

Williams**Weatherford International, Inc.**
Survey Report**Weatherford**

Company: WILLIAMS PRODUCTION
Field: Rio Arriba County (NAD 83)
Site: Rosa Unit 182C
Well: Rosa Unit 182C
Wellpath: 1

Date: 11/12/2007 Time: 12:10:41 Page: 4
Co-ordinate(NE) Reference: Site: Rosa Unit 182C, True North
Vertical (TVD) Reference: SITE 6445 0
Section (VS) Reference: Well (0.00N,0.00E,336.48Azi)
Survey Calculation Method: Minimum Curvature Db: Sybase

Annotation

MD ft	TVD ft	
400.00	400.00	FIRST WFT SVY
4084.00	3765.50	LAST WFT SVY
6516.00	6196.71	LAST RIG SVY

'Amended' to include deviation @ TD

RCVD NOV 13 '07

OIL CONS. DIV.

DIST. 3

JD

Company: WILLIAMS PRODUCTION	Date: 11/12/2007	Time: 12:10:41	Page: 3
Field: Rio Arriba County (NAD 83)	Co-ordinate(NE) Reference:	Site: Rosa Unit 182C, True North	
Site: Rosa Unit 182C	Vertical (TVD) Reference:	SITE 6445.0	
Well: Rosa Unit 182C	Section (VS) Reference:	Well (0.00N,0.00E,336.48Azi)	
Wellpath: 1	Survey Calculation Method:	Minimum Curvature	Db: Sybase

Survey: WFT 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
2760.00	26.50	337.16	2493.73	916.39	-411.93	1004.65	0.42	0.37	0.41	
2792.00	25.94	337.16	2522.43	929.42	-417.42	1018.78	1.75	-1.75	0.00	
2823.00	24.81	336.28	2550.44	941.62	-422.67	1032.07	3.84	-3.65	-2.84	
2854.00	24.56	335.78	2578.61	953.45	-427.93	1045.01	1.05	-0.81	-1.61	
2885.00	24.88	335.78	2606.77	965.27	-433.25	1057.98	1.03	1.03	0.00	
2917.00	24.38	335.16	2635.86	977.41	-438.78	1071.31	1.76	-1.56	-1.94	
2949.00	23.94	335.41	2665.05	989.30	-444.26	1084.40	1.41	-1.37	0.78	
2981.00	23.06	336.41	2694.40	1000.95	-449.47	1097.16	3.02	-2.75	3.12	
3012.00	22.38	337.28	2722.99	1011.96	-454.18	1109.14	2.45	-2.19	2.81	
3044.00	22.06	337.53	2752.62	1023.13	-458.83	1121.23	1.04	-1.00	0.78	
3076.00	22.06	337.78	2782.28	1034.25	-463.40	1133.25	0.29	0.00	0.78	
3107.00	21.25	337.28	2811.09	1044.82	-467.77	1144.69	2.68	-2.61	-1.61	
3139.00	20.25	337.78	2841.01	1055.29	-472.10	1156.02	3.17	-3.12	1.56	
3171.00	19.56	338.28	2871.10	1065.40	-476.18	1166.91	2.22	-2.16	1.56	
3201.00	19.19	337.66	2899.40	1074.62	-479.91	1176.86	1.41	-1.23	-2.07	
3233.00	18.75	336.16	2929.66	1084.19	-483.99	1187.26	2.05	-1.37	-4.69	
3265.00	17.69	336.28	2960.06	1093.35	-488.02	1197.27	3.31	-3.31	0.37	
3297.00	16.88	337.16	2990.61	1102.08	-491.78	1206.78	2.66	-2.53	2.75	
3328.00	16.13	338.78	3020.33	1110.24	-495.09	1215.58	2.84	-2.42	5.23	
3360.00	15.31	338.03	3051.14	1118.30	-498.28	1224.24	2.64	-2.56	-2.34	
3392.00	14.63	337.78	3082.05	1125.96	-501.39	1232.51	2.13	-2.12	-0.78	
3423.00	13.94	336.91	3112.09	1133.02	-504.33	1240.16	2.33	-2.23	-2.81	
3455.00	13.00	336.03	3143.21	1139.86	-507.31	1247.61	3.01	-2.94	-2.75	
3487.00	12.19	338.53	3174.44	1146.29	-510.01	1254.59	3.05	-2.53	7.81	
3519.00	12.00	337.66	3205.73	1152.51	-512.51	1261.29	0.82	-0.59	-2.72	
3550.00	11.25	338.53	3236.10	1158.31	-514.84	1267.53	2.48	-2.42	2.81	
3581.00	10.56	337.78	3266.54	1163.75	-517.02	1273.39	2.27	-2.23	-2.42	
3612.00	10.31	336.53	3297.02	1168.92	-519.20	1279.01	1.09	-0.81	-4.03	
3644.00	10.31	336.66	3328.51	1174.18	-521.47	1284.73	0.07	0.00	0.41	
3674.00	10.13	336.53	3358.03	1179.06	-523.59	1290.06	0.60	-0.60	-0.43	
3706.00	9.38	337.28	3389.57	1184.05	-525.72	1295.48	2.38	-2.34	2.34	
3738.00	9.00	338.28	3421.16	1188.78	-527.65	1300.59	1.29	-1.19	3.12	
3769.00	8.31	339.66	3451.80	1193.14	-529.32	1305.25	2.32	-2.23	4.45	
3801.00	7.63	339.78	3483.49	1197.30	-530.86	1309.68	2.13	-2.12	0.37	
3833.00	6.94	336.91	3515.24	1201.07	-532.36	1313.73	2.44	-2.16	-8.97	
3864.00	6.69	336.66	3546.02	1204.45	-533.81	1317.41	0.81	-0.81	-0.81	
3894.00	5.75	340.41	3575.84	1207.47	-535.00	1320.66	3.41	-3.13	12.50	
3926.00	4.75	342.53	3607.71	1210.24	-535.94	1323.57	3.18	-3.12	6.62	
3941.00	4.31	344.03	3622.66	1211.38	-536.28	1324.75	3.04	-2.93	10.00	
3958.00	4.13	345.41	3639.61	1212.59	-536.61	1325.99	1.22	-1.06	8.12	
3989.00	2.69	350.28	3670.56	1214.38	-537.01	1327.80	4.73	-4.65	15.71	
4021.00	1.94	358.28	3702.53	1215.66	-537.16	1329.03	2.55	-2.34	25.00	
4053.00	1.69	354.03	3734.51	1216.67	-537.22	1329.98	0.89	-0.78	-13.28	
4084.00	1.44	349.78	3765.50	1217.51	-537.34	1330.80	0.89	-0.81	-13.71	LAST WFT SVY
4113.00	1.44	349.61	3794.49	1218.23	-537.47	1331.51	0.01	0.00	-0.58	7"
6516.00	1.50	336.00	6196.71	1276.67	-555.71	1392.37	0.01	0.00	-0.57	LAST RIG SVY

Casing Points

MD ft	TVD ft	Diameter in	Hole Size in	Name
300.00	300.00	9.625	12.250	9 5/8"
4113.00	3794.49	7.000	8.500	7"

Company: WILLIAMS PRODUCTION
 Field: Rio Arriba County (NAD 83)
 Site: Rosa Unit 182C
 Well: Rosa Unit 182C
 Wellpath: 1

Date: 11/12/2007 Time: 12:10:41 Page: 2
 Co-ordinate(NE) Reference: Site: Rosa Unit 182C, True North
 Vertical (TVD) Reference: SITE 6445 0
 Section (VS) Reference: Well (0.00N,0.00E,336.48Azi)
 Survey Calculation Method: Minimum Curvature Db: Sybase

Survey: WFT 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
1083.00	22.31	335.16	1065.22	126.15	-51.41	136.19	4.43	4.28	-3.12	
1115.00	22.69	334.16	1094.78	137.22	-56.65	148.42	1.69	1.19	-3.12	
1146.00	23.56	334.66	1123.29	148.20	-61.91	160.59	2.88	2.81	1.61	
1178.00	24.38	334.03	1152.53	159.92	-67.54	173.58	2.68	2.56	-1.97	
1210.00	24.81	334.41	1181.62	171.91	-73.33	186.89	1.43	1.34	1.19	
1242.00	25.13	333.78	1210.63	184.06	-79.23	200.39	1.30	1.00	-1.97	
1273.00	25.94	333.91	1238.61	196.06	-85.12	213.74	2.62	2.61	0.42	
1305.00	26.44	333.03	1267.32	208.69	-91.43	227.84	1.98	1.56	-2.75	
1337.00	27.13	333.53	1295.89	221.57	-97.91	242.24	2.27	2.16	1.56	
1369.00	27.44	332.91	1324.33	234.67	-104.52	256.88	1.31	0.97	-1.94	
1401.00	28.06	332.78	1352.65	247.92	-111.32	271.75	1.95	1.94	-0.41	
1432.00	28.38	332.91	1379.96	260.97	-118.01	286.38	1.05	1.03	0.42	
1463.00	27.75	333.28	1407.32	273.97	-124.61	300.94	2.11	-2.03	1.19	
1495.00	28.44	333.53	1435.55	287.45	-131.36	315.99	2.19	2.16	0.78	
1527.00	28.50	332.91	1463.68	301.07	-138.23	331.22	0.94	0.19	-1.94	
1558.00	29.31	332.78	1490.81	314.40	-145.07	346.17	2.62	2.61	-0.42	
1589.00	30.06	333.78	1517.74	328.11	-151.97	361.50	2.90	2.42	3.23	
1621.00	30.63	334.16	1545.36	342.64	-159.07	377.65	1.88	1.78	1.19	
1652.00	31.31	334.66	1571.94	357.03	-165.96	393.59	2.35	2.19	1.61	
1682.00	31.50	335.03	1597.55	371.18	-172.60	409.22	0.90	0.63	1.23	
1714.00	32.00	335.91	1624.76	386.49	-179.59	426.05	2.13	1.56	2.75	
1746.00	32.81	336.16	1651.77	402.11	-186.55	443.20	2.57	2.53	0.78	
1777.00	33.50	336.41	1677.73	417.69	-193.37	460.16	2.27	2.23	0.81	
1809.00	34.13	335.91	1704.31	433.98	-200.57	477.96	2.15	1.97	-1.56	
1841.00	34.75	336.53	1730.70	450.54	-207.87	496.06	2.23	1.94	1.94	
1872.00	35.00	335.78	1756.14	466.75	-215.03	513.79	1.60	0.81	-2.42	
1904.00	35.38	336.28	1782.29	483.60	-222.53	532.23	1.49	1.19	1.56	
1936.00	35.94	335.53	1808.29	500.63	-230.14	550.88	2.22	1.75	-2.34	
1968.00	36.75	335.66	1834.06	517.90	-237.98	569.84	2.54	2.53	0.41	
1998.00	37.13	335.78	1858.04	534.33	-245.39	587.87	1.29	1.27	0.40	
2030.00	37.56	335.53	1883.48	552.02	-253.39	607.28	1.42	1.34	-0.78	
2062.00	38.13	335.41	1908.75	569.88	-261.54	626.91	1.80	1.78	-0.37	
2094.00	37.56	335.53	1934.02	587.74	-269.70	646.54	1.80	-1.78	0.37	
2124.00	37.19	335.53	1957.86	604.32	-277.24	664.75	1.23	-1.23	0.00	
2156.00	37.94	335.53	1983.23	622.07	-285.32	684.25	2.34	2.34	0.00	
2187.00	38.25	335.53	2007.62	639.48	-293.24	703.38	1.00	1.00	0.00	
2219.00	37.31	335.78	2032.91	657.34	-301.32	722.98	2.98	-2.94	0.78	
2251.00	36.50	336.41	2058.50	674.91	-309.11	742.19	2.79	-2.53	1.97	
2283.00	36.19	337.41	2084.28	692.35	-316.55	761.16	2.09	-0.97	3.12	
2315.00	35.44	337.78	2110.23	709.66	-323.69	779.88	2.44	-2.34	1.16	
2347.00	34.00	338.28	2136.53	726.57	-330.51	798.10	4.59	-4.50	1.56	
2378.00	33.75	337.91	2162.27	742.60	-336.95	815.37	1.05	-0.81	-1.19	
2410.00	33.38	337.41	2188.93	758.96	-343.68	833.06	1.44	-1.16	-1.56	
2442.00	31.94	336.53	2215.87	774.85	-350.43	850.33	4.74	-4.50	-2.75	
2474.00	31.25	335.78	2243.13	790.19	-357.21	867.09	2.48	-2.16	-2.34	
2505.00	31.19	335.66	2269.64	804.83	-363.81	883.16	0.28	-0.19	-0.39	
2538.00	30.31	335.78	2298.00	820.21	-370.75	900.03	2.67	-2.67	0.36	
2569.00	29.88	335.66	2324.82	834.38	-377.14	915.57	1.40	-1.39	-0.39	
2601.00	29.38	336.53	2352.63	848.85	-383.56	931.39	2.06	-1.56	2.72	
2633.00	28.31	336.66	2380.66	863.01	-389.69	946.83	3.35	-3.34	0.41	
2665.00	27.69	337.66	2408.92	876.86	-395.52	961.85	2.43	-1.94	3.12	
2696.00	26.88	337.91	2436.47	890.01	-400.89	976.06	2.64	-2.61	0.81	
2728.00	26.38	337.03	2465.07	903.26	-406.39	990.40	1.99	-1.56	-2.75	

Company: WILLIAMS PRODUCTION		Date: 11/12/2007	Time: 12:10:41	Page: 1
Field: Rio Arriba County (NAD 83)		Co-ordinate(NE) Reference: Site: Rosa Unit 182C, True North		
Site: Rosa Unit 182C		Vertical (TVD) Reference: SITE 6445.0		
Well: Rosa Unit 182C		Section (VS) Reference: Well (0 00N, 0 00E, 336.48Azi)		
Wellpath: 1		Survey Calculation Method: Minimum Curvature Db: Sybase		

Field: Rio Arriba County (NAD 83)	
Map System: US State Plane Coordinate System 1983	Map Zone: New Mexico, Western Zone
Geo Datum: GRS 1980	Coordinate System: Site Centre
Sys Datum: Mean Sea Level	Geomagnetic Model: bggm2006

Site: Rosa Unit 182C Sect 18 T31N R5W Rio Arriba County, NM	
Site Position:	Northing: 2145516.41 ft Latitude: 36 53 43 152 N
From: Geographic	Easting: 2850240.58 ft Longitude: 107 23 54.672 W
Position Uncertainty: 0 00 ft	North Reference: True
Ground Level: 6431 00 ft	Grid Convergence: 0.26 deg

Well: Rosa Unit 182C 1095' FSL & 1115' FEL		Slot Name:	
Well Position: +N/-S 0 00 ft	Northing: 2145516.41 ft	Latitude: 36 53 43 152 N	
+E/-W 0 00 ft	Easting: 2850240.58 ft	Longitude: 107 23 54.672 W	
Position Uncertainty: 0 00 ft			

Wellpath: 1		Drilled From: Surface	
Current Datum: SITE	Height: 6445.00 ft	Tie-on Depth: 0 00 ft	
Magnetic Data: 8/23/2007		Above System Datum: Mean Sea Level	
Field Strength: 51323 nT		Declination: 10.28 deg	
Vertical Section: Depth From (TVD)	+N/-S	Mag Dip Angle: 63 80 deg	
ft	ft	+E/-W	Direction
		ft	deg
0 00	0.00	0 00	336 48

Survey: WFT SURVEYS	Start Date: 9/5/2007
Company: Weatherford International, Ltd	Engineer: Mano Lainez
Tool:	Tied-to: User Defined

Survey: WFT 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	
300.00	0 00	0 00	300 00	0 00	0 00	0 00	0 00	0 00	0 00	9 5/8" FIRST WFT SVY
400.00	0 00	0 00	400 00	0 00	0 00	0 00	0 00	0 00	0 00	
437 00	1.75	304.91	436.99	0.32	-0.46	0.48	4 73	4 73	0 00	
468.00	2.94	317.78	467.97	1.18	-1 39	1.64	4 17	3 84	41.52	
499.00	4 25	325.53	498 91	2.72	-2 57	3 52	4 50	4 23	25 00	
529.00	5 44	328 53	528.80	4 85	-3 94	6 02	4 05	3 97	10 00	
560 00	6.31	332 16	559.64	7.61	-5 50	9 17	3 05	2 81	11.71	
588.00	6.94	335 28	587.45	10.51	-6.93	12.40	2.59	2 25	11 14	
618.00	7.75	338 91	617 20	14.04	-8.42	16.23	3.11	2.70	12.10	
648.00	8.69	341.53	646 89	18.08	-9 86	20 51	3 37	3 13	8 73	
679 00	9.75	344 53	677.49	22 83	-11 30	25 44	3.75	3 42	9 68	
709 00	11.00	344 28	707.00	28.03	-12 76	30 79	4 17	4 17	-0 83	
740.00	11 69	342.91	737 40	33.88	-14.48	36.84	2 39	2 23	-4.42	
770 00	13 00	341.78	766 70	39.99	-16 43	43 22	4 44	4 37	-3 77	
801.00	13.69	341 28	796.86	46 78	-18 70	50 35	2.26	2 23	-1 61	
831.00	14 56	340 03	825.96	53 68	-21.12	57 65	3.07	2 90	-4 17	
863 00	15 50	338 53	856.86	61.44	-24.06	65 94	3 18	2 94	-4.69	
895 00	16 19	337 66	887.65	69.55	-27.32	74.67	2 28	2 16	-2.72	
927 00	17.50	338 03	918.27	78 14	-30.82	83.94	4 11	4 09	1 16	
959 00	18 13	337 28	948 74	87 19	-34 54	93 73	2 10	1 97	-2 34	
991 00	19 00	337 41	979 07	96 59	-38 47	103 92	2 72	2 72	0 41	
1021 00	19 94	336 78	1007.36	105.80	-42 36	113 92	3 21	3 13	-2 10	
1051 00	20 94	336 16	1035.47	115 41	-46 54	124 39	3 41	3 33	-2 07	

Williams

Weatherford

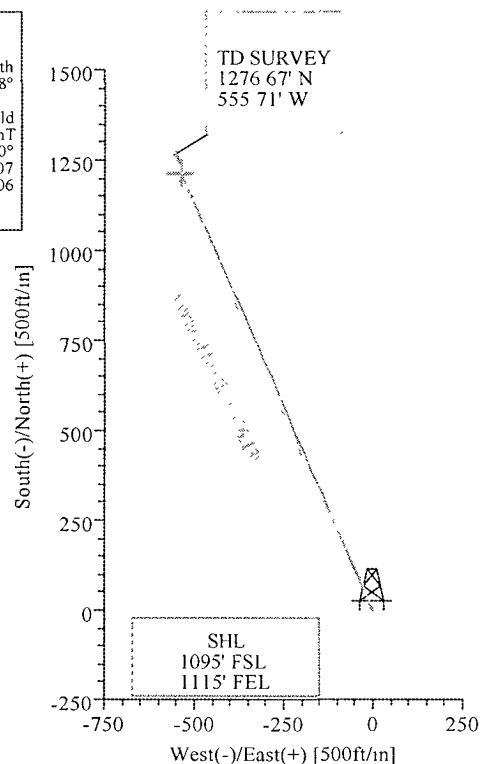
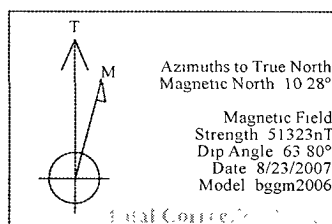
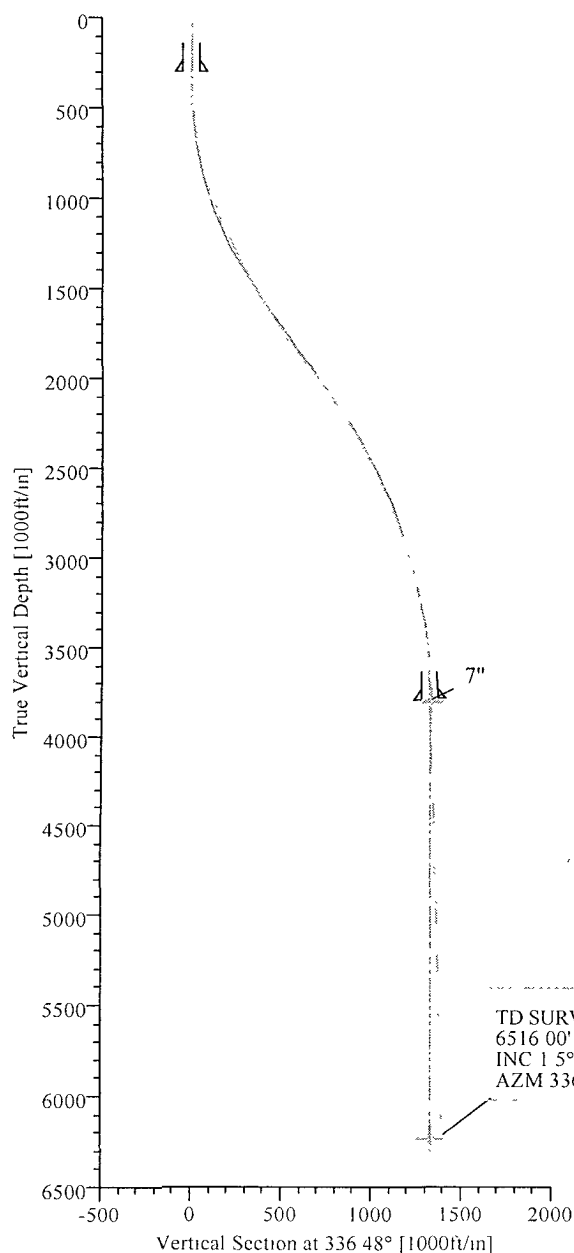
Rosa Unit 182C
Sect. 18 T31N R5W
1115' FEL & 1095' FSL
Rio Arriba County, NM
PVA

LEGEND	
	Rosa Unit 182C 1 Plan #1
	WFT SURVEYS

WELL DETAILS							
Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
Rosa Unit 182C	0 00	0 00	2145516 41	2850240 58	36°53'43 152N	107°23'54 672W	N/A

TARGET DETAILS							
Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape	
Cs Pt	3800 00	1216 00	-538 02	2146729 95	2849697 03	Point	
PBHL	6230 00	1216 00	-538 02	2146729 95	2849697 03	Circle (Radius 50)	

KB ELEVATION 6445'
GR ELEVATION 6431'



TD SURVEY
6516 00' MD
INC 1 5°
AZM 336°

FORMATION TOP DETAILS			
No	TVDPath	MDPath	Formation
1	2550 00	2832 54	Ojo Alamo
2	2670 00	2964 48	Kirtland
3	3060 00	3377 56	Fruitland
4	3330 00	3653 91	Pictured Cliffs
5	3590 00	3915 85	Lewis
6	5175 00	5501 04	Chiff House Trans
7	5485 00	5811 04	Chiff House
8	5535 00	5861 04	Menefee
9	5755 00	6081 04	Point Lookout
10	6075 00	6401 04	Mancos

Plan Plan #1 (Rosa Unit 182c)
Created By Jose Perez Date 08/23/07
Weatherford Drilling Services
11943 FM 529
Houston TX USA 77041
(713) 896 8194 MAIN
(713) 896 0198 FAX