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| SCH2O_Logo_RGB_300dpi | Water Commission**7:00 p.m. –November 6, 2017****Council Chambers****809 Center Street, Santa Cruz** |

**MINUTES - Water Commission Meeting**

*Please note minutes are not final until approved by the Advisory Body*

**Call to Order** Chair Wilshusen called the meeting to order at 7**:**04 p.m. in the City Council Chambers.

**Roll Call**

Present: L. Wilshusen (Chair), D. Engfer (Vice-Chair), D. Baskin, J. Mekis, A. Schiffrin, D. Schwarm

Absent: W. Wadlow (with notification)

Staff Present: R. Menard, Water Director; H. Luckenbach, Deputy Director/Engineering Manager; N. Dennis, Principal Management Analyst; K. Crossley, Senior Professional Engineer; S. Easley Perez, Associate Planner II; K. Moore, Associate Planner II; T. Goddard, Conservation Manager; M. Kaping, Management Analyst

Consultants: Ann Sansevero, Dudek; Todd Reynolds, Kennedy/Jenks Consultants.

**Others**: Several members from the general public.

## **Announcements** **–**There were no announcements.

**Statements of Disqualification** – There were no statements of disqualification.

## **Oral Communications –**There were no oral communications.

**Consent Agenda**

1. City Council actions affecting the Water Department

2. October 2, 2017 Water Commission Minutes

4. 2018 Water Commission Schedule

5. 4th Quarter FY 2017 Financial Report (continued from October 2, 2017 meeting)

6. 1st Quarter FY 2018 Financial Report

**Items Removed from the Consent Agenda**

3. Summary of Supply Modeling and Aquifer Storage and Recovery Information presented at October 2, 2017 Water Commission Meeting

7. Update to the 2015 State of the Water System (continued from October 2, 2017 meeting)

Commissioner Schiffrin moved the consent agenda. Commissioner Baskin seconded.

VOICE VOTE: MOTION CARRIED

AYES: All.

NOES: None

ABSTAIN: Commissioner Schiffrin for item #2 due to an absence.

**General Business**

3. Summary of Supply Modeling and Aquifer Storage and Recovery Information presented at October 2, 2017 Water Commission Meeting

Attachment 1 to this item, Summary and Key Points, Confluence Model Presentation, states four assumptions to the model that will likely need to be further evaluated. One of these assumptions is how the model treats the city’s surface storage (Loch Lomond Reservoir) and ASR/groundwater storage. Explain what is meant by risk tolerance as it relates to how the two storage reservoirs would be operated in reality.

* The Confluence model dispatches each water source based on a suite of criteria such as available water, water rights, water quality, etc. The model is currently set up to dispatch Aquifer Storage and Recovery (ASR) storage at the same time reservoir water is dispatched, assuming the relevant criteria are met. The model does not require that ASR storage be full before it being dispatched to meet demand. I.e., ASR storage may be only 40% full when a drought is experienced. The city will need to establish operational policy around when this new source is put into the portfolio of available supply. If it is drawn down prior to being full, it may not be available to meet full drought-demands or be available in subsequent drought years until it reaches a full condition. These are risk-based decisions that will be considered moving forward.

Commissioner Schiffrin moved to accept the Summary of Supply Modeling and Aquifer Storage and Recovery Information presented at October 2, 2017 Water Commission. Commissioner Baskin seconded.

VOICE VOTE: MOTION CARRIED

AYES: All.

NOES: None

7. Update to the 2015 State of the Water System (continued from October 2, 2017 meeting)

Staff will include additional information on the relationship of the following three projects described in the State of the Water System Update to the WSAS work.

1. North Coast system as it relates to the as-designed capacity of that line.
2. North Coast diversion to understand how, once the HCP is in place, it may become part of the WSAS system.
3. Newell Creek Dam Inlet/Outlet Pipeline Project input and the ability to fill and extract from Loch Lomond in the future.

Commissioner Schiffrin moved to accept the Update to the 2015 State of the Water System (continued from October 2, 2017 meeting) Commissioner Baskin seconded.

VOICE VOTE: MOTION CARRIED

AYES: All.

NOES: None

8. Presentation by Dudek on Updating the Water Supply Augmentation Strategy, Local Desalination Option

Has a radial collector well system ever been implemented for subsurface, ocean collection?

* While this type of subsurface collector system, which is similar to a Ranney collector well that was extensively discussed during the WSAC process, has not been implemented elsewhere in the marine environment, experts consulted with during the scwd2 project were of the opinion that, based on the available information of the hydrogeology and available space, this type of well system may work. However, given our ocean environment, and the nature of the subsurface material, there are concerns about the volume of water such a system will be able to reliably produce. More study is needed related to requirements of the Ocean Plan Amendment (OPA) for use of subsurface intakes, particularly on their effectiveness and feasibility.

How do you go about determining the cost of construction of a radial collector well in a marine environment?

* Staff consulted with the Ranney collector manufacturer, and offshore marine engineers and contractors to better understand the potential requirements of this approach. Construction would be similar to that used to build the caissons for the new San Francisco Bay Bridge and this example was used to build a base cost. In addition, a higher than normal contingency was built into the cost as this approach would be a first of its kind solution in the marine environment.

Would it be helpful to go back and revise the base cost estimates from 2012 and is it possible that improvement in technology may bring costs down?

* The costs from the 10% design of the 2013 scwd2desalination project were used and then inflated to reflect more recent experiences such as the bid results from the Monterey Pure Water project. These numbers could be further refined and should be if this alternative is pursued further.

Since the Commission will be asked to compare the costs between the desalination and recycled water options, would it improve our decision making if we had the most current cost estimates for all projects?

* Yes, it is our intention, once the ASR and In Lieu studies are completed, to return to all the proposals and re-evaluate the assumptions and basis for the cost estimates to ensure an apples to apples comparison.

With a subsurface, radial collector well never being employed in a marine environment, how do we know if it would be successful?

* Consultants and vendors have indicated that a full scale unit would need to be installed as a type of pilot test of this technology in order to be able to confirm its efficacy. This is a costly endeavor that may prove the technology is not suitable to this location or does not yield the volumes needed to fill the water supply gap. Additional sampling of the subsurface materials could be performed along with groundwater modeling prior to pilot testing to increase the understanding of this technology prior to excessive capital investments. That being said, it remains unclear how the Regional Water Quality Control Board (RWQCB) will interpret a feasibility study on this technology. To this end staff recommends early consultation with the RWQCB to flesh out the details of this regulation as it relates to this location.

What is the timeline for making decisions and how will needing to decide on the subsurface options affect the decision making for the project overall? What backup alternative will also be considered?

* To be clear, we are not making a decision to move forward with desal at this point. We are exploring our backup alternatives as recommended by the Water Supply Advisory Committee (WSAC). The analysis is needed to make an apples to apples comparison with recycled water as the other backup alternative. The decision on the preferred backup alternative will not be made for another year, plus or minus, following consultations with the RWQCB and additional information is needed to compare the cost of the two backup alternatives.

Seeing that the cost of a desalination project without a subsurface intake is significantly less than a desalination project with a subsurface intake, will we be able to engage in a process with the RWQCB to better understand what the analysis of subsurface intakes would need to include in order to inform an ultimate decision on backup alternatives?

* We have a significant amount of information on the subsurface intake alternatives from the work done on the scwd2 desalination project making it fairly straightforward to make a presentation to the Regional Board on subsurface intakes, specifically the collector well alternative. We could work with them to negotiate requirements for any additional work that needed to be done to demonstrate feasibility, or infeasibility.

Is the Deep Water Desal (DWD) project pursuing similar subsurface intakes?

* The proposed open ocean intake for the DWD project is an abandoned structure that would pull ocean water from a depth at which marine life is supposedly significantly lower than at shallower depths. The OPA seeks to reduce impacts to marine life and a deep intake would presumably do this. That said, the project is also currently looking at the feasibility of subsurface intakes as required by the Ocean Plan Amendment.

What is meant by the reference to energy recovery as a design parameter as described on page 8.12 in the report?

* Energy recovery devices are frequently installed along with seawater reverse osmosis (RO) units to recoup a portion of the energy required in the RO process. Water pressures must be raised to approximately 1,000 PSI to force water through RO membranes. The remaining brine retains approximately 900 PSI which can be used to power a reverse turbine thus lowering the overall energy use of the facility. Again, this is standard practice in modern facilities.

Page 8.16 of the Dudek report states that the Integrated Water Plan (circa 2003) considered Olympia Quarry as a groundwater storage location. Is this site a viable opportunity for Aquifer Storage and Recovery (ASR)?

* San Lorenzo Valley Water District operates wells at the Olympia Quarry and in the ASR discussion held at the October Water Commission meeting, no potential sites were identified in that location. This location may still be feasible; no sites have been ruled out at this point in time.

The DWD design includes a data center which would provide the benefit of warming the seawater as it acts as a cooling system to the data center. This would improve efficiency and is discussed on page 8.23. Would the discharge water back to the ocean be warmer and would this need to be mitigated? Is the data center included in the project?

* The temperature increase resulting from the RO process is negligible and, as demonstrated at other facilities, we assume would not be an issue requiring mitigation.
* The DWD project has been described as including a data center. However, the description of the project and associated costs provided by DWD staff at the time of this analysis do not include the data center. Staff received no indication that this decision was final and assumes that a data center would in fact be included in a final project, likely having the effect of reducing the unit cost.

If the Pure Water Soquel project is pursued, will there be enough treated wastewater to perform the dilution necessary for a desalination project and will the brine dilution math pencil out? How much wastewater do we have available for this backup alternative?

* The Dilution Analysis conducted for the scwd2 project would need to be updated with current conditions including assumptions about the Pure Water Soquel project. The previous analysis concluded that dilution requirements could be met although brine storage tanks were needed as part of the scwd2 project to store brine at night, when treated wastewater discharges were low. However, modifications to the existing outfall could be made to meet dilution requirements in lieu of or in addition to using dilution water.

There is discussion on page 8.47 of the report of discontinuing the use of the Beltz Well system. Is this a component of this desalination backup alternative?

* A number of scenarios were evaluated using the water system’s hydraulic model to understand any impacts resulting from the introduction of desalinated water into the system. The modeling identifies areas in the system where pressures, velocities, water age, etc. exceed operational recommendations and would need further analysis and potentially infrastructure improvements. To perform the hydraulic modeling assumptions were made about the operation of the Beltz wells and whether or not, during a drought when a desalination project were online, the city would continue to pump groundwater. For the majority of the scenarios presented in the report the Beltz well system was assumed to be off during operation of the desalination plant in order to preserve groundwater levels and reduce the risk of seawater intrusion. Additional analysis may be warranted and is easily done with the use of the department’s in-house model.

Public comment was received following this item and the relevant points have been included in the summary above.

9. Briefing and Refresher on WSAC Change Management/Adaptive Management Framework

Can you provide some clarification on adopting a plan versus adopting an approach? Is it possible to include WSAC preferences and values in the “Level Playing Field Evaluation Results?

* Yes, WSAC’s preferences and values will be included in the evaluation tool.

Will it be possible to further quantify the criteria of “timeliness” to reflect that projects may have differing implementation dates?

* The “timeliness” criterion is related to whether the project can be completed and online by 2025. To simplify the chart, a pass/fail criterion was indicated however, in reality, at the point the evaluation is completed, all the projects would be developed enough to include project completion dates.

During the WSAC process, the group was not able to consider every criterion that should be used to evaluate water supply projects. Will criteria such as: robustness, redundancy, resiliency, adaptiveness and flexibility to reduce our dependency on the San Lorenzo River and increase our raw water source portfolio be included in the analysis?

* One of the lessons of the 2017 winter storms was that a major transmission pipeline failed, not our raw water sources. While it is not a bad idea to diversify our source water portfolio, we need to also focus on reliability of the existing system as was one of the first topics WSAC explored.

What impact will delaying a decision on Element 3 have on our work because we do not have information on Elements 1 & 2 and the recycled water portion of element 3?

* The timeline calls for a decision point in 3 years so we have time to wait for better information on the feasibility of injecting water into local aquifers before we make any decision on which of the two options for Element 3 would make more sense to use to compare with winter water harvest options.

Is it true that the City would need to initiate the CEQA process with all four of the WSAC alternatives prior to making a final decision?

* CEQA would need to proceed on the selected project, or suite of projects or actions. If a recommendation was made to include all four WSAC alternatives (presumably in lieu, ASR, desalination and some form of recycled water) CEQA could proceed on all four alternatives as part of a program approach to water supply reliability. However, without a recommendation of this kind, proceeding with CEQA would be premature as the project would not be defined and therefore speculative.

Public comment was received following this item and the relevant points have been included in the summary above.

**Subcommittee/Advisory Body Oral Reports**

10. Santa Cruz Mid-County Groundwater Agency (MGA)

Commissioner Baskin gave an update on the Groundwater Sustainability Plan (GSP) Advisory Committee orientation and chartering process. Two of the planned four orientation sessions have occurred with the last two scheduled for November 13th and December 7th. The Advisory Committee has also completed the first of two planned chartering sessions, with the second scheduled on November 13th.

At the MGA Board meeting on November 16th, Russ McGlothlin an attorney involved in drafting the Sustainable Groundwater Management Act in 2014 will present an overview of SGMA’s statutory governance framework and the authorized tools that Groundwater Sustainability Agencies will have at their disposal and the constraints that will guide their operations and decision-making.

Additional details are available at the MGA’s website: [www.midcountygroundwater.org](http://www.midcountygroundwater.org) .

11. Santa Margarita Groundwater Agency

Commissioner Engfer provided an update on the newly formed SMGA and its work on developing by-laws. They expect to finalize this work at the next meeting at 7:00 pm on Wednesday, December 13th. Since this basin is not critically over-drafted, the GSP is not due until the end of January, 2022. As a result the SMGWA will have the opportunity to benefit from the efforts of the MGA. A big focus of the SMGWA in the coming months will be on bridge building between the participating water agencies which will come as they work together to develop the GSP.

Additional details are available at the SMGWA’s website at www.smgwa.org.

**Directors Oral Report**

Ms. Menard announced presentations next meeting will focus on the natural resources and environmental side of the house. We will be reviewing the sanitary survey, the health of the watershed related to sedimentation issues, status of Habitat Conservation Plan, and the Water Rights Conformance project work.

In January there will be a presentation and review of the current CIP projects in the Department projects.

**Adjournment** Meeting adjourned at 9:22 pm.

Respectfully submitted,

Nicole B. Dennis

Principal Management Analyst