



Weatherford™

Drilling Services

RCVD SEP 26 '07

OIL CONS. DIV.

DIST. 3

Final Surveys @TD

30-039-29967

Surface 2325/S 1765/E
BHL 2312/S 2279/W



WILLIAMS PRODUCTION COMPANY

ROSA UNIT 238A

Prepared by: Jose A Perez

Submitted: 07/17/07

Weatherford Drilling Services

11943 FM 529
Houston, TX 77041 USA
+1.713.896.8194 Main
+1.713.896.0498 Fax
www.weatherford.com

\$

File 'As Drilled' plat



Weatherford Drilling Services

Survey Report

**Weatherford**

Company: WILLIAMS PRODUCTION Date: 7/17/2007 Time: 11:39:52 Page: 1
Field: Rio Arriba County (NAD 83) Co-ordinate(NE) Reference: Site: Rosa Unit 238-A, True North
Site: Rosa Unit 238-A Vertical (TVD) Reference: SITE 6368.0
Well: Rosa Unit No. 238A Section (VS) Reference: Well (0.00N,0.00E,269.47Azi)
Wellpath: 1 Survey Calculation Method: Minimum Curvature Db: Sybase

Field: Rio Arriba County (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:

bggm2006

Site: Rosa Unit 238-A
Lot J Section 3 Township 31N Range 6W
Rio Arriba County, NM

Site Position: Northing: 2157271.95 ft Latitude: 36 55 40.00 N
From: Geographic Easting: 2835951.71 ft Longitude: 107 26 50.00 W
Position Uncertainty: 0.00 ft North Reference: True
Ground Level: 6354.00 ft Grid Convergence: 0.23 deg

Well: Rosa Unit No. 238A
2325' FSL & 1765' FEL

Slot Name:

Well Position: +N/-S 0.00 ft Northing: 2157271.95 ft Latitude: 36 55 40.00 N
+E/-W 0.00 ft Easting: 2835951.71 ft Longitude: 107 26 50.00 W
Position Uncertainty: 0.00 ft

Wellpath: 1
S well

Current Datum: SITE

Height 6368.00 ft

Magnetic Data: 6/25/2007

Field Strength: 51350 nT

Vertical Section: Depth From (TVD)
ft

+N/-S
ft

Drilled From: Surface

Tie-on Depth: 0.00 ft

Above System Datum: Mean Sea Level

Declination: 10.32 deg

Mag Dip Angle: 63.82 deg

+E/-W Direction
ft deg

0.00

0.00

0.00

269.47

Survey: MWD Surveys

Start Date: 6/27/2007

Company: Weatherford Drilling Services

Engineer:

Tool:

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
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00	
438.00	1.19	202.52	438.00	-0.36	-0.15	0.15	3.13	3.13	0.00	
468.00	1.88	231.52	467.99	-0.96	-0.66	0.66	3.39	2.30	96.67	
496.00	2.94	241.40	495.96	-1.59	-1.65	1.66	4.05	3.79	35.29	
527.00	4.19	248.77	526.90	-2.38	-3.40	3.42	4.29	4.03	23.77	
557.00	5.44	256.15	556.80	-3.12	-5.80	5.83	4.64	4.17	24.60	
588.00	6.69	259.15	587.62	-3.81	-9.00	9.04	4.16	4.03	9.68	
619.00	8.06	260.52	618.36	-4.51	-12.92	12.96	4.46	4.42	4.42	
650.00	9.38	262.15	649.00	-5.21	-17.57	17.61	4.33	4.26	5.26	
681.00	10.63	263.27	679.53	-5.89	-22.91	22.96	4.08	4.03	3.61	
712.00	12.06	264.52	709.93	-6.53	-28.97	29.03	4.68	4.61	4.03	
743.00	13.63	266.52	740.15	-7.06	-35.84	35.91	5.26	5.06	6.45	
773.00	14.94	266.77	769.22	-7.50	-43.23	43.30	4.37	4.37	0.83	
803.00	16.13	267.77	798.13	-7.88	-51.26	51.33	4.07	3.97	3.33	
833.00	17.56	269.90	826.84	-8.05	-59.95	60.02	5.19	4.77	7.10	
865.00	19.06	270.77	857.22	-7.98	-70.00	70.07	4.76	4.69	2.72	
897.00	20.25	270.15	887.35	-7.90	-80.76	80.83	3.78	3.72	-1.94	
928.00	21.38	270.27	916.33	-7.86	-91.78	91.85	3.65	3.65	0.39	
960.00	22.75	270.90	945.98	-7.73	-103.80	103.86	4.34	4.28	1.97	
992.00	24.31	271.77	975.32	-7.43	-116.57	116.63	4.99	4.87	2.72	
1022.00	25.81	272.15	1002.50	-7.00	-129.27	129.33	5.03	5.00	1.27	
1054.00	27.38	271.77	1031.11	-6.51	-143.58	143.64	4.93	4.91	-1.19	
1086.00	28.56	271.02	1059.37	-6.15	-158.59	158.64	3.85	3.69	-2.34	



Weatherford Drilling Services

Survey Report

**Weatherford**

Company: WILLIAMS PRODUCTION
Field: Rio Arriba County (NAD 83)
Site: Rosa Unit 238-A
Well: Rosa Unit No. 238A
Wellpath: 1

Date: 7/17/2007 Time: 11:39:52 Page: 2
Co-ordinate(NE) Reference: Site: Rosa Unit 238-A, True North
Vertical (TVD) Reference: SITE 6368.0
Section (VS) Reference: Well (0.00N,0.00E,269.47Azi)
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
1117.00	29.44	270.65	1086.49	-5.93	-173.62	173.66	2.90	2.84	-1.19	
1149.00	30.69	270.15	1114.18	-5.82	-189.65	189.69	3.98	3.91	-1.56	
1181.00	31.69	270.65	1141.55	-5.70	-206.22	206.26	3.23	3.12	1.56	
1212.00	32.69	271.02	1167.79	-5.46	-222.73	222.77	3.29	3.23	1.19	
1244.00	34.31	271.52	1194.47	-5.07	-240.39	240.42	5.14	5.06	1.56	
1276.00	36.00	271.27	1220.63	-4.62	-258.81	258.84	5.30	5.28	-0.78	
1308.00	37.25	271.02	1246.32	-4.24	-277.89	277.92	3.93	3.91	-0.78	
1339.00	38.31	270.15	1270.82	-4.05	-296.88	296.91	3.83	3.42	-2.81	
1371.00	39.19	270.15	1295.77	-3.99	-316.91	316.93	2.75	2.75	0.00	
1403.00	40.06	270.02	1320.42	-3.96	-337.32	337.34	2.73	2.72	-0.41	
1435.00	40.44	270.40	1344.84	-3.89	-357.99	358.02	1.41	1.19	1.19	
1466.00	40.81	270.15	1368.37	-3.79	-378.18	378.20	1.30	1.19	-0.81	
1498.00	41.13	270.27	1392.53	-3.71	-399.16	399.18	1.03	1.00	0.37	
1530.00	40.38	269.77	1416.77	-3.71	-420.05	420.07	2.56	-2.34	-1.56	
1560.00	40.19	268.90	1439.66	-3.93	-439.45	439.46	1.98	-0.63	-2.90	
1592.00	40.25	268.02	1464.09	-4.49	-460.10	460.12	1.79	0.19	-2.75	
1624.00	40.31	267.77	1488.51	-5.25	-480.78	480.80	0.54	0.19	-0.78	
1655.00	40.81	267.77	1512.06	-6.03	-500.92	500.95	1.61	1.61	0.00	
1686.00	41.06	268.40	1535.48	-6.71	-521.22	521.26	1.56	0.81	2.03	
1718.00	41.44	268.52	1559.54	-7.28	-542.31	542.35	1.21	1.19	0.37	
1749.00	41.06	269.27	1582.84	-7.67	-562.74	562.79	2.01	-1.23	2.42	
1781.00	40.06	270.40	1607.15	-7.73	-583.55	583.60	3.88	-3.12	3.53	
1813.00	40.13	270.52	1631.63	-7.57	-604.16	604.20	0.33	0.22	0.37	
1845.00	40.75	270.15	1655.99	-7.45	-624.92	624.96	2.08	1.94	-1.16	
1877.00	41.63	269.77	1680.07	-7.46	-645.99	646.03	2.86	2.75	-1.19	
1909.00	40.69	269.90	1704.16	-7.52	-667.05	667.09	2.95	-2.94	0.41	
1941.00	39.69	270.65	1728.60	-7.42	-687.70	687.74	3.47	-3.12	2.34	
1972.00	39.88	271.15	1752.43	-7.11	-707.54	707.57	1.20	0.61	1.61	
2002.00	38.94	271.02	1775.61	-6.75	-726.58	726.61	3.15	-3.13	-0.43	
2034.00	38.13	269.90	1800.64	-6.59	-746.51	746.54	3.34	-2.53	-3.50	
2066.00	37.06	269.27	1825.99	-6.73	-766.03	766.06	3.55	-3.34	-1.97	
2097.00	35.50	268.52	1850.98	-7.08	-784.37	784.40	5.23	-5.03	-2.42	
2129.00	34.50	268.77	1877.19	-7.52	-802.72	802.76	3.16	-3.12	0.78	
2161.00	33.63	269.27	1903.70	-7.82	-820.64	820.68	2.86	-2.72	1.56	
2193.00	34.31	269.90	1930.24	-7.95	-838.52	838.56	2.39	2.12	1.97	
2224.00	34.31	269.77	1955.85	-8.00	-856.00	856.03	0.24	0.00	-0.42	
2255.00	34.06	269.15	1981.49	-8.17	-873.41	873.45	1.38	-0.81	-2.00	
2285.00	33.31	269.27	2006.45	-8.40	-890.05	890.09	2.51	-2.50	0.40	
2317.00	32.19	269.15	2033.37	-8.63	-907.36	907.40	3.51	-3.50	-0.37	
2349.00	31.38	268.40	2060.57	-8.99	-924.21	924.25	2.82	-2.53	-2.34	
2379.00	30.88	268.02	2086.25	-9.48	-939.71	939.76	1.79	-1.67	-1.27	
2411.00	29.50	268.90	2113.91	-9.91	-955.80	955.85	4.53	-4.31	2.75	
2442.00	28.31	268.90	2141.04	-10.20	-970.78	970.83	3.84	-3.84	0.00	
2474.00	27.19	270.52	2169.36	-10.28	-985.68	985.73	4.22	-3.50	5.06	
2506.00	26.19	270.40	2197.95	-10.16	-1000.05	1000.10	3.13	-3.12	-0.37	
2537.00	25.44	270.40	2225.86	-10.07	-1013.55	1013.60	2.42	-2.42	0.00	
2570.00	24.63	269.65	2255.76	-10.06	-1027.51	1027.56	2.64	-2.45	-2.27	
2601.00	22.88	269.40	2284.13	-10.16	-1040.00	1040.05	5.65	-5.65	-0.81	
2632.00	21.75	269.15	2312.81	-10.31	-1051.77	1051.82	3.66	-3.65	-0.81	
2664.00	21.44	269.52	2342.56	-10.45	-1063.55	1063.60	1.06	-0.97	1.16	
2696.00	21.25	269.27	2372.37	-10.57	-1075.19	1075.24	0.66	-0.59	-0.78	
2727.00	20.19	268.90	2401.36	-10.75	-1086.16	1086.21	3.45	-3.42	-1.19	
2759.00	19.25	268.52	2431.49	-10.99	-1096.95	1097.01	2.96	-2.94	-1.19	



Weatherford Drilling Services

Survey Report

**Weatherford**

Company: WILLIAMS PRODUCTION
Field: Rio Arriba County (NAD 83)
Site: Rosa Unit 238-A
Well: Rosa Unit No. 238A
Wellpath: 1

Date: 7/17/2007 Time: 11:39:52 Page: 3
Co-ordinate(NE) Reference: Site. Rosa Unit 238-A, True North
Vertical (TVD) Reference: SITE 6368.0
Section (VS) Reference: Well (0.00N,0.00E,269.47Azi)
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
2791.00	18.31	268.90	2461.78	-11.22	-1107.25	1107.31	2.96	-2.94	1.19	
2823.00	17.75	269.52	2492.21	-11.36	-1117.16	1117.21	1.85	-1.75	1.94	
2854.00	17.00	269.52	2521.80	-11.44	-1126.41	1126.47	2.42	-2.42	0.00	
2886.00	15.81	269.65	2552.49	-11.50	-1135.45	1135.51	3.72	-3.72	0.41	
2916.00	15.13	269.40	2581.41	-11.57	-1143.45	1143.51	2.28	-2.27	-0.83	
2948.00	14.06	268.90	2612.37	-11.69	-1151.51	1151.57	3.37	-3.34	-1.56	
2979.00	12.69	269.65	2642.53	-11.78	-1158.68	1158.74	4.45	-4.42	2.42	
3011.00	11.81	271.27	2673.80	-11.73	-1165.47	1165.53	2.95	-2.75	5.06	
3043.00	11.00	272.02	2705.17	-11.55	-1171.80	1171.85	2.57	-2.53	2.34	
3075.00	9.81	272.52	2736.64	-11.32	-1177.57	1177.63	3.73	-3.72	1.56	
3105.00	8.63	271.15	2766.26	-11.16	-1182.38	1182.43	4.00	-3.93	-4.57	
3137.00	7.69	271.27	2797.93	-11.07	-1186.92	1186.97	2.94	-2.94	0.37	
3168.00	6.75	270.02	2828.68	-11.02	-1190.81	1190.86	3.07	-3.03	-4.03	
3200.00	5.50	266.27	2860.50	-11.12	-1194.22	1194.28	4.10	-3.91	-11.72	
3232.00	4.06	260.90	2892.39	-11.40	-1196.87	1196.93	4.71	-4.50	-16.78	
3263.00	2.75	257.40	2923.33	-11.74	-1198.68	1198.74	4.28	-4.23	-11.29	
3302.00	1.38	264.52	2962.31	-11.98	-1200.06	1200.12	3.57	-3.51	18.26	Last MWD Survey
3572.00	1.00	264.52	3232.25	-12.52	-1205.64	1205.71	0.14	-0.14	0.00	Proj. to Bit

Annotation

MD ft	TVD ft	
400.00	400.00	Surface Casing Tie On
438.00	438.00	First MWD Survey
3302.00	2962.31	Last MWD Survey
3572.00	3232.25	Proj. to Bit