DATE ISSUED: May 23, 2001 REPORT NO. 01-106

ATTENTION: Natural Resources & Culture Committee
Agenda of May 30, 2001

SUBJECT: South Bay Water Reclamation Plant Expansion CP-3 Change Orders

SUMMARY:

Issue - What actions should the City Council take regarding the Standby Generator (secondary power) and the Regulatory and Process Sampling Systems for the South Bay Water Reclamation Plant?

Manager's Recommendations - Authorize the City Manager to negotiate and enter into change orders with Kiewit Pacific for a not-to-exceed amount of $2,063,000 (to install a 2 MW Diesel Engine Generator System and to modify the Sampling Systems).

Other Recommendations - None.

Fiscal Impact - The total cost for the installation of the Standby Generator and Regulatory Sampling Systems is $2,063,000.

Funding for these change orders is available in Sewer Revenue Fund 41509, CIP 42-910.6, South Bay Water Reclamation Plant.

BACKGROUND

The Metropolitan Wastewater Department (MWWD) is currently in the process of constructing the South Bay Water Reclamation Plant (SBWRP). The SBWRP is located in the Tijuana River Valley, near the international border with Mexico. The plant will have a capacity of 15 million gallons per day (mgd) average flow and a peak capacity of 18 mgd. Construction began in 1998 and is expected to be completed by October 2001.

On August 3, 1998, the City Council adopted Resolution R-290575 authorizing the City Manager to enter into a contract with Kiewit Pacific in the amount of $61,006,000 for the construction of the South Bay Water Reclamation Plant, Package 3, Process Facilities. On June 21, 1999, the City Council adopted Resolution R-291806 approving Change Order #8 with Kiewit Pacific for construction services in connection with the South Bay Water Reclamation Plant Expansion, in an amount not to exceed $22,770,000.

DISCUSSION

1) On-site Standby Generator System:

The intent of Title 22 regulations is to establish acceptable levels of constituents of reclaimed water and to prescribe means for assurance of reliability in the production of reclaimed water in

order to ensure that the use of reclaimed water for the specified purposes does not impose undue risks to health. Code requirements of Title 22 stipulate reliable power for water reclamation facilities. Other requirements and recommended practices, such as EPA 430-99-74-001, have additional stipulations for wastewater treatment plants. A back-up power source is required prior to start-up of the plant.

MWWD initially entered into negotiations with SDG&E to purchase Alternate Electric Service for the SBWRP. With the expansion of the plant to15 mgd, a total of 2,500 kW (2.5 MW) of alternate electric service was requested from SDG&E in order to operate the facility in case of a power outage. This service was offered to MWWD at a capital cost of $500/kW or $1,250,000 plus a monthly operations and maintenance cost of $7,750 for 20 years or $1,860,000. The obligation to pay a monthly fee of $7,750 for 20 years was factored into our economic analysis, and we determined it would be in the best interest of the City not to use the SDG&E alternate power, but go with an emergency standby generator.

The standby generator as a second power supply will provide sufficient power for the plant's vital components in case of commercial power failure. This is defined as a measurement of the ability of a component or system to perform its designated function without failure. This change includes procurement and installation of a packaged diesel engine generator system, above ground vaulted fuel oil tank, generator step-up transformer, and busway for a total cost of $1,383,000. The electric power generating system shall have a site capability of 2,000 kW (2 MW). By proceeding now with the on-site generator, there are significant savings in operation and maintenance cost, the cost of electricity, and added reliability in the event of rolling blackouts.

2) Regulatory and Process Sampling Systems:

The change for the Regulatory and Process Sampling Systems is to provide ten (10) additional fully automatic refrigerated permanent samplers with flow signal monitored through the Distributed Control System (DCS). A total of thirteen (13) permanent samplers are to be installed throughout the plant.

The sampling system at the SBWRP was originally designed to the same parameters as those at the North City Water Reclamation Plant (NCWRP). The NCWRP began operation in mid 1997 and has experienced sampler related problems and subsequently has changed sample points and samplers to this permanent, flow-through, refrigerated type of sampler. The NCWRP has found these samplers to provide more reliable sampling with less down time. Additionally a sample feed pump will be installed along with related piping, including a drain pipe to return excess flows to the process stream.

A summary of the required changes to the sampler system is as follows:

a) Provide an additional sampler at the influent meter vault for regulatory influent sampling.

b) Relocate the designed influent sampler in the headworks to the grit influent channel.

c) Delete four (4) portable samplers intended to be used at seven locations and to provide a permanent sampler installation at the seven alternate locations for the portable samplers.

d) Provide two samplers (normal flow pace and large volume toxicity sampling) sampling from 72-inch final effluent pipeline downstream of the effluent pump station and waste backwash storage tank overflow connections.

These modifications(installation of permanent wastewater samplers) are necessary for continuous use to ensure the accuracy of laboratory analyses of test samples for submittal to the regulatory agencies for compliance with the waste discharge permit requirements. The result of these analyses are also used to improve operational strategies of the wastewater treatment facilities. From a regulatory standpoint, representative flow-paced samplers need to be located so as to capture all influent flows coming into the plant, all reclaimed water going out (water reclamation aspect of the permit), all return streams going to the Point Loma Wastewater Treatment Plant (the system-wide removal aspect of the PLWTP NPDES permit), those process effluents of concern to the pretreatment program, and disposal of sludge (solids handling aspect of the permit). The total cost of modifications to the sampling system is $680,000.

The following are some operational benefits associated with the modifications to the sampling system:

1. The replacement of the "portable-temporary" samplers with permanent, refrigerated stations has a significant impact to the labor intensity of plant operations. Portable samplers have limited utility, are not flow paced, must be set-up and taken down for each use, require close monitoring, and samples must be pulled through every work day and transferred to refrigerated storage.

2. The increase number in permanent, refrigerated sampling stations provides significant improvements in the ability to monitor and identify plant performance parameters and indicators. The increased monitoring ability will help to identify and avoid upset conditions, troubleshoot performance issues, and achieve regulatory compliance.

3. The expanded sampling system also provides for the improved ability to optimize plant operations to reduce costs associated with chemical application, aeration rates, and pumping requirements.

CONSTRUCTION

Kiewit Pacific is the construction contractor for the CP-3 Package, Process Facilities. They were issued a notice to proceed on October 1, 1998, and have completed approximately 85% of this project. As the current contractor, Kiewit Pacific is qualified to proceed with the changes stated above. MWWD is proposing to issue change orders to Kiewit Pacific for installation of the generator and samplers, which are integral to the successful completion of the SBWRP.

FISCAL IMPACT

The MWWD has estimated an amount not to exceed $2,063,000 for installation of standby generator and regulatory and process samplers. MWWD will negotiate a cost with Kiewit Pacific, and, if an agreement is reached, the change orders will be issued to direct Kiewit Pacific to proceed the work.

The total cost of the generator and samplers is $2,063,000 and is available from Fund 41509, CIP 42-910.6, South Bay Water Reclamation Plant.

ALTERNATIVE

Do not enter into a change order with Kiewit Pacific. This is not recommended, as back-up power is required prior to operation of the plant and the generator will provide a more reliable source of back-up power at a better long term cost than SDG&E. There are also significant benefits to improve the sampling system in order to increase sampling reliability and maintain regulatory compliance.

Respectfully submitted,

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F.D. Schlesinger
Director,
Metropolitan Wastewater Department

Approved: George I. Loveland
Senior Deputy City Manager

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