

## THE BIAS OF DIRTY CYLINDERS —BLM REVISES ONSHORE ORDER 5 (43 CFR 3175)

In April of 1999, Southwest Research Institute released a Draft Topical Report conducted in the development of API MPMS Chapter 14.1 Collecting and Handling of Natural Gas Samples for Custody Transfer. In this report, Section 3.5 discusses Equipment Cleaning Procedures. Prior to the study, the assumption was that "dirty" cylinders would bias calculations of heating value in a positive direction.

In the study, an equal volume of SAE 30W compressor oil, n-hexane, n-heptane, n-octane, n-nonane, and n-decane were mixed and used to contaminate cylinders to evaluate eight cleaning methods. Some of the methods were very effective in the removal of n-hexane through n-decane (gasoline range), but not the compressor oil. The most effective were "Evacuation" and "Supercritical CO<sub>2</sub>." The only method that was effective in removal of the compressor oil was "Wet Steam." As a result of this study, it is now known that dirty cylinders bias in both directions, depending on the contaminant. Gasoline range materials bias high and compressor oil biases low.



**Ultimately, the goal is to eliminate these biases through a robust cleaning protocol.** In an effort to ensure accurate measurement and production accountability, the U.S. Bureau of Land Management ("BLM") recently finalized the [revision of 43 CFR 3175, Onshore Order 5](#)\*. Onshore Order 5 requires that operators must provide the BLM with documentation that the sampler cylinder was cleaned and that the cleaning must be done per API and GPA standards. API MPMS Chapter 14.1.5.5 and GPA 2166 Appendix A have recommend the use of Wet Steam and Evacuation for cleaning cylinders.

**Working with the experts.** SPL is very familiar with the problems facing production companies and we understand how the new BLM rule affects you and what needs to be done to meet the requirements. SPL not only played an active role on the API 14.1 committee in providing both testing and commentary to the process, but we have been using a combination of "Wet Steam" and "Evacuation" methods for many years prior to the study. SPL can provide the required documentation for all cylinders used to sample from BLM leases and can also provide it for other sampling events upon request.

For more information on the BLM's new oil and gas measurement rules, contact SPL's technical experts today at 877-775-5227 and let us help you meet the requirements of Onshore Order 5.

\*This revised rule will become effective 60 days after it is published in the Federal Register.

