

Sii DATADRIL

Division of Smith International, Inc.

AMOCO PRODUCTION COMPANY
SOUTH HOBBS UNIT #215
LEA COUNTY, NEW MEXICO
OCTOBER 29, 1986

MAGNETIC MULTISHOT
10 DEGREES EAST CORRECTION
PROPOSED DIRECTION: N 3.31 E
SURVEYOR: TROY DUNCAN

File Name: AM000215

*** RECORD OF SURVEY ***

Calculated by Sii DATADRIL's C.A.D.S. System

Radius of Curvature Method
All Angles are Decimal
Vertical Section Plane: N 3.31 E

MEASURED DEPTH (FT)	INCL ANGLE (DEG)	D P I F T DIRECTION (DEG)	COURSE LENGTH (FT)	TOTAL VERTICAL DEPTH	TOTAL RECTANGULAR COORDINATES (FT)		VERTICAL SECTION (FT)	CUMULATIVE DISTANCE DIRECTION (FT) (DEG)		LOGLEG SEVERITY (DEG 100')
0.00	0.00	N 0.00 E	0.00	0.00	0.00 N	0.00 E	0.00	0.00 N 0.00 E	0.00	
79.00	.50	N 8.00 W	79.00	79.00	.34 N	.04 W	.34	.34 N 8.00 W	.50	
157.00	.50	N 28.00 W	25.00	107.00	.57 N	.12 W	.56	.56 N 12.17 W	.50	
182.00	.50	N 20.00 W	55.00	162.00	.99 N	.35 W	.97	1.05 N 14.31 W	.25	
237.00	.23	N 32.00 W	61.00	222.99	1.22 N	.64 W	1.19	1.09 N 27.53 W	.72	
298.00	.50	S 74.00 W	57.00	279.99	1.20 N	1.01 W	1.14	1.37 N 40.65 W	.51	
325.00	.50	S 75.00 W	53.00	332.99	1.07 N	1.50 W	.98	1.84 N 54.52 W	.92	
379.00	.75	S 72.00 W	61.00	393.99	.89 N	2.14 W	.76	2.02 N 67.52 W	.41	
440.00	.75	N 34.00 W	61.00	454.98	.81 N	2.92 W	.64	3.04 N 74.55 W	.45	
501.00	1.00	S 37.00 W	61.00	515.97	.82 N	3.85 W	.61	3.93 N 77.81 W	.47	
562.00	1.00	N 77.00 W	61.00	576.97	.93 N	4.92 W	.64	5.00 N 79.33 W	.46	
642.00	1.00	S 71.00 W	60.00	641.96	.87 N	5.95 W	.53	6.01 N 81.56 W	.92	
703.00	1.23	S 66.00 W	61.00	702.94	.43 N	7.06 W	.02	7.06 N 86.49 W	.44	
764.00	1.00	S 74.00 W	61.00	763.93	.02 N	8.19 W	-.45	8.19 N 89.53 W	.46	
825.00	1.00	S 84.00 W	61.00	824.92	.16 S	9.22 W	-.71	9.23 S 88.69 W	.29	
886.00	1.00	N 87.00 W	61.00	885.91	.21 S	10.29 W	-.80	10.30 S 88.85 W	.26	
947.00	.75	S 63.00 W	61.00	946.91	.36 S	11.21 W	-1.01	11.21 S 88.16 W	.74	
1008.00	1.00	N 79.00 W	61.00	1007.90	.45 S	12.12 W	-1.15	12.13 S 87.89 W	.50	
1069.00	1.00	S 89.00 W	61.00	1068.89	.35 S	13.18 W	-1.11	13.13 S 88.46 W	.34	
1130.00	1.00	N 76.00 W	61.00	1129.88	.22 S	14.23 W	-1.06	14.27 S 89.36 W	.43	
1191.00	.75	N 90.00 W	60.00	1189.87	.12 S	15.14 W	-1.00	15.14 S 89.53 W	.55	

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MEASURED DEPTH (FT)	INCL ANGLE (DEG)	D R I F T DIRECTION (DEG)	COURSE LENGTH (FT)	TOTAL VERTICAL DEPTH	T O T A L RECTANGULAR COORDINATES (FT)		VERTICAL SECTION (FT)	C L O S U R E DISTANCE (FT)	S U R E DIRECTION (DEG)	DOUBLES SEVERITY (DEG/100')
1051.00	.75	S 81.00 W	81.00	1050.87	.19 S	15.94 W	-1.11	15.94	S 89.33 W	.19
1061.00	.50	S 15.00 W	81.00	1061.87	.59 S	16.42 W	-1.54	16.42	S 87.50 W	1.11
1070.00	.50	S 71.00 W	81.00	1070.86	.93 S	16.78 W	-1.92	16.81	S 86.74 W	.72
1403.00	.50	S 4.00 W	62.00	1403.36	1.37 S	17.10 W	-2.35	17.15	S 85.43 W	.28
1510.00	1.00	S 19.00 W	77.00	1510.85	2.35 S	17.30 W	-3.35	17.46	S 82.25 W	.29
1575.00	1.00	S 56.00 W	62.00	1574.84	3.10 S	18.01 W	-4.15	18.28	S 80.15 W	1.29
1630.00	1.25	S 62.00 W	62.00	1636.83	3.86 S	19.10 W	-4.76	19.45	S 79.15 W	.42
1699.00	1.75	S 55.00 W	62.00	1699.91	4.51 S	20.49 W	-5.68	20.96	S 77.59 W	.26
1761.00	1.25	S 54.00 W	62.00	1760.79	5.45 S	21.81 W	-6.70	22.43	S 75.93 W	.31
1824.00	1.50	S 68.00 W	62.00	1820.77	6.18 S	22.13 W	-7.51	23.94	S 75.03 W	.62
1886.00	1.25	S 70.00 W	62.00	1885.75	6.72 S	24.82 W	-8.12	25.42	S 74.38 W	.41
1947.00	1.50	S 81.00 W	61.00	1946.74	7.08 S	25.50 W	-8.57	26.88	S 74.72 W	.55
2016.00	1.75	S 86.00 W	63.00	2009.71	7.28 S	27.71 W	-8.97	28.65	S 75.27 W	.46
2070.00	1.00	N 55.00 W	62.00	2071.69	6.89 S	29.11 W	-8.56	29.92	S 76.63 W	1.27
2104.00	1.25	N 45.00 W	62.00	2103.63	6.11 S	30.04 W	-7.84	30.66	S 78.50 W	.51
2197.00	1.25	N 14.00 W	62.00	2198.67	4.93 S	30.71 W	-6.70	31.11	S 80.98 W	1.36
2257.00	3.00	N 8.00 W	62.00	2258.62	2.68 S	31.15 W	-4.47	31.27	S 85.09 W	2.54
2321.00	4.50	N 4.00 W	62.00	2323.49	1.38 N	31.57 W	-4.47	31.90	N 87.54 W	2.45
2384.00	5.00	N 1.00 W	63.00	2380.27	6.57 N	31.80 W	4.72	32.47	N 73.33 W	.29
2447.00	6.00	N 0.00 W	62.00	2445.93	12.61 N	31.55 W	10.75	34.26	N 63.41 W	1.55
2509.00	6.75	N 1.00 W	62.00	2507.59	19.49 N	31.91 W	17.61	37.40	N 53.59 W	1.22
2570.00	7.50	N 0.00 W	63.00	2570.11	27.30 N	31.96 W	25.41	42.05	N 49.51 W	1.21
2630.00	8.50	N 1.00 E	61.00	2630.51	35.79 N	31.91 W	33.89	47.95	N 41.72 W	1.33
2697.00	9.00	N 2.00 E	64.00	2693.77	45.52 N	31.65 W	43.62	55.45	N 34.81 W	.62
2755.00	9.25	N 2.00 E	61.00	2754.00	55.19 N	31.32 W	53.29	63.46	N 29.57 W	.41
2821.00	10.00	N 2.00 E	63.00	2816.11	65.72 N	30.95 W	63.32	72.64	N 25.21 W	1.19
2882.00	10.50	N 2.00 E	61.00	2876.13	76.57 N	30.57 W	74.87	82.44	N 21.76 W	.92
2944.00	11.25	N 2.00 E	62.00	2937.02	88.26 N	30.13 W	86.37	93.27	N 18.37 W	1.21
3007.00	12.00	N 3.00 E	63.00	2993.70	100.94 N	29.61 W	99.06	105.19	N 16.35 W	1.23
3070.00	12.50	N 2.00 E	62.00	3060.29	114.29 N	29.03 W	112.43	117.92	N 14.25 W	.86
3130.00	12.75	N 1.00 E	55.00	3121.77	126.06 N	28.66 W	126.19	131.23	N 12.62 W	.53
3195.00	13.25	N 1.00 E	62.00	3183.18	142.00 N	28.42 W	140.13	144.92	N 11.32 W	.51
3214.00	13.50	N 0.00 E	19.00	3200.67	146.40 N	28.33 W	144.52	149.12	N 10.97 W	1.79

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3276.00	14.00	N 3.00 E	62.00	3260.89	161.13 N 23.00 W	159.24	163.54 N 9.86 W	1.40
3338.00	14.25	N 1.00 E	62.00	3321.11	176.25 N 27.47 W	174.37	178.03 N 5.56 W	.88
3400.00	14.25	N 4.00 E	62.00	3351.11	191.49 N 26.80 W	189.63	193.26 N 7.97 W	1.19
3462.00	14.75	N 5.00 E	62.00	3441.13	206.57 N 25.59 W	205.15	208.55 N 7.05 W	.70
3524.00	14.50	N 3.00 E	62.00	3501.12	222.59 N 24.49 W	220.90	223.93 N 5.23 W	.91
3586.00	15.00	N 2.00 E	62.00	3561.08	238.75 N 23.31 W	236.58	239.54 N 5.70 W	.90
3648.00	15.25	N 6.00 E	62.00	3620.93	254.49 N 22.63 W	252.76	255.50 N 5.09 W	1.70
3710.00	15.50	N 4.00 E	62.00	3680.71	270.36 N 21.24 W	269.19	271.70 N 4.46 W	.95
3772.00	15.50	N 4.00 E	62.00	3740.46	287.79 N 20.09 W	285.75	289.09 N 4.10 W	0.00
3834.00	14.00	N 5.00 E	62.00	3800.41	303.09 N 18.44 W	301.52	303.65 N 3.43 W	2.62
3896.00	12.00	N 10.00 E	62.00	3860.70	317.08 N 16.17 W	315.90	317.79 N 2.92 W	1.73
3958.00	11.50	N 12.00 E	62.00	3921.29	330.30 N 13.65 W	328.95	330.58 N 2.57 W	2.81
4020.00	11.75	N 8.00 E	62.00	3982.01	342.60 N 11.50 W	341.36	342.79 N 1.92 W	1.36
4082.00	11.50	N 7.00 E	62.00	4042.74	354.93 N 9.67 W	353.62	355.12 N 1.59 W	.52
4144.00	11.00	N 5.00 E	62.00	4103.55	367.01 N 9.60 W	365.90	367.11 N 1.34 W	1.12
4206.00	11.00	N 7.00 E	62.00	4164.41	378.73 N 7.36 W	377.72	378.95 N 1.11 W	.62
4268.00	11.00	N 7.00 E	62.00	4225.27	390.52 N 5.92 W	389.52	390.56 N .87 W	0.00
4340.00	11.00	N 7.00 E	75.00	4295.89	404.72 N 4.16 W	403.81	404.74 N .59 W	0.10

BOTTOM HOLE CLOSURE: 404.74 Feet at N .59 Degrees W

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SOUTH HOBBS UNIT #215
LEA COUNTY, NEW MEXICO
OCTOBER 29, 1986

6 NOV 1986 @ 16:01



DATADRIL

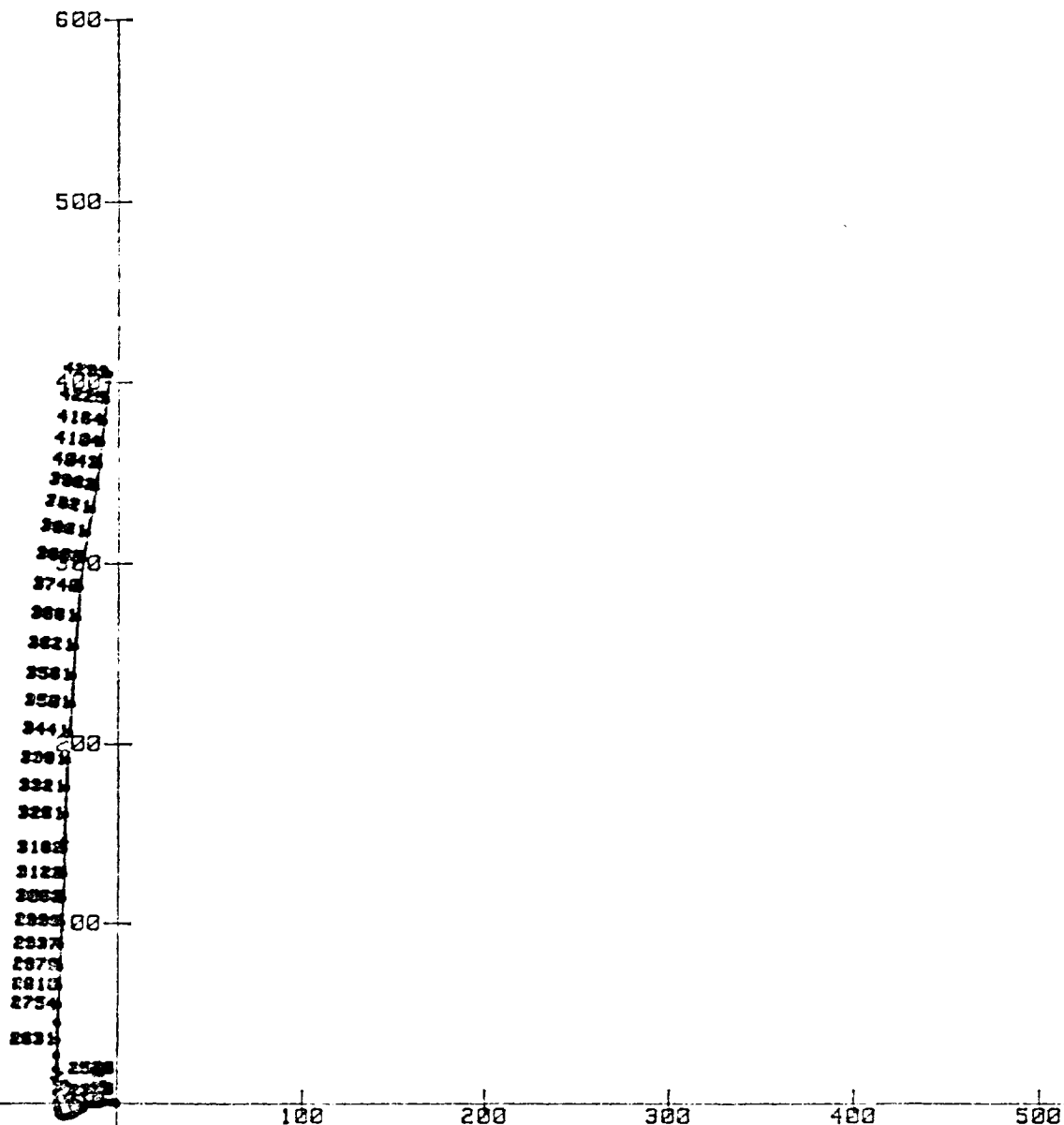
Division of Smith International, Inc.

HORIZONTAL PLOT



SCALE: 100 FEET/INCH

BHL: 405 FEET
@ N .59 W
TVD: 4299 FEET
MD: 4343 FEET



AMOCO PRODUCTION COMPANY
 SOUTH HOBBS UNIT #215
 LEA COUNTY, NEW MEXICO
 OCTOBER 29, 1986

6 NOV 1986 @ 16:06

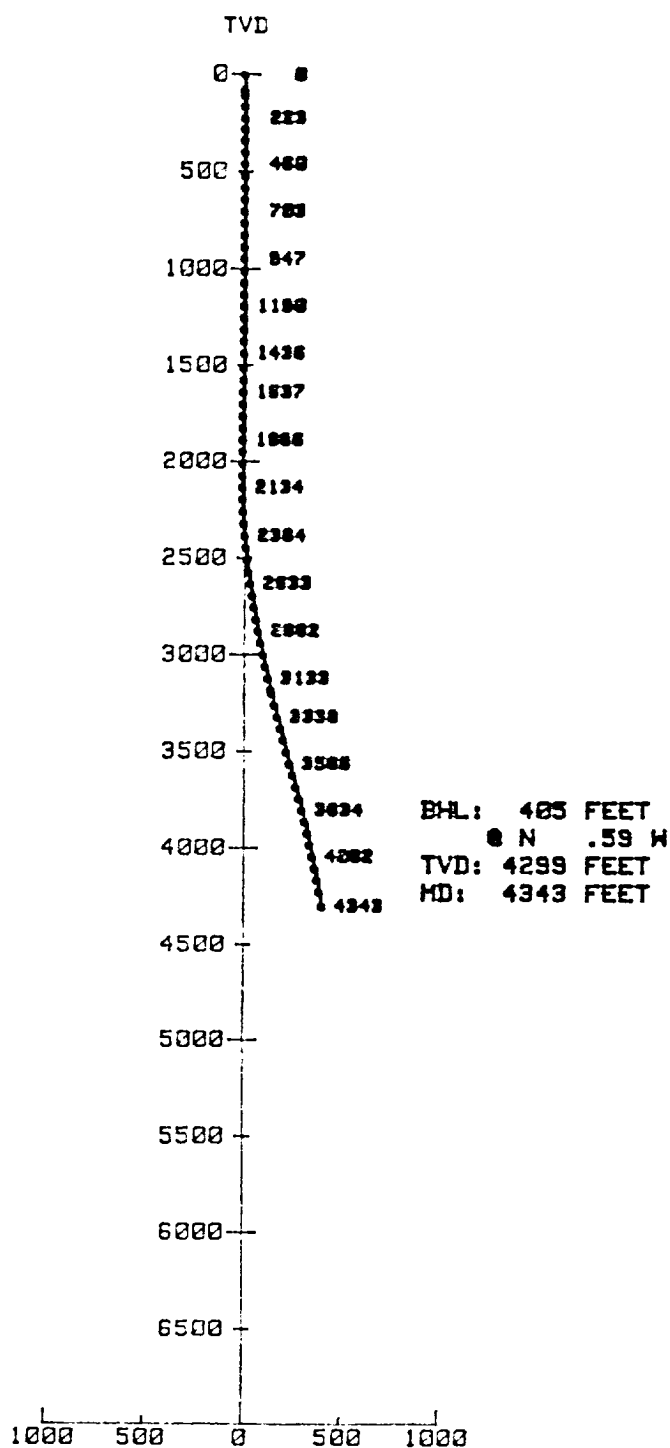


DATADRIL

Division of Smith International, Inc.

VERTICAL PLOT

SCALE: 1000 FEET/INCH



VERTICAL SECTION

SECTION PLANE: N 3.31 E

SMITH DRILLING SYSTEMS

SURVEY CERTIFICATION

COMPANY AMOCO PRODUCTION CO. WELL NAME & NO. S.H.U. #215
DATE of CERTIFICATION 11-7-86 LOCATION LEA COUNTY, NEW MEXICO
TYPE of SURVEY MAGNETIC MULITSHOT FROM 0 TO 1436'
JOB NUMBER 08610035 TICKET NUMBER 5127

THE ABOVE SURVEY WAS PERFORMED BY ME ON OCTOBER 29, 19 86
THE RESULTS OBTAINED FROM ACTUAL FIELD DATA CONFORM TO ESTABLISHED STANDARDS AND ARE
TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE.

TROY DUNCAN LG
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.

James G. A.
S.D.S. REPRESENTATIVE

SMITH DRILLING SYSTEMS

SURVEY CERTIFICATION

COMPANY AMOCO PRODUCTION CO. WELL NAME & NO. S.H.U. #215
DATE of CERTIFICATION 11-7-86 LOCATION LEA COUNTY, NEW MEXICO
TYPE of SURVEY MAGNETIC MULTISHOT FROM 1436' TO 3195'
JOB NUMBER 08610035 TICKET NUMBER 5128

THE ABOVE SURVEY WAS PERFORMED BY ME ON NOVEMBER 1, 19 86
THE RESULTS OBTAINED FROM ACTUAL FIELD DATA CONFORM TO ESTABLISHED STANDARDS AND ARE
TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE.

Troy Duncan LG
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.

Larry G. A.
S.D.S. REPRESENTATIVE

SCIENTIFIC DRILLING CONTROLS

SURVEY CERTIFICATION

COMPANY Amoco Prod. Co. WELL NAME & NO. S.H.U. #215
DATE of CERTIFICATION 11/06/86 LOCATION Lea County, N.M.
TYPE of SURVEY Magnetic Multi-Shot FROM 3195 TO 4343
JOB NUMEER _____ TICKET NUMEER _____

THE ABOVE SURVEY WAS PERFORMED BY ME ON Nov 05 1986
THE RESULTS OBTAINED FROM ACTUAL FIELD DATA CONFORM TO ESTABLISHED
STANDARDS AND ARE TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE.

David Meech
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.

[Signature]
S.D.C. REPRESENTATIVE