



# CITY OF SANTA BARBARA

## COUNCIL AGENDA REPORT

**AGENDA DATE:** March 7, 2017

**TO:** Mayor and Councilmembers

**FROM:** Public Works Department, Water Resources Division

**SUBJECT:** Report On The Findings Of The Potable Reuse Feasibility Study

### **RECOMMENDATION:**

That Council receive a presentation summarizing the findings of the Potable Reuse Feasibility Study.

### **DISCUSSION:**

At its meeting of September 23, 2014, Council directed staff to explore options for converting the existing offshore intake, sized and permitted to provide sufficient water for a 10,000 acre feet per year (AFY) desalination plant, to a Subsurface Seawater Intake (SSI) for the desalination plant, and evaluate opportunities for potable reuse as an alternative to desalination. Council's direction to staff was subsequently incorporated into an amendment to the City's El Estero Wastewater Treatment Plant National Pollutant Discharge Elimination System Permit (NPDES Permit) which added two milestones: submit a Feasibility Study Work Plan to the Regional Water Quality Control Board (RWQCB) by August 31, 2015, and report the findings of the Feasibility Study to the RWQCB at a public meeting, no later than June 30, 2017.

The work was divided into two elements; the SSI analysis and the potable reuse analysis. The work plans for the two projects were developed simultaneously, released in draft form for public comment, and reviewed by a Technical Advisory Panel (TAP) consisting of field experts assembled by the National Water Research Institute (NWRI). A public meeting was held in early August 2015 and comments from the TAP and the public were incorporated in the final work plan. The work plan included initial screening criteria to evaluate the technical feasibility of the different alternatives and assign them as either infeasible, potentially feasible (but does not meet study goals), or potentially feasible. In accordance with the Work Plan (Appendix A), only "potentially feasible" alternatives are to be considered further in this study, for an evaluation of their social, environmental and economic feasibility. However, alternatives that were identified as "potentially feasible but does not meet current study goals" can be considered as part of

future studies. The work plan was submitted to the RWQCB in August 2015 and accepted in a letter from RWQCB staff dated October 20, 2015.

### Potable Reuse Alternatives

The evaluation of alternatives was conducted consistent with the approved work plan. The Potable Reuse Feasibility Initial Screening Study (Study) public workshop was held on October 26, 2016. Similar to the format of the Subsurface Intake (SSI) analysis, a draft report was made available to the public and the TAP for review several weeks ahead of the meeting. Public comments were received, reviewed, and responded to by the TAP. Comments by the public and TAP were incorporated into the final report. A copy of the final report, the presentation, and the video recording of the public meeting can be found at the following website: <http://www.nwri-usa.org/santa-barbara-panel.htm>.

The Study calculated the long-term daily average of treated effluent flows from the El Estero Wastewater Treatment Plant to be 7.73 MGD or 8,660 AFY. The amount of treated effluent available during a drought, however, can be significantly less. During the current drought, for example, flows have averaged 6 MGD over the past year. The Study used the historical, long-term daily average, because it takes into account the capacity necessary to accommodate seasonal and diurnal flow variations.

The Study considered a combination of projects which examined Indirect Potable Reuse (IPR), Direct Potable Reuse (DPR), and some level of continued use of the City's recycled water system, referred to as Non-Potable Reuse (NPR). The IPR projects investigated included groundwater replenishment by surface application and subsurface injection (both seawater intrusion barrier and inland recharge options were evaluated). The Study found that IPR by surface application had several risks associated with high groundwater, mobilization/capture of existing contamination, liquefaction, slope failure, and impacts to sensitive habitats; and found that the low potential yield of surface recharge with IPR did not warrant additional consideration. The Study found that IPR was not effective as a seawater intrusion barrier in Storage Unit 1, even with injection from 24 wells. The only IPR method carried forward for initial screening was subsurface injection in inland parts of the basin. This alternative was found to be technically feasible, but did not meet Study goals. The TAP acknowledged that the potential IPR yield is likely less than the yield identified in the Study due to potential mounding issues, and the City would be challenged to secure adequate property to install several new injection and extraction wells that would be required.

There are two forms of DPR, direct connection to the potable water system and raw surface water augmentation. At this time, a direct connection to the potable water system is not under consideration by State Water Resources Control Board (SWRCB). However, raw surface water augmentation is considered potentially feasible; therefore, the Study focused on raw surface water augmentation at Lauro Reservoir (Lauro). In this project, advanced treated effluent would be pumped and conveyed up to Lauro, a federally owned facility managed by the Cachuma Operations and Management Board. Lauro is currently

the forebay for storage and conveyance of surface water from Lake Cachuma, Gibraltar Reservoir, and State Water, which is treated at the Cater Water Treatment Plant (Cater).

The Study's findings, with which the TAP concurred, were that DPR via raw surface water augmentation was potentially technically feasible, but did not meet Study goals. The use of Lauro and retreatment at Cater is viewed as a potentially feasible option since it introduces a storage buffer that could be used to mitigate any unforeseen failures in the potable reuse treatment process, an added layer of protection anticipated to be required by the SWRCB. Due to the relatively small size of Lauro (approximately 300 AF) advanced treated effluent blended with surface water in the reservoir is currently designated a DPR application by the SWRCB.

The SWRCB is currently discussing how to develop regulations for this form of DPR, but based on conversations with staff, is likely to take at least seven years to fully test various treatment processes and to develop regulations. SWRCB does leave open an option for individual agencies to develop a regulatory path concurrently with the SWRCB to approve a project. Given the uncertainty and costs of such a project it is not recommended that we proceed at this time until more information is known. The City of San Diego is moving forward under this framework. City staff will monitor San Diego's efforts closely over the coming years.

In December, the City was contacted by a group of California water agencies interested in assisting the SWRCB with development of direct potable reuse regulations. The DPR Coalition, as it has been coined, includes the City of Ventura, San Francisco Public Utility Commission, and Los Angeles Department of Water and Power who are also actively considering direct potable reuse. The consensus of the group was that we could collectively assist SWRCB in their development of regulations by providing tangible examples of projects being considered by water agencies. Therefore, the City is moving forward with the group with input from an NWRI assembled TAP and the Water Environment & Reuse Foundation, with the goal of presenting four project applications of DPR to the SWRCB. The cost to each agency for participating is \$5,000, to cover travel and miscellaneous costs for the NWRI TAP. Carollo Engineers, who assisted the City with our Potable Reuse Study, has volunteered their staff time to assist in compiling the information on behalf of the group.

On January 27, 2016, a public workshop was conducted by the TAP to receive comments on the SSI feasibility analysis. A summary of the findings were presented to the Council on March 22, 2016. That analysis is also available at the following website <http://www.nwri-usa.org/santa-barbara-panel.htm>. The information from both the SSI analysis and potable reuse study will be useful in identifying additional water supply opportunities and in assisting with the City's next Long Term Water Supply Plan Update.

In compliance with the RWQCB's amendment to the City's El Estero Wastewater Treatment Plant NPDES Permit, staff will give a presentation on the Subsurface Desalination Intake Initial Screening Analysis and Potable Reuse Feasibility Studies

Report to the RWQCB on May 11 or 12, 2017, in San Luis Obispo. The presentation to the RWQCB is the final requirement under the amended permit conditions.

On February 16, 2017, this item was presented to the Water Commission and recommended to be submitted to City Council.

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**SUBMITTED BY:** Rebecca J. Bjork, Public Works Director

**APPROVED BY:** City Administrator's Office