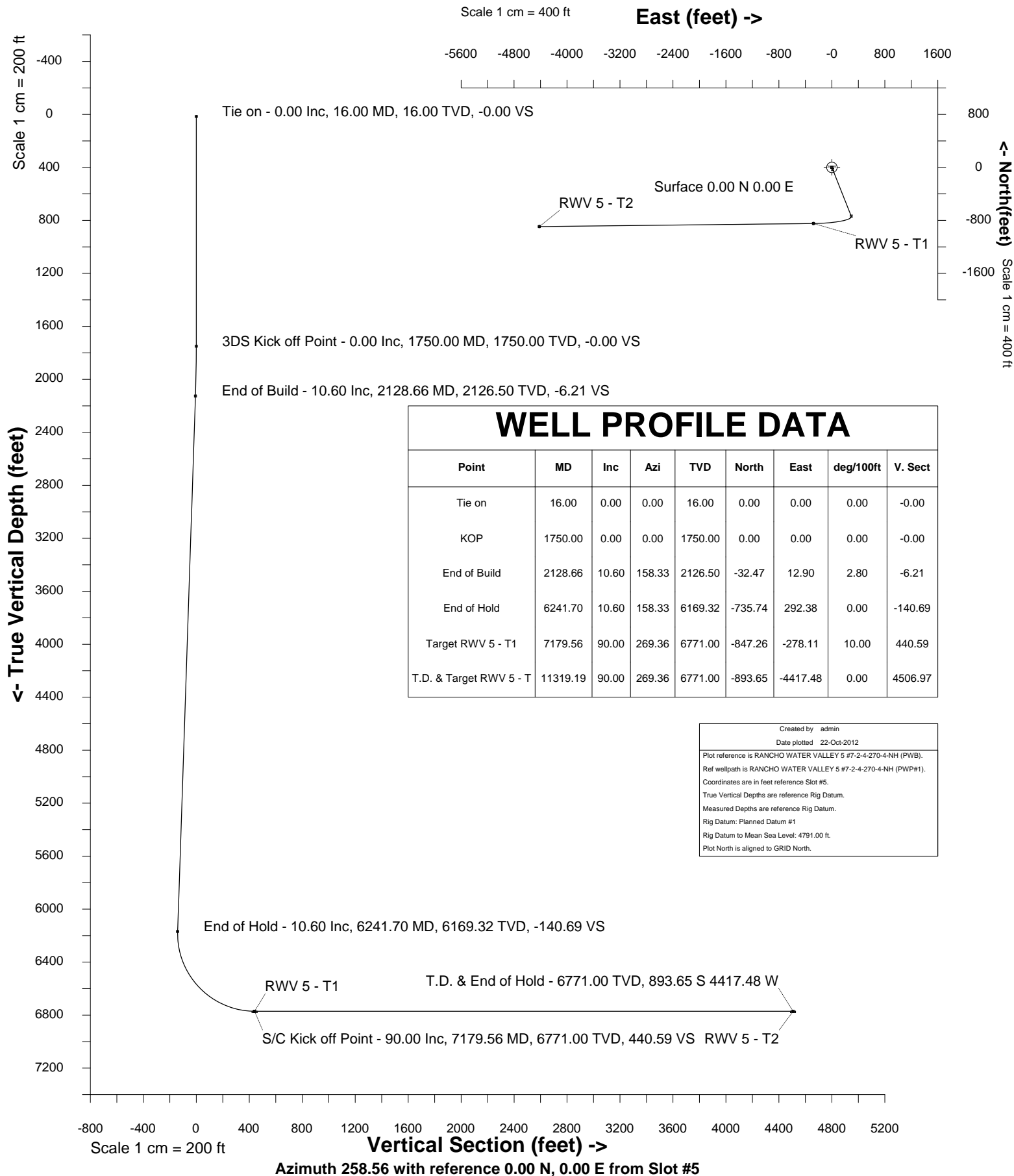


Location	Windsor, CO, USA	Slot	Slot #5
Field	Windsor Project	Well	RANCHO WATER VALLEY 5 #7-2-4-270-4-NH
Installation	Rancho Water Valley	Wellbore	RANCHO WATER VALLEY 5 #7-2-4-270-4-NH (PWB)





SYSDRILL
Well Design Combined Report
Wellbore: RANCHO WATER VALLEY 5 #7-2-4-270-4-NH (PWB)
Wellpath: RANCHO WATER VALLEY 5 #7-2-4-270-4-NH (PWP#1)

Wellhead Details

Name	Northing	Easting	Latitude	Longitude	North	East
Slot #5	1402073.4733	3170327.1604	N40 26 7.7291	W104 53 17.1960	0.00N	16.70W

Site Details

Name	Northing	Easting	Coord System Name	North Alignment
Rancho Water Valley	1402073.4733	3170343.8622	CO83-NF on NORTH AMERICAN DATUM 1983 datum	Grid

Summary Wellpath

MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]	Northing	Easting
16.00	0.00	0.000	16.00	0.00N	0.00E		0.00	1402073.47	3170327.16
1750.00	0.00	0.000	1750.00	0.00N	0.00E	==>	0.00	1402073.47	3170327.16
2128.66	10.60	158.330	2126.50	32.47S	12.90E	2.80	-6.21	1402041.01	3170340.06
6241.70	10.60	158.330	6169.32	735.74S	292.38E	==>	-140.69	1401337.76	3170619.53
7179.56	90.00	269.360	6771.00	847.26S	278.11W	10.00	440.59	1401226.25	3170049.06
11319.19	90.00	269.360	6771.00	893.65S	4417.48W	==>	4506.97	1401179.86	3165909.85

Interpolated Wellpath

MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]	Northing	Easting
0.00	0.00	0.000	0.00	0.00N	0.00E		0.00	1402073.47	3170327.16
16.00	0.00	0.000	16.00	0.00N	0.00E	==>	0.00	1402073.47	3170327.16
100.00	0.00	0.000	100.00	0.00N	0.00E	==>	0.00	1402073.47	3170327.16
200.00	0.00	0.000	200.00	0.00N	0.00E	==>	0.00	1402073.47	3170327.16
300.00	0.00	0.000	300.00	0.00N	0.00E	==>	0.00	1402073.47	3170327.16
400.00	0.00	0.000	400.00	0.00N	0.00E	==>	0.00	1402073.47	3170327.16
500.00	0.00	0.000	500.00	0.00N	0.00E	==>	0.00	1402073.47	3170327.16
600.00	0.00	0.000	600.00	0.00N	0.00E	==>	0.00	1402073.47	3170327.16
700.00	0.00	0.000	700.00	0.00N	0.00E	==>	0.00	1402073.47	3170327.16
800.00	0.00	0.000	800.00	0.00N	0.00E	==>	0.00	1402073.47	3170327.16
900.00	0.00	0.000	900.00	0.00N	0.00E	==>	0.00	1402073.47	3170327.16
1000.00	0.00	0.000	1000.00	0.00N	0.00E	==>	0.00	1402073.47	3170327.16
1100.00	0.00	0.000	1100.00	0.00N	0.00E	==>	0.00	1402073.47	3170327.16
1200.00	0.00	0.000	1200.00	0.00N	0.00E	==>	0.00	1402073.47	3170327.16
1300.00	0.00	0.000	1300.00	0.00N	0.00E	==>	0.00	1402073.47	3170327.16
1400.00	0.00	0.000	1400.00	0.00N	0.00E	==>	0.00	1402073.47	3170327.16
1500.00	0.00	0.000	1500.00	0.00N	0.00E	==>	0.00	1402073.47	3170327.16
1600.00	0.00	0.000	1600.00	0.00N	0.00E	==>	0.00	1402073.47	3170327.16
1700.00	0.00	0.000	1700.00	0.00N	0.00E	==>	0.00	1402073.47	3170327.16
1734.00	0.00	0.000	1734.00	0.00N	0.00E	==>	0.00	1402073.47	3170327.16
1750.00	0.00	0.000	1750.00	0.00N	0.00E	==>	0.00	1402073.47	3170327.16
1834.00	2.35	158.330	1833.98	1.60S	0.64E	2.80	-0.31	1402071.87	3170327.80
1934.00	5.15	158.330	1933.75	7.68S	3.05E	2.80	-1.47	1402065.79	3170330.21
2034.00	7.95	158.330	2033.09	18.29S	7.27E	2.80	-3.50	1402055.19	3170334.43
2128.66	10.60	158.330	2126.50	32.47S	12.90E	2.80	-6.21	1402041.01	3170340.06
2200.00	10.60	158.330	2196.62	44.66S	17.75E	==>	-8.54	1402028.81	3170344.91
2300.00	10.60	158.330	2294.92	61.76S	24.54E	==>	-11.81	1402011.71	3170351.70
2400.00	10.60	158.330	2393.21	78.86S	31.34E	==>	-15.08	1401994.62	3170358.50
2500.00	10.60	158.330	2491.50	95.96S	38.13E	==>	-18.35	1401977.52	3170365.29
2600.00	10.60	158.330	2589.80	113.06S	44.93E	==>	-21.62	1401960.42	3170372.09
2700.00	10.60	158.330	2688.09	130.16S	51.72E	==>	-24.89	1401943.32	3170378.88
2800.00	10.60	158.330	2786.38	147.26S	58.52E	==>	-28.16	1401926.22	3170385.68
2900.00	10.60	158.330	2884.67	164.35S	65.31E	==>	-31.43	1401909.13	3170392.47
3000.00	10.60	158.330	2982.97	181.45S	72.11E	==>	-34.70	1401892.03	3170399.27
3100.00	10.60	158.330	3081.26	198.55S	78.90E	==>	-37.97	1401874.93	3170406.06
3200.00	10.60	158.330	3179.55	215.65S	85.70E	==>	-41.24	1401857.83	3170412.86
3300.00	10.60	158.330	3277.85	232.75S	92.49E	==>	-44.51	1401840.73	3170419.65
3400.00	10.60	158.330	3376.14	249.85S	99.29E	==>	-47.78	1401823.64	3170426.44
3500.00	10.60	158.330	3474.43	266.95S	106.08E	==>	-51.05	1401806.54	3170433.24
3600.00	10.60	158.330	3572.72	284.04S	112.88E	==>	-54.32	1401789.44	3170440.03
3700.00	10.60	158.330	3671.02	301.14S	119.67E	==>	-57.59	1401772.34	3170446.83
3800.00	10.60	158.330	3769.31	318.24S	126.47E	==>	-60.86	1401755.24	3170453.62
3900.00	10.60	158.330	3867.60	335.34S	133.26E	==>	-64.13	1401738.15	3170460.42
4000.00	10.60	158.330	3965.89	352.44S	140.06E	==>	-67.40	1401721.05	3170467.21
4100.00	10.60	158.330	4064.19	369.54S	146.85E	==>	-70.66	1401703.95	3170474.01
4200.00	10.60	158.330	4162.48	386.64S	153.65E	==>	-73.93	1401686.85	3170480.80
4300.00	10.60	158.330	4260.77	403.73S	160.44E	==>	-77.20	1401669.76	3170487.60
4400.00	10.60	158.330	4359.07	420.83S	167.24E	==>	-80.47	1401652.66	3170494.39
4500.00	10.60	158.330	4457.36	437.93S	174.03E	==>	-83.74	1401635.56	3170501.19
4600.00	10.60	158.330	4555.65	455.03S	180.83E	==>	-87.01	1401618.46	3170507.98
4700.00	10.60	158.330	4653.94	472.13S	187.62E	==>	-90.28	1401601.36	3170514.78
4800.00	10.60	158.330	4752.24	489.23S	194.42E	==>	-93.55	1401584.27	3170521.57
4900.00	10.60	158.330	4850.53	506.33S	201.21E	==>	-96.82	1401567.17	3170528.36

All data is in Feet unless otherwise stated
Coordinates are from Slot MD's are from Rig and TVD's are from Rig (Planned Datum #1 4791.0ft above Mean Sea Level)
Vertical Section is from 0.00N 0.00E on azimuth 258.560 degrees
Bottom hole distance is 4506.97 Feet on azimuth 258.56 degrees from Wellhead
Calculation method uses Minimum Curvature method
Prepared by Peterson Energy
Date Printed: 22-Oct-2012



SYSDRILL
Well Design Combined Report
Wellbore: RANCHO WATER VALLEY 5 #7-2-4-270-4-NH (PWB)
Wellpath: RANCHO WATER VALLEY 5 #7-2-4-270-4-NH (PWP#1)

Interpolated Wellpath

MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]	Northing	Easting
5000.00	10.60	158.330	4948.82	523.42S	208.01E	==>	-100.09	1401550.07	3170535.16
5100.00	10.60	158.330	5047.11	540.52S	214.80E	==>	-103.36	1401532.97	3170541.95
5200.00	10.60	158.330	5145.41	557.62S	221.60E	==>	-106.63	1401515.87	3170548.75
5300.00	10.60	158.330	5243.70	574.72S	228.39E	==>	-109.90	1401498.78	3170555.54
5400.00	10.60	158.330	5341.99	591.82S	235.19E	==>	-113.17	1401481.68	3170562.34
5500.00	10.60	158.330	5440.29	608.92S	241.98E	==>	-116.44	1401464.58	3170569.13
5600.00	10.60	158.330	5538.58	626.02S	248.78E	==>	-119.71	1401447.48	3170575.93
5700.00	10.60	158.330	5636.87	643.11S	255.57E	==>	-122.98	1401430.38	3170582.72
5800.00	10.60	158.330	5735.16	660.21S	262.37E	==>	-126.25	1401413.29	3170589.52
5900.00	10.60	158.330	5833.46	677.31S	269.16E	==>	-129.52	1401396.19	3170596.31
6000.00	10.60	158.330	5931.75	694.41S	275.96E	==>	-132.79	1401379.09	3170603.11
6100.00	10.60	158.330	6030.04	711.51S	282.75E	==>	-136.06	1401361.99	3170609.90
6200.00	10.60	158.330	6128.34	728.61S	289.55E	==>	-139.33	1401344.89	3170616.70
6241.70	10.60	158.330	6169.32	735.74S	292.38E	==>	-140.69	1401337.76	3170619.53
6300.00	10.12	191.070	6226.72	745.76S	293.38E	10.00	-139.68	1401327.75	3170620.53
6400.00	15.55	230.470	6324.36	762.95S	281.32E	10.00	-124.46	1401310.55	3170608.47
6500.00	24.07	246.330	6418.42	779.71S	252.24E	10.00	-92.62	1401293.79	3170579.39
6600.00	33.38	253.980	6506.05	795.53S	207.00E	10.00	-45.15	1401277.97	3170534.15
6700.00	42.98	258.550	6584.58	809.92S	146.99E	10.00	16.52	1401263.58	3170474.15
6800.00	52.71	261.710	6651.62	822.46S	74.03E	10.00	90.51	1401251.05	3170401.19
6900.00	62.50	264.140	6705.14	832.75S	9.66W	10.00	174.59	1401240.76	3170317.50
7000.00	72.32	266.170	6743.51	840.48S	101.54W	10.00	266.18	1401233.03	3170225.62
7100.00	82.16	267.980	6765.57	845.42S	198.82W	10.00	362.51	1401228.08	3170128.34
7179.56	90.00	269.360	6771.00	847.26S	278.11W	10.00	440.59	1401226.25	3170049.06
7200.00	90.00	269.360	6771.00	847.49S	298.55W	==>	460.66	1401226.02	3170028.62
7300.00	90.00	269.360	6771.00	848.61S	398.54W	==>	558.90	1401224.90	3169928.63
7400.00	90.00	269.360	6771.00	849.73S	498.54W	==>	657.13	1401223.78	3169828.64
7500.00	90.00	269.360	6771.00	850.85S	598.53W	==>	755.36	1401222.65	3169728.65
7600.00	90.00	269.360	6771.00	851.97S	698.53W	==>	853.59	1401221.53	3169628.66
7700.00	90.00	269.360	6771.00	853.09S	798.52W	==>	951.82	1401220.41	3169528.67
7800.00	90.00	269.360	6771.00	854.21S	898.51W	==>	1050.05	1401219.29	3169428.68
7900.00	90.00	269.360	6771.00	855.33S	998.51W	==>	1148.28	1401218.17	3169328.69
8000.00	90.00	269.360	6771.00	856.46S	1098.50W	==>	1246.51	1401217.05	3169228.70
8100.00	90.00	269.360	6771.00	857.58S	1198.49W	==>	1344.74	1401215.93	3169128.71
8200.00	90.00	269.360	6771.00	858.70S	1298.49W	==>	1442.97	1401214.81	3169028.72
8300.00	90.00	269.360	6771.00	859.82S	1398.48W	==>	1541.20	1401213.69	3168928.73
8400.00	90.00	269.360	6771.00	860.94S	1498.48W	==>	1639.43	1401212.57	3168828.74
8500.00	90.00	269.360	6771.00	862.06S	1598.47W	==>	1737.66	1401211.45	3168728.75
8600.00	90.00	269.360	6771.00	863.18S	1698.46W	==>	1835.89	1401210.33	3168628.77
8700.00	90.00	269.360	6771.00	864.30S	1798.46W	==>	1934.12	1401209.21	3168528.78
8800.00	90.00	269.360	6771.00	865.42S	1898.45W	==>	2032.35	1401208.09	3168428.79
8900.00	90.00	269.360	6771.00	866.54S	1998.44W	==>	2130.58	1401206.97	3168328.80
9000.00	90.00	269.360	6771.00	867.66S	2098.44W	==>	2228.81	1401205.85	3168228.81
9100.00	90.00	269.360	6771.00	868.78S	2198.43W	==>	2327.05	1401204.73	3168128.82
9200.00	90.00	269.360	6771.00	869.90S	2298.43W	==>	2425.28	1401203.61	3168028.83
9300.00	90.00	269.360	6771.00	871.02S	2398.42W	==>	2523.51	1401202.49	3167928.84
9400.00	90.00	269.360	6771.00	872.14S	2498.41W	==>	2621.74	1401201.37	3167828.85
9500.00	90.00	269.360	6771.00	873.26S	2598.41W	==>	2719.97	1401200.25	3167728.86
9600.00	90.00	269.360	6771.00	874.38S	2698.40W	==>	2818.20	1401199.13	3167628.87
9700.00	90.00	269.360	6771.00	875.50S	2798.39W	==>	2916.43	1401198.00	3167528.88
9800.00	90.00	269.360	6771.00	876.62S	2898.39W	==>	3014.66	1401196.88	3167428.89
9900.00	90.00	269.360	6771.00	877.74S	2998.38W	==>	3112.89	1401195.76	3167328.90
10000.00	90.00	269.360	6771.00	878.87S	3098.38W	==>	3211.12	1401194.64	3167228.91
10100.00	90.00	269.360	6771.00	879.99S	3198.37W	==>	3309.35	1401193.52	3167128.92
10200.00	90.00	269.360	6771.00	881.11S	3298.36W	==>	3407.58	1401192.40	3167028.93
10300.00	90.00	269.360	6771.00	882.23S	3398.36W	==>	3505.81	1401191.28	3166928.94
10400.00	90.00	269.360	6771.00	883.35S	3498.35W	==>	3604.04	1401190.16	3166828.95
10500.00	90.00	269.360	6771.00	884.47S	3598.34W	==>	3702.27	1401189.04	3166728.96
10600.00	90.00	269.360	6771.00	885.59S	3698.34W	==>	3800.50	1401187.92	3166628.97
10700.00	90.00	269.360	6771.00	886.71S	3798.33W	==>	3898.73	1401186.80	3166528.98
10800.00	90.00	269.360	6771.00	887.83S	3898.33W	==>	3996.96	1401185.68	3166428.99
10900.00	90.00	269.360	6771.00	888.95S	3998.32W	==>	4095.20	1401184.56	3166329.00
11000.00	90.00	269.360	6771.00	890.07S	4098.31W	==>	4193.43	1401183.44	3166229.01
11100.00	90.00	269.360	6771.00	891.19S	4198.31W	==>	4291.66	1401182.32	3166129.02
11200.00	90.00	269.360	6771.00	892.31S	4298.30W	==>	4389.89	1401181.20	3166029.03
11300.00	90.00	269.360	6771.00	893.43S	4398.29W	==>	4488.12	1401180.08	3165929.04
11319.19	90.00	269.360	6771.00	893.65S	4417.48W	==>	4506.97	1401179.86	3165909.85

All data is in Feet unless otherwise stated
Coordinates are from Slot MD's are from Rig and TVD's are from Rig (Planned Datum #1 4791.0ft above Mean Sea Level)
Vertical Section is from 0.00N 0.00E on azimuth 258.560 degrees
Bottom hole distance is 4506.97 Feet on azimuth 258.56 degrees from Wellhead
Calculation method uses Minimum Curvature method
Prepared by Peterson Energy
Date Printed: 22-Oct-2012



SYSDRILL
Well Design Combined Report
Wellbore: RANCHO WATER VALLEY 5 #7-2-4-270-4-NH (PWB)
Wellpath: RANCHO WATER VALLEY 5 #7-2-4-270-4-NH (PWP#1)

Targets

Name	North[ft]	East[ft]	TVD[ft]	Latitude	Longitude	Northing	Easting	Last Revised
RWV 5 - T1	847.26S	278.11W	6771.00	N40 25 59.3760	W104 53 20.8680	1401226.25	3170049.06	19-Oct-2012
RWV 5 - T2	893.65S	4417.48W	6771.00	N40 25 59.1960	W104 54 14.4000	1401179.86	3165909.85	19-Oct-2012

Survey Tool Program

Reference	Survey Name	MD[ft]	TVD[ft]	Survey Tool	Error Model
5135	Planned	11319.19	6771.00	ISCWSA MWD	Rev 0

Notes

All data is in Feet unless otherwise stated
Coordinates are from Slot MD's are from Rig and TVD's are from Rig (Planned Datum #1 4791.0ft above Mean Sea Level)
Vertical Section is from 0.00N 0.00E on azimuth 258.560 degrees
Bottom hole distance is 4506.97 Feet on azimuth 258.56 degrees from Wellhead
Calculation method uses Minimum Curvature method
Prepared by Peterson Energy
Date Printed: 22-Oct-2012



SYSDRILL

Closest Approach + Clearance Factor Summary Report
Wellbore: RANCHO WATER VALLEY 5 #7-2-4-270-4-NH (PWB)
Wellpath: RANCHO WATER VALLEY 5 #7-2-4-270-4-NH (PWP#1)

Ellipse separations are reported ONLY if BOTH wells have uncertainty data
Only Depth and Magnetic Reference Field error terms are correlated across tie points
Cutoff is calculated on CENTRE to CENTRE distance

Summary data uses Closest Approach clearance calculation for all minima
Hole size/Casings ARE included
Hole size/Casings are NOT subtracted from Centre-Centre distance
Confidence limit of 95.00% / 2.80 SD.

Wellbore

Name	Created	Last Revised
RANCHO WATER VALLEY 5 #7-2-4-270-4-NH (PWB)	17-Oct-2012	21-Oct-2012

Well

Name	Government ID	Last Revised
RANCHO WATER VALLEY 5 #7-2-4-270-4-NH		17-Oct-2012

Slot

Name	Grid Northing	Grid Easting	Latitude	Longitude	North	East
Slot #5	1402073.4733	3170327.1604	N40 26 7.7291	W104 53 17.1960	0.00N	16.70W

Installation

Name	Easting	Northing	Coord System Name	North Alignment
Rancho Water Valley	3170343.8622	1402073.4733	CO83-NF on NORTH AMERICAN DATUM 1983 datum	Grid

Field

Name	Easting	Northing	Coord System Name	North Alignment
Windsor Project	3162710.0707	1407271.6545	CO83-NF on NORTH AMERICAN DATUM 1983 datum	Grid

Clearance Summary

Offset WellName	Offset Wellbore	Offset Slot	Offset Structure	Separation [ft]	MD[ft]	Diverging From[ft]	Ellipse Separation [ft]	Ellipse MD[ft]	Clearance Factor	Clearance MD[ft]
RANCHO WATER VALLEY 6 #0-7-4-270-5-NH	RANCHO WATER VALLEY 6 #0-7-4-270-5-NH (PWB)	Slot #6	Rancho Water Valley	13.92	1754.85	11319.19	11.22	1754.85	4.55	11319.19
RANCHO WATER VALLEY 4 #7-1-4-270-4-NH	RANCHO WATER VALLEY 4 #7-1-4-270-4-NH (PWB)	Slot #4	Rancho Water Valley	16.70	1500.00	1500.00	14.29	1500.00	1.87	11269.28
RANCHO WATER VALLEY #2-6-4	RANCHO WATER VALLEY #2-6-4 (AWB)	Slot #3	Rancho Water Valley	20.89	524.53	8542.37	19.15	524.53	3.45	8529.78
RANCHO WATER VALLEY 7 #8-7-33-00 0-4-NH	RANCHO WATER VALLEY 7 #8-7-33-000-4-NH (PWB)	Slot #7	Rancho Water Valley	21.58	1869.67	11319.19	18.86	1869.67	3.27	11319.19
RANCHO WATER VALLEY 2-8-4	RANCHO WATER VALLEY 2-8-4 (AWB)	Slot #2	Rancho Water Valley	43.70	1232.96	7298.60	41.51	1246.31	10.52	7266.66
RANCHO WATER VALLEY 8 #7-8-33-27 0-5-CH	RANCHO WATER VALLEY 8 #7-8-33-270-5-CH (PWB)	Slot #8	Rancho Water Valley	47.33	1754.85	1754.85	44.63	1754.85	17.35	1820.46
RANCHO WATER VALLEY 9 #8-7-33-00 0-4-CH	RANCHO WATER VALLEY 9 #8-7-33-000-4-CH (PWB)	Slot #9	Rancho Water Valley	64.03	1754.85	1754.85	61.42	1754.85	24.45	1804.06
RANCHO WATER VALLEY #3-9-4	RANCHO WATER VALLEY #3-9-4 (AWB)	Slot #1	Rancho Water Valley	66.91	17.00	6842.02	66.59	98.02	9.08	7069.81
RANCHO WATER VALLEY 10	RANCHO WATER VALLEY 10	Slot #10	Rancho Water Valley	77.95	1754.85	1754.85	75.25	1754.85	7.34	11319.19

All data is in Feet unless otherwise stated
Coordinates are from Slot MD's are from Rig and TVD's are from Rig (Planned Datum #1 4791.0ft above Mean Sea Level)
Vertical Section is from 0.00N 0.00E on azimuth 258.560 degrees
Prepared by Peterson Energy
Date Printed: 22-Oct-2012



SYSDRILL
Closest Approach + Clearance Factor Summary Report
Wellbore: RANCHO WATER VALLEY 5 #7-2-4-270-4-NH (PWB)
Wellpath: RANCHO WATER VALLEY 5 #7-2-4-270-4-NH (PWP#1)

Clearance Summary

Offset WellName	Offset Wellbore	Offset Slot	Offset Structure	Separation [ft]	MD[ft]	Diverging From[ft]	Ellipse Separation [ft]	Ellipse MD[ft]	Clearance Factor	Clearance MD[ft]
#7-8-33-27 0-4-NH RANCHO WATER VALLEY 11	#7-8-33-270-4 -NH (PWB) RANCHO WATER VALLEY 11	Slot #11	Rancho Water Valley	94.43	1771.25	1771.25	91.82	1771.25	5.05	11319.19
#7-7-33-27 0-6-CH RANCHO WATER VALLEY 12	#7-7-33-270-6 -CH (PWB) RANCHO WATER VALLEY 12	Slot #12	Rancho Water Valley	110.29	1787.65	1787.65	107.66	1787.65	5.48	11319.19
#7-7-33-27 0-4-NH RANCHO WATER VALLEY 13	#7-7-33-270-4 -NH (PWB) RANCHO WATER VALLEY 13	Slot #13	Rancho Water Valley	127.67	1722.04	1722.04	125.05	1754.85	7.01	11319.19
#7-6-33-27 0-6-CH	#7-6-33-270-6 -CH (PWB)									