

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
DIVISION FOR THE PURPOSE OF
CONSIDERING:

APPLICATION OF TEXACO EXPLORATION AND
PRODUCTION INC. FOR A WATERFLOOD PROJECT,
LEA COUNTY, NEW MEXICO.

Case No. 10516
Order No. R-9114

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 8:15 a.m. on July 23, 1992, at Santa Fe, New Mexico, before Examiner David R. Catanach.

NOW, on this September day of ~~August~~, 1992, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS THAT:

(1) Due public notice having been given as required by law, the Division has jurisdiction of this cause and the subject matter thereof.

(2) The applicant, Texaco Exploration and Production Inc. (Texaco), seeks authority to institute a waterflood project in its Vacuum Glorieta West Unit by the injection of water into the Glorieta and Paddock formations, Vacuum-Glorieta Pool, Lea County, New Mexico, through the gross perforated and/or open hole interval from approximately 5,950 feet to 6,230 feet in one existing and fifty-nine wells to be drilled at orthodox and unorthodox locations as shown on Exhibit "A" attached hereto.

(3) By Order No. R-9710 issued in Case No. 10515 on August 25, 1992, the Division, upon application of Texaco, approved the Vacuum Glorieta West Unit which comprises some 2778.86 acres, more or less, in Townships 17 and 18 South, Ranges 34 and 35 East, NMPM, Lea County, New Mexico.

(4) The vast majority of wells located within the applicant's Vacuum Glorieta West Unit Area are in an advanced state of depletion and should properly be classified as "stripper wells".

(5) The proposed waterflood project should result in the recovery of otherwise unrecoverable oil, thereby preventing waste.

(6) The applicant should take all steps necessary to ensure that the injected water enters only the proposed injection interval and is not permitted to escape to other formations or onto the surface from injection, production, or plugged and abandoned wells.

(7) The injection of water into each of the wells shown on Exhibit "A" should be accomplished through internally cement-lined tubing installed in a packer set within 100 feet of the uppermost injection perforation or casing shoe; the casing-tubing annulus should be filled with an inert fluid and a gauge or approved leak-detection device should be attached to the annulus in order to determine leakage in the casing, tubing or packer.

(8) Prior to commencing injection operations into the wells shown on Exhibit "A", the casing in each well should be pressure tested throughout the interval from the surface down to the proposed packer setting depth to assure the integrity of such casing.

(9) The injection wells or pressurization system should be initially equipped with a pressure control device or acceptable substitute which will limit the surface injection pressure to no more than 1200 psi.

(10) The Division Director should have the authority to administratively authorize a pressure limitation in excess of the pressure limitation described in Finding No. (9) above upon a showing by the operator that such higher pressure will not result in the fracturing of the injection formation or confining strata.

(11) The operator should give advance notification to the supervisor of the Hobbs District Office of the Division of the date and time of the installation of injection equipment and of the mechanical integrity pressure tests in order that the same may be witnessed.

(12) Prior to commencing injection operations into the proposed Vacuum Glorieta West Unit Well Nos. 21, 43, 69, 97, 109 and 110, the applicant should be required to submit to the Santa Fe Office of the Division an executed copy of an Injection Lease-Line Agreement.

(13) The application should be approved and the project should be governed by the provisions of Rule Nos. 701 through 708 of the Oil Conservation Division Rules and Regulations.

(14) At the time of the hearing, the applicant requested that the subject waterflood be certified by the Division as a qualified "Enhanced Oil Recovery Project" pursuant to the "Enhanced Oil Recovery Act" (Laws 1992, Chapter 38, Sections 1 through 5).

(15) The evidence presented indicates that the subject waterflood meets all the criteria for certification.

(16) The certified "project area" should initially comprise the area approved for statutory unitization by Division Order No. R- 4710, and described as follows, provided however, the "project area" and/or the producing wells eligible for the recovered oil tax rate may be contracted and reduced dependent upon the evidence presented by the applicant in its demonstration of the occurrence of a positive production response:

TOWNSHIP 17 SOUTH, RANGE 34 EAST, NMPM

Section 24: SW/4, SW/4 NW/4, SW/4 SE/4

Section 25: All

Section 26: E/2 SE/4

Section 35: NE/4, N/2 SE/4, SE/4 SE/4

Section 36: All

TOWNSHIP 17 SOUTH, RANGE 35 EAST, NMPM

Section 30: Lots 1, 2, 3, 4 (W/2 W/2)

Section 31: Lots 1, 2, 3, 4 (W/2 W/2)

TOWNSHIP 18 SOUTH, RANGE 34 EAST, NMPM

Section 1: Lots 1, 2, 3, 4 (N/2 N/2), S/2 NE/4

Section 2: Lot 1 (NE/4 NE/4)

TOWNSHIP 18 SOUTH, RANGE 35 EAST, NMPM

Section 6: Lots 1, 2, 3, 4, 5, SE/4 NW/4, S/2 NE/4, (N/2)

IT IS THEREFORE ORDERED THAT:

(1) The applicant, Texaco Exploration and Production Inc. (Texaco), is hereby authorized to institute a waterflood project in its Vacuum Glorieta West Unit by the injection of water into the Glorieta and Paddock formations, Vacuum-Glorieta Pool, Lea County, New Mexico, through the gross perforated and/or open hole interval from approximately 5,950 feet to 6,230 feet in one existing and fifty-nine wells to be drilled at orthodox and unorthodox locations as shown on Exhibit "A" attached hereto.

(2) The applicant shall take all steps necessary to ensure that the injected water enters only the proposed injection interval and is not permitted to escape to other formations or onto the surface from injection, production, or plugged and abandoned wells.

(3) Injection into the wells shown on Exhibit "A" shall be accomplished through cement-lined tubing installed in a packer set approximately within 100 feet of the uppermost injection perforation or casing shoe; the casing-tubing annulus shall be filled with an inert fluid and a gauge or approved leak-detection device shall be attached to the annulus in order to determine leakage in the casing, tubing or packer.

(4) The injection wells or pressurization system shall be equipped with a pressure control device or acceptable substitute which will limit the surface injection pressure to no more than 1200 psi.

(5) The Division Director shall have the authority to administratively authorize a pressure limitation in excess of the above upon a showing by the operator that such higher pressure will not result in the fracturing of the injection formation or confining strata.

(6) Prior to commencing injection operations into the wells shown on Exhibit "A", the casing in each well shall be pressure-tested throughout the interval from the surface down to the proposed packer setting depth, to assure the integrity of such casing.

(7) The operator shall give advance notification to the supervisor of the Hobbs District Office of the Division of the date and time of the installation of injection equipment and of the mechanical integrity pressure tests, in order that the same may be witnessed.

(8) The applicant shall immediately notify the supervisor of the Hobbs District Office of the Division of the failure of the tubing, casing or packer in any of the injection wells, the leakage of water or oil from or around any producing well, or the leakage of water or oil from any plugged and abandoned well within the project area, and shall take such steps as may be timely and necessary to correct such failure or leakage.

(9) The subject waterflood is hereby designated the Vacuum Glorieta West Unit Waterflood Project and shall be governed by the provisions of Rule Nos. 701 through 708 of the Oil Conservation Division Rules and Regulations.

(10) Monthly progress reports of the waterflood project herein authorized shall be submitted to the Division in accordance with Rule Nos. 706 and 1115 of the Division Rules and Regulations.

(11) The applicant shall be required to obtain Division approval, subsequent to the entry of this order, to drill any injection well located at an unorthodox location closer than 330 feet from the outer boundary of the Vacuum Glorieta West Unit.

(12) Prior to commencing injection operations into the proposed Vacuum Glorieta West Unit Well Nos. 21, 43, 69, 97, 109 and 110, the applicant shall submit to the Santa Fe Office of the Division an executed copy of an Injection Lease-Line Agreement.

(13) The subject waterflood is ~~hereby certified as~~ a qualified "Enhanced Oil Recovery Project" pursuant to the "Enhanced Oil Recovery Act" (Laws 1992, Chapter 38, Sections 1 through 5). (14)

[§]
(14) The certified "project area" shall initially comprise the area approved for statutory unitization by Division Order No. R- 9710, and described as follows, provided however, the "project area" and/or the producing wells eligible for the recovered oil tax rate may be contracted and reduced dependent upon the evidence presented by the applicant in its demonstration of the occurrence of a positive production response:

TOWNSHIP 17 SOUTH, RANGE 34 EAST, NMPM

Section 24: SW/4, SW/4 NW/4, SW/4 SE/4

Section 25: All

Section 26: E/2 SE/4

Section 35: NE/4, N/2 SE/4, SE/4 SE/4

Section 36: All

TOWNSHIP 17 SOUTH, RANGE 35 EAST, NMPM

Section 30: Lots 1, 2, 3, 4 (W/2 W/2)

Section 31: Lots 1, 2, 3, 4 (W/2 W/2)

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TOWNSHIP 18 SOUTH, RANGE 34 EAST, NMPM

Section 1: Lots 1, 2, 3, 4 (N/2 N/2), S/2 NE/4
Section 2: Lot 1 (NE/4 NE/4)

TOWNSHIP 18 SOUTH, RANGE 35 EAST, NMPM

Section 6: Lots 1, 2, 3, 4, 5, SE/4 NW/4, S/2 NE/4, (N/2)

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(1~~5~~) Jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

WILLIAM J. LeMAY
Director

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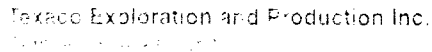
EXHIBIT "A"
DIVISION ORDER NO. R-~~9~~714
VACUUM GLORIETA WEST UNIT
APPROVED NEWLY DRILLED INJECTION WELLS

<u>LEASE NAME</u>	<u>LOCATION</u>	<u>ULSTR</u>	<u>VGWU WELL NO.</u>
Bridges State	1360' FSL & 1300' FWL	M-24-17S-34E	4
Bridges State	1209' FSL & 2582' FWL	N-24-17S-34E	5
Bridges State	73' FNL & 1411' FWL	C-25-17S-34E	9
Yucca State	100' FSL & 2628' FWL	O-24-17S-34E	10
Bridges State	246' FNL & 1554' FEL	B-25-17S-34E	11
Bridges State	1328' FNL & 1399' FWL	F-25-17S-34E	17
Bridges State	1651' FNL & 2543' FWL	F-25-17S-34E	18
Bridges State	1502' FNL & 1520' FEL	G-25-17S-34E	19
NM T State NCT-1	1541' FNL & 181' FEL	H-25-17S-34E	20
NM N State	1330' FNL & 1283' FWL	E-30-17S-35E	21
Bridges State	1171' FSL & 34' FEL	I-26-17S-34E	27
McAllister State	2304' FSL & 1127' FWL	L-25-17S-34E	28
McAllister State	2522' FSL & 2283' FWL	K-25-17S-34E	29
NM Q State	2305' FSL & 1391' FEL	J-25-17S-34E	30
Swiggart	2520' FSL & 128' FEL	I-25-17S-34E	31
McAllister State	2387' FSL & 51' FEL	M-25-17S-34E	38
McAllister State	1194' FSL & 1055' FWL	M-25-17S-34E	39
McAllister State	1570' FSL & 2404' FWL	K-25-17S-34E	40
NM Q State	1437' FSL & 1646' FEL	J-25-17S-34E	41
NM N State	1250' FSL & 8 FWL	M-30-17S-35E	42
NM N State	1453' FSL & 1247' FWL	L-30-17S-35E	43
State H-35	112' FNL & 1214' FEL	A-35-17S-34E	50
State H-35	24' FNL & 31' FEL	A-35-17S-34E	51
McAllister State	65' FSL & 1587' FWL	N-25-17S-34E	52
McAllister State	65' FSL & 2350' FWL	N-25-17S-34E	53
NM Q State	7' FSL & 1693' FEL	O-25-17S-34E	54
NM N State	177' FSL & 52' FWL	M-30-17S-35E	55
State H-35	1370' FNL & 1135' FEL	A-35-17S-34E	63
NM O State NCT-1	1484' FNL & 204' FWL	E-36-17S-34E	64
NM O State NCT-1	1472' FNL & 1492' FWL	F-36-17S-34E	65

<u>LEASE NAME</u>	<u>LOCATION</u>	<u>ULSTR</u>	<u>VGWU WELL NO.</u>
NM O State NCT-1	1690' FNL & 2577' FWL	F-36-17S-34E	66
NM O State NCT-1	1435' FNL & 1408' FEL	G-36-17S-34E	67
NM O State NCT-1	1491' FNL & 280' FEL	H-36-17S-34E	68
Santa Fe Battery 2	1502' FNL & 1203' FWL	E-31-17S-35E	69
State H-35	2569' FSL & 1326' FEL	H-35-17S-34E	77
NM O State NCT-1	2491' FNL & 127' FWL	E-36-17S-34E	78
State VB	2461' FSL & 1351' FWL	K-36-17S-34E	79
NM O State NCT-1	2552' FNL & 2504' FEL	G-36-17S-34E	80
NM O State NCT-1	2466' FSL & 1505' FEL	J-36-17S-34E	81
NM O State NCT-1	2576' FSL & 82' FEL	I-36-17S-34E	82
M.E. Hale	1459' FSL & 1148' FEL	I-35-17S-34E	91
State I	1451' FSL & 149' FWL	L-36-17S-34E	92
State VB	1723' FSL & 1575' FWL	K-36-17S-35E	93
NM O State NCT-1	1525' FSL & 2591' FEL	J-36-17S-34E	94
NM O State NCT-1	1519' FSL & 1548' FEL	J-36-17S-34E	95
NM O State NCT-1	142' FSL & 214' FEL	I-36-17S-34E	96
Santa Fe Battery 2	1419' FSL & 1225' FWL	L-31-17S-35E	97
NM O State NCT-1	361' FSL & 300' FWL	M-36-17S-34E	104
NM O State NCT-1	403' FSL & 1340' FWL	N-36-17S-34E	105
NM O State NCT-1	310' FSL & 2542' FEL	O-36-17S-34E	106
NM O State NCT-1	184' FSL & 1382' FEL	O-36-17S-34E	107
NM O State NCT-1	213' FSL & 301' FEL	P-36-17S-34E	108
Warn State AC 2	96' FNL & 2498' FWL	C-6-18S-35E	109
NM R State NCT-1	74' FNL & 56' FEL	A-6-18S-35E	110
NM L State	1102' FNL & 1575' FEL	B-1-18S-34E	120
NM L State	1014' FNL & 140' FEL	A-1-18S-34E	121
Warn State AC 2	1000' FNL & 1136' FWL	D-6-18S-35E	122
Warn State AC 2	1080' FNL & 2344' FWL	C-6-18S-35E	123
NM R State NCT-1	1020' FNL & 1419' FEL	B-6-18S-35E	124

EXISTING WELL TO BE CONVERTED TO INJECTION

Bridges State No. 113 1980' FNL & 830' FWL E-24-17S-34E 1

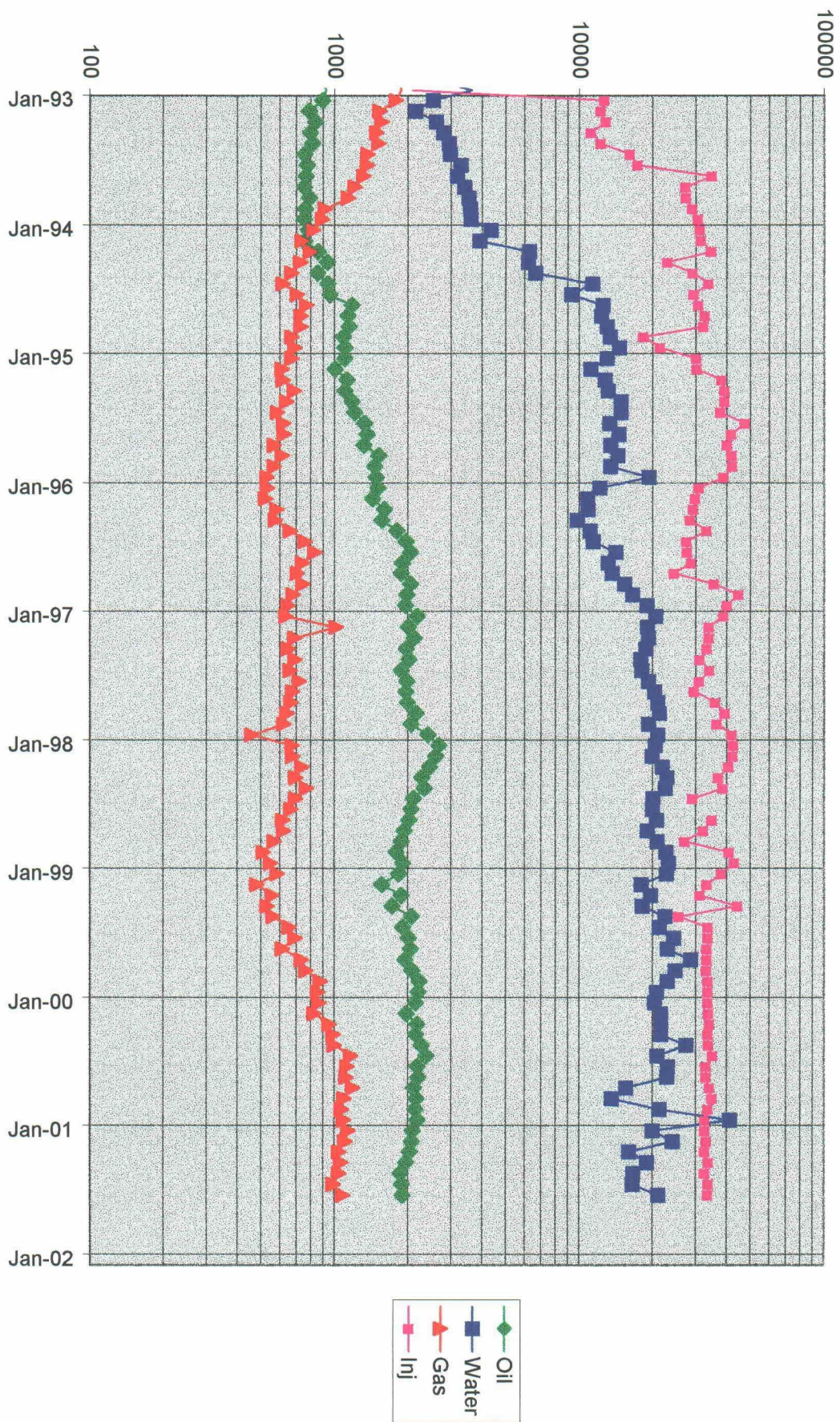


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Attachment

VGWU



VACUUM GLORIETA WEST UNIT

DATE	Oil bbls	Water bbls	Gas Mscf	Inj bbls	Press psia	Prod Wells	Inject Wells
09/01/1992	733	2294	1883	0	0	43	0
10/01/1992	904	2407	1995	0	0	46	0
11/01/1992	879	2502	1821	0	0	47	0
12/01/1992	922	3623	1866	2080	92	47	12
01/01/1993	891	2517	1779	12586	1245	47	12
02/01/1993	784	2138	1520	12208	41	47	12
03/01/1993	831	2596	1553	12795	50	48	12
04/01/1993	793	2770	1481	11129	92	48	12
05/01/1993	807	2926	1507	12218	73	48	12
06/01/1993	752	2955	1361	16038	36	48	18
07/01/1993	771	3266	1357	17268	40	48	19
08/01/1993	764	3165	1311	34688	46	49	33
09/01/1993	747	3377	1206	27139	50	49	45
10/01/1993	783	3517	1133	27269	46	48	51
11/01/1993	755	3571	912	28790	48	48	52
12/01/1993	747	3580	891	30460	59	48	52
01/01/1994	776	4323	816	31022	42	50	52
02/01/1994	752	3885	733	31371	51	54	52
03/01/1994	851	6221	791	34437	57	54	52
04/01/1994	930	6157	724	22820	51	54	52
05/01/1994	849	6594	667	29001	66	52	54
06/01/1994	933	11270	614	33669	38	52	54
07/01/1994	951	9244	702	29298	18	54	54
08/01/1994	1174	12454	765	30577	43	54	54
09/01/1994	1126	12250	726	32631	46	51	54
10/01/1994	1141	12909	726	32137	43	50	54
11/01/1994	1080	13316	667	18240	50	51	54
12/01/1994	1099	14512	686	21399	49	50	52
01/01/1995	1097	12929	667	29954	49	47	51
02/01/1995	999	11050	606	30066	57	47	53
03/01/1995	1118	12662	614	37985	57	49	54
04/01/1995	1098	13066	683	39199	59	50	54
05/01/1995	1173	14693	635	39118	65	50	54
06/01/1995	1202	14719	583	37655	48	50	54
07/01/1995	1315	13258	618	47531	58	49	54
08/01/1995	1353	14461	619	41572	66	48	54
09/01/1995	1308	13352	566	40055	72	47	54
10/01/1995	1506	14299	611	41848	78	45	54
11/01/1995	1455	13338	565	42083	81	45	54
12/01/1995	1474	19243	529	38820	88	43	54
01/01/1996	1497	12054	530	30789	143	41	53
02/01/1996	1426	10750	520	29727	333	42	47
03/01/1996	1595	10805	578	29060	389	43	48
04/01/1996	1557	9754	571	28344	431	41	41
05/01/1996	1786	10991	655	33092	537	40	44
06/01/1996	1946	11366	754	27347	417	40	41

VACUUM GLORIETA WEST UNIT

DATE	Oil bbls	Water bbls	Gas Mscf	Inj bbls	Press psia	Prod Wells	Inject Wells
07/01/1996	2038	14014	830	27528	346	40	41
08/01/1996	1884	13023	737	28517	352	39	40
09/01/1996	1865	13586	704	24334	454	39	39
10/01/1996	2034	15234	741	35344	560	41	46
11/01/1996	1966	16479	676	44614	591	42	50
12/01/1996	1943	18845	644	40141	564	42	50
01/01/1997	2164	20462	632	38704	570	42	50
02/01/1997	2000	18968	1015	33869	618	40	50
03/01/1997	2102	19125	685	33804	691	40	50
04/01/1997	1958	18662	645	33129	597	40	50
05/01/1997	2003	17748	689	31049	609	40	50
06/01/1997	1865	17932	656	33956	634	38	50
07/01/1997	1965	19098	715	30886	649	39	49
08/01/1997	1950	20261	671	29399	658	39	49
09/01/1997	1974	20891	662	35811	815	38	49
10/01/1997	2145	21191	637	39244	834	37	52
11/01/1997	2043	19153	620	36462	788	39	52
12/01/1997	2397	20899	458	41774	805	38	51
01/01/1998	2659	20350	671	42408	838	36	51
02/01/1998	2578	19769	672	42329	814	36	47
03/01/1998	2437	21768	732	40762	774	38	51
04/01/1998	2268	22734	692	36986	951	37	51
05/01/1998	2319	22477	768	38600	919	38	51
06/01/1998	2098	20005	693	29004	320	38	51
07/01/1998	2049	19875	662	0	0	39	0
08/01/1998	2002	20686	614	34812	488	38	50
09/01/1998	1926	18926	619	32008	626	36	52
10/01/1998	1870	20779	565	26997	785	36	52
11/01/1998	1781	22561	511	40860	838	37	52
12/01/1998	1895	23066	545	42821	863	37	52
01/01/1999	1822	22675	581	38094	814	38	52
02/01/1999	1555	17912	480	33166	884	38	52
03/01/1999	1867	19541	555	31059	850	38	52
04/01/1999	1708	18023	527	44221	1016	38	52
05/01/1999	2056	22337	560	25407	1016	38	52
06/01/1999	1891	21156	650	33471	731	37	51
07/01/1999	1997	24211	690	33446	932	37	43
08/01/1999	2033	22847	610	33168	971	38	44
09/01/1999	1932	28414	729	33226	824	38	46
10/01/1999	2068	24630	765	33038	1165	36	37
11/01/1999	2206	22921	872	33501	917	39	46
12/01/1999	2186	20620	854	33514	923	39	45
01/01/2000	2136	20273	863	33467	958	41	44
02/01/2000	1960	21488	823	33619	1030	40	48
03/01/2000	2165	21492	948	33929	1093	39	48
04/01/2000	2134	21468	984	33564	1210	42	48

VACUUM GLORIETA WEST UNIT

DATE	Oil bbls	Water bbls	Gas Mscf	Inj bbls	Press psia	Prod Wells	Inject Wells
05/01/2000	2255	27185	997	33615	1245	41	49
06/01/2000	2357	20801	1161	35076	1299	42	49
07/01/2000	2172	22903	1123	32927	1457	42	49
08/01/2000	2188	22756	1114	32918	1674	42	45
09/01/2000	2099	15488	1184	34023	1545	43	47
10/01/2000	2149	13486	1092	34797	1492	43	48
11/01/2000	2124	21148	1064	33567	1350	44	43
12/01/2000	2167	41060	1088	32522	1305	44	44
01/01/2001	2074	19890	1136	32522	1379	45	42
02/01/2001	2058	24050	1101	33088	1275	44	42
03/01/2001	2013	15928	1040	32522	1352	44	42
04/01/2001	1952	18800	1060	33606	1352	45	42
05/01/2001	1851	16525	1040	32522	1352	45	42
06/01/2001	1871	16419	985	33606	1352	45	42
07/01/2001	1887	20935	1074	33575	1352	45	42