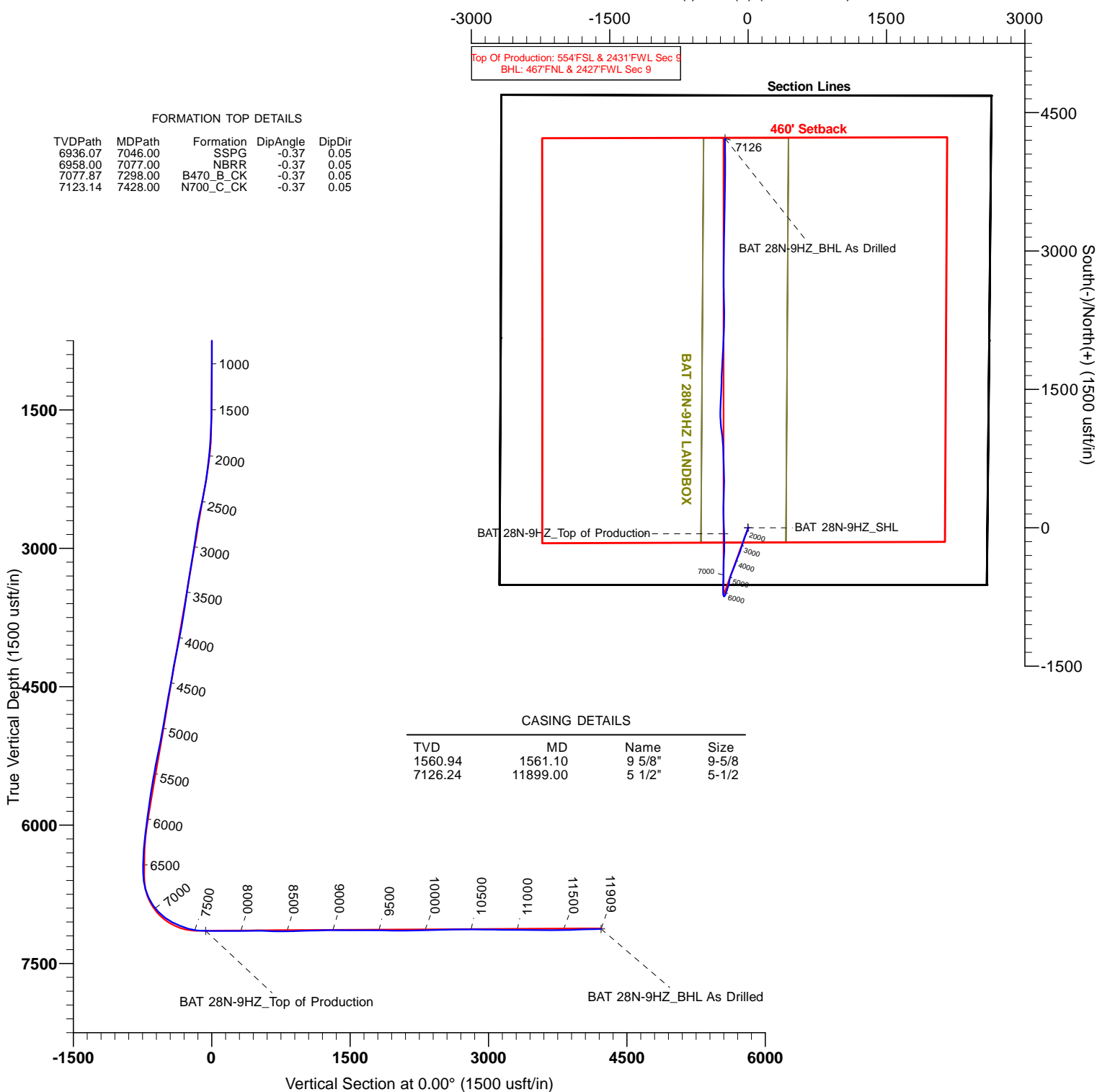


US ROCKIES WATTENBERG PLANNING

Project: WELD-NAD83-UTMFT13N
Site: 1N-65W-09 Bat Pad
Well: BAT 28N-9HZ
Wellbore: Plan A
Design: PDD Actual Surveys



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



FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle	DipDir
6936.07	7046.00	SSPG	-0.37	0.05
6958.00	7077.00	NBRR	-0.37	0.05
7077.87	7298.00	B470_B_CK	-0.37	0.05
7123.14	7428.00	N700_C_CK	-0.37	0.05

CASING DETAILS

TVD	MD	Name	Size
1560.94	1561.10	9 5/8"	9-5/8
7126.24	11899.00	5 1/2"	5-1/2

TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
1N-R65W-Sec. 9 Section lines	-25.00	-0.34	1033.89	14548919.51	1734104.05	40.060443	-104.665168	Polygon
BAT 28N-9HZ_SHL	0.00	0.00	0.00	14548916.01	1733070.17	40.060444	-104.668863	Point
BAT 28N-9HZ_Landing Diagram	9.00	0.00	0.00	14548916.01	1733070.17	40.060444	-104.668863	Polygon
BAT 28N-9HZ_BHL As Drilled	7125.98	4220.62	-250.33	14553135.67	1732804.14	40.072034	-104.669758	Point
BAT 28N-9HZ_Top of Production	7147.34	-65.51	-260.65	14548849.53	1732809.76	40.060264	-104.669795	Point



Survey Report

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well BAT 28N-9HZ
Project:	WELD-NAD83-UTMFT13N	TVD Reference:	4931+25 @ 4956.00usft (hp311)
Site:	1N-65W-09 Bat Pad	MD Reference:	4931+25 @ 4956.00usft (hp311)
Well:	BAT 28N-9HZ	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	1N-65W-09 Bat Pad, centered on the 3N1				
Site Position:		Northing:	14,548,915.67 usft	Latitude:	40.060444
From:	Lat/Long	Easting:	1,732,980.35 usft	Longitude:	-104.669184
Position Uncertainty:	2.68 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.21 °

Well		BAT 28N-9HZ				
Well Position	+N/-S	0.00 usft	Northing:	14,548,916.01 usft	Latitude:	40.060444
	+E/-W	0.00 usft	Easting:	1,733,070.17 usft	Longitude:	-104.668863
Position Uncertainty		3.28 usft	Wellhead Elevation:	usft	Ground Level:	4,931.00 usft

Wellbore	Plan A				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	10/20/2014	8.33	66.68	52,609

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	0.00	

Survey Program	Date	5/28/2015			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
20.00	1,495.00	Cathedral MWD Surface (Plan A)	APC_ISCWSA REV 2 MWD	Fixed:v2:standard declination	
1,573.00	11,857.00	PDD MWD+IFR1 Vert/Curve (Plan A)	APC_ISCWSA REV 2 MWD+	Fixed:v2:crustal field declination	
11,909.00	11,909.00	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	
105.00	1.10	146.10	104.99	-0.68	0.46	-0.68	1.29	1.29	0.00	
169.00	0.50	82.10	168.99	-1.15	1.07	-1.15	1.55	-0.94	-100.00	
228.00	0.40	97.90	227.99	-1.14	1.53	-1.14	0.27	-0.17	26.78	
285.00	0.80	70.40	284.98	-1.04	2.11	-1.04	0.85	0.70	-48.25	
349.00	0.70	320.50	348.98	-0.58	2.28	-0.58	1.92	-0.16	-171.72	
412.00	1.30	301.80	411.97	0.09	1.43	0.09	1.07	0.95	-29.68	
476.00	0.90	308.00	475.96	0.78	0.41	0.78	0.65	-0.63	9.69	

Survey Report

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well BAT 28N-9HZ
Project:	WELD-NAD83-UTMFT13N	TVD Reference:	4931+25 @ 4956.00usft (hp311)
Site:	1N-65W-09 Bat Pad	MD Reference:	4931+25 @ 4956.00usft (hp311)
Well:	BAT 28N-9HZ	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)
539.00	0.70	323.50	538.95	1.40	-0.21	1.40	0.47	-0.32	24.60
602.00	0.70	57.40	601.95	1.91	-0.11	1.91	1.62	0.00	149.05
666.00	0.80	73.40	665.95	2.25	0.65	2.25	0.36	0.16	25.00
730.00	1.40	76.10	729.93	2.57	1.83	2.57	0.94	0.94	4.22
794.00	1.50	90.70	793.91	2.74	3.43	2.74	0.60	0.16	22.81
858.00	1.00	75.90	857.90	2.87	4.81	2.87	0.92	-0.78	-23.13
922.00	0.40	140.20	921.89	2.83	5.49	2.83	1.41	-0.94	100.47
986.00	0.50	177.70	985.89	2.38	5.65	2.38	0.48	0.16	58.59
1,049.00	0.70	185.50	1,048.89	1.73	5.62	1.73	0.34	0.32	12.38
1,114.00	0.50	193.90	1,113.88	1.05	5.52	1.05	0.34	-0.31	12.92
1,177.00	0.40	208.70	1,176.88	0.60	5.34	0.60	0.24	-0.16	23.49
1,241.00	0.30	202.10	1,240.88	0.24	5.17	0.24	0.17	-0.16	-10.31
1,305.00	0.90	172.90	1,304.88	-0.41	5.17	-0.41	1.02	0.94	-45.63
1,368.00	0.60	222.70	1,367.87	-1.14	5.01	-1.14	1.09	-0.48	79.05
1,431.00	0.90	191.70	1,430.87	-1.87	4.69	-1.87	0.78	0.48	-49.21
1,495.00	1.10	231.00	1,494.86	-2.75	4.11	-2.75	1.09	0.31	61.41
1,573.00	1.70	218.10	1,572.83	-4.13	2.81	-4.13	0.86	0.77	-16.54
1,667.00	1.70	223.60	1,666.79	-6.24	0.99	-6.24	0.17	0.00	5.85
1,762.00	3.30	211.50	1,761.70	-9.59	-1.41	-9.59	1.76	1.68	-12.74
1,951.00	6.10	197.80	1,950.05	-23.79	-7.32	-23.79	1.59	1.48	-7.25
2,140.00	7.20	196.80	2,137.78	-44.69	-13.82	-44.69	0.59	0.58	-0.53
2,328.00	10.50	203.00	2,323.52	-71.75	-23.92	-71.75	1.82	1.76	3.30
2,518.00	13.20	201.20	2,509.45	-107.92	-38.53	-107.92	1.43	1.42	-0.95
2,707.00	10.60	197.90	2,694.38	-144.58	-51.68	-144.58	1.42	-1.38	-1.75
2,896.00	8.40	193.20	2,880.78	-174.57	-60.18	-174.57	1.23	-1.16	-2.49
3,085.00	10.20	200.70	3,067.29	-203.67	-69.25	-203.67	1.15	0.95	3.97
3,274.00	10.00	199.20	3,253.36	-234.82	-80.56	-234.82	0.17	-0.11	-0.79
3,463.00	8.60	198.60	3,439.87	-263.71	-90.46	-263.71	0.74	-0.74	-0.32
3,652.00	9.10	201.70	3,626.62	-290.99	-100.50	-290.99	0.37	0.26	1.64
3,841.00	10.70	205.00	3,812.80	-320.78	-113.44	-320.78	0.90	0.85	1.75
4,030.00	11.90	196.50	3,998.15	-355.37	-126.39	-355.37	1.08	0.63	-4.50
4,218.00	11.70	199.10	4,182.18	-391.97	-138.13	-391.97	0.30	-0.11	1.38
4,407.00	10.60	204.10	4,367.61	-425.95	-151.50	-425.95	0.77	-0.58	2.65
4,596.00	11.70	201.10	4,553.04	-459.69	-165.50	-459.69	0.66	0.58	-1.59
4,784.00	10.30	203.10	4,737.59	-492.94	-178.95	-492.94	0.77	-0.74	1.06
4,973.00	10.00	198.00	4,923.63	-524.09	-190.66	-524.09	0.50	-0.16	-2.70
5,162.00	11.40	189.70	5,109.35	-558.11	-198.87	-558.11	1.10	0.74	-4.39
5,351.00	12.00	193.50	5,294.43	-595.63	-206.61	-595.63	0.52	0.32	2.01
5,540.00	9.80	195.60	5,480.01	-630.23	-215.52	-630.23	1.18	-1.16	1.11
5,729.00	9.30	195.60	5,666.39	-660.43	-223.95	-660.43	0.26	-0.26	0.00
5,918.00	8.20	205.10	5,853.19	-687.35	-233.78	-687.35	0.96	-0.58	5.03
6,107.00	7.90	191.20	6,040.35	-712.30	-242.02	-712.30	1.04	-0.16	-7.35
6,296.00	6.10	216.20	6,227.98	-733.15	-250.48	-733.15	1.85	-0.95	13.23

Survey Report

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well BAT 28N-9HZ
Project:	WELD-NAD83-UTMFT13N	TVD Reference:	4931+25 @ 4956.00usft (hp311)
Site:	1N-65W-09 Bat Pad	MD Reference:	4931+25 @ 4956.00usft (hp311)
Well:	BAT 28N-9HZ	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)
6,485.00	2.00	247.50	6,416.48	-742.52	-259.46	-742.52	2.39	-2.17	16.56
6,579.00	1.80	240.20	6,510.43	-743.88	-262.26	-743.88	0.33	-0.21	-7.77
6,674.00	8.30	344.80	6,605.10	-737.99	-265.35	-737.99	9.39	6.84	110.11
6,768.00	17.80	354.30	6,696.58	-717.10	-268.57	-717.10	10.33	10.11	10.11
6,863.00	23.10	357.70	6,785.56	-684.00	-270.76	-684.00	5.72	5.58	3.58
6,957.00	35.40	0.60	6,867.42	-638.18	-271.22	-638.18	13.17	13.09	3.09
7,052.00	44.10	3.50	6,940.40	-577.55	-268.91	-577.55	9.36	9.16	3.05
7,146.00	52.60	0.70	7,002.82	-507.43	-266.45	-507.43	9.31	9.04	-2.98
7,241.00	62.90	0.40	7,053.44	-427.20	-265.69	-427.20	10.85	10.84	-0.32
7,335.00	68.60	2.40	7,092.04	-341.56	-263.56	-341.56	6.37	6.06	2.13
7,430.00	72.40	3.50	7,123.74	-252.14	-258.95	-252.14	4.15	4.00	1.16
7,524.00	84.10	357.80	7,142.87	-160.32	-258.00	-160.32	13.79	12.45	-6.06
7,619.00	90.50	359.00	7,147.34	-65.51	-260.65	-65.51	6.85	6.74	1.26
7,714.00	88.40	357.50	7,148.25	29.43	-263.55	29.43	2.72	-2.21	-1.58
7,808.00	91.20	358.70	7,148.58	123.37	-266.66	123.37	3.24	2.98	1.28
7,902.00	89.80	0.70	7,147.76	217.36	-267.16	217.36	2.60	-1.49	2.13
7,997.00	90.40	1.40	7,147.60	312.34	-265.41	312.34	0.97	0.63	0.74
8,092.00	91.10	3.00	7,146.35	407.26	-261.77	407.26	1.84	0.74	1.68
8,186.00	89.80	358.80	7,145.61	501.22	-260.29	501.22	4.68	-1.38	-4.47
8,281.00	87.50	358.70	7,147.85	596.16	-262.36	596.16	2.42	-2.42	-0.11
8,375.00	88.90	358.50	7,150.80	690.09	-264.66	690.09	1.50	1.49	-0.21
8,469.00	90.80	358.60	7,151.05	784.05	-267.04	784.05	2.02	2.02	0.11
8,564.00	91.40	358.00	7,149.23	878.99	-269.86	878.99	0.89	0.63	-0.63
8,658.00	91.50	351.20	7,146.85	972.49	-278.69	972.49	7.23	0.11	-7.23
8,753.00	92.10	354.00	7,143.86	1,066.64	-290.92	1,066.64	3.01	0.63	2.95
8,848.00	90.50	356.90	7,141.70	1,161.31	-298.45	1,161.31	3.49	-1.68	3.05
8,942.00	91.80	0.60	7,139.82	1,255.25	-300.51	1,255.25	4.17	1.38	3.94
9,037.00	89.50	2.90	7,138.74	1,350.18	-297.60	1,350.18	3.42	-2.42	2.42
9,131.00	88.60	2.30	7,140.30	1,444.07	-293.34	1,444.07	1.15	-0.96	-0.64
9,225.00	90.80	2.70	7,140.79	1,537.97	-289.24	1,537.97	2.38	2.34	0.43
9,320.00	89.90	0.60	7,140.21	1,632.93	-286.51	1,632.93	2.40	-0.95	-2.21
9,414.00	89.80	3.90	7,140.46	1,726.84	-282.82	1,726.84	3.51	-0.11	3.51
9,509.00	89.20	3.10	7,141.29	1,821.66	-277.02	1,821.66	1.05	-0.63	-0.84
9,603.00	88.80	2.50	7,142.93	1,915.53	-272.43	1,915.53	0.77	-0.43	-0.64
9,697.00	90.60	3.40	7,143.42	2,009.40	-267.59	2,009.40	2.14	1.91	0.96
9,792.00	89.50	2.30	7,143.34	2,104.28	-262.86	2,104.28	1.64	-1.16	-1.16
9,886.00	91.90	0.50	7,142.19	2,198.24	-260.57	2,198.24	3.19	2.55	-1.91
9,981.00	91.50	0.20	7,139.37	2,293.19	-259.99	2,293.19	0.53	-0.42	-0.32
10,075.00	91.30	359.50	7,137.07	2,387.16	-260.23	2,387.16	0.77	-0.21	-0.74
10,170.00	91.30	359.00	7,134.92	2,482.13	-261.48	2,482.13	0.53	0.00	-0.53
10,264.00	91.20	358.60	7,132.87	2,576.09	-263.45	2,576.09	0.44	-0.11	-0.43
10,359.00	90.70	0.60	7,131.29	2,671.07	-264.11	2,671.07	2.17	-0.53	2.11
10,453.00	90.00	359.80	7,130.72	2,765.06	-263.78	2,765.06	1.13	-0.74	-0.85

Survey Report

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well BAT 28N-9HZ
Project:	WELD-NAD83-UTMFT13N	TVD Reference:	4931+25 @ 4956.00usft (hp311)
Site:	1N-65W-09 Bat Pad	MD Reference:	4931+25 @ 4956.00usft (hp311)
Well:	BAT 28N-9HZ	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)	
10,548.00	88.90	359.30	7,131.63	2,860.05	-264.53	2,860.05	1.27	-1.16	-0.53	
10,642.00	90.00	1.50	7,132.53	2,954.04	-263.87	2,954.04	2.62	1.17	2.34	
10,737.00	89.40	1.00	7,133.03	3,049.01	-261.80	3,049.01	0.82	-0.63	-0.53	
10,832.00	88.60	0.30	7,134.69	3,143.99	-260.72	3,143.99	1.12	-0.84	-0.74	
10,926.00	90.10	1.30	7,135.75	3,237.97	-259.41	3,237.97	1.92	1.60	1.06	
11,021.00	89.50	1.00	7,136.08	3,332.95	-257.50	3,332.95	0.71	-0.63	-0.32	
11,115.00	90.20	1.40	7,136.33	3,426.93	-255.53	3,426.93	0.86	0.74	0.43	
11,210.00	89.30	1.30	7,136.74	3,521.90	-253.29	3,521.90	0.95	-0.95	-0.11	
11,304.00	88.20	0.60	7,138.80	3,615.87	-251.74	3,615.87	1.39	-1.17	-0.74	
11,398.00	90.20	0.90	7,140.11	3,709.84	-250.51	3,709.84	2.15	2.13	0.32	
11,493.00	91.90	0.40	7,138.37	3,804.82	-249.43	3,804.82	1.87	1.79	-0.53	
11,588.00	92.50	0.20	7,134.72	3,899.75	-248.93	3,899.75	0.67	0.63	-0.21	
11,682.00	91.30	0.10	7,131.60	3,993.69	-248.68	3,993.69	1.28	-1.28	-0.11	
11,777.00	91.40	359.50	7,129.37	4,088.67	-249.02	4,088.67	0.64	0.11	-0.63	
11,857.00	91.50	359.40	7,127.34	4,168.64	-249.78	4,168.64	0.18	0.13	-0.13	
11,909.00	91.50	359.40	7,125.98	4,220.62	-250.33	4,220.62	0.00	0.00	0.00	

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,561.10	1,560.94	9 5/8"	9-5/8	12-1/4	
11,899.00	7,126.24	5 1/2"	5-1/2	7-7/8	

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
7,046.00	6,936.07	SSPG		-0.37	0.05
7,077.00	6,958.00	NBRR		-0.37	0.05
7,298.00	7,077.87	B470_B_CK		-0.37	0.05
7,428.00	7,123.14	N700_C_CK		-0.37	0.05