

EXTRACTION OIL & GAS

Broomfield County

Sec 7-T1S-R68W

LIVINGSTON S19-25-8C

ORIGINAL WELLBORE

Plan: PROPOSAL 1

Standard Planning Report

05 December, 2017



Project: Broomfield County
Site: Sec 7-T1S-R68W
Well: LIVINGSTON S19-25-8C
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 S19-25-8C

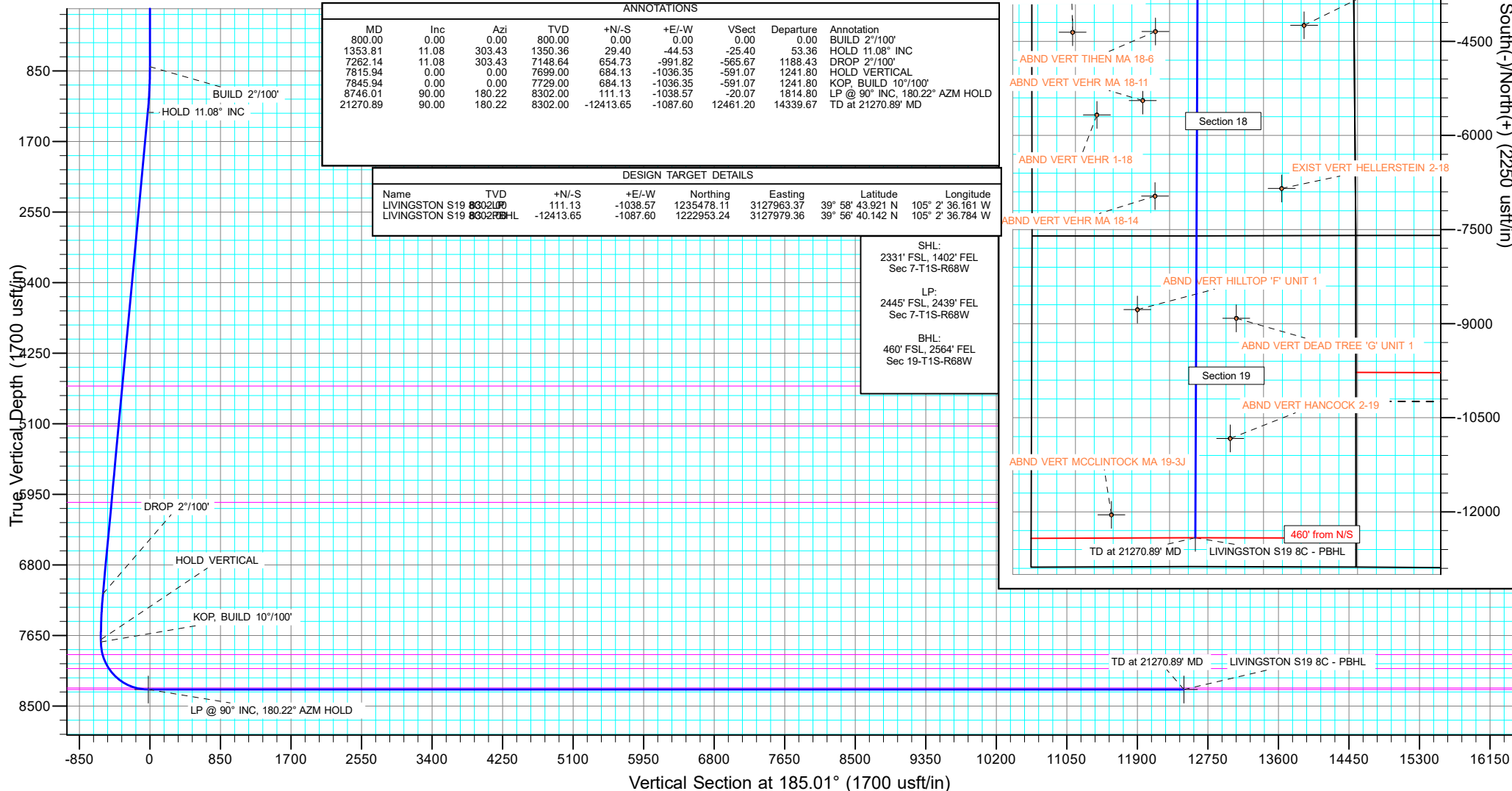
+N/-S	+E/-W	Northing	Easting	5311.00	Latitude	Longitude	Slot
0.00	0.00	1235372.37	3129002.50		39° 58' 42.823 N	105° 2' 22.819 W	

SECTION DETAILS

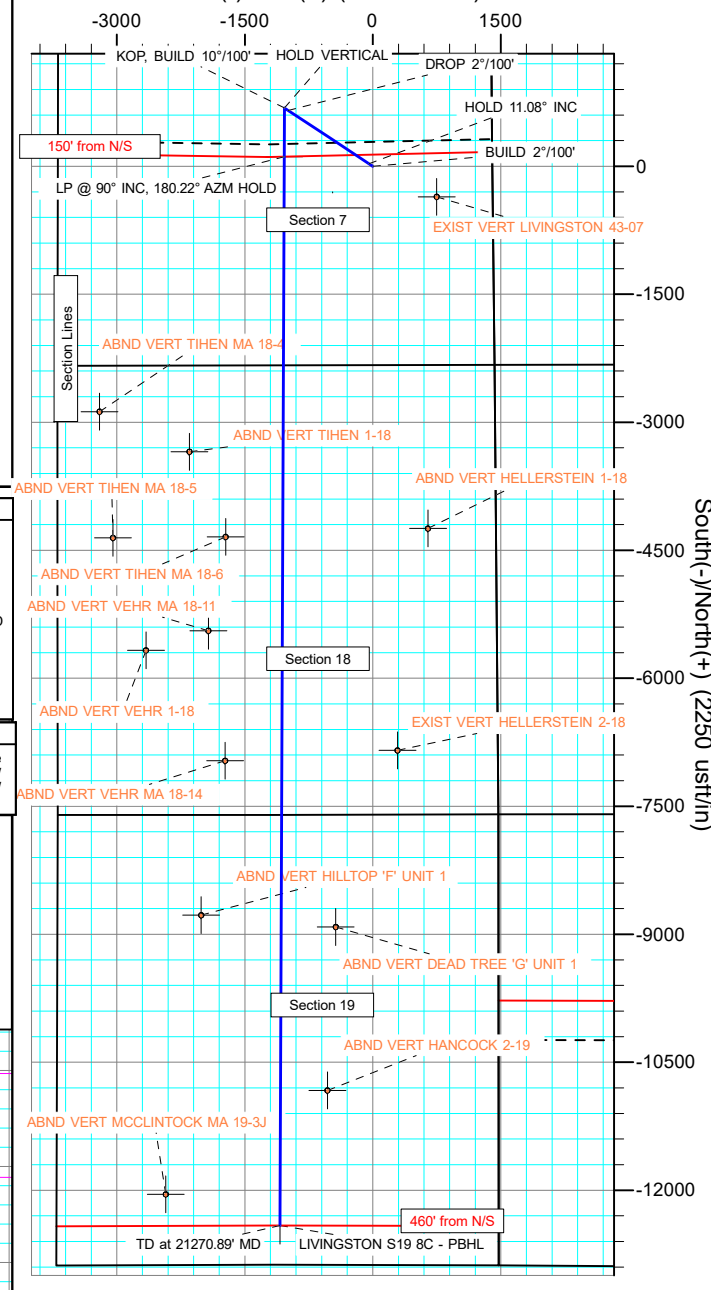
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	
3	1353.81	11.08	303.43	1350.36	29.40	-44.53	2.00	303.43	-25.40	
4	7262.14	11.08	303.43	7148.64	654.73	-991.82	0.00	0.00	-565.67	
5	7815.94	0.00	0.00	7699.00	684.13	-1036.35	2.00	180.00	-591.07	
6	7845.94	0.00	0.00	7729.00	684.13	-1036.35	0.00	0.00	-591.07	
7	8746.01	90.00	180.22	8302.00	111.13	-1038.57	10.00	180.22	-20.07	LIVINGSTON S19 8C - LP
8	21270.89	90.00	180.22	8302.00	-12413.65	-1087.60	0.00	0.00	12461.20	LIVINGSTON S19 8C - PBHL

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
4646.00	4712.00	PARKMAN
5127.00	5202.13	SUSSEX
6047.00	6139.59	SHANNON
7880.00	7998.75	NIOBRARA
8048.00	8184.26	NIO B TARGET
8283.00	8598.04	FORT HAYS
8302.00	8746.01	CODELL



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



Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well LIVINGSTON S19-25-8C
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 S19-25-8C	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 S19-25-8C				
Well Position	+N/-S	-2,949.69 usft	Northing:	1,235,372.36 usft	Latitude:	39° 58' 42.823 N
	+E/-W	-1,379.41 usft	Easting:	3,129,002.50 usft	Longitude:	105° 2' 22.819 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	52,086.13528040

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	185.01

Plan Survey Tool Program	Date	12/5/2017		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	21,270.83	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	
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,353.81	11.08	303.43	1,350.36	29.40	-44.53	2.00	2.00	0.00	303.43	
7,262.14	11.08	303.43	7,148.64	654.73	-991.82	0.00	0.00	0.00	0.00	
7,815.94	0.00	0.00	7,699.00	684.13	-1,036.35	2.00	-2.00	0.00	180.00	
7,845.94	0.00	0.00	7,729.00	684.13	-1,036.35	0.00	0.00	0.00	0.00	
8,746.01	90.00	180.22	8,302.00	111.13	-1,038.57	10.00	10.00	-19.97	180.22	LIVINGSTON S19 8C
21,270.89	90.00	180.22	8,302.00	-12,413.65	-1,087.60	0.00	0.00	0.00	0.00	LIVINGSTON S19 8C

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Project:	Broomfield County	MD Reference:	KB 25' @ 5336.00usft
Site:	Sec 7-T1S-R68W	North Reference:	True
Well:	LIVINGSTON S19-25-8C	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL 1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
BUILD 2°/100'									
900.00	2.00	303.43	899.98	0.96	-1.46	-0.83	2.00	2.00	0.00
1,000.00	4.00	303.43	999.84	3.84	-5.82	-3.32	2.00	2.00	0.00
1,100.00	6.00	303.43	1,099.45	8.65	-13.10	-7.47	2.00	2.00	0.00
1,200.00	8.00	303.43	1,198.70	15.36	-23.27	-13.27	2.00	2.00	0.00
1,300.00	10.00	303.43	1,297.47	23.98	-36.32	-20.72	2.00	2.00	0.00
1,353.81	11.08	303.43	1,350.36	29.40	-44.53	-25.40	2.00	2.00	0.00
HOLD 11.08° INC									
1,400.00	11.08	303.43	1,395.70	34.29	-51.94	-29.62	0.00	0.00	0.00
1,500.00	11.08	303.43	1,493.83	44.87	-67.97	-38.77	0.00	0.00	0.00
1,600.00	11.08	303.43	1,591.97	55.46	-84.01	-47.91	0.00	0.00	0.00
1,700.00	11.08	303.43	1,690.11	66.04	-100.04	-57.06	0.00	0.00	0.00
1,800.00	11.08	303.43	1,788.25	76.62	-116.07	-66.20	0.00	0.00	0.00
1,900.00	11.08	303.43	1,886.38	87.21	-132.11	-75.34	0.00	0.00	0.00
2,000.00	11.08	303.43	1,984.52	97.79	-148.14	-84.49	0.00	0.00	0.00
2,100.00	11.08	303.43	2,082.66	108.38	-164.17	-93.63	0.00	0.00	0.00
2,200.00	11.08	303.43	2,180.79	118.96	-180.20	-102.78	0.00	0.00	0.00
2,300.00	11.08	303.43	2,278.93	129.54	-196.24	-111.92	0.00	0.00	0.00
2,400.00	11.08	303.43	2,377.07	140.13	-212.27	-121.07	0.00	0.00	0.00
2,500.00	11.08	303.43	2,475.21	150.71	-228.30	-130.21	0.00	0.00	0.00
2,600.00	11.08	303.43	2,573.34	161.29	-244.34	-139.35	0.00	0.00	0.00
2,700.00	11.08	303.43	2,671.48	171.88	-260.37	-148.50	0.00	0.00	0.00
2,800.00	11.08	303.43	2,769.62	182.46	-276.40	-157.64	0.00	0.00	0.00
2,900.00	11.08	303.43	2,867.76	193.05	-292.44	-166.79	0.00	0.00	0.00
3,000.00	11.08	303.43	2,965.89	203.63	-308.47	-175.93	0.00	0.00	0.00
3,100.00	11.08	303.43	3,064.03	214.21	-324.50	-185.08	0.00	0.00	0.00
3,200.00	11.08	303.43	3,162.17	224.80	-340.53	-194.22	0.00	0.00	0.00
3,300.00	11.08	303.43	3,260.30	235.38	-356.57	-203.36	0.00	0.00	0.00
3,400.00	11.08	303.43	3,358.44	245.97	-372.60	-212.51	0.00	0.00	0.00
3,500.00	11.08	303.43	3,456.58	256.55	-388.63	-221.65	0.00	0.00	0.00
3,600.00	11.08	303.43	3,554.72	267.13	-404.67	-230.80	0.00	0.00	0.00
3,700.00	11.08	303.43	3,652.85	277.72	-420.70	-239.94	0.00	0.00	0.00
3,800.00	11.08	303.43	3,750.99	288.30	-436.73	-249.09	0.00	0.00	0.00
3,900.00	11.08	303.43	3,849.13	298.89	-452.77	-258.23	0.00	0.00	0.00
4,000.00	11.08	303.43	3,947.27	309.47	-468.80	-267.37	0.00	0.00	0.00
4,100.00	11.08	303.43	4,045.40	320.05	-484.83	-276.52	0.00	0.00	0.00
4,200.00	11.08	303.43	4,143.54	330.64	-500.86	-285.66	0.00	0.00	0.00
4,300.00	11.08	303.43	4,241.68	341.22	-516.90	-294.81	0.00	0.00	0.00
4,400.00	11.08	303.43	4,339.81	351.81	-532.93	-303.95	0.00	0.00	0.00
4,500.00	11.08	303.43	4,437.95	362.39	-548.96	-313.09	0.00	0.00	0.00
4,600.00	11.08	303.43	4,536.09	372.97	-565.00	-322.24	0.00	0.00	0.00
4,700.00	11.08	303.43	4,634.23	383.56	-581.03	-331.38	0.00	0.00	0.00
4,712.00	11.08	303.43	4,646.00	384.83	-582.95	-332.48	0.00	0.00	0.00
PARKMAN									

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 S19-25-8C	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	11.08	303.43	4,732.36	394.14	-597.06	-340.53	0.00	0.00	0.00	
4,900.00	11.08	303.43	4,830.50	404.72	-613.09	-349.67	0.00	0.00	0.00	
5,000.00	11.08	303.43	4,928.64	415.31	-629.13	-358.82	0.00	0.00	0.00	
5,100.00	11.08	303.43	5,026.78	425.89	-645.16	-367.96	0.00	0.00	0.00	
5,200.00	11.08	303.43	5,124.91	436.48	-661.19	-377.10	0.00	0.00	0.00	
5,202.13	11.08	303.43	5,127.00	436.70	-661.53	-377.30	0.00	0.00	0.00	
SUSSEX										
5,300.00	11.08	303.43	5,223.05	447.06	-677.23	-386.25	0.00	0.00	0.00	
5,400.00	11.08	303.43	5,321.19	457.64	-693.26	-395.39	0.00	0.00	0.00	
5,500.00	11.08	303.43	5,419.32	468.23	-709.29	-404.54	0.00	0.00	0.00	
5,600.00	11.08	303.43	5,517.46	478.81	-725.33	-413.68	0.00	0.00	0.00	
5,700.00	11.08	303.43	5,615.60	489.40	-741.36	-422.83	0.00	0.00	0.00	
5,800.00	11.08	303.43	5,713.74	499.98	-757.39	-431.97	0.00	0.00	0.00	
5,900.00	11.08	303.43	5,811.87	510.56	-773.42	-441.11	0.00	0.00	0.00	
6,000.00	11.08	303.43	5,910.01	521.15	-789.46	-450.26	0.00	0.00	0.00	
6,100.00	11.08	303.43	6,008.15	531.73	-805.49	-459.40	0.00	0.00	0.00	
6,139.59	11.08	303.43	6,047.00	535.92	-811.84	-463.02	0.00	0.00	0.00	
SHANNON										
6,200.00	11.08	303.43	6,106.29	542.32	-821.52	-468.55	0.00	0.00	0.00	
6,300.00	11.08	303.43	6,204.42	552.90	-837.56	-477.69	0.00	0.00	0.00	
6,400.00	11.08	303.43	6,302.56	563.48	-853.59	-486.84	0.00	0.00	0.00	
6,500.00	11.08	303.43	6,400.70	574.07	-869.62	-495.98	0.00	0.00	0.00	
6,600.00	11.08	303.43	6,498.84	584.65	-885.66	-505.12	0.00	0.00	0.00	
6,700.00	11.08	303.43	6,596.97	595.24	-901.69	-514.27	0.00	0.00	0.00	
6,800.00	11.08	303.43	6,695.11	605.82	-917.72	-523.41	0.00	0.00	0.00	
6,900.00	11.08	303.43	6,793.25	616.40	-933.75	-532.56	0.00	0.00	0.00	
7,000.00	11.08	303.43	6,891.38	626.99	-949.79	-541.70	0.00	0.00	0.00	
7,100.00	11.08	303.43	6,989.52	637.57	-965.82	-550.84	0.00	0.00	0.00	
7,200.00	11.08	303.43	7,087.66	648.15	-981.85	-559.99	0.00	0.00	0.00	
7,262.14	11.08	303.43	7,148.64	654.73	-991.82	-565.67	0.00	0.00	0.00	
DROP 2°/100'										
7,300.00	10.32	303.43	7,185.84	658.60	-997.68	-569.02	2.00	-2.00	0.00	
7,400.00	8.32	303.43	7,284.52	667.52	-1,011.19	-576.72	2.00	-2.00	0.00	
7,500.00	6.32	303.43	7,383.70	674.54	-1,021.83	-582.79	2.00	-2.00	0.00	
7,600.00	4.32	303.43	7,483.26	679.65	-1,029.56	-587.20	2.00	-2.00	0.00	
7,700.00	2.32	303.43	7,583.09	682.84	-1,034.39	-589.95	2.00	-2.00	0.00	
7,800.00	0.32	303.43	7,683.06	684.11	-1,036.31	-591.05	2.00	-2.00	0.00	
7,815.94	0.00	0.00	7,699.00	684.13	-1,036.35	-591.07	2.00	-2.00	0.00	
HOLD VERTICAL										
7,845.94	0.00	0.00	7,729.00	684.13	-1,036.35	-591.07	0.00	0.00	0.00	
KOP, BUILD 10°/100'										
7,850.00	0.41	180.22	7,733.06	684.12	-1,036.35	-591.06	10.00	10.00	0.00	
7,900.00	5.41	180.22	7,782.98	681.58	-1,036.36	-588.53	10.00	10.00	0.00	
7,950.00	10.41	180.22	7,832.49	674.71	-1,036.39	-581.68	10.00	10.00	0.00	
7,998.75	15.28	180.22	7,880.00	663.88	-1,036.43	-570.89	10.00	10.00	0.00	
NIOBRARA										
8,000.00	15.40	180.22	7,881.21	663.54	-1,036.43	-570.56	10.00	10.00	0.00	
8,050.00	20.40	180.22	7,928.77	648.18	-1,036.49	-555.24	10.00	10.00	0.00	
8,100.00	25.40	180.22	7,974.82	628.72	-1,036.56	-535.86	10.00	10.00	0.00	
8,150.00	30.40	180.22	8,018.99	605.33	-1,036.66	-512.55	10.00	10.00	0.00	
8,184.26	33.83	180.22	8,048.00	587.12	-1,036.73	-494.40	10.00	10.00	0.00	
NIO B TARGET										
8,200.00	35.40	180.22	8,060.95	578.18	-1,036.76	-485.49	10.00	10.00	0.00	

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Well:	LIVINGSTON S19-25-8C	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)	
8,250.00	40.40	180.22	8,100.39	547.47	-1,036.88	-454.89	10.00	10.00	0.00	
8,300.00	45.40	180.22	8,137.01	513.45	-1,037.01	-420.98	10.00	10.00	0.00	
8,350.00	50.40	180.22	8,170.52	476.36	-1,037.16	-384.02	10.00	10.00	0.00	
8,400.00	55.40	180.22	8,200.67	436.49	-1,037.31	-344.29	10.00	10.00	0.00	
8,450.00	60.40	180.22	8,227.23	394.15	-1,037.47	-302.10	10.00	10.00	0.00	
8,500.00	65.40	180.22	8,250.00	349.65	-1,037.65	-257.76	10.00	10.00	0.00	
8,550.00	70.40	180.22	8,268.80	303.34	-1,037.83	-211.61	10.00	10.00	0.00	
8,598.04	75.20	180.22	8,283.00	257.47	-1,038.00	-165.89	10.00	10.00	0.00	
FORT HAYS										
8,600.00	75.40	180.22	8,283.50	255.57	-1,038.01	-164.00	10.00	10.00	0.00	
8,650.00	80.40	180.22	8,293.98	206.69	-1,038.20	-115.29	10.00	10.00	0.00	
8,700.00	85.40	180.22	8,300.15	157.09	-1,038.39	-65.87	10.00	10.00	0.00	
8,746.01	90.00	180.22	8,302.00	111.14	-1,038.57	-20.07	10.00	10.00	0.00	
LP @ 90° INC, 180.22° AZM HOLD - CODELL										
8,800.00	90.00	180.22	8,302.00	57.14	-1,038.78	33.74	0.00	0.00	0.00	
8,900.00	90.00	180.22	8,302.00	-42.86	-1,039.17	133.39	0.00	0.00	0.00	
9,000.00	90.00	180.22	8,302.00	-142.86	-1,039.56	233.04	0.00	0.00	0.00	
9,100.00	90.00	180.22	8,302.00	-242.85	-1,039.94	332.69	0.00	0.00	0.00	
9,200.00	90.00	180.22	8,302.00	-342.85	-1,040.33	432.34	0.00	0.00	0.00	
9,300.00	90.00	180.22	8,302.00	-442.85	-1,040.72	531.99	0.00	0.00	0.00	
9,400.00	90.00	180.22	8,302.00	-542.85	-1,041.11	631.65	0.00	0.00	0.00	
9,500.00	90.00	180.22	8,302.00	-642.85	-1,041.49	731.30	0.00	0.00	0.00	
9,600.00	90.00	180.22	8,302.00	-742.85	-1,041.88	830.95	0.00	0.00	0.00	
9,700.00	90.00	180.22	8,302.00	-842.85	-1,042.27	930.60	0.00	0.00	0.00	
9,800.00	90.00	180.22	8,302.00	-942.85	-1,042.66	1,030.25	0.00	0.00	0.00	
9,900.00	90.00	180.22	8,302.00	-1,042.85	-1,043.04	1,129.90	0.00	0.00	0.00	
10,000.00	90.00	180.22	8,302.00	-1,142.85	-1,043.43	1,229.55	0.00	0.00	0.00	
10,100.00	90.00	180.22	8,302.00	-1,242.85	-1,043.82	1,329.21	0.00	0.00	0.00	
10,200.00	90.00	180.22	8,302.00	-1,342.85	-1,044.21	1,428.86	0.00	0.00	0.00	
10,300.00	90.00	180.22	8,302.00	-1,442.85	-1,044.59	1,528.51	0.00	0.00	0.00	
10,400.00	90.00	180.22	8,302.00	-1,542.85	-1,044.98	1,628.16	0.00	0.00	0.00	
10,500.00	90.00	180.22	8,302.00	-1,642.84	-1,045.37	1,727.81	0.00	0.00	0.00	
10,600.00	90.00	180.22	8,302.00	-1,742.84	-1,045.76	1,827.46	0.00	0.00	0.00	
10,700.00	90.00	180.22	8,302.00	-1,842.84	-1,046.14	1,927.11	0.00	0.00	0.00	
10,800.00	90.00	180.22	8,302.00	-1,942.84	-1,046.53	2,026.77	0.00	0.00	0.00	
10,900.00	90.00	180.22	8,302.00	-2,042.84	-1,046.92	2,126.42	0.00	0.00	0.00	
11,000.00	90.00	180.22	8,302.00	-2,142.84	-1,047.31	2,226.07	0.00	0.00	0.00	
11,100.00	90.00	180.22	8,302.00	-2,242.84	-1,047.69	2,325.72	0.00	0.00	0.00	
11,200.00	90.00	180.22	8,302.00	-2,342.84	-1,048.08	2,425.37	0.00	0.00	0.00	
11,300.00	90.00	180.22	8,302.00	-2,442.84	-1,048.47	2,525.02	0.00	0.00	0.00	
11,400.00	90.00	180.22	8,302.00	-2,542.84	-1,048.86	2,624.68	0.00	0.00	0.00	
11,500.00	90.00	180.22	8,302.00	-2,642.84	-1,049.25	2,724.33	0.00	0.00	0.00	
11,600.00	90.00	180.22	8,302.00	-2,742.84	-1,049.63	2,823.98	0.00	0.00	0.00	
11,700.00	90.00	180.22	8,302.00	-2,842.84	-1,050.02	2,923.63	0.00	0.00	0.00	
11,800.00	90.00	180.22	8,302.00	-2,942.83	-1,050.41	3,023.28	0.00	0.00	0.00	
11,900.00	90.00	180.22	8,302.00	-3,042.83	-1,050.80	3,122.93	0.00	0.00	0.00	
12,000.00	90.00	180.22	8,302.00	-3,142.83	-1,051.18	3,222.58	0.00	0.00	0.00	
12,100.00	90.00	180.22	8,302.00	-3,242.83	-1,051.57	3,322.24	0.00	0.00	0.00	
12,200.00	90.00	180.22	8,302.00	-3,342.83	-1,051.96	3,421.89	0.00	0.00	0.00	
12,300.00	90.00	180.22	8,301.99	-3,442.83	-1,052.35	3,521.54	0.00	0.00	0.00	
12,400.00	90.00	180.22	8,301.99	-3,542.83	-1,052.73	3,621.19	0.00	0.00	0.00	
12,500.00	90.00	180.22	8,301.99	-3,642.83	-1,053.12	3,720.84	0.00	0.00	0.00	
12,600.00	90.00	180.22	8,301.99	-3,742.83	-1,053.51	3,820.49	0.00	0.00	0.00	
12,700.00	90.00	180.22	8,301.99	-3,842.83	-1,053.90	3,920.14	0.00	0.00	0.00	

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well LIVINGSTON S19-25-8C
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 S19-25-8C	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	180.22	8,301.99	-3,942.83	-1,054.28	4,019.80	0.00	0.00	0.00
12,900.00	90.00	180.22	8,301.99	-4,042.83	-1,054.67	4,119.45	0.00	0.00	0.00
13,000.00	90.00	180.22	8,301.99	-4,142.83	-1,055.06	4,219.10	0.00	0.00	0.00
13,100.00	90.00	180.22	8,301.99	-4,242.82	-1,055.45	4,318.75	0.00	0.00	0.00
13,200.00	90.00	180.22	8,301.99	-4,342.82	-1,055.83	4,418.40	0.00	0.00	0.00
13,300.00	90.00	180.22	8,301.99	-4,442.82	-1,056.22	4,518.05	0.00	0.00	0.00
13,400.00	90.00	180.22	8,301.99	-4,542.82	-1,056.61	4,617.71	0.00	0.00	0.00
13,500.00	90.00	180.22	8,301.99	-4,642.82	-1,057.00	4,717.36	0.00	0.00	0.00
13,600.00	90.00	180.22	8,301.99	-4,742.82	-1,057.38	4,817.01	0.00	0.00	0.00
13,700.00	90.00	180.22	8,301.99	-4,842.82	-1,057.77	4,916.66	0.00	0.00	0.00
13,800.00	90.00	180.22	8,301.99	-4,942.82	-1,058.16	5,016.31	0.00	0.00	0.00
13,900.00	90.00	180.22	8,301.99	-5,042.82	-1,058.55	5,115.96	0.00	0.00	0.00
14,000.00	90.00	180.22	8,301.99	-5,142.82	-1,058.94	5,215.61	0.00	0.00	0.00
14,100.00	90.00	180.22	8,301.99	-5,242.82	-1,059.32	5,315.27	0.00	0.00	0.00
14,200.00	90.00	180.22	8,301.99	-5,342.82	-1,059.71	5,414.92	0.00	0.00	0.00
14,300.00	90.00	180.22	8,301.99	-5,442.82	-1,060.10	5,514.57	0.00	0.00	0.00
14,400.00	90.00	180.22	8,301.99	-5,542.82	-1,060.49	5,614.22	0.00	0.00	0.00
14,500.00	90.00	180.22	8,301.99	-5,642.81	-1,060.87	5,713.87	0.00	0.00	0.00
14,600.00	90.00	180.22	8,301.99	-5,742.81	-1,061.26	5,813.52	0.00	0.00	0.00
14,700.00	90.00	180.22	8,301.99	-5,842.81	-1,061.65	5,913.17	0.00	0.00	0.00
14,800.00	90.00	180.22	8,301.99	-5,942.81	-1,062.04	6,012.83	0.00	0.00	0.00
14,900.00	90.00	180.22	8,301.99	-6,042.81	-1,062.42	6,112.48	0.00	0.00	0.00
15,000.00	90.00	180.22	8,301.99	-6,142.81	-1,062.81	6,212.13	0.00	0.00	0.00
15,100.00	90.00	180.22	8,301.99	-6,242.81	-1,063.20	6,311.78	0.00	0.00	0.00
15,200.00	90.00	180.22	8,301.99	-6,342.81	-1,063.59	6,411.43	0.00	0.00	0.00
15,300.00	90.00	180.22	8,301.99	-6,442.81	-1,063.97	6,511.08	0.00	0.00	0.00
15,400.00	90.00	180.22	8,301.99	-6,542.81	-1,064.36	6,610.73	0.00	0.00	0.00
15,500.00	90.00	180.22	8,301.99	-6,642.81	-1,064.75	6,710.39	0.00	0.00	0.00
15,600.00	90.00	180.22	8,301.99	-6,742.81	-1,065.14	6,810.04	0.00	0.00	0.00
15,700.00	90.00	180.22	8,301.99	-6,842.81	-1,065.52	6,909.69	0.00	0.00	0.00
15,800.00	90.00	180.22	8,301.99	-6,942.80	-1,065.91	7,009.34	0.00	0.00	0.00
15,900.00	90.00	180.22	8,301.99	-7,042.80	-1,066.30	7,108.99	0.00	0.00	0.00
16,000.00	90.00	180.22	8,301.99	-7,142.80	-1,066.69	7,208.64	0.00	0.00	0.00
16,100.00	90.00	180.22	8,301.99	-7,242.80	-1,067.07	7,308.30	0.00	0.00	0.00
16,200.00	90.00	180.22	8,301.99	-7,342.80	-1,067.46	7,407.95	0.00	0.00	0.00
16,300.00	90.00	180.22	8,301.99	-7,442.80	-1,067.85	7,507.60	0.00	0.00	0.00
16,400.00	90.00	180.22	8,301.99	-7,542.80	-1,068.24	7,607.25	0.00	0.00	0.00
16,500.00	90.00	180.22	8,301.99	-7,642.80	-1,068.63	7,706.90	0.00	0.00	0.00
16,600.00	90.00	180.22	8,301.99	-7,742.80	-1,069.01	7,806.55	0.00	0.00	0.00
16,700.00	90.00	180.22	8,301.99	-7,842.80	-1,069.40	7,906.20	0.00	0.00	0.00
16,800.00	90.00	180.22	8,301.99	-7,942.80	-1,069.79	8,005.86	0.00	0.00	0.00
16,900.00	90.00	180.22	8,301.99	-8,042.80	-1,070.18	8,105.51	0.00	0.00	0.00
17,000.00	90.00	180.22	8,301.99	-8,142.80	-1,070.56	8,205.16	0.00	0.00	0.00
17,100.00	90.00	180.22	8,301.99	-8,242.80	-1,070.95	8,304.81	0.00	0.00	0.00
17,200.00	90.00	180.22	8,301.99	-8,342.79	-1,071.34	8,404.46	0.00	0.00	0.00
17,300.00	90.00	180.22	8,301.99	-8,442.79	-1,071.73	8,504.11	0.00	0.00	0.00
17,400.00	90.00	180.22	8,301.99	-8,542.79	-1,072.11	8,603.76	0.00	0.00	0.00
17,500.00	90.00	180.22	8,301.99	-8,642.79	-1,072.50	8,703.42	0.00	0.00	0.00
17,600.00	90.00	180.22	8,301.99	-8,742.79	-1,072.89	8,803.07	0.00	0.00	0.00
17,700.00	90.00	180.22	8,301.99	-8,842.79	-1,073.28	8,902.72	0.00	0.00	0.00
17,800.00	90.00	180.22	8,301.99	-8,942.79	-1,073.66	9,002.37	0.00	0.00	0.00
17,900.00	90.00	180.22	8,301.99	-9,042.79	-1,074.05	9,102.02	0.00	0.00	0.00
18,000.00	90.00	180.22	8,301.99	-9,142.79	-1,074.44	9,201.67	0.00	0.00	0.00
18,100.00	90.00	180.22	8,301.99	-9,242.79	-1,074.83	9,301.33	0.00	0.00	0.00

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well LIVINGSTON S19-25-8C
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 S19-25-8C	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)	
18,200.00	90.00	180.22	8,301.99	-9,342.79	-1,075.21	9,400.98	0.00	0.00	0.00	
18,300.00	90.00	180.22	8,301.99	-9,442.79	-1,075.60	9,500.63	0.00	0.00	0.00	
18,400.00	90.00	180.22	8,301.99	-9,542.79	-1,075.99	9,600.28	0.00	0.00	0.00	
18,500.00	90.00	180.22	8,301.99	-9,642.78	-1,076.38	9,699.93	0.00	0.00	0.00	
18,600.00	90.00	180.22	8,301.99	-9,742.78	-1,076.76	9,799.58	0.00	0.00	0.00	
18,700.00	90.00	180.22	8,301.99	-9,842.78	-1,077.15	9,899.23	0.00	0.00	0.00	
18,800.00	90.00	180.22	8,301.99	-9,942.78	-1,077.54	9,998.89	0.00	0.00	0.00	
18,900.00	90.00	180.22	8,301.99	-10,042.78	-1,077.93	10,098.54	0.00	0.00	0.00	
19,000.00	90.00	180.22	8,301.99	-10,142.78	-1,078.32	10,198.19	0.00	0.00	0.00	
19,100.00	90.00	180.22	8,301.99	-10,242.78	-1,078.70	10,297.84	0.00	0.00	0.00	
19,200.00	90.00	180.22	8,301.98	-10,342.78	-1,079.09	10,397.49	0.00	0.00	0.00	
19,300.00	90.00	180.22	8,301.98	-10,442.78	-1,079.48	10,497.14	0.00	0.00	0.00	
19,400.00	90.00	180.22	8,301.98	-10,542.78	-1,079.87	10,596.79	0.00	0.00	0.00	
19,500.00	90.00	180.22	8,301.98	-10,642.78	-1,080.25	10,696.45	0.00	0.00	0.00	
19,600.00	90.00	180.22	8,301.98	-10,742.78	-1,080.64	10,796.10	0.00	0.00	0.00	
19,700.00	90.00	180.22	8,301.98	-10,842.78	-1,081.03	10,895.75	0.00	0.00	0.00	
19,800.00	90.00	180.22	8,301.98	-10,942.77	-1,081.42	10,995.40	0.00	0.00	0.00	
19,900.00	90.00	180.22	8,301.98	-11,042.77	-1,081.80	11,095.05	0.00	0.00	0.00	
20,000.00	90.00	180.22	8,301.98	-11,142.77	-1,082.19	11,194.70	0.00	0.00	0.00	
20,100.00	90.00	180.22	8,301.98	-11,242.77	-1,082.58	11,294.36	0.00	0.00	0.00	
20,200.00	90.00	180.22	8,301.98	-11,342.77	-1,082.97	11,394.01	0.00	0.00	0.00	
20,300.00	90.00	180.22	8,301.98	-11,442.77	-1,083.35	11,493.66	0.00	0.00	0.00	
20,400.00	90.00	180.22	8,301.98	-11,542.77	-1,083.74	11,593.31	0.00	0.00	0.00	
20,500.00	90.00	180.22	8,301.98	-11,642.77	-1,084.13	11,692.96	0.00	0.00	0.00	
20,600.00	90.00	180.22	8,301.98	-11,742.77	-1,084.52	11,792.61	0.00	0.00	0.00	
20,700.00	90.00	180.22	8,301.98	-11,842.77	-1,084.90	11,892.26	0.00	0.00	0.00	
20,800.00	90.00	180.22	8,301.98	-11,942.77	-1,085.29	11,991.92	0.00	0.00	0.00	
20,900.00	90.00	180.22	8,301.98	-12,042.77	-1,085.68	12,091.57	0.00	0.00	0.00	
21,000.00	90.00	180.22	8,301.98	-12,142.77	-1,086.07	12,191.22	0.00	0.00	0.00	
21,270.89	90.00	180.22	8,302.00	-12,413.65	-1,087.60	12,461.20	0.00	0.00	0.00	
TD at 21270.89' 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 8C - I - hit/miss target - Shape - Point	0.00	0.00	8,302.00	-12,413.65	-1,087.60	1,222,953.24	3,127,979.36	39° 56' 40.142 N	105° 2' 36.784 W	
LIVINGSTON S19 8C - I - plan hits target center - Point	0.00	0.00	8,302.00	111.13	-1,038.57	1,235,478.10	3,127,963.37	39° 58' 43.921 N	105° 2' 36.161 W	

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well LIVINGSTON S19-25-8C
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 S19-25-8C	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL 1		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
4,712.00	4,646.00	PARKMAN				
5,202.13	5,127.00	SUSSEX				
6,139.59	6,047.00	SHANNON				
7,998.75	7,880.00	NIOBRARA				
8,184.26	8,048.00	NIO B TARGET				
8,598.04	8,283.00	FORT HAYS				
8,746.01	8,302.00	CODELL				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
800.00	800.00	0.00	0.00	BUILD 2°/100'	
1,353.81	1,350.36	29.40	-44.53	HOLD 11.08° INC	
7,262.14	7,148.64	654.73	-991.82	DROP 2°/100'	
7,815.94	7,699.00	684.13	-1,036.35	HOLD VERTICAL	
7,845.94	7,729.00	684.13	-1,036.35	KOP, BUILD 10°/100'	
8,746.01	8,302.00	111.13	-1,038.57	LP @ 90° INC, 180.22° AZM HOLD	
21,270.89	8,302.00	-12,413.65	-1,087.60	TD at 21270.89' MD	