



Wellhead Details

Name	Northing	Easting	Latitude	Longitude	North	East	Elevation Above Inst.
ALICIA 12-15H-1N	1233702.2406	3154967.1571	39.97357000	-104.94706000	7.37N	13.97E	-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	1233702.24	3154967.16

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	0.000	1400.00	0.00N	0.00E	==>	0.00
1500.00	0.00	0.000	1500.00	0.00N	0.00E	==>	0.00
1600.00	1.00	223.560	1600.00	0.32S	0.30W	2.00	-0.28
1700.00	3.00	223.560	1699.93	2.84S	2.71W	2.00	-2.51
1800.00	5.00	223.560	1799.68	7.90S	7.51W	2.00	-6.97
1900.00	7.00	223.560	1899.13	15.47S	14.72W	2.00	-13.65
2000.00	8.35	223.560	1998.18	25.42S	24.18W	==>	-22.43
2100.00	8.35	223.560	2097.12	35.94S	34.18W	==>	-31.71
2200.00	8.35	223.560	2196.06	46.46S	44.18W	==>	-40.99
2300.00	8.35	223.560	2295.00	56.98S	54.19W	==>	-50.27
2400.00	8.35	223.560	2393.94	67.50S	64.19W	==>	-59.55
2500.00	8.35	223.560	2492.88	78.01S	74.19W	==>	-68.83
2600.00	8.35	223.560	2591.83	88.53S	84.20W	==>	-78.11
2700.00	8.35	223.560	2690.77	99.05S	94.20W	==>	-87.39
2800.00	8.35	223.560	2789.71	109.57S	104.20W	==>	-96.67
2900.00	8.35	223.560	2888.65	120.09S	114.20W	==>	-105.95
3000.00	8.35	223.560	2987.59	130.61S	124.21W	==>	-115.23
3100.00	8.35	223.560	3086.53	141.12S	134.21W	==>	-124.51
3200.00	8.35	223.560	3185.47	151.64S	144.21W	==>	-133.79
3300.00	8.35	223.560	3284.41	162.16S	154.22W	==>	-143.07
3400.00	8.35	223.560	3383.35	172.68S	164.22W	==>	-152.35
3500.00	8.35	223.560	3482.29	183.20S	174.22W	==>	-161.63
3600.00	8.35	223.560	3581.23	193.71S	184.22W	==>	-170.90
3700.00	8.35	223.560	3680.18	204.23S	194.23W	==>	-180.18
3800.00	8.35	223.560	3779.12	214.75S	204.23W	==>	-189.46
3900.00	8.35	223.560	3878.06	225.27S	214.23W	==>	-198.74

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 5163.0ft above Mean Sea Level)
Vertical Section is from 0.00N 0.00E on azimuth 353.300 degrees
Bottom hole distance is 5556.56 Feet on azimuth 353.30 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-1N Plan #2 12-05-14

Interpolated Wellpath							
MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]
4000.00	8.35	223.560	3977.00	235.79S	224.24W	==>	-208.02
4100.00	8.35	223.560	4075.94	246.30S	234.24W	==>	-217.30
4200.00	8.35	223.560	4174.88	256.82S	244.24W	==>	-226.58
4300.00	8.35	223.560	4273.82	267.34S	254.24W	==>	-235.86
4400.00	8.35	223.560	4372.76	277.86S	264.25W	==>	-245.14
4500.00	8.35	223.560	4471.70	288.38S	274.25W	==>	-254.42
4600.00	8.35	223.560	4570.64	298.89S	284.25W	==>	-263.70
4700.00	8.35	223.560	4669.59	309.41S	294.25W	==>	-272.98
4800.00	8.35	223.560	4768.53	319.93S	304.26W	==>	-282.26
4900.00	8.35	223.560	4867.47	330.45S	314.26W	==>	-291.54
5000.00	8.35	223.560	4966.41	340.97S	324.26W	==>	-300.82
5100.00	8.35	223.560	5065.35	351.49S	334.27W	==>	-310.10
5200.00	8.35	223.560	5164.29	362.00S	344.27W	==>	-319.38
5300.00	8.35	223.560	5263.23	372.52S	354.27W	==>	-328.66
5400.00	8.35	223.560	5362.17	383.04S	364.27W	==>	-337.94
5500.00	8.35	223.560	5461.11	393.56S	374.28W	==>	-347.22
5600.00	8.35	223.560	5560.05	404.08S	384.28W	==>	-356.50
5700.00	8.35	223.560	5659.00	414.59S	394.28W	==>	-365.78
5800.00	8.35	223.560	5757.94	425.11S	404.29W	==>	-375.06
5900.00	8.35	223.560	5856.88	435.63S	414.29W	==>	-384.34
6000.00	8.35	223.560	5955.82	446.15S	424.29W	==>	-393.62
6100.00	8.35	223.560	6054.76	456.67S	434.29W	==>	-402.90
6200.00	8.35	223.560	6153.70	467.18S	444.30W	==>	-412.18
6300.00	8.35	223.560	6252.64	477.70S	454.30W	==>	-421.46
6400.00	8.35	223.560	6351.58	488.22S	464.30W	==>	-430.73
6500.00	8.35	223.560	6450.52	498.74S	474.31W	==>	-440.01
6600.00	8.35	223.560	6549.46	509.26S	484.31W	==>	-449.29
6700.00	8.35	223.560	6648.40	519.77S	494.31W	==>	-458.57
6800.00	8.35	223.560	6747.35	530.29S	504.31W	==>	-467.85
6900.00	8.35	223.560	6846.29	540.81S	514.32W	==>	-477.13
7000.00	8.35	223.560	6945.23	551.33S	524.32W	==>	-486.41
7100.00	8.35	223.560	7044.17	561.85S	534.32W	==>	-495.69
7200.00	8.35	223.560	7143.11	572.36S	544.33W	==>	-504.97
7300.00	6.49	243.050	7242.12	582.05S	554.34W	10.00	-513.42
7400.00	9.16	320.560	7341.42	578.45S	564.46W	10.00	-508.67
7500.00	18.03	341.450	7438.57	557.58S	574.47W	10.00	-486.77
7600.00	27.67	348.480	7530.63	520.07S	584.05W	10.00	-448.40
7700.00	37.48	352.040	7614.81	467.05S	592.93W	10.00	-394.71
7800.00	47.37	354.290	7688.53	400.14S	600.82W	10.00	-327.34
7900.00	57.29	355.920	7749.57	321.37S	607.49W	10.00	-248.33
8000.00	67.22	357.210	7796.07	233.14S	612.74W	10.00	-160.08
8100.00	77.16	358.340	7826.62	138.13S	616.41W	10.00	-65.29
8115.00	78.66	358.490	7829.76	123.46S	616.81W	10.00	-50.68
8200.00	87.11	359.370	7840.28	39.21S	618.38W	10.00	33.18
8300.00	90.31	359.690	7840.63	60.77N	619.00W	==>	132.56
8400.00	90.31	359.690	7840.09	160.77N	619.54W	==>	231.93
8500.00	90.31	359.690	7839.55	260.77N	620.07W	==>	331.31
8600.00	90.31	359.690	7839.00	360.77N	620.60W	==>	430.69
8700.00	90.31	359.690	7838.46	460.76N	621.13W	==>	530.06
8800.00	90.31	359.690	7837.92	560.76N	621.67W	==>	629.44
8900.00	90.31	359.690	7837.37	660.76N	622.20W	==>	728.82
9000.00	90.31	359.690	7836.83	760.75N	622.73W	==>	828.19
9100.00	90.31	359.690	7836.29	860.75N	623.27W	==>	927.57
9200.00	90.31	359.690	7835.75	960.75N	623.80W	==>	1026.95
9300.00	90.31	359.690	7835.20	1060.75N	624.33W	==>	1126.32
9400.00	90.31	359.690	7834.66	1160.74N	624.86W	==>	1225.70
9500.00	90.31	359.690	7834.12	1260.74N	625.40W	==>	1325.08
9600.00	90.31	359.690	7833.57	1360.74N	625.93W	==>	1424.45
9700.00	90.31	359.690	7833.03	1460.73N	626.46W	==>	1523.83
9800.00	90.31	359.690	7832.49	1560.73N	626.99W	==>	1623.21

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Vertical Section is from 0.00N 0.00E on azimuth 353.300 degrees
Bottom hole distance is 5556.56 Feet on azimuth 353.30 degrees from Wellhead
Calculation method uses Minimum Curvature method
Prepared by Integrated Petroleum Technologies, Inc.
Date Printed: 22-Dec-2014



Interpolated Wellpath							
MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]
9900.00	90.31	359.690	7831.95	1660.73N	627.53W	==>	1722.58
10000.00	90.31	359.690	7831.40	1760.72N	628.06W	==>	1821.96
10100.00	90.31	359.690	7830.86	1860.72N	628.59W	==>	1921.34
10200.00	90.31	359.690	7830.32	1960.72N	629.13W	==>	2020.71
10300.00	90.31	359.690	7829.77	2060.72N	629.66W	==>	2120.09
10400.00	90.31	359.690	7829.23	2160.71N	630.19W	==>	2219.47
10500.00	90.31	359.690	7828.69	2260.71N	630.72W	==>	2318.84
10600.00	90.31	359.690	7828.14	2360.71N	631.26W	==>	2418.22
10700.00	90.31	359.690	7827.60	2460.70N	631.79W	==>	2517.60
10800.00	90.31	359.690	7827.06	2560.70N	632.32W	==>	2616.98
10900.00	90.31	359.690	7826.52	2660.70N	632.86W	==>	2716.35
11000.00	90.31	359.690	7825.97	2760.70N	633.39W	==>	2815.73
11100.00	90.31	359.690	7825.43	2860.69N	633.92W	==>	2915.11
11200.00	90.31	359.690	7824.89	2960.69N	634.45W	==>	3014.48
11300.00	90.31	359.690	7824.34	3060.69N	634.99W	==>	3113.86
11400.00	90.31	359.690	7823.80	3160.68N	635.52W	==>	3213.24
11500.00	90.31	359.690	7823.26	3260.68N	636.05W	==>	3312.61
11600.00	90.31	359.690	7822.72	3360.68N	636.58W	==>	3411.99
11700.00	90.31	359.690	7822.17	3460.68N	637.12W	==>	3511.37
11800.00	90.31	359.690	7821.63	3560.67N	637.65W	==>	3610.74
11900.00	90.31	359.690	7821.09	3660.67N	638.18W	==>	3710.12
12000.00	90.31	359.690	7820.54	3760.67N	638.72W	==>	3809.50
12100.00	90.31	359.690	7820.00	3860.66N	639.25W	==>	3908.87
12200.00	90.31	359.690	7819.46	3960.66N	639.78W	==>	4008.25
12300.00	90.31	359.690	7818.92	4060.66N	640.31W	==>	4107.63
12400.00	90.31	359.690	7818.37	4160.66N	640.85W	==>	4207.00
12500.00	90.31	359.690	7817.83	4260.65N	641.38W	==>	4306.38
12600.00	90.31	359.690	7817.29	4360.65N	641.91W	==>	4405.76
12700.00	90.31	359.690	7816.74	4460.65N	642.45W	==>	4505.13
12800.00	90.31	359.690	7816.20	4560.64N	642.98W	==>	4604.51
12900.00	90.31	359.690	7815.66	4660.64N	643.51W	==>	4703.89
13000.00	90.31	359.690	7815.12	4760.64N	644.04W	==>	4803.26
13100.00	90.31	359.690	7814.57	4860.64N	644.58W	==>	4902.64
13200.00	90.31	359.690	7814.03	4960.63N	645.11W	==>	5002.02
13300.00	90.31	359.690	7813.49	5060.63N	645.64W	==>	5101.39
13400.00	90.31	359.690	7812.94	5160.63N	646.18W	==>	5200.77
13500.00	90.31	359.690	7812.40	5260.62N	646.71W	==>	5300.15
13600.00	90.31	359.690	7811.86	5360.62N	647.24W	==>	5399.52
13700.00	90.31	359.690	7811.32	5460.62N	647.77W	==>	5498.90
13758.00	90.31	359.690	7811.00	5518.62N	648.08W	==>	5556.54



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	8115.00	7829.76	123.46S	616.81W
6 1/8	8115.00	7829.76	123.46S	616.81W	13758.00	7811.00	5518.62N	648.08W

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	8115.00	7829.76	123.46S	616.81W
4 1/2in Production Liner	8015.00	7801.70	219.25S	613.40W	13758.00	7811.00	5518.62N	648.08W

Targets								
Name	North[ft]	East[ft]	TVD[ft]	Latitude	Longitude	Northing	Easting	Last Revised
ALICIA 12-15H-1 - T1	124.07S	618.64W	7831.00	39.97324000	-104.94927000	1233578.18	3154348.54	3-Mar-2014
ALICIA 12-15H-1 - T2	5518.64N	648.08W	7811.00	39.98873000	-104.94925000	1239220.70	3154319.10	3-Mar-2014

Survey Tool Program					
Reference	Survey Name	MD[ft]	TVD[ft]	Survey Tool	Error Model
336578	Planned	13758.02	7811.00	WdW Rate Gyro	Standard

Notes



SYSDRILL
Closest Approach + Clearance Factor Summary Report
Wellbore: ALICIA 12-15H-1N Plan #2 12-05-14

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-1N Plan #2 12-05-14	5-Dec-2014	22-Dec-2014	

Well		
Name	Government ID	Last Revised
ALICIA 12-15H-1N		19-Aug-2014

Slot						
Name	Grid Northing	Grid Easting	Latitude	Longitude	North	East
ALICIA 12-15H-1N	1233702.2406	3154967.1571	39.97357000	-104.94706000	7.37N	13.97E

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-2N	14.48	1550.00	13754.92	11.34	1554.99	4.59	1571.40
ALICIA 12-15H-6C	15.79	1500.00	8232.16	12.74	1500.00	3.09	13743.31
ALICIA 12-15H-4C	30.08	1550.00	8232.16	26.95	1554.99	9.49	1604.21
ALICIA 12-15H-5N	31.23	2416.63	12465.12	26.52	2440.82	4.21	12465.12
Ruby #1	38.54	1550.00	8265.09	33.69	1554.99	7.89	1587.80
ALICIA 12-15H-3N	45.82	1550.00	13751.58	42.68	1554.99	9.91	13751.58
Ruby #2	60.18	18.00	9639.77	58.93	113.00	9.23	9625.86
MALLO #1	104.86	1550.00	8331.98	100.70	1554.99	24.70	1653.42
W MORRISON #15-1	495.70	13752.64	13752.64	420.72	13752.64	6.61	13752.64
TUDEX REINHOLT #NC4	585.83	11996.11	11996.11	544.30	11996.11	14.11	11996.11
W MORRISON 24-1 #3	788.36	13582.48	13582.48	713.94	13595.68	10.52	13661.29
W MORRISON 33-1 #4	1116.82	13758.02	13758.02	1063.21	13758.02	20.83	13758.02
DARLOW UNIT #12-16B	1155.93	1554.99	8314.60	1142.48	1571.40	52.99	8477.57
AFTON 12-16H-1	1193.70	7809.54	8813.00	1112.86	13743.31	12.34	13743.31
PULIS #12-8	1283.78	1554.99	8283.94	1279.61	1554.99	172.23	5278.75
AFTON 12-16H-2	1315.35	7198.04	7198.04	1298.75	7181.64	15.02	13743.31
AFTON 12-16H-8	1354.50	1735.44	1735.44	1350.98	1751.85	18.36	13743.31
AFTON 12-16H-7	1373.62	1554.99	1554.99	1370.48	1554.99	23.25	13743.31
AFTON #12-16H-3	1378.63	1883.08	7427.70	1374.79	1899.48	16.76	13743.31
AFTON 12-16H-6	1383.06	1713.00	1713.00	1379.62	1719.04	124.80	7263.66
W MORRISON #11-1	1390.07	13758.02	13758.02	1331.18	13758.02	23.60	13758.02

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Vertical Section is from 0.00N 0.00E on azimuth 353.300 degrees
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SYSDRILL
Closest Approach + Clearance Factor Summary Report
Wellbore: ALICIA 12-15H-1N Plan #2 12-05-14

Clearance Summary							
Offset WellName	Separation [ft]	MD[ft]	Diverging From[ft]	Ellipse Separation [ft]	Ellipse MD[ft]	Clearance Factor	Clearance MD[ft]
AFTON #12-16H-4	1391.37	1472.97	8251.94	1385.16	1505.78	53.20	9264.97
AFTON #12-16H-4	1391.37	1472.97	12253.20	1385.16	1505.78	14.87	12348.96
AFTON 12-16H-5	1402.82	1653.42	1653.42	1399.46	1669.82	20.23	13743.31
BELLINGER #12-7	1403.15	1554.99	9652.71	1398.96	1554.99	186.70	5245.94
AFTON #12-16H-4	1404.99	1177.70	1177.70	1402.06	1243.31	26.43	12611.43
AFTON #12-16H-4	1405.03	1554.99	1554.99	1401.89	1554.99	26.73	12627.83
BARKER #12-9	1608.70	9602.57	9602.57	1587.21	9613.00	71.75	9986.75
W MORRISON #16-1	1698.40	13415.23	13415.23	1626.34	13415.23	23.45	13546.46
DARLOW #12-2	1712.84	1550.00	9646.39	1702.16	1554.99	104.72	5163.92
ELMS #2	1736.65	11207.76	11207.76	1682.57	11217.07	31.79	11413.92
W MORRISON #9-1	2106.24	13758.02	13758.02	2034.86	13758.02	29.51	13758.02
TUDEX BRINK #S-2	2400.28	1554.99	10321.35	2397.09	1554.99	168.50	11299.09
CROFF #12-5	2685.11	1554.99	10938.20	2680.90	1554.99	163.42	11676.39
ELMS #12-4	2771.23	1550.00	10872.58	2767.03	1554.99	143.39	11791.22
REINHOLT #12-6	2848.95	12039.63	12039.63	2829.17	12039.63	139.44	12644.23
LENART #S-1	3038.00	11650.04	11650.04	3015.72	11659.98	130.10	12381.77
W MORRISON INVESTMENT CO #2	3201.53	13720.54	13720.54	3157.70	13726.91	72.94	13743.31
SEVENS #1	3343.02	12273.49	12273.49	3315.05	12283.34	112.75	13152.76