OFFICIAL COORDINATION REQUEST FOR
NON-ROUTINE OPERATIONS AND MAINTENANCE

COORDINATION TITLE - 15DET02 Lower RO Test and Temperature Management
COORDINATION DATE - 09 September 2015
PROJECT- Detroit Dam
RESPONSE DATE - 23 September 2015

Description of the problem

Abnormally dry conditions have impacted the ability to fill Willamette Basin reservoirs for various purposes (e.g. fish and wildlife, recreation) including Detroit temperature management operations. In order to perform temperature control operations in the North Santiam River, the water level in Detroit reservoir must reach spillway crest, which was unattainable during the 2015 conservation season so typical operational temperature management was not possible this summer.

The inability to blend warmer surface water with cooler water through turbine discharge results in cooler water during adult salmonid migration and warmer water during incubation leading to higher fish mortality (e.g. incubating eggs). However, the Corps was still able to provide some downstream water temperature management to benefit ESA-listed fish through the use of the Detroit turbines and upper regulating outlets late this summer. **Testing and potential future use of the lower ROs this fall will provide additional temperature management capability.**

Type of outage/operation required

Testing and use of the Lower ROs for additional temperature management capability and to assess feasibility of operating lower ROs.

Impact on facility operation

There is concern and risk operating the lower ROs related to potential damage and release of sediment downstream (See attached Detroit Dam Lower Regulating Outlet Testing Plan). The proposed operation will not change the total daily discharge from Detroit Dam and, therefore, will not alter the timing of drawdown within the power pool. CE-QUAL W2 has been used to model the best dam operations to meet downstream water temperature goals, while still producing hydropower at Detroit Dam. We do not anticipate turbidity issues, but the Corps will monitor for turbidity during the lower RO test and share this information with the region.

Dates of impacts/repairs/operation

October 01 = test
October 1-31 = (estimated) temperature management operation, if lower RO found feasible

Expected impacts to fish

Proving beneficial downstream water temperatures during the fall and early winter will delay the emergence of ESA-listed spring Chinook salmon and ensure that water temperatures do not reach lethal limits. We do not anticipate turbidity issues, but the Corps will monitor for turbidity during the lower RO test and share this information to the region.

Comments from agencies

Bernadette/Nancy:

Thank you for reviewing the Detroit Dam Lower Regulating Outlet coordination request and our proposed water quality thresholds. Based on your recommendation, we will use the following thresholds during testing of the Detroit Dam lower regulating outlet:

6 mg/L instantaneous dissolved oxygen,
45 NTUs instantaneous turbidity

If these thresholds are exceeded at anytime during testing of the lower regulating outlet, the operation will be halted immediately. Dan Turner and I will monitor conditions real-time and share this data with the WATER Flow Management and Water Quality Team once the test has been completed.

Thanks,

Kathryn

Kathryn Tackley
U.S. Army Corps of Engineers
Water Quality
503-808-4883
Kathryn.L.Tackley@usace.army.mil

-----Original Message-----
From: Bernadette N Graham-hudson [mailto:bernadette.n.graham-hudson@state.or.us]
Sent: Friday, September 18, 2015 2:37 PM
To: FMWQT
Subject: [EXTERNAL] RE: MOC 15DET02 Lower RO Test and Temperature Management - comments due Sep 23

Hello Chris,

This email is a joint response from ODEQ and ODFW in response to the Official Coordination Request for Non-Routine Operations and Maintenance – “15DET02 Lower RO Test and Temperature Management”. In general, the ODEQ and ODFW support this operation, as it has the potential to provide improved temperature conditions below Detroit and Big Cliff dams. During October, the reaches below Big Cliff Dam provide habitat for incubating Chinook eggs – more natural temperature profiles will help improve incubation temperatures and emergence timing, but adverse impacts from turbidity and changes in dissolved oxygen could impact these redds. The ODEQ and ODFW recommend the following additions to the Testing Plan to ensure the benefits of this operation are achieved without adverse impacts to downstream water quality and fish populations:

· It should be noted in the Coordination Request and Testing Plan that the lower RO test and operation through October is part of a

broader gate repair operation at Detroit. This information will help put this test in context, given that use of the upper RO can also provide improved temperature conditions downstream.

· Physical and biological monitoring are essential components for evaluating the October special operations. Please provide more detail on the proposed monitoring before and after the lower RO is opened.

o At a minimum, monitoring should include real-time temperature, dissolved oxygen, and turbidity monitoring downstream of Detroit Dam (below the lower RO), downstream of Big Cliff, and at the Niagara gage site.

o Numeric values for standards and/or resource agency ranges and targets should be specified for temperature, DO, and turbidity, and prior to opening RO baseline conditions documented.

· Elevated turbidity has been identified as a potential impact. Like that for special operations conducted in the past, the Corps' proposal incorporates public notification in advance of the special operations and during in the event of potential impacts downstream. Contingency planning, with potential for suspension or conclusion based on the real-time data being collected, which includes visual monitoring is also recommended. At the start of the operation, utilize baseline conditions and establish thresholds at which the operation would be terminated. For example, if turbidity readings below Big Cliff exceed background levels for an extended period, the gate should be closed based on a pre-determined percentage of exceedance, duration, extent of distance, or visual monitoring findings. Contingency planning should also consider temperature and DO.

· We understand the Corps has proposed thresholds of no more than 45 NTU instantaneous for turbidity and no less than 4mg/L for dissolved oxygen; if those thresholds are exceeded, the operation would be halted. ODEQ and ODFW recommends the dissolved oxygen threshold be increased to 6 mg/L as an absolute minimum. We also recommend those thresholds be reviewed after background/baseline levels are measured.

· The Testing Plan should detail what factors will be evaluated to determine if the lower RO is 'feasible', and how the decision will be made to use this outlet for the month of October. Review of September 30th monitoring data collected, such as for turbidity, before the commencement of the Oct. operation would also be of interest.

Please work with the resource agencies, including ODEQ and ODFW, to review your proposed thresholds prior to implementing the operation.

Thank you for the opportunity to comment on this proposed operation. Please let me know if you have any questions.

Bernadette

Bernadette Graham Hudson | Fish & Wildlife Operations and Policy Analyst

Oregon Department of Fish and Wildlife | West Region

17330 SE Evelyn St. Clackamas, OR 97015

Phone: 971-673-1134 | Cell: 971-409-1175 | Fax: 971-673-6070

bernadette.n.graham-hudson@state.or.us

Final results
Test of the lower RO will begin September 30, 2015. If operation of lower RO is deemed feasible then it will be used for temperature management operations.

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

Chris Walker
NWP Operations Division Fishery Section
503.808.4316
Christopher.E.Walker@usace.army.mil