Clinton
Hub City of Western Oklahoma

Agenda Commentary

Item Title/ Subject:

Staff Source: City Manager, Steve Hewitt

Date: August 3, 2013

Background/Subject Information:

Water situation has been an item the City of Clinton has been working on for the past 2 years (Shutting down Clinton Lake September 2011). We have seen multiple reports and the long-term direction is clear, and expensive. Nevertheless, we must consider if we want to resolve this issue or continue rationing.

Rains may someday replenish Clinton Lake to allow us to bring it back on-line. However, we've seen that it isn't a reliable long-term resolution. I think the questions are as follows: Do we want a diverse portfolio? Do we want to have an abundance of water and be able to report to business, industry, and residents that water is available now and in the future? Do we want to be at the mercy of one source (which cannot produce enough water for our needs and has major infrastructure issues, with no clear timeline of its resolution)? Can we afford to do nothing and wait?

Recommendation:

Staff recommends you move forward with the DEQ Report and Hydro Mapping Report. These reports are necessary moving forward with a new plant.

As your City Manager I respect the pricing concern of a large multi-million dollar facility. However, without a water resolution our efforts to retain, attract, recruit and grow as a community are in jeopardy. We have a solution to this problem. I urge you to approve the Engineers agreement and move forward on the report to finalize numbers and obtain DEQ approval. Also, move forward on mapping so we can determine the best location to drill wells, which both OWRB and DEQ will require testing and piloting.

Remember, we support Foss and our partnership is long-term. However, for you to think that a potential Foss expansion is reliable and they able to resolve your needs would be irresponsible. If that source would become compromised (example: aging failure, earthquake, tornado, terrorism, or etc.) our community has no secondary reliable source. All facilities have a life cycle and can become compromised.

No disrespect to the Foss Board, whom I believe are trying to do their due diligence with this antiquated and aging facility. I have attended nearly every Foss Board meeting the past 2 ½ years and discussed in detail with our representatives and their engineers. I've also had discussions with DEQ and having multiple sources is the prudent thing for us to have.

Price/Cost: (see agreement pricing)

Once DEQ has provided permitting and we have finalized Engineer Estimates, we can then decide how to fund this project. I feel the Sales Tax option is most feasible, however while the report and DEQ approval takes place we can obtain feedback from the community regarding the financial impact and options.

June 25, 2013

City of Clinton
415 Gary Blvd
Clinton, OK 73601

Attention: Mr. Steve Hewitt, City Manager

Reference: Water Treatment Plant Engineering Report

Dear Mr. Hewitt:

This letter is written to serve as an agreement between the City of Clinton, Oklahoma, (CLIENT) and Professional Engineering Consultants, P.A. (PEC) to perform professional services to develop an Engineering Report for the design of a water treatment plant to treat raw water from the Washita River alluvium, hereinafter called the PROJECT.

Specifically, PEC proposes to perform the Scope of Services as outlined in Paragraph A below.

A. Scope of Services:
Attend two (2) onsite meeting with the Oklahoma Department of Environmental Quality (ODEQ) to discuss the proposed project, including raw water supply, piloting, treatment processes, and waste handling methods. Attend one (1) workshop and Council meeting with the City of Clinton.

Groundwater Supply
Oversee the drilling of an exploratory borehole to a total depth of 125 feet to ensure full penetration into the underlying Permian red beds to:

- Evaluate well yield
- Collect data for well design
- Evaluate aquifer and well hydraulic parameters
- Determine appropriate well spacing requirements
- Assess groundwater quality

PEC further recommends that the exploratory boring be converted into a temporary well to allow test pumping and collection of well and aquifer hydraulic data. This data will be used for development of appropriate well design to optimize productivity and well efficiency, as well as determine the radius of the cone of depression for establishment of appropriate well spacing requirements.

To aid in characterization of subsurface lithology, PEC recommends that drill cuttings from the borehole be collected at 5-foot intervals and placed into cloth sample bags. Each sample should be washed and screened using clean, clear water before being placed into the sample bag. Sample bags should be clearly marked with the owner's name, date, and

the depth from which the sample was collected.

The PEC Hydrogeologist will be on site to supervise all drilling and testing operations, inspect formation samples, supervise collection and interpretation of petrophysical logs, as well as mange collection of ground water samples and test pumping.

Open-Hole Petrophysical Logging

Upon reaching TD (Total Depth) of the exploratory boring, a suite of open-hole petrophysical logging surveys will be recorded to document subsurface lithologic characteristics versus depth. Petrophysical logging will also be used to help identify the depth to the top of the saturated zone, determine total alluvial thickness and depth to bedrock, as well as determine static fluid level in the borehole. PEC proposes to record the following suite of logging surveys:

- Single Point Resistivity
- Gamma Ray
- Spontaneous Potential

The PEC Hydrogeologist will be on site to supervise petrophysical logging operations and interpret the recorded data. Petrophysical logs will be used to aid in the development of final well design for the production well and high-grade the final placement of future wells.

Integrity of the petrophysical logging surveys will be validated by the PEC Hydrogeologist by employing the following general quality control methodology:

- Perform an examination the log heading, calibrations, repeat sections (if presented), scales, and remarks
- Identify any reported or suspected operational problems
- Verify measurement scales, and if necessary request that log scales be calibrated to conform to established formation data values
- Examine the shape and character of each recorded log curve to ensure the response is commensurate with the type of device generating the measurement

Sieve Analysis

At the direction of the PEC Hydrogeologist, subsurface formation samples collected from the exploratory boring will be selected for submittal to a geotechnical laboratory for sieve gradation analysis. The raw sieve gradation data will be used to develop gradation cross-plots to illustrate grain size distribution of the samples collected from the borehole. The sieve cross-plots will serve as the basis for designing production well gravel pack and screen slot opening size.

Groundwater Sampling

PEC recommends that a groundwater sample be collected at the end of test pumping operations and analyzed for the following dissolved-phase chemical parameters:

Total Dissolved Solids (TDS)	Total Iron (Fe)
Electrical Conductivity (EC)	Barium (Ba)
Hydrogen-Ion Activity (pH)	Fluoride (F)
Sodium (Na)	Nitrate (NO_3 as Nitrogen-N)
Potassium (K)	Silica (as SiO_2)
Calcium (Ca)	Bromide (Br)
Magnesium (Mg)	Arsenic (As)
Manganese (Mn)	Total Chromium (Cr)
Total Hardness (as $CaCO_3$)	Hexavalent Chromium (Cr VI)
Chloride (Cl)	Selenium (Se)
Bicarbonate Alkalinity (HCO_3)	Uranium (U)
Carbonate Alkalinity (CO_3)	Gross α radioactivity
Total Alkalinity (as $CaCO_3$)	Gross β radioactivity

Additional required chemical parameters are included in Appendix A. To ensure that only dissolved-phase analyte concentrations are reported, it is imperative that the laboratory filter all groundwater samples through at least a 0.5 micron filter prior to analysis. PEC recommends that all groundwater samples be submitted to a laboratory certified by the ODEQ to perform drinking water analyses.

Production Well

Based on review of OWRB well completion records, PEC anticipates completion of a 125-foot deep, 16.0-inch diameter (nominal) production well. PEC will submit the proposed well design and acquire the necessary permits associated with the production well from the Oklahoma Department of Environmental Quality (ODEQ) and OWRB. The PEC Hydrogeologist will supervise and direct drilling and completion operations.

Reverse Osmosis Pilot Study

Oversee the implementation of a reverse osmosis pilot study. The intent of the pilot study is to provide water treatment process efficiency data and full scale design parameters, specifically waste stream quantity and concentration.

Engineering Report

Prepare an Engineering Report in accordance with the requirements set forth in the Oklahoma Administrative Code (OAC), specifically 252:626 Public Water Supply Construction Standards, for review and approval by the Oklahoma Department of Environmental Quality (ODEQ). An approved Engineering Report is necessary prior to preparing construction plans and specifications.

The Engineering Report will include the following components, in accordance with the Oklahoma Funding Agency Coordinating Team Checklist for Engineering Reports for Water Projects:

- Project Planning Area
  - Location map showing boundaries of service area
  - Design period
  - Growth and population trends
  - Current and projected water use data
  - Environmental concerns in service area
- Existing Facilities and Need for Project
  - Location and layout
  - Condition of existing facilities
  - Health and safety
  - System O&M
  - Growth capacity
  - Sewage system availability
- Alternatives Considered
  - Description of facilities associated with each alternative
  - Design criteria used for evaluation purposes
  - Environmental impacts
  - Land requirements
  - Construction problems affecting cost or operation of facility
  - Cost estimates
  - Advantages/Disadvantages
- Proposed Project Design (Recommended Alternative)
  - Source of water supply
  - Water rights
  - Treatment
  - Storage
  - Pumping stations
  - Distribution layout
  - Hydraulic calculations
  - Waste disposal
  - Recommended alternative cost estimate
- Proposed Project's Financial Status and Cost Estimates
- Conclusions and Recommendations

B. Responsibility of CLIENT:

The CLIENT agrees to provide the following items pursuant to PEC accomplishing the Scope of Services outlined herein:

1. Secure contract and location for construction of a water supply well to be used for testing, piloting, and permanent service.
2. Enter into an agreement with a reverse osmosis equipment manufacturer to perform piloting
3. Perform or assign requested water chemistry analyses
4. Provide available data such as distribution system maps, water usage records, test well data, water quality data, construction plans, or other records pertinent to the water supply system.
5. Provide timely review and comments of interim information prepared by PEC for the CLIENT for review.
6. Provide other information requested by PEC to assist in the development of the final deliverables.

C. Exclusions:

The following items are specifically excluded from the Scope of Services provided by PEC:

1. Water chemistry testing analyses and associated fees
2. Reverse osmosis piloting fees
3. Preparation of construction plans and specifications
4. Surveying services
5. Geotechnical services
6. Design phase services
7. Bidding and construction phase services

D. Payment Provisions:

PEC proposes to perform the Scope of Services described above for a lump sum amount of $160,000.00.

Unless otherwise agreed upon, billings will be made monthly based on completion of the items listed above.

Taxes are not included in stated fees. CLIENT shall reimburse PEC for any sales, use and value-added taxes, which apply to these services.

E. Time of Performance:

PEC proposes to begin work on the PROJECT within ten (10) business days following receipt of an executed copy of this agreement and to complete the Scope of Services within 180 calendar days, exclusive of ODEQ review and approval

timeframes, as well as any delays beyond the control of PEC.

This letter and the Standard Conditions attached hereto comprise the entire agreement between the CLIENT and PEC. They may be altered only by written supplemental agreement agreed to by both parties. Furthermore, this agreement may be canceled by CLIENT, for any reason, by providing PEC with thirty (30) days prior written notice.

Thank you for contacting us to provide professional services on the subject PROJECT. Should you have questions or need additional information, please do not hesitate to call. Return receipt of an executed copy of this letter will serve as our contract and notice to proceed with the work.

Very truly yours,

PROFESSIONAL ENGINEERING CONSULTANTS, P.A.

Ethan J.L. Edwards, P.E.
Tulsa Division Manager/Principal

PROFESSIONAL ENGINEERING CONSULTANTS, P.A.

By: _____
Ethan J.L. Edwards, P.E.

Date: _____

City of Clinton, Oklahoma

By: _____

Title: _____

Date: _____

ATTEST:

By: _____