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YOUR WATER.
YOUR FUTURE.

Welcome to CAP's Annual Water Users Briefing

Got Questions or Comments?
Send to:
questions@cap-az.com

DARRIN FRANCOM – DIRECTOR OF OPERATIONS, POWER AND ENGINEERING
DON CRANDALL – WATER CONTROL MANAGER

Safety Minute

The heat seems never-ending! The previous record in Phoenix for the number of days in one year with temperatures of 110 degrees above was 33. Yesterday (Monday) was the 41st day for 2020, and it appears we're going to have several more.

Whether at home or at work, be safe out there. If possible, get out of the sun. Stay hydrated. Cover up. Use sunscreen.

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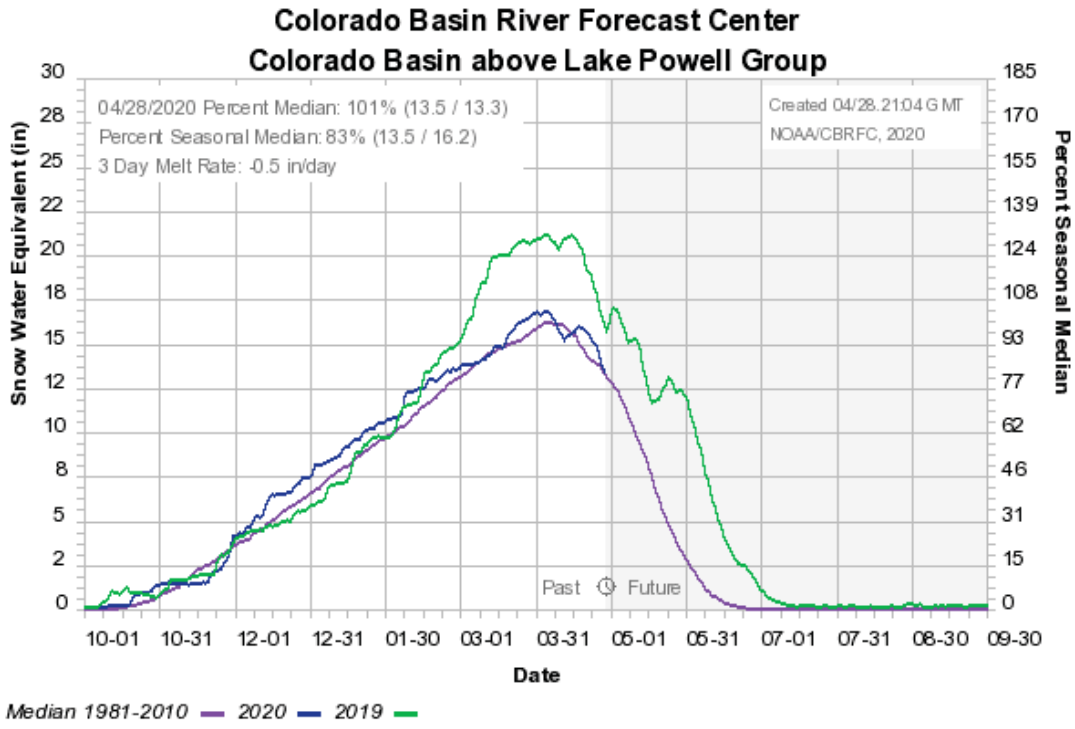
Annual Water User Briefing
Colorado River Update

Water Year 2020 Summary

- 2019 Hot, dry fall
- “Normal” snowpack
- Hot, dry summer
- Significant decline in runoff
- 2021 Tier Zero Operations



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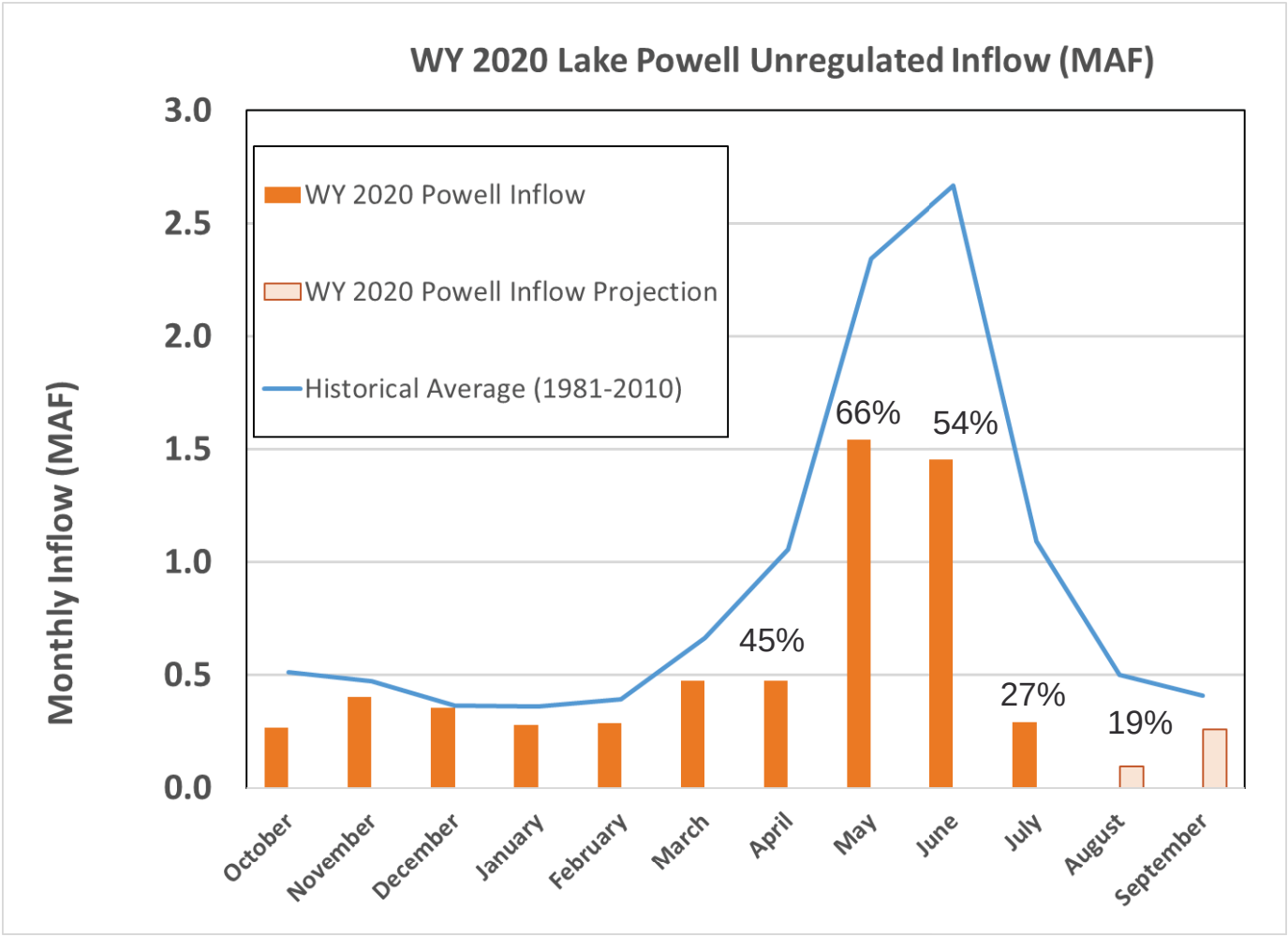
2020 Lake Powell Inflows

April unregulated inflow into Lake Powell was at 45% of the historical 30-year average (1981-2010), with May at 66%, June at 54%, and July coming in at 27% of the historical average.

The preliminary April-July unregulated inflow into Lake Powell is 3,758 KAF, which is 52% of the historical average.

Although the snowpack was tracking fairly closely with historical averages, the 2020 runoff projections are well below average due to dry soil moisture conditions throughout the Basin prior to this winter and warm spring and summer temperatures.



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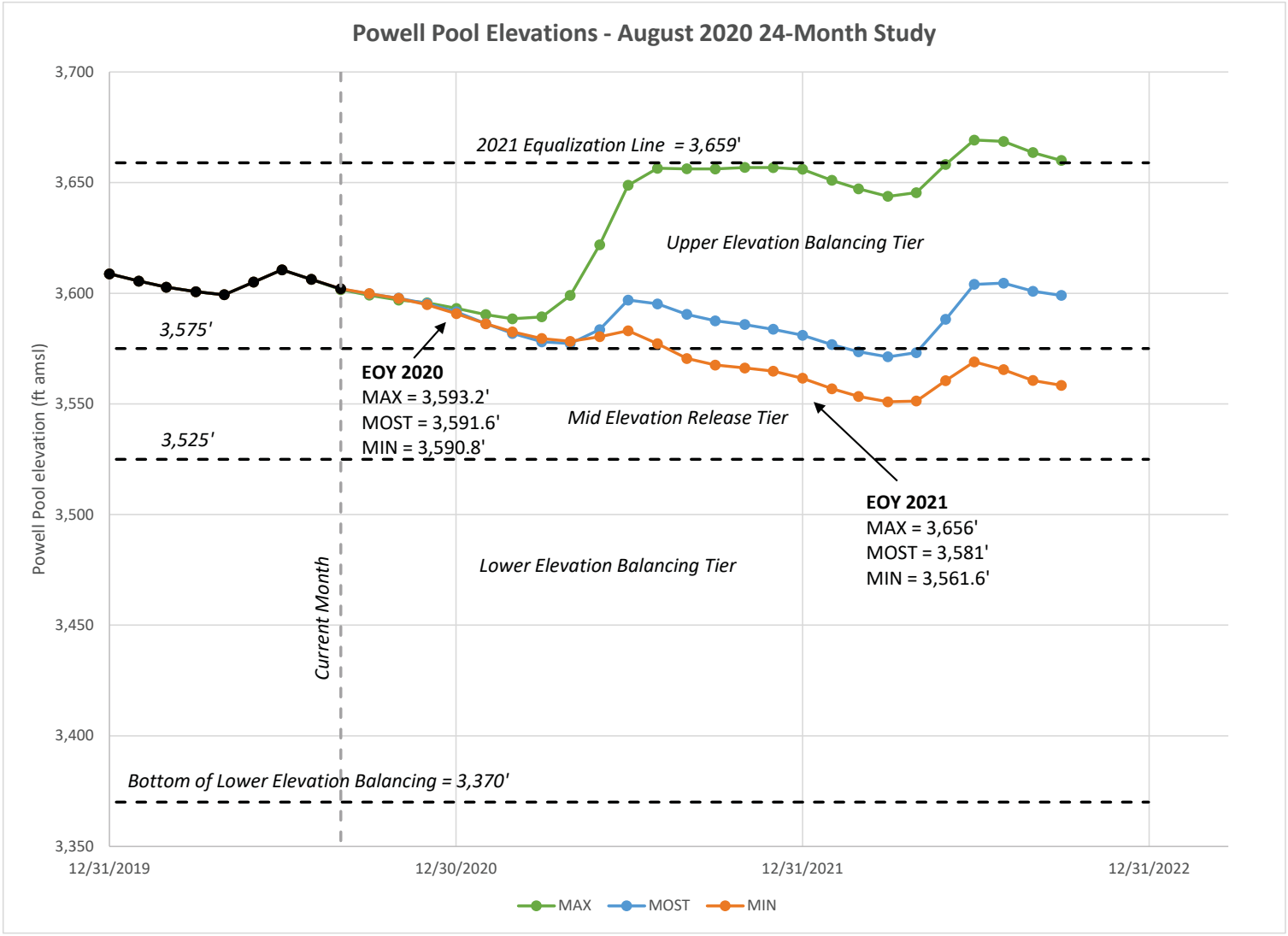
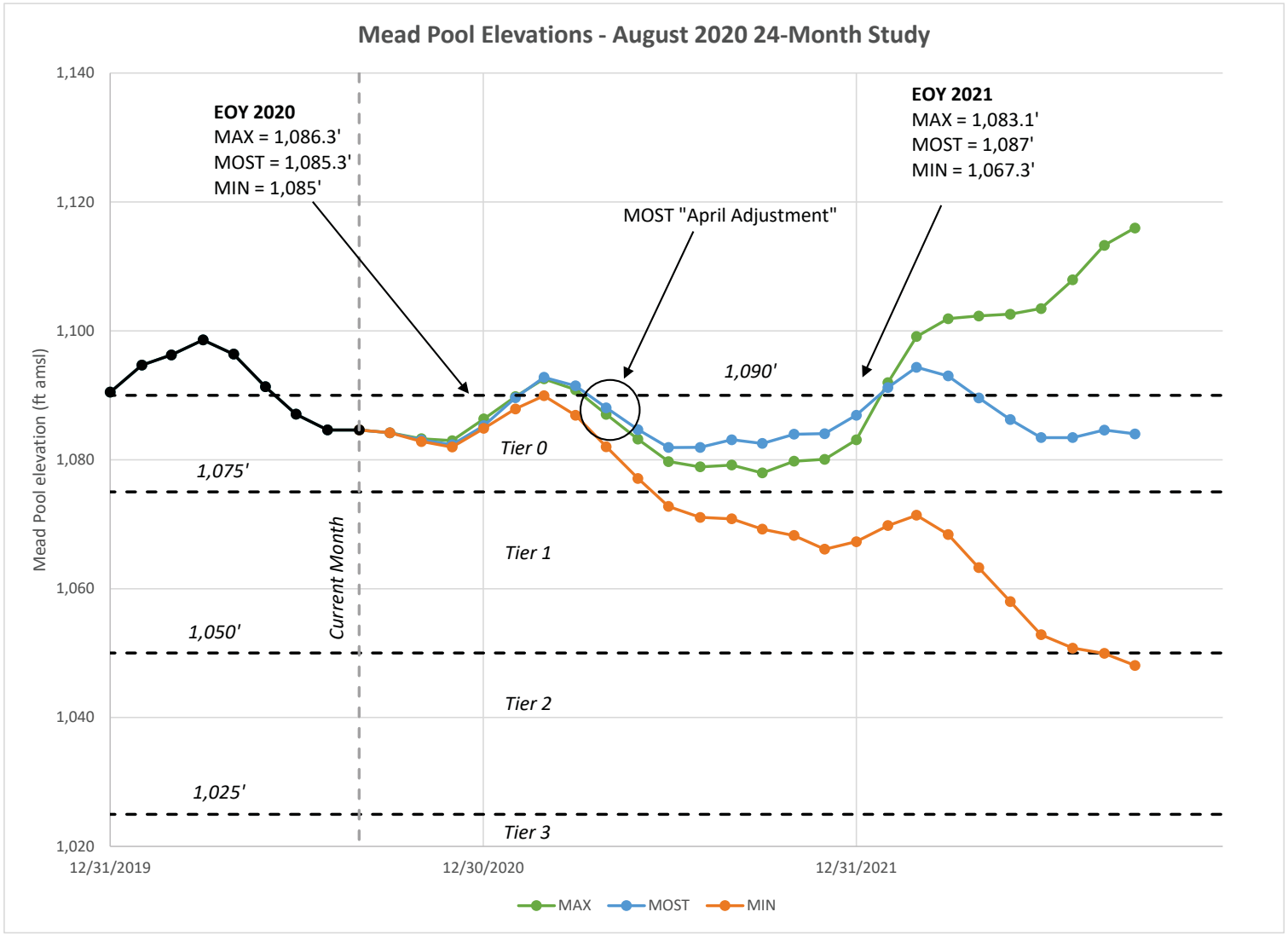

Powell Pool Elevations - August 2020 24-Month Study
Powell Pool elevation (ft amsl)
3,700
3,650
3,600
3,550
3,500
3,450
3,400
3,350
12/31/2019
12/30/2020
12/31/2021
12/31/2022
2021 Equalization Line = 3,659'
Upper Elevation Balancing Tier
3,575'
EOY 2020
MAX = 3,593.2'
MOST = 3,591.6'
MIN = 3,590.8'
Mid Elevation Release Tier
3,525'
EOY 2021
MAX = 3,656'
MOST = 3,581'
MIN = 3,561.6'
Current Month
Lower Elevation Balancing Tier
Bottom of Lower Elevation Balancing = 3,370'
MAX
MOST
MIN



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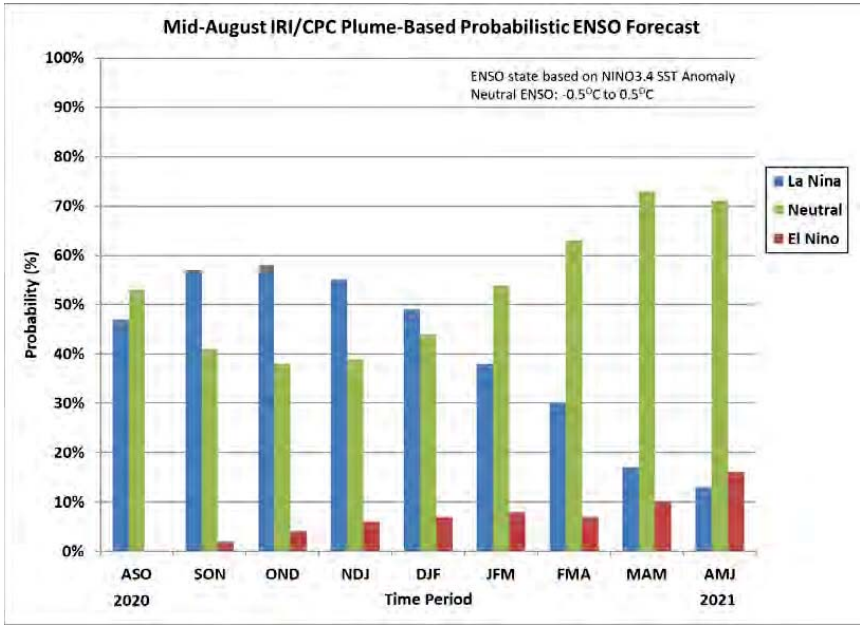
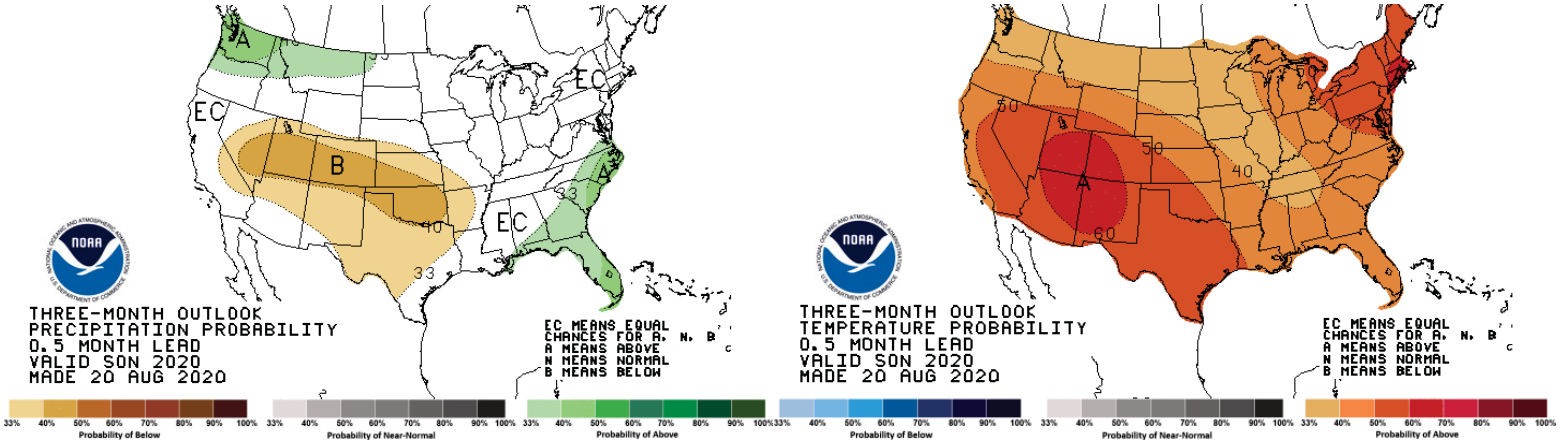
ENSO Outlook



The current ENSO (El Niño Southern Oscillation) probabilistic forecast indicates a slightly greater than 50% probability of an El Niño signal for early Fall 2020 that will shift towards a higher probability of a neutral ENSO signal in Winter 2020-2021 and Spring 2021.

The three month outlook for precipitation for September 2020 through November 2020 shows that the Colorado River Basin (especially the Upper Basin) will experience below normal precipitation. Temperatures for the next three months are forecasted to be above normal for the entire United States (with a greater probability of above normal temperatures in the Colorado River Basin).

90 Day Precipitation and Temperature Outlook

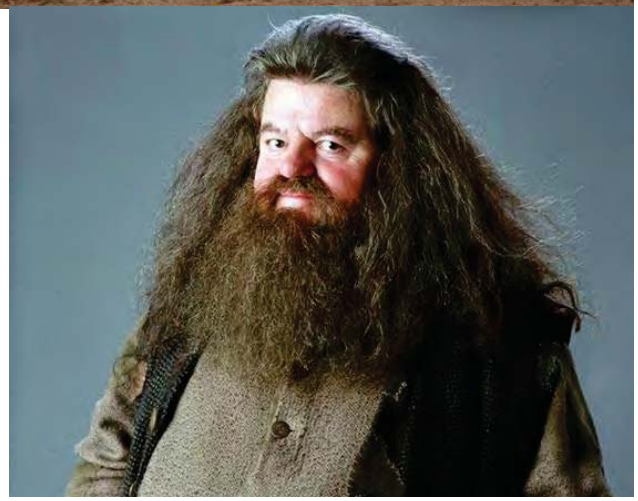


2021 – 2022 Outlook

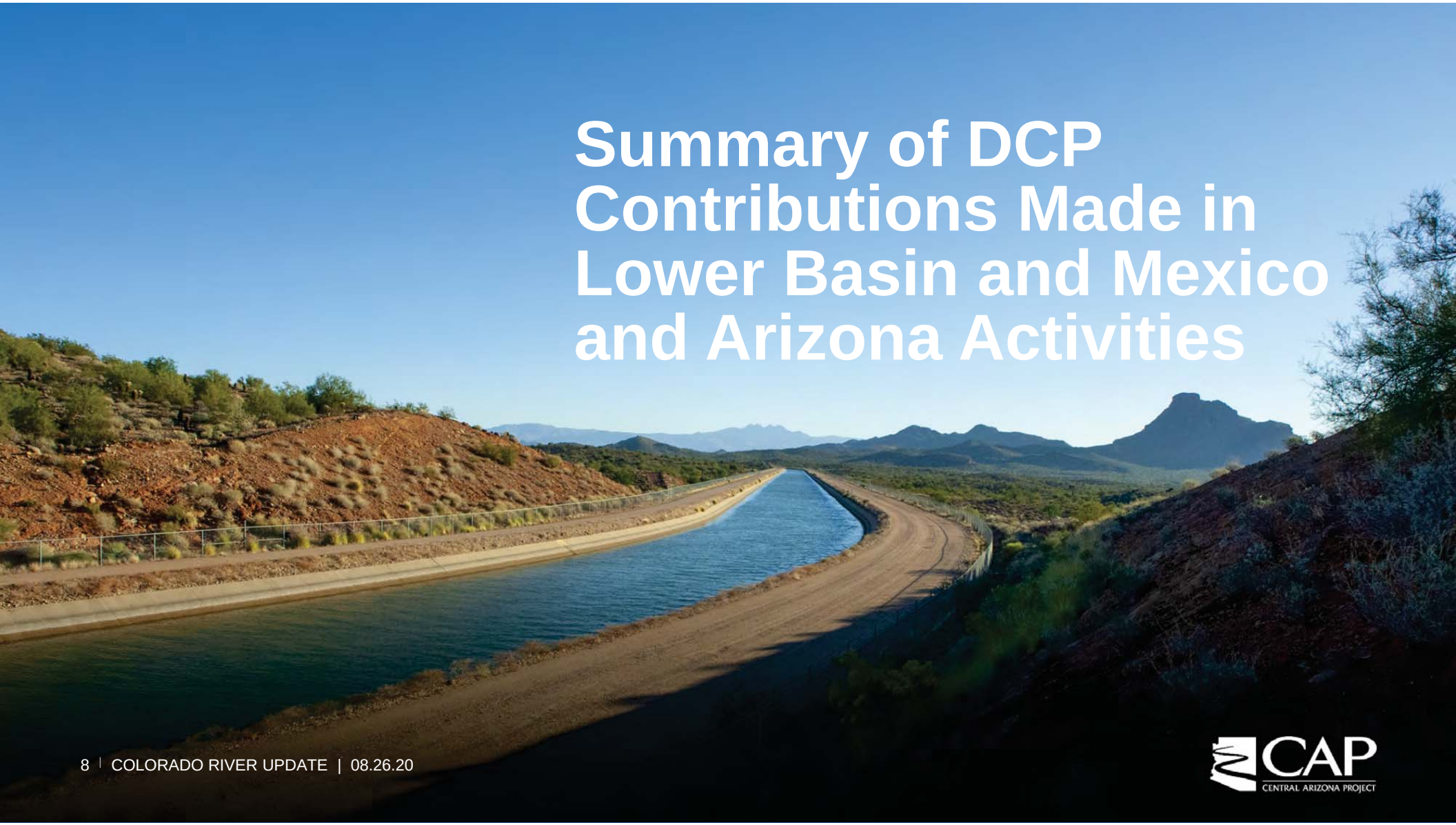
- 2021 Tier Zero Operations
- Hot, dry fall 2020
- “Normal” inflows required to continue Tier Zero in 2022
- Increasing risks of Tier One in 2022, Tier One/Two in 2023
- Neutral climate signal
- Other forecast indicators?

Fuzzy Horse Index?

Covid Beard Index?



Summary of DCP Contributions Made in Lower Basin and Mexico and Arizona Activities



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2020 Lower Basin and Mexico Lake Mead DCP Contributions and ICS Activities

Source	Type	Volume (KAF)
Arizona		
CAWCD DCP Contribution	ICS and Non-ICS	192
Other AZ Offset, ICS, and US	ICS and System Conservation	153
California		
MWD	ICS	241
IID	ICS	2
Nevada		
SNWA DCP Contribution	ICS	8
SNWA ICS	ICS	40
Mexico		
Binational Water Scarcity Contingency Plan Contribution	Water Reserve	67
Total		**703**

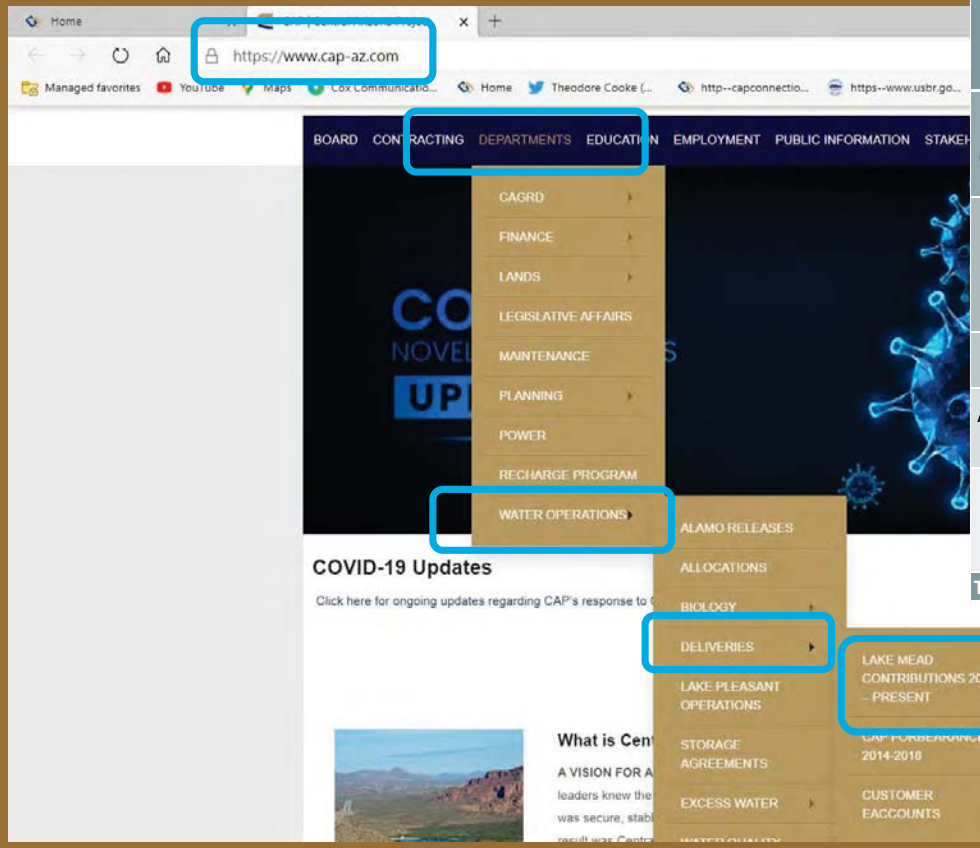
- 636 KAF planned contributions and conservation in the US Lower Basin
- Approximately 700 KAF total contributed and conserved through DCP
- Estimated volumes – actual volumes verified EOY

2021 Lower Basin and Mexico Lake Mead DCP Contributions and ICS Activities

Source	Type	Volume (KAF)
Arizona		
CAWCD DCP Contribution	ICS and Non-ICS	192
Other AZ Offset, ICS, and US	ICS and System Conservation	121
California		
MWD	ICS	200
IID	ICS	2
Nevada		
SNWA DCP Contribution	ICS	8
SNWA ICS	ICS	55
Mexico		
Binational Water Scarcity Contingency Plan Contribution	Water Reserve	41
Total		**619**

- 573 KAF planned contributions and conservation in the US Lower Basin
- Approximately 600 KAF total contributed and conserved through DCP
- Estimated volumes to be verified EOY 2021

Arizona Lake Mead Contributions – where is it?



Arizona Lake Mead Contribution Volumes DCP Implementation & Related Actions		ICS[1]	2019[2] (ac-ft)	2020[3, 4] Tier 0 (ac-ft)	2021[4] Tier 0 (ac-ft)
Arizona LBDCP (Tier 0: 192k ac-ft)	Ag Forbearance 3 Program	EC-ICS	24,283	56,968	57,000
	CAWCD Compensated Conservation	EC-ICS		3,500	3,500
	CAWCD Excess Water[5]		119,942	131,532	131,500
	Total		**144,225**	**192,000**	**192,000**
Arizona DCP Mitigation Offset (400k ac-ft total)	GRIC - Reclamation	EC-ICS	100,000		
	GRIC - AWBA	EC-ICS	17,000	33,000	
	GRIC[6]	EC-ICS		50,000	45,000
	CRIT System Conservation			50,000	50,000
	Total		**117,000**	**133,000**	**95,000**
Reclamation DCP	FMYN System Conservation			10,000	13,683
	Total		**0**	**10,000**	**13,683**
Additional Arizona ICS Creation	CRIT	EC-ICS	6,274	3,736	4,685
	MVIDD	EC-ICS		6,137	6,778
	Total		**6,274**	**9,873**	**11,463**
Pilot System Conservation Program (PSCP)	Bullhead City		306	400	400
	CRIT		26,805		
	FMYN		13,683		
	Total		**40,794**	**400**	**400**
Total Arizona Lake Mead Contributions			**308,293**	**345,273**	**312,546**

https://www.cap-az.com/documents/water-operations/Lake-Mead-Contribution-Summary-Table-2019-2020.pdf

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Notes

[1] ICS Volumes reflect creation volumes contributed to Lake Mead and do not reflect account balances after losses and assessments.

[2] 2019 reflects proactive actions prior to DCP execution and full implementation in 2020.

[3] 2020 reflects the first full year of DCP implementation of Lake Mead contributions and related actions.

[4] Values reflect estimated volumes, subject to final accounting.

[5] Volume will vary based on available Colorado River water, on-river use forecast, and CAP operations.

[6] Efforts by GRIC to fully utilize the Arizona ICS Accumulation Capacity in 2021

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Arizona DCP Contributions and ICS

- From 2019 through projections for 2021, efforts in Arizona alone plan to save almost 1 MAF in Lake Mead
- Arizona is on-track to fully utilize its ICS Accumulation Capacity by the end of 2021
- ICS accumulation for the Lower Basin States at the end of 2020 will be 2.7 MAF
- Pre-DCP (~2014) and DCP and other related efforts have helped to temporarily ‘bend the curve’ and avoid going into Tier 1 or greater shortages to date

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CAP Sys. Con. O&M impact ~$0.75/af

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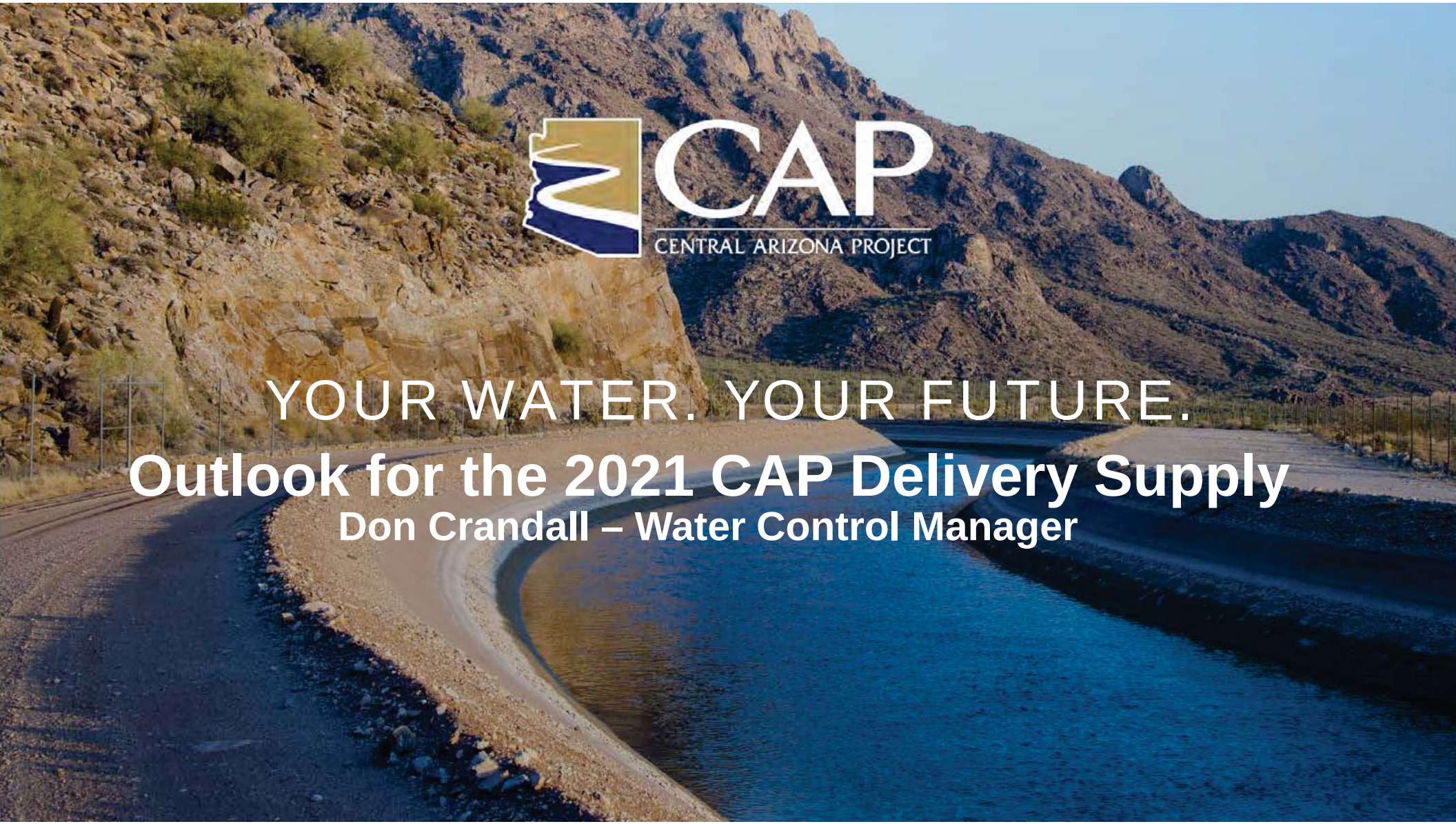

Outlook for the 2021 CAP Delivery Supply

Don Crandall – Water Control Manager

CAP Annual Operating Plan Timeline

CAP Rate Letter Schedule Request	Jun 18, 2020
Annual Water Users Briefing	**Aug 26, 2020**
Water Delivery Requests	Oct 1, 2020
Final Water Schedules	Nov 15, 2020

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2021 CAP Delivery Supply Outlook

Colorado River Supply	**1,670,000**
DCP Reductions	**-192,000**
CAP Excess	-131,500[1]
ICS - AG Forbearance 3	-57,000[2]
ICS – Conservation Agreement	-3,500[3]
CAP System Losses	**-75,000**
Lake Pleasant	**50,000[4]**
CAP Delivery Supply	**1,453,000**

Long Term Contracts	**1,210,000**
Long Term Contracts	1,213,500
Conservation Agreement	- 3,500[3]
Ag Pool	**243,000**
Ag Pool	300,000
AG Forbearance 3	- 57,000[2]
CAP Water Orders	**1,453,000**
CAP Contractor Lake Mead Contributions	**-58,693[5]**
CAP Deliveries	**1,394,307**

Notes
1. CAP Excess water contributed to Mead to satisfy AZ DCP Reductions.
2. AG Forbearance 3 Program
3. Metropolitan Domestic Water Improvement District Conservation Agreement
4. Volume to be finalized with CAP AOP.
5. GRIC ICS and FMYN Reclamation DCP Contribution.

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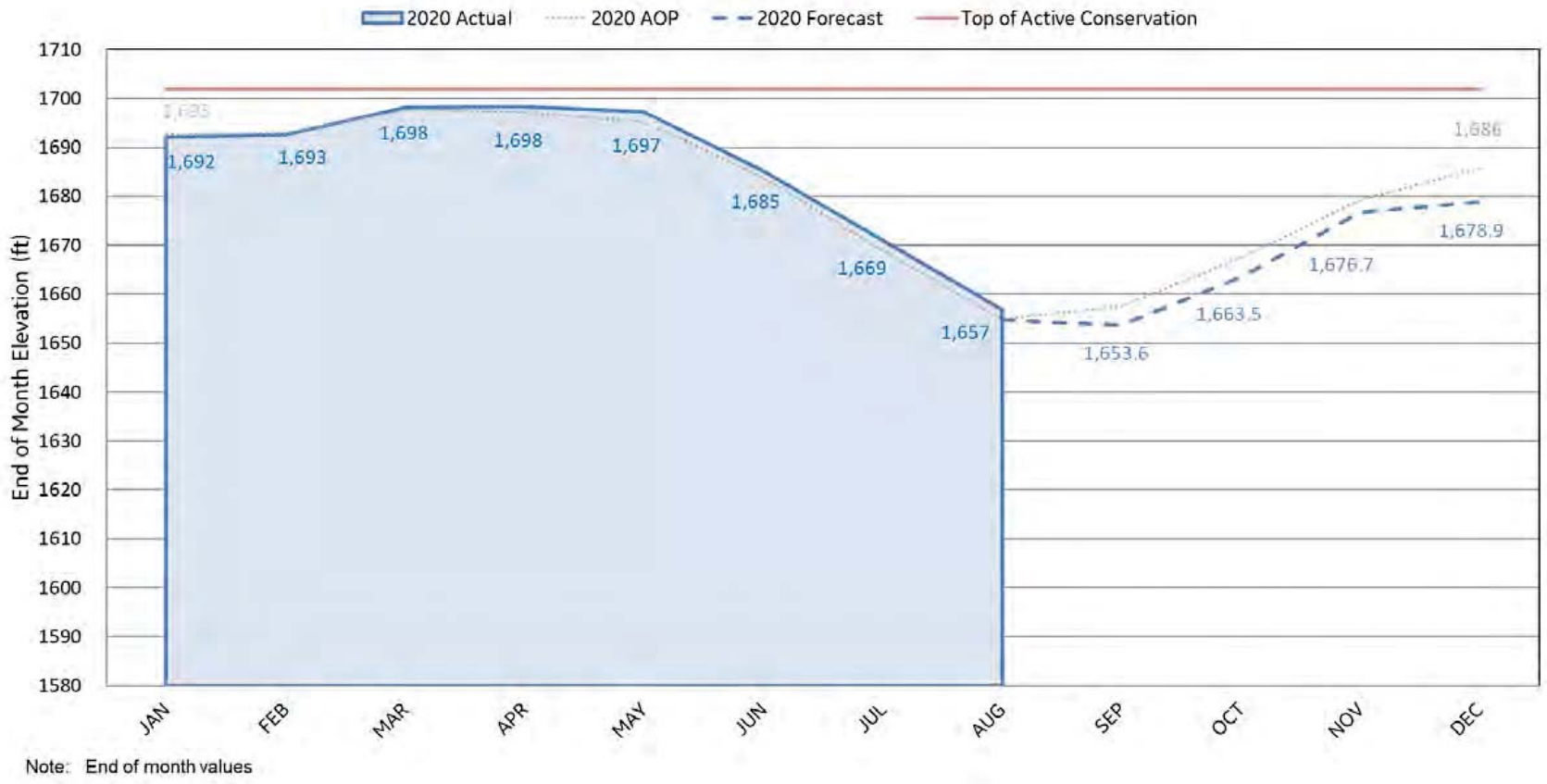
LAKE PLEASANT / NEW WADDELL DAM
12-Month Operating Forecast



Note: End of month values

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Thank You
dcrandall@cap-az.com

Update on System Use Agreement & NIA Reallocation

Ken Seasholes

Manager, Resource Planning & Analysis

CAP Water Users Meeting, August 26, 2020

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CAP System Use Agreement

- Agreement between CAP and Reclamation
- Establishes a framework for wheeling, firming and exchanges
- Implementation Tasks
  - Setting Water Quality standards
  - Defining System Improvement Projects
  - Determining Costs

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CAP System Use Agreement

- Pending & Contemplated Wheeling Projects
  - Imported Harquahala groundwater
  - SRP-CAP interconnect
  - GSC Farms Colorado River transfer
- Firming & Exchanges
  - Recovery Planning Advisory Group (RPAG)
  - Other exchanges

Note: All projects require review under the National Environmental Policy Act (NEPA)

Additional RPAG material posted on ADWR's website (www.azwater.gov/rpag)

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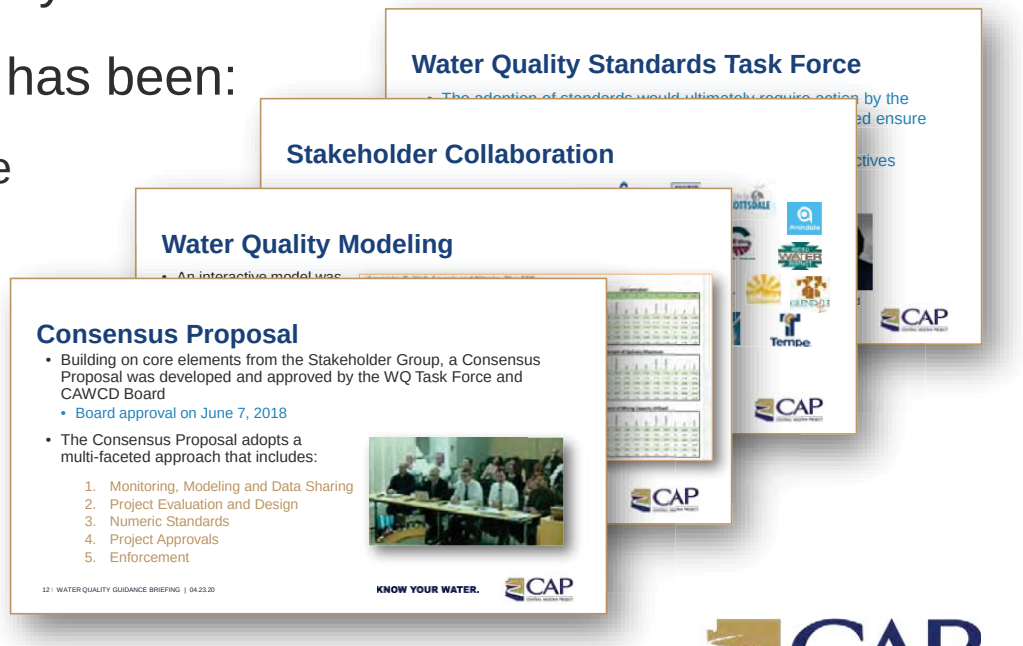
Water Quality Standards

- SUA requires “uniform water quality standards”
- Over more than two years, there has been:
  - Establishment of a Board Task Force
  - Extensive stakeholder engagement
  - Negotiation & compromise
  - Technical work
  - Consensus



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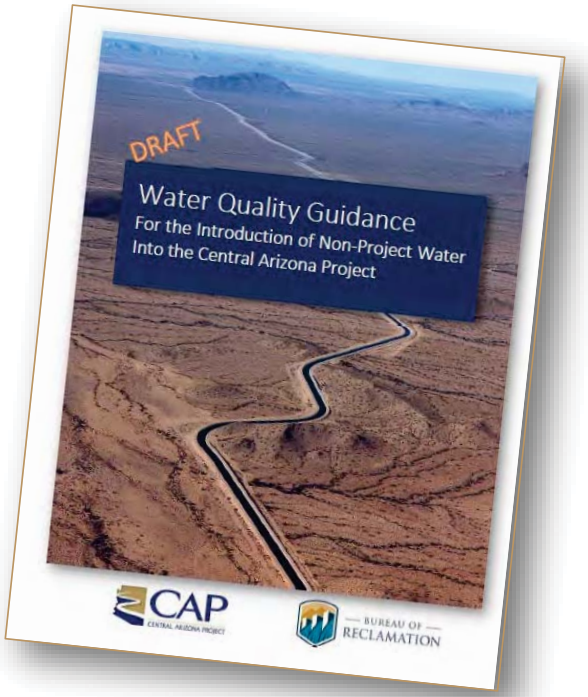
Water Quality Guidance Document

- Draft implementation document released by CAP and Reclamation in April, with request for comments
- Document adds implementation detail to framework approved by CAP Board
- Includes previously approved numeric standards, along with detection limits for extensive list of constituents



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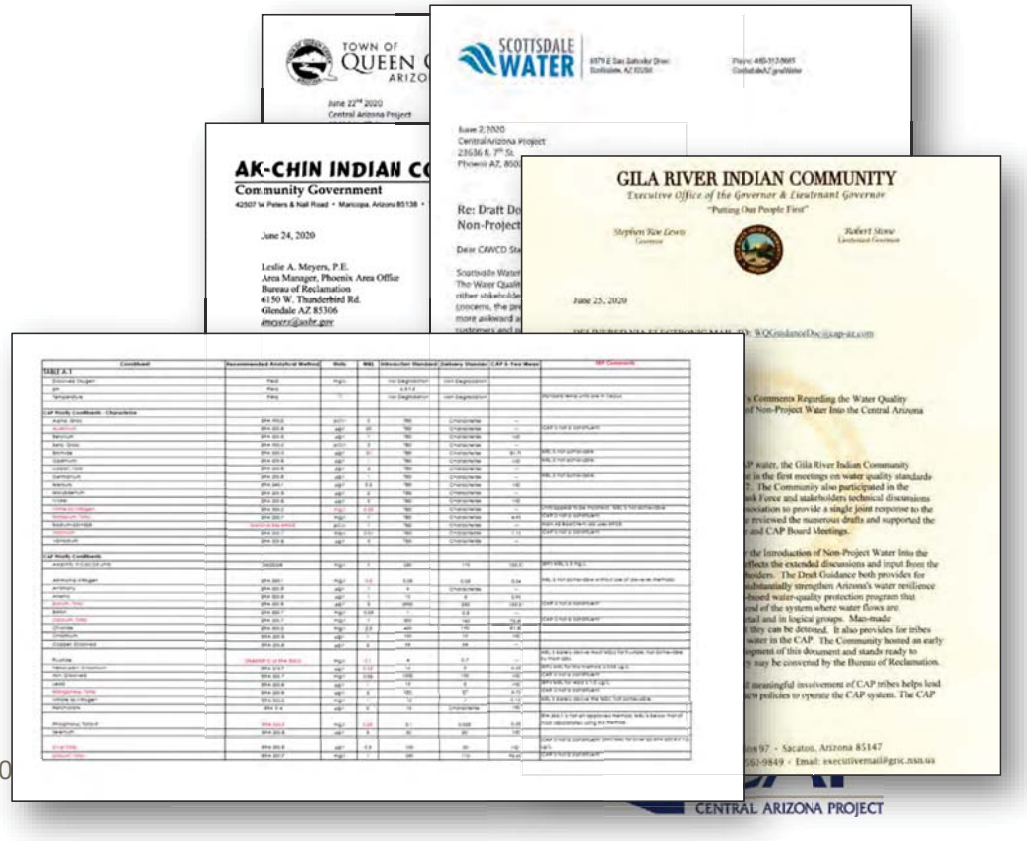
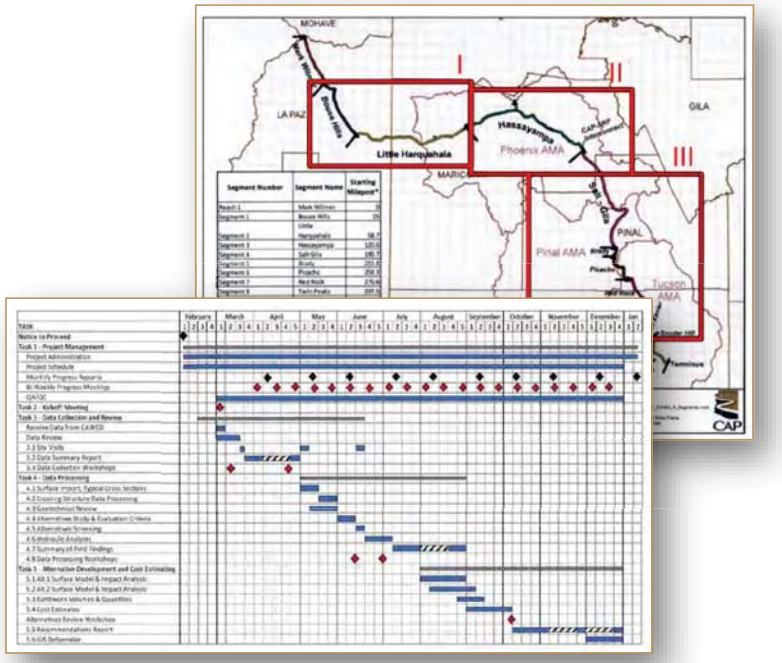
Water Quality Guidance Document

- Comments from ten parties
  - Both technical and policy issues
  - Comments are being reviewed, with assistance from Black & Veatch
  - Additional technical meetings with commenters
- Working towards a revised draft
  - Additional review and comment period



System Improvement Projects

- Prior to issuance of a CAWCD Wheeling Contract, a “System Improvement Project” must be identified and quantified, and Reclamation must certify the quantification
- Major study of western portion of CAP system is wrapping up
    - HDR, with Dahl Consultants and Kiewit



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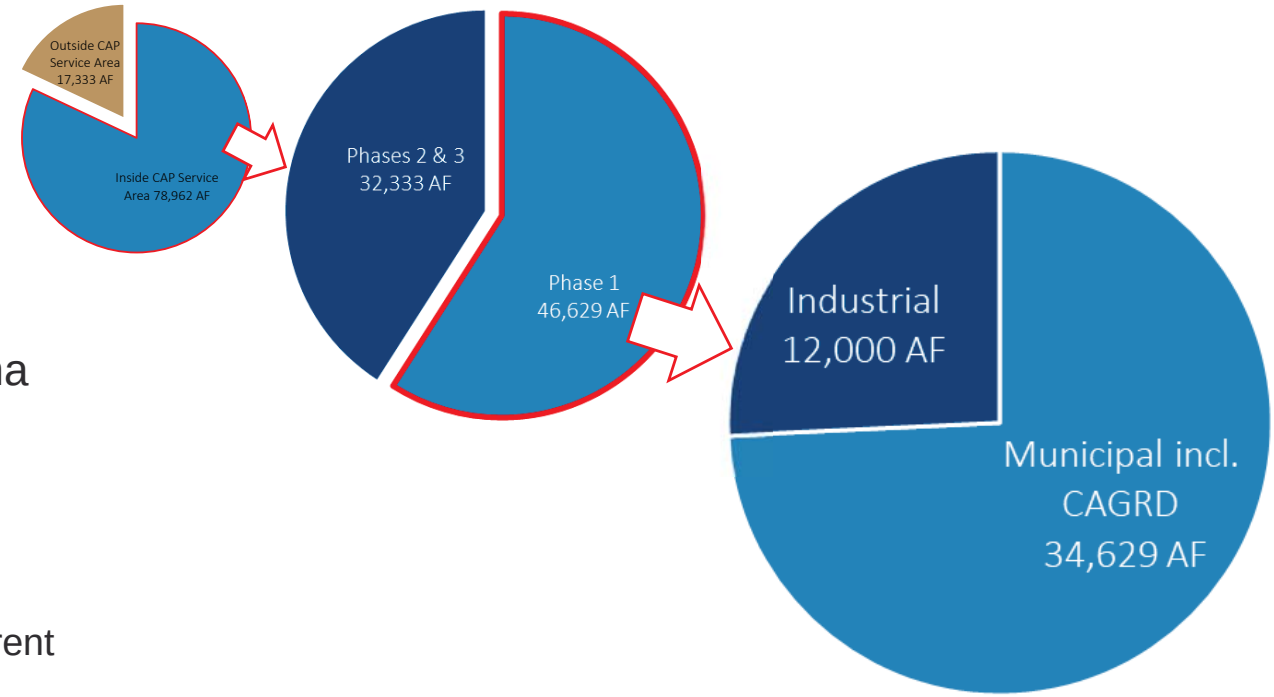
NIA Reallocation

- New M&I subcontracts for 46,629 AF of NIA priority water are moving toward issuance
- Part of the 96,295 AF established in 2004 Arizona Water Settlements Act
- Lower priority than Indian and M&I priority pools
    - Shares priority with current NIA (sub)contractors



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NIA Reallocation

- Allocations recommended to Secretary of the Interior by ADWR after application and review process
- 13 municipal and 6 industrial recipients

Industrial

Viewpoint RV and Golf Resort	400 AF
New Harquahala Generating Company	400 AF
Rosemont Copper Company	1,124 AF
Salt River Project	2,160 AF
Resolution Copper Mining-Freeport-McMoRan	2,238 AF
Sierrita Inc.	5,678 AF
	12,000 AF

Municipal

Apache Junction WUCFD	817 AF
CAGRD	18,185 AF
Carefree Water Company	112 AF
City of El Mirage	1,318 AF
EPCOR - Sun City West	1,000 AF
Johnson Utiltities	3,217 AF
Metro Water - Diablo	299 AF
Town of Buckeye	2,786 AF
Town of Cave Creek	386 AF
Town of Gilbert	1,832 AF
Town of Marana	515 AF
Town of Queen Creek	3,162 AF
Town of Queen Creek (H2O Water Company)	1,000 AF
	34,629 AF

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NIA Reallocation

Steps for Water Orders in 2021 and Delivery in 2022

- Final Decision published in the Federal Register
- Stakeholder engagement
- Water delivery contracts
  - Three party agreements among CAWCD, Reclamation and Party
  - Notice in Superior Court

See video and material from August 2020 Board meeting for additional information on the NIA reallocation

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Questions?

questions@cap-az.com

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2020 Recharge Update

Phillip Pagels, PE
Water Transmission Supervisor

Pima Mine Road Recharge

Superstition Mountain Recharge

ENTITIES STORING WATER IN 2020

City of Avondale
CAGRD
City of El Mirage
Town of Gilbert
City of Goodyear
City of Peoria
Tohono O'Odham Nation
Stone Applications
Arizona Water Banking Authority
City of Scottsdale
Ak-Chin Indian Community
Flowing Wells Irrigation District
Town of Oro Valley
Spanish Trail Water Company
City of Tucson, Tucson Water
City of Chandler
Gila River Indian Community

2020 CAP Recharge Operational Capacity

- **Operational Capacity** – Annual volume of water that can be stored while operating within regulatory requirements.

- **Phoenix AMA**
  - 43,000 ac-ft requested for Superstition Mountain Recharge (25,000 ac-ft operational capacity)
  - 100% of operational capacity

- **Tucson AMA**
  - 97% operational capacity at Pima Mine Road

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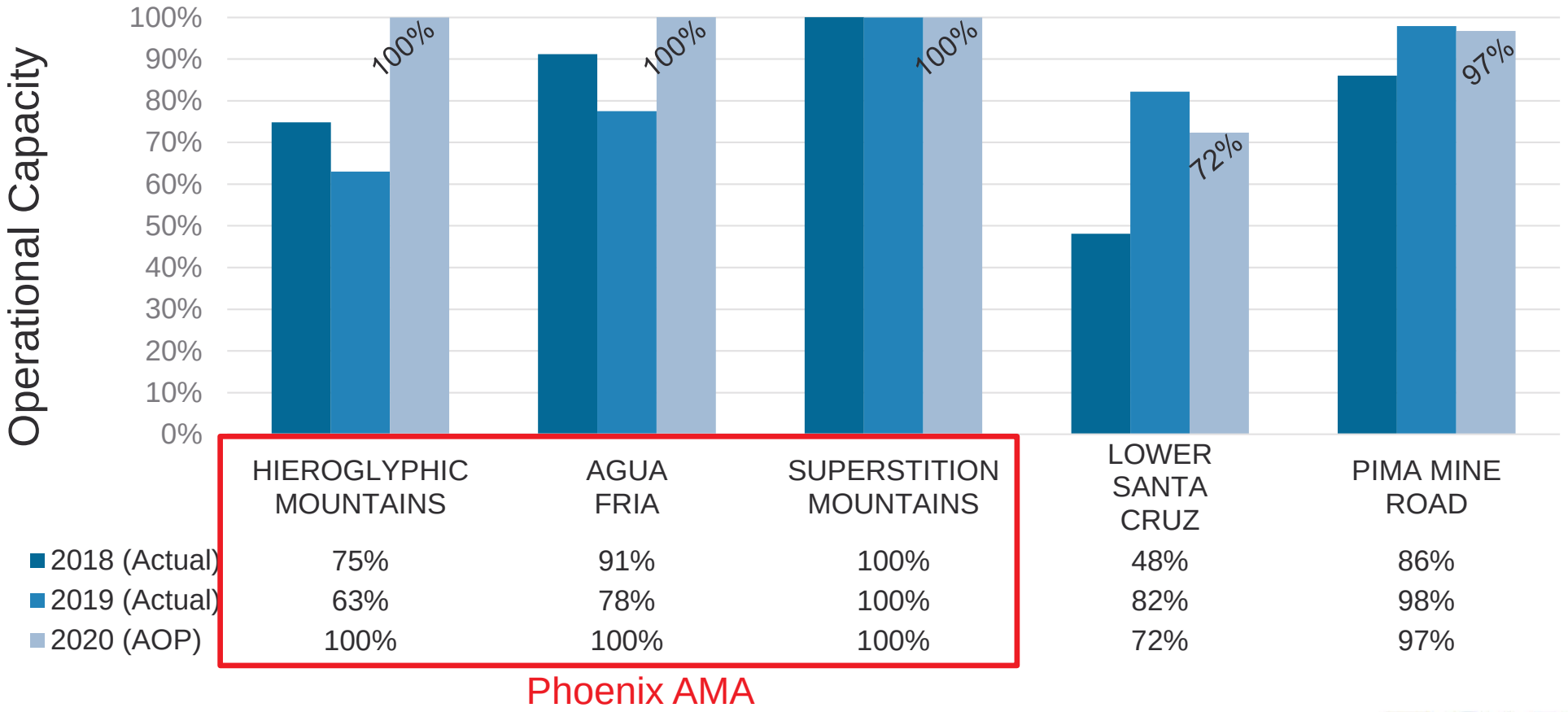
2018-2020 RECHARGE COMPARISON



	HIEROGLYPHIC MOUNTAINS	AGUA FRIA	SUPERSTITION MOUNTAINS	LOWER SANTA CRUZ	PIMA MINE ROAD
2018 (Actual)	75%	91%	100%	48%	86%
2019 (Actual)	63%	78%	100%	82%	98%
2020 (AOP)	100%	100%	100%	72%	97%

Phoenix AMA

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TONOPAH DESERT RECHARGE

FEB
- Customer Request

APR
- Maintenance

JULY
- Deliveries Resumed

78,000 ac-ft Operational Capacity
(July – December)

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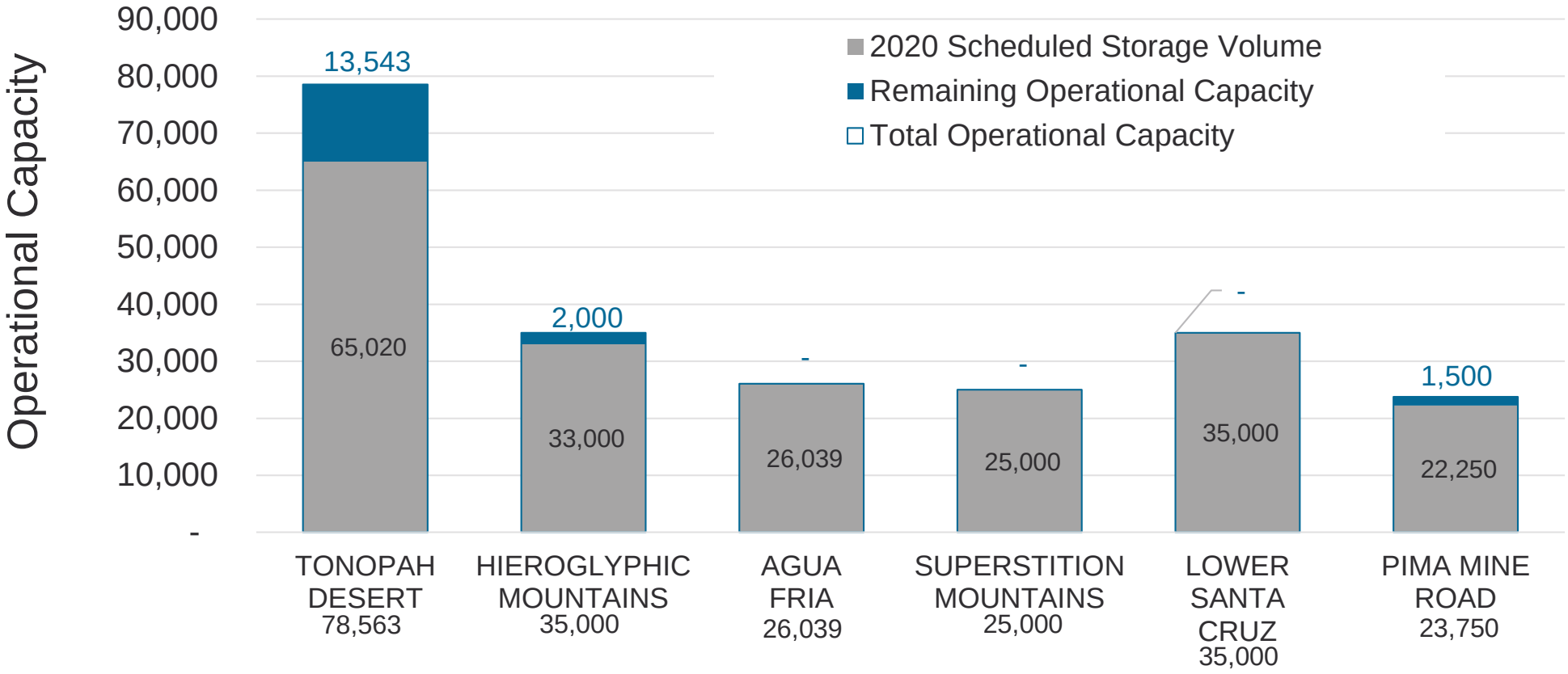
To Date Recharge Comparison



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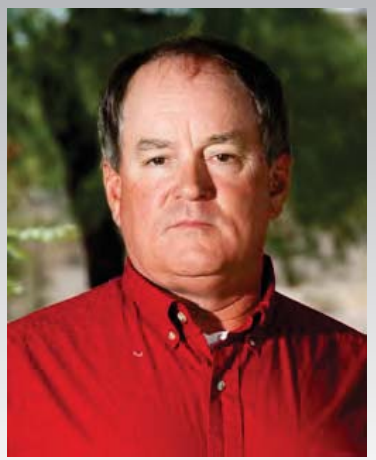
Thank you!



Alan “Al” Grochowski
Sr. Water Trans. Tech.

Scott Bryan
Sr. Biologist

Phillip Pagels
Water Trans. Sup

Water Transmission Group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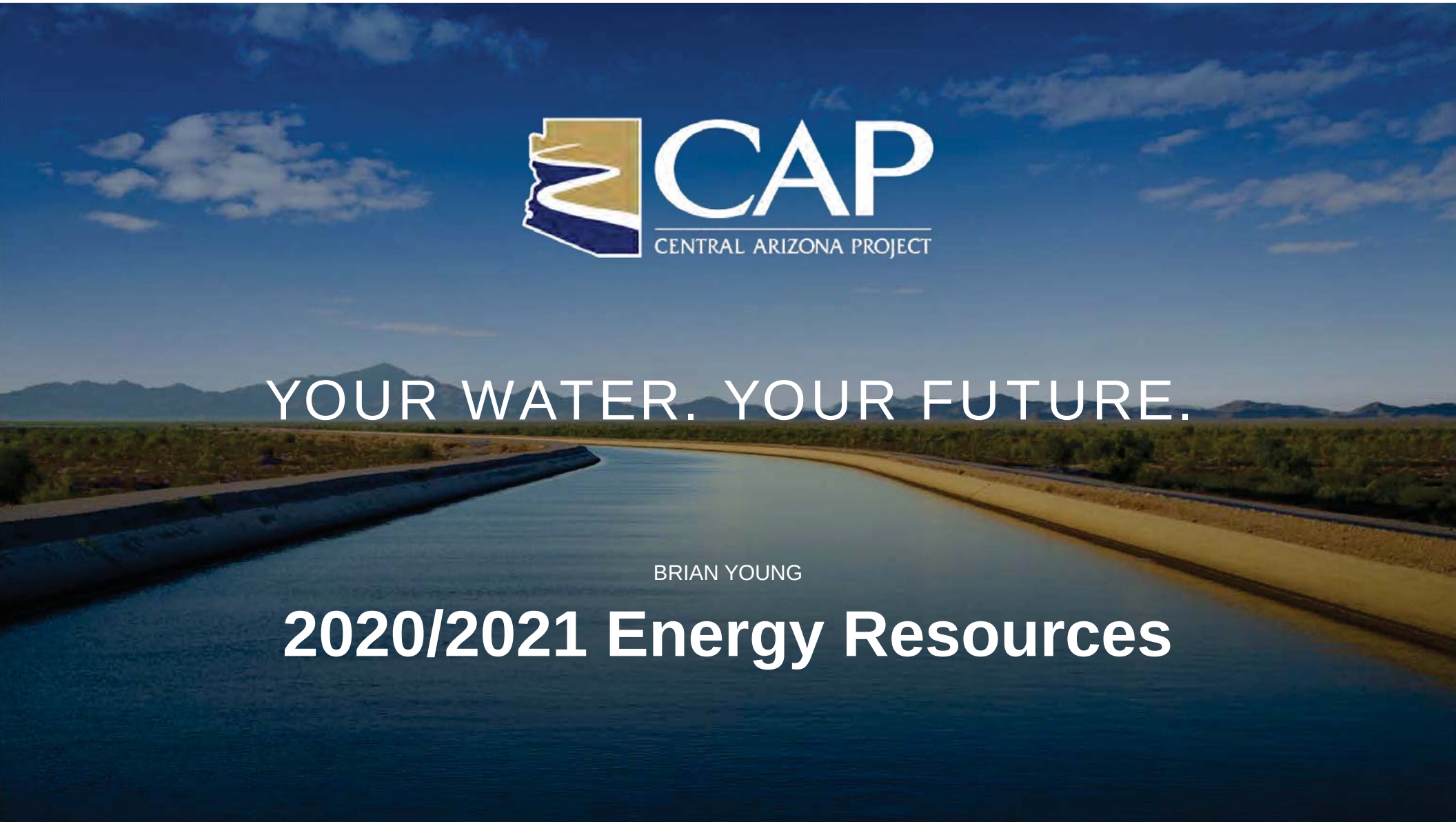
Q & A
questions@cap-az.com



BRIAN YOUNG

2020/2021 Energy Resources

CAP Energy Resources

Energy Update

- 2020 Energy Purchases
- 2020 Energy Costs
- 2021 Energy Purchases

Power Strategy

- Energy Goals & Implementation
- CAP Shaping & Energy Pricing
- Resource Portfolio

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Energy Update

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2020 Forward Energy Purchases

- 2020 forward energy was secured both through energy auctions and ACES forward purchases made throughout 2019.
- We entered 2020 energy with over 75% of our expected energy needs secured including long-term resources.
- Forward energy purchases for 2020 averaged about $26.60/MWh entering the year.
- Remaining energy is being secured primarily through daily purchases as pump load is shaped to optimize remaining energy purchases and sales.

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2020 Energy Costs

January through July Actuals vs Estimated

- Net cost per MWh = ~$25.5 vs. <$27 pre-year estimate.
- Lower costs due primarily to day-ahead purchases at very low prices taking advantage of duck curve/excess solar hours.

Remainder of 2020 energy costs

- Low energy prices are expected to continue through remainder of year for our day-ahead purchases.
- Actual 2020 energy costs for the year should end up between $50/AF to $53/AF compared to the 2020 energy rate of $56/AF barring unexpected market events.

CAP
CENTRAL ARIZONA PROJECT

2021 Energy Purchases/Costs

- Currently have secured about 65% of total resources for estimated 2021 load.
- Forward energy purchases for 2021 have averaged over $26/MWh to date.
- Current projection for total 2021 energy purchases is about $25/MWh and about $27/MWh including long-term resources.
- At this point 2021 energy costs are projected to be below those in the 2021 energy rate of $56/AF, with under half of the market energy purchases remaining.

CAP
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Power Strategy

CAP
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Energy Goals & Implementation

Low Cost Energy:

- Daily load shaping/flexible scheduling
- Utilize Waddell storage to manage diversions/monthly energy use
- Combine long-term, forward market and daily purchases
- Access to marketing hubs (Palo Verde) – Transmission assets

Stable/Predictable Rates:

- Purchase majority of energy in advance (hedging)
- Spread purchases over multiple years
- Use multiple tools – long-term contracts, auctions, bilateral trades

Reliable Supply:

- Purchase firm products from multiple suppliers
- Maintain strong transmission portfolio
- Look to future – engage in market developments & partnerships

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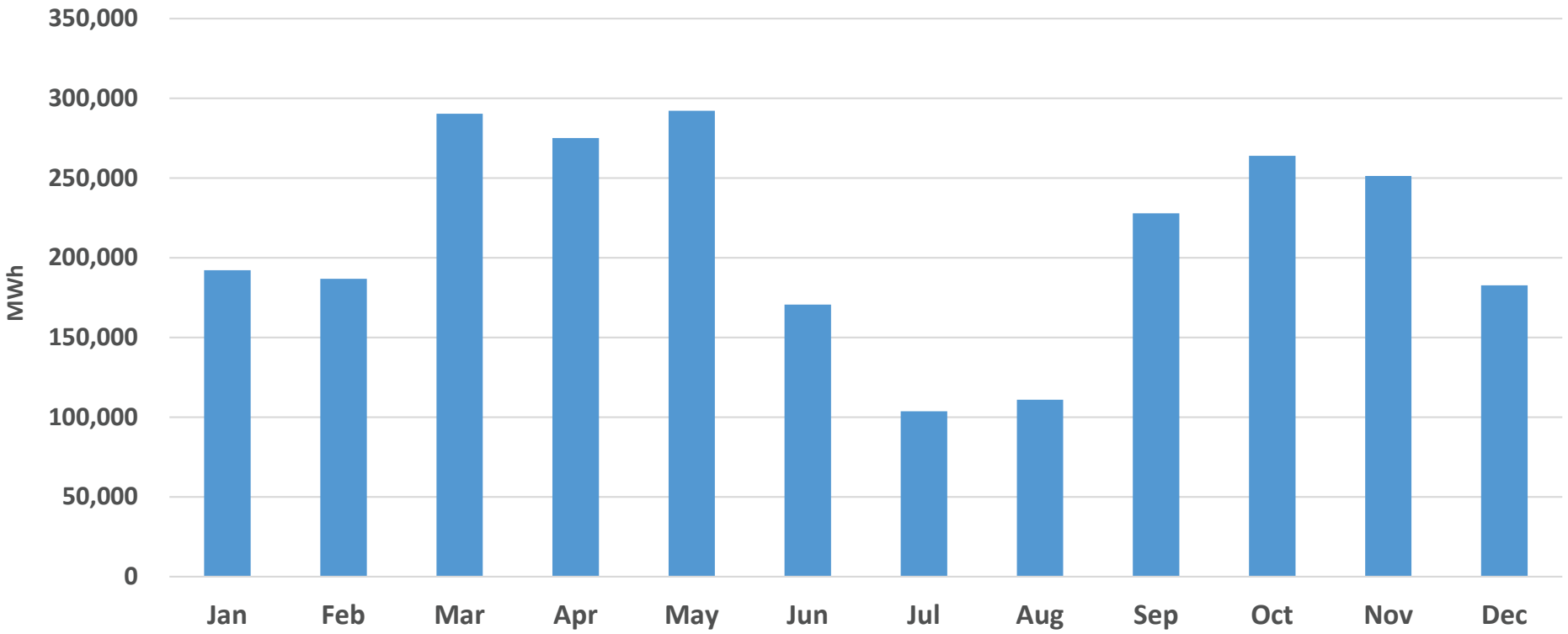
Typical Monthly CAP Load (MWh)



CAP
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Typical Load & Pump Shaping (MW)

January				April				July				November			
	MWPP	BASE	TOTAL		MWPP	BASE	TOTAL		MWPP	BASE	TOTAL		MWPP	BASE	TOTAL
HE	LOAD	LOAD	LOAD	HE	LOAD	LOAD	LOAD	HE	LOAD	LOAD	LOAD	HE	LOAD	LOAD	LOAD
0100	194	138	332	0100	290	164	454	0100	146	81	227	0100	290	139	429
0200	194	138	332	0200	290	164	454	0200	146	81	227	0200	290	139	429
0300	194	138	332	0300	290	164	454	0300	146	81	227	0300	290	139	429
0400	194	138	332	0400	290	164	454	0400	146	81	227	0400	290	139	429
0500	194	138	332	0500	290	164	454	0500	146	81	227	0500	290	139	429
0600	194	138	332	0600	290	164	454	0600	146	81	227	0600	290	139	429
0700	0	138	138	0700	290	164	454	0700	49	81	130	0700	0	139	139
0800	0	138	138	0800	290	164	454	0800	49	81	130	0800	0	139	139
0900	290	138	428	0900	290	164	454	0900	49	81	130	0900	290	139	429
1000	290	138	428	1000	290	164	454	1000	49	81	130	1000	290	139	429
1100	290	138	428	1100	290	164	454	1100	49	81	130	1100	290	139	429
1200	290	138	428	1200	290	164	454	1200	49	81	130	1200	290	139	429
1300	290	138	428	1300	290	164	454	1300	49	81	130	1300	290	139	429
1400	290	138	428	1400	290	164	454	1400	49	81	130	1400	290	139	429
1500	290	138	428	1500	290	164	454	1500	0	81	81	1500	290	139	429
1600	290	138	428	1600	290	164	454	1600	0	81	81	1600	290	139	429
1700	146	138	284	1700	290	164	454	1700	0	81	81	1700	290	139	429
1800	0	138	138	1800	290	164	454	1800	0	81	81	1800	0	139	139
1900	0	138	138	1900	0	164	164	1900	0	81	81	1900	0	139	139
2000	0	138	138	2000	0	164	164	2000	0	81	81	2000	0	139	139
2100	0	138	138	2100	0	164	164	2100	0	81	81	2100	0	139	139
2200	0	138	138	2200	0	164	164	2200	0	81	81	2200	0	139	139
2300	194	138	332	2300	290	164	454	2300	146	81	227	2300	290	139	429
2400	194	138	332	2400	290	164	454	2400	146	81	227	2400	290	139	429
Daily Tot	4018	3312	7330	Daily Tot	5800	3936	9736	Daily Tot	1560	1944	3504	Daily Tot	4930	3336	8266

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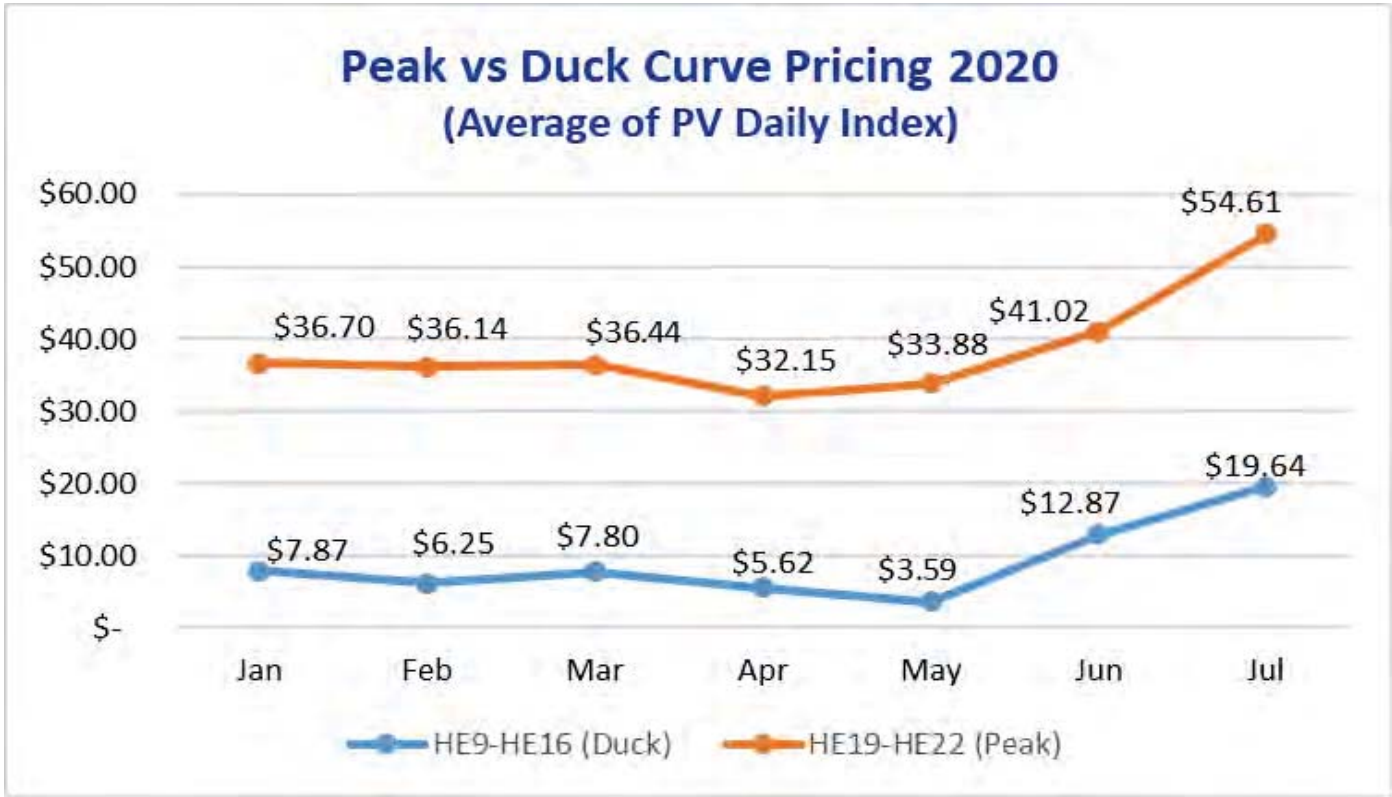
2020 Day-Ahead Pricing



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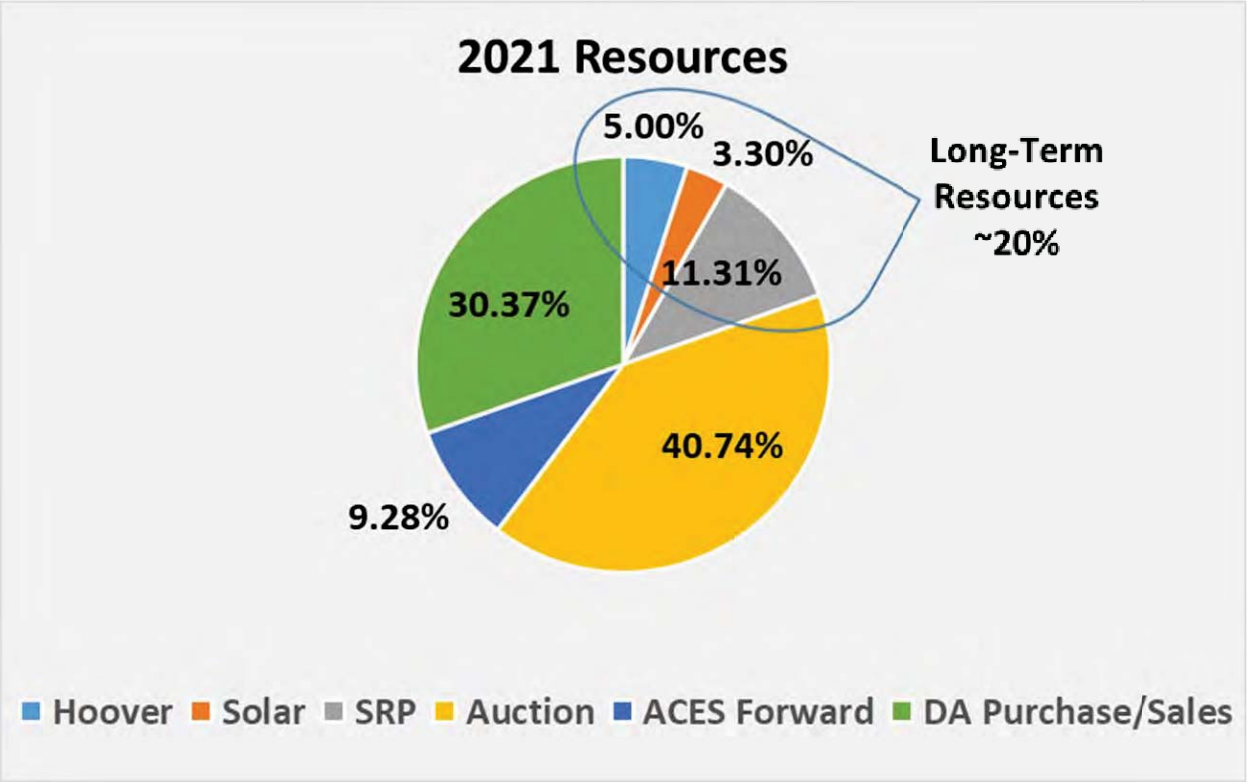
CAP Energy Supply



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Current Resource Portfolio

Long-Term Purchases (20%):

- Sufficient to supply all energy in critical summer peak hours
- Provides majority of energy in non-summer peak hours
- Cost effective energy products – reduces price risk and volatility

Forward Market Purchases (50%):

- Provides for the largest share of energy supply
- Targeting moderately priced hours each month
- Largest contributor to rate stability

Day-Ahead Purchases (30%):

- Balance out daily loads & resources and allow for monthly energy shifts
- Targeting Duck Curve purchases
- Largest contributor to CAP below average market energy costs/low rates

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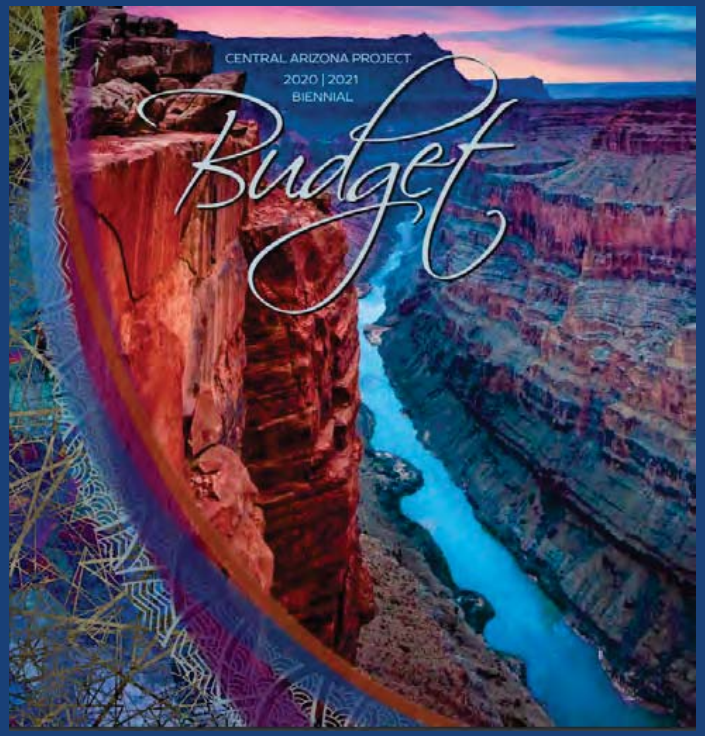
Q & A
questions@cap-az.com

Engineering Capital Projects

Ryan Johnson, Engineering Services Manager
Annual Water User Information Briefing
August 26, 2020

2020 CIP Budget – Project Budgets

CAP Biennial Budget



Capital Budget Summary

CAPITAL BUDGET SUMMARY

(Thousands)

	2017 Actual	2018 Actual	2019 Projection	2020 Budget	2021 Budget
Expenditures					
Salaries and related costs	$ 5,044	$ 4,075	$ 3,201	**$ 4,283**	**$ 3,784**
Equipment, buildings, and structures	11,387	18,306	15,700	**30,922**	**23,639**
Other expenses					
Outside services	14,203	7,769	2,595	**4,651**	**2,160**
Materials, supplies & other expenses	556	483	392	**374**	**287**
Capitalized interest	3,330	-	-	**-**	**-**
Overhead expenses	5,156	4,116	3,237	**4,465**	**3,943**
Subtotal other expenses:	23,245	12,368	6,224	**9,490**	**6,390**
Total capital	$ 39,676	$ 34,749	$ 25,125	**$ 44,695**	**$ 33,813**
Less Reimbursement-Pima Mine Road	(3)	-	-	**-**	**-**
Net capital	$ 39,673	$ 34,749	$ 25,125	**$ 44,695**	**$ 33,813**

CAP CENTRAL ARIZONA PROJECT

2020 CIP BUDGET

Project Name	Project Phase	Project Budget
South Plants Fire Protection	Construction	$4.5 Million
West Plant Motor Exciters	Construction	$5.6 Million
Elevator System Replacement Phase 2	Design-Construction	$2.8 Million
Electro Mech Relay Replacement Phase 2	Design-Construction	$2.6 Million
Backup Power System Replacement at Chks/TO	Construction	$3.1 Million
Condition Based Monitoring Systems	Design-Construction	$1.6 Million
Hassayampa Sand Filter Repl	Construction	$0.8 Million
Total CIP Budget		$44.7 Million

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Actions Taken to Mitigate Impacts of COVID-19

- Job Hazard Analysis specific to COVID-19 from each contractor

- Modified Work Schedules
- Contract Suspensions & Delayed Work

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Mission Critical Project Work Continued Safely

- Partnered with Maintenance Managers; Stepped the workload down to Mission-Critical Projects

MWP Circuit Breakers

BLK Fire Protection

SGL Motor Exciters

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Projects Deemed not Immediately Critical were Delayed

- Issued Contract Suspensions & Delayed Project Start Dates

South Plants Fire Protection
Elevator Replacement Phase 2
Backup Power Replacement
West Plant Motor Exciters
EM Relay Replacement Phase 2
Condition Based Monitoring
Hassayampa Sand Filter Replacement

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2020 CIP Forecast

- Engineering Project Management delivers a quarterly financial forecast
  - Labor projections & resource usage modeling
  - Capital construction contracts & equipment
  - Professional services contracts

- Q1 Forecast (April 2020)
  - Project spending down $8 mil under budget
  - Estimated return to work date: August 2020

- Q2 Forecast (August 2020)
  - Project spending down $14 mil under budget
  - Estimated return to work extended: January 2021

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2020 CIP COVID IMPACTS

Snyder Hill Fire Protection

$2.7 Million

Mark Wilmer Elevators

$1.9 Million

Electromechanical Relays

$1.6 Million

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CENTRAL ARIZONA PROJECT

2020 CIP COVID IMPACTS

Backup Power Systems

$1.4 Million

Condition Based Monitoring

$1.1 Million

Hassayampa Sand Filters

$600 Thousand

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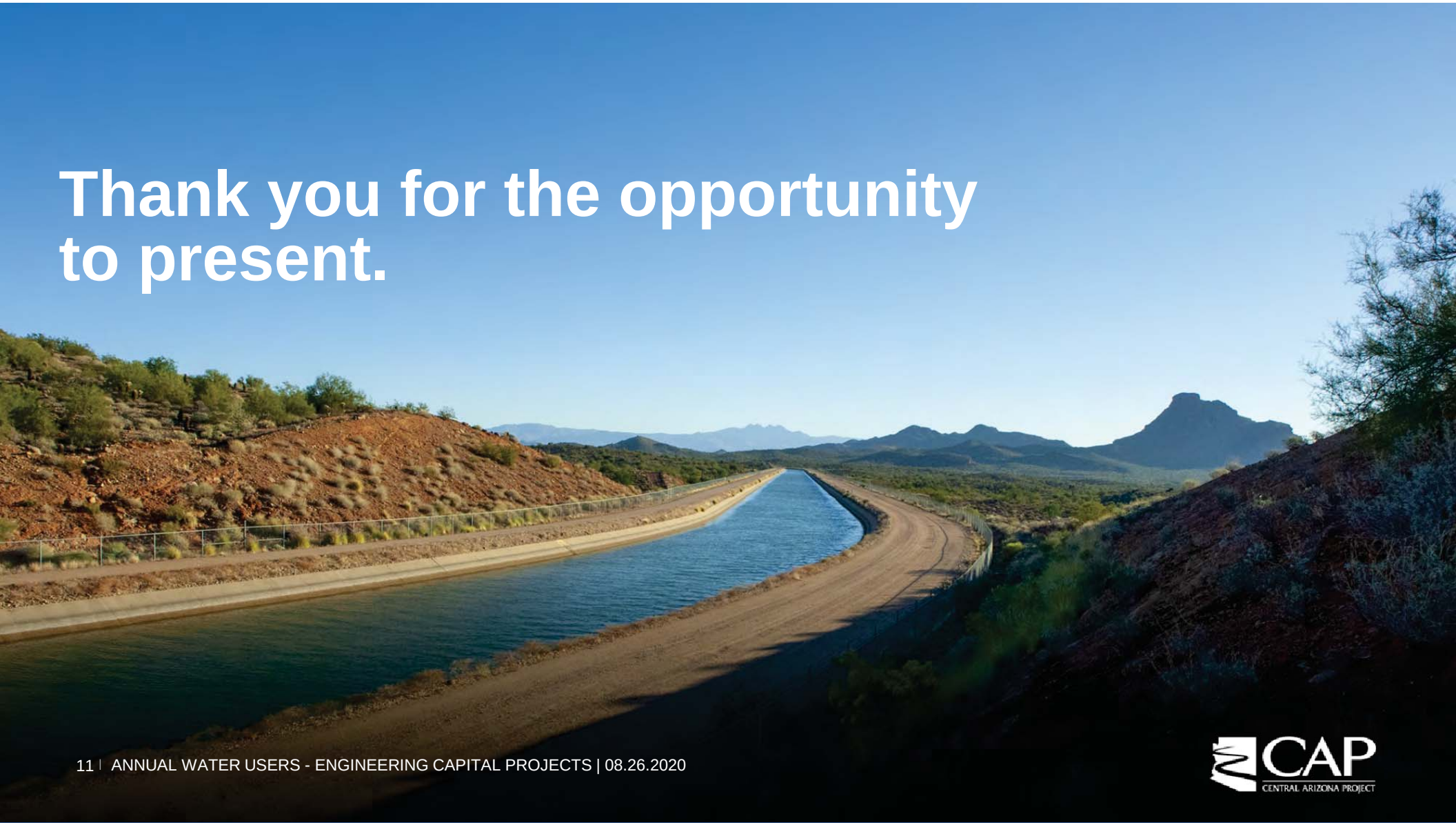
Managing the Project Work

- Continue to make safety of CAP employees our focus.
- Prioritize the safe execution of mission critical project work first.
- Working through the Project Steering Committee to manage the variances.
- Focus on design work, and other remote project work.
- Beginning to balance the 2021 resource load – reprioritization.
- Flexibility

Thank you for the opportunity to present.



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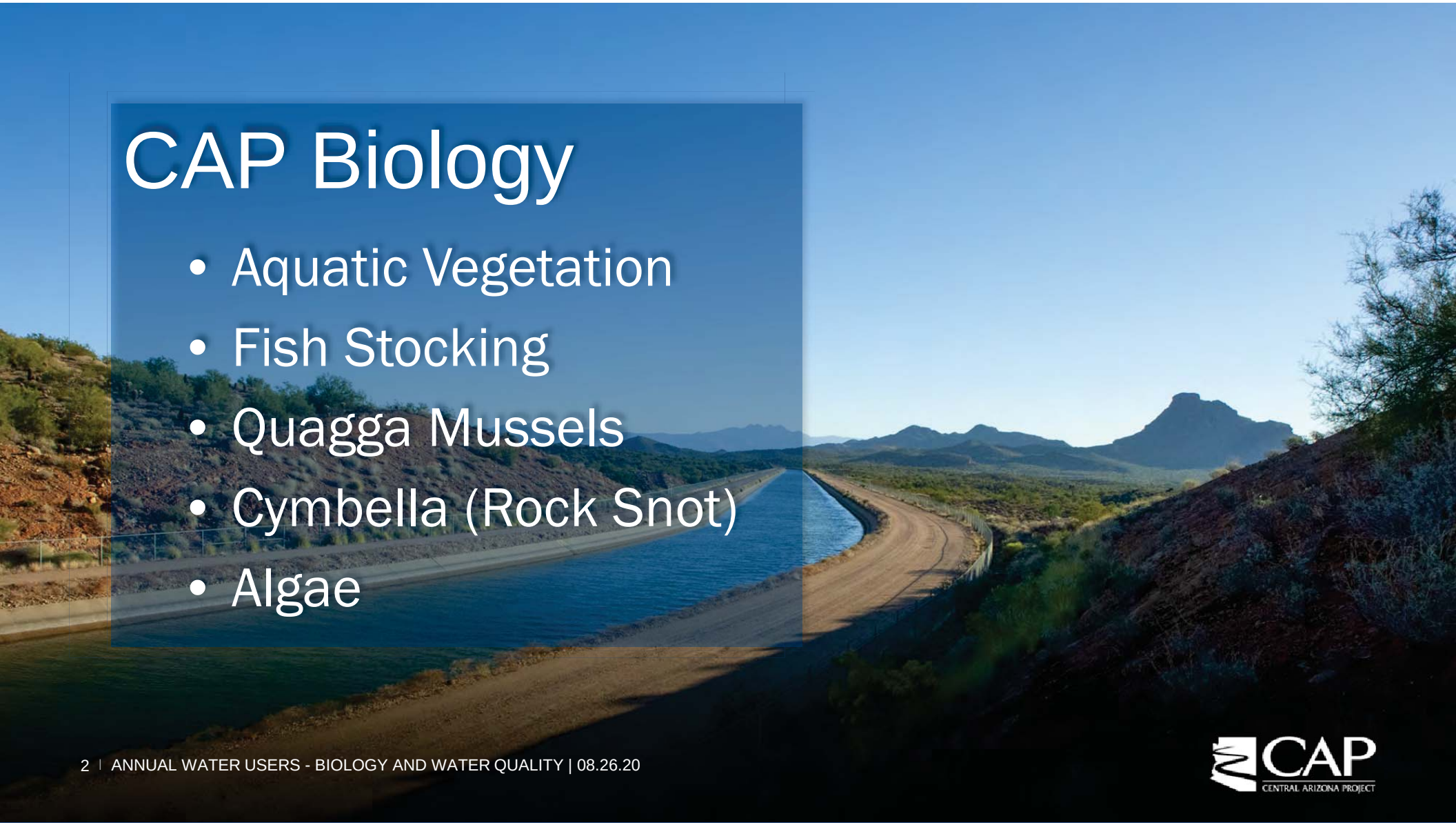
Biology and Water Quality Update

Scott Bryan
Senior Biologist



CAP Biology

- Aquatic Vegetation
- Fish Stocking
- Quagga Mussels
- Cymbella (Rock Snot)
- Algae

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Aquatic Vegetation Control (Lake Havasu)

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Fish Stocking – Grass Carp

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Fish Stocking – Channel Catfish

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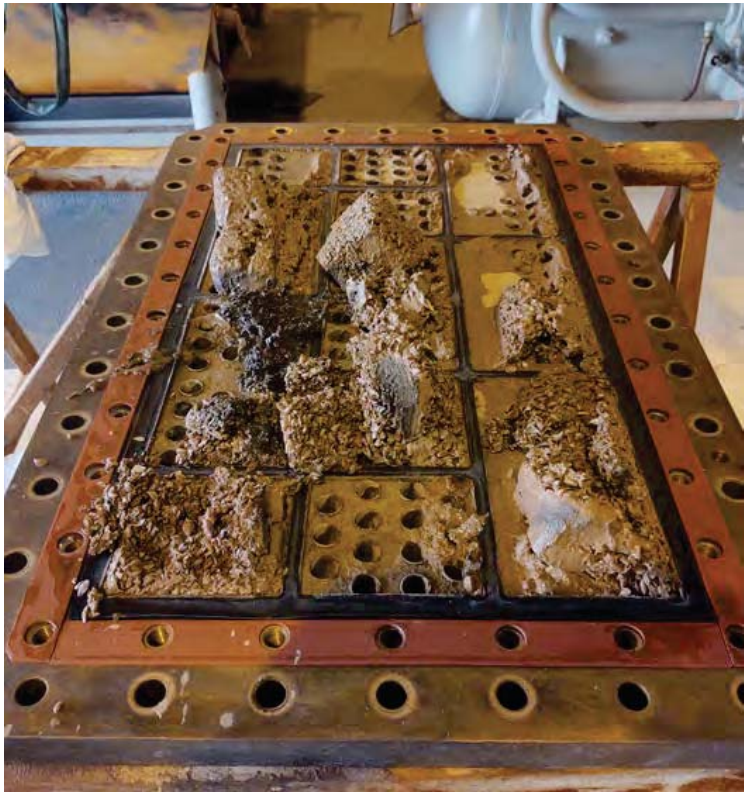
Quagga Mussels



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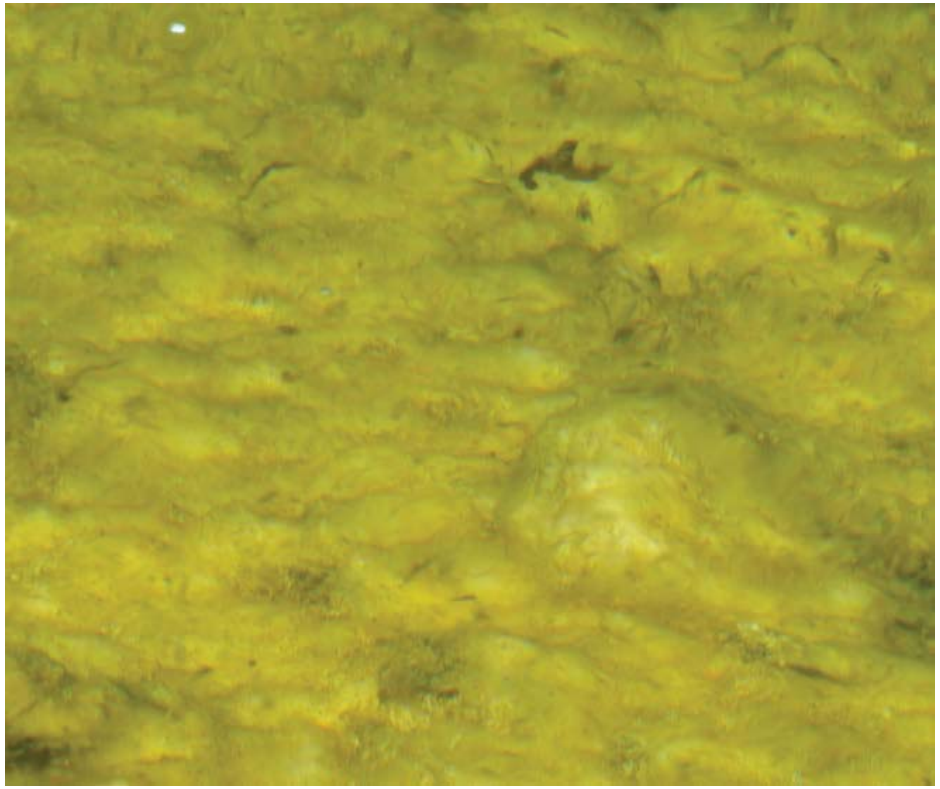
Rock Snot (Cymbella)



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Filamentous Algae (Cladophora)

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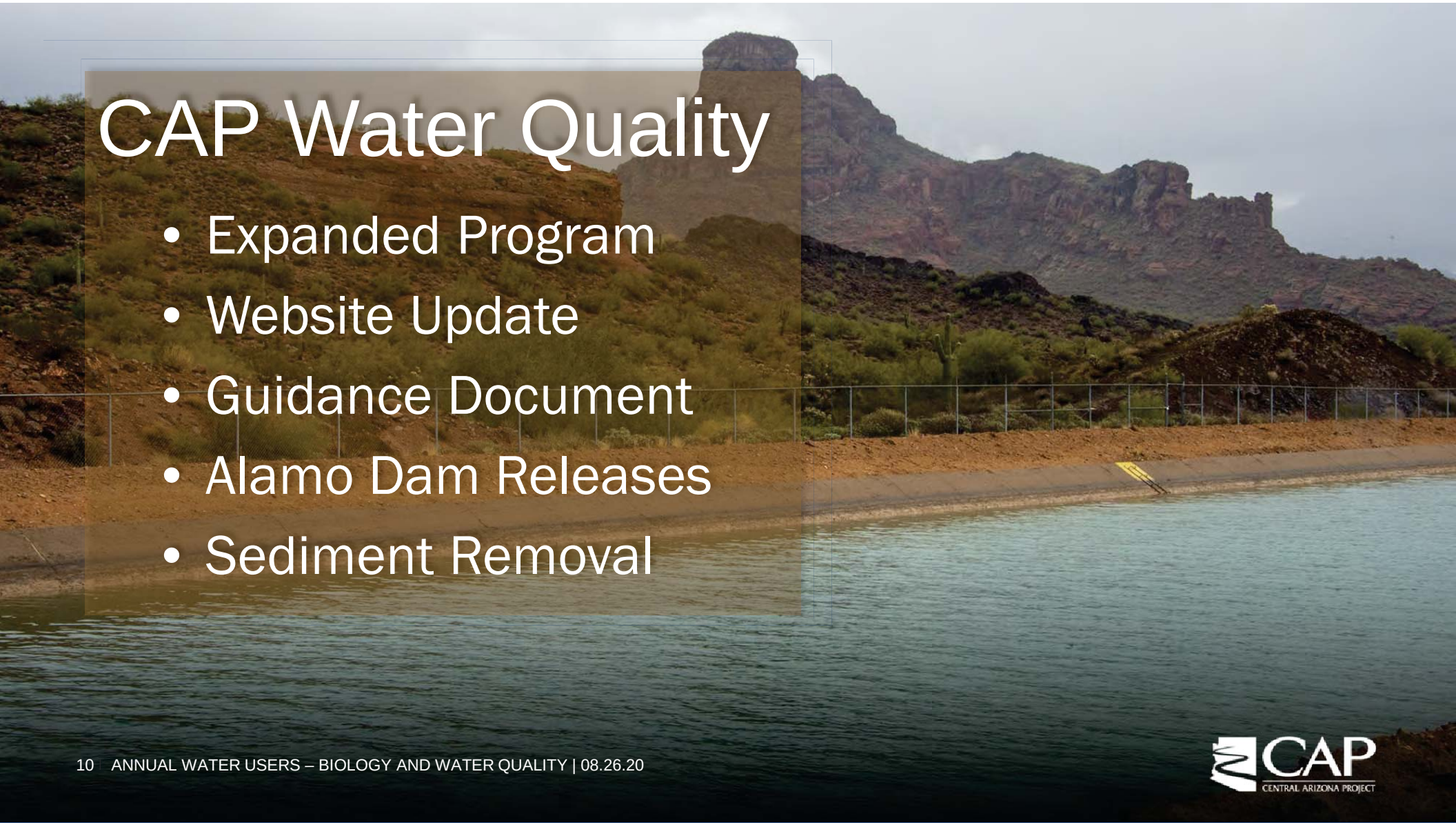
CENTRAL ARIZONA PROJECT



CAP Water Quality

- Expanded Program
- Website Update
- Guidance Document
- Alamo Dam Releases
- Sediment Removal

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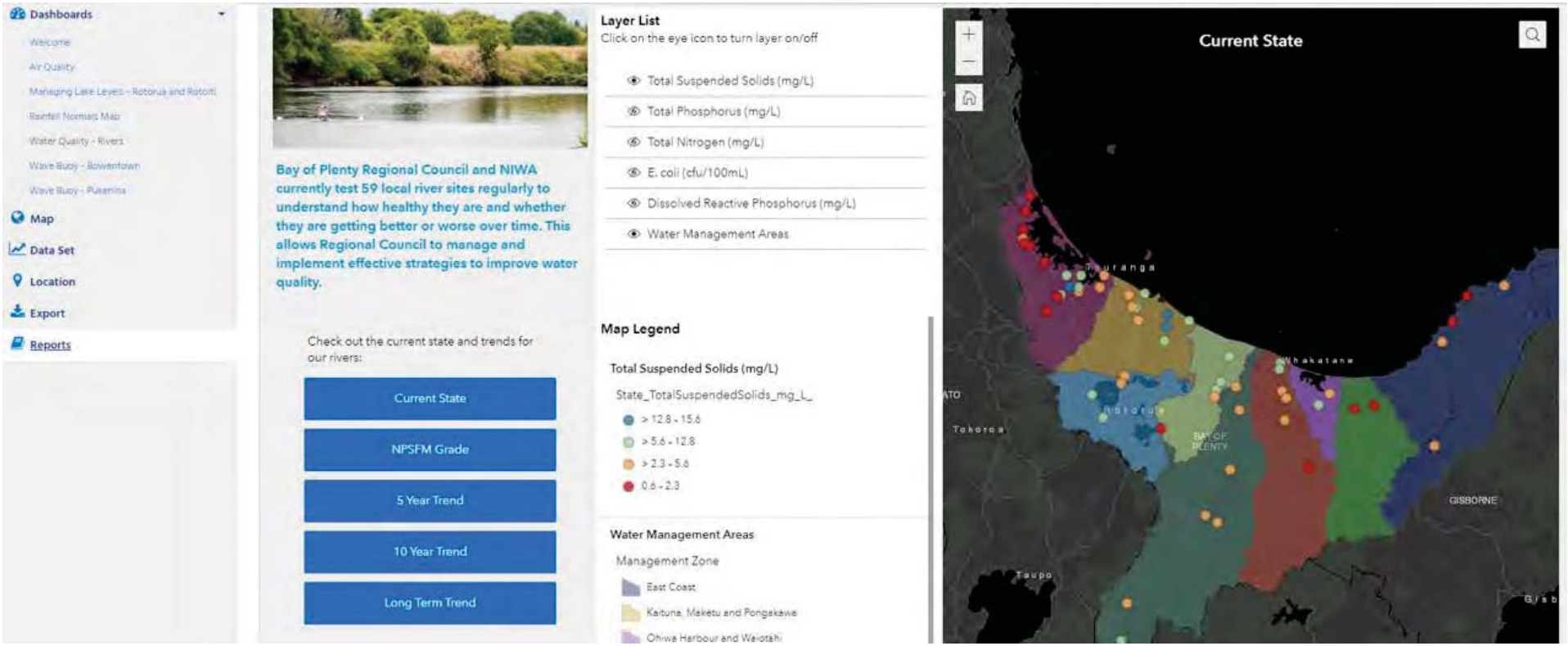
Expanded Water Quality Program

Updated Website and Database



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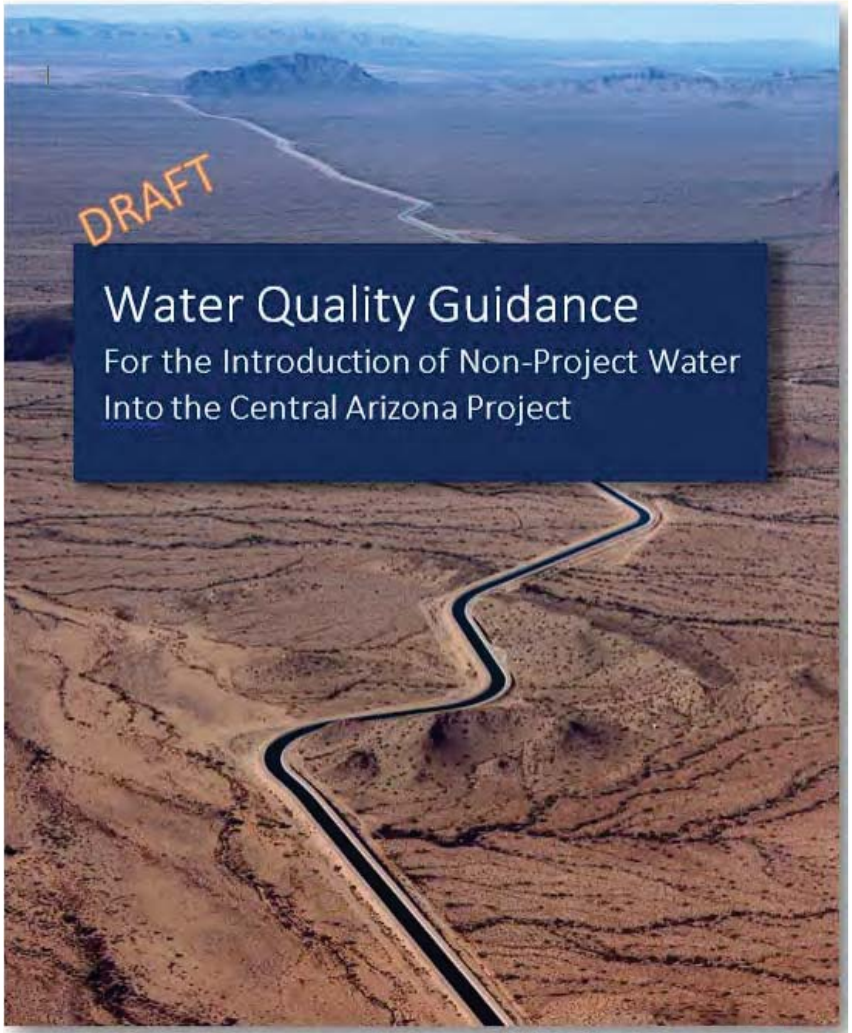
CENTRAL ARIZONA PROJECT

Guidance Document

Table A-1. List of CAP Priority Constituents and their respective Introduction and Delivery standards. If there was not sufficient information to develop Standards, constituents were flagged for further evaluation (Characterize). In cases in which an Introduction Standard is listed as "TBD," testing will still be required, and if a supply exceeds the MRL, a temporary Introduction Standard will be set at the lessor of the current MCL (if available) or 3x the MRL. Temporary Introduction Standards will be refined as data becomes available. CAP 5 Year Averages designated with an ND either have not been detected or detected in less than 5% of samples. Dashes represent constituents that have not been tested by CAWCD in the past.

Constituent	Recommended Analytical Method	Units	Method Reporting Limit	Introduction Standard	Delivery Standard	CAP 5 Year Average (2015-2019)
Dissolved Oxygen	Field	mg/L		—	—	
pH	Field			6.5-9.5		
Temperature	Field	°F		—	—	
CAP Priority Contaminants - Characterize						
Alpha, Gross	EPA 900.0	pCi/l	3	TBD	Characterize	--
Aluminum, Total, ICAP	EPA 200.8	µg/l	20	TBD	Characterize	--
Beryllium	EPA 200.8	µg/l	1	TBD	Characterize	ND
Beta, Gross	EPA 900.0	pCi/l	3	TBD	Characterize	--
Bromide	EPA 300.0	µg/l	5	TBD	Characterize	81.7
Cadmium	EPA 200.8	µg/l	0.5	TBD	Characterize	ND
Cobalt, Total	EPA 200.8	µg/l	2	TBD	Characterize	--
Germanium	EPA 200.8	µg/l	0.5	TBD	Characterize	--
Mercury	EPA 245.1	µg/l	0.2	TBD	Characterize	ND
Molybdenum	EPA 200.8	µg/l	2	TBD	Characterize	--
Nickel	EPA 200.8	µg/l	5	TBD	Characterize	ND
Nitrite	EPA 300.0	µg/l	0.05	TBD	Characterize	--
Potassium, Total, ICAP	EPA 200.7	µg/l	1	TBD	Characterize	4.9
Radium-226+228	GA Tech	pCi/l	1	TBD	Characterize	--
Strontium, ICAP	EPA 200.7	mg/l	0.01	TBD	Characterize	1.1
Vanadium	EPA 200.8	µg/l	3	TBD	Characterize	
CAP Priority Constituents						
Alkalinity in CaCO3 units	SM2320B	mg/l	2	250	170	122.3
Ammonia Nitrogen	EPA 350.1	mg/l	0.05	0.05	0.05	0.04
Antimony	EPA 200.8	µg/l	1	6	Characterize	--
Arsenic	EPA 200.8	µg/l	1	10	5	2.9
Barium, Total, ICAP/MS	EPA 200.8	µg/l	2	2000	250	123.2
Boron	EPA 200.7	mg/l	0.05	1	0.5	--
Calcium, Total, ICAP	EPA 200.7	mg/l	1	200	150	72.6



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BUREAU OF RECLAMATION

Alamo Dam Releases

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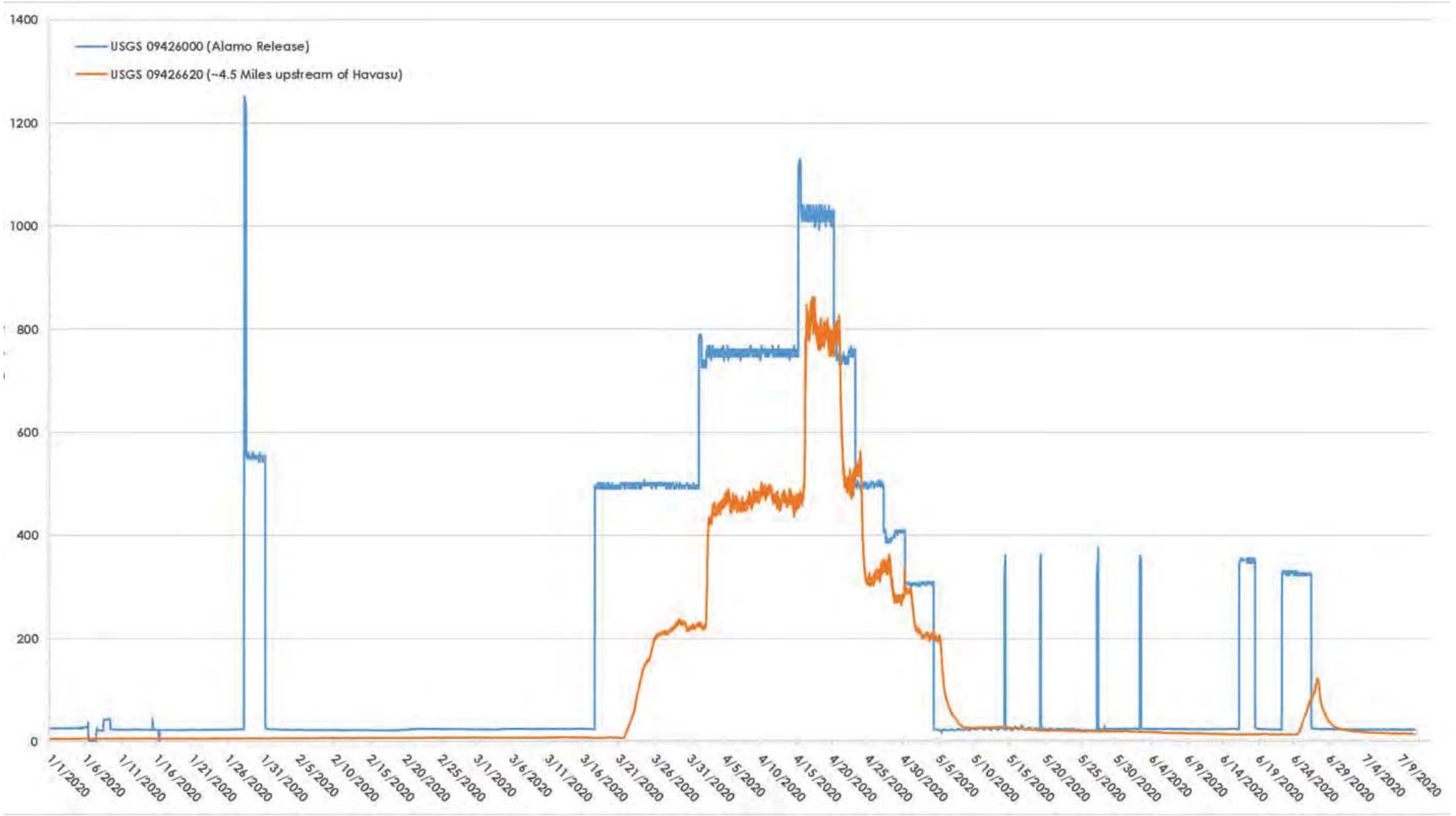
CENTRAL ARIZONA PROJECT


USGS 09426000 (Alamo Release)
USGS 09426620 (~4.5 Miles upstream of Havasu)
1400
1200
1000
800
600
400
200
0
1/1/2020
1/6/2020
1/11/2020
1/16/2020
1/21/2020
1/26/2020
1/31/2020
2/5/2020
2/10/2020
2/15/2020
2/20/2020
2/25/2020
3/1/2020
3/6/2020
3/11/2020
3/16/2020
3/21/2020
3/26/2020
3/31/2020
4/5/2020
4/10/2020
4/15/2020
4/20/2020
4/25/2020
4/30/2020
5/5/2020
5/10/2020
5/15/2020
5/20/2020
5/25/2020
5/30/2020
6/4/2020
6/9/2020
6/14/2020
6/19/2020
6/24/2020
6/29/2020
7/4/2020
7/9/2020

Sediment Removal

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questions@cap-az.com

ROBERT HITCHCOCK – MAINTENANCE CONTROL MANAGER

Water User Briefing

CAP Maintenance

Annual Seasonal Outage Overview

CAP has two annual major outages (Planning 12-15 weeks ahead):

Annual West Summer Outage
Early to Mid-June– End of August

Maintenance West Plants:

- Mark Wilmer Plant (MWP)
- Bouse Hills Plant (BSH)
- Little Harq Plant (LHQ)
- Hassayampa Plant (HSY)

Annual South Fall Outage
Mid-October – Mid-November

Maintenance South Plants:

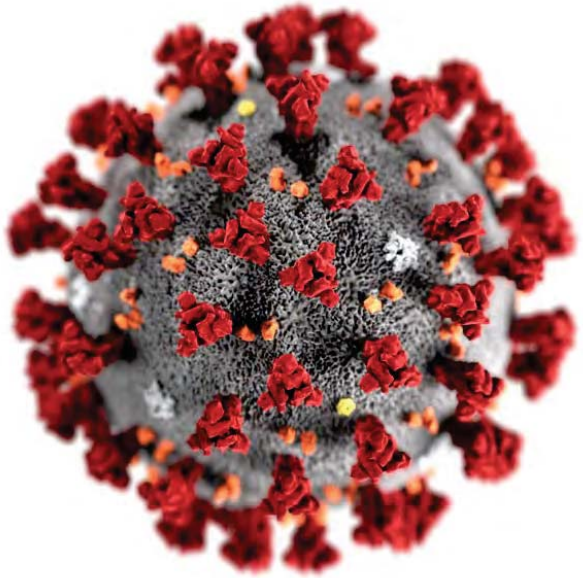
- Salt Gila Plant (SGL)
- Brady Plant (BRD)
- Picacho Plant (PIC)
- Red Rock Plant (RED)
- Twin Peaks Plant (TWP)
- Sandario Plant (SAN)
- Brawley Plant (BRW)
- San Xavier Plant (SXV)
- Snyder Hill Plant (SND)
- Black Mountain Plant (BLK)

CAP CENTRAL ARIZONA PROJECT

2020 COVID-19 Impacts and Mitigation

- Modified Work Schedules for Maintenance
- Reduced Seasonal Outage Scope
- Loss in labor-hour capacity
  - MWP – No active work from 6/28 – 7/4 due to COVID-19 Sanitation (720 labor-hours impact)
  - LHQ – 120 labor-hours impacted
  - Clearances/Logs/Gates – 60 labor-hours impacted
- Out of state travel cancelled
- In-state travel restricted
- Deferred Projects
  - HSY Discharge Valve replacement – Two 90” valves have been deferred to 2021
  - MWP Disconnect Switch replacement – Not completed during the outage

Outage Scope restrictions	Normal Outage Scope (Labor-hours)	2020 Outage Scope (Labor-hours)
West	~15,000	~9,000
South	~12,000	~6,000



CAP
CENTRAL ARIZONA PROJECT

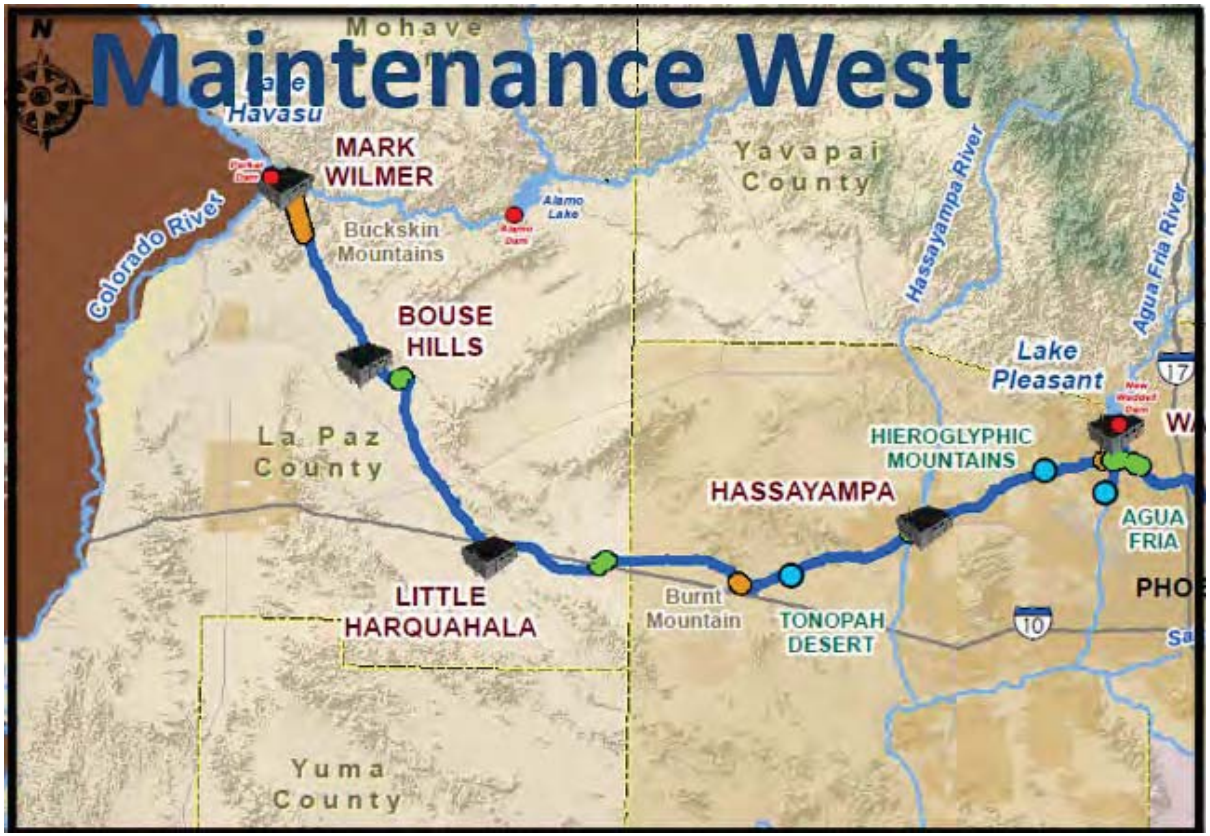
Summary – Major 2020 West Work

Major Projects

- MWPU06 – Motor Refurbishment and Mechanical Overhaul
- MWP **U3/U4** Circuit Unit breaker replacement

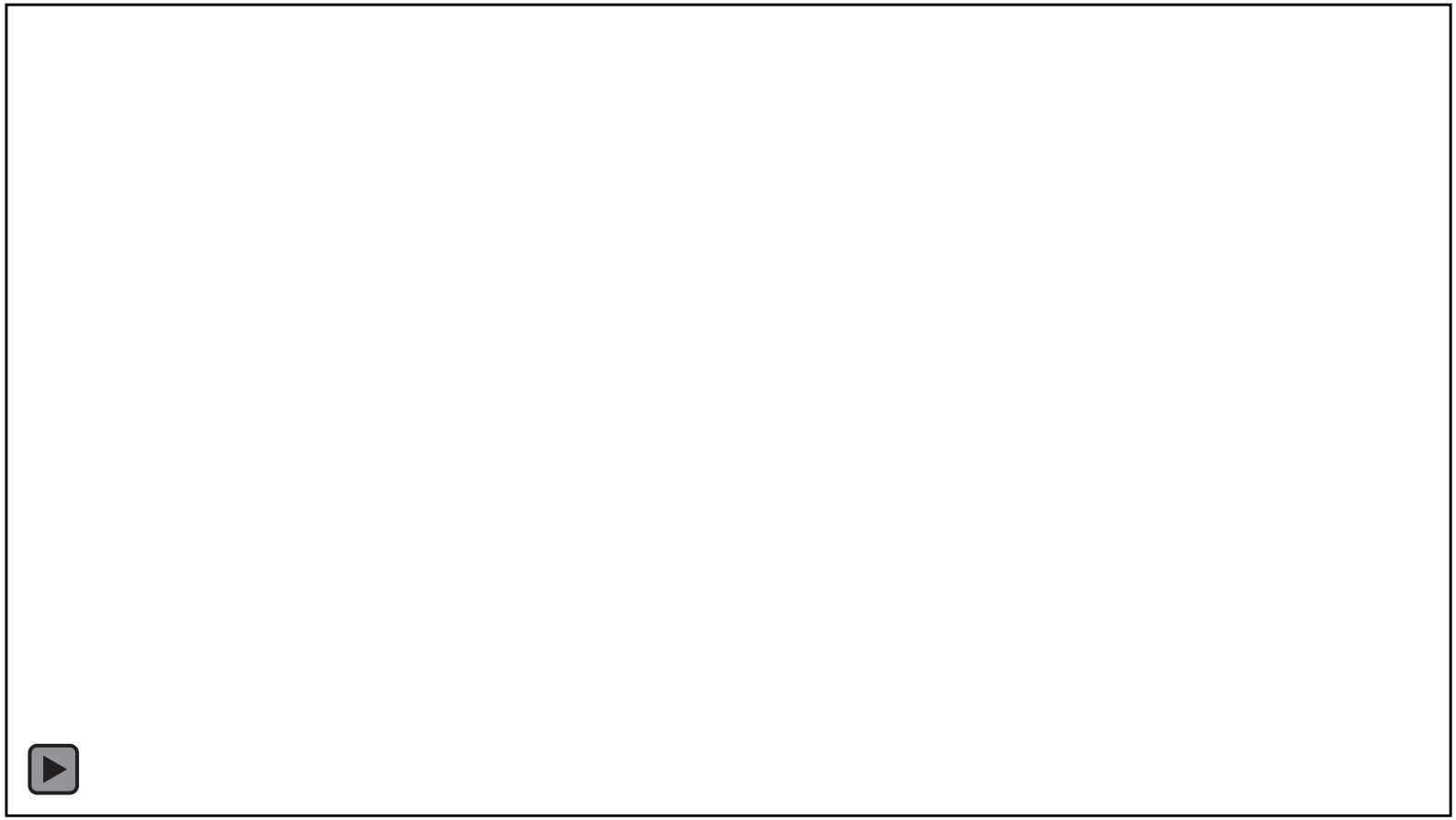
Maintenance Items

- MWP **U5** Rotor Pole Replacement
- MWP **U03** 6Yr PM
- MWP Transformer **KW2A** 6Yr PM
- Check 15 Radial Gate Replacement
- BSH Left Plant DV 5 Year PM
- BSH Discharge Valve **U06-10** 5 Year PM
- LHQ **Bus A** 5 Year
- LHQ Transformer **KX1A 5** Year PM
- LHQ **U4** Overhaul (postponed to 2021)
- HSY Transformer **KW1A/KX1A** 5Yr PM

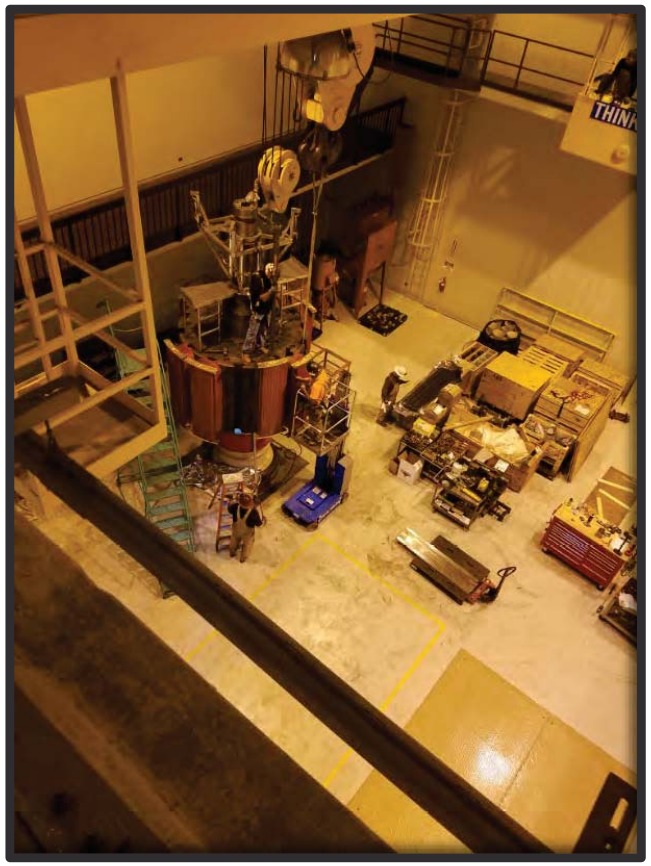


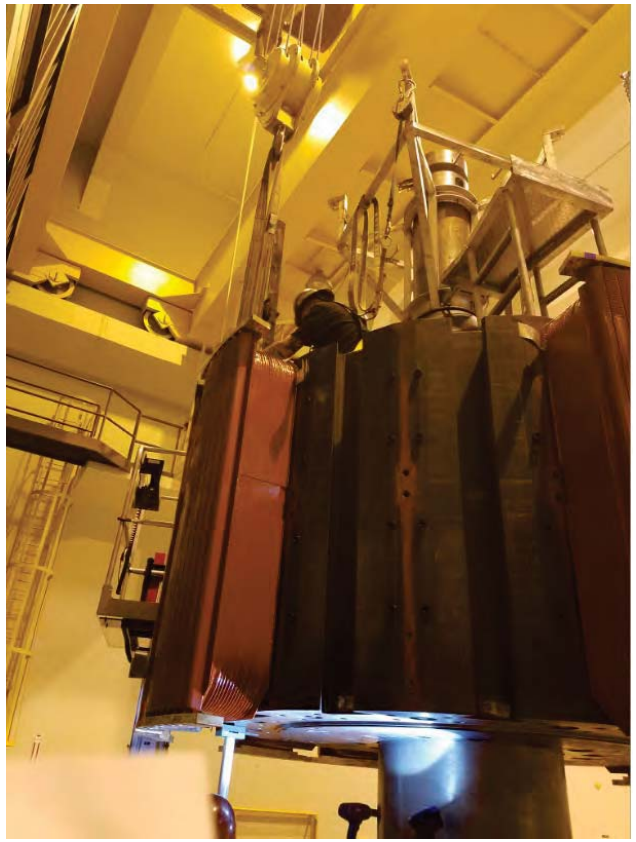
CAP CENTRAL ARIZONA PROJECT

Mark Wilmer Unit 6 Overhaul Video



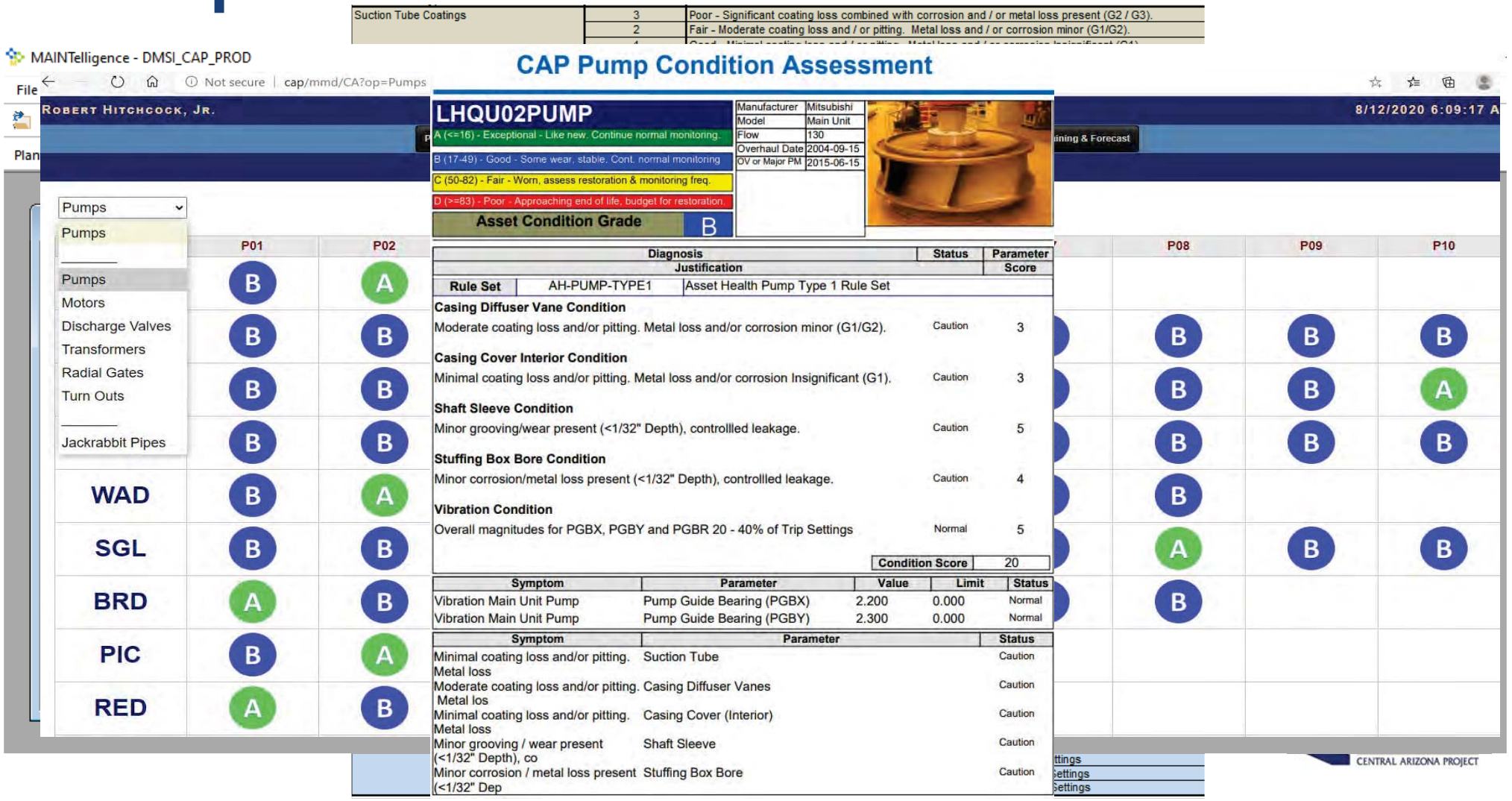
Mark Wilmer Unit 5 Rotor Pole Replacement





CAP
CENTRAL ARIZONA PROJECT

Pump Condition Assessments



Asset Health Statistics

Note: All asset scores have individual multipliers so that they are normalized to the same scoring scale

A (<=16) - Exceptional - Like new. Continue normal monitoring.

B (17-49) - Good - Some wear, stable. Cont. normal monitoring

C (50-82) - Fair - Worn, assess restoration & monitoring freq.

D (>=83) - Poor - Approaching end of life, budget for restoration.

Asset Health Statistics	Total Count	A	B	C	D	N/A
Pumps	109	42	67	0	0	0
Motors	109	63	23	19	4	0
Discharge Valves	109	1	0	0	0	0
Transformers	42	27	15	0	0	0
Radial Gates	91	24	65	2	0	0
Turnouts	51	24	18	0	0	9
Total	**511**	**49.5%**	**43.8%**	**4.1%**	**0.8%**	**1.8%**

CAP
CENTRAL ARIZONA PROJECT

2021 Major Work

Major Projects

- BSH U01 – U10 Exciter Replacements
- WAD U01 – U07 PLC-5 Migrations
- MWP U03 Rotor Pole Replacement
- SGL Discharge Line recoat

Maintenance Items

- MWP Units 1 & 2 Cav Repair Project
- MWP Unit 2 6-Yr PM
- LHQ Units 1-5 Discharge Valve Replacement
- HSY ½ Plant Outage (1/4/21-1/28/21) for U06 & U07 Discharge Valve Replacements
- LHQ U4 Overhaul
- SRS Coating Inspection (1/11/21-1/14/21 outage)
- BRD Units 1-8 Discharge Valve Replacement
- Tucson Pipeline Electromagnetic Inspection
- SGL U10 Overhaul

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