

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

**COORDINATION TITLE-** 16BON14 T11 and T12 outage schedule update

**COORDINATION DATE-** 17 May 2016

**PROJECT-** BONNEVILLE Lock and Dam

**RESPONSE DATE-** Discussed at the 12 May 2016 FPOM. Please provide additional comments by 31 May 2016

**Description of the problem-** T11 and T12 outages in 2015 and 2016 were coordinated in MOCs 14BON13, 14BON59, and 14BON82, and 15BON02. While the schedule has not changed, during the last week of the currently-coordinated T12 outage, both T11 and T12 will need to be taken offline so that the transformers can be commissioned together and brought back online. This means a complete Powerhouse 2 (PH2) outage. This work is a requirement of the transformer work, but this requirement was not widely disseminated. This MOC provides the updated information.

Current T11 Outage: 21 – 24 November 2016

Current T12 Outage: 7 September – 24 November 2016

**Type of outage required-** The T12-only outage (7 Sept – 20 Nov 2016) will take units 15-18 out of service at PH2. The T11/T12 outage from 21 – 24 Nov 2016 will take all the PH2 units (11-18) out of service.

### **Impact on facility operation-**

7 Sept – 20 Nov 2016: Four units at PH2 will be unavailable during the T12 outage. PH2 will remain the priority during this time.

21-24 November: All of PH2 will be out of service and PH1 will be the priority powerhouse.

During the complete PH2 outage the corner collector (B2CC) will open. ***At the recommendation of FPOM, PH1 will remain the priority powerhouse after the T12 work is completed.*** Keeping PH1 as the priority powerhouse will reduce attracting fish to PH2 for the ~week between the T12 outage and the start of the in-water work period; Washington Shore fishway will go to orifice flow and the fish units will be OOS on 01 Dec 2016.

**Dates of impacts/repairs-** 7 September – 24 November 2016.

**Length of time for repairs-** 11 weeks.

### **Expected impacts on fish passage-**

#### Bull Trout-

Of the five distinct population segments (DPS) of bull trout listed as threatened by the USFWS, the Columbia River DPS is the only one that is likely to occur in the vicinity of the proposed project. Historically, bull trout of the Columbia River DPS likely ranged through much of the Columbia River Basin with spawning and rearing occurring in the coldest creeks, often at higher elevations. Presently, bull trout of the Columbia River DPS are distributed in a more fragmented pattern throughout the Columbia River Basin with fewer adult migratory fish and fewer, more compressed spawning reaches than historically occurred.

WDFW and Corps personnel provided a list of anecdotal sightings/captures of bull trout in the mainstem Columbia River. From 2000 through 2012 there were eleven bull trout reported. Three were downstream of Bonneville Dam, with two at the mouth of Hamilton Creek (RM 143) and one in 2005 at the Bonneville Dam Smolt Monitoring Facility (RM 144). Upstream of the dam, one bull trout was found at Cascade Locks (RM 149), two at Drano Lake (RM 162), two at the

mouth of the Klickitat River (RM 180.5), one in 2002 at the John Day Dam Smolt Monitoring Facility (RM 215), and one sighting at Dog Creek Falls by a reputable WDFW creel sampler who observed 18- to 24-inch cuts or dollies working old redds below the splash pool over the course of two weeks.

Fish passage data from the Bonneville Dam fish ladders (Corps, unpublished) show only three sightings of bull trout moving through the fish ladders for 2000 through 2011 during the fish counting season (April 1 through October 31). These sightings occurred between May 30, 2009 and June 2, 2009 and were reported as ‘12-inch bull trout moving upstream’ through the count window on each occasion.

Chum-

In accordance with RPA 17 of the 2014 NOAA Fisheries Supplemental BiOp, the Action Agencies provide a minimum tailwater elevation below Bonneville Dam of approximately 11.5 feet to ensure adult chum have access to spawning habitat in the Ives/Pierce Island complex beginning the first week of November (or when chum arrive) and ending by December 31. Tailwater elevation is maintained by managing Bonneville Dam outflow as necessary based on current conditions (river flow, tide, tributary flow, etc.). In order to maintain a minimum tailwater elevation of 11.5 feet, total Bonneville outflow typically must be in the range of 115-135 kcfs on an hourly basis.

During the T12-only outage, 7 Sep – 20 Nov, turbine units 1-14 will be available to pass flow, which will be sufficient to maintain the chum tailwater. Spill will required only if inflow exceeds project capacity of approximately 187-190 kcfs. Project capacity during this time period is calculated based on ten PH1 units at 11 kcfs/unit, four PH2 units at 18 kcfs/unit, 2.2 kcfs daytime spill for adult attraction, and 6.8 kcfs miscellaneous flow (PH2 DSM, PH2 WA Shore Ladder, PH2 UMT, Cascades Island ladder, Bradford Island ladder, PH1 ITS, PH1 DSM, nav lock).

During the T11/T12 outage, 21 – 24 Nov, only PH1 turbine units 1–10 will be available, which may result in spill being necessary during some hours to maintain the chum tailwater. During this time period, the B2CC will be operated, resulting in project capacity of approximately 120-123 kcfs (calculated based on ten PH1 units at 11 kcfs/unit, 5 kcfs through the B2CC, 2.2 kcfs daytime spill for adult attraction, and 5.5 kcfs miscellaneous flow through the PH2 UMT, Cascades Island ladder, Bradford Island ladder, PH1 ITS, PH1 DSM, and nav lock). In the event higher project outflow is necessary to maintain the chum tailwater, or if project capacity is reduced due to unforeseen turbine outages or other real-time issues, spill will be provided as necessary in order to maintain the minimum chum tailwater elevation during all hours. In the event inflow exceeds hydraulic capacity, additional spill will be required. Total dissolved gas (TDG) levels approach 110% with approximately 105 kcfs total spill, which is unlikely given the 10-year average total outflow during this time of year is 130 kcfs.

Downstream passage-

T11 and T12 shall be in service for the duration of spill season and B2CC operation. Minimal impacts to downstream passage are expected.

Upstream passage-

T11 (U11-14) shall be in service during the T12 Refurbishment work between 7 Sept – 20 Nov 2016 for attracting fish to the South PH2 entrances. PH1 units would remain in service and in FPP criteria during this time.

Below are tables showing adult fish passage estimates (by species) for the outage period.

**Table 1.** Bonneville WA shore fish passage 5-year averages (2011-2015) for 7 Sept – 24 November.

	CHK	STH (all)	STH (wild)	COH	SOC	CHUM
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2011-2015	379281	36154	10197	65323	6	68
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**Table 2.** Total Bonneville 10-year (2006-2015) fish passage estimates for 21 – 24 November.

(2006-2015)	CHK	STH (all)	STH (wild)	COH	SOC
21-Nov	14	46	16	29	0
22-Nov	14	51	19	35	0
23-Nov	13	43	16	42	0
24-Nov	14	39	13	30	0

**Comments from agencies**

**12 May 2016 FPOM – 15BON02 T11 and T12 outages.** FPOM would like the B2CC open during the complete PH2 outage (21-24 Nov 2016). PH1 should be the priority powerhouse during this time, and should remain so after T11/T12 come back in service and into the winter maintenance period.

09 June 2016 FPOM – MOC approved.

**Final results- This work will move forward as coordinated.**

Please email or call with questions or concerns.

Thank you,  
Jane

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