Milltown Reservoir Site Update, March 9, 2007.

Clark Fork and Blackfoot River flows have been increasing this week, due to low elevation snowmelt and precipitation upstream of the Milltown Dam. The reservoir level has risen as river flows have increased, and it is now drawn down about 9 feet from full pool. Turbidity levels in the rivers have increased noticeably. Levels of sediment and contaminants such as arsenic and copper have also increased, and daily monitoring of the river has been initiated. Sediment, arsenic and copper concentrations are much higher upstream of the reservoir on the Clark Fork at Turah, originating from snowmelt and precipitation in the upstream watershed including mine wastes that remain along the floodplains of Silver Bow Creek and the Clark Fork River in the Deer Lodge Valley. Sediment, arsenic and copper concentrations downstream of the dam remain below construction standards. We have received several phone calls from concerned recreational users about water quality in the river, who have expressed concern about what is going on in the river up at Milltown and how it might affect their health. At this time, it does not appear that the Milltown Reservoir is a major source of sediments, arsenic or copper to the river, and that the majority of the increased turbidity is coming from upstream of the dam. Significant sediment scouring from the reservoir is expected to occur this spring's runoff. Levels of contaminants are currently at fairly typical levels for a March early season runoff event, and below levels of sediment, copper and arsenic typically observed in spring runoff in May and June. Arsenic levels in the river above Missoula remain at about 5 parts per billion, as compared to the drinking water standard of 10 parts per billion and 8 parts per billion upstream of the dam at Turah. Turbidity in the river upstream of the dam yesterday was measured at 40 turbidity units on the Clark Fork, 10 units on the Blackfoot, and at 26 units downstream of the dam. These levels of sediment and arsenic are not expected to affect the health of recreational users. Copper concentrations are also below those expected to impact fish. Surface water and groundwater monitoring results can be viewed at the project website, which is updated daily. ftp://milltown.envirocon.com/

The photo above shows the reservoir sediments from the bluff above the dam on the south side of the river. Major construction activity at the site includes construction of flood control berms

along the Clark Fork and Blackfoot Rivers, which will be completed by the end of April to protect contaminated sediments from erosion during spring runoff. In this photo, the first loads of rock riprap for the flood berms are being delivered to the site by the trucks in the foreground. At the top left of the photo is the bypass channel excavation test pit, and at the top right is the sediment stockpile area which contains 40,000 cubic yards of contaminated sediments removed so far. This material is protected by a flood berm, and is planned to be shipped to the BP waste repository near the former Anaconda Smelter this fall.

These two photos show exposed reservoir sediments about one mile upstream of the dam along the Clark Fork, near the old railroad bridge crossing. These sediments will be subject to scouring during spring runoff this year. Sediment, copper and arsenic concentrations will be monitored daily when turbidity levels are elevated, and if excessive scouring causes water quality standards to be exceeded, the reservoir water level will be increased to reduce sediment scour. As river flows increase, the reservoir level will also rise, helping to limit sediment scour.

This photo shows placement of rock riprap for the Clark Fork River flood berm. The upstream face of the Milltown Dam is in the background. Turbine units are being removed from the penstocks, in the powerhouse, which are large pipes that bring the flow of water from the reservoir through the powerhouse. This will allow more water to be channeled through the powerhouse this spring, reducing the water level rise in the reservoir during spring runoff.

The photo above shows the discharge pipe from the dewatering pumps for the bypass channel test pit. The pumps have been turned off this week, and discharge to the river has stopped for the time being. Discharge may resume again when bypass channel construction resumes later this year. The pumps had discharged about 400 gallons per minute of contaminated water from the shallow aquifer under the reservoir, to dewater the excavation for the bypass channel test pit.

Monitoring results from groundwater monitoring wells in the reservoir area have shown a significant drop in arsenic, iron and manganese in the polluted aquifer since the project began in June, 2006. December, 2006 results show arsenic levels in monitoring wells near the reservoir in the arsenic plume have dropped by at least 50% as compared to the June results. Iron and manganese levels have dropped even more significantly. Arsenic levels in one of the most contaminated wells dropped from 339 parts per billion to 18 ppb in December. Another well went from 217 ppb to 41 ppb in December. While these results are promising, many wells remain within the range of variability over the last ten years of monitoring and it is too early to pronounce a long-term trend for restoration of drinking water quality. Wells on the west side of the reservoir have not shown improvement, and some have shown some decrease in water quality although quality remains similar to previous monitoring and below drinking water standards. Restoration of drinking water quality in the 325 acre arsenic plume area is one of the primary objectives of the Milltown project, and these initial results are very promising. The short-term improvements in water quality are likely the result of lower water level in the reservoir, reducing the water pressure through contaminated sediments into the aquifer below. Also contributing to the improvement may be the pumping of contaminated water from the bypass channel test pit and removal of some of the most contaminated sediments from the pit where they were in contact with ground water. As water levels rise with spring runoff this year, arsenic levels in the aquifer may increase again.

Peter Nielsen
Missoula City-County Health Department
301 W. Alder
Missoula MT 59802
(406) 258-4968