

IWMP Drought Supply Discussion and Update of District Codes




Special Board Workshop
September 29, 2011

Facilitated by:
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Agenda

- Schedule
- IWMP Update (1.5 hours)
 - Today's and buildout scenarios
 - Test hedging scenarios
 - Check drought triggers
 - Check threshold for use of Clementia, with how many added connections?
 - Check threshold for build-out
- IWMP Next steps
 - Answer more questions?
 - Edits for Water Shortage Contingency Plan
 - Revisiting Policy 90-2
- Comments on Draft Codes (15 minutes)
 - Revisions to update Chapter 14 – Water Code
 - New Chapter 17 – Recycled Water Code
- Closing Comments (15 minutes)

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Timeline

- Adopted Policies - **completed**
 - 2020
 - Recycled Water
- Public Hearings for Codes Adoption
 - First Reading and Open Public Comment – **Oct 19th**
 - Second Reading – **Dec 21st**
 - Close Public Comment and Adoption – **Dec 21st**
- IWMP Update – **Fall 2011 thru Winter 2012**
 - Drought Supply Recommendations Memo
 - Update WSCP
 - Update Policy 90-2



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Drought Supply Augmentation

- Goal:
 - Shore up supply reliability by meeting the minimum of 600+ AF (300 AF actual 2 month minimum supply need + 300 AF prudent reserve) of new supplies, and consider more supplies if economies of scale and grant funding opportunities or other funding becomes available.
 - Policy statement now, and implementation over time...

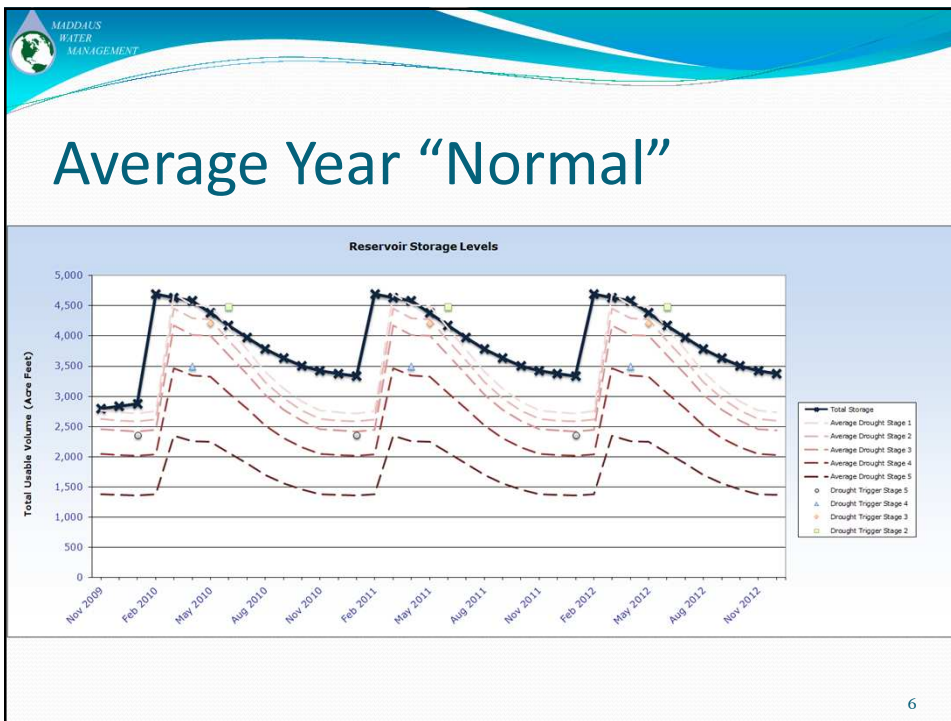
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Water Shortage Contingency Plan Defining Triggers for Drought

- Currently based on drawdown levels of usable storage in the reservoirs
 - Stage 1 = Normal Supply – Full storage in all Lakes
 - Stage 2 = 90-95% Supply as of June 1st
 - Stage 3 = 89-75% Supply as of May 1st
 - Stage 4 = 74-50% Supply as of April 1st
 - Stage 5 = <50% Supply as of January 1st

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Proposed Changes to Drought Stage Titles and Possible Percentages

- RWA recommends shifting to 4-Stage Drought plan and revising titles to match others in the region

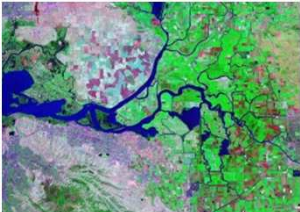
Stage	Title	Water Savings Range
Stage 1	Water Alert	Up to 10%
Stage 2	Water Warning	Up to 25%
Stage 3	Water Crisis	Up to 50%
Stage 4	Water Emergency(Health and Safety Only)	>50%

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Current Questions/Tests Using IWMP Model

- Two scenarios: Today and Buildout (2030)
 - Test hedging scenarios
 - Check drought triggers
 - Check threshold for use of Clementia with how many added connections?
 - Check threshold for build-out




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Why Hedging?

- Pro
 - More water pumped to lakes so have storage earlier in the season when flows are higher and available
 - Less risk to miss pumping window if flows lower later in the Springtime
- Con
 - Earlier pumping has more turbidity in water (muddier) so impacts Lakes water quality and water treatment operations
 - More operational costs due to more “topping off” of lakes to leave lakes full as of May 31st in years when flow is available in late spring (to make up for more evaporation and seepage losses)


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Why use Lake Clementia?

- Pro
 - Increases supply reliability
 - Already available surface storage (least cost)
 - Infrastructure in place
 - Filled with local drainage with less pumping to fill (compared to a new reservoir)
- Con
 - Need CDPH approval and possible legislative approval (terminal reservoir with body contact restrictions)
 - Have to test water quality in non-drought years to reserve the ability to use as drinking water supply
 - Lose recreational and aesthetic qualities in late spring-summer until rains return


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Why use recycled water?

- Pro
 - Reliability of outdoor supplies in times of drought
 - Disposal opportunity to reuse supplies within RMCSO service area boundary (least cost ww disposal)
- Con
 - Expensive infrastructure
 - Have to operate dual system
 - Highly regulated supply option

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Why use Groundwater?

- Pro
 - Lower cost supply than surface or recycled water supplies
 - Less regulatory approval
 - System redundancy in case of water treatment plant upset
 - Increase reliability through on-demand “in-lieu water banking” opportunities – save surface storage in drought years
- Con
 - Increased infrastructure to maintain, and operational costs when used
 - New regulations to address with new type of supply source

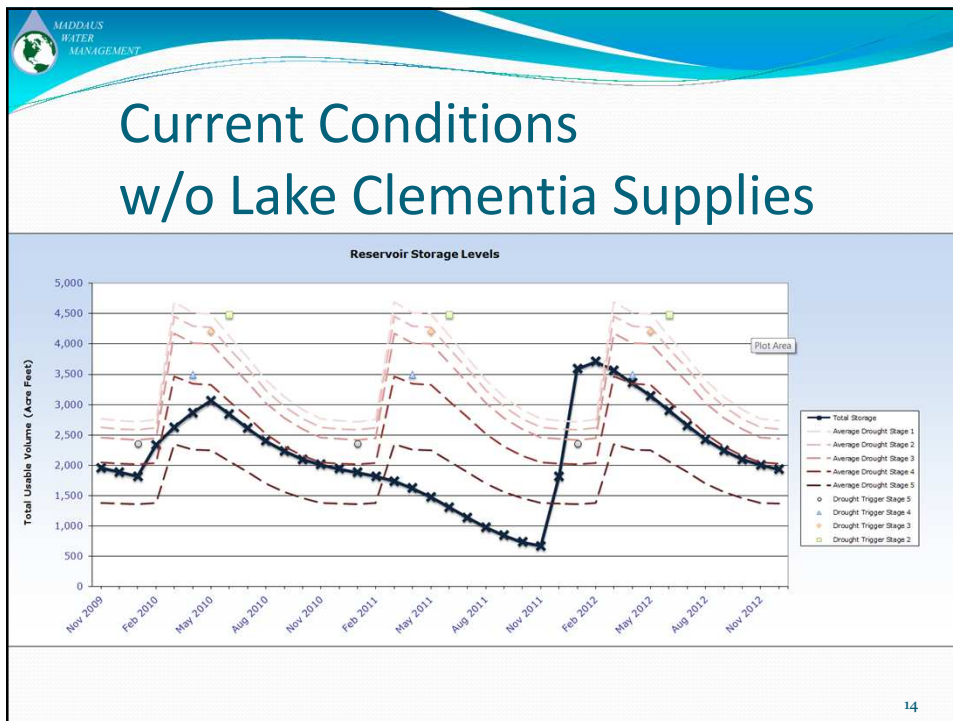
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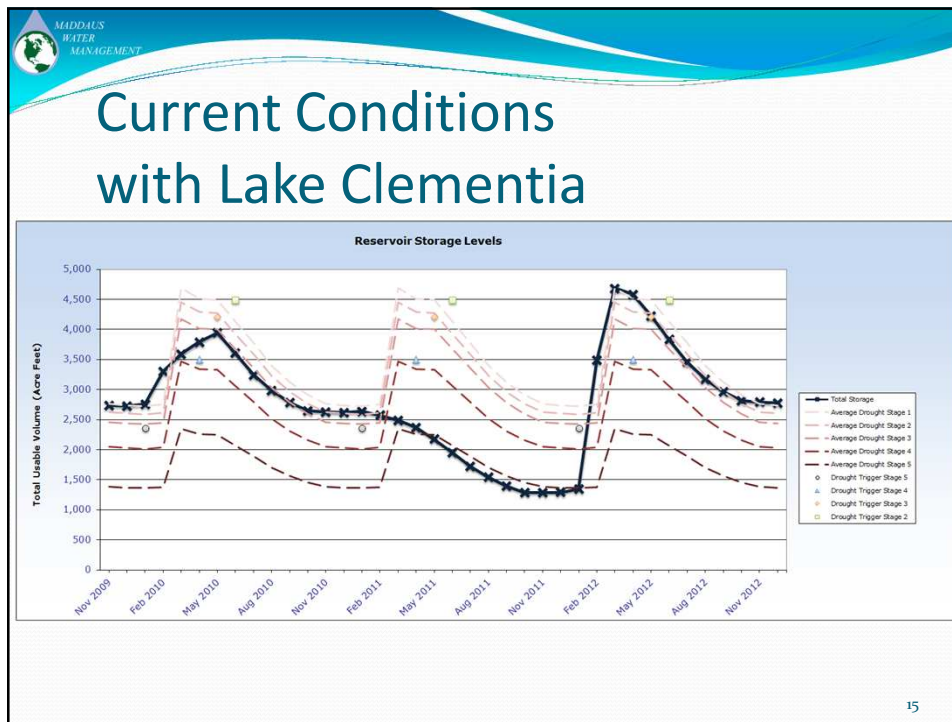
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Current Conditions with No Hedging

- **Today Scenario Using IWMP model with the following parameters:**
 - Existing connections 2010-15
 - Not including 20x2020 conservation (yet)
 - Existing drought plan at 4 stages (0-50%) - match regional RWA recommendations (versus current 5 stages)
 - 1976,77,78 hydrology
 - No climate change
 - No Lake Clementia supplies
 - No recycled water for new connections
 - No groundwater or surface water augmentation

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Use Lake Clementia Supplies – sooner or later?

- Lake Clementia supplies, worst case estimate in 1977 Hydrology and current conditions (projected through 2015):
 - Without = 650 AF left in storage
 - With = 1,000 AF left in storage
- Currently meet the goal for 600 AF in contingency without Lake Clementia

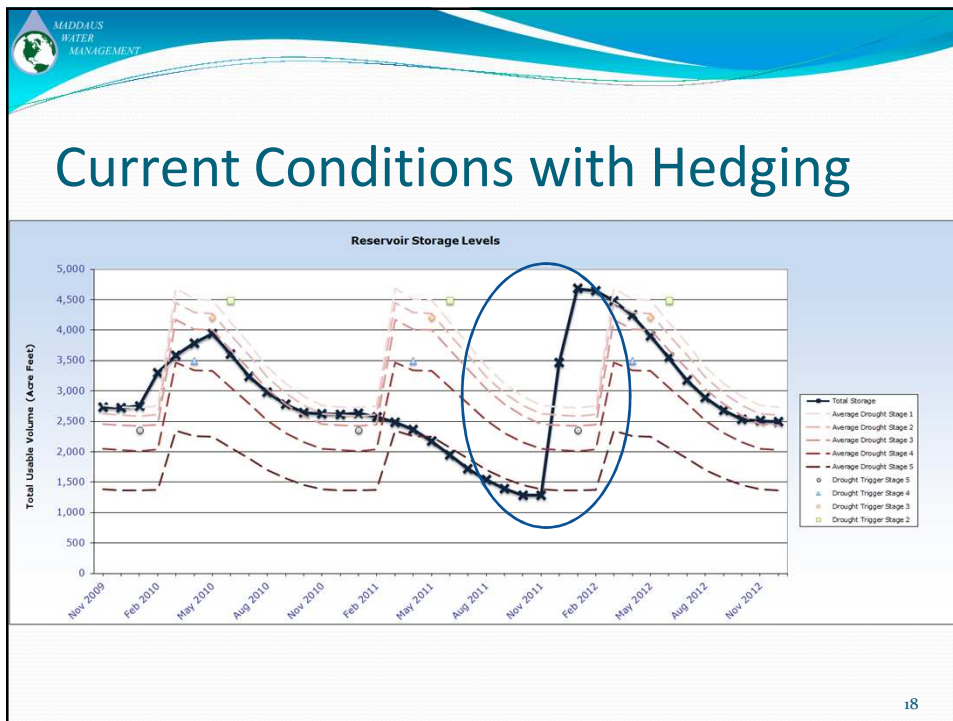
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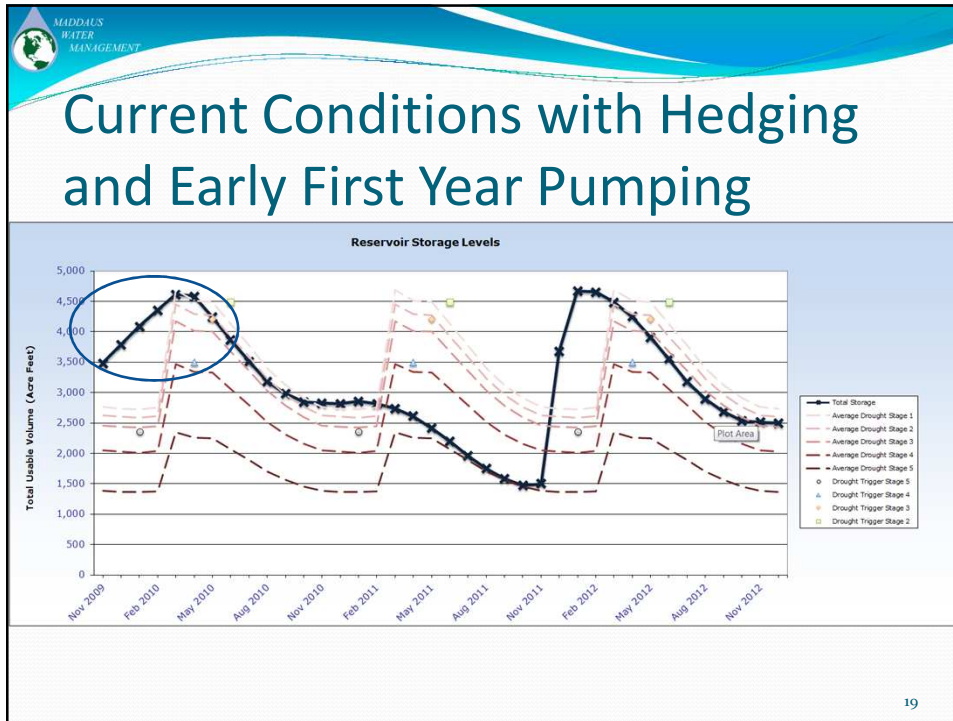
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Current Conditions with Hedging to Start Pumping in Nov

- **Today Scenario Using IWMP model with the following parameters:**
 - Existing connections 2010-15
 - Not including 20x2020 conservation (yet)
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 - Includes Lake Clementia supplies
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Summary Results – Current Conditions

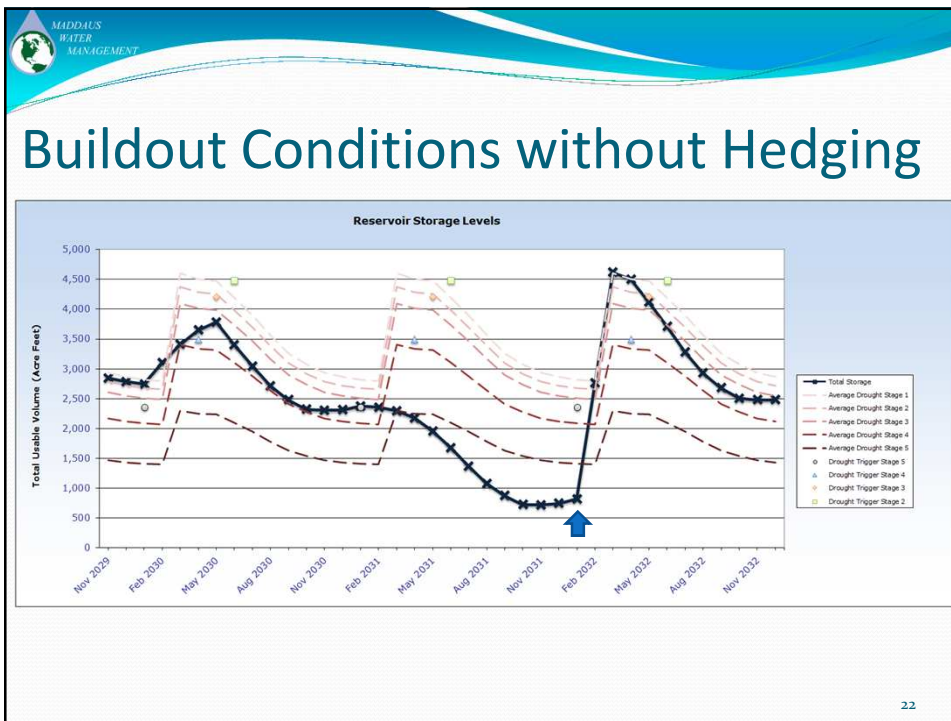
- **Estimated Supply Remaining:**
- **Pumping With Hedging (and no new well):**
 - Worst case scenario still have:
 - ~650 AF without Lake Clementia using second (third) year hedging
 - ~1,250 AF in storage with Lake Clementia

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Findings – Future Conditions With No Hedging

- **Buildout Scenario Using IWMP model with the following parameters:**
- Future buildout at 2030 medium growth
- Include 20x2020 conservation
- Existing drought plan at 4 stages (0-30%) - match RWA recommendations, account for demand hardening effect from 20x2020
- 1976,77,78 hydrology – used to compute pumping ability and reservoir storage volumes
- No climate change
- Add in Lake Clementia supplies
- Add in recycled water for new connections
- Checked for future groundwater supply augmentation @ 500 gpm

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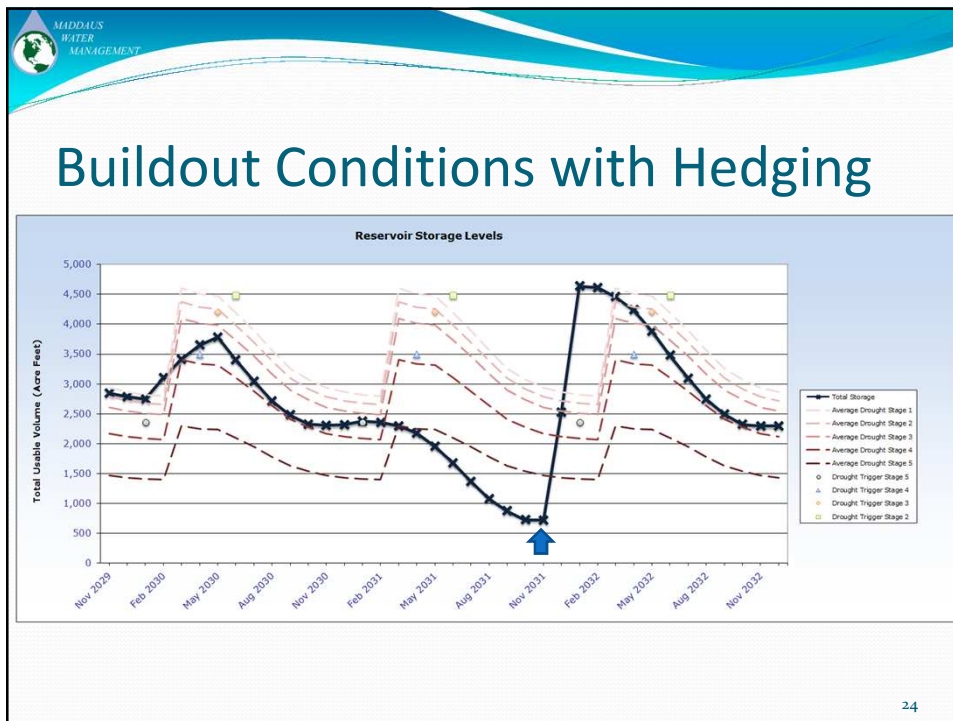


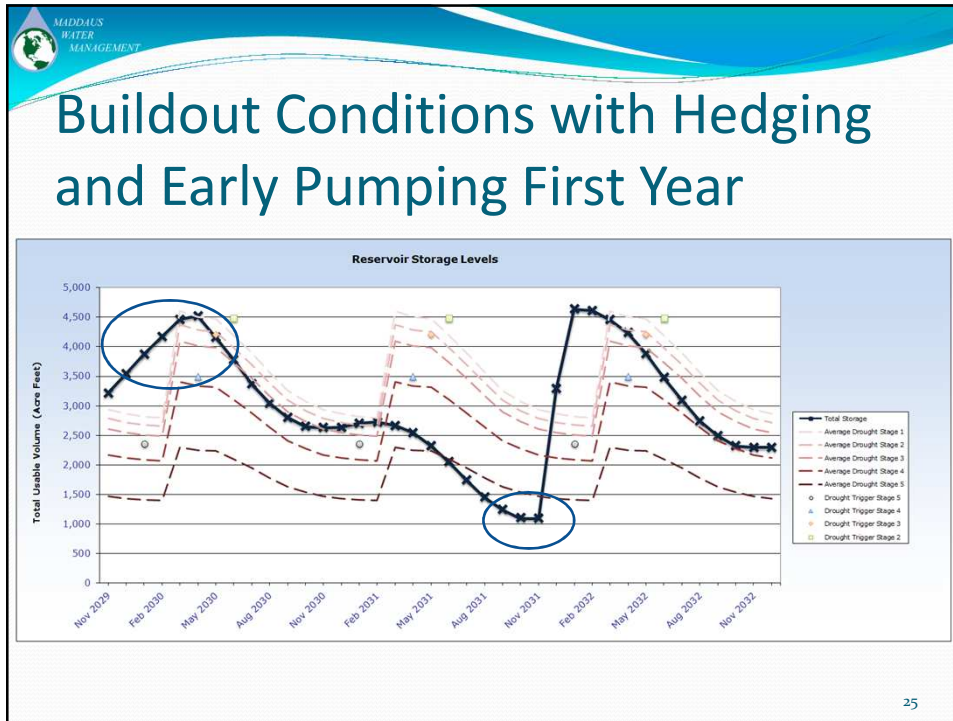
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Findings – Future Conditions With Hedging to Start Pumping in Nov

- **Buildout Scenario Using IWMP model with the following parameters:**
 - Future buildout at 2030 medium growth
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- ## Summary Results – Future Buildout Conditions
- **Estimated Supply Remaining:**
 - With or Without Hedging:
 - Worst case scenario still have ~700 AF
 - Stage 5 Drought as currently defined
 - Assumes
 - Use hedging with early pumping in the first year
 - 20x2020 achieved with 30% drought cutbacks
 - using Lake Clementia
 - recycled water new connections
 - groundwater supply @ 500 gpm


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Summary Table

Scenario	Approx. Minimum Supply Remaining (1977 Hydrology)	Maximum Drought Stage Reached
Current Conditions	1,200	Stage 5
Current Conditions with Hedging	1,200	Stage 5
Current Conditions with Hedging & Early Pumping	1,500	Stage 4/5
Buildout Conditions	700	Stage 5
Buildout Conditions with Hedging	700	Stage 5
Buildout Conditions with Hedging & Early Pumping	1,000	Stage 5

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- ## Discussion of Buildout Thresholds
- Under current “today” supply conditions
 - Assumptions:
 - 750 gpd/EDU at large estate lots
 - No 20x2020 achieved, 50% drought cutbacks
 - No Lake Clementia used
 - No Groundwater supplies used
 - Total EDUs estimated remaining 1,705
 - Assuming 1,300 are large estate lots
 - No change to commercial 405 EDUs
 - Future buildout out
 - Assumptions:
 - Medium growth scenario
 - 675 gpd/EDU at large estate lots
 - 20x2020 achieved, 50% drought cutbacks
 - Lake Clementia used
 - Groundwater supplies used (500 gpm well)
 - Total <12,000 sf EDUs estimated remaining 2,700 (3,000 units)
 - No change to commercial projected EDUs at 665
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Observations Related to Drought Stages Next Steps

- Drought stages compressed – move through very quickly in the Spring
 - Seek to expand to allow for demand response from customers
- Define hedging triggers – supply scenarios for when to pump earlier (in the first year and continue early pumping in subsequent years)
- Creating an index to know “how bad is it?”
- Consider having a supply and demand trigger
 - If not enough demand response then ability to move to next stage more quickly


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IWMP Questions/Comments?

- Discussion topics for Drought Supply Augmentation Memo
- Future adoption of updated Water Shortage Contingency Plan
- Future discussions on Policy 90-2 update


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Highlights of Updated Water Code

1. Definitions
 - Water Use Efficiency
 - Water Waste
2. Section 10 – Water Conservation
 - Updated Flow Rates
 - CalGreen Code references
 - WaterSense for new remodel or construction (triggered by Sacramento County building permit)
3. Section 11 – Water Waste
 - New Water Waste references
4. Section 12 – Drought Response
 - New definitions for drought determination
5. Section 13 – Enforcement Updated
 - Water Waste penalties


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Not currently addressed in Update Chapter 14 Water Code

- Future update needs?
 - No direct reference to drought water pricing called for in adopted IWMP and Shortage Contingency Plan
 - Inherent but no specific reference to reduced water allocation policy (750 gpd/EDU to 650 gpd/EDU)
 - Inherent in county requirements but no direct reference to current Statewide Model Landscape Ordinance and future County landscaping ordinance reduce outdoor irrigation demand by 10% (from 0.80 * ETo down to 0.70 * ETo)


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Other future next steps for Update Chapter 14 Water Code (con't)

- To be determined:
 - Working with RMA on State/County Landscape ordinance enforcement and review (when applicable, etc.)
 - Water Waste patrols, fees, waivers
 - Drought pricing mechanisms
 - Reduced water allocation (connected to 20x2020 accomplished, recycled water policies item #3 and Water Shortage Plan)


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New Recycled Water Policy and Code

- Goal:
 - Address next steps on implementing recycled water for future use in the CSD as drought augmentation supply and wastewater disposal preferred (least cost) option.
- Background:
 - Biggest impact, easiest to “adopt” but hardest to implement, policy administrative, regulatory, operations and cost
 - 2020 Compliance Plan and IWMP calls for reviewing recycled water opportunities
 - Issues historically with NPDES permit to discharge, current temporary contract for using recycled water
 - Long history of recycled water for golf course irrigation


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New Recycled Water Code

- Completing new chapter 17
- Mirrors Chapter 14 Water Code where applicable
- Looks to El Dorado Irrigation District's Administrative Rules on issues of definition of discharge, etc.
- Key highlights
 - Definitions of allowable uses and waste
 - Discharge prohibited
 - Plan review and inspections for cross connection control
 - Drought – subject to Water Shortage Contingency Plan (WSCP)
- Outstanding future updates:
 - Pricing – to be determined
 - Fines for discharges/water waste could be higher

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Next Steps for Future for Recycled Water Code

- Need developer agreements to both implement and fund recycled water
- New administrative burden to manage to CDPH requirements
- Roles and responsibilities for coordination for enforcement oversight, HOAs and individuals

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Questions on Code Chapters?

- Need comments now before legal review
- Next step is legal review – early October
- Then posting before October 19th Board meeting
- First Reading...
- Addressing comments beyond typos require going back to a First Reading

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More Questions? Comments on Next Steps?



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