



WeatherfordTM

Drilling Services

*Need deviation from Int. to
TD*

Surface 1270 /N 730/E

1614 /N 2289/E

Final Surveys

MD-6546 TVD 6023



WILLIAMS PRODUCTION COMPANY

ROSA UNIT 12-C



Prepared by: Jose A Perez

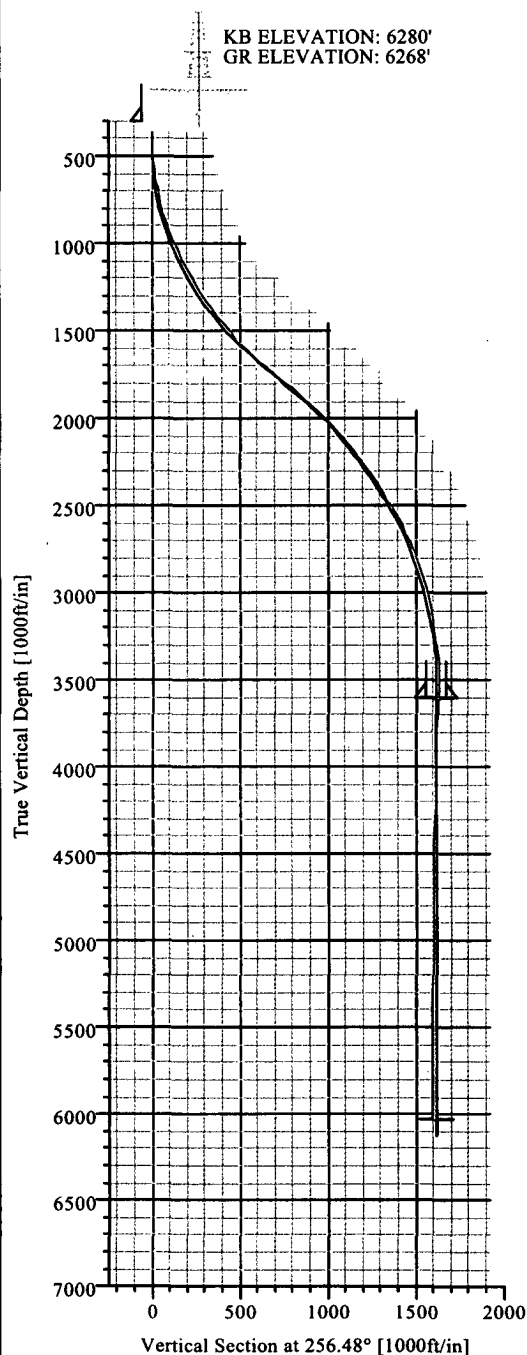
Submitted: 09/19/06

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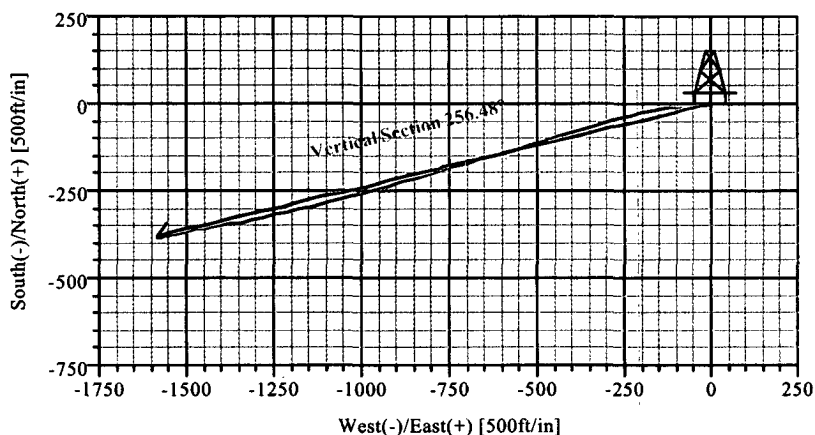
2



ROSA UNIT 12C
Section 15 T31N R 6W
1270' FNL & 730' FEL
RIO ARriba COUNTY, NM
Plan Vs Actual



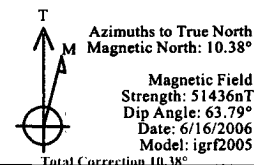
TARGET DETAILS						
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
Int. Cs. Pt.	3600.00	-379.83	-1579.68	36°54'08.244N	107°26'54.449W	Point
PBHL	6025.00	-379.83	-1579.68	36°54'08.244N	107°26'54.449W	Circle (Radius: 50)



FORMATION TOP DETAILS			
No.	TVDPath	MDPath	Formation
1	2315.00	2765.49	Ojo Alamo
2	2430.00	2901.36	Kirtland
3	2830.00	3342.75	Fruitland
4	3105.00	3628.40	Pictured Cliffs
5	3385.00	3911.57	Lewis
6	4980.00	5506.78	Cliff House Trans
7	5300.00	5826.78	Cliff House
8	5345.00	5871.78	Menefee
9	5575.00	6101.78	Point Lookout
10	5880.00	6406.78	Mancos

WELL DETAILS							
Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
Rosa Unit 12-C	0.00	0.00	2148310.84	614111.41	36°54'12.000N	107°26'35.000W	N/A

Plan ---
Actual ---



Plan: Plan #1 (Rosa Unit 12C/1) pt
Created By: Jose Perez Date: 09/18/2006
Weatherford Drilling Services
3611 Plaza East Court
Granbury TX 76049
(817) 573 8500 MAIN
(817) 573 8001 FAX



Weatherford Drilling Services

Survey Report

**Weatherford**

Company: WILLIAMS PRODUCTION Date: 9/19/2006 Time: 10:28:36 Page: 1
Field: RIO ARriba COUNTY (NAD 27) Co-ordinate(NE) Reference: Site: Rosa Unit 12-C, True North
Site: Rosa Unit 12-C Vertical (TVD) Reference: SITE 6280.0
Well: Rosa Unit 12-C Section (VS) Reference: Well (0.00N,0.00E,256.48Azi)
Wellpath: 1 Survey Calculation Method: Minimum Curvature Db: Sybase

Field: RIO ARriba COUNTY (NAD 27)
NEW MEXICO

Map System: US State Plane Coordinate System 1927
Geo Datum: NAD27 (Clarke 1866)
Sys Datum: Mean Sea Level

Map Zone: New Mexico, Western Zone
Coordinate System: Site Centre
Geomagnetic Model: igrf2005

Site: Rosa Unit 12-C
1270' FNL & 730' FEL
Rio Arriba, NM

Site Position: Northing: 2148310.84 ft Latitude: 36 54 12.000 N
From: Geographic Easting: 614111.41 ft Longitude: 107 26 35.000 W
Position Uncertainty: 0.00 ft North Reference: True
Ground Level: 6268.00 ft Grid Convergence: 0.23 deg

Well: Rosa Unit 12-C
S well

Slot Name:

Well Position: +N/-S 0.00 ft Northing: 2148310.84 ft Latitude: 36 54 12.000 N
+E/-W 0.00 ft Easting: 614111.41 ft Longitude: 107 26 35.000 W
Position Uncertainty: 0.00 ft

Wellpath: 1

Current Datum: SITE Height: 6280.00 ft Drilled From: Surface
Magnetic Data: 6/16/2006 Tie-on Depth: 0.00 ft
Field Strength: 51436 nT Above System Datum: Mean Sea Level
Vertical Section: Depth From (TVD) +N/-S Declination: 10.38 deg
ft ft +E/-W Mag Dip Angle: 63.79 deg
ft ft Direction deg
0.00 0.00 0.00 256.48

Survey: MWD Surveys

Start Date: 7/13/2006

Company: Weatherford Drilling Services
Tool:

Engineer:
Tied-to: From Surface

Survey: MWD Surveys

MD ft	Incl deg	Azlm deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Surface Casing First MWD Survey
338.00	0.00	0.00	338.00	0.00	0.00	0.00	0.00	0.00	0.00	
387.00	0.56	213.87	387.00	-0.20	-0.13	0.18	1.14	1.14	0.00	
448.00	2.25	257.00	447.98	-0.72	-1.47	1.59	3.08	2.77	70.70	
508.00	4.25	256.87	507.88	-1.49	-4.78	4.99	3.33	3.33	-0.22	
569.00	7.06	256.62	568.58	-2.87	-10.63	11.00	4.61	4.61	-0.41	
630.00	9.63	260.75	628.93	-4.55	-19.31	19.84	4.32	4.21	6.77	
691.00	12.19	262.62	688.82	-6.20	-30.74	31.34	4.24	4.20	3.07	
752.00	14.31	263.75	748.19	-7.85	-44.62	45.22	3.50	3.48	1.85	
813.00	16.38	268.37	807.02	-8.92	-60.71	61.12	3.94	3.39	7.57	
874.00	18.56	267.50	865.20	-9.58	-79.01	79.06	3.60	3.57	-1.43	
934.00	20.69	266.50	921.71	-10.65	-99.13	98.88	3.59	3.55	-1.67	
994.00	22.75	263.37	977.45	-12.64	-121.24	120.84	3.94	3.43	-5.22	
1057.00	24.88	261.00	1035.08	-16.12	-146.43	146.14	3.71	3.38	-3.76	
1119.00	26.63	258.37	1090.92	-20.96	-172.93	173.04	3.37	2.82	-4.24	
1182.00	28.69	256.75	1146.72	-27.27	-201.48	202.27	3.48	3.27	-2.57	
1245.00	30.63	256.87	1201.47	-34.38	-231.83	233.45	3.08	3.08	0.19	
1308.00	31.63	254.62	1255.39	-42.41	-263.39	266.01	2.43	1.59	-3.57	
1371.00	32.94	253.87	1308.65	-51.55	-295.78	299.63	2.17	2.08	-1.19	
1434.00	34.63	253.50	1361.01	-61.39	-329.40	334.62	2.70	2.68	-0.59	
1497.00	36.31	252.50	1412.32	-72.09	-364.35	371.11	2.82	2.67	-1.59	
1559.00	38.50	251.75	1461.57	-83.65	-400.19	408.66	3.61	3.53	-1.21	
1623.00	40.13	254.00	1511.08	-95.58	-438.94	449.12	3.38	2.55	3.52	
1684.00	42.38	253.00	1556.94	-107.01	-477.50	489.29	3.84	3.69	-1.64	



Weatherford Drilling Services

Survey Report

**Weatherford**

Company: WILLIAMS PRODUCTION
Field: RIO ARriba COUNTY (NAD 27)
Site: Rosa Unit 12-C
Well: Rosa Unit 12-C
Wellpath: 1

Date: 9/19/2006 Time: 10:28:36 Page: 2
Co-ordinate(N/E) Reference: Site: Rosa Unit 12-C, True North
Vertical (TVD) Reference: SITE 6280.0
Section (VS) Reference: Well (0.00N,0.00E,256.48Azi)
Survey Calculation Method: Minimum Curvature Db: Sybase

Survey: MWD Surveys

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
1747.00	44.06	252.62	1602.85	-119.76	-518.71	532.34	2.70	2.67	-0.60	
1811.00	45.88	253.25	1648.13	-133.03	-561.95	577.48	2.93	2.84	0.98	
1873.00	48.88	254.00	1690.10	-145.88	-605.72	623.04	4.92	4.84	1.21	
1936.00	50.63	254.87	1730.80	-158.78	-652.04	671.10	2.97	2.78	1.38	
2000.00	50.81	254.87	1771.32	-171.71	-699.87	720.62	0.28	0.28	0.00	
2062.00	50.75	254.25	1810.53	-184.50	-746.17	768.62	0.78	-0.10	-1.00	
2126.00	50.25	253.50	1851.24	-198.21	-793.61	817.95	1.19	-0.78	-1.17	
2189.00	47.88	253.25	1892.51	-211.83	-839.21	865.47	3.77	-3.76	-0.40	
2252.00	46.81	252.87	1935.20	-225.33	-883.53	911.72	1.76	-1.70	-0.60	
2315.00	45.38	254.00	1978.88	-238.27	-927.03	957.05	2.61	-2.27	1.79	
2377.00	43.50	254.87	2023.15	-249.92	-968.85	1000.43	3.19	-3.03	1.40	
2439.00	41.44	254.50	2068.88	-260.98	-1009.22	1042.27	3.35	-3.32	-0.60	
2502.00	39.88	255.87	2116.67	-271.48	-1048.90	1083.30	2.85	-2.48	2.17	
2564.00	38.75	254.87	2164.64	-281.40	-1086.91	1122.58	2.09	-1.82	-1.61	
2627.00	37.25	256.25	2214.28	-291.08	-1124.47	1161.35	2.74	-2.38	2.19	
2659.00	36.67	256.87	2239.85	-295.55	-1143.18	1180.59	2.15	-1.81	1.94	
2721.00	35.19	256.75	2290.06	-303.85	-1178.60	1216.97	2.39	-2.39	-0.19	
2784.00	34.50	257.75	2341.76	-311.80	-1213.70	1252.96	1.42	-1.10	1.59	
2846.00	33.88	257.37	2393.04	-319.30	-1247.73	1287.80	1.06	-1.00	-0.61	
2908.00	32.69	257.25	2444.87	-326.77	-1280.92	1321.82	1.92	-1.92	-0.19	
2971.00	31.50	256.62	2498.24	-334.34	-1313.53	1355.29	1.96	-1.89	-1.00	
3034.00	29.63	258.87	2552.49	-341.15	-1344.82	1387.31	3.48	-2.97	3.57	
3096.00	27.56	261.12	2606.93	-346.33	-1374.04	1416.93	3.76	-3.34	3.63	
3157.00	25.81	261.00	2661.43	-350.58	-1401.10	1444.23	2.87	-2.87	-0.20	
3218.00	23.19	262.25	2716.93	-354.28	-1426.12	1469.42	4.38	-4.30	2.05	
3281.00	21.81	262.75	2775.13	-357.43	-1450.02	1493.40	2.21	-2.19	0.79	
3343.00	19.31	260.75	2833.18	-360.53	-1471.57	1515.07	4.19	-4.03	-3.23	
3406.00	17.19	259.62	2893.01	-363.88	-1491.01	1534.76	3.41	-3.37	-1.79	
3469.00	14.94	256.37	2953.54	-367.48	-1508.06	1552.18	3.84	-3.57	-5.16	
3562.00	12.63	254.62	3043.86	-373.00	-1529.52	1574.33	2.52	-2.48	-1.88	
3625.00	11.13	256.37	3105.51	-376.26	-1542.07	1587.30	2.45	-2.38	2.78	
3688.00	9.81	256.75	3167.46	-378.92	-1553.20	1598.75	2.10	-2.10	0.60	
3718.00	9.06	257.25	3197.05	-380.03	-1557.99	1603.66	2.51	-2.50	1.67	
3782.00	7.31	256.25	3260.40	-382.11	-1566.86	1612.77	2.74	-2.73	-1.56	
3846.00	5.81	254.62	3323.98	-383.94	-1573.94	1620.08	2.36	-2.34	-2.55	
3908.00	4.31	264.62	3385.74	-384.99	-1579.29	1625.53	2.80	-2.42	16.13	
3972.00	2.31	300.37	3449.63	-384.56	-1582.80	1628.84	4.35	-3.12	55.86	
4035.00	2.38	13.12	3512.59	-382.64	-1583.59	1629.17	4.42	0.11	115.48	
4096.00	1.56	32.62	3573.55	-380.71	-1582.86	1628.00	1.72	-1.34	31.97	Last MWD Survey
6506.00	0.50	32.62	5983.13	-344.22	-1559.51	1596.76	0.04	-0.04	0.00	Williams provided survey
6546.00	0.50	32.62	6023.13	-343.93	-1559.32	1596.51	0.00	0.00	0.00	Projection to Bit

Annotation

MD ft	TVD ft	
338.00	338.00	Surface Casing
387.00	387.00	First MWD Survey
4096.00	3573.55	Last MWD Survey
6546.00	6023.13	Projection to Bit