

Real Time Water Quality Monthly Report Rattling Brook below Bridge (VBNC) November – December 2007

General

- The Water Resources Management Division staff monitors the real-time web page on a daily basis
- Voisey’s Bay Nickel Company (VBNC) will be informed of any significant water quality events in the future in the form of a monthly report
- The initial installation of the RTWQ instrumentation at Rattling Brook below Bridge occurred on December 12th, 2006

Maintenance and Calibration of Instrumentation

- The instrument at Rattling Brook was removed on November 16th, 2007 for cleaning and calibration and then reinstalled on December 11th, 2007.
- The results of comparing the Minisonde values to Datasonde values during removal and installation on November 13/16th, 2007 can be seen in **Table 1**.

Table 1: QA/QC Data Comparison Rankings upon reinstallation on November 16th, 2007

Station	Date	Action	Minisonde vs. Datasonde Comparison Ranking			
			Temperature	pH	Conductivity	Dissolved Oxygen
Rattling Brook (Long Harbour)	Nov. 13, 2007	Removal	Good	Poor	Excellent	Excellent
	Nov. 16, 2007	Installation	Good	Good	Excellent	Excellent

- The instrument was deployed until December 11th, 2007 (25-day deployment period) at which point it was removed for maintenance and calibration.
- The results of comparing the Minisonde values to the Datasonde values during removal on December 11th, 2007 can be seen in **Table 2**.

Table 2: QA/QC Data Comparison Rankings upon removal on December 11th, 2007

Station	Date	Action	Minisonde vs. Datasonde Comparison Ranking			
			Temperature	pH	Conductivity	Dissolved Oxygen
Rattling Brook (Long Harbour)	Dec. 11, 2007	Removal	Excellent	Excellent	Excellent	Excellent

Data Interpretation

- The water temperature (**Figure 1**) continued to decrease over the recorded deployment period. This is typical for this time of year with a temperature range of -0.26 to 8.99°C.

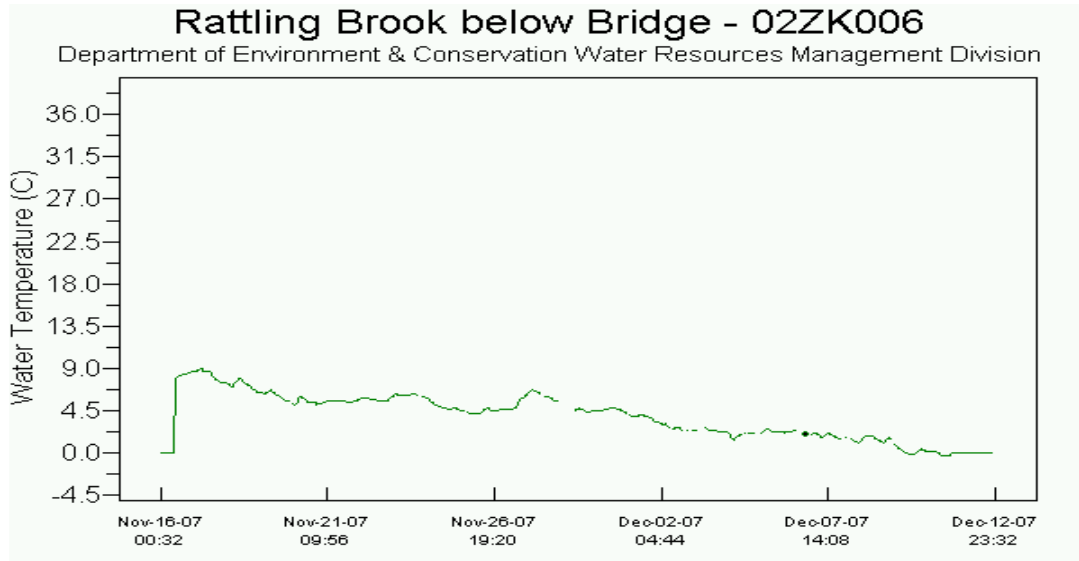


Figure 1

- The dissolved oxygen (DO) values (**Figure 2**) increased over the recorded deployment period, which is consistent with the decrease in temperature. DO values ranged from 10.84 to 14.25 mg/L, all values were above the most conservative values in the CCME Protection of Aquatic Life guidelines for dissolved oxygen (cold water/other life stages – above 6.5; warm water/other life stages – above 5.5; warm water/early life stages – above 6; cold water/early life stages – 9.5 mg/L).

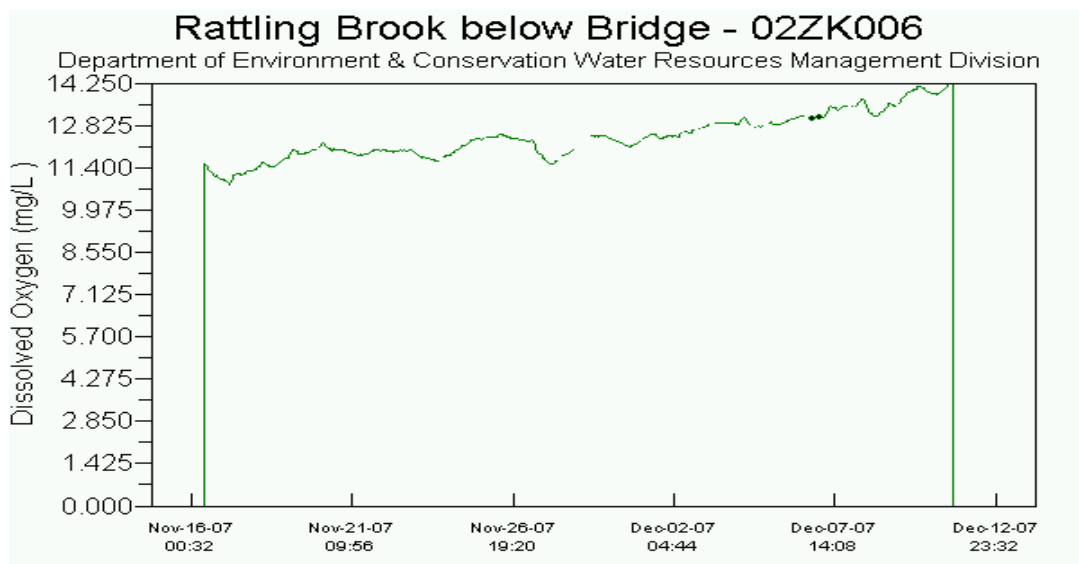


Figure 2

- The pH values (**Figure 3**) remained stable with a downwards drift over the deployment period. The pH values spiked downwards during the two major rainfall events and overall, values ranged from 5.60 to 6.36. All values fell below the recommended range (6.5 – 9.0) for the CCME Protection of Aquatic Life guidelines which is due to the naturally acidic nature of NL waters.

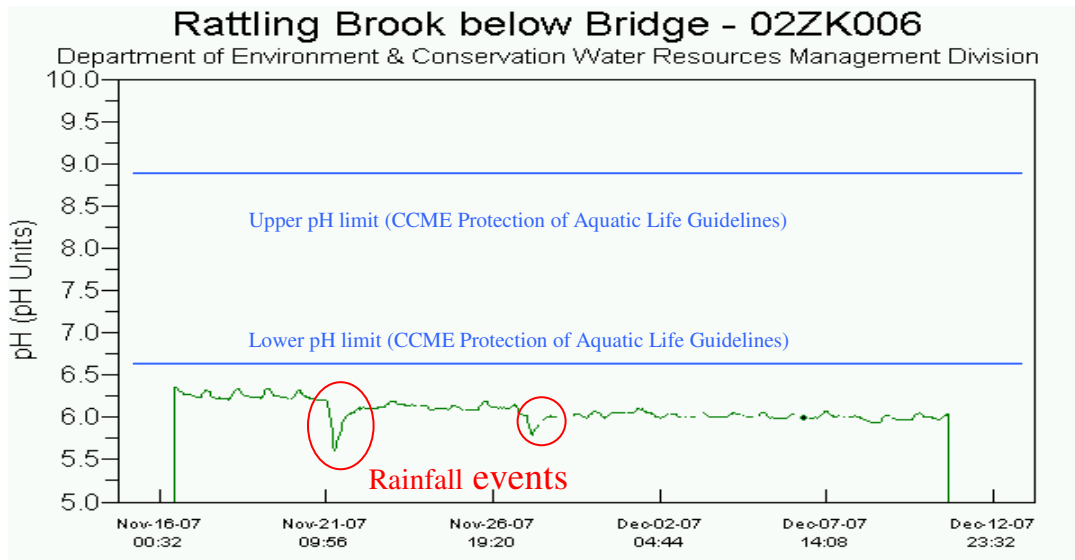


Figure 3

- The specific conductivity values (**Figure 4**) remained stable with a downwards drift over the deployment period. Values were recorded in mS/cm which resulted in values being off by a factor of 10^3 . After correction, values ranged from 29.6 to 32.8 $\mu\text{S}/\text{cm}$.

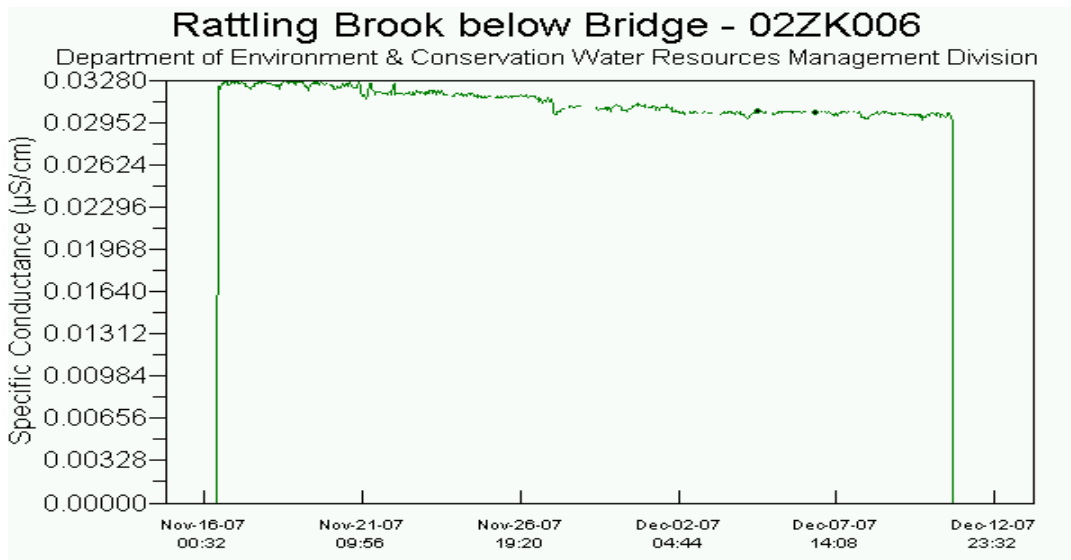


Figure 4

- Generally, turbidity values (**Figure 5**) were recorded at zero NTU throughout the deployment period. During the period, two major rainfall events resulted in turbidity values recorded above zero with maximums of 90 and 125 NTU for each event.

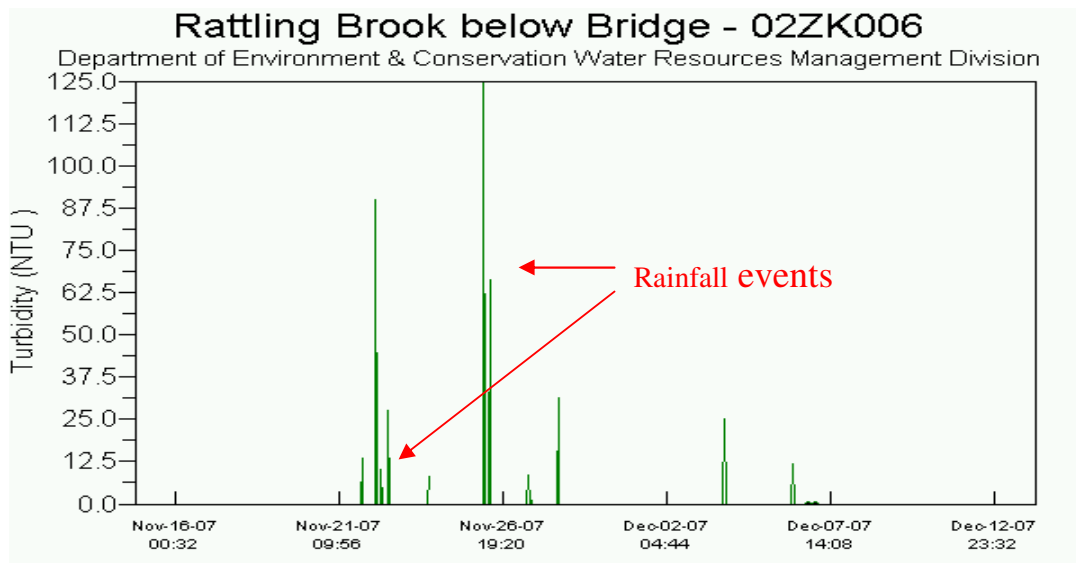


Figure 5

- Stage values (**Figure 6**) ranged from 1.57 to 1.98m during the deployment period. During the period, two major rainfall events resulted in increases in stage (see **Appendix A** for climatological data).

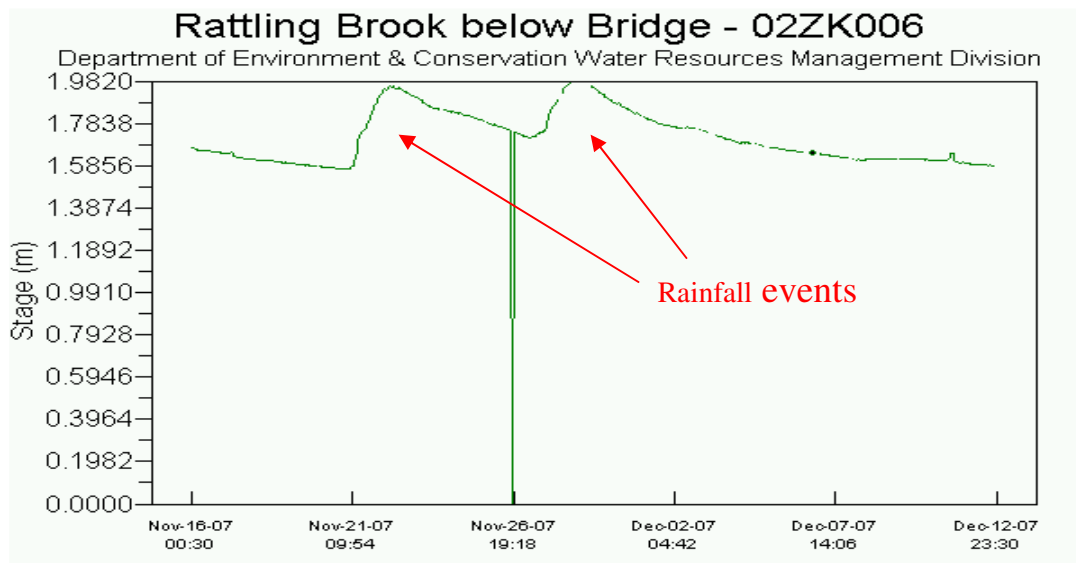


Figure 6

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Appendix A – Climate Data for Argentina, NL (November 16 - December 11, 2007)

Daily Data Report for November 2007											
Day	Max Temp °C	Min Temp °C	Mean Temp °C	Heat Deg Days °C	Cool Deg Days °C	Total Rain mm	Total Snow cm	Total Precip mm	Snow on Grnd cm	Dir of Max Gust 10's Deg	Spd of Max Gust km/h
16†	17.0	10.7	13.9	4.1	0.0	M	M	1.3		15	72
17†	14.3	5.4	9.9	8.1	0.0	M	M	5.7		24	96
18†	7.4	0.4	3.9	14.1	0.0	M	M	0.0		2	37
19†	1.6	-1.8	-0.1	18.1	0.0	M	M	0.0		4	41
20†	2.7	-1.5	0.6	17.4	0.0	M	M	3.4		7	48
21†	6.1	1.5	3.8	14.2	0.0	M	M	56.1		9	61
22†	4.0	0.8	2.4	15.6	0.0	M	M	0.0			<31
23†	11.5	1.0	6.3	11.7	0.0	M	M	2.4		18	37
24†	10.6	0.2	5.4	12.6	0.0	M	M	16.0		28	74
25†	4.0	-0.3	1.9	16.1	0.0	M	M	0.0		25	54
26†	6.5	2.6	4.6	13.4	0.0	M	M	1.3		21	59
27†	12.3	4.5	8.4	9.6	0.0	M	M	21.4		21	87
28†	8.7	-0.7	4.0	14.0	0.0	M	M	0.0		26	87
29†	4.4	-2.3	1.1	16.9	0.0	M	M	0.0		13	57
30†	8.9	0.0	4.5	13.5	0.0	M	M	6.3		28	76

Daily Data Report for December 2007											
Day	Max Temp °C	Min Temp °C	Mean Temp °C	Heat Deg Days °C	Cool Deg Days °C	Total Rain mm	Total Snow cm	Total Precip mm	Snow on Grnd cm	Dir of Max Gust 10's Deg	Spd of Max Gust km/h
01†	2.0E	-0.2E	0.9E	17.1E	0.0E	M	M	M		27E	69E
02†	2.0	0.3	1.2	16.8	0.0	M	M	15.1		35	102
03†	3.2	-0.4	1.4	16.6	0.0	M	M	0.7		35	83
04†	3.9	-1.1	1.4	16.6	0.0	M	M	4.5		10	56
05†	4.8	1.5	3.2	14.8	0.0	M	M	0.6		26	54
06†	3.1	0.4	1.8	16.2	0.0	M	M	6.3		24	52
07†	1.0	-3.0	-1.0	19.0	0.0	M	M	0.0		29	46
08†	6.7	-0.9	2.9	15.1	0.0	M	M	2.6		26	74
09†	2.3	-7.3	-2.5	20.5	0.0	M	M	1.2		27	69
10†	-3.0	-6.8	-4.9	22.9	0.0	M	M	0.0		29	67
11†	-2.8	-4.8	-3.8	21.8	0.0	M	M	0.0		28	54