

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

General

- The Water Resources Management Division staff analyses the real-time web page on a regular 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 was stated in the September monthly report, the three Datasondes were maintained and calibrated on September 22nd and 23rd. All necessary QA/QC was performed at that point in time.
- The three Datasondes are usually maintained and calibrated on a strict monthly schedule, however, it was decided to leave the instruments in the water for two extra weeks to determine how the instruments would function on a six-week maintenance/calibration schedule. Thus, there are **not** breaks in the graphs on the real-time water quality monitoring web page corresponding to maintenance/calibration during the month of October.
- The three Datasondes are scheduled to be maintained and calibrated the beginning of November.
- When the QA/QC is performed in early November it will give a clear picture of the amount of drift associated with each parameter over a six-week period.
- Throughout the month of October, the water quality data collected on a real-time basis did not drift significantly thus indicating that the instruments are holding their calibration well in the site-specific conditions of each water body.

Data Interpretation

- Throughout the month of October most water quality parameters remained at expected background levels. However, it is important to note that the water temperature is quickly approaching freezing at all three locations. **Figure 1** clearly demonstrates this decrease in water temperature at Lower Reid Brook. The water temperatures and field conditions will be closely watched by Department of Environment staff and the VBN Environmental Officers (on-site) to determine exactly when the three Datasondes should be removed for the winter months.

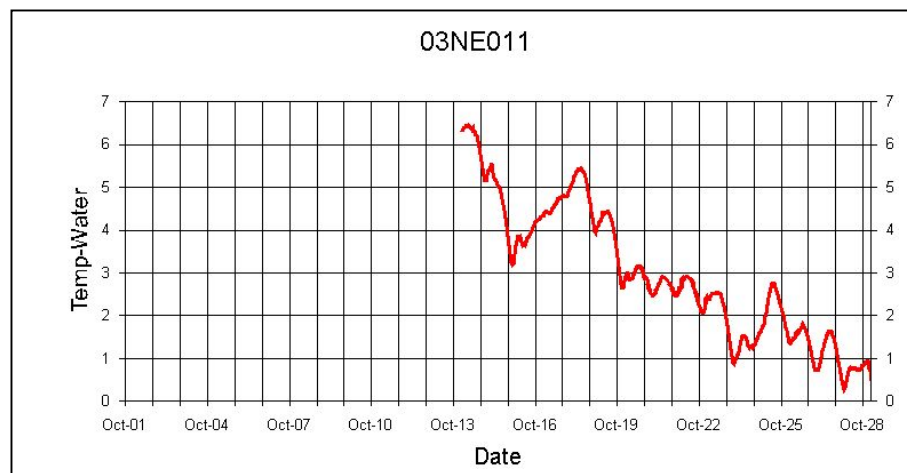


Figure 1

- With the decreasing water temperature there is an expected increase in the amount of oxygen being dissolved in the water as can be seen at Lower Reid Brook (**Figure 2**).

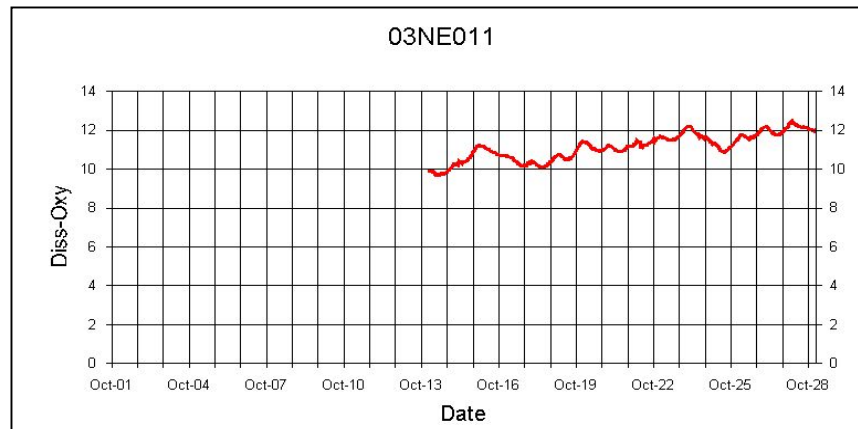


Figure 2

- There were a number of significant spikes in the turbidity levels in Camp Pond Brook below Camp Pond early in the month of October (**Figure 3**). However, the number of turbidity spikes decreased greatly throughout the remainder of the month. VBNC, SNC-Lavalin, and Aboriginal Environmental Monitors are continuously working with the construction contractor IKC-Borealis to improve upon sedimentation control strategies.
- Mitigation techniques to minimize sedimentation incidents in Camp Pond Brook are as follows:
 - a two-chambered sedimentation pond was constructed to receive turbid waters from excavations around the mill site and a french drain that collected surface water from the excavation of the south mill site area
 - a three chambered settling pond was constructed at the east end of the mill site to control surface water runoff in that area during surface excavation and topsoil removal
 - settling sumps have been constructed on the east and west sides of the Bailey Bridge to contain runoff from road surfaces near the bridge; both sumps have been lined with geotextile and maintained regularly
 - hundreds of meters of silt fence have been installed parallel to Camp Pond Brook to create a filter barrier between mill site activity and the brook
 - pumps ranging from 2" to 6" diameter discharge lines have been used for water diversion and discharge from the settling ponds
 - a six inch discharge line was placed from the 2-chambered settling basin to an area approximately 300 meters away from the brook where water from the settling ponds were released
 - a permanent lined sedimentation pond - sed pond B (a component of water treatment during mine operation) was finished during October. After this time, all water required to be discharged from the sedimentation ponds has been diverted back to this lined pond
 - IKCB have a team of field workers dedicated to maintain pumping systems and sedimentation ponds

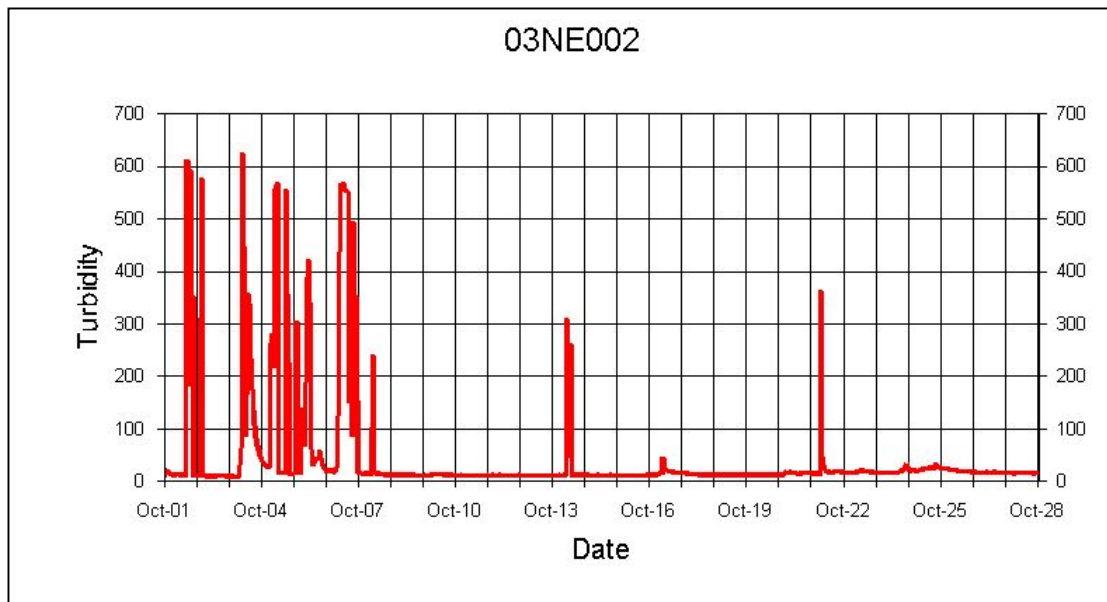


Figure 3

- As a result of the increased turbidity at Camp Pond Brook, other parameters such as conductivity and total dissolved solids also showed slight increases (**Figures 4 and 5**).

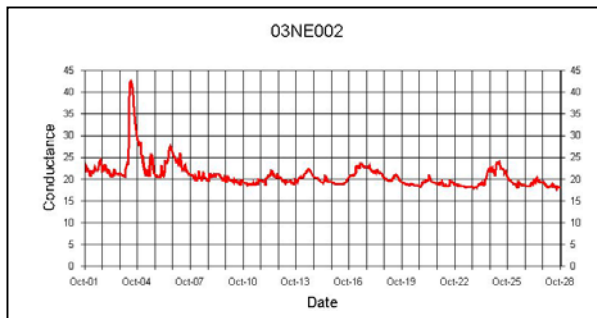


Figure 4



Figure 5

- The turbidity values at the Lower Reid Brook site remained very low throughout the month of October. It only strayed from the background value of 0 NTU on two occasions. The first was on October 19th (6 NTU) and the second was on October 23rd (3 NTU) (**Figure 6**). It is important to note that the stage had also increased around these times indicating heavy rainfall events influenced the slight increases in turbidity (**Figure 7**). The turbidity values at the Upper Reid Brook site also remained very low only ranging from 0 – 3NTU throughout the month of October.

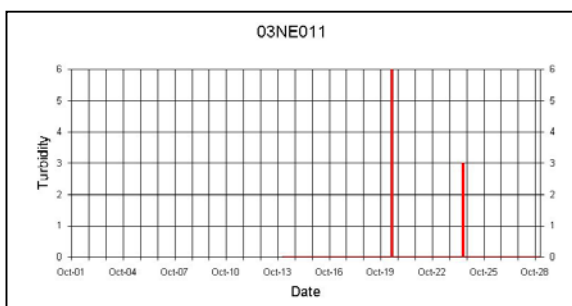


Figure 6

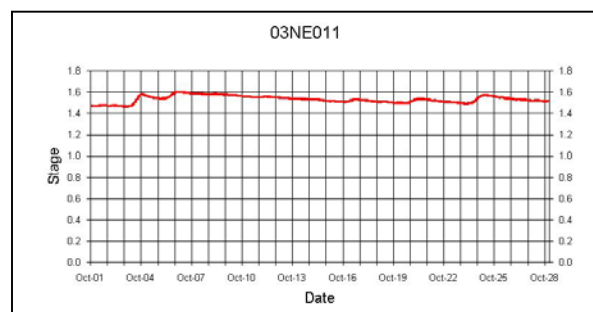


Figure 7

Additional Information

- As stated in the previous monthly report, there was a transmission problem with the Lower Reid Brook below Tributary station. This problem was fixed around mid-October. Therefore, the graphs for the Lower Reid Brook site only read from mid-October onward.
- Please note the mitigation information provided above was compiled by Perry Blanchard, VBNC Environmental Officer (on-site).

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