

Scientific Drilling

Gyroscopic Survey Report
for
WILLIAMS

30-039-29805

Well Location	SEC 34-T27N-R3W
Well Name	JICARILLA 93#12-B
Rig Name	Basin Wire Line
Survey Date	2009/01/16, 2009/04/29
Latitude	36.53 deg
North Reference	True North
Grid Correction	0.00 deg
Depth Reference	RKB 17 FT
Calculation Method	Minimum Curvature
Section (VS) Ref	0.00N (ft), 0.00E (ft), 0.00Azim (deg)
Definitive Survey	Computed from JIC93#12.BIN's HighSpeed: OutRun
Operator	B. Willhight

Comments

SURVEYED FROM RKB TO 6175 FT IN 2 7/8 TUBING
Survey referenced to TRUE NORTH and 17' KB

OK per Steve Hayden 5/21/09
BS



Survey Report

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 Survey Date: 2009/01/16, 2009/04/29

MD ft	Inc deg	Azim deg	TVD ft	VS ft	Northing ft	Easting ft	DLS deg/100ft	Closure Distance ft	Closure Angle deg
0.00	0.00	0.00	0.00	0.00	0.00	0.00	Invalid	0.00	0.00
100.00	0.20	60.36	100.00	0.09	0.09	0.15	0.20	0.17	60.36
200.00	0.42	173.61	200.00	-0.20	-0.20	0.34	0.53	0.39	120.00
300.00	1.01	166.18	299.99	-1.42	-1.42	0.59	0.59	1.54	157.35
400.00	1.14	173.99	399.97	-3.27	-3.27	0.91	0.19	3.39	164.47
500.00	1.00	192.83	499.96	-5.11	-5.11	0.82	0.38	5.17	170.88
600.00	1.00	194.74	599.94	-6.79	-6.79	0.41	0.03	6.81	176.59
700.00	1.17	190.08	699.92	-8.65	-8.65	0.00	0.20	8.65	179.97
800.00	1.05	186.20	799.90	-10.56	-10.56	-0.27	0.15	10.57	181.48
900.00	0.84	172.66	899.89	-12.20	-12.20	-0.28	0.30	12.20	181.31
1000.00	0.93	178.37	999.88	-13.74	-13.74	-0.16	0.13	13.74	180.68
1100.00	0.85	194.44	1099.87	-15.26	-15.26	-0.32	0.26	15.26	181.21
1200.00	0.88	216.81	1199.86	-16.59	-16.59	-0.97	0.34	16.62	183.34
1300.00	1.19	238.47	1299.84	-17.75	-17.75	-2.32	0.50	17.90	187.44
1400.00	1.12	248.37	1399.82	-18.66	-18.66	-4.12	0.21	19.11	192.44
1500.00	1.34	242.35	1499.80	-19.56	-19.56	-6.06	0.25	20.48	197.22
1600.00	1.49	242.69	1599.77	-20.70	-20.70	-8.26	0.15	22.29	201.74
1700.00	1.67	261.88	1699.73	-21.51	-21.51	-10.86	0.56	24.09	206.79
1800.00	1.69	275.39	1799.69	-21.57	-21.57	-13.77	0.40	25.59	212.55
1900.00	1.81	271.75	1899.64	-21.39	-21.39	-16.81	0.17	27.21	218.17
2000.00	1.85	270.14	1999.59	-21.34	-21.34	-20.01	0.06	29.25	223.16
2100.00	1.93	269.34	2099.53	-21.35	-21.35	-23.30	0.08	31.60	227.50
2200.00	2.18	272.79	2199.47	-21.28	-21.28	-26.88	0.28	34.28	231.63
2300.00	2.19	279.31	2299.40	-20.88	-20.88	-30.66	0.25	37.09	235.75
2400.00	2.38	278.04	2399.32	-20.28	-20.28	-34.60	0.20	40.11	239.63
2500.00	2.75	276.44	2499.22	-19.72	-19.72	-39.05	0.37	43.74	243.21
2600.00	3.25	273.48	2599.08	-19.28	-19.28	-44.26	0.52	48.28	246.47
2700.00	3.98	276.19	2698.88	-18.73	-18.73	-50.54	0.74	53.90	249.67
2800.00	4.12	276.41	2798.63	-17.96	-17.96	-57.55	0.14	60.29	252.67
2900.00	3.94	276.26	2898.38	-17.18	-17.18	-64.53	0.18	66.78	255.09
3000.00	3.84	277.40	2998.15	-16.38	-16.38	-71.27	0.12	73.12	257.06
3100.00	3.85	278.80	3097.93	-15.43	-15.43	-77.90	0.09	79.42	258.80
3200.00	3.76	284.06	3197.71	-14.12	-14.12	-84.40	0.36	85.57	260.50
3300.00	3.66	287.56	3297.50	-12.36	-12.36	-90.62	0.25	91.45	262.23
3400.00	3.41	292.58	3397.31	-10.26	-10.26	-96.40	0.40	96.95	263.93
3500.00	3.01	294.70	3497.15	-8.02	-8.02	-101.54	0.42	101.85	265.48
3600.00	2.37	294.48	3597.04	-6.07	-6.07	-105.80	0.65	105.97	266.72
3700.00	1.86	294.77	3696.97	-4.53	-4.53	-109.15	0.51	109.25	267.62
3800.00	1.33	293.31	3796.93	-3.39	-3.39	-111.69	0.53	111.74	268.26



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MD ft	Inc deg	Azim deg	TVD ft	VS ft	Northing ft	Easting ft	DLS deg/100ft	Closure Distance ft	Closure Angle deg
3900.00	0.89	296.24	3896.92	-2.59	-2.59	-113.45	0.45	113.48	268.69
4000.00	0.63	288.95	3996.91	-2.07	-2.07	-114.66	0.27	114.68	268.97
4100.00	0.07	239.09	4096.90	-1.92	-1.92	-115.23	0.59	115.25	269.04
4200.00	0.54	90.45	4196.90	-1.96	-1.96	-114.82	0.60	114.84	269.02
4300.00	1.16	80.39	4296.89	-1.80	-1.80	-113.35	0.64	113.37	269.09
4400.00	1.68	81.46	4396.86	-1.41	-1.41	-110.90	0.52	110.91	269.27
4500.00	2.03	77.06	4496.81	-0.79	-0.79	-107.73	0.37	107.73	269.58
4600.00	2.48	79.57	4596.73	-0.01	-0.01	-103.87	0.46	103.87	270.00
4700.00	3.00	78.28	4696.62	0.92	0.92	-99.18	0.52	99.18	270.53
4800.00	3.32	78.55	4796.46	2.03	2.03	-93.78	0.32	93.80	271.24
4900.00	3.61	78.73	4896.28	3.22	3.22	-87.85	0.29	87.91	272.10
5000.00	3.71	69.58	4996.08	4.96	4.96	-81.72	0.59	81.87	273.47
5100.00	3.68	55.36	5095.87	7.91	7.91	-76.05	0.91	76.46	275.94
5200.00	4.05	51.93	5195.64	11.92	11.92	-70.63	0.44	71.63	279.58
5300.00	5.07	51.55	5295.33	16.84	16.84	-64.39	1.02	66.55	284.66
5400.00	5.84	52.31	5394.87	22.70	22.70	-56.90	0.77	61.26	291.75
5500.00	6.38	54.51	5494.30	29.04	29.04	-48.35	0.59	56.40	300.99
5600.00	5.91	57.35	5593.73	35.04	35.04	-39.49	0.56	52.80	311.58
5700.00	5.21	57.41	5693.26	40.26	40.26	-31.33	0.70	51.02	322.11
5800.00	4.60	56.30	5792.89	44.93	44.93	-24.17	0.62	51.02	331.72
5900.00	4.30	59.07	5892.59	49.08	49.08	-17.62	0.37	52.15	340.25
6000.00	3.87	60.46	5992.34	52.67	52.67	-11.48	0.44	53.91	347.71
6100.00	4.39	67.17	6092.08	55.82	55.82	-5.01	0.71	56.04	354.87
6175.00	5.37	71.76	6166.80	58.03	58.03	0.97	1.40	58.04	0.96

NE

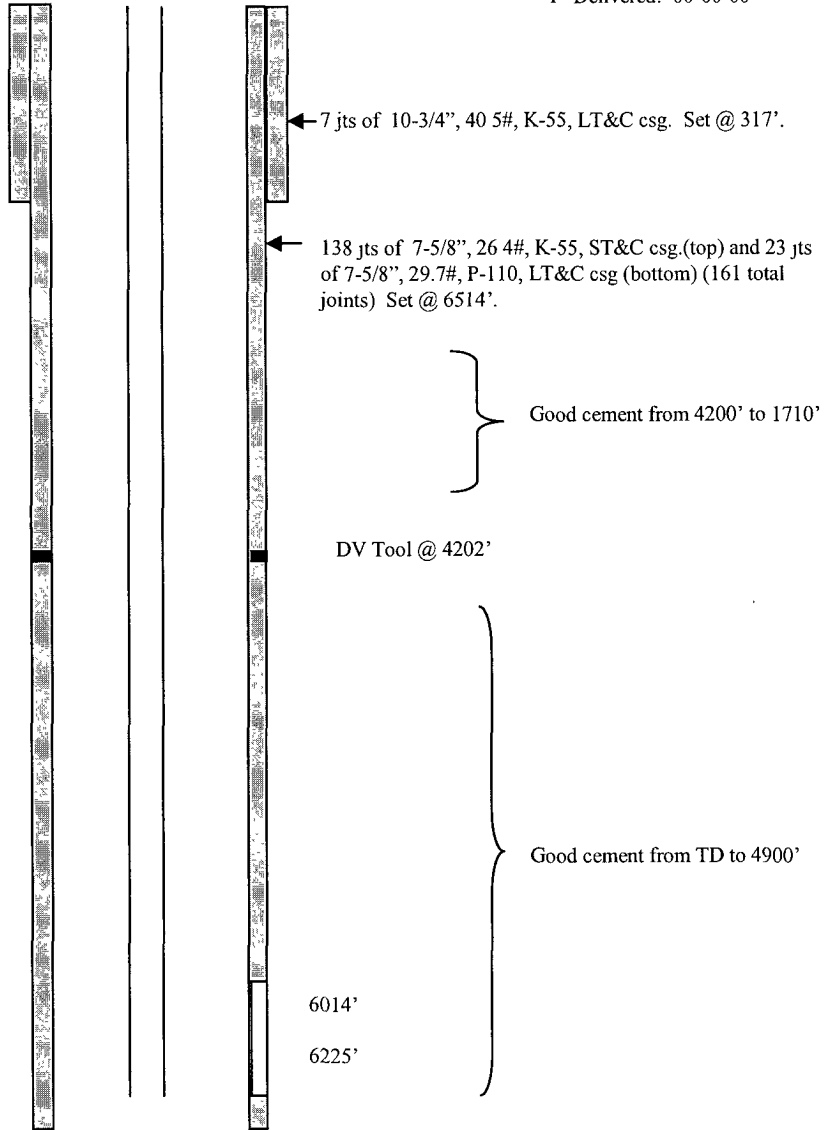
Jicarilla 93 #12B Blanco Mesa Verde

Spud Date: 11-25-08
Completed: 04-07-09
1st Delivered: 00-00-00

Location:
1190' FNL & 660' FWL
NW/4 NW/4 Section 34 (D), T27N, R03W
Rio Arriba Co, NM

Elevation: 7181' GR
API #: 30-039-29805

<u>Tops</u>	<u>Depth</u>
Fruitland	3704'
Pictured Cliffs	3921'
Cliff House	5690
Menefee	5768'
Point Lookout	6049'
Mancos	6396'



Point Lookout: 6014' – 6225' (60, 0 38" holes) Frac w/
93,093# 20/40 white sand

6014'
6225'

Land well as follows, 2 7/8" notched collar, 1 jt
2 7/8" 6.5# J-55 EUE 8rnd tbg, 2.28" I D. F-
nipple & 192 jts 2 7/8" 6.5# J-55 EUE 8rnd
tbg. EOT tbg @ 6227', F-nipple @ 6193'

TD @ 6530'
PBD @ 6485'

<i>HOLE SIZE</i>	<i>CASING</i>	<i>CEMENT</i>	<i>CU. FT.</i>	<i>CMT TOP</i>
14-3/4"	10-3/4", 40.5#	200 s xs	281 cu.ft.	surface
9-7/8"	7-5/8", 26.4# & 29.7#	1200 s xs	2546 cu.ft.	See above