OFFICIAL COORDINATION REQUEST FOR
NON-ROUTINE OPERATIONS AND MAINTENANCE

COORDINATION TITLE - 17 LWG 17 Unit Priority Change
COORDINATION DATE - 1 August 2017
PROJECT- CENWW-ODL - Lower Granite Dam
RESPONSE DATE - 1 August 2017

Description of the problem – Currently Unit 1 at Lower Granite Dam is out of service for repairs until early September which makes Unit 2 first priority for first on/last off for operation, according to Table LWG 5 in the 2017 FPP. However, Unit 2 blades are fixed at a 29 degree angle which restricts operations 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. This means that, once river flow drops below 36 kcfs, spill would need to be reduced below the scheduled level of 18 kfcs if Unit 2 remains in operation at its current blade angle. Changing the blade angle to the lower 1% operating range (20.15° and 12 kcfs discharge) was considered, however, Corps technical staff felt this would compromise the temporary fix and pose significant risks of failure on the oversized static blade seal which would result in increases in both time and cost to return Unit 2 to Kaplan operation.

In order to maintain 18 kcfs of spill, when river flows no longer allow operation of Unit 2 and 18 kcfs of spill (when hourly average flows are less than 36 kcfs), unit priority will switch to Unit 3 then 4, 5-6 any order, and then Unit 2 last on to provide FOP summer spill operations. It is anticipated flows will reach this level during the first week of August and continue through the month. After that time, Unit 1 is estimated to be back in service and it will become the priority unit. After September 1, Unit 2 would return to the priority until Unit 1 has returned to service.

Type of outage required –Changing unit priority as described above. This will result in Unit 2 being idle until high flows resume spring of 2018 or until repairs return Unit 2 to Kaplan operation.

Impact on facility operation (FPP deviations) - Unit priority will change from 2 then 3, 4-6 any order to turbine unit priority order 3 then 4, 5-6 any order, then 2 last on/last off when hourly river flows drop below 36 kcfs until Unit 1 is returned to service. Once Unit 1 returns to service, priority will change to 1 then 3, 4-6 any order, then 2 last on/2nd to last off. This order will assure the fewest start/stops for Unit 2 until repairs can be made to return it to Kaplan operation.

Impact on unit priority- Unit priority will change from Unit 2 then 3, 4-6 any order to turbine unit priority order 3 then 4, 5-6 any order, then 2 last on, once hourly average river flow drop below 36 kcfs until Unit 1 is returned to service. Once Unit 1 returns to service, priority will change to 1 then 3, 4-6 any order, then 2 last on. Stop units priority will be 4-6 any order, then 3, then 2, then 1, with the provision that Unit 2 will be run as long as possible while maintaining BPA load request and required spill levels. This will reduce the number of starts and stops for Unit 2 until repairs can be made to return the unit to Kaplan operation.

Impact on forebay/tailwater operation- Changing priority to units 3 may reduce attraction to the south shore fishway entrances, however, at lower river flows the fish ladder discharge produces a more defined signature.

Impact on spill- The requested change will allow scheduled spill of 18 kcfs during August.

Dates of impacts/repairs- Early August 2017. Dependent on average hourly flows dropping below 36 kcfs which is anticipated during the first week of August.

Length of time for repairs- NA.

Analysis of potential impacts to fish

1. 10-year average passage for August at Lower Granite Dam is 2,539 adult Chinook salmon, 8,233 adult steelhead, 60 sockeye salmon and 27 lamprey.
2. To date, the Chinook salmon run has been 45% of the 10-year average, although the fall Chinook run is forecast to be about average. The sockeye salmon run has been 25% of the 10-year average and the steelhead run is predicted to be 40% of average but to date is only 10 to 15% of the 10-year mean. Lamprey counts are above average to date.
3. Attraction to the south shore fishways may be diminished with priority changed to unit 3. Adult passage will be closely monitored to identify passage issues if they develop in a timely manner.

Summary statement - expected impacts on:

Downstream migrants: Minimal

Upstream migrants (including Bull Trout): Attraction conditions in the tailrace may be reduced resulting in increased passage times, however, at lower river flows the fish ladder discharge produces a more defined signature. The impact is expected to be minimal.

Lamprey: Minimal

Comments from agencies

-----Original Message-----
From: Sharp, Bradley O CIV USARMY CENWW (US)
Sent: Tuesday, September 05, 2017 4:56 PM
To: Peery, Christopher A CIV (US) <Christopher.A.Peery@usace.army.mil>; Baus, Douglas M CIV USARMY CENWD (US) <Douglas.M.Baus@usace.army.mil>; Wright, Lisa S CIV USARMY CENWD (US) <Lisa.S.Wright@usace.army.mil>
Cc: HILT, RICHARD ARLAN (Rich) CIV USARMY CENWW (US) <Richard.A.Hilt@usace.army.mil>; Holdren, Elizabeth A CIV CENWW CENWD (US) <Elizabeth.A.Holdren@usace.army.mil>; Setter, Ann L CIV USARMY CENWW (US) <Ann.L.Setter@usace.army.mil>; Hockersmith, Eric E CIV USARMY CENWW (US) <Eric.E.Hockersmith@usace.army.mil>
Subject: RE: LWG Unit priority (UNCLASSIFIED)

Chris,

There was some confusion regarding LWG unit priority over the weekend. That confusion has been cleared up and Unit 2 is now running as the highest priority unit per latest CBT LWG R 080317 0735. Unit 2 will remain the priority unit until Unit 1 is returned to service or otherwise directed.

Respectfully,

Brad Sharp

Senior Operator
Lower Granite Project
509-843-2233

The MOC was discussed on 1 August 2017 through a mix of in person or via telephone discussion with FPOM members. Representatives from NOAA, Idaho, Oregon, Washington, BPA and The Nez Perce Tribe concurred that it will be better to switch to Unit 3 priority for a few weeks in August rather than risk losing Unit 2 or reducing spill. CRITFC and USFWS representatives were not available so messages were left for them. The CRITFC representative was reached via phone 2 August 2017 and they also supported the unit priority change in the MOC.

The representatives hope the prognosis for Unit 1 to return to service 1 September is good. In the absence of that, and lower spill requirements in September, they would want to switch back to Unit 2 until Unit 1 RTS. Operations will be updated at the August 10, 2017 FPOM meeting.

-----Original Message-----
From: Peery, Christopher A CIV (US)
Sent: Tuesday, August 01, 2017 12:11 PM
To: Rhynard, Chad A CIV USARMY CENWW (US) <Chad.A.Rhynard@usace.army.mil>; Hockersmith, Eric E CIV USARMY CENWW (US) <Eric.E.Hockersmith@usace.army.mil>
Cc: Stewart, Lucian P CIV (US) <Lucian.P.Stewart@usace.army.mil>; Mendiola, Martin T CIV USARMY CENWW (US) <Marty.T.Mendiola@usace.army.mil>; Thoren, Scott D CIV USARMY CENWD (US) <Scott.D.Thoren@usace.army.mil>; Sedgwick, Jeffrey M CIV USARMY CENWD (US) <Jeffrey.M.Sedgwick@usace.army.mil>; Weatherspoon, Charles H CIV USARMY CENWW (US) <Charles.H.Weatherspoon@usace.army.mil>; Setter, Ann L CIV USARMY CENWW (US) <Ann.L.Setter@usace.army.mil>; Dunning, Joyce M CIV USARMY CENWW (US) <Joyce.M.Dunning@usace.army.mil>; Valentine, Andrea L CIV USARMY CENWW (US) <Andrea.L.Valentine@usace.army.mil>; HILT, RICHARD ARLAN (Rich) CIV USARMY CENWW (US) <Richard.A.Hilt@usace.army.mil>
Subject: RE: Decision document; Unit 2 Blade angle change S: COB 31 Jul (UNCLASSIFIED)

CLASSIFICATION: UNCLASSIFIED

This correct. Talking to NOAA, Oregon, Washington, BPA and The Nez Perce Tribe, they concurred that it will be better to switch to Unit 3 for a few weeks in August rather than risk losing Unit 2. They hope the prognosis for Unit 1 to return to service 1 September is good. In the absence of that, and lower spill requirements in September, they would want to switch back to Unit 2 until Unit 1 RTS.

Chris

From: Tom Lorz [mailto:lort@critfc.org]
Sent: Tuesday, July 18, 2017 5:56 PM
To: Peery, Christopher A CIV (US) <Christopher.A.Peery@usace.army.mil>; Trevor Conder <Trevor.Conder@noaa.gov>

Subject: [Non-DoD Source] RE: Coordination: 17 LWG 17 MOC Unit Priority Change (UNCLASSIFIED)

I must say I am disappointed that we were not made aware sooner that Unit 1 was going to be out until September. This unit was supposed to be back in May and has now slipped all the way until September. If I had been made aware that this was a potential outcome I would have argued against the hydro-blocking of unit 2 at the upper end of the range. That being said how long does it take to re-hydro locke unit 2 at a lower setting to insure that we can use this unit 2 and still spill the required amount? There might be a window in adult passage that would allow for this. Unit 3 does not provide the same adult attraction as unit 2 and unit 2 is a not as good as unit 1. We would request that more information be made available, ie how long to re hydro lock unit 2 and is there any chance unit 1 will be back online sooner then September.

> Tom,
>
> I was only recently made aware of the latest delay for Unit 1. I believe you came in after we had discussed this at the last FPOM meeting.
>
> I understand it takes about a week to change the blade angle for Unit 2 now and then a few days to conduct the index testing.
>
> From the latest STP spreadsheet, the predicted date Snake River flows will drop below 36 kcfs is 11 August.
>
> I have cc'd Rich Hilt on this email. He should have the latest information regarding Unit 1 return to service.
>
> Thank you,
> Chris
>
> From: Peery, Christopher A CIV (US)
> Sent: Wednesday, July 19, 2017 8:57 AM
> To: 'Tom Lorz' <lort@critfc.org>; 'Trevor Conder' <Trevor.Conder@noaa.gov>
> Cc: 'Hevlin, Bill' <bill.hevlin@noaa.gov>
> Subject: RE: Coordination: 17 LWG 17 MOC Unit Priority Change (UNCLASSIFIED)
>
> CLASSIFICATION: UNCLASSIFIED
>
> Tom,
>
> I spoke with Rich this morning. He corrected me that it only takes an hour or so to change the blade angle and one day to conduct the index testing once scheduled with the Hydo guys, but there is a lag usually in getting the index results. They can set the unit to the theoretical angle but do not know if the angle is correct until the index results are available.

He confirmed that 1 September is the date he has from the contractor for unit 1 RTS, but at his point there is not a lot of confidence in the contractor.

From: Tom Lorz [mailto:lort@critfc.org]
Sent: Wednesday, July 19, 2017 9:39 AM
To: Peery, Christopher A CIV (US) <Christopher.A.Peery@usace.army.mil>
Subject: [Non-DoD Source] RE: Coordination: 17 LWG 17 MOC Unit Priority Change (UNCLASSIFIED)

That's great, I have talked with trevor and he is talking with Bill. Also discussed this with TMT. Scott Bettin suggested we make the switch but do the index testing in September. I would suggest we make the change sooner like in the next 10 days or so. Will defer to Trevor if he has a better idea....

Thanks

Tom lorz
CRITFC

From: Erick VanDyke [mailto:erick.s.vandyke@state.or.us]
Sent: Wednesday, July 19, 2017 10:17 AM
To: Peery, Christopher A CIV (US) <Christopher.A.Peery@usace.army.mil>;
Subject: [Non-DoD Source] RE: Coordination: 17 LWG 17 MOC Unit Priority Change (UNCLASSIFIED)

I would join in recommending the hydro-lock be adjusted to meet the lower 1% minimum generation for the unit as soon as possible (my initial recommendation at on-set). A recent discussion indicated the work can be done in relatively minimal time (~1 hr) and that testing requires around a day. If testing can be done on a flexible schedule that should be considered to be completed at a later date. This is another scenario that is brought on by Unit 1 work not being completed as scheduled, and creating issues with preferred unit operation for adult attraction not being available when it is need most. Much work remains on finding better solutions to completion of work on dates specified.

Erick S. Van Dyke
Oregon Dept of Fish & Wildlife
Fish Passage/Mitigation Technical Analyst
17330 SE Evelyn Street
Clackamas, OR 97015
971-673-6068 Office

Erick

-----Original Message-----
From: Trevor Conder - NOAA Federal [mailto:trevor.conder@noaa.gov]
Sent: Wednesday, July 19, 2017 10:34 AM
To: Peery, Christopher A CIV (US) <Christopher.A.Peery@usace.army.mil>
Cc: Tom Lorz <lort@critfc.org>; Hevlin, Bill <bill.hevlin@noaa.gov>; Scott Bettin <swbettin@bpa.gov>

Subject: [Non-DoD Source] Re: Coordination: 17 LWG 17 MOC Unit Priority Change (UNCLASSIFIED)

Chris,

From your email it sounds like it only takes an hour to set a new angle. Today at TMT Scott suggested it may not be that important to index test the unit right away. Once flows are expected to drop down below 36K, could we take an afternoon and set unit two to a lower blade angle? We could set it at 12K and not touch it again, but if it is easy for the project to adjust in an hour, you might consider dropping it in stages starting with 16, 14, and down to 12 as flows drop over the next couple weeks. This would help with adult attraction while maintaining FOP spill. Maybe we should have a call with the project involved?

-Trevor

> From: Peery, Christopher A CIV (US)
> Sent: Wednesday, July 19, 2017 11:32 AM
> To: 'Trevor Conder - NOAA Federal' <trevor.conder@noaa.gov>
> Cc: Tom Lorz <lort@critfc.org>; Hevlin, Bill <bill.hevlin@noaa.gov>; Scott Bettin <swbettin@bpa.gov>; Hockersmith, Eric E CIV USARMY CENWW (US) (Eric.E.Hockersmith@usace.army.mil) <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>; Baus, Douglas M CIV USARMY CENWD (US) <Douglas.M.Baus@usace.army.mil>; Erick VanDyke <erick.s.vandyke@state.or.us>; Charles Morrill (charles.morrill@dfw.wa.gov) <charles.morrill@dfw.wa.gov>; Kiefer,Russell <russ.kiefer@idfg.idaho.gov>
> Subject: RE: [Non-DoD Source] Re: Coordination: 17 LWG 17 MOC Unit Priority Change (UNCLASSIFIED)
>
> CLASSIFICATION: UNCLASSIFIED
>
> Trevor, Tom, Erick,
>
> Yes, the calculations to estimate the blade angle and setting the blade angle can be made in a single day and index testing would take an additional day. However, Rich Hilt was emphatic about two points in our discussion.
>
> We should have the index testing conducted immediately because the estimation is just that, and may be wrong and need to be corrected. So the sooner we can figure that out the better for fish and operations.
>
> The temporary fix on the unit is an epoxy patch on the wear ring. This is just a patch and more times they work on the unit the greater the chance the patch will fail and there will be an oil leak and unit 2 will need to be taken out of service. So if there is a change it should be with the objective that this will be a one-time deal. Possibly with the option to bump it up again in the spring when flows are high. Sooner or later that patch will fail.

So we need to agree on the setting that will work best and when we want to make this modification. The low end of the 1% allows 11.8 kcfs with ESBSs and 10.8 kcfs without ESBSs on Unit 2. With 18 kcfs spill this allows operation of Unit 2 down to 28 or 29 kcfs river flow. Is this a workable level for the project and BPA for production?

Chris

-----Original Message-----
From: Trevor Conder - NOAA Federal [mailto:trevor.conder@noaa.gov]
Sent: Wednesday, July 19, 2017 12:56 PM
To: Peery, Christopher A CIV (US) <Christopher.A.Peery@usace.army.mil>
Cc: Tom Lorz <lort@critfc.org>; Hevlin, Bill <bill.hevlin@noaa.gov>; Scott Bettin <swbettin@bpa.gov>; 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>; Baus, Douglas M CIV USARMY CENWD (US) <Douglas.M.Baus@usace.army.mil>; Erick VanDyke <erick.s.vandyke@state.or.us>; Charles Morrill (charles.morrill@dfw.wa.gov) <charles.morrill@dfw.wa.gov>; Kiefer,Russell <russ.kiefer@idfg.idaho.gov>
Subject: Re: [Non-DoD Source] Re: Coordination: 17 LWG 17 MOC Unit Priority Change (UNCLASSIFIED)

Chris,

Given the projects response, we could support an angle that targets a flow somewhere between 12 and 14 Kcfs and has a low risk of actually being outside the 1% percent range. It seems targeting 14 Kcfs could theoretically be better for adult attraction by providing more force to counteract the powerhouse eddy, but it's also important to consider we won't have a bypass available in August, so an effective level of spill will be important.

-Trevor

From: Peery, Christopher A CIV (US)
Sent: Wednesday, July 19, 2017 2:55 PM
To: 'Trevor Conder - NOAA Federal' <trevor.conder@noaa.gov>
Cc: Tom Lorz <lort@critfc.org>; Hevlin, Bill <bill.hevlin@noaa.gov>; Scott Bettin <swbettin@bpa.gov>; 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>; Baus, Douglas M CIV USARMY CENWD (US) <Douglas.M.Baus@usace.army.mil>; Erick VanDyke <erick.s.vandyke@state.or.us>; Charles Morrill (charles.morrill@dfw.wa.gov) <charles.morrill@dfw.wa.gov>; Kiefer,Russell <russ.kiefer@idfg.idaho.gov>
Subject: RE: [Non-DoD Source] Re: Coordination: 17 LWG 17 MOC Unit Priority Change (UNCLASSIFIED)

CLASSIFICATION: UNCLASSIFIED

At 14 kcfs, Unit 2 would need to be shut down once river flow fell below about 32 kcfs, forecast date of 17 August.

At 12 kcfs, Unit 2 would run until river flows fell below 30 kcfs, currently projected to be 1 September.
These dates are subject to change of course.

The ESBS screens will be removed starting 2 August and they can start with Unit 2. I suggest making the change to blade angle once Unit 2 screens have been pulled.

Any other ideas or comments?

Bill Hevlin?

From: Bill Hevlin - NOAA Federal [mailto:bill.hevlin@noaa.gov]
Sent: Wednesday, July 19, 2017 2:59 PM
To: Peery, Christopher A CIV (US) <Christopher.A.Peery@usace.army.mil>
Cc: Trevor Conder - NOAA Federal <trevor.conder@noaa.gov>; Tom Lorz <lort@critfc.org>; Scott Bettin <swbettin@bpa.gov>; 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>; Baus, Douglas M CIV USARMY CENWD (US) <Douglas.M.Baus@usace.army.mil>; Erick VanDyke <erick.s.vandyke@state.or.us>; Charles Morrill (charles.morrill@dfw.wa.gov) <charles.morrill@dfw.wa.gov>; Kiefer,Russell <russ.kiefer@idfg.idaho.gov>
Subject: [Non-DoD Source] Re: Coordination: 17 LWG 17 MOC Unit Priority Change (UNCLASSIFIED)

Chris, I don't have a problem with this plan.
Thanks for checking.

Bill

From: Tom Lorz [mailto:lort@critfc.org]
Sent: Wednesday, July 19, 2017 3:28 PM
To: Peery, Christopher A CIV (US) <Christopher.A.Peery@usace.army.mil>
Subject: RE: [Non-DoD Source] Re: Coordination: 17 LWG 17 MOC Unit Priority Change (UNCLASSIFIED)

Looking at the STP looks like this should work. Thanks for the help coordinating.

Tom lorz

From: Bettin,Scott W (BPA) - EWP-4 [mailto:swbettin@bpa.gov]
Sent: Wednesday, July 19, 2017 4:08 PM
To: Peery, Christopher A CIV (US) <Christopher.A.Peery@usace.army.mil>; Trevor Conder - NOAA Federal <trevor.conder@noaa.gov>
Cc: Tom Lorz <lort@critfc.org>; Hevlin, Bill <bill.hevlin@noaa.gov>; 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>; Baus, Douglas M CIV USARMY CENWD (US) <Douglas.M.Baus@usace.army.mil>; Erick VanDyke <erick.s.vandyke@state.or.us>; Charles Morrill

(charles.morrill@dfw.wa.gov) <charles.morrill@dfw.wa.gov>; Kiefer,Russell <russ.kiefer@idfg.idaho.gov>
Subject: RE: [Non-DoD Source] Re: Coordination: 17 LWG 17 MOC Unit Priority Change (UNCLASSIFIED)

I know we usually use daily averages for flow projections as our trigger but the system is operated on an hourly or shorter basis. I know DWR is pretty much a set discharge but what I don't know is what Hells Canyon will be doing going forward. Attached is a graph of the last four days from HCD. What I'm concerned about is that they might store and we might not have enough water over the weekend to provide both the spill and turbine flow on some hours. Because of that I'm leaning more towards making on unit 2's output to 14 kcfs sooner rather than later. -s

From: Erick VanDyke [mailto:erick.s.vandyke@state.or.us]
Sent: Wednesday, July 19, 2017 4:28 PM
To: Scott Bettin <swbettin@bpa.gov>; Peery, Christopher A CIV (US) <Christopher.A.Peery@usace.army.mil>; Trevor Conder - NOAA Federal <trevor.conder@noaa.gov>
Cc: Tom Lorz <lort@critfc.org>; Hevlin, Bill <bill.hevlin@noaa.gov>; 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>; Baus, Douglas M CIV USARMY CENWD (US) <Douglas.M.Baus@usace.army.mil>; Erick VanDyke <erick.s.vandyke@state.or.us>; Charles Morrill (charles.morrill@dfw.wa.gov) <charles.morrill@dfw.wa.gov>; Kiefer,Russell <russ.kiefer@idfg.idaho.gov>
Subject: RE: [Non-DoD Source] Re: Coordination: 17 LWG 17 MOC Unit Priority Change (UNCLASSIFIED)

I'm supportive of a one-time adjustment to 12 kcfs to get this unit most operational over the broader time period. Hopefully, unit 1 will be back up and running before September 1.

Erick

From: Bettin,Scott W (BPA) - EWP-4 [mailto:swbettin@bpa.gov]
Sent: Thursday, July 20, 2017 1:13 PM
To: Peery, Christopher A CIV (US) <Christopher.A.Peery@usace.army.mil>
Subject: RE: [Non-DoD Source] Re: Coordination: 17 LWG 17 MOC Unit Priority Change (UNCLASSIFIED)

12 kcfs works. If we don't have enough water in Sept. We will just need to close the RSW and spill less under the gates. We may also run into that problem at slightly higher flows because we will likely hold the pool above MOP and more than 6.8 kcfs will be spilled. Then it brings up whether or not the commitment was to spill a volume of only 6.8 X 12 =82 ksfd or did we commit to spill 12 hour/day? It's always something. :) -s

From: Peery, Christopher A CIV (US)
Sent: Tuesday, July 25, 2017 1:49 PM

To: USARMY CENWW (US) <Bradley.O.Sharp@usace.army.mil>
Subject: RE: 17 LWG 17 MOC Unit 2 Blade Angle Change (UNCLASSIFIED)

CLASSIFICATION: UNCLASSIFIED

Afternoon,

We have heard back from Lower Granite Dam and HDC regarding the blade angle change for Unit 2 (see below). The short of it is that the estimated angle is 20.15 degrees. HDC can conduct the index testing on 16 August. So the project would like to change blade angle two days prior, 14 August, to allow them time to confirm the unit will run at this angle without overheating the governor. I have updated the MOC accordingly. See attached. Please provide comments by 30 July.

Thank you,
Chris

Christopher Peery
Fish Biologist
Natural Resources Management
U.S. Army Corps of Engineers NWW
201 N 3rd Ave.
Walla Walla, WA 99362
509 527-7124

Chris,

As a follow up to our phone conversation. HDC calculated a blade angle of 20.15 degrees for operating Unit 2 at 12 kcfs with the screens removed. Lower Granite would like to reposition Unit 2 blades to 20.15 degrees on August 14. That would allow us to operate in the new range for two days to verify we do not have governor overheating issues. If Unit 2 has governor issues at the new set points, we will have to reevaluate but it will allow us to cancel HDC's visit for index testing. If Unit 2 has no issues, it will be removed from service on August 16 to allow HDC to perform index testing. HDC will provide preliminary theoretical tables next week and have some feedback at the end of testing. Final full testing results should be provided 3 days following the test. This schedule should minimize the time we would potentially be operating outside lower 1% limit based on theoretical values versus the actual test results.

If it is decided to reposition Unit 2 blades prior to the projects proposed schedule, we recommend changing the blade angle following removal of Unit 2 ESBSs. HDC calculations were complete with the ESBSs removed. Unit ESBS removal outage is currently scheduled for August 1-3.

Thanks,
Brad

Brad Sharp
Senior Operator
Lower Granite Project

509-843-2233

-----Original Message-----
From: Bettin,Scott W (BPA) - EWP-4 [mailto:swbettin@bpa.gov]
Sent: Tuesday, July 25, 2017 1:57 PM
To: Peery, Christopher A CIV (US) <Christopher.A.Peery@usace.army.mil>
Subject: [Non-DoD Source] RE: 17 LWG 17 MOC Unit 2 Blade Angle Change (UNCLASSIFIED)

So if flows keep going down that will mean we will be reducing spill and that will result in more fish passing through the turbines since we won't have a bypass available from Aug 1 on. -s

> From: Peery, Christopher A CIV (US)
> Sent: Tuesday, July 25, 2017 2:54 PM
> To: 'Bettin,Scott W (BPA) - EWP-4' <swbettin@bpa.gov>
> Subject: RE: 17 LWG 17 MOC Unit 2 Blade Angle Change (UNCLASSIFIED)
>
> CLASSIFICATION: UNCLASSIFIED
>
> Yes, that is correct. The latest prediction is that mean daily flows will fall below 36 kcfs on 8 August. They pull screens on or near 2 August.

From: Morrill, Charles (DFW) [mailto:Charles.Morrill@dfw.wa.gov]
Sent: Tuesday, July 25, 2017 2:21 PM
To: Peery, Christopher A CIV (US) <Christopher.A.Peery@usace.army.mil>;
Subject: [Non-DoD Source] RE: 17 LWG 17 MOC Unit 2 Blade Angle Change (UNCLASSIFIED)

Hi Chris,

pleased to see this gong forward !

Thanks Chris

Charlie

From: Tom Lorz [mailto:lort@critfc.org]
Sent: Wednesday, July 26, 2017 10:43 AM
To: Peery, Christopher A CIV (US) <Christopher.A.Peery@usace.army.mil>; Trevor Conder <Trevor.Conder@noaa.gov>
Subject: [Non-DoD Source] RE: 17 LWG 17 MOC Unit 2 Blade Angle Change (UNCLASSIFIED)

I thought we were going to try to get this done early August. Looking at flows waiting this long might be a problem if flows drop and we have to either decrease spill or go to unit 3. Neither option is good. Dropping spill after August 1 is definitely not preferred since the JBS will be out of service. What is the COE's plan if flows continue to drop? I would strongly encourage you guys to get this done first week in August if possible, do not want to hear about reductions in spill after August 1 and all the fun fall out that will come from that.

Thanks

Tom Lorz

> From: Peery, Christopher A CIV (US)
> Sent: Wednesday, July 26, 2017 11:17 AM
> To: 'Tom Lorz' <lort@critfc.org>
> Cc: 'trevor.conder@noaa.gov' <trevor.conder@noaa.gov>; Sharp, Bradley O CIV USARMY CENWW (US) <Bradley.O.Sharp@usace.army.mil>; Scott Bettin <swbettin@bpa.gov>; Baus, Douglas M CIV USARMY CENWD (US) <Douglas.M.Baus@usace.army.mil>
> Subject: RE: 17 LWG 17 MOC Unit 2 Blade Angle Change (UNCLASSIFIED)
>
> CLASSIFICATION: UNCLASSIFIED
>
> Thank you for the comment Tom. Scott Bettin expressed a similar concern. The email from Brad, who is acting in for Rich Hilt, is based on what Rich asked him to coordinate with HDC. He is aware that flows may not cooperate with this plan, hence the last part of his email.
>
> Chris

From: Trevor Conder - NOAA Federal [mailto:trevor.conder@noaa.gov]
Sent: Thursday, July 27, 2017 10:59 AM
To: Peery, Christopher A CIV (US) <Christopher.A.Peery@usace.army.mil>
Cc: Tom Lorz <lort@critfc.org>; Scott Bettin <swbettin@bpa.gov>; Baus, Douglas M CIV USARMY CENWD (US) <Douglas.M.Baus@usace.army.mil>
Subject: [Non-DoD Source] Re: 17 LWG 17 MOC Unit 2 Blade Angle Change (UNCLASSIFIED)

Chris,

Given that the bypass will be out of service in August for the bypass construction, I would be fine with the proposed date as long as it is reasonably certain to provide the FOP 18k spill with the current angle. If not, I suggest making the switch to the revised angle on unit 2 sooner to avoid unnecessary regional concern over the matter. I would also be flexible enough to consider running unit 3 for a day or two at the low end if necessary to meet FOP spill as flows drop if necessary, since getting a couple days of count data with unit three operating would have some utility if we had to go there.

-Trevor

> From: Peery, Christopher A CIV (US)
> Sent: Thursday, July 27, 2017 2:13 PM
> To: 'Trevor Conder - NOAA Federal' <trevor.conder@noaa.gov>
> Cc: Tom Lorz <lort@critfc.org>; Scott Bettin <swbettin@bpa.gov>; Baus, Douglas M CIV USARMY CENWD (US) <Douglas.M.Baus@usace.army.mil>
> Subject: RE: [Non-DoD Source] Re: 17 LWG 17 MOC Unit 2 Blade Angle Change (UNCLASSIFIED)
>
> CLASSIFICATION: UNCLASSIFIED

Currently flows at Granite are 40 kcfs, just slightly above the STP spreadsheet estimates. Based on the predictions, average daily flow at Granite drops below the 36 kcfs level around 8 August (hourly flows will be more variable), at which point the blade angles must be changed or priority needs to be switched to unit 3 in order to maintain 18 kcfs spill. Letting unit 3 run a few days would put the blade change around the end of the second week of August.

Final coordination results

During discussion with FPOM representatives from NOAA, Idaho, Oregon, Washington, BPA, CRITFC and The Nez Perce Tribe on 1 August, they concurred that it will be better to switch to Unit 3 for a few weeks in August rather than risk losing Unit 2 or reducing spill. FPOM hopes the prognosis for Unit 1 to return to service 1 September is good. In the absence of that, and lower spill requirements in September, they would want to switch back to Unit 2 until Unit 1 RTS. Operations will be updated at the August 10, 2017 FPOM meeting.

MOC was approved.

After Action update

Due to the number of teletypes received by Lower Granite operations there was confusion about unit operating priority. Unit 2 remained in standby mode from September 1 to 0610 hours September 5 when the mistake was identified. During the startup of unit 2 the AC turbine bearing oil pump failed to develop flow. Unit 2 started but was removed from service at 0745 to test and prime the AC oil pump and not risk tripping the unit on turbine bearing low oil flow. Unit 2 was returned to service at 0945 hours September 5 and is not the priority unit. Unit 3 was operated while unit 2 was off line.

Please email or call with questions or concerns.

Thank you,

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