong mineral acid to the successive HCO3- and H2CO3 endpoints indicated electrometrically.

C-TC,TIC,TOC-WP	Water	Carbons	APHA 5310 B-INSTRUMENTAL

This method is applicable to the analysis of ground water, wastewater, and surface water samples. The form detected depends upon sample pretreatment: Unfiltered sample = TC, 0.45um filtered = TDC. Samples are injected into a combustion tube containing an oxidation catalyst. The carrier gas containing the combustion product from the combustion tube flows through an inorganic carbon reactor vessel and is then sent through a halogen scrubber into a sample cell set in a non-dispersive infrared gas analyzer (NDIR) where carbon dioxide is detected. For total inorganic carbon and dissolved inorganic carbon, the sample is injected into an IC reactor vessel where only the IC component is decomposed to become carbon dioxide.

The peak area generated by the NDIR indicates the TC/TDC or TIC/DIC as applicable. The total organic carbon content of the sample is calculated by subtracting the TIC from the TC.
TOC = TC-TIC, DOC = TDC-DIC, Particulate = Total - Dissolved.

CL-L-IC-WP	Water	Chloride by Ion Chromatography	EPA 300.1 (modified)

Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.

COLOUR-TRUE-WP	Water	Colour, True	APHA 2120C

True colour in water is analyzed by discrete analyzer using the platinum-cobalt colourimetric method. Colour is pH dependant; unless otherwise indicated, reported colour results pertain to the pH of the sample as received to within +/- 1 pH unit.

EC-WP	Water	Conductivity	APHA 2510B

Conductivity of an aqueous solution refers to its ability to carry an electric current. Conductance of a solution is measured between two spatially fixed and chemically inert electrodes.

ETL-LANGELIER-4-WP	Water	Langelier Index 4C	Calculated
ETL-LANGELIER-60-WP	Water	Langelier Index 60C	Calculated
F-L-IC-WP	Water	Fluoride by Ion Chromatography	EPA 300.1 (modified)

Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.

IONBALANCE-WP	Water	Ion Balance Calculation	APHA 1030E
MET-T-L-MS-WP	Water	Total Metals by ICP-MS	U.S. EPA 200.8-TL

Total Metals by ICP-MS: This analysis is carried out using sample preparation procedures adapted from Standard Methods for the examination of Water and Wastewater Method 3030E and analytical procedures adapted from U.S EPA Method 200.8 for analyis of metals by inductively coupled-mass spectrometery.

N-TOTKJ-WP	Water	Total Kjeldahl Nitrogen	Quickchem method 10-107-06-2-E Lachat

Samples are digested with a sulphuric acid solution, cooled, diluted with water, and analyzed for ammonia. Total Kjeldahl nitrogen is the sum of free-ammonia and organic nitrogen compounds which are converted to ammonium sulphate through this digestion process. Analysis is performed by Flow Injection
Analysis (FIA). The pH of the digested sample is raised to a known, basic pH by neutralization with a concentrated buffer solution. This neutralization converts the ammonium cation to ammonia. The ammonia produced is heated with saliclyate and hypochlorite to produce blue colour which is proportional to the ammonia concentration.

NH3-COL-WP	Water	Ammonia by colour	APHA 4500 NH3 F

Ammonia in water samples forms indophenol when reacted with hypochlorite and phenol. The intensity is amplified by the addition of sodium nitroprusside and measured colourmetrically.

NO2+NO3-CALC-L-WP	Water	Nitrate+Nitrite	CALCULATION
NO2-L-IC-WP	Water	Nitrite as N by Ion Chromatography	EPA 300.1 (modified)

Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.

NO3-L-IC-WP	Water	Nitrate as N by Ion Chromatography	EPA 300.1 (modified)

Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.

PH-WP	Water	pH	APHA 4500H

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
The pH of a sample is the determination of the activity of the hydrogen ions by potentiometric measurement using a standard hydrogen electrode and a reference electrode.			
SO4-IC-WP	Water	Sulfate by Ion Chromatography	EPA 300.1 (modified)
Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.			
SOLIDS-TDS-WP	Water	Total Dissolved Solids	APHA 2540C
The residue remaining in a prepared casserole after passing the sample through a 1.2 um Whatman GF/C glass microfibre filter and drying at 180 degrees C. Samples may be dried at 105 degrees C if the client specifically requests this drying temperature.			
TRANSM-UV-WT	Water	Transmittance, UV (254 nm)	APHA 5910 B-Spectrophotometer
TURBIDITY-WP	Water	Turbidity	APHA 2130B (modified)
Turbidity in aqueous matrices is determined by the nephelometric method.			
VOC-TCA,TCE-WP	Water	TCA, TCE	EPA 8260C / EPA 5030C
Samples are extracted by purging the sample with helium and trapping the extractives onto an adsorbent. Analysis is performed using a gas chromatograph equipped with a mass selective detector.			

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WP	ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, CANADA
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Workorder: L1124801 Report Date: 29-MAR-12

Client: Stantec Consulting (Winnipeg)
Friesen Drillers 307 Pth 12 N
Steinbach MB R5G 1T8

Contact: Jeff Bell, P Eng

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ALK-TOT-WP	Water							
Batch R2339224								
WG1444655-8 DUP		**L1124659-1**						
Alkalinity, Total (as CaCO3)		84	83		mg/L	0.17	20	16-MAR-12
Bicarbonate (HCO3)		102	102		mg/L	0.17	25	16-MAR-12
Carbonate (CO3)		<12	<12	RPD-NA	mg/L	N/A	25	16-MAR-12
Hydroxide (OH)		<6.8	<6.8	RPD-NA	mg/L	N/A	25	16-MAR-12
WG1444655-9 DUP		**L1124661-1**						
Alkalinity, Total (as CaCO3)		134	134		mg/L	0.030	20	16-MAR-12
Bicarbonate (HCO3)		157	157		mg/L	0.056	25	16-MAR-12
Carbonate (CO3)		<12	<12	RPD-NA	mg/L	N/A	25	16-MAR-12
Hydroxide (OH)		<6.8	<6.8	RPD-NA	mg/L	N/A	25	16-MAR-12
WG1444655-5 LCS								
Alkalinity, Total (as CaCO3)			101.2		%		85-115	16-MAR-12
WG1444655-2 MB								
Alkalinity, Total (as CaCO3)			<20		mg/L		20	16-MAR-12
Bicarbonate (HCO3)			<24		mg/L		24	16-MAR-12
Carbonate (CO3)			<12		mg/L		12	16-MAR-12
Hydroxide (OH)			<6.8		mg/L		6.8	16-MAR-12
-TC,TIC,TOC-WP	Water							
Batch R2339674								
WG1445101-2 CVS								
Total Carbon			97.0		%		80-120	19-MAR-12
Total Inorganic Carbon			96.5		%		80-120	19-MAR-12
Total Organic Carbon			97.5		%		80-120	19-MAR-12
WG1445101-1 MB								
Total Carbon			<1.0		mg/L		1	19-MAR-12
Total Inorganic Carbon			<1.0		mg/L		1	19-MAR-12
Total Organic Carbon			<1.0		mg/L		1	19-MAR-12
L-L-IC-WP	Water							
Batch R2340150								
WG1445515-2 LCS								
Chloride			98.6		%		85-115	19-MAR-12
WG1445515-1 MB								
Chloride			<0.20		mg/L		0.2	19-MAR-12
OLOUR-TRUE-WP	Water							

ALS Environmental

Quality Control Report

Workorder: L1124801 Report Date: 29-MAR-12

Client: Stantec Consulting (Winnipeg)
Friesen Drillers 307 Pth 12 N
Steinbach MB R5G 1T8

Contact: Jeff Bell, P Eng

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
COLOUR-TRUE-WP	Water							
Batch R2338959								
WG1444435-3 DUP		**L1124661-1**						
Colour, True		17.4	17.8		CU	1.9	20	16-MAR-12
WG1444435-2 LCS								
Colour, True			95.6		%		85-115	16-MAR-12
WG1444435-1 MB								
Colour, True			<5.0		CU		5	16-MAR-12
C-WP	Water							
Batch R2339224								
WG1444655-7 DUP		**L1124661-3**						
Conductivity		362	361		umhos/cm	0.30	10	16-MAR-12
WG1444655-8 DUP		**L1124659-1**						
Conductivity		800	801		umhos/cm	0.11	10	16-MAR-12
WG1444655-9 DUP		**L1124661-1**						
Conductivity		397	398		umhos/cm	0.078	10	16-MAR-12
WG1444655-3 LCS								
Conductivity			98.1		%		90-110	16-MAR-12
WG1444655-1 MB								
Conductivity			<20		umhos/cm		20	16-MAR-12
-L-IC-WP	Water							
Batch R2340150								
WG1445515-2 LCS								
Fluoride			99.3		%		85-115	19-MAR-12
WG1445515-1 MB								
Fluoride			<0.020		mg/L		0.02	19-MAR-12
IET-T-L-MS-WP	Water							
Batch R2340302								
WG1445124-4 DUP		**WG1445124-3**						
Aluminum (Al)-Total		0.0719	0.0826		mg/L	14	20	20-MAR-12
Antimony (Sb)-Total		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	20-MAR-12
Arsenic (As)-Total		0.00200	0.00198		mg/L	1.1	20	20-MAR-12
Barium (Ba)-Total		0.0558	0.0546		mg/L	2.0	20	20-MAR-12
Beryllium (Be)-Total		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	20-MAR-12
Bismuth (Bi)-Total		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	20-MAR-12
Boron (B)-Total		0.043	0.036		mg/L	18	20	20-MAR-12
Cadmium (Cd)-Total		0.000042	0.000040		mg/L	4.9	20	20-MAR-12
Calcium (Ca)-Total		42.3	41.7		mg/L	1.2	20	20-MAR-12

ALS Environmental

Quality Control Report

Workorder: L1124801 Report Date: 29-MAR-12

Client: Stantec Consulting (Winnipeg)
Friesen Drillers 307 Pth 12 N
Steinbach MB R5G 1T8

Contact: Jeff Bell, P Eng

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-L-MS-WP	Water							
Batch R2340302								
WG1445124-4 DUP		**WG1445124-3**						
Cesium (Cs)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	20-MAR-12
Chromium (Cr)-Total		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	20-MAR-12
Cobalt (Co)-Total		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	20-MAR-12
Copper (Cu)-Total		0.00179	0.00181		mg/L	1.1	20	20-MAR-12
Iron (Fe)-Total		<0.10	<0.10	RPD-NA	mg/L	N/A	20	20-MAR-12
Lead (Pb)-Total		<0.000090	<0.000090	RPD-NA	mg/L	N/A	20	20-MAR-12
Lithium (Li)-Total		0.0121	0.0119		mg/L	1.4	20	20-MAR-12
Magnesium (Mg)-Total		16.3	15.8		mg/L	3.0	20	20-MAR-12
Manganese (Mn)-Total		0.00355	0.00352		mg/L	1.0	20	20-MAR-12
Molybdenum (Mo)-Total		0.00106	0.00106		mg/L	0.0	20	20-MAR-12
Nickel (Ni)-Total		<0.0020	<0.0020	RPD-NA	mg/L	N/A	20	20-MAR-12
Phosphorus (P)-Total		<0.20	<0.20	RPD-NA	mg/L	N/A	20	20-MAR-12
Potassium (K)-Total		3.68	3.59		mg/L	2.4	20	20-MAR-12
Rubidium (Rb)-Total		0.00162	0.00151		mg/L	7.0	20	20-MAR-12
Selenium (Se)-Total		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	20-MAR-12
Silicon (Si)-Total		2.03	2.02		mg/L	0.35	20	20-MAR-12
Silver (Ag)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	20-MAR-12
Sodium (Na)-Total		30.6	28.8		mg/L	5.9	20	20-MAR-12
Strontium (Sr)-Total		0.187	0.182		mg/L	2.7	20	20-MAR-12
Tellurium (Te)-Total		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	20-MAR-12
Thallium (Tl)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	20-MAR-12
Thorium (Th)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	25	20-MAR-12
Tin (Sn)-Total		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	20-MAR-12
Tungsten (W)-Total		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	20-MAR-12
Uranium (U)-Total		0.00083	0.00080		mg/L	3.3	20	20-MAR-12
Vanadium (V)-Total		0.00106	0.00108		mg/L	1.8	20	20-MAR-12
Zinc (Zn)-Total		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	20-MAR-12
Zirconium (Zr)-Total		<0.00040	<0.00040	RPD-NA	mg/L	N/A	20	20-MAR-12
WG1445124-6 DUP		**WG1445124-5**						
Aluminum (Al)-Total		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	20-MAR-12
Antimony (Sb)-Total		0.00028	0.00029		mg/L	2.1	20	20-MAR-12
Arsenic (As)-Total		0.0137	0.0137		mg/L	0.23	20	20-MAR-12
Barium (Ba)-Total		0.00279	0.00284		mg/L	1.6	20	20-MAR-12

ALS Environmental

Quality Control Report

Workorder: L1124801 Report Date: 29-MAR-12

Client: Stantec Consulting (Winnipeg)
Friesen Drillers 307 Pth 12 N
Steinbach MB R5G 1T8

Contact: Jeff Bell, P Eng

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-L-MS-WP	Water							
Batch R2340302								
WG1445124-6 DUP		**WG1445124-5**						
Beryllium (Be)-Total		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	20-MAR-12
Bismuth (Bi)-Total		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	20-MAR-12
Boron (B)-Total		0.055	0.053		mg/L	3.3	20	20-MAR-12
Calcium (Ca)-Total		2.83	2.90		mg/L	2.4	20	20-MAR-12
Cesium (Cs)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	20-MAR-12
Chromium (Cr)-Total		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	20-MAR-12
Cobalt (Co)-Total		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	20-MAR-12
Copper (Cu)-Total		0.0703	0.0720		mg/L	2.4	20	20-MAR-12
Iron (Fe)-Total		<0.10	<0.10	RPD-NA	mg/L	N/A	20	20-MAR-12
Lead (Pb)-Total		0.0255	0.0253		mg/L	0.78	20	20-MAR-12
Lithium (Li)-Total		0.0133	0.0139		mg/L	4.5	20	20-MAR-12
Magnesium (Mg)-Total		1.58	1.58		mg/L	0.18	20	20-MAR-12
Manganese (Mn)-Total		0.0271	0.0272		mg/L	0.62	20	20-MAR-12
Molybdenum (Mo)-Total		0.00151	0.00154		mg/L	1.6	20	20-MAR-12
Nickel (Ni)-Total		<0.0020	<0.0020	RPD-NA	mg/L	N/A	20	20-MAR-12
Phosphorus (P)-Total		<0.20	<0.20	RPD-NA	mg/L	N/A	20	20-MAR-12
Potassium (K)-Total		2.52	2.47		mg/L	2.2	20	20-MAR-12
Rubidium (Rb)-Total		0.00065	0.00065		mg/L	1.1	20	20-MAR-12
Selenium (Se)-Total		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	20-MAR-12
Silicon (Si)-Total		13.7	13.8		mg/L	0.59	20	20-MAR-12
Silver (Ag)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	20-MAR-12
Sodium (Na)-Total		214	213		mg/L	0.37	20	20-MAR-12
Strontium (Sr)-Total		0.00672	0.00675		mg/L	0.45	20	20-MAR-12
Tellurium (Te)-Total		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	20-MAR-12
Thallium (Tl)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	20-MAR-12
Thorium (Th)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	25	20-MAR-12
Tin (Sn)-Total		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	20-MAR-12
Titanium (Ti)-Total		0.00170	0.00150		mg/L	13	20	20-MAR-12
Tungsten (W)-Total		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	20-MAR-12
Uranium (U)-Total		0.00107	0.00105		mg/L	2.5	20	20-MAR-12
Vanadium (V)-Total		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	20-MAR-12
Zinc (Zn)-Total		0.0075	0.0081		mg/L	7.3	20	20-MAR-12
Zirconium (Zr)-Total		<0.00040	<0.00040		mg/L			20-MAR-12

ALS Environmental

Quality Control Report

Workorder: L1124801 Report Date: 29-MAR-12

Client: Stantec Consulting (Winnipeg)
Friesen Drillers 307 Pth 12 N
Steinbach MB R5G 1T8

Contact: Jeff Bell, P Eng

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-L-MS-WP	Water							
Batch R2340302								
WG1445124-6 DUP		**WG1445124-5**						
Zirconium (Zr)-Total		<0.00040	<0.00040	RPD-NA	mg/L	N/A	20	20-MAR-12
WG1445124-2 LCS								
Aluminum (Al)-Total			104.4		%		80-120	20-MAR-12
Antimony (Sb)-Total			100.3		%		80-120	20-MAR-12
Arsenic (As)-Total			102.9		%		80-120	20-MAR-12
Barium (Ba)-Total			106.4		%		80-120	20-MAR-12
Beryllium (Be)-Total			105.4		%		80-120	20-MAR-12
Bismuth (Bi)-Total			98.7		%		80-120	20-MAR-12
Boron (B)-Total			103.3		%		80-120	20-MAR-12
Cadmium (Cd)-Total			106.0		%		80-120	20-MAR-12
Calcium (Ca)-Total			104.5		%		80-120	20-MAR-12
Cesium (Cs)-Total			96.8		%		80-120	20-MAR-12
Chromium (Cr)-Total			105.7		%		80-120	20-MAR-12
Cobalt (Co)-Total			109.2		%		80-120	20-MAR-12
Copper (Cu)-Total			104.2		%		80-120	20-MAR-12
Iron (Fe)-Total			101.9		%		80-120	20-MAR-12
Lead (Pb)-Total			100.9		%		80-120	20-MAR-12
Lithium (Li)-Total			104.8		%		80-120	20-MAR-12
Magnesium (Mg)-Total			103.5		%		80-120	20-MAR-12
Manganese (Mn)-Total			109.9		%		80-120	20-MAR-12
Molybdenum (Mo)-Total			106.8		%		80-120	20-MAR-12
Nickel (Ni)-Total			110.1		%		80-120	20-MAR-12
Phosphorus (P)-Total			106.4		%		80-120	20-MAR-12
Potassium (K)-Total			105.0		%		80-120	20-MAR-12
Rubidium (Rb)-Total			101.0		%		80-120	20-MAR-12
Selenium (Se)-Total			103.7		%		80-120	20-MAR-12
Silicon (Si)-Total			107.3		%		80-120	20-MAR-12
Silver (Ag)-Total			97.0		%		80-120	20-MAR-12
Sodium (Na)-Total			110.3		%		80-120	20-MAR-12
Strontium (Sr)-Total			103.9		%		80-120	20-MAR-12
Tellurium (Te)-Total			108.2		%		80-120	20-MAR-12
Thallium (Tl)-Total			100.7		%		80-120	20-MAR-12
Thorium (Th)-Total			92.4		%		70-130	20-MAR-12
Tin (Sn)-Total			105.6		%		80-120	20-MAR-12

ALS Environmental

Quality Control Report

Workorder: L1124801 Report Date: 29-MAR-12

Client: Stantec Consulting (Winnipeg)
Friesen Drillers 307 Pth 12 N
Steinbach MB R5G 1T8

Contact: Jeff Bell, P Eng

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-L-MS-WP	Water							
Batch R2340302								
WG1445124-2 LCS								
Titanium (Ti)-Total			103.7		%		80-120	20-MAR-12
Tungsten (W)-Total			100.5		%		80-120	20-MAR-12
Uranium (U)-Total			99.5		%		80-120	20-MAR-12
Vanadium (V)-Total			106.2		%		80-120	20-MAR-12
Zinc (Zn)-Total			104.6		%		80-120	20-MAR-12
Zirconium (Zr)-Total			101.0		%		80-120	20-MAR-12
WG1445124-1 MB								
Aluminum (Al)-Total			<0.0050		mg/L		0.005	20-MAR-12
Antimony (Sb)-Total			<0.00020		mg/L		0.0002	20-MAR-12
Arsenic (As)-Total			<0.00020		mg/L		0.0002	20-MAR-12
Barium (Ba)-Total			<0.00020		mg/L		0.0002	20-MAR-12
Beryllium (Be)-Total			<0.00020		mg/L		0.0002	20-MAR-12
Bismuth (Bi)-Total			<0.00020		mg/L		0.0002	20-MAR-12
Boron (B)-Total			<0.010		mg/L		0.01	20-MAR-12
Cadmium (Cd)-Total			<0.000010		mg/L		0.00001	20-MAR-12
Calcium (Ca)-Total			<0.10		mg/L		0.1	20-MAR-12
Cesium (Cs)-Total			<0.00010		mg/L		0.0001	20-MAR-12
Chromium (Cr)-Total			<0.0010		mg/L		0.001	20-MAR-12
Cobalt (Co)-Total			<0.00020		mg/L		0.0002	20-MAR-12
Copper (Cu)-Total			<0.00020		mg/L		0.0002	20-MAR-12
Iron (Fe)-Total			<0.10		mg/L		0.1	20-MAR-12
Lead (Pb)-Total			<0.000090		mg/L		0.00009	20-MAR-12
Lithium (Li)-Total			<0.0020		mg/L		0.002	20-MAR-12
Magnesium (Mg)-Total			<0.010		mg/L		0.01	20-MAR-12
Manganese (Mn)-Total			<0.00030		mg/L		0.0003	20-MAR-12
Molybdenum (Mo)-Total			<0.00020		mg/L		0.0002	20-MAR-12
Nickel (Ni)-Total			<0.0020		mg/L		0.002	20-MAR-12
Phosphorus (P)-Total			<0.20		mg/L		0.2	20-MAR-12
Potassium (K)-Total			<0.020		mg/L		0.02	20-MAR-12
Rubidium (Rb)-Total			<0.00020		mg/L		0.0002	20-MAR-12
Selenium (Se)-Total			<0.0010		mg/L		0.001	20-MAR-12
Silicon (Si)-Total			<0.050		mg/L		0.05	20-MAR-12
Silver (Ag)-Total			<0.00010		mg/L		0.0001	20-MAR-12
Sodium (Na)-Total			<0.030		mg/L		0.03	20-MAR-12

Client: Stantec Consulting (Winnipeg)
Friesen Drillers 307 Pth 12 N
Steinbach MB R5G 1T8

Contact: Jeff Bell, P Eng

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-L-MS-WP	Water							
Batch R2340302								
WG1445124-1 MB								
Strontium (Sr)-Total			<0.00010		mg/L		0.0001	20-MAR-12
Tellurium (Te)-Total			<0.00020		mg/L		0.0002	20-MAR-12
Thallium (Tl)-Total			<0.00010		mg/L		0.0001	20-MAR-12
Thorium (Th)-Total			<0.00010		mg/L		0.0001	20-MAR-12
Tin (Sn)-Total			<0.00020		mg/L		0.0002	20-MAR-12
Titanium (Ti)-Total			<0.00020		mg/L		0.0002	20-MAR-12
Tungsten (W)-Total			<0.0010		mg/L		0.001	20-MAR-12
Uranium (U)-Total			<0.00010		mg/L		0.0001	20-MAR-12
Vanadium (V)-Total			<0.00020		mg/L		0.0002	20-MAR-12
Zinc (Zn)-Total			<0.0050		mg/L		0.005	20-MAR-12
Zirconium (Zr)-Total			<0.00040		mg/L		0.0004	20-MAR-12
N-TOTKJ-WP	Water							
Batch R2343184								
WG1446383-4 DUP		**L1125991-2**						
Total Kjeldahl Nitrogen		1.01	1.01		mg/L	0.28	20	27-MAR-12
WG1446383-7 DUP		**L1125991-3**						
Total Kjeldahl Nitrogen		0.90	0.89		mg/L	1.6	20	27-MAR-12
WG1446383-2 LCS								
Total Kjeldahl Nitrogen			99.6		%		75-125	27-MAR-12
WG1446383-1 MB								
Total Kjeldahl Nitrogen			<0.20		mg/L		0.2	27-MAR-12
WG1446383-5 MB								
Total Kjeldahl Nitrogen			<0.20		mg/L		0.2	27-MAR-12
WG1446383-3 MS		**L1125991-2**						
Total Kjeldahl Nitrogen			N/A	MS-B	%		-	27-MAR-12
WG1446383-6 MS		**L1125991-3**						
Total Kjeldahl Nitrogen			102.0		%		70-130	27-MAR-12
NH3-COL-WP	Water							
Batch R2339917								
WG1445360-3 DUP		**L1125247-1**						
Ammonia, Total (as N)		3.23	3.21		mg/L	0.50	20	20-MAR-12
WG1445360-5 DUP		**L1124661-6**						
Ammonia, Total (as N)		0.013	0.012		mg/L	8.8	20	20-MAR-12
WG1445360-2 LCS								
Ammonia, Total (as N)			100.7		%		85-115	20-MAR-12
WG1445360-1 MB								

ALS Environmental

Quality Control Report

Workorder: L1124801 Report Date: 29-MAR-12

Client: Stantec Consulting (Winnipeg)
Friesen Drillers 307 Pth 12 N
Steinbach MB R5G 1T8

Contact: Jeff Bell, P Eng

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NH3-COL-WP	Water							
Batch R2339917								
WG1445360-1 MB								
Ammonia, Total (as N)			<0.010		mg/L		0.01	20-MAR-12
WG1445360-4 MS		**L1124469-1**						
Ammonia, Total (as N)			98.7		%		75-125	20-MAR-12
WG1445360-6 MS		**L1124752-1**						
Ammonia, Total (as N)			99.7		%		75-125	21-MAR-12
IO2-L-IC-WP	Water							
Batch R2340150								
WG1445515-2 LCS								
Nitrite-N			99.8		%		85-115	19-MAR-12
WG1445515-1 MB								
Nitrite-N			<0.0010		mg/L		0.001	19-MAR-12
IO3-L-IC-WP	Water							
Batch R2340150								
WG1445515-2 LCS								
Nitrate-N			99.1		%		85-115	19-MAR-12
WG1445515-1 MB								
Nitrate-N			<0.0050		mg/L		0.005	19-MAR-12
H-WP	Water							
Batch R2339224								
WG1444655-7 DUP		**L1124661-3**						
pH		8.29	8.29	J	pH units	0.00	0.2	16-MAR-12
WG1444655-8 DUP		**L1124659-1**						
pH		7.98	8.00	J	pH units	0.02	0.2	16-MAR-12
WG1444655-9 DUP		**L1124661-1**						
pH		8.45	8.44	J	pH units	0.01	0.2	16-MAR-12
WG1444655-4 LCS								
pH			7.41		pH units		7.3-7.5	16-MAR-12
O4-IC-WP	Water							
Batch R2340150								
WG1445515-2 LCS								
Sulfate			101.5		%		85-115	19-MAR-12
WG1445515-1 MB								
Sulfate			<0.50		mg/L		0.5	19-MAR-12
OLIDS-TDS-WP	Water							

Quality Control Report

Client: Stantec Consulting (Winnipeg)
Friesen Drillers 307 Pth 12 N
Steinbach MB R5G 1T8

Contact: Jeff Bell, P Eng

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
SOLIDS-TDS-WP	Water							
Batch R2340412								
WG1444831-2 CVS								
Total Dissolved Solids			100.3		%		85-115	19-MAR-12
WG1444831-3 DUP		**L1124978-1**						
Total Dissolved Solids		1760	1730		mg/L	2.0	20	19-MAR-12
WG1444831-1 MB								
Total Dissolved Solids			<5.0		mg/L		5	19-MAR-12
TRANSM-UV-WT	Water							
Batch R2341032								
WG1446392-2 DUP		**L1125626-7**						
Transmittance, UV (254 nm)		42.9	42.1		% T	1.8	25	22-MAR-12
WG1446392-1 MB								
Transmittance, UV (254 nm)			100		% T		1	22-MAR-12
TURBIDITY-WP	Water							
Batch R2338738								
WG1444158-3 DUP		**L1124418-1**						
Turbidity		17.1	17.4		NTU	1.7	15	16-MAR-12
WG1444158-2 LCS								
Turbidity			100.5		%		85-115	16-MAR-12
WG1444158-1 MB								
Turbidity			<0.10		NTU		0.1	16-MAR-12
VOC-TCA,TCE-WP	Water							
Batch R2343705								
WG1449194-5 CVS								
Trichloroethylene			108.2		%		70-130	28-MAR-12
Tetrachloroethylene			107.8		%		70-130	28-MAR-12
WG1449194-6 DUP		**L1124801-1**						
Trichloroethylene		<0.00010	<0.00010	RPD-NA	mg/L	N/A	30	28-MAR-12
Tetrachloroethylene		<0.00010	<0.00010	RPD-NA	mg/L	N/A	30	28-MAR-12
WG1449194-4 MB								
Trichloroethylene			<0.00010		mg/L		0.0001	28-MAR-12
Tetrachloroethylene			<0.00010		mg/L		0.0001	28-MAR-12
Surrogate: Toluene-d8 (SURR)			112.9		%		50-150	28-MAR-12

Quality Control Report

Workorder: L1124801 Report Date: 29-MAR-12

Client: Stantec Consulting (Winnipeg)
Friesen Drillers 307 Pth 12 N
Steinbach MB R5G 1T8

Contact: Jeff Bell, P Eng

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
DLA	Detection Limit Adjusted For required dilution
J	Duplicate results and limits are expressed in terms of absolute difference.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Quality Control Report

Workorder: L1124801 Report Date: 29-MAR-12

Client: Stantec Consulting (Winnipeg)
Friesen Drillers 307 Pth 12 N
Steinbach MB R5G 1T8

Contact: Jeff Bell, P Eng

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
Transmittance, UV (254 nm)							
	1	16-MAR-12 08:00	22-MAR-12 11:36	48	148	hours	EHT
pH							
	1	16-MAR-12 08:00	16-MAR-12 10:38	0.25	2.6	hours	EHTR-FM
Anions and Nutrients							
Nitrate as N by Ion Chromatography							
	1	16-MAR-12 08:00	19-MAR-12 15:59	48	80	hours	EHT
Nitrite as N by Ion Chromatography							
	1	16-MAR-12 08:00	19-MAR-12 15:59	48	80	hours	EHT

Legend & Qualifier Definitions:

EHTR-FM:	Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended.
EHTR:	Exceeded ALS recommended hold time prior to sample receipt.
EHTL:	Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.
EHT:	Exceeded ALS recommended hold time prior to analysis.
Rec. HT:	ALS recommended hold time (see units).

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L1124801 were received on 16-MAR-12 10:20.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

uest Form
9878

L1124801

10-023294

Page ___ of ___

L1124801-COFC

Report To	Friesen Drillers.	Standard: Other (specify):	
Company:	Friesen Drillers	Select: PDF ✓ Excel Digital Fax	
Contact:	Jeff Bell, P.Eng.	Email 1:	jeff@friesendrillers.com
Address:	307 PTH 12 N Steinbach MB R5G 1T8	Email 2:	brett.ransom@stantec.com
Phone:	1-204-326-2485 Fax: 1-204-326-2483		
Invoice To	Same as Report ? (circle) Yes or No (if No, provide details)	**Client / Project Information**	
	Copy of Invoice with Report? (circle) Yes or No	Job #:	RM of East St. Paul.
Company:	Stantec Consulting Inc.	PO / AFE:	
Contact:	Brett Ransom, P.Eng & Jamie Brewster	LSD:	
Address:	905 Waverley St.		
Phone:	Fax:	Quote #:	
Lab Work Order # (lab use only)		**ALS Contact:**	**Sampler:**

Service Requested: (Rush subject to availability)

- K Regular (Standard Turnaround Times))
- Priority, Date Req'd: _____ (Surcharges apply)
- Emergency (1 Business Day) - 100% Surcharge
- For Emergency < 1 Day, ASAP or Weekend - Contact ALS

Analysis Request

(Indicate Filtered or Preserved, F/P)

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Number of Containers
	RM of East St Paul. ~72hrs.	16 March	8 AM.	Water	

Will send email to Jody

Special Instructions / Regulations / Hazardous Details

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date:	Time:	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
	March 14/2016			16/mar	10:20	7.6 °C				

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

GENF 18.01 Front

Schedule DW - Table 72D:	2 - Blue, 1 - Red, 1 - Green
Conventional Parameters (Test 72D)	**Total Metals (Test 72D)**
Total Carbon	Aluminum_Al
Total Organic Carbon	Antimony_Sb
Total Inorganic Carbon	Arsenic_As
Alkalinity-Total	Barium_Ba
Alkalinity-HCO3	Beryllium_Be
Alkalinity-CO3	Bismuth_Bi
Alkalinity-OH	Cadmium_Cd
pH	Cesium_Cs
Conductivity	Chromium_Cr
Colour-True	Cobalt_Co
Total Dissolved Solids	Copper_Cu
Turbidity	Iron_Fe
Ammonia Nitrogen	Lead_Pb
Nitrate-Nitrite Nitrogen	Lithium_Li
Chloride	Manganese_Mn
Sulphate	Molybdenum_Mo
Fluoride	Nickel_Ni
Bromide	Phosphorus_PO4
Saturation Index @ 4.4C(calculation)	Potassium_K
Saturation Index @ 60C(calculation)	Rubidium_Rb
Total Hardness (calculation)	Selenium_Se
Ion Balance	Silver_Ag
	Tellurium_Te
	Thallium_Tl
	Thorium_Th
	Tin_Sn
Other	Titanium_Ti
UV Transmittance	Uranium_U
Tetrachloroethylene	Vanadium_V
Trichloroethylene	Zinc_Zn
Dissolved Organic Carbon	Zirconium_Zr
[illegible]	Boron_B
	Calcium_Ca
Ammonia- Nitrogen	Magnesium_Mg
	Sodium_Na
	Silicon_Si
	Strontium_Sr

FRIESEN DRILLERS LTD
ATTN: JEFF BELL
307 PTH 12 N
STEINBACH MB R5G 1L9

Date Received: 16-MAR-12
Report Date: 25-MAY-12 14:29 (MT)
Version: FINAL

Client Phone: 204-326-2485

Certificate of Analysis

Lab Work Order #: L1124753

Project P.O. #: NOT SUBMITTED
Job Reference: RM OF EAST ST PAUL
C of C Numbers:
Legal Site Desc:

GARRETT RONCERAY
Biology Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1124753-1 12 HRS							
Sampled By: CLIENT on 14-MAR-12 @ 08:00							
Matrix: WATER							
ROU4W total							
Alkalinity							
Alkalinity, Total (as CaCO3)	328		20	mg/L		16-MAR-12	R2339224
Bicarbonate (HCO3)	400		24	mg/L		16-MAR-12	R2339224
Carbonate (CO3)	<12		12	mg/L		16-MAR-12	R2339224
Hydroxide (OH)	<6.8		6.8	mg/L		16-MAR-12	R2339224
Chloride by Ion Chromatography							
Chloride	16.8		0.50	mg/L		19-MAR-12	R2340150
Conductivity							
Conductivity	970		20	umhos/cm		16-MAR-12	R2339224
Fluoride by Ion Chromatography							
Fluoride	0.18		0.10	mg/L		19-MAR-12	R2340150
Hardness Calculated							
Hardness (as CaCO3)	580		0.30	mg/L		21-MAR-12	
Nitrate as N by Ion Chromatography							
Nitrate-N	<0.050		0.050	mg/L		19-MAR-12	R2340150
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.071		0.071	mg/L		16-MAR-12	
Nitrite as N by Ion Chromatography							
Nitrite-N	<0.050		0.050	mg/L		19-MAR-12	R2340150
Sulfate by Ion Chromatography							
Sulfate	271		0.50	mg/L		19-MAR-12	R2340150
TDS calculated							
TDS (Calculated)	716		5.0	mg/L		21-MAR-12	
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.024		0.020	mg/L	20-MAR-12	20-MAR-12	R2340302
Antimony (Sb)-Total	<0.0010		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Arsenic (As)-Total	<0.0010		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Barium (Ba)-Total	0.0244		0.00050	mg/L	20-MAR-12	20-MAR-12	R2340302
Beryllium (Be)-Total	<0.0010		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Bismuth (Bi)-Total	<0.00050		0.00050	mg/L	20-MAR-12	20-MAR-12	R2340302
Boron (B)-Total	0.065		0.030	mg/L	20-MAR-12	20-MAR-12	R2340302
Cadmium (Cd)-Total	<0.00020		0.00020	mg/L	20-MAR-12	20-MAR-12	R2340302
Calcium (Ca)-Total	102		0.20	mg/L	20-MAR-12	20-MAR-12	R2340302
Cesium (Cs)-Total	<0.00050		0.00050	mg/L	20-MAR-12	20-MAR-12	R2340302
Chromium (Cr)-Total	<0.0020		0.0020	mg/L	20-MAR-12	20-MAR-12	R2340302
Cobalt (Co)-Total	<0.00050		0.00050	mg/L	20-MAR-12	20-MAR-12	R2340302
Copper (Cu)-Total	0.0028		0.0020	mg/L	20-MAR-12	20-MAR-12	R2340302
Iron (Fe)-Total	<0.10		0.10	mg/L	20-MAR-12	20-MAR-12	R2340302
Lead (Pb)-Total	<0.0010		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Lithium (Li)-Total	0.113		0.0020	mg/L	20-MAR-12	20-MAR-12	R2340302
Magnesium (Mg)-Total	78.9		0.050	mg/L	20-MAR-12	20-MAR-12	R2340302
Manganese (Mn)-Total	0.0120		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Molybdenum (Mo)-Total	0.00104		0.00050	mg/L	20-MAR-12	20-MAR-12	R2340302
Nickel (Ni)-Total	<0.0020		0.0020	mg/L	20-MAR-12	20-MAR-12	R2340302
Phosphorus (P)-Total	<0.50		0.50	mg/L	20-MAR-12	20-MAR-12	R2340302
Potassium (K)-Total	4.90		0.10	mg/L	20-MAR-12	20-MAR-12	R2340302
Rubidium (Rb)-Total	0.00167		0.00050	mg/L	20-MAR-12	20-MAR-12	R2340302
Selenium (Se)-Total	<0.0050		0.0050	mg/L	20-MAR-12	20-MAR-12	R2340302
Silicon (Si)-Total	7.16		0.30	mg/L	20-MAR-12	20-MAR-12	R2340302
Silver (Ag)-Total	<0.0010		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Sodium (Na)-Total	45.6		0.050	mg/L	20-MAR-12	20-MAR-12	R2340302

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1124753-1 12 HRS							
Sampled By: CLIENT on 14-MAR-12 @ 08:00							
Matrix: WATER							
Total Metals by ICP-MS							
Strontium (Sr)-Total	0.547		0.00050	mg/L	20-MAR-12	20-MAR-12	R2340302
Tellurium (Te)-Total	<0.0010		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Thallium (Tl)-Total	<0.0050		0.0050	mg/L	20-MAR-12	20-MAR-12	R2340302
Thorium (Th)-Total	<0.0010		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Tin (Sn)-Total	<0.00060		0.00060	mg/L	20-MAR-12	20-MAR-12	R2340302
Titanium (Ti)-Total	0.0024		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Tungsten (W)-Total	<0.0020		0.0020	mg/L	20-MAR-12	20-MAR-12	R2340302
Uranium (U)-Total	0.00719		0.00050	mg/L	20-MAR-12	20-MAR-12	R2340302
Vanadium (V)-Total	<0.0020		0.0020	mg/L	20-MAR-12	20-MAR-12	R2340302
Zinc (Zn)-Total	<0.020		0.020	mg/L	20-MAR-12	20-MAR-12	R2340302
Zirconium (Zr)-Total	<0.0010		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Turbidity							
Turbidity	5.37		0.10	NTU		16-MAR-12	R2338738
pH							
pH	7.86		0.10	pH units		16-MAR-12	R2339224
L1124753-2 48 HRS							
Sampled By: CLIENT on 15-MAR-12 @ 08:00							
Matrix: WATER							
ROU4W total							
Alkalinity							
Alkalinity, Total (as CaCO3)	326		20	mg/L		16-MAR-12	R2339224
Bicarbonate (HCO3)	397		24	mg/L		16-MAR-12	R2339224
Carbonate (CO3)	<12		12	mg/L		16-MAR-12	R2339224
Hydroxide (OH)	<6.8		6.8	mg/L		16-MAR-12	R2339224
Chloride by Ion Chromatography							
Chloride	16.9		0.50	mg/L		19-MAR-12	R2340150
Conductivity							
Conductivity	937		20	umhos/cm		16-MAR-12	R2339224
Fluoride by Ion Chromatography							
Fluoride	0.19		0.10	mg/L		19-MAR-12	R2340150
Hardness Calculated							
Hardness (as CaCO3)	555		0.30	mg/L		21-MAR-12	
Nitrate as N by Ion Chromatography							
Nitrate-N	<0.050		0.050	mg/L		19-MAR-12	R2340150
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.071		0.071	mg/L		16-MAR-12	
Nitrite as N by Ion Chromatography							
Nitrite-N	<0.050		0.050	mg/L		19-MAR-12	R2340150
Sulfate by Ion Chromatography							
Sulfate	247		0.50	mg/L		19-MAR-12	R2340150
TDS calculated							
TDS (Calculated)	679		5.0	mg/L		21-MAR-12	
Total Metals by ICP-MS							
Aluminum (Al)-Total	<0.020		0.020	mg/L	20-MAR-12	20-MAR-12	R2340302
Antimony (Sb)-Total	<0.0010		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Arsenic (As)-Total	<0.0010		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Barium (Ba)-Total	0.0256		0.00050	mg/L	20-MAR-12	20-MAR-12	R2340302
Beryllium (Be)-Total	<0.0010		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Bismuth (Bi)-Total	<0.00050		0.00050	mg/L	20-MAR-12	20-MAR-12	R2340302
Boron (B)-Total	0.056		0.030	mg/L	20-MAR-12	20-MAR-12	R2340302
Cadmium (Cd)-Total	<0.00020		0.00020	mg/L	20-MAR-12	20-MAR-12	R2340302

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1124753-2 48 HRS							
Sampled By: CLIENT on 15-MAR-12 @ 08:00							
Matrix: WATER							
Total Metals by ICP-MS							
Calcium (Ca)-Total	97.6		0.20	mg/L	20-MAR-12	20-MAR-12	R2340302
Cesium (Cs)-Total	<0.00050		0.00050	mg/L	20-MAR-12	20-MAR-12	R2340302
Chromium (Cr)-Total	<0.0020		0.0020	mg/L	20-MAR-12	20-MAR-12	R2340302
Cobalt (Co)-Total	<0.00050		0.00050	mg/L	20-MAR-12	20-MAR-12	R2340302
Copper (Cu)-Total	<0.0020		0.0020	mg/L	20-MAR-12	20-MAR-12	R2340302
Iron (Fe)-Total	<0.10		0.10	mg/L	20-MAR-12	20-MAR-12	R2340302
Lead (Pb)-Total	<0.0010		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Lithium (Li)-Total	0.105		0.0020	mg/L	20-MAR-12	20-MAR-12	R2340302
Magnesium (Mg)-Total	75.6		0.050	mg/L	20-MAR-12	20-MAR-12	R2340302
Manganese (Mn)-Total	0.0139		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Molybdenum (Mo)-Total	0.00105		0.00050	mg/L	20-MAR-12	20-MAR-12	R2340302
Nickel (Ni)-Total	<0.0020		0.0020	mg/L	20-MAR-12	20-MAR-12	R2340302
Phosphorus (P)-Total	<0.50		0.50	mg/L	20-MAR-12	20-MAR-12	R2340302
Potassium (K)-Total	4.72		0.10	mg/L	20-MAR-12	20-MAR-12	R2340302
Rubidium (Rb)-Total	0.00165		0.00050	mg/L	20-MAR-12	20-MAR-12	R2340302
Selenium (Se)-Total	<0.0050		0.0050	mg/L	20-MAR-12	20-MAR-12	R2340302
Silicon (Si)-Total	7.19		0.30	mg/L	20-MAR-12	20-MAR-12	R2340302
Silver (Ag)-Total	<0.0010		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Sodium (Na)-Total	42.7		0.050	mg/L	20-MAR-12	20-MAR-12	R2340302
Strontium (Sr)-Total	0.516		0.00050	mg/L	20-MAR-12	20-MAR-12	R2340302
Tellurium (Te)-Total	<0.0010		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Thallium (Tl)-Total	<0.0050		0.0050	mg/L	20-MAR-12	20-MAR-12	R2340302
Thorium (Th)-Total	<0.0010		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Tin (Sn)-Total	<0.00060		0.00060	mg/L	20-MAR-12	20-MAR-12	R2340302
Titanium (Ti)-Total	0.0012		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Tungsten (W)-Total	<0.0020		0.0020	mg/L	20-MAR-12	20-MAR-12	R2340302
Uranium (U)-Total	0.00682		0.00050	mg/L	20-MAR-12	20-MAR-12	R2340302
Vanadium (V)-Total	<0.0020		0.0020	mg/L	20-MAR-12	20-MAR-12	R2340302
Zinc (Zn)-Total	<0.020		0.020	mg/L	20-MAR-12	20-MAR-12	R2340302
Zirconium (Zr)-Total	<0.0010		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Turbidity							
Turbidity	5.35		0.10	NTU		16-MAR-12	R2338738
pH							
pH	7.92		0.10	pH units		16-MAR-12	R2339224
L1124753-3 72 HRS							
Sampled By: CLIENT on 16-MAR-12 @ 08:00							
Matrix: WATER							
Miscellaneous Parameters							
Special Request	See Attached				25-MAY-12	25-MAY-12	R2371212
ROU4W total							
Alkalinity							
Alkalinity, Total (as CaCO3)	325		20	mg/L		16-MAR-12	R2339224
Bicarbonate (HCO3)	396		24	mg/L		16-MAR-12	R2339224
Carbonate (CO3)	<12		12	mg/L		16-MAR-12	R2339224
Hydroxide (OH)	<6.8		6.8	mg/L		16-MAR-12	R2339224
Chloride by Ion Chromatography							
Chloride	16.9		0.50	mg/L		19-MAR-12	R2340150
Conductivity							
Conductivity	936		20	umhos/cm		16-MAR-12	R2339224
Fluoride by Ion Chromatography							
Fluoride	0.20		0.10	mg/L		19-MAR-12	R2340150

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1124753-3 72 HRS							
Sampled By: CLIENT on 16-MAR-12 @ 08:00							
Matrix: WATER							
Hardness Calculated							
Hardness (as CaCO3)	541		0.30	mg/L		21-MAR-12	
Nitrate as N by Ion Chromatography							
Nitrate-N	<0.050		0.050	mg/L		19-MAR-12	R2340150
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.071		0.071	mg/L		16-MAR-12	
Nitrite as N by Ion Chromatography							
Nitrite-N	<0.050		0.050	mg/L		19-MAR-12	R2340150
Sulfate by Ion Chromatography							
Sulfate	246		0.50	mg/L		19-MAR-12	R2340150
TDS calculated							
TDS (Calculated)	673		5.0	mg/L		21-MAR-12	
Total Metals by ICP-MS							
Aluminum (Al)-Total	<0.020		0.020	mg/L	20-MAR-12	20-MAR-12	R2340302
Antimony (Sb)-Total	<0.0010		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Arsenic (As)-Total	<0.0010		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Barium (Ba)-Total	0.0253		0.00050	mg/L	20-MAR-12	20-MAR-12	R2340302
Beryllium (Be)-Total	<0.0010		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Bismuth (Bi)-Total	<0.00050		0.00050	mg/L	20-MAR-12	20-MAR-12	R2340302
Boron (B)-Total	0.058		0.030	mg/L	20-MAR-12	20-MAR-12	R2340302
Cadmium (Cd)-Total	<0.00020		0.00020	mg/L	20-MAR-12	20-MAR-12	R2340302
Calcium (Ca)-Total	95.0		0.20	mg/L	20-MAR-12	20-MAR-12	R2340302
Cesium (Cs)-Total	<0.00050		0.00050	mg/L	20-MAR-12	20-MAR-12	R2340302
Chromium (Cr)-Total	<0.0020		0.0020	mg/L	20-MAR-12	20-MAR-12	R2340302
Cobalt (Co)-Total	<0.00050		0.00050	mg/L	20-MAR-12	20-MAR-12	R2340302
Copper (Cu)-Total	<0.0020		0.0020	mg/L	20-MAR-12	20-MAR-12	R2340302
Iron (Fe)-Total	<0.10		0.10	mg/L	20-MAR-12	20-MAR-12	R2340302
Lead (Pb)-Total	<0.0010		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Lithium (Li)-Total	0.101		0.0020	mg/L	20-MAR-12	20-MAR-12	R2340302
Magnesium (Mg)-Total	73.9		0.050	mg/L	20-MAR-12	20-MAR-12	R2340302
Manganese (Mn)-Total	0.0157		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Molybdenum (Mo)-Total	0.00111		0.00050	mg/L	20-MAR-12	20-MAR-12	R2340302
Nickel (Ni)-Total	<0.0020		0.0020	mg/L	20-MAR-12	20-MAR-12	R2340302
Phosphorus (P)-Total	<0.50		0.50	mg/L	20-MAR-12	20-MAR-12	R2340302
Potassium (K)-Total	4.61		0.10	mg/L	20-MAR-12	20-MAR-12	R2340302
Rubidium (Rb)-Total	0.00164		0.00050	mg/L	20-MAR-12	20-MAR-12	R2340302
Selenium (Se)-Total	<0.0050		0.0050	mg/L	20-MAR-12	20-MAR-12	R2340302
Silicon (Si)-Total	6.95		0.30	mg/L	20-MAR-12	20-MAR-12	R2340302
Silver (Ag)-Total	<0.0010		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Sodium (Na)-Total	41.7		0.050	mg/L	20-MAR-12	20-MAR-12	R2340302
Strontium (Sr)-Total	0.508		0.00050	mg/L	20-MAR-12	20-MAR-12	R2340302
Tellurium (Te)-Total	<0.0010		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Thallium (Tl)-Total	<0.0050		0.0050	mg/L	20-MAR-12	20-MAR-12	R2340302
Thorium (Th)-Total	<0.0010		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Tin (Sn)-Total	<0.00060		0.00060	mg/L	20-MAR-12	20-MAR-12	R2340302
Titanium (Ti)-Total	0.0011		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Tungsten (W)-Total	<0.0020		0.0020	mg/L	20-MAR-12	20-MAR-12	R2340302
Uranium (U)-Total	0.00666		0.00050	mg/L	20-MAR-12	20-MAR-12	R2340302
Vanadium (V)-Total	<0.0020		0.0020	mg/L	20-MAR-12	20-MAR-12	R2340302
Zinc (Zn)-Total	<0.020		0.020	mg/L	20-MAR-12	20-MAR-12	R2340302
Zirconium (Zr)-Total	<0.0010		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Turbidity							
Turbidity	0.34		0.10	NTU		16-MAR-12	R2338738

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1124753-3 72 HRS Sampled By: CLIENT on 16-MAR-12 @ 08:00 Matrix: WATER							
pH							
pH	7.87		0.10	pH units		16-MAR-12	R2339224

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Qualifiers for Individual Samples Listed:

Sample Numbe	Client ID	Qualifier	Description
L1124753-1	12 HRS	LPM	Lab Preserved for Metals. Sample received with pH > 2, preserved at the lab and held for 16 hours as per EPA 200.8
L1124753-2	48 HRS	LPM	Lab Preserved for Metals. Sample received with pH > 2, preserved at the lab and held for 16 hours as per EPA 200.8

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-TOT-WP	Water	Alkalinity	APHA 2320B
Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. It is determined by titration with a standard solution of strong mineral acid to the successive HCO3- and H2CO3 endpoints indicated electrometrically.			
CL-IC-WP	Water	Chloride by Ion Chromatography	EPA 300.1 (modified)
Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.			
EC-WP	Water	Conductivity	APHA 2510B
Conductivity of an aqueous solution refers to its ability to carry an electric current. Conductance of a solution is measured between two spatially fixed and chemically inert electrodes.			
ETL-HARDNESS-TOT-WP	Water	Hardness Calculated	HARDNESS CALCULATED
ETL-SOLIDS-CALC-WP	Water	TDS calculated	CALCULATION
F-IC-WP	Water	Fluoride by Ion Chromatography	EPA 300.1 (modified)
Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.			
IONBALANCE-OP05-WP	Water	Ion Balance Calculation No Reporting	APHA 1030E
MET-T-MS-WP	Water	Total Metals by ICP-MS	U.S. EPA 200.8-T
Total Metals by ICP-MS: This analysis is carried out using sample preparation procedures adapted from Standard Methods for the examination of Water and Wastewater Method 3030E and analytical procedures adapted from U.S EPA Method 200.8 for analyis of metals by inductively coupled-mass spectrometery.			
NO2+NO3-CALC-WP	Water	Nitrate+Nitrite	CALCULATION
NO2-IC-WP	Water	Nitrite as N by Ion Chromatography	EPA 300.1 (modified)
Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.			
NO3-IC-WP	Water	Nitrate as N by Ion Chromatography	EPA 300.1 (modified)
Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.			
PH-WP	Water	pH	APHA 4500H
The pH of a sample is the determination of the activity of the hydrogen ions by potentiometric measurement using a standard hydrogen electrode and a reference electrode.			
SO4-IC-WP	Water	Sulfate by Ion Chromatography	EPA 300.1 (modified)
Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.			
SPECIAL REQUEST-US	Misc.	Special Request U of Sask	SEE SUBLET LAB RESULTS
TURBIDITY-WP	Water	Turbidity	APHA 2130B (modified)
Turbidity in aqueous matrices is determined by the nephelometric method.			

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
US	UNIVERSITY OF SASKATCHEWAN

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
WP		ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, CANADA	

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Operator Name: Dinka Besic
Client Name: ALS Laboratory Group
Project Name: Invoice # L1124753
Date Received:
Date Analyzed April 28, 2012

Billing Address:
Judy Dalmaijer (204) 255-9720
ALS Laboratory Group fax: 204-255-9721
1329 Niakwa Road East, Unit 12
Winnipeg, MB
R2J 3T4
Analysis and reporting to:
judy.dalmaijer@alsenviro.com
Bob.Kitlar@alsglobal.com

Data

XL63692	L1124753-3	-105.5	-14.7

Standards

XL63680	High	-75.6	-9.8

Standard Accepted Values

High	-75.3	-9.7
DI	-142.0	-17.9

Methodology

Samples are analyzed using a Thermo Finnigan TC/EA coupled to a Conflo III and a Delta Plus XL mass spectrometer. 0.5 microliters of water is injected into a glassy carbon furnace and pyrolyzed at 1400°C to form hydrogen and carbon monoxide gases. These gases are carried in a helium stream to a GC column held at 100°C to separate the gases before being diluted in the Conflo III and passed to the mass spectrometer for analysis. Isotope ratios are reported in per mil notation relative to the VSMOW-VSLAP scale. Four in-house standards are directly calibrated against the International standards VSMOW and VSLAP, which are by definition: VSMOW: $\delta D = 0‰$ VSMOW, $\delta^{18}O = 0‰$ VSMOW; andVSLAP: $\delta D = -428‰$ VSMOW, $\delta^{18}O = -55.5‰$ VSMOW. GISP, an intermediate international standard, gave the following results during calibration of the in-house standards: $\delta D = -191.0 \pm 0.6‰$ VSMOW (n = 5) and $\delta^{18}O = -25.03 \pm 0.07‰$ VSMOW (n=5). Compare to the accepted values of $\delta D = -189.5 \pm 0.7‰$ VSMOW and $\delta^{18}O = -24.8 \pm 0.1‰$ VSMOW. Two of the in-house standards are used to set up a two-point calibration line. A third in-house standard is used to correct for drift. A fourth in-house standard is used to monitor accuracy of data. Accuracies of δD and $\delta^{18}O$ are 2‰ and 0.2‰, respectively (n = 10, one sigma), though saline waters have a higher standard deviation due to the buildup of salts in the system and increasing memory effects as a result.

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

orm

10-023295

L1124753 Page ___ of ___

Report To		Service Requested: (Rush subject to availability)
Company: FRESEN DRILLERS LTD.	Standard: ___ Other (specify):	✓ Regular (Standard Turnaround Times))
Contact: JEFF BELL	Select: PDF ✓ Excel ___ Digital ___ Fax ___	Priority, Date Req'd: _____ (Surcharges apply)
Address: 807 PTH 12 N	Email 1: jeffe friesendrillers.com	Emergency (1 Business Day) - 100% Surcharge
STEINBACH, MB R5G 1T8	Email 2:	For Emergency < 1 Day, ASAP or Weekend - Contact ALS
Phone: 1-204-326-2485 Fax: 1-204-326-2983		**Analysis Request**
Invoice To Same as Report ? (circle) Yes or No (If No, provide details)	**Client / Project Information**	(Indicate Filtered or Preserved, F/P)
Copy of invoice with Report? (circle) Yes or No	Job #: PHASE EAST ST. P PLN	
Company:	PO / AFE:	
Contact:	LSD:	
Address:		
Phone: Fax:	Quote #: N A	
	ALS Contact: JUDY Sampler:	

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Routine	Metals	Oxygen 18	Deuterium	Tritium	Number of Containers
	12 hrs	14 MARCH	8 PM	WATER	X					
	48 hrs	15 MARCH	8 AM	WATER	X					
	72 hrs	16 MARCH	8 AM	WATER	X	X	X	X	X	

Special Instructions / Regulations / Hazardous Details

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (ALS use only)				SHIPMENT VERIFICATION (ALS use only)			
Released by:	Date:	Time:	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
				16MAR12	@10:15	9 °C				

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

GENF 18.01 Front

FRIESEN DRILLERS LTD
ATTN: JEFF BELL
307 PTH 12 N
STEINBACH MB R5G 1L9

Date Received: 16-MAR-12
Report Date: 25-MAY-12 14:29 (MT)
Version: FINAL

Client Phone: 204-326-2485

Certificate of Analysis

Lab Work Order #: L1124753

Project P.O. #: NOT SUBMITTED
Job Reference: RM OF EAST ST PAUL
C of C Numbers:
Legal Site Desc:

GARRETT RONCERAY
Biology Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1124753-1 12 HRS							
Sampled By: CLIENT on 14-MAR-12 @ 08:00							
Matrix: WATER							
ROU4W total							
Alkalinity							
Alkalinity, Total (as CaCO3)	328		20	mg/L		16-MAR-12	R2339224
Bicarbonate (HCO3)	400		24	mg/L		16-MAR-12	R2339224
Carbonate (CO3)	<12		12	mg/L		16-MAR-12	R2339224
Hydroxide (OH)	<6.8		6.8	mg/L		16-MAR-12	R2339224
Chloride by Ion Chromatography							
Chloride	16.8		0.50	mg/L		19-MAR-12	R2340150
Conductivity							
Conductivity	970		20	umhos/cm		16-MAR-12	R2339224
Fluoride by Ion Chromatography							
Fluoride	0.18		0.10	mg/L		19-MAR-12	R2340150
Hardness Calculated							
Hardness (as CaCO3)	580		0.30	mg/L		21-MAR-12	
Nitrate as N by Ion Chromatography							
Nitrate-N	<0.050		0.050	mg/L		19-MAR-12	R2340150
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.071		0.071	mg/L		16-MAR-12	
Nitrite as N by Ion Chromatography							
Nitrite-N	<0.050		0.050	mg/L		19-MAR-12	R2340150
Sulfate by Ion Chromatography							
Sulfate	271		0.50	mg/L		19-MAR-12	R2340150
TDS calculated							
TDS (Calculated)	716		5.0	mg/L		21-MAR-12	
Total Metals by ICP-MS							
Aluminum (Al)-Total	0.024		0.020	mg/L	20-MAR-12	20-MAR-12	R2340302
Antimony (Sb)-Total	<0.0010		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Arsenic (As)-Total	<0.0010		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Barium (Ba)-Total	0.0244		0.00050	mg/L	20-MAR-12	20-MAR-12	R2340302
Beryllium (Be)-Total	<0.0010		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Bismuth (Bi)-Total	<0.00050		0.00050	mg/L	20-MAR-12	20-MAR-12	R2340302
Boron (B)-Total	0.065		0.030	mg/L	20-MAR-12	20-MAR-12	R2340302
Cadmium (Cd)-Total	<0.00020		0.00020	mg/L	20-MAR-12	20-MAR-12	R2340302
Calcium (Ca)-Total	102		0.20	mg/L	20-MAR-12	20-MAR-12	R2340302
Cesium (Cs)-Total	<0.00050		0.00050	mg/L	20-MAR-12	20-MAR-12	R2340302
Chromium (Cr)-Total	<0.0020		0.0020	mg/L	20-MAR-12	20-MAR-12	R2340302
Cobalt (Co)-Total	<0.00050		0.00050	mg/L	20-MAR-12	20-MAR-12	R2340302
Copper (Cu)-Total	0.0028		0.0020	mg/L	20-MAR-12	20-MAR-12	R2340302
Iron (Fe)-Total	<0.10		0.10	mg/L	20-MAR-12	20-MAR-12	R2340302
Lead (Pb)-Total	<0.0010		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Lithium (Li)-Total	0.113		0.0020	mg/L	20-MAR-12	20-MAR-12	R2340302
Magnesium (Mg)-Total	78.9		0.050	mg/L	20-MAR-12	20-MAR-12	R2340302
Manganese (Mn)-Total	0.0120		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Molybdenum (Mo)-Total	0.00104		0.00050	mg/L	20-MAR-12	20-MAR-12	R2340302
Nickel (Ni)-Total	<0.0020		0.0020	mg/L	20-MAR-12	20-MAR-12	R2340302
Phosphorus (P)-Total	<0.50		0.50	mg/L	20-MAR-12	20-MAR-12	R2340302
Potassium (K)-Total	4.90		0.10	mg/L	20-MAR-12	20-MAR-12	R2340302
Rubidium (Rb)-Total	0.00167		0.00050	mg/L	20-MAR-12	20-MAR-12	R2340302
Selenium (Se)-Total	<0.0050		0.0050	mg/L	20-MAR-12	20-MAR-12	R2340302
Silicon (Si)-Total	7.16		0.30	mg/L	20-MAR-12	20-MAR-12	R2340302
Silver (Ag)-Total	<0.0010		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Sodium (Na)-Total	45.6		0.050	mg/L	20-MAR-12	20-MAR-12	R2340302

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1124753-1 12 HRS							
Sampled By: CLIENT on 14-MAR-12 @ 08:00							
Matrix: WATER							
Total Metals by ICP-MS							
Strontium (Sr)-Total	0.547		0.00050	mg/L	20-MAR-12	20-MAR-12	R2340302
Tellurium (Te)-Total	<0.0010		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Thallium (Tl)-Total	<0.0050		0.0050	mg/L	20-MAR-12	20-MAR-12	R2340302
Thorium (Th)-Total	<0.0010		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Tin (Sn)-Total	<0.00060		0.00060	mg/L	20-MAR-12	20-MAR-12	R2340302
Titanium (Ti)-Total	0.0024		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Tungsten (W)-Total	<0.0020		0.0020	mg/L	20-MAR-12	20-MAR-12	R2340302
Uranium (U)-Total	0.00719		0.00050	mg/L	20-MAR-12	20-MAR-12	R2340302
Vanadium (V)-Total	<0.0020		0.0020	mg/L	20-MAR-12	20-MAR-12	R2340302
Zinc (Zn)-Total	<0.020		0.020	mg/L	20-MAR-12	20-MAR-12	R2340302
Zirconium (Zr)-Total	<0.0010		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Turbidity							
Turbidity	5.37		0.10	NTU		16-MAR-12	R2338738
pH							
pH	7.86		0.10	pH units		16-MAR-12	R2339224
L1124753-2 48 HRS							
Sampled By: CLIENT on 15-MAR-12 @ 08:00							
Matrix: WATER							
ROU4W total							
Alkalinity							
Alkalinity, Total (as CaCO3)	326		20	mg/L		16-MAR-12	R2339224
Bicarbonate (HCO3)	397		24	mg/L		16-MAR-12	R2339224
Carbonate (CO3)	<12		12	mg/L		16-MAR-12	R2339224
Hydroxide (OH)	<6.8		6.8	mg/L		16-MAR-12	R2339224
Chloride by Ion Chromatography							
Chloride	16.9		0.50	mg/L		19-MAR-12	R2340150
Conductivity							
Conductivity	937		20	umhos/cm		16-MAR-12	R2339224
Fluoride by Ion Chromatography							
Fluoride	0.19		0.10	mg/L		19-MAR-12	R2340150
Hardness Calculated							
Hardness (as CaCO3)	555		0.30	mg/L		21-MAR-12	
Nitrate as N by Ion Chromatography							
Nitrate-N	<0.050		0.050	mg/L		19-MAR-12	R2340150
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.071		0.071	mg/L		16-MAR-12	
Nitrite as N by Ion Chromatography							
Nitrite-N	<0.050		0.050	mg/L		19-MAR-12	R2340150
Sulfate by Ion Chromatography							
Sulfate	247		0.50	mg/L		19-MAR-12	R2340150
TDS calculated							
TDS (Calculated)	679		5.0	mg/L		21-MAR-12	
Total Metals by ICP-MS							
Aluminum (Al)-Total	<0.020		0.020	mg/L	20-MAR-12	20-MAR-12	R2340302
Antimony (Sb)-Total	<0.0010		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Arsenic (As)-Total	<0.0010		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Barium (Ba)-Total	0.0256		0.00050	mg/L	20-MAR-12	20-MAR-12	R2340302
Beryllium (Be)-Total	<0.0010		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Bismuth (Bi)-Total	<0.00050		0.00050	mg/L	20-MAR-12	20-MAR-12	R2340302
Boron (B)-Total	0.056		0.030	mg/L	20-MAR-12	20-MAR-12	R2340302
Cadmium (Cd)-Total	<0.00020		0.00020	mg/L	20-MAR-12	20-MAR-12	R2340302

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1124753-2 48 HRS							
Sampled By: CLIENT on 15-MAR-12 @ 08:00							
Matrix: WATER							
Total Metals by ICP-MS							
Calcium (Ca)-Total	97.6		0.20	mg/L	20-MAR-12	20-MAR-12	R2340302
Cesium (Cs)-Total	<0.00050		0.00050	mg/L	20-MAR-12	20-MAR-12	R2340302
Chromium (Cr)-Total	<0.0020		0.0020	mg/L	20-MAR-12	20-MAR-12	R2340302
Cobalt (Co)-Total	<0.00050		0.00050	mg/L	20-MAR-12	20-MAR-12	R2340302
Copper (Cu)-Total	<0.0020		0.0020	mg/L	20-MAR-12	20-MAR-12	R2340302
Iron (Fe)-Total	<0.10		0.10	mg/L	20-MAR-12	20-MAR-12	R2340302
Lead (Pb)-Total	<0.0010		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Lithium (Li)-Total	0.105		0.0020	mg/L	20-MAR-12	20-MAR-12	R2340302
Magnesium (Mg)-Total	75.6		0.050	mg/L	20-MAR-12	20-MAR-12	R2340302
Manganese (Mn)-Total	0.0139		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Molybdenum (Mo)-Total	0.00105		0.00050	mg/L	20-MAR-12	20-MAR-12	R2340302
Nickel (Ni)-Total	<0.0020		0.0020	mg/L	20-MAR-12	20-MAR-12	R2340302
Phosphorus (P)-Total	<0.50		0.50	mg/L	20-MAR-12	20-MAR-12	R2340302
Potassium (K)-Total	4.72		0.10	mg/L	20-MAR-12	20-MAR-12	R2340302
Rubidium (Rb)-Total	0.00165		0.00050	mg/L	20-MAR-12	20-MAR-12	R2340302
Selenium (Se)-Total	<0.0050		0.0050	mg/L	20-MAR-12	20-MAR-12	R2340302
Silicon (Si)-Total	7.19		0.30	mg/L	20-MAR-12	20-MAR-12	R2340302
Silver (Ag)-Total	<0.0010		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Sodium (Na)-Total	42.7		0.050	mg/L	20-MAR-12	20-MAR-12	R2340302
Strontium (Sr)-Total	0.516		0.00050	mg/L	20-MAR-12	20-MAR-12	R2340302
Tellurium (Te)-Total	<0.0010		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Thallium (Tl)-Total	<0.0050		0.0050	mg/L	20-MAR-12	20-MAR-12	R2340302
Thorium (Th)-Total	<0.0010		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Tin (Sn)-Total	<0.00060		0.00060	mg/L	20-MAR-12	20-MAR-12	R2340302
Titanium (Ti)-Total	0.0012		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Tungsten (W)-Total	<0.0020		0.0020	mg/L	20-MAR-12	20-MAR-12	R2340302
Uranium (U)-Total	0.00682		0.00050	mg/L	20-MAR-12	20-MAR-12	R2340302
Vanadium (V)-Total	<0.0020		0.0020	mg/L	20-MAR-12	20-MAR-12	R2340302
Zinc (Zn)-Total	<0.020		0.020	mg/L	20-MAR-12	20-MAR-12	R2340302
Zirconium (Zr)-Total	<0.0010		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Turbidity							
Turbidity	5.35		0.10	NTU		16-MAR-12	R2338738
pH							
pH	7.92		0.10	pH units		16-MAR-12	R2339224
L1124753-3 72 HRS							
Sampled By: CLIENT on 16-MAR-12 @ 08:00							
Matrix: WATER							
Miscellaneous Parameters							
Special Request	See Attached				25-MAY-12	25-MAY-12	R2371212
ROU4W total							
Alkalinity							
Alkalinity, Total (as CaCO3)	325		20	mg/L		16-MAR-12	R2339224
Bicarbonate (HCO3)	396		24	mg/L		16-MAR-12	R2339224
Carbonate (CO3)	<12		12	mg/L		16-MAR-12	R2339224
Hydroxide (OH)	<6.8		6.8	mg/L		16-MAR-12	R2339224
Chloride by Ion Chromatography							
Chloride	16.9		0.50	mg/L		19-MAR-12	R2340150
Conductivity							
Conductivity	936		20	umhos/cm		16-MAR-12	R2339224
Fluoride by Ion Chromatography							
Fluoride	0.20		0.10	mg/L		19-MAR-12	R2340150

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1124753-3 72 HRS							
Sampled By: CLIENT on 16-MAR-12 @ 08:00							
Matrix: WATER							
Hardness Calculated							
Hardness (as CaCO3)	541		0.30	mg/L		21-MAR-12	
Nitrate as N by Ion Chromatography							
Nitrate-N	<0.050		0.050	mg/L		19-MAR-12	R2340150
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.071		0.071	mg/L		16-MAR-12	
Nitrite as N by Ion Chromatography							
Nitrite-N	<0.050		0.050	mg/L		19-MAR-12	R2340150
Sulfate by Ion Chromatography							
Sulfate	246		0.50	mg/L		19-MAR-12	R2340150
TDS calculated							
TDS (Calculated)	673		5.0	mg/L		21-MAR-12	
Total Metals by ICP-MS							
Aluminum (Al)-Total	<0.020		0.020	mg/L	20-MAR-12	20-MAR-12	R2340302
Antimony (Sb)-Total	<0.0010		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Arsenic (As)-Total	<0.0010		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Barium (Ba)-Total	0.0253		0.00050	mg/L	20-MAR-12	20-MAR-12	R2340302
Beryllium (Be)-Total	<0.0010		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Bismuth (Bi)-Total	<0.00050		0.00050	mg/L	20-MAR-12	20-MAR-12	R2340302
Boron (B)-Total	0.058		0.030	mg/L	20-MAR-12	20-MAR-12	R2340302
Cadmium (Cd)-Total	<0.00020		0.00020	mg/L	20-MAR-12	20-MAR-12	R2340302
Calcium (Ca)-Total	95.0		0.20	mg/L	20-MAR-12	20-MAR-12	R2340302
Cesium (Cs)-Total	<0.00050		0.00050	mg/L	20-MAR-12	20-MAR-12	R2340302
Chromium (Cr)-Total	<0.0020		0.0020	mg/L	20-MAR-12	20-MAR-12	R2340302
Cobalt (Co)-Total	<0.00050		0.00050	mg/L	20-MAR-12	20-MAR-12	R2340302
Copper (Cu)-Total	<0.0020		0.0020	mg/L	20-MAR-12	20-MAR-12	R2340302
Iron (Fe)-Total	<0.10		0.10	mg/L	20-MAR-12	20-MAR-12	R2340302
Lead (Pb)-Total	<0.0010		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Lithium (Li)-Total	0.101		0.0020	mg/L	20-MAR-12	20-MAR-12	R2340302
Magnesium (Mg)-Total	73.9		0.050	mg/L	20-MAR-12	20-MAR-12	R2340302
Manganese (Mn)-Total	0.0157		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Molybdenum (Mo)-Total	0.00111		0.00050	mg/L	20-MAR-12	20-MAR-12	R2340302
Nickel (Ni)-Total	<0.0020		0.0020	mg/L	20-MAR-12	20-MAR-12	R2340302
Phosphorus (P)-Total	<0.50		0.50	mg/L	20-MAR-12	20-MAR-12	R2340302
Potassium (K)-Total	4.61		0.10	mg/L	20-MAR-12	20-MAR-12	R2340302
Rubidium (Rb)-Total	0.00164		0.00050	mg/L	20-MAR-12	20-MAR-12	R2340302
Selenium (Se)-Total	<0.0050		0.0050	mg/L	20-MAR-12	20-MAR-12	R2340302
Silicon (Si)-Total	6.95		0.30	mg/L	20-MAR-12	20-MAR-12	R2340302
Silver (Ag)-Total	<0.0010		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Sodium (Na)-Total	41.7		0.050	mg/L	20-MAR-12	20-MAR-12	R2340302
Strontium (Sr)-Total	0.508		0.00050	mg/L	20-MAR-12	20-MAR-12	R2340302
Tellurium (Te)-Total	<0.0010		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Thallium (Tl)-Total	<0.0050		0.0050	mg/L	20-MAR-12	20-MAR-12	R2340302
Thorium (Th)-Total	<0.0010		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Tin (Sn)-Total	<0.00060		0.00060	mg/L	20-MAR-12	20-MAR-12	R2340302
Titanium (Ti)-Total	0.0011		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Tungsten (W)-Total	<0.0020		0.0020	mg/L	20-MAR-12	20-MAR-12	R2340302
Uranium (U)-Total	0.00666		0.00050	mg/L	20-MAR-12	20-MAR-12	R2340302
Vanadium (V)-Total	<0.0020		0.0020	mg/L	20-MAR-12	20-MAR-12	R2340302
Zinc (Zn)-Total	<0.020		0.020	mg/L	20-MAR-12	20-MAR-12	R2340302
Zirconium (Zr)-Total	<0.0010		0.0010	mg/L	20-MAR-12	20-MAR-12	R2340302
Turbidity							
Turbidity	0.34		0.10	NTU		16-MAR-12	R2338738

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1124753-3 72 HRS							
Sampled By: CLIENT on 16-MAR-12 @ 08:00							
Matrix: WATER							
pH							
pH	7.87		0.10	pH units		16-MAR-12	R2339224

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Qualifiers for Individual Samples Listed:

Sample Numbe	Client ID	Qualifier	Description
L1124753-1	12 HRS	LPM	Lab Preserved for Metals. Sample received with pH > 2, preserved at the lab and held for 16 hours as per EPA 200.8
L1124753-2	48 HRS	LPM	Lab Preserved for Metals. Sample received with pH > 2, preserved at the lab and held for 16 hours as per EPA 200.8

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-TOT-WP	Water	Alkalinity	APHA 2320B
Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. It is determined by titration with a standard solution of strong mineral acid to the successive HCO3- and H2CO3 endpoints indicated electrometrically.			
CL-IC-WP	Water	Chloride by Ion Chromatography	EPA 300.1 (modified)
Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.			
EC-WP	Water	Conductivity	APHA 2510B
Conductivity of an aqueous solution refers to its ability to carry an electric current. Conductance of a solution is measured between two spatially fixed and chemically inert electrodes.			
ETL-HARDNESS-TOT-WP	Water	Hardness Calculated	HARDNESS CALCULATED
ETL-SOLIDS-CALC-WP	Water	TDS calculated	CALCULATION
F-IC-WP	Water	Fluoride by Ion Chromatography	EPA 300.1 (modified)
Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.			
IONBALANCE-OP05-WP	Water	Ion Balance Calculation No Reporting	APHA 1030E
MET-T-MS-WP	Water	Total Metals by ICP-MS	U.S. EPA 200.8-T
Total Metals by ICP-MS: This analysis is carried out using sample preparation procedures adapted from Standard Methods for the examination of Water and Wastewater Method 3030E and analytical procedures adapted from U.S EPA Method 200.8 for analyis of metals by inductively coupled-mass spectrometery.			
NO2+NO3-CALC-WP	Water	Nitrate+Nitrite	CALCULATION
NO2-IC-WP	Water	Nitrite as N by Ion Chromatography	EPA 300.1 (modified)
Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.			
NO3-IC-WP	Water	Nitrate as N by Ion Chromatography	EPA 300.1 (modified)
Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.			
PH-WP	Water	pH	APHA 4500H
The pH of a sample is the determination of the activity of the hydrogen ions by potentiometric measurement using a standard hydrogen electrode and a reference electrode.			
SO4-IC-WP	Water	Sulfate by Ion Chromatography	EPA 300.1 (modified)
Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.			
SPECIAL REQUEST-US	Misc.	Special Request U of Sask	SEE SUBLET LAB RESULTS
TURBIDITY-WP	Water	Turbidity	APHA 2130B (modified)
Turbidity in aqueous matrices is determined by the nephelometric method.			

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
US	UNIVERSITY OF SASKATCHEWAN

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
WP		ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, CANADA	

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Operator Nam Dinka Besic
Client Name: ALS Laboratory Group
Project Name: Invoice # L1124753
Date Received:
Date Analyzed April 28, 2012

Billing Address:
Judy Dalmaijer (204) 255-9720
ALS Laboratory Group fax: 204-255-9721
1329 Niakwa Road East, Unit 12
Winnipeg, MB
R2J 3T4
Analysis and reporting to:
judy.dalmaijer@alsenviro.com
Bob.Kitlar@alsglobal.com

Data

XL63692	L1124753-3	-105.5	-14.7

Standards

XL63680	High	-75.6	-9.8

Standard Accepted Values

High	-75.3	-9.7
DI	-142.0	-17.9

Methodology

Samples are anaiyzed using a Thermo Finnigan TC/EA coupled to a Conflo III and a Delta Plus XL mass spectrometer. 0.5 microliters of water is injected into a glassy carbon furnace and pyrolyzed at 1400°C to form hydrogen and carbon monoxide gases. These gases are carried in a helium stream to a GC column held at 100°C to separate the gases before being diluted in the Conflo III and passed to the mass spectrometer for analysis. Isotope ratios are reported in per mil notation relative to the VSMOW-VSLAP scale. Four in-house standards are directly calibrated against the international standards VSMOW and VSLAP, which are by definition: VSMOW: δD = 0‰ VSMOW, $\delta^{18}O$ = 0‰ VSMOW; andVSLAP: δD = -428‰ VSMOW, $\delta^{18}O$ = -55.5‰ VSMOW. GISP, an intermediate international standard, gave the following results during calibration of the in-house standards: δD = -191.0 ± 0.8‰ VSMOW (n = 5) and $\delta^{18}O$ = -25.03 ± 0.07‰ VSMOW (n=5). Compare to the accepted values of δD = -189.5 ± 0.7‰ VSMOW and $\delta^{18}O$ = -24.8 ± 0.1‰ VSMOW. Two of the in-house standards are used to set up a two-point calibration line. A third in-house standard is used to correct for drift. A fourth in-house standard is used to monitor accuracy of data. Accuracies of δD and $\delta^{18}O$ are 2‰ and 0.2‰, respectively (n = 10, one sigma), though saline waters have a higher standard deviation due to the buildup of salts in the system and increasing memory effects as a result.

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

L1124753-COFC

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10-023295

L1124753 Page ___ of ___

Report To		Service Requested: (Rush subject to availability)
Company: FRIESEN DRILLERS LTD.	Standard: ___ Other (specify):	✓ Regular (Standard Turnaround Times))
Contact: JEFF BELL	Select: PDF ✓ Excel ___ Digital ___ Fax ___	Priority, Date Req'd: _____ (Surcharges apply)
Address: 307 PTH 12 N	Email 1: jeffe friesendrillers.com	Emergency (1 Business Day) - 100% Surcharge
STEINBACH, MB R5G 1T8	Email 2:	For Emergency < 1 Day, ASAP or Weekend - Contact ALS
Phone: 1-204-326-2485 Fax: 1-204-326-2483		**Analysis Request**
Invoice To Same as Report ? (circle) Yes or No (If No, provide details)	**Client / Project Information**	(Indicate Filtered or Preserved, F/P)
Copy of Invoice with Report? (circle) Yes or No	Job #: 9 1st EAST ST. PAUL	
Company:	PO / AFE:	
Contact:	LSD:	
Address:		
Phone: Fax:	Quote #: NA	
Lab Work Order # (lab use only)	ALS Contact: JUDY Sampler:	

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Routine	Metals	Oxygen 18	Deuterium	Tritium								Number of Containers
	12 hrs	14 MARCH	8PM	WATER	X												
	48 hrs	15 MARCH	8 AM	WATER	X												
	72 hrs	16 MARCH	8 AM	WATER	X	X	X	X	X								

Special Instructions / Regulations / Hazardous Details

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date:	Time:	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
				16MAR12	@10:15	9 °C				

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION | WHITE - LABORATORY COPY | YELLOW - CLIENT COPY | GENF 18.01 Front

Appendix L

Existing Emergency Response Plan for Groundwater – RM of East St. Paul

Rural Municipality of East St. Paul

Emergency Response Plan

Water Utility

Definitions

Chief Administrative Officer (CAO) – The CAO oversees the implementation and delivery of programs and services that are approved by council and ensures that these programs and services are delivered to all residents and ratepayers in a manner that makes efficient and effective use of the human, financial and physical resources of the municipality.

The CAO is the principal advisor to council and is responsible for ensuring that council is informed of their legislative responsibilities and authorities and all other relevant information necessary to make informed decisions on every municipal manner.

Debriefing Report – sessions held after each incident. An opportunity for all individuals involved in the response to discuss issues and provide suggestions on future response arrangements.

Debrief sessions shall include but not be limited to the following overall objectives:

- confirm the chronology of events associated with the response;
- indentify aspects of the response that went well or that could have been managed differently; and
- determine how these items should be addressed in future responses and in the emergency response plan

Emergency Measures Organization (EMO) -is the managerial function charged with creating the framework within the RM to reduce vulnerability to hazards and cope with disasters.

Emergency Gen-Set – back up diesel power supply at the Water Treatment Plant (WTP) to maintain operations in the event of a disruption in electrical supply.

Fire Protection Levels – refers to the amount of water in the reservoir allocated for fire protection. 1.5m of water has been allocated as fire protection. This level must be maintained at all times in the reservoir.

milli Amp (mA) – an electrical signal sent from the flow meter at the Water Treatment Plant to the chlorinator.

Manitoba Labour and Immigration - Responsible for all aspects of employment and ***immigration*** in ***Manitoba.***

Memorandum of Understanding (MoU) - is a more formal alternative to a gentlemen's agreement. An agreement that defines an understanding between two parties.

Normal Operating Levels – refers to the normal level of water in the reservoir. Normal operating levels is referred to as between 3.0m and 3.8m of water available in the reservoir.

Royal Canadian Mounted Police (RCMP) - the federal police force of Canada.

Reservoir – is an artificially man made containment used to hold water. The reservoir is located at the Water Treatment Plant at #2890 Wenzel Street with a capacity of 2.4 million litres (650,000 US gallons).

RM of East St. Paul Safety Committee – a committee composed of employees employed by the RM of East. St. Paul whose purpose is to oversee safe work practice in the municipality.

Sprinkling Restrictions By-Law Stage 3 – If the Public Works Manager for the Municipality notifies the Chief Administrative Officer of the Municipality that a reduction in water use is necessary requiring Stage III restrictions, no person shall:

(a) sprinkling or allow sprinkling at any time;
(b) wash down or hose sidewalks or driveways or other outdoor surfaces at any time;
(c) at any time water or spray any trees, shrubs, flowers, or vegetables (except for larger gardens where hand watering is impractical) or wash motor vehicles with a hose unless such spraying, watering or washing is done by way of a hand held container or hose equipped with a shut off device that is spring loaded and operates by using hand pressure.

Water Treatment Plant (WTP) –The Rural Municipality of East St. Paul's Water Treatment Plant (WTP) is located at #2890 Wenzel Street. The facility consists of groundwater pumping, chlorine storage, treated water storage, distribution pumping and distribution piping.

Well Site(s) –Groundwater is conveyed to the water treatment plant (WTP) using a series of wells. Five production wells (PW) are located east of the Floodway off Oasis Road in the RM of Springfield. Four of these production wells (PW1, PW4, PW5 and PW6) withdraw groundwater from a sand and gravel aquifer at a depth of approximately 24 meters below the existing grade and can provide a combined 18 L/s to the WTP. Water Rights License No. 2007-074 authorizes the withdrawal of 358,000 m_3/yr. at a maximum rate of 11.4 L/s from these 4 wells.
The fifth production well (PW8) withdraws groundwater from a bedrock carbonate aquifer at a depth of approximately 43 meters below grade and can provide 20 L/s to the WTP. Water Rights License No. 2005-060 authorizes the withdrawal of 195,000 m_3/yr. at a maximum rate of 20 L/s from this well.

Two meter chambers measure the groundwater withdrawn from each aquifer. There is also a turbidity meter in each meter chamber to monitor the turbidity of the groundwater.
A sixth production well (PW7) is located adjacent the WTP off Wenzel Street in the RM of East St. Paul. PW7 withdraws groundwater from the bedrock aquifer and can provide 19 L/s to the WTP. Water Rights License 2009-030 was issued July 16, 2009 and authorizes the withdrawal of 612,000 m_3/yr. at a maximum rate of 19 L/s from this well.

Workers Compensation Board - is an agency of the Government of Manitoba. It was established in 1917 in accordance to the *The Workers Compensation Act*, itself passed in 1916. It is an injury and disability insurance system for workers and employers, paid for by employers.

Death or Injury on Site

Person is injured on site – first aid alone is adequate. Document extent of injury(s), actions taken and report to supervisor.

Person is injured on site – first aid alone is not adequate. **CALL 911**

Take steps to prevent additional injury to person or self.
If practical administer first aid.
Start to document actions and observations

Is this a death or serious injury?

Yes

If death, police will investigate and inform family members

No

Record essential information about the incident.
Complete green form. Take steps to prevent a reoccurrence.

Call Supervisor.
Contact additional staff and direct to site entrance to guide and advise first responders.

Notify Manitoba Labour & Immigration.

Secure the site of the accident. Move nothing except to prevent additional hazards.

Submit employer's report of injury to **W**orker's **C**ompensation **B**oard (**WCB**) and RM of East St. Paul Safety Committee.

Work with investigators to find the cause of the accident, as required.

Rural Municipality of East St. Paul
Emergency Response Plan
Water Utility
Death or Injury on Site

Purpose:

The purpose of this procedure, in addition to the follow chart, is to set out steps that should be taken by utility support staff in the event of an injury on site.

Scope:

This procedure applies to injuries that require medical attention beyond first aid.

Step-by-step:

In the event of a critical injury or death on site use the following steps as a guide. Always act according to your knowledge and experience.

1. Upon arrival at the scene staff members should take immediate steps to prevent additional injury to any person on site if possible. Get help. **CALL 911**

2. Assess the injury and ensure proper first aid is applied.

3. Contact additional staff to secure site and direct ambulance and police.

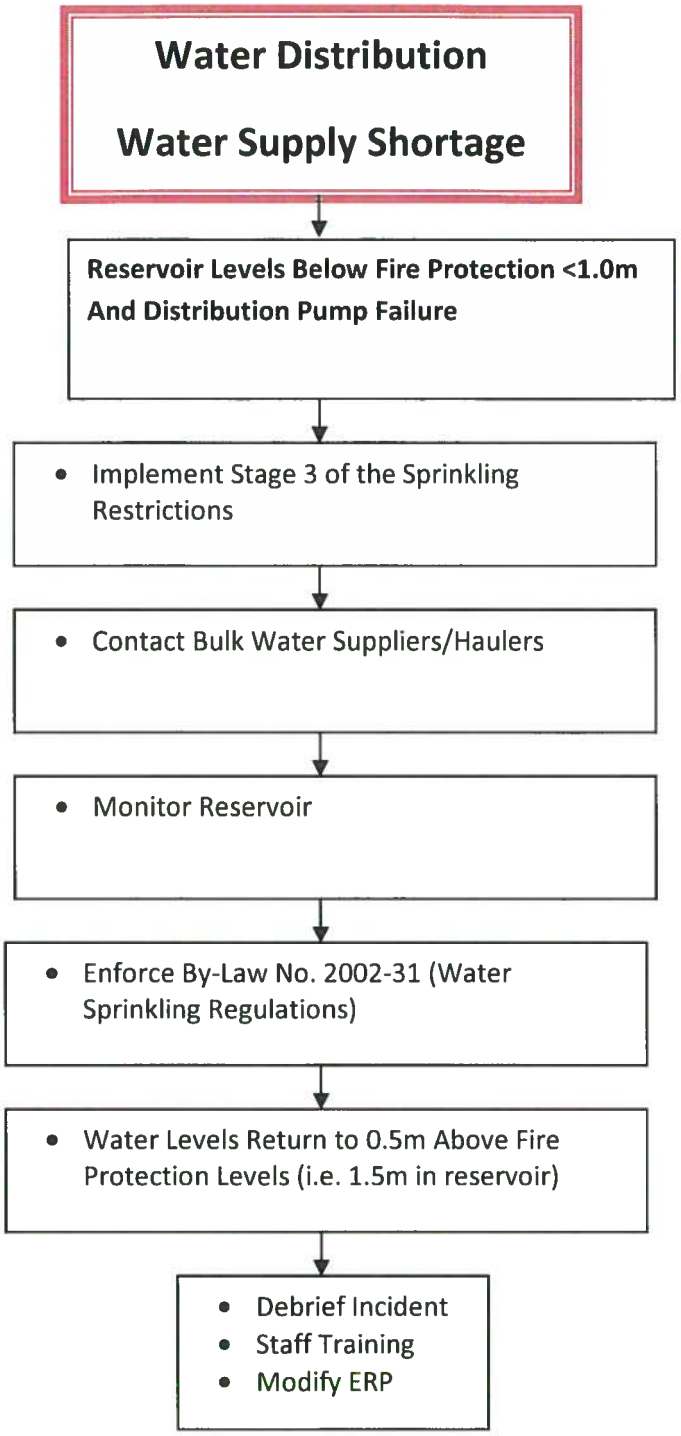
4. Call Supervisor.

5. If a death has occurred, a potentially fatal or a serious injury. Immediately contact Workplace Safety and Health Division – Manitoba Labour & Immigration. (If there is any doubt about the injury, treat as a serious injury.)

6. Document the site of the accident. Take notes and photos to record the scene.

7. Cooperate with the investigators to determine the cause of the incident.

8. Record the incident on a green card and take the necessary steps to prevent a reoccurrence. Submit report to the RM of East St. Paul Safety Committee,


Water Distribution
Water Supply Shortage
Reservoir Levels Below Fire Protection <1.0m
And Distribution Pump Failure
• Implement Stage 3 of the Sprinkling Restrictions
• Contact Bulk Water Suppliers/Haulers
• Monitor Reservoir
• Enforce By-Law No. 2002-31 (Water Sprinkling Regulations)
• Water Levels Return to 0.5m Above Fire Protection Levels (i.e. 1.5m in reservoir)
• Debrief Incident
• Staff Training
• Modify ERP

Rural Municipality of East St. Paul
Emergency Response Plan
Water Utility
Water Supply Shortage

Purpose:

The purpose of this procedure, in addition to the follow chart, is to set out steps that should be taken by utility staff in the event that the reservoir levels at the Water Treatment Plant reach a point that is below the fire protection level (<1.0 m) or distribution pump failure.

Scope:

This procedure applies to the water distribution district.

The water service supply to distribution district is compromised by either more effluent than influent or a failure to the distribution pump. Both scenarios require the following actions. :

1. Notify Public Works Manager of the current situation when the reservoir reaches a level of <1.0 metre.

2. Public Works Manager will notify the Chief Administrative Office. A decision will be made to implement Sprinkling Restrictions Stage 3 of the Sprinkling By-law. Inform municipal by-law officers who will assist in enforcing the by-law

3. Customers will have to be notified by - but not limited to: a mass hand delivery to each resident/business, municipal reader board, email messenger, or web site.

4. Contact a bulk water hauler to import potable water to the Water Treatment Plant to aid in recovering fire protection levels.

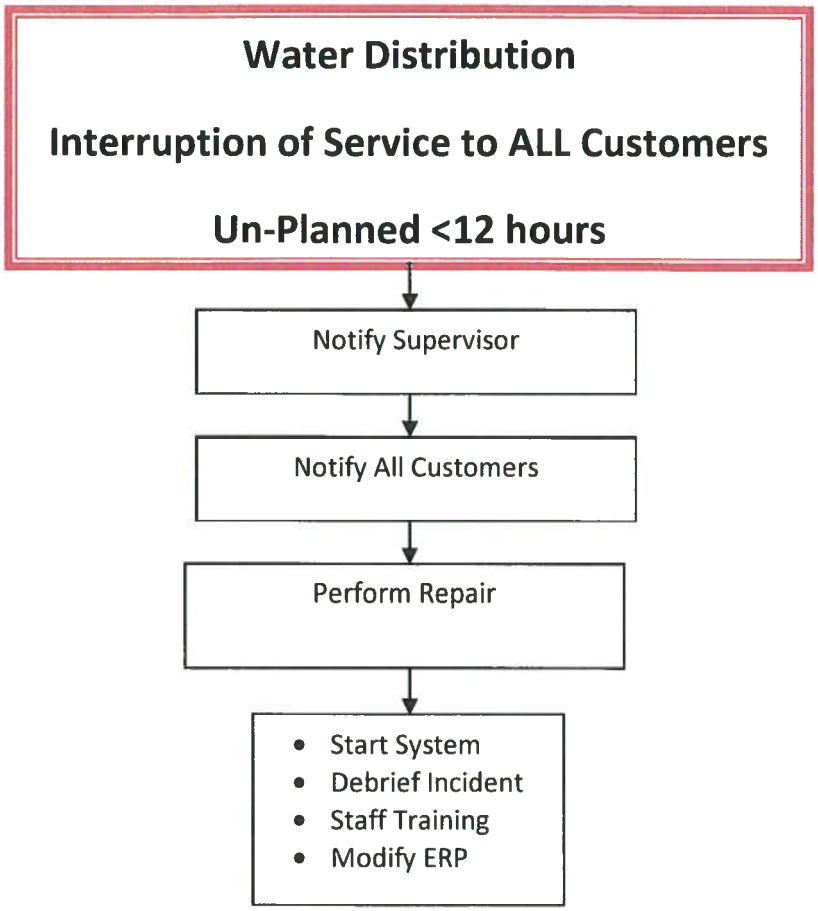
5. Monitor reservoir levels. Municipal by-law officers diligently enforcing by-law.

6. Once reservoir levels reach 0.5m above (1.5m total) fire protection levels, move to Sprinkling Restrictions Stage 2 until such time that the reservoir reaches normal operating levels (3.0m - 3.5m). Customers will have to be re-notified of change to restrictions.

7. Upon reservoir reaching full capacities (3.8m), remove Stage 2 restriction, implement the Stage 1 Sprinkling Restriction and inform customers.

8. Monitor reservoir levels.

9. Once reservoir returns to normal operating levels, debrief incident and make any recommendations and necessary changes to the **E**mergency **R**esponse **P**lan (ERP).


Water Distribution
Interruption of Service to ALL Customers
Un-Planned <12 hours
Notify Supervisor
Notify All Customers
Perform Repair
Start System
Debrief Incident
Staff Training
Modify ERP

Rural Municipality of East St. Paul Emergency Response Plan
Water Utility
Interruption of Services to ALL Customers
Un-Planned <12 Hours

Purpose:

The purpose of this procedure, in addition to the follow chart, is to set out steps that should be taken by utility staff in the event of an interruption of water supply services to all customers for a period of less than 12 hours.

Scope:

This procedure applies to the water distribution district.

Watermain break occurs and the water supply will have to be shut off in order to perform the repair(s):

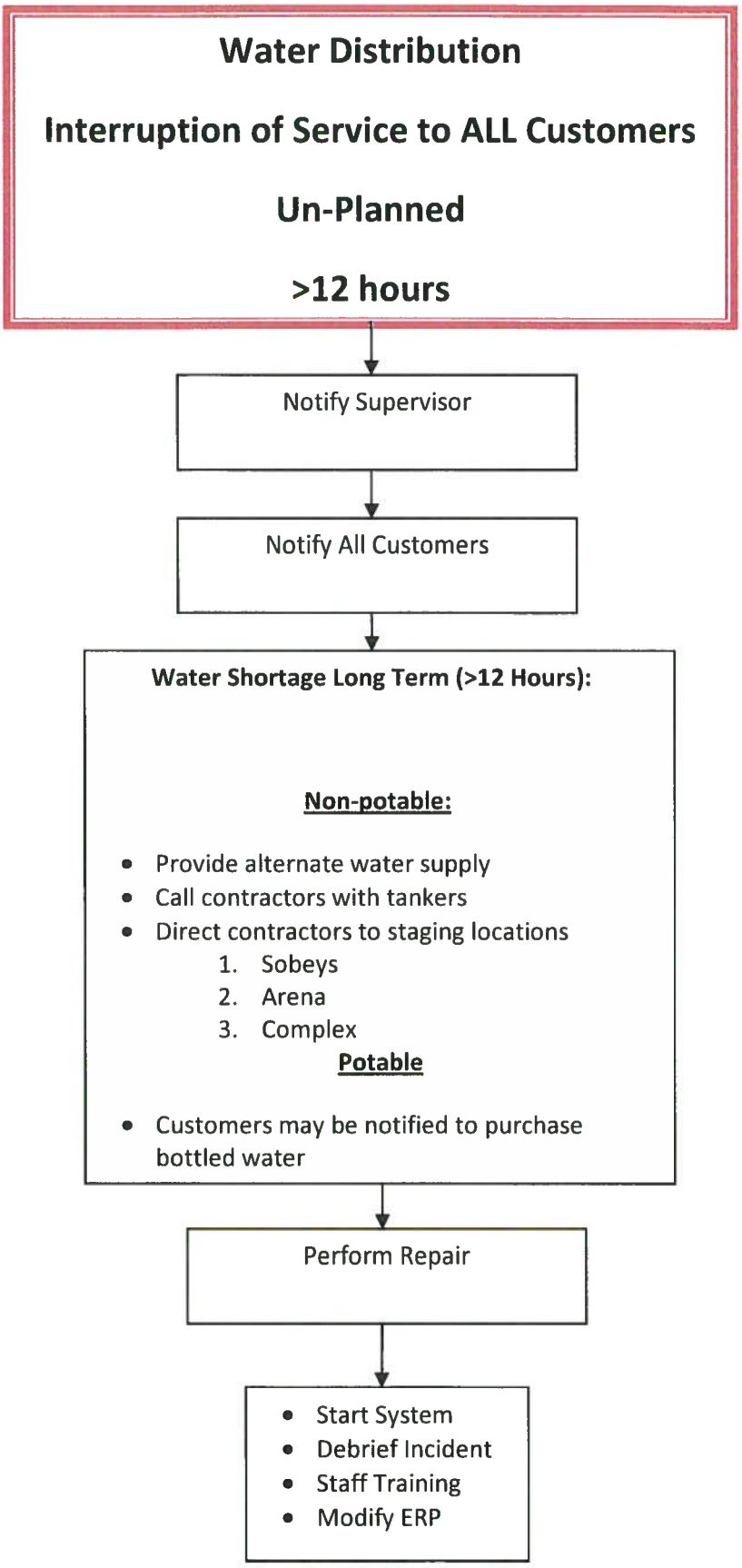
1. Locate and isolate the area that the repair has to be completed.

2. Contact a contractor as per the contractor contact list. Make arrangements when contractor will be on site.

3. Notify residents when the water supply will be shut off. Give residents enough time to fill bathtubs, water jugs, etc. to have water on hand. May need to inform residents to buy potable (bottled) water.

4. Execute repair. Take pictures, measurements and log contractor's time and equipment.

5. Once the repair has been completed, debrief incident and make any recommendations and necessary changes to the **E**mergency **R**esponse **P**lan (ERP).


Water Distribution
Interruption of Service to ALL Customers
Un-Planned
>12 hours
Notify Supervisor
Notify All Customers
Water Shortage Long Term (>12 Hours):
Non-potable:
Provide alternate water supply
Call contractors with tankers
Direct contractors to staging locations
1. Sobeys
2. Arena
3. Complex
Potable
Customers may be notified to purchase bottled water
Perform Repair
Start System
Debrief Incident
Staff Training
Modify ERP

Rural Municipality of East St. Paul
Emergency Response Plan
Water Utility
Interruption of Services to ALL Customers
Un-Planned >12 Hours

Purpose:

The purpose of this procedure, in addition to the follow chart, is to set out steps that should be taken by utility support staff in the event of an interruption of water supply services to all customers for a period of greater than 12 hours.

Scope:

This procedure applies to the water distribution district.

Waterman Break occurs where a looping of the existing watermain has not been provided; therefore the water supply will have to be shut off in order to perform the repair(s):

1. Locate and isolate the area that the repair has to be completed.

2. Contact a contractor as per the contractor contact list. Make arrangements when contractor will be on site.

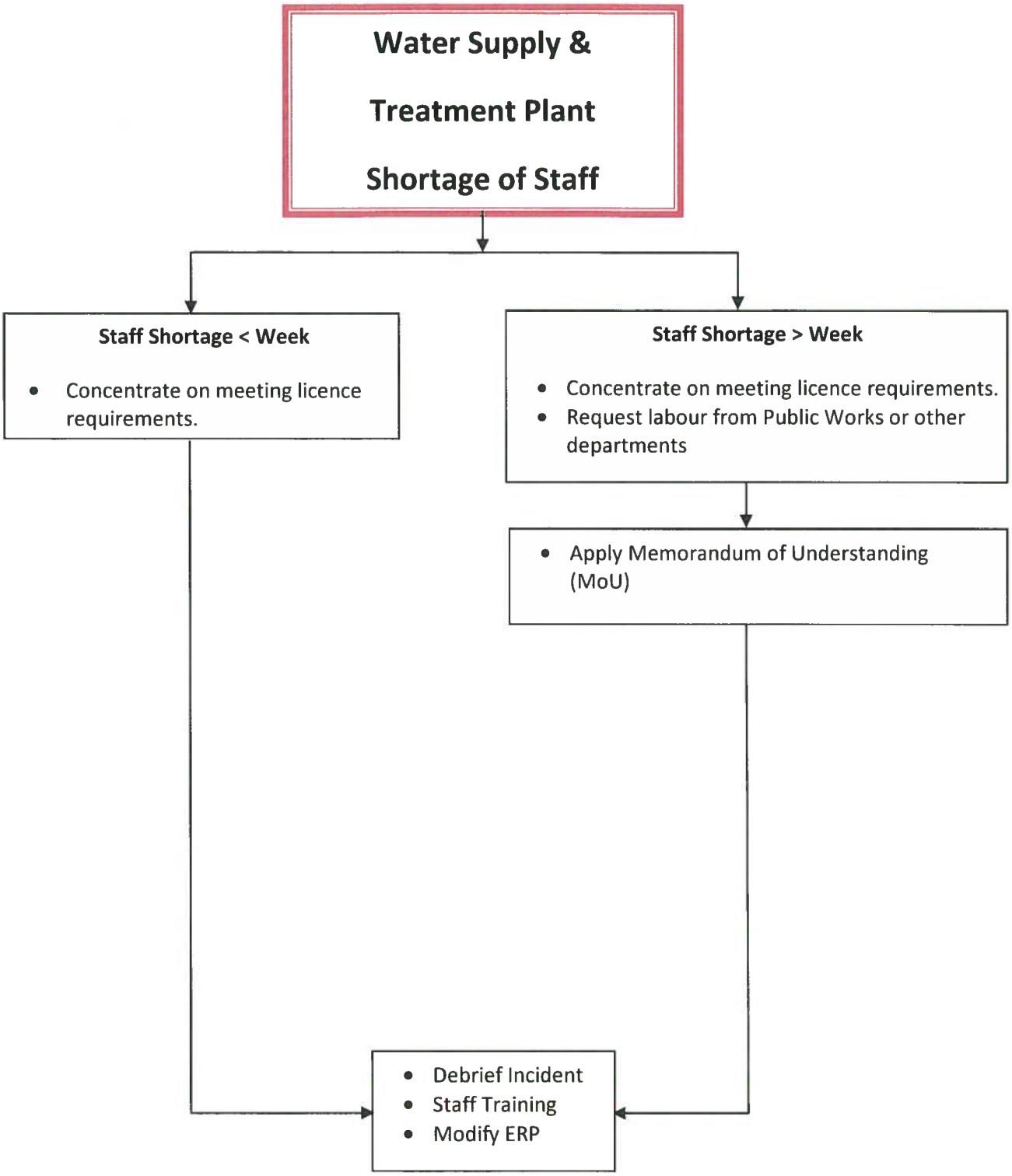
3. Call contractor who could provide a water tanker (as per the contractor contact list). Inform them of the staging area location(s).

4. Notify all major users of water supply. See list attached.

5. Notify residents when the water supply will be shut off. Give residents enough time to fill bathtubs, water jugs, etc. to have water on hand. May need to inform residents to buy potable (bottled water).

6. Execute repair.

7. Once the repair has been completed, debrief incident and make any recommendations and necessary changes to the **E**mergency **R**esponse **P**lan (ERP).


Water Supply &
Treatment Plant
Shortage of Staff
Staff Shortage < Week
Concentrate on meeting licence requirements.
Staff Shortage > Week
Concentrate on meeting licence requirements.
Request labour from Public Works or other departments
Apply Memorandum of Understanding (MoU)
Debrief Incident
Staff Training
Modify ERP

Stantec Consulting Ltd.
905 Waverley Street
Winnipeg MB R3T 5P4
Tel: (204) 489-5900
Fax: (204) 453-9012

March 16, 2010
File: 111211330-202

R.M. of East St. Paul
2025 Camsell Avenue
East St. Paul MB
R2E 1A7

Attention: **Bruce Schmidt - Public Works Superintendent**

Dear Bruce:

Reference: **Sewage Treatment Plant - Emergency Response Plan**

Further to our recent discussions, Stantec Consulting is always available to help the R.M. of East St. Paul during emergency situations that affect water supply, wastewater treatment and other critical infrastructure. The R.M. can contact any of our staff, advise them that the RM has an emergency and you are requesting Stantec assistance. We understand that the emergency may be, for example needing technical staff during a pandemic when wastewater treatment staff cannot work and operate the wastewater plant. The R.M. can contact any of our knowledgeable staff to attend to such an emergency situation.

Some of the key staff at Stantec and their cell numbers are listed below:

- Len Chambers — Managing Principal, Environmental Infrastructure 803-3769
- Cameron Dyck — Managing Leader, Environmental Infrastructure 781-6546
- Saibal Basu — Senior Process Engineer 981-2557
- Chris Benson — Associate, Environmental Management 793-0660
- Brett Ransom — Senior Municipal Engineer 981-2826

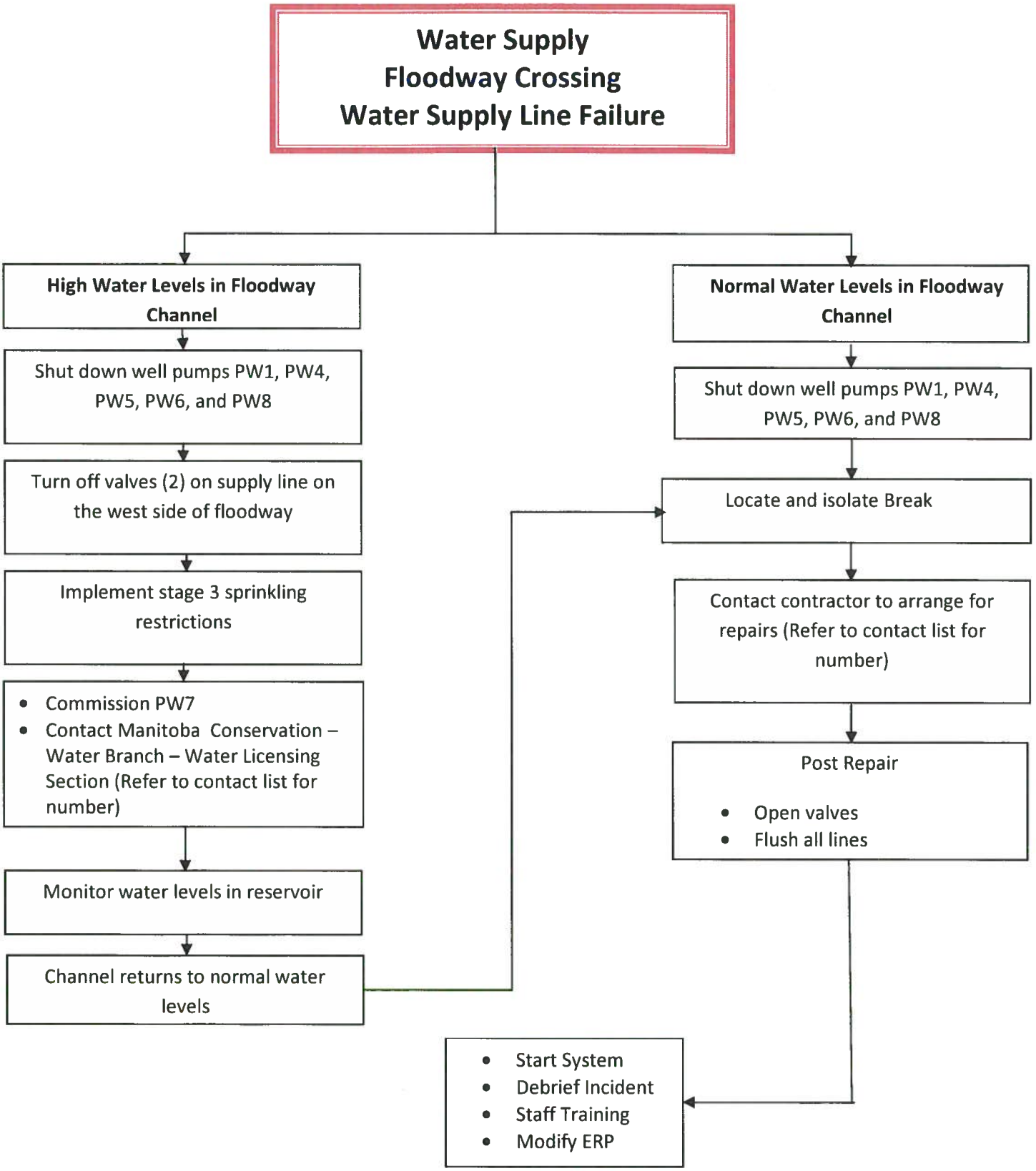
Sincerely,

STANTEC CONSULTING LTD.

Len Chambers, C.E.T., P.Eng., C.I.M.
Managing Principal, Environmental Infrastructure
Tel: 204-489-5900
Fax: 204-453-9012
len.chambers@stantec.com

c. Brett Ransom, Stantec
Jerome Mauws, RM

bjr document1


Water Supply
Floodway Crossing
Water Supply Line Failure
High Water Levels in Floodway Channel
Shut down well pumps PW1, PW4, PW5, PW6, and PW8
Turn off valves (2) on supply line on the west side of floodway
Implement stage 3 sprinkling restrictions
Commission PW7
Contact Manitoba Conservation – Water Branch – Water Licensing Section (Refer to contact list for number)
Monitor water levels in reservoir
Channel returns to normal water levels
Normal Water Levels in Floodway Channel
Shut down well pumps PW1, PW4, PW5, PW6, and PW8
Locate and isolate Break
Contact contractor to arrange for repairs (Refer to contact list for number)
Post Repair
Open valves
Flush all lines
Start System
Debrief Incident
Staff Training
Modify ERP

Rural Municipality of East St. Paul
Emergency Response Plan
Water Utility
Water Supply
Floodway Crossing – Water Supply Line Failure

Purpose:

The purpose of this procedure, in addition to the flow chart, is to set out the steps that should be taken by the utility staff in the event of a flood way crossing failure.

Scope:

This procedure applies to the production well fields #1, #4, #5, #6, & #8.

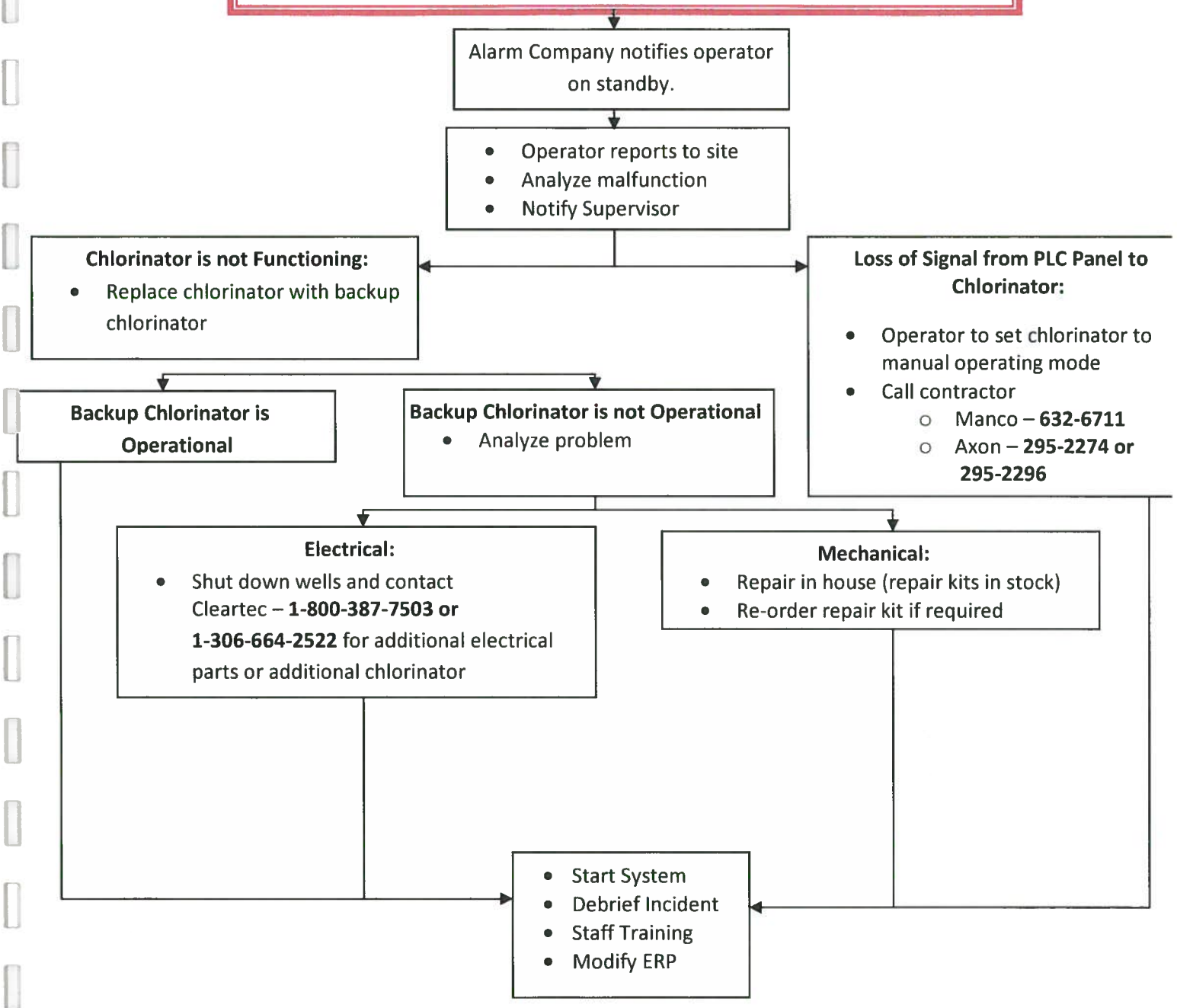
High Water Levels in Floodway Channel:

1. In the event of a flood way crossing failure, locate break.
2. Shut down production wells PW1, PW4, PW5, PW6, and PW8.
3. Turn off both valves on the supply line west of the floodway.
4. Implement stage 3 sprinkling restrictions.
5. Utility staff will change start parameters of production well #7 at a start level of 3.750 metres in reservoir.
6. Contact Manitoba Conservation Water Branch- Water Licensing Section and inform them of the incident (Refer to contact information list for number).
7. The water levels in the reservoir will need to be monitored.
8. Repairs will not be able to be made until floodway channel returns to normal water level.

Normal Water Levels in Floodway Channel

1. In the event of a flood way crossing failure, locate break.
2. Shut down production wells PW1, PW4, PW5, PW6, and PW8.
3. Locate and isolate the break.
4. Contact contractor to arrange for repairs. (Refer to contact list)
5. Open valves and flush all supply lines after repairs have been made.
6. Once the flood way crossing is repaired and functional, debrief incident and make any recommendations and necessary changes to the **E**mergency **R**esponse **P**lan (ERP).

Loss of Chlorine Residual at the Water Treatment Plant



Rural Municipality of East St. Paul Emergency Response Plan
Water Utility
Loss of Chlorine Residual at the Water Plant

Purpose:
The purpose of this procedure, in addition to the follow chart, is to set out steps that should be taken by utility staff in the event of loss of chlorine residual at the water treatment plant.

Scope:

This procedure applies to the water treatment plant.

Chlorinator Is Not Functioning:

1. In the event of loss of chlorine residual at the water plant, the selected alarm monitoring company will contact the utility staff on standby.

2. The on standby utility staff will report to the site with the reported incident.

3. After arriving at the site, the utility staff will analyze and begin to resolve the chlorinator malfunction.

4. In the event that the chlorinator is not functioning, replace the chlorinator with the backup chlorinator.

Backup Chlorinator Is Not Operational:

1. If in the event that the backup chlorinator is not operational, the problem will have to be analyzed and resolved.

Electrical:

1. In the event that the problem is electrical, the production wells will need to be shut down and a replacement chlorinator will have to be ordered and delivered contact Cleartec- 1-800-387-7503 or 1-306-664-2522.

Mechanical:

1. In the event that the problem is mechanical, the problem can be fixed in house. (repair kits in stock)

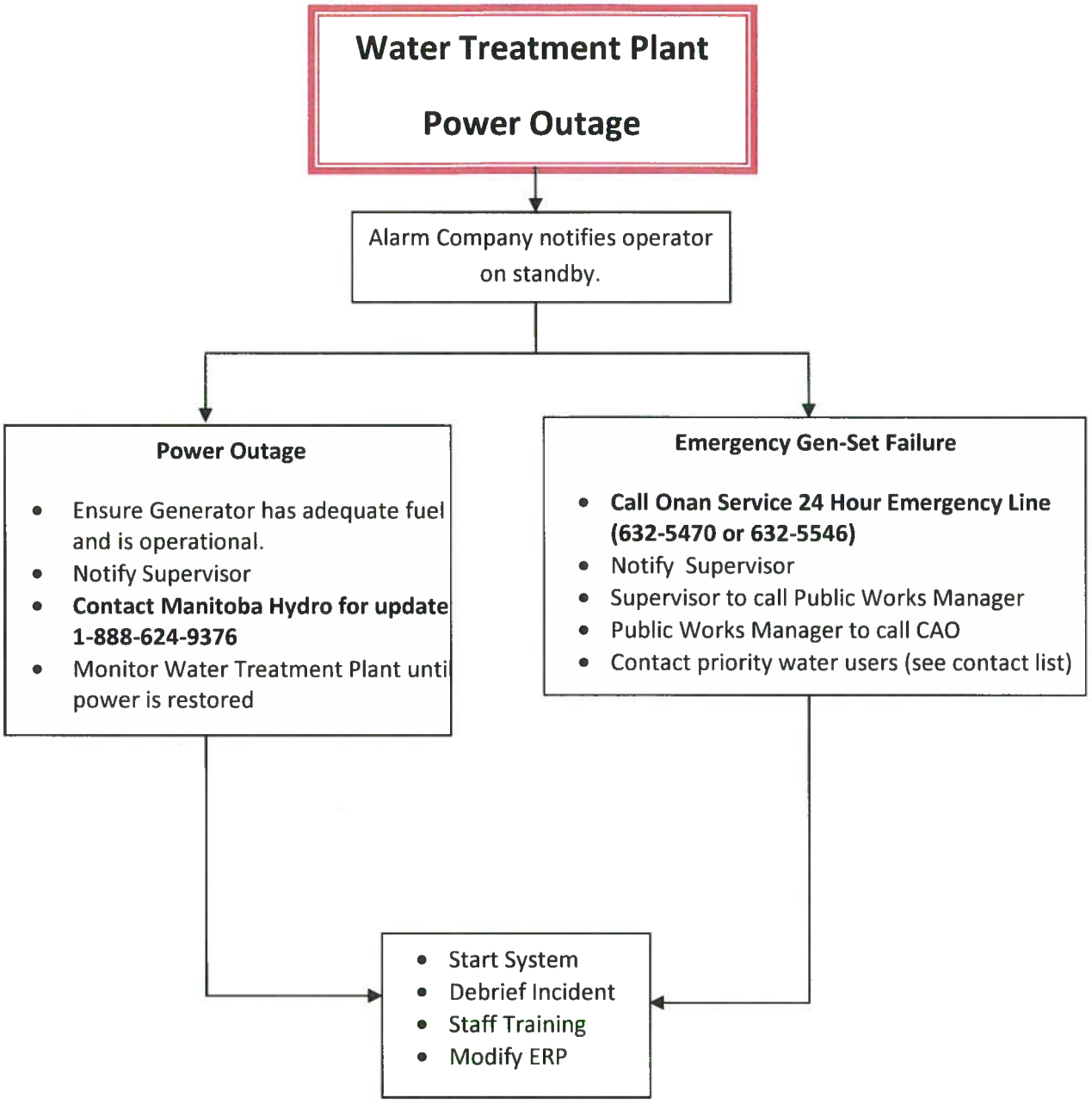
2. If the repair kits are used, the utility support staff will re-order repair kits for future incidents.

Loss of Signal from PLC Panel to Chlorinator:

1. In the event that the 4-20 mA signal from the PLC Panel to Chlorinator ceases to function, the utility support staff will set chlorinator to manual operating mode, and adjust appropriately.

2. The utility support staff may be required to call a contractor to rectify the issue. Contact Manco- 632-6711, or Axon-295-2274/295-2296)

3. Once the problem is resolved, debrief incident and make any recommendations and necessary changes to the **E**mergency **R**esponse **P**lan (ERP).


Water Treatment Plant
Power Outage
Alarm Company notifies operator on standby.
Power Outage
Ensure Generator has adequate fuel and is operational.
Notify Supervisor
Contact Manitoba Hydro for update 1-888-624-9376
Monitor Water Treatment Plant until power is restored
Emergency Gen-Set Failure
Call Onan Service 24 Hour Emergency Line (632-5470 or 632-5546)
Notify Supervisor
Supervisor to call Public Works Manager
Public Works Manager to call CAO
Contact priority water users (see contact list)
Start System
Debrief Incident
Staff Training
Modify ERP

Rural Municipality of East St. Paul
Emergency Response Plan
Water Utility
Power Outage

Purpose:

The purpose of this procedure, in addition to the flow chart, is to set out the steps that should be taken by utility staff in the event of a power failure or emergency Gen-Set failure at the water treatment facility.

Scope:

This procedure applies to the water treatment plant.

Power Outage:

1. In event of a power failure the selected alarm monitoring company will contact the utility staff on standby.

2. Utility staff arrives on site to assess situation (i.e. why the power is out).

3. Utility staff will inspect emergency gen-set and monitoring equipment to ensure proper operation of equipment.

4. Utility staff will contact Manitoba Hydro at 1-888-624-9376 to enquire about power outage and anticipated length of outage.

5. Utility staff will continue to stay on site until hydro power is restored to facility and emergency gen-set is no longer running.

6. Once power is restored utility support staff debrief incident and make any recommendations and necessary changes to the **E**mergency **R**esponse **P**lan (ERP).

Emergency Gen-Set Failure:

1. Call Onan emergency service number and request technician immediately (632-5470 or emergency line: 632-5546).

2. Call utility supervisor and inform them of situation.

3. Utility supervisor to then call public works manager to inform them of situation.

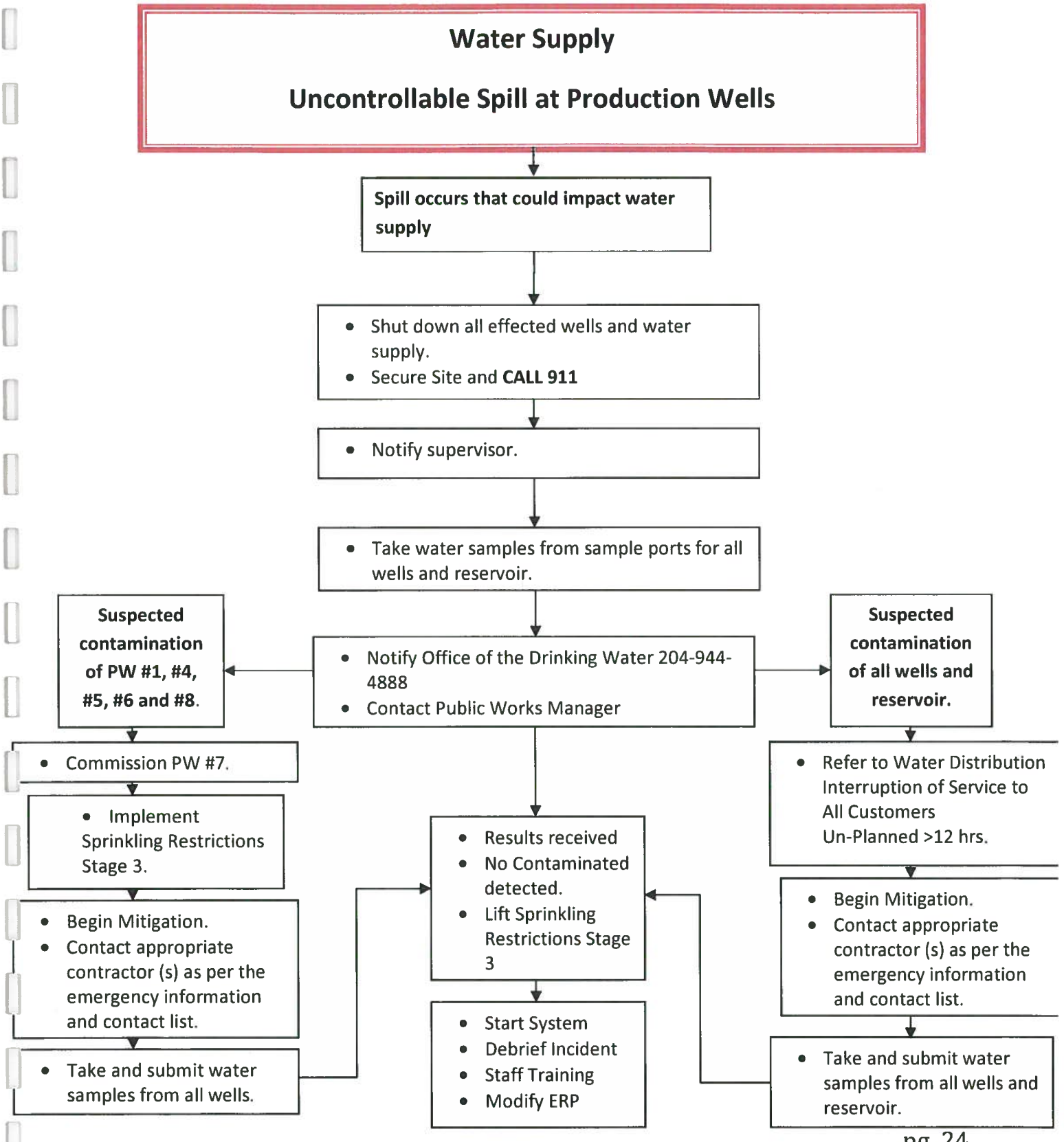
4. Public Works Manager to call Chief Administrator Officer to inform them of situation.

5. Call all priority water users to inform them of the situation.

6. Once power is restored utility support staff debrief incident and make any recommendations and necessary changes to the **E**mergency **R**esponse **P**lan (ERP).

Water Supply

Uncontrollable Spill at Production Wells



Rural Municipality of East St. Paul Emergency Response Plan
Water Utility
Water Supply
Uncontrollable Spill at Production Wells
Water Supply Shortage

Purpose:

The purpose of this procedure, in addition to the follow chart, is to set out steps that should be taken by utility support staff in the event there was an uncontrollable spill at the well site(s) and suspected contamination had occurred in the water supply.

Scope:

This procedure applies to the well site(s) and water treatment plant.

Spill occurs at the well site(s) that could impact the water supply:

1. Shut down all effected wells and water supply.
2. Secure site.
3. **Call 911.**
4. Call Supervisor
5. Take water sample from sampling ports for all wells and reservoir.
6. Notify Office of the Drinking Water at 204-944-4888 and the Public Works Manager.

Suspected contamination of PW #1, #4, #5, #6 and #8 (excluding PW #7 and reservoir):

1. Commission PW#7.
2. Implement Sprinkling Restrictions Stage 3.
3. Contact appropriate contractor(s) as per the emergency information and contact list.

4. Utility staff shall take and submit water samples from all wells.

5. Once results of water samples are returned from the lab and no contamination is detected, lift the Stage 3 Sprinkling Restrictions.

6. Start system.

7. Debrief incident and make any necessary changes to the **E**mergency **R**esponse **P**lan (ERP).

Suspected contamination of all wells and reservoir (including PW #7 and reservoir):

1. **Refer to Water Distribution Interruption of Service to All Customers Un-Planned >12 hours.**

2. Contact appropriate contract as per the emergency information and contact list.

3. Utility staff shall take and submit water samples from all wells.

4. Once results of water samples are returned from the lab and no contamination is detected, start system.

5. Debrief incident and make any necessary changes to the **E**mergency **R**esponse **P**lan (ERP).

Residential Water Service Break Procedure

- Confirm the issue with the resident (i.e. low pressure, no pressure, cloudy water, etc.)
- Check curb stop. Turn on and off and sound to confirm which side the leak is on.
- Enter house and inspect the meter for sand, gravel, stones, etc.

If the break is on the municipal side, the following must be done:

- Call all underground utilities for clearances
  - Manitoba Hydro (electric and gas) – 480-1212
  - Shaw Cable – 480-3476
  - MTS – 1-888-365-1172

Secure a contractor for the repair.

- Buus Construction – Paul Buus 941-0926

- Taillieu Construction – Paul Caron 793-5403

- Maple Leaf Construction
  After Regular Hours 24 hr. emergency line 783-7091 – leave a message, the call will go to their superintendent who is on call.
  Jeff Blue 793-2201 Sewer and Water Superintendent
  Tony Soares 232-8636 Sewer and Water Superintendent
  Greg Regehr 781-0758 Sewer and Water Manager

- Viper Construction – Ed Onsowich 771-5670
  Doug Marini 229-6997

- Laser Pipeline – Joe Gladu 797-4102

If the repair is going to take more than 12 hours or any resident is out of water as a result of the break, a water truck is required if the interruption of service involves a number of residents. Bottled water can be supplied to 1 or 2 residents as a temporary measure. Look at the options to jump from an outside tap to an outside tap between a resident with water and the one without.

Residents affected by any turnoffs must be notified personally or by way of leaving a municipal message door hanger.

Emergency Information and Contact List
Water Treatment and Distribution

Water system name and community code:

- East St. Paul Water Treatment Facility – 57.5

Total treated water storage capacity:

- 650,000 U.S Gal – 2.4 Million litres

Population served:

- 8,733 (Census 2006)

Operators:

- Don Winsor
  Cell: 794-9629
  Home: 489-7463
  don.winsor@eaststpaul.com

- Mike Hall
  Cell: 782-1489
  Home: 582-9119
  mike.hall@eaststpaul.com

- Dan Coss
  Cell: 223-1361
  Home: 367-4466
  dan.coss@eaststpaul.com

- Candace Clayton
  Cell: 391-1367
  Home: 823-0607
  candace.clayton@eaststpaul.com

Public Works Manager:

- Bruce Schmidt
  Cell: 795-8856
  Home: 222-7493
  bruce.schmidt@eaststpaul.com

Chief Administrative Office:

- Jerome Mauws
  Cell: 791-8355
  Home: 237-6407
  jerome.mauws@eaststpaul.com

Emergency Coordinator:

- Dennis Wiwcharyk
  Cell: 795-8994
  Home: 663-3978
  dennis.wiwcharyk@eaststpaul.com

Engineering:

Stantec Consulting:

- Contact: Brett Ransom
  Work: 489-5900
  Cell: 981-2826
  brett.ransom@stantec.com

- Contact: Len Chambers
  Work: 489-5900
  Cell: 803-3769
  len.chambers@stantec.com

- Contact: Dave Dowhan
  Work: 489-5900
  dave.ransom@stantec.com

KGS:

- Contact: Marci Friedman-Hamm
  Work: 896-1209
  MFHamm@kgsgroup.com

Drinking Water Officer:

- Contact: Scott Davies
  Work: 945-6279
  Scott.Davies@gov.mb.ca

Suppliers and Contractors:

Plumber:

- Thor Plumbing
  Contact: Marvin
  Work: 231-1249
  Cell: 981-9584

- Bison Mechanical
  Contact: Tim Christenson
  Work: 947-1046
  Cell: 292-6942

Electrician:

- MG Electric
  Contact: Martin Gueret
  Work: 953-2111
  Cell: 782-8601

- Control Electric
  Contact: Bernie Boily
  Work: 633-2995
  Cell: 294-5899

Machining, Mechanical and Welding (i.e. mechanical moving parts):

- Progressive Machine
  Contact: Winston Bridges
  Work: 334-0102
  Cell: 292-1116

- **DB Stainless**
  Contact: Dave Bragg
  Work: 940-1060

Sewer and Water Contractors:

- **Buus Construction**
  Contact: Paul Buus
  Work: 1-204-482-5031
  Cell: 941-0926

- **Taillieu Construction**
  Contact: Paul Caron
  Work: 895-1221
  Cell: 793-5403

- **Maple Leaf Construction**
  24 hr. Emergency Line: 783-7091

- **Cambrian Construction:**
  Contact: Grant McCormick
  Office: 233-8033
  Cell: 996-0266
  Home: 257-8350
  Brent Fargoson 990-3775
  Glen Cote: 333-2830

Call Before You Dig:

- **Manitoba Hydro**
  1-888-MB HYDRO (624-9376)

- **MTS**
  1-800-837-6448

- **Shaw**
  1-866-344-7429

Chemical Suppliers:

Chlorine:

- **Brenntag (Chlorine Only)**
  Work: 233-3416
  Address: 681 Plinguet Street
  Winnipeg, Manitoba

Chlorine and Alum:

- **Border Chemical (Chlorine and Alum)**
  Work: 222-3267
  Address: 104 Regent Ave W
  Winnipeg, Manitoba

Equipment Suppliers:

Chemical Pumps:

- **Cleartech**
  Work: 1-800-387-7503
  24 Hour Emergency Number: 1-306-664-2522
  Address: 340 Saulteaux Crescent
  Winnipeg, Manitoba

- **Mequipco Ltd**
  Work: 982-1040
  Address: 305-2265 Pembina Highway
  Winnipeg, Manitoba

- **Cleanflow**
  Work: 831-9773
  Address: 1848 Portage Avenue
  Winnipeg, Manitoba

Emergency Generator Technician:

- **Onan Cummins Western Canada**
  Work: 632-5470
  Emergency Service Number: 632-5546
  Fax: 697-0267
  Address: 489 Oak Point Rd
  Winnipeg, Manitoba

Electrical and Mechanical:

- **Wolseley (Mechanical Parts And Fittings)**
  Work: 786-7861
  Address: 1300 St. Matthews Avenue
  Winnipeg, Manitoba

- **Emco Corporation (Mechanical Parts And Fittings)**
  Work: 925-8444
  Address: 801 Century Street
  Winnipeg, Manitoba
- **Eecole Electrical (Electrical Parts And Fittings)**
  Work: 774-2800
  Address: 1760 Wellington Avenue
  Winnipeg, Manitoba

- **Westburne Electric Supply (Electrical Parts And Fittings)**
  Work: 954-9901
  Address: 400A Turenne Street
  Winnipeg, Manitoba

Water Supply and Distribution Pumps

Well Pumps, Repairs and Related Items

- **Baker Manufacturing (Repairs and New)**
  Contact(s):
  Work: 786-8721
  Cell: 771-8682
  Address: 1333 Richard Avenue
  Winnipeg, Manitoba

- **Wolseley (New)**
  Work: 786-7861
  Address: 1300 St. Matthews Avenue
  Winnipeg, Manitoba

Distribution Pumps, Repairs and Related Items

- **Mid Continental Pump Supply**
  Contact(S):
  Bill Espy: 803-4985 cell
  Patric Pich: 771-6487 cell
  Carl Smith: 803-4984 cell
  Work: 783-8619
  Address: 1641 Dublin Avenue
  Winnipeg, Manitoba

- **Progressive Machine (Mechanical)**
  Contact: Winston Bridges
  Work: 334-0102
  Cell: 292-1116

- **MG Electric (Electrical)**
  Contact: Martin Gueret
  Work: 953-2111
  Cell: 782-8601
  Address: 100 Austin Street
  Winnipeg, Manitoba

- **Control Electric (Electrical and Controls)**
  Contact: Bernie Boily
  Work: 633-2995
  Cell: 294-5899

PLC Panel and Programming:

- **Manco Control Systems**
  Laurie Hall
  Work: 632-6711
  Address: 52B Caithness Street
  Winnipeg, Manitoba

- **Celco Controls Ltd**
  Work: 788-1677
  Address: 1260 Border St.
  Winnipeg, Manitoba

- **Axon Automation**
  Work: 864-2810
  Mike Unger: 295-2274 cell
  Kurtis Martineau: 295-2296 cell
  Address: 582 Highway 26 Street
  St. Francois Xavier, Manitoba

Bulk Water Haulers:

- **Perfect Landscaping**
  Contact: Ryan or Michael Wirth
  Work: 663-3771
  Cell: 999-6613 (Ryan Wirth)
  Cell: 999-6612 (Michael Wirth)
  Address: 240 Transport Road
  Winnipeg, Manitoba

- **Taillieu Construction**
  Contact: Paul Caron
  Work: 895-1221
  Cell: 793-5403

- **Darco Enterprise**
  Work: 233-9760
  Address: 1037 Dugald Rd
  Winnipeg, Manitoba

Bottled Water Suppliers:

- **Sobeys**
  Work: 668-1508
  Address: 3156 Bird's Hill Road
  East St. Paul, Manitoba

- **Culligan Water**
  Work: 694-5180
  Address: 101 Omand's Creek Blvd
  Winnipeg, Manitoba

Emergency Contact Numbers:

- **RCMP - 911**
  Work: 668-8322
  Work: 667-6519
  Emergency: 911
  Address: 3021 Bird's Hill Road
  East St. Paul, Manitoba

- **Fire Department - 911**
  Contact: Ray Riddolls (Fire Chief)
  Work: 668-0064
  Cell: 771-3574
  Home: 668-7318
  Contact: Dennis Wiwcharyk (Deputy Fire Chief and EMO Coordinator)
  Cell: 795-8994
  Home: 663-3978

- **Ambulance – 911**

Manitoba Infrastructure and Transportation:

- Maintenance Superintendent (Eastern Region)
  Contact: Roger Sutyla
  Work: 945-0058
  Cell: 771-1542

- Works Supervisor (Eastern Region)
  Contact: Les Braun
  Work: 222-3017
  Cell: 799-7435

Priority Water Users:

Schools:

- Created 4 Me Early Learning Centre:
  Daycare: 661-2458
  Address: 264A Hoddinott Rd.
  East St. Paul, Manitoba
  - Nursery: 415-5437

  Address: 3950 Raleigh St.
  East St. Paul, Manitoba

- Sky's The Limit Montessori School
  Work: 661-4441
  Address: 3202 Birds Hill Road
  East St. Paul, Manitoba

- Robert Andrews School
  Work: 661-5838
  Address: 3230 Manlius Street
  East St Paul, Manitoba

- Dr. F. W. L. Hamilton School
  Work: 661-2500
  Address: 3225 Henderson Hwy
  East St. Paul, Manitoba

- **Bird's Hill School:**
  Work: 663-7669
  Address: 3950 Raleigh Street
  East St. Paul, Manitoba

- **Community Services:**
  Greg Proch:
  Cell: 794-9632
  Randy Bullard:
  Cell: 781-3164

- **Subway:**
  Work: 663-5064
  Address: 3000 Birds Hill Rd
  East St. Paul, Manitoba

- **Ludwicks Catering:**
  Work: 668-8091
  Address: 3184 Birds Hill Rd
  East St Paul, Manitoba

- **Sobeys:**
  Work: 668-1508
  Address: 3156 Birds Hill Road
  East St Paul, Manitoba

- **Birds Hill Car Wash**
  Work: 669-9274
  Address: 195 Besson Street
  East St. Paul, Manitoba

- **Monteferro America:**
  Work: 222-0247
  Address: 2840 Wenzel
  East St. Paul, Manitoba