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DOE/MC/26026-3592

A NOVEL GEOTECHNICAL/GEOSTATISTICAL APPROACH FOR
EXPLORATION AND PRODUCTION OF NATURAL GAS FROM
MULTIPLE GEOLOGIC STRATA

TECHNICAL PROGRESS REPORT APRIL - JUNE 1993

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JULY 1993

WORK PERFORMED UNDER CONTRACT NO: DE-AC21-89MC26026

BY:
COLLEGE OF WEST VIRGINIA
P. O. BOX AG
BECKLEY, WV 25802-2839

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I. PROGRESS AND ACHIEVEMENTS

A. SUMMARY OF TASK ACTIVITIES

12.0 Six Month Dewatering/Production Extension Test Period

Well records for the quarter can most effectively be divided into monthly periods for summary purposes.

The month of April 1993:

Gas production held steady during the period with an average daily total of 73.0 mcf/d at the master meter. TW1 averaged 49.5 from sands and 2.4 from the coals. TW2 averaged 10.3 mcf/d. TW3 averaged 2.7 from sands and 10.1 from coals.

Electrical power was turned on at TW3 on April 8 and pumping activities were initiated. Pump rates and schedules were adjusted periodically to observe the well's reaction. Such pump rate experimentation will help to determine water inflow rates from the coal seam. The immediate reaction from the coal has been an increase in gas production of 3 - 8 mcf per day.

Electrical power on TW1 was delayed about a week due to miscellaneous hardware problems. Excessive voltage drop from the bottom of the hill to the top required installation of a booster transformer for the 5 hp motor on TW1 to operate efficiently.

Tom Walter joined John Morgan in the field from April 15-20 and held meetings with Linda Hawkins, Ron Brunk, and the college's well tender, Mark Davis. A Work Summary and Recommendations Report was compiled by Tom Walter and forwarded to DOE April 28. Smokey Stover was again hired to perform echometer testing.

The month of May 1993:

Gas production held steady during the period with an average daily total of 73.2 mcf/d at the master meter. TW1 averaged 49.2 from sands and 1.4 from the coals. TW2 averaged 8.9 mcf/d. TW3 averaged 1.5 from sands and 14.6 from coals.

A considerable number of pumping schedules and rates were attempted during the period in an effort to determine the most effective coal dewatering approach. The pumps were run at varied speeds and intervals with little response from the coals. Overall, coal seam gas production did increase about 4 mcf/d.

Data was eventually obtained from BDM and Ray Mazza which explained the coal's lack of response. Apparently, the pump on TW3 is set anywhere from 2 to 32 feet above the coal perforations. As a result, no production increase can be expected until the pump is lowered.

Atmospheric flow tests were conducted on both TW1 and TW3. Both wells initially seemed to produce at a rate greater than 40 mcf/d at 0 psi, but TW1 slowed to about 25 mcf/d within a few days.

A proposed Test/Cost Plan for extending the contract was drafted and submitted in response to DOE's letter of request dated May 18. Revisions based on DOE comments are underway and the final version should be completed early in the next period. The Plan will request approximately 6 months and \$170,000 in additional time and dollars.

The month of June 1993:

Gas production held steady during the period with an average daily total of about 72 mcf/d at the master meter. TW1 averaged 48 from sands and about 25 from the coals during atmospheric flow testing. TW2 averaged 8.8 mcf/d. TW3 averaged 1.0 from sands and 13.1 from the coals.

Water production on TW1 was about 123.3 bbls over 20 cumulative days of pumping. This yields about 6.2 bbls per day with the pump running normally 1 hour out of every 6 hours. TW3 produced about 63.9 recorded bbls in 18 estimated days of pumping which yields about 3.6 bbls per day. The pump is set to run continuously, but a pump-off condition occurs frequently due to the improper depth placement of the pump. This will not be remedied until a workover rig is brought on site.

Water samples were taken and analyzed by Analabs Lab. in Beckley on June 22. The resulting report which was forwarded to DOE, shows the coal water from TW1 and TW3 to be mostly free from contaminants. The Analab report should be consulted for further details.

The proposed water disposal setup/plan for TW1 and TW3 was submitted to the WV Dept of Environmental Protection. Phone conversations with the DEP indicate approval is likely within 2-3 weeks.

All normal nomination and estimated usage work sheets were submitted to Columbia and Mountaineer on a monthly basis as required. Gas/Water Production charts for each well each month were compiled and submitted to DOE. Tax/Royalty Work Sheets were also compiled and forwarded to CWV and DOE. National Energy Service Company integrated the well meter charts on a monthly basis.

A Contract Modification was submitted and approved by DOE which will extend the contract through November 16, 1993 and provide for \$171,298 in additional funds.

B. MEETINGS AND TRIPS

Ron Brunk presented a Project Update at the Coalbed Methane Conference in Pittsburgh April 22.

DOE representatives Al Yost, Beverly Harness, and Charlie Byrer visited Beckley and held meetings with College administrators and American Pump Co. on May 3 and 4. All three well sites were also visited and inspected. A follow-up call was held May 10 with DOE, CWV, and American Pump to outline plans.

The College hosted a group of miners, scientists, and researchers from the Ukraine May 25. Ron Brunk and Linda Hawkins presented a project summary and held a question and answer session. Later, the group toured the Test Well 3 site.

A CWV Team Meeting was held at the College with Linda Hawkins, Ron Brunk, Mark Davis, and Johnny Morgan.

Four representatives from DOE-METC visited the College and the well sites June 8 and 9. The group included Tom Mroz and Felah Al-Saadoon.

II. PLANNED ACTIVITIES

- > Move rig in on each well for workover activities
- > Rent and install mainline compressor
- > Install water disposal systems on TW1 and TW3

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