

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

COORDINATION TITLE - 17 LWG 05 Unit 2 Return to Service Index Testing

COORDINATION DATE - 14 April 2017

PROJECT- CENWW-ODL - Lower Granite Dam

RESPONSE DATE - 28 April 2017

Description of the problem- Unit 2 was removed from service due to failed blades packing sleeve 21 December 2016. The magnitude of failure required unit 2 blade position to be fixed for operation. Modified blade seals in the failed blade packing box and hydraulically lock of the unit at a 29 degree angle (See MOC 17LWG01) has been completed. Unit 2 was returned to service at 1455 hours 13 April 17 and is operating under the same restrictions as unit 1 due to the fixed runner blades. Testing of unit 2 hydraulically locked fixed blades still needs to be performed. The soonest available date for testing with both BPA/Peak RC and HDC on site is 10 May 17 from 0730-1700 hours. The process is expected to take about three hours with the unit out of service for equipment setup and removal and about three hours of actual testing with the unit operated periodically outside 1% peak efficiency operation.

Type of outage required- Unit 2 will be out of service for about 2 hours for testing equipment setup and about 1 hours following testing for equipment removal. In the unlikely event testing indicates the blades need to be adjusted and re-fixed a second day of testing may be required.

Impact on facility operation (FPP deviations)- Unit 2 will be operated outside the 1% peak efficiency operating range for about 3 hours to test the unit at the high end of its operating range.

Impact on unit priority- Unit 2 returning to service with fixed blades will require modification of Lower Granite unit priority order. Unit 2 will be restricted to operate at the upper 1% range at about 17.8-18.4 kcfs (125-129 MW) at 100 ft. of head as described in FPP LWG Table-6. Following unit 1 return to service 14 July 2017, unit priority order starts will need to be changed to unit 1, unit 3, then units 4-6 any order, and then unit 2. Stops will need to be changed to units 4-6 any order, then unit 3, unit 2, and unit 1 (see FPP Change Request Form).

Impact on forebay/tailwater operation- Changes in tailwater conditions are expected with the change in unit operating priority. However, with spring flows the impacts are expected to minimal.

Impact on spill- The Lower Granite five-year weekly average (2012-2016) of inflow May 8-14 is about 88.7 kcfs. Based on this average the spring spill operation of 20 kcfs 24 hours is not expected to be impacted.

Dates of impacts/repairs- 10 May 2017.

Length of time for repairs- About 9 hours.

Analysis of potential impacts to fish

1. 10-year average passage by run during the period of impact for adults and juvenile listed species, as appropriate for the proposed action and time of year; the 10 year average adult passage for the week of 8-14 May is 2,033 Chinook, 137 Chinook jacks, and 20 steelhead. The work will be done during the day to reduce potential impacts on nighttime passage of juveniles.
2. Statement about the current year's run (e.g., higher or lower than 10-year average); N/A
3. Estimated exposure to impact by species and age class (i.e., number or percentage of run exposed to an impact by the action); N/A
4. Type of impact by species and age class (increased delay, exposure to predation, exposure to a route of higher injury/mortality rate, exposure to higher TDG, etc.); Based on available information impacts to adults and juvenile passage will be minimal.

Summary statement - expected impacts on:

Downstream migrants: Unit 2 operating outside of the 1% peak efficiency operating range periodically during the 3 hours index testing is expected to have minimal impact on juvenile migration.

Upstream migrants (including Bull Trout): N/A

Lamprey: N/A

Comments from agencies

From: HILT, RICHARD ARLAN (Rich) CIV USARMY CENWW (US)
Sent: Monday, April 24, 2017 8:43 AM
To: Peery, Christopher A CIV (US) <Christopher.A.Peery@usace.army.mil>; Holdren, Elizabeth A CIV CENWW CENWD (US) <Elizabeth.A.Holdren@usace.army.mil>
Cc: Hockersmith, Eric E CIV USARMY CENWW (US) <Eric.E.Hockersmith@usace.army.mil>; Setter, Ann L CIV USARMY CENWW (US) <Ann.L.Setter@usace.army.mil>
Subject: RE: [Non-DoD Source] Re: Coordination. Lower Granite Unit 2 and AWS 1 RTS (UNCLASSIFIED)

Chris,

Possibly. I spoke with HDC on this subject because I didn't want to give you a reason without confirming I am correct. The purpose of the index testing is to confirm that the blade angel is correct and to come

up with the specific operating curve for the unit while the blade is hydraulically blocked. With the Unit blades blocked, the 1% curve is very narrow (about a 5 MW width, vs about a 50 MW width when the blades are moveable). The index test confirms where that 5 MW band actually is. Is it 124 to 129 or 126 to 131?

In the case of when we welded the blades the first time on Unit 1, we were off on the blade angle and the Index test was what told us that. We were off so much that we had to take the unit back out of service un weld the blades and re-weld them at the proper angle.

The good news is that with the blades hydraulically blocked, this would be a much simpler modification, if there is an issue discovered and could be done the day of the index test.

RAH

-----Original Message-----

From: Peery, Christopher A CIV (US)
Sent: Friday, April 21, 2017 12:38 PM
To: Holdren, Elizabeth A CIV CENWW CENWD (US)
<Elizabeth.A.Holdren@usace.army.mil>; HILT, RICHARD ARLAN (Rich) CIV
USARMY CENWW (US) <Richard.A.Hilt@usace.army.mil>
Cc: Hockersmith, Eric E CIV USARMY CENWW (US)
<Eric.E.Hockersmith@usace.army.mil>; Setter, Ann L CIV USARMY CENWW
(US) <Ann.L.Setter@usace.army.mil>
Subject: FW: [Non-DoD Source] Re: Coordination. Lower Granite Unit 2
and AWS 1 RTS (UNCLASSIFIED)

CLASSIFICATION: UNCLASSIFIED

Rich,

Would there be any negative consequences to moving the unit 2 testing to later in the year, as requested by NOAA?

Thanks,
Chris

From: Bill Hevlin - NOAA Federal [mailto:bill.hevlin@noaa.gov]
Sent: Friday, April 21, 2017 10:23 AM
To: Peery, Christopher A CIV (US) <Christopher.A.Peery@usace.army.mil>;
Setter, Ann L CIV USARMY CENWW (US) <Ann.L.Setter@usace.army.mil>
Cc: Bill Hevlin <bill.hevlin@noaa.gov>; Trevor Conder
<trevor.conder@noaa.gov>; Holdren, Elizabeth A CIV CENWW CENWD (US)
<Elizabeth.A.Holdren@usace.army.mil>; Tom Lorz <lort@critfc.org>
Subject: [Non-DoD Source] Re: Coordination. Lower Granite Unit 2 and
AWS 1 RTS (UNCLASSIFIED)

Chris & Ann,

I don't think May 10 is a good day to be working on unit 2. It may be the top of the juvenile sockeye and steelhead migration at Lower Granite and could turn out to be many spring chinook adults trying to get upstream of Granite. Please see if you can select a later date for this work, maybe after unit one is back in service, then unit two will not be so critical to keep it operating.

Thank You.

Bill Hevlin

From: Peery, Christopher A CIV (US)
Sent: Wednesday, April 26, 2017 2:54 PM
To: Setter, Ann L CIV USARMY CENWW (US) <Ann.L.Setter@usace.army.mil>
Cc: Hockersmith, Eric E CIV USARMY CENWW (US)
<Eric.E.Hockersmith@usace.army.mil>; Holdren, Elizabeth A CIV CENWW
CENWD (US) <Elizabeth.A.Holdren@usace.army.mil>; HILT, RICHARD ARLAN
(Rich) CIV USARMY CENWW (US) <Richard.A.Hilt@usace.army.mil>
Subject: RE: [Non-DoD Source] Re: Coordination. Lower Granite Unit 2
and AWS 1 RTS (UNCLASSIFIED)

CLASSIFICATION: UNCLASSIFIED

See attached.

Based on the ten-year averages, it will be mid-July before there is a
two week period with low smolt numbers at Granite, by that time Unit 1
may be in operation.

June is good for all but subyearling Chinook. The runs may be advanced
this year because of flows, so a mid-June date may have limited risk.

Thoughts?

Chris

From: Bill Hevlin - NOAA Federal [mailto:bill.hevlin@noaa.gov
<mailto:bill.hevlin@noaa.gov> <mailto:bill.hevlin@noaa.gov
<mailto:bill.hevlin@noaa.gov> >]
Sent: Thursday, May 04, 2017 9:41 AM
To: Peery, Christopher A CIV (US)
<Christopher.A.Peery@usace.army.mil
<mailto:Christopher.A.Peery@usace.army.mil>
<mailto:Christopher.A.Peery@usace.army.mil
<mailto:Christopher.A.Peery@usace.army.mil> > >
Cc: Bill Hevlin <bill.hevlin@noaa.gov
<mailto:bill.hevlin@noaa.gov> <mailto:bill.hevlin@noaa.gov
<mailto:bill.hevlin@noaa.gov> > >
Subject: [Non-DoD Source] Re: Lower Granite Unit 2
testing (UNCLASSIFIED)

Hi Chris,
Any possibility that testing unit 2 could be delayed
until we have unit 1 back on line? Guidance of adults to the south
shore powerhouse entrance would support this.
bill

On Thu, May 4, 2017 at 10:40 AM, Peery, Christopher A CIV (US)
<Christopher.A.Peery@usace.army.mil
<mailto:Christopher.A.Peery@usace.army.mil>
<mailto:Christopher.A.Peery@usace.army.mil
<mailto:Christopher.A.Peery@usace.army.mil> > > wrote:

CLASSIFICATION: UNCLASSIFIED

The engineers requested an alternate date of 20 June. We can discuss at FPOM next week.

Thanks,
Chris

From: Bill Hevlin - NOAA Federal [mailto:bill.hevlin@noaa.gov
<mailto:bill.hevlin@noaa.gov>]
Sent: Thursday, May 04, 2017 11:23 AM
To: Peery, Christopher A CIV (US)
<Christopher.A.Peery@usace.army.mil
<mailto:Christopher.A.Peery@usace.army.mil> >
Cc: Bill Hevlin <bill.hevlin@noaa.gov
<mailto:bill.hevlin@noaa.gov> >
Subject: Re: [Non-DoD Source] Re: Lower Granite Unit 2 testing
(UNCLASSIFIED)

If there is no hope for unit one completion until August then June 20 sounds okay for a short day long alternative operation of unit 2, I think there is a reduction in adult passage around then and the subyearling downstream run is underway.

On Thu, May 4, 2017 at 11:26 AM, Peery, Christopher A CIV (US)
<Christopher.A.Peery@usace.army.mil
<mailto:Christopher.A.Peery@usace.army.mil> > wrote:

CLASSIFICATION: UNCLASSIFIED

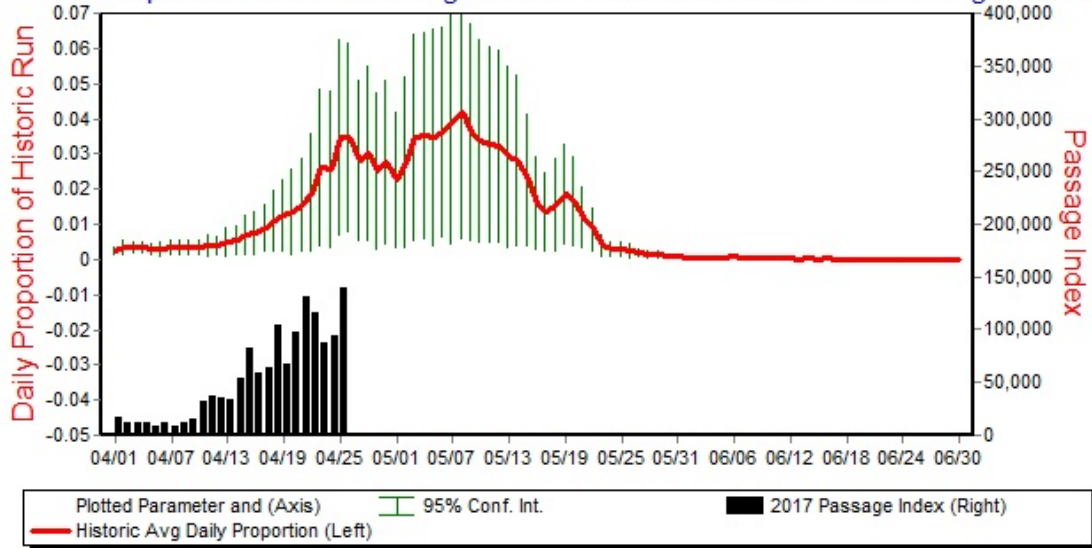
Sounds good. I will try and firm up the Unit 1 dates by next week.

Chris

From: Bill Hevlin - NOAA Federal [mailto:bill.hevlin@noaa.gov]
Sent: Thursday, May 04, 2017 11:45 AM
To: Peery, Christopher A CIV (US) <Christopher.A.Peery@usace.army.mil>
Cc: Bill Hevlin <bill.hevlin@noaa.gov>; Trevor Conder
<trevor.conder@noaa.gov>
Subject: Re: [Non-DoD Source] Re: Lower Granite Unit 2 testing
(UNCLASSIFIED)

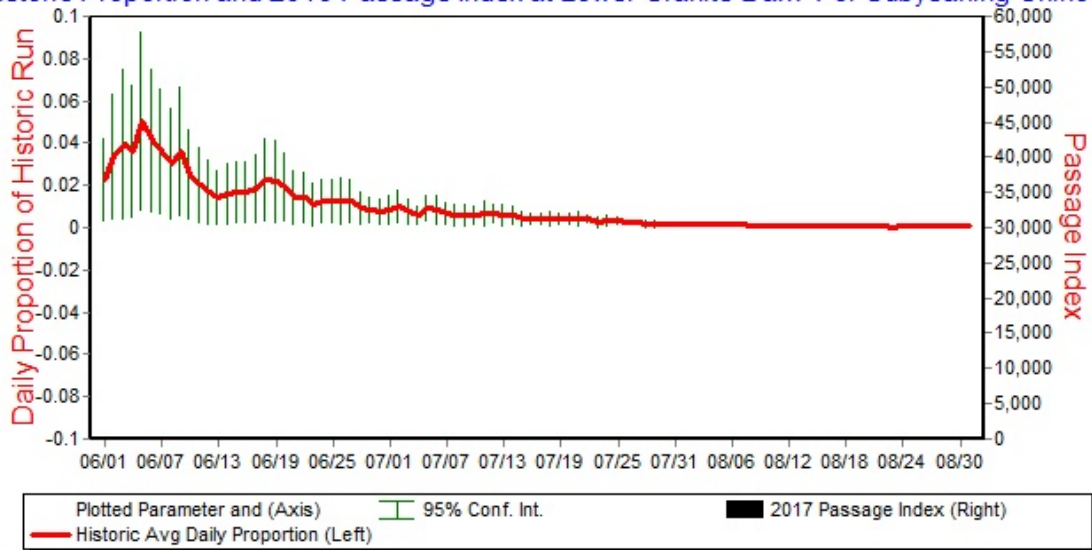
Chris, also see if they can start the tests no earlier than mid morning to give the adults a little more time with unit 2 operating consistently through the morning hours.
bill

Historic Proportion and 2016 Passage Index at Lower Granite Dam For Yearling Chinook

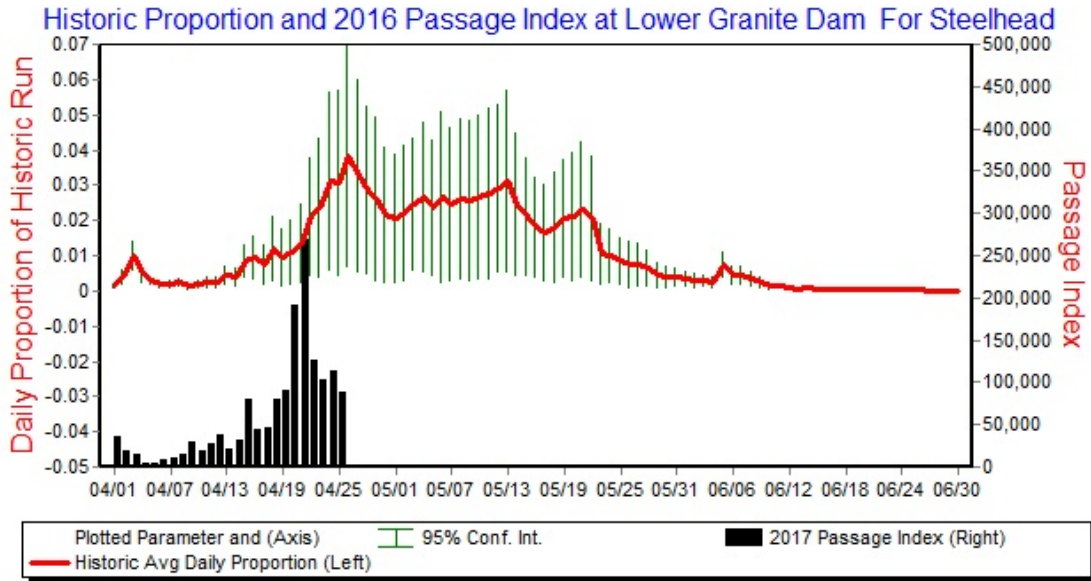


Historic daily proportions average of 2007-2016.

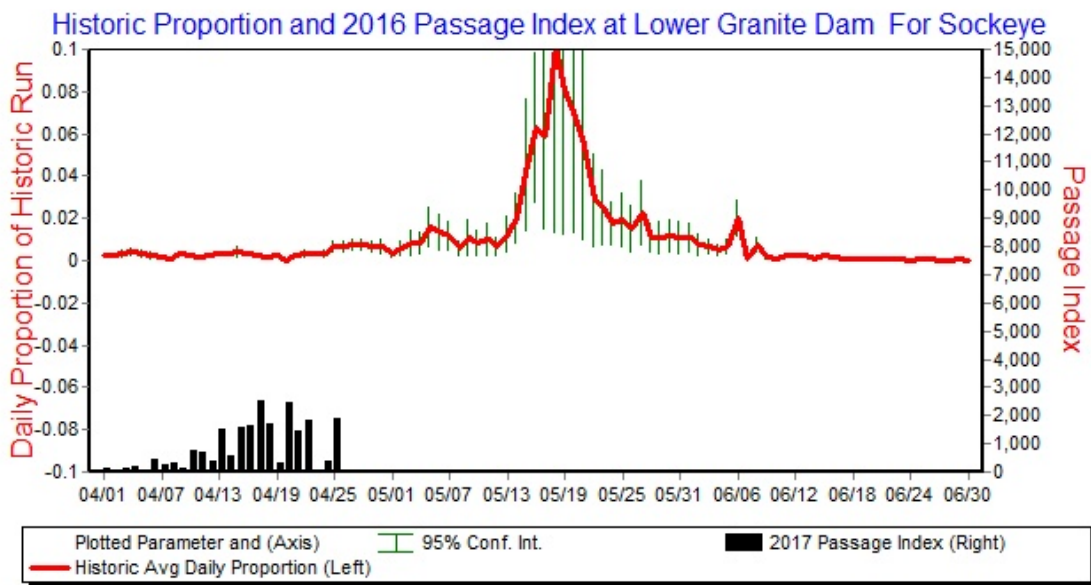
Historic Proportion and 2016 Passage Index at Lower Granite Dam For Subyearling Chinook



Historic daily proportions average of 2007-2016.



Historic daily proportions average of 2007-2016.



Historic daily proportions average of 2007-2016.

Final coordination results

Testing is scheduled for 20 June 2017.

After Action update

Unit 2 was returned to service and testing was conducted as scheduled. There were no issues.

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

Elizabeth Holdren
Supervisory Fisheries Biologist
Lower Granite Lock and Dam
Ph. 1(509) 843-2263
Cell. 1(509) 592-6109
Elizabeth.a.holdren@usace.army.mil