

EXTRACTION OIL & GAS

Broomfield County

Sec 7-T1S-R68W

LIVINGSTON S19-25-15N

ORIGINAL WELLBORE

Plan: PROPOSAL 1

Standard Planning Report

07 December, 2017



Project: Broomfield County
Site: Sec 7-T1S-R68W
Well: LIVINGSTON S19-25-15N
Wellbore: ORIGINAL WELLBORE
Design: PROPOSAL 1

PROJECT DETAILS: Broomfield County

Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: Colorado Northern Zone

System Datum: Mean Sea Level



Azimuths to True North
Magnetic North: 8.27°

Magnetic Field
Strength: 52086.2snT
Dip Angle: 66.46°
Date: 12/4/2017
Model: IGRF2015

WELL DETAILS: LIVINGSTON S19-25-15N

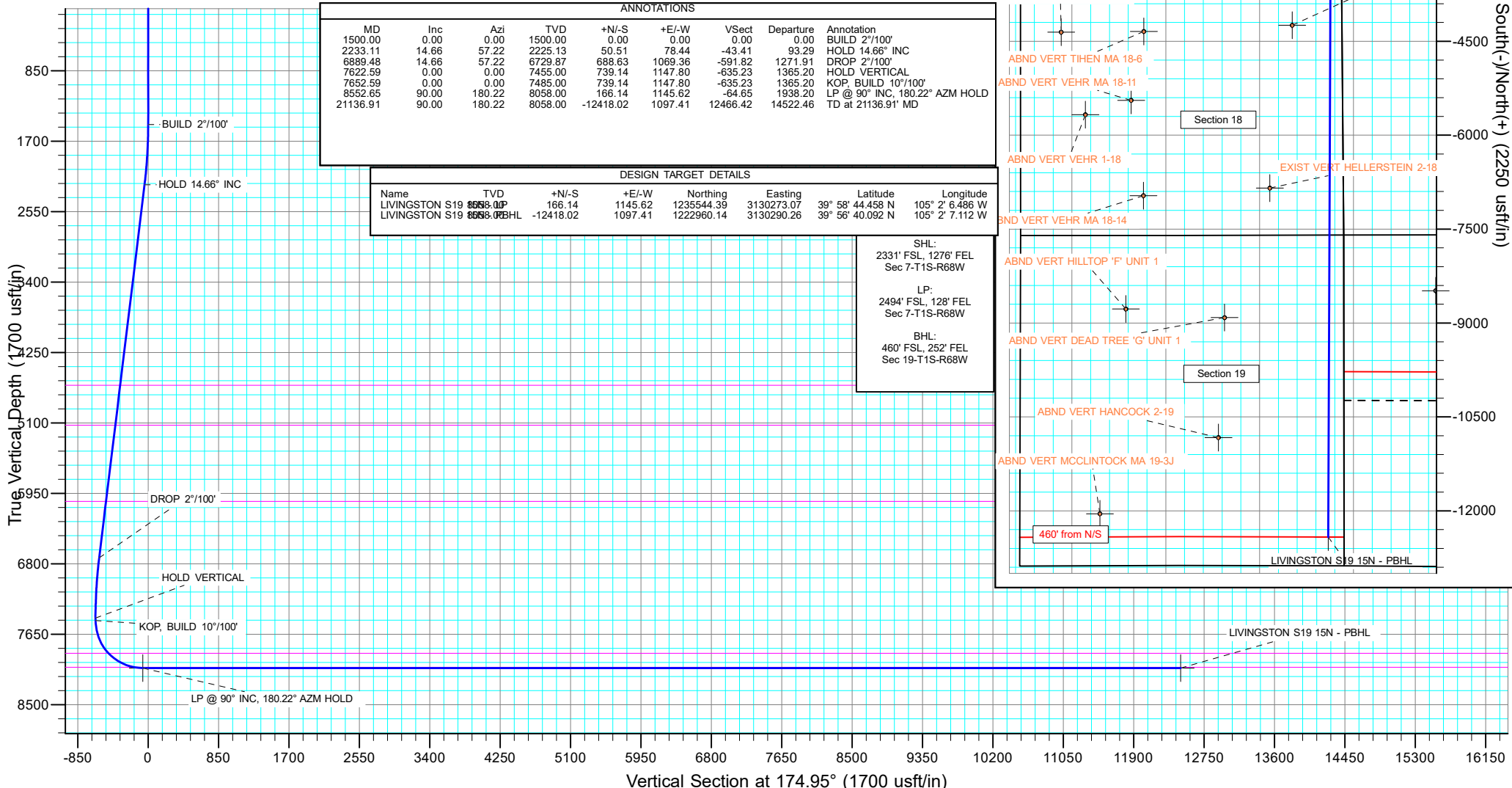
+N/-S	+E/-W	Northing	Easting	5311.00	Latitude	Longitude	Slot
0.00	0.00	1235372.29	3129128.33		39° 58' 42.816 N	105° 2' 21.203 W	

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	1500.00	0.00	0.00	1500.00	0.00	0.00	0.00	0.00	0.00	
3	2233.11	14.66	57.22	2225.13	50.51	78.44	2.00	57.22	-43.41	
4	6889.48	14.66	57.22	6729.87	688.63	1069.36	0.00	0.00	-591.82	
5	7622.59	0.00	0.00	7455.00	739.14	1147.80	2.00	180.00	-635.23	
6	7652.59	0.00	0.00	7485.00	739.14	1147.80	0.00	0.00	-635.23	
7	8552.65	90.00	180.22	8058.00	166.14	1145.62	10.00	180.22	-64.65	LIVINGSTON S19 15N - LP
8	21136.91	90.00	180.22	8058.00	-12418.02	1097.41	0.00	0.00	12466.42	LIVINGSTON S19 15N - PBHL

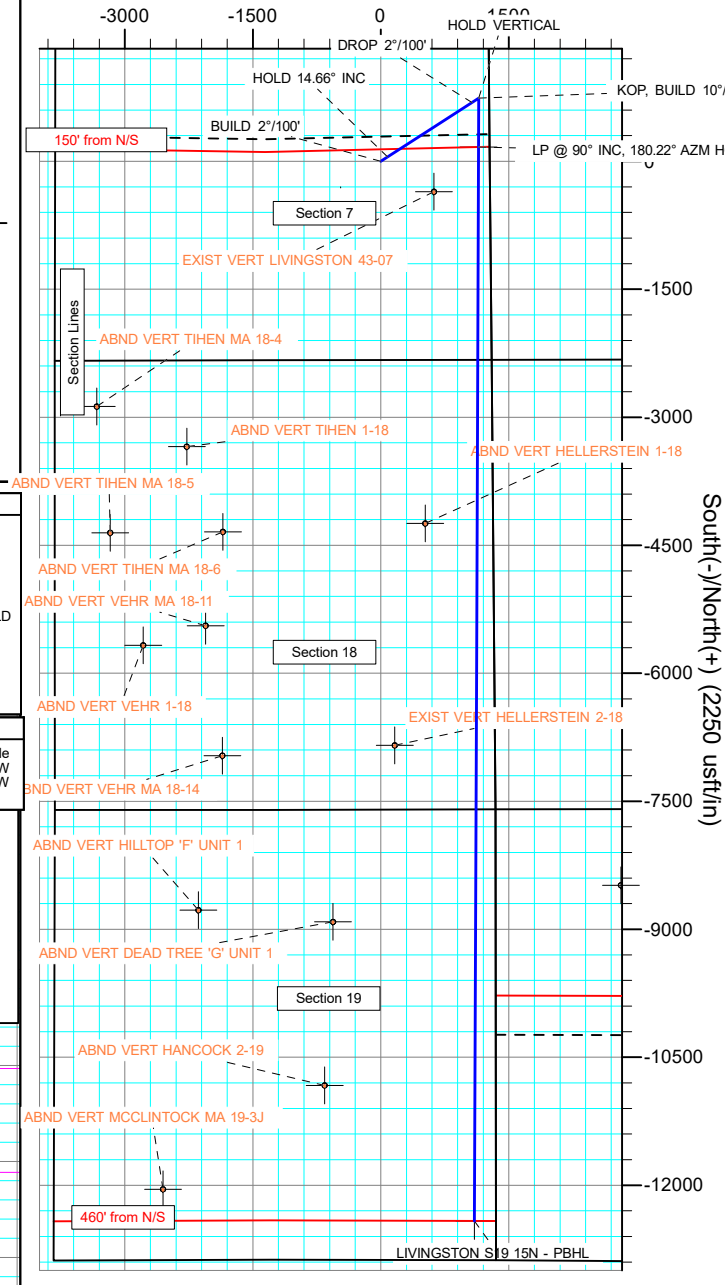
FORMATION TOP DETAILS

TVDPath	MDPath	Formation
4646.00	4735.46	PARKMAN
5127.00	5232.66	SUSSEX
6047.00	6183.62	SHANNON
7880.00	8088.41	NIOBRARA
8048.00	8445.44	NIO B TARGET



Vertical Section at 174.95° (1700 usft/in)

West(-)/East(+) (2250 usft/in)



South(-)/North(+) (2250 usft/in)

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well LIVINGSTON S19-25-15N
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB 25' @ 5336.00usft
Project:	Broomfield County	MD Reference:	KB 25' @ 5336.00usft
Site:	Sec 7-T1S-R68W	North Reference:	True
Well:	LIVINGSTON S19-25-15N	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL 1		

Project	Broomfield County		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site		Sec 7-T1S-R68W			
Site Position:		Northing:	1,238,329.25 usft	Latitude:	39° 59' 11.974 N
From:	Lat/Long	Easting:	3,130,366.41 usft	Longitude:	105° 2' 5.099 W
Position Uncertainty:	0.00 usft	Slot Radius:	13.200 in	Grid Convergence:	0.30 °

Well		LIVINGSTON S19-25-15N				
Well Position	+N/-S	-2,950.42 usft	Northing:	1,235,372.29 usft	Latitude:	39° 58' 42.816 N
	+E/-W	-1,253.58 usft	Easting:	3,129,128.33 usft	Longitude:	105° 2' 21.203 W
Position Uncertainty	0.00 usft		Wellhead Elevation:		Ground Level:	5,311.00 usft

Wellbore	ORIGINAL WELLBORE				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	12/4/2017	8.27	66.46	52,086.18259367

Design	PROPOSAL 1			
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	174.95

Plan Survey Tool Program	Date	12/7/2017		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	21,136.47	PROPOSAL 1 (ORIGINAL WELL	MWD OWSG
			OWSG MWD - Standard	

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,233.11	14.66	57.22	2,225.13	50.51	78.44	2.00	2.00	0.00	57.22	
6,889.48	14.66	57.22	6,729.87	688.63	1,069.36	0.00	0.00	0.00	0.00	
7,622.59	0.00	0.00	7,455.00	739.14	1,147.80	2.00	-2.00	0.00	180.00	
7,652.59	0.00	0.00	7,485.00	739.14	1,147.80	0.00	0.00	0.00	0.00	
8,552.65	90.00	180.22	8,058.00	166.14	1,145.62	10.00	10.00	-19.97	180.22	LIVINGSTON S19 15
21,136.91	90.00	180.22	8,058.00	-12,418.02	1,097.41	0.00	0.00	0.00	0.00	LIVINGSTON S19 15

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well LIVINGSTON S19-25-15N
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB 25' @ 5336.00usft
Project:	Broomfield County	MD Reference:	KB 25' @ 5336.00usft
Site:	Sec 7-T1S-R68W	North Reference:	True
Well:	LIVINGSTON S19-25-15N	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL 1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
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
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
BUILD 2°/100'									
1,600.00	2.00	57.22	1,599.98	0.94	1.47	-0.81	2.00	2.00	0.00
1,700.00	4.00	57.22	1,699.84	3.78	5.87	-3.25	2.00	2.00	0.00
1,800.00	6.00	57.22	1,799.45	8.50	13.19	-7.30	2.00	2.00	0.00
1,900.00	8.00	57.22	1,898.70	15.09	23.44	-12.97	2.00	2.00	0.00
2,000.00	10.00	57.22	1,997.47	23.56	36.59	-20.25	2.00	2.00	0.00
2,100.00	12.00	57.22	2,095.62	33.89	52.63	-29.13	2.00	2.00	0.00
2,200.00	14.00	57.22	2,193.06	46.07	71.55	-39.60	2.00	2.00	0.00
2,233.11	14.66	57.22	2,225.13	50.51	78.44	-43.41	2.00	2.00	0.00
HOLD 14.66° INC									
2,300.00	14.66	57.22	2,289.85	59.68	92.67	-51.29	0.00	0.00	0.00
2,400.00	14.66	57.22	2,386.59	73.38	113.95	-63.06	0.00	0.00	0.00
2,500.00	14.66	57.22	2,483.33	87.09	135.23	-74.84	0.00	0.00	0.00
2,600.00	14.66	57.22	2,580.08	100.79	156.51	-86.62	0.00	0.00	0.00
2,700.00	14.66	57.22	2,676.82	114.49	177.80	-98.40	0.00	0.00	0.00
2,800.00	14.66	57.22	2,773.56	128.20	199.08	-110.18	0.00	0.00	0.00
2,900.00	14.66	57.22	2,870.31	141.90	220.36	-121.95	0.00	0.00	0.00
3,000.00	14.66	57.22	2,967.05	155.61	241.64	-133.73	0.00	0.00	0.00
3,100.00	14.66	57.22	3,063.79	169.31	262.92	-145.51	0.00	0.00	0.00
3,200.00	14.66	57.22	3,160.54	183.01	284.20	-157.29	0.00	0.00	0.00
3,300.00	14.66	57.22	3,257.28	196.72	305.48	-169.06	0.00	0.00	0.00
3,400.00	14.66	57.22	3,354.02	210.42	326.76	-180.84	0.00	0.00	0.00
3,500.00	14.66	57.22	3,450.77	224.13	348.04	-192.62	0.00	0.00	0.00
3,600.00	14.66	57.22	3,547.51	237.83	369.33	-204.40	0.00	0.00	0.00
3,700.00	14.66	57.22	3,644.26	251.54	390.61	-216.17	0.00	0.00	0.00
3,800.00	14.66	57.22	3,741.00	265.24	411.89	-227.95	0.00	0.00	0.00
3,900.00	14.66	57.22	3,837.74	278.94	433.17	-239.73	0.00	0.00	0.00
4,000.00	14.66	57.22	3,934.49	292.65	454.45	-251.51	0.00	0.00	0.00
4,100.00	14.66	57.22	4,031.23	306.35	475.73	-263.29	0.00	0.00	0.00
4,200.00	14.66	57.22	4,127.97	320.06	497.01	-275.06	0.00	0.00	0.00
4,300.00	14.66	57.22	4,224.72	333.76	518.29	-286.84	0.00	0.00	0.00
4,400.00	14.66	57.22	4,321.46	347.47	539.58	-298.62	0.00	0.00	0.00
4,500.00	14.66	57.22	4,418.20	361.17	560.86	-310.40	0.00	0.00	0.00
4,600.00	14.66	57.22	4,514.95	374.87	582.14	-322.17	0.00	0.00	0.00
4,700.00	14.66	57.22	4,611.69	388.58	603.42	-333.95	0.00	0.00	0.00
4,735.46	14.66	57.22	4,646.00	393.44	610.97	-338.13	0.00	0.00	0.00
PARKMAN									

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well LIVINGSTON S19-25-15N
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB 25' @ 5336.00usft
Project:	Broomfield County	MD Reference:	KB 25' @ 5336.00usft
Site:	Sec 7-T1S-R68W	North Reference:	True
Well:	LIVINGSTON S19-25-15N	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL 1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,800.00	14.66	57.22	4,708.43	402.28	624.70	-345.73	0.00	0.00	0.00
4,900.00	14.66	57.22	4,805.18	415.99	645.98	-357.51	0.00	0.00	0.00
5,000.00	14.66	57.22	4,901.92	429.69	667.26	-369.28	0.00	0.00	0.00
5,100.00	14.66	57.22	4,998.66	443.40	688.54	-381.06	0.00	0.00	0.00
5,200.00	14.66	57.22	5,095.41	457.10	709.82	-392.84	0.00	0.00	0.00
5,232.66	14.66	57.22	5,127.00	461.58	716.77	-396.69	0.00	0.00	0.00
SUSSEX									
5,300.00	14.66	57.22	5,192.15	470.80	731.11	-404.62	0.00	0.00	0.00
5,400.00	14.66	57.22	5,288.90	484.51	752.39	-416.40	0.00	0.00	0.00
5,500.00	14.66	57.22	5,385.64	498.21	773.67	-428.17	0.00	0.00	0.00
5,600.00	14.66	57.22	5,482.38	511.92	794.95	-439.95	0.00	0.00	0.00
5,700.00	14.66	57.22	5,579.13	525.62	816.23	-451.73	0.00	0.00	0.00
5,800.00	14.66	57.22	5,675.87	539.33	837.51	-463.51	0.00	0.00	0.00
5,900.00	14.66	57.22	5,772.61	553.03	858.79	-475.28	0.00	0.00	0.00
6,000.00	14.66	57.22	5,869.36	566.73	880.07	-487.06	0.00	0.00	0.00
6,100.00	14.66	57.22	5,966.10	580.44	901.35	-498.84	0.00	0.00	0.00
6,183.62	14.66	57.22	6,047.00	591.90	919.15	-508.69	0.00	0.00	0.00
SHANNON									
6,200.00	14.66	57.22	6,062.84	594.14	922.64	-510.62	0.00	0.00	0.00
6,300.00	14.66	57.22	6,159.59	607.85	943.92	-522.39	0.00	0.00	0.00
6,400.00	14.66	57.22	6,256.33	621.55	965.20	-534.17	0.00	0.00	0.00
6,500.00	14.66	57.22	6,353.07	635.26	986.48	-545.95	0.00	0.00	0.00
6,600.00	14.66	57.22	6,449.82	648.96	1,007.76	-557.73	0.00	0.00	0.00
6,700.00	14.66	57.22	6,546.56	662.66	1,029.04	-569.51	0.00	0.00	0.00
6,800.00	14.66	57.22	6,643.30	676.37	1,050.32	-581.28	0.00	0.00	0.00
6,889.48	14.66	57.22	6,729.87	688.63	1,069.36	-591.82	0.00	0.00	0.00
DROP 2°/100'									
6,900.00	14.45	57.22	6,740.05	690.06	1,071.59	-593.05	2.00	-2.00	0.00
7,000.00	12.45	57.22	6,837.30	702.66	1,091.15	-603.88	2.00	-2.00	0.00
7,100.00	10.45	57.22	6,935.31	713.41	1,107.84	-613.11	2.00	-2.00	0.00
7,200.00	8.45	57.22	7,033.95	722.30	1,121.64	-620.75	2.00	-2.00	0.00
7,300.00	6.45	57.22	7,133.10	729.32	1,132.55	-626.79	2.00	-2.00	0.00
7,400.00	4.45	57.22	7,232.64	734.46	1,140.53	-631.21	2.00	-2.00	0.00
7,500.00	2.45	57.22	7,332.45	737.72	1,145.60	-634.01	2.00	-2.00	0.00
7,600.00	0.45	57.22	7,432.42	739.09	1,147.73	-635.19	2.00	-2.00	0.00
7,622.59	0.00	0.00	7,455.00	739.14	1,147.80	-635.23	2.00	-2.00	0.00
HOLD VERTICAL									
7,652.59	0.00	0.00	7,485.00	739.14	1,147.80	-635.23	0.00	0.00	0.00
KOP, BUILD 10°/100'									
7,700.00	4.74	180.22	7,532.36	737.18	1,147.79	-633.28	10.00	10.00	0.00
7,750.00	9.74	180.22	7,581.95	730.88	1,147.77	-627.00	10.00	10.00	0.00
7,800.00	14.74	180.22	7,630.79	720.28	1,147.73	-616.45	10.00	10.00	0.00
7,850.00	19.74	180.22	7,678.53	705.47	1,147.67	-601.70	10.00	10.00	0.00
7,900.00	24.74	180.22	7,724.80	686.55	1,147.60	-582.86	10.00	10.00	0.00
7,950.00	29.74	180.22	7,769.24	663.67	1,147.51	-560.08	10.00	10.00	0.00
8,000.00	34.74	180.22	7,811.52	637.01	1,147.41	-533.53	10.00	10.00	0.00
8,050.00	39.74	180.22	7,851.31	606.76	1,147.30	-503.41	10.00	10.00	0.00
8,088.41	43.58	180.22	7,880.00	581.24	1,147.20	-477.99	10.00	10.00	0.00
NIOBRARA									
8,100.00	44.74	180.22	7,888.32	573.16	1,147.17	-469.95	10.00	10.00	0.00
8,150.00	49.74	180.22	7,922.25	536.46	1,147.03	-433.41	10.00	10.00	0.00
8,200.00	54.74	180.22	7,952.86	496.95	1,146.88	-394.06	10.00	10.00	0.00
8,250.00	59.74	180.22	7,979.91	454.92	1,146.72	-352.20	10.00	10.00	0.00

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well LIVINGSTON S19-25-15N
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB 25' @ 5336.00usft
Project:	Broomfield County	MD Reference:	KB 25' @ 5336.00usft
Site:	Sec 7-T1S-R68W	North Reference:	True
Well:	LIVINGSTON S19-25-15N	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL 1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
8,300.00	64.74	180.22	8,003.20	410.69	1,146.55	-308.16	10.00	10.00	0.00	
8,350.00	69.74	180.22	8,022.54	364.60	1,146.38	-262.27	10.00	10.00	0.00	
8,400.00	74.74	180.22	8,037.79	317.00	1,146.19	-214.87	10.00	10.00	0.00	
8,445.44	79.28	180.22	8,048.00	272.73	1,146.03	-170.78	10.00	10.00	0.00	
NIO B TARGET										
8,450.00	79.74	180.22	8,048.83	268.25	1,146.01	-166.32	10.00	10.00	0.00	
8,500.00	84.74	180.22	8,055.58	218.72	1,145.82	-117.01	10.00	10.00	0.00	
8,552.65	90.00	180.22	8,058.00	166.14	1,145.62	-64.65	10.00	10.00	0.00	
LP @ 90° INC, 180.22° AZM HOLD										
8,600.00	90.00	180.22	8,058.00	118.80	1,145.44	-17.50	0.00	0.00	0.00	
8,700.00	90.00	180.22	8,058.00	18.80	1,145.06	82.08	0.00	0.00	0.00	
8,800.00	90.00	180.22	8,058.00	-81.20	1,144.68	181.65	0.00	0.00	0.00	
8,900.00	90.00	180.22	8,058.00	-181.20	1,144.30	281.23	0.00	0.00	0.00	
9,000.00	90.00	180.22	8,058.00	-281.20	1,143.92	380.81	0.00	0.00	0.00	
9,100.00	90.00	180.22	8,058.00	-381.20	1,143.54	480.39	0.00	0.00	0.00	
9,200.00	90.00	180.22	8,058.00	-481.20	1,143.16	579.96	0.00	0.00	0.00	
9,300.00	90.00	180.22	8,058.00	-581.20	1,142.78	679.54	0.00	0.00	0.00	
9,400.00	90.00	180.22	8,058.00	-681.20	1,142.40	779.12	0.00	0.00	0.00	
9,500.00	90.00	180.22	8,058.00	-781.20	1,142.02	878.70	0.00	0.00	0.00	
9,600.00	90.00	180.22	8,058.00	-881.20	1,141.64	978.27	0.00	0.00	0.00	
9,700.00	90.00	180.22	8,058.00	-981.20	1,141.26	1,077.85	0.00	0.00	0.00	
9,800.00	90.00	180.22	8,058.00	-1,081.20	1,140.88	1,177.43	0.00	0.00	0.00	
9,900.00	90.00	180.22	8,058.00	-1,181.19	1,140.49	1,277.01	0.00	0.00	0.00	
10,000.00	90.00	180.22	8,058.00	-1,281.19	1,140.11	1,376.58	0.00	0.00	0.00	
10,100.00	90.00	180.22	8,058.00	-1,381.19	1,139.73	1,476.16	0.00	0.00	0.00	
10,200.00	90.00	180.22	8,058.00	-1,481.19	1,139.35	1,575.74	0.00	0.00	0.00	
10,300.00	90.00	180.22	8,058.00	-1,581.19	1,138.97	1,675.32	0.00	0.00	0.00	
10,400.00	90.00	180.22	8,058.00	-1,681.19	1,138.59	1,774.89	0.00	0.00	0.00	
10,500.00	90.00	180.22	8,058.00	-1,781.19	1,138.21	1,874.47	0.00	0.00	0.00	
10,600.00	90.00	180.22	8,058.00	-1,881.19	1,137.83	1,974.05	0.00	0.00	0.00	
10,700.00	90.00	180.22	8,058.00	-1,981.19	1,137.45	2,073.63	0.00	0.00	0.00	
10,800.00	90.00	180.22	8,058.00	-2,081.19	1,137.07	2,173.20	0.00	0.00	0.00	
10,900.00	90.00	180.22	8,058.00	-2,181.19	1,136.69	2,272.78	0.00	0.00	0.00	
11,000.00	90.00	180.22	8,058.00	-2,281.19	1,136.31	2,372.36	0.00	0.00	0.00	
11,100.00	90.00	180.22	8,058.00	-2,381.19	1,135.93	2,471.94	0.00	0.00	0.00	
11,200.00	90.00	180.22	8,058.00	-2,481.19	1,135.55	2,571.52	0.00	0.00	0.00	
11,300.00	90.00	180.22	8,058.00	-2,581.18	1,135.17	2,671.09	0.00	0.00	0.00	
11,400.00	90.00	180.22	8,058.00	-2,681.18	1,134.79	2,770.67	0.00	0.00	0.00	
11,500.00	90.00	180.22	8,058.00	-2,781.18	1,134.41	2,870.25	0.00	0.00	0.00	
11,600.00	90.00	180.22	8,058.00	-2,881.18	1,134.03	2,969.83	0.00	0.00	0.00	
11,700.00	90.00	180.22	8,058.00	-2,981.18	1,133.65	3,069.40	0.00	0.00	0.00	
11,800.00	90.00	180.22	8,058.00	-3,081.18	1,133.27	3,168.98	0.00	0.00	0.00	
11,900.00	90.00	180.22	8,058.00	-3,181.18	1,132.89	3,268.56	0.00	0.00	0.00	
12,000.00	90.00	180.22	8,058.00	-3,281.18	1,132.51	3,368.14	0.00	0.00	0.00	
12,100.00	90.00	180.22	8,058.00	-3,381.18	1,132.13	3,467.71	0.00	0.00	0.00	
12,200.00	90.00	180.22	8,058.00	-3,481.18	1,131.75	3,567.29	0.00	0.00	0.00	
12,300.00	90.00	180.22	8,058.00	-3,581.18	1,131.37	3,666.87	0.00	0.00	0.00	
12,400.00	90.00	180.22	8,058.00	-3,681.18	1,130.98	3,766.45	0.00	0.00	0.00	
12,500.00	90.00	180.22	8,058.00	-3,781.18	1,130.60	3,866.02	0.00	0.00	0.00	
12,600.00	90.00	180.22	8,058.00	-3,881.18	1,130.22	3,965.60	0.00	0.00	0.00	
12,700.00	90.00	180.22	8,057.99	-3,981.17	1,129.84	4,065.18	0.00	0.00	0.00	
12,800.00	90.00	180.22	8,057.99	-4,081.17	1,129.46	4,164.76	0.00	0.00	0.00	
12,900.00	90.00	180.22	8,057.99	-4,181.17	1,129.08	4,264.33	0.00	0.00	0.00	
13,000.00	90.00	180.22	8,057.99	-4,281.17	1,128.70	4,363.91	0.00	0.00	0.00	

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well LIVINGSTON S19-25-15N
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB 25' @ 5336.00usft
Project:	Broomfield County	MD Reference:	KB 25' @ 5336.00usft
Site:	Sec 7-T1S-R68W	North Reference:	True
Well:	LIVINGSTON S19-25-15N	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL 1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
13,100.00	90.00	180.22	8,057.99	-4,381.17	1,128.32	4,463.49	0.00	0.00	0.00
13,200.00	90.00	180.22	8,057.99	-4,481.17	1,127.94	4,563.07	0.00	0.00	0.00
13,300.00	90.00	180.22	8,057.99	-4,581.17	1,127.56	4,662.64	0.00	0.00	0.00
13,400.00	90.00	180.22	8,057.99	-4,681.17	1,127.18	4,762.22	0.00	0.00	0.00
13,500.00	90.00	180.22	8,057.99	-4,781.17	1,126.80	4,861.80	0.00	0.00	0.00
13,600.00	90.00	180.22	8,057.99	-4,881.17	1,126.42	4,961.38	0.00	0.00	0.00
13,700.00	90.00	180.22	8,057.99	-4,981.17	1,126.04	5,060.95	0.00	0.00	0.00
13,800.00	90.00	180.22	8,057.99	-5,081.17	1,125.66	5,160.53	0.00	0.00	0.00
13,900.00	90.00	180.22	8,057.99	-5,181.17	1,125.28	5,260.11	0.00	0.00	0.00
14,000.00	90.00	180.22	8,057.99	-5,281.17	1,124.90	5,359.69	0.00	0.00	0.00
14,100.00	90.00	180.22	8,057.99	-5,381.16	1,124.52	5,459.26	0.00	0.00	0.00
14,200.00	90.00	180.22	8,057.99	-5,481.16	1,124.14	5,558.84	0.00	0.00	0.00
14,300.00	90.00	180.22	8,057.99	-5,581.16	1,123.76	5,658.42	0.00	0.00	0.00
14,400.00	90.00	180.22	8,057.99	-5,681.16	1,123.38	5,758.00	0.00	0.00	0.00
14,500.00	90.00	180.22	8,057.99	-5,781.16	1,123.00	5,857.58	0.00	0.00	0.00
14,600.00	90.00	180.22	8,057.99	-5,881.16	1,122.62	5,957.15	0.00	0.00	0.00
14,700.00	90.00	180.22	8,057.99	-5,981.16	1,122.24	6,056.73	0.00	0.00	0.00
14,800.00	90.00	180.22	8,057.99	-6,081.16	1,121.85	6,156.31	0.00	0.00	0.00
14,900.00	90.00	180.22	8,057.99	-6,181.16	1,121.47	6,255.89	0.00	0.00	0.00
15,000.00	90.00	180.22	8,057.99	-6,281.16	1,121.09	6,355.46	0.00	0.00	0.00
15,100.00	90.00	180.22	8,057.99	-6,381.16	1,120.71	6,455.04	0.00	0.00	0.00
15,200.00	90.00	180.22	8,057.99	-6,481.16	1,120.33	6,554.62	0.00	0.00	0.00
15,300.00	90.00	180.22	8,057.99	-6,581.16	1,119.95	6,654.20	0.00	0.00	0.00
15,400.00	90.00	180.22	8,057.99	-6,681.16	1,119.57	6,753.77	0.00	0.00	0.00
15,500.00	90.00	180.22	8,057.99	-6,781.15	1,119.19	6,853.35	0.00	0.00	0.00
15,600.00	90.00	180.22	8,057.99	-6,881.15	1,118.81	6,952.93	0.00	0.00	0.00
15,700.00	90.00	180.22	8,057.99	-6,981.15	1,118.43	7,052.51	0.00	0.00	0.00
15,800.00	90.00	180.22	8,057.99	-7,081.15	1,118.05	7,152.08	0.00	0.00	0.00
15,900.00	90.00	180.22	8,057.99	-7,181.15	1,117.67	7,251.66	0.00	0.00	0.00
16,000.00	90.00	180.22	8,057.99	-7,281.15	1,117.29	7,351.24	0.00	0.00	0.00
16,100.00	90.00	180.22	8,057.99	-7,381.15	1,116.91	7,450.82	0.00	0.00	0.00
16,200.00	90.00	180.22	8,057.99	-7,481.15	1,116.53	7,550.39	0.00	0.00	0.00
16,300.00	90.00	180.22	8,057.99	-7,581.15	1,116.15	7,649.97	0.00	0.00	0.00
16,400.00	90.00	180.22	8,057.99	-7,681.15	1,115.77	7,749.55	0.00	0.00	0.00
16,500.00	90.00	180.22	8,057.99	-7,781.15	1,115.39	7,849.13	0.00	0.00	0.00
16,600.00	90.00	180.22	8,057.99	-7,881.15	1,115.01	7,948.70	0.00	0.00	0.00
16,700.00	90.00	180.22	8,057.99	-7,981.15	1,114.63	8,048.28	0.00	0.00	0.00
16,800.00	90.00	180.22	8,057.99	-8,081.15	1,114.25	8,147.86	0.00	0.00	0.00
16,900.00	90.00	180.22	8,057.99	-8,181.14	1,113.87	8,247.44	0.00	0.00	0.00
17,000.00	90.00	180.22	8,057.99	-8,281.14	1,113.49	8,347.01	0.00	0.00	0.00
17,100.00	90.00	180.22	8,057.99	-8,381.14	1,113.11	8,446.59	0.00	0.00	0.00
17,200.00	90.00	180.22	8,057.99	-8,481.14	1,112.73	8,546.17	0.00	0.00	0.00
17,300.00	90.00	180.22	8,057.99	-8,581.14	1,112.34	8,645.75	0.00	0.00	0.00
17,400.00	90.00	180.22	8,057.99	-8,681.14	1,111.96	8,745.33	0.00	0.00	0.00
17,500.00	90.00	180.22	8,057.99	-8,781.14	1,111.58	8,844.90	0.00	0.00	0.00
17,600.00	90.00	180.22	8,057.99	-8,881.14	1,111.20	8,944.48	0.00	0.00	0.00
17,700.00	90.00	180.22	8,057.99	-8,981.14	1,110.82	9,044.06	0.00	0.00	0.00
17,800.00	90.00	180.22	8,057.99	-9,081.14	1,110.44	9,143.64	0.00	0.00	0.00
17,900.00	90.00	180.22	8,057.99	-9,181.14	1,110.06	9,243.21	0.00	0.00	0.00
18,000.00	90.00	180.22	8,057.99	-9,281.14	1,109.68	9,342.79	0.00	0.00	0.00
18,100.00	90.00	180.22	8,057.99	-9,381.14	1,109.30	9,442.37	0.00	0.00	0.00
18,200.00	90.00	180.22	8,057.99	-9,481.13	1,108.92	9,541.95	0.00	0.00	0.00
18,300.00	90.00	180.22	8,057.99	-9,581.13	1,108.54	9,641.52	0.00	0.00	0.00
18,400.00	90.00	180.22	8,057.99	-9,681.13	1,108.16	9,741.10	0.00	0.00	0.00

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well LIVINGSTON S19-25-15N
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB 25' @ 5336.00usft
Project:	Broomfield County	MD Reference:	KB 25' @ 5336.00usft
Site:	Sec 7-T1S-R68W	North Reference:	True
Well:	LIVINGSTON S19-25-15N	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL 1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
18,500.00	90.00	180.22	8,057.99	-9,781.13	1,107.78	9,840.68	0.00	0.00	0.00	
18,600.00	90.00	180.22	8,057.99	-9,881.13	1,107.40	9,940.26	0.00	0.00	0.00	
18,700.00	90.00	180.22	8,057.99	-9,981.13	1,107.02	10,039.83	0.00	0.00	0.00	
18,800.00	90.00	180.22	8,057.99	-10,081.13	1,106.64	10,139.41	0.00	0.00	0.00	
18,900.00	90.00	180.22	8,057.99	-10,181.13	1,106.26	10,238.99	0.00	0.00	0.00	
19,000.00	90.00	180.22	8,057.99	-10,281.13	1,105.88	10,338.57	0.00	0.00	0.00	
19,100.00	90.00	180.22	8,057.99	-10,381.13	1,105.50	10,438.14	0.00	0.00	0.00	
19,200.00	90.00	180.22	8,057.99	-10,481.13	1,105.12	10,537.72	0.00	0.00	0.00	
19,300.00	90.00	180.22	8,057.99	-10,581.13	1,104.74	10,637.30	0.00	0.00	0.00	
19,400.00	90.00	180.22	8,057.99	-10,681.13	1,104.36	10,736.88	0.00	0.00	0.00	
19,500.00	90.00	180.22	8,057.99	-10,781.13	1,103.98	10,836.45	0.00	0.00	0.00	
19,600.00	90.00	180.22	8,057.99	-10,881.12	1,103.60	10,936.03	0.00	0.00	0.00	
19,700.00	90.00	180.22	8,057.99	-10,981.12	1,103.22	11,035.61	0.00	0.00	0.00	
19,800.00	90.00	180.22	8,057.99	-11,081.12	1,102.83	11,135.19	0.00	0.00	0.00	
19,900.00	90.00	180.22	8,057.99	-11,181.12	1,102.45	11,234.76	0.00	0.00	0.00	
20,000.00	90.00	180.22	8,057.99	-11,281.12	1,102.07	11,334.34	0.00	0.00	0.00	
20,100.00	90.00	180.22	8,057.99	-11,381.12	1,101.69	11,433.92	0.00	0.00	0.00	
20,200.00	90.00	180.22	8,057.99	-11,481.12	1,101.31	11,533.50	0.00	0.00	0.00	
20,300.00	90.00	180.22	8,057.99	-11,581.12	1,100.93	11,633.07	0.00	0.00	0.00	
20,400.00	90.00	180.22	8,057.99	-11,681.12	1,100.55	11,732.65	0.00	0.00	0.00	
20,500.00	90.00	180.22	8,057.99	-11,781.12	1,100.17	11,832.23	0.00	0.00	0.00	
20,600.00	90.00	180.22	8,057.98	-11,881.12	1,099.79	11,931.81	0.00	0.00	0.00	
20,700.00	90.00	180.22	8,057.98	-11,981.12	1,099.41	12,031.39	0.00	0.00	0.00	
20,800.00	90.00	180.22	8,057.98	-12,081.12	1,099.03	12,130.96	0.00	0.00	0.00	
20,900.00	90.00	180.22	8,057.98	-12,181.12	1,098.65	12,230.54	0.00	0.00	0.00	
21,000.00	90.00	180.22	8,057.98	-12,281.11	1,098.27	12,330.12	0.00	0.00	0.00	
21,136.91	90.00	180.22	8,058.00	-12,418.02	1,097.41	12,466.42	0.00	0.00	0.00	
TD at 21136.91' MD										

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									
LIVINGSTON S19 15N -	0.00	0.00	8,058.00	-12,418.02	1,097.41	1,222,960.14	3,130,290.26	39° 56' 40.092 N	105° 2' 7.112 W
- plan hits target center									
- Point									
LIVINGSTON S19 15N -	0.00	0.00	8,058.00	166.14	1,145.62	1,235,544.38	3,130,273.07	39° 58' 44.458 N	105° 2' 6.486 W
- plan hits target center									
- Point									

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well LIVINGSTON S19-25-15N
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB 25' @ 5336.00usft
Project:	Broomfield County	MD Reference:	KB 25' @ 5336.00usft
Site:	Sec 7-T1S-R68W	North Reference:	True
Well:	LIVINGSTON S19-25-15N	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL 1		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
4,735.46	4,646.00	PARKMAN				
5,232.66	5,127.00	SUSSEX				
6,183.62	6,047.00	SHANNON				
8,088.41	7,880.00	NIOBRARA				
8,445.44	8,048.00	NIO B TARGET				

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,500.00	1,500.00	0.00	0.00	BUILD 2°/100'
2,233.11	2,225.13	50.51	78.44	HOLD 14.66° INC
6,889.48	6,729.87	688.63	1,069.36	DROP 2°/100'
7,622.59	7,455.00	739.14	1,147.80	HOLD VERTICAL
7,652.59	7,485.00	739.14	1,147.80	KOP, BUILD 10°/100'
8,552.65	8,058.00	166.14	1,145.62	LP @ 90° INC, 180.22° AZM HOLD
21,136.91	8,058.00	-12,418.02	1,097.41	TD at 21136.91' MD