

Good evening board members. Please read the e mail and the one included that was sent to the agencies by Josh also.

I did respond to Josh verbally this morning and shared our mutual concern of the rapidly descending water elevation in the Hoist Storage Basin.

I reinforced that we would support any thoughts that the agencies would concur on that would reduce to 80 cfs or less the consumption of water by generation or other devices like the LVD.

We also spoke about the amount of encouragement we would ask for getting the agencies to respond as quickly as possible or it will not make any difference soon.

As of my conversation we I believe are once again are the only ones commenting.

Jim

From: Joshua Ball

Date: July 26, 2021 at 09:04:44 EDT

To: Elle Gulotty, "Kohlhepp, Gary (DEQ)", Doug Clements, Scott Hicks, Gene Mensch, Jim Grundstrom

Cc: "Virgil E. Schlorke", Matthew Annala, GenerationAdmin, Joshua Ball

Subject: Dead River Dry Year Consultation -Silver Lake Development - 7/26/21 Update

Good morning all,

Since last week's email and conversation on Tuesday, elevations continued to decline at both the Silver Lake and Hoist Storage Reservoirs. Precipitation was received as predicted on Thursday and Friday (0.78"), but only slowed the elevation declines for a day. The forecast shows average temperatures, with a chance for some minor precipitation throughout the week. Below are the current water levels across the Dead River:

Silver Lake:	1479.70'
Hoist:	1339.82'
McClure:	1196.15'

UPPCO hosted a conference call on Tuesday July 20th and has been recapped in the below email. Please provide your comments on available options for water conservation across the Dead River System.

As always if there are any questions, please feel free to reach out.

Regards,

Josh Ball

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From: Joshua Ball

Sent: Tuesday, July 20, 2021 3:29 PM

To: Elle Gulotty; Kohlhepp, Gary (DEQ); Doug Clements; Scott Hicks; Gene Mensch; Jim Grundstrom

Cc: Virgil E. Schlorke; Matthew Annala; GenerationAdmin; Joshua Ball

Subject: Dead River Dry Year Consultation Conference Call follow up

All,

Thank you to those that were able to participate in the call this afternoon to discuss the next steps to ensuring effective management of the resources along the Dead River project. From today's call, it was requested that UPPCO provide all options and considerations with potential tradeoffs of each scenario. Below I have outlined the minimum license conditions UPPCO is required to operate at and have also provided the mechanical minimums UPPCO is able to operate at. It is UPPCO recommendation that some variation of the two parameters (license minimums and mechanical minimums) be the end result of the consultation and flow reduction. I have also added a few bullet points of items to consider for the various operation parameters.

License Minimums		
Site	Headwater Elevation Minimum	Minimum Flow
Silver Lake	1480/1479	10
Hoist	1339.5	100
McClure Dam	1194.8	
McClure bypass siphon		20
McClure Powerhouse		80

Mechanical Minimums		
Site	Headwater Elevation Minimum	Minimum Flow
Silver Lake		5
Hoist		80
McClure Dam (bypass siphon)		
McClure bypass siphon		10
McClure Powerhouse		70

Items to Consider:

- Reduction in flow from McClure Powerhouse and/or bypass siphon will affect the MBLP their ability to meet license parameters and generate power (inflows will not be sustained)
- Reduction in Hoist powerhouse and McClure siphon flows could negatively impact the water temperatures downstream of the development (less cold water being pulled from reservoirs)
- If Hoist powerhouse flows are reduced to 80 cfs, using the LLO to supplement for low Dissolved Oxygen would require increased flows (IE powerhouse stays at 80 and LLO water is added)
 - Would we want to eliminate the DO supplemental flows?

UPPCO's internal discussion of available options (there may be more we did not identify):

- No changes to outflows at any site (stay at license minimums) and allow headwater to trend to available water
 - This will keep flows consistent for comparing water quality parameters
 - Allows for use of the Hoist LLO to supplement and correct for Dissolved Oxygen
 - Keeps the Headwater Levels of the SLSB and the DRSB at steady declines unless significant precipitation starts to occur (currently 0.1-0.3 feet per day)
- Release additional water from the SLSB to try and supplement Hoist elevations
 - Concerns of re-filling Silver Lake if level is dropped too low, even with a good winter. Could lead to very low headwater levels if winter of 21/22 is mild.
- Reduce outflows from the SLSB to try and sustain current headwater levels
 - River flow at 5 cfs would be greatly impacted and could be detrimental to aquatic life
 - Lower flows will likely negatively impact water quality at the AAO bridge by increasing temperatures, and in turn increase water temperatures in the DRSB
- Go to Mechanical minimum at Hoist (80), McClure Powerhouse (70) and McClure bypass siphon (10)
 - Potential to increase water temperature downstream of each development due to reducing the cold water / deep draws from the reservoirs
 - No ability to supplement for low Dissolved Oxygen at the Hoist without increasing total outflows
 - Impacts to downstream hydro sites (MBLP) and their license conditions
- Balance the license minimums with mechanical minimums
 - No change to the SLSB
 - Decrease Hoist powerhouse flows to 90 cfs
 - This allows up to 10 cfs to be released from the LLO to supplement low Dissolved conditions
 - Decrease McClure flows to match the new 90 cfs from Hoist
 - Reduce powerhouse flows to 75 and reduce siphon to 15 (UPPCO preferred) or
 - Keep powerhouse flows at 80 cfs and reduce the siphon to 10 cfs or
 - Reduce powerhouse flows to 70 cfs and keep siphon at 20 cfs
 - Keeping the siphon at 15 cfs balances the water quality requirement at both sites by slightly reducing both, vs all at one location.
- Other combinations of balance the minimums with mechanical minimums exist, the one presented seems to be the most logical to balance all the aspects of the resource (water quality, recreation, aquatic habitats/river flows, power generation)

Timing of changes to the license parameters also needs to be hashed out:

- Are approved changes made immediate to save available water?
- Are approved changes made once license minimums are reached?
- Do approved changes revert back to license minimum conditions on a set date?
- Do approved changes revert back to license minimums at a set elevation / license target elevation?

As requested by the DNR, I did a few quick calculations based on the available data to date (weather predictions, outflows, etc) and it appears under current conditions the following would happen to the

DRSB elevation if the operations parameters highlighted occur and 'normal' precipitation is received. These would assume changes to parameters on 7/21/21 and do not represent any actual flow data, but are generic estimates (weather patterns play the biggest factors):

Date	min flow	Est. headwater
1-Aug	100	1339.74
15-Aug	100	1339.15
1-Sep	100	1338.39
15-Sep	100	1337.79
1-Oct	100	1337.19
15-Oct	100	1336.73

Date	min flow	Est. headwater
1-Aug	90	1339.84
15-Aug	90	1339.54
1-Sep	90	1338.94
15-Sep	90	1338.48
1-Oct	90	1338.04
15-Oct	90	1337.72

Date	min flow	Est. headwater
1-Aug	80	1339.88
15-Aug	80	1339.77
1-Sep	80	1339.33
15-Sep	80	1339
1-Oct	80	1338.7
15-Oct	80	1338.52

If possible please provide you comments on the proposed options for managing the Dead River Projects by Monday July 26, 2021 to allow any proposed changes to be discussed among the group and implemented when appropriate. As indicated before, we need consensus from all involved parties before any operations changes can be implemented.

As always, please let me know if there are any questions.

Regards,

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