

US ROCKIES WATTENBERG PLANNING

Project: WELD-NAD83-UTMFT13N

Site: 1N-65W-09 Bat Pad

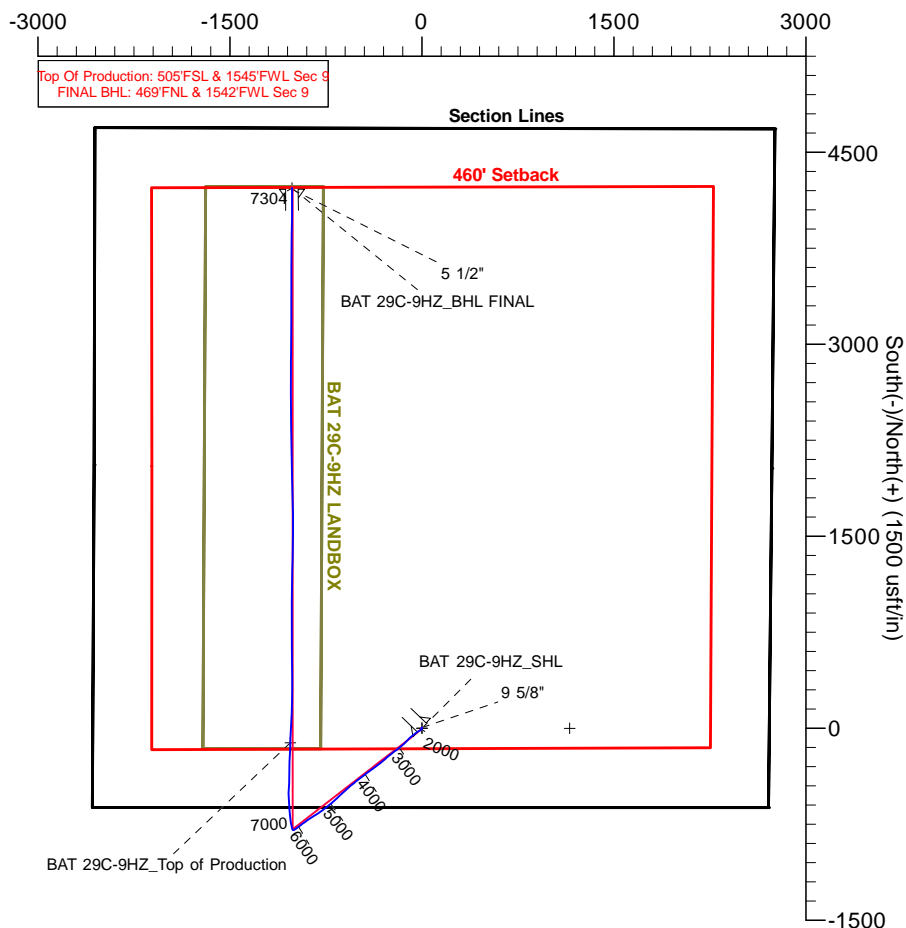
Well: BAT 29C-9HZ

Wellbore: Plan C

Design: PDD Actual Surveys

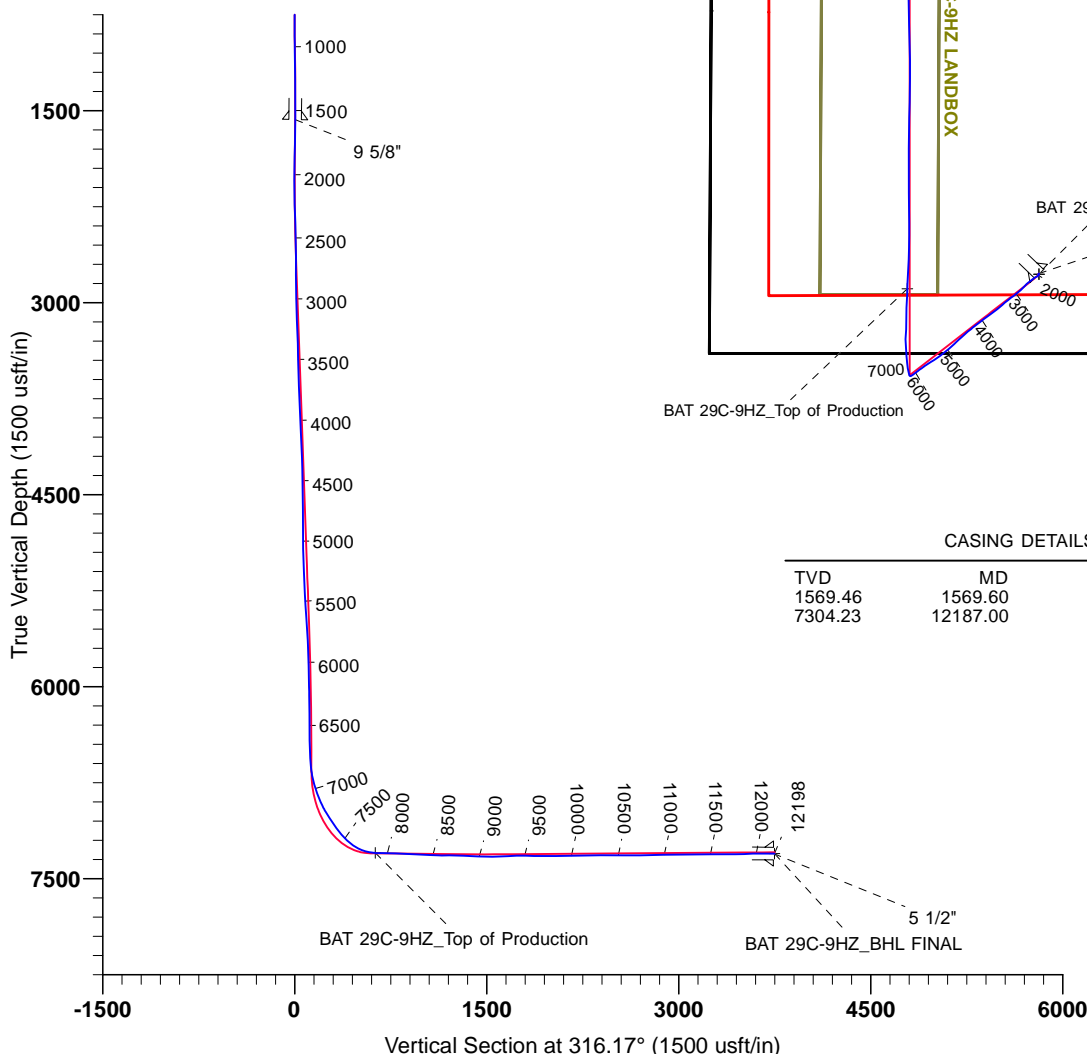


West(-)/East(+) (1500 usft/in)



FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle	DipDir
6918.98	7136.00	SSPG	0.00	0.00
6940.91	7162.00	NBRR	0.00	0.00
7063.03	7318.00	N470_B_CK	0.00	0.00
7134.97	7419.00	N700_C_CK	0.00	0.00
7291.81	7786.00	FRHS	0.00	0.00



CASING DETAILS

TVD	MD	Name	Size
1569.46	1569.60	9 5/8"	9-5/8
7304.23	12187.00	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	1153.92	14548919.51	1734104.05	40.060443	-104.665168	Polygon
BAT 29C-9HZ_Landing Diagram	0.00	0.00	0.00	14548915.57	1732950.13	40.060444	-104.669292	Polygon
BAT 29C-9HZ_SHL	0.00	0.00	0.00	14548915.57	1732950.13	40.060444	-104.669292	Point
BAT 29C-9HZ_Top of Production	7298.89	-113.47	-1027.68	14548798.28	1731922.88	40.060132	-104.672965	Point
BAT 29C-9HZ_BHL FINAL	7304.27	4220.02	-1015.32	14553131.78	1731919.14	40.072033	-104.672921	Point



Survey Report

Company:	US ROCKIES WATTENBERG PLANNING	Local Co-ordinate Reference:	Well BAT 29C-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 29C-9HZ	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	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 29C-9HZ					
Well Position	+N/-S	0.00 usft	Northing:	14,548,915.56 usft	Latitude:	40.060444
	+E/-W	0.00 usft	Easting:	1,732,950.13 usft	Longitude:	-104.669292
Position Uncertainty		3.28 usft	Wellhead Elevation:	usft	Ground Level:	4,931.00 usft

Wellbore	Plan C				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	5/28/2015	8.25	66.66	52,546

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	316.17	

Survey Program	Date	6/22/2015			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
20.00	1,540.00	Cathedral MWD Surface (Plan C)	APC_ISCWSA REV 2 MWD	Fixed:v2:standard declination	
1,667.00	12,143.00	Premier Directional (Plan C)	APC_ISCWSA REV 2 MWD+	Fixed:v2:crustal field declination	
12,198.00	12,198.00	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	
104.00	1.10	1.60	103.99	0.81	0.02	0.57	1.31	1.31	0.00	
168.00	0.50	356.00	167.99	1.70	0.02	1.21	0.94	-0.94	-8.75	
227.00	0.40	133.00	226.99	1.82	0.15	1.20	1.42	-0.17	232.20	
286.00	0.70	134.00	285.98	1.42	0.56	0.64	0.51	0.51	1.69	
344.00	0.40	98.90	343.98	1.15	1.02	0.12	0.76	-0.52	-60.52	
408.00	0.50	151.40	407.98	0.87	1.37	-0.32	0.64	0.16	82.03	
471.00	0.70	193.00	470.98	0.25	1.42	-0.80	0.74	0.32	66.03	

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Well:	BAT 29C-9HZ	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)
535.00	0.70	215.20	534.97	-0.45	1.10	-1.09	0.42	0.00	34.69
598.00	1.00	218.40	597.97	-1.19	0.54	-1.24	0.48	0.48	5.08
661.00	0.70	227.60	660.96	-1.89	-0.09	-1.30	0.52	-0.48	14.60
725.00	0.60	254.60	724.95	-2.24	-0.70	-1.13	0.50	-0.16	42.19
789.00	0.40	253.70	788.95	-2.39	-1.23	-0.87	0.31	-0.31	-1.41
853.00	0.40	285.60	852.95	-2.39	-1.66	-0.57	0.34	0.00	49.84
917.00	0.40	294.80	916.95	-2.24	-2.08	-0.17	0.10	0.00	14.38
981.00	0.60	294.30	980.95	-2.01	-2.59	0.35	0.31	0.31	-0.78
1,045.00	0.60	289.90	1,044.94	-1.75	-3.21	0.96	0.07	0.00	-6.88
1,108.00	0.60	358.60	1,107.94	-1.31	-3.53	1.50	1.07	0.00	109.05
1,172.00	1.00	13.40	1,171.93	-0.43	-3.41	2.05	0.70	0.63	23.13
1,236.00	1.10	5.20	1,235.92	0.72	-3.22	2.75	0.28	0.16	-12.81
1,300.00	1.20	5.50	1,299.91	2.00	-3.10	3.59	0.16	0.16	0.47
1,364.00	1.10	12.90	1,363.90	3.27	-2.90	4.36	0.28	-0.16	11.56
1,427.00	0.80	35.10	1,426.89	4.21	-2.51	4.78	0.75	-0.48	35.24
1,490.00	1.50	52.10	1,489.88	5.08	-1.61	4.78	1.22	1.11	26.98
1,540.00	0.90	134.80	1,539.87	5.21	-0.81	4.32	3.30	-1.20	165.40
1,667.00	0.90	130.20	1,666.85	3.86	0.65	2.33	0.06	0.00	-3.62
1,856.00	3.10	212.90	1,855.75	-1.39	-0.99	-0.32	1.65	1.16	43.76
2,045.00	2.50	197.50	2,044.53	-9.61	-5.00	-3.47	0.51	-0.32	-8.15
2,233.00	7.80	246.10	2,231.76	-18.70	-17.91	-1.09	3.42	2.82	25.85
2,423.00	12.00	233.00	2,418.91	-35.82	-45.49	5.66	2.49	2.21	-6.89
2,612.00	17.00	229.50	2,601.84	-65.61	-82.22	9.60	2.68	2.65	-1.85
2,801.00	18.20	223.70	2,782.00	-104.90	-123.62	9.93	1.12	0.63	-3.07
2,990.00	18.30	230.90	2,961.52	-144.95	-167.05	11.10	1.19	0.05	3.81
3,179.00	19.80	234.10	3,140.17	-182.44	-216.01	17.96	0.97	0.79	1.69
3,368.00	19.30	229.40	3,318.28	-221.54	-265.66	24.14	0.87	-0.26	-2.49
3,557.00	18.90	230.00	3,496.88	-261.54	-312.82	27.94	0.24	-0.21	0.32
3,746.00	17.00	233.00	3,676.67	-297.85	-358.34	33.27	1.12	-1.01	1.59
3,935.00	17.90	234.40	3,856.98	-331.39	-404.02	40.71	0.53	0.48	0.74
4,124.00	19.30	233.20	4,036.10	-367.00	-452.65	48.69	0.77	0.74	-0.63
4,312.00	21.60	231.70	4,212.24	-407.07	-504.69	55.82	1.25	1.22	-0.80
4,501.00	17.70	229.60	4,390.20	-447.27	-553.89	60.89	2.10	-2.06	-1.11
4,596.00	20.40	228.60	4,479.99	-467.58	-577.31	62.46	2.86	2.84	-1.05
4,784.00	18.70	227.20	4,657.15	-509.73	-624.01	64.39	0.94	-0.90	-0.74
4,878.00	18.50	225.10	4,746.24	-530.49	-645.63	64.38	0.74	-0.21	-2.23
5,067.00	20.40	229.80	4,924.46	-572.93	-692.04	65.90	1.30	1.01	2.49
5,256.00	19.60	231.40	5,102.06	-613.97	-741.97	70.87	0.51	-0.42	0.85
5,445.00	19.40	236.10	5,280.23	-651.25	-792.80	79.17	0.84	-0.11	2.49
5,634.00	18.30	236.70	5,459.09	-685.05	-843.66	90.01	0.59	-0.58	0.32
5,823.00	18.40	236.20	5,638.48	-717.94	-893.24	100.62	0.10	0.05	-0.26
6,012.00	13.50	231.80	5,820.15	-748.19	-935.40	107.98	2.67	-2.59	-2.33
6,201.00	9.20	234.40	6,005.42	-770.64	-965.03	112.31	2.29	-2.28	1.38

Survey Report

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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)
6,390.00	4.10	229.10	6,193.08	-783.87	-982.43	114.82	2.72	-2.70	-2.80
6,579.00	4.10	241.20	6,381.60	-791.55	-993.46	116.92	0.46	0.00	6.40
6,768.00	3.50	265.20	6,570.20	-795.28	-1,005.13	122.30	0.89	-0.32	12.70
6,862.00	8.30	329.70	6,663.75	-789.66	-1,011.42	130.72	7.97	5.11	68.62
6,957.00	18.90	347.10	6,755.99	-768.67	-1,018.34	150.65	11.84	11.16	18.32
7,052.00	23.60	350.80	6,844.51	-734.88	-1,024.82	179.51	5.14	4.95	3.89
7,146.00	32.30	355.20	6,927.47	-691.19	-1,029.94	214.58	9.51	9.26	4.68
7,240.00	39.30	356.60	7,003.67	-636.38	-1,033.81	256.80	7.50	7.45	1.49
7,335.00	42.10	353.60	7,075.69	-574.68	-1,039.15	305.01	3.59	2.95	-3.16
7,430.00	49.00	2.70	7,142.25	-507.07	-1,041.01	355.07	9.96	7.26	9.58
7,524.00	56.30	2.40	7,199.24	-432.47	-1,037.70	406.60	7.77	7.77	-0.32
7,618.00	64.60	0.50	7,245.56	-350.80	-1,035.69	464.12	9.00	8.83	-2.02
7,713.00	75.90	2.10	7,277.61	-261.56	-1,033.62	527.07	12.00	11.89	1.68
7,808.00	83.40	2.40	7,294.67	-168.25	-1,029.95	591.85	7.90	7.89	0.32
7,902.00	90.90	2.30	7,299.34	-74.51	-1,026.10	656.81	7.98	7.98	-0.11
7,996.00	88.70	2.70	7,299.67	19.39	-1,022.00	721.72	2.38	-2.34	0.43
8,091.00	88.40	2.10	7,302.07	114.28	-1,018.03	787.42	0.71	-0.32	-0.63
8,186.00	87.80	1.10	7,305.22	209.19	-1,015.38	854.05	1.23	-0.63	-1.05
8,280.00	87.90	0.90	7,308.75	303.11	-1,013.74	920.67	0.24	0.11	-0.21
8,375.00	88.40	359.90	7,311.81	398.05	-1,013.07	988.71	1.18	0.53	-1.05
8,469.00	88.10	359.10	7,314.68	492.01	-1,013.89	1,057.06	0.91	-0.32	-0.85
8,563.00	88.00	358.60	7,317.88	585.93	-1,015.78	1,126.12	0.54	-0.11	-0.53
8,658.00	89.80	0.10	7,319.71	680.90	-1,016.86	1,195.38	2.47	1.89	1.58
8,753.00	90.30	359.40	7,319.62	775.90	-1,017.27	1,264.21	0.91	0.53	-0.74
8,847.00	88.10	0.50	7,320.94	869.88	-1,017.35	1,332.06	2.62	-2.34	1.17
8,942.00	87.40	0.00	7,324.67	964.81	-1,016.94	1,400.26	0.91	-0.74	-0.53
9,036.00	88.80	0.80	7,327.78	1,058.75	-1,016.28	1,467.58	1.72	1.49	0.85
9,131.00	89.80	1.20	7,328.94	1,153.73	-1,014.62	1,534.95	1.13	1.05	0.42
9,225.00	92.60	1.60	7,326.97	1,247.67	-1,012.33	1,601.13	3.01	2.98	0.43
9,319.00	92.20	1.40	7,323.04	1,341.56	-1,009.87	1,667.16	0.48	-0.43	-0.21
9,414.00	90.10	0.60	7,321.13	1,436.52	-1,008.21	1,734.52	2.37	-2.21	-0.84
9,508.00	89.50	0.30	7,321.46	1,530.51	-1,007.47	1,801.82	0.71	-0.64	-0.32
9,603.00	89.00	0.10	7,322.70	1,625.50	-1,007.14	1,870.12	0.57	-0.53	-0.21
9,697.00	90.20	359.10	7,323.36	1,719.50	-1,007.80	1,938.38	1.66	1.28	-1.06
9,791.00	90.70	358.10	7,322.62	1,813.46	-1,010.10	2,007.76	1.19	0.53	-1.06
9,886.00	90.10	358.00	7,321.96	1,908.41	-1,013.33	2,078.50	0.64	-0.63	-0.11
9,980.00	91.30	359.00	7,320.81	2,002.36	-1,015.79	2,147.98	1.66	1.28	1.06
10,074.00	90.50	358.60	7,319.33	2,096.33	-1,017.76	2,217.14	0.95	-0.85	-0.43
10,169.00	90.00	359.00	7,318.92	2,191.31	-1,019.75	2,287.03	0.67	-0.53	0.42
10,264.00	91.00	359.70	7,318.09	2,286.30	-1,020.82	2,356.31	1.28	1.05	0.74
10,359.00	89.80	359.20	7,317.43	2,381.29	-1,021.74	2,425.47	1.37	-1.26	-0.53
10,453.00	89.30	359.30	7,318.17	2,475.28	-1,022.97	2,494.13	0.54	-0.53	0.11
10,547.00	90.70	359.80	7,318.17	2,569.27	-1,023.70	2,562.45	1.58	1.49	0.53

Survey Report

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Site:	1N-65W-09 Bat Pad	MD Reference:	4931+25 @ 4956.00usft (hp311)
Well:	BAT 29C-9HZ	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)	
10,642.00	89.60	359.70	7,317.92	2,664.27	-1,024.12	2,631.27	1.16	-1.16	-0.11	
10,737.00	91.20	0.80	7,317.25	2,759.26	-1,023.70	2,699.51	2.04	1.68	1.16	
10,831.00	89.80	359.90	7,316.43	2,853.25	-1,023.13	2,766.92	1.77	-1.49	-0.96	
10,926.00	92.00	1.30	7,314.94	2,948.23	-1,022.14	2,834.75	2.74	2.32	1.47	
11,020.00	91.30	1.20	7,312.23	3,042.16	-1,020.09	2,901.10	0.75	-0.74	-0.11	
11,115.00	90.10	0.40	7,311.07	3,137.15	-1,018.76	2,968.71	1.52	-1.26	-0.84	
11,209.00	89.40	359.50	7,311.48	3,231.14	-1,018.84	3,036.58	1.21	-0.74	-0.96	
11,304.00	89.90	358.90	7,312.06	3,326.13	-1,020.17	3,106.02	0.82	0.53	-0.63	
11,398.00	91.50	0.40	7,310.92	3,420.12	-1,020.74	3,174.22	2.33	1.70	1.60	
11,493.00	90.50	0.00	7,309.26	3,515.10	-1,020.41	3,242.52	1.13	-1.05	-0.42	
11,587.00	90.00	0.60	7,308.85	3,609.10	-1,019.92	3,309.99	0.83	-0.53	0.64	
11,682.00	89.70	0.80	7,309.10	3,704.09	-1,018.76	3,377.71	0.38	-0.32	0.21	
11,777.00	90.70	0.60	7,308.76	3,799.08	-1,017.60	3,445.44	1.07	1.05	-0.21	
11,871.00	91.50	1.10	7,306.96	3,893.05	-1,016.20	3,512.27	1.00	0.85	0.53	
11,965.00	90.90	0.10	7,304.99	3,987.03	-1,015.22	3,579.38	1.24	-0.64	-1.06	
12,060.00	90.20	0.10	7,304.08	4,082.02	-1,015.05	3,647.80	0.74	-0.74	0.00	
12,143.00	89.80	359.80	7,304.08	4,165.02	-1,015.13	3,707.73	0.60	-0.48	-0.36	
12,198.00	89.80	359.80	7,304.27	4,220.02	-1,015.32	3,747.54	0.00	0.00	0.00	