

**5D Plan Report**

<b>Field Name:</b>	<i>COLORADO_NORTH_ZONE_NAD83</i>
<b>Site Name:</b>	<i>ANTELOPE T-18 PAD</i>
<b>Well Name:</b>	<i>ANTELOPE T44-P41-18HC - ST1</i>
<b>Plan:</b>	<i>PLAN 1</i>





## Plan Surveys for the ANTELOPE T44-P41-18HC - ST1

<b>Site Name</b>  ANTELOPE T-18 PAD	<b>Units :</b> US ft	<b>North Reference :</b> True	<b>Convergence Angle :</b> 0.74
	<b>Position</b>	<b>Northing :</b> 1388373.58 US ft	<b>Latitude :</b> 40.393900
		<b>Easting :</b> 3317081.59 US ft	<b>Longitude :</b> -104.361580
	<b>Elevation above:</b> 0.00 US ft <b>Comment :</b>		
<b>Slot Name</b>  ANTELOPE T44-P41-18HC	<b>Position (Offsets relative to Site Centre)</b>		
	<b>+N / -S :</b> -40.07 US ft	<b>Northing :</b> 1388333.55 US ft	<b>Latitude :</b> 40.393790
	<b>+E / -W :</b> 2.78 US ft	<b>Easting :</b> 3317084.88 US ft	<b>Longitude :</b> -104.361570
	<b>Slot TVD Reference :</b> Ground Elevation <b>Elevation above :</b> 4634.00 US ft <b>Comment :</b>		
<b>Well Name</b>  ANTELOPE T44-P41-18HC - ST1	<b>Type :</b> Sidetrack	<b>UWI :</b>	<b>Plan :</b> PLAN 1
	<b>Parent :</b> ANTELOPE T44-P41-18HC	<b>Tie Point Method :</b> MD	<b>Tie Point :</b> 6914.00 US ft
	<b>Rig Height <i>Drill Floor</i> :</b> 16.50 US ft	<b>Comment :</b>	
	<b>Relative to :</b> 4650.50 US ft		
	<b>Closure Distance :</b> 4229.71 US ft	<b>Closure Azimuth :</b> 5.85748°	
	<b>Vertical Section (Position of Origin Relative to Slot )</b>		
	<b>+N / -S :</b> 0.00 US ft	<b>+E / -W :</b> 0.00 US ft	<b>Az :</b> 5.86°
	<b>Magnetic Parameters</b>		
	<b>Model :</b> BGGM	<b>Field Strength :</b> 52843.3nT	<b>Dec :</b> 8.32°
			<b>Dip :</b> 67.00°
			<b>Date :</b> 27/Feb/2014

**Target Set****Name :** ANTELOPE T44-P41-18HC**Number of Targets :** 1**Comment :**

TargetName:	Position (Relative to centre)			
PBHL	+N / -S : 4207.63US ft		Northing : 1392546.37 US ft	Latitude : 40°24'19.224000"
Shape:	+E / -W : 431.66 US ft		Easting : 3317462.49US ft	Longitude : -104°21'36.072000"
Cuboid	TVD (Drill Floor) : 6514.00 US ft			
	Orientation	Azimuth : 0.00°	Inclination : 0.00°	
	Dimensions	Length : 20.00 US ft	Breadth : 20.00 US ft	Height : 20.00 US ft

**Well path created using minimum curvature**

Salient Points (Relative to centre, TVD relative to Drill Floor )											
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	Latitude (°)	Longitude (°)	DLS (°/100 US ft)	T.Face (°)	VS (US ft)	Comment
6914.00	84.95	0.19	6514.00	-28.18	440.01	40.393713	-104.359990	0.00	0.00	16.89	
6966.00	87.34	0.53	6517.50	23.70	440.34	40.393855	-104.359989	4.64	8.09	68.53	
7066.00	87.34	0.53	6522.14	123.59	441.26	40.394129	-104.359986	0.00	0.00	167.99	
7474.18	92.45	6.90	6522.88	530.57	467.69	40.395246	-104.359891	2.00	51.31	575.54	
7887.86	90.00	358.99	6514.02	943.24	488.93	40.396379	-104.359815	2.00	252.89	988.23	
11152.75	90.00	358.99	6514.00	4207.63	431.66	40.405340	-104.360020	0.00	0.00	4229.71	

Interpolated Points (Relative to centre, TVD relative to Drill Floor )										
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	DLS (°/100 US ft)	T.Face (°)	VS (US ft)	Comment	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
100.00	0.03	264.46	100.00	-0.00	-0.02	0.03	263.72	-0.00		
200.00	0.06	264.46	200.00	-0.01	-0.10	0.03	0.00	-0.02		
300.00	0.09	264.46	300.00	-0.02	-0.23	0.03	0.00	-0.05		
400.00	0.13	264.46	400.00	-0.04	-0.43	0.03	0.00	-0.08		
500.00	0.16	266.61	500.00	-0.07	-0.68	0.12	103.50	-0.13	9 5/8 in	
600.00	1.27	150.09	600.00	-0.44	-0.64	3.19	214.55	-0.51		
700.00	3.92	140.07	699.87	-4.36	2.06	2.28	331.84	-4.13		
800.00	6.51	130.90	799.47	-10.64	8.38	3.04	340.42	-9.73		
900.00	9.46	136.54	898.49	-19.94	18.67	3.42	34.41	-17.93		
1000.00	10.78	148.82	996.86	-34.12	29.60	2.58	79.76	-30.92		
1100.00	12.62	150.99	1094.81	-51.71	39.35	2.08	356.19	-47.43		

## 5D Plan Report

Interpolated Points (Relative to centre, TVD relative to Drill Floor )									
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	DLS (°/100 US ft)	T.Face (°)	VS (US ft)	Comment
1200.00	13.89	144.71	1192.13	-71.23	51.49	2.01	301.64	-65.60	
1300.00	13.32	134.10	1289.32	-89.15	66.72	2.65	250.19	-81.87	
1400.00	14.10	140.69	1386.46	-106.74	82.61	0.95	274.20	-97.75	
1500.00	14.20	138.97	1483.43	-125.16	98.67	2.33	88.31	-114.43	
1600.00	14.34	145.50	1580.33	-144.96	113.40	0.65	248.67	-132.62	
1700.00	14.97	145.95	1677.21	-165.21	127.73	3.09	35.95	-151.30	
1800.00	16.45	148.44	1773.30	-188.75	142.24	0.92	250.18	-173.24	
1900.00	16.29	145.57	1869.26	-212.32	157.58	0.73	267.15	-195.12	
2000.00	15.99	149.88	1965.29	-235.46	173.14	2.95	103.32	-216.55	
2100.00	16.21	153.36	2061.42	-260.01	185.64	0.64	330.22	-239.70	
2200.00	16.05	151.89	2157.43	-284.86	198.47	0.66	223.33	-263.11	
2300.00	15.46	148.79	2253.67	-308.52	211.84	1.15	235.26	-285.27	
2400.00	17.81	146.55	2349.59	-332.32	227.00	2.97	348.32	-307.40	
2500.00	17.93	144.51	2444.70	-357.79	244.48	0.66	255.75	-330.96	
2600.00	15.95	145.87	2540.39	-381.62	261.08	1.24	11.45	-352.97	
2700.00	17.04	146.27	2636.24	-405.32	276.89	1.18	261.12	-374.93	
2800.00	16.95	142.64	2731.88	-429.01	293.93	0.33	313.55	-396.76	
2900.00	16.71	141.30	2827.50	-452.14	311.88	2.77	203.65	-417.94	
3000.00	14.51	136.91	2923.86	-472.35	329.33	1.48	223.23	-436.26	
3100.00	13.57	132.65	3020.89	-489.39	346.48	1.14	236.43	-451.46	
3200.00	12.67	132.12	3118.24	-504.42	363.73	2.53	132.00	-464.65	
3300.00	11.38	137.31	3216.07	-519.33	378.07	1.21	225.50	-478.02	
3400.00	10.22	133.93	3314.26	-532.78	391.40	1.81	186.14	-490.03	
3477.82	8.89	133.96	3391.00	-541.66	400.73	1.59	157.45	-497.91	PARKMAN :
3500.00	8.57	134.90	3412.93	-544.02	403.14	1.59	156.67	-500.01	
3600.00	7.18	143.18	3511.99	-554.15	412.29	2.07	132.12	-509.17	
3700.00	5.81	151.14	3611.33	-563.89	418.23	1.62	174.92	-518.24	
3800.00	4.07	152.39	3710.95	-571.53	422.31	1.86	178.36	-525.42	
3900.00	1.82	162.09	3810.80	-576.28	424.60	2.62	168.96	-529.92	
4000.00	0.75	177.73	3910.79	-578.10	424.76	0.36	195.51	-531.71	
4100.00	0.56	144.60	4010.78	-579.14	425.01	0.48	241.35	-532.72	
4200.00	1.11	108.14	4110.77	-579.80	426.13	0.87	316.13	-533.26	
4300.00	1.47	99.91	4210.74	-580.34	428.43	0.25	319.44	-533.56	
4400.00	1.82	91.47	4310.70	-580.61	431.25	0.47	321.80	-533.55	
4500.00	0.50	111.18	4410.67	-580.76	433.48	1.67	172.80	-533.47	
4600.00	0.42	155.45	4510.67	-581.26	433.91	0.24	85.81	-533.92	
4700.00	0.45	137.63	4610.67	-581.90	434.31	0.16	267.71	-534.51	
4800.00	0.44	129.72	4710.67	-582.43	434.87	0.21	296.82	-534.99	
4900.00	0.56	110.17	4810.66	-582.86	435.63	0.26	274.44	-535.34	
5000.00	0.64	86.89	4910.66	-582.99	436.65	0.20	283.03	-535.37	
5100.00	0.69	70.68	5010.65	-582.76	437.79	0.22	244.88	-535.02	

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Interpolated Points (Relative to centre, TVD relative to Drill Floor )									
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	DLS (°/100 US ft)	T.Face (°)	VS (US ft)	Comment
5200.00	0.67	53.06	5110.64	-582.22	438.80	0.23	309.42	-534.38	
5300.00	0.82	41.45	5210.64	-581.32	439.75	0.15	300.18	-533.39	
5400.00	0.89	38.56	5310.62	-580.14	440.67	0.17	80.78	-532.12	
5500.00	0.91	45.81	5410.61	-578.99	441.76	0.04	166.01	-530.86	
5600.00	0.63	86.21	5510.60	-578.09	442.87	1.58	134.74	-529.86	
5700.00	1.12	137.42	5610.59	-579.15	443.99	0.42	275.85	-530.79	
5800.00	1.28	122.00	5710.57	-580.43	445.62	0.29	308.31	-531.90	
5900.00	1.38	143.47	5810.54	-581.77	447.54	1.30	103.53	-533.03	
6000.00	0.53	193.19	5910.51	-583.84	448.19	2.25	167.89	-535.03	
6100.00	6.44	354.64	6010.37	-580.42	447.23	9.98	17.56	-531.73	
6200.00	16.88	353.61	6108.19	-560.37	445.64	10.69	349.14	-511.94	
6237.85	20.78	353.08	6144.00	-548.22	444.20	9.57	2.66	-500.01	SHARON SPRINGS :
6300.00	25.86	354.35	6200.97	-523.58	441.44	6.10	16.31	-475.78	
6371.92	32.91	357.58	6264.00	-489.15	438.98	15.71	10.79	-441.77	NIOBRARA "A" CHALK :
6382.74	34.59	358.11	6273.00	-483.14	438.75	15.71	10.15	-435.82	NIOBRARA "A" MARL :
6400.00	37.40	358.98	6286.97	-473.01	438.49	17.15	10.93	-425.77	
6457.75	45.32	0.69	6330.00	-434.57	438.58	6.25	335.84	-387.52	NIOBRARA "B" CHALK :
6493.98	47.45	359.53	6355.00	-408.35	438.60	6.63	346.42	-361.43	NIOBRARA "B" MARL :
6500.00	47.84	359.41	6359.06	-403.90	438.56	6.63	346.53	-357.01	
6559.32	53.21	359.25	6397.00	-358.33	437.85	12.62	8.03	-311.76	NIOBRARA "C" CHALK :
6600.00	58.65	0.19	6419.84	-324.69	437.68	14.51	8.68	-278.31	
6606.16	59.53	0.34	6423.00	-319.40	437.70	14.51	8.41	-273.05	NIOBRARA "C" MARL :
6700.00	67.81	0.65	6463.32	-234.77	438.76	3.88	351.84	-188.75	
6760.65	70.20	1.53	6485.00	-178.15	439.77	3.64	24.43	-132.32	FT. HAYS :
6800.00	74.32	0.50	6497.28	-140.78	440.60	14.41	342.31	-95.06	
6873.66	83.56	359.52	6510.00	-68.32	440.08	4.29	27.19	-23.03	CODELL :
6900.00	84.56	0.04	6512.73	-42.12	439.98	4.29	27.18	3.02	
6901.00	84.60	0.06	6512.82	-41.13	439.99	4.29	27.13	4.01	
6903.37	84.66	0.08	6513.04	-38.77	439.99	2.87	20.30	6.36	7 in
6913.95	84.95	0.19	6514.00	-28.23	440.01	2.87	20.30	16.84	CODELL TARGET :
6914.00	84.95	0.19	6514.00	-28.18	440.01	0.00	0.00	16.89	
6966.00	87.34	0.53	6517.50	23.70	440.34	4.65	8.10	68.53	
7000.00	87.34	0.53	6519.08	57.66	440.65	0.00	0.00	102.35	
7066.00	87.34	0.53	6522.14	123.59	441.26	0.00	0.00	167.99	
7100.00	87.77	1.06	6523.59	157.55	441.74	2.00	51.31	201.83	
7200.00	89.02	2.62	6526.40	257.46	444.95	2.00	51.29	301.54	
7300.00	90.27	4.18	6527.02	357.27	450.88	2.00	51.25	401.44	
7400.00	91.52	5.74	6525.45	456.88	459.53	2.00	51.24	501.41	
7474.18	92.45	6.90	6522.88	530.57	467.69	2.00	51.26	575.54	

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Interpolated Points (Relative to centre, TVD relative to Drill Floor )									
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	DLS (°/100 US ft)	T.Face (°)	VS (US ft)	Comment
7500.00	92.30	6.41	6521.81	556.19	470.68	2.00	252.89	601.34	
7600.00	91.71	4.49	6518.32	655.67	480.17	2.00	252.87	701.27	
7700.00	91.12	2.58	6515.85	755.44	486.34	2.00	252.80	801.15	
7800.00	90.52	0.67	6514.42	855.39	489.18	2.00	252.76	900.86	
7887.86	90.00	358.99	6514.02	943.24	488.93	2.00	252.73	988.23	
7900.00	90.00	358.99	6514.02	955.38	488.71	0.00	0.00	1000.29	
8000.00	90.00	358.99	6514.02	1055.37	486.96	0.00	0.00	1099.57	
8100.00	90.00	358.99	6514.02	1155.35	485.21	0.00	0.00	1198.85	
8200.00	90.00	358.99	6514.02	1255.34	483.45	0.00	0.00	1298.13	
8300.00	90.00	358.99	6514.02	1355.32	481.70	0.00	0.00	1397.42	
8400.00	90.00	358.99	6514.02	1455.30	479.94	0.00	0.00	1496.70	
8500.00	90.00	358.99	6514.02	1555.29	478.19	0.00	0.00	1595.98	
8600.00	90.00	358.99	6514.02	1655.27	476.44	0.00	0.00	1695.27	
8700.00	90.00	358.99	6514.02	1755.26	474.68	0.00	0.00	1794.55	
8800.00	90.00	358.99	6514.02	1855.24	472.93	0.00	0.00	1893.83	
8900.00	90.00	358.99	6514.02	1955.23	471.17	0.00	0.00	1993.12	
9000.00	90.00	358.99	6514.02	2055.21	469.42	0.00	0.00	2092.40	
9100.00	90.00	358.99	6514.01	2155.20	467.67	0.00	0.00	2191.68	
9200.00	90.00	358.99	6514.01	2255.18	465.91	0.00	0.00	2290.97	
9300.00	90.00	358.99	6514.01	2355.17	464.16	0.00	0.00	2390.25	
9400.00	90.00	358.99	6514.01	2455.15	462.40	0.00	0.00	2489.53	
9500.00	90.00	358.99	6514.01	2555.14	460.65	0.00	0.00	2588.81	
9600.00	90.00	358.99	6514.01	2655.12	458.90	0.00	0.00	2688.10	
9700.00	90.00	358.99	6514.01	2755.10	457.14	0.00	0.00	2787.38	
9800.00	90.00	358.99	6514.01	2855.09	455.39	0.00	0.00	2886.66	
9900.00	90.00	358.99	6514.01	2955.07	453.63	0.00	0.00	2985.95	
10000.00	90.00	358.99	6514.01	3055.06	451.88	0.00	0.00	3085.23	
10100.00	90.00	358.99	6514.01	3155.04	450.13	0.00	0.00	3184.51	
10200.00	90.00	358.99	6514.01	3255.03	448.37	0.00	0.00	3283.80	
10300.00	90.00	358.99	6514.01	3355.01	446.62	0.00	0.00	3383.08	
10400.00	90.00	358.99	6514.01	3455.00	444.86	0.00	0.00	3482.36	
10500.00	90.00	358.99	6514.00	3554.98	443.11	0.00	0.00	3581.64	
10600.00	90.00	358.99	6514.00	3654.97	441.36	0.00	0.00	3680.93	
10700.00	90.00	358.99	6514.00	3754.95	439.60	0.00	0.00	3780.21	
10800.00	90.00	358.99	6514.00	3854.94	437.85	0.00	0.00	3879.49	
10900.00	90.00	358.99	6514.00	3954.92	436.09	0.00	0.00	3978.78	
11000.00	90.00	358.99	6514.00	4054.90	434.34	0.00	0.00	4078.06	
11100.00	90.00	358.99	6514.00	4154.89	432.59	0.00	0.00	4177.34	
11152.75	90.00	358.99	6514.00	4207.63	431.66	0.00	0.00	4229.71	