Trying to contain excitement, **Halley Dickey** of TAS Energy (Turbine Air Systems), showed pictures of their first project on "un-separated mixed hydrocarbons" in California (below) at a mid-stream oil production facility. This project uses ground fluid temperatures of 300°F at 38,000 lbs/hr as part of a steam flood operation. The expander is designed for a 1.2 MW output with actual gross output of 750 kW and a net of 500 kW. It is expected that the potential from this site is 1 MW gross output. The second part of Halley's talk was on a "geopressured integrated hybrid system" that TAS is working on in the Gulf Coast region. Geopressured hybrid systems were proven at Pleasant Bayou in Brazoria County, Texas in the late 1980s with a nominal 1.0+ MW output from heat in the produced water and natural gas burned on site. This project will expand this work by incorporating a binary system with the un-separated mixed hydrocarbon approach along with waste heat recovery from engine exhaust and jacket water, along with other efficiency improvements, for an integrated hybrid system producing 3.5 MW from some 25,000 BPD of produced fluid. Filters will be used for particulate capture should this be necessary.

The second system, the Langson Helical Screw Energy Converter, developed by **Richard Langson**, was installed in the SMU Campus boiler room to run the pressure equipment and show how it is capable of installation/removal in just hours. The machine greened-up campus electricity for a few hours during the day of its installation. Capable of using either water or steam it allows for fluctuating flow rates or pressure changes, making it applicable in numerous industry applications, such as geothermal/geopressure, petrochemical, power plants, biogas, and on equipment in the oil and gas field. The system is scalable with sizing variations between 1 to 50 MW. Langson indicated that installation costs could be ≤ $1,500/kW with return on investment in 1.85 years.

Instead of line shaft and submersible pumps for a high water cut well, the Gravity Head Pump is designed for installation without shafts, rods or electrical cables. **Michael Pierce** of Geotek Energy explained how with one additional string in a well the expander-pump is capable of lifting fluids

The expectation by the geothermal industry is for low temperature coproduction projects within sedimentary basins to expand into the large-scale enhanced/engineered geothermal system (EGS). The US DOE is funding projects to move the "future of geothermal" forward. As results of experiments in EGS during the past few months, that future is now today. **Matt Uddenberg** of AltaRock Energy highlighted how the project at Newberry Volcano in Oregon has successfully hydrosheared (created shear failure along existing fractures) the reservoir thereby increasing the reservoir capacity from approximately 10 l/s to 20 l/s over a one month cycling injection procedure, thus opening the reservoir for production in an otherwise dry environment.

Falling into the more conventional arena for geothermal energy was a presentation of an EGS project at Desert Peak, Nevada. The poster offered a new, plausible explanation for the location of observed deep micro-earthquakes and for the potential mechanisms that controlled permeability changes during the main stimulation operations. The study defined key geological