

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

3N-67W-08 BERRY FARMS 8-8HZ PAD

BERRY FARMS 8-2HZ

Plan A

Plan: Permit Rev-2

Standard Planning Report

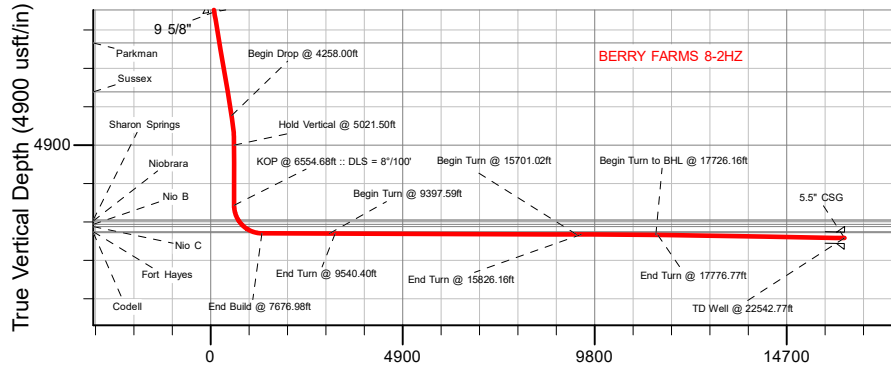
17 November, 2021

Project: WELD-NAD83-UTMFT13N
Site: 3N-67W-08 BERRY FARMS 8-8HZ PAD
Well: BERRY FARMS 8-2HZ
Wellbore: Plan A
Design: Permit Rev-2

US ROCKIES WATTENBERG PLANNING

CASING DETAILS

TVD	MD	Name	Size
1500.00	1513.98	9 5/8"	9-5/8
7271.00	22542.77	5.5" CSG	5-1/2



Vertical Section at 90.94° (4900 usft/in)

SHL
1423' FNL
969' FEL

LP
648' FNL
360' FWL

BHL
640' FNL
360' FEL

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
440.00	0.00	0.00	440.00	0.00	0.00	0.00	0.00	0.00	
1458.00	15.27	38.85	1445.99	105.02	84.59	1.50	38.85	82.86	
4258.00	15.27	38.85	4147.14	679.33	547.17	0.00	0.00	535.95	
5021.50	0.00	0.00	4901.63	758.09	610.61	2.00	180.00	598.09	
6554.68	0.00	0.00	6434.81	758.09	610.61	0.00	0.00	598.09	
7676.98	89.78	89.96	7151.00	758.65	1324.11	8.00	89.96	1311.48	
9397.59	89.78	89.96	7157.50	760.00	3044.71	0.00	0.00	3031.83	BERRY FARMS 8-2HZ_AC Target
9540.40	89.78	92.10	7158.04	757.44	3187.48	1.50	90.00	3174.62	BERRY FARMS 8-2HZ_AC Target 2
15701.02	89.78	92.10	7181.26	532.00	9343.93	0.00	0.00	9333.94	
15826.16	89.78	90.22	7181.74	529.47	9469.04	1.50	-90.13	9459.08	
17726.16	89.78	90.22	7189.03	522.17	11369.01	0.00	0.00	11358.92	
17776.77	89.02	90.22	7189.56	521.98	11419.62	1.50	-179.80	11409.52	
22542.77	89.02	90.22	7271.00	503.90	16184.89	0.00	0.00	16174.44	BERRY FARMS 8-2HZ_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	Northing	Easting	Latitude	Longitude
BERRY FARMS 8-2HZ_SHL	0.00	14615497.36	1666008.62	40.243721	-104.908290
BERRY FARMS 8-2HZ_LP	7151.00	14616257.38	1667331.94	40.245805	-104.903545
BERRY FARMS 8-2HZ_BHL	7271.00	14616018.00	1682192.98	40.245091	-104.850289

WELL DETAILS: BERRY FARMS 8-2HZ

GL = 4817'

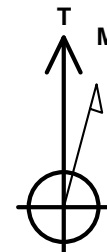
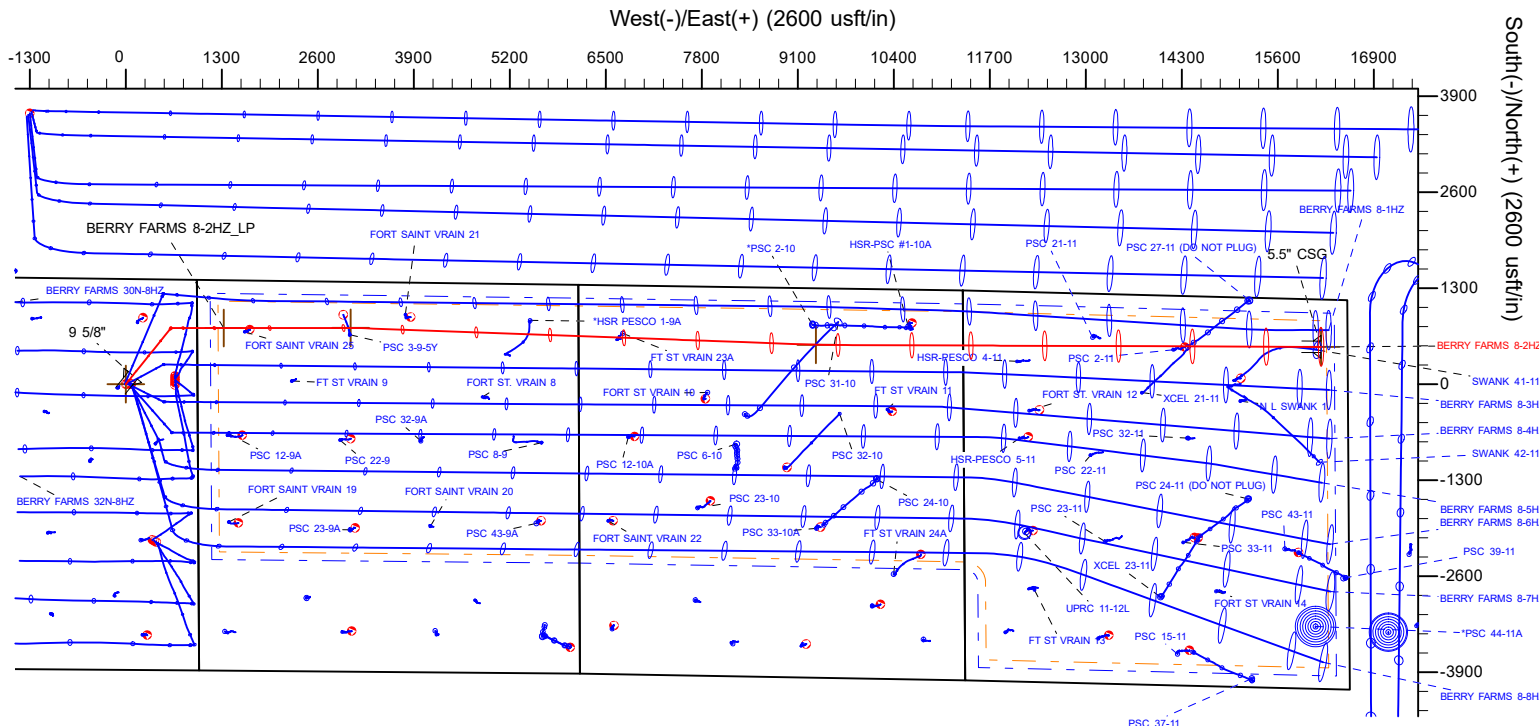
RKB = 17" @ 4834.00usft (RIG)

Plan: Permit Rev-2 (BERRY FARMS 8-2HZ/Plan A)

Date: 11/17/2021

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
694.00	694.19	Fox Hills
2292.00	2334.97	Parkman
3538.00	3626.57	Sussex
6810.00	6949.57	Sharon Springs
6837.00	6981.73	Niobrara
6922.00	7090.46	Nio B
6982.00	7177.43	Nio C
7114.00	7448.43	Fort Hayes
7136.00	7532.79	Codell



Azimuths to True North
Magnetic North: 7.87°

Magnetic Field
Strength: 51819.3nT
Dip Angle: 66.49°
Date: 10/24/2021
Model: IGRF2020

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well BERRY FARMS 8-2HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4834.00usft (RIG)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4834.00usft (RIG)
Site:	3N-67W-08 BERRY FARMS 8-8HZ PAD	North Reference:	True
Well:	BERRY FARMS 8-2HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-2		

Project	WELD-NAD83-UTMFT13N		
Map System:	Universal Transverse Mercator (US Survey Feet)	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Zone 13N (108 W to 102 W)		

Site		3N-67W-08 BERRY FARMS 8-8HZ PAD			
Site Position:		Northing:		14,615,497.59 usft	
From:		Easting:		1,665,993.52 usft	
Position Uncertainty:		Slot Radius:		13-3/16 "	
Lat/Long				Latitude: 40.243722	
				Longitude: -104.908344	

Well		BERRY FARMS 8-2HZ				
Well Position	+N/-S	0.00 usft	Northing:	14,615,497.36 usft	Latitude:	40.243721
	+E/-W	0.00 usft	Easting:	1,666,008.62 usft	Longitude:	-104.908290
Position Uncertainty		3.28 usft	Wellhead Elevation:	usft	Ground Level:	4,817.00 usft
Grid Convergence:		0.06 °				

Wellbore	Plan A				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF202013	10/24/2021	7.87	66.49	51,819.33863551

Design	Permit Rev-2				
Audit Notes:					
Version:		Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	90.94	

Plan Survey Tool Program	Date	11/16/2021			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	2,000.00	Permit Rev-2 (Plan A)	APC_ISCWSA REV 2 MWD	
				Fixed:v2:standard declination	
2	2,000.00	22,542.77	Permit Rev-2 (Plan A)	APC_ISCWSA REV 2 MWD+I	
				Fixed:v2:Rockies, crustal dec +	

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Well:	BERRY FARMS 8-2HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-2		

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
440.00	0.00	0.00	440.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,458.00	15.27	38.85	1,445.99	105.02	84.59	1.50	1.50	0.00	38.85	
4,258.00	15.27	38.85	4,147.14	679.33	547.17	0.00	0.00	0.00	0.00	
5,021.50	0.00	0.00	4,901.63	758.09	610.61	2.00	-2.00	0.00	180.00	
6,554.68	0.00	0.00	6,434.81	758.09	610.61	0.00	0.00	0.00	0.00	
7,676.98	89.78	89.96	7,151.00	758.65	1,324.11	8.00	8.00	8.02	89.96	
9,397.59	89.78	89.96	7,157.50	760.00	3,044.71	0.00	0.00	0.00	0.00	BERRY FARMS 8-2H
9,540.40	89.78	92.10	7,158.04	757.44	3,187.48	1.50	0.00	1.50	90.00	
15,701.02	89.78	92.10	7,181.26	532.00	9,343.93	0.00	0.00	0.00	0.00	BERRY FARMS 8-2H
15,826.16	89.78	90.22	7,181.74	529.47	9,469.04	1.50	0.00	-1.50	-90.13	
17,726.16	89.78	90.22	7,189.03	522.17	11,369.01	0.00	0.00	0.00	0.00	
17,776.77	89.02	90.22	7,189.56	521.98	11,419.62	1.50	-1.50	-0.01	-179.80	
22,542.77	89.02	90.22	7,271.00	503.90	16,184.89	0.00	0.00	0.00	0.00	BERRY FARMS 8-2H

Planning Report

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Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4834.00usft (RIG)
Site:	3N-67W-08 BERRY FARMS 8-8HZ PAD	North Reference:	True
Well:	BERRY FARMS 8-2HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-2		

Planned 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
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
440.00	0.00	0.00	440.00	0.00	0.00	0.00	0.00	0.00	0.00
Begin Nudge @ 440.00ft									
500.00	0.90	38.85	500.00	0.37	0.30	0.29	1.50	1.50	0.00
600.00	2.40	38.85	599.95	2.61	2.10	2.06	1.50	1.50	0.00
694.19	3.81	38.85	694.00	6.58	5.30	5.19	1.50	1.50	0.00
Fox Hills									
700.00	3.90	38.85	699.80	6.89	5.55	5.43	1.50	1.50	0.00
800.00	5.40	38.85	799.47	13.20	10.63	10.42	1.50	1.50	0.00
900.00	6.90	38.85	898.89	21.55	17.35	17.00	1.50	1.50	0.00
1,000.00	8.40	38.85	998.00	31.91	25.70	25.18	1.50	1.50	0.00
1,100.00	9.90	38.85	1,096.72	44.30	35.68	34.95	1.50	1.50	0.00
1,200.00	11.40	38.85	1,195.00	58.69	47.27	46.30	1.50	1.50	0.00
1,300.00	12.90	38.85	1,292.75	75.08	60.47	59.23	1.50	1.50	0.00
1,400.00	14.40	38.85	1,389.93	93.46	75.28	73.73	1.50	1.50	0.00
1,458.00	15.27	38.85	1,445.99	105.02	84.59	82.86	1.50	1.50	0.00
Hold Tangent @ 1458.00ft									
1,500.00	15.27	38.85	1,486.51	113.64	91.53	89.65	0.00	0.00	0.00
1,513.99	15.27	38.85	1,500.00	116.51	93.84	91.92	0.00	0.00	0.00
9 5/8"									
1,600.00	15.27	38.85	1,582.98	134.15	108.05	105.84	0.00	0.00	0.00
1,700.00	15.27	38.85	1,679.45	154.66	124.57	122.02	0.00	0.00	0.00
1,800.00	15.27	38.85	1,775.92	175.17	141.09	138.20	0.00	0.00	0.00
1,900.00	15.27	38.85	1,872.39	195.68	157.61	154.38	0.00	0.00	0.00
2,000.00	15.27	38.85	1,968.86	216.19	174.13	170.56	0.00	0.00	0.00
2,100.00	15.27	38.85	2,065.33	236.70	190.65	186.75	0.00	0.00	0.00
2,200.00	15.27	38.85	2,161.80	257.21	207.17	202.93	0.00	0.00	0.00
2,300.00	15.27	38.85	2,258.27	277.72	223.70	219.11	0.00	0.00	0.00
2,334.97	15.27	38.85	2,292.00	284.90	229.47	224.77	0.00	0.00	0.00
Parkman									
2,400.00	15.27	38.85	2,354.73	298.23	240.22	235.29	0.00	0.00	0.00
2,500.00	15.27	38.85	2,451.20	318.75	256.74	251.47	0.00	0.00	0.00
2,600.00	15.27	38.85	2,547.67	339.26	273.26	267.65	0.00	0.00	0.00
2,700.00	15.27	38.85	2,644.14	359.77	289.78	283.84	0.00	0.00	0.00
2,800.00	15.27	38.85	2,740.61	380.28	306.30	300.02	0.00	0.00	0.00
2,900.00	15.27	38.85	2,837.08	400.79	322.82	316.20	0.00	0.00	0.00
3,000.00	15.27	38.85	2,933.55	421.30	339.34	332.38	0.00	0.00	0.00
3,100.00	15.27	38.85	3,030.02	441.81	355.86	348.56	0.00	0.00	0.00
3,200.00	15.27	38.85	3,126.49	462.32	372.38	364.75	0.00	0.00	0.00
3,300.00	15.27	38.85	3,222.96	482.83	388.90	380.93	0.00	0.00	0.00
3,400.00	15.27	38.85	3,319.43	503.34	405.42	397.11	0.00	0.00	0.00
3,500.00	15.27	38.85	3,415.90	523.85	421.94	413.29	0.00	0.00	0.00
3,600.00	15.27	38.85	3,512.37	544.37	438.46	429.47	0.00	0.00	0.00
3,626.57	15.27	38.85	3,538.00	549.81	442.85	433.77	0.00	0.00	0.00
Sussex									
3,700.00	15.27	38.85	3,608.84	564.88	454.98	445.66	0.00	0.00	0.00
3,800.00	15.27	38.85	3,705.31	585.39	471.50	461.84	0.00	0.00	0.00
3,900.00	15.27	38.85	3,801.78	605.90	488.03	478.02	0.00	0.00	0.00
4,000.00	15.27	38.85	3,898.25	626.41	504.55	494.20	0.00	0.00	0.00

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well BERRY FARMS 8-2HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4834.00usft (RIG)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4834.00usft (RIG)
Site:	3N-67W-08 BERRY FARMS 8-8HZ PAD	North Reference:	True
Well:	BERRY FARMS 8-2HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-2		

Planned 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)
4,100.00	15.27	38.85	3,994.72	646.92	521.07	510.38	0.00	0.00	0.00
4,200.00	15.27	38.85	4,091.19	667.43	537.59	526.57	0.00	0.00	0.00
4,258.00	15.27	38.85	4,147.14	679.33	547.17	535.95	0.00	0.00	0.00
Begin Drop @ 4258.00ft									
4,300.00	14.43	38.85	4,187.74	687.71	553.92	542.56	2.00	-2.00	0.00
4,400.00	12.43	38.85	4,285.00	705.80	568.49	556.83	2.00	-2.00	0.00
4,500.00	10.43	38.85	4,383.01	721.23	580.92	569.01	2.00	-2.00	0.00
4,600.00	8.43	38.85	4,481.65	733.99	591.20	579.08	2.00	-2.00	0.00
4,700.00	6.43	38.85	4,580.81	744.06	599.31	587.02	2.00	-2.00	0.00
4,800.00	4.43	38.85	4,680.35	751.43	605.24	592.84	2.00	-2.00	0.00
4,900.00	2.43	38.85	4,780.17	756.09	609.00	596.51	2.00	-2.00	0.00
5,000.00	0.43	38.85	4,880.13	758.03	610.56	598.04	2.00	-2.00	0.00
5,021.50	0.00	0.00	4,901.63	758.09	610.61	598.09	2.00	-2.00	0.00
Hold Vertical @ 5021.50ft									
5,100.00	0.00	0.00	4,980.13	758.09	610.61	598.09	0.00	0.00	0.00
5,200.00	0.00	0.00	5,080.13	758.09	610.61	598.09	0.00	0.00	0.00
5,300.00	0.00	0.00	5,180.13	758.09	610.61	598.09	0.00	0.00	0.00
5,400.00	0.00	0.00	5,280.13	758.09	610.61	598.09	0.00	0.00	0.00
5,500.00	0.00	0.00	5,380.13	758.09	610.61	598.09	0.00	0.00	0.00
5,600.00	0.00	0.00	5,480.13	758.09	610.61	598.09	0.00	0.00	0.00
5,700.00	0.00	0.00	5,580.13	758.09	610.61	598.09	0.00	0.00	0.00
5,800.00	0.00	0.00	5,680.13	758.09	610.61	598.09	0.00	0.00	0.00
5,900.00	0.00	0.00	5,780.13	758.09	610.61	598.09	0.00	0.00	0.00
6,000.00	0.00	0.00	5,880.13	758.09	610.61	598.09	0.00	0.00	0.00
6,100.00	0.00	0.00	5,980.13	758.09	610.61	598.09	0.00	0.00	0.00
6,200.00	0.00	0.00	6,080.13	758.09	610.61	598.09	0.00	0.00	0.00
6,300.00	0.00	0.00	6,180.13	758.09	610.61	598.09	0.00	0.00	0.00
6,400.00	0.00	0.00	6,280.13	758.09	610.61	598.09	0.00	0.00	0.00
6,500.00	0.00	0.00	6,380.13	758.09	610.61	598.09	0.00	0.00	0.00
6,554.68	0.00	0.00	6,434.81	758.09	610.61	598.09	0.00	0.00	0.00
KOP @ 6554.68ft :: DLS = 8°/100'									
6,600.00	3.63	89.96	6,480.10	758.09	612.05	599.53	8.00	8.00	0.00
6,650.00	7.63	89.96	6,529.85	758.10	616.95	604.43	8.00	8.00	0.00
6,700.00	11.63	89.96	6,579.14	758.11	625.31	612.78	8.00	8.00	0.00
6,750.00	15.63	89.96	6,627.72	758.11	637.08	624.56	8.00	8.00	0.00
6,800.00	19.63	89.96	6,675.36	758.13	652.22	639.69	8.00	8.00	0.00
6,850.00	23.63	89.96	6,721.83	758.14	670.64	658.11	8.00	8.00	0.00
6,900.00	27.63	89.96	6,766.91	758.16	692.26	679.73	8.00	8.00	0.00
6,949.57	31.59	89.96	6,810.00	758.18	716.75	704.22	8.00	8.00	0.00
Sharon Springs									
6,950.00	31.63	89.96	6,810.36	758.18	716.97	704.44	8.00	8.00	0.00
6,981.73	34.16	89.96	6,837.00	758.19	734.20	721.67	8.00	8.00	0.00
Niobrara									
7,000.00	35.63	89.96	6,851.99	758.20	744.66	732.12	8.00	8.00	0.00
7,050.00	39.63	89.96	6,891.58	758.22	775.17	762.63	8.00	8.00	0.00
7,090.46	42.86	89.96	6,922.00	758.24	801.85	789.30	8.00	8.00	0.00
Nio B									
7,100.00	43.63	89.96	6,928.95	758.25	808.38	795.83	8.00	8.00	0.00
7,150.00	47.63	89.96	6,963.91	758.28	844.11	831.56	8.00	8.00	0.00
7,177.43	49.82	89.96	6,982.00	758.29	864.72	852.17	8.00	8.00	0.00
Nio C									
7,200.00	51.63	89.96	6,996.29	758.31	882.20	869.64	8.00	8.00	0.00
7,250.00	55.63	89.96	7,025.94	758.34	922.45	909.88	8.00	8.00	0.00

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well BERRY FARMS 8-2HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4834.00usft (RIG)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4834.00usft (RIG)
Site:	3N-67W-08 BERRY FARMS 8-8HZ PAD	North Reference:	True
Well:	BERRY FARMS 8-2HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-2		

Planned 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)
7,300.00	59.63	89.96	7,052.70	758.37	964.67	952.09	8.00	8.00	0.00
7,350.00	63.63	89.96	7,076.46	758.41	1,008.65	996.07	8.00	8.00	0.00
7,400.00	67.63	89.96	7,097.09	758.44	1,054.18	1,041.60	8.00	8.00	0.00
7,448.43	71.50	89.96	7,114.00	758.48	1,099.56	1,086.97	8.00	8.00	0.00
Fort Hayes									
7,450.00	71.63	89.96	7,114.50	758.48	1,101.05	1,088.46	8.00	8.00	0.00
7,500.00	75.63	89.96	7,128.59	758.52	1,149.01	1,136.41	8.00	8.00	0.00
7,532.79	78.25	89.96	7,136.00	758.54	1,180.95	1,168.35	8.00	8.00	0.00
Codell									
7,550.00	79.63	89.96	7,139.30	758.55	1,197.84	1,185.23	8.00	8.00	0.00
7,600.00	83.63	89.96	7,146.58	758.59	1,247.29	1,234.68	8.00	8.00	0.00
7,650.00	87.63	89.96	7,150.40	758.63	1,297.14	1,284.52	8.00	8.00	0.00
7,676.98	89.78	89.96	7,151.00	758.65	1,324.11	1,311.48	8.00	8.00	0.00
End Build @ 7676.98ft									
7,700.00	89.78	89.96	7,151.09	758.67	1,347.13	1,334.50	0.00	0.00	0.00
7,800.00	89.78	89.96	7,151.47	758.75	1,447.13	1,434.49	0.00	0.00	0.00
7,900.00	89.78	89.96	7,151.85	758.83	1,547.13	1,534.47	0.00	0.00	0.00
8,000.00	89.78	89.96	7,152.22	758.91	1,647.13	1,634.46	0.00	0.00	0.00
8,100.00	89.78	89.96	7,152.60	758.98	1,747.13	1,734.44	0.00	0.00	0.00
8,200.00	89.78	89.96	7,152.98	759.06	1,847.13	1,834.42	0.00	0.00	0.00
8,300.00	89.78	89.96	7,153.36	759.14	1,947.13	1,934.41	0.00	0.00	0.00
8,400.00	89.78	89.96	7,153.73	759.22	2,047.12	2,034.39	0.00	0.00	0.00
8,500.00	89.78	89.96	7,154.11	759.30	2,147.12	2,134.38	0.00	0.00	0.00
8,600.00	89.78	89.96	7,154.49	759.38	2,247.12	2,234.36	0.00	0.00	0.00
8,700.00	89.78	89.96	7,154.87	759.45	2,347.12	2,334.35	0.00	0.00	0.00
8,800.00	89.78	89.96	7,155.24	759.53	2,447.12	2,434.33	0.00	0.00	0.00
8,900.00	89.78	89.96	7,155.62	759.61	2,547.12	2,534.32	0.00	0.00	0.00
9,000.00	89.78	89.96	7,156.00	759.69	2,647.12	2,634.30	0.00	0.00	0.00
9,100.00	89.78	89.96	7,156.38	759.77	2,747.12	2,734.29	0.00	0.00	0.00
9,200.00	89.78	89.96	7,156.75	759.85	2,847.12	2,834.27	0.00	0.00	0.00
9,300.00	89.78	89.96	7,157.13	759.92	2,947.12	2,934.25	0.00	0.00	0.00
9,397.59	89.78	89.96	7,157.50	760.00	3,044.71	3,031.83	0.00	0.00	0.00
Begin Turn @ 9397.59ft									
9,400.00	89.78	89.99	7,157.51	760.00	3,047.12	3,034.24	1.50	0.00	1.50
9,500.00	89.78	91.49	7,157.89	758.71	3,147.11	3,134.23	1.50	0.00	1.50
9,540.40	89.78	92.10	7,158.04	757.44	3,187.48	3,174.63	1.50	0.00	1.50
End Turn @ 9540.40ft									
9,600.00	89.78	92.10	7,158.26	755.26	3,247.04	3,234.22	0.00	0.00	0.00
9,700.00	89.78	92.10	7,158.64	751.60	3,346.98	3,334.20	0.00	0.00	0.00
9,800.00	89.78	92.10	7,159.02	747.94	3,446.91	3,434.18	0.00	0.00	0.00
9,900.00	89.78	92.10	7,159.39	744.28	3,546.84	3,534.15	0.00	0.00	0.00
10,000.00	89.78	92.10	7,159.77	740.62	3,646.77	3,634.13	0.00	0.00	0.00
10,100.00	89.78	92.10	7,160.15	736.96	3,746.71	3,734.11	0.00	0.00	0.00
10,200.00	89.78	92.10	7,160.53	733.31	3,846.64	3,834.09	0.00	0.00	0.00
10,300.00	89.78	92.10	7,160.90	729.65	3,946.57	3,934.07	0.00	0.00	0.00
10,400.00	89.78	92.10	7,161.28	725.99	4,046.50	4,034.05	0.00	0.00	0.00
10,500.00	89.78	92.10	7,161.66	722.33	4,146.44	4,134.03	0.00	0.00	0.00
10,600.00	89.78	92.10	7,162.03	718.67	4,246.37	4,234.01	0.00	0.00	0.00
10,700.00	89.78	92.10	7,162.41	715.01	4,346.30	4,333.99	0.00	0.00	0.00
10,800.00	89.78	92.10	7,162.79	711.35	4,446.23	4,433.96	0.00	0.00	0.00
10,900.00	89.78	92.10	7,163.16	707.69	4,546.16	4,533.94	0.00	0.00	0.00
11,000.00	89.78	92.10	7,163.54	704.03	4,646.10	4,633.92	0.00	0.00	0.00
11,100.00	89.78	92.10	7,163.92	700.37	4,746.03	4,733.90	0.00	0.00	0.00

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well BERRY FARMS 8-2HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4834.00usft (RIG)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4834.00usft (RIG)
Site:	3N-67W-08 BERRY FARMS 8-8HZ PAD	North Reference:	True
Well:	BERRY FARMS 8-2HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-2		

Planned 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)
11,200.00	89.78	92.10	7,164.29	696.71	4,845.96	4,833.88	0.00	0.00	0.00
11,300.00	89.78	92.10	7,164.67	693.05	4,945.89	4,933.86	0.00	0.00	0.00
11,400.00	89.78	92.10	7,165.05	689.39	5,045.83	5,033.84	0.00	0.00	0.00
11,500.00	89.78	92.10	7,165.43	685.73	5,145.76	5,133.82	0.00	0.00	0.00
11,600.00	89.78	92.10	7,165.80	682.07	5,245.69	5,233.80	0.00	0.00	0.00
11,700.00	89.78	92.10	7,166.18	678.41	5,345.62	5,333.77	0.00	0.00	0.00
11,800.00	89.78	92.10	7,166.56	674.75	5,445.56	5,433.75	0.00	0.00	0.00
11,900.00	89.78	92.10	7,166.93	671.09	5,545.49	5,533.73	0.00	0.00	0.00
12,000.00	89.78	92.10	7,167.31	667.44	5,645.42	5,633.71	0.00	0.00	0.00
12,100.00	89.78	92.10	7,167.69	663.78	5,745.35	5,733.69	0.00	0.00	0.00
12,200.00	89.78	92.10	7,168.06	660.12	5,845.28	5,833.67	0.00	0.00	0.00
12,300.00	89.78	92.10	7,168.44	656.46	5,945.22	5,933.65	0.00	0.00	0.00
12,400.00	89.78	92.10	7,168.82	652.80	6,045.15	6,033.63	0.00	0.00	0.00
12,500.00	89.78	92.10	7,169.19	649.14	6,145.08	6,133.61	0.00	0.00	0.00
12,600.00	89.78	92.10	7,169.57	645.48	6,245.01	6,233.58	0.00	0.00	0.00
12,700.00	89.78	92.10	7,169.95	641.82	6,344.95	6,333.56	0.00	0.00	0.00
12,800.00	89.78	92.10	7,170.33	638.16	6,444.88	6,433.54	0.00	0.00	0.00
12,900.00	89.78	92.10	7,170.70	634.50	6,544.81	6,533.52	0.00	0.00	0.00
13,000.00	89.78	92.10	7,171.08	630.84	6,644.74	6,633.50	0.00	0.00	0.00
13,100.00	89.78	92.10	7,171.46	627.18	6,744.68	6,733.48	0.00	0.00	0.00
13,200.00	89.78	92.10	7,171.83	623.52	6,844.61	6,833.46	0.00	0.00	0.00
13,300.00	89.78	92.10	7,172.21	619.86	6,944.54	6,933.44	0.00	0.00	0.00
13,400.00	89.78	92.10	7,172.59	616.20	7,044.47	7,033.42	0.00	0.00	0.00
13,500.00	89.78	92.10	7,172.96	612.54	7,144.40	7,133.39	0.00	0.00	0.00
13,600.00	89.78	92.10	7,173.34	608.88	7,244.34	7,233.37	0.00	0.00	0.00
13,700.00	89.78	92.10	7,173.72	605.23	7,344.27	7,333.35	0.00	0.00	0.00
13,800.00	89.78	92.10	7,174.09	601.57	7,444.20	7,433.33	0.00	0.00	0.00
13,900.00	89.78	92.10	7,174.47	597.91	7,544.13	7,533.31	0.00	0.00	0.00
14,000.00	89.78	92.10	7,174.85	594.25	7,644.07	7,633.29	0.00	0.00	0.00
14,100.00	89.78	92.10	7,175.23	590.59	7,744.00	7,733.27	0.00	0.00	0.00
14,200.00	89.78	92.10	7,175.60	586.93	7,843.93	7,833.25	0.00	0.00	0.00
14,300.00	89.78	92.10	7,175.98	583.27	7,943.86	7,933.23	0.00	0.00	0.00
14,400.00	89.78	92.10	7,176.36	579.61	8,043.80	8,033.20	0.00	0.00	0.00
14,500.00	89.78	92.10	7,176.73	575.95	8,143.73	8,133.18	0.00	0.00	0.00
14,600.00	89.78	92.10	7,177.11	572.29	8,243.66	8,233.16	0.00	0.00	0.00
14,700.00	89.78	92.10	7,177.49	568.63	8,343.59	8,333.14	0.00	0.00	0.00
14,800.00	89.78	92.10	7,177.86	564.97	8,443.52	8,433.12	0.00	0.00	0.00
14,900.00	89.78	92.10	7,178.24	561.31	8,543.46	8,533.10	0.00	0.00	0.00
15,000.00	89.78	92.10	7,178.62	557.65	8,643.39	8,633.08	0.00	0.00	0.00
15,100.00	89.78	92.10	7,178.99	553.99	8,743.32	8,733.06	0.00	0.00	0.00
15,200.00	89.78	92.10	7,179.37	550.33	8,843.25	8,833.04	0.00	0.00	0.00
15,300.00	89.78	92.10	7,179.75	546.67	8,943.19	8,933.01	0.00	0.00	0.00
15,400.00	89.78	92.10	7,180.13	543.02	9,043.12	9,032.99	0.00	0.00	0.00
15,500.00	89.78	92.10	7,180.50	539.36	9,143.05	9,132.97	0.00	0.00	0.00
15,600.00	89.78	92.10	7,180.88	535.70	9,242.98	9,232.95	0.00	0.00	0.00
15,701.02	89.78	92.10	7,181.26	532.00	9,343.93	9,333.95	0.00	0.00	0.00
Begin Turn @ 15701.02ft									
15,800.00	89.78	90.61	7,181.64	529.66	9,442.88	9,432.92	1.50	0.00	-1.50
15,826.16	89.78	90.22	7,181.74	529.47	9,469.04	9,459.08	1.50	0.00	-1.50
End Turn @ 15826.16ft									
15,900.00	89.78	90.22	7,182.02	529.19	9,542.88	9,532.92	0.00	0.00	0.00
16,000.00	89.78	90.22	7,182.40	528.80	9,642.88	9,632.91	0.00	0.00	0.00
16,100.00	89.78	90.22	7,182.79	528.42	9,742.88	9,732.90	0.00	0.00	0.00
16,200.00	89.78	90.22	7,183.17	528.03	9,842.88	9,832.89	0.00	0.00	0.00

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well BERRY FARMS 8-2HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4834.00usft (RIG)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4834.00usft (RIG)
Site:	3N-67W-08 BERRY FARMS 8-8HZ PAD	North Reference:	True
Well:	BERRY FARMS 8-2HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-2		

Planned 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)
16,300.00	89.78	90.22	7,183.56	527.65	9,942.88	9,932.88	0.00	0.00	0.00
16,400.00	89.78	90.22	7,183.94	527.27	10,042.87	10,032.87	0.00	0.00	0.00
16,500.00	89.78	90.22	7,184.32	526.88	10,142.87	10,132.86	0.00	0.00	0.00
16,600.00	89.78	90.22	7,184.71	526.50	10,242.87	10,232.86	0.00	0.00	0.00
16,700.00	89.78	90.22	7,185.09	526.11	10,342.87	10,332.85	0.00	0.00	0.00
16,800.00	89.78	90.22	7,185.48	525.73	10,442.87	10,432.84	0.00	0.00	0.00
16,900.00	89.78	90.22	7,185.86	525.35	10,542.87	10,532.83	0.00	0.00	0.00
17,000.00	89.78	90.22	7,186.24	524.96	10,642.87	10,632.82	0.00	0.00	0.00
17,100.00	89.78	90.22	7,186.63	524.58	10,742.86	10,732.81	0.00	0.00	0.00
17,200.00	89.78	90.22	7,187.01	524.19	10,842.86	10,832.80	0.00	0.00	0.00
17,300.00	89.78	90.22	7,187.40	523.81	10,942.86	10,932.80	0.00	0.00	0.00
17,400.00	89.78	90.22	7,187.78	523.43	11,042.86	11,032.79	0.00	0.00	0.00
17,500.00	89.78	90.22	7,188.16	523.04	11,142.86	11,132.78	0.00	0.00	0.00
17,600.00	89.78	90.22	7,188.55	522.66	11,242.86	11,232.77	0.00	0.00	0.00
17,700.00	89.78	90.22	7,188.93	522.27	11,342.86	11,332.76	0.00	0.00	0.00
17,726.16	89.78	90.22	7,189.03	522.17	11,369.01	11,358.92	0.00	0.00	0.00
Begin Turn to BHL @ 17726.16ft									
17,776.77	89.02	90.22	7,189.56	521.98	11,419.62	11,409.52	1.50	-1.50	-0.01
End Turn @ 17776.77ft									
17,800.00	89.02	90.22	7,189.96	521.89	11,442.85	11,432.75	0.00	0.00	0.00
17,900.00	89.02	90.22	7,191.67	521.51	11,542.83	11,532.72	0.00	0.00	0.00
18,000.00	89.02	90.22	7,193.38	521.13	11,642.82	11,632.70	0.00	0.00	0.00
18,100.00	89.02	90.22	7,195.08	520.75	11,742.80	11,732.68	0.00	0.00	0.00
18,200.00	89.02	90.22	7,196.79	520.38	11,842.79	11,832.66	0.00	0.00	0.00
18,300.00	89.02	90.22	7,198.50	520.00	11,942.77	11,932.63	0.00	0.00	0.00
18,400.00	89.02	90.22	7,200.21	519.62	12,042.76	12,032.61	0.00	0.00	0.00
18,500.00	89.02	90.22	7,201.92	519.24	12,142.74	12,132.59	0.00	0.00	0.00
18,600.00	89.02	90.22	7,203.63	518.86	12,242.73	12,232.57	0.00	0.00	0.00
18,700.00	89.02	90.22	7,205.34	518.48	12,342.71	12,332.54	0.00	0.00	0.00
18,800.00	89.02	90.22	7,207.05	518.10	12,442.69	12,432.52	0.00	0.00	0.00
18,900.00	89.02	90.22	7,208.75	517.72	12,542.68	12,532.50	0.00	0.00	0.00
19,000.00	89.02	90.22	7,210.46	517.34	12,642.66	12,632.48	0.00	0.00	0.00
19,100.00	89.02	90.22	7,212.17	516.96	12,742.65	12,732.45	0.00	0.00	0.00
19,200.00	89.02	90.22	7,213.88	516.58	12,842.63	12,832.43	0.00	0.00	0.00
19,300.00	89.02	90.22	7,215.59	516.20	12,942.62	12,932.41	0.00	0.00	0.00
19,400.00	89.02	90.22	7,217.30	515.82	13,042.60	13,032.39	0.00	0.00	0.00
19,500.00	89.02	90.22	7,219.01	515.44	13,142.59	13,132.36	0.00	0.00	0.00
19,600.00	89.02	90.22	7,220.72	515.06	13,242.57	13,232.34	0.00	0.00	0.00
19,700.00	89.02	90.22	7,222.42	514.68	13,342.56	13,332.32	0.00	0.00	0.00
19,800.00	89.02	90.22	7,224.13	514.31	13,442.54	13,432.30	0.00	0.00	0.00
19,900.00	89.02	90.22	7,225.84	513.93	13,542.53	13,532.27	0.00	0.00	0.00
20,000.00	89.02	90.22	7,227.55	513.55	13,642.51	13,632.25	0.00	0.00	0.00
20,100.00	89.02	90.22	7,229.26	513.17	13,742.50	13,732.23	0.00	0.00	0.00
20,200.00	89.02	90.22	7,230.97	512.79	13,842.48	13,832.20	0.00	0.00	0.00
20,300.00	89.02	90.22	7,232.68	512.41	13,942.46	13,932.18	0.00	0.00	0.00
20,400.00	89.02	90.22	7,234.39	512.03	14,042.45	14,032.16	0.00	0.00	0.00
20,500.00	89.02	90.22	7,236.09	511.65	14,142.43	14,132.14	0.00	0.00	0.00
20,600.00	89.02	90.22	7,237.80	511.27	14,242.42	14,232.11	0.00	0.00	0.00
20,700.00	89.02	90.22	7,239.51	510.89	14,342.40	14,332.09	0.00	0.00	0.00
20,800.00	89.02	90.22	7,241.22	510.51	14,442.39	14,432.07	0.00	0.00	0.00
20,900.00	89.02	90.22	7,242.93	510.13	14,542.37	14,532.05	0.00	0.00	0.00
21,000.00	89.02	90.22	7,244.64	509.75	14,642.36	14,632.02	0.00	0.00	0.00
21,100.00	89.02	90.22	7,246.35	509.37	14,742.34	14,732.00	0.00	0.00	0.00
21,200.00	89.02	90.22	7,248.06	508.99	14,842.33	14,831.98	0.00	0.00	0.00

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well BERRY FARMS 8-2HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4834.00usft (RIG)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4834.00usft (RIG)
Site:	3N-67W-08 BERRY FARMS 8-8HZ PAD	North Reference:	True
Well:	BERRY FARMS 8-2HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-2		

Planned 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)
21,300.00	89.02	90.22	7,249.76	508.61	14,942.31	14,931.96	0.00	0.00	0.00
21,400.00	89.02	90.22	7,251.47	508.24	15,042.30	15,031.93	0.00	0.00	0.00
21,500.00	89.02	90.22	7,253.18	507.86	15,142.28	15,131.91	0.00	0.00	0.00
21,600.00	89.02	90.22	7,254.89	507.48	15,242.27	15,231.89	0.00	0.00	0.00
21,700.00	89.02	90.22	7,256.60	507.10	15,342.25	15,331.87	0.00	0.00	0.00
21,800.00	89.02	90.22	7,258.31	506.72	15,442.24	15,431.84	0.00	0.00	0.00
21,900.00	89.02	90.22	7,260.02	506.34	15,542.22	15,531.82	0.00	0.00	0.00
22,000.00	89.02	90.22	7,261.73	505.96	15,642.20	15,631.80	0.00	0.00	0.00
22,100.00	89.02	90.22	7,263.43	505.58	15,742.19	15,731.78	0.00	0.00	0.00
22,200.00	89.02	90.22	7,265.14	505.20	15,842.17	15,831.75	0.00	0.00	0.00
22,300.00	89.02	90.22	7,266.85	504.82	15,942.16	15,931.73	0.00	0.00	0.00
22,400.00	89.02	90.22	7,268.56	504.44	16,042.14	16,031.71	0.00	0.00	0.00
22,500.00	89.02	90.22	7,270.27	504.06	16,142.13	16,131.69	0.00	0.00	0.00
22,542.77	89.02	90.22	7,271.00	503.90	16,184.89	16,174.44	0.00	0.00	0.00
TD Well @ 22542.77ft									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,513.99	1,500.00	9 5/8"	9-5/8	13-1/2	
22,542.77	7,271.00	5.5" CSG	5-1/2	7-7/8	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
694.19	694.00	Fox Hills				
2,334.97	2,292.00	Parkman				
3,626.57	3,538.00	Sussex				
6,949.57	6,810.00	Sharon Springs				
6,981.73	6,837.00	Niobrara				
7,090.46	6,922.00	Nio B				
7,177.43	6,982.00	Nio C				
7,448.43	7,114.00	Fort Hayes				
7,532.79	7,136.00	Codell				

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well BERRY FARMS 8-2HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4834.00usft (RIG)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4834.00usft (RIG)
Site:	3N-67W-08 BERRY FARMS 8-8HZ PAD	North Reference:	True
Well:	BERRY FARMS 8-2HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-2		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
440.00	440.00	0.00	0.00	Begin Nudge @ 440.00ft
1,458.00	1,445.99	105.02	84.59	Hold Tangent @ 1458.00ft
4,258.00	4,147.14	679.33	547.17	Begin Drop @ 4258.00ft
5,021.50	4,901.63	758.09	610.61	Hold Vertical @ 5021.50ft
6,554.68	6,434.81	758.09	610.61	KOP @ 6554.68ft :: DLS = 8"/100'
7,676.98	7,151.00	758.65	1,324.11	End Build @ 7676.98ft
9,397.59	7,157.50	760.00	3,044.71	Begin Turn @ 9397.59ft
9,540.40	7,158.04	757.44	3,187.48	End Turn @ 9540.40ft
15,701.02	7,181.26	532.00	9,343.93	Begin Turn @ 15701.02ft
15,826.16	7,181.74	529.47	9,469.04	End Turn @ 15826.16ft
17,726.16	7,189.03	522.17	11,369.01	Begin Turn to BHL @ 17726.16ft
17,776.77	7,189.56	521.98	11,419.62	End Turn @ 17776.77ft
22,542.77	7,271.00	503.90	16,184.89	TD Well @ 22542.77ft