

COUNCIL ACTION FORM

SUBJECT: POWER PLANT STEAM TURBINE NO. 8 OVERHAUL – CHANGE ORDER #5

BACKGROUND:

This project is required to replace worn parts discovered after the opening and inspection of the Power Plant's Unit No. 8 turbine and generator for repairs needed to avoid serious future damage. Repairs and replacement of worn parts have been completed as the inspection progressed and work was defined. **Large change orders are a normal and expected part of a major turbine-generator overhaul, due to the fact that many repair needs are unknown until the unit is opened and inspected.**

On January 22, 2013, City Council awarded a contract to NAES Corporation, Houston, TX, for Steam Turbine No. 8 Overhaul in the amount of \$807,800. This original amount included the following elements:

- \$443,800 for the lump sum base bid contract portion.
- \$91,500 for the time and material based "not to exceed" contract portion.
- \$272,500 for the estimated time and material based contract portion.

Council authorization for a fifth change order covering two items is now needed.

Item 1:

This work involves labor, tools and supervision for the removal of the stop valve fine screen. This activity was not originally planned under the "Open, Clean, and Close" with the contractor. It was decided that, with boiler tube work going on at the same time as the overhaul, fine screens would be temporarily installed to catch any foreign material resulting from boiler work before it reaches the turbine. Screen removal is then required after approximately two weeks of operation to prevent it from breaking and damaging the turbine. The cost of this item is estimated at \$18,460.

Item 2:

This cost is due to start up and contractor standby exceeding 48 hours due to non turbine related issues. The cost is estimated at \$6,844.00.

The total cost of both items in Change Order No. 5 is \$25,304.00.

CHANGE ORDER HISTORY:

Four change orders have previously been issued for this project.

Change Order No. 1 for \$171,482.00 was to increase funds to cover costs associated with turbine repairs that were more extensive than what was included in the base bid.

Change Order No. 2 for \$75,276.95 was for additional steam turbine shell repairs, a recommended hydrogen sealing modification and control valve rack repairs.

Change Order No. 3 for \$18,250.00 was for additional work related to the nozzle block which required significant field lapping to get 100% metal to metal contact between the nozzle block and the shell.

Change Order No. 4 for \$30,000.00 was for extra field labor hours and premium pay for the extended time required to clean and flush the turbine lube oil system and to complete the generator air test.

The total cost of all four change orders was \$295,008.95.

PROJECT COST HISTORY

This fifth change order will increase this portion of the Steam Turbine No. 8 Overhaul project cost by an additional \$25,304.00. This will bring costs for this portion of the project to \$1,128,112.95. Overall, the total project dollar amount committed to date (inclusive of Change Order No. 5) is \$1,961,633.77.

The engineer's estimate to perform the overhaul work with the original work scope and a reasonable amount of repair was \$1,830,000. The approved FY 2012/13 Budget and Capital Improvements Plan includes \$3,500,000 for the turbine generator overhaul. That amount includes parts, professional technical assistance, and contractor services.

ALTERNATIVES:

1. Approve contract Change Order No. 5 to NAES Corporation of Houston, TX, in the amount of \$25,304.00 for the Steam Turbine No. 8 Overhaul.
2. Reject contract Change Order No. 5.

MANAGER'S RECOMMENDED ACTION:

This change order is needed to help restore the steam turbine back to good working order and allow the unit to run until the next major overhaul in 5+ years.

Therefore, it is the recommendation of the City Manager that the City Council adopt Alternative No. 1 as stated above.