

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Rd., Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-102
Revised October 12, 2005
Instructions on back
Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

☒ AMENDED REPORT
"As Drilled"

WELL LOCATION AND ACREAGE DEDICATION PLAT

*API Number 30-039-30970		*Pool Code 97232	*Pool Name BASIN MANCOS
*Property Code 17033	*Property Name ROSA UNIT		*Well Number 634A
*GRID No. 120782	*Operator Name WILLIAMS PRODUCTION COMPANY		*Elevation 6258'

10 Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
H	22	31N	6W		1480	NORTH	700	EAST	RIO ARriba

11 Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	23	31N	6W		658	NORTH	23	EAST	RIO ARriba

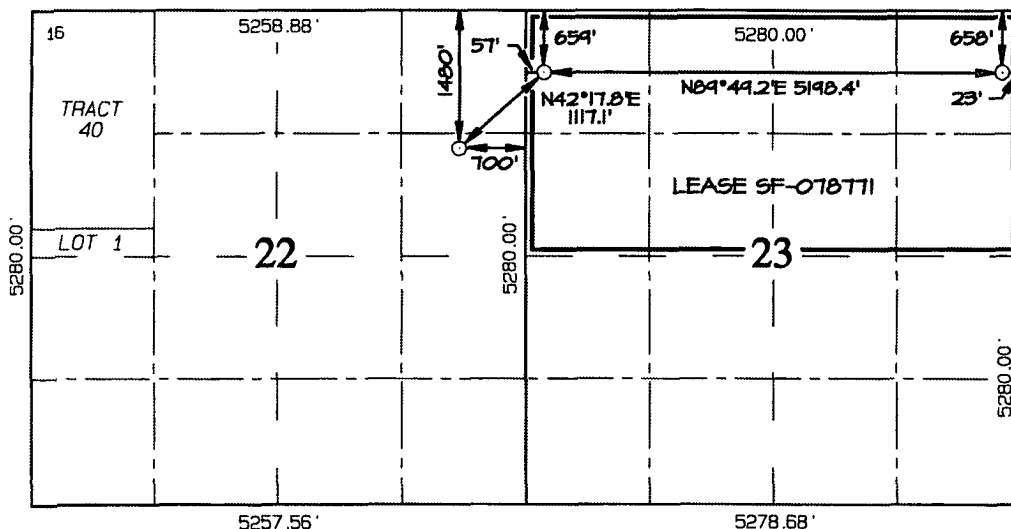
12 Dedicated Acres 320.0 Acres - (N/2)	13 Joint or Infill	14 Consolidation Code	15 Order No. RCVD OCT 21 '10 OIL CONS. DIV. DIST. 3
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NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

SURFACE LOCATION
1480' FNL 700' FEL
SECTION 22, T31N, R6W
LAT: 36.88832°N
LONG: 107.44357°W
DATUM: NAD1983

POINT-OF-ENTRY
659' FNL 57' FWL
SECTION 23, T31N, R6W
LAT: 36.89058°N
LONG: 107.44099°W
DATUM: NAD1983

END-OF-LATERAL
658' FNL 23' FEL
SECTION 23, T31N, R6W
LAT: 36.89056°N
LONG: 107.42321°W
DATUM: NAD1983



17 OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom-hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Signature: Larry Higgins Date: 10-21-10
Printed Name: LARRY HIGGINS

18 SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

Survey Date: SEPTEMBER 11, 2009

Signature and Seal of Professional Surveyor



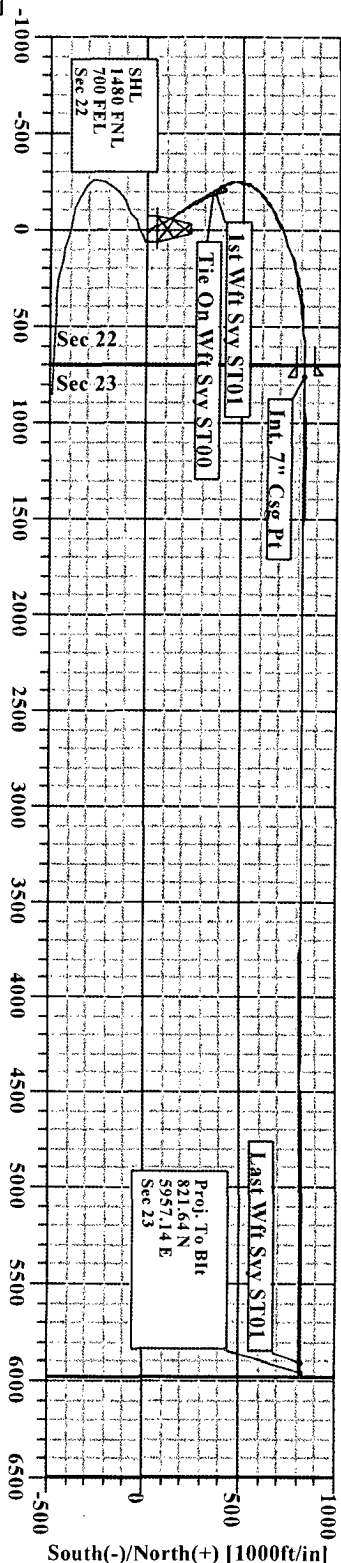
JASON C. EDWARDS
Certificate Number 15269

THE HORIZONTAL LATERAL REPRESENTED ON THIS PLAT CORRESPONDS TO THE OLIVE SEGMENT WHICH VARIES IN VERTICAL DEPTH FROM 7152.3' AT THE POINT-OF-ENTRY TO 7059.1' AT THE END-OF-LATERAL.



Rosa Unit 634A
RIO ARRIBA CO. NM

KB ELEV: 6276.5 est.
CL ELEV: 6258



West(-)/East(+) | 1000ft/in |

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	5160.00	16.70	335.65	5155.61	35.48	-12.09	0.00	0.00	-7.17	
2	5220.00	16.70	335.65	5213.08	51.18	-19.20	0.00	0.00	-12.08	
3	5369.90	25.25	327.66	5352.95	97.91	-45.23	6.00	-22.28	-31.53	
4	6158.20	25.25	327.66	6065.94	381.99	-225.09	0.00	0.00	-171.18	
5	7893.31	90.36	90.07	7153.00	821.89	719.95	6.00	119.49	824.81	LP
6	13131.29	90.36	90.07	7065.00	815.83	5957.18	0.00	0.00	6012.78	Pbhl

WELL DETAILS

Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Spot
Rosa Unit 634A	0.00	0.00	2142906.76	2837072.21	36°53'17.910N	107°26'36.922W	N/A

Weatherford

LEGEND
— Rosa Unit 634A (ST00)
— Well Syv ST01
30-039-30970

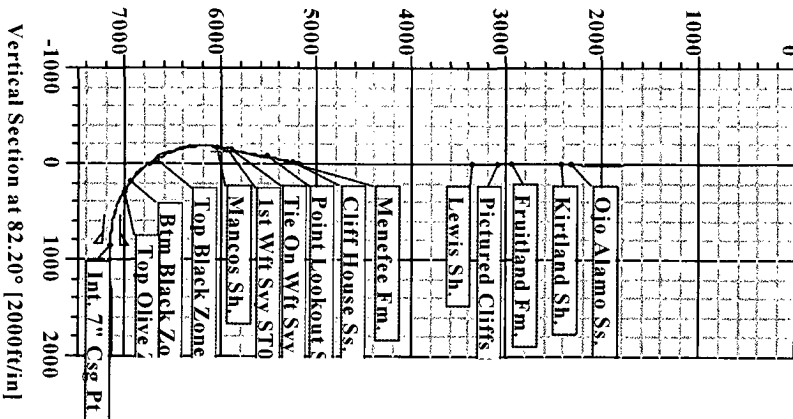
FORMATION TOP DETAILS

No.	TVD/Path	MD/Path	Formation
1	2317.00	2317.70	Ojo Alamo Ss.
2	2423.00	2423.24	Kirtland Sh.
3	2941.00	2941.38	Fruitland Fm.
4	3096.00	3096.41	Pictured Cliffs Ss.
5	3364.00	3364.44	Lewis Sh.
6	5263.93	5275.73	Cliff House Ss.
7	5312.74	5329.43	Menefee Fm.
8	5540.96	5586.66	Point Lookout Ss.
9	6047.14	6143.89	Mancos Sh.
10	6673.52	6839.37	Top Black Zone
11	6942.55	7201.53	Top Olive
12	7010.55	7321.90	Top Olive Zone

TARGET DETAILS

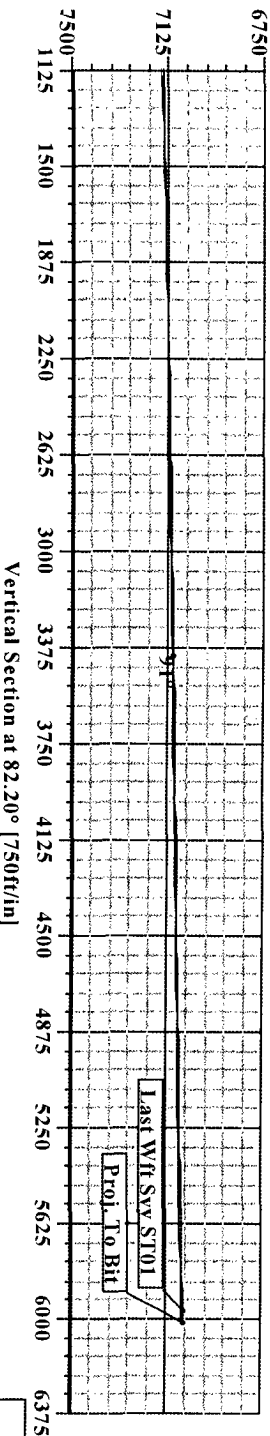
Name	TVD	+N/-S	+E/-W	Shape
Pbhl	7065.00	815.83	5957.18	Point

True Vertical Depth [2000ft/in]



Vertical Section at 82.20° [2000ft/in]

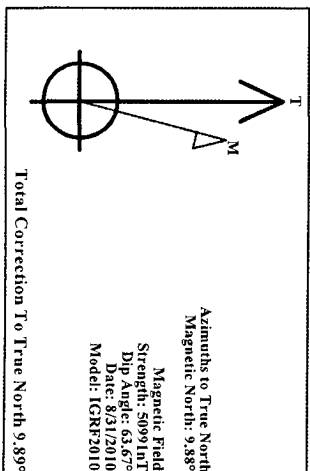
True Vertical Depth [750ft/in]



Vertical Section at 82.20° [750ft/in]

Survey: Well Syv ST01 (Rosa Unit 634A/ST01)

No	MD	Inc	Az	TVD	+N/-S	+E/-W	DLeg	TFace	VSec
145	13123.00	91.38	89.70	7059.14	821.64	5957.14	0.00	0.00	6013.54



Survey: Well Syv ST01 (Rosa Unit 634A/ST01)

Created By: Russell W. Joyner

Date: 10/1/2010



Weatherford International Ltd.

WFT Survey Report X & Y's



Weatherford

Company: Williams Production	Date: 10/1/2010	Time: 16:08:38	Page: 1
Field: RIO ARRIBA CO. NM (NAD 83 NM W Zone)	Co-ordinate(NE) Reference: Well: Rosa Unit 634A, True North		
Site: Rosa Unit 634A	Vertical (TVD) Reference: SITE 6276.5		
Well: Rosa Unit 634A	Section (VS) Reference: Well (0.00N,0.00E,82.20Azi)		
Wellpath: ST00	Survey Calculation Method: Minimum Curvature	Db: Sybase	

Survey: Wft Svy	Start Date: 8/13/2010
Company: Weatherford International Ltd.	Engineer: Russell W. Joyner
Tool: MWD;MWD - Standard	Tied-to: From Surface

Field: RIO ARRIBA CO. NM (NAD 83 NM W Zone)	
Map System: US State Plane Coordinate System 1983	Map Zone: New Mexico, Western Zone
Geo Datum: GRS 1980	Coordinate System: Well Centre
Sys Datum: Mean Sea Level	Geomagnetic Model: IGRF2010

Site: Rosa Unit 634A		
Site Position:	Northing: 2142906.76 ft	Latitude: 36 53 17.910 N
From: Map	Easting: 2837072.21 ft	Longitude: 107 26 36.922 W
Position Uncertainty: 0.00 ft		North Reference: True
Ground Level: 6258.00 ft		Grid Convergence: 0.23 deg

Well: Rosa Unit 634A	Slot Name:
Well Position: +N/-S 0.00 ft	Northing: 2142906.76 ft
+E/-W 0.00 ft	Easting: 2837072.21 ft
Position Uncertainty: 0.00 ft	Latitude: 36 53 17.910 N
	Longitude: 107 26 36.922 W

Wellpath: ST00	Drilled From: Surface
Current Datum: SITE	Tie-on Depth: 0.00 ft
Magnetic Data: 8/11/2010	Above System Datum: Mean Sea Level
Field Strength: 50996 nT	Declination: 9.89 deg
Vertical Section: Depth From (TVD)	Mag Dip Angle: 63.67 deg
ft	+N/-S ft
+E/-W ft	Direction deg
0.00	0.00
	0.00
	82.20

Survey

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	DLS deg/100ft	VS ft	MapN ft	MapE ft	Comment
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2142906.76	2837072.21	
535.00	0.34	331.99	535.00	1.39	-0.74	0.06	-0.54	2142908.15	2837071.47	13 3/8" First Wft Svy
573.00	0.36	331.99	573.00	1.59	-0.85	0.06	-0.62	2142908.35	2837071.36	
635.00	0.31	27.15	635.00	1.91	-0.86	0.51	-0.59	2142908.67	2837071.35	
698.00	0.31	33.99	697.99	2.20	-0.69	0.06	-0.38	2142908.96	2837071.52	
760.00	0.19	8.76	759.99	2.44	-0.58	0.26	-0.24	2142909.20	2837071.63	
822.00	0.19	239.14	821.99	2.49	-0.65	0.55	-0.31	2142909.25	2837071.55	
885.00	0.38	12.39	884.99	2.64	-0.70	0.84	-0.33	2142909.40	2837071.51	
947.00	0.08	142.11	946.99	2.81	-0.62	0.70	-0.24	2142909.57	2837071.58	
1009.00	0.38	60.27	1008.99	2.88	-0.42	0.61	-0.03	2142909.64	2837071.78	
1072.00	0.50	38.64	1071.99	3.20	-0.07	0.32	0.37	2142909.96	2837072.13	
1135.00	0.50	79.89	1134.99	3.46	0.38	0.56	0.84	2142910.22	2837072.58	
1197.00	0.50	33.02	1196.99	3.73	0.79	0.64	1.29	2142910.50	2837072.99	
1259.00	0.38	48.52	1258.98	4.10	1.09	0.27	1.64	2142910.86	2837073.29	
1321.00	1.00	68.51	1320.98	4.43	1.75	1.06	2.33	2142911.20	2837073.94	
1383.00	0.81	87.39	1382.97	4.65	2.69	0.57	3.30	2142911.42	2837074.88	
1445.00	1.07	72.27	1444.96	4.85	3.68	0.58	4.30	2142911.62	2837075.87	
1506.00	1.06	86.64	1505.95	5.05	4.78	0.44	5.43	2142911.83	2837076.98	
1568.00	1.13	70.27	1567.94	5.29	5.93	0.52	6.60	2142912.08	2837078.12	
1629.00	1.06	66.77	1628.93	5.72	7.02	0.16	7.73	2142912.51	2837079.21	
1692.00	1.06	67.77	1691.92	6.17	8.09	0.03	8.85	2142912.96	2837080.28	
1755.00	1.34	57.81	1754.91	6.78	9.26	0.55	10.09	2142913.58	2837081.44	
1818.00	1.19	59.89	1817.89	7.50	10.44	0.25	11.37	2142914.31	2837082.63	
1880.00	1.13	79.02	1879.88	7.94	11.60	0.63	12.57	2142914.75	2837083.78	



Weatherford International Ltd.

WFT Survey Report X & Y's



Weatherford

Company: Williams Production	Date: 10/1/2010	Time: 16:08:38	Page: 2
Field: RIO ARRIBA CO. NM (NAD 83 NM W. Zone)	Co-ordinate(NE) Reference:	Well: Rosa Unit 634A, True North	
Site: Rosa Unit 634A	Vertical (TVD) Reference:	SITE 6276.5	
Well: Rosa Unit 634A	Section (VS) Reference:	Well (0.00N,0.00E,82.20Azi)	
Wellpath: ST00	Survey Calculation Method:	Minimum Curvature	Db: Sybase

Survey

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	DLS deg/100ft	VS ft	MapN ft	MapE ft	Comment
1942.00	0.69	113.89	1941.87	7.91	12.54	1.11	13.50	2142914.72	2837084.72	
2004.00	0.59	207.28	2003.87	7.47	12.74	1.51	13.63	2142914.29	2837084.92	
2066.00	0.94	206.77	2065.86	6.73	12.36	0.56	13.16	2142913.55	2837084.55	
2128.00	1.06	237.64	2127.85	5.97	11.65	0.88	12.35	2142912.78	2837083.84	
2191.00	1.38	224.64	2190.84	5.12	10.62	0.67	11.22	2142911.93	2837082.82	
2252.00	1.44	241.27	2251.82	4.23	9.44	0.68	9.92	2142911.03	2837081.63	
2314.00	1.38	232.77	2313.80	3.40	8.16	0.35	8.54	2142910.20	2837080.36	
2317.20	1.39	232.74	2317.00	3.36	8.10	0.29	8.48	2142910.15	2837080.30	Ojo Alamo Ss.
2377.00	1.56	232.27	2376.78	2.42	6.88	0.29	7.14	2142909.21	2837079.08	
2423.24	1.65	237.50	2423.00	1.68	5.81	0.38	5.99	2142908.46	2837078.02	Kirtland Sh.
2439.00	1.69	239.14	2438.76	1.43	5.42	0.38	5.57	2142908.22	2837077.63	
2501.00	1.88	230.02	2500.73	0.31	3.86	0.55	3.87	2142907.09	2837076.07	
2563.00	1.70	221.77	2562.70	-1.03	2.47	0.51	2.31	2142905.75	2837074.69	
2626.00	1.44	181.52	2625.68	-2.52	1.82	1.76	1.47	2142904.25	2837074.05	
2687.00	1.50	183.02	2686.65	-4.08	1.76	0.12	1.19	2142902.69	2837073.99	
2749.00	1.19	168.77	2748.64	-5.52	1.84	0.73	1.08	2142901.25	2837074.08	
2812.00	0.92	144.01	2811.63	-6.57	2.27	0.83	1.36	2142900.20	2837074.51	
2873.00	0.69	158.02	2872.62	-7.31	2.69	0.49	1.68	2142899.47	2837074.94	
2935.00	0.81	156.39	2934.62	-8.06	3.01	0.20	1.89	2142898.72	2837075.26	
2941.38	0.87	157.04	2941.00	-8.14	3.05	0.93	1.91	2142898.63	2837075.29	Fruitland Fm.
2997.00	1.38	160.39	2996.60	-9.16	3.44	0.93	2.16	2142897.62	2837075.69	
3059.00	0.67	149.99	3058.59	-10.18	3.87	1.18	2.45	2142896.60	2837076.12	
3096.41	0.53	154.38	3096.00	-10.52	4.05	0.39	2.59	2142896.26	2837076.31	Pictured Cliffs S
3121.00	0.44	158.77	3120.59	-10.71	4.13	0.39	2.64	2142896.07	2837076.39	
3184.00	0.50	316.39	3183.59	-10.74	4.03	1.46	2.54	2142896.04	2837076.29	
3246.00	1.00	308.77	3245.59	-10.21	3.42	0.82	2.01	2142896.57	2837075.68	
3309.00	1.19	314.39	3308.57	-9.40	2.53	0.35	1.23	2142897.37	2837074.78	
3364.44	1.30	316.87	3364.00	-8.54	1.69	0.22	0.51	2142898.23	2837073.94	Lewis Sh.
3371.00	1.31	317.14	3370.56	-8.43	1.59	0.22	0.43	2142898.33	2837073.83	
3433.00	0.94	332.64	3432.55	-7.46	0.87	0.77	-0.15	2142899.30	2837073.11	
3494.00	1.22	326.02	3493.54	-6.48	0.28	0.50	-0.60	2142900.28	2837072.52	
3557.00	0.94	320.89	3556.52	-5.52	-0.42	0.47	-1.17	2142901.24	2837071.81	
3619.00	1.00	309.77	3618.52	-4.78	-1.16	0.32	-1.80	2142901.98	2837071.07	
3681.00	1.13	330.64	3680.51	-3.90	-1.88	0.66	-2.39	2142902.85	2837070.35	
3742.00	1.13	307.14	3741.49	-3.02	-2.65	0.75	-3.03	2142903.74	2837069.58	
3804.00	1.25	315.39	3803.48	-2.17	-3.61	0.34	-3.87	2142904.58	2837068.61	
3866.00	1.44	327.14	3865.46	-1.03	-4.51	0.54	-4.61	2142905.71	2837067.71	
3928.00	1.26	331.68	3927.45	0.22	-5.26	0.34	-5.18	2142906.97	2837066.96	
3990.00	1.50	335.89	3989.43	1.57	-5.91	0.42	-5.64	2142908.30	2837066.30	
4052.00	0.88	8.76	4051.42	2.78	-6.17	1.45	-5.74	2142909.51	2837066.03	
4114.00	0.75	4.26	4113.41	3.65	-6.07	0.23	-5.52	2142910.39	2837066.13	
4176.00	0.73	63.84	4175.40	4.23	-5.68	1.19	-5.06	2142910.97	2837066.51	
4238.00	1.19	68.77	4237.40	4.64	-4.73	0.75	-4.06	2142911.38	2837067.47	
4300.00	1.44	98.02	4299.38	4.76	-3.36	1.14	-2.68	2142911.51	2837068.84	
4362.00	1.94	97.27	4361.35	4.52	-1.54	0.81	-0.92	2142911.28	2837070.65	
4424.00	1.31	102.27	4423.33	4.24	0.19	1.04	0.76	2142911.00	2837072.39	
4487.00	1.04	123.21	4486.31	3.77	1.37	0.80	1.87	2142910.54	2837073.57	
4549.00	0.88	133.52	4548.31	3.14	2.19	0.38	2.59	2142909.91	2837074.39	
4611.00	1.06	121.64	4610.30	2.51	3.02	0.43	3.33	2142909.28	2837075.22	
4674.00	1.06	136.77	4673.29	1.78	3.92	0.44	4.12	2142908.56	2837076.12	
4736.00	0.75	138.27	4735.28	1.06	4.58	0.50	4.68	2142907.84	2837076.79	
4798.00	0.46	127.31	4797.28	0.60	5.05	0.50	5.08	2142907.39	2837077.26	



Weatherford International Ltd.

WFT Survey Report X & Y's



Weatherford

Company: Williams Production	Date: 10/1/2010	Time: 16:08:38	Page: 3
Field: RIO ARRIBA CO. NM. (NAD 83 NM W Zone)	Co-ordinate(NE) Reference: Well: Rosa Unit 634A, True North		
Site: Rosa Unit 634A	Vertical (TVD) Reference: SITE 6276.5		
Well: Rosa Unit 634A	Section (VS) Reference: Well (0.00N,0.00E,82.20Azi)		
Wellpath: ST00	Survey Calculation Method: Minimum Curvature	Db: Sybase	

Survey

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	DLS deg/100ft	VS ft	MapN ft	MapE ft	Comment
4818.00	0.67	130.02	4817.27	0.48	5.20	1.06	5.22	2142907.26	2837077.41	
4849.00	0.38	111.14	4848.27	0.32	5.44	1.08	5.43	2142907.11	2837077.65	
4880.00	0.56	328.77	4879.27	0.42	5.45	2.88	5.46	2142907.20	2837077.66	
4911.00	2.29	316.77	4910.26	1.00	4.95	5.63	5.04	2142907.78	2837077.16	
4942.00	3.88	319.39	4941.22	2.25	3.84	5.15	4.11	2142909.02	2837076.05	
4973.00	5.19	324.27	4972.12	4.18	2.34	4.40	2.89	2142910.95	2837074.54	
5004.00	7.00	332.89	5002.94	7.00	0.66	6.53	1.61	2142913.77	2837072.85	
5035.00	8.94	334.77	5033.64	10.86	-1.23	6.31	0.26	2142917.62	2837070.94	
5066.00	10.42	335.97	5064.20	15.60	-3.39	4.82	-1.25	2142922.35	2837068.76	
5098.00	12.25	337.14	5095.57	21.37	-5.89	5.76	-2.94	2142928.11	2837066.23	
5129.00	14.31	336.27	5125.74	27.91	-8.71	6.68	-4.84	2142934.64	2837063.39	
5160.00	16.70	335.65	5155.61	35.48	-12.09	7.73	-7.17	2142942.19	2837059.98	
5190.00	18.81	335.39	5184.18	43.80	-15.88	7.04	-9.79	2142950.50	2837056.15	
5222.00	20.88	333.39	5214.28	53.59	-20.59	6.81	-13.12	2142960.27	2837051.41	
5253.00	22.69	333.27	5243.07	63.87	-25.75	5.84	-16.85	2142970.53	2837046.20	
5277.99	24.16	332.27	5266.00	72.70	-30.30	6.08	-20.15	2142979.34	2837041.62	Cliff House Ss. C
5284.00	24.51	332.05	5271.47	74.89	-31.45	6.08	-21.00	2142981.53	2837040.46	
5315.00	24.75	330.64	5299.65	86.23	-37.65	2.05	-25.60	2142992.84	2837034.21	
5333.02	25.05	330.46	5316.00	92.84	-41.38	1.70	-28.40	2142999.43	2837030.46	Menefee Fm.
5346.00	25.26	330.33	5327.75	97.63	-44.10	1.70	-30.45	2143004.21	2837027.71	
5377.00	26.69	329.39	5355.61	109.37	-50.92	4.80	-35.61	2143015.93	2837020.84	
5408.00	28.19	329.39	5383.13	121.67	-58.20	4.84	-41.15	2143028.19	2837013.52	
5439.00	28.44	328.27	5410.42	134.25	-65.81	1.89	-46.98	2143040.74	2837005.86	
5470.00	28.71	328.22	5437.64	146.85	-73.61	0.87	-53.01	2143053.32	2836998.00	
5501.00	28.31	328.02	5464.88	159.42	-81.43	1.33	-59.04	2143065.85	2836990.14	
5532.00	27.56	328.14	5492.27	171.74	-89.11	2.43	-64.98	2143078.14	2836982.41	
5563.00	26.81	328.89	5519.84	183.82	-96.50	2.66	-70.67	2143090.19	2836974.96	
5594.00	26.88	330.27	5547.50	195.89	-103.59	2.02	-76.05	2143102.23	2836967.82	
5595.68	26.89	330.29	5549.00	196.55	-103.97	0.91	-76.34	2143102.89	2836967.45	Point Lookout Ss.
5625.00	27.13	330.56	5575.12	208.13	-110.54	0.91	-81.28	2143114.44	2836960.83	
5655.00	27.31	330.52	5601.80	220.08	-117.29	0.60	-86.34	2143126.36	2836954.03	
5686.00	27.38	330.52	5629.34	232.48	-124.30	0.23	-91.60	2143138.73	2836946.97	
5718.00	25.81	331.02	5657.95	244.98	-131.29	4.96	-96.84	2143151.20	2836939.92	
5749.00	25.17	331.00	5685.93	256.65	-137.76	2.06	-101.66	2143162.85	2836933.41	
5780.00	24.50	331.27	5714.07	268.05	-144.04	2.19	-106.34	2143174.22	2836927.08	
5811.00	23.94	332.52	5742.34	279.27	-150.04	2.45	-110.76	2143185.41	2836921.04	
5843.00	23.81	331.77	5771.60	290.72	-156.09	1.03	-115.20	2143196.84	2836914.94	
5874.00	23.87	331.29	5799.95	301.73	-162.06	0.66	-119.62	2143207.83	2836908.92	
5905.00	23.69	330.27	5828.32	312.64	-168.16	1.45	-124.19	2143218.71	2836902.78	
5936.00	23.63	329.64	5856.72	323.41	-174.39	0.84	-128.90	2143229.46	2836896.50	
5967.00	23.44	329.02	5885.14	334.06	-180.70	1.01	-133.71	2143240.08	2836890.15	
5998.00	22.75	328.89	5913.65	344.48	-186.98	2.23	-138.51	2143250.47	2836883.83	
6029.00	22.75	329.75	5942.24	354.78	-193.09	1.07	-143.17	2143260.76	2836877.67	
6060.00	22.38	334.39	5970.87	365.29	-198.66	5.86	-147.26	2143271.23	2836872.06	
6091.00	21.73	340.11	5999.61	376.00	-203.17	7.24	-150.27	2143281.94	2836867.51	
6122.00	21.25	346.02	6028.45	386.85	-206.48	7.15	-152.08	2143292.77	2836864.16	
6148.32	21.07	351.53	6053.00	396.16	-208.33	7.59	-152.65	2143302.07	2836862.27	Mancos Sh.
6153.00	21.06	352.52	6057.37	397.83	-208.56	7.59	-152.65	2143303.74	2836862.03	
6184.00	21.00	358.52	6086.31	408.91	-209.43	6.95	-152.01	2143314.81	2836861.12	
6215.00	20.89	3.52	6115.26	419.98	-209.23	5.77	-150.31	2143325.88	2836861.27	
6231.00	20.77	5.31	6130.22	425.65	-208.79	4.05	-149.11	2143331.55	2836861.68	Last Wft Svy



Weatherford International Ltd.
WFT Survey Report X & Y's



Weatherford

Company: Williams Production	Date: 10/1/2010	Time: 16:08:38	Page: 4
Field: RIO ARRIBA CO. NM (NAD 83 NM W Zone)	Co-ordinate(NE) Reference:	Well: Rosa Unit 634A, True North	
Site: Rosa Unit 634A	Vertical (TVD) Reference:	SITE 6276.5	
Well: Rosa Unit 634A	Section (VS) Reference:	Well (0.00N,0.00E,82.20Azi)	
Wellpath: ST00	Survey Calculation Method:	Minimum Curvature	Db: Sybase

Annotation

MD ft	TVD ft	
573.00	573.00	First Wft Svy
6231.00	6130.22	Last Wft Svy



Weatherford International Ltd.

WFT Survey Report X & Y's



Weatherford

Company: Williams Production	Date: 10/1/2010	Time: 14:17:06	Page: 1
Field: RIO ARRIBA CO. NM (NAD 83 NM W Zone)	Co-ordinate(NE) Reference: Well: Rosa Unit 634A, True North		
Site: Rosa Unit 634A	Vertical (TVD) Reference: SITE 6276.5		
Well: Rosa Unit 634A	Section (VS) Reference: Well (0.00N,0.00E,82.20Azi)		
Wellpath: ST01	Survey Calculation Method: Minimum Curvature	Db: Sybase	

Survey: Wft Svy ST01	Start Date: 8/31/2010
Company: Weatherford International Ltd.	Engineer: Russell W. Joyner
Tool: MWD;MWD - Standard	Tied-to: User Defined

Field: RIO ARRIBA CO. NM (NAD 83 NM W Zone)	
Map System: US State Plane Coordinate System 1983	Map Zone: New Mexico, Western Zone
Geo Datum: GRS 1980	Coordinate System: Well Centre
Sys Datum: Mean Sea Level	Geomagnetic Model: IGRF2010

Site: Rosa Unit 634A		
Site Position:	Northing: 2142906.76 ft	Latitude: 36 53 17.910 N
From: Map	Easting: 2837072.21 ft	Longitude: 107 26 36.922 W
Position Uncertainty: 0.00 ft	North Reference: True	
Ground Level: 6258.00 ft	Grid Convergence: 0.23 deg	

Well: Rosa Unit 634A	Slot Name:
Well Position: +N/-S 0.00 ft	Northing: 2142906.76 ft
+E/-W 0.00 ft	Easting: 2837072.21 ft
Position Uncertainty: 0.00 ft	Latitude: 36 53 17.910 N
	Longitude: 107 26 36.922 W

Wellpath: ST01	Drilled From: ST00
Current Datum: SITE	Tie-on Depth: 5998.00 ft
Magnetic Data: 8/31/2010	Above System Datum: Mean Sea Level
Field Strength: 50991 nT	Declination: 9.88 deg
Vertical Section: Depth From (TVD)	Mag Dip Angle: 63.67 deg
ft	+N/-S
ft	+E/-W
ft	Direction
ft	deg
0.00	0.00
0.00	0.00
0.00	82.20

Survey										
MD	Incl	Azim	TVD	N/S	E/W	DLS	VS	MapN	MapE	Comment
ft	deg	deg	ft	ft	ft	deg/100ft	ft	ft	ft	
5998.00	22.75	328.89	5913.65	344.48	-186.98	0.00	-138.49	2143250.47	2836883.83	Tie On Wft Svy ST
6029.00	23.12	327.92	5942.20	354.76	-193.30	1.71	-143.37	2143260.73	2836877.46	1st Wft Svy ST01
6060.00	23.49	322.74	5970.68	364.84	-200.28	6.72	-148.91	2143270.78	2836870.45	
6091.00	24.25	319.07	5999.03	374.57	-208.19	5.38	-155.43	2143280.48	2836862.50	
6122.00	24.69	319.77	6027.24	384.32	-216.54	1.70	-162.38	2143290.19	2836854.10	
6143.89	24.54	322.14	6047.14	391.40	-222.29	4.55	-167.11	2143297.25	2836848.33	Mancos Sh.
6152.00	24.50	323.02	6054.52	394.07	-224.33	4.55	-168.77	2143299.92	2836846.28	
6184.00	23.99	329.42	6083.70	404.98	-231.63	8.36	-174.53	2143310.79	2836838.93	
6214.00	23.88	336.39	6111.13	415.79	-237.17	9.43	-178.55	2143321.58	2836833.35	
6245.00	24.06	343.14	6139.46	427.59	-241.52	8.86	-181.25	2143333.36	2836828.95	
6276.00	23.81	350.02	6167.80	439.80	-244.43	9.04	-182.48	2143345.57	2836825.99	
6293.00	23.76	354.01	6183.36	446.59	-245.39	9.47	-182.51	2143352.35	2836825.01	
6370.00	24.26	7.05	6253.75	477.74	-245.06	6.91	-177.96	2143383.50	2836825.20	
6401.00	24.39	13.19	6282.00	490.29	-242.82	8.17	-174.03	2143396.06	2836827.39	
6432.00	24.05	15.58	6310.27	502.61	-239.66	3.35	-169.23	2143408.39	2836830.50	
6463.00	23.03	17.71	6338.69	514.47	-236.12	4.28	-164.12	2143420.27	2836833.99	
6494.00	22.46	21.02	6367.28	525.78	-232.15	4.52	-158.65	2143431.59	2836837.92	
6526.00	22.99	26.29	6396.80	537.09	-227.19	6.57	-152.20	2143442.92	2836842.83	
6557.00	23.88	31.02	6425.25	547.89	-221.28	6.71	-144.87	2143453.75	2836848.70	
6589.00	24.88	34.39	6454.39	559.00	-214.14	5.35	-136.29	2143464.88	2836855.80	
6620.00	25.95	37.07	6482.39	569.79	-206.36	5.07	-127.12	2143475.71	2836863.53	
6652.00	26.88	40.27	6511.05	580.90	-197.47	5.31	-116.80	2143486.85	2836872.38	
6683.00	27.50	45.14	6538.63	591.30	-187.86	7.45	-105.88	2143497.29	2836881.94	
6714.00	28.36	49.94	6566.02	601.08	-177.15	7.76	-93.94	2143507.12	2836892.61	



Weatherford International Ltd.

WFT Survey Report X & Y's



Weatherford

Company:	Williams Production	Date:	10/1/2010	Time:	14:17:06	Page:	2
Field:	RIO ARRIBA CO. NM (NAD 83 NM W Zone)	Co-ordinate(NE) Reference:	Well: Rosa Unit 634A, True North				
Site:	Rosa Unit 634A	Vertical (TVD) Reference:	SITE 6276.5				
Well:	Rosa Unit 634A	Section (VS) Reference:	Well (0.00N,0.00E,82.20Azi)				
Wellpath:	ST01	Survey Calculation Method:	Minimum Curvature	Db:	Sybase		

Survey

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	DLS deg/100ft	VS ft	MapN ft	MapE ft	Comment
6745.00	29.81	53.64	6593.12	610.39	-165.31	7.45	-80.94	2143516.48	2836904.41	
6776.00	31.13	56.27	6619.84	619.41	-152.44	6.05	-66.97	2143525.55	2836917.25	
6807.00	32.13	58.27	6646.23	628.20	-138.76	4.67	-52.22	2143534.39	2836930.89	
6838.00	32.94	59.77	6672.37	636.78	-124.47	3.69	-36.90	2143543.03	2836945.15	
6839.37	32.99	59.84	6673.52	637.15	-123.82	4.34	-36.21	2143543.40	2836945.79	Top Black Zone
6869.00	34.00	61.27	6698.23	645.19	-109.59	4.34	-21.01	2143551.50	2836959.99	
6900.00	35.38	62.64	6723.71	653.48	-94.01	5.11	-4.46	2143559.85	2836975.53	
6931.00	37.40	62.68	6748.67	661.92	-77.68	6.52	12.87	2143568.36	2836991.83	
6962.00	38.88	62.52	6773.05	670.73	-60.68	4.78	30.91	2143577.24	2837008.79	
6993.00	40.43	63.19	6796.92	679.76	-43.08	5.19	49.58	2143586.34	2837026.36	
7024.00	41.80	64.96	6820.27	688.67	-24.74	5.80	68.95	2143595.32	2837044.66	
7055.00	43.25	67.02	6843.12	697.19	-5.60	6.48	89.07	2143603.92	2837063.76	
7087.00	45.38	67.52	6866.01	705.82	15.01	6.75	110.67	2143612.64	2837084.35	
7118.00	46.43	67.43	6887.58	714.35	35.58	3.39	132.20	2143621.25	2837104.88	
7149.00	47.94	66.89	6908.65	723.18	56.54	5.04	154.16	2143630.17	2837125.80	
7180.00	50.13	67.77	6928.97	732.20	78.13	7.38	176.78	2143639.27	2837147.36	
7201.53	51.69	68.73	6942.55	738.39	93.66	8.03	193.00	2143645.53	2837162.85	Btm Black Zone
7211.00	52.38	69.14	6948.38	741.07	100.62	8.03	200.27	2143648.24	2837169.81	
7242.00	54.56	70.27	6966.83	749.71	123.99	7.62	224.59	2143656.97	2837193.14	
7273.00	56.38	70.77	6984.40	758.22	148.06	6.02	249.59	2143665.58	2837217.18	
7305.00	58.08	72.31	7001.72	766.74	173.58	6.68	276.04	2143674.20	2837242.66	
7321.90	59.06	73.04	7010.53	771.03	187.35	6.87	290.26	2143678.55	2837256.41	Top Olive Zone
7336.00	59.88	73.64	7017.69	774.51	198.98	6.87	302.26	2143682.08	2837268.03	
7368.00	61.75	75.64	7033.30	781.91	225.92	7.99	329.95	2143689.59	2837294.94	
7399.00	63.69	78.14	7047.51	788.15	252.75	9.51	357.38	2143695.94	2837321.75	
7430.00	65.38	80.02	7060.84	793.45	280.23	7.73	385.32	2143701.35	2837349.20	
7461.00	67.09	82.08	7073.33	797.86	308.26	8.21	413.69	2143705.87	2837377.21	
7492.00	68.56	83.39	7085.03	801.49	336.73	6.15	442.39	2143709.62	2837405.67	
7523.00	70.00	84.27	7096.00	804.60	365.56	5.35	471.37	2143712.85	2837434.48	
7554.00	71.94	84.52	7106.11	807.46	394.72	6.30	500.66	2143715.83	2837463.64	
7585.00	74.40	85.43	7115.08	810.06	424.28	8.42	530.29	2143718.55	2837493.18	
7616.00	76.81	86.27	7122.79	812.23	454.22	8.21	560.25	2143720.84	2837523.12	
7648.00	79.21	87.04	7129.44	814.06	485.47	7.86	591.46	2143722.80	2837554.35	
7679.00	81.19	87.27	7134.71	815.57	515.98	6.43	621.89	2143724.44	2837584.86	
7710.00	83.26	87.70	7138.91	816.92	546.66	6.82	652.47	2143725.91	2837615.53	
7741.00	85.25	88.27	7142.01	818.01	577.48	6.67	683.16	2143727.12	2837646.35	
7772.00	86.19	88.89	7144.32	818.77	608.39	3.63	713.88	2143728.01	2837677.25	
7803.00	86.13	89.14	7146.40	819.30	639.31	0.83	744.59	2143728.67	2837708.18	
7834.00	85.94	89.27	7148.54	819.73	670.24	0.74	775.29	2143729.23	2837739.10	
7865.00	87.28	89.37	7150.38	820.10	701.18	4.33	805.99	2143729.72	2837770.04	
7921.00	88.71	88.79	7152.33	821.00	757.14	2.75	861.55	2143730.85	2837825.99	Int. 7" Csg Pt
7995.00	90.60	88.03	7152.78	823.05	831.10	2.75	935.11	2143733.20	2837899.95	
8025.00	89.93	86.90	7152.64	824.38	861.07	4.38	964.99	2143734.65	2837929.91	
8087.00	89.90	87.00	7152.73	827.67	922.98	0.17	1026.77	2143738.20	2837991.81	
8149.00	90.81	87.74	7152.35	830.52	984.92	1.89	1088.52	2143741.30	2838053.73	
8212.00	90.77	87.59	7151.48	833.09	1047.86	0.25	1151.23	2143744.12	2838116.66	
8269.00	90.88	87.80	7150.66	835.38	1104.81	0.42	1207.96	2143746.65	2838173.60	
8329.00	92.54	89.88	7148.87	836.59	1164.76	4.43	1267.52	2143748.11	2838233.55	
8392.00	92.56	91.64	7146.07	835.76	1227.69	2.79	1329.76	2143747.53	2838296.48	
8454.00	91.94	91.52	7143.63	834.05	1289.62	1.02	1390.88	2143746.07	2838358.42	
8517.00	91.84	91.84	7141.55	832.20	1352.56	0.53	1452.99	2143744.48	2838421.36	
8579.00	91.56	91.27	7139.71	830.52	1414.51	1.02	1514.14	2143743.05	2838483.32	



Weatherford International Ltd.

WFT Survey Report X & Y's



Weatherford

Company: Williams Production	Date: 10/1/2010	Time: 14:17:06	Page: 3
Field: RIO ARRIBA CO. NM (NAD 83 NM W Zone)	Co-ordinate(NE) Reference:	Well: Rosa Unit 634A, True North	
Site: Rosa Unit 634A	Vertical (TVD) Reference:	SITE 6276.5	
Well: Rosa Unit 634A	Section (VS) Reference:	Well (0.00N,0.00E,82.20Azi)	
Wellpath: ST01	Survey Calculation Method:	Minimum Curvature	Db: Sybase

Survey

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	DLS deg/100ft	VS ft	MapN ft	MapE ft	Comment
8640.00	90.95	91.79	7138.38	828.89	1475.47	1.31	1574.31	2143741.68	2838544.29	
8702.00	90.13	91.14	7137.79	827.31	1537.45	1.69	1635.50	2143740.34	2838606.27	
8764.00	90.71	90.43	7137.34	826.46	1599.44	1.48	1696.80	2143739.75	2838668.27	
8827.00	90.69	90.14	7136.57	826.15	1662.43	0.46	1759.17	2143739.69	2838731.26	
8891.00	90.34	89.75	7135.99	826.21	1726.43	0.82	1822.59	2143740.01	2838795.26	
8953.00	91.19	90.27	7135.17	826.20	1788.42	1.61	1884.01	2143740.26	2838857.25	
9015.00	91.06	90.27	7133.95	825.90	1850.41	0.21	1945.38	2143740.22	2838919.24	
9077.00	91.13	90.27	7132.77	825.61	1912.40	0.11	2006.75	2143740.18	2838981.23	
9139.00	91.44	89.89	7131.37	825.53	1974.38	0.79	2068.15	2143740.34	2839043.21	
9201.00	91.59	90.33	7129.74	825.41	2036.36	0.75	2129.54	2143740.48	2839105.19	
9263.00	91.69	90.52	7127.96	824.95	2098.34	0.35	2190.88	2143740.27	2839167.16	
9326.00	91.94	90.52	7125.97	824.38	2161.30	0.40	2253.18	2143739.96	2839230.13	
9387.00	90.94	90.04	7124.43	824.08	2222.28	1.82	2313.56	2143739.91	2839291.11	
9449.00	90.31	89.64	7123.76	824.25	2284.28	1.20	2375.00	2143740.34	2839353.10	
9511.00	91.13	89.02	7122.98	824.98	2346.27	1.66	2436.52	2143741.31	2839415.09	
9573.00	91.20	89.17	7121.72	825.96	2408.24	0.27	2498.06	2143742.55	2839477.07	
9636.00	91.88	89.77	7120.02	826.54	2471.22	1.44	2560.53	2143743.38	2839540.04	
9698.00	91.44	90.39	7118.23	826.45	2533.19	1.23	2621.92	2143743.55	2839602.01	
9760.00	91.31	90.89	7116.74	825.76	2595.17	0.83	2683.23	2143743.11	2839663.99	
9822.00	90.63	91.14	7115.69	824.66	2657.15	1.17	2744.49	2143742.27	2839725.98	
9885.00	90.88	91.14	7114.86	823.41	2720.13	0.40	2806.72	2143741.27	2839788.96	
9947.00	90.69	91.89	7114.01	821.77	2782.11	1.25	2867.89	2143739.89	2839850.94	
10009.00	90.56	90.39	7113.33	820.53	2844.09	2.43	2929.13	2143738.90	2839912.93	
10071.00	90.44	89.27	7112.79	820.72	2906.08	1.82	2990.58	2143739.34	2839974.92	
10133.00	92.32	87.91	7111.30	822.24	2968.04	3.74	3052.17	2143741.12	2840036.87	
10195.00	92.75	88.52	7108.56	824.17	3029.95	1.20	3113.77	2143743.30	2840098.78	
10258.00	92.13	90.64	7105.88	824.63	3092.89	3.50	3176.19	2143744.02	2840161.71	
10320.00	90.51	90.86	7104.45	823.82	3154.87	2.64	3237.48	2143743.46	2840223.69	
10383.00	90.69	90.64	7103.79	823.00	3217.86	0.45	3299.78	2143742.89	2840286.68	
10445.00	90.94	89.64	7102.91	822.85	3279.85	1.66	3361.18	2143743.00	2840348.68	
10507.00	90.36	90.42	7102.20	822.81	3341.84	1.57	3422.59	2143743.22	2840410.67	
10569.00	90.50	90.27	7101.74	822.44	3403.84	0.33	3483.97	2143743.10	2840472.67	
10630.00	90.81	90.02	7101.04	822.29	3464.84	0.65	3544.38	2143743.19	2840533.66	
10693.00	90.94	89.89	7100.08	822.34	3527.83	0.29	3606.79	2143743.50	2840596.66	
10754.00	90.57	91.64	7099.27	821.52	3588.82	2.93	3667.11	2143742.93	2840657.65	
10817.00	90.50	91.39	7098.69	819.86	3651.79	0.41	3729.27	2143741.52	2840720.63	
10879.00	90.69	91.52	7098.04	818.28	3713.77	0.37	3790.46	2143740.20	2840782.61	
10941.00	90.92	91.08	7097.17	816.88	3775.75	0.80	3851.67	2143739.05	2840844.59	
11012.00	91.68	90.32	7095.56	816.01	3846.72	1.51	3921.88	2143738.47	2840915.57	
11075.00	90.44	90.14	7094.39	815.76	3909.71	1.99	3984.25	2143738.48	2840978.56	
11137.00	91.44	90.64	7093.38	815.33	3971.70	1.80	4045.60	2143738.31	2841040.55	
11200.00	91.63	90.64	7091.69	814.63	4034.67	0.30	4107.90	2143737.86	2841103.53	
11262.00	91.32	90.24	7090.09	814.15	4096.65	0.82	4169.24	2143737.64	2841165.50	
11324.00	89.88	89.52	7089.44	814.28	4158.64	2.60	4230.68	2143738.02	2841227.50	
11386.00	89.94	89.77	7089.54	814.67	4220.64	0.41	4292.16	2143738.66	2841289.49	
11448.00	90.43	89.57	7089.34	815.03	4282.64	0.85	4353.63	2143739.27	2841351.49	
11509.00	90.69	89.89	7088.75	815.31	4343.64	0.68	4414.10	2143739.81	2841412.49	
11571.00	90.67	89.27	7088.01	815.77	4405.63	1.00	4475.58	2143740.51	2841474.48	
11634.00	91.25	89.02	7086.95	816.71	4468.61	1.00	4538.11	2143741.71	2841537.46	
11695.00	91.25	88.02	7085.62	818.28	4529.58	1.64	4598.72	2143743.53	2841598.41	
11757.00	92.13	90.54	7083.79	819.06	4591.54	4.30	4660.22	2143744.57	2841660.37	
11820.00	91.69	90.14	7081.69	818.69	4654.50	0.94	4722.55	2143744.45	2841723.34	
11882.00	91.69	90.14	7079.87	818.54	4716.48	0.00	4783.93	2143744.55	2841785.31	



Weatherford International Ltd.

WFT Survey Report X & Y's



Weatherford

Company:	Williams Production	Date:	10/1/2010	Time:	14:17:06	Page:	4
Field:	RIO ARRIBA CO. NM (NAD 83 NM W Zone)	Co-ordinate(NE) Reference:	Well: Rosa Unit 634A, True North				
Site:	Rosa Unit 634A	Vertical (TVD) Reference:	SITE 6276.5				
Well:	Rosa Unit 634A	Section (VS) Reference:	Well (0.00N,0.00E,82.20Azi)				
Wellpath:	ST01	Survey Calculation Method:	Minimum Curvature Db: Sybase				

Survey

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	DLS deg/100ft	VS ft	MapN ft	MapE ft	Comment
11944.00	90.63	89.14	7078.61	818.93	4778.46	2.35	4845.39	2143745.19	2841847.29	
12006.00	90.50	88.52	7078.00	820.19	4840.45	1.02	4906.97	2143746.71	2841909.27	
12068.00	90.67	88.53	7077.37	821.79	4902.42	0.27	4968.59	2143748.56	2841971.24	
12131.00	90.50	89.89	7076.72	822.66	4965.41	2.18	5031.12	2143749.69	2842034.22	
12193.00	91.00	90.77	7075.91	822.30	5027.40	1.63	5092.49	2143749.58	2842096.22	
12254.00	91.08	91.73	7074.80	820.97	5088.38	1.58	5152.72	2143748.50	2842157.20	
12317.00	91.25	91.64	7073.52	819.12	5151.34	0.31	5214.84	2143746.91	2842220.16	
12379.00	91.06	90.39	7072.27	818.02	5213.31	2.04	5276.10	2143746.06	2842282.15	
12441.00	91.06	89.73	7071.13	817.95	5275.30	1.06	5337.51	2143746.25	2842344.13	
12503.00	91.06	89.39	7069.98	818.43	5337.29	0.55	5398.98	2143746.98	2842406.12	
12566.00	90.19	88.77	7069.29	819.44	5400.28	1.70	5461.53	2143748.25	2842469.10	
12628.00	90.26	89.55	7069.05	820.35	5462.27	1.26	5523.07	2143749.41	2842531.09	
12691.00	90.44	89.02	7068.66	821.14	5525.26	0.89	5585.58	2143750.45	2842594.08	
12753.00	91.50	90.52	7067.61	821.39	5587.25	2.96	5647.03	2143750.96	2842656.07	
12815.00	91.55	90.81	7065.96	820.67	5649.23	0.47	5708.34	2143750.49	2842718.04	
12877.00	91.31	89.89	7064.42	820.29	5711.21	1.53	5769.69	2143750.36	2842780.02	
12939.00	90.81	89.64	7063.27	820.54	5773.19	0.90	5831.14	2143750.87	2842842.01	
13000.00	91.38	89.56	7062.10	820.97	5834.18	0.94	5891.62	2143751.55	2842902.99	
13063.00	91.38	89.77	7060.59	821.34	5897.16	0.33	5954.07	2143752.17	2842965.97	
13075.00	91.38	89.70	7060.30	821.39	5909.16	0.58	5965.96	2143752.28	2842977.97	Last Wft Svy ST01
13123.00	91.38	89.70	7059.14	821.64	5957.14	0.00	6013.54	2143752.72	2843025.95	Proj. To Bit

Annotation

MD ft	TVD ft	
5998.00	5913.65	Tie On Wft Svy ST00
6029.00	5942.20	1st Wft Svy ST01
13075.00	7060.30	Last Wft Svy ST01
13123.00	7059.14	Proj. To Bit