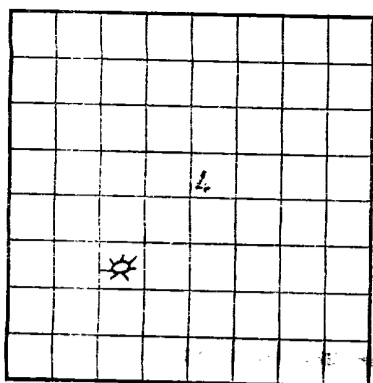


U. S. LAND OFFICE
SERIAL NUMBER 277
LEASE OR PERMIT TO PROSPECT



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

LOG OF OIL OR GAS WELL

LOCATE WELL CORRECTLY

Company The Frontier Refining Company Address 410 Boston Building, Denver, Colorado
Lessor or Tract Refect Government Field N. Antelope Canyon State New Mexico
Well No. 4 Sec. 4 T. 27N R. 11W Meridian N.M.P.M. County San Juan
Location 1650 ft. N. of 3 Line and 1650 ft. E. of 1 Line of Section 4 Elevation 6175 (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 Thomas S. Halbritter
Title Geologist

Date August 7, 1951

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

Commenced drilling June 19, 1951 Finished drilling June 22, 1951

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

No. 1, from 1948 to 2075 No. 4, from _____ to _____
No. 2, from _____ to _____ No. 5, from _____ to _____
No. 3, 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		Purpose
							From-	To-	
<u>2 1/2"</u>	<u>10.0</u>	<u>8rd.</u>		<u>25'</u>					<u>Surface</u>
<u>2 1/4"</u>	<u>11.4</u>	<u>8rd.</u>		<u>1723'</u>					<u>Production</u>
<u>1 3/4"</u>	<u>1.7</u>	<u>8rd.</u>		<u>2075'</u>					<u>Int. zone</u>

MUDDING AND CEMENTING RECORD

Size casing	Where set	Number sacks of cement	Method used	Mud gravity	Amount of mud used
<u>2 1/2"</u>	<u>95' rd.</u>	<u>75 sacks</u>	<u>lug</u>	<u>-</u>	<u>-</u>
<u>2 1/4"</u>	<u>2075'</u>	<u>150 sacks</u>	<u>lug</u>	<u>-</u>	<u>-</u>

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
<u>-</u>	<u>-</u>	<u>Jellium nitro</u>	<u>740</u>	<u>7/1/51</u>	<u>1975-DKces</u>	<u>2065'</u>

TOOLS USED

Rotary tools were used from _____ feet to 2075 feet, and from _____ feet to _____ feet
Cable tools were used from _____ feet to _____ feet, and from _____ feet to _____ feet

DATES

Completed 7/10, 1951 Put to producing start in, 1951
The production for the first 24 hours was _____ barrels of fluid of which _____ % was oil; _____ % emulsion; _____ % water; and _____ % sediment Gravity, °Bé. _____
If _____ cu. ft. per 24 hours _____ Gallons gasoline per 1,000 cu. ft. of gas _____
If _____ psi. per sq. in. 165

EMPLOYEES

Frontier Drilling Company, Driller _____ Driller _____
English Drilling Company, Driller _____ Driller _____

FORMATION RECORD

FROM-	TO-	TOTAL FEET	FORMATION
	<u>805</u>	<u>805</u>	<u>Sand and shale. For non-lucifer at surface. Top Ojo Alamo at 805'.</u>
<u>805</u>	<u>917</u>	<u>112</u>	<u>Sand with shale breaks. Top Hartland shale at 917'.</u>
<u>917</u>	<u>1948</u>	<u>1031</u>	<u>Shale with sand and coal striations. Top Pictured Cliffs formation and sandstone at 1948'</u>
<u>1948</u>	<u>2075</u>	<u>127</u>	<u>Sand with shale breaks.</u>
	<u>2075' KB TD</u>		

