

US ROCKIES WATTENBERG PLANNING

**WELD-NAD83-UTMFT13N
3N-66W-02 GLADE Geothermal Pad
GLADE EAST**

Plan A

Plan: Permit Rev-2

Standard Planning Report

17 December, 2024

Project: WELD-NAD83-UTMFT13N
 Site: 3N-66W-02 GLADE Geothermal Pad
 Well: GLADE EAST
 Wellbore: Plan A
 Design: Permit Rev-2

US ROCKIES WATTENBERG PLANNING

CASING DETAILS

TVD	MD	Name	Size
1637.00	1637.00	13-3/8"	13-3/8
10606.00	10608.21	9 5/8"	9-5/8
20000.00	20162.38	5-1/2"	5-1/2

SHL
2134' FSL
1146' FEL

TPZ
2137' FSL
1188' FEL

BHL
2287' FSL
2376' FEL



Azimuths to True North
 Magnetic North: 7.46°

Magnetic Field
 Strength: 51510.2nT
 Dip Angle: 66.39°
 Date: 12/13/2024
 Model: IGRF2020

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	9850.00	0.00	0.00	9850.00	0.00	0.00	0.00	0.00	0.00
3	10800.00	9.50	275.00	10795.65	6.85	-78.28	1.00	275.00	78.58
4	15400.00	9.50	275.00	15332.57	73.02	-834.61	0.00	0.00	837.80
5	15600.00	11.50	275.00	15529.21	76.20	-870.92	1.00	0.00	874.24
6	20162.38	11.50	275.00	20000.00	155.47	-1777.05	0.00	0.00	1783.83

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	Northing	Easting	Latitude	Longitude
GLADE EAST_SHL	0.00	14618806.85	1713249.34	40.252551	-104.738967
GLADE EAST_TPZ	10556.00	14618810.53	1713205.83	40.252562	-104.739122
GLADE EAST_BHL	20000.00	14618957.09	1711471.84	40.252978	-104.745336

WELL DETAILS: GLADE EAST

GL = 4900'

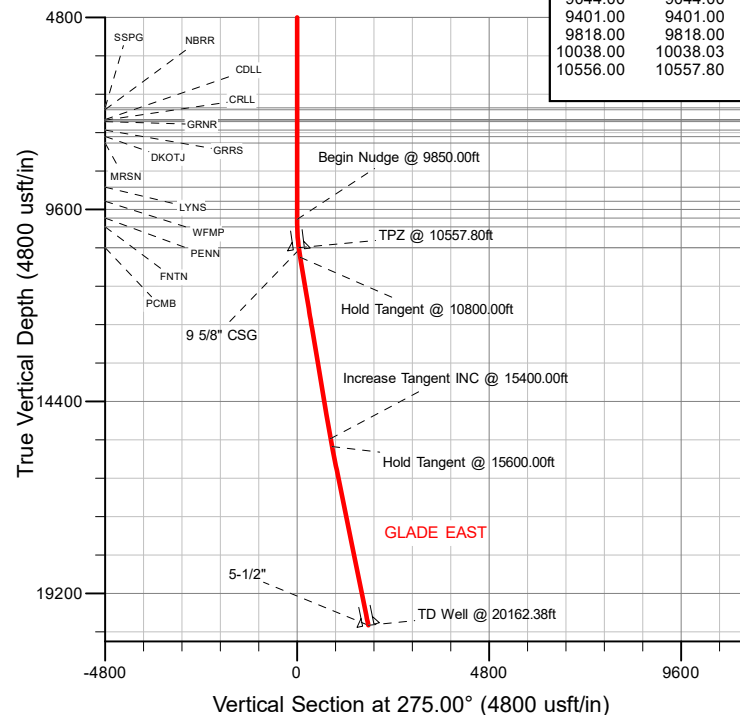
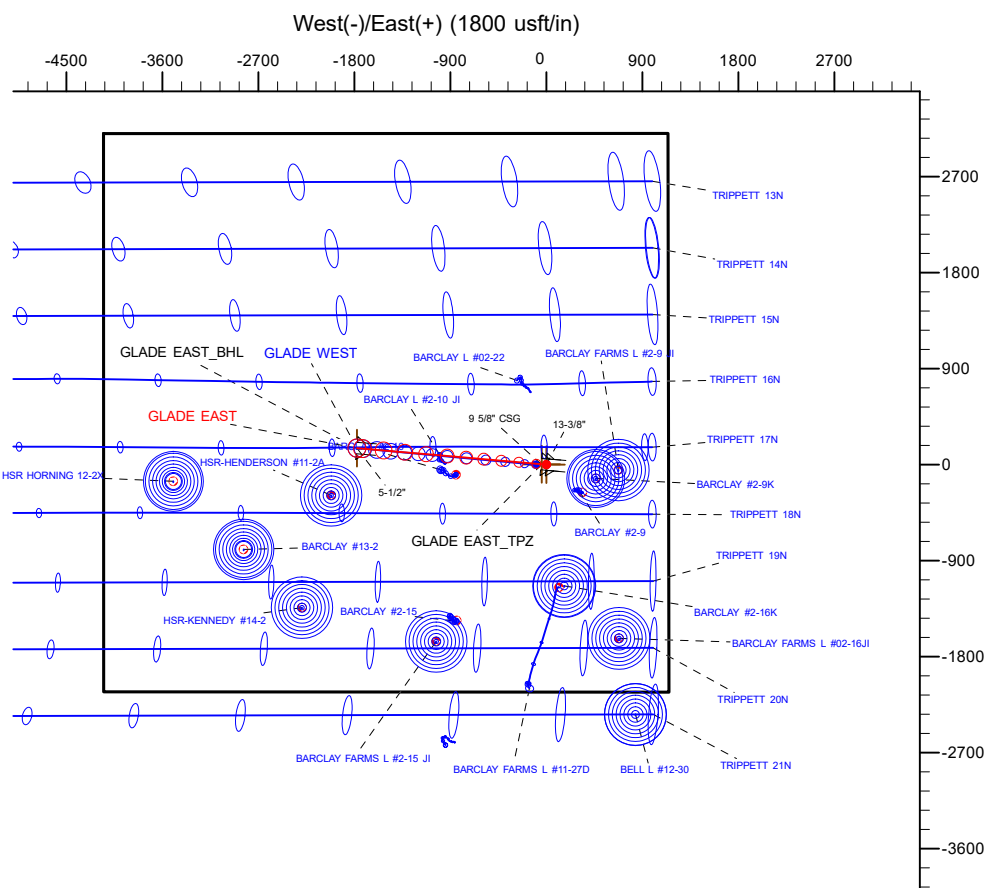
RKB = 17' @ 4917.00usft (RIG)

Plan: Permit Rev-2 (GLADE EAST/Plan A)

Date: 12/17/2024

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1091.00	1091.00	FXHL_MKR
1637.00	1637.00	Surface Casing Depth
4311.00	4311.00	SSSX
7065.00	7065.00	SSPG
7113.00	7113.00	NBRR
7356.00	7356.00	CDLL
7372.00	7372.00	CRLL
7410.00	7410.00	GRNR
7622.00	7622.00	GRRS
7784.00	7784.00	DKOTJ
7942.00	7942.00	MRSN
9044.00	9044.00	LYNS
9401.00	9401.00	WFMP
9818.00	9818.00	PENN
10038.00	10038.00	FNTN
10556.00	10557.80	PCMB



Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well GLADE EAST
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4917.00usft (RIG)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4917.00usft (RIG)
Site:	3N-66W-02 GLADE Geothermal Pad	North Reference:	True
Well:	GLADE EAST	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-66W-02 GLADE Geothermal Pad			
Site Position:		Northing:	14,618,996.66 usft
From:	Lat/Long	Easting:	1,713,200.11 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	40.253073
		Longitude:	-104.739141

Well GLADE EAST			
Well Position	+N/-S	0.00 usft	Northing: 14,618,806.85 usft
	+E/-W	0.00 usft	Easting: 1,713,249.34 usft
Position Uncertainty		3.28 usft	Wellhead Elevation: usft
Grid Convergence:		0.17 °	Ground Level: 4,900.00 usft

Wellbore Plan A					
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF202013	12/13/2024	7.46	66.39	51,510.17462424

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	275.00

Plan Survey Tool Program		Date 12/17/2024		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	1,637.00 Permit Rev-2 (Plan A)	A005Mb_MWD+IFR1 OWSG MWD + IFR1	
2	1,637.00	20,162.38 Permit Rev-2 (Plan A)	A005Mb_MWD+IFR1 OWSG MWD + IFR1	

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Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4917.00usft (RIG)
Site:	3N-66W-02 GLADE Geothermal Pad	North Reference:	True
Well:	GLADE EAST	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	
9,850.00	0.00	0.00	9,850.00	0.00	0.00	0.00	0.00	0.00	0.00	
10,800.00	9.50	275.00	10,795.65	6.85	-78.28	1.00	1.00	0.00	275.00	
15,400.00	9.50	275.00	15,332.57	73.02	-834.61	0.00	0.00	0.00	0.00	
15,600.00	11.50	275.00	15,529.21	76.20	-870.92	1.00	1.00	0.00	0.00	
20,162.38	11.50	275.00	20,000.00	155.47	-1,777.05	0.00	0.00	0.00	0.00	

Planning Report

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Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4917.00usft (RIG)
Site:	3N-66W-02 GLADE Geothermal Pad	North Reference:	True
Well:	GLADE EAST	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)	
8,400.00	0.00	0.00	8,400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8,500.00	0.00	0.00	8,500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8,600.00	0.00	0.00	8,600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8,700.00	0.00	0.00	8,700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8,800.00	0.00	0.00	8,800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8,900.00	0.00	0.00	8,900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9,000.00	0.00	0.00	9,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9,044.00	0.00	0.00	9,044.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
LYNS										
9,100.00	0.00	0.00	9,100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9,200.00	0.00	0.00	9,200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9,300.00	0.00	0.00	9,300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9,400.00	0.00	0.00	9,400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9,401.00	0.00	0.00	9,401.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WFMP										
9,500.00	0.00	0.00	9,500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9,600.00	0.00	0.00	9,600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9,700.00	0.00	0.00	9,700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9,800.00	0.00	0.00	9,800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9,818.00	0.00	0.00	9,818.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PENN										
9,850.00	0.00	0.00	9,850.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Begin Nudge @ 9850.00ft										
9,900.00	0.50	275.00	9,900.00	0.02	-0.22	0.22	1.00	1.00	0.00	0.00
10,000.00	1.50	275.00	9,999.98	0.17	-1.96	1.96	1.00	1.00	0.00	0.00
10,038.03	1.88	275.00	10,038.00	0.27	-3.07	3.09	1.00	1.00	0.00	0.00
FNTN										
10,100.00	2.50	275.00	10,099.92	0.48	-5.43	5.45	1.00	1.00	0.00	0.00
10,200.00	3.50	275.00	10,199.78	0.93	-10.65	10.69	1.00	1.00	0.00	0.00
10,300.00	4.50	275.00	10,299.54	1.54	-17.60	17.66	1.00	1.00	0.00	0.00
10,400.00	5.50	275.00	10,399.16	2.30	-26.28	26.38	1.00	1.00	0.00	0.00
10,500.00	6.50	275.00	10,498.61	3.21	-36.69	36.83	1.00	1.00	0.00	0.00
10,557.80	7.08	275.00	10,556.00	3.81	-43.50	43.66	1.00	1.00	0.00	0.00
TPZ @ 10557.80ft - PCMB										
10,600.00	7.50	275.00	10,597.86	4.27	-48.83	49.02	1.00	1.00	0.00	0.00
10,608.21	7.58	275.00	10,606.00	4.37	-49.90	50.09	1.00	1.00	0.00	0.00
9 5/8" CSG										
10,700.00	8.50	275.00	10,696.89	5.49	-62.69	62.93	1.00	1.00	0.00	0.00
10,800.00	9.50	275.00	10,795.65	6.85	-78.28	78.58	1.00	1.00	0.00	0.00
Hold Tangent @ 10800.00ft										
10,900.00	9.50	275.00	10,894.28	8.29	-94.72	95.08	0.00	0.00	0.00	0.00
11,000.00	9.50	275.00	10,992.91	9.73	-111.16	111.59	0.00	0.00	0.00	0.00
11,100.00	9.50	275.00	11,091.54	11.16	-127.60	128.09	0.00	0.00	0.00	0.00
11,200.00	9.50	275.00	11,190.17	12.60	-144.05	144.60	0.00	0.00	0.00	0.00
11,300.00	9.50	275.00	11,288.80	14.04	-160.49	161.10	0.00	0.00	0.00	0.00
11,400.00	9.50	275.00	11,387.42	15.48	-176.93	177.61	0.00	0.00	0.00	0.00
11,500.00	9.50	275.00	11,486.05	16.92	-193.37	194.11	0.00	0.00	0.00	0.00
11,600.00	9.50	275.00	11,584.68	18.36	-209.81	210.62	0.00	0.00	0.00	0.00
11,700.00	9.50	275.00	11,683.31	19.79	-226.26	227.12	0.00	0.00	0.00	0.00
11,800.00	9.50	275.00	11,781.94	21.23	-242.70	243.63	0.00	0.00	0.00	0.00
11,900.00	9.50	275.00	11,880.57	22.67	-259.14	260.13	0.00	0.00	0.00	0.00
12,000.00	9.50	275.00	11,979.20	24.11	-275.58	276.63	0.00	0.00	0.00	0.00
12,100.00	9.50	275.00	12,077.82	25.55	-292.02	293.14	0.00	0.00	0.00	0.00

Planning Report

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Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4917.00usft (RIG)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4917.00usft (RIG)
Site:	3N-66W-02 GLADE Geothermal Pad	North Reference:	True
Well:	GLADE EAST	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)
12,200.00	9.50	275.00	12,176.45	26.99	-308.47	309.64	0.00	0.00	0.00
12,300.00	9.50	275.00	12,275.08	28.43	-324.91	326.15	0.00	0.00	0.00
12,400.00	9.50	275.00	12,373.71	29.86	-341.35	342.65	0.00	0.00	0.00
12,500.00	9.50	275.00	12,472.34	31.30	-357.79	359.16	0.00	0.00	0.00
12,600.00	9.50	275.00	12,570.97	32.74	-374.23	375.66	0.00	0.00	0.00
12,700.00	9.50	275.00	12,669.60	34.18	-390.68	392.17	0.00	0.00	0.00
12,800.00	9.50	275.00	12,768.22	35.62	-407.12	408.67	0.00	0.00	0.00
12,900.00	9.50	275.00	12,866.85	37.06	-423.56	425.18	0.00	0.00	0.00
13,000.00	9.50	275.00	12,965.48	38.50	-440.00	441.68	0.00	0.00	0.00
13,100.00	9.50	275.00	13,064.11	39.93	-456.44	458.19	0.00	0.00	0.00
13,200.00	9.50	275.00	13,162.74	41.37	-472.89	474.69	0.00	0.00	0.00
13,300.00	9.50	275.00	13,261.37	42.81	-489.33	491.20	0.00	0.00	0.00
13,400.00	9.50	275.00	13,360.00	44.25	-505.77	507.70	0.00	0.00	0.00
13,500.00	9.50	275.00	13,458.62	45.69	-522.21	524.21	0.00	0.00	0.00
13,600.00	9.50	275.00	13,557.25	47.13	-538.65	540.71	0.00	0.00	0.00
13,700.00	9.50	275.00	13,655.88	48.56	-555.10	557.22	0.00	0.00	0.00
13,800.00	9.50	275.00	13,754.51	50.00	-571.54	573.72	0.00	0.00	0.00
13,900.00	9.50	275.00	13,853.14	51.44	-587.98	590.23	0.00	0.00	0.00
14,000.00	9.50	275.00	13,951.77	52.88	-604.42	606.73	0.00	0.00	0.00
14,100.00	9.50	275.00	14,050.40	54.32	-620.86	623.23	0.00	0.00	0.00
14,200.00	9.50	275.00	14,149.02	55.76	-637.31	639.74	0.00	0.00	0.00
14,300.00	9.50	275.00	14,247.65	57.20	-653.75	656.24	0.00	0.00	0.00
14,400.00	9.50	275.00	14,346.28	58.63	-670.19	672.75	0.00	0.00	0.00
14,500.00	9.50	275.00	14,444.91	60.07	-686.63	689.25	0.00	0.00	0.00
14,600.00	9.50	275.00	14,543.54	61.51	-703.07	705.76	0.00	0.00	0.00
14,700.00	9.50	275.00	14,642.17	62.95	-719.51	722.26	0.00	0.00	0.00
14,800.00	9.50	275.00	14,740.80	64.39	-735.96	738.77	0.00	0.00	0.00
14,900.00	9.50	275.00	14,839.42	65.83	-752.40	755.27	0.00	0.00	0.00
15,000.00	9.50	275.00	14,938.05	67.26	-768.84	771.78	0.00	0.00	0.00
15,100.00	9.50	275.00	15,036.68	68.70	-785.28	788.28	0.00	0.00	0.00
15,200.00	9.50	275.00	15,135.31	70.14	-801.72	804.79	0.00	0.00	0.00
15,300.00	9.50	275.00	15,233.94	71.58	-818.17	821.29	0.00	0.00	0.00
15,400.00	9.50	275.00	15,332.57	73.02	-834.61	837.80	0.00	0.00	0.00
Increase Tangent INC @ 15400.00ft									
15,500.00	10.50	275.00	15,431.05	74.53	-851.91	855.16	1.00	1.00	0.00
15,600.00	11.50	275.00	15,529.21	76.20	-870.92	874.24	1.00	1.00	0.00
Hold Tangent @ 15600.00ft									
15,700.00	11.50	275.00	15,627.20	77.93	-890.78	894.18	0.00	0.00	0.00
15,800.00	11.50	275.00	15,725.19	79.67	-910.64	914.12	0.00	0.00	0.00
15,900.00	11.50	275.00	15,823.19	81.41	-930.50	934.05	0.00	0.00	0.00
16,000.00	11.50	275.00	15,921.18	83.15	-950.36	953.99	0.00	0.00	0.00
16,100.00	11.50	275.00	16,019.17	84.88	-970.22	973.93	0.00	0.00	0.00
16,200.00	11.50	275.00	16,117.16	86.62	-990.08	993.86	0.00	0.00	0.00
16,300.00	11.50	275.00	16,215.16	88.36	-1,009.94	1,013.80	0.00	0.00	0.00
16,400.00	11.50	275.00	16,313.15	90.10	-1,029.80	1,033.74	0.00	0.00	0.00
16,500.00	11.50	275.00	16,411.14	91.83	-1,049.66	1,053.67	0.00	0.00	0.00
16,600.00	11.50	275.00	16,509.13	93.57	-1,069.52	1,073.61	0.00	0.00	0.00
16,700.00	11.50	275.00	16,607.13	95.31	-1,089.39	1,093.55	0.00	0.00	0.00
16,800.00	11.50	275.00	16,705.12	97.05	-1,109.25	1,113.48	0.00	0.00	0.00
16,900.00	11.50	275.00	16,803.11	98.78	-1,129.11	1,133.42	0.00	0.00	0.00
17,000.00	11.50	275.00	16,901.10	100.52	-1,148.97	1,153.36	0.00	0.00	0.00
17,100.00	11.50	275.00	16,999.10	102.26	-1,168.83	1,173.29	0.00	0.00	0.00
17,200.00	11.50	275.00	17,097.09	104.00	-1,188.69	1,193.23	0.00	0.00	0.00
17,300.00	11.50	275.00	17,195.08	105.73	-1,208.55	1,213.17	0.00	0.00	0.00

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well GLADE EAST
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4917.00usft (RIG)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4917.00usft (RIG)
Site:	3N-66W-02 GLADE Geothermal Pad	North Reference:	True
Well:	GLADE EAST	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)	
17,400.00	11.50	275.00	17,293.07	107.47	-1,228.41	1,233.10	0.00	0.00	0.00	
17,500.00	11.50	275.00	17,391.07	109.21	-1,248.27	1,253.04	0.00	0.00	0.00	
17,600.00	11.50	275.00	17,489.06	110.95	-1,268.13	1,272.98	0.00	0.00	0.00	
17,700.00	11.50	275.00	17,587.05	112.68	-1,287.99	1,292.91	0.00	0.00	0.00	
17,800.00	11.50	275.00	17,685.04	114.42	-1,307.86	1,312.85	0.00	0.00	0.00	
17,900.00	11.50	275.00	17,783.04	116.16	-1,327.72	1,332.79	0.00	0.00	0.00	
18,000.00	11.50	275.00	17,881.03	117.90	-1,347.58	1,352.73	0.00	0.00	0.00	
18,100.00	11.50	275.00	17,979.02	119.64	-1,367.44	1,372.66	0.00	0.00	0.00	
18,200.00	11.50	275.00	18,077.01	121.37	-1,387.30	1,392.60	0.00	0.00	0.00	
18,300.00	11.50	275.00	18,175.00	123.11	-1,407.16	1,412.54	0.00	0.00	0.00	
18,400.00	11.50	275.00	18,273.00	124.85	-1,427.02	1,432.47	0.00	0.00	0.00	
18,500.00	11.50	275.00	18,370.99	126.59	-1,446.88	1,452.41	0.00	0.00	0.00	
18,600.00	11.50	275.00	18,468.98	128.32	-1,466.74	1,472.35	0.00	0.00	0.00	
18,700.00	11.50	275.00	18,566.97	130.06	-1,486.60	1,492.28	0.00	0.00	0.00	
18,800.00	11.50	275.00	18,664.97	131.80	-1,506.46	1,512.22	0.00	0.00	0.00	
18,900.00	11.50	275.00	18,762.96	133.54	-1,526.33	1,532.16	0.00	0.00	0.00	
19,000.00	11.50	275.00	18,860.95	135.27	-1,546.19	1,552.09	0.00	0.00	0.00	
19,100.00	11.50	275.00	18,958.94	137.01	-1,566.05	1,572.03	0.00	0.00	0.00	
19,200.00	11.50	275.00	19,056.94	138.75	-1,585.91	1,591.97	0.00	0.00	0.00	
19,300.00	11.50	275.00	19,154.93	140.49	-1,605.77	1,611.90	0.00	0.00	0.00	
19,400.00	11.50	275.00	19,252.92	142.22	-1,625.63	1,631.84	0.00	0.00	0.00	
19,500.00	11.50	275.00	19,350.91	143.96	-1,645.49	1,651.78	0.00	0.00	0.00	
19,600.00	11.50	275.00	19,448.91	145.70	-1,665.35	1,671.71	0.00	0.00	0.00	
19,700.00	11.50	275.00	19,546.90	147.44	-1,685.21	1,691.65	0.00	0.00	0.00	
19,800.00	11.50	275.00	19,644.89	149.17	-1,705.07	1,711.59	0.00	0.00	0.00	
19,900.00	11.50	275.00	19,742.88	150.91	-1,724.94	1,731.52	0.00	0.00	0.00	
20,000.00	11.50	275.00	19,840.88	152.65	-1,744.80	1,751.46	0.00	0.00	0.00	
20,100.00	11.50	275.00	19,938.87	154.39	-1,764.66	1,771.40	0.00	0.00	0.00	
20,162.38	11.50	275.00	20,000.00	155.47	-1,777.05	1,783.83	0.00	0.00	0.00	
TD Well @ 20162.38ft - 5-1/2"										

Casing Points						
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")		
1,637.00	1,637.00	13-3/8"	13-3/8	17-1/2		
10,608.21	10,606.00	9 5/8" CSG	9-5/8	12-1/4		
20,162.38	20,000.00	5-1/2"	5-1/2	8-3/4		

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well GLADE EAST
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	RKB = 17' @ 4917.00usft (RIG)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	RKB = 17' @ 4917.00usft (RIG)
Site:	3N-66W-02 GLADE Geothermal Pad	North Reference:	True
Well:	GLADE EAST	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Rev-2		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,091.00	1,091.00	FXHL_MKR				
1,637.00	1,637.00	Surface Casing Depth				
4,311.00	4,311.00	SSSX				
7,065.00	7,065.00	SSPG				
7,113.00	7,113.00	NBRR				
7,356.00	7,356.00	CDLL				
7,372.00	7,372.00	CRLL				
7,410.00	7,410.00	GRNR				
7,622.00	7,622.00	GRRS				
7,784.00	7,784.00	DKOTJ				
7,942.00	7,942.00	MRSN				
9,044.00	9,044.00	LYNS				
9,401.00	9,401.00	WFMP				
9,818.00	9,818.00	PENN				
10,038.03	10,038.00	FNTN				
10,557.80	10,556.00	PCMB				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
9,850.00	9,850.00	0.00	0.00	Begin Nudge @ 9850.00ft	
10,557.80	10,556.00	3.81	-43.50	TPZ @ 10557.80ft	
10,800.00	10,795.65	6.85	-78.28	Hold Tangent @ 10800.00ft	
15,400.00	15,332.57	73.02	-834.61	Increase Tangent INC @ 15400.00ft	
15,600.00	15,529.21	76.20	-870.92	Hold Tangent @ 15600.00ft	
20,162.38	20,000.00	155.47	-1,777.05	TD Well @ 20162.38ft	