FRANKLIN COUNTY
WATER DISTRICT

Water Use Summary and Impacts to Lake Cypress Springs

BOARD BRIEFING – MARCH 21, 2023

Total Water Available
(Water Right #04-4560)

Adjudicated Water Permit: 11,210 acre-feet/yr.

1. **Cypress Springs SUD - 3,500 acre-feet/yr.**
2. **City of Winnsboro - 3,000 acre-feet/yr.**
3. **City of Mount Vernon - 3,000 acre-feet/yr.**

Unallocated-2,210 acre-feet/yr.

Raw Water Contracts

A TEXAS TREASURE
Mount Vernon
1910

CYPRESS SPRINGS
SPECIAL UTILITY DIST.

WINNSBORO
TEXAS
Established 1854

Cypress Springs SUD

- **Amended and Restated on August 19, 2008**
- **Term August 19, 2008, to December 31, 2060**
- **Maximum Amount of Water Annually 3,500 Acre-Feet**

City of Winnsboro

- **Amended and Restated on February 2, 2015**
- **Term February 2, 2015, to December 31, 2029. May Extend to December 31, 2035**
- **Maximum Amount of Water Annually 3,000 Acre-Feet**

WINNSBORO
TEXAS
Established 1854

City of Mount Vernon

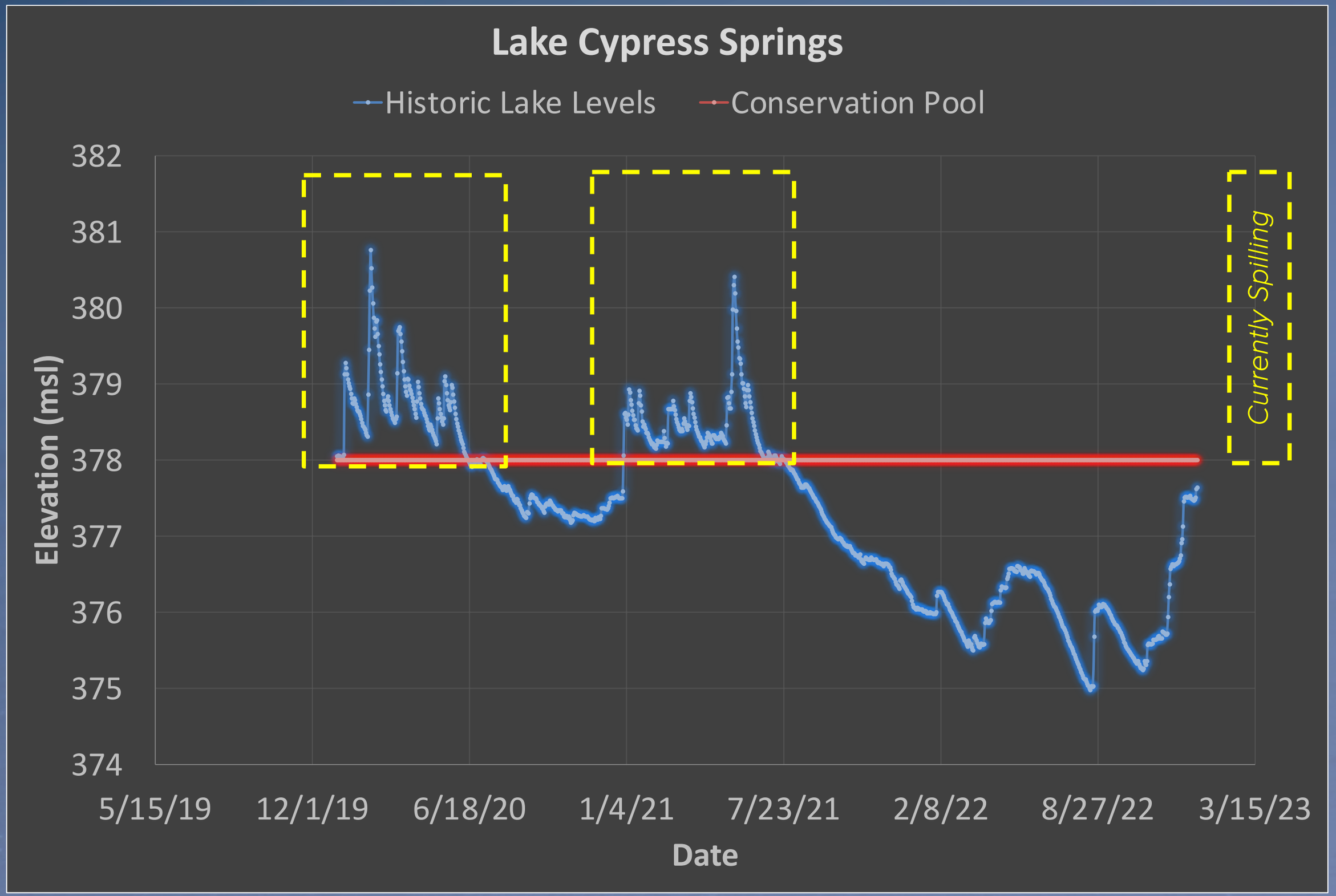
- **Executed on April 15, 1996**
- **Term February 2, 2015, to December 31, 2024**
- **Maximum Amount of Water Annually 3,000 Acre-Feet**

Do the District's raw water customer's diversions have a significant impact on the lake levels?

What about times when the lake is spilling and flood storage is in use?

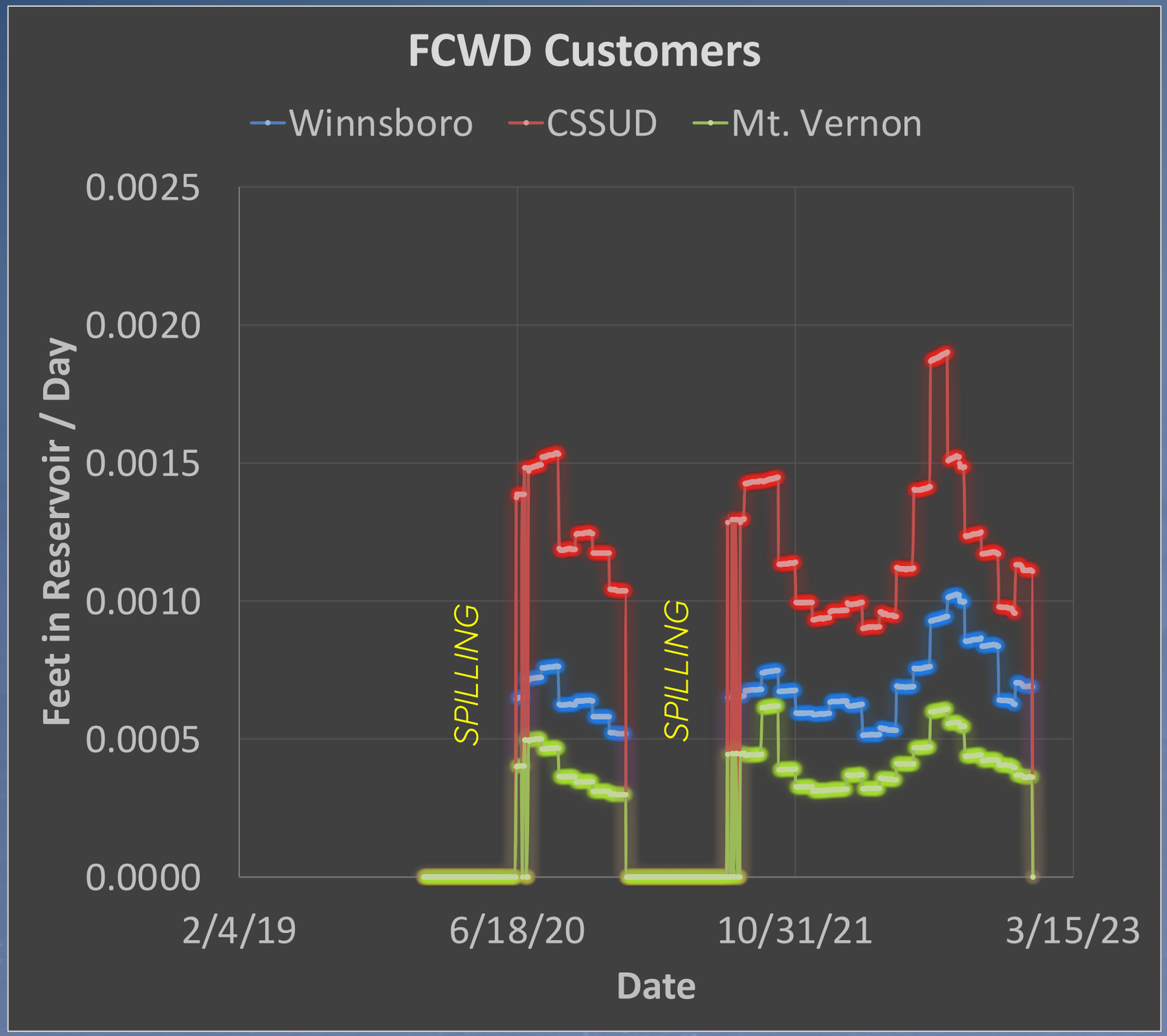
Raw water customer diversions have no impact to water levels when the reservoir is spilling.

Times when the Lake is Spilling



*Source: USGS Gauge Data on Lake Cypress Springs

Raw Water Use Impact – Over 3-Years



0.88 FT

0.50 FT

0.30 FT

TOTAL

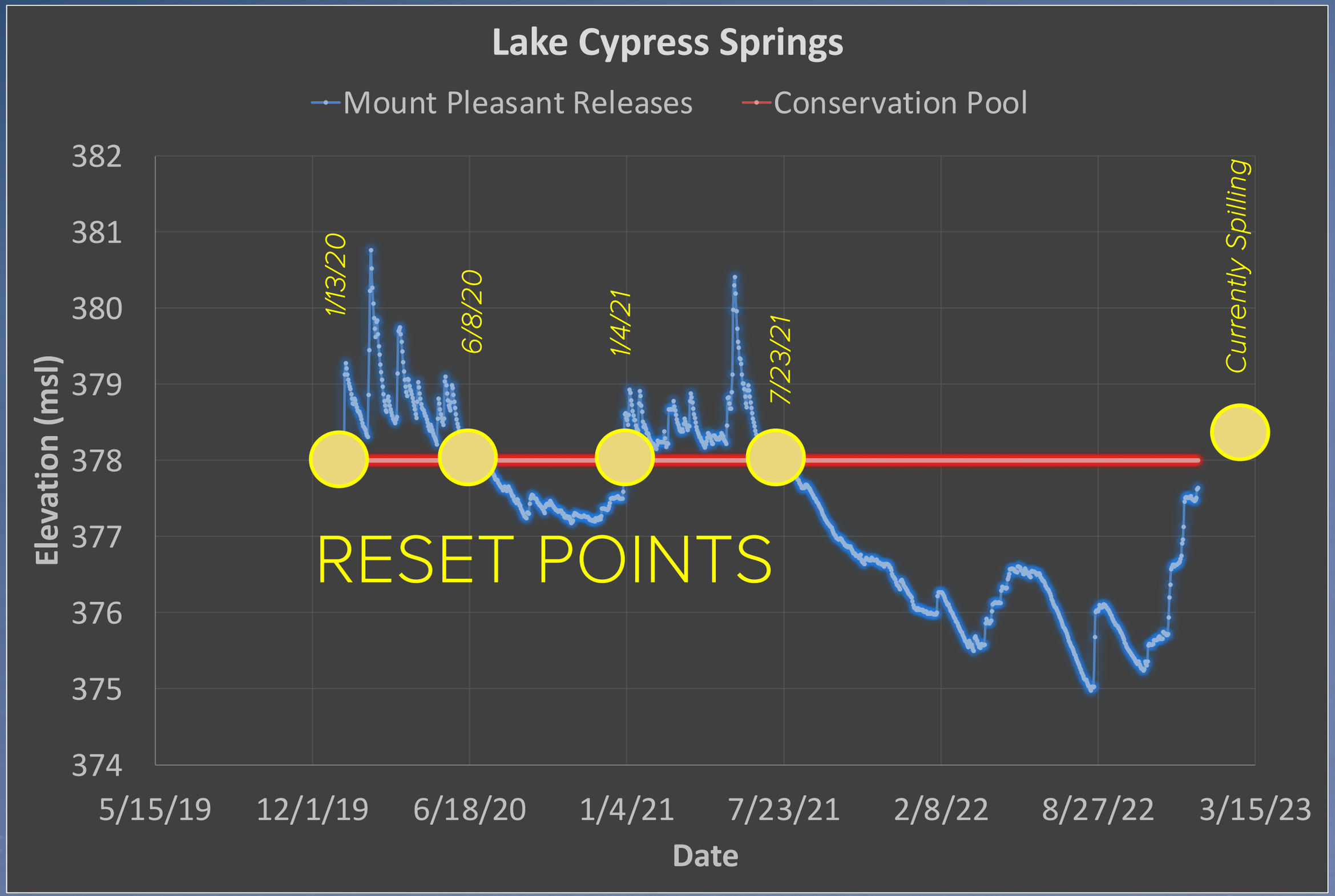
1.68 FT

*Source: water use reports from each FCWD customer from meter readings at lake diversion.

Doesn’t the Lake “Reset” losses after it spills (flood storage in use)?

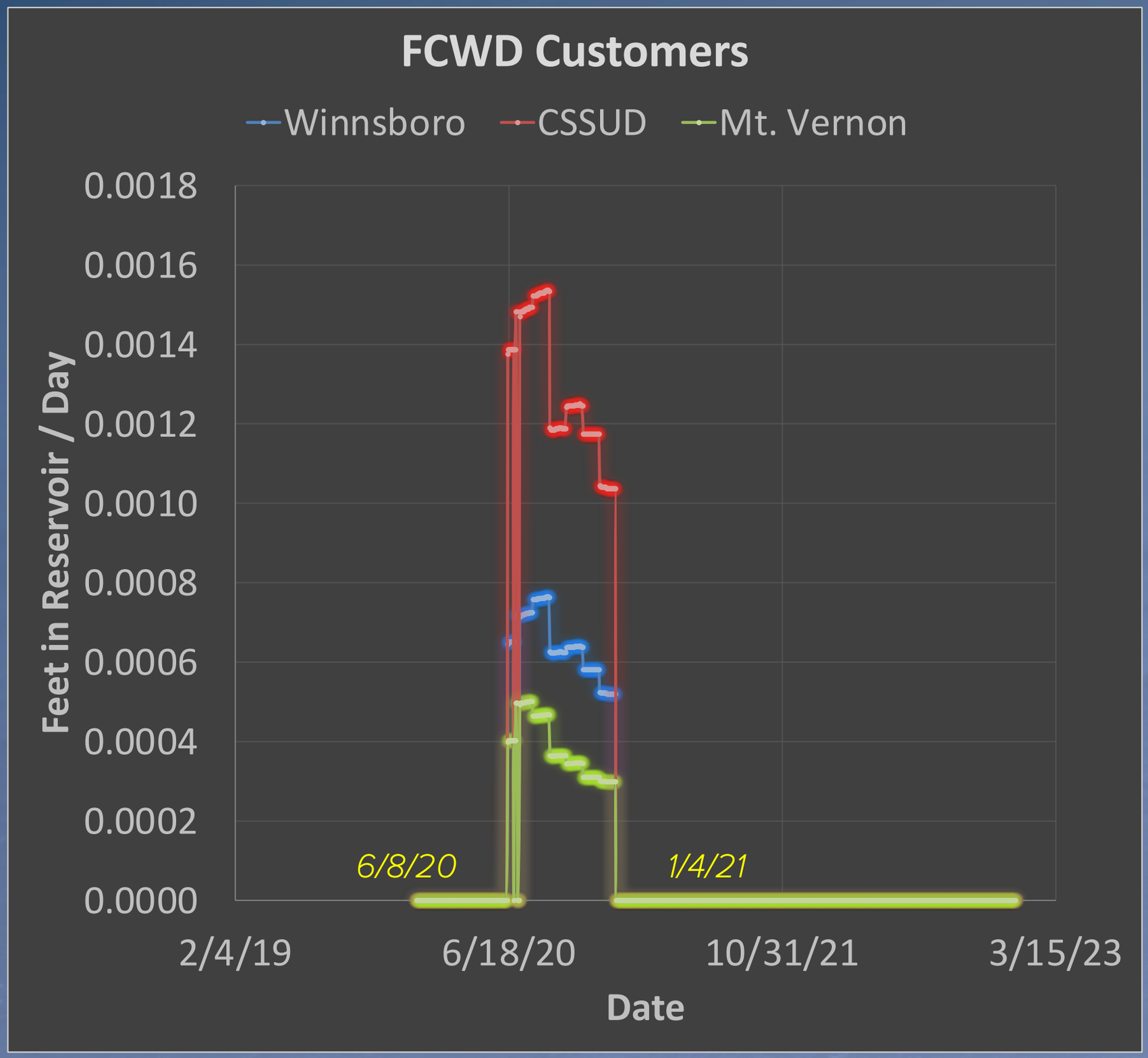
Raw water diversions from customers do not cumulate over a time of spilling.

Raw water use impacts reset once lake spills



*Source: USGS Gauge Data on Lake Cypress Springs

First Event



0.25 FT

0.13 FT

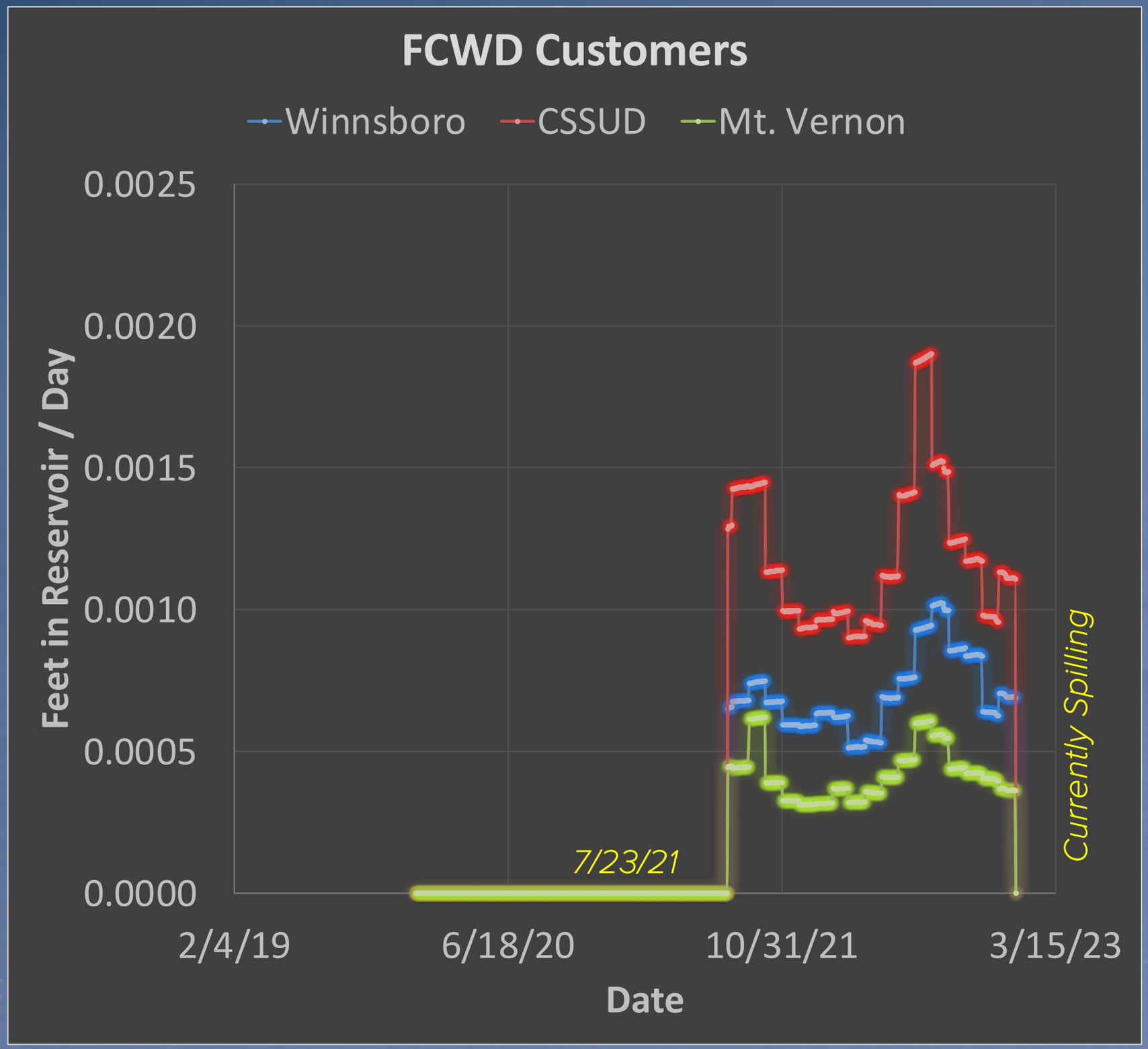
0.08 FT

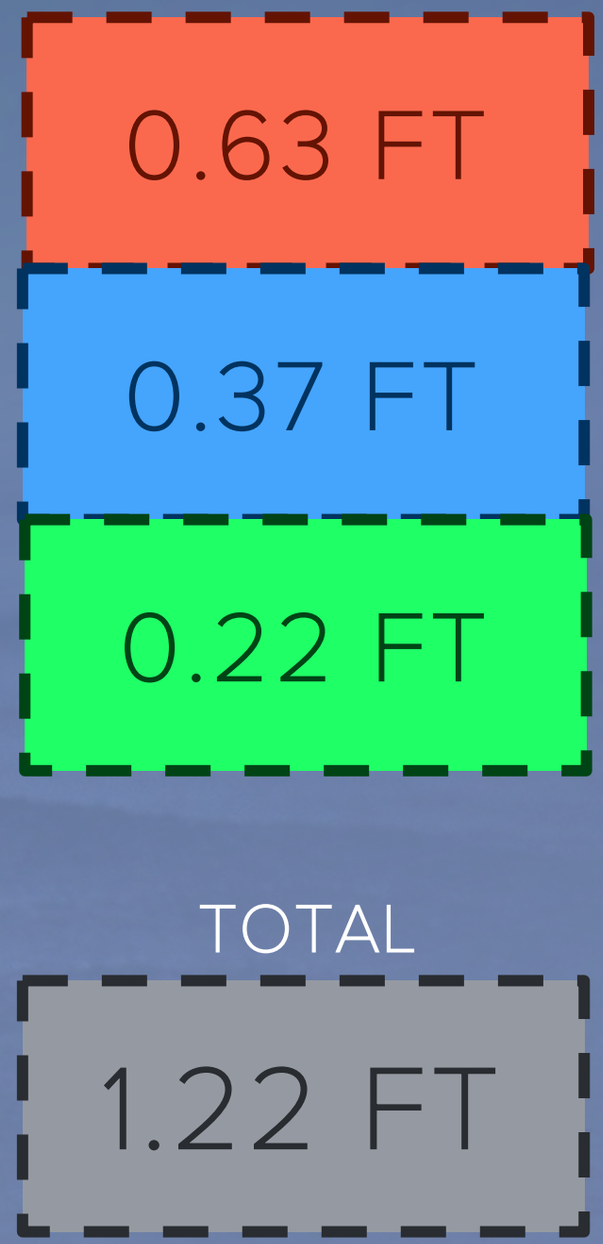
TOTAL

0.46 FT

*Source: water use reports from each FCWD customer from meter readings at lake diversion.

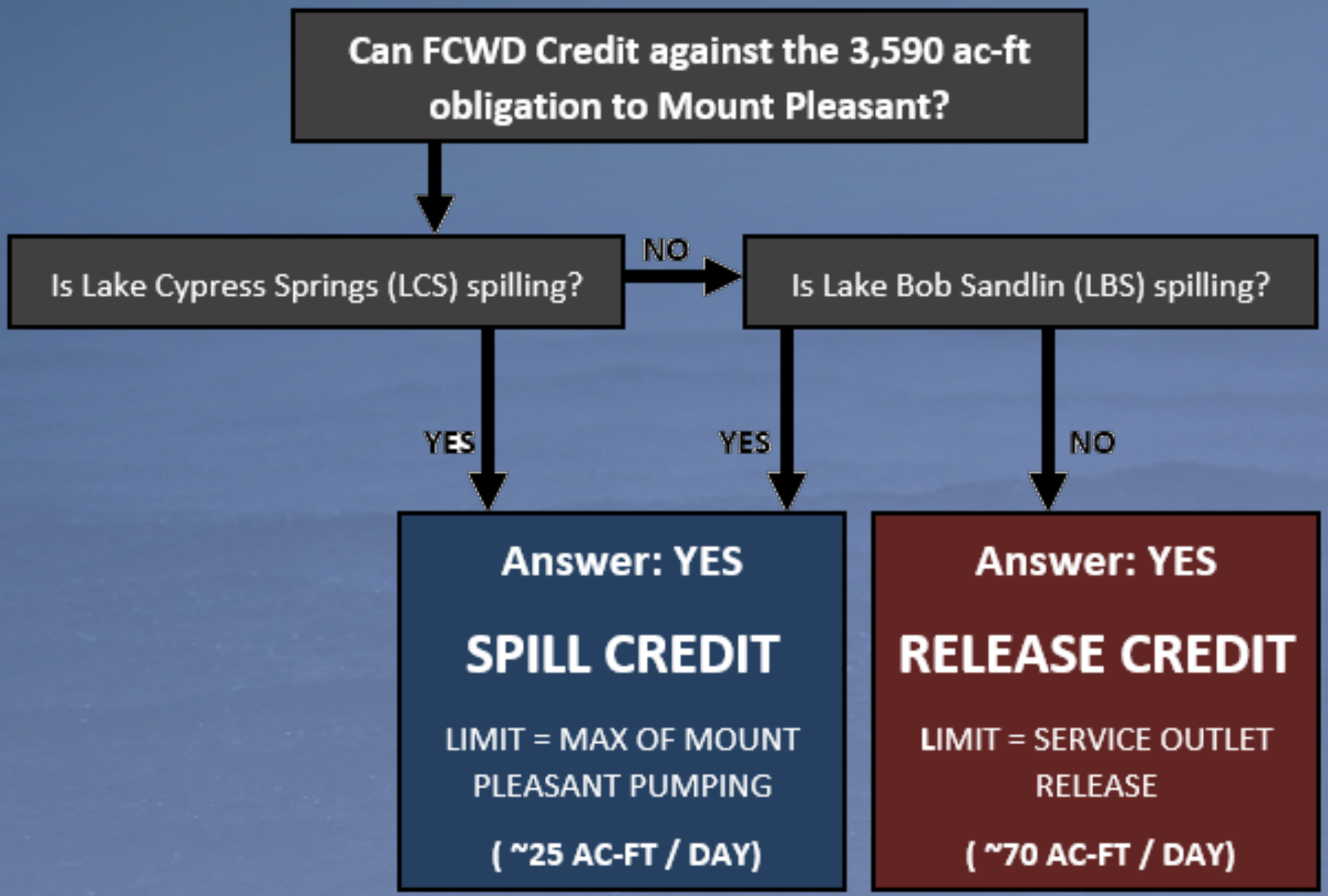
Second Event





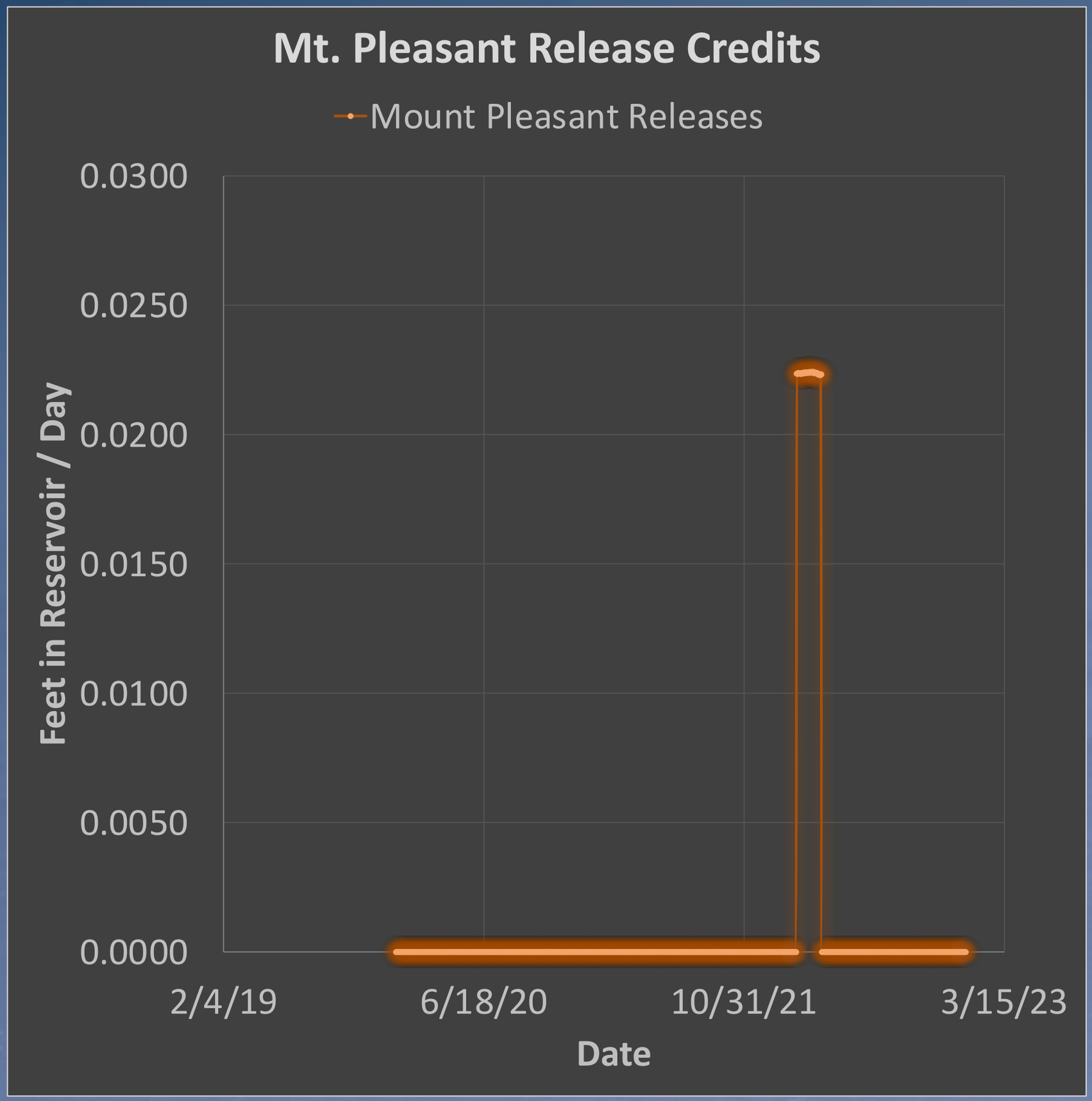
*Source: water use reports from each FCWD customer from meter readings at lake diversion.

Do Mt. Pleasant releases have a significant impact on lake levels?



Low-Flow Outlet Hydraulic Capacity

LCS Surface Area (acre)	Low-Flow Outlet Discharge (acre-ft/day)	Low Outlet Depth Discharge per Day (in)	Low Outlet Depth Discharge After 30 Days (in)	Time to Drop LCS Depth 1 Foot (Days)
3,252 acres	70.64 ac-ft/day	0.26 inches	7.82 inches	46 days



3-YEAR TOTAL

1.07 FT

*Source: Monthly Mt. Pleasant Release Reports

Do private irrigation water pumps have a significant impact on lake level?

- 805 pumps
- Assume 2 HP at 25 GPM
- Assume 1 Hr. runtime per day
- Assume 3-Year timeline

3-Year Total: 0.0034 FT

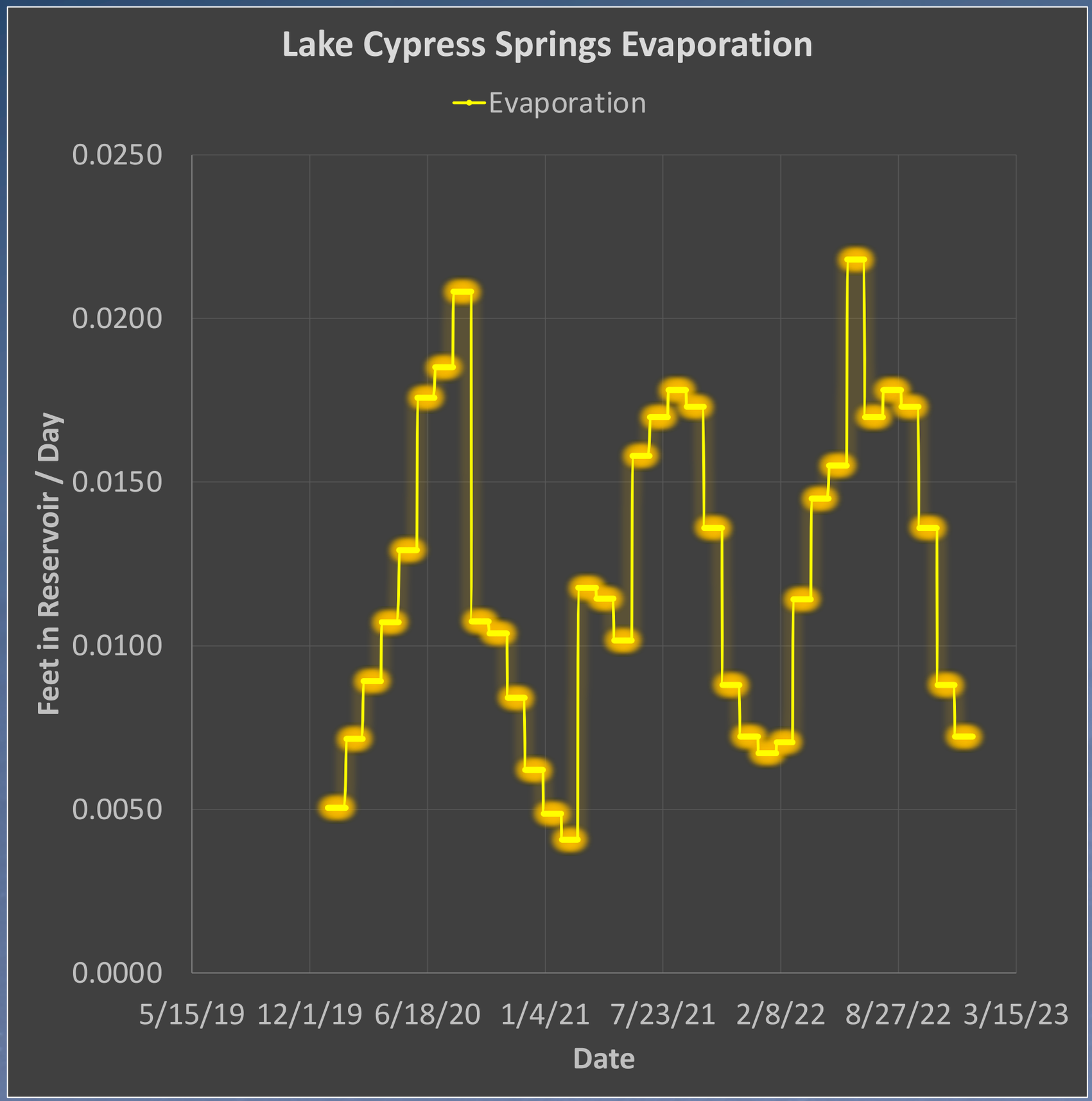
Raw Water Use Impact from FIRST EVENT

CSSUD	0.25 FT
Winnsboro	0.13 FT
Mt. Vernon	0.08 FT
Mt. Pleasant	0.00 FT
Private Pumps	~0.00 FT
TOTAL:	0.46 FT

Raw Water Use Impact from SECOND EVENT

CSSUD	0.63 FT
Winnsboro	0.37 FT
Mt. Vernon	0.22 FT
Mt. Pleasant	1.07 FT
Private Pumps	~0.00 FT
TOTAL:	2.29 FT

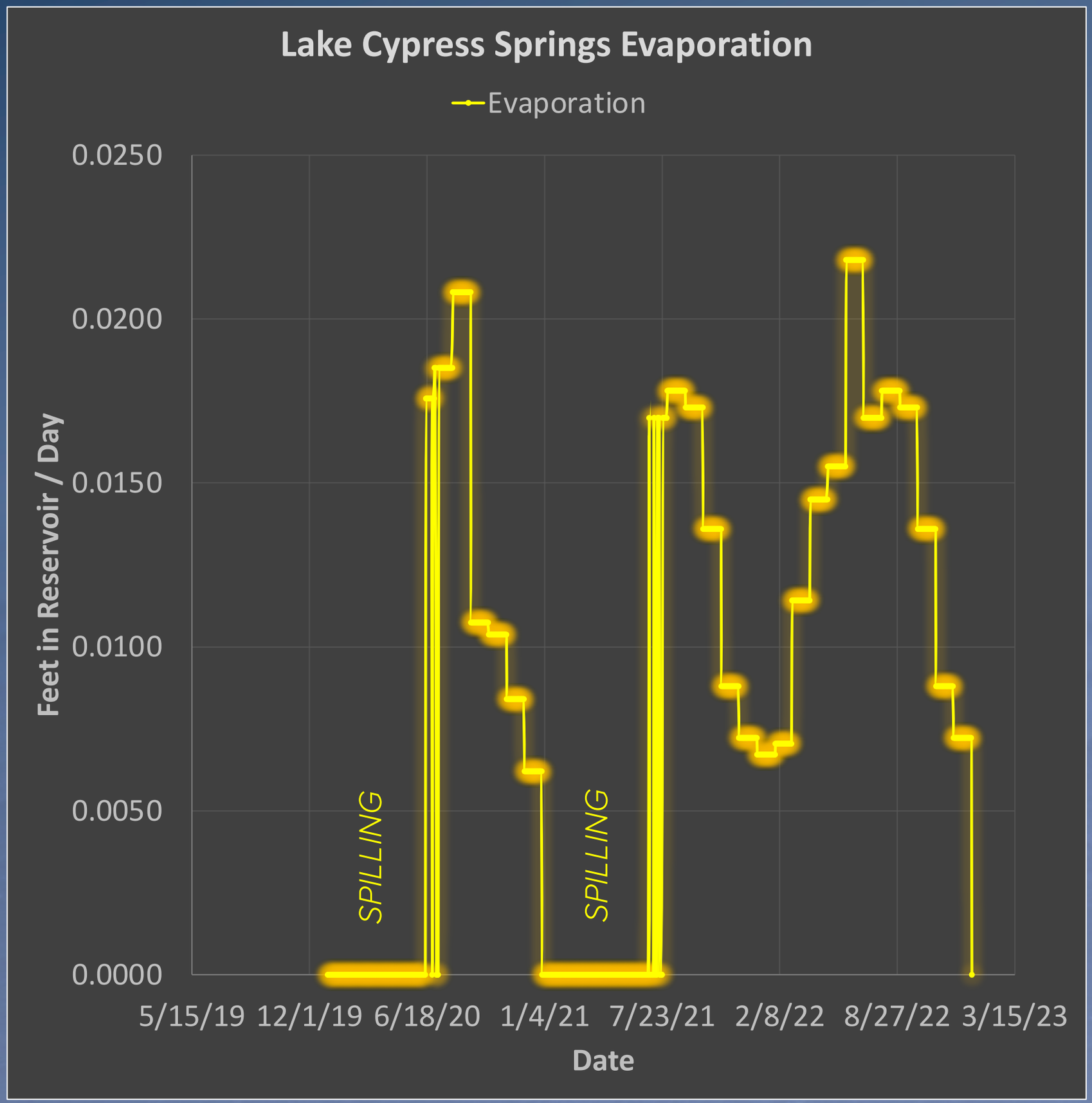
Do evaporative losses in the reservoir have a significant impact on lake levels?



Totals

13.31 FT

*Source: TWDB Published Evaporation Rates



Totals

9.55 FT

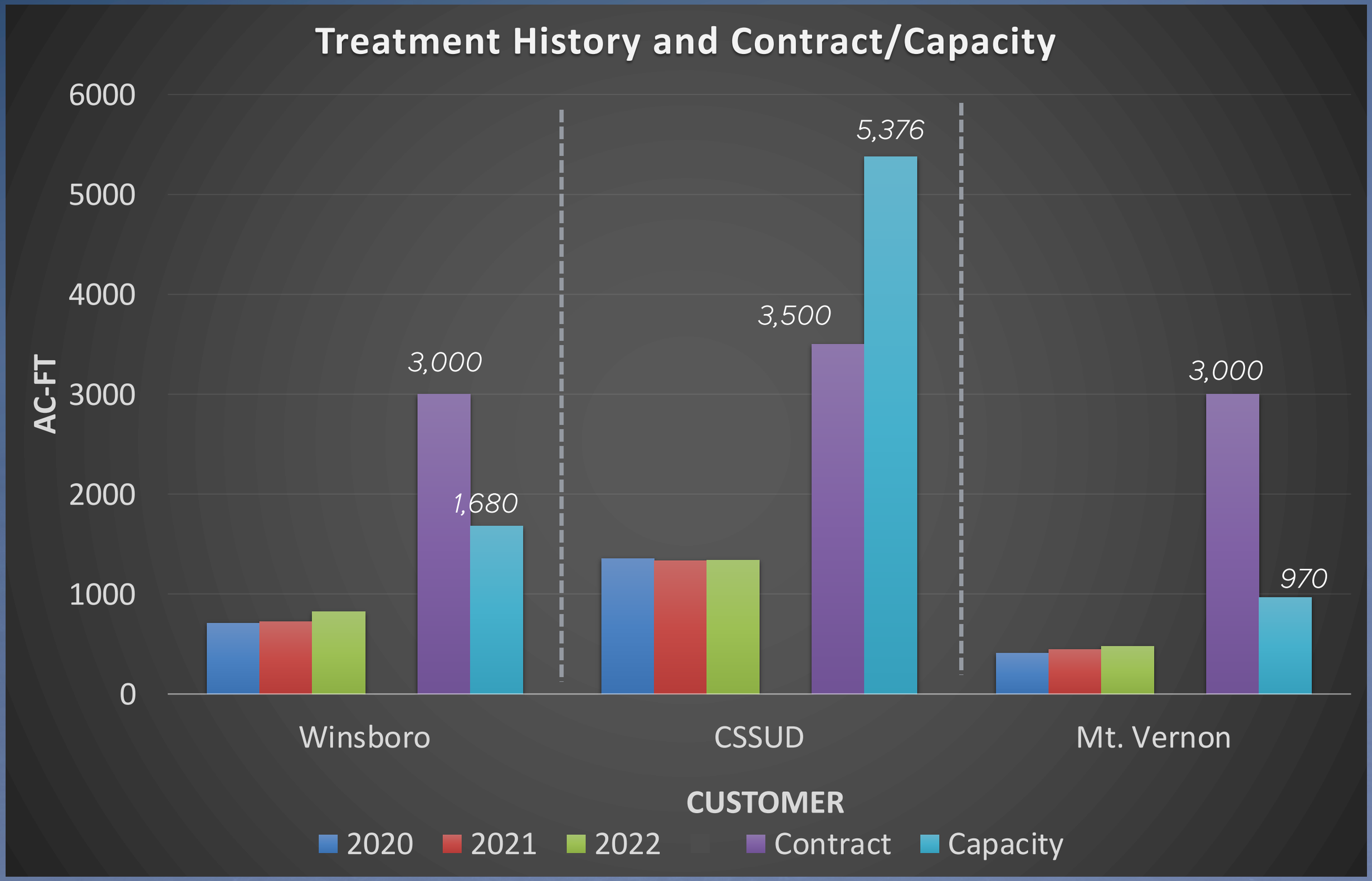
*Source: TWDB Published Evaporation Rates

Conclusions

- Approximated water use from customers was 0.46 FT from first event.
- Approximated water use from customers was 2.29 FT from second event.
- Approximated water loss from evaporation was 2.54 feet from first event.
- Approximated water loss from evaporation was 7.01 feet from second event.

What if the FCWD customers use more water?

Diversions Vs. Treatment Capacity



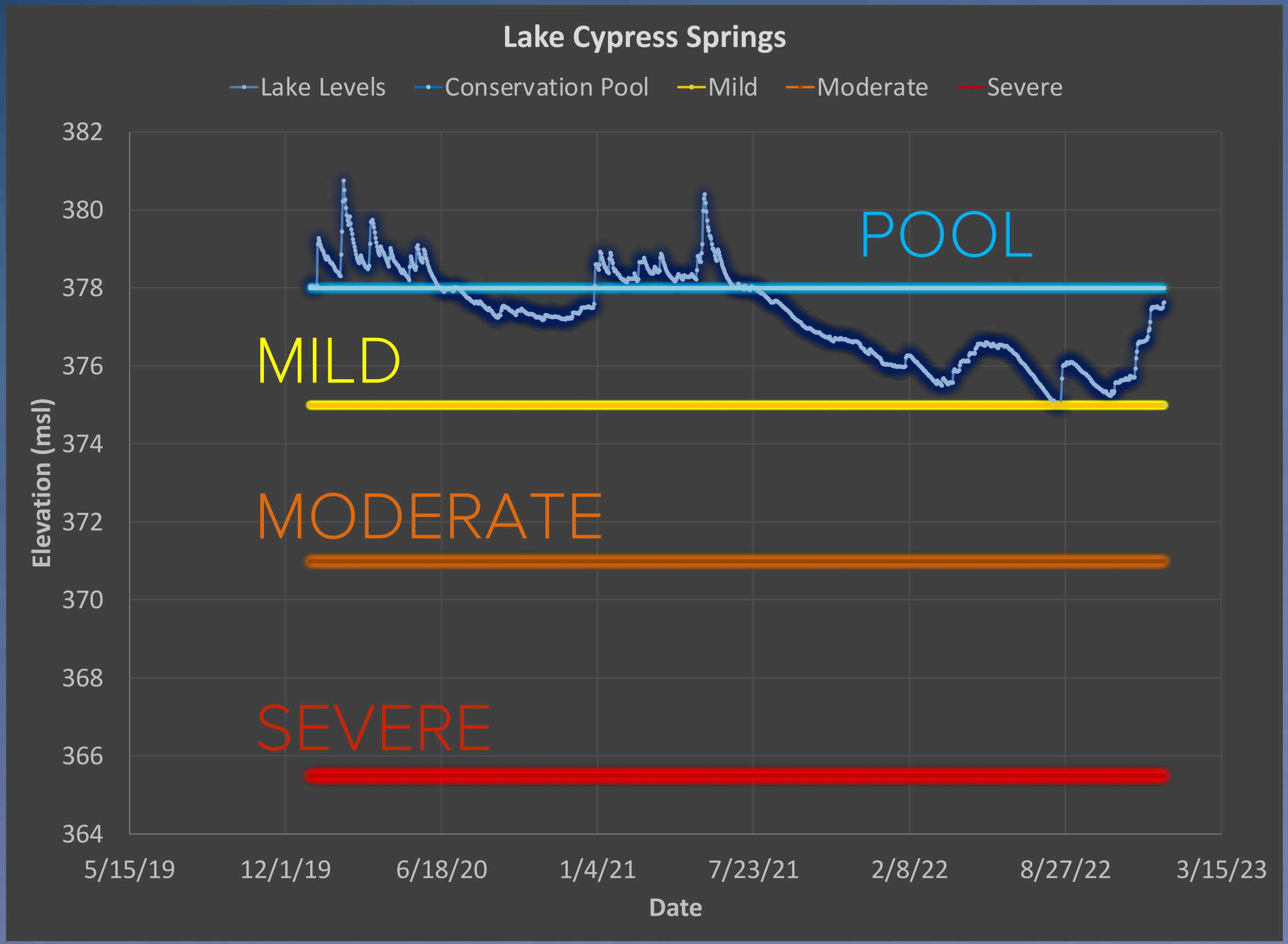
*Source: Customer predictions on infrastructure capacity

Drought Contingency Plan (DCP)

1. Mild = 3 Feet Low
2. Moderate = 7 Feet Low
3. Severe = 12.5 Feet Low
4. Emergency = Contamination

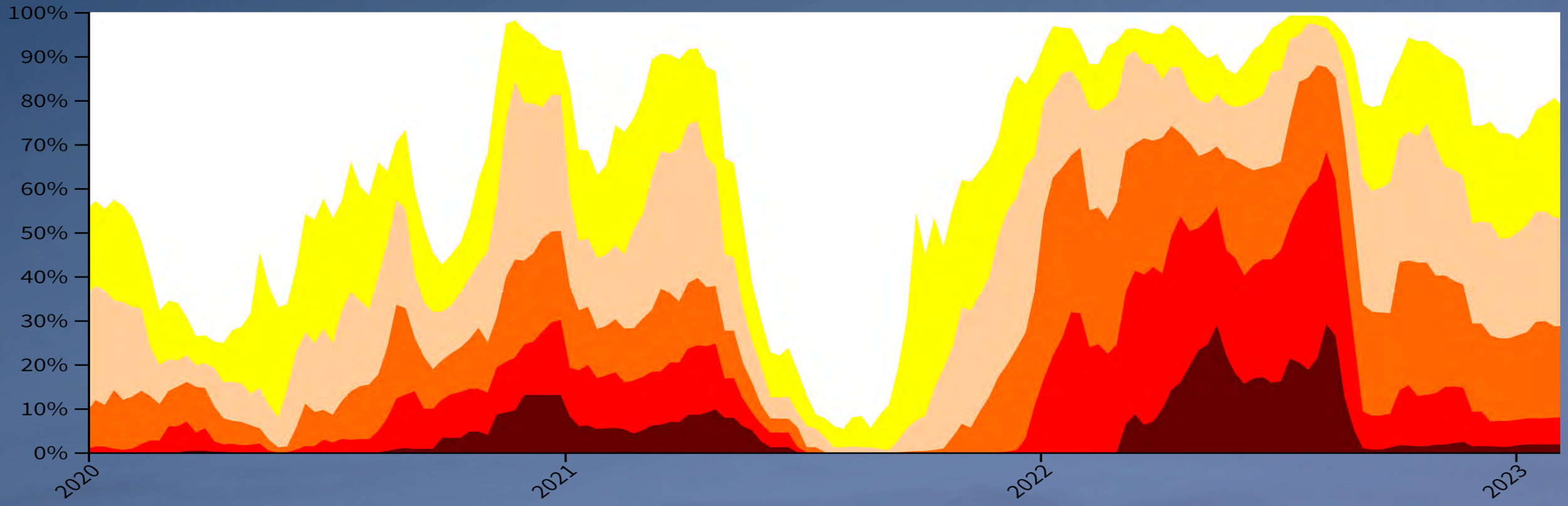
HISTORIC RECORD:

- 5.07 FT = NOV. 2006
- 4.25 FT = OCT 1978
- 3.31 FT = JAN 2006
- 2.95 FT = OCT 1977



*Source: USGS Gauge Data on Lake Cypress Springs

Percent of Texas in Drought



U.S. Drought Monitor
Texas



ABNORMALLY DRY



SEVERE DROUGHT



EXCEPTIONAL DROUGHT

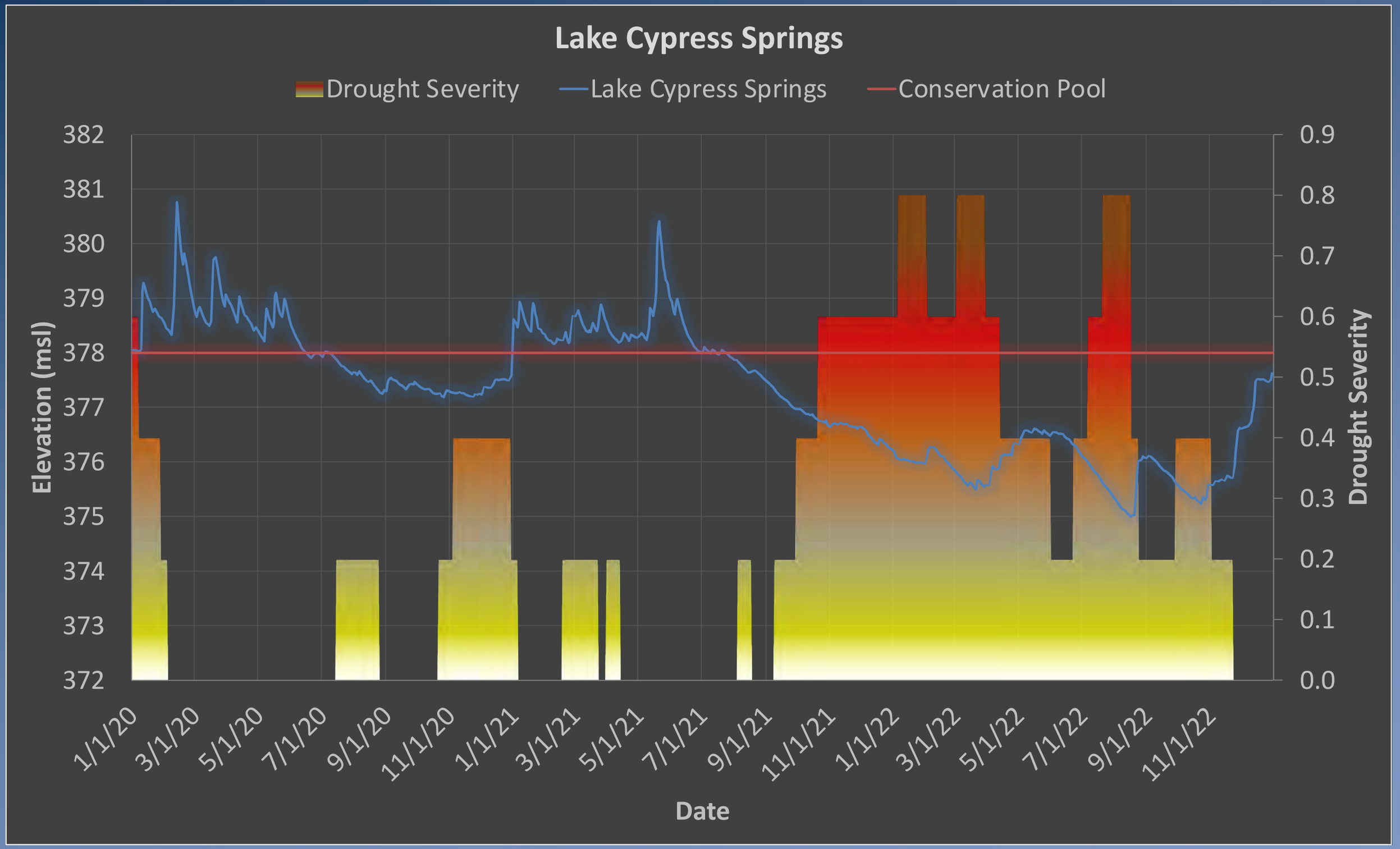


MODERATE DROUGHT



EXTREME DROUGHT

*Source: NIDIS Drought Data for Franklin County



ABNORMALLY DRY

SEVERE DROUGHT

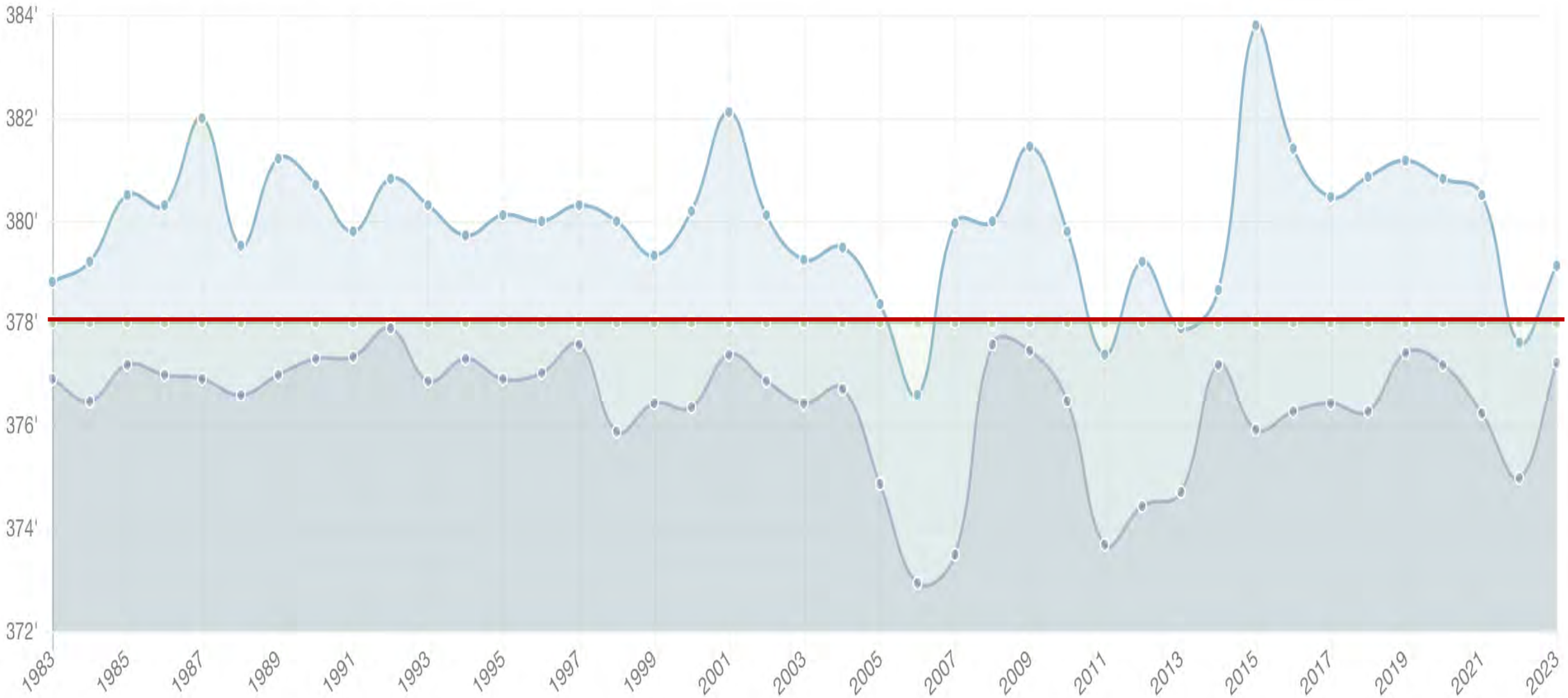
EXTREME DROUGHT

MODERATE DROUGHT

EXCEPTIONAL DROUGHT

40 YEARS

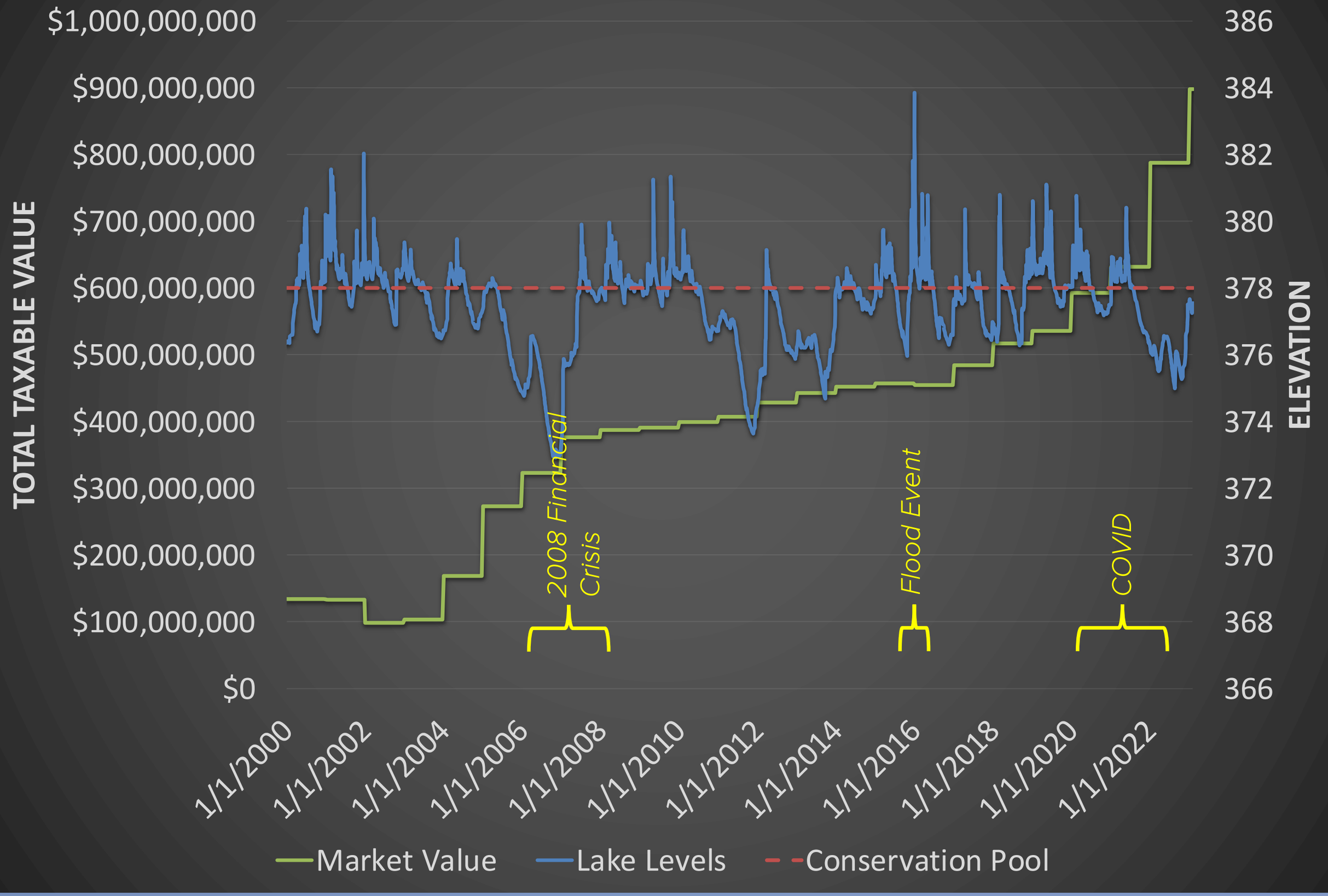
LAKE LEVEL OVER LAST 40 YEARS



Graph shows the min. and max. elevations MSL (NGVD29) for current and previous 40 years from measurements at 5:15 AM (Conservation Pool shown in GREEN).

*Source: Franklin County Appraisal District

LAKEFRONT MARKET VALUE



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WATER DISTRICT

Questions