

**TO:** WATER SUPPLY ADVISORY COMMITTEE (WSAC)  
**FROM:** HEIDI LUCKENBACH  
**SUBJECT:** UPDATE ON SOQUEL CREEK WATER DISTRICT ACTIVITIES  
**DATE:** NOVEMBER 14, 2014

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### **Soquel Creek Water District Board Meetings**

October 21, 2014. The Board considered a scope of work for peer review of the Supplemental Supply Options considered by the District in the previous 12 months. The peer review is to have a third party firm review the work done by Kennedy/Jenks on the water supply alternatives analysis, evaluate for fatal flaw(s), and the level of reasonableness on the assumptions used.

November 10, 2014 – Kick off and Notice to Proceed  
February 17, 2015 – Present report to Board for acceptance

November 4, 2014. The Board received an informational update on the water supply efforts that included status update on the County's surface water study, the City's WSAC convention (including river storage options), and recycled water (pursuing of state grant funding and next steps for feasibility of recycled water evaluation). The board has agreed to further discuss a phased approach to feasibility work on recycled water and a discussion on customer acceptability of recycled water for groundwater replenishment for its December 16<sup>th</sup> meeting.

### **Collaborative Groundwater Work**

The first of two scoping meetings for the Soquel-Aptos Groundwater Model was held on October 28<sup>th</sup>. Discussions focused on clarifying the funding partner's expectations and requirements for the groundwater model, what scenarios to model, and how far west into the City's service area should be modeled. Discussions will continue at the second scoping meeting which will be held on December 1.

The Basin Implementation Group (BIG) last met on September 23<sup>rd</sup> at which time they decided not to pursue the USGS led study on the fresh water/saltwater interface and further the study efforts that are currently underway with Stanford University and University of Vancouver. This effort may still go forward, but with possibly a different scope and budget.

### **Attachments**

Memo to the Board of Directors Agenda Item No. 6.5 October 21, 2014  
Memo to the Board of Directors Agenda Item No. 6.2 November 4, 2014

October 21, 2014

## MEMO TO THE BOARD OF DIRECTORS

Subject: Agenda Item No. 6.5

Approve Scope of Work for Peer  
Review of Supplemental Supply  
Options

Attachments: 1. Scope of Work from Black and Veatch

### **Background**

Soquel Creek Water District conducted a yearlong process (September 2013-August 2014) of evaluating back-up water supply options that included fourteen public board meetings focusing on topics or projects related to demand management and/or supplemental water supply.

At the March 18, 2014 meeting, the board identified desalination, surface water transfers, and recycled water to be carried through for conceptual analysis. At the July 15, 2014 meeting, staff presented four technical memos by Kennedy/Jenks Consultants that included six different projects: TM#1 - Desalination Alternatives (Mid-County Desalination and Deep Water Desalination), TM#2 - Recycled Water Alternatives (Mid-County and Santa Cruz Regional Groundwater Replenishment with Recycled Water ), TM#3 - Surface Water Transfer Alternatives (San Lorenzo River Surface Water using Existing and Improving Infrastructure at Graham Hill Treatment Plant), and TM#4 - Alternatives Evaluation Criteria and Weighting. On August 26, 2014, Kennedy/Jenks Consultants and staff conducted a dedicated workshop with the Board to evaluate the six alternatives using a criteria-based approach. Upon completion of the evaluation exercise, the Board directed staff to further evaluate groundwater replenishment using recycled water and surface water transfers.

### **Peer Review of Back -Up Options**

At the September 2, 2014 meeting, the Board directed staff to agendize an action item to conduct a peer review of the six supplemental water supply options (listed above). Also of interest was the financial information (and how it changed from the original presentation) and to continue looking at the viability of other options.


During the course of the back-up options evaluation, conceptual design components and associated costs were presented at the single topic meetings and were further refined during the development of the technical memos by Kennedy/Jenks Consultants. Estimated costs and conceptual designs were initially presented, if


available, by presenters at the topical discussion meetings. These costs may have differed with the estimated costs by Kennedy/Jenks Consultants in their technical memorandums due to the changes in the conceptual design, assumptions, and contingency. (For example, in February 2014, Todd Reynolds presented groundwater replenishment options combined with irrigation and seawater barrier options that provided over 2,000 acre-feet per year of water with capital costs between \$134-190M. For K/J TM#2, projects were narrowed to only look at groundwater replenishment that would provide 1,500 afy with capital costs around \$54M.)

Black and Veatch Corporation is one of the two Engineering On-Call Consultants that have been retained by the District. Staff requested the firm prepare a proposal to provide professional engineering services to conduct an independent peer review of the reasonableness of the project definitions/assumptions and associated cost estimates for the six back-up options. Attached is their proposed scope of work that includes an estimated cost of \$16,280 (based on time and material) and assumes a final report will be prepared in 12 weeks.

#### POSSIBLE BOARD ACTION

1. By MOTION, approve the attached scope of work to conduct a peer review of the reasonableness of the project definitions/assumptions and the associated cost estimates for the six back up options.
2. No action taken.

By   
Melanie Mow Schumacher  
Special Projects Engineer

By   
Kim Adamson  
General Manager



October 14, 2014

Ms. Melanie Schumacher  
Soquel Creek Water District  
5180 Soquel Drive  
Soquel, CA 95073

**Subject: Peer Review Assessment of Back-up Options Evaluation**

Dear Melanie:

We appreciate the opportunity to provide professional engineering services associated with the peer review of your water supply back-up options. Enclosed is our proposed scope of work and associated fee.

We look forward to working with you on this project. Should you have any questions, please contact me at 916-832-2953.

Very truly yours,  
**BLACK & VEATCH CORPORATION**

David J. Carlson  
Vice President

10/13/2014

## Soquel Creek Water District

### Scope of Work to Provide Peer Review Assessment of Back-Up Options Evaluation

The Soquel Creek Water District recently completed evaluating back-up supplemental water supply options that could be pursued should the scwd2 Regional Seawater Desalination Project with the City of Santa Cruz no longer be considered. Through the process, the District discussed numerous projects and conceptually evaluated six options. This evaluation was based on a series of technical memoranda prepared by Kennedy/Jenks. It is desired to have a review of the information presented in these memoranda to provide an independent confirmation of the reasonableness of the project definitions and associated cost data.

This assessment will be based on the data provided in the memoranda or provided separately at the Consultant's request. No new design information or cost information will be created as part of the evaluation. The assessment will be based on the information provided and the Consultant's experience with similar facilities.

The following tasks will be performed as part of the independent review.

#### Task 1 – Review Memoranda for SqCWD's Back Up Options

- Consultant to review Kennedy/Jenks' Technical Memoranda on the six back up options that were presented to the Board at their July 15, 2014 meeting. These include TM's 1-3 for two recycled water projects, two desalination projects, and two surface water transfer projects. Where insufficient information exists in the memoranda to make an assessment of the reasonableness of the data provided, a request will be prepared for additional background information.
  - *Deliverable – Additional background information request.*
- Consultant to review any additional data provided and participate in two calls with Kennedy/Jenks to ask clarifying questions.
  - *Deliverable – None. Information will be used in subsequent tasks*

#### Task 2 – Prepare Back-up Options Review Memo

- Consultant will prepare a Draft Memo that describes the results of the review and evaluation tasks above. The Draft Memo will address the following:
  - An assessment of each project definition and appropriateness of the defined project components.
  - An assessment of the reasonableness of the presented capital and O&M costs for each option.
  - A list of any fatal flaws or areas of significant concern identified for any of the options.
  - A list of areas where insufficient information was presented that could have a material effect on the evaluation of the options.
- Consultant will participate in a conference call with SqCWD staff to review the Draft Memo. Review comments from SqCWD staff will be documented and incorporated into the Final Memo.
- Consultant will provide one electronic copy of the Draft Memo. Once final, Consultant will provide two hard copies and one electronic copy of the Final Memo.

10/13/2014

- *Optional Task - Consultant will attend a board meeting and present the Peer Review Memo (not included in fee).*
  - *Deliverable – One electronic (PDF copy) of the draft memo and two hard copies and one electronic copy (PDF) of the final memo, review meeting agenda and minutes.*

**Task 3 – Project Management**

- Project management activities will include monthly invoice and progress report, monitoring of project budget and schedule, and project setup and filing. Regular correspondence with the District will be conducted via emails and phone. The following meetings are included in the Scope of Work
  - Project Kickoff Meeting –B&V Project Director and Project Manager will participate in a conference call to kick-off the project
  - Progress Meeting – Meeting to discuss progress with respect to evaluation. This meeting will be conducted by telephone.
  - Report Review Meeting – Meeting to review the draft report (covered under Task 2)
- Deliverable: Progress report and monthly invoicing, meeting agenda and minutes

***Proposed Schedule***

*It is assumed that the scope of work will be performed on the following schedule:*

*Project Kickoff Meeting – 2 weeks from NTP*

*Task 1 Review Memoranda for SqCWD’s Back Up Options – 4 weeks from NTP*

*Task 2 – Prepare Back-up Options Costs Review Memo –*

*Draft Memo                      4 weeks from end of Task 1*

*Final Memo                      2 weeks from review meeting*

**BLACK & VEATCH CORPORATION**

Owner: Sequoy Creek Water District

Project: Peer Review Assessment of Backup Options

Task/Task	Project Director	Project Manager	Design Engineer	Project Admin / Accountant	QC	Estimator	SUBTOTAL hours	SUBTOTAL Billings \$	EXPENSES		SUBTOTAL EXPENSES	TOTAL COST
									Misc	Auto / Travel		
(\$100,000 Fee, \$5,000)	\$285.00	\$228.00	\$150.00	\$60.00	\$200.00	\$160.00			\$ 5.00			
Task 1 Review Memoranda for SCHEDULE Back-Up Options Review of Memoranda and data input Review additional information Discussion with NJ	1	4	4	4			0	\$ 1,705	\$ 81		\$ 81	\$ 1,624
Task 2 Prepare Back-Up Options Cost Review Memo Prepare Draft Memo Review Meeting Final Memo	1	2	2	2			4	\$ 700	\$ 36		\$ 36	\$ 736
Task 3 Project Management Project Setup, Plan, Budget and Schedule Tracking and Invoicing Project Meetings (2)	7	21	42	4	2	4	38	\$ 6,325	\$ 351		\$ 361	\$ 6,678
TOTAL FEES	\$ 7,088	\$ 4,728	\$ 6,280	\$ 240	\$ 488	\$ 720		\$ 14,882	\$ 728		\$ 721	\$ 15,280

November 4, 2014

## MEMO TO THE BOARD OF DIRECTORS

Subject: Agenda Item No. 6.2

Update on Back-Up Water Supply Efforts related to Surface Water Transfers, Loch Lomond Water Banking, and Groundwater Replenishment

### Background

Soquel Creek Water District conducted a yearlong process (September 2013-August 2014) of evaluating back-up water supply options that included fourteen public board meetings focusing on topics or projects related to demand management and/or supplemental water supply. These meetings were primarily held at Capitola City Council Chambers, were well attended by the public, and filmed by Community Television of Santa Cruz County. For more information on these informational meetings, visit: <http://www.soquelcreekwater.org/planning-our-water-future/back-supplemental-supply-options>.

On August 26, 2014, Kennedy/Jenks Consultants and staff conducted a dedicated workshop with the Board to evaluate the six alternatives using a criteria-based approach. Upon completion of the evaluation exercise, the Board directed staff to bring back a plan for further detailed studies for 1) San Lorenzo Surface Water Transfers – Existing Infrastructure, 2) Mid-County Groundwater Replenishment, and 3) Santa Cruz Regional Groundwater Replenishment. The Board also requested that more information be brought forth regarding the Loch Lomond Water Banking, locally referred to as “Lochquifer Alternatives”.

### San Lorenzo Surface Water Transfers

The evaluation of surface water transfers is being conducted as part of the County of Santa Cruz’s Water Exchange Study. This study, part of the Integrated Resources Water Management (IRWM) grant bundle, has been evolving since 2011 and the County of Santa Cruz is nearing completion of its final report. The Board’s decision in August 2014 to continue support and evaluation reaffirmed the Board’s earlier decision in the 2012 Integrated Resources Plan (IRP) to prioritize surface water transfer as a potential supply option.

Staff will continue to monitor the status of the report and schedule a presentation by John Ricker, SC County Water Resources Division Director, when the report is complete to facilitate discussion on next steps for the District related to surface water transfers.



### Loch Lomond Groundwater Banking “Lochquifer Plan”

Jerry Paul, a local Santa Cruz resident and co-founder of Engineers for Water Alternatives, presented to the Board at the November 2013 meeting focused on exploring surface water exchange and transfers with neighboring water agencies. The Lochquifer Plan is one of his several initiatives and strategies for water resource management in the County.

At the Santa Cruz Water Convention, Mr. Paul presented several of his proposals which are available on the Civinomics website that includes more than 60 other different projects/proposals proposed by community members, vendors, and the City of Santa Cruz. To access Mr. Paul’s most recent strategies that include the Lochquifer plan, visit: <https://civinomics.com/profile/4Wt1/jerry-paul>

Currently, the City is collecting community input on Mr. Paul’s Lochquifer Plan and all of the other proposed projects using the Civinomics website and asking that the initiatives be rated in terms of effectiveness, practicability, environment, and local economy. This public input process is scheduled to continue collecting community feedback through November 2, 2014.

In the next couple of months the Santa Cruz Water Supply Advisory Committee (WSAC) will be finishing up the ‘recon’-phase of their work which includes developing the tools and criteria needed to make good decisions with regards to water supply and demand issues. In the “real deal” phase starting in 2015 they will be using a multi-criteria decision tool to better understand the technical information needed to evaluate the various alternatives, create portfolios of various alternatives, and make their recommendations to the City Council.

Staff will continue to monitor the efforts of the WSAC and propose that, if the Board is interested, we schedule Rosemary Menard, SC Water Director and a representative of the WSAC to present to the Board about their efforts as they have to local community groups in the last few months.

### Mid-County Groundwater Replenishment and Santa Cruz Regional Groundwater Replenishment

Advanced-treatment of wastewater for recycled water is growing in California to provide water for irrigation as well as indirect potable reuse for groundwater replenishment and seawater barriers. Two options came out of the Board’s August 26 workshop to further consider:

The Mid-County Groundwater Replenishment and Santa Cruz Regional Groundwater Replenishment. The District is currently working with the City of

Santa Cruz and Kennedy/Jenks consultants to apply for state grant funding to evaluate these two options.

Santa Cruz Regional Groundwater Replenishment

The City is including in their grant proposal a planning study on recycled water opportunities that will focus on potential recycled water alternatives that include, but aren't limited to, using the Santa Cruz Wastewater Treatment Facility (WWTF) as source water for landscape irrigation, seawater barrier, groundwater replenishment, reservoir augmentation, and direct potable reuse. As part of this study, they will be evaluating recycled water options that would involve a project as a sole entity and with other agencies (such as the District) to provide more regional benefits (Santa Cruz Regional Groundwater Replenishment Project).

Recognizing that the City's WSAC efforts are currently evaluating projects whereby Santa Cruz Regional Groundwater Replenishment Project may or may not be carried through their winnowing process, this makes it challenging for the District to determine if this project is viable as a stand-alone option for the District since the WWTF is solely owned and operated by the City of Santa Cruz.

The City plans to submit their grant application by the end of the year and District Staff will continue to work closely with them on this effort.

Mid-County Groundwater Replenishment

The District proposes to conduct feasibility level analyses for the Mid-County Groundwater Replenishment Project (MCGRP) of capturing sewer water from the Santa Cruz County Sanitation District's conveyance system for advanced treatment. This project will be evaluated as a District-only project with the possibility of being expanded to include other agencies (such as the City) to provide more regional benefits. As several Board members commented at the August 26 back-up options board workshop, the MCGRP looks somewhat more favorable as a potential project (at this point) since the SC County Sanitation District has shown initial interest in supplying source water for recycled water use.

Currently, the District workload pertaining to this option includes (1) submitting the grant application by the end of the year and, if approved, applying this grant funding (up to \$75K) to our feasibility analyses and (2) working on developing a scope of work for a technical advisor who will be assisting us with more fully evaluating recycled water for groundwater replenishment.

Black and Veatch Corporation (B&V) is currently one of the District's on-call consultants for engineering services. Additionally, B&V is conducting the peer

review of the six alternatives and selection criteria evaluated on August 26. B&V has extensive experience related to recycled water projects, and Staff proposes to work with them to develop a phased scope of work to serve as the lead technical advisor for the District's supplemental water supply efforts related to recycled water. These services will be provided on an on-call, as-needed basis.

The outline below is intended to serve as a framework of potential and proposed scope of services that would be conducted over the course of evaluation (upwards of multiple years) depending on the District's actions of further pursuit of recycled water as a groundwater replenishment project.

#### PHASE 1: Feasibility

1. Assist the District in defining the steps necessary to evaluate the two recycled water options and take any selected project through permitting and design engineering efforts.
2. Identify the necessary feasibility analysis to assist with evaluation. The preliminary list, thus far, includes a wastewater treatment feasibility study, hydrogeological assessment of the proposed groundwater recharge basin (in collaboration with HydroMetrics, WRI), wastewater source control study, pipeline alignment and right-of-way acquisition studies, treatment facility siting analysis and facility requirements, funding study, and advanced water purification technology study.
3. Develop a schedule for the identified steps and update the schedule as required through program evaluation and development.
4. Assist the District in the retention of qualified consultant(s) to perform the necessary technical work associated with the evaluations. This assistance may include, but not be limited to, preparing the technical criteria to be used by the consultants, drafting scopes of work, drafting requests for qualifications/proposals, assisting with a technical evaluation of the proposals, assisting with the interviews and selection of the consultants, contract negotiations, participating in project meetings with the District staff and consultant(s), and providing review and oversight of the technical content of the consultants work efforts and deliverables.
5. Provide quality assurance and quality control (QA/QC) for work under the recycled water evaluation including detailed reviews of work by in-house staff and sub-consultants and review of all deliverables. QA/QC shall include reviews for clarity, code compliance, technical approach and feasibility, costs, and constructability.

6. Provide the District with general technical expertise to address issues that may arise internally, from the Board, or from the public. Potential white paper topics may include, but are not limited to, wastewater source control strategies (with emphasis on constituents of emerging concern [CEC], endocrine disrupting compounds [EDCs], and pharmaceutical and personal care products [PPCPs]), current uses and applications of indirect potable reuse in California, current and regulations for potable reuse projects, and waste management strategies (e.g. reverse osmosis concentrate) at advanced water purification facilities.
7. Attend Board and public meetings, as needed, to assist staff in discussing the technical aspects of the options.
8. Conduct a technical peer review of feasibility studies prepared by design consultants. Review will ensure comprehensive and relevant data is presented to meet overall project objectives.
9. Assist with the public outreach and communications strategy and assistance, as-needed, toward addressing potential challenges to the project.
10. Provide recommendations for implementation of a pilot study for public outreach purposes along with options for other means of public education in the absence of a physical pilot plant. If the District moves forward with a pilot project for outreach or permitting reasons, consultant will provide technical guidance and review of data, analysis, evaluation and preliminary design criteria for the pilot plant operations.

PHASE 2: Select Project and Conduct Environmental and Permitting Analysis and Funding Options


1. Assist with the environmental review process including generation of additional technical analyses that was not performed in Phase 1 of the feasibility work.
2. Assist in providing permitting and regulatory support such as developing a preliminary list of permits, being the liaison between the District and agencies with respect to project concerns, and provide updates on regulatory developments related to recycled water.
3. Assist in preparing the necessary applications for grant funding or low-interest loans for the project from Federal, State, and other sources as identified.


PHASE 3: Design, Build, and Operate

1. Provide technical support and value engineering for the project design phase.
2. Act as Resident Engineer on behalf of the District during construction, start-up, and commissioning.
3. Provide technical support and oversight of permitting requirements (such as Basin Tracer Study).

POSSIBLE BOARD ACTION

1. BY MOTION; approve proposed scope of work (listed above) for recycled water technical advisor and direct staff to obtain formal proposal from Black and Veatch through the existing Engineering On-Call Agreement.
2. BY MOTION; modify proposed scope of work (listed above) for recycled water technical advisor and direct staff to obtain formal proposal from Black and Veatch through the existing Engineering On-Call Agreement.
3. BY MOTION: provide staff alternate direction for technical support of recycled water studies.
4. No action taken.

By   
Melanie Mow Schumacher  
Special Projects Engineer

By   
Kim Adamson  
General Manager