

DATE ISSUED: July 13, 2005 REPORT NO. 05-156

ATTENTION: Natural Resources and Culture Committee  
Agenda of July 20, 2005

SUBJECT: Status report on: 1) Pilot Study of Biological Aerated Filtration (BAF) at the Pt Loma Wastewater Treatment Plant; 2) Review of the Pt Loma Ocean Monitoring Program by Scripps Institution of Oceanography, and 3) The Water Reuse Study.

REFERENCE: (1) Manager's Report No. 03-211 dated October 17, 2003: Metropolitan Wastewater Department, Pilot Testing of Biological Aerated Filter Technology at the Point Loma Wastewater Treatment Plant.  
(2) Council Resolution No. RR-298435 filed September 29, 2003 approving the agreement with the Regents of the University of California for the Point Loma Outfall Project.

### SUMMARY

THIS IS AN INFORMATION ITEM ONLY. NO ACTION IS REQUIRED ON THE PART OF THE COMMITTEE OR THE CITY COUNCIL.

### BACKGROUND

The Pt Loma Wastewater Treatment Plant (PLWTP) operates with a modified NPDES permit that does not require full secondary treatment prior to discharge through a deep ocean outfall. Authorized by section 301(h) of the Clean Water Act, as initially modified by the Ocean Pollution Reduction Act of 1994 (OPRA), the modified permit requires renewal every five years. Pt Loma's first modified permit was issued by the USEPA and State of California Regional Water Quality Control Board on November 9, 1995 and subsequently renewed effective September 13, 2002. The Pt Loma modified permit contained specific conditions not found in any other modified permit. These include requirements for an 80 and 58 percent removal of total suspended solids and biological oxygen demand respectively, a reduction in the quantity of suspended solids discharged to the marine environment during the period of modification and to achieve a system capacity of 45 million gallons of reclaimed wastewater per day by January 1, 2010.

Although approved by the regulatory agencies, the renewal was opposed by the environmental community, who expressed the following concerns:

- a. Adequacy of ocean monitoring to detect possible negative impacts.
- b. Concerns about actual use of reclaimed water versus constructed capacity.
- c. Permitted mass emissions limit of suspended solids too high and not in conformance with the OPRA legislation.

Subsequent to the regulatory approval, Baykeeper/Surfrider/Sierra Club filed an appeal to the Environmental Appeals Board (EAB) concerning the mass emissions. The City responded by also filing an appeal to the EAB concerning the applicability of OPRA.

In an effort to resolve these differences, the City and Environmental Representatives (now called Bay Council) began talks about future modified permits. After reaching an agreement regarding the issues of concern to the Bay Council, both sides entered into a joint stipulation whereby all appeals to the EAB were dropped with a reservation of rights.

The agreement consists of:

- 1 - The City working with Scripps Institution of Oceanography for a complete review of the Pt Loma ocean monitoring program with Bay Council and public participation.
- 2 - The City conducting a comprehensive study of potential uses for reclaimed water, including a re-look at the potential for reservoir augmentation (potable reuse).
- 3 - The City conducting a pilot test of an innovative treatment process, Biological Aerated Filtration (BAF), that may be applicable for use at the PLWTP to keep mass emissions within permit limits or to convert the plant to secondary treatment.

## DISCUSSION

The purpose of this report is to provide an update on the status of the three projects being conducted in accordance with the settlement agreement.

### 1. Review of the Pt Loma Ocean Monitoring Program

This project consists of an impartial science based review by Scripps including input from the public. It was approved by the City Council on September 29, 2003. Scripps utilized a multi-disciplinary scientific team and a highly respected peer review committee in order to carry out the review. The project included a public meeting at the initial stages to solicit the concerns of the local community, as well as another public meeting near the project conclusion to receive comments on the draft project report, prior to it being finalized. Representatives of the Bay Council, USEPA, Regional Water Quality Control Board, County Health Department, Metro System Participating Agencies and City Staff took part in the process. The Bay Council and Metro System Participating Agencies also nominated scientists who participated on the peer review committee. Scripps has completed the project report and City Staff is now working with Scripps, the Bay Council, USEPA and Regional Water Quality Control Board on implementation strategies. The report found that the San Diego

coastal region is a complex area with many potential sources of contamination. Although the Pt Loma Outfall discharge is a point source, it is necessary to take a regional monitoring perspective in order to put that discharge in context with all of the inputs to the local coastal ocean waters. The findings detailed in the report include the need to look regionally as well as recommendations to better understand the dispersion of the effluent plume, identifying alternate benthic control sites, sampling deep ocean areas, understanding sediment transport issues, incorporating more sensitive indicators of pollution, addressing endocrine disrupting compounds, developing more rapid tests for indicator bacteria, developing in-house source tracking techniques, monitor for human viruses when appropriate, consider effects on marine mammals and consider a risk assessment, including correlating human health risks with monitoring results. In developing an implementation strategy the recommendations are being categorized as: 1) tasks that may be added to the present routine monitoring; 2) tasks that would be done by the City as a stand alone special study, or 3) tasks that would be accomplished in conjunction with large scale surveys of the entire Southern California Bight that are done every five years in a partnership with other dischargers, the regulatory agencies and academic community. Additionally, part of the evaluation involves an assessment of what agency should be responsible for implementation of a recommendation. Whereas the report provides a comprehensive road map for monitoring enhancements, some of the recommendations may be outside the sole purview of the City's Metropolitan Wastewater Department.

## 2. Pilot Study of Biological Aerated Filtration (BAF)

Previous planning studies had indicated that because of site restrictions at Pt Loma, upgrades to the treatment provided at that location would be very costly. Initially considered an emerging technology, with only very small scale applications in place, the BAF process has recently gained a reputation in other countries as a robust technology that is now being employed on a large municipal scale. BAF can achieve secondary treatment with a much smaller footprint than the processes traditionally used in the United States. This makes it a very attractive alternative to consider for Pt Loma should a treatment upgrade be required. The pilot study was approved by the City Council on December 1, 2003. All field work was completed during calendar year 2004 and the final technical report was completed in June 2005. The Bay Council nominated a highly respected environmental engineer who participated in the project as a reviewer. The site specific pilot study confirmed that BAF is a robust technology capable of reliably providing secondary treatment or reducing mass emissions at less than a full secondary treatment level at Pt Loma. To accomplish this may require the acquisition of additional land belonging to the federal government that is north of the treatment plant. The test also validated a basis that can be utilized for a gross estimation of the capital cost for implementation of BAF.

## 3. Water Reuse Study

The Water Reuse Study (Study) is a comprehensive science-based review of the expansion of the City of San Diego's (City) use of reclaimed water. The Water Reuse Study 2005 (Study) was approved by City Council on January 13, 2004, coinciding with the City's five year review of its Water Reuse Master Plan.

The City currently has two water reclamation plants with separate reclaimed water distribution systems. The 30 MGD North City Water Reclamation Plant (NCWRP) has been in service since 1997, and the 15 MGD South Bay Water Reclamation Plant (SBWRP) was completed in 2002, with facilities for reclaimed water production just now being finalized. The combined design treatment capacity of these plants is 45 million gallons per day (MGD). After allowances for treatment process losses and other on-site uses, these two reclamation plants have recycled water production capacities of approximately 24 MGD and 13.5 MGD respectively. The average

annual beneficial reuse of reclaimed water from the NCWRP is currently 6 MGD. The SBWRP is presently producing 5 to 6 MGD of secondary treated wastewater that is disposed via the South Bay Ocean Outfall. Projects under construction to expand these distribution systems will increase the average beneficial reuse to 9 MGD from the NCWRP and 7.25 MGD from the SBWRP.

The majority of the City's current reclaimed water customers use this water for landscape irrigation. This creates seasonal demand fluctuations in reclaimed water use with demands doubling the annual average in the driest months and dropping during wet months. In the absence of significant storage capacity, this seasonality prevents optimal operation of the water reclamation plants.

In order to maximize water reuse, the Study evaluated a number of options including groundwater storage, expansion of the distribution system, reservoirs for reclaimed water, live stream discharge, wetlands development and reservoir augmentation. During the course of the Study, the study team identified different types of reuse project strategies, based upon the aforementioned options, and these were presented to the American Assembly and the Independent Advisory Panel for review.

A broad Public Outreach program has been conducted during the Study, which included the following:

- Two focus groups.
- A telephone poll of 406 City residents.
- Creation of an informational website with an on-line survey (as of June 19<sup>th</sup>, had received 4,200 hits and more than 250 surveys completed).
- A Speakers Bureau targeted to community planning groups and service organizations (as of June 30<sup>th</sup>, 61 presentations had been made).
- Developed a monthly electronic newsletter on Study activities with links to relevant water reuse and water supply articles.
- Stakeholder interviews with interested organizations (as of June 30<sup>th</sup>, 26 interviews have been held).

- Briefings with California Department of Health Services and San Diego Regional Water Quality Control Board staff, Public Utilities Advisory Committee liaison, City Council staff.
- Conducted two American Assembly workshops (October 2004 and July 2005).

total The Study contracted with the National Water Research Institute (NWRI) to establish an Independent Advisory Panel (IAP) of nationally recognized experts in the fields of public health, water quality, microbiology, environmental engineering, economics, toxicology, epidemiology, public utilities administration and regulatory issues to gain an independent third party review. The IAP includes three members from San Diego, including a community representative to provide a local perspective, bringing the panel to 11 members.

The IAP met in San Diego twice, in July 2004 and May 2005, to review all of the technical background material of the areas to be studied and to review the Interim Report. The IAP's overall evaluation of the Study Interim Report is included in the Final Report to be submitted to the City Council for their review and consideration.

Two American Assembly workshops were held with representatives from stakeholder groups that met for three full days to discuss and provide input on the Study's direction and progress. American Assembly participants were nominated by the offices of the Mayor and City Council, environmental groups, community groups, business organizations and through solicitations of known interested parties.

The first American Assembly established the Study's evaluation criteria for potential areas of water reuse. The second American Assembly reviewed and commented on the Interim Report. The result of each workshop was a statement summarizing majority and minority viewpoints. Both statements will be included in the Final Study Report submitted to the City Council.

## CONCLUSION

By the fall of 2005 all three of the studies that formed the basis of the settlement with the Bay Council concerning the modified permit for the PLWTP will be complete. After that time, decisions will be necessary regarding any future actions that the City may take in response to the studies or as a result of further discussions with the Bay Council.

Tulloch/ACL