CASE NO.

6367

APPLICATION,
TRANSCRIPTS,
SMALL EXHIBITS,

ETC.

EAST VACUUM GRAYBURG -- SAN ANDRES UNIT AREA

Lea County, New Mexico

TABULATION OF GRAYBURG -- SAN ANDRES WELLBORE PENETRATIONS

T.O.C. (Top of Cement) Code: T.S. -- Temperature Survey; CIRC -- Circulated; C -- Calculated by Operator; CP -- Calculated by Phillips.

Operator / Lease & Well No.	Location U-S-T-R	Surface Casing Size	Depth	Sx Cmt	TOC	Intermediate Casing Size	Depth	Sx Cmt	TOC	Production Casing Size	Depth	Sx Cmt	TOC	Total Depth	Producing Zone	Remarks & Liners (L)
AMOCO																
State CV #1	F25-17-35	10 3/4	312	350	Circ	7 5/8	3455	650	1500CP	4 1/2	9040	960	3730TS	9040	Abo	P&A
State CV #2	E25-17-35	13 3/8	357	350	Circ	8 5/8	3380	280	1880CP	4 1/2	9000	1175	4500CP	9000	Abo	
State CV #2Y	E25-17-35	13 3/8	362	350	Circ	8 5/8	3351	250	2000CP	5 1/2	8917	900	4200CP	8917	Abo	
State CV #4	L25-17-35	13 3/8	361	350	Circ	8 5/8	3375	250	2000CP	4 1/2	8898	1200	4200CP	8898	Abo	P&A
State CV #5	F25-17-35	13 3/8	355	350	Circ	8 5/8	3375	250	2000CP	4 1/2	8894	1200	4200CP	8894	Abo	P&A
ARCO																
State W DE #2	Ø26-17-35	8 5/8	1727	650	Circ					5 1/2	4226	275	2480C	4588	GB-SA	
State W DE #1	J26-17-35	8 5/8	1702	650	Circ	5 1/2	4253	275	2507C	4	4584	50	3375C	4585	GB-SA	
State A DE #2	N22-17-35	8 5/8	1700	650	Circ					5 1/2	4224	275	2478C	4620	GB-SA	
State A DE #1	M22-17-35	8 5/8	1706	600	Circ					5 1/2	4246	200	2976C	4634	GB-SA	
State C DE #1	P24-17-34	8 5/8	1656	650	Circ					5 1/2	4221	275	2475C	4665	GB-SA	
State E DE #1	Ø24-17-34	8 5/8	1645	650	Circ					5 1/2	4258	275	2512C	4675	GB-SA	
State E DE #2	J24-17-34	8 5/8	1643	650	Circ					5 1/2	4262	275	2516C	4684	GB-SA	
State J DE #1	N19-17-35	8 5/8	1664	650	Circ					5 1/2	4231	275	2485C	4700	GB-SA	
State M DE #1	Ø29-17-35	8 5/8	1589	650	Circ					5 1/2	4209	275	2463C	4665	GB-SA	
State M DE #2	J29-17-35	8 5/8	1624	650	Circ					5 1/2	4203	275	2457C	4650	GB-SA	
State M DE #3	P29-17-35	8 5/8	1582	650	Circ					5 1/2	4188	275	2442C	4590	GB-SA	
State M DE #4	I29-17-35	8 5/8	1618	650	Circ					5 1/2	4176	275	2430C	4600	GB-SA	
State B-1576 #1	L32-17-35	13	290	200	Circ-C	9 5/8	1545	200	843C	7	4100	225	2454C	4525	GB-SA	
State B-1576 #2	M32-17-35	13	276	200	Circ-C	8 5/8	1544	200	Circ-C	5 1/2	4140	225	2795C	4527	GB-SA	
State B-1576 #3	K32-17-35	13	281	200	Circ-C	8 5/8	1541	200	Circ-C	5 1/2	4150	210	2776C	4591	GB-SA	
State B-1576 #4	N32-17-35	13	275	200	Circ-C	8 5/8	1540	275	Circ-C	5 1/2	4150	225	3038C	4550	GB-SA	
State B-1576 #5	N32-17-35	8 5/8	1590	710	Circ					5 1/2	6250	1320	1805TS	6234	Glorieta	
State B-1576 #6	K32-17-35	8 5/8	1557	700	Circ					4 1/2	6200	1592	1605TS	6183	Glorieta	
State B-1576 #7	L32-17-35	8 5/8	1550	700	Circ					4 1/2	6200	1460	850TS	6187	Glorieta	
State B-1576 #8	M32-17-35	8 5/8	1550	700	Circ					4 1/2	6200	1332	900TS	6192	Glorieta	

BEFORE EXAMINER NUTTER
OIL CONSERVATION DIVISION
Phillips EXHIBIT NO. 13
CASE NO. 6367

EAST VACUUM GRAYBURG -- SAN ANDRES UNIT AREA

TABULATION OF GRAYBURG -- SAN ANDRES WELLBORE PENETRATIONS

T.O.C. (Top of Cement) Code: T.S. -- Temperature Survey; CIRC -- Circulated; C -- Calculated by Operator; CP -- Calculated by Phillips.

Operator / Lease & Well No.	Location U-S-T-R	Surface Casing Size	Depth	SxCmt	TOC	Intermediate Casing Size	Depth	SxCmt	TOC	Production Casing Size	Depth	SxCmt	TOC	Total Depth	Producing Zone	Remarks & Liners (L)
BETHS, BOYLE & STORALL (JOSALINE)																
State C #1	J19-17-35	8 5/8	1786	200	Circ					7	4378	100	3253C	4705	GB-SA	
State C #2	P19-17-35	8 5/8	1814	200	Circ					7	4356	100	3231C	4684	GB-SA	
State F #1	M20-17-35	8 5/8	1805	200	Circ					7	3381	75	3304C	4656	GB-SA	5½L @ 4347 w/40 sx
State F #2	L20-17-35	8 5/8	1807	200	Circ					7	4367	100	3242C	4700	GB-SA	
CHEVRON																
State 3-32 #1	E32-17-35	10 3/4	821	650	Circ					7	4234	320	2622C	4705	GB-SA	
State 3-32 #2	D32-17-35	13 3/8	275	400	Circ	9 5/8	1591	615	336C	7	4203	146	3401C	4651	GB-SA	
State 3-32 #3	C32-17-35	13 3/8	279	250	Circ	9 5/8	1567	615	62C	7	4185	145	3057C	4635	GB-SA	5½L @ 4200 w/300 sx
State 3-32 #4	F32-17-35	13 3/8	301	250	Circ	9 5/8	1577	615	72C	7	4178	144	3444C	4620	GB-SA	
State 3-32 #5	F32-17-35	13 3/8	30	3yds	Circ	8 5/8	1645	1250	Circ	4 1/2	6240	870	2695C	6240	Glorieta	
State 3-32 #6	E32-17-35	13 3/8	30	3yds	Circ	8 5/8	1579	1250	Circ	4 1/2	6264	870	2500C	6266	Glorieta	
State 3-32 #7	C32-17-35	13 3/8	28	3yds	Circ	8 5/8	1598	1050	Circ	4 1/2	6247	870	2550C	6250	Glorieta	
State 3-32 #8	D32-17-35	13 3/8	30	3yds	Circ	8 5/8	1604	1050	Circ	4 1/2	6265	870	1750C	6277	Glorieta	
State 3-5 #1	J5-18-35	8 5/8	427	285	Circ					5 1/2	4603	150	3103CP	4603	GB-SA	P&A-dry hole
State 6-34 #1	L34-17-35	13 3/8	296	250	Circ-C	9 5/8	1637	615	132C	7	4216	330	2533C	4633	GB-SA	
State 6-34 #2	K34-17-35	13 3/8	278	250	Circ-C	9 5/8	1648	615	143C	7	4201	330	2518C	4649	GB-SA	
State 6-34 #3	M34-17-35	9 5/8	1726	750	Circ-C					7	4355	500	1805C	4586	GB-SA	
* State 6-34 #4	J34-17-35	9 5/8	1657	750	Circ									4611	GB-SA	P&A-dry hole
State 6-34 #12	J34-17-35	8 5/8	1651	900	Circ-C					4 1/2	4648	650	2354TS	4648	GB-SA	
State 6-34 #10	N34-17-35	8 5/8	1636	800	Circ-C					4 1/2	4650	800	1020TS	4650	GB-SA	
State 6-34 #11	L34-17-35	8 5/8	1664	750	Circ-C					4 1/2	6281	1025	2897C	6281	Glorieta	
State 5-27 #1	D27-17-35	13 3/8	274	260	Circ-C	9 5/8	1591	615	86C	7	4230	330	2547C	4564	GB-SA	5½L @ 4253 w/250 sx
State 5-27 #2	F27-17-35	13 3/8	256	250	Circ-C	9 5/8	1645	615	140C	7	4195	330	2513C	4608	GB-SA	5½L @ 4215 w/190 sx
State 5-27 #3	E27-17-35	13 3/8	250	250	Circ-C	9 5/8	1638	615	133C	7	4204	330	2524C	4620	GB-SA	
State 5-27 #4	C27-17-35	13 3/8	254	250	Circ-C	9 5/8	1644	615	54C	7	4194	330	2511C	4635	GB-SA	5½L @ 4281 w/628 sx
State 5-27 #8	D27-17-35	13 3/8	30	9yds	Circ	8 5/8	1627	1250	Circ	4 1/2	6237	880	2780TS	6237	Glorieta	
State 5-27 #7	C27-17-35	13 3/8	30	9yds	Circ	8 5/8	1601	1250	Circ	4 1/2	6256	870	2666TS	6256	Glorieta	
State 5-27 #6	E27-17-35	13 3/8	30	9yds	Circ	8 5/8	1604	1250	Circ	4 1/2	6275	870	2675TS	6275	Glorieta	
State 5-27 #5	F27-17-35	7 5/8	1617	850	Circ					4 1/2	6263	550	2600TS	6263	Glorieta	

EAST VACUUM GRAYBURG — SAN ANDRES UNIT AREA

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Operator / Lease & Well No.	Location U-S-T-R	Surface Casing Size	Depth	SxCmt	TOC	Intermediate Casing Size	Depth	SxCmt	TOC	Production Casing Size	Depth	SxCmt	TOC	Total Depth	Producing Zone	Remarks & Liners (L)
State 4-27 #1	K27-17-35	16	250	385	Circ	10 3/4	1639	735	235C	7	4193	144	3628C	4590	GB-SA	
State 4-27 #2	Ø27-17-35	13	254	250	Circ	9 5/8	1635	615	130C	7	4197	330	2516C	4585	GB-SA	
State 4-27 #3	J27-17-35	13 3/8	254	250	Circ	9 5/8	1647	615	142C	7	4195	330	2512C	4625	GB-SA	
State 4-27 #4	L27-17-35	13 3/8	267	250	Circ	9 5/8	1640	615	135C	7	4196	145	2800C	4597	GB-SA	5½L @ 4222 w/250 sx
State 4-27 #5	Ø27-17-35	9 5/8	392	250	Circ	7	3251	550	575C	4 1/2	6257	400	1850TS	6257	Glorieta	
State 4-27 #6	J27-17-35	9 5/8	414	250	Circ	7	3244	600	184C	4 1/2	6224	575	1924C	6224	Glorieta	
State 4-27 #7	K27-17-35	9 5/8	413	200	Circ	7	3244	475	184C	4 1/2	6268	350	2814TS	6268	Glorieta	
State 4-27 #10	L27-17-35	16	30	3yds	Circ	8 5/8	1601	1250	Circ	4 1/2	6262	870	2600TS	6262	Glorieta	
CITIES SERVICE																
State BJ #1	I35-17-35	13 3/8	326	325	Circ	8 5/8	3512	1485	Circ	5 1/2	9009	790	5085TS	9009	Abo	
State BJ #2	K35-17-35	13 3/8	321	350	Circ	8 5/8	3501	2164	Circ	5 1/2	9017	300	4100C	9017	Abo	P&A
State K #1	G27-17-35	7 5/8	1655	600	Circ					5 1/2	4189	175	2850C	4625	GB-SA	
State K #2	H27-17-35	8 5/8	1650	350	Circ					5 1/2	4200	150	3050C	4627	GB-SA	
State K #3	B27-17-35	8 5/8	1660	600	Circ					5 1/2	4192	150	3050C	4640	GB-SA	
State K #4	A27-17-35	8 5/8	1649	500	Circ					5 1/2	4200	150	3060C	4625	GB-SA	
State K #5	H27-17-35	13 3/8	351	360	Circ	8 5/8	3200	1800	Circ	5 1/2	8954	726	3675TS	8954	Glorieta	
State K #6	G27-17-35	13 3/8	352	360	Circ	8 5/8	2999	1700	35TS	5 1/2	6269	810	2640TS	6269	Glorieta	
State K #7	A27-17-35	13 3/8	355	360	Circ	8 5/8	2995	1780	440C	5 1/2	6291	951	2905C	6291	Glorieta	
State K #8	B27-17-35	13 3/8	350	350	Circ	8 5/8	3028	1000	470TS	5 1/2	6299	1001	1560TS	6299	Glorieta	
CROWN CENTRAL																
Shell State B-1398 #2	I19-17-35	8 5/8	320	200	Circ					5 1/2	4814	250	3127C	4814	GB-SA	
Shell State E-7259 #1	D20-17-35	8 5/8	301	175	Circ					5 1/2	4943	200	3443CP	4943	GB-SA	
CRUSADER (ELK)																
Cities Service State #1	E20-17-35	9 5/8	311	123	Circ					7	4447	100	3649CP	4761	GB-SA	P&A
Cities Service State #2	C19-17-35	8 5/8	301	135	Circ					5 1/2	4663	500	2163CP	4756	GB-SA	P&A
Cities Service State #3	N18-17-35	8 5/8	309	135	Circ					5 1/2	4514	100	3000CP	4800	GB-SA	P&A
Texas Co. State #1	F29-17-35	8 5/8	1647	250	Circ					5 1/2	4725	250	3100CP	4725	GB-SA	P&A
MILLARD DECK																
Carthay State #1	F20-17-35	8 5/8	300	250	Circ					5 1/2	4860	300	3110CP	4860	GB-SA	
Carthay State #2	G20-17-35	8 5/8	333	250	Circ					5 1/2	4874	50	4300CP	4874	GB-SA	

EAST VACUUM GRAYBURG — SAN ANDRES UNIT AREA

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T.O.C. (Top of Cement) Code: T.S. -- Temperature Survey; CIRC -- Circulated; C -- Calculated by Operator; CP -- Calculated by Phillips.

Operator / Lease & Well No.	Location U-S-T-R	Surface Casing Size	Depth	SxCmt	TOC	Intermediate Casing Size	Depth	SxCmt	TOC	Production Casing Size	Depth	SxCmt	TOC	Total Depth	Producing Zone	Remarks & Liners (L)
EXXON																
State J #1	M19-17-35	12 1/2	230	200	Circ	8 5/8	1556	500	Circ	5 1/2	4298	275	2340C	4725	GB-SA	P&A
State J #3	M19-17-35	8 5/8	1689	850	Circ									2870		Brine Well
State J #2	L19-17-35	10 3/4	220	125	Circ	7 5/8	1691	400	Circ	5 1/2	4365	275	515C	4765	GB-SA	P&A
State J #4	L19-17-35	8 5/8	1750	800	Circ					5 1/2	8739	1625	Circ	8739	Abo	
State J #5	N19-17-35	8 5/8	1700	1075	Circ					5 1/2	8730	1650	2600TS	8730	Abo	
New Mexico State K #14	L28-17-35	10 3/4	236	125	CircCP	7 5/8	1586	400	CircCP	5 1/2	4146	250	554CP	4639	GB-SA	
New Mexico State K #31	L28-17-35	8 5/8	1614	750	Circ					4 1/2	6270	900	2700TS	6270	Glorieta	
New Mexico State K #8	M28-17-35	10 3/4	242	125	Circ	7 5/8	1573	400	Circ	5 1/2	4150	250	558CP	4628	GB-SA	
New Mexico State K #32	M28-17-35	7 5/8	1596	500	Circ					4 1/2	6220	675	2600TS	6220	Glorieta	
New Mexico State K #13	K28-17-35	10 3/4	252	150	Circ	7 5/8	1584	400	Circ	5 1/2	4151	250	559CP	4625	GB-SA	
New Mexico State K #29	K28-17-35	8 5/8	1583	700	Circ					4 1/2	6208	900	2800TS	6208	Glorieta	
New Mexico State K #9	N28-17-35	10 3/4	242	125	Circ	7 5/8	1579	400	Circ	5 1/2	4148	250	556CP	4660	GB-SA	
New Mexico State K #27	N28-17-35	7 5/8	1587	600	Circ					4 1/2	6200	850	3010TS	6200	Glorieta	
New Mexico State K #11	J28-17-35	10 3/4	262	125	Circ	7 5/8	1580	400	Circ	5 1/2	4152	250	560CP	4640	GB-SA	
New Mexico State K #25	J28-17-35	8 5/8	1606	700	Circ					4 1/2	6209	900	2600TS	6209	Glorieta	
New Mexico State K #10	Ø28-17-35	10 3/4	254	125	Circ	7 5/8	1579	400	Circ	5 1/2	4141	250	549CP	4640	GB-SA	
New Mexico State K #21	Ø28-17-35	8 5/8	1609	850	Circ					4 1/2	6230	800	2636TS	6230	Glorieta	
New Mexico State K #3	I28-17-35	10 3/4	245	125	Circ	7 5/8	1626	400	Circ	5 1/2	4127	275	176CP	4644	GB-SA	
New Mexico State K #23	I28-17-35	8 5/8	1585	750	Circ					4 1/2	6230	875	3000TS	6230	Glorieta	
New Mexico State K #1	P28-17-35	10 3/4	238	125	Circ	7 5/8	1954	445	Circ	5 1/2	4097	250	505CP	4638	GB-SA	
New Mexico State K #19	P28-17-35	8 5/8	1587	825	Circ					4 1/2	6230	750	2650TS	6230	Glorieta	
New Mexico State K #2	B32-17-35	10 3/4	220	125	Circ	7 5/8	1551	400	Circ	5 1/2	4150	250	558CP	4675	GB-SA	
New Mexico State K #33	B32-17-35	8 5/8	1660	800	Circ					5 1/2	4750	280	727CP	4750	GB-SA	
New Mexico State K #30	B32-17-35	8 5/8	1580	750	Circ					4 1/2	6223	900	2701TS	6223	Glorieta	
New Mexico State K #16	G32-17-35	10 3/4	262	150	Circ	7 5/8	1543	400	Circ	5 1/2	4134	225	901CP	4650	GB-SA	
New Mexico State K #26	G32-17-35	8 5/8	1557	750	Circ					4 1/2	6210	900	2613TS	6210	Glorieta	
New Mexico State K #22	J32-17-35	8 5/8	1558	825	Circ					4 1/2	6210	900	2600TS	6210	Glorieta	
New Mexico State K #12	J32-17-35	10 3/4	244	150	Circ	7 5/8	1536	400	Circ	5 1/2	4150	250	558CP	4650	GB-SA	
New Mexico State K #15	Ø32-17-35	10 3/4	260	150	Circ	7 5/8	1523	400	Circ	5 1/2	4148	250	556CP	4650	GB-SA	
New Mexico State K #20	Ø32-17-35	8 5/8	1538	850	Circ					4 1/2	6205	900	2713TS	6205	Glorieta	
New Mexico State K #28	A32-17-35	8 5/8	1544	750	Circ					4 1/2	6200	900	2600TS	6200	Glorieta	

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Exxon (Cont'd)																
New Mexico State K #7	A32-17-35	10 3/4	243	125	Circ	7 5/8	1547	400	Circ	5 1/2	4148	250	556CP	4665	GB-SA	
New Mexico State K #5	H32-17-35	10 3/4	262	125	Circ	7 5/8	1518	400	Circ	5 1/2	4151	250	550CP	4660	GB-SA	
New Mexico State K #24	H32-17-35	8 5/8	1552	850	Circ					4 1/2	6210	900	2800TS	6210	Glorieta	
New Mexico State K #18	I32-17-35	8 5/8	1537	850	Circ					4 1/2	6459	1060	2600TS	6459	Glorieta	
New Mexico State K #4	I32-17-35	10 3/4	255	125	Circ	7 5/8	1531	400	Circ	5 1/2	4150	250	558CP	4670	GB-SA	
New Mexico State K #17	P32-17-35	13 3/8	324	300	Circ	8 5/8	3253	400	1381CP	5 1/2	9000	575	5020CP	9000	Glorieta	
New Mexico State K #6	P32-17-35	10 3/4	255	125	Circ	7 5/8	1544	400	Circ	5 1/2	4152	250	560CP	4665	GB-SA	
State AC #1	H22-17-35	13 3/8	454	450	Circ	9 5/8	4589	2200	Circ	7 5/8	12101	1100	CircCP	13871	--	P&A--dry hole
GETTY																
State BC #1	M33-17-35	13	21	25	Circ	8 5/8	1546	400	Circ	5 1/2	4140	400	1601C	4650	GB-SA	
State BC #3	M33-17-35	7 5/8	1583	875	Circ					4 1/2	6316	1100	1600TS	6316	Glorieta	
Skelly State P #1	D33-17-35	13	17	10	Circ	7 5/8	1553	500	Circ	5 1/2	4120	250	555C	4655	GB-SA	
Skelly State P #2	C33-17-35	13	18	25	Circ	7 5/8	1546	400	Circ	5 1/2	4110	200	1855C	4643	GB-SA	
Skelly State P #3	C33-17-35	8 5/8	1610	1000	Circ					4 1/2	6300	600	2506TS	6300	Glorieta	
Skelly State P #4	D33-17-35	8 5/8	750	750	Circ					4 1/2	6300	600	2695TS	6300	Glorieta	
GREAT WESTERN																
State E #1	E25-17-35	8 5/8	1737	350	Circ					5 1/2	4260	300	2510CP	4555	GB-SA	
State E #2	L25-17-35	7 5/8	1765	250	Circ					5 1/2	4377	250	2877CP	4622	GB-SA	P&A--dry hole
MARATHON																
Staplin St. A/C 2 #1	F19-17-35	9 5/8	498	195	Circ	7	3939	800	Circ	4 1/2	8799	825	Circ	8800	Abo	
Staplin St. A/C 3 #1	L20-17-35	13 3/8	260	350	Circ	8 5/8	3199	1000	Circ	4 1/2	8900	700	4420TS	8900	Abo	
Warn State A/C 3 #1	H33-17-35	9 5/8	498	200	Circ	7	4096	800	Circ	4 1/2	4709	85	Circ	4710	GB-SA	
Warn State A/C 3 #2	F33-17-35	9 5/8	497	225	Circ					7	4092	800	Circ	4600	GB-SA	
Warn State A/C 3 #3	G33-17-35	9 5/8	500	215	Circ					7	4098	800	Circ	4550	GB-SA	
Warn State A/C 3 #6	G33-17-35	7 5/8	1503	600	Circ					4 1/2	6248	1100	1655TS	6250	Glorieta	
Warn State A/C 3 #7	F33-17-35	8 5/8	1505	600	Circ					4 1/2	6248	1300	1920TS	6250	Glorieta	
Warn State A/C 3 #8	H33-17-35	8 5/8	1481	750	Circ					7	4821	480	Circ	6286	Glorieta	5L @ 6286 w/200 sx

EAST VACUUM GRAYBURG -- SAN ANDRES UNIT AREA

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Operator / Lease & Well No.	Location U-S-T-R	Surface Casing Size	Depth	SxCmt	TOC	Intermediate Casing Size	Depth	SxCmt	TOC	Production Casing Size	Depth	SxCmt	TOC	Total Depth	Producing Zone	Remarks & Liners (L)
Warn State A/C 5 #1	B4-18-35	8 5/8	421	350	Circ					5 1/2	4749	400	4022TS	4750	GB-SA	
Warn State A/C 4 #1	M23-17-35	7	1503	650	Circ									6250		P&A dry hole
MOBIL																
Santa Fe #10	C24-17-34	9 5/8	1615	860	Circ					7	4413	400	1489C	4706	GB-SA	5L @ 4703 w/350 sx
State P #1	Ø22-17-35	9 5/8	1698	325	560C					7	4260	210	2720C	4640	GB-SA	
State P #2	P22-17-35	9 5/8	1691	375	Circ					7	4290	210	2754C	4640	GB-SA	
State P #7	P22-17-35	8 5/8	1595	900	Circ					4 1/2	6300	1600	Circ	6300	Glorieta	P&A
State P #3	B26-17-35	9 5/8	1696	300	Circ					7	4164	220	2564C	4570	GB-SA	P&A
State P #8	B26-17-35	10 3/4	303	400	Circ					7	4700	1600	Circ	4700	GB-SA	
State P #4	A26-17-35	9 5/8	1714	300	661C					5 1/2	4207	250	2620C	4560	GB-SA	
State M #1	C34-17-35	13 3/8	830	250	592C	9 5/8	3055	100	2704C	7	4217	175	2937C	4601	GB-SA	5L @ 4601 w/100 sx
State M #2	D34-17-35	9 5/8	1622	325	480C					7	4185	210	2684C	4598	GB-SA	5L @ 4598 w/100 sx
State M #3	E34-17-35	9 5/8	1600	331	440C					7	4210	226	2560C	4682	GB-SA	
State M #4	F34-17-35	9 5/8	1620	325	479C					7	4242	220	1308C	4649	GB-SA	5L @ 4649 w/100 sx
State M #13	D34-17-35	8 5/8	1607	750	Circ					4 1/2	6300	2100	1675TS	6300	Glorieta	
State M #14	C34-17-35	8 5/8	1612	850	Circ					4 1/2	6300	2238	1485TS	6300	Glorieta	
State M #15	E34-17-35	8 5/8	1608	900	Circ					4 1/2	6300	2060	245TS	6300	Glorieta	
New Mexico Ø #1	M18-17-35	8 5/8	1761	930	Circ					5 1/2	4679	840	240TS	4785	GB-SA	
State Ø #2	L33-17-35	13 3/8	355	300	Circ	9 5/8	3200	1530	350TS					9000	Glorieta	7L @ 6369 w/750 sx
State Ø #1	L33-17-35	9 5/8	1553	332	Circ					7	4150	217	1380TS	4650	GB-SA	
State N #1	E19-17-35	10 3/4	819	210	Circ					7	4370	210	2833TS	4780	GB-SA	
N. Vacuum Abo Un #221	E19-17-35	12 3/4	289	350	Circ	8 5/8	3165	1600	CircCP	5 1/2	8720	2000	Circ	8720	Abo	
State K #1	J31-17-35	10 3/4	796	176	Circ					7	4090	179	2800C	4667	GB-SA	
State K #2	I31-17-35	9 5/8	1600	331	Circ					7	4210	226	2700CP	4682	GB-SA	
State K #3	P31-17-35	10 3/4	791	225	Circ					7	4080	245	2540C	4641	GB-SA	
State K #6	L18-17-35	8 5/8	1767	950	Circ					5 1/2	4690	900	Circ	4759	GB-SA	
State K #10	L18-17-35	12 3/4	250	300	Circ	8 5/8	3210	1600	Circ	5 1/2	8800	2400	Circ	8800	Abo	
State K #7	I31-17-35	8 5/8	1572	900	Circ					5 1/2	6298	1800	1680C	6298	Glorieta	
State K #8	P31-17-35	8 5/8	1514	900	Circ					4 1/2	6290	2085	Circ	6290	Glorieta	
State K #9	J31-17-35	8 5/8	1545	900	Circ					4 1/2	6200	2675	Circ	6200	Glorieta	
State L #1	N21-17-35	10 3/4	816	213	Circ					7	4265	232	2560C	4660	GB-SA	
State L #2	M21-17-35	10 3/4	833	231	Circ					7	4270	232	2575C	4667	GB-SA	

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Mobil (Cont'd)																
State L #3	K21-17-35	10 3/4	857	410	Circ					7	4540	1560	1800TS	4640	GB-SA	
State L #4	D21-17-35	12 3/4	257	400	Circ	8 5/8	3240	1600	Circ	5 1/2	9100	2500	Circ	9100	Abo	
Bridges State #73	G13-17-34	10 3/4	827	250	Circ					5 1/2	4993	210	3060C	4732	GB-SA	
Bridges State #20	E24-17-34	10 3/4	832	220	Circ					7	4360	220	3510C	4680	GB-SA	5L @ 4680 w/400 sx
Bridges State #127	M24-17-34	8 5/8	1628	800	Circ					5 1/2	4848	1400	Circ	4848	GB-SA	
Bridges State #47	K24-17-34	10 3/4	824	250	Circ					7	4320	210	2784C	4680	GB-SA	5L @ 4679 w/400 sx
Bridges State #58	M24-17-34	10 3/4	830	250	Circ					7	4245	220	2635C	6800	Glorieta	5L @ 6800 w/225 sx
Bridges State #113	E24-17-34	8 5/8	1625	800	Circ					5 1/2	6225	2400	Circ	6225	Glorieta	
Bridges State #114	K24-17-34	8 5/8	1640	700	Circ					5 1/2	6210	2200	2300TS	6210	Glorieta	
Bridges State #18	F24-17-34	10 3/4	817	220	Circ					7	4393	225	2750C	4700	GB-SA	
Bridges State #19	D24-17-34	10 3/4	833	225	Circ					7	4342	225	2700C	4700	GB-SA	
Bridges State #22	N24-17-34	10 3/4	828	220	Circ					7	4278	220	2670C	4700	GB-SA	
Bridges State #23	L24-17-34	10 3/4	835	220	Circ					7	4330	225	2680C	4700	GB-SA	
N. Vacuum Abo Unit #119	F24-17-34	13 3/8	360	375	Circ	9 5/8	5000	2200	Circ					12391	Abo	7L @ 10425 w/1000 sx
N. Vacuum Abo Unit #222	I24-17-34	12 3/4	263	400	Circ	8 5/8	3072	1765	Circ	5 1/2	8660	1600	Circ	8660	Abo	
N. Vacuum Abo Unit #211	J24-17-34	11 3/4	397	400	Circ	8 5/8	5000	1550	Circ					10200	Abo	5½L @ 9386 w/750 sx
N. Vacuum Abo Unit #212	P24-17-34	13 3/8	353	400	Circ	9 5/8	5016	2403	590TS					10200	Abo	7L @ 10200 w/1350 sx
N. Vacuum Abo Unit #207	H24-17-34	13 3/8	352	290	Circ	8 5/8	4000	720	2430TS	4 1/2	8653	585	3950TS	8653	Abo	
N. Vacuum Abo Unit #205	B24-17-34	13 3/8	336	350	Circ	9 5/8	5000	2260	1290TS					10401	Abo	7L @ 10399 w/900 sx
N. Vacuum Abo Unit #169	H13-17-34	12 3/4	270	450	Circ	8 5/8	3160	1400	Circ	5 1/2	8800	2300	Circ	8800	Abo	
N. Vacuum Abo Unit #109	N24-17-34	13 3/8	365	350	Circ	9 5/8	4890	2600	1900TS					12470	Abo	7L @ 10366 w/1125 sx
N. Vacuum Abo Unit #116	L24-17-34	13 3/8	372	372	Circ	9 5/8	4971	2300	605TS					10436	Abo	7L @ 10436 w/965 sx
N. Vacuum Abo Unit #223	A13-17-34	12 3/4	263	510	Circ	8 5/8	3140	1600	Circ	5 1/2	8750	1800	Circ	8750	Abo	
N. Vacuum Abo Unit #230	J13-17-34	16	314	525	Circ	10 3/4	4800	550	Circ	3 1/2	10597	2125	4600TS	10600	Penn&Abo	Texaco Oper. Penn
N. Vacuum Abo Unit #231	P13-17-34	8 5/8	1800	750	Circ					5 1/2	8800	1800	1810TS	8800	Abo	
State G #3	G24-17-34	10 3/4	826	250	Circ					7	4331	220	2700C	4726	GB-SA	
State G #2	H24-17-34	10 3/4	828	231	Circ					7	4360	231	2670C	4750	GB-SA	
State G #1	B24-17-34	10 3/4	1897	300	Circ					7	4408	250	2580C	4796	GB-SA	
Elk State Com. #1	N18-17-35	12 3/4	290	450	Circ	8 5/8	3200	1400	Circ	5 1/2	8860	1750	Circ	8850	Abo	
Elk State Com. #2	J18-17-35	13 3/8	375	400	Circ	8 5/8	5000	1250	Circ	4 1/2	12515	1350	6291C	12515	Abo	
State PP #1	N17-17-35	12 3/4	296	520	Circ	8 5/8	3248	1600	Circ	5 1/2	9000	2300	Circ	9000	Abo	
PENNZOIL																
Phillips 28 State #1	A28-17-35	8 5/8	349	175	100C					5 1/2	4704	650	3725TS	4706	GB-SA	
Phillips 28 State #2	F28-17-35	8 5/8	325	175	Circ					5 1/2	5000	1100	3880TS	5000	GB-SA	

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PENROC																
Buckey State Com. #1	H20-17-35	12 3/4	305	325	Circ	8 5/8	3100	250	2480TS	5 1/2	8997	250	2400TS	8997	Abo	
PENROSE-ZACHARY																
South. Pet. State #1	M24-17-35	8 5/8	1572	150	822CP					5 1/2	9268	100	1268CP	4599	GB-SA	
South. Pet. State #2	N24-17-35	13 3/8	350	375	Circ	8 5/8	4661	800	2600CP	4 1/2	9152	250	1150C	9125	Abo	P&A
PHILLIPS PETROLEUM CO.																
Santa Fe # 3	E5-18-35	9 5/8	1524	875	Circ					7	4144	400	1330C	4650	GB-SA	
Santa Fe # 6	Ø21-17-35	13	254	200	Circ	9 5/8	1715	200	199C	7	4268	400	1497C	4640	GB-SA	
Santa Fe # 7	N27-17-35	10 3/4	812	430	Circ					7	4165	400	1238C	4687	GB-SA	4 1/2 L @ 4687 w/160 sx
Santa Fe # 8	D5-18-35	10 3/4	814	440	Circ					7	4104	400	1177C	4637	GB-SA	
Santa Fe # 9	P21-17-35	9 5/8	1610	900	Circ					7	4260	400	1435C	4645	GB-SA	
Santa Fe #11	K26-17-35	9 5/8	1696	860	Circ					7	4207	400	1433C	4526	GB-SA	4 1/2 L @ 4526 w/160 sx
Santa Fe #12	C28-17-35	9 5/8	1670	875	Circ					7	4265	400	1460C	4695	GB-SA	
Santa Fe #13	D28-17-35	9 5/8	1674	875	Circ					7	4259	400	1458C	4695	GB-SA	
Santa Fe #14	P20-17-35	9 5/8	1713	875	Circ					7	4249	400	972C	4665	GB-SA	
Santa Fe #15	A28-17-35	9 5/8	1665	875	Circ					7	4248	400	1447C	4700	GB-SA	P&A
Santa Fe #16	L5-18-35	9 5/8	1548	875	Circ					7	4175	400	1358C	5030	GB-SA	P&A
Santa Fe #17	N26-17-35	9 5/8	1661	875	Circ					7	4240	400	438C	4622	GB-SA	P&A
Santa Fe #18	B34-17-35	9 5/8	1634	865	Circ					7	4185	400	900C	4550	GB-SA	
Santa Fe #19	B35-17-35	9 5/8	1779	875	Circ					7	4464	300	1566C	4780	GB-SA	P&A
Santa Fe #20	M27-17-35	9 5/8	1609	875	Circ					7	4144	400	1316C	4656	GB-SA	4 1/2 L @ 4649 w/160 sx
Santa Fe #21	A33-17-35	9 5/8	1591	875	Circ					7	4122	400	848C	4697	GB-SA	4 1/2 L @ 4697 w/160 sx
Santa Fe #22	L26-17-35	9 5/8	1642	875	Circ					7	4173	400	899C	4528	GB-SA	4 1/2 L @ 4528 w/150 sx
Santa Fe #23	M26-17-35	9 5/8	1642	875	Circ					7	4155	400	891C	4580	GB-SA	4 1/2 L @ 4580 w/185 sx
Santa Fe #24	A34-17-35	9 5/8	1582	875	Circ					7	4128	400	1341C	4590	GB-SA	
Santa Fe #26	K29-17-35	9 5/8	1591	875	Circ					7	4128	400	1344C	4645	GB-SA	
Santa Fe #27	G34-17-35	9 5/8	1649	900	Circ					7	4226	400	1428C	4609	GB-SA	4 1/2 L @ 4609 w/185 sx
Santa Fe #28	K33-17-35	9 5/8	1560	900	Circ					7	4125	400	1331C	4633	GB-SA	
Santa Fe #29	E33-17-35	9 5/8	1650	900	Circ					7	4109	400	1354C	4727	GB-SA	4 1/2 L @ 4727 w/120 sx

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Santa Fe #30	E26-17-35	9 5/8	1677	900	Circ					7	4145	400	1387C	4575	GB-SA	
Santa Fe #31	F26-17-35	9 5/8	1685	900	Circ					7	4150	400	1393C	4566	GB-SA	4½L @ 4563 w/160 sx
Santa Fe #32	B33-17-35	9 5/8	1562	900	Circ					7	4117	400	1327C	4588	GB-SA	
Santa Fe #33	A5-18-35	9 5/8	1561	700	Circ					7	4123	400	1330C	4640	GB-SA	
Santa Fe #34	G26-17-35	9 5/8	1681	750	Circ					7	4143	400	1387C	4567	GB-SA	4½L @ 4565 w/134 sx
Santa Fe #35	N33-17-35	9 5/8	1600	750	Circ					7	4114	400	1339C	4623	GB-SA	
Santa Fe #36	C5-18-35	9 5/8	1561	650	Circ					7	4122	400	1330C	4645	GB-SA	
Santa Fe #37	F28-17-35	9 5/8	1638	600	Circ					7	4202	400	1408C	4671	GB-SA	P&A
Santa Fe #38	B5-18-35	9 5/8	1563	600	Circ					7	4107	400	1330C	4642	GB-SA	
Santa Fe #39	D4-18-35	9 5/8	1601	675	Circ					7	4117	400	1340C	4634	GB-SA	
Santa Fe #40	D35-17-35	9 5/8	1641	650	Circ					5 1/2	4124	400	1869C	4588	GB-SA	
Santa Fe #41	C26-17-35	8 5/8	1680	650	Circ					5 1/2	4140	400	2399C	4562	GB-SA	
Santa Fe #42	H26-17-35	8 5/8	1709	652	Circ					5 1/2	4130	350	1908C	4550	GB-SA	
Santa Fe #43	D26-17-35	8 5/8	1689	684	Circ					5 1/2	4161	300	2647C	4560	GB-SA	
Santa Fe #44	H34-17-35	8 5/8	1653	650	Circ					5 1/2	4215	300	2311C	4578	GB-SA	
Santa Fe #45	F5-18-35	8 5/8	1572	650	Circ					5 1/2	4129	300	2225C	4620	GB-SA	
Santa Fe #46	C4-18-35	8 5/8	1617	650	Circ					5 1/2	4215	300	2311C	4600	GB-SA	P&A
Santa Fe #47	C35-17-35	8 5/8	1708	650	Circ					5 1/2	4250	300	2346C	4596	GB-SA	P&A
Santa Fe #48	D25-17-35	8 5/8	1759	650	Circ					5 1/2	4226	300	2322C	4554	GB-SA	
Santa Fe #49	A29-17-39	8 5/8	1678	650	Circ					5 1/2	4237	300	2333C	4691	GB-SA	
Santa Fe #50	H29-17-35	8 5/8	1645	1000	Circ					5 1/2	4411	1000	50TS	4660	GB-SA	
Santa Fe #51	E28-17-35	8 5/8	1610	800	Circ					5 1/2	4410	1000	195TS	4641	GB-SA	
Santa Fe #52	G29-17-35	8 5/8	1625	1000	Circ					5 1/2	4418	1000	1050TS	4650	GB-SA	
Santa Fe #53	N20-17-35	8 5/8	1784	800	Circ					5 1/2	4432	900	Circ	4757	GB-SA	
Santa Fe #54	C29-17-35	8 5/8	320	185	Circ					5 1/2	4753	350	2800TS	4753	GB-SA	
Santa Fe #55	J20-17-35	8 5/8	320	250	Circ					5 1/2	4800	300	2828TS	4800	GB-SA	
Santa Fe #56	H19-17-35	8 5/8	319	200	Circ					5 1/2	4856	300	3160TS	4856	GB-SA	
Vac Abo Unit #6-57	N33-17-35	13 3/8	320	350	Circ	8 5/8	3300	400	2300TS	5 1/2	8993	540	3300TS	9000	Abo	
Vac Abo Unit #6-59	F5-18-35	13 3/8	332	350	Circ	8 5/8	3250	400	2000TS	5 1/2	8982	545	3600TS	8982	Abo	

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Vac Abo Unit #6-61	G34-17-35	13 3/8	334	350	Circ	8 5/8	3250	400	1500TS	5 1/2	9099	656	1100TS	9100	Abo	
Vac Abo Unit #6-63	E5-18-35	13 3/8	318	350	Circ	8 5/8	3240	400	2000TS	5 1/2	8999	555	2300TS	9000	Abo	
Vac Abo Unit #6-64	A34-17-35	13 3/8	316	350	Circ	8 5/8	3244	400	1000TS	5 1/2	9100	520	1600TS	9100	Abo	
Vac Abo Unit #6-65	B34-17-35	13 3/8	310	350	Circ	8 5/8	3271	400	2000TS	5 1/2	9073	544	3100TS	9100	Abo	
Vac Abo Unit #6-66	M26-17-35	13 3/8	322	350	Circ	8 5/8	3246	400	2100TS	5 1/2	9132	615	1700TS	9132	Abo	
Vac Abo Unit #6-67	L26-17-35	13 3/8	335	350	Circ	8 5/8	3275	400	2000TS	5 1/2	9033	520	2700TS	9033	Abo	
Vac Abo Unit #6-68	H34-17-35	13 3/8	344	350	Circ	8 5/8	3400	400	2600TS	5 1/2	9000	495	3950TS	9000	Abo	
Vac Abo Unit #6-69	K26-17-35	13 3/8	309	350	Circ	8 5/8	3358	400	2500TS	5 1/2	9099	600	2600TS	9100	Abo	
Vac Abo Unit #6-70	G26-17-35	13 3/8	333	350	Circ	8 5/8	3343	400	2500TS	5 1/2	9032	625	3150TS	9032	Abo	
Vac Abo Unit #6-71	H26-17-35	13 3/8	356	350	Circ	8 5/8	3365	400	2800TS	5 1/2	9100	715	Circ	9100	Abo	
Vac Abo Unit #6-72	I26-17-35	13 3/8	310	350	Circ	8 5/8	3321	400	2300TS	5 1/2	9087	565	2250TS	9087	Abo	
Santa Fe #73	P26-17-35	13 3/8	306	350	Circ	8 5/8	3446	400	2500TS					8999	Abo	P&A dry hole
Vac Abo Unit #6-74	N26-17-35	13 3/8	312	350	Circ	8 5/8	3355	400	2300TS	5 1/2	9000	525	750TS	9000	Abo	
Vac Abo Unit #6-75	D25-17-35	13 3/8	332	350	Circ	8 5/8	3400	400	2300TS	5 1/2	9000	560	2500TS	9000	Abo	
Vac Abo Unit #6-76	F26-17-35	13 3/8	323	350	Circ	9 5/8	3295	750	1100TS	5 1/2	9058	1040	1700TS	10680	Abo	
Santa Fe #77	I26-27-35	8 5/8	330	325	Circ					4 1/2	4620	400	3100TS	4620	GB-SA	P&A
Vac Abo Unit #6-78	D35-17-35	13 3/8	336	350	Circ	8 5/8	3368	400	2500TS	5 1/2	9000	535	2500TS	9000	Abo	
Vac Abo Unit #6-79	E26-17-35	13 3/8	339	350	Circ	8 5/8	3275	400	2450TS	5 1/2	8975	588	2200TS	8975	Abo	
Vac Abo Unit #6-80	N27-17-35	13 3/8	320	350	Circ	8 5/8	3250	400	2350TS	5 1/2	9000	751	500TS	9000	Abo	
Santa Fe #81	Ø20-17-35	8 5/8	1681	650	Circ					5 1/2	4397	927	Circ	4760	GB-SA	
Santa Fe #82	D20-17-35	8 5/8	1735	800	Circ					5 1/2	4424	1328	900TS	4770	GB-SA	
Santa Fe #83	D29-17-35	8 5/8	1699	500	Circ					5 1/2	4410	950	Circ	4770	GB-SA	
Santa Fe #84	J21-17-35	8 5/8	1728	600	Circ					5 1/2	4437	1150	1000TS	4780	GB-SA	
Vac Abo Unit #6-85	C35-17-35	13 3/8	314	350	Circ	8 5/8	3424	400	2200TS	5 1/2	8950	590	2200TS	8950	Abo	
Santa Fe #86	C26-17-35	13 3/8	312	350	Circ	8 5/8	3250	400	2600TS	5 1/2	9000	760	3100TS	9000	GB-SA	
Santa Fe #89	E26-17-35	8 5/8	1700	820	Circ					4 1/2	6275	600	2500TS	6275	Glorieta	
Santa Fe #90	M27-17-35	8 5/8	1682	820	Circ					4 1/2	6250	800	2600TS	6250	Glorieta	
Santa Fe #91	A33-17-35	8 5/8	1625	750	Circ					4 1/2	6225	800	2500TS	6225	Glorieta	
Santa Fe #92	K33-17-35	8 5/8	1623	700	Circ					4 1/2	6226	800	2500TS	6226	Glorieta	
Santa Fe #93	G5-18-35	8 5/8	300	300	Circ					5 1/2	4650	550	2500TS	4650	GB-SA	
Santa Fe #94	D26-17-35	8 5/8	1713	750	Circ					4 1/2	6250	800	2700TS	6250	Glorieta	
Santa Fe #95	B33-17-35	8 5/8	1625	700	Circ					4 1/2	6225	875	2600TS	6225	Glorieta	
Santa Fe #96	E33-17-35	8 5/8	1625	700	Circ					4 1/2	6225	950	2600TS	6225	Glorieta	

EAST VACUUM GRAYBURG--SAN ANDRES UNIT AREA

TABULATION OF GRAYBURG--SAN ANDRES WELLBORE PENETRATIONS

T.O.C. (Top of Cement) Code: T.S. --Temperature Survey; CIRC -- Circulated; C -- Calculated by Operator; CP -- Calculated by Phillips.

Operator	Location	Surface Casing				Intermediate Casing				Production Casing				Total Producing		
Lease & Well NO.	U-S-T-R	Size	Depth	SxCmt	TOC	Size	Depth	SxCmt	TOC	Size	Depth	SxCmt	TOC	Depth	Zone	Remarks & Liners (L)
Santa Fe #97	N33-17-35	8 5/8	1624	650	Circ					4 1/2	6300	800	2400TS	6300	Yates	
Santa Fe #98	C5-18-35	8 5/8	1600	700	Circ					4 1/2	6255	800	3000TS	6258	GB-SA	
Santa Fe #99	D5-18-35	8 5/8	1595	700	Circ					4 1/2	6250	800	2900TS	6250	Glorieta	
Santa Fe #103	K29-17-35	8 5/8	1667	640	Circ					4 1/2	6225	750	2250TS	6225	Glorieta	
Santa Fe #104	F28-17-35	8 5/8	1697	640	Circ					4 1/2	6250	800	2700TS	6250	Glorieta	
Santa Fe #105	E28-17-35	8 5/8	1700	640	Circ					4 1/2	6250	800	2600TS	6250	Glorieta	
Santa Fe #106	H29-17-35	8 5/8	1689	640	Circ					4 1/2	6225	800	2600TS	6225	Glorieta	
Santa Fe #107	C28-17-35	8 5/8	1715	640	Circ					4 1/2	6250	800	2600TS	6250	Glorieta	
Santa Fe #108	A28-17-35	8 5/8	1707	640	Circ					4 1/2	6250	800	2550TS	6250	Glorieta	
Santa Fe #109	G29-17-35	8 5/8	1664	590	Circ					4 1/2	6250	800	2500TS	6250	Glorieta	
Santa Fe #110	L26-17-35	8 5/8	1696	640	Circ					4 1/2	6249	800	2600TS	6250	GB-SA	
Santa Fe #111	H5-18-35	8 5/8	1330	325	Circ					4 1/2	4653	450	2700TS	4654	GB-SA	
Santa Fe #112	E5-18-35	8 5/8	1530	650	Circ					4 1/2	6250	800	2600TS	6250	GB-SA	
Santa Fe #113	B34-17-35	8 5/8	1636	650	Circ					4 1/2	6250	900	2800TS	6250	Yates	
Santa Fe #115	C4-18-35	8 5/8	361	300	Circ					4 1/2	4801	275	2650TS	4805	GB-SA	
Santa Fe #117	N27-17-35	8 5/8	1667	650	Circ					4 1/2	6200	975	2600TS	6200	Glorieta	
Santa Fe #118	F5-18-35	8 5/8	402	350	Circ					4 1/2	4696	275	2700TS	4700	GB-SA	
Santa Fe #119	A5-18-35	8 5/8	1608	1050	Circ					4 1/2	6258	920	Circ	6262	GB-SA	
Santa Fe #121	A34-17-35	8 5/8	394	350	Circ					5 1/2	4749	275	2500TS	4749	GB-SA	
Santa Fe #122	H19-17-35	8 5/8	1750	600	Circ					5 1/2	8997	2050	2950TS	9000	Abo	
Santa Fe #123	B5-18-35	8 5/8	1586	1050	Circ					4 1/2	6299	870	2450TS	6300	GB-SA	
Santa Fe #124	D29-17-35	8 5/8	1688	600	Circ					5 1/2	8982	2050	2200TS	8982	Abo	
Santa Fe #125	N20-17-35	13 3/8	365	425	Circ	8 5/8	4355	550	2750TS	5 1/2	10450	1350	4300TS	10450	Abo	
Santa Fe #126	M26-17-35	8 5/8	436	375	Circ					5 1/2	4700	300	2850TS	4700	GB-SA	
Santa Fe #127	G34-17-35	8 5/8	410	375	Circ					5 1/2	4703	300	2950TS	4703	Yates	
Santa Fe #128	D4-17-35	8 5/8	405	375	Circ					5 1/2	4699	150	2750TS	4700	GB-SA	
Santa Fe #129	E5-17-35	8 5/8	390	375	Circ					5 1/2	4839	300	2710TS	4850	GB-SA	
Vac Abo Unit #1-1	B25-17-35	13 3/8	315	325	Circ	8 5/8	3367	1300	Circ	5 1/2	9104	629	3385TS	9105	Abo	
Vac Abo Unit #1-8	D27-17-35	13 5/8	329	325	Circ	8 5/8	3283	950	1750TS	5 1/2	9100	629	3692TS	9100	Abo	
Vac Abo Unit #1-9	J27-17-35	13 3/8	355	400	Circ	9 5/8	3314	600	Circ	7	9058	500	4150TS	9060	Abo	
Vac Abo Unit #2-2	C25-17-35	13 3/8	325	375	Circ	8 5/8	3350	525	1910TS	5 1/2	8979	700	3000TS	8979	Abo	
Vac Abo Unit #4-5	A26-17-35	10 3/4	330	450	Circ	7 5/8	3596	2290	Circ					9100	Abo	5½ L @ 9100 w/710 sx
Vac Abo Unit #4-6	B26-17-35	10 3/4	353	450	Circ	7 5/8	3600	2460	Circ					9100	Abo	5½ L @ 9085 w/750 sx

EAST VACUUM GRAYBURG--SAN ANDRES UNIT AREA

TABULATION OF GRAYBURG--SAN ANDRES WELLBORE PENETRATIONS

T.O.C. (Top of Cement) Code: T.S. --Temperature Survey; CIRC -- Circulated; C -- Calculated by Operator; CP -- Calculated by Phillips.

Operator Lease & Well NO.	Location U-S-T-R	Surface Casing Size	Depth	SxCmt	TOC	Intermediate Casing Size	Depth	SxCmt	TOC	Production Casing Size	Depth	SxCmt	TOC	Total Producing Depth	Zone	Remarks & Liners (L)
Vac Abo Unit #5-1	J26-17-35	13 3/8	339	300	Circ	8 5/8	3133	300	1203C	4 1/2	9103	825	Circ	9103	Abo	
Vac Abo Unit #5-2	Ø26-17-35	13 3/8	322	375	Circ	8 5/8	3150	300	1195C	4 1/2	8990	875	1453C	8990	Abo	
Vac Abo Unit #7-3	P27-17-35	13 3/8	300	250	Circ	8 5/8	3154	200	1150TS	5 1/2	9095	350	2600C	9095	Abo	
Vac Abo Unit #7-4	I27-17-35	13 3/8	325	325	Circ	8 5/8	3139	300	Circ	4 1/2	9002	300	2600C	9002	Abo	
Vac Abo Unit #8-9	F34-17-35	10 3/4	325	550	Circ	7 5/8	3600	1000	Circ					9100	Abo	5½ L @ 9100 w/1950 sx
Vac Abo Unit #8-10	E34-17-35	10 3/4	324	450	Circ	7 5/8	3600	1300	Circ					9100	Abo	5½ L @ 9100 w/550 sx
Vac Abo Unit #8-11	C34-17-35	10 3/4	335	450	Circ	7 5/8	3600	1220	Circ					9100	Abo	5½ L @ 9100 w/750 sx
Vac Abo Unit #8-12	D34-17-35	10 3/4	343	350	Circ	7 5/8	3600	1650	1150TS					9100	Abo	5½ L @ 9100 w/670 sx
Vac Abo Unit #9-5	H33-17-35	13 3/8	386	350	Circ	9 5/8	3300	2000	Circ	5 1/2	9038	1000	5900TS	9038	Abo	
Vac Abo Unit #10-5	M34-17-35	13 3/8	304	375	Circ	8 5/8	3120	1250	Circ	5 1/2	9100	679	3195TS	9100	Abo	
Vac Abo Unit $10-6	L34-17-35	13 3/8	309	375	Circ	8 5/8	3135	1225	Circ	5 1/2	9100	679	3280TS	9100	Abo	
Vac Abo Unit #10-7	K34-17-35	13 3/8	305	400	Circ	8 5/8	3140	1250	970TS	5 1/2	9099	679	2960TS	9099	Abo	
Vac Abo Unit #10-8	N34-17-35	13 3/8	302	375	Circ	8 5/8	3193	1350	400TS	5 1/2	9099	679	3185TS	9099	Abo	
Vac Abo Unit #10-9	J34-17-35	13 3/8	307	350	Circ	8 5/8	3210	1400	Circ	5 1/2	9099	679	570TS	9099	Abo	
Vac Abo Unit #11-5	Ø33-17-35	13 3/8	318	300	Circ	8 5/8	3166	950	Circ	5 1/2	9003	500	Circ	9003	Abo	
Vac Abo Unit #11-6	P33-17-35	13 3/8	297	275	Circ	8 5/8	3133	1050	Circ	5 1/2	9099	525	Circ	9059	Abo	
Vac Abo Unit #11-7	I33-17-35	13 3/8	314	290	Circ	9 5/8	3099	1125	Circ	5 1/2	9203	800	Circ	10498	Abo	
Vac Abo Unit #11-8	J33-17-35	13 3/8	300	300	Circ	8 5/8	3092	300	Circ	4 1/2	9065	1260	Circ	9065	Abo	
Vac Abo Unit #12-2	M33-17-35	13 3/8	317	350	Circ	8 5/8	3300	700	Circ	5 1/2	8902	1100	3296TS	8902	Abo	
Vac Abo Unit #13-2	E4-18-35	13 3/8	301	325	Circ	8 5/8	4986	600	Circ	5 1/2	8980	725	3800C	8980	Abo	
Vac Abo Unit #13-3	C4-18-35	13 3/8	312	350	Circ	8 5/8	3237	1200	Circ	5 1/2	8940	1045	1370C	8940	Abo	
Vac Abo Unit #13-4	B4-18-35	13 3/8	317	300	Circ	8 5/8	3216	1200	Circ	5 1/2	8890	1045	1658C	8890	Abo	
Vac Abo Unit #13-5	H5-18-35	13 3/8	304	350	Circ	8 5/8	3276	1050	Circ	5 1/2	9100	575	3265TS	9100	Abo	
Vac Abo Unit #13-6	A4-18-35	13 3/8	322	350	Circ	8 5/8	3263	1200	Circ	5 1/2	9144	488	3290TS	9144	Abo	
Vac Abo Unit #13-7	G5-18-35	13 3/8	297	350	Circ	8 5/8	3233	1200	Circ	5 1/2	8971	529	3212TS	8975	Abo	
Vac Abo Unit #13-8	D4-18-35	13 3/8	308	375	Circ	8 5/8	3257	1250	Circ	5 1/2	8911	640	3242TS	8911	Abo	
Vac Abo Unit #13-9	D3-18-35	13 3/8	316	375	Circ	8 5/8	3301	400	Circ	5 1/2	9139	640	3300TS	9139	Abo	
Vac Abo Unit #13-10	J5-18-35	13 3/8	297	350	Circ	8 5/8	3250	1300	Circ	5 1/2	8956	640	3250TS	8956	Abo	
Vac Abo Unit #13-11	F4-18-35	13 3/8	305	375	Circ	8 5/8	3244	1250	Circ	5 1/2	9100	679	3240TS	9100	Abo	
Vac Abo Unit #13-12	G4-18-35	13 3/8	304	375	Circ	8 5/8	3220	1250	Circ	5 1/2	9100	679	3080TS	9100	Abo	
Vac Abo Unit #13-13	I5-18-35	13 3/8	326	375	Circ	8 5/8	3227	1200	160TS	5 1/2	9099	679	3200TS	9099	Abo	
Vac Abo Unit #13-14	H4-18-35	13 3/8	308	375	Circ	8 5/8	3105	1250	Circ	5 1/2	9100	690	3100TS	9100	Abo	
Vac Abo Unit #13-15	L4-18-35	13 3/8	316	375	Circ	8 5/8	3036	1250	Circ	5 1/2	9099	748	3000TS	9099	Abo	

EAST VACUUM GRAYBURG--SAN ANDRES UNIT AREA

TABULATION OF GRAYBURG--SAN ANDRES WELLBORE PENETRATIONS

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Operator / Lease & Well No.	Location U-S-T-R	Surface Casing Size	Depth	SxCmt	TOC	Intermediate Casing Size	Depth	SxCmt	TOC	Production Casing Size	Depth	SxCmt	TOC	Total Producing Depth	Zone	Remarks & Liners (L)
Vac Abo Unit #13-16	A5-18-35	13 3/8	317	375	Circ	8 5/8	3036	1225	Circ	5 1/2	9100	679	2790TS	9100	Abo	
Vac Abo Unit #13-17	Ø5-18-35	13 3/8	300	375	Circ	8 5/8	3200	1350	Circ	5 1/2	9099	679	250TS	9099	Abo	
Vac Abo Unit #13-18	K4-18-35	13 3/8	302	375	Circ	8 5/8	3299	1350	160TS	5 1/2	9099	679	3250TS	9099	Abo	
Vac Abo Unit #13-19	P5-18-35	13 3/8	313	375	Circ	8 5/8	3310	1400	420TS	5 1/2	9093	679	3170TS	9093	Abo	
Vac Abo Unit #14-1	K5-18-35	13 3/8	316	290	Circ	8 5/8	3200	200	2000C	4 1/2	9006	690	2500C	9006	Abo	
Vac Abo Unit #14-2	M5-18-35	13 3/8	300	300	Circ	8 5/8	3451	200	2200C	4 1/2	9062	778	2000C	9062	Abo	
Vac Abo Unit #14-3	N5-18-35	13 3/8	313	190	Circ	8 5/8	3233	250	1670C	4 1/2	9107	450	5600C	9107	Abo	
Vac Abo Unit #14-4	L5-18-35	13 3/8	305	190	Circ	8 5/8	3199	250	1639C	4 1/2	8950	1000	4200TS	8950	Abo	
Vac Abo Unit #15-1	D8-18-35	13 3/8	308	305	Circ	8 5/8	3254	1100	145TS	5 1/2	9040	925	1293TS	9049	Abo	
Vac Abo Unit #15-2	C8-18-35	13 3/8	314	310	Circ	8 5/8	3275	1100	Circ	5 1/2	8969	775	2860TS	8969	Abo	
POLARIS																
Amerada State #5	L22-17-35	9 5/8	1762	450	Circ					6 5/8	4249	200	3310TS	4749	GB-SA	
Mobil State #1	J22-17-35	8 5/8	362	250	Circ					4 1/2	4744	325	3110TS	4744	GB-SA	
RICE ENGINEERING																
Vacuum SWD F-35	F35-17-35	13 3/8	330	350	Circ	8 5/8	3253	400	1400TS	5 1/2	4885	250	3700TS	5855	GB-SA	SWD
Vacuum SWD G-35	G35-17-35	13 3/8	320	350	Circ	8 5/8	3262	400	2000TS	5 1/2	9016	765	Circ	9016	GB-SA	SWD
Vacuum SWD H-35	H35-17-35	13 3/8	321	325	Circ	8 5/8	3502	600	Circ	5 1/2	9189	775	3400TS	9189	GB-SA	SWD
SHELL																
* State U #1	C3-18-35	8 5/8	1682	600	Circ					5 1/2	4350	275	2600CP	4900	-	P&A dry hole
State VAA #6	K5-18-35	8 5/8	337	275	Circ									4860	-	P&A dry hole
State M #1	J29-17-35	13 3/8	356	300	Circ	9 5/8	3104	400	1420CP	4 1/2	6306	1100	524CP	10300	Glorieta	
State M #2	Ø29-17-35	8 5/8	1632	800	Circ					4 1/2	6301	880	Circ	6309	Glorieta	
State M #3	I29-17-35	8 5/8	1662	800	Circ					4 1/2	6300	700	1000C	6300	Glorieta	
State M #4	P29-17-35	8 5/8	1629	1000	Circ					4 1/2	6250	700	2562CP	6250	Glorieta	
State N #1	B28-17-35	8 5/8	1687	600	Circ					5 1/2	4387	275	2500C	4710	GB-SA	
State N #2	H28-17-35	8 5/8	1668	600	Circ					5 1/2	4249	275	2400C	4660	GB-SA	
State N #3	G28-17-35	8 5/8	1647	650	Circ					5 1/2	4300	275	2440C	4681	GB-SA	

EAST VACUUM GRAYBURG--SAN ANDRES UNIT AREA

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Operator / Lease & Well NO.	Location U-S-T-R	Surface Casing Size	Depth	SxCmt	TOC	Intermediate Casing Size	Depth	SxCmt	TOC	Production Casing Size	Depth	SxCmt	TOC	Total Producing Depth	Zone	Remarks & Liners (L)
State N #4	G28-17-35	8 5/8	1651	800	Circ					4 1/2	6249	700	950C	6251	Glorieta	
State N #5	H28-17-35	8 5/8	1649	800	Circ					4 1/2	6248	700	950C	6250	Glorieta	
State N #6	B28-17-35	8 5/8	1649	600	Circ					4 1/2	6302	700	1000C	6302	Glorieta	
State T #1	I33-17-35	8 5/8	1580	650	Circ					5 1/2	4270	275	2500C	4640	GB-SA	
State T #2	J33-17-35	8 5/8	1591	650	Circ					5 1/2	4279	225	2750C	4655	GB-SA	
State T #3	Ø33-17-35	7 5/8	1569	650	Circ					4 1/2	4304	250	2300C	4635	GB-SA	
State T #4	P33-17-35	7 5/8	1573	600	Circ					4 1/2	4303	250	2300C	4625	GB-SA	
State T #9	I33-17-35	8 5/8	1618	575	Circ					5 1/2	6245	950	2745CP	6245	Glorieta	
State T #10	J33-17-35	8 5/8	1614	610	Circ					5 1/2	6238	950	2900CP	6240	Glorieta	
State T #11	Ø33-17-35	8 5/8	402	275	Circ					5 1/2	4700	200	3430C	4700	GB-SA	
State V #1	I27-17-35	8 5/8	680	600	Circ					5 1/2	4340	275	2480C	4680	GB-SA	
State V #2	P27-17-35	8 5/8	1676	600	Circ					5 1/2	4348	275	2490C	4680	GB-SA	
State V #5	I27-17-35	8 5/8	1654	650	Circ					5 1/2	6250	470	2700C	6250	Glorieta	
State V #6	P27-17-35	8 5/8	1682	800	Circ					4 1/2	6300	400	4365TS	6300	GB-SA	
State VB #1	B19-17-35	9 5/8	1722	1000	Circ					5 1/2	8975	5465	Circ	8975	Abo	
*State C #1	I24-17-34	8 5/8	1693	600	Circ					5 1/2	4350	275	2600CP	4733	GB-SA	P&A
State F #1	M29-17-35	8 5/8	1575	600	Circ					5 1/2	4315	275	2450C	4747	GB-SA	
State F #2	N29-17-35	8 5/8	1584	600	Circ					5 1/2	4320	275	2460C	4770	GB-SA	
State F #3	M29-17-35	8 5/8	1657	800	Circ					4 1/2	6219	866	Circ	6222	Glorieta	
State F #4	N29-17-35	8 5/8	1593	800	Circ					4 1/2	6249	700	960C	6250	Glorieta	
State H #1	L29-17-35	8 5/8	1596	600	Circ					5 1/2	4315	275	2450C	4770	GB-SA	
State H #2	L29-17-35	8 5/8	1613	600	Circ					4 1/2	6250	750	700C	6250	Glorieta	
State I #1	E29-17-35	8 5/8	1653	600	Circ					5 1/2	4350	275	2600CP	4753	GB-SA	P&A dry hole
State I #2	E29-17-35	8 5/8	307	250	Circ					5 1/2	4726	200	2550C	6387	Glorieta	3½ L @ 6387 w/170 sx
State K #1	Ø19-17-35	12 3/4	232	100	Circ	8 5/8	1775	100	1575CP	7	4379	50	3700C	4687	GB-SA	
State K #2	J19-17-35	9 5/8	1720	800	Circ					5 1/2	8900	4650	Circ	8900	Abo	
State K #3	P19-17-35	8 5/8	1710	1100	Circ					5 1/2	8900	1180	1400C	8900	Abo	
*State S #1	I21-17-35	8 5/8	1703	600	Circ					5 1/2	4430	275	2680CP	4745	GB-SA	P&A
State VAA #5	L5-18-35	7 5/8	325	250	Circ					4 1/2	4790	400	1600C	4794	GB-SA	
SKELLY																
Skelly State AC #1B	B20-17-35	13 3/8	300	400	Circ	8 5/8	3188	1600	Circ	5 1/2	8972	2000	Circ	8972	-	P&A
SOHIO																
Harn State #2	M23-17-35	8 5/8	1685	200	741C					5 1/2	4175	200	1828C	4587	GB-SA	8 5/8 top cmt 100 sx

EAST VACUUM GRAYBURG--SAN ANDRES UNIT AREA

TABULATION OF GRAYBURG--SAN ANDRES WELLBORE PENETRATIONS

T.O.C. (Top of Cement) Code: T.S. -- Temperature Survey; CIRC -- Circulated: C -- Calculated by Operator; CP -- Calculated by Phillips.

Operator / Lease & Well NO.	Location U-S-T-R	Surface Casing Size	Depth	SxCmt	TOC	Intermediate Casing Size	Depth	SxCmt	TOC	Production Casing Size	Depth	SxCmt	TOC	Total Depth	Producing Zone	Remarks & Liners (L)
Harn State #1	N23-17-35	8 5/8	1691	200	747C					5 1/2	4198	200	1324C	4575	GB-SA	8 5/8 top cmt 100 sx
STOLTZ, WAGNER & BROWN																
Abo	Ø24-17-35	13 3/8	350	350	Circ	8 5/8	3305	200	Circ	4 1/2	8900	175	8060TS	8900	Abo	P&A
TEXACO																
N.M. State W #1	Ø13-17-34	7 5/8	1655	300	Circ					5 1/2	4348	200	1763CP	4680	GB-SA	
N.M. State W #2	J13-17-34	8 5/8	1687	300	Circ					5 1/2	4343	200	2843CP	4700	GB-SA	
N.M. CG St. NCT-2 #1	F29-17-35	11 3/4	1670	1000	Circ					2 7/8	6250	1000	Circ	6252	Glorieta	
N.M. DJ State #1	D18-17-35	8 5/8	1850	900	Circ					5 1/2	8800	3070	1810TS	8800	Abo	
N.M. DJ State #4	F18-17-35	8 5/8	1090	1090	Circ					5 1/2	8850	1800	Circ	8850	Abo	
N.M. DK State #1	F18-17-35	13 3/8	375	400	Circ	8 5/8	4954	1050	2780TS	4 1/2	12500	1350	5745TS	12500	Morrow	
WILSON, DON H.																
State BJ #1	M35-17-35	13 3/8	353	375	Circ	8 5/8	3550	2030	Circ					5095	GB-SA	5½ L @ 5095 w/275 sx
YUCCA SALVAGE CO.																
State A #2	Ø24-17-34	8 5/8	1665	700	Circ					4 1/2	6877	900	2690TS	7014	Glorieta	
ZAPATA																
Shell State #1	Ø23-17-35	8 5/8	378	175	Circ									4635	-	P&A dry hole
BARNETT & HANSON (Permian Oil Co.)																
State #1-B	D19-17-35	12 3/4	252	100	Circ	8 5/8	1792	50	1363					4183		P&A dry hole
MAC JONES																
State #2	A35-17-35	13 3/8	320	350	Circ	8 5/8	3500	550	Circ					9125		P&A dry hole
MOBIL																
N. Vac. Abo Unit #206	D19-17-35	8 5/8	1795	900	Circ					5 1/2	8800	3100	Circ	8800		
PENROSE																
Scharbauer #1	C25-17-35	8 5/8	1725	550	Circ					7	4490	150	3460	4540	GB-SA	P&A

Note: On all liners, cement either circulated or tied back into casing.

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
State Land Office Building
Santa Fe, New Mexico
25 October 1978

EXAMINER HEARING

IN THE MATTER OF:

Application of Phillips Petroleum Company for statutory unitization, Lea County, New Mexico

CASE 6366

and

Application of Phillips Petroleum Corporation for a pressure maintenance project, Lea County, New Mexico

CASE 6367

BEFORE: Daniel S. Nutter

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Division: Lynn Teschendorf, Esq.
Legal Counsel for the Division
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Santa Fe, New Mexico 87501

For the Applicant: Jason Kellahin, Esq.
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MR. NUTTER: The hearing will come to order, please. We'll call now Case Number 6366.

MS. TESCHENDORF: Case 6366. Application of Phillips Petroleum Company for statutory unitization, Lea County, New Mexico.

MR. KELLAHIN: If the Examiner please, I'd move that Case 6366 be consolidated with Case 6367 for purposes of this hearing.

MR. NUTTER: We will now call Case Number 6367.

MS. TESCHENDORF: Case 6367. Application of Phillips Petroleum Corporation for pressure maintenance project, Lea County, New Mexico.

Is it corporation or company, Jason?

MR. KELLAHIN: It's company. I don't know how that corporation got in there.

MR. NUTTER: That one is wrong.

Cases 6366 and 6367 will be consolidated for purposes of hearing.

MR. KELLAHIN: If the Examiner please, Jason Kellahin, Kellahin and Fox, Santa Fe, appearing for the applicant. We'll have three witnesses for the combined case. I'd like to have them sworn at this time.

(Witnesses sworn.)

MR. NUTTER: We'll call for other appearances

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in these cases.

Please proceed, Mr. Kellahin.

JIMM CHRISMAN

being called as a witness and having been duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q. Would you state your name, please?

A. My name is Jimm Chrisman.

Q. And by whom are you employed and in what position, Mr. Chrisman?

A. I'm employed by Phillips Petroleum Company as Director of Reservoir Engineering and Unitization in its southeastern region office in Houston, Texas.

Q. And you are located in Houston, Texas?

A. Yes, sir, I am.

Q. Have you ever testified before the Oil Conservation Division or one of its Examiners?

A. No, sir, I have not.

Q. For the benefit of the Examiner, would you briefly outline your education and your experience?

A. Yes, sir. I was graduated from the University of Kansas in 1949. I went to work for Phillips Petroleum

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Company, was in its production department training program for a period of a year; I was assigned in Odessa, Texas, in general engineering for approximately one year; and then by one of those decrees that occur every once in awhile in an oil company, I found overnight that I had been made a reservoir engineer. It was up to me to learn reservoir engineering and handle the job from that point on.

I spent a total of five years at Odessa and then was transferred to Bartlesville, Oklahoma as a reservoir engineer in the Reservoir Engineering and Unitization Section in Bartlesville.

I was in various assignments in Bartlesville for a total of fourteen years. I transferred to Houston in Houston's southern -- or in Phillips' southern region in 1968 in my present job capacity.

I've continued in that capacity having had west Texas and New Mexico added to my jurisdiction about a year ago.

MR. KELLAHIN: Are the witness' qualifications acceptable?

MR. [illegible]: I'd better say so since I worked for him back in 1952.

He's qualified.

Q (Mr. Kellahin continuing.) Mr. Chairman, are you familiar with the application of Phillips Petroleum

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Company in Case 6366?

A Yes, sir, I am.

Q What does the applicant propose in this case?

A We propose the formation of a unit composing some 7025.3 acres, more or less, for the purpose of conducting a unitized operation in the Grayburg-San Andres formation, and conducting a pressure maintenance operation.

Q Will that unit be known as the East Vacuum Grayburg-San Andres Unit?

A Yes, sir, it will.

Q Does Phillips seek to be designated as the operator of the unit?

A Yes, sir.

Q Now, referring to what has been marked as the Applicant's Exhibit Number One, would you identify that exhibit, please?

A Yes, sir, I will. Exhibit Number One is the Unit Agreement for the proposed East Vacuum Grayburg-San Andres Unit. It was modeled after the Central Vacuum Grayburg-San Andres unit agreement.

It anticipates statutory unitization. It does apply to the 7025 acres -- 23 acres, more or less, that are shown on Exhibit A to the Agreement, and described by tract in Exhibit B to the Agreement.

All of the lands that will be in this unit

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are State lands. The Unit Agreement provides for the unitized operation of the Grayburg-San Andres formation as defined in the Agreement with the implementation of a program of pressure maintenance to increase oil recovery. It does designate Phillips operator. It outlines the basis for participation of the various parties. It contains the usual provisions contained in such agreements. They're modified only to apply only to the specific conditions of this proposed unit area.

As all agreements that I've ever put out does, it contains a typographical error. I want to call that to your attention now.

In Article XVIII, page seven, there is a misspelled word. It's the sixth from the last word prior to lettered paragraph A. It should be "equals". It's now spelled E-A, I believe, U-A-L-S.

MR. NUTTER: Which equals such volume.

A. Which equals, correct.

Q. What formation is -- you're unitizing the Grayburg-San Andres formation, but it is identified in the unit as --

A. Yes, sir, it is defined.

Q. -- what depth and specific well?

A. Yes, sir, it's defined as to depth and to the specific well. It's defined at several places in our

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exhibits that we'll present today.

Q Do you have anything else to add to the Commission on this?

A Nothing on the Unit Agreement.

Q Now, turning to Exhibit Number Two, would you discuss that exhibit?

A Yes, sir. Exhibit Number Two is the Unit Operating Agreement. Again this was modeled after the Central Vacuum Grayburg-San Andres Unit Operating Agreement.

In confirms the Unit Agreement. It outlines supervision to be exercised by the non-operators. It defines the rights, authorities and duties of all parties. It defines how investments will be adjusted and how future costs will be shared.

It provides for the remainder of the understanding necessary as between working interest owners upon operator assuming operations and changing the mode of operation.

It includes as exhibits a schedule showing each working interest owner's participation, both by tract and by total, which is Exhibit C, and an accounting procedure, Exhibit D, insurance provisions, Exhibit E, and equal employment, and so forth, provisions, Exhibit F.

I will later offer an exhibit and recommend its inclusion by the Division of Conservation as Exhibit G.

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This has to do with operator's business ethics.

That's all I have unless there are questions on it.

Q. Mr. Chrisman, you passed over one item on Exhibit One, I believe.

In our application, amended application, you stated that the portion of the reservoir involved in this application has been defined by development, and it stated that there was a well in each quarter quarter section. There are a couple of those that have not been drilled, is that not correct?

A. That is correct. As a matter of fact, there are a total of four quarter quarter sections that have not been drilled. Two of these are offset four ways. I don't know why they weren't drilled. Phillips was the lessee on one of them. The other two tracts were offset three ways. They're all clearly productive, or were originally.

Q. So you do consider the reservoir clearly defined --

A. Yes, sir.

Q. -- for the purpose of this hearing?

A. Sure do.

Q. Okay, thank you. Now, going on to Exhibit Number Three, would you identify that exhibit?

A. Yes, sir. Exhibit Number Three consists of

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a letter from Mr. Ray Graham advising that the Unit Agreement is acceptable to the State of New Mexico, and a subsequent letter from me to Mr. Graham transmitting copies of pages which contained minor changes.

The State of New Mexico owns 100 percent of the basic 1/8th royalty from this proposed unit.

Q Now referring to Exhibit Number Four, will you identify that exhibit?

A Exhibit Number Four is a listing of all overriding royalty owners, along with the amount of their ownership by tract. The only overriding royalty owners who do not also own working interests are the Frederick H. Burglan Estate and Mr. Harold E. Jones. I have Mr. Jones' ratification.

The State of New Mexico will own in excess of 97 percent of all royalties. This is basic royalty plus overriding during the initial phase of operations and nearly 96 percent during the final phase. As a result, the State's approval along constitutes more than enough to meet statutory requirement for royalty owner approval.

Q But the other royalty owners have been given an opportunity to --

A Yes, sir, they have.

Q Now, referring to Exhibit Number Five, would you identify that, please?

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A Exhibit Number Five is a copy of Part B of Exhibit C to the Unit Agreement -- excuse me, Unit Operating Agreement, upon which the interest of each owner whose ratification has been received is circled.

As of today fourteen working interest owners have ratified the Unit Agreement. The initial phase interest of these fourteen owners is 44.23410 percent. The final phase participation is 42.95627 percent.

We expect to have in excess of 75 percent working interest ownership approved in sufficient time to make the unit effective on December the 1st, 1978, presuming favorable action by the Division of Conservation.

Q Now referring to what has been marked as Exhibit Number Six, would you identify that Exhibit, please, sir?

A Exhibit Number Six is a copy of the Engineering/Geological Report, dated November, 1977, which was prepared by representatives of the major operators. This report was accepted by the working interest owners committee in its December 15, 1977 meeting as fulfilling the charges given the Engineering/Geological Committee, with no disapprovals.

The report estimates that oil recovery can be increased by approximately 40.8 million barrels if the program of pressure maintenance is instituted. It includes

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a tabulation of parameters which were used to negotiate participation and it describes how and from what sources these parameters were obtained.

In the case of two operators the current production parameter was modified slightly by the working interest owners in one of its meetings. The minutes of that meeting are included in another exhibit.

This exhibit also includes production and cost forcasts which have since been updated and will later be presented to you in the pressure maintenance portion of this hearing.

The exhibit defines the unitized interval, the unit area. It shows the production history. It shows structure cross sections, Isopach map, and so forth.

MR. NUTTER: Mr. Chrisman, before you go further, you've mentioned that the parameters for participation were included herein in Exhibit Number Six.

A. Yes, sir.

MR. NUTTER: And how they were arrived at. Now, the actual participation formula is described in Exhibit Number One.

A. Yes, sir.

MR. NUTTER: Would you go through that?

A. Yes, sir.

MR. NUTTER: And explain just how the tracts

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will participate --

A. Yes, sir.

MR. NUTTER: -- under the various phases?

A. Sure will; be glad to.

The Unit Agreement, or Exhibit Number One, specifies that the tract participations will be initially 50 percent of each tract's share of total adjusted oil production from the unit area for the period July 1, 1976 through December 31st, 1976, and 50 percent of each tract's share of total future primary oil production from the unit area until 12,343,300 barrels of oil have been produced from the unit area subsequent to December 31st, 1976.

MR. NUTTER: Okay, now what was that 12,343,000 based on?

A. That was the --

MR. NUTTER: Remaining primary?

A. Yes, sir, the Geological and Engineering Committee's estimate of remaining primary.

MR. NUTTER: Okay, so initial participation is 50 percent production during that six month period and 50 percent of the remaining primary?

A. That's correct.

MR. NUTTER: Each tract's share of remaining primary.

A. Yes, sir.

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[illegible]

MR. NUTTER: Okay.

A The final participation will be based 74 percent of each tract's share of total secondary oil estimated for all tracts in the unit area, 25 percent of each tract's share of total hydrocarbon volume in the unit area, and 1 percent of each tract's share of total ultimate primary oil estimated for all tracts in the unit area.

The source of these parameters also was the Geological/Engineering Report.

MR. NUTTER: Okay. And that is the participating formula that has been agreed to by 42 percent, or whatever that figure was?

A It actually has been agreed to by more than 43 percent, but the rest of the folks haven't furnished their ratifications yet.

MR. NUTTER: Yeah. Go ahead.

Q (Mr. Kellahin continuing.) Returning --

A That's all I have on Exhibit Six, I might say.

Q Turning to Exhibit Number Seven, would you discuss what is shown there?

A Exhibit Number Seven is compilation of pertinent correspondence. I guess in effect it just bears our heart to you. Anything that we thought you might want to look at or need to look at in connection with drawing this

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unitization order is included in Exhibit Number Seven.

You'll find a call of certain working interest owners meetings, minutes of the seven working interest owners meetings between December 15, 1977, and July 1st, 1978, during which participation was negotiated, and the agreements were semi-finalized.

You'll find letters of solicitation to the working interest owners and overriding royalty interest owners.

You'll find letters from the purchasers advising their markets will handle the additional production.

We believe the minutes in particular will demonstrate that there has been a good faith effort to form this propcsed unit on a voluntary basis. In all instances, all known working interest owners were invited to the meetings. The participation formula chosen was the 29th proposal offered. It's probably the only formula that could ever have been adopted. I consider it fair and reasonable and believe that the resulting tract participations reflect the relative value each will contribute to the unit.

MR. NUTTER: And when was formula 19th -- or 29th finally agreed to?

A. That was on May the 23rd, 1978.

Q. Referring to your Exhibit Number Eight, would you explain that exhibit, please?

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A. Exhibit Number Eight is a compilation of correspondence with Mr. Millard Deck, who advised that he and his partners are not interested in joining the unit but would be interested in selling their interest.

You'll note that I promised Mr. Deck Phillips would make them a good faith offer.

I know of no other owner who prefers to stay out of the unit.

Texaco will have a very minor interest and I have agreed with their representative to attempt to trade them some of our Central Vacuum Unit interest for their East Vacuum Unit interest. They did participate in some of our meetings.

Q. Now, I believe we could discuss Exhibits Eight, Nine, and Ten together. Would you refer to those exhibits?

A. Excuse me, that would be Nine, Ten, and Eleven.

Q. I'm sorry, Nine, Ten, and Eleven.

A. Yes, sir. Exhibits Nine, Ten, and Eleven are the results of voting on three ballots that were sent out to the working interest owners in addition to the voting that resulted from the minutes of the working interest owners themselves.

MR. KELLAHIN: Mr. Chrisman, excuse me, again.

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Oh, here we go. I was looking for my Exhibit Eight. It was the correspondence with Deck.

And then Exhibit Nine is this tabulation.

MR. KELLAHIN: Nine, Ten, and Eleven.

A. Nine, Ten, and Eleven are these tabulations showing the voting.

MR. NUTTER: Okay, got them. Go ahead.

A. These ballots covered features of the agreements that -- well, two of which are closely related to the formula approved itself.

Number Nine is on the proposed basis for sharing expenses and investments.

Number Ten is on the method that would be employed in reimbursing unit operator for its technical employees employed on the unit area.

And Number Eleven covers some revised verbiage in the Unit Agreement that resulted to take care of a modified stripper regulation by the Department of Energy.

Q. Now, referring to what has been marked as Exhibit Number Twelve, would you identify that exhibit and discuss it?

A. Exhibit Number Twelve is a schedule showing the pressure maintenance operation will account for a profit. The increased income shown does not include that which will be enjoyed by the basic royalty and the increased

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profit shown is before Federal Income Tax.

Current oil prices have not been escalated in this schedule.

Not shown but certainly of importance to the State of New Mexico is estimated increased basic royalty income of approximately $56.1 million. And estimated increased state taxes of all types of $23.1 million.

Q How does the total expense figure include the costs of your pressure maintenance program?

A Yes, sir, it does.

Q And that will be discussed further by another witness.

A Yes, sir, it will.

Q So based on Exhibit Number Twelve, if these applications are approved, it will result in the recovery of additional oil and gas above what would be recovered by present operations?

A Yes, sir, and that will account for a profit.

Q And will account for a profit over and above the additional cost.

A That's correct.

MR. NUTTER: Mr. Chrisman, I'll interrupt you one more time. On that Exhibit Twelve, you said it did not include so much money for additional royalties and so much money increased taxes. Would you repeat the numbers

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please?

A. Yes, sir, be glad to.

The additional royalties are estimated at $56.1 million.

MR. NUTTER: Okay.

A. And the increased taxes, this is as of -- for all types, $23.1 million.

MR. NUTTER: Go ahead.

Q. But it is based on present oil prices?

A. Present oil prices, yes, sir.

Q. Now, referring to Exhibit Number Thirteen, would you identify that exhibit?

A. Exhibit Number Thirteen is a proposed addendum to the agreements. Phillips recommends that the Division of Conservation in its unitization order make this Exhibit G to the Unit Operating Agreement.

One of the working interest owners has advised it will not ratify the agreement unless Phillips agrees to the provisions contained in this proposed Exhibit G. We, of course, have no objection because we plan to conduct our affairs in this manner anyway, but we feel the obligation to bind ourselves to these provisions for whatever benefit they are to all working interest owners rather than just one.

At this late date the simplest vehicle for

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doing this is having it done through the unitization order. We cannot conceive of it being objectionable to any of the parties because we're the only one it places any requirements on.

MR. NUTTER: This is just an agreement that you're going to be good guys.

A That we're going to be honest.

MR. RAMEY: What Division of Conservation is this you're talking about?

A Pardon?

MR. RAMEY: Did you mention a Division of Conservation?

A Division of Conservation, yes, sir.

MR. NUTTER: Meaning us.

A You.

(There followed a discussion off the record.)

A I think these thirteen exhibits contain all the material necessary to confirm the allegations made in our application for the unitization order.

Q Were Exhibits One through Thirteen prepared by you or under your supervision?

A They certainly were.

MR. KELLAHIN: At this time we'd offer in evidence Exhibits One through Thirteen, inclusive.

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MR. NUTTER: Exhibits One through Thirteen will be admitted in evidence.

MR. KELLAHIN: That's all the questions that we have.

MR. NUTTER: I think I've asked all my questions as we went along.

Does anyone have any questions of Mr. Chrisman? He may be excused.

MR. KELLAHIN: I'd like to call our next witness, Mr. Ralph Roper.

RALPH ROPER

being called as a witness and having been duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Will you state your name, please?

A Ralph Roper.

Q By whom are you employed and in what position, Mr. Roper?

A I'm employed by Phillips Petroleum as a Senior Reservoir Engineer.

Q And where are you located?

A Odessa, Texas.

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Q And have you ever testified before the Oil Conservation Division or one of its Examiners?

A No, sir.

Q For the benefit of the Examiner would you please outline your education and experience as an engineer?

A I graduated from Texas Tech in 1961 as a petroleum engineer, a Bachelor graduate. After three years in the Army I joined Phillips in 1954 in their Alton, Texas, operations; went through the training program at that location; was assigned there approximately a year later in general engineering work and toward more of the reservoir and toward the end of that stay.

In 1969 was transferred to Smackover, Arkansas as a reservoir engineer and was in Arkansas until January 1st of this year; was transferred to Odessa in my present assignment.

Q Now, in your present assignment have you had anything to do with the proposed pressure maintenance project in the Grayburg-San Andres Field?

A Yes, sir.

MR. KELLAHIN: Are the witness' qualifications acceptable?

MR. NUTTER: Yes, they are.

Q (Mr. Kellahin continuing.) Are you familiar with what Phillips is proposing in Case Number 6367 for a

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pressure maintenance project for its East Vacuum Grayburg-San Andres Unit?

A. Yes.

Q. What does Phillips propose to do in this application?

A. To conduct the unit operations by pressure maintenance with the injection of water, the drilling of injection wells and producing wells at orthodox and unorthodox locations.

Q. And do you ask for an administrative procedure for further injection wells at orthodox and unorthodox locations?

A. Yes.

Q. With this application?

A. Yes, sir.

Q. Now, referring to your Exhibit Number Fourteen, would you identify that exhibit?

A. Exhibit Number Fourteen is what we refer to as our development plan. This was prepared for presentation at this hearing as well as presentation to the working interest owners at a meeting on October 12th of this year, and in addition to the development plan as outlined, we also attached a ballot soliciting approval of monies for the initial development from the working interest owners, and there are references in this plan to this ballot. I

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could briefly, if I may, go through some of the pertinent sections of the plan.

Q If you would, please.

A The basic philosophy in this plan was to maximize production, maximize injection, and to develop a flexibility within the program that as conditions developed during the operation there was the ability to change the plan to fit the conditions.

The section I'd like to deal with most would be the drilling program section of this. And the drilling will be in a three phase order.

Attachment Number Two in that section is a map of the unit area with ten wells shown in red on the map. These constitute our initial development drilling program. These wells are in the better productive area of the field and will be used for reservoir evaluation; will be placed on production as allowable limits permit; and in the subsequent development program can be converted to water injection service.

Q Now in connection with your drilling program what formation are you going to inject?

A We'll be injecting into the San Andres portion of the Grayburg-San Andres reservoir.

Q So your injection wells to be drilled will be drilled to the San Andres and not penetrate the Gray-

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burg, is this correct?

A They will penetrate -- the Grayburg is above the San Andres.

Q I understand they will not be open in the Grayburg.

A Right, will not be open in the Grayburg, yes, sir.

Q All right.

A The Attachment Three in that section is the second phase of our drilling program and it will be done scheduled for the 1979 drilling. The proposed producing wells are coded in red. The injection wells in blue. And the wells are drilled in vertical rows at approximate center of the quarter quarter sections within the unit area. Alternate producers and injectors.

The red area outlined in here on this map is the area in which large casing, 7-inch casing will be installed in the producing wells and 5-1/2 casing in the injection wells.

The next map shows the 1980 drilling program, the third phase of it, and this will complete the infill drilling at the vertical rows which were not drilled in the prior drilling. And this will complete the infill drilling in the -- essentially, in the unit area.

The flexibility that was mentioned earlier is

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apparent as we get into the 1980 drilling, that the location of producers and injectors can be modified to fit the appropriate water injection pattern to be developed at that time.

Subsequent conversion of the newly drilled producing wells will complete a pattern of water injection development across the unit area. The specific pattern is not included in this at this time. It will be a pattern but it may vary across the field because of the type of reservoir characteristics are quite different from the south central portion of the unit up to the north. So the specific pattern may not be the same across the field. Or the unit, excuse me.

Q Does that complete your drilling program?

A That is essentially the well drilling portion of it, yes, sir.

Q Now, do you have a diagrammatic sketch of the type well --

A Yes, sir, the -- excuse me.

Q Go ahead.

A The next six attachments in the drilling section show schematic completion diagrams of several possible completions. In our design of casing we mentioned earlier to maximize the production and the other concern that we have in this area is the control and the isolation

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and the protection of the wellbores from a possible salt water flow interval that does exist in the field.

Attachment Number Five shows the 7-inch producing wells if no salt water flow is encountered.

Attachment Number Six is how we propose to handle and isolate any salt water flows that may occur in the drilling of the well.

The main point in these -- or one of the points is that all the casing strings will be cemented to the surface and that there will be monitors on the surface for observation of surface pressures.

Q. Now those are producing wells you're talking about?

A. Yes, sir, these are the producing wells.

Q. Yes, sir.

MR. NUTTER: And as you drill the well, you will drill out from under the surface casing with a large enough hole that you could run this intermediate casing if necessary?

A. Yes, sir.

MR. NUTTER: And if it's not necessary you just go on down and run 7-inch.

A. Right.

And as we get across the field and isolate or identify where we may or may not have salt water flow

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problems we would reduce the surface casing size as applicable at this specific point; after we've drilled several wells we should hopefully be able to identify where those problems exist.

MR. NUTTER: Is that Attachment Seven where you have 8-5/8ths surface pipe?

A Yes, sir, and this would be a 5-1/2 inch casing producing well, yes, sir.

Attachment Number Eight is a water injection well. Again it's designed -- this would be the completion if no salt water flow was encountered. Again all strings are cemented to the surface. The annulus is protected with corrosion inhibited inert fluid. The tubing will be set on a packer approximately 50 feet above the injection interval and the tubing will be internally protected for corrosion. There will be pressure control devices on the tubing for the injection control. Again surface pressure gauges on the annulus and the monitors on the other casing strings.

Attachment Number Nine is the injection well if the 9-5/8ths intermediate casing is required.

I might -- there's one point that will be brought out later in the proposed field rules. When we say all the strings will be cemented to the surface we're also stipulating that -- or tied back into our prior

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cemented casing strings.

And Attachment Number Ten is a 4-1/2 injection well.

Q Now will you utilize existing wells for injection purposes?

A At the present time we're not -- it's possible they will be used but our primary injectors will be the newly drilled producing wells and injection wells.

Q And if you do utilize existing wells, you will adequately pressure test them before using them?

A Yes, sir.

Q Now, in the event you find some existing wells have problems, have you made provision for replugging or handling that situation?

A We have this in some subsequent exhibits. Would you like to get them now or --

Q No.

A Okay. Yes, we do.

Q Now what's your source of water supply for this program?

A This will be the Ogallala formation at approximately 200 feet.

Q And do you have a permit from the State Engineer for wells for that purpose?

A Yes, sir, we have within the unit area and

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near the unit area, we do have State permits for the water permits.

Q. And have you drilled some of those wells?

A. Yes, sir.

Q. And in your opinion will this water supply be adequate for the purposes of your pressure maintenance program?

A. Yes, sir.

Q. Will you use make-up water? Or will you recircle -- recycle the water?

A. Yes, sir, we will inject produced water as well as fresh water.

Q. And you have available to you in addition to that, any other source of water supply if you need it?

A. Yes, sir, there is a salt water disposal system in the field and the water belongs to the operators within the unit in different formations and that water will be available and Mobil Oil Corporation, a working interest owner in this unit has two sources of water, fresh water supply, in the vicinity that they've offered to make available for the unit's use at a price. There is additional water, yes.

Q. It is available?

A. Yes, sir.

Q. Now, do you anticipate that your produced

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water or the water from a salt water disposal system would require treatment prior to injection?

A Not excessive treatment other than filtering -- excuse me, not filtering, but settling through the --

Q You don't anticipate any problem with it?

A No, sir.

Q Now referring to Exhibit Number Fifteen, would you identify that exhibit, please?

A Exhibit Number Fifteen is a list of wells with specific locations, well numbers that we would like to have included in the order for the drilling of ten wells as a part of the initial development of the unit, and might mention here, we have not surveyed any locations on the ground and that these locations are subject to slight changes and we're asking for approval to drill these wells at unorthodox locations within 10 feet of quarter quarter section lines. The well could possibly move from one tract number to another and require an amended well number and location.

Q And you ask for an administrative procedure for approving those changes?

A Yes, sir.

Q Now are those wells to be drilled as producing wells or injection wells or both?

A They will be drilled as producing wells and

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will be placed on production as allowables permit at the time they're completed.

Q. But they could in the future be used to be converted to injection wells?

A. Yes, sir.

Q. Some of them? Now, Exhibit Number Sixteen, would you identify that, please?

A. As Mr. Chrisman mentioned earlier in his, this is the type log, and it is the log of the well that is referenced in the unit agreement and in the Engineering/Geological Report. This is a full length log from essentially the surface to below the unitized interval, showing the formations.

Q. And that identifies the unitized area and the zone in which you are going to inject?

A. Yes, sir.

Q. Now referring to Exhibit Number Seventeen, would you identify that, please?

A. Exhibit Number Seventeen is a map of the unit area identifying both the reservoir designation, the producing formations of all the wells in the unit area, and within two miles of the unit boundary on the northeast and the south boundaries. The Texaco Central Vacuum Unit is on the west. That, I'm sure, was presented as part of their agreement.

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Q. In other words, you did not cover that area because it's already before the Commission?

A. Right.

Q. And the Central Vacuum Unit area has been approved by the Commission, has it not?

A. Yes, sir.

Q. Do you have anything else to add?

A. On that exhibit also it does show the ownership and lease ownership of the -- of the area surrounding the unit, as well as into a portion of the unit.

Q. In other words, it shows all the wells offsetting the unit and the ownership.

A. Yes.

Q. Now referring to Exhibit Number Eighteen, would you identify that exhibit, please?

A. Exhibit Number Eighteen is a tabulation of all of the wells that penetrated the Grayburg-San Andres reservoir in the unit area as well as a half mile boundary around the unit area. Again, not including the Central Vacuum Unit portion of it.

Within this we have color coded some wells which we feel there are, in our review of this data, some indication of possible problems, either in the way the well was plugged to satisfy the current plugging requirements in the area due to the salt water flow or that the

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estimated tops of cement may not be brought high enough to adequately protect the wellbores opposite the proposed unitized interval.

And our plans are to review these particular wells in question in more detail to the point of contacting the current operators if they are not wells to be contributed to the unit to substantiate the tops of cement and the -- also some of the plugging -- to determine that the plugging was done as we have shown.

Q And that's shown further, then, on Exhibit Nineteen, is it not?

A Yes, sir. Exhibit Nineteen is a schematic diagram of all the wellbore completions of plugged and abandoned wells in and within a half mile of the unit area.

And if I may, I'd like to point out about ten of these specifically that from our review appear to have some either questions or some obvious work that needs to be done either by the unit or by the operator if it's outside the unit area.

The second one, Amoco Production Company's State CV Well No. 4, the calculated top of cement and the 10-sack plug within the casing, it appears to be above where we're estimating the top of the Grayburg, and while we're not planning injection into the Grayburg, it is a portion of the reservoir and there is a possibility of pressured

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injection in the San Andres getting into this Grayburg and possibly into this wellbore.

So again our question on this one is that we may need to refer to records a little bit more to confirm the plugging and the top of the cement.

The next plat, Amoco State CV Well No. 5, essentially the same question on the calculated top of the cement.

I believe it's three more down, Chevron State 634 Well No. 4, that with the plug in the tubing -- excuse me, in the open hole below the estimated top of the Grayburg, there's a possibility we could have communication within this. This is a well that appears it would need some work on it to satisfactorily plug it to preclude problems with the salt water flow to the surface.

Go a way with a few fairly good ones here, down eight or nine more pages, will be Great Western State "E" Well, Well No. 2. We neglected to put the depth of that 6-sack plug on the plat. That is at approximately 4250 feet. This is one that looks like there may be some questions of whether there's -- there's probably at least a surface plug in this well that we didn't have in the records that we researched in developing these plats. At least there's some questions on that one, if not major problems, and again, a 6-sack plug may not be adequate with

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the injection below it.

Amazingly enough the next couple of questions are Phillips Petroleum Company wells.

Well No. 15, and we can get the -- possibly get the injection into the wellbore with the shot points in the casing there and not having a plug into the stub of the casing, again it could let the -- have a problem getting the injection to the surface. This is a well again we plan to re-enter and plug.

About four more down is again another Phillips Petroleum well, No. 37, and a very similar case where there was not a cement plug left in the stub of the 7-inch when it was cut off and it was also shot several times before the casing could be removed.

MR. NUTTER: Which one was that?

A. Well No. 37, Phillips Santa Fe Well No. 37.

MR. NUTTER: Okay.

A. The next one is about six or seven further down, it's Shell Oil Company's State "U" Well No. 1. Does not appear to be any cement plug at all across the open hole interval, which does include the proposed unitized interval.

Two below that is the Shell Oil Company State "C" No. 1. This well is in the unit area. Again, with the shot holes in there and a fairly small plug and the entire

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unitized interval open, it doesn't appear to be too well -- sanitarily plugged for what we're doing, but this is in the unit area and we will evaluate it as well as re-entering it for plugging. We may re-enter it to put it on production

MR. NUTTER: Where is this well on your --

A It is in Section 24, 17, 34, Unit "I". It's in that little portion of the blue outlined unit extending into 34.

MR. NUTTER: Way over in the far west of the unit?

A Right.

Two wells further down is the Shell Oil Company State "S" Well No. 1. Again there's a slight error in the drawing of the plat. The plug at the stub actually does -- of the 5-1/2 inch does extend both in and out of the cutoff portion of the 5-1/2, but again there is not cement across the proposed unitized interval.

And four further down is a dry hole, it's Barnett and Hansen State No. 1-B. I think this was also carried in the records as Permian Corporation. There is -- the entire unitized interval is not covered, and again we just discovered what appears to be a typographical error in our estimated top of the Grayburg in this well and I don't have where the estimated top is, but I believe it should be below that, possibly in the vicinity of 4000 feet.

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MR. NUTTER: You're pretty sure 3696 is wrong?

A. Yes, sir. Again the plugs in the open hole in this are 10-sack plugs and we can't say that's adequate to isolate all of the wellbore.

That concludes the -- this exhibit.

Q. Now, prior to injecting the fluids into the reservoir would you check the unit wells, or take wellhead pressures?

A. Yes, sir, we plan to on all of the unit wells, certainly record the present surface pressures and any wells in the non-unitized formation, we shall attempt to get approvals to check those also, and would submit this to the State to show what our surface pressure situation was at the time of unitization.

Q. And as your injection program proceeds, would you continually monitor your producing wells?

A. Yes, sir.

Q. Were Exhibits Fourteen through Nineteen prepared by you or under your supervision?

A. Yes, sir.

MR. KELLAHIN: At this time we'd like to offer Exhibits Fourteen through Nineteen, inclusive.

MR. NUTTER: Phillips Exhibits Fourteen through Nineteen will be admitted in evidence.

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Q Do you have anything to add?

A No, sir.

MR. KELLAHIN: That's all we have, Mr. Nutter.

MR. NUTTER: Are there any questions of Mr. Roper?

That's all you have of this witness, you mean?

MR. KELLAHIN: All we have of this witness. We will have one more witness.

MR. NUTTER: If there are no questions, the witness may be excused.

CROSS EXAMINATION

BY MR. NUTTER:

Q Mr. Roper, what would you define this flood as being, a 9-spot, or what?

A It has potential of being that, depending on the conversion of producing wells to injection. In the north area a conventional 5-spot would be developed.

Q But basically what your final program, as shown by Exhibit -- Attachment Four in Exhibit Number Four-teen, would be, you've got a well on each 40 now and you'd end up with a well on each corner of each 40, too, wouldn't you?

A Yes, sir.

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Q And then about one well on -- one injection well on each corner of each 160.

A Yes.

Q Is about what it finally resolves into.

Now, on Attachment Number One in this group, I'd like for you to explain this one page right here to us. That's the allowable production decline and the expected recoveries, and such as that.

A This is schematic diagram of our forecast showing the timing of the drilling of wells and the allowable and the production. The next witness will present the allowable recommendations on the field rules, but this is the increase in production due to new production from the newly drilled producing wells, and then what is generated from the project allowable areas, and finally in 1981 beginning of allowable increases credit due to voidage replacements.

Q Well, would it be more proper to direct the questions to you or to the next witness as to what the current rate of production is and how much production you're going to lose while the thing is being put into operation, how much you'll gain, and what the total anticipated secondary recovery will be?

A I think I can try to answer some of that.

Q Okay, it's probably in here in this curve,

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if you'd explain.

A. Yes, it's there; from a production standpoint a review of the curve in the forecast economic section of this same development plan shows it possibly a little more graphically, Attachment Number Two in that section.

Q. Okay.

A. Current production as of July, 1978, is 4,380 barrels.

Q. 4,380.

A. Right. Pretty much on the line of the history portion of this curve.

Q. Now, what is that, that's barrels per day or --

A. Yes, sir.

Q. How many 40-acre tracts are in this unit?

A. I believe 176.

Q. And how many active wells are on those 176 40s?

A. Some of the tracts, some of the 40-acres have more than one producing Grayburg-San Andres well on them. I believe there's 159 current producers.

Q. And those 159 40-acre tracts have a current total of 4,380 barrels per day?

A. Yes, sir.

Q. Okay. And that's the point that we show on this curve.

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A. Right.

Q. Okay, now take it from there.

A. The remainder of this curve shows the bottom line is the forecast of the total continued primary, adjusted from time and current production from the 12 million barrel figure that Mr. Chrisman mentioned. The remaining primary as of the -- estimated as of the first of 1979 is approximately 9.1 million barrels.

Q. Now why would this curve take such a sharp break in the years 1983 and 84?

A. This field, this reservoir, does have some currently top allowable wells, and some flatter decline wells at fairly high rates close to the top allowable, and this was an estimated trend, assuming that the unit was not formed and significant workovers, treatments, and so forth, would maintain the top allowable wells for about this period until the normal decline would set in.

Q. And then it's marginal production?

A. Right, begins to drop off rapidly.

Q. I see. And then the other curve on that?

A. The top curve is the total production estimated with the water injection and the infill drilling. The stairstep shape is the same as reflected in the earlier schedule dealing with new production, project allowables, and subsequently voided replacement allowables.

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Q And you estimate that it will peak out in mid-1982?

A Yes, sir, at about --

Q At what rate?

A About 23,000 barrels a day.

Q And then the decline would start again?

A Yes, sir.

Q When would you expect that the third phase of drilling would be complete?

A We're anticipating that will be done at the end of 1980.

Q So there wouldn't be any additional drilling to hold that peak up after 1982, or '83?

A No, sir. Of course if the conditions warranted, or the economics did, there could be some additional producing wells drilled, but not a significant increase over this curve, no.

Q Okay.

MR. NUTTER: Are there any other questions of Mr. Roper?

REDIRECT EXAMINATION

BY MR. KELLAHIN:

Q Mr. Roper, your economics differ slightly in your report than those given by Mr. Chrisman, do they not?

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A Yes, sir.

Q Would you explain the difference?

A Again, in the same forecast and economic section we presented an economic evaluation of the project and it utilizes the same total investment slightly in excess of $48,000,000. The difference is that the economics in this was generated for the working interest owners and it does include Federal Income Tax in the calculation.

This is the difference in the total cash flow figure from what Mr. Chrisman presented.

Q Now do you agree with Mr. Chrisman's statement that the additional oil to be recovered from the pressure maintenance operation will result in a profit over and above the cost of the project?

A Yes.

Q And would result in the recovery of oil that would not otherwise be recovered?

A Yes.

Q Now, in your opinion is unitization necessary for the proper operation of a pressure maintenance project in this area?

A Yes, sir.

Q And therefore you recommend that the area be unitized?

A Yes.

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MR. KELLAHIN: That's all I have.

RECROSS EXAMINATION

BY MR. NUTTER:

Well, now, Mr. Roper, I see here you anticipate that the infill drilling program and water injection will result in the recovery of 150 million --$150.5 million above $17.5 million, based on continued primary operations.

A. Yes, sir.

Q. Now, can you convert that into barrels? How many additional barrels are going to be obtained there?

A. Under the total water injection project, you mean, with the infill drilling?

Q. Yes, sir.

A. Roughly 40.8 million barrels.

Q. That's additional oil that's recovered because of the injection program, uniti-ation and injection program?

A. Yes, sir.

Q. And the value of that is $133 million?

A. Yes, sir. Again, these economics are unescalated prices, but we do escalate the investments, since this is what we're asking the working interest owners to approve of the monies for, so that does include an escalation of investment costs.

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Q And then that additional money would be the $56 million additional royalty that Mr. Chrisman was talking about and $23.1 million of additional taxes, or was that total revenues from the project?

A These are total revenues to the project but the royalty has been -- this is working interest revenue. The royalties have been deducted from this and the taxes.

Q That's the figures that are given on the forecast and economic --

A Yes, sir.

Q Okay, that's working interest only?

A Right.

MR. NUTTER: Are there any further questions of Mr. Roper?

REDIRECT EXAMINATION

BY MR. KELLAHIN:

Q You stated that your oil prices have not been escalated. You are using current oil prices for your forecast?

A Yes, sir, and we are basing this on a two tier pricing system and do not have any stripper pricing in here, which was, as Mr. Chrisman pointed out earlier, the rules were changed and included after these numbers were worked up.

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Q So that would make it even more advantageous, wouldn't it?

A Yes, sir.

MR. KELLAHIN: That's all. Thank you.

MR. NUTTER: One other question, Mr. Roper.

RECROSS EXAMINATION

BY MR. NUTTER:

Q On Exhibit Number Fifteen you had the location of the first ten unorthodox locations that you're proposing to drill and you ask that those be included in the order authorizing the project?

A Yes, sir.

Q Now, are these firm locations or are these theoretical locations that you think would be adviseable from your office in Midland? Or Odessa?

A Well, these are firm locations with the limitations of what it is on the ground, whether there's roads or power lines or tank batteries, and so forth. These are our desired locations.

Q Well, that's -- we approved a bunch of these for one operator awhile back and he went out there and found out there were power lines, even a gasoline plant that would be sitting on one of them.

A I guess the better phrase for these would be

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the desired locations.

Q. Okay.

A. No, they have not been surveyed on the ground and of course there will be, I'm sure, a change on some if not all of them.

Q. Can you establish what the firm locations are and let us know what they are before we enter an order, so you won't have to come back and have an amended application?

A. Well, one of the little problems in here is I'm not quite sure if we've gotten everybody's approval until the unit is formed to go in and survey and stake the locations on non-Phillips leases.

MR. KELLAHIN: If the Examiner please, we -- the witness did ask for an administrative procedure for approval of those specific locations as well as future ones, too.

MR. NUTTER: I thought he asked for these to be approved now.

MR. KELLAHIN: He asked for them to be listed, I agree.

MR. NUTTER: He wants the procedure for moving them.

MR. KELLAHIN: That's correct.

MR. NUTTER: If something is in the way. Okay.

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If there are no further questions of Mr. Roper, he may be excused.

BILL MUELLER

being called as a witness and having been duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Would you state your name, please?

A W. J. Mueller.

Q And by whom are you employed and in what position, Mr. Mueller?

A I'm a Reservoir Engineering Supervisor in the Odessa area of Phillips Petroleum Company.

Q And have you testified before the Oil Conservation Division and as an expert witness?

A Yes.

MR. KELLAHIN: Are the witness' qualifications acceptable?

MR. NUTTER: Yes, they are.

Q Mr. Mueller, referring to what has been marked as the Applicant's Exhibit Number Twenty, would you identify that exhibit?

A Number Twenty is a section out of the Bryan

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book that shows the New Mexico Commission rules relative to a Santa Fe pilot waterflood we asked for.

This is Order Number R-3150 and was approved in November of 1966, that permitted Phillips to inject water into the Grayburg-San Andres interval in its Santa Fe Well No. 14. This was a pilot test and the test has now been concluded and we ask that this order be rescinded because this is the same area that will be encompassed by the new order for the pressure maintenance unit.

Q This could be rescinded assuming that the unitization order is approved, is this correct?

A Yes.

Q Now, referring to what has been marked as Exhibit Number Twenty-one, would you identify that exhibit and discuss the provisions proposed?

A Exhibit Number Twenty-one is Phillips Petroleum Company's proposed special rules and regulations for operation and development of the East Vacuum Grayburg-San Andres Unit Pressure Maintenance Project.

I'd like to state at this time that in the Vacuum Field there are currently three waterflood units, five lease waterflood units, and two pressure maintenance water injection units.

The two pressure maintenance water injection units are the Texaco 100 percent Vacuum Unit, and that is

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Number R-4442, and was approved in November of 1972; the more recent one being the Texaco Central Vacuum Unit, which is Order Number R-5530, that was approved in September of 1977.

It was from the special rules and regulations of those two pressure maintenance units that these proposed rules and regulations were combined and formulated on.

Of note is that it is in the 100 percent Texaco Unit, or R-4442, that permitted the drilling of both injection and producing wells at unorthodox locations within ten feet of the quarter quarter section line.

An additional thing to be noted in the Texaco Central Vacuum Unit in Order R-5530, was the voidage and water injection credit allowable for voidage replacement.

Q. Are you asking for the same provisions in this unit?

A. Yes, and both those provisions are provided for in these rules.

And the proposed rules, if I may rapidly go through them, is Rule Number One is to authorize the institution of a pressure maintenance project in the unit area by injection of water into wells at orthodox and unorthodox locations.

Rule Two is that the Unit Operator is authorized to drill injection wells and additional producing wells

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at both orthodox and unorthodox locations anywhere within the unit area provided no unorthodox location is closer than 10 feet to a quarter quarter section line or closer than 1320 feet to the unit boundary; that the Division Director shall have authority to grant permission to drill any well within the provisions of this rule without notice and hearing.

There was a hope that as Phase Two and Phase Three drilling comes along we could just look the proposed locations to Santa Fe for approval, administrative approval for unorthodox locations.

Rule Three will be that each newly drilled injection well or producing well shall be equipped with surface casing, approximately 350 feet, or it would be 50 foot in the Red Beds, cemented to surface, and the production string run to total depth of 4900 feet and cement to surface, except in those instances where it may be necessary to run and cement an intermediate casing string into the Yates and then the production string need only be cemented back into the intermediate.

Rule Four will be that the conversion of producing wells to injection at orthodox and unorthodox locations within the unit area shall be accomplished only after approval of same by the Division Director. This will include both the newly drilled wells that we hope to put

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on production initially in those proration units that are not now producing 80 barrels a day. We think we will go ahead and put those on production and bring the allowable of that proration unit up to 80, but then subsequently down the line convert it to injection when our injection station and system is ready.

There will be about a one-year time lag here. We anticipate the Central injection facilities to be ready for pressured injection approximately one year after unitization, and that is why during this first year these infill wells, we will go ahead and produce them up to a proration unit's 80 barrel allowable if the current producing well on that unit is not 80 barrels.

MR. NUTTER: Well, now, Mr. Mueller, to interrupt you at this point, so often on these unitized projects that go on production, we see the total production for the unit go down initially, because they take wells off production. You won't be doing that at all here. You'll cause production to go up even before you start injection, then?

A. Yes, immediately.

MR. NUTTER: Then there won't be any drop in production at all, because all the injection wells initially will be new wells?

A. Right, yes, sir.

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MR. HUTTER: Okay.

A. Rule Five would be that the injection shall be accomplished through tubing installed in a packer set within 100 feet of the uppermost perforation. The injection shall be done in corrosion protected tubing; casing annulus filled with an inert fluid, similar to the diagrammatic sketch we showed in the development program.

Rule Six will be that the injection wells or system shall be equipped with a pressure control device or acceptable substitute to limit the surface injection pressure to more than 0.2 of a psi per foot of depth to the uppermost perforation.

A continuation of that rule would be that the Division Director may administratively authorize a pressure limitation in excess of the above upon showing by the Unit Operator that such higher pressure will not result in fracturing of the confining strata.

That administrative procedure was provided for in the Texaco Central Vacuum Unit pressure maintenance.

Rule Seven is that the project area of the East Vacuum Grayburg-San Andres Pressure Maintenance Project shall consist of those proration units within the boundary of the East Vacuum Grayburg-San Andres Unit upon which is located an injection well and any directly or diagonally offsetting proration unit.

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Rule Eight is that all wells within the project area shall be equipped with risers or in another acceptable manner as to facilitate the periodic testing of the bradenhead for pressure or fluid production.

Rule Nine will be that those wells within the East Vacuum Unit that are not included within the project area shall be prorated in accordance with the normal rules and regulations of the Division.

Rule Ten is that the project area shall receive a project area allowable and said project area allowable shall be the sum of the basic project area allowable plus the water injection credit allowable.

Rule Eleven states that the basic project area allowable shall be equal to 80 barrels of oil per day times the number of developed 40-acre proration units in the project area.

Rule Twelve states that the water injection credit allowable shall be contingent upon full voidage -- full reservoir voidage replacement of all produced fluids and shall be based upon the following formula. This is the same formula that occurs in the Texaco Central Vacuum Unit Pressure Maintenance Project.

There is one addition here, or I should say one omission we request, and that is that no limit be placed upon the water injection credit allowable. In

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other words, if we are able to completely fulfill voidage with the production we have, we ask that this not be restricted to -- once the basic project allowable or anything like that: that it be allowed to go ahead and rise to one to one-and a half times the basic allowable if full voidage is replaced with water injection.

Rule Thirteen is that the weighted average project area reservoir pressure shall be determined prior to commencement of injection of water into the reservoir and at least annually thereafter.

And Rule Fourteen is that the project area allowable may be produced from the wells within the project area in any proportion, provided however, that any proration unit situated on the boundary of the East Vacuum Unit which is not directly diagonally offset by an injection well outside said unit or on said unit boundary, shall be permitted to -- shall not be permitted to produce in excess of 80 barrels of oil per day.

Attached as an Exhibit A to these proposed rules and regulations is the water injection credit allowable formula that was used in the Texaco Central Vacuum Unit, and all nomenclature here is the same, and this is -- I attached it as an exhibit as this would be the type of calculation we would submit monthly to the Commission to determine our water injection credit allowable to be added

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to our basic project area allowable for the total project area allowable.

Exhibit P is the formation volume factors and solubility and solution ratio curves that had been used throughout the Engineering/Geological studies of the Vacuum Pool, and these are identical to the same factors that were in the Texaco Central Vacuum order.

This figure is a little different as far as this one has a solution, or I should say an initial formation volume factor and initial solution ratio points shown on it, and the curve that was made an exhibit to that pressure maintenance project didn't show that breakover there.

MR. NUTTER: It stopped over here --

A. Right.

MR. NUTTER: -- the left of that.

A. Right, other than that it's the identical curve.

Q. Does that complete your testimony?

A. Yes.

Q. Was Exhibit Twenty-one prepared by you or under your supervision?

A. Yes, sir.

Q. And Exhibit Twenty is a copy of the Commission's order for the pilot project?

A. Right.

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MR. KELLAHIN: At this time we'll offer Exhibits Twenty and Twenty-one.

MR. NUTTER: Applicant's Exhibits Twenty and Twenty-one will be admitted in evidence.

MR. KELLAHIN: That's all I have, Mr. Nutter.

CROSS EXAMINATION

BY MR. NUTTER:

Q. Mr. Mueller, under Rule Seven where the project area would comprise the proration units within the boundaries of the unit upon which are located injection well or which diagonally or directly offset proration units containing producing wells, does that mean injection wells there?

A. Let's see, the project area shall consist of those proration units upon which is an injection well and any directly or diagonally offsetting proration unit which contains a producing well. In other words, if there is no well on that 40 acres it would not be constituted as part of the project area.

Q. Okay, I'm reading it right now. I wasn't reading it right.

And then each of these wells in the project area would get a top allowable whether the well on it could make it or not.

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A. That's right.

Q. Whether it's going to be transferred to another well within the project area that might be able to make it.

A. Yes, sir.

MR. NUTTER: Are there any further questions of Mr. Mueller?

He may be excused.

Do you have anything further, Mr, Kellahin?

MR. KELLAHIN: That's all I have, Mr. Nutter, thank you.

MR. NUTTER: Does anyone have anything to offer in Cases Numbers 6366 and 6367?

We'll take the cases under advisement and the hearing is adjourned.

(Hearing concluded.)

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[illegible]
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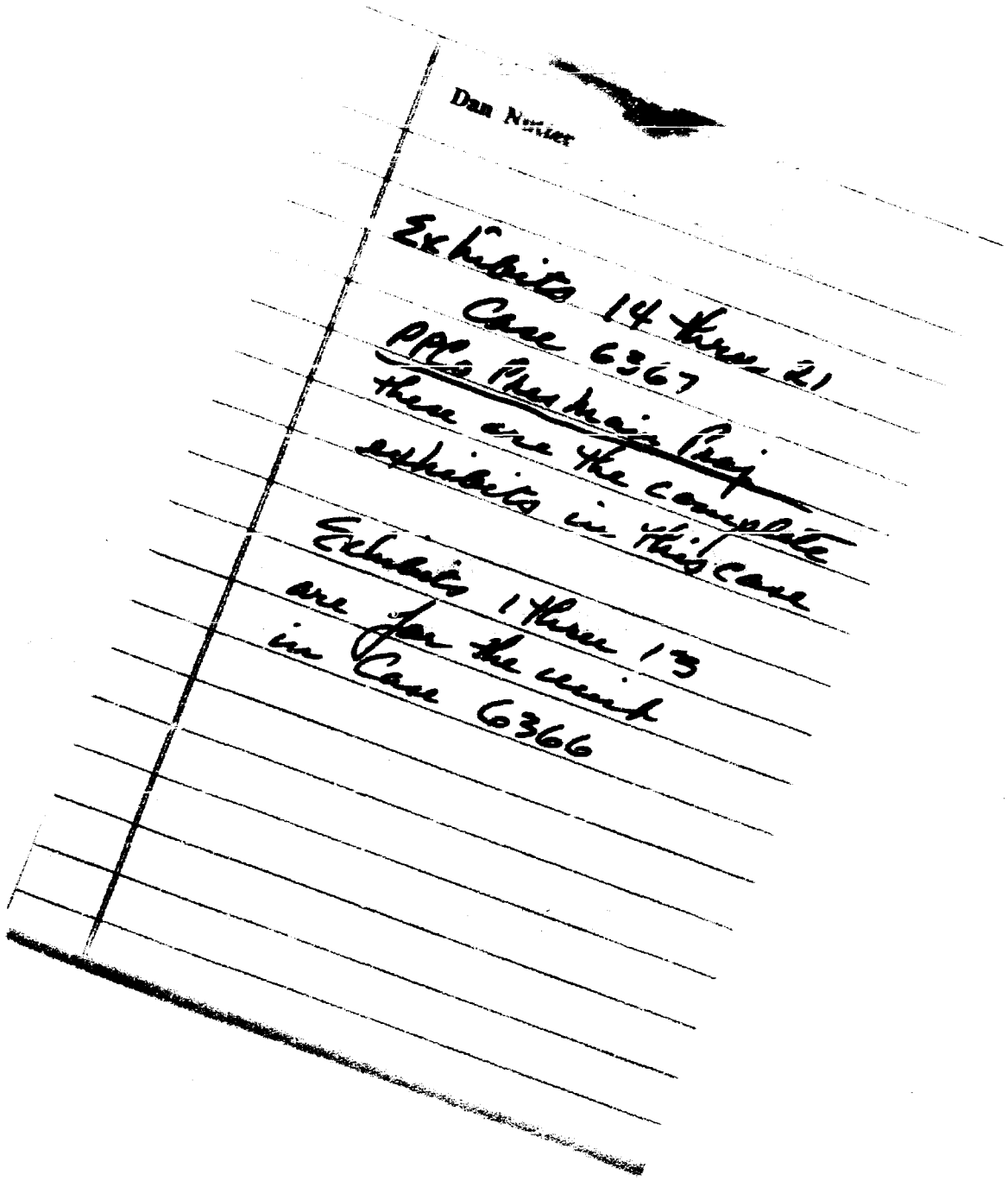
REPORTER'S CERTIFICATE

I, SALLY WALTON BOYD, a court reporter, DO HEREBY CERTIFY that the foregoing and attached transcript of hearing before the Oil Conservation Division was reported by me; that the said transcript is a full, true, and correct record of the hearing, prepared by me to the best of my ability, knowledge, and skill, from my notes taken at the time of the hearing.

Sally W. Boyd, C.S.R.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 6366-6367 heard by me on 10/25 1978.

Oil Conservation Division, Examiner



SEPTEMBER, 1978

BEFORE EXAMINER NUTTER
OIL CONSERVATION DIVISION
Phillips EXHIBIT NO. 14
CASE NO. 6367

INTRODUCTION

The following is a presentation of the development plan and time schedule for the East Vacuum Grayburg-San Andres Unit.

The basis for development is the November, 1977, Engineering-Geological Report. Modifications of the report's time frame, drilling program, estimated investments and costs, forecasts and economics, and water supply sources are presented. The mechanical portion of the development plan is included. The basic engineering and geological aspects of the report have not changed. A revision of tract numbers has been required by the Commissioner of Public Lands. Attached is a cross-reference of current and original tract numbers which can be used to revise Table I and Figure 26 of the report.

The investment expenditures will be made during 1979 and 1980, but because of authorization budgets and the anticipated effective date being on January 1, 1979, a three-phase authorization schedule is presented. Phase I is 1978 authorization for initial development with the expenditures in early 1979. The approval solicited at this time by the accompanying ballot represents the requirements for initial development. Phase II represents the authorization for the remaining 1979 expenditures. Shortly after the effective date of unitization, approvals for these expenditures will be solicited. Phase III is the expenditures for 1980 and approvals will be requested during the last half of 1979.

This development plan is designed to obtain the maximum allowable production for the greatest economic benefit under the current two-tier crude oil pricing schedule.

Attachment 1

The Commissioner of Public Lands of the State of New Mexico has requested a revision of Tract Numbers to conform with State requirements. The following is a cross-reference of the current and original Tract Numbers:

Tract No.		Tract No.		Tract No.	
Current	Original	Current	Original	Current	Original
2801	2805	3229	3203	2957	2908
3202	3201	2230	2204	2658	2605
1903	1909	2631	2604	2059	2003
1904	1908	3332	3301	2060	2004
2505	2501	3333	3304	1961	1903
2206	2202	0434	0401	2962	2903
2207	2203	2335	2301	2963	2909
3308	3302	3236	3202	2864	2803
2109	2101	2437	2402	2865	2804
1910	1907	2738	2702	3366	3303
1911	1910	2739	2704	3467	3401
1912	1906	3440	3403	3568	3501
2913	2906	2941	2907	2469	2404
2614	2606	2642	2603	2270	2201
3315	3305	1943	1905	2271	2205
2416	2401	2944	2901	2672	2601
2717	2703	3345	3309	3373	3306
2418	2403	0546	0501	3374	3307
2819	2802	2947	2905	2175	2103
2720	2701	2648	2607	2576	2502
2721	2705	0449	0402	0577	0503
2622	2602	2150	2104	1978	1902
2923	2902	2851	2801	2079	2001
0524	0502	1952	1904	2980	2904
1825	1802	1953	1911	1881	1803
1826	1801	2054	2005	1982	1901
3127	3101	2155	2102	2083	2002
3328	3308	3456	3402		

I N D E X

SCHEDULE

Attachment 1 ..... Drilling and Production Schedule

DRILLING PROGRAM

Attachment 1 ..... Unit Area Map of Present Completions
Attachment 2 ..... Unit Area Map of Phase I Drilling Program
Attachment 3 ..... Unit Area Map of Phase II Drilling Program
Attachment 4 ..... Unit Area Map of Phase III Drilling Program
Attachment 5 ..... Schematic Diagram--7" Casing Producing Well
Attachment 6 ..... Schematic Diagram--7" Casing Producing Well with Intermediate Casing
Attachment 7 ..... Schematic Diagram--5-1/2" Casing Producing Well
Attachment 8 ..... Schematic Diagram--5-1/2" Casing Injection Well
Attachment 9 ..... Schematic Diagram--5-1/2" Casing Injection Well with Intermediate Casing
Attachment 10 ..... Schematic Diagram--4-1/2" Casing Injection Well

MECHANICAL PROGRAM

Attachment 1 ..... Satellite Stations and Oil Gathering System
Attachment 2 ..... Water Supply System
Attachment 3 ..... Water Injection System

INVESTMENTS AND COSTS

Attachment 1 ..... Authorization Schedule
Attachment 2 ..... Expenditure Schedule
Attachment 3 ..... Cost Estimate--Phase I Drilling Program
Attachment 4 ..... Cost Estimate--Phase I Central Tank Battery
Attachment 5 ... Cost Estimate--Phase I Satellite Stations Nos. 3 and 6 Flow Lines and Oil Gathering System
Attachment 6 ..... Cost Estimate--Phase I Automated Supervisory System
Attachment 7 ..... Cost Estimate--Phase I Lift Equipment Additions
Attachment 8 ..... Cost Estimate--Phase I Water Injection System
Attachment 9 ..... Cost Estimate--Water Supply System
Attachment 10 ..... Operating Cost Forecast

FORECASTS AND ECONOMICS

Attachment 1 ..... Production Forecast--Tabulation
Attachment 2 ..... Production Forecast--Graphical
Attachment 3 ..... Cumulative Cash Flow--Project Economics

WATER SUPPLY

PROPOSED PROJECT RULES

SCHEDULE

The development schedule in regard to infill drilling of producing and injection wells and the anticipated resulting oil production and allowable is attached.

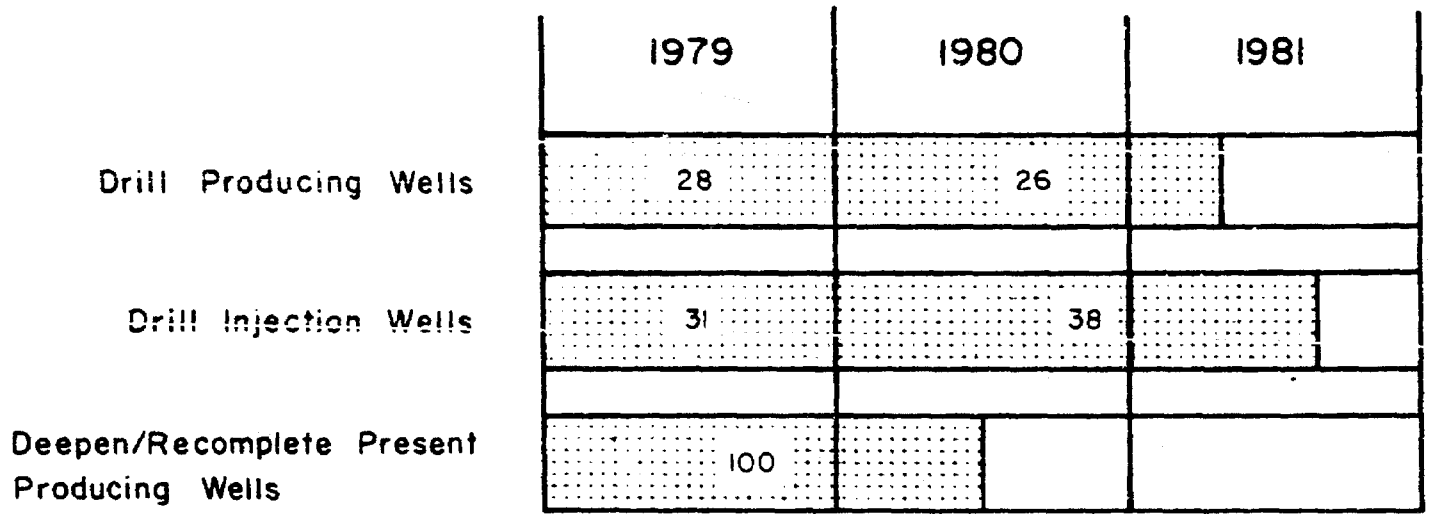
The Unit Agreement has received preliminary approval of the New Mexico Commissioner of Public Lands and the Unit and Unit Operating Agreements have been distributed for working interest ratification.

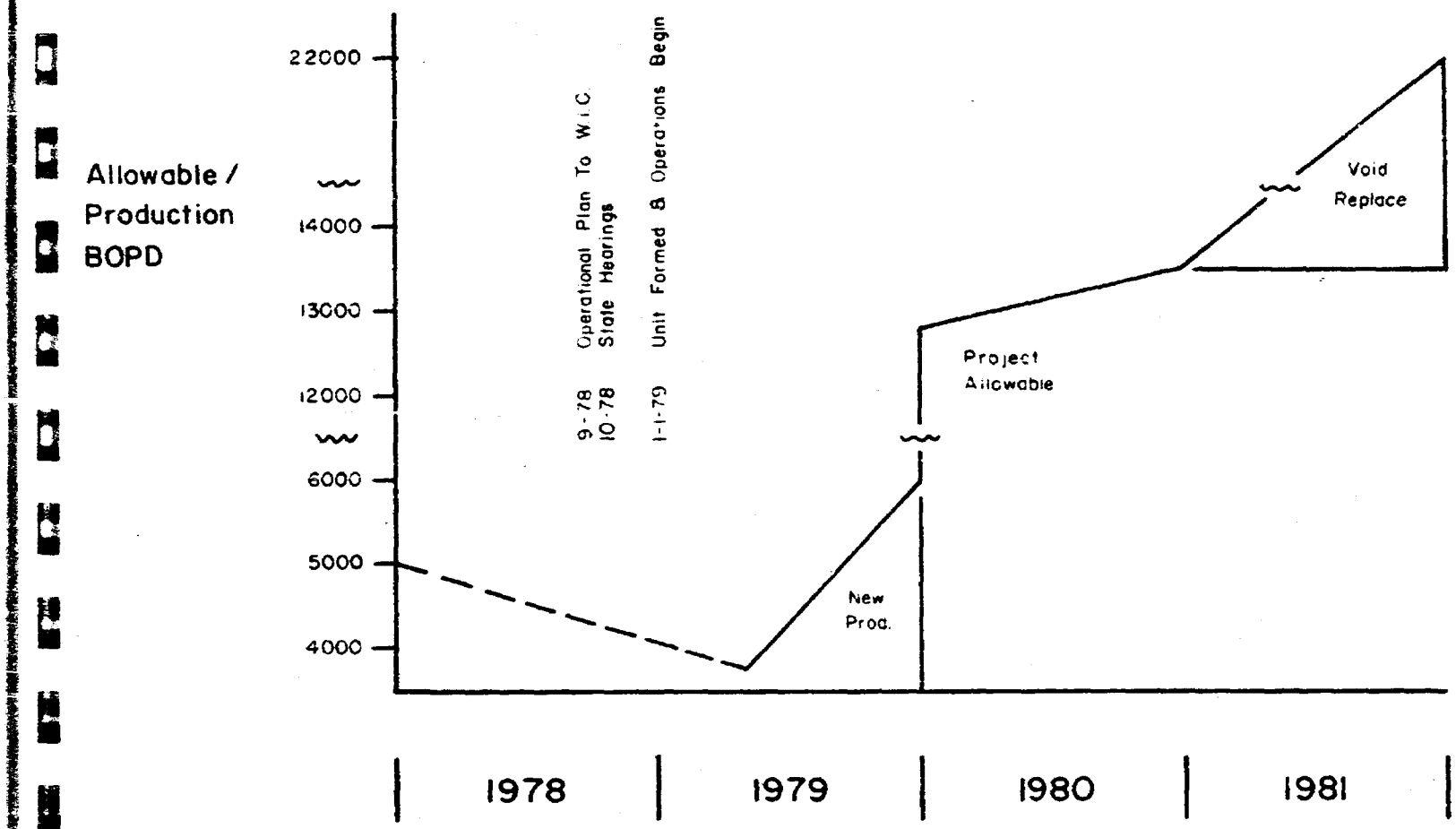
New Mexico Oil Conservation Division hearings for Unitization and the Pressure Maintenance Project are scheduled for October 25, 1978.

Drilling and construction operations will commence immediately upon unitization.

Attachment 1

EAST VACUUM GRAYBURG-SAN ANDRES UNIT
SCHEDULE BASED ON UNIT FORMED 1-1-79





September, 1978

DRILLING PROGRAM

Drilling Wells

The drilling program will be completed in three phases as discussed in the introduction. Phase I is the initial development involving drilling of ten wells located in the area of the unit containing the better quality reservoir rock. These wells will be used primarily for reservoir evaluation which will include coring, complete open-hole logging, and extensive testing. These wells will be placed on production subject to allowable limitations. The desired locations of these wells are shown on Attachment 2. (Attachment 1 shows the current Grayburg-San Andres completions.) Specific locations and well numbers will be provided upon staking.

The Phase II drilling program will consist of the drilling of 18 producing wells and 31 injection wells in 1979, located as shown on Attachment 3. The completion of the injection wells will coincide with installation of the water injection system so that by the end of 1979 pressured water injection can begin. Non-pressured water will be injected during 1979. Injection of water will develop a project allowable area comprising in excess of 90 percent of the unit area by the end of 1979.

The Phase III drilling involves the drilling of 26 producing wells, 28 injection wells and 10 line agreement injection wells in 1980 as shown on Attachment 4. The line agreement injection wells are included for use in generating investment costs and economics. Specific line agreements will be initiated after formation of the unit. The 1980 injection wells will essentially complete the project area development.

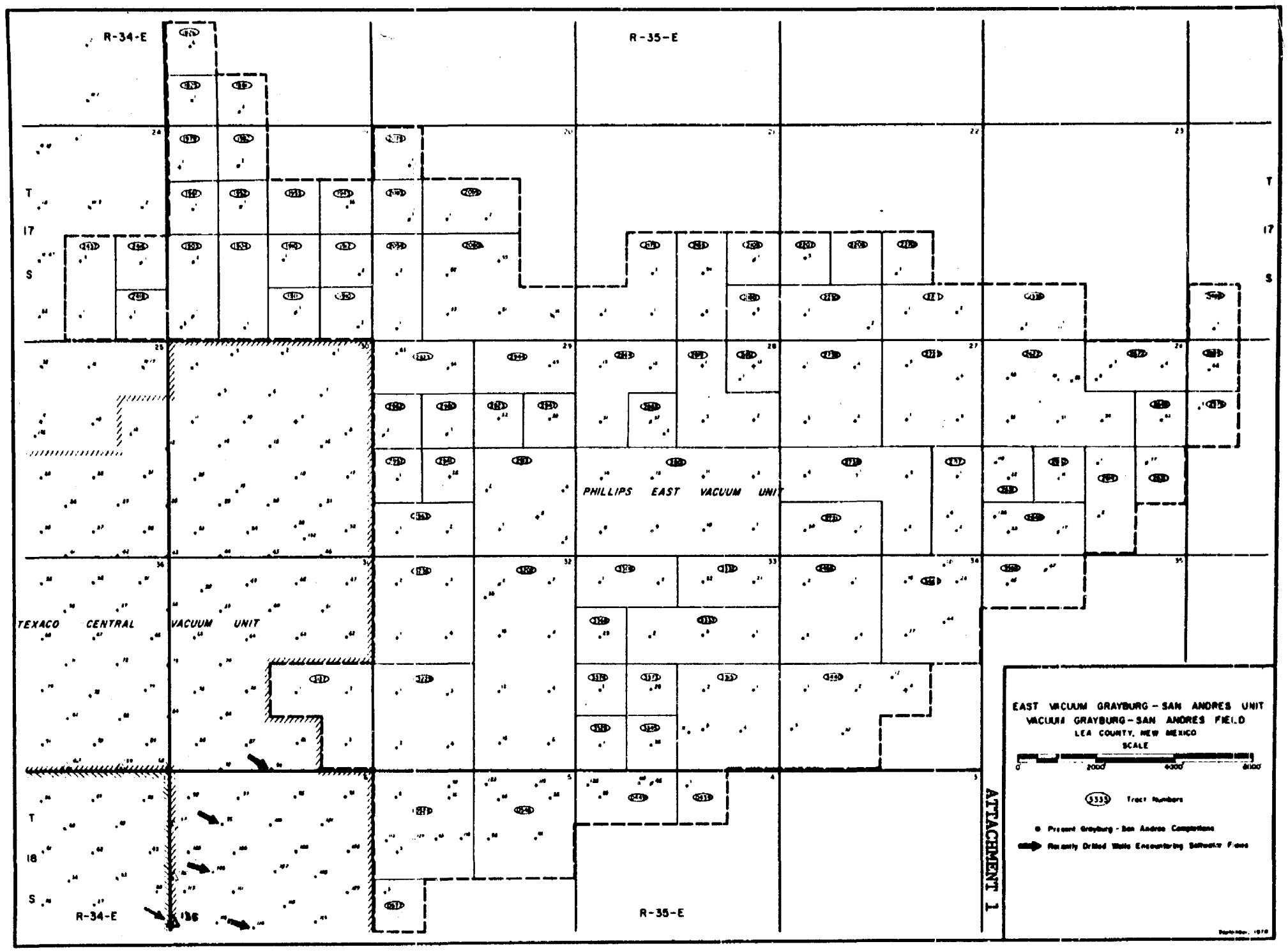
Subsequent development will consist of converting the newly drilled producing wells to injection service to develop a waterflood pattern. The specific waterflood patterns will be based on the results obtained in drilling, evaluation, production, and injection.

Casing Program

The two basic premises used in determining casing sizes for the wells to be drilled were obtaining maximum production and injection volumes and

establishing protection should abnormally pressured salt water flows be encountered. In the area of the unit containing the better quality rock, 7-inch casing will be run in the producing wells and 5-1/2 inch casing will be run in the injection wells. This area is outlined on Attachments 3 and 4. The wells outside this area will have 5-1/2 inch casing for producers and 4-1/2 inch casing for injectors.

There is a possibility that abnormal pressured salt water flows will occur during drilling operations. As shown on Attachment 1, Texaco has encountered this water flow during recent drilling in their Central Vacuum Grayburg-San Andres Unit. The initial 7-inch casing production wells drilled in East Vacuum will have 13-3/8 inch surface casing. If a significant water flow is encountered, 9-5/8 inch intermediate casing will be set below the salt interval. As drilling across the unit progresses and the salt water flow is not encountered in all portions of the unit, the 13-3/8 inch surface casing will be replaced with either 8-5/8 inch or 9-5/8 inch depending on the production casing required. Salt water flows, significant enough to retard drilling or alter completion, are anticipated in less than ten percent of the wells drilled. Based on this expectation, the 9-5/8 inch intermediate casing is not included in the drilling well cost estimate. Should the flow be more prevalent than anticipated, revision of these costs will be required. Attachments 5 through 10 are schematic diagrams of several types of well completions.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PHILLIPS EAST VACUUM UNIT
TEXACO CENTRAL VACUUM UNIT
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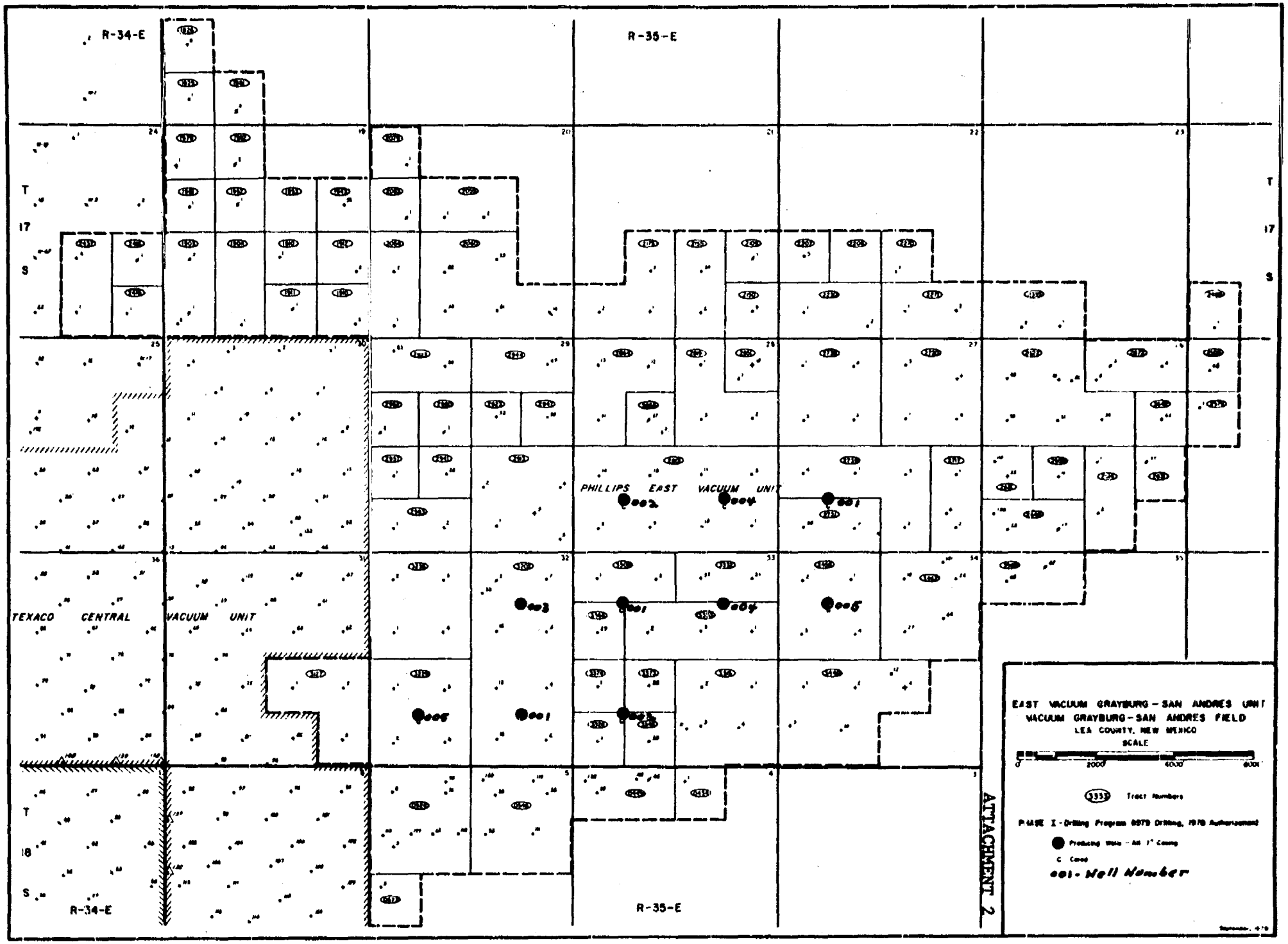
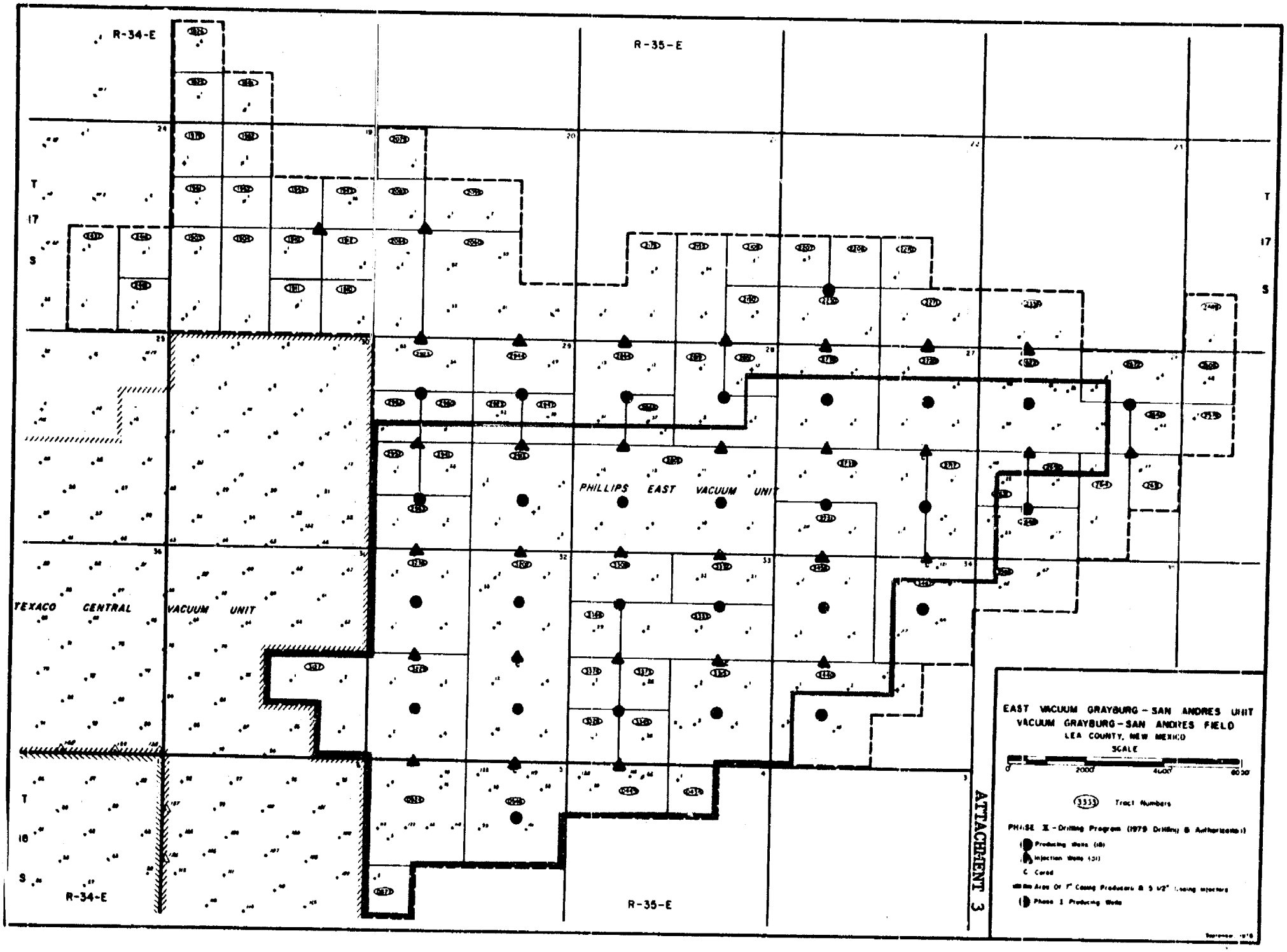
ATTACHMENT 1
EAST VACUUM GRAYBURG - SAN ANDRES UNIT
VACUUM GRAYBURG - SAN ANDRES FIELD
LEA COUNTY, NEW MEXICO
SCALE
0
2000
4000
6000
Tract Numbers
Present Grayburg - San Andres Completions
Recently Drilled Wells Encountering Saltwater Flows



ATTACHMENT 2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TEXACO CENTRAL VACUUM UNIT
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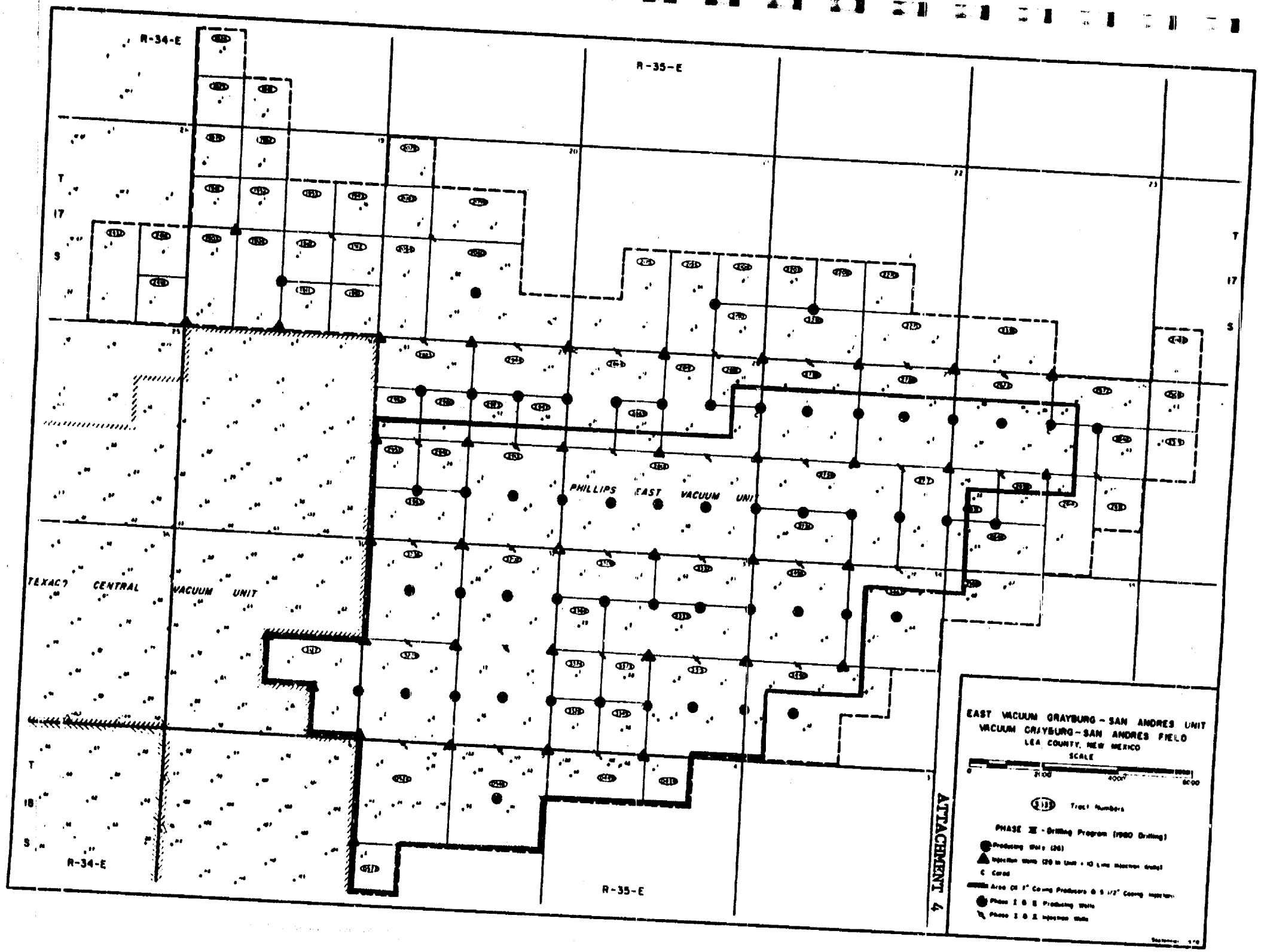
ATTACHMENT 3
EAST VACUUM GRAYBURG - SAN ANDRES UNIT
VACUUM GRAYBURG - SAN ANDRES FIELD
LEA COUNTY, NEW MEXICO
SCALE
0
2000
4000
6000
3333 Tract Numbers
PHASE II - Drilling Program (1979 Drilling & Authorization)
Producing Wells (18)
Injection Wells (13)
C Cored
Phase I Producing Wells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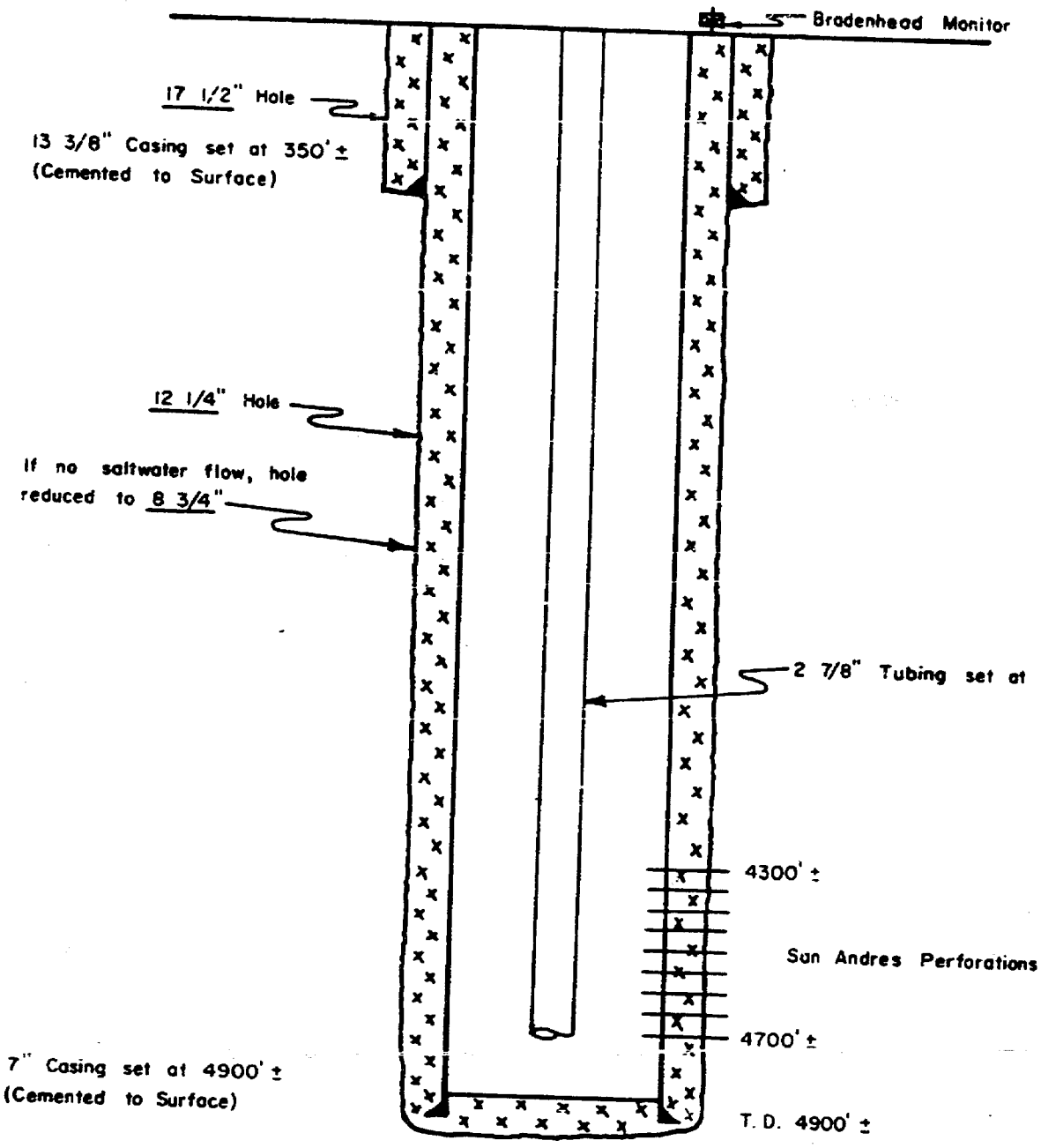
ATTACHMENT 4
EAST VACUUM GRAYBURG - SAN ANDRES UNIT
VACUUM GRAYBURG - SAN ANDRES FIELD
LEA COUNTY, NEW MEXICO
SCALE
Tract Numbers
PHASE III - Drilling Program (1980 Drilling)
C Cored

ATTACHMENT 5

EAST VACUUM GRAYBURG-SAN ANDRES UNIT

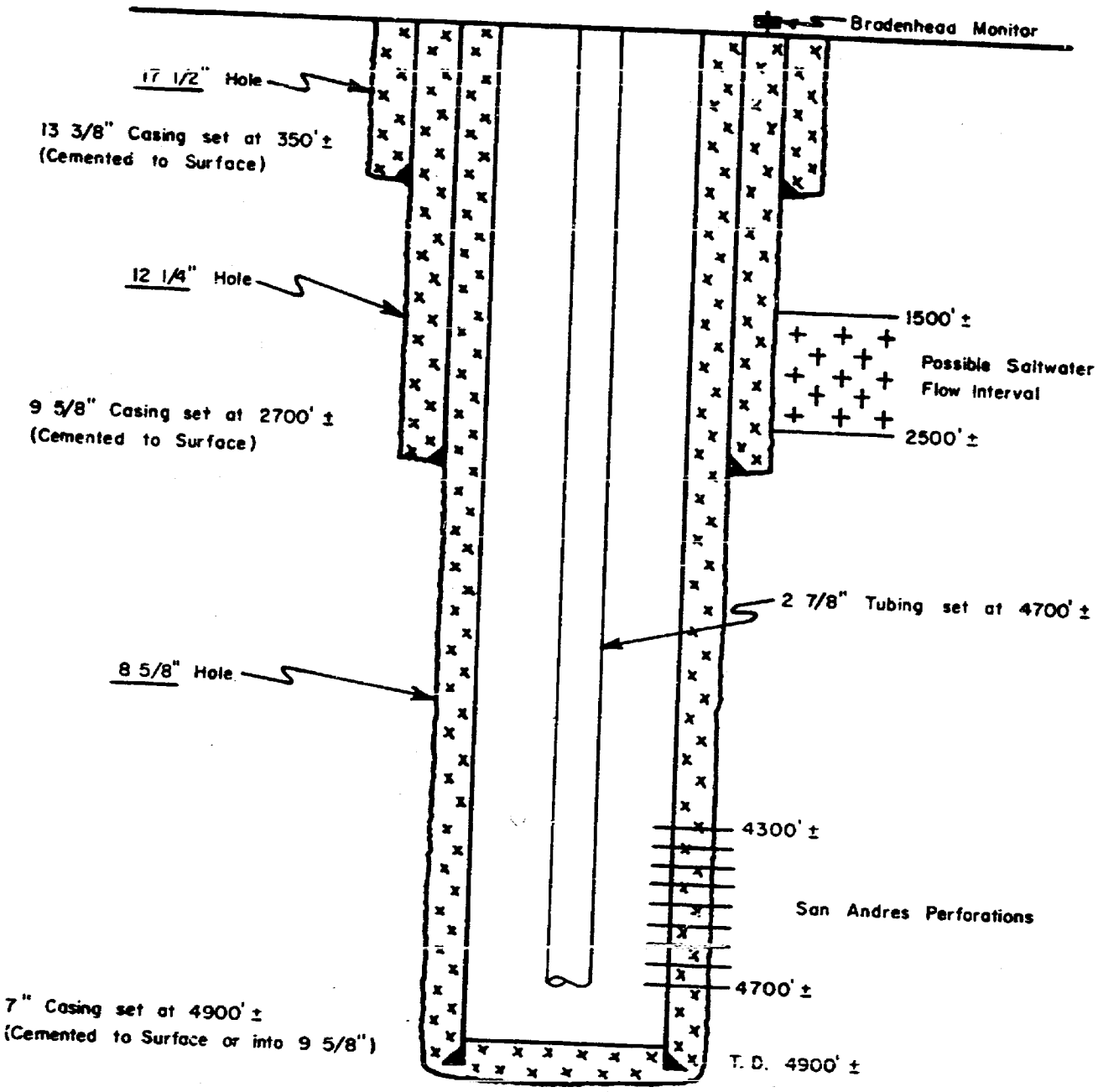


SCHEMATIC COMPLETION DIAGRAM

7" Producing Well

ATTACHMENT 6

EAST VACUUM GRAYBURG-SAN ANDRES UNIT

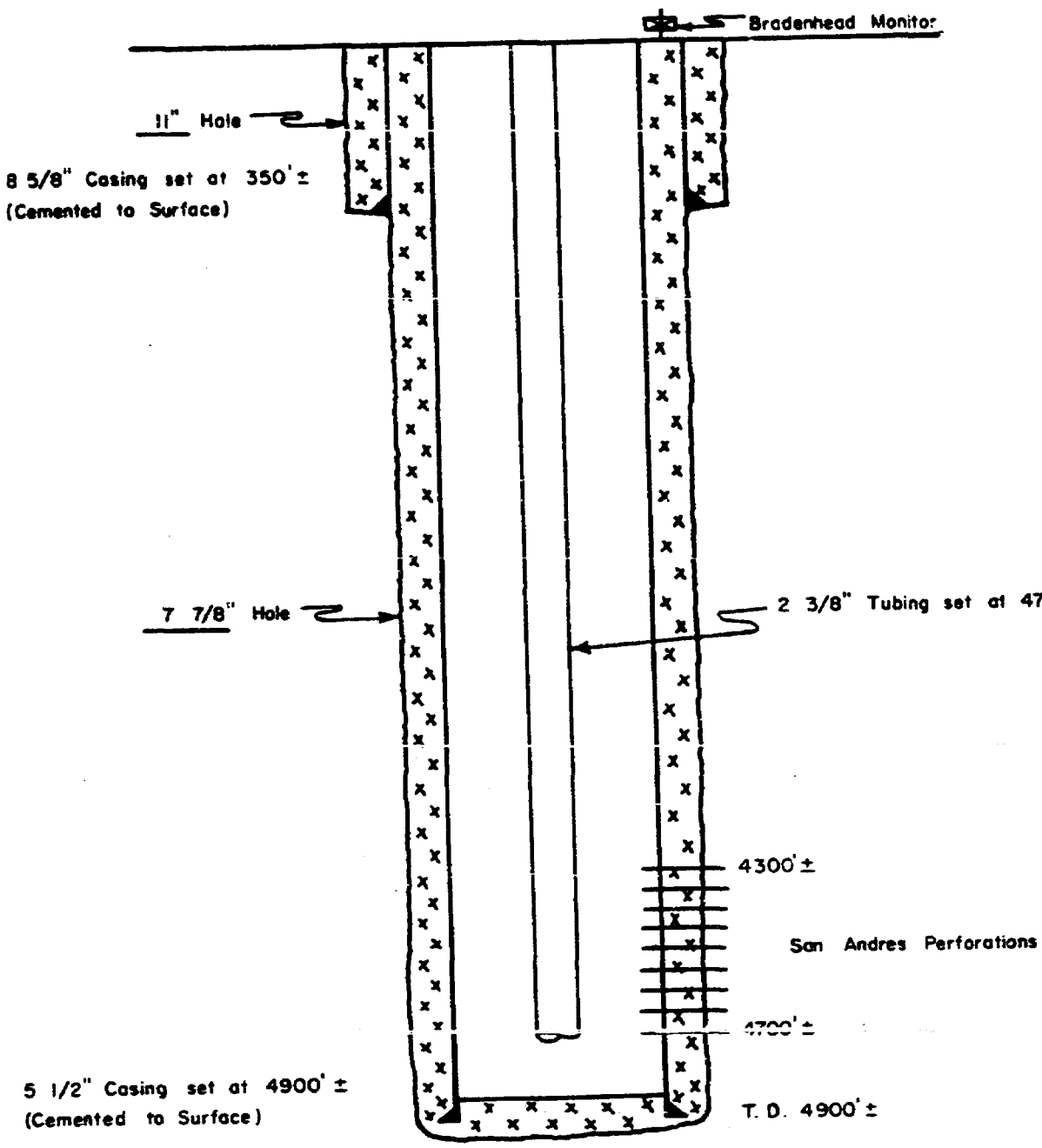


SCHEMATIC COMPLETION DIAGRAM

7" Producing Well With 9 5/8" Intermediate Casing

ATTACHMENT 7

EAST VACUUM GRAYBURG-SAN ANDRES UNIT

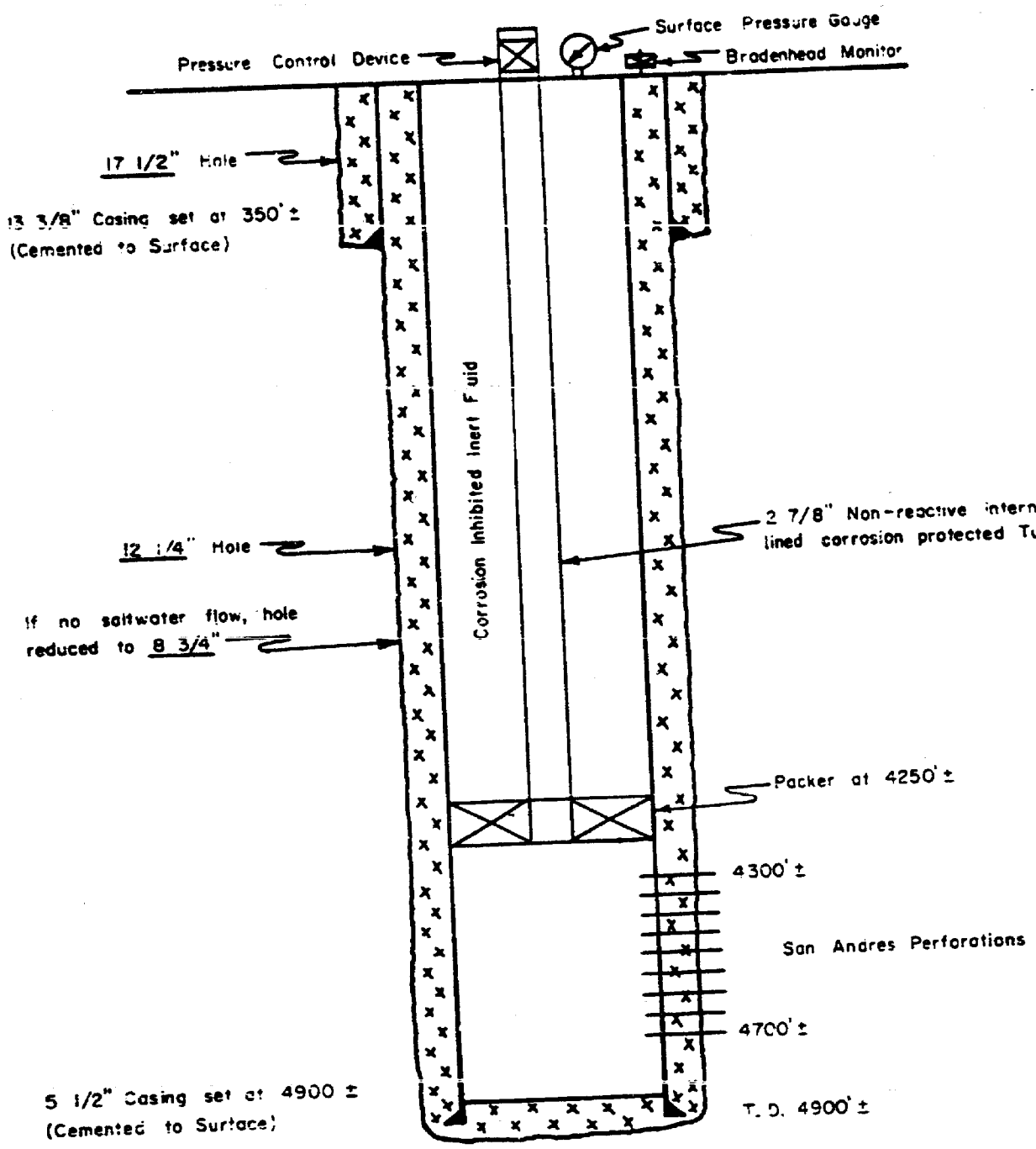


SCHEMATIC COMPLETION DIAGRAM

5 1/2" Producing Well

ATTACHMENT 8

EAST VACUUM GRAYBURG-SAN ANDRES UNIT

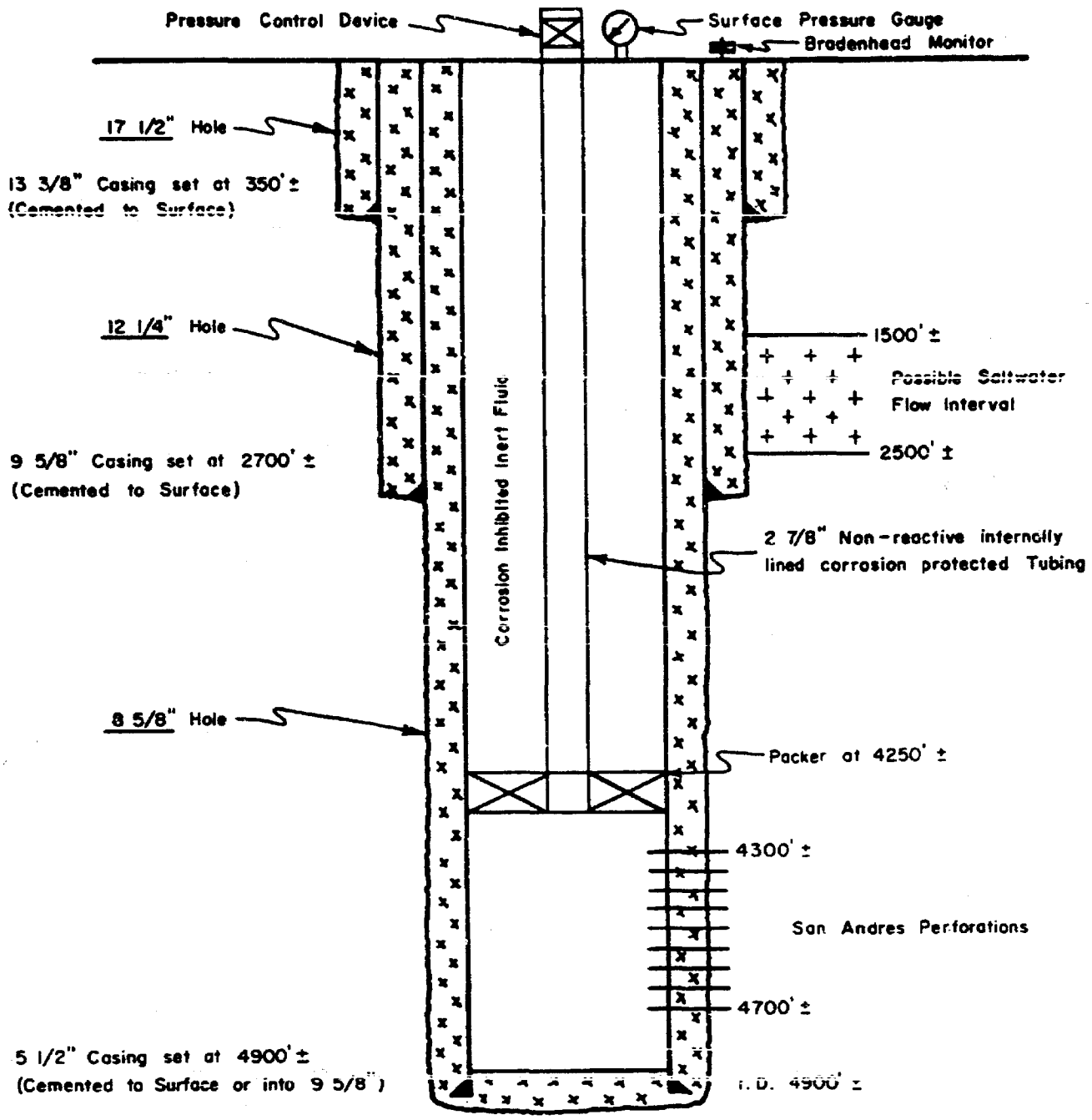


SCHEMATIC COMPLETION DIAGRAM

5 1/2" Injection Well

ATTACHMENT 9

EAST VACUUM GRAYBURG – SAN ANDRES UNIT

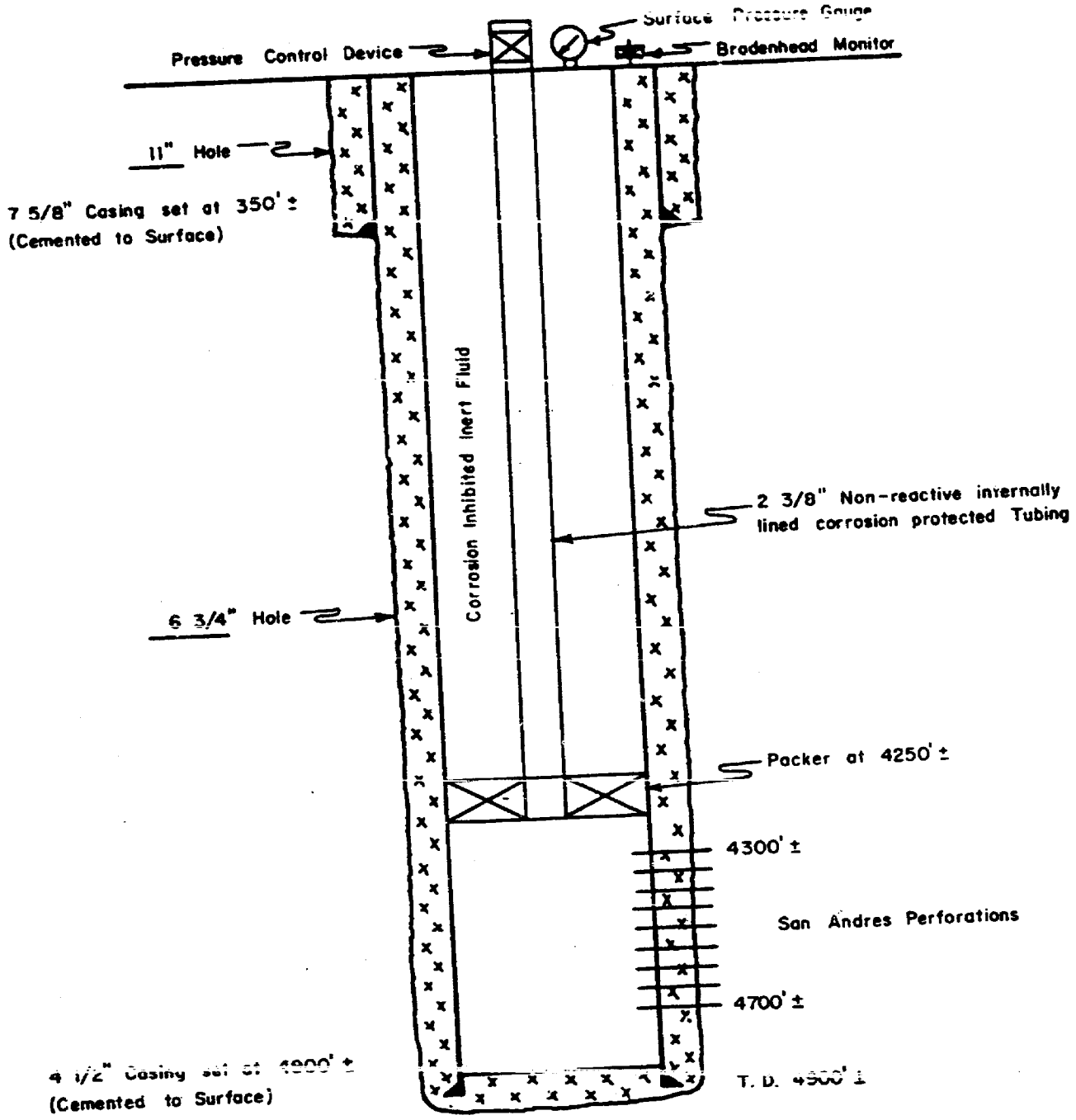


SCHEMATIC COMPLETION DIAGRAM

5 1/2" Injection Well With 9 5/8" Intermediate Casing

ATTACHMENT 10

EAST VACUUM GRAYBURG-SAN ANDRES UNIT



SCHEMATIC COMPLETION DIAGRAM

4 1/2" Injection Well

MECHANICAL PROGRAM

Producing Wells

The number of producing wells in the East Vacuum Grayburg-San Andres Unit will peak at approximately 216 at the end of 1980. The forecasted fluid production from each of these wells ranges from 1,735 barrels per day in the southern portion of the unit to eight barrels per day in the northwestern portion of the unit. Pumping equipment for these wells will be either beam type with electric prime movers or electric submersible multistage pumps. Two inch, 2-1/2 inch, and 3-1/2 inch steel flow lines will be used to keep maximum casing pressure below 50 psig. Some of the flow lines will be internally plastic-coated to reduce paraffin deposition.

Satellite Stations

Six satellite stations, as shown on Attachment 1, will be constructed to handle an average of 36 producing wells each. At the satellite stations, the wells will be tested using a pneumatically-operated well test manifold, vertical test separators, and net oil computers. Gas will be measured from each test separator using turbine meters. Control of well test sequencing and read-out will be through an automated supervisory system. Production from wells not on test will pass through a two-phase separator to remove the free gas. The free gas from the separators will be metered and sold at the satellite stations. Produced liquids will be pumped through an epoxy-fiberglass oil gathering system to a central tank battery for crude dehydration.

Central Tank Battery

Oil Handling Facilities

Fluid production into the central tank battery is expected to peak at 70,000 barrels of water per day and 24,000 barrels of oil per day. Produced liquids will enter the central tank battery through a production header system which will split the flow from the satellite stations into two free water knockouts. The produced water from the free water knockouts will be sent to a produced water skim tank. The oil will flow from

the free water knockouts to two heated treaters connected in parallel which will treat the crude oil to pipeline quality using waste heat recovered from the exhaust of the water injection pump prime movers. An auxiliary gas fired heater will be used to maintain correct treater operating temperatures when the injection pump prime movers are not running. A gas fired heater-treater will also be located in the central tank battery for treating "bad oil" sent to it from oil storage by the circulating pump. The gas fired treater will also be able to handle half of the total oil production should a heated treater be shut down for repairs.

The treated crude oil will flow from the treaters to a 10,000-barrel surge tank and then to a 5,000-barrel sales tank from which the oil will be sold through a Lease Automatic Custody Transfer Unit. A 10,000-barrel emergency oil storage tank will also be located in the central tank battery.

Water Station

Water from the treaters will flow to a 10,000-barrel produced water skim tank and then to a 10,000-barrel produced water suction tank in the injection station portion of the central tank battery. Fresh make-up water will be supplied to a 10,000-barrel fresh water suction tank through a fresh water gathering system. A dual header system will supply either fresh or produced water to each of four electric motor driven charging pumps. Each charging pump will supply water at the rate of 25,000 barrels per day at 60 psig to one of four multistage, split-case centrifugal injection pumps, each of which will be driven by a 1,000 horsepower gas turbine engine. Each injection pump will have a capacity of 25,000 barrels of water per day at 1,700 psig. A dual high pressure discharge header will be located downstream of the injection pumps to allow the produced and fresh injection waters to be kept separate and directed to wells in specific sections of the unit.

Water Supply System

The fresh water supply system, as shown on Attachment 2, will include eight water supply wells pumped with oil-lubricated, shaft-driven, multistage

vertical turbine pumps with electric prime movers. Cyclone desanding equipment and water meters will be provided at each well site. A plastic fresh water gathering system will deliver the fresh water from the wells to the central tank battery. The entire water supply system will be installed in Phase I.

Water Injection System

The water injection system, Attachment 3, will be of coated, wrapped, and buried cement-lined steel pipe. The system is designed such that the maximum pressure drop between the central tank battery and the injection wells will be 100 psig.

The number of injection wells is expected to peak at approximately 120 with the conversion of producing wells. Wells originally drilled and completed as injection wells will have either 2-3/8 inch or 2-7/8 inch lined injection tubing and 4-1/2 inch or 5-1/2 inch casing, respectively, depending on required injection rates. The wells will be equipped with water injection rate and pressure controllers which will control injection at either a preset rate or wellhead injection pressure.

Supervisory System

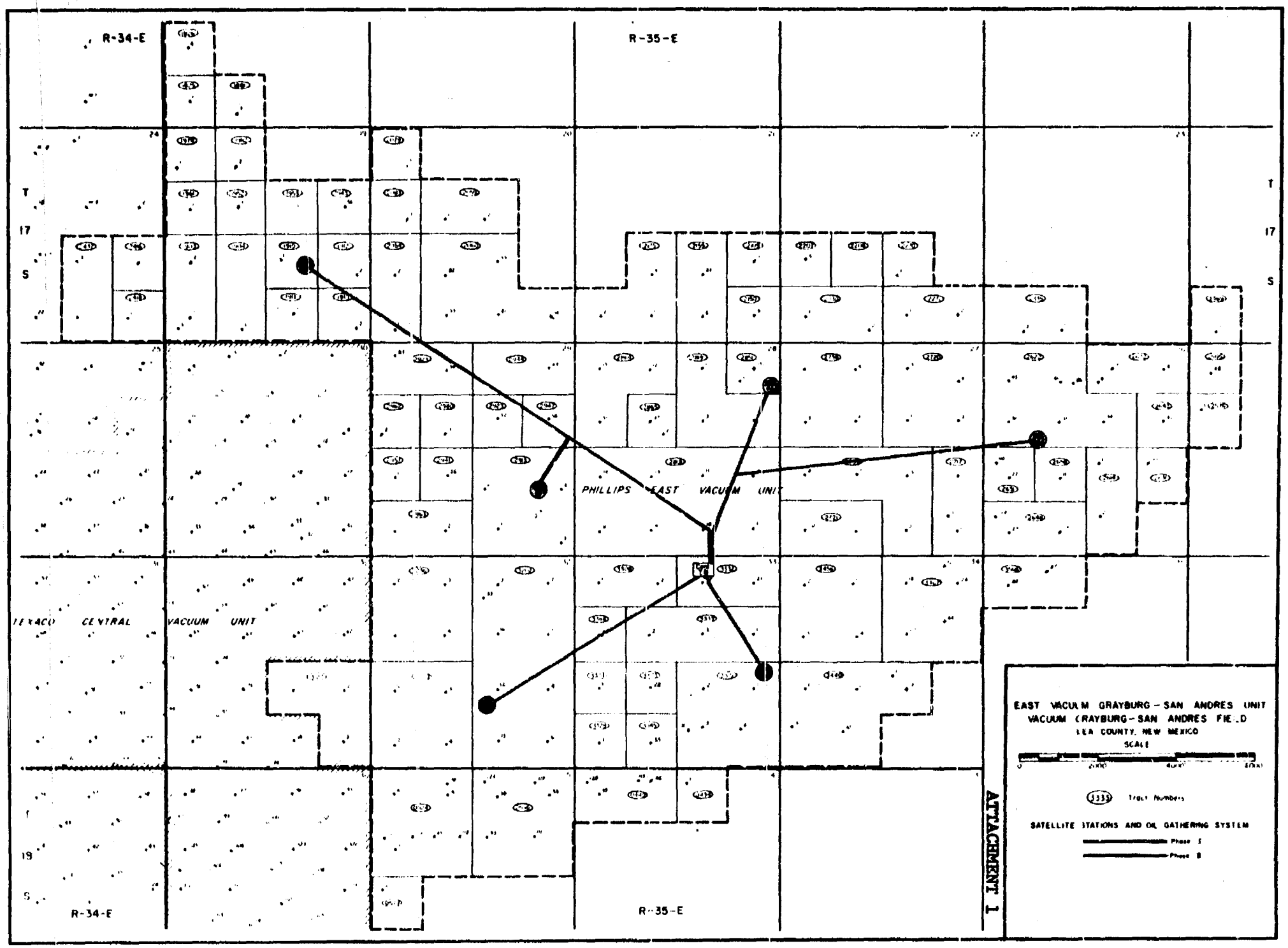
The automated supervisory system will function as a data acquisition system with status and alarm sending capabilities rather than as a control system. The supervisory system will only control well test sequences and duration of well tests at the satellite stations. Individual pump-off controllers will be installed at the beam pumped wells. The supervisory system will monitor signals at the production wells in order to facilitate prompt repairs in event of electrical power failures, rod failures, flow line plugging, etc.

A central computer will be installed to scan producing and injection wells, satellite stations, well tests, and central tank battery facilities through remote terminal units. The central computer will also perform routine calculations on well test and injection data, check results for possible error or alarm indications, and store or print well test results and alarms on their respective printers. Remote terminal units will control the well test

functions at each satellite station and will have "stand-alone" capabilities for start-up and emergency use when the central data facilities are down.

Development-Authorization

Equipment and installation of the water supply system, a portion of the central tank battery and water injection system, satellite stations (Nos. 3 and 6), and associated automation are included in Phase I. The completion of these installations will be included in Phase II. A minimum amount of lift equipment additions is in Phase I with the major expenditures in Phases II and III.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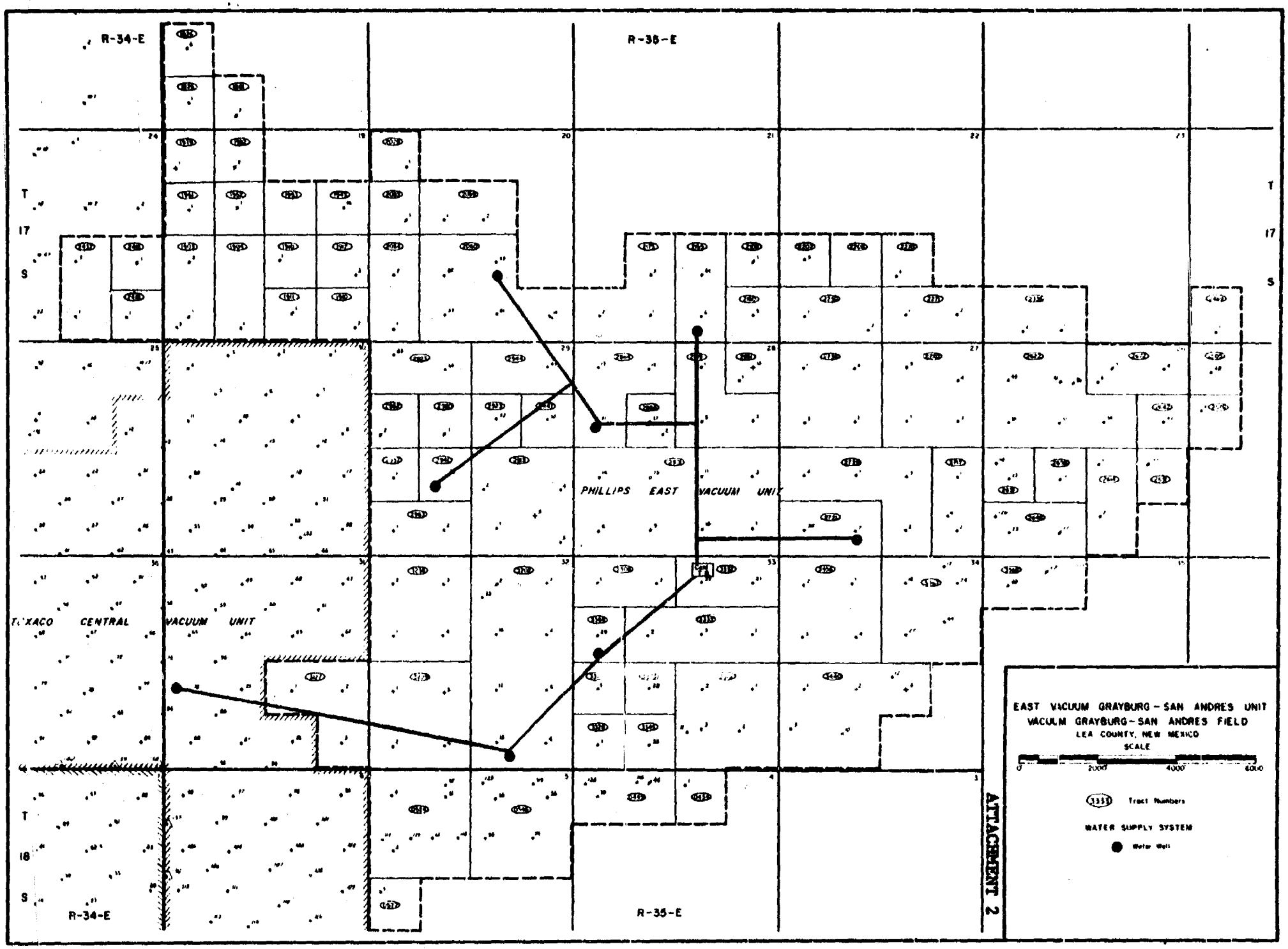
R-35-E
ATTACHMENT 1
EAST VACUUM GRAYBURG - SAN ANDRES UNIT
VACUUM GRAYBURG - SAN ANDRES FIELD
LEA COUNTY, NEW MEXICO
SCALE
0
2000
4000'
6000
Tract Numbers
SATELLITE STATIONS AND OIL GATHERING SYSTEM
Phase I
Phase II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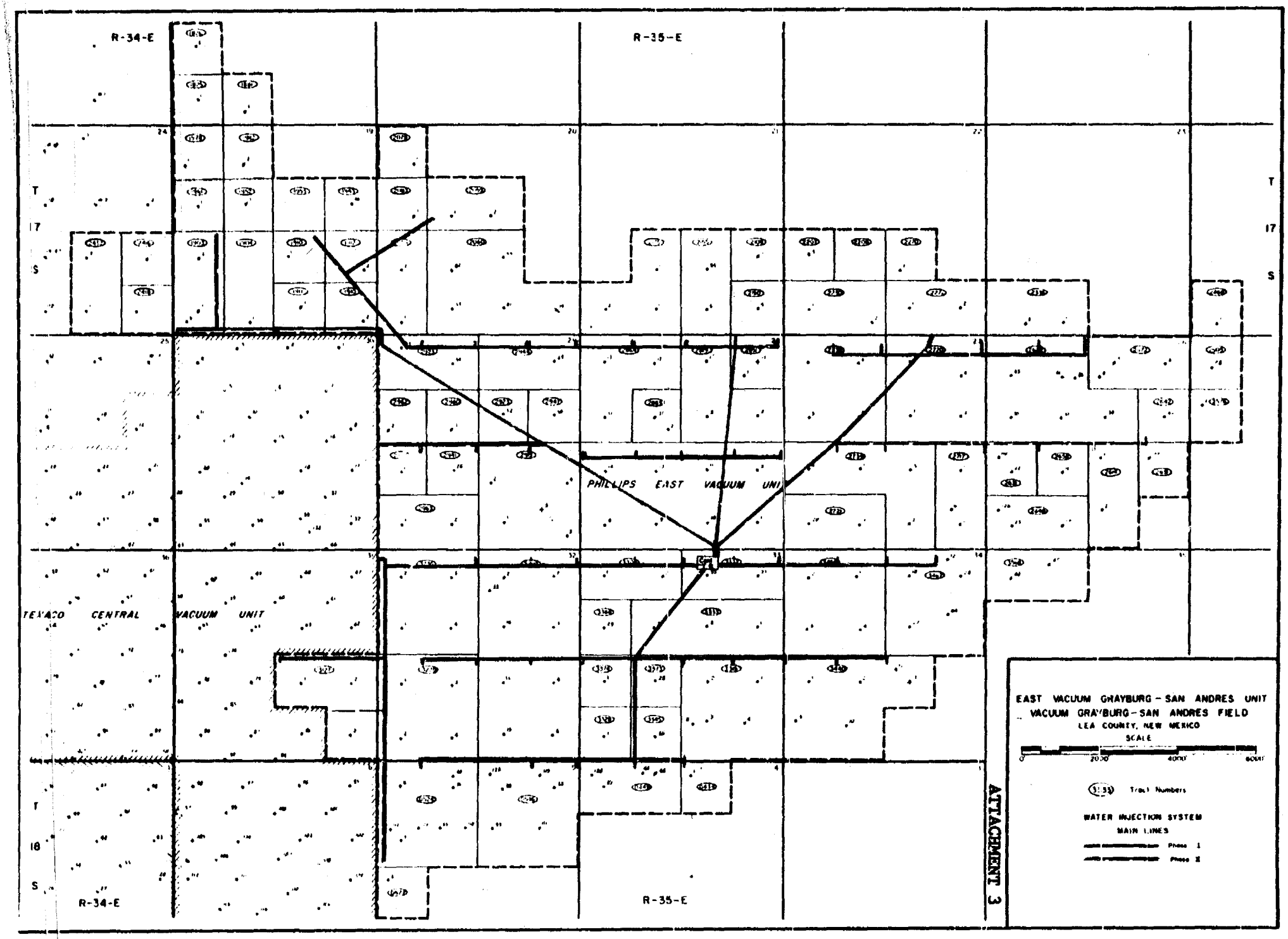
R-35-E
ATTACHMENT 2
EAST VACUUM GRAYBURG - SAN ANDRES UNIT
VACULM GRAYBURG - SAN ANDRES FIELD
LEA COUNTY, NEW MEXICO
SCALE
0
2000
4000
6000
Tract Numbers
WATER SUPPLY SYSTEM
Water Well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R-35-E
EAST VACUUM GRAYBURG - SAN ANDRES UNIT
VACUUM GRAYBURG - SAN ANDRES FIELD
LEA COUNTY, NEW MEXICO
SCALE
0
2000
4000
6000
Tract Numbers
WATER INJECTION SYSTEM
MAIN LINES
Phase I
Phase II
ATTACHMENT 3

INVESTMENTS AND COSTS

Investments

As discussed previously, a three-phase investment authorization schedule is presented and shown on Attachment 1. The three phases are:

Phase I: Initial development including the drilling of ten producing wells for formation evaluation and production as applicable and installation of facilities for initial development. Approval for this phase is requested by the accompanying ballot.

Phase II: Authorization for the remaining 1979 expenditures. Approvals will be solicited for this phase shortly after the effective date of unitization.

Phase III: Expenditures for 1980 development. Approval will be requested during the last half of 1979.

Attachment 2 is the expenditure schedule from which the following section's economics were developed. In addition to the footnote on Attachments 1 and 2 in regard to well deepening, it should be pointed out that the expenditures shown for Line Agreement injection wells are included to show the investments involved. Specific line agreements will be initiated after unitization.

Attachments 3 through 9 are detailed cost estimates for the Phase I expenditures.

Costs

Attachment 10 is the operating cost forecast used in the economics presented in the following section.

AUTHORIZATION SCHEDULE

	Phase I - 1978			Phase II - 1979			Phase III - 1980			Total
	Tangibles	Intangibles	Total	Tangibles	Intangibles	Total	Tangibles	Intangibles	Total	
Producing Wells (10)	$ 728,000	$2,311,000	$3,039,000							$ 3,039,000
Producing Wells (18)				$1,137,000	$ 2,695,000	$ 3,832,000				3,832,000
Producing Wells (26)							$1,929,000	$ 4,444,000	$ 6,373,000	6,373,000
Injection Wells (31)				1,481,000	4,910,000	6,391,000				6,391,000
Injection Wells (28)							1,391,000	4,502,000	5,893,000	5,893,000
Line Agreement Injection Wells (10)							489,000	1,488,000	1,977,000	1,977,000
Central Tank Battery	1,488,000	264,000	1,752,000	773,000	137,000	910,000				2,662,000
Satellite Stations	1,061,000	437,000	1,498,000	1,665,000	808,000	2,473,000				3,971,000
Automation	890,000	445,000	1,335,000	932,000	466,000	1,398,000				2,733,000
Life Equipment Additions	180,000	20,000	200,000	2,280,000	252,000	2,532,000	1,906,000	148,000	2,054,000	4,786,000
Well Deepening*				1,000,000	1,000,000	2,000,000	1,100,000	1,100,000	2,200,000	4,200,000
Water Injection System	275,000	475,000	750,000	270,000	466,000	736,000				1,486,000
Water Supply System	317,000	558,000	875,000							875,000
Total	$4,939,000	$4,510,000	$9,449,000	$9,538,000	$10,734,000	$20,272,000	$6,815,000	$11,682,000	$18,497,000	$48,218,000

Escalations: 7-10 percent per year.

* Includes remedial work on current producers and costs for re-plugging wells to satisfy current plugging regulations. These costs are shown in the Total Expenditure Schedule, but will be spent for specific wells for which approvals will be solicited. The "expense" portion will probably comprise more of the total cost than shown.

ATTACHMENT 1

EXPENDITURE SCHEDULE

	1979			1980			
	Tangibles	Intangibles	Total	Tangibles	Intangibles	Total	Total
Producing Wells (28)	$ 1,865,000	$ 5,006,000	$ 6,871,000				$ 6,871,000
Producing Wells (26)				$1,929,000	$ 4,444,000	$ 6,373,000	6,373,000
Injection Wells (31)	1,481,000	4,910,000	6,391,000				6,391,000
Injection Wells (28)				1,391,000	4,502,000	5,893,000	5,893,000
Line Agreement Injection Wells (10)				489,000	1,488,000	1,977,000	1,977,000
Central Tank Battery	2,261,000	401,000	2,662,000				2,662,000
Satellite Stations	2,726,000	1,245,000	3,971,000				3,971,000
Automation	1,822,000	911,000	2,733,000				2,733,000
Lift Equipment Additions	2,460,000	272,000	2,732,000	1,906,000	148,000	2,054,000	4,786,000
Well Deepening*	1,000,000	1,000,000	2,000,000	1,100,000	1,100,000	2,200,000	4,200,000
Water Injection System	545,000	941,000	1,486,000				1,486,000
Water Supply System	317,000	558,000	875,000				875,000
Total	$14,477,000	$15,244,000	$29,721,000	$6,815,000	$11,682,000	$18,497,000	$48,218,000

Escalations: 7-10 percent per year.

* Includes remedial work on current producers and costs for re-plugging wells to satisfy current plugging regulations. These costs are shown in the Total Expenditure Schedule, but will be spent for specific wells for which approvals will be solicited. The "expense" portion will probably comprise more of the total cost than shown.

ATTACHMENT 2

ATTACHMENT 3

PAGE NO. 1 OF 1

PHILLIPS PETROLEUM COMPANY

NRG, North America E.& P.

COST ESTIMATE

J. A. NO._____

A. F. E. NO._____

LOCATION: East Vacuum Grayburg-San Andres Unit, Vacuum Field, Lea County, New Mexico.

DATE September 29, 19 78

DESCRIPTION OF JOB: Phase I--drill ten producing wells for formation evaluation and production as applicable.

UNIT	CLASS	ITEM	DESCRIPTION (SHOW CONDITION OF USED MATERIAL AND EQUIPMENT)	QTY.	UNIT PRICE	TOTAL
			TANGIBLES			
			Wellheads			$ 74,600
			Casing, 13-3/8"			78,600
			Casing, 7"			389,400
			Tubing, 2-7/8"			138,400
			Subsurface pump			37,300
			Miscellaneous			9,700
			Total Tangibles			$ 728,000
			INTANGIBLES			
			Drilling rig			$ 750,200
			Completion rig			181,000
			Coring and analysis			223,600
			Cementing			191,700
			Logging			106,500
			Perforating			26,600
			Stimulation			213,000
			Mud and chemicals			75,600
			Cased-hole DST			183,900
			Location and roads			74,600
			Trucking and transporting			98,000
			Miscellaneous			84,200
			Overhead			15,800
			State tax			86,300
			Total Intangibles			$2,311,000
			TOTAL			$3,039,000

REQUESTED BY JWM J. W. Maharg

ESTIMATE GRADE ____ BY RJR R. J. Roper

CHECKED BY RLL R. L. Loper

APPROVED BY

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ATTACHMENT 4

PAGE NO. 1 OF 1

PHILLIPS PETROLEUM COMPANY

NRG, North America E.& P.

COST ESTIMATE

J. A. NO._____

A. F. E. NO._____

LOCATION: East Vacuum Grayburg-San Andres Unit, Vacuum Field, Lea County, New Mexico.

DATE September 29, 1978

DESCRIPTION OF JOB: Phase I--Central Tank Battery. Install initial portion of production and oil sales equipment plus two water injection pumps and associated equipment.

UNIT	CLASS	ITEM	DESCRIPTION (SHOW CONDITION OF USED MATERIAL AND EQUIPMENT)	QTY.	UNIT PRICE	TOTAL
			TANGIBLES			
			Tanks: 10,000-barrel	4		$ 228,000
			5,000-barrel	1		32,000
			Production and injection headers			55,000
			LACT and vapor recovery units			53,000
			Circulating pump	1		6,000
			Heated free water knockout	1		101,000
			Emergency heater-treater	1		140,000
			Free water knockout--flow splitter	1		73,000
			Waste heat recovery equipment			181,000
			Charging pumps and motors	2		15,000
			Produced water transfer pump	1		8,000
			Water injection pumps and turbines	2		474,000
			Air compressor and dryer	1		7,000
			Motor starters and wiring			8,000
			Piping, fittings, cement pads, etc.			98,000
			Office			9,000
			Total Tangibles			$1,488,000
			INTANGIBLES			
			Lining of pipe and fittings			$ 4,000
			Construction labor			43,000
			Pit construction			164,000
			Trucking			2,000
			Miscellaneous			13,000
			Overhead			38,000
			Total Intangibles			$ 264,000
			TOTAL			$1,752,000

REQUESTED BY Jon J. W. Maharg

ESTIMATE GRADE ____ BY FGS F. G. Schuman

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ATTACHMENT 5
PAGE NO. 1 OF 1

PHILLIPS PETROLEUM COMPANY

NRG, North America E.& P.

COST ESTIMATE

J. A. NO._____

A. F. E. NO._____

LOCATION: East Vacuum Grayburg-San Andres Unit, Vacuum Field, Lea County, New Mexico.

DATE September 29, 19 78

DESCRIPTION OF JOB: Phase I--install Satellites Nos. 3 and 6 and associated oil gathering system and flow lines.

UNIT	CLASS	ITEM	DESCRIPTION (SHOW CONDITION OF USED MATERIAL AND EQUIPMENT)	QTY.	UNIT PRICE	TOTAL
			TANGIBLES			
			Remote control well test headers			$ 106,000
			Separators	19		103,000
			Net oil computers	15		96,000
			Transfer pumps	4		21,000
			Air compressors and dryers	2		13,000
			Motor starters	6		6,000
			Miscellaneous meters, valves, fittings, and line pipe			150,000
			Miscellaneous cement pads and supports			6,000
			Flow lines: 2", 2-1/2", and 3-1/2" sizes			429,000
			Epoxy-fiberglass oil gathering pipe, 10" and 12"			131,000
			Total Tangibles			$1,061,000
			INTANGIBLES			
			Install oil gathering system			$ 134,000
			Internally coat flow lines for paraffin control			127,000
			Lay flow lines			50,000
			Prepare satellite locations and right-of-way, damages			3,000
			Trucking			10,000
			Satellite construction labor			71,000
			Miscellaneous			10,000
			Overhead			32,000
			Total Intangibles			$ 437,000
			TOTAL			$1,498,000

REQUESTED BY J. W. Maharg

ESTIMATE GRADE BY F. G. Schuman

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ATTACHMENT 6
PAGE NO. 1 OF 1

PHILLIPS PETROLEUM COMPANY

NRG. North America E.& P.

COST ESTIMATE

J. A. NO.

A. F. E. NO.

LOCATION: East Vacuum Grayburg-San Andres Unit, Vacuum Field, Lea County, New Mexico.

DATE September 29, 19 78

DESCRIPTION OF JOB: Phase I--install automated supervisory system for the central tank battery, water supply system, Satellites 3 and 6, and associated wells.

UNIT	CLASS	ITEM	DESCRIPTION (SHOW CONDITION OF USED MATERIAL AND EQUIPMENT)	QTY.	UNIT PRICE	TOTAL
			TANGIBLES			
			Pump off controllers and well site monitors	129		$ 649,000
			Water supply system monitors and transmitters			54,000
			Satellite subsystems (well test controls, etc.)	2		68,000
			Central tank battery and command facilities (monitors, minicomputer, alarms, etc.)			119,000
			Total Tangibles			$ 890,000
			INTANGIBLES			
			Software, installation and debugging			$ 416,000
			Overhead			29,000
			Total Intangibles			$ 445,000
			TOTAL			$1,335,000

REQUESTED BY J. W. Maharg

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ATTACHMENT 7

PAGE NO. 1 OF 1

PHILLIPS PETROLEUM COMPANY

NRG, North America E.& P.

COST ESTIMATE

J. A. NO._____

A. F. E. NO._____

LOCATION: East Vacuum Grayburg-San Andres Unit, Vacuum Field, Lea County, New Mexico.

DATE September 29, 1978

DESCRIPTION OF JOB: Phase I--install additional lift equipment for testing new producing wells.

UNIT	CLASS	ITEM	DESCRIPTION (SHOW CONDITION OF USED MATERIAL AND EQUIPMENT)	QTY.	UNIT PRICE	TOTAL
			TANGIBLES			
			Pumping units: 456,000 in-lb	5		$148,000
			Motors: 40 hp	5		8,000
			Starters: Size III			6,000
			Miscellaneous valves, fittings, and electrical equipment			18,000
			Total Tangibles			$180,000
			INTANGIBLES			
			Well service unit and crew			$ 4,000
			Truck and set pumping units with bases			9,000
			Miscellaneous			3,000
			Overhead			4,000
			Total Intangibles			$ 20,000
			TOTAL			$200,000

REQUESTED BY J. W. Maharg

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ATTACHMENT 7

PAGE NO. 1 OF 1

PHILLIPS PETROLEUM COMPANY

NRG, North America E.& P.

COST ESTIMATE

J. A. NO._____

A. F. E. NO._____

LOCATION: East Vacuum Grayburg-San Andres Unit, Vacuum Field, Lea County, New Mexico.

DATE September 29, 19 78

DESCRIPTION OF JOB: Phase I--install additional lift equipment for testing new producing wells.

UNIT	CLASS	ITEM	DESCRIPTION (SHOW CONDITION OF USED MATERIAL AND EQUIPMENT)	QTY.	UNIT PRICE	TOTAL
			TANGIBLES			
			Pumping units: 456,000 in-lb	5		$148,000
			Motors: 40 hp	5		8,000
			Starters: Size III			6,000
			Miscellaneous valves, fittings, and electrical equipment			18,000
			Total Tangibles			$180,000
			INTANGIBLES			
			Well service unit and crew			$ 4,000
			Truck and set pumping units with bases			9,000
			Miscellaneous			3,000
			Overhead			4,000
			Total Intangibles			$ 20,000
			TOTAL			$200,000

REQUESTED BY Jim J. W. Maharg

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ATTACHMENT 8

PAGE NO. 1 OF 1

PHILLIPS PETROLEUM COMPANY

NRG, North America E.& P.

COST ESTIMATE

J. A. NO._____

A. F. E. NO._____

LOCATION: East Vacuum Grayburg-San Andres Unit, Vacuum Field, Lea County, New Mexico.

DATE September 29, 1978

DESCRIPTION OF JOB: Phase I--install water injection system: Southern portion of system in Sections 32, 33, and 34, T-17-S, R-35-E, and Sections 4 and 5, T-18-S, R-35-E, Lea County, New Mexico.

UNIT	CLASS	ITEM	DESCRIPTION (SHOW CONDITION OF USED MATERIAL AND EQUIPMENT)		QTY.	UNIT PRICE	TOTAL
			TANGIBLES				
			Line pipe: 2-3/8"	feet	3334		$ 4,000
			2-7/8"	"	1450		11,000
			3-1/2"	"	3580		8,000
			4-1/2"	"	4210		14,000
			6-5/8"	"	17550		118,000
			8-5/8"	"	3350		38,000
			10-3/4"	"	2750		45,000
			Fittings and valves				26,000
			Miscellaneous				11,000
			Total Tangibles				$275,000
			INTANGIBLES				
			Coat, wrap, and line pipe				$ 68,000
			Blast, ditch, string, weld, lay, bury, cleanup, and right-of-way				343,000
			Trucking				21,000
			Miscellaneous				27,000
			Overhead				16,000
			Total Intangibles				$475,000
				TOTAL			$750,000

REQUESTED BY J. W. Maharg

ESTIMATE GRADE ____ BY F. C. Schuman

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ATTACHMENT 9

PAGE NO. 1 OF 1

PHILLIPS PETROLEUM COMPANY

NRG, North America E.& P.

COST ESTIMATE

J. A. NO._____

A. F. E. NO._____

LOCATION: East Vacuum Grayburg-San Andres Unit, Vacuum Field, Lea County, New Mexico.

DATE September 29, 19 78

DESCRIPTION OF JOB: Phase I--install water supply system, complete with eight wells and gathering lines.

UNIT	CLASS	ITEM	DESCRIPTION (SHOW CONDITION OF USED MATERIAL AND EQUIPMENT)		QTY.	UNIT PRICE	TOTAL
			TANGIBLES				
			Casing: (12.750" line pipe)	feet	1500		$ 12,000
			Vertical turbine pumps with electric motors and starters		7		57,000
			Desanding equipment				51,000
			Pump houses				7,000
			Line pipe: 4"	feet	6700		11,000
			5"	"	4200		12,000
			8"	"	17300		107,000
			10"	"	3630		39,000
			Miscellaneous valves, meters, fittings, etc.				21,000
			Total Tangibles				$317,000
			INTANGIBLES				
			Locations and roadway				$ 19,000
			Cement work				10,000
			Drill and gravel pack wells				35,000
			Test wells				16,000
			Trucking				35,000
			Biast, ditch, pad, string, join, bury, cleanup, and right-of-way				380,000
			Miscellaneous				44,000
			Overhead				19,000
			Total Intangibles				$558,000
				TOTAL			$875,000

REQUESTED BY JWM J. W. Maharg

ESTIMATE GRADE ____ BY FGS F. G. Schuman

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ATTACHMENT 10

OPERATING COST FORECAST

Year	Continued Primary $M per Year	Water Injection w/Infill Drilling $M per Year
1979	1,363	3,312
1980	1,445	3,630
1981	1,500	4,079
1982	1,527	4,409
1983	1,546	4,709
1984	838	4,999
1985	669	5,252
1986	543	5,517
1987	472	2,574
1988	399	2,574
1989	352	2,470
1990	309	1,453
1991	279	1,375
1992	247	1,339
1993	224	585
1994	202	548
1995		532
Total	11,915	49,357

Escalations: 7 percent per year.

FORECASTS AND ECONOMICS

Forecasts

Attachments 1 and 2 present the production forecasts anticipated under continued primary and with water injection operations. Total primary and secondary reserves are the same as presented previously, adjusted for current production estimates to January 1, 1979.

Economics

A differential economic analysis was run comparing water injection with infill drilling to continued primary operations. The indicators of these economics are:

Total Investment	$ 48,210,000
Payout, years	2.97
Number of Times Expenditure Returned	3.76
Average Annual Rate of Return, percent	73.0
Cumulative Cash Flow	$133,000,000
Present Value Discounted at 10 Percent	$ 77,100,000

Attachment 3 shows cumulative cash flow for the two methods of operation.

The economics are premised on the following:

Starting date of January 1, 1979.

Investments and costs escalated at 7-10 percent per year.

Constant lower tier oil price of $5.60 per barrel.

Constant upper tier oil price of $12.60 per barrel.

Constant gas price of $0.48 per Mcf.

Base production control level of 1,500,150 barrels oil per year. (Estimated 1978 production for the unit.)

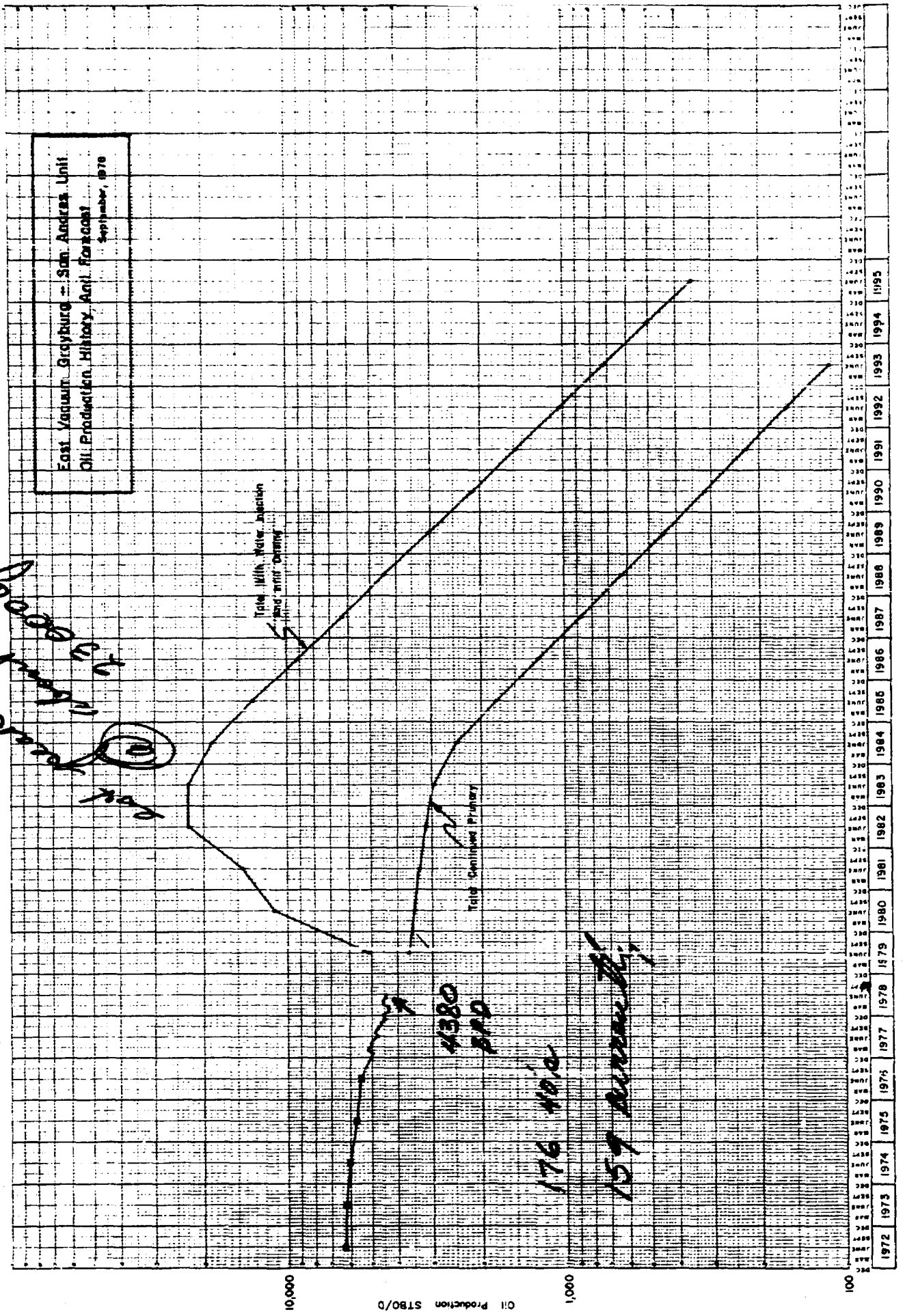
Working Interest Only shown on this page Royalty not included.

ATTACHMENT 1

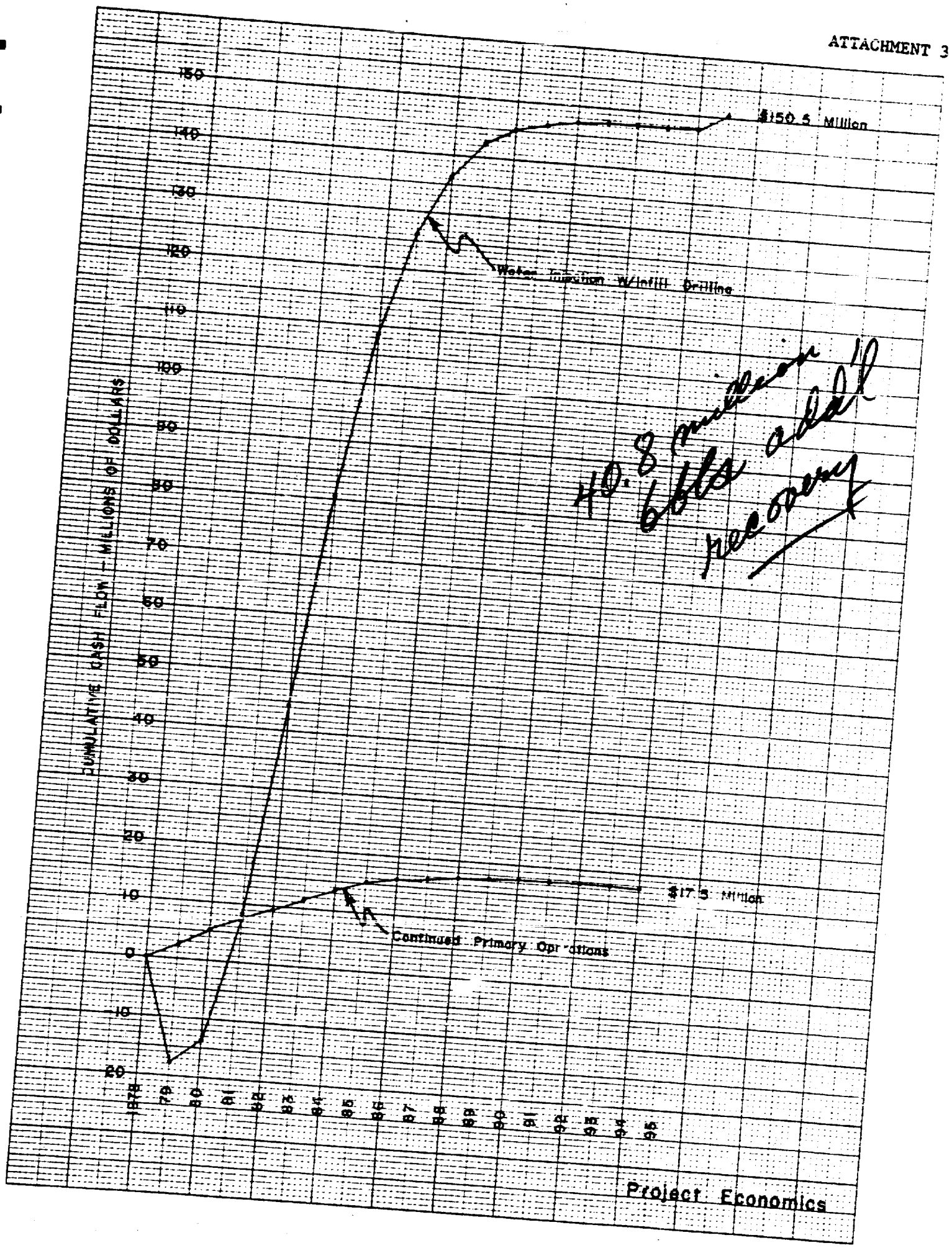
PRODUCTION FORECAST

Year	Continued Primary Oil M Bbls/Year	Continued Primary Gas MMcf/Year	Water Injection w/Infill Drilling Oil M Bbls/Year	Water Injection w/Infill Drilling Gas MMcf/Year
1979	1,345	2,950	1,860	3,292
1980	1,272	3,297	4,019	4,742
1981	1,210	3,137	5,316	4,182
1982	1,149	2,977	8,220	4,042
1983	1,090	2,826	8,330	1,843
1984	894	2,317	6,795	1,504
1985	636	1,649	4,749	1,051
1986	451	1,168	3,288	728
1987	320	829	2,302	509
1988	227	588	1,607	356
1989	162	419	1,118	248
1990	116	300	778	172
1991	82	212	544	120
1992	58	150	376	84
1993	41	106	263	58
1994	29	75	183	40
1995			129	29
Total	9,082	23,000	49,877	23,000

ATTACHMENT 2



ATTACHMENT 3



WATER SUPPLY

Tabulated below are the current water supply sources available in or near the unit area:

Source	Barrels per Day
Phillips Petroleum Company Water Rights in Unit Area (as shown in the Water Supply System Section)	54,850
Phillips Water Rights near the Unit Area	14,390
Rice Engineering-Vacuum Field Disposal System (produced water, excluding Grayburg-San Andres)	4,800
Mobil Oil Corporation(1)	20,000
Total Available	94,040

(1) Mobil has offered to make available to the unit 20,000 barrels per day of fresh water. Phillips has accepted this offer subject to working interest approval. A specific proposal will be presented for approval following formation of the unit.

Phillips will apply for other water rights in the area as they become available.

PROPOSED

SPECIAL RULES AND REGULATIONS
FOR THE
EAST VACUUM GRAYBURG-SAN ANDRES UNIT
PRESSURE MAINTENANCE PROJECT

Rule 1. Unit Operator is authorized to institute a pressure maintenance project in the East Vacuum Grayburg-San Andres Unit Area, Vacuum Grayburg-San Andres Pool, Lea County, New Mexico, by the injection of water into wells at orthodox and unorthodox locations.

Rule 2. Unit Operator is authorized to drill injection wells and additional producing wells at orthodox and unorthodox locations anywhere within the Unit Area provided no unorthodox location is closer than ten feet to a quarter/quarter section line or closer than 1,320 feet to the unit boundary. The Division-Director shall have authority to grant permission to drill any well within the provisions of this rule without notice and hearing.

Rule 3. Each newly drilled injection or producing well shall be equipped with surface casing (350') and production casing run to total depth (4,900'). All casing strings shall be cemented to the surface except, that in those instances where an intermediate casing string has been run to below the top of the Yates formation and cemented to the surface, then the production string may be cemented back into the base of the intermediate.

Rule 4. The conversion of producing wells to injection at orthodox and unorthodox locations within the Unit Area shall be accomplished only after approval of same by the Division-Director.

Rule 5. Injection shall be accomplished through tubing installed in a packer set within 100 feet of the uppermost perforation. The injection tubing shall be corrosion protected by a non-reactive internal lining or coating. The casing-tubing annulus in each injection well shall be filled with an inert fluid and a surface

pressure gauge or approved leak detection device shall be attached to the annulus.

Rule 6. The injection wells or system shall be equipped with a pressure control device or acceptable substitute which will limit the surface injection pressure to no more than 0.2 psi per foot of depth to the uppermost perforation. The Division-Director may administratively authorize a pressure limitation in excess of the above upon showing by the Unit Operator that such higher pressure will not result in fracturing of the confining strata.

Rule 7. The project area of the East Vacuum Unit Pressure Maintenance Project shall consist of those proration units within the boundaries of the East Vacuum Grayburg-San Andres Unit upon which is located an injection well and any directly or diagonally offsetting proration unit which contains a producing well.

Rule 8. All wells within the project area shall be equipped with risers or in another acceptable manner such as to facilitate the periodic testing of the bradenhead for pressure or fluid production.

Rule 9. That those wells within the East Vacuum Unit Area that are not included within the project area as defined above shall be prorated in accordance with the Rules and Regulations of the Division.

Rule 10. The project area shall receive a project area allowable, and said project area allowable shall be the sum of the basic project area allowable plus the water injection credit allowable.

Rule 11. The basic project area allowable shall be equal to 80 barrels of oil per day times the number of developed 40-acre proration units in the project area.

Rule 12. The water injection credit allowable shall be contingent upon full reservoir voidage replacement of all produced fluids and shall be

based upon the following formula:

$$\text{Water Injection Credit Allowable} = \left[\frac{\text{Net Water Injected}}{\text{Basic Project Area Allowable} \times \text{Reservoir Voidage}} - 1 \right] \times \text{Basic Project Area Allowable}$$

In no event shall the water injection credit allowable be less than zero, i.e., negative numbers derived from application of the above formula shall be ignored.

Rule 13. The weighted average project area reservoir pressure shall be determined prior to commencement of injection of water into the reservoir and at least annually thereafter.

Rule 14. The project area allowable may be produced from any well within the project area in any proportion provided, however, that any proration unit situated on the boundary of the East Vacuum Unit which proration unit is not directly or diagonally offset by a San Andres injection well outside said East Vacuum Unit or on the East Vacuum Unit boundary shall not be permitted to produce in excess of 80 barrels of oil per day.

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

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

CASE NO. 6367
Order No. R-5897

APPLICATION OF PHILLIPS PETROLEUM COMPANY FOR A PRESSURE MAINTENANCE PROJECT, LEA COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on October 25, 1978, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 16th day of January, 1979, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

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

(2) That by Division Order No. R-5871 dated November 27, 1978, statutory unitization was approved for the East Vacuum Grayburg-San Andres Unit Area, Lea County, New Mexico.

(3) That the applicant herein, Phillips Petroleum Company, seeks authority to institute a pressure maintenance project on the aforesaid East Vacuum Grayburg-San Andres Unit Area, Vacuum Grayburg-San Andres Pool, Lea County, New Mexico, by the injection of water into the San Andres formation through 59 wells, 31 of which would be drilled in 1979 during Phase II of the Project Development Program and 28 of which would be drilled in 1980 during Phase III of the Development Program.

(4) Applicant further seeks the designation of a project area for said pressure maintenance project and the promulgation of special rules and regulations governing said project including special allowable provisions.

(5) That for Phase I of the Project Development Program, applicant proposes to drill during 1979 ten producing wells at unorthodox locations as specified below:

TRACT NO.	WELL NO.	LOCATION	UNIT	SECTION
3229	005	1310' FSL and 1310' FWL	M	32
3202	001	1310' FSL and 1330' FEL	O	32
3202	003	1330' FNL and 1330' FEL	G	32
3328	002	1310' FSL and 1310' FWL	M	33
3366	001	1330' FNL and 1310' FWL	E	33
3333	004	1330' FNL and 1330' FEL	G	33
3456	005	1330' FNL and 1310' FWL	E	34
2801	002	1310' FSL and 1310' FWL	M	28
2801	004	1310' FSL and 1330' FEL	O	28
2721	001	1310' FSL and 1310' FWL	M	27

all in Township 17 South, Range 35 East, NMPM, Lea County, New Mexico.

(6) That during Phase II of the Development Program applicant proposes to drill 18 additional producing wells, all at unorthodox locations, and during Phase III of the Program applicant proposes to drill 26 additional producing wells, also at unorthodox locations.

(7) That all of the wells referred to in Findings Nos. (3), (5) and (6) above, being 59 injection wells at unorthodox locations and 54 producing wells at unorthodox locations, together with the currently completed producing wells in the Unit Area, will provide a thorough and efficient sweep of hydrocarbons throughout the unitized area, and will result in the recovery of otherwise unrecoverable oil, thereby preventing waste.

(8) That the above-described injection and producing wells, some of which would be at unorthodox locations along the unit boundaries in accordance with lease-line agreements with operators of offsetting lands, will not impair but will protect correlative rights.

(9) That the applicant's request for the designation of a Pressure Maintenance Project for the East Vacuum Grayburg-San Andres Unit Area, and for the promulgation of special rules and regulations governing said project, is in the interest of conservation and should be approved, subject to certain provisions.

(10) That the project area should consist of those proration units within the boundary of the East Vacuum Grayburg-San Andres Unit upon which is located an injection well and any directly or diagonally offsetting proration unit which contains a producing well.

(11) That the total project area allowable should be equal to the sum of the basic project area allowable plus the water injection credit allowable.

(12) That the basic project area allowable should be equal to 80 barrels of oil per day times the number of developed 40-acre proration units in the project area.

(13) That the water injection credit allowable should be based on the following formula:

$$\text{Water Injection Credit Allowable} = \left[\frac{\text{net water injected}}{\text{basic project area allowable voidage}}\right] \times \text{basic project area allowable}$$

and should be calculated in accordance with Exhibits "A" and "B" attached hereto and by reference made a part hereof.

(14) That the project area allowable should be produced from the wells within the project area in any proportion provided that any proration unit situated on the boundary of said East Vacuum Unit which proration unit is not directly or diagonally offset by a San Andres injection well outside the Unit or on the Unit boundary should not be permitted to produce in excess of 80 barrels of oil per day.

(15) That each of the newly drilled production or injection wells in the project should be equipped with surface casing set at approximately 350 feet and cemented to the surface and with "production" casing set at total depth, approximately 4900 feet.

(16) That the "production" casing on each of said newly drilled wells should be cemented to the surface, except that in any well in which an intermediate casing string has been run to below the top of the Yates formation and cemented to the surface, the "production" casing may be cemented back into the base of the intermediate casing string.

(17) That injection should be accomplished through tubing installed in a packer set within 100 feet of the uppermost perforation. The injection tubing should be corrosion protected by a non-reactive internal lining or coating. The casing-tubing

annulus in each injection well should be filled with an inert fluid and a surface pressure gauge or approved leak detection device should be attached to the annulus.

(18) The injection wells or system should be equipped with a pressure control device or acceptable substitute which will limit the surface injection pressure to no more than 0.2 psi per foot of depth to the uppermost perforation. Provision should be made for the Division Director to administratively authorize a pressure limitation in excess of the above upon showing by the Unit Operator that such higher pressure will not result in fracturing of the confining strata.

(19) All wells within the project area should be equipped with risers or in some other acceptable manner as to facilitate the periodic testing of the bradenhead for pressure or fluid production.

(20) That provision should be made for the Division Director to authorize placing wells on injection and the drilling of injection wells and additional producing wells at orthodox and unorthodox locations anywhere within the Unit Area without notice and hearing, provided that no unorthodox location is closer than ten feet to a quarter-quarter section line nor closer than 330 feet to the unit boundary, unless such well located closer than 330 feet to the unit boundary is covered by a lease-line agreement with the operator of the lands offsetting such well or the owner of the offsetting lands has waived objection to such location in writing.

(21) That there are a number of wells within the East Vacuum Grayburg-San Andres Unit Area and on lands offsetting the unit area which have previously been plugged and abandoned in a manner which may permit waters injected into the San Andres formation to escape into other formations, including the Salado formation and the shallow fresh water-bearing formations unless remedial action is taken on said wells prior to injection in their near vicinity.

(22) That there are a number of wells within the East Vacuum Grayburg-San Andres Unit Area and on lands offsetting the unit area which penetrate the Vacuum Grayburg-San Andres Pool and are completed in deeper pay zones, but which are cased and cemented in such a manner as may permit the escape of waters injected into the San Andres formation into other formations as described above.

(23) That those wells referred to in Findings Nos. (21) and (22) above which are inadequately plugged and abandoned or are inadequately cased and cemented, or are suspected of being so, include, but are not necessarily limited to, the wells listed in Exhibit "C" attached hereto and by reference made a part hereof.

(24) That no injection at greater than hydrostatic pressure should be made into the Grayburg or San Andres formation in any well in the East Vacuum Grayburg-San Andres Unit Area within one-half mile of any well listed on Exhibit "C" attached hereto until remedial action has been taken on such well to ensure that it will not serve as an avenue of escape for injected waters or until tests have been conducted on such well or other evidence concerning such well has been presented, all establishing to the satisfaction of the Supervisor of the Hobbs District Office of the Division that remedial work on such well is unnecessary.

IT IS THEREFORE ORDERED:

(1) That the applicant, Phillips Petroleum Company, is hereby authorized to institute and operate a pressure maintenance project in the East Vacuum Grayburg-San Andres Unit Area, Vacuum Grayburg-San Andres Pool, Lea County, New Mexico, by the injection of water into the San Andres formation through certain wells which will be administratively approved for water injection at some later date by the Division Director.

(2) That said project shall be designated the East Vacuum Unit Pressure Maintenance Project.

(3) That the following unorthodox locations are hereby approved for new producing wells which are to be drilled by the unit operator during Phase I of the Project Development Program:

TRACT NO.	WELL NO.	LOCATION	UNIT	SECTION
3229	005	1310' FSL and 1310' FWL	M	32
3202	001	1310' FSL and 1330' FEL	O	32
3202	003	1330' FNL and 1330' FEL	G	32
3328	002	1310' FSL and 1310' FWL	M	33
3366	001	1330' FNL and 1310' FWL	E	33
3333	004	1330' FNL and 1330' FEL	G	33
3456	005	1330' FNL and 1310' FWL	E	34
2801	002	1310' FSL and 1310' FWL	M	28
2801	004	1310' FSL and 1330' FEL	O	28
2721	001	1310' FSL and 1310' FWL	M	27

all in Township 17 South, Range 35 East, NMPM, Lea County, New Mexico.

(4) That Special Rules and Regulations governing the East Vacuum Unit Pressure Maintenance Project are hereby promulgated as follows:

SPECIAL RULES AND REGULATIONS
FOR THE
EAST VACUUM UNIT PRESSURE MAINTENANCE PROJECT

RULE 1. The project area of the East Vacuum Unit Pressure Maintenance Project shall consist of those proration units within the boundaries of the East Vacuum Grayburg-San Andres Unit upon which is located an injection well and any directly or diagonally offsetting proration unit which contains a producing well.

RULE 2. The project area shall receive a project area allowable, and said project area allowable shall be the sum of the basic project area allowable plus the water injection credit allowable.

RULE 3. The basic project area allowable shall be equal to 80 barrels of oil per day times the number of developed 40-acre proration units in the project area.

RULE 4. The water injection credit allowable shall be contingent upon full reservoir voidage replacement of all produced fluids and shall be based upon the following formula:

$$\text{Water Injection Credit Allowable} = \left[\frac{\text{Net Water Injected}}{\text{Basic Project Area Allowable}}\right]_{\text{Reservoir Voidage}} -1 \times \text{Basic Project Area Allowable}$$

The water injection credit allowable shall be calculated in accordance with the procedures and parameters depicted on Exhibits "A" and "B" to Order No. R-5897.

In no event shall the water injection credit allowable be less than zero, i.e., negative numbers derived from application of the above formula shall be ignored.

RULE 5. The weighted average project area reservoir pressure shall be determined prior to commencement of injection of water into the reservoir and at least annually thereafter. The weighted average project area pressure shall be determined from the pressures in at least ten representative wells selected by the unit operator and the Supervisor of the Hobbs District Office of the Division.

RULE 6. The project area allowable may be produced from the wells within the project area in any proportion provided, however, that any proration unit situated on the boundary of the East Vacuum Unit which proration unit is not directly or diagonally offset by a San Andres injection well outside said East Vacuum Unit or on the East Vacuum Unit boundary shall not be permitted to produce in excess of 80 barrels of oil per day.

RULE 7. Those wells within the East Vacuum Unit Area that are not included within the project area as defined above shall be prorated in accordance with the Rules and Regulations of the Division.

RULE 8. The Division Director shall have authority to approve, without notice and hearing, the drilling of wells at unorthodox locations anywhere within the unit boundary, provided however, no unorthodox location shall be closer than ten feet to any quarter-quarter section line, and provided further, that no such unorthodox location shall be closer than 330 feet to the outer boundary of the unit area, unless such well is covered by a lease-line agreement with the operator of the lands offsetting such well, and a copy of the lease-line agreement accompanies the application for such unorthodox location, or unless such offset operator has waived objection to the proposed unorthodox location in writing, and his waiver accompanies the application.

RULE 9. No well shall be placed on water injection in the East Vacuum Unit Area unless the Division Director has approved such well for injection. Applications for injection approval shall be filed in accordance with Rule 701 of the Division Rules and Regulations.

RULE 10. Each newly drilled injection or producing well shall be equipped with a minimum of 350 feet of surface casing and "production" casing run to total depth (approximately 4900 feet). All casing strings shall be cemented to the surface except that in any well in which an intermediate casing string has been run to below the top of the Yates formation and cemented to the surface, the "production" string may be cemented back into the base of the intermediate casing.

RULE 11. Injection shall be accomplished through tubing installed in a packer set within 100 feet of the uppermost perforation. The injection tubing shall be corrosion protected by a non-reactive internal lining or coating. The casing-tubing annulus in each injection well shall be filled with an inert fluid and a surface pressure gauge or approved leak detection device shall be attached to the annulus.

RULE 12. The injection wells or system shall be equipped with a pressure control device or acceptable substitute which will limit the surface injection pressure to no more than 0.2 psi per foot of depth to the uppermost perforation. The Division Director may administratively authorize a pressure limitation in excess of the above upon showing by the unit operator that such higher pressure will not result in fracturing of the confining strata.

RULE 13. All wells within the project area shall be equipped with risers or in some other acceptable manner as to facilitate the periodic testing of the bradenhead for pressure or fluid production.

RULE 14. The unit operator shall immediately notify the Supervisor of the Hobbs District Office of the Division of the failure of the tubing or packer in any of said injection wells, the leakage of water or oil from or around any producing well, the leakage of water or oil from or around any plugged and abandoned well within the project area, or any other evidence of fluid migration from the injection zone, and shall take such timely steps as may be necessary or required to correct such failure or leakage.

RULE 15. Each month the project operator shall submit to the Division a Pressure Maintenance Project Operator's Report, on a form prescribed by the Division, outlining thereon the data required and requesting allowables for each of the several wells in the Project as well as the total project area allowable.

RULE 16. The Division shall, upon review of the report and after any adjustments deemed necessary, calculate the allowable for the wells in the Project for the next succeeding month in accordance with these rules. The sum of the allowables so calculated shall be assigned to the Project and, except as provided under Rule 6 above, may be produced from the wells in the Project in any proportion.

IT IS FURTHER ORDERED:

(1) That no injection at greater than hydrostatic pressure shall be made into the Grayburg or San Andres formation in any well in the East Vacuum Grayburg-San Andres Unit Area within one-half mile of any well listed on Exhibit "C" attached hereto until remedial action has been taken on such well to ensure that it will not serve as an avenue of escape for injected waters, or until tests have been conducted on such well or other evidence concerning such well has been presented

establishing to the satisfaction of the Supervisor of the Hobbs District Office of the Division that remedial work on such well is unnecessary.

(2) That Order No. R-3150 which authorized a pilot waterflood project in this area is hereby rescinded.

(3) That 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 herein-above designated.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

JOE D. RAMEY
Director

SEAL

fd/

EAST VACUUM GRAYBURG-SAN ANDRES UNIT
PRESSURE MAINTENANCE PROJECT

VACUUM GRAYBURG-SAN ANDRES POOL, LEA COUNTY, NEW MEXICO

WATER INJECTION CREDIT ALLOWABLE CALCULATION DATA

ATTACHMENT TO _____, 19__, REPORT

$$\text{Water Injection Credit Allowable} = \frac{W_i - W_p}{\text{BPAA}\ B_o + \frac{(R_p - R_s)}{(1{,}000)} B_g} - 1 \quad \text{BPAA}$$

W_i = _____ = Average daily water injection, barrels per day, project area only.

W_p = _____ = Average daily water produced, barrels per day, project area only.

BPAA = _____ = Basic project area allowable, 80 bopd x _____ (number of developed 40-acre tracts in project area).

_____ = Weighted average project area reservoir pressure, psig, from _____, 19__, survey data.

B_o = _____ = Oil formation volume factor, reservoir barrels per stock tank barrel (Exhibit B).

R_p = _____ = Producing gas-oil ratio, cubic feet per barrel, project area only.

R_s = _____ = Solution gas-oil ratio, cubic feet per barrel (Exhibit B).

B_g = _____ = Gas formation volume factor, reservoir barrels per Mcf (Exhibit B).

Water injection credit allowable for _____, 19__, = _____ barrels of oil per day.

EXHIBIT "A"
ORDER NO. R-5897

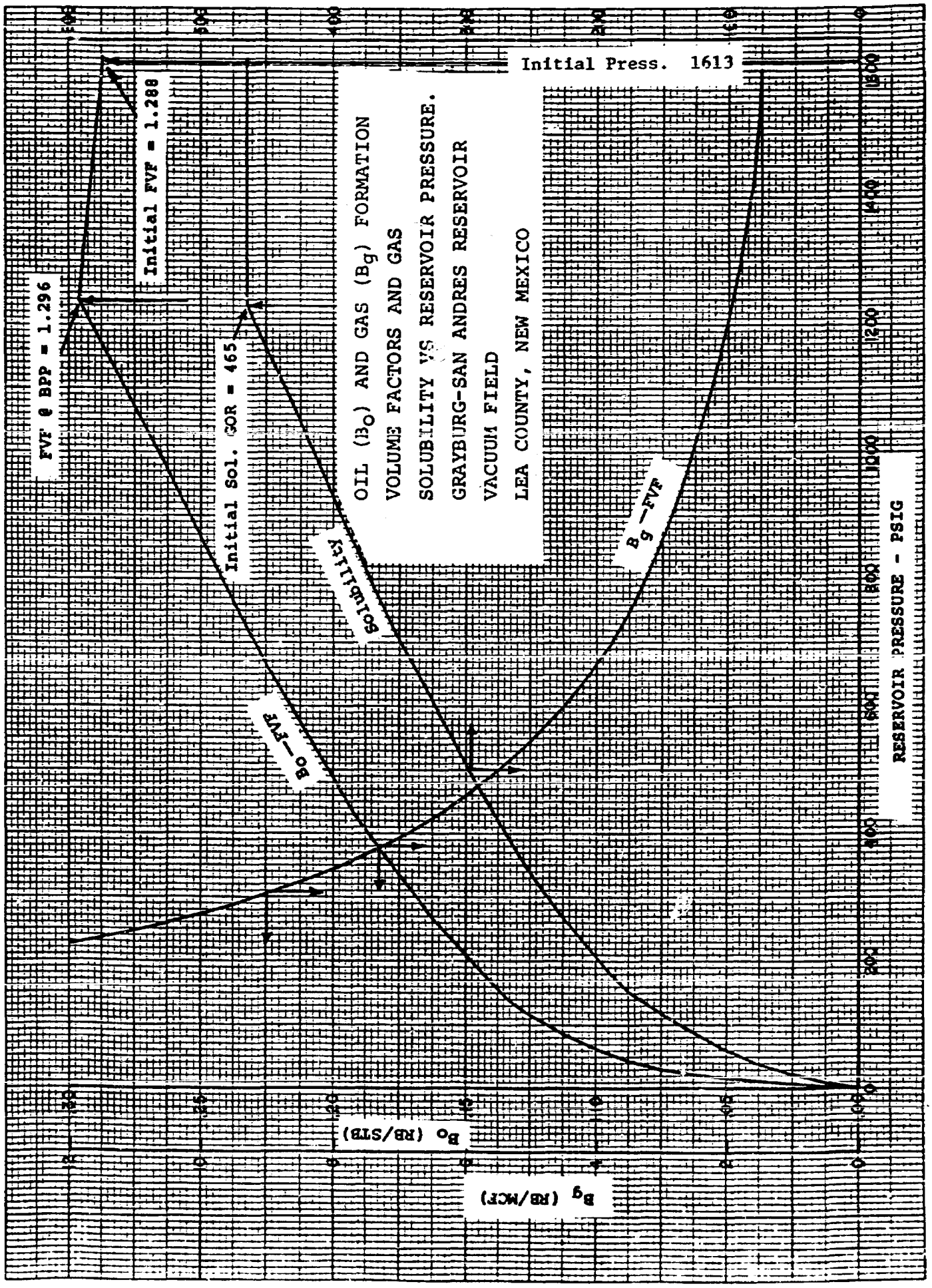


Exhibit "B" Order No. R-5897

EXHIBIT "C"

WELLS SUSPECTED OF BEING INADEQUATELY PLUGGED AND ABANDONED OR INADEQUATELY CASED AND CEMENTED

OPERATOR	LEASE	WELL NO.	UNIT	SEC-TWP-RGE
Mobil	State P	7	P	22-17S-35E
Penrose	State	2	N	24-17S-35E
Phillips	Santa Fe	15	A	28-17S-35E
Phillips	Santa Fe	16	L	5-18S-35E
Phillips	Santa Fe	37	F	28-17S-35E
Phillips	Santa Fe	47	C	35-17S-35E
Shell	State U	1	C	3-18S-35E
Shell	State VAA	6	K	5-18S-35E
Shell	State C	1	I	24-17S-34E
Shell	State I	1	E	29-17S-35E
Shell	State S	1	I	21-17S-35E
Stoltz etal.	Abo	1	O	24-17S-35E
Zapata	Shell State	1	O	23-17S-35E
Barnett	State B	1	D	19-17S-35E
Jones	State	2	A	35-17S-35E
Penrose	Scarborough	1	C	25-17S-35E
Amoco	State CV	1	F	25-17S-35E
Amoco	State CV	4	L	25-17S-35E
Amoco	State CV	5	F	25-17S-35E
Chevron	State 6-34	4	J	34-17S-35E
Cities Service	State BJ	2	K	35-17S-35E
Crusader	State	1	E	20-17S-35E
Crusader	State	2	C	19-17S-35E
Crusader	State	3	N	18-17S-35E
Exxon	State J	1	M	19-17S-35E
Exxon	State J	2	L	19-17S-35E
Exxon	State AC	1	H	22-17S-35E
Great Western	State E	2	L	25-17S-35E
Marathon	Warn State	1	M	23-17S-35E
Amoco	State CV	2	E	25-17S-35E
Amoco	State CV	2-Y	E	25-17S-35E
Millard Deck	Carthay State	2	G	20-17S-35E
Exxon	State K	17	P	32-17S-35E
Marathon	Staplin State	1	L	20-17S-35E
Marathon	Warn State	1	B	4-18S-35E
Mobil	N.Vac.AboUnit	207	H	24-17S-34E
Pennzoil	Phillips State	1	A	28-17S-35E
Pennzoil	Phillips State	2	F	28-17S-35E
Phillips	Vac.AboUnit	6-68	H	34-17S-35E
Phillips	Vac.Abo Unit	1-9	J	27-17S-35E
Phillips	Vac.Abo Unit	7-3	P	27-17S-35E
Phillips	Vac.Abo Unit	7-4	I	27-17S-35E
Phillips	Vac.Abo Unit	9-5	H	33-17S-35E
Phillips	Vac.Abo Unit	13-2	E	4-18S-35E

OPERATOR	LEASE	WELL NO.	UNIT	SEC-TWP-RGE
Phillips	Vac.Abo Unit	14-3	N	5-18S-35E
Phillips	Vac.Abo Unit	14-4	L	5-18S-35E
Shell	State V	6	P	27-17S-35E
Shell	State M	1	O	19-17S-35E

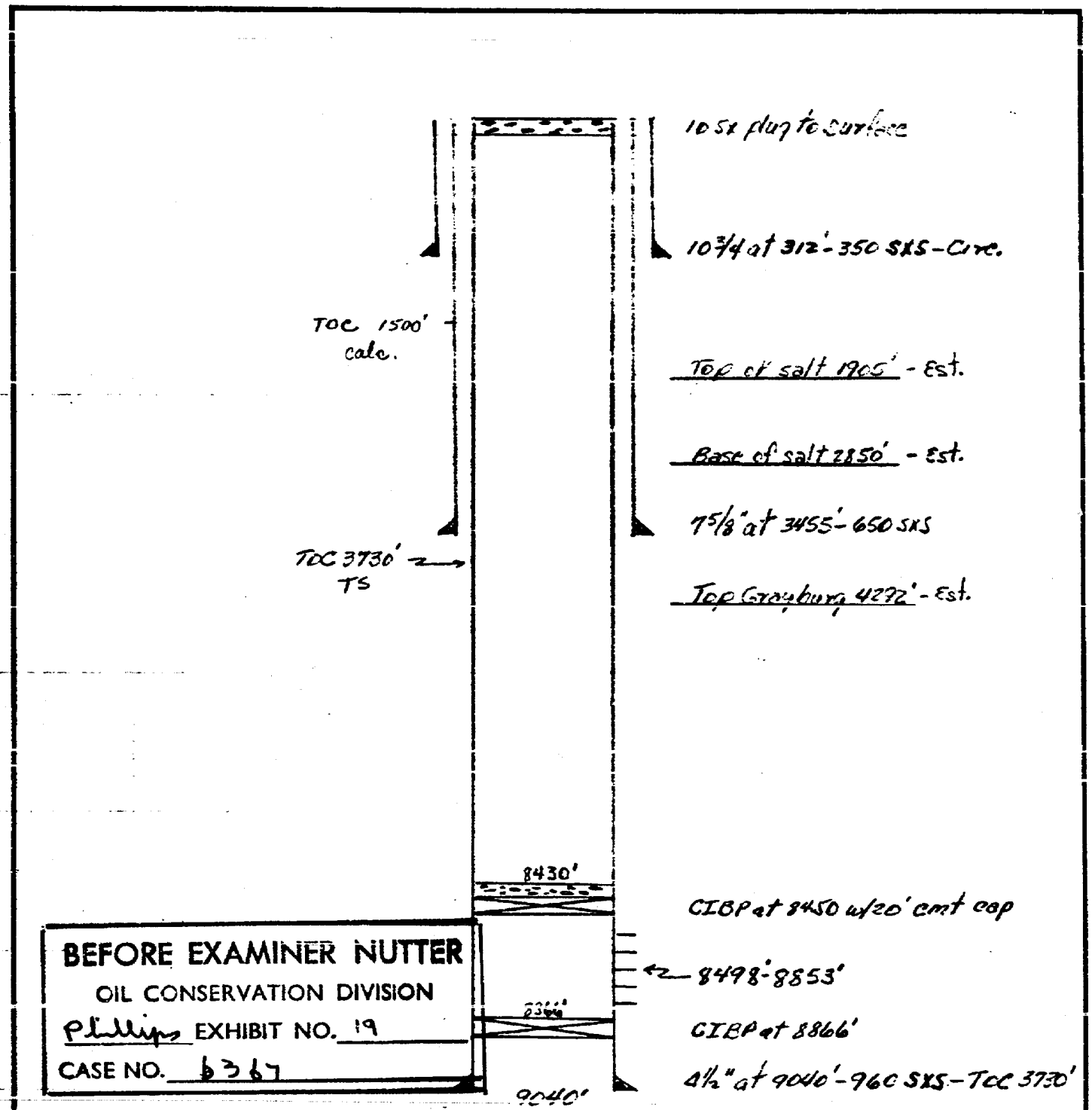
EXHIBIT "C"
ORDER NO. R-5897

EAST VACUUM GRAYBURG-SAN ANDRES UNIT
VACUUM FIELD, LEA COUNTY, NEW MEXICO

The wells to be drilled during Initial Development Phase and placed on production, as allowables permit, with subsequent conversion to water injection service.

Well Number	Location	Unit	Section	Township	Range
3229 005	1310 feet FSL and 1310 feet FWL	M	32	17-South	35-East
3202 001	1310 feet FSL and 1330 feet FEL	O	32	17-South	35-East
3202 003	1330 feet FNL and 1330 feet FEL	G	32	17-South	35-East
3328 002	1310 feet FSL and 1310 feet FWL	M	33	17-South	35-East
3366 001	1330 feet FNL and 1310 feet FWL	E	33	17-South	35-East
3333 004	1330 feet FNL and 1330 feet FEL	G	33	17-South	35-East
3456 005	1330 feet FNL and 1310 feet FWL	E	34	17-South	35-East
2801 002	1310 feet FSL and 1310 feet FWL	M	28	17-South	35-East
2801 004	1310 feet FSL and 1330 feet FEL	O	28	17-South	35-East
2721 001	1310 feet FSL and 1310 feet FWL	M	27	17-South	35-East

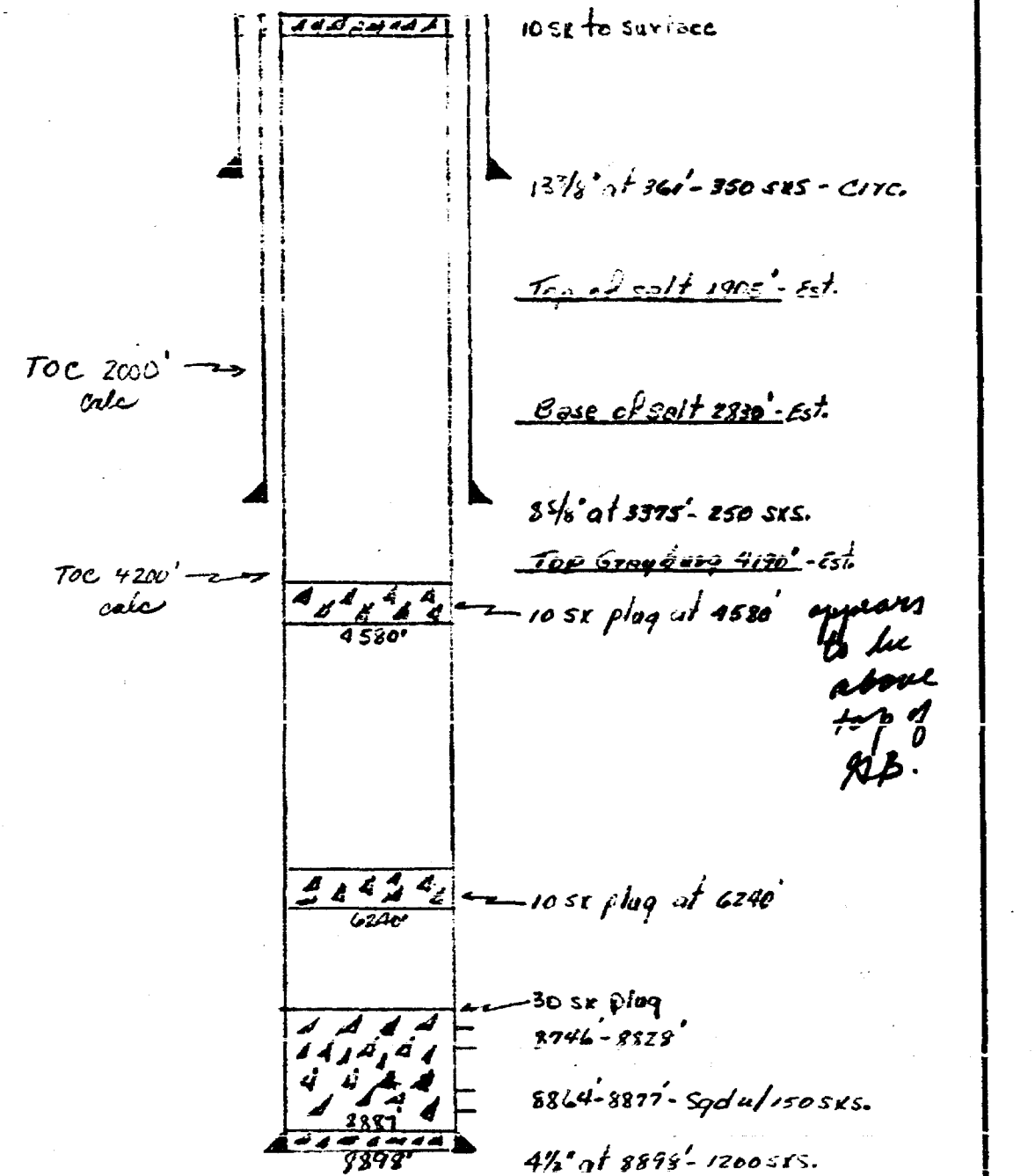
BEFORE EXAMINER NUTTER
OIL CONSERVATION DIVISION
Phillips EXHIBIT NO. 15
CASE NO. 6367



BEFORE EXAMINER NUTTER
OIL CONSERVATION DIVISION
Phillips EXHIBIT NO. 19
CASE NO. 6367

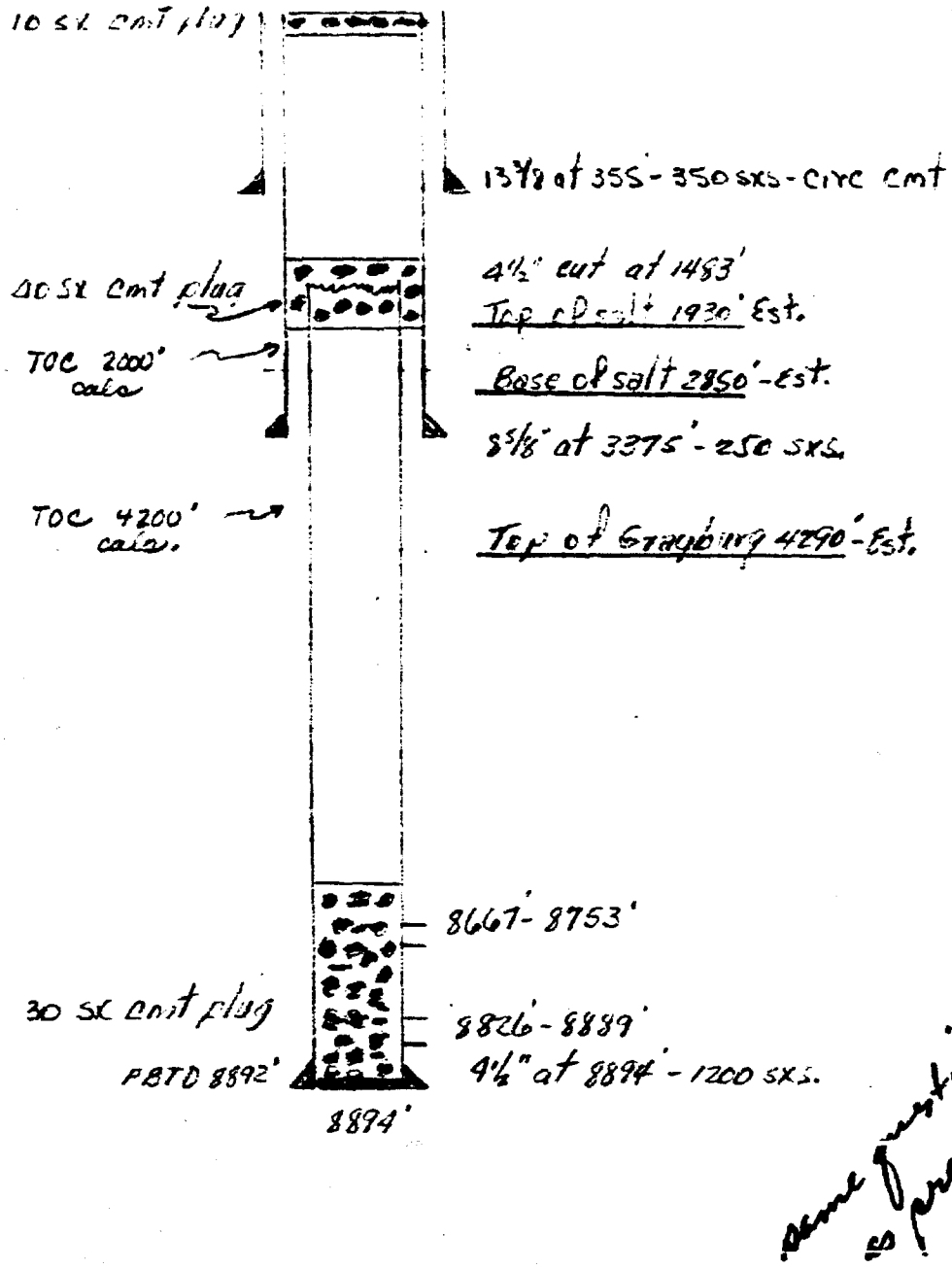
NO.	REVISION	BY	DATE	CHKD	APP'D

FOR BIDS	PHILLIPS PETROLEUM COMPANY BARTLESVILLE, OKLAHOMA	AFE NO. / FILE CODE
FOR APPR		
FOR CONST	Amoco Prod. Co. - State "CV" Well No. 1 1650 FNL & 1980 FWL, Sec. 25-17S-35E Unit F APPA 3-2-66	SCALE UNLESS OTHERWISE NOTED
DRAWN		DWG NO.
CHECKED		
APP'D		SH NO.



NO.	REVISION	BY	DATE	CHKD	APP'D

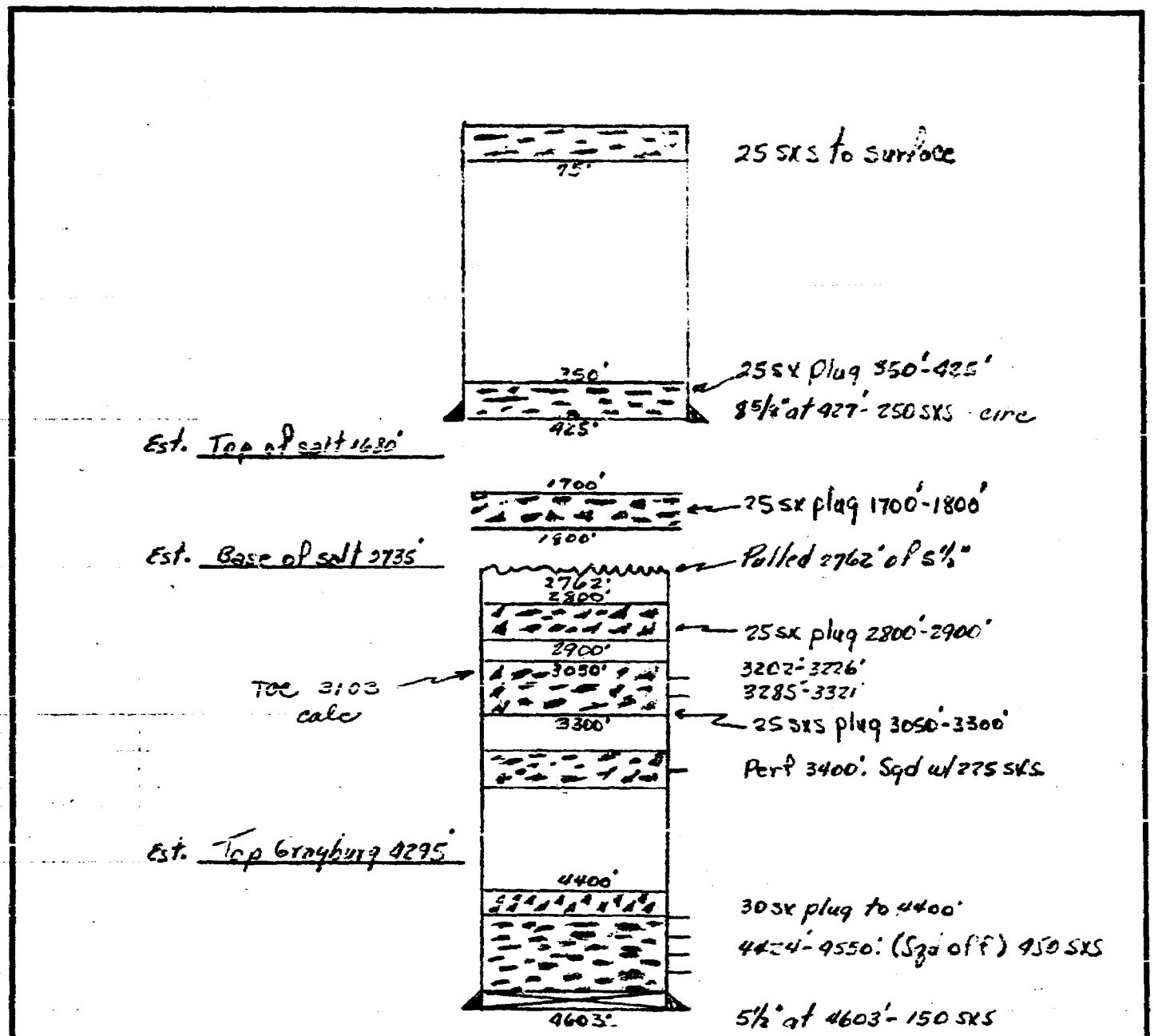
FOR BIDS	PHILLIPS PETROLEUM COMPANY	AFE NO.	FILE CODE
FOR APPR	BARTLESVILLE, OKLAHOMA		
FOR CONST	Amoco Prod Co. - State "CV" Well No. 4 2310' FSL & 380' FWL, Sec. 25-17S-35E Unit L AA 9-5-73	SCALE UNLESS OTHERWISE NOTED	
DRAWN		DWG NO.	
CHECKED			
APP'D		SH NO.	



NO.	REVISION	BY	DATE	CHKD	APP'D

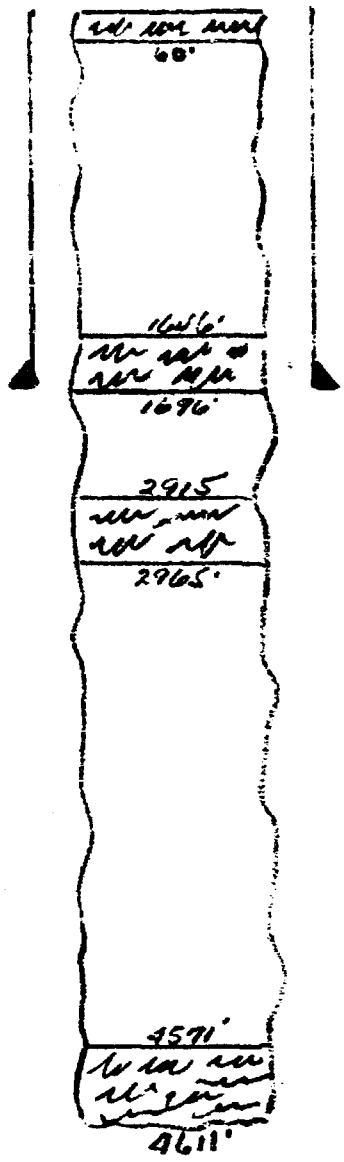
FOR BIDS	PHILLIPS PETROLEUM COMPANY	AFE NO.	FILE CODE
FOR APPR	BARTLESVILLE, OKLAHOMA		
FOR CONST	Amoco Prod Co - State "CV" Well No 5	SCALE UNLESS OTHERWISE NOTED	
DRAWN	2310 FNL + 1650 FWL, Sec 25-17E-35E	DWG NO.	
CHECKED	Unit F PoA 8-29-72	SH NO.	
APP'D			

X



NO.	REVISION	BY	DATE	CHKD	APP'D

FOR BIDS	PHILLIPS PETROLEUM COMPANY BARTLESVILLE, OKLAHOMA	AFE NO. / FILE CODE
FOR APPR		
FOR CONST	Chevron Oil Co. - State 3-5 Well No. 1 2310 FSL & 1980 FEL, Sec. 5-18S-35E Unit J P&A 1-16-60	SCALE UNLESS OTHERWISE NOTED
DRAWN		DWG NO.
CHECKED		
APP'D		SH NO.



30 sx plug

25 sx plug 1646-1696'

9⅝" at 1657' - 750 sxs circ

Top of salt 1770' Est.

Base of salt 2825' - Est.

20 sx plug 2915'-2965'

Top Grayburg 4270' - Est.

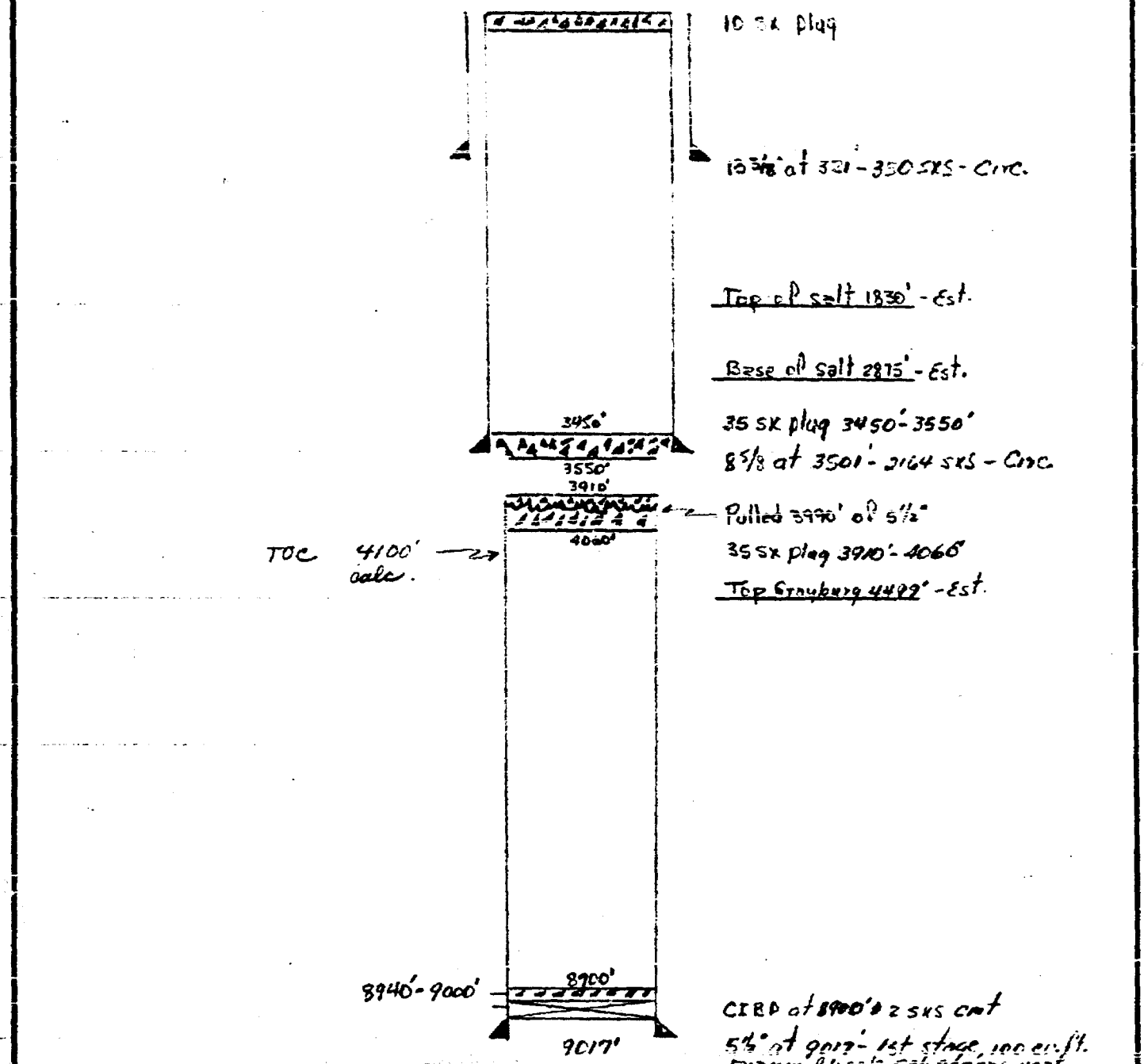
Hydromite plug 4571-4611'

Lower plug may be below Top of KB.

NO.	REVISION	BY	DATE	CHK'D	APP'D

FOR BIDS	PHILLIPS PETROLEUM COMPANY	AFE NO.	FILE CODE
FOR APPR	BARTLESVILLE, OKLAHOMA		
FOR CONST	Chevron - State 6-34 Well No. 4 Sec. 34-17S-35E Unit J A-A 1-5-50	SCALE UNLESS OTHERWISE NOTED	
DRAWN		DWG NO.	
CHECKED			
APP'D		SH NO.	

X



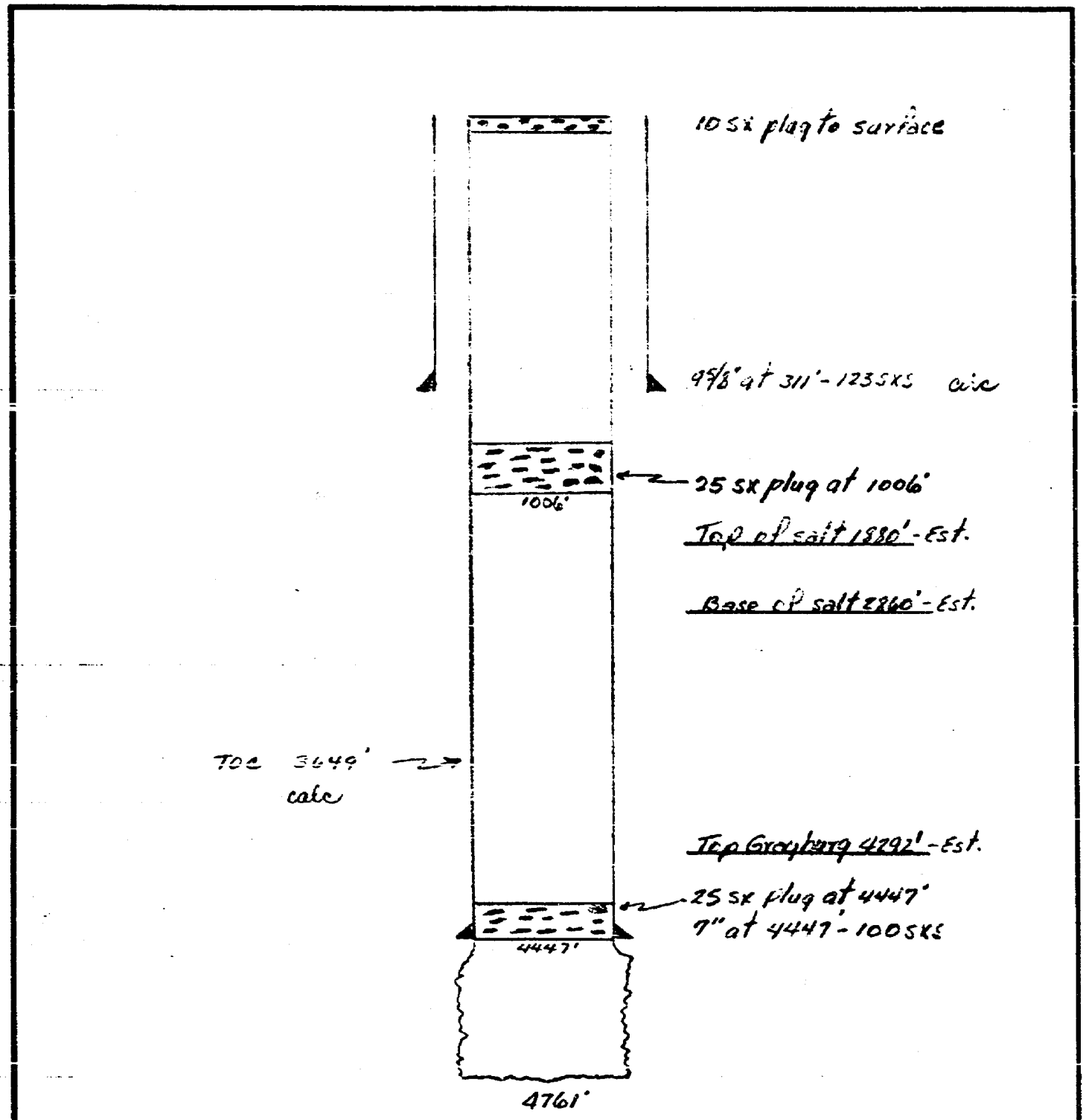
NO.	REVISION	BY	DATE	CHKD	APP'D

FOR BIDS
FOR APPR
FOR CONST
DRAWN
CHECKED
APP'D

PHILLIPS PETROLEUM COMPANY
BARTLESVILLE, OKLAHOMA

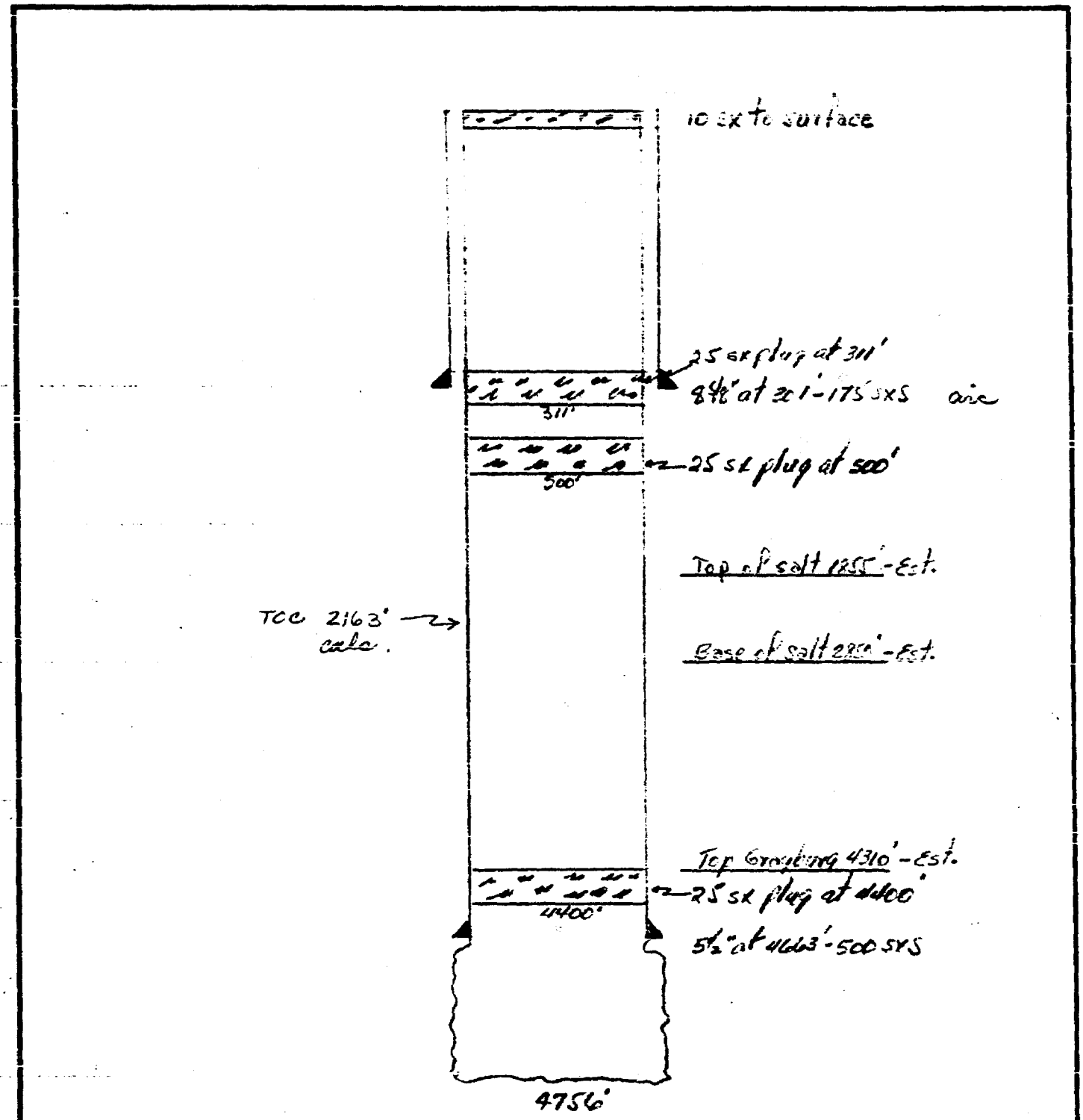
Cities Service - State "BJ" Well No. 2
Sec. 35-17S-35E
Unit K
P&A 5-14-76

AFE NO.
FILE CODE
SCALE
UNLESS OTHERWISE NOTED
DWG NO.
SH NO.



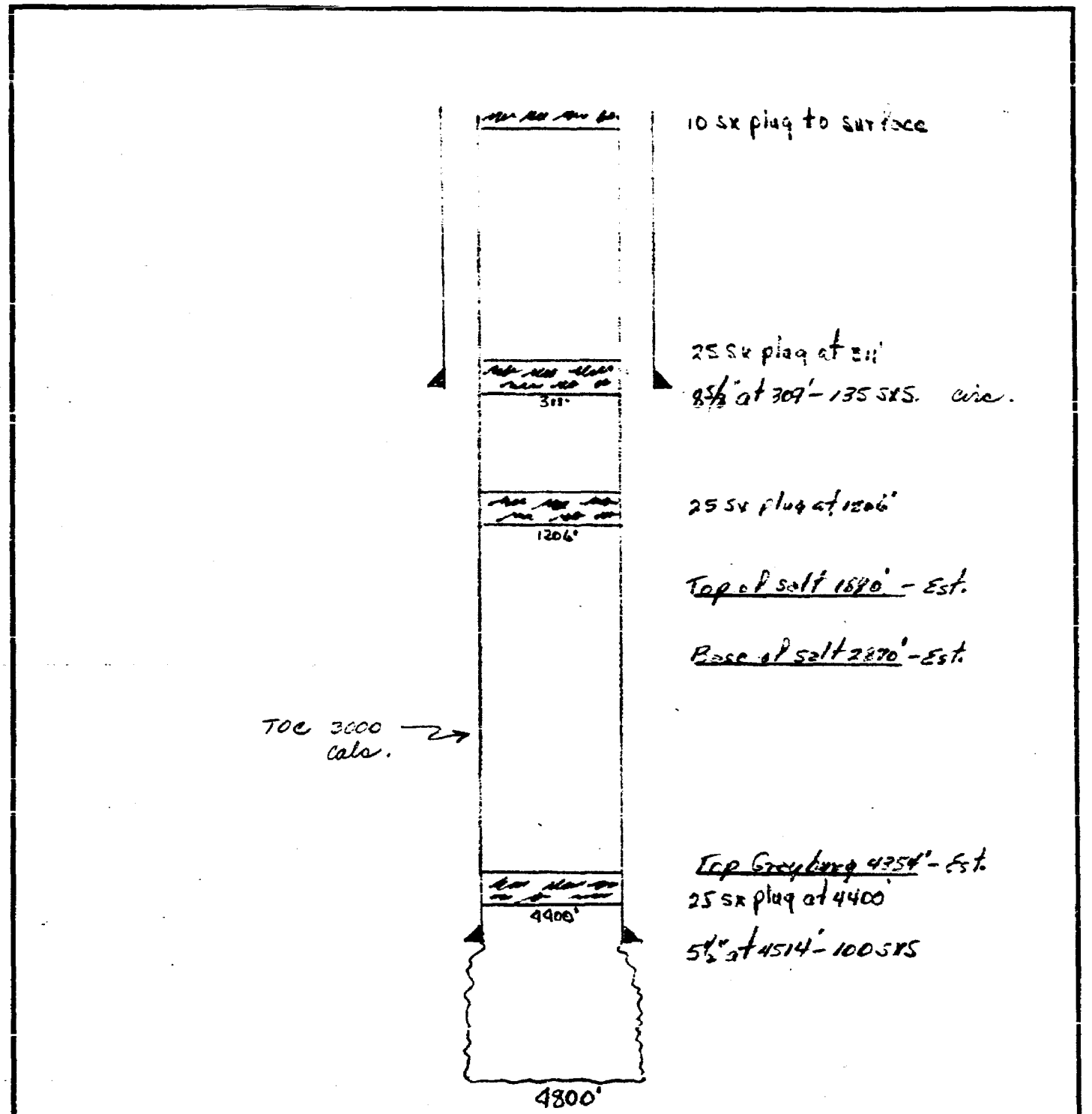
NO.	REVISION	BY	DATE	CHKD	APP'D

FOR BIDS	PHILLIPS PETROLEUM COMPANY BARTLESVILLE, OKLAHOMA	AFE NO.	FILE CODE
FOR APPR		SCALE UNLESS OTHERWISE NOTED	
FOR CONST	Crusader Opr. Inc, (Cities Service) - State Well No. 1 – 2310 FNL & 990' FWL Sec 20-17S-35E Unit E P&A 1-66	DWG NO.	
DRAWN		SH NO.	
CHECKED			
APP'D			



NO.	REVISION	BY	DATE	CHKD	APP'D

FOR BIDS	PHILLIPS PETROLEUM COMPANY	AFE NO.	FILE CODE
FOR APPR	BARTLESVILLE, OKLAHOMA		
FOR CONST	Crusader (Cities Service) State Well No. 2	SCALE UNLESS OTHERWISE NOTED	
DRAWN	990 FN + 1903 FWL, Sec. 19-17S-35E	DWG NO.	
CHECKED	Unit C P&A 2-66		
APP'D		SH NO.	



NO.	REVISION	BY	DATE	CHKD	APP'D

FOR BIDS	PHILLIPS PETROLEUM COMPANY BARTLESVILLE, OKLAHOMA	AFE NO.	FILE CODE
FOR APPR			
FOR CONST	Crusader (Cities Service) State Well No. 3 660' FS & 1903' FWL, Sec. 18-17S-35E Unit N PRA 2-66	SCALE UNLESS OTHERWISE NOTED	
DRAWN		DWG NO.	
CHECKED			
APP'D		SH NO.	

10 sx cmt plug

8 5/8" at 1607' - 250 sxs

Top of salt 1752' - Est.

Base of salt 2750' - Est

Top Grayburg 4120' - Est.

4424' - 4442'

4614' - 4628'

5 1/2" at 4725' - 250 sxs

4725'

P & A Report:

25 Sack plug in perf.
25 Sack plug across stub 7"
25 Sack plug @ base of 9 5/8
10 Sack plug on top
Set Marker

Note discrepancies with Casing shown which also come from state reports.

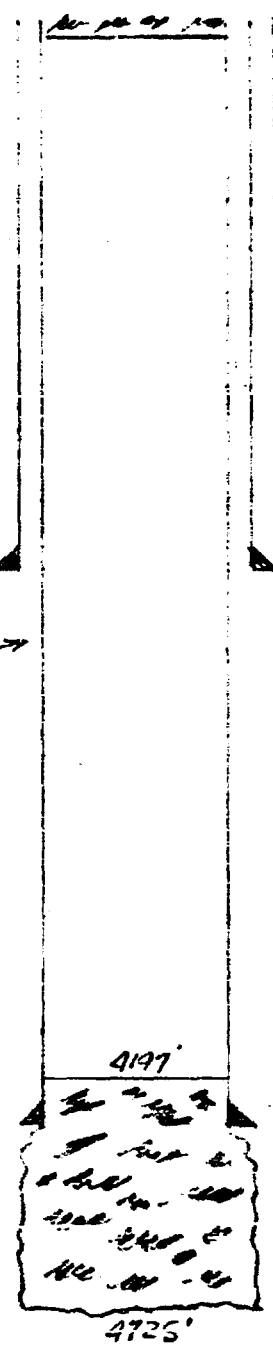
NO.	REVISION	BY	DATE	CHKD	APP'D

FOR BIDS
FOR APPR
FOR CONST
DRAWN
CHECKED
APP'D

PHILLIPS PETROLEUM COMPANY
BARTLESVILLE, OKLAHOMA

Crusader Oil & Gas - Vacuum
Texas Co. State Well No. 1
Sec. 29, T17S, R35E Unit F
P&A 3/66

AFE NO. | FILE CODE
SCALE UNLESS OTHERWISE NOTED
DWG NO.
SH NO.



10 sx plug to surface

12½" @ 230'-200sxs-Circ.

Top of salt 1525' - Est.

8⅝" at 1550'-500sxs circ

Toe 2340' → calc.

Base of salt 2870' - Est.

4197'

60 sx plug 4197'-4725'

Top Canyon 4205' - Est.

5½ at 4298' - 375 sxs

4725'

NO.	REVISION	BY	DATE	CHKD	APP'D

FOR BIDS
FOR APPR
FOR CONST

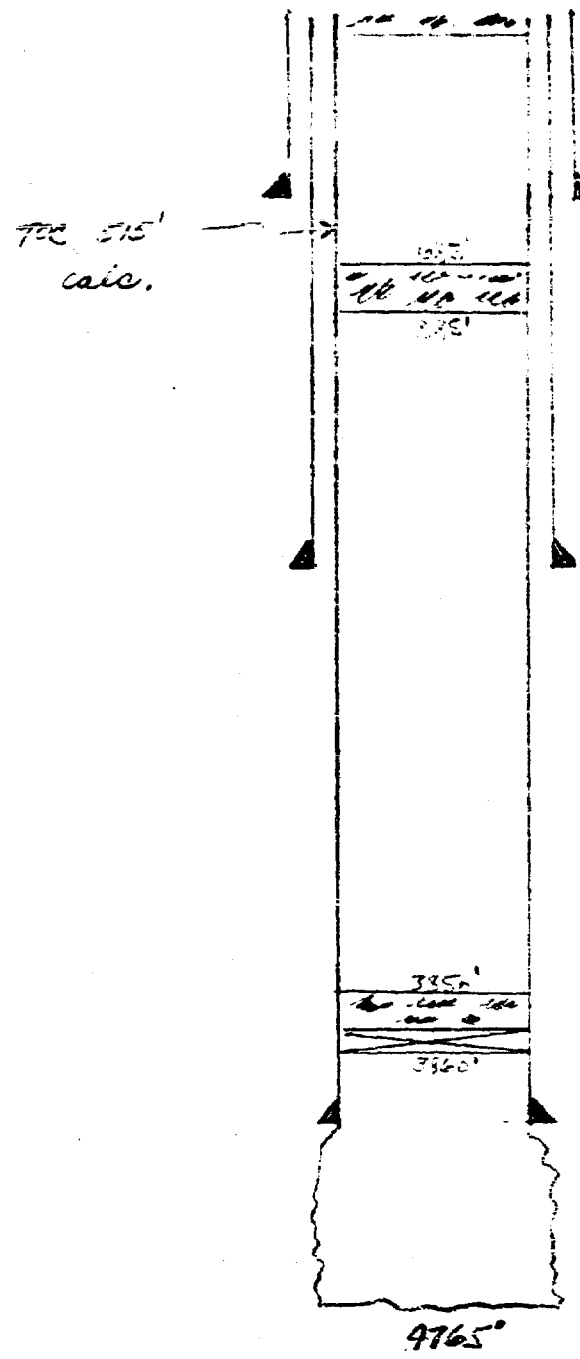
DRAWN
CHECKED
APP'D

PHILLIPS PETROLEUM COMPANY
BARTLESVILLE, OKLAHOMA

Exxon - New Mexico State "J" Well No. 1
660' FS & WL Sec 19-17S-35E
Unit M

AFE NO.
FILE CODE
SCALE
UNLESS OTHERWISE NOTED
DWG NO.
NO.

Ltr 2-65



NO.	REVISION	BY	DATE	CHKD	APP'D

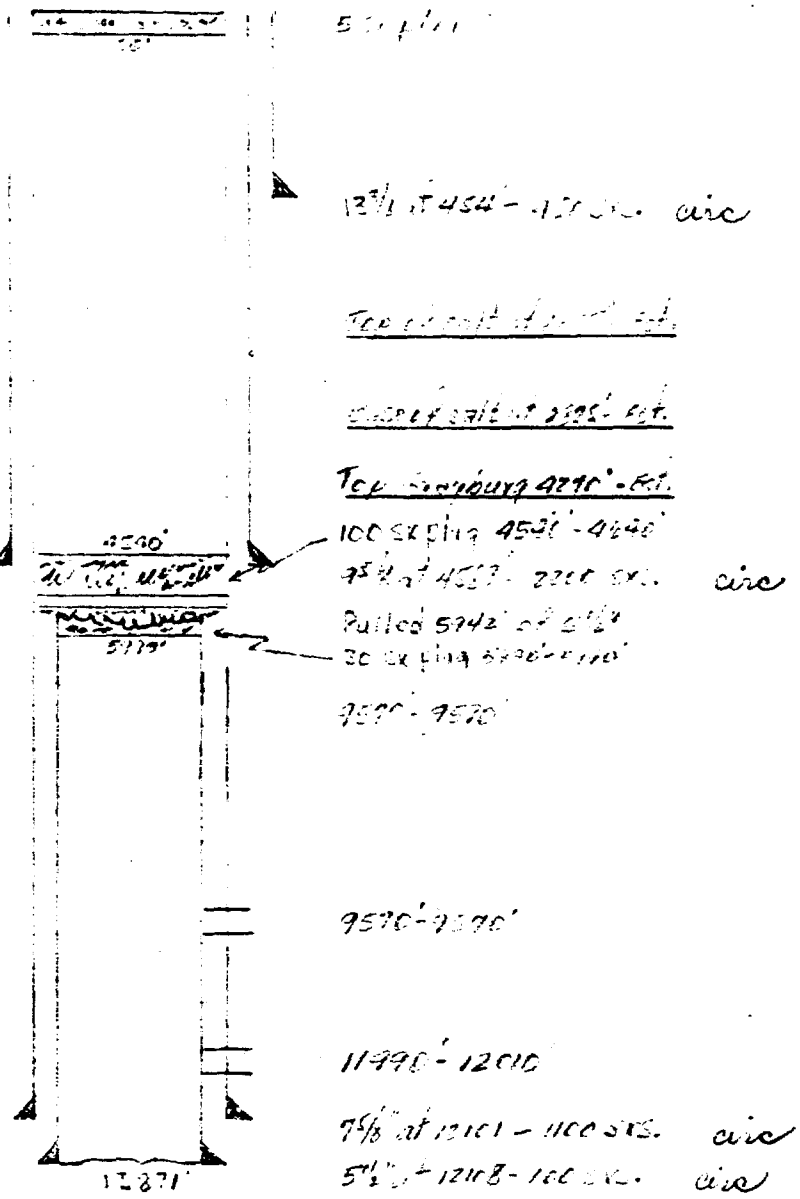
FOR BIDS
FOR APPR
FOR CONST

DRAWN
CHECKED
APP'D

PHILLIPS PETROLEUM COMPANY
BARTLESVILLE, OKLAHOMA

Exxon - New Mexico State "J" Well No. 2
Sec. 19-17S-35E
Unit L P&A 3-23-57

AFE NO.
FILE CODE
SCALE UNLESS OTHERWISE NOTED
DWG NO.
SH NO.



100 sx plug 4530'-4640'

Pulled 5142' of 5½"

30 sx plug 9520'-9570'

9570'-9790'

11990'-12010

7⅝" at 12101 – 1100 sxs. circ

5½" at 12108 – 100 sxs. circ

NO.	REVISION	BY	DATE	CHK'D	APP'D

FOR BIDS
FOR APPR
FOR CONST

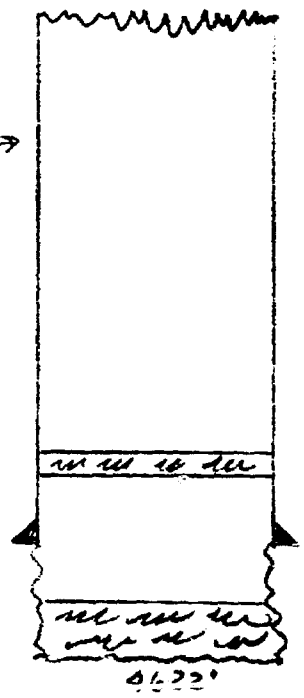
DRAWN
CHECKED
APP'D

PHILLIPS PETROLEUM COMPANY
BARTLESVILLE, OKLAHOMA

Exxon - State AC Well No. 1
Sec. 21-17S-35E
Unit H

P&A 11-3-53

AFE NO.
FILE CODE
SCALE
UNLESS OTHERWISE NOTED
DWG NO.
SH NO.



TOC 2877' calc

7⅞" at 1761' - 250 sks. circ.
Top of salt 1980' - Est.

Pulled 2650' of 5½"
Base of salt 2850' - Est.

may need more than 6 sx

6 sx plug @ 4250'

5½ at 4377' - 250 sks
Top Grayburg 4225' Est.
25 sx plug

4422'

NO.	REVISION	BY	DATE	CHKD	APP'D

FOR BIDS
FOR APPR
FOR CONST
DRAWN
CHECKED
APP'D

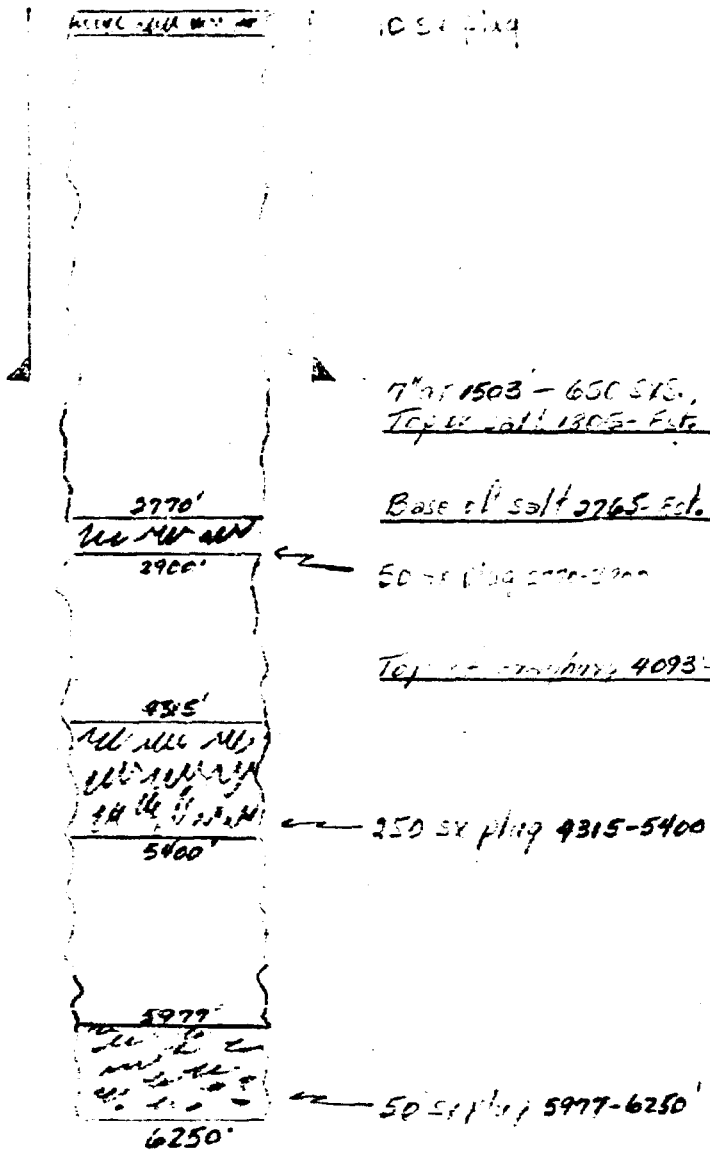
PHILLIPS PETROLEUM COMPANY
BARTLESVILLE, OKLAHOMA

Great Western - State "E" well No. 2
Sec. 25-17S-35E
Unit L

Ford 11-40

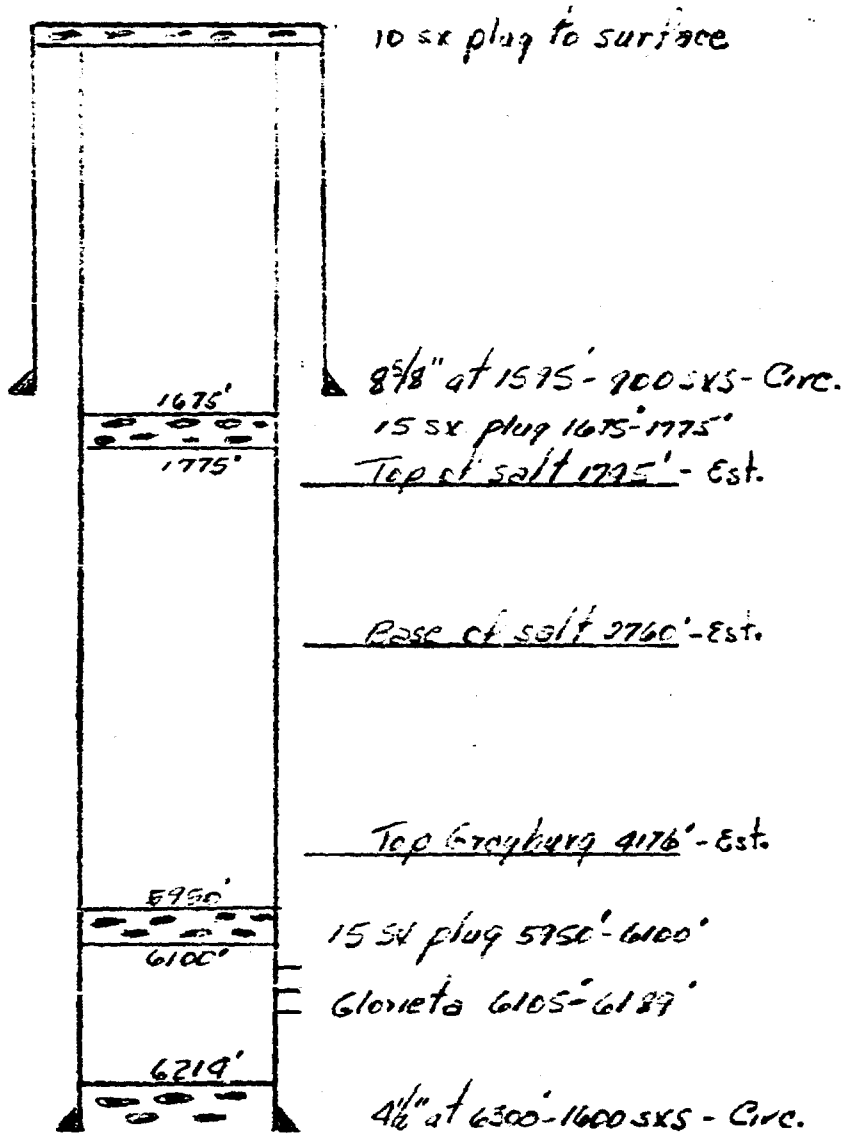
AFE NO. | FILE CODE
SCALE UNLESS OTHERWISE NOTED
DWG NO.
SH NO.

X



NO.	REVISION	BY	DATE	CHKD	APP'D

FOR BIDS	PHILLIPS PETROLEUM COMPANY	AFE NO.	FILE CODE
FOR APPR	BARTLESVILLE, OKLAHOMA		
FOR CONST	Marathon Oil Co. - Wayn State Alex #1 Sec. 33-17S-35E Unit M P&A 6-5-64	SCALE UNLESS OTHERWISE NOTED	
DRAWN		DWG NO.	
CHECKED			
APP'D		SH NO.	



Grayburg not emitted X
prob OK

NO.	REVISION	BY	DATE	CHKD	APP'D

FOR BIDS
FOR APPR
FOR CONST

DRAWN
CHECKED
APP'D

PHILLIPS PETROLEUM COMPANY
BARTLESVILLE, OKLAHOMA

Mobil Oil Corp - State "P" Well No 1
Sec. 22-17S-35E
Unit P

P&A 5-21-76

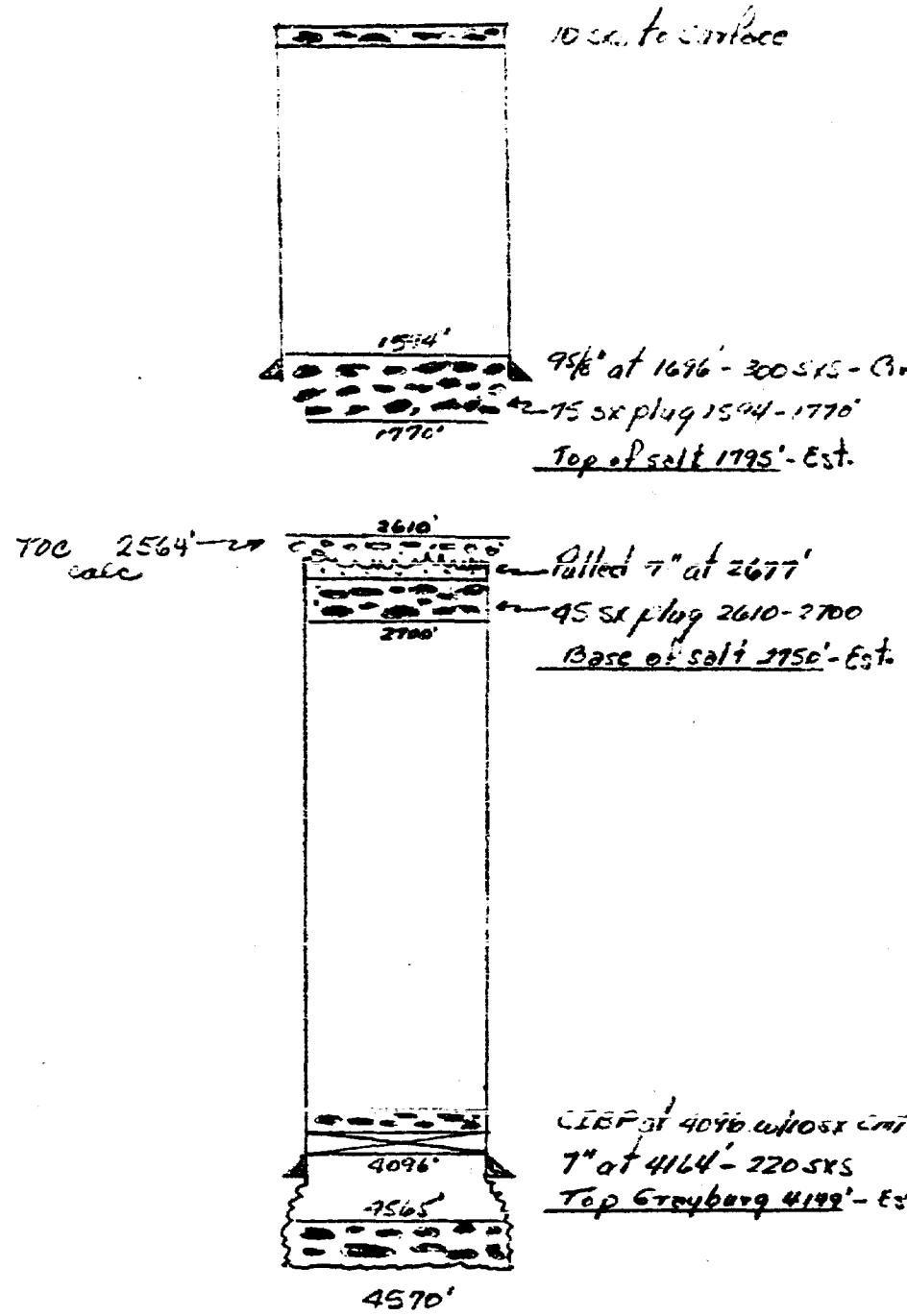
AFE NO. | FILE CODE

SCALE
UNLESS OTHERWISE NOTED

DWG NO.

SH NO.

X



NO.	REVISION	BY	DATE	CHKD	APP'D

FOR BIDS
FOR APPR
FOR CONST

DRAWN
CHECKED
APP'D

PHILLIPS PETROLEUM COMPANY
BARTLESVILLE, OKLAHOMA

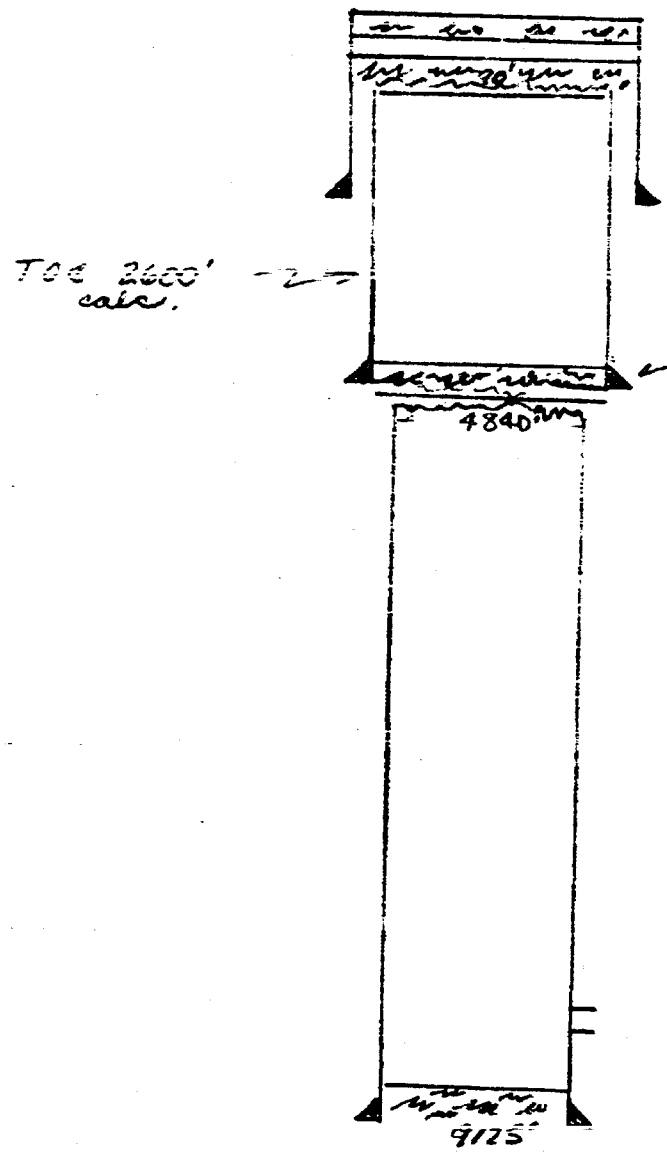
Mobil Oil Corp - State "P" Well No. 3
Sec., 26-17S-35E
Unit B P&A 5-21-76

AFE NO. | FILE CODE

SCALE
UNLESS OTHERWISE NOTED

DWG NO.

SH NO.



NO.	REVISION	BY	DATE	CHKD	APP'D

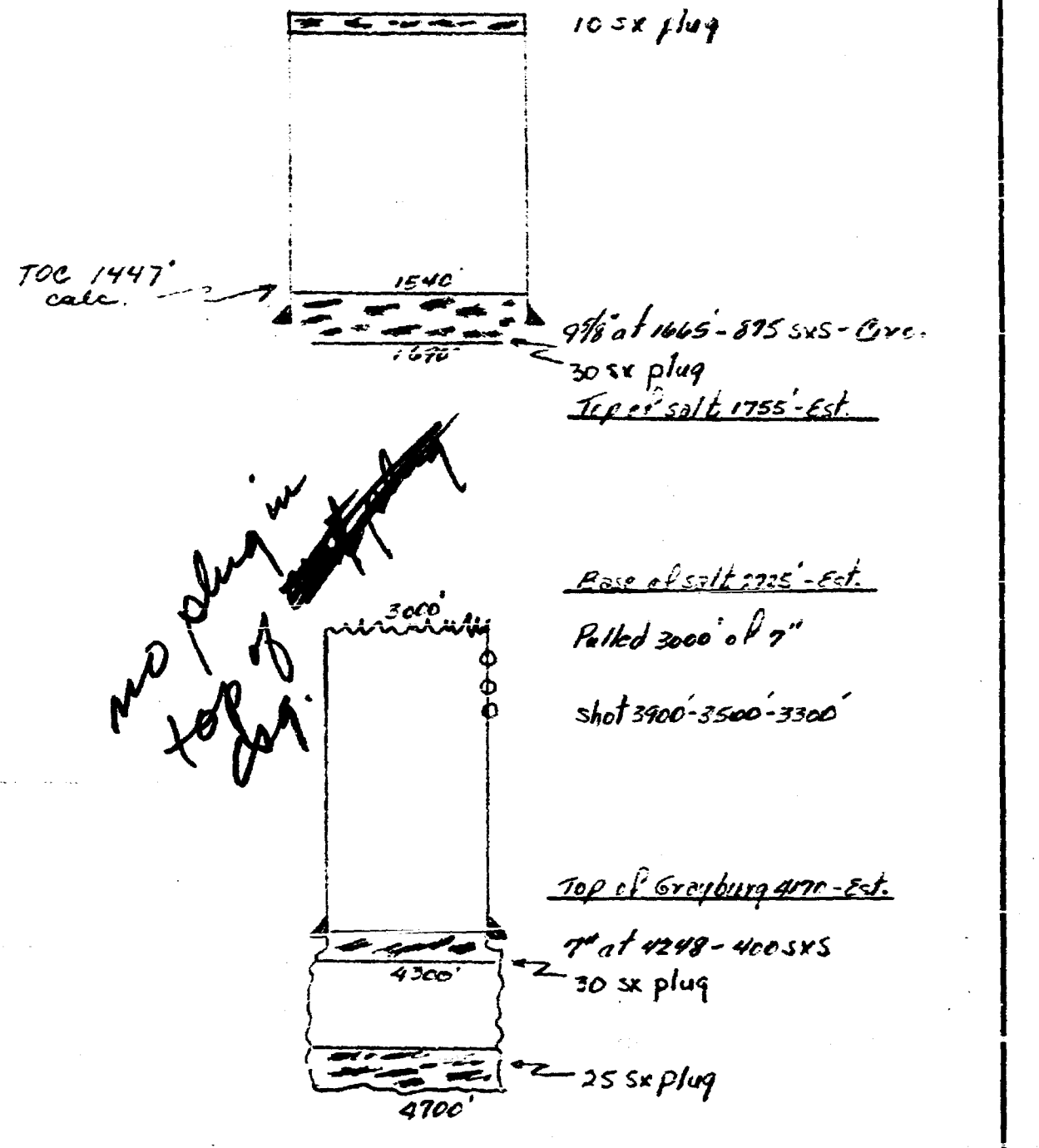
FOR BIDS
FOR APPR
FOR CONST

DRAWN
CHECKED
APP'D

PHILLIPS PETROLEUM COMPANY
BARTLESVILLE, OKLAHOMA

Penrose - (Zachary) Southern State No. 2
Sec. 24-17S-35E
Unit N
P&A 8-28-67

AFE NO.
FILE CODE
SCALE
UNLESS OTHERWISE NOTED
DWG NO.
SH NO.



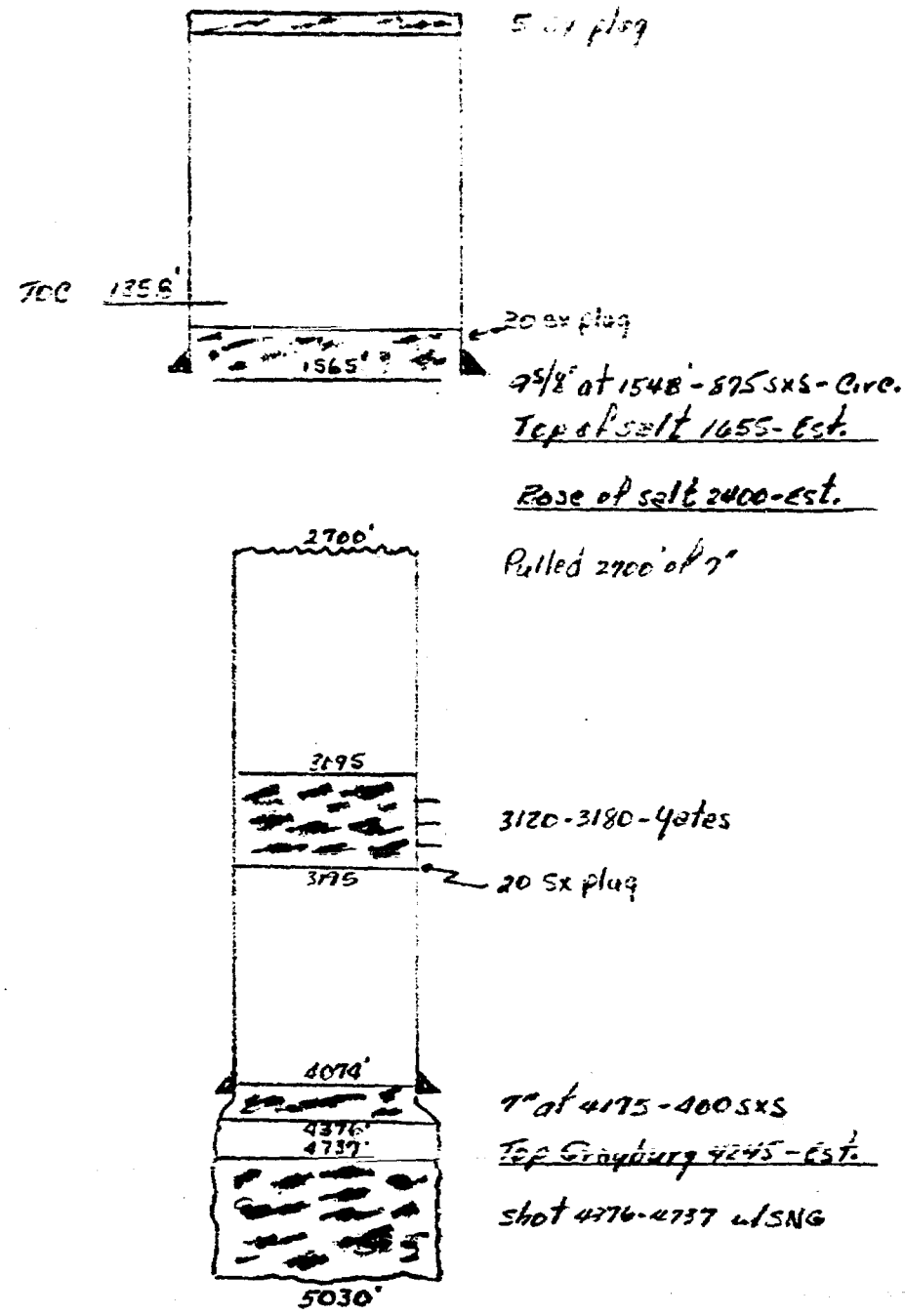
NO.	REVISION	BY	DATE	CHKD	APP'D

FOR BIDS
FOR APPR
FOR CONST
DRAWN
CHECKED
APP'D

PHILLIPS PETROLEUM COMPANY
BARTLESVILLE, OKLAHOMA

Phillips Petr Co - Santa Fe Well No. 15
660 FNL & EL, Sec. 28-17S-35E
Unit A PSA 5-24-39

AFE NO.
FILE CODE
SCALE
UNLESS OTHERWISE NOTED
DWG NO.
SH NO.



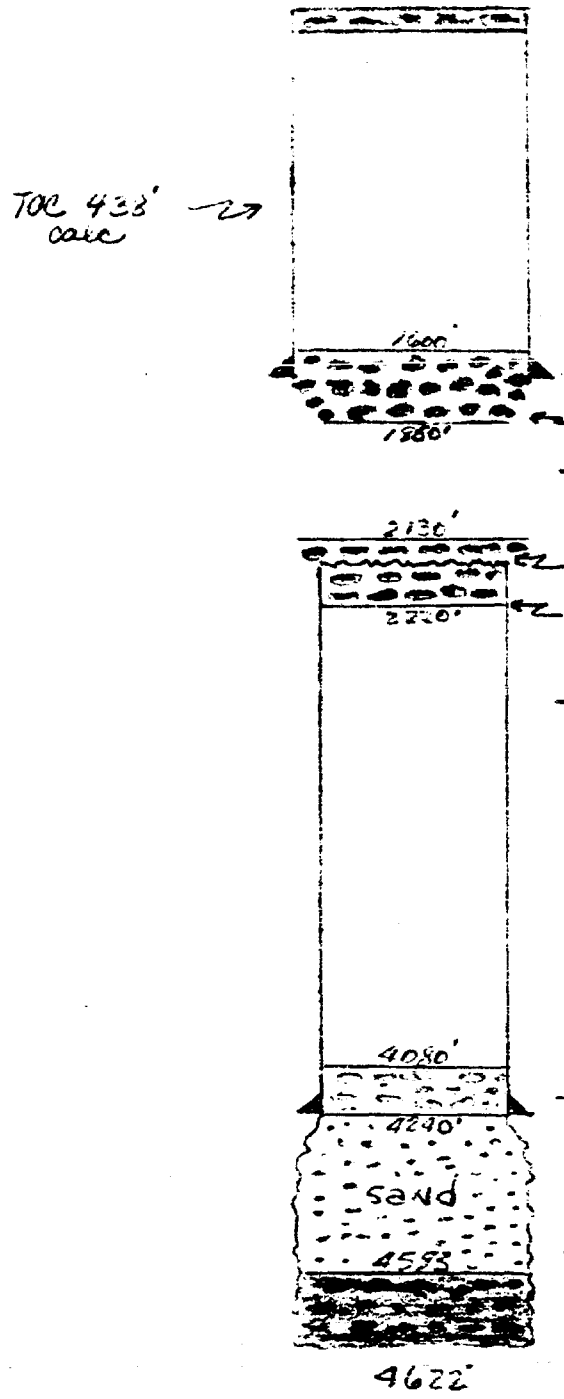
NO.	REVISION	BY	DATE	CHKD	APP'D

FOR BIDS
FOR APPR
FOR CONST
DRAWN
CHECKED
APP'D

PHILLIPS PETROLEUM COMPANY
BARTLESVILLE, OKLAHOMA

Phillips Petr. Co. - Santa Fe Well No. 16
1980' FSL & 660 FWL, Sec. 5-18S-35E
Unit L
P&A 5-17-39

AFE NO.
FILE CODE
SCALE
UNLESS OTHERWISE NOTED
DWG NO.
SH NO.



10 sx plug to surface

7⅝" at 1661' - 875 sxs - circ.

100 sx plug 1600-1850'

Top of salt 1805' - Est.

7" cut at 2180'

50 sx plug 2130'-2220'

Base of salt 2770' - Est.

50 sx plug 4080'-4240'

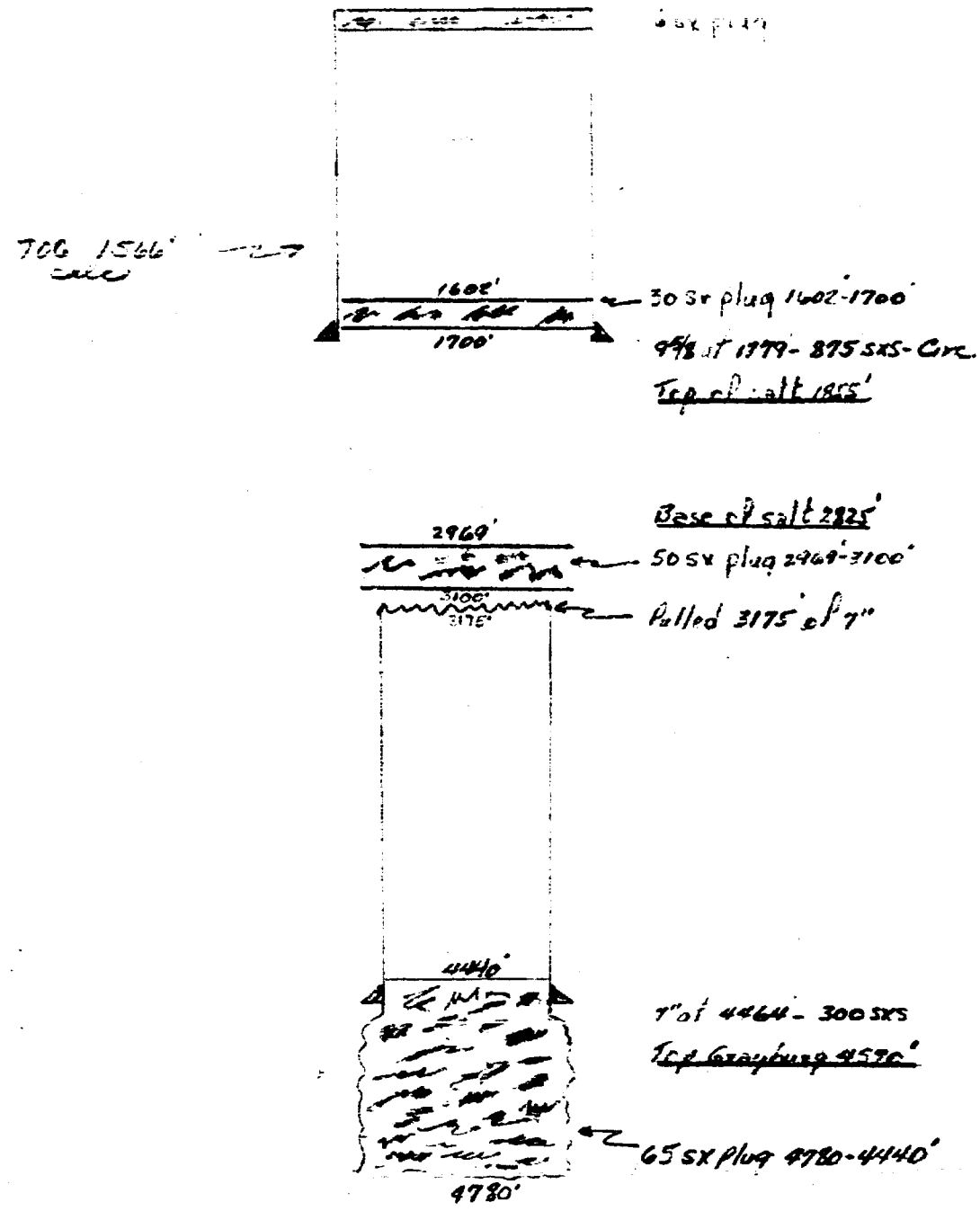
Top Grayburg 4234-Est.

7" at 4240' - 400 sxs

30 sx plug at 4583' PBTD

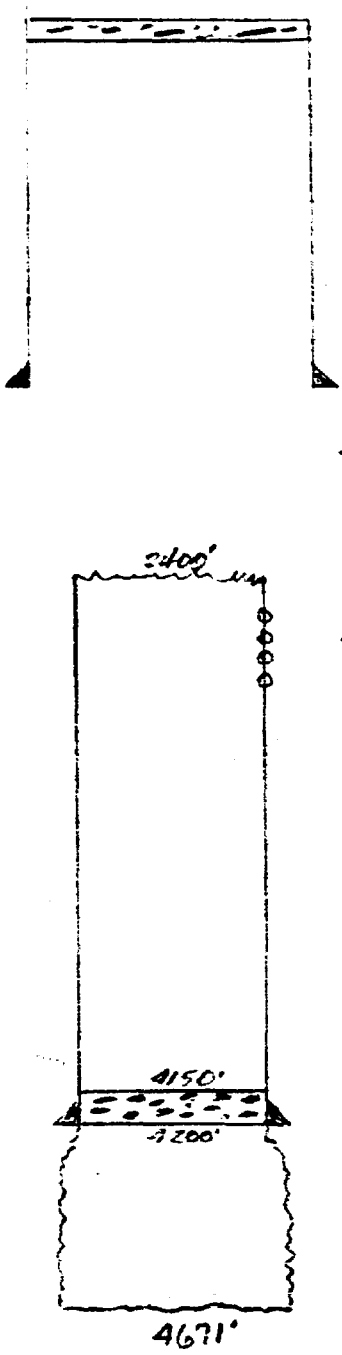
NO.	REVISION	BY	DATE	CHKD	APP'D

FOR BIDS	PHILLIPS PETROLEUM COMPANY	AFE NO.	FILE CODE
FOR APPR	BARTLESVILLE, OKLAHOMA		
FOR CONST	Phillips Pet. Co. - Santa Fe Well No. 17 660 FSL & 1980' FWL, Sec. 26-17S-35E Unit N PxA 9-75	SCALE UNLESS OTHERWISE NOTED	
DRAWN		DWG NO.	
CHECKED			
APP'D		SH NO.	



NO.	REVISION	BY	DATE	CHKD	APP'D

FOR BIDS	PHILLIPS PETROLEUM COMPANY BARTLESVILLE, OKLAHOMA	AFE NO. / FILE CODE
FOR APPR		
FOR CONST	Phillips Petr Co. - Santa Fe Well No. 19 660 FNL + 990 FEL, Sec. 35-17S-35E Unit B PA 1-4-39	SCALE UNLESS OTHERWISE NOTED
DRAWN		DWG NO.
CHECKED		
APP'D		SH NO.



Plugged 0-10'

9 5/8" at 1638' - 600 sxs - Circ.

Top of salt 1750' - Est.

Pulled 2400' of 7"

Base of salt 2720' - Est.

Shot csg 2400' - 2500' - 2600' - 2750' & 2850'

No cmt plug in top of csg

Top Grayburg 4140' - Est.

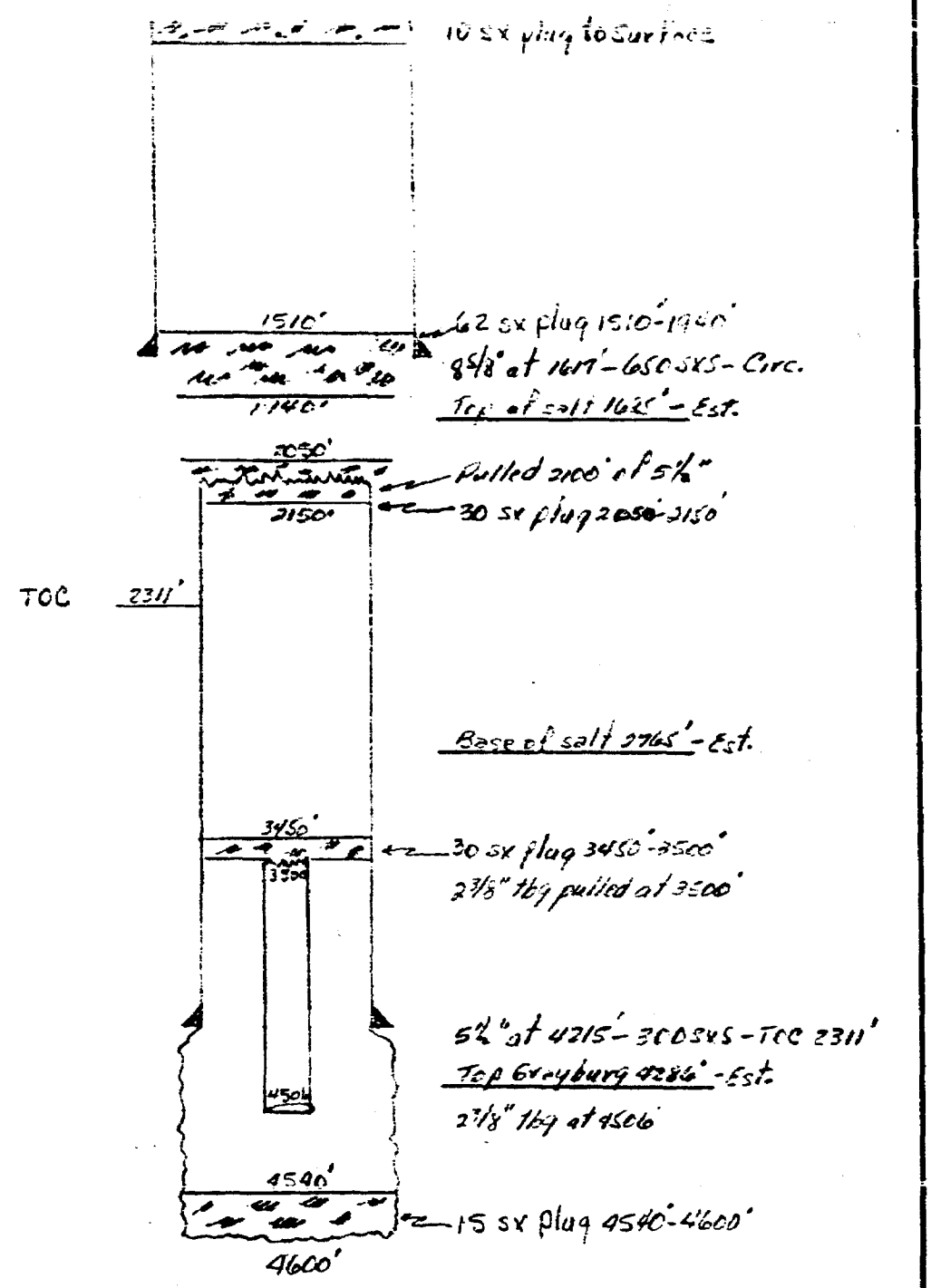
10 sx plug 4150' - 4200'

7" at 4202' - 400 sxs - TOC 1408'

NO.	REVISION	BY	DATE	CHKD	APP'D

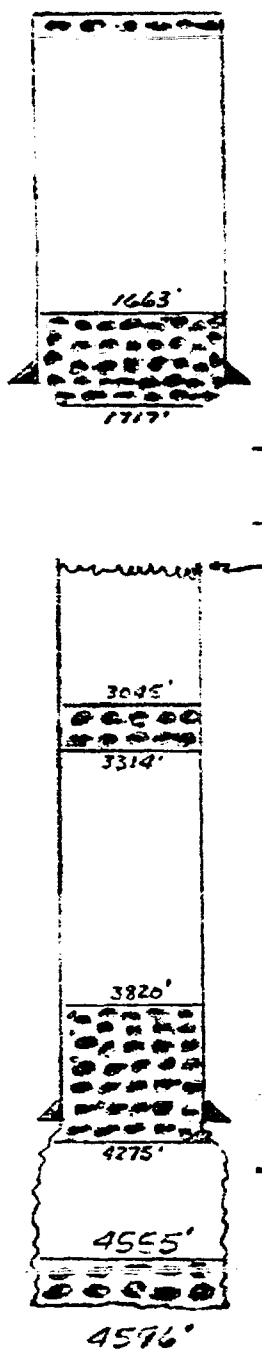
FOR BIDS	PHILLIPS PETROLEUM COMPANY BARTLESVILLE, OKLAHOMA	AFE NO. / FILE CODE
FOR APPR		
FOR CONST	Phillips Petr Co. - Santa Fe Well No. 37 1980' FNL & WL, Sec. 28-17S-35E Unit F Plat 11-47	SCALE UNLESS OTHERWISE NOTED
DRAWN		DWG NO.
CHECKED		
APP'D		SH NO.

X



NO.	REVISION	BY	DATE	CHKD	APP'D

FOR BIDS	PHILLIPS PETROLEUM COMPANY BARTLESVILLE, OKLAHOMA	AFE NO. / FILE CODE
FOR APPR		
FOR CONST	Phillips Petr Co. - Santa Fe Well No. 96 330' FNL & 1980' FWL, Sec. 4-18S-35E Unit C Pool 2-75	SCALE UNLESS OTHERWISE NOTED
DRAWN		DWG NO.
CHECKED		
APP'D		SH NO.



5 sx plug 20' to surface

20 sx plug 1663'-1717'

8⅝" at 1708' - 600 sx - Circ.

Top of salt 1810' - Est.

Base of salt 2780' - Est.

5½" cut at 2800

38 sx plug 3045'-3314'

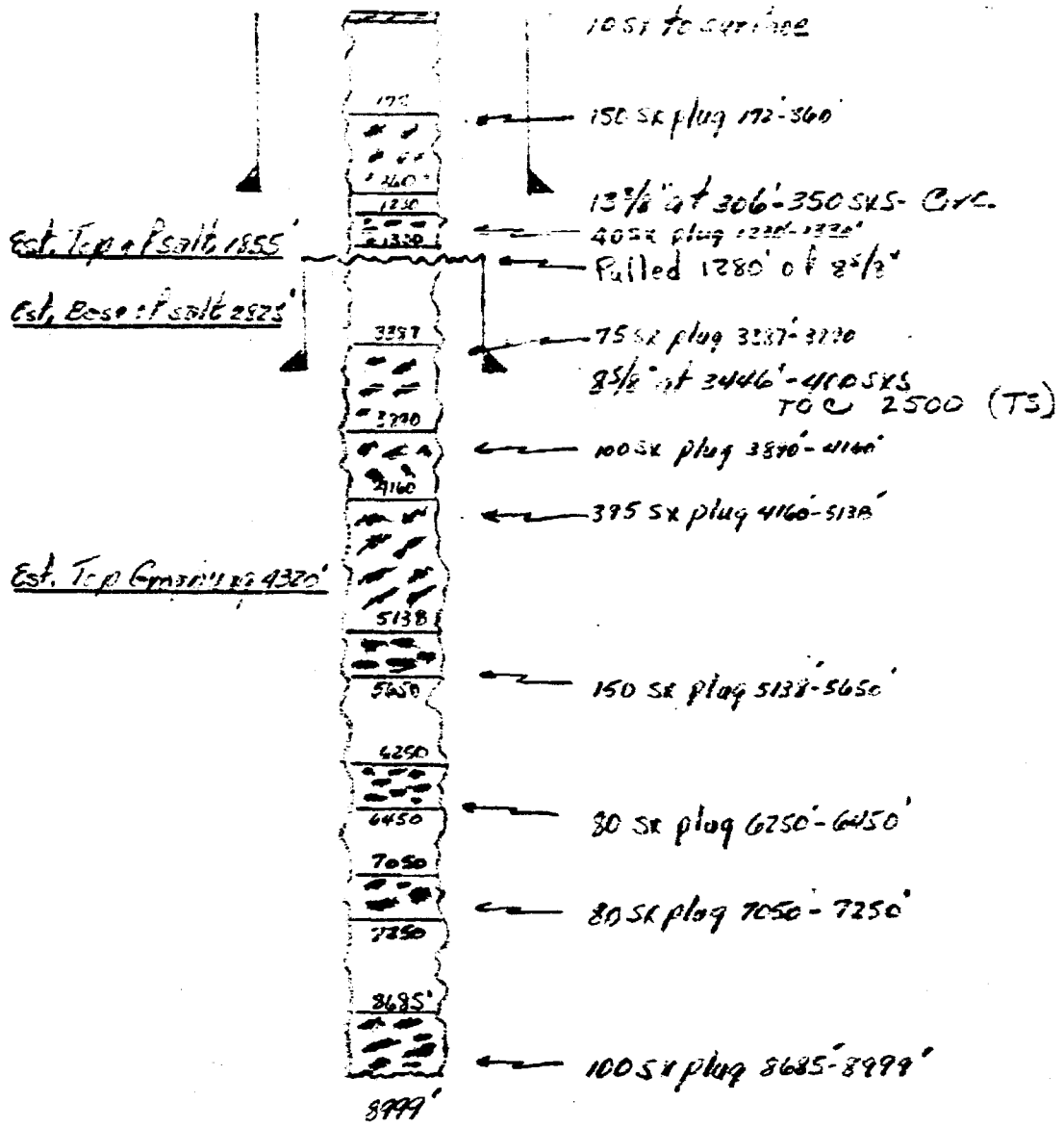
45 sx plug 3820'-4275'

5½" at 4250' - 300 sx - TOC 3396'

Top Granite 4289' - Est.

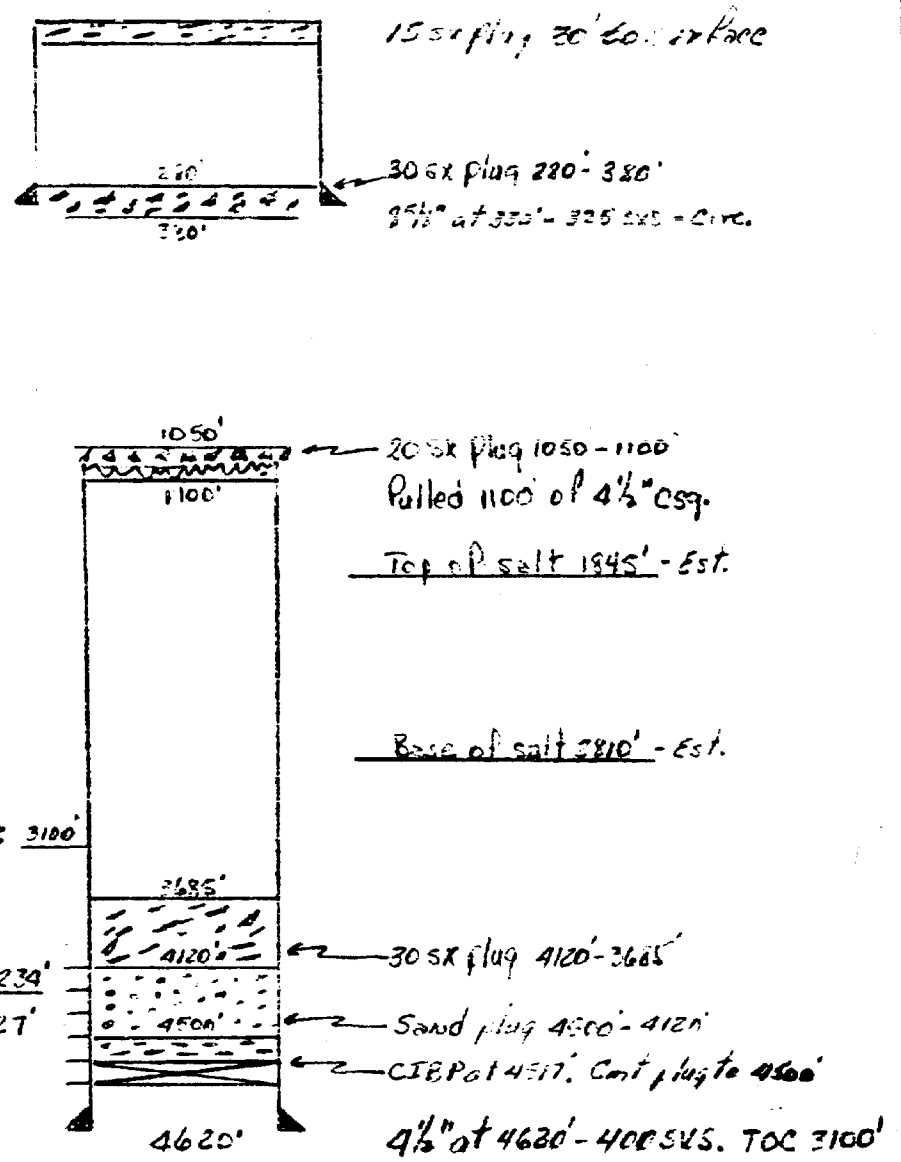
NO.	REVISION	BY	DATE	CHKD	APP'D

FOR BIDS	PHILLIPS PETROLEUM COMPANY BARTLESVILLE, OKLAHOMA	AFE NO. / FILE CODE
FOR APPR		
FOR CONST	Phillips Petr. Co. - Santa Fe Well No. 97 330 FNL & 1650 FWL, Sec. 35-17S-35E Unit C PDA 4-53	SCALE UNLESS OTHERWISE NOTED
DRAWN		DWG NO.
CHECKED		
APP'D		SH NO.



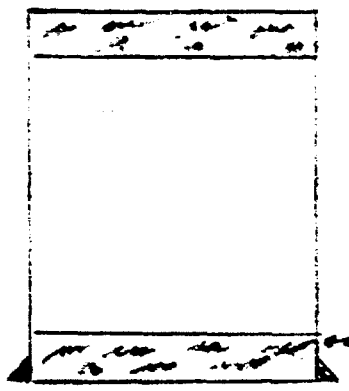
NO.	REVISION	BY	DATE	CHKD	APP'D

FOR BIDS	PHILLIPS PETROLEUM COMPANY BARTLESVILLE, OKLAHOMA	AFE NO. / FILE CODE
FOR APPR		
FOR CONST	Phillips Petr Co - Santa Fe Well No 73 990 FS & EL, SEC. 26-17S-35E Unit P PAA 9-1-77	SCALE UNLESS OTHERWISE NOTED
DRAWN		DWG NO.
CHECKED		
APP'D		SH NO.



NO.	REVISION	BY	DATE	CHKD	APP'D

FOR BIDS	PHILLIPS PETROLEUM COMPANY BARTLESVILLE, OKLAHOMA	AFE NO.	FILE CODE
FOR APPR			
FOR CONST	Phillips Petr. Co - Santa Fe Well No. 77 Sec. 26-17S-35E Unit I P&A 10-74	SCALE UNLESS OTHERWISE NOTED	
DRAWN		DWG NO.	
CHECKED			
APP'D		SH NO.	



50 sx plug

75 sx plug

8⅝" at 1682' - 600 sxs. circ

Top of salt at 1105' - est.

2600'

TOC 2600' calc

Pulled 2600' of 5½"

Base of salt at 2850' - est.

no cmt plug across open hole interval

5½" at 4350' - 275 sxs. TOC 2600 calc

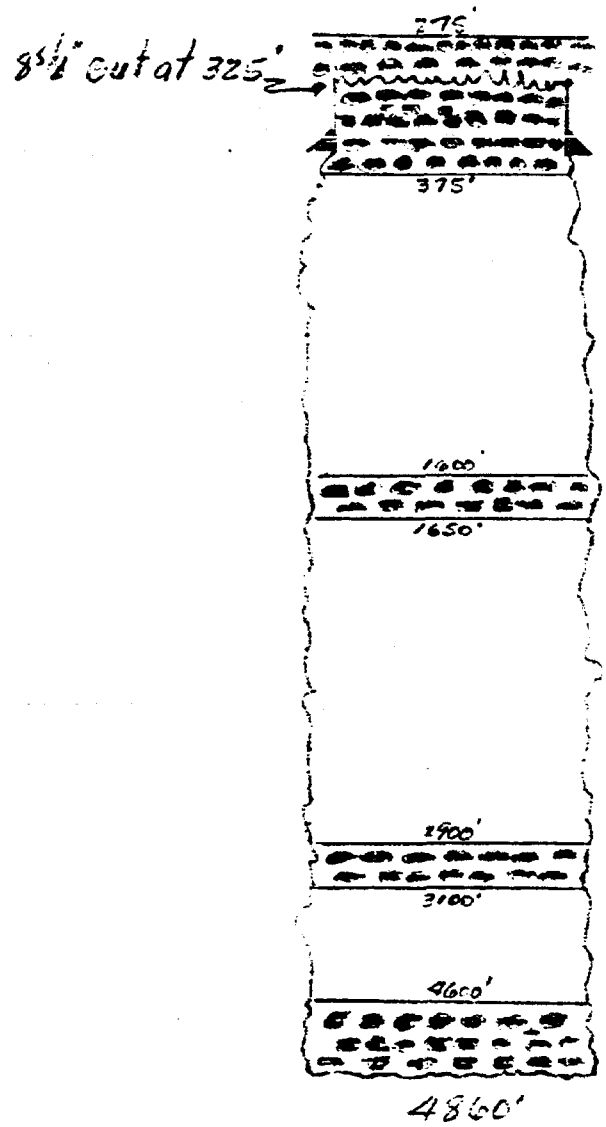
Top Grayburg 4420' - est.

4900'

NO.	REVISION	BY	DATE	CHKD	APP'D

FOR BIDS	PHILLIPS PETROLEUM COMPANY	AFE NO.	FILE CODE
FOR APPR	BARTLESVILLE, OKLAHOMA		
FOR CONST	Shell Oil Co. - State "U" Well No. 1	SCALE UNLESS OTHERWISE NOTED	
DRAWN	Sec 3-18S-35E	DWG NO.	
CHECKED	Unit C P+A 1-28-38		
APP'D		SH NO.	

X



50 sx plug 275'-375'

8 5/8" at 337' - 200 sks cmt

Top of salt at 1625' - Est.

55 sx plug 1600'-1650'

Base of salt at 2925' - Est.

150 sx plug 2900'-3100'

Top Granite at 4239' - Est.

85 sx plug at 4600'

NO.	REVISION	BY	DATE	CHKD	APP'D

FOR BIDS
FOR APPR
FOR CONST

DRAWN
CHECKED
APP'D

PHILLIPS PETROLEUM COMPANY
BARTLESVILLE, OKLAHOMA

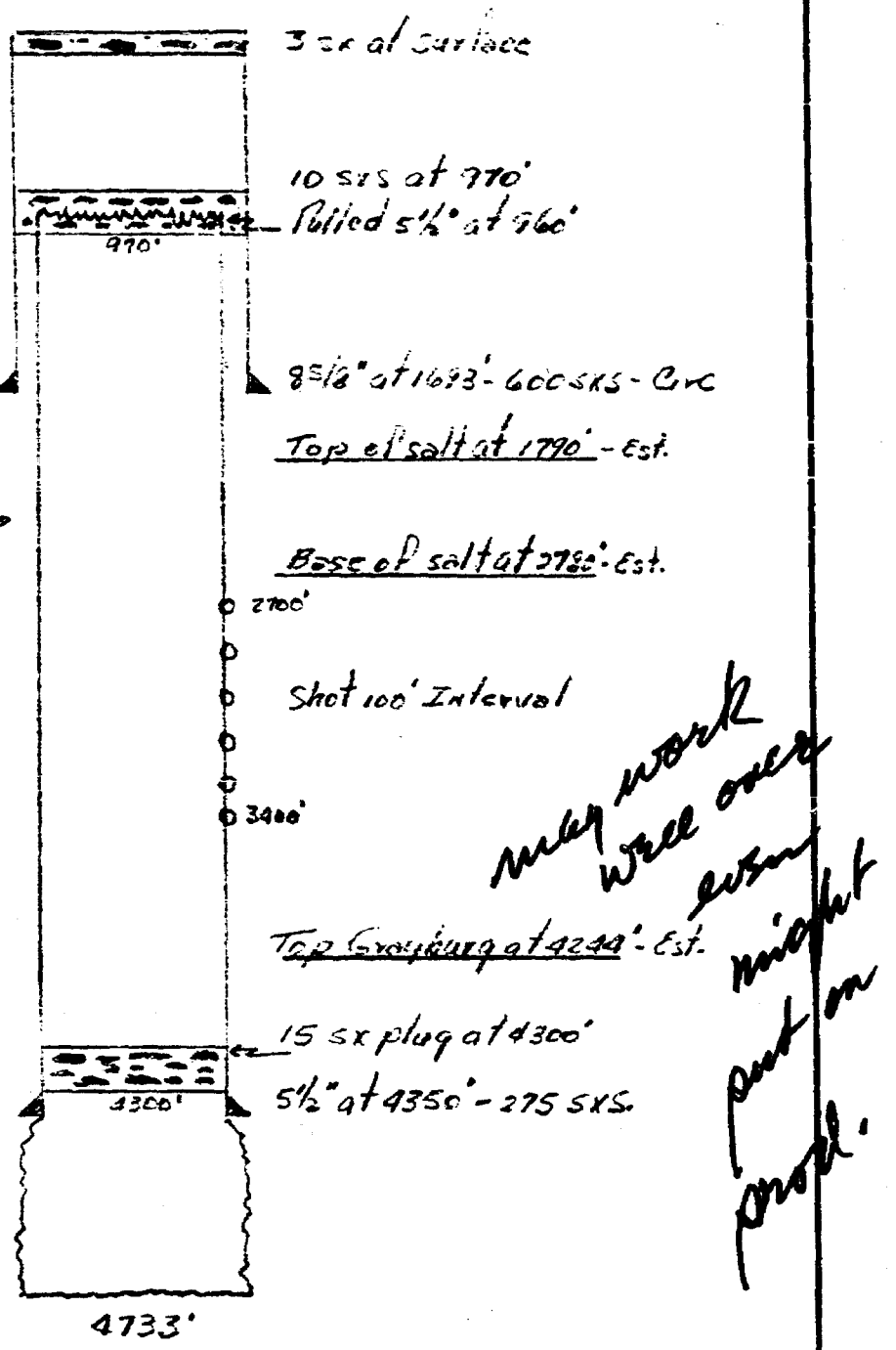
Shell Oil Co. - State "VAA" - Well No. 6
2310' FSL & 1650' FWL, Sec. 5-18S-35E
Unit K PSA 11-46

AFE NO. | FILE CODE

SCALE
UNLESS OTHERWISE NOTED

DWG NO.

SH NO.

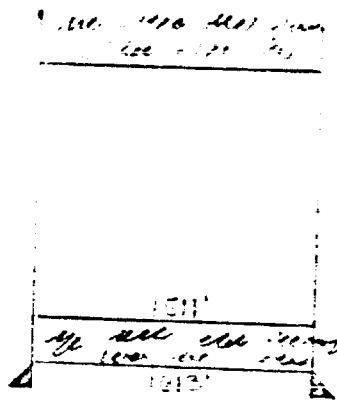


may work well once again might put on pool.

NO.	REVISION	BY	DATE	CHKD	APP'D

FOR BIDS	PHILLIPS PETROLEUM COMPANY BARTLESVILLE, OKLAHOMA	AFE NO. / FILE CODE
FOR APPR		
FOR CONST	Shell C.I Co.- State "C" Well No. 1 1980 FS & 660 FEL, Sec. 24-17S-34E Unit I PA 12-53	SCALE UNLESS OTHERWISE NOTED
DRAWN		DWG NO.
CHECKED		
APP'D		SH NO.

X



50' plug

102' plug 1511-1613

3/8" at 1652 - 600 sxs circ.

Top of salt 1750' - Est.

TOC 2600' calc

Base of salt 3720' - Est.

3000'

Top Cisco 4170' - Est.

337' plug 4300 - 4637.

5½" at 4550 - 775 sxs.
TOC 2600 (calc.)

4637'

Morrow Lime

4752'

NO.	REVISION	BY	DATE	CHKD	APP'D

FOR BIDS
FOR APPR
FOR CONST

DRAWN
CHECKED
APP'D

PHILLIPS PETROLEUM COMPANY
BARTLESVILLE, OKLAHOMA

Shell Oil Co. - State "I" Well No. 1
1980' FNL & 660' FWL, Sec. 29-17S-35E
Unit E

Apl 1-39

AFE NO.
FILE CODE
SCALE
UNLESS OTHERWISE NOTED
DWG NO.
SH NO.

10 sx cmt plug

5½" at 1700-600 sx. circ.

Top of salt 1540' - Est.

Top 2680' calc.

Base of salt 2830' - Est.

3020'

20 sx cmt plug 3100-3020'

3100'

5½ cut at 3070'

Top Grayburg 4210' - Est.

4348-4394'

5½" at 4430 - 275 sxs.

Plug in stub no plug across perfs.

4795'

NO.	REVISION	BY	DATE	CHKD	APP'D

FOR BIDS
FOR APPR
FOR CONST

DRAWN
CHECKED
APP'D

PHILLIPS PETROLEUM COMPANY
BARTLESVILLE, OKLAHOMA

Shell Oil Co. - State "S" - well No. 1
1980 FSL 660 FEL, Sec. 21-17S-35E
Unit I

P&A 4-51

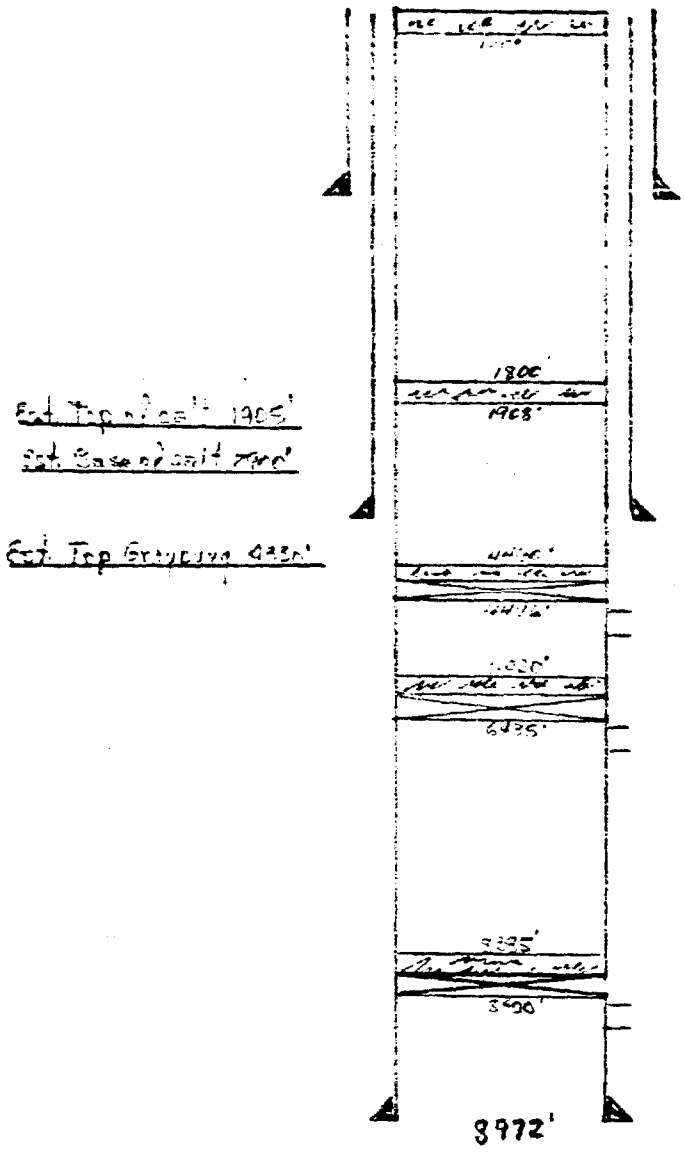
AFE NO. | FILE CODE

SCALE
UNLESS OTHERWISE NOTED

DWG NO.

SH NO.

X



Est. Top Anhydrite 1905'

Est. Base Anhydrite 2170'

Est. Top Grayburg 4430'

13⅜ at 300' - 400 sxs circ.

12 sx plug 1800-1908'

8⅝" at 3198' - 1600 sxs. circ

CIBP at 4480' w/2 sxs

4524-4927' (Grayburg)

CIBP at 6435' w/2 sxs

6456-6527' (Paddock)

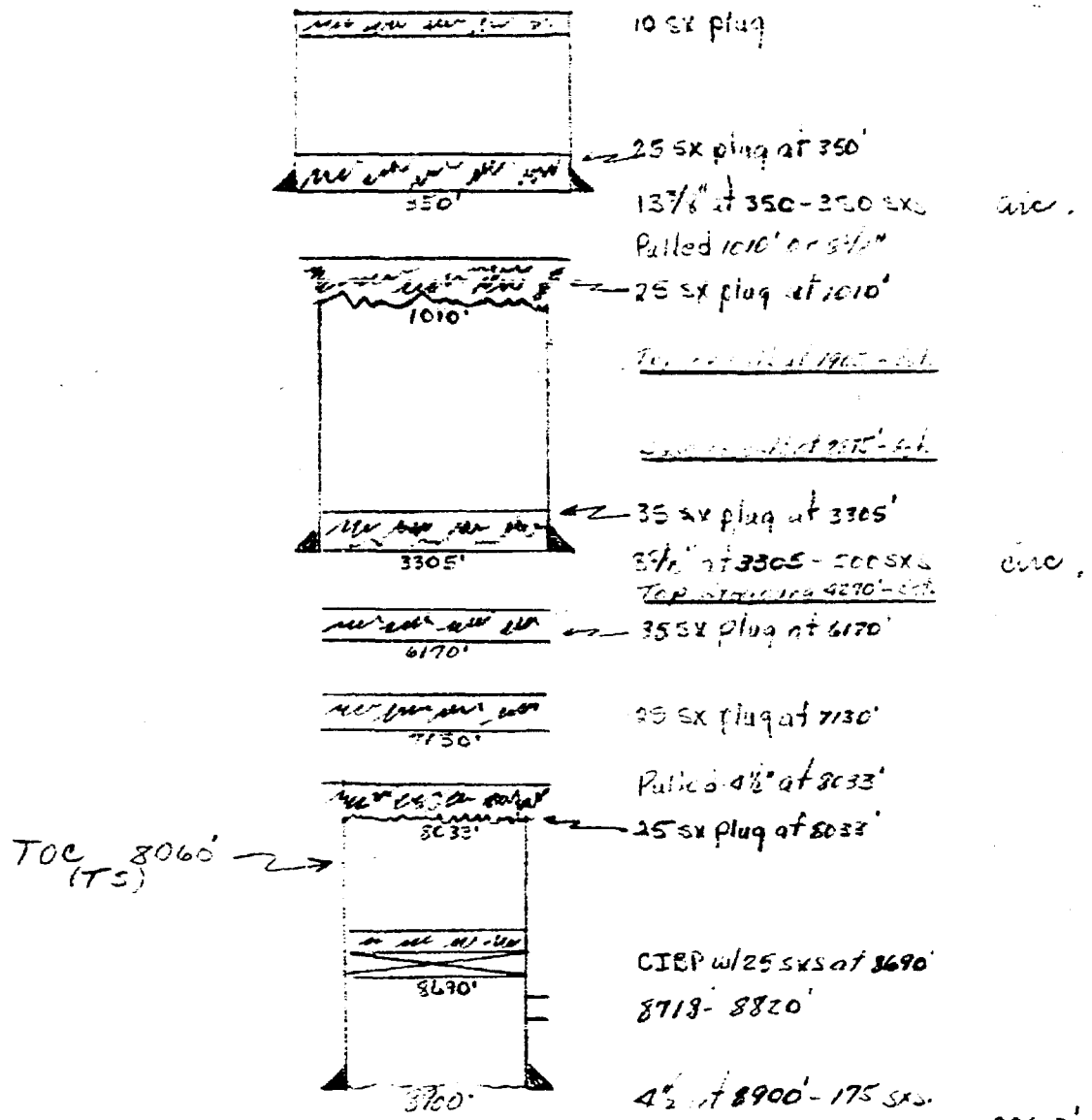
CIBP at 5490' w/2 sxs.

5421-5520' (Abo)

5½" at 5972' - 2000 sxs circ.

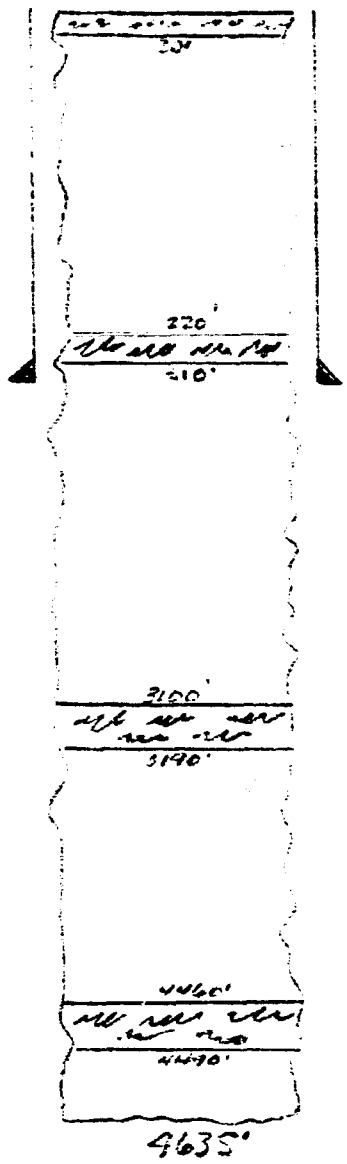
NO.	REVISION	BY	DATE	CHKD	APP'D

FOR BIDS	PHILLIPS PETROLEUM COMPANY BARTLESVILLE, OKLAHOMA	AFE NO.	FILE CODE
FOR APPR			
FOR CONST	Skelly Oil Co. - State "AC" Well No. 18 Sec. 20-17S-35E Unit B PSA 10-75	SCALE UNLESS OTHERWISE NOTED	
DRAWN		DWG NO.	
CHECKED			
APP'D		SH NO.	



NO.	REVISION	BY	DATE	CHKD	APP'D

FOR BIDS	PHILLIPS PETROLEUM COMPANY	AFE NO. / FILE CODE
FOR APPR	BARTLESVILLE, OKLAHOMA	
FOR CONST	Stolz, Wagner & Brown - "Abc" Sec. 24-17S-35E Unit O PoA 12-21-71	SCALE: UNLESS OTHERWISE NOTED
DRAWN		DWG NO.
CHECKED		
APP'D		SH NO.



10 sx plug

30 sx plug 220'-310'

8 5/8" at 328' - 175 sxs - Circ.

Top of salt 1800'- Est.

Base of salt 2775'- Est.

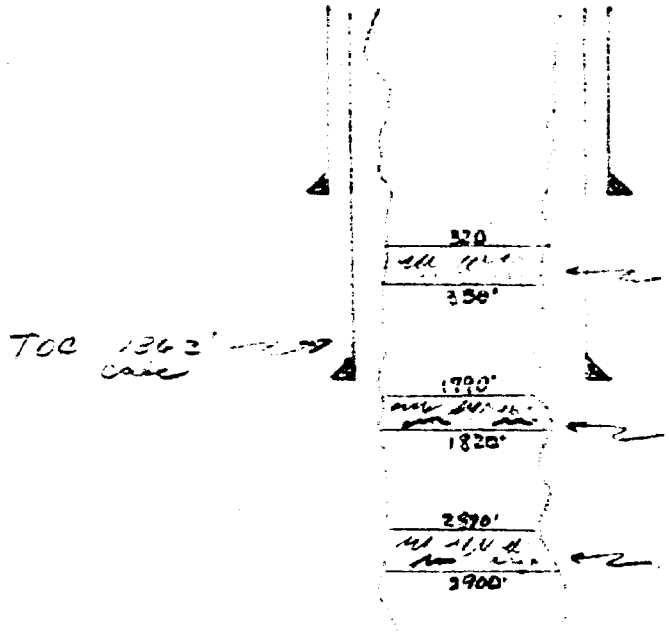
30 Sx plug 3100'-3190'

Top Granite 4295' - Est.

30 sx plug 4460'-4490'

NO.	REVISION	BY	DATE	CHKD	APP'D

FOR BIDS	PHILLIPS PETROLEUM COMPANY BARTLESVILLE, OKLAHOMA	AFE NO. / FILE CODE
FOR APPR		
FOR CONST	Zapata Petr Corp - Adams & Peterson "Shell St" No Sec. 23-17S-35E Unit O P&A 1-15-58	SCALE UNLESS OTHERWISE NOTED
DRAWN		DWG NO.
CHECKED		
APP'D		SH NO.



12 3/4" at 252 - 100 sxs circ

10 sx plug

TOC 1362' calc

8 5/8" at 1792' - 50 sxs.

10 sx plug

Top of salt 1875 - Est.

Base of salt 2870 - Est.

10 sx plug

no cmt across unitized interval

Top Grayburg 3696 - Est.

3696 is wrong thinks top of Grayburg is at about 4000.

10 sx plug

10 AH inadequate

NO.	REVISION	BY	DATE	CHKD	APP'D

FOR BIDS	PHILLIPS PETROLEUM COMPANY BARTLESVILLE, OKLAHOMA	AFE NO. / FILE CODE
FOR APPR		
FOR CONST	Barnett & Hanson - State #1-B Sec 19-17S-35E Unit D AA 3 31 49	SCALE UNLESS OTHERWISE NOTED
DRAWN		DWG NO.
CHECKED		
APP'D		NO.

[illegible]
10 sx plug

[illegible]
350
25 sx plug
[illegible] 339 - [illegible]

[illegible]
1330'
25 sx plug
[illegible] 1330

Top of salt 1610'-Est.

Base of salt 2850'-Est.

[illegible]
3500'
25 sx plug
5½ [illegible] 3500 - [illegible]

[illegible]
4700'
Top Granite 4370'-Est
25 sx plug

[illegible]
6500'
25 sx plug

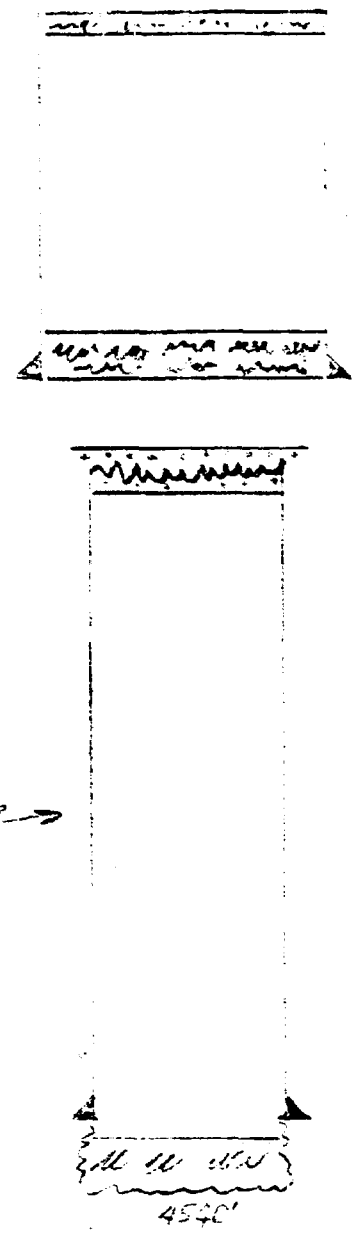
[illegible]
9250'
25 sx plug

[illegible]
9100'
25 sx plug

[illegible]
9125'
25 sx plug

NO.	REVISION	BY	DATE	CHKD	APP'D

FOR BIDS	PHILLIPS PETROLEUM COMPANY BARTLESVILLE, OKLAHOMA	AFE NO.	FILE CODE
FOR APPR			
FOR CONST	Mac Jones - State Well No. 2 Sec. 35-17S-35E Unit A P&A 8-1-63	SCALE UNLESS OTHERWISE NOTED	
DRAWN		DWG NO.	
CHECKED			
APP'D		SH NO.	



NO.	REVISION	BY	DATE	CHKD	APP'D

FOR BIDS	PHILLIPS PETROLEUM COMPANY BARTLESVILLE, OKLAHOMA	AFE NO.	FILE CODE
FOR APPR		SCALE UNLESS OTHERWISE NOTED	
FOR CONST	Pawnee, Inc. - Scharborough #1 Sec. 25-17S-35E Unit C AP 5-16-57	DWG NO.	
DRAWN		SH NO.	
CHECKED			
APP'D			

VACUUM FIELD
(Phillips - Grayburg - San Andres Waterflood)
Lea County, New Mexico

Order No. R-3150, Authorizing Phillips Petroleum Company to Institute a Pilot Waterflood Project in the Grayburg-San Andres Formation, Vacuum Field, Lea County, New Mexico, November 14, 1966.

Application of Phillips Petroleum Company for a Pilot Waterflood Project, Lea County, New Mexico.

CASE NO. 3484
Order No. R-3150

ORDER OF THE COMMISSION

BY THE COMMISSION: This cause came on for hearing at 9 a.m. on November 2, 1966, at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this 14th day of November, 1966, the Commission, a quorum being present, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:
(1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Phillips Petroleum Company, seeks permission to institute a pilot waterflood project in the Vacuum Field by the injection of water into the Grayburg-San Andres formation through its Santa Fe Well No. 14 located in Unit P of Section 20, Township 17 South, Range 35 East, NMPM, Lea County, New Mexico.

(3) That the wells in the project area are in an advanced state of depletion and should properly be classified as "stripper" wells.

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

(5) That the subject application should be approved and the project should be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

IT IS THEREFORE ORDERED:
(1) That the applicant, Phillips Petroleum Company, is hereby authorized to institute a pilot waterflood project in the Vacuum Field by the injection of water into the Grayburg-San Andres formation through its Santa Fe Well No. 14 located in Unit P of Section 20, Township 17 South, Range 35 East, NMPM, Lea County, New Mexico.

(2) That the subject pilot waterflood project is hereby designated the Santa Fe-Vacuum Waterflood Project and shall be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

(3) That monthly progress reports of the pilot waterflood project herein authorized shall be submitted to the Commission in accordance with Rules 704 and 1120 of the Commission Rules and Regulations.

(4) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

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

BISTI-LOWER GALLUP POOL
(West Bisti Pressure Maintenance Project Exception)
San Juan County, New Mexico

Order No. R-3148, Authorizing Gulf Oil Corporation to Discontinue Monthly Gas-Oil Ratio Tests for its West Bisti Pressure Maintenance Project, Bisti-Lower Gallup Pool, San Juan County, New Mexico, November 9, 1966.

Application of Gulf Oil Corporation for an Exception to Rule 8 of Order No. R-1638 and to Rule 301, San Juan County, New Mexico.

CASE NO. 3479
Order No. R-3148

ORDER OF THE COMMISSION

BY THE COMMISSION: This cause came on for hearing at 9 a.m. on November 2, 1966, at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this 9th day of November, 1966, the Commission, a quorum being present, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

BEFORE EXAMINER NUTTER
OIL CONSERVATION DIVISION
Phillips EXHIBIT NO. 2
CASE NO. 6367

PROPOSED

SPECIAL RULES AND REGULATIONS FOR THE EAST VACUUM GRAYBURG-SAN ANDRES UNIT PRESSURE MAINTENANCE PROJECT

Rule 1. Unit Operator is authorized to institute a pressure maintenance project in the East Vacuum Grayburg-San Andres Unit Area, Vacuum Grayburg-San Andres Pool, Lea County, New Mexico, by the injection of water into wells at orthodox and unorthodox locations.

Rule 2. Unit Operator is authorized to drill injection wells and additional producing wells at orthodox and unorthodox locations anywhere within the Unit Area provided no unorthodox location is closer than ten feet to a quarter/quarter section line or closer than 1,320 feet to the unit boundary. The Division-Director shall have authority to grant permission to drill any well within the provisions of this rule without notice and hearing.

Rule 3. Each newly drilled injection or producing well shall be equipped with surface casing (350') and production casing run to total depth (4,900'). All casing strings shall be cemented to the surface except, that in those instances where an intermediate casing string has been run to below the top of the Yates formation and cemented to the surface, then the production string may be cemented back into the base of the intermediate.

Rule 4. The conversion of producing wells to injection at orthodox and unorthodox locations within the Unit Area shall be accomplished only after approval of same by the Division-Director.

Rule 5. Injection shall be accomplished through tubing installed in a packer set within 100 feet of the uppermost perforation. The injection tubing shall be corrosion protected by a non-reactive internal lining or coating. The casing-tubing annulus in each injection well shall be filled with an inert fluid and a surface

BEFORE EXAMINER NUTTER
OIL CONSERVATION DIVISION
Phillips EXHIBIT NO. 21
CASE NO. 6367

pressure gauge or approved leak detection device shall be attached to the annulus.

Rule 6. The injection wells or system shall be equipped with a pressure control device or acceptable substitute which will limit the surface injection pressure to no more than 0.2 psi per foot of depth to the uppermost perforation. The Division-Director may administratively authorize a pressure limitation in excess of the above upon showing by the Unit Operator that such higher pressure will not result in fracturing of the confining strata.

Rule 7. The project area of the East Vacuum Unit Pressure Maintenance Project shall consist of those proration units within the boundaries of the East Vacuum Grayburg-San Andres Unit upon which is located an injection well and any directly or diagonally offsetting proration unit which contains a producing well.

Rule 8. All wells within the project area shall be equipped with risers or in another acceptable manner such as to facilitate the periodic testing of the bradenhead for pressure or fluid production.

Rule 9. That those wells within the East Vacuum Unit Area that are not included within the project area as defined above shall be prorated in accordance with the Rules and Regulations of the Division.

Rule 10. The project area shall receive a project area allowable, and said project area allowable shall be the sum of the basic project area allowable plus the water injection credit allowable.

Rule 11. The basic project area allowable shall be equal to 80 barrels of oil per day times the number of developed 40-acre proration units in the project area.

Rule 12. The water injection credit allowable shall be contingent upon full reservoir voidage replacement of all produced fluids and shall be

based upon the following formula:

$$\text{Water Injection Credit Allowable} = \left[\frac{\text{Net Water Injected}}{\text{Basic Project Area Allowable Reservoir Voidage}} - 1 \right] \times \text{Basic Project Area Allowable}$$

In no event shall the water injection credit allowable be less than zero, i.e., negative numbers derived from application of the above formula shall be ignored.

Rule 13. The weighted average project area reservoir pressure shall be determined prior to commencement of injection of water into the reservoir and at least annually thereafter.

Rule 14. The project area allowable may be produced from the wells within the project area in any proportion provided, however, that any proration unit situated on the boundary of the East Vacuum Unit which proration unit is not directly or diagonally offset by a San Andres injection well outside said East Vacuum Unit or on the East Vacuum Unit boundary shall not be permitted to produce in excess of 80 barrels of oil per day.

no limit on injection water credit / injection allowable

EXHIBIT A

EAST VACUUM GRAYBURG-SAN ANDRES UNIT
PRESSURE MAINTENANCE PROJECT

(N.M.O.C.D. ORDER R-_____)

VACUUM GRAYBURG-SAN ANDRES POOL, LEA COUNTY, NEW MEXICO

WATER INJECTION CREDIT ALLOWABLE CALCULATION DATA

ATTACHMENT TO _____, 1979, REPORT

$$\text{Water Injection Credit Allowable} = \left[\frac{W_i - W_p}{BPAA \left[B_o + \frac{(R_p - R_s)}{(1{,}000)} B_g \right]} - 1 \right] BPAA$$

W_i = _____ = Average daily water injection, barrels per day, project area only.

W_p = _____ = Average daily water produced, barrels per day, project area only.

BPAA = _____ = Basic project area allowable, 80 bopd x _____ (number of developed 40-acre tracts in project area).

_____ = Weighted average project area reservoir pressure, psig, from _____, 1979, survey data.

B_o = _____ = Oil formation volume factor, reservoir barrels per stock tank barrel (Exhibit B).

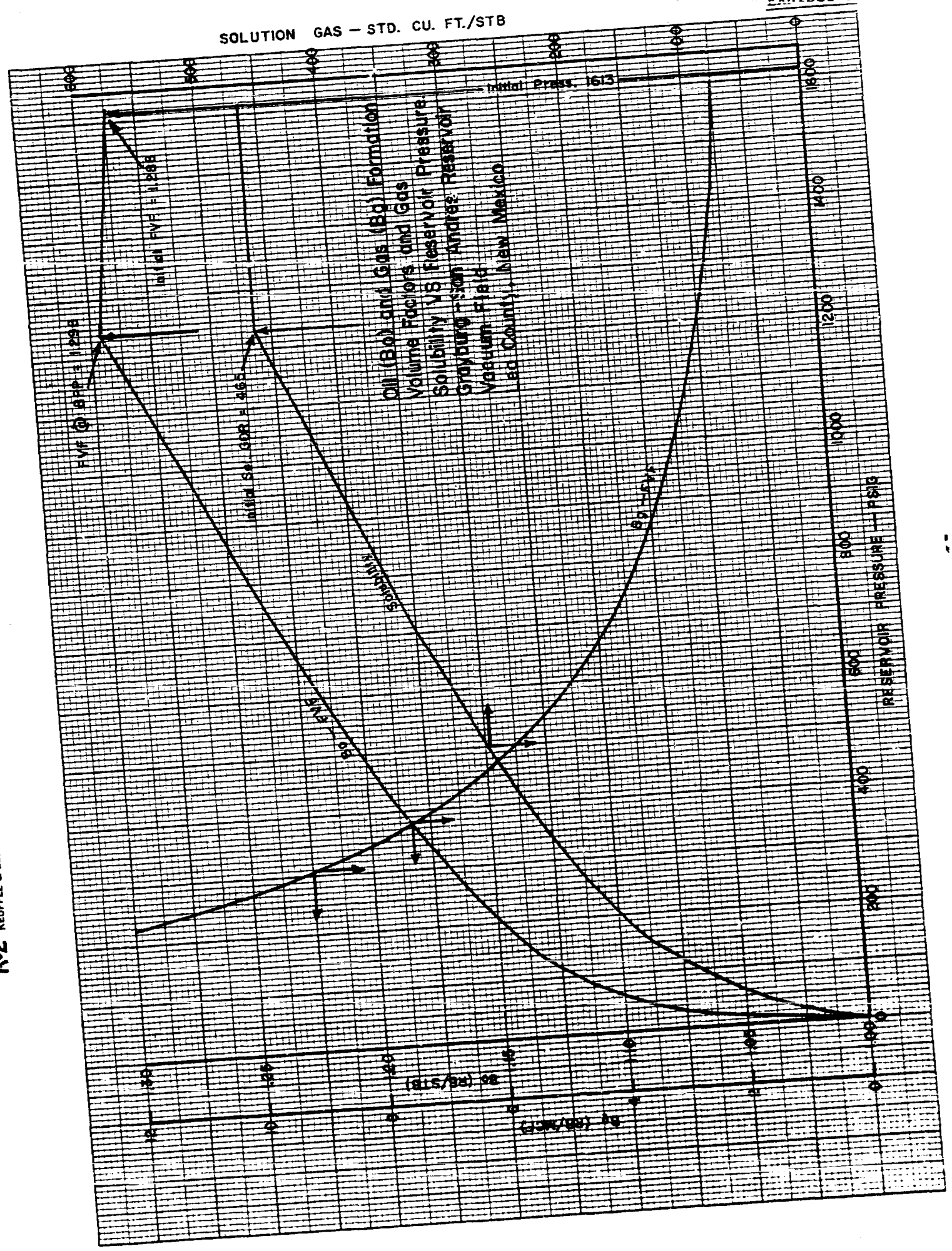
R_p = _____ = Producing gas-oil ratio, cubic feet per barrel, project area only.

R_s = _____ = Solution gas-oil ratio, cubic feet per barrel (Exhibit B).

B_g = _____ = Gas formation volume factor, reservoir barrels per Mcf (Exhibit B).

Water injection credit allowable for _____, 1979, = _____ barrels of oil per day.

EXHIBIT B



46 1323

K&E 10 X 10 TO ½ INCH 7 X 10 INCHES
KEUFFEL & ESSER CO. MADE IN U.S.A.

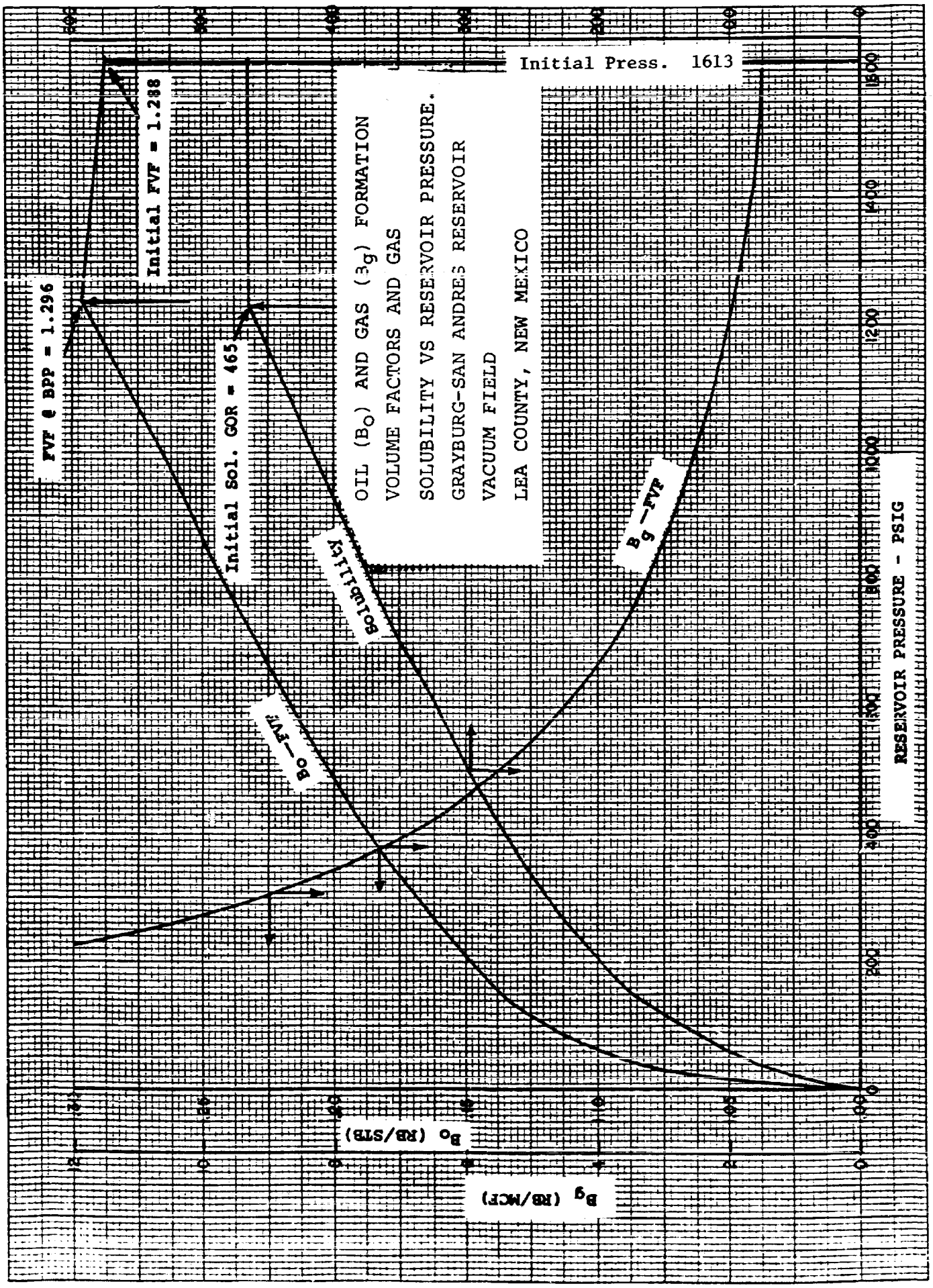


Exhibit "B" Order No. R-5897

CASE 6361: Application of Continental Oil Company for special pool rules, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the promulgation of special pool rules for the Buffalo-Pennsylvanian Gas Pool, Lea County, New Mexico, to provide for 320-acre spacing rather than 160 acres. In the absence of objection, this pool will be placed on the standard 320-acre spacing for Wolfcamp and Pennsylvanian gas pools rather than the present 160-acre spacing.

CASE 6362: Application of Continental Oil Company for an unorthodox gas well location and a non-standard proration unit, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of a 294.9-acre non-standard gas proration unit comprising the S/2 of partial Section 19, Township 17 South, Range 29 East, Eddy County, New Mexico, to be dedicated to a well to be drilled 660 feet from the South line and 3300 feet from the East line of said Section 19 to test the Morrow formation.

CASE 6363: Application of Phoenix Resources Company for an unorthodox gas well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of a well to be drilled 660 feet from the North and West lines of Section 16, Township 19 South, Range 21 East, Eddy County, New Mexico, to be drilled to the Mississippian formation, the W/2 of said Section 16 to be dedicated to the well.

CASE 6364: Application of Adobe Oil Company for compulsory pooling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests from the surface to the base of the Ellenburger formation underlying the NW/4 SE/4 of Section 23, Township 20 South, Range 38 East, Lea County, New Mexico, to be dedicated to a proposed oil well to be drilled at a standard location thereon. Applicant seeks the pooling of the SE/4 of said Section 23 in the event said drilling results in a gas well. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision. Also to be considered will be the designation of applicant as operator of the well and a charge for risk involved in drilling said well.

CASE 6365: Application of Michael P. Grace II for compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Wolfcamp and Pennsylvanian formations underlying the W/2 of Section 25, Township 21 South, Range 26 East, Burton Flat Field, Eddy County, New Mexico, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision. Also to be considered will be the designation of applicant as operator of the well and a charge for risk involved in drilling said well.

CASE 6366: Application of Phillips Petroleum Company for statutory unitization, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order unitizing, for the purpose of a pressure maintenance project, all mineral interests in the East Vacuum Grayburg-San Andres Unit encompassing 7,025 acres, more or less, underlying all or portions of the following lands in Lea County, New Mexico: Section 24, Township 17 South, Range 34 East; Sections 18 thru 29 and 31 thru 35, Township 17 South, Range 35 East; and Sections 4 and 5, Township 18 South, Range 35 East.

The unitized interval would be the Grayburg-San Andres Formation between the depths of 4,050 feet and 5,050 feet in Exxon's NM State "K" Well No. 19, located in Unit P of Section 28, Township 17 South, Range 35 East.

Among the matters to be considered at the hearing will be the necessity of unit operations; the designation of a unit operator; the determination of the horizontal and vertical limits of the unit area; the determination of a fair, reasonable, and equitable allocation of production and costs of production, including capital investment, to each of the various tracts in the unit area; the determination of credits and charges to be made among the various owners in the unit area for their investment in wells and equipment; and such other matters as may be necessary and appropriate for carrying on efficient unit operations, including, but not necessarily limited to, unit voting procedures, selection, removal, or substitution of unit operator, and time of commencement and termination of unit operations.

CASE 6367: Application of Phillips Petroleum Corporation for a pressure maintenance project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a pressure maintenance project on its East Vacuum Grayburg-San Andres Unit, Lea County, New Mexico, by the injection of water into the Grayburg-San Andres formation; and the establishment of an administrative procedure for approval of injection and producing wells at unorthodox locations.

Dockets Nos. 35-78 and 36-78 are tentatively set for hearing on November 8 and 21, 1978. Applications for hearing must be filed at least 22 days in advance of hearing date.

DOCKET: EXAMINER HEARING - WEDNESDAY - OCTOBER 25, 1978

9 A.M. - OIL CONSERVATION DIVISION CONFERENCE ROOM,
STATE LAND OFFICE BUILDING, SANTA FE, NEW MEXICO

The following cases will be heard before Daniel S. Nutter, Examiner, or Richard L. Stamets, Alternate Examiner:

CASE 6290: (Continued from September 13, 1978, Examiner Hearing)

In the matter of the hearing called by the Oil Conservation Division on its own motion to permit R. A. Crane, Jr., Great American Insurance Co., and all other interested parties to appear and show cause why the Donella Well No. 1 located in Unit P of Section 3, Township 29 North, Range 15 West, San Juan County, New Mexico, should not be plugged and abandoned in accordance with a Division-approved plugging program.

CASE 6339: (Continued from October 11, 1978, Examiner Hearing)

Application of Amoco Production Company for compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Pennsylvanian formation underlying the S/2 of Section 22, Township 23 South, Range 28 East, Eddy County, New Mexico, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision. Also to be considered will be the designation of applicant as operator of the well and a charge for risk involved in drilling said well.

CASE 6355: Application of Amoco Production Company for two unorthodox well locations, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of the unorthodox locations of its South Mattix Unit Well No. 32 located 1535 feet from the North line and 330 feet from the East line and its South Mattix Unit Well No. 34 located 1650 feet from the North line and 2310 feet from the West line, both in Section 22, Township 24 South, Range 37 East, Fowler-Upper Yeso Pool, Lea County, New Mexico, the S/2 NE/4 and the E/2 NW/4 of Section 22 to be dedicated, respectively, to the wells.

CASE 6356: Application of Amoco Production Company for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Abo formation through the perforated interval from 8391 feet to 9100 feet in its State "E" Tract 18 Well No. 21 located in Unit B of Section 2, Township 17 South, Range 36 East, Lovington-Abo Pool, Lea County, New Mexico.

CASE 6357: Application of Enserch Exploration, Inc., for pool creation and special pool rules, Roosevelt County, New Mexico. Applicant, in the above-styled cause, seeks an order creating a new oil pool in the Pennsylvanian formation for its Lambirth Well No. 4 located in Unit O of Section 31, Township 5 South, Range 33 East, Roosevelt County, New Mexico, and for promulgation of special pool rules, including provision for 80-acre spacing and special well location requirements.

CASE 6358: Application of Jake L. Hamon for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Devonian formation through the perforated interval from 12,997 feet to 13,036 feet in his State K-33 Well No. 2 located in Unit N of Section 30, Township 16 South, Range 36 East, East Shoe Bar-Devonian Pool, Lea County, New Mexico.

CASE 6359: Application of Getty Oil Company for downhole commingling, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks approval for the downhole commingling of Gallup and Dakota production in the wellbore of its Jicarilla "C" well No. 27 located in Unit K of Section 33, Township 25 North, Range 5 West. Applicant further seeks provision for administrative approval for downhole commingling of the Gallup and Dakota formations in others of its wells on its Jicarilla "B" and Jicarilla "C" leases in Sections 5 and 6, Township 24 North, Range 5 West, and Sections 21, 22, 27, 28 and 31 thru 34, Township 25 North, Range 5 West, all in Rio Arriba County, New Mexico.

CASE 6368: Application of Getty Oil Company for the amendment of Order No. R-5388, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks the amendment of Order No. R-5388 to provide an administrative procedure to permit the downhole commingling of Pictured Cliffs and Chacra production in wells on its Jicarilla "B" and "C" Leases in Sections 21, 22, 27, 28, and 31 thru 34, Township 25 North, Range 5 West, and Sections 5 and 6, Township 24 North, Range 5 West, all in Rio Arriba County, New Mexico.

CASE 6360: Application of Continental Oil Company for a non-standard gas proration unit and simultaneous dedication, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of a 228-acre non-standard gas proration unit comprising the SW/4 and S/2 SE/4 of Section 18, Township 21 South, Range 36 East, Eumont Gas Pool, Lea County, New Mexico, to be simultaneously dedicated to applicant's Lockhart A-18 Wells Nos. 3 and 4, located in Units K and M, respectively, of said Section 18.

JASON W. KELLAHIN
ROBERT E. FOX
W. THOMAS KELLAHIN
KAREN AUBREY

KELLAHIN and FOX
ATTORNEYS AT LAW
P. O. BOX 1769
SANTA FE, NEW MEXICO 87501

TELEPHONE 982-4285
AREA CODE 505

October 3, 1978

RECEIVED
OCT 3 1978
Oil Conservation Commission

Mr. Joe Ramey
Oil Conservation Division
P. O. Box 2088
Santa Fe, New Mexico 87501

Re: Phillips Petroleum Company

Dear Joe:

I would appreciate you setting the enclosed two applications for hearing on October 25, 1978:

Pressure Maintenance and Statutory Unitization for the East Vacuum Grayberg-San Andres Unit, Lea County, New Mexico

Very truly yours,

W. Thomas Kellahin

CC: Mr. J. E. Chrisman
Mr. Bill Mueller

WTK:kfm

Enclosure

BEFORE THE NEW MEXICO ENERGY AND
MINERALS DEPARTMENT

OIL CONSERVATION DIVISION

RECEIVED
OCT 3 1978
Oil Conservation Commission

IN THE MATTER OF THE APPLICATION
OF PHILLIPS PETROLEUM CORPORATION
FOR PRESSURE MAINTENANCE PROJECT,
LEA COUNTY, NEW MEXICO

Case 6367

A P P L I C A T I O N

Comes now Phillips Petroleum Corporation and applies to the New Mexico Energy and Minerals Department, Oil Conservation Division, for approval of a pressure maintenance project for its East Vacuum Grayburg-San Andres Unit, Lea County, New Mexico, and in support thereof would show the Division:

1. Applicant has applied for approval of the East Vacuum Grayburg-San Andres Unit, Lea County, New Mexico, consisting of 7,025.21 acres, more or less, lying in Townships 17 and 18 South, Ranges 34 and 35 East, N.M.P.M., as more fully shown on plat attached to this application.

2. Applicant Phillips Petroleum Company has applied for designation as operator of the proposed unit.

3. Applicant proposes to institute a pressure maintenance project within the unit area, injecting water from the Ogalalla formation obtained in the vicinity of the unit, and injecting produced water as available. Initial injection will be at the approximate rate of 70,000 barrels per day in wells to be drilled, or wells converted from production, for that purpose. Exact location of the injection wells will be furnished at time of the hearing.

4. Applicant further seeks authority to drill additional

injection and producing wells at orthodox and unorthodox locations, such wells to be located no nearer than 10 feet to a quarter-quarter section line, nor nearer than 320 feet from the unit boundary, the exact location to be subject to administrative approval by the Secretary Director of the Oil Conservation Division. Applicant also seeks authority to convert producing wells to injection wells, with approval of the Secretary Director.

5. Injection shall be through internally coated tubing, under a packer, and pressure control devices to limit injection pressures to the pressures permitted by the Oil Conservation Division will be installed. Applicant asks for provision for the Secretary-Director to permit increased injection pressures upon a showing that such increased pressures will not cause damage to the producing formation, nor to the properties of other interest owners.

6. Applicant further seeks provision for expansion of the project area upon approval of the Secretary-Director upon good cause shown.

WHEREFORE Applicant prays that this application be set for hearing before the Oil Conservation Division's duly appointed examiner, and that after notice and hearing as required by law the Division enter its order approving the East Vacuum Grayburg-San Andres Pressure Maintenance Project, with suitable provision for assignment of allowable, to be produced from any well or wells in the project area, for the provisions prayed for herein, and for such other and further provisions as may be provided by law and by the Rules and Regulations of the Division.

Respectfully Submitted,
PHILLIPS PETROLEUM COMPANY

By _____

KELLAHIN & FOX
P. O. Box 1769
Santa Fe, New Mexico 87501
ATTORNEYS FOR APPLICANT

ROUGH

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

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

CASE NO. 6367

Order No. R-5897

APPLICATION OF PHILLIPS PETROLEUM COMPANY FOR A PRESSURE MAINTENANCE PROJECT, LEA COUNTY, NEW MEXICO.

Note Order No. R-5897 modified by Order No. R-5897-A dated 5-1-79 Page 8 and Exhibits A, B, & C

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on October 25, 19 78, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this _____ day of Jan, 19 79, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

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

(2) That by Division Order No. R-5871 dated November 27, 1978, statutory unitization was approved for the East Vacuum Grayburg-San Andres Unit Area, Lea County, New Mexico.

(3) That the applicant herein, Phillips Petroleum Company, seeks authority to institute a pressure maintenance project on the aforesaid East Vacuum Grayburg-San Andres Unit Area, Vacuum Grayburg-San Andres Pool, Lea County, New Mexico, by the injection of water into the San Andres formation through 57 wells, ~~to~~ 31 of which would be drilled in 1979 during Phase II of the Project Development Program and 28 ~~wells to~~ of which would be drilled in 1980 during Phase III of the Development Program.

(4) Applicant further seeks the designation of a project area for said pressure maintenance project and the promulgation of special rules and regulations governing said project including special allowable provisions.

(5) That for Phase I of the Project Development Program, applicant proposes to drill during 1979 ten producing wells at unorthodox locations as specified below:

TRACT NO.	WELL NO.	LOCATION	UNIT	SECTION
3229	005	1310' FSL and 1310' FWL	M	32
3202	001	1310' FSL and 1330' FEL	O	32
3202	003	1330' FNL and 1330' FEL	G	32
3328	002	1310' FSL and 1310' FWL	M	33
3366	001	1330' FNL and 1310' FWL	E	33
3333	004	1330' FNL and 1330' FEL	G	33
3456	005	1330' FNL and 1310' FWL	E	34
2801	002	1310' FSL and 1310' FWL	M	28
2801	004	1310' FSL and 1330' FEL	O	28
2721	001	1310' FSL and 1310' FWL	M	27

all in Township 17 South, Range 35 East, NMPM, Lea County, New Mexico.

(6) That during Phase II of the Development Program applicant proposes to drill 18 additional producing wells, all at unorthodox locations, and during Phase III of the Program applicant proposes to drill 26 additional producing wells, also at unorthodox locations.

(7) That all of the wells referred to in Findings Nos. (3), (5) and (6) above, being 59 injection wells at unorthodox locations and 54 producing wells at unorthodox locations, together with the currently completed producing wells in the Unit Area, will provide a thorough and efficient sweep of hydrocarbons throughout the unitized area, and will result in the recovery of otherwise unrecoverable oil, thereby preventing waste.

(8) That the above-described injection and producing wells, some of which would be at unorthodox locations along the unit boundaries in accordance with lease-line agreements with operators of offsetting lands, will not impair but will protect correlative rights.

(9) That the applicant's request for the designation of a Pressure Maintenance Project for the East Vacuum Grayburg-San Andres Unit Area, and for the promulgation of special rules and regulations governing said project, is in the interest of conservation and should be approved, subject to certain provisions.

(10) That the project area should consist of those proration units within the boundary of the East Vacuum Grayburg-San Andres Unit upon which is located an injection well and any directly or diagonally offsetting proration unit which contains a producing well.

(11) That the total project area allowable should be equal to the sum of the basic project area allowable plus the water injection credit allowable.

(12) That the basic project area allowable should be equal to 80 barrels of oil per day times the number of developed 40-acre proration units in the project area.

(13) That the water injection credit allowable should be based on the following formula:

$$\text{Water Injection Credit Allowable} = \left[\frac{\text{net water injected}}{\text{basic project area allowable voidage}}\right] \times \text{basic project area allowable}$$

and should be calculated in accordance with Exhibits "A" and "B" attached hereto and by reference made a part hereof.

(14) That the project area allowable should be produced from the wells within the project area in any proportion provided that any proration unit situated on the boundary of said East Vacuum Unit which proration unit is not directly or diagonally offset by a San Andres injection well outside the Unit or on the Unit boundary should not be permitted to produce in excess of 80 barrels of oil per day.

(15) That each of the newly drilled production or injection wells in the project should be equipped with surface casing set at approximately 350 feet and cemented to the surface and with "production" casing set at total depth, approximately 4900 feet.

(16) That the "production" casing on each of said newly drilled wells should be cemented to the surface, except in any well in which an intermediate casing string has been run to below the top of the Yates formation and cemented to the surface, the "production" casing may be cemented back into the base of the intermediate casing string.

(17) That injection should be accomplished through tubing installed in a packer set within 100 feet of the uppermost perforation. The injection tubing should be corrosion protected by a non-reactive internal lining or coating. The casing-tubing annulus in each injection well should be filled with an inert fluid and a surface pressure gauge or approved leak detection device should be attached to the annulus.

(18) The injection wells or system should be equipped with a pressure control device or acceptable substitute which will limit the surface injection pressure to no more than 0.2 psi per foot of depth to the uppermost perforation. Provision should be made for the Division-Director to administratively authorize a pressure limitation in excess of the above upon showing by the Unit Operator that such higher pressure will not result in fracturing of the confining strata.

(19) All wells within the project area should be equipped with risers or in some other acceptable manner as to facilitate the periodic testing of the bradenhead for pressure or fluid production.

(20) That provision should be made for the Division Director to authorize placing wells on injection and the drilling of injection wells and additional producing wells at orthodox and unorthodox locations anywhere within the Unit Area without notice and hearing, provided that no unorthodox location is closer than ten feet to a quarter-quarter section line nor closer than 330 feet to the unit boundary, unless such well located closer than 330 feet to the unit boundary is

covered by a lease-line agreement with the operator of the lands offsetting such well or the owner of the offsetting lands has waived objections to such location in writing.

(21) That there are a number of wells within the East Vacuum Grayburg-San Andres Unit Area and on lands offsetting the unit area which have previously been plugged and abandoned in a manner which may permit waters injected into the San Andres formation to escape into other formations, including the Salado formation and the shallow fresh water-bearing formations unless remedial action is taken on said wells prior to injection in their near vicinity.

(22) That there are a number of wells within the East Vacuum Grayburg-San Andres Unit Area and on lands offsetting the unit area which penetrate the Vacuum Grayburg-San Andres Pool and are completed in deeper pay zones, but which are cased and cemented in such a manner as may permit the escape of waters injected into the San Andres formation into other formations as described above.

(23) That those wells referred to in Findings Nos. (21) and (22) above which are inadequately plugged and abandoned or are inadequately cased and cemented, or are suspected of being so, include, but are not necessarily limited to, the wells listed in Exhibit "C" attached hereto and by reference made a part hereof.

(24) That no injection at greater than hydrostatic pressure should be made into the Grayburg or San Andres formation in any well in the East Vacuum Grayburg-San Andres Unit Area within one-half mile of any well listed on Exhibit "C" attached hereto until remedial action has been taken on such well to ensure that it will not serve as an avenue of escape for injected waters or until tests have been conducted on such well or other evidence concerning such well has been presented, all establishing to the satisfaction of the Supervisor of the Hobbs District Office of the Division that remedial work on such well is unnecessary.

IT IS THEREFORE ORDERED:

(1) That the applicant, Phillips Petroleum Company, is hereby authorized to institute and operate a pressure maintenance project in the East Vacuum Grayburg-San Andres Unit Area, Vacuum Grayburg-San Andres Pool, Lea County, New Mexico, by the injection of water into the San Andres formation through certain wells which will be administratively approved for water injection at some later date by the Division Director.

(2) That said project shall be designated the East Vacuum Unit Pressure Maintenance Project.

(3) That the following unorthodox locations are hereby approved for new producing wells which are to be drilled by the unit operator during Phase I of the Project Development Program:

TRACT NO.	WELL NO.	LOCATION	UNIT	SECTION
3229	005	1310' FSL and 1310' FWL	M	32
3202	001	1310' FSL and 1330' FEL	O	32
3202	003	1330' FNL and 1330' FEL	G	32
3328	002	1310' FSL and 1310' FWL	M	33
3366	001	1330' FNL and 1310' FWL	E	33
3333	004	1330' FNL and 1330' FEL	G	33
3456	005	1330' FNL and 1310' FWL	E	34
2801	002	1310' FSL and 1310' FWL	M	28
2801	004	1310' FSL and 1330' FEL	O	28
2721	001	1310' FSL and 1310' FWL	M	27

all in Township 17 South, Range 35 East, NMPM, Lea County, New Mexico.

(4) That Special Rules and Regulations governing the East Vacuum Unit Pressure Maintenance Project are hereby promulgated as follows:

SPECIAL RULES AND REGULATIONS
FOR THE
EAST VACUUM UNIT PRESSURE MAINTENANCE PROJECT

Rule 1.

Rule 1. The project area of the East Vacuum Unit Pressure Maintenance Project shall consist of those proration units within the boundaries of the East Vacuum Grayburg-San Andres Unit upon which is located an injection well and any directly or diagonally offsetting proration unit which contains a producing well.

Rule 2. The project area shall receive a project area allowable, and said project area allowable shall be the sum of the basic project area allowable plus the water injection credit allowable.

Rule 3. The basic project area allowable shall be equal to 80 barrels of oil per day times the number of developed 40-acre proration units in the project area.

Rule 4. The water injection credit allowable shall be contingent upon full reservoir voidage replacement of all produced fluids and shall be based upon the following formula:

$$\text{Water Injection Credit Allowable} = \left[\frac{\text{Net Water Injected}}{\text{Basic Project Area Allowable Reservoir Voidage}} - 1 \right] \times \text{Basic Project Area Allowable}$$

In no event shall the water injection credit allowable be less than zero, i.e., negative numbers derived from application of the above formula shall be ignored.

Rule 5. The weighted average project area reservoir pressure shall be determined prior to commencement of injection of water into the reservoir and at least annually thereafter. The weighted average project area pressure shall be determined from the pressures in at least ten representative wells selected by the unit operator and the Supervisor of the Hobbs District Office of the Division.

Rule 6. The project area allowable may be produced from the wells within the project area in any proportion provided, however, that any proration unit situated on the boundary of the East Vacuum Unit which proration unit is not directly or diagonally offset by a San Andres injection well outside said East Vacuum Unit or on the East Vacuum Unit boundary shall not be permitted to produce in excess of 80 barrels of oil per day.

Rule 7. That those wells within the East Vacuum Unit Area that are not included within the project area as defined above shall be prorated in accordance with the Rules and Regulations of the Division.

Rule 8. The Division Director shall have authority to approve, without notice and hearing, the drilling of wells at unorthodox locations anywhere within the unit boundary, provided, however, no unorthodox location shall be closer than ten feet to any quarter-quarter

The water injection credit allowable shall be calculated in accordance with the procedures and parameters depicted on Exhibits "A" and "B" to Order No. R-

shall be closer than 330

section line, and provided further, that no such unorthodox location ~~nor 330~~ feet to the outer boundary of the unit area, unless such well ~~shall be closer than 330 feet to the unit boundary~~ is covered by a lease-line agreement with the operator of the lands offsetting such well, and a copy of the lease-line agreement accompanies the application for the such unorthodox location, or unless such offset operator has waived objection to the proposed unorthodox location in writing and his waiver accompanies the application.

Rule 9. No well shall be placed on water injection in the East Vacuum Unit Area unless the Division Director has approved such well for injection. Applications for injection approval shall be filed in accordance with Rule 701 of the Division Rules and Regulations.

Rule 10. Each newly drilled injection or producing well shall be equipped with surface casing ~~(350')~~ a minimum of 350 feet of and "production" casing run to total depth (approximately 4900 feet). ~~All wells~~ All casing strings shall be cemented to the surface except that in any well in which ~~those instances where~~ an intermediate casing string has been run to below the top of the Yates formation and cemented to the surface, ~~then~~ the "production" string may be cemented back into the base of the intermediate casing.

Rule 11. Injection shall be accomplished through tubing installed in a packer set within 100 feet of the uppermost perforation. The injection tubing shall be corrosion protected by a non-reactive internal lining or coating. The casing-tubing annulus in each injection well shall be filled with an inert fluid and a surface pressure gauge or approved leak detection device shall be attached to the annulus.

Rule 12. The injection wells or system shall be equipped with a pressure control device or acceptable substitute which will limit the surface injection pressure to no more than 0.2 psi per foot of depth to the uppermost perforation. The Division Director may adminis-

tratively authorize a pressure limitation in excess of the above upon showing by the unit operator that such higher pressure will not result in fracturing of the confining strata.

Rule 13. All wells within the project area shall be equipped with risers or in some other acceptable manner such as to facilitate the periodic testing of the bradenhead for pressure or fluid production.

Rule 14. The unit operator shall immediately notify the Supervisor of the Hobbs District Office of the Division of the failure of the tubing or packer in any of said injection wells, the leakage of water or oil from or around any producing well, the leakage of water or oil from or around any plugged and abandoned well within the project area, or any other evidence of fluid migration from the injection zone, and shall take such timely steps as may be necessary or required to correct such failure or leakage.

Rule 15. Each month the project operator shall submit to the Division a Pressure Maintenance Project Operator's Report, on a form prescribed by the Division, outlining thereon the data required and requesting allowables for each of the several wells in the Project as well as the total project area allowable. ~~The aforesaid Pressure Maintenance Project Operator's Report shall be filed in lieu of Form C-120 for the Project.~~

Rule 16. ~~Each~~ The Division shall, upon review of the report and after any adjustments deemed necessary, calculate the allowable for the wells in the Project for the next succeeding month in accordance with these rules. The sum of the allowables so calculated shall be assigned to the Project and, except as provided under Rule 6 above, may be produced from the wells in the Project in any proportion.

IT IS FURTHER ORDERED:

(1) That no injection at greater than hydrostatic pressure shall be made into the Grayburg or San Andres formation in any well in the East Vacuum Grayburg-San Andres Unit Area within one-half mile of any well listed on Exhibit "C" attached hereto until remedial action has been taken on such well to ensure that it will not serve as an avenue of escape for injected waters, or until tests have been conducted on such well or other evidence concerning such well has been presented establishing to the satisfaction of the Supervisor of the Hobbs District Office of the Division that remedial work on such well is unnecessary.

(2) That Jurisdiction is retained by the Division for the entry of such further orders as may be necessary.

DONE at

That Order No. R-3150 which authorized a pilot waterflood project in this area is hereby rescinded.

Operator	Lease	Well No	Unit	Sec - Twp - Rge
Amoco	State CV	2	E	25 - 17S - 35E
Amoco	State CV	2-Y	E	25 - 17S - 35E
Millard Deck	Carthay State	2	G	20 - 17S - 35E
Exxon	State K	17	P	32 - 17S - 35E
Marathon	Staplin State	1	L	20 - 17S - 35E
Marathon	Warn State	1	B	4 - 18S - 35E
Mobil	N. Vac. Abo Unit	207	H	24 - 17S - 34E
Pennzoil	Phillips State	1	A	28 - 17S - 35E
Pennzoil	Phillips State	2	F	28 - 17S - 35E
~~Phillips~~ OK	~~Vac. Abo Unit~~	~~6-68~~	H	34 - 17S - 35E
Phillips	Vac. Abo Unit	1-9	J	27 - 17S - 35E
Phillips	Vac. Abo Unit	7-3	P	27 - 17S - 35E
Phillips	Vac. Abo Unit	7-4	I	27 - 17S - 35E
Phillips	Vac. Abo Unit	9-5	H	33 - 17S - 35E
Phillips	Vac. Abo Unit	13-2	E	4 - 18S - 35E
Phillips	Vac. Abo Unit	14-3	N	5 - 18S - 35E
Phillips	Vac. Abo Unit	14-4	L	5 - 18S - 35E
OK ~~Shell~~	~~State V~~	~~6~~	P	27 - 17S - 35E
Shell	State K	1	O	19 - 17S - 35E

Exhibit "C"

Wells Suspected of Being Inadequately Plugged and Abandoned or Inadequately Cased and Cemented

Operator	Lease	Well No	Unit	Sec-Twp-Rge
Mobil	State P	7	P	22-17S-35E
Penrose	State	2	N	24-17S-35E
Phillips	Santa Fe	15	A	28-17S-35E
Phillips	Santa Fe	16	L	5-18S-35E
Phillips	Santa Fe	87	F	28-17S-35E
Phillips	Santa Fe	47	C	35-17S-35E
Shell	State LL	1	C	3-18S-35E
Shell	State VAA	6	K	5-18S-35E
Shell	State C	1	I	24-17S-34E
Shell	State I	1	E	29-17S-35E
Shell	State S	1	I	21-17S-35E
Stoltz etal.	Abo (Unknown name)	1	O	24-17S-35E
Zapata	Shell State	1	O	23-17S-35E
Barnett	State B	1	D	19-17S-35E
Jones	State	2	A	35-17S-35E
Penrose	Scharborough	1	C	25-17S-35E
Amoco	State CV	1	F	25-17S-35E
Amoco	State CV	4	L	25-17S-35E
Amoco	State CV	5	F	25-17S-35E
Chevron	State 6-34	4	J	34-17S-35E
Cities Service	State BJ	2	K	35-17S-35E
Crusader	State	1	E	20-17S-35E
Crusader	State	2	C	19-17S-35E
Crusader	State	3	N	18-17S-35E
Exxon	State J	1	M	19-17S-35E
Exxon	State J	2	L	19-17S-35E
Exxon	State AC	1	H	22-17S-35E
Grt Western	State E	2	L	25-17S-35E
Marathon	Warn State	1	M	23-17S-35E

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

JERRY APODACA
GOVERNOR

NICK FRANKLIN
SECRETARY

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-2434

January 17, 1979

Re: CASE NO. 6367
ORDER NO. R-5897

Mr. Jason Kellahin
Kellahin & Fox
Attorneys at Law
Post Office Box 1769
Santa Fe, New Mexico

Applicant:

Phillips Petroleum Corporation

Dear Sir:

Enclosed herewith are two copies of the above-referenced Division order recently entered in the subject case.

Yours very truly,

JOE D. RAMEY
Director

JDR/fd

Copy of order also sent to:

Hobbs OCC x
Artesia OCC
Aztec OCC

Other

Copy for Case File
RLS

Case 6367

PHILLIPS PETROLEUM COMPANY

ODESSA, TEXAS 79762
4001 PENBROOK

EXPLORATION AND PRODUCTION GROUP

January 15, 1982

Order R-5897, Exhibit C--Wells Requiring Recementing or Remedial Work, East Vacuum Grayburg-San Andres Unit, Vacuum Grayburg-San Andres Pool, Lea County, New Mexico

New Mexico Dept. of Energy & Minerals (2)
Oil Conservation Division
P. O. Box 2088
Santa Fe, New Mexico 87501

RECEIVED
JAN 21 1982
OIL CONSERVATION DIVISION
SANTA FE

Attention: Mr. Joe D. Ramey (r) Oscar Simpson
Division Director

Gentlemen:

Under date of November 24, 1980, a Remedial Work Status Report on Exhibit C wells, contained in Order R-5897, was submitted to your office. Attached herewith is an updated report with the current status for each well.

The current workover program in progress is anticipated to be completed within three to six months.

Very truly yours,

T. Harold McLemore
Regulation and Proration Supervisor

THM:ld
Attachment

cc: Oil Conservation Division
Hobbs, New Mexico

Attachment

UPDATED REPORT

ORDER NO. 5897, Exhibit C--Wells requiring cementing or remedial work.

	1 OPERATOR	2 LEASE & WELL NO.	3 E. VACUUM GB/SA UNIT TRACT	WELL NO.	5 UNIT	6 SEC-TWP-RGE	7 8 9 PRESENT STATUS
1	Phillips Petroleum Company	Mobil-State P #7	2271	007	P	22-17S-35E	Propose to Re P&A. Waiting on partner approval.
2							
3	Penrose	State No. 2	NA	NA	N	24-17S-35E	Work completed 12-10-80.
4							
5	Phillips Petroleum Company	Sante Fe #15	2851	015	A	28-17S-35E	Work completed 3-29-80.
6							
7	Phillips Petroleum Company	Sante Fe #16	0577	016	L	5-18S-35E	Work completed 4-28-80.
8							
9	Phillips Petroleum Company	Sante Fe #37	2865	037	F	28-17S-35E	Work completed 6-23-80.
0							
1	Phillips Petroleum Company	Sante Fe #47	3568	047	C	35-17S-35E	Work completed 8-1-80.
2							
3	Shell Oil Company	State-U #1	NA	NA	C	3-18S-35E	Work completed 9-13-80.
4							
5	Shell Oil Company	State VAA #6	NA	NA	K	5-18S-35E	Work completed 6-27-80.
6							
7	Phillips Petroleum Company	Shell-State C #1	2416	001	I	24-17S-34E	Work completed 7-14-80.
8							
9	Phillips Petroleum Company	Shell-State I #1	2962	001	E	29-17S-35E	Work completed 3-19-80.
0							
1	Phillips Petroleum Company	Shell-State S #1	2109	001	I	21-17S-35E	Work completed 8-16-80.
2							
3	Stoltz etal.	Abo #1	NA	NA	O	24-17S-35E	Work complete 12-24-80.
4							
5	Zapata	Shell State #1	NA	NA	O	23-17S-35E	Work completed 11-2-80.
6							
7	Phillips Petroleum Company	Barnett-State B #1	1978	001	D	19-17S-35E	Work completed 3-5-81.
8							
9	Mac Jones	State #2	NA	NA	A	35-17S-35E	Work completed 10-11-80
0							
1	Penrose	Scarborough #1	NA	NA	C	25-17S-35E	Work completed 1-20-81.
2							

	OPERATOR	LEASE AND WELL NO.	E. VACUUM GB/SA UNIT TRACT	Well NO.	UNIT	SEC-TWP-RGE	PRESENT STATUS
	Amoco	State "CV" #1	NA	NA	F	24-17S-35E	Work completed 7-29-80.
	Amoco	State "CV" #4	NA	NA	L	25-17S-35E	Work completed 7-12-80.
	Amoco	State "CV" #5	NA	NA	F	25-17S-35E	Work completed 1-31-81.
	Phillips Petroleum Company	Chevron-State 6-34 #4	3440	004	J	34-17S-35E	Propose to re-enter P&A well & complete as wtr inj., waiting on partner approval.
	Cities Services Company	State BJ #2	NA	NA	K	35-17S-35E	Work completed 9-23-80.
	Phillips Petroleum Company	Crusader-State #1	2083	001	E	20-17S-35E	Work completed 8-29-80.
	Phillips Petroleum Company	Crusader-State #2	1982	002	C	19-17S-35E	Work completed 10-23-80.
	Phillips Petroleum Company	Crusader-State #3	1881	003	N	18-17S-35E	Well P&A 9-30-80.
	Phillips Petroleum Company	Exxon-State J #1	1903	001	M	19-17S-35E	Work commenced to re-enter P&A well to complete as a producer.
	Phillips Petroleum Company	Exxon-State J #2	1903	002	L	19-17S-35E	Work commenced 9-22-81 to treat well & complete as a producer.
	Exxon	State AC #1	NA	NA	H	22-17S-35E	Work completed 11-6-80.
	Great Western Drlg. Co.	State E #2	NA	NA	L	25-17S-35E	Work completed 6-9-80.
	Marathon	Warn State #1	NA	NA	M	23-17S-35E	Work completed 7-21-80.
	Amoco 1.)	State CV #2	NA	NA	E	25-17S-35E	Work completed 3-81.
	Amoco 1.)	State CV #2-Y	NA	NA	E	25-17S-35E	Amoco re-worked; C-103 filed 6-23-80.
	Phillips Petroleum	Millard Deck-Carthay State #2	2059	002	G	20-17S-35E	*Exception granted.

1	2	3	4	5	6	7	8	9	10
	OPERATOR	LEASE & WELL NO.	E. VACUUM GB/SA UNIT TRACT	WELL NO.	UNIT	SEC-TWP-35E	PRESENT STATUS		
	Phillips Petroleum Co. 1.)	Exxon-State K #17	3202	017	P	32-17S-35E	Work completed 1-81. (TA)		
	Marathon 1.)	Staplin State #1	NA	NA	L	20-17S-35E	**Exception Granted.		
	Phillips Petroleum Co.	Marathon-Warn State #1	0434	001	B	4-18S-35E	**Exception Granted.		
	Mobil 1.)	N. Vac. Abo Unit #207	NA	NA	H	24-17S-34E	Mobil secured exception 9-14-79.		
	Phillips Petroleum Company	Pennzoil-Phillips State #1	2851	001	A	28-17S-35E	*Exception Granted.		
	Phillips Petroleum Company	Pennzoil-Phillips State #2	2865	002	F	28-17S-35E	*Exception Granted.		
	Phillips Petroleum Company	Phillips-Vac. Abo Unit #6-68	NA	NA	H	34-17S-35E	Work completed 9-20-79.		
	Phillips Petroleum Company	Phillips-Vac. Abo Unit #1-9	NA	NA	J	27-17S-35E	Work completed 9-20-79.		
	Phillips Petroleum Company	Phillips-Vac. Abo Unit #7-3	NA	NA	P	27-17S-35E	*Exception Granted.		
	Phillips Petroleum Company	Phillips-Vac. Abo Unit #7-4	NA	NA	I	27-17S-35E	*Exception Granted.		
	Phillips Petroleum Company	Phillips-Vac. Abo Unit #9-5	NA	NA	H	33-17S-35E	*Exception Granted.		
	Phillips Petroleum Company	Phillips-Vac. Abo Unit #13-2	NA	NA	E	4-18S-35E	*Exception Granted.		
	Phillips Petroleum Company	Phillips-Santa Fe #77	2631	077	I	26-17S-35E	Work completed 5-29-80.		
	Phillips Petroleum Company	Vac. Abo Unit #14-3	NA	NA	N	5-18S-35E	*Exception Granted.		
	Phillips Petroleum Company	Phillips-Vac. Abo Unit #14-4	NA	NA	L	5-18S-35E	*Exception Granted.		
	Phillips Petroleum Company	Shell-State V #6	2717	006	P	27-17S-35E	*Exception Granted.		

	1 OPERATOR	2 LEASE & WELL NO.	3 E. VACUUM GB/SA UNIT TRACT	4 WELL NO.	5 UNIT	6 SEC-TWP-RGE	7	8 PRESENT STATUS	9	10
1	Phillips Petroleum Company	Shell-State K #1	1911	001	O	19-17S-35E	*Exception Granted.			

*Exception granted 3-29-79; confirmed by letter dated 4-1-79.

**Exception granted 7-26-79.

1.) Producing or TA wells within 1/2 mile of Unit area

PHILLIPS PETROLEUM COMPANY
ODESSA, TEXAS 79762
4001 PENBROOK

NATURAL RESOURCES GROUP
Exploration and Production

Cove Lite RPL

August 19, 1980

Order R-5897, Exhibit C-
Wells Requiring Recementing or
Remedial Work, East Vacuum
Grayburg-San Andres Unit,
Vacuum Grayburg-San Andres Pool,
Lea County, New Mexico

New Mexico Department of Energy and Minerals-(2)
Oil Conservation Division
Post Office Box 2088
Santa Fe, New Mexico 87501

Attention: Mr. Joe D. Ramey
Division Director

Gentlemen:

Under date of June 10, 1980, Mr. Richard L. Stametz advised that a remedial work status report would be required on the captioned wells before cooperative line wells could be approved for water injection service. The requested report is attached with appropriate remarks for each well.

There currently is a vigorous workover program in progress to complete the remedial work on these wells. It is anticipated that all work will be commenced or completed within 3 to 6 months. In some instances, there have been delays in determining the ownership of well bores. Further, there has been an overriding delay in work progress due to the scarcity of well service rigs.

We wish to advise that water injection into all wells within the project is at zero surface pressure or on vacuum. No pressurized injection will commence into any well prior to the completion of any required remedial work (or exemption obtained) on wells within one-half mile of the affected injection well.

Very truly yours,

E. E. Clark,
Manager of Operations
Odessa Area

RECEIVED
AUG 26 1980
OIL CONSERVATION DIVISION
SANTA FE

THM:brb
Attachment

cc: Oil Conservation Division, Hobbs, New Mexico (w/attachment)

ORDER NO. 5897, Exhibit C--Wells requiring cementing or remedial work.

	1 OPERATOR	2 LEASE & WELL NO.	3 E. VACUUM GB/SA UNIT TRACT	4 WELL NO.	5 UNIT	6 SEC-TWP-RGE	7 8 PRESENT STATUS
1	Phillips Petroleum Company	Mobil-State P #7	2271	007	P	22-17S-35E	Propose wtr inj--Anticipate work to comm
2							3 to 6 months.
3	Penrose	State No. 2	NA	NA	N	24-17S-35E	Anticipate work to commence 3 to 6 mon ths.
4							
5	Phillips Petroleum Company	Santa Fe #15	2851	015	A	28-17S-35E	Work completed 3-29-80.
6							
7	Phillips Petroleum Company	Santa Fe #16	0577	016	L	5-18S-35E	Work completed 4-28-80.
8							
9	Phillips Petroleum Company	Santa Fe #37	2865	037	F	28-17S-35E	Work completed 6-23-80.
10							
11	Phillips Petroleum Company	Santa Fe #47	3568	047	C	35-17S-35E	Work completed 8-1-80.
12							
13	Shell Oil Company	State-U #1	NA	NA	C	3-18S-35E	Anticipate work to commence 3 to 6 mo ths.
14							
15	Shell Oil Company	State VAA #6	NA	NA	K	5-18S-35E	Work completed 6-27-80.
16							
17	Phillips Petroleum Company	Shell-State C #1	2416	001	I	24-17S-34E	Work completed 7-14-80.
18							
19	Phillips Petroleum Company	Shell-State I #1	2962	001	E	29-17S-35E	Work completed 3-19-80.
20							
21	Phillips Petroleum Company	Shell-State S #1	2109	001	I	21-17S-35E	Work completed 8-16-80.
22							
23	Stoltz etal.	Abo #1	NA	NA	O	24-17S-35E	Anticipate work to commence 3 to 6 months.
24							
25	Zapata	Shell State #1	NA	NA	O	23-17S-35E	Anticipate work to commence 3 to 6 months.
26							
27	Phillips Petroleum Company	Barnett-State B #1	1978	001	D	19-17S-35E	Propose to re-enter P&A well and comple
28							GB/SA producer. Anticipate commencing 3
29	Mac Jones	State #2	NA	NA	A	35-17S-35E	Anticipate work to commence 3 to 6 mon ths.
30							
31	Penrose	Scarborough #1	NA	NA	C	25-17S-35E	Anticipate work to commence 3 to 6 mon ths.
32							

jj

OPERATOR	LEASE AND WELL NO.	E. VACUUM TRACT	GB/SA UNIT WELL NO.	UNIT	SEC-TWP-RGE	PRESENT STATUS
Amoco	State "CV" #1	NA	NA	F	25-17S-35E	Work completed 7-29-80.
Amoco	State "CV"#4	NA	NA	L	25-17S-35E	Work completed 7-12-80.
Amoco	State "CV" #5	NA	NA	F	25-17S-35E	Anticipate work to commence 3 to 6 months.
Phillips Petroleum Company	Chevron-State 6-34 #4	3440	004	J	34-17S-35E	Propose to re-enter P&A well & complete as wtr inj, work to commence 3 to 6 months.
Cities Services Company	State BJ #2	NA	NA	K	35-17S-35E	Anticipate work to commence 3 to 6 months.
Phillips Petroleum Company	Crusader-State #1	2083	001	E	20-17S-35E	Work commenced 8-8-80, not completed.
Phillips Petroleum Company	Crusader-State #2	1982	002	C	19-17S-35E	Propose to re-enter P&A well & complete as GB/SA producer, anticipate commencing 3-6 mos.
Phillips Petroleum Company	Crusader-State #3	1881	003	N	18-17S-35E	Propose to re-enter P&A well & complete as GB/SA producer, anticipate commencing 3-6 mos.
Phillips Petroleum Company	Exxon-State J #1	1903	001	M	19-17S-35E	Work commenced to re-enter P&A well to complete as GB/SA producer, anticipate completion 1 - 3 mos.
Phillips Petroleum Company	Exxon-State J #2	1903	002	L	19-17S-35E	Propose to re-enter P&A well & complete as GB/SA producer, anticipate commencing 3 to 6 months.
Exxon	State AC #1	NA	NA	H	22-17S-35E	Anticipate work to commence 3 to 4 months.
Great Western Drlg Co.	State E #2	NA	NA	L	25-17S-35E	Work completed 6-9-80.
Marathon	Warn State #1	NA	NA	M	23-17S-35E	Work completed 7-21-80.
Amoco L)	State CV #2	NA	NA	E	25-17S-35E	Amoco requested exception 8-31-79; No Hobbs-OCD action todate
Amoco L)	State CV #2-Y	NA	NA	E	25-17S-35E	Amoco re-worked; C-103 filed 6-23-80
Phillips Petroleum Company	Millard Deck-Carthay State #2	2059	002	G	20-17S-35E	*Exception granted.

11

1 OPERATOR	2 LEASE & WELL NO.	3 E. VACUUM GB/SA TRACT	4 UNIT WELL NO.	5 UNIT	6 SEC-TWP-RGE	7 8 PRESENT STATUS
Phillips Petroleum Co. L)	Exxon-State K #17	3202	017	P	32-17S-35E	Letter being held in suspense, evaluating for conversion to producer or inj. service.
Marathon L)	Staplin State #1	NA	NA	L	20-17S-35E	**Exception Granted
Phillips Petroleum Co.	Marathon-Warn State #1	0434	001	B	4-18S-35E	**Exception Granted
Mobil L)	N. Vac. Abo Unit #207	NA	NA	H	24-17S-34E	Mobil secured exception 9-14-79
Phillips Petroleum Company	Pennzoil-Phillips State #1	2851	001	A	28-17S-35E	*Exception Granted.
Phillips Petroleum Company	Pennzoil-Phillips State #2	2865	002	F	28-17S-35E	*Exception Granted.
Phillips Petroleum Company	Phillips-Vac. Abo Unit #6-68	NA	NA	H	34-17S-35E	Work completed 9-20-79.
Phillips Petroleum Company	Phillips-Vac. Abo Unit #1-9	NA	NA	J	27-17S-35E	Work completed 9-20-79.
Phillips Petroleum Company	Phillips-Vac. Abo Unit #7-3	NA	NA	P	27-17S-35E	*Exception Granted.
Phillips Petroleum Company	Phillips-Vac. Abo Unit #7-4	NA	NA	I	27-17S-35E	*Exception Granted.
Phillips Petroleum Company	Phillips-Vac. Abo Unit #9-5	NA	NA	H	33-17S-35E	*Exception Granted.
Phillips Petroleum Company	Phillips-Vac. Abo Unit #13-2	NA	NA	E	4-18S-35E	*Exception Granted.
Phillips Petroleum Company	Phillips-Santa Fe #77	2631	077	I	26-17S-35E	Work completed 5-29-80.
Phillips Petroleum Company	Vac. Abo Unit #14-3	NA	NA	N	5-18S-35E	*Exception Granted
Phillips Petroleum Company	Phillips-Vac. Abo Unit #14-4	NA	NA	L	5-18S-35E	*Exception Granted.
Phillips Petroleum Company	Shell-State V #6	2717	006	P	27-17S-35E	*Exception Granted
JJ						

E. VACUUM GB/SA UNIT

OPERATOR	LEASE & WELL NO.	TRACT	WELL NO.	UNIT	SEC-TWP-RGE	PRESENT STATUS
Phillips Petroleum Company	Shell - State K #1	1911	001	O	19-17S-35E	*Exception granted

*Exception granted 3-29-79; confirmed by letter dated 4-1-79.

**Exception granted 7-26-79.

1.) producing or TA wells within 1/2 mile of Unit Area

PHILLIPS PETROLEUM COMPANY
ODESSA, TEXAS 79762
4001 PENBROOK

NATURAL RESOURCES GROUP
Exploration and Production

November 24, 1980

Order R-5897, Exhibit C--Wells Requiring Recementing or Remedial Work, East Vacuum Grayburg-San Andres Unit, Vacuum Grayburg-San Andres Pool, Lea County, New Mexico

RECEIVED
DEC 01 1980
OIL CONSERVATION DIVISION
SANTA FE

File Case 6367

New Mexico Dept. of Energy & Minerals (2)
Oil Conservation Division
P. O. Box 2088
Santa Fe, New Mexico 87501

Attention: Mr. Joe D. Ramey
Division Director

Gentlemen:

Under date of August 19, 1980, a Remedial Work Status Report on Exhibit C wells, contained in Order R-5897, was submitted to your office. Attached herewith is an updated report with the current status for each well.

The current workover program in progress is anticipated to be completed within three to six months.

Very truly yours,

T. Harold McLemore
Regulation and Proration Supervisor

CAS:skm
Attachment

cc: Oil Conservation Division
Hobbs, New Mexico

Attachment

send copy to Jerry Sexton 12/1
with note recementing confirmation of status of these wells as reported by PPCo.

UPDATED REPORT

ORDER NO. 5897, Exhibit C--Wells requiring cementing or remedial work.

1 OPERATOR	2 LEASE & WELL NO.	3 E. VACUUM GB/SA UNIT TRACT	4 WELL NO.	5 UNIT	6 SEC-TWP-RGE	7 8 PRESENT STATUS
Phillips Petroleum Company	Mobil-State P #7	2271	007	P	22-17S-35E	Propose wtr inj--Anticipate work to commence 3 to 6 months.
Penrose	State No. 2	NA	NA	N	24-17S-35E	Work commenced 11-11-80.
Phillips Petroleum Company	Santa Fe #15	2851	015	A	28-17S-35E	Work completed 3-29-80.
Phillips Petroleum Company	Santa Fe #16	0577	016	L	5-18S-35E	Work completed 4-28-80.
Phillips Petroleum Company	Santa Fe #37	2865	037	F	28-17S-35E	Work completed 6-23-80.
Phillips Petroleum Company	Santa Fe #47	3568	047	C	35-17S-35E	Work completed 8-1-80.
Shell Oil Company	State-U #1	NA	NA	C	3-18S-35E	Work completed 9-13-80.
Shell Oil Company	State VAA #6	NA	NA	K	5-18S-35E	Work completed 6-27-80.
Phillips Petroleum Company	Shell-State C #1	2416	001	I	24-17S-34E	Work completed 7-14-80.
Phillips Petroleum Company	Shell-State I #1	2962	001	E	29-17S-35E	Work completed 3-19-80.
Phillips Petroleum Company	Shell-State S #1	2109	001	I	21-17S-35E	Work completed 8-16-80.
Stoltz etal.	Abo #1	NA	NA	O	24-17S-35E	Anticipate work to commence 3 to 6 months.
Zapata	Shell State #1	NA	NA	O	23-17S-35E	Work completed 11-2-80.
Phillips Petroleum Company	Barnett-State B #1	1978	001	D	19-17S-35E	Propose to re-enter P&A well and complete as GB/SA producer. Anticipate commencing 3-6 mos.
Mac Jones	State #2	NA	NA	A	35-17S-35E	Work completed 10-11-80.
Penrose	Scarborough #1	NA	NA	O	25-17S-35E	Anticipate work to commence 3 to 6 months.

	OPERATOR	LEASE AND WELL NO.	E. VACUUM TRACT	GB/SA UNIT WELL NO.	UNIT	SEC-TWP-RGE	PRESENT STATUS
1	Amoco	State "CV" #1	NA	NA	F	24-17S-35E	Work completed 7-29-80.
2	Amoco	State "CV" #4	NA	NA	L	25-17S-35E	Work completed 7-12-80.
3	Amoco	State "CV" #5	NA	NA	F	25-17S-35E	Anticipate work to commence 3 to 6 months.
4	Phillips Petroleum Company	Chevron-State 6-34 #4	3440	004	J	34-17S-35E	Propose to re-enter P&A well & complete as wtr inj, work to commence 3 to 6 months.
5	Cities Services Company	State BJ #2	NA	NA	K	35-17S-35E	Work completed 9-23-80.
6	Phillips Petroleum Company	Crusader-State #1	2083	001	E	20-17S-35E	Work completed 8-29-80.
7	Phillips Petroleum Company	Crusader-State #2	1982	002	C	19-17S-35E	Work completed 10-23-80.
8	Phillips Petroleum Company	Crusader-State #3	1881	003	N	18-17S-35E	Well P&A 9-30-80.
9	Phillips Petroleum Company	Exxon-State J #1	1903	001	M	19-17S-35E	Work commenced to re-enter P&A well to complete as GB/SA producer, anticipate completion 1-3 mos.
10	Phillips Petroleum Company	Exxon-State J #2	1903	002	L	19-17S-35E	Work commenced 10-27-80.
11	Exxon	State AC #1	NA	NA	H	22-17S-35E	Work completed 11-6-80.
12	Great Western Drlg Co.	State E #2	NA	NA	L	25-17S-35E	Work completed 6-9-80.
13	Marathon	Warn State #1	NA	NA	M	23-17S-35E	Work completed 7-21-80.
14	Amoco 1.)	State CV #2	NA	NA	E	25-17S-35E	Amoco requested exception 8-31-79; No Hobbs-OCD action todate.
15	Amoco 1.)	State CV #2-Y	NA	NA	E	25-17S-35E	Amoco re-worked; C-103 filed 6-23-80.
16	Phillips Petroleum Company	Millard Deck-Carthay State #2	2059	002	G	20-17S-35E	*Exception granted.

js

	1 OPERATOR	2 LEASE & WELL NO	3 E. VACUUM TRACT	4 GB/SA UNIT WELL NO.	5 UNIT	6 SEC-TWP-RGE	7 8 PRESENT STATUS
1	Phillips Petroleum Co. 1.)	Exxon-State K #17	3202	017	P	32-17S-35E	Exxon Co. to proceed with work.
2							
3	Marathon 1.)	Staplin State #1	NA	NA	L	20-17S-35E	**Exception Granted.
4							
5	Phillips Petroleum Co.	Marathon-Warn State #1	0434	001	B	4-18S-35E	**Exception Granted.
6							
7	Mobil 1.)	N. Vac. Abo Unit #207	NA	NA	H	24-17S-34E	Mobil secured exception 9-14-79.
8							
9	Phillips Petroleum Company	Pennzoil-Phillips State #1	2851	001	A	28-17S-35E	*Exception Granted.
10							
11	Phillips Petroleum Company	Pennzoil-Phillips State #2	2865	002	F	28-17S-35E	*Exception Granted.
12							
13	Phillips Petroleum Company	Phillips-Vac. Abo Unit #6-68	NA	NA	H	34-17S-35E	Work completed 9-20-79.
14							
15	Phillips Petroleum Company	Phillips-Vac. Abo Unit #1-9	NA	NA	J	27-17S-35E	Work completed 9-20-79.
16							
17	Phillips Petroleum Company	Phillips-Vac. Abo Unit #7-3	NA	NA	P	27-17S-35E	*Exception Granted.
18							
19	Phillips Petroleum Company	Phillips-Vac. Abo Unit #7-4	NA	NA	I	27-17S-35E	*Exception Granted.
20							
21	Phillips Petroleum Company	Phillips-Vac. Abo Unit #9-5	NA	NA	H	33-17S-35E	*Exception Granted.
22							
23	Phillips Petroleum Company	Phillips-Vac. Abo Unit #13-2	NA	NA	E	4-18S-35E	*Exception Granted.
24							
25	Phillips Petroleum Company	Phillips-Santa Fe #77	2631	077	I	26-17S-35E	Work completed 5-29-80.
26							
27	Phillips Petroleum Company	Vac. Abo Unit #14-3	NA	NA	N	5-18S-35E	*Exception Granted.
28							
29	Phillips Petroleum Company	Phillips-Vac. Abo Unit #14-4	NA	NA	L	5-18S-35E	*Exception Granted.
30							
31	Phillips Petroleum Company	Shell-State V #6	2717	006	P	27-17S-35E	*Exception Granted.
32							

js

	1 OPERATOR	2 LEASE & WELL NO.	3 E. VACUUM GB/SA UNIT TRACT	4 WELL NO.	5 UNIT	6 SEC-TWP-RGE	7	8 PRESENT STATUS	9
1	Phillips Petroleum Company	Shell-State K #1	1911	001	O	19-17S-35E		*Exception Granted.	

*Exception granted 3-29-79; confirmed by letter dated 4-1-79.

**Exception granted 7-26-79.

1.) Producing or TA wells within 1/2 mile of Unit area

BRUCE KING
GOVERNOR

LARRY KEHOE
SECRETARY

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
HOBBS DISTRICT OFFICE
July 26, 1979

POST OFFICE BOX 1980
HOBBS, NEW MEXICO 88240
(505) 393-6161

RECEIVED
AUG - 1 1979
OIL CONSERVATION DIVISION
SANTA FE

Case 6367

Marathon Oil Company
P. O. Box 2409
Hobbs, New Mexico 88240

Re: Compliance with Order No. R-5897
Staplin State A/C 3 Well No. 1
Unit L, Section 20, T-17-S, R-35-E

Gentlemen:

Inasmuch as the subject well was perforated and you were unable to pump into the perforations, it will be considered by this office to be adequately cased and cemented as required by Division Order No. R-5897 covering the Phillips Petroleum Company East Vacuum Graybury-San Andres Unit.

Yours very truly,

OIL CONSERVATION DIVISION

Jerry Sexton
Supervisor, District 1

mc
cc-Mr. Joe D. Ramey, Director
Oil Conservation Division
Santa Fe, New Mexico

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
HOBBS DISTRICT OFFICE

BRUCE KING
GOVERNOR

LARRY KEHOE
SECRETARY

July 26, 1979

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OIL CONSERVATION DIVISION
SANTA FE

POST OFFICE BOX 1980
HOBBS, NEW MEXICO 88240
(505) 393-6161

case 6367

Phillips Petroleum Company
4001 Penbrook
Odessa, Texas 79762

Attention Mr. J. W. Maharg

Re: Division Order No. R-5897

Gentlemen:

Inasmuch as Cement Bond Logs for the wells listed below indicate good bonding above the top of the Grayburg formation, an exception to Exhibit "C" of Division Order No. R-5897 is hereby granted for these wells, as requested in your letters of July 19, 1979.

East Vacuum Grayburg-San Andres Unit Tr. 1911 Well No. 001-0 19-17-35
(Formerly Shell Oil Company State K Well No. 1)

East Vacuum Grayburg-San Andres Unit Tr. 0434 Well No. 001-B 4-18-35
(Formerly Marathon Oil Company Warn State A/C 5 Well No. 1)

East Vacuum Grayburg-San Andres Unit Tr. 2059 Well No. 002-G 20-17-35
(Formerly Millard Deck Carthay State Well No. 2)

Vacuum Abo Unit Tr. 14 Btry. No. 1 Well No. 3-N 5-18-35
(Formerly Shell Oil Company State V-AA Well No. 3)

Yours very truly,

OIL CONSERVATION DIVISION

Jerry Sexton
Supervisor, District 1

mc
cc-Mr. Joe D. Ramey, Director
Oil Conservation Division
Santa Fe, New Mexico

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
HOBBS DISTRICT OFFICE
July 30, 1979

BRUCE KING
GOVERNOR
LARRY KEHOE
SECRETARY

RECEIVED
AUG - 1 1979
OIL CONSERVATION DIVISION
SANTA FE

POST OFFICE BOX 1980
HOBBS, NEW MEXICO 88240
(505) 393-6161

Case 6367

Phillips Petroleum Company
4001 Penbrook
Odessa, Texas 79762

Attention Mr. J. W. Maharg

Re: Division Order No. 5897

Gentlemen:

Inasmuch as the Cement Bond Log for your Santa Fe Well No. 87 located in Unit L of Section 31, T-17-S, R-35-E, shows good bonding to 4700 feet behind the 7" casing, an exception to Exhibit "C" of Division Order No. 5897 is hereby granted, as requested in your letter of July 23, 1979.

Further, the work done on the Vacuum Abo Unit Btry. No. 1 Tract 14 Well No. 4 located in Unit L of Section 5, T-18-S, R-35-E, (formerly Shell Oil Company State V-AA No. 4), complies with the subject order.

Yours very truly,

OIL CONSERVATION DIVISION

Jerry Sexton
Supervisor, District 1

mc
cc-Mr. Joe D. Ramey, Director
Oil Conservation Division
Santa Fe, New Mexico

PHILLIPS PETROLEUM COMPANY
ODESSA, TEXAS 79762
4001 PENBROOK

EXPLORATION AND PRODUCTION GROUP
Permian Basin Region

RECEIVED
JAN 14 1983
OIL CONSERVATION DIVISION
SANTA FE

January 3, 1982

East Vacuum Grayburg-San Andres Unit
NMOCD Order No. R-5897
INJECTION WELLHEAD PRESSURE LIMITATION
Lea County, New Mexico

New Mexico Dept. of Energy & Materials
Oil Conservation Division (3)
P. O. Box 2088
Santa Fe, New Mexico 87501

Attention: Mr. Joe Ramey

Gentlemen:

Phillips Petroleum Company, as operator of the subject unit, requests administrative approval of a unit injection wellhead pressure limitation of 1,350 psi. This is done in accordance with Special Rule No. 12 of the subject order, which states in part, "The Division Director may administratively authorize a pressure limitation ... upon showing by the unit operator that such higher pressure will not result in fracturing of the confining strata". The following exhibits substantiate the fact that the requested pressure limitation does not violate this rule.

In order to identify a minimum formation parting pressure, step rate tests were run on thirteen wells spread across the unit. These tests were conducted between September and November, 1982. Exhibit 1 is a plat of the unit showing the locations of the wells tested. Note that the unit is divided into six satellite areas of approximate equal geographic size. These "satellites" are actually six individual well testing and gas separation units located in the approximate center of each of these outlined areas. These satellites are connected to the central tank battery at the center of the unit. The satellite areas are used here merely to illustrate that the wells tested are spread over the entire unit. Note that each satellite area has at least two of the tested wells within it.

Exhibit 2 is a summary of the test results that are shown individually in Exhibits 3 through 15A. These tests were conducted with a pressure gauge at the surface and an Amerada pressure bomb set at the top perforation. In each case, a Halliburton turbine meter was used to measure the injection rate.

Note that in two cases (Exhibits 11 & 14), a plot of the surface pressure data could not adequately identify the parting pressure. However, the BHP data does identify it. This is most likely due to a masking effect caused by friction in the tubing. Since surface pressures were being recorded at the same time, it is very simple to correlate a surface injection pressure to the rate at which the parting pressure was identified downhole. This is identified in Exhibit 2 as

the surface parting pressure. In four other tests (Exhibits 4, 8, 13 & 15), neither the downhole or surface pressure plots identified the formation parting pressure. In one case (Exhibit 4), the permeability is very low and the surface wellhead equipment reached its limit (3,000 psi) at a relatively low injection rate (1.2 BPM). In the other three cases, porosity and permeability are very high, allowing extremely high injectivities. In all cases, it is believed that the parting pressure is higher than can be achieved with our present wellhead equipment limitation.

In five of the thirteen tests (Exhibits 6, 7, 9, 10 & 12), the BHP bomb failed to record. Fortunately, the parting pressure is easily identified on the surface pressure plot. However, in order to check the bottom hole pressure, it was calculated as follows:

$$BHPc = HH + SP - h$$

where;

BHPc - calculated bottom hole pressure (psi)
HH - hydrostatic head (psi) = (0.44) x (Depth of top perforation)
SP - surface pressure (psi)
h - pressure due to friction (psi)

The frictional pressure (h) is defined by Hazen & Williams according to the following formula:

$$h = L\left[\frac{94.920}{(CD^{2.63})}\right]^{1.852}$$

where;

L - depth of top perforation (ft.)
Q - injection rate (bbls./min.)
C - Hazen & Williams coefficient
D - inside diameter of pipe (inches)

According to the Tuboscope Coating Research and Engineering Department, the Hazen & Williams coefficient for plastic-coated pipe is 140, as compared to 100 for new steel pipe. (Tuboscope manufactures the coating used in the tubing on EVGSAU.) Therefore, the above equation becomes:

$$h \text{ (for 2-7/8" tubing)} = L\,(0.0649\,Q)^{1.852}$$

In each of these five tests, the injection rate at the parting pressure is very similar on both plots. Whereas these plots do provide supportive data, they all identify parting pressures above the requested wellhead injection pressure limitation.

At the present maximum pressure limitation of 920 psi, injection rates have begun to decline. In order to maintain sufficient injection, it is requested that the unit injection wellhead pressure limitation be increased to 1,350 psi. (This is slightly lower that the lowest recorded parting pressure [see Exhibit 2] so as to insure that the formation is not fractured.) This will enable the timely recovery of the secondary reserves in the unit. Any further information you require will gladly be forwarded. Your prompt attention is appreciated.

Sincerely,

G. R. Smith

G. R. Smith, Chairman
Working Interest Owners Committee

MHB:adk

Attachments

cc: New Mexico Dept. of Energy and Minerals
Oil Conservation Division
P. O. Box 1980
Hobbs, New Mexico
Attn: Mr. Jerry Sexton

EXHIBIT 2

SUMMARY OF FORMATION
PARTING PRESSURE TEST RESULTS

Tract-Well	Satellite No.	Depth of Top Perforation	Tubing Size	Surface Parting Pressure, psi	Inj. Rate at Parting Pressure, BPD
1952-W002	1	4606'	2-3/8"	1500	1080
2054-W003	1	4590'	2-3/8"	NIPP	1728+
2980-W003	2	4580'	2-3/8"	2035	2563
2801-W012*	2	4445'	2-7/8"	1985	5976
3202-W008*	3	4366'	2-7/8"	1725	8352
3202-W009	3	4395'	2-7/8"	NIPP	7488+
2738-W009*	4	4440'	2-7/8"	2000	2340
2721-W001*	4	4352'	2-7/8"	1710	4608
2717-W003	5	4394'	2-7/8"	1450**	6394
2622-W006*	5	4480'	2-7/8"	1550	5040
3456-W009	6	4446'	2-7/8"	NIPP	8640+
3333-W006	6	4387'	2-7/8"	1785**	7884
3315-W007	6	4505'	2-7/8"	NIPP	8640+

NIPP - No identifiable parting pressure.

* - The BHP bomb failed during these tests. Calculated bottom hole pressures are shown on the data sheets and graphs for these wells.

** - In these tests, the parting pressure was not evident from the surface pressure plots. However, the BHP plots did show the formation parting. The surface parting pressures shown here are read directly from the measured surface pressure curve at the rate at which the BHP plot shows the formation parting.

\+ - Where no identifiable parting pressure is shown, the maximum injection rate attained during the test is given.

EXHIBIT 3A

EAST VACUUM GRAYBURG-SAN ANDRES UNIT
Tract 1952, Well No. W002

FORMATION PARTING PRESSURE
TEST DATA

Injection Rate		Pressure, PSI	
BPM	BPD	Surface	BHP
0.4	576	875	2959
0.55	792	1150	3200
0.95	1368	1650	3564
1.5	2160	2050	3956
2.0	2880	2450	4329
2.5	3600	2850	4560

EXHIBIT 3
East Vacuum Grayburg-San Andres Unit
Lea County, New Mexico
Formation Parting Pressure
Tract 1952 , Well No. W002
Unit F , Sec. 19, T-17-S, R-35-E

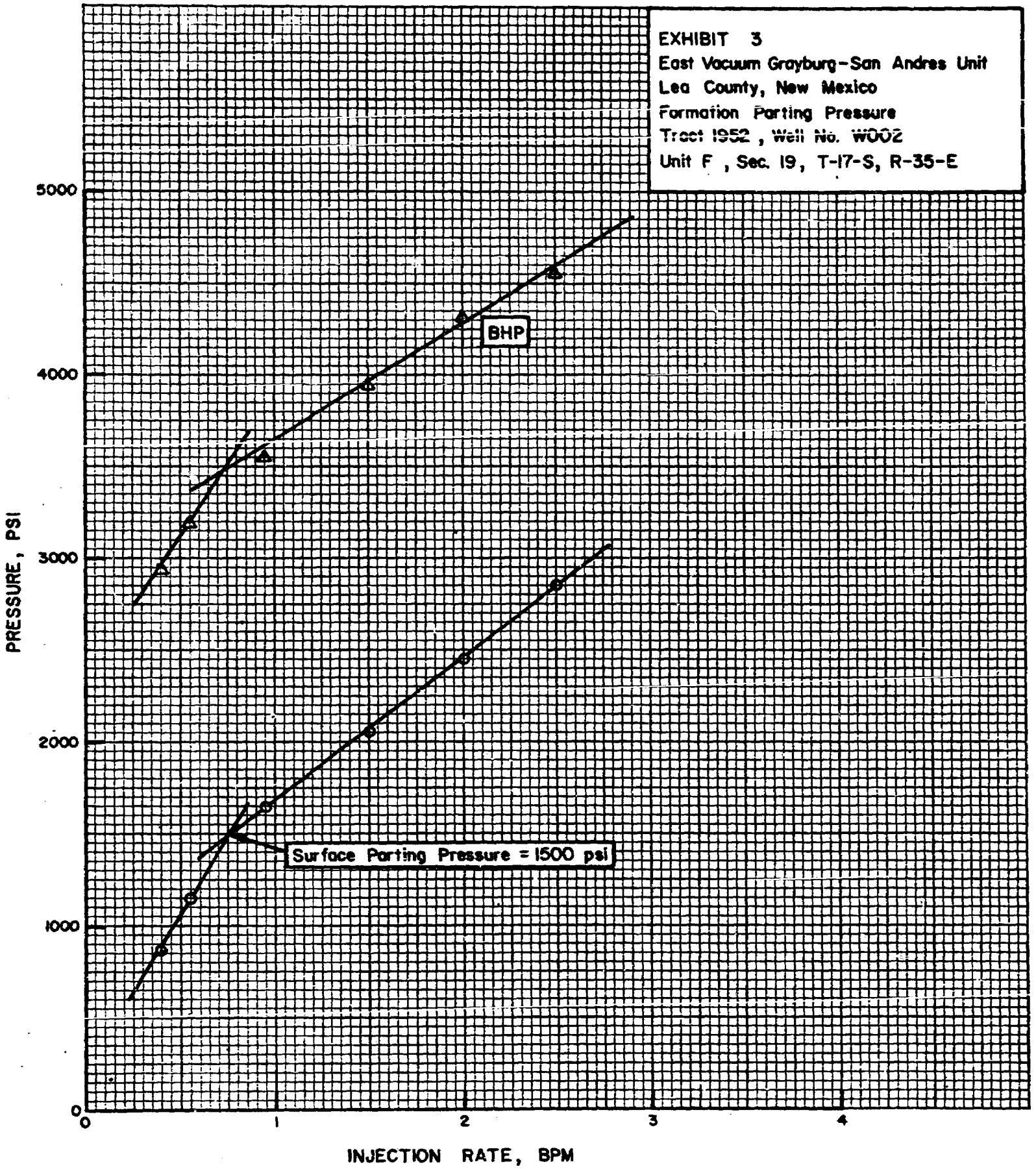


EXHIBIT 8A

EAST VACUUM GRAYBURG-SAN ANDRES UNIT
Tract 3202, Well No. W009

FORMATION PARTING PRESSURE
TEST DATA

Injection Rate		Pressure, PSI	
BPM	BPD	Surface	BHP
1.2	1728	670	2565
2.2	3168	975	2782
3.1	4464	1320	3019
5.2	7488	2150	3449

EXHIBIT 8
East Vacuum Graybura-San Andres Unit
Lea County, New Mexico
Formation Parting Pressure
Tract 3202, Well No. W009
Unit O, Sec. 32, T-17-S, R-35-E

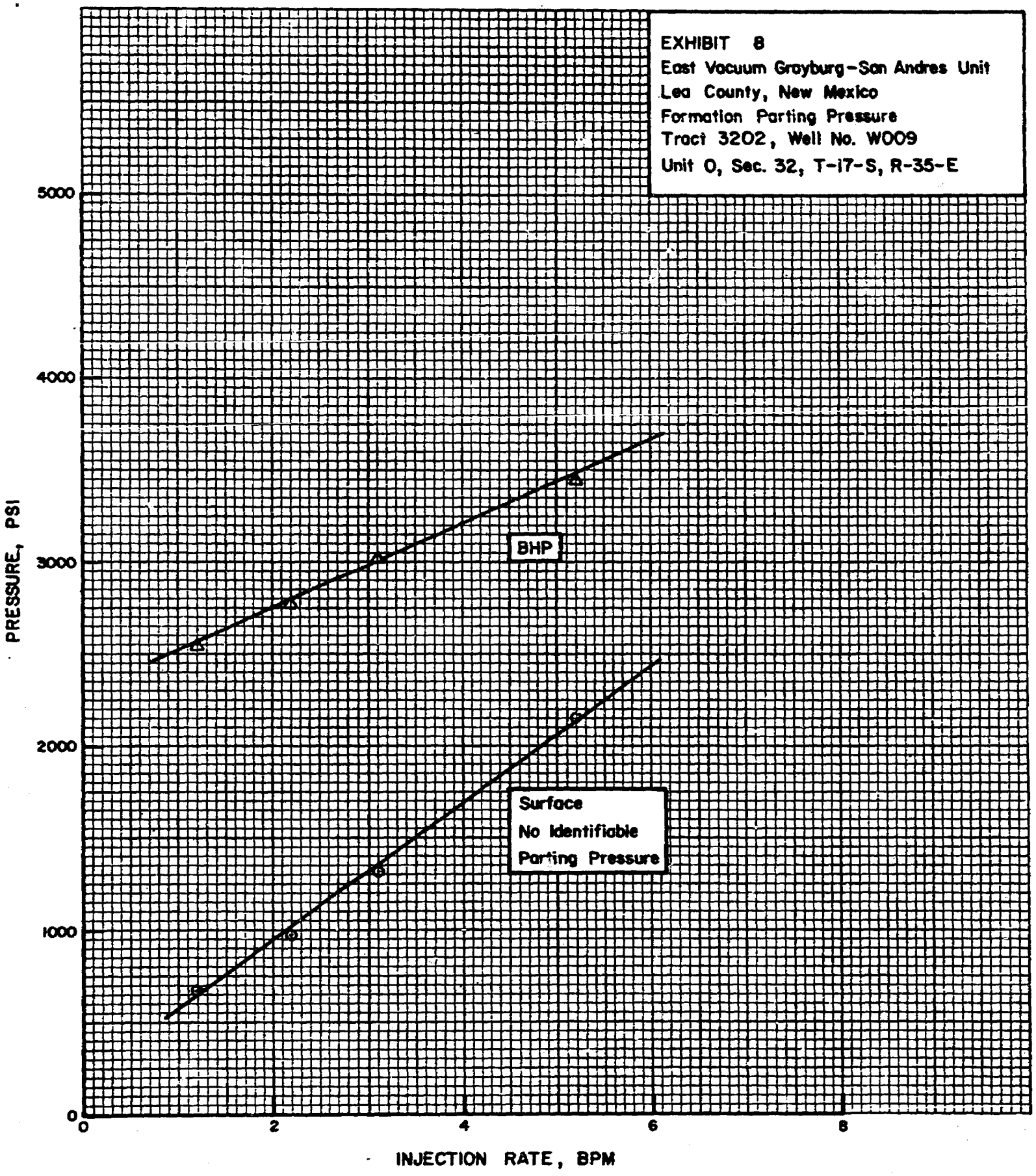


EXHIBIT 5A

EAST VACUUM GRAYBURG-SAN ANDRES UNIT
Tract 2980, Well No. W003

FORMATION PARTING PRESSURE
TEST DATA

Injection Rate		Pressure, PSI	
BPM	BPD	Surface	BHP
1.0	1440	1500	3573
1.45	2088	1825	3819
2.0	2880	2150	4019
2.5	3600	2400	4152
3.0	4320	2650	4193

EXHIBIT 5
East Vacuum Grayburg–San Andres Unit
Lea County, New Mexico
Formation Parting Pressure
Tract 2980, Well No. W003
Unit F, Sec. 29, T-17-S, R-35-E

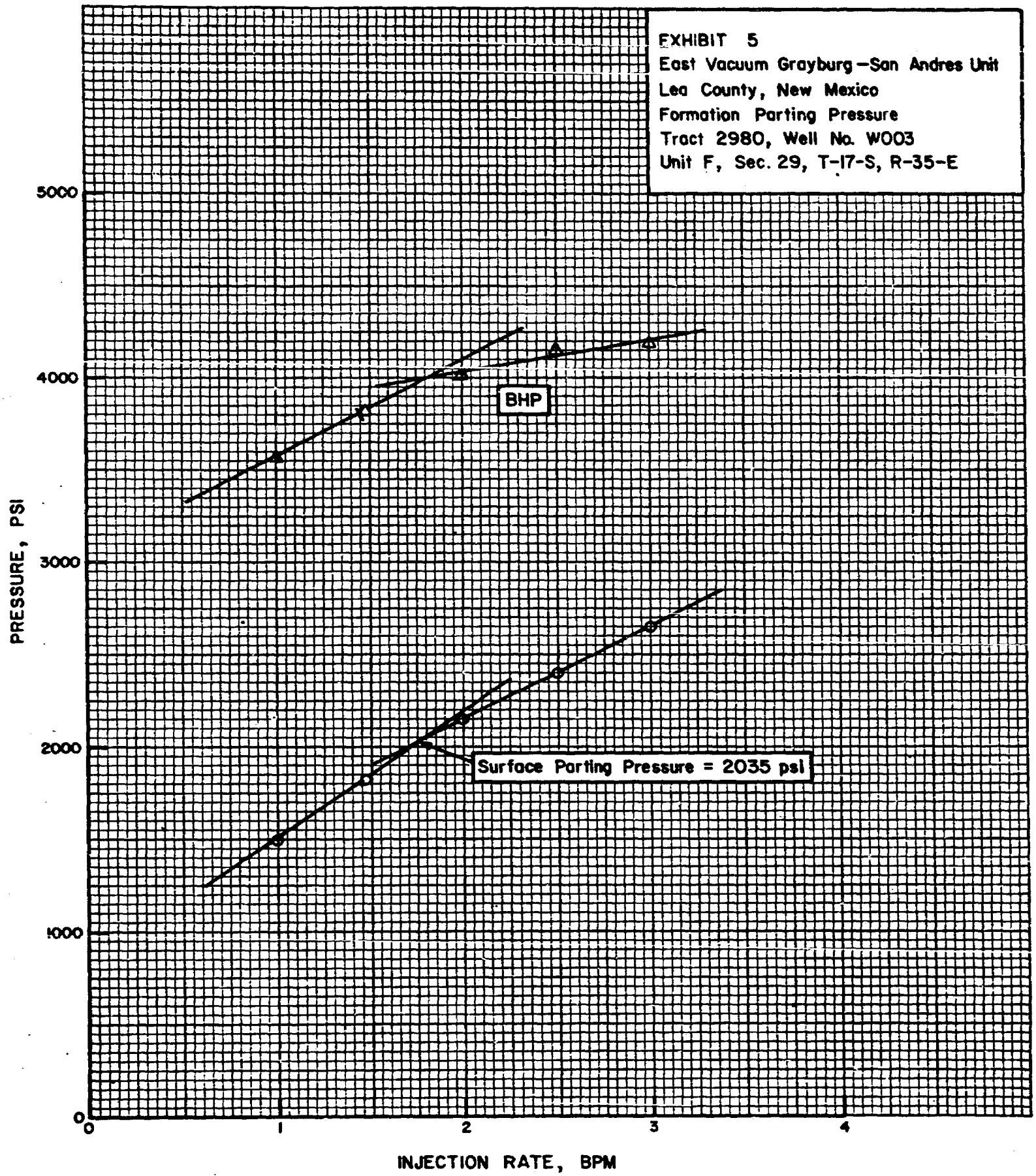


EXHIBIT 6A

EAST VACUUM GRAYBURG-SAN ANDRES UNIT
Tract 2801, Well No. W012

FORMATION PARTING PRESSURE
TEST DATA

Injection Rate		Pressure, PSI	
BPM	BPD	Surface	BHPc
3.0	4320	1400	3141
3.5	5040	1625	3295
4.0	5760	1900	3490
5.0	7200	2275	3678
5.5	7920	2400	3746
6.0	8640	2625	3806

EXHIBIT 6
East Vacuum Grayburg-San Andres Unit
Lea County, New Mexico
Formation Parting Pressure
Tract 2801, Well No. W012
Unit M, Sec. 28, T-17-S, R-35-E

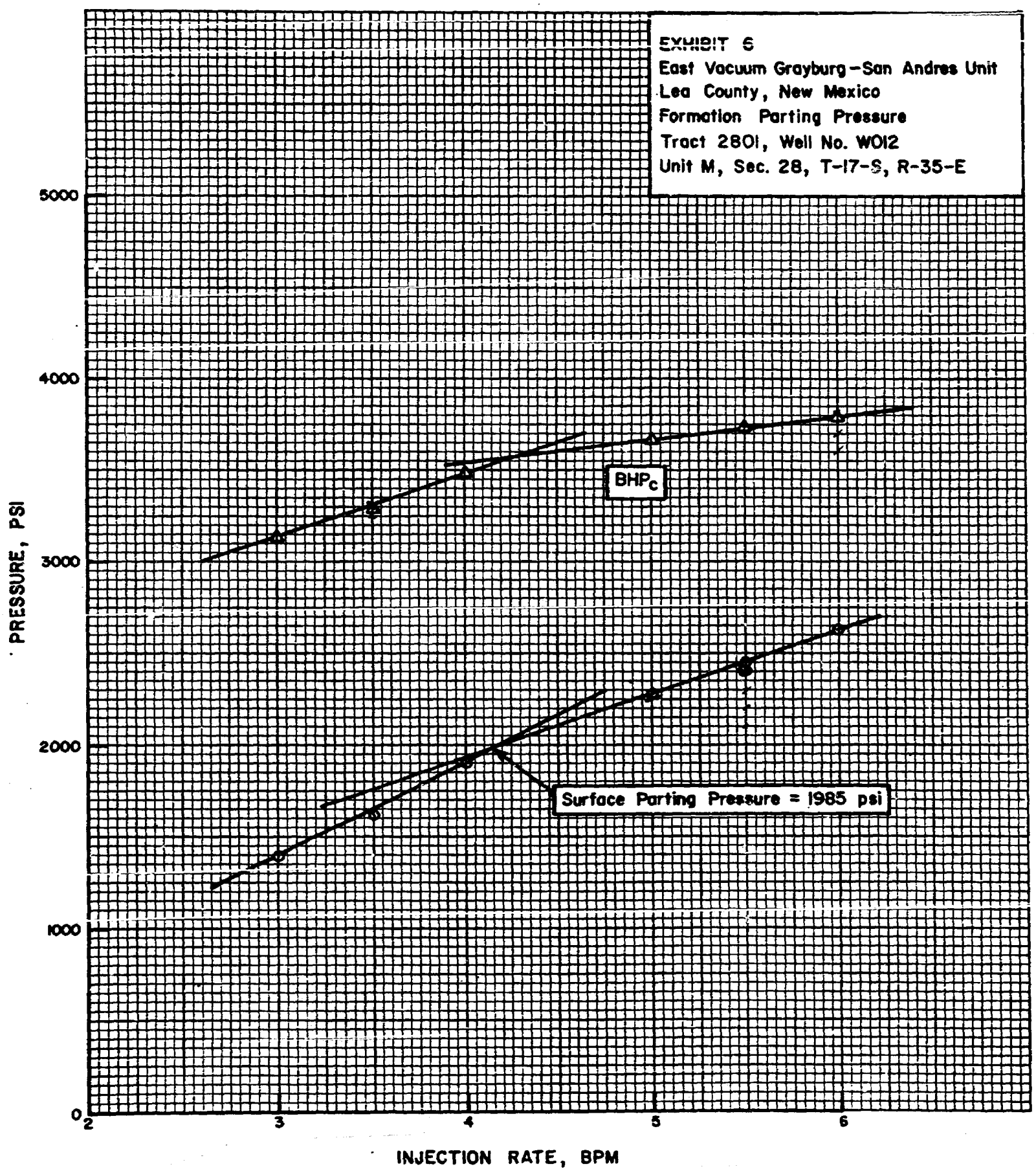


EXHIBIT 7A

EAST VACUUM GRAYBURG-SAN ANDRES UNIT
Tract 32G2, Well No. W008

FORMATION PARTING PRESSURE
TEST DATA

Injection Rate		Pressure, PSI	
BPM	BPD	Surface	BHPc
3.8	5472	500	2094
4.8	6912	1100	2518
6.2	8928	1900	3012
6.8	9792	2200	3161
7.5	10800	2500	3270
8.0	11520	2750	3314

EXHIBIT 7
East Vacuum Grayburg–San Andres Unit
Lea County, New Mexico
Formation Parting Pressure
Tract 3202, Well No. W008
Unit G, Sec. 32, T-17-S, R-35-E

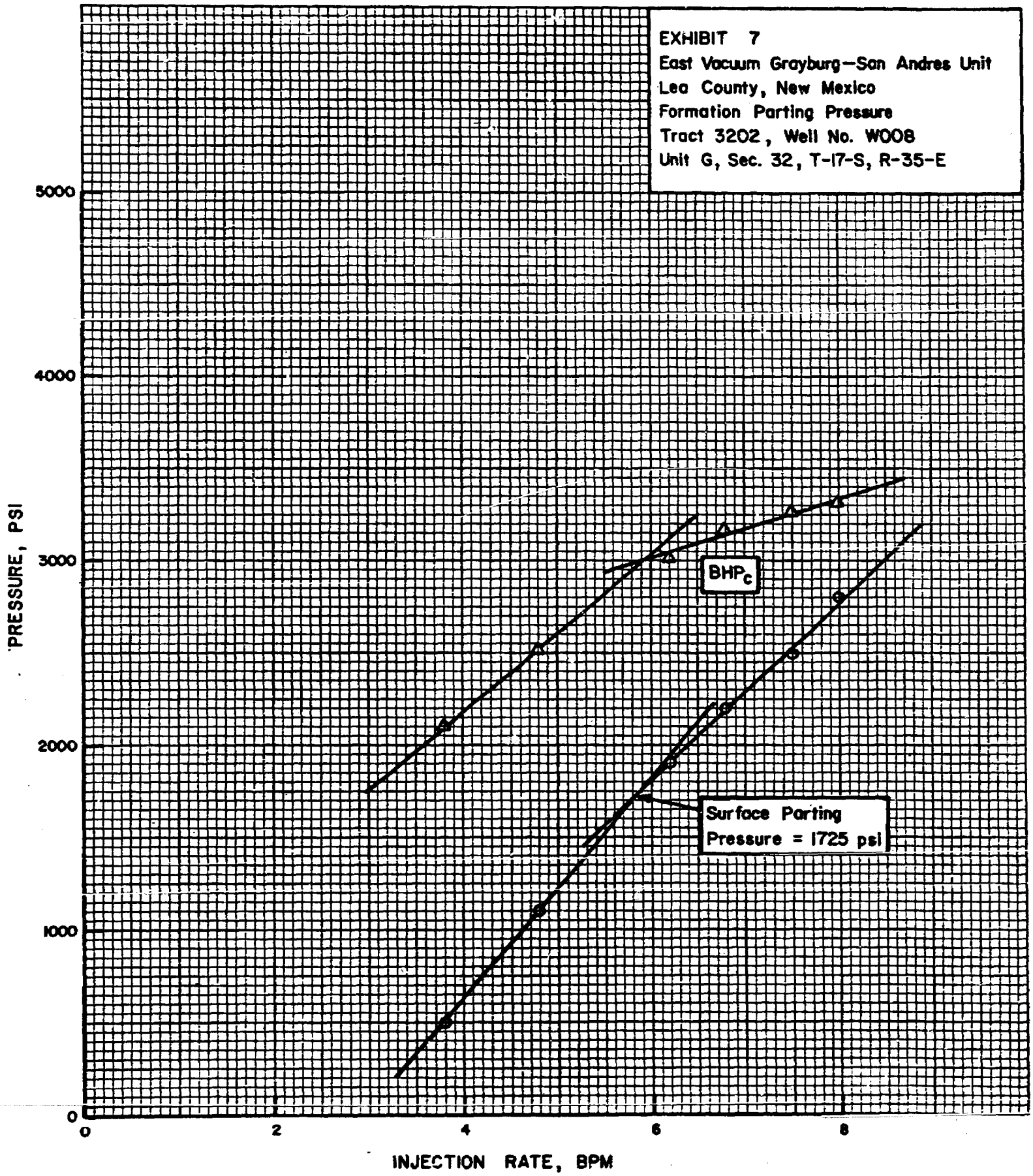


EXHIBIT 9A

EAST VACUUM GRAYBURG-SAN ANDRES UNIT
Tract 2738, Well No. W009

FORMATION PARTING PRESSURE
TEST DATA

Injection Rate		Pressure, PSI	
BPM	BPD	Surface	BHPc
0.5	720	720	2666
1.5	2160	1850	3744
2.0	2880	2100	3952
2.5	3600	2275	4076
3.0	4320	2400	4139
4.0	5760	2700	4288

EXHIBIT 9
East Vacuum Grayburg–San Andres Unit
Lee County, New Mexico
Formation Parting Pressure
Tract 2738, Well No. W009
Unit E, Sec. 27, T-17-S, R-35-E

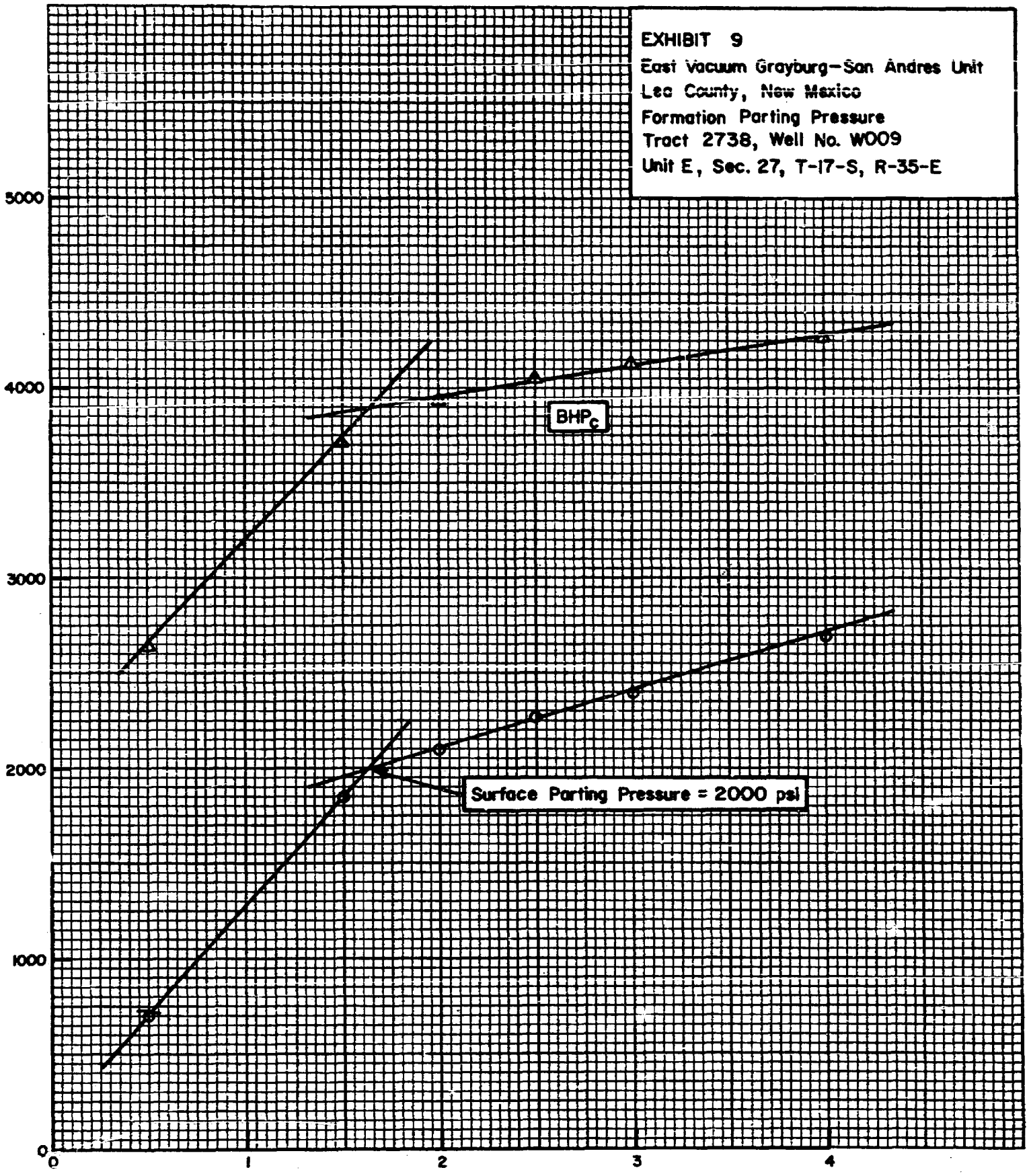


EXHIBIT 10A

EAST VACUUM GRAYBURG-SAN ANDRES UNIT
Tract 2721, Well No. W001

FORMATION PARTING PRESSURE
TEST DATA

Injection Rate		Pressure, PSI	
BPM	BPD	Surface	BHPc
0.5	720	625	2532
1.0	1440	825	2712
2.0	2880	1225	3041
3.0	4320	1625	3330
4.3	6192	2000	3506
5.3	7632	2060	3512
6.2	8928	2400	3509
7.1	10224	2720	3599

EXHIBIT 10
East Vacuum Grayburg–San Andres Unit
Lea County, New Mexico
Formation Parting Pressure
Tract 2721, Well No. W001
Unit M, Sec. 27, T-17-S, R-35-E

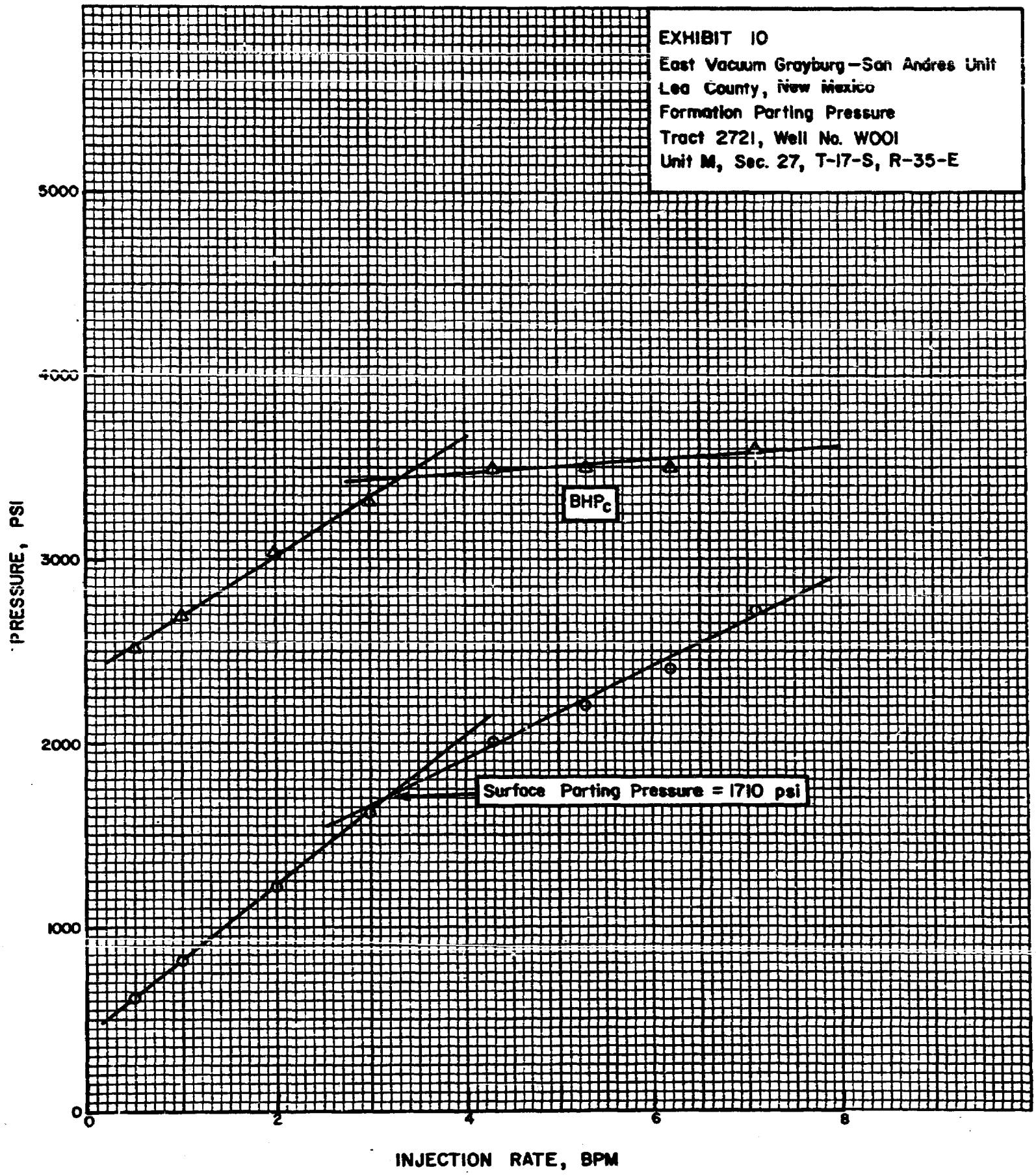


EXHIBIT 12A

EAST VACUUM GRAYBURG-SAN ANDRES UNIT
Tract 2622, Well No. W006

FORMATION PARTING PRESSURE
TEST DATA

Injection Rate		Pressure, PSI	
BPM	BPD	Surface	BHPc
0.55	792	525	2487
1.0	1440	680	2623
1.6	2304	925	2829
2.5	3600	1200	3017
3.5	5040	1550	3233
4.5	6480	1800	3313
5.7	8208	2100	3361
6.6	9504	2325	3364
7.65	11016	2575	3321

EXHIBIT 12
East Vacuum Grayburg-San Andres Unit
Lea County, New Mexico
Formation Parting Pressure
Tract 2622, Well No. W006
Unit F, Sec. 26, T-17-S, R-35-E

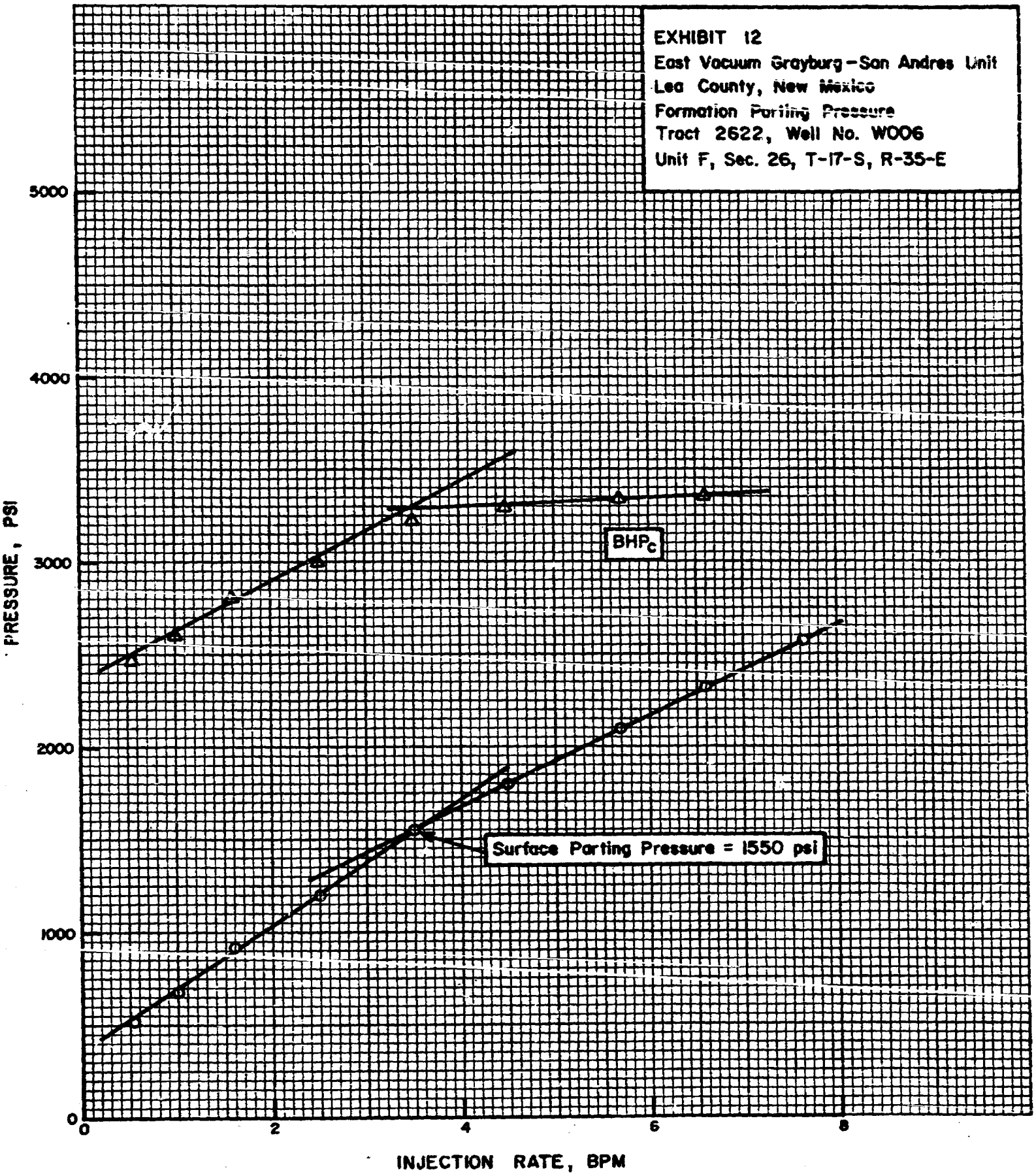


EXHIBIT 11A

EAST VACUUM GRAYBURG-SAN ANDRES UNIT
Tract 2717, Well No. W003

FORMATION PARTING PRESSURE
TEST DATA

Injection Rate		Pressure, PSI	
BPM	BPD	Surface	BHP
2.2	3168	525	1879
3.3	4752	950	2300
4.1	5904	1300	2631
5.1	7344	1725	2871
5.95	8568	2100	*
6.7	9648	2400	*
7.5	10800	2750	3321

*BHP bomb failure

EXHIBIT II
East Vacuum Grayburg-San Andres Unit
Lea County, New Mexico
Formation Parting Pressure
Tract 2717, Well No. WO03
Unit P, Sec. 27, T-17-S, R-35-E

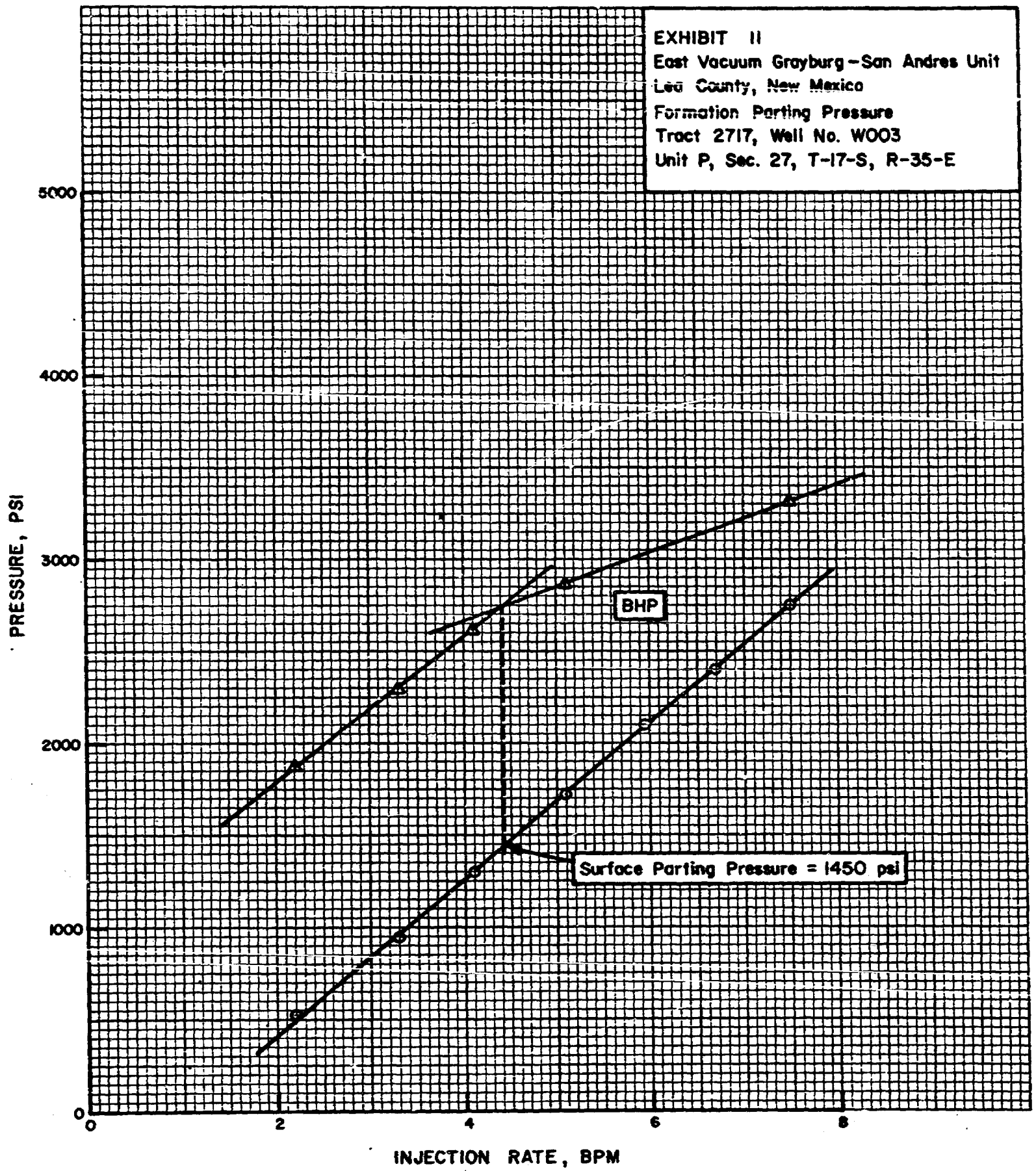


EXHIBIT 14A

EAST VACUUM GRAYBURG-SAN ANDRES UNIT
Tract 3333, Well No. W006

FORMATION PARTING PRESSURE
TEST DATA

Injection Rate		Pressure, PSI	
BPM	BPD	Surface	BHP
1.1	1584	350	2333
2.0	2880	500	2457
3.1	4464	900	2628
4.0	5760	1250	2788
5.0	7200	1600	2915
6.1	8784	2000	3063
7.2	10368	2400	3189
8.2	11808	2800	3304

EXHIBIT 14
East Vacuum Graybura-San Andres Unit
Lea County, New Mexico
Formation Parting Pressure
Tract 3333, Well No. W006
Unit H, Sec. 33, T-17-S, R-35-E

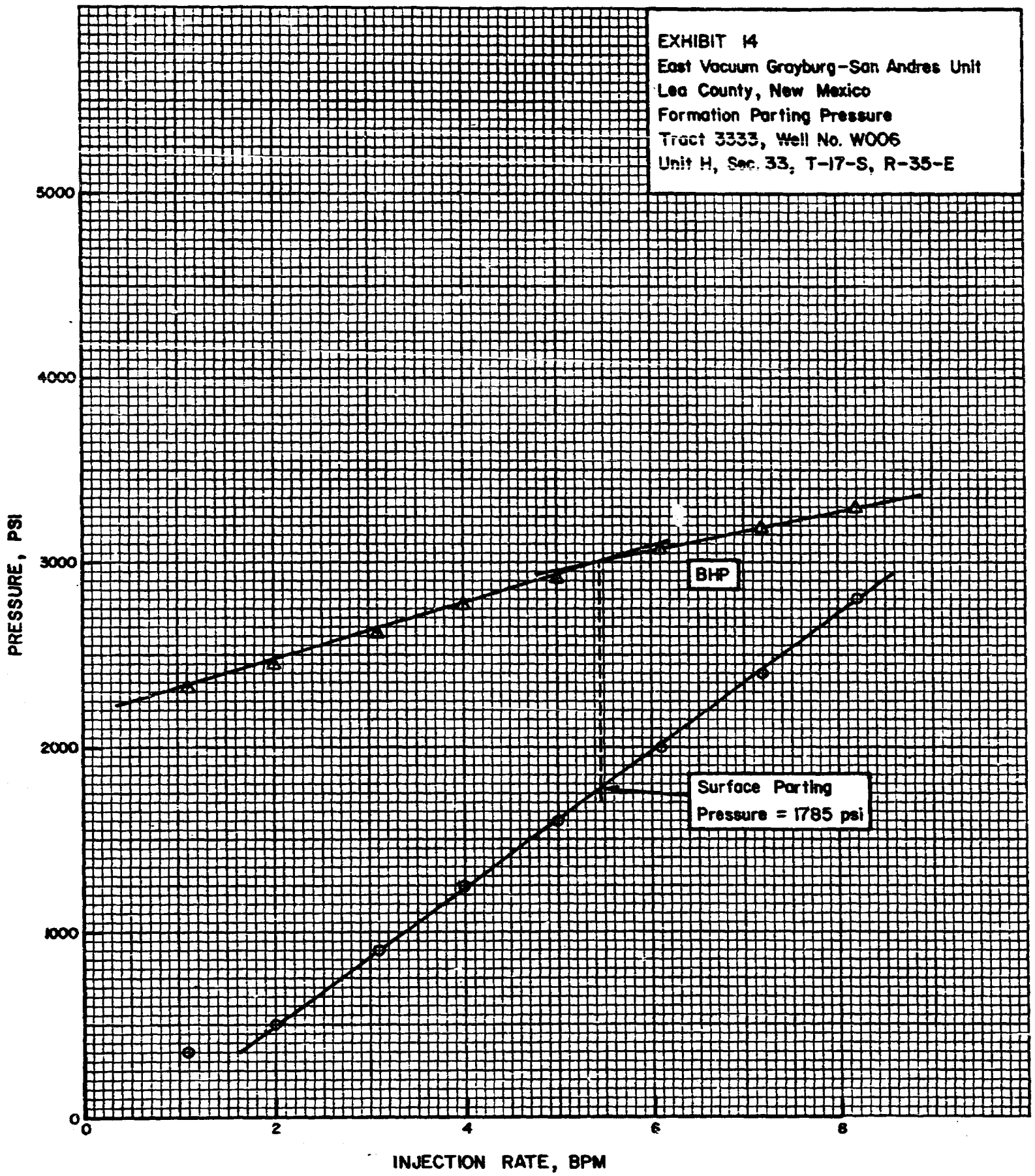


EXHIBIT 4A

EAST VACUUM GRAYBURG-SAN ANDRES UNIT
Tract 2054, Well No. W003

FORMATION PARTING PRESSURE
TEST DATA

Injection Rate		Pressure, PSI	
BPM	BPD	Surface	BHP
0.3	432	775	2909
0.5	720	1000	3058
0.8	1152	1900	4011
1.0	1440	2300	4361
1.2	1728	2900	4959

EXHIBIT 4
East Vacuum Grayburg-San Andres Unit
Lea County, New Mexico
Formation Parting Pressure
Tract 2054, Well No. W003
Unit M, Sec. 20, T-17-S, R-35-E

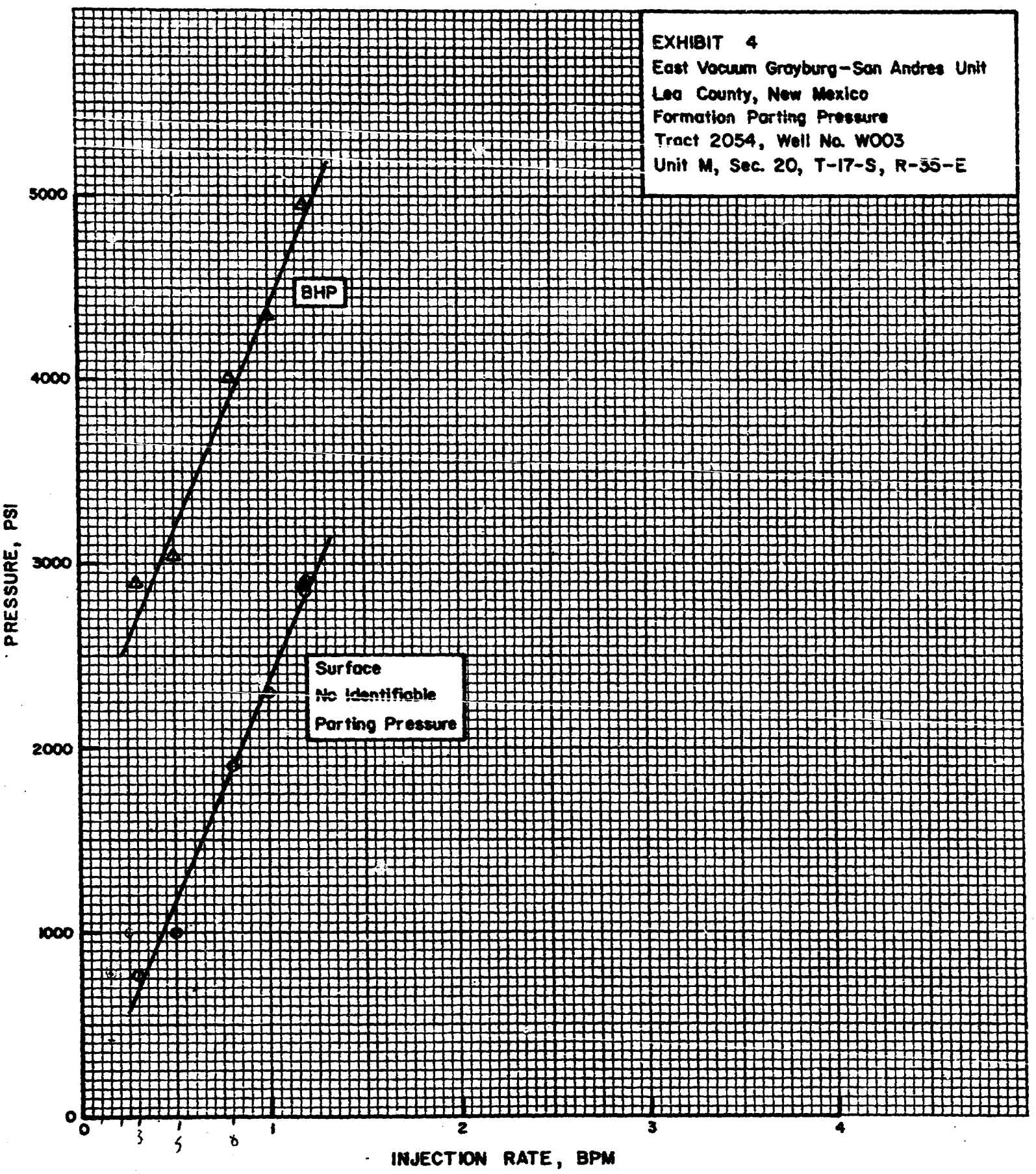


EXHIBIT 13A

EAST VACUUM GRAYBURG-SAN ANDRES UNIT
Tract 3456, Well No. W009

FORMATION PARTING PRESSURE
TEST DATA

Injection Rate		Pressure, PSI	
BPM	BPD	Surface	BHP
1.0	1440	400	2298
1.5	2160	550	2375
2.0	2880	750	2565
3.0	4320	1020	2758
4.0	5760	1400	2945
5.0	7200	1800	3129
6.0	8640	2350	3362

EXHIBIT 13
East Vacuum Grayburg-San Andres Unit
Lea County, New Mexico
Formation Parting Pressure
Tract 3456, Well No. WO09
Unit F, Sec. 34, T-17-S, R-35-E

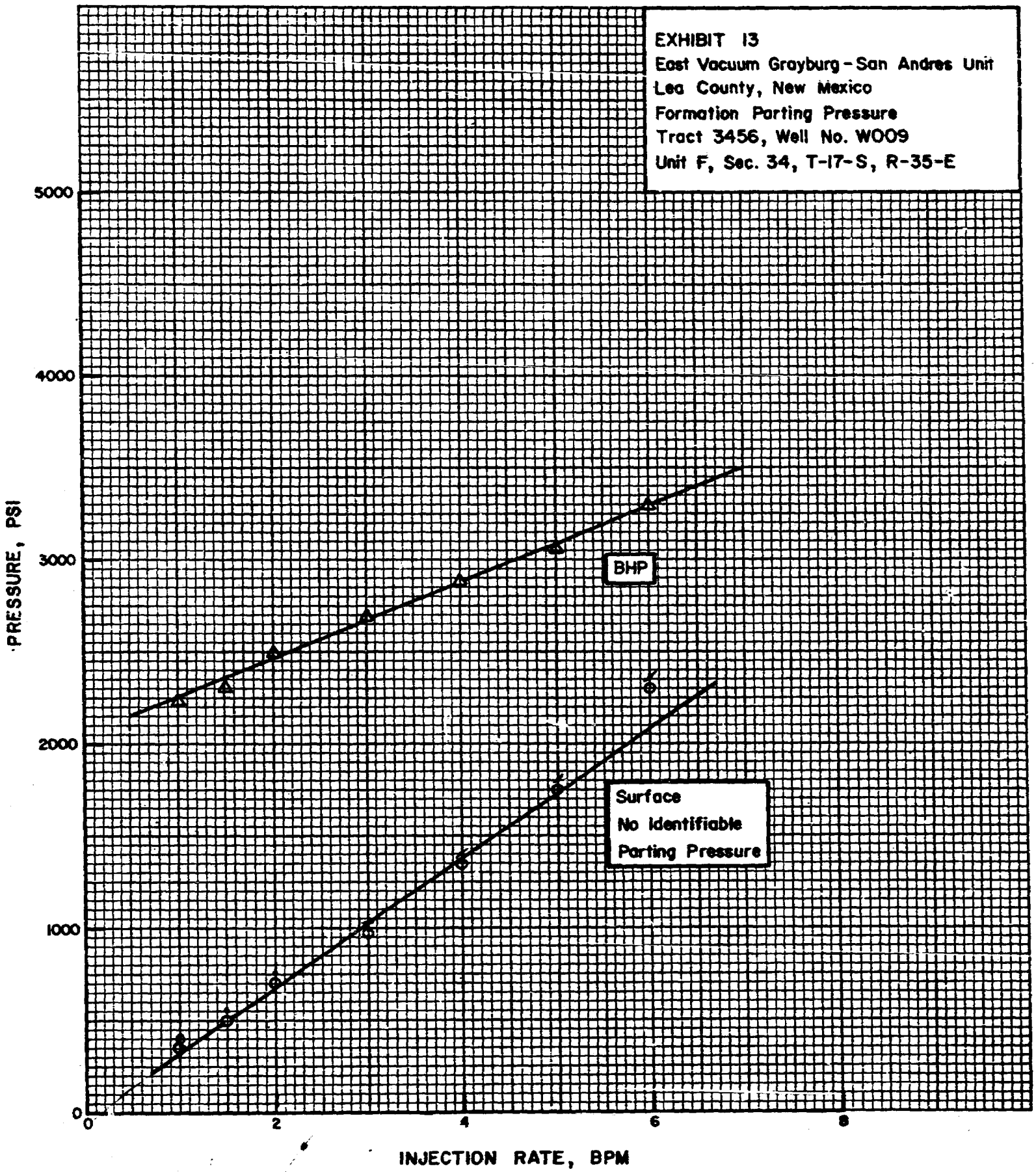


EXHIBIT 15A

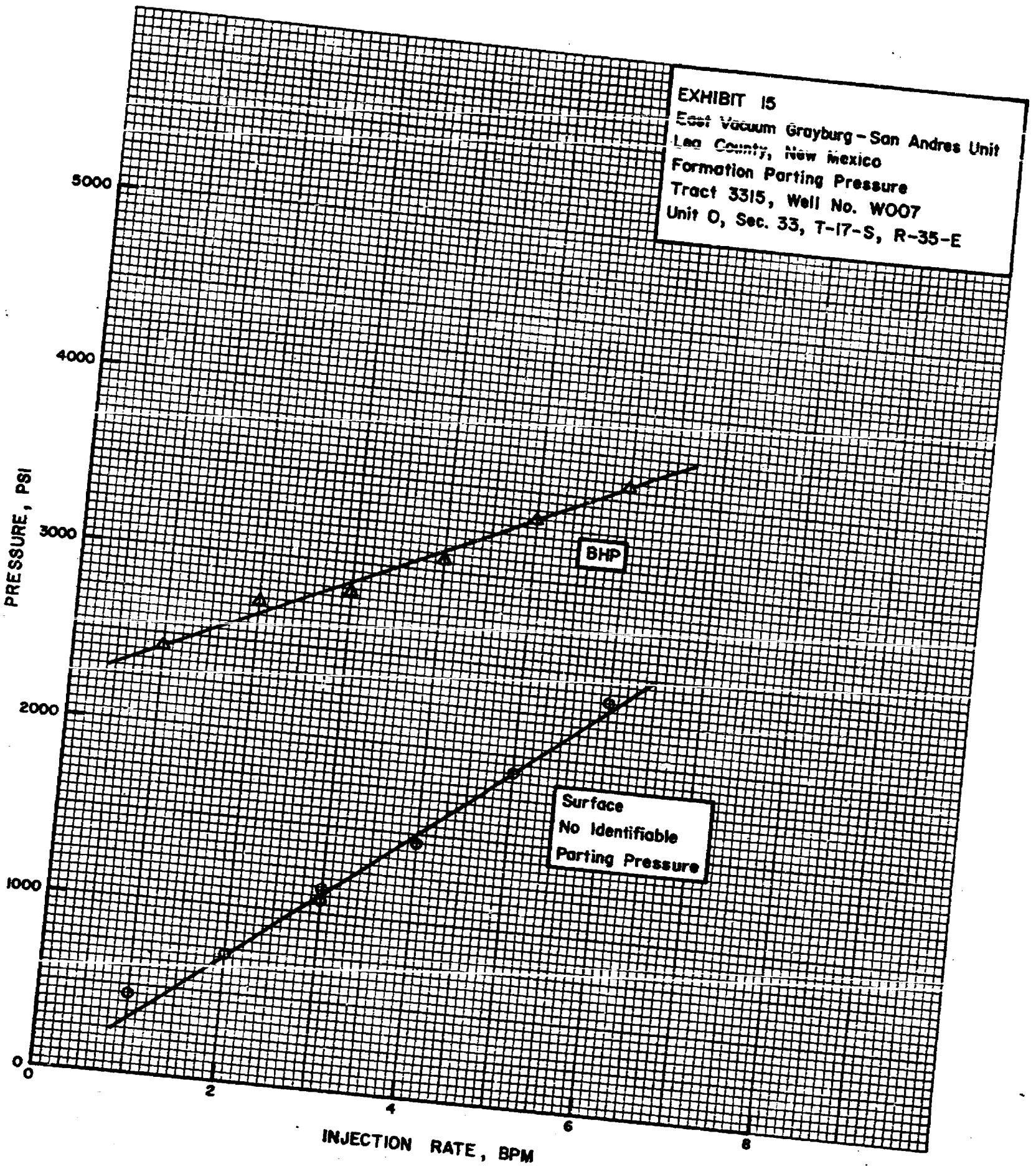
EAST VACUUM GRAYBURG-SAN ANDRES UNIT
Tract 3315, Well No. W007

FORMATION PARTING PRESSURE
TEST DATA

Injection Rate		Pressure, PSI	
BPM	BPD	Surface	BHP
1.0	1440	450	2433
2.0	2880	725	2741
3.0	4320	1070	2837
4.0	5760	1460	3066
5.0	7200	1900	3353
6.0	8640	2350	3584

EXHIBIT 15

East Vacuum Grayburg - San Andres Unit
Lea County, New Mexico
Formation Parting Pressure
Tract 3315, Well No. W007
Unit O, Sec. 33, T-17-S, R-35-E



Memo

From

JERRY SEXTON
DISTRICT SUPERVISOR

To DAN

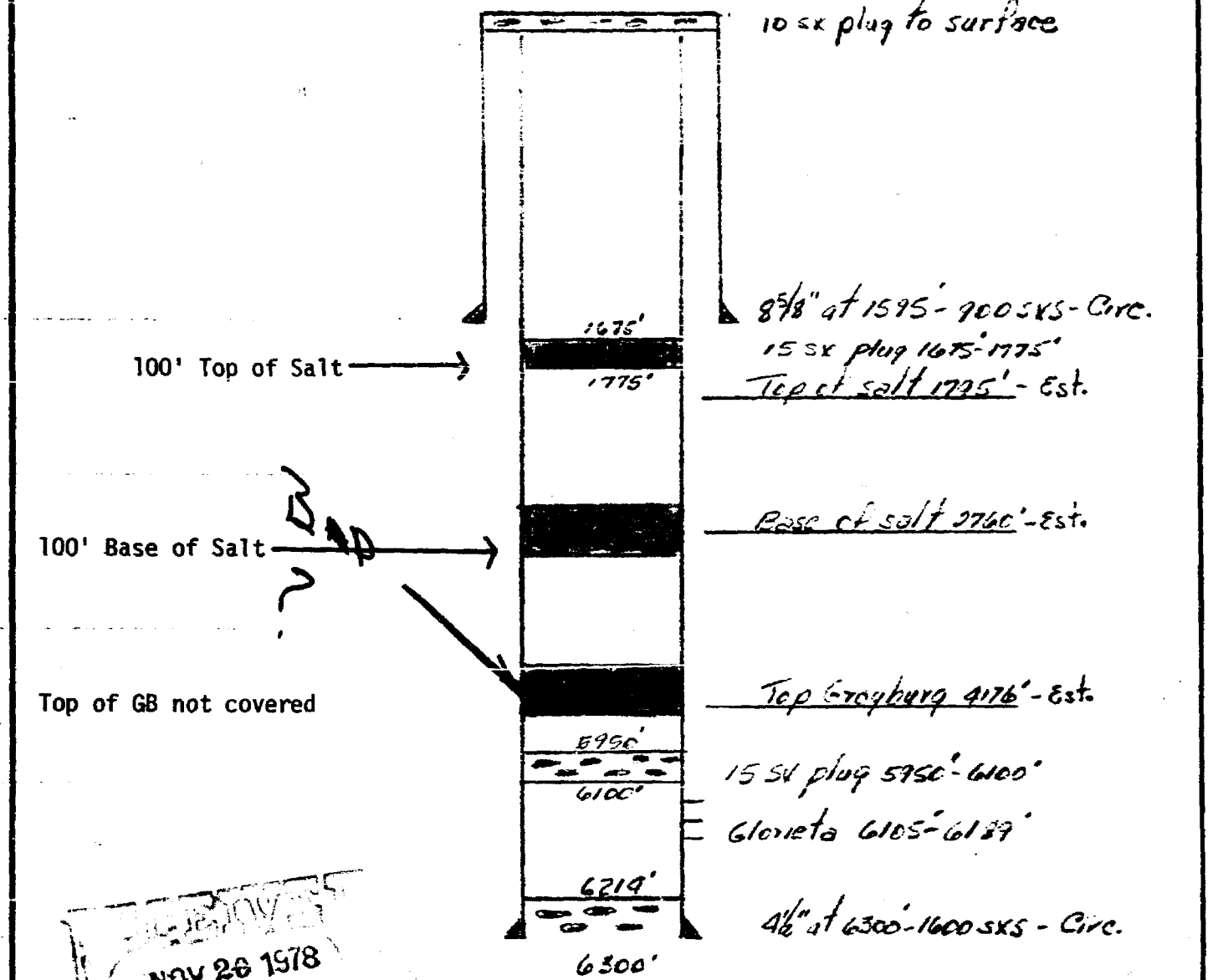
Attached are the schematics of the plugged wells with what I think needs to be done to protect the integrity of the flood and the fresh water.

If you have questions, give me a call, I have a copy of what is attached and we can go over them.

RECEIVED
NOV 28 1978

NEW MEXICO OIL COMSERVATION COMMISSION- HOBBS

Probably OK

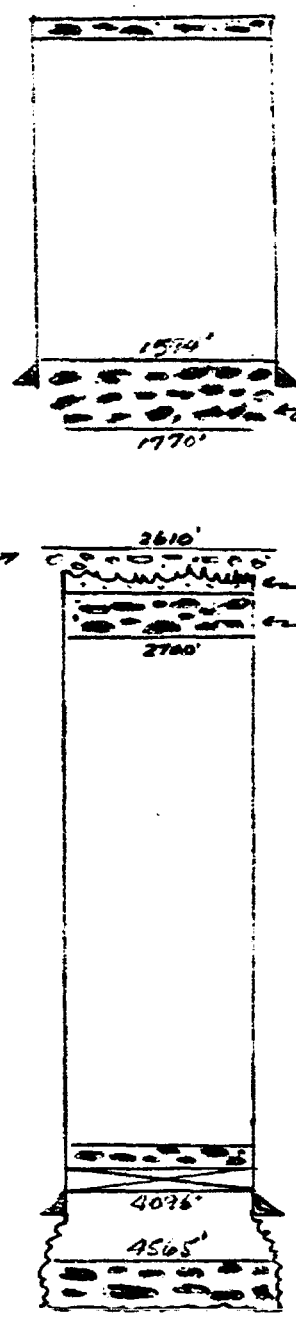


NOV 26 1978

NO.	REVISION	BY	DATE	CHKD	APP'D

FOR BIDS	PHILLIPS PETROLEUM COMPANY BARTLESVILLE, OKLAHOMA	AFE NO. / FILE CODE
FOR APPR		
FOR CONST	Mobil Oil Corp - State "P" Well No 7 Sec. 22-17S-35E Unit P PA 5-21-76	SCALE UNLESS OTHERWISE NOTED
DRAWN		DWG NO.
CHECKED		
APP'D		SH NO.

OK



10 sx. to surface

9⅝" at 1696' - 300 SXS - Circ.

45 sx plug 1594-1770'

Top of salt 1795' - Est.

TOC 2564' calc

Pulled 7" at 2677'

45 sx plug 2610-2700

Base of salt 2750' - Est.

CIBP at 4096 w/10sx cmt cap

7" at 4144' - 220 SXS

Top Grayburg 4199' - Est.

NO.	REVISION	BY	DATE	CHKD	APP'D

FOR BIDS
FOR APPR
FOR CONST
DRAWN
CHECKED
APP'D

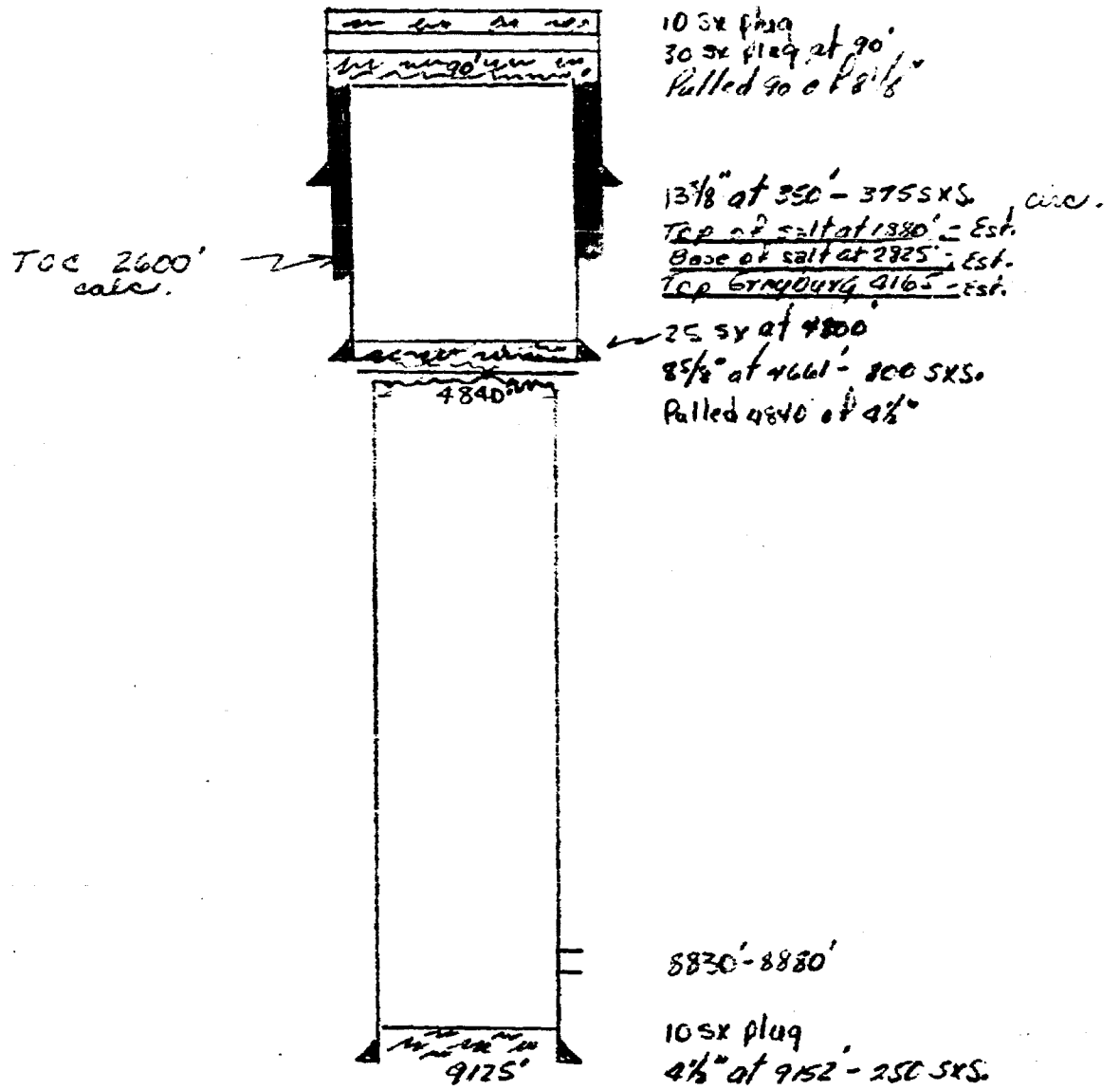
PHILLIPS PETROLEUM COMPANY
BARTLESVILLE, OKLAHOMA

Mobil Oil Corp - State "P" Well No. 3
Sec., 26-17S-35E
Unit B

P&A 5-21-76

AFE NO.
FILE CODE
SCALE
UNLESS OTHERWISE NOTED
DWG NO.
SH NO.

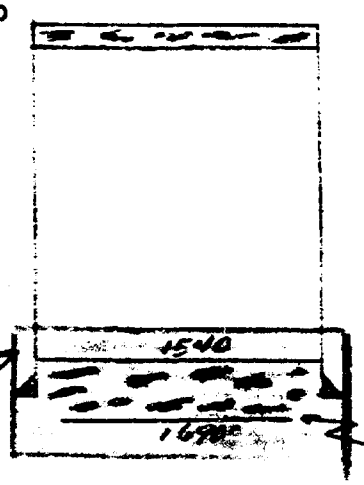
Intermediate Plug probably
did not cover shoe of 8 5/8"



NO.	REVISION	BY	DATE	CHKD	APP'D

FOR BIDS	PHILLIPS PETROLEUM COMPANY	AFE NO. / FILE CODE
FOR APPR	BARTLESVILLE, OKLAHOMA	
FOR CONST	Penrose - (Zacnary) Southern State No. 2 Sec. 24-17S-35E Unit N P-A 8-28-67	SCALE UNLESS OTHERWISE NOTED
DRAWN		DWG NO.
CHECKED		
APP'D		SH NO.

Need to have shot holes from 3900' to 3500' covered and stub plug put in top of 7"



10 sx plug

TOC 1447' calc.

REPLACE THIS PLUG

9⅝" at 1665' - 875 sxs - Circ.

30 sx plug

Top of salt 1755' - Est.

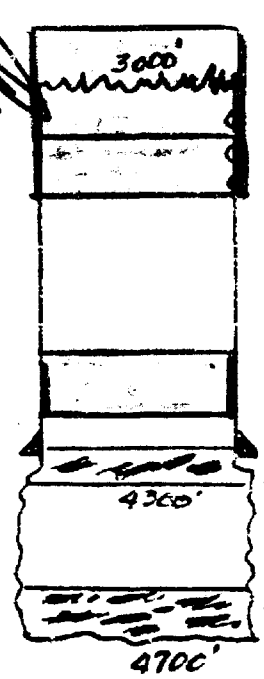
Base of salt 2725' - Est.

Perf 3000' of 7"

100' ½ in and ½ out of stub

Cover shot places

shot 3900'-3500'-3300'



Top of GB not covered

Top of Grayburg 4470' - Est.

7" at 4248' - 400 sxs

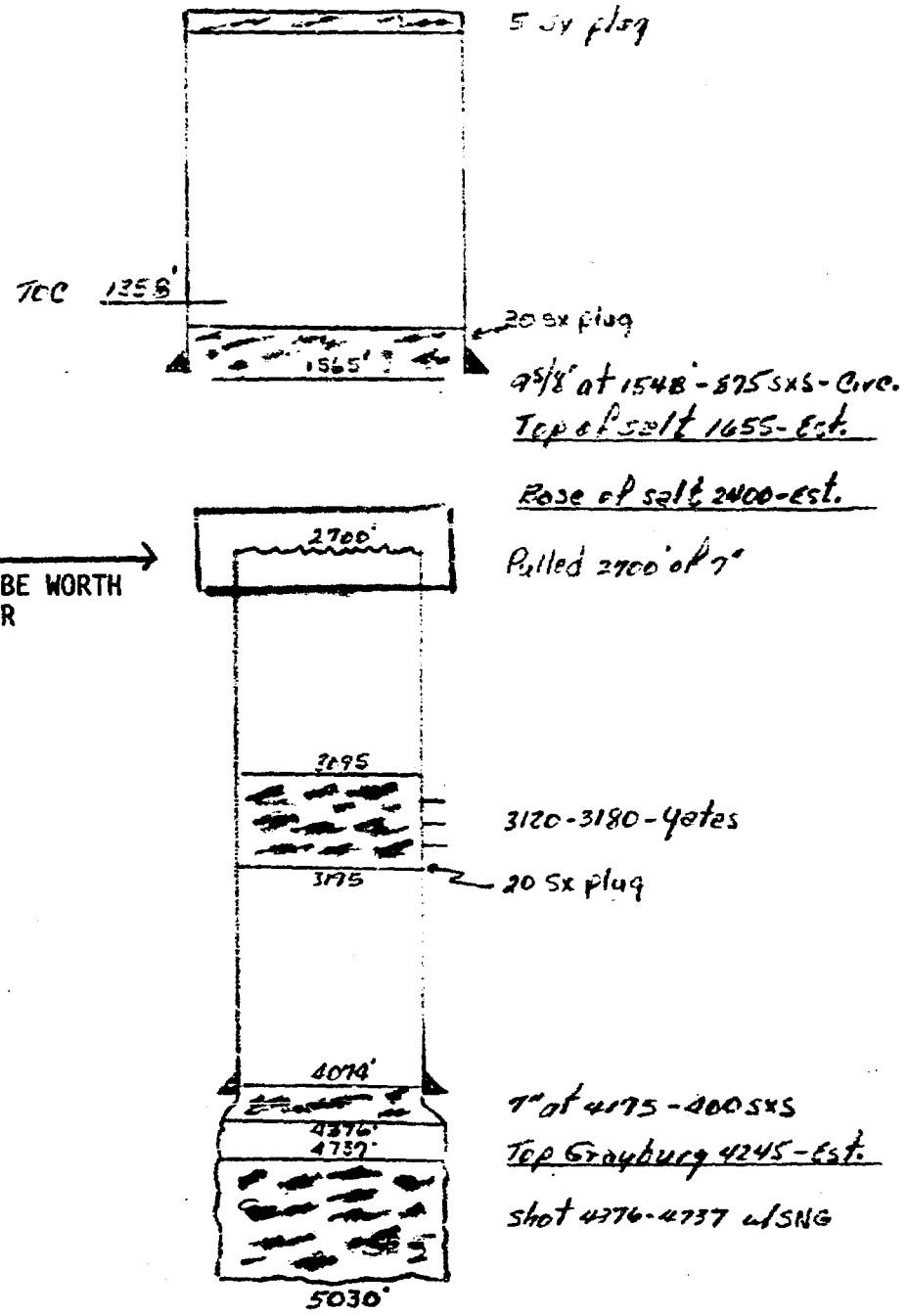
30 sx plug

25 sx plug

NO.	REVISION	BY	DATE	CHKD	APP'D

FOR BIDS	PHILLIPS PETROLEUM COMPANY	AFE NO.	FILE CODE
FOR APPR	BARTLESVILLE, OKLAHOMA		
FOR CONST	Phillips Petro Co - Santa Fe Well No. 15	SCALE UNLESS OTHERWISE NOTED	
DRAWN	660 FNL & EL, Sec. 28-17S-35E	DWG NO.	
CHECKED	Unit A ~~AA 5-24-39~~		
APP'D		SH NO.	

SHOULD BE O.K.

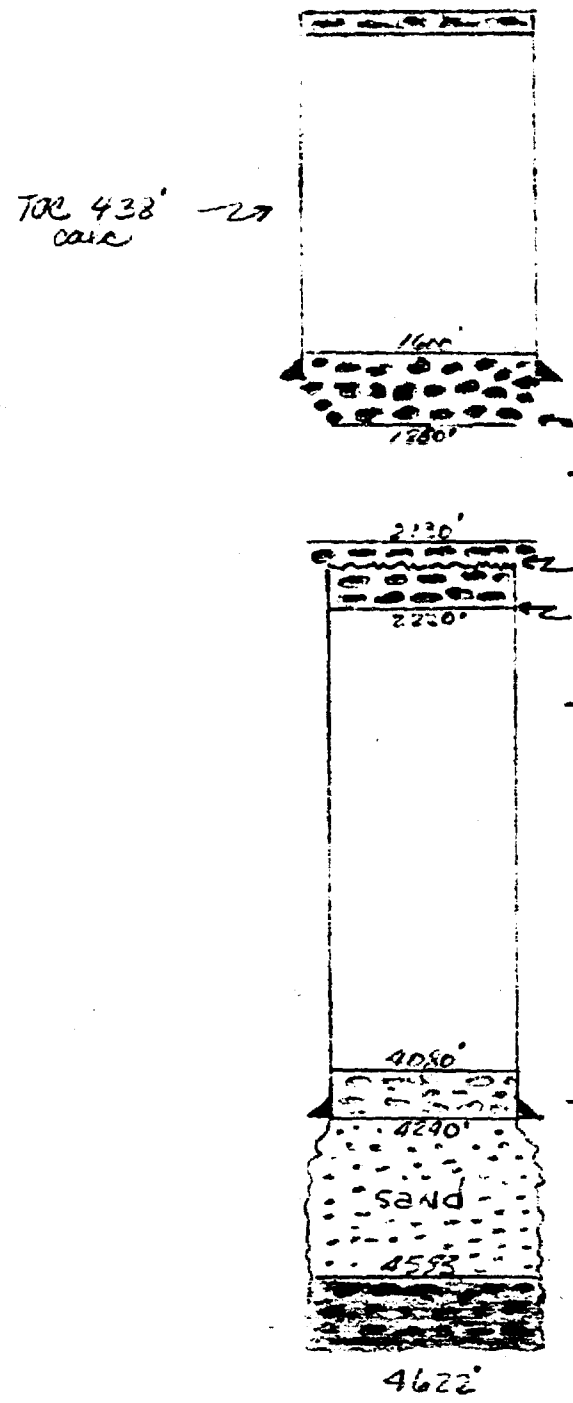


SHOULD HAVE PLUG, BUT NOT SURE IT WOULD BE WORTH THE TROUBLE TO RE-ENTER

NO.	REVISION	BY	DATE	CHKD	APP'D

FOR BIDS	PHILLIPS PETROLEUM COMPANY BARTLESVILLE, OKLAHOMA	AFE NO. / FILE CODE
FOR APPR		
FOR CONST	Phillips Petr Co. - Santa Fe Well No. 16 1980' FSL & WL Fluk, Sec. 5-18S-35E Unit L Pd A 5-17-39	SCALE UNLESS OTHERWISE NOTED
DRAWN		DWG NO.
CHECKED		
APP'D		SH NO.

O.K.



NO.	REVISION	BY	DATE	CHKD	APP'D

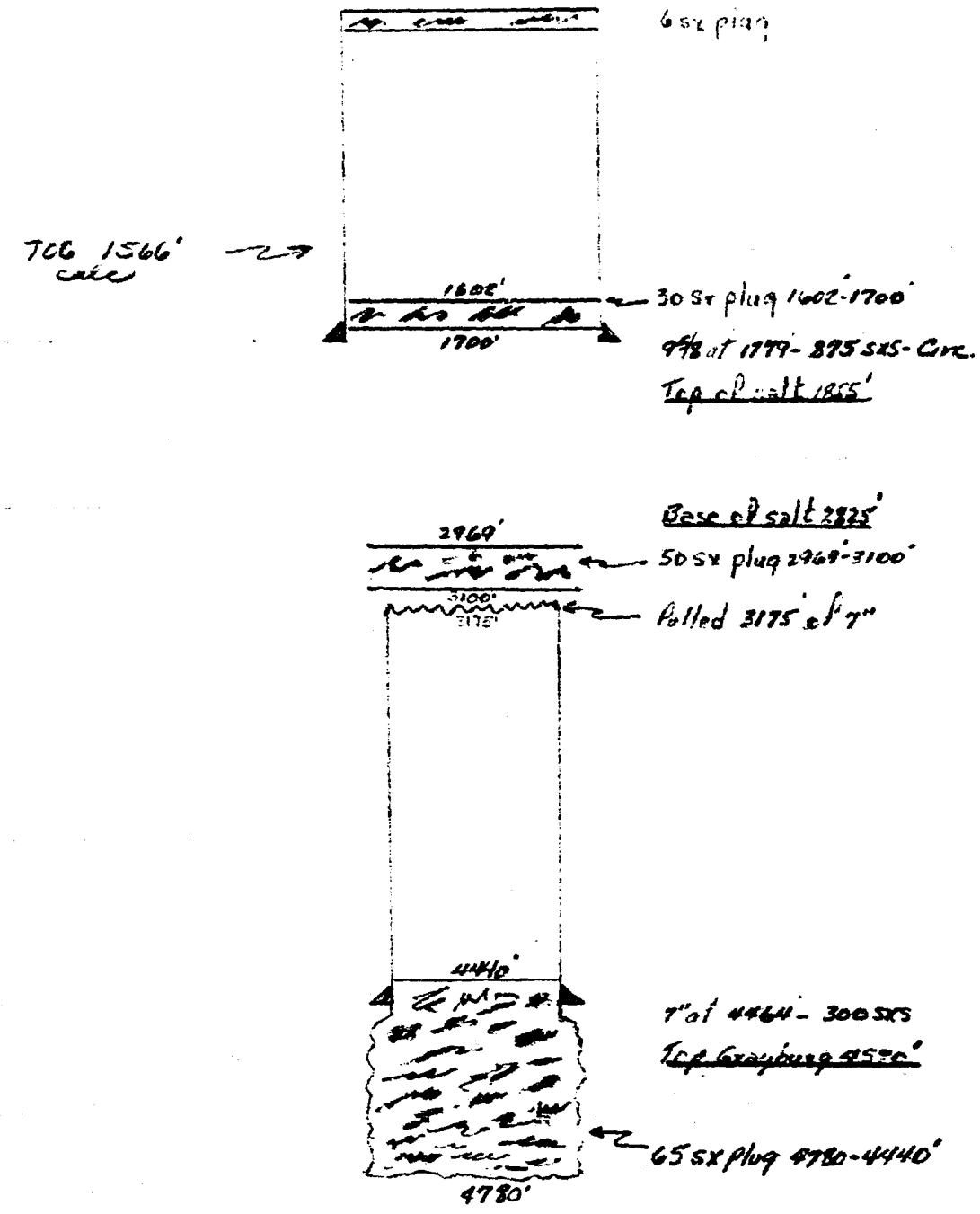
FOR BIDS
FOR APPR
FOR CONST
DRAWN
CHECKED
APP'D

PHILLIPS PETROLEUM COMPANY
BARTLESVILLE, OKLAHOMA

Phillips Pet. Co. - Santa Fe Well No. 17
660 FSL & 1980' FWL, Sec. 26-17S-35E
Unit N PdA 9-75

AFE NO. | FILE CODE
SCALE UNLESS OTHERWISE NOTED
DWG NO.
SH NO.

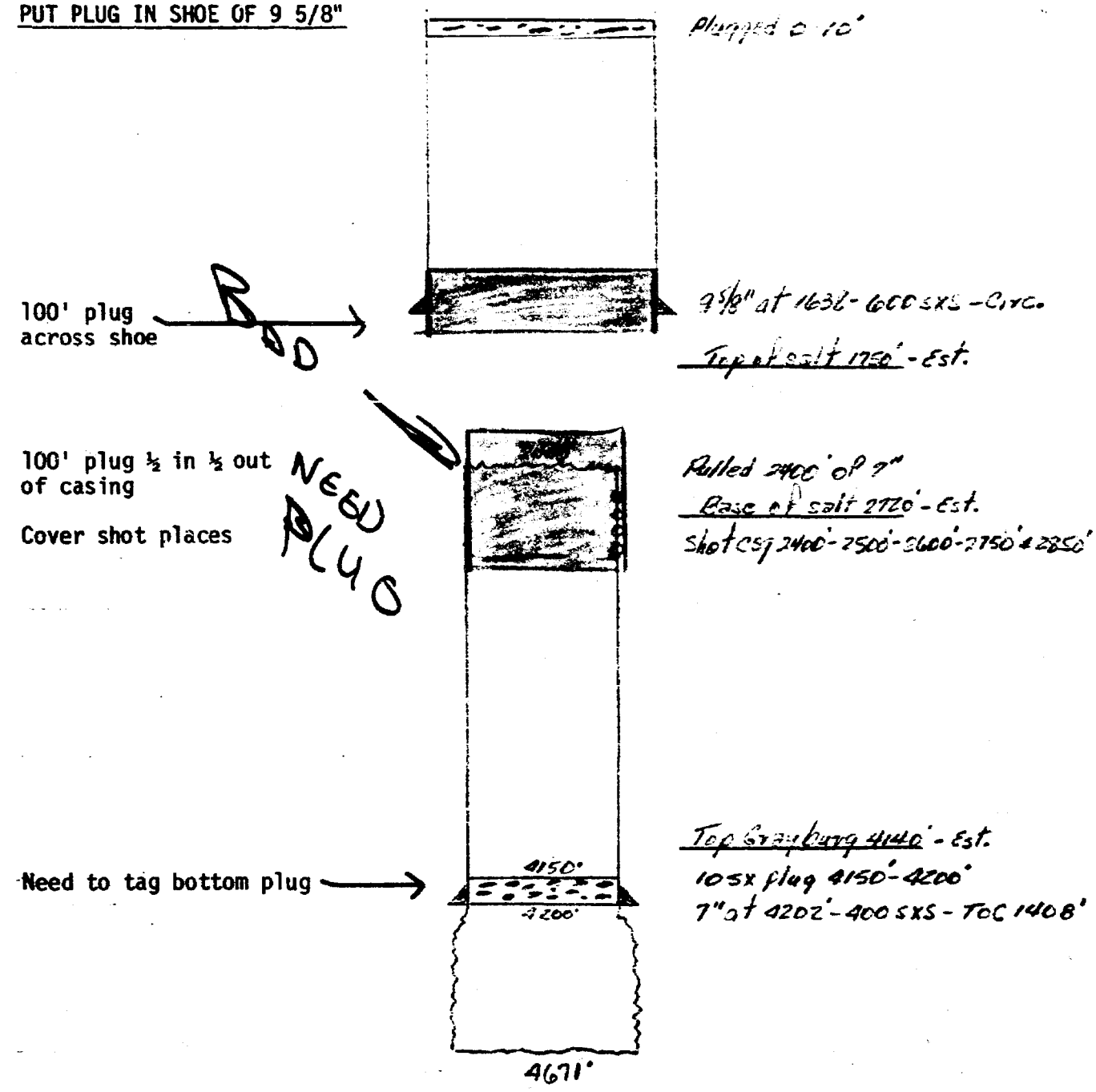
O.K.



NO.	REVISION	BY	DATE	CHKD	APP'D

FOR BIDS	PHILLIPS PETROLEUM COMPANY BARTLESVILLE, OKLAHOMA	AFE NO. / FILE CODE
FOR APPR		
FOR CONST	Phillips Petr Co. - Santa Fe Well No. 19 660 FNL & 1980 FEL, Sec. 35-17S-35E Unit B PA 1-4-39	SCALE UNLESS OTHERWISE NOTED
DRAWN		DWG NO.
CHECKED		
APP'D		SH NO.

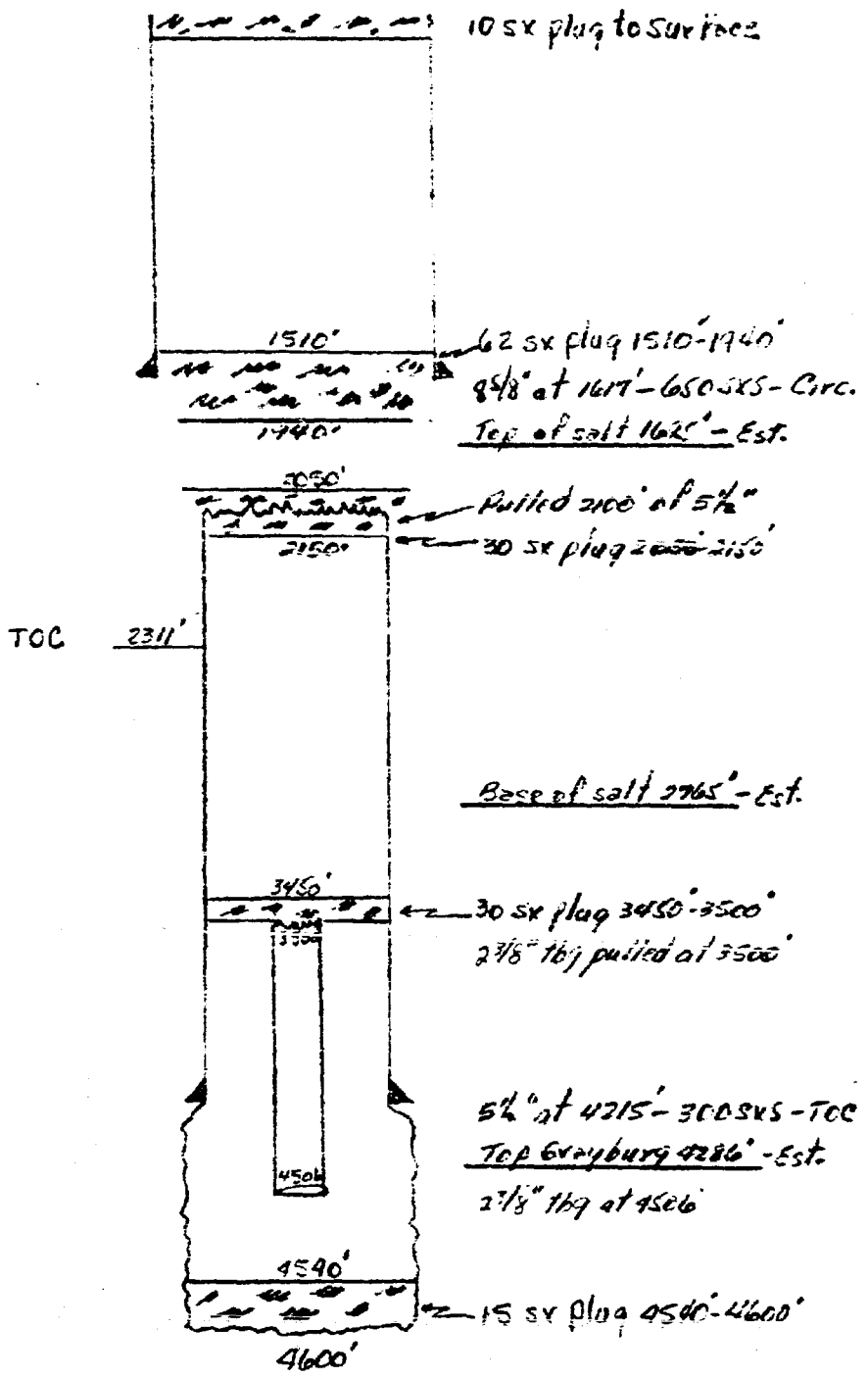
NEED TO TAG BOTTOM PLUG
COVER SHOT PLACES IN PIPE
PUT PLUG IN SHOE OF 9 5/8"



NO.	REVISION	BY	DATE	CHKD	APP'D

FOR BIDS	PHILLIPS PETROLEUM COMPANY BARTLESVILLE, OKLAHOMA	AFE NO. / FILE CODE
FOR APPR		
FOR CONST	Phillips Petr Co. - Santa Fe Well No. 37 1980' FWL & NL, Sec. 28-17S-35E Unit F API 11-47	SCALE UNLESS OTHERWISE NOTED
DRAWN		DWG NO.
CHECKED		SH NO.
APP'D		

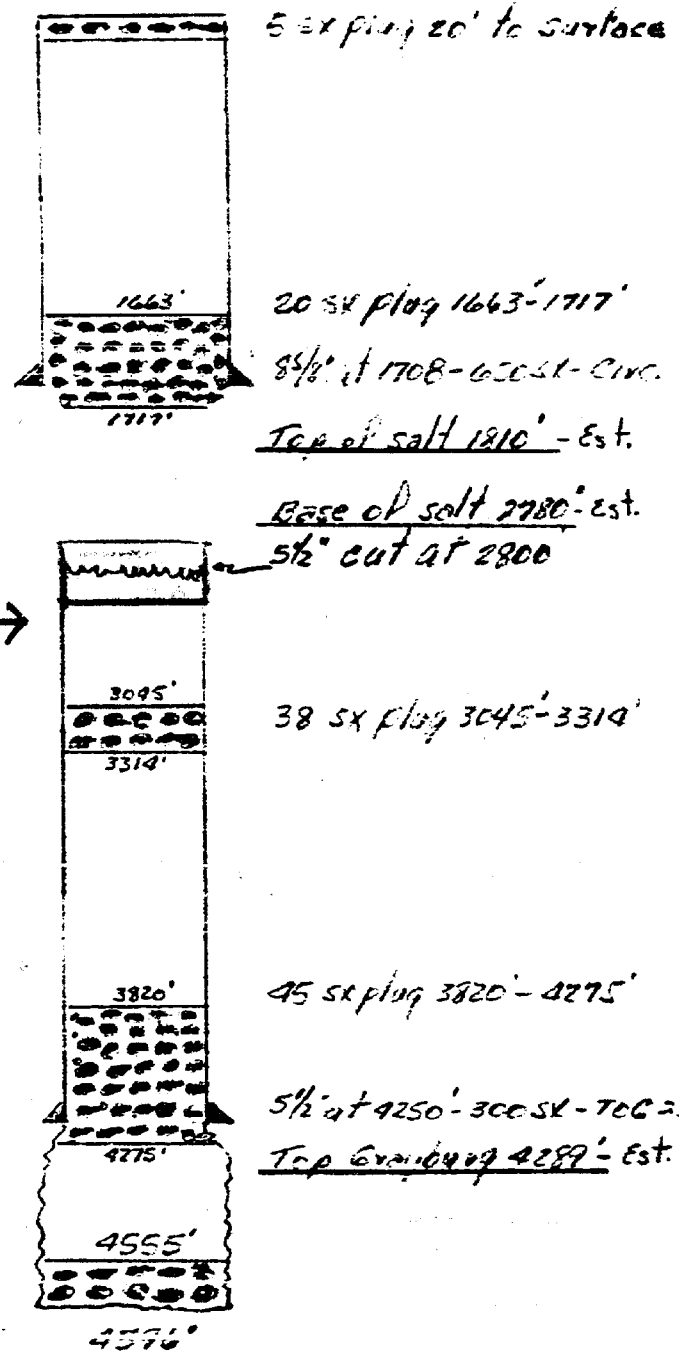
Check well file



NO.	REVISION	BY	DATE	CHKD	APP'D

FOR BIDS	PHILLIPS PETROLEUM COMPANY BARTLESVILLE, OKLAHOMA	AFE NO. / FILE CODE
FOR APPR		
FOR CONST	Phillips Petr Co. - Santa Fe Well No. 96 330' FNL & 1980' FWL, Sec. 4-18S-35E Unit C PAA 2-75	SCALE UNLESS OTHERWISE NOTED
DRAWN		DWG NO.
CHECKED		
APP'D		SH NO.

PROBABLY O.K.

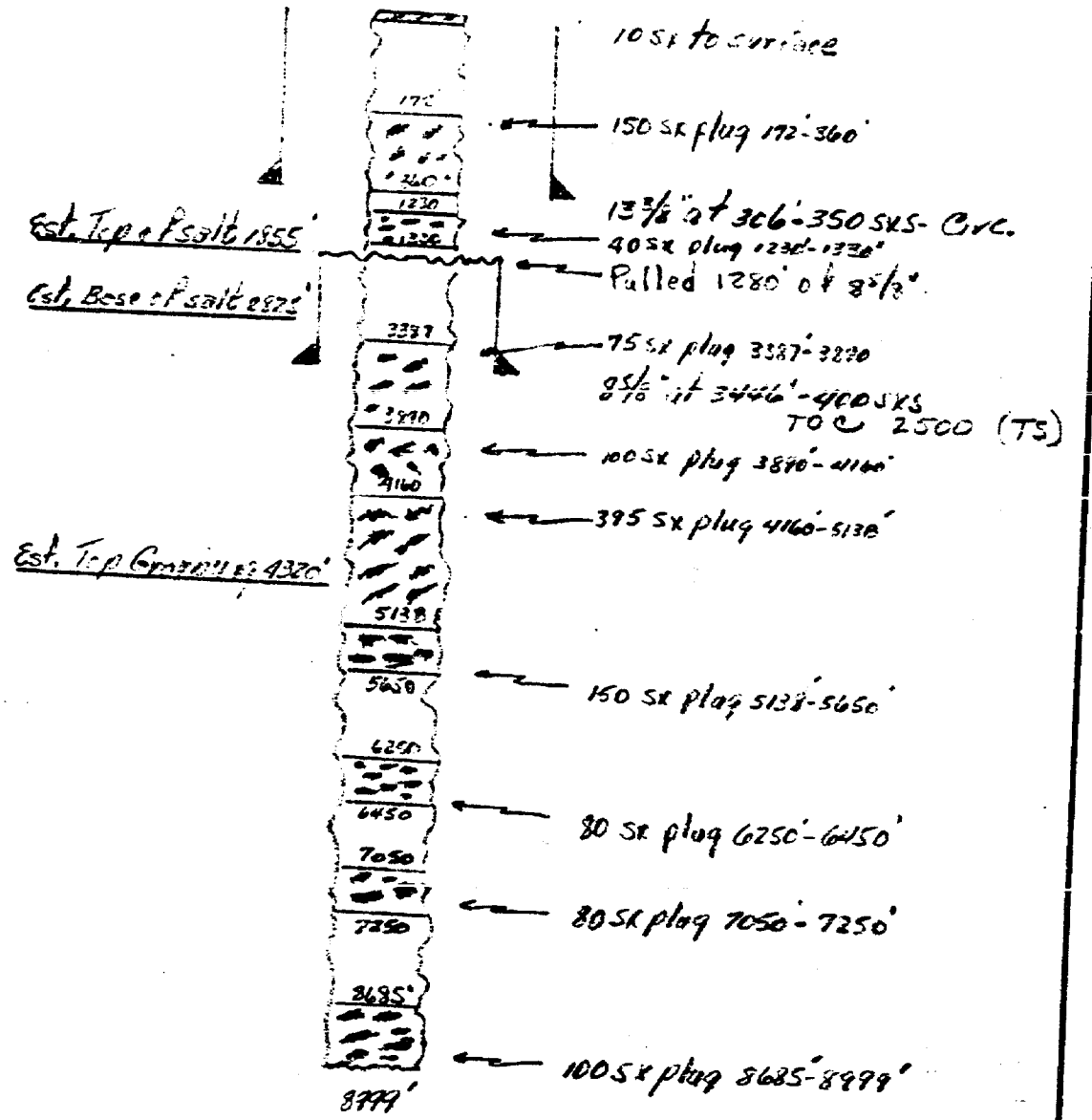


NEED A PLUG AT CUT POINT BUT IS PROBABLY NOT WORTH RE-ENTERING →

NO.	REVISION	BY	DATE	CHK'D	APP'D

FOR BIDS	PHILLIPS PETROLEUM COMPANY BARTLESVILLE, OKLAHOMA	AFE NO. / FILE CODE
FOR APPR		
FOR CONST	Phillips Petr Co. - Santa Fe Well No. 47 330 FNL & 1650 FWL, Sec 35-17S-35E Unit C PSA 4-53	SCALE UNLESS OTHERWISE NOTED
DRAWN		DWG NO.
CHECKED		
APP'D		SH NO.

O.K.



NO.	REVISION	BY	DATE	CHKD	APP'D

FOR BIDS
FOR APPR
FOR CONST
DRAWN
CHECKED
APP'D

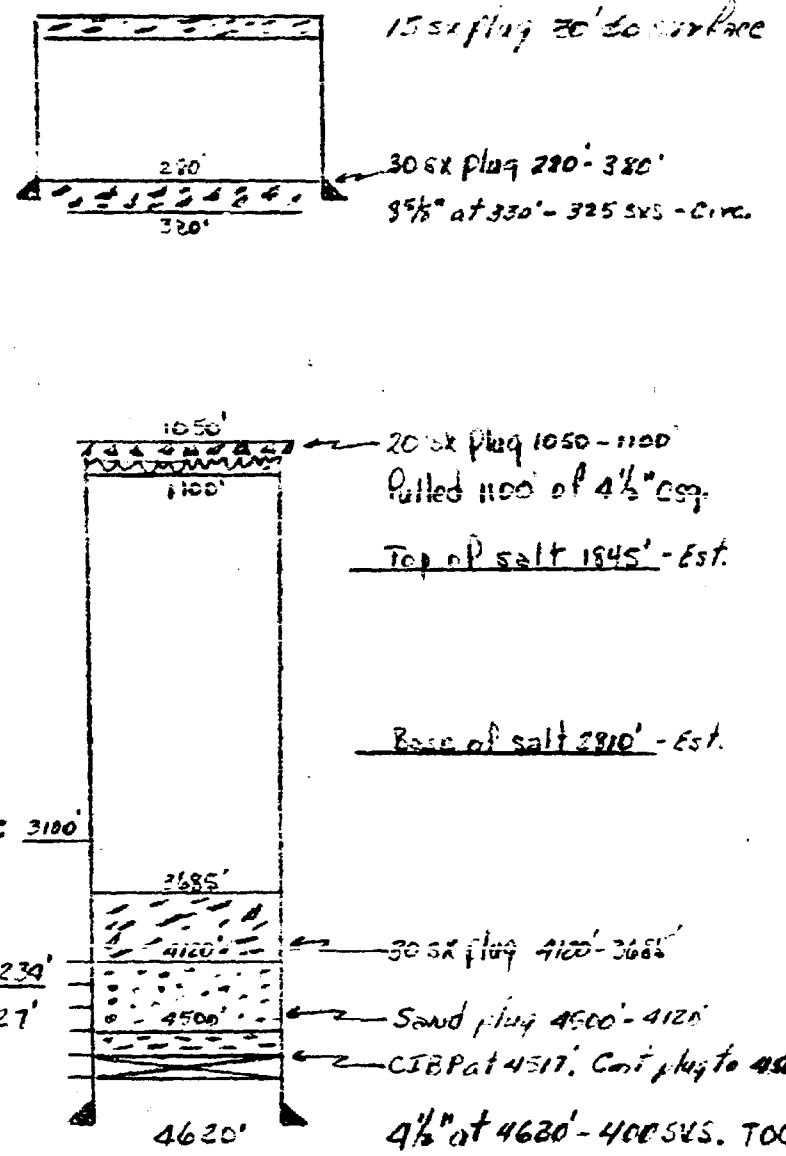
PHILLIPS PETROLEUM COMPANY
BARTLESVILLE, OKLAHOMA

Phillips Petr Co - Santa Fe L Well No 73
990 FS & EL, Sec. 26-17S-35E
Unit P

AFE NO.
FILE CODE
SCALE
UNLESS OTHERWISE NOTED
DWG NO.
SH NO.

P&A 9-1-77

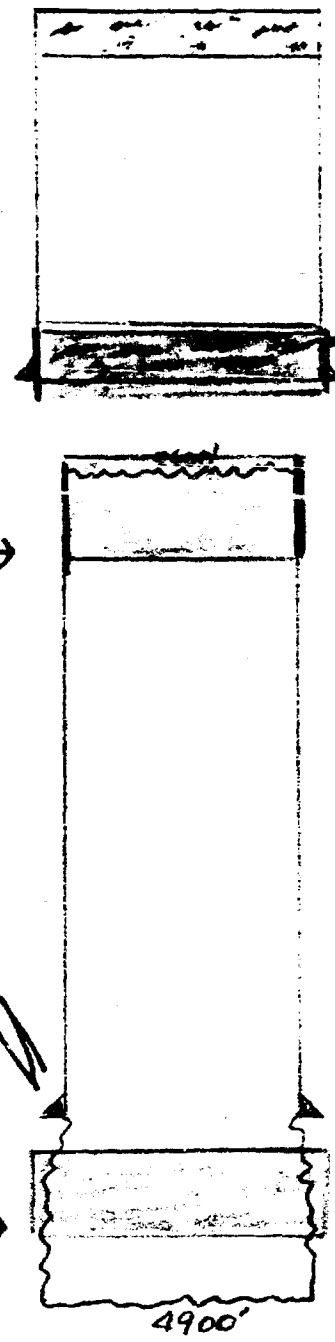
O.K.



NO.	REVISION	BY	DATE	CHKD	APP'D

FOR BIDS	PHILLIPS PETROLEUM COMPANY	AFE NO. / FILE CODE
FOR APPR	BARTLESVILLE, OKLAHOMA	
FOR CONST	Phillips Petr. Co - Santa Fe Well No. 77 Sec. 26-17S-25E Unit I Form 10-74	SCALE UNLESS OTHERWISE NOTED
DRAWN		DWG NO.
CHECKED		
APP'D		SH NO.

REPLACE PLUG AT TOP OF GB AND
CUT OFF POINT
REPLACE PLUG ACROSS SURFACE
CASING SHOE



50 sx plug

100' across shoe of surface →

75 sx plug

8⅝" at 1682' - 600 sxs. circ

Top of salt at 1805' - Est.

TOC 2600' calc

100' across cut point →

Pulled 2600' of 5½"

Base of salt at 2950' - est.

Need 100' plug across top of Grayburg →

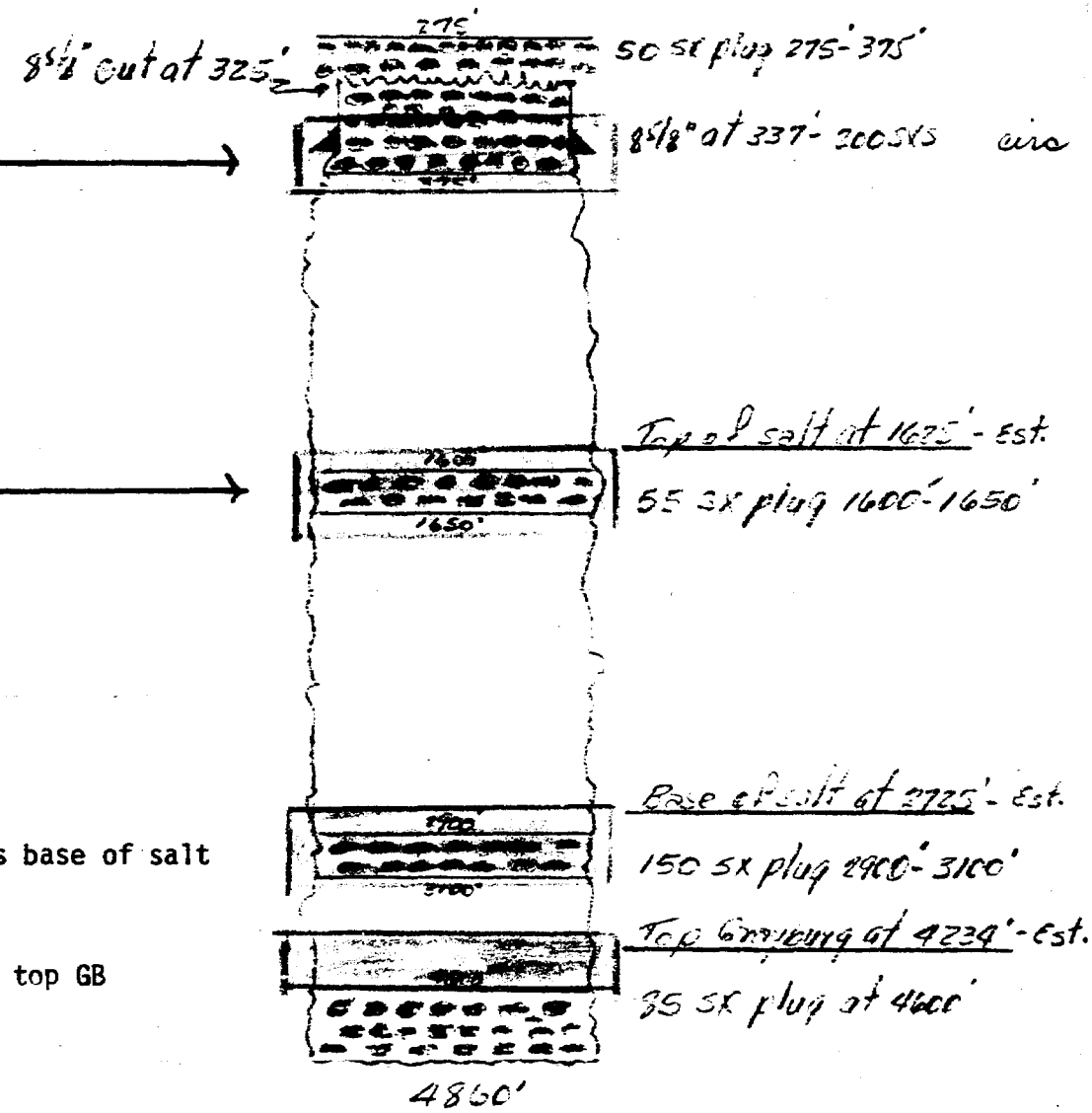
5½" at 4350' - 275 sxs TOC 2600 calc

Top Grayburg 4420' - est.

NO.	REVISION	BY	DATE	CHKD	APP'D

FOR BIDS	PHILLIPS PETROLEUM COMPANY BARTLESVILLE, OKLAHOMA	AFE NO. / FILE CODE
FOR APPR		
FOR CONST	Shell Oil Co. - State "U" well No. 1 Sec 3-18S-35E Unit C P&A 1-29-38	SCALE UNLESS OTHERWISE NOTED
DRAWN		DWG NO.
CHECKED		
APP'D		SH NO.

RE-ENTER TO ISOLATE GRAYBURG
and then replace other plugs



NO.	REVISION	BY	DATE	CHKD	APP'D

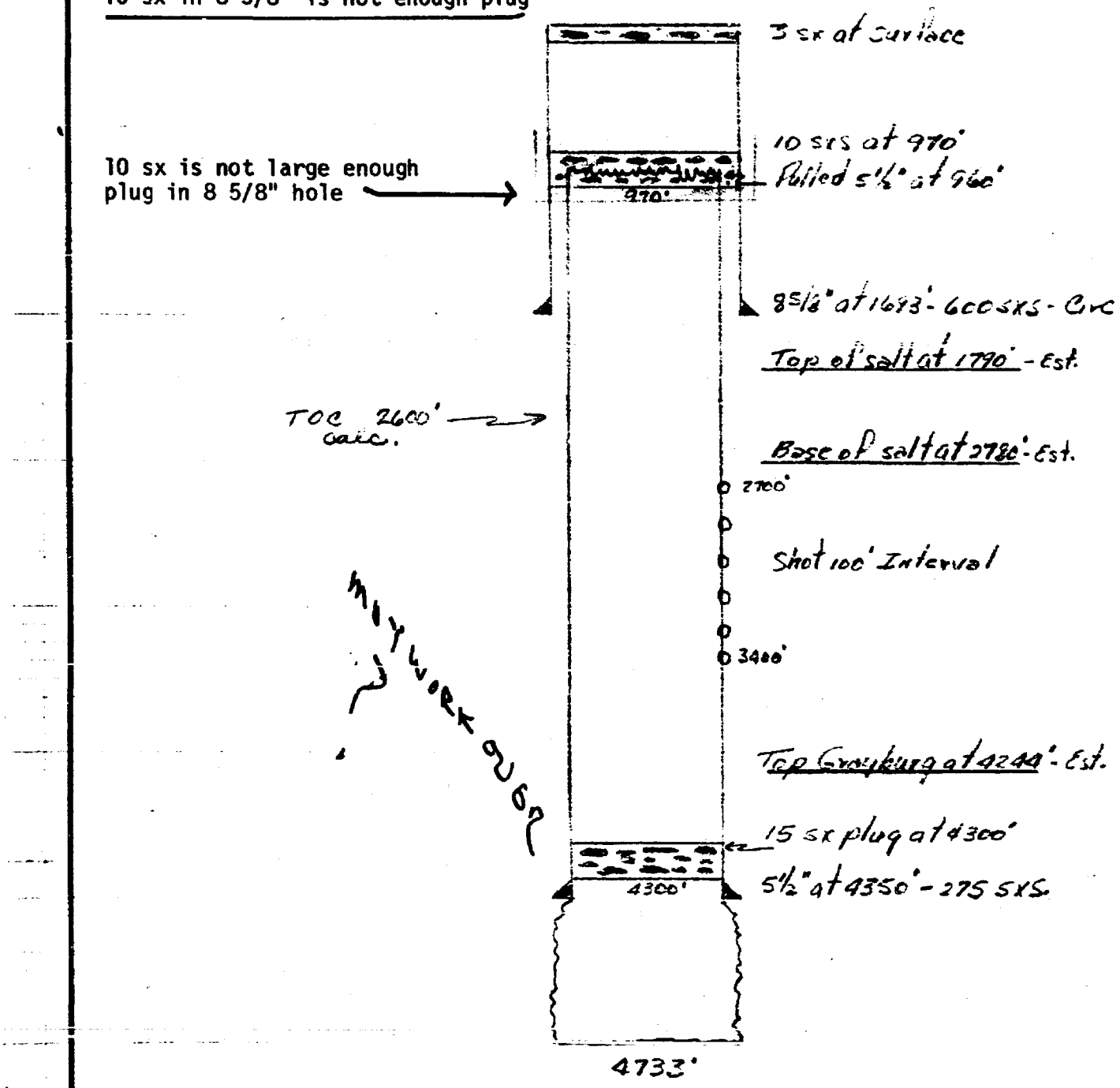
FOR BIDS
FOR APPR
FOR CONST
DRAWN
CHECKED
APP'D

PHILLIPS PETROLEUM COMPANY
BARTLESVILLE, OKLAHOMA

Shell Oil Co. - State "VAA" - Well No. 6
2310' FSL & 1650' FWL, Sec. 5-18S-35E
Unit K POA 11-46

AFE NO. | FILE CODE
SCALE UNLESS OTHERWISE NOTED
DWG NO.
SH NO.

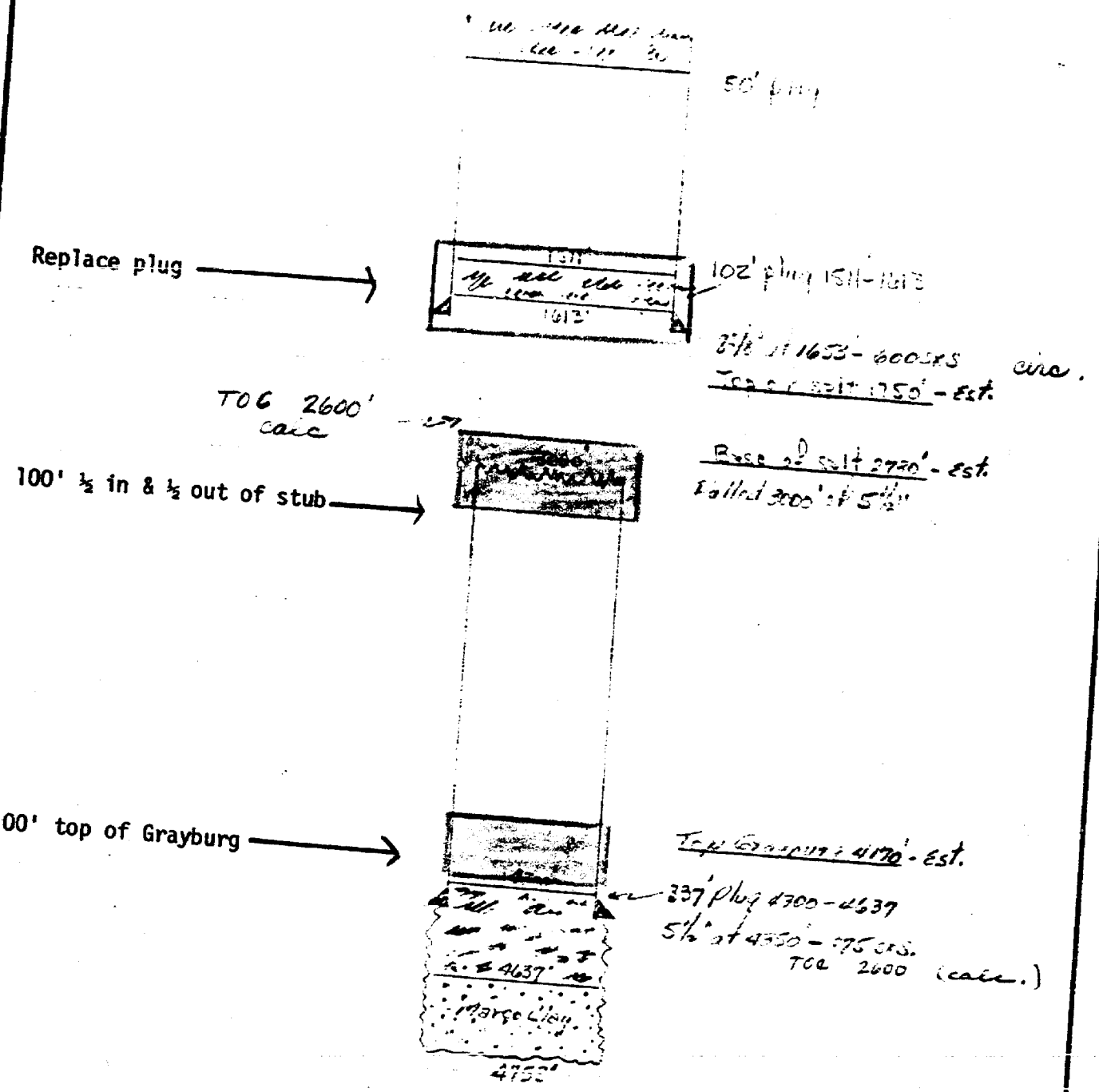
Need to at least tag plug at 970'
10 sx in 8 5/8" is not enough plug



NO.	REVISION	BY	DATE	CHKD	APP'D

FOR BIDS	PHILLIPS PETROLEUM COMPANY BARTLESVILLE, OKLAHOMA	AFE NO. / FILE CODE
FOR APPR		
FOR CONST	Shell Oil Co. - State "C" Well No. 1 1480 FSL & 660 FEL, Sec. 24-17S-34E Unit I PA 12-53	SCALE UNLESS OTHERWISE NOTED
DRAWN		DWG NO.
CHECKED		
APP'D		SH NO.

Need to at least put in stub plug at 3000'



NO.	REVISION	BY	DATE	CHKD	APP'D

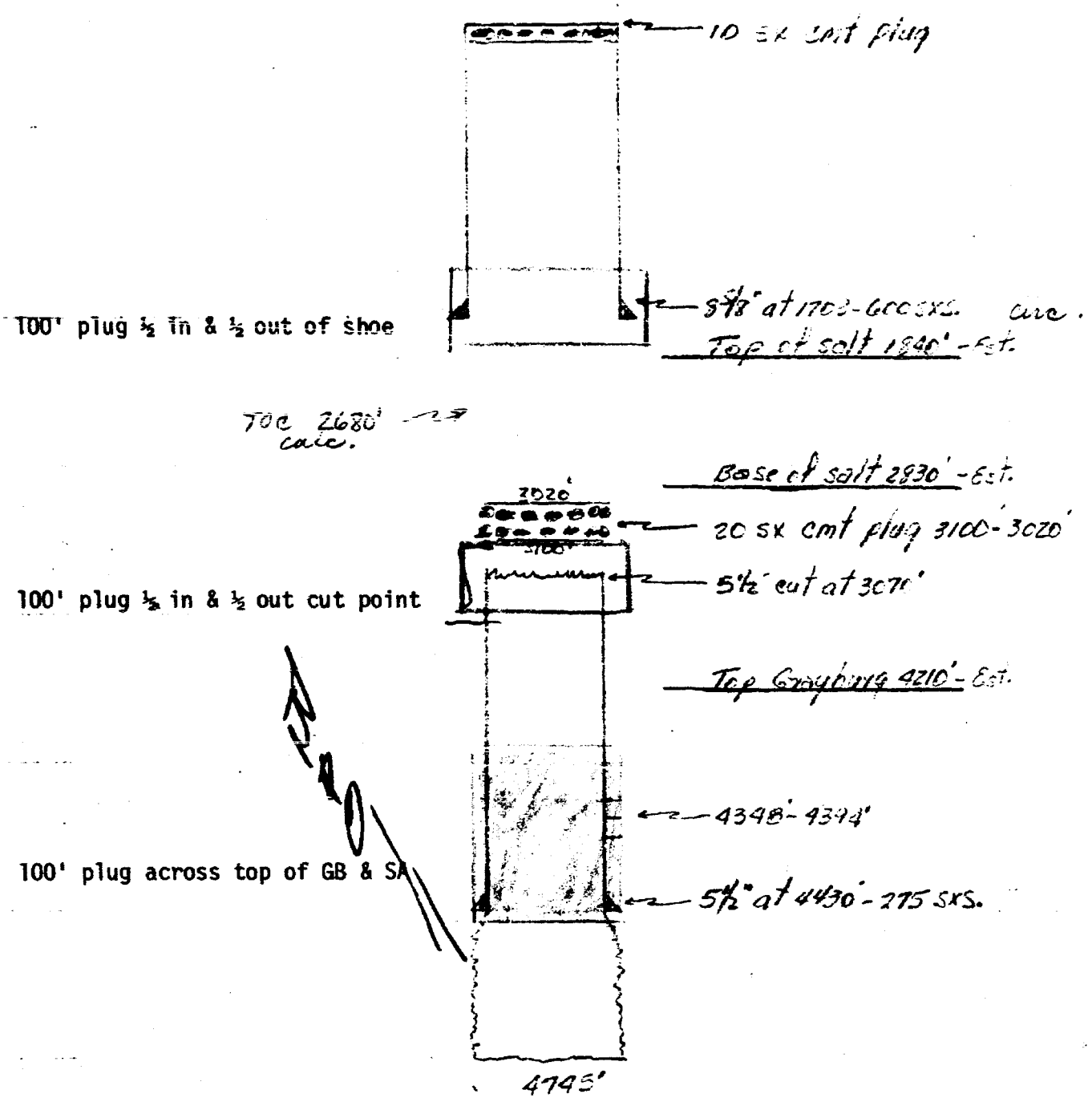
FOR BIDS
FOR APPR
FOR CONST
DRAWN
CHECKED
APP'D

PHILLIPS PETROLEUM COMPANY
BARTLESVILLE, OKLAHOMA

Shell Oil Co. - State "I" Well No. 1
1980' FNL & 660' FWL, Sec. 29-17S-35E
Unit E
Prod 1-29

AFE NO. | FILE CODE
SCALE UNLESS OTHERWISE NOTED
DWG NO.
SH NO.

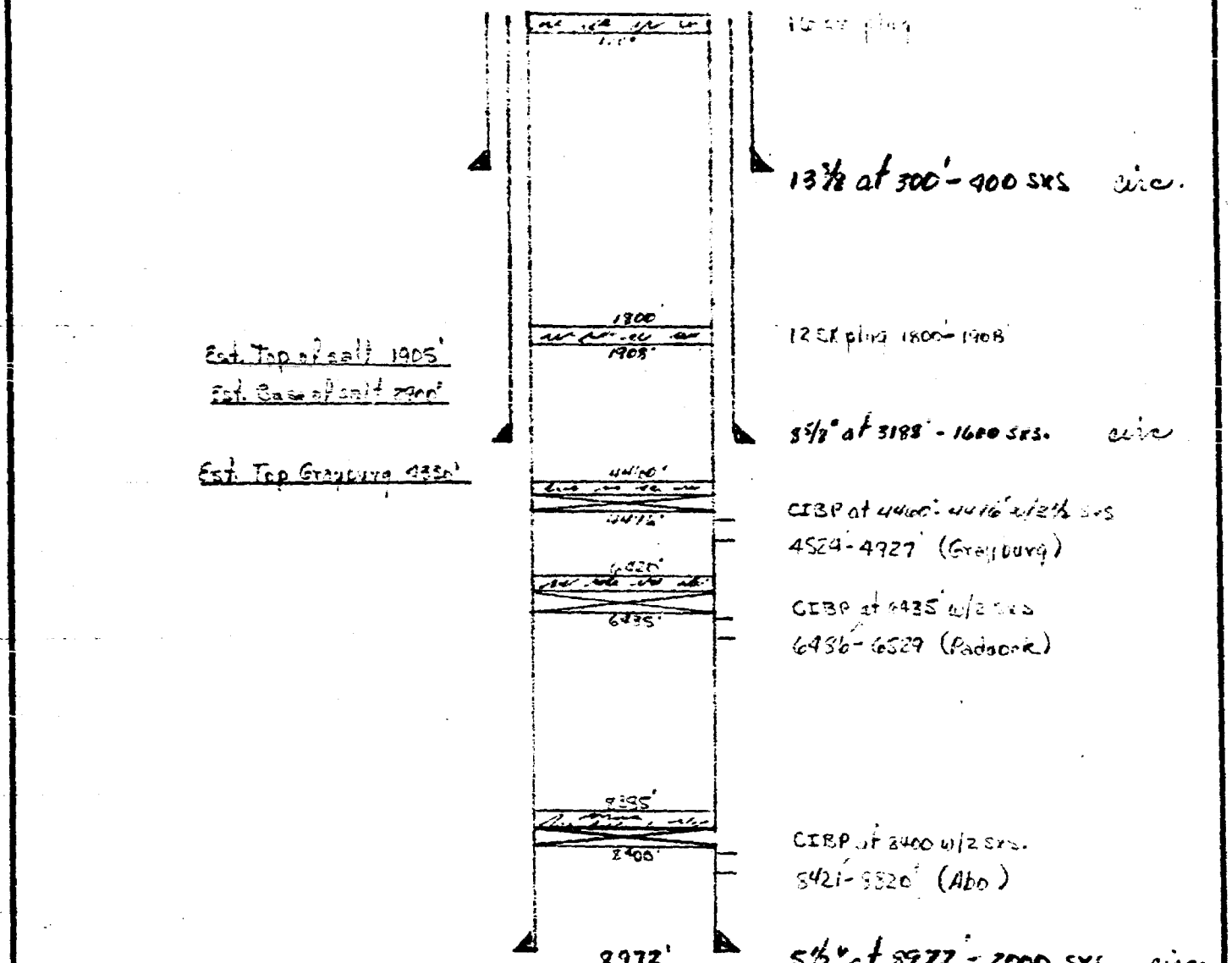
NEED TO PLUG GB AND SA OFF
and PUT PLUG AT SHOE OF SURFACE



NO.	REVISION	BY	DATE	CHKD	APP'D

FOR BIDS	PHILLIPS PETROLEUM COMPANY BARTLESVILLE, OKLAHOMA	AFE NO. / FILE CODE
FOR APPR		
FOR CONST	Shell Oil Co. - State "S" - well No. 1 1980 FSL & 660 FEL, Sec. 21-17S-35E Unit I A-A 4-51	SCALE UNLESS OTHERWISE NOTED
DRAWN		DWG NO.
CHECKED		
APP'D		SH NO.

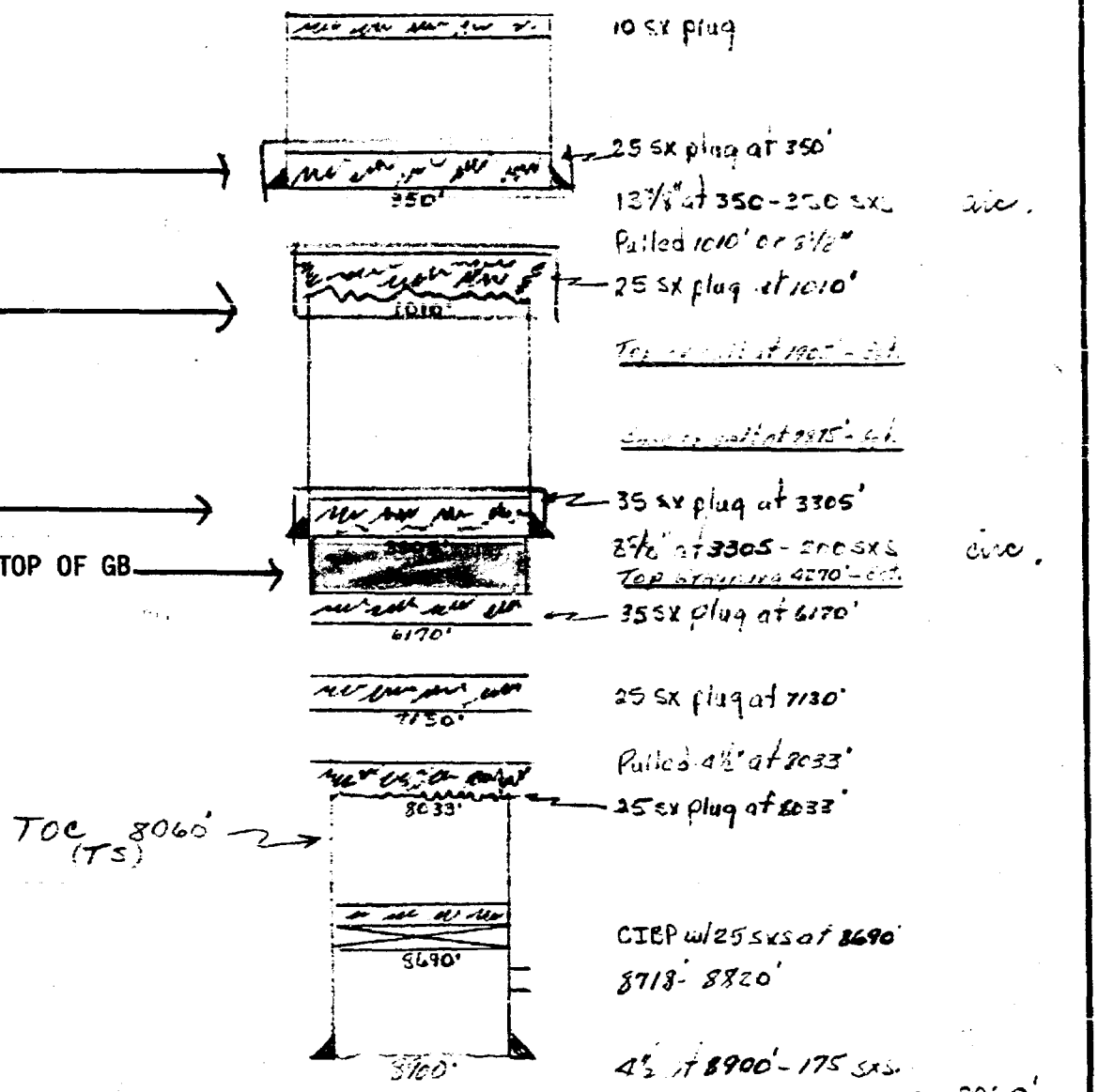
O.K.



NO.	REVISION	BY	DATE	CHKD	APP'D

FOR BIDS	PHILLIPS PETROLEUM COMPANY BARTLESVILLE, OKLAHOMA	AFE NO.	FILE CODE
FOR APPR			
FOR CONST	Shell C.I.P. - State "AC" Well No. 18 Sec. 20-17S-35E Unit B PSA 10-75	SCALE UNLESS OTHERWISE NOTED	
DRAWN		DWG NO.	
CHECKED			
APP'D		SH NO.	

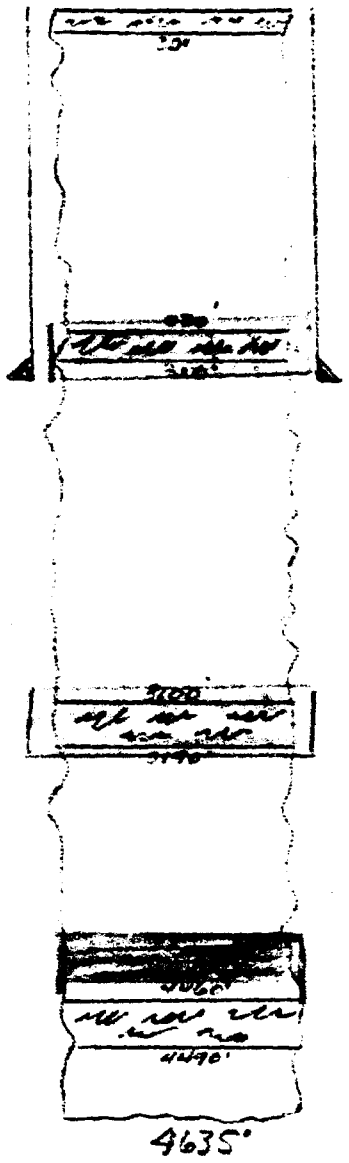
PLACE PLUG THRU SA & GB AND REPLACE OTHER PLUGS



NO.	REVISION	BY	DATE	CHK'D	APP'D

FOR BIDS	PHILLIPS PETROLEUM COMPANY	AFE NO.	FILE CODE
FOR APPR	BARTLESVILLE, OKLAHOMA		
FOR CONST	Stolz, Wagner & Brown - "Abo" Sec. 24-17S-35E Unit O PSA 12-27-71	SCALE UNLESS OTHERWISE NOTED	
DRAWN		DWG NO.	
CHECKED			
APP'D		SH NO.	

FLOOD ZONE NOT ISOLATED AND REPLACE OTHER PLUGS



10 sx plug

REPLACE PLUG →

30 sx plug 220'-310'

8 5/8" at 328' - 175 sxs - Circ.

Top of salt 1305' Est.

Base of salt 2775' Est.

REPLACE PLUG →

30 sx plug 3100'-3190'

100' plug top of GB →

Top Grayburg 4295' Est.

30 sx plug 4190'-4490'

4635'

NO.	REVISION	BY	DATE	CHKD	APP'D

FOR BIDS
FOR APPR
FOR CONST

DRAWN
CHECKED
APP'D

PHILLIPS PETROLEUM COMPANY
BARTLESVILLE, OKLAHOMA

Zapata Petr. Corp - Adams & Peterson "Shell St" No.
Sec. 23-17S-35E
Unit O P&A 1-15-56

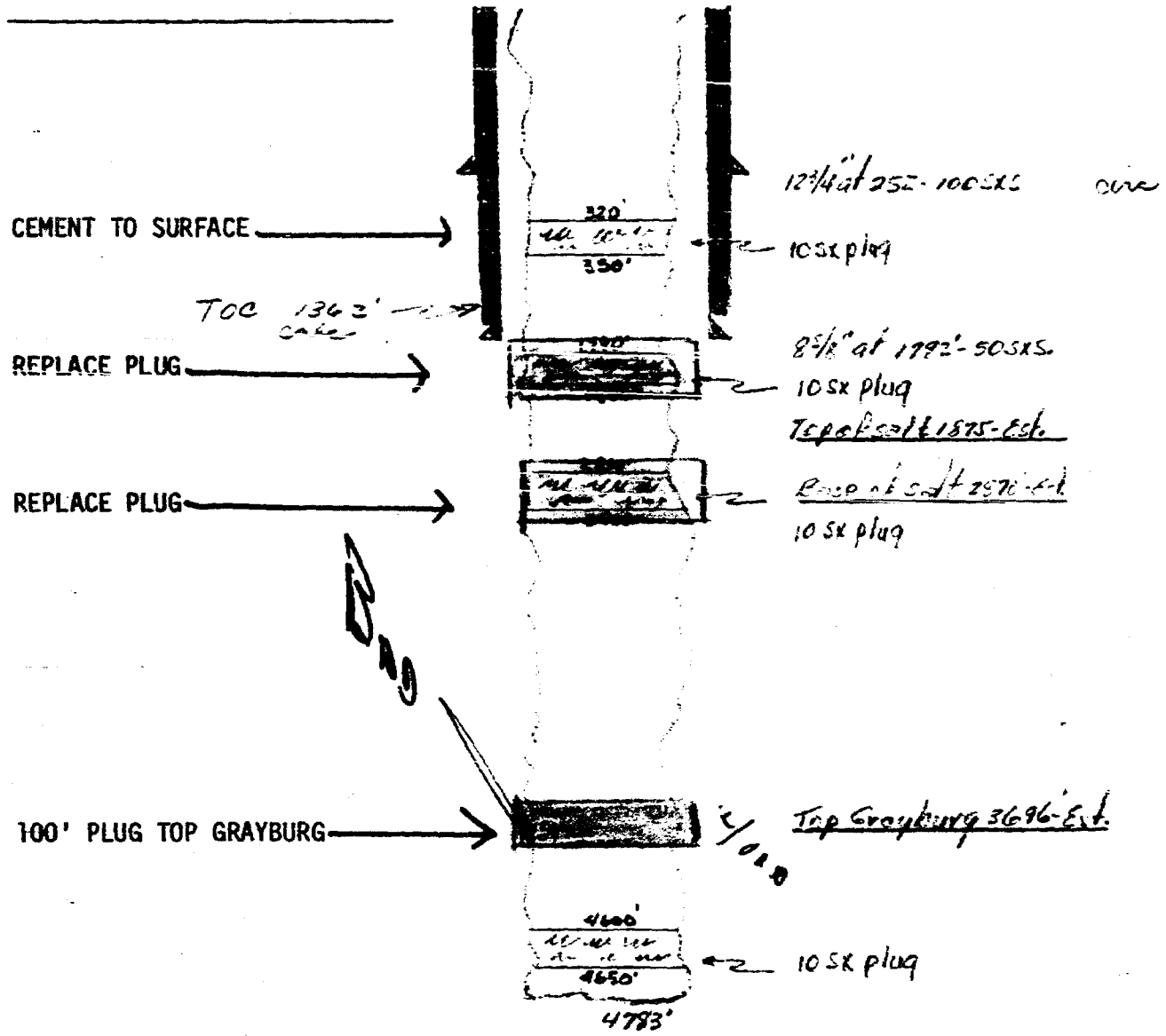
AFE NO. | FILE CODE

SCALE
UNLESS OTHERWISE NOTED

DWG NO.

SH NO.

FLOOD ZONE NOT ISOLATED
and 8 5/8" --12½" annulus is open



NO.	REVISION	BY	DATE	CHKD	APP'D

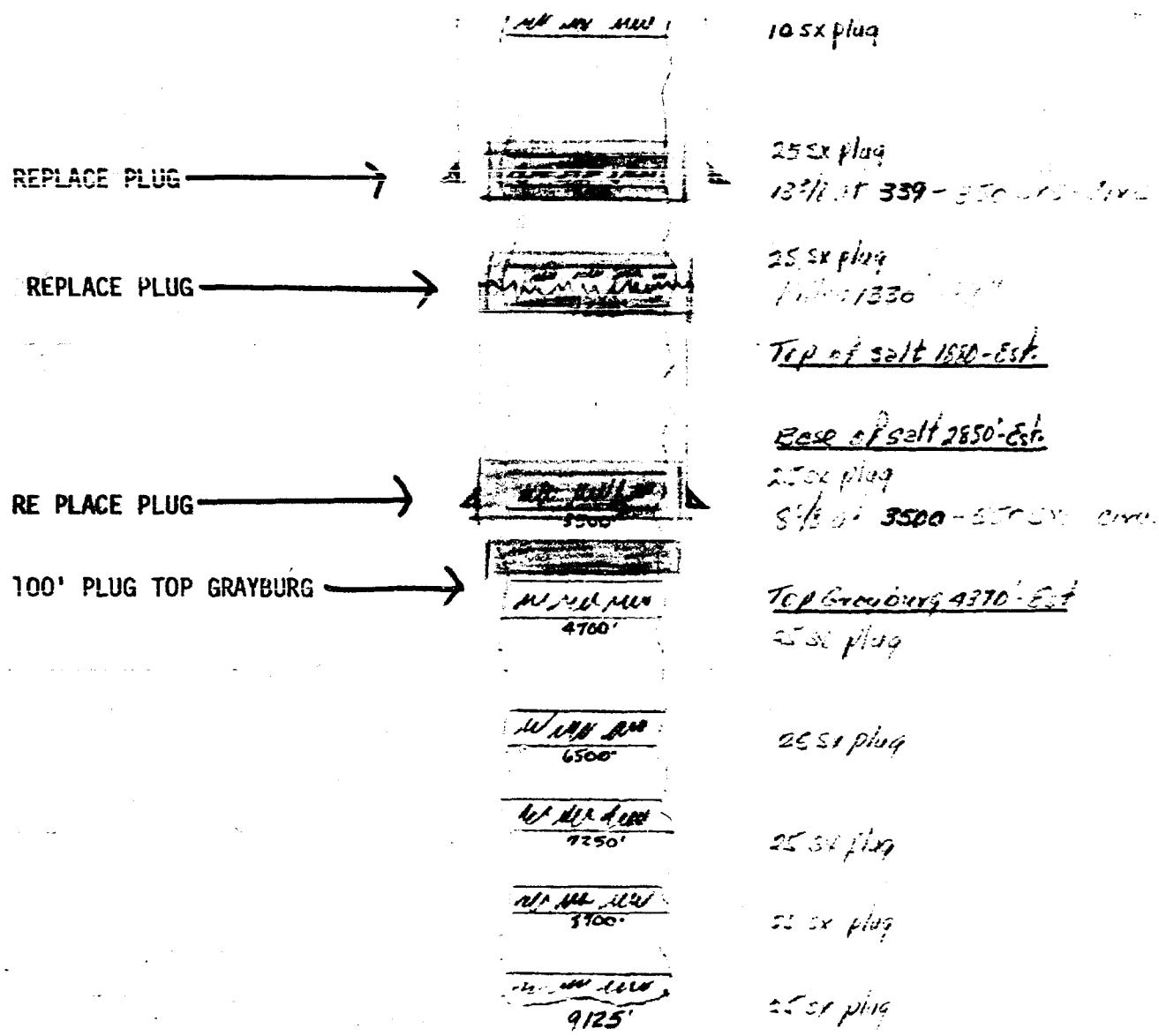
FOR BIDS
FOR APPR
FOR CONST
DRAWN
CHECKED
APP'D

PHILLIPS PETROLEUM COMPANY
BARTLESVILLE, OKLAHOMA

Barnett & Lindsey - State #1-B
Sec 19-17S-35E
Unit D
AwA 3-31-49

AFE NO.
FILE CODE
SCALE
UNLESS OTHERWISE NOTED
DWG NO.
SH NO.

FLOOD ZONE NOT ISOLATED



NO.	REVISION	BY	DATE	CHKD	APP'D

FOR BIDS	PHILLIPS PETROLEUM COMPANY	AFE NO.	FILE CODE
FOR APPR	BARTLESVILLE, OKLAHOMA		
FOR CONST	MacJones - State Well No. 2 Sec. 25-17S-35E Unit A RLD 8-1-63	SCALE UNLESS OTHERWISE NOTED	
DRAWN		DWG NO.	
CHECKED			
APP'D		SH NO.	

FLOOD ZONE NOT ISOLATED

5 Sx plug

REPLACE PLUG

15 Sx plug

5⅛" at 1725' 5000 psi csg.

Top of salt 1950'-Est.

REPLACE PLUG

15 Sx plug

Base of salt 2870'-Est.

TOC 3460' — Calc. →

PLUG ACROSS SHOE AND
AT TOP OF GRAYBURG

Top Grayburg 4120'-Est.

7" at 4490' - 150 Sxs

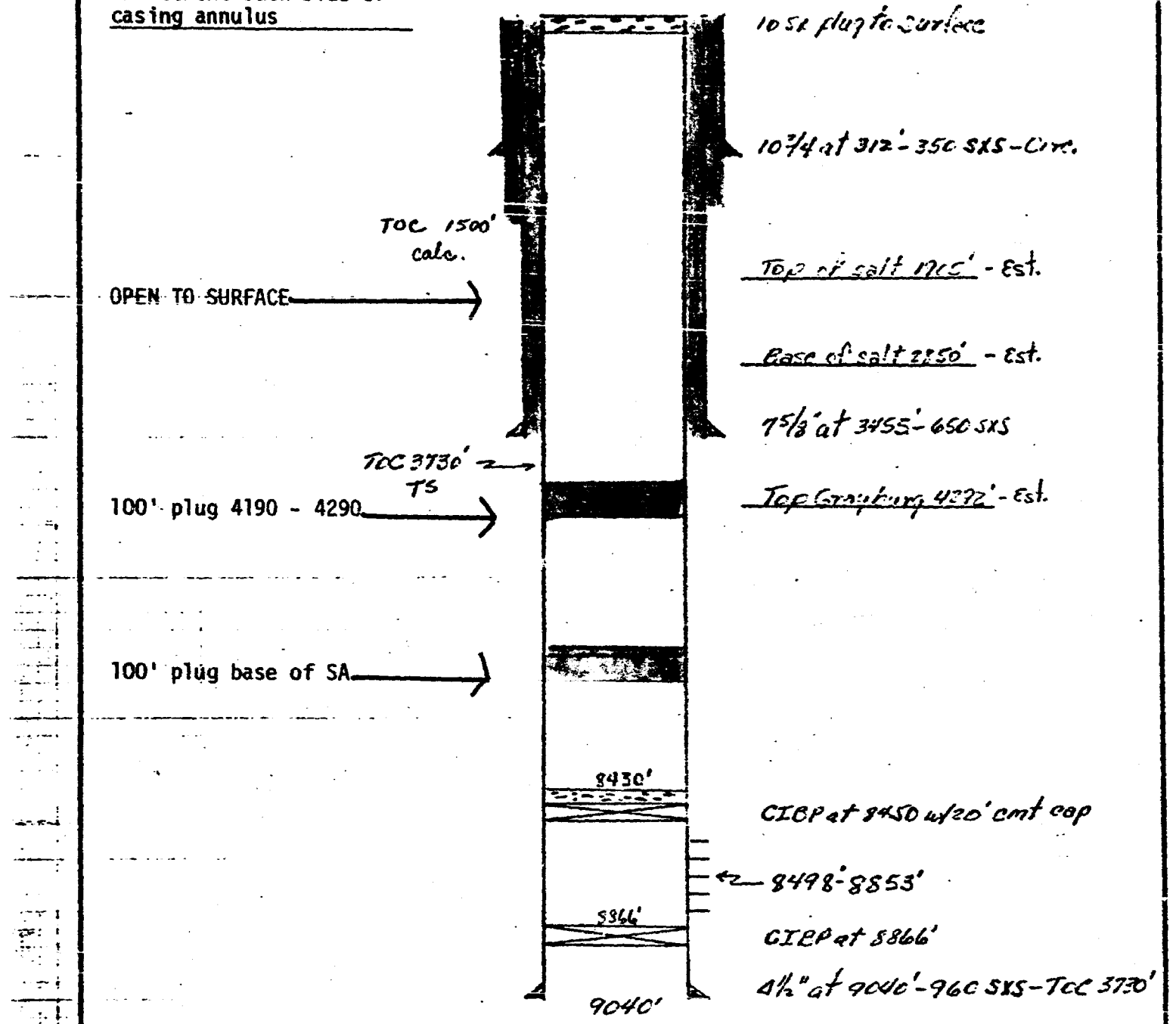
10 Sx plug

4540'

NO.	REVISION	BY	DATE	CHKD	APP'D

FOR BIDS	PHILLIPS PETROLEUM COMPANY BARTLESVILLE, OKLAHOMA	AFE NO.	FILE CODE
FOR APPR.			
FOR CONST	Phillips, Inc. - Shamborough #1 Sec. 25-17S-35E Unit C AP 5-16-57	SCALE UNLESS OTHERWISE NOTED	
DRAWN		DWG NO.	
CHECKED			
APP'D		SH NO.	

NEED TO ISOLATE GB---SA
and cement back side of
casing annulus



NO.	REVISION	BY	DATE	CHKD	APP'D

FOR BIDS
FOR APPR
FOR CONST

DRAWN
CHECKED
APP'D

PHILLIPS PETROLEUM COMPANY
BARTLESVILLE, OKLAHOMA

Amoco Prod. Co. - State "CV" well No. 1
1650 FNL & 1980 FWL, Sec. 25-17S-35E
Unit F AAA 3-2-66

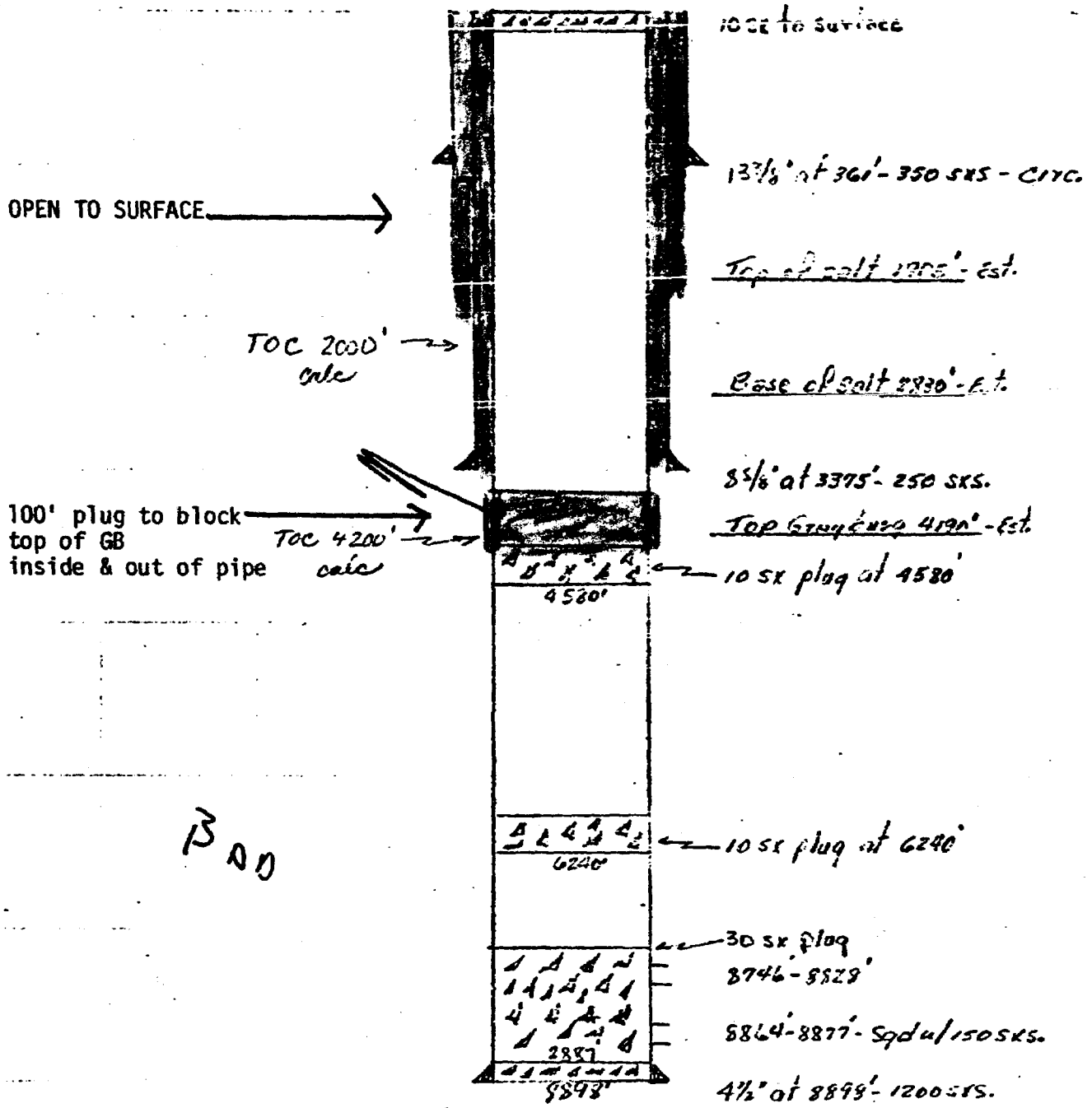
AFE NO. | FILE CODE

SCALE
UNLESS OTHERWISE NOTED

DWG NO.

SH NO.

NEED SOLID PLUG BETWEEN TOP OF SALT AND SURFACE
ALSO MAY AS WELL ISOLATE FLOOD ZONE
WHILE THEY ARE ON THE WELL

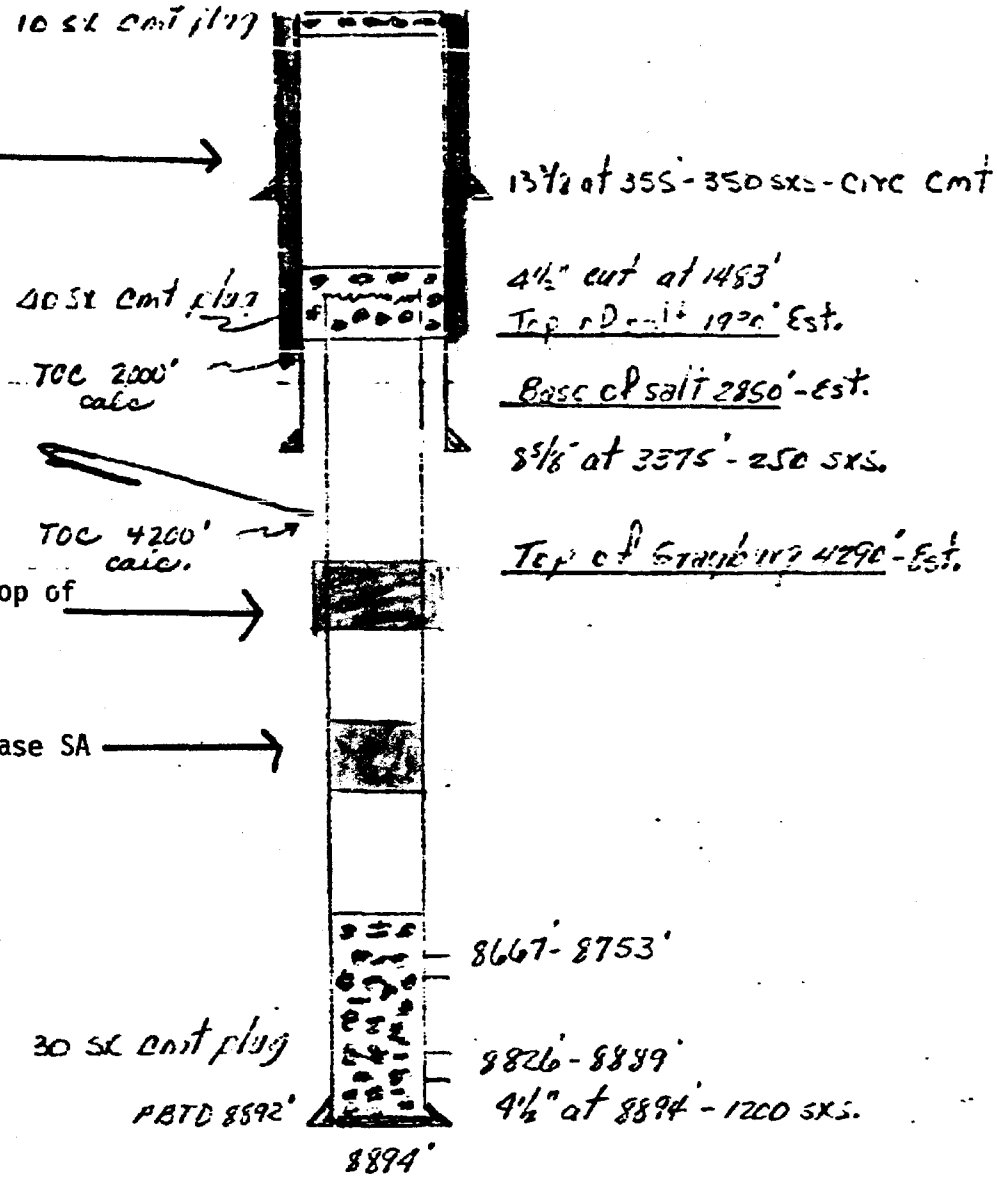


B 10

NO.	REVISION	BY	DATE	CHKD	APP'D

FOR BIDS	PHILLIPS PETROLEUM COMPANY BARTLESVILLE, OKLAHOMA	AFE NO.	FILE CODE
FOR APPR			
FOR CONST	Amoco Prod Co. - State "CV" Well No. 4 2310' FSL & 330' FWL, Sec. 25-17S-35E Unit L PA 9-5-73	SCALE UNLESS OTHERWISE NOTED	
DRAWN		DWG NO.	
CHECKED			
APP'D		SH NO.	

NEED TO BLOCK FLOOD ZONE AND
INSTALL SOLID PLUG ABOVE SALT



NO.	REVISION	BY	DATE	CHKD	APP'D

FOR BIDS
FOR APPR
FOR CONST

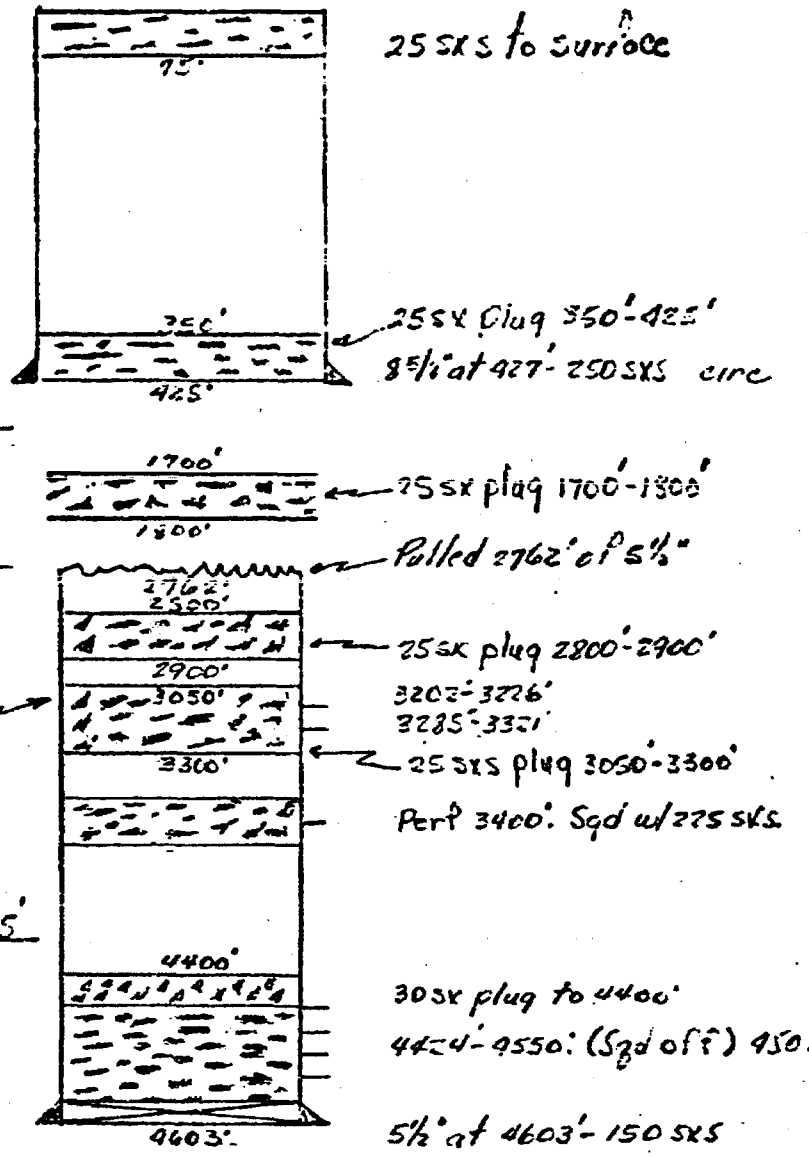
DRAWN
CHECKED
APP'D

PHILLIPS PETROLEUM COMPANY
BARTLESVILLE, OKLAHOMA

Amoco Prod Co - State "CV" Well No 5
2310 FNL & 1650 FWL, Sec 25-17E-35E
Unit F P&A 8-29-72

AFE NO. | FILE CODE
SCALE UNLESS OTHERWISE NOTED
DWG NO.
SH NO.

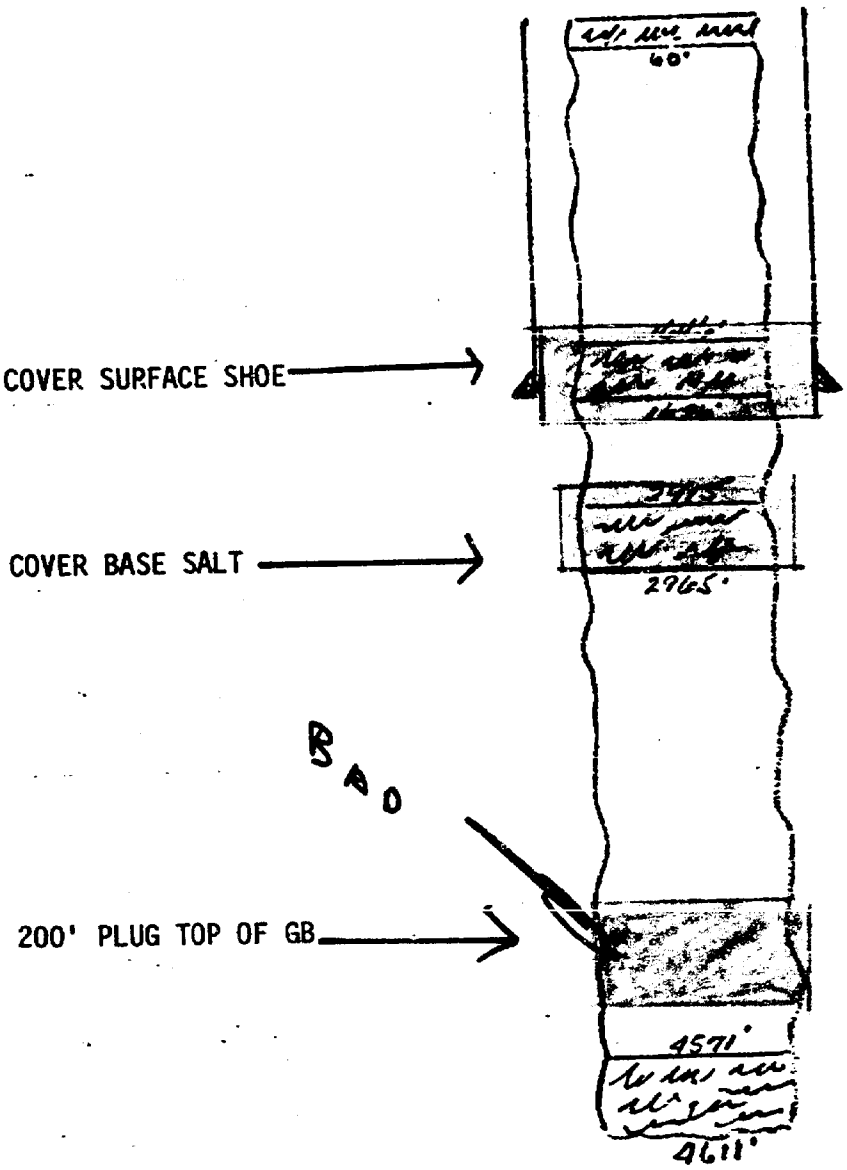
O.K.



NO.	REVISION	BY	DATE	CHKD	APP'D

FOR BIDS	PHILLIPS PETROLEUM COMPANY BARTLESVILLE, OKLAHOMA	AFE NO. / FILE CODE
FOR APPR		
FOR CONST	Chevron Oil Co. - State 3-5 Well No. 1 2310 FSL & 1980 FEL, Sec. 5-12S-35E Unit J P&A 1-16-60	SCALE UNLESS OTHERWISE NOTED
DRAWN		DWG NO.
CHECKED		
APP'D		SH NO.

NEED TO ISOLATE FLOOD ZONE



30 sx plug

25 sx plug 1646-1676'
9⅝" at 1657 - 750 sxs circ
Top of salt 1770' Est.
Base of salt 2925' Est.
20 sx plug 2915-2965'

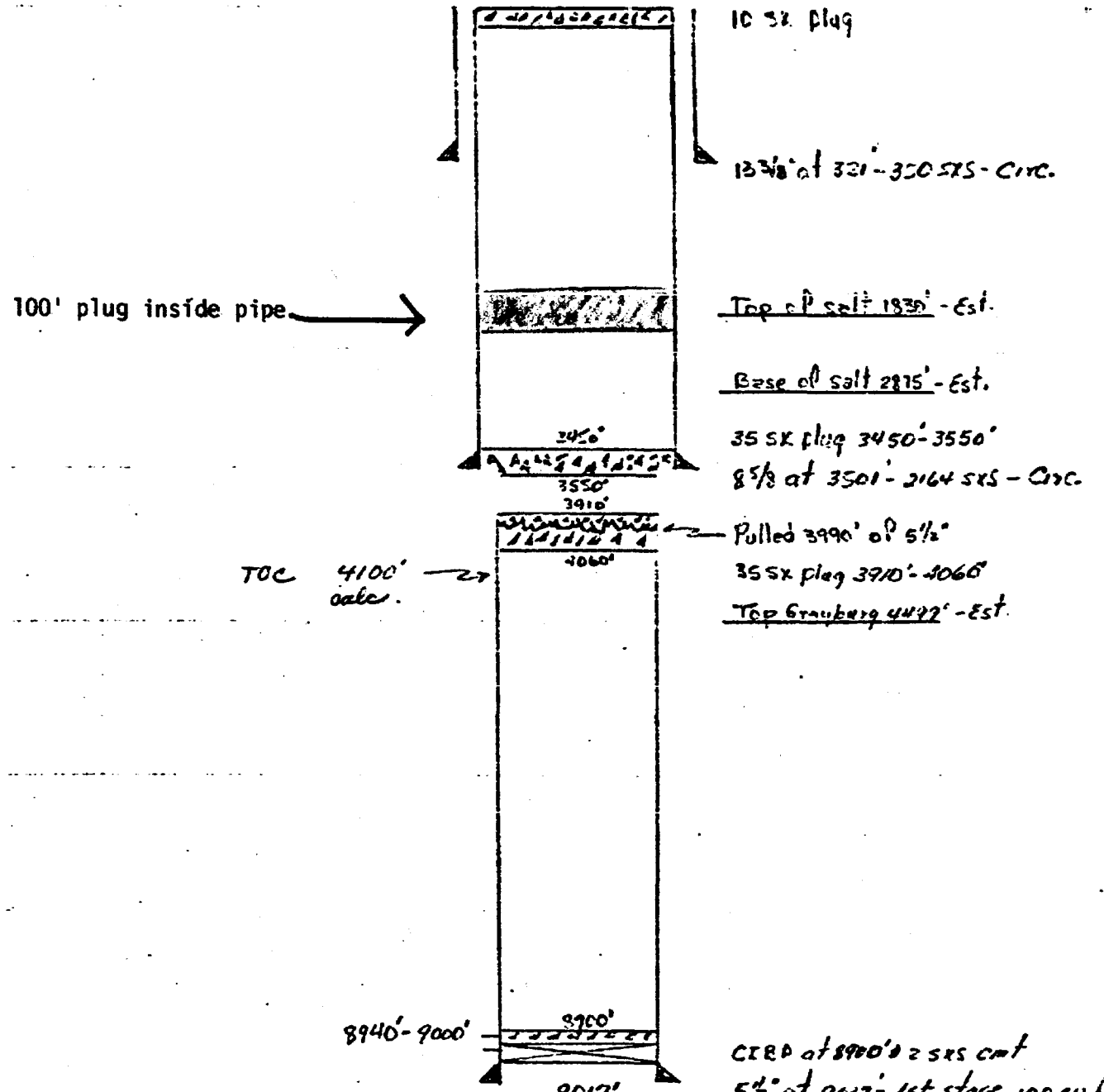
Top Greybg 4270' Est.

Hydromite plug 4571-4611'

NO.	REVISION	BY	DATE	CHKD	APP'D

FOR BIDS	PHILLIPS PETROLEUM COMPANY BARTLESVILLE, OKLAHOMA	AFE NO. / FILE CODE
FOR APPR		SCALE UNLESS OTHERWISE NOTED
FOR CONST	Chevron - State 6-34 Well No. 4 Sec. 34-17S-35E Unit J A-A 1-5-50	DWG NO.
DRAWN		SH NO.
CHECKED		
APP'D		

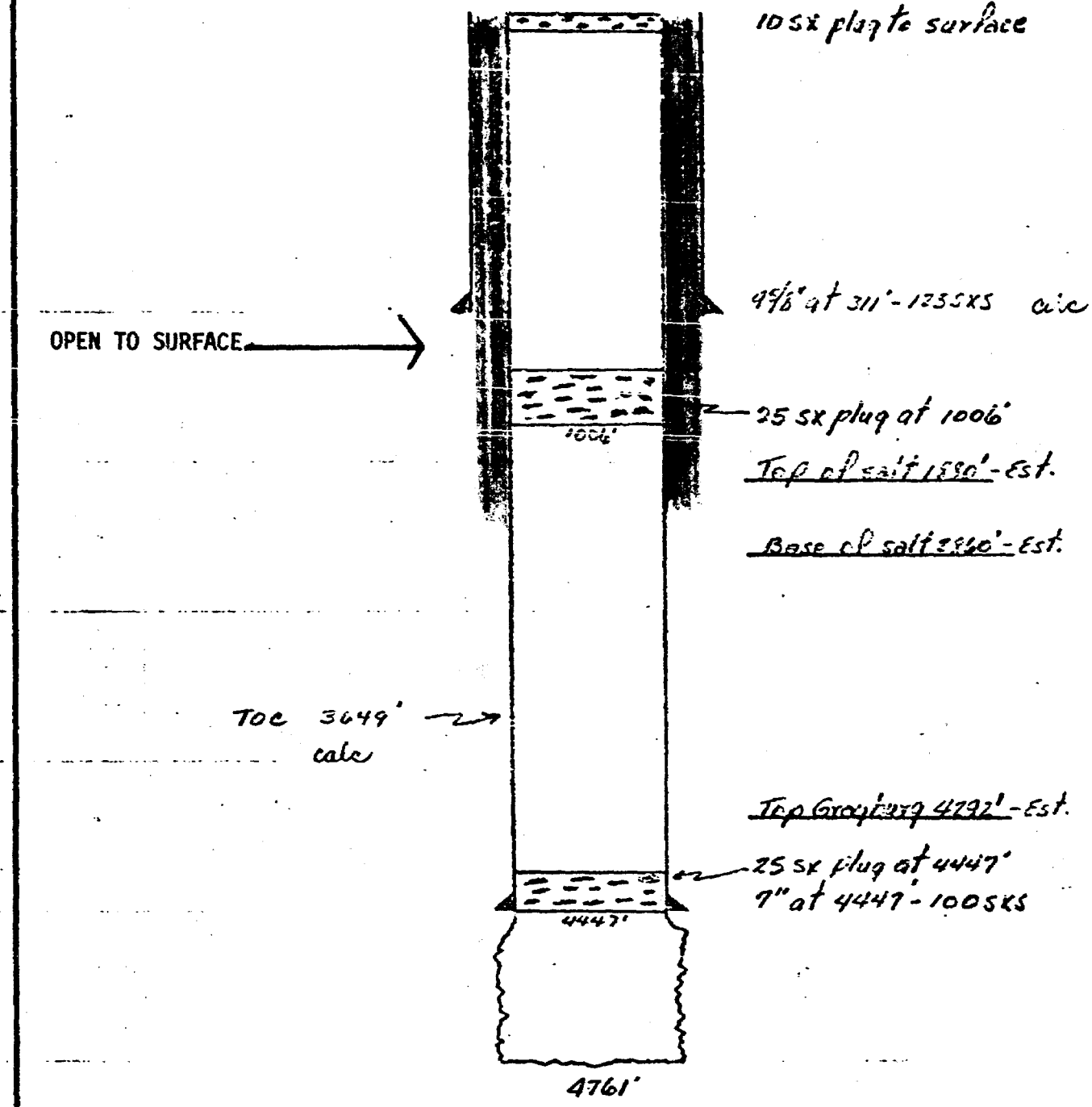
PROBABLY OK -- See below



NO.	REVISION	BY	DATE	CHKD	APP'D

FOR BIDS	PHILLIPS PETROLEUM COMPANY BARTLESVILLE, OKLAHOMA	AFE NO. / FILE CODE
FOR APPR		
FOR CONST	Cities Service - State "BJ" Well No. 2 Sec. 35-17S-35E Unit K Perfd 5-14-76	SCALE UNLESS OTHERWISE NOTED
DRAWN		DWG NO.
CHECKED		
APP'D		SH NO.

NEED TO ISOLATE SURFACE WATER
WITH A SOLID PLUG



NO.	REVISION	BY	DATE	CHKD	APP'D

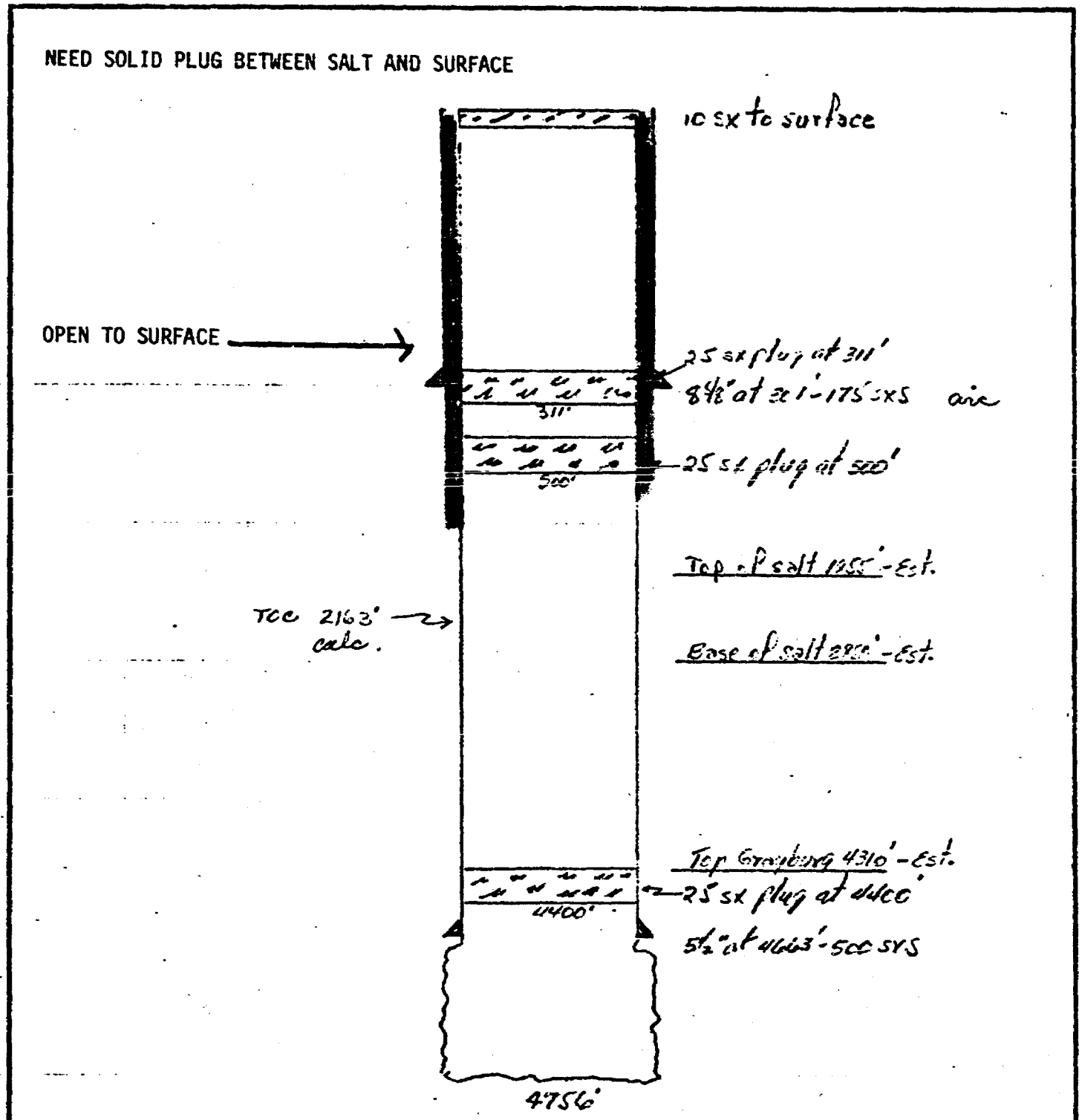
FOR BIDS
FOR APPR
FOR CONST
DRAWN
CHECKED
APP'D

PHILLIPS PETROLEUM COMPANY
BARTLESVILLE, OKLAHOMA

Crusader Opr. Inc. (Cities Service) -
State Well No. 1 - 2310 FNL & 990' FWL
Sec 20-17S-35E Unit E Pdf 1-66

AFE NO. | FILE CODE
SCALE UNLESS OTHERWISE NOTED
DWG NO.
SH NO.

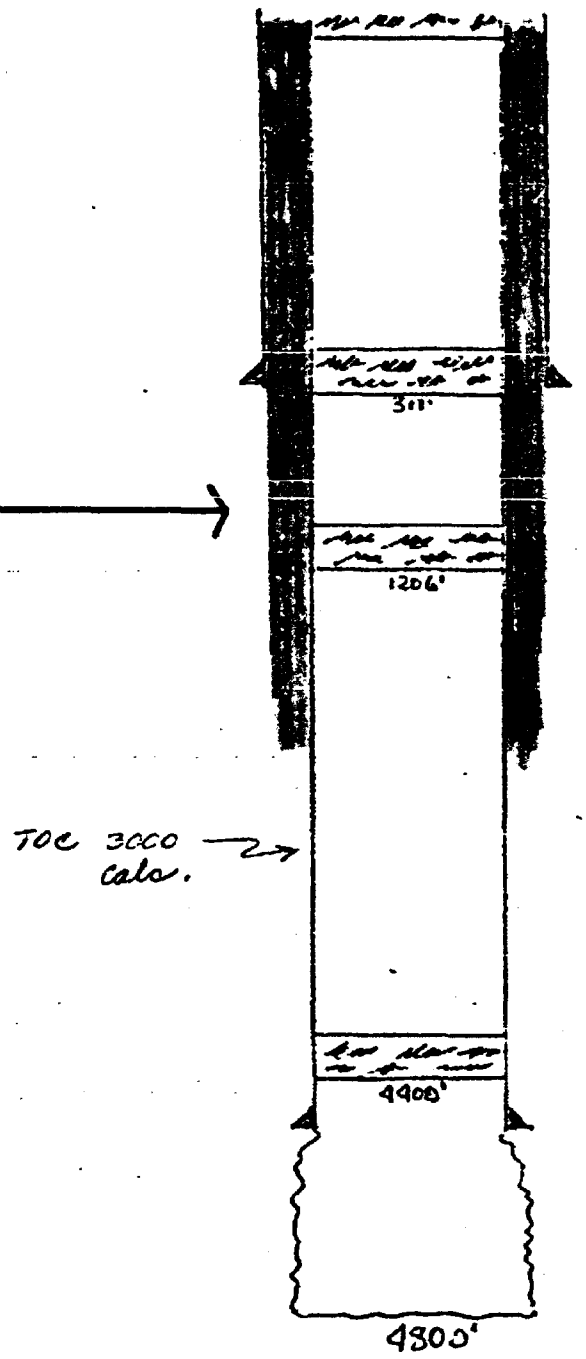
NEED SOLID PLUG BETWEEN SALT AND SURFACE



NO.	REVISION	BY	DATE	CHKD	APP'D

FOR BIDS	PHILLIPS PETROLEUM COMPANY	AFE NO. / FILE CODE
FOR APPR	BARTLESVILLE, OKLAHOMA	
FOR CONST	Crusader (Cities Service) State Well No. 2	SCALE UNLESS OTHERWISE NOTED
DRAWN	940 FNL + 1983 FWL, Sec. 19-17S-35E	DWG NO.
CHECKED	Unit C Ltr 2-66	
APP'D		SH NO.

NEED TO ISOLATE SALT FROM SURFACE



10 sx plug to surface

25 sx plug at 311'
8⅝" at 309' - 135 sxs. circ.

25 sx plug at 1206'

Top of salt 1670' - Est.

Base of salt 2470' - Est.

Top Grayburg 4375' - Est.

25 sx plug at 4400

5½" at 4514' - 100 sxs

NO.	REVISION	BY	DATE	CHKD	APP'D

FOR BIDS	PHILLIPS PETROLEUM COMPANY	AFE NO.	FILE CODE
FOR APPR	BARTLESVILLE, OKLAHOMA		
FOR CONST	Crusader (Curtis Service) State well No. 3 660' FS & 1903' FWL, Sec. 18-17S-35E Unit N PDA 2-66	SCALE UNLESS OTHERWISE NOTED	
DRAWN		DWG NO.	
CHECKED			
APP'D		SH NO.	

Show well history

10 sx cmt plug

8 5/8" at 1647' - 250 sxs

Top of salt 1752' - Est.

Base of salt 2750' - Est

P & A Report:

25 Sack plug in perf.
25 Sack plug across stub 7"
25 Sack plug @ base of 9 5/8
10 Sack plug on top
Set Marker

Note discrepancies with Casing shown which also come from state reports.

Top Grayburg 4120' - Est.

4424' - 4442'

4614' - 4628'

4725'

5 1/2" at 4725' - 250 sks

NO.	REVISION	BY	DATE	CHKD	APP'D

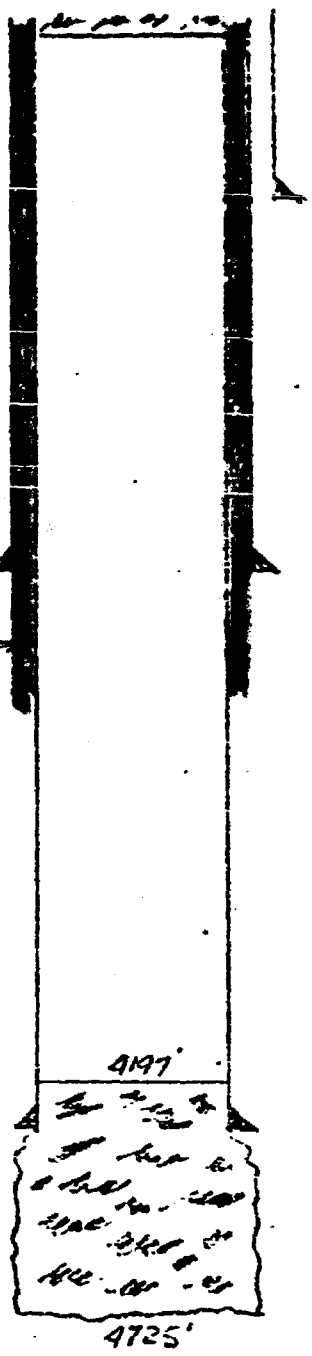
FOR BIDS
FOR APPR
FOR CONST
DRAWN
CHECKED
APP'D

PHILLIPS PETROLEUM COMPANY
BARTLESVILLE, OKLAHOMA

Crusader Oil & Gas - Vacuum
Texas Co. State Well No. 1
Sec. 29, T17S, R35E Unit F
P & A 3/66

AFE NO. | FILE CODE
SCALE UNLESS OTHERWISE NOTED
DWG NO.
SH NO

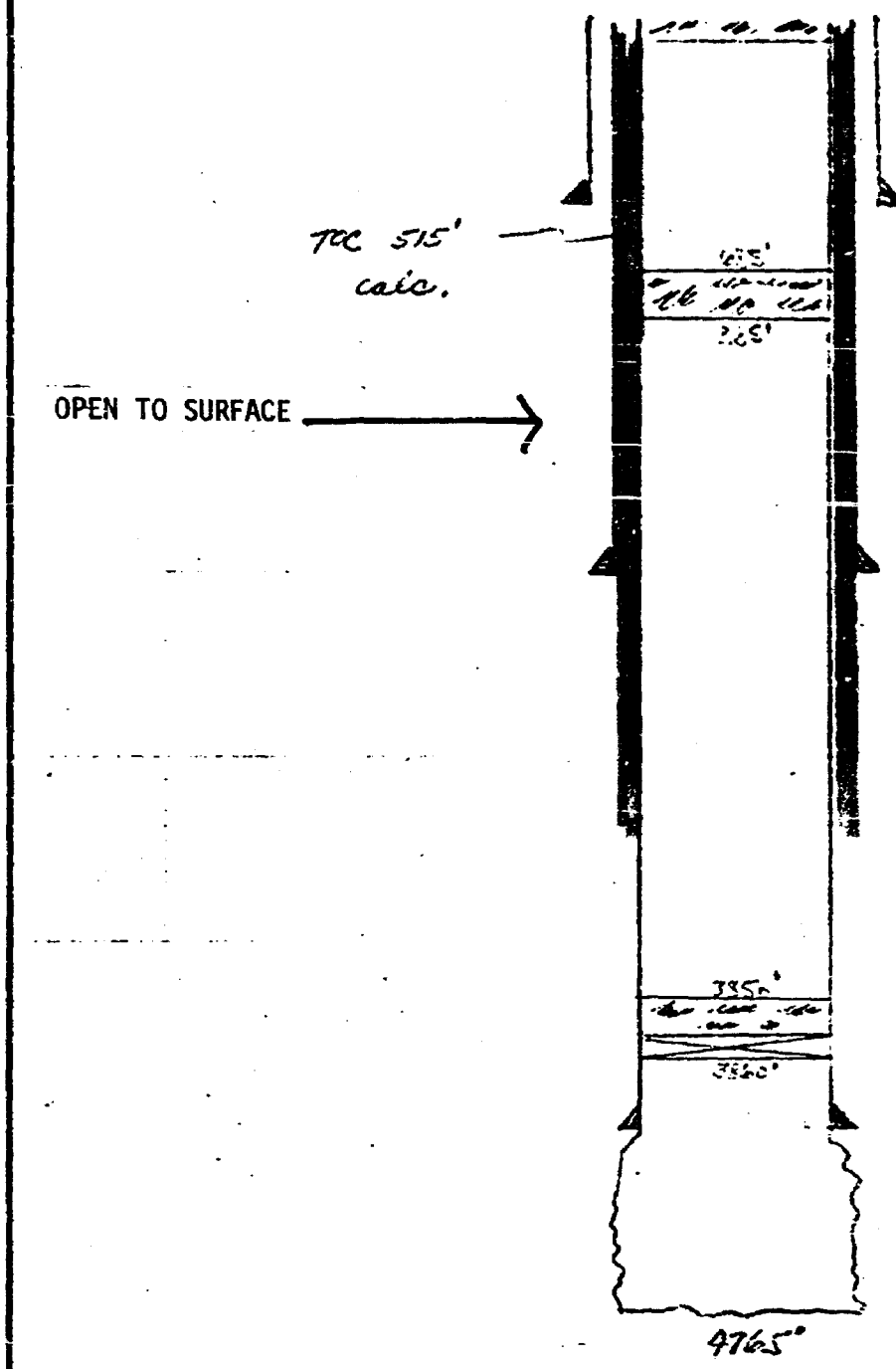
NEED SOLID PLUG TO ISOLATE SALT & SURFACE



NO.	REVISION	BY	DATE	CHKD	APP'D

FOR BIDS	PHILLIPS PETROLEUM COMPANY	AFE NO. / FILE CODE
FOR APPR	BARTLESVILLE, OKLAHOMA	
FOR CONST	Exxon - New Mexico State "J" Well No. 1 660' FSL & 1650' FEL Sec. 14-17S-35E Lea Co. N.M. Apd 2-65	SCALE UNLESS OTHERWISE NOTED
DRAWN		DWG NO.
CHECKED		
APP'D		SH NO.

NEED SOLID PLUG BETWEEN SALT AND SURFACE



21' plug

10 3/4" at 220 - 125 sx circ

25 sx plug 685 - 735'

7 5/8" at 1621' - 400 sx circ
Top of salt 1500' - Est.

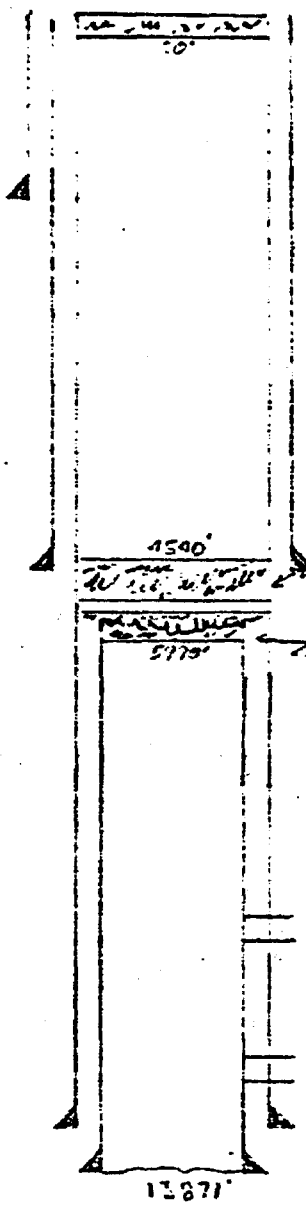
Base of salt 3200' - Est.

10' plug
CIBP at 3260
Top Strawn 4267' - Est.
5 1/2" at 4365' - 275 sx

NO.	REVISION	BY	DATE	CHKD	APP'D

FOR BIDS	PHILLIPS PETROLEUM COMPANY BARTLESVILLE, OKLAHOMA	AFE NO. / FILE CODE
FOR APPR		
FOR CONST	Exxon - New Mexico State "J" well No. 2 Sec. 17 T17S-R32E Unit L Pool 3-23-57	SCALE UNLESS OTHERWISE NOTED
DRAWN		DWG NO.
CHECKED		
APP'D		SH NO.

MAY BE O.K.BUT WOULD LIKE ONE SOLID PLUG
BETWEEN SALT AND SURFACE



5 sx plug

13 3/8 at 454' - 450 sx. circ

Top of salt at 1540' est.

Base of salt at 3595' est.

Top Anhydrite 4440' est.

100 sx plug 4540'-4640'

9 5/8 at 4567' - 2300 sx. circ

Pulled 5942' of 5 1/2"

30 sx plug 5890'-5710'

7570' - 7620'

9570'-9570'

11490' - 12010'

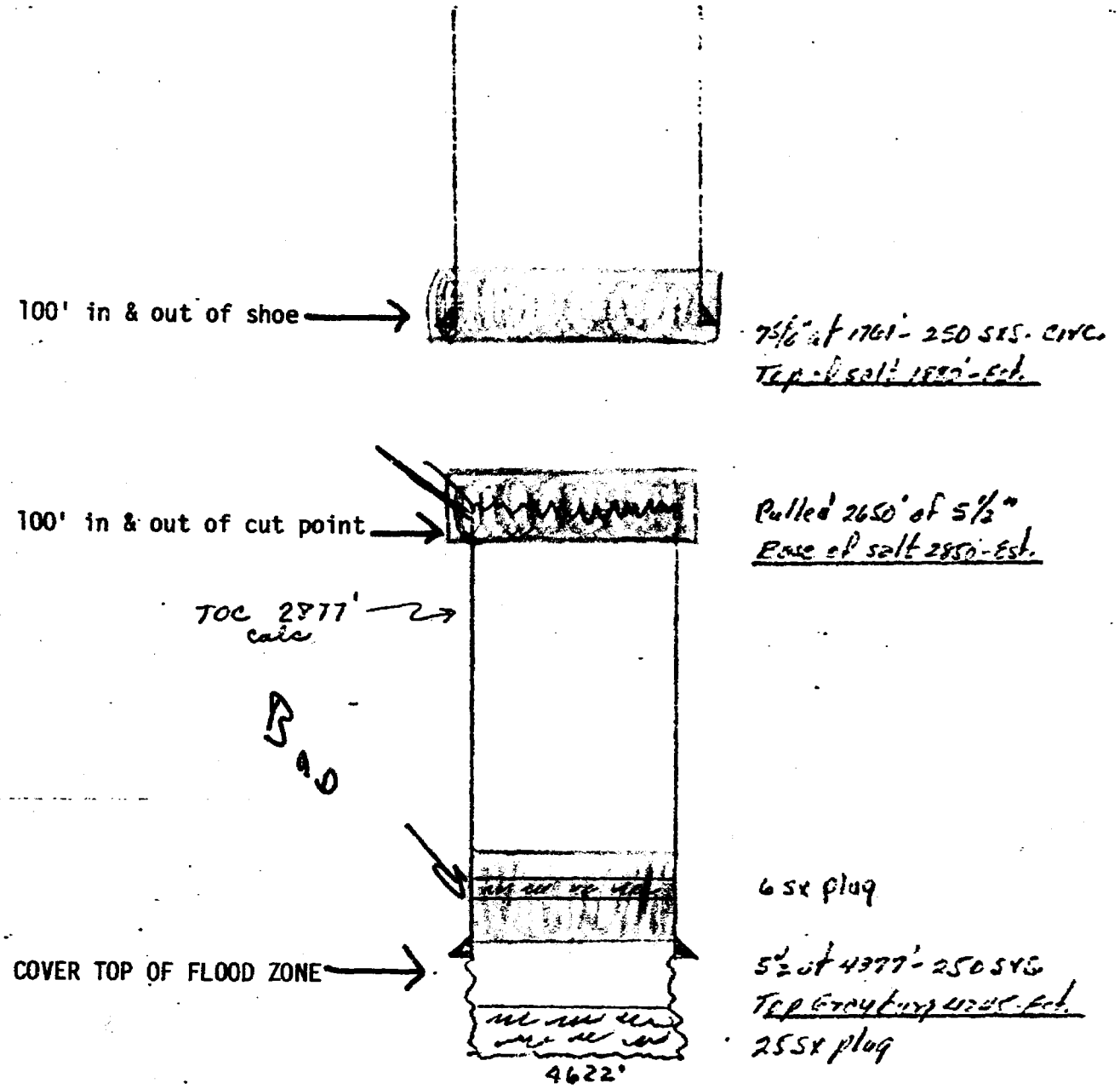
7 5/8" at 12161 - 1100 sx. circ

5 1/2" at 12168 - 100 sx. circ

NO.	REVISION	BY	DATE	CHKD	APP'D

FOR BIDS	PHILLIPS PETROLEUM COMPANY	AFE NO.	FILE CODE
FOR APPR	BARTLESVILLE, OKLAHOMA		
FOR CONST	Exxon - State AC Well No. 1	SCALE UNLESS OTHERWISE NOTED	
DRAWN	Sec. 22-17S-35E	DWG NO.	
CHECKED	Un. I H P&A 11-3-53		
APP'D		SH NO.	

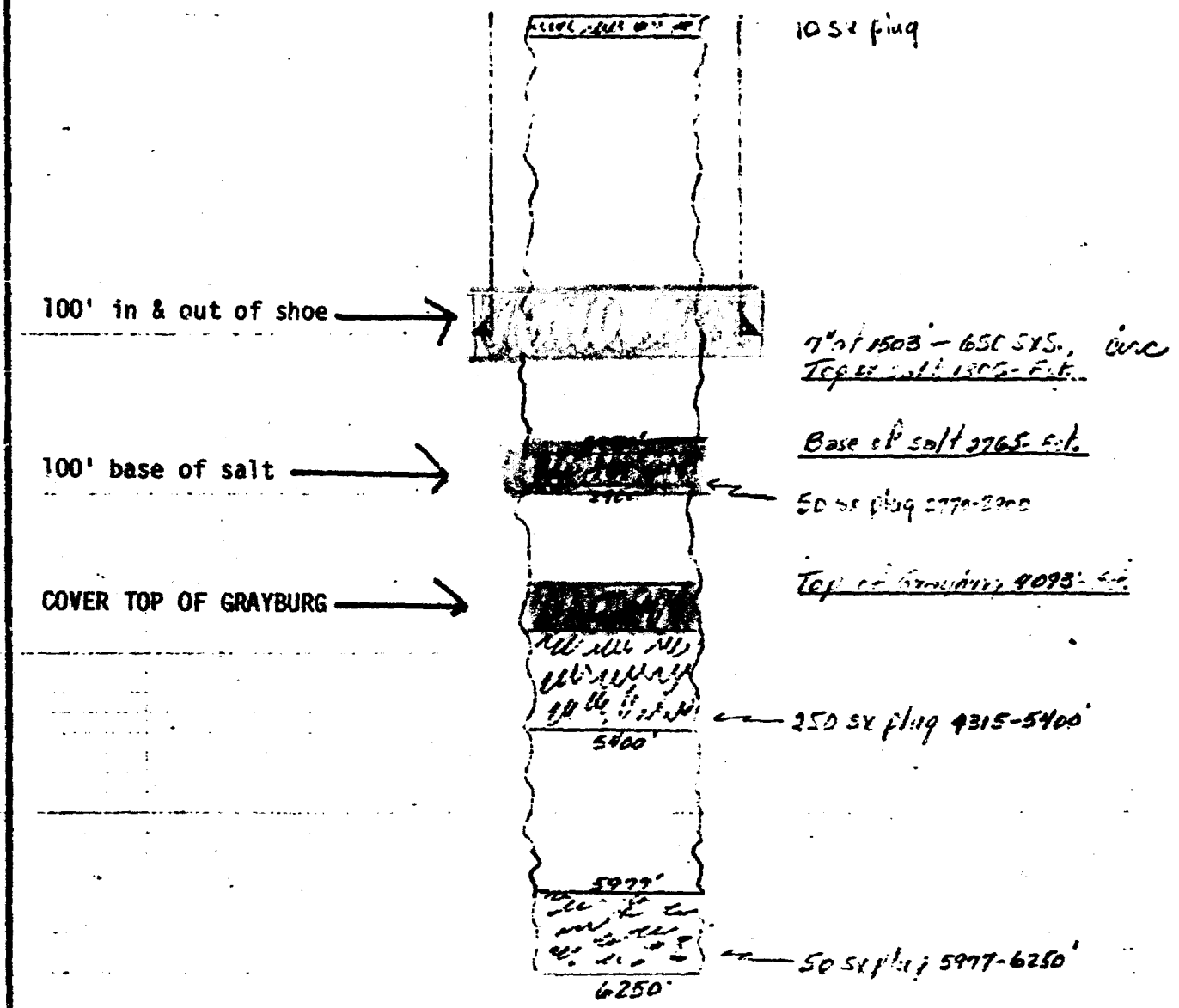
NEED TO ISOLATE FLOOD ZONE AND SALT ZONE



NO.	REVISION	BY	DATE	CHKD	APP'D
			--		

FOR BIDS	PHILLIPS PETROLEUM COMPANY BARTLESVILLE, OKLAHOMA	AFE NO.	FILE CODE
FOR APPR			
FOR CONST	Great Western - State "E" well No. 2 Sec. 25-17S-25E Unit L Rd 11-40	SCALE UNLESS OTHERWISE NOTED	
DRAWN		DWG NO.	
CHECKED			
APP'D		SH NO.	

NEED TO ISOLATE FLOOD AND ADD PLUGS AS SHOWN



NO.	REVISION	BY	DATE	CHKD	APP'D

FOR BIDS	PHILLIPS PETROLEUM COMPANY BARTLESVILLE, OKLAHOMA	AFE NO. / FILE CODE
FOR APPR		
FOR CONST	Marathon Oil Co. - Warn State A/C 2 #1 Sec. 23-17S-33E Unit M P&A 6-5-64	SCALE UNLESS OTHERWISE NOTED
DRAWN		DWG NO.
CHECKED		
APP'D		SH NO.

EAST VACUUM GRAYBURG -- SAN ANDRES UNIT AREA

Lea County, New Mexico

TABULATION OF GRAYBURG -- SAN ANDRES WELLBORE PENETRATIONS

T.O.C. (Top of Cement) Code: T.S. -- Temperature Survey; CIRC -- Circulated; C -- Calculated by Operator; CP -- Calculated by Phillips.

Operator / Lease & Well No.	Location U-S-T-R	Surface Casing Size	Depth	SxCmt	TOC	Intermediate Casing Size	Depth	SxCmt	TOC	Production Casing Size	Depth	SxCmt	TOC	Total Depth	Producing Zone	Remarks & Liners (L)
AMOCO																
State CV #1	F25-17-35	10 3/4	312	350	Circ	7 5/8	3455	650	1500CP	4 1/2	9040	960	3730TS	9040	Abo	P&A
State CV #2 ✔	E25-17-35	13 3/8	357	350	Circ	8 5/8	3380	280	1880CP	4 1/2	9000	1175	4500CP	9000	Abo	3 Run Bond Log Check top of cement & Log
State CV #2Y ✔	E25-17-35	13 3/8	362	350	Circ	8 5/8	3351	250	2000CP	5 1/2	8917	900	4200CP	8917	Abo	
State CV #4	L25-17-35	13 3/8	361	350	Circ	8 5/8	3375	250	2000CP	4 1/2	8898	1200	4200CP	8898	Abo	P&A
State CV #5	F25-17-35	13 3/8	355	350	Circ	8 5/8	3375	250	2000CP	4 1/2	8894	1200	4200CP	8894	Abo	P&A
ARCO																
State W DE #2	Ø26-17-35	8 5/8	1727	650	Circ					5 1/2	4226	275	2480C	4588	GB-SA	
State W DE #1	J26-17-35	8 5/8	1702	650	Circ	5 1/2	4253	275	2507C	4	4584	50	3375C	4585	GB-SA	
State A DE #2	N22-17-35	8 5/8	1700	650	Circ					5 1/2	4224	275	2478C	4620	GB-SA	
State A DE #1	M22-17-35	8 5/8	1706	600	Circ					5 1/2	4246	200	2976C	4634	GB-SA	
State C DE #1	P24-17-34	8 5/8	1656	650	Circ					5 1/2	4221	275	2475C	4665	GB-SA	
State E DE #1	Ø24-17-34	8 5/8	1645	650	Circ					5 1/2	4258	275	2512C	4675	GB-SA	
State E DE #2	J24-17-34	8 5/8	1643	650	Circ					5 1/2	4262	275	2516C	4684	GB-SA	
State J DE #1	N19-17-35	8 5/8	1664	650	Circ					5 1/2	4231	275	2485C	4700	GB-SA	
State M DE #1	Ø29-17-35	8 5/8	1589	650	Circ					5 1/2	4209	275	2463C	4665	GB-SA	
State M DE #2	J29-17-35	8 5/8	1624	650	Circ					5 1/2	4203	275	2457C	4650	GB-SA	
State M DE #3	P29-17-35	8 5/8	1582	650	Circ					5 1/2	4188	275	2442C	4590	GB-SA	
State M DE #4	I29-17-35	8 5/8	1618	650	Circ					5 1/2	4176	275	2430C	4600	GB-SA	
State B-1576 #1	L32-17-35	13	290	200	Circ-C	9 5/8	1545	200	843C	7	4100	225	2454C	4525	GB-SA	
State B-1576 #2	M32-17-35	13	276	200	Circ-C	8 5/8	1544	200	Circ-C	5 1/2	4140	225	2795C	4527	GB-SA	
State B-1576 #3	K32-17-35	13	281	200	Circ-C	8 5/8	1541	200	Circ-C	5 1/2	4150	230	2776C	4591	GB-SA	
State B-1576 #4	N32-17-35	13	275	200	Circ-C	8 5/8	1540	275	Circ-C	5 1/2	4150	225	3038C	4550	GB-SA	
State B-1576 #5	N32-17-35	8 5/8	1590	710	Circ					5 1/2	6250	1320	1805TS	6234	Glorieta	
State B-1576 #6	K32-17-35	8 5/8	1557	700	Circ					4 1/2	6200	1592	1605TS	6182	Glorieta	
State B-1576 #7	L32-17-35	8 5/8	1550	700	Circ					4 1/2	6200	1460	850TS	6187	Glorieta	
State B-1576 #8	M32-17-35	8 5/8	1550	700	Circ					4 1/2	6200	1332	900TS	6192	Glorieta	

EAST VACUUM GRAYBURG -- SAN ANDRES UNIT AREA

TABULATION OF GRAYBURG -- SAN ANDRES WELLBORE PENETRATIONS

T.O.C. (Top of Cement) Code: T.S. -- Temperature Survey; CIRC -- Circulated; C -- Calculated by Operator; CP -- Calculated by Phillips.

Operator / Lease & Well No.	Location U-S-T-R	Surface Casing Size	Depth	SxCmt	TOC	Intermediate Casing Size	Depth	SxCmt	TOC	Production Casing Size	Depth	SxCmt	TOC	Total Depth	Producing Zone	Remarks & Liners (L)
BETHS, BOYLE & STORALL (JOSALINE)																
State C #1	J19-17-35	8 5/8	1786	200	Circ					7	4378	100	3253C	4705	GB-SA	
State C #2	P19-17-35	8 5/8	1814	200	Circ					7	4356	100	3231C	4684	GB-SA	
State F #1	M20-17-35	8 5/8	1805	200	Circ					7	3881	75	3304C	4656	GB-SA	5½L @ 4347 w/40 sx
State F #2	L20-17-35	8 5/8	1807	200	Circ					7	4367	100	3242C	4700	GB-SA	
CHEVRON																
State 3-32 #1	E32-17-35	10 3/4	821	650	Circ					7	4234	320	2622C	4705	GB-SA	
State 3-32 #2	D32-17-35	13 3/8	275	400	Circ	9 5/8	1591	615	336C	7	4203	146	3401C	4651	GB-SA	
State 3-32 #3	C32-17-35	13 3/8	279	250	Circ	9 5/8	1567	615	62C	7	4185	145	3057C	4635	GB-SA	5½L @ 4200 w/300 sx
State 3-32 #4	F32-17-35	13 3/8	301	250	Circ	9 5/8	1577	615	72C	7	4178	144	3444C	4620	GB-SA	
State 3-32 #5	F32-17-35	13 3/8	30	3yds	Circ	8 5/8	1645	1250	Circ	4 1/2	6240	870	2695C	6240	Glorieta	
State 3-32 #6	E32-17-35	13 3/8	30	3yds	Circ	8 5/8	1579	1250	Circ	4 1/2	6264	870	2500C	6266	Glorieta	
State 3-32 #7	C32-17-35	13 3/8	28	3yds	Circ	8 5/8	1598	1050	Circ	4 1/2	6247	870	2550C	6250	Glorieta	
State 3-32 #8	D32-17-35	13 3/8	30	3yds	Circ	8 5/8	1604	1050	Circ	4 1/2	6265	870	1750C	6277	Glorieta	
State 3-5 #1	J5-18-35	8 5/8	427	285	Circ					5 1/2	4603	150	3103CP	4603	GB-SA	P&A-dry hole
State 6-34 #1	L34-17-35	13 3/8	296	250	Circ-C	9 5/8	1637	615	132C	7	4216	330	2533C	4633	GB-SA	
State 6-34 #2	K34-17-35	13 3/8	278	250	Circ-C	9 5/8	1648	615	143C	7	4201	330	2518C	4649	GB-SA	
State 6-34 #3	M34-17-35	9 5/8	1726	750	Circ-C					7	4355	500	1805C	4586	GB-SA	
State 6-34 #4	J34-17-35	9 5/8	1657	750	Circ									4611	GB-SA	P&A-dry hole
State 6-34 #12	J34-17-35	8 5/8	1651	900	Circ-C					4 1/2	4648	650	2354TS	4648	GB-SA	
State 6-34 #10	N34-17-35	8 5/8	1636	800	Circ-C					4 1/2	4650	800	1020TS	4650	GB-SA	
State 6-34 #11	L34-17-35	8 5/8	1664	750	Circ-C					4 1/2	6281	1025	2897C	6281	Glorieta	
State 5-27 #1	D27-17-35	13 3/8	274	260	Circ-C	9 5/8	1591	615	86C	7	4230	330	2547C	4564	GB-SA	5½L @ 4253 w/250 sx
State 5-27 #2	F27-17-35	13 3/8	256	250	Circ-C	9 5/8	1645	615	140C	7	4195	330	2513C	4608	GB-SA	5½L @ 4215 w/190 sx
State 5-27 #3	E27-17-35	13 3/8	250	250	Circ-C	9 5/8	1638	615	133C	7	4204	330	2524C	4620	GB-SA	
State 5-27 #4	C27-17-35	13 3/8	254	250	Circ-C	9 5/8	1644	615	54C	7	4194	330	2511C	4635	GB-SA	5½L @ 4281 w/628 sx
State 5-27 #8	D27-17-35	13 3/8	30	9yds	Circ	8 5/8	1627	1250	Circ	4 1/2	6237	880	2780TS	6237	Glorieta	
State 5-27 #7	C27-17-35	13 3/8	30	9yds	Circ	8 5/8	1601	1250	Circ	4 1/2	6256	870	2666TS	6256	Glorieta	
State 5-27 #6	E27-17-35	13 3/8	30	9yds	Circ	8 5/8	1604	1250	Circ	4 1/2	6275	870	2675TS	6275	Glorieta	
State 5-27 #5	F27-17-35	7 5/8	1617	850	Circ					4 1/2	6263	550	2600TS	6263	Glorieta	

EAST VACUUM GRAYBURG — SAN ANDRES UNIT AREA

TABULATION OF GRAYBURG — SAN ANDRES WELLBORE PENETRATIONS

T.O.C. (Top of Cement) Code: T.S. — Temperature Survey; CIRC — Circulated; C — Calculated by Operator; CP — Calculated by Phillips.

Operator / Lease & Well No.	Location U-S-T-R	Surface Casing Size	Depth	SxCmt	TOC	Intermediate Casing Size	Depth	SxCmt	TOC	Production Casing Size	Depth	SxCmt	TOC	Total Depth	Producing Zone	Remarks & Liners (L)
State 4-27 #1	K27-17-35	16	250	385	Circ	10 3/4	1639	735	235C	7	4193	144	3628C	4590	GB-SA	
State 4-27 #2	Ø27-17-35	13	254	250	Circ	9 5/8	1635	615	130C	7	4197	330	2516C	4585	GB-SA	
State 4-27 #3	J27-17-35	13 3/8	254	250	Circ	9 5/8	1647	615	142C	7	4195	330	2512C	4625	GB-SA	
State 4-27 #4	L27-17-35	13 3/8	267	250	Circ	9 5/8	1640	615	135C	7	4196	145	2800C	4597	GB-SA	5½L @ 4222 w/250 sx
State 4-27 #5	Ø27-17-35	9 5/8	392	250	Circ	7	3251	550	575C	4 1/2	6257	400	1850TS	6257	Glorieta	
State 4-27 #6	J27-17-35	9 5/8	414	250	Circ	7	3244	600	184C	4 1/2	6224	575	1924C	6224	Glorieta	
State 4-27 #7	K27-17-35	9 5/8	413	200	Circ	7	3244	475	184C	4 1/2	6268	350	2814TS	6268	Glorieta	
State 4-27 #10	L27-17-35	16	30	3yds	Circ	8 5/8	1601	1250	Circ	4 1/2	6262	870	2600TS	6262	Glorieta	
CITIES SERVICE																
State BJ #1	I35-17-35	13 3/8	326	325	Circ	8 5/8	3512	1485	Circ	5 1/2	9009	790	5085TS	9009	Abo	
State BJ #2	K35-17-35	13 3/8	321	350	Circ	8 5/8	3501	2164	Circ	5 1/2	9017	300	4100C	9017	Abo	P&A
State K #1	G27-17-35	7 5/8	1655	600	Circ					5 1/2	4189	175	2850C	4625	GB-SA	
State K #2	H27-17-35	8 5/8	1650	350	Circ					5 1/2	4200	150	3050C	4627	GB-SA	
State K #3	B27-17-35	8 5/8	1660	600	Circ					5 1/2	4192	150	3050C	4640	GB-SA	
State K #4	A27-17-35	8 5/8	1649	500	Circ					5 1/2	4200	150	3060C	4625	GB-SA	
State K #5	H27-17-35	13 3/8	351	360	Circ	8 5/8	3200	1800	Circ	5 1/2	8954	726	3675TS	8954	Glorieta	
State K #6	G27-17-35	13 3/8	352	360	Circ	8 5/8	2999	1700	35TS	5 1/2	6269	810	2640TS	6269	Glorieta	
State K #7	A27-17-35	13 3/8	355	360	Circ	8 5/8	2995	1780	440C	5 1/2	6291	951	2905C	6291	Glorieta	
State K #8	B27-17-35	13 3/8	350	350	Circ	8 5/8	3028	1000	470TS	5 1/2	6299	1001	1560TS	6299	Glorieta	
CROWN CENTRAL																
Shell State B-1398 #2	I19-17-35	8 5/8	320	200	Circ					5 1/2	4814	250	3127C	4814	GB-SA	
Shell State E-7259 #1	D20-17-35	8 5/8	301	175	Circ					5 1/2	4943	200	3443CP	4943	GB-SA	
CRUSADER (ELK)																
Cities Service State #1	E20-17-35	9 5/8	311	123	Circ					7	4447	100	3649CP	4761	GB-SA	P&A
Cities Service State #2	C19-17-35	8 5/8	301	135	Circ					5 1/2	4663	500	2163CP	4756	GB-SA	P&A
Cities Service State #3	N18-17-35	8 5/8	309	135	Circ					5 1/2	4514	100	3000CP	4800	GB-SA	P&A
Texas Co. State #1	F29-17-35	8 5/8	1647	250	Circ					5 1/2	4725	250	3100CP	4725	GB-SA	P&A
MILLARD DECK																
Carthay State #1	F20-17-35	8 5/8	300	250	Circ					5 1/2	4860	300	3110CP	4860	GB-SA	
Carthay State #2 ✓	G20-17-35	8 5/8	333	250	Circ					5 1/2	4874	50	4300CP	4874	GB-SA	should be there problem NEED BOND LOG

EAST VACUUM GRAYBURG -- SAN ANDRES UNIT AREA

TABULATION OF GRAYBURG -- SAN ANDRES WELLBORE PENETRATIONS

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Operator / Lease & Well No.	Location U-S-T-R	Surface Casing Size	Surface Casing Depth	Surface Casing SxCmt	Surface Casing TOC	Intermediate Casing Size	Intermediate Casing Depth	Intermediate Casing SxCmt	Intermediate Casing TOC	Production Casing Size	Production Casing Depth	Production Casing SxCmt	Production Casing TOC	Total Depth	Producing Zone	Remarks & Liners (L)
EXXON																
State J #1	M19-17-35	12 1/2	230	200	Circ	8 5/8	1556	500	Circ	5 1/2	4298	275	2340C	4725	GB-SA	P&A
State J #3	M19-17-35	8 5/8	1689	850	Circ									2870		Brine Well
State J #2	L19-17-35	10 3/4	220	125	Circ	7 5/8	1691	400	Circ	5 1/2	4365	275	515C	4765	GB-SA	P&A
State J #4	L19-17-35	8 5/8	1750	800	Circ					5 1/2	8739	1625	Circ	8739	Abo	
State J #5	N19-17-35	8 5/8	1700	1075	Circ					5 1/2	8730	1650	2600TS	8730	Abo	
New Mexico State K #14	L28-17-35	10 3/4	236	125	CircCP	7 5/8	1586	400	CircCP	5 1/2	4146	250	554CP	4639	GB-SA	
New Mexico State K #31	L28-17-35	8 5/8	1614	750	Circ					4 1/2	6270	900	2700TS	6270	Glorieta	
New Mexico State K #8	M28-17-35	10 3/4	242	125	Circ	7 5/8	1573	400	Circ	5 1/2	4150	250	558CP	4628	GB-SA	
New Mexico State K #32	M28-17-35	7 5/8	1596	500	Circ					4 1/2	6220	675	2600TS	6220	Glorieta	
New Mexico State K #13	K28-17-35	10 3/4	252	150	Circ	7 5/8	1584	400	Circ	5 1/2	4151	250	559CP	4625	GB-SA	
New Mexico State K #29	K28-17-35	8 5/8	1583	700	Circ					4 1/2	6208	900	2800TS	6208	Glorieta	
New Mexico State K #9	N28-17-35	10 3/4	242	125	Circ	7 5/8	1579	400	Circ	5 1/2	4148	250	556CP	4660	GB-SA	
New Mexico State K #27	N28-17-35	7 5/8	1587	600	Circ					4 1/2	6200	850	3010TS	6200	Glorieta	
New Mexico State K #11	J28-17-35	10 3/4	262	125	Circ	7 5/8	1580	400	Circ	5 1/2	4152	250	560CP	4640	GB-SA	
New Mexico State K #25	J28-17-35	8 5/8	1606	700	Circ					4 1/2	6209	900	2600TS	6209	Glorieta	
New Mexico State K #10	Ø28-17-35	10 3/4	254	125	Circ	7 5/8	1579	400	Circ	5 1/2	4141	250	549CP	4640	GB-SA	
New Mexico State K #21	Ø28-17-35	8 5/8	1609	850	Circ					4 1/2	6230	800	2636TS	6230	Glorieta	
New Mexico State K #3	I28-17-35	10 3/4	245	125	Circ	7 5/8	1626	400	Circ	5 1/2	4127	275	176CP	4644	GB-SA	
New Mexico State K #23	I28-17-35	8 5/8	1585	750	Circ					4 1/2	6230	875	3000TS	6230	Glorieta	
New Mexico State K #1	P28-17-35	10 3/4	238	125	Circ	7 5/8	1954	445	Circ	5 1/2	4097	250	505CP	4638	GB-SA	
New Mexico State K #19	P28-17-35	8 5/8	1587	825	Circ					4 1/2	6230	750	2650TS	6230	Glorieta	
New Mexico State K #2	B32-17-35	10 3/4	220	125	Circ	7 5/8	1551	400	Circ	5 1/2	4150	250	558CP	4675	GB-SA	
New Mexico State K #33	B32-17-35	8 5/8	1660	800	Circ					5 1/2	4750	280	727CP	4750	GB-SA	
New Mexico State K #30	B32-17-35	8 5/8	1580	750	Circ					4 1/2	6223	900	2701TS	6223	Glorieta	
New Mexico State K #16	G32-17-35	10 3/4	262	150	Circ	7 5/8	1543	400	Circ	5 1/2	4134	225	901CP	4650	GB-SA	
New Mexico State K #26	G32-17-35	8 5/8	1557	750	Circ					4 1/2	6210	900	2613TS	6210	Glorieta	
New Mexico State K #22	J32-17-35	8 5/8	1558	825	Circ					4 1/2	6210	900	2600TS	6210	Glorieta	
New Mexico State K #12	J32-17-35	10 3/4	244	150	Circ	7 5/8	1536	400	Circ	5 1/2	4150	250	558CP	4650	GB-SA	
New Mexico State K #15	Ø32-17-35	10 3/4	260	150	Circ	7 5/8	1523	400	Circ	5 1/2	4148	250	556CP	4650	GB-SA	
New Mexico State K #20	Ø32-17-35	8 5/8	1538	850	Circ					4 1/2	6205	900	2713TS	6205	Glorieta	
New Mexico State K #28	A32-17-35	8 5/8	1544	750	Circ					4 1/2	6200	900	2600TS	6200	Glorieta	

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Exxon (Cont'd)																
New Mexico State K #7	A32-17-35	10 3/4	243	125	Circ	7 5/8	1547	400	Circ	5 1/2	4148	250	556CP	4665	GB-SA	
New Mexico State K #5	H32-17-35	10 3/4	262	125	Circ	7 5/8	1518	400	Circ	5 1/2	4151	250	550CP	4660	GB-SA	
New Mexico State K #24	H32-17-35	8 5/8	1552	850	Circ					4 1/2	6210	900	2800TS	6210	Glorieta	
New Mexico State K #18	I32-17-35	8 5/8	1537	850	Circ					4 1/2	6459	1060	2600TS	6459	Glorieta	
New Mexico State K #4	I32-17-35	10 3/4	255	125	Circ	7 5/8	1531	400	Circ	5 1/2	4150	250	558CP	4670	GB-SA	
New Mexico State K #17 ✔	P32-17-35	13 3/8	324	300	Circ	8 5/8	3253	400	1381CP	5 1/2	9000	575	5020CP	9000	Glorieta	NEED BOND LOG 2 BRING CEMENT 1 TO 500 ABOVE TOP OF GB
New Mexico State K #6	P32-17-35	10 3/4	255	125	Circ	7 5/8	1544	400	Circ	5 1/2	4152	250	560CP	4665	GB-SA	
State AC #1	H22-17-35	13 3/8	454	450	Circ	9 5/8	4589	2200	Circ	7 5/8	12101	1100	CircCP	13871	--	P&A--dry hole
GETTY																
State BC #1	M33-17-35	13	21	25	Circ	8 5/8	1546	400	Circ	5 1/2	4140	400	1601C	4650	GB-SA	
State BC #3	M33-17-35	7 5/8	1583	875	Circ					4 1/2	6316	1100	1600TS	6316	Glorieta	
Skelly State P #1	D33-17-35	13	17	10	Circ	7 5/8	1553	500	Circ	5 1/2	4120	250	555C	4655	GB-SA	
Skelly State P #2	C33-17-35	13	18	25	Circ	7 5/8	1546	400	Circ	5 1/2	4110	200	1855C	4643	GB-SA	
Skelly State P #3	C33-17-35	8 5/8	1610	1000	Circ					4 1/2	6300	600	2506TS	6300	Glorieta	
Skelly State P #4	D33-17-35	8 5/8	750	750	Circ					4 1/2	6300	600	2695TS	6300	Glorieta	
GREAT WESTERN																
State E #1	E25-17-35	8 5/8	1737	350	Circ					5 1/2	4260	300	2510CP	4555	GB-SA	
State E #2	L25-17-35	7 5/8	1765	250	Circ					5 1/2	4377	250	2877CP	4622	GB-SA	P&A--dry hole
MARATHON																
Staplin St. A/C 2 #1	F19-17-35	9 5/8	498	195	Circ	7	3939	800	Circ	4 1/2	8799	825	Circ	8800	Abo	
Staplin St. A/C 3 #1 ✔	L20-17-35	13 3/8	260	350	Circ	8 5/8	3199	1000	Circ	4 1/2	8900	700	4420TS	8900	Abo	✔ NEED TO BRING CEMENT UP TO 5001 ABOVE GB
Warn State A/C 3 #1	H33-17-35	9 5/8	498	200	Circ	7	4096	800	Circ	4 1/2	4709	85	Circ	4710	GB-SA	
Warn State A/C 3 #2	F33-17-35	9 5/8	497	225	Circ					7	4092	800	Circ	4600	GB-SA	
Warn State A/C 3 #3	G33-17-35	9 5/8	500	215	Circ					7	4098	800	Circ	4550	GB-SA	
Warn State A/C 3 #6	G33-17-35	7 5/8	1503	600	Circ					4 1/2	6248	1100	1655TS	6250	Glorieta	
Warn State A/C 3 #7	F33-17-35	8 5/8	1505	600	Circ					4 1/2	6248	1300	1920TS	6250	Glorieta	
Warn State A/C 3 #8	H33-17-35	8 5/8	1481	750	Circ					7	4821	480	Circ	6286	Glorieta	5L @ 6286 w/200 sx

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Warn State A/C 5 #1 ✓	B4-18-35	8 5/8	421	350	Circ					5 1/2	4749	400	4022TS	4750	GB-SA	BRING CEMENT TO 500 ABOVE PERFS
Warn State A/C 4 #1	M23-17-35	7	1503	650	Circ									6250		P&A dry hole
MOBIL																
Santa Fe #10	C24-17-34	9 5/8	1615	860	Circ					7	4413	400	1489C	4706	GB-SA	5L @ 4703 w/350 sx
State P #1	Ø22-17-35	9 5/8	1698	325	560C					7	4260	210	2720C	4640	GB-SA	
State P #2	P22-17-35	9 5/8	1691	375	Circ					7	4290	210	2754C	4640	GB-SA	
State P #7	P22-17-35	8 5/8	1595	900	Circ					4 1/2	6300	1600	Circ	6300	Glorieta	P&A
State P #3	B26-17-35	9 5/8	1696	300	Circ					7	4164	220	2564C	4570	GB-SA	P&A
State P #8	B26-17-35	10 3/4	303	400	Circ					7	4700	1600	Circ	4700	GB-SA	
State P #4	A26-17-35	9 5/8	1714	300	661C					5 1/2	4207	250	2620C	4560	GB-SA	
State M #1	C34-17-35	13 3/8	830	250	592C	9 5/8	3055	100	2704C	7	4217	175	2937C	4601	GB-SA	5L @ 4601 w/100 sx
State M #2	D34-17-35	9 5/8	1622	325	480C					7	4185	210	2684C	4598	GB-SA	5L @ 4598 w/100 sx
State M #3	E34-17-35	9 5/8	1600	331	440C					7	4210	226	2560C	4682	GB-SA	
State M #4	F34-17-35	9 5/8	1620	325	479C					7	4242	220	1308C	4649	GB-SA	5L @ 4649 w/100 sx
State M #13	D34-17-35	8 5/8	1607	750	Circ					4 1/2	6300	2100	1675TS	6300	Glorieta	
State M #14	C34-17-35	8 5/8	1612	850	Circ					4 1/2	6300	2238	1485TS	6300	Glorieta	
State M #15	E34-17-35	8 5/8	1608	900	Circ					4 1/2	6300	2060	245TS	6300	Glorieta	
New Mexico Ø #1	M18-17-35	8 5/8	1761	930	Circ					5 1/2	4679	840	240TS	4785	GB-SA	
State Ø #2	L33-17-35	13 3/8	355	300	Circ	9 5/8	3200	1530	350TS					9000	Glorieta	7L @ 6369 w/750 sx
State Ø #1	L33-17-35	9 5/8	1553	332	Circ					7	4150	217	1380TS	4650	GB-SA	
State N #1	E19-17-35	10 3/4	819	210	Circ					7	4370	210	2833TS	4780	GB-SA	
N. Vacuum Abo Un #221	E19-17-35	12 3/4	289	350	Circ	8 5/8	3165	1600	CircCP	5 1/2	8720	2000	Circ	8720	Abo	
State K #1	J31-17-35	10 3/4	796	176	Circ					7	4090	179	2800C	4667	GB-SA	
State K #2	I31-17-35	9 5/8	1600	331	Circ					7	4210	226	2700CP	4682	GB-SA	
State K #3	P31-17-35	10 3/4	791	225	Circ					7	4080	245	2540C	4641	GB-SA	
State K #6	L18-17-35	8 5/8	1767	950	Circ					5 1/2	4690	900	Circ	4759	GB-SA	
State K #10	L18-17-35	12 3/4	250	300	Circ	8 5/8	3210	1600	Circ	5 1/2	8800	2400	Circ	8800	Abo	
State K #7	I31-17-35	8 5/8	1572	900	Circ					5 1/2	6298	1800	1680C	6298	Glorieta	
State K #8	P31-17-35	8 5/8	1514	900	Circ					4 1/2	6290	2085	Circ	6290	Glorieta	
State K #9	J31-17-35	8 5/8	1545	900	Circ					4 1/2	6200	2675	Circ	6200	Glorieta	
State L #1	N21-17-35	10 3/4	816	213	Circ					7	4265	232	2560C	4660	GB-SA	
State L #2	M21-17-35	10 3/4	833	231	Circ					7	4270	232	2575C	4667	GB-SA	

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Mobil (Cont'd)																
State L #3	K21-17-35	10 3/4	857	410	Circ					7	4540	1560	1800TS	4640	GB-SA	
State L #4	D21-17-35	12 3/4	257	400	Circ	8 5/8	3240	1600	Circ	5 1/2	9100	2500	Circ	9100	Abo	
Bridges State #73	G13-17-34	10 3/4	827	250	Circ					5 1/2	4393	210	3060C	4732	GB-SA	
Bridges State #20	E24-17-34	10 3/4	832	220	Circ					7	4350	220	3510C	4680	GB-SA	5L @ 4680 w/400 sx
Bridges State #127	M24-17-34	8 5/8	1628	800	Circ					5 1/2	4848	1400	Circ	4848	GB-SA	
Bridges State #47	K24-17-34	10 3/4	824	250	Circ					7	4320	210	2784C	4680	GB-SA	5L @ 4679 w/400 sx
Bridges State #58	M24-17-34	10 3/4	830	250	Circ					7	4245	220	2635C	6800	Glorieta	5L @ 6800 w/225 sx
Bridges State #113	E24-17-34	8 5/8	1625	800	Circ					5 1/2	6225	2400	Circ	6225	Glorieta	
Bridges State #114	K24-17-34	8 5/8	1640	700	Circ					5 1/2	6210	2200	2300TS	6210	Glorieta	
Bridges State #18	F24-17-34	10 3/4	817	220	Circ					7	4393	225	2750C	4700	GB-SA	
Bridges State #19	D24-17-34	10 3/4	833	225	Circ					7	4342	225	2700C	4700	GB-SA	
Bridges State #22	N24-17-34	10 3/4	828	220	Circ					7	4278	220	2670C	4700	GB-SA	
Bridges State #23	L24-17-34	10 3/4	835	220	Circ					7	4330	225	2680C	4700	GB-SA	
N. Vacuum Abo Unit #119	F24-17-34	13 3/8	360	375	Circ	9 5/8	5000	2200	Circ					12391	Abo	7L @ 10425 w/1000 sx
N. Vacuum Abo Unit #222	I24-17-34	12 3/4	263	400	Circ	8 5/8	3072	1765	Circ	5 1/2	8660	1600	Circ	8660	Abo	
N. Vacuum Abo Unit #211	J24-17-34	11 3/4	397	400	Circ	8 5/8	5000	1550	Circ					10200	Abo	5½L @ 9386 w/750 sx
N. Vacuum Abo Unit #212	P24-17-34	13 3/8	353	400	Circ	9 5/8	5016	2403	590TS					10200	Abo	7L @ 10200 w/1350 sx
N. Vacuum Abo Unit #207 ✓	H24-17-34	13 3/8	352	290	Circ	8 5/8	4000	720	2430TS	4 1/2	8653	585	3950TS	8653	Abo	✓ Bond Cement 500' above 6
N. Vacuum Abo Unit #205	B24-17-34	13 3/8	336	350	Circ	9 5/8	5000	2260	1290TS					10401	Abo	7L @ 10399 w/900 sx
N. Vacuum Abo Unit #169	H13-17-34	12 3/4	270	450	Circ	8 5/8	3160	1400	Circ	5 1/2	8800	2300	Circ	8800	Abo	
N. Vacuum Abo Unit #109	N24-17-34	13 3/8	365	350	Circ	9 5/8	4890	2600	1900TS					12470	Abo	7L @ 10366 w/1125 sx
N. Vacuum Abo Unit #116	L24-17-34	13 3/8	372	372	Circ	9 5/8	4971	2300	605TS					10436	Abo	7L @ 10436 w/965 sx
N. Vacuum Abo Unit #223	A13-17-34	12 3/4	263	510	Circ	8 5/8	3140	1600	Circ	5 1/2	8750	1800	Circ	8750	Abo	
N. Vacuum Abo Unit #230	J13-17-34	16	314	525	Circ	10 3/4	4800	550	Circ	3 1/2	10597	2125	4600TS	10600	Penn&Abo	Texaco Oper. Penn
N. Vacuum Abo Unit #231	P13-17-34	8 5/8	1800	750	Circ					5 1/2	8800	1800	1810TS	8800	Abo	
State G #3	G24-17-34	10 3/4	826	250	Circ					7	4331	220	2700C	4726	GB-SA	
State G #2	H24-17-34	10 3/4	828	231	Circ					7	4350	231	2670C	4750	GB-SA	
State G #1	B24-17-34	10 3/4	1897	300	Circ					7	4408	250	2580C	4796	GB-SA	
Elk State Com. #1	N18-17-35	12 3/4	290	450	Circ	8 5/8	3200	1400	Circ	5 1/2	8850	1750	Circ	8850	Abo	
Elk State Com. #2	J18-17-35	13 3/8	375	400	Circ	8 5/8	5000	1250	Circ	4 1/2	12515	1350	6291C	12515	Abo	
State PP #1	N17-17-35	12 3/4	296	520	Circ	8 5/8	3248	1600	Circ	5 1/2	9000	2300	Circ	9000	Abo	
PENNZOIL																
Phillips 28 State #1 ✓	A28-17-35	8 5/8	349	175	100C					5 1/2	4704	650	3725TS	4706	GB-SA	✓ Run Bond Log.
Phillips 28 State #2 ✓	F28-17-35	8 5/8	325	175	Circ					5 1/2	5000	1100	3810TS	5000	GB-SA	

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PENROC																
Buckey State Com. #1	H20-17-35	12 3/4	305	325	Circ	8 5/8	3100	250	2480TS	5 1/2	8997	250	2400TS	8997	Abo	
FENROSE-ZACHARY																
South. Pet. State #1	M24-17-35	8 5/8	1572	150	822CP					5 1/2	4268	100	1268CP	4599	GB-SA	
South. Pet. State #2	N24-17-35	13 3/8	350	375	Circ	8 5/8	4661	800	2600CP	4 1/2	9152	250	1150C	9125	Abo	P&A
PHILLIPS PETROLEUM CO.																
Santa Fe # 3	E5-18-35	9 5/8	1524	875	Circ					7	4144	400	1330C	4650	GB-SA	
Santa Fe # 6	Ø21-17-35	13	254	200	Circ	9 5/8	1715	200	199C	7	4268	400	1497C	4640	GB-SA	
Santa Fe # 7	N27-17-35	10 3/4	812	430	Circ					7	4165	400	1238C	4687	GB-SA	4 1/2 L @ 4687 w/160 sx
Santa Fe # 8	D5-18-35	10 3/4	814	440	Circ					7	4104	400	1177C	4637	GB-SA	
Santa Fe # 9	P21-17-35	9 5/8	1610	900	Circ					7	4260	400	1435C	4645	GB-SA	
Santa Fe #11	K26-17-35	9 5/8	1696	860	Circ					7	4207	400	1433C	4526	GB-SA	4 1/2 L @ 4[illegible]6 w/160 sx
Santa Fe #12	C28-17-35	9 5/8	1670	875	Circ					7	4265	400	1460C	4695	GB-SA	
Santa Fe #13	D28-17-35	9 5/8	1674	875	Circ					7	4259	400	1458C	4695	GB-SA	
Santa Fe #14	P20-17-35	9 5/8	1713	875	Circ					7	4249	400	972C	4665	GB-SA	
Santa Fe #15	A28-17-35	9 5/8	1665	875	Circ					7	4248	400	1447C	4700	GB-SA	P&A
Santa Fe #16	L5-18-35	9 5/8	1548	875	Circ					7	4175	400	1358C	5030	GB-SA	P&A
Santa Fe #17	N26-17-35	9 5/8	1661	875	Circ					7	4240	400	438C	4622	GB-SA	P&A
Santa Fe #18	B34-17-35	9 5/8	1634	865	Circ					7	4185	400	900C	4550	GB-SA	
Santa Fe #19	B35-17-35	9 5/8	1779	875	Circ					7	4464	300	1566C	4780	GB-SA	P&A
Santa Fe #20	M27-17-35	9 5/8	1609	875	Circ					7	4144	400	1316C	4656	GB-SA	4 1/2 L @ 4649 w/160 sx
Santa Fe #21	A33-17-35	9 5/8	1591	875	Circ					7	4122	400	848C	4697	GB-SA	4 1/2 L @ 4697 w/160 sx
Santa Fe #22	L26-17-35	9 5/8	1642	875	Circ					7	4173	400	899C	4528	GB-SA	4 1/2 L @ 4528 w/150 sx
Santa Fe #23	M26-17-35	9 5/8	1642	875	Circ					7	4155	400	891C	4580	GB-SA	4 1/2 L @ 4580 w/185 sx
Santa Fe #24	A34-17-35	9 5/8	1582	875	Circ					7	4128	400	1341C	4590	GB-SA	
Santa Fe #26	K29-17-35	9 5/8	1591	875	Circ					7	4128	400	1344C	4645	GB-SA	
Santa Fe #27	G34-17-35	9 5/8	1649	900	Circ					7	4226	400	1428C	4609	GB-SA	4 1/2 L @ 4609 w/185 sx
Santa Fe #28	K33-17-35	9 5/8	1560	900	Circ					7	4125	400	1331C	4633	GB-SA	
Santa Fe #29	E33-17-35	9 5/8	1650	900	Circ					7	4109	400	1354C	4727	GB-SA	4 1/2 L @ 4727 w/120 sx

EAST VACUUM GRAYBURG -- SAN ANDRES UNIT AREA

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Operator / Lease & Well No.	Location U-S-T-R	Surface Casing Size	Depth	SxCmt	TOC	Intermediate Casing Size	Depth	SxCmt	TOC	Production Casing Size	Depth	SxCmt	TOC	Total Depth	Producing Zone	Remarks & Liners (L)
Santa Fe #30	E26-17-35	9 5/8	1677	900	Circ					7	4145	400	1387C	4575	GB-SA	
Santa Fe #31	F26-17-35	9 5/8	1685	900	Circ					7	4150	400	1393C	4566	GB-SA	4½L @ 4563 w/160 sx
Santa Fe #32	B33-17-35	9 5/8	1562	900	Circ					7	4117	400	1327C	4588	GB-SA	
Santa Fe #33	A5-18-35	9 5/8	1561	700	Circ					7	4123	400	1330C	4640	GB-SA	
Santa Fe #34	G26-17-35	9 5/8	1681	750	Circ					7	4143	400	1387C	4567	GB-SA	4½L @ 4565 w/134 sx
Santa Fe #35	N33-17-35	9 5/8	1600	750	Circ					7	4114	400	1339C	4623	GB-SA	
Santa Fe #36	C5-18-35	9 5/8	1561	650	Circ					7	4122	400	1330C	4645	GB-SA	
Santa Fe #37	F28-17-35	9 5/8	1638	600	Circ					7	4202	400	1408C	4671	GB-SA	P&A
Santa Fe #38	B5-18-35	9 5/8	1563	600	Circ					7	4107	400	1330C	4642	GB-SA	
Santa Fe #39	D4-18-35	9 5/8	1601	675	Circ					7	4117	400	1340C	4634	GB-SA	
Santa Fe #40	D35-17-35	9 5/8	1641	650	Circ					5 1/2	4124	400	1869C	4588	GB-SA	
Santa Fe #41	C26-17-35	8 5/8	1680	650	Circ					5 1/2	4140	400	2399C	4562	GB-SA	
Santa Fe #42	H26-17-35	8 5/8	1709	652	Circ					5 1/2	4130	350	1908C	4550	GB-SA	
Santa Fe #43	D26-17-35	8 5/8	1689	684	Circ					5 1/2	4161	300	2647C	4560	GB-SA	
Santa Fe #44	H34-17-35	8 5/8	1653	650	Circ					5 1/2	4215	300	2311C	4578	GB-SA	
Santa Fe #45	F5-18-35	8 5/8	1572	650	Circ					5 1/2	4129	300	2225C	4620	GB-SA	
Santa Fe #46	C4-18-35	8 5/8	1617	650	Circ					5 1/2	4215	300	2311C	4600	GB-SA	P&A
Santa Fe #47	C35-17-35	8 5/8	1708	650	Circ					5 1/2	4250	300	2346C	4596	GB-SA	P&A
Santa Fe #48	D25-17-35	8 5/8	1759	650	Circ					5 1/2	4226	300	2322C	4554	GB-SA	
Santa Fe #49	A29-17-39	8 5/8	1678	650	Circ					5 1/2	4237	300	2333C	4691	GB-SA	
Santa Fe #50	H29-17-35	8 5/8	1645	1000	Circ					5 1/2	4411	1000	50TS	4660	GB-SA	
Santa Fe #51	E28-17-35	8 5/8	1610	800	Circ					5 1/2	4410	1000	195TS	4641	GB-SA	
Santa Fe #52	G29-17-35	8 5/8	1625	1000	Circ					5 1/2	4418	1000	1050TS	4650	GB-SA	
Santa Fe #53	N20-17-35	8 5/8	1784	800	Circ					5 1/2	4432	900	Circ	4757	GB-SA	
Santa Fe #54	C29-17-35	8 5/8	320	185	Circ					5 1/2	4753	350	2800TS	4753	GB-SA	
Santa Fe #55	J20-17-35	8 5/8	320	250	Circ					5 1/2	4800	300	2828TS	4800	GB-SA	
Santa Fe #56	H19-17-35	8 5/8	319	200	Circ					5 1/2	4856	300	3160TS	4856	GB-SA	
Vac Abo Unit #6-57	N33-17-35	13 3/8	320	350	Circ	8 5/8	3300	400	2300TS	5 1/2	8993	540	3300TS	9000	Abo	
Vac Abo Unit #6-59	F5-18-35	13 3/8	332	350	Circ	8 5/8	3250	400	2000TS	5 1/2	8982	545	3600TS	8982	Abo	

EAST VACUUM GRAYBURG -- SAN ANDRES UNIT AREA

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Vac Abo Unit #6-61	G34-17-35	13 3/8	334	350	Circ	8 5/8	3250	400	1500TS	5 1/2	9099	656	1100TS	9100	Abo	
Vac Abo Unit #6-63	E5-18-35	13 3/8	318	350	Circ	8 5/8	3240	400	2000TS	5 1/2	8999	555	2300TS	9000	Abo	
Vac Abo Unit #6-64	A34-17-35	13 3/8	316	350	Circ	8 5/8	3244	400	1000TS	5 1/2	9100	520	1600TS	9100	Abo	
Vac Abo Unit #6-65	B34-17-35	13 3/8	310	350	Circ	8 5/8	3271	400	2000TS	5 1/2	9073	544	3100TS	9100	Abo	
Vac Abo Unit #6-66	M26-17-35	13 3/8	322	350	Circ	8 5/8	3246	400	2100TS	5 1/2	9132	615	1700TS	9132	Abo	
Vac Abo Unit #6-67	L26-17-35	13 3/8	335	350	Circ	8 5/8	3275	400	2000TS	5 1/2	9033	520	2700TS	9033	Abo	
Vac Abo Unit #6-68 ✓	H34-17-35	13 3/8	344	350	Circ	8 5/8	3400	400	2600TS	5 1/2	9000	495	3950TS	9000	Abo	BRING 500' ABOVE GB OR SNOW BONDING
Vac Abo Unit #6-69	K26-17-35	13 3/8	309	350	Circ	8 5/8	3358	400	2500TS	5 1/2	9099	600	2600TS	9100	Abo	
Vac Abo Unit #6-70	G26-17-35	13 3/8	333	350	Circ	8 5/8	3343	400	2500TS	5 1/2	9032	625	3150TS	9032	Abo	
Vac Abo Unit #6-71	H26-17-35	13 3/8	356	350	Circ	8 5/8	3365	400	2800TS	5 1/2	9100	715	Circ	9100	Abo	
Vac Abo Unit #6-72	I26-17-35	13 3/8	310	350	Circ	8 5/8	3321	400	2300TS	5 1/2	9087	565	2250TS	9087	Abo	
Santa Fe #73	P26-17-35	13 3/8	306	350	Circ	8 5/8	3446	400	2500TS					8999	Abo	P&A dry hole
Vac Abo Unit #6-74	N26-17-35	13 3/8	312	350	Circ	8 5/8	3355	400	2300TS	5 1/2	9000	525	750TS	9000	Abo	
Vac Abo Unit #6-75	D25-17-35	13 3/8	332	350	Circ	8 5/8	3400	400	2300TS	5 1/2	9000	560	2500TS	9000	Abo	
Vac Abo Unit #6-76	F26-17-35	13 3/8	323	350	Circ	9 5/8	3295	750	1100TS	5 1/2	9058	1040	1700TS	10680	Abo	
Santa Fe #77	I26-27-35	8 5/8	330	325	Circ					4 1/2	4620	400	3100TS	4620	GB-SA	P&A
Vac Abo Unit #6-78	D35-17-35	13 3/8	336	350	Circ	8 5/8	3368	400	2500TS	5 1/2	9000	535	2500TS	9000	Abo	
Vac Abo Unit #6-79	E26-17-35	13 3/8	339	350	Circ	8 5/8	3275	400	2450TS	5 1/2	8975	588	2200TS	8975	Abo	
Vac Abo Unit #6-80	N27-17-35	13 3/8	320	350	Circ	8 5/8	3250	400	2350TS	5 1/2	9000	751	500TS	9000	Abo	
Santa Fe #81	D20-17-35	8 5/8	1681	650	Circ					5 1/2	4397	927	Circ	4760	GB-SA	
Santa Fe #82	D20-17-35	8 5/8	1735	800	Circ					5 1/2	4424	1328	900TS	4770	GB-SA	
Santa Fe #83	D29-17-35	8 5/8	1699	500	Circ					5 1/2	4410	950	Circ	4770	GB-SA	
Santa Fe #84	J21-17-35	8 5/8	1728	700	Circ					5 1/2	4437	1150	1000TS	4780	GB-SA	
Vac Abo Unit #6-85	C35-17-35	13 3/8	314	350	Circ	8 5/8	3424	400	2200TS	5 1/2	8950	590	2200TS	8950	Abo	
Santa Fe #86	C26-17-35	13 3/8	312	350	Circ	8 5/8	3250	400	2600TS	5 1/2	9000	760	3100TS	9000	GB-SA	
Santa Fe #89	E26-17-35	8 5/8	1700	820	Circ					4 1/2	6275	600	2500TS	6275	Glorieta	
Santa Fe #90	M27-17-35	8 5/8	1682	820	Circ					4 1/2	6250	800	2600TS	6250	Glorieta	
Santa Fe #91	A33-17-35	8 5/8	1625	750	Circ					4 1/2	6225	800	2500TS	6225	Glorieta	
Santa Fe #92	K33-17-35	8 5/8	1623	700	Circ					4 1/2	6226	800	2500TS	6226	Glorieta	
Santa Fe #93	G5-18-35	8 5/8	300	300	Circ					5 1/2	4650	550	2500TS	4650	GB-SA	
Santa Fe #94	D26-17-35	8 5/8	1713	750	Circ					4 1/2	6250	800	2700TS	6250	Glorieta	
Santa Fe #95	B33-17-35	8 5/8	1625	700	Circ					4 1/2	6225	875	2600TS	6225	Glorieta	
Santa Fe #96	E33-17-35	8 5/8	1625	700	Circ					4 1/2	6225	950	2600TS	6225	Glorieta	

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Santa Fe #97	N33-17-35	8 5/8	1624	650	Circ					4 1/2	6300	800	2400TS	6300	Yates	
Santa Fe #98	C5-18-35	8 5/8	1600	700	Circ					4 1/2	6255	800	3000TS	6258	GB-SA	
Santa Fe #99	D5-18-35	8 5/8	1595	700	Circ					4 1/2	6250	800	2900TS	6250	Glorieta	
Santa Fe #103	K29-17-35	8 5/8	1667	640	Circ					4 1/2	6225	750	2250TS	6225	Glorieta	
Santa Fe #104	F28-17-35	8 5/8	1697	640	Circ					4 1/2	6250	800	2700TS	6250	Glorieta	
Santa Fe #105	E28-17-35	8 5/8	1700	640	Circ					4 1/2	6250	800	2600TS	6250	Glorieta	
Santa Fe #106	H29-17-35	8 5/8	1689	640	Circ					4 1/2	6225	800	2600TS	6225	Glorieta	
Santa Fe #107	C28-17-35	8 5/8	1715	640	Circ					4 1/2	6250	800	2600TS	6250	Glorieta	
Santa Fe #108	A28-17-35	8 5/8	1707	640	Circ					4 1/2	6250	800	2550TS	6250	Glorieta	
Santa Fe #109	G29-17-35	8 5/8	1664	590	Circ					4 1/2	6250	800	2500TS	6250	Glorieta	
Santa Fe #110	L26-17-35	8 5/8	1696	640	Circ					4 1/2	6249	800	2600TS	6250	GB-SA	
Santa Fe #111	H5-18-35	8 5/8	330	325	Circ					4 1/2	4653	450	2700TS	4654	GB-SA	
Santa Fe #112	E5-18-35	8 5/8	1530	650	Circ					4 1/2	6250	800	2600TS	6250	GB-SA	
Santa Fe #113	B34-17-35	8 5/8	1636	650	Circ					4 1/2	6250	900	2800TS	6250	Yates	
Santa Fe #115	C4-18-35	8 5/8	361	300	Circ					4 1/2	4801	275	2650TS	4805	GB-SA	
Santa Fe #117	N27-17-35	8 5/8	1667	650	Circ					4 1/2	6200	975	2600TS	6200	Glorieta	
Santa Fe #118	F5-18-35	8 5/8	402	350	Circ					4 1/2	4696	275	2700TS	4700	GB-SA	
Santa Fe #119	A5-18-35	8 5/8	1608	1050	Circ					4 1/2	6258	920	Circ	6262	GB-SA	
Santa Fe #121	A34-17-35	8 5/8	394	350	Circ					5 1/2	4749	275	2500TS	4749	GB-SA	
Santa Fe #122	H19-17-35	8 5/8	1750	600	Circ					5 1/2	8997	2050	2950TS	9000	Abo	
Santa Fe #123	B5-18-35	8 5/8	1586	1050	Circ					4 1/2	6299	870	2450TS	6300	GB-SA	
Santa Fe #124	D29-17-35	8 5/8	1688	600	Circ					5 1/2	8982	2050	2200TS	8982	Abo	
Santa Fe #125	N20-17-35	13 3/8	365	425	Circ	8 5/8	4355	550	2750TS	5 1/2	10450	1350	4300TS	10450	Abo	
Santa Fe #126	M26-17-35	8 5/8	436	375	Circ					5 1/2	4700	300	2850TS	4700	GB-SA	
Santa Fe #127	G34-17-35	8 5/8	410	375	Circ					5 1/2	4703	300	2950TS	4703	Yates	
Santa Fe #128	D4-17-35	8 5/8	405	375	Circ					5 1/2	4699	150	2750TS	4700	GB-SA	
Santa Fe #129	E5-17-35	8 5/8	390	375	Circ					5 1/2	4839	300	2710TS	4850	GB-SA	
Vac Abo Unit #1-1	B25-17-35	13 3/8	315	325	Circ	8 5/8	3367	1300	Circ	5 1/2	9104	629	3385TS	9105	Abo	
Vac Abo Unit #1-8	D27-17-35	13 5/8	329	325	Circ	8 5/8	3283	950	1750TS	5 1/2	9100	629	3692TS	9100	Abo	- OC
Vac Abo Unit #1-9 ✓	J27-17-35	13 3/8	355	400	Circ	9 5/8	3314	600	Circ	7	9058	500	4150TS	9060	Abo	BRING 500' 11800 CB
Vac Abo Unit #2-2	C25-17-35	13 3/8	325	375	Circ	8 5/8	3350	525	1910TS	5 1/2	8979	700	3000TS	8979	Abo	
Vac Abo Unit #4-5	A26-17-35	10 3/4	330	450	Circ	7 5/8	3596	2290	Circ					9100	Abo	5½ L @ 9100 w/710 sx
Vac Abo Unit #4-6	B26-17-35	10 3/4	353	450	Circ	7 5/8	3600	2460	Circ					9100	Abo	5½ L @ 9085 w/750 sx

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Vac Abo Unit #5-1	J26-17-35	13 3/8	339	300	Circ	8 5/8	3133	300	1203C	4 1/2	9103	825	Circ	9103	Abo	
Vac Abo Unit #5-2	Ø26-17-35	13 3/8	322	375	Circ	8 5/8	3150	300	1195C	4 1/2	8990	875	1453C	8990	Abo	
Vac Abo Unit #7-3 ✓	P27-17-35	13 3/8	300	250	Circ	8 5/8	3154	200	1150TS	5 1/2	9095	350	2600C	9095	Abo	RUN BOND LOG
Vac Abo Unit #7-4 ✓	I27-17-35	13 3/8	325	325	Circ	8 5/8	3139	300	Circ	4 1/2	9002	300	2600C	9002	Abo	RUN BOND LOG
Vac Abo Unit #8-9	F34-17-35	10 3/4	325	550	Circ	7 5/8	3600	1000	Circ					9100	Abo	5½ L @ 9100 w/1950 sx
Vac Abo Unit #8-10	E34-17-35	10 3/4	324	450	Circ	7 5/8	3600	1300	Circ					9100	Abo	5½ L @ 9100 w/550 sx
Vac Abo Unit #8-11	C34-17-35	10 3/4	335	450	Circ	7 5/8	3600	1220	Circ					9100	Abo	5½ L @ 9100 w/750 sx
Vac Abo Unit #8-12	D34-17-35	10 3/4	343	350	Circ	7 5/8	3600	1650	1150TS					9100	Abo	5½ L @ 9100 w/670 sx
Vac Abo Unit #9-5 ✓	H33-17-35	13 3/8	386	350	Circ	9 5/8	3300	2000	Circ	5 1/2	9038	1000	5900TS	9038	Abo	✓ BEING UP HOLE GB-500
Vac Abo Unit #10-5	M34-17-35	13 3/8	304	375	Circ	8 5/8	3120	1250	Circ	5 1/2	9100	679	3195TS	9100	Abo	
Vac Abo Unit $10-6	L34-17-35	13 3/8	309	375	Circ	8 5/8	3135	1225	Circ	5 1/2	9100	679	3280TS	9100	Abo	
Vac Abo Unit #10-7	K34-17-35	13 3/8	305	400	Circ	8 5/8	3140	1250	970TS	5 1/2	9099	679	2960TS	9099	Abo	
Vac Abo Unit #10-8	N34-17-35	13 3/8	302	375	Circ	8 5/8	3193	1350	400TS	5 1/2	9099	679	3185TS	9099	Abo	
Vac Abo Unit #10-9	J34-17-35	13 3/8	307	350	Circ	8 5/8	3210	1400	Circ	5 1/2	9099	679	570TS	9099	Abo	
Vac Abo Unit #11-5	Ø33-17-35	13 3/8	318	300	Circ	8 5/8	3166	950	Circ	5 1/2	9003	500	Circ	9003	Abo	
Vac Abo Unit #11-6	P33-17-35	13 3/8	297	275	Circ	8 5/8	3133	1050	Circ	5 1/2	9099	525	Circ	9059	Abo	
Vac Abo Unit #11-7	I33-17-35	13 3/8	314	290	Circ	9 5/8	3099	1125	Circ	5 1/2	9203	800	Circ	10498	Abo	
Vac Abo Unit #11-8	J33-17-35	13 3/8	300	300	Circ	8 5/8	3092	300	Circ	4 1/2	9065	1260	Circ	9065	Abo	
Vac Abo Unit #12-2	M33-17-35	13 3/8	317	350	Circ	8 5/8	3300	700	Circ	5 1/2	8902	1100	3296TS	8902	Abo	
Vac Abo Unit #13-2 ✓	E4-18-35	13 3/8	301	325	Circ	8 5/8	4986	600	Circ	5 1/2	8980	725	3800C	8980	Abo	RUN BOND LOG
Vac Abo Unit #13-3	C4-18-35	13 3/8	312	350	Circ	8 5/8	3237	1200	Circ	5 1/2	8940	1045	1370C	8940	Abo	
Vac Abo Unit #13-4	B4-18-35	13 3/8	317	300	Circ	8 5/8	3216	1200	Circ	5 1/2	8890	1045	1658C	8890	Abo	
Vac Abo Unit #13-5	H5-18-35	13 3/8	304	350	Circ	8 5/8	3276	1050	Circ	5 1/2	9100	575	3265TS	9100	Abo	
Vac Abo Unit #13-6	A4-18-35	13 3/8	322	350	Circ	8 5/8	3263	1200	Circ	5 1/2	9144	488	3290TS	9144	Abo	
Vac Abo Unit #13-7	G5-18-35	13 3/8	297	350	Circ	8 5/8	3233	1200	Circ	5 1/2	8971	529	3212TS	8975	Abo	
Vac Abo Unit #13-8	D4-18-35	13 3/8	308	375	Circ	8 5/8	3257	1250	Circ	5 1/2	8911	640	3242TS	8911	Abo	
Vac Abo Unit #13-9	D3-18-35	13 3/8	316	375	Circ	8 5/8	3301	400	Circ	5 1/2	9139	640	3300TS	9139	Abo	
Vac Abo Unit #13-10	J5-18-35	13 3/8	297	350	Circ	8 5/8	3250	1300	Circ	5 1/2	8956	640	3250TS	8956	Abo	
Vac Abo Unit #13-11	F4-18-35	13 3/8	305	375	Circ	8 5/8	3244	1250	Circ	5 1/2	9100	679	3240TS	9100	Abo	
Vac Abo Unit #13-12	G4-18-35	13 3/8	304	375	Circ	8 5/8	3220	1250	Circ	5 1/2	9100	679	3080TS	9100	Abo	
Vac Abo Unit #13-13	I5-18-35	13 3/8	326	375	Circ	8 5/8	3227	1200	160TS	5 1/2	9099	679	3200TS	9099	Abo	
Vac Abo Unit #13-14	H4-18-35	13 3/8	308	375	Circ	8 5/8	3105	1250	Circ	5 1/2	9100	690	3100TS	9100	Abo	
Vac Abo Unit #13-15	L4-18-35	13 3/8	316	375	Circ	8 5/8	3036	1250	Circ	5 1/2	9099	748	3000TS	9099	Abo	

EAST VACUUM GRAYBURG--SAN ANDRES UNIT AREA

TABULATION OF GRAYBURG--SAN ANDRES WELLBORE PENETRATIONS

T.O.C. (Top of Cement) Code: T.S. --Temperature Survey; CIRC --Circulated; C -- Calculated by Operator; CP -- Calculated by Phillips.

Operator / Lease & Well NO.	Location U-S-T-R	Surface Casing Size	Depth	SxCmt	TOC	Intermediate Casing Size	Depth	SxCmt	TOC	Production Casing Size	Depth	SxCmt	TOC	Total Producing Depth	Zone	Remarks & Liners (L)
Vac Abo Unit #13-16	A5-18-35	13 3/8	317	375	Circ	8 5/8	3036	1225	Circ	5 1/2	9100	679	2790TS	9100	Abo	
Vac Abo Unit #13-17	Ø5-18-35	13 3/8	300	375	Circ	8 5/8	3200	1350	Circ	5 1/2	9099	679	250TS	9099	Abo	
Vac Abo Unit #13-18	K4-18-35	13 3/8	302	375	Circ	8 5/8	3299	1350	160TS	5 1/2	9099	679	3250TS	9099	Abo	
Vac Abo Unit #13-19	P5-18-35	13 3/8	313	375	Circ	8 5/8	3310	1400	420TS	5 1/2	9093	679	3170TS	9093	Abo	
Vac Abo Unit #14-1	K5-18-35	13 3/8	316	290	Circ	8 5/8	3200	200	2000C	4 1/2	9006	690	2500C	9006	Abo	
Vac Abo Unit #14-2	M5-18-35	13 3/8	300	300	Circ	8 5/8	3451	200	2200C	4 1/2	9062	778	2000C	9062	Abo	
Vac Abo Unit #14-3 ✔	N5-18-35	13 3/8	313	190	Circ	8 5/8	3233	250	1670C	4 1/2	9107	450	5600C	9107	Abo	Ran Bond Log & Braden Cement up
Vac Abo Unit #14-4 ✔	L5-18-35	13 3/8	305	190	Circ	8 5/8	3199	250	1639C	4 1/2	8950	1000	4200TS	8950	Abo	
Vac Abo Unit #15-1	D8-18-35	13 3/8	308	305	Circ	8 5/8	3254	1100	145TS	5 1/2	9040	925	1293TS	9049	Abo	
Vac Abo Unit #15-2	C8-18-35	13 3/8	314	310	Circ	8 5/8	3275	1100	Circ	5 1/2	8969	775	2860TS	8969	Abo	
POLARIS																
Amerada State #5	L22-17-35	9 5/8	1762	450	Circ					6 5/8	4249	200	3310TS	4749	GB-SA	
Mobil State #1	J22-17-35	8 5/8	362	250	Circ					4 1/2	4744	325	3110TS	4744	GB-SA	
RICE ENGINEERING																
Vacuum SWD F-35	F35-17-35	13 3/8	330	350	Circ	8 5/8	3253	400	1400TS	5 1/2	4885	250	3700TS	5855	GB-SA	SWD
Vacuum SWD G-35	G35-17-35	13 3/8	320	350	Circ	8 5/8	3262	400	2000TS	5 1/2	9016	765	Circ	9016	GB-SA	SWD
Vacuum SWD H-35	H35-17-35	13 3/8	321	325	Circ	8 5/8	3502	600	Circ	5 1/2	9189	775	3400TS	9189	GB-SA	SWD
SHELL																
State U #1	C3-18-35	8 5/8	1682	600	Circ					5 1/2	4350	275	2600CP	4900	-	P&A dry hole
State VAA #6	K5-18-35	8 5/8	337	275	Circ									4860	-	P&A dry hole
State M #1	J29-17-35	13 3/8	356	300	Circ	9 5/8	3104	400	1420CP	4 1/2	6306	1100	524CP	10300	Glorieta ?	
State M #2	Ø29-17-35	8 5/8	1632	800	Circ					4 1/2	6301	880	Circ	6309	Glorieta	
State M #3	I29-17-35	8 5/8	1662	800	Circ					4 1/2	6300	700	1000C	6300	Glorieta ?	
State M #4	P29-17-35	8 5/8	1629	1000	Circ					4 1/2	6250	700	2562CP	6250	Glorieta ?	
State N #1	B28-17-35	8 5/8	1687	600	Circ					5 1/2	4387	275	2500C	4710	GB-SA	
State N #2	H28-17-35	8 5/8	1668	600	Circ					5 1/2	4249	275	2400C	4660	GB-SA	
State N #3	G28-17-35	8 5/8	1647	650	Circ					5 1/2	4300	275	2440C	4681	GB-SA	

EAST VACUUM GRAYBURG--SAN ANDRES UNIT AREA

TABULATION OF GRAYBURG--SAN ANDRES WELLBORE PENETRATIONS

T.O.C. (Top of Cement) Code: T.S. -- Temperature Survey; CIRC -- Circulated; C -- Calculated by Operator; CP -- Calculated by Phillips.

Operator / Lease & Well NO.	Location U-S-T-R	Surface Casing Size	Depth	SxCmt	TOC	Intermediate Casing Size	Depth	SxCmt	TOC	Production Casing Size	Depth	SxCmt	TOC	Total Producing Depth	Zone	Remarks & Liners (L)
State N #4	G28-17-35	8 5/8	1651	800	Circ					4 1/2	6249	700	950C	6251	Glorieta	
State N #5	H28-17-35	8 5/8	1649	800	Circ					4 1/2	6248	700	950C	6250	Glorieta	
State N #6	B28-17-35	8 5/8	1649	600	Circ					4 1/2	6302	700	1000C	6302	Glorieta	
State T #1	I33-17-35	8 5/8	1580	650	Circ					5 1/2	4270	275	2500C	4640	GB-SA	
State T #2	J33-17-35	8 5/8	1591	650	Circ					5 1/2	4279	225	2750C	4655	GB-SA	
State T #3	Ø33-17-35	7 5/8	1569	650	Circ					4 1/2	4304	250	2300C	4635	GB-SA	
State T #4	P33-17-35	7 5/8	1573	600	Circ					4 1/2	4303	250	2300C	4625	GB-SA	
State T #9	I33-17-35	8 5/8	1618	575	Circ					5 1/2	6245	950	2745CP	6245	Glorieta	
State T #10	J33-17-35	8 5/8	1614	610	Circ					5 1/2	6238	950	2900CP	6240	Glorieta	
State T #11	Ø33-17-35	8 5/8	402	275	Circ					5 1/2	4700	200	3430C	4700	GB-SA	
State V #1	I27-17-35	8 5/8	680	600	Circ					5 1/2	4340	275	2480C	4680	GB-SA	
State V #2	P27-17-35	8 5/8	1676	600	Circ					5 1/2	4348	275	2490C	4680	GB-SA	
State V #5 ✓	I27-17-35	8 5/8	1654	650	Circ					5 1/2	6250	470	2700C	6250	Glorieta	
State V #6	P27-17-35	8 5/8	1682	800	Circ					4 1/2	6300	400	4365TS	6300	GB-SA	RING CEMENT UP
State Vb #1	B19-17-35	9 5/8	1722	1000	Circ					5 1/2	8975	5465	Circ	8975	Abo	
State C #1	I24-17-34	8 5/8	1693	600	Circ					5 1/2	4350	275	2600CP	4733	GB-SA	P&A
State F #1	M29-17-35	8 5/8	1575	600	Circ					5 1/2	4315	275	2450C	4747	GB-SA	
State F #2	N29-17-35	8 5/8	1584	600	Circ					5 1/2	4320	275	2460C	4770	GB-SA	
State F #3	M29-17-35	8 5/8	1657	800	Circ					4 1/2	6219	866	Circ	6222	Glorieta	
State F #4	N29-17-35	8 5/8	1593	800	Circ					4 1/2	6249	700	960C	6250	Glorieta	
State H #1	L29-17-35	8 5/8	1596	600	Circ					5 1/2	4315	275	2450C	4770	GB-SA	
State H #2	L29-17-35	8 5/8	1613	600	Circ					4 1/2	6250	750	700C	6250	Glorieta	
State I #1	E29-17-35	8 5/8	1653	600	Circ					5 1/2	4350	275	2600CP	4753	GB-SA	P&A dry hole
State I #2	E29-17-35	8 5/8	307	250	Circ					5 1/2	4726	200	2550C	6387	Glorieta	3½ L @ 6387 w/170 sx
State K #1 ✓	Ø19-17-35	12 3/4	232	100	Circ	8 5/8	1775	100	1575CP	7	4379	50	3700C	4687	GB-SA	– Run Bond log
State K #2	J19-17-35	9 5/8	1720	800	Circ					5 1/2	8900	4650	Circ	8900	Abo	
State K #3	P19-17-35	8 5/8	1710	1100	Circ					5 1/2	8900	1180	1400C	8900	Abo	
State S #1	I21-17-35	8 5/8	1703	600	Circ					5 1/2	4430	275	2680CP	4745	GB-SA	P&A
State VAA #5	L5-18-35	7 5/8	325	250	Circ					4 1/2	4790	400	1600C	4794	GB-SA	
SKELLY																
Skelly State AC #1B	B20-17-35	13 3/8	300	400	Circ	8 5/8	3188	1600	Circ	5 1/2	8972	2000	Circ	8972	–	P&A
SOHIO																
Harn State #2	M23-17-35	8 5/8	1685	200	741C					5 1/2	4175	200	1828C	4587	GB-SA	8 5/8 top cmt 100 sx

EAST VACUUM GRAYBURG--SAN ANDRES UNIT AREA

TABULATION OF GRAYBURG--SAN ANDRES WELLBORE PENETRATIONS

T.O.C. (Top of Cement) Code: T.S. -- Temperature Survey; CIRC -- Circulated: C -- Calculated by Operator; CP -- Calculated by Phillips.

Operator / Lease & Well NO.	Location U-S-T-R	Surface Casing Size	Depth	SxCmt	TOC	Intermediate Casing Size	Depth	SxCmt	TOC	Production Casing Size	Depth	SxCmt	TOC	Total Producing Depth	Zone	Remarks & Liners (L)
Harn State #1	N23-17-35	8 5/8	1691	200	747C					5 1/2	4198	200	1324C	4575	GB-SA	8 5/8 top cmt 100 sx
STOLTZ, WAGNER & BROWN																
Abo	Ø24-17-35	13 3/8	350	350	Circ	8 5/8	3305	200	Circ	4 1/2	8900	175	8060TS	8900	Abo	P&A
TEXACO																
N.M. State W #1	Ø13-17-34	7 5/8	1655	300	Circ					5 1/2	4348	200	1763CP	4680	GB-SA	
N.M. State W #2	J13-17-34	8 5/8	1687	300	Circ					5 1/2	4343	200	2843CP	4700	GB-SA	
N.M. CG St. NCT-2 #1	F29-17-35	11 3/4	1670	1000	Circ					2 7/8	6250	1000	Circ	6252	Glorieta	
N.M. DJ State #1	D18-17-35	8 5/8	1850	900	Circ					5 1/2	8800	3070	1810TS	8800	Abo	
N.M. DJ State #4	F18-17-35	8 5/8	1090	1090	Circ					5 1/2	8850	1800	Circ	8850	Abo	
N.M. DK State #1	F18-17-35	13 3/8	375	400	Circ	8 5/8	4954	1050	2780TS	4 1/2	12500	1350	5745TS	12500	Morrow	
WILSON, DON H.																
State BJ #1	M35-17-35	13 3/8	353	375	Circ	8 5/8	3550	2030	Circ					5095	GB-SA	5½ L @ 5095 w/275 sx
YUCCA SALVAGE CO.																
State A #2	Ø24-17-34	8 5/8	1665	700	Circ					4 1/2	6877	900	2690TS	7014	Glorieta	
ZAPATA																
Shell State #1	Ø23-17-35	8 5/8	378	175	Circ									4635	-	P&A dry hole
BARNETT & HANSON (Permian Oil Co.)																
State #1-B	D19-17-35	12 3/4	252	100	Circ	8 5/8	1792	50	1363					4183		P&A dry hole
MAC JONES																
State #2	A35-17-35	13 3/8	320	350	Circ	8 5/8	3500	550	Circ					9125		P&A dry hole
MOBIL																
N. Vac. Abo Unit #206	D19-17-35	8 5/8	1795	900	Circ					5 1/2	8800	3100	Circ	8800		
PENROSE																
Scharbauer #1	C25-17-35	8 5/8	1725	550	Circ					7	4490	150	3460	4540	GB-SA	P&A

Note: On all liners, cement either circulated or tied back into casing.

EXHIBIT A

FILE Case 6367

EAST VACUUM GRAYBURG-SAN ANDRES UNIT
PRESSURE MAINTENANCE PROJECT

(N.M.O.C.D. ORDER R- 5897)

VACUUM GRAYBURG-SAN ANDRES POOL, LEA COUNTY, NEW MEXICO

RECEIVED
MAR 0 9 1984
OIL CONSERVATION DIVISION
SANTA FE

WATER INJECTION CREDIT ALLOWABLE CALCULATION DATA

ATTACHMENT TO January , 1984 , REPORT

$$\text{Water Injection Credit Allowable} = \left[\frac{W_i - W_p}{BPAA \left[B_o + \frac{(R_p - R_s)}{(1{,}000)} B_g \right]} - 1 \right] BPAA$$

W_i = 87,468 = Average daily water injection, barrels per day, project area only.

W_p = 29,402 = Average daily water produced, barrels per day, project area only.

BPAA = 13,760 = Basic project area allowable, 80 bopd x 172 (number of developed 40-acre tracts in project area).

1,335 = Weighted average project area reservoir pressure, psig, from August , 1983, survey data.

B_o = 1.2935 = Oil formation volume factor, reservoir barrels per stock tank barrel (Exhibit B).

R_p = 571 = Producing gas-oil ratio, cubic feet per barrel, project area only.

R_s = 465 = Solution gas-oil ratio, cubic feet per barrel (Exhibit B).

B_g = 1.76 = Gas formation volume factor, reservoir barrels per Mcf (Exhibit B).

Water injection credit allowable for March ,1984 , = 25,470 barrels of oil per day.

TO: NMOCD DISTRICT I (3)
ATTN: MR. JERRY SEXTON
P. O. BOX 1980
HOBBS, NEW MEXICO 88240

EAST VACUUM UNIT PRESSURE MAINTENANCE PROJECT
(NMOCD ORDER R-5897)

PHILLIPS PETROLEUM COMPANY, OPERATOR
REPORT FOR JANUARY, 1984

VACUUM GRAYBURG-SAN ANDRES
LEA COUNTY, NEW MEXICO.
40-ACRE PRORATION UNIT
ALLOWABLE--80 BOPD.

RECEIVED
MAR 08 1984
OIL CONSERVATION DIVISION
SANTA FE

PROJECT AREA--7000 ACRES--172 DEVELOPED 40 ACRE PRORATION UNITS.
TOTAL REQUESTED ALLOWABLE FOR MARCH, 1984 IS 17,764 BOPD.

EAST VACUUM UNIT						LATEST TEST DATA					MONTHLY AVERAGE				ALLOWABLE ALLOCATION		
TRACT	WELL	LOCATION UNIT-SEC		WELL STATUS		DATE MO-YR	OIL BOPD	GAS MCFPD	WATER BWPD	GOR CF/B	INJ PRESS PSIG	OIL BOPD	GAS MCFPD	WATER BWPD	GOR CF/B	BASIC PROJECT	INJ. CREDIT	MAR TOTAL
0434	001	B	04	P	ACT	11-83	1	1	1	1,000		1	1	1	1,000	1	0	1
0449	039	D	04	P	ACT	11-83	13	2	31	154		7	2	20	286	13	0	13
0449	115	C	04	P	ACT	01-84	5	1	1	200		3	1	1	333	5	0	5
0449	128	D	04	P	ACT	01-84	10	11	4	1,100		5	13	3	2,600	10	0	10
0524	002	C	05	P	ACT	12-83	19	3	6	158		10	4	4	400	19	0	19
0524	003	E	05	P	ACT	10-83	4	5	4	1,250		2	6	3	3,000	4	0	4
0524	008	D	05	P	ACT	07-83	161	19	3	118		88	23	2	261	161	0	161
0524	036	C	05	P	ACT	01-84	10	18	0	1,800		5	22	0	4,400	10	0	10
0524	045	F	05	P	ACT	01-84	12	28	2	2,333		7	34	1	4,857	12	0	12
0524	098	C	05	P	ACT	01-84	114	11	28	96		63	13	18	206	114	0	114
0524	112	E	05	P	ACT	01-83	3	6	1	2,000		2	7	1	3,500	3	0	3
0524	118	F	05	P	ACT	01-84	199	45	214	226		109	55	138	505	199	0	199
0524	129	E	05	P	ACT	12-83	11	3	6	273		6	4	4	667	11	0	11
0546	001	B	05	P	ACT	01-84	68	40	4	588		37	49	3	1,324	68	0	68
0546	033	A	05	P	ACT	01-84	4	18	0	4,500		2	21	0	10500	4	0	4

EAST VACUUM UNIT						LATEST TEST DATA						MONTHLY AVERAGE				ALLOWABLE ALLOCATION		
INACT	WELL	LOCATION UNIT-SEC		WELL STATUS		DATE MO-YR	OIL BOPD	GAS MCFPD	WATER BWPD	GOR CF/B	INJ PRESS PSIG	OIL BOPD	GAS MCFPD	WATER BWPD	GOR CF/B	BASIC PROJECT	INJ CREDIT	MAR TOTAL
0546	038	B	05	P	ACT	12-83	48	42	1	875		24	46	1	1,917	48	0	48
0546	093	G	05	P	ACT	01-84	166	19	1,858	114		91	23	1,196	253	166	0	166
0546	111	H	05	P	ACT	01-84	24	9	16	375		13	11	10	846	24	0	24
0546	119	A	05	P	ACT	01-84	41	41	25	1,000		23	50	16	2,174	41	0	41
0546	123	B	05	P	ACT	12-83	23	14	8	636		12	17	5	1,417	22	0	22
0577	005	L	05	P	ACT	10-83	29	19	9	655		16	23	6	1,438	29	0	29
1825	001	M	18	P	ACT	08-83	54	1	15	19		3	3	7	1,000	54	0	54
1826	006	L	18	P	ACT	08-83	3	1	10	333		0	3	5		3	0	3
1881	001	N	18	P	ACT	08-83	2	1	2	500		0	3	1		2	0	1
1903	001	M	19	P	ACT	10-83	9	1	23	111		1	3	11	3,000	9	0	9
1903	002	L	19	P	ACT	10-83	48	1	34	21		3	3	16	1,000	48	0	48
1904	001	K	19	P	ACT	12-83	5	1	8	200		0	3	4		5	0	5
1904	002	N	19	P	ACT	09-83	10	1	11	100		1	3	5	3,000	10	0	10
1910	001	J	19	P	ACT	08-83	16	1	3	63		1	3	1	3,000	16	0	16
1910	002	P	19	P	ACT	10-83	12	1	14	83		1	3	7	3,000	12	0	12
1911	001	O	19	P	ACT	10-83	6	1	12	167		0	3	6		6	0	6
1912	002	I	19	P	ACT	10-83	25	1	30	40		1	3	14	3,000	25	0	25
1943	056	H	19	P	ACT	10-83	5	1	3	200		0	3	1		5	0	5
1952	003	F	19	P	ACT	09-83	18	1	96	56		1	3	45	3,000	18	0	18
1953	001	G	19	P	ACT	08-83	19	1	4	53		1	3	2	3,000	19	0	19
1961	001	E	19	P	ACT	11-83	11	1	1	91		1	3	0	3,000	11	0	11
1978	003	D	19	P	ACT	06-83	20	1	6	50		1	3	3	3,000	20	0	20
1982	001	C	19	P	ACT	09-83	5	1	12	200		0	3	6		5	0	5

EAST VACUUM UNIT						LATEST TEST DATA						MONTHLY AVERAGE				ALLOWABLE ALLOCATION		
TRACT	WELL	LOCATION UNIT-SEC		WELL STATUS		DATE MO-YR	OIL BOPD	GAS MCFPD	WATER BWPD	GOR CF/B	INJ PRESS PSIG	OIL BOPD	GAS MCFPD	WATER BWPD	GOR CF/B	BASIC PROJECT	INJ. CREDIT	MAR TOTAL
2054	001	M	20	P	ACT	06-83	4	1	6	250		0	0	0		4	0	4
2054	002	L	20	P	ACT	10-83	25	1	4	40		1	3	2	3,000	25	0	25
2059	001	F	20	P	ACT	09-83	5	1	6	200		0	3	3		5	0	5
2059	002	G	20	P	ACT	07-83	3	1	1	333		0	3	0		3	0	3
2060	053	N	20	P	ACT	01-84	33	1	9	30		2	3	4	1,500	33	0	33
2060	055	J	20	P	ACT	10-83	33	1	17	30		2	3	8	1,500	33	0	33
2060	081	O	20	P	ACT	10-83	3	1	34	333		2	2	18	1,000	3	0	3
2060	082	K	20	P	ACT	11-83	28	1	31	36		2	3	15	1,500	28	0	28
2079	001	O	20	P	ACT	11-82	2	1	0	500		0	3	0		2	0	2
2083	002	E	20	P	ACT	08-83	2	1	2	500		0	3	1		2	0	2
2109	002	I	21	P	ACT	09-83	3	1	41	333		2	1	26	500	3	0	3
2150	009	P	21	P	ACT	09-83	47	1	55	21		29	1	35	34	47	0	47
2155	006	O	21	P	ACT	01-84	3	1	88	333		2	1	55	500	3	0	3
2155	084	J	21	P	ACT	12-83	2	1	29	500		1	1	18	1,000	2	0	2
2175	001	N	21	P	ACT	01-84	6	1	52	167		4	1	33	250	6	0	6
2175	002	M	21	P	ACT	11-83	7	1	2	143		6	2	1	333	7	0	7
2175	003	K	21	P	ACT	10-83	2	1	3	500		1	1	2	1,000	2	0	2
2206	001	K	22	P	ACT	10-83	8	1	79	125		4	1	43	250	8	0	8
2207	005	L	22	P	ACT	11-83	1	1	51	1,000		0	1	21		1	0	1
2230	001	M	22	P	ACT	01-84	52	1	256	19		33	1	166	30	52	0	52
2230	002	N	22	P	ACT	11-83	16	1	296	63		8	1	143	1,125	16	0	16
2270	001	J	22	P	ACT	10-83	1	1	100	1,000		1	1	57	1,000	1	0	1
2271	001	O	22	P	ACT	09-83	8	1	23	125		4	1	12	250	8	0	8

EAST VACUUM UNIT						LATEST TEST DATA						MONTHLY AVERAGE				ALLOWABLE ALLOCATION		
TRACT	WELL	LOCATION UNIT-SEC		WELL STATUS		DATE MO-YR	OIL BOPD	GAS MCFPD	WATER BWPD	GOR CF/B	INJ PRESS PSIG	OIL BOPD	GAS MCFPD	WATER BWPD	GOR CF/B	BASIC PROJECT	INJ. CREDIT	MAR TOTAL
2271	002	P	22	P	ACT	01-84	3	1	1	333		2	7	1	3,500	3	0	3
2335	001	N	23	P	ACT	11-83	2	1	13	500		1	7	8	7,000	2	0	2
2335	002	M	23	P	ACT	01-84	6	1	2	167		5	8	1	1,600	6	0	6
2416	003	I	24	P	ACT	01-84	35	1	39	29		2	3	19	1,500	35	0	35
2418	001	P	24	P	ACT	11-83	19	1	36	53		1	3	17	3,000	19	0	19
2437	001	O	24	P	ACT	11-83	23	1	39	43		1	3	18	3,000	23	0	23
2437	002	J	24	P	ACT	08-82	21	1	152	48		1	3	72	3,000	21	0	21
2469	001	M	24	P	ACT	09-83	2	1	7	500		1	7	4	7,000	2	0	2
2505	048	D	25	P	ACT	01-84	1	1	215	1,000		1	7	138	7,000	1	0	1
2576	001	E	25	P	ACT	07-83	6	1	119	167		0	0	0		6	0	6
2614	001	J	26	P	ACT	08-83	8	4	147	500		0	0	0		8	0	8
2614	002	O	26	P	SI											0	0	0
2622	001	E	26	P	ACT	01-84	118	28	1,303	237		99	228	999	2,303	118	0	118
2622	002	G	26	P	ACT	08-83	9	1	275	111		0	0	0		9	0	9
2622	030	E	26	P	ACT	01-84	18	2	162	111		12	13	100	1,083	18	0	18
2622	031	F	26	P	ACT	11-83	42	7	164	167		35	57	126	1,629	42	0	42
2622	034	G	26	P	ACT	11-83	13	1	245	77		11	8	188	727	13	0	13
2622	041	C	26	P	ACT	01-84	73	13	613	178		61	106	470	1,738	73	0	73
2622	043	O	26	P	ACT	01-84	32	2	183	63		27	16	140	593	32	0	32
2622	086	C	26	P	ACT	01-84	9	1	175	111		8	8	134	1,000	9	0	9
2631	022	L	26	P	ACT	07-83	27	2	231	74		17	13	137	765	27	0	27
2631	110	L	26	P	ACT	07-83	1	1	176	1,000		0	0	0		1	0	1
2642	042	M	26	P	ACT	02-83	1	1	211	1,000		0	0	0		1	0	1

EAST VACUUM UNIT						LATEST TEST DATA					MONTHLY AVERAGE				ALLOWABLE ALLOCATION		
TRACT	WELL	LOCATION UNIT-SEC		WELL STATUS		DATE MO-YR	OIL BOPD	GAS MCFPD	WATER BWPD	GOR CF/B	INJ PRESS PSIG	OIL BOPD	GAS MCFPD	WATER BWPD	GOR CF/B	BASIC PROJECT	INJ. CREDIT	MAR TOTAL
2648	001	N	26	P	ACT	02-83	16	15	1,637	938		0	0	0		16	0	16
2648	023	M	26	P	ACT	06-83	6	1	248	167		0	0	0		6	0	6
2648	126	M	26	P	ACT	10-83	9	1	146	111		6	6	87	1,000	9	0	9
2658	001	K	26	P	ACT	10-83	7	1	219	143		6	8	168	1,333	7	0	7
2658	011	K	26	P	ACT	08-82	1	1	237	1,000		0	0	0		1	0	1
2672	004	A	26	P	ACT	01-84	49	2	20	41		34	14	13	412	49	0	49
2672	008	B	26	P	ACT	08-83	92	19	873	207		0	0	0		92	0	92
2717	001	I	27	P	ACT	10-83	165	20	1,139	121		129	153	817	1,186	165	0	165
2717	002	P	27	P	ACT	10-83	40	16	1,223	400		30	118	847	3,933	40	0	40
2717	004	P	27	P	ACT	11-83	40	5	1,754	125		30	37	1,215	1,233	40	0	40
2717	006	P	27	P	ACT	12-81	8	1	218	125		0	0	0		8	0	8
2720	001	G	27	P	ACT	01-84	101	15	427	149		74	107	285	1,446	101	0	101
2720	002	M	27	P	ACT	01-84	97	1	777	10		81	8	596	99	97	0	97
2720	003	B	27	P	ACT	10-83	8	1	3	125		3	1	1	333	8	0	8
2720	004	A	27	P	ACT	01-84	33	1	5	30		22	7	3	318	33	0	33
2720	005	B	27	P	ACT	01-84	23	1	10	43		16	7	6	438	23	0	23
2720	007	M	27	P	ACT	01-84	117	11	1,658	94		98	90	1,272	918	117	0	117
2721	007	N	27	P	ACT	01-84	218	13	509	60		139	19	331	137	218	0	218
2721	020	M	27	P	ACT	01-84	48	2	187	42		26	2	102	77	48	0	48
2738	001	D	27	P	ACT	12-83	61	1	116	16		39	1	75	26	61	0	61
2738	002	F	27	P	ACT	12-83	42	1	468	24		27	1	104	37	42	0	42
2738	003	E	27	P	ACT	10-83	34	1	549	29		11	1	184	91	34	0	34
2738	004	G	27	P	ACT	12-83	35	1	252	29		17	1	127	59	35	0	35

EAST VACUUM UNIT

INACT	WELL	LOCATION UNIT-SEC		WELL STATUS		LATEST TEST DATA DATE MO-YR	OIL BOPD	GAS MCFPD	WATER BWPD	GOR CF/B	INJ PRESS PSIG	MONTHLY AVERAGE OIL BOPD	GAS MCFPD	WATER BWPD	GOR CF/B	ALLOWABLE BASIC PROJECT	ALLOCATION INJ. CREDIT	MAR TOTAL
2738	005	O	27	P	ACT	01-84	126	1	93	8		75	1	57	13	126	0	126
2739	001	K	27	P	ACT	09-83	133	26	593	195		85	38	385	447	133	0	133
2739	002	O	27	P	ACT	07-83	2	1	213	500		0	0	0		2	0	2
2739	003	J	27	P	ACT	11-83	51	34	1,634	667		26	170	768	6,538	51	0	51
2739	004	L	27	P	ACT	10-83	74	14	1,443	189		0	0	0		74	0	74
2739	005	K	27	P	ACT	10-83	48	95	2,624	1,979		29	131	1,595	4,517	48	0	48
2739	006	O	27	P	ACT	08-83	4	2	295	500		0	0	0		4	0	4
2739	007	K	27	P	ACT	01-84	101	8	1,026	79		0	0	0		101	0	101
2739	008	L	27	P	ACT	12-83	100	5	933	50		64	7	606	109	100	0	100
2801	001	P	28	P	ACT	01-84	3	6	264	2,000		2	9	166	4,500	3	0	3
2801	002	M	28	P	ACT	12-83	60	2	348	33		43	3	158	70	60	0	60
2801	003	I	28	P	ACT	01-84	59	1	337	17		36	1	212	28	59	0	59
2801	004	O	28	P	ACT	01-84	322	40	645	124		205	59	419	288	322	0	322
2801	008	M	28	P	ACT	11-83	11	1	196	91		9	2	106	222	11	0	11
2801	009	N	28	P	ACT	11-83	6	3	232	500		5	5	122	1,000	6	0	6
2801	010	O	28	P	ACT	01-84	141	26	404	184		90	38	262	422	141	0	141
2801	011	J	28	P	ACT	10-83	55	2	286	36		34	3	180	88	55	0	55
2801	013	K	28	P	ACT	10-83	1	1	185	1,000		1	2	97	2,000	1	0	1
2801	014	L	28	P	ACT	10-83	2	1	193	500		2	2	101	1,000	2	0	2
2801	016	J	28	P	ACT	12-83	18	1	215	56		11	1	135	91	18	0	18
2801	017	L	28	P	ACT	11-83	36	1	147	28		29	2	77	69	36	0	36
2819	001	B	28	P	ACT	12-83	7	1	56	143		4	1	35	250	7	0	7
2819	002	M	28	P	ACT	11-83	3	1	106	333		2	1	67	500	3	0	3

TRACT	WELL	LOCATION UNIT-SEC	STATUS	DATE MO-YR	OIL BOPD	GAS MCFPD	WATER BWPD	GOR CF/B	INJ PRESS PSIG	OIL BOPD	GAS MCFPD	WATER BWPD	GOR CF/B	BASIC PRODUCT	INJ.	MAR TOTAL
		EAST VACUUM UNIT			LATEST TEST DATA					MONTHLY AVERAGE				ALLOWABLE ALLOCATION		
2819	003	G 28 P	ACT	01-84	1	1	244	500		1	1	153	1,000	2	0	2
2819	004	G 28 P	ACT	01-84	25	1	54	25		40	1	34	40	40	0	40
2851	001	A 28 P	ACT	12-83	96	1	2	6		156	1	1	10	156	0	156
2864	001	E 28 P	ACT	11-83	1	1	173	1,000		1	2	91	2,000	1	0	1
2864	012	C 28 P	ACT	12-83	22	1	1	45		14	1	1	71	22	0	22
2864	013	D 28 P	ACT	12-83	32	4	18	125		26	7	9	269	32	0	32
2864	021	E 28 P	ACT	07-83	9	1	85	111		7	2	45	286	9	0	9
2865	002	F 28 P	ACT	01-84	69	2	210	29		43	3	132	70	69	0	69
2913	001	O 29 P	ACT	01-83	12	19	1,583	0		0	0	0		12	0	12
2913	002	J 29 P	ACT	05-81	4	5	1,250	0		0	0	0		4	0	4
2913	003	P 29 P	ACT	11-83	2	1	30	500		2	2	19	1,000	2	0	2
2913	004	I 29 P	ACT	11-83	26	2	111	77		51	3	58	143	26	0	26
2913	006	P 29 P	ACT	09-83	1	1	59	1,000		1	2	31	2,000	1	0	1
2923	010	J 29 P	ACT	10-83	12	1	17	83		10	2	9	200	12	0	12
2923	001	G 29 P	ACT	11-83	39	6	35	154		32	10	18	313	39	0	39
2923	052	G 29 P	ACT	11-83	2	1	1	500		2	2	1	1,000	2	0	2
2923	054	C 29 P	ACT	11-83	1	1	2	333		2	2	1	1,000	2	0	2
2923	063	D 29 P	ACT	11-83	2	1	1	333		0	3	0		3	0	3
2941	026	K 29 P	ACT	11-83	16	1	23	63		13	2	12	154	16	0	16
2944	003	B 29 P	ACT	05-83	2	1	1	500		2	2	1	1,000	2	0	2
2944	049	A 29 P	ACT	11-83	16	1	1	125		13	3	1	231	16	0	16
2947	050	H 29 P	ACT	11-83	2	5	6	2,500		2	9	3	4,500	2	0	2
2957	001	L 29 P	ACT	11-83	1	1	40	1,000		1	2	25	2,000	1	0	1

TRACT	WELL	LOCATION UNIT-SEC	WELL STATUS	DATE MO-YR	OIL BOPD	GAS MCFPD	WATER BWPD	GOR CF/B	INJ PRESS PSIG	OIL BOPD	GAS MCFPD	WATER BWPD	GOR CF/B	BASIC PRODUCT	INJ CREDIT	MAR TOTAL
		EAST VACUUM UNIT		LATEST TEST DATA						MONTHLY AVERAGE				ALLOWABLE ALLOCATION		
2962	002	E 29	P	ACT 11-83	11	1	62	91		9	2	32	222	11	0	11
2963	001	M 29	P	ACT 01-84	32	1	124	31		26	2	65	77	32	0	32
2963	002	N 29	P	ACT 09-83	1	1	142	1,000		1	2	74	2,000	1	0	1
2963	003	N 29	P	ACT 12-83	36	1	28			29	2	1	69	36	0	36
2980	002	F 29	P	ACT 11-83	4	1	2	250		3	2	1	667	4	0	4
2980	004	F 29	P	ACT 11-83	2	3	1	1,500		2	5	1	2,500	2	0	2
3127	001	J 31	P	ACT 01-84	671	112	77	167		368	136	50	370	671	0	671
3127	002	I 31	P	ACT 01-84	585	92	149	157		321	112	96	349	585	0	585
3127	003	P 31	P	ACT 01-84	146	74	0	507		80	90	0	1,125	146	0	146
3127	004	I 31	P	ACT 01-84	197	73	19	371		101	83	11	822	197	0	197
3202	001	I 32	P	ACT 01-84	108	144	1	1,333		59	175	1	2,966	108	0	108
3202	003	B 32	P	ACT 12-83	56	1	178	18		31	1	115	32	56	0	56
3202	004	I 32	P	ACT 11-83	21	17	101	810		12	21	65	1,750	21	0	21
3202	005	H 32	P	ACT 11-83	114	32	156	281		63	39	100	619	114	0	114
3202	006	P 32	P	ACT 01-84	123	33	79	268		68	40	51	588	123	0	123
3202	007	A 32	P	ACT 01-84	34	1	58	29		19	1	37	53	34	0	34
3202	012	J 32	P	ACT 01-84	24	4	155	167		13	5	100	385	24	0	24
3202	013	P 32	P	ACT 08-83	415	214	42	516		206	234	24	1,136	415	0	415
3202	014	P 32	P	ACT 01-84	106	28	15	264		58	34	10	586	106	0	106
3202	015	U 32	P	ACT 01-84	83	41	158	494		46	50	102	1,087	83	0	83
3202	016	G 32	P	ACT 01-84	8	2	13	250		4	8	8	500	8	0	8
3202	033	B 32	P	ACT 11-83	49	2	217	41		25	2	131	80	49	0	49
3229	001	L 32	P	ACT 01-84	139	66	85	475		76	80	55	1,053	139	0	139

EAST VACUUM UNIT						LATEST TEST DATA						MONTHLY AVERAGE				ALLOWABLE ALLOCATION		
TRACT	WELL	LOCATION UNIT-SEC		WELL STATUS		DATE MO-YR	OIL BOPD	GAS MCFPD	WATER BWPD	GOR CF/B	INJ PRESS PSIG	OIL BOPD	GAS MCFPD	WATER BWPD	GOR CF/B	BASIC PROJECT	INJ. CREDIT	MAR TOTAL
3229	002	M	32	P	ACT	11-83	84	18	10	214		43	20	0	465	84	0	84
3229	003	K	32	P	ACT	11-83	18	34	307	1,889		10	41	190	4,100	18	0	18
3229	004	N	32	P	ACT	11-83	519	163	0	314		285	198	0	695	519	0	519
3229	005	M	32	P	ACT	01-84	318	135	2	425		175	164	1	937	318	0	318
3229	006	L	32	P	ACT	12-83	445	46	216	103		244	56	139	230	445	0	445
3229	008	N	32	P	ACT	01-84	459	157	36	342		252	190	23	754	459	0	459
3229	009	N	32	P	ACT	01-84	250	63	283	252		137	76	182	555	250	0	250
3236	001	E	32	P	ACT	11-83	15	38	84	2,533		8	46	54	5,750	15	0	15
3236	002	O	32	P	ACT	12-83	104	3	453	29		53	3	273	57	104	0	104
3236	003	C	32	P	ACT	08-83	30	9	130	300		16	11	84	688	30	0	30
3236	004	F	32	P	ACT	12-83	586	96	205	164		322	116	132	360	586	0	586
3236	005	E	32	P	ACT	10-83	230	48	295	209		114	53	172	465	230	0	230
3236	007	G	32	P	ACT	12-83	109	3	24	28		50	3	13	60	109	0	109
3308	001	D	33	P	ACT	10-83	177	55	286	311		85	58	160	682	177	0	177
3308	002	C	33	P	ACT	11-83	3	8	187	2,667		2	9	136	4,500	3	0	3
3308	003	C	33	P	ACT	01-84	715	96	374	134		409	98	255	240	715	0	715
3308	004	D	33	P	ACT	11-83	7	5	16	714		4	6	10	1,500	7	0	7
3308	005	C	33	P	ACT	11-83	24	2	235	83		13	2	155	154	24	0	24
3315	001	I	33	P	ACT	12-83	31	1	302	32		19	1	220	53	31	0	31
3315	002	J	33	P	ACT	11-83	6	5	188	833		4	5	137	1,250	6	0	6
3315	003	O	33	P	SI											0	0	0
3315	004	P	33	P	ACT	01-84	1	1	332	1,000		1	1	242	1,000	1	0	1
3315	005	J	33	P	ACT	12-83	620	133	306	215		379	145	223	383	620	0	620

EAST VACUUM UNIT						LATEST TEST DATA						MONTHLY AVERAGE				ALLOWABLE ALLOCATION		
TRACT	WELL	LOCATION UNIT-SEC		WELL STATUS		DATE MO-YR	OIL BOPD	GAS MCFPD	WATER BWPD	GOR CF/B	INJ PRESS PSIG	OIL BOPD	GAS MCFPD	WATER BWPD	GOR CF/B	BASIC PROJECT	INJ. CREDIT	MAR TOTAL
3315	011	O	33	P	ACT	01-84	1	1	136	1,000		1	1	99	1,000	1	0	1
3328	001	M	33	P	ACT	10-83	17	21	218	1,235		9	25	140	2,778	17	0	17
3328	002	M	33	P	ACT	12-83	51	42	437	824		28	51	281	1,821	51	0	51
3332	002	A	33	P	ACT	12-83	47	3	138	64		29	3	101	103	47	0	47
3332	021	A	33	P	ACT	10-83	1	2	113	2,000		1	2	82	2,000	1	0	1
3332	032	B	33	P	ACT	11-83	4	9	1,332	2,250		2	10	970	5,000	4	0	4
3333	001	H	33	P	ACT	01-84	20	7	236	350		12	8	172	667	20	0	20
3333	002	F	33	P	ACT	12-83	24	9	180	375		15	10	131	667	24	0	24
3333	003	G	33	P	ACT	12-83	63	15	85	238		39	16	62	410	63	0	63
3333	004	H	33	P	ACT	01-84	55	18	331	327		34	20	241	588	55	0	55
3333	007	H	33	P	ACT	12-83	713	134	418	188		436	146	304	335	681	32	713
3333	008	F	33	P	ACT	01-84	128	21	16	164		78	23	12	295	0	128	128
3345	001	N	33	P	ACT	01-84	126	58	61	460		77	63	44	818	0	126	126
3345	035	N	33	P	ACT	12-83	13	11	299	846		8	12	218	1,500	0	13	13
3366	029	E	33	P	ACT	01-84	51	8	225	157		27	9	140	333	0	51	51
3373	001	K	33	P	ACT	12-83	71	39	308	549		42	41	217	976	0	71	71
3373	028	K	33	P	ACT	01-84	245	41	31	167		150	45	23	300	0	245	245
3374	001	L	33	P	ACT	06-83	79	96	27	1,215		43	116	17	2,698	0	79	79
3440	001	L	34	P	ACT	11-83	524	66	802	126		320	72	584	225	0	524	524
3440	002	K	34	P	ACT	12-83	135	2	82	15		83	2	60	24	0	135	135
3440	003	M	34	P	ACT	12-83	331	39	21	118		183	38	14	208	0	331	331
3440	005	L	34	P	ACT	12-83	1,029	218	627	212		629	237	457	377	0	1,029	1,029
3440	010	N	34	P	ACT	12-83	22	1	72	45		12	1	47	83	0	22	22

PRODUCTION SUMMARY

EAST VACUUM UNIT

TRACT	WELL LOCATION UNIT-SEC	WELL STATUS	DATE MO-YR	OIL BOPD	GAS MCFPD	WATER BWPD	GOR CF/B	INJ PRESS PSIG	OIL BOPD	GAS MCFPD	WATER BWPD	GOR CF/B	BASIC PRODUCT	INJ. CREDIT	MAR TOTAL
3440	014 J	34 P	ACT 12-83	46	1	25	21		27	1	16	37	0	48	41
3456	001 C	34 P	ACT 01-84	207	19	514	92		127	21	374	165	0	207	207
3456	002 D	34 P	ACT 12-83	66	1	178	15		36	1	117	28	0	66	66
3456	003 E	34 P	ACT 01-84	261	58	529	222		160	63	385	394	0	261	261
3456	004 F	34 P	ACT 01-84	148	56	1,334	378		82	55	870	671	0	148	148
3456	005 C	34 P	ACT 12-83	181	28	1,137	155		111	30	858	270	0	181	181
3456	008 C	34 P	ACT 10-83	34	1	197	29		21	1	144	48	0	34	34
3456	010 F	34 P	ACT 11-83	46	1	184	22		28	1	134	36	0	46	46
3467	001 B	34 P	ACT 01-84	17	0	207	471		0	7	122	675	0	17	17
3467	018 B	34 P	ACT 01-84	97	6	299	62		59	7	218	119	0	97	97
3467	024 A	34 P	SI 07-71	0	0	0			0	0	0		0	0	0
3467	027 G	34 P	ACT 10-83	96	3	108	31		36	2	48	56	0	96	96
3467	044 H	34 P	ACT 01-84	6	5	333	833		4	5	243	1,250	0	6	6
3467	121 A	34 P	ACT 01-84	11	2	156	182		6	2	106	333	0	11	11
3568	040 D	35 P	SI 10-69	0	0	0			0	0	0		0	0	0
									0	0	0		0	0	0
									6	2	106	333	0	11	11
									4	5	243	1,250	0	6	6
									36	2	48	56	0	96	96
									0	0	0		0	0	0
									59	7	218	119	0	97	97
									0	7	122	675	0	17	17
									28	1	134	36	0	46	46
									21	1	144	48	0	34	34
									111	30	858	270	0	181	181
									82	55	870	671	0	148	148
									160	63	385	394	0	261	261
									36	1	117	28	0	66	66
									127	21	374	165	0	207	207
									27	1	16	37	0	48	41

LATEST TEST DATA

MONTHLY AVERAGE

ALLOWABLE ALLOCATION

| EAST VACUUM UNIT | | |

EAST VACUUM UNIT

MONTHLY AVERAGE

INJECTIVITY INDEX

TRACT	WELL	LOCATION UNIT-SEC	WELL STATUS	INJ PRESS PSIG	GAS MCFPD	WATER BWPD	PRESENT BWPD/PSI	PREVIOUS BWPD/PSI	CHANGE THIS MONTH
2153	001	A 21	WI ACT	1,220	0	263	0.216	0.220	-0.004
2230	003	N 22	WI ACT	1,050	0	199	0.190	0.177	0.013
2230	004	M 22	WI ACT	1,050	0	321	0.306	0.283	0.023
2230	005	N 22	WI ACT	1	0	29	29.000	0.343	28.657
2271	003	O 22	WI ACT	1,150	0	0	0.000	0.001	-0.001
2416	002	I 24	WI ACT	1,200	0	189	0.158	0.215	-0.057
2418	002	P 24	WI ACT	1,200	0	90	0.082	0.086	-0.004
2437	003	O 24	WI ACT	1,190	0	134	0.113	0.087	0.026
2622	003	O 26	WI ACT	950	0	149	0.157	0.147	0.010
2622	004	F 26	WI ACT	900	0	2,159	2.399	2.277	0.122
2622	005	C 26	WI ACT	950	0	476	0.501	0.437	0.064
2622	006	F 26	WI ACT	950	0	639	0.673	0.701	-0.028
2622	007	O 26	WI ACT	1,000	0	59	0.059	2.000	-1.941
2642	001	H 26	WI ACT	750	0	2,529	3.372	3.004	0.368
2648	002	M 26	WI ACT	450	0	2,016	4.480	3.373	1.107
2672	001	A 26	WI ACT	500	0	979	1.958	2.362	-0.404
2717	003	P 27	WI ACT	825	0	2,090	2.533	2.468	0.065
2717	005	P 27	WI ACT	1,100	0	2,360	2.145	1.880	0.265
2717	007	I 27	WI ACT	950	0	475	0.500	0.988	-0.488
2720	006	H 27	WI ACT	750	0	1,623	2.164	2.110	0.054
2720	008	B 27	WI ACT	1,100	0	125	0.114	0.121	-0.007
2721	001	M 27	WI ACT	1,175	0	942	0.802	0.856	-0.054
2721	002	N 27	WI ACT	875	0	2,595	2.966	3.082	-0.116

EAST VACUUM UNIT

TRACT	WELL	LOCATION UNIT-SEC	WELL STATUS	MONTHLY AVERAGE INJ PRESS PSIG	GAS MCFPD	WATER BWPD	INJECTIVITY INDEX PRESENT BWPD/PSI	PREVIOUS BWPD/PSI	CHANGE THIS MONTH
2738	006	O 27	WI ACT	1,050	0	331	0.315	0.323	-0.008
2738	007	E 27	WI ACT	1,100	0	1,928	1.753	2.404	-0.651
2738	008	F 27	WI ACT	950	0	1,220	1.284	0.878	0.406
2738	009	E 27	WI ACT	1,200	0	232	0.193	0.205	-0.012
2801	005	L 28	WI ACT	1,000	0	1,042	1.042	0.985	0.057
2801	006	J 28	WI ACT	1,100	0	1,195	1.086	1.126	-0.040
2801	007	N 28	WI ACT	250	0	1,204	4.816	1247.000	-1242.18
2801	012	M 28	WI ACT	1,250	0	583	0.466	0.392	0.074
2801	015	O 28	WI ACT	1,100	0	1,003	0.912	0.865	0.047
2851	002	A 28	WI ACT	1,250	0	228	0.182	0.186	-0.004
2864	002	C 28	WI ACT	1,200	0	268	0.223	0.128	0.095
2865	001	F 28	WI ACT	1,200	0	487	0.406	0.383	0.023
2913	007	I 29	WI ACT	1,200	0	139	0.116	0.196	-0.080
2913	008	O 29	WI ACT	1,250	0	1,206	0.965	0.633	0.332
2913	009	O 29	WI ACT	1,250	0	405	0.324	0.370	-0.046
2923	002	C 29	WI ACT	1,250	0	80	0.064	0.060	0.004
2923	003	O 29	WI ACT	1,250	0	79	0.063	0.055	0.008
2941	001	K 29	WI ACT	1,150	0	488	0.424	0.481	-0.057
2944	001	B 29	WI ACT	1,200	0	51	0.043	0.014	0.029
2944	002	B 29	WI ACT	1,225	0	172	0.140	0.145	-0.005
2947	001	M 29	WI ACT	1,150	0	195	0.170	0.166	0.004
2957	002	L 29	WI ACT	1,200	0	330	0.275	0.173	0.102
2963	004	M 29	WI ACT	1,050	0	1,754	1.670	1.802	-0.132

EAST VACUUM UNIT					MONTHLY AVERAGE				INJECTIVITY INDEX		
TRACT	WELL	LOCATION UNIT-SEC	WELL STATUS	INJ PRESS P81G	GAS MCFPD	WATER BWPD	PRESENT BWPD/P81	PREVIOUS BWPD/P81	CHANGE THIS MONTH
2963	005	M 29	WI ACT	1,200	0	1,155	0.963	0.000	-0.963
2980	003	F 29	WI ACT	1,150	0	79	0.069	0.140	-0.071
3127	005	P 31	WI ACT	1,100	0	1,177	1.070	1.085	-0.015
3127	006	J 31	WI ACT	975	0	1,754	1.799	1.821	-0.022
3127	007	J 31	WI ACT	690	0	2,110	3.058	2.901	0.157
3202	008	G 32	WI ACT	975	0	2,253	2.311	1.818	0.493
3202	009	O 32	WI ACT	1,200	0	1,130	0.942	0.808	0.134
3202	010	A 32	WI ACT	1	0	2,018	2018.000	1017.000	1001.000
3202	011	I 32	WI ACT	1	0	200	200.000	0.424	199.576
3229	007	K 32	WI ACT	525	0	1,815	3.457	2.792	0.665
3236	006	F 32	WI ACT	900	0	1,707	1.897	3.515	-1.618
3236	008	E 32	WI ACT	925	0	1,985	2.146	2.068	0.078
3315	006	J 33	WI ACT	1,300	0	2,987	2.298	2.507	-0.209
3315	007	O 33	WI ACT	1,350	0	1,105	0.819	0.763	0.056
3315	008	I 33	WI ACT	100	0	2,076	26.760	2.804	115.956
3315	009	P 33	WI ACT	1,350	0	361	0.267	0.235	0.032
3328	003	M 33	WI ACT	1	0	2,173	2173.000	2046.000	127.000
3332	001	A 33	WI ACT	1,275	0	2,904	2.276	2.601	-0.323
3333	005	F 33	WI ACT	900	0	1,649	1.832	2.130	-0.298
3333	006	H 33	WI ACT	1,325	0	2,224	1.678	1.694	-0.016
3374	003	33	WI ACT	1,200	0	3,519	2.933	2.451	0.482
3440	004	J 34	WI ACT	1,160	0	279	0.241	0.539	-0.298
3440	006	M 34	WI ACT	1,350	0	366	0.271	0.278	-0.007

EAST VACUUM UNIT					MONTHLY AVERAGE			INJECTIVITY INDEX		
TRACT	WELL	LOCATION UNIT	SEC	WELL STATUS	INJ PRESS PSIG	GAS MCFPD	WATER BWPD	PRESENT BWPD/PSI	PREVIOUS BWPD/PSI	CHANGE THIS MONTH
3456	006	D	34	WI ACT	1,175	0	592	0.504	0.646	-0.142
3456	007	E	34	WI ACT	250	0	3,470	13.880	3.627	10.253
3456	009	F	34	WI ACT	800	0	1,561	1.951	1.933	0.018
3467	002	H	34	WI ACT	525	0	1,350	2.571	1.618	0.953
INJECTION SUMMARY							87,468			

I HEREBY CERTIFY THAT THE ABOVE INFORMATION IS TRUE AND COMPLETE TO THE BEST OF MY KNOWLEDGE AND BELIEF.

W. J. Mueller 3/1/84

W. J. MUELLER, SENIOR ENGINEERING SPECIALIST

CASE 6368: GETTY OIL COMPANY FOR THE AMENDMENT OF ORDER NO. R-5388, RIO ARRIBA COUNTY, NEW MEXICO

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