

Technical Work Plan: Status Report and Update (Agenda Item 19)



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Santa Cruz, CA
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Overview of Discussion

- Firming up the Technical Workplan, moving forward
- Bill Faisst and B&C evaluation of Alts for MCDS

Time permitting:

- Quick overview of work products under development
- Q&A and discussion



Technical Work Plan – Moving Forward

- Focused work plan to be developed to align with WSAC's anticipated schedule and intended outputs for Real Deal
 - Overall framework; clear roadmap
 - Expected timelines
 - Anticipated types of outputs



Key Areas of Focus in Work Plan

- Defining the Problem
 - Demand
 - Supply
 - Supply-Demand Gap
- Identifying Alts
- Evaluating the Alts



Team Update – Under Subcontract

- Brown and Caldwell
- M-Cubed (David Mitchell)
- Maddaus Water Management
- Pueblo Water Resources
- HydroMetrics
- Gary Fiske, Shawn Chartrand
- John Rosenblum
- George Tchobanoglous
- Trussell Technologies



Brown and Caldwell role

- Technologically vet the Alts
- Refine Alts' components to reflect realities
- Evaluate/update costs of Alts
- Estimate costs for Alts with unquantified costs
- Add information on environmental, technical and other aspects, and identify unresolved issues



North Coast: Liddell Quarry



1991

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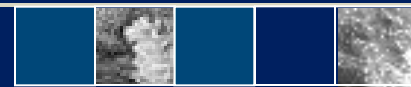
Google earth

Imagery Date: 2/23/2014 37°01'52.98" N 122°08'56.56" W elev 849 ft eye alt 10729 ft



Brief Update on Progress to Date

If/as time permits



1. Conservation, Demand Management, Improved Forecast

- Assessing Impact of Current Drought
 - Memo in Oct packet on green and hospitality sector roundtables
 - Survey prepared for Chamber of Commerce circulation
 - Interview completed with UC Santa Cruz
 - Possible interviews with schools (e.g., athletic fields)



1. Conservation, Demand Management, Improved Forecast (cont.)

- Econometric Demand Forecasting
 - Scoping in progress (David Mitchell)
 - Insights gleaned from other major utilities (shared insights on why prior forecasts were overstated)
- Water Use Intensities
 - Memo in Oct packet



1. Conservation, Demand Management, Improved Forecast (cont.)

- Potential for Additional Conservation
 - How much more can be saved? At what total cost? Borne by whom?
 - Focus on shaving peak season demands
 - Task Orders in progress for Maddaus, and Rosenblum



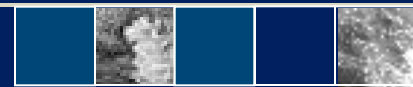
2. Climate change

- Impacts on Surface Flows and Yields
 - Downscaled GCM results compiled and applied in hydrologic streamflow model
 - Streamflow changes input to *Confluence* model
 - Very complex suite of issues to address
 - Continuing to sort through technical approach and climate model data interpretations, with Chartrand and Fiske



3. Energy Requirements & Carbon Footprint

- How much net energy and GHG emissions accrue across key Alts?
 - Brown and Caldwell to investigate, in conjunction with John Rosenblum
 - Near-term focus on small suite of Alts for December run of MCDS model



8. Lifecycle Costing and Technical Performance

For relevant Alts: What do they really cost? What do they yield? How reliable are they?

- Initial implementation costs (capital, land, permitting, etc.)
- Operation and maintenance costs
- Periodic replacement costs

- Yields across seasons, weather, years, etc.
- Energy requirements



4. Fishery Flow Requirements and Impacts on Yields

- To be integrated into HCP streamflow model and *Confluence* efforts (as described for climate change)
 - Jeff Hagar providing insight and review for Chartrand and Fiske efforts



5. Water Storage (inter-annual and inter-seasonal)

- On-stream storage (Loch, and elsewhere?)
 - What if we manage Loch Lomond differently?
How might this align future supply and demand? How does this change risks?
 - How many years of drought to be applied for planning drawdown strategies?
 - Water Department sorting through this with Fiske



5. Water Storage (cont.)

- Groundwater – ASR and related practices
 - Can water be placed, stored and retrieved from any of the regional aquifer systems?
 - Pueblo Water Resources will scope issues
- HydroMetrics clear of Conflict of Interest issues with Soquel Creek Water District for shared groundwater basins



6. Groundwater Supplies and Management

- Viability of North Coast wells
 - Is this a feasible option? What are the potential yields and water quality?
 - Pueblo Water Resources to scope



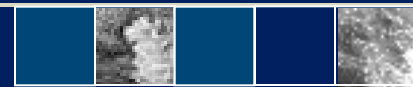
7. Water Recycling

- How much reclaimed water is available?
 - Potential yield may be 4 MGD
- Potable Reuse:
 - What are the options (IPR, DPR)? How do they compare to other alts? What are the public health implications and perceptions?
- Nonpotable Reuse (NPR):
 - What are the possible demands and costs?



9. Enrichment Series

- Several good topics suggested and requested
- Where, when and how do we provide this series?



Questions?

