

# **EXTRACTION OIL & GAS**

**Broomfield County**

**Sec 7-T1S-R68W**

**LIVINGSTON S19-25-11C**

**ORIGINAL WELLBORE**

**Plan: PROPOSAL 1**

## **Standard Planning Report**

**07 December, 2017**



Project: Broomfield County  
Site: Sec 7-T1S-R68W  
Well: LIVINGSTON S19-25-11C  
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 S19-25-11C

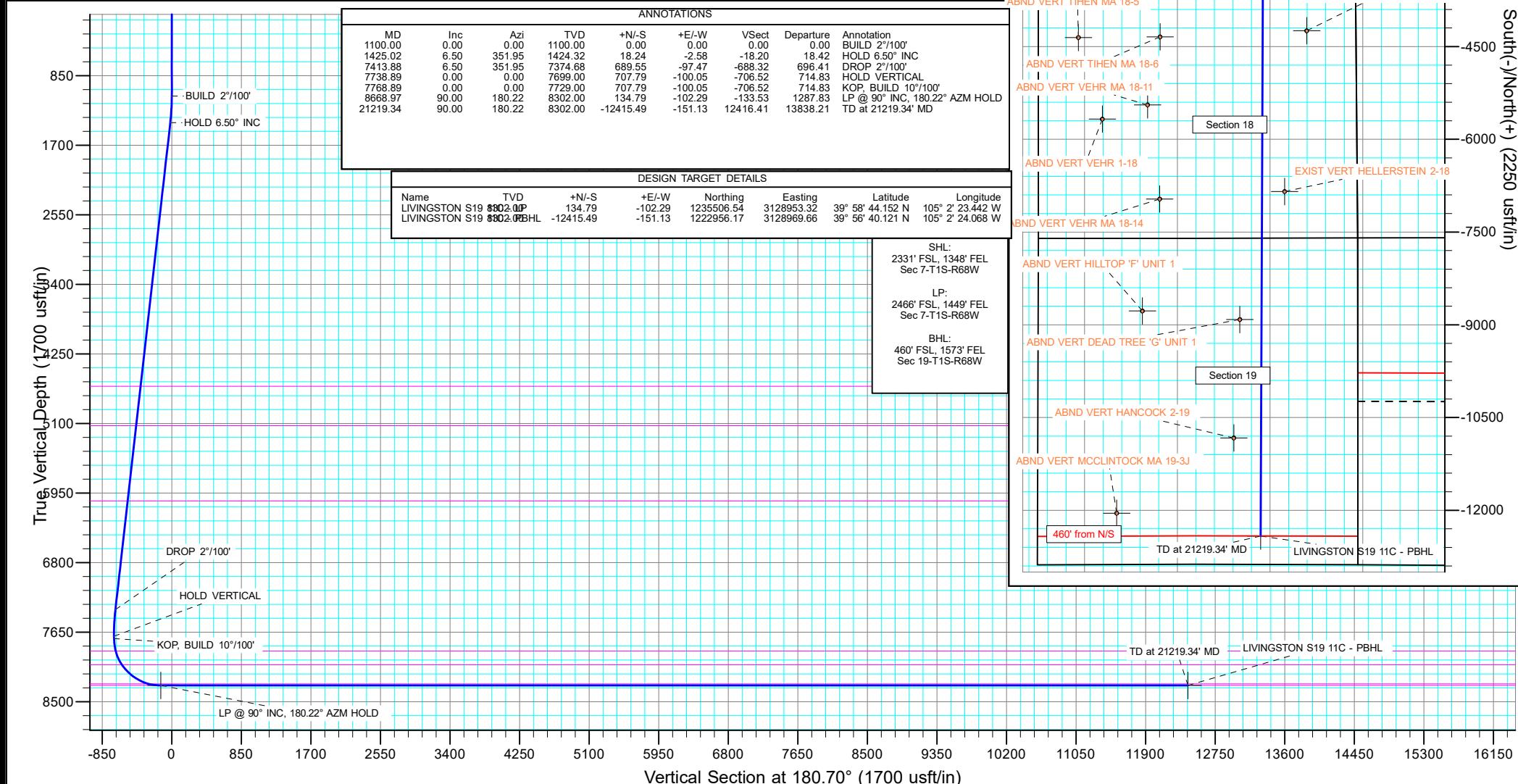
	+N/-S	+E/-W	Northing	Easting	5311.00	Latitude	Longitude	Slot
	0.00	0.00	1235372.28	3129056.31		39° 58' 42.819 N	105° 2' 22.128 W	

SECTION DETAILS

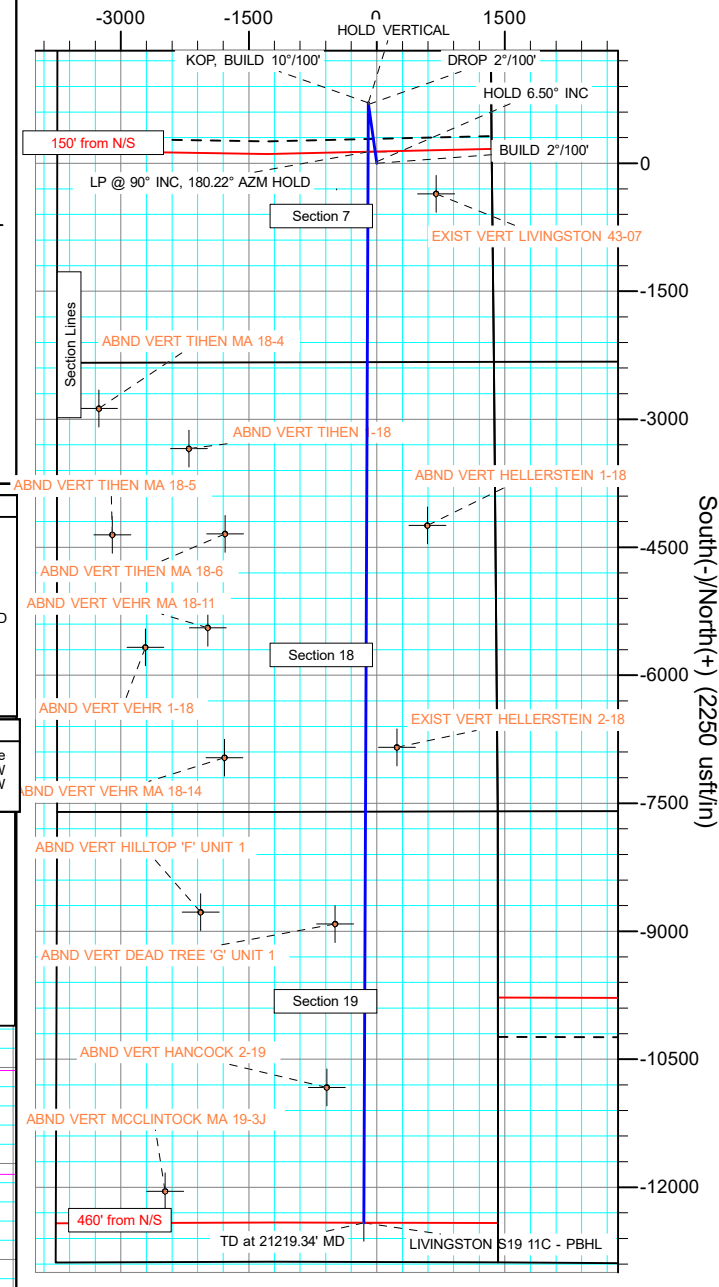
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	1100.00	0.00	0.00	1100.00	0.00	0.00	0.00	0.00	0.00	
3	1425.02	6.50	351.95	1424.32	18.24	-2.58	2.00	351.95	-18.20	
4	7413.88	6.50	351.95	7374.68	689.55	-97.47	0.00	0.00	-688.32	
5	7738.89	0.00	0.00	7699.00	707.79	-100.05	2.00	180.00	-706.52	
6	7768.89	0.00	0.00	7729.00	707.79	-100.05	0.00	0.00	-706.52	
7	8668.97	90.00	180.22	8302.00	134.79	-102.29	10.00	180.22	-133.53	LIVINGSTON S19 11C - LP
8	21219.34	90.00	180.22	8302.00	-12415.49	-151.13	0.00	0.00	12416.41	LIVINGSTON S19 11C - PBHL

FORMATION TOP DETAILS

TVDPth	MDPath	Formation
4646.00	4667.54	PARKMAN
5127.00	5151.65	SUSSEX
6047.00	6077.61	SHANNON
7880.00	7921.70	NIOBRARA
8048.00	8107.21	NIO B TARGET
8283.00	8520.99	FORT HAYS
8302.00	8668.97	CODELL



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



## Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well LIVINGSTON S19-25-11C
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 5336.00usft
<b>Project:</b>	Broomfield County	<b>MD Reference:</b>	KB 25' @ 5336.00usft
<b>Site:</b>	Sec 7-T1S-R68W	<b>North Reference:</b>	True
<b>Well:</b>	LIVINGSTON S19-25-11C	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL 1		

<b>Project</b>	Broomfield County		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	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 S19-25-11C					
Well Position	+N/-S	-2,950.05 usft	Northing:	1,235,372.28 usft	Latitude:	39° 58' 42.819 N
	+E/-W	-1,325.60 usft	Easting:	3,129,056.31 usft	Longitude:	105° 2' 22.128 W
Position Uncertainty	0.00 usft		Wellhead Elevation:		Ground Level:	5,311.00 usft

<b>Wellbore</b>	ORIGINAL WELLBORE				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2015	12/4/2017	8.27	66.46	52,086.15543656

<b>Design</b>	PROPOSAL 1			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	180.70

<b>Plan Survey Tool Program</b>	<b>Date</b>	12/7/2017		
<b>Depth From (usft)</b>	<b>Depth To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Remarks</b>
1	0.00	21,219.34	PROPOSAL 1 (ORIGINAL WELL	MWD OWSG
			OWSG MWD - Standard	

<b>Plan Sections</b>										
<b>Measured Depth (usft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Dogleg Rate (°/100ft)</b>	<b>Build Rate (°/100ft)</b>	<b>Turn Rate (°/100ft)</b>	<b>TFO (°)</b>	<b>Target</b>
0.00	0.00	0.00	0.00	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	
1,425.02	6.50	351.95	1,424.32	18.24	-2.58	2.00	2.00	0.00	351.95	
7,413.88	6.50	351.95	7,374.68	689.55	-97.47	0.00	0.00	0.00	0.00	
7,738.89	0.00	0.00	7,699.00	707.79	-100.05	2.00	-2.00	0.00	180.00	
7,768.89	0.00	0.00	7,729.00	707.79	-100.05	0.00	0.00	0.00	0.00	
8,668.97	90.00	180.22	8,302.00	134.79	-102.29	10.00	10.00	-19.97	180.22	LIVINGSTON S19 11C
21,219.34	90.00	180.22	8,302.00	-12,415.49	-151.13	0.00	0.00	0.00	0.00	LIVINGSTON S19 11C

# Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well LIVINGSTON S19-25-11C
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 5336.00usft
<b>Project:</b>	Broomfield County	<b>MD Reference:</b>	KB 25' @ 5336.00usft
<b>Site:</b>	Sec 7-T1S-R68W	<b>North Reference:</b>	True
<b>Well:</b>	LIVINGSTON S19-25-11C	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	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
BUILD 2°/100'									
1,200.00	2.00	351.95	1,199.98	1.73	-0.24	-1.72	2.00	2.00	0.00
1,300.00	4.00	351.95	1,299.84	6.91	-0.98	-6.90	2.00	2.00	0.00
1,400.00	6.00	351.95	1,399.45	15.54	-2.20	-15.51	2.00	2.00	0.00
1,425.02	6.50	351.95	1,424.32	18.24	-2.58	-18.20	2.00	2.00	0.00
HOLD 6.50° INC									
1,500.00	6.50	351.95	1,498.82	26.64	-3.77	-26.59	0.00	0.00	0.00
1,600.00	6.50	351.95	1,598.18	37.85	-5.35	-37.78	0.00	0.00	0.00
1,700.00	6.50	351.95	1,697.54	49.06	-6.93	-48.97	0.00	0.00	0.00
1,800.00	6.50	351.95	1,796.89	60.27	-8.52	-60.16	0.00	0.00	0.00
1,900.00	6.50	351.95	1,896.25	71.48	-10.10	-71.35	0.00	0.00	0.00
2,000.00	6.50	351.95	1,995.61	82.69	-11.69	-82.54	0.00	0.00	0.00
2,100.00	6.50	351.95	2,094.96	93.90	-13.27	-93.73	0.00	0.00	0.00
2,200.00	6.50	351.95	2,194.32	105.11	-14.86	-104.92	0.00	0.00	0.00
2,300.00	6.50	351.95	2,293.68	116.32	-16.44	-116.11	0.00	0.00	0.00
2,400.00	6.50	351.95	2,393.04	127.53	-18.03	-127.30	0.00	0.00	0.00
2,500.00	6.50	351.95	2,492.39	138.74	-19.61	-138.49	0.00	0.00	0.00
2,600.00	6.50	351.95	2,591.75	149.95	-21.20	-149.68	0.00	0.00	0.00
2,700.00	6.50	351.95	2,691.11	161.15	-22.78	-160.87	0.00	0.00	0.00
2,800.00	6.50	351.95	2,790.46	172.36	-24.36	-172.05	0.00	0.00	0.00
2,900.00	6.50	351.95	2,889.82	183.57	-25.95	-183.24	0.00	0.00	0.00
3,000.00	6.50	351.95	2,989.18	194.78	-27.53	-194.43	0.00	0.00	0.00
3,100.00	6.50	351.95	3,088.54	205.99	-29.12	-205.62	0.00	0.00	0.00
3,200.00	6.50	351.95	3,187.89	217.20	-30.70	-216.81	0.00	0.00	0.00
3,300.00	6.50	351.95	3,287.25	228.41	-32.29	-228.00	0.00	0.00	0.00
3,400.00	6.50	351.95	3,386.61	239.62	-33.87	-239.19	0.00	0.00	0.00
3,500.00	6.50	351.95	3,485.96	250.83	-35.46	-250.38	0.00	0.00	0.00
3,600.00	6.50	351.95	3,585.32	262.04	-37.04	-261.57	0.00	0.00	0.00
3,700.00	6.50	351.95	3,684.68	273.25	-38.63	-272.76	0.00	0.00	0.00
3,800.00	6.50	351.95	3,784.04	284.46	-40.21	-283.95	0.00	0.00	0.00
3,900.00	6.50	351.95	3,883.39	295.67	-41.79	-295.14	0.00	0.00	0.00
4,000.00	6.50	351.95	3,982.75	306.88	-43.38	-306.33	0.00	0.00	0.00
4,100.00	6.50	351.95	4,082.11	318.09	-44.96	-317.52	0.00	0.00	0.00
4,200.00	6.50	351.95	4,181.46	329.30	-46.55	-328.71	0.00	0.00	0.00
4,300.00	6.50	351.95	4,280.82	340.51	-48.13	-339.89	0.00	0.00	0.00
4,400.00	6.50	351.95	4,380.18	351.72	-49.72	-351.08	0.00	0.00	0.00
4,500.00	6.50	351.95	4,479.53	362.92	-51.30	-362.27	0.00	0.00	0.00
4,600.00	6.50	351.95	4,578.89	374.13	-52.89	-373.46	0.00	0.00	0.00
4,667.54	6.50	351.95	4,646.00	381.71	-53.96	-381.02	0.00	0.00	0.00
PARKMAN									
4,700.00	6.50	351.95	4,678.25	385.34	-54.47	-384.65	0.00	0.00	0.00

# Planning Report

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<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 5336.00usft
<b>Project:</b>	Broomfield County	<b>MD Reference:</b>	KB 25' @ 5336.00usft
<b>Site:</b>	Sec 7-T1S-R68W	<b>North Reference:</b>	True
<b>Well:</b>	LIVINGSTON S19-25-11C	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	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	6.50	351.95	4,777.61	396.55	-56.05	-395.84	0.00	0.00	0.00
4,900.00	6.50	351.95	4,876.96	407.76	-57.64	-407.03	0.00	0.00	0.00
5,000.00	6.50	351.95	4,976.32	418.97	-59.22	-418.22	0.00	0.00	0.00
5,100.00	6.50	351.95	5,075.68	430.18	-60.81	-429.41	0.00	0.00	0.00
5,151.65	6.50	351.95	5,127.00	435.97	-61.63	-435.19	0.00	0.00	0.00
SUSSEX									
5,200.00	6.50	351.95	5,175.03	441.39	-62.39	-440.60	0.00	0.00	0.00
5,300.00	6.50	351.95	5,274.39	452.60	-63.98	-451.79	0.00	0.00	0.00
5,400.00	6.50	351.95	5,373.75	463.81	-65.56	-462.98	0.00	0.00	0.00
5,500.00	6.50	351.95	5,473.11	475.02	-67.15	-474.17	0.00	0.00	0.00
5,600.00	6.50	351.95	5,572.46	486.23	-68.73	-485.36	0.00	0.00	0.00
5,700.00	6.50	351.95	5,671.82	497.44	-70.32	-496.55	0.00	0.00	0.00
5,800.00	6.50	351.95	5,771.18	508.65	-71.90	-507.73	0.00	0.00	0.00
5,900.00	6.50	351.95	5,870.53	519.86	-73.48	-518.92	0.00	0.00	0.00
6,000.00	6.50	351.95	5,969.89	531.07	-75.07	-530.11	0.00	0.00	0.00
6,077.61	6.50	351.95	6,047.00	539.77	-76.30	-538.80	0.00	0.00	0.00
SHANNON									
6,100.00	6.50	351.95	6,069.25	542.28	-76.65	-541.30	0.00	0.00	0.00
6,200.00	6.50	351.95	6,168.61	553.49	-78.24	-552.49	0.00	0.00	0.00
6,300.00	6.50	351.95	6,267.96	564.69	-79.82	-563.68	0.00	0.00	0.00
6,400.00	6.50	351.95	6,367.32	575.90	-81.41	-574.87	0.00	0.00	0.00
6,500.00	6.50	351.95	6,466.68	587.11	-82.99	-586.06	0.00	0.00	0.00
6,600.00	6.50	351.95	6,566.03	598.32	-84.58	-597.25	0.00	0.00	0.00
6,700.00	6.50	351.95	6,665.39	609.53	-86.16	-608.44	0.00	0.00	0.00
6,800.00	6.50	351.95	6,764.75	620.74	-87.75	-619.63	0.00	0.00	0.00
6,900.00	6.50	351.95	6,864.11	631.95	-89.33	-630.82	0.00	0.00	0.00
7,000.00	6.50	351.95	6,963.46	643.16	-90.91	-642.01	0.00	0.00	0.00
7,100.00	6.50	351.95	7,062.82	654.37	-92.50	-653.20	0.00	0.00	0.00
7,200.00	6.50	351.95	7,162.18	665.58	-94.08	-664.39	0.00	0.00	0.00
7,300.00	6.50	351.95	7,261.53	676.79	-95.67	-675.57	0.00	0.00	0.00
7,400.00	6.50	351.95	7,360.89	688.00	-97.25	-686.76	0.00	0.00	0.00
7,413.88	6.50	351.95	7,374.68	689.55	-97.47	-688.32	0.00	0.00	0.00
DROP 2°/100'									
7,500.00	4.78	351.95	7,460.38	697.93	-98.66	-696.68	2.00	-2.00	0.00
7,600.00	2.78	351.95	7,560.16	704.46	-99.58	-703.19	2.00	-2.00	0.00
7,700.00	0.78	351.95	7,660.11	707.53	-100.01	-706.26	2.00	-2.00	0.00
7,738.89	0.00	0.00	7,699.00	707.79	-100.05	-706.52	2.00	-2.00	0.00
HOLD VERTICAL									
7,768.89	0.00	0.00	7,729.00	707.79	-100.05	-706.52	0.00	0.00	0.00
KOP, BUILD 10°/100'									
7,800.00	3.11	180.22	7,760.09	706.95	-100.05	-705.68	10.00	10.00	0.00
7,850.00	8.11	180.22	7,809.83	702.06	-100.07	-700.79	10.00	10.00	0.00
7,900.00	13.11	180.22	7,858.96	692.86	-100.11	-691.59	10.00	10.00	0.00
7,921.70	15.28	180.22	7,880.00	687.54	-100.13	-686.27	10.00	10.00	0.00
NIOBRARA									
7,950.00	18.11	180.22	7,907.11	679.41	-100.16	-678.14	10.00	10.00	0.00
8,000.00	23.11	180.22	7,953.89	661.81	-100.23	-660.54	10.00	10.00	0.00
8,050.00	28.11	180.22	7,998.96	640.21	-100.31	-638.94	10.00	10.00	0.00
8,100.00	33.11	180.22	8,041.98	614.76	-100.41	-613.49	10.00	10.00	0.00
8,107.21	33.83	180.22	8,048.00	610.78	-100.43	-609.51	10.00	10.00	0.00
NIO B TARGET									
8,150.00	38.11	180.22	8,082.62	585.66	-100.53	-584.39	10.00	10.00	0.00
8,200.00	43.11	180.22	8,120.57	553.12	-100.65	-551.86	10.00	10.00	0.00

# Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well LIVINGSTON S19-25-11C
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 5336.00usft
<b>Project:</b>	Broomfield County	<b>MD Reference:</b>	KB 25' @ 5336.00usft
<b>Site:</b>	Sec 7-T1S-R68W	<b>North Reference:</b>	True
<b>Well:</b>	LIVINGSTON S19-25-11C	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	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)	
8,250.00	48.11	180.22	8,155.54	517.41	-100.79	-516.14	10.00	10.00	0.00	
8,300.00	53.11	180.22	8,187.26	478.78	-100.94	-477.52	10.00	10.00	0.00	
8,350.00	58.11	180.22	8,215.49	437.53	-101.11	-436.27	10.00	10.00	0.00	
8,400.00	63.11	180.22	8,240.03	393.99	-101.28	-392.72	10.00	10.00	0.00	
8,450.00	68.11	180.22	8,260.67	348.46	-101.45	-347.20	10.00	10.00	0.00	
8,500.00	73.11	180.22	8,277.27	301.32	-101.64	-300.06	10.00	10.00	0.00	
8,520.99	75.20	180.22	8,283.00	281.13	-101.72	-279.87	10.00	10.00	0.00	
FORT HAYS										
8,550.00	78.10	180.22	8,289.70	252.90	-101.83	-251.64	10.00	10.00	0.00	
8,600.00	83.10	180.22	8,297.86	203.59	-102.02	-202.33	10.00	10.00	0.00	
8,650.00	88.10	180.22	8,301.69	153.75	-102.21	-152.50	10.00	10.00	0.00	
8,668.97	90.00	180.22	8,302.00	134.79	-102.29	-133.53	10.00	10.00	0.00	
LP @ 90° INC, 180.22° AZM HOLD - CODELL										
8,700.00	90.00	180.22	8,302.00	103.76	-102.41	-102.50	0.00	0.00	0.00	
8,800.00	90.00	180.22	8,302.00	3.76	-102.80	-2.50	0.00	0.00	0.00	
8,900.00	90.00	180.22	8,302.00	-96.24	-103.19	97.49	0.00	0.00	0.00	
9,000.00	90.00	180.22	8,302.00	-196.24	-103.58	197.49	0.00	0.00	0.00	
9,100.00	90.00	180.22	8,302.00	-296.24	-103.97	297.48	0.00	0.00	0.00	
9,200.00	90.00	180.22	8,302.00	-396.24	-104.36	397.48	0.00	0.00	0.00	
9,300.00	90.00	180.22	8,302.00	-496.24	-104.75	497.48	0.00	0.00	0.00	
9,400.00	90.00	180.22	8,301.99	-596.24	-105.14	597.47	0.00	0.00	0.00	
9,500.00	90.00	180.22	8,301.99	-696.24	-105.53	697.47	0.00	0.00	0.00	
9,600.00	90.00	180.22	8,301.99	-796.24	-105.92	797.47	0.00	0.00	0.00	
9,700.00	90.00	180.22	8,301.99	-896.24	-106.31	897.46	0.00	0.00	0.00	
9,800.00	90.00	180.22	8,301.99	-996.24	-106.70	997.46	0.00	0.00	0.00	
9,900.00	90.00	180.22	8,301.99	-1,096.24	-107.09	1,097.46	0.00	0.00	0.00	
10,000.00	90.00	180.22	8,301.99	-1,196.23	-107.49	1,197.45	0.00	0.00	0.00	
10,100.00	90.00	180.22	8,301.99	-1,296.23	-107.88	1,297.45	0.00	0.00	0.00	
10,200.00	90.00	180.22	8,301.99	-1,396.23	-108.27	1,397.45	0.00	0.00	0.00	
10,300.00	90.00	180.22	8,301.99	-1,496.23	-108.66	1,497.44	0.00	0.00	0.00	
10,400.00	90.00	180.22	8,301.99	-1,596.23	-109.05	1,597.44	0.00	0.00	0.00	
10,500.00	90.00	180.22	8,301.99	-1,696.23	-109.44	1,697.44	0.00	0.00	0.00	
10,600.00	90.00	180.22	8,301.98	-1,796.23	-109.83	1,797.43	0.00	0.00	0.00	
10,700.00	90.00	180.22	8,301.98	-1,896.23	-110.22	1,897.43	0.00	0.00	0.00	
10,800.00	90.00	180.22	8,301.98	-1,996.23	-110.61	1,997.43	0.00	0.00	0.00	
10,900.00	90.00	180.22	8,301.98	-2,096.23	-111.00	2,097.42	0.00	0.00	0.00	
11,000.00	90.00	180.22	8,301.98	-2,196.23	-111.39	2,197.42	0.00	0.00	0.00	
11,100.00	90.00	180.22	8,301.98	-2,296.23	-111.78	2,297.42	0.00	0.00	0.00	
11,200.00	90.00	180.22	8,301.98	-2,396.23	-112.17	2,397.41	0.00	0.00	0.00	
11,300.00	90.00	180.22	8,301.98	-2,496.22	-112.56	2,497.41	0.00	0.00	0.00	
11,400.00	90.00	180.22	8,301.98	-2,596.22	-112.95	2,597.41	0.00	0.00	0.00	
11,500.00	90.00	180.22	8,301.98	-2,696.22	-113.34	2,697.40	0.00	0.00	0.00	
11,600.00	90.00	180.22	8,301.98	-2,796.22	-113.73	2,797.40	0.00	0.00	0.00	
11,700.00	90.00	180.22	8,301.98	-2,896.22	-114.12	2,897.40	0.00	0.00	0.00	
11,800.00	90.00	180.22	8,301.97	-2,996.22	-114.51	2,997.39	0.00	0.00	0.00	
11,900.00	90.00	180.22	8,301.97	-3,096.22	-114.91	3,097.39	0.00	0.00	0.00	
12,000.00	90.00	180.22	8,301.97	-3,196.22	-115.30	3,197.39	0.00	0.00	0.00	
12,100.00	90.00	180.22	8,301.97	-3,296.22	-115.69	3,297.38	0.00	0.00	0.00	
12,200.00	90.00	180.22	8,301.97	-3,396.22	-116.08	3,397.38	0.00	0.00	0.00	
12,300.00	90.00	180.22	8,301.97	-3,496.22	-116.47	3,497.38	0.00	0.00	0.00	
12,400.00	90.00	180.22	8,301.97	-3,596.22	-116.86	3,597.37	0.00	0.00	0.00	
12,500.00	90.00	180.22	8,301.97	-3,696.22	-117.25	3,697.37	0.00	0.00	0.00	
12,600.00	90.00	180.22	8,301.97	-3,796.21	-117.64	3,797.37	0.00	0.00	0.00	
12,700.00	90.00	180.22	8,301.97	-3,896.21	-118.03	3,897.36	0.00	0.00	0.00	

# Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well LIVINGSTON S19-25-11C
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 5336.00usft
<b>Project:</b>	Broomfield County	<b>MD Reference:</b>	KB 25' @ 5336.00usft
<b>Site:</b>	Sec 7-T1S-R68W	<b>North Reference:</b>	True
<b>Well:</b>	LIVINGSTON S19-25-11C	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	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	180.22	8,301.97	-3,996.21	-118.42	3,997.36	0.00	0.00	0.00
12,900.00	90.00	180.22	8,301.97	-4,096.21	-118.81	4,097.36	0.00	0.00	0.00
13,000.00	90.00	180.22	8,301.97	-4,196.21	-119.20	4,197.35	0.00	0.00	0.00
13,100.00	90.00	180.22	8,301.96	-4,296.21	-119.59	4,297.35	0.00	0.00	0.00
13,200.00	90.00	180.22	8,301.96	-4,396.21	-119.98	4,397.34	0.00	0.00	0.00
13,300.00	90.00	180.22	8,301.96	-4,496.21	-120.37	4,497.34	0.00	0.00	0.00
13,400.00	90.00	180.22	8,301.96	-4,596.21	-120.76	4,597.34	0.00	0.00	0.00
13,500.00	90.00	180.22	8,301.96	-4,696.21	-121.15	4,697.33	0.00	0.00	0.00
13,600.00	90.00	180.22	8,301.96	-4,796.21	-121.54	4,797.33	0.00	0.00	0.00
13,700.00	90.00	180.22	8,301.96	-4,896.21	-121.93	4,897.33	0.00	0.00	0.00
13,800.00	90.00	180.22	8,301.96	-4,996.21	-122.32	4,997.32	0.00	0.00	0.00
13,900.00	90.00	180.22	8,301.96	-5,096.20	-122.72	5,097.32	0.00	0.00	0.00
14,000.00	90.00	180.22	8,301.96	-5,196.20	-123.11	5,197.32	0.00	0.00	0.00
14,100.00	90.00	180.22	8,301.96	-5,296.20	-123.50	5,297.31	0.00	0.00	0.00
14,200.00	90.00	180.22	8,301.96	-5,396.20	-123.89	5,397.31	0.00	0.00	0.00
14,300.00	90.00	180.22	8,301.95	-5,496.20	-124.28	5,497.31	0.00	0.00	0.00
14,400.00	90.00	180.22	8,301.95	-5,596.20	-124.67	5,597.30	0.00	0.00	0.00
14,500.00	90.00	180.22	8,301.95	-5,696.20	-125.06	5,697.30	0.00	0.00	0.00
14,600.00	90.00	180.22	8,301.95	-5,796.20	-125.45	5,797.30	0.00	0.00	0.00
14,700.00	90.00	180.22	8,301.95	-5,896.20	-125.84	5,897.29	0.00	0.00	0.00
14,800.00	90.00	180.22	8,301.95	-5,996.20	-126.23	5,997.29	0.00	0.00	0.00
14,900.00	90.00	180.22	8,301.95	-6,096.20	-126.62	6,097.29	0.00	0.00	0.00
15,000.00	90.00	180.22	8,301.95	-6,196.20	-127.01	6,197.28	0.00	0.00	0.00
15,100.00	90.00	180.22	8,301.95	-6,296.20	-127.40	6,297.28	0.00	0.00	0.00
15,200.00	90.00	180.22	8,301.95	-6,396.20	-127.79	6,397.28	0.00	0.00	0.00
15,300.00	90.00	180.22	8,301.95	-6,496.19	-128.18	6,497.27	0.00	0.00	0.00
15,400.00	90.00	180.22	8,301.95	-6,596.19	-128.57	6,597.27	0.00	0.00	0.00
15,500.00	90.00	180.22	8,301.94	-6,696.19	-128.96	6,697.27	0.00	0.00	0.00
15,600.00	90.00	180.22	8,301.94	-6,796.19	-129.35	6,797.26	0.00	0.00	0.00
15,700.00	90.00	180.22	8,301.94	-6,896.19	-129.74	6,897.26	0.00	0.00	0.00
15,800.00	90.00	180.22	8,301.94	-6,996.19	-130.14	6,997.26	0.00	0.00	0.00
15,900.00	90.00	180.22	8,301.94	-7,096.19	-130.53	7,097.25	0.00	0.00	0.00
16,000.00	90.00	180.22	8,301.94	-7,196.19	-130.92	7,197.25	0.00	0.00	0.00
16,100.00	90.00	180.22	8,301.94	-7,296.19	-131.31	7,297.25	0.00	0.00	0.00
16,200.00	90.00	180.22	8,301.94	-7,396.19	-131.70	7,397.24	0.00	0.00	0.00
16,300.00	90.00	180.22	8,301.94	-7,496.19	-132.09	7,497.24	0.00	0.00	0.00
16,400.00	90.00	180.22	8,301.94	-7,596.19	-132.48	7,597.24	0.00	0.00	0.00
16,500.00	90.00	180.22	8,301.94	-7,696.19	-132.87	7,697.23	0.00	0.00	0.00
16,600.00	90.00	180.22	8,301.94	-7,796.18	-133.26	7,797.23	0.00	0.00	0.00
16,700.00	90.00	180.22	8,301.94	-7,896.18	-133.65	7,897.23	0.00	0.00	0.00
16,800.00	90.00	180.22	8,301.93	-7,996.18	-134.04	7,997.22	0.00	0.00	0.00
16,900.00	90.00	180.22	8,301.93	-8,096.18	-134.43	8,097.22	0.00	0.00	0.00
17,000.00	90.00	180.22	8,301.93	-8,196.18	-134.82	8,197.22	0.00	0.00	0.00
17,100.00	90.00	180.22	8,301.93	-8,296.18	-135.21	8,297.21	0.00	0.00	0.00
17,200.00	90.00	180.22	8,301.93	-8,396.18	-135.60	8,397.21	0.00	0.00	0.00
17,300.00	90.00	180.22	8,301.93	-8,496.18	-135.99	8,497.20	0.00	0.00	0.00
17,400.00	90.00	180.22	8,301.93	-8,596.18	-136.38	8,597.20	0.00	0.00	0.00
17,500.00	90.00	180.22	8,301.93	-8,696.18	-136.77	8,697.20	0.00	0.00	0.00
17,600.00	90.00	180.22	8,301.93	-8,796.18	-137.16	8,797.19	0.00	0.00	0.00
17,700.00	90.00	180.22	8,301.93	-8,896.18	-137.55	8,897.19	0.00	0.00	0.00
17,800.00	90.00	180.22	8,301.93	-8,996.18	-137.95	8,997.19	0.00	0.00	0.00
17,900.00	90.00	180.22	8,301.93	-9,096.17	-138.34	9,097.18	0.00	0.00	0.00
18,000.00	90.00	180.22	8,301.92	-9,196.17	-138.73	9,197.18	0.00	0.00	0.00
18,100.00	90.00	180.22	8,301.92	-9,296.17	-139.12	9,297.18	0.00	0.00	0.00

## Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well LIVINGSTON S19-25-11C
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 5336.00usft
<b>Project:</b>	Broomfield County	<b>MD Reference:</b>	KB 25' @ 5336.00usft
<b>Site:</b>	Sec 7-T1S-R68W	<b>North Reference:</b>	True
<b>Well:</b>	LIVINGSTON S19-25-11C	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	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)	
18,200.00	90.00	180.22	8,301.92	-9,396.17	-139.51	9,397.17	0.00	0.00	0.00	
18,300.00	90.00	180.22	8,301.92	-9,496.17	-139.90	9,497.17	0.00	0.00	0.00	
18,400.00	90.00	180.22	8,301.92	-9,596.17	-140.29	9,597.17	0.00	0.00	0.00	
18,500.00	90.00	180.22	8,301.92	-9,696.17	-140.68	9,697.16	0.00	0.00	0.00	
18,600.00	90.00	180.22	8,301.92	-9,796.17	-141.07	9,797.16	0.00	0.00	0.00	
18,700.00	90.00	180.22	8,301.92	-9,896.17	-141.46	9,897.16	0.00	0.00	0.00	
18,800.00	90.00	180.22	8,301.92	-9,996.17	-141.85	9,997.15	0.00	0.00	0.00	
18,900.00	90.00	180.22	8,301.92	-10,096.17	-142.24	10,097.15	0.00	0.00	0.00	
19,000.00	90.00	180.22	8,301.92	-10,196.17	-142.63	10,197.15	0.00	0.00	0.00	
19,100.00	90.00	180.22	8,301.92	-10,296.17	-143.02	10,297.14	0.00	0.00	0.00	
19,200.00	90.00	180.22	8,301.91	-10,396.16	-143.41	10,397.14	0.00	0.00	0.00	
19,300.00	90.00	180.22	8,301.91	-10,496.16	-143.80	10,497.14	0.00	0.00	0.00	
19,400.00	90.00	180.22	8,301.91	-10,596.16	-144.19	10,597.13	0.00	0.00	0.00	
19,500.00	90.00	180.22	8,301.91	-10,696.16	-144.58	10,697.13	0.00	0.00	0.00	
19,600.00	90.00	180.22	8,301.91	-10,796.16	-144.97	10,797.13	0.00	0.00	0.00	
19,700.00	90.00	180.22	8,301.91	-10,896.16	-145.37	10,897.12	0.00	0.00	0.00	
19,800.00	90.00	180.22	8,301.91	-10,996.16	-145.76	10,997.12	0.00	0.00	0.00	
19,900.00	90.00	180.22	8,301.91	-11,096.16	-146.15	11,097.12	0.00	0.00	0.00	
20,000.00	90.00	180.22	8,301.91	-11,196.16	-146.54	11,197.11	0.00	0.00	0.00	
20,100.00	90.00	180.22	8,301.91	-11,296.16	-146.93	11,297.11	0.00	0.00	0.00	
20,200.00	90.00	180.22	8,301.91	-11,396.16	-147.32	11,397.11	0.00	0.00	0.00	
20,300.00	90.00	180.22	8,301.91	-11,496.16	-147.71	11,497.10	0.00	0.00	0.00	
20,400.00	90.00	180.22	8,301.91	-11,596.16	-148.10	11,597.10	0.00	0.00	0.00	
20,500.00	90.00	180.22	8,301.90	-11,696.15	-148.49	11,697.10	0.00	0.00	0.00	
20,600.00	90.00	180.22	8,301.90	-11,796.15	-148.88	11,797.09	0.00	0.00	0.00	
20,700.00	90.00	180.22	8,301.90	-11,896.15	-149.27	11,897.09	0.00	0.00	0.00	
20,800.00	90.00	180.22	8,301.90	-11,996.15	-149.66	11,997.09	0.00	0.00	0.00	
20,900.00	90.00	180.22	8,301.90	-12,096.15	-150.05	12,097.08	0.00	0.00	0.00	
21,000.00	90.00	180.22	8,301.90	-12,196.15	-150.44	12,197.08	0.00	0.00	0.00	
21,219.34	90.00	180.22	8,302.00	-12,415.49	-151.13	12,416.41	0.00	0.00	0.00	
TD at 21219.34' MD										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
LIVINGSTON S19 11C - - plan hits target center - Point	0.00	0.00	8,302.00	-12,415.49	-151.13	1,222,956.17	3,128,969.66	39° 56' 40.121 N	105° 2' 24.068 W	
LIVINGSTON S19 11C - - plan hits target center - Point	0.00	0.00	8,302.00	134.79	-102.29	1,235,506.54	3,128,953.32	39° 58' 44.152 N	105° 2' 23.442 W	



## Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well LIVINGSTON S19-25-11C
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 5336.00usft
<b>Project:</b>	Broomfield County	<b>MD Reference:</b>	KB 25' @ 5336.00usft
<b>Site:</b>	Sec 7-T1S-R68W	<b>North Reference:</b>	True
<b>Well:</b>	LIVINGSTON S19-25-11C	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL 1		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
4,667.54	4,646.00	PARKMAN				
5,151.65	5,127.00	SUSSEX				
6,077.61	6,047.00	SHANNON				
7,921.70	7,880.00	NIOBRARA				
8,107.21	8,048.00	NIO B TARGET				
8,520.99	8,283.00	FORT HAYS				
8,668.97	8,302.00	CODELL				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
1,100.00	1,100.00	0.00	0.00	BUILD 2°/100'	
1,425.02	1,424.32	18.24	-2.58	HOLD 6.50° INC	
7,413.88	7,374.68	689.55	-97.47	DROP 2°/100'	
7,738.89	7,699.00	707.79	-100.05	HOLD VERTICAL	
7,768.89	7,729.00	707.79	-100.05	KOP, BUILD 10°/100'	
8,668.97	8,302.00	134.79	-102.29	LP @ 90° INC, 180.22° AZM HOLD	
21,219.34	8,302.00	-12,415.49	-151.13	TD at 21219.34' MD	