

Louis E. Capuano, Jr.

Geothermal Experience

Drilling Engineer and Consultant on the original EGS project at Fenton Hill, New Mexico

Worked as a drilling engineer both in the well design phase and as on-site supervision at the Fenton Hill project in New Mexico. This was the original project in which two wells were directionally drilled and completed with their bottom hole locations positioned such that a fracture could contact the two wells. The initial well design included pressures in excess of 5000 psi while the fracturing operation and estimate bottom-hole temperatures in excess of 500 degrees F. The challenge was to complete a well that would endure the wide range of temperatures and pressure. I worked on the project through the fracturing phase and then again during the abandonment phase.

Geopressure/Geothermal Projects in South Louisiana and Texas

Worked with the DOE contractor on the well design of the Geopressure/Geothermal wells drilling and completed in the Southern United States. I worked on the wellhead design of the initial well completed near Galveston, Texas. The wellhead was a 10,000 psi system and the well was completed and successfully coproduced high temperature geothermal water at approximately 450 degrees F as well as natural gas which separated out from the hot water and sold.

High Temperature Geothermal Wells in Hawaii

Worked as drilling engineer and project manager for True Geothermal of their Pahoa, Hawaii project. We designed and drilled a geothermal exploration well in Hawaii that encountered temperatures in excess of 750 degrees F. The well was successfully drilled and completed, however no commercial production was encountered to justify additional drilling.

ThermaSource as a country continues to work on the Hawaii geothermal project in many areas such as down-hole tool design, cementing and consulting.

Drilling Manager in Indonesia for the Drilling of the Wayang Windu Project

Worked in Indonesia as the initial drilling manager that started up the Wayang Windu geothermal project in Central Java. Negotiated the initial drilling contracts for a two and then a three rig operation at the Wayang Windu field. Supervised and designed the initial drilling programs. Supervised the start up of drilling and got the operation going and completed my phase of the project.

Sandia EGS Well Design

Worked with Bob Swanson on the design of a 20,000' drilling program for Sandia to justify the finding of the DOE – MIT geothermal Energy Report of the Potential of deep geothermal resources that exist across the United States at various depth. We answered the question can 20,000' geothermal well be drilled today with today's technology in an economic matter.

San Andreas Fault Drilling Project

Worked with Stanford University and the USGS on a National Science Foundation Grant to drill and complete as well the San Andreas Fault in Central California. The purpose of this well is to study and understand fractures and faulting by entering the most well known fault in the world and place instruments in the fault and the wellbore. The well was drilled through volcanic formations to a total depth of 14,000'+. Pressures and temperatures were normal, the well was drilled at a deviation of 57 degrees from the vertical and penetrated the fault at approximately 10,840'. A core was recovered showing the drill bit passing from the Pacific Plate to the North American Plate. This project does not demonstrate high temperature or high pressure however it did present a unique set of drilling and completion problems.

Have Been Involved in the Final Analysis of Various Geothermal Well Blow Outs

Review drilling program that resulted in the geothermal well blow out in Cove Fort Utah and was involved in the killing and abandonment of the subject well. We prepared drilling programs for the continuous drilling and safe completion of the additional wells. Reviewed the findings of the geothermal well blow out in Hawaii and preparing final analysis as well.

Hot Dry Rock Experience

Mr. Capuano was contracted by Los Alamos National Lab to assist in the design and drilling of both the potential production well and the injection well Here Jemez Springs, New Mexico. This was the U.S.'s attempt at the first EGS project. A fracture cloud was created that linked both wells. We then tested the system by injecting water and producing steam from the production. We successfully demonstrated that a system can be engineered and operated to create energy from and hot dry system. Our company and myself were then contracted to plug and abandon all wells drilled in the Jemez springs area. These were exploration wells, test holes as well as the production and the injection wells.

Total Geothermal Experience

I have worked continuously in the geothermal field since 1974, that is, a total of 35 years of geothermal experience. I have worked on most of the geothermal areas of the world and have been exposed to all forms of geothermal from the vapor dominated areas of the Geysers, Japan and Indonesia to the liquid dominated fields of the Imperial Valley, Nevada, New Mexico, Oregon, Mexico and Central America, California, Nevada and Utah. I have also been exposed to Geopressure/Geothermal in Louisiana and Texas as well as the Hot Dry Rock areas in New Mexico, California and Oregon. I have worked on many international projects in Japan, China, Indonesia, most of the Central American countries, Iceland, Philippines, Caribbean and Canada.