OFFICIAL COORDINATION REQUEST FOR
NON-ROUTINE OPERATIONS AND MAINTENANCE

COORDINATION TITLE- 16JDA05 SQ Board Replacement
COORDINATION DATE- 27 October 2016
PROJECT- John Day Dam
RESPONSE DATE- FPOM 10 NOV 2016

Description of the problem - This work will replace ageing powerhouse VAC Switchgear; SQ1, SQ2, SQ3, SQ4, SQ01, SQ02, and main unit motor control centers SU1 through SU16 with new switchgear. Main unit power is routed through the SQ boards with four main units through each SQ board (SQ1 – SQ4). Therefore main unit outages will need to be coordinated during four separate outage periods and may result in a deviation from the Fish Passage Plan (FPP) depending on timing of the outage.

Type of outage required - Main units in blocks of 4 (Table 1) for each SQ board (SQ1 – SQ4) will need to be OOS for three months at a time.

Impact on facility operation - Unit priorities (Table JDA-6) will need to be adjusted for the SQ 3 board outage, which occurs during the spill season and may result in a deviation from the Fish Passage Plan (FPP). The other 3 outages are scheduled to avoid deviations from the FPP (Table 1 and Figure 2).

Table 1. SQ boards and main unit outage schedule.

SQ Board	Start date	End date	Units OOS	Deviation from FPP
SQ4	12/01/17	02/28/18	13, 14, 15, 16	No
SQ3	06/01/18	08/30/18	9, 10, 11, 12	Likely (unit priorities)
SQ2	09/01/18	11/30/18	5, 6, 7, 8	No
SQ1	12/01/18	02/28/19	1, 2, 3, 4	No

The unit priorities from the FY16 FPP are as follows (Table JDA-6):

Table JDA-6. Turbine Unit Operating Priorities at John Day Dam.

Season	TSWs	Unit Operating Priority*
Fish Passage Season	no TSWs	1–4 any order, then 5–16 any order.
March 1–November 30 (24 hours/day)	with TSWs	5,1,3,16,14,12,10,8,15,2,11,7,4,13,9,6
Winter Maintenance Period December 1–February 28 (24 hours/day)	n/a	any unit

**When a main unit is not available, the paired adjacent unit will be* used to comply with requested priority

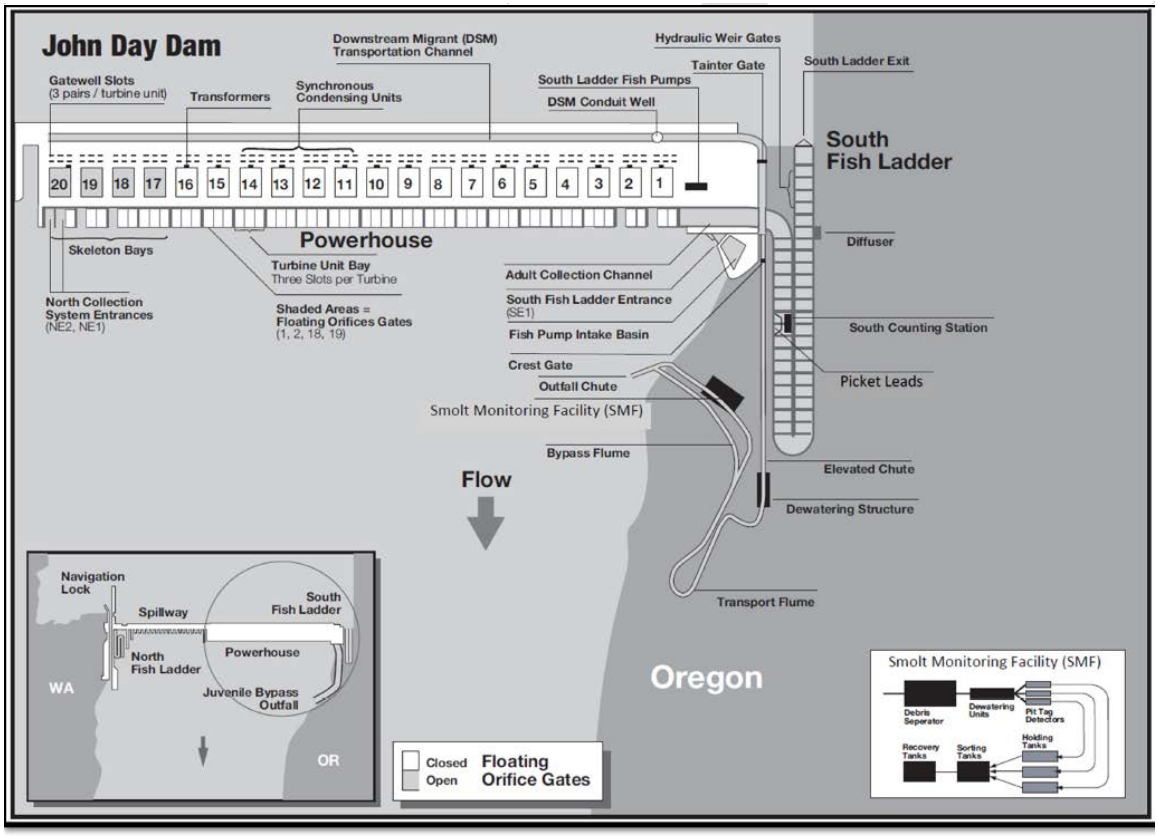

Figure 1. Powerhouse at John Day Dam showing main unit numbering and orientation. Figure is from the FY 16 FPP.

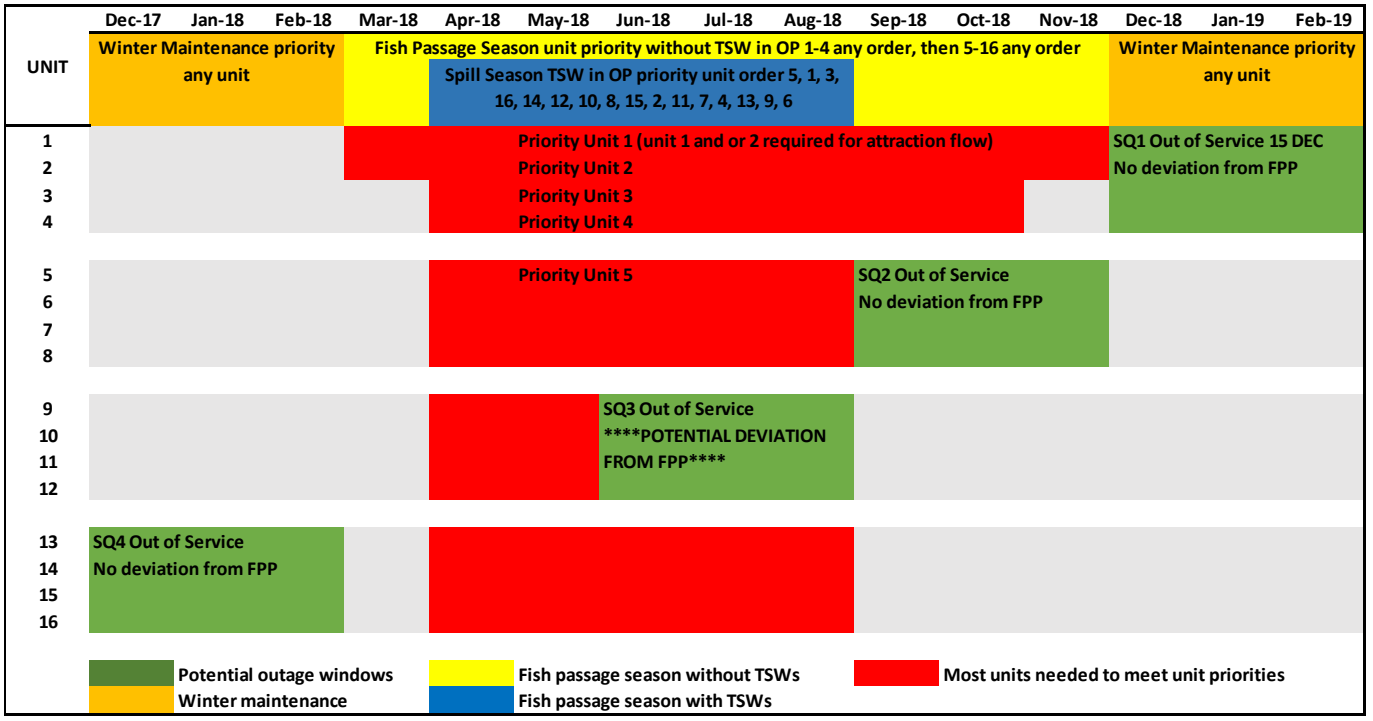

Figure 2. Timeline illustrating unit priorities per the FPP and scheduled SQ board and main unit outages.

Dates of impacts/repairs – Potential deviation from the FPP will be from June 1, 2018 to August 30, 2018 (SQ 3 outage window).

Length of time for repairs – December 2017 to 2019

Expected impacts on fish passage – Units 10 and 12 are number 6 and 7 on the unit priority list. Based on 10 year average inflows (Figure 3) during the SQ 3 outage window it is likely that MUs 10 and 12 will be needed, assuming a capacity of 20 Kcfs through each MU, to meet unit priorities. However when MUs 10 and 12 are out of service (OOS) MUs 8 and 13 will be operated instead when necessary to meet FPP unit priorities.

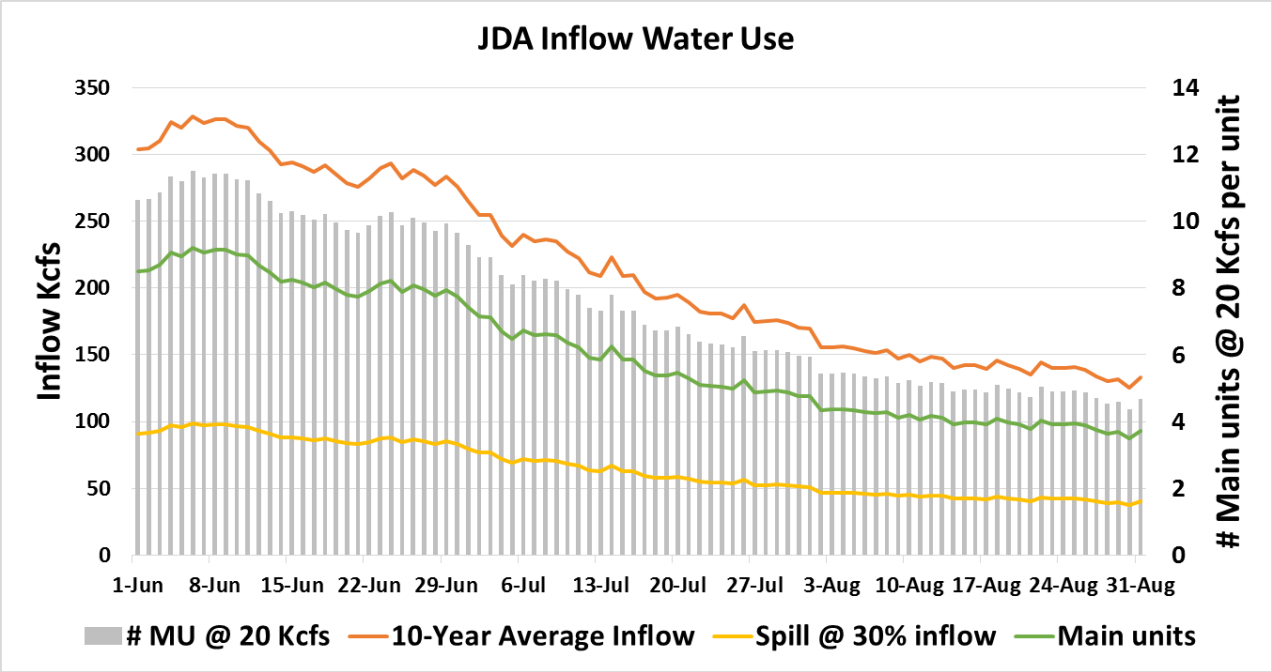

Figure 3. The 10 year average inflows from 1 June to 31 August are shown with 30% of the flow being used for spill (yellow line). Also shown is the amount of flow (70%) that would be passed through the MUs (green line). Grey bars represent the predicted number of MUs that would be operated to pass inflow not being spilled.

Downstream migrants - juvenile fish impacts, if any, should be minimal. Operating adjacent MUs in lieu of MUs that are OOS should be adequate for mainlining fish egress from the tailrace, while minimizing eddies. During the planned outage for SQ3 (1 June – 1 September 2018) ~ 90% of juveniles will have passed JDA (Table 2). The exception are subyearling Chinook salmon, which start passing in late May or early June (10-year median 10% passage on 16 June and 50% passage on 29 June; data from the FY16 FPP table JDA-2).

Table 2. 10 year median, minimum, and max day when 90% of juvenile salmonid passage occurs at John Day Dam. This is based on daily and yearly collection data from the Juvenile Fish Facility.

Species	10-Yr Median	10-Yr min	10-Yr max
Chinook (yearling)	24-May	22-May	6-Jun
**Chinook (subyearling)	28-Jul	20-Jul	22-Aug
Unclipped Steelhead	28-May	19-May	8-Jun
Clipped Steelhead	27-May	15-May	9-Jun
Coho	5-Jun	31-May	16-Jun
Sockeye	1-Jun	25-May	9-Jun

*Dates reflect when 90% of the fish have passed JDA (from FY16 FPP table JDA-2). The 10 year average is based on data from 2006-2015. **The 10 year average is based on data

from 1998-2005.

Upstream migrants (including Bull Trout) - There will not be any impacts to adult ladder attraction and therefore shouldn't be an impact to salmonid upstream migrants.

Comments from agencies

```
-----Original Message-----
From: Gary Fredricks - NOAA Federal [mailto:gary.fredricks@noaa.gov]
Sent: Tuesday, November 01, 2016 8:00 AM
To: Kovalchuk, Erin H NWP <Erin.H.Kovalchuk@usace.army.mil>; Walker,
Ricardo NWP <Ricardo.Walker@usace.army.mil>
Cc: Trevor Conder <Trevor.Conder@noaa.gov>; Lorz, Tom
<lort@critfc.org>; Erick VanDyke <erick.s.vandyke@state.or.us>; David
Swank <david_swank@fws.gov>; Morrill, Charles (DFW)
<Charles.Morrill@dfw.wa.gov>
Subject: [EXTERNAL] Re: FPOM: Official Coordination 16JDA05 MOC SQ
Board Replacement

Erin and Ricardo,

I have a few comments on the SQ Board Replacement MOC.  First, it seems
a bit disingenuous to say that 90% of the juveniles will have passed
before the SQ3 outage when we know that most of the subyearling Chinook
outmigration occurs during this outage.  It would be better to divide
the discussion into impacts on spring migrants and summer migrants.
Second, a four unit hole in the tailrace is significant.  The only way
adjacent units will fill this hole is by eddying back into it.  There
will be impacts to fish passing the adjacent operating units at a time
when pikeminnow feeding activity is at its highest.  This is an impact
that should be recognized.  And third, we don't know what the water
year has in store for us yet although we've had a record high start to
the year.  As indicated by Figure 3, early June is typically part of
the highest flow period of the year.  While not likely, there is the
potential for total dissolved gas to be an issue with a four unit (~80
kcfs capacity) outage, particularly if there are other units out for
whatever reason (these are all BLH runners after all).  This should at
least be mentioned as a risk that might necessitate a delay, at least
in the start of the work.

Thanks for the chance to comment.  Gary
```

Final results

Please email or call one of the following POCs with questions or concerns.
Thank you,

Ricardo Walker
NWP Fish Passage Biologist
Ricardo.walker@usace.army.mil

Erin Kovalchuk
NWP Operations Division Fishery Section
Columbia River Coordinator Biologist
Erin.H.Kovalchuk@usace.army.mil