PIUTE KNOLL
(Gas)
T. 33-34 S., R. 25-26 E., SLPM
San Juan County, Utah

GEOLGY
Regional Setting: Southwest shelf of Paradox Basin
Surface Formations: Cretaceous, Mancos Shale
Exploration Method Leading to Discovery: Subsurface geology
Type of Trap: Stratigraphic
Producing Formation: Pennsylvanian, upper Ismay Zone of the Paradox Formation
Gross Thickness and Lithology of Reservoir Rocks: 64 feet of limestone, light gray to tan, fossiliferous in part, fine crystalline, chalky in part
Geometry of Reservoir Rock: Uniform throughout the area
Other Significant Shows: Upper Ismay (drill-stem test 5,665 to 5,692 feet), lower Ismay (drill-stem test 5,865 to 5,923 feet), "B" zone shale (drill-stem test 5,900 to 6,031 feet)
Oldest Stratigraphic Horizon Penetrated: Pennsylvanian, Paradox Formation evaporites

DISCOVERY WELL
Name: Mountain Fuel Supply No. 1 Piute Knoll
Elevation (KB): 6,863 feet
Date of Completion: February 20, 1973
Total Depth: 6,031 feet
Production Casing: 4½" casing at 6,011 feet with 377 sacks of cement
Perforations: 5,752 to 5,772 feet with 2 hyper-jet shots per foot
Stimulation: Acidized with 10,000 gallons of 28 percent HCl acid
Initial Potential: 1,260 MCFGD
Bottom Hole Pressure: 2,240 psig (drill-stem test, extrapolated)

DRILLING AND COMPLETION PRACTICES
Surface casing is 13 3/8" set at approximately 300 feet. Because of the lost circulation problems above the Cutler Formation, particularly in the Navajo, Kayenta and Wingate formations, 8 5/8" intermediate casing is run through this interval and landed into the upper part of the Cutler Formation at a depth of approximately 2,800 feet. Producing string is 4½" casing. The upper Ismay Zone is perforated and stimulated with HCl acid.

RESERVOIR DATA
Productive Area: Proved: 1,280 acres

By: Edward G. Mickel
Wexpro Company

Unproved: Unknown
Approved Spacing: None
No. of Producing Wells: 2
No. of Abandoned Wells: 0
No. of Dry Holes: 2
Average Net Pay: 12 feet
Porosity: 11 percent
Permeability: .058 millidarcy
Water Saturation: 52 percent (log calculations)
Initial Field Pressure: 2,240 psig (drill-stem test, extrapolated, Piute Knoll Well No. 1)
Type of Drive: Gas expansion
Gas Characteristics and Analysis: Btu 1,100, specific gravity 0.631; (in molecular percentage) helium trace, carbon dioxide 0.48, nitrogen 0.66, methane 93.00, ethane 3.11, propane 0.60, iso-butane 0.29, normal butane 0.21, iso-pentane 0.19, normal pentane 0.16, hexanes 0.62, heptanes and higher 0.68
Oil Characteristics and Analysis: None
Associated Water Characteristics and Analysis: NaCl 319,976 ppm, resistivity at 68°F 0.059 ohm (Leverton-State Well No. 1)
Original Gas, Oil, and Water Contact Datums: Unknown
Estimated Primary Recovery: Unknown
Type of Secondary Recovery: None
Estimated Ultimate Recovery: Unknown
Present Daily Average Production: Shut-in
Market Outlets: None

FIELD COMMENTARY
The Piute Knoll area is located 11 miles east of Monticello, Utah and 5 miles west of the Utah-Colorado State line. The Piute Knoll area has not been designated a field by the Utah Field Names Advisory Committee. Geologically, it is situated on the southwestern shelf of the Paradox Basin in an area of low structural relief. The upper Ismay Zone is the producing interval where gas is trapped in lenticular porosity zones. Three wells have been drilled and one old well has been recompleted by Mountain Fuel Supply Company. They are as follows: Piute Knoll Well No. 1, Piute Knoll Well No. 2, Piute Knoll Well No. 3, and the Leverton-State Well No. 1 which was a re-entry by Mountain Fuel. This well was originally drilled by Carter Oil Company in 1958. The No. 2 well was completed in the upper Ismay Zone (5,732 to 5,746 feet, 5,798 to 5,806 feet) for 65 MCFGD and was later abandoned. The No. 3 well was a dry hole.

An extended production test of Piute Knoll Well No. 1 was completed in 1974. At the beginning of the test, production amounted to 1,500 MCFGD. During the test period the well made approximately ¾ barrel of drip oil and small amounts of water per day. Production declined at the end of the test (29 days) to 152 MCFGD.