

News Release

Upper Colorado Region

Salt Lake City, Utah
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Glen Canyon Dam Spillway to be Tested

Note to Media: A media availability will be held Sunday, August 12, 1984, at 10 a.m. in the auditorium of the Glen Canyon Visitor Center near Page, Arizona. Reclamation officials will answer questions about the repair work and arrangements have been for media to photograph the spillway flows.

A five-day testing program of Glen Canyon Dam's recently repaired left spillway will be conducted August 11-15, it was announced today by Clifford Barrett, Upper Colorado Regional Director of the Bureau of Reclamation. Peak flow during the test will occur at 12 noon, Sunday, August 12, when 50,000 cubic feet per second (cfs) of water will be released through the spillway for approximately 1 hour.

Purposes of the program are to gauge the effectiveness of both the extensive repair that has been underway for the past year and the new air slot that was installed into the upper part of the spillway.

All persons who use the Colorado River downstream from the dam, such as river boaters and fishermen, are advised that the combined releases from the Glen Canyon powerplant, outlet tubes, and spillway will be higher than normal with fairly rapid fluctuations. Maximum combined flows will range from 45,000 cfs to 75,000 cfs. The National Park Service has announced that the 15-mile section of river between the dam and Lees Ferry will be closed to boating from 4 p.m. August 11 to 4 p.m. August 12. River boating through the Grand Canyon will remain open to boaters with permits.

Reclamation biologists and engineers have planned the spillway testing program so as to minimize the potential for damage to fish in the river. Since

Glen Canyon Dam Spillway to be Tested, cont.

the spillways draw warmer water from nearer the surface of Lake Powell, the flow could impact a thermal shock to the fish, which are acclimated to the colder river water. During the tests the outlet tubes, which draw very deep, cold water from the lake, will be operated, and may be operated even to their maximum output of 17,500 cfs, to cool river flows to safer temperatures. Also, since trout can adjust to temperature changes of only about 2 degrees per hour, spillway flows will be stepped-up and down gradually.

The Glen Canyon Powerplant will also be operated during the testing, but the water flow through the turbines will be adjusted in accordance with outlet works operations.

At certain stages of the test, Reclamation engineers will inspect the spillway tunnel. Imbedded instruments in the tunnel will provide readings that will aid in their evaluation.

Glen Canyon Dam's spillways, which were used for about 2 months in 1983, were extensively damaged by the high flows. A physical process called cavitation initiated the damage.

The air slot, now installed in the Glen Canyon left spillway, is a recessed ring 4 feet wide and 4 feet deep. It nearly encircles the 41-foot diameter spillway. The purpose of the air slot is to introduce a cushion of air bubbles that will ride along with the 120 mile per hour fall of water and that will prevent erosion caused by cavitation. A similar air slot is now being installed in the right spillway.

"The use of air slots to prevent cavitation was unknown when Glen Canyon Dam was built in the early 1960's. But the technology now has progressed to the point where we know that it is a highly effective design," Barrett stated.

During the summer of 1983 the left spillway was used more extensively and therefore suffered the most damage. At the elbow section, where the sharply

Glen Canyon Dam Spillway to be Tested, cont.

descending tunnel levels out, a massive hole, 30 feet deep, 50 feet wide, and 150 feet long, was cut through the concrete lining and into the sandstone. It took 1,800 cubic yards of concrete just fill this one hole. In addition, numerous large holes in the incline section and several sections of 3-foot thick concrete lining had to be repaired.

Contractor for the repair and installation of air slots is Guy F. Atkinson of San Francisco, who has been on the job since July 1983. It now appears that the total cost of the contract will be about \$33 million.

"The testing at Glen Canyon will tell us how accurately our laboratory model studies have been transferred to an actual spillway involving massive amounts of high velocity water," Barrett said. "Even more important, by means of these tests, managers can determine if there should be any future limitations in the use of the spillways and they will be able to estimate the effectiveness of the spillways as water management devices."

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