

EXHIBIT "B"  
PROPOSED TENTH EXPANSION  
ROSA UNIT PARTICIPATING AREA  
RIO ARriba COUNTY, NEW MEXICO

GEOLOGIC REPORT  
MESAVERDE PRODUCING INTERVAL  
RIO ARriba COUNTY,  
NEW MEXICO

EL PASO NATURAL GAS COMPANY

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GEOLOGICAL REPORT  
MESA VERDE PRODUCING INTERVAL  
ROSA UNIT  
RIO ARriba COUNTY, NEW MEXICO

Since the Ninth Expansion of the Mesa Verde participating area of the Rosa Unit several new wells have been completed which influence the determination of the proven Mesa Verde gas producing area. Two of these wells, the El Paso Natural Gas Company No. 41 Rosa Unit and the Irving Pasternak No. 40-11 Rosa Unit have affected the participating area and it is on the basis of these two completions that the 10th revision is recommended.

The El Paso Natural Gas Company No. 41 Rosa Unit located in the SW/4 of Section 5, Township 31 North, Range 5 West was completed September 6, 1961 for a Mesa Verde CAOF of 5390 Mcf/D with a wellhead shut-in tubing pressure of 1156 psia. The well was drilled on participating acreage and the producing Mesa Verde sand intervals are correlative with the producing sands of existing participating wells. The Irving Pasternak No. 40-11 Rosa Unit located in the NW/4 of Section 11, Township 31 North, Range 5 West was completed July 7, 1961 as a Dakota producer on non-participating acreage. The Mesa Verde in this well was perforated, sand-water fractured, and found to be noncommercial and was subsequently abandoned.

It appears that the permeability decreases appreciably between EPNG wells Nos. 41 and 22-18 and the Pasternak No. 40-11. This indicated permeability decrease is believed to be far enough removed from the recommended expansion of the participating unit in order not to preclude the NE/4 of Section 8, Township 31 North, Range 5 West of being productive.

Recommended for inclusion in the Tenth Revision:

T-31-N, R-5-W, Section 8: NE/4, containing 160.00 acres.

Included in this report as Exhibit "C" is a schedule of production for the Rosa Unit. Exhibit "D" is a structure map of the Rosa Unit contoured on correlation point "C" of the Lewis shale which reflects the structural configuration of the underlying Mesa Verde formation.

EXHIBIT "C"

OF THE

PROPOSED TENTH EXPANSION

OF THE ROSA UNIT

MESAVERDE PARTICIPATING AREA

RIO ARriba COUNTY, NEW MEXICO

Rosa Unit  
Rio Arriba County - New Mexico  
Gas Prod. - Mesa Verde Form.

Well No.	Date Of 1st Del.	Cum. Prod. to 1-1-59	Meter No.	January	February	March	April	May	June	July	August	September	October	November	December	1959 Total Prod.	Cum. Prod. 1-1-60
5-26	Not tied in	-0-	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-0-	-0-
8-26	10-28-56	42387	71763	1117	1166	1317	781	809	879	1146	1085	857	1098	915	815	11985	54372
9-11	11-30-56	87667	71778	1934	1976	2597	1477	1593	1939	2260	1870	1642	2304	2054	1613	23259	110926
10-13	10-28-56	108154	71777	2028	2083	2337	1228	1597	1748	2134	1547	1287	1778	2020	1751	21538	129692
12-15	10-30-56	278891	71779	5853	5610	6329	4537	4744	4853	5300	4784	4612	4925	4629	3005	59181	338072
13-31	10-28-56	179105	71764	5161	4847	5200	3795	3748	4187	4705	4334	3480	4338	4043	3826	51664	230769
14-23	10-28-56	110958	71761	2562	2407	3022	2513	2816	2550	2887	2426	2344	2751	2198	2153	30629	141587
15-29	10-28-56	108355	71762	2761	1988	2219	2007	2246	2252	2280	2106	1992	2337	2127	2240	26555	134910
16-14	10-30-57	60489	71741	5391	4851	100	10082	126	4144	2771	2743	7517	4812	3690	3460	49687	110176
17-20	8-19-57	59712	71740	4522	3899	3363	2889	2024	1850	2420	2150	2474	2280	2641	2278	32790	92502
18-22	10-30-57	44834	71742	5914	2129	1649	3656	2046	2927	2677	2419	2380	2194	2233	2203	32427	77261
19-24	10-28-57	54329	71738	3796	2913	2745	2524	2448	2442	3080	2921	2791	2823	2642	2611	33736	88065
20-14	10-30-57	78837	71743	1013	87	1046	12779	104	2706	200	3089	9824	4539	176	8128	43691	122528
21-23	10-28-57	83398	71744	6170	5610	6228	4759	3634	4718	3507	3297	3787	4315	3676	3506	53207	136605
22-18	10-30-57	68246	71739	6107	5961	119	7495	4536	3601	1196	5450	2857	3235	2880	2987	46424	114670
23-29	10-30-57	58685	71745	3768	2965	3376	2093	1199	2089	2267	1724	1847	2033	2062	1831	27254	85939
24-32	11-14-57	66146	71897	3253	5253	946	10360	6166	6416	964	1231	1916	2932	7766	6144	53347	119493
25-15	11-22-57	85623	71871	7195	6228	6837	4657	3930	4769	4429	4449	3630	4124	4087	3360	57695	143318
26-32	6-12-58	47584	72147	150	127	112	13363	116	2639	142	255	1882	9225	2084	10034	40129	87713
29-32	10-16-58	37970	72225	10570	1067	4058	-0-	-0-	-0-	9283	66	86	174	14247	6559	46110	84080
34-36	5-29-60	-0-	72602	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-
35-5X	5-27-60	-0-	72564	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-
36-11	5-27-60	-0-	72582	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-
Total Prod. by Mo. 1, 661, 370				79265	61167	53600	90995	43882	56709	53648	47946	57205	62217	66170	68504	741308	2402678
Total Wells Prod'g.				19	19	19	18	18	18	19	19	19	19	19	19		
Avg. Monthly Prod./Well				4171.8	3219.3	2821.1	5055.3	2437.9	3150.5	2823.6	2523.5	3010.8	3274.6	3482.6	3605.5		

Rosa Unit  
Rio Arriba County-New Mexico  
Gas Prod. - Mesa Verde Form.

Well No.	January	February	March	April	May	June	July	August	September	October	November	December	1960 Total Prod.	Cum. Prod. 1-1-61
5	-	-	-	-	-	-	-	-	-	-	-	-	-0-	-0-
8	719	568	1216	737	1109	972	999	869	939	1328	1218	702	11376	65748
9	1076	458	2144	854	1864	1640	1773	1149	1566	2527	1852	664	17567	128493
10	1051	94	1150	1739	1543	1655	1280	1125	1294	1532	1649	1137	15249	144941
12	2820	98	-0-	923	4417	3786	3399	3167	3544	3356	3047	3074	31631	369703
13	2960	1989	4027	3042	3769	4307	3440	3535	3195	5031	4572	1646	41513	272282
14	461	499	2363	2096	1922	1936	2311	1653	1754	2006	1687	1698	20386	161973
15	2104	797	2162	1892	1937	1993	1895	1803	1679	1626	1314	1430	20632	155542
16	3856	3316	2509	3804	4712	4272	5356	3464	4306	4857	5003	3626	49081	159257
17	1688	1065	1697	2165	1962	2107	1375	1009	853	1656	2228	828	18633	111135
18	1259	1010	2015	1911	1928	2228	1886	1637	1641	1589	1488	2711	21303	98564
19	1340	2030	2288	2489	1735	2450	2196	1987	2161	2095	1690	1593	24054	112119
20	5723	4865	4889	4612	5543	5143	5026	4208	4849	3333	5933	4599	58723	181251
21	2784	1966	3005	3760	3066	3383	3914	2152	3420	3451	3607	2832	37340	173945
22	2380	1995	2431	2423	2755	2653	2442	2328	2646	2585	2195	1630	28463	143133
23	1432	734	1078	1571	1586	1343	730	547	830	1473	1569	1221	14114	100053
24	4020	3365	3219	4545	3359	4623	4244	3370	5034	4592	4410	3833	48614	168107
25	2896	635	2973	2849	3233	3473	3575	1823	3325	3012	3196	2858	33848	177166
26	6221	3948	4663	3534	4612	3676	3954	3768	3435	3415	3142	2634	47002	134715
29	6114	6987	5690	5298	6245	5909	4601	4641	1022	4642	5220	4601	60970	145050
34	-0-	-0-	-0-	-0-	1789	37323	15048	9862	20819	17447	13635	7218	123141	123141
35	-0-	-0-	-0-	-0-	3452	10975	3400	3031	2388	3093	2314	3008	31661	31661
36	-0-	-0-	-0-	-0-	4532	27479	10393	6542	12103	-0-	-0-	-0-	61049	61049
Total Prod. by Month														
Total Wells Prod.														
Avg. Monthly Prod/Well														
	50904	36419	49519	50244	67070	133326	83237	63670	82803	74646	70969	53543	816350	3219028
	19	19	18	19	22	22	22	22	22	21	21	21	--	
	2679.2	1916.8	2751.1	2644.4	3048.6	6060.3	3783.5	2894.1	3763.8	3554.6	3379.5	2549.7		

Rosa Unit  
Rio Arriba County-New Mexico  
Gas Prod. - Mesa Verde Form.

Well No.	January	February	March	April	May	June	July	August	September	1961 Prod. thru 10-1-61	Cum. Prod. 10-1-61
5	-	-	-	-	-	-	-	-	-	-	-0-
8	829	1013	1393	540	685	938	964	718	833	7913	73661
9	903	1413	2289	637	941	1588	1656	982	1020	11429	139922
10	1383	1770	2024	1166	1231	2037	2276	1421	1770	15078	160019
12	3001	2843	3278	2810	2700	3134	2713	2161	2534	25174	394877
13	2843	3334	4752	3422	3214	3576	4144	2861	3353	31499	303781
14	2050	1537	2456	1709	1679	2472	2523	1954	1975	18355	180328
15	1828	2466	2218	2003	1569	739	1814	1897	1771	16305	171847
16	3671	3454	4264	3158	3416	4199	4088	1942	3996	32188	191445
17	2554	1521	2892	1293	1002	1904	2454	1361	2335	17316	128451
18	1496	1611	2434	1548	1393	2151	1942	1407	1305	15287	113851
19	1765	1697	2203	1882	1749	2234	2328	2303	2199	18360	130479
20	4608	4076	4269	3857	3955	4123	4464	1323	2417	33092	214343
21	3284	3213	3601	2195	2633	4522	3632	2557	2851	28488	202433
22	2129	2295	2670	777	1018	2961	2802	1594	1287	17533	160666
23	1222	1014	1496	798	751	1717	1755	1274	1954	11981	112034
24	3789	3361	4103	3517	2634	4622	4231	3016	4663	33936	202043
25	3710	2901	3996	2592	2350	2702	2980	1475	1582	24288	201454
26	2310	3724	3672	3270	3312	2456	3636	2580	2217	27177	161892
29	4838	3269	4558	4253	6753	5875	3907	155	3897	37505	182555
34	3596	12096	2603	3407	-0-	1762	2882	17132	-0-	43478	166619
35	2376	2060	3783	3666	3532	3114	2224	2957	2605	26317	57978
36	-0-	11225	12174	16582	8012	1203	1500	1372	11936	64004	125053
Total Prod. by Month	54185	71893	77128	65082	54529	60029	60915	54442	58500	556703	3775731
Total Wells Prod.	21	22	22	22	21	22	22	22	21	--	
Avg. Monthly Prod. / Well	2580.2	3267.9	3505.8	2958.3	2596.6	2728.6	2768.9	2474.6	2785.7		

Gas Volumes Are At 15.025 psia and 60° F.