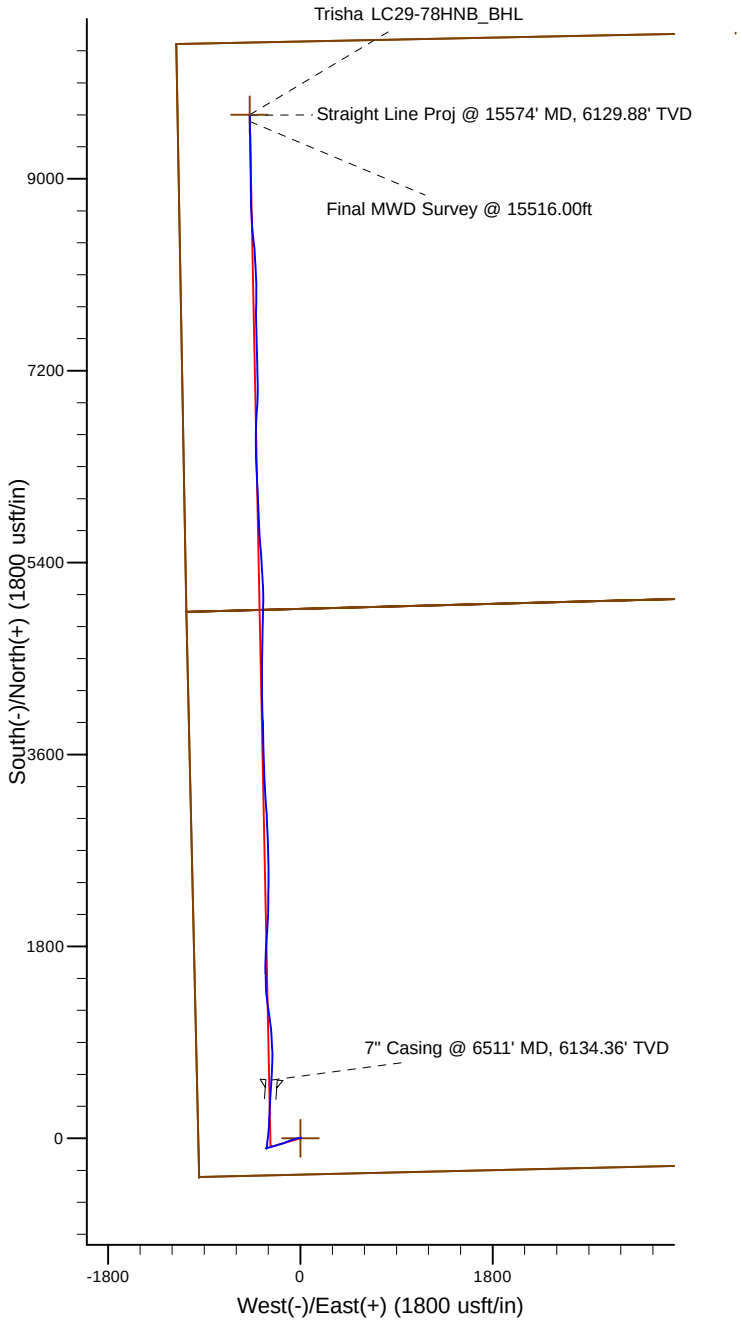
Project: Weld County, CO (NAD 83)
Site: Sec. 29-T9N-R59W (LC29-13-A)
Well: Trisha LC29-78HNB
Wellbore: Plan B
Design: Final Surveys

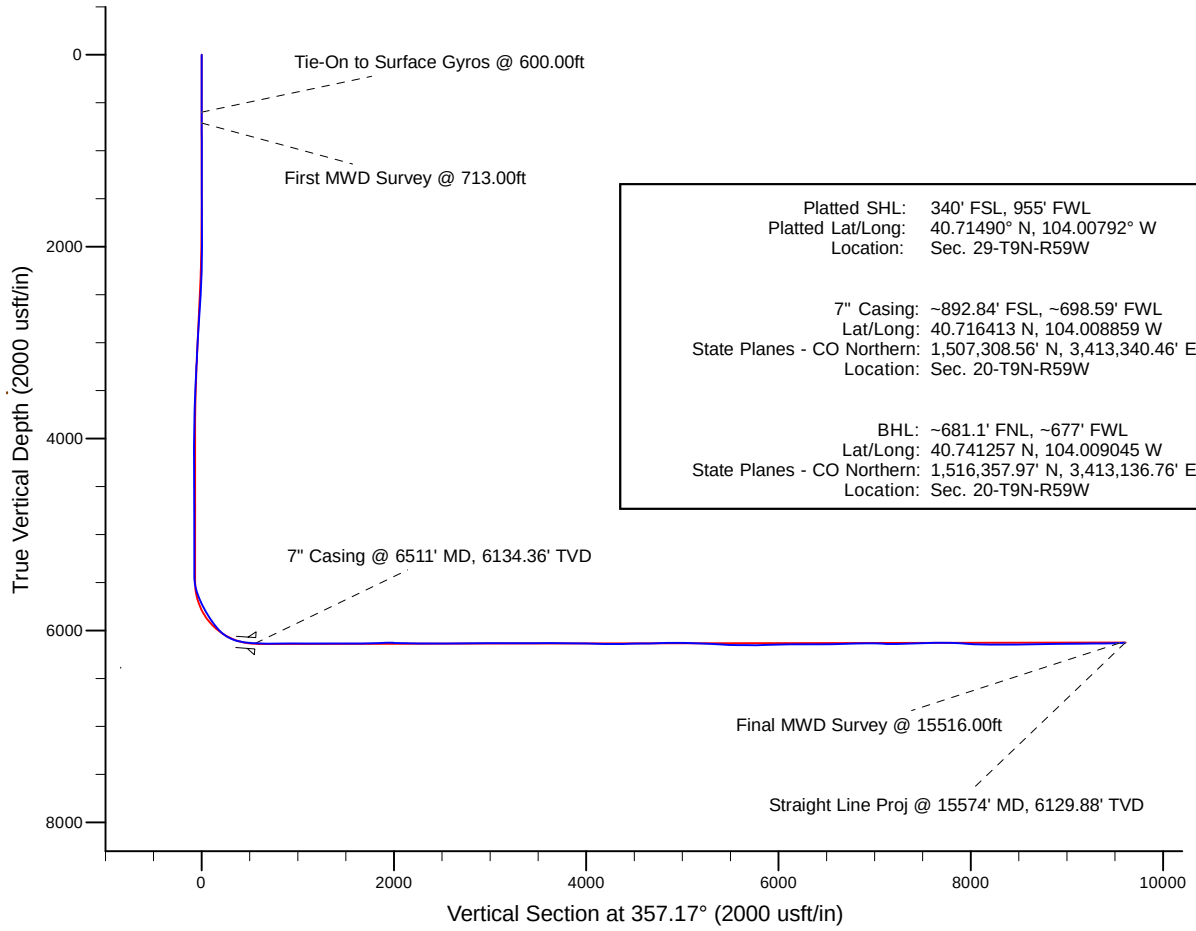
Noble Energy

HALLIBURTON
Sperry Drilling



LEGEND

Trisha LC29-78HNB, Plan B, Rev B0 - PROPOSAL V0
Final Surveys



Platted SHL:	340' FSL, 955' FWL
Platted Lat/Long:	40.71490° N, 104.00792° W
Location:	Sec. 29-T9N-R59W
7" Casing:	~892.84' FSL, ~698.59' FWL
Lat/Long:	40.716413 N, 104.008859 W
State Planes - CO Northern:	1,507,308.56' N, 3,413,340.46' E
Location:	Sec. 20-T9N-R59W
BHL:	~681.1' FNL, ~677' FWL
Lat/Long:	40.741257 N, 104.009045 W
State Planes - CO Northern:	1,516,357.97' N, 3,413,136.76' E
Location:	Sec. 20-T9N-R59W

WELL DETAILS: Trisha LC29-78HNB

Ground Level: 4882.00
RKB=24 @ 4906.00usft (H&P 273)

Created By: Fred Hartmann
Created On: 04/09/2014

Noble Energy

Weld County, CO (NAD 83)
Sec. 29-T9N-R59W (LC29-13-A)
Trisha LC29-78HNB

Design: Final Surveys

05-123-38622

Sperry Drilling Services

Final Survey Report

09 April, 2014

Well Coordinates: 1,506,761.87 N, 3,413,609.86 E (40° 42' 53.64" N, 104° 00' 28.51" W)
Ground Level: 4,882.00 usft

Local Coordinate Origin:	Centered on Well Trisha LC29-78HNB
Viewing Datum:	RKB=24 @ 4906.00usft (H&P 273)
TVDs to System:	N
North Reference:	Grid
Unit System:	Dec-Deg - API - US Survey Feet - Custom

Geodetic Scale Factor Applied
Version: 5000.1 Build: 70

HALLIBURTON

Design Report for Trisha LC29-78HNB - Final Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.30	47.97	300.00	0.53	0.58	0.50	0.10
600.00	0.20	71.57	600.00	1.22	1.66	1.13	0.05
Tie-On to Surface Gyros @ 600.00ft							
713.00	0.31	21.64	712.99	1.56	1.96	1.46	0.21
First MWD Survey @ 713.00ft							
806.00	0.26	20.84	805.99	1.99	2.13	1.89	0.05
899.00	0.28	73.39	898.99	2.26	2.42	2.13	0.26
992.00	0.31	72.43	991.99	2.40	2.88	2.25	0.03
1,179.00	0.47	83.07	1,178.99	2.64	4.13	2.44	0.09
1,272.00	0.56	73.80	1,271.98	2.82	4.94	2.57	0.13
1,365.00	0.47	73.67	1,364.98	3.05	5.74	2.76	0.10
1,458.00	0.39	77.82	1,457.98	3.22	6.42	2.90	0.09
1,552.00	0.83	275.25	1,551.97	3.35	6.05	3.05	1.28
1,647.00	0.77	269.06	1,646.97	3.41	4.73	3.17	0.11
1,742.00	0.77	265.17	1,741.96	3.34	3.46	3.17	0.06
1,837.00	2.16	272.40	1,836.92	3.36	1.03	3.31	1.47
1,932.00	3.77	275.45	1,931.79	3.73	-3.87	3.92	1.70
2,026.00	4.88	266.88	2,025.52	3.81	-10.94	4.35	1.36
2,121.00	5.70	256.74	2,120.12	2.51	-19.56	3.47	1.31
2,216.00	7.11	254.81	2,214.53	-0.11	-29.83	1.36	1.50
2,311.00	9.59	257.45	2,308.51	-3.37	-43.23	-1.24	2.64
2,406.00	10.01	249.53	2,402.13	-7.98	-58.69	-5.07	1.48
2,501.00	11.18	252.15	2,495.51	-13.69	-75.19	-9.96	1.33
2,596.00	10.50	252.49	2,588.81	-19.12	-92.21	-14.54	0.72
2,690.00	10.75	247.27	2,681.20	-25.08	-108.47	-19.70	1.06
2,785.00	11.98	248.97	2,774.34	-32.05	-125.84	-25.79	1.34
2,880.00	11.70	247.89	2,867.32	-39.21	-143.97	-32.05	0.38
2,975.00	11.35	245.85	2,960.40	-46.66	-161.43	-38.63	0.57
3,070.00	10.47	253.16	3,053.69	-52.99	-178.22	-44.12	1.72
3,165.00	10.99	255.40	3,147.03	-57.77	-195.24	-48.06	0.70
3,260.00	9.30	250.51	3,240.54	-62.61	-211.24	-52.10	2.00
3,354.00	8.97	250.77	3,333.35	-67.56	-225.32	-56.35	0.35
3,449.00	10.43	255.77	3,426.99	-72.11	-240.65	-60.14	1.77
3,544.00	11.25	255.94	3,520.29	-76.48	-257.98	-63.65	0.86
3,639.00	11.31	255.34	3,613.46	-81.09	-275.98	-67.36	0.14
3,734.00	9.91	252.76	3,706.83	-85.87	-292.80	-71.30	1.56
3,829.00	7.91	253.20	3,800.68	-90.18	-306.87	-74.92	2.11
3,924.00	4.41	262.19	3,895.12	-92.57	-316.75	-76.81	3.81
4,019.00	1.88	241.35	3,989.97	-93.81	-321.73	-77.81	2.88
4,113.00	1.27	126.21	4,083.95	-95.17	-322.25	-79.14	2.85
4,208.00	1.11	93.13	4,178.93	-95.84	-320.48	-79.89	0.73
4,303.00	0.87	96.27	4,273.92	-95.97	-318.84	-80.10	0.26
4,398.00	0.58	87.68	4,368.91	-96.03	-317.64	-80.22	0.33
4,493.00	0.78	74.11	4,463.91	-95.83	-316.54	-80.08	0.27
4,588.00	1.63	325.67	4,558.89	-94.54	-316.68	-78.78	2.12
4,682.00	1.52	329.70	4,652.86	-92.36	-318.06	-76.54	0.17
4,777.00	0.99	329.86	4,747.83	-90.56	-319.11	-74.69	0.56
4,872.00	0.51	71.09	4,842.83	-89.71	-319.12	-73.84	1.26
4,967.00	0.82	95.38	4,937.82	-89.64	-318.05	-73.82	0.43

Design Report for Trisha LC29-78HNB - Final Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
5,062.00	0.50	116.26	5,032.82	-89.89	-317.00	-74.12	0.42
5,156.00	1.61	95.27	5,126.80	-90.19	-315.32	-74.51	1.23
5,251.00	0.89	99.60	5,221.77	-90.43	-313.26	-74.85	0.76
5,346.00	0.87	89.98	5,316.76	-90.56	-311.81	-75.05	0.16
5,409.00	0.60	354.28	5,379.76	-90.23	-311.37	-74.74	1.75
5,439.00	0.25	316.85	5,409.76	-90.03	-311.43	-74.53	1.43
5,487.00	0.75	336.00	5,457.76	-89.66	-311.63	-74.16	1.08
5,534.00	6.33	356.28	5,504.65	-86.79	-311.92	-71.28	11.98
5,582.00	12.42	1.55	5,551.99	-78.99	-311.95	-63.48	12.80
5,629.00	18.89	0.47	5,597.22	-66.31	-311.75	-50.83	13.78
5,677.00	22.84	4.64	5,642.07	-49.25	-310.93	-33.83	8.79
5,723.00	25.67	7.23	5,684.00	-30.46	-308.96	-15.17	6.57
5,771.00	24.45	5.49	5,727.48	-10.26	-306.70	4.90	2.97
5,818.00	26.95	7.46	5,769.83	9.99	-304.38	25.01	5.62
5,866.00	31.01	7.69	5,811.81	33.04	-301.32	47.88	8.46
5,913.00	33.11	5.79	5,851.64	57.81	-298.40	72.47	4.96
5,961.00	35.44	2.82	5,891.31	84.76	-296.39	99.29	5.97
6,008.00	35.34	2.19	5,929.62	111.95	-295.20	126.39	0.80
6,103.00	44.32	2.77	6,002.50	172.68	-292.54	186.91	9.46
6,197.00	57.70	1.98	6,061.51	245.51	-289.57	259.51	14.25
6,246.00	65.44	2.38	6,084.82	288.54	-287.93	302.41	15.81
6,292.00	72.08	4.53	6,101.48	331.31	-285.33	344.99	15.08
6,340.00	77.71	4.42	6,113.98	377.49	-281.71	390.94	11.73
6,387.00	82.33	4.37	6,122.13	423.63	-278.17	436.85	9.83
6,435.00	84.44	4.25	6,127.66	471.17	-274.59	484.16	4.40
6,468.00	84.54	4.03	6,130.83	503.93	-272.21	516.76	0.73
6,511.00	86.04	3.50	6,134.36	546.69	-269.40	559.33	3.70
7" Casing @ 6511' MD, 6134.36' TVD							
6,647.00	90.80	1.84	6,138.10	682.45	-263.07	694.61	3.70
6,741.00	90.25	359.23	6,137.24	776.44	-262.19	788.44	2.84
6,836.00	90.59	356.91	6,136.54	871.37	-265.39	883.42	2.47
6,931.00	90.06	356.02	6,136.00	966.19	-271.25	978.41	1.09
7,026.00	89.60	354.02	6,136.29	1,060.82	-279.49	1,073.33	2.16
7,121.00	90.00	351.76	6,136.62	1,155.09	-291.25	1,168.06	2.42
7,216.00	88.95	350.48	6,137.49	1,248.94	-305.92	1,262.53	1.74
7,264.00	90.86	353.01	6,137.57	1,296.44	-312.81	1,310.30	6.60
7,310.00	90.77	354.53	6,136.91	1,342.16	-317.80	1,356.22	3.31
7,405.00	89.97	359.51	6,136.30	1,437.00	-322.73	1,451.18	5.31
7,500.00	88.92	356.78	6,137.22	1,531.93	-325.81	1,546.16	3.08
7,595.00	90.34	0.89	6,137.83	1,626.89	-327.74	1,641.09	4.58
7,690.00	92.22	2.83	6,135.71	1,721.81	-324.66	1,735.74	2.84
7,785.00	91.94	3.37	6,132.26	1,816.61	-319.52	1,830.17	0.64
7,880.00	90.86	3.91	6,129.94	1,911.38	-313.49	1,924.53	1.27
7,974.00	88.61	4.14	6,130.38	2,005.15	-306.90	2,017.86	2.41
8,069.00	88.34	2.18	6,132.90	2,099.96	-301.66	2,112.30	2.08
8,164.00	88.74	0.38	6,135.33	2,194.90	-299.54	2,207.02	1.94
8,258.00	90.03	0.24	6,136.33	2,288.89	-299.03	2,300.87	1.38
8,353.00	90.03	0.65	6,136.28	2,383.89	-298.29	2,395.71	0.43
8,448.00	89.88	359.94	6,136.36	2,478.89	-297.81	2,490.57	0.76
8,543.00	89.60	358.42	6,136.79	2,573.88	-299.16	2,585.51	1.63
8,638.00	91.60	358.53	6,135.80	2,668.83	-301.69	2,680.48	2.11

Design Report for Trisha LC29-78HNB - Final Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
8,732.00	91.11	358.54	6,133.57	2,762.78	-304.10	2,774.42	0.52
8,827.00	89.26	357.59	6,133.27	2,857.72	-307.30	2,869.41	2.19
8,922.00	89.54	356.92	6,134.26	2,952.60	-311.85	2,964.40	0.76
9,017.00	91.42	357.29	6,133.47	3,047.47	-316.65	3,059.39	2.02
9,112.00	88.71	354.85	6,133.36	3,142.23	-323.16	3,154.36	3.84
9,206.00	91.36	357.34	6,133.30	3,236.00	-329.56	3,248.33	3.87
9,301.00	89.78	357.98	6,132.36	3,330.91	-333.44	3,343.31	1.79
9,396.00	90.15	356.80	6,132.41	3,425.81	-337.76	3,438.31	1.30
9,491.00	89.08	357.10	6,133.05	3,520.67	-342.82	3,533.31	1.17
9,585.00	91.17	359.77	6,132.85	3,614.62	-345.39	3,627.27	3.61
9,680.00	88.74	359.03	6,132.92	3,709.61	-346.38	3,722.19	2.67
9,775.00	90.96	359.66	6,133.17	3,804.60	-347.47	3,817.11	2.43
9,870.00	87.66	356.45	6,134.31	3,899.51	-350.69	3,912.07	4.85
9,964.00	88.31	357.92	6,137.62	3,993.34	-355.30	4,006.01	1.71
10,059.00	88.68	358.92	6,140.11	4,088.27	-357.92	4,100.95	1.12
10,152.00	89.82	0.09	6,141.33	4,181.25	-358.72	4,193.86	1.76
10,245.00	90.18	359.24	6,141.33	4,274.25	-359.27	4,286.78	0.99
10,338.00	90.03	358.82	6,141.16	4,367.23	-360.84	4,379.73	0.48
10,431.00	92.09	2.13	6,139.44	4,460.20	-360.07	4,472.54	4.19
10,524.00	91.26	2.02	6,136.72	4,553.10	-356.71	4,565.16	0.90
10,615.00	89.35	358.59	6,136.24	4,644.08	-356.22	4,656.00	4.31
10,707.00	93.85	2.26	6,133.67	4,736.00	-355.54	4,747.78	6.31
10,800.00	90.37	1.99	6,130.24	4,828.86	-352.10	4,840.35	3.75
10,893.00	90.15	1.17	6,129.82	4,921.82	-349.53	4,933.08	0.91
10,986.00	89.29	0.94	6,130.28	5,014.80	-347.82	5,025.86	0.96
11,079.00	88.52	358.62	6,132.05	5,107.78	-348.18	5,118.74	2.63
11,172.00	87.10	357.13	6,135.61	5,200.64	-351.62	5,211.66	2.21
11,264.00	85.77	356.82	6,141.33	5,292.33	-356.47	5,303.48	1.48
11,357.00	86.98	356.18	6,147.21	5,384.97	-362.14	5,396.28	1.47
11,450.00	88.40	356.11	6,150.96	5,477.68	-368.38	5,489.19	1.53
11,542.00	89.23	355.74	6,152.86	5,569.43	-374.92	5,581.15	0.99
11,635.00	89.51	355.46	6,153.88	5,662.15	-382.05	5,674.11	0.43
11,728.00	90.28	357.48	6,154.05	5,754.97	-387.78	5,767.10	2.32
11,821.00	92.50	358.47	6,151.80	5,847.87	-391.06	5,860.05	2.61
11,916.00	90.55	357.64	6,149.27	5,942.78	-394.29	5,955.00	2.23
12,011.00	91.48	356.48	6,147.59	6,037.64	-399.16	6,049.98	1.56
12,105.00	90.65	356.68	6,145.84	6,131.45	-404.77	6,143.96	0.91
12,200.00	90.18	359.02	6,145.15	6,226.38	-408.33	6,238.95	2.51
12,295.00	89.94	357.67	6,145.05	6,321.34	-411.07	6,333.92	1.44
12,390.00	90.55	357.01	6,144.65	6,416.23	-415.48	6,428.92	0.95
12,484.00	91.26	0.19	6,143.16	6,510.18	-417.78	6,522.87	3.47
12,579.00	90.03	0.58	6,142.09	6,605.17	-417.14	6,617.71	1.36
12,769.00	93.02	4.13	6,137.03	6,794.89	-409.34	6,806.81	2.44
12,864.00	90.37	3.46	6,134.22	6,889.63	-403.06	6,901.13	2.88
12,959.00	87.87	1.01	6,135.68	6,984.53	-399.35	6,995.73	3.68
13,054.00	87.75	358.93	6,139.31	7,079.46	-399.40	7,090.54	2.19
13,149.00	90.00	358.13	6,141.18	7,174.40	-401.84	7,185.49	2.51
13,244.00	90.99	358.57	6,140.36	7,269.36	-404.57	7,280.47	1.14
13,338.00	92.83	359.37	6,137.22	7,363.28	-406.26	7,374.36	2.13
13,433.00	91.82	357.82	6,133.37	7,458.17	-408.59	7,469.25	1.95
13,528.00	91.76	358.34	6,130.40	7,553.07	-411.77	7,564.19	0.55

Design Report for Trisha LC29-78HNB - Final Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
13,623.00	90.83	359.02	6,128.26	7,648.02	-413.96	7,659.13	1.21
13,718.00	88.43	0.41	6,128.87	7,743.01	-414.43	7,754.03	2.92
13,813.00	86.70	0.24	6,132.91	7,837.92	-413.89	7,848.80	1.83
13,907.00	86.27	0.77	6,138.67	7,931.74	-413.07	7,942.46	0.73
14,002.00	86.73	358.92	6,144.47	8,026.56	-413.32	8,037.17	2.00
14,096.00	88.86	356.78	6,148.09	8,120.41	-416.85	8,131.09	3.21
14,192.00	91.17	357.22	6,148.06	8,216.27	-421.87	8,227.08	2.45
14,287.00	89.14	356.04	6,147.80	8,311.10	-427.46	8,322.07	2.47
14,381.00	90.12	353.96	6,148.41	8,404.73	-435.65	8,415.99	2.45
14,476.00	92.59	354.03	6,146.16	8,499.18	-445.58	8,510.81	2.60
14,571.00	89.88	355.87	6,144.12	8,593.78	-453.94	8,605.71	3.45
14,666.00	90.06	357.44	6,144.17	8,688.61	-459.49	8,700.70	1.66
14,761.00	91.11	357.67	6,143.20	8,783.52	-463.54	8,795.69	1.13
14,855.00	91.36	359.23	6,141.17	8,877.46	-466.08	8,889.64	1.68
14,949.00	90.43	359.48	6,139.70	8,971.44	-467.14	8,983.56	1.02
15,044.00	90.22	1.21	6,139.16	9,066.43	-466.57	9,078.41	1.83
15,139.00	90.77	0.13	6,138.34	9,161.42	-465.46	9,173.23	1.28
15,235.00	90.31	359.39	6,137.44	9,257.42	-465.86	9,269.13	0.91
15,329.00	89.69	358.02	6,137.44	9,351.39	-467.98	9,363.09	1.60
15,424.00	92.49	359.18	6,135.63	9,446.33	-470.30	9,458.03	3.19
15,516.00	92.07	358.82	6,131.97	9,538.24	-471.91	9,549.91	0.60
Final MWD Survey @ 15516.00ft							
15,574.00	92.07	358.82	6,129.88	9,596.19	-473.10	9,607.85	0.00
Straight Line Proj @ 15574' MD, 6129.88' TVD							

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
600.00	600.00	1.22	1.66	Tie-On to Surface Gyros @ 600.00ft
713.00	712.99	1.56	1.96	First MWD Survey @ 713.00ft
15,516.00	6,131.97	9,538.24	-471.91	Final MWD Survey @ 15516.00ft
15,574.00	6,129.88	9,596.19	-473.10	Straight Line Proj @ 15574' MD, 6129.88' TVD

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/_S (usft)	Origin +E/-W (usft)	Start TVD (usft)
Target	Trisha LC29-78HNB_BHL	357.17	Slot	0.00	0.00	0.00

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
300.00	600.00	Surface Gyros	Flexi-Shot
713.00	6,468.00	MWD Surveys - Intermediate	MWD+IFR1+MS_WY
6,647.00	15,516.00	MWD Surveys - Production	MWD+IFR1+MS_WY

Design Report for Trisha LC29-78HNB - Final Surveys

Casing Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
6,511.00	6,134.36	7" Casing @ 6511' MD, 6134.36' TVD	7	8-3/4

Wellbore Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Trisha LC29-78HNB_S	0.00	0.00	0.00	0.01	0.00	1,506,761.88	3,413,609.86	40.714900	-104.007920
- actual wellpath misses target center by 0.01usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Point									
Trisha LC29-78HNB_6	0.00	0.00	0.00	0.01	0.00	1,506,761.88	3,413,609.86	40.714900	-104.007920
- actual wellpath misses target center by 0.01usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Polygon									
Point 1			0.00	9,663.39	-562.11	1,516,425.17	3,413,047.76		
Point 2			0.00	4,937.68	-467.16	1,511,699.51	3,413,142.71		
Point 3			0.00	237.91	-347.68	1,506,999.79	3,413,262.18		
Point 4			0.00	359.54	3,709.93	1,507,121.42	3,417,319.75		
Point 5			0.00	5,073.90	3,591.85	1,511,835.73	3,417,201.67		
Point 6			0.00	9,770.07	3,474.09	1,516,531.85	3,417,083.91		
Point 7			0.00	9,663.39	-562.11	1,516,425.17	3,413,047.76		
Trisha LC29-78HNB_S	0.00	0.00	0.00	0.01	0.00	1,506,761.88	3,413,609.86	40.714900	-104.007920
- actual wellpath misses target center by 0.01usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Polygon									
Point 1			0.00	10,263.40	-1,162.11	1,517,025.17	3,412,447.76		
Point 2			0.00	4,937.68	-1,067.16	1,511,699.51	3,412,542.71		
Point 3			0.00	5,073.90	4,191.85	1,511,835.73	3,417,801.67		
Point 4			0.00	4,937.68	-1,067.16	1,511,699.51	3,412,542.71		
Point 5			0.00	-362.10	-947.69	1,506,399.79	3,412,662.18		
Point 6			0.00	-240.46	4,309.93	1,506,521.42	3,417,919.75		
Point 7			0.00	5,073.90	4,191.85	1,511,835.73	3,417,801.67		
Point 8			0.00	10,370.08	4,074.09	1,517,131.85	3,417,683.91		
Point 9			0.00	10,263.40	-1,162.11	1,517,025.17	3,412,447.76		
Trisha LC29-78HNB_K	0.00	0.00	5,503.01	-80.13	-280.07	1,506,681.74	3,413,329.79	40.714693	-104.008935
- actual wellpath misses target center by 32.56usft at 5532.57usft MD (5503.23 TVD, -86.95 N, -311.91 E)									
- Circle (radius 35.00)									
Trisha LC29-78HNB_E	0.00	0.00	6,126.22	9,600.84	-474.74	1,516,362.61	3,413,135.12	40.741270	-104.009050
- actual wellpath misses target center by 6.13usft at 15574.00usft MD (6129.88 TVD, 9596.19 N, -473.10 E)									
- Point									
Trisha LC29-78HNB_L	-0.10	0.00	6,143.00	0.01	0.00	1,506,761.88	3,413,609.86	40.714900	-104.007920
- actual wellpath misses target center by 367.61usft at 6103.00usft MD (6002.50 TVD, 172.68 N, -292.54 E)									
- Polygon									
Point 1			6,142.07	534.23	-332.38	1,507,296.11	3,413,277.48		
Point 2			6,142.07	534.23	-252.38	1,507,296.11	3,413,357.48		
Point 3			6,126.24	9,600.83	-434.74	1,516,362.60	3,413,175.12		
Point 4			6,126.24	9,600.83	-514.75	1,516,362.60	3,413,095.12		
Point 5			6,142.07	534.23	-332.38	1,507,296.11	3,413,277.48		

Directional Difficulty Index

Average Dogleg over Survey:	2.13 °/100usft	Maximum Dogleg over Survey:	15.81 °/100usft at 6,246.00 usft
Net Tortousity applicable to Plans:	1.41 °/100usft	Directional Difficulty Index:	6.927

Audit Info

North Reference Sheet for Sec. 29-T9N-R59W (LC29-13-A) - Trisha LC29-78HNB -

All data is in US Feet unless otherwise stated. Directions and Coordinates are relative to Grid North Reference.

Vertical Depths are relative to RKB=24 @ 4906.00usft (H&P 273). Northing and Easting are relative to Trisha LC29-78HNB

Coordinate System is US State Plane 1983, Colorado Northern Zone using datum North American Datum 1983, ellipsoid GRS 1980

Projection method is Lambert Conformal Conic (2 parallel)

Central Meridian is -105.500000°, Longitude Origin:0.000000°, Latitude Origin:40.783333°

False Easting: 3,000,000.00usft, False Northing: 1,000,000.00usft, Scale Reduction: 0.99998961

Grid Coordinates of Well: 1,506,761.87 usft N, 3,413,609.86 usft E

Geographical Coordinates of Well: 40° 42' 53.64" N, 104° 00' 28.51" W

Grid Convergence at Surface is: 0.96°

Based upon Minimum Curvature type calculations, at a Measured Depth of 15,574.00usft

the Bottom Hole Displacement is 9,607.85usft in the Direction of 357.18° (Grid).

Magnetic Convergence at surface is: -7.17° (19 March 2014, , BGGM2013)