

OFFICIAL COORDINATION REQUEST FOR NON-ROUTINE OPERATIONS AND MAINTENANCE

COORDINATION TITLE - 21 LMN 04 MOC Unit 2 Digital Governor Installation and Testing

COORDINATION DATE- August 18, 2021

PROJECT- Lower Monumental Dam

RESPONSE DATE- September 2, 2021

1. Description of the problem

Digital governor installation on Lower Monumental unit 2 is scheduled to begin on November 1, 2021. Commissioning and testing of the new equipment is anticipated to begin on November 8 and is expected to take a total of four days.

Commissioning (72-hour run) is required to validate proper operation. The 72-hour run will require deviation from unit priority from Unit 1 to Unit 2 during this time and will require running unit 2 outside of the 1% peak efficiency range. An additional day will be required to complete NERC required Model validation which will also necessitate operation outside the 1% peak efficiency range.

2. Type of outage required – N/A

3. Impact on facility operation (FPP deviations) - There will be no impact on Facility operations.

4. Impact on unit priority – Commissioning Unit 2 will require deviating from unit priority during testing Fish Passage Plan Chapter 7, Section 4.1) as well as operating above 1% peak efficiency range (FPP Chapter 7, Section 4.2) from 8 to 18 November.

5. Impact on forebay/tailwater operation – There will be no impact on forebay/tailwater operation.

6. Impact on spill – There will be no impact on spill operations

7. Dates of impacts/repairs – Unit 2 commissioning is scheduled to begin on November 8, 2021.

Length of time for repairs – Approximately 4 days.

8. Analysis of potential impacts to fish

Upstream adult passage and juvenile outmigration numbers are historically low during this time period. Adult counts were last conducted at Lower Monumental Dam in 2014 and 2019. From November 8 - 18, the daily average of adult fish passing Lower Monumental Dam during those years include 9 Chinook salmon, 7

Coho salmon and 149 steelhead with a total run impact of 0.08%, 0.61% and 1.60%, respectively. Testing is scheduled to take place from November 8 - 18 November, however, actual work should only take 4 of those days reducing the calculated total run impact. Adult passage should not be affected by running unit 2 outside of unit priority and outside 1% peak efficiency during testing.

Monitoring of juvenile salmonids passing through the collection/bypass system ends after the September 30 sample, so there is no data on the number of outmigrating salmonids which may be affected. Juvenile salmonids outmigrating during this time may be exposed to passage through a turbine that is being operated outside of 1% peak efficiency. Historically subyearling Chinook salmon are the dominant species found during this time period and abundance is generally low.

9. Expected Impact Analysis

Expected impacts on juvenile and adult passage are low during this period of commissioning. Both adult and juvenile passage numbers are historically low during this time period.

Impact to bull trout and lamprey are unknown.

Comments from agencies

From: VANDYKE Erick S * ODFW <Erick.S.VANDYKE@odfw.oregon.gov>
Sent: Wednesday, August 18, 2021 2:02 PM
To: St John, Scott J CIV USARMY CENWW (USA) <Scott.J.StJohn@usace.army.mil>
Cc: Peery, Christopher A CIV USARMY CENWW (USA) <Christopher.A.Peery@usace.army.mil>
Subject: [Non-DoD Source] RE: 21 LMN 04 MOC Unit 2 Digital Governor Installation and Testing

Hi Scott,

Thanks for the MOC. I see that testing is expected to take 4 days, and 72 hours of commissioning, and that the range of dates for the MOC is Nov 8-18. The quick math exercise introduces some confusion, so I thought I should ask more about the required commissioning. Is the 72 hours concurrent testing (no interruption) or does it have more flexibility to occur over a more intermittent time step (couple hours here, a couple hours there up to 72 total hours)? Should we expect this testing to alter turbine priority for ten days? Are the NERC requirements looking to validate something different than proper operation requirements? Probably goes without saying that efficiency that reduce a need to veer away from FPP is the preferred plan. Appreciate any information you might be able to share.

Erick Van Dyke
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Ocean Salmon and Columbia River Program
Fish Passage/Mitigation Technical Analyst

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From: St John, Scott J CIV USARMY CENWW (USA)
To: VANDYKE Erick S * ODFW
Cc: Peery, Christopher A CIV USARMY CENWW (USA)
Subject: RE: 21 LMN 04 MOC Unit 2 Digital Governor Installation and Testing
Date: Wednesday, August 18, 2021 2:25:00 PM

Erick,
Thank you for reaching out. The work is currently scheduled to occur between November 8-18 and is expected to take 4 days. The exact dates are dependent on how quickly installation is completed.

The 72 hours will be continuous with an additional day of validation testing. The testing is coordinated in App. A of the 2021 Fish Passage Plan (below).

7.1.2. Model Validation Testing a) Dates: September through March (annually). b) Description: Western Electricity Coordinating Council (WECC) requires steady state model validation testing periodically to ensure generating equipment will meet real and reactive power ratings. All units are tested on a one to two-year cycle. Tests are also required when equipment is replaced or upgraded. Tests will require running the unit out of FPP priority and outside the 1% range. Testing can occur any time from September 1–March 31 and will not occur during peak juvenile fish passage (April 1–August 31). Tests will preferably be conducted just after annual maintenance but may happen at other times. Test durations will be minimized to the extent possible and will only be run for the purpose of completing required model validation testing. c) Impacts to FPP Criteria: May require running a unit out of FPP priority and outside 1%.

Scott St. John
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From: VANDYKE Erick S * ODFW <Erick.S.VANDYKE@odfw.oregon.gov>
Sent: Thursday, August 19, 2021 8:38 AM
To: St John, Scott J CIV USARMY CENWW (USA) <Scott.J.StJohn@usace.army.mil>
Cc: Peery, Christopher A CIV USARMY CENWW (USA) <Christopher.A.Peery@usace.army.mil>
Subject: [Non-DoD Source] RE: 21 LMN 04 MOC Unit 2 Digital Governor Installation and Testing

Thanks Scott. So the additional day for NERC requirement does not stand out in the Appendix A language. It would be useful to know more about what differences in NERC require an additional day. The test duration will be minimized to the extent possible and only run for the purposes of completing required model validation testing is of interest. Is the previous testing at Lower Monumental reported in a specific document that might be available to FPOM? Does WECC document their expectations for rating real and reactive power in a formal way? Any insight you might be able to offer would be appreciated.
Erick

From: St John, Scott J CIV USARMY CENWW (USA)
Sent: Thursday, August 19, 2021 2:00 PM
To: VANDYKE Erick S * ODFW <Erick.S.VANDYKE@odfw.oregon.gov>
Cc: Peery, Christopher A CIV USARMY CENWW (USA)
<Christopher.A.Peery@usace.army.mil>
Subject: RE: 21 LMN 04 MOC Unit 2 Digital Governor Installation and Testing

Erick,

After speaking with the Project, the digital governor testing and model validation testing are different and cannot be combined to save time. The digital governor testing involves numerous wicket gate and blade angle movements for short durations to check functionality and ensure appropriate positioning of equipment. The model validation testing requires the Unit to be placed at specific load setting for long durations to ensure capability and reliability. During this testing, voltage and current readings will be taken to validate generator output. This is particularly important with Unit 2 as it has had fixed blades since September of 2017 and been out of service since 15 July 2019.

Various entities such as Western Electricity Coordinating Council (WECC) operate under a Federal Energy Regulatory Commission (FERC). WECC also has approved delegation agreement with the North American Electric Reliability Corporation (NERC) to create, monitor and enforce reliability standards. Both entities, WECC and NERC, require this testing in order to ensure grid reliability and stability. For general purposes, the acronyms WECC or NERC seem to be used interchangeably due to the fact that this delegation of authority is in place. That could be causing some of the misunderstanding. Therefore, the model validation testing is a combined WECC/NERC requirement.

Validation testing occurs regularly, but typically occurs during late fall or winter months during Unit annuals when operation outside of Unit priority and the 1% range are allowed. Therefore, this work would only be captured when coordination is needed and would impact Fish Passage Plan Operations. In recent years, this work was conducted on Unit 1 (18 LMN 07) and Unit 6 (17 LMN 07).

I do not know where WECC expectations or test observations would be posted. WECC and NERC both have various standards for things such as testing procedures such as model validation.

I hope this helps. Please let me know if you have any further questions or concerns.

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Final coordination results

After Action update

Due to rescheduling by contractor, the work will not be done until December 13-16. This would be after December 1 and would not impact Unit priority as defined by 2021 Fish Passage Plan.

Please email or call with questions or concerns.
Thank you,

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