SRWA
Southmost Regional Water Authority

Board Meeting

| MONDAY, FEBRUARY 5, 2023

SRWA
Southmost Regional Water Authority

Quorum

SRWA
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Public Comment Period

SRWA
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Open Meeting

Consideration and Possible Action on Approval of the December 04, 2023, Board Meeting Minutes

J. Hollmann

General Manager's Report

- Operational and Financial Report - J. Garza and G. Rangel
- Quarterly Investment Report - J. Santillan
- Update on Optimization Study - J. Adams
- Drought Update - G. Garcia

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UPDATE ON OPTIMIZATION STUDY

FEBRUARY 5, 2024

SRWA BOARD MEETING

Update on Optimization Study

- Final Study Report – 100% complete
- Study recommended 15 projects:
  - 11 Projects in Tier 1 (most important):
    - $31,494,000 Capital Costs
    - $672,000 O & M Costs
      - Additional cleaning chemicals funded from O&M ($72,000)
      - RO membranes funded from Operating Fund – Membrane Replacement ($600,000)
  - 3 Projects in Tier 2: $ 342,000
  - Overall electrical system reliability projects: $ 14,400,000

SRWA Phases

Original Plant – 7.5 MGD

Microfiltration and Expansion – 10 MGD

SRWA Phases

	Phase	Design Capacity	Max Production	Cost of Construction	Components
1	**2004 - Original Plant**	7.5 MGD	6.0 MGD	$29 Million	6 RO trains, Arsenic Rule eliminates blending, original plant has oversized components
2	**2015 – Pretreatment and Expansion**	10.0 MGD	7.3 MGD	$11.7 Million	Adds: 5 MF trains and 2 RO trains (Total of 8 RO trains). Defers a 6th MF train for $728,370.
3A	**Optimization Only**	10.0 MGD	TBD	$32.4 Million	Adds: 8 wells, 2 MF trains, instrumentation, flow dosing, etc. (no electrical system improvements)
3B	**Optimization and Expansion to 20 MGD**	20.0 MGD	TBD	$202 Million (Estimated)	Implement optimization recommendations, add: 20 wells, 10 MF trains, 16 RO trains, etc.

Update on Optimization Study

	Project Name	Est. Capital Cost $
1	RO permeate piping backflow modification	142,000
2	Replacement wells	23,200,000
3	Wellfield programmable logic controllers (PLC) uninterruptable power supplies (UPS) upgrades	825,000
4	MF clean-in-place	*O&M*
5	Two additional MF racks	4,190,000
6	MF filtrate transfer pump	575,000
7	Instrumentation upgrades	1,400,000
8	RO membrane replacement	*O&M*
9	Post treatment chemical flow dosing	271,000
10	PLC AI/AO spares	542,000
11	Pretreatment chemical flow dosing	349,000
12	Citric acid bulk storage	219,000
13	RO permeate piping for MF CIP	123,000
14	RO membrane cleaning	*O&M*
	Subtotal	*31,836,000*
15	Electrical system improvements	14,400,000
	Grand Total:	46,236,000

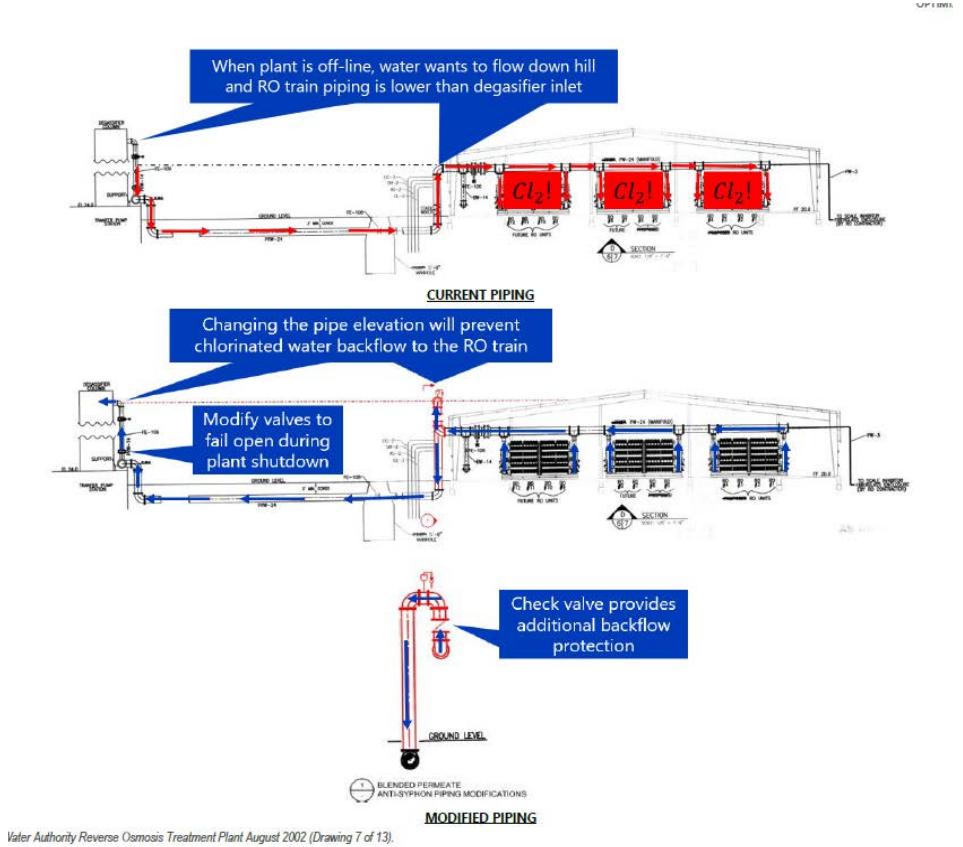
Update on Optimization Study

- Operations
  - 4) MF clean-in-place
  - 8) RO membrane replacement (RO trains C, D, and F)
  - 14) RO membrane cleaning
- SCADA
  - 3) Wellfield PLC UPS upgrades
  - 7) Instrumentation upgrades
  - 9) Post treatment chemical flow dosing
  - 10) PLC AI/AO spares
  - 11) Pretreatment chemical flow dosing

Microfiltration Trains

Update on Optimization Study

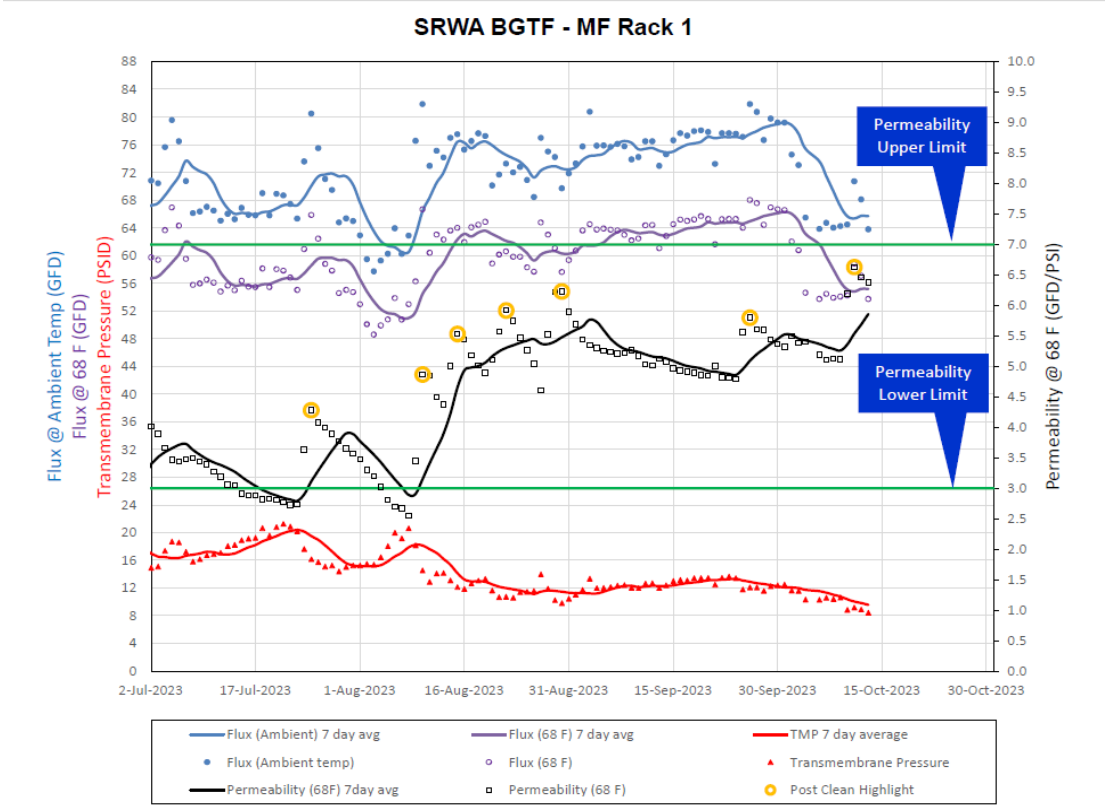
- W/WW Engineering
  - 1) RO permeate piping backflow modification
  - 2) Replacement wells
  - 5) Two additional MF racks
  - 6) MF filtrate transfer pump
  - 12) Citric acid bulk storage
  - 13) RO permeate piping for MF CIP
- Electrical
  - 15) Electrical system improvements



Water Authority Reverse Osmosis Treatment Plant August 2002 (Drawing 7 of 13).

Update on Optimization Study

- Operations
  - 4) MF clean-in-place (80%)
    - 4 of the 5 racks have reached permeability goal
    - Rack 5 – Weekly cleaning to maximize performance
  - 8) RO Replacement (0%)
    - Purchase of new RO membranes delayed until permeate piping backflow modification (Item 1) is completed. Funding is available.
  - 14) RO membranes clean in place (38%)
    - 3 of 8 ROs (C, D & E) cleaned – completed
    - Remaining 5 ROs will be cleaned by end of February



Update on Optimization Study

- Working with W/WW Engineering to obtain proposal from Carollo Engineers to design:
  - 1) RO permeate piping: $142,000—reallocate from FY 2024 capital budget)
  - 6) MF filtrate transfer pump: $40,000 funded in FY 2024 capital budget, will reallocate $535,000 in FY 2024 capital budget
  - 9) Post treatment chemical flow dosing
  - 11) Pretreatment chemical flow dosing

MF Transfer Pump Station

Update on Optimization Study

- Working with SCADA Dept. regarding Study recommendations, prioritizing, and researching options
  - 3) Wellfield PLC UPS
  - 7) Instrumentation upgrades
  - 9 and 11) Chemical flow dosing: To be outsourced (Carollo Engineers)
  - 10) PLC AI/AO Spares
  - 15) Electrical system improvements: Focus on high service pump station, researching electrical equipment redundancy (e.g., switchgear, switchboard, transformer)

Pressure gauge, sensor, and transmitter

Update on Optimization Study

- Working with Finance Dept. for funding of projects, reallocation within capital budget, and potential grants

	Projects	Estimated Capital Cost	FY 2024 Capital Budget	Funding to be Reallocated from Capital Budget
1	RO Permeate Piping Backflow Modification	$ 142,000	$ -	$ 142,000
6	MF Filtrate Transfer Pump	$ 575,000	$ 40,000	$ 535,000
9	Post Treatment Chemical Flow Dosing	$ 271,000	$ -	$ 271,000
11	Pretreatment Chemical Flow Dosing	$ 542,000	$ -	$ 542,000
	Total	**$ 1,530,000**	**$ 40,000**	**$ 1,490,000**

Update on Optimization Study

		Project Name	Est. Capital Cost
✓	1	RO permeate piping backflow modification	142,000
	2	Replacement wells	23,200,000
	3	Wellfield programmable logic controllers (PLC) uninterruptable power supplies (UPS) upgrades	825,000
✓	4	MF clean-in-place	*O&M*
	5	Two additional MF racks	4,190,000
✓	6	MF filtrate transfer pump	575,000
	7	Instrumentation upgrades	1,400,000
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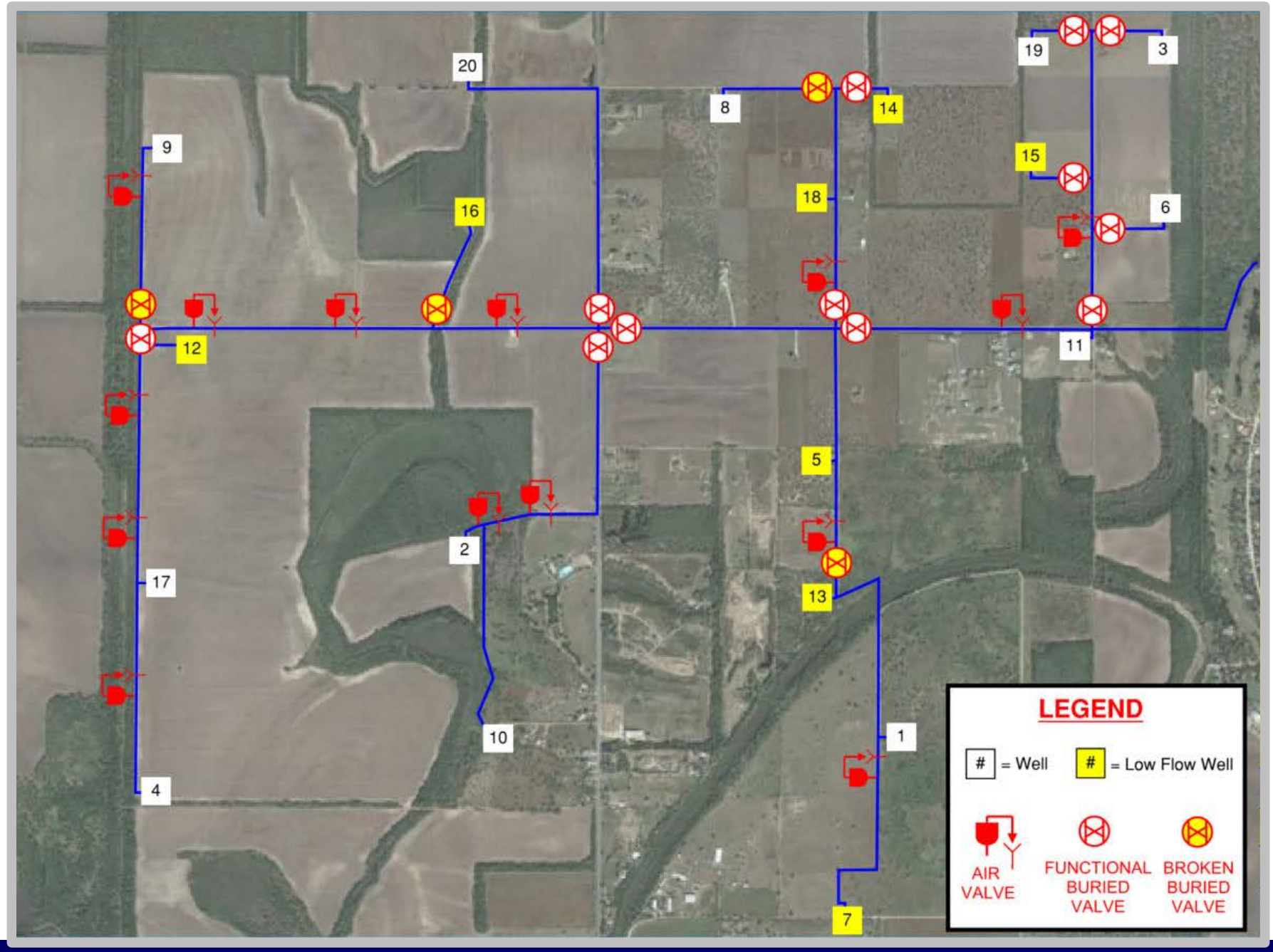
	12	Citric acid bulk storage	219,000
	13	RO permeate piping for MF CIP	123,000
✓	14	RO membrane cleaning	*O&M*
		Subtotal	*32,436,000*
	15	Electrical system improvements	14,400,000
		Grand Total:	46,836,000

Other Issues

- W/WW Operations replaced 4 broken valves in the wellfield
  - Flow and pressure improved from Well #13
  - Pressure from Well #7 improved
  - Overall, the water pressures are lower and closer to the hydraulic model results
  - Flows did not improve (except Well 13)


20
19
3
8
14
9
15
16
18
6
12
11
5
2
17
13
10
1
4
7
LEGEND
= Well
= Low Flow Well
AIR VALVE
FUNCTIONAL BURIED VALVE
BROKEN BURIED VALVE

Other Issues

- Well rehabilitation bid
  - $330,000 in FY 2024 O&M Budget
  - W/WW Engineering is working on bid packet
- Discussion on reduction of staffing during COVID
  - If plant was reduced to 50%, SRWA would still need at least 1 operator per shift
  - Additional operator is required to clean MF membranes or RO membranes
  - Decreasing the MF production throughput would have reduced the rate of membrane fouling—plant would have produced less water

Other Issues

- Chemical Optimization: Savings of $11,677 per month

Chemical	Initial Dosage - mg/L	Current Dosage - mg/L	Monthly Savings	Yearly Savings
Chlorine Dioxide	0.8	0.4	$4,222.00	$50,664.00
Sodium Bisulfite	1.9	1.7	$232.00	$2,784.00
Ferric Chloride	2	1.7	$510.00	$6,120.00
Scale Inhibitor	2	1	$6,713.00	$80,556.00
Total:			**$11,677**	**$140,124.00**

Questions?

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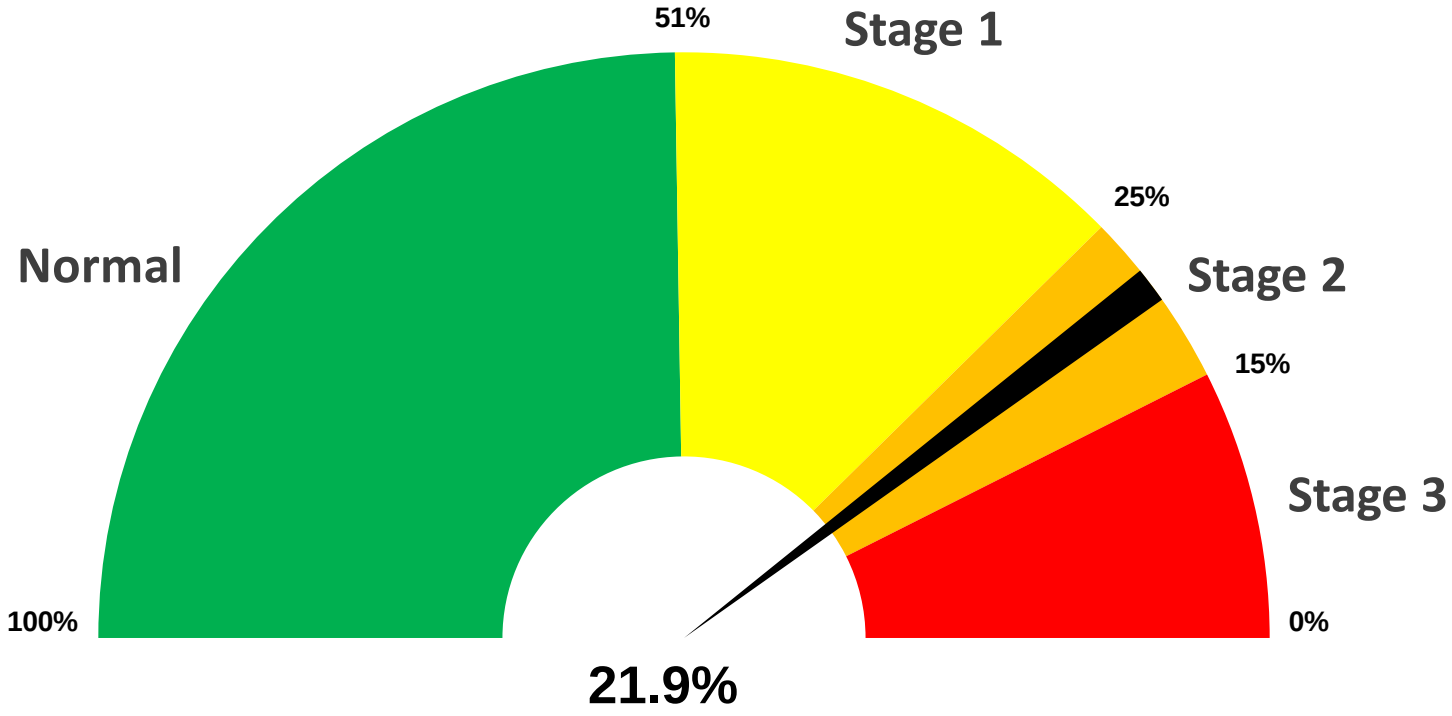
Drought Update

FEBRUARY 5, 2024

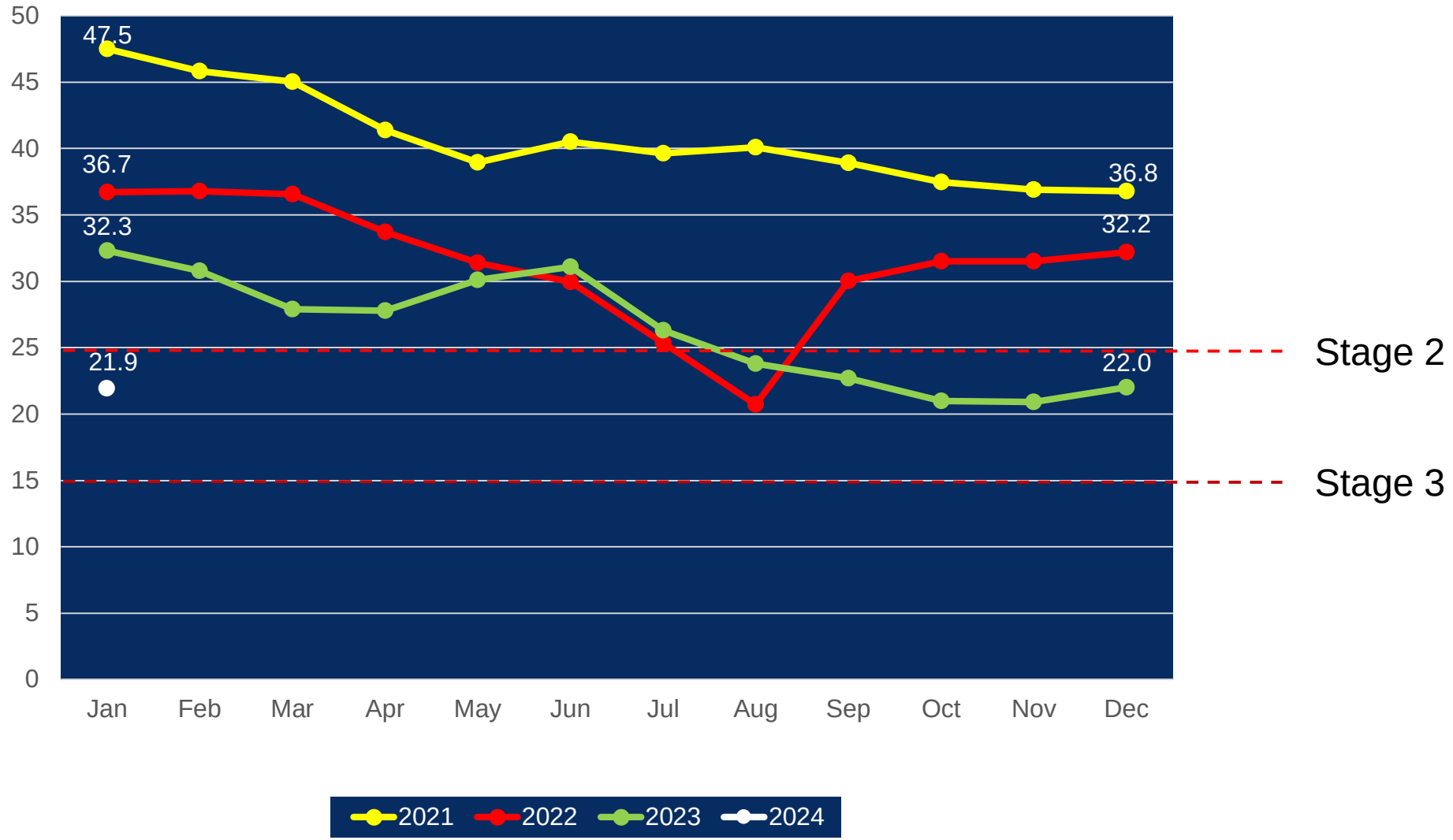
SRWA BOARD MEETING

BPUB Drought Stage Meter

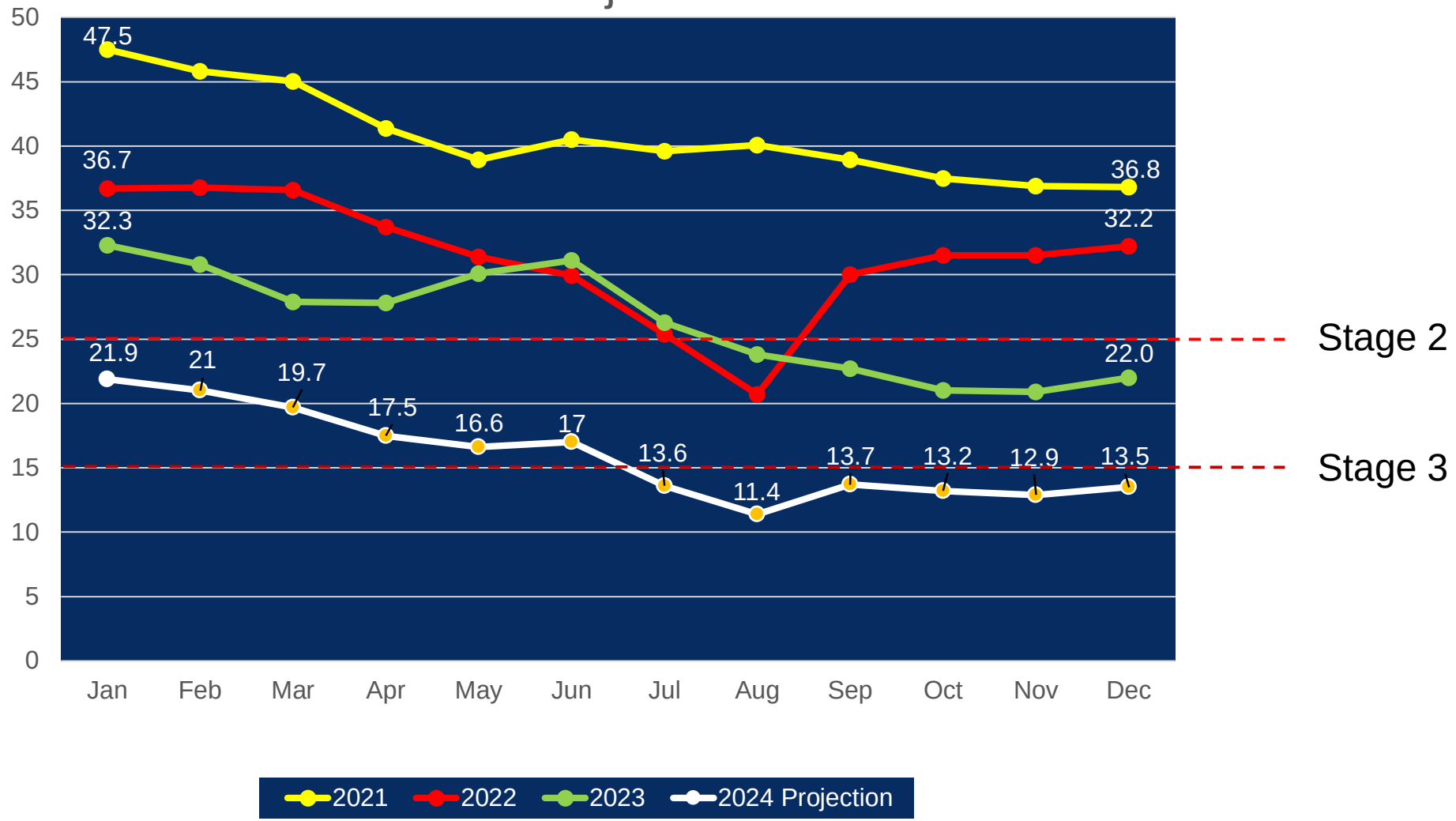


U.S. Combined ownership at Amistad and Falcon Reservoirs
January 27, 2024 = 21.9%

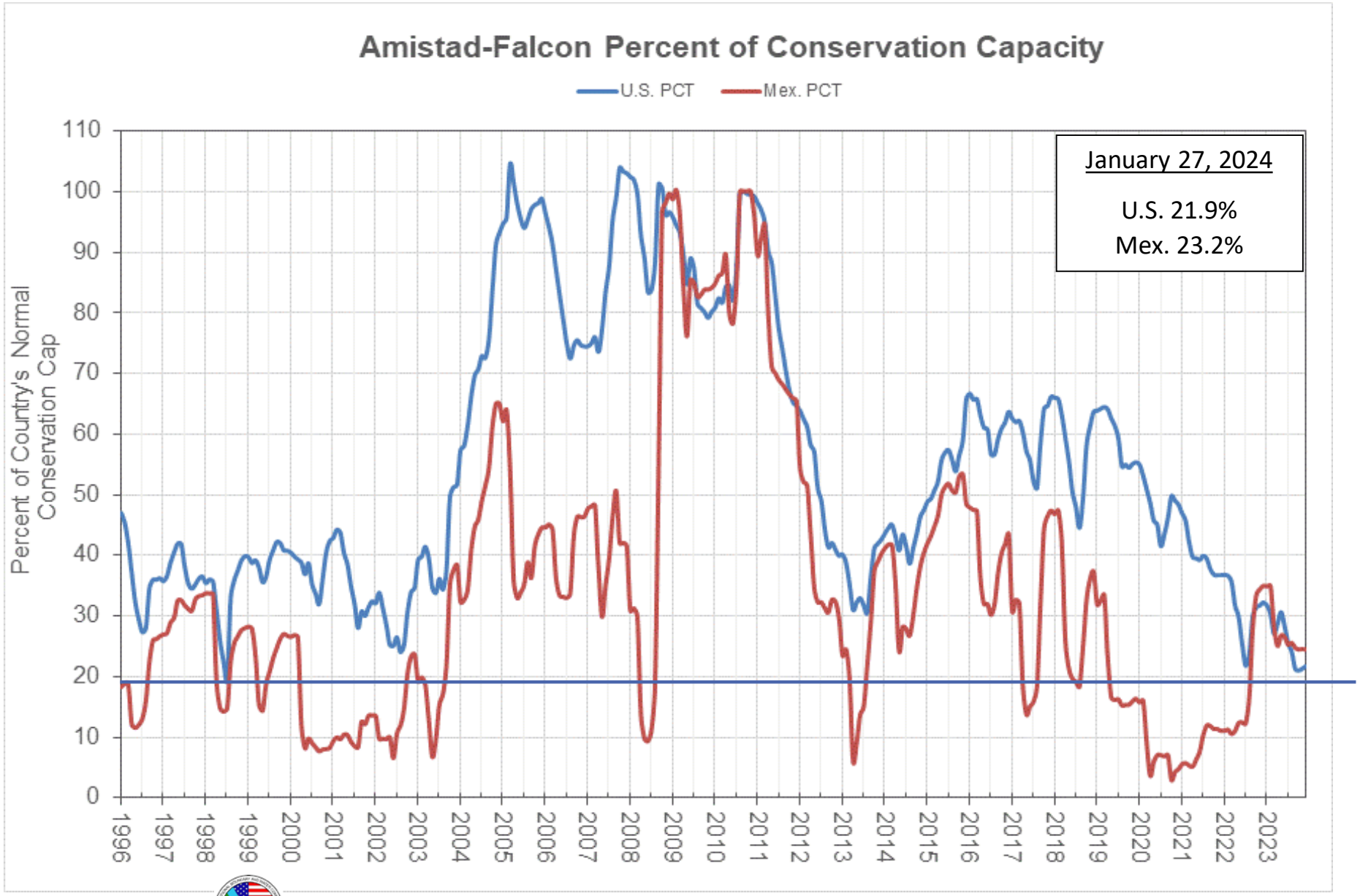
U.S. Combined Ownership at Amistad/Falcon



U.S. Combined Ownership at Amistad/Falcon
2024 Projection



Projection based on past 3 year trends.



Top 3 Record Lows

20.9% - November 11, 2023

20.7% - August 13, 2022

19.1% - August 1998

International Boundary and Water Commission Data

Conserve Water Every Drop Counts

Guadalupe Garcia III
Water Resources Administrator

www.brownsville-pub.com

www.brownsville-pub.com/drought

Discussion on Date, Time of Next Board Meeting

J. Hollmann

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Adjournment