Well Testing Case History

**Offshore Dual Inline Heaters in Series**

**Challenge**
A Gulf of Mexico operator sought a small footprint and cost-effective well test package from CETCO Energy Services with a gas/oil ratio of 1,000 bbl/scf, surface temperatures of approximately 60°F, total vertical depth of 11,000 ft, a water depth of 2,500 ft, and a water weight of 9.6 ppg. CETCO considered options of process heating methods as a means to reduce the footprint on the rig and operational costs.

**CETCO Solution**
With a target separator temperature of more than 80°F in order to break effluent emulsions and foam, CETCO reviewed two possible heating methods: dual inline heaters in series and a steam exchanger package. The steam exchanger package offered greater heating capacity with a greater footprint and cost, therefore, after evaluating estimated heat duties of the process, the dual inline heaters in series were selected and provided by CETCO.

**Outcome**
CETCO maintained bath temperature between 140 - 150°F while separator temperatures were maintained between 95 - 115°F over all flow periods. The empirical data gathered on location confirmed that the dual inline heaters in series are an acceptable heating method given the well parameters and test objectives.

![Temperature Compared to Flow Rates](image)

*Figure 1: Delta Temp compared oil and water rate*