

**COUNCIL ACTION FORM**

**SUBJECT: ENGINEERING SERVICES FOR BOTTOM ASH COLLECTION SYSTEM TO COMPLY WITH U.S. EPA's "COAL COMBUSTION RESIDUALS" STANDARD**

**BACKGROUND**

On April 17, 2015, the United States Environmental Protection Agency (EPA) published in the *Federal Register* a final rule known as the Coal Combustion Residuals (CCR) Standard. This rule specifically regulates the disposal of coal ash (emphasis added) in surface impoundments and landfills receiving coal ash from power plants owned by electric utilities and independent power producers. CURRENT

The initial compliance milestone of this rule is October 19, 2015, whereby the City must intercept and collect the bottom ash from the Power Plant just before it is to be discharged into the primary ash settling basin (which is a surface impoundment). Once intercepted and collected, the ash will be transported to an offsite municipal solid waste landfill for final disposal. This special operation is anticipated to be short-term in duration, commencing just prior to initial compliance date of October 19<sup>th</sup>, and concluding when the Power Plant no longer burns coal (and produces coal ash), anticipated to be no later than April of next year (2016). Once the Power Plant has been converted to fire natural gas, this operation will no longer be necessary, because with no coal burned as fuel, there will be no coal ash.

This effort, to no longer dispose of coal ash into the site, will allow the current active ash surface impoundment to be reclassified as "inactive." Then, by December 17, 2015, in accordance with CCR Standard, the City will provide notice of its intent to close the CCR ash site by April 18, 2018. A CCR ash site that is inactive as of October 19, 2015, and closed by April 18, 2018, is exempt from most of the provisions of the regulation. **Otherwise, the City would be obligated to spend a large amount of money, grossly estimated to be in the millions of dollars, going to extreme lengths to monitor and perform studies of the site, including post-closure care for a minimum of 30 years.**

This rule, the CCR Standard, is unlike most other federal and state environmental regulations. The vast majority of environmental regulations have their beginning as laws passed by the U.S. Congress (e.g., the Clean Air Act of 1970, and the Clean Water Act of 1972). EPA then writes the regulations and they become part of the federal code. The states then typically adopt the federal regulations "by reference" into their state's code. Enforcement of the regulations is performed by the state and/or the federal government. **This regulation, the CCR Standard, was written to be "self-implementing,"**

**meaning that EPA and the states will not be enforcing this regulation, but instead, enforcement will be by the courts in reaction to lawsuits.**

Electric Services staff has engaged two consulting engineering firms who are collaborating together to provide the City with a very unique, creative, and urgent engineering solution to intercept and collect the Power Plant's bottom ash before it is discharged into the ash disposal site. It should be noted that capturing the bottom ash as it exits the bottom of the boiler inside the Power Plant is not a technically or economically feasible strategy for compliance with this rule.

Lutz, Daily and Brain, LLC (LD&B) of Overland Park, Kansas, and GEI Consultants, Inc. (GEI) of Green Bay, Wisconsin, are the two consulting engineering firms who are working together to provide the concept, the necessary designs and engineering, and the sourcing of materials and equipment for the project. LD&B is very familiar to the City and is knowledgeable about our power plant, since they were the architectural-engineer for Unit 8. GEI is a large, primarily civil and geotechnical engineering consulting firm headquartered in Boston, Massachusetts, with 36 offices throughout the United States. Staff is working with their Green Bay, Wisconsin office due to that office's experience and expertise in dredging and site cleanup operations, which is a very similar application to our situation. The City's commercial engagement on this project is with LD&B, who is acting as the lead firm, with GEI as a subconsultant to LD&B.

Currently, the ash from the bottom of the Power Plant's boilers is sluiced from the plant through a pipeline to the ash disposal site, where it is discharged into the primary settling pond or basin. In this basin, the ash settles out and the water passes through a gate system into the first of two clearwater ponds. The water from the first clearwater pond then passes through a gate into the second clearwater pond. From this pond, the water is pumped back to the Power Plant for reuse again as sluicewater.

For this special operation, the bottom ash will be sluiced from the Power Plant as now, but will be discharged into specially designed and constructed large mesh filter bags which will trap the ash but let the water drain from the bag through the mesh. Once full, bags with ash will then be hauled by truck and transported to a municipal solid waste landfill for final disposal. The estimated cost of this equipment is less than \$100,000.

The scope of work by the consulting engineering firms for this project will include the following:

1. Selection of a location in the ash site to spot a concrete slab for the placement of containers necessary to house the filter bags while they are being filled.
2. Specifications for the sub grade to support the concrete slab.
3. Design and specifications for the concrete slab.
4. Design and sourcing of equipment to act as a safeguard to contain the ash in the event that a connection or a bag should fail during the sluicing/filling operation.

5. Sourcing of companies capable of acquiring materials and constructing customized mesh filter bags.
6. Designing, sizing, and conducting experiments on test filter bags to optimize the design. These bags have to withstand the pumping pressure and water volume of the sluicing operation (measured at 66,000 gallons/hour).
7. Developing alternatives for holding and containing the filter bags during the sluicing operation. The container will also be used to transport the bag to the landfill for disposal.
8. Sourcing of companies capable of providing containers for containing the filter bags during the sluicing and filling operation at the ash site, and also to transport the bag to the municipal solid waste landfill.
9. Developing ideas and alternatives for customizing the inside of the containers to allow the filter bag to easily release water and not seal itself off along the bottom and the sides of the container, and to also allow the bag to slide out of the container when it is being dumped at the landfill.
10. Developing concepts and sourcing possibilities for enclosing the containers (during the sluicing and bag filling operation) to prevent freezing during cold winter weather conditions.
11. Developing and designing safe access into and around the containers, for positioning the bags in the containers and to attach the ash sluice piping to the bags.
12. Developing and designing piping connections to attach the ash sluice piping to the filter bags in a simple, safe, and secure way.

City staff already engaged LD&B in late July for \$45,000. The value of work needed to complete these services is \$69,000, bringing the cost estimate to perform all necessary services to complete the project to \$114,000. In addition to engineering, the costs for equipment could reach \$100,000. Additional expenses will be incurred for constructing a temporary heated structure and for disposing of the ash.

The approved FY 2015/16 Electric Department budget includes \$650,000 for Unit 7 and Unit 8 NOx allowances. With the conversion of the Power Plant from coal to natural gas, less than \$100,000 is now needed for allowances. Funding for the total ash disposal project, including the LD&B contract, will come from savings in the NOx allowances budget.

### **ALTERNATIVES:**

- 1) Authorize up to \$69,000 for a change order with Lutz, Daily, & Brain, LLC of Overland Park, Kansas, in collaboration with their subconsulting engineering firm, GEI Consultants, LLC of Green Bay, Wisconsin, to provide the necessary conceptual designs, engineering, sourcing, and support services to develop and implement the system necessary to collect the CCR bottom ash from the COA Power Plant by October 19, 2015.

- 2) Suspend all work and elect not to pursue this alternative ash disposal option. This alternative would result in the City accepting responsibility for meeting additional regulatory obligations over the next 30 years.

**MANAGER'S RECOMMENDED ACTION:**

It is realized that this is a very expensive venture for only a few months. However, to ignore the October 19 deadline will result in Electric Services incurring a much more expensive and longer term liability. Therefore, it is the recommendation of the City Manager that the City Council approve Alternate #1 as stated above.