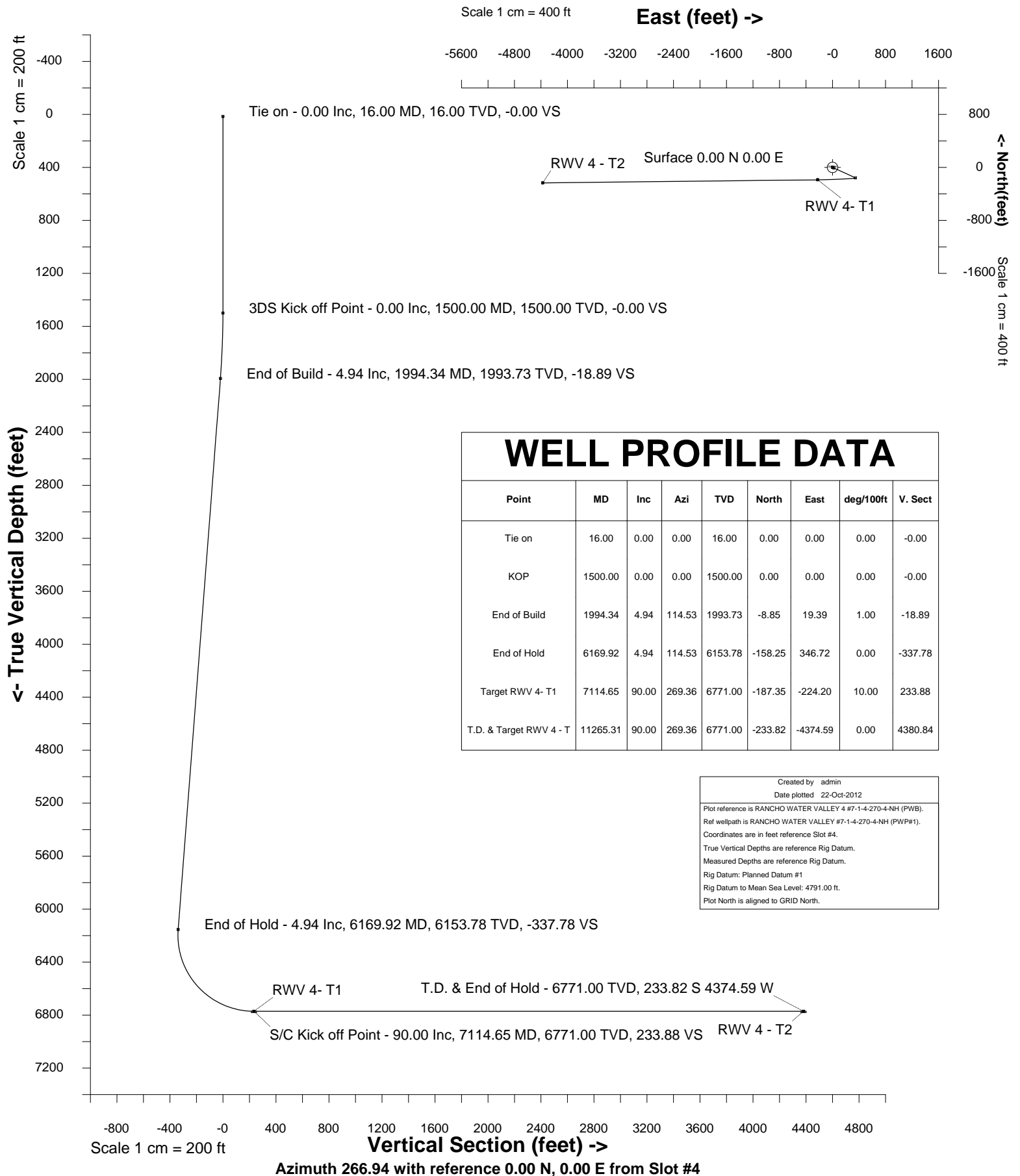


Location	Windsor, CO, USA	Slot	Slot #4
Field	Windsor Project	Well	RANCHO WATER VALLEY 4 #7-1-4-270-4-NH
Installation	Rancho Water Valley	Wellbore	RANCHO WATER VALLEY 4 #7-1-4-270-4-NH (PWB)





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

Wellhead Details

Name	Northing	Easting	Latitude	Longitude	North	East
Slot #4	1402073.4733	3170343.8622	N40 26 7.7280	W104 53 16.9800	0.00N	0.00E

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	3170343.86
1500.00	0.00	0.000	1500.00	0.00N	0.00E	==>	0.00	1402073.47	3170343.86
1994.34	4.94	114.530	1993.73	8.85S	19.39E	1.00	-18.89	1402064.62	3170363.25
6169.92	4.94	114.530	6153.78	158.25S	346.72E	==>	-337.78	1401915.23	3170690.57
7114.65	90.00	269.360	6771.00	187.35S	224.20W	10.00	233.88	1401886.13	3170119.67
11265.31	90.00	269.360	6771.00	233.82S	4374.59W	==>	4380.84	1401839.66	3165969.44

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	3170343.86
16.00	0.00	0.000	16.00	0.00N	0.00E	==>	0.00	1402073.47	3170343.86
100.00	0.00	0.000	100.00	0.00N	0.00E	==>	0.00	1402073.47	3170343.86
200.00	0.00	0.000	200.00	0.00N	0.00E	==>	0.00	1402073.47	3170343.86
300.00	0.00	0.000	300.00	0.00N	0.00E	==>	0.00	1402073.47	3170343.86
400.00	0.00	0.000	400.00	0.00N	0.00E	==>	0.00	1402073.47	3170343.86
500.00	0.00	0.000	500.00	0.00N	0.00E	==>	0.00	1402073.47	3170343.86
600.00	0.00	0.000	600.00	0.00N	0.00E	==>	0.00	1402073.47	3170343.86
700.00	0.00	0.000	700.00	0.00N	0.00E	==>	0.00	1402073.47	3170343.86
800.00	0.00	0.000	800.00	0.00N	0.00E	==>	0.00	1402073.47	3170343.86
900.00	0.00	0.000	900.00	0.00N	0.00E	==>	0.00	1402073.47	3170343.86
1000.00	0.00	0.000	1000.00	0.00N	0.00E	==>	0.00	1402073.47	3170343.86
1100.00	0.00	0.000	1100.00	0.00N	0.00E	==>	0.00	1402073.47	3170343.86
1200.00	0.00	0.000	1200.00	0.00N	0.00E	==>	0.00	1402073.47	3170343.86
1300.00	0.00	0.000	1300.00	0.00N	0.00E	==>	0.00	1402073.47	3170343.86
1400.00	0.00	0.000	1400.00	0.00N	0.00E	==>	0.00	1402073.47	3170343.86
1484.00	0.00	0.000	1484.00	0.00N	0.00E	==>	0.00	1402073.47	3170343.86
1500.00	0.00	0.000	1500.00	0.00N	0.00E	==>	0.00	1402073.47	3170343.86
1584.00	0.84	114.530	1584.00	0.26S	0.56E	1.00	-0.55	1402073.22	3170344.42
1684.00	1.84	114.530	1683.97	1.23S	2.69E	1.00	-2.62	1402072.25	3170346.55
1784.00	2.84	114.530	1783.88	2.92S	6.40E	1.00	-6.24	1402070.55	3170350.26
1884.00	3.84	114.530	1883.71	5.34S	11.70E	1.00	-11.40	1402068.13	3170355.56
1984.00	4.84	114.530	1983.42	8.48S	18.59E	1.00	-18.11	1402064.99	3170362.45
1994.34	4.94	114.530	1993.73	8.85S	19.39E	1.00	-18.89	1402064.62	3170363.25
2000.00	4.94	114.530	1999.37	9.05S	19.83E	==>	-19.32	1402064.42	3170363.69
2100.00	4.94	114.530	2098.99	12.63S	27.67E	==>	-26.96	1402060.84	3170371.53
2200.00	4.94	114.530	2198.62	16.21S	35.51E	==>	-34.59	1402057.27	3170379.37
2300.00	4.94	114.530	2298.25	19.79S	43.35E	==>	-42.23	1402053.69	3170387.21
2400.00	4.94	114.530	2397.88	23.36S	51.19E	==>	-49.87	1402050.11	3170395.05
2500.00	4.94	114.530	2497.51	26.94S	59.03E	==>	-57.51	1402046.53	3170402.89
2600.00	4.94	114.530	2597.13	30.52S	66.87E	==>	-65.14	1402042.96	3170410.73
2700.00	4.94	114.530	2696.76	34.10S	74.71E	==>	-72.78	1402039.38	3170418.57
2800.00	4.94	114.530	2796.39	37.67S	82.55E	==>	-80.42	1402035.80	3170426.41
2900.00	4.94	114.530	2896.02	41.25S	90.39E	==>	-88.05	1402032.22	3170434.24
3000.00	4.94	114.530	2995.65	44.83S	98.22E	==>	-95.69	1402028.64	3170442.08
3100.00	4.94	114.530	3095.27	48.41S	106.06E	==>	-103.33	1402025.07	3170449.92
3200.00	4.94	114.530	3194.90	51.99S	113.90E	==>	-110.97	1402021.49	3170457.76
3300.00	4.94	114.530	3294.53	55.56S	121.74E	==>	-118.60	1402017.91	3170465.60
3400.00	4.94	114.530	3394.16	59.14S	129.58E	==>	-126.24	1402014.33	3170473.44
3500.00	4.94	114.530	3493.79	62.72S	137.42E	==>	-133.88	1402010.76	3170481.28
3600.00	4.94	114.530	3593.41	66.30S	145.26E	==>	-141.52	1402007.18	3170489.12
3700.00	4.94	114.530	3693.04	69.88S	153.10E	==>	-149.15	1402003.60	3170496.96
3800.00	4.94	114.530	3792.67	73.45S	160.94E	==>	-156.79	1402000.02	3170504.80
3900.00	4.94	114.530	3892.30	77.03S	168.78E	==>	-164.43	1401996.44	3170512.63
4000.00	4.94	114.530	3991.93	80.61S	176.62E	==>	-172.06	1401992.87	3170520.47
4100.00	4.94	114.530	4091.55	84.19S	184.46E	==>	-179.70	1401989.29	3170528.31
4200.00	4.94	114.530	4191.18	87.77S	192.30E	==>	-187.34	1401985.71	3170536.15
4300.00	4.94	114.530	4290.81	91.34S	200.14E	==>	-194.98	1401982.13	3170543.99
4400.00	4.94	114.530	4390.44	94.92S	207.97E	==>	-202.61	1401978.56	3170551.83
4500.00	4.94	114.530	4490.07	98.50S	215.81E	==>	-210.25	1401974.98	3170559.67
4600.00	4.94	114.530	4589.69	102.08S	223.65E	==>	-217.89	1401971.40	3170567.51
4700.00	4.94	114.530	4689.32	105.66S	231.49E	==>	-225.52	1401967.82	3170575.35
4800.00	4.94	114.530	4788.95	109.23S	239.33E	==>	-233.16	1401964.24	3170583.18

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 266.940 degrees
Bottom hole distance is 4380.84 Feet on azimuth 266.94 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 4 #7-1-4-270-4-NH (PWB)
Wellpath: RANCHO WATER VALLEY #7-1-4-270-4-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
4900.00	4.94	114.530	4888.58	112.81S	247.17E	==>	-240.80	1401960.67	3170591.02
5000.00	4.94	114.530	4988.21	116.39S	255.01E	==>	-248.44	1401957.09	3170598.86
5100.00	4.94	114.530	5087.83	119.97S	262.85E	==>	-256.07	1401953.51	3170606.70
5200.00	4.94	114.530	5187.46	123.55S	270.69E	==>	-263.71	1401949.93	3170614.54
5300.00	4.94	114.530	5287.09	127.12S	278.53E	==>	-271.35	1401946.36	3170622.38
5400.00	4.94	114.530	5386.72	130.70S	286.37E	==>	-278.98	1401942.78	3170630.22
5500.00	4.94	114.530	5486.35	134.28S	294.21E	==>	-286.62	1401939.20	3170638.06
5600.00	4.94	114.530	5585.97	137.86S	302.05E	==>	-294.26	1401935.62	3170645.90
5700.00	4.94	114.530	5685.60	141.43S	309.89E	==>	-301.90	1401932.04	3170653.74
5800.00	4.94	114.530	5785.23	145.01S	317.73E	==>	-309.53	1401928.47	3170661.57
5900.00	4.94	114.530	5884.86	148.59S	325.56E	==>	-317.17	1401924.89	3170669.41
6000.00	4.94	114.530	5984.49	152.17S	333.40E	==>	-324.81	1401921.31	3170677.25
6100.00	4.94	114.530	6084.12	155.75S	341.24E	==>	-332.44	1401917.73	3170685.09
6169.92	4.94	114.530	6153.78	158.25S	346.72E	==>	-337.78	1401915.23	3170690.57
6200.00	2.57	144.540	6183.79	159.34S	348.29E	10.00	-339.29	1401914.14	3170692.14
6300.00	8.79	255.590	6283.41	163.07S	342.18E	10.00	-332.99	1401910.41	3170686.03
6400.00	18.65	263.100	6380.44	166.90S	318.84E	10.00	-309.48	1401906.58	3170662.69
6500.00	28.61	265.490	6471.94	170.71S	279.00E	10.00	-269.50	1401902.77	3170622.86
6600.00	38.58	266.720	6555.14	174.39S	223.87E	10.00	-214.24	1401899.09	3170667.72
6700.00	48.57	267.500	6627.49	177.82S	155.11E	10.00	-145.40	1401895.66	3170498.97
6800.00	58.56	268.070	6686.81	180.91S	74.82E	10.00	-65.06	1401892.58	3170418.68
6900.00	68.55	268.530	6731.29	183.54S	14.56W	10.00	24.34	1401889.94	3170329.30
7000.00	78.54	268.930	6759.58	185.66S	110.32W	10.00	120.08	1401887.83	3170233.54
7100.00	88.54	269.300	6770.81	187.18S	209.55W	10.00	219.24	1401886.30	3170134.32
7114.65	90.00	269.360	6771.00	187.35S	224.20W	10.00	233.88	1401886.13	3170119.67
7200.00	90.00	269.360	6771.00	188.31S	309.54W	==>	319.15	1401885.17	3170034.33
7300.00	90.00	269.360	6771.00	189.43S	409.54W	==>	419.06	1401884.05	3169934.34
7400.00	90.00	269.360	6771.00	190.55S	509.53W	==>	518.97	1401882.94	3169834.35
7500.00	90.00	269.360	6771.00	191.67S	609.52W	==>	618.89	1401881.82	3169734.36
7600.00	90.00	269.360	6771.00	192.79S	709.52W	==>	718.80	1401880.70	3169634.37
7700.00	90.00	269.360	6771.00	193.90S	809.51W	==>	818.71	1401879.58	3169534.38
7800.00	90.00	269.360	6771.00	195.02S	909.51W	==>	918.62	1401878.46	3169434.39
7900.00	90.00	269.360	6771.00	196.14S	1009.50W	==>	1018.53	1401877.34	3169334.40
8000.00	90.00	269.360	6771.00	197.26S	1109.49W	==>	1118.44	1401876.22	3169234.41
8100.00	90.00	269.360	6771.00	198.38S	1209.49W	==>	1218.35	1401875.10	3169134.42
8200.00	90.00	269.360	6771.00	199.50S	1309.48W	==>	1318.26	1401873.98	3169034.43
8300.00	90.00	269.360	6771.00	200.62S	1409.47W	==>	1418.17	1401872.86	3168934.44
8400.00	90.00	269.360	6771.00	201.74S	1509.47W	==>	1518.08	1401871.74	3168834.45
8500.00	90.00	269.360	6771.00	202.86S	1609.46W	==>	1617.99	1401870.62	3168734.47
8600.00	90.00	269.360	6771.00	203.98S	1709.46W	==>	1717.91	1401869.50	3168634.48
8700.00	90.00	269.360	6771.00	205.10S	1809.45W	==>	1817.82	1401868.38	3168534.49
8800.00	90.00	269.360	6771.00	206.22S	1909.44W	==>	1917.73	1401867.26	3168434.50
8900.00	90.00	269.360	6771.00	207.34S	2009.44W	==>	2017.64	1401866.14	3168334.51
9000.00	90.00	269.360	6771.00	208.46S	2109.43W	==>	2117.55	1401865.02	3168234.52
9100.00	90.00	269.360	6771.00	209.58S	2209.42W	==>	2217.46	1401863.90	3168134.53
9200.00	90.00	269.360	6771.00	210.70S	2309.42W	==>	2317.37	1401862.78	3168034.54
9300.00	90.00	269.360	6771.00	211.82S	2409.41W	==>	2417.28	1401861.66	3167934.55
9400.00	90.00	269.360	6771.00	212.94S	2509.40W	==>	2517.19	1401860.54	3167834.56
9500.00	90.00	269.360	6771.00	214.06S	2609.40W	==>	2617.10	1401859.42	3167734.57
9600.00	90.00	269.360	6771.00	215.18S	2709.39W	==>	2717.02	1401858.30	3167634.58
9700.00	90.00	269.360	6771.00	216.30S	2809.39W	==>	2816.93	1401857.18	3167534.59
9800.00	90.00	269.360	6771.00	217.42S	2909.38W	==>	2916.84	1401856.07	3167434.60
9900.00	90.00	269.360	6771.00	218.54S	3009.37W	==>	3016.75	1401854.95	3167334.61
10000.00	90.00	269.360	6771.00	219.66S	3109.37W	==>	3116.66	1401853.83	3167234.62
10100.00	90.00	269.360	6771.00	220.78S	3209.36W	==>	3216.57	1401852.71	3167134.63
10200.00	90.00	269.360	6771.00	221.90S	3309.35W	==>	3316.48	1401851.59	3167034.64
10300.00	90.00	269.360	6771.00	223.01S	3409.35W	==>	3416.39	1401850.47	3166934.65
10400.00	90.00	269.360	6771.00	224.13S	3509.34W	==>	3516.30	1401849.35	3166834.66
10500.00	90.00	269.360	6771.00	225.25S	3609.34W	==>	3616.21	1401848.23	3166734.67
10600.00	90.00	269.360	6771.00	226.37S	3709.33W	==>	3716.12	1401847.11	3166634.68
10700.00	90.00	269.360	6771.00	227.49S	3809.32W	==>	3816.04	1401845.99	3166534.69
10800.00	90.00	269.360	6771.00	228.61S	3909.32W	==>	3915.95	1401844.87	3166434.70
10900.00	90.00	269.360	6771.00	229.73S	4009.31W	==>	4015.86	1401843.75	3166334.71
11000.00	90.00	269.360	6771.00	230.85S	4109.30W	==>	4115.77	1401842.63	3166234.72
11100.00	90.00	269.360	6771.00	231.97S	4209.30W	==>	4215.68	1401841.51	3166134.73
11200.00	90.00	269.360	6771.00	233.09S	4309.29W	==>	4315.59	1401840.39	3166034.74
11265.31	90.00	269.360	6771.00	233.82S	4374.59W	==>	4380.84	1401839.66	3165969.44

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 266.940 degrees
Bottom hole distance is 4380.84 Feet on azimuth 266.94 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 4 #7-1-4-270-4-NH (PWB)
Wellpath: RANCHO WATER VALLEY #7-1-4-270-4-NH (PWP#1)

Targets

Name	North[ft]	East[ft]	TVD[ft]	Latitude	Longitude	Northing	Easting	Last Revised
RWV 4 - T2	233.82S	4374.59W	6771.00	N40 26 5.7120	W104 54 13.5720	1401839.66	3165969.44	19-Oct-2012
RWV 4- T1	187.35S	224.20W	6771.00	N40 26 5.8920	W104 53 19.8960	1401886.13	3170119.67	19-Oct-2012

Survey Tool Program

Reference	Survey Name	MD[ft]	TVD[ft]	Survey Tool	Error Model
5104	Planned	11265.31	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 266.940 degrees
Bottom hole distance is 4380.84 Feet on azimuth 266.94 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 4 #7-1-4-270-4-NH (PWB)

Wellpath: RANCHO WATER VALLEY #7-1-4-270-4-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 4 #7-1-4-270-4-NH (PWB)	16-Oct-2012	22-Oct-2012

Well

Name	Government ID	Last Revised
RANCHO WATER VALLEY 4 #7-1-4-270-4-NH		17-Oct-2012

Slot

Name	Grid Northing	Grid Easting	Latitude	Longitude	North	East
Slot #4	1402073.4733	3170343.8622	N40 26 7.7280	W104 53 16.9800	0.00N	0.00E

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 #2-6-4	RANCHO WATER VALLEY #2-6-4 (AWB)	Slot #3	Rancho Water Valley	9.73	394.60	8555.31	8.36	394.60	2.24	8578.99
RANCHO WATER VALLEY 5 #7-2-4-270-4-NH	RANCHO WATER VALLEY 5 #7-2-4-270-4-NH (PWB)	Slot #5	Rancho Water Valley	16.70	1500.00	1500.00	14.29	1508.78	1.87	11265.31
RANCHO WATER VALLEY 2-8-4	RANCHO WATER VALLEY 2-8-4 (AWB)	Slot #2	Rancho Water Valley	28.52	1173.91	7311.73	26.43	1180.70	7.39	7397.89
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	30.62	1500.00	11265.31	28.22	1508.78	1.53	11265.31
RANCHO WATER VALLEY 7 #8-7-33-000-4	RANCHO WATER VALLEY 7 #8-7-33-000-4 (PWB)	Slot #7	Rancho Water Valley	46.04	1900.00	11265.31	43.27	1902.48	1.49	11265.31
RANCHO WATER VALLEY #3-9-4	RANCHO WATER VALLEY #3-9-4 (AWB)	Slot #1	Rancho Water Valley	50.24	17.00	6847.58	49.92	98.02	25.02	7643.95
RANCHO WATER VALLEY 8 #7-8-33-270-5	RANCHO WATER VALLEY 8 #7-8-33-270-5 (PWB)	Slot #8	Rancho Water Valley	64.03	1500.00	6339.86	61.62	1508.78	25.69	1700.00
RANCHO WATER VALLEY 9 #8-7-33-000-4	RANCHO WATER VALLEY 9 #8-7-33-000-4 (PWB)	Slot #9	Rancho Water Valley	80.73	1500.00	6698.73	78.32	1508.78	30.27	6971.38
RANCHO WATER VALLEY 10	RANCHO WATER VALLEY 10	Slot #10	Rancho Water Valley	94.65	1500.00	1500.00	92.25	1508.78	4.31	11265.31

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 266.940 degrees

Prepared by Peterson Energy

Date Printed: 22-Oct-2012



SYSDRILL
Closest Approach + Clearance Factor Summary Report
Wellbore: RANCHO WATER VALLEY 4 #7-1-4-270-4-NH (PWB)
Wellpath: RANCHO WATER VALLEY #7-1-4-270-4-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	111.35	1500.00	1500.00	108.94	1508.78	3.23	11265.31
#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	127.97	1508.78	1508.78	125.56	1508.78	3.63	11265.31
#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	144.54	1508.78	1508.78	142.12	1508.78	5.16	11265.31
#7-6-33-27 0-6-CH	#7-6-33-270-6 -CH (PWB)									