VEOLIA
WATER

February 22, 2010

The Ripley Water System – 2009 Compliance Summary

System Description

The Ripley water system is characterized as a "secure ground water" system and is classified as a large municipally owned water system. The plant and its equipment have a daily maximum capacity to deliver 864 cubic metres of potable water per day to the Ripley community.

The water sources are 2 secure deep bed rock wells. Well # 1 is located within the well house on Huron St. and well # 2 is located approximately 50 M east of the well house.
Well # 1 was drilled in 1947. The well pump and associated piping was replaced in October 2007. The well was inspected at that time. The well technician has advised although the well is intact and safe it is nearing the end of its useful life.
Well # 2 was drilled in 1994 and is due to be inspected in 2008.
The well house is equipped with well pumps, a reservoir, chlorinators, a chlorine contact main and online monitoring.
The well house, constructed in 1947, has been upgraded several times with the most recent upgrade in 2005. At that time a chlorine contact main was added. In 2006 a new diesel generator set was installed in the adjacent fire hall replacing the 1960's vintage generator set in the well house. Upgrades to the SCADA control system were begun in 2007 and are ongoing.

The attached distribution system is a combination of PVC, ductile iron and cast iron water mains. There is no elevated storage to maintain pressure and the system pressure is maintained using two variable speed pumps. There is an in ground reservoir containing 53 cubic metres of water and this allows the well pumps to cycle and provides the pressure pumps with a flooded suction. The system has hydrants but lacks the capacity to provide fire flows.

Chemicals Fed

Disinfectan

Disinfection was achieved on the Ripley well supply through the use of 12% sodium hypochlorite. This chemical was added prior to the water entering the chlorine contact chambers at dosages high enough to achieve both primary and secondary disinfection objectives.
In 2009 the chlorine dosages ranged from 2.4 mg/l to 2.9 mg/l depending on the demand of the raw water. The free chlorine residual was monitored at the point of entry to the distribution system with a target residual of > 1.00 mg/l and < 1.30 mg/l

Flows

The Ripley water system has 1 permit to take water # 1140-7BEPD5 which allows 864 cubic metres per day from the combined wells. This limit was not exceeded in 2009. A full summary of the 2009 flows is attached.

Veolia Water Canada
Goderich Water Treatment Plant
[illegible]

The Ripley treatment system has a maximum flow as specified in C of A # 7227-7CUKCG. These are based on the CT calculations and the minimum free chlorine residuals used in those calculations.
The limiting factor regarding flow is chlorine contact time in the chlorine contact mains. In order to meet the regulatory CT requirements increased flows beyond 16.2 litres per second must have an increased free chlorine residual to counter the decreased retention time in the chlorine contact main.
The combination of maximum flows through the chlorine contact main and minimum free chlorine residuals exiting the contact main did not exceed the C of A limitations in 2009 as recorded by the flow meter and on line chlorine analyzer.

Precautionary Boil Water Notices

There were no precautionary boil water notices issued on the entire Ripley system by the operating authority in 2009. There was one issued on a section of the distribution system in the Christina St. section due to a low pressure incident during a main repair.

Boil Water Advisory

There were no Boil Water Advisories issued by the Grey Bruce MOH on the Ripley water system in 2009.

Annual Ontario Ministry of the Environment Inspection

Shayne Finlay, MOE Drinking Water Inspector, inspected the water system and examined the water quality and operational records on September 17, 2009. He issued a report of her findings on November 17. He outlined four non compliant issues.
Item #1 concerned the failure of the Ripley flow transmitter and the inadequate flow records resulting.
Item #2 detailed concerns regarding the adequacy of the well house operations manual.
Item # 3 indicated the turbidimeter was not being adequately maintained. This instrument is obsolete and no longer required in a well house with a secure ground water source. A turbidimeter was not included in the description of the Ripley well house equipment when the operarting license was applied for under the SDWA. Once the license is received the turbidimeter will be removed .
Item # 4 stated the operating authority did not file the required hard copy within 24 hours of phoning the MOE regarding an adverse water quality incident. The phone call was made at 12:20 Jan. 1. The required paperwork was faxed 14:18 Jan. 2.

Exceedences

Fluoride

O. Reg. 169/03 (the Ontario Drinking Water Standard) has a MAC (maximum allowable concentration) of 1.5 mg/l for fluoride.
The water from the Ripley wells is monitored monthly for this chemical. They have naturally occurring levels that exceed 1.5 mg/l. An annual report is filed with the Grey Bruce Health unit regarding this exceedence.
As required by O. Reg. 170/03 schedule 1 section 13-9 an AWQI (adverse water quality indicator) report is filed with the MOE and the MOH every 60 months. This was done in October of 2007. The results reported were as follows : 2.38 mg/l

Sodium

O. Reg. 169/03 has an MAC of 20.0 mg/l for sodium.
As required by O. Reg. 170'03 schedule 13-8 the water is sampled every 60 months for sodium. The well water exceeded this level when samples were analyzed for this parameter in June of 2006.
An AWQI was filed with the MOE and MOH at that time. The results reported were as follows : 28.2 mg/l

Laurie Cox – Project Manager VWC

	A	B	C	D	E	F	G	H	I
1		**Ripley Well Supply**							
2		Chemical Usage							
3		2009							
4									
5									
6		Soldium Hypochlorite							
7	Month	Usage	Dosage						
8		kg.	mg/L						
9	Jan '09	18.63	2.40						
10	Feb '09	17.11	2.47						
11	Mar '09	18.22	2.48						
12	Apr '09	17.66	2.55						
13	May '09	16.84	2.62						
14	Jun '09	19.60	2.72						
15	Jul '09	23.87	2.93						
16	Aug '09	25.53	3.04						
17	Sep '09	25.81	3.09						
18	Oct '09	21.53	3.27						
19	Nov '09	21.25	2.95						
20	Dec '09	21.39	2.81						
21	Total	247.43	2.78						
22									
23									
24	Notes:								
25		1) The sodium hyprochlorite is used the disinfectant.							
26									
27	All quantities of chemicals are listed as the available chemical in the solutions and not the total physical quantities.								

	A	B	C	D	E	F	G	H	I
1									
2		Water Works Name:					Ripley Well Supply		
3		Well No. (if applicable):					**Well 1**		
4		Year:					2009		
5		Serviced Population							
6		Laboratories Which Performed Analyses:					SGS Lakefield Research		
7		Water Works Number					220002636		
8									
9		**Raw Water**							
10	Month	Total Coliform				Fecal Coliform / Escherichia Coli			
11		No. of	No. of	No. of	No. of	No. of	No. of	No. of	No. of
12		Samples	Samples	Samples	Samples	Samples	Samples	Samples	Samples
13		Collected	0-100	101-9000	>9000	Collected	0-10	11-900	>900
14	Jan '09	6	6	0	0	6	6	0	0
15	Feb '09	4	4	0	0	4	4	0	0
16	Mar '09	5	5	0	0	5	5	0	0
17	Apr '09	4	4	0	0	4	4	0	0
18	May '09	4	4	0	0	4	4	0	0
19	Jun '09	5	5	0	0	5	5	0	0
20	Jul '09	4	4	0	0	4	4	0	0
21	Aug '09	4	4	0	0	4	4	0	0
22	Sep '09	5	5	0	0	5	5	0	0
23	Oct '09	4	4	0	0	4	4	0	0
24	Nov '09	4	4	0	0	4	4	0	0
25	Dec '09	5	5	0	0	5	5	0	0
26	Total	54	54	0	0	54	54	0	0

	A	B	C	D	E	F	G	H	I
1									
2		Water Works Name:					Ripley Well Supply		
3		Well No. (if applicable):					**Well 2**		
4		Year:					2009		
5		Serviced Population							
6		Laboratories Which Performed Analyses:					SGS Lakefield Research		
7		Water Works Number					220002636		
8									
9		**Raw Water**							
10	Month	Total Coliform				Fecal Coliform / Escherichia Coli			
11		No. of	No. of	No. of	No. of	No. of	No. of	No. of	No. of
12		Samples	Samples	Samples	Samples	Samples	Samples	Samples	Samples
13		Collected	0-100	101-9000	>9000	Collected	0-10	11-900	>900
14	Jan '09	6	6	0	0	6	6	0	0
15	Feb '09	4	4	0	0	4	4	0	0
16	Mar '09	5	5	0	0	5	5	0	0
17	Apr '09	4	4	0	0	4	4	0	0
18	May '09	4	4	0	0	4	4	0	0
19	Jun '09	5	5	0	0	5	5	0	0
20	Jul '09	4	4	0	0	4	4	0	0
21	Aug '09	4	4	0	0	4	4	0	0
22	Sep '09	5	5	0	0	5	5	0	0
23	Oct '09	4	4	0	0	4	4	0	0
24	Nov '09	4	4	0	0	4	4	0	0
25	Dec '09	5	5	0	0	5	5	0	0
26	Total	54	54	0	0	54	54	0	0

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1															
2		Water Works Name:					**Ripley Well Supply**								
3		Year:					2009								
4		Serviced Population:													
5		Laboratories which Performed Analyses:					SGS Lakefield Research								
6															
7		**Distribution System**													
8	Month	Total Coliform				Fecal Coliform / Escherichia Coli			HPC or MF			BKG			
9		No. of	No. of	No. of	No. of	No. of	No. of	No. of	No. of	No. of	No. of	No. of	No. of	No. of	
10		Samples	Samples	Samples	Samples	Samples	Samples	Samples	Samples	Samples	Samples	Samples	Samples	Samples	
11		Collected	"Safe"	"Unsafe"	Deteriorating	Collected	"Safe"	"Unsafe"	Collected	"Safe"	Deteriorating	Collected	"Safe"	Deteriorating"	
12	Jan '09	14	14	0	0	14	14	0	11	11	0				
13	Feb '09	8	8	0	0	8	8	0	4	4	0				
14	Mar '09	10	10	0	0	10	10	0	5	5	0				
15	Apr '09	8	8	0	0	8	8	0	4	4	0	0	0		
16	May '09	8	8	0	0	8	8	0	4	4	0	0	0		
17	Jun '09	10	10	0	0	10	10	0	5	5	0				
18	Jul '09	8	8	0	0	8	8	0	4	4	0				
19	Aug '09	8	8	0	0	8	8	0	4	4	0				
20	Sep '09	10	10	0	0	10	10	0	5	5	0				
21	Oct '09	8	8	0	0	8	8	0	4	4	0				
22	Nov '09	8	8	0	0	8	8	0	4	4	0				
23	Dec '09	13	13	0	0	13	13	0	5	5	0				
24	Total	113	113	0	0	113	113	0	59	59	0	0	0		
25															
26	INDICATORS OF UNSAFE DRINKING WATER QUALITY:						INDICATORS OF DETERIORATING DRINKING WATER QUALITY								
27	If any of the following conditions exist, the drinking water is judged unsafe:														
28							Any of the following conditions indicate a deterioration in drinking								
29	1. Eschericia coli and/or fecal coliforms are detected in any distribution						water quality:								
30	sample by any analytical method;						a) total coliforms detected as a single occurrence (but not								
31	2. Total coliforms are detected in consecutive samples from the same						Escherichia coli or other fecal coliforms);								
32	site or in multiple samples taken as a single submission from a														
33	distribution system.						b) samples contain more than 500 colonies per ml on a								
34							heterotrophic plate count analysis;								
35															
36							c) samples contain more than 200 background colonies								
37							on a total coliform membranie filter analysis;								
38	If the water contains any indicators of unsafe water quality for any of the reasons														
39	outlined above, the laboratory will immediately notify the MOEE District Officer who						d) Aeromonas spp., Pseudomonas aeruginosa, Staphylococcus								
40	will immediately notify the Medical Officer of Health and the operating authority to						aureus, Clostridium spp. Or members of the Fecal Streptococcus								
41	initiate collection of special samples and/or take corrective action.						(Enterococcus) group are detected.								
42															
43							If these conditions occur, the MOEE Dist. Mang. Should be notified.								

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1														
2		Water Works Name:					**Ripley Well Supply**							
3		Well No. (if applicable):					N/A							
4		Year:					2009							
5		Serviced Population												
6		Laboratories Which Performed Analyses:					Veolia Water Canada							
7		Water Works Number					220002636							
8														
9														
10	Month	Treated Water Flow			Process	Treated Water Turbidity			Treated Disinfectant		Treated Disinfectat- SCADA		Dist. System Disinfectant	
11		Average	Maximum	Monthly	Wastewater	No. of	No. of	Average	No. of	Average	Minimum	Maximum	No. of	No. of
12		Daily	Daily	Total	Monthly Tota	Samples	Samples	Turbidity	eated Sampl	Residual	Online	Online	Dist.Samp.	Samples
13		(1000 m3)	(1000 m3)	(1000 m3)	(1000 m3)	Collected	> 1NTU	NTU	Collected	(mg/L)	Residual (mg/L)	Residual (mg/L)	Collected	< 0.05
14	Jan '09	0.251	0.359	7.767		31	0	0.123	60	1.56	1.35	2.03	31	0
15	Feb '09	0.248	0.380	6.939		28	0	0.119	56	1.58	1.39	2.30	28	0
16	Mar '09	0.237	0.334	7.346		31	0	0.126	62	1.50	1.23	2.15	31	0
17	Apr '09	0.231	0.532	6.916		30	0	0.129	60	1.56	1.25	2.55	30	0
18	May '09	0.207	0.309	6.431		31	0	0.138	62	1.50	1.27	2.09	31	0
19	Jun '09	0.240	0.384	7.198		30	0	0.139	60	1.47	0.23	1.89	30	0
20	Jul '09	0.263	0.497	8.157		31	0	0.161	62	1.56	1.30	1.92	31	0
21	Aug '09	0.271	0.480	8.394		31	0	0.116	62	1.59	1.36	3.95	31	0
22	Sep '09	0.278	0.815	8.344		30	0	0.121	60	1.65	1.45	2.49	30	0
23	Oct '09	0.212	0.400	6.580		31	0	0.144	62	1.78	1.45	2.14	31	0
24	Nov '09	0.240	0.342	7.199		30	0	0.132	60	1.46	1.12	1.81	30	0
25	Dec '09	0.246	0.376	7.619		31	0	0.158	62	1.42	0.81	1.79	31	0
26	Total			88.890		365	0		728				365	0
27	Average	0.244						0.134		1.56				
28	Maximum		0.815											
29														
30														
31		Disnifectant Compound Used					Sodium Hypochlorite							
32		(EG. Chlorine Gas, NaOCl, etc.)												
33														
34		Form of Residual Displayed on above table:					Free							
35		(EG. Free, Combined, or Total)												
36														
37		Quantity of Disinfectant used during the year (kg):					696.07							
38														
39		Distribution system target residual (mg/L)					> 0.20							

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1		Water Works Name:					**Ripley Well Supply**								
2		Well No. (if applicable):					N/A								
3		Year:					2009								
4		Serviced Population:													
5		Laboratories which Performed Analyses:					SGS Lakefield Research								
6															
7		**Treated Water**													
8	Month	Total Coliform				Fecal Coliform / Escherichia Coli			HPC or MF			BKG			
9		No. of	No. of	No. of	No. of	No. of	No. of	No. of	No. of	No. of	No. of	No. of	No. of	No. of	
10		Samples	Samples	Samples	Samples	Samples	Samples	Samples	Samples	Samples	Samples	Samples	Samples	Samples	
11		Collected	"Safe"	"Unsafe"	Deteriorating	Collected	"Safe"	"Unsafe"	Collected	"Safe"	Deteriorating	Collected	"Safe"	Deteriorating"	
12	Jan '09	6	6	0	0	6	6	0	6	6	0	0	0	0	
13	Feb '09	4	4	0	0	4	4	0	4	4	0	0	0	0	
14	Mar '09	5	5	0	0	5	5	0	5	5	0	0	0	0	
15	Apr '09	4	4	0	0	4	4	0	4	4	0	0	0	0	
16	May '09	4	4	0	0	4	4	0	4	4	0	0	0	0	
17	Jun '09	5	5	0	0	5	5	0	5	5	0	0	0	0	
18	Jul '09	4	4	0	0	4	4	0	4	4	0	0	0	0	
19	Aug '09	4	4	0	0	4	4	0	4	4	0	0	0	0	
20	Sep '09	5	5	0	0	5	5	0	5	5	0	0	0	0	
21	Oct '09	4	4	0	0	4	4	0	4	4	0	0	0	0	
22	Nov '09	4	4	0	0	4	4	0	4	4	0	0	0	0	
23	Dec '09	5	5	0	0	5	5	0	5	5	0	0	0	0	
24	Total	54	54	0	0	54	54	0	54	54	0	0	0	0	
25															
26	INDICATORS OF UNSAFE DRINKING WATER QUALITY:						INDICATORS OF DETERIORATING DRINKING WATER QUALITY								
27	If any of the following conditions exist, the drinking water is judged unsafe:														
28								Any of the following conditions indicate a deterioration in drinking							
29	1. Eschericia coli and/or fecal coliforms are detected in any distribution							water quality:							
30	sample by any analytical method;							a) total coliforms detected as a single occurrence (but not							
31	2. Total coliforms are detected in consecutive samples from the same							Escherichia coli or other fecal coliforms);							
32	site or in multiple samples taken as a single submission from a														
33	distribution system.							b) samples contain more than 500 colonies per ml on a							
34								heterotrophic plate count analysis;							
35															
36								c) samples contain more than 200 background colonies							
37								on a total coliform membranie filter analysis;							
38	If the water contains any indicators of unsafe water quality for any of the reasons														
39	outlined above, the laboratory will immediately notify the MOEE District Officer who							d) Aeromonas spp., Pseudomonas aeruginosa, Staphylococcus							
40	will immediately notify the Medical Officer of Health and the operating authority to							aureus, Clostridium spp. Or members of the Fecal Streptococcus							
41	initiate collection of special samples and/or take corrective action.							(Enterococcus) group are detected.							
42															
43								If these conditions occur, the MOEE Dist. Mang. Should be notified.							

Annual Summary - Fluoride, Nitrite, Nitrate, and Colour
(Complete a separate sheet for each imput into the Distribution System)

Water Works Name: Ripley Well Supply
Well No. (if applicable):
Year: 2009
Serviced Population 680
Laboratories Which Performed Analyses: SGS Lakefield Research
Water Works 220002636

Month	Fluoride			Treated Water Nitrite			Treated Water Nitrate			THM's	
	No. of Samples Collected	Average Residual mg/L	Maximum Residual mg/L	No. of Samples Collected	Average Nitrite mg/L	Maximum Nitrite mg/L	No. of Treated Samples Collected	Average Nitrate (mg/L)	Maximum Nitrate mg/L	No of Samples	Result ug/l
Jan.											
Feb.				1	<0.005	<0.005	1	0.073	0.073	1	5.6
Mar.											
Apr.											
May				1	<0.005	<0.005	1	0.088	0.088	1	7.6
June											
July											
August				1	<0.005	<0.005	1	0.092	0.092	1	9.5
Sept											
Oct.											
Nov				1	<0.005	<0.005	1	0.09	0.09	1	7.3
Dec	1	1.92	1.92								
Total	1			4			4				
Average					#DIV/0!						
Maximum			1.92			0			0.092		
ODWQS											

Where nitrate and nitrite are present, the total of the two should not exceed 10 mg/L
The maximum acceptable level of THM's is 100 ug/l
Fluoride levels above 1.5 mg/L should be reported to the Medical Officer of Health

Annual Data Summary - Treated Water Volatile Organic and Inorganic Data
(Complete a separate sheet for each input into the Distribution System)

Water Works Name: Ripley Well Supply
Well No. (if applicable):
Year: 2009
Serviced Population 680
Laboratories Which Performer Analyses: SGS Lakefield Research
Water Works # 220002636

Parameter	Analysis Date (MM/DD/YY)	Analysis Result (ug/L)	Maximum Allowable Level (ug/L)	Analysis Result mg/l	Maximum Allowable Level mg/l
Schedule 23 & 24					
Antimony	6/2/2009	<0.02	6		
Arsenic	"	5.7	25		
Barium	"	70.1	1000		
Boron	"	104	5000		
Cadmium	"	0.02	5		
Chromium	"	<0.5	50		
Mercury	"	<0.02	1		
Sodium	6/6/2006			27.8 28.2	20
Lead	12/1/2009	0.05	10		
Fluoride	12/1/2009			1.92	1.5
Selenium	6/2/2009	<1	10		
Uranium	"	5.34	20		
Benzene	"	<0.37	5		
Carbon Tetrachloride	"	<0.41	5		
1,2-Dichlorobenzene	"	<0.50	200		
1,4-Dichlorobenzene	"	<0.21	5		
1,1-Dichloroethylene	"	<0.41	14		
1,2-Dichloroethane	"	<0.43	5		
Dichloromethane	"	<0.34	50		
Monochlorobenzene	"	<0.58	80		
Tetrachloroethylene	"	<0.45	30		
Trichloroethylene	"	<0.38	5		
Vinyl Chloride	"	<0.17	2		
Diquat	"	<1	70		
Paraquat	"	<1	10		
Glyphosate	"	<6	280		
Polychlorinated Biphenyls	"	<0.04	3		
Benzo(a)pyrene	"	<0.004	0.01		
2,4-dichlorophenol	"	<0.15	900		
2,4,6-trichlorophenol	"	<0.25	5		

Annual Data Summary - Treated Water Volatile Organic and Inorganic Data
(Complete a separate sheet for each input into the Distribution System)

2,3,4,5-tetrachlorophenol	"	<0.14	100
Pentachlorophenol	"	<0.15	60
Alachlor	"	<0.11	5
Aldicarb	"	<0.30	9
Aldrin+Dieldrin	"	<0.067	0.7
Aldrin	"	<0.060	
Dieldrin	"	<0.067	
Atrazine+N-dealkylated metabolites	"	<0.12	5
Atrazine	"	<0.11	
De-ethylated atrazine	"	<0.12	
Azinphos-methyl	"	<0.21	20
Bendiocarb	"	<0.13	40
Carbaryl	"	<0.16	90
Carbofuran	"	<0.37	90
Chlordane	"	<0.11	7
a-chlordane	"	<0.069	
g-chlordane	"	<0.063	
Oxychlordane	"	<0.11	
Chlorpyrifos	"	<0.18	90
Cyanazine	"	<0.18	10
Diazinon	"	<0.081	20
(DDT)+Metabolites	"	<0.14	30
op-DDT	"	<0.095	
pp-DDD	"	<0.098	
pp-DDE	"	<0.075	
pp-DDT	"	<0.14	
Dimethoate	"	<0.12	20
Diuron	"	<0.087	150
Heptachlor-Heptachlor Epoxide	"	<0.11	3
Heptachlor	"	<0.061	
Heptachlor epoxide	"	<0.11	
Lindane	"	<0.056	4
Malathion	"	<0.091	190
Methoxychlor	"	<0.14	900
Metolachlor	"	<0.092	50
Metribuzin	"	<0.12	80
Parathion	"	<0.18	50
Phorate	"	<0.11	2
Prometryne	"	<0.23	1
Simazine	"	<0.15	10

Temephos	"	<0.31	280	
Terbufos	"	<0.12	1	
Triallate	"	<0.10	230	
Trifluralin	"	<0.12	45	
2,4-dichlorophenoxyacetic acid	"	<0.19	100	
2,4,5-trichlorophenoxyacetic acid	"	<0.22	280	
Bromoxynil	"	<0.33	5	
Dicamba	"	<0.20	120	
Diclofop-methyl	"	<0.40	9	
Dinoseb	"	<0.36	10	
Picloram	"	<0.25	190	