

Real Time Water Quality Monthly Report for Voisey's Bay Nickel Company Ltd. July/August 2004

General

- The Water Resources Management Division staff analyses the real-time web page on a daily basis.
- Voisey's Bay Nickel Company Ltd. 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 monthly report, the two instruments that had been sent away for repairs were returned to Voisey's Bay and calibrated in preparation for deployment.
- The instruments were deployed at the Upper Reid Brook and Camp Pond Brook sites on July 11th.
- The third instrument that had been left in Camp Pond Brook was then removed and sent to Edmonton for repairs.
- In order to correspond with the monthly maintenance and calibration procedures, the two instruments in Upper Reid Brook and Camp Pond Brook were removed on August 10th for routine maintenance and calibration. These instruments were cleaned, calibrated and returned to the water on August 11th and 12th respectively.
- By this point in time, the third instrument that was sent away for repairs was returned to the Voisey's Bay site and was cleaned and calibrated on August 10th and deployed on August 11th at the Lower Reid Brook station.
- The Environmental Officer on-site followed the necessary QA/QC protocols when retrieving the instruments and when deploying the instruments. All required forms were completed and sent to the Department of Environment and Conservation the following day on August 13th, 2004.
- The water quality data collected on a real-time basis since the instruments were deployed in July did not drift significantly according to the QA/QC measurements taken when the Datasondes were retrieved and reinstalled. This is an indication of the good performance of the Datasondes.

Data Interpretation

- Throughout the month of July 11th – August 10th, most water quality parameters at the Upper Reid Brook station remained steady at expected background levels. As can be seen by the graphs taken from the web page, pH and conductivity (Figures 1 & 2) remained very consistent throughout the month.

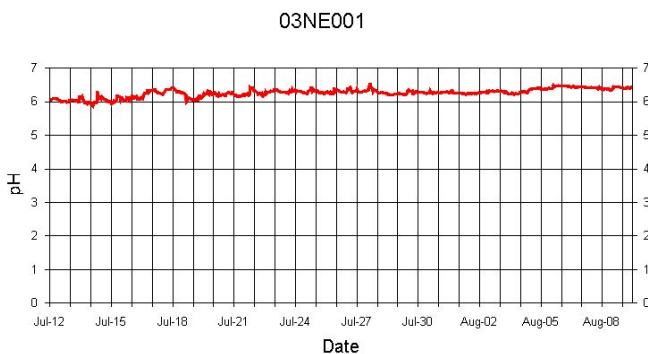


Figure 1

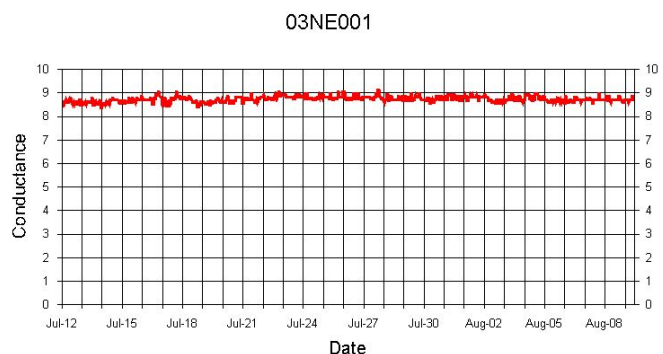


Figure 2

- As expected, the water temperature fluctuated throughout the month thus influencing the amount of dissolved oxygen in the water (Figures 3 & 4). On July 17th, the water temperature peaked at 16.23 °C while the dissolved oxygen dropped to 9.6 mg/L accordingly. It is important to note that the dissolved oxygen levels **did not** drop to a range that is harmful to aquatic life.

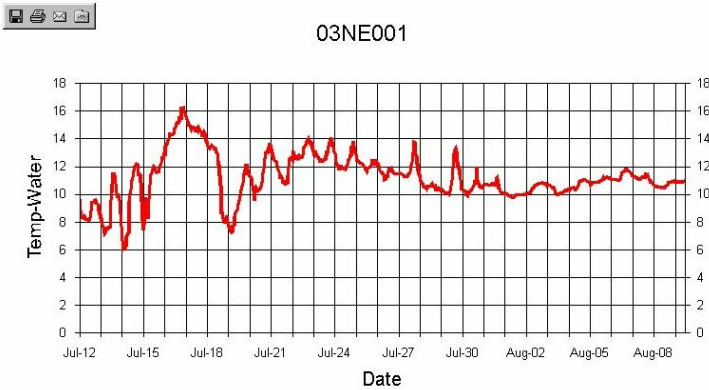


Figure 3

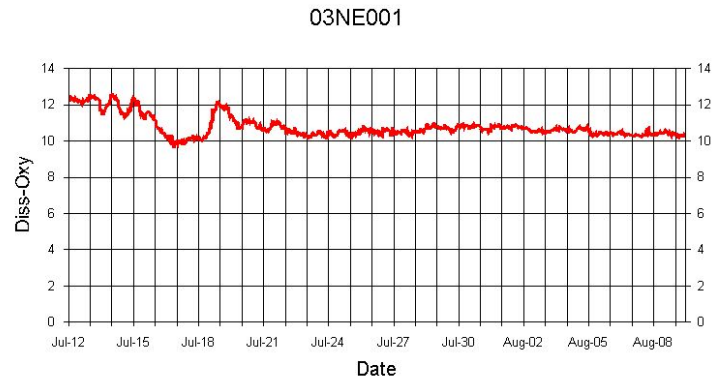


Figure 4

- Finally, the turbidity values at the Upper Reid Brook station remained very low and fluctuated between approximately 0 and 3.5 NTU indicating that this water body is very clear and pristine (Figure 5).

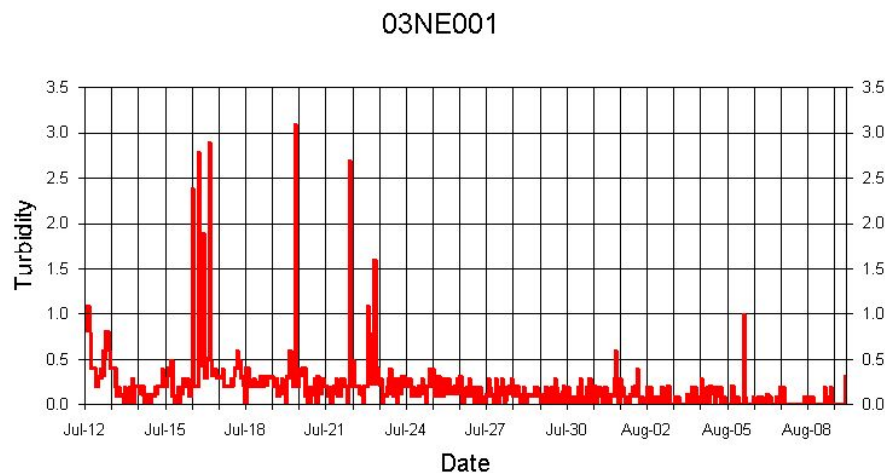


Figure 5

- The instrument at Camp Pond Brook was also deployed on July 11th, however, due to a problem with the data logger programming, the data was collected, however, did not graph properly on the web page until July 22nd when the Environment Canada staff were able to fix the problem on-site. Therefore, the following graphs contain data from July 22nd to August 10th.
- Most of the water quality parameters remained very consistent at Camp Pond Brook with no major water quality events taking place in the water body. It is evident from the following graphs that water temperature, dissolved oxygen and pH are following a very distinct diurnal pattern as expected (Figures 6, 7 & 8).

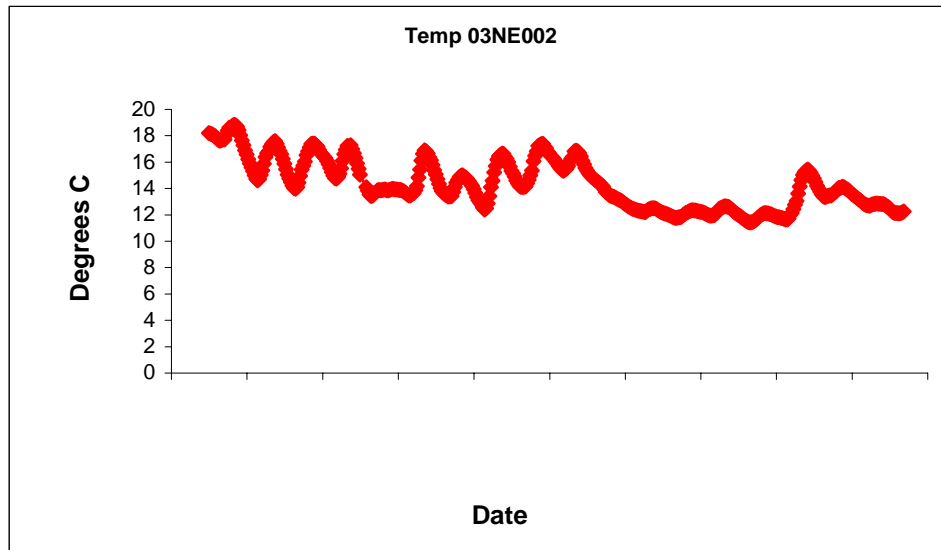


Figure 6

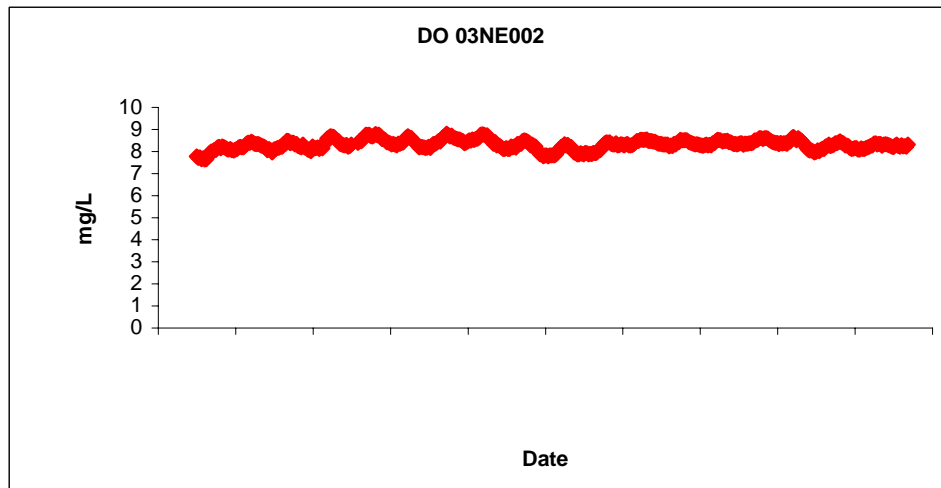


Figure 7

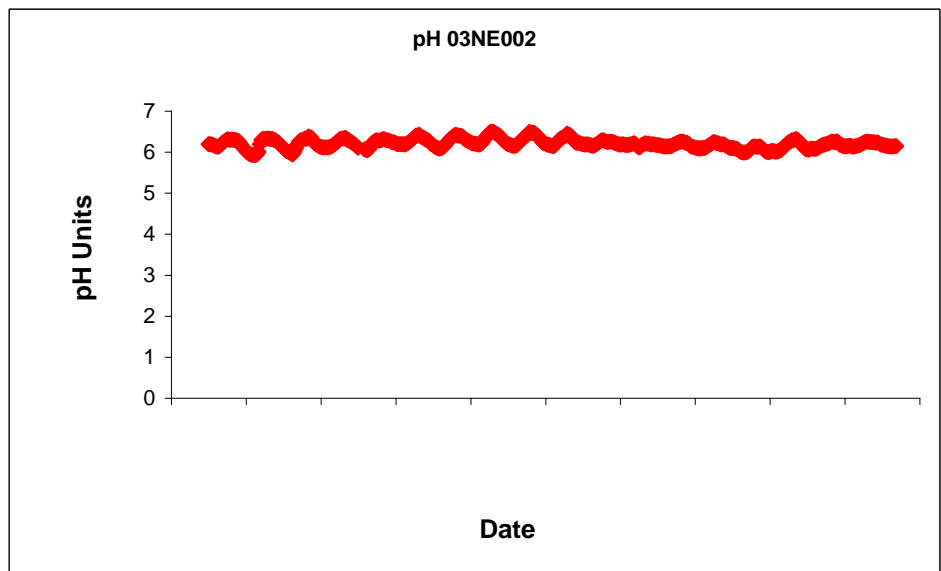


Figure 8

- The conductivity values at Camp pond Brook show a slightly increasing trend (Figure 9).

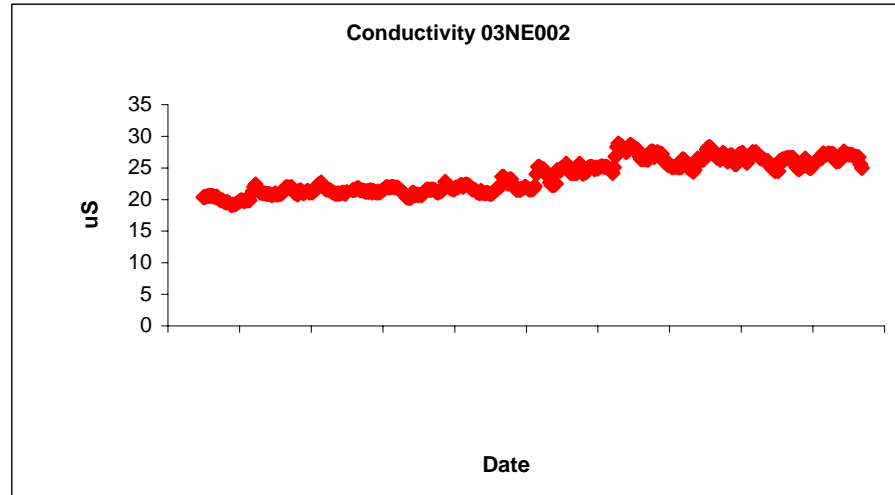


Figure 9

- The turbidity values at Camp Pond Brook remained consistently low with the exception of only two minor spikes on August 1st (19.8 NTU) and August 7th (16.8 NTU) (Figure 10). These spikes are not as significant as the major spikes encountered last year at Camp Pond Brook. When the turbidity values at Camp Pond Brook and Upper Reid Brook are compared, it is evident that the construction around the area of the Camp Pond Brook site does cause a slight increase in the turbidity values from background values.

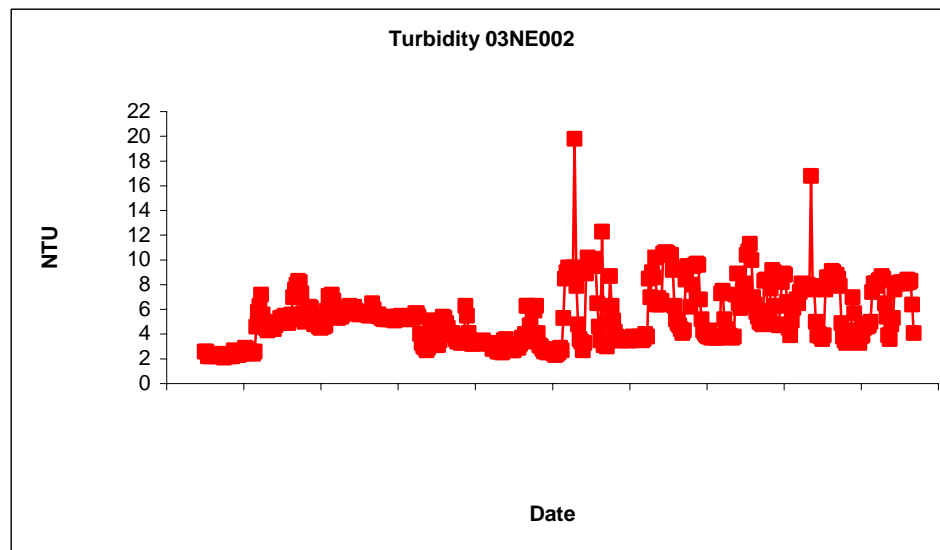


Figure 10

- Finally, the instrument at Lower Reid Brook was retrieved and sent away for repairs in July, therefore there is no data available for this station throughout the past month. The instrument was redeployed on August 11th.

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