

Well Name: LATHAM 14-12

Surface Location: LATHAM 14-12 PAD S12-4N-63W
 North American Datum 1983 US State Plane 1983 Colorado Northern Zone
 Ground Elevation: 4566.0
 Easting: 3308837.91 Latitude: 40.320380 Longitude: -104.392380 Slot
 KB Est 15' RKB @ 4581.0ft (KB Est 15')

+N/-S +E/-W
 0.0 0.0

Northing
 1361484.15

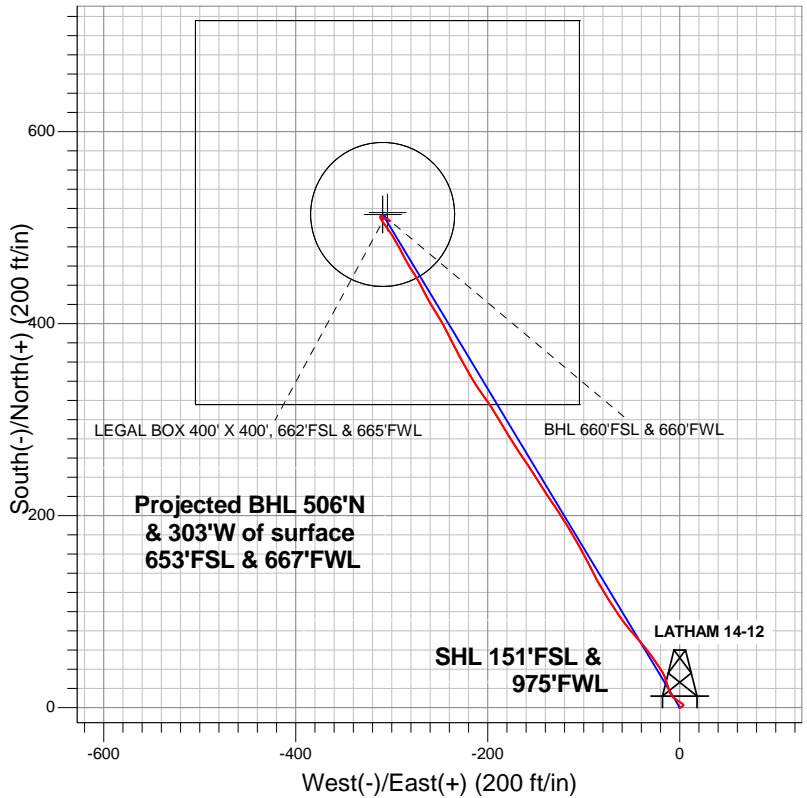
Easting
 3308837.91

Latitude
 40.320380

Longitude
 -104.392380

Slot

BONANZA CREEK ENERGY OPERATING



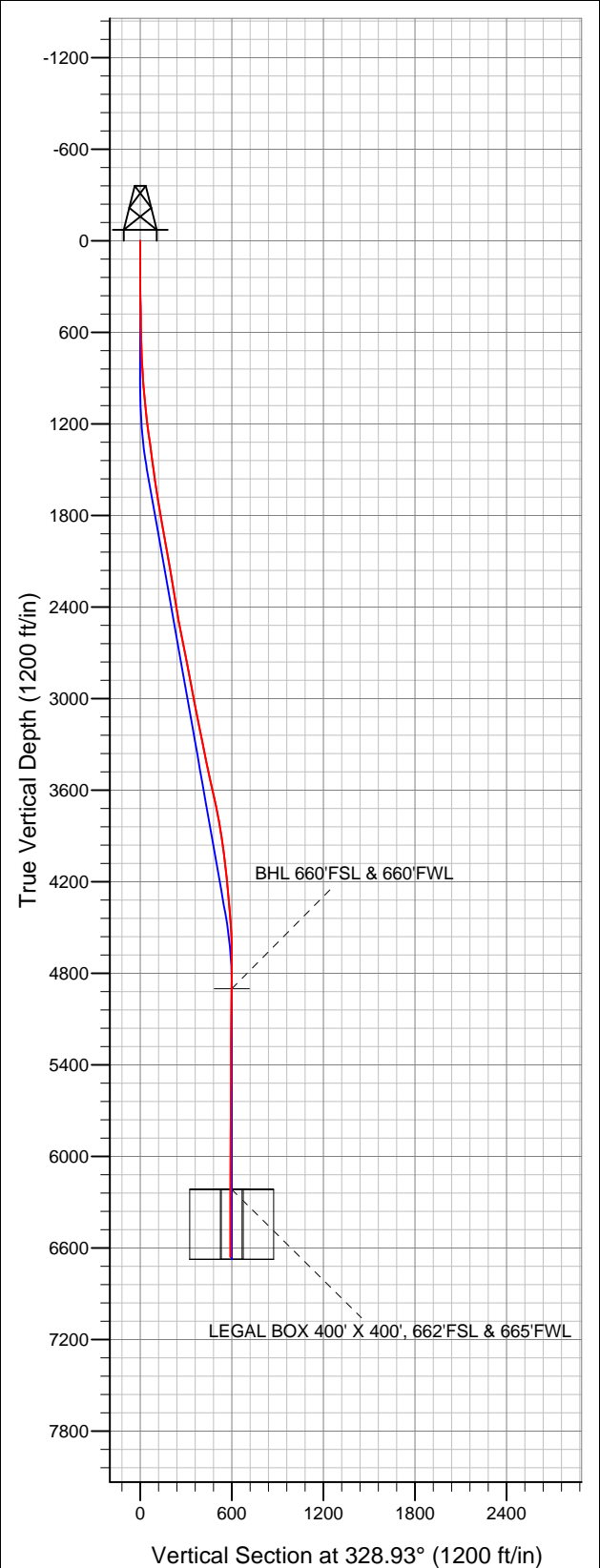
LEGEND

- ▲ LATHAM 14-12, Wellbore #1, PLAN 2 (AUG 14, 2012) V0
- Wellbore #1
- Survey #1

Final Survey Plot

Projected Final Survey -
6708' MD & 6658' TVD @ 590' VS
0.20 deg Inc 244.80 deg AZ

Project: SEC.12-T4N-R63W
 Site: LATHAM 14-12 PAD S12-4N-63W
 Well: LATHAM 14-12
 Plan: Wellbore #1





Directional

BONANZA CREEK ENERGY OPERATING

SEC.12-T4N-R63W

LATHAM 14-12 PAD S12-4N-63W

LATHAM 14-12

Wellbore #1

Survey: Survey #1

Standard Survey Report

17 October, 2012

Company:	BONANZA CREEK ENERGY OPERATING	Local Co-ordinate Reference:	Well LATHAM 14-12
Project:	SEC.12-T4N-R63W	TVD Reference:	RKB @ 4581.0ft (KB Est 15')
Site:	LATHAM 14-12 PAD S12-4N-63W	MD Reference:	RKB @ 4581.0ft (KB Est 15')
Well:	LATHAM 14-12	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Project	SEC.12-T4N-R63W		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		Using Well Reference Point
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site	LATHAM 14-12 PAD S12-4N-63W		
Site Position:		Northing:	1,361,729.04 ft
From:	Lat/Long	Easting:	3,308,608.97 ft
Position Uncertainty:	0.0 ft	Slot Radius:	"
		Latitude:	40.321060
		Longitude:	-104.393190
		Grid Convergence:	0.72 °

Well	LATHAM 14-12		
Well Position	+N/-S	0.0 ft	Northing:
	+E/-W	0.0 ft	Easting:
Position Uncertainty	0.0 ft	Wellhead Elevation:	ft
		Latitude:	40.320380
		Longitude:	-104.392380
		Ground Level:	4,566.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	8/13/2012	8.50	67.01	53,009

Design	Wellbore #1				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.0	0.0	0.0	328.93	

Survey Program	Date	10/17/2012			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
122.0	6,708.0	Survey #1 (Wellbore #1)	MWD	MWD - Standard	

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
122.0	0.90	73.00	122.0	0.3	0.9	-0.2	0.74	0.74	0.00	
284.0	1.00	47.00	284.0	1.6	3.2	-0.3	0.27	0.06	-16.05	
361.0	0.70	9.40	361.0	2.5	3.7	0.2	0.80	-0.39	-48.83	
483.0	1.10	299.80	483.0	3.9	2.8	1.8	0.88	0.33	-57.05	
605.0	1.50	305.60	604.9	5.4	0.5	4.3	0.34	0.33	4.75	
732.0	2.50	301.40	731.8	7.8	-3.2	8.3	0.80	0.79	-3.31	
826.0	3.10	312.60	825.7	10.6	-6.8	12.6	0.86	0.64	11.91	
951.0	4.60	339.70	950.5	17.6	-11.0	20.7	1.86	1.20	21.68	
1,075.0	5.80	344.80	1,073.9	28.3	-14.4	31.6	1.04	0.97	4.11	
1,200.0	7.50	325.50	1,198.1	41.1	-20.7	45.9	2.23	1.36	-15.44	
1,322.0	8.20	324.60	1,319.0	54.7	-30.2	62.5	0.58	0.57	-0.74	
1,447.0	7.30	318.40	1,442.8	67.9	-40.7	79.2	0.98	-0.72	-4.96	

Company:	BONANZA CREEK ENERGY OPERATING	Local Co-ordinate Reference:	Well LATHAM 14-12
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Site:	LATHAM 14-12 PAD S12-4N-63W	MD Reference:	RKB @ 4581.0ft (KB Est 15')
Well:	LATHAM 14-12	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
1,573.0	8.50	319.70	1,567.6	81.0	-52.0	96.3	0.96	0.95	1.03
1,698.0	9.10	326.20	1,691.2	96.3	-63.5	115.2	0.93	0.48	5.20
1,821.0	10.00	326.70	1,812.5	113.3	-74.8	135.6	0.73	0.73	0.41
1,946.0	10.10	332.10	1,935.5	132.1	-85.8	157.4	0.76	0.08	4.32
2,071.0	9.80	333.40	2,058.7	151.3	-95.7	179.0	0.30	-0.24	1.04
2,196.0	9.30	330.00	2,181.9	169.5	-105.6	199.7	0.60	-0.40	-2.72
2,320.0	9.70	329.50	2,304.2	187.2	-115.9	220.1	0.33	0.32	-0.40
2,445.0	9.30	325.80	2,427.5	204.6	-126.9	240.8	0.58	-0.32	-2.96
2,569.0	10.90	326.00	2,549.6	222.6	-139.1	262.5	1.29	1.29	0.16
2,694.0	11.70	328.40	2,672.2	243.2	-152.3	286.9	0.74	0.64	1.92
2,819.0	10.60	324.80	2,794.8	263.4	-165.6	311.1	1.04	-0.88	-2.88
2,944.0	10.70	329.30	2,917.7	282.8	-178.1	334.2	0.67	0.08	3.60
3,069.0	11.10	329.30	3,040.4	303.1	-190.2	357.8	0.32	0.32	0.00
3,193.0	11.30	323.70	3,162.0	323.2	-203.5	381.8	0.89	0.16	-4.52
3,318.0	11.20	329.50	3,284.6	343.5	-216.9	406.2	0.91	-0.08	4.64
3,334.0	11.26	329.81	3,300.3	346.2	-218.5	409.3	0.55	0.40	1.94
PARKMAN									
3,441.0	11.70	331.80	3,405.2	364.8	-228.9	430.6	0.55	0.41	1.86
3,566.0	12.70	333.50	3,527.4	388.3	-241.0	456.9	0.85	0.80	1.36
3,689.0	12.70	327.60	3,647.4	411.8	-254.3	483.9	1.05	0.00	-4.80
3,814.0	11.00	334.10	3,769.7	434.1	-266.8	509.5	1.73	-1.36	5.20
3,939.0	8.30	325.80	3,892.9	452.3	-277.1	530.4	2.42	-2.16	-6.64
4,016.0	7.48	330.17	3,969.2	461.2	-282.7	541.0	1.32	-1.06	5.68
SUSSEX									
4,064.0	7.00	333.40	4,016.8	466.6	-285.6	547.0	1.32	-1.01	6.72
4,188.0	6.70	330.70	4,139.9	479.6	-292.5	561.8	0.35	-0.24	-2.18
4,313.0	5.60	327.70	4,264.2	491.1	-299.4	575.2	0.92	-0.88	-2.40
4,439.0	4.70	324.20	4,389.7	500.5	-305.7	586.5	0.76	-0.71	-2.78
4,595.0	2.70	327.70	4,545.4	508.8	-311.4	596.5	1.29	-1.28	2.24
4,687.0	1.40	26.80	4,637.3	511.7	-312.0	599.3	2.52	-1.41	64.24
4,812.0	0.70	133.00	4,762.3	512.5	-310.8	599.4	1.38	-0.56	84.96
4,937.0	0.60	158.10	4,887.3	511.4	-310.0	598.0	0.24	-0.08	20.08
4,949.7	0.59	156.98	4,900.0	511.2	-309.9	597.8	0.13	-0.09	-8.83
BHL 660'FSL & 660'FWL									
5,061.0	0.50	145.10	5,011.3	510.3	-309.4	596.8	0.13	-0.08	-10.67
5,186.0	0.40	99.00	5,136.3	509.8	-308.7	596.0	0.29	-0.08	-36.88
5,311.0	0.40	119.40	5,261.3	509.5	-307.9	595.3	0.11	0.00	16.32
5,435.0	0.40	74.30	5,385.3	509.4	-307.1	594.8	0.25	0.00	-36.37
5,529.0	0.40	104.10	5,479.3	509.4	-306.4	594.5	0.22	0.00	31.70
5,686.0	0.50	106.80	5,636.3	509.1	-305.2	593.6	0.07	0.06	1.72
5,811.0	0.40	115.20	5,761.3	508.8	-304.3	592.8	0.10	-0.08	6.72
5,936.0	0.40	130.30	5,886.3	508.3	-303.6	592.1	0.08	0.00	12.08
6,061.0	0.40	111.40	6,011.3	507.9	-302.9	591.3	0.11	0.00	-15.12
6,117.0	0.35	121.74	6,067.3	507.7	-302.5	591.0	0.15	-0.10	18.47
SHARRON SPRINGS									
6,186.0	0.30	138.90	6,136.3	507.4	-302.2	590.6	0.15	-0.07	24.86
6,256.0	0.13	138.90	6,206.3	507.3	-302.1	590.4	0.24	-0.24	0.00
NIORARA A CHALK									
6,265.7	0.11	138.90	6,216.0	507.2	-302.1	590.3	0.24	-0.24	0.00
TARGET CIRCLE 600'FSL & 660'FWL - LEGAL BOX 400' X 400', 662'FSL & 665'FWL									
6,268.0	0.10	138.90	6,218.3	507.2	-302.0	590.3	0.24	-0.24	0.00
NIORARA A MARL									
6,311.0	0.00	50.90	6,261.3	507.2	-302.0	590.3	0.24	-0.24	0.00

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Well:	LATHAM 14-12	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
6,320.0	0.01	211.90	6,270.3	507.2	-302.0	590.3	0.16	0.16	0.00	
NIOBRARA B CHALK										
6,347.0	0.06	211.90	6,297.3	507.2	-302.0	590.3	0.16	0.16	0.00	
NIOBRARA B MARL										
6,396.0	0.13	211.90	6,346.3	507.1	-302.1	590.3	0.16	0.16	0.00	
NIOBRARA C CHALK										
6,437.0	0.20	211.90	6,387.3	507.0	-302.1	590.2	0.16	0.16	0.00	
6,562.0	0.20	223.50	6,512.3	506.7	-302.4	590.0	0.03	0.00	9.28	
6,662.0	0.20	244.80	6,612.3	506.5	-302.7	590.0	0.07	0.00	21.30	
6,708.0	0.20	244.80	6,658.3	506.4	-302.8	590.0	0.00	0.00	0.00	

Wellbore Targets										
Target Name	- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
BHL 660'FSL & 660'F	- survey misses target center by 2.5ft at 4949.7ft MD (4900.0 TVD, 511.2 N, -309.9 E)	0.00	0.00	4,900.0	513.7	-309.5	1,361,993.90	3,308,522.01	40.321790	-104.393490
TARGET CIRCLE 60'	- survey misses target center by 9.9ft at 6265.7ft MD (6216.0 TVD, 507.2 N, -302.1 E)	0.00	0.00	6,216.0	513.7	-309.5	1,361,993.90	3,308,522.01	40.321790	-104.393490
LEGAL BOX 400' X 400'	- survey misses target center by 8.8ft at 6265.7ft MD (6216.0 TVD, 507.2 N, -302.1 E)	0.00	0.00	6,216.0	515.6	-304.5	1,361,995.93	3,308,527.00	40.321795	-104.393472

Survey Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
3,334.0	3,300.3	345.9	-218.4	PARKMAN	
4,016.0	3,969.2	460.9	-282.7	SUSSEX	
6,117.0	6,067.3	507.4	-302.5	SHARRON SPRINGS	
6,256.0	6,206.3	506.9	-302.0	NIOBRARA A CHALK	
6,268.0	6,218.3	506.9	-302.0	NIOBRARA A MARL	
6,320.0	6,270.3	506.9	-302.0	NIOBRARA B CHALK	
6,347.0	6,297.3	506.9	-302.0	NIOBRARA B MARL	
6,396.0	6,346.3	506.8	-302.0	NIOBRARA C CHALK	

Checked By: _____	Approved By: _____	Date: _____
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