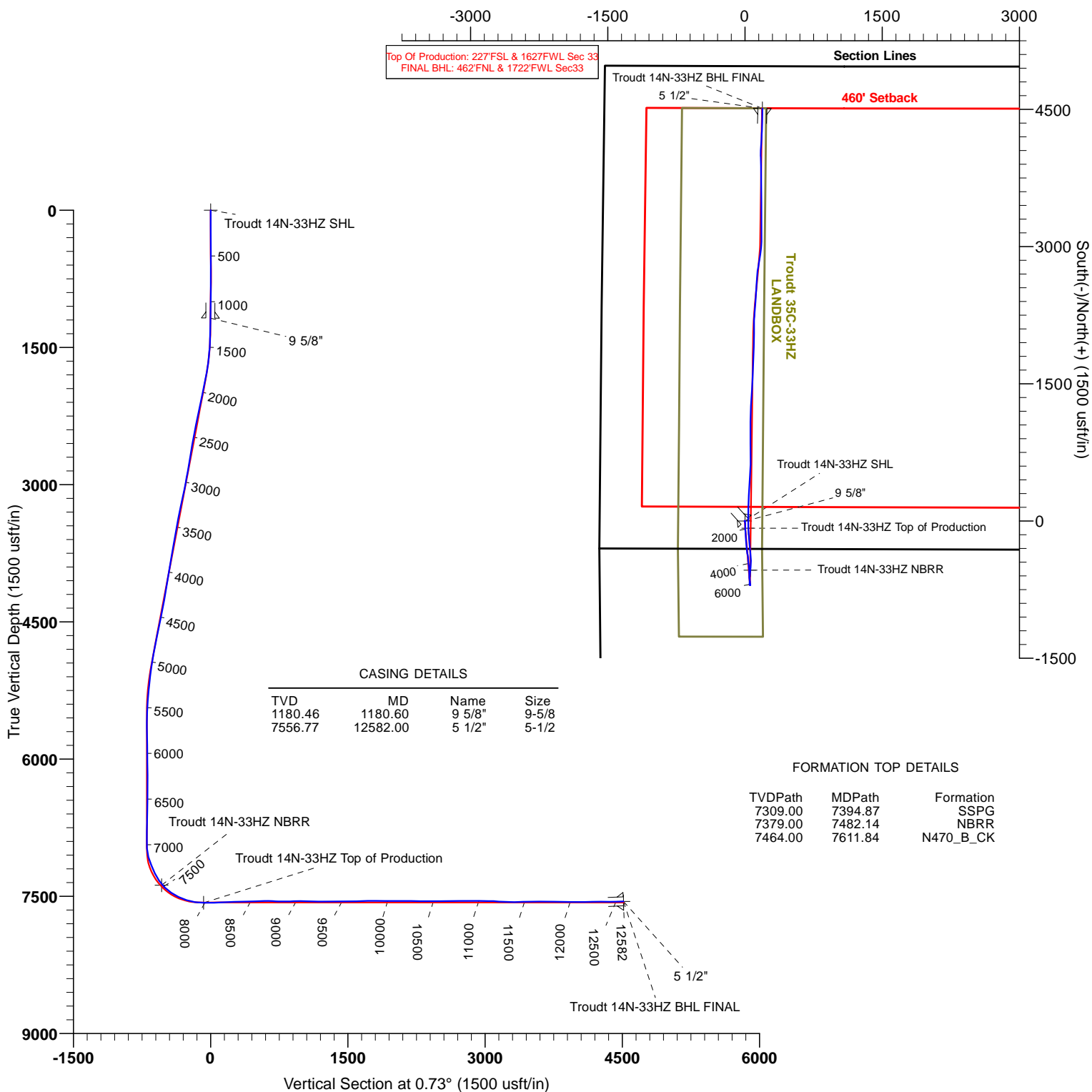


US ROCKIES WATTENBERG PLANNING



Project: WELD-NAD83-UTMFT13N
 Site: 2N-67W-33 Troudt 14N-33HZ Pad
 Well: Troudt 14N-33HZ
 Wellbore: Plan A
 Design: PDD Actual Surveys

West(-)/East(+) (1500 usft/in)



TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
Troudt 14N-33HZ SHL	0.00	0.00	0.00	14558939.37	1668485.21	40.088399	-104.899644	Point
Troudt 14N-33HZ NBRR	7379.00	-536.50	60.76	14558402.94	1668546.58	40.086926	-104.899427	Point
Troudt 14N-33HZ BHL FINAL	7556.77	4510.64	190.91	14563450.22	1668671.03	40.100786	-104.898961	Point
Troudt 14N-33HZ Top of Production	7571.86	-77.51	37.36	14558861.90	1668522.66	40.088187	-104.899510	Point

Survey Report

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well Troudt 14N-33HZ - Slot 14N-33HZ
Project:	WELD-NAD83-UTMFT13N	TVD Reference:	5037+25 @ 5062.00usft (HP311)
Site:	2N-67W-33 Troudt 14N-33HZ Pad	MD Reference:	5037+25 @ 5062.00usft (HP311)
Well:	Troudt 14N-33HZ	North Reference:	True
Wellbore:	Plan A	Survey Calculation Method:	Minimum Curvature
Design:	PDD Actual Surveys	Database:	EDM 5000 MultiUser DB

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	2N-67W-33 Troudt 14N-33HZ Pad, centered on 34C-33HZ				
Site Position:		Northing:	14,558,940.06 usft	Latitude:	40.088402
From:	Lat/Long	Easting:	1,668,395.17 usft	Longitude:	-104.899966
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.06 °

Well	Troudt 14N-33HZ - Slot 14N-33HZ					
Well Position	+N/-S	0.00 usft	Northing:	14,558,939.37 usft	Latitude:	40.088400
	+E/-W	0.00 usft	Easting:	1,668,485.21 usft	Longitude:	-104.899644
Position Uncertainty		3.28 usft	Wellhead Elevation:	usft	Ground Level:	5,037.00 usft

Wellbore	Plan A				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	4/1/2015	8.49	66.64	52,465

Design	PDD Actual 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	0.73	

Survey Program	Date	5/15/2015			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
20.00	1,111.00	Cathedral MWD Surface (Plan A)	APC_ISCWSA REV 2 MWD	Fixed:v2:standard declination	
1,279.00	7,891.00	PDD MWD+IFR1 Vert/Curve (Plan A)	APC_ISCWSA REV 2 MWD+	Fixed:v2:crustal field declination	
7,986.00	12,523.00	PDD MWD+IFR1 Lateral (Plan A)	APC_ISCWSA REV 2 MWD+	Fixed:v2:crustal field declination	
12,582.00	12,582.00	PDD Projection to Bit (Plan A)	APC_BLIND	OWSG BLIND	

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	
20.00	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	
103.00	0.80	310.00	103.00	0.37	-0.44	0.37	0.96	0.96	0.00	
168.00	0.70	322.40	167.99	0.98	-1.03	0.97	0.29	-0.15	19.08	
225.00	0.60	273.40	224.99	1.27	-1.54	1.25	0.96	-0.18	-85.96	
286.00	0.70	249.90	285.98	1.16	-2.21	1.13	0.46	0.16	-38.52	
346.00	0.20	13.00	345.98	1.14	-2.53	1.11	1.38	-0.83	205.17	
410.00	0.80	67.40	409.98	1.42	-2.10	1.39	1.10	0.94	85.00	

Survey Report

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well Troudt 14N-33HZ - Slot 14N-33HZ
Project:	WELD-NAD83-UTMFT13N	TVD Reference:	5037+25 @ 5062.00usft (HP311)
Site:	2N-67W-33 Troudt 14N-33HZ Pad	MD Reference:	5037+25 @ 5062.00usft (HP311)
Well:	Troudt 14N-33HZ	North Reference:	True
Wellbore:	Plan A	Survey Calculation Method:	Minimum Curvature
Design:	PDD Actual Surveys	Database:	EDM 5000 MultiUser DB

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)	
473.00	1.10	70.00	472.97	1.80	-1.12	1.78	0.48	0.48	4.13	
536.00	0.80	55.20	535.96	2.25	-0.19	2.25	0.61	-0.48	-23.49	
600.00	0.80	354.90	599.96	2.95	0.13	2.95	1.26	0.00	-94.22	
664.00	1.00	319.00	663.95	3.82	-0.27	3.82	0.92	0.31	-56.09	
728.00	0.90	285.10	727.94	4.37	-1.12	4.36	0.88	-0.16	-52.97	
791.00	0.90	215.00	790.94	4.10	-1.88	4.07	1.64	0.00	-111.27	
854.00	1.30	204.20	853.92	3.04	-2.46	3.01	0.71	0.63	-17.14	
918.00	1.80	201.00	917.90	1.44	-3.12	1.40	0.79	0.78	-5.00	
982.00	1.30	198.50	981.88	-0.19	-3.71	-0.24	0.79	-0.78	-3.91	
1,046.00	1.00	190.00	1,045.86	-1.43	-4.04	-1.48	0.54	-0.47	-13.28	
1,111.00	0.50	151.20	1,110.86	-2.23	-4.00	-2.28	1.06	-0.77	-59.69	
1,279.00	0.40	113.70	1,278.85	-3.11	-3.11	-3.15	0.18	-0.06	-22.32	
1,374.00	2.00	148.60	1,373.83	-4.66	-1.94	-4.68	1.78	1.68	36.74	
1,468.00	3.30	155.20	1,467.73	-8.52	0.05	-8.52	1.42	1.38	7.02	
1,563.00	5.30	164.70	1,562.46	-15.23	2.35	-15.20	2.23	2.11	10.00	
1,657.00	7.00	173.80	1,655.92	-25.11	4.12	-25.06	2.08	1.81	9.68	
1,752.00	9.70	184.00	1,749.90	-38.86	4.18	-38.80	3.23	2.84	10.74	
1,846.00	11.50	180.70	1,842.30	-56.13	3.52	-56.08	2.02	1.91	-3.51	
1,941.00	11.10	180.50	1,935.46	-74.74	3.32	-74.69	0.42	-0.42	-0.21	
2,130.00	12.40	175.70	2,120.50	-113.17	4.68	-113.10	0.86	0.69	-2.54	
2,319.00	11.30	177.10	2,305.47	-151.90	7.14	-151.80	0.60	-0.58	0.74	
2,507.00	10.30	175.10	2,490.13	-187.04	9.51	-186.91	0.57	-0.53	-1.06	
2,696.00	10.00	175.40	2,676.18	-220.24	12.27	-220.06	0.16	-0.16	0.16	
2,885.00	9.50	173.50	2,862.45	-252.09	15.35	-251.87	0.31	-0.26	-1.01	
3,074.00	11.50	176.00	3,048.27	-286.38	18.43	-286.13	1.09	1.06	1.32	
3,263.00	12.70	175.10	3,233.07	-325.88	21.52	-325.58	0.64	0.63	-0.48	
3,452.00	10.10	162.30	3,418.36	-362.38	28.34	-361.99	1.91	-1.38	-6.77	
3,640.00	10.80	177.60	3,603.27	-395.69	34.09	-395.22	1.52	0.37	8.14	
3,829.00	9.70	179.10	3,789.25	-429.30	35.08	-428.82	0.60	-0.58	0.79	
4,018.00	9.50	171.20	3,975.61	-460.64	37.72	-460.12	0.70	-0.11	-4.18	
4,207.00	9.50	170.40	4,162.02	-491.43	42.70	-490.85	0.07	0.00	-0.42	
4,396.00	11.20	176.20	4,347.95	-525.13	46.52	-524.49	1.05	0.90	3.07	
4,584.00	11.00	180.50	4,532.43	-561.28	47.57	-560.63	0.45	-0.11	2.29	
4,773.00	12.00	178.50	4,717.64	-598.95	47.93	-598.29	0.57	0.53	-1.06	
4,962.00	9.80	172.40	4,903.22	-634.54	50.57	-633.85	1.31	-1.16	-3.23	
5,151.00	6.50	184.20	5,090.30	-661.16	51.92	-660.45	1.95	-1.75	6.24	
5,341.00	5.50	182.80	5,279.26	-680.98	50.68	-680.28	0.53	-0.53	-0.74	
5,530.00	2.30	184.90	5,467.79	-693.81	49.92	-693.12	1.69	-1.69	1.11	
5,718.00	0.50	14.20	5,655.75	-696.78	49.80	-696.09	1.49	-0.96	-90.80	
5,907.00	0.70	22.40	5,844.74	-694.91	50.44	-694.21	0.11	0.11	4.34	
6,095.00	1.00	354.60	6,032.72	-692.22	50.72	-691.51	0.27	0.16	-14.79	
6,284.00	0.60	33.90	6,221.70	-689.75	51.12	-689.04	0.35	-0.21	20.79	
6,472.00	2.90	113.80	6,409.62	-690.85	56.02	-690.08	1.52	1.22	42.50	

Survey Report

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well Troudt 14N-33HZ - Slot 14N-33HZ
Project:	WELD-NAD83-UTMFT13N	TVD Reference:	5037+25 @ 5062.00usft (HP311)
Site:	2N-67W-33 Troudt 14N-33HZ Pad	MD Reference:	5037+25 @ 5062.00usft (HP311)
Well:	Troudt 14N-33HZ	North Reference:	True
Wellbore:	Plan A	Survey Calculation Method:	Minimum Curvature
Design:	PDD Actual Surveys	Database:	EDM 5000 MultiUser DB

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)
6,661.00	1.30	216.40	6,598.53	-694.51	59.12	-693.70	1.81	-0.85	54.29
6,851.00	0.70	206.00	6,788.50	-697.29	57.34	-696.50	0.33	-0.32	-5.47
6,945.00	0.40	182.40	6,882.49	-698.13	57.07	-697.35	0.39	-0.32	-25.11
7,040.00	2.90	1.50	6,977.46	-696.06	57.12	-695.28	3.47	2.63	188.53
7,134.00	16.10	356.20	7,069.97	-680.61	56.31	-679.84	14.06	14.04	-5.64
7,229.00	22.00	354.70	7,159.72	-649.72	53.80	-648.98	6.23	6.21	-1.58
7,324.00	25.20	359.70	7,246.78	-611.77	52.05	-611.05	3.97	3.37	5.26
7,418.00	34.20	8.40	7,328.38	-565.50	55.81	-564.75	10.59	9.57	9.26
7,513.00	45.00	5.40	7,401.48	-505.47	62.89	-504.63	11.54	11.37	-3.16
7,608.00	56.00	358.10	7,461.86	-432.39	64.75	-431.53	13.00	11.58	-7.68
7,702.00	64.20	353.40	7,508.70	-351.24	58.59	-350.46	9.74	8.72	-5.00
7,797.00	73.70	356.30	7,542.79	-263.04	50.71	-262.38	10.40	10.00	3.05
7,891.00	80.00	354.50	7,564.16	-171.85	43.35	-171.29	6.96	6.70	-1.91
7,986.00	90.70	358.20	7,571.86	-77.51	37.36	-77.03	11.91	11.26	3.89
8,081.00	91.80	0.00	7,569.78	17.45	35.87	17.90	2.22	1.16	1.89
8,175.00	92.00	0.80	7,566.67	111.39	36.52	111.85	0.88	0.21	0.85
8,270.00	91.00	2.80	7,564.18	206.31	39.51	206.79	2.35	-1.05	2.11
8,365.00	92.80	2.20	7,561.03	301.16	43.65	301.69	2.00	1.89	-0.63
8,459.00	90.60	3.70	7,558.24	394.99	48.48	395.57	2.83	-2.34	1.60
8,554.00	93.10	3.90	7,555.18	489.72	54.78	490.38	2.64	2.63	0.21
8,649.00	91.30	2.90	7,551.53	584.48	60.40	585.20	2.17	-1.89	-1.05
8,743.00	86.80	359.50	7,553.09	678.41	62.37	679.15	6.00	-4.79	-3.62
8,838.00	89.40	359.50	7,556.24	773.34	61.55	774.06	2.74	2.74	0.00
8,932.00	91.30	358.30	7,555.66	867.32	59.74	868.01	2.39	2.02	-1.28
9,027.00	91.10	1.20	7,553.67	962.29	59.33	962.96	3.06	-0.21	3.05
9,121.00	88.20	0.70	7,554.25	1,056.26	60.88	1,056.95	3.13	-3.09	-0.53
9,216.00	88.70	0.60	7,556.82	1,151.22	61.96	1,151.92	0.54	0.53	-0.11
9,310.00	90.10	3.30	7,557.80	1,245.15	65.16	1,245.88	3.24	1.49	2.87
9,405.00	91.10	3.60	7,556.81	1,339.97	70.88	1,340.77	1.10	1.05	0.32
9,500.00	90.10	3.50	7,555.81	1,434.78	76.76	1,435.64	1.06	-1.05	-0.11
9,594.00	90.20	2.80	7,555.57	1,528.64	81.92	1,529.56	0.75	0.11	-0.74
9,689.00	92.40	1.80	7,553.41	1,623.53	85.74	1,624.49	2.54	2.32	-1.05
9,783.00	90.70	2.40	7,550.87	1,717.43	89.18	1,718.43	1.92	-1.81	0.64
9,878.00	89.90	2.70	7,550.37	1,812.33	93.41	1,813.38	0.90	-0.84	0.32
9,972.00	89.00	1.50	7,551.27	1,906.26	96.85	1,907.34	1.60	-0.96	-1.28
10,067.00	89.60	0.90	7,552.43	2,001.23	98.84	2,002.33	0.89	0.63	-0.63
10,161.00	90.50	359.50	7,552.35	2,095.23	99.17	2,096.32	1.77	0.96	-1.49
10,256.00	89.70	1.90	7,552.19	2,190.22	100.33	2,191.32	2.66	-0.84	2.53
10,350.00	88.20	4.50	7,553.91	2,284.04	105.57	2,285.20	3.19	-1.60	2.77
10,445.00	90.00	4.30	7,555.40	2,378.75	112.86	2,379.99	1.91	1.89	-0.21
10,540.00	92.00	4.30	7,553.74	2,473.46	119.98	2,474.79	2.11	2.11	0.00
10,634.00	98.80	3.30	7,552.27	2,567.24	126.21	2,568.63	2.57	-2.34	-1.06
10,728.00	89.60	3.40	7,552.76	2,661.07	131.70	2,662.54	0.24	-0.21	0.11
10,823.00	91.80	8.70	7,551.60	2,755.50	141.71	2,757.08	6.04	2.32	5.58

Survey Report

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well Troudt 14N-33HZ - Slot 14N-33HZ
Project:	WELD-NAD83-UTMFT13N	TVD Reference:	5037+25 @ 5062.00usft (HP311)
Site:	2N-67W-33 Troudt 14N-33HZ Pad	MD Reference:	5037+25 @ 5062.00usft (HP311)
Well:	Troudt 14N-33HZ	North Reference:	True
Wellbore:	Plan A	Survey Calculation Method:	Minimum Curvature
Design:	PDD Actual Surveys	Database:	EDM 5000 MultiUser DB

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)
10,917.00	89.90	10.30	7,550.20	2,848.19	157.22	2,849.96	2.64	-2.02	1.70
11,012.00	88.80	6.50	7,551.28	2,942.15	171.10	2,944.09	4.16	-1.16	-4.00
11,106.00	89.60	3.30	7,552.59	3,035.78	179.12	3,037.82	3.51	0.85	-3.40
11,200.00	86.50	359.80	7,555.79	3,129.67	181.67	3,131.73	4.97	-3.30	-3.72
11,295.00	87.00	359.40	7,561.18	3,224.51	181.00	3,226.56	0.67	0.53	-0.42
11,390.00	90.50	0.00	7,563.25	3,319.47	180.51	3,321.50	3.74	3.68	0.63
11,484.00	92.00	358.60	7,561.20	3,413.44	179.36	3,415.45	2.18	1.60	-1.49
11,579.00	90.20	359.00	7,559.38	3,508.40	177.37	3,510.37	1.94	-1.89	0.42
11,674.00	89.50	0.90	7,559.62	3,603.39	177.29	3,605.36	2.13	-0.74	2.00
11,768.00	91.20	0.00	7,559.05	3,697.38	178.03	3,699.35	2.05	1.81	-0.96
11,863.00	88.80	359.90	7,559.05	3,792.37	177.94	3,794.33	2.53	-2.53	-0.11
11,957.00	88.60	358.20	7,561.18	3,886.33	176.38	3,888.27	1.82	-0.21	-1.81
12,052.00	89.10	357.50	7,563.09	3,981.25	172.82	3,983.13	0.91	0.53	-0.74
12,146.00	91.60	4.50	7,562.52	4,075.16	174.46	4,077.06	7.91	2.66	7.45
12,241.00	91.40	3.60	7,560.03	4,169.89	181.17	4,171.86	0.97	-0.21	-0.95
12,335.00	89.10	1.70	7,559.62	4,263.78	185.51	4,265.80	3.17	-2.45	-2.02
12,430.00	89.50	1.20	7,560.78	4,358.74	187.92	4,360.78	0.67	0.42	-0.53
12,523.00	92.40	1.10	7,559.24	4,451.70	189.78	4,453.76	3.12	3.12	-0.11
12,582.00	92.40	1.10	7,556.77	4,510.64	190.91	4,512.71	0.00	0.00	0.00

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,180.60	1,180.46	9 5/8"	9-5/8	12-1/4	
12,582.00	7,556.77	5 1/2"	5-1/2	7-7/8	