

EXTRACTION OIL & GAS

Broomfield County

Sec 7-T1S-R68W

LIVINGSTON S19-25-4N

ORIGINAL WELLBORE

Plan: PROPOSAL 1

Standard Planning Report

05 December, 2017



Project: Broomfield County
Site: Sec 7-T1S-R68W
Well: LIVINGSTON S19-25-4N
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: 52086.1snT
Dip Angle: 66.46°
Date: 12/4/2017
Model: IGRF2015

WELL DETAILS: LIVINGSTON S19-25-4N

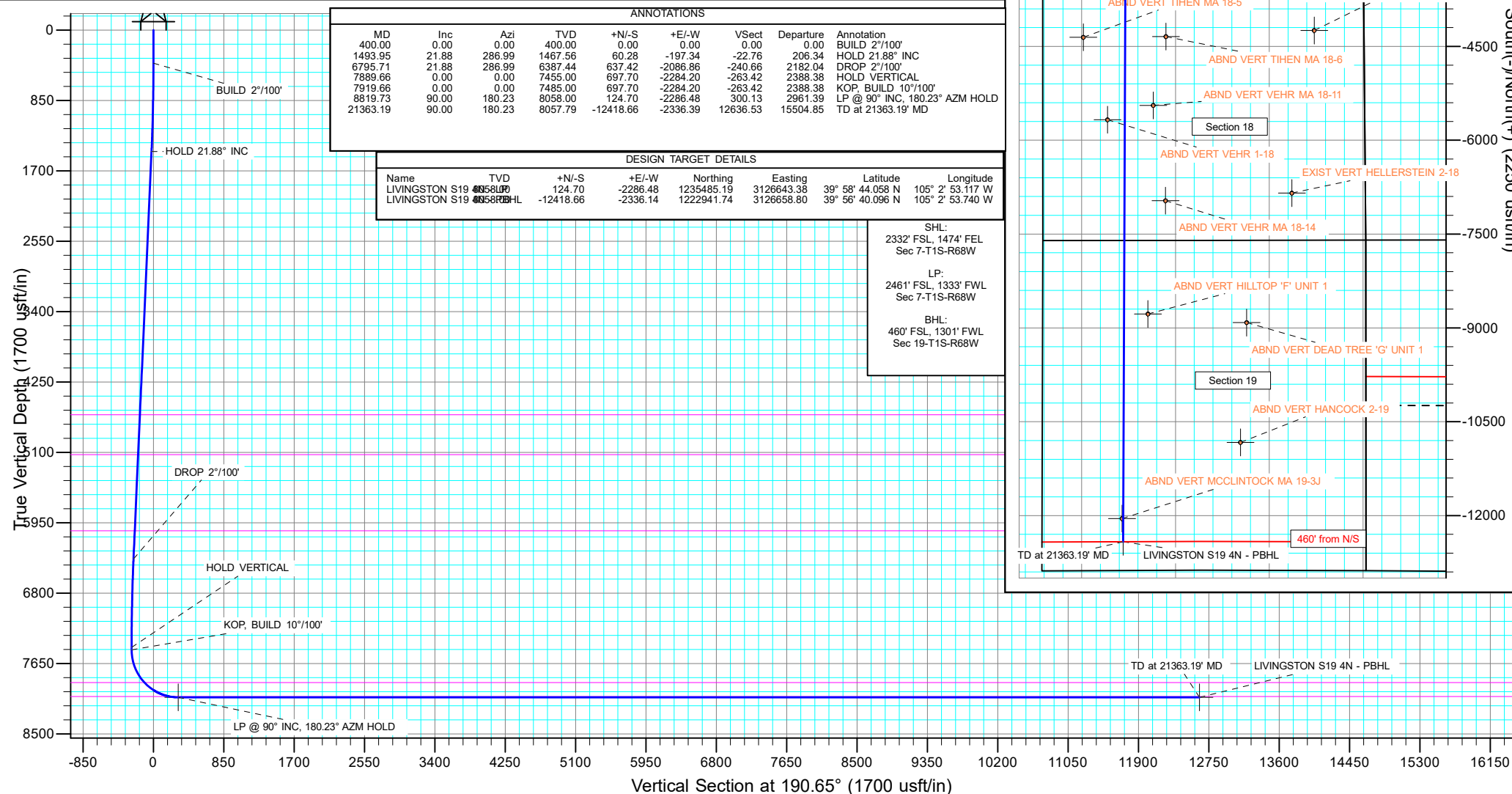
+N/-S	+E/-W	Northing	Easting	5311.00	Latitude	Longitude	Slot
+N/-S	+E/-W	1235372.36	3128930.48		39° 58' 42.827 N	105° 2' 23.744 W	

SECTION DETAILS

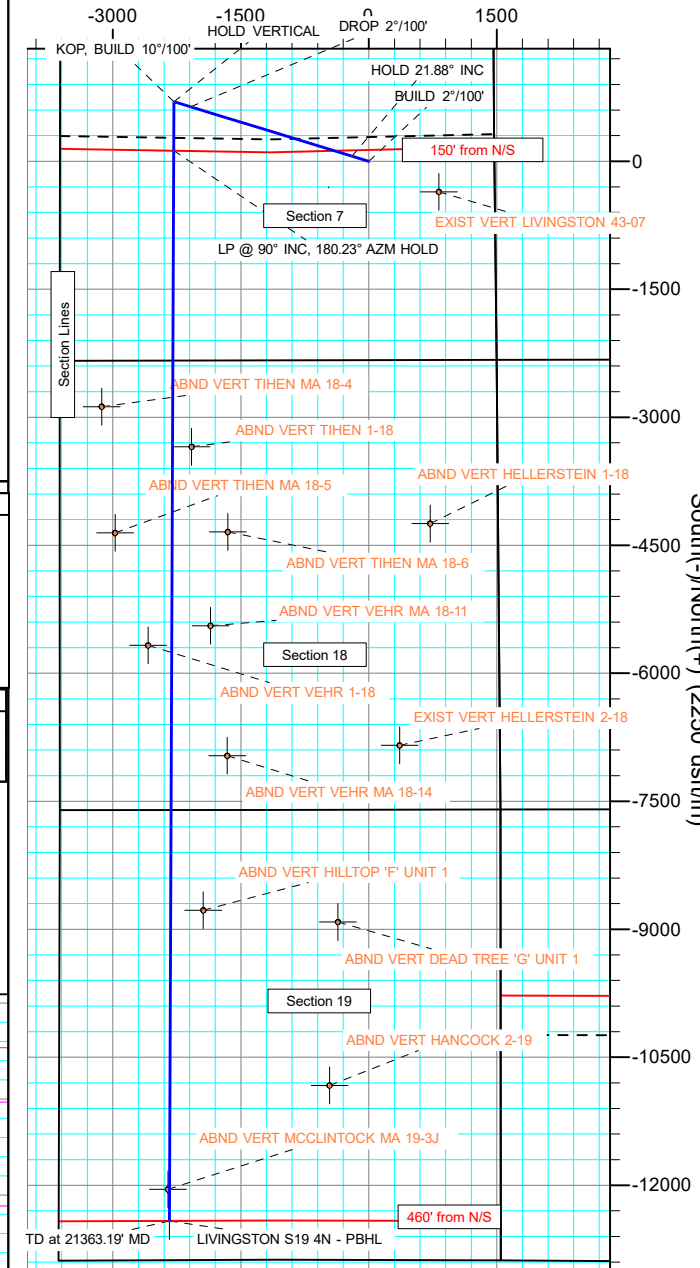
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	
3	1493.95	21.88	286.99	1467.56	60.28	-197.34	2.00	286.99	-22.76	
4	6795.71	21.88	286.99	6387.44	637.42	-2086.86	0.00	0.00	-240.66	
5	7889.66	0.00	0.00	7455.00	697.70	-2284.20	2.00	180.00	-263.42	
6	7919.66	0.00	0.00	7485.00	697.70	-2284.20	0.00	0.00	-263.42	
7	8819.73	90.00	180.23	8058.00	124.70	-2286.48	10.00	180.23	300.13	LIVINGSTON S19 4N - LP
8	21363.19	90.00	180.23	8058.00	-12418.66	-2336.14	0.00	0.00	12636.48	LIVINGSTON S19 4N - PBHL

FORMATION TOP DETAILS

TVDPATH	MDPATH	FORMATION
4646.00	4919.10	PARKMAN
5127.00	5437.43	SUSSEX
6047.00	6428.84	SHANNON
7880.00	8355.48	NIOBRARA
8048.00	8712.52	NIO B TARGET



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



Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well LIVINGSTON S19-25-4N
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 S19-25-4N	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 S19-25-4N					
Well Position	+N/-S	-2,949.32 usft	Northing:	1,235,372.35 usft	Latitude:	39° 58' 42.827 N
	+E/-W	-1,451.43 usft	Easting:	3,128,930.48 usft	Longitude:	105° 2' 23.744 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	52,086.10812253

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	190.65

Plan Survey Tool Program	Date	12/5/2017		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	21,363.12	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	
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,493.95	21.88	286.99	1,467.56	60.28	-197.34	2.00	2.00	0.00	286.99	
6,795.71	21.88	286.99	6,387.44	637.42	-2,086.86	0.00	0.00	0.00	0.00	
7,889.66	0.00	0.00	7,455.00	697.70	-2,284.20	2.00	-2.00	0.00	180.00	
7,919.66	0.00	0.00	7,485.00	697.70	-2,284.20	0.00	0.00	0.00	0.00	
8,819.73	90.00	180.23	8,058.00	124.70	-2,286.48	10.00	10.00	-19.97	180.23	LIVINGSTON S19 4N
21,363.19	90.00	180.23	8,058.00	-12,418.66	-2,336.14	0.00	0.00	0.00	0.00	LIVINGSTON S19 4N

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Project:	Broomfield County	MD Reference:	KB 25' @ 5336.00usft
Site:	Sec 7-T1S-R68W	North Reference:	True
Well:	LIVINGSTON S19-25-4N	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
BUILD 2°/100'									
500.00	2.00	286.99	499.98	0.51	-1.67	-0.19	2.00	2.00	0.00
600.00	4.00	286.99	599.84	2.04	-6.67	-0.77	2.00	2.00	0.00
700.00	6.00	286.99	699.45	4.58	-15.01	-1.73	2.00	2.00	0.00
800.00	8.00	286.99	798.70	8.14	-26.66	-3.07	2.00	2.00	0.00
900.00	10.00	286.99	897.47	12.71	-41.62	-4.80	2.00	2.00	0.00
1,000.00	12.00	286.99	995.62	18.29	-59.87	-6.90	2.00	2.00	0.00
1,100.00	14.00	286.99	1,093.06	24.86	-81.38	-9.39	2.00	2.00	0.00
1,200.00	16.00	286.99	1,189.64	32.42	-106.14	-12.24	2.00	2.00	0.00
1,300.00	18.00	286.99	1,285.27	40.96	-134.10	-15.46	2.00	2.00	0.00
1,400.00	20.00	286.99	1,379.82	50.47	-165.23	-19.05	2.00	2.00	0.00
1,493.95	21.88	286.99	1,467.56	60.28	-197.34	-22.76	2.00	2.00	0.00
HOLD 21.88° INC									
1,500.00	21.88	286.99	1,473.17	60.94	-199.50	-23.01	0.00	0.00	0.00
1,600.00	21.88	286.99	1,565.97	71.82	-235.14	-27.12	0.00	0.00	0.00
1,700.00	21.88	286.99	1,658.77	82.71	-270.78	-31.23	0.00	0.00	0.00
1,800.00	21.88	286.99	1,751.56	93.59	-306.42	-35.34	0.00	0.00	0.00
1,900.00	21.88	286.99	1,844.36	104.48	-342.06	-39.45	0.00	0.00	0.00
2,000.00	21.88	286.99	1,937.16	115.37	-377.70	-43.56	0.00	0.00	0.00
2,100.00	21.88	286.99	2,029.95	126.25	-413.33	-47.67	0.00	0.00	0.00
2,200.00	21.88	286.99	2,122.75	137.14	-448.97	-51.78	0.00	0.00	0.00
2,300.00	21.88	286.99	2,215.55	148.02	-484.61	-55.89	0.00	0.00	0.00
2,400.00	21.88	286.99	2,308.35	158.91	-520.25	-60.00	0.00	0.00	0.00
2,500.00	21.88	286.99	2,401.14	169.80	-555.89	-64.11	0.00	0.00	0.00
2,600.00	21.88	286.99	2,493.94	180.68	-591.53	-68.22	0.00	0.00	0.00
2,700.00	21.88	286.99	2,586.74	191.57	-627.17	-72.33	0.00	0.00	0.00
2,800.00	21.88	286.99	2,679.54	202.45	-662.81	-76.44	0.00	0.00	0.00
2,900.00	21.88	286.99	2,772.33	213.34	-698.45	-80.55	0.00	0.00	0.00
3,000.00	21.88	286.99	2,865.13	224.22	-734.09	-84.66	0.00	0.00	0.00
3,100.00	21.88	286.99	2,957.93	235.11	-769.73	-88.77	0.00	0.00	0.00
3,200.00	21.88	286.99	3,050.72	246.00	-805.37	-92.88	0.00	0.00	0.00
3,300.00	21.88	286.99	3,143.52	256.88	-841.01	-96.99	0.00	0.00	0.00
3,400.00	21.88	286.99	3,236.32	267.77	-876.65	-101.10	0.00	0.00	0.00
3,500.00	21.88	286.99	3,329.12	278.65	-912.29	-105.21	0.00	0.00	0.00
3,600.00	21.88	286.99	3,421.91	289.54	-947.93	-109.32	0.00	0.00	0.00
3,700.00	21.88	286.99	3,514.71	300.43	-983.57	-113.43	0.00	0.00	0.00
3,800.00	21.88	286.99	3,607.51	311.31	-1,019.20	-117.54	0.00	0.00	0.00
3,900.00	21.88	286.99	3,700.31	322.20	-1,054.84	-121.65	0.00	0.00	0.00
4,000.00	21.88	286.99	3,793.10	333.08	-1,090.48	-125.76	0.00	0.00	0.00
4,100.00	21.88	286.99	3,885.90	343.97	-1,126.12	-129.87	0.00	0.00	0.00
4,200.00	21.88	286.99	3,978.70	354.86	-1,161.76	-133.98	0.00	0.00	0.00
4,300.00	21.88	286.99	4,071.49	365.74	-1,197.40	-138.09	0.00	0.00	0.00
4,400.00	21.88	286.99	4,164.29	376.63	-1,233.04	-142.20	0.00	0.00	0.00
4,500.00	21.88	286.99	4,257.09	387.51	-1,268.68	-146.31	0.00	0.00	0.00
4,600.00	21.88	286.99	4,349.89	398.40	-1,304.32	-150.42	0.00	0.00	0.00
4,700.00	21.88	286.99	4,442.68	409.29	-1,339.96	-154.53	0.00	0.00	0.00
4,800.00	21.88	286.99	4,535.48	420.17	-1,375.60	-158.64	0.00	0.00	0.00
4,900.00	21.88	286.99	4,628.28	431.06	-1,411.24	-162.75	0.00	0.00	0.00

Planning Report

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Project:	Broomfield County	MD Reference:	KB 25' @ 5336.00usft
Site:	Sec 7-T1S-R68W	North Reference:	True
Well:	LIVINGSTON S19-25-4N	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)
4,919.10	21.88	286.99	4,646.00	433.14	-1,418.04	-163.53	0.00	0.00	0.00
PARKMAN									
5,000.00	21.88	286.99	4,721.07	441.94	-1,446.88	-166.86	0.00	0.00	0.00
5,100.00	21.88	286.99	4,813.87	452.83	-1,482.52	-170.97	0.00	0.00	0.00
5,200.00	21.88	286.99	4,906.67	463.72	-1,518.16	-175.08	0.00	0.00	0.00
5,300.00	21.88	286.99	4,999.47	474.60	-1,553.80	-179.19	0.00	0.00	0.00
5,400.00	21.88	286.99	5,092.26	485.49	-1,589.44	-183.30	0.00	0.00	0.00
5,437.43	21.88	286.99	5,127.00	489.56	-1,602.78	-184.83	0.00	0.00	0.00
SUSSEX									
5,500.00	21.88	286.99	5,185.06	496.37	-1,625.07	-187.41	0.00	0.00	0.00
5,600.00	21.88	286.99	5,277.86	507.26	-1,660.71	-191.51	0.00	0.00	0.00
5,700.00	21.88	286.99	5,370.66	518.14	-1,696.35	-195.62	0.00	0.00	0.00
5,800.00	21.88	286.99	5,463.45	529.03	-1,731.99	-199.73	0.00	0.00	0.00
5,900.00	21.88	286.99	5,556.25	539.92	-1,767.63	-203.84	0.00	0.00	0.00
6,000.00	21.88	286.99	5,649.05	550.80	-1,803.27	-207.95	0.00	0.00	0.00
6,100.00	21.88	286.99	5,741.84	561.69	-1,838.91	-212.06	0.00	0.00	0.00
6,200.00	21.88	286.99	5,834.64	572.57	-1,874.55	-216.17	0.00	0.00	0.00
6,300.00	21.88	286.99	5,927.44	583.46	-1,910.19	-220.28	0.00	0.00	0.00
6,400.00	21.88	286.99	6,020.24	594.35	-1,945.83	-224.39	0.00	0.00	0.00
6,428.84	21.88	286.99	6,047.00	597.49	-1,956.11	-225.58	0.00	0.00	0.00
SHANNON									
6,500.00	21.88	286.99	6,113.03	605.23	-1,981.47	-228.50	0.00	0.00	0.00
6,600.00	21.88	286.99	6,205.83	616.12	-2,017.11	-232.61	0.00	0.00	0.00
6,700.00	21.88	286.99	6,298.63	627.00	-2,052.75	-236.72	0.00	0.00	0.00
6,795.71	21.88	286.99	6,387.44	637.42	-2,086.86	-240.66	0.00	0.00	0.00
DROP 2°/100'									
6,800.00	21.79	286.99	6,391.43	637.89	-2,088.38	-240.83	2.00	-2.00	0.00
6,900.00	19.79	286.99	6,484.91	648.26	-2,122.33	-244.75	2.00	-2.00	0.00
7,000.00	17.79	286.99	6,579.57	657.67	-2,153.14	-248.30	2.00	-2.00	0.00
7,100.00	15.79	286.99	6,675.30	666.11	-2,180.77	-251.49	2.00	-2.00	0.00
7,200.00	13.79	286.99	6,771.98	673.57	-2,205.19	-254.30	2.00	-2.00	0.00
7,300.00	11.79	286.99	6,869.50	680.04	-2,226.37	-256.75	2.00	-2.00	0.00
7,400.00	9.79	286.99	6,967.72	685.51	-2,244.28	-258.81	2.00	-2.00	0.00
7,500.00	7.79	286.99	7,066.54	689.97	-2,258.89	-260.50	2.00	-2.00	0.00
7,600.00	5.79	286.99	7,165.83	693.43	-2,270.21	-261.80	2.00	-2.00	0.00
7,700.00	3.79	286.99	7,265.48	695.87	-2,278.20	-262.72	2.00	-2.00	0.00
7,800.00	1.79	286.99	7,365.36	697.29	-2,282.86	-263.26	2.00	-2.00	0.00
7,889.66	0.00	0.00	7,455.00	697.70	-2,284.20	-263.42	2.00	-2.00	0.00
HOLD VERTICAL									
7,900.00	0.00	0.00	7,465.34	697.70	-2,284.20	-263.42	0.00	0.00	0.00
7,919.66	0.00	0.00	7,485.00	697.70	-2,284.20	-263.42	0.00	0.00	0.00
KOP, BUILD 10°/100'									
7,950.00	3.03	180.23	7,515.33	696.90	-2,284.20	-262.63	10.00	10.00	0.00
8,000.00	8.03	180.23	7,565.08	692.08	-2,284.22	-257.89	10.00	10.00	0.00
8,050.00	13.03	180.23	7,614.22	682.94	-2,284.26	-248.90	10.00	10.00	0.00
8,100.00	18.03	180.23	7,662.38	669.55	-2,284.31	-235.73	10.00	10.00	0.00
8,150.00	23.03	180.23	7,709.19	652.02	-2,284.38	-218.49	10.00	10.00	0.00
8,200.00	28.03	180.23	7,754.29	630.48	-2,284.47	-197.30	10.00	10.00	0.00
8,250.00	33.03	180.23	7,797.34	605.09	-2,284.57	-172.33	10.00	10.00	0.00
8,300.00	38.03	180.23	7,838.02	576.04	-2,284.68	-143.76	10.00	10.00	0.00
8,350.00	43.03	180.23	7,876.01	543.56	-2,284.81	-111.81	10.00	10.00	0.00
8,355.48	43.58	180.23	7,880.00	539.80	-2,284.83	-108.12	10.00	10.00	0.00
NIOBRARA									

Planning Report

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Project:	Broomfield County	MD Reference:	KB 25' @ 5336.00usft
Site:	Sec 7-T1S-R68W	North Reference:	True
Well:	LIVINGSTON S19-25-4N	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)	
8,400.00	48.03	180.23	7,911.03	507.89	-2,284.96	-76.73	10.00	10.00	0.00	
8,450.00	53.03	180.23	7,942.80	469.30	-2,285.11	-38.78	10.00	10.00	0.00	
8,500.00	58.03	180.23	7,971.09	428.09	-2,285.27	1.74	10.00	10.00	0.00	
8,550.00	63.03	180.23	7,995.68	384.58	-2,285.45	44.54	10.00	10.00	0.00	
8,600.00	68.03	180.23	8,016.39	339.08	-2,285.63	89.28	10.00	10.00	0.00	
8,650.00	73.03	180.23	8,033.05	291.96	-2,285.81	135.63	10.00	10.00	0.00	
8,700.00	78.03	180.23	8,045.54	243.56	-2,286.01	183.23	10.00	10.00	0.00	
8,712.52	79.28	180.23	8,048.00	231.29	-2,286.06	195.30	10.00	10.00	0.00	
NIO B TARGET										
8,750.00	83.03	180.23	8,053.76	194.26	-2,286.20	231.72	10.00	10.00	0.00	
8,800.00	88.03	180.23	8,057.66	144.43	-2,286.40	280.73	10.00	10.00	0.00	
8,819.73	90.00	180.23	8,058.00	124.70	-2,286.48	300.13	10.00	10.00	0.00	
LP @ 90° INC, 180.23° AZM HOLD										
8,900.00	90.00	180.23	8,058.00	44.43	-2,286.80	379.08	0.00	0.00	0.00	
9,000.00	90.00	180.23	8,058.00	-55.57	-2,287.20	477.42	0.00	0.00	0.00	
9,100.00	90.00	180.23	8,058.00	-155.57	-2,287.60	575.77	0.00	0.00	0.00	
9,200.00	90.00	180.23	8,057.99	-255.57	-2,287.99	674.12	0.00	0.00	0.00	
9,300.00	90.00	180.23	8,057.99	-355.57	-2,288.39	772.47	0.00	0.00	0.00	
9,400.00	90.00	180.23	8,057.99	-455.57	-2,288.79	870.82	0.00	0.00	0.00	
9,500.00	90.00	180.23	8,057.99	-555.57	-2,289.19	969.17	0.00	0.00	0.00	
9,600.00	90.00	180.23	8,057.99	-655.56	-2,289.59	1,067.52	0.00	0.00	0.00	
9,700.00	90.00	180.23	8,057.99	-755.56	-2,289.98	1,165.87	0.00	0.00	0.00	
9,800.00	90.00	180.23	8,057.98	-855.56	-2,290.38	1,264.22	0.00	0.00	0.00	
9,900.00	90.00	180.23	8,057.98	-955.56	-2,290.78	1,362.57	0.00	0.00	0.00	
10,000.00	90.00	180.23	8,057.98	-1,055.56	-2,291.18	1,460.92	0.00	0.00	0.00	
10,100.00	90.00	180.23	8,057.98	-1,155.56	-2,291.57	1,559.27	0.00	0.00	0.00	
10,200.00	90.00	180.23	8,057.98	-1,255.56	-2,291.97	1,657.62	0.00	0.00	0.00	
10,300.00	90.00	180.23	8,057.98	-1,355.56	-2,292.37	1,755.96	0.00	0.00	0.00	
10,400.00	90.00	180.23	8,057.97	-1,455.56	-2,292.77	1,854.31	0.00	0.00	0.00	
10,500.00	90.00	180.23	8,057.97	-1,555.56	-2,293.17	1,952.66	0.00	0.00	0.00	
10,600.00	90.00	180.23	8,057.97	-1,655.56	-2,293.56	2,051.01	0.00	0.00	0.00	
10,700.00	90.00	180.23	8,057.97	-1,755.56	-2,293.96	2,149.36	0.00	0.00	0.00	
10,800.00	90.00	180.23	8,057.97	-1,855.55	-2,294.36	2,247.71	0.00	0.00	0.00	
10,900.00	90.00	180.23	8,057.97	-1,955.55	-2,294.76	2,346.06	0.00	0.00	0.00	
11,000.00	90.00	180.23	8,057.96	-2,055.55	-2,295.16	2,444.41	0.00	0.00	0.00	
11,100.00	90.00	180.23	8,057.96	-2,155.55	-2,295.55	2,542.76	0.00	0.00	0.00	
11,200.00	90.00	180.23	8,057.96	-2,255.55	-2,295.95	2,641.11	0.00	0.00	0.00	
11,300.00	90.00	180.23	8,057.96	-2,355.55	-2,296.35	2,739.46	0.00	0.00	0.00	
11,400.00	90.00	180.23	8,057.96	-2,455.55	-2,296.75	2,837.81	0.00	0.00	0.00	
11,500.00	90.00	180.23	8,057.96	-2,555.55	-2,297.15	2,936.16	0.00	0.00	0.00	
11,600.00	90.00	180.23	8,057.95	-2,655.55	-2,297.54	3,034.51	0.00	0.00	0.00	
11,700.00	90.00	180.23	8,057.95	-2,755.55	-2,297.94	3,132.85	0.00	0.00	0.00	
11,800.00	90.00	180.23	8,057.95	-2,855.55	-2,298.34	3,231.20	0.00	0.00	0.00	
11,900.00	90.00	180.23	8,057.95	-2,955.55	-2,298.74	3,329.55	0.00	0.00	0.00	
12,000.00	90.00	180.23	8,057.95	-3,055.55	-2,299.14	3,427.90	0.00	0.00	0.00	
12,100.00	90.00	180.23	8,057.95	-3,155.54	-2,299.53	3,526.25	0.00	0.00	0.00	
12,200.00	90.00	180.23	8,057.94	-3,255.54	-2,299.93	3,624.60	0.00	0.00	0.00	
12,300.00	90.00	180.23	8,057.94	-3,355.54	-2,300.33	3,722.95	0.00	0.00	0.00	
12,400.00	90.00	180.23	8,057.94	-3,455.54	-2,300.73	3,821.30	0.00	0.00	0.00	
12,500.00	90.00	180.23	8,057.94	-3,555.54	-2,301.13	3,919.65	0.00	0.00	0.00	
12,600.00	90.00	180.23	8,057.94	-3,655.54	-2,301.52	4,018.00	0.00	0.00	0.00	
12,700.00	90.00	180.23	8,057.94	-3,755.54	-2,301.92	4,116.35	0.00	0.00	0.00	
12,800.00	90.00	180.23	8,057.93	-3,855.54	-2,302.32	4,214.70	0.00	0.00	0.00	
12,900.00	90.00	180.23	8,057.93	-3,955.54	-2,302.72	4,313.05	0.00	0.00	0.00	

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well LIVINGSTON S19-25-4N
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 S19-25-4N	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)
13,000.00	90.00	180.23	8,057.93	-4,055.54	-2,303.11	4,411.39	0.00	0.00	0.00
13,100.00	90.00	180.23	8,057.93	-4,155.54	-2,303.51	4,509.74	0.00	0.00	0.00
13,200.00	90.00	180.23	8,057.93	-4,255.54	-2,303.91	4,608.09	0.00	0.00	0.00
13,300.00	90.00	180.23	8,057.93	-4,355.54	-2,304.31	4,706.44	0.00	0.00	0.00
13,400.00	90.00	180.23	8,057.92	-4,455.53	-2,304.71	4,804.79	0.00	0.00	0.00
13,500.00	90.00	180.23	8,057.92	-4,555.53	-2,305.10	4,903.14	0.00	0.00	0.00
13,600.00	90.00	180.23	8,057.92	-4,655.53	-2,305.50	5,001.49	0.00	0.00	0.00
13,700.00	90.00	180.23	8,057.92	-4,755.53	-2,305.90	5,099.84	0.00	0.00	0.00
13,800.00	90.00	180.23	8,057.92	-4,855.53	-2,306.30	5,198.19	0.00	0.00	0.00
13,900.00	90.00	180.23	8,057.92	-4,955.53	-2,306.70	5,296.54	0.00	0.00	0.00
14,000.00	90.00	180.23	8,057.91	-5,055.53	-2,307.09	5,394.89	0.00	0.00	0.00
14,100.00	90.00	180.23	8,057.91	-5,155.53	-2,307.49	5,493.24	0.00	0.00	0.00
14,200.00	90.00	180.23	8,057.91	-5,255.53	-2,307.89	5,591.59	0.00	0.00	0.00
14,300.00	90.00	180.23	8,057.91	-5,355.53	-2,308.29	5,689.94	0.00	0.00	0.00
14,400.00	90.00	180.23	8,057.91	-5,455.53	-2,308.69	5,788.28	0.00	0.00	0.00
14,500.00	90.00	180.23	8,057.91	-5,555.53	-2,309.08	5,886.63	0.00	0.00	0.00
14,600.00	90.00	180.23	8,057.90	-5,655.52	-2,309.48	5,984.98	0.00	0.00	0.00
14,700.00	90.00	180.23	8,057.90	-5,755.52	-2,309.88	6,083.33	0.00	0.00	0.00
14,800.00	90.00	180.23	8,057.90	-5,855.52	-2,310.28	6,181.68	0.00	0.00	0.00
14,900.00	90.00	180.23	8,057.90	-5,955.52	-2,310.68	6,280.03	0.00	0.00	0.00
15,000.00	90.00	180.23	8,057.90	-6,055.52	-2,311.07	6,378.38	0.00	0.00	0.00
15,100.00	90.00	180.23	8,057.90	-6,155.52	-2,311.47	6,476.73	0.00	0.00	0.00
15,200.00	90.00	180.23	8,057.89	-6,255.52	-2,311.87	6,575.08	0.00	0.00	0.00
15,300.00	90.00	180.23	8,057.89	-6,355.52	-2,312.27	6,673.43	0.00	0.00	0.00
15,400.00	90.00	180.23	8,057.89	-6,455.52	-2,312.67	6,771.78	0.00	0.00	0.00
15,500.00	90.00	180.23	8,057.89	-6,555.52	-2,313.06	6,870.13	0.00	0.00	0.00
15,600.00	90.00	180.23	8,057.89	-6,655.52	-2,313.46	6,968.48	0.00	0.00	0.00
15,700.00	90.00	180.23	8,057.89	-6,755.52	-2,313.86	7,066.82	0.00	0.00	0.00
15,800.00	90.00	180.23	8,057.88	-6,855.52	-2,314.26	7,165.17	0.00	0.00	0.00
15,900.00	90.00	180.23	8,057.88	-6,955.51	-2,314.65	7,263.52	0.00	0.00	0.00
16,000.00	90.00	180.23	8,057.88	-7,055.51	-2,315.05	7,361.87	0.00	0.00	0.00
16,100.00	90.00	180.23	8,057.88	-7,155.51	-2,315.45	7,460.22	0.00	0.00	0.00
16,200.00	90.00	180.23	8,057.88	-7,255.51	-2,315.85	7,558.57	0.00	0.00	0.00
16,300.00	90.00	180.23	8,057.88	-7,355.51	-2,316.25	7,656.92	0.00	0.00	0.00
16,400.00	90.00	180.23	8,057.87	-7,455.51	-2,316.64	7,755.27	0.00	0.00	0.00
16,500.00	90.00	180.23	8,057.87	-7,555.51	-2,317.04	7,853.62	0.00	0.00	0.00
16,600.00	90.00	180.23	8,057.87	-7,655.51	-2,317.44	7,951.97	0.00	0.00	0.00
16,700.00	90.00	180.23	8,057.87	-7,755.51	-2,317.84	8,050.32	0.00	0.00	0.00
16,800.00	90.00	180.23	8,057.87	-7,855.51	-2,318.24	8,148.67	0.00	0.00	0.00
16,900.00	90.00	180.23	8,057.87	-7,955.51	-2,318.63	8,247.02	0.00	0.00	0.00
17,000.00	90.00	180.23	8,057.86	-8,055.51	-2,319.03	8,345.37	0.00	0.00	0.00
17,100.00	90.00	180.23	8,057.86	-8,155.51	-2,319.43	8,443.71	0.00	0.00	0.00
17,200.00	90.00	180.23	8,057.86	-8,255.50	-2,319.83	8,542.06	0.00	0.00	0.00
17,300.00	90.00	180.23	8,057.86	-8,355.50	-2,320.23	8,640.41	0.00	0.00	0.00
17,400.00	90.00	180.23	8,057.86	-8,455.50	-2,320.62	8,738.76	0.00	0.00	0.00
17,500.00	90.00	180.23	8,057.86	-8,555.50	-2,321.02	8,837.11	0.00	0.00	0.00
17,600.00	90.00	180.23	8,057.86	-8,655.50	-2,321.42	8,935.46	0.00	0.00	0.00
17,700.00	90.00	180.23	8,057.85	-8,755.50	-2,321.82	9,033.81	0.00	0.00	0.00
17,800.00	90.00	180.23	8,057.85	-8,855.50	-2,322.22	9,132.16	0.00	0.00	0.00
17,900.00	90.00	180.23	8,057.85	-8,955.50	-2,322.61	9,230.51	0.00	0.00	0.00
18,000.00	90.00	180.23	8,057.85	-9,055.50	-2,323.01	9,328.86	0.00	0.00	0.00
18,100.00	90.00	180.23	8,057.85	-9,155.50	-2,323.41	9,427.21	0.00	0.00	0.00
18,200.00	90.00	180.23	8,057.85	-9,255.50	-2,323.81	9,525.56	0.00	0.00	0.00
18,300.00	90.00	180.23	8,057.84	-9,355.50	-2,324.21	9,623.91	0.00	0.00	0.00

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well LIVINGSTON S19-25-4N
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 S19-25-4N	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)
18,400.00	90.00	180.23	8,057.84	-9,455.49	-2,324.60	9,722.25	0.00	0.00	0.00
18,500.00	90.00	180.23	8,057.84	-9,555.49	-2,325.00	9,820.60	0.00	0.00	0.00
18,600.00	90.00	180.23	8,057.84	-9,655.49	-2,325.40	9,918.95	0.00	0.00	0.00
18,700.00	90.00	180.23	8,057.84	-9,755.49	-2,325.80	10,017.30	0.00	0.00	0.00
18,800.00	90.00	180.23	8,057.84	-9,855.49	-2,326.19	10,115.65	0.00	0.00	0.00
18,900.00	90.00	180.23	8,057.83	-9,955.49	-2,326.59	10,214.00	0.00	0.00	0.00
19,000.00	90.00	180.23	8,057.83	-10,055.49	-2,326.99	10,312.35	0.00	0.00	0.00
19,100.00	90.00	180.23	8,057.83	-10,155.49	-2,327.39	10,410.70	0.00	0.00	0.00
19,200.00	90.00	180.23	8,057.83	-10,255.49	-2,327.79	10,509.05	0.00	0.00	0.00
19,300.00	90.00	180.23	8,057.83	-10,355.49	-2,328.18	10,607.40	0.00	0.00	0.00
19,400.00	90.00	180.23	8,057.83	-10,455.49	-2,328.58	10,705.75	0.00	0.00	0.00
19,500.00	90.00	180.23	8,057.82	-10,555.49	-2,328.98	10,804.10	0.00	0.00	0.00
19,600.00	90.00	180.23	8,057.82	-10,655.49	-2,329.38	10,902.45	0.00	0.00	0.00
19,700.00	90.00	180.23	8,057.82	-10,755.48	-2,329.78	11,000.80	0.00	0.00	0.00
19,800.00	90.00	180.23	8,057.82	-10,855.48	-2,330.17	11,099.14	0.00	0.00	0.00
19,900.00	90.00	180.23	8,057.82	-10,955.48	-2,330.57	11,197.49	0.00	0.00	0.00
20,000.00	90.00	180.23	8,057.82	-11,055.48	-2,330.97	11,295.84	0.00	0.00	0.00
20,100.00	90.00	180.23	8,057.81	-11,155.48	-2,331.37	11,394.19	0.00	0.00	0.00
20,200.00	90.00	180.23	8,057.81	-11,255.48	-2,331.77	11,492.54	0.00	0.00	0.00
20,300.00	90.00	180.23	8,057.81	-11,355.48	-2,332.16	11,590.89	0.00	0.00	0.00
20,400.00	90.00	180.23	8,057.81	-11,455.48	-2,332.56	11,689.24	0.00	0.00	0.00
20,500.00	90.00	180.23	8,057.81	-11,555.48	-2,332.96	11,787.59	0.00	0.00	0.00
20,600.00	90.00	180.23	8,057.81	-11,655.48	-2,333.36	11,885.94	0.00	0.00	0.00
20,700.00	90.00	180.23	8,057.80	-11,755.48	-2,333.76	11,984.29	0.00	0.00	0.00
20,800.00	90.00	180.23	8,057.80	-11,855.48	-2,334.15	12,082.64	0.00	0.00	0.00
20,900.00	90.00	180.23	8,057.80	-11,955.48	-2,334.55	12,180.99	0.00	0.00	0.00
21,000.00	90.00	180.23	8,057.80	-12,055.47	-2,334.95	12,279.34	0.00	0.00	0.00
21,363.19	90.00	180.23	8,058.00	-12,418.66	-2,336.14	12,636.49	0.00	0.00	0.00
TD at 21363.19' 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 4N - I	0.00	0.00	8,058.00	124.70	-2,286.48	1,235,485.18	3,126,643.38	39° 58' 44.058 N	105° 2' 53.117 W
- plan hits target center									
- Point									
LIVINGSTON S19 4N - I	0.00	0.00	8,058.00	-12,418.66	-2,336.14	1,222,941.74	3,126,658.80	39° 56' 40.096 N	105° 2' 53.740 W
- plan hits target center									
- Point									

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well LIVINGSTON S19-25-4N
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 S19-25-4N	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL 1		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
4,919.10	4,646.00	PARKMAN				
5,437.43	5,127.00	SUSSEX				
6,428.84	6,047.00	SHANNON				
8,355.48	7,880.00	NIOBRARA				
8,712.52	8,048.00	NIO B TARGET				

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
400.00	400.00	0.00	0.00	BUILD 2°/100'
1,493.95	1,467.56	60.28	-197.34	HOLD 21.88° INC
6,795.71	6,387.44	637.42	-2,086.86	DROP 2°/100'
7,889.66	7,455.00	697.70	-2,284.20	HOLD VERTICAL
7,919.66	7,485.00	697.70	-2,284.20	KOP, BUILD 10°/100'
8,819.73	8,058.00	124.70	-2,286.48	LP @ 90° INC, 180.23° AZM HOLD
21,363.19	8,058.00	-12,418.66	-2,336.14	TD at 21363.19' MD