THE CITY OF SAN DIEGO

REPORT TO THE CITY COUNCIL

DATE ISSUED: July 22, 2013 REPORT NO: 13-068

ATTENTION: Natural Resources and Culture Committee, Agenda of

SUBJECT: Potable Reuse Project – 90-Day Update Pursant to City Council's acceptance of the Water Purification Demonstration Project Report

REFERENCE:
1) Resolution Number R-308121 of the City Council accepting the Water Purification Demonstration Project Report, accepted April 23, 2013.
2) Resolution Number R-307584 of the City Council accepting the Recycled Water Study, accepted July 17, 2012.

REQUESTED ACTION:
None.

STAFF RECOMMENDATION:
Informational Item Only.

SUMMARY:

On April 23, 2013, the City Council unanimously adopted the Water Purification Demonstration Project Report (Resolution R-308121). At this meeting, Council also directed staff to define in greater detail the City's potable reuse options, including direct potable reuse. There is overlap between this Council directive and follow-on work associated with the Recycled Water Study, which was adopted by the City Council in July 2012 (Resolution R-307584).

The following lays out the recommended next steps from the Demonstration Project Report, the Recycled Water Study, and Council's directive to explore direct potable reuse:

1. **Determine a preferred implementation plan and schedule that considers potable reuse options for maximizing local water supply and reducing flows to the Point Loma Wastewater Treatment Plant.**

   The Public Utilities Department (Department) will build upon major findings from both the Recycled Water Study and the Demonstration Project Report:

   - The Recycled Water Study laid out high-level concepts for 83 million gallons per day (mgd) of potable reuse by 2035. When combined with non potable reuse (18 mgd) and a

planned Helix Water District reuse project (5 mgd), future total reuse is estimated to be 106 mgd. This would result in a 135-mgd reduction in flows to Point Loma.

- The Water Purification Demonstration Project (Demonstration Project) established the feasibility of a 15 mgd of full-scale indirect potable reuse (IPR) utilizing the San Vicente Reservoir.

The tasks below are intended to establish maximum feasible reuse capacities for each of the Recycled Water Study's prospective treatment sites, under both IPR and direct potable reuse (DPR) schemes. Figure 1, Potable Reuse Facility Alternatives, shows the locations of these sites and the amount of water that could be conveyed to San Vicente and Otay Reservoirs for IPR (Attachment 1). Cost estimates and implementation schedules will also be prepared so that the merits of IPR and DPR can be compared.

A. Detailed siting studies are needed to determine if facility locations identified in the Recycled Water Study can accommodate the conceptualized facility capacities. In Fiscal Year 2013, the Department initiated studies for the following: 1) a treatment facility located at Harbor Drive and McCain Road near the Airport; and 2) a wastewater pump station near Morena Boulevard and Balboa Avenue to divert additional wastewater to a future North City Advanced Water Purification Facility (AWPF). In Fiscal Year 2014 the Department will complete siting studies for the remaining treatment facilities identified in the Recycled Water Study, as well as for pipelines that will convey purified water from the various treatment sites.

B. The Demonstration Project was narrowly focused on a 15 mgd IPR project that would augment supplies in the San Vicente Reservoir. Water quality data from 12 months of AWPF operations, cost and energy evaluations, reservoir modeling, public opinion polling results, and letters of concept approval received from State regulators showed that a full-scale reservoir augmentation project is feasible. The separate Recycled Water Study included IPR project concepts that could augment the San Vicente Reservoir supplies by as much as 68 mgd. Additional reservoir modeling is needed to determine what maximum amount of IPR flow can be feasibly put into San Vicente Reservoir. This study will utilize the same computer model of the San Vicente Reservoir that was used for the Demonstration Project. Staff plans to contract with the National Water Research Institute (NWRI) to form an expert panel that will provide guidance and oversight for this work.

C. The Recycled Water Study also included a 15 mgd IPR concept utilizing the Otay Reservoir, with an advanced water purification facility at the South Bay Water Reclamation Plant. An Otay Reservoir Study will be needed to determine the maximum amount of IPR flow that can be put into the Otay Reservoir. No computer model of the Otay Reservoir exists, and one must be crafted for this analysis. A reservoir tracer study must be performed to support the model's calibration and validation. Staff plans to use the same panel formed for the San Vicente Reservoir studies for guidance and oversight for this work at the Otay Reservoir.

D. The Demonstration Project identified two possible pipeline alternatives for conveying purified water from North City to the San Vicente Reservoir. Follow-up work is needed to select the alternative, as well as to refine the alignment of the last 7,000 feet to the reservoir inlet. The last section to reach the inlet is estimated to be the most costly portion of the pipeline; less-costly alternatives will be evaluated.

E. Tasks 1A through 1D will refine the Recycled Water Study's IPR alternatives. Task 1E will identify the preferred Recycled Water Study alternative.

F. The Recycled Water Study concepts did not include any DPR options. Conceptual DPR facility scopes and costs will be developed for each of the treatment locations identified in the Recycled Water Study.

G. The Recycled Water Study conceptualized building a large treatment facility at Harbor Drive and McCain Road, just west of the San Diego Airport. The site is currently occupied by the Regional Public Safety Training Institute (RPSTI). The Department has initiated the acquisition of the site and relocation of the RPSTI. This task will be led by the Real Estate Assets Department.

H. Preliminary implementation schedules have been based on the traditional design-bid-build contracting approach. Other contracting approaches will be evaluated considering management of risk, schedule and cost benefits.

I. Findings and conclusions from Tasks 1E through 1H will be synthesized into a recommended alternative for implementation.

2. Continue Outreach Efforts

It is widely acknowledged that public acceptance is the most difficult hurdle facing agencies planning to implement potable reuse. In addition to all of the technical work described above, public outreach and education will continue to keep the public apprised of the City's potable reuse initiatives. The communication plan that provided the basis for outreach and education activities during the Demonstration Project has been updated to include messaging about:

- Demonstration Project results
- Potential full-scale facilities
- Direct potable reuse
- Ongoing research to define regulatory requirements

The updated communication plan will be incorporated into the speakers bureau, community events, and AWPF tours.

3. Develop a strategy for allocating potable reuse costs among local water and wastewater funding sources

The Recycled Water Study briefly described potential frameworks for allocating implementation costs to local water and wastewater funding sources. The Department will

work with stakeholders to reevaluate the merits of those alternatives and consider new ones, with the ultimate goal of establishing a methodology for allocating costs. As the implementation of potable reuse options will have a direct impact on flow to the Point Loma Wastewater Treatment Plant and on future National Pollutant Discharge Elimination System Permits, both the water and wastewater systems will share in the costs.

4. Develop a financing plan

Staff will develop a financing plan that incorporates the implementation schedule, facility costs, and cost allocation framework determined in Tasks 1, 2, and 3. This will be undertaken once Tasks 1, 2, and 3 are complete.

5. Monitor the development of direct potable reuse regulations

Legislative Activities. Senate Bill 918 (SB 918) was chaptered into law in 2010, establishing a schedule for the California Department of Public Health (CDPH) to work with stakeholders like the City in the development of uniform criteria for approving IPR projects with groundwater recharge and reservoir augmentation. To date, CDPH has issued draft criteria for IPR with groundwater recharge for review and comment. Uniform regulatory criteria for IPR with groundwater recharge are expected to be completed by the end of 2014 and will serve as the basis for the development of uniform regulatory criteria for IPR with reservoir augmentation, which is expected to be completed by December 2016.

The Department has actively supported the development of potable reuse regulations. Department staff attended the CDPH's public scoping meetings on SB 918, reviewed and commented on first draft regulations, and supported the work of organizations such as WateReuse and NWRI in their efforts to provide CDPH with data and technical insights advancing the regulatory scoping process.

Per SB 918, CDPH is required to investigate and report to the Legislature on the feasibility of developing uniform criteria for DPR by December 2016, but only after the completion of the uniform criteria for IPR with groundwater recharge and reservoir augmentation. The linear nature of the review process was intended to allow CDPH time to focus on a framework approach that could be expanded to incorporate related potable reuse applications. Therefore, any schedule delays with CDPH's development of uniform regulatory criteria for IPR projects would lead to a delay of the scheduled review of DPR. To that end, the San Diego County Water Authority (Water Authority) sponsored legislation in 2013 (SB 322), sponsored by Senator Hueso intended to help keep CDPH on schedule with its review of regulatory criteria for IPR with reservoir augmentation. The Department worked closely with the Water Authority in the drafting of the bill's language and participated in bicameral sessions that assisted in framing the legislative efforts.

The Department continues to stay engaged with California's regulators, providing critical insights regarding the urgency of our region's needs to cost-effectively develop local water supply options. San Diego's leadership with regard to potable reuse is recognized statewide.

Research Activities. In addition to the above legislative activities, the Department also successfully secured Proposition 50 and 84 grant funding for research to help define regulatory criteria for DPR, as well as to continue operating the AWPF. Proposition 50 funding in the amount of $2.6 million will be used to install additional treatment equipment

at the AWPF and evaluate its effectiveness. The objective of the research is to verify that the additional treatment barriers can provide public health protection equivalent to an environmental buffer. This research will occur from April 2013 through August 2014. The City's share of the costs is $50,000.

The City partnered with the WateReuse Research Foundation (WRRF) to obtain Proposition 84 funding in the amount of $2.2 million to develop guidelines for ensuring treatment failure response readiness. The City's and WRRF shares of the cost are, respectively, $70,000 and $995,000. Such response readiness is expected to be integral to DPR regulations due to the absence of an environmental buffer. As part of the research, an expert panel will define guidelines that consider the human factor, monitoring, and reliability strategies; these guidelines will be tested and demonstrated at the City's AWPF. The research will occur from the fall of 2013 through the summer of 2015; findings and recommendations will be provided to the CDPH in early 2016 for their use in determining the feasibility of DPR regulations.

6. **Join the Direct Potable Reuse Initiative led by the WateReuse Research Foundation**

The objective of the Direct Potable Reuse Initiative is to support CDPH in its effort to meet the December 31, 2016 deadline established by SB 918 for issuing a report on the feasibility of DPR. The City, along with 44 other water agencies and firms around the state, has joined the initiative. The initiative is funding various research projects to provide guidance to CDPH as to the treatment and monitoring requirements for direct potable reuse. The Proposition 84-funded research described above is among these projects. As a member of the initiative, the City will be a stakeholder in the overall effort, participate in meetings with the State's independent advisory panel, and receive regular updates from WateReuse.

7. **Coordinate potable reuse implementation strategy with Point Loma 2015 Permit Renewal Application**

Potable reuse will have a direct impact on the wastewater flow to the Point Loma Wastewater Treatment Plant and is thus expected to have a key part in the upcoming discussions of Point Loma's permit renewal.

8. **Continue AWPF Operations**

The AWPF will continue to operate and the water tested through Fiscal Years 14 and 15. Twenty (20) months of operational costs will be included in grant reimbursable research contracts. Grant funding has been secured through Propositions 50 and 84. The City's cost for operations and electricity during this time is estimated to be $720,000. This will allow the AWPF to be available for public tours and to continue this aspect of public outreach.

Execution of the Work

The Department will be forming a stakeholder group to participate and provide input throughout the completion of the above next steps.

Much of the work associated with Tasks 1, 3 and 8 will be conducted using existing consultant contracts, while Tasks 4 through 7 will be performed by City staff. Scope and fee negotiations are underway for Tasks 1 and 3, and the estimated costs and timelines for these tasks are still

being refined. Work, however, is expected to begin in the first quarter of Fiscal Year 2014 and take approximately three years to complete.

Public outreach staff will continue to utilize the services of Katz and Associates for Task 2 through 2013. Staff has initiated the process to hire an outreach consultant to provide support beginning in 2014.

The City's as-needed contract with Trussell Technologies will be utilized for Task 8; this contract will terminate on December 10, 2013. Staff has initiated the process to obtain Council approval to extend this contract through July 2015.

Outcome and Implementation Strategy

The above-described work will culminate in an implementation strategy identifying the reuse projects that could be implemented, their timing, and financing needs. The major challenge will be to continue making progress towards full-scale implementation while maintaining all options, i.e., *both* IPR and DPR options. CDPH's feasibility finding as to setting DPR regulatory criteria is due at the end of 2016. If circumstances delay CDPH's feasibility finding, the City's implementation strategy needs to:

- Emphasize flexibility and adaptability
- Differentiate between facilities that can be utilized for both modes of potable reuse (IPR or DPR), versus those that pertain specifically to one mode and not the other. For example, a portion of the purified water pipeline is needed for both modes, whereas the extension to the San Vicente Reservoir is only needed for IPR. The treatment facilities can be similarly segmented.
- Integrate IPR and DPR options
- Identify IPR-DPR decision points
- Balance schedule, cost effectiveness, efficiency
- Sustain the current momentum

Future reports will provide the progress made on the development of such a strategy.

FISCAL CONSIDERATIONS:

Not applicable at this time.

PREVIOUS COUNCIL and/or COMMITTEE ACTION:

On July 17, 2012, the City Council accepted (R-307584) the Recycled Water Study. On April 23, 2013, Council accepted (R-308121) the Water Purification Demonstration Project Report.

COMMUNITY PARTICIPATION AND PUBLIC OUTREACH EFFORTS:

Throughout the duration of the Demonstration Project, the City sought to ensure that information was presented in a clear, understandable, and accessible way to residents in all areas of the City. Such outreach activities will continue to inform residents about the Demonstration Project's results, as well as the City's ongoing potable reuse planning efforts. Activities include group presentations, community events, and tours of the Demonstration AWP Facility.

KEY STAKEHOLDERS AND PROJECTED IMPACTS:
The Public Utilities Department is in the process of forming a stakeholder group to participate in the potable reuse planning efforts described herein.

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Attachment: Figure 1 – Potable Reuse Facility Alternatives