Government of Newfoundland and Labrador

Real Time Water Quality Monthly Report for Voisey's Bay Nickel Company Ltd. October 2005

General

- The Water Resources Management Division staff analyses the real-time web page on a daily basis.
- Voisey's Bay Nickel Company will continue to be informed of any significant water quality events in the future in the form of a monthly report.

Maintenance and Calibration of Instrumentation

- As noted in the previous September monthly report, all three Datasondes were maintained and calibrated on September 25th and 26th, 2005. The instruments will be removed in early November for the winter months.
- As noted in the previous September monthly report, the extreme high water level of Lower Reid Brook prevented the Hydrolab from returning to the installation developed in July. It is currently on the sediment bottom.

Data Interpretation

Reid Brook at Outlet of Reid Pond

- Throughout the month of October, most water quality parameters at the Upper Reid Brook station remained steady at expected background levels. As can be seen by the graphs (Figures 1 & 2), pH and conductivity remained very consistent throughout the month.

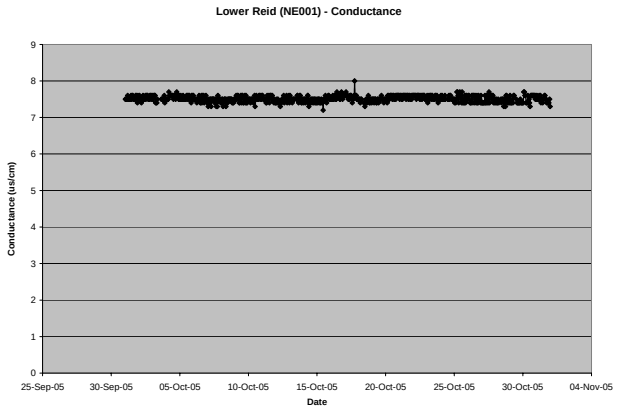

Figure 1

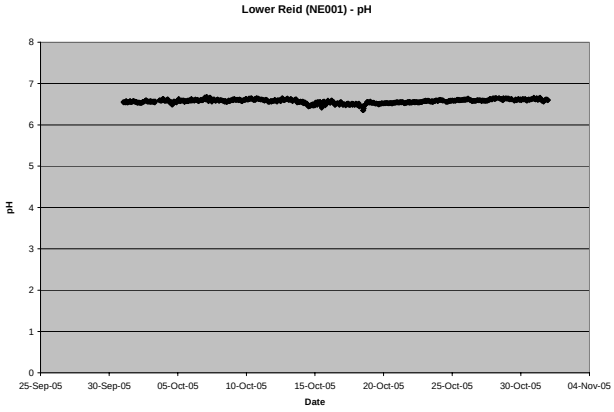

Figure 2

- Temperature has been decreasing throughout the month of October, which is expected for this time of year (Figure 3). The dissolved oxygen concentrations have been increasing which corresponds with the decreasing temperatures. (Figure 4)

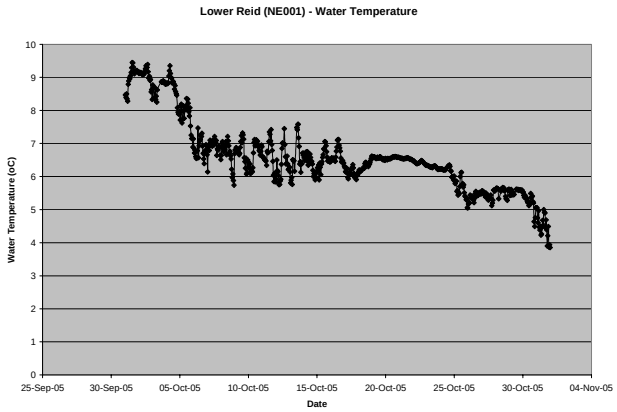

Figure 3

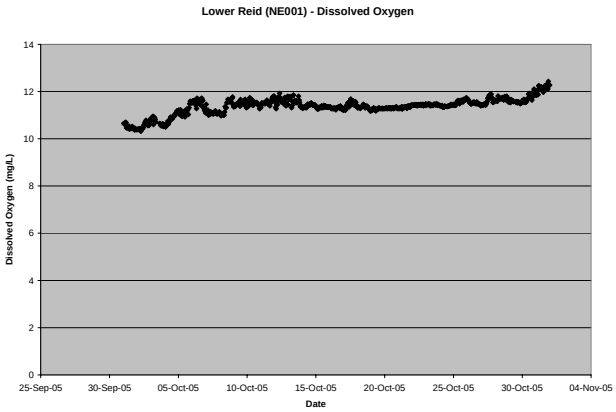

Figure 4

- Turbidity values remained at background levels (approximately 0 NTU) for the month of October with the exception of one spike on October 6th of 54 NTU (Figure 5).

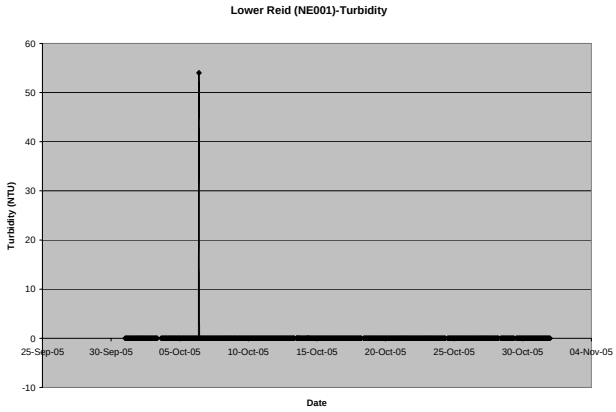

Figure 5

<u>Camp Pond Brook below Camp Pond</u>

- The pH in Camp Pond Brook remained stable at background levels until October 18th when the pH levels dropped. The levels remained low until October 21st when levels began to increase. pH has since levelled off to approximately background levels. (Figure 6).
- At the same time, there was a spike in conductance to 23.8 us/cm. The conductance returned to background levels on October 19th with two additional (but smaller) spikes on October 21st and October 27th. (Figure 7).

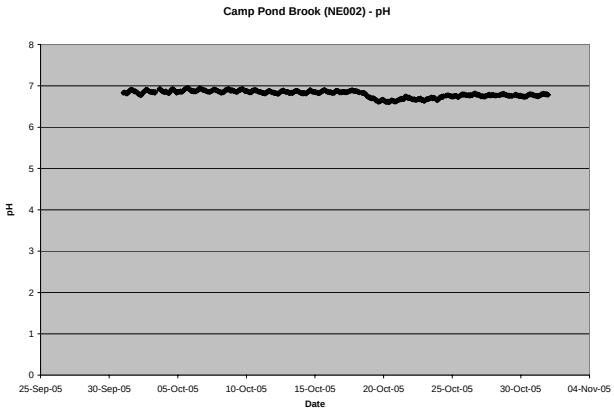

Figure 6

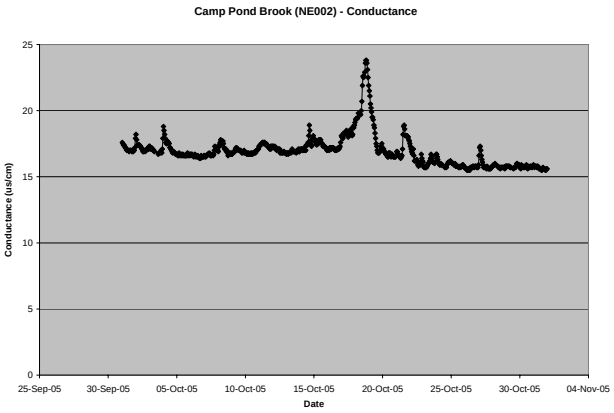

Figure 7

- Temperature showed fluctuations throughout the month of October but a definite increasing trend. This is typically for this time of year. (Figure 8). The dissolved oxygen shows an increase during the month which corresponds to decreasing temperature. (Figure 9).

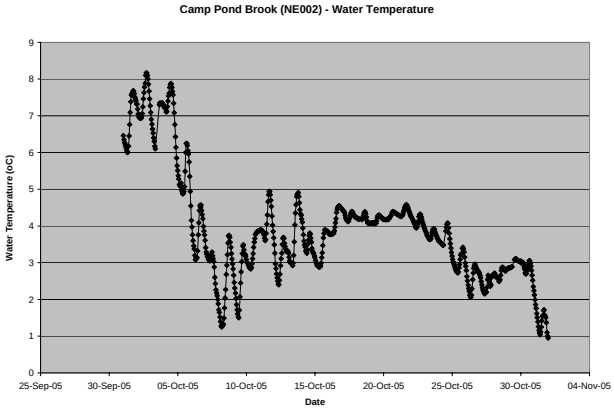

Figure 8

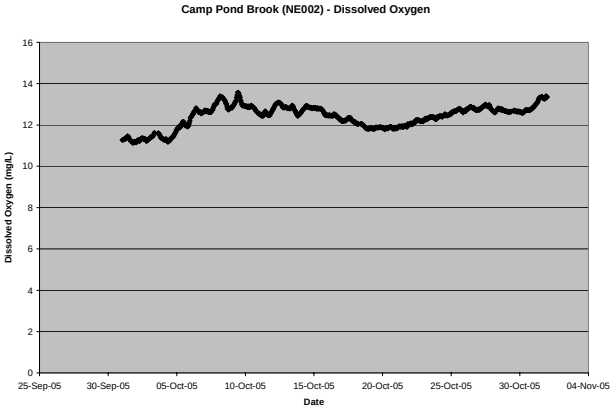

Figure 9

- Turbidity remained at background levels until October 18th. (Figure 10). On this date a significant spike of 61 NTU was observed. There were a couple of smaller spikes on October 20th and October 21st of 27 NTU and 16 NTU respectively before falling to normal background levels. There is no definite explanation at this time but there was a significant increase in stage between October 17th and October 22nd. (Figure 11). There were also three sporadic spikes towards the end of the month with a maximum of 22 NTU.

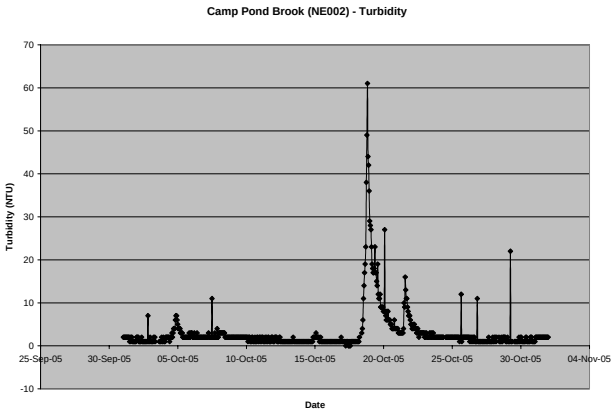

Figure 10

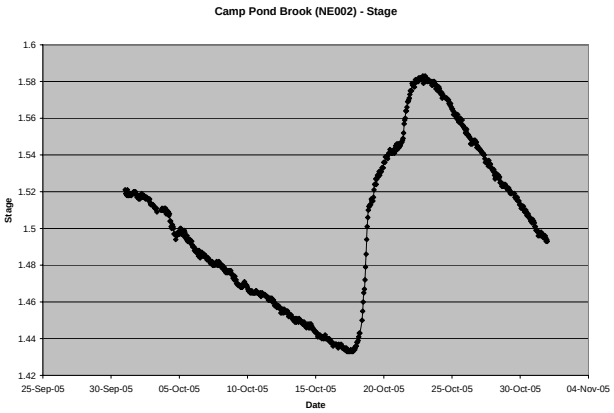

Figure 11

<u>Lower Reid Brook below Tributary</u>

- The pH in Lower Reid Brook remained stable at background levels until October 18th when the pH levels dropped. The levels began to increase on October 22nd and continued to increase until pH was slightly above background levels. (Figure 12).
- At the same time, there was a drop in conductance down to 14 us/cm. The conductance remained at this level until October 24th when the levels began to increase. Levels are currently at 19 us/cm. (Figure 13). Throughout the month of October conductance concentrations remained within background levels.

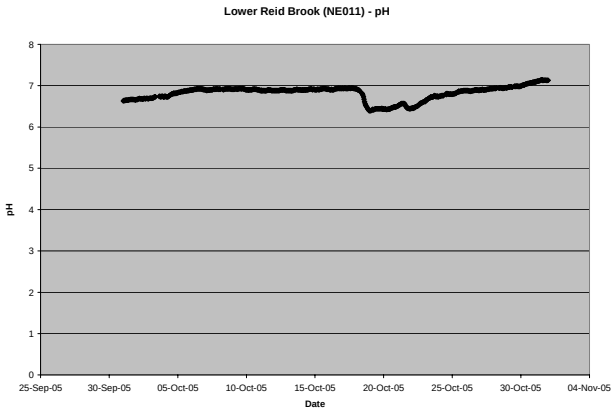

Figure 12

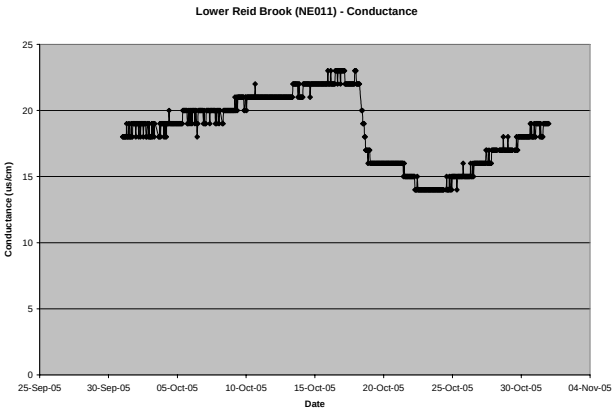

Figure 13

- Temperature showed fluctuations throughout the month of October but a definite increasing trend. This is typically for this time of year. (Figure 14). The dissolved oxygen also shows fluctuations with an increasing trend which corresponds to the decreasing temperature. (Figure 15).

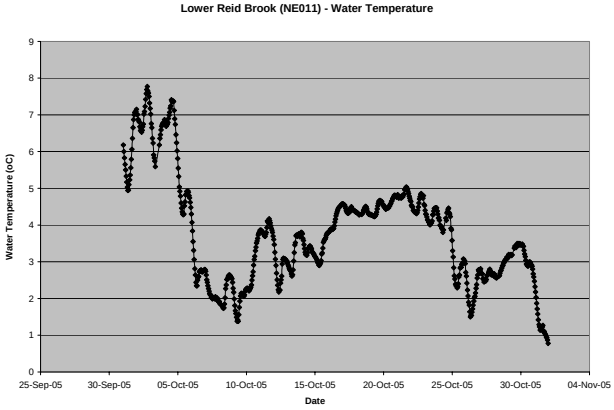

Figure 14

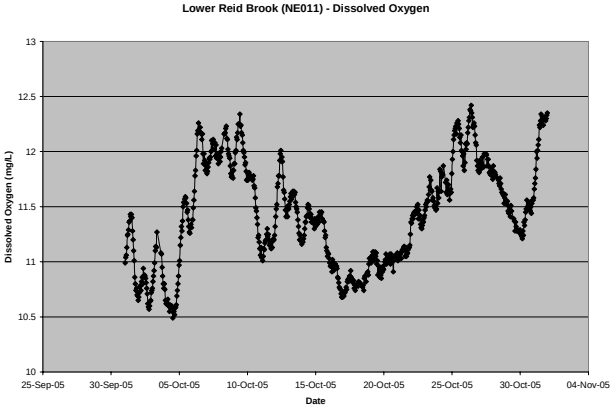

Figure 15

- Turbidity spikes were seen during the beginning of October with a maximum of 357 NTU. (Figure 16). There is no explanation at this time but it is possible that these spikes were due to the fact that the Hydrolab in lying on the sediment bottom instead of in its usual installation. Excessive water levels during the last installation prevented the instrument from being installed in its usual setup. One additional large spike was seen on October 14th. There were two smaller spikes on October 18th and October 21st of 63 NTU and 34 NTU respectively. These spikes could be due to high stage levels shown in Figure 17.

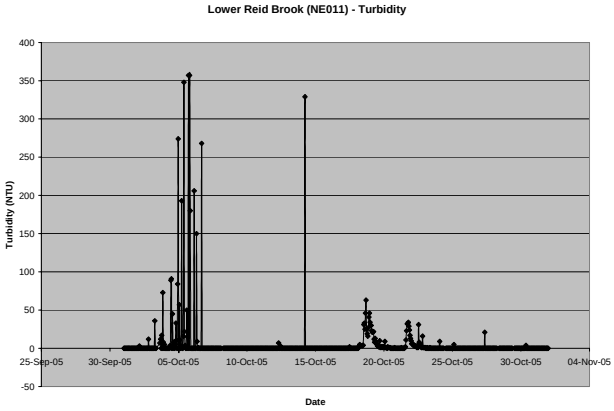

Figure 16

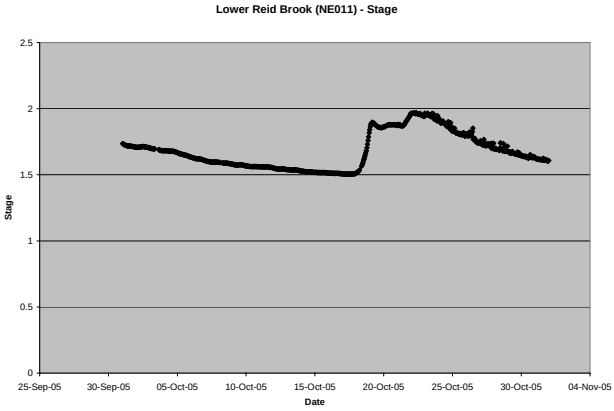

Figure 17

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