A Novel Geotechnical/Geostatistical Approach for Exploration and Production of Natural Gas From Multiple Geologic Strata

Quarterly Report

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I. PROGRESS AND ACHIEVEMENTS

A. SUMMARY OF TASK ACTIVITIES

12.0 DEWATERING/PRODUCTION EXTENSION TEST PERIOD

OCTOBER

The College of West Virginia conducted a strategy session October 2 as a follow-up to last month's well workover activities. Attending were Linda Hawkins, Ron Brunk, Jim Weekley and Smokey Stover. Several topics were discussed including the need for a new timer on TW4, plunger lift system on TW2, and a heating system for the freshwater lines on the wells producing water from the coals.

An electrician, Bob Brown, was hired to upgrade the timer system on TW4. On October 7 he installed a timer that allows a more precise and detailed dewatering schedule.

Total gas production for the CWV system averaged 54.4 mcf per day on the rotary master meter and 52.6 on the orifice meter. The compressor was down for more than two days due to malfunctioning fuse switches, and for four days due to Columbia imposed shut-ins for line work.

TW1 averaged 39.4 mcf per day from the Big Lime/Ravencliff formations and 4.7 mcf from the coals. Fluid pump system was operational throughout the month. Water production from the coals peaked at 24 bbls per day, and overall averaged 21.2 bbls per day.

TW2 averaged 7.3 mcf with an average line pressure at the site of about 15 psi. TW3 gas production averaged 9.9 mcf from the Pocahontas #3 Coals. The pump system was operational throughout the month, and produced an average of two bbls per day.

Following the completion of workover activities in September, TW4 began producing small amounts of gas, averaging about 2 - 3 mcf. During October, CWV consultants and well tender continued their efforts to identify the most effective method for dewatering TW4. Pump rates and schedules were manipulated and adjusted throughout the period.

A meeting was held October 29 in Flatwoods, WV, to review the most recent workover on the well system. Attending were DOE representative, Charlie Byrer, Jim Weekley, Smokey Stover, Linda Hawkins, and Ron Brunk. The meeting proved quite beneficial as Mr. Byrer was brought up to date on current gas/water production, TW4 workover, plans for TW2 plunger lift system, and other miscellaneous topics.

NOVEMBER

Total CWV gas production dropped slightly, averaging 49.2 on the rotary master meter and 47.2 on the orifice meter. The compressor was down three days during the month due to Columbia line problems.

TW1 averaged 34.2 mcf from the deep zones with back pressure held at about 28 pounds on them. The coals rose to 5.5 mcf feeding against 6 pounds line pressure. Water production from the coals leveled at 15.3 bbls per day.

TW2 gas production continued to drop, averaging 5.7 mcf per day against an average line pressure of about 12 pounds. TW3 averaged 8.6 mcf from the coals, while water production held at 1.9 bbls per day average. TW4 produced little gas as experimentation continued with the dewatering methods and schedule.

Some field work was conducted during the month as TW2 was inspected and researched in preparation for purchase and installation of a plunger lift system. On November 13, consultants checked wells, thawed frozen lines, developed a plan for a heating system to prevent freeze-ups, and checked for the presence of a packer on TW2.

DECEMBER

Total CWV gas production averaged 53.3 mcf on the rotary master meter and 52.7 on the orifice meter. The compressor was down only two days during the month. Downtime was due to meter/valve freeze-up in cold weather. Discharge line pressure averaged 45 pounds feeding into the Belden & Blake system.

TW1 averaged 34.7 mcf/d from the deep zones with the average line pressure dropping to about 23 pounds. The coals made 5.3 mcf/d feeding against 5 pounds line pressure. Water production from the coals averaged 13 bbls per day. The pump system was down for 8 days, primarily due to extreme cold and associated hardware problems.

TW2 averaged 6.9 mcf/d against a line pressure of about 12 pounds. TW3 averaged 10 mcf/d from the coal while water production averaged 3.2 bbls per day. TW4 averaged 1.4 mcf/d from the coals with the pump system down at least 8 days for the month.

The usual project-related reports and documents were completed during the quarter. These include Mountaineer nominations, Columbia nominations, WV Production Rate Treatment Packages for Mountaineer, chart integration packages for NESC Williams, Tax/Royalty Worksheets, and CWV Gas Tracking Worksheets. Also during the quarter, the Western Pocahontas annual lease payment was made for continued access to TW2, TW3 and TW4.

13.0 DEMONSTRATE NEWLY DEVELOPED TECHNOLOGIES FOR MULTI STRATA GAS AND WATER PRODUCTION TO ENHANCE COMMERCIAL APPLICATION

The process of converting brine wastewater into potable water and commercial salt continued successfully in Poland. The process is currently being demonstrated as a 50 cubic meters per day pilot project at the Morcinek Mine in Upper Silesia, Poland. The reverse osmosis unit was installed in October 1996, and its performance has exceeded all expectations. An announcement was made in November that a "Gold Medal" will be formally awarded to the Project by the Polish Ministry of the Environment in early 1997.

B. MEETINGS AND TRIPS

October 2 -- Field Work Strategy Meeting at CWV

October 29 -- CWV/DOE Flatwoods Review Meeting

II. PLANNED ACTIVITIES

- > Continue to improve water production methods from coals
- > Assess possible implementation of Task 9
- > Collect production data in preparation for Final Report