**OFFICIAL COORDINATION REQUEST FOR**

**NON-ROUTINE OPERATIONS AND MAINTENANCE**

**COORDINATION TITLE-** 16 MCN 016 Wasco PUD Commissioning testing **REVISED**

**COORDINATION DATE- September 29, 2016 to address comments**

**PROJECT- McNary Dam, North Shore Fish Ladder**

**RESPONSE DATE- October 13, 2016**

**Description of the problem**

We would like to schedule wet testing of the unit for November 7– 16, 2016. Understand that this is an optimized schedule that assumes all tests will be successful. If we encounter failures, testing will stop until the failure can be identified and remedied. Testing would then start over.

The testing consists of running the unit at different flow, rpm, and load levels to test performance of new equipment. At the beginning and end of each test, turbine discharge to the fish ladder will vary; the Auxiliary Water System (AWS) will be manually adjusted to bring the ladder into criteria. Between tests, the AWS will provide full flow to the ladder.

The ladder entrance weirs will be switched between auto and manual mode depending on the tests being conducted. In general, for the shorter duration tests, manual mode will be used, for the longer running tests, the system will stay in auto mode. This approach should reduce excessive operation of the weir controls, differentials at the entrances will be monitored and AWS water adjusted as needed. PUD staff will coordinate directly with control room operators to make these switches. See the descriptions below and the following table for details.

The first days wet testing will consist of two, two-hour heat runs, with the unit wicket gates set to provide 25% and 50% of the rated speed of the unit. The entrance weir will be switched to manual during these tests.

The second day of heat runs will run the unit at 75% and 100%-unit speed for two hours each. The entrance weirs will be switched to manual mode.

The third day of heat runs will consist of an 8-hour run of the unit at 100%-unit speed. For this 8 hour test, the entrance weirs will remain in auto mode.

The fourth day of the wet testing will consist of load rejection testing at 25%, 50% 75% and 100% of rated load. During these tests, the unit will be run up to the test load and the breaker opened. Each of these tests are of short duration and will require that AWS contribution be reduced during the test. The entrance weirs will be switched to manual mode.

The fifth day of testing will consist of two emergency shut downs of the unit at 50% and a 100% of full load. During these tests, the unit will be run up to the test load and a simulated emergency shutdown activated. Each of these tests are of short duration and will require that AWS contribution be reduced during the test. The entrance weirs will be placed in manual.

The sixth day of testing will put the unit online at full load for a 72-hour operational run. Entrance weirs will remain in auto mode for this multi day test period.

Upon the successful completion of the final 72-hour test, the unit will be shut down and a system checkout completed. The unit will be then scheduled for normal operation.

Many of these test conditions are not normal operating levels and it is a new runner so it is difficult to anticipate the required wicket gate and AWS proportions to achieve the desired test conditions. Consequently we refrained from using estimates and will just adjust as needed.

Should any of the tests have to be aborted, wicket gates will be closed and the AWS will provide all needed flow to the ladder entrance.

Below is the schedule in tabular form.



**Type of outage required**

No outage, but reductions in North ladder auxiliary flow as outlined above are expected.

**Impact on facility operation**

This work will result in variable auxiliary flows to the fish ladder for short periods of time at the beginning and end of each test. For most of the tests, the entrance weirs will be switched to manual which will result in small changes to the entrance differentials and attraction flows. This will be corrected by adjustments in the AWS contribution.

**Dates of impacts/repairs**

Testing is scheduled to begin on November 7, starting as late as possible each day but still allowing ample time to conduct all testing scheduled for that day.

**Length of time for repairs**

Testing is scheduled to take 9 days if everything works. If problems are encountered, repairs will delay testing. Actual testing may not require the entire day but data collection and analysis will be a large part of this work and we anticipate needing 8 to 10 hours of each test day.

**Expected impacts on fish passage**

Even though the timing of this work is after the peak of the salmon run, there are still fish present. This table was revised to include all fish and covers only the test dates. These changes dramatically reduced the proportion of fish using the Washington shore ladder. However, when you look at just the species of greatest concern, fall Chinook, the proportion of those fish using the Washington ladder jumps to 75% (average of years examined).

Based on discussions with project biologist, Bobby Johnson, and the short duration of most of the tests, and their limited impact on the ladder entrance, we anticipate minimal impact to adult passage.



**Comments from agencies**

**Final results**

Please email or call with questions or concerns.

Thank you,