ITEM # 8
DATE: 08-25-20

COUNCIL ACTION FORM

SUBJECT: **UNIT 8 BOILER REPAIR PROJECT**

BACKGROUND:

This Council action is for the approval of plans and specifications for the Unit 8 Boiler Repair Project. This project, which has been planned for several years, is to repair the boiler through the following actions:

- Replacing the waterwall tube stubs in the lower section of the boiler
- Replacing all the pendant tubes in the superheat section
- Modifying the boiler as per the original equipment manufacturer's (OEM) recommendation

Unit 8 is one of two primary boilers at the City's Power Plant and is now 40 years old. Due to a combination of age, a history of firing coal, firing natural gas since 2016, and co-firing refuse derived fuel (RDF), the boiler is in critical need of superheater tube repairs.

As a result of boiler tube failures, Unit 8 has been off-line since late 2019. It is critical that this Unit 8 project proceed as quickly so that the Power Plant can have both primary boilers operating reliably.

After switching from coal to natural gas four years ago, staff found that the boiler tubes, especially the superheater tubes, were deteriorating at an accelerated pace. The water vapor created during the combustion of natural gas combines with the chlorides and acid gases created from combusting RDF, causing the tube surfaces to corrode very quickly, especially in the high temperature zones of the superheater. For many years, the power boiler and waste to energy (WTE) industries have relied on coating or cladding boiler tubes with nickel-based alloys to form a barrier to the corrosive attack of boiler gases on the tubes. **For this project, the outer surfaces of the new replacement superheater tubes and the stub tubes coming from the lower headers, will be clad with a nickel-based alloy to prevent or largely mitigate the corrosive attack upon the tubes.**

The engineer's cost estimate for this project is $8,574,000. The approved Capital Improvements Plan (CIP) includes $6,550,000 for the Unit 8 Boiler Repair Project. The project in its entirety consists of five (5) work elements. Three of the five elements are deemed urgent and critical. The engineer's estimate for the critical three elements is $5,278,000, $1,272,000 less than budget. The other two elements, estimated to cost an additional $3,296,000 are needed and important, but can be

deferred for a future budget cycle, if necessary. Because it is staff's desire that the bids would be such that all elements of the project can be undertaken without deferring, these two elements will be bid as alternates to determine if there are sufficient funds to proceed with more than the three elements.

ALTERNATIVES:

1. Approve the plans and specifications for the Unit 8 Boiler Repair Project and set October 14, 2020, as the bid due date and October 27, 2020, as the date of hearing and award of contract.

2. Delay the Unit No. 8 Boiler Repair.

CITY MANAGER'S RECOMMENDED ACTION:

This project will go to great lengths to address Unit 8's boiler tube failures. It is crucial that the project proceed as soon as possible in order to minimize downtime for this boiler and to increase the Power Plant's reliability to produce electricity and burn refuse derived fuel.

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