

Weatherford Drilling Services

Definitive Survey Report



Weatherford

Company: WILLIAMS PRODUCTION Field: RIO ARRIBA COUNTY (NAD 27) Site: Rosa Unit 239-A <i>com</i> Well: Rosa Unit No. 239A Wellpath: Definitive Survey Wellpath	Date: 7/12/2006 Co-ordinate(NE) Reference: Vertical (TVD) Reference: Section (VS) Reference: Survey Calculation Method:	Time: 10:06:01 Site: Rosa Unit 239-A, True North SITE 6248.0 Well (0.00N,0.00E,3.85Azi) Minimum Curvature	Page: 1 Db: Sybase
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Survey: Wft EM-MWD Survey Company: Weatherford Drilling Services Tool: <i>com</i>	Start Date: 7/1/2006 Engineer: Lee Hoffpaur Tied-to: From Surface	30-039-29608
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Well: Rosa Unit No. 239A Section 2 T 31N Range 6W Well Position: +N/-S 0.00 ft Northing: 2155107.05 ft +E/-W 0.00 ft Easting: 619036.81 ft Position Uncertainty: 0.00 ft	Slot Name: Latitude: 36 55 19.000 N Longitude: 107 25 34.000 W
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Targets															
Name	Description	Dir.	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	← Latitude →			← Longitude →				
								Deg	Min	Sec	Deg	Min	Sec		
Plan 1_EOB_39.0°			1301.44	318.50	21.42	2155425.64	619056.87	36	55	22.149	N	107	25	33.736	W
Plan 1_Start Drop			1719.07	655.92	44.12	2155763.16	619078.13	36	55	25.486	N	107	25	33.457	W
Int. Cs. Pt.			2913.00	1077.76	72.49	2156185.12	619104.70	36	55	29.657	N	107	25	33.107	W
-Circle (Radius: 50)															
PBHL			3153.00	1077.76	72.49	2156185.12	619104.70	36	55	29.657	N	107	25	33.107	W

Surface 2201S 1070/E
BHL 13071S 989/E
MD 3205'
Tvd 2910'

MD ft	TVD ft	Description
337.00	337.00	Assume Vertical at 9-5/8" Casing Shoe
378.00	378.00	378' SMD_Start Wft EM-MWD Survey on 07-01-06.
3161.00	2865.66	3161' SMD_Final Wft EM-MWD Survey on 07-11-06.
3205.00	2909.62	3205' MD_Projection to Bit at well TD on 07-11-06.

RCVD FEB9'07
OIL CONS. DIV.
DIST. 3

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MD ft	Incl deg	Azim deg	TVD ft	VS ft	N/S ft	E/W ft	DLS deg/100ft	ClsD ft	ClsA deg
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
337.00	0.00	0.00	337.00	0.00	0.00	0.00	0.00	0.00	0.00
378.00	1.00	172.75	378.00	-0.35	-0.35	0.05	2.44	0.36	172.75
439.00	1.19	43.62	438.99	-0.39	-0.42	0.55	3.24	0.69	127.69
500.00	3.63	26.25	499.93	1.89	1.77	1.84	4.13	2.55	46.18
561.00	7.00	17.87	560.66	7.28	7.04	3.84	5.65	8.02	28.59
623.00	10.13	16.37	621.97	16.27	15.87	6.53	5.06	17.16	22.38
684.00	13.00	15.62	681.72	28.23	27.62	9.89	4.71	29.34	19.70
743.00	16.56	6.87	738.77	43.13	42.37	12.69	7.11	44.23	16.67
804.00	17.06	0.12	797.17	60.74	59.95	13.75	3.30	61.50	12.91
865.00	16.75	0.50	855.53	78.44	77.69	13.84	0.54	78.91	10.10
925.00	19.31	2.50	912.58	96.99	96.25	14.35	4.39	97.31	8.48
985.00	21.75	6.00	968.77	118.02	117.22	15.94	4.55	118.30	7.75
1045.00	24.13	7.37	1024.02	141.38	140.44	18.68	4.07	141.68	7.58
1106.00	26.31	7.87	1079.20	167.31	166.20	22.13	3.59	167.67	7.58
1168.00	29.56	8.25	1133.97	196.27	194.95	26.21	5.25	196.71	7.66
1230.00	33.19	6.00	1186.90	228.49	226.98	30.18	6.15	228.97	7.57
1293.00	36.25	5.37	1238.67	264.35	262.68	33.72	4.89	264.84	7.32
1354.00	38.31	4.87	1287.21	301.29	299.48	37.02	3.41	301.76	7.05
1372.20	38.78	3.93	1301.44	312.63	310.78	37.89	4.12	313.09	6.95
1416.00	39.94	1.75	1335.31	340.40	338.53	39.26	4.12	340.79	6.61
1479.00	41.13	0.00	1383.19	381.28	379.46	39.87	2.61	381.55	6.00
1541.00	41.38	0.25	1429.80	422.08	420.34	39.96	0.48	422.24	5.43
1604.00	40.31	358.25	1477.46	463.14	461.54	39.43	2.68	463.22	4.88
1697.00	39.81	357.62	1548.64	522.68	521.35	37.28	0.69	522.68	4.09
1759.00	39.94	357.75	1596.22	562.20	561.07	35.67	0.25	562.20	3.64
1822.00	39.13	357.87	1644.81	602.08	601.14	34.14	1.29	602.11	3.25
1884.00	38.19	358.12	1693.22	640.61	639.85	32.78	1.54	640.69	2.93

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		Site: Rosa Unit 239-A, True North SITE 6248.0 Well (0.00N,0.00E,3.85Azi) Minimum Curvature Db: Sybase

Survey

MD ft	Incl deg	Azim deg	TVD ft	VS ft	N/S ft	E/W ft	DLS deg/100ft	ClsD ft	ClsA deg
1916.67	37.20	359.15	1719.07	660.50	659.82	32.31	3.61	660.61	2.80
1946.00	36.31	0.12	1742.57	678.00	677.37	32.19	3.61	678.13	2.72
2008.00	34.44	1.87	1793.12	713.84	713.25	32.80	3.43	714.00	2.63
2072.00	32.56	4.75	1846.49	749.15	748.51	34.82	3.85	749.32	2.66
2134.00	31.38	5.87	1899.09	781.97	781.19	37.85	2.13	782.11	2.77
2198.00	29.38	6.62	1954.30	814.31	813.36	41.37	3.18	814.42	2.91
2259.00	28.00	5.25	2007.81	843.57	842.49	44.40	2.51	843.66	3.02
2321.00	27.19	5.25	2062.76	872.28	871.09	47.03	1.31	872.36	3.09
2382.00	26.13	5.12	2117.27	899.64	898.35	49.50	1.74	899.71	3.15
2445.00	24.44	6.25	2174.23	926.53	925.12	52.16	2.79	926.59	3.23
2508.00	22.19	5.25	2232.09	951.45	949.93	54.67	3.63	951.50	3.29
2570.00	20.44	5.25	2289.84	973.98	972.37	56.73	2.82	974.02	3.34
2634.00	19.38	5.00	2350.02	995.77	994.07	58.68	1.66	995.80	3.38
2694.00	17.19	3.00	2406.98	1014.59	1012.85	60.01	3.80	1014.62	3.39
2757.00	16.00	5.75	2467.36	1032.58	1030.78	61.37	2.26	1032.61	3.41
2788.00	15.00	6.62	2497.23	1040.86	1039.02	62.26	3.31	1040.88	3.43
2819.00	13.94	7.37	2527.25	1048.59	1046.71	63.20	3.47	1048.62	3.46
2881.00	11.56	10.50	2587.72	1062.22	1060.23	65.29	4.00	1062.23	3.52
2944.00	9.13	17.50	2649.69	1073.35	1071.20	67.94	4.34	1073.35	3.63
3006.00	6.69	30.50	2711.10	1081.36	1079.01	71.26	4.86	1081.36	3.78
3069.00	4.31	44.00	2773.81	1086.45	1083.87	74.76	4.27	1086.45	3.95
3131.00	2.75	64.25	2835.69	1088.96	1086.19	77.72	3.18	1088.97	4.09
3161.00	2.33	85.28	2865.66	1089.41	1086.56	78.98	3.38	1089.42	4.16
3205.00	2.33	85.28	2909.62	1089.67	1086.70	80.76	0.00	1089.70	4.25



ROSA UNIT 239-A
Section 2 T 31N R 6W
220' FSL & 1070' FEL
RIO ARriba COUNTY, NM

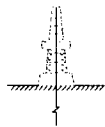


Azimuths to True North
Magnetic North: 10.37°
Magnetic Field
Strength: 51445nT
Dip Angle: 63.81°
Date: 7/1/2006
Model: IgrT2005

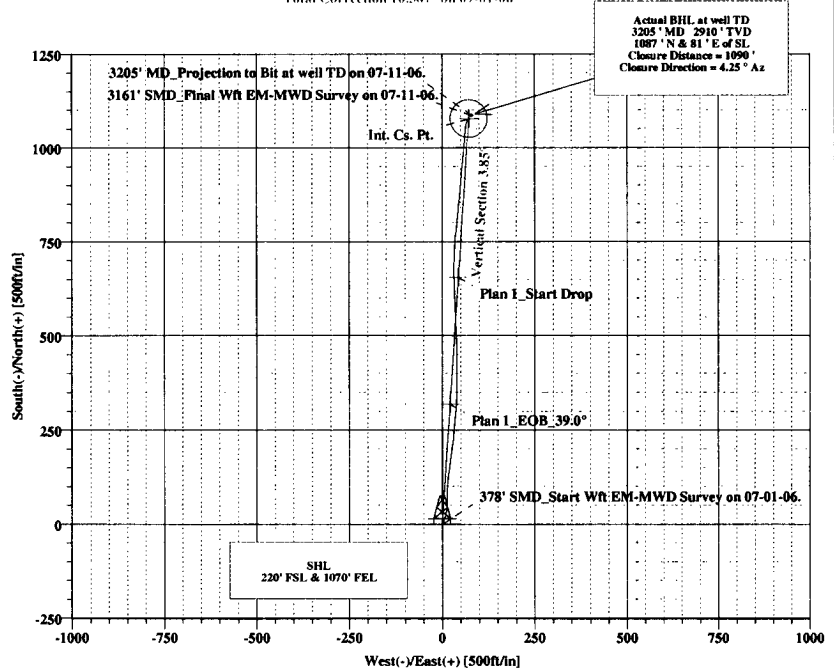
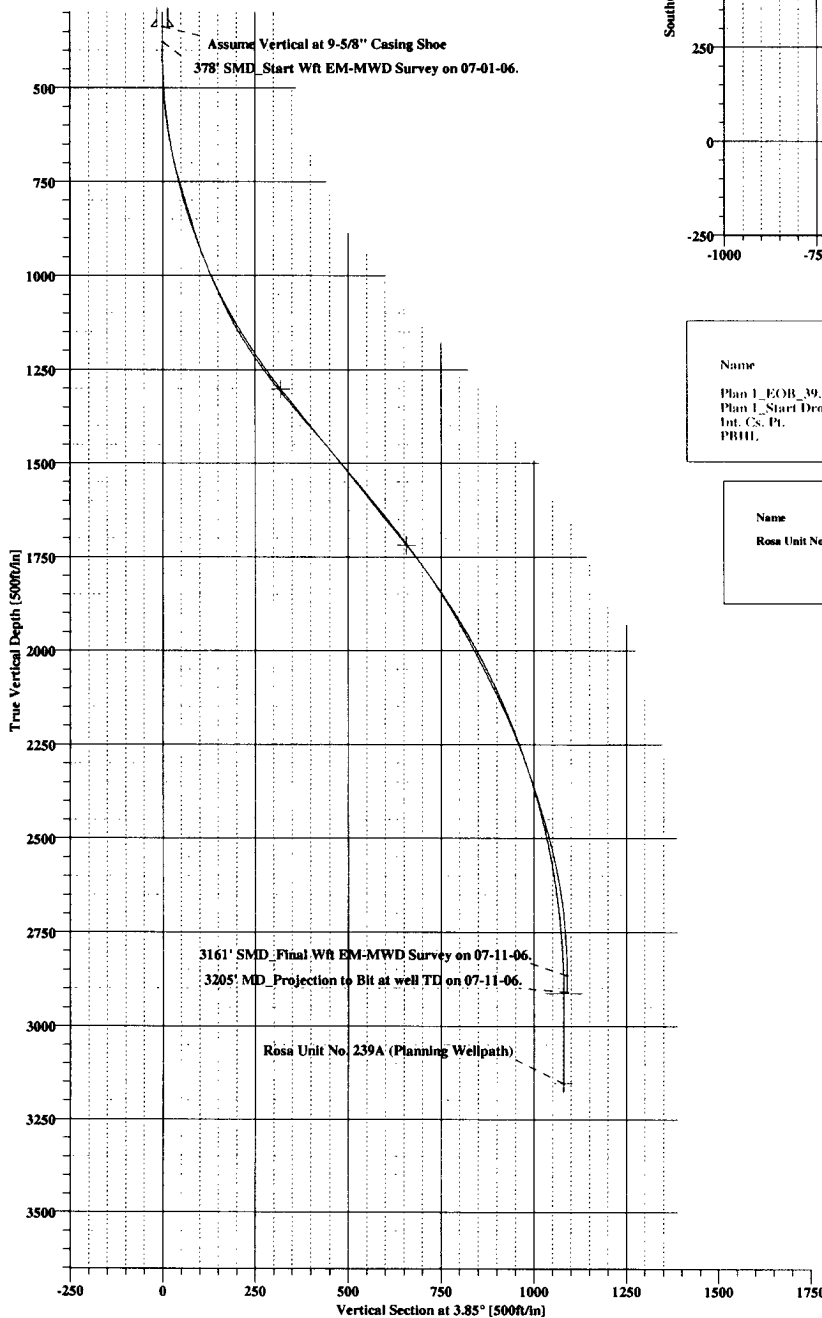


Weatherford

Total Correction 10.367° on 07-01-06



Aztec Rig # 56
KB ELEVATION: 6248'
GR ELEVATION: 6236'



TARGET DETAILS						
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
Plan 1 EOB 39.0°	1301.44	318.50	21.42	36°55'22.149N	107°25'33.736W	Point
Plan 1 Start Drop	1719.07	655.92	44.12	36°55'25.486N	107°25'33.457W	Point
Int. Cs. Pt.	2913.00	1077.76	72.49	36°55'29.657N	107°25'33.107W	Circle (Radius: 50)
PR111.	3153.00	1077.76	72.49	36°55'29.657N	107°25'33.107W	Point

WELL DETAILS						
Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Rosa Unit No. 239A	0.00	0.00	2155107.05	619036.81	36°55'19.000N	107°25'34.000W

CASING DETAILS				
No.	TVD	MD	Name	Size
1	337.00	337.00	9 5/8"	9.625

LEGEND

— Rosa Unit No. 239A (Planning Wellpath)

— Definitive Survey Wellpath

— Wt EM-MWD Survey