Government of Northwest Territories | Gouvernement des Territoires du Nord-Ouest

OBED MOUNTAIN MINE SPILL
FREQUENTLY ASKED QUESTIONS

What happened?

- On October 31, 2013, a structural failure of the Green Pit Tailings pond at the Obed Mountain coal mine resulted in 670,000 cubic metres of mine wastewater and solids being discharged into Apetowun Creek and Plante Creek. Spilled minewater flowed from the creeks into the Athabasca River downstream of Hinton, Alberta.

- Hinton is about 1,400 kilometres (km) upstream of the Northwest Territories (NWT) border.

What is a plume?

- The plume is the mixture of water and sediment that released as a result of the tailings pond failure at Obed Mountain Mine. In the immediate area, the plume was higher in turbidity, metals and hydrocarbons than normal background concentrations.

- Turbidity is the amount of sediment (dirt, soil and particles) in the water. The monitoring of turbidity was used to help track the plume as it moved downstream.

- Most of the contaminants contained within the plume were associated with the suspended sediments.

What monitoring occurred in Alberta?

- A considerable amount of monitoring took place in Alberta by the Government of Alberta, the Company (Coal Valley Resources Inc.), the Mikisew Cree and Athabasca Chipewyan First Nations.

- Following the spill, water samples were collected on a daily basis on the Athabasca River as the plume moved downstream. Water samples were collected from within the plume along the length of the Athabasca River. Water samples were taken immediately upstream of the plume and in the river after the plume had passed. Samples were also collected over the course of many days from a number of fixed locations including the Town of Athabasca, Fort McMurray, and three sites between Fort McMurray and Lake Athabasca.

- Collectively, these samples provided information on the chemical composition of the plume and how the plume changed the composition of the Athabasca River as it flowed downstream.

- All water samples were analyzed for a variety of water quality measurements, including turbidity, metals (lead, mercury and selenium) and hydrocarbons.

- Immediate and short term monitoring plans were implemented from the spill date until December 2014 when the approved long term monitoring plan (http://obed.ca/wp-content/uploads/2014/07/LT-Spling-Mring-Plan_Rev2_Clause-11.pdf) replaced it. The plan includes monitoring of water quality, using both continuous data sondes and water samples, sediment quality, benthic invertebrates, fish habitat, fish population and health, soil, vegetation and wildlife.

- Samples were collected in 2014, 2015 and additional sampling is scheduled to occur in 2016. Information related to the company's monitoring efforts can be found at: www.obed.ca.

What did the monitoring done in Alberta show?

- The Government of Alberta (Alberta Environment and Sustainable Resource Development and Alberta Health) continually reviewed all monitoring information as it became available.

- Comparisons were made between water quality samples collected from within the plume, upstream of the plume and downstream of the plume.

- The majority of the samples that exceeded water quality guidelines, such as aluminum, arsenic, iron, lead, selenium and zinc, were collected within 60 km of the spill and during the first two weeks following the release.

- By the time the plume reached Fort McMurray (850 km downstream of the spill), total suspended solids concentrations within the plume were indistinguishable from water samples collected pre- and post-plume.

- Total metal concentrations within the plume were roughly similar to background conditions just downstream of Fort McMurray.

- Total PAHs (hydrocarbons) reached background concentrations 250 km downstream from the spill.

- Despite elevated total metal concentrations within the plume, post-plume samples collected from locations along the length of the river showed that concentrations typically retuned to pre-plume conditions within a few days after the passage of the plume.

- According to the Final Impact Assessment Report released by Coal Valley Resources Inc. (Obed Mine), the sonde located in the Rivière des Rochers (15.5 km north of Lake Athabasca), may have identified the plume at approximately 12:00 on December 7, 2013. However, by that time turbidity levels in the plume were within 1.5 NTU of background concentrations and could not be definitively distinguished from natural fluctuations.

What monitoring took place within the NWT?

- Following the spill, the GNWT and Aboriginal Affairs and Northern Development Canada (AANDC) received information from the Alberta Government on a daily basis.

- To address concerns related to the potential migration of the Obed Mountain Mine Spill into the Slave River, the GNWT, AANDC, and the Town of Fort Smith collaborated and developed a water quality monitoring program.

- Water quality sampling in the Slave River (at Fort Smith) began long before the plume was expected to arrive. Water quality sampling in the Slave River took place from November 22, 2013 – January 27, 2014.

- To address concerns regarding the re-suspension of contaminated sediment from the river bottom during the spring freshet, a spring water quality program was also carried out. Samples were collected between April 14 and June 9, 2014.

- Winter and spring samples were analyzed for a variety of water quality measurements, including turbidity, metals and hydrocarbons.

- Real-time data sondes were also deployed in the Slave River water intake building to allow for continuous measurements of the river's turbidity levels, and to align with the sonde sampling efforts by the Company. This monitoring was in addition to daily monitoring for turbidity which is done at the Fort Smith Water Treatment Plant.

- Information from other long-term monitoring by AANDC and Environment Canada and more recent GNWT supported community-based monitoring on the Slave River were also compared to what was found during the sampling program related to the spill.

What did the monitoring done in the NWT show?

- According to Alberta, the plume reached the Rivière des Rochers on December 7, 2013. Using the distance from Rivière des Rochers to the NWT/AB border and the flow of the river, it was calculated that water associated with the plume would have reached the NWT/Alberta border no later than December 12, 2013.

- From November 22, 2013 to January 8, 2014, a real-time data sonde was deployed in the Slave River at Fort Smith. At the time of the expected arrival of the plume, the plume could not be distinguished from the background turbidity levels (Figure 1).

- The November/December 2013 surface water sample concentrations of arsenic, lead, mercury selenium and zinc met the CCME guidelines for the protection of aquatic life and were within the historical range of values from Fitzgerald.

- Turbidity levels measured in the surface water samples collected during November and December of 2013 ranged from 13-32 NTU[1]. These were also within the range of historical turbidity values at Fitzgerald (3-923 NTU).

- The November and December 2013 concentrations of hydrocarbons in the water samples (benzene, toluene, ethylene and xylene; BTEX) were all less than the detection limits.

[1] NTU are the units of measurement for turbidity. NTU stands for "Nephelometric Turbidity Unit" and is a measurement of the cloudiness or haziness of a water sample caused by large numbers of individual particles that are generally invisible to the naked eye, like smoke in the air.

- During the 2014 spring sampling program, the highest recorded turbidity reading measured 2690 NTU. A year before, in 2013, the highest recorded turbidity reading was 8800 NTU.

- On June 9 (which marked the end of the 2014 spring freshet), turbidity levels were at 258 NTU, which is within the historic June turbidity values at Fitzgerald (58-1910 NTU).

- As expected, increases in total metals and nutrients occurred with increasing turbidity during the 2014 spring freshet on the Slave River at Fort Smith. Concentrations of several total metals (arsenic, mercury, lead, silver, selenium and zinc) exceeded CCME guidelines during the breakup period however; these metals have historically been above guidelines when turbidity is high.

- Concentrations of most total metals returned to below guideline levels after freshet (June 9, 2014). Although lead and zinc levels were still above the CCME guidelines, values were within historic June values at Fitzgerald.

Did the spill affect water quality in the NWT?

- No. The effects of the Obed release could not be detected in the water quality samples collected from the Slave River at Fort Smith during the winter 2013 and spring 2014.

Is municipal tap water safe for drinking in the NWT right now?

- Yes. All treated municipal drinking water in the NWT was and continues to be safe to drink.

- Please visit: www.nwtdrinkingwter.ca/faq for more information on drinking water in the NWT.

Did the plume reach the NWT?

- The concentrations of turbidity in the plume continued to decrease as the plume moved downstream for the following reasons:
    - Most of the sediment settled out within 40-60 km of the wall failure of the post-processing settling pond;
    - Suspended sediments continued to settle along the river's length as flows decreased with the onset of winter;

- The plume continued to lengthen as it moved downstream, further 'diluting' turbidity levels;
- The significant influence of the Peace River on the Rivière des Rochers (forming the Slave River).

- After the plume passed the Rivière des Rochers on December 7, it had 200 km to travel before reaching the NWT border. Along this course, the Peace River joins the Rivière des Rochers to form the Slave River (see Figure 2 and 3). The Peace River has a very large influence on the Slave River's water quality and flow rates. Approximately 60% of the Slave River is made up of water from the Peace River.

- Based upon monitoring results, it was concluded that the plume could not be distinguished from background water quality conditions. The turbidity readings before the plume was supposed to arrive (on or around December 12, 2013) were very similar to the turbidity readings at the time the plume was supposed to arrive (see Figure 1).

- This was expected. The Slave River is a large, dynamic river. Under normal conditions, turbidity levels have been known to reach as high as 923 NTU in November or December.

How can we learn more about the Obed Mountain Mine Spill?

- The Alberta Government Water Quality Results report can be found online at: http://alberta.ca/release.cfm?xID=3539774C6DBCD-A9D5-D0DE-96F3F3060C090544.

- Sherritt Coal, owner of the Obed Coal Mine, is posting regular updates on its remediation actions and water quality sampling results online at: www.obed.ca.

  For more information, contact Judy McLinton, Manager, Public Affairs and Communication, Environment and Natural Resources, GNWT (Judy_McLinton@gov.nt.ca; 867-767-9231 ext. 53041).

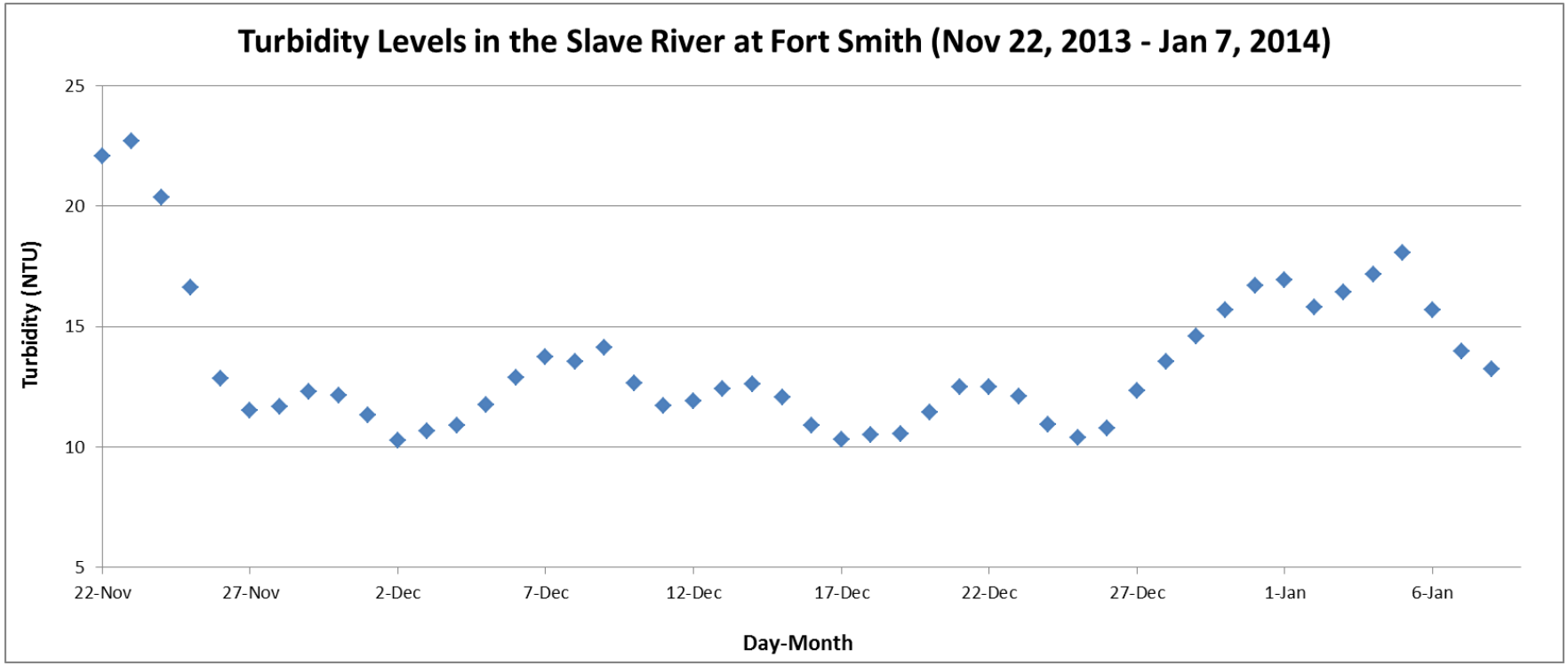

Figure 1: Daily Average Turbidity levels in the Slave River at Fort Smith between November 22, 2013 and January 8, 2014. Measurements were taken at 30-minute intervals.

Figure 2: The Lower Slave River Sub-basin showing sites where water samples were collected and real-time data sondes were deployed.

Figure 3:The Peace-Athabasca-Slave Watershed showing where the spill occurred and the distance to the NWT/Alberta Border.