

# **EXTRACTION OIL & GAS**

**Adams County**

**Sec 25-T1S-R66W**

**ALMA 1S-66-2524-4CDH**

**ORIGINAL WELLBORE**

**Plan: PROPOSAL 1**

## **Standard Planning Report**

**29 August, 2017**



Project: Adams County  
Site: Sec 25-T1S-R66W  
Well: ALMA 1S-66-2524-4CDH  
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: 52129.6snT  
Dip Angle: 66.48°  
Date: 8/17/2017  
Model: IGRF2015

#### WELL DETAILS: ALMA 1S-66-2524-4CDH

+N/-S	+E/-W	Northing	Easting	5180.00	Latitude	Longitude	Slot
0.00	0.00	1218273.67	3218362.98		39° 55' 47.676 N	104° 43' 16.860 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	300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	
3	1008.65	14.17	125.74	1001.45	-50.93	70.78	2.00	125.74	-37.94	
4	6518.47	14.17	125.74	6343.55	-838.94	1165.81	0.00	0.00	-824.86	
5	7227.13	0.00	0.00	7045.00	-889.87	1236.59	2.00	180.00	-662.80	
6	7327.13	0.00	0.00	7145.00	-889.87	1236.59	0.00	0.00	-662.80	
7	8227.18	90.00	0.02	7718.00	-316.88	1236.76	10.00	0.02	-98.39	ALMA 4CDH LP
8	15607.33	90.00	0.02	7718.00	7063.27	1239.20	0.00	0.00	7171.15	ALMA 4CDH PBHL

#### FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1500.00	1522.86	Fox Hills aquifer base
7283.00	7466.50	Sharon Springs
7315.00	7499.72	Top Niobrara
7325.00	7510.23	Nio A Chalk
7346.00	7532.49	Nio A Marl
7467.00	7669.06	Nio B Chalk
7515.00	7729.35	Nio B Marl
7552.00	7779.75	Nio C Chalk
7573.00	7810.43	Nio D Marl
7684.00	8028.81	Ft Hayes Limestone
7718.00	8227.18	Codell Sandstone

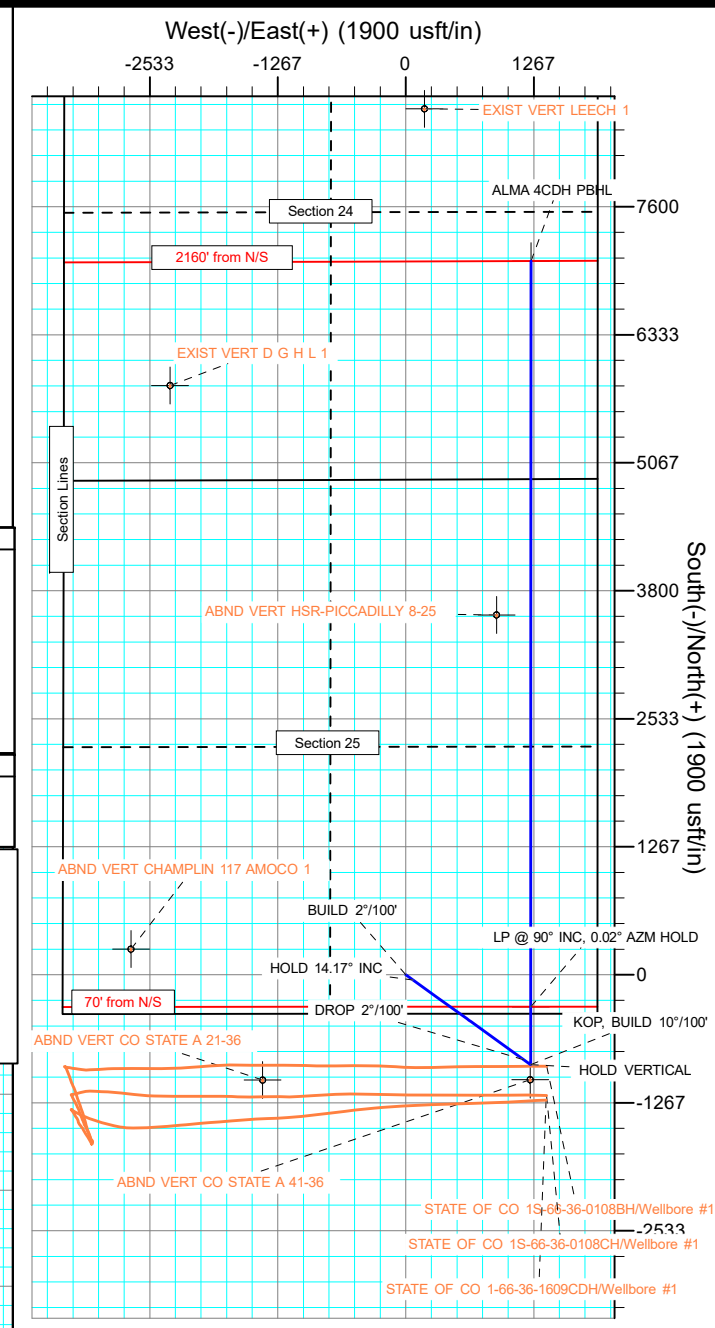
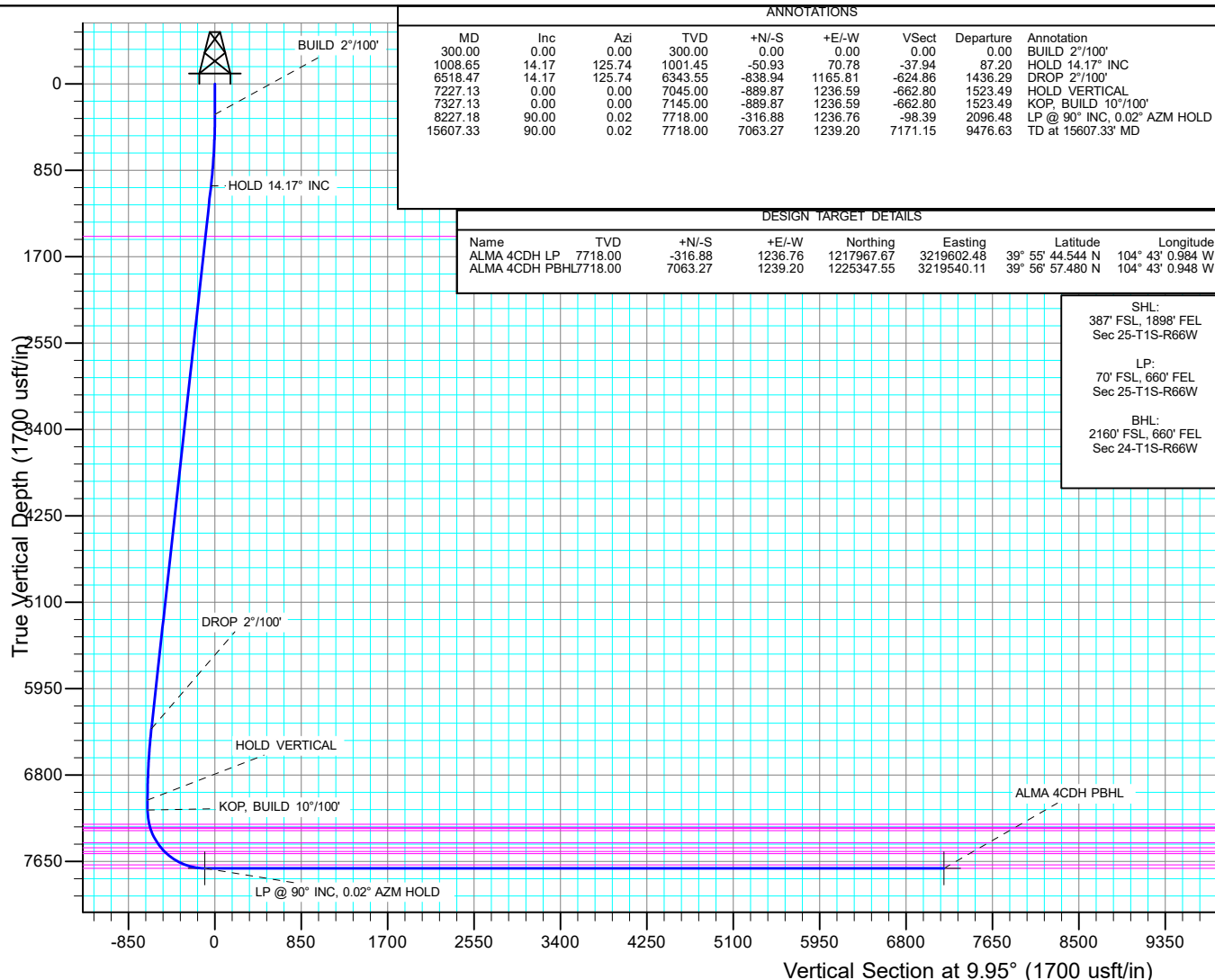
#### ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	VSec	Departure	Annotation
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	BUILD 2"/100'
1008.65	14.17	125.74	1001.45	-50.93	70.78	-37.94	87.20	HOLD 14.17" INC
6518.47	14.17	125.74	6343.55	-838.94	1165.81	-824.86	1438.29	DROP 2"/100'
7227.13	0.00	0.00	7045.00	-889.87	1236.59	-662.80	1523.49	HOLD VERTICAL
7327.13	0.00	0.00	7145.00	-889.87	1236.59	-662.80	1523.49	KOP, BUILD 10"/100'
8227.18	90.00	0.02	7718.00	-316.88	1236.76	-98.39	2096.48	LP @ 90° INC, 0.02° AZM HOLD
15607.33	90.00	0.02	7718.00	7063.27	1239.20	7171.15	9476.63	TD at 15607.33' MD

#### DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
ALMA 4CDH LP	7718.00	-316.88	1236.76	1217967.67	3219602.48	39° 55' 44.544 N	104° 43' 0.984 W
ALMA 4CDH PBHL	7718.00	7063.27	1239.20	1225347.55	3219540.11	39° 56' 57.480 N	104° 43' 0.948 W

SHL:  
387' FSL, 1898' FEL  
Sec 25-T1S-R66W  
LP:  
70' FSL, 660' FEL  
Sec 25-T1S-R66W  
BHL:  
2160' FSL, 660' FEL  
Sec 24-T1S-R66W



## Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well ALMA 1S-66-2524-4CDH
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 5205.00usft
<b>Project:</b>	Adams County	<b>MD Reference:</b>	KB 25' @ 5205.00usft
<b>Site:</b>	Sec 25-T1S-R66W	<b>North Reference:</b>	True
<b>Well:</b>	ALMA 1S-66-2524-4CDH	<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-66-2524-4CDH					
Well Position	+N/-S	386.19 usft	Northing:	1,218,273.67 usft	Latitude:	39° 55' 47.676 N
	+E/-W	-1,895.78 usft	Easting:	3,218,362.98 usft	Longitude:	104° 43' 16.860 W
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	5,180.00 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	52,129.55076447

<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	9.95

<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	15,606.68	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	
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,008.65	14.17	125.74	1,001.45	-50.93	70.78	2.00	2.00	0.00	125.74	
6,518.48	14.17	125.74	6,343.55	-838.94	1,165.81	0.00	0.00	0.00	0.00	
7,227.13	0.00	0.00	7,045.00	-889.87	1,236.59	2.00	-2.00	0.00	180.00	
7,327.13	0.00	0.00	7,145.00	-889.87	1,236.59	0.00	0.00	0.00	0.00	
8,227.18	90.00	0.02	7,718.00	-316.88	1,236.76	10.00	10.00	0.00	0.02	ALMA 4CDH LP
15,607.33	90.00	0.02	7,718.00	7,063.27	1,239.20	0.00	0.00	0.00	0.00	ALMA 4CDH PBHL

# Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well ALMA 1S-66-2524-4CDH
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 5205.00usft
<b>Project:</b>	Adams County	<b>MD Reference:</b>	KB 25' @ 5205.00usft
<b>Site:</b>	Sec 25-T1S-R66W	<b>North Reference:</b>	True
<b>Well:</b>	ALMA 1S-66-2524-4CDH	<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
<b>BUILD 2°/100'</b>									
400.00	2.00	125.74	399.98	-1.02	1.42	-0.76	2.00	2.00	0.00
500.00	4.00	125.74	499.84	-4.08	5.66	-3.04	2.00	2.00	0.00
600.00	6.00	125.74	599.45	-9.17	12.74	-6.83	2.00	2.00	0.00
700.00	8.00	125.74	698.70	-16.28	22.63	-12.13	2.00	2.00	0.00
800.00	10.00	125.74	797.47	-25.42	35.33	-18.93	2.00	2.00	0.00
900.00	12.00	125.74	895.62	-36.57	50.81	-27.24	2.00	2.00	0.00
1,008.65	14.17	125.74	1,001.45	-50.93	70.78	-37.94	2.00	2.00	0.00
<b>HOLD 14.17° INC</b>									
1,100.00	14.17	125.74	1,090.01	-64.00	88.94	-47.67	0.00	0.00	0.00
1,200.00	14.17	125.74	1,186.97	-78.30	108.81	-58.32	0.00	0.00	0.00
1,300.00	14.17	125.74	1,283.93	-92.60	128.68	-68.97	0.00	0.00	0.00
1,400.00	14.17	125.74	1,380.88	-106.90	148.56	-79.62	0.00	0.00	0.00
1,500.00	14.17	125.74	1,477.84	-121.21	168.43	-90.28	0.00	0.00	0.00
1,522.86	14.17	125.74	1,500.00	-124.48	172.97	-92.71	0.00	0.00	0.00
<b>Fox Hills aquifer base</b>									
1,600.00	14.17	125.74	1,574.79	-135.51	188.31	-100.93	0.00	0.00	0.00
1,700.00	14.17	125.74	1,671.75	-149.81	208.18	-111.58	0.00	0.00	0.00
1,800.00	14.17	125.74	1,768.71	-164.11	228.05	-122.23	0.00	0.00	0.00
1,900.00	14.17	125.74	1,865.66	-178.41	247.93	-132.89	0.00	0.00	0.00
2,000.00	14.17	125.74	1,962.62	-192.71	267.80	-143.54	0.00	0.00	0.00
2,100.00	14.17	125.74	2,059.58	-207.02	287.68	-154.19	0.00	0.00	0.00
2,200.00	14.17	125.74	2,156.53	-221.32	307.55	-164.84	0.00	0.00	0.00
2,300.00	14.17	125.74	2,253.49	-235.62	327.42	-175.50	0.00	0.00	0.00
2,400.00	14.17	125.74	2,350.44	-249.92	347.30	-186.15	0.00	0.00	0.00
2,500.00	14.17	125.74	2,447.40	-264.22	367.17	-196.80	0.00	0.00	0.00
2,600.00	14.17	125.74	2,544.36	-278.53	387.05	-207.45	0.00	0.00	0.00
2,700.00	14.17	125.74	2,641.31	-292.83	406.92	-218.10	0.00	0.00	0.00
2,800.00	14.17	125.74	2,738.27	-307.13	426.80	-228.76	0.00	0.00	0.00
2,900.00	14.17	125.74	2,835.22	-321.43	446.67	-239.41	0.00	0.00	0.00
3,000.00	14.17	125.74	2,932.18	-335.73	466.54	-250.06	0.00	0.00	0.00
3,100.00	14.17	125.74	3,029.14	-350.03	486.42	-260.71	0.00	0.00	0.00
3,200.00	14.17	125.74	3,126.09	-364.34	506.29	-271.37	0.00	0.00	0.00
3,300.00	14.17	125.74	3,223.05	-378.64	526.17	-282.02	0.00	0.00	0.00
3,400.00	14.17	125.74	3,320.00	-392.94	546.04	-292.67	0.00	0.00	0.00
3,500.00	14.17	125.74	3,416.96	-407.24	565.91	-303.32	0.00	0.00	0.00
3,600.00	14.17	125.74	3,513.92	-421.54	585.79	-313.97	0.00	0.00	0.00
3,700.00	14.17	125.74	3,610.87	-435.84	605.66	-324.63	0.00	0.00	0.00
3,800.00	14.17	125.74	3,707.83	-450.15	625.54	-335.28	0.00	0.00	0.00
3,900.00	14.17	125.74	3,804.78	-464.45	645.41	-345.93	0.00	0.00	0.00
4,000.00	14.17	125.74	3,901.74	-478.75	665.28	-356.58	0.00	0.00	0.00
4,100.00	14.17	125.74	3,998.70	-493.05	685.16	-367.24	0.00	0.00	0.00
4,200.00	14.17	125.74	4,095.65	-507.35	705.03	-377.89	0.00	0.00	0.00
4,300.00	14.17	125.74	4,192.61	-521.65	724.91	-388.54	0.00	0.00	0.00
4,400.00	14.17	125.74	4,289.56	-535.96	744.78	-399.19	0.00	0.00	0.00
4,500.00	14.17	125.74	4,386.52	-550.26	764.66	-409.85	0.00	0.00	0.00
4,600.00	14.17	125.74	4,483.48	-564.56	784.53	-420.50	0.00	0.00	0.00
4,700.00	14.17	125.74	4,580.43	-578.86	804.40	-431.15	0.00	0.00	0.00
4,800.00	14.17	125.74	4,677.39	-593.16	824.28	-441.80	0.00	0.00	0.00

# Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well ALMA 1S-66-2524-4CDH
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 5205.00usft
<b>Project:</b>	Adams County	<b>MD Reference:</b>	KB 25' @ 5205.00usft
<b>Site:</b>	Sec 25-T1S-R66W	<b>North Reference:</b>	True
<b>Well:</b>	ALMA 1S-66-2524-4CDH	<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	14.17	125.74	4,774.35	-607.47	844.15	-452.45	0.00	0.00	0.00
5,000.00	14.17	125.74	4,871.30	-621.77	864.03	-463.11	0.00	0.00	0.00
5,100.00	14.17	125.74	4,968.26	-636.07	883.90	-473.76	0.00	0.00	0.00
5,200.00	14.17	125.74	5,065.21	-650.37	903.77	-484.41	0.00	0.00	0.00
5,300.00	14.17	125.74	5,162.17	-664.67	923.65	-495.06	0.00	0.00	0.00
5,400.00	14.17	125.74	5,259.13	-678.97	943.52	-505.72	0.00	0.00	0.00
5,500.00	14.17	125.74	5,356.08	-693.28	963.40	-516.37	0.00	0.00	0.00
5,600.00	14.17	125.74	5,453.04	-707.58	983.27	-527.02	0.00	0.00	0.00
5,700.00	14.17	125.74	5,549.99	-721.88	1,003.14	-537.67	0.00	0.00	0.00
5,800.00	14.17	125.74	5,646.95	-736.18	1,023.02	-548.32	0.00	0.00	0.00
5,900.00	14.17	125.74	5,743.91	-750.48	1,042.89	-558.98	0.00	0.00	0.00
6,000.00	14.17	125.74	5,840.86	-764.78	1,062.77	-569.63	0.00	0.00	0.00
6,100.00	14.17	125.74	5,937.82	-779.09	1,082.64	-580.28	0.00	0.00	0.00
6,200.00	14.17	125.74	6,034.77	-793.39	1,102.52	-590.93	0.00	0.00	0.00
6,300.00	14.17	125.74	6,131.73	-807.69	1,122.39	-601.59	0.00	0.00	0.00
6,400.00	14.17	125.74	6,228.69	-821.99	1,142.26	-612.24	0.00	0.00	0.00
6,500.00	14.17	125.74	6,325.64	-836.29	1,162.14	-622.89	0.00	0.00	0.00
6,518.48	14.17	125.74	6,343.55	-838.94	1,165.81	-624.86	0.00	0.00	0.00
<b>DROP 2°/100'</b>									
6,600.00	12.54	125.74	6,422.87	-849.94	1,181.10	-633.05	2.00	-2.00	0.00
6,700.00	10.54	125.74	6,520.84	-861.62	1,197.34	-641.76	2.00	-2.00	0.00
6,800.00	8.54	125.74	6,619.46	-871.31	1,210.79	-648.97	2.00	-2.00	0.00
6,900.00	6.54	125.74	6,718.59	-878.97	1,221.45	-654.68	2.00	-2.00	0.00
7,000.00	4.54	125.74	6,818.11	-884.61	1,229.29	-658.88	2.00	-2.00	0.00
7,100.00	2.54	125.74	6,917.92	-888.22	1,234.30	-661.57	2.00	-2.00	0.00
7,200.00	0.54	125.74	7,017.88	-889.80	1,236.49	-662.74	2.00	-2.00	0.00
7,227.13	0.00	0.00	7,045.00	-889.87	1,236.59	-662.80	2.00	-2.00	0.00
<b>HOLD VERTICAL</b>									
7,300.00	0.00	0.00	7,117.88	-889.87	1,236.59	-662.80	0.00	0.00	0.00
7,327.13	0.00	0.00	7,145.00	-889.87	1,236.59	-662.80	0.00	0.00	0.00
<b>KOP, BUILD 10°/100'</b>									
7,350.00	2.29	0.02	7,167.87	-889.41	1,236.59	-662.35	10.00	10.00	0.00
7,400.00	7.29	0.02	7,217.68	-885.24	1,236.59	-658.24	10.00	10.00	0.00
7,450.00	12.29	0.02	7,266.94	-876.75	1,236.59	-649.87	10.00	10.00	0.00
7,466.50	13.94	0.02	7,283.00	-873.00	1,236.60	-646.18	10.00	10.00	0.00
<b>Sharon Springs</b>									
7,499.72	17.26	0.02	7,315.00	-864.07	1,236.60	-637.38	10.00	10.00	0.00
<b>Top Niobrara</b>									
7,500.00	17.29	0.02	7,315.26	-863.99	1,236.60	-637.30	10.00	10.00	0.00
7,510.23	18.31	0.02	7,325.00	-860.86	1,236.60	-634.22	10.00	10.00	0.00
<b>Nio A Chalk</b>									
7,532.49	20.54	0.02	7,346.00	-853.46	1,236.60	-626.93	10.00	10.00	0.00
<b>Nio A Marl</b>									
7,550.00	22.29	0.02	7,362.30	-847.07	1,236.60	-620.64	10.00	10.00	0.00
7,600.00	27.29	0.02	7,407.68	-826.11	1,236.61	-600.00	10.00	10.00	0.00
7,650.00	32.29	0.02	7,451.06	-801.28	1,236.62	-575.54	10.00	10.00	0.00
7,669.06	34.19	0.02	7,467.00	-790.84	1,236.62	-565.25	10.00	10.00	0.00
<b>Nio B Chalk</b>									
7,700.00	37.28	0.02	7,492.11	-772.77	1,236.63	-547.45	10.00	10.00	0.00
7,729.35	40.22	0.02	7,515.00	-754.40	1,236.63	-529.35	10.00	10.00	0.00
<b>Nio B Marl</b>									
7,750.00	42.28	0.02	7,530.52	-740.78	1,236.64	-515.95	10.00	10.00	0.00
7,779.75	45.26	0.02	7,552.00	-720.21	1,236.64	-495.68	10.00	10.00	0.00

# Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well ALMA 1S-66-2524-4CDH
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 5205.00usft
<b>Project:</b>	Adams County	<b>MD Reference:</b>	KB 25' @ 5205.00usft
<b>Site:</b>	Sec 25-T1S-R66W	<b>North Reference:</b>	True
<b>Well:</b>	ALMA 1S-66-2524-4CDH	<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 C Chalk</b>									
7,800.00	47.28	0.02	7,566.00	-705.57	1,236.65	-481.26	10.00	10.00	0.00
7,810.43	48.33	0.02	7,573.00	-697.85	1,236.65	-473.65	10.00	10.00	0.00
<b>Nio D Marl</b>									
7,850.00	52.28	0.02	7,598.27	-667.40	1,236.66	-443.67	10.00	10.00	0.00
7,900.00	57.28	0.02	7,627.10	-626.57	1,236.67	-403.44	10.00	10.00	0.00
7,950.00	62.28	0.02	7,652.25	-583.38	1,236.68	-360.90	10.00	10.00	0.00
8,000.00	67.28	0.02	7,673.55	-538.16	1,236.70	-316.35	10.00	10.00	0.00
8,028.81	70.16	0.02	7,684.00	-511.31	1,236.70	-289.91	10.00	10.00	0.00
<b>Ft Hayes Limestone</b>									
8,050.00	72.28	0.02	7,690.82	-491.25	1,236.71	-270.15	10.00	10.00	0.00
8,100.00	77.28	0.02	7,703.94	-443.02	1,236.72	-222.64	10.00	10.00	0.00
8,150.00	82.28	0.02	7,712.81	-393.83	1,236.74	-174.19	10.00	10.00	0.00
8,200.00	87.28	0.02	7,717.36	-344.05	1,236.75	-125.16	10.00	10.00	0.00
8,227.18	90.00	0.02	7,718.00	-316.88	1,236.76	-98.39	10.00	10.00	0.00
<b>LP @ 90° INC, 0.02° AZM HOLD - Codell Sandstone</b>									
8,300.00	90.00	0.02	7,718.00	-244.06	1,236.78	-26.67	0.00	0.00	0.00
8,400.00	90.00	0.02	7,718.00	-144.06	1,236.82	71.83	0.00	0.00	0.00
8,500.00	90.00	0.02	7,718.00	-44.06	1,236.85	170.33	0.00	0.00	0.00
8,600.00	90.00	0.02	7,718.00	55.94	1,236.88	268.83	0.00	0.00	0.00
8,700.00	90.00	0.02	7,718.01	155.94	1,236.91	367.33	0.00	0.00	0.00
8,800.00	90.00	0.02	7,718.01	255.94	1,236.94	465.83	0.00	0.00	0.00
8,900.00	90.00	0.02	7,718.01	355.94	1,236.97	564.34	0.00	0.00	0.00
9,000.00	90.00	0.02	7,718.01	455.94	1,237.00	662.84	0.00	0.00	0.00
9,100.00	90.00	0.02	7,718.01	555.94	1,237.03	761.34	0.00	0.00	0.00
9,200.00	90.00	0.02	7,718.01	655.94	1,237.06	859.84	0.00	0.00	0.00
9,300.00	90.00	0.02	7,718.01	755.94	1,237.09	958.34	0.00	0.00	0.00
9,400.00	90.00	0.02	7,718.01	855.94	1,237.12	1,056.84	0.00	0.00	0.00
9,500.00	90.00	0.02	7,718.02	955.94	1,237.15	1,155.34	0.00	0.00	0.00
9,600.00	90.00	0.02	7,718.02	1,055.94	1,237.18	1,253.84	0.00	0.00	0.00
9,700.00	90.00	0.02	7,718.02	1,155.94	1,237.21	1,352.34	0.00	0.00	0.00
9,800.00	90.00	0.02	7,718.02	1,255.94	1,237.24	1,450.84	0.00	0.00	0.00
9,900.00	90.00	0.02	7,718.02	1,355.94	1,237.27	1,549.34	0.00	0.00	0.00
10,000.00	90.00	0.02	7,718.02	1,455.94	1,237.30	1,647.85	0.00	0.00	0.00
10,100.00	90.00	0.02	7,718.02	1,555.94	1,237.33	1,746.35	0.00	0.00	0.00
10,200.00	90.00	0.02	7,718.02	1,655.94	1,237.36	1,844.85	0.00	0.00	0.00
10,300.00	90.00	0.02	7,718.03	1,755.94	1,237.39	1,943.35	0.00	0.00	0.00
10,400.00	90.00	0.02	7,718.03	1,855.94	1,237.42	2,041.85	0.00	0.00	0.00
10,500.00	90.00	0.02	7,718.03	1,955.94	1,237.45	2,140.35	0.00	0.00	0.00
10,600.00	90.00	0.02	7,718.03	2,055.94	1,237.48	2,238.85	0.00	0.00	0.00
10,700.00	90.00	0.02	7,718.03	2,155.94	1,237.51	2,337.35	0.00	0.00	0.00
10,800.00	90.00	0.02	7,718.03	2,255.94	1,237.54	2,435.85	0.00	0.00	0.00
10,900.00	90.00	0.02	7,718.03	2,355.94	1,237.57	2,534.35	0.00	0.00	0.00
11,000.00	90.00	0.02	7,718.03	2,455.94	1,237.60	2,632.85	0.00	0.00	0.00
11,100.00	90.00	0.02	7,718.04	2,555.94	1,237.63	2,731.35	0.00	0.00	0.00
11,200.00	90.00	0.02	7,718.04	2,655.94	1,237.66	2,829.86	0.00	0.00	0.00
11,300.00	90.00	0.02	7,718.04	2,755.94	1,237.69	2,928.36	0.00	0.00	0.00
11,400.00	90.00	0.02	7,718.04	2,855.94	1,237.72	3,026.86	0.00	0.00	0.00
11,500.00	90.00	0.02	7,718.04	2,955.94	1,237.75	3,125.36	0.00	0.00	0.00
11,600.00	90.00	0.02	7,718.04	3,055.94	1,237.78	3,223.86	0.00	0.00	0.00
11,700.00	90.00	0.02	7,718.04	3,155.94	1,237.81	3,322.36	0.00	0.00	0.00
11,800.00	90.00	0.02	7,718.04	3,255.94	1,237.84	3,420.86	0.00	0.00	0.00
11,900.00	90.00	0.02	7,718.05	3,355.94	1,237.87	3,519.36	0.00	0.00	0.00

## Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well ALMA 1S-66-2524-4CDH
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 5205.00usft
<b>Project:</b>	Adams County	<b>MD Reference:</b>	KB 25' @ 5205.00usft
<b>Site:</b>	Sec 25-T1S-R66W	<b>North Reference:</b>	True
<b>Well:</b>	ALMA 1S-66-2524-4CDH	<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	0.02	7,718.05	3,455.94	1,237.90	3,617.86	0.00	0.00	0.00	
12,100.00	90.00	0.02	7,718.05	3,555.94	1,237.93	3,716.36	0.00	0.00	0.00	
12,200.00	90.00	0.02	7,718.05	3,655.94	1,237.96	3,814.86	0.00	0.00	0.00	
12,300.00	90.00	0.02	7,718.05	3,755.94	1,237.99	3,913.36	0.00	0.00	0.00	
12,400.00	90.00	0.02	7,718.05	3,855.94	1,238.02	4,011.87	0.00	0.00	0.00	
12,500.00	90.00	0.02	7,718.05	3,955.94	1,238.05	4,110.37	0.00	0.00	0.00	
12,600.00	90.00	0.02	7,718.05	4,055.94	1,238.08	4,208.87	0.00	0.00	0.00	
12,700.00	90.00	0.02	7,718.06	4,155.94	1,238.11	4,307.37	0.00	0.00	0.00	
12,800.00	90.00	0.02	7,718.06	4,255.94	1,238.14	4,405.87	0.00	0.00	0.00	
12,900.00	90.00	0.02	7,718.06	4,355.94	1,238.17	4,504.37	0.00	0.00	0.00	
13,000.00	90.00	0.02	7,718.06	4,455.94	1,238.20	4,602.87	0.00	0.00	0.00	
13,100.00	90.00	0.02	7,718.06	4,555.94	1,238.23	4,701.37	0.00	0.00	0.00	
13,200.00	90.00	0.02	7,718.06	4,655.94	1,238.26	4,799.87	0.00	0.00	0.00	
13,300.00	90.00	0.02	7,718.06	4,755.94	1,238.29	4,898.37	0.00	0.00	0.00	
13,400.00	90.00	0.02	7,718.06	4,855.94	1,238.32	4,996.87	0.00	0.00	0.00	
13,500.00	90.00	0.02	7,718.07	4,955.94	1,238.35	5,095.37	0.00	0.00	0.00	
13,600.00	90.00	0.02	7,718.07	5,055.94	1,238.38	5,193.88	0.00	0.00	0.00	
13,700.00	90.00	0.02	7,718.07	5,155.94	1,238.41	5,292.38	0.00	0.00	0.00	
13,800.00	90.00	0.02	7,718.07	5,255.94	1,238.44	5,390.88	0.00	0.00	0.00	
13,900.00	90.00	0.02	7,718.07	5,355.94	1,238.47	5,489.38	0.00	0.00	0.00	
14,000.00	90.00	0.02	7,718.07	5,455.94	1,238.50	5,587.88	0.00	0.00	0.00	
14,100.00	90.00	0.02	7,718.07	5,555.94	1,238.53	5,686.38	0.00	0.00	0.00	
14,200.00	90.00	0.02	7,718.07	5,655.94	1,238.56	5,784.88	0.00	0.00	0.00	
14,300.00	90.00	0.02	7,718.07	5,755.94	1,238.59	5,883.38	0.00	0.00	0.00	
14,400.00	90.00	0.02	7,718.08	5,855.94	1,238.63	5,981.88	0.00	0.00	0.00	
14,500.00	90.00	0.02	7,718.08	5,955.94	1,238.66	6,080.38	0.00	0.00	0.00	
14,600.00	90.00	0.02	7,718.08	6,055.94	1,238.69	6,178.88	0.00	0.00	0.00	
14,700.00	90.00	0.02	7,718.08	6,155.94	1,238.72	6,277.38	0.00	0.00	0.00	
14,800.00	90.00	0.02	7,718.08	6,255.94	1,238.75	6,375.89	0.00	0.00	0.00	
14,900.00	90.00	0.02	7,718.08	6,355.94	1,238.78	6,474.39	0.00	0.00	0.00	
15,000.00	90.00	0.02	7,718.08	6,455.94	1,238.81	6,572.89	0.00	0.00	0.00	
15,100.00	90.00	0.02	7,718.08	6,555.94	1,238.84	6,671.39	0.00	0.00	0.00	
15,200.00	90.00	0.02	7,718.09	6,655.94	1,238.87	6,769.89	0.00	0.00	0.00	
15,300.00	90.00	0.02	7,718.09	6,755.94	1,238.90	6,868.39	0.00	0.00	0.00	
15,400.00	90.00	0.02	7,718.09	6,855.94	1,238.93	6,966.89	0.00	0.00	0.00	
15,500.00	90.00	0.02	7,718.09	6,955.94	1,238.96	7,065.39	0.00	0.00	0.00	
15,607.33	90.00	0.02	7,718.00	7,063.27	1,239.20	7,171.15	0.00	0.00	0.00	
TD at 15607.33' MD										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude		Longitude
ALMA 4CDH PBHL - hit/miss target - Shape	0.00	0.00	7,718.00	7,063.27	1,239.20	1,225,347.55	3,219,540.11	39° 56' 57.480 N		104° 43' 0.948 W
ALMA 4CDH LP - plan hits target center - Point	0.00	0.00	7,718.00	-316.88	1,236.76	1,217,967.66	3,219,602.48	39° 55' 44.544 N		104° 43' 0.984 W

## Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well ALMA 1S-66-2524-4CDH
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 5205.00usft
<b>Project:</b>	Adams County	<b>MD Reference:</b>	KB 25' @ 5205.00usft
<b>Site:</b>	Sec 25-T1S-R66W	<b>North Reference:</b>	True
<b>Well:</b>	ALMA 1S-66-2524-4CDH	<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 (°)	
1,522.86	1,500.00	Fox Hills aquifer base				
7,466.50	7,283.00	Sharon Springs				
7,499.72	7,315.00	Top Niobrara				
7,510.23	7,325.00	Nio A Chalk				
7,532.49	7,346.00	Nio A Marl				
7,669.06	7,467.00	Nio B Chalk				
7,729.35	7,515.00	Nio B Marl				
7,779.75	7,552.00	Nio C Chalk				
7,810.43	7,573.00	Nio D Marl				
8,028.81	7,684.00	Ft Hayes Limestone				
8,227.18	7,718.00	Codell Sandstone				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
300.00	300.00	0.00	0.00	BUILD 2°/100'	
1,008.65	1,001.45	-50.93	70.78	HOLD 14.17° INC	
6,518.48	6,343.55	-838.94	1,165.81	DROP 2°/100'	
7,227.13	7,045.00	-889.87	1,236.59	HOLD VERTICAL	
7,327.13	7,145.00	-889.87	1,236.59	KOP, BUILD 10°/100'	
8,227.18	7,718.00	-316.88	1,236.76	LP @ 90° INC, 0.02° AZM HOLD	
15,607.33	7,718.00	7,063.27	1,239.20	TD at 15607.33' MD	