

## Milltown Reservoir Project Update – August 10, 2007



The pace of activity at the Milltown Reservoir Superfund Site has picked up considerably this summer. Envirocon now has 25-30 workers busy excavating the bypass channel, installing a rail bridge over the channel and stockpiling contaminated sediments for transport to the waste repository this fall. EPA and the Corps of Engineers are supervising more than 50 workers, overseeing Envirocon's work, conducting stabilization of the Interstate highway and removing old timber cribs behind the Bonner mill. Missoula County is completing a new pedestrian walkway and trail from Bonner to Piltzville, providing a safer route of travel for local residents during construction work at the site. Plans for removal of the dam are being changed to remove the powerhouse section of the dam first, beginning this fall. Site restoration planning is continuing, and several new documents related to re-vegetation, weed management and channel design have recently been completed. The University of Montana Geology Department recently completed a report addressing potential impacts of the reservoir drawdown on drinking water wells in the area. EPA and DEQ are developing a strategy, in cooperation with Missoula County, to assess potentially affected wells and replace those at high risk of going dry in the next reservoir drawdown. A Park Design Workshop will be held in September, sponsored by the Park Service Rivers and Trails Program, Missoula County and the Redevelopment Working Group. This workshop will refine conceptual plans for development of a publicly-owned park and natural area following dam removal and restoration. It is a busy time at Milltown.

The photo above shows an overview of the site from the bluff above the dam, and was taken on a site visit this week with Plum Creek staff. Plum Creek is considering a donation of land to access the bluff, so that a parking area, trail and overlook can be constructed by the EPA. The Carpenters' Union has stepped forward and agreed to accept the land until such time as the State of Montana decides whether to accept it and other lands in the reservoir area for use as a State park/recreation area and fish and wildlife reserve. Thanks to Dennis Daneke of the Union for his hard work, and to retiring County Commissioner Barbara Evans for her tenacity in moving this project forward. We hope to hear from Plum Creek on the land donation in the next several weeks, so stay tuned. For the time being, Plum Creek has posted the land no trespassing, and

will not allow any group site tours to access the overlook. Hopefully this will be resolved very soon.



This photo shows the dam from the bluff overlook. The reservoir is currently drawn down 12 feet from full pool. All water flow is now routed through the radial gate, between the powerhouse and the spillway. Envirocon has proposed a change in plans for dam removal. Under the new plan, which is currently under review by EPA, DEQ and the Design Review Team, the powerhouse would be removed first, rather than removing the spillway first as originally planned. Plans have changed because of problems fitting the temporary gravel “coffer” dams above and below the spillway in order to remove it. During design of the coffer dams, it became clear that the gravel dams would be too large to allow excavation down below the restored river channel under the spillway. So, Envirocon has proposed to install a coffer dam upstream of the powerhouse instead, and remove the powerhouse beginning this fall. After the powerhouse is removed, the river would be diverted through the opening created by its removal, and the reservoir would be lowered to about 19 -20 feet below full pool. The Clark Fork River upstream would be placed in the bypass channel, which is more than halfway excavated now and scheduled for completion this fall. A remnant of an old coffer dam is visible just upstream of the powerhouse, extending in an arc from the shore out into the reservoir. This old gravel coffer dam would be used and extended to the radial gate, allowing water to continue to flow through the radial gate while drying up the area where the power house would be removed.

As a result of the proposal to remove the powerhouse first, plans are being made to salvage historical artifacts from the facility which can be made part of an interpretive center proposed for construction near the current dam site. The Milltown Redevelopment Working Group’s History and Culture committee and the Missoula Historic Preservation Officer are coordinating plans for salvage, and will propose a list of salvage items to NorthWestern and Envirocon.



This photo, taken from the bluff, shows the Clark Fork River channel of the reservoir about a mile upstream of the dam. In the channel below the old railroad bridge pilings numerous trees stumps have emerged as the river has eroded down into the channel sediments. These are trees that were cut before the reservoir was filled in 1908. These stumps are at a higher elevation than the stumps found previously in the bypass channel excavation. They probably were on a bench above the original river channel, which was located farther to the north near the Interstate highway. The stumps are emerging in the river just below the old rail bridge, but have not appeared in the channel downstream towards the dam where thick sediment deposits remain.



This photo shows another view of the stumps in the channel, taken from the flood berm in Envirocon's construction area.



The U.S. Army Corps of Engineers has contracted with several construction companies to stabilize the Interstate highway bridges. Spaulding Construction, of Stevensville, is doing work on the slope stabilization and also completed the removal of timber cribs in the river behind the

Bonner mill. Hayward-Baker is conducting the jet grouting work, in which concrete is injected into the ground in interlocking columns to stabilize the embankments. Hardrive Inc. of Billings is doing the abutment underpinning. Several local companies are also at work: Orion Engineering is doing the geotechnical monitoring on site, Morrison-Maierle Inc. and DJ & A are both doing survey work during the project. Conti Infrastructure and Engineering, of New Jersey, is preparing to complete the pier stabilization. Several subcontractors will be working for Conti, including Becho Inc of Salt Lake City.

Floating barges are being installed in the river to access the center piers. About 40 barges were installed at the time this photo was taken this week. A total of about 100 of these barges will be installed before work starts on the piers. If you ever wondered why the river has been closed to floaters during the project, this should explain it for you.

The tower on the left bank is for making the concrete used for the jet grouting.



In this photo workers from Hardrive Inc of Billings are welding sections of 16 inch H pile. These piles have been driven down to bedrock at both ends of the Interstate to pin the abutments in place, stabilizing the bridge to withstand flows of the river when the dam is removed. After last week's tragic events in Minneapolis, it is comforting to know that the EPA, Montana Department of Transportation and Corps of Engineers are taking a conservative approach to fortifying these bridges. When the project is complete, the bridges are designed to be stronger and safer than they were before the dam was removed.



Back at the Envirocon site, a new railroad bridge is being installed over the bypass channel at the upper end of the sediment removal area. A subcontractor to Envirocon is installing steel H piles, which extend about 20 feet down to bedrock and will support the rail bridge girder packs. The rail line will extend out onto the reservoir sediments, where one train per day will be loaded and transported to the BP-Arco waste repository near the former Anaconda Smelter. The current schedule calls for shipping of sediments to begin in October this year.



This photo shows the sedimentation pond at the downstream point of the sediment removal area. The pond is full of water, not because we have had any recent rainfall but because Envirocon has voluntarily agreed to route water pumped from the bypass channel dewatering wells to the pond for treatment before discharging it to the river. This relatively simple measure has resulted in remarkably improved water quality going to the river. Until recently, water discharged from wells in the lower reservoir contained about 350 parts per billion arsenic. Arsenic discharge levels were as high as 800 - 900 parts per billion last winter. When the water is routed through the ponds, it is oxygenated and the arsenic settles out. The discharge now contains about 35 parts per billion arsenic, which still exceeds the drinking water standard of 10 ppb but is much cleaner than before. Envirocon was not required to take this measure, because all of the downstream river monitoring indicated compliance with the arsenic standard. But this is one extra measure that can be taken to protect the river and its downstream users, and we appreciate Envirocon's cooperation very much.



This photo was taken a week ago on the Blackfoot River behind the Bonner mill. The EPA provided funding to remove four of the old timber cribs from the river next to the Stimson cooling pond. This photo shows the last of the four cribs, and a front end loader preparing a road to access the structure on the bank. The removal of these structures will help reduce the potential for ice and debris accumulations next to the cooling ponds next winter and spring, protecting the river from the risk of damage from erosion of the ponds. EPA previously rip-rapped the toe of the cooling pond to provide further protection. The State of Montana removed several thousand old logs from the river last summer, and may remove more this year or next. Thousands of logs remain in the river channel from the days when the river was used to drive the logs downstream. The timber cribs were used to raft the logs up so they could be loaded into the mill. Other timber cribs remain in the river upstream of the cooling pond, at least for the time being. Plans should be made soon to deal with the debris, logs and other items deposited in the river over the years behind the mill. The State will also prepare a restoration plan in the future for the Blackfoot River upstream of the Interstate Highway.



These two photos show the construction of a concrete pedestrian walkway along Highway 200, in front of the Lutheran and Catholic Churches in Bonner. This project, coordinated by Missoula



County, was funded by the U.S. Environmental Protection Agency. Construction is being done by L.S. Jensen Construction of Missoula and the project design and oversight has been done by Territorial-Landworks of Missoula. It will provide a safer route to Bonner and to the Bonner School for residents of Bonner Pines and Piltzville, since their customary route will be closed down by construction of the rail line to the sediment removal area. This walkway will remain as a long term asset to the community long after the dam is removed and the rivers are restored.



This photo shows the remarkable transformation of the Blackfoot River below the former Bonner Dam. The old dam was located at the narrow point in the river. This photo was taken looking downstream. Just below the old dam, a 30 foot deep scour hole was formed by the hydraulic forces of the river going over the dam. The scour hole has completely filled up with gravel eroded from the river bed upstream. Where a 30 foot deep hole once existed, a gravel bar now has built up five feet or more above the current river level. This process of erosion and redistribution of river gravels and sediments will occur along the Blackfoot and Clark Fork, including downstream of the Milltown Dam once it is removed. It challenges the imagination to envision how the rivers will change over time. We are lucky to have a front row seat to witness these remarkable changes occurring right before our eyes.