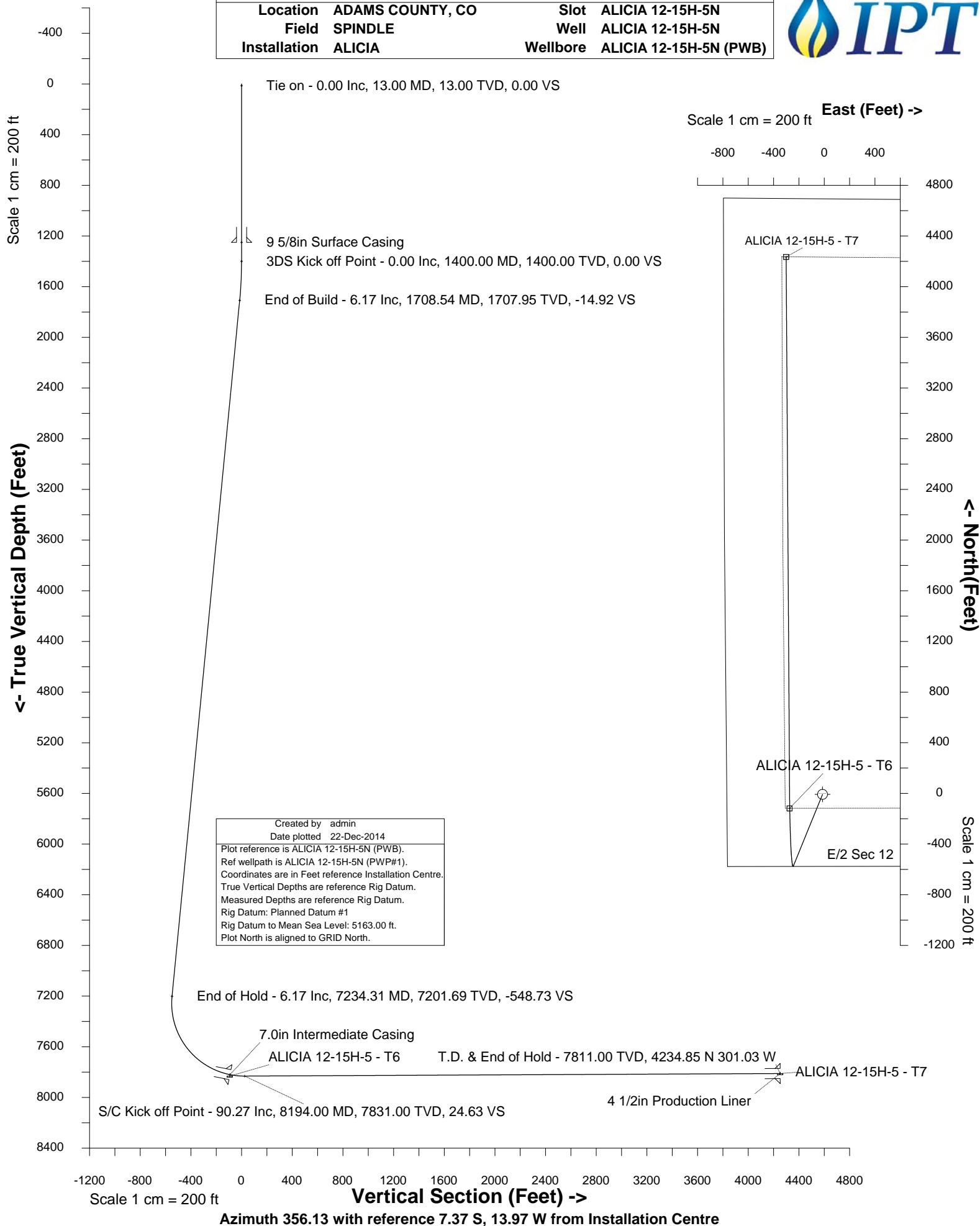


MENDELL ENERGY, LLC

Location	ADAMS COUNTY, CO	Slot	ALICIA 12-15H-5N
Field	SPINDLE	Well	ALICIA 12-15H-5N
Installation	ALICIA	Wellbore	ALICIA 12-15H-5N (PWB)





Wellhead Details							
Name	Northing	Easting	Latitude	Longitude	North	East	Elevation Above Inst.
ALICIA 12-15H-5N	1233687.4952	3154939.2222	39.97353000	-104.94716000	7.37S	13.97W	-0.00

Declination			
Date	Source	Time	
8-Jul-2013	IGRF Model [1900.0-2015.0]	09:34	

Site Details				
Name	Northing	Easting	Coord System Name	North Alignment
ALICIA	1233694.8679	3154953.1896	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
13.00	0.00	0.000	13.00	0.00N	0.00E		0.00	1233687.50	3154939.22
1400.00	0.00	202.140	1400.00	0.00N	0.00E	==>	0.00	1233687.50	3154939.22
12429.26	90.27	359.630	7811.00	4242.22N	287.06W	==>	4251.92	1237929.57	3154652.17

Interpolated Wellpath								
MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]	
0.00	0.00	0.000	0.00	0.00N	0.00E		0.00	
13.00	0.00	0.000	13.00	0.00N	0.00E	==>	0.00	
100.00	0.00	0.000	100.00	0.00N	0.00E	==>	0.00	
200.00	0.00	0.000	200.00	0.00N	0.00E	==>	0.00	
300.00	0.00	0.000	300.00	0.00N	0.00E	==>	0.00	
400.00	0.00	0.000	400.00	0.00N	0.00E	==>	0.00	
500.00	0.00	0.000	500.00	0.00N	0.00E	==>	0.00	
600.00	0.00	0.000	600.00	0.00N	0.00E	==>	0.00	
700.00	0.00	0.000	700.00	0.00N	0.00E	==>	0.00	
800.00	0.00	0.000	800.00	0.00N	0.00E	==>	0.00	
900.00	0.00	0.000	900.00	0.00N	0.00E	==>	0.00	
1000.00	0.00	0.000	1000.00	0.00N	0.00E	==>	0.00	
1100.00	0.00	0.000	1100.00	0.00N	0.00E	==>	0.00	
1200.00	0.00	0.000	1200.00	0.00N	0.00E	==>	0.00	
1250.00	0.00	0.000	1250.00	0.00N	0.00E	==>	0.00	
1300.00	0.00	0.000	1300.00	0.00N	0.00E	==>	0.00	
1400.00	0.00	202.140	1400.00	0.00N	0.00E	==>	0.00	
1500.00	2.00	202.140	1499.98	1.62S	0.66W	2.00	-1.57	
1600.00	4.00	202.140	1599.84	6.46S	2.63W	2.00	-6.27	
1700.00	6.00	202.140	1699.45	14.54S	5.91W	2.00	-14.10	
1800.00	6.17	202.140	1798.87	24.48S	9.96W	==>	-23.75	
1900.00	6.17	202.140	1898.29	34.44S	14.01W	==>	-33.41	
2000.00	6.17	202.140	1997.72	44.39S	18.06W	==>	-43.07	
2100.00	6.17	202.140	2097.14	54.35S	22.12W	==>	-52.73	
2200.00	6.17	202.140	2196.56	64.31S	26.17W	==>	-62.39	
2300.00	6.17	202.140	2295.98	74.26S	30.22W	==>	-72.05	
2400.00	6.17	202.140	2395.40	84.22S	34.27W	==>	-81.72	
2500.00	6.17	202.140	2494.82	94.18S	38.32W	==>	-91.38	
2600.00	6.17	202.140	2594.24	104.13S	42.37W	==>	-101.04	
2700.00	6.17	202.140	2693.66	114.09S	46.43W	==>	-110.70	
2800.00	6.17	202.140	2793.08	124.05S	50.48W	==>	-120.36	
2900.00	6.17	202.140	2892.50	134.00S	54.53W	==>	-130.02	
3000.00	6.17	202.140	2991.92	143.96S	58.58W	==>	-139.68	
3100.00	6.17	202.140	3091.34	153.92S	62.63W	==>	-149.34	
3200.00	6.17	202.140	3190.76	163.87S	66.68W	==>	-159.00	
3300.00	6.17	202.140	3290.18	173.83S	70.73W	==>	-168.66	
3400.00	6.17	202.140	3389.60	183.79S	74.79W	==>	-178.32	
3500.00	6.17	202.140	3489.02	193.74S	78.84W	==>	-187.98	
3600.00	6.17	202.140	3588.44	203.70S	82.89W	==>	-197.64	
3700.00	6.17	202.140	3687.86	213.66S	86.94W	==>	-207.30	

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Vertical Section is from 0.00N 0.00E on azimuth 356.130 degrees
Bottom hole distance is 4251.92 Feet on azimuth 356.13 degrees from Wellhead
Calculation method uses Minimum Curvature method
Prepared by Integrated Petroleum Technologies, Inc.
Date Printed: 22-Dec-2014



Peterson Energy Operating, Inc
SYSDRILL
Well Design Combined Report
Wellbore: ALICIA 12-15H-5N (PWB)

Interpolated Wellpath							
MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]
3800.00	6.17	202.140	3787.29	223.61S	90.99W	==>	-216.96
3900.00	6.17	202.140	3886.71	233.57S	95.04W	==>	-226.62
4000.00	6.17	202.140	3986.13	243.53S	99.09W	==>	-236.28
4100.00	6.17	202.140	4085.55	253.48S	103.15W	==>	-245.94
4200.00	6.17	202.140	4184.97	263.44S	107.20W	==>	-255.60
4300.00	6.17	202.140	4284.39	273.40S	111.25W	==>	-265.26
4400.00	6.17	202.140	4383.81	283.35S	115.30W	==>	-274.92
4500.00	6.17	202.140	4483.23	293.31S	119.35W	==>	-284.58
4600.00	6.17	202.140	4582.65	303.27S	123.40W	==>	-294.24
4700.00	6.17	202.140	4682.07	313.22S	127.45W	==>	-303.90
4800.00	6.17	202.140	4781.49	323.18S	131.51W	==>	-313.57
4900.00	6.17	202.140	4880.91	333.14S	135.56W	==>	-323.23
5000.00	6.17	202.140	4980.33	343.09S	139.61W	==>	-332.89
5100.00	6.17	202.140	5079.75	353.05S	143.66W	==>	-342.55
5200.00	6.17	202.140	5179.17	363.01S	147.71W	==>	-352.21
5300.00	6.17	202.140	5278.59	372.96S	151.76W	==>	-361.87
5400.00	6.17	202.140	5378.01	382.92S	155.81W	==>	-371.53
5500.00	6.17	202.140	5477.44	392.88S	159.87W	==>	-381.19
5600.00	6.17	202.140	5576.86	402.83S	163.92W	==>	-390.85
5700.00	6.17	202.140	5676.28	412.79S	167.97W	==>	-400.51
5800.00	6.17	202.140	5775.70	422.75S	172.02W	==>	-410.17
5900.00	6.17	202.140	5875.12	432.70S	176.07W	==>	-419.83
6000.00	6.17	202.140	5974.54	442.66S	180.12W	==>	-429.49
6100.00	6.17	202.140	6073.96	452.62S	184.18W	==>	-439.15
6200.00	6.17	202.140	6173.38	462.57S	188.23W	==>	-448.81
6300.00	6.17	202.140	6272.80	472.53S	192.28W	==>	-458.47
6400.00	6.17	202.140	6372.22	482.49S	196.33W	==>	-468.13
6500.00	6.17	202.140	6471.64	492.44S	200.38W	==>	-477.79
6600.00	6.17	202.140	6571.06	502.40S	204.43W	==>	-487.45
6700.00	6.17	202.140	6670.48	512.36S	208.48W	==>	-497.11
6800.00	6.17	202.140	6769.90	522.31S	212.54W	==>	-506.77
6900.00	6.17	202.140	6869.32	532.27S	216.59W	==>	-516.43
7000.00	6.17	202.140	6968.74	542.23S	220.64W	==>	-526.09
7100.00	6.17	202.140	7068.16	552.18S	224.69W	==>	-535.75
7200.00	6.17	202.140	7167.58	562.14S	228.74W	==>	-545.42
7300.00	2.53	289.790	7267.24	568.34S	232.83W	10.00	-551.32
7400.00	11.12	347.460	7366.50	558.15S	237.01W	10.00	-540.88
7500.00	21.00	353.430	7462.48	530.87S	241.16W	10.00	-513.38
7600.00	30.95	355.660	7552.27	487.32S	245.17W	10.00	-469.65
7700.00	40.93	356.880	7633.13	428.82S	248.90W	10.00	-411.03
7800.00	50.91	357.690	7702.61	357.15S	252.25W	10.00	-339.31
7900.00	60.90	358.300	7758.60	274.50S	255.11W	10.00	-256.65
8000.00	70.89	358.800	7799.39	183.36S	257.40W	10.00	-165.57
8077.00	78.58	359.140	7819.65	109.15S	258.73W	10.00	-91.43
8100.00	80.88	359.240	7823.75	86.52S	259.05W	10.00	-68.83
8200.00	90.27	359.630	7830.97	13.09N	260.01W	==>	30.61
8300.00	90.27	359.630	7830.50	113.09N	260.65W	==>	130.42
8400.00	90.27	359.630	7830.03	213.08N	261.29W	==>	230.24
8500.00	90.27	359.630	7829.56	313.08N	261.92W	==>	330.05
8600.00	90.27	359.630	7829.08	413.08N	262.56W	==>	429.86
8700.00	90.27	359.630	7828.61	513.07N	263.20W	==>	529.67
8800.00	90.27	359.630	7828.14	613.07N	263.84W	==>	629.48
8900.00	90.27	359.630	7827.67	713.07N	264.48W	==>	729.30
9000.00	90.27	359.630	7827.19	813.06N	265.12W	==>	829.11
9100.00	90.27	359.630	7826.72	913.06N	265.76W	==>	928.92
9200.00	90.27	359.630	7826.25	1013.06N	266.40W	==>	1028.73
9300.00	90.27	359.630	7825.78	1113.05N	267.04W	==>	1128.54
9400.00	90.27	359.630	7825.30	1213.05N	267.68W	==>	1228.36
9500.00	90.27	359.630	7824.83	1313.05N	268.32W	==>	1328.17
9600.00	90.27	359.630	7824.36	1413.04N	268.96W	==>	1427.98

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Peterson Energy Operating, Inc
SYSDRILL
Well Design Combined Report
Wellbore: ALICIA 12-15H-5N (PWB)

Interpolated Wellpath							
MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]
9700.00	90.27	359.630	7823.89	1513.04N	269.60W	==>	1527.79
9800.00	90.27	359.630	7823.42	1613.04N	270.24W	==>	1627.60
9900.00	90.27	359.630	7822.94	1713.04N	270.88W	==>	1727.41
10000.00	90.27	359.630	7822.47	1813.03N	271.52W	==>	1827.23
10100.00	90.27	359.630	7822.00	1913.03N	272.16W	==>	1927.04
10200.00	90.27	359.630	7821.53	2013.03N	272.80W	==>	2026.85
10300.00	90.27	359.630	7821.05	2113.02N	273.44W	==>	2126.66
10400.00	90.27	359.630	7820.58	2213.02N	274.08W	==>	2226.47
10500.00	90.27	359.630	7820.11	2313.02N	274.72W	==>	2326.29
10600.00	90.27	359.630	7819.64	2413.01N	275.36W	==>	2426.10
10700.00	90.27	359.630	7819.17	2513.01N	276.00W	==>	2525.91
10800.00	90.27	359.630	7818.69	2613.01N	276.64W	==>	2625.72
10900.00	90.27	359.630	7818.22	2713.00N	277.28W	==>	2725.53
11000.00	90.27	359.630	7817.75	2813.00N	277.92W	==>	2825.35
11100.00	90.27	359.630	7817.28	2913.00N	278.56W	==>	2925.16
11200.00	90.27	359.630	7816.80	3012.99N	279.20W	==>	3024.97
11300.00	90.27	359.630	7816.33	3112.99N	279.84W	==>	3124.78
11400.00	90.27	359.630	7815.86	3212.99N	280.48W	==>	3224.59
11500.00	90.27	359.630	7815.39	3312.98N	281.12W	==>	3324.40
11600.00	90.27	359.630	7814.92	3412.98N	281.76W	==>	3424.22
11700.00	90.27	359.630	7814.44	3512.98N	282.40W	==>	3524.03
11800.00	90.27	359.630	7813.97	3612.98N	283.04W	==>	3623.84
11900.00	90.27	359.630	7813.50	3712.97N	283.68W	==>	3723.65
12000.00	90.27	359.630	7813.03	3812.97N	284.32W	==>	3823.46
12100.00	90.27	359.630	7812.55	3912.97N	284.96W	==>	3923.28
12200.00	90.27	359.630	7812.08	4012.96N	285.59W	==>	4023.09
12300.00	90.27	359.630	7811.61	4112.96N	286.23W	==>	4122.90
12400.00	90.27	359.630	7811.14	4212.96N	286.87W	==>	4222.71
12429.00	90.27	359.630	7811.00	4241.96N	287.06W	==>	4251.66
12429.26	90.27	359.630	7811.00	4242.22N	287.06W	==>	4251.92

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Bottom hole distance is 4251.92 Feet on azimuth 356.13 degrees from Wellhead
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Hole Sections								
Diameter [in]	Start MD[ft]	Start TVD[ft]	Start North[ft]	Start East[ft]	End MD[ft]	End TVD[ft]	End North[ft]	End East[ft]
13 1/2	13.00	13.00	0.00N	0.00E	1250.00	1250.00	0.00N	0.00E
8 3/4	1250.00	1250.00	0.00N	0.00E	8077.00	7819.65	109.15S	258.73W
6 1/8	8077.00	7819.65	109.15S	258.73W	12429.00	7811.00	4241.96N	287.06W

Casings								
Name	Top MD[ft]	Top TVD[ft]	Top North[ft]	Top East[ft]	Shoe MD[ft]	Shoe TVD[ft]	Shoe North[ft]	Shoe East[ft]
9 5/8in Surface Casing	13.00	13.00	0.00N	0.00E	1250.00	1250.00	0.00N	0.00E
7.0in Intermediate Casing	13.00	13.00	0.00N	0.00E	8077.00	7819.65	109.15S	258.73W
4 1/2in Production Liner	7977.00	7791.43	204.93S	256.93W	12429.00	7811.00	4241.96N	287.06W

Targets								
Name	North[ft]	East[ft]	TVD[ft]	Latitude	Longitude	Northing	Easting	Last Revised
ALICIA 12-15H-5 - T6	110.91S	259.97W	7831.00	39.97323000	-104.94809000	1233576.59	3154679.26	3-Mar-2014
ALICIA 12-15H-5 - T7	4242.22N	287.06W	7811.00	39.98518000	-104.94809000	1237929.57	3154652.17	3-Mar-2014

Survey Tool Program					
Reference	Survey Name	MD[ft]	TVD[ft]	Survey Tool	Error Model
172743	Planned	12429.26	7811.00	WdW Rate Gyro	Standard

Notes



SYSDRILL
Closest Approach + Clearance Factor Summary Report
Wellbore: ALICIA 12-15H-5N (PWB)

Ellipse separations are reported ONLY if BOTH wells have uncertainty data
Only Depth and Magnetic Reference Field error terms are correlated across tie points
Proximities beyond 5000.00ft with expansion rate of 0.00ft/1000ft are not reported
Scan limit 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
ALICIA 12-15H-5N (PWB)	3-Mar-2014	22-Dec-2014

Well		
Name	Government ID	Last Revised
ALICIA 12-15H-5N		19-Aug-2014

Slot						
Name	Grid Northing	Grid Easting	Latitude	Longitude	North	East
ALICIA 12-15H-5N	1233687.4952	3154939.2222	39.97353000	-104.94716000	7.37S	13.97W

Installation					North Alignment
Name	Easting	Northing	Coord System Name		
ALICIA	3154953.1896	1233694.8679	CO83-NF on NORTH AMERICAN DATUM 1983 datum	Grid	

Field					North Alignment
Name	Easting	Northing	Coord System Name		
SPINDLE	3156324.1590	1233718.6871	CO83-NF on NORTH AMERICAN DATUM 1983 datum	Grid	

Clearance Summary							
Offset WellName	Separation [ft]	MD[ft]	Diverging From[ft]	Ellipse Separation [ft]	Ellipse MD[ft]	Clearance Factor	Clearance MD[ft]
ALICIA 12-15H-6C	15.79	1400.00	12429.26	12.85	1243.31	4.76	2129.14
ALICIA 12-15H-1N	31.23	2413.00	12429.26	26.53	2440.82	4.23	12429.26
ALICIA 12-15H-2N	45.82	1400.00	11113.00	42.87	1243.31	4.32	12429.26
ALICIA 12-15H-4C	61.58	1400.00	8194.00	58.64	1243.31	8.32	12414.57
Ruby #1	68.90	1400.00	8228.95	64.30	1243.31	14.79	1489.38
ALICIA 12-15H-3N	77.36	1400.00	1400.00	74.41	1243.31	8.59	12414.57
Ruby #2	87.19	177.04	9603.75	85.48	213.00	3.30	9593.05
MALLO #1	134.40	1400.00	8297.12	130.42	1243.31	33.16	1554.99
TUDEX REINHOLT #NC4	259.13	11960.01	11960.01	217.51	11960.01	6.23	11960.01
AFTON 12-16H-1	867.37	8027.42	8027.42	806.48	12414.57	11.62	12414.57
AFTON 12-16H-2	1022.36	7349.00	7349.00	1006.38	7345.68	14.84	12414.57
AFTON #12-16H-3	1182.61	7761.98	7761.98	1167.12	7722.97	16.95	12414.57
DARLOW UNIT #12-16B	1184.93	1400.00	8277.25	1172.16	1423.76	43.28	8461.16
BARKER #12-9	1279.43	9565.39	9565.39	1257.92	9576.65	56.91	9871.92
W MORRISON #15-1	1298.65	12429.26	12429.26	1261.67	12429.26	35.12	12429.26
PULIS #12-8	1312.23	1400.00	8247.91	1308.25	1243.31	153.83	5311.56
AFTON 12-16H-8	1358.70	7263.66	7263.66	1341.37	7263.66	19.09	12414.57
AFTON 12-16H-7	1402.08	1400.00	1400.00	1399.13	1243.31	24.92	12414.57
ELMS #2	1409.10	11170.44	11170.44	1354.96	11184.26	25.75	11348.30
AFTON 12-16H-6	1414.98	1669.82	1669.82	1411.58	1686.23	104.40	7234.31

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SYSDRILL
Closest Approach + Clearance Factor Summary Report
Wellbore: ALICIA 12-15H-5N (PWB)

Clearance Summary							
Offset WellName	Separation [ft]	MD[ft]	Diverging From[ft]	Ellipse Separation [ft]	Ellipse MD[ft]	Clearance Factor	Clearance MD[ft]
BELLINGER #12-7	1419.03	1400.00	9614.59	1415.03	1243.31	195.43	5245.94
AFTON #12-16H-4	1419.63	1456.57	12215.69	1413.49	1456.57	12.50	12283.34
AFTON #12-16H-4	1419.63	1456.57	8214.39	1413.49	1456.57	44.88	9166.54
AFTON #12-16H-4	1433.00	1341.74	1341.74	1430.04	1243.31	22.41	12414.57
AFTON #12-16H-4	1433.20	1400.00	1400.00	1430.26	1243.31	22.73	12414.57
AFTON 12-16H-5	1433.68	1505.78	1505.78	1430.57	1538.59	21.33	12414.57
W MORRISON 24-1 #3	1578.22	12429.26	12429.26	1526.00	12429.26	30.22	12429.26
W MORRISON #16-1	1668.05	12429.26	12429.26	1609.72	12429.26	28.59	12429.26
DARLOW #12-2	1741.03	1400.00	9609.46	1730.91	1413.00	100.98	5163.92
W MORRISON 33-1 #4	2299.64	12429.26	12429.26	2263.56	12429.26	63.42	12414.57
TUDEX BRINK #S-2	2422.47	1413.00	10282.73	2419.50	1413.00	168.40	11282.69
W MORRISON #11-1	2659.00	12429.26	12429.26	2608.33	12429.26	52.38	12414.57
CROFF #12-5	2700.26	1400.00	10897.53	2696.23	1243.31	165.42	11725.60
W MORRISON #9-1	2751.76	12429.26	12429.26	2702.34	12429.26	55.60	12414.57
REINHOLT #12-6	2782.18	12004.47	12004.47	2763.69	12013.00	144.92	12414.57
ELMS #12-4	2794.24	1400.00	10831.33	2790.22	1243.31	142.66	11791.22
LENART #S-1	2915.28	11613.00	11613.00	2894.52	11627.17	132.68	12398.17
SEVENS #1	3163.51	12234.13	12234.13	3137.27	12250.53	117.59	12414.57
W MORRISON INVESTMENT CO #2	3275.52	12429.26	12429.26	3241.15	12429.26	94.45	12414.57