CENWP-OD-McNary **07/11/2019**

MEMORANDUM FOR THE RECORD -19MCN11 Missed Index Sampling

SUBJECT: Missed index sampling from July 3 to 9 due to juvenile channel dewatering valve failure.

Narrative: The concern with the two side dewatering valves that control the channel elevation has continued as report on the ESA weekly reports. The biologist on duty reported the north side dewater valve "popping" on June 29. This is an issue that has been observed over the last couple of years.

The two side dewatering valves developed into a serious problem on July 2. Sometime in the early morning, the north side dewater valve slipped from approximately 80 to 50 percent open. The south dewatering valve was able to compensate to a point. When the south valve opened to approximately 60 percent, the control program read the valve at 100 percent open. Again, this raises questions about how these valves are programmed. At 0613 hours, the south valve was at maximum open, the north valve was no longer functional and the forebay elevation increased, which resulted in a high water alarm (0.2 feet above 327.6 feet). After about one hour, the high water alarm cleared as the forebay elevation decreased. There was no severe high water alarm (0.4 above 327.6 feet).

At about 0830 hours, the biologist was able to examine the situation, test the valves and determine a course of action. With the north valve at about 50 percent open and the south valve only able to open to 60 percent, it was determined orifices at unit 5 would have to be closed and reopened as needed to allow the south valve to regulate the channel elevation with forebay elevation changes. Also, every other day 24 hours index sampling would have to be canceled and the technicians would have to remain in the channel 24/7.

Later in the day, the general maintenance staff secured the shaft of the north dewatering valve so it would not slip any lower. The mechanics disassembled the valve actuator and found a brass sheath (nut) that connects the operator to the shaft had failed. Thus, the motor would operate but the shaft would not move. Also, the mechanics have found a replacement operator on project. This operator could not be used due to programming. However, the sheath could be used as a model to machine a new sheath for the north valve.

Repairs to the north dewatering valve began on July 8. The creation of the sheath was completed on July 9. The valve was reassembled and the operator installed on July 10 by 1130 hours. The operator and valve limits were set from 1230 to 1400 hours. The north dewatering valve returned to automatic mode at 1405 hours. The juvenile collection channel was monitored overnight. With everything appearing to be similar to before the north valve failed, index sampling began on July 11 at 0700 hours.

Normally, there are 42 orifices in use. After the north side dewatering valve failed on July 2, the system was operated with 39 to 40 orifices. Orifices were closed at unit 5, which is out of service. Also, cycling the orifices went from once or twice a shift when in primary bypass to once a day on July 4, which reduced the operation of the south dewatering valve. Debris loads have been low enough to warrant this.

However, there is some concern about the sheath in the south dewatering valve. What was thought to be a program issue may be a sheath problem or both. We will continue to cycle the orifices only once a day. Project staff will begin to investigate the south dewatering valve on July 15. Another MFR will be written after this investigation and possible repair.

Location: Juvenile collection channel.

Method: As mentioned above, the system remained in primary bypass so the north side dewatering valve could be repaired. The juvenile channel was monitored 24/7 will the valve was out of service.

Time Line - Duration: July 2 was a scheduled primary bypass day. The system remained in primary bypass until July 11, a scheduled secondary bypass day. Index sampling was missed on July 3, 5, 7 and 9.

A. Species: There were no known fish losses. Index sampling and GBT monitoring did not occur as scheduled. Incidental species and fallbacks were not recorded.

B. Origin: NA

C. Length: NA

D. Marks and Tags: NA

E. Marks and Injuries Found on the Carcasses: NA

F. Future and Preventative Measures: Examine and insure the south dewatering valve is fully functional for the remainder of the season. Examine the control program so it is fully understood in the near future. During winter maintenance, return to both valve and rebuild or replace. Insure both valves are on a schedule maintenance plan that matches the wear observed.

G. Photos Taken: None.

Bobby Johnson
Project Fisheries Biologist
McNary Lock and Dam