CENWW-OD-T **June 24, 2013**

MEMORANDUM FOR THE RECORD

SUBJECT: Fish loss in McNary Juvenile Fish Facility on June 19

Narrative: On Wednesday, June 19, at approximately 0800, during secondary bypass, the McNary Juvenile Fish Facility (JFF) separator experienced an unexpected, severe water surge**,** flooding the fish separator and threatening to spill hundreds of fish on the ground.

Observing the threat, the separator operator followed emergency procedure and immediately notified the Control Room and switched to primary bypass, thereby preventing fish loss from the separator. However, during the switch over, the adult water add-in line (the "candy cane"), which takes about 45 seconds to automatically shut off, continued to feed in water to the primary bypass line at a time when the water surge was continuing. As a result, water surged even more in the primary bypass line, overtopped the bypass line, and overflowed onto the ground. Seven fish were lost.

Investigation revealed that the surge had resulted from a severe water fluctuation in the juvenile collection channel in the powerhouse. The surge occurred when an electrician was working on the switching mechanisms for the two side dewatering valves in the collection channel, which control the water level in the juvenile channel.

The electrician had gone to the channel to change the battery on the back up water supply. We were in secondary bypass, collecting fish for the sample.

The two side dewatering valves lost power. When power resumes, they search for the proper setting. This causes severe channel fluctuations. It is best to have a biologist return the valves to service manually one at a time, rather than leave it up to the automatic system. Also, a biologist can adjust the orifices to help maintain the proper juvenile collection channel level.

Fortunately, the juvenile channel did not overflow. Our maintenance tech became aware of the problem and helped the electrician ensure it returned to normal.

However, at the JFF we were not so lucky. When the high water hit, the separator technician notified the Control Room and switched to primary bypass, which is normal procedure. However, it takes the flume flush line 45 seconds to turn off. The flume flush line opening is not covered. We had pointed this out to District for a cleanup contract, but we have now decided to cover it ourselves.

With the high flow in the primary flume, we had 6 unclipped and 1 clipped sub-yearling Chinook, which we lost. This occurred right at 0800. With the fish on the ground, the separator operator switched back to secondary bypass and opened the adult release gate. At about 0805, the Assistant Biologist went to the separator and told the staff to leave it just as it is until he could get back, as there was no further apparent threat to fish.

The Assistant Biologist noted seven fish on the ground and had the separator technician pick them up. Unfortunately, the Swiss visitor tour was right at the door. One man was taking pictures. Another tech manned the separator. By the time the Assistant Biologist got to the channel, the maintenance technician and electrician had it under control. The side valves had stabilized themselves.

We advised the electrician to please check with us in the future. He said he would ask the project to change the Project Maintenance (PM) request. The Assistant Biologist stopped by the Control Room and told them not to allow work without talking to us first.

Back at the facility, the separator was stable. We double checked the ground and found no more fish. We switched to primary bypass again to verify that the flush line would turn off, and it did after about 45 seconds, so it was not the problem.

Bottom line is there was just too much water in the flume when we were at the peak of the sub-yearling Chinook run, and in just two minutes seven fish were lost.

Solutions we have already enacted:

1. We have advised the Control Room and Maintenance not to allow work on the juvenile channel or juvenile bypass system without first checking with the McNary Fish Program. This work should have been scheduled for a day until we were in primary bypass.

2. We are in the process of manufacturing and placing a perforated flume cover where the adult add-in water flush line enters the primary bypass flume, rather than waiting for the clean-up contract to take care of it. This would have prevented the fish loss, had it been in place.

3. We will have this PM and other juvenile channel PMs changed in the future to require that workers contact the Fish Program before beginning work of this type. We will also recommend that this type of work be postponed until primary bypass day, if all possible, in the future.

Fish Loss:

6 unclipped subyearling Chinook
1 clipped subyearling Chinook

All of these fish would have been in the 4-7 inch range.

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McNary Lock and Dam