



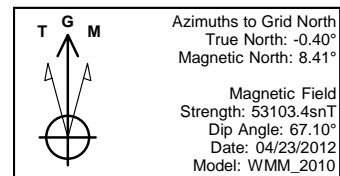
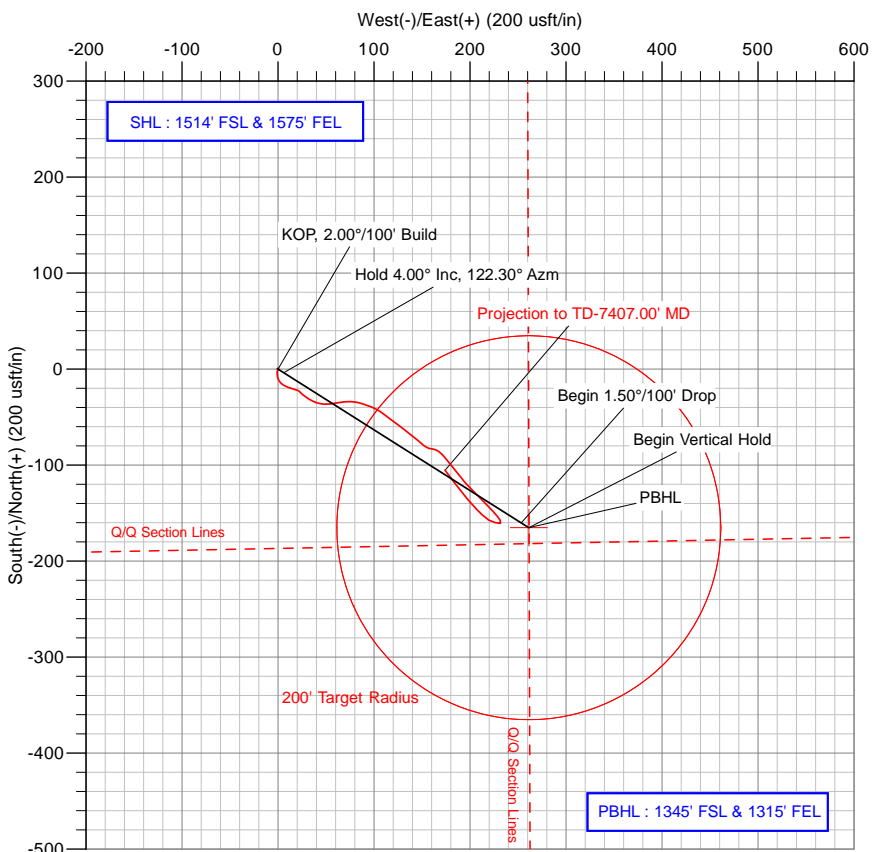
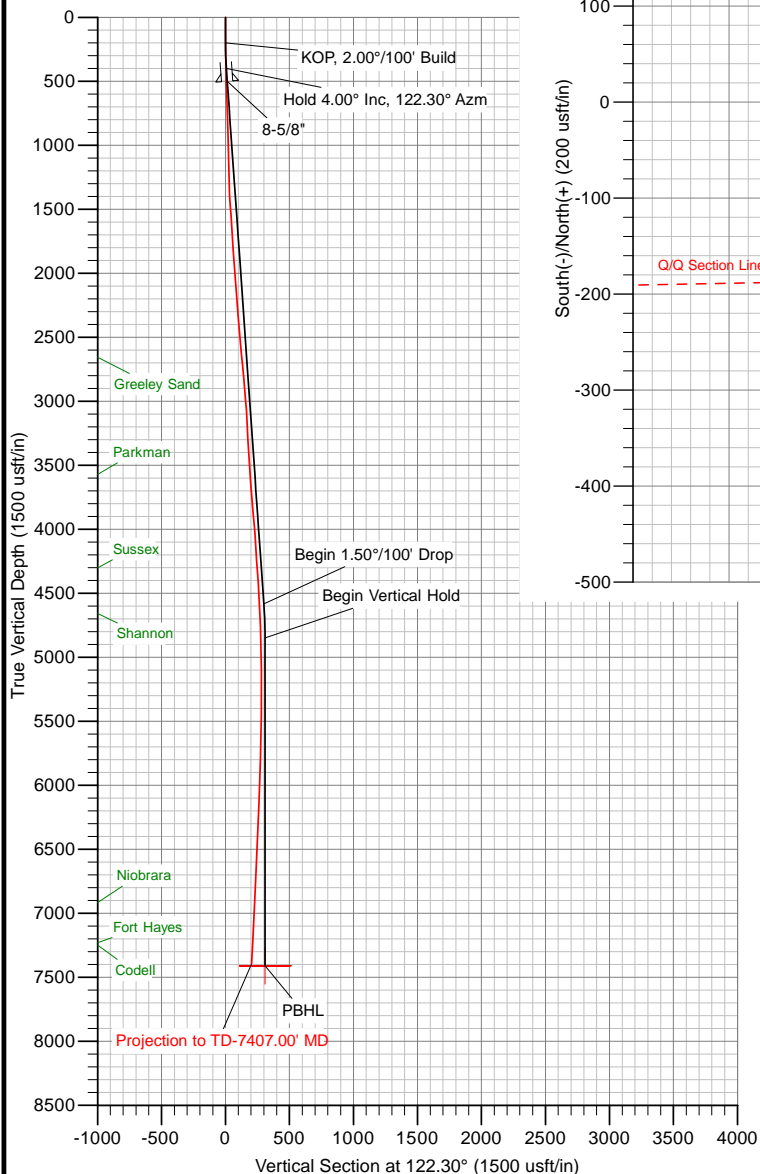
Company: Great Western
 Site: JBL
 Well: 34-54
 Project: Weld County, Colorado (NAD 83)
 Rig Name: Cade 22



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
400.19	4.00	122.30	400.03	-3.74	5.91	6.99	6.99	Hold 4.00° Inc, 122.30° Azm
4592.69	4.00	122.30	4582.30	-160.16	253.34	299.72	299.72	Begin 1.50°/100' Drop
4859.61	0.00	0.00	4849.00	-165.15	261.22	309.05	309.05	Begin Vertical Hold
7419.61	0.00	0.00	7409.00	-165.15	261.22	309.05	309.05	PBHL



US State Plane 1983
 Colorado Northern Zone

Created By: Megan Pope
 Date: 13:22, April 26 2012
 Plan: Design #1

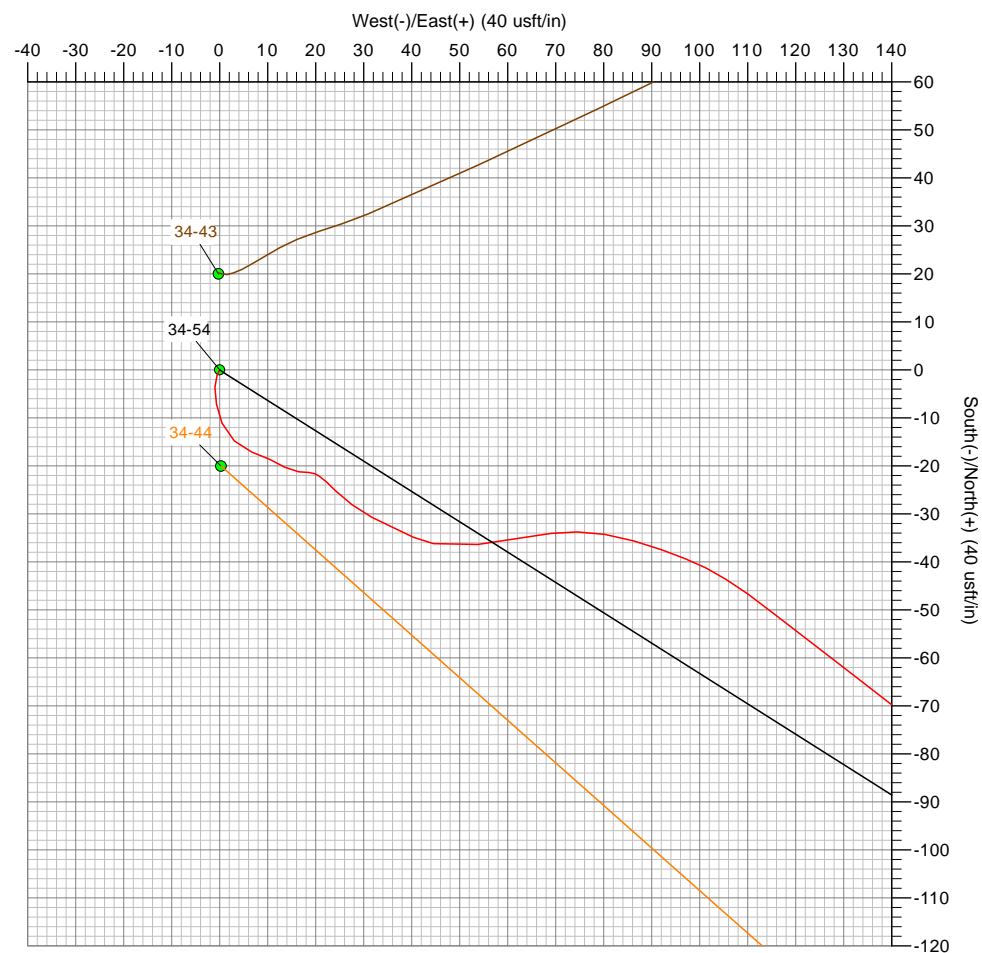
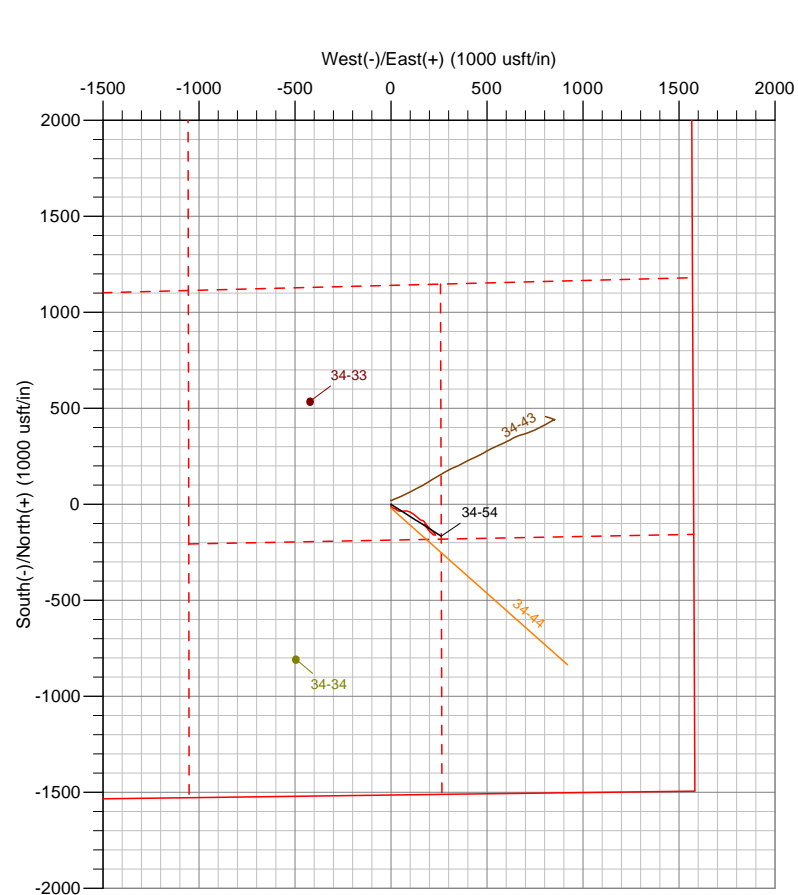
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Great Western

Weld County, Colorado (NAD 83)

JBL

34-54

Wellbore #1

Survey: MS MWD

Standard Survey Report

26 April, 2012

Company:	Great Western	Local Co-ordinate Reference:	Well 34-54
Project:	Weld County, Colorado (NAD 83)	TVD Reference:	WELL @ 4964.00usft (Cade 22)
Site:	JBL	MD Reference:	WELL @ 4964.00usft (Cade 22)
Well:	34-54	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	34-54					
Well Position	+N/-S	0.00 usft	Northing:	1,435,573.62 usft	Latitude:	40° 31' 38.5439 N
	+E/-W	0.00 usft	Easting:	3,173,534.93 usft	Longitude:	104° 52' 32.662 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	4,948.00 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	WMM_2010	04/23/12	8.82	67.10	53,103

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	122.30	

Survey Program	Date	04/26/12			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
142.00	7,407.00	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	
142.00	1.00	205.30	141.99	-1.12	-0.53	0.15	0.70	0.70	0.00	
263.00	1.50	179.80	262.96	-3.66	-0.98	1.13	0.61	0.41	-21.07	
385.00	1.80	169.90	384.91	-7.14	-0.63	3.28	0.34	0.25	-8.11	
509.00	2.00	159.00	508.85	-11.08	0.48	6.33	0.33	0.16	-8.79	
636.00	2.20	132.60	635.76	-14.80	3.07	10.50	0.77	0.16	-20.79	
763.00	1.80	109.40	762.69	-17.11	6.75	14.85	0.70	-0.31	-18.27	
891.00	1.70	115.20	890.63	-18.59	10.36	18.69	0.16	-0.08	4.53	
1,017.00	1.60	119.20	1,016.58	-20.24	13.59	22.30	0.12	-0.08	3.17	
1,144.00	1.20	94.90	1,143.54	-21.22	16.46	25.25	0.56	-0.31	-19.13	
1,237.00	1.30	93.10	1,236.52	-21.36	18.48	27.04	0.12	0.11	-1.94	
1,302.00	1.20	109.70	1,301.50	-21.63	19.86	28.35	0.58	-0.15	25.54	
1,429.00	3.90	135.20	1,428.37	-25.14	24.16	33.85	2.25	2.13	20.08	
1,556.00	4.70	118.40	1,555.01	-30.68	31.78	43.26	1.17	0.63	-13.23	
1,682.00	4.00	113.10	1,680.65	-34.86	40.36	52.74	0.64	-0.56	-4.21	

Company:	Great Western	Local Co-ordinate Reference:	Well 34-54
Project:	Weld County, Colorado (NAD 83)	TVD Reference:	WELL @ 4964.00usft (Cade 22)
Site:	JBL	MD Reference:	WELL @ 4964.00usft (Cade 22)
Well:	34-54	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)	
1,872.00	4.50	81.20	1,870.15	-36.32	53.83	64.90	1.25	0.26	-16.79	
2,062.00	4.80	82.00	2,059.53	-34.07	69.06	76.58	0.16	0.16	0.42	
2,253.00	5.80	106.10	2,249.73	-35.64	86.25	91.95	1.27	0.52	12.62	
2,444.00	3.90	116.80	2,440.04	-41.24	101.32	107.68	1.10	-0.99	5.60	
2,634.00	6.20	128.20	2,629.30	-50.50	115.16	124.32	1.31	1.21	6.00	
2,823.00	4.60	127.20	2,817.45	-61.40	129.21	142.03	0.85	-0.85	-0.53	
3,012.00	5.00	128.00	3,005.79	-71.05	141.74	157.77	0.21	0.21	0.42	
3,203.00	2.90	132.70	3,196.33	-79.45	151.85	170.81	1.11	-1.10	2.46	
3,394.00	3.20	94.00	3,387.08	-83.10	160.72	180.26	1.07	0.16	-20.26	
3,519.00	3.60	126.50	3,511.87	-85.68	167.36	187.24	1.55	0.32	26.00	
3,678.00	5.40	142.30	3,670.38	-94.57	175.95	199.25	1.36	1.13	9.94	
3,869.00	5.50	140.90	3,860.51	-108.78	187.21	216.37	0.09	0.05	-0.73	
4,059.00	3.40	138.90	4,049.93	-120.10	196.66	230.41	1.11	-1.11	-1.05	
4,250.00	4.10	133.30	4,240.52	-129.05	205.35	242.54	0.41	0.37	-2.93	
4,441.00	3.30	137.20	4,431.12	-137.77	214.06	254.55	0.44	-0.42	2.04	
4,725.00	2.90	135.90	4,714.70	-148.92	224.61	269.43	0.14	-0.14	-0.46	
5,011.00	1.50	151.40	5,000.49	-157.40	231.44	279.74	0.53	-0.49	5.42	
5,297.00	0.60	279.20	5,286.46	-160.45	231.75	281.63	0.67	-0.31	44.69	
5,583.00	1.50	274.50	5,572.41	-159.92	226.54	276.94	0.32	0.31	-1.64	
5,867.00	1.60	304.20	5,856.31	-157.40	219.56	269.69	0.28	0.04	10.46	
6,152.00	2.00	313.50	6,141.17	-151.74	212.66	260.84	0.17	0.14	3.26	
6,437.00	2.50	318.90	6,425.95	-143.63	204.97	250.00	0.19	0.18	1.89	
6,721.00	3.00	317.10	6,709.62	-133.52	195.84	236.88	0.18	0.18	-0.63	
7,008.00	3.00	325.40	6,996.23	-121.84	186.46	222.71	0.15	0.00	2.89	
7,293.00	2.90	322.20	7,280.85	-110.00	177.81	209.07	0.07	-0.04	-1.12	
7,356.00	3.00	321.30	7,343.77	-107.46	175.80	206.01	0.17	0.16	-1.43	
7,407.00	3.00	321.30	7,394.70	-105.37	174.13	203.49	0.00	0.00	0.00	
Projection to TD-7407.00' MD										

Survey Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
7,407.00	7,394.70	-105.37	174.13	Projection to TD-7407.00' MD	