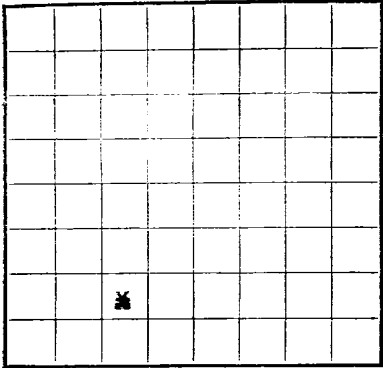
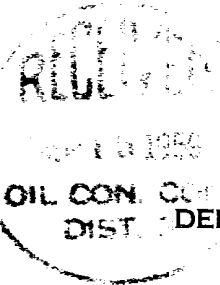




LOCATE WELL CORRECTLY



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

U. S. LAND OFFICE **Santa Fe**
SERIAL NUMBER **078840**
LEASE OR PERMIT TO PROSPECT _____

LOG OF OIL OR GAS WELL

Company **El Paso Natural Gas Company** Address **Box 997, Farmington, New Mexico**
Lessor or Tract **San Juan 28-7 Unit** Field **Blanco M. V. & Field, Cat. Dakota** State **New Mexico**
Well No. **109(MD)** Sec. **18** T. **27N** R. **7W** Meridian **N.M.P.M.** County **Rio Arriba**
Location **800** ft. **N.** of **S** Line and **1650** ft. **E.** of **W** Line of **Section 18** Elevation **6557**
(Denote 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 **ORIGINAL SIGNED E. McANALLY**

Date **September 8, 1959** Title **Petroleum Engineer**

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

Commenced drilling **5-25**, 19**59** Finished drilling **6-27**, 19**59**

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

No. 1, from **2884** to **2985 (G)** No. 4, from **5153** to **5297 (G)**
No. 2, from **4454** to **4591 (G)** No. 5, from **6340** to **6809 (G)**
No. 3, from **4591** to **5153 (G)** No. 6, from **7353** to **7510 (G)**

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—	
13 3/8	48	8 Rd.	J-55	247	Hansen				Surface
9 5/8	36	8 Rd.	J-55	3022	Baker				Intermediate
7"	23	8 Rd.	H-80	1834					
7"	23	8 Rd.	J-55	2272	Baker				Prod. Liner
5"	15	8 Rd.	J-55	477	Baker				Prod. Liner
2"	4.7	8 Rd.	J-55	7353					Prod. Tbg.
2"	4.7	8 Rd.	J-55	5268					Prod. Tbg.

MUDDING AND CEMENTING RECORD

Size casing	Where set	Number sacks of cement	Method used	Mud gravity	Amount of mud used
13 3/8	260	339	Circulated		
9 5/8	3103	950	Two Stages		
7"	3021-7127	1100	Single Stage		
5"	7048-7525	75	Single Stage		

PLUGS AND ADAPTERS

Heaving plug—Material _____ Length _____ Depth set _____
Adapters—Material _____ Size **Guiberson "AN" Hkr. at 6772'**

SHOOTING RECORD

Size	Shell used	Explosive used	Quantity	Date	Depth shot	Depth cleaned out
		See Well History				

TOOLS USED

Rotary tools were used from **0** feet to **3104** feet, and from **3104** feet to **7136** feet
Cable tools were used from _____ feet to _____ feet, and from **7136** feet to **7560** feet

DATES

7-14, 19**59** Put to producing _____, 19____

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

If gas well, cu. ft. per 24 hours **M.V. 1,562,000** Gallons gasoline per 1,000 cu. ft. of gas _____
Dak. 1,087,000

Rock pressure, lbs. per sq. in. **M.V. 1005; Dak. 2199** A.O.F. = **M.V. 1697, Dak. 1093 MCF/D**

EMPLOYEES

_____, Driller _____, Driller
_____, Driller _____, Driller

FORMATION RECORD

FROM—	TO—	TOTAL FEET	FORMATION
0	2066	2066	Tan to gry cr-grn ss; interbedded w/gry sh.
2066	2177	111	Ojo Alamo ss. White cr-grn s.
2177	2625	448	Kirtland form. Gry sh interbedded w/tight gry fine-grn ss.
2625	2884	259	Fruitland form. Gry carb sh, scattered coals, coals and gry, tight, fine-grn ss.
2884	2985	101	Pictured Cliffs form. Gry, fine-grn, tight, varicolored soft ss.
2985	4454	1469	Lewis formation. Gry to white dense sh w/silty to shaly ss breaks.
4454	4591	137	Cliff House ss. Gry, fine-grn, dense sil ss.
4591	5153	562	Manefee form. Gry, fine-grn s, carb sh & coal.
5153	5297	144	Point Lookout form. Gry, very fine sil ss w/frequent sh breaks.
5297	6340	1043	Mancos formation. Gry carb sh.
6340	6809	469	Gallup form. Lt gry to brn calc carb micac glauco very fine gry ss w/irreg. interbed sh.
6809	7123	314	Sanastee form. Drk gry calc very fine to fine gr gry ss w/calc veins w/irreg inter drk gry s.
7123	7185	62	Greenhorn form. Highly calc gry sh w/thin lmst.
7185	7353	168	Graneros form. Dk gry shale, fossil & carb w/pyrite incl.
7353	7510	157	Dakota form. Lt todk gry foss carb sl calc al silty ss w/pyrite incl
7510	7560	50	Morrison form. Interbed grn brn & red waxy sh & fr to cr grn ss.

FORMATION RECORD—Continued[illegible]

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.

7-4-59 Total Depth 7555'. C.O.T.D. 7460'. Water frac. Lower Dakota perf. int. (2 sh/ft.) 7398-7404; 7410-7425; 7435-48; 7448-57 w/59, 825 gal. water & 40,000# sand. MD pr. 2500#, max. pr. 3700#, tr. pr. 3000-3200-3500-3700#. I.R. 55 BPM. Flush 21,000 gal. Dropped 3 sets of 15 balls each. Frac. water contained 1% Calcium Chloride & 17# WLCL/1000 gal. 200 gal. MCA ahead of frac.

7-5-59 Bridge plug at 7381'. Water frac. Upper Dakota perf. int. (2 sh/ft.) 7316-24; 7333-44; 7361-71 w/49, 163 gal. water & 30,000# sand. MD pr. 2000#, max. pr. 3550#, tr. pr. 3000-3200-3500#. I.R. 57 BPM. Flush 21,000 gal. Dropped 1 set of 20 balls and 1 set of 14 balls. Frac. water contained 1% Calcium Chloride & 17# WLCL/1000 gal. 200 gal MCA ahead of frac.

7-5-59 Bridge plug at 7240'. Water frac. Point Lookout int. (2 sh/ft.) 5168-76; 5193-4204; 5226-34; 5244-80; 5271-76 w/37, 83 gal. water & 45,000# sand. MD pr. 2500#, max. pr. 2500#, tr. pr. 700-900-600#. I.R. 58 BPM. Flush 9240 gal. Dropped 2 sets of 20 balls each.

<u>Date</u>	<u>Section</u>	<u>Recovery</u>
6-18-59	7260-7310	54"
6-19-59	7310-7363	53' 11"
6-21-59	7363-7415	52"
6-22-59	7415-7425	8' 6"
6-23-59	7425-7449	24"
6-23-59	7449-7452	2'
6-24-59	7452-7456	3' 1"

DOYLE METT CORRECTION

ГОС ОЕ ОИГ ОБ СВЗ ЛМЕТТ

GEOLOGICAL SURVEY

DEPT. OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
WASHINGTON, D.C. 20250

APR 15 2 14 PM '52

1979-1980, 1981-1982, 1983-1984, 1985-1986, 1987-1988, 1989-1990, 1991-1992, 1993-1994, 1995-1996, 1997-1998, 1999-2000, 2001-2002, 2003-2004, 2005-2006, 2007-2008, 2009-2010, 2011-2012, 2013-2014, 2015-2016, 2017-2018, 2019-2020, 2021-2022, 2023-2024, 2025-2026, 2027-2028, 2029-2030, 2031-2032, 2033-2034, 2035-2036, 2037-2038, 2039-2040, 2041-2042, 2043-2044, 2045-2046, 2047-2048, 2049-2050, 2051-2052, 2053-2054, 2055-2056, 2057-2058, 2059-2060, 2061-2062, 2063-2064, 2065-2066, 2067-2068, 2069-2070, 2071-2072, 2073-2074, 2075-2076, 2077-2078, 2079-2080, 2081-2082, 2083-2084, 2085-2086, 2087-2088, 2089-2090, 2091-2092, 2093-2094, 2095-2096, 2097-2098, 2099-2100, 2101-2102, 2103-2104, 2105-2106, 2107-2108, 2109-2110, 2111-2112, 2113-2114, 2115-2116, 2117-2118, 2119-2120, 2121-2122, 2123-2124, 2125-2126, 2127-2128, 2129-2130, 2131-2132, 2133-2134, 2135-2136, 2137-2138, 2139-2140, 2141-2142, 2143-2144, 2145-2146, 2147-2148, 2149-2150, 2151-2152, 2153-2154, 2155-2156, 2157-2158, 2159-2160, 2161-2162, 2163-2164, 2165-2166, 2167-2168, 2169-2170, 2171-2172, 2173-2174, 2175-2176, 2177-2178, 2179-2180, 2181-2182, 2183-2184, 2185-2186, 2187-2188, 2189-2190, 2191-2192, 2193-2194, 2195-2196, 2197-2198, 2199-2200, 2201-2202, 2203-2204, 2205-2206, 2207-2208, 2209-2210, 2211-2212, 2213-2214, 2215-2216, 2217-2218, 2219-2220, 2221-2222, 2223-2224, 2225-2226, 2227-2228, 2229-2230, 2231-2232, 2233-2234, 2235-2236, 2237-2238, 2239-2240, 2241-2242, 2243-2244, 2245-2246, 2247-2248, 2249-2250, 2251-2252, 2253-2254, 2255-2256, 2257-2258, 2259-2260, 2261-2262, 2263-2264, 2265-2266, 2267-2268, 2269-2270, 2271-2272, 2273-2274, 2275-2276, 2277-2278, 2279-2280, 2281-2282, 2283-2284, 2285-2286, 2287-2288, 2289-2290, 2291-2292, 2293-2294, 2295-2296, 2297-2298, 2299-2300, 2301-2302, 2303-2304, 2305-2306, 2307-2308, 2309-2310, 2311-2312, 2313-2314, 2315-2316, 2317-2318, 2319-2320, 2321-2322, 2323-2324, 2325-2326, 2327-2328, 2329-2330, 2331-2332, 2333-2334, 2335-2336, 2337-2338, 2339-2340, 2341-2342, 2343-2344, 2345-2346, 2347-2348, 2349-2350, 2351-2352, 2353-2354, 2355-2356, 2357-2358, 2359-2360, 2361-2362, 2363-2364, 2365-2366, 2367-2368, 2369-2370, 2371-2372, 2373-2374, 2375-2376, 2377-2378, 2379-2380, 2381-2382, 2383-2384, 2385-2386, 2387-2388, 2389-2390, 2391-2392, 2393-2394, 2395-2396, 2397-2398, 2399-2400, 2401-2402, 2403-2404, 2405-2406, 2407-2408, 2409-2410, 2411-2412, 2413-2414, 2415-2416, 2417-2418, 2419-2420, 2421-2422, 2423-2424, 2425-2426, 2427-2428, 2429-2430, 2431-2432, 2433-2434, 2435-2436, 2437-2438, 2439-2440, 2441-2442, 2443-2444, 2445-2446, 2447-2448, 2449-2450, 2451-2452, 2453-2454, 2455-2456, 2457-2458, 2459-2460, 2461-2462, 2463-2464, 2465-2466, 2467-2468, 2469-2470, 2471-2472, 2473-2474, 2475-2476, 2477-2478, 2479-2480, 2481-2482, 2483-2484, 2485-2486, 2487-2488, 2489-2490, 2491-2492, 2493-2494, 2495-2496, 2497-2498, 2499-2500, 2501-2502, 2503-2504, 2505-2506, 2507-2508, 2509-2510, 2511-2512, 2513-2514, 2515-2516, 2517-2518, 2519-2520, 2521-2522, 2523-2524, 2525-2526, 2527-2528, 2529-2530, 2531-2532, 2533-2534, 2535-2536, 2537-2538, 2539-2540, 2541-2542, 2543-2544, 2545-2546, 2547-2548, 2549-2550, 2551-2552, 2553-2554, 2555-2556, 2557-2558, 2559-2560, 2561-2562, 2563-2564, 2565-2566, 2567-2568, 2569-2570, 2571-2572, 2573-2574, 2575-2576, 2577-2578, 2579-2580, 2581-2582, 2583-2584, 2585-2586, 2587-2588, 2589-2590, 2591-2592, 2593-2594, 2595-2596, 2597-2598, 2599-2600, 2601-2602, 2603-2604, 2605-2606, 2607-2608, 2609-2610, 2611-2612, 2613-2614, 2615-2616, 2617-2618, 2619-2620, 2621-2622, 2623-2624, 2625-2626, 2627-2628, 2629-2630, 2631-2632, 2633-2634, 2635-2636, 2637-2638, 2639-2640, 2641-2642, 2643-2644, 2645-2646, 2647-2648, 2649-2650, 2651-2652, 2653-2654, 2655-2656, 2657-2658, 2659-2660, 2661-2662, 2663-2664, 2665-2666, 2667-2668, 2669-2670, 2671-2672, 2673-2674, 2675-2676, 2677-2678, 2679-2680, 2681-2682, 2683-2684, 2685-2686, 2687-2688, 2689-2690, 2691-2692, 2693-2694, 2695-2696, 2697-2698, 2699-2700, 2701-2702, 2703-2704, 2705-2706, 2707-2708, 2709-2710, 2711-2712, 2713-2714, 2715-2716, 2717-2718, 2719-2720, 2721-2722, 27

$\mathcal{P}(\mathcal{A}, \mathcal{B}) = \{ \langle A, B \rangle \mid A \in \mathcal{A}, B \in \mathcal{B} \}$