

RCVD NOV 15 06

OIL CONS. DIV.

DIST. 3



Weatherford[®]

Drilling Services

30-039-29901

Final Survey Report



Surface 2420/S 1460/W Sec 11
in PA B/L 2440/S 69/E Sec 10
Md 6420 Tvd 6016

WILLIAMS PRODUCTION COMPANY

ROSA UNIT 181 B

Prepared by: Jose A Perez

Submitted: 10/23/06

Weatherford Drilling Services

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B 11/16/06



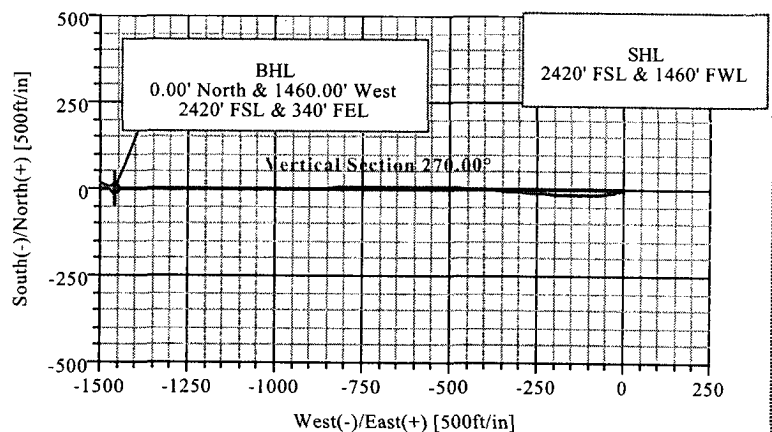
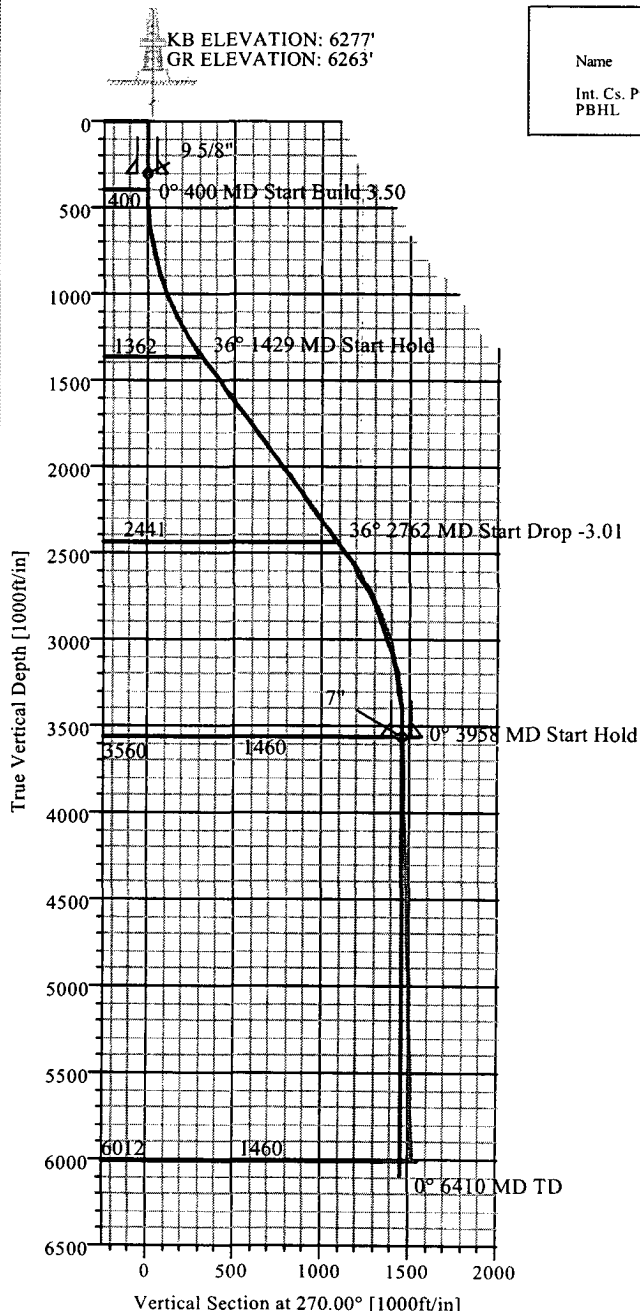
ROSA UNIT 181B
Section 11 T 31N R 6W
2420' FSL & 1460' FWL
RIO ARriba COUNTY, NM
Plan vs Actual

SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.00	0.00	270.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	400.00	0.00	270.00	400.00	0.00	0.00	0.00	0.00	0.00	
3	1428.57	36.00	270.00	1362.22	0.00	-312.64	3.50	270.00	312.64	
4	2761.99	36.00	270.00	2440.98	0.00	-1096.41	0.00	0.00	1096.41	
5	3958.18	0.00	270.00	3560.00	0.00	-1460.00	3.01	180.00	1460.00	Int. Cs. Pt
6	6410.18	0.00	270.00	6012.00	0.00	-1460.00	0.00	270.00	1460.00	PBHL

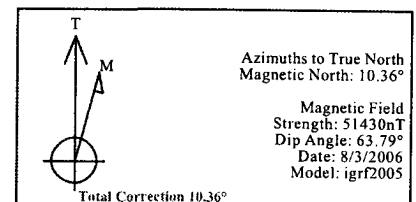
WELL DETAILS							
Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
Rosa Unit No 181B	0.00	0.00	2152061.59	616288.71	36°54'49.000N	107°26'08.000W	N/A

TARGET DETAILS							
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape	
Int. Cs. Pt	3560.00	0.00	-1460.00	36°54'49.000N	107°26'25.978W	Point	
PBHL	6012.00	0.00	-1460.00	36°54'49.000N	107°26'25.978W	Circle (Radius: 50)	

FORMATION TOP DETAILS			
No.	TVDPath	MDPath	Formation
1	2302.00	2590.21	Ojo Alamo
2	2402.00	2713.81	Kirtland
3	2822.00	3200.32	Fruitland
4	3082.00	3475.01	Pictured Cliffs
5	3377.00	3774.90	Lewis
6	4977.00	5375.18	Cliff House Trans
7	5282.00	5680.18	Cliff House
8	5327.00	5725.18	Menefee
9	5562.00	5960.18	Point Lookout
10	5897.00	6295.18	Mancos



Plan —
Actual —



Plan: Plan #1 (Rosa Unit 181B/1) pva
Created By: Jose Perez Date: 10/23/06
Weatherford Drilling Services
3611 Plaza East Court
Granbury TX 76049
(817) 573 8500 MAIN
(817) 573 8001 FAX



Weatherford Drilling Services Survey Report



Company: WILLIAMS PRODUCTION Date: 10/23/2006 Time: 11:11:19 Page: 1
 Field: RIO ARRIBA COUNTY (NAD 27) Co-ordinate(NE) Reference: Site: Rosa Unit 181B, True North
 Site: Rosa Unit 181B Vertical (TVD) Reference: SITE 6277.0
 Well: Rosa Unit No 181B Section (VS) Reference: Well (0.00N,0.00E,270.00Azi)
 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 181B
 2420' FSL & 1460' FWL
 Rio Arriba County, NM

Site Position: Northing: 2152061.59 ft Latitude: 36 54 49.000 N
 From: Geographic Easting: 616288.71 ft Longitude: 107 26 8.000 W
 Position Uncertainty: 0.00 ft North Reference: True
 Ground Level: 6263.00 ft Grid Convergence: 0.24 deg

Well: Rosa Unit No 181B
 Sec. 11 T31N R 6W

Slot Name:

Well Position: +N/-S 0.00 ft Northing: 2152061.59 ft Latitude: 36 54 49.000 N
 +E/-W 0.00 ft Easting: 616288.71 ft Longitude: 107 26 8.000 W
 Position Uncertainty: 0.00 ft

Wellpath: 1

Current Datum: SITE Height 6277.00 ft
 Magnetic Data: 8/3/2006
 Field Strength: 51430 nT
 Vertical Section: Depth From (TVD) +N/-S
 ft ft
 0.00 0.00 0.00 270.00

Drilled From: Surface
 Tie-on Depth: 0.00 ft
 Above System Datum: Mean Sea Level
 Declination: 10.36 deg
 Mag Dip Angle: 63.79 deg
 +E/-W Direction
 ft deg
 0.00 270.00

Survey: MWD Survey

Start Date: 9/2/2006

Company: Weatherford Drilling Services
 Tool:

Engineer:
 Tied-to: From Surface

Survey: MWD Survey

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	
332.00	0.00	0.00	332.00	0.00	0.00	0.00	0.00	0.00	0.00	Surface Casing
419.00	1.00	220.49	419.00	-0.58	-0.49	0.49	1.15	1.15	0.00	First MWD Survey
480.00	2.44	255.24	479.97	-1.31	-2.09	2.09	2.81	2.36	56.97	
542.00	5.00	263.74	541.83	-1.94	-6.06	6.06	4.21	4.13	13.71	
603.00	7.56	260.61	602.46	-2.89	-12.66	12.66	4.23	4.20	-5.13	
664.00	10.25	255.24	662.72	-4.93	-21.87	21.87	4.61	4.41	-8.80	
726.00	11.19	252.61	723.64	-8.13	-32.94	32.94	1.71	1.52	-4.24	
788.00	13.44	258.74	784.21	-11.34	-45.75	45.75	4.19	3.63	9.89	
850.00	15.50	263.61	844.24	-13.66	-61.06	61.06	3.86	3.32	7.85	
910.00	17.81	265.86	901.72	-15.22	-78.18	78.18	4.00	3.85	3.75	
971.00	19.56	268.99	959.51	-16.07	-97.69	97.69	3.31	2.87	5.13	
1032.00	21.44	269.99	1016.64	-16.26	-119.05	119.05	3.13	3.08	1.64	
1094.00	23.75	271.86	1073.88	-15.85	-142.87	142.87	3.90	3.73	3.02	
1157.00	26.88	272.99	1130.82	-14.70	-169.78	169.78	5.03	4.97	1.79	
1219.00	29.25	272.99	1185.53	-13.18	-198.90	198.90	3.82	3.82	0.00	
1282.00	31.63	271.99	1239.84	-11.80	-230.79	230.79	3.86	3.78	-1.59	
1346.00	33.81	274.36	1293.69	-9.86	-265.32	265.32	3.95	3.41	3.70	
1410.00	35.63	274.49	1346.29	-7.05	-301.66	301.66	2.85	2.84	0.20	
1472.00	36.06	273.86	1396.55	-4.41	-337.87	337.87	0.91	0.69	-1.02	
1534.00	36.94	273.61	1446.38	-2.01	-374.67	374.67	1.44	1.42	-0.40	
1598.00	36.63	272.61	1497.64	0.08	-412.94	412.94	1.05	-0.48	-1.56	
1660.00	36.50	272.99	1547.44	1.88	-449.83	449.83	0.42	-0.21	0.61	
1723.00	36.69	271.24	1598.02	3.26	-487.36	487.36	1.68	0.30	-2.78	



Weatherford Drilling Services

Survey Report



Company: WILLIAMS PRODUCTION	Date: 10/23/2006	Time: 11:11:19	Page: 2
Field: RIO ARRIBA COUNTY (NAD 27)	Co-ordinate(NE) Reference:	Site: Rosa Unit 181B, True North	
Site: Rosa Unit 181B	Vertical (TVD) Reference:	SITE: 6277.0	
Well: Rosa Unit No 181B	Section (VS) Reference:	Well: (0.00N,0.00E,270.00Azi)	
Wellpath: 1	Survey Calculation Method:	Minimum Curvature	Db: Sybase

Survey: MWD Survey

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
1786.00	35.56	269.99	1648.91	3.67	-524.50	524.50	2.14	-1.79	-1.98	
1849.00	35.63	270.74	1700.14	3.90	-561.16	561.16	0.70	0.11	1.19	
1912.00	35.88	270.49	1751.26	4.30	-597.97	597.97	0.46	0.40	-0.40	
1975.00	36.00	270.86	1802.27	4.73	-634.95	634.95	0.39	0.19	0.59	
2040.00	35.81	269.86	1854.92	4.97	-673.07	673.07	0.95	-0.29	-1.54	
2102.00	35.88	269.74	1905.18	4.85	-709.37	709.37	0.16	0.11	-0.19	
2163.00	35.56	268.86	1954.70	4.41	-744.98	744.98	0.99	-0.52	-1.44	
2226.00	35.56	268.36	2005.95	3.52	-781.61	781.61	0.46	0.00	-0.79	
2288.00	35.81	269.11	2056.31	2.73	-817.77	817.77	0.81	0.40	1.21	
2352.00	35.94	269.11	2108.17	2.14	-855.27	855.27	0.20	0.20	0.00	
2414.00	36.13	268.74	2158.31	1.46	-891.73	891.73	0.47	0.31	-0.60	
2477.00	35.56	268.61	2209.38	0.61	-928.62	928.62	0.91	-0.90	-0.21	
2539.00	35.31	269.86	2259.89	0.12	-964.56	964.56	1.24	-0.40	2.02	
2602.00	35.44	270.99	2311.26	0.40	-1001.03	1001.03	1.06	0.21	1.79	
2665.00	35.50	269.49	2362.57	0.55	-1037.58	1037.58	1.38	0.10	-2.38	
2728.00	35.75	267.61	2413.78	-0.38	-1074.26	1074.26	1.78	0.40	-2.98	
2791.00	36.00	268.36	2464.83	-1.68	-1111.16	1111.16	0.80	0.40	1.19	
2855.00	35.81	270.11	2516.67	-2.18	-1148.68	1148.68	1.63	-0.30	2.73	
2917.00	34.50	270.24	2567.36	-2.07	-1184.38	1184.38	2.12	-2.11	0.21	
2978.00	31.75	270.86	2618.44	-1.76	-1217.71	1217.71	4.54	-4.51	1.02	
3041.00	29.50	270.61	2672.65	-1.35	-1249.80	1249.80	3.58	-3.57	-0.40	
3104.00	27.00	270.24	2728.14	-1.12	-1279.62	1279.62	3.98	-3.97	-0.59	
3167.00	24.31	271.61	2784.93	-0.70	-1306.88	1306.88	4.37	-4.27	2.17	
3230.00	21.81	270.86	2842.89	-0.16	-1331.55	1331.55	4.00	-3.97	-1.19	
3293.00	19.63	269.49	2901.81	-0.08	-1353.84	1353.84	3.54	-3.46	-2.17	
3355.00	17.44	269.36	2960.59	-0.27	-1373.55	1373.55	3.53	-3.53	-0.21	
3416.00	15.31	267.24	3019.12	-0.76	-1390.73	1390.73	3.63	-3.49	-3.48	
3478.00	13.81	267.49	3079.12	-1.48	-1406.30	1406.30	2.42	-2.42	0.40	
3540.00	12.69	270.99	3139.47	-1.69	-1420.50	1420.50	2.22	-1.81	5.65	
3603.00	11.13	268.99	3201.11	-1.67	-1433.50	1433.50	2.56	-2.48	-3.17	
3635.00	10.06	267.61	3232.57	-1.84	-1439.38	1439.38	3.44	-3.34	-4.31	
3696.00	7.63	266.61	3292.84	-2.31	-1448.75	1448.75	3.99	-3.98	-1.64	
3728.00	6.38	269.74	3324.60	-2.44	-1452.65	1452.65	4.08	-3.91	9.78	
3792.00	3.56	286.49	3388.35	-1.89	-1458.11	1458.11	4.91	-4.41	26.17	
3853.00	1.88	303.36	3449.28	-0.80	-1460.76	1460.76	3.02	-2.75	27.66	
3916.00	1.63	304.74	3512.26	0.27	-1462.36	1462.36	0.40	-0.40	2.19	Last MWD Survey
6370.00	1.25	270.00	5965.52	20.16	-1517.81	1517.81	0.04	-0.02	-1.42	Final Survey
6420.00	1.25	270.00	6015.51	20.16	-1518.90	1518.90	0.00	0.00	0.00	Projection to TD

Annotation

MD ft	TVD ft	
332.00	332.00	Surface Casing
419.00	419.00	First MWD Survey
3916.00	3512.26	Last MWD Survey
6370.00	5965.52	Final Survey
6420.00	6015.51	Projection to TD