

U. S. LAND OFFICE **Santa Fe**
SERIAL NUMBER **SP-978662**
LEASE OR PERMIT TO PROSPECT

LOG OF OIL OR GAS WELL

Company Northwest Production Corporation Address 520 Sims Bldg. Albuquerque, N.M.
Lessor or Tract Sandoval 22-7 Field Wildcat (GP) State New Mexico
Well No. 2-35 Sec. 35 T. 22N R. 7W Meridian NMP County Sandoval
Location 640 ft. SK of 3 Line and 1900 ft. SK of 2 Line of Section 35 Elevation 6837 ungr

Signed Ray Phillips

Date September 25, 1957 Title Asst. Mgr., Prod. Operations

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

Commenced drilling **August 3** 19 **57** Finished drilling **September 11** 19 **57**

(Denote gas by G)

(Don't get us by G)

No. 1, from <u>4672</u> to <u>4683</u>	No. 4, from _____ to _____
No. 2, from _____ to _____	No. 5, from _____ to _____
No. 3, from _____ to _____	No. 6, from _____ to _____

RECEIVED
OIL CON
JUL 1 1957

No. 1, from _____ to _____

No. 2, from _____ to _____

No. 3, from _____ to _____

No. 4, from _____ to _____

Size casing	Weight per foot	Threads per inch	Make	Amount	Kind of shoe	Cut and pulled from	Perforated		Purpose
							From—	To—	
-5/8	24.0	8-20	----	279.30	Baker guide				
-1/2	15.5	8-20	CFL-1	479.40	Baker guide				
-1/1	14.0	8-20	CFL-1	539.04			4672	4685	Comp 1
-3/8	4.7	8-20	CFL-1	4684.01					

Size casing	Where set	Number sacks of cement	Method used	Mud gravity	Amount of mud used
5/8	281.0	250	Flow		
1/2	1342.0	175	Flow		

Heaving plug—Material _____ Length _____ Depth set _____
Adapters—Material _____ Size _____

[illegible]

Rotary tools were used from _____ feet to _____ feet, and from _____ feet to _____ feet.

Cable tools were used from _____ feet to _____ feet, and from _____ feet to _____ feet.

-----~~September 26~~-----, 19~~57~~----- Put to producing -----, 19-----

The production for the first 24 hours was 49 barrels of fluid of which 97% was oil; % emulsion; 3% water; and 1% sediment. Gravity, °Bé. 44

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

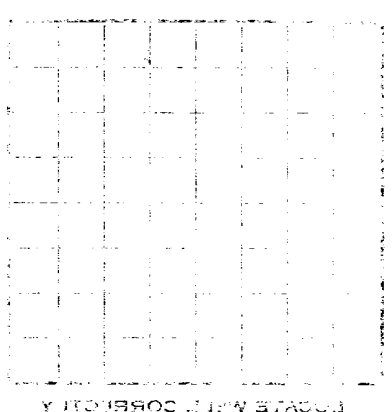
Rock pressure, lbs. per sq. in.

L. F. Stone	Driller		Driller
	Brig Engineer		
	Driller		Driller

FROM—	TO—	TOTAL FEET	FORMATION
0	540	540	Surface
540	770	230	Ojo Alamo - Sand
770	1140	370	Kirtland-Fruitland - Shale w/coal streaks
1140	1290	150	Pictured Cliffs - Sand
1290	1513	223	Lewis - Shale
1513	1823	310	Chocoma - Sand
1823	2522	699	LaVentana - Sand
2522	3506	984	Allison-Gibson - Sand, shale and coal
3506	3646	140	Point Lookout - Sand
3646	4488	842	Mancos - Shale
4488	5253	765	Gallup - Sand w/shaley streaks
5253	5480	227	Lower Mancos - Shale
5480	5560	80	Greenhorn - Sand
5560	5630	70	Graneros - Shale
5630	5860	230	Dakota - Sand w/shale streaks
5860	5905	45	Morrison - Shale

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

LOG OF OIL OR GAS WELL



Locate well correctly
Company
Address
State
County
Section
Range
Township
The following information is a record of the work done in the well and all work done in the well is to be recorded from all reliable sources.

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, 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

FROM—	TO—	TOTAL FEET	FORMATION
FORMATION RECORD			
TOOLS USED			
SHOOTING RECORD			
PLUGS AND ADAPTERS			
MATERIALS AND CHEMICAL RECORD			



CORING RECORD

- #1 from 4500-4551'. Cut and rec 51' - 22' sd w/MS, 23' sh w/sd strks and 6' interbedded sd and sh.
- #2 from 4551-4601'. Cut and rec 50' - 6' sd w/MS, and 44' sd and sh w/MS.
- #3 from 4601-4616'. Cut and rec 15' - 6' sh, 1½' sh and sd w/MS, 6½' sd w/odor and 1' siltstone.
- #4 from 4616-4667'. Cut and rec 51' sd w/2' bleeding oil.
- #5 from 4667-4680'. Cut and rec 13' sd.
- #6 from 4680-4730'. Cut and rec 50' sd, w/odor fr 4681-91'.
- #7 from 4730-4781'. Cut and rec 51' shly sd.
- #8 from 4781-4822'. Cut and rec 41' - 9' sd, 4' shly sd and 28' sh.
- #9 from 5190-5240'. Cut 50' and rec 45' - 36' sh w/sdy strks and 9' sh.
- #10 from 5622-5672'. Cut and rec 50' sd and sh w/MS.
- #11 from 5672-5717'. Cut and rec 45' sd and sh w/MS.
- #12 from 5717-5766'. Cut 49' and rec 39' sd and sdy sh w/MS.
- #13 from 5766-5794'. Cut and rec 28' sd w/sh strks w/MS.
- #14 fr 5794-5836'. Cut 42' and rec 36' - 28' sd w/MS and 8' shly sd w/MS.

DRILL STEM TESTS

- #1 from 4606-4680'. TO 1 hr and 3 mins and SI 30 mins. Weak air blow immed - died in 3 mins. IF 80%. IM 2370%. PF 80%. FM 2360%. SIP 110%. Rec 20' drig mud.
- #2 from 5230-5280'. Packer failed - no test.
- #3 from 5220-5280'. Packer failed - no test.
- #4 from 2721-2843'. TO 4 hrs and SI 30 mins. Strong air blow immed, decreasing to weak in 4 hrs. IF 30%. IM 1400%. PF 875%. FM 1395%. SIP 905%. Rec 360' wtr cut mud and 1607' fresh water.
- #5 from 2220-2308'. TO 3 hrs and SI 30 mins. Strong air blow immed - died in 2 hrs. IF 60%. IM 1180%. PF 535%. FM 1035%. SIP 570%. Rec 124' wtr cut mud and 1076' fresh water.

Mathematical Analysis

1. Introduction

2. The Real Numbers

The real numbers are the foundation of mathematical analysis. They are defined as the completion of the rational numbers.

The real numbers are characterized by the following properties: they are a complete ordered field.

The real numbers are a complete metric space.

The real numbers are a complete normed vector space.

The real numbers are a complete topological group.

The real numbers are a complete topological ring.

The real numbers are a complete topological field.

The real numbers are a complete topological algebra.

The real numbers are a complete topological lattice.

The real numbers are a complete topological vector space.

The real numbers are a complete topological group.

3. The Complex Numbers

The complex numbers are defined as the completion of the rational numbers.

The complex numbers are a complete ordered field.

The complex numbers are a complete metric space.

The complex numbers are a complete normed vector space.

The complex numbers are a complete topological group.

HISTORY OF WELL

TD 5905'. Plugged back 5905-5140 w/225 sx reg. Dressed top of plug to 5352'.

Perf 5½" csg fr 5243-49 w/8 SPY. Ran 2-3/8" tubing and subd dry. Frac lower Gallup w/5,000 gals crude and 5,000# 20-40 sd. Flushed w/1,890 gals crude. No BD. IP 4800#. Max 5000#. Avg 4900#. Final 5000#. Stdg 2200# in 1 hr. IR 7.2 BPM. Subd 24 hrs and rec 120 bbls load oil of total 185 bbls used.

Set Baker BP at 4820' and dumped 1½ sxs calseal on top of plug to isolate perforis 5243-49'. Found top of plug at 4813'.

Perf 5½" csg fr 4672-85 w/6 SPY. Frac upper Gallup w/20,160 gals crude and 20,000# 20-40 sd. BD 2450#. IP 2500#. Max 2600#. Avg 2400#. Final 2400#. Stdg 700#. IR 57.6 BPM.

Ran tbg and subd back all load oil. On 24 hr swab test rec 37.43 bbls new oil and 11 wtr. Pulled tbg and reran 4688.81' of 2-3/8" OD J-55 4.7# 8-ED tubing w/bull plug on btm at 4703.56', perf nipp at 4671.51' and seating nipp at 4670.46'. Ran btm hole pump and rods and released unit 12 noon 9-10-57.

THEORY OF THE EARTH

CHAPTER I

THE EARTH

The Earth is a sphere, and its surface is divided into two parts, the land and the water.

The land is divided into continents and islands, and the water is divided into oceans and seas. The continents are the large land masses, and the islands are the small land masses. The oceans are the large bodies of water, and the seas are the smaller bodies of water.

The Earth is covered by a thin layer of air, called the atmosphere. The atmosphere is divided into layers, and the layers are called the troposphere, the stratosphere, the mesosphere, and the thermosphere.

The Earth is also covered by a thin layer of water, called the hydrosphere. The hydrosphere is divided into the oceans, the seas, the rivers, and the lakes. The oceans are the large bodies of water, the seas are the smaller bodies of water, the rivers are the flowing bodies of water, and the lakes are the standing bodies of water.

The Earth is also covered by a thin layer of soil, called the lithosphere. The lithosphere is divided into the continents, the islands, and the ocean floor. The continents are the large land masses, the islands are the small land masses, and the ocean floor is the bottom of the oceans and seas.