One Water and Stewardship Committee

Information on the High Desert Water Bank Program status, updated costs, and water quality

Item 9-2

March 14, 2023

Program Parameters

Board authorized in April 2019

Capital costs up to $131 million

- Estimated project unit cost: $320/AF

Program size:

- Storage capacity of 280,000 AF
- Put/take capability of 70,000 AFY
- Would more than double existing direct pump-back

Agreement term: 2019 - 2037

- 20-year no cost option to extend

Initial Project Design

- Pumped and gravity-fed recharge basins
- 23 recovery wells
- Two turnouts
- Off-site power needed to operate not included

Where We Are Today

- Provided about $50 million to date
- Completed construction of 10 recovery wells
- Turnout and stage 1 recharge basins under construction
- Could begin recharging in Summer 2023
- Project is on schedule to commence full operation in 2025

HDWB – Phase II

- AVEK plans for future phase of HDWB
  - Storage capacity of up to 440 TAF
  - Put/Take capability of up to 110 TAFY
  - Connection to West Branch
- Several interested parties
- AVEK may prioritize Metropolitan's participation, if interested

Updated Design & Costs

- Power distribution costs are defined

- Design evolved to meet program parameters
  - Increased depth and number of wells
  - Optimized recharge basin design

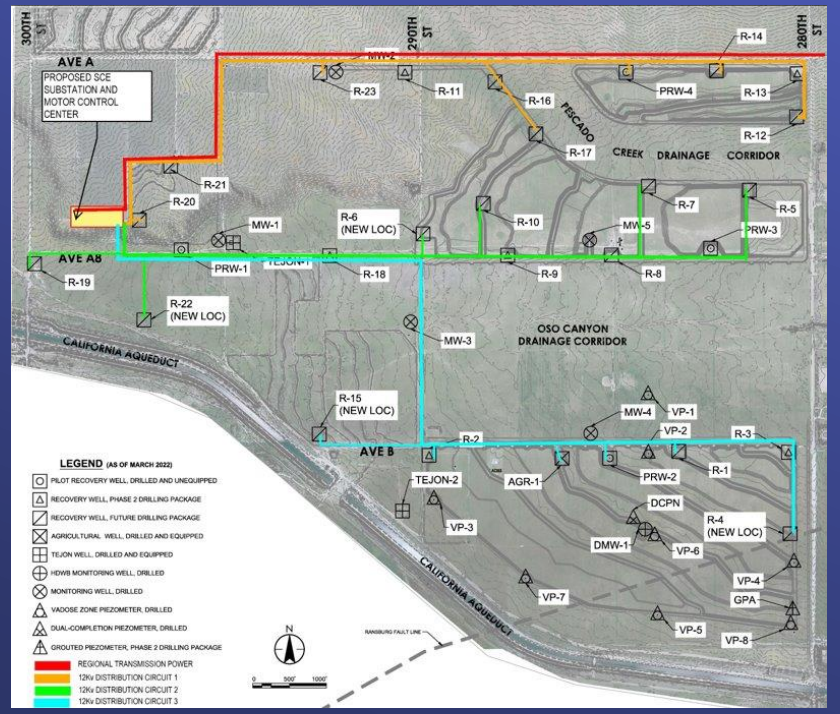
- Changes in water quality
  - Arsenic (naturally occurring)
  - Nitrate

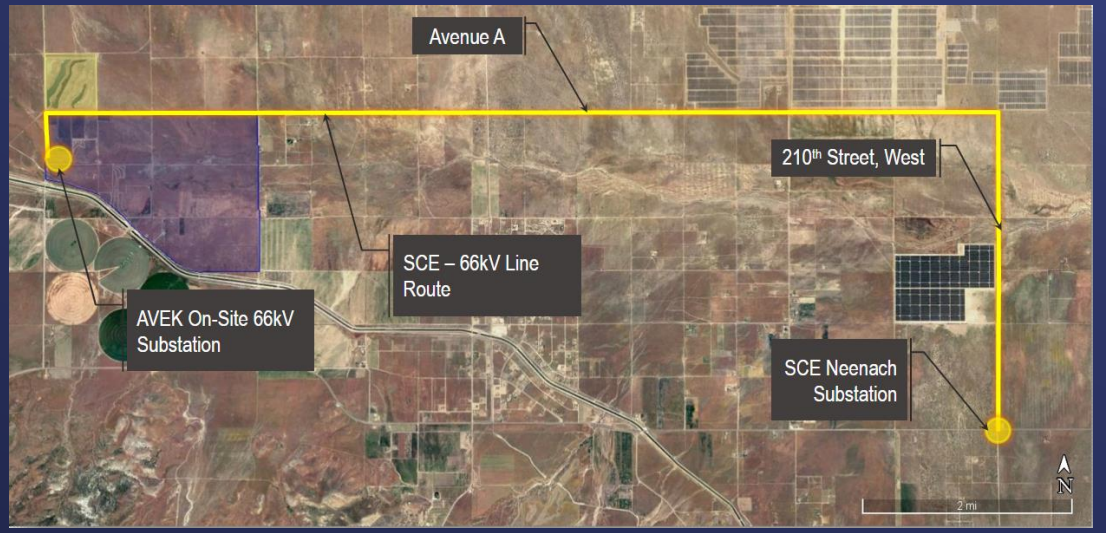
- Inflation has driven up costs

- Cost increases of $79 million
  - Total cost of $210 million

Power Distribution Costs Are Now Defined

- Off-site power costs not included in 2018 construction estimate
  - Unknown power needs
- SCE completed Method of Service study in 2022
  - Off-site
    - Transmission Line
    - Substation
  - On-site
    - Power lines
- Capital cost estimate: $11M

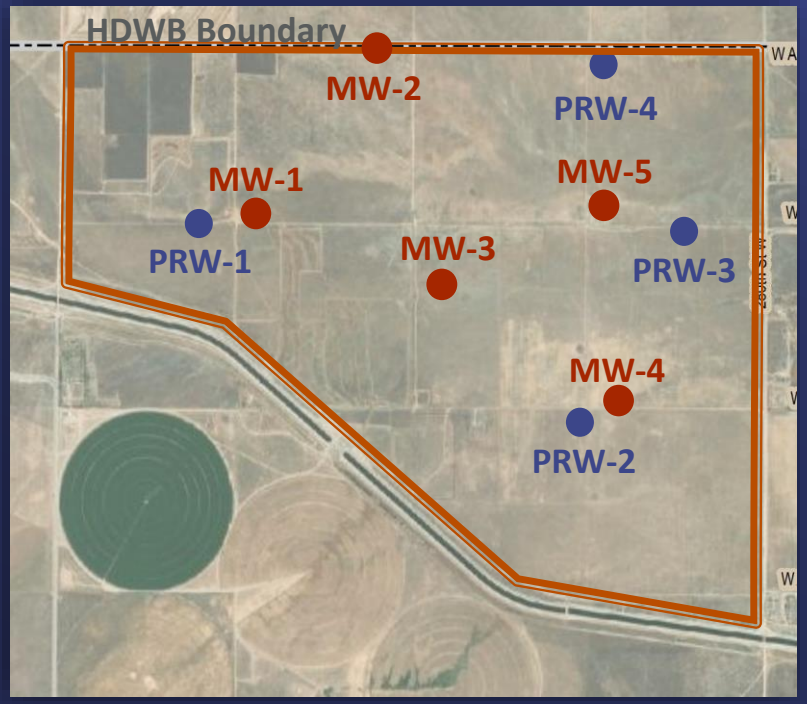




Design Evolved to Meet Program Parameters

Wells

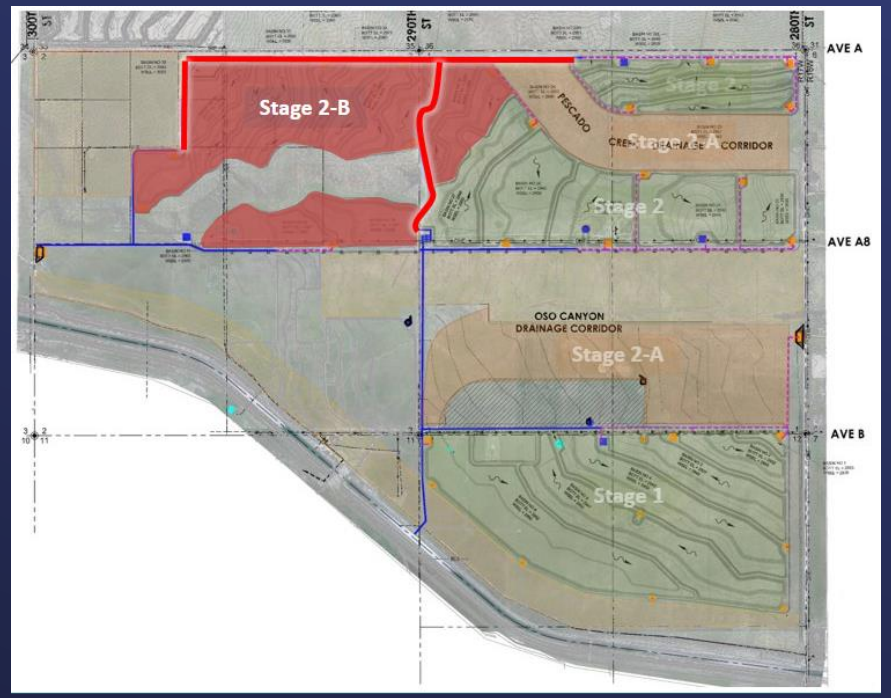
- AVEK drilled and tested five monitoring wells
  - Depth of approximately 500 ft
  - Testing indicated that water quality met all drinking water standards
- Updated monitoring well data and groundwater modeling showed need for deeper well design
- Updated recovery well data and modeling showed potential need for additional four wells
  - Total number of wells increases from 23 to 27
- Increased capital cost estimate: $29 M

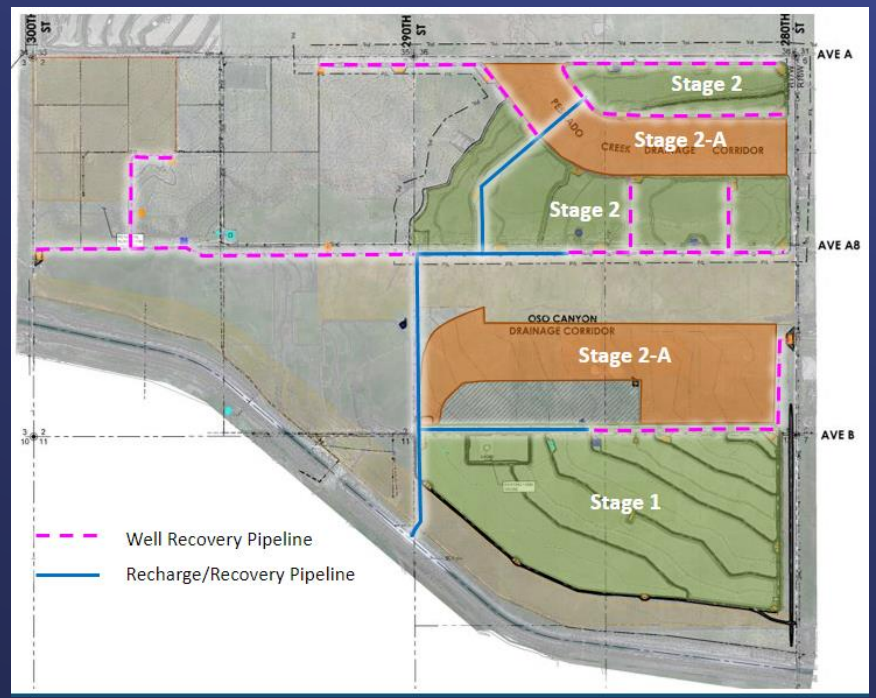


Design Evolved to Meet Program Parameters

Recharge Basins

- Removed pumped basins and pumping
  - Gravity recharge basins only
  - Increased berms
- Avoided an additional cost of about $27 M





Changes in Water Quality

Arsenic

- Initial field investigation and testing
  - All water quality samples met Title 22 Drinking Water Standards
- Water quality sampling from recovery wells shows levels of arsenic from 8 – 20 µg/L (MCL is 10 µg/L)
  - Naturally occurring
  - Modeling shows arsenic is widespread throughout the basin, more concentrated in the deeper aquifer
  - Treatment is required
- Recommended treatment process is coagulation and sedimentation
- Capital cost estimate: $29 M

Changes in Water Quality

Nitrate

- Nitrate levels in recovery wells from 2.7 – 5.9 mg/L-N (MCL is 10 mg/L-N)
  - Higher than ambient levels in CA Aqueduct
  - Looking into impacts to our source water and treated water
- Nitrate concentrations for remaining recovery wells are unknown
- AVEK's consultant working on model to evaluate trends in nitrate concentrations as water cycled through basin

SWP Banking Program Considerations

Banking Program	Constituents of Concern	Termination Date
Arvin-Edison	1,2,3 TCP	2035
Semitropic	Arsenic	2035
Kern-Delta		2029

- Agreements require renegotiation soon
- Some programs impacted by water quality regulations
- More treatment likely to be required in the future

Inflation Has Driven Costs Up

- Unprecedented challenges
  - Increased material and construction costs
  - Supply chain issues affecting ability to acquire materials/equipment
- 2018 Capital Cost Calculation
  - Assumed an annual 3% cost increase
- 2022 Consumer Cost Index
  - Cost increase between 2018 and 2022 of 30%
- Estimated additional cost: $37 M

Changes in Cost

Factors Contributing to Changes in Cost		Estimated Capital Cost
Off-site Power		$11 M
Design Changes		$2 M
Wells	$29 M	
Recharge Basins	($27 M)	
Inflation		$37 M
Water Quality (Arsenic Treatment)		$29 M
Total:		**$79 M**

- Updated O&M cost estimate to be 3% of capital and included $4.2M/yr for treatment facility

Future Cost Recovery Opportunities

- Oversized facilities
  - Turnout
  - Power distribution
  - Conveyance pipelines
- Acquired land
  - Originally planned for pumped recharge
- Number of wells
  - Remain within 70 TAF recovery target

Feedback on Options

- Build project with revised design and cost for $210 M
  - Negotiate extension of term by 20 years through 2077
    - Estimated project unit cost: $565/AF
- Limit participation in project and stay within approved budget of $131 M
  - Negotiate project participation of 60-70% of all program facilities
- Limit participation in project to stay within approved budget plus additional cost for treatment for $160 M
  - Consistent with agreement terms
  - Negotiate project participation of 70-80% of all program facilities

Cost Competitive to Other Storage Investments

- Metropolitan groundwater storage program full cycle costs (not including capital costs)
  - Arvin-Edison – $441/AF
  - Kern-Delta – $323/AF
  - Semitropic – $493/AF
- Evaluating additional project costs within and outside of Metropolitan
  - Diamond Valley Lake
  - Sites Reservoir
  - Los Vaqueros Expansion
- Will provide cost information for action item

Consideration

- Move forward with revised design including additional wells and treatment
- Amend agreement
  - Additional project costs
  - Add element of treatment
  - Extend term
  - Allow yield above 70 TAF
  - Ability to recover costs
    - Land
    - Oversized facilities
    - Treatment

Next Steps

- Incorporate Committee feedback
- Return to the Board for action in a future month
- Continue to meet with AVEK and monitor progress and potential changes
  - Cost
  - Schedule
  - Water quality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