

**OFFICIAL COORDINATION REQUEST FOR
NON-ROUTINE OPERATIONS AND MAINTENANCE**

COORDINATION TITLE- 14 LMN 03 Unit 5 Exciter Repair and Testing **Revision #2**

COORDINATION DATE- August 7, 2014

PROJECT- Lower Monumental Dam

RESPONSE DATE- **FPOM August 14, 2014**

Description of the problem: From 2014 Appendix A with changes for work to be completed-

February–March 2014: Lower Snake Exciter Replacement: Lower Snake exciter replacement took place at Lower Monumental in FY12. During the commissioning process at Little Goose, deficiencies were found that affected units previously installed at Lower Monumental and Lower Granite. The PDT has determined that these deficiencies require correction to ensure compliance with contract documents. Units 4-6 at Lower Monumental will undergo re-commissioning to verify designed capabilities are restored to pre-construction levels. This work will also require performance testing and model validation testing. Units 4 and 6 have been completed, however due to an extended outage, Unit 5 has been unavailable for this repair work until now. As was mentioned initially the date ranges for the work to be performed was March 2014. First coordination on June 26 scheduled action for August 11. Presently, we are looking to perform this work September 8 through September 12, 2014. During this time, it will be necessary to run units out of priority order and outside the 1% operating range. See model validation testing paragraph number 7.1.1 & 7.1.2. This contract work is subject to normal contracting and construction delays.

Justification for Change:

Main Unit 5 requires excitation repair and testing in relation to the contractual replacement of Exciters which occurred during FY12.

Here are some of the issues being corrected by this work.

1. Modify equipment grounding to minimize communication errors and false exciter trips.
2. Change "Loss of PT" sensing to minimize stator voltage overshoot on loss of a PT.
3. Correct mis-coordination between Loss of Excitation relay and Underexcited limiter.
4. Correct undesired exciter trip for 86GT operation.

A 2 to 3 day outage will be requested, even though some previous work has been completed in as little as 1.75 days. As requested, the outage assumes daylight hours are worked (but they can be shifted if need be) and that the work will take two days, following the schedule below:

1. The unit must be offline and under clearance at or near 0730 on day 1. On the afternoon of day 1 the clearance may be partially release to permit powering the exciter up and do "standstill" testing and calibrations/trip checks (unit is not passing water or turning). Then on the second day the unit will be run at speed-no-load for approximately 2.5 hours following which the remainder of the clearance will be

released. The unit will then be operated under a load for about 1.5 hours. The actual loading doesn't matter as much as does the ability to vary the reactive power (MVAR) during the test. During the load testing, it will be necessary to operate Unit 6, the sister unit, to verify VAR sharing. After the testing is completed, the unit will be shut down for 15-30 minutes to download exciter data and to save the final settings, after which the unit will be started once more before it is returned to commercial availability.

Type of outage required: Unit 5 will need to be offline for 1.75 - 3 days. During this period it will need to be operated at speed-no-load for up to 2.5 hours. Additionally, it will need to be run for 1.5 hours for other testing but this can be done within the 1% max efficiency limits. The variances requested therefore are: 1. Operation out of unit priority for up to 3 days (unit 5 offline), and, 2. Operation of the unit out of the 1% criteria for up to 2.5 hours (speed-no-load).

Impact on facility operation: No impact to facility operations if done ~~prior to~~ after August ~~11~~22.

Dates of impacts/repairs ~~This repair work/testing will need to be completed before 11 August. At that time, Lower Monumental will be starting transformer maintenance work beginning with T-2. This will require the availability of unit 5 to provide station service.~~ The contractor has sited these dates as their availability to do this work. **September 8 through September 12, 2014.**

Length of time for repairs:

Unit 5 will be out of service for approximately 2 - 3 days, however, it may take as little as 1.75 days to accomplish this work.

Expected impacts on fish passage:

JUVENILE FISH: The affect of this testing on juvenile fish passage is likely to be minimal. Unit 5 being offline would not adversely affect juvenile fish passage. The testing while the unit is offline would have no affect on fish passage. The operating of unit 5 for 1.5 hours within the 1% criteria would have no adverse affect. This brings us down to the operation of unit 5 at speed-no-load for 2.5 hours. The 2.5 hours at speed-no-load is outside the 1% criteria.

Juvenile fish passage shows daily decreases in fish numbers with passage in 2013 from September 8 – 12 averaging only 63 fish per day. Flows are decreasing and are currently at approximately 27 kcfs. We are likely to be operating only 1 unit so unit 5 would be likely the only unit in operation during the short periods of testing.

ADULT FISH: The testing periods are quite short (2.5 hours at speed-no-load and 1.75 hours within the 1% criteria) so the impact of this repair and testing is not likely to result in any significant delay in adult fish passage. Priority unit criteria will be in effect throughout this period, with the exception of during testing.

Comments from agencies (first coordination period June 26, 2014)

From: Trevor Conder - NOAA Federal [mailto:trevor.conder@noaa.gov]

Sent: Thursday, June 26, 2014 3:27 PM

To: Moody, Gregory P NWW

Cc: Bill Hevlin - NOAA Federal; Spurgeon, William F NWW

Subject: [EXTERNAL] Re: FPOM MOC: 14 LMN 02 Unit 5 Exciter Repair and Testing (UNCLASSIFIED)

Greg,

We agree that there will be little to no impact of this operation due to the very low numbers of juvenile fish expected to migrate through the turbine unit during the short period that it will be operated outside of 1% criteria. NOAA supports the MOC as written.

-Trevor

New Comments for the proposed action in September:

Final results

Please email or call with questions or concerns.

Thank you,

Sarah Wilson, Chief of Operations

Bill Spurgeon, Supervisory Fisheries Biologist, Lower Monumental Dam