Milltown Reservoir Site Update, July 9, 2007

Construction work at the Milltown site is now focused on three activities, 1) excavation and construction of a bypass channel for the Clark Fork River, 2) construction of a rail spur for transport of contaminated sediments, and 3) stabilization of the Interstate Highway bridges over the Blackfoot River.

The photo above shows the bypass channel excavation near the Interstate Highway. The excavation is progressing upstream of the test pit dug last fall. The channel is now about 33% complete, with more than 200,000 cubic yards of contaminated sediment removed and stockpiled on site. Once complete, the Clark Fork River will be diverted into the bypass channel, possibly in October. The channel will be 100 feet wide at its base, and sized to handle the 100 year flood by next spring when the dam's spillway is removed. The river will remain in the bypass channel for at least two years while the remainder of the most contaminated reservoir sediments are removed and shipped to the Atlantic Richfield Waste Repository near the former Anaconda Smelter. The excavation shown in the photo is much wider than 100 feet, because a flood control berm must be installed in the foreground of the photo to protect the contaminated sediments from erosion.

The photo above shows another section of bypass channel excavation at the upper end of the reservoir. This is the area where the rail spur bridge will be constructed over the bypass channel. In the foreground is a synthetic fabric liner placed under the rail bed. The rail line will enter the site from the direction of the construction trailer and pavilion in the background. At the base of the excavation many ponderosa pine stumps are visible. These trees were cut in 1906-7 prior to the construction of the dam by William Andrews Clark. The pipes going across the photo are for discharge of water from wells installed to lower the water table in the area of the excavation.

The photo above shows the location of one of the dewatering discharge points to the river. The discharge water is high in iron, causing the rusty stain on the rocks next to the river. Envirocon has installed a series of wells to lower the water level in the excavation area, and is now pumping about 3,500 gallons per minute to several discharge points along the Blackfoot and Clark Fork channels. This is up from about 400 gallons per minute during last fall's bypass channel construction test. While the volume of water pumped has increased, the concentration of contaminants has decreased. Most of the water now being pumped to the river is coming from the upper reservoir area, and arsenic concentrations are much lower there. The average concentration of arsenic in the discharge water is now about 100 parts per billion, while the concentration discharged last fall ranged from about 700 to 900 parts per billion. Although high in arsenic, the volume of the discharge is very low compared to the flow of the rivers, and the discharge has not yet been detectable at the monitoring station 1.6 miles downstream of the dam.

The photo above shows the Clark Fork channel just upstream of the former Milwaukee Railroad bridge, known locally as the Duck Bridge, about one mile upstream of the dam. The remnants of an old wagon road bridge are visible, and erosion of the far river bank has exposed a portion of the rock foundation for the bridge. The island has eroded significantly this spring and early summer. The sediments in the island appear to be primarily sandy material. Several people have reported sandy deposits in the river banks and eddies downstream of the dam into Missoula this summer. This may be one of the main sources of that sandy material, along with sediments eroded from the Blackfoot River where the Bonner Dam was removed in late 2005.

The photo above shows one of the sandy deposits, just upstream of the Orange Street Bridge in Missoula. This type of deposition was predicted by computer models before the project began, and there has actually been less sediment release so far than predicted. These sandy sediments likely originated from the Blackfoot River or the Clark Fork upstream of former Milwaukee Railroad Bridge. Sediments originating from the Blackfoot River are not contaminated with mine waste. Sandy sediments from the upper Clark Fork arm of the reservoir are the cleanest of the Clark Fork sediments. This is because there is less surface area on each particle of sediment for the arsenic to adhere to, compared to smaller sized particles such as silts and clay. The monitoring program for the Milltown project includes some sampling of the river bed sediments and aquatic insects for metals and arsenic, and aquatic insect populations will also be checked in August. Depending on springtime river flows, it may take several years for this sediment to move downstream. After the 1996 ice event, sediment accumulated in the river downstream but high river flows in 1996 and 1997 moved it downstream. This year's spring runoff was not high enough to carry much of this bedload downstream.

In the photo above Matt Fein from Envirocon describes the construction of the rail spur on the reservoir sediments. Because the sediments are soft, and uneven settlement may occur in the rail line, Envirocon has installed a plastic geo-grid filled with rock to support the rail bed. This work is now complete, and Envirocon will now place gravel sub-grade over the grid. Later this summer Montana Rail Link will install the ballast, railroad ties and track. Sediments will begin to be shipped off-site in September.

This photo shows the metal sheet piling at the end of the bypass channel where it will flow into the Blackfoot River. In the foreground is a pump and line to the river where water is withdrawn for loading water trucks to control road dust on site. Envirocon now has two water trucks working full time to control dust on site. In the background, the eastbound lane of I-90 is visible. EPA is paying for stabilization or replacement of the highway bridges over the Blackfoot River. The work is supervised by the U.S. Army Corps of Engineers. Spaulding Construction and other contractors are currently working on stabilization of the east bound lane. This involves the injection of concrete grout into interlocking columns to fortify the embankments, and driving steel “H-piles” into the ground to support the abutments of the bridge. Later this summer the center piers will be fortified and deepened to withstand the forces of the river following dam removal. The I-90 bridge work is scheduled for completion this fall.

This photo shows construction traffic at the reservoir site, with trucks hauling contaminated sediments to a stockpile and a water truck controlling dust on the road. Envirocon is performing the work for Atlantic Richfield Company, and now has more than 30 full-time employees working on site.

This photo shows construction of a new pedestrian trail in the Piltzville area, near the upper end of the reservoir. EPA provided Missoula County $500,000 to complete this project, which will provide a safer route for pedestrian traffic from Piltzville to Bonner. This section of trail will be complete by some time in August, and will remain as a long-term asset for the community after the cleanup and restoration are complete. .

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