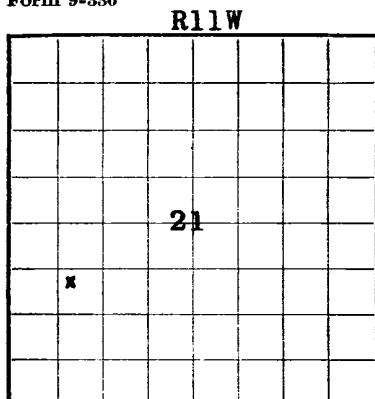
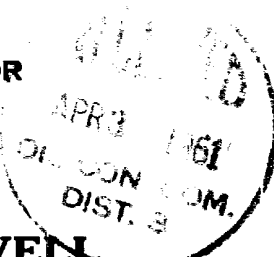


U. S. LAND OFFICE Santa Fe
SERIAL NUMBER SF 080382 - A
LEASE OR PERMIT TO PROSPECTUNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

LOG OF OIL OR GAS WELL

4040 East Louisiana Ave.
Denver 22, ColoradoCompany The Frontier Refining Co. Address Denver 22, Colorado
Lessor or Tract Schwerdtfeger Field Basin Dakota State New Mexico
Well No. 3-D Sec. 21 T. 27N R. 11W Meridian N.M.P.M. County San Juan
Location 1850 ft. [N.] of [S.] Line and 790 ft. [E.] of [W.] Line of Section 21 Elevation 6282 KB
(Elev. 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 March 23, 1961 Title Petroleum Engineer

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

Commenced drilling January 2, 1961 Finished drilling January 17, 1961

OIL OR GAS SANDS OR ZONES

(Denote gas by G)

No. 1, from (G) 6437 to 6496 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 -	
8 5/8"	24.0	8Rd	Spang	183.15	None				Surface csg.
4 1/2"	11.6	8Rd	CF&I	6549.14	Howco		6437	6456	Prod. Csg.
							6478	6496	
2 3/8"	4.70	8Rd	CF&I	6426					Tubing

MUDDING AND CEMENTING RECORD

Size casing	Where set	Connections	Size	Mud gravity	Amount of mud used
8 5/8"	195' KB	200	sax reg. +2% CaCl cir to surf.	water	
4 1/2"	6561.54 KB	300	plug	9.5#/gal	-

Heaving plug 200 feet to 195 feet
Adapters—Material 200 feet to 195 feetRotary tools were used from Surface feet to 6560 feet, and from 6560 feet to 6561.54 feet
Cable tools were used from Surface feet to 6560 feet, and from 6560 feet to 6561.54 feetThe production for the first 24 hours was 5.020 MCF of gas and 100 gal of oil
emulsion; 5.020 MCF of gas and 100 gal of oil
If gas well, 5.020 MCF of gas and 100 gal of oilRock pressure, lbs. per sq. in. 5000 Measured against 5000 psi back pressure.
Corrected, 5000 psiAlex Cowan, Driller
J. P. Baker, CementerFORMATION RECORD
FROM Surface to 6561.54 feetFROM Surface to 6561.54 feetFROM Surface to 6561.54 feetFROM Surface to 6561.54 feetFROM Surface to 6561.54 feetFROM Surface to 6561.54 feetFROM Surface to 6561.54 feetFROM Surface to 6561.54 feetFROM Surface to 6561.54 feetFROM Surface to 6561.54 feetFROM Surface to 6561.54 feetFROM Surface to 6561.54 feet

FORMATION RECORD-Continued

FROM-	TO-	TOTAL FEET	FORMATION
			Spudded 11:00 PM 1-2-61.
			Drilled 12 1/2" hole to 250' and set 8 5/8" casing @ 195' KB. Cemented w/200 sax regular cement plus 2% CaCl. Circulated cement.
			Drilled 7 3/8" hole to 4284', 6 3/4" hole to 6475', cored (6 11/16") interval 6475' - 6535', drilled 6 3/4" hole to 6560',
			T.D. Gamma Ray log. T.D. by 6266
			Ran Schlumberger I-E log and Sonic 6266
			Schlumberger 6566'.
			Set 4 1/2", J-55 casing (Premium tested to 4500 psi), 11.6#, @ 6437
			6561.54' KB. w/HOWCO two-stage cementing tool @ 2118' KB 6408
			and battle collar @ 6530' KB. Cemented 1st stage w/225 sax 6408
			50/50 Pozmix cement, 2% green stage w/75 sax regular 6318
			cement, 4% gel added. Indicated cement top 1st stage 5810' 6318
			KB, 2nd stage 1700' KB. Centralizers run on joints 1,3,4 6318
			and on joints above and below D.V. tool. Rotating scratchers 6408
			run from T.D. over Dakota section. 6408
			Moved completion rig on location 1-20-61. Drilled D.V. tool and 6430
			cleaned out to P.B.T.D. of 6328' KB. Pressure tested casing 6430
			to 4000#, held OK. Ran PDC log (Schlumberger). Perforated 6430
			6478' - 6496' w/4 2 1/2 gram jet shots/foot. Rigged up to 1884 6430
			frac, formation would not break down @ 4700 psi. Re-per- 6430
			forated 6479' - 6496' w/4 2 1/2 gram jet shots/foot (top 2' 6430
			did not fire). Broke formation down 4600 psi to 3,000 psi w/ 6430
			50 blis water. Fraced w/839 blis water and 25,000# 20/40 sand. 6430
			Average injection rate was 35 B/M and 1/10# sand/gal. Started 6430
			sand @ 1/4# /gal and increased to 1#/gal. Finished w/105 blis 6430
			water. Maximum pressure 3700 psi, minimum pressure 2700 6430
			psi, average pressure 2800 psi I.S.I.P. 1250 psi. Test interval 6430
			OK. Attempted to perforate 6437' - 6456', hit sand filling 6430
			@ 6448'. Cleaned out sand to top of B.P. and perforated 6430
			6446' - 56' w/4 2 1/2 gram jet shots/foot (top 9' not gunned 6430
			did not fire). Re-perforated 6437' - 6456' w/4 2 1/2 gram jet 6430
			shots per foot. Broke formation down 4200 psi to 2700 psi 6430
			w/26 blis water. Fraced w/689 blis water and 12,300 # 20/40 6430
			sand. Average injection rate 40 B/M and 4/10# sand/gal. 6430
			Started sand @ 1/4# /gal and increased to 3/4# /gal. Finished w/ 6430
			120 blis water. Maximum pressure 2750 psi, minimum 2600 6430
			psi, average pressure 2600 psi I.S.I.P. 1600 psi. Both fracs 6430
			used Dowell J-101 gelling and fluid loss agent. Ran tubing and 6430
			bit to clean up upper perforated interval, xxxxxxx 6430
			and with 3200' tubing in well, well unloaded. S.I. tubing 6430
			and blew well through casing. Gas measurement through casing 6430
			cleaned out to P.B.T.D. and landed 2 3/8" tubing @ 6435' KB, 6430
			kicked well off, blew to clean up and shut-in for hook-up. 6430
			Tested 2-5-through 2-6-61, 24/64 choke, 500# back pressure to 6430
			simulate deliverability. S.I. tubing 1500#, casing 1680# 6430
			Recovery gauged 5,020 MCF/D (uncorrected pitot tube) and 6430
			64.89 blis distillate, (610 @ 600' F), stabilized tubing - 6430
			1300 psi, casing 1500 psi. Water estimated @ 1 bbl/hr. 6430
			S.I. tubing and casing pressures 24 hours after test were 6430
			1925 and 1900 psi, respectively. 6430
			Well S.I. - R.P.C approval and gas sales contract received. Waiting 6430
			on pipeline connection. 6430
			4 1/2' 6266' 24KB 300 6430
			8 1/2' 192' KB 300 sax reg. + 2% CaCl. Cir to surf. water. 6430
			Note: Two copies each of Schlumberger I-E log, Sonic - G.R. log 6430
			and core analysis are attached. 6430

HISTORY OF OIL OR GAS WELL									
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