

EXTRACTION OIL & GAS

Broomfield County

Sec 7-T1S-R68W

LIVINGSTON S19-25-6N

ORIGINAL WELLBORE

Plan: PROPOSAL 1

Standard Planning Report

05 December, 2017



Project: Broomfield County
Site: Sec 7-T1S-R68W
Well: LIVINGSTON S19-25-6N
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 S19-25-6N

+N/-S	+E/-W	Northing	Easting	5311.00	Latitude	Longitude	Slot
0.00	0.00	1235372.54	3128966.35		39° 58' 42.827 N	105° 2' 23.284 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	600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	
3	1431.10	16.62	292.47	1419.49	45.76	-110.62	2.00	292.47	-30.22	
4	6874.59	16.62	292.47	6635.51	640.96	-1549.53	0.00	0.00	-423.33	
5	7705.69	0.00	0.00	7455.00	686.72	-1660.15	2.00	180.00	-453.56	
6	7735.69	0.00	0.00	7485.00	686.72	-1660.15	0.00	0.00	-453.56	
7	8635.76	90.00	180.22	8058.00	113.72	-1662.39	10.00	180.22	114.38	LIVINGSTON S19 6N - LP
8	12435.76	90.00	180.22	8057.95	-3686.25	-1677.21	0.00	0.00	3880.77	
9	12846.94	90.00	172.00	8057.95	-4096.13	-1649.36	2.00	-90.00	4283.01	
10	12996.94	90.00	172.00	8057.95	-4244.67	-1628.48	0.00	0.00	4427.31	
11	13438.00	90.00	180.82	8057.95	-4684.44	-1600.89	2.00	90.00	4859.18	LIVINGSTON S19 6N - PBHL
12	21170.52	90.00	180.82	8058.00	-12416.16	-1711.73	0.00	0.00	12533.60	LIVINGSTON S19 6N - PBHL

ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	VSec	Departure	Annotation
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	BUILD 2°/100'
1431.10	16.62	292.47	1419.49	45.76	-110.62	-30.22	119.71	HOLD 16.62° INC
6874.59	16.62	292.47	6635.51	640.96	-1549.53	-423.33	1676.86	DROP 2°/100'
7705.69	0.00	0.00	7455.00	686.72	-1660.15	-453.56	1796.58	HOLD VERTICAL
7735.69	0.00	0.00	7485.00	686.72	-1660.15	-453.56	1796.58	KOP, BUILD 10°/100'
8635.76	90.00	180.22	8058.00	113.72	-1662.39	114.38	2369.58	LP @ 90° INC, 180.22° AZM
12435.76	90.00	180.22	8057.95	-3686.25	-1677.21	3880.77	6169.58	HOLD
12846.94	90.00	172.00	8057.95	-4096.13	-1649.36	4283.01	6580.76	TURN 2°/100'
12996.94	90.00	172.00	8057.95	-4244.67	-1628.48	4427.31	6730.76	HOLD
13438.00	90.00	180.82	8057.95	-4684.44	-1600.89	4859.18	7171.82	180.82° AZM HOLD
21170.52	90.00	180.82	8058.00	-12416.16	-1711.73	12533.60	14904.35	TD at 21170.52' MD

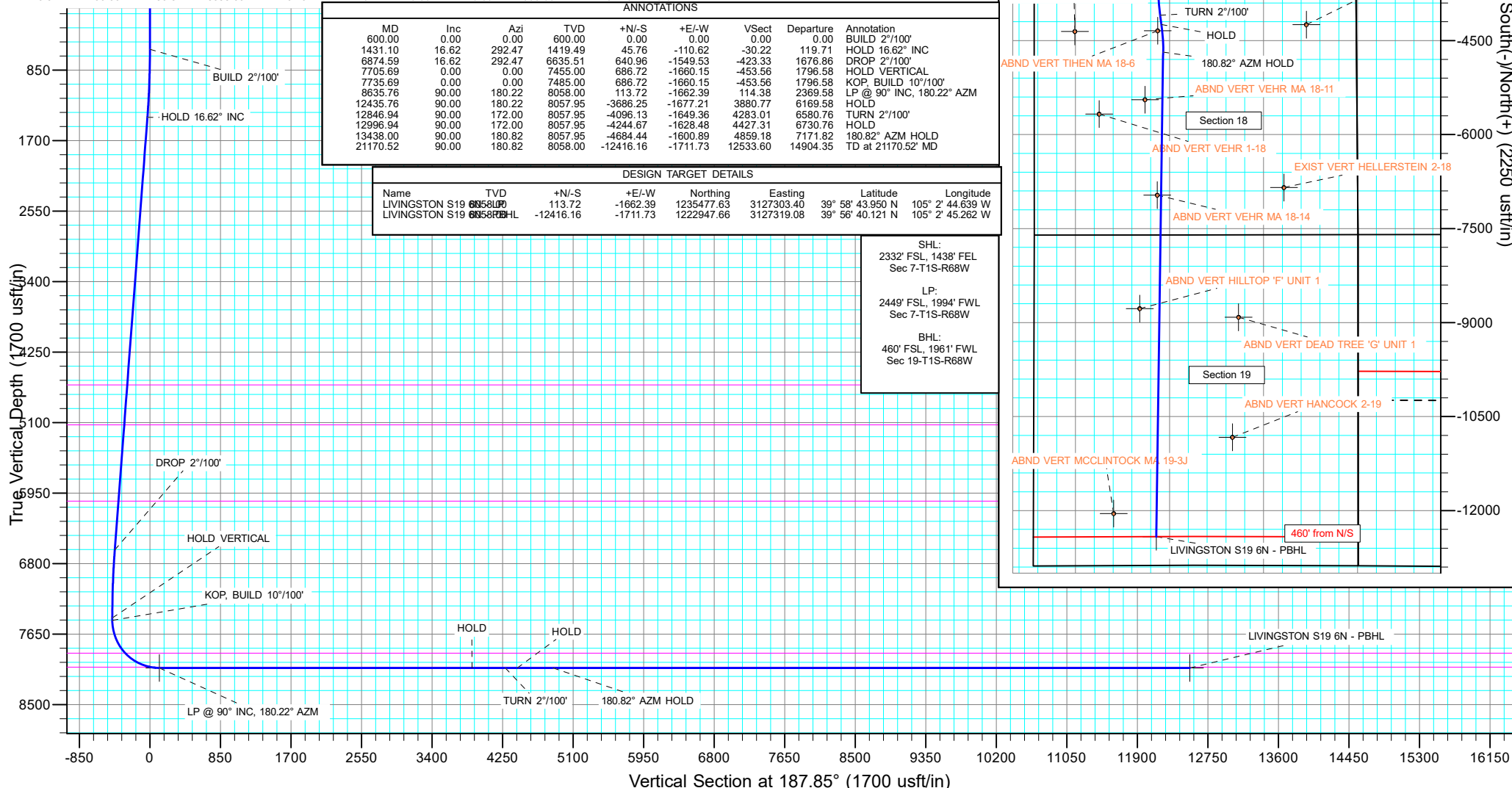
DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
LIVINGSTON S19 6N - LP	8058.00	113.72	-1662.39	1235477.63	3127303.40	39° 58' 43.950 N	105° 2' 44.639 W
LIVINGSTON S19 6N - PBHL	-12416.16	-1711.73	1222947.66	3127319.08	39° 56' 40.121 N	105° 2' 45.262 W	

SHL:
2332' FSL, 1438' FEL
Sec 7-T1S-R68W

LP:
2449' FSL, 1994' FWL
Sec 7-T1S-R68W

BHL:
460' FSL, 1961' FWL
Sec 19-T1S-R68W



Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well LIVINGSTON S19-25-6N
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 S19-25-6N	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 S19-25-6N				
Well Position	+N/-S	-2,949.32 usft	Northing:	1,235,372.54 usft	Latitude:	39° 58' 42.827 N
	+E/-W	-1,415.56 usft	Easting:	3,128,966.35 usft	Longitude:	105° 2' 23.284 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	52,086.12190999

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	187.85	

Plan Survey Tool Program	Date	12/5/2017			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	21,169.94	PROPOSAL 1 (ORIGINAL WELL	MWD OWSG	
			OWSG MWD - Standard		

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well LIVINGSTON S19-25-6N
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 S19-25-6N	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL 1		

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	
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,431.10	16.62	292.47	1,419.49	45.76	-110.62	2.00	2.00	0.00	292.47	
6,874.59	16.62	292.47	6,635.51	640.96	-1,549.53	0.00	0.00	0.00	0.00	
7,705.69	0.00	0.00	7,455.00	686.72	-1,660.15	2.00	-2.00	0.00	180.00	
7,735.69	0.00	0.00	7,485.00	686.72	-1,660.15	0.00	0.00	0.00	0.00	
8,635.76	90.00	180.22	8,058.00	113.72	-1,662.39	10.00	10.00	-19.97	180.22	LIVINGSTON S19 6N
12,435.76	90.00	180.22	8,057.95	-3,686.25	-1,677.21	0.00	0.00	0.00	0.00	
12,846.94	90.00	172.00	8,057.95	-4,096.13	-1,649.36	2.00	0.00	-2.00	-90.00	
12,996.94	90.00	172.00	8,057.95	-4,244.67	-1,628.48	0.00	0.00	0.00	0.00	
13,438.00	90.00	180.82	8,057.95	-4,684.44	-1,600.89	2.00	0.00	2.00	90.00	LIVINGSTON S19 6N
21,170.53	90.00	180.82	8,058.00	-12,416.16	-1,711.73	0.00	0.00	0.00	0.00	LIVINGSTON S19 6N

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well LIVINGSTON S19-25-6N
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 S19-25-6N	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
BUILD 2°/100'									
700.00	2.00	292.47	699.98	0.67	-1.61	-0.44	2.00	2.00	0.00
800.00	4.00	292.47	799.84	2.67	-6.45	-1.76	2.00	2.00	0.00
900.00	6.00	292.47	899.45	6.00	-14.50	-3.96	2.00	2.00	0.00
1,000.00	8.00	292.47	998.70	10.66	-25.76	-7.04	2.00	2.00	0.00
1,100.00	10.00	292.47	1,097.47	16.64	-40.22	-10.99	2.00	2.00	0.00
1,200.00	12.00	292.47	1,195.62	23.93	-57.85	-15.80	2.00	2.00	0.00
1,300.00	14.00	292.47	1,293.06	32.53	-78.63	-21.48	2.00	2.00	0.00
1,400.00	16.00	292.47	1,389.64	42.42	-102.55	-28.02	2.00	2.00	0.00
1,431.10	16.62	292.47	1,419.49	45.76	-110.62	-30.22	2.00	2.00	0.00
HOLD 16.62° INC									
1,500.00	16.62	292.47	1,485.51	53.29	-128.83	-35.20	0.00	0.00	0.00
1,600.00	16.62	292.47	1,581.33	64.23	-155.27	-42.42	0.00	0.00	0.00
1,700.00	16.62	292.47	1,677.15	75.16	-181.70	-49.64	0.00	0.00	0.00
1,800.00	16.62	292.47	1,772.98	86.09	-208.13	-56.86	0.00	0.00	0.00
1,900.00	16.62	292.47	1,868.80	97.03	-234.57	-64.08	0.00	0.00	0.00
2,000.00	16.62	292.47	1,964.62	107.96	-261.00	-71.31	0.00	0.00	0.00
2,100.00	16.62	292.47	2,060.44	118.90	-287.44	-78.53	0.00	0.00	0.00
2,200.00	16.62	292.47	2,156.26	129.83	-313.87	-85.75	0.00	0.00	0.00
2,300.00	16.62	292.47	2,252.08	140.77	-340.30	-92.97	0.00	0.00	0.00
2,400.00	16.62	292.47	2,347.90	151.70	-366.74	-100.19	0.00	0.00	0.00
2,500.00	16.62	292.47	2,443.72	162.63	-393.17	-107.41	0.00	0.00	0.00
2,600.00	16.62	292.47	2,539.55	173.57	-419.60	-114.64	0.00	0.00	0.00
2,700.00	16.62	292.47	2,635.37	184.50	-446.04	-121.86	0.00	0.00	0.00
2,800.00	16.62	292.47	2,731.19	195.44	-472.47	-129.08	0.00	0.00	0.00
2,900.00	16.62	292.47	2,827.01	206.37	-498.90	-136.30	0.00	0.00	0.00
3,000.00	16.62	292.47	2,922.83	217.31	-525.34	-143.52	0.00	0.00	0.00
3,100.00	16.62	292.47	3,018.65	228.24	-551.77	-150.75	0.00	0.00	0.00
3,200.00	16.62	292.47	3,114.47	239.17	-578.20	-157.97	0.00	0.00	0.00
3,300.00	16.62	292.47	3,210.29	250.11	-604.64	-165.19	0.00	0.00	0.00
3,400.00	16.62	292.47	3,306.12	261.04	-631.07	-172.41	0.00	0.00	0.00
3,500.00	16.62	292.47	3,401.94	271.98	-657.51	-179.63	0.00	0.00	0.00
3,600.00	16.62	292.47	3,497.76	282.91	-683.94	-186.85	0.00	0.00	0.00
3,700.00	16.62	292.47	3,593.58	293.85	-710.37	-194.08	0.00	0.00	0.00
3,800.00	16.62	292.47	3,689.40	304.78	-736.81	-201.30	0.00	0.00	0.00
3,900.00	16.62	292.47	3,785.22	315.71	-763.24	-208.52	0.00	0.00	0.00
4,000.00	16.62	292.47	3,881.04	326.65	-789.67	-215.74	0.00	0.00	0.00
4,100.00	16.62	292.47	3,976.86	337.58	-816.11	-222.96	0.00	0.00	0.00
4,200.00	16.62	292.47	4,072.69	348.52	-842.54	-230.18	0.00	0.00	0.00
4,300.00	16.62	292.47	4,168.51	359.45	-868.97	-237.41	0.00	0.00	0.00
4,400.00	16.62	292.47	4,264.33	370.38	-895.41	-244.63	0.00	0.00	0.00
4,500.00	16.62	292.47	4,360.15	381.32	-921.84	-251.85	0.00	0.00	0.00
4,600.00	16.62	292.47	4,455.97	392.25	-948.27	-259.07	0.00	0.00	0.00
4,700.00	16.62	292.47	4,551.79	403.19	-974.71	-266.29	0.00	0.00	0.00
4,798.32	16.62	292.47	4,646.00	413.94	-1,000.70	-273.39	0.00	0.00	0.00
PARKMAN									

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well LIVINGSTON S19-25-6N
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 S19-25-6N	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	16.62	292.47	4,647.61	414.12	-1,001.14	-273.51	0.00	0.00	0.00	
4,900.00	16.62	292.47	4,743.43	425.06	-1,027.57	-280.74	0.00	0.00	0.00	
5,000.00	16.62	292.47	4,839.26	435.99	-1,054.01	-287.96	0.00	0.00	0.00	
5,100.00	16.62	292.47	4,935.08	446.92	-1,080.44	-295.18	0.00	0.00	0.00	
5,200.00	16.62	292.47	5,030.90	457.86	-1,106.88	-302.40	0.00	0.00	0.00	
5,300.00	16.62	292.47	5,126.72	468.79	-1,133.31	-309.62	0.00	0.00	0.00	
5,300.29	16.62	292.47	5,127.00	468.82	-1,133.39	-309.64	0.00	0.00	0.00	
SUSSEX										
5,400.00	16.62	292.47	5,222.54	479.73	-1,159.74	-316.84	0.00	0.00	0.00	
5,500.00	16.62	292.47	5,318.36	490.66	-1,186.18	-324.07	0.00	0.00	0.00	
5,600.00	16.62	292.47	5,414.18	501.60	-1,212.61	-331.29	0.00	0.00	0.00	
5,700.00	16.62	292.47	5,510.00	512.53	-1,239.04	-338.51	0.00	0.00	0.00	
5,800.00	16.62	292.47	5,605.83	523.46	-1,265.48	-345.73	0.00	0.00	0.00	
5,900.00	16.62	292.47	5,701.65	534.40	-1,291.91	-352.95	0.00	0.00	0.00	
6,000.00	16.62	292.47	5,797.47	545.33	-1,318.34	-360.17	0.00	0.00	0.00	
6,100.00	16.62	292.47	5,893.29	556.27	-1,344.78	-367.40	0.00	0.00	0.00	
6,200.00	16.62	292.47	5,989.11	567.20	-1,371.21	-374.62	0.00	0.00	0.00	
6,260.41	16.62	292.47	6,047.00	573.81	-1,387.18	-378.98	0.00	0.00	0.00	
SHANNON										
6,300.00	16.62	292.47	6,084.93	578.13	-1,397.64	-381.84	0.00	0.00	0.00	
6,400.00	16.62	292.47	6,180.75	589.07	-1,424.08	-389.06	0.00	0.00	0.00	
6,500.00	16.62	292.47	6,276.57	600.00	-1,450.51	-396.28	0.00	0.00	0.00	
6,600.00	16.62	292.47	6,372.40	610.94	-1,476.95	-403.50	0.00	0.00	0.00	
6,700.00	16.62	292.47	6,468.22	621.87	-1,503.38	-410.73	0.00	0.00	0.00	
6,800.00	16.62	292.47	6,564.04	632.81	-1,529.81	-417.95	0.00	0.00	0.00	
6,874.59	16.62	292.47	6,635.51	640.96	-1,549.53	-423.33	0.00	0.00	0.00	
DROP 2°/100'										
6,900.00	16.11	292.47	6,659.89	643.70	-1,556.15	-425.14	2.00	-2.00	0.00	
7,000.00	14.11	292.47	6,756.43	653.66	-1,580.24	-431.72	2.00	-2.00	0.00	
7,100.00	12.11	292.47	6,853.81	662.34	-1,601.20	-437.45	2.00	-2.00	0.00	
7,200.00	10.11	292.47	6,951.93	669.70	-1,619.01	-442.32	2.00	-2.00	0.00	
7,300.00	8.11	292.47	7,050.67	675.76	-1,633.65	-446.32	2.00	-2.00	0.00	
7,400.00	6.11	292.47	7,149.89	680.49	-1,645.09	-449.44	2.00	-2.00	0.00	
7,500.00	4.11	292.47	7,249.49	683.90	-1,653.33	-451.69	2.00	-2.00	0.00	
7,600.00	2.11	292.47	7,349.34	685.97	-1,658.35	-453.06	2.00	-2.00	0.00	
7,705.69	0.00	0.00	7,455.00	686.72	-1,660.15	-453.56	2.00	-2.00	0.00	
HOLD VERTICAL										
7,735.69	0.00	0.00	7,485.00	686.72	-1,660.15	-453.56	0.00	0.00	0.00	
KOP, BUILD 10°/100'										
7,750.00	1.43	180.22	7,499.31	686.54	-1,660.15	-453.38	10.00	10.00	0.00	
7,800.00	6.43	180.22	7,549.18	683.11	-1,660.16	-449.98	10.00	10.00	0.00	
7,850.00	11.43	180.22	7,598.55	675.36	-1,660.19	-442.29	10.00	10.00	0.00	
7,900.00	16.43	180.22	7,647.07	663.32	-1,660.24	-430.37	10.00	10.00	0.00	
7,950.00	21.43	180.22	7,694.35	647.11	-1,660.30	-414.29	10.00	10.00	0.00	
8,000.00	26.43	180.22	7,740.04	626.83	-1,660.38	-394.20	10.00	10.00	0.00	
8,050.00	31.43	180.22	7,783.78	602.65	-1,660.48	-370.23	10.00	10.00	0.00	
8,100.00	36.43	180.22	7,825.26	574.76	-1,660.59	-342.58	10.00	10.00	0.00	
8,150.00	41.43	180.22	7,864.14	543.35	-1,660.71	-311.45	10.00	10.00	0.00	
8,171.51	43.58	180.22	7,880.00	528.82	-1,660.77	-297.05	10.00	10.00	0.00	
NIOBRARA										
8,200.00	46.43	180.22	7,900.14	508.67	-1,660.84	-277.08	10.00	10.00	0.00	
8,250.00	51.43	180.22	7,932.98	470.99	-1,660.99	-239.73	10.00	10.00	0.00	
8,300.00	56.43	180.22	7,962.41	430.59	-1,661.15	-199.69	10.00	10.00	0.00	

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well LIVINGSTON S19-25-6N
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 S19-25-6N	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)	
8,350.00	61.43	180.22	7,988.21	387.78	-1,661.32	-157.26	10.00	10.00	0.00	
8,400.00	66.43	180.22	8,010.18	342.88	-1,661.49	-112.76	10.00	10.00	0.00	
8,450.00	71.43	180.22	8,028.15	296.24	-1,661.67	-66.53	10.00	10.00	0.00	
8,500.00	76.43	180.22	8,041.99	248.21	-1,661.86	-18.92	10.00	10.00	0.00	
8,528.55	79.28	180.22	8,048.00	220.31	-1,661.97	8.73	10.00	10.00	0.00	
NIO B TARGET										
8,550.00	81.43	180.22	8,051.60	199.16	-1,662.05	29.70	10.00	10.00	0.00	
8,600.00	86.42	180.22	8,056.89	149.46	-1,662.25	78.96	10.00	10.00	0.00	
8,635.76	90.00	180.22	8,058.00	113.72	-1,662.39	114.38	10.00	10.00	0.00	
LP @ 90° INC, 180.22° AZM										
8,700.00	90.00	180.22	8,058.00	49.48	-1,662.64	178.05	0.00	0.00	0.00	
8,800.00	90.00	180.22	8,058.00	-50.52	-1,663.03	277.17	0.00	0.00	0.00	
8,900.00	90.00	180.22	8,058.00	-150.52	-1,663.42	376.28	0.00	0.00	0.00	
9,000.00	90.00	180.22	8,058.00	-250.52	-1,663.81	475.40	0.00	0.00	0.00	
9,100.00	90.00	180.22	8,057.99	-350.52	-1,664.20	574.51	0.00	0.00	0.00	
9,200.00	90.00	180.22	8,057.99	-450.52	-1,664.59	673.63	0.00	0.00	0.00	
9,300.00	90.00	180.22	8,057.99	-550.52	-1,664.98	772.75	0.00	0.00	0.00	
9,400.00	90.00	180.22	8,057.99	-650.52	-1,665.37	871.86	0.00	0.00	0.00	
9,500.00	90.00	180.22	8,057.99	-750.51	-1,665.76	970.98	0.00	0.00	0.00	
9,600.00	90.00	180.22	8,057.99	-850.51	-1,666.15	1,070.09	0.00	0.00	0.00	
9,700.00	90.00	180.22	8,057.99	-950.51	-1,666.54	1,169.21	0.00	0.00	0.00	
9,800.00	90.00	180.22	8,057.99	-1,050.51	-1,666.93	1,268.32	0.00	0.00	0.00	
9,900.00	90.00	180.22	8,057.98	-1,150.51	-1,667.32	1,367.44	0.00	0.00	0.00	
10,000.00	90.00	180.22	8,057.98	-1,250.51	-1,667.71	1,466.55	0.00	0.00	0.00	
10,100.00	90.00	180.22	8,057.98	-1,350.51	-1,668.10	1,565.67	0.00	0.00	0.00	
10,200.00	90.00	180.22	8,057.98	-1,450.51	-1,668.49	1,664.79	0.00	0.00	0.00	
10,300.00	90.00	180.22	8,057.98	-1,550.51	-1,668.88	1,763.90	0.00	0.00	0.00	
10,400.00	90.00	180.22	8,057.98	-1,650.51	-1,669.27	1,863.02	0.00	0.00	0.00	
10,500.00	90.00	180.22	8,057.98	-1,750.51	-1,669.66	1,962.13	0.00	0.00	0.00	
10,600.00	90.00	180.22	8,057.98	-1,850.51	-1,670.05	2,061.25	0.00	0.00	0.00	
10,700.00	90.00	180.22	8,057.97	-1,950.51	-1,670.44	2,160.36	0.00	0.00	0.00	
10,800.00	90.00	180.22	8,057.97	-2,050.50	-1,670.83	2,259.48	0.00	0.00	0.00	
10,900.00	90.00	180.22	8,057.97	-2,150.50	-1,671.22	2,358.59	0.00	0.00	0.00	
11,000.00	90.00	180.22	8,057.97	-2,250.50	-1,671.61	2,457.71	0.00	0.00	0.00	
11,100.00	90.00	180.22	8,057.97	-2,350.50	-1,672.00	2,556.83	0.00	0.00	0.00	
11,200.00	90.00	180.22	8,057.97	-2,450.50	-1,672.39	2,655.94	0.00	0.00	0.00	
11,300.00	90.00	180.22	8,057.97	-2,550.50	-1,672.78	2,755.06	0.00	0.00	0.00	
11,400.00	90.00	180.22	8,057.97	-2,650.50	-1,673.17	2,854.17	0.00	0.00	0.00	
11,500.00	90.00	180.22	8,057.96	-2,750.50	-1,673.56	2,953.29	0.00	0.00	0.00	
11,600.00	90.00	180.22	8,057.96	-2,850.50	-1,673.95	3,052.40	0.00	0.00	0.00	
11,700.00	90.00	180.22	8,057.96	-2,950.50	-1,674.34	3,151.52	0.00	0.00	0.00	
11,800.00	90.00	180.22	8,057.96	-3,050.50	-1,674.73	3,250.63	0.00	0.00	0.00	
11,900.00	90.00	180.22	8,057.96	-3,150.50	-1,675.12	3,349.75	0.00	0.00	0.00	
12,000.00	90.00	180.22	8,057.96	-3,250.50	-1,675.51	3,448.87	0.00	0.00	0.00	
12,100.00	90.00	180.22	8,057.96	-3,350.49	-1,675.90	3,547.98	0.00	0.00	0.00	
12,200.00	90.00	180.22	8,057.96	-3,450.49	-1,676.29	3,647.10	0.00	0.00	0.00	
12,300.00	90.00	180.22	8,057.95	-3,550.49	-1,676.68	3,746.21	0.00	0.00	0.00	
12,400.00	90.00	180.22	8,057.95	-3,650.49	-1,677.07	3,845.33	0.00	0.00	0.00	
12,435.76	90.00	180.22	8,057.95	-3,686.25	-1,677.21	3,880.77	0.00	0.00	0.00	
HOLD										
12,500.00	90.00	178.94	8,057.95	-3,750.49	-1,676.74	3,944.34	2.00	0.00	-2.00	
12,600.00	90.00	176.94	8,057.95	-3,850.42	-1,673.15	4,042.85	2.00	0.00	-2.00	
12,700.00	90.00	174.94	8,057.95	-3,950.16	-1,666.07	4,140.69	2.00	0.00	-2.00	

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well LIVINGSTON S19-25-6N
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 S19-25-6N	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)
12,800.00	90.00	172.94	8,057.95	-4,049.60	-1,655.51	4,237.75	2.00	0.00	-2.00
12,846.94	90.00	172.00	8,057.95	-4,096.13	-1,649.36	4,283.01	2.00	0.00	-2.00
TURN 2°/100'									
12,900.00	90.00	172.00	8,057.95	-4,148.68	-1,641.97	4,334.05	0.00	0.00	0.00
12,996.94	90.00	172.00	8,057.95	-4,244.67	-1,628.48	4,427.31	0.00	0.00	0.00
HOLD									
13,000.00	90.00	172.06	8,057.95	-4,247.70	-1,628.06	4,430.25	2.00	0.00	2.00
13,100.00	90.00	174.06	8,057.95	-4,346.97	-1,615.97	4,526.93	2.00	0.00	2.00
13,200.00	90.00	176.06	8,057.95	-4,446.59	-1,607.37	4,624.45	2.00	0.00	2.00
13,300.00	90.00	178.06	8,057.95	-4,546.45	-1,602.24	4,722.67	2.00	0.00	2.00
13,400.00	90.00	180.06	8,057.95	-4,646.44	-1,600.60	4,821.50	2.00	0.00	2.00
13,438.00	90.00	180.82	8,057.95	-4,684.44	-1,600.89	4,859.18	2.00	0.00	2.00
180.82° AZM HOLD									
13,500.00	90.00	180.82	8,057.95	-4,746.43	-1,601.78	4,920.71	0.00	0.00	0.00
13,600.00	90.00	180.82	8,057.95	-4,846.42	-1,603.22	5,019.96	0.00	0.00	0.00
13,700.00	90.00	180.82	8,057.95	-4,946.41	-1,604.65	5,119.21	0.00	0.00	0.00
13,800.00	90.00	180.82	8,057.95	-5,046.40	-1,606.08	5,218.46	0.00	0.00	0.00
13,900.00	90.00	180.82	8,057.95	-5,146.39	-1,607.52	5,317.71	0.00	0.00	0.00
14,000.00	90.00	180.82	8,057.95	-5,246.38	-1,608.95	5,416.96	0.00	0.00	0.00
14,100.00	90.00	180.82	8,057.95	-5,346.37	-1,610.38	5,516.20	0.00	0.00	0.00
14,200.00	90.00	180.82	8,057.95	-5,446.36	-1,611.82	5,615.45	0.00	0.00	0.00
14,300.00	90.00	180.82	8,057.95	-5,546.35	-1,613.25	5,714.70	0.00	0.00	0.00
14,400.00	90.00	180.82	8,057.95	-5,646.34	-1,614.68	5,813.95	0.00	0.00	0.00
14,500.00	90.00	180.82	8,057.95	-5,746.32	-1,616.12	5,913.20	0.00	0.00	0.00
14,600.00	90.00	180.82	8,057.95	-5,846.31	-1,617.55	6,012.45	0.00	0.00	0.00
14,700.00	90.00	180.82	8,057.95	-5,946.30	-1,618.98	6,111.70	0.00	0.00	0.00
14,800.00	90.00	180.82	8,057.95	-6,046.29	-1,620.42	6,210.94	0.00	0.00	0.00
14,900.00	90.00	180.82	8,057.95	-6,146.28	-1,621.85	6,310.19	0.00	0.00	0.00
15,000.00	90.00	180.82	8,057.95	-6,246.27	-1,623.28	6,409.44	0.00	0.00	0.00
15,100.00	90.00	180.82	8,057.95	-6,346.26	-1,624.72	6,508.69	0.00	0.00	0.00
15,200.00	90.00	180.82	8,057.95	-6,446.25	-1,626.15	6,607.94	0.00	0.00	0.00
15,300.00	90.00	180.82	8,057.95	-6,546.24	-1,627.58	6,707.19	0.00	0.00	0.00
15,400.00	90.00	180.82	8,057.95	-6,646.23	-1,629.02	6,806.44	0.00	0.00	0.00
15,500.00	90.00	180.82	8,057.95	-6,746.22	-1,630.45	6,905.68	0.00	0.00	0.00
15,600.00	90.00	180.82	8,057.95	-6,846.21	-1,631.88	7,004.93	0.00	0.00	0.00
15,700.00	90.00	180.82	8,057.95	-6,946.20	-1,633.32	7,104.18	0.00	0.00	0.00
15,800.00	90.00	180.82	8,057.95	-7,046.19	-1,634.75	7,203.43	0.00	0.00	0.00
15,900.00	90.00	180.82	8,057.95	-7,146.18	-1,636.18	7,302.68	0.00	0.00	0.00
16,000.00	90.00	180.82	8,057.95	-7,246.17	-1,637.62	7,401.93	0.00	0.00	0.00
16,100.00	90.00	180.82	8,057.95	-7,346.16	-1,639.05	7,501.18	0.00	0.00	0.00
16,200.00	90.00	180.82	8,057.95	-7,446.15	-1,640.48	7,600.42	0.00	0.00	0.00
16,300.00	90.00	180.82	8,057.95	-7,546.14	-1,641.92	7,699.67	0.00	0.00	0.00
16,400.00	90.00	180.82	8,057.95	-7,646.13	-1,643.35	7,798.92	0.00	0.00	0.00
16,500.00	90.00	180.82	8,057.95	-7,746.12	-1,644.78	7,898.17	0.00	0.00	0.00
16,600.00	90.00	180.82	8,057.95	-7,846.11	-1,646.22	7,997.42	0.00	0.00	0.00
16,700.00	90.00	180.82	8,057.95	-7,946.10	-1,647.65	8,096.67	0.00	0.00	0.00
16,800.00	90.00	180.82	8,057.95	-8,046.09	-1,649.08	8,195.92	0.00	0.00	0.00
16,900.00	90.00	180.82	8,057.95	-8,146.08	-1,650.52	8,295.16	0.00	0.00	0.00
17,000.00	90.00	180.82	8,057.95	-8,246.07	-1,651.95	8,394.41	0.00	0.00	0.00
17,100.00	90.00	180.82	8,057.95	-8,346.06	-1,653.38	8,493.66	0.00	0.00	0.00
17,200.00	90.00	180.82	8,057.95	-8,446.05	-1,654.82	8,592.91	0.00	0.00	0.00
17,300.00	90.00	180.82	8,057.95	-8,546.04	-1,656.25	8,692.16	0.00	0.00	0.00
17,400.00	90.00	180.82	8,057.95	-8,646.03	-1,657.68	8,791.41	0.00	0.00	0.00

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well LIVINGSTON S19-25-6N
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 S19-25-6N	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)	
17,500.00	90.00	180.82	8,057.95	-8,746.02	-1,659.12	8,890.66	0.00	0.00	0.00	
17,600.00	90.00	180.82	8,057.95	-8,846.01	-1,660.55	8,989.91	0.00	0.00	0.00	
17,700.00	90.00	180.82	8,057.95	-8,946.00	-1,661.98	9,089.15	0.00	0.00	0.00	
17,800.00	90.00	180.82	8,057.95	-9,045.99	-1,663.42	9,188.40	0.00	0.00	0.00	
17,900.00	90.00	180.82	8,057.95	-9,145.98	-1,664.85	9,287.65	0.00	0.00	0.00	
18,000.00	90.00	180.82	8,057.95	-9,245.97	-1,666.28	9,386.90	0.00	0.00	0.00	
18,100.00	90.00	180.82	8,057.95	-9,345.96	-1,667.72	9,486.15	0.00	0.00	0.00	
18,200.00	90.00	180.82	8,057.95	-9,445.94	-1,669.15	9,585.40	0.00	0.00	0.00	
18,300.00	90.00	180.82	8,057.95	-9,545.93	-1,670.58	9,684.65	0.00	0.00	0.00	
18,400.00	90.00	180.82	8,057.95	-9,645.92	-1,672.02	9,783.89	0.00	0.00	0.00	
18,500.00	90.00	180.82	8,057.95	-9,745.91	-1,673.45	9,883.14	0.00	0.00	0.00	
18,600.00	90.00	180.82	8,057.95	-9,845.90	-1,674.88	9,982.39	0.00	0.00	0.00	
18,700.00	90.00	180.82	8,057.95	-9,945.89	-1,676.32	10,081.64	0.00	0.00	0.00	
18,800.00	90.00	180.82	8,057.95	-10,045.88	-1,677.75	10,180.89	0.00	0.00	0.00	
18,900.00	90.00	180.82	8,057.95	-10,145.87	-1,679.18	10,280.14	0.00	0.00	0.00	
19,000.00	90.00	180.82	8,057.95	-10,245.86	-1,680.62	10,379.39	0.00	0.00	0.00	
19,100.00	90.00	180.82	8,057.95	-10,345.85	-1,682.05	10,478.63	0.00	0.00	0.00	
19,200.00	90.00	180.82	8,057.95	-10,445.84	-1,683.49	10,577.88	0.00	0.00	0.00	
19,300.00	90.00	180.82	8,057.95	-10,545.83	-1,684.92	10,677.13	0.00	0.00	0.00	
19,400.00	90.00	180.82	8,057.95	-10,645.82	-1,686.35	10,776.38	0.00	0.00	0.00	
19,500.00	90.00	180.82	8,057.95	-10,745.81	-1,687.79	10,875.63	0.00	0.00	0.00	
19,600.00	90.00	180.82	8,057.95	-10,845.80	-1,689.22	10,974.88	0.00	0.00	0.00	
19,700.00	90.00	180.82	8,057.95	-10,945.79	-1,690.65	11,074.13	0.00	0.00	0.00	
19,800.00	90.00	180.82	8,057.95	-11,045.78	-1,692.09	11,173.37	0.00	0.00	0.00	
19,900.00	90.00	180.82	8,057.95	-11,145.77	-1,693.52	11,272.62	0.00	0.00	0.00	
20,000.00	90.00	180.82	8,057.95	-11,245.76	-1,694.95	11,371.87	0.00	0.00	0.00	
20,100.00	90.00	180.82	8,057.95	-11,345.75	-1,696.39	11,471.12	0.00	0.00	0.00	
20,200.00	90.00	180.82	8,057.95	-11,445.74	-1,697.82	11,570.37	0.00	0.00	0.00	
20,300.00	90.00	180.82	8,057.95	-11,545.73	-1,699.25	11,669.62	0.00	0.00	0.00	
20,400.00	90.00	180.82	8,057.95	-11,645.72	-1,700.69	11,768.87	0.00	0.00	0.00	
20,500.00	90.00	180.82	8,057.95	-11,745.71	-1,702.12	11,868.11	0.00	0.00	0.00	
20,600.00	90.00	180.82	8,057.95	-11,845.70	-1,703.55	11,967.36	0.00	0.00	0.00	
20,700.00	90.00	180.82	8,057.95	-11,945.69	-1,704.99	12,066.61	0.00	0.00	0.00	
20,800.00	90.00	180.82	8,057.95	-12,045.68	-1,706.42	12,165.86	0.00	0.00	0.00	
20,900.00	90.00	180.82	8,057.95	-12,145.67	-1,707.85	12,265.11	0.00	0.00	0.00	
21,000.00	90.00	180.82	8,057.95	-12,245.66	-1,709.29	12,364.36	0.00	0.00	0.00	
21,170.53	90.00	180.82	8,058.00	-12,416.16	-1,711.73	12,533.60	0.00	0.00	0.00	
TD at 21170.52' MD										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude		
- hit/miss target										
- Shape										
LIVINGSTON S19 6N - I	0.00	0.00	8,058.00	-12,416.16	-1,711.73	1,222,947.66	3,127,319.08	39° 56' 40.121 N		
- plan hits target center										
- Point										
LIVINGSTON S19 6N - I	0.00	0.00	8,058.00	113.72	-1,662.39	1,235,477.63	3,127,303.40	39° 58' 43.950 N		
- plan hits target center										
- Point										

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well LIVINGSTON S19-25-6N
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 S19-25-6N	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL 1		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
4,798.32	4,646.00	PARKMAN				
5,300.29	5,127.00	SUSSEX				
6,260.41	6,047.00	SHANNON				
8,171.51	7,880.00	NIOBRARA				
8,528.55	8,048.00	NIO B TARGET				

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
600.00	600.00	0.00	0.00	BUILD 2°/100'
1,431.10	1,419.49	45.76	-110.62	HOLD 16.62° INC
6,874.59	6,635.51	640.96	-1,549.53	DROP 2°/100'
7,705.69	7,455.00	686.72	-1,660.15	HOLD VERTICAL
7,735.69	7,485.00	686.72	-1,660.15	KOP, BUILD 10°/100'
8,635.76	8,058.00	113.72	-1,662.39	LP @ 90° INC, 180.22° AZM
12,435.76	8,057.95	-3,686.25	-1,677.21	HOLD
12,846.94	8,057.95	-4,096.13	-1,649.36	TURN 2°/100'
12,996.94	8,057.95	-4,244.67	-1,628.48	HOLD
13,438.00	8,057.95	-4,684.44	-1,600.89	180.82° AZM HOLD
21,170.53	8,058.00	-12,416.16	-1,711.73	TD at 21170.52' MD