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City Manager's Office

Memorandum

TO: HONORABLE MAYOR
AND CITY COUNCIL

FROM: Kerrie Romanow

SUBJECT: SEE BELOW

DATE: June 18, 2013

Approved

Date

6/19/13

**SUBJECT: UPDATE ON POWER GENERATION AT THE REGIONAL
WASTEWATER FACILITY**

INFORMATION

The purpose of this memorandum is to provide information pertaining to the unanticipated failure of Engine/Generator 1 in April, and its impact on the San José/Santa Clara Regional Wastewater Facility's ability to provide complete wastewater treatment upon the loss of PG&E power.

BACKGROUND

The draft Plant Master Plan (PMP) highlighted the urgent need for further evaluation of the reliability of the San José/Santa Clara Regional Wastewater Facility (RWF) power generation systems. As a result, in August 2012, an *Energy Management Strategic Plan* was completed and included the following recommendations as a first phase for implementation:

- Design and construct two new gas turbines, with room for a third, housed in a new cogeneration building, along with an associated gas treatment system.
- Replace Engine/Generator 2 (EG2) and EG3 in Building 40 with two new standby (diesel) generators to function as the emergency power generators in the event that PG&E power is not available for an extended period.
- Modify the cooling system of EG1 so it can continue to provide power until the cogeneration facility is operational and then serve as the third standby (diesel) generator.

In April 2013, EG1 suffered a catastrophic failure in its combustion system and has been rendered inoperable.

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The loss of EG1 changes both the timing and phasing of planned CIP projects. The Emergency Generator project is now on an accelerated timeline, and will precede the Co-Generation Project as described in the *Energy Management Strategic Plan*. In addition, the RWF must now rely, almost exclusively, on PG&E and its ability to provide continuous power.

ANALYSIS

With only one engine generator operable in Building 40 (EG2), there is not an emergency power system in place if PG&E power were to be lost. It is important to note that the RWF does not have a record of a catastrophic outage resulting from PG&E transmission or equipment failures, and that the longest recorded unscheduled/unforeseen outage was approximately 4 hours. However, we have historically operated with adequate power generation capabilities and thus been better equipped to operate absent PG&E supply.

Until adequate power capabilities are restored, we will need to augment our power outage emergency procedures to reduce the likelihood of discharging untreated sewage into the Bay. In response to a catastrophic outage we would immediately implement a strategy that would first surcharge the collection system and then subsequently fill the Emergency Basin.

RWF will start emergency generators and EG2 to enable wastewater to be pumped to storage until PG&E power can be fully restored. Maximum storage time ranges from 6-12 hours depending upon time of day, and flow conditions.

In addition, RWF Operations staff has increased the frequency of emergency power outage response drills and are now practicing weekly. This preparation and drilling will enable them to better understand the RWF energy configurations, prepare a plan for storage tanks and basins in the event of a catastrophic power outage, and share weekly updates regarding emergency notification to and from PG&E.

In addition to preparing emergency plans at the staff level, it is also critical to engage PG&E in emergency response planning. Staff has been engaging with PG&E representatives for several months to discuss power options in the event of equipment failure at the RWF. PG&E now recognizes the critical nature of the RWF and the fragile state of its power equipment. PG&E has directed its South Bay Operator responsible for monitoring the Transmission and Grid to provide additional surveillance for the RWF under a "Heightened Awareness" status. Additionally, the PG&E Control Center is now in contact with RWF Industrial Electricians and Operations staff, receiving weekly updates on standby status and any switching or testing within the RWF.

Recent discussions with PG&E have resulted in the following:

- PG&E's Demand Response Program is a Program implemented to reduce rotating outages during Peak Demands. The RWF is a "Voluntary Demand Responder" and is

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normally contacted during a curtailment event. Given the current situation, PG&E has agreed it will not be contacting RWF with voluntary curtailment requests.

- PG&E and the RWF are also reviewing and addressing the “Essential Customer Classification” as it relates to the Facility’s required participation in rotating outages. The existing CPUC rules do not exempt wastewater facilities from rotating outages, however, they do allow for exemption requests in special circumstances.

Finally, as a result of the failure of EG1, and the increased risk associated with the potential loss of PG&E power, the Emergency Generation component of the Phase 1 improvements described in the *Energy Management Strategic Plan* will proceed on an accelerated timeline, preceding the installation of new co-generation facilities. To achieve 9-12 Mega Watts (MW) of emergency power, this project will require the use of three to four diesel generators with 3 MW of power. The scope of work will also include diesel fuel tanks, replacement of generator controls at Building 40 and connectivity to switchgears (i.e., all equipment needs to operate together and be compatible with future control system plans). While a site has been selected for the Emergency Generator project, the schedule and cost estimates are currently being developed.

NEXT STEPS

Staff will continue to develop an emergency response plan and work with PG&E to request an exemption from rotating outages. Updates on emergency planning, Emergency Generators and the Cogeneration Project will be provided to Council in the Fall, 2013.

/s/

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Department

For questions, please contact Joanna De Sa, Deputy Director, Wastewater Management, at (408) 635-2039.

