

## **Executive Summary**

### **Capuano Engineering Company**

Louis E. Capuano, Jr. started his career in the geothermal industry working for a resource developer from May of 1974 through 1979. In 1980, Louis founded ThermaSource, Inc., an engineering consultant company working in the geothermal development field. ThermaSource is located in Santa Rosa, California and due to this location, has worked extensively in the Geysers area of Northern California. Due to its excellent reputation and the fine work of Louis Capuano, ThermaSource quickly received international status as a major force in the field of geothermal drilling. ThermaSource's list of projects grew immensely in the western U.S. states and many of the Pacific Rim nations. Mr. Capuano has become a very well know figure in the field of drilling and continues to work on all forms of geothermal development as well as exploration and development projects. Louis has taught many drilling courses and workshops sponsored by the geothermal community.

In 2005, with venture capital, ThermaSource entered into a period of extensive growth. The company purchased rotary drilling rigs, cementing units and hired personnel. ThermaSource was able to establish a Contract Drilling Company, an Engineering Consultant Company, a Geothermal Cementing Company as well as a Drilling Fluids Company with engineering personnel. In 2008 ThermaSource acquired Tecton, a geothermal Mud-Logging Company with on-site personnel as well as EGS, Inc., a geologic and geophysics company that works in the field of exploration. After several years of operation, the decision was made to shut down the Drilling Fluids Company and sell EGS to one of our clients.

Currently, ThermaSource is moving towards a general services company operating both domestically and internationally. In the past, there has been a conflict of interest between the Operator and Contractor both working for the same company, ie. ThermaSource. Clients have had trepidation over hiring ThermaSource engineers yet having ThermaSource rig supervisors watch over a ThermaSource rig and provide its services. ThermaSource has lost several engineering projects due to this "conflict of interest". It is my intent to eliminate this issue. I am starting a new Engineering company which will be spun off from ThermaSource Inc. The new company will be called Capuano Engineering Company (CEC), solely owned by Louis E. Capuano, Jr. and its employees.

It is the intent of Capuano Engineering Company to work independently of ThermaSource. However, if the opportunity should arise when CEC's engineering or site supervision is required by the client, CEC will work with ThermaSource.

Capuano Engineering Company (CEC) will be responsible for work with the client in the pre-drilling phase, that is, making site development plans, drilling programs and cost estimates. CEC will obtain all geologic and geophysical information and work with the project geologist to develop a drilling program suitable to penetrate the underground formations successfully and safely and to test and produce and geothermal resource for commercial electric generations. Once the basic drilling program is established,

that is, the depth of the well, the size of the holes drilled and which casings will be run and cemented, CEC will then develop all the necessary programs needed for successful drilling and completion. The various programs that CEC will develop are as follows:

1. Drilling procedure, that is, step by step drilling operations.
2. Casing design, keeping setting depth in mind, casing strings will be designed considering all safety factors and hole size.
3. Cementing program. We will determine what type, grade and weight of cement will be used to fill the complete annulus between the casings and the well bores.
4. Blow Out Preventer requirements for each casing string.
5. Develop a drilling curve, that is days vs. depth. This will tell us how long it will take to drill the well.
6. Wellhead design to accommodate casings and final completion.
7. Directional program, if the bottom hole location of the well is planned at a different location other than directly under the current well, then a directional program is needed to achieve this goal
8. Drilling Fluids program. What will be used to drill each section of the well. (Mud, Air or Aerated Fluids)
9. Bit and Stabilizer program. What type and size bits will be used.
10. Based on all these programs we then can determine the size and type of rig needed to drill this well. We will then recommend and find an appropriate rig, obtain a rig layout and a daily cost estimate for the rig as well as all the equipment that will come with the rig and include this information in the day rate for the rig.
11. Based on the rig layout, we can then design the well site and determine if the well can be drilled with a waste sump or drilled sumpless.
12. We will then obtain vendor quotes for the cost of all material, equipment and services required. Based on these estimates and quotations we will develop a final cost estimate.

This program will then be presented to the client and CEC will work directly with the client to obtain necessary financing as well as submitting all the necessary paperwork to the local, state and/or federal agencies to receive approval to drill the well.

Upon startup of drilling, CEC will supervise the site construction, the movement of the rig to location and the rig up. CEC will have personnel on location 24 hours a day, 7 days a week to supervise the rig and drilling operation to see to it that the well is drilled as designed. We will also work closely with the local, state and/or federal agency that will have the right to inspect and test items throughout the drilling process. CEC engineering will monitor the daily drilling operations and be available to address any concerns the client may have during the drilling process. CEC will then conduct the production test of the resource, working with the client to obtain all necessary information for the design of the final power plant. Upon completion of the drilling and testing, CEC will submit the final report of the drilling, testing and well completion to the client for their records as well as submittal to the governing agencies.

Capuano Engineering Company will also review all invoices from the vendors to verify that they are correct and appropriate before payment is made. Upon approval, the invoices are then sent to the client for payment.

Capuano Engineering Company will continue providing services to those ThermaSource clients that have been involved in on-going projects prior to the start-up of CEC. These projects are with Cyrq Energy, Geoglobal Energy, Enel, Magna Power, Geotek, Dynamic Tubular and Interlink Power.