

# **EXTRACTION OIL & GAS**

**Adams County**

**Sec 25-T1S-R66W**

**ALMA 1S-66-2524-17NH**

**ORIGINAL WELLBORE**

**Plan: PROPOSAL 1**

## **Standard Planning Report**

**29 August, 2017**



Project: Adams County  
Site: Sec 25-T1S-R66W  
Well: ALMA 1S-66-2524-17NH  
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: 52129.0snT  
Dip Angle: 66.48°  
Date: 8/18/2017  
Model: IGRF2015

#### WELL DETAILS: ALMA 1S-66-2524-17NH

+N/-S	+E/-W	Northing	Easting	5175.00	Latitude	Longitude	Slot
0.00	0.00	1218123.59	3218280.16		39° 55' 46.200 N	104° 43' 17.940 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	400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	
3	1803.62	28.07	253.70	1748.13	-94.58	-323.49	2.00	253.70	17.82	
4	6005.72	28.07	253.70	5455.87	-649.49	-2221.49	0.00	0.00	122.39	
5	7409.34	0.00	0.00	6804.00	-744.07	-2544.98	2.00	180.00	140.22	
6	7509.34	0.00	0.00	6904.00	-744.07	-2544.98	0.00	0.00	140.22	
7	8409.41	90.00	0.13	7477.00	-171.07	-2543.64	10.00	0.13	680.48	ALMA 17NH LP
8	15782.29	90.00	0.13	7477.00	-171.07	-2543.64	0.00	0.00	7631.96	ALMA 17NH PBHL

#### FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1500.00	1529.00	Fox Hills aquifer base
7283.00	7923.46	Sharon Springs
7315.00	7967.67	Top Niobrara
7325.00	7982.22	Nio A Chalk
7346.00	8014.15	Nio A Marl
7467.00	8302.20	Nio B Chalk

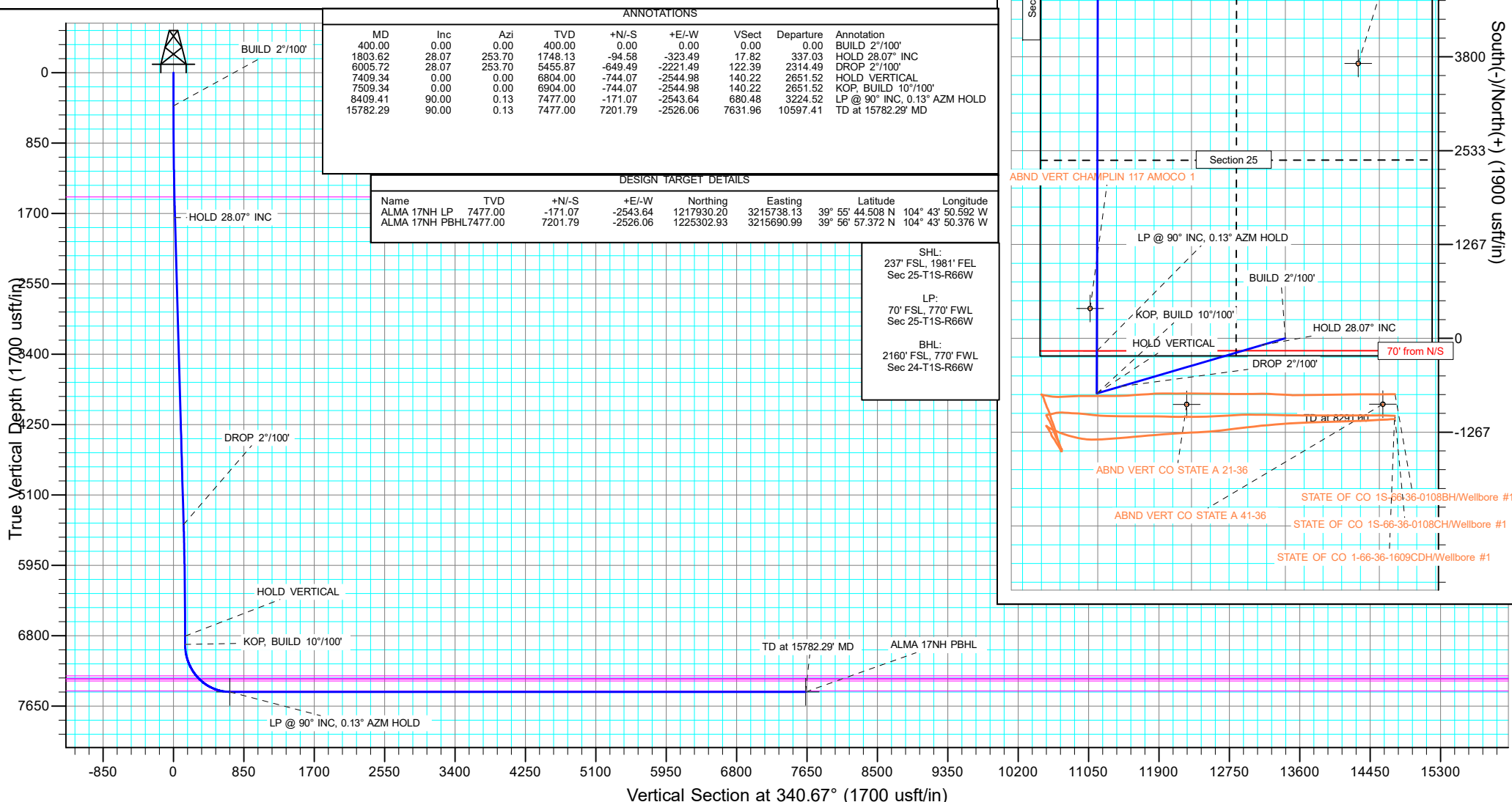
#### ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	VSec	Departure	Annotation
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	BUILD 2"/100'
1803.62	28.07	253.70	1748.13	-94.58	-323.49	17.82	337.03	HOLD 28.07° INC
6005.72	28.07	253.70	5455.87	-649.49	-2221.49	122.39	2314.49	DROP 2"/100'
7409.34	0.00	0.00	6804.00	-744.07	-2544.98	140.22	2651.52	HOLD VERTICAL
7509.34	0.00	0.00	6904.00	-744.07	-2544.98	140.22	2651.52	KOP, BUILD 10"/100'
8409.41	90.00	0.13	7477.00	-171.07	-2543.64	680.48	3224.52	LP @ 90° INC, 0.13° AZM HOLD
15782.29	90.00	0.13	7477.00	-171.07	-2543.64	7631.96	10597.41	TD at 15782.29' MD

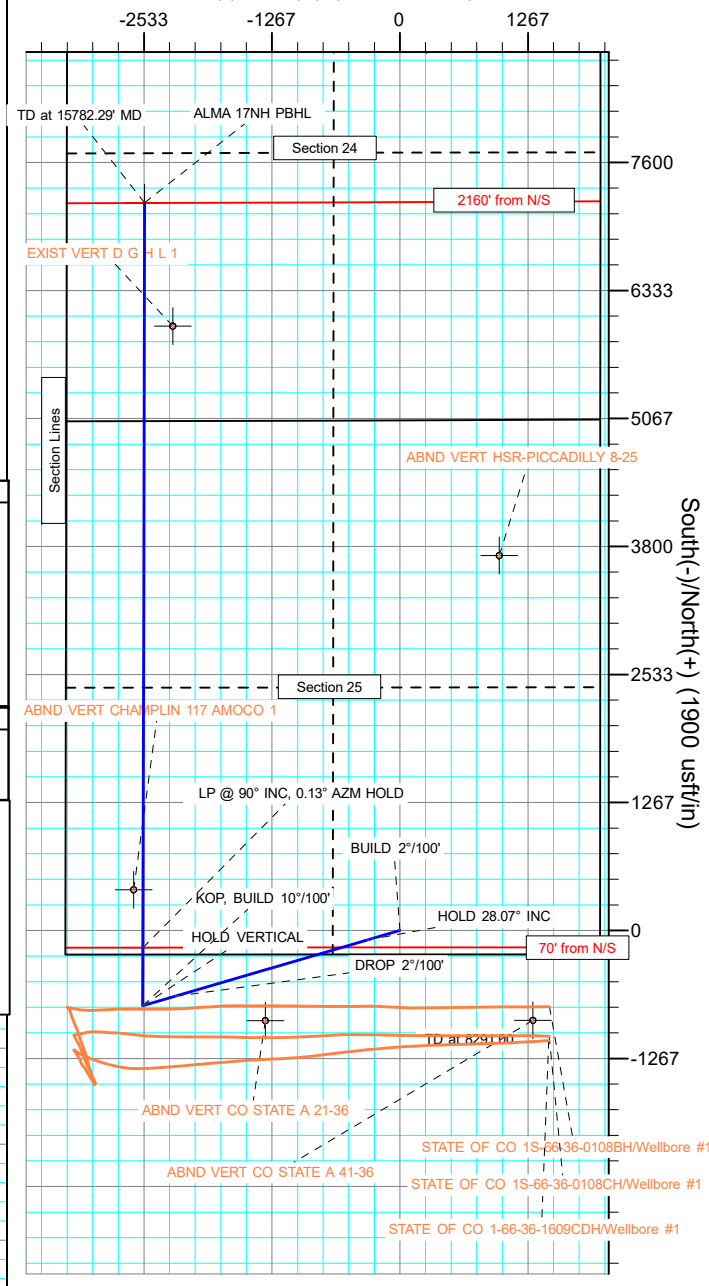
#### DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
ALMA 17NH LP	7477.00	-171.07	-2543.64	1217930.20	3215738.13	39° 55' 44.508 N	104° 43' 50.592 W
ALMA 17NH PBHL	7477.00	-171.07	-2543.64	1225302.93	3215690.99	39° 56' 57.372 N	104° 43' 50.376 W

SHL:  
237' FSL, 1981' FEL  
Sec 25-T1S-R66W  
LP:  
70' FSL, 770' FWL  
Sec 25-T1S-R66W  
BHL:  
2160' FSL, 770' 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-66-2524-17NH
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 5200.00usft
<b>Project:</b>	Adams County	<b>MD Reference:</b>	KB 25' @ 5200.00usft
<b>Site:</b>	Sec 25-T1S-R66W	<b>North Reference:</b>	True
<b>Well:</b>	ALMA 1S-66-2524-17NH	<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-66-2524-17NH					
Well Position	+N/-S	236.85 usft	Northing:	1,218,123.58 usft	Latitude:	39° 55' 46.200 N
	+E/-W	-1,979.93 usft	Easting:	3,218,280.17 usft	Longitude:	104° 43' 17.940 W
Position Uncertainty	0.00 usft		Wellhead Elevation:		Ground Level:	5,175.00 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	8/18/2017	8.13	66.48	52,129.03397107

<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	340.67

<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	15,782.29	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	
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,803.62	28.07	253.70	1,748.13	-94.58	-323.49	2.00	2.00	0.00	253.70	
6,005.72	28.07	253.70	5,455.87	-649.49	-2,221.49	0.00	0.00	0.00	0.00	
7,409.34	0.00	0.00	6,804.00	-744.07	-2,544.98	2.00	-2.00	0.00	180.00	
7,509.34	0.00	0.00	6,904.00	-744.07	-2,544.98	0.00	0.00	0.00	0.00	
8,409.41	90.00	0.13	7,477.00	-171.07	-2,543.64	10.00	10.00	0.01	0.13	ALMA 17NH LP
15,782.29	90.00	0.13	7,477.00	7,201.79	-2,526.06	0.00	0.00	0.00	0.00	ALMA 17NH PBHL

# Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well ALMA 1S-66-2524-17NH
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 5200.00usft
<b>Project:</b>	Adams County	<b>MD Reference:</b>	KB 25' @ 5200.00usft
<b>Site:</b>	Sec 25-T1S-R66W	<b>North Reference:</b>	True
<b>Well:</b>	ALMA 1S-66-2524-17NH	<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
BUILD 2°/100'									
500.00	2.00	253.70	499.98	-0.49	-1.68	0.09	2.00	2.00	0.00
600.00	4.00	253.70	599.84	-1.96	-6.70	0.37	2.00	2.00	0.00
700.00	6.00	253.70	699.45	-4.40	-15.06	0.83	2.00	2.00	0.00
800.00	8.00	253.70	798.70	-7.82	-26.76	1.47	2.00	2.00	0.00
900.00	10.00	253.70	897.47	-12.21	-41.77	2.30	2.00	2.00	0.00
1,000.00	12.00	253.70	995.62	-17.57	-60.09	3.31	2.00	2.00	0.00
1,100.00	14.00	253.70	1,093.06	-23.88	-81.68	4.50	2.00	2.00	0.00
1,200.00	16.00	253.70	1,189.64	-31.14	-106.52	5.87	2.00	2.00	0.00
1,300.00	18.00	253.70	1,285.27	-39.35	-134.58	7.41	2.00	2.00	0.00
1,400.00	20.00	253.70	1,379.82	-48.48	-165.83	9.14	2.00	2.00	0.00
1,500.00	22.00	253.70	1,473.17	-58.54	-200.22	11.03	2.00	2.00	0.00
1,529.00	22.58	253.70	1,500.00	-61.62	-210.78	11.61	2.00	2.00	0.00
Fox Hills aquifer base									
1,600.00	24.00	253.70	1,565.21	-69.50	-237.72	13.10	2.00	2.00	0.00
1,700.00	26.00	253.70	1,655.84	-81.36	-278.28	15.33	2.00	2.00	0.00
1,803.62	28.07	253.70	1,748.13	-94.58	-323.49	17.82	2.00	2.00	0.00
HOLD 28.07° INC									
1,900.00	28.07	253.70	1,833.17	-107.31	-367.02	20.22	0.00	0.00	0.00
2,000.00	28.07	253.70	1,921.41	-120.51	-412.19	22.71	0.00	0.00	0.00
2,100.00	28.07	253.70	2,009.64	-133.72	-457.36	25.20	0.00	0.00	0.00
2,200.00	28.07	253.70	2,097.88	-146.92	-502.53	27.69	0.00	0.00	0.00
2,300.00	28.07	253.70	2,186.11	-160.13	-547.69	30.18	0.00	0.00	0.00
2,400.00	28.07	253.70	2,274.35	-173.33	-592.86	32.66	0.00	0.00	0.00
2,500.00	28.07	253.70	2,362.59	-186.54	-638.03	35.15	0.00	0.00	0.00
2,600.00	28.07	253.70	2,450.82	-199.75	-683.20	37.64	0.00	0.00	0.00
2,700.00	28.07	253.70	2,539.06	-212.95	-728.37	40.13	0.00	0.00	0.00
2,800.00	28.07	253.70	2,627.29	-226.16	-773.53	42.62	0.00	0.00	0.00
2,900.00	28.07	253.70	2,715.53	-239.36	-818.70	45.11	0.00	0.00	0.00
3,000.00	28.07	253.70	2,803.76	-252.57	-863.87	47.60	0.00	0.00	0.00
3,100.00	28.07	253.70	2,892.00	-265.77	-909.04	50.08	0.00	0.00	0.00
3,200.00	28.07	253.70	2,980.23	-278.98	-954.21	52.57	0.00	0.00	0.00
3,300.00	28.07	253.70	3,068.47	-292.18	-999.37	55.06	0.00	0.00	0.00
3,400.00	28.07	253.70	3,156.70	-305.39	-1,044.54	57.55	0.00	0.00	0.00
3,500.00	28.07	253.70	3,244.94	-318.60	-1,089.71	60.04	0.00	0.00	0.00
3,600.00	28.07	253.70	3,333.17	-331.80	-1,134.88	62.53	0.00	0.00	0.00
3,700.00	28.07	253.70	3,421.41	-345.01	-1,180.04	65.02	0.00	0.00	0.00
3,800.00	28.07	253.70	3,509.64	-358.21	-1,225.21	67.50	0.00	0.00	0.00
3,900.00	28.07	253.70	3,597.88	-371.42	-1,270.38	69.99	0.00	0.00	0.00
4,000.00	28.07	253.70	3,686.12	-384.62	-1,315.55	72.48	0.00	0.00	0.00
4,100.00	28.07	253.70	3,774.35	-397.83	-1,360.72	74.97	0.00	0.00	0.00
4,200.00	28.07	253.70	3,862.59	-411.04	-1,405.88	77.46	0.00	0.00	0.00
4,300.00	28.07	253.70	3,950.82	-424.24	-1,451.05	79.95	0.00	0.00	0.00
4,400.00	28.07	253.70	4,039.06	-437.45	-1,496.22	82.44	0.00	0.00	0.00
4,500.00	28.07	253.70	4,127.29	-450.65	-1,541.39	84.92	0.00	0.00	0.00
4,600.00	28.07	253.70	4,215.53	-463.86	-1,586.56	87.41	0.00	0.00	0.00
4,700.00	28.07	253.70	4,303.76	-477.06	-1,631.72	89.90	0.00	0.00	0.00
4,800.00	28.07	253.70	4,392.00	-490.27	-1,676.89	92.39	0.00	0.00	0.00

# Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well ALMA 1S-66-2524-17NH
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 5200.00usft
<b>Project:</b>	Adams County	<b>MD Reference:</b>	KB 25' @ 5200.00usft
<b>Site:</b>	Sec 25-T1S-R66W	<b>North Reference:</b>	True
<b>Well:</b>	ALMA 1S-66-2524-17NH	<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)	
4,900.00	28.07	253.70	4,480.23	-503.47	-1,722.06	94.88	0.00	0.00	0.00	
5,000.00	28.07	253.70	4,568.47	-516.68	-1,767.23	97.37	0.00	0.00	0.00	
5,100.00	28.07	253.70	4,656.70	-529.89	-1,812.39	99.86	0.00	0.00	0.00	
5,200.00	28.07	253.70	4,744.94	-543.09	-1,857.56	102.34	0.00	0.00	0.00	
5,300.00	28.07	253.70	4,833.17	-556.30	-1,902.73	104.83	0.00	0.00	0.00	
5,400.00	28.07	253.70	4,921.41	-569.50	-1,947.90	107.32	0.00	0.00	0.00	
5,500.00	28.07	253.70	5,009.65	-582.71	-1,993.07	109.81	0.00	0.00	0.00	
5,600.00	28.07	253.70	5,097.88	-595.91	-2,038.23	112.30	0.00	0.00	0.00	
5,700.00	28.07	253.70	5,186.12	-609.12	-2,083.40	114.79	0.00	0.00	0.00	
5,800.00	28.07	253.70	5,274.35	-622.33	-2,128.57	117.28	0.00	0.00	0.00	
5,900.00	28.07	253.70	5,362.59	-635.53	-2,173.74	119.76	0.00	0.00	0.00	
6,005.72	28.07	253.70	5,455.87	-649.49	-2,221.49	122.39	0.00	0.00	0.00	
<b>DROP 2°/100'</b>										
6,100.00	26.19	253.70	5,539.77	-661.56	-2,262.75	124.67	2.00	-2.00	0.00	
6,200.00	24.19	253.70	5,630.26	-673.50	-2,303.60	126.92	2.00	-2.00	0.00	
6,300.00	22.19	253.70	5,722.18	-684.55	-2,341.39	129.00	2.00	-2.00	0.00	
6,400.00	20.19	253.70	5,815.41	-694.69	-2,376.07	130.91	2.00	-2.00	0.00	
6,500.00	18.19	253.70	5,909.85	-703.91	-2,407.62	132.65	2.00	-2.00	0.00	
6,600.00	16.19	253.70	6,005.38	-712.20	-2,435.98	134.21	2.00	-2.00	0.00	
6,700.00	14.19	253.70	6,101.89	-719.55	-2,461.12	135.60	2.00	-2.00	0.00	
6,800.00	12.19	253.70	6,199.25	-725.95	-2,483.01	136.80	2.00	-2.00	0.00	
6,900.00	10.19	253.70	6,297.34	-731.40	-2,501.63	137.83	2.00	-2.00	0.00	
7,000.00	8.19	253.70	6,396.05	-735.88	-2,516.96	138.67	2.00	-2.00	0.00	
7,100.00	6.19	253.70	6,495.26	-739.39	-2,528.96	139.34	2.00	-2.00	0.00	
7,200.00	4.19	253.70	6,594.85	-741.92	-2,537.64	139.81	2.00	-2.00	0.00	
7,300.00	2.19	253.70	6,694.69	-743.48	-2,542.98	140.11	2.00	-2.00	0.00	
7,409.34	0.00	0.00	6,804.00	-744.07	-2,544.98	140.22	2.00	-2.00	0.00	
<b>HOLD VERTICAL</b>										
7,509.34	0.00	0.00	6,904.00	-744.07	-2,544.98	140.22	0.00	0.00	0.00	
<b>KOP, BUILD 10°/100'</b>										
7,550.00	4.07	0.13	6,944.63	-742.63	-2,544.98	141.58	10.00	10.00	0.00	
7,600.00	9.07	0.13	6,994.28	-736.91	-2,544.96	146.97	10.00	10.00	0.00	
7,650.00	14.07	0.13	7,043.25	-726.89	-2,544.94	156.41	10.00	10.00	0.00	
7,700.00	19.06	0.13	7,091.16	-712.64	-2,544.91	169.85	10.00	10.00	0.00	
7,750.00	24.06	0.13	7,137.65	-694.27	-2,544.86	187.17	10.00	10.00	0.00	
7,800.00	29.06	0.13	7,182.36	-671.92	-2,544.81	208.25	10.00	10.00	0.00	
7,850.00	34.06	0.13	7,224.94	-645.75	-2,544.75	232.92	10.00	10.00	0.00	
7,900.00	39.06	0.13	7,265.09	-615.98	-2,544.68	260.99	10.00	10.00	0.00	
7,923.46	41.41	0.13	7,283.00	-600.82	-2,544.64	275.28	10.00	10.00	0.00	
<b>Sharon Springs</b>										
7,950.00	44.06	0.13	7,302.49	-582.82	-2,544.60	292.26	10.00	10.00	0.00	
7,967.67	45.83	0.13	7,315.00	-570.33	-2,544.57	304.03	10.00	10.00	0.00	
<b>Top Niobrara</b>										
7,982.22	47.28	0.13	7,325.00	-559.77	-2,544.55	313.99	10.00	10.00	0.00	
<b>Nio A Chalk</b>										
8,000.00	49.06	0.13	7,336.86	-546.52	-2,544.52	326.48	10.00	10.00	0.00	
8,014.15	50.48	0.13	7,346.00	-535.71	-2,544.49	336.67	10.00	10.00	0.00	
<b>Nio A Marl</b>										
8,050.00	54.06	0.13	7,367.93	-507.37	-2,544.42	363.39	10.00	10.00	0.00	
8,100.00	59.06	0.13	7,395.47	-465.66	-2,544.33	402.72	10.00	10.00	0.00	
8,150.00	64.06	0.13	7,419.28	-421.71	-2,544.22	444.16	10.00	10.00	0.00	
8,200.00	69.06	0.13	7,439.16	-375.85	-2,544.12	487.40	10.00	10.00	0.00	
8,250.00	74.06	0.13	7,454.97	-328.43	-2,544.01	532.11	10.00	10.00	0.00	

# Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well ALMA 1S-66-2524-17NH
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 5200.00usft
<b>Project:</b>	Adams County	<b>MD Reference:</b>	KB 25' @ 5200.00usft
<b>Site:</b>	Sec 25-T1S-R66W	<b>North Reference:</b>	True
<b>Well:</b>	ALMA 1S-66-2524-17NH	<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)
8,300.00	79.06	0.13	7,466.59	-279.81	-2,543.89	577.95	10.00	10.00	0.00
8,302.20	79.28	0.13	7,467.00	-277.65	-2,543.89	579.98	10.00	10.00	0.00
<b>Nio B Chalk</b>									
8,350.00	84.06	0.13	7,473.92	-230.37	-2,543.78	624.57	10.00	10.00	0.00
8,400.00	89.06	0.13	7,476.92	-180.48	-2,543.66	671.61	10.00	10.00	0.00
8,409.41	90.00	0.13	7,477.00	-171.07	-2,543.64	680.48	10.00	10.00	0.00
<b>LP @ 90° INC, 0.13° AZM HOLD</b>									
8,500.00	90.00	0.13	7,477.00	-80.48	-2,543.43	765.89	0.00	0.00	0.00
8,600.00	90.00	0.13	7,477.00	19.52	-2,543.19	860.18	0.00	0.00	0.00
8,700.00	90.00	0.13	7,477.00	119.52	-2,542.96	954.47	0.00	0.00	0.00
8,800.00	90.00	0.13	7,477.00	219.52	-2,542.72	1,048.75	0.00	0.00	0.00
8,900.00	90.00	0.13	7,477.00	319.52	-2,542.49	1,143.04	0.00	0.00	0.00
9,000.00	90.00	0.13	7,477.00	419.52	-2,542.25	1,237.32	0.00	0.00	0.00
9,100.00	90.00	0.13	7,477.00	519.52	-2,542.02	1,331.61	0.00	0.00	0.00
9,200.00	90.00	0.13	7,477.00	619.52	-2,541.79	1,425.89	0.00	0.00	0.00
9,300.00	90.00	0.13	7,477.00	719.52	-2,541.55	1,520.18	0.00	0.00	0.00
9,400.00	90.00	0.13	7,477.00	819.52	-2,541.32	1,614.47	0.00	0.00	0.00
9,500.00	90.00	0.13	7,477.00	919.52	-2,541.08	1,708.75	0.00	0.00	0.00
9,600.00	90.00	0.13	7,477.00	1,019.52	-2,540.85	1,803.04	0.00	0.00	0.00
9,700.00	90.00	0.13	7,476.99	1,119.52	-2,540.62	1,897.32	0.00	0.00	0.00
9,800.00	90.00	0.13	7,476.99	1,219.52	-2,540.38	1,991.61	0.00	0.00	0.00
9,900.00	90.00	0.13	7,476.99	1,319.52	-2,540.15	2,085.90	0.00	0.00	0.00
10,000.00	90.00	0.13	7,476.99	1,419.52	-2,539.91	2,180.18	0.00	0.00	0.00
10,100.00	90.00	0.13	7,476.99	1,519.52	-2,539.68	2,274.47	0.00	0.00	0.00
10,200.00	90.00	0.13	7,476.99	1,619.52	-2,539.44	2,368.75	0.00	0.00	0.00
10,300.00	90.00	0.13	7,476.99	1,719.52	-2,539.21	2,463.04	0.00	0.00	0.00
10,400.00	90.00	0.13	7,476.99	1,819.52	-2,538.98	2,557.33	0.00	0.00	0.00
10,500.00	90.00	0.13	7,476.99	1,919.52	-2,538.74	2,651.61	0.00	0.00	0.00
10,600.00	90.00	0.13	7,476.99	2,019.52	-2,538.51	2,745.90	0.00	0.00	0.00
10,700.00	90.00	0.13	7,476.99	2,119.52	-2,538.27	2,840.18	0.00	0.00	0.00
10,800.00	90.00	0.13	7,476.99	2,219.52	-2,538.04	2,934.47	0.00	0.00	0.00
10,900.00	90.00	0.13	7,476.99	2,319.52	-2,537.81	3,028.75	0.00	0.00	0.00
11,000.00	90.00	0.13	7,476.99	2,419.52	-2,537.57	3,123.04	0.00	0.00	0.00
11,100.00	90.00	0.13	7,476.99	2,519.52	-2,537.34	3,217.33	0.00	0.00	0.00
11,200.00	90.00	0.13	7,476.99	2,619.52	-2,537.10	3,311.61	0.00	0.00	0.00
11,300.00	90.00	0.13	7,476.99	2,719.52	-2,536.87	3,405.90	0.00	0.00	0.00
11,400.00	90.00	0.13	7,476.99	2,819.52	-2,536.64	3,500.18	0.00	0.00	0.00
11,500.00	90.00	0.13	7,476.99	2,919.51	-2,536.40	3,594.47	0.00	0.00	0.00
11,600.00	90.00	0.13	7,476.99	3,019.51	-2,536.17	3,688.76	0.00	0.00	0.00
11,700.00	90.00	0.13	7,476.99	3,119.51	-2,535.93	3,783.04	0.00	0.00	0.00
11,800.00	90.00	0.13	7,476.99	3,219.51	-2,535.70	3,877.33	0.00	0.00	0.00
11,900.00	90.00	0.13	7,476.99	3,319.51	-2,535.46	3,971.61	0.00	0.00	0.00
12,000.00	90.00	0.13	7,476.98	3,419.51	-2,535.23	4,065.90	0.00	0.00	0.00
12,100.00	90.00	0.13	7,476.98	3,519.51	-2,535.00	4,160.18	0.00	0.00	0.00
12,200.00	90.00	0.13	7,476.98	3,619.51	-2,534.76	4,254.47	0.00	0.00	0.00
12,300.00	90.00	0.13	7,476.98	3,719.51	-2,534.53	4,348.76	0.00	0.00	0.00
12,400.00	90.00	0.13	7,476.98	3,819.51	-2,534.29	4,443.04	0.00	0.00	0.00
12,500.00	90.00	0.13	7,476.98	3,919.51	-2,534.06	4,537.33	0.00	0.00	0.00
12,600.00	90.00	0.13	7,476.98	4,019.51	-2,533.83	4,631.61	0.00	0.00	0.00
12,700.00	90.00	0.13	7,476.98	4,119.51	-2,533.59	4,725.90	0.00	0.00	0.00
12,800.00	90.00	0.13	7,476.98	4,219.51	-2,533.36	4,820.19	0.00	0.00	0.00
12,900.00	90.00	0.13	7,476.98	4,319.51	-2,533.12	4,914.47	0.00	0.00	0.00
13,000.00	90.00	0.13	7,476.98	4,419.51	-2,532.89	5,008.76	0.00	0.00	0.00
13,100.00	90.00	0.13	7,476.98	4,519.51	-2,532.65	5,103.04	0.00	0.00	0.00

## Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well ALMA 1S-66-2524-17NH
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 5200.00usft
<b>Project:</b>	Adams County	<b>MD Reference:</b>	KB 25' @ 5200.00usft
<b>Site:</b>	Sec 25-T1S-R66W	<b>North Reference:</b>	True
<b>Well:</b>	ALMA 1S-66-2524-17NH	<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)	
13,200.00	90.00	0.13	7,476.98	4,619.51	-2,532.42	5,197.33	0.00	0.00	0.00	
13,300.00	90.00	0.13	7,476.98	4,719.51	-2,532.19	5,291.61	0.00	0.00	0.00	
13,400.00	90.00	0.13	7,476.98	4,819.51	-2,531.95	5,385.90	0.00	0.00	0.00	
13,500.00	90.00	0.13	7,476.98	4,919.51	-2,531.72	5,480.19	0.00	0.00	0.00	
13,600.00	90.00	0.13	7,476.98	5,019.51	-2,531.48	5,574.47	0.00	0.00	0.00	
13,700.00	90.00	0.13	7,476.98	5,119.51	-2,531.25	5,668.76	0.00	0.00	0.00	
13,800.00	90.00	0.13	7,476.98	5,219.51	-2,531.02	5,763.04	0.00	0.00	0.00	
13,900.00	90.00	0.13	7,476.98	5,319.51	-2,530.78	5,857.33	0.00	0.00	0.00	
14,000.00	90.00	0.13	7,476.98	5,419.51	-2,530.55	5,951.62	0.00	0.00	0.00	
14,100.00	90.00	0.13	7,476.98	5,519.51	-2,530.31	6,045.90	0.00	0.00	0.00	
14,200.00	90.00	0.13	7,476.98	5,619.51	-2,530.08	6,140.19	0.00	0.00	0.00	
14,300.00	90.00	0.13	7,476.97	5,719.51	-2,529.84	6,234.47	0.00	0.00	0.00	
14,400.00	90.00	0.13	7,476.97	5,819.51	-2,529.61	6,328.76	0.00	0.00	0.00	
14,500.00	90.00	0.13	7,476.97	5,919.51	-2,529.38	6,423.05	0.00	0.00	0.00	
14,600.00	90.00	0.13	7,476.97	6,019.51	-2,529.14	6,517.33	0.00	0.00	0.00	
14,700.00	90.00	0.13	7,476.97	6,119.51	-2,528.91	6,611.62	0.00	0.00	0.00	
14,800.00	90.00	0.13	7,476.97	6,219.51	-2,528.67	6,705.90	0.00	0.00	0.00	
14,900.00	90.00	0.13	7,476.97	6,319.51	-2,528.44	6,800.19	0.00	0.00	0.00	
15,000.00	90.00	0.13	7,476.97	6,419.51	-2,528.21	6,894.47	0.00	0.00	0.00	
15,100.00	90.00	0.13	7,476.97	6,519.51	-2,527.97	6,988.76	0.00	0.00	0.00	
15,200.00	90.00	0.13	7,476.97	6,619.50	-2,527.74	7,083.05	0.00	0.00	0.00	
15,300.00	90.00	0.13	7,476.97	6,719.50	-2,527.50	7,177.33	0.00	0.00	0.00	
15,400.00	90.00	0.13	7,476.97	6,819.50	-2,527.27	7,271.62	0.00	0.00	0.00	
15,500.00	90.00	0.13	7,476.97	6,919.50	-2,527.04	7,365.90	0.00	0.00	0.00	
15,600.00	90.00	0.13	7,476.97	7,019.50	-2,526.80	7,460.19	0.00	0.00	0.00	
15,700.00	90.00	0.13	7,476.97	7,119.50	-2,526.57	7,554.48	0.00	0.00	0.00	
15,782.29	90.00	0.13	7,476.97	7,201.79	-2,526.37	7,632.06	0.00	0.00	0.00	
TD at 15782.29' MD										

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
ALMA 17NH PBHL	0.00	0.00	7,477.00	7,201.79	-2,526.06	1,225,302.93	3,215,690.99	39° 56' 57.372 N	104° 43' 50.376 W
- hit/miss target									
- Shape									
- Point									
- plan misses target center by 0.31usft at 15782.29usft MD (7476.97 TVD, 7201.79 N, -2526.37 E)									
ALMA 17NH LP	0.00	0.00	7,477.00	-171.07	-2,543.64	1,217,930.20	3,215,738.13	39° 55' 44.508 N	104° 43' 50.592 W
- plan hits target center									
- Point									

## Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well ALMA 1S-66-2524-17NH
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 5200.00usft
<b>Project:</b>	Adams County	<b>MD Reference:</b>	KB 25' @ 5200.00usft
<b>Site:</b>	Sec 25-T1S-R66W	<b>North Reference:</b>	True
<b>Well:</b>	ALMA 1S-66-2524-17NH	<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 (°)	
1,529.00	1,500.00	Fox Hills aquifer base				
7,923.46	7,283.00	Sharon Springs				
7,967.67	7,315.00	Top Niobrara				
7,982.22	7,325.00	Nio A Chalk				
8,014.15	7,346.00	Nio A Marl				
8,302.20	7,467.00	Nio B Chalk				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
400.00	400.00	0.00	0.00	BUILD 2°/100'	
1,803.62	1,748.13	-94.58	-323.49	HOLD 28.07° INC	
6,005.72	5,455.87	-649.49	-2,221.49	DROP 2°/100'	
7,409.34	6,804.00	-744.07	-2,544.98	HOLD VERTICAL	
7,509.34	6,904.00	-744.07	-2,544.98	KOP, BUILD 10°/100'	
8,409.41	7,477.00	-171.07	-2,543.64	LP @ 90° INC, 0.13° AZM HOLD	
15,782.29	7,477.00	7,201.79	-2,526.06	TD at 15782.29' MD	