



US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

2N-65W-21 Meguire 5-21HZ Pad

MEGUIRE 2

Plan A

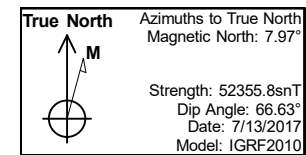
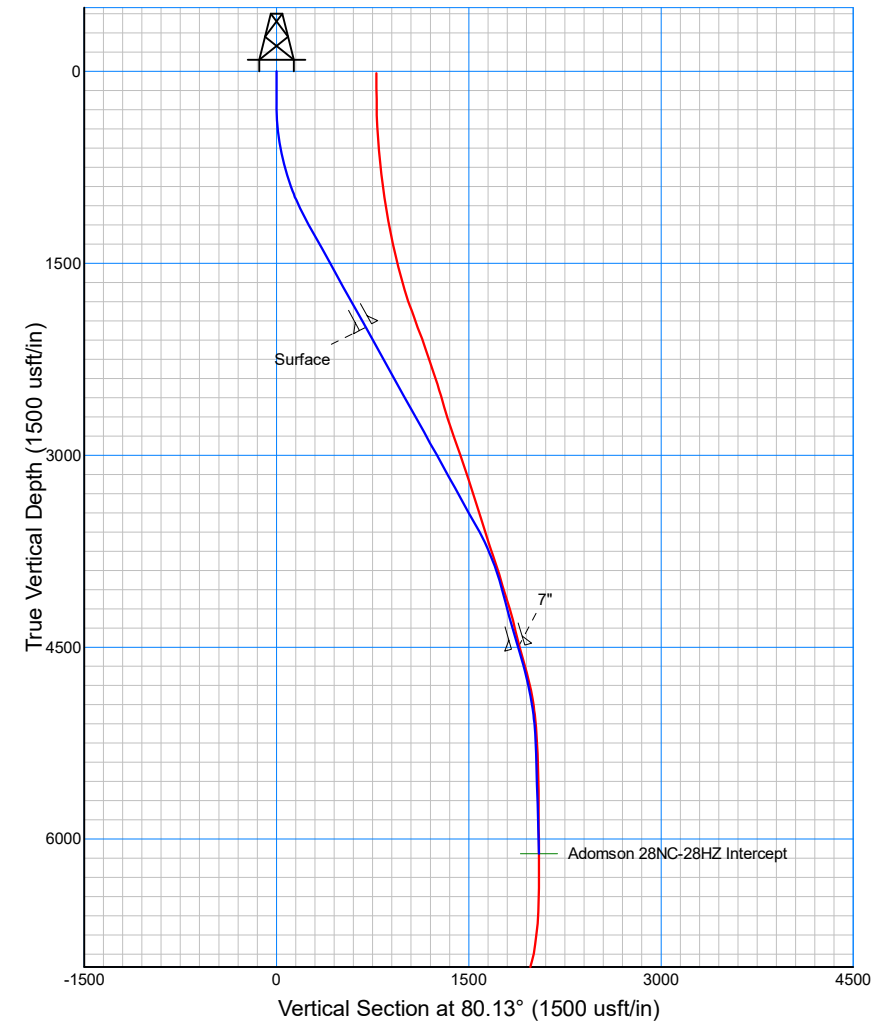
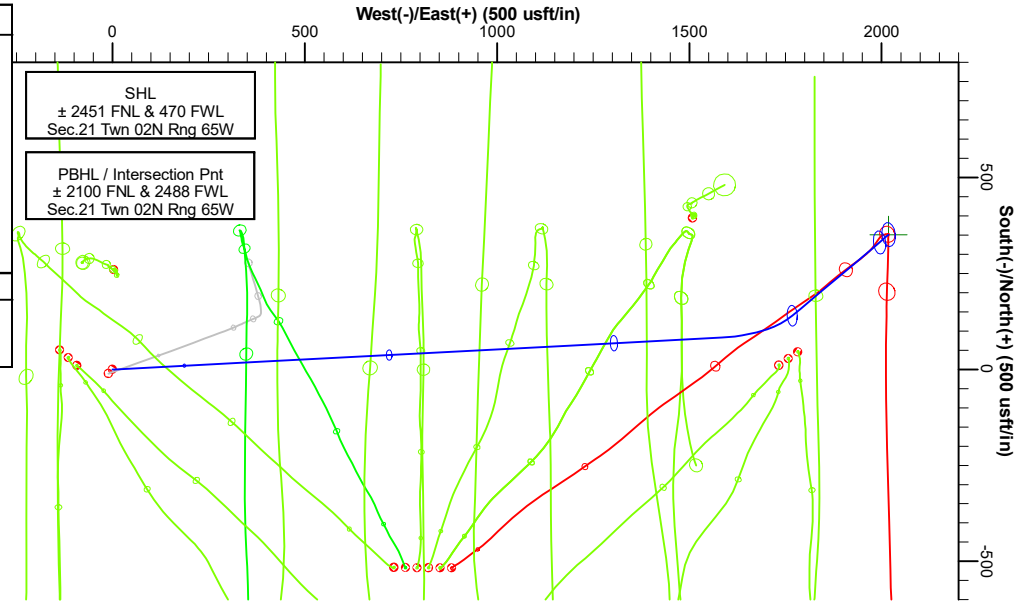
Plan: Permit Plan-Rev1

Standard Planning Report

18 August, 2017

Well: MEGUIRE 2	Plan: Permit Plan-Rev1	Field: WELD-NAD83-UTMFT13N	Site: 2N-65W-21 Meguire 5-21HZ Pad	Rig: Drilling Rig
Borehole: Plan A	Plan Date: 7:21, August 18 2017	Datum: UTM (US Survey Ft)	RKB: 4913ft	Latitude: 40.124732
Grid Conv: 0.21	VSec: 80.13deg	Zone: Zone 13N (108 W to 102 W)	GL: 4896.00ft	Longitude: -104.676737
				Northing / Y: 14572318.21
				Easting / X: 1730781.92
				Model: IGRF2010
				Date: 13-Jul-17
				DEC: 7.98°
				DIP: 66.63°
				FS: 52355.81722115nT
				North Ref: True

Critical Points										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	Build 3°/100 DLS
3	1217.00	29.20	87.00	1175.68	12.62	240.79	3.02	87.00	239.39	Hold Inc
4	3950.00	29.20	87.00	3561.38	82.40	1572.28	0.00	0.00	1563.12	Drop & Turn 3.4°/100 DLS
5	4500.00	16.50	50.00	4069.59	140.14	1767.82	3.39	-147.64	1765.66	Build .6°/100 DLS
6	4900.00	19.00	50.00	4450.52	218.51	1861.23	0.62	0.00	1871.13	Hold Inc
7	5100.00	18.00	50.00	4640.18	259.31	1909.84	0.50	180.00	1926.01	Drop 2.4°/100 DLS
8	5800.00	1.00	50.00	5328.05	333.30	1998.02	2.43	180.00	2025.58	Build 2°/100 DLS
9	5850.89	2.02	48.42	5378.92	334.18	1999.03	2.00	-3.14	2026.72	Hold Inc
10	6586.05	2.02	48.42	6113.63	351.35	2018.38	0.00	0.00	2048.74	Intercept Point/TD
Target Details										
Name				TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Adomson 28NC-28HZ Intercept				6113.63	351.35	2018.38	14572676.90	1732799.02	40.125697	-104.669517



Database:	PLANNING	Local Co-ordinate Reference:	Well MEGUIRE 2
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	KB @ 4913.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	KB @ 4913.00usft (Drilling Rig)
Site:	2N-65W-21 Meguire 5-21HZ Pad	North Reference:	True
Well:	MEGUIRE 2	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Plan-Rev1		

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-65W-21 Meguire 5-21HZ Pad			
Site Position:		Northing:	14,572,368.33 usft	Latitude:	40.124871
From:	Lat/Long	Easting:	1,730,645.04 usft	Longitude:	-104.677226
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.21 °

Well		MEGUIRE 2				
Well Position	+N/-S	-50.62 usft	Northing:	14,572,318.21 usft	Latitude:	40.124732
	+E/-W	136.70 usft	Easting:	1,730,781.92 usft	Longitude:	-104.676737
Position Uncertainty	0.00 usft		Wellhead Elevation:		Ground Level:	4,896.00 usft

Wellbore	Plan A				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	7/13/2017	7.98	66.63	52,355.81722115

Design	Permit Plan-Rev1			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	80.13

Plan Survey Tool Program		Date	8/18/2017		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	0.00 Permit Plan-Rev1 (Plan A) Frequency: 30ft	APC_ISCWSA REV 2 MWD+II Fixed:v2:crustal field declination		
2	2,012.00	6,586.05 Permit Plan-Rev1 (Plan A) Frequency: 30ft	APC_ISCWSA REV 2 MWD+II Fixed:v2:crustal field declination		

Database:	PLANNING	Local Co-ordinate Reference:	Well MEGUIRE 2
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	KB @ 4913.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	KB @ 4913.00usft (Drilling Rig)
Site:	2N-65W-21 Meguire 5-21HZ Pad	North Reference:	True
Well:	MEGUIRE 2	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Plan-Rev1		

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	
250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,217.00	29.20	87.00	1,175.68	12.62	240.79	3.02	3.02	0.00	87.00	
3,950.00	29.20	87.00	3,561.38	82.40	1,572.28	0.00	0.00	0.00	0.00	
4,500.00	16.50	50.00	4,069.59	140.14	1,767.82	3.39	-2.31	-6.73	-147.64	
4,900.00	19.00	50.00	4,450.52	218.51	1,861.23	0.63	0.63	0.00	0.00	
5,100.00	18.00	50.00	4,640.18	259.31	1,909.84	0.50	-0.50	0.00	180.00	
5,800.00	1.00	50.00	5,328.05	333.30	1,998.02	2.43	-2.43	0.00	180.00	
5,850.89	2.02	48.42	5,378.92	334.18	1,999.03	2.00	2.00	-3.11	-3.14	
6,586.05	2.02	48.42	6,113.63	351.35	2,018.38	0.00	0.00	0.00	0.00	Adomson 28NC-28H2

Database:	PLANNING	Local Co-ordinate Reference:	Well MEGUIRE 2
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	KB @ 4913.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	KB @ 4913.00usft (Drilling Rig)
Site:	2N-65W-21 Meguire 5-21HZ Pad	North Reference:	True
Well:	MEGUIRE 2	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Plan-Rev1		

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)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00
Build 3°/100 DLS									
300.00	1.51	87.00	299.99	0.03	0.66	0.65	3.02	3.02	0.00
400.00	4.53	87.00	399.84	0.31	5.92	5.88	3.02	3.02	0.00
500.00	7.55	87.00	499.28	0.86	16.42	16.33	3.02	3.02	0.00
600.00	10.57	87.00	598.02	1.68	32.14	31.96	3.02	3.02	0.00
700.00	13.59	87.00	695.79	2.78	53.04	52.73	3.02	3.02	0.00
800.00	16.61	87.00	792.33	4.14	79.05	78.59	3.02	3.02	0.00
900.00	19.63	87.00	887.36	5.77	110.10	109.46	3.02	3.02	0.00
1,000.00	22.65	87.00	980.62	7.66	146.11	145.25	3.02	3.02	0.00
1,100.00	25.67	87.00	1,071.85	9.80	186.97	185.88	3.02	3.02	0.00
1,200.00	28.69	87.00	1,160.80	12.19	232.58	231.22	3.02	3.02	0.00
1,217.00	29.20	87.00	1,175.68	12.62	240.79	239.39	3.02	3.02	0.00
Hold Inc									
1,300.00	29.20	87.00	1,248.13	14.74	281.23	279.59	0.00	0.00	0.00
1,367.44	29.20	87.00	1,307.00	16.46	314.08	312.25	0.00	0.00	0.00
Fox Hills									
1,400.00	29.20	87.00	1,335.43	17.29	329.95	328.02	0.00	0.00	0.00
1,500.00	29.20	87.00	1,422.72	19.85	378.67	376.46	0.00	0.00	0.00
1,600.00	29.20	87.00	1,510.01	22.40	427.39	424.89	0.00	0.00	0.00
1,700.00	29.20	87.00	1,597.30	24.95	476.10	473.33	0.00	0.00	0.00
1,800.00	29.20	87.00	1,684.59	27.50	524.82	521.77	0.00	0.00	0.00
1,900.00	29.20	87.00	1,771.89	30.06	573.54	570.20	0.00	0.00	0.00
2,000.00	29.20	87.00	1,859.18	32.61	622.26	618.64	0.00	0.00	0.00
2,100.00	29.20	87.00	1,946.47	35.16	670.98	667.07	0.00	0.00	0.00
2,161.32	29.20	87.00	2,000.00	36.73	700.86	696.77	0.00	0.00	0.00
Surface									
2,200.00	29.20	87.00	2,033.76	37.72	719.70	715.51	0.00	0.00	0.00
2,300.00	29.20	87.00	2,121.06	40.27	768.42	763.94	0.00	0.00	0.00
2,400.00	29.20	87.00	2,208.35	42.82	817.14	812.38	0.00	0.00	0.00
2,500.00	29.20	87.00	2,295.64	45.38	865.86	860.81	0.00	0.00	0.00
2,600.00	29.20	87.00	2,382.93	47.93	914.58	909.25	0.00	0.00	0.00
2,700.00	29.20	87.00	2,470.22	50.48	963.30	957.68	0.00	0.00	0.00
2,800.00	29.20	87.00	2,557.52	53.04	1,012.01	1,006.12	0.00	0.00	0.00
2,900.00	29.20	87.00	2,644.81	55.59	1,060.73	1,054.55	0.00	0.00	0.00
3,000.00	29.20	87.00	2,732.10	58.14	1,109.45	1,102.99	0.00	0.00	0.00
3,077.78	29.20	87.00	2,800.00	60.13	1,147.35	1,140.66	0.00	0.00	0.00
Parkman									
3,100.00	29.20	87.00	2,819.39	60.70	1,158.17	1,151.42	0.00	0.00	0.00
3,200.00	29.20	87.00	2,906.69	63.25	1,206.89	1,199.86	0.00	0.00	0.00
3,300.00	29.20	87.00	2,993.98	65.80	1,255.61	1,248.29	0.00	0.00	0.00
3,400.00	29.20	87.00	3,081.27	68.36	1,304.33	1,296.73	0.00	0.00	0.00
3,500.00	29.20	87.00	3,168.56	70.91	1,353.05	1,345.16	0.00	0.00	0.00
3,600.00	29.20	87.00	3,255.85	73.46	1,401.77	1,393.60	0.00	0.00	0.00
3,700.00	29.20	87.00	3,343.15	76.02	1,450.49	1,442.03	0.00	0.00	0.00
3,800.00	29.20	87.00	3,430.44	78.57	1,499.21	1,490.47	0.00	0.00	0.00
3,900.00	29.20	87.00	3,517.73	81.12	1,547.92	1,538.90	0.00	0.00	0.00
3,950.00	29.20	87.00	3,561.38	82.40	1,572.28	1,563.12	0.00	0.00	0.00
Drop & Turn 3.4°/100 DLS									
4,000.00	27.78	85.06	3,605.32	84.04	1,596.08	1,586.84	3.39	-2.83	-3.89

Database:	PLANNING	Local Co-ordinate Reference:	Well MEGUIRE 2
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	KB @ 4913.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	KB @ 4913.00usft (Drilling Rig)
Site:	2N-65W-21 Meguire 5-21HZ Pad	North Reference:	True
Well:	MEGUIRE 2	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Plan-Rev1		

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)	
4,100.00	25.04	80.57	3,694.88	89.52	1,640.19	1,631.24	3.39	-2.74	-4.48	
4,200.00	22.47	75.10	3,786.41	97.90	1,679.55	1,671.46	3.39	-2.57	-5.47	
4,300.00	20.12	68.37	3,879.59	109.16	1,714.02	1,707.34	3.39	-2.35	-6.74	
4,400.00	18.09	60.07	3,974.09	123.25	1,743.47	1,738.78	3.39	-2.03	-8.30	
4,500.00	16.50	50.00	4,069.59	140.14	1,767.82	1,765.66	3.39	-1.59	-10.07	
Build .6°/100 DLS										
4,600.00	17.13	50.00	4,165.31	158.73	1,789.98	1,790.68	0.63	0.63	0.00	
4,700.00	17.75	50.00	4,260.72	177.99	1,812.93	1,816.60	0.63	0.63	0.00	
4,770.73	18.19	50.00	4,328.00	192.02	1,829.65	1,835.47	0.63	0.63	0.00	
Sussex										
4,800.00	18.38	50.00	4,355.79	197.92	1,836.68	1,843.41	0.63	0.63	0.00	
4,900.00	19.00	50.00	4,450.52	218.51	1,861.23	1,871.13	0.63	0.63	0.00	
Hold Inc										
4,952.29	18.74	50.00	4,500.00	229.39	1,874.18	1,885.75	0.50	-0.50	0.00	
7"										
5,000.00	18.50	50.00	4,545.21	239.18	1,885.85	1,898.93	0.50	-0.50	0.00	
5,100.00	18.00	50.00	4,640.18	259.31	1,909.84	1,926.01	0.50	-0.50	0.00	
Drop 2.4°/100 DLS										
5,200.00	15.57	50.00	4,735.91	277.87	1,931.96	1,950.99	2.43	-2.43	0.00	
5,300.00	13.14	50.00	4,832.78	293.81	1,950.95	1,972.44	2.43	-2.43	0.00	
5,400.00	10.71	50.00	4,930.61	307.09	1,966.79	1,990.31	2.43	-2.43	0.00	
5,500.00	8.29	50.00	5,029.23	317.70	1,979.43	2,004.59	2.43	-2.43	0.00	
5,600.00	5.86	50.00	5,128.47	325.61	1,988.86	2,015.23	2.43	-2.43	0.00	
5,700.00	3.43	50.00	5,228.13	330.81	1,995.06	2,022.24	2.43	-2.43	0.00	
5,800.00	1.00	50.00	5,328.05	333.30	1,998.02	2,025.58	2.43	-2.43	0.00	
Build 2°/100 DLS										
5,850.89	2.02	48.42	5,378.92	334.18	1,999.03	2,026.72	2.00	2.00	-3.11	
Hold Inc										
5,900.00	2.02	48.42	5,428.00	335.32	2,000.32	2,028.19	0.00	0.00	0.00	
6,000.00	2.02	48.42	5,527.94	337.66	2,002.95	2,031.19	0.00	0.00	0.00	
6,100.00	2.02	48.42	5,627.88	340.00	2,005.59	2,034.18	0.00	0.00	0.00	
6,200.00	2.02	48.42	5,727.81	342.33	2,008.22	2,037.18	0.00	0.00	0.00	
6,300.00	2.02	48.42	5,827.75	344.67	2,010.85	2,040.17	0.00	0.00	0.00	
6,400.00	2.02	48.42	5,927.69	347.00	2,013.49	2,043.17	0.00	0.00	0.00	
6,500.00	2.02	48.42	6,027.63	349.34	2,016.12	2,046.16	0.00	0.00	0.00	
6,586.05	2.02	48.42	6,113.63	351.35	2,018.38	2,048.74	0.00	0.00	0.00	
Intercept Point/TD										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
- hit/miss target										
- Shape										
Adomson 28NC-28HZ Ir	0.00	0.00	6,113.63	351.35	2,018.38	14,572,676.90	1,732,799.01	40.125697	-104.669517	
- plan hits target center										
- Point										

Database:	PLANNING	Local Co-ordinate Reference:	Well MEGUIRE 2
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	KB @ 4913.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	KB @ 4913.00usft (Drilling Rig)
Site:	2N-65W-21 Meguire 5-21HZ Pad	North Reference:	True
Well:	MEGUIRE 2	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Plan-Rev1		

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
2,161.32	2,000.00	Surface	9-5/8	13-1/2	
4,952.29	4,500.00	7"	7	8-3/4	

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,367.44	1,307.00	Fox Hills			
3,077.78	2,800.00	Parkman			
4,770.73	4,328.00	Sussex			

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
250.00	250.00	0.00	0.00	Build 3°/100 DLS	
1,217.00	1,175.68	12.62	240.79	Hold Inc	
3,950.00	3,561.38	82.40	1,572.28	Drop & Turn 3.4°/100 DLS	
4,500.00	4,069.59	140.14	1,767.82	Build .6°/100 DLS	
4,900.00	4,450.52	218.51	1,861.23	Hold Inc	
5,100.00	4,640.18	259.31	1,909.84	Drop 2.4°/100 DLS	
5,800.00	5,328.05	333.30	1,998.02	Build 2°/100 DLS	
5,850.89	5,378.92	334.18	1,999.03	Hold Inc	
6,586.05	6,113.63	351.35	2,018.38	Intercept Point/TD	