

# **EXTRACTION OIL & GAS**

**Adams County**

**Sec 25-T1S-R66W**

**ALMA 1S-66-2524-20CDH**

**ORIGINAL WELLBORE**

**Plan: PROPOSAL 1**

## **Standard Planning Report**

**29 August, 2017**



Project: Adams County  
Site: Sec 25-T1S-R66W  
Well: ALMA 1S-66-2524-20CDH  
Wellbore: ORIGINAL WELLBORE  
Design: PROPOSAL 1

PROJECT DETAILS: Adams 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: 8.13°

Magnetic Field  
Strength: 52129.3snT  
Dip Angle: 66.48°  
Date: 8/17/2017  
Model: IGRF2015

WELL DETAILS: ALMA 1S-66-2524-20CDH

+N/-S	+E/-W	Northing	Easting	5173.00	Latitude	Longitude	Slot
0.00	0.00	1218123.09	3218224.08		39° 55' 46.200 N	104° 43' 18.660 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	100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	
3	1691.71	31.83	258.01	1611.07	-89.54	-421.52	2.00	258.01	91.41	
4	6370.46	31.83	258.01	5586.03	-802.36	-2835.52	0.00	0.00	614.88	
5	7962.17	0.00	0.00	7097.10	-691.90	-3257.04	2.00	180.00	706.28	
6	8062.17	0.00	0.00	7197.10	-691.90	-3257.04	0.00	0.00	706.28	
7	8880.41	90.00	0.12	7718.00	-170.99	-3255.97	11.00	0.12	1180.83	ALMA 20CDH LP
8	16249.64	90.00	0.12	7718.00	-170.99	-3255.97	0.00	0.00	7894.21	ALMA 20CDH PBHL

#### FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1500.00	1562.73	Fox Hills aquifer base
7283.00	8148.46	Sharon Springs
7315.00	8181.10	Top Niobrara
7325.00	8191.39	Nio A Chalk
7346.00	8213.17	Nio A Marl
7467.00	8345.89	Nio B Chalk
7515.00	8404.10	Nio B Marl
7552.00	8452.61	Nio C Chalk
7573.00	8482.10	Nio D Marl
7684.00	8691.15	Ft Hayes Limestone
7718.00	8880.41	Codell Sandstone

#### ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	VSec	Departure	Annotation
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	BUILD 2°/100'
1691.71	31.83	258.01	1611.07	-89.54	-421.52	91.41	430.93	HOLD 31.83° INC
6370.46	31.83	258.01	5586.03	-802.36	-2835.52	614.88	2898.79	DROP 2°/100'
7962.17	0.00	0.00	7097.10	-691.90	-3257.04	706.28	3329.72	HOLD VERTICAL
8062.17	0.00	0.00	7197.10	-691.90	-3257.04	706.28	3329.72	KOP, BUILD 11°/100'
8880.41	90.00	0.12	7718.00	-170.99	-3255.97	1180.83	3850.64	LP @ 90° INC, 0.12° AZM HOLD
16249.64	90.00	0.12	7717.79	-170.99	-3240.80	7894.13	11219.87	TD at 16249.64' MD

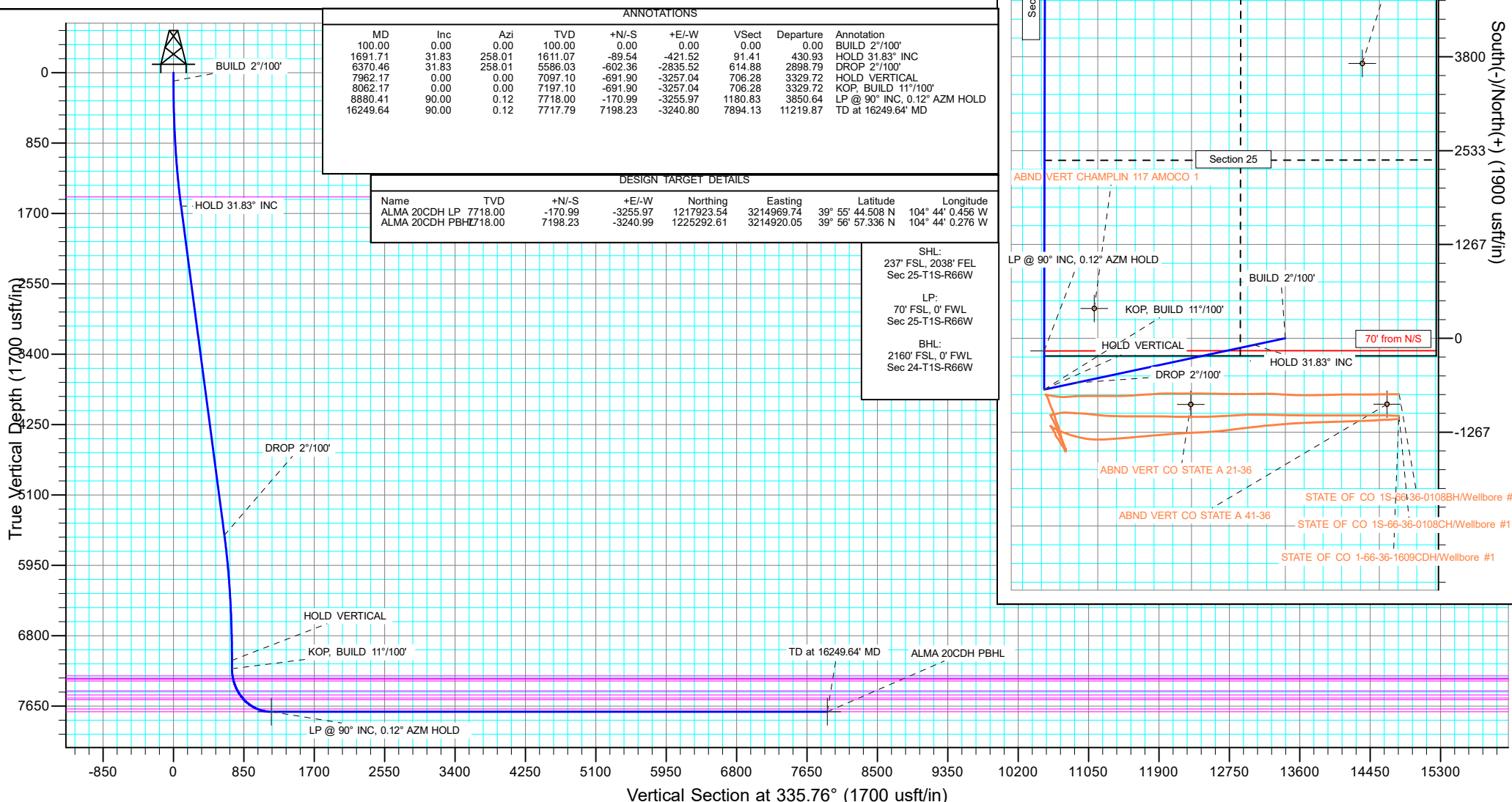
#### DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
ALMA 20CDH LP	7718.00	-170.99	-3255.97	1217923.54	3214969.74	39° 55' 44.508 N	104° 44' 0.456 W
ALMA 20CDH PBHL	7718.00	-170.99	-3240.99	1225292.61	3214920.05	39° 56' 57.336 N	104° 44' 0.276 W

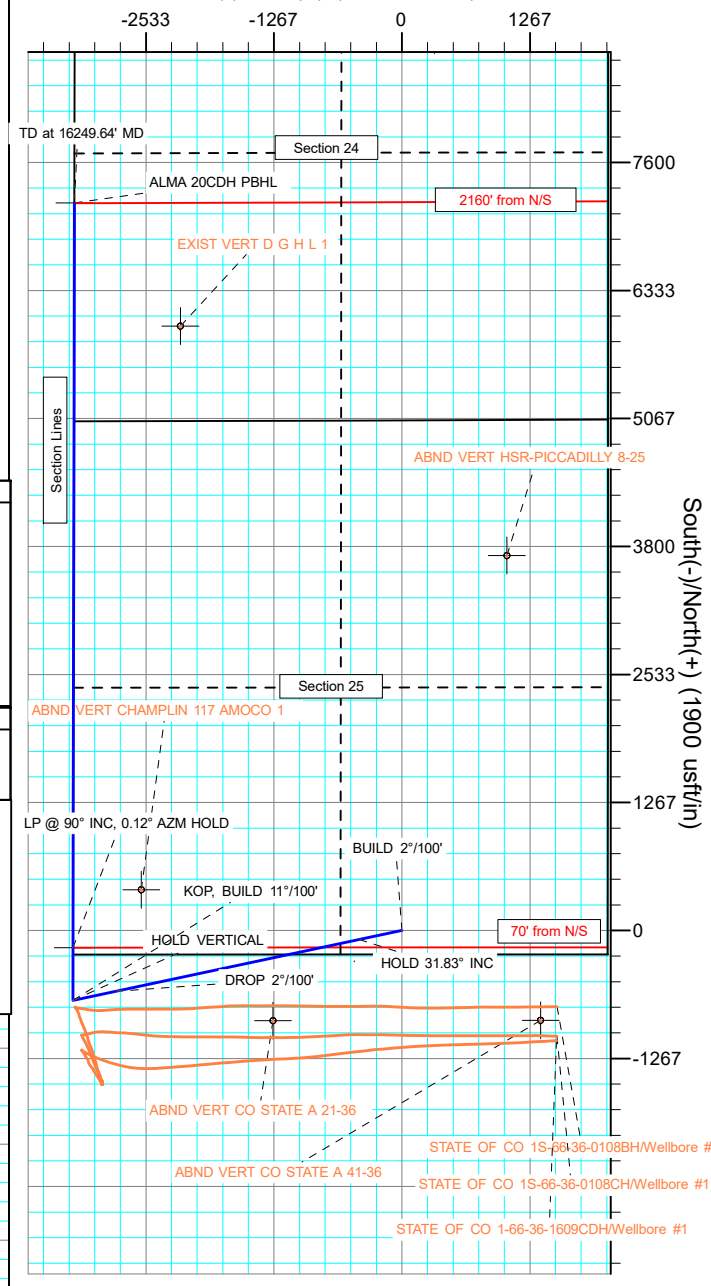
SHL:  
237' FSL, 2038' FEL  
Sec 25-T1S-R66W

LP:  
70' FSL, 0' FWL  
Sec 25-T1S-R66W

BHL:  
2160' FSL, 0' FWL  
Sec 24-T1S-R66W



West(-)/East(+) (1900 usft/in)



## Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well ALMA 1S-66-2524-20CDH
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 5198.00usft
<b>Project:</b>	Adams County	<b>MD Reference:</b>	KB 25' @ 5198.00usft
<b>Site:</b>	Sec 25-T1S-R66W	<b>North Reference:</b>	True
<b>Well:</b>	ALMA 1S-66-2524-20CDH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL 1		

<b>Project</b>	Adams 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 25-T1S-R66W			
Site Position:		Northing:	1,217,904.28 usft	Latitude:	39° 55' 43.860 N
From:	Lat/Long	Easting:	3,220,262.11 usft	Longitude:	104° 42' 52.524 W
Position Uncertainty:	0.00 usft	Slot Radius:	13.200 in	Grid Convergence:	0.51 °

Well		ALMA 1S-66-2524-20CDH				
Well Position	+N/-S	236.85 usft	Northing:	1,218,123.09 usft	Latitude:	39° 55' 46.200 N
	+E/-W	-2,036.02 usft	Easting:	3,218,224.08 usft	Longitude:	104° 43' 18.660 W
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	5,173.00 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	8/17/2017	8.13	66.48	52,129.33883851

<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	335.76

<b>Plan Survey Tool Program</b>	<b>Date</b>	8/29/2017		
<b>Depth From (usft)</b>	<b>Depth To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Remarks</b>
1	0.00	16,249.64	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	
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,691.71	31.83	258.01	1,611.07	-89.54	-421.52	2.00	2.00	0.00	258.01	
6,370.46	31.83	258.01	5,586.03	-602.36	-2,835.52	0.00	0.00	0.00	0.00	
7,962.17	0.00	0.00	7,097.10	-691.90	-3,257.04	2.00	-2.00	0.00	180.00	
8,062.17	0.00	0.00	7,197.10	-691.90	-3,257.04	0.00	0.00	0.00	0.00	
8,880.41	90.00	0.12	7,718.00	-170.99	-3,255.97	11.00	11.00	0.01	0.12	ALMA 20CDH LP
16,249.64	90.00	0.12	7,718.00	7,198.23	-3,240.99	0.00	0.00	0.00	0.00	ALMA 20CDH PBHL

# Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well ALMA 1S-66-2524-20CDH
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 5198.00usft
<b>Project:</b>	Adams County	<b>MD Reference:</b>	KB 25' @ 5198.00usft
<b>Site:</b>	Sec 25-T1S-R66W	<b>North Reference:</b>	True
<b>Well:</b>	ALMA 1S-66-2524-20CDH	<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
<b>BUILD 2°/100'</b>									
200.00	2.00	258.01	199.98	-0.36	-1.71	0.37	2.00	2.00	0.00
300.00	4.00	258.01	299.84	-1.45	-6.83	1.48	2.00	2.00	0.00
400.00	6.00	258.01	399.45	-3.26	-15.35	3.33	2.00	2.00	0.00
500.00	8.00	258.01	498.70	-5.79	-27.27	5.91	2.00	2.00	0.00
600.00	10.00	258.01	597.47	-9.04	-42.57	9.23	2.00	2.00	0.00
700.00	12.00	258.01	695.62	-13.01	-61.24	13.28	2.00	2.00	0.00
800.00	14.00	258.01	793.06	-17.68	-83.24	18.05	2.00	2.00	0.00
900.00	16.00	258.01	889.64	-23.06	-108.55	23.54	2.00	2.00	0.00
1,000.00	18.00	258.01	985.27	-29.14	-137.15	29.74	2.00	2.00	0.00
1,100.00	20.00	258.01	1,079.82	-35.90	-169.00	36.65	2.00	2.00	0.00
1,200.00	22.00	258.01	1,173.17	-43.35	-204.05	44.25	2.00	2.00	0.00
1,300.00	24.00	258.01	1,265.21	-51.47	-242.27	52.54	2.00	2.00	0.00
1,400.00	26.00	258.01	1,355.84	-60.25	-283.61	61.50	2.00	2.00	0.00
1,500.00	28.00	258.01	1,444.94	-69.68	-328.01	71.13	2.00	2.00	0.00
1,562.73	29.25	258.01	1,500.00	-75.93	-357.41	77.50	2.00	2.00	0.00
<b>Fox Hills aquifer base</b>									
1,600.00	30.00	258.01	1,532.39	-79.75	-375.43	81.41	2.00	2.00	0.00
1,691.71	31.83	258.01	1,611.07	-89.54	-421.52	91.41	2.00	2.00	0.00
<b>HOLD 31.83° INC</b>									
1,700.00	31.83	258.01	1,618.11	-90.45	-425.80	92.33	0.00	0.00	0.00
1,800.00	31.83	258.01	1,703.07	-101.41	-477.39	103.52	0.00	0.00	0.00
1,900.00	31.83	258.01	1,788.03	-112.37	-528.99	114.71	0.00	0.00	0.00
2,000.00	31.83	258.01	1,872.99	-123.33	-580.58	125.90	0.00	0.00	0.00
2,100.00	31.83	258.01	1,957.94	-134.30	-632.18	137.09	0.00	0.00	0.00
2,200.00	31.83	258.01	2,042.90	-145.26	-683.77	148.28	0.00	0.00	0.00
2,300.00	31.83	258.01	2,127.86	-156.22	-735.37	159.46	0.00	0.00	0.00
2,400.00	31.83	258.01	2,212.82	-167.18	-786.96	170.65	0.00	0.00	0.00
2,500.00	31.83	258.01	2,297.78	-178.14	-838.56	181.84	0.00	0.00	0.00
2,600.00	31.83	258.01	2,382.73	-189.10	-890.15	193.03	0.00	0.00	0.00
2,700.00	31.83	258.01	2,467.69	-200.06	-941.75	204.22	0.00	0.00	0.00
2,800.00	31.83	258.01	2,552.65	-211.02	-993.34	215.41	0.00	0.00	0.00
2,900.00	31.83	258.01	2,637.61	-221.98	-1,044.94	226.59	0.00	0.00	0.00
3,000.00	31.83	258.01	2,722.56	-232.94	-1,096.53	237.78	0.00	0.00	0.00
3,100.00	31.83	258.01	2,807.52	-243.90	-1,148.13	248.97	0.00	0.00	0.00
3,200.00	31.83	258.01	2,892.48	-254.86	-1,199.72	260.16	0.00	0.00	0.00
3,300.00	31.83	258.01	2,977.44	-265.82	-1,251.32	271.35	0.00	0.00	0.00
3,400.00	31.83	258.01	3,062.40	-276.78	-1,302.91	282.54	0.00	0.00	0.00
3,500.00	31.83	258.01	3,147.35	-287.74	-1,354.51	293.72	0.00	0.00	0.00
3,600.00	31.83	258.01	3,232.31	-298.70	-1,406.10	304.91	0.00	0.00	0.00
3,700.00	31.83	258.01	3,317.27	-309.66	-1,457.70	316.10	0.00	0.00	0.00
3,800.00	31.83	258.01	3,402.23	-320.62	-1,509.29	327.29	0.00	0.00	0.00
3,900.00	31.83	258.01	3,487.18	-331.58	-1,560.89	338.48	0.00	0.00	0.00
4,000.00	31.83	258.01	3,572.14	-342.54	-1,612.48	349.66	0.00	0.00	0.00
4,100.00	31.83	258.01	3,657.10	-353.50	-1,664.08	360.85	0.00	0.00	0.00
4,200.00	31.83	258.01	3,742.06	-364.46	-1,715.67	372.04	0.00	0.00	0.00
4,300.00	31.83	258.01	3,827.02	-375.42	-1,767.27	383.23	0.00	0.00	0.00
4,400.00	31.83	258.01	3,911.97	-386.38	-1,818.86	394.42	0.00	0.00	0.00
4,500.00	31.83	258.01	3,996.93	-397.35	-1,870.46	405.61	0.00	0.00	0.00
4,600.00	31.83	258.01	4,081.89	-408.31	-1,922.05	416.79	0.00	0.00	0.00
4,700.00	31.83	258.01	4,166.85	-419.27	-1,973.65	427.98	0.00	0.00	0.00

# Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well ALMA 1S-66-2524-20CDH
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 5198.00usft
<b>Project:</b>	Adams County	<b>MD Reference:</b>	KB 25' @ 5198.00usft
<b>Site:</b>	Sec 25-T1S-R66W	<b>North Reference:</b>	True
<b>Well:</b>	ALMA 1S-66-2524-20CDH	<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	31.83	258.01	4,251.81	-430.23	-2,025.24	439.17	0.00	0.00	0.00	
4,900.00	31.83	258.01	4,336.76	-441.19	-2,076.84	450.36	0.00	0.00	0.00	
5,000.00	31.83	258.01	4,421.72	-452.15	-2,128.43	461.55	0.00	0.00	0.00	
5,100.00	31.83	258.01	4,506.68	-463.11	-2,180.03	472.74	0.00	0.00	0.00	
5,200.00	31.83	258.01	4,591.64	-474.07	-2,231.62	483.92	0.00	0.00	0.00	
5,300.00	31.83	258.01	4,676.59	-485.03	-2,283.22	495.11	0.00	0.00	0.00	
5,400.00	31.83	258.01	4,761.55	-495.99	-2,334.81	506.30	0.00	0.00	0.00	
5,500.00	31.83	258.01	4,846.51	-506.95	-2,386.41	517.49	0.00	0.00	0.00	
5,600.00	31.83	258.01	4,931.47	-517.91	-2,438.00	528.68	0.00	0.00	0.00	
5,700.00	31.83	258.01	5,016.43	-528.87	-2,489.60	539.87	0.00	0.00	0.00	
5,800.00	31.83	258.01	5,101.38	-539.83	-2,541.19	551.05	0.00	0.00	0.00	
5,900.00	31.83	258.01	5,186.34	-550.79	-2,592.79	562.24	0.00	0.00	0.00	
6,000.00	31.83	258.01	5,271.30	-561.75	-2,644.38	573.43	0.00	0.00	0.00	
6,100.00	31.83	258.01	5,356.26	-572.71	-2,695.98	584.62	0.00	0.00	0.00	
6,200.00	31.83	258.01	5,441.21	-583.67	-2,747.57	595.81	0.00	0.00	0.00	
6,300.00	31.83	258.01	5,526.17	-594.63	-2,799.17	607.00	0.00	0.00	0.00	
6,370.46	31.83	258.01	5,586.03	-602.36	-2,835.52	614.88	0.00	0.00	0.00	
DROP 2°/100'										
6,400.00	31.24	258.01	5,611.21	-605.57	-2,850.63	618.16	2.00	-2.00	0.00	
6,500.00	29.24	258.01	5,697.60	-616.03	-2,899.90	628.84	2.00	-2.00	0.00	
6,600.00	27.24	258.01	5,785.69	-625.86	-2,946.19	638.88	2.00	-2.00	0.00	
6,700.00	25.24	258.01	5,875.37	-635.05	-2,989.44	648.26	2.00	-2.00	0.00	
6,800.00	23.24	258.01	5,966.55	-643.58	-3,029.60	656.96	2.00	-2.00	0.00	
6,900.00	21.24	258.01	6,059.10	-651.45	-3,066.63	664.99	2.00	-2.00	0.00	
7,000.00	19.24	258.01	6,152.92	-658.64	-3,100.47	672.33	2.00	-2.00	0.00	
7,100.00	17.24	258.01	6,247.89	-665.14	-3,131.09	678.97	2.00	-2.00	0.00	
7,200.00	15.24	258.01	6,343.89	-670.96	-3,158.45	684.91	2.00	-2.00	0.00	
7,300.00	13.24	258.01	6,440.81	-676.07	-3,182.52	690.12	2.00	-2.00	0.00	
7,400.00	11.24	258.01	6,538.54	-680.48	-3,203.26	694.62	2.00	-2.00	0.00	
7,500.00	9.24	258.01	6,636.94	-684.17	-3,220.65	698.39	2.00	-2.00	0.00	
7,600.00	7.24	258.01	6,735.90	-687.15	-3,234.68	701.44	2.00	-2.00	0.00	
7,700.00	5.24	258.01	6,835.30	-689.41	-3,245.31	703.74	2.00	-2.00	0.00	
7,800.00	3.24	258.01	6,935.02	-690.95	-3,252.55	705.31	2.00	-2.00	0.00	
7,900.00	1.24	258.01	7,034.94	-691.76	-3,256.38	706.14	2.00	-2.00	0.00	
7,962.17	0.00	0.00	7,097.10	-691.90	-3,257.04	706.28	2.00	-2.00	0.00	
HOLD VERTICAL										
8,000.00	0.00	0.00	7,134.93	-691.90	-3,257.04	706.28	0.00	0.00	0.00	
8,062.17	0.00	0.00	7,197.10	-691.90	-3,257.04	706.28	0.00	0.00	0.00	
KOP, BUILD 11°/100'										
8,100.00	4.16	0.12	7,234.90	-690.53	-3,257.04	707.54	11.00	11.00	0.00	
8,148.46	9.49	0.12	7,283.00	-684.77	-3,257.03	712.78	11.00	11.00	0.00	
Sharon Springs										
8,150.00	9.66	0.12	7,284.52	-684.51	-3,257.02	713.02	11.00	11.00	0.00	
8,181.10	13.08	0.12	7,315.00	-678.38	-3,257.01	718.60	11.00	11.00	0.00	
Top Niobrara										
8,191.39	14.21	0.12	7,325.00	-675.95	-3,257.01	720.81	11.00	11.00	0.00	
Nio A Chalk										
8,200.00	15.16	0.12	7,333.33	-673.77	-3,257.00	722.80	11.00	11.00	0.00	
8,213.17	16.61	0.12	7,346.00	-670.16	-3,257.00	726.09	11.00	11.00	0.00	
Nio A Marl										
8,250.00	20.66	0.12	7,380.89	-658.40	-3,256.97	736.80	11.00	11.00	0.00	
8,300.00	26.16	0.12	7,426.76	-638.54	-3,256.93	754.89	11.00	11.00	0.00	
8,345.89	31.21	0.12	7,467.00	-616.52	-3,256.88	774.95	11.00	11.00	0.00	

# Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well ALMA 1S-66-2524-20CDH
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 5198.00usft
<b>Project:</b>	Adams County	<b>MD Reference:</b>	KB 25' @ 5198.00usft
<b>Site:</b>	Sec 25-T1S-R66W	<b>North Reference:</b>	True
<b>Well:</b>	ALMA 1S-66-2524-20CDH	<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)
<b>Nio B Chalk</b>									
8,350.00	31.66	0.12	7,470.51	-614.38	-3,256.88	776.91	11.00	11.00	0.00
8,400.00	37.16	0.12	7,511.74	-586.13	-3,256.82	802.64	11.00	11.00	0.00
8,404.10	37.61	0.12	7,515.00	-583.65	-3,256.82	804.90	11.00	11.00	0.00
<b>Nio B Marl</b>									
8,450.00	42.66	0.12	7,550.08	-554.07	-3,256.76	831.85	11.00	11.00	0.00
8,452.61	42.95	0.12	7,552.00	-552.29	-3,256.75	833.47	11.00	11.00	0.00
<b>Nio C Chalk</b>									
8,482.10	46.19	0.12	7,573.00	-531.61	-3,256.71	852.31	11.00	11.00	0.00
<b>Nio D Marl</b>									
8,500.00	48.16	0.12	7,585.17	-518.47	-3,256.68	864.27	11.00	11.00	0.00
8,550.00	53.66	0.12	7,616.69	-479.68	-3,256.60	899.61	11.00	11.00	0.00
8,600.00	59.16	0.12	7,644.34	-438.05	-3,256.52	937.54	11.00	11.00	0.00
8,650.00	64.66	0.12	7,667.87	-393.96	-3,256.43	977.71	11.00	11.00	0.00
8,691.15	69.18	0.12	7,684.00	-356.11	-3,256.35	1,012.19	11.00	11.00	0.00
<b>Ft Hayes Limestone</b>									
8,700.00	70.16	0.12	7,687.07	-347.81	-3,256.33	1,019.75	11.00	11.00	0.00
8,750.00	75.66	0.12	7,701.76	-300.04	-3,256.23	1,063.27	11.00	11.00	0.00
8,800.00	81.16	0.12	7,711.81	-251.08	-3,256.13	1,107.87	11.00	11.00	0.00
8,850.00	86.66	0.12	7,717.11	-201.38	-3,256.03	1,153.15	11.00	11.00	0.00
8,880.41	90.00	0.12	7,718.00	-170.99	-3,255.97	1,180.83	11.00	11.00	0.00
<b>LP @ 90° INC, 0.12° AZM HOLD - Codell Sandstone</b>									
8,900.00	90.00	0.12	7,718.00	-151.39	-3,255.93	1,198.68	0.00	0.00	0.00
9,000.00	90.00	0.12	7,718.00	-51.39	-3,255.72	1,289.78	0.00	0.00	0.00
9,100.00	90.00	0.12	7,717.99	48.61	-3,255.52	1,380.88	0.00	0.00	0.00
9,200.00	90.00	0.12	7,717.99	148.60	-3,255.31	1,471.98	0.00	0.00	0.00
9,300.00	90.00	0.12	7,717.99	248.60	-3,255.10	1,563.08	0.00	0.00	0.00
9,400.00	90.00	0.12	7,717.99	348.60	-3,254.90	1,654.18	0.00	0.00	0.00
9,500.00	90.00	0.12	7,717.98	448.60	-3,254.69	1,745.28	0.00	0.00	0.00
9,600.00	90.00	0.12	7,717.98	548.60	-3,254.49	1,836.37	0.00	0.00	0.00
9,700.00	90.00	0.12	7,717.98	648.60	-3,254.28	1,927.47	0.00	0.00	0.00
9,800.00	90.00	0.12	7,717.97	748.60	-3,254.08	2,018.57	0.00	0.00	0.00
9,900.00	90.00	0.12	7,717.97	848.60	-3,253.87	2,109.67	0.00	0.00	0.00
10,000.00	90.00	0.12	7,717.97	948.60	-3,253.66	2,200.77	0.00	0.00	0.00
10,100.00	90.00	0.12	7,717.96	1,048.60	-3,253.46	2,291.87	0.00	0.00	0.00
10,200.00	90.00	0.12	7,717.96	1,148.60	-3,253.25	2,382.97	0.00	0.00	0.00
10,300.00	90.00	0.12	7,717.96	1,248.60	-3,253.05	2,474.07	0.00	0.00	0.00
10,400.00	90.00	0.12	7,717.96	1,348.60	-3,252.84	2,565.17	0.00	0.00	0.00
10,500.00	90.00	0.12	7,717.95	1,448.60	-3,252.63	2,656.27	0.00	0.00	0.00
10,600.00	90.00	0.12	7,717.95	1,548.60	-3,252.43	2,747.36	0.00	0.00	0.00
10,700.00	90.00	0.12	7,717.95	1,648.60	-3,252.22	2,838.46	0.00	0.00	0.00
10,800.00	90.00	0.12	7,717.94	1,748.60	-3,252.02	2,929.56	0.00	0.00	0.00
10,900.00	90.00	0.12	7,717.94	1,848.60	-3,251.81	3,020.66	0.00	0.00	0.00
11,000.00	90.00	0.12	7,717.94	1,948.60	-3,251.61	3,111.76	0.00	0.00	0.00
11,100.00	90.00	0.12	7,717.94	2,048.60	-3,251.40	3,202.86	0.00	0.00	0.00
11,200.00	90.00	0.12	7,717.93	2,148.60	-3,251.19	3,293.96	0.00	0.00	0.00
11,300.00	90.00	0.12	7,717.93	2,248.60	-3,250.99	3,385.06	0.00	0.00	0.00
11,400.00	90.00	0.12	7,717.93	2,348.60	-3,250.78	3,476.16	0.00	0.00	0.00
11,500.00	90.00	0.12	7,717.92	2,448.60	-3,250.58	3,567.26	0.00	0.00	0.00
11,600.00	90.00	0.12	7,717.92	2,548.60	-3,250.37	3,658.35	0.00	0.00	0.00
11,700.00	90.00	0.12	7,717.92	2,648.60	-3,250.17	3,749.45	0.00	0.00	0.00
11,800.00	90.00	0.12	7,717.92	2,748.60	-3,249.96	3,840.55	0.00	0.00	0.00
11,900.00	90.00	0.12	7,717.91	2,848.60	-3,249.75	3,931.65	0.00	0.00	0.00

# Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well ALMA 1S-66-2524-20CDH
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 5198.00usft
<b>Project:</b>	Adams County	<b>MD Reference:</b>	KB 25' @ 5198.00usft
<b>Site:</b>	Sec 25-T1S-R66W	<b>North Reference:</b>	True
<b>Well:</b>	ALMA 1S-66-2524-20CDH	<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)	
12,000.00	90.00	0.12	7,717.91	2,948.60	-3,249.55	4,022.75	0.00	0.00	0.00	
12,100.00	90.00	0.12	7,717.91	3,048.60	-3,249.34	4,113.85	0.00	0.00	0.00	
12,200.00	90.00	0.12	7,717.90	3,148.60	-3,249.14	4,204.95	0.00	0.00	0.00	
12,300.00	90.00	0.12	7,717.90	3,248.60	-3,248.93	4,296.05	0.00	0.00	0.00	
12,400.00	90.00	0.12	7,717.90	3,348.60	-3,248.72	4,387.15	0.00	0.00	0.00	
12,500.00	90.00	0.12	7,717.90	3,448.60	-3,248.52	4,478.25	0.00	0.00	0.00	
12,600.00	90.00	0.12	7,717.89	3,548.60	-3,248.31	4,569.35	0.00	0.00	0.00	
12,700.00	90.00	0.12	7,717.89	3,648.60	-3,248.11	4,660.44	0.00	0.00	0.00	
12,800.00	90.00	0.12	7,717.89	3,748.60	-3,247.90	4,751.54	0.00	0.00	0.00	
12,900.00	90.00	0.12	7,717.88	3,848.60	-3,247.70	4,842.64	0.00	0.00	0.00	
13,000.00	90.00	0.12	7,717.88	3,948.60	-3,247.49	4,933.74	0.00	0.00	0.00	
13,100.00	90.00	0.12	7,717.88	4,048.60	-3,247.28	5,024.84	0.00	0.00	0.00	
13,200.00	90.00	0.12	7,717.88	4,148.60	-3,247.08	5,115.94	0.00	0.00	0.00	
13,300.00	90.00	0.12	7,717.87	4,248.60	-3,246.87	5,207.04	0.00	0.00	0.00	
13,400.00	90.00	0.12	7,717.87	4,348.60	-3,246.67	5,298.14	0.00	0.00	0.00	
13,500.00	90.00	0.12	7,717.87	4,448.60	-3,246.46	5,389.24	0.00	0.00	0.00	
13,600.00	90.00	0.12	7,717.86	4,548.60	-3,246.26	5,480.34	0.00	0.00	0.00	
13,700.00	90.00	0.12	7,717.86	4,648.60	-3,246.05	5,571.43	0.00	0.00	0.00	
13,800.00	90.00	0.12	7,717.86	4,748.60	-3,245.84	5,662.53	0.00	0.00	0.00	
13,900.00	90.00	0.12	7,717.85	4,848.59	-3,245.64	5,753.63	0.00	0.00	0.00	
14,000.00	90.00	0.12	7,717.85	4,948.59	-3,245.43	5,844.73	0.00	0.00	0.00	
14,100.00	90.00	0.12	7,717.85	5,048.59	-3,245.23	5,935.83	0.00	0.00	0.00	
14,200.00	90.00	0.12	7,717.85	5,148.59	-3,245.02	6,026.93	0.00	0.00	0.00	
14,300.00	90.00	0.12	7,717.84	5,248.59	-3,244.81	6,118.03	0.00	0.00	0.00	
14,400.00	90.00	0.12	7,717.84	5,348.59	-3,244.61	6,209.13	0.00	0.00	0.00	
14,500.00	90.00	0.12	7,717.84	5,448.59	-3,244.40	6,300.23	0.00	0.00	0.00	
14,600.00	90.00	0.12	7,717.83	5,548.59	-3,244.20	6,391.33	0.00	0.00	0.00	
14,700.00	90.00	0.12	7,717.83	5,648.59	-3,243.99	6,482.42	0.00	0.00	0.00	
14,800.00	90.00	0.12	7,717.83	5,748.59	-3,243.79	6,573.52	0.00	0.00	0.00	
14,900.00	90.00	0.12	7,717.83	5,848.59	-3,243.58	6,664.62	0.00	0.00	0.00	
15,000.00	90.00	0.12	7,717.82	5,948.59	-3,243.37	6,755.72	0.00	0.00	0.00	
15,100.00	90.00	0.12	7,717.82	6,048.59	-3,243.17	6,846.82	0.00	0.00	0.00	
15,200.00	90.00	0.12	7,717.82	6,148.59	-3,242.96	6,937.92	0.00	0.00	0.00	
15,300.00	90.00	0.12	7,717.81	6,248.59	-3,242.76	7,029.02	0.00	0.00	0.00	
15,400.00	90.00	0.12	7,717.81	6,348.59	-3,242.55	7,120.12	0.00	0.00	0.00	
15,500.00	90.00	0.12	7,717.81	6,448.59	-3,242.35	7,211.22	0.00	0.00	0.00	
15,600.00	90.00	0.12	7,717.81	6,548.59	-3,242.14	7,302.32	0.00	0.00	0.00	
15,700.00	90.00	0.12	7,717.80	6,648.59	-3,241.93	7,393.42	0.00	0.00	0.00	
15,800.00	90.00	0.12	7,717.80	6,748.59	-3,241.73	7,484.51	0.00	0.00	0.00	
15,900.00	90.00	0.12	7,717.80	6,848.59	-3,241.52	7,575.61	0.00	0.00	0.00	
16,000.00	90.00	0.12	7,717.79	6,948.59	-3,241.32	7,666.71	0.00	0.00	0.00	
16,100.00	90.00	0.12	7,717.79	7,048.59	-3,241.11	7,757.81	0.00	0.00	0.00	
16,200.00	90.00	0.12	7,717.79	7,148.59	-3,240.90	7,848.91	0.00	0.00	0.00	
16,249.64	90.00	0.12	7,718.00	7,198.23	-3,240.99	7,894.21	0.00	0.00	0.00	
TD at 16249.64' MD										

## Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well ALMA 1S-66-2524-20CDH
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 5198.00usft
<b>Project:</b>	Adams County	<b>MD Reference:</b>	KB 25' @ 5198.00usft
<b>Site:</b>	Sec 25-T1S-R66W	<b>North Reference:</b>	True
<b>Well:</b>	ALMA 1S-66-2524-20CDH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL 1		

Design Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
ALMA 20CDH LP	0.00	0.00	7,718.00	-170.99	-3,255.97	1,217,923.54	3,214,969.74	39° 55' 44.508 N	104° 44' 0.456 W
- plan hits target center									
- Point									
ALMA 20CDH PBHL	0.00	0.00	7,718.00	7,198.23	-3,240.99	1,225,292.61	3,214,920.05	39° 56' 57.336 N	104° 44' 0.276 W
- plan hits target center									
- Point									

Formations					
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction
(usft)	(usft)			(°)	(°)
1,562.73	1,500.00	Fox Hills aquifer base			
8,148.46	7,283.00	Sharon Springs			
8,181.10	7,315.00	Top Niobrara			
8,191.39	7,325.00	Nio A Chalk			
8,213.17	7,346.00	Nio A Marl			
8,345.89	7,467.00	Nio B Chalk			
8,404.10	7,515.00	Nio B Marl			
8,452.61	7,552.00	Nio C Chalk			
8,482.10	7,573.00	Nio D Marl			
8,691.15	7,684.00	Ft Hayes Limestone			
8,880.41	7,718.00	Codell Sandstone			

Plan Annotations				
Measured Depth	Vertical Depth	Local Coordinates		
(usft)	(usft)	+N/-S (usft)	+E/-W (usft)	Comment
100.00	100.00	0.00	0.00	BUILD 2°/100'
1,691.71	1,611.07	-89.54	-421.52	HOLD 31.83° INC
6,370.46	5,586.03	-602.36	-2,835.52	DROP 2°/100'
7,962.17	7,097.10	-691.90	-3,257.04	HOLD VERTICAL
8,062.17	7,197.10	-691.90	-3,257.04	KOP, BUILD 11°/100'
8,880.41	7,718.00	-170.99	-3,255.97	LP @ 90° INC, 0.12° AZM HOLD
16,249.64	7,718.00	7,198.23	-3,240.99	TD at 16249.64' MD