

EXTRACTION OIL & GAS

Broomfield County

Sec 7-T1S-R68W

LIVINGSTON S19-25-2C

ORIGINAL WELLBORE

Plan: PROPOSAL 1

Standard Planning Report

05 December, 2017



Project: Broomfield County
Site: Sec 7-T1S-R68W
Well: LIVINGSTON S19-25-2C
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: 52085.9snT
Dip Angle: 66.46°
Date: 12/4/2017
Model: IGRF2015

WELL DETAILS: LIVINGSTON S19-25-2C

+N/-S	+E/-W	Northing	Easting	5336.00	Latitude	Longitude	Slot
0.00	0.00	1235372.53	3128894.33		39° 58' 42.830 N	105° 2' 24.209 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	200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	
3	1490.99	25.82	283.68	1447.74	67.65	-277.88	2.00	283.68	-1.39	
4	7049.43	25.82	283.68	6451.26	640.31	-2630.12	0.00	0.00	-13.12	
5	8340.42	0.00	0.00	7699.00	707.96	-2908.00	2.00	180.00	-14.50	
6	8370.42	0.00	0.00	7729.00	707.96	-2908.00	0.00	0.00	-14.50	
7	9270.49	90.00	180.23	8302.00	134.96	-2910.29	10.00	180.23	543.41	LIVINGSTON S19 2C - LP
8	12770.49	90.00	180.23	8302.00	-3365.01	-2924.30	0.00	0.00	3951.28	
9	13181.95	90.00	172.00	8302.00	-3775.18	-2896.45	2.00	-90.00	4343.81	
10	13613.87	90.00	180.64	8302.00	-4205.79	-2868.75	2.00	90.00	4756.27	LIVINGSTON S19 2C - PBHL
11	21829.73	90.00	180.64	8302.00	-12421.14	-2960.27	0.00	0.00	12769.02	LIVINGSTON S19 2C - PBHL

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
4646.00	5043.95	PARKMAN
5127.00	5578.30	SUSSEX
6047.00	6600.33	SHANNON
7880.00	8523.22	NIOBRARA
8048.00	8708.74	NIO B TARGET
8283.00	9122.51	FORT HAYS
8302.00	9270.49	CODELL

ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	VSec	Departure	Annotation
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	BUILD 2°/100'
1490.99	25.82	283.68	1447.74	67.65	-277.88	-1.39	286.00	HOLD 25.82° INC
7049.43	25.82	283.68	6451.26	640.31	-2630.12	-13.12	2706.94	DROP 2°/100'
8340.42	0.00	0.00	7699.00	707.96	-2908.00	-14.50	2992.94	HOLD VERTICAL
8370.42	0.00	0.00	7729.00	707.96	-2908.00	-14.50	2992.94	KOP, BUILD 10°/100'
9270.49	90.00	180.23	8302.00	134.96	-2910.29	543.41	3565.94	LP @ 90° INC, 180.23° AZM
12770.49	90.00	180.23	8302.00	-3365.01	-2924.30	3951.28	7065.94	HOLD
13181.95	90.00	172.00	8302.00	-3775.18	-2896.45	4343.81	7477.40	TURN 2°/100'
13613.87	90.00	180.64	8302.00	-4205.79	-2868.75	4756.27	7909.32	HOLD 180.64° AZM
21829.73	90.00	180.64	8302.00	-12421.14	-2960.27	12769.02	16125.18	TD at 21829.73' MD

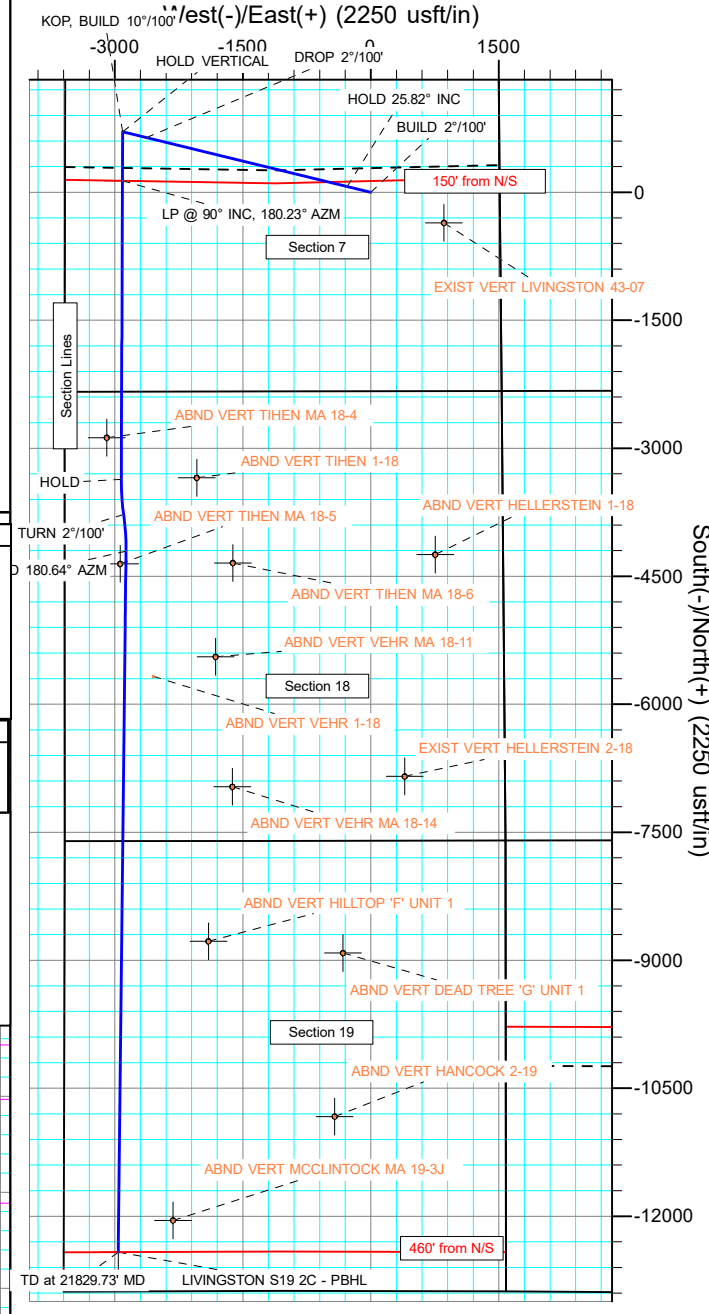
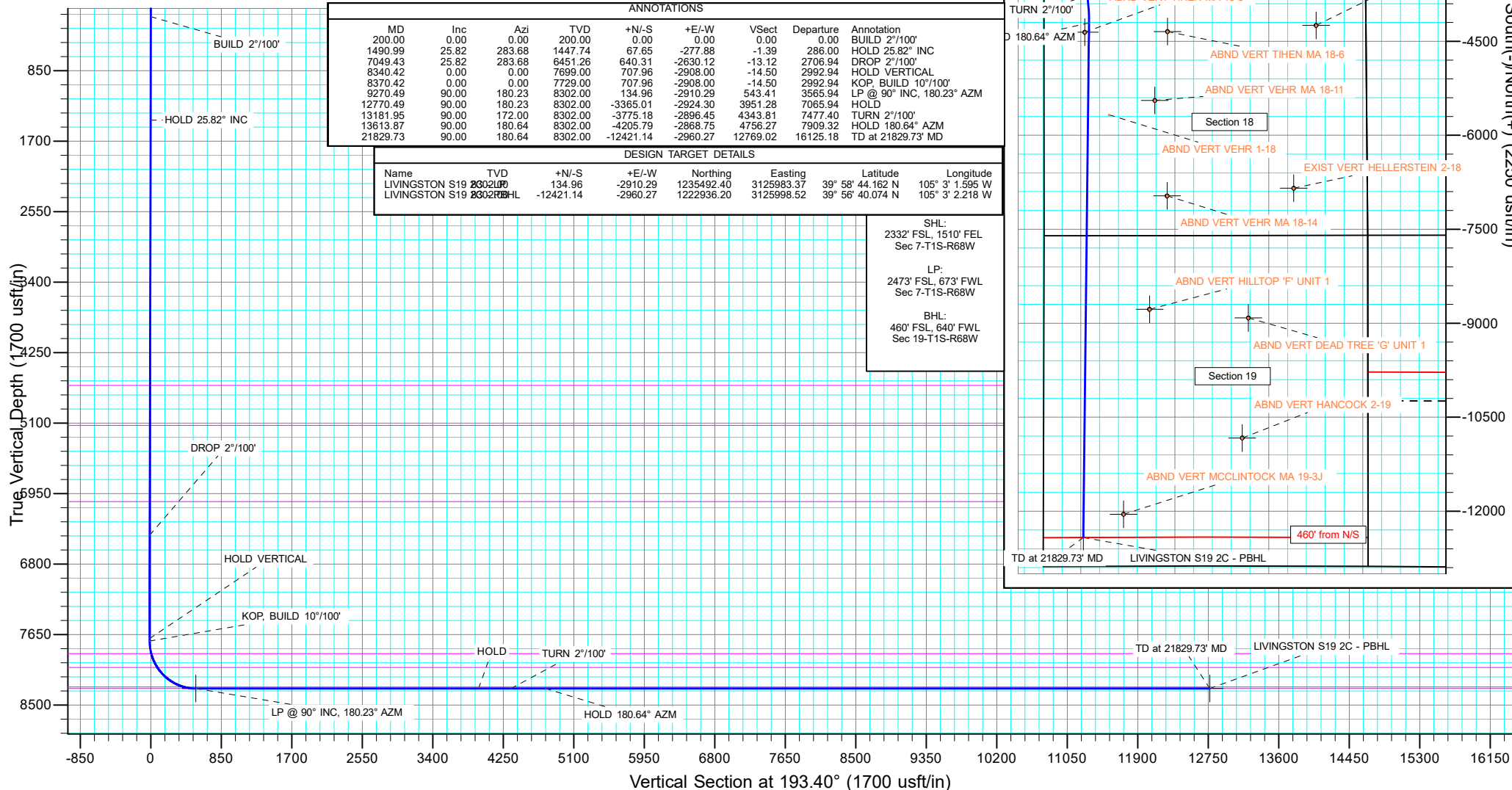
DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
LIVINGSTON S19 2C - LP	8302.00	134.96	-2910.29	1235492.40	3125983.37	39° 58' 44.162 N	105° 3' 1.595 W
LIVINGSTON S19 2C - PBHL	8302.00	-12421.14	-2960.27	1222936.20	3125998.52	39° 56' 40.074 N	105° 3' 2.218 W

SHL:
2332' FSL, 1510' FEL
Sec 7-T1S-R68W

LP:
2473' FSL, 673' FWL
Sec 7-T1S-R68W

BHL:
460' FSL, 640' FWL
Sec 19-T1S-R68W



Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well LIVINGSTON S19-25-2C
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB 25' @ 5361.00usft
Project:	Broomfield County	MD Reference:	KB 25' @ 5361.00usft
Site:	Sec 7-T1S-R68W	North Reference:	True
Well:	LIVINGSTON S19-25-2C	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 S19-25-2C				
Well Position	+N/-S	-2,948.96 usft	Northing:	1,235,372.53 usft	Latitude:	39° 58' 42.830 N
	+E/-W	-1,487.58 usft	Easting:	3,128,894.33 usft	Longitude:	105° 2' 24.209 W
Position Uncertainty	0.00 usft		Wellhead Elevation:		Ground Level:	5,336.00 usft

Wellbore	ORIGINAL WELLBORE				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	12/4/2017	8.27	66.46	52,085.89427002

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	193.40	

Plan Survey Tool Program	Date	12/5/2017			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	21,829.73	PROPOSAL 1 (ORIGINAL WELL	MWD OWSG	
			OWSG MWD - Standard		

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well LIVINGSTON S19-25-2C
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB 25' @ 5361.00usft
Project:	Broomfield County	MD Reference:	KB 25' @ 5361.00usft
Site:	Sec 7-T1S-R68W	North Reference:	True
Well:	LIVINGSTON S19-25-2C	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	
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,490.99	25.82	283.68	1,447.74	67.65	-277.88	2.00	2.00	0.00	283.68	
7,049.43	25.82	283.68	6,451.26	640.31	-2,630.12	0.00	0.00	0.00	0.00	
8,340.42	0.00	0.00	7,699.00	707.96	-2,908.00	2.00	-2.00	0.00	180.00	
8,370.42	0.00	0.00	7,729.00	707.96	-2,908.00	0.00	0.00	0.00	0.00	
9,270.49	90.00	180.23	8,302.00	134.96	-2,910.29	10.00	10.00	-19.97	180.23	LIVINGSTON S19 2C
12,770.49	90.00	180.23	8,302.00	-3,365.01	-2,924.30	0.00	0.00	0.00	0.00	
13,181.95	90.00	172.00	8,302.00	-3,775.18	-2,896.45	2.00	0.00	-2.00	-90.00	
13,613.87	90.00	180.64	8,302.00	-4,205.79	-2,868.75	2.00	0.00	2.00	90.00	LIVINGSTON S19 2C
21,829.73	90.00	180.64	8,302.00	-12,421.14	-2,960.27	0.00	0.00	0.00	0.00	LIVINGSTON S19 2C

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well LIVINGSTON S19-25-2C
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB 25' @ 5361.00usft
Project:	Broomfield County	MD Reference:	KB 25' @ 5361.00usft
Site:	Sec 7-T1S-R68W	North Reference:	True
Well:	LIVINGSTON S19-25-2C	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
BUILD 2°/100'									
300.00	2.00	283.68	299.98	0.41	-1.70	-0.01	2.00	2.00	0.00
400.00	4.00	283.68	399.84	1.65	-6.78	-0.03	2.00	2.00	0.00
500.00	6.00	283.68	499.45	3.71	-15.25	-0.08	2.00	2.00	0.00
600.00	8.00	283.68	598.70	6.59	-27.09	-0.14	2.00	2.00	0.00
700.00	10.00	283.68	697.47	10.30	-42.29	-0.21	2.00	2.00	0.00
800.00	12.00	283.68	795.62	14.81	-60.83	-0.30	2.00	2.00	0.00
900.00	14.00	283.68	893.06	20.13	-82.68	-0.41	2.00	2.00	0.00
1,000.00	16.00	283.68	989.64	26.25	-107.83	-0.54	2.00	2.00	0.00
1,100.00	18.00	283.68	1,085.27	33.17	-136.23	-0.68	2.00	2.00	0.00
1,200.00	20.00	283.68	1,179.82	40.87	-167.87	-0.84	2.00	2.00	0.00
1,300.00	22.00	283.68	1,273.17	49.34	-202.68	-1.01	2.00	2.00	0.00
1,400.00	24.00	283.68	1,365.21	58.59	-240.65	-1.20	2.00	2.00	0.00
1,490.99	25.82	283.68	1,447.74	67.65	-277.88	-1.39	2.00	2.00	0.00
HOLD 25.82° INC									
1,500.00	25.82	283.68	1,455.85	68.58	-281.69	-1.41	0.00	0.00	0.00
1,600.00	25.82	283.68	1,545.86	78.88	-324.01	-1.62	0.00	0.00	0.00
1,700.00	25.82	283.68	1,635.88	89.18	-366.33	-1.83	0.00	0.00	0.00
1,800.00	25.82	283.68	1,725.90	99.49	-408.65	-2.04	0.00	0.00	0.00
1,900.00	25.82	283.68	1,815.91	109.79	-450.97	-2.25	0.00	0.00	0.00
2,000.00	25.82	283.68	1,905.93	120.09	-493.29	-2.46	0.00	0.00	0.00
2,100.00	25.82	283.68	1,995.95	130.39	-535.60	-2.67	0.00	0.00	0.00
2,200.00	25.82	283.68	2,085.96	140.70	-577.92	-2.88	0.00	0.00	0.00
2,300.00	25.82	283.68	2,175.98	151.00	-620.24	-3.09	0.00	0.00	0.00
2,400.00	25.82	283.68	2,266.00	161.30	-662.56	-3.30	0.00	0.00	0.00
2,500.00	25.82	283.68	2,356.01	171.60	-704.88	-3.52	0.00	0.00	0.00
2,600.00	25.82	283.68	2,446.03	181.91	-747.20	-3.73	0.00	0.00	0.00
2,700.00	25.82	283.68	2,536.05	192.21	-789.51	-3.94	0.00	0.00	0.00
2,800.00	25.82	283.68	2,626.06	202.51	-831.83	-4.15	0.00	0.00	0.00
2,900.00	25.82	283.68	2,716.08	212.81	-874.15	-4.36	0.00	0.00	0.00
3,000.00	25.82	283.68	2,806.10	223.12	-916.47	-4.57	0.00	0.00	0.00
3,100.00	25.82	283.68	2,896.12	233.42	-958.79	-4.78	0.00	0.00	0.00
3,200.00	25.82	283.68	2,986.13	243.72	-1,001.11	-4.99	0.00	0.00	0.00
3,300.00	25.82	283.68	3,076.15	254.02	-1,043.42	-5.20	0.00	0.00	0.00
3,400.00	25.82	283.68	3,166.17	264.33	-1,085.74	-5.42	0.00	0.00	0.00
3,500.00	25.82	283.68	3,256.18	274.63	-1,128.06	-5.63	0.00	0.00	0.00
3,600.00	25.82	283.68	3,346.20	284.93	-1,170.38	-5.84	0.00	0.00	0.00
3,700.00	25.82	283.68	3,436.22	295.23	-1,212.70	-6.05	0.00	0.00	0.00
3,800.00	25.82	283.68	3,526.23	305.54	-1,255.02	-6.26	0.00	0.00	0.00
3,900.00	25.82	283.68	3,616.25	315.84	-1,297.33	-6.47	0.00	0.00	0.00
4,000.00	25.82	283.68	3,706.27	326.14	-1,339.65	-6.68	0.00	0.00	0.00
4,100.00	25.82	283.68	3,796.28	336.44	-1,381.97	-6.89	0.00	0.00	0.00
4,200.00	25.82	283.68	3,886.30	346.75	-1,424.29	-7.10	0.00	0.00	0.00
4,300.00	25.82	283.68	3,976.32	357.05	-1,466.61	-7.32	0.00	0.00	0.00
4,400.00	25.82	283.68	4,066.33	367.35	-1,508.93	-7.53	0.00	0.00	0.00
4,500.00	25.82	283.68	4,156.35	377.65	-1,551.24	-7.74	0.00	0.00	0.00
4,600.00	25.82	283.68	4,246.37	387.96	-1,593.56	-7.95	0.00	0.00	0.00
4,700.00	25.82	283.68	4,336.38	398.26	-1,635.88	-8.16	0.00	0.00	0.00
4,800.00	25.82	283.68	4,426.40	408.56	-1,678.20	-8.37	0.00	0.00	0.00
4,900.00	25.82	283.68	4,516.42	418.86	-1,720.52	-8.58	0.00	0.00	0.00
5,000.00	25.82	283.68	4,606.43	429.17	-1,762.84	-8.79	0.00	0.00	0.00

Planning Report

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Company:	EXTRACTION OIL & GAS	TVD Reference:	KB 25' @ 5361.00usft
Project:	Broomfield County	MD Reference:	KB 25' @ 5361.00usft
Site:	Sec 7-T1S-R68W	North Reference:	True
Well:	LIVINGSTON S19-25-2C	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)	
5,043.95	25.82	283.68	4,646.00	433.70	-1,781.44	-8.89	0.00	0.00	0.00	
PARKMAN										
5,100.00	25.82	283.68	4,696.45	439.47	-1,805.15	-9.00	0.00	0.00	0.00	
5,200.00	25.82	283.68	4,786.47	449.77	-1,847.47	-9.21	0.00	0.00	0.00	
5,300.00	25.82	283.68	4,876.48	460.07	-1,889.79	-9.43	0.00	0.00	0.00	
5,400.00	25.82	283.68	4,966.50	470.38	-1,932.11	-9.64	0.00	0.00	0.00	
5,500.00	25.82	283.68	5,056.52	480.68	-1,974.43	-9.85	0.00	0.00	0.00	
5,578.30	25.82	283.68	5,127.00	488.75	-2,007.56	-10.01	0.00	0.00	0.00	
SUSSEX										
5,600.00	25.82	283.68	5,146.53	490.98	-2,016.74	-10.06	0.00	0.00	0.00	
5,700.00	25.82	283.68	5,236.55	501.28	-2,059.06	-10.27	0.00	0.00	0.00	
5,800.00	25.82	283.68	5,326.57	511.59	-2,101.38	-10.48	0.00	0.00	0.00	
5,900.00	25.82	283.68	5,416.58	521.89	-2,143.70	-10.69	0.00	0.00	0.00	
6,000.00	25.82	283.68	5,506.60	532.19	-2,186.02	-10.90	0.00	0.00	0.00	
6,100.00	25.82	283.68	5,596.62	542.49	-2,228.34	-11.11	0.00	0.00	0.00	
6,200.00	25.82	283.68	5,686.63	552.80	-2,270.65	-11.33	0.00	0.00	0.00	
6,300.00	25.82	283.68	5,776.65	563.10	-2,312.97	-11.54	0.00	0.00	0.00	
6,400.00	25.82	283.68	5,866.67	573.40	-2,355.29	-11.75	0.00	0.00	0.00	
6,500.00	25.82	283.68	5,956.69	583.70	-2,397.61	-11.96	0.00	0.00	0.00	
6,600.00	25.82	283.68	6,046.70	594.01	-2,439.93	-12.17	0.00	0.00	0.00	
6,600.33	25.82	283.68	6,047.00	594.04	-2,440.07	-12.17	0.00	0.00	0.00	
SHANNON										
6,700.00	25.82	283.68	6,136.72	604.31	-2,482.25	-12.38	0.00	0.00	0.00	
6,800.00	25.82	283.68	6,226.74	614.61	-2,524.56	-12.59	0.00	0.00	0.00	
6,900.00	25.82	283.68	6,316.75	624.91	-2,566.88	-12.80	0.00	0.00	0.00	
7,000.00	25.82	283.68	6,406.77	635.22	-2,609.20	-13.01	0.00	0.00	0.00	
7,049.43	25.82	283.68	6,451.26	640.31	-2,630.12	-13.12	0.00	0.00	0.00	
DROP 2°/100'										
7,100.00	24.81	283.68	6,496.98	645.42	-2,651.13	-13.22	2.00	-2.00	0.00	
7,200.00	22.81	283.68	6,588.46	654.97	-2,690.35	-13.42	2.00	-2.00	0.00	
7,300.00	20.81	283.68	6,681.30	663.76	-2,726.44	-13.60	2.00	-2.00	0.00	
7,400.00	18.81	283.68	6,775.38	671.77	-2,759.37	-13.76	2.00	-2.00	0.00	
7,500.00	16.81	283.68	6,870.58	679.01	-2,789.08	-13.91	2.00	-2.00	0.00	
7,600.00	14.81	283.68	6,966.80	685.45	-2,815.55	-14.04	2.00	-2.00	0.00	
7,700.00	12.81	283.68	7,063.90	691.10	-2,838.74	-14.16	2.00	-2.00	0.00	
7,800.00	10.81	283.68	7,161.78	695.94	-2,858.62	-14.26	2.00	-2.00	0.00	
7,900.00	8.81	283.68	7,260.31	699.97	-2,875.17	-14.34	2.00	-2.00	0.00	
8,000.00	6.81	283.68	7,359.38	703.18	-2,888.37	-14.41	2.00	-2.00	0.00	
8,100.00	4.81	283.68	7,458.86	705.58	-2,898.20	-14.46	2.00	-2.00	0.00	
8,200.00	2.81	283.68	7,558.64	707.15	-2,904.66	-14.49	2.00	-2.00	0.00	
8,300.00	0.81	283.68	7,658.58	707.89	-2,907.72	-14.50	2.00	-2.00	0.00	
8,340.42	0.00	0.00	7,699.00	707.96	-2,908.00	-14.50	2.00	-2.00	0.00	
HOLD VERTICAL										
8,370.42	0.00	0.00	7,729.00	707.96	-2,908.00	-14.50	0.00	0.00	0.00	
KOP, BUILD 10°/100'										
8,400.00	2.96	180.23	7,758.57	707.20	-2,908.00	-13.76	10.00	10.00	0.00	
8,450.00	7.96	180.23	7,808.33	702.44	-2,908.02	-9.13	10.00	10.00	0.00	
8,500.00	12.96	180.23	7,857.48	693.37	-2,908.06	-0.30	10.00	10.00	0.00	
8,523.22	15.28	180.23	7,880.00	687.71	-2,908.08	5.22	10.00	10.00	0.00	
NIOBRARA										
8,550.00	17.96	180.23	7,905.66	680.05	-2,908.11	12.67	10.00	10.00	0.00	
8,600.00	22.96	180.23	7,952.49	662.58	-2,908.18	29.68	10.00	10.00	0.00	
8,650.00	27.96	180.23	7,997.62	641.10	-2,908.27	50.60	10.00	10.00	0.00	

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well LIVINGSTON S19-25-2C
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB 25' @ 5361.00usft
Project:	Broomfield County	MD Reference:	KB 25' @ 5361.00usft
Site:	Sec 7-T1S-R68W	North Reference:	True
Well:	LIVINGSTON S19-25-2C	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)
8,700.00	32.96	180.23	8,040.71	615.76	-2,908.37	75.27	10.00	10.00	0.00
8,708.74	33.83	180.23	8,048.00	610.95	-2,908.39	79.95	10.00	10.00	0.00
NIO B TARGET									
8,750.00	37.96	180.23	8,081.42	586.77	-2,908.49	103.50	10.00	10.00	0.00
8,800.00	42.95	180.23	8,119.46	554.33	-2,908.62	135.08	10.00	10.00	0.00
8,850.00	47.95	180.23	8,154.52	518.71	-2,908.76	169.76	10.00	10.00	0.00
8,900.00	52.95	180.23	8,186.34	480.17	-2,908.91	207.29	10.00	10.00	0.00
8,950.00	57.95	180.23	8,214.69	439.00	-2,909.08	247.38	10.00	10.00	0.00
9,000.00	62.95	180.23	8,239.34	395.51	-2,909.25	289.72	10.00	10.00	0.00
9,050.00	67.95	180.23	8,260.10	350.05	-2,909.43	333.99	10.00	10.00	0.00
9,100.00	72.95	180.23	8,276.82	302.94	-2,909.62	379.85	10.00	10.00	0.00
9,122.51	75.20	180.23	8,283.00	281.30	-2,909.71	400.93	10.00	10.00	0.00
FORT HAYS									
9,150.00	77.95	180.23	8,289.38	254.56	-2,909.82	426.96	10.00	10.00	0.00
9,200.00	82.95	180.23	8,297.67	205.27	-2,910.01	474.95	10.00	10.00	0.00
9,250.00	87.95	180.23	8,301.63	155.45	-2,910.21	523.47	10.00	10.00	0.00
9,270.49	90.00	180.23	8,302.00	134.96	-2,910.29	543.41	10.00	10.00	0.00
LP @ 90° INC, 180.23° AZM - CODELL									
9,300.00	90.00	180.23	8,302.00	105.45	-2,910.41	572.15	0.00	0.00	0.00
9,400.00	90.00	180.23	8,302.00	5.45	-2,910.81	669.52	0.00	0.00	0.00
9,500.00	90.00	180.23	8,302.00	-94.55	-2,911.21	766.88	0.00	0.00	0.00
9,600.00	90.00	180.23	8,302.00	-194.55	-2,911.61	864.25	0.00	0.00	0.00
9,700.00	90.00	180.23	8,302.00	-294.55	-2,912.01	961.62	0.00	0.00	0.00
9,800.00	90.00	180.23	8,302.00	-394.55	-2,912.41	1,058.99	0.00	0.00	0.00
9,900.00	90.00	180.23	8,302.00	-494.54	-2,912.81	1,156.36	0.00	0.00	0.00
10,000.00	90.00	180.23	8,302.00	-594.54	-2,913.21	1,253.72	0.00	0.00	0.00
10,100.00	90.00	180.23	8,302.00	-694.54	-2,913.61	1,351.09	0.00	0.00	0.00
10,200.00	90.00	180.23	8,302.00	-794.54	-2,914.01	1,448.46	0.00	0.00	0.00
10,300.00	90.00	180.23	8,302.00	-894.54	-2,914.41	1,545.83	0.00	0.00	0.00
10,400.00	90.00	180.23	8,302.00	-994.54	-2,914.82	1,643.19	0.00	0.00	0.00
10,500.00	90.00	180.23	8,302.00	-1,094.54	-2,915.22	1,740.56	0.00	0.00	0.00
10,600.00	90.00	180.23	8,302.00	-1,194.54	-2,915.62	1,837.93	0.00	0.00	0.00
10,700.00	90.00	180.23	8,302.00	-1,294.54	-2,916.02	1,935.30	0.00	0.00	0.00
10,800.00	90.00	180.23	8,302.00	-1,394.54	-2,916.42	2,032.66	0.00	0.00	0.00
10,900.00	90.00	180.23	8,302.00	-1,494.54	-2,916.82	2,130.03	0.00	0.00	0.00
11,000.00	90.00	180.23	8,302.00	-1,594.54	-2,917.22	2,227.40	0.00	0.00	0.00
11,100.00	90.00	180.23	8,302.00	-1,694.54	-2,917.62	2,324.77	0.00	0.00	0.00
11,200.00	90.00	180.23	8,302.00	-1,794.53	-2,918.02	2,422.13	0.00	0.00	0.00
11,300.00	90.00	180.23	8,302.00	-1,894.53	-2,918.42	2,519.50	0.00	0.00	0.00
11,400.00	90.00	180.23	8,302.00	-1,994.53	-2,918.82	2,616.87	0.00	0.00	0.00
11,500.00	90.00	180.23	8,302.00	-2,094.53	-2,919.22	2,714.24	0.00	0.00	0.00
11,600.00	90.00	180.23	8,302.00	-2,194.53	-2,919.62	2,811.60	0.00	0.00	0.00
11,700.00	90.00	180.23	8,302.00	-2,294.53	-2,920.02	2,908.97	0.00	0.00	0.00
11,800.00	90.00	180.23	8,302.00	-2,394.53	-2,920.42	3,006.34	0.00	0.00	0.00
11,900.00	90.00	180.23	8,302.00	-2,494.53	-2,920.82	3,103.71	0.00	0.00	0.00
12,000.00	90.00	180.23	8,302.00	-2,594.53	-2,921.22	3,201.07	0.00	0.00	0.00
12,100.00	90.00	180.23	8,302.00	-2,694.53	-2,921.62	3,298.44	0.00	0.00	0.00
12,200.00	90.00	180.23	8,302.00	-2,794.53	-2,922.02	3,395.81	0.00	0.00	0.00
12,300.00	90.00	180.23	8,302.00	-2,894.53	-2,922.42	3,493.18	0.00	0.00	0.00
12,400.00	90.00	180.23	8,302.00	-2,994.52	-2,922.82	3,590.55	0.00	0.00	0.00
12,500.00	90.00	180.23	8,302.00	-3,094.52	-2,923.22	3,687.91	0.00	0.00	0.00
12,600.00	90.00	180.23	8,302.00	-3,194.52	-2,923.62	3,785.28	0.00	0.00	0.00
12,700.00	90.00	180.23	8,302.00	-3,294.52	-2,924.02	3,882.65	0.00	0.00	0.00

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well LIVINGSTON S19-25-2C
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB 25' @ 5361.00usft
Project:	Broomfield County	MD Reference:	KB 25' @ 5361.00usft
Site:	Sec 7-T1S-R68W	North Reference:	True
Well:	LIVINGSTON S19-25-2C	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)
12,770.49	90.00	180.23	8,302.00	-3,365.01	-2,924.30	3,951.28	0.00	0.00	0.00
HOLD									
12,800.00	90.00	179.64	8,302.00	-3,394.52	-2,924.27	3,979.98	2.00	0.00	-2.00
12,900.00	90.00	177.64	8,302.00	-3,494.49	-2,921.90	4,076.67	2.00	0.00	-2.00
13,000.00	90.00	175.64	8,302.00	-3,594.31	-2,916.03	4,172.42	2.00	0.00	-2.00
13,100.00	90.00	173.64	8,302.00	-3,693.87	-2,906.69	4,267.10	2.00	0.00	-2.00
13,181.95	90.00	172.00	8,302.00	-3,775.18	-2,896.45	4,343.81	2.00	0.00	-2.00
TURN 2°/100'									
13,200.00	90.00	172.36	8,302.00	-3,793.06	-2,893.99	4,360.64	2.00	0.00	2.00
13,300.00	90.00	174.36	8,302.00	-3,892.38	-2,882.43	4,454.58	2.00	0.00	2.00
13,400.00	90.00	176.36	8,302.00	-3,992.05	-2,874.34	4,549.65	2.00	0.00	2.00
13,500.00	90.00	178.36	8,302.00	-4,091.94	-2,869.74	4,645.75	2.00	0.00	2.00
13,600.00	90.00	180.36	8,302.00	-4,191.92	-2,868.62	4,742.76	2.00	0.00	2.00
13,613.87	90.00	180.64	8,302.00	-4,205.79	-2,868.75	4,756.27	2.00	0.00	2.00
HOLD 180.64° AZM									
13,700.00	90.00	180.64	8,302.00	-4,291.92	-2,869.70	4,840.28	0.00	0.00	0.00
13,800.00	90.00	180.64	8,302.00	-4,391.91	-2,870.82	4,937.81	0.00	0.00	0.00
13,900.00	90.00	180.64	8,302.00	-4,491.91	-2,871.93	5,035.33	0.00	0.00	0.00
14,000.00	90.00	180.64	8,302.00	-4,591.90	-2,873.05	5,132.86	0.00	0.00	0.00
14,100.00	90.00	180.64	8,302.00	-4,691.89	-2,874.16	5,230.39	0.00	0.00	0.00
14,200.00	90.00	180.64	8,302.00	-4,791.89	-2,875.27	5,327.92	0.00	0.00	0.00
14,300.00	90.00	180.64	8,302.00	-4,891.88	-2,876.39	5,425.45	0.00	0.00	0.00
14,400.00	90.00	180.64	8,302.00	-4,991.88	-2,877.50	5,522.97	0.00	0.00	0.00
14,500.00	90.00	180.64	8,302.00	-5,091.87	-2,878.62	5,620.50	0.00	0.00	0.00
14,600.00	90.00	180.64	8,302.00	-5,191.86	-2,879.73	5,718.03	0.00	0.00	0.00
14,700.00	90.00	180.64	8,302.00	-5,291.86	-2,880.84	5,815.56	0.00	0.00	0.00
14,800.00	90.00	180.64	8,302.00	-5,391.85	-2,881.96	5,913.08	0.00	0.00	0.00
14,900.00	90.00	180.64	8,302.00	-5,491.84	-2,883.07	6,010.61	0.00	0.00	0.00
15,000.00	90.00	180.64	8,302.00	-5,591.84	-2,884.19	6,108.14	0.00	0.00	0.00
15,100.00	90.00	180.64	8,302.00	-5,691.83	-2,885.30	6,205.67	0.00	0.00	0.00
15,200.00	90.00	180.64	8,302.00	-5,791.83	-2,886.41	6,303.20	0.00	0.00	0.00
15,300.00	90.00	180.64	8,302.00	-5,891.82	-2,887.53	6,400.72	0.00	0.00	0.00
15,400.00	90.00	180.64	8,302.00	-5,991.81	-2,888.64	6,498.25	0.00	0.00	0.00
15,500.00	90.00	180.64	8,302.00	-6,091.81	-2,889.76	6,595.78	0.00	0.00	0.00
15,600.00	90.00	180.64	8,302.00	-6,191.80	-2,890.87	6,693.31	0.00	0.00	0.00
15,700.00	90.00	180.64	8,302.00	-6,291.79	-2,891.98	6,790.84	0.00	0.00	0.00
15,800.00	90.00	180.64	8,302.00	-6,391.79	-2,893.10	6,888.36	0.00	0.00	0.00
15,900.00	90.00	180.64	8,302.00	-6,491.78	-2,894.21	6,985.89	0.00	0.00	0.00
16,000.00	90.00	180.64	8,302.00	-6,591.78	-2,895.33	7,083.42	0.00	0.00	0.00
16,100.00	90.00	180.64	8,302.00	-6,691.77	-2,896.44	7,180.95	0.00	0.00	0.00
16,200.00	90.00	180.64	8,302.00	-6,791.76	-2,897.55	7,278.47	0.00	0.00	0.00
16,300.00	90.00	180.64	8,302.00	-6,891.76	-2,898.67	7,376.00	0.00	0.00	0.00
16,400.00	90.00	180.64	8,302.00	-6,991.75	-2,899.78	7,473.53	0.00	0.00	0.00
16,500.00	90.00	180.64	8,302.00	-7,091.75	-2,900.90	7,571.06	0.00	0.00	0.00
16,600.00	90.00	180.64	8,302.00	-7,191.74	-2,902.01	7,668.59	0.00	0.00	0.00
16,700.00	90.00	180.64	8,302.00	-7,291.73	-2,903.12	7,766.11	0.00	0.00	0.00
16,800.00	90.00	180.64	8,302.00	-7,391.73	-2,904.24	7,863.64	0.00	0.00	0.00
16,900.00	90.00	180.64	8,302.00	-7,491.72	-2,905.35	7,961.17	0.00	0.00	0.00
17,000.00	90.00	180.64	8,302.00	-7,591.71	-2,906.47	8,058.70	0.00	0.00	0.00
17,100.00	90.00	180.64	8,302.00	-7,691.71	-2,907.58	8,156.22	0.00	0.00	0.00
17,200.00	90.00	180.64	8,302.00	-7,791.70	-2,908.69	8,253.75	0.00	0.00	0.00
17,300.00	90.00	180.64	8,302.00	-7,891.70	-2,909.81	8,351.28	0.00	0.00	0.00
17,400.00	90.00	180.64	8,302.00	-7,991.69	-2,910.92	8,448.81	0.00	0.00	0.00

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well LIVINGSTON S19-25-2C
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB 25' @ 5361.00usft
Project:	Broomfield County	MD Reference:	KB 25' @ 5361.00usft
Site:	Sec 7-T1S-R68W	North Reference:	True
Well:	LIVINGSTON S19-25-2C	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	180.64	8,302.00	-8,091.68	-2,912.04	8,546.34	0.00	0.00	0.00
17,600.00	90.00	180.64	8,302.00	-8,191.68	-2,913.15	8,643.86	0.00	0.00	0.00
17,700.00	90.00	180.64	8,302.00	-8,291.67	-2,914.27	8,741.39	0.00	0.00	0.00
17,800.00	90.00	180.64	8,302.00	-8,391.66	-2,915.38	8,838.92	0.00	0.00	0.00
17,900.00	90.00	180.64	8,302.00	-8,491.66	-2,916.49	8,936.45	0.00	0.00	0.00
18,000.00	90.00	180.64	8,302.00	-8,591.65	-2,917.61	9,033.97	0.00	0.00	0.00
18,100.00	90.00	180.64	8,302.00	-8,691.65	-2,918.72	9,131.50	0.00	0.00	0.00
18,200.00	90.00	180.64	8,302.00	-8,791.64	-2,919.84	9,229.03	0.00	0.00	0.00
18,300.00	90.00	180.64	8,302.00	-8,891.63	-2,920.95	9,326.56	0.00	0.00	0.00
18,400.00	90.00	180.64	8,302.00	-8,991.63	-2,922.06	9,424.09	0.00	0.00	0.00
18,500.00	90.00	180.64	8,302.00	-9,091.62	-2,923.18	9,521.61	0.00	0.00	0.00
18,600.00	90.00	180.64	8,302.00	-9,191.61	-2,924.29	9,619.14	0.00	0.00	0.00
18,700.00	90.00	180.64	8,302.00	-9,291.61	-2,925.41	9,716.67	0.00	0.00	0.00
18,800.00	90.00	180.64	8,302.00	-9,391.60	-2,926.52	9,814.20	0.00	0.00	0.00
18,900.00	90.00	180.64	8,302.00	-9,491.60	-2,927.63	9,911.72	0.00	0.00	0.00
19,000.00	90.00	180.64	8,302.00	-9,591.59	-2,928.75	10,009.25	0.00	0.00	0.00
19,100.00	90.00	180.64	8,302.00	-9,691.58	-2,929.86	10,106.78	0.00	0.00	0.00
19,200.00	90.00	180.64	8,302.00	-9,791.58	-2,930.98	10,204.31	0.00	0.00	0.00
19,300.00	90.00	180.64	8,302.00	-9,891.57	-2,932.09	10,301.84	0.00	0.00	0.00
19,400.00	90.00	180.64	8,302.00	-9,991.57	-2,933.20	10,399.36	0.00	0.00	0.00
19,500.00	90.00	180.64	8,302.00	-10,091.56	-2,934.32	10,496.89	0.00	0.00	0.00
19,600.00	90.00	180.64	8,302.00	-10,191.55	-2,935.43	10,594.42	0.00	0.00	0.00
19,700.00	90.00	180.64	8,302.00	-10,291.55	-2,936.55	10,691.95	0.00	0.00	0.00
19,800.00	90.00	180.64	8,302.00	-10,391.54	-2,937.66	10,789.48	0.00	0.00	0.00
19,900.00	90.00	180.64	8,302.00	-10,491.53	-2,938.77	10,887.00	0.00	0.00	0.00
20,000.00	90.00	180.64	8,302.00	-10,591.53	-2,939.89	10,984.53	0.00	0.00	0.00
20,100.00	90.00	180.64	8,302.00	-10,691.52	-2,941.00	11,082.06	0.00	0.00	0.00
20,200.00	90.00	180.64	8,302.00	-10,791.52	-2,942.12	11,179.59	0.00	0.00	0.00
20,300.00	90.00	180.64	8,302.00	-10,891.51	-2,943.23	11,277.11	0.00	0.00	0.00
20,400.00	90.00	180.64	8,302.00	-10,991.50	-2,944.34	11,374.64	0.00	0.00	0.00
20,500.00	90.00	180.64	8,302.00	-11,091.50	-2,945.46	11,472.17	0.00	0.00	0.00
20,600.00	90.00	180.64	8,302.00	-11,191.49	-2,946.57	11,569.70	0.00	0.00	0.00
20,700.00	90.00	180.64	8,302.00	-11,291.48	-2,947.69	11,667.23	0.00	0.00	0.00
20,800.00	90.00	180.64	8,302.00	-11,391.48	-2,948.80	11,764.75	0.00	0.00	0.00
20,900.00	90.00	180.64	8,302.00	-11,491.47	-2,949.91	11,862.28	0.00	0.00	0.00
21,000.00	90.00	180.64	8,302.00	-11,591.47	-2,951.03	11,959.81	0.00	0.00	0.00
21,829.73	90.00	180.64	8,302.00	-12,421.14	-2,960.27	12,769.02	0.00	0.00	0.00
TD at 21829.73' MD									

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
LIVINGSTON S19 2C - I - plan hits target center - Point	0.00	0.00	8,302.00	134.96	-2,910.29	1,235,492.39	3,125,983.37	39° 58' 44.162 N	105° 3' 1.595 W
LIVINGSTON S19 2C - I - plan hits target center - Point	0.00	0.00	8,302.00	-12,421.14	-2,960.27	1,222,936.20	3,125,998.52	39° 56' 40.074 N	105° 3' 2.218 W

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well LIVINGSTON S19-25-2C
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB 25' @ 5361.00usft
Project:	Broomfield County	MD Reference:	KB 25' @ 5361.00usft
Site:	Sec 7-T1S-R68W	North Reference:	True
Well:	LIVINGSTON S19-25-2C	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL 1		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
5,043.95	4,646.00	PARKMAN				
5,578.30	5,127.00	SUSSEX				
6,600.33	6,047.00	SHANNON				
8,523.22	7,880.00	NIOBRARA				
8,708.74	8,048.00	NIO B TARGET				
9,122.51	8,283.00	FORT HAYS				
9,270.49	8,302.00	CODELL				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
200.00	200.00	0.00	0.00	BUILD 2°/100'	
1,490.99	1,447.74	67.65	-277.88	HOLD 25.82° INC	
7,049.43	6,451.26	640.31	-2,630.12	DROP 2°/100'	
8,340.42	7,699.00	707.96	-2,908.00	HOLD VERTICAL	
8,370.42	7,729.00	707.96	-2,908.00	KOP, BUILD 10°/100'	
9,270.49	8,302.00	134.96	-2,910.29	LP @ 90° INC, 180.23° AZM	
12,770.49	8,302.00	-3,365.01	-2,924.30	HOLD	
13,181.95	8,302.00	-3,775.18	-2,896.45	TURN 2°/100'	
13,613.87	8,302.00	-4,205.79	-2,868.75	HOLD 180.64° AZM	
21,829.73	8,302.00	-12,421.14	-2,960.27	TD at 21829.73' MD	