CENWP-OD-B   **31 January 2024**

MEMORANDUM FOR THE RECORD

SUBJECT: 24BON005 MFR Slow Roll Operation for PH1 Oil Investigation Units

Background:
Bonneville Lock & Dam has experienced several oil leaks from Powerhouse 1 (PH1) Units over
the past year:

March of 2023: Oil sheens were observed in the PH1 tailrace near Units 3 and 4. After
operational testing and observing, Units 3 and 4 were forced out of service until a thorough
investigation and inspection could be completed.
January of 2024: Several oil sheens were observed in the Powerhouse 1 tail race on multiple
occasions. Units 6, 9, and 10 were forced out of service until a full investigation and inspection
of each unit has been completed, including a full dewater of each unit. For more details on each
incident, please see MFRs: 24BON001, 24BON002, and 24BON003.

The FPP provides the following relevant guidance:
- **BON 4.3.4.** "Turbines that have been idle/out of service will be started by slow rolling
  the unit after tipping turbine blades from flat to steep and back to flat".
- **BON 5.5.2**. "If the draft tube is to be dewatered, place head gates and tail logs
  immediately after the turbine unit is shut down when possible."
- **BON 5.5.3** "If a turbine has been idle and the draft tube is to be dewatered, it will be
  operated when possible, at full load for a minimum of 1-HR, 4-HRS preferred. Stop logs
  will be placed immediately."

Due to the risk of discharging oil into the Columbia River, USACE has determined that a
deviation from the FPP guidance is necessary in accordance with Chapter 1, Section 1.4 of the
FPP. Therefore, future dewatering procedures of Units under oil leak investigations will not
include "slow rolling" the Unit prior to placing tail logs. This deviation was coordinated with the
appropriate Regional Forum workgroup on February 15, 2024.

Due to the current pattern, USACE has determined that all PH1 Units will be inspected for oil
leaks. No timeline for these outages is available at this time.

Sincerely,
Bonneville Project Fisheries

FPOM: comments

1.1.1. 24BON005 MFR Slow Roll Operation for PH1 Oil Investigation Units – The dewater policy will need to change. There are only a couple tail logs which means units will need to shut down and sit without tail logs. When tail logs become available and are installed slow roll cannot occur due to oil release to the river. Swank asked if the slow roll was causing oil leak. Derugin said no the slow roll is for fish. Van dyke asked if they will be able to quantify fish affected. Derugin said yes when they go in for fish salvage. Van Dyke asked if there is an oil absorption process. Derugin said yes. Bettin asked about problems draining the unit if there are too many fish. Derugin said that the units would drain slowly. from Tammy Mackey to everyone: 11:38 AM While the units may drain, it should be remembered that the change in flushing requirements are what led to that ease in draining. Prior to that change, every unit was slow to drain and blocked by fish on the grizzly drain. Also, you will want to expect sturgeon impacts and potential mortalities. Fingers crossed there won't be many fish when you dewater.
Morrill asked about synthetic dye added to the oil to help detect leakage. **ACTION:** Derugin will inquire about using a dye in the oil.

from Jonathan Ebel to everyone: 11:37 AM rhodamine.

Swank asked about previous oil leaks. Derugin said a report has come in and they have found the cause of the leaks on two of the units. Official report will be posted on 14 February after review from OC.

From: Trevor Conder - NOAA Federal <trevor.conder@noaa.gov>

Subject: [Non-DoD Source] Re: FPOM Official Coordination: 25BON005 MFR Slow Roll Operation for PH1 Oil Investigation Units

Patricia,

I have a couple of questions to understand the tradeoffs associated with this MOC.

1. What volume of oil would the project expect to be released by slow rolling the unit?
2. What volume of oil does a unit release during normal operations over a year?
3. What is the oil made of, is it vegetable based, more environmentally safe or petroleum based?
4. What number and species of fish do we expect to be impacted by not slow rolling the unit based on past data?
5. How severe could the impacts be, i.e. severity of injury, impingent, strike, mortality?

Thanks

-Trevor

Bonneville Fisheries and Environmental crews have addressed your questions below. Please see attached documents (SPOTREP-PH1 Feb 2024 / Fish Salvage and Slow Roll Operations) for more detailed explanations.

1. The amount of oil discharge would be unknown. Discharges could range from a catastrophic release to a small sheen. Investigations and mechanical issues being found on similar units in PH1 (4&10) are significant. Any oil discharged to the river during a slow roll would be a reportable discharge to the Coast Guard, DEQ, and EPA.
2. Units release no oil under normal operating conditions.
3. Turbine Oil in PH1 is a petroleum product (Shell).

   Please see the SPOTREP doc for more back story on the 1st three questions.

4. Please see the "Fish Salvage and Slow Roll Operations" document for fish salvage data and history on the slow roll operation. Without slow rolling these Units, we can expect no injury to the fish due to strike or impingement because the turbine blades will not be moving. However, there is a possibility that we may encounter many more fish in the scroll case and especially the draft tube than we typically have in recent years (since slow rolling operations have been in place). With a greater abundance of fish, we can expect salvage operations to take more time and possibly expose the fish to increased handling stress to the fish. Also, historical data and employees from the "pre-slow roll era" have indicated that we should expect an abundance of oversized sturgeon.
   The expectation of more time intensive salvage operations and oversized sturgeon numbers will be mitigated by increasing manpower at each fish salvage operation and by creating a rigging system to haul fish out of the draft tube more efficiently than is currently in place.