## *NEW TECHNOLOGY FOR UNLOADING GAS WELLS*


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| Lead Organization: | Colorado School of Mines |
| Key Contact: | Richard L. Christiansen |
| | (303) 273-3965, rchristi@mines.edu |
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**Objective.** Evaluate the performance of a variety of devices for lifting liquids from stripper gas wells.

**Motivation.** Removal of water and hydrocarbon liquids from gas wells is increasingly recognized as an important topic for mature gas reservoirs.

**Specific Directions.** The four tasks proposed below describe briefly the specific directions for this study.

1. *Baffle Assembly for Boosting Liquid Production.* Use the flow loop in the High Bay Lab at CSM to experimentally study performance of baffle assemblies for boosting liquid production rate of stripper gas wells.
2. *Vortex Performance.* Resolve the discrepancy between lab performance and field performance of vortex tools, focusing on their effect on liquid transport through the tubing-casing junction. Explore a variety of flow rates and pressures up to 60 psia.
3. *Transient Design Simulation of Gas Well Loading and Unloading*. Use commercial flow line simulating software to investigate the effect of condensation, transient fluid flow, and transient heat transfer on performance of stripper gas wells.
4. *Gas-Flow Powered Pump*. Test a prototype unit that uses a small amount of the available energy in the flowing gas stream to drive a pump that will lift liquid to the surface.
5. *Liquid-Lifting Short Course*. Continue one-day short courses on lifting liquids from gas wells using the CSM Flow Loop for hands-on demonstrations.