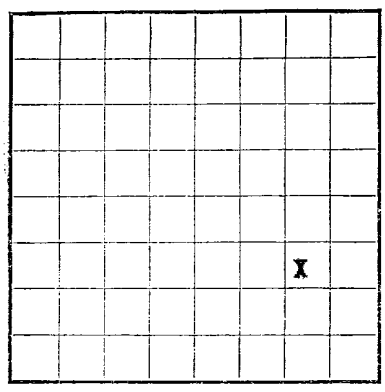
Budget Bureau No. 42-R-355.3.
Approval expires 12-31-55.

Form 9-330

U. S. Land Office Navajo Tribal
Serial Number I-89-IND-58
Lease or Permit to Prospect



LOCATE WELL CORRECTLY

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

LOG OF OIL OR GAS WELL

Company Pan American Petroleum Corporation Address Box 487, Farmington, New Mexico
Lessor or Tract USC Section 19 Field Hogback-Pennsylvanian State New Mexico
Well No. 17 Sec. 19 T. 29N R. 16W Meridian N.M.P.M. County San Juan
Location 1850 ft. {N.} of S Line and 790 ft. {E.} of E Line of Section 19 Elevation 5104
(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.

Signed [signature]

Date June 16, 1958 Title Field Superintendent

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

Commenced drilling February 3, 19 57 Finished drilling December 24, 19 57

OIL OR GAS SANDS OR ZONES

(*Denote gas by G*)

No. 1, from 6396 to 6426 G
No. 2, from 6530 to 6570 G
No. 3, from 6643 to 6659
No. 4, from 6936 to 7036 G
No. 5, from to
No. 6, from to

IMPORTANT WATER SANDS

No. 1, from to
No. 2, from to
No. 3, 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
13-3/8	35.6	Slip Joint	Armco	297	Guide				Surface
9-5/8	32.3	SRT	National	2157	Guide				Intermediate
7	20	SRT	National	5643	Guide				Oil String
5	15	SRT	CF&I	1558	Guide				Liner

MUDDING AND CEMENTING RECORD

Size casing	Where set	Number sacks of cement	Method used	Mud gravity	Amount of mud used
13-3/8	251	250 sacks	Halliburton 2 plug		
9-5/8	2157	625 sacks	Halliburton 2 plug		
7	5613	475 sacks	Halliburton 2 plug		
5	7039	210 sacks	Halliburton 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

*Connected well to U. S. Bureau of Mines Helium Plant, Shiprock, New Mexico, on January 27, 1958, to complete testing of well while furnishing supply of helium-bearing natural gas to plant.

TOOLS USED

Rotary tools were used from 0 feet to 7036 feet, and from feet to feet
Cable tools were used from feet to feet, and from feet to feet

DATES

Completed as condensate producing gas well January 30, 19 58 Put to producing January 27, 19 58*

The production for the first 24 hours was 148 barrels of fluid of which 66.1% was oil; % emulsion; 33.9% water; and % sediment. Gravity, °Bé. 62.6°

If gas well, cu. ft. per 24 hours 3,400,000 Gallons gasoline per 1,000 cu. ft. of gas

Rock pressure, lbs. per sq. in. 2400 (Shut in casing pressure.)

EMPLOYEES

, Driller , Driller
Joe Kennedy , Driller J. S. Riley , Driller
Clyde Wagoner Leo Beck

FORMATION RECORD

FROM—	TO—	TOTAL FEET	FORMATION
645	754	109	Greenhorn
754	960	206	Dakota
960	2015	1055	Morrison
2015	2044	29	Todilto
2044	3620	1576	Entrada
3620	3737	117	Chinarump
3737	3978	241	DeChelly
3978	5173	1195	Cutler
5173	5340	167	Rico
5340	5979	639	Hermosa
5979	6809	830	Parados
6809	6938	129	Molas
6938	7036	98	Mississippian

16—43094-3

FORMATION RECORD—Continued

FROM—	TO—	TOTAL FEET	FORMATION

16—43094-2 U. S. GOVERNMENT PRINTING OFFICE

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.

HISTORY OF OIL OR GAS WELL

USG Section 19 Well No. 17 was spudded on September 20, 1957, and on September 21, 1957, 13-3/8" casing was set at 251 feet with 125 sacks of 8% gel and followed by 125 sacks of cement. After waiting on cement for 24 hours, casing and water shut-off were tested with 500 pounds pressure for thirty minutes, which held with no drop in pressure.

9-5/8" casing was set at 2157' with 500 sacks 4% gel cement and followed by 125 sacks neat cement. After waiting on cement for thirty-six hours, casing and water shut-off were tested with 1000 pounds pressure for thirty minutes which held with no drop in pressure.

7" casing was landed at 5613' and cemented with 400 sacks 6% gel cement and followed by 75 sacks neat cement. After waiting on cement for 72 hours, 7" casing was tested with 1100 pounds for thirty minutes, which held with no drop in pressure.

A 5" 15 pound liner was run with Baash-Ross pack-off type liner hanger and set at 5486-7035' with 210 sacks of cement. After waiting on cement, casing was tested with 1100 pounds pressure for thirty minutes, which held with no drop in pressure.

Perforated with four shots per foot 6530-6570 and 6643-6659. Spotted acid over perforations and set packer at 6490'. Acidized with 1500 gallons 15% regular acid. Breakdown pressure 1250 psi, treating pressure 1500 psi, injection rate 2 barrels per minute. Tested 6450 MCFPD, 32 BOPH, 17 BWPH. Set packer at 6459' and squeezed both sets perforations with 150 sacks cement. Re-squeezed with 150 sacks cement to 4400 psi. Drilled solid cement to 6663 and cleaned out to plug back depth 6700'. Re-Perforated with four shots per foot 6643-6659'. Spotted acid and set packer at 6612. Acidized with 500 gallons 15% acid. Breakdown pressure 2900 psi, treating pressure 1600 psi, injection rate two barrels per minute. Tested 2620 MCFPD, 60 BARRELS oil per hour, no water. Re-perforated with 4 shots per foot 6530-6570. Set retrievable bridge plug 6620'. Spotted acid and set packer at 6472'. Acidized with 1000 gallons 15% acid. Breakdown pressure 1700 psi, treating pressure 1900 psi, injection rate 3-1/2 barrels per minute. Tested 5100 MCFPD, 25 barrels oil per hour, 3-1/2 barrels water per hour. Set magnesium bridge plug 6620 and packer at 6510 and squeezed zone with 200 sacks cement to 4500 psi. Drilled solid cement 6517-6610. Re-perforated with two shots per foot 6530-6570. Spotted acid and set packer at 6506'. Acidized with 500 gallons 15% regular. Breakdown pressure 3000 psi, treating pressure 1700 psi, injection rate two barrels per minute. Tested 2910 MCFPD, 1-1/2 barrels oil per hour, 1/3 barrels water per hour. Perforated four shots per foot 6396-6426'. Set retrievable bridge plug 6470'. Spotted acid and set packer 6374'. Acidized with 1000 gallons 15% regular. Breakdown pressure 2000 psi, treating pressure 1600 psi, injection rate 2-1/3 barrels per minute. Tested 8050 MCFPD, 4-1/3 barrels oil per hour, 1 barrel water per hour. Drilled cement and magnesium bridge plug and cleaned out to plug back depth. Set Baker Model D production packer at 6619' with 2-3/8" tubing landed at 6619' and side door choke nipple above packer. Installed side door choke and flowed thru tubing to test zone 6643-6659. Tested 757 MCFPD, 14 barrels oil per hour, 2 barrels water per hour. Closed casing pressure steady at 2400 psi indicating packer holding. Acidized zone with 500 gallons 15% regular and tested 2980 MCFPD, 69 barrels oil per hour, no water. Closed casing pressure steady at 2400 showing effective separation of upper zones from lower zone. Connected well to pipeline to test upper zones 6396-6426 and 6530-6570. Tested well into pipeline 3400 MCFPD, 98 barrels oil per day, 50 barrels water per day and completed as condensate-producing gas well January 30, 1958. Blanked off lower oil-bearing zone 6643-6659 and equipped well to produce upper perforations 6396-6426 and 6530-6570 through tubing string to supply helium-bearing gas to U. S. Bureau of Mines