

August 13, 2013

Mr. Tony Russell, Chief
Assessment Remediation Branch
Mississippi Department of Environmental Quality
515 East Amite Street
Jackson, Mississippi 39201

Re: Kuhlman Electric Corporation
Capacity Plan for Potable Water Supply Status Report
Crystal Springs, Mississippi

Dear Mr. Russell:

In accordance with the Mississippi Department of Environmental Quality's (MDEQ) concurrence letter dated December 11, 2012 regarding the *Capacity Plan for Potable Water Supply* dated November 28, 2012 Environmental Management Services, Inc. (EMS), on behalf of Kuhlman Electric Corporation (KEC), is providing this status report on the progress of implementation of the aforementioned approved plan.

The overall goal of this plan is to pursue a potable water source with comparable quality and production volume relative to that available to the City of Crystal Springs, Mississippi (City) prior to the impact of the groundwater. The plan is comprised of two elements that have been pursued concurrently. They are:

1. Provide an interim treatment system for the water from the two existing City water supply wells which have shown trace detections in the past (CSW-WA1 and CSW-WA2); and,
2. Replace, as necessary, the volume of water relative to that available to the City prior to impact by the groundwater plume.

Interim Treatment System

The technology selected for the interim treatment of the two existing wells with trace detections is an advanced oxidation process utilizing ultraviolet light in combination with a titanium dioxide (TiO₂) catalyst. The proprietary unit proposed is manufactured by Purifics ES, Inc. and is marketed as Photo-Cat AOP+®. It is a skid-mounted unit that can be easily installed in a temporary facility where piping is most convenient. To date, the treatment unit has been assembled and tested and is scheduled to be delivered to the site in August 2013. The treatment

site has been prepared, including piping and foundation, for placement of the unit, and the building is scheduled to be constructed in early August 2013.

A licensed, Class A Operator, contracted by KEC, has been trained by Purifics on the operation and maintenance of the treatment unit. The system is planned to be operational by mid-September 2013.

Volume Replacement

The Capacity Plan includes replacement volume for the two existing wells with trace detections. In order to reach this goal several steps were defined to facilitate this process.

1. Evaluation Process – Necessary Replacement Volume Determination

Based on data obtained from the Mississippi State Department of Health (MSDH), the capacity of the two existing wells (CSW-WA1, and CSW-WA2) is approximately 250 gallons per minute (gpm) at 12 pounds per square inch (psi) and 16 psi operating pressure, respectively. More recent data obtained from a 2012 pump test report for the City indicates the combined capacity of these two wells is approximately 369 gpm at 10 psi.

2. Overall Area Water Demands/Capacity

Public and private wells within a five mile radius of Crystal Springs have been located and mapped based on available data. This study indicates that Crystal Springs is in a regionally unique position in regards to the availability of potable water from the unconfined Citronelle aquifer; however, the localized aquifer is being heavily taxed due to the number of wells in the area that are screened in this zone. Most public water supplies in the area obtain their water from deeper formations. Industrial water demands are predominantly from gravel mining operations. The associated industrial wells obtain their process water from the unconfined Citronelle and to a lesser extent the deeper Miocene aquifers.

3. Alternative Sources

No practical long-term alternatives to additional water wells were found to be a viable means to furnish the replacement volume that is anticipated to be required. No fresh water surface lakes or rivers are present within a reasonable distance of Crystal Springs that would not suffer undesirable effects from functioning as a water source. No other existing public source is present within a reasonable distance with excess capacity from which additional water could be obtained.

4. Existing Facilities

Limited data for the existing water supply system has been obtained from the City. Available data has been integrated into the planning design in order to gauge the existing layout, sizing, capacity, etc. of the system.

5. CSW-WA7 Replacement

Test borings and a test well within the Citronelle have been installed and tested by others. One test well is located on Harmony Road and was found to produce inadequate amounts of water to replace the volume of water lost when CSW-WA7 was shut down. A second location was drilled and logged and found to also be inadequate due to an insufficient amount of water bearing sand at depth. City engineers indicate that other areas, predominantly along Harmony Road and Coor Springs Road, are being investigated for potential potable water sources offering sufficient replacement capacity for CSW-WA7.

6. New KEC Well

Based on available data from MDEQ, MSDH, and other sources, several areas of interest have been identified by KEC/EMS as having the potential to replace the volume of potable water from City wells CSW-WA1 and CSW-WA2. These areas lie south and east of the City. Currently, KEC/EMS is looking into land ownership records to obtain access rights or a lease of land in order to drill several test wells. It is envisioned that at each location a shallow and deep test well will be drilled in order to obtain information on both the shallow aquifer (Citronelle) and the deeper Miocene aquifer. After extensive research and talks with state agencies and experts, it has been determined that the deeper Miocene aquifer may contain a more stable source of groundwater. The deeper aquifers are also protected by overlying layers of sediment that serve as aquitards to inhibit the vertical migration of contaminants, thus protecting the drinking water source from future impacts. Both water quality and yield will be tested.

This is an ongoing project. KEC will continue to work with the City, State, and all stakeholders to provide a safe and reliable source of potable water for the future.

Sincerely,

Environmental Management Services, Inc.



Chris Johnson, PE, PS
Engineering Manager

cc: Phillip James, KEC
Melody Christopher, ABB, Inc.
Virginia Munford, CMS
Mayor Sally Garland, City of Crystal Springs
Bill Moody, MSDH

