

Mud Mountain Dam Intake Works Improvements

The "new" Mud Mountain Dam intake works, completed in 1995, consist of a single intake tower, replacing the structures originally built with the dam in the 1940s, and two new tunnels, which are connected within the dam to the original tunnels. The entrances to both new tunnels are located in the new intake tower. Also, as part of the tower contract, a new outlet structure was constructed at the end, or outlet, of the original tunnel alignment. These features are currently used to control project discharges, and have done so since the 1995 flood season. This work was done as part of an overall Dam Safety Assurance Program at Mud Mountain Dam, which also included a concrete diaphragm (cutoff) wall installed along the axis of the original dam embankment in 1990. Within weeks of initial service of the new intake works two floods of record occurred, one in November 1995 and another in February 1996 (See Below).

These floods not only tested and proved the effectiveness and safety of the new intake works, they also revealed some improvements that could be made. These improvements are also the result of "lessons learned" from nearly 8 years of operating the project for flood control since the new intake works were completed. Some necessary repairs have also been identified. Some of the work on improvements and repairs has been completed, while other improvement work is currently underway at Mud Mountain Dam or planned for the future. In the photo, the new intake tower trashrack (lower right) can be seen, and on the left, the higher vent shaft with pedestrian bridge leading from right embankment. The old intake structures for the 9-foot and 23-foot diameter tunnels are below the new one, obscured by the shadow in this photo. Some of the more visible future work at the dam will be demolition of both of the old intake structures. Among

completed work is the bank excavation, visible just below the horizon on the left in the photo. About 200,000 cubic yards of material was removed to stabilize this slope, which removes a potential earthquake slide hazard to dam operation. Less visible at the project is the effort to line portions of the concrete tunnels and surfaces of the trashrack with steel plate to protect them against excessive erosion from the bed load (river bed rock, gravel, silt and other debris) that moves through the dam.

It's an unusual item of interest that Mud Mountain Dam reservoir is normally almost empty and all river bed load moves through the tunnels, making for a very difficult engineering problem.



Floods during winter 1995_1996

In the winter of 1995/1996 flows in the White River exceeded 29,700 cubic feet per second, surpassing the record flood of 1933. Mud Mountain Dam is credited with preventing over \$146,060,000 in flood damage.



The Log Bronc Near Lower Cascade Falls



Debris Barge



The Rising Pool Looking Upstream





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