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

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TECHNICAL PROGRESS REPORT: JANUARY - MARCH 1996

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I. PROGRESS AND ACHIEVEMENTS

A. SUMMARY OF TASK ACTIVITIES

10.0 ALASKAN ENERGY DEVELOPMENT

There were no activities under this task other than continued paperwork process concerning funding issues and NEPA.

12.0 DEWATERING/PRODUCTION EXTENSION TEST PERIOD

JANUARY

Total gas production for the CWV system averaged 56.3 mcf per day on the rotary master meter and 55.1 on the orifice meter. The compressor was down due to high discharge pressure for three days during month. Line discharge pressure averaged 39 pounds and suction pressure averaged 2 pounds.

TW1 averaged 37.5 mcf per day from the Big Lime/Ravencloff formations and 4.2 mcf per day from the coals. No water measurements could be taken as water was pumped directly to the ground. This was required due to the extreme cold and poor weather conditions. By dispersing produced water directly to the ground, line freezing problems can sometimes be avoided. Field suction pressure on the coals averaged 5 pounds, while back pressure of 45 pounds continued to be held on the deep zones.

TW2 averaged 6.8 mcf per day as it continued its very slow decline. Back pressure of about 25 pounds continued to be held on this well. TW3 averaged 10.1 mcf per day from the coals with field suction pressure of about 5 pounds. By necessity, produced water from this well was put directly on the ground, as on TW1. TW4 made no gas as the poor weather rarely allowed operation of the gasoline powered pump system.

For a few days, when weather permitted, work continued in the automation of TW4. This involved the clear cutting of power right of way, setting poles, and installation of electrical system on site.

FEBRUARY

Gas production held steady for the month, averaging 57.8 mcf per day on the rotary master meter and 55.2 mcf on the rotary. There were six system shut in days resulting typically from high discharge pressure. High discharge pressure are usually due to Peake or Columbia compressor or line problems. Average discharge line pressure was 39 pounds.

Test Well 1 averaged 38.2 mcf per day from the deep zones and 3.9 mcf from the coals. The pump system was only operational for eight days during the month due to snow and cold. The weather caused line freeze ups and also greatly hindered the well tender's access to the wells.

TW2 averaged 6.9 mcf per day. Tender tried blowing the well extensively in an effort to help production, but well drowned out. It had to be shut in for a couple of days to allow it to rock up. TW3 averaged 9.4 mcf per day from the Poca #3 coal, and again, water was directly dispersed to ground.

The electrical system on TW4 was completed February 7 and put into full operation on February 8, 1996. The first few days of operation can be summarized as follows:

2/8/96	Began dewatering
2/9/96	Ran pump 24 hours
2/10/96	Shut down due to cold weather
2/11/96	Shut down due to cold weather
2/12/96	Restarted at 9:15 pm
2/13/96	Continued pumping around the clock
2/14/96	Ran 24 hours
2/15/96	Ran 24 hours
2/16/96	Ran 24 hours
2/17/96	Ran 24 hours

During this period, TW4 was bringing up about 70" or 58 bbls of water per 24 hour period. Gas production showed a few spikes of promise on the charts but averaged near 0 gas.

Dewatering activities from 2/18/96 through 3/12/96 were greatly hindered by adverse weather conditions with the pump system shut down 13 of those 23 days. Since 3/13/96, we have experimented with pumping schedules, gradually decreasing length of pumping periods down to 3 hours on / 3 hours off. Water production continues to be very high (70 to 80 bbls per day) while gas remains virtually at 0.

A variety of supplies were purchased during this month: a new heavier chain and lock for TW1 (the previous one was stolen); well meter pens; compressor belts; and meter charts.

MARCH

Gas production averaged 57.2 mcf per day on the rotary master meter and 54.7 on the orifice meter. Discharge pressure averaged about 41 pounds. There were four system shut in days due primarily to high discharge resulting from Columbia and Peake compressor problems.

TW1 averaged 37.8 mcf per day from the deep zones and 3.6 mcf from the coals. Coal gas has continually declined in recent months while water production remains steady. There were no down days for the TW1 pumping system during this month.

TW2 averaged 7.9 mcf per day with about 30 pounds back pressure. TW3 averaged 10.2 mcf per day from the coals feeding at 5 pounds line pressure. Proper water production and measurement was resumed when the weather improved mid-month. TW3 continues to produce very little water, averaging about 2.2 bbls per day

TW4 continued to make large amounts of water with no gas production. The 7 day timer on TW4 was replaced with a 24 hour timer to allow for more precise setting of pump schedules. Additional sets of timer pens were purchased. Also purchased and installed a new compressor filter, and found and repaired a loose wire on the compressor. The disconnected wire was probably the cause of our low battery problem.

Well tender reported that the water from TW4 appeared to have a slight reddish tint to it. A water sample has been taken and delivered to a local laboratory for analysis to determine if water from coal is still near fresh. Results are not yet back from the lab.

Other miscellaneous activities included the completion of normal monthly DOE reports, quarterly reports, tax/royalty statements, well revenue assessments, well chart integration, monthly nominations on TCO and Mountaineer systems, WV Rate Treatment documents, and monthly gas balance monitoring with Belden & Blake.

During this quarter several special documents were prepared. The state gas well production Form WR-39 was completed for each well, and several financial reports and projections for the well system were also prepared for the College administration. A special Project Assessment and a High Risk Survey were completed at the request of DOE officials. Finally, work continued on the first draft of the Project Final Report.

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

Normal operation of the dehydrator continued through the quarter.

B. MEETINGS AND TRIPS

There were no special meetings or trips during this quarter.

II. PLANNED ACTIVITIES

> Complete Task 12 Final Report