



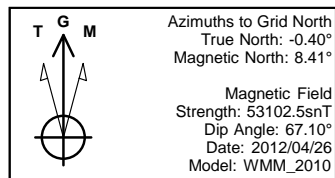
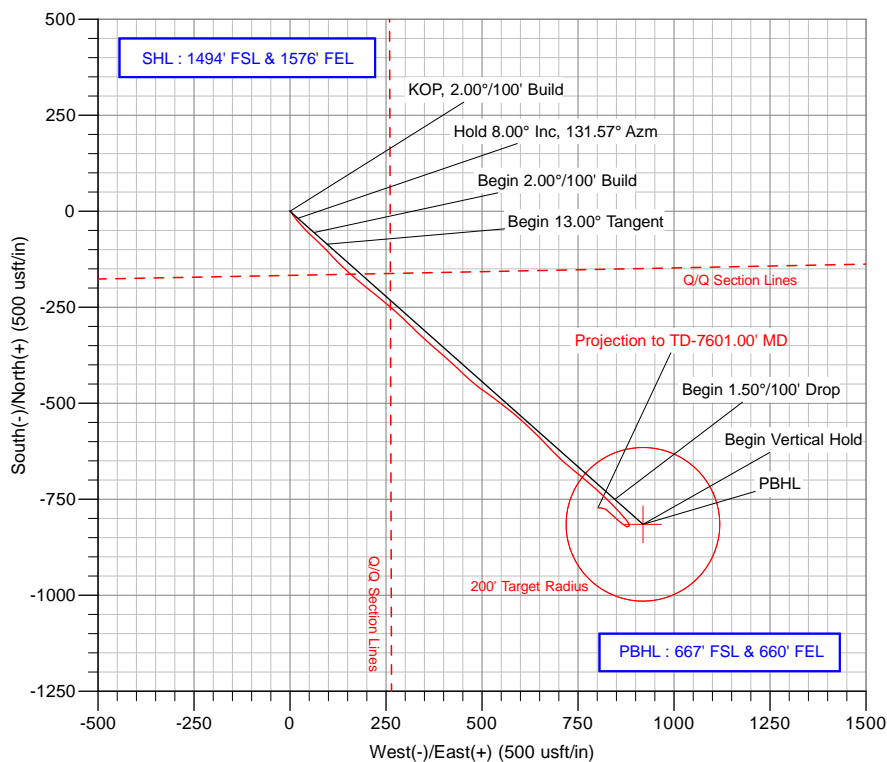
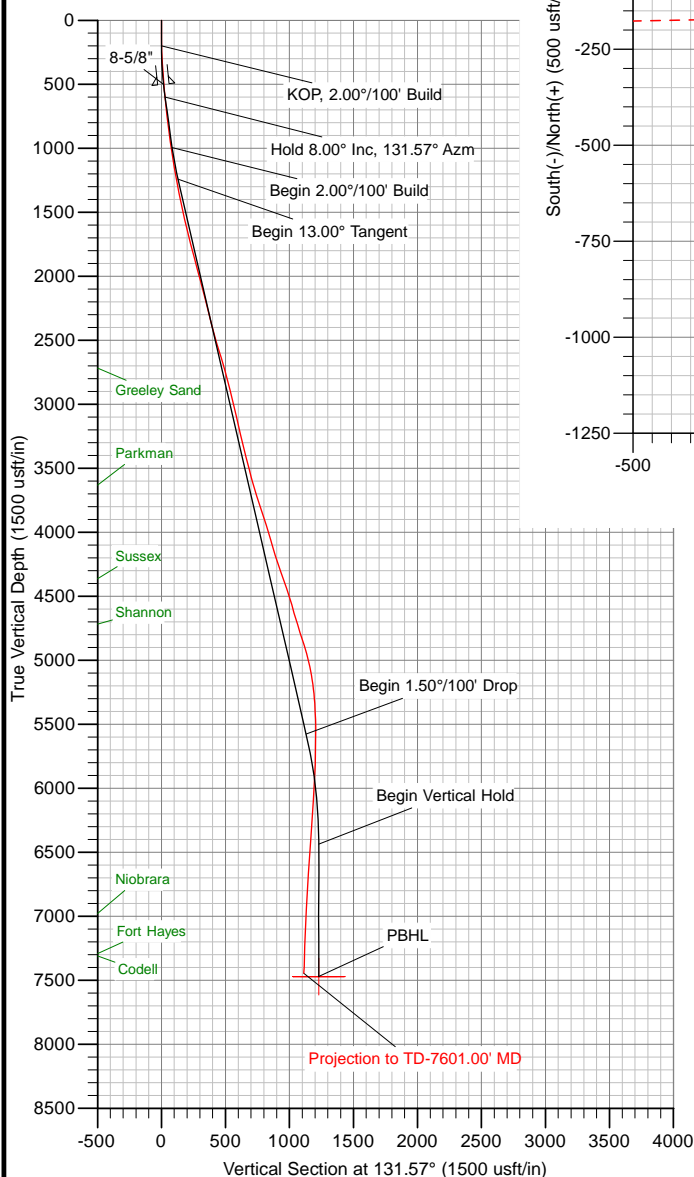
Company: Great Western
 Site: JBL
 Well: 34-44
 Project: Weld County, Colorado (NAD 83)
 Rig Name: Cade 22



Planning: 936.442.2510 Fax: 936.442.2515
 Operations: 936.442.2500 Fax: 936.442.2599

ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Vsect	Departure	Annotation
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	KOP, 2.00°/100' Build
600.00	8.00	131.57	598.70	-18.50	20.86	27.88	27.88	Hold 8.00° Inc, 131.57° Azm
1000.00	8.00	131.57	994.81	-55.44	62.51	83.55	83.55	Begin 2.00°/100' Build
1250.24	13.00	131.57	1240.78	-85.69	96.62	129.15	129.15	Begin 13.00° Tangent
5700.03	13.00	131.57	5576.44	-750.09	845.80	1130.50	1130.50	Begin 1.50°/100' Drop
6567.02	0.00	0.00	6436.00	-815.10	919.10	1228.47	1228.47	Begin Vertical Hold
7601.02	0.00	0.00	7470.00	-815.10	919.10	1228.47	1228.47	PBHL



US State Plane 1983
 Colorado Northern Zone

Created By: Megan Pope
 Date: 15:00, April 30 2012
 Plan: Design #2

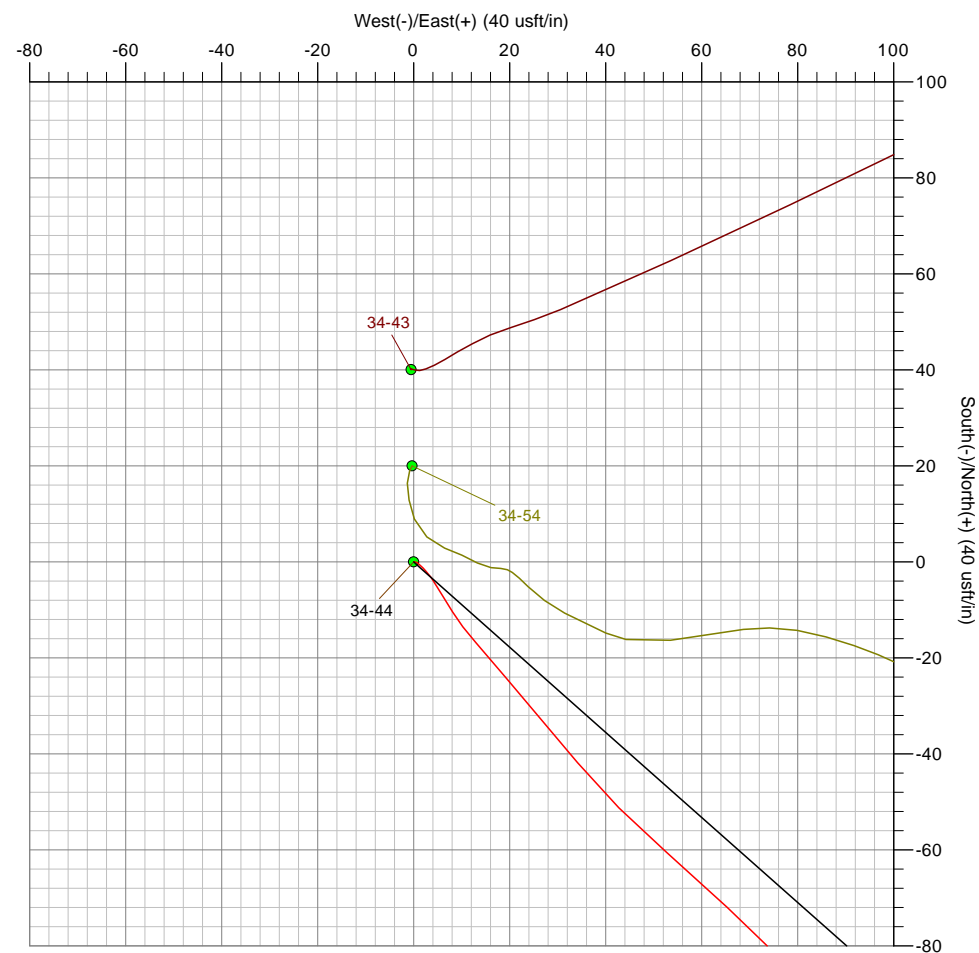
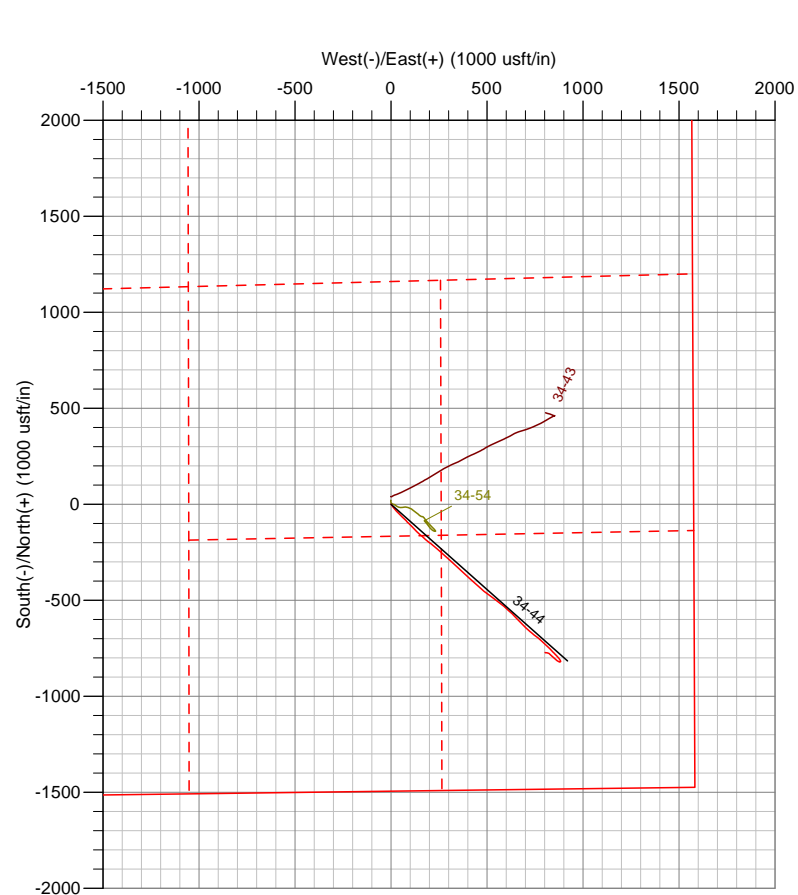
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Company: Great Western
Site: JBL
Project: Weld County, Colorado (NAD 83)
Rig Name: Cade 22



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Great Western

Weld County, Colorado (NAD 83)

JBL

34-44

Wellbore #1

Survey: MS MWD

Standard Survey Report

30 April, 2012

Company:	Great Western	Local Co-ordinate Reference:	Well 34-44
Project:	Weld County, Colorado (NAD 83)	TVD Reference:	WELL @ 4965.00usft (Cade 22)
Site:	JBL	MD Reference:	WELL @ 4965.00usft (Cade 22)
Well:	34-44	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	Southern Region

Project	Weld County, Colorado (NAD 83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Well	34-44					
Well Position	+N/-S	0.00 usft	Northing:	1,435,553.60 usft	Latitude:	40° 31' 38.3461 N
	+E/-W	0.00 usft	Easting:	3,173,535.24 usft	Longitude:	104° 52' 32.660 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	4,949.00 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	WMM_2010	2012/04/26	8.81	67.10	53,102

Design	Surveys				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	131.57	

Survey Program	Date	2012/04/30			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
81.00	7,601.00	MS MWD (Wellbore #1)	MWD	MWD - Standard	

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
81.00	0.40	88.60	81.00	0.01	0.28	0.21	0.49	0.49	0.00	
142.00	0.60	119.10	142.00	-0.14	0.77	0.67	0.53	0.33	50.00	
233.00	1.50	137.40	232.98	-1.25	2.00	2.32	1.04	0.99	20.11	
263.00	1.80	137.40	262.97	-1.89	2.58	3.18	1.00	1.00	0.00	
354.00	3.40	149.00	353.87	-5.25	4.94	7.18	1.84	1.76	12.75	
446.00	4.20	147.70	445.67	-10.44	8.14	13.02	0.87	0.87	-1.41	
541.00	5.40	139.10	540.34	-16.76	12.93	20.79	1.47	1.26	-9.05	
635.00	6.50	139.70	633.83	-24.16	19.27	30.45	1.17	1.17	0.64	
826.00	7.40	140.00	823.42	-41.83	34.17	53.32	0.47	0.47	0.16	
1,017.00	8.50	131.00	1,012.59	-60.51	52.73	79.60	0.87	0.58	-4.71	
1,239.00	9.80	135.10	1,231.76	-84.66	78.45	114.87	0.65	0.59	1.85	
1,301.00	9.70	134.30	1,292.87	-92.05	85.91	125.35	0.27	-0.16	-1.29	
1,397.00	12.00	137.40	1,387.15	-105.04	98.46	143.36	2.47	2.40	3.23	
1,491.00	12.30	135.80	1,479.04	-119.41	112.05	163.06	0.48	0.32	-1.70	

Company:	Great Western	Local Co-ordinate Reference:	Well 34-44
Project:	Weld County, Colorado (NAD 83)	TVD Reference:	WELL @ 4965.00usft (Cade 22)
Site:	JBL	MD Reference:	WELL @ 4965.00usft (Cade 22)
Well:	34-44	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	Southern Region

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
1,587.00	13.30	135.80	1,572.65	-134.66	126.88	184.28	1.04	1.04	0.00	
1,682.00	14.30	132.90	1,664.91	-150.48	143.09	206.90	1.28	1.05	-3.05	
1,778.00	15.20	130.90	1,757.75	-166.79	161.29	231.34	1.08	0.94	-2.08	
1,873.00	14.40	129.90	1,849.60	-182.52	179.77	255.60	0.88	-0.84	-1.05	
1,968.00	14.20	128.20	1,941.65	-197.31	197.98	279.04	0.49	-0.21	-1.79	
2,063.00	15.20	130.20	2,033.54	-212.55	216.65	303.12	1.18	1.05	2.11	
2,159.00	14.70	129.00	2,126.29	-228.34	235.73	327.87	0.61	-0.52	-1.25	
2,253.00	14.20	130.10	2,217.32	-243.27	253.82	351.32	0.61	-0.53	1.17	
2,350.00	13.70	130.20	2,311.46	-258.35	271.69	374.69	0.52	-0.52	0.10	
2,445.00	14.90	133.50	2,403.51	-274.02	289.15	398.15	1.53	1.26	3.47	
2,541.00	16.00	133.20	2,496.04	-291.57	307.75	423.71	1.15	1.15	-0.31	
2,637.00	17.70	136.30	2,587.92	-311.18	327.48	451.48	2.00	1.77	3.23	
2,736.00	16.60	130.90	2,682.52	-331.32	348.56	480.62	1.95	-1.11	-5.45	
2,828.00	14.40	130.40	2,771.17	-347.35	367.21	505.20	2.40	-2.39	-0.54	
2,923.00	13.20	130.90	2,863.43	-362.10	384.41	527.86	1.27	-1.26	0.53	
3,018.00	14.10	132.40	2,955.74	-377.01	401.15	550.28	1.02	0.95	1.58	
3,114.00	14.00	131.70	3,048.87	-392.62	418.46	573.58	0.21	-0.10	-0.73	
3,209.00	12.80	133.60	3,141.29	-407.52	434.66	595.59	1.35	-1.26	2.00	
3,303.00	13.70	133.50	3,232.78	-422.36	450.27	617.12	0.96	0.96	-0.11	
3,399.00	13.40	131.60	3,326.11	-437.58	466.84	639.61	0.56	-0.31	-1.98	
3,494.00	14.40	129.30	3,418.33	-452.37	484.21	662.42	1.20	1.05	-2.42	
3,589.00	13.60	124.40	3,510.51	-466.16	502.57	685.31	1.50	-0.84	-5.16	
3,685.00	16.50	127.20	3,603.21	-480.78	522.74	710.10	3.11	3.02	2.92	
3,779.00	17.40	127.60	3,693.12	-497.43	544.51	737.44	0.97	0.96	0.43	
3,875.00	17.40	126.70	3,784.73	-514.76	567.39	766.06	0.28	0.00	-0.94	
3,970.00	19.00	131.80	3,874.98	-533.56	590.31	795.68	2.38	1.68	5.37	
4,065.00	17.10	133.00	3,965.30	-553.40	612.06	825.11	2.04	-2.00	1.26	
4,161.00	15.70	132.00	4,057.39	-571.72	632.04	852.21	1.49	-1.46	-1.04	
4,256.00	17.90	136.80	4,148.34	-590.96	651.59	879.60	2.74	2.32	5.05	
4,352.00	18.70	137.30	4,239.48	-613.03	672.12	909.61	0.85	0.83	0.52	
4,447.00	18.30	133.50	4,329.58	-634.49	693.27	939.67	1.34	-0.42	-4.00	
4,543.00	19.60	131.40	4,420.37	-655.51	716.28	970.84	1.53	1.35	-2.19	
4,669.00	16.20	128.50	4,540.26	-680.44	745.90	1,009.53	2.79	-2.70	-2.30	
4,763.00	16.30	129.30	4,630.50	-696.95	766.37	1,035.81	0.26	0.11	0.85	
4,858.00	17.10	132.10	4,721.50	-714.76	787.05	1,063.10	1.19	0.84	2.95	
4,985.00	18.10	133.40	4,842.55	-740.84	815.24	1,101.49	0.85	0.79	1.02	
5,111.00	15.30	135.50	4,963.22	-766.15	841.11	1,137.64	2.27	-2.22	1.67	
5,302.00	8.50	138.30	5,150.01	-794.69	868.20	1,176.85	3.57	-3.56	1.47	
5,490.00	4.00	150.90	5,336.85	-810.81	880.64	1,196.84	2.49	-2.39	6.70	
5,681.00	1.80	189.30	5,527.61	-819.59	883.39	1,204.73	1.48	-1.15	20.10	
5,966.00	2.40	293.40	5,812.50	-821.64	877.19	1,201.45	1.17	0.21	36.53	
6,249.00	3.80	309.30	6,095.08	-813.34	864.50	1,186.45	0.58	0.49	5.62	
6,534.00	4.00	310.90	6,379.42	-800.85	849.68	1,167.07	0.08	0.07	0.56	
6,820.00	4.00	316.10	6,664.73	-787.13	835.22	1,147.16	0.13	0.00	1.82	

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Well:	34-44	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	Southern Region

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
7,105.00	2.70	301.40	6,949.24	-776.47	822.60	1,130.64	0.54	-0.46	-5.16	
7,390.00	2.20	271.80	7,233.99	-772.80	811.40	1,119.83	0.47	-0.18	-10.39	
7,550.00	2.70	277.30	7,393.84	-772.23	804.59	1,114.35	0.34	0.31	3.44	
7,601.00	2.70	277.30	7,444.78	-771.92	802.21	1,112.37	0.00	0.00	0.00	
Projection to TD-7601.00' MD										

Survey Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
7,601.00	7,444.78	-771.92	802.21	Projection to TD-7601.00' MD	