



Weatherford[®]

Drilling Services

30-045-34245

surface 1675/N 395/E

BHL 2356/N 1037/E

Md6351 TVd 6204

Final Surveys @ TD



WILLIAMS PRODUCTION COMPANY

ROSA UNIT #156C

RCVD OCT 9 '07

OIL CONS. DIV.

DIST. 3

Prepared by: Jose A Perez

Submitted: 07/26/07

Weatherford Drilling Services

11943 FM 529

Houston, TX 77041 USA

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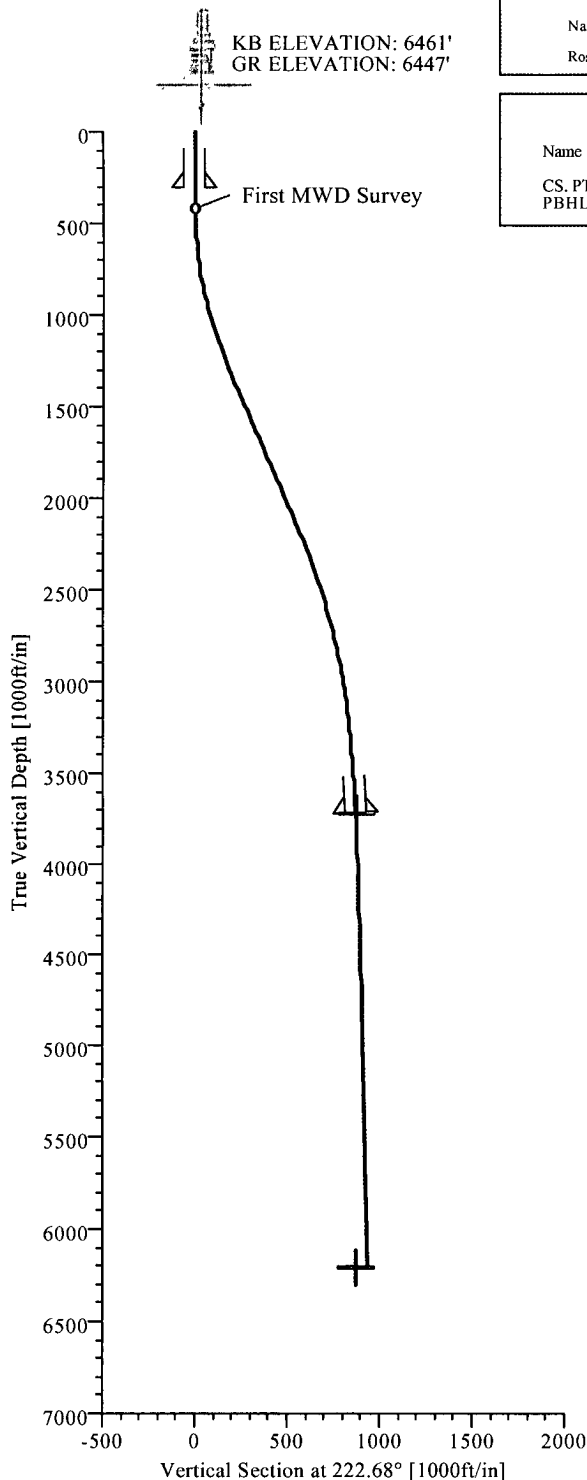
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Rosa Unit 156C
Section 9 T31N R 6W
1675' FNL & 395' FEL
San Juan County, NM
Plan 1
Plan vs. Actual



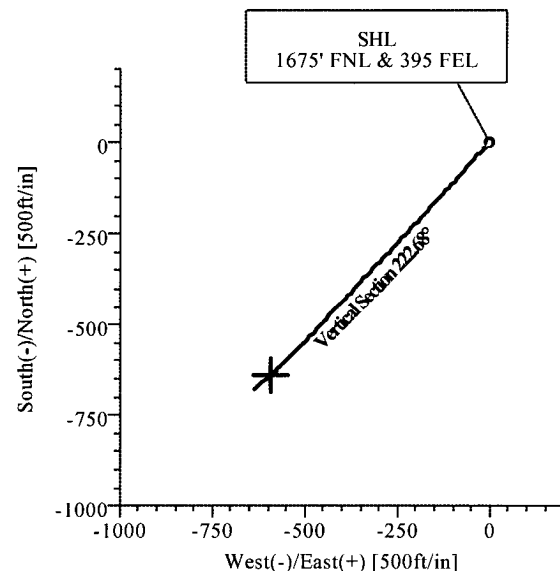
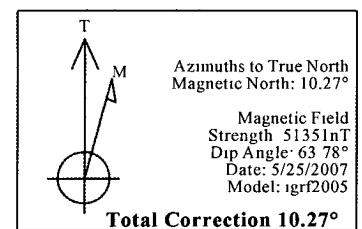
Weatherford®



WELL DETAILS							
Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
Rosa Unit 156C	0 00	0 00	2153234 34	2832077 74	36°55'00 228N	107°27'37 908W	N/A

TARGET DETAILS						
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
CS. PT.	3720.00	-641.05	-591.13	36°54'53 889N	107°27'45 188W	Point
PBHL	6206.00	-641.05	-591.13	36°54'53 889N	107°27'45.188W	Circle (Radius: 50)

FORMATION TOP DETAILS			
No	TVDPath	MDPath	Formation
1	2441.00	2563.03	Ojo Alamo
2	2546.00	2673.61	Kirtland
3	3041.00	3182.52	Fruitland
4	3251.00	3394.07	Pictured Cliffs
5	3531.00	3675.11	Lewis
6	5141.00	5286.11	Cliff House Trans
7	5471.00	5616.19	Cliff House
8	5516.00	5661.20	Menefee
9	5731.00	5876.25	Point Lookout
10	6046.00	6191.32	Mancos



LEGEND

— Actual

— MWD Surveys

Plan Plan #1 (Rosa Unit 156C)

Created By Jose Perez Date: 07/25/07

Weatherford Drilling Services

11943 FM 529

Houston TX USA 77041

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Weatherford Drilling Services

Survey Report



Weatherford

Company: WILLIAMS PRODUCTION	Date: 7/26/2007	Time: 08:41:17	Page: 1
Field: San Juan County, NM (NAD 83)	Co-ordinate(NE) Reference: Site: Rosa Unit 156C, True North		
Site: Rosa Unit 156C	Vertical (TVD) Reference: SITE 6461.0		
Well: Rosa Unit 156C	Section (VS) Reference: Well (0.00N,0.00E,222.68Azi)		
Wellpath: Actual	Survey Calculation Method: Minimum Curvature	Db: Sybase	

Field: San Juan County, NM (NAD 83)

Map System: US State Plane Coordinate System 1983
Geo Datum: GRS 1980
Sys Datum: Mean Sea Level

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

Site: Rosa Unit 156C
 Sect. 9 T31N R6W
 San Juan County, NM

Site Position:	Northing: 2153234.34 ft	Latitude: 36 55 0.228 N
From: Geographic	Easting: 2832077.74 ft	Longitude: 107 27 37.908 W
Position Uncertainty: 0.00 ft		North Reference: True
Ground Level: 6447.00 ft		Grid Convergence: 0.22 deg

Well: Rosa Unit 156C
 1675' FNL & 395' FEL

Slot Name:

Well Position: +N/-S 0.00 ft	Northing: 2153234.34 ft	Latitude: 36 55 0.228 N
+E/-W 0.00 ft	Easting: 2832077.74 ft	Longitude: 107 27 37.908 W
Position Uncertainty: 0.00 ft		

Wellpath: Actual

Current Datum: SITE
Magnetic Data: 5/25/2007
Field Strength: 51351 nT
Vertical Section: Depth From (TVD)
 ft

Height 6461.00 ft

Drilled From: Surface
Tie-on Depth: 0.00 ft
Above System Datum: Mean Sea Level
Declination: 10.27 deg
Mag Dip Angle: 63.78 deg
+E/-W
 ft

Direction
 deg

0.00	0.00	0.00	222.68
------	------	------	--------

Survey: MWD Surveys

Start Date: 7/9/2007

Company: Weatherford Drilling Services
Tool:

Engineer:
Tied-to: From Surface

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
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Surface Casing Tie On First MWD Survey
342.00	0.00	0.00	342.00	0.00	0.00	0.00	0.00	0.00	0.00	
419.00	1.81	141.77	418.99	-0.96	0.75	0.19	2.35	2.35	0.00	
450.00	1.63	154.40	449.97	-1.74	1.25	0.43	1.35	-0.58	40.74	
480.00	1.56	173.52	479.96	-2.53	1.48	0.86	1.78	-0.23	63.73	
511.00	1.75	186.65	510.95	-3.42	1.47	1.52	1.36	0.61	42.35	
541.00	2.06	201.77	540.93	-4.37	1.22	2.39	1.96	1.03	50.40	
572.00	2.63	216.90	571.91	-5.46	0.58	3.62	2.70	1.84	48.81	
603.00	3.44	224.27	602.86	-6.69	-0.49	5.26	2.90	2.61	23.77	
633.00	4.38	227.52	632.79	-8.11	-1.97	7.30	3.22	3.13	10.83	
663.00	5.31	230.27	662.69	-9.77	-3.88	9.81	3.19	3.10	9.17	
693.00	6.31	230.15	692.53	-11.72	-6.21	12.83	3.33	3.33	-0.40	
724.00	7.44	229.52	723.31	-14.11	-9.05	16.51	3.65	3.65	-2.03	
755.00	8.56	227.65	754.01	-16.97	-12.28	20.80	3.71	3.61	-6.03	
784.00	9.69	225.65	782.64	-20.13	-15.62	25.39	4.05	3.90	-6.90	
815.00	10.75	225.90	813.15	-23.96	-19.56	30.88	3.42	3.42	0.81	
845.00	12.06	225.40	842.55	-28.11	-23.80	36.80	4.38	4.37	-1.67	
875.00	13.19	224.65	871.83	-32.75	-28.44	43.35	3.81	3.77	-2.50	
906.00	14.00	222.90	901.96	-38.01	-33.48	50.64	2.93	2.61	-5.65	
937.00	14.69	221.52	931.99	-43.70	-38.64	58.32	2.48	2.23	-4.45	
967.00	15.25	220.90	960.97	-49.53	-43.74	66.07	1.94	1.87	-2.07	
998.00	16.00	221.52	990.83	-55.81	-49.24	74.41	2.48	2.42	2.00	
1028.00	16.44	221.02	1019.63	-62.11	-54.77	82.79	1.54	1.47	-1.67	
1060.00	16.75	221.90	1050.30	-68.96	-60.82	91.93	1.25	0.97	2.75	



Weatherford Drilling Services

Survey Report



Weatherford

Company: WILLIAMS PRODUCTION
Field: San Juan County, NM (NAD 83)
Site: Rosa Unit 156C
Well: Rosa Unit 156C
Wellpath: Actual

Date: 7/26/2007 Time: 08:41:17 Page: 2
Co-ordinate(NE) Reference: Site: Rosa Unit 156C, True North
Vertical (TVD) Reference: SITE 6461.0
Section (VS) Reference: Well (0.00N,0.00E,222.68Azi)
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
1092.00	17.13	222.15	1080.91	-75.89	-67.06	101.25	1.21	1.19	0.78	
1123.00	18.31	222.27	1110.44	-82.87	-73.40	110.68	3.81	3.81	0.39	
1155.00	19.31	222.65	1140.73	-90.48	-80.37	121.00	3.15	3.12	1.19	
1187.00	19.44	222.15	1170.92	-98.32	-87.53	131.62	0.66	0.41	-1.56	
1219.00	20.06	222.27	1201.04	-106.33	-94.79	142.43	1.94	1.94	0.37	
1250.00	21.00	222.65	1230.07	-114.35	-102.13	153.30	3.06	3.03	1.23	
1282.00	21.94	222.52	1259.85	-122.98	-110.06	165.01	2.94	2.94	-0.41	
1312.00	22.19	222.52	1287.65	-131.28	-117.67	176.28	0.83	0.83	0.00	
1344.00	22.50	222.40	1317.25	-140.26	-125.89	188.45	0.98	0.97	-0.37	
1376.00	22.81	222.27	1346.78	-149.37	-134.19	200.77	0.98	0.97	-0.41	
1407.00	23.44	221.77	1375.29	-158.42	-142.34	212.95	2.13	2.03	-1.61	
1439.00	23.88	221.65	1404.60	-168.00	-150.88	225.79	1.38	1.37	-0.37	
1471.00	23.38	221.65	1433.91	-177.59	-159.40	238.61	1.56	-1.56	0.00	
1502.00	23.69	221.27	1462.33	-186.86	-167.60	250.99	1.11	1.00	-1.23	
1534.00	24.06	221.52	1491.60	-196.58	-176.16	263.94	1.20	1.16	0.78	
1566.00	23.50	222.52	1520.88	-206.17	-184.80	276.84	2.16	-1.75	3.12	
1597.00	23.81	222.77	1549.27	-215.31	-193.23	289.28	1.05	1.00	0.81	
1629.00	23.13	223.27	1578.63	-224.63	-201.92	302.02	2.21	-2.12	1.56	
1661.00	23.06	223.15	1608.06	-233.78	-210.51	314.57	0.26	-0.22	-0.37	
1693.00	23.38	222.77	1637.47	-243.01	-219.11	327.19	1.10	1.00	-1.19	
1724.00	23.50	223.15	1665.91	-252.04	-227.52	339.52	0.62	0.39	1.23	
1756.00	23.63	222.52	1695.24	-261.42	-236.21	352.31	0.89	0.41	-1.97	
1787.00	23.88	222.27	1723.62	-270.64	-244.63	364.80	0.87	0.81	-0.81	
1819.00	24.19	222.40	1752.84	-280.28	-253.41	377.83	0.98	0.97	0.41	
1850.00	23.94	223.40	1781.15	-289.54	-262.02	390.47	1.54	-0.81	3.23	
1882.00	24.13	223.40	1810.37	-299.01	-270.97	403.51	0.59	0.59	0.00	
1913.00	23.31	224.02	1838.76	-308.02	-279.59	415.98	2.76	-2.65	2.00	
1945.00	23.31	224.77	1868.14	-317.07	-288.45	428.63	0.93	0.00	2.34	
1977.00	22.75	225.15	1897.59	-325.93	-297.29	441.14	1.81	-1.75	1.19	
2008.00	22.81	225.27	1926.17	-334.38	-305.81	453.13	0.24	0.19	0.39	
2040.00	23.44	225.15	1955.60	-343.24	-314.73	465.69	1.97	1.97	-0.37	
2072.00	23.50	223.90	1984.96	-352.32	-323.66	478.42	1.57	0.19	-3.91	
2103.00	24.06	223.27	2013.32	-361.38	-332.28	490.92	1.98	1.81	-2.03	
2135.00	24.00	222.52	2042.55	-370.92	-341.15	503.95	0.97	-0.19	-2.34	
2167.00	23.88	222.77	2071.80	-380.48	-349.95	516.94	0.49	-0.37	0.78	
2199.00	23.50	223.15	2101.10	-389.89	-358.71	529.80	1.28	-1.19	1.19	
2231.00	23.19	222.90	2130.48	-399.16	-367.36	542.48	1.02	-0.97	-0.78	
2262.00	22.63	223.02	2159.04	-407.99	-375.59	554.54	1.81	-1.81	0.39	
2294.00	22.00	222.40	2188.64	-416.91	-383.83	566.69	2.10	-1.97	-1.94	
2326.00	21.63	222.02	2218.35	-425.72	-391.82	578.58	1.24	-1.16	-1.19	
2357.00	21.38	222.27	2247.19	-434.15	-399.44	589.95	0.86	-0.81	0.81	
2389.00	20.75	221.90	2277.05	-442.68	-407.15	601.45	2.01	-1.97	-1.16	
2421.00	20.00	221.77	2307.05	-450.98	-414.58	612.59	2.35	-2.34	-0.41	
2453.00	19.94	221.52	2337.12	-459.15	-421.84	623.52	0.33	-0.19	-0.78	
2485.00	19.63	222.02	2367.24	-467.23	-429.06	634.35	1.10	-0.97	1.56	
2516.00	19.00	222.02	2396.49	-474.85	-435.92	644.60	2.03	-2.03	0.00	
2547.00	18.81	221.90	2425.82	-482.32	-442.64	654.64	0.63	-0.61	-0.39	
2577.00	18.63	221.52	2454.23	-489.50	-449.05	664.27	0.72	-0.60	-1.27	
2608.00	18.50	221.02	2483.62	-496.92	-455.56	674.14	0.66	-0.42	-1.61	
2640.00	18.06	220.65	2514.00	-504.52	-462.12	684.17	1.42	-1.37	-1.16	
2672.00	17.63	220.40	2544.46	-511.97	-468.49	693.97	1.36	-1.34	-0.78	
2703.00	17.13	221.52	2574.05	-518.96	-474.56	703.22	1.94	-1.61	3.61	
2735.00	16.50	221.40	2604.68	-525.90	-480.69	712.48	1.97	-1.97	-0.37	



Weatherford Drilling Services

Survey Report



Company: WILLIAMS PRODUCTION Date: 7/26/2007 Time: 08:41:17 Page: 3
Field: San Juan County, NM (NAD 83) Co-ordinate(NE) Reference: Site: Rosa Unit 156C, True North
Site: Rosa Unit 156C Vertical (TVD) Reference: SITE 6461.0
Well: Rosa Unit 156C Section (VS) Reference: Well (0.00N,0.00E,222.68Azi)
Wellpath: Actual 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
2767.00	16.13	221.15	2635.39	-532.66	-486.62	721.46	1.18	-1.16	-0.78	
2798.00	15.63	223.65	2665.21	-538.92	-492.34	729.94	2.73	-1.61	8.06	
2830.00	14.88	222.65	2696.08	-545.06	-498.10	738.36	2.48	-2.34	-3.12	
2862.00	14.25	223.15	2727.05	-550.96	-503.57	746.41	2.01	-1.97	1.56	
2893.00	13.50	223.65	2757.15	-556.36	-508.68	753.84	2.45	-2.42	1.61	
2925.00	13.06	224.02	2788.29	-561.66	-513.77	761.19	1.40	-1.37	1.16	
2957.00	12.63	224.77	2819.49	-566.74	-518.75	768.30	1.44	-1.34	2.34	
2988.00	12.13	225.52	2849.77	-571.43	-523.46	774.94	1.69	-1.61	2.42	
3020.00	11.88	225.77	2881.07	-576.09	-528.22	781.59	0.80	-0.78	0.78	
3052.00	11.25	226.40	2912.42	-580.54	-532.84	787.99	2.01	-1.97	1.97	
3084.00	10.56	226.02	2943.84	-584.73	-537.21	794.04	2.17	-2.16	-1.19	
3115.00	10.00	226.65	2974.34	-588.55	-541.21	799.56	1.84	-1.81	2.03	
3147.00	9.25	227.52	3005.89	-592.19	-545.13	804.89	2.39	-2.34	2.72	
3179.00	8.44	227.65	3037.51	-595.51	-548.76	809.79	2.53	-2.53	0.41	
3211.00	8.13	227.15	3069.18	-598.63	-552.15	814.39	0.99	-0.97	-1.56	
3242.00	7.31	226.02	3099.90	-601.49	-555.18	818.54	2.69	-2.65	-3.65	
3274.00	6.88	226.02	3131.65	-604.23	-558.02	822.49	1.34	-1.34	0.00	
3306.00	6.44	225.02	3163.44	-606.83	-560.67	826.20	1.42	-1.37	-3.12	
3338.00	6.25	224.77	3195.24	-609.34	-563.17	829.73	0.60	-0.59	-0.78	
3369.00	6.00	224.52	3226.06	-611.69	-565.49	833.04	0.81	-0.81	-0.81	
3401.00	5.88	223.40	3257.89	-614.08	-567.79	836.35	0.52	-0.37	-3.50	
3433.00	5.63	222.27	3289.73	-616.43	-569.97	839.55	0.86	-0.78	-3.53	
3465.00	5.50	222.15	3321.58	-618.73	-572.06	842.66	0.41	-0.41	-0.37	
3496.00	5.19	220.52	3352.45	-620.89	-573.97	845.54	1.11	-1.00	-5.26	
3528.00	4.81	216.90	3384.32	-623.07	-575.71	848.33	1.54	-1.19	-11.31	
3560.00	4.69	215.40	3416.21	-625.21	-577.28	850.96	0.54	-0.37	-4.69	
3591.00	4.38	216.02	3447.12	-627.20	-578.71	853.39	1.01	-1.00	2.00	
3623.00	4.19	217.02	3479.03	-629.12	-580.13	855.77	0.64	-0.59	3.12	
3655.00	4.06	217.77	3510.94	-630.95	-581.53	858.06	0.44	-0.41	2.34	
3687.00	4.00	217.15	3542.87	-632.73	-582.89	860.30	0.23	-0.19	-1.94	
3718.00	3.88	219.15	3573.79	-634.41	-584.21	862.42	0.59	-0.39	6.45	
3750.00	3.44	223.40	3605.73	-635.94	-585.55	864.46	1.61	-1.37	13.28	
3782.00	3.13	226.40	3637.67	-637.24	-586.84	866.29	1.11	-0.97	9.37	
3813.00	2.56	232.02	3668.64	-638.25	-588.00	867.82	2.04	-1.84	18.13	Last MWD Survey
4980.00	1.25	232.00	4834.97	-662.13	-618.58	906.10	0.11	-0.11	0.00	Single Shot
6351.00	1.25	230.00	6205.64	-680.95	-641.82	935.69	0.00	0.00	-0.15	Single Shot

Annotation

MD ft	TVD ft	
342.00	342.00	Surface Casing Tie On
419.00	418.99	First MWD Survey
3813.00	3668.64	Last MWD Survey
4980.00	4834.97	Single Shot
6351.00	6205.64	Single Shot