

g-4/16



OH RANDEL #16S
SAN JUAN CO., NEW MEXICO



Weatherford

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.00	0.00	40.85	0.00	0.00	0.00	0.00	0.00	0.00	
2	788.98	0.00	40.85	788.98	0.00	0.00	0.00	40.85	0.00	
3	1588.98	40.00	40.85	1525.56	202.79	175.35	5.00	40.85	268.09	
4	1920.40	89.71	40.85	1662.00	422.69	165.49	15.00	0.00	558.79	
5	2921.41	89.71	40.85	1667.00	1179.91	1020.17	0.00	0.00	1559.78	PBHL

TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
PBHL	1667.00	1179.91	1020.17	36°29'33.568N	107°59'34.906W	Point

WELL DETAILS

Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
#16S	0.00	0.00	1997637.50	452036.50	36°29'23.900N	107°59'47.400W	N/A

FIELD DETAILS

SAN JUAN CO., NM (NAD 27)

Geodetic System US State Plane Coordinate System 1927
Ellipsoid NAD27 (Clarke 1866)
Zone New Mexico Western Zone
Magnetic Model bggm2007

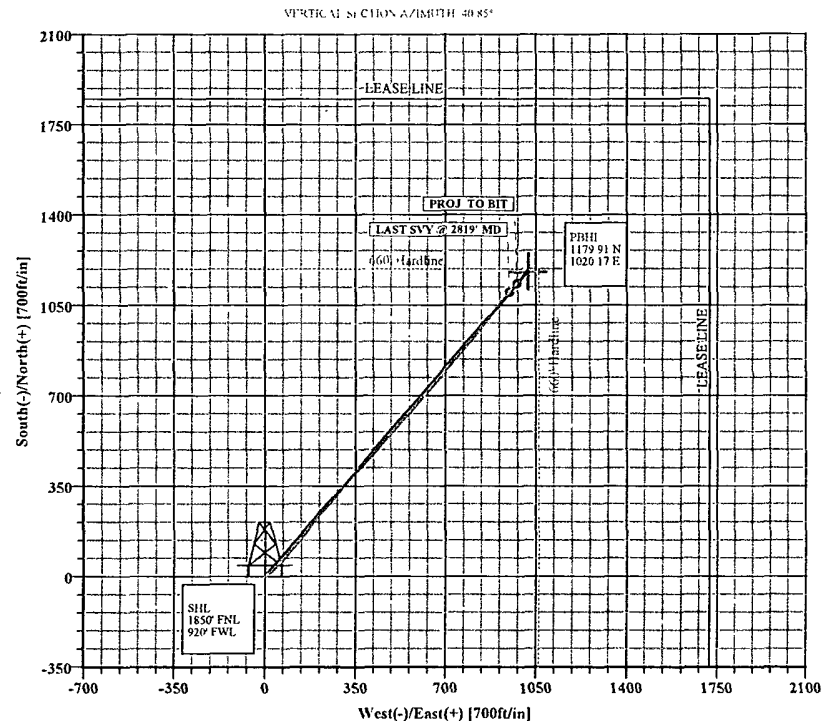
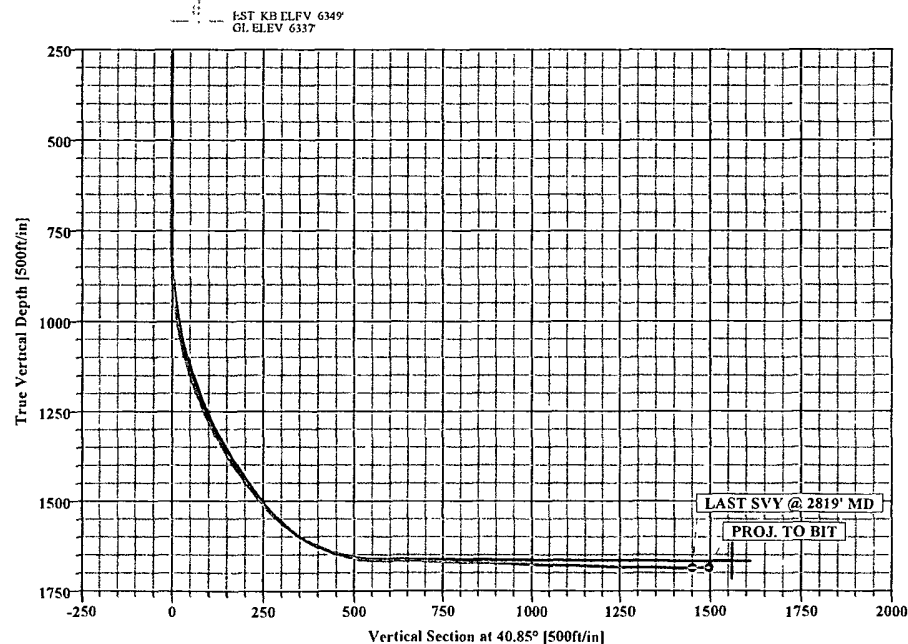
System Datum Mean Sea Level
Local North True North

SITE DETAILS

OH Randel #16S
1850' FNL 920' FWL of SEC 18 T-26-N, R-11-W

Site Centre Latitude 36°29'23.900N
Longitude 107°59'47.400W

Ground Level 6337.00
Positional Uncertainty 0.00
Convergence -0.10



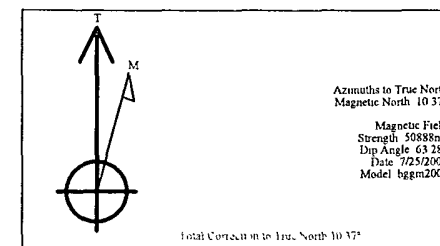
Proj. to Bit Survey WFT SVY (#16S/1)

No	MD	Inc	Az	TVD	+N/-S	+E/-W	DLeg	TFace	VSec
75	2865.00	91.31	41.38	1685.06	1134.62	977.60	0.00	0.00	1497.68

LEGEND

— #16S, 1, Plan #1
— WFT SVY

RCVD APR 15, 09
OIL CONS. DIV.
DIST. 3



Survey WFT SVY (#16S/1)

Created By Jayne Wilson

Date 12/24/2008



Weatherford International Ltd.

Survey Report - Geographic



Weatherford

Company: XTO Date: 12/24/2008 Time: 07:59:27 Page: 1
Field: SAN JUAN CO., NM (NAD 27) Co-ordinate(NE) Reference: Site: OH Randel #16S, True North
Site: OH Randel #16S Vertical (TVD) Reference: SITE 6349.0
Well: #16S Section (VS) Reference: Well (0.00N,0.00E,40.85Azi)
Wellpath: 1 Survey Calculation Method: Minimum Curvature Db: Sybase

Field: SAN JUAN CO., NM (NAD 27)

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: bggm2007

Site: OH Randel #16S

1850' FNL 920' FWL of SEC 18, T-26-N, R-11-W

Site Position:	Northings:	1997637.50 ft	Latitude:	36 29 23.900 N
From: Geographic	Easting:	452036.50 ft	Longitude:	107 59 47.400 W
Position Uncertainty:	0.00 ft		North Reference:	True
Ground Level:	6337.00 ft		Grid Convergence:	-0.10 deg

Well: #16S

Slot Name:

Well Position:	+N/-S	0.00 ft	Northings:	1997637.50 ft	Latitude:	36 29 23.900 N
	+E/-W	0.00 ft	Easting:	452036.50 ft	Longitude:	107 59 47.400 W
Position Uncertainty:	0.00 ft					

Wellpath: 1

Current Datum:	SITE	Height	6349.00 ft	Drilled From:	Surface
Magnetic Data:	7/25/2008			Tie-on Depth:	0.00 ft
Field Strength:	50888 nT			Above System Datum:	Mean Sea Level
Vertical Section:	Depth From (TVD)	+N/-S		Declination:	10.37 deg
	ft	ft		Mag Dip Angle:	63.28 deg
	0.00	0.00		+E/-W	Direction
				ft	deg
				0.00	40.85

Survey: WFT SVY

Start Date: 12/19/2008

Company: Weatherford International Ltd.
Tool: MWD;MWD - Standard

Engineer: Jayme Wilson
Tied-to: From Surface

Survey: WFT SVY

MD	Incl	Azim	TVD	+N/-S	+E/-W	Map	Map	<--- Latitude --->			<--- Longitude --->		
ft	deg	deg	ft	ft	ft	Northings	Easting	Deg	Min	Sec	Deg	Min	Sec
0.00	0.00	0.00	0.00	0.00	0.00	1997637.50	452036.50	36	29	23.900 N	107	59	47.400 W
295.00	0.17	222.25	295.00	-0.32	-0.29	1997637.18	452036.20	36	29	23.897 N	107	59	47.404 W
386.00	0.20	218.68	386.00	-0.55	-0.48	1997636.96	452036.01	36	29	23.895 N	107	59	47.406 W
477.00	0.14	217.75	477.00	-0.76	-0.65	1997636.75	452035.84	36	29	23.892 N	107	59	47.408 W
569.00	0.31	240.95	569.00	-0.97	-0.94	1997636.54	452035.56	36	29	23.890 N	107	59	47.411 W
661.00	0.19	231.88	661.00	-1.18	-1.28	1997636.32	452035.22	36	29	23.888 N	107	59	47.416 W
722.00	0.13	232.75	722.00	-1.29	-1.41	1997636.22	452035.08	36	29	23.887 N	107	59	47.417 W
752.00	0.13	46.25	752.00	-1.29	-1.41	1997636.22	452035.08	36	29	23.887 N	107	59	47.417 W
783.00	1.25	51.38	782.99	-1.05	-1.12	1997636.46	452035.37	36	29	23.890 N	107	59	47.414 W
813.00	3.00	46.88	812.97	-0.31	-0.29	1997637.20	452036.20	36	29	23.897 N	107	59	47.404 W
845.00	3.38	47.63	844.92	0.90	1.01	1997638.40	452037.51	36	29	23.909 N	107	59	47.388 W
877.00	3.44	49.88	876.87	2.15	2.44	1997639.65	452038.95	36	29	23.921 N	107	59	47.370 W
909.00	4.06	53.25	908.80	3.45	4.09	1997640.95	452040.59	36	29	23.934 N	107	59	47.350 W
940.00	5.44	54.50	939.69	4.96	6.16	1997642.45	452042.67	36	29	23.949 N	107	59	47.325 W
971.00	7.13	53.38	970.50	6.96	8.90	1997644.45	452045.41	36	29	23.969 N	107	59	47.291 W
1003.00	9.25	52.50	1002.17	9.71	12.54	1997647.19	452049.05	36	29	23.996 N	107	59	47.246 W
1035.00	11.00	51.75	1033.68	13.17	16.98	1997650.64	452053.50	36	29	24.030 N	107	59	47.192 W
1066.00	12.56	50.25	1064.02	17.15	21.89	1997654.62	452058.42	36	29	24.070 N	107	59	47.132 W
1098.00	14.38	47.75	1095.14	22.05	27.51	1997659.51	452064.04	36	29	24.118 N	107	59	47.063 W
1130.00	16.44	46.75	1125.99	27.83	33.75	1997665.27	452070.29	36	29	24.175 N	107	59	46.987 W
1161.00	17.75	44.25	1155.62	34.22	40.24	1997671.65	452076.80	36	29	24.238 N	107	59	46.907 W
1193.00	19.69	44.00	1185.92	41.59	47.39	1997679.01	452083.96	36	29	24.311 N	107	59	46.820 W
1225.00	21.38	42.38	1215.89	49.78	55.07	1997687.19	452091.65	36	29	24.392 N	107	59	46.726 W



Weatherford International Ltd.

Survey Report - Geographic

**Weatherford**

Company: XTO
Field: SAN JUAN CO., NM (NAD 27)
Site: OH Randel #16S
Well: #16S
Wellpath: 1

Date: 12/24/2008 Time: 07:59:27 Page: 2
Co-ordinate(NE) Reference: Site: OH Randel #16S, True North
Vertical (TVD) Reference: SITE 6349.0
Section (VS) Reference: Well (0.00N,0.00E,40.85Azi)
Survey Calculation Method: Minimum Curvature Db: Sybase

Survey: WFT SVY

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	Latitude Deg Min Sec		Longitude Deg Min Sec	
1257.00	23.31	41.38	1245.49	58.84	63.18	1997696.23	452099.78	36	29	24.482	N 107 59 46.626 W
1289.00	25.25	40.75	1274.65	68.76	71.83	1997706.14	452108.44	36	29	24.580	N 107 59 46.520 W
1320.00	27.06	41.00	1302.48	79.09	80.77	1997716.46	452117.40	36	29	24.682	N 107 59 46.411 W
1352.00	28.44	41.38	1330.80	90.30	90.58	1997727.65	452127.23	36	29	24.793	N 107 59 46.291 W
1383.00	29.88	41.63	1357.87	101.61	100.59	1997738.95	452137.26	36	29	24.905	N 107 59 46.168 W
1415.00	31.63	40.13	1385.37	113.99	111.30	1997751.30	452147.99	36	29	25.027	N 107 59 46.037 W
1447.00	33.81	39.25	1412.29	127.30	122.34	1997764.60	452159.05	36	29	25.159	N 107 59 45.902 W
1478.00	35.50	38.38	1437.79	141.03	133.38	1997778.31	452170.12	36	29	25.295	N 107 59 45.766 W
1510.00	37.44	37.75	1463.52	156.01	145.11	1997793.27	452181.87	36	29	25.443	N 107 59 45.623 W
1542.00	39.13	37.63	1488.64	171.70	157.23	1997808.94	452194.02	36	29	25.598	N 107 59 45.474 W
1574.00	40.43	36.97	1513.23	187.99	169.64	1997825.20	452206.45	36	29	25.759	N 107 59 45.322 W
1606.00	43.88	37.25	1536.95	205.11	182.59	1997842.31	452219.44	36	29	25.928	N 107 59 45.164 W
1634.00	48.75	38.25	1556.28	221.11	194.99	1997858.28	452231.86	36	29	26.087	N 107 59 45.012 W
1665.00	52.88	41.25	1575.87	239.57	210.36	1997876.71	452247.27	36	29	26.269	N 107 59 44.824 W
1696.00	56.44	41.75	1593.79	258.50	227.12	1997895.62	452264.05	36	29	26.456	N 107 59 44.618 W
1728.00	61.00	39.88	1610.41	279.20	244.98	1997916.29	452281.95	36	29	26.661	N 107 59 44.400 W
1760.00	65.06	40.00	1624.92	301.06	263.29	1997938.12	452300.29	36	29	26.877	N 107 59 44.176 W
1792.00	68.44	37.63	1637.55	323.97	281.70	1997960.99	452318.75	36	29	27.104	N 107 59 43.950 W
1823.00	71.31	38.13	1648.21	346.94	299.58	1997983.94	452336.66	36	29	27.331	N 107 59 43.731 W
1855.00	76.50	41.13	1657.08	370.60	319.19	1998007.56	452356.31	36	29	27.565	N 107 59 43.491 W
1887.00	82.38	43.38	1662.95	393.87	340.33	1998030.80	452377.50	36	29	27.795	N 107 59 43.232 W
1902.00	86.19	44.38	1664.44	404.62	350.68	1998041.53	452387.86	36	29	27.901	N 107 59 43.105 W
1971.00	90.82	42.93	1666.24	454.52	398.28	1998091.34	452435.54	36	29	28.395	N 107 59 42.522 W
2001.00	90.20	43.02	1665.97	476.46	418.73	1998113.26	452456.03	36	29	28.612	N 107 59 42.272 W
2031.00	89.45	42.57	1666.06	498.48	439.11	1998135.24	452476.45	36	29	28.830	N 107 59 42.022 W
2061.00	86.75	42.38	1667.06	520.59	459.35	1998157.32	452496.73	36	29	29.048	N 107 59 41.774 W
2092.00	87.44	41.38	1668.63	543.64	480.02	1998180.33	452517.44	36	29	29.276	N 107 59 41.521 W
2122.00	88.13	41.00	1669.79	566.20	499.76	1998202.86	452537.22	36	29	29.499	N 107 59 41.279 W
2153.00	88.88	41.13	1670.60	589.56	520.12	1998226.19	452557.61	36	29	29.730	N 107 59 41.030 W
2183.00	89.06	41.00	1671.14	612.18	539.82	1998248.77	452577.36	36	29	29.954	N 107 59 40.789 W
2213.00	88.69	41.13	1671.73	634.79	559.53	1998271.35	452597.10	36	29	30.178	N 107 59 40.547 W
2243.00	87.94	40.88	1672.61	657.42	579.20	1998293.95	452616.81	36	29	30.401	N 107 59 40.306 W
2273.00	87.87	40.75	1673.70	680.11	598.80	1998316.60	452636.45	36	29	30.626	N 107 59 40.066 W
2304.00	87.88	40.88	1674.85	703.56	619.05	1998340.01	452656.73	36	29	30.858	N 107 59 39.818 W
2334.00	87.88	40.75	1675.96	726.25	638.64	1998362.67	452676.37	36	29	31.082	N 107 59 39.579 W
2364.00	87.81	41.00	1677.09	748.92	658.26	1998385.31	452696.02	36	29	31.306	N 107 59 39.338 W
2395.00	88.25	40.25	1678.16	772.43	678.43	1998408.79	452716.24	36	29	31.539	N 107 59 39.091 W
2424.00	89.00	39.88	1678.85	794.62	697.09	1998430.94	452734.93	36	29	31.758	N 107 59 38.863 W
2454.00	89.25	40.25	1679.31	817.58	716.40	1998453.87	452754.28	36	29	31.985	N 107 59 38.626 W
2485.00	89.25	40.25	1679.72	841.23	736.43	1998477.49	452774.35	36	29	32.219	N 107 59 38.381 W
2516.00	88.50	40.50	1680.33	864.85	756.50	1998501.07	452794.47	36	29	32.453	N 107 59 38.135 W
2547.00	87.88	40.00	1681.30	888.49	776.52	1998524.68	452814.52	36	29	32.686	N 107 59 37.890 W
2577.00	87.81	40.00	1682.43	911.46	795.79	1998547.61	452833.83	36	29	32.914	N 107 59 37.654 W
2608.00	88.81	39.13	1683.35	935.35	815.53	1998571.47	452853.61	36	29	33.150	N 107 59 37.412 W
2639.00	89.25	38.50	1683.87	959.50	834.96	1998595.59	452873.08	36	29	33.389	N 107 59 37.174 W
2669.00	89.25	37.50	1684.26	983.13	853.43	1998619.19	452891.59	36	29	33.622	N 107 59 36.948 W
2699.00	88.88	37.00	1684.75	1007.01	871.58	1998643.04	452909.78	36	29	33.859	N 107 59 36.726 W
2729.00	88.38	37.63	1685.47	1030.86	889.76	1998666.86	452928.01	36	29	34.094	N 107 59 36.503 W
2759.00	88.69	39.13	1686.24	1054.37	908.38	1998690.34	452946.66	36	29	34.327	N 107 59 36.275 W
2789.00	90.25	40.38	1686.52	1077.43	927.57	1998713.37	452965.89	36	29	34.555	N 107 59 36.040 W
2819.00	91.31	41.38	1686.11	1100.11	947.20	1998736.01	452985.56	36	29	34.779	N 107 59 35.799 W
2865.00	91.31	41.38	1685.06	1134.62	977.60	1998770.47	453016.02	36	29	35.120	N 107 59 35.427 W



Weatherford International Ltd.

Survey Report - Geographic



Weatherford

Company: XTO	Date: 12/24/2008	Time: 07:59:27	Page: 3
Field: SAN JUAN CO., NM (NAD 27)	Co-ordinate(NE) Reference:	Site: OH Randel #16S, True North	
Site: OH Randel #16S	Vertical (TVD) Reference:	SITE 6349.0	
Well: #16S	Section (VS) Reference:	Well (0.00N,0.00E,40.85Azi)	
Wellpath: 1	Survey Calculation Method:	Minimum Curvature	Db: Sybase

Annotation

MD ft	TVD ft	
2819.00	1686.11	LAST SVY @ 2819' MD
2865.00	1685.06	PROJ. TO BIT