CHA CHA GALLUP
(Oil)
T. 28-29 N., R. 12-15 W., NMP
San Juan County, New Mexico

GEOLOGY
Regional Setting: Northwest San Juan Basin
Surface Formations: Tertiary, Nacimiento Formation
Exploration Method Leading to Discovery: Subsurface geology
Type of Trap: Stratigraphic
Producing Formation: Cretaceous, “Gallup” sandstone
Gross Thickness and Lithology of Reservoir Rocks: 12 feet, fine- to medium-grained sandstone
Geometry of Reservoir Rock: Northwest trending linear offshore sandstone bodies
Other Significant Shows: Gas is produced from the Cretaceous, Farmington Sandstone Member of the Kirtland Shale, the Fruitland Formation, the Pictured Cliffs Sandstone, and the Dakota Sandstone
Oldest Stratigraphic Horizon Penetrated: Jurassic, Morrison Formation

DISCOVERY WELL
Name: Benson-Montin-Greer No. 2 Jones
Elevation (KB): 6,035 feet
Date of Completion: October 21, 1959
Total Depth: 5,722 feet
Production Casing: 5 ½” at 5,721 feet with 175 sacks of cement
Perforations: 5,623 feet to 5,637 feet with 16 shots; 5,660 feet to 5,676 feet with 64 shots
Stimulation: Sand-oil fracture 5,623 feet to 5,676 feet with 53,424 gallons of oil and 65,000 lbs. sand
Initial Potential: Pump 132 BOD
Bottom Hole Pressure: Not recorded

DRILLING AND COMPLETION PRACTICES
The wells were drilled with rotary rigs using gel based mud; 8 5/8” surface casing was cemented at about 200 feet with 125 sacks of cement. Induction-electrical logs were run with either a sonic or microlog and 4½” production casing was set at total depth with 200 sacks of cement. Completion practices were extremely variable. The upper pay sandstone was completed in all field wells. The lower pay sandstone is marginal production and is therefore completed by only part of the operators in the field. It is sometimes sand-oil fractured separately from the upper pay sandstone. The most common stimulation is sand-oil fracture treatment through perforations using 20,000 gallons of oil and 20,000 lbs. of sand. Average breakdown pressure is about 1,800 lbs with injection rates around 28 barrels per minute. Dual completions with Dakota gas wells was not a common practice in this field.

RESERVOIR DATA
Productive Area:
Proved (as determined geologically): 7,840 acres
Unproved: 0 acres
Approved Spacing: 80 acres
No. of Producing Wells: 42 (plus 34 shut-in)
No. of Abandoned Wells: 22
No. of Dry Holes: 4
Average Net Pay: Upper pay sandstone 10 feet; lower pay sandstone 10 feet
Porosity: 13.5 percent (average upper pay only)
Permeability: 57 millidarcies (average upper pay only)
Water Saturation: 25 percent (average upper pay only)
Initial Field Pressure: 5,623 psi (drill-stem test)
Type of Drive: Solution gas
Gas Characteristics and Analysis: Unknown
Oil Characteristics and Analysis: 41° API gravity, sweet, low sulfur, paraffin base, gas-oil ratio 2,065
Associated Water Characteristics and Analysis: None
Original Gas, Oil, and Water Contact Datums: None
Estimated Primary Recovery: Unknown
Type of Secondary Recovery: The field was divided into four water injection secondary units. Two were started in 1962 and two in 1964
Estimated Ultimate Recovery: (10 percent) 9,000,000 BO; (75 percent), 17,978,000 MCFG
Present Daily Average Production: 274 BOD, 7 MCFGD, 1,906 BWD
Market Outlets: Oil: Plateau Incorporated, Permian Corporation; gas: El Paso Natural Gas Company

FIELD COMMENTARY
The Cha Cha Gallup field is located in the northwest part of the San Juan Basin. It’s northwest edge is immediately southwest of the city limits of Farmington, New Mexico, and extends southeast for another twelve miles. Production in the field is from both upper and lower pay zones which are common to the lower part of the “Gallup” sandstone. This “Gallup” trend is aligned northwestward across the Four Corners platform and the southwest part of the San Juan Basin. The two “Gallup” pay zones (basal Niobrara age) are linear offshore sandstone units and are similar in many ways with slightly different geometry and origin. The name “Gallup” is actually improper for these basal Niobrara age sediments since they are separated from the true regressive Gallup Sandstone by an erosional unconformity, but usage has given the name acceptance. (The correct name of this unit is Tocti Sandstone Lentil of the Mancos Shale.)

The transgressive lower pay sandstone was deposited on a pre-Niobrara erosion surface in a topographic depression. The asymmetry of this unit suggests that it was deposited adjacent to escarpments which were formed by longshore cur-