



Plan Data for HOWARD 4N-28HZ

Field: WATTENBERG_ANADARKO_NAD 83
Map Unit: USFT Vertical Reference Datum (VRD): Mean Sea Level
Projected Coordinate System: NAD83 / Colorado North (ftUS)

Slot: HOWARD 4N-28HZ
Position:
Offset is from Site centre
+N/-S: -0.00USft Northing: 1249106.69USft Latitude: 40.015625°
+E/-W: 29.97USft Easting: 3167982.63USft Longitude: -104.900249°
Elevation Above VRD: 5008.00USft

Survey Point Information:
DogLeg Severity Unit: °/100.00ft

MD	Inc	Az	TVD	+N/-S	+E/-W	VSec	DLS	Toolface	Build	Turn	Annotations
(USft)	(°)	(°)	(USft)	(USft)	(USft)	(USft)	(DLSU)	(°)	(DLSU)	(DLSU)	
966.00	0.27	292.29	965.99	1.68	1.55	1.67	0.76	143.7	0.22	246.18	TIE ON
1117.00	0.35	94.42	1116.99	1.78	1.68	1.77	0.41	169.9	0.05	107.37	FIRST WFT MWD SVY
12529.00	88.83	357.36	7507.23	4904.15	-813.97	4909.03	1.81	192.9	-1.77	-0.40	LAST WFT MWD SVY
12586.00	88.83	357.36	7508.39	4961.07	-816.60	4965.97	0.00	0.0	0.00	0.00	PROJECTION TO TD

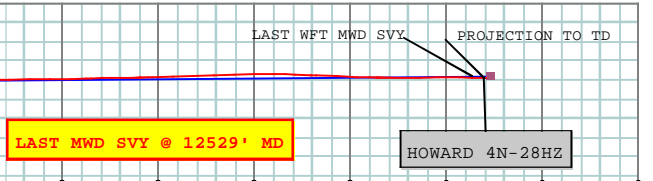
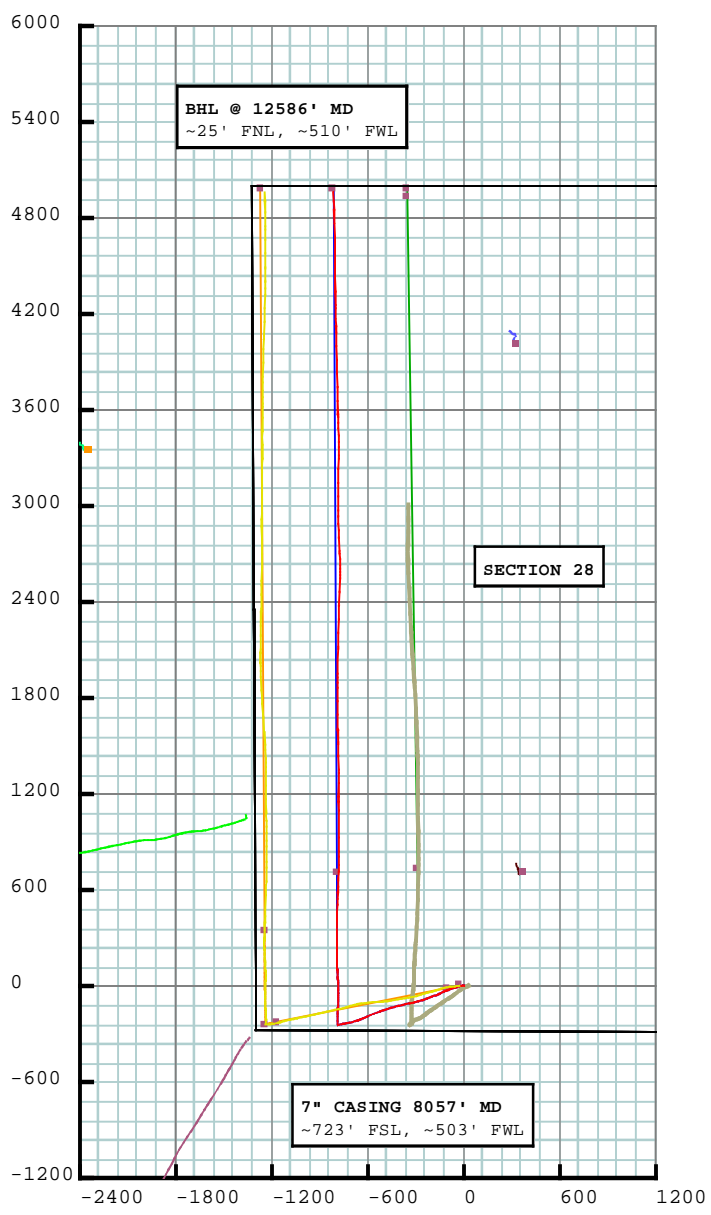
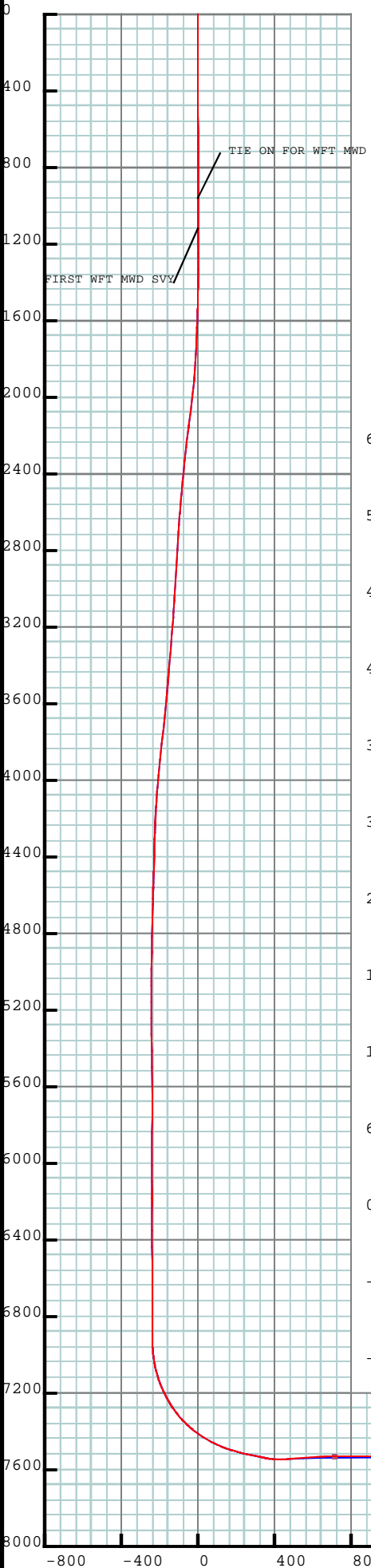
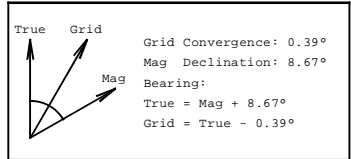
Target Set Information:
Name: 2

Name	TVD	Lat	Long
	(USft)	(°)	(°)
PBHL	7504.00	40.029315	-104.903157

Survey Data for HOWARD 4N-28HZ

Formation Point Information:

Name	TVD	Elevation	MD
	(USft)	(USft)	(USft)
NIOBRARA C	N/A	N/A	N/A
FOX HILLS	1116.00	3908.00	1116.01
SUSSEX	4804.00	220.00	4907.95
SHARON SPRINGS	7304.00	-2280.00	7436.23
NIOBRARA A	7339.00	-2315.00	7481.96
NIOBRARA B	7539.00	-2515.00	7971.66





5D Survey Report

Anadarko Petroleum

Field Name: WATTENBERG_ANADARKO_NAD 83
Site Name: HOWARD 14W-28HZ
Well Name: HOWARD 4N-28HZ
Survey: Definitive Survey



DEFINITIVE SURVEYS FOR THE HOWARD 4N-28HZ

Site Name HOWARD 14W-28HZ	Units : US ft		North Reference : True		Convergence Angle : 0.39	
	Position		Northing : 1249106.49 US ft		Latitude : 40.015625	
			Easting : 3167952.66 US ft		Longitude : -104.900356	
Elevation above:5008.00 US ft						
Comment :						
Slot Name HOWARD 4N-28HZ	+N / -S : -0.00 US ft		Position (Offsets relative to Site Centre)			
	+E / -W : 29.97 US ft		Northing :1249106.69 US ft		Latitude : 40.015625	
			Easting :3167982.63 US ft		Longitude : -104.900249	
Slot TVD Reference : Ground Elevation						
Elevation above : 5008.00 US ft						
Comment :						
Well Name HOWARD 4N-28HZ	Type : Main well					
	Rig Height <i>Drill Floor</i> : 16.00 US ft					
	Relative to : 5024.00 US ft					
	Closure Distance : 5027.83 US ft					
	Vertical Section (Position of Origin Relative to Slot)					
	+ N / -S : 0.00 US ft		+ E / -W : 0.00 US ft		Az :359.65°	
Target Set						
Name : 2			Number of Targets : 1			
Comment :						
TargetName: PBHL	+N / -S : 4986.93US ft		Northing : 1254088.00 US ft		Latitude : 40°1'45.534000"	
	+E / -W : -814.35 US ft		Easting : 3167134.58US ft		Longitude : -104°54'11.365200"	
	TVD (Drill Floor) : 7504.00 US ft					
Shape: Cuboid	Orientation		Azimuth : 0.00°		Inclination : 0.00°	
	Dimensions		Length : 1.00 US ft		Breadth : 1.00 US ft	
					Height : 1.00 US ft	

5D Survey Report

Survey Name :Definitive Survey			
Date : 22/May/2013		Survey Tool :	Company :
Magnetic Model			
Model Name: BGGM		Date: 22/May/2013	Field Strength: 52684.0 nT Declination: 8.67° Dip: 66.64°
Survey Tool Ranges			
Name		Source Survey	
		Start MD (us ft)	End MD (us ft)
NSG Static GMS		0.00	966.00
MWD		966.00	12586.00
		SURFACE GYRO SURVEYS	
		WFT MWD SURVEYS	

Well path created using minimum curvature

Survey 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 (°)	CL (US ft)	VS (US ft)
0.00	0.00	0.00	0.00	0.00	0.00	40.015625	-104.900246	0.00	0.00	0.00	0.00
16.00	0.00	0.00	16.00	0.00	0.00	40.015625	-104.900246	0.00	0.00	16.00	0.00
116.00	0.05	79.88	116.00	0.01	0.04	40.015625	-104.900246	0.05	79.49	100.00	0.01
216.00	0.13	20.40	216.00	0.12	0.13	40.015625	-104.900246	0.11	278.14	100.00	0.12
316.00	0.35	38.66	316.00	0.47	0.36	40.015626	-104.900248	0.23	28.45	100.00	0.46
416.00	0.36	27.33	416.00	0.98	0.69	40.015628	-104.900247	0.07	272.42	100.00	0.98
516.00	0.19	71.21	516.00	1.32	0.99	40.015629	-104.900245	0.26	149.44	100.00	1.31
616.00	0.22	15.30	616.00	1.56	1.20	40.015629	-104.900245	0.19	249.90	100.00	1.55
716.00	0.13	82.10	716.00	1.76	1.36	40.015630	-104.900244	0.21	144.70	100.00	1.75
816.00	0.09	64.46	815.99	1.81	1.55	40.015630	-104.900243	0.05	211.66	100.00	1.80
916.00	0.16	169.20	915.99	1.70	1.64	40.015630	-104.900243	0.20	130.19	100.00	1.69
966.00	0.27	292.29	965.99	1.68	1.55	40.015630	-104.900243	0.76	143.65	50.00	1.67
1117.00	0.35	94.42	1116.99	1.78	1.68	40.015630	-104.900243	0.41	169.90	151.00	1.77
1174.00	0.16	302.96	1173.99	1.81	1.78	40.015630	-104.900243	0.87	188.86	57.00	1.80
1265.00	2.59	272.36	1264.96	1.96	-0.38	40.015630	-104.900250	2.70	327.50	91.00	1.96
1356.00	3.91	267.89	1355.81	1.93	-5.53	40.015630	-104.900265	1.48	346.90	91.00	1.97
1452.00	5.25	260.86	1451.50	1.11	-13.14	40.015628	-104.900296	1.51	333.74	96.00	1.19
1545.00	6.09	252.00	1544.05	-1.09	-22.03	40.015622	-104.900328	1.30	309.35	93.00	-0.95
1637.00	7.51	252.63	1635.40	-4.39	-32.41	40.015613	-104.900365	1.55	3.32	92.00	-4.19
1730.00	10.48	255.66	1727.25	-8.30	-46.41	40.015602	-104.900415	3.23	10.56	93.00	-8.02
1823.00	12.35	253.42	1818.40	-13.23	-64.14	40.015589	-104.900478	2.07	345.56	93.00	-12.84
1916.00	14.53	251.32	1908.85	-19.81	-84.72	40.015571	-104.900551	2.40	346.36	93.00	-19.29
2009.00	16.13	246.61	1998.54	-28.67	-107.64	40.015546	-104.900633	2.18	319.82	93.00	-28.02
2193.00	18.44	245.34	2174.22	-50.97	-157.55	40.015485	-104.900811	1.27	350.11	184.00	-50.00
2286.00	18.52	249.98	2262.43	-62.16	-184.79	40.015454	-104.900909	1.58	89.09	93.00	-61.03
2471.00	15.89	250.22	2439.14	-80.79	-236.24	40.015403	-104.901092	1.42	178.57	185.00	-79.35
2563.00	16.87	253.35	2527.41	-88.88	-260.88	40.015381	-104.901180	1.43	43.52	92.00	-87.28

5D Survey Report

Survey 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 (°)	CL (US ft)	VS (US ft)	High to Plan (US ft)	Right to Plan (US ft)	Comment
2656.00	17.90	255.16	2616.16	-96.41	-287.63	40.015360	-104.901276	1.25	28.57	93.00	-94.65	-0.00	0.00	
2748.00	16.08	255.36	2704.14	-103.25	-313.62	40.015342	-104.901369	1.98	178.26	92.00	-101.33	-0.00	0.00	
2842.00	15.47	258.03	2794.60	-109.14	-338.48	40.015325	-104.901457	1.01	131.32	94.00	-107.07	-0.00	0.00	
2935.00	15.60	256.82	2884.20	-114.14	-362.88	40.015312	-104.901545	0.27	58.81	93.00	-111.92	-0.00	0.00	
3027.00	15.80	254.96	2972.77	-119.79	-387.12	40.015296	-104.901631	1.16	278.98	92.00	-117.42	-0.00	0.00	
3119.00	15.11	258.76	3061.45	-125.37	-410.97	40.015281	-104.901716	1.33	126.09	92.00	-122.86	-0.00	0.00	
3211.00	15.36	253.52	3150.22	-131.17	-434.42	40.015265	-104.901800	1.52	277.76	92.00	-128.51	-0.00	0.00	
3297.00	15.68	253.22	3233.08	-137.75	-456.47	40.015247	-104.901879	0.38	345.77	86.00	-134.96	-0.00	0.00	
3382.00	15.95	252.86	3314.86	-144.51	-478.63	40.015228	-104.901958	0.34	339.86	85.00	-141.58	-0.00	0.00	
3468.00	15.45	251.24	3397.65	-151.68	-500.77	40.015209	-104.902037	0.77	220.46	86.00	-148.62	0.00	0.00	
3553.00	15.25	251.42	3479.62	-158.88	-522.08	40.015189	-104.902113	0.24	166.69	85.00	-155.69	0.00	0.00	
3638.00	15.14	248.55	3561.65	-166.50	-543.01	40.015168	-104.902188	0.89	260.30	85.00	-163.18	0.00	0.00	
3724.00	15.21	250.45	3644.65	-174.38	-564.09	40.015146	-104.902263	0.58	82.91	86.00	-170.93	0.00	0.00	
3809.00	14.92	246.78	3726.73	-182.43	-584.66	40.015124	-104.902336	1.17	251.32	85.00	-178.85	0.00	0.00	
3895.00	15.29	244.93	3809.76	-191.60	-605.10	40.015099	-104.902409	0.71	306.61	86.00	-187.90	0.00	0.00	
3980.00	14.94	245.72	3891.82	-200.85	-625.24	40.015074	-104.902481	0.48	149.90	85.00	-197.03	0.00	0.00	
4065.00	14.82	248.35	3973.97	-209.19	-645.40	40.015051	-104.902553	1.11	99.09	85.00	-205.25	0.00	0.00	
4151.00	13.55	250.93	4057.35	-216.36	-665.22	40.015031	-104.902624	1.54	163.81	86.00	-212.30	-0.00	0.00	
4236.00	12.19	253.97	4140.21	-222.10	-683.25	40.015015	-104.902688	1.79	155.01	85.00	-217.92	0.00	0.00	
4322.00	11.62	256.30	4224.36	-226.65	-700.40	40.015003	-104.902750	0.87	141.00	86.00	-222.37	0.00	0.00	
4407.00	10.33	262.04	4307.81	-229.74	-716.26	40.014994	-104.902806	1.99	142.52	85.00	-225.36	0.00	0.00	
4493.00	10.09	260.03	4392.45	-232.11	-731.32	40.014988	-104.902860	0.50	235.05	86.00	-227.64	0.00	0.00	
4578.00	9.10	258.33	4476.26	-234.76	-745.23	40.014981	-104.902910	1.21	195.14	85.00	-230.20	-0.00	0.00	
4663.00	7.74	255.29	4560.34	-237.57	-757.35	40.014973	-104.902953	1.68	196.62	85.00	-232.94	-0.00	0.00	
4749.00	6.23	256.72	4645.70	-240.11	-767.50	40.014966	-104.902983	1.77	174.14	86.00	-235.42	-0.00	0.00	
4834.00	4.93	254.66	4730.30	-242.14	-775.51	40.014960	-104.903018	1.55	187.74	85.00	-237.40	-0.00	0.00	
4920.00	4.33	256.56	4816.01	-243.87	-782.23	40.014955	-104.903042	0.72	166.61	86.00	-239.09	-0.00	0.00	
5005.00	3.26	253.53	4900.83	-245.30	-787.67	40.014952	-104.903061	1.28	189.11	85.00	-240.49	-0.00	0.00	
5090.00	2.29	249.94	4985.73	-246.57	-791.58	40.014948	-104.903075	1.16	188.37	85.00	-241.73	-0.00	0.00	
5175.00	1.02	246.06	5070.69	-247.46	-793.87	40.014946	-104.903083	1.50	183.11	85.00	-242.61	-0.00	0.00	
5261.00	1.04	266.03	5156.68	-247.82	-795.35	40.014945	-104.903089	0.42	96.83	86.00	-242.96	-0.00	0.00	
5346.00	0.97	283.24	5241.66	-247.71	-796.82	40.014945	-104.903094	0.36	111.56	85.00	-242.84	-0.00	0.00	
5432.00	1.24	314.23	5327.65	-246.90	-798.19	40.014947	-104.903099	0.75	81.71	86.00	-242.02	-0.00	0.00	
5517.00	1.19	3.31	5412.63	-245.37	-798.80	40.014951	-104.903101	1.19	117.12	85.00	-240.49	-0.00	0.00	
5602.00	0.98	19.04	5497.62	-243.81	-798.51	40.014956	-104.903100	0.43	132.88	85.00	-238.92	-0.00	0.00	
5773.00	0.80	89.49	5668.60	-242.41	-796.84	40.014959	-104.903094	0.61	133.37	171.00	-237.54	-0.00	0.00	
5858.00	0.56	191.29	5753.60	-242.82	-796.33	40.014958	-104.903092	1.25	149.06	85.00	-237.95	-0.00	0.00	
5943.00	0.44	220.90	5838.59	-243.47	-796.62	40.014957	-104.903093	0.33	129.22	85.00	-238.60	-0.00	0.00	
6114.00	0.25	310.38	6009.59	-243.72	-797.34	40.014956	-104.903096	0.29	150.27	171.00	-238.85	-0.00	0.00	
6199.00	0.29	315.07	6094.59	-243.45	-797.63	40.014957	-104.903097	0.05	31.28	85.00	-238.57	-0.00	0.00	
6285.00	0.16	120.27	6180.59	-243.36	-797.68	40.014957	-104.903097	0.52	174.75	86.00	-238.48	-0.00	0.00	

5D Survey Report

Survey 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 (°)	CL (US ft)	VS (US ft)	High to Plan (US ft)	Right to Plan (US ft)	Comment
6370.00	1.22	104.97	6265.58	-243.65	-796.70	40.014956	-104.903093	1.25	342.43	85.00	-238.78	-0.00	0.00	
6456.00	0.84	80.16	6351.57	-243.78	-795.20	40.014956	-104.903088	0.67	217.61	86.00	-238.92	-0.00	0.00	
6541.00	0.70	55.46	6436.56	-243.38	-794.16	40.014957	-104.903084	0.42	235.10	85.00	-238.52	-0.00	0.00	
6626.00	0.80	28.26	6521.55	-242.56	-793.45	40.014959	-104.903082	0.43	271.81	85.00	-237.71	-0.00	0.00	
6711.00	0.75	40.01	6606.55	-241.61	-792.81	40.014962	-104.903080	0.20	113.28	85.00	-236.77	-0.00	0.00	
6797.00	0.66	121.88	6692.54	-241.44	-792.03	40.014962	-104.903077	1.08	135.14	86.00	-236.60	-0.00	0.00	
6882.00	0.64	110.80	6777.54	-241.87	-791.17	40.014961	-104.903074	0.15	255.45	85.00	-237.03	-0.00	0.00	
6966.00	0.44	96.93	6861.53	-242.08	-790.41	40.014960	-104.903071	0.28	206.36	84.00	-237.24	-0.00	0.00	
7033.00	0.70	352.21	6928.53	-241.70	-790.21	40.014961	-104.903070	1.37	227.62	67.00	-236.87	-0.00	0.00	
7118.00	7.34	6.08	7013.27	-235.78	-789.70	40.014978	-104.903068	7.84	15.31	85.00	-230.95	-0.00	0.00	
7204.00	15.87	1.09	7097.44	-218.53	-788.90	40.015025	-104.903066	9.98	350.83	86.00	-213.71	-0.00	0.00	
7289.00	23.51	359.04	7177.41	-189.92	-788.96	40.015104	-104.903066	9.02	353.86	85.00	-185.09	0.00	0.00	
7374.00	31.44	2.87	7252.77	-150.76	-788.13	40.015211	-104.903063	9.55	14.28	85.00	-145.94	0.00	0.00	
7459.00	39.94	3.40	7321.74	-101.29	-785.40	40.015347	-104.903053	10.01	2.30	85.00	-96.49	0.00	0.00	
7545.00	49.91	359.97	7382.57	-40.68	-783.78	40.015513	-104.903047	11.93	345.11	86.00	-35.89	0.00	0.00	
7630.00	58.28	355.37	7432.39	28.02	-786.72	40.015702	-104.903058	10.77	334.62	85.00	32.82	0.00	0.00	
7716.00	56.13	357.27	7472.46	103.88	-791.55	40.015910	-104.903075	9.33	12.54	86.00	108.71	0.00	0.00	
7801.00	73.70	359.92	7501.63	183.62	-793.46	40.016129	-104.903082	9.37	18.67	85.00	188.46	0.00	0.00	
7887.00	78.52	359.51	7522.27	267.08	-793.88	40.016358	-104.903083	5.62	355.23	86.00	271.92	0.00	0.00	
7972.00	78.69	0.46	7539.07	350.40	-793.90	40.016587	-104.903083	1.11	79.75	85.00	355.24	0.00	0.00	
8001.00	83.56	0.59	7543.54	379.04	-793.64	40.016666	-104.903083	16.80	1.52	29.00	383.88	0.00	0.00	
8083.00	95.43	1.51	7544.26	460.88	-792.14	40.016890	-104.903077	14.52	4.44	82.00	465.71	-0.44	-0.74	
8166.00	93.89	2.32	7537.52	543.55	-789.37	40.017117	-104.903067	2.09	152.30	83.00	548.37	-3.63	-3.03	
8207.00	93.89	2.30	7534.74	584.43	-787.72	40.017229	-104.903061	0.05	270.00	41.00	589.23	-5.08	-4.58	
8293.00	91.60	1.92	7530.62	670.26	-784.56	40.017465	-104.903050	2.70	189.42	86.00	675.04	-7.32	-7.80	
8378.00	89.81	1.44	7529.57	755.22	-782.07	40.017698	-104.903041	2.18	195.01	85.00	759.98	-7.57	-10.68	
8463.00	90.37	359.97	7529.44	340.21	-781.02	40.017931	-104.903038	1.85	290.85	85.00	844.96	-7.04	-12.16	
8549.00	90.56	359.78	7528.74	326.21	-781.21	40.018168	-104.903038	0.31	315.00	86.00	930.96	-7.06	-12.41	
8720.00	90.43	358.96	7527.26	1097.19	-783.09	40.018637	-104.903045	0.49	260.99	171.00	1101.95	-7.20	-11.40	
8805.00	91.05	0.44	7526.17	1182.18	-783.54	40.018870	-104.903047	1.89	67.26	85.00	1186.94	-7.63	-11.39	
8891.00	91.48	0.47	7524.27	1268.15	-782.85	40.019106	-104.903044	0.50	3.99	86.00	1272.91	-8.85	-12.51	
8976.00	90.49	359.51	7522.81	1353.14	-782.87	40.019340	-104.903044	1.62	224.12	85.00	1357.89	-9.65	-12.93	
9061.00	90.19	356.54	7522.30	1438.12	-784.32	40.019573	-104.903043	1.19	252.82	85.00	1442.89	-9.49	-11.91	
9146.00	89.01	358.58	7522.90	1523.09	-786.45	40.019806	-104.903057	1.39	178.06	85.00	1527.87	-8.23	-10.21	
9232.00	88.58	359.62	7524.70	1609.06	-787.80	40.020042	-104.903062	1.31	112.48	86.00	1613.84	-5.75	-9.30	
9317.00	89.01	359.30	7526.49	1694.04	-788.60	40.020275	-104.903065	0.63	323.35	85.00	1698.82	-3.30	-8.94	
9402.00	89.63	0.08	7527.50	1779.03	-789.06	40.020509	-104.903066	1.17	51.52	85.00	1783.82	-1.62	-8.91	
9488.00	89.75	0.03	7527.97	1865.03	-788.98	40.020745	-104.903066	0.15	337.38	86.00	1869.81	-0.48	-9.43	
9573.00	92.53	359.81	7526.27	1950.00	-789.10	40.020978	-104.903067	3.28	355.48	85.00	1954.79	-1.51	-9.75	
9659.00	92.28	0.91	7522.67	2035.92	-788.56	40.021214	-104.903065	1.31	102.79	86.00	2040.70	-4.43	-10.72	
9744.00	91.29	1.60	7520.02	2120.86	-786.70	40.021447	-104.903058	1.42	145.13	85.00	2125.63	-6.42	-13.01	

5D Survey Report

Survey Points (Relative to centre, TVD relative to Drill Floor)														
MD (US ft)	Inc (°)	Az (US ft)	TVD (US ft)	N. Offset (US ft)	E. Offset (US ft)	Latitude (°)	-Longitude (°)	DLS (°/100 US ft)	T. Face (°)	CL (US ft)	VS (US ft)	High to Plan (US ft)	Right to Plan (US ft)	Comment
9829.00	90.71	1.60	7518.53	2205.82	-784.33	40.021680	-104.903049	0.68	180.00	85.00	2210.57	-7.24	-15.82	
9914.00	90.62	1.39	7517.55	2290.78	-782.11	40.021914	-104.903042	0.27	246.80	85.00	2295.52	-7.56	-18.47	
10000.00	90.99	1.70	7516.34	2376.74	-779.79	40.022150	-104.903033	0.56	39.95	86.00	2381.46	-8.09	-21.22	
10085.00	91.23	2.19	7514.69	2461.68	-776.91	40.022383	-104.903023	0.64	63.90	85.00	2466.37	-9.06	-24.53	
10171.00	92.22	2.30	7512.10	2547.57	-773.54	40.022619	-104.903011	1.16	6.34	86.00	2552.25	-10.95	-28.33	
10256.00	90.55	358.30	7510.05	2632.52	-773.09	40.022852	-104.903009	5.10	247.39	85.00	2637.20	-12.40	-29.22	
10341.00	88.58	356.95	7510.69	2717.44	-776.62	40.023085	-104.903022	2.81	214.42	85.00	2722.13	-11.04	-26.11	
10427.00	87.65	357.42	7513.52	2803.29	-780.84	40.023321	-104.903037	1.21	153.21	86.00	2808.01	-7.53	-22.34	
10512.00	89.45	356.25	7515.67	2888.20	-784.05	40.023554	-104.903049	2.33	24.76	85.00	2892.93	-4.76	-19.58	
10597.00	90.43	359.84	7515.76	2973.18	-785.46	40.023787	-104.903054	2.20	58.36	85.00	2977.92	-4.01	-18.60	
10683.00	91.11	0.11	7514.61	3059.17	-785.50	40.024023	-104.903054	0.85	21.65	86.00	3063.91	-4.49	-19.01	
10768.00	90.43	0.57	7513.47	3144.16	-785.00	40.024256	-104.903052	0.97	145.92	85.00	3148.90	-4.96	-19.94	
10854.00	90.62	0.84	7512.68	3230.15	-783.94	40.024492	-104.903048	0.38	54.86	86.00	3234.88	-5.08	-21.44	
10939.00	91.91	0.91	7510.80	3315.12	-782.64	40.024726	-104.903044	1.52	3.10	85.00	3319.84	-6.27	-23.17	
11024.00	91.42	359.31	7508.33	3400.08	-782.48	40.024959	-104.903043	1.97	252.99	85.00	3404.80	-8.10	-23.77	
11110.00	89.88	357.88	7507.36	3486.05	-784.59	40.025195	-104.903051	2.44	222.89	86.00	3490.77	-8.40	-22.09	
11195.00	92.28	356.45	7505.75	3570.98	-787.31	40.025428	-104.903060	2.90	13.35	85.00	3575.72	-9.35	-19.80	
11281.00	92.03	356.77	7502.52	3656.89	-789.39	40.025664	-104.903068	0.47	128.01	86.00	3661.65	-11.90	-18.16	
11366.00	91.98	356.99	7499.55	3741.83	-791.05	40.025897	-104.903074	0.27	102.81	85.00	3746.59	-14.21	-16.93	
11452.00	91.67	359.02	7496.81	3827.77	-792.55	40.026133	-104.903079	0.36	174.47	86.00	3832.54	-16.27	-15.88	
11537.00	91.36	356.50	7494.56	3912.72	-794.38	40.026366	-104.903086	0.71	239.20	85.00	3917.50	-17.86	-14.47	
11622.00	90.55	358.56	7493.14	3997.68	-796.56	40.026599	-104.903093	0.96	175.76	85.00	4002.47	-18.61	-12.73	
11708.00	90.06	356.65	7492.69	4083.65	-798.66	40.026835	-104.903101	0.58	169.59	86.00	4088.45	-18.39	-11.07	
11794.00	88.03	356.27	7494.12	4169.60	-800.97	40.027071	-104.903109	2.40	190.60	86.00	4174.42	-16.26	-9.20	
11879.00	87.23	359.32	7497.63	4254.51	-802.76	40.027304	-104.903116	1.55	127.35	85.00	4259.34	-12.08	-7.85	
11964.00	87.60	359.61	7501.47	4339.42	-803.55	40.027537	-104.903118	0.55	38.07	85.00	4344.25	-7.59	-7.49	
12050.00	87.72	359.90	7504.98	4425.35	-803.92	40.027773	-104.903120	0.36	67.51	86.00	4430.18	-3.42	-7.56	
12135.00	89.38	359.75	7507.13	4510.32	-804.18	40.028007	-104.903121	1.96	354.84	85.00	4515.15	-0.60	-7.74	
12220.00	89.94	359.48	7507.63	4595.31	-804.75	40.028240	-104.903123	0.73	334.26	85.00	4600.14	0.57	-7.60	
12306.00	90.37	356.93	7507.40	4681.30	-805.94	40.028476	-104.903127	0.81	308.02	86.00	4686.14	1.01	-6.84	
12391.00	90.49	357.91	7506.76	4766.27	-808.28	40.028709	-104.903135	1.21	276.71	85.00	4771.12	1.03	-4.93	
12477.00	89.75	357.57	7506.58	4852.20	-811.67	40.028945	-104.903147	0.95	204.68	86.00	4857.07	1.53	-1.98	LAST WFT MWD SVY
12529.00	88.83	357.36	7507.23	4904.15	-813.97	40.029088	-104.903156	1.81	192.86	52.00	4909.03	2.58	0.05	
12586.00	88.83	357.36	7508.39	4961.07	-816.60	40.029244	-104.903165	0.00	0.00	57.00	4965.97	4.19	2.38	PROJECTION TO TD

Formation Points (Relative to centre, TVD relative to Drill Floor)			
Name		MC (US ft)	TVD (US ft)
NIOBRARA C		N/A	7614.00
FOX HILLS		1116.01	1116.00

5D Survey Report

Formation Points	(Relative to centre, TVD relative to Drill Floor)	Name	MC (US ft)	TVD (US ft)
		SUSSEX	4907.95	4804.00
		SHARON SPRINGS	7436.23	7304.00
		NIOBRARA A	7481.96	7339.00
		NIOBRARA B	7971.66	7539.00