

## Real Time Water Quality Monthly Report for Voisey's Bay Nickel Company Ltd. August 2003

### 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

- The real-time water quality monitoring stations were installed in Voisey's Bay during mid-July, thus, the first monthly maintenance and calibration was scheduled for mid-August.
- On August 11<sup>th</sup>, 2003, the Environmental Officer on-site (Perry) flew by helicopter to the three sites and retrieved the Datasondes for routine maintenance and calibration.
- As part of the QA/QC protocol, the Environmental Officer was required to take water quality readings with a Minisonde at each site prior to removal of the Datasonde from the water, however, problems were encountered when calibrating the Minisonde. Thus, the YSI multi-parameter meter was utilized for QA/QC purposes in August.
- The Minisonde was sent to Edmonton for repair. Hydrolab is replacing the internal computer of the Minisonde so that this problem does not occur again in the future.
- On August 11<sup>th</sup>, 2003, each of the three Datasondes were maintained and prepared for reinstallation.
- The Datasondes were to be reinstalled on August 12<sup>th</sup>, however, it could not be done due to poor weather conditions.
- The Datasondes were calibrated and then reinstalled on August 13<sup>th</sup>, 2003.
- As outlined in the QA/QC protocols, the Environmental Officer performed all the required QA/QC checking and sampling. All required forms were completed and sent to the Department of Environment the following day on August 14<sup>th</sup>, 2003.
- There is a break in the graphs on the real-time water quality monitoring web page corresponding with the time-frame the Datasondes were out of the water for routine monthly calibration and maintenance.
- Digital photographs were taken during the retrieval and reinstallation process (see Figures 1 & 2).



Figure 1



Figure 2

- The water quality data collected on a real-time basis since the instruments were first 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 August most water quality parameters remained steady at expected background levels.
- There was a spike in turbidity in Camp Pond Brook below Camp Pond on August 26<sup>th</sup>, 2003 at approximately 6:44 AM NST whereby the turbidity levels rose to 197.9 NTU (Figure 3). The rise and fall of the turbidity levels occurred over a 12-hour time frame. Interestingly, the levels of other corresponding parameters (conductivity and TDS) also increased during this period (Figures 4 & 5). This water quality event was most likely caused by increased precipitation during this period as indicated by the stage increase in Figure 6.

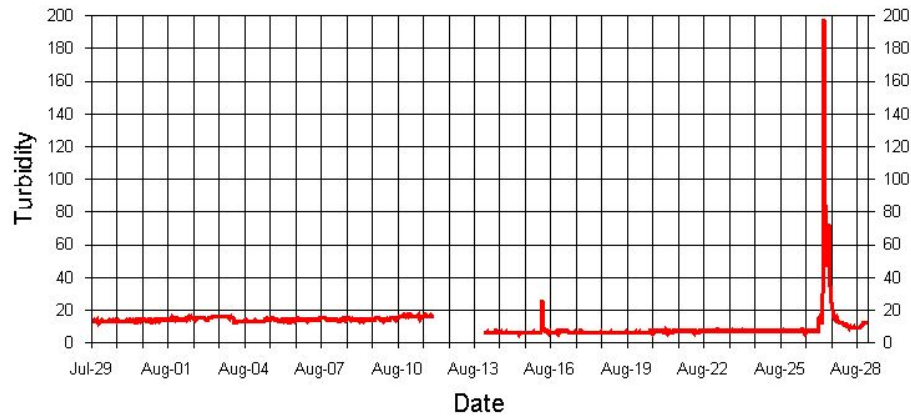


Figure 3

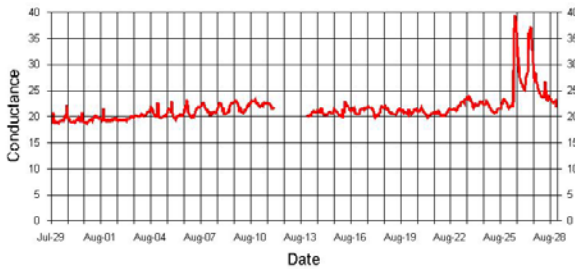


Figure 4

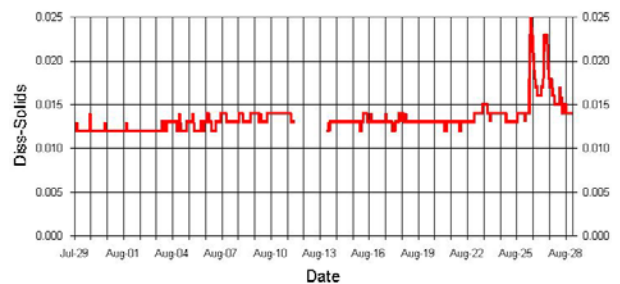


Figure 5

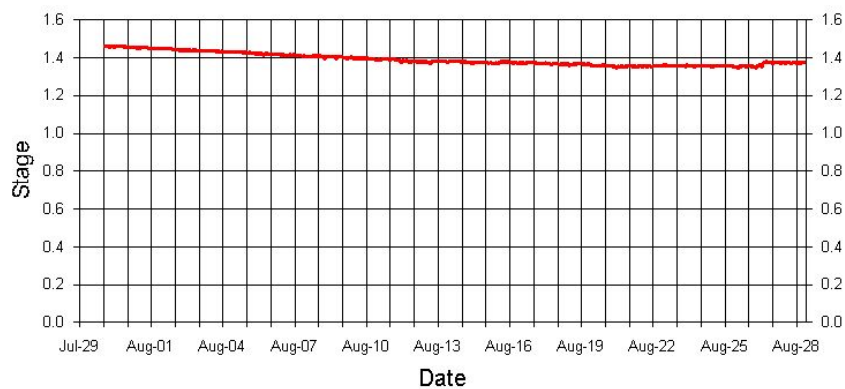


Figure 6

## **Additional Information**

- As stated in the previous monthly report, there was a transmission problem with the Lower Reid Brook below Tributary station. This problem will be looked at when the Environment Canada and Department of Environment staff travel to Voisey's Bay in the fall. It is believed that the probe is successfully logging data but the issue lies with the transmission of the data through satellite.
- As stated in the previous monthly report, the turbidity sensor was not working properly at the Reid Brook at Outlet of Reid Pond station. This problem has been fixed. It was not necessary to send the probe to Edmonton for repair. The sensor is successfully recording turbidity values.

**Prepared by:** Renée Paterson  
Regional Water Quality Officer  
Department of Environment  
September 3<sup>rd</sup>, 2003  
PH: (709) 729-1159  
FX: (709) 729-0320