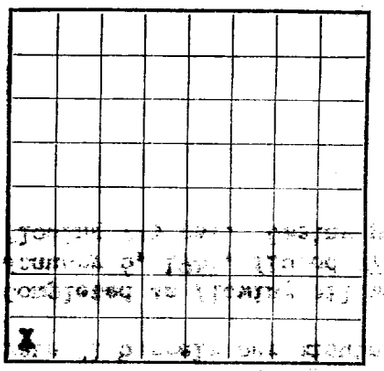
Form 9-330

Budget Bureau No. 42-R355.4.
Approval expires 12-31-60.

U. S. LAND OFFICE Navajo Tribal
SERIAL NUMBER 14-20-603-2200
LEASE OR PERMIT TO PROSPECT Navajo Tribal "C"



LOCATE WELL CORRECTLY

OIL CON. COM. DIST. 3

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

LOG OF OIL OR GAS WELL

Company Pan American Petroleum Corporation Address Box 480, Farmington, New Mexico

Lessor or Tract Navajo Tribal "C" Field Cha Cha Gallup State New Mexico

Well No. 4 Sec. 17 T. 29N R. 14W Meridian N.M.P.M. County San Juan

Location 510 ft. [N.] of S Line and 510 ft. [E.] of W Line of Section 17 Elevation 5193 (RDB)
(Derrick floor relative to sea level)

The information given herewith is a complete and correct record of the well and all work done thereon so far as can be determined from all available records.

ORIGINAL SIGNED
Signed F. M. Bauer, Jr.

Date January 9, 1961 Title Senior Petroleum Engineer

The summary on this page is for the condition of the well at above date.

Commenced drilling December 16, 1960 Finished drilling December 26, 1960

OIL OR GAS SANDS OR ZONES
(Denote gas by G)

No. 1, from 4573 to 4589 No. 4, from ____ to ____

No. 2, from ____ to ____ No. 5, from ____ to ____

No. 6, from ____ to ____ No. 6, from ____ to ____

IMPORTANT WATER SANDS

No. 1, from ____ to ____ No. 3, from ____ to ____

No. 2, from ____ to ____ No. 4, from ____ to ____

CASING RECORD

Size casing	Weight per foot	Threads per inch	Make	Amount	Kind of shoe	Cut and pulled from	Perforated From—	Perforated To—	Purpose
8-5/8"	32	8RT	J-55	235	Guide				
4-1/2"	9.5	8RT	J-55	4675	Guide				Oil String

MUDDING AND CEMENTING RECORD

Size casing	Where set	Number sacks of cement	Method used	Mud gravity	Amount of mud used
8-5/8"	235	180 sacks cement	Halliburton	1 plug	
4-1/2"	4661	200 sacks cement	B J Service	2 plug	

PLUGS AND ADAPTERS

Heaving plug—Material ____ Length ____ Depth set ____

Adapters—Material ____ Size ____

SHOOTING RECORD

Size	Shell used	Explosive used	Quantity	Date	Depth shot	Depth cleaned out

TOOLS USED

Rotary tools were used from 0 feet to 4669 feet, and from ____ feet to ____ feet

Cable tools were used from ____ feet to ____ feet, and from ____ feet to ____ feet

DATES

Completed as flowing oil well Cha Cha Gallup Field January 6, 1961 Put to producing Date first new oil produced: January 5, 1961

The production for the first 24 hours was 275 barrels of fluid of which ____% was oil; ____% emulsion; ____% water; and ____% sediment.

Gravity, °Bé. 99.5 42.7° API

If gas well, cu. ft. per 24 hours ____ Gallons gasoline per 1,000 cu. ft. of gas ____

Rock pressure, lbs. per sq. in.

FOLD | MARK

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HISTORY OF OIL OR GAS WELL

It is of the greatest importance to have a complete history of the well. Please state in detail the dates of redrilling, together with the reasons for the work and its results. If there were any changes made in the casing, state fully, and if any casing was "sidetracked" or left in the well, give its size and location. If the well has been dynamited, give date, size, position, and number of shots. If plugs or bridges were put in to test for water, state kind of material used, position, and results of pumping or bailing.

Spudded 12-1/4" hole December 16, 1960, and drilled to 237'. Set 8-5/8" casing at 235' with 180 sacks cement containing 2 percent calcium chloride. Circulated 10 sacks of cement. After waiting on cement, tested 8-5/8" casing with 500 psi for 30 minutes, which held with no indication of pressure drop. Reduced hole to 7-7/8" at 237' and resumed drilling operations.

Core No. 1 4560-4609 Gallup - core barrel jammed. Recovered 47-1/2' as follows: 3' shale and sand laminations, 11' fracture shale, 1' tight shaly sand, 8' fractured shaly sand, low porosity, strong odor. Good fluorescence, 1' fractured shaly sand, 15' sandy shale occasional fracturing, 8-1/2' tight shaly sand, no fractures, fair odor, spotty fluorescence, occasional bleeding gas. Core No. 2 4609-4669 Gallup - recovered 39' as follows: 13' tight shaly sand, no fractures, slight odor, vertical fracture 4615-4618, first foot necked, 7' shale with silt streaks, no fracturing, 7' shale with silt streaks, no fracturing, 7' shale with silt streaks fractured and broken, 9' shale occasional fossiliferous zones, fractured and broken, 4' ground-up with fragmented shale.

Total depth 4669', plug back depth 4626'. Set 4-1/2" casing at 4661' with 125 sacks 6 percent gel cement with 2-1/2 pounds medium Tuf Plug per sack, followed by 75 sacks neat cement. Displaced with 75 barrels oil and 300 gallons acid. Tested casing with 1000 psi for 30 minutes which held with no indication of pressure drop. Released rig December 27, 1960.

Plug back depth 4626' - ran correlation log and perforated Gallup 6 shots per foot 4578-84. Sand-oil fracked with 38,000 gallons oil and 19,000 pounds sand. Frac oil contained 25 pounds [illegible] per 1000 gallons [illegible] breakdown. Treating pressure 3000 psi, five minute shut in pressure 700 psi, twenty minute shut in pressure 400 psi. Stabilized in five hours at 300 psi. Average injection rate 31 barrels per minute. [illegible]

Completed as flowing oil well Cha Cha Gallup field January 6, 1961. Potential test January 6, 1961, flowed 275 barrels oil per day on 21/64" choke. Tubing pressure flowing 225 psi. Casing pressure flowing 850 psi.