LOWER GRANITE T1/T2 GASKET REPAIR – PRELIMINARY WATER TEMPERATURE INVESTIGATION

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Lower Granite Lock and Dam

OVERVIEW

- Investigate potential impacts of a powerhouse outage in August at Lower Granite on tailwater temperatures
- Determine ability of Dworshak flow augmentation to offset potential impacts of outage

ASSUMPTIONS AND MODELED SCENARIOS

Assumptions

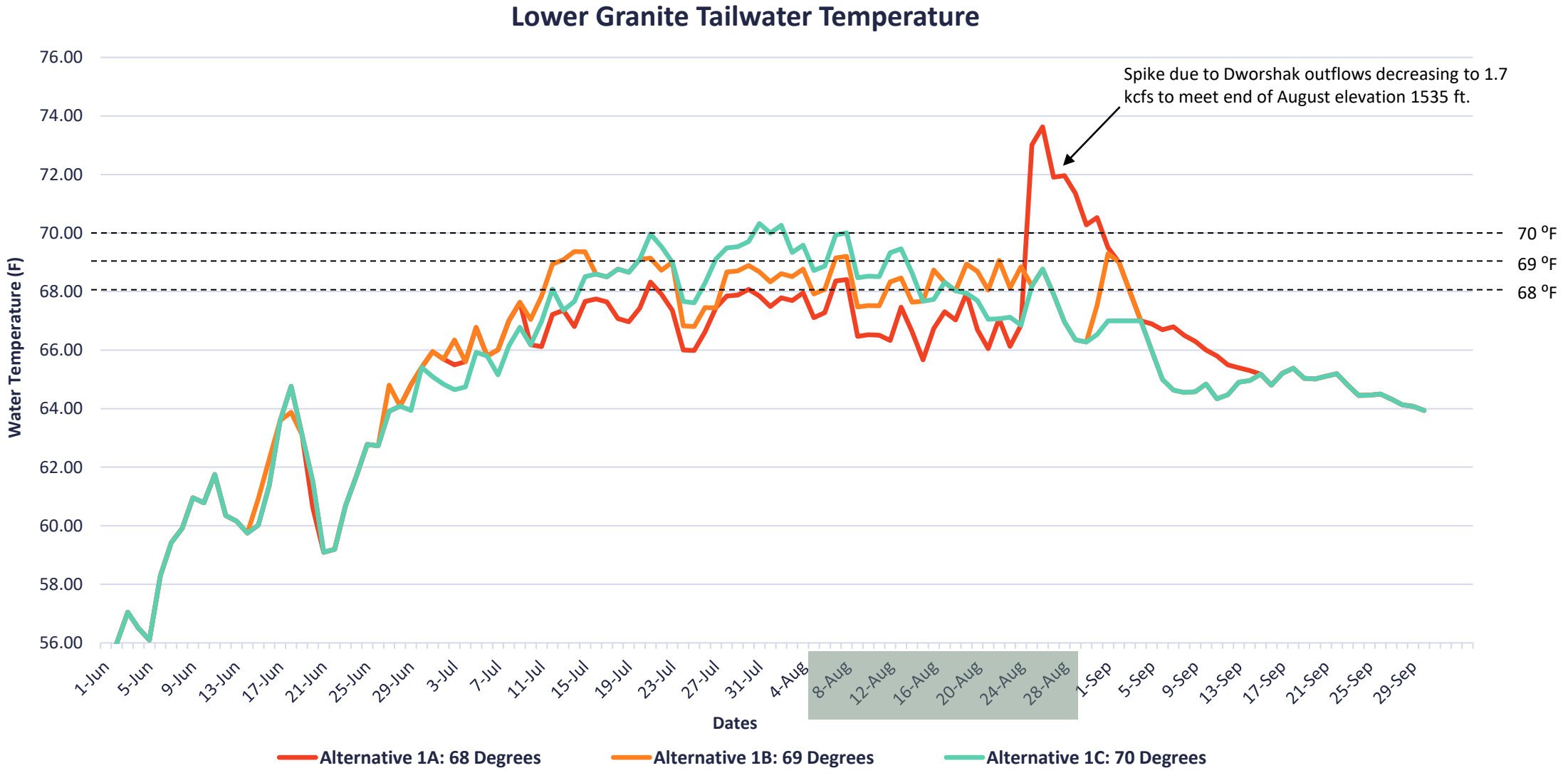
1. Only 8 kcfs for station service will be generated from 0900-2100 during when T1 is unavailable.
2. TDG impacts at Lower Granite were not considered.
3. Average river and climate conditions, not an abnormally hot or cold year.
4. Scenarios run against projected available flow augmentation volume from the Upper and Middle Snake based on conditions in FY 2023.
5. No SRBA water is used before September 1st, end of August elevation is 1,535 ft and end of September elevation is 1,520 ft.
6. Dworshak's pool is full and flow augmentation begins July 1, if flow augmentation was needed earlier results will be adversely impacted.
7. Dworshak releases are limited to the state standard of 110% TDG.

Scenarios

1. Alternative 1: August 7th to August 31st, only 8 kcfs generated from 0900-2100
   - 1A: Do not exceed 68°F
   - 1B: Do not exceed 69°F
   - 1C: Do not exceed 70°F
2. Alternative 2: August 28th to Sept 17th, only 8 kcfs generated from 0900-2100
   - 2A: Do not exceed 68°F
   - 2B: Do not exceed 69°F
   - 2C: Do not exceed 70°F

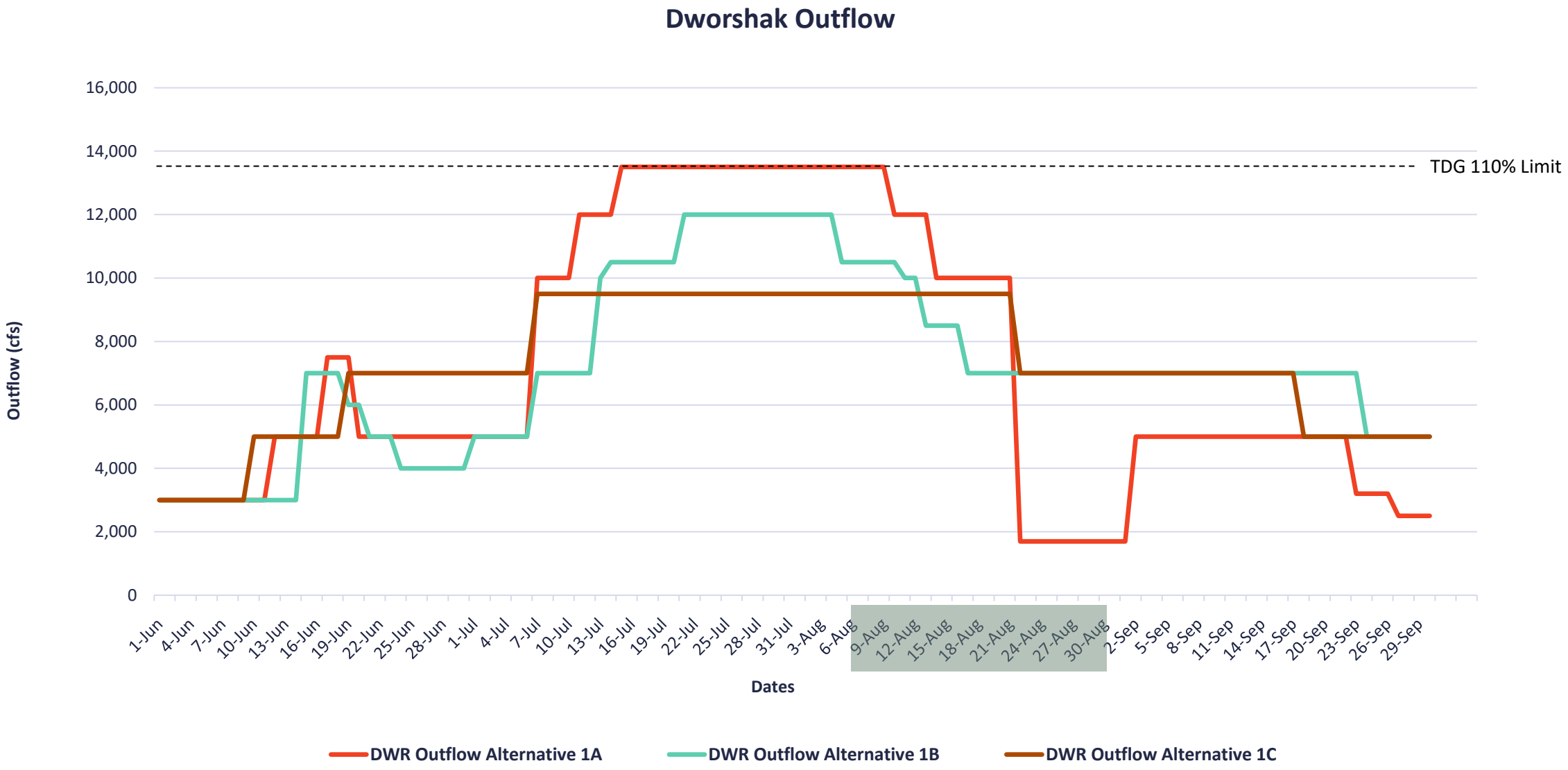
NOTE: Temperature criteria is applied to the entire summer, in order to provide enough cool water. If temperature criteria is only applied to the outage timeframe at LWG, then temperature spikes consistently reached above 75°F based on expected basin conditions in WY23 and due to the limited flow releases, that can occur from DWR with the 110% TDG state standards.

ALTERNATIVE 1: LWG TAILWATER TEMPERATURES (AUG 7-31)

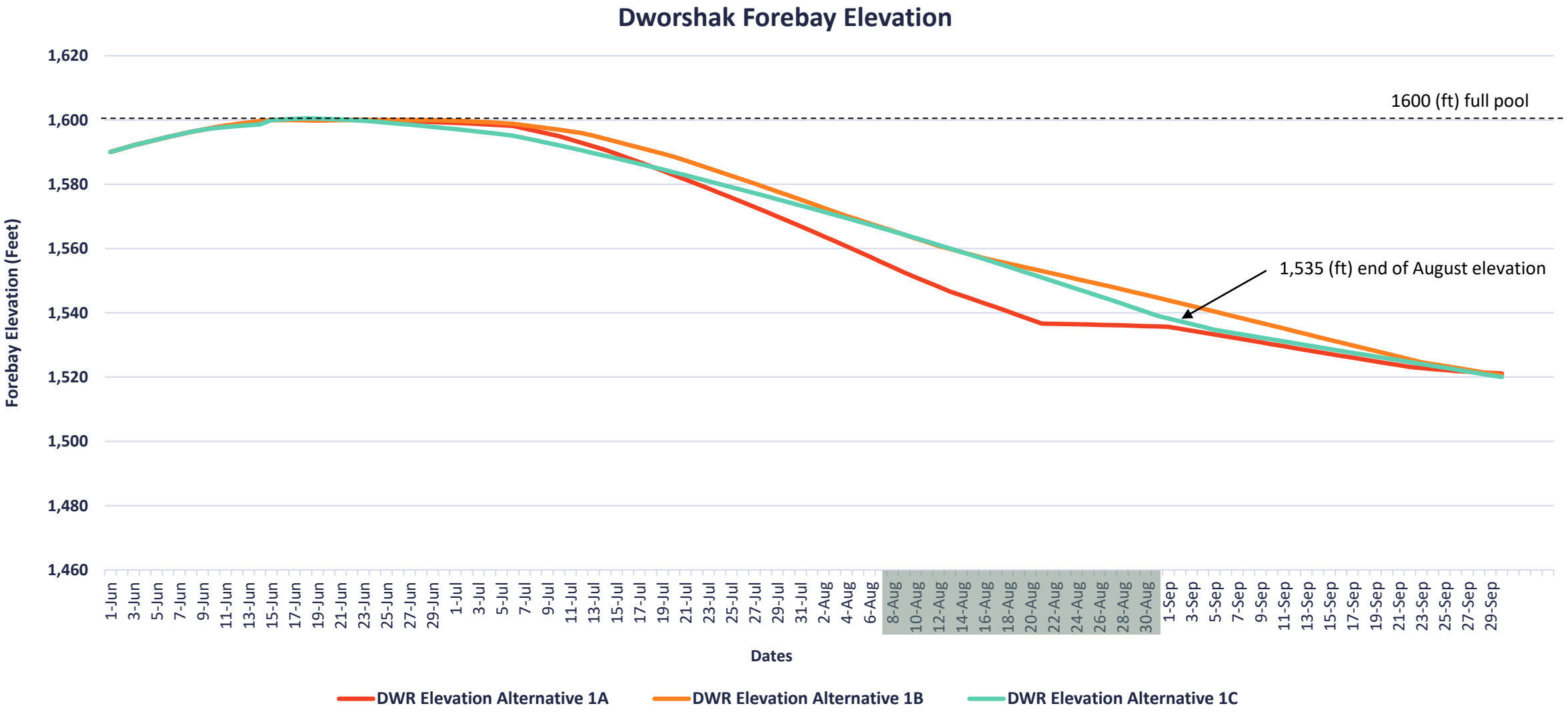


*Temperatures represent daily averages with flows changing every 12 hours, temperatures will oscillate +-1.5°F

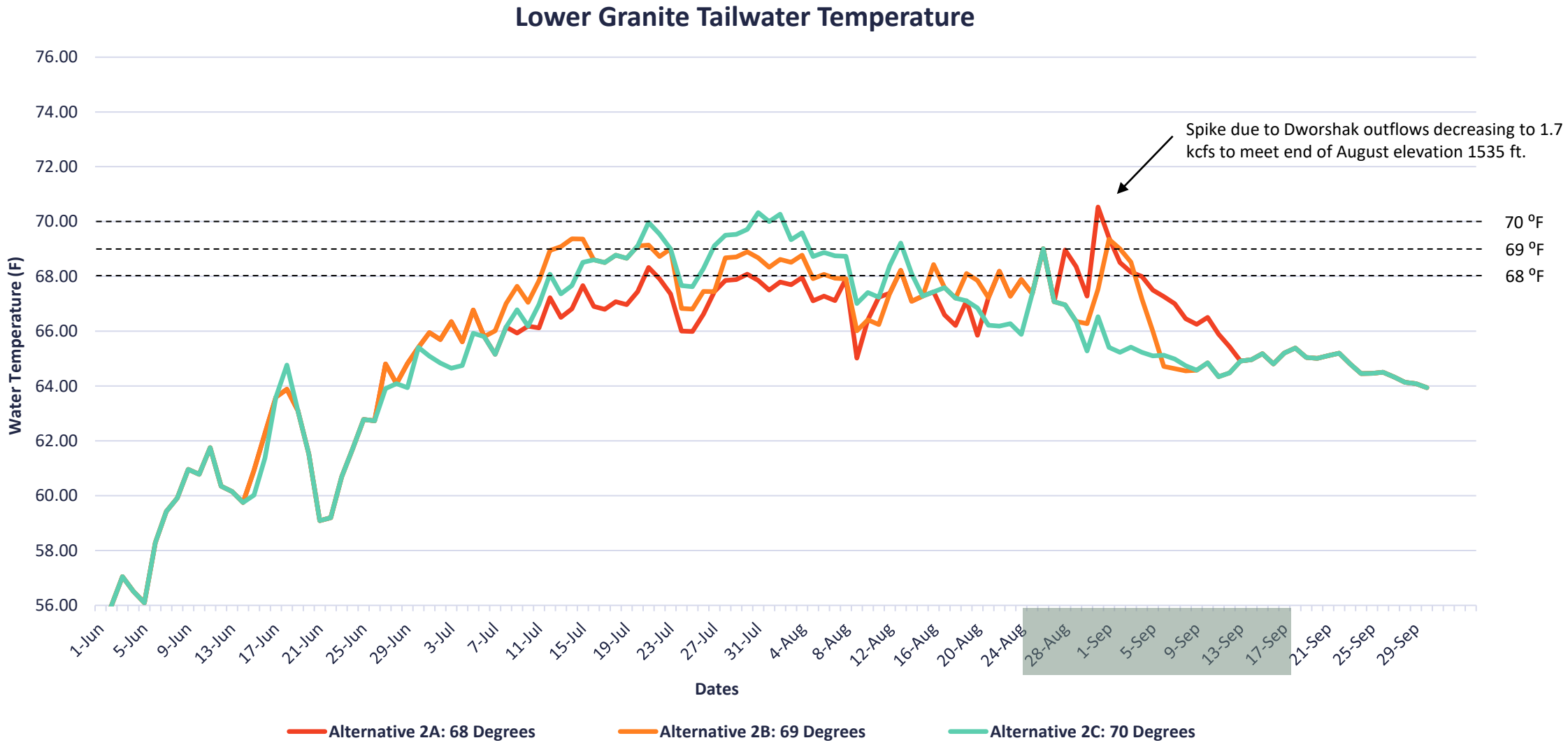
ALTERNATIVE 1: DWORSHAK OUTFLOW (AUG 7-31)



ALTERNATIVE 1: DWORSHAK FOREBAY ELEVATION (AUG 7-31)



ALTERNATIVE 2: LWG TAILWATER TEMPERATURE (AUG 28-SEP 17)



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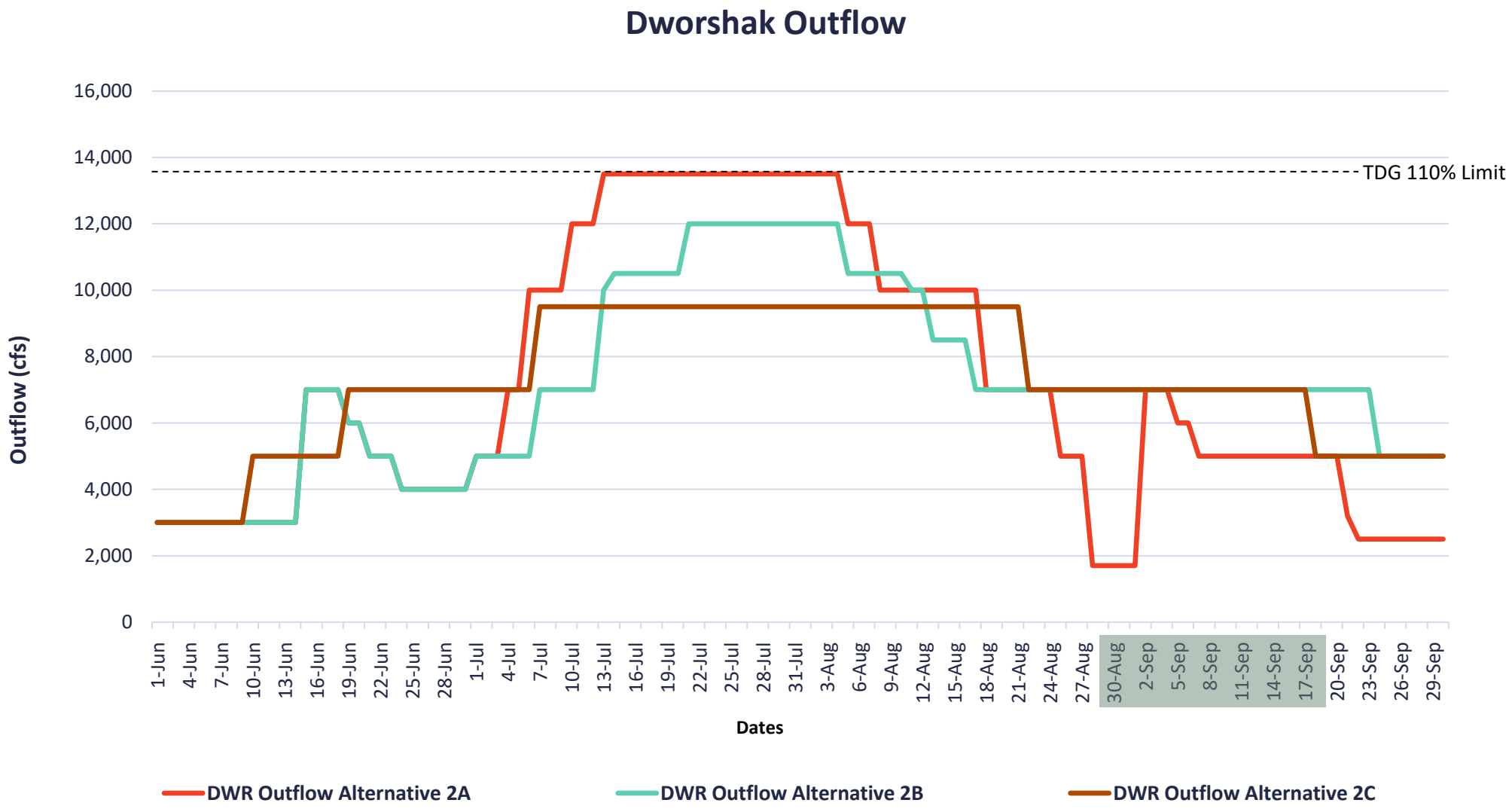
ALTERNATIVE 2: DWORSHAK OUTFLOW (AUG 28-SEP 17)



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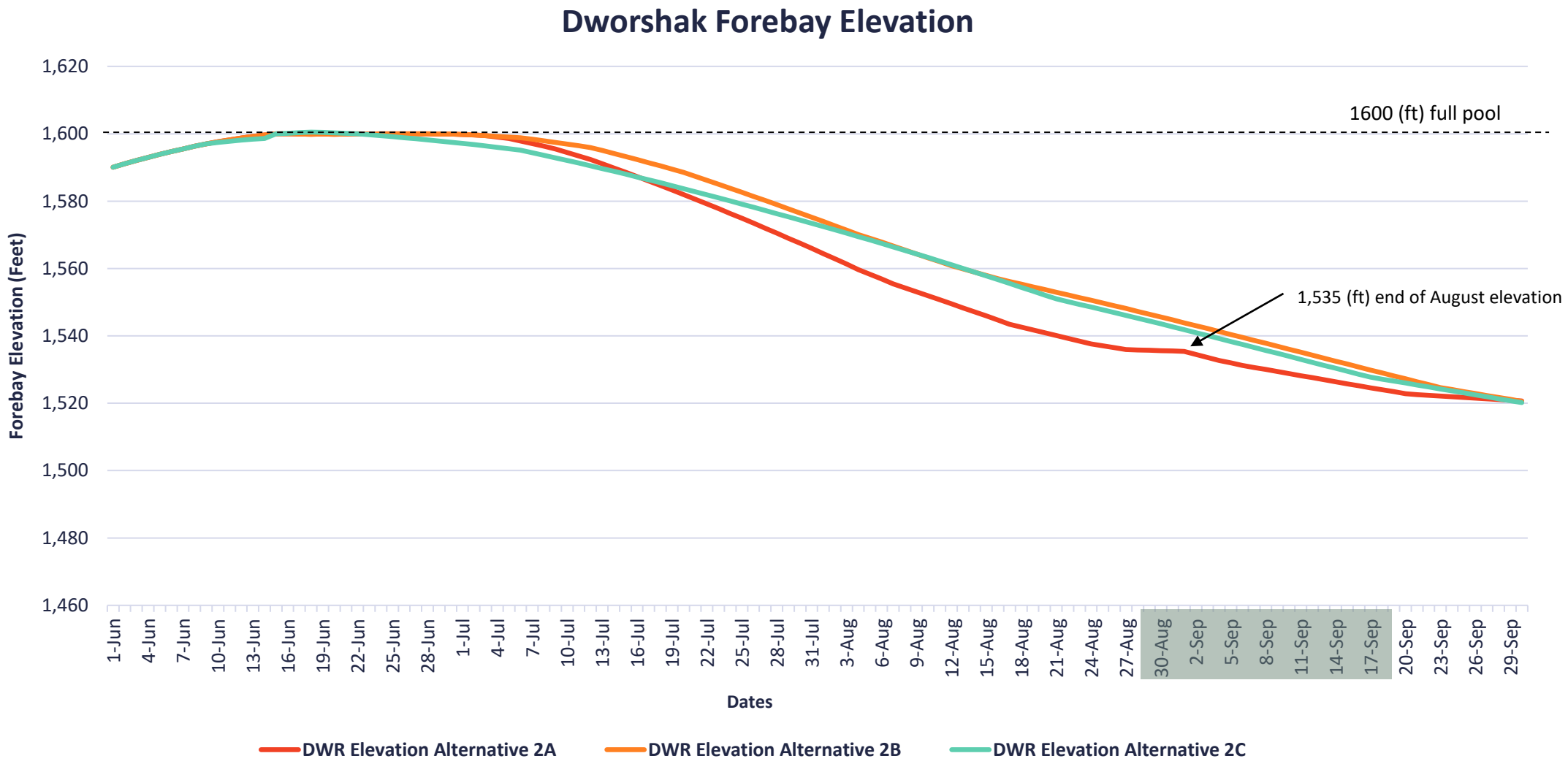

SUMMARY

	Alternative 1: August 7th to August 31st			Alternative 2: August 28th to September 17th		
	Temperature does not exceed 68°	Temperature does not exceed 69°	Temperature does not exceed 70°	Temperature does not exceed 68°	Temperature does not exceed 69°	Temperature does not exceed 70°
End of Flow Augmentation	~Aug 17-22	~Aug 31	~Aug 31	~Aug 23-28	~Aug 31	~Aug 31
Probable Max Temperature	~73.6°F	~69.4°F	~70.3°F	~70.5°F	~69.4°F	~70.5°F
Possible Max Temperature	~75.1°F	~71°F	~71.8°F	~72°F	~71°F	~72°F
Days exceeding designated temperature	~12-18	~7-12	~4-9	~11-16	~6-11	~3-8
Other Notes	• Temperature spikes occurring in the 1A and 2A alternative are being caused by Dworshak outflow dropping to minimum discharge (1.7 kcfs) to meet end of August elevation 1535 ft. • Temperatures represent daily averages with flows changing every 12 hours, temperatures will oscillate +-1.5°F					

*With all alternatives presented, temperatures represent a range of outcomes. In real-time, temperatures could vary slightly based on actual conditions.

QUESTIONS & DISCUSSION