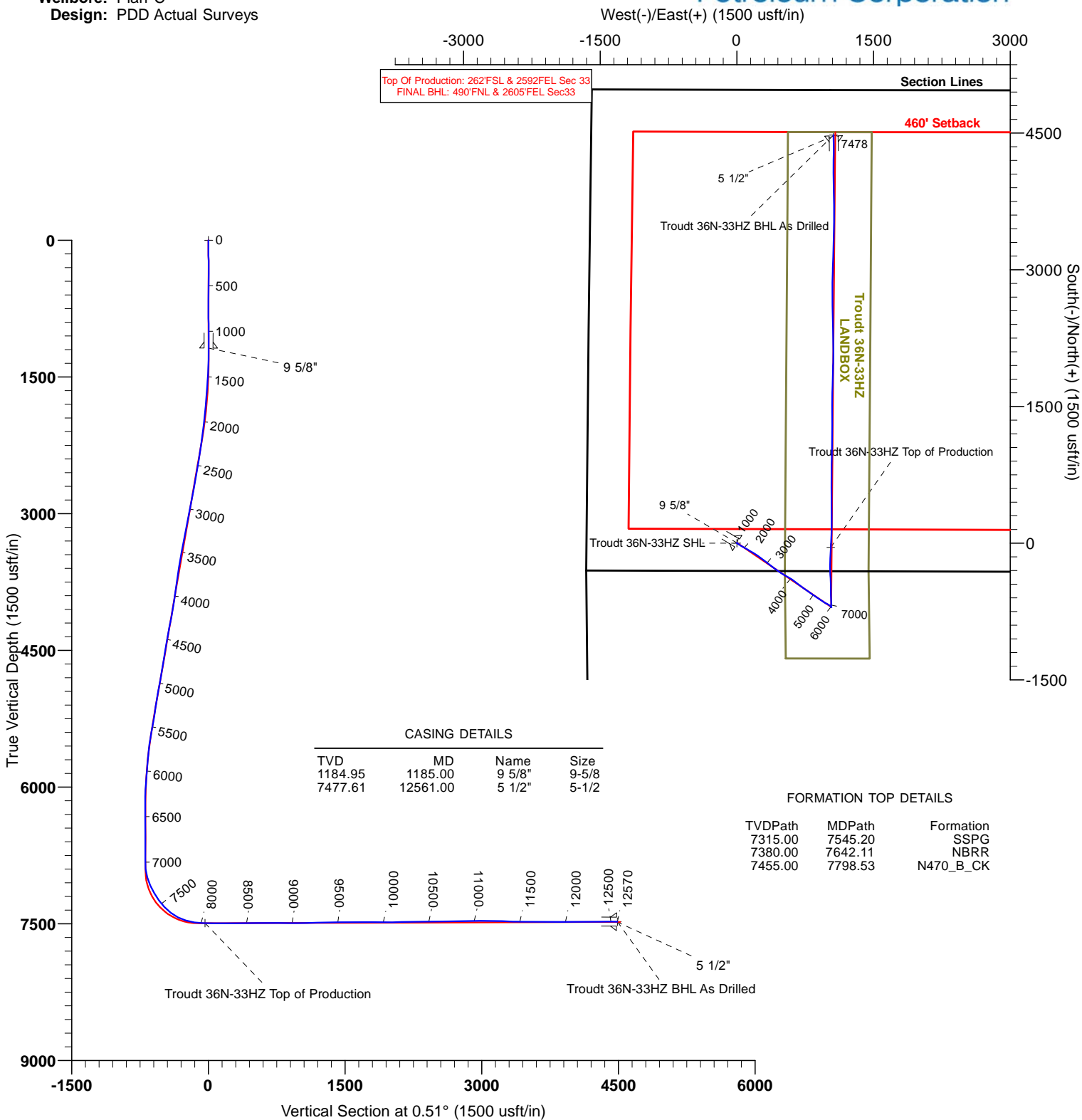


US ROCKIES WATTENBERG PLANNING



Project: WELD-NAD83-UTMFT13N
Site: 2N-67W-33 Troutd 14N-33HZ Pad
Well: Troutd 36N-33HZ
Wellbore: Plan C
Design: PDD Actual Surveys



TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
Troutd 36N-33HZ SHL	0.00	0.00	0.00	14558938.95	1668545.16	40.088398	-104.899430	Point
Troutd 36N-33HZ BHL As Drilled	7477.68	4478.80	1061.89	14563418.95	1669601.99	40.100698	-104.895632	Point
Troutd 36N-33HZ Top of Production	7493.49	-45.63	1032.00	14558894.49	1669577.21	40.088273	-104.895740	Point



Survey Report

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well Troutd 36N-33HZ - Slot 36N-33HZ
Project:	WELD-NAD83-UTMFT13N	TVD Reference:	5037+25 @ 5062.00usft (H311)
Site:	2N-67W-33 Troutd 14N-33HZ Pad	MD Reference:	5037+25 @ 5062.00usft (H311)
Well:	Troutd 36N-33HZ	North Reference:	True
Wellbore:	Plan C	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 Troutd 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	Troutd 36N-33HZ - Slot 36N-33HZ					
Well Position	+N/-S	0.00 usft	Northing:	14,558,938.95 usft	Latitude:	40.088398
	+E/-W	0.00 usft	Easting:	1,668,545.16 usft	Longitude:	-104.899430
Position Uncertainty		3.28 usft	Wellhead Elevation:	usft	Ground Level:	5,037.00 usft

Wellbore	Plan C				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	5/12/2015	8.38	66.64	52,540

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	0.51	

Survey Program	Date	5/28/2015			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
20.00	1,150.00	Cathedral MWD Surface (Plan C)	APC_ISCWSA REV 2 MWD	Fixed:v2:standard declination	
1,219.00	8,115.00	PDD MWD+IFR1 Vert/Curve (Plan C)	APC_ISCWSA REV 2 MWD+	Fixed:v2:crustal field declination	
8,209.00	12,515.00	PDD MWD+IFR1 Lateral (Plan C)	APC_ISCWSA REV 2 MWD+	Fixed:v2:crustal field declination	
12,570.00	12,570.00	PDD Projection to Bit (Plan C)	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	0.70	8.40	103.00	0.50	0.07	0.50	0.84	0.84	0.00	
168.00	1.00	9.20	167.99	1.45	0.22	1.46	0.46	0.46	1.23	
225.00	0.80	23.00	224.98	2.31	0.46	2.32	0.52	-0.35	24.21	
286.00	0.10	45.50	285.98	2.74	0.66	2.75	1.16	-1.15	36.89	
346.00	0.10	239.20	345.98	2.75	0.65	2.76	0.33	0.00	-277.17	
410.00	0.30	136.00	409.98	2.60	0.72	2.61	0.53	0.31	-161.25	

Survey Report

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well Troudt 36N-33HZ - Slot 36N-33HZ
Project:	WELD-NAD83-UTMFT13N	TVD Reference:	5037+25 @ 5062.00usft (H311)
Site:	2N-67W-33 Troudt 14N-33HZ Pad	MD Reference:	5037+25 @ 5062.00usft (H311)
Well:	Troudt 36N-33HZ	North Reference:	True
Wellbore:	Plan C	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	0.40	203.20	472.98	2.28	0.75	2.29	0.63	0.16	106.67
536.00	0.60	167.60	535.98	1.76	0.74	1.76	0.57	0.32	-56.51
600.00	0.50	152.80	599.97	1.18	0.93	1.19	0.27	-0.16	-23.13
664.00	0.40	133.90	663.97	0.78	1.22	0.79	0.28	-0.16	-29.53
728.00	0.40	74.00	727.97	0.68	1.60	0.70	0.62	0.00	-93.59
791.00	0.40	51.90	790.97	0.88	1.98	0.90	0.24	0.00	-35.08
854.00	0.50	64.70	853.97	1.13	2.41	1.16	0.22	0.16	20.32
918.00	0.90	60.90	917.96	1.50	3.10	1.53	0.63	0.63	-5.94
982.00	0.80	60.20	981.96	1.96	3.92	2.00	0.16	-0.16	-1.09
1,046.00	0.40	66.80	1,045.95	2.27	4.52	2.31	0.63	-0.63	10.31
1,111.00	0.30	88.20	1,110.95	2.37	4.90	2.41	0.25	-0.15	32.92
1,150.00	0.40	115.70	1,149.95	2.31	5.12	2.36	0.49	0.26	70.51
1,219.00	0.60	124.50	1,218.95	2.00	5.63	2.05	0.31	0.29	12.75
1,313.00	0.50	128.60	1,312.94	1.47	6.36	1.53	0.11	-0.11	4.36
1,408.00	3.80	138.50	1,407.86	-1.15	8.77	-1.07	3.48	3.47	10.42
1,597.00	7.10	126.40	1,595.99	-12.77	22.33	-12.57	1.84	1.75	-6.40
1,786.00	9.30	116.50	1,783.05	-26.52	45.40	-26.12	1.38	1.16	-5.24
1,975.00	12.60	123.10	1,968.60	-44.60	76.35	-43.92	1.87	1.75	3.49
2,164.00	15.80	119.60	2,151.80	-68.57	116.00	-67.54	1.75	1.69	-1.85
2,353.00	17.30	118.60	2,332.97	-94.74	163.05	-93.28	0.81	0.79	-0.53
2,541.00	18.40	125.40	2,511.93	-125.31	211.78	-123.42	1.25	0.59	3.62
2,730.00	15.60	124.20	2,692.66	-156.88	257.12	-154.58	1.49	-1.48	-0.63
2,919.00	17.70	129.60	2,873.73	-189.48	300.29	-186.80	1.38	1.11	2.86
3,108.00	18.50	126.20	3,053.38	-225.51	346.62	-222.41	0.70	0.42	-1.80
3,297.00	18.80	125.50	3,232.46	-260.90	395.61	-257.37	0.20	0.16	-0.37
3,486.00	17.10	126.40	3,412.25	-295.08	442.78	-291.13	0.91	-0.90	0.48
3,674.00	16.90	126.00	3,592.04	-327.54	487.13	-323.19	0.12	-0.11	-0.21
3,863.00	15.90	117.20	3,773.38	-355.53	532.39	-350.78	1.42	-0.53	-4.66
4,052.00	16.60	121.10	3,954.83	-381.31	578.54	-376.14	0.69	0.37	2.06
4,241.00	17.30	125.90	4,135.63	-411.73	624.42	-406.16	0.83	0.37	2.54
4,430.00	17.40	128.70	4,316.03	-445.88	669.24	-439.91	0.44	0.05	1.48
4,618.00	16.70	126.10	4,495.77	-479.37	713.00	-473.01	0.55	-0.37	-1.38
4,807.00	14.90	123.80	4,677.62	-508.89	755.14	-502.15	1.01	-0.95	-1.22
4,996.00	18.80	126.30	4,858.48	-540.45	799.89	-533.31	2.10	2.06	1.32
5,186.00	16.90	124.60	5,039.32	-574.26	847.30	-566.70	1.04	-1.00	-0.89
5,375.00	15.50	121.00	5,220.82	-602.87	891.57	-594.91	0.91	-0.74	-1.90
5,564.00	19.50	125.20	5,401.04	-634.07	939.01	-625.69	2.22	2.12	2.22
5,752.00	13.40	116.00	5,581.29	-661.74	984.28	-652.95	3.52	-3.24	-4.89
5,941.00	8.40	124.90	5,766.84	-679.25	1,015.31	-670.19	2.78	-2.65	4.71
6,129.00	5.50	145.90	5,953.46	-694.58	1,031.63	-685.37	2.03	-1.54	11.17
6,318.00	1.30	113.30	6,142.10	-702.93	1,038.68	-693.66	2.36	-2.22	-17.25
6,506.00	0.40	2.00	6,330.08	-703.12	1,040.66	-693.83	0.79	-0.48	-59.20
6,696.00	0.60	289.40	6,520.08	-702.12	1,039.75	-692.84	0.32	0.11	-38.21

Survey Report

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well Troudt 36N-33HZ - Slot 36N-33HZ
Project:	WELD-NAD83-UTMFT13N	TVD Reference:	5037+25 @ 5062.00usft (H311)
Site:	2N-67W-33 Troudt 14N-33HZ Pad	MD Reference:	5037+25 @ 5062.00usft (H311)
Well:	Troudt 36N-33HZ	North Reference:	True
Wellbore:	Plan C	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)	
6,885.00	0.60	287.20	6,709.07	-701.50	1,037.87	-692.24	0.01	0.00	-1.16	
6,979.00	0.70	279.10	6,803.06	-701.27	1,036.83	-692.01	0.14	0.11	-8.62	
7,074.00	3.60	349.70	6,897.99	-698.24	1,035.72	-688.99	3.61	3.05	74.32	
7,169.00	18.10	2.50	6,991.05	-680.46	1,035.83	-671.22	15.38	15.26	13.47	
7,263.00	23.80	358.70	7,078.81	-646.89	1,036.04	-637.64	6.23	6.06	-4.04	
7,358.00	30.30	358.50	7,163.37	-603.72	1,034.98	-594.48	6.84	6.84	-0.21	
7,452.00	35.00	358.20	7,242.49	-553.04	1,033.51	-543.82	5.00	5.00	-0.32	
7,547.00	42.90	0.00	7,316.32	-493.38	1,032.65	-484.17	8.40	8.32	1.89	
7,642.00	52.90	358.40	7,379.93	-422.99	1,031.59	-413.79	10.60	10.53	-1.68	
7,736.00	62.90	355.50	7,429.83	-343.60	1,027.25	-334.44	10.95	10.64	-3.09	
7,831.00	73.10	0.20	7,465.38	-255.72	1,024.08	-246.59	11.67	10.74	4.95	
7,926.00	81.60	2.70	7,486.17	-163.15	1,026.46	-154.00	9.31	8.95	2.63	
8,020.00	89.70	2.70	7,493.30	-69.60	1,030.87	-60.42	8.62	8.62	0.00	
8,115.00	88.50	2.70	7,494.79	25.28	1,035.34	34.50	1.26	-1.26	0.00	
8,209.00	90.40	2.40	7,495.69	119.18	1,039.53	128.43	2.05	2.02	-0.32	
8,304.00	90.50	359.80	7,494.94	214.15	1,041.35	223.41	2.74	0.11	-2.74	
8,399.00	90.50	0.00	7,494.12	309.15	1,041.18	318.40	0.21	0.00	0.21	
8,493.00	90.70	359.60	7,493.13	403.14	1,040.86	412.39	0.48	0.21	-0.43	
8,588.00	90.60	359.70	7,492.05	498.13	1,040.28	507.37	0.15	-0.11	0.11	
8,683.00	90.00	359.50	7,491.56	593.13	1,039.61	602.36	0.67	-0.63	-0.21	
8,777.00	89.30	0.20	7,492.13	687.13	1,039.37	696.35	1.05	-0.74	0.74	
8,872.00	89.20	1.00	7,493.37	782.11	1,040.36	791.34	0.85	-0.11	0.84	
8,966.00	90.40	1.30	7,493.70	876.09	1,042.25	885.33	1.32	1.28	0.32	
9,061.00	91.00	0.50	7,492.54	971.07	1,043.74	980.32	1.05	0.63	-0.84	
9,155.00	90.20	1.10	7,491.56	1,065.05	1,045.05	1,074.31	1.06	-0.85	0.64	
9,250.00	91.80	0.40	7,489.90	1,160.03	1,046.30	1,169.30	1.84	1.68	-0.74	
9,345.00	91.70	0.50	7,487.00	1,254.98	1,047.04	1,264.25	0.15	-0.11	0.11	
9,439.00	90.80	359.70	7,484.95	1,348.96	1,047.21	1,358.22	1.28	-0.96	-0.85	
9,534.00	90.70	358.80	7,483.70	1,443.94	1,045.96	1,453.19	0.95	-0.11	-0.95	
9,628.00	90.90	1.40	7,482.39	1,537.92	1,046.13	1,547.17	2.77	0.21	2.77	
9,723.00	90.20	1.50	7,481.48	1,632.89	1,048.53	1,642.15	0.74	-0.74	0.11	
9,817.00	89.40	1.40	7,481.81	1,726.85	1,050.91	1,736.14	0.86	-0.85	-0.11	
9,912.00	88.40	1.40	7,483.63	1,821.81	1,053.23	1,831.11	1.05	-1.05	0.00	
10,006.00	89.80	2.40	7,485.11	1,915.74	1,056.35	1,925.07	1.83	1.49	1.06	
10,101.00	91.40	0.50	7,484.11	2,010.70	1,058.75	2,020.04	2.61	1.68	-2.00	
10,195.00	91.60	359.80	7,481.65	2,104.66	1,059.00	2,114.01	0.77	0.21	-0.74	
10,290.00	91.30	359.70	7,479.25	2,199.63	1,058.58	2,208.97	0.33	-0.32	-0.11	
10,384.00	90.50	359.00	7,477.77	2,293.61	1,057.51	2,302.94	1.13	-0.85	-0.74	
10,479.00	90.90	358.70	7,476.61	2,388.59	1,055.61	2,397.89	0.53	0.42	-0.32	
10,574.00	89.20	357.90	7,476.53	2,483.54	1,052.79	2,492.81	1.98	-1.79	-0.84	
10,668.00	91.60	359.80	7,475.87	2,577.51	1,050.90	2,586.76	3.26	2.55	2.02	
10,763.00	91.30	359.60	7,473.47	2,672.48	1,050.41	2,681.72	0.38	-0.32	-0.21	
10,857.00	91.60	359.40	7,471.09	2,766.44	1,049.59	2,775.68	0.38	0.32	-0.21	
10,951.00	90.50	1.80	7,469.37	2,860.41	1,050.57	2,869.65	2.81	-1.17	2.55	

Survey Report

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well Troutd 36N-33HZ - Slot 36N-33HZ
Project:	WELD-NAD83-UTMFT13N	TVD Reference:	5037+25 @ 5062.00usft (H311)
Site:	2N-67W-33 Troutd 14N-33HZ Pad	MD Reference:	5037+25 @ 5062.00usft (H311)
Well:	Troutd 36N-33HZ	North Reference:	True
Wellbore:	Plan C	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)
11,046.00	91.10	1.00	7,468.04	2,955.38	1,052.89	2,964.63	1.05	0.63	-0.84
11,140.00	88.70	2.30	7,468.20	3,049.33	1,055.60	3,058.60	2.90	-2.55	1.38
11,234.00	88.40	1.60	7,470.58	3,143.24	1,058.80	3,152.54	0.81	-0.32	-0.74
11,329.00	87.60	1.00	7,473.90	3,238.16	1,060.95	3,247.47	1.05	-0.84	-0.63
11,424.00	89.30	1.90	7,476.47	3,333.09	1,063.35	3,342.42	2.02	1.79	0.95
11,518.00	88.00	1.60	7,478.68	3,427.02	1,066.22	3,436.37	1.42	-1.38	-0.32
11,613.00	89.50	0.40	7,480.75	3,521.98	1,067.88	3,531.34	2.02	1.58	-1.26
11,708.00	90.80	359.30	7,480.51	3,616.97	1,067.63	3,626.33	1.79	1.37	-1.16
11,803.00	90.70	0.00	7,479.26	3,711.96	1,067.05	3,721.31	0.74	-0.11	0.74
11,897.00	90.00	358.90	7,478.69	3,805.95	1,066.15	3,815.29	1.39	-0.74	-1.17
11,991.00	89.00	358.30	7,479.51	3,899.92	1,063.85	3,909.23	1.24	-1.06	-0.64
12,086.00	90.50	358.90	7,479.92	3,994.89	1,061.53	4,004.18	1.70	1.58	0.63
12,180.00	90.20	1.10	7,479.35	4,088.88	1,061.53	4,098.17	2.36	-0.32	2.34
12,275.00	89.20	0.40	7,479.85	4,183.87	1,062.77	4,193.16	1.28	-1.05	-0.74
12,369.00	91.90	0.70	7,478.94	4,277.85	1,063.68	4,287.15	2.89	2.87	0.32
12,464.00	90.20	359.80	7,477.20	4,372.83	1,064.09	4,382.13	2.02	-1.79	-0.95
12,515.00	89.60	358.50	7,477.29	4,423.82	1,063.33	4,433.11	2.81	-1.18	-2.55
12,570.00	89.60	358.50	7,477.68	4,478.80	1,061.89	4,488.08	0.00	0.00	0.00

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name		Casing Diameter (")	Hole Diameter (")
1,185.00	1,184.95	9 5/8"		9-5/8	12-1/4
12,561.00	7,477.61	5 1/2"		5-1/2	8-1/2

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
7,545.20	7,209.00	SSPG		-0.12	0.73
7,642.11	7,274.00	NBRR		-0.12	0.73
7,798.54	7,349.00	N470_B_CK		-0.12	0.73