

COUNCIL ACTION FORM

SUBJECT: ENGINEERING FOR MISCELLANEOUS BOILER PROJECTS

BACKGROUND:

There are three upcoming projects affecting Electric Services' boilers located at the Power Plant. Staff consolidated the required engineering services portions of these projects into a single request for proposal (RFP). A single RFP allows staff to procure these services more efficiently since each project requires similar qualifications from engineering firms. Additionally, the City still reserves the option to award the contract in whole or in parts depending on the evaluated scores for each firm on each project listed on the RFP.

On July 7, 2010, the proposal document was issued to twelve firms for proposals. On July 27, staff received competitive proposals for engineering services from six firms. These proposals were then sent to a committee of two Power Plant Engineers and the Power Plant Manager for evaluation.

The committee members independently evaluated and scored all six of the proposals. The proposals' evaluation criteria for all three were the same. The evaluations were based on price, experience and qualifications from both the firm and the team, and the firm's approach.

Project 1: Engineering for Mary Greeley Steam Supply System

Project 1 of the RFP provides for engineering services for the Plant portion of the Mary Greeley Medical Center steam supply system. The City currently supplies steam to Mary Greeley from the Power Plant and receives condensate back. The hospital uses the steam for heating, humidification, sterilization and food preparation. The hospital plans to replace the mile long steam and condensate lines from the Power Plant to the hospital due to pipe corrosion. The City will own the supply pipe and equipment in the Plant proper. The new line will be owned by the hospital, but will be operated and maintained by the City.

The scope of work requires the engineering firm to: 1) review and/or develop steam alternatives (i.e. pressure levels and open vs. closed loop systems) to the hospital; 2) develop a condensate return system in conjunction with the Mary Greeley engineer that is designed to protect the Ames Power Plant from condensate contamination and erratic return flow; 3) recommend a conceptual design based on real practicality and life cycle costs; 4) prepare the technical specifications; 5) provide a detailed cost estimate; 6) collaborate with the City for the evaluation and selection process for all equipment and services; and 7) administer the installation contract, which consists of providing field construction oversight/management and start up assistance and guidance.

Following is a summary of the scores assigned to the six engineering firms by the evaluation committee:

PROPOSERS	AVERAGED SCORE
Burns & McDonnell, Chesterfield, MO	834.53
Black & Veatch, Kansas City, MO	761.60
Brown Engineering Company, Des Moines, IA	743.67
Zachry Engineering, Minneapolis, MN	721.63
Stanley Consultants, Inc., Muscatine, IA	698.50
Sega, Inc., Stilwell, KS	635.00

Each score was based on a scale of 1 to 10, with a maximum of 1,000 points possible.

Based on the averaged scores and a unanimous decision by the evaluation committee, staff recommends that a contract be awarded to Burns & McDonnell, Chesterfield, Missouri, for an amount not to exceed \$83,236.

The approved 2010/11 Capital Improvements Plan (CIP) includes \$80,000 for the engineering portion of the project. The approved 2011/12 CIP includes \$500,000 for the equipment and \$300,000 for the installation to complete the project.

Project 2: Engineering for Power Plant Ignitor Oil Study

Project 2 of the RFP provides for the engineering services to improve the Igniter Oil System for long term effective and safe operation. The Power Plant has a 35MW steam turbine with one Combustion Engineering corner fired boiler and a 65MW steam turbine with one Babcock & Wilcox 12 burner front fired sterling power boiler. The units numbered 7 & 8 were placed in service in 1971 and 1981, respectively. Both coal boilers use No. 2 oil fired ignitors that have been difficult to operate with frequent mis-firings and flameouts. Electric Services desires a more reliable oil supply system and ignitors that together will provide a more safe, secure, and reliable system to start up and operate the boilers.

The scope of work requires the engineering firm to complete the study in two phases. The first phase requires the engineering firm to provide a detailed analysis of the Power Plant ignitor oil system from tank-to-boiler with recommended improvements for both No. 7 and No. 8. The second phase requires the engineering firm to provide technical specifications, detailed cost estimate, and a potential bidder's list. Five firms submitted bids for this project:

PROPOSERS	AVERAGED SCORE
Burns & McDonnell, Chesterfield, MO	886.67
Black & Veatch, Kansas City, MO	750.73
Stanley Consultants, Inc., Muscatine, IA	707.27
Zachry Engineering, Minneapolis, MN	706.63
Sega, Inc., Stilwell, KS	656.67

Each score was based on a scale of 1 to 10, with a maximum of 1,000 points possible.

Based on the averaged scores and a unanimous decision by the evaluation committee, staff recommends that a contract be awarded to Burns & McDonnell, Chesterfield, Missouri, for an amount not to exceed \$31,023.

The approved 2010/11 CIP includes \$100,000 for the engineering portion and \$525,000 for the materials/installation portion of the project.

Project 3: Air Heater Basket Replacement

Project 3 of the RFP provides for engineering services for the Air Heater Basket Replacement. Air heaters utilize the exhaust gases from the combustion process to pre-heat the air used to burn the coal and refuse. Air heaters reduce the heat given off to the environment and increase the overall Plant efficiency. Units 7 & 8 are equipped with Ljungstrom Air Preheaters. Unit 7 needs new hot, intermediate, and cold end baskets, while Unit 8 requires cold end baskets only.

Upon approval, the scope of work requires the engineering firm to provide technical specifications, engineer's cost estimates, and a potential bidders list. Five firms submitted bids for this project:

PROPOSERS	AVERAGED SCORE
Burns & McDonnell, Chesterfield, MO	871.67
Black & Veatch, Kansas City, MO	794.20
Zachry Engineering, Minneapolis, MN	783.53
Stanley Consultants, Inc., Muscatine, IA	708.23
Sega, Inc., Stilwell, KS	599.60

Each score was based on a scale of 1 to 10, with a maximum of 1,000 points possible.

Based on the averaged scores and a unanimous decision by the evaluation committee, staff recommends that a contract be awarded to Burns & McDonnell, Chesterfield, Missouri, for an amount not to exceed \$10,171.

The approved 2010/11 CIP includes \$75,000 for the materials/parts for this work, which includes the engineering. The approved 2011/12 CIP includes \$100,000 for the installation of the air heater baskets.

ALTERNATIVES:

1. a. Award a contract to Burns & McDonnell, Chesterfield, Missouri, for the engineering for Mary Greeley Steam Supply System, in an amount not to exceed \$83,236.
- b. Award a contract to Burns & McDonnell, Chesterfield, Missouri, for the engineering for Power Plant Ignitor Oil Study, in an amount not to exceed \$31,023.
- c. Award a contract to Burns & McDonnell, Chesterfield, Missouri, for the engineering for Air Heater Baskets, in an amount not to exceed \$10,171.

2. Reject all proposals and delay the engineering for all three projects.

MANAGER'S RECOMMENDED ACTION:

These three projects are necessary for Electric Services to continue providing safe, reliable energy production to the City. The entire steam system at the hospital is being replaced and Electric Services must be able to provide a steam supply system to meet the hospital's requirements. Without this project, the hospital will need to burn more expensive natural gas in order to meet its needs, which would result in it incurring higher expenses. The engineering costs and any subsequent system improvements will be covered by the revenues generated from future steam sales to the hospital.

The ignitor oil system is experiencing increased flame failures, especially during periods of start up and load changes. With each of these failures there is an increased risk of a unit shutdown, which could result in damage to the Power Plant or increased purchased energy costs. The unit trips out of service regularly due to ignitor failure, and without this oil system analysis the failure rate will continue to increase.

The air heater baskets are subject to long term corrosion due to the exhaust gas and operating conditions. Periodic replacement is required in order to maintain operability and high efficiency.

Therefore, it is the recommendation of the City Manager that the City Council adopt the Alternative #1 actions stated below:

- Project #1 - awarding a contract to Burns & McDonnell, Chesterfield, Missouri, for the engineering for Mary Greeley Steam Supply System, in an amount not to exceed \$83,236;
- Project #2 - awarding a contract to Burns & McDonnell, Chesterfield, Missouri, for the engineering for Power Plant Ignitor Oil Study, in an amount not to exceed \$31,023;
- Project #3 - awarding a contract to Burns & McDonnell, Chesterfield, Missouri, for the engineering for Air Heater Baskets, in an amount not to exceed \$10,171.