



Ursa Operating Company, LLC

Rockies Region

B&V

B&V 24C-07-07-95

Wellbore #1

Design: Actual

End of Well Report

04 January, 2017



Company:	Ursa Operating Company, LLC	Local Co-ordinate Reference:	Well B&V 24C-07-07-95
Project:	Rockies Region	TVD Reference:	B&V 24C-07-07-95 @ 5101.0usft (Plan KB)
Site:	B&V	MD Reference:	B&V 24C-07-07-95 @ 5101.0usft (Plan KB)
Well:	B&V 24C-07-07-95	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Actual	Database:	EDM 5000.1 Single User Db

Project		Rockies Region	
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Central Zone		Using geodetic scale factor

Site		B&V							
Site Position:		Northing:		1,598,935.06	usft	Latitude:		39.450164128	
From:	Lat/Long	Easting:		2,280,801.73	usft	Longitude:		-108.047211920	
Position Uncertainty:		0.0	usft	Slot Radius:		13-3/16	"	Grid Convergence:	-1.61 °

Well		B&V 24C-07-07-95, SHL LAT: 39.450271291 LONG: -108.047039199				
Well Position	+N/-S	0.0 usft	Northing:	1,598,972.72 usft	Latitude:	39.450271291
	+E/-W	0.0 usft	Easting:	2,280,851.58 usft	Longitude:	-108.047039199
Position Uncertainty		0.0 usft	Wellhead Elevation:	5,101.0 usft	Ground Level:	5,084.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	1/4/2017	9.76	65.55	51,555

Design		Actual			
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)		+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0		0.0	0.0	139.02

Survey Program		Date	1/4/2017		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
107.0	6,837.0	Actual (Wellbore #1)	MWD	MWD - Standard	

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Site:	B&V	MD Reference:	B&V 24C-07-07-95 @ 5101.0usft (Plan KB)
Well:	B&V 24C-07-07-95	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Actual	Database:	EDM 5000.1 Single User Db

Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
107.0	0.20	29.78	107.0	-0.1	0.2	0.1	0.19	0.19	0.00	
136.0	0.15	72.58	136.0	-0.1	0.2	0.2	0.47	-0.17	147.59	
165.0	0.22	23.27	165.0	-0.1	0.3	0.2	0.58	0.24	-170.03	
194.0	0.18	30.61	194.0	-0.1	0.4	0.3	0.16	-0.14	25.31	
224.0	0.21	40.06	224.0	-0.1	0.5	0.3	0.15	0.10	31.50	
254.0	0.13	65.85	254.0	-0.1	0.5	0.4	0.36	-0.27	85.97	
285.0	0.26	87.39	285.0	-0.1	0.5	0.5	0.47	0.42	69.48	
315.0	0.83	123.91	315.0	0.2	0.4	0.7	2.13	1.90	121.73	
346.0	1.36	131.22	346.0	0.8	0.0	1.2	1.76	1.71	23.58	
377.0	2.07	134.94	377.0	1.7	-0.6	1.9	2.32	2.29	12.00	
407.0	2.94	137.49	406.9	3.0	-1.5	2.8	2.92	2.90	8.50	
438.0	3.65	138.94	437.9	4.8	-2.9	4.0	2.31	2.29	4.68	
468.0	4.22	141.40	467.8	6.8	-4.5	5.3	1.98	1.90	8.20	
499.0	5.21	142.55	498.7	9.4	-6.5	6.8	3.21	3.19	3.71	
529.0	6.24	143.51	528.6	12.4	-8.9	8.6	3.45	3.43	3.20	
560.0	7.54	140.75	559.3	16.1	-11.8	10.9	4.33	4.19	-8.90	
591.0	8.93	138.37	590.0	20.5	-15.2	13.8	4.62	4.48	-7.68	
621.0	9.80	137.18	619.6	25.4	-18.8	17.1	2.97	2.90	-3.97	
652.0	10.37	136.43	650.1	30.8	-22.7	20.8	1.89	1.84	-2.42	
682.0	11.12	137.05	679.6	36.4	-26.8	24.6	2.53	2.50	2.07	
713.0	12.04	137.88	710.0	42.6	-31.4	28.9	3.02	2.97	2.68	
744.0	12.79	137.27	740.3	49.3	-36.3	33.3	2.46	2.42	-1.97	
774.0	13.63	137.91	769.5	56.1	-41.4	38.0	2.84	2.80	2.13	
805.0	14.37	137.09	799.5	63.6	-46.9	43.0	2.47	2.39	-2.65	
835.0	15.34	136.87	828.5	71.3	-52.5	48.3	3.24	3.23	-0.73	
878.0	16.64	138.82	869.9	83.2	-61.3	56.2	3.27	3.02	4.53	

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Well:	B&V 24C-07-07-95	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Actual	Database:	EDM 5000.1 Single User Db

Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	
920.0	18.19	140.56	910.0	95.7	-70.9	64.4	3.89	3.69	4.14	
963.0	19.58	139.73	950.6	109.6	-81.6	73.3	3.29	3.23	-1.93	
1,006.0	21.05	139.24	991.0	124.6	-92.9	83.0	3.44	3.42	-1.14	
1,049.0	22.41	138.80	1,030.9	140.5	-104.9	93.4	3.19	3.16	-1.02	
1,091.0	23.69	138.72	1,069.6	156.9	-117.3	104.3	3.05	3.05	-0.19	
1,134.0	25.00	139.46	1,108.7	174.7	-130.7	115.9	3.13	3.05	1.72	
1,176.0	26.41	139.99	1,146.6	192.9	-144.6	127.6	3.40	3.36	1.26	
1,219.0	27.64	138.94	1,184.9	212.4	-159.5	140.3	3.07	2.86	-2.44	
1,262.0	29.27	139.55	1,222.7	232.9	-175.0	153.7	3.85	3.79	1.42	
1,305.0	31.33	140.24	1,259.8	254.6	-191.6	167.7	4.86	4.79	1.60	
1,347.0	33.27	139.20	1,295.3	277.0	-208.7	182.2	4.80	4.62	-2.48	
1,390.0	34.80	139.90	1,330.9	301.1	-227.0	197.8	3.67	3.56	1.63	
1,433.0	35.77	139.51	1,366.0	325.9	-245.9	213.9	2.32	2.26	-0.91	
1,475.0	37.05	138.72	1,399.8	350.9	-264.8	230.2	3.25	3.05	-1.88	
1,518.0	38.19	138.23	1,433.9	377.1	-284.4	247.6	2.74	2.65	-1.14	
1,561.0	37.57	138.32	1,467.8	403.5	-304.1	265.2	1.45	-1.44	0.21	
1,604.0	37.31	137.44	1,502.0	429.6	-323.5	282.7	1.38	-0.60	-2.05	
1,646.0	38.32	136.39	1,535.2	455.4	-342.3	300.3	2.85	2.40	-2.50	
1,689.0	38.36	135.77	1,568.9	482.0	-361.6	318.8	0.90	0.09	-1.44	
1,732.0	39.86	136.08	1,602.2	509.1	-381.0	337.7	3.52	3.49	0.72	
1,774.0	39.95	135.95	1,634.5	536.0	-400.4	356.4	0.29	0.21	-0.31	
1,817.0	39.82	135.77	1,667.5	563.5	-420.2	375.6	0.40	-0.30	-0.42	
Last PZD Surface Survey										
1,911.0	39.45	135.88	1,739.9	623.4	-463.2	417.4	0.40	-0.39	0.12	
1,997.0	39.57	134.27	1,806.2	678.0	-502.0	456.0	1.20	0.14	-1.87	
2,082.0	39.20	135.61	1,871.9	731.8	-540.1	494.2	1.09	-0.44	1.58	
2,167.0	39.81	135.53	1,937.5	785.8	-578.7	532.0	0.72	0.72	-0.09	

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Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Actual	Database:	EDM 5000.1 Single User Db

Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	
2,253.0	39.86	137.27	2,003.5	840.8	-618.6	570.0	1.30	0.06	2.02	
2,338.0	40.25	138.41	2,068.6	895.5	-659.1	606.7	0.98	0.46	1.34	
2,423.0	40.52	141.13	2,133.3	950.5	-701.1	642.3	2.10	0.32	3.20	
2,509.0	40.56	140.65	2,198.7	1,006.4	-744.5	677.5	0.37	0.05	-0.56	
2,594.0	40.30	142.14	2,263.4	1,061.5	-787.6	711.9	1.18	-0.31	1.75	
2,679.0	40.08	141.39	2,328.3	1,116.3	-830.7	745.9	0.63	-0.26	-0.88	
2,765.0	39.59	139.68	2,394.4	1,171.3	-873.2	780.9	1.40	-0.57	-1.99	
2,850.0	39.90	140.61	2,459.7	1,225.7	-914.9	815.7	0.79	0.36	1.09	
2,936.0	39.04	140.28	2,526.1	1,280.3	-957.1	850.5	1.03	-1.00	-0.38	
3,021.0	38.64	139.32	2,592.3	1,333.6	-997.8	884.9	0.85	-0.47	-1.13	
3,106.0	38.01	139.20	2,659.0	1,386.3	-1,037.7	919.3	0.75	-0.74	-0.14	
3,192.0	39.51	139.02	2,726.1	1,440.2	-1,078.4	954.6	1.75	1.74	-0.21	
3,277.0	38.89	139.90	2,791.9	1,493.9	-1,119.3	989.5	0.98	-0.73	1.04	
3,362.0	38.63	138.98	2,858.2	1,547.1	-1,159.7	1,024.1	0.74	-0.31	-1.08	
3,448.0	38.01	137.27	2,925.7	1,600.4	-1,199.4	1,059.7	1.43	-0.72	-1.99	
3,533.0	36.83	137.22	2,993.2	1,652.0	-1,237.3	1,094.7	1.39	-1.39	-0.06	
3,618.0	34.10	138.06	3,062.4	1,701.3	-1,273.7	1,128.0	3.26	-3.21	0.99	
3,704.0	31.82	138.01	3,134.6	1,748.1	-1,308.5	1,159.3	2.65	-2.65	-0.06	
3,789.0	29.53	138.89	3,207.7	1,791.5	-1,341.0	1,188.0	2.75	-2.69	1.04	
3,874.0	27.08	142.14	3,282.5	1,831.7	-1,372.0	1,213.7	3.40	-2.88	3.82	
3,960.0	23.29	139.59	3,360.3	1,868.3	-1,400.4	1,236.7	4.58	-4.41	-2.97	
4,045.0	19.95	138.41	3,439.3	1,899.6	-1,424.1	1,257.3	3.96	-3.93	-1.39	
4,130.0	16.88	139.95	3,520.0	1,926.5	-1,444.4	1,274.8	3.66	-3.61	1.81	
4,216.0	14.06	134.94	3,602.9	1,949.4	-1,461.3	1,290.3	3.63	-3.28	-5.83	
4,301.0	11.43	132.78	3,685.8	1,968.0	-1,474.3	1,303.7	3.14	-3.09	-2.54	
4,387.0	8.39	126.50	3,770.5	1,982.6	-1,483.9	1,315.1	3.75	-3.53	-7.30	
4,472.0	6.42	114.46	3,854.8	1,993.0	-1,489.5	1,324.4	2.94	-2.32	-14.16	

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Design:	Actual	Database:	EDM 5000.1 Single User Db

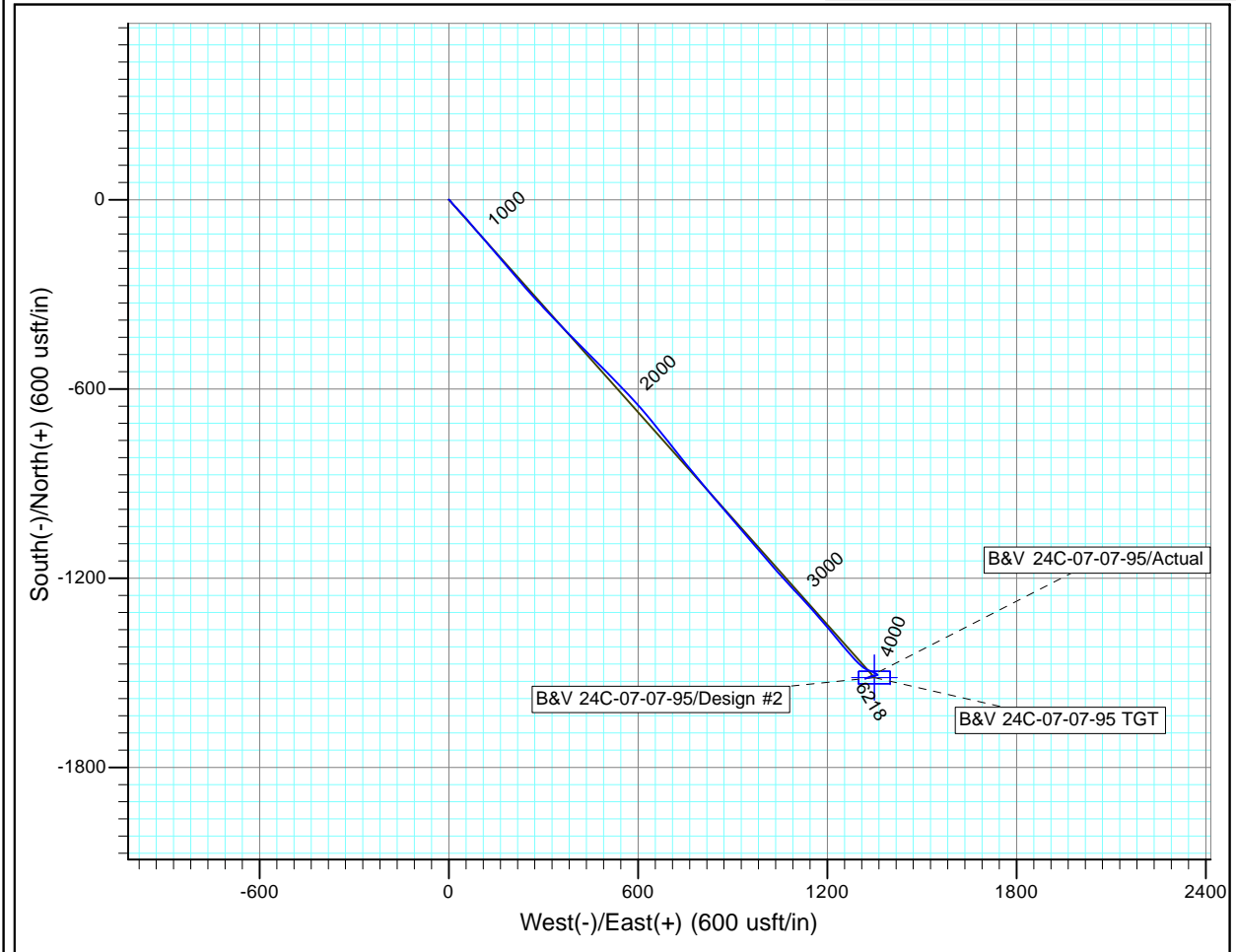
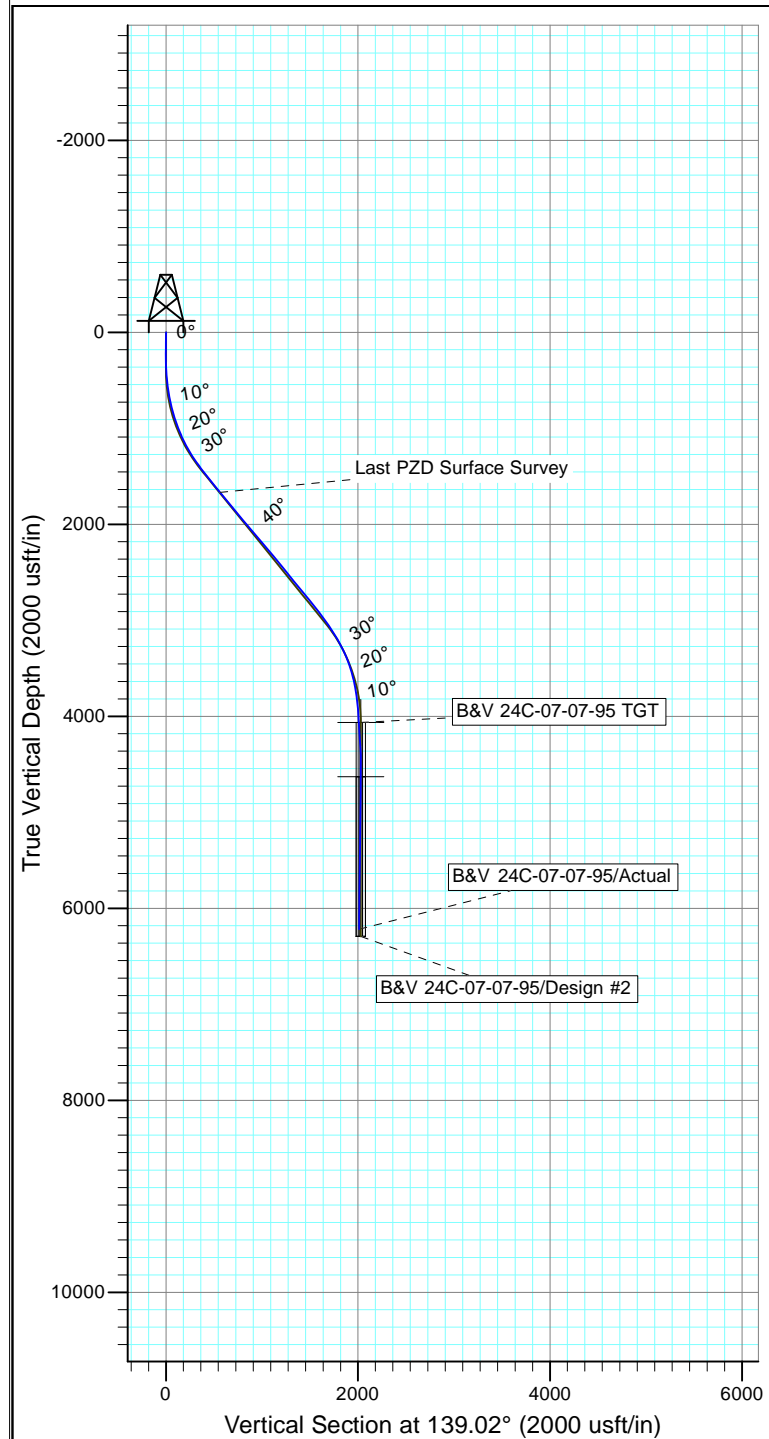
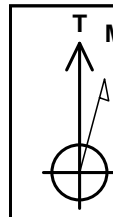
Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)		TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)
4,557.0	4.61	110.72		3,939.4	2,000.3	-1,492.7	1,331.9	2.17	-2.13	-4.40
4,643.0	4.39	112.52		4,025.1	2,006.3	-1,495.2	1,338.2	0.30	-0.26	2.09
4,683.1	4.22	113.71		4,065.1	2,009.0	-1,496.4	1,340.9	0.47	-0.41	2.97
B&V 24C-07-07-95 TGT										
4,728.0	4.04	115.16		4,109.9	2,012.0	-1,497.7	1,343.9	0.47	-0.41	3.23
4,814.0	3.82	115.56		4,195.7	2,017.4	-1,500.2	1,349.2	0.26	-0.26	0.47
4,899.0	3.77	114.38		4,280.5	2,022.5	-1,502.6	1,354.3	0.11	-0.06	-1.39
4,984.0	2.44	132.71		4,365.3	2,026.9	-1,505.0	1,358.2	1.93	-1.56	21.56
5,070.0	0.92	155.94		4,451.3	2,029.3	-1,506.9	1,359.8	1.90	-1.77	27.01
5,155.0	0.66	266.46		4,536.3	2,029.7	-1,507.5	1,359.6	1.54	-0.31	130.02
5,241.0	1.02	259.67		4,622.3	2,029.0	-1,507.7	1,358.3	0.43	0.42	-7.90
5,247.9	1.03	259.29		4,629.2	2,028.9	-1,507.7	1,358.2	0.13	0.09	-5.44
B&V 24C-07-07-95 TGT 2										
5,326.0	1.10	255.35		4,707.3	2,028.3	-1,508.0	1,356.8	0.13	0.09	-5.05
5,411.0	1.05	251.52		4,792.3	2,027.6	-1,508.5	1,355.3	0.10	-0.06	-4.51
5,497.0	1.41	241.42		4,878.2	2,027.1	-1,509.2	1,353.6	0.49	0.42	-11.74
5,582.0	1.51	248.19		4,963.2	2,026.5	-1,510.1	1,351.6	0.23	0.12	7.96
5,668.0	1.54	253.24		5,049.2	2,025.6	-1,510.9	1,349.5	0.16	0.03	5.87
5,753.0	1.36	281.58		5,134.2	2,024.4	-1,511.0	1,347.4	0.86	-0.21	33.34
5,838.0	1.63	276.46		5,219.1	2,022.7	-1,510.7	1,345.2	0.35	0.32	-6.02
5,923.0	1.49	264.74		5,304.1	2,021.1	-1,510.7	1,342.9	0.41	-0.16	-13.79
6,008.0	1.41	253.44		5,389.1	2,020.1	-1,511.1	1,340.8	0.35	-0.09	-13.29
6,094.0	1.71	251.83		5,475.0	2,019.1	-1,511.8	1,338.6	0.35	0.35	-1.87
6,179.0	1.89	234.74		5,560.0	2,018.5	-1,513.0	1,336.2	0.66	0.21	-20.11
6,264.0	1.80	239.61		5,645.0	2,018.1	-1,514.4	1,333.9	0.21	-0.11	5.73
6,350.0	0.92	284.22		5,730.9	2,017.3	-1,515.0	1,332.1	1.53	-1.02	51.87
6,435.0	1.14	258.11		5,815.9	2,016.3	-1,515.0	1,330.6	0.60	0.26	-30.72

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6,521.0	1.32	260.93	5,901.9	2,015.4	-1,515.3	1,328.8	0.22	0.21	3.28	
6,606.0	1.59	248.81	5,986.9	2,014.5	-1,515.9	1,326.7	0.48	0.32	-14.26	
6,691.0	1.79	244.30	6,071.8	2,013.7	-1,516.9	1,324.4	0.28	0.24	-5.31	
6,777.0	2.07	238.69	6,157.8	2,013.1	-1,518.3	1,321.9	0.39	0.33	-6.52	
Last PZD Survey										
6,837.0	2.07	238.69	6,217.7	2,012.7	-1,519.4	1,320.0	0.00	0.00	0.00	
Straight Line Projection to TD										

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
1,817.0	1,667.5	-420.2	375.6	Last PZD Surface Survey	
6,777.0	6,157.8	-1,518.3	1,321.9	Last PZD Survey	
6,837.0	6,217.7	-1,519.4	1,320.0	Straight Line Projection to TD	

Checked By: _____	Approved By: _____	Date: _____
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Design: Actual (B&V 24C-07-07-95/Wellbore #1)

Created By: Derek Stephens Date: 9:04, January 04 2017

THIS SURVEY IS CORRECT TO THE BEST OF
 MY KNOWLEDGE AND IS SUPPORTED
 BY ACTUAL FIELD DATA