

STEVENS & TULL, INC

R-111-P HEARING

PROTECTION OF POTASH - USE OF DRILLING FLUIDS

The prevention of migrating H₂S gas into the Salada Formation is the greatest concern of the Mining Companies and the State of New Mexico Oil Conservation Division. This migration is of concern in areas where new fields can yield sufficient pressure to create this contamination. Below is information which is useful in determining if the Yates Production is a potential hazard in the West Teas Field.

WEST TEAS FIELD

	Virgin Reservoir Pressure :	1125 PSIG
*	Current Reservoir Pressure :	960 PSIG

* based upon current static fluid levels in the field

DRILLING FLUID CALCULATIONS

Drilling Mud :	10 ppg saturated brine water
	0.519 psi/ft pressure gradient

Yates Formation:	Average Top @ 3100'
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Mud WT while drilling in Yates:	$0.519 \times 3100' = 1608.9 \text{ PSI}$
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These calculations show that the mud system is overbalanced and no gas, oil or fluid migration is possible from the Yates Formation.

TEAS FIELD

API #	OPER	LEASE	WELL	THICK	DEPT	SEC	SPOT	CASING PROGRAM	
30025180330000	ANADARKO	TEAS YATES UNIT TR 13	W-2	205	33E	11	10F S	660FW 8 5/8 @ 1403 7 @ 3200	5 1/2 @ 3378
30025017170000	ANDERSON RICHARD OIL	FEDERAL 11	1	205	33E	11	660F S	660FW 13 5/8 @ 827 8 5/8 @ 381	5 1/2 @ 3275
30025017190000	ANADARKO	TEAS YATES UNIT TR 8	2	205	33E	13	1980F S	990FW 8 5/8 @ 1500 7 5/8 @ 3225	
30025180330000	ANADARKO	TEAS YATES UNIT TR 8	3	205	33E	13	2430F N	10FW 10 3/4 @ 1435 7 5/8 @ 3182	
30025017200000	ANADARKO	TEAS YATES UNIT TR 2	1	205	33E	13	1980F S	1980FW 5 1/2 @ 3207	
30025280290000	ANADARKO	TEAS YATES UNIT TR 2	4	205	33E	13	2615F N	1980FW 10 3/4 @ 1398 7 5/8 @ 3210	
30025017230000	ANADARKO	TEAS YATES UNIT TR 3	3	205	33E	13	1815F N	990FE 8 5/8 @ 997 5 1/2 @ 3463	
30025017210000	ANADARKO	TEAS YATES UNIT TR 4	1	205	33E	13	1980F N	1980FE 13 3/8 @ 105 10 3/4 @ 354	8 5/8 @ 990 5 1/2 @ 3372
30025017220001	ANADARKO	TEAS YATES UNIT TR 5	2	205	33E	13	2310F S	1980FE 5 1/2 @ 3481	
30025017250000	ANADARKO	TEAS YATES UNIT TR 2	2	205	33E	13	660 F N	330FW 13 3/8 @ 110 8 5/8 @ 841	5 1/2 @ 3325
30025280280000	ANADARKO	TEAS YATES UNIT TR 2	3	205	33E	13	1295F N	1980FW 10 3/4 @ 1470 7 5/8 @ 3200	
30025017500000	ANADARKO	TEAS YATES UNIT TR 9	1	205	33E	14	990F S	2310FW 13 @ 70 10 @ 350	8 5/8 @ 925 7 @ 3297
30025017380000	UNION TEXAS PET	TEAS YATES UNIT TR 15	1	205	33E	14	1980F S	660FE 13 3/8 @ 478 8 5/8 @ 1200	7 @ 3425
30025017350000	SINCLAIR O&G	TEAS YATES UNIT TR 5	2	205	33E	14	660F N	1980FW 20 @ 1400 13 3/8 @ 3100 8 5/8 @ 900	7 @ 33813
30025017310000	BLACK W.H.	TEAS YATES UNIT TR 5	4	205	33E	14	2310F S	990FW 13 3/8 @ 68 10 3/4 @ 568	8 5/8 @ 947 7 @ 3370
30025247150000	ANADARKO	TEAS YATES UNIT TR 5	5	205	33E	14	990F N	990FW 8 5/8 @ 1420 7 @ 3085	
30025017290000	ANADARKO	TEAS YATES UNIT TR 5	3	205	33E	14	1980F N	1650FW 7 @ 3330	
30025017280000	ANADARKO	TEAS YATES UNIT TR 5	1	205	33E	14	660F N	660FW 5 1/2 @ 3250	
30025312440000	ANADARKO	TEAS YATES UNIT TR 6	1	205	33E	14	2310F S	990FW 8 5/8 @ 950 4 1/2 @ 3428	
30025017370000	ANADARKO	TEAS YATES UNIT TR 7	1	205	33E	14	2310F S	1980FW 13 @ 69 10 3/4 @ 553	8 5/8 @ 951 7 @ 3280
30025017310000	BLACK W.H.	FEDERAL A	4	205	33E	14	2310F N	990FW 13 3/8 @ 68 10 3/4 @ 568	8 5/8 @ 947 7 @ 3370
30025017370000	ANADARKO	TEAS YATES UNIT TR 10	2	205	33E	14	1650F N	2310FE 10 3/4 @ 530 8 5/8 @ 918	5 1/2 @ 3218
30025017330000	ANADARKO	TEAS YATES UNIT TR 10	1	205	33E	14	1650F N	330FE 10 3/4 @ 666 8 5/8 @ 926	5 1/2 @ 3209
30025217630000	ANADARKO	TEAS YATES UNIT TR 10	W-3	205	33E	14	2265F N	1425FE 9 5/8 @ 1334 7 @ 3209	4 1/2 @ 3420
30025280320000	ANADARKO	TEAS YATES UNIT TR 11	2	205	33E	14	1250F N	1000FE 10 3/4 @ 1413 7 5/8 @ 3172	
30025017270000	ANADARKO	TEAS YATES UNIT TR 11	1	205	33E	14	990F N	2310FE 13 3/8 @ 70 10 3/4 @ 546	7 @ 885 5 1/2 @ 3215
30025017380000	SOUTHERN CALIFORNIA GAS	FEDERAL FOREST 3	1	205	33E	14	2310F S	2310FE 13 3/8 @ 63 10 3/4 @ 519	8 5/8 @ 914
30025017360001	ANADARKO	TEAS YATES UNIT TR 14	2	205	33E	14	2310F S	2310FE 4 1/2 @ 3455	
30025017390000	ANADARKO	TEAS YATES UNIT TR 12	1	205	33E	1	660F N	660FE 10 @ 657 5 1/2 @ 3232	
30025017590000	GRAHAM BJ	DINNIN B-FED A	2	205	33E	23	1980F S	2310FE 7 @ 1539 4 1/2 @ 3418	
30025017600000	TENNECO OIL	LOOMIS FEDERAL	1	205	33E	23	1980F N	1980FW 7 5/8 @ 1449 5 1/2 @ 3350	
30025017610000	TENNECO OIL	LOOMIS FEDERAL	2	205	33E	23	1980F S	1980FW 7 5/8 @ 1551 4 1/2 @ 3371	
30025017630000	TALMADGE-COWELL	BERNISE DINNIN	1	205	33E	24	1650F S	330FE 8 5/8 @ 1621 5 1/2 @ 3278	
30025306800000	TEMPO ENERGY	FEDERAL 24	1	205	33E	24	2270F N	1850FE 8 5/8 @ 1039 5 1/2 @ 3375	
30025242910000	WALLEN PRODUCTION	WALLEN-FEDERAL	4	205	34E	17	330F S	330FW 13 3/8 @ 99 10 3/4 @ 570	7 @ 3315 4 1/2 @ 3250-3565
30025243110000	WALLEN PRODUCTION	WALLEN-FEDERAL	6	205	34E	18	2310F N	2310FW 9 5/8 @ 1500 7 @ 3381	
30025245260000	WALLEN PRODUCTION	WALLEN-FEDERAL	7	205	34E	18	2310F N	2310FE 13 3/8 @ 190 10 3/4 @ 607	8 5/8 @ 1000 7 @ 3300 4 1/2 @ 3021-3561
300252475280000	WALLEN PRODUCTION	WALLEN-FEDERAL	5	205	34E	18	330F S	330FE 16 @ 98 13 3/8 @ 272	7 @ 3297 4 1/2 @ 3084-3593
30025084630000	WALLEN PRODUCTION	FEDERAL	1	205	33E	18	1980F S	1980FE 7 @ 3492	
30025024410000	WALLEN PRODUCTION	MCDONALD J FEDERAL	1	205	34E	18	330F S	330FE 20 @ 205 12 1/2 @ 605	10 @ 940 8 1/4 @ 3166
30025024430000	ANADARKO	TEAS YATES UNIT TR 1	1	205	34E	18	1980F N	650FW 8 5/8 @ 1514 5 1/2 @ 3266	
30025270270000	ANADARKO	TEAS YATES UNIT TR 1	W-2	205	34E	18	1980F N	10FW 9 5/8 @ 1412 7 @ 3223	
300250250730000	WALLEN PRODUCTION	WALLEN-FEDERAL	8	205	34E	18	2310F S	2310FW 16 @ 102 13 3/8 @ 272	7 @ 3300
30025231220000	GETTY OIL	GOVERNMENT N	2	205	34E	19	990F S	1913FW 8 5/8 @ 1540 5 1/2 @ 3486	
30025241290000	WALLEN PRODUCTION	WALLEN-FEDERAL	3	205	34E	19	330F N	330FE 13 3/8 @ 212 7 @ 3136	
30025238610000	WALLEN PRODUCTION	WALLEN-FEDERAL	1	205	33E	20	330F N	330FW 13 3/8 @ 85 10 3/4 @ 667	8 5/8 @ 1485 7 @ 3159 4 1/2 @ 2981-3608
30025266250000	YATES HARVEY E	WEST LYNCH FED	1	205	34E	19	330F S	1650FE 9 5/8 @ 1496 7 @ 3192	4 1/2 @ 3528
30025024780000	CITIES SERVICES OIL	WILLIS-FEDERAL A	1	205	34E	29	330F N	330FW 9 5/8 @ 1520 7 @ 3229	4 1/2 @ 3543
30025282970000	YATES HARVEY E	WEST LYNCH 30	1	205	34E	30	330F N	1650FE 8 5/8 @ 505 5 1/2 @ 3500	
30025024820000	GACKLE DRUG CO INC	TEXACO-FEDERAL	1	205	34E	30	760F N	660FE 9 5/8 @ 1517 7 @ 3138	4 1/2 @ 3073-3522

TEAS WEST FIELD

API #	OPER	LEASE	WELL	THICK	DEPT	SEC	SPOT	CASING PROGRAM	
30025301180000	SINCLAIR O&G	FED-LEA 6015 ARC	2	205	33E	9	330FS	1980FW 9 5/8 @ 1285	7 @ 2950
30025318960000	STEVENS & TULL	FEDERAL 9	3	205	33E	9	330FN	2310FW 8 5/8 @ 1300	5 1/2 @ 3320
30025298610000	GROVER OIL	FEDERAL	1	205	33E	9	1980FS	1650FW 8 5/8 @ 1265	4 1/2 @ 3398
30025317180000	STEVENS & TULL	FEDERAL 9	2	205	33E	9	990FN	2110FE 8 5/8 @ 1300	5 1/2 @ 3311
30025302390000	GROVER-MCKINNEY OIL	FEDERAL	3	205	33E	9	1980FS	2310FE 8 5/8 @ 1218	4 1/2 @ 3420
30025299720000	GROVER OIL	FEDERAL	2	205	33E	9	1980FE	660FW 8 5/8 @ 1256	4 1/2 @ 3400
30025299000000	GROVER OIL	BARBER	1	205	33E	9	1980FN	1650FW 8 5/8 @ 1261	4 1/2 @ 3400
30025310350000	STEVENS & TULL	FEDERAL 9	1	205	33E	9	2310FN	2310FE 8 5/8 @ 1243	5 1/2 @ 3445
30025299710000	GROVER OIL	BARBER	2	205	33E	9	1980FN	660FW 8 5/8 @ 1290	4 1/2 @ 3382
30025017400000	CITIES SERVICES OIL	STATE BF	1	205	33E	16	1980FN	1980FE 9 5/8 @ 1245	7 @ 2970
30025017430001	HENDON WOLLIAM E JR	ARCO STATE	1	205	33E	16	1980FN	660FW	NR
30025017470000	CITIES SERVICES OIL	STATE BF	2	205	33E	16	1980FS	1980FW 9 5/8 @ 1245	7 @ 2955
30025017470000	HANSON OIL	ATLANTIC-STATE	1	205	33E	16	990FN	1980FW 8 5/8 @ 1200	7 @ 2955
30025017470000	SINCLAIR O&G	STATE-LEA 886	2	205	33E	16	660FN	1980FE 9 5/8 @ 1308	7 @ 2950
30025017460000	SINCLAIR O&G	STATE-LEA	2	205	33E	16	660FN	660FW 9 5/8 @ 1350	7 @ 2975
30025208420001	READ & STEVENS, INC.	SNYDER	1	205	33E	16	2310FS	2310FE	NR
30025213430000	SHORELINE EXPL	SNYDER	2	205	33E	16	1090FS	2310FE	10 3/4 @ 363
30025017430000	SINCLAIR O&G	LEA-STATE	1	205	33E	16	1980FN	1980FW 13 3/8 @ 1196	5 1/2 @ 3325

HALFWAY FIELD

API #	OPER	LEASE	WELL	THICK	DEPT	SEC	SPOT	CASING PROGRAM			
30025009330000	PRICE MRS BERTIE NOLAND	BURNER-FEDERAL	3X	205	32E	9	280FS 1980FE	10 3/4 @ 450	5 1/2 @ 2622		
30025009330000	PRICE MRS BERTIE NOLAND	BURNER-FEDERAL	3	205	32E	9	330FS 1980FE	10 @ 396	8 5/8 @ 887	7 @ 2599	
30025009340000	PRICE MRS BERTIE NOLAND	BURNER-FEDERAL	4	205	32E	9	330FS 2310FW	10 @ 450	8 5/8 @ 959	7 @ 2685	
30025215470000	BASS PERRY R	LITTLE EDDY UNIT	16	205	32E	16	2310FN 2310FW	8 5/8 @ 880	7 @ 2375	4 1/2 @ 2546	
30025009460000	SECO PROD	Ph. LPS-STATE	1	205	32E	16	1980FN 2310FE	10 3/4 @ 1150	7 @ 2416	4 1/2 @ 2714	
30025009530000	SAUKIN DAVID C	TEXAS-STATE B	4	205	32E	16	2210FS 2310FE	7 @ 2490			
30025009390000	PRICE MRS BERTIE NOLAND	STATE	1	205	32E	16	2310FN 1980FW	10 3/4 @ 450	8 1/4 @ 946	7 @ 2612	
30025009400000	PRICE MRS BERTIE NOLAND	STATE	2	205	32E	16	2310FN 990FW	10 @ 454	8 5/8 @ 950	7 @ 2626	
30025009410000	PRICE MRS BERTIE NOLAND	STATE	3	205	32E	16	990FN 2310FW	8 5/8 @ 930	7 @ 2547		
30025009470000	BEARING SER & SUPPLY	STOUT-STATE	1	205	32E	16	660FN 2310FE	9 5/8 @ 1152	7 @ 2410	4 1/2 @ 2683	
30025009470000	750 OIL CORPORATION	TEXAS-STATE	1	205	32E	16	1980FS 660FW	10 @ 454	8 1/4 @ 939	7 @ 2610	
30025009490000	WISKY OIL COMPANY	TEXAS-STATE B	1	205	32E	16	990FN 2310FE	10 @ 425	8 @ 895	5 1/2 @ 2494	
30025009530000	SAUKIN DAVID C	TEXAS-STATE B	4	205	32E	16	2210FS 2310FE	7 @ 2490			
30025009480000	PRICE MRS BERTIE NOLAND	TEXAS-STATE B	3	205	32E	16	2310FS 2310FE	8 5/8 @ 939	7 @ 2477		
30025009490000	HUSKY OIL COMPANY	TEXAS-STATE B	1	205	32E	16	990FN 2310FE	10 @ 425	8 @ 895	5 1/2 @ 2494	
30025009500000	HUSKY OIL COMPANY	TEXAS-STATE	1	205	32E	16	2310FN 2310FE	10 @ 407	8 1/4 @ 936	7 @ 2367	
30025009510000	NORTH SHORE CORP	TEXAS-STATE B	1	205	32E	16	2310FN 990FE	10 @ 426	8 1/4 @ 898		

SALT LAKE FIELD

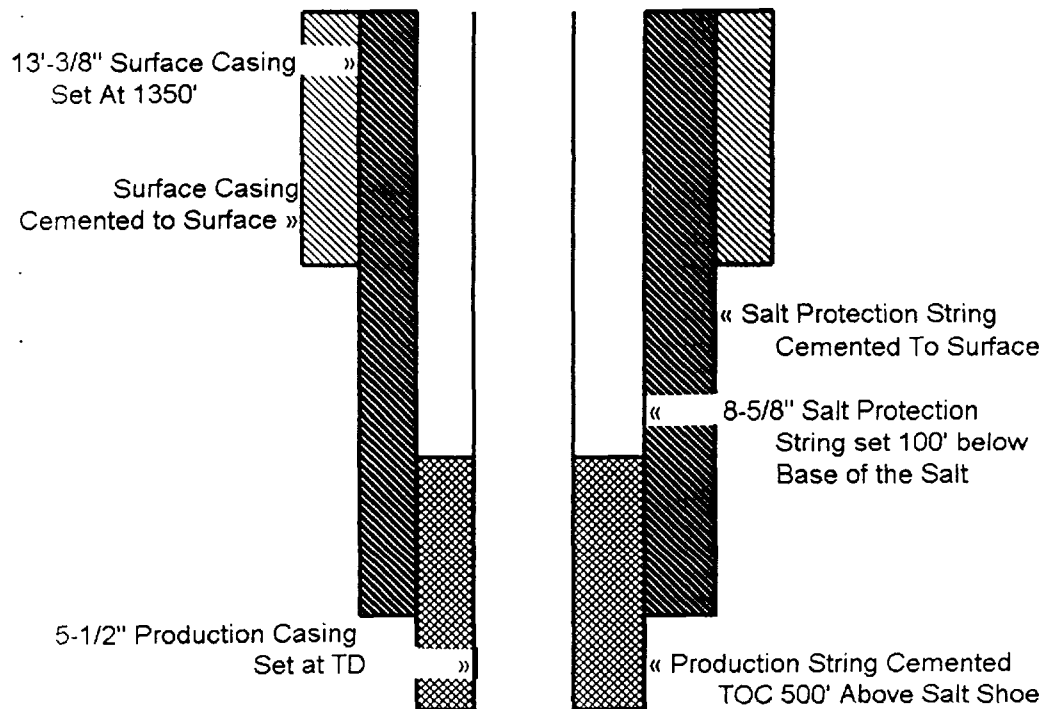
API #	OPER	LEASE	WELL	THICK	DEPT	SEC	SPDT	CASING PROGRAM	
30025017130001	CLANO INC	BROOKS-FEDERAL 7	6	205	33E	7	660F S	1928FW	NR NR
30025017080000	CONTINENTAL OIL	BROOKS A-7	1	205	33E	7	660F S	660FW	8 5/8 @ 1150 7 @ 2908
30025017090000	CONTINENTAL OIL	BROOKS A-7	5	205	33E	7	1980FN	1980 FW	13 3/8 @ 274 10 @ 711
30025017100000	CONTINENTAL OIL	BROOKS A-7	2	205	33E	7	660F S	1980FW	10 @ 831 5 1/2 @ 2710
30025017110000	CONTINENTAL OIL	BROOKS A-7	3	205	33E	7	660F S	1980FE	10 3/4 @ 605 8 5/8 @ 1162
30025017120000	CLANO INC	LITTLE EDDY URBROOKS	4	205	33E	7	1980F S	1980FW	10 3/4 @ 661 8 5/8 @ 1130
30025017480000	BAY PET CO	WELCH-STATE	1	205	33E	18	1980F S	1980FW	10 3/4 @ 787 8 1/2 @ 1135
30025017490000	CONTINENTAL OIL	SMITH 18	1	205	33E	18	660F N	1980FE	8 5/8 @ 1115 5 1/2 @ 2908
30025017530000	WELSH, LEONARD	STATE	2	205	33E	18	1980FN	660FW	10 @ 590 8 1/2 @ 1095
30025017530000	BAY PET CO	STATE	3	205	33E	18	660F N	1980FW	10 @ 610 8 1/4 @ 1114
30025017530000	MONTGOMERY RANDALL F	BASS-STATE	1	205	33E	18	660FN	2080FW	9 5/8 @ 1130 7 @ 2880
30025017530000	MONTGOMERY RANDALL F	BASS-STATE	2	205	33E	18	1700FN	1650FW	9 5/8 @ 1095 7 @ 2723
300250175930000	MONTGOMERY RANDALL F	BASS-STATE	3	205	33E	18	330FN	990FW	9 5/8 @ 1119 7 @ 2753
30025017593000	CLANO	BROOKS-FEDERAL	7	205	33E	18	660FN	2080FE	10 3/4 @ 1200 7 @ 5707
300250176030000	MINERALS INC	BASS-STATE	5	205	33E	18	330FN	2310FW	8 5/8 @ 1102 5 1/2 @ 2900
300250176280000	MINERALS INC	BASS-STATE	6	205	33E	18	330FN	1650FW	8 5/8 @ 1114 5 1/2 @ 3053
3002501727870000	BAY PET CO	WELCH STATE	4	205	33E	18	1980FN	1980FW	7 @ 2953

Stevens & Tull Inc.

R-111-P Hearing

Wellbore Schematic

Salt Protection String in Place

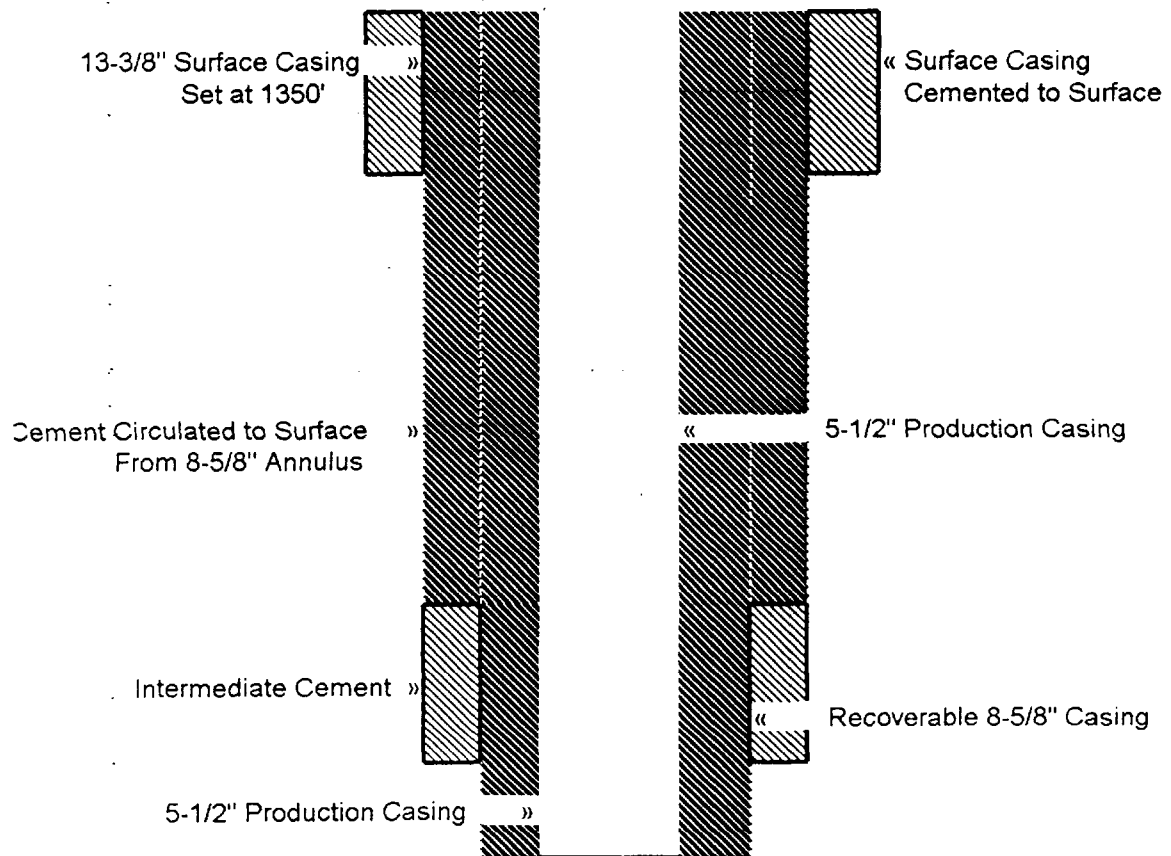


Stevens & Tull Inc.

R-111-P Hearing

Wellbore Schematic

Optional Casing Procedure



Stevens & Tull Inc.
R-111-P Hearing
Wellbore Schematic
Recommendation by Stevens & Tull Inc.

