

Agenda Report

September 12, 2016

TO: Honorable Mayor and City Council
FROM: Water and Power Department
SUBJECT: REPORT ON EMERGENCY REPAIR OF THE BROADWAY 3 HIGH SPEED CIRCULATING WATER PUMP

RECOMMENDATION:

This report is for information only.

EXECUTIVE SUMMARY:

Recently, emergency repairs were made to the Broadway 3 high speed circulating water pump. The total cost of the repairs was \$153,924. Pursuant to Pasadena Municipal Code Section 4.08.150, in case of actual emergency which requires immediate purchase of material or services, the Director of Finance or his authorized representative with the approval of the City Manager may secure without competitive bidding, at the lowest obtainable price, any material or services regardless of the amount of the expenditure. A full report of the circumstances of any such emergency purchase shall be filed with the City Manager, and, where the expenditure exceeds \$75,000, with the City Council. This report is being provided to meet the requirements of the Municipal Code.

BACKGROUND:

Broadway 3 ("B-3") is a steam electric generating unit located at the City of Pasadena's ("City") local Broadway/Glenarm power plant facility. B-3 is capable of generating 65 megawatt ("MW") and is a vital component of the City's electrical system to provide reliable electricity in Pasadena and serves as back-up capacity.

B-3 is equipped with two circulating water pumps, a slow-speed and a high-speed. The pumps provide the circulating cooling water necessary to operate the B-3 unit. The slow-speed pump is used during low loads while the high-speed pump is utilized when the unit is at high loads or ambient temperatures are high. On July 26, 2016 the gear box drive end bearing on the high-speed pump caught fire. The fire was quickly extinguished by plant staff. Pasadena Fire assisted with re-ignition prevention. B-3 was

immediately removed from service. The unit was subsequently released for service, but had to be de-rated from 65 to 50 MW because the low-speed pump is not capable of providing sufficient cooling water for the unit to operate above the 50 MW load. The initial inspection by plant staff revealed that the tubing that supplies lube oil to the drive end bearing had snapped. The associated loss of lubrication resulted in the catastrophic failure of the drive end bearing.

After the failure of the pump, plant staff contacted several repair facilities to obtain repair quotes. The following three quotes were received based on the visual condition of the gear box (Table-1).

Table -1

Vendor	Quote	Repair Estimate
Sulzer Pump Services, Santa Fe Springs, CA	\$109,512	7-8 days
Pamco Machine, Rancho Cucamonga, CA	\$45,855	3-4 weeks
Philadelphia Gear, Santa Fe Springs, CA	\$101,285	4 weeks

All quotes were subject to change based on the findings after the gear box was disassembled. Two lowest bidders did not commit to an expedited repair schedule. Sulzer Pump Service, while providing the highest quote, offered an expedited repair within 7 to 8 days barring unforeseen scope of work. Staff is not aware of any local vendors with the capabilities to repair a gear box of this size. Sulzer has not done work for Power Supply in the last ten years.

It is very important for the Pasadena Water and Power Department to have all of its local electric generating units in ready-to-operate condition particularly during the summer months. B-3 is an essential component of the City's local electric generation portfolio. The City has limited capacity to import electricity from outside of Pasadena. The demand for electricity often exceeds maximum import capacity in the summer months and local generation must be turned on to produce additional energy in order to meet the City's electrical needs. Under certain conditions, the import capability is further restricted by planned or forced outages in the transmission system or City's own electrical distribution system which requires a higher amount of electricity production by B-3 and/or other local generation units. Depending solely on the low speed recirculation cooling water pump not only reduces the production capacity of B-3 to 50 MW but creates a rather large risk of power shortage in the City if it fails. Additionally, if the low-speed pump breaks down while B-3 is generating power, it would cause significant damage to several other components due to inadequate cooling. The 15 MW de-rate also triggers a non-availability penalty from the California Independent Power System Operator ("CAISO") that will cost approximately \$10,000 for a two-week period. A complete outage on B-3 would result in a non-availability fine from the CAISO in the amount of \$10,575 per day. Furthermore, the loss of generation from B-3 would also result in lost revenues and a reduction in system reliability for the City.

B-3 is planned to operate only until the new Glenarm Repowering electric generating unit GT-5 is commissioned. GT-5 is expected to be commissioned in the next two to four months. In spite of the short remaining life of B-3, its availability during the high electricity demand period of August through October months is essential to maintain reliable electricity within Pasadena. Given the urgency to get B-3 to its full capacity with a backup pump, staff selected Sulzer due to its shortest repair time in spite of the higher cost than the other bidders. The expedited turn around also reduced the CAISO penalties by approximately \$15,000. In order to accelerate B-3's return to service staff requested an emergency purchase order with Sulzer in the amount of \$136,890 which includes the originally quoted amount of \$109,512 plus a 25% contingency. The City Manager approved Purchase Order 1170416 on August 12, 2016 under the emergency purchase provisions of the Pasadena Municipal Code Section 4.08.150.

On August 22, 2016 Sulzer completed the disassembly and inspection of the pump gear box. It was discovered that several internal components had suffered damage during the incident and needed to be repaired. Sulzer provided a revised quote to include repairs to the gear box internal components. A change order was submitted to increase the purchase order by 17,034 for a grand total of \$153,924 The City Manager approved the change order on August 25, 2016.

The gearbox was repaired and installed on September 9, 2016 and B-3 was restored to full 65 MW capacity.

COUNCIL POLICY CONSIDERATION:

The proposed contract supports the City Council Strategic Planning Goal to improve, maintain, and enhance public facilities and infrastructure. It also supports the Public Facilities Element of the General Plan by maintaining public facilities to enhance the quality of life of the community.

ENVIRONMENTAL ANALYSIS:

The nature of the work performed by Sulzer qualifies for a categorical exemption in accordance with Title 14, Chapter 3, Article 19, Section 15301(Existing Facilities). Section 15301 allows for the categorical exemption from CEQA for repair work on existing publically owned facilities used to provide electric power that will not result in an increase in capacity or an expansion of existing use. The repair of the B-3 high-speed circulating pump adheres to these guidelines.

FISCAL IMPACT:

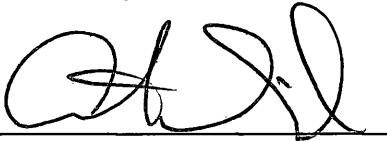
The cost of this action will be \$153,924. Funding for this action will be addressed by the utilization of existing budgeted appropriations in the Power Capital Fund 411, Capital Improvement Project 3148, B-3 Renewals, Replacements, and Improvements. It is anticipated that entire amount will be spent during the current fiscal year. This expenditure will have a minimal impact to other operational or capital projects.

Respectfully submitted,



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