

CJ Strike Hydropower Optimization



Swan Falls TWG
Frank Gariglio

Objective

- **Key Result:**
 - Identify **15 MW** of available capacity in our generation portfolio through **generation optimization**.



Why CJ Strike?

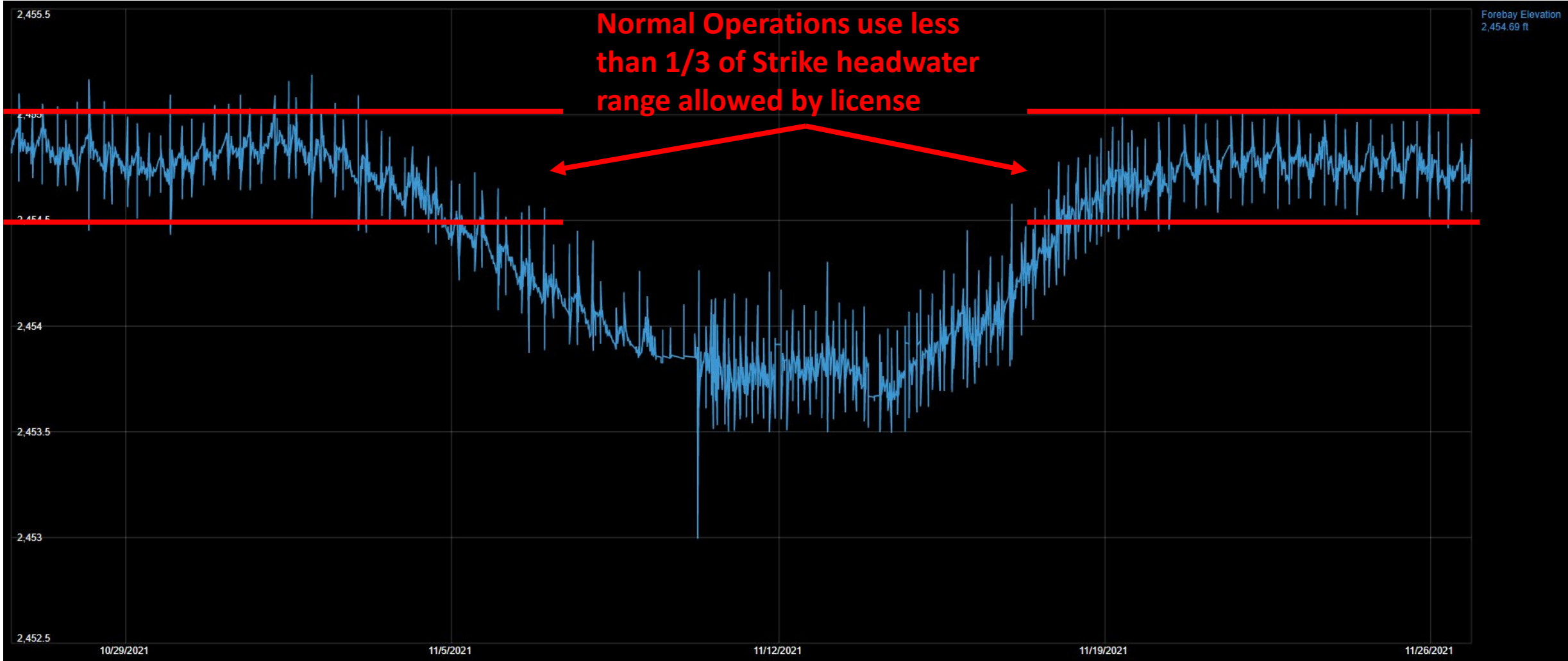
- Largest mid-Snake reservoir
- Block load units make it clear when additional capacity is being used
- Strike has the highest nameplate of the 4 mid-Snake dams with flexible reservoirs (Lower Salmon, Bliss, Swan)
- Strike will be key in any further efforts to optimize the 4 mid-Snake plants
- Strike has readily available inflow, headwater, and outflow measurements to support more flexible operations

CJ Strike License Summary

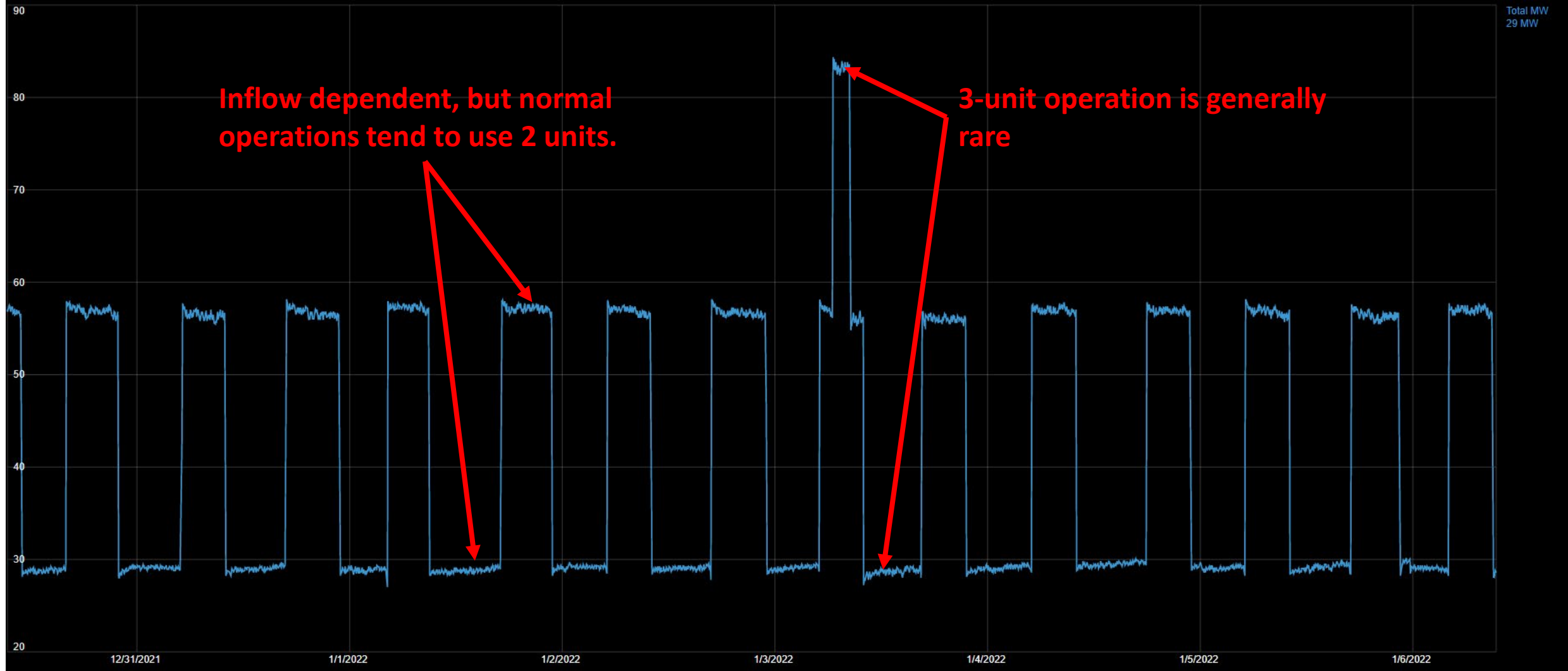
- Headwater fluctuation of 1.5 feet is allowed
- Minimum outflow of 3,900 cfs is required
- Hourly ramp rate of 2.5 ft/hr
- Daily ramp rate of 4 ft/day

CJ Strike	CJ Strike Reservoir (Normal Maximum Elevation 2455 ft-msl)
Project	<u>FERC Article 401</u>
2055	<u>Year Round Operations</u> - Operate to minimum headwater boundary of 2453.5
	Snake River below CJ Strike Reservoir
	<u>FERC Article 402</u>
	<u>Year Round Operations</u> - Maintain minimum instantaneous flow of 3900 cfs measured at Snake River below CJ Strike or inflow, whichever is less
	<u>FERC Article 403</u>
	<u>Year Round Operations</u> - Maximum hourly ramp rate of 2.5 ft/hr measured at Snake River below CJ Strike - Maximum daily ramp rate of 4 ft/day measured at Snake River below CJ Strike

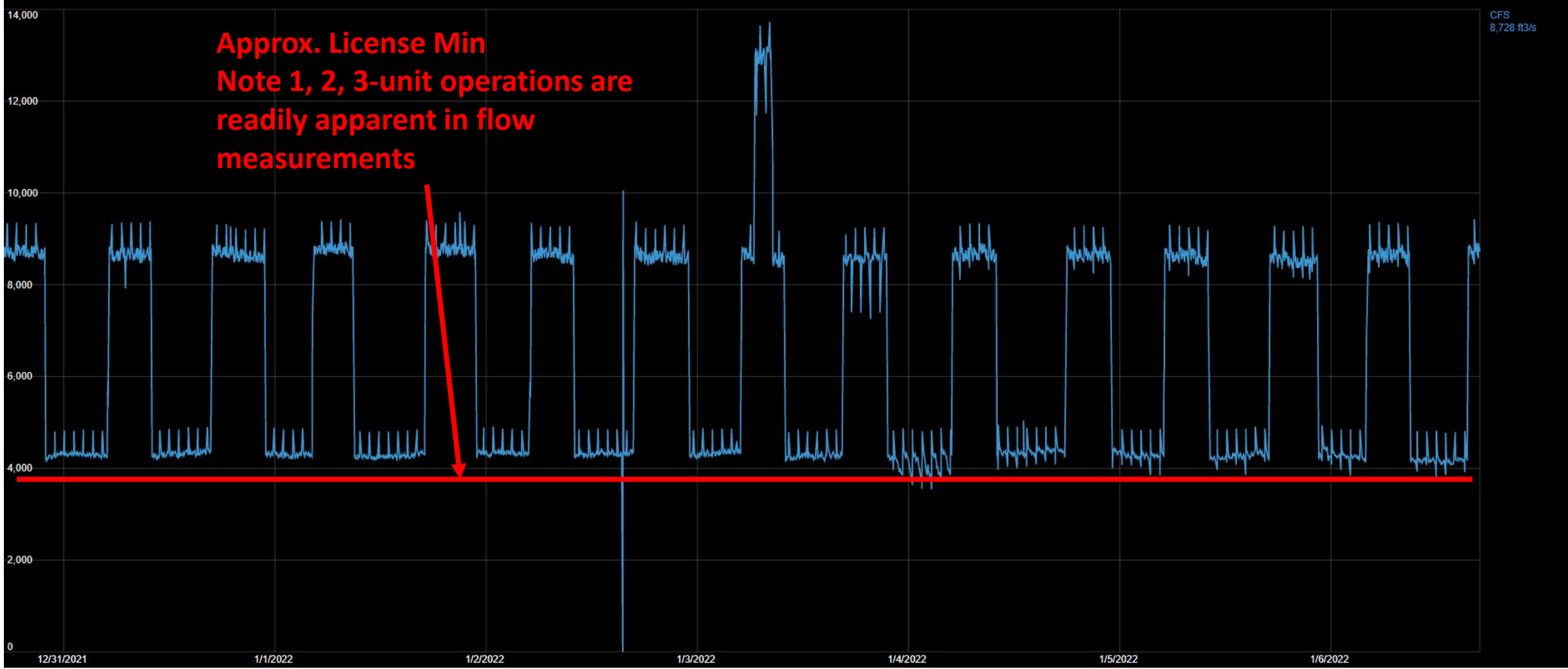
Current CJ Strike Operations - Headwater



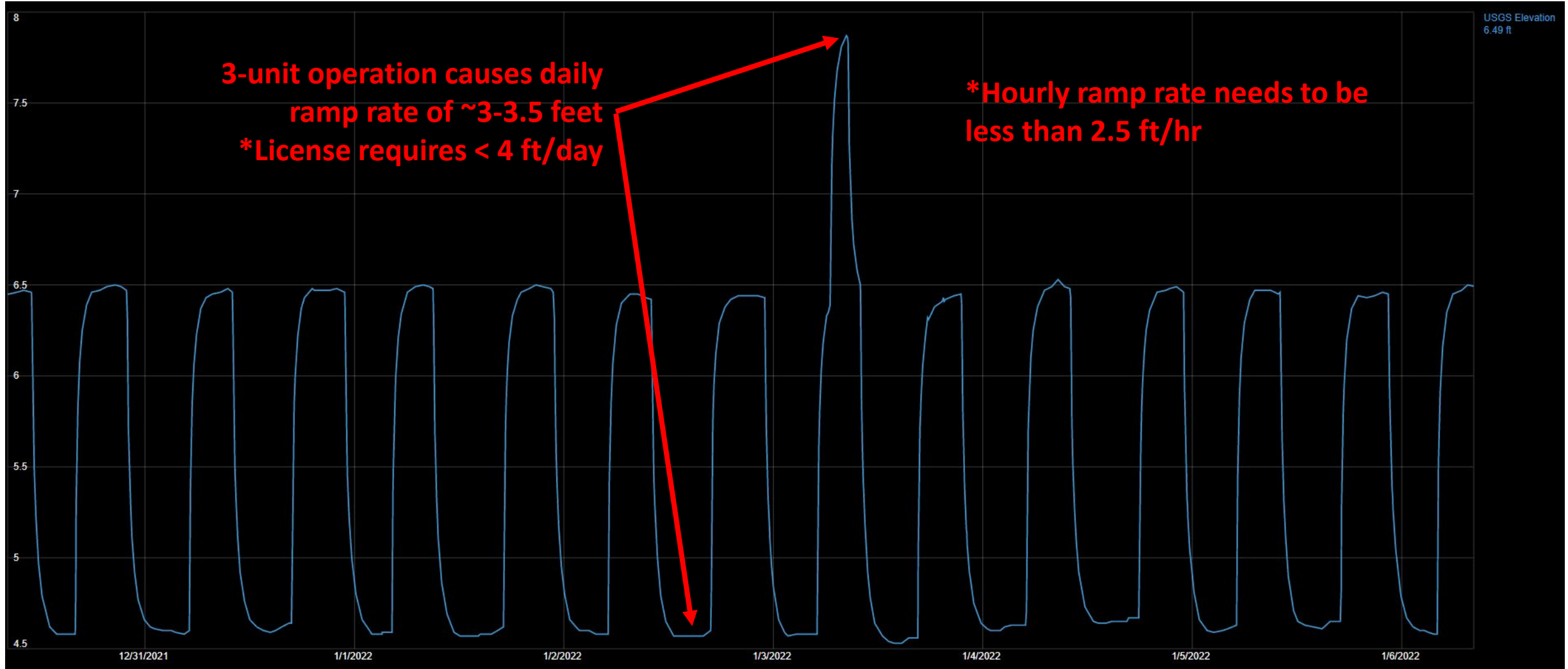
Current CJ Strike Operations - Hydropower



Current CJ Strike Operations - Flow



Current CJ Strike Operations – Ramp Rate

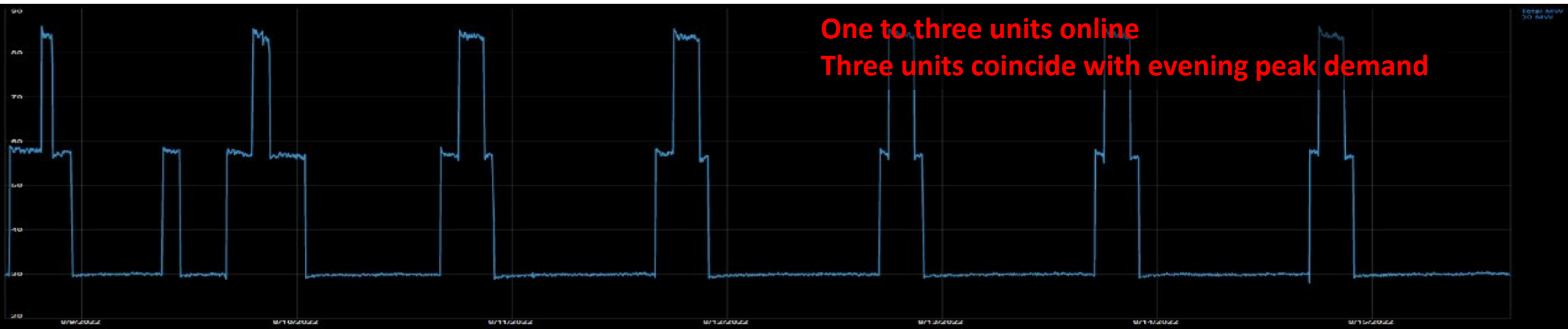
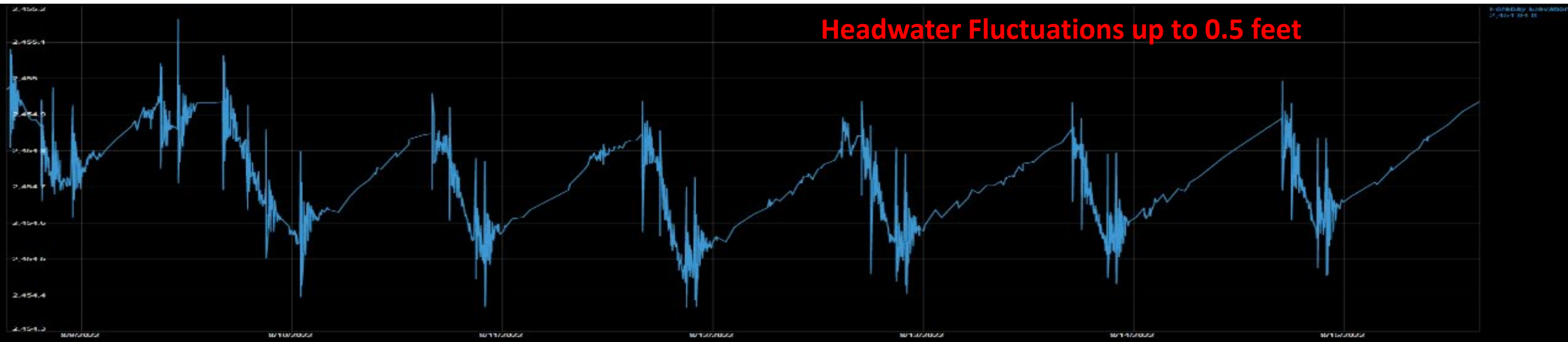


Optimization Activities

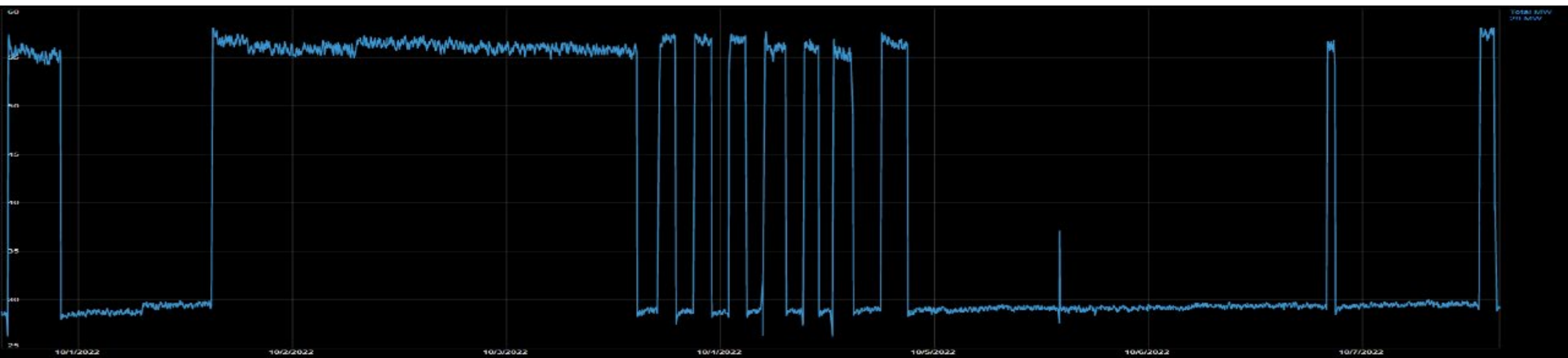
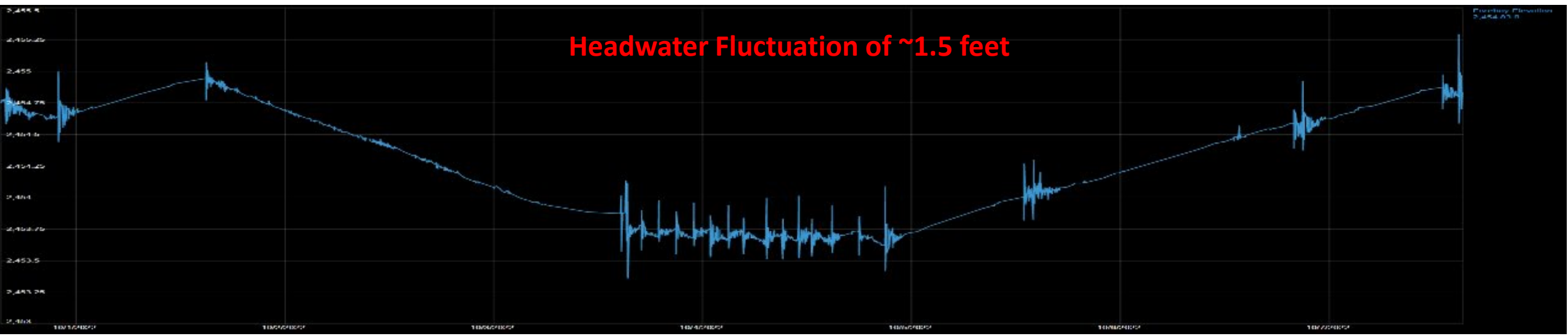


- Idaho Power notified irrigators, via letter, of potential summer fluctuations, and posted a News Release
 - Several groups notified external stakeholders through normal communications and working relationships
- Much of the summer, flows were too low to operate above 1 unit
- One to three unit operation was most noticeable during Idaho Power primary storage, when inflows to CJ Strike increased
- Idaho Power conducted a test drawdown to the near 1.5 feet FERC license allowable draft in October, again with irrigator letters and external stakeholder communication

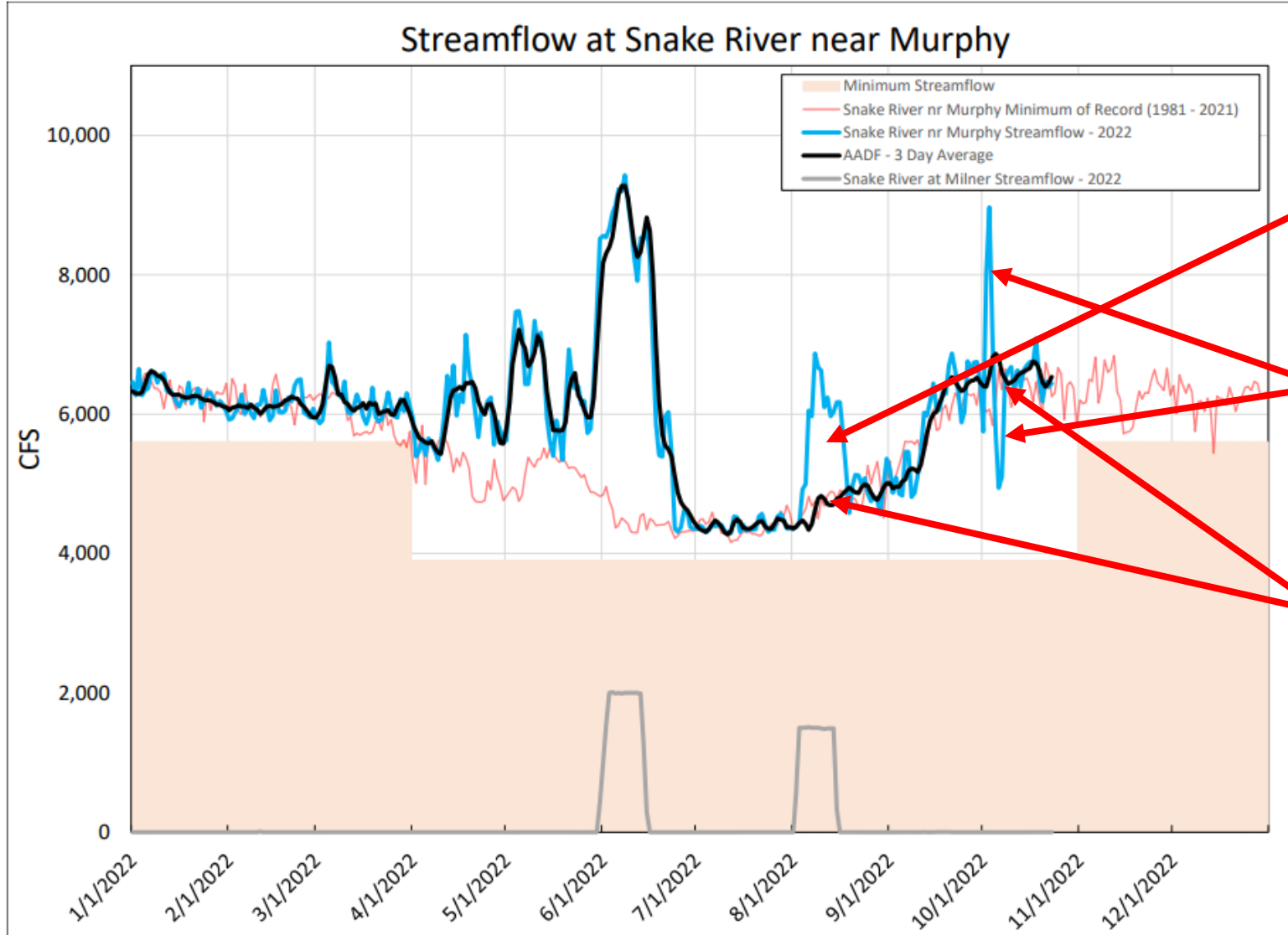
Summer Optimization (During IPC Primary Storage)



Test Drawdown (October 4, 2022)



AADF



Summer 1-3 Unit Operations

Test Drawdown Causes Wider Fluctuations in Murphy Streamflow

AADF Remains Stable (As designed to remove Idaho Power Operations)