

SCIENTIFIC DRILLING CONTROLS

SURVEY CERTIFICATIONCOMPANY AMOCO PRODUCTION CO. WELL NAME & NO. SOUTH HOBBS UNIT #211DATE of CERTIFICATION 10/24/86 LOCATION LEA CO. NEW MEXICOTYPE of SURVEY MAG. MULTISHOT FROM 0' TO 4367'
132M1086029 102595JOB NUMBER 132M1086033 TICKET NUMBER 102599

THE ABOVE SURVEY WAS PERFORMED BY ME ON 10/10 19 86
THE RESULTS OBTAINED FROM ACTUAL FIELD DATA CONFORM TO ESTABLISHED
STANDARDS AND ARE TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE.

David Moody
SURVEYOR

FILM TRANSFER RECEIPT

I HEREBY ACKNOWLEDGE RECEIPT OF ORIGINAL FILM OBTAINED ON THE ABOVE
SURVEY.

DATE RECEIVED 19____

COMPANY REPRESENTATIVE

SURVEY CONFIRMATION

I HAVE EXAMINED THE ABOVE SURVEY AND FOUND THE DATA AND RESULTS
ACCEPTABLE ACCORDING TO CURRENT SCIENTIFIC DRILLING CONTROLS STANDARDS.

D.A. Rodgers
S.D.C. REPRESENTATIVE

SMITH DRILLING SYSTEMS

SURVEY CERTIFICATION

COMPANY AMOCO PRODUCTION COMPANY WELL NAME & NO. SOUTH HOBBS UNIT #211
DATE of CERTIFICATION October 21, 1986 LOCATION LEA COUNTY, NEW MEXICO
TYPE of SURVEY MAGNETIC-MULTI SHOT FROM 3168 TO 4367
JOB NUMBER 08610017 TICKET NUMBER 421

THE ABOVE SURVEY WAS PERFORMED BY ME ON October 17, 1986
THE RESULTS OBTAINED FROM ACTUAL FIELD DATA CONFORM TO ESTABLISHED STANDARDS AND ARE
TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE.

Troy Duncan
SURVEYOR

FILM TRANSFER RECEIPT

I HEREBY ACKNOWLEDGE RECEIPT OF ORIGINAL FILM OBTAINED ON THE ABOVE SURVEY.

DATE RECEIVED 19____

COMPANY REPRESENTATIVE

SURVEY CONFIRMATION

I HAVE EXAMINED THE ABOVE SURVEY AND FOUND THE DATA AND RESULTS ACCEPTABLE ACCORDING
TO CURRENT SMITH DRILLING SYSTEMS STANDARDS.

Troy Duncan
S.D.S. REPRESENTATIVE

RECEIVED
OCT 28 1986
O.C.O.
HOEBS OFFICE

SCIENTIFIC DRILLING INT'L.
MIDLAND, TEXAS

JOB NUMBER: 132M1086029/132M1086033

DATE: 10/05/86

INRUN SURVEY

BY

THE RADIUS OF CURVATURE

MEAS. DEPTH	VERT. DEPTH	VERT. SECT.	COURSE DEV.	INC D M	BEARING D M	COORDINATES LATITUDE DEPARTURE	D-LEG PER 100
100.00	100.00	.07	.28	0-19 N	4-53 E	.28 N	.02 E
200.00	200.00	.14	.68	0-28 N	24-37 E	.93 N	.20 E
300.00	299.99	.04	.82	0-29 N	30-45 E	1.66 N	.58 E
400.00	399.99	-.11	.88	0-31 N	29-54 E	2.42 N	1.02 E
500.00	499.98	-.32	1.03	0-40 N	33-33 E	3.30 N	1.57 E
600.00	599.98	-.64	1.11	0-36 N	41-16 E	4.18 N	2.24 E
700.00	699.97	-1.05	.96	0-30 N	50-32 E	4.85 N	2.93 E
800.00	799.97	-1.48	.80	0-25 N	55-43 E	5.32 N	3.56 E
900.00	899.97	-1.89	.76	0-28 N	49-31 E	5.79 N	4.17 E
1000.00	999.96	-2.26	.90	0-34 N	40-33 E	6.42 N	4.81 E
1100.00	1099.96	-2.62	.99	0-34 N	42-6 E	7.17 N	5.46 E
1200.00	1199.95	-3.03	1.07	0-39 N	43-57 E	7.94 N	6.19 E
1300.00	1299.95	-3.49	1.22	0-45 N	41-25 E	8.84 N	7.02 E
1400.00	1399.94	-3.97	1.38	0-50 N	40-24 E	9.88 N	7.92 E
1410.00	1409.94	-4.02	.15	0-51 N	37-10 E	10.00 N	8.01 E

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MEAS. DEPTH	VERT. DEPTH	VERT. SECT.	COURSE DEV.	INC D M	BEARING D M	COORDINATES LATITUDE DEPARTURE	D-LEG PER 100	G.MOODY 0'-1500'
1500.00	1499.92	-4.54	1.45	1- 0	N 46- 0 E	11.09 N 8.98 E	.23	
1530.00	1529.92	-4.78	.52	1- 0	N 49- 0 E	11.44 N 9.36 E	.17	
1621.00	1620.90	-5.01	1.59	1- 0	N 9- 0 E	12.80 N 10.12 E	.75	
1712.00	1711.89	-4.57	1.59	1- 0	N 1- 0 W	14.38 N 10.23 E	.19	
1803.00	1802.81	-2.04	3.57	3-30	N 52- 0 W	17.48 N 8.69 E	3.27	
1894.00	1893.44	5.99	8.13	6-45	N 76- 0 W	21.01 N 1.43 E	4.20	
1985.00	1983.68	17.60	11.68	8- 0	N 76- 0 W	23.84 N 9.90 W	1.37	
2076.00	2073.59	31.58	14.04	9-45	N 73- 0 W	27.59 N 23.43 W	1.99	
2167.00	2163.14	47.75	16.19	10-45	N 72- 0 W	32.46 N 38.87 W	1.12	
2258.00	2252.35	65.68	17.95	12- 0	N 73- 0 W	37.86 N 55.99 W	1.39	
2349.00	2341.19	85.35	19.70	13- 0	N 72- 0 W	43.78 N 74.77 W	1.12	
2440.00	2429.86	105.81	20.47	13- 0	N 69- 0 W	50.61 N 94.07 W	.74	
2531.00	2518.39	126.86	21.05	13-45	N 71- 0 W	57.81 N 113.85 W	.97	
2622.00	2606.73	148.68	21.82	14- 0	N 68- 0 W	65.45 N 134.28 W	.84	
2713.00	2695.12	170.30	21.63	13-30	N 68- 0 W	73.55 N 154.34 W	.55	

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BY

THE RADIUS OF CURVATURE

MEAS. DEPTH	VERT. DEPTH	VERT. SECT.	COURSE DEV.	INC D M	BEARING D M	COORDINATES LATITUDE DEPARTURE	D-LEG PER 100	
2804.00	2783.56	191.72	21.44	13-45	N 66- 0 W	81.93 N 174.07 W	.59	
2895.00	2872.00	213.12	21.44	13-30	N 66- 0 W	90.65 N 193.66 W	.27	
2986.00	2960.58	233.91	20.86	13- 0	N 64- 0 W	99.46 N 212.56 W	.75	
3077.00	3049.24	254.22	20.47	13- 0	N 61- 0 W	108.92 N 230.71 W	.74	
3168.00	3137.96	274.30	20.28	12-45	N 62- 0 W	118.59 N 248.53 W	.37	D.RODGERS 1500'-3168'
3263.00	3230.66	294.85	20.76	12-30	N 61- 0 W	128.50 N 266.78 W	.35	
3354.00	3319.55	314.08	19.50	12-15	N 59- 0 W	138.25 N 283.67 W	.55	T.DUNCAN 3168'- 4367'
3445.00	3408.56	332.58	18.92	11-45	N 56- 0 W	148.41 N 299.62 W	.88	
3539.00	3500.67	350.76	18.74	11-15	N 55- 0 W	159.03 N 315.07 W	.57	
3630.00	3589.76	369.13	18.53	12-15	N 74- 0 W	166.97 N 331.72 W	4.37	
3725.00	3682.97	387.43	18.33	10- 0	N 72- 0 W	172.33 N 349.24 W	2.40	
3819.00	3774.57	408.10	20.94	15-45	N 84- 0 W	176.67 N 369.69 W	6.71	
3912.00	3863.96	432.98	25.63	16-15	N 83- 0 W	179.57 N 395.15 W	.61	
4006.00	3954.15	458.81	26.50	16-30	N 82- 0 W	183.03 N 421.43 W	.40	
4097.00	4041.35	484.24	26.04	16-45	N 82- 0 W	186.66 N 447.21 W	.27	

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MEAS. DEPTH	VERT. DEPTH	VERT. SECT.	COURSE DEV.	INC D M	BEARING D M	COORDINATES LATITUDE DEPARTURE	D-LEG PER 100
4189.00	4129.73	509.14	25.55	15-30	N 83- 0 W	189.99 N 472.55 W	1.39
4283.00	4220.57	532.66	24.13	14-15	N 82- 0 W	193.14 N 496.47 W	1.36
4345.00	4280.73	547.36	15.00	13-45	N 80- 0 W	195.49 N 511.28 W	1.12
4367.00	4302.10	552.50	5.23	13-45	N 80- 0 W	196.40 N 516.43 W	.00

THE HORIZONTAL DISPLACEMENT AT THE DEPTH OF

4367.00 FEET EQUALS 552.52 FEET AT N 69-11 W.

RECEIVED
OCT 28 1986
C. E. S.
HOBBS OFFICE