



PO Box 261021
Corpus Christi, Texas 78426
(361) 767-0602 • (800) 606-GYRO • Fax (361) 767-0612

15-37065

April 16, 2012

Devon Energy Production Co., L. P.
20 North Broadway
Oklahoma City, OK 73102-8260

Attn: Mark Cooper

Re: **Black Jack 1 Federal No. 004H**

Please find enclosed a copy of the survey from 0' to 7313' ran on the above referenced well.

If I can be of any further service please do not hesitate to call me at 800-606-4976.

Sincerely,

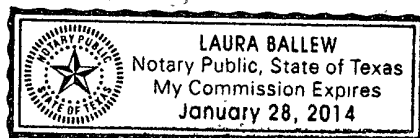
Keith Havelka
Operations

STATE OF TEXAS

COUNTY OF NUECES

§
§
§

This instrument was acknowledged before me on the 17th day of April,
A.D., 2012, by Keith Havelka.



Laura Ballew
Laura Ballew
Notary Public, State of Texas



Company: Devon Energy Production Co.
 Lease/Well: Black Jack 1 Federal /No. 004H
 Location: S 1, T 24S, R 30E
 Rig Name: H&P #416
 State/County: New Mexico/Eddy
 Latitude: 32.24
 GRID North is 0.27 Degrees East of True North
 VS-Azi: 0.00 Degrees



Depth Reference : RKB=25 ft. Elevation=3483 ft.

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: black jack 1 fed 4h_ed.ut
 Minimum Curvature Method
 Report Date/Time: 4/16/2012 / 09:00

Vaughn Energy Services
 Midland, TX
 432-563-5444
 Surveyor: Zach Garcia

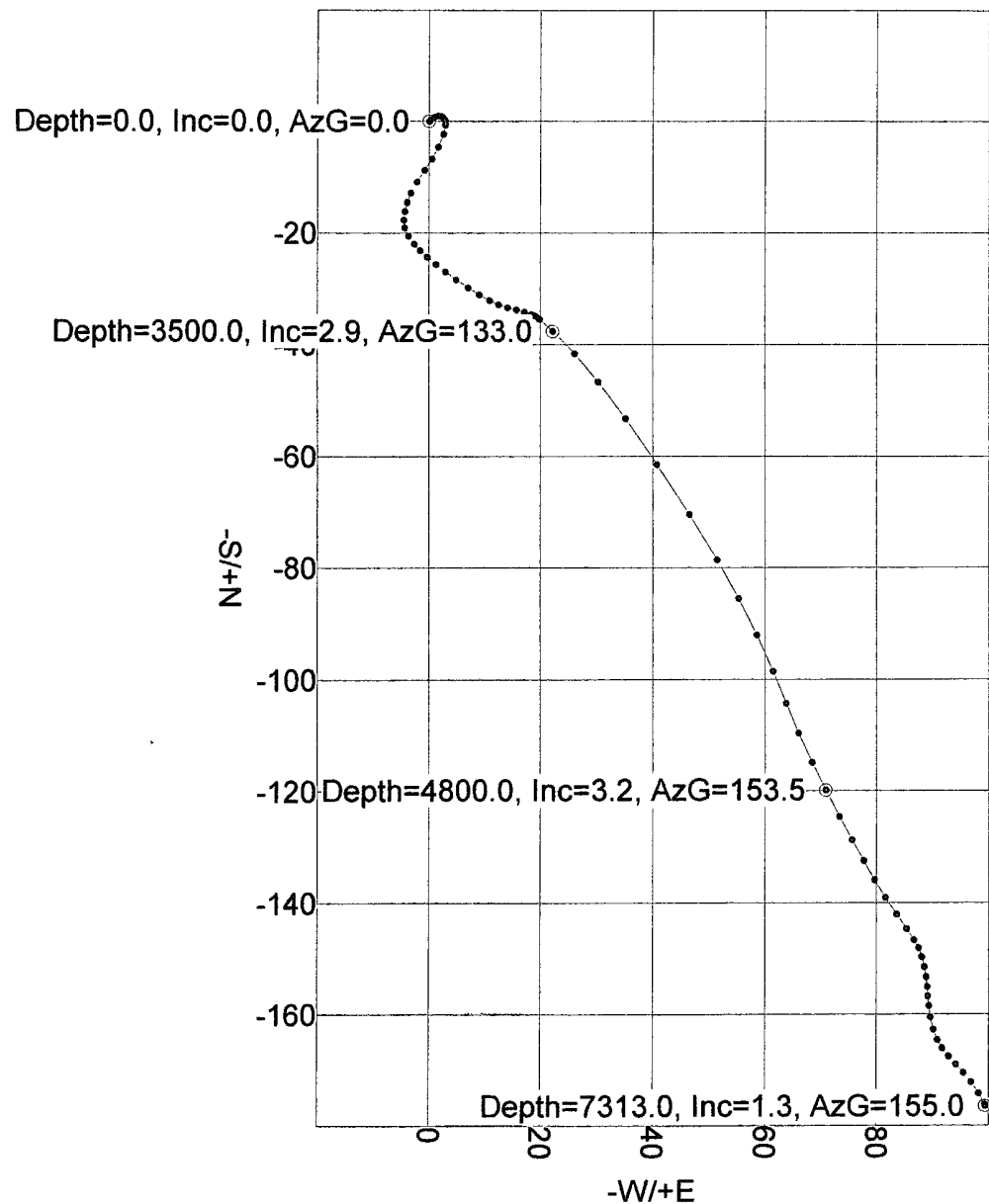
Black Jack 1 Federal No. 004H / API# 30-015-37065

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	****
100.00	0.42	40.69	100.00	0.28	0.24	0.28	0.37	40.69	0.42
200.00	0.49	69.70	200.00	0.70	0.88	0.70	1.12	51.25	0.24
300.00	0.38	81.01	299.99	0.90	1.60	0.90	1.84	60.58	0.14
400.00	0.16	101.73	399.99	0.92	2.06	0.92	2.26	65.84	0.23
500.00	0.37	131.50	499.99	0.68	2.44	0.68	2.53	74.44	0.25
600.00	0.37	160.94	599.99	0.16	2.79	0.16	2.80	86.76	0.19
700.00	0.55	182.63	699.99	-0.63	2.88	-0.63	2.94	102.37	0.25
800.00	1.42	195.82	799.97	-2.31	2.51	-2.31	3.41	132.56	0.90
900.00	1.43	206.96	899.94	-4.61	1.61	-4.61	4.89	160.76	0.28
1000.00	1.32	209.98	999.91	-6.72	0.47	-6.72	6.74	175.99	0.13
1100.00	1.40	215.10	1099.88	-8.72	-0.81	-8.72	8.75	185.28	0.14
1200.00	1.52	212.54	1199.85	-10.83	-2.22	-10.83	11.06	191.58	0.14
1300.00	1.12	205.02	1299.82	-12.83	-3.35	-12.83	13.26	194.61	0.43
1400.00	0.97	196.80	1399.81	-14.54	-4.01	-14.54	15.08	195.41	0.21
1500.00	0.91	190.02	1499.79	-16.13	-4.39	-16.13	16.71	195.22	0.13
1600.00	0.84	182.75	1599.78	-17.64	-4.56	-17.64	18.22	194.50	0.13
1700.00	0.79	165.00	1699.77	-19.04	-4.42	-19.04	19.55	193.06	0.26
1800.00	1.10	147.42	1799.76	-20.52	-3.72	-20.52	20.86	190.27	0.42

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
1900.00	0.91	140.33	1899.74	-21.95	-2.69	-21.95	22.11	186.99	0.23
2000.00	0.93	134.15	1999.73	-23.13	-1.60	-23.13	23.18	183.96	0.10
2100.00	1.06	131.81	2099.71	-24.31	-0.33	-24.31	24.31	180.79	0.13
2200.00	1.28	128.83	2199.69	-25.62	1.23	-25.62	25.65	177.26	0.23
2300.00	1.21	126.88	2299.67	-26.96	2.94	-26.96	27.12	173.77	0.09
2400.00	1.54	124.54	2399.64	-28.36	4.90	-28.36	28.78	170.20	0.34
2500.00	1.42	122.93	2499.61	-29.80	7.05	-29.80	30.62	166.69	0.13
2600.00	1.31	121.39	2599.58	-31.07	9.07	-31.07	32.36	163.73	0.12
2700.00	1.12	116.33	2699.56	-32.10	10.92	-32.10	33.90	161.21	0.22
2800.00	0.92	112.40	2799.54	-32.84	12.54	-32.84	35.15	159.10	0.21
2900.00	1.00	105.50	2899.53	-33.38	14.12	-33.38	36.24	157.06	0.14
3000.00	0.87	102.24	2999.51	-33.77	15.71	-33.77	37.25	155.05	0.14
3100.00	0.84	106.57	3099.50	-34.14	17.16	-34.14	38.21	153.32	0.08
3200.00	0.68	112.16	3199.49	-34.57	18.41	-34.57	39.17	151.97	0.17
3300.00	0.25	118.18	3299.49	-34.90	19.15	-34.90	39.81	151.24	0.44
3400.00	0.75	130.39	3399.49	-35.43	19.84	-35.43	40.61	150.75	0.51
3500.00	2.93	133.03	3499.43	-37.60	22.21	-37.60	43.67	149.43	2.18
3600.00	3.42	138.48	3599.27	-41.57	26.06	-41.57	49.06	147.92	0.57
3700.00	4.16	142.43	3699.06	-46.68	30.25	-46.68	55.62	147.06	0.79
3800.00	5.20	144.40	3798.72	-53.24	35.10	-53.24	63.77	146.61	1.05
3900.00	6.24	146.46	3898.22	-61.46	40.74	-61.46	73.73	146.46	1.06
4000.00	5.98	148.12	3997.65	-70.41	46.49	-70.41	84.38	146.56	0.31
4100.00	4.96	149.84	4097.20	-78.58	51.42	-78.58	93.90	146.80	1.04
4200.00	4.13	152.59	4196.88	-85.52	55.25	-85.52	101.81	147.13	0.85
4300.00	4.29	154.59	4296.61	-92.10	58.52	-92.10	109.11	147.57	0.22
4400.00	3.80	156.89	4396.36	-98.52	61.42	-98.52	116.10	148.06	0.52
4500.00	3.29	158.53	4496.17	-104.24	63.77	-104.24	122.20	148.54	0.52
4600.00	3.42	156.27	4596.00	-109.64	66.02	-109.64	127.98	148.95	0.19
4700.00	3.18	154.18	4695.83	-114.87	68.43	-114.87	133.71	149.22	0.27
4800.00	3.19	153.51	4795.68	-119.87	70.89	-119.87	139.26	149.40	0.04
4900.00	2.87	152.30	4895.54	-124.58	73.29	-124.58	144.54	149.53	0.33
5000.00	2.59	151.00	4995.42	-128.77	75.55	-128.77	149.30	149.60	0.28
5100.00	2.34	150.49	5095.33	-132.53	77.65	-132.53	153.60	149.63	0.26
5200.00	2.19	148.93	5195.25	-135.94	79.64	-135.94	157.55	149.63	0.16
5300.00	2.08	146.38	5295.18	-139.08	81.63	-139.08	161.27	149.59	0.15
5400.00	1.97	145.77	5395.12	-142.02	83.61	-142.02	164.80	149.51	0.11
5500.00	1.63	146.60	5495.07	-144.62	85.36	-144.62	167.93	149.45	0.34
5600.00	1.11	148.22	5595.04	-146.64	86.65	-146.64	170.32	149.42	0.52
5700.00	0.83	152.31	5695.03	-148.10	87.50	-148.10	172.01	149.43	0.29



Vaughn Energy Services
Midland, TX
432-563-5444
Surveyor: Zach Garcia
Black Jack 1 Federal No. 004H / API# 30-015-37065



VFS Survey Date: 04/08/2012

2105 MARKET STREET
MIDLAND, TX 79703
24 HR (432) 694-9517

STATE OF NEW MEXICO

COUNTY OF Eddy

I, Shawn Cook, Directional Driller certify that I am employed by Baker Hughes INTEQ; did conduct or supervise on the day(s) of Apr 8, 2012 through Apr 15, 2012 the taking of MWD surveys from a depth of 7,313 to a depth of 12,531 that the data is true, correct, complete and within the limitations of the tool as set forth by Baker Hughes INTEQ; that I am authorized and qualified to make this report; that this survey was conducted at the request of Devon for the Black Jack 1 Federal #4H in Eddy County, NM; and that I have reviewed this report and find that it conforms to the principles and procedures as set forth by INTEQ.

Remy Hise Remy Hise
OPS. Coordinator
Field Service Engineer: Shawn Cook



Actual Wellpath Report

No.4H AWP

Page 1 of 5



REFERENCE WELLPATH IDENTIFICATION

Operator	Devon Energy	Slot	No. 4H SHL
Area	Eddy County, NM	Well	No. 4H
Field	(Black Jack) Sec 1, T24S, R30E	Wellbore	No.4H AWB
Facility	Black Jack 1 Federal No. 4H		

REPORT SETUP INFORMATION

Projection System	NAD83 / TM New Mexico SP, Eastern Zone (3001), US feet	Software System	WellArchitect® 3.0.0
North Reference	Grid	User	Harrkol
Scale	0.999936	Report Generated	4/16/2012 at 9:01:51 AM
Convergence at slot	0.27° East	Database/Source file	WA Midland/No.4H_AWB.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	0.00	0.00	695186.56	451582.17	32°14'25.784"N	103°50'08.615"W
Facility Reference Pt			695186.56	451582.17	32°14'25.784"N	103°50'08.615"W
Field Reference Pt			695186.56	451582.17	32°14'25.784"N	103°50'08.615"W

WELLPATH DATUM

Calculation method	Minimum curvature	HP 416 (KB) to Facility Vertical Datum	25.00ft
Horizontal Reference Pt	Slot	HP 416 (KB) to Mean Sea Level	3508.00ft
Vertical Reference Pt	HP 416 (KB)	HP 416 (KB) to Mud Line at Slot (No. 4H SHL)	25.00ft
MD Reference Pt	HP 416 (KB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	356.73°



Actual Wellpath Report

No.4H AWP

Page 2 of 5



REFERENCE WELLPATH IDENTIFICATION			
Operator	Devon Energy	Slot	No. 4H SHL
Area	Eddy County, NM	Well	No. 4H
Field	(Black Jack) Sec 1, T24S, R30E	Wellbore	No.4H AWP
Facility	Black Jack 1 Federal No. 4H		

WELLPATH DATA (155 stations)												
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
0.00	0.000	40.690	0.00	0.00	0.00	0.00	695186.56	451582.17	32°14'25.784"N	103°50'08.615"W	0.00	
100.00	0.420	40.690	100.00	0.26	0.28	0.24	695186.80	451582.45	32°14'25.786"N	103°50'08.612"W	0.42	
200.00	0.490	69.700	200.00	0.65	0.70	0.88	695187.44	451582.87	32°14'25.791"N	103°50'08.605"W	0.24	
300.00	0.380	81.010	299.99	0.81	0.90	1.61	695188.17	451583.07	32°14'25.793"N	103°50'08.596"W	0.14	
400.00	0.160	101.730	399.99	0.81	0.93	2.07	695188.63	451583.10	32°14'25.793"N	103°50'08.591"W	0.24	
500.00	0.370	131.500	499.99	0.54	0.69	2.45	695189.01	451582.86	32°14'25.790"N	103°50'08.587"W	0.24	
600.00	0.370	160.940	599.99	0.01	0.17	2.80	695189.36	451582.34	32°14'25.785"N	103°50'08.582"W	0.19	
700.00	0.550	182.630	699.99	-0.78	-0.62	2.88	695189.44	451581.55	32°14'25.777"N	103°50'08.582"W	0.25	
800.00	1.420	195.820	799.97	-2.43	-2.29	2.52	695189.08	451579.88	32°14'25.761"N	103°50'08.586"W	0.89	
900.00	1.430	206.960	899.94	-4.68	-4.59	1.62	695188.18	451577.58	32°14'25.738"N	103°50'08.596"W	0.28	
1000.00	1.320	209.980	999.91	-6.72	-6.70	0.48	695187.04	451575.47	32°14'25.717"N	103°50'08.610"W	0.13	
1100.00	1.400	215.100	1099.88	-8.64	-8.70	-0.80	695185.76	451573.47	32°14'25.698"N	103°50'08.625"W	0.15	
1200.00	1.520	212.540	1199.85	-10.67	-10.82	-2.22	695184.34	451571.35	32°14'25.677"N	103°50'08.641"W	0.14	
1300.00	1.120	205.020	1299.82	-12.61	-12.82	-3.34	695183.22	451569.35	32°14'25.657"N	103°50'08.655"W	0.44	
1400.00	0.970	196.800	1399.81	-14.27	-14.52	4.00	695182.56	451567.65	32°14'25.640"N	103°50'08.662"W	0.21	
1500.00	0.910	190.020	1499.79	-15.83	-16.11	-4.38	695182.18	451566.06	32°14'25.624"N	103°50'08.667"W	0.13	
1600.00	0.840	182.750	1599.78	-17.34	-17.62	-4.56	695182.00	451564.55	32°14'25.609"N	103°50'08.669"W	0.13	
1700.00	0.790	165.000	1699.77	-18.74	-19.02	-4.42	695182.15	451563.15	32°14'25.596"N	103°50'08.668"W	0.26	
1800.00	1.100	147.420	1799.76	-20.25	-20.50	-3.72	695182.84	451561.67	32°14'25.581"N	103°50'08.659"W	0.42	
1900.00	0.910	140.330	1899.74	-21.73	-21.92	-2.70	695183.86	451560.25	32°14'25.567"N	103°50'08.648"W	0.23	
2000.00	0.930	134.150	1999.73	-22.97	-23.09	-1.61	695184.95	451559.08	32°14'25.555"N	103°50'08.635"W	0.10	
2100.00	1.060	131.810	2099.71	-24.22	-24.28	-0.33	695186.23	451557.90	32°14'25.543"N	103°50'08.620"W	0.14	
2200.00	1.280	128.830	2199.69	-25.62	-25.59	1.22	695187.78	451556.58	32°14'25.530"N	103°50'08.602"W	0.23	
2300.00	1.210	126.880	2299.67	-27.05	-26.93	2.94	695189.50	451555.24	32°14'25.517"N	103°50'08.582"W	0.08	
2400.00	1.540	124.540	2399.64	-28.56	-28.32	4.89	695191.45	451553.85	32°14'25.503"N	103°50'08.560"W	0.33	
2500.00	1.420	122.930	2499.61	-30.11	-29.76	7.04	695193.60	451552.41	32°14'25.489"N	103°50'08.535"W	0.13	
2600.00	1.310	121.390	2599.58	-31.49	-31.03	9.05	695195.61	451551.14	32°14'25.476"N	103°50'08.511"W	0.12	
2700.00	1.120	116.330	2699.56	-32.63	-32.06	10.91	695197.46	451550.12	32°14'25.466"N	103°50'08.490"W	0.22	
2800.00	0.920	112.400	2799.54	-33.46	-32.80	12.52	695199.08	451549.38	32°14'25.459"N	103°50'08.471"W	0.21	
2900.00	1.000	105.500	2899.53	-34.08	-33.33	14.11	695200.67	451548.84	32°14'25.453"N	103°50'08.453"W	0.14	
3000.00	0.870	102.240	2999.51	-34.57	-33.73	15.69	695202.25	451548.44	32°14'25.449"N	103°50'08.434"W	0.14	
3100.00	0.840	106.570	3099.50	-35.02	-34.10	17.13	695203.69	451548.07	32°14'25.445"N	103°50'08.417"W	0.07	
3200.00	0.680	112.160	3199.49	-35.52	-34.53	18.39	695204.94	451547.64	32°14'25.441"N	103°50'08.403"W	0.18	
3300.00	0.250	118.180	3299.49	-35.89	-34.86	19.13	695205.69	451547.31	32°14'25.438"N	103°50'08.394"W	0.43	
3400.00	0.750	130.390	3399.49	-36.46	-35.39	19.82	695206.38	451546.79	32°14'25.433"N	103°50'08.386"W	0.51	
3500.00	2.930	133.030	3499.43	-38.76	-37.55	22.19	695208.74	451544.62	32°14'25.411"N	103°50'08.359"W	2.18	
3600.00	3.420	138.480	3599.28	-42.95	-41.53	26.03	695212.59	451540.64	32°14'25.371"N	103°50'08.314"W	0.57	
3700.00	4.160	142.430	3699.06	-48.29	-46.64	30.22	695216.78	451535.53	32°14'25.321"N	103°50'08.266"W	0.78	
3800.00	5.200	144.400	3798.72	-55.11	-53.20	35.07	695221.63	451528.97	32°14'25.256"N	103°50'08.210"W	1.05	
3900.00	6.240	146.460	3898.22	-63.63	-61.41	40.71	695227.27	451520.76	32°14'25.174"N	103°50'08.144"W	1.06	
4000.00	5.980	148.120	3997.65	-72.90	-70.37	46.46	695233.02	451511.81	32°14'25.085"N	103°50'08.078"W	0.31	
4100.00	4.960	149.840	4097.20	-81.33	-78.53	51.39	695237.94	451503.65	32°14'25.004"N	103°50'08.021"W	1.03	
4200.00	4.130	152.590	4196.88	-88.47	-85.46	55.22	695241.77	451496.71	32°14'24.935"N	103°50'07.977"W	0.86	
4300.00	4.290	154.590	4296.61	-95.22	-92.04	58.48	695245.04	451490.14	32°14'24.870"N	103°50'07.939"W	0.22	
4400.00	3.800	156.890	4396.36	-101.80	-98.46	61.39	695247.94	451483.71	32°14'24.807"N	103°50'07.906"W	0.52	



Actual Wellpath Report

No.4H AWP

Page 3 of 5



REFERENCE WELLPATH IDENTIFICATION			
Operator	Devon Energy	Slot	No. 4H SHL
Area	Eddy County, NM	Well	No. 4H
Field	(Black Jack) Sec 1, T24S, R30E	Wellbore	No.4H AWB
Facility	Black Jack 1 Federal No. 4H		

WELLPATH DATA (155 stations)												
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
4500.00	3.290	158.530	4496.17	-107.65	-104.18	63.74	695250.29	451477.99	32°14'24.750"N	103°50'07.879"W	0.52	
4600.00	3.420	156.270	4596.00	-113.17	-109.58	65.99	695252.54	451472.59	32°14'24.696"N	103°50'07.853"W	0.19	
4700.00	3.180	154.180	4695.83	-118.52	-114.81	68.40	695254.95	451467.37	32°14'24.644"N	103°50'07.825"W	0.27	
4800.00	3.190	153.510	4795.68	-123.64	-119.80	70.84	695257.40	451462.38	32°14'24.595"N	103°50'07.797"W	0.04	
4900.00	2.870	152.300	4895.54	-128.48	-124.50	73.25	695259.80	451457.67	32°14'24.548"N	103°50'07.769"W	0.33	
5000.00	2.590	151.000	4995.43	-132.79	-128.70	75.51	695262.06	451453.48	32°14'24.507"N	103°50'07.743"W	0.29	
5100.00	2.340	150.490	5095.33	-136.66	-132.45	77.61	695264.16	451449.73	32°14'24.469"N	103°50'07.719"W	0.25	
5200.00	2.190	148.930	5195.26	-140.18	-135.86	79.60	695266.16	451446.32	32°14'24.436"N	103°50'07.696"W	0.16	
5300.00	2.080	146.380	5295.19	-143.44	-139.01	81.59	695268.15	451443.17	32°14'24.404"N	103°50'07.673"W	0.15	
5400.00	1.970	145.770	5395.12	-146.48	-141.94	83.56	695270.12	451440.24	32°14'24.375"N	103°50'07.650"W	0.14	
5500.00	1.630	146.600	5495.07	-149.18	-144.55	85.31	695271.87	451437.63	32°14'24.349"N	103°50'07.630"W	0.34	
5600.00	1.110	148.220	5595.05	-151.26	-146.56	86.61	695273.16	451435.62	32°14'24.329"N	103°50'07.615"W	0.52	
5700.00	0.830	152.310	5695.03	-152.77	-148.03	87.45	695274.01	451434.15	32°14'24.315"N	103°50'07.605"W	0.29	
5800.00	1.110	164.400	5795.02	-154.38	-149.60	88.05	695274.60	451432.58	32°14'24.299"N	103°50'07.598"W	0.35	
5900.00	1.030	168.000	5895.00	-156.21	-151.41	88.50	695275.05	451430.77	32°14'24.281"N	103°50'07.593"W	0.10	
6000.00	1.050	172.630	5994.98	-158.01	-153.20	88.80	695275.36	451428.98	32°14'24.264"N	103°50'07.589"W	0.09	
6100.00	0.990	174.800	6094.97	-159.79	-154.97	89.00	695275.55	451427.21	32°14'24.246"N	103°50'07.587"W	0.07	
6200.00	0.940	176.720	6194.95	-161.48	-156.65	89.12	695275.68	451425.53	32°14'24.230"N	103°50'07.586"W	0.06	
6300.00	1.060	173.170	6294.94	-163.22	-158.39	89.28	695275.83	451423.79	32°14'24.212"N	103°50'07.584"W	0.13	
6400.00	1.330	170.410	6394.92	-165.30	-160.45	89.58	695276.14	451421.73	32°14'24.192"N	103°50'07.581"W	0.28	
6500.00	1.280	162.680	6494.89	-167.53	-162.66	90.11	695276.66	451419.52	32°14'24.170"N	103°50'07.575"W	0.18	
6600.00	1.020	157.200	6594.87	-169.46	-164.55	90.79	695277.34	451417.63	32°14'24.151"N	103°50'07.567"W	0.28	
6700.00	1.010	143.500	6694.85	-171.03	-166.08	91.66	695278.21	451416.10	32°14'24.136"N	103°50'07.557"W	0.24	
6800.00	1.070	138.450	6794.84	-172.50	-167.48	92.80	695279.35	451414.70	32°14'24.122"N	103°50'07.544"W	0.11	
6900.00	1.160	136.770	6894.82	-174.01	-168.92	94.11	695280.67	451413.26	32°14'24.108"N	103°50'07.528"W	0.10	
7000.00	1.160	138.710	6994.80	-175.58	-170.42	95.47	695282.03	451411.76	32°14'24.093"N	103°50'07.513"W	0.04	
7100.00	1.370	143.440	7094.77	-177.38	-172.14	96.85	695283.41	451410.04	32°14'24.076"N	103°50'07.497"W	0.23	
7200.00	1.340	149.900	7194.75	-179.42	-174.11	98.15	695284.70	451408.07	32°14'24.056"N	103°50'07.482"W	0.16	
7300.00	1.270	153.240	7294.72	-181.48	-176.11	99.24	695285.79	451406.07	32°14'24.036"N	103°50'07.469"W	0.10	
7313.00	1.250	155.040	7307.72	-181.75	-176.37	99.36	695285.91	451405.81	32°14'24.034"N	103°50'07.468"W	0.34	
7337.00	1.200	144.500	7331.71	-182.20	-176.81	99.62	695286.17	451405.37	32°14'24.030"N	103°50'07.465"W	0.96	
7369.00	1.100	31.100	7363.71	-182.23	-176.82	99.97	695286.52	451405.36	32°14'24.029"N	103°50'07.461"W	6.01	
7400.00	3.000	7.400	7394.69	-181.19	-175.76	100.23	695286.78	451406.42	32°14'24.040"N	103°50'07.458"W	6.58	
7432.00	7.100	359.800	7426.56	-178.39	-172.95	100.33	695286.88	451409.23	32°14'24.068"N	103°50'07.456"W	12.95	
7464.00	12.000	356.500	7458.10	-173.09	-167.65	100.12	695286.67	451414.53	32°14'24.120"N	103°50'07.458"W	15.40	
7495.00	16.500	356.400	7488.14	-165.46	-160.04	99.65	695286.20	451422.14	32°14'24.196"N	103°50'07.464"W	14.52	
7527.00	21.700	355.200	7518.37	-154.99	-149.60	98.87	695285.42	451432.58	32°14'24.299"N	103°50'07.472"W	16.30	
7558.00	25.400	354.000	7546.78	-142.62	-137.27	97.69	695284.24	451444.91	32°14'24.421"N	103°50'07.485"W	12.03	
7590.00	28.300	353.100	7575.33	-128.19	-122.91	96.06	695282.62	451459.27	32°14'24.563"N	103°50'07.503"W	9.15	
7621.00	31.900	352.900	7602.15	-112.68	-107.48	94.17	695280.72	451474.69	32°14'24.716"N	103°50'07.525"W	11.62	
7653.00	35.100	352.700	7628.83	-95.06	-89.96	91.95	695278.51	451492.21	32°14'24.889"N	103°50'07.549"W	10.01	
7684.00	38.000	352.500	7653.73	-76.65	-71.66	89.57	695276.13	451510.52	32°14'25.070"N	103°50'07.576"W	9.36	
7716.00	40.900	351.800	7678.43	-56.38	-51.52	86.79	695273.35	451530.65	32°14'25.270"N	103°50'07.607"W	9.17	
7748.00	43.600	352.500	7702.12	-34.94	-30.21	83.86	695270.41	451551.97	32°14'25.481"N	103°50'07.640"W	8.56	
7779.00	46.200	353.300	7724.08	-13.11	-28.49	81.16	695267.71	451573.68	32°14'25.696"N	103°50'07.671"W	8.58	



Actual Wellpath Report

No.4H AWP

Page 4 of 5



REFERENCE WELLPATH IDENTIFICATION			
Operator	Devon Energy	Slot	No. 4H SHL
Area	Eddy County, NM	Well	No. 4H
Field	(Black Jack) Sec 1, T24S, R30E	Wellbore	No.4H AWB
Facility	Black Jack 1 Federal No. 4H		

WELLPATH DATA (155 stations)												
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
7811.00	49.100	355.100	7745.63	10.52	15.03	78.78	695265.33	451597.20	32°14'25.929"N	103°50'07.697"W	9.97	
7842.00	51.800	356.000	7765.37	34.41	38.86	76.92	695263.48	451621.03	32°14'26.165"N	103°50'07.717"W	8.99	
7874.00	54.200	356.200	7784.63	59.96	64.35	75.19	695261.74	451646.52	32°14'26.417"N	103°50'07.736"W	7.52	
7905.00	56.200	356.000	7802.32	85.42	89.75	73.46	695260.01	451671.91	32°14'26.668"N	103°50'07.755"W	6.47	
7937.00	58.400	356.700	7819.60	112.34	116.62	71.74	695258.30	451698.78	32°14'26.934"N	103°50'07.773"W	7.12	
7968.00	59.900	356.800	7835.50	138.96	143.19	70.23	695256.79	451725.35	32°14'27.197"N	103°50'07.790"W	4.85	
8000.00	61.900	357.400	7851.06	166.91	171.12	68.82	695255.38	451753.27	32°14'27.474"N	103°50'07.805"W	6.46	
8031.00	64.200	357.600	7865.11	194.54	198.72	67.62	695254.17	451780.88	32°14'27.747"N	103°50'07.817"W	7.44	
8063.00	65.800	357.800	7878.63	223.54	227.70	66.45	695253.01	451809.85	32°14'28.034"N	103°50'07.829"W	5.03	
8094.00	68.300	357.700	7890.72	252.08	256.22	65.33	695251.89	451838.37	32°14'28.316"N	103°50'07.841"W	8.07	
8126.00	70.700	358.100	7901.93	282.04	286.17	64.24	695250.79	451868.32	32°14'28.612"N	103°50'07.852"W	7.59	
8157.00	72.300	359.100	7911.76	311.43	315.56	63.52	695250.07	451897.71	32°14'28.903"N	103°50'07.859"W	6.00	
8189.00	73.900	0.300	7921.07	342.00	346.18	63.36	695249.92	451928.32	32°14'29.206"N	103°50'07.859"W	6.15	
8220.00	76.000	1.800	7929.12	371.85	376.10	63.91	695250.47	451958.25	32°14'29.502"N	103°50'07.851"W	8.23	
8252.00	78.800	2.500	7936.10	402.94	407.31	65.08	695251.64	451989.45	32°14'29.811"N	103°50'07.835"W	9.01	
8284.00	81.100	2.700	7941.68	434.28	438.78	66.51	695253.07	452020.92	32°14'30.122"N	103°50'07.817"W	7.21	
8315.00	83.500	1.300	7945.83	464.87	469.48	67.58	695254.14	452051.62	32°14'30.426"N	103°50'07.803"W	8.94	
8346.00	85.700	1.200	7948.75	495.63	500.33	68.26	695254.81	452082.47	32°14'30.731"N	103°50'07.793"W	7.10	
8378.00	87.000	0.700	7950.79	527.48	532.26	68.79	695255.34	452114.40	32°14'31.047"N	103°50'07.786"W	4.35	
8409.00	88.000	0.500	7952.14	558.38	563.23	69.11	695255.66	452145.37	32°14'31.354"N	103°50'07.780"W	3.29	
8471.00	90.900	359.400	7952.73	620.27	625.22	69.06	695255.61	452207.35	32°14'31.967"N	103°50'07.777"W	5.00	
8566.00	90.700	357.600	7951.41	715.21	720.18	66.57	695253.12	452302.30	32°14'32.907"N	103°50'07.801"W	1.91	
8660.00	89.500	354.800	7951.24	809.20	813.96	60.34	695246.90	452396.08	32°14'33.835"N	103°50'07.869"W	3.24	
8755.00	88.000	353.900	7953.32	904.09	908.47	50.99	695237.55	452490.58	32°14'34.771"N	103°50'07.972"W	1.84	
8849.00	88.300	354.000	7956.35	997.93	1001.90	41.09	695227.64	452584.00	32°14'35.696"N	103°50'08.083"W	0.34	
8944.00	88.100	354.300	7959.33	1092.78	1096.36	31.41	695217.97	452678.46	32°14'36.631"N	103°50'08.190"W	0.38	
9039.00	90.700	355.900	7960.33	1187.73	1190.99	23.30	695209.86	452773.09	32°14'37.567"N	103°50'08.280"W	3.21	
9133.00	92.000	357.100	7958.12	1281.70	1284.79	17.56	695204.12	452866.87	32°14'38.496"N	103°50'08.341"W	1.88	
9228.00	90.700	356.700	7955.88	1376.67	1379.62	12.42	695198.98	452961.70	32°14'39.434"N	103°50'08.396"W	1.43	
9322.00	89.800	356.100	7955.47	1470.67	1473.43	6.52	695193.08	453055.51	32°14'40.363"N	103°50'08.460"W	1.15	
9417.00	89.500	355.700	7956.05	1565.65	1568.19	-0.27	695186.29	453150.25	32°14'41.301"N	103°50'08.534"W	0.53	
9511.00	89.900	356.200	7956.54	1659.64	1661.95	-6.91	695179.65	453244.01	32°14'42.229"N	103°50'08.606"W	0.68	
9606.00	89.700	356.800	7956.87	1754.64	1756.77	-12.71	695173.85	453338.83	32°14'43.168"N	103°50'08.668"W	0.67	
9700.00	89.600	356.100	7957.45	1848.64	1850.59	-18.53	695168.03	453432.64	32°14'44.096"N	103°50'08.731"W	0.75	
9795.00	90.100	356.200	7957.69	1943.63	1945.38	-24.91	695161.65	453527.42	32°14'45.034"N	103°50'08.800"W	0.54	
9890.00	88.900	355.100	7958.52	2038.61	2040.10	-32.11	695154.45	453622.13	32°14'45.972"N	103°50'08.879"W	1.71	
9984.00	89.600	355.900	7959.75	2132.58	2133.80	-39.49	695147.08	453715.83	32°14'46.899"N	103°50'08.960"W	1.13	
10079.00	89.400	355.000	7960.58	2227.55	2228.49	-47.02	695139.54	453810.52	32°14'47.837"N	103°50'09.042"W	0.97	
10173.00	90.700	358.300	7960.50	2321.53	2322.32	-52.52	695134.05	453904.33	32°14'48.765"N	103°50'09.101"W	3.77	
10268.00	91.800	351.200	7958.43	2416.37	2417.28	-52.93	695133.63	453999.29	32°14'49.705"N	103°50'09.101"W	3.26	
10362.00	90.900	0.300	7956.21	2510.11	2511.25	-51.70	695134.86	454093.25	32°14'50.635"N	103°50'09.082"W	1.35	
10457.00	87.700	357.900	7957.37	2605.00	2606.21	-53.19	695133.37	454188.21	32°14'51.575"N	103°50'09.094"W	4.21	
10551.00	88.400	357.100	7960.57	2698.94	2700.06	-57.29	695129.27	454282.05	32°14'52.503"N	103°50'09.136"W	1.13	
10646.00	89.800	358.200	7962.06	2793.91	2794.97	-61.18	695125.38	454376.95	32°14'53.443"N	103°50'09.177"W	1.87	
10741.00	89.700	359.500	7962.48	2888.84	2889.94	-63.09	695123.47	454471.92	32°14'54.383"N	103°50'09.194"W	1.37	



Actual Wellpath Report

No.4H AWP
Page 5 of 5



REFERENCE WELLPATH IDENTIFICATION

Operator	Devon Energy	Slot	No. 4H SHL
Area	Eddy County, NM	Well	No. 4H
Field	(Black Jack) Sec 1, T24S, R30E	Wellbore	No.4H AWB
Facility	Black Jack 1 Federal No. 4H		

WELLPATH DATA (155 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
10835.00	90.000	357.500	7962.72	2982.79	2983.91	-65.55	695121.01	454565.88	32°14'55.312"N	103°50'09.217"W	2.15	
10929.00	91.000	355.800	7961.90	3076.78	3077.74	-71.04	695115.52	454659.71	32°14'56.241"N	103°50'09.276"W	2.10	
11024.00	90.000	352.800	7961.08	3171.68	3172.25	-80.48	695106.09	454754.21	32°14'57.177"N	103°50'09.381"W	3.33	
11119.00	89.800	352.100	7961.24	3266.42	3266.43	-92.96	695093.61	454848.38	32°14'58.109"N	103°50'09.521"W	0.77	
11213.00	90.700	353.100	7960.83	3360.17	3359.64	-105.07	695081.50	454941.59	32°14'59.032"N	103°50'09.657"W	1.43	
11308.00	91.100	352.300	7959.34	3454.92	3453.86	-117.14	695069.43	455035.80	32°14'59.965"N	103°50'09.793"W	0.94	
11403.00	89.600	350.900	7958.76	3549.53	3547.83	-131.01	695055.56	455129.77	32°15'00.895"N	103°50'09.949"W	2.16	
11497.00	90.500	351.400	7958.68	3643.09	3640.71	-145.47	695041.10	455222.64	32°15'01.815"N	103°50'10.113"W	1.10	
11592.00	92.300	351.500	7956.36	3737.65	3734.63	-159.59	695026.98	455316.55	32°15'02.745"N	103°50'10.272"W	1.90	
11687.00	91.400	351.200	7953.29	3832.18	3828.50	-173.87	695012.70	455410.41	32°15'03.675"N	103°50'10.433"W	1.00	
11781.00	90.500	352.300	7951.73	3925.81	3921.51	-187.36	694999.21	455503.42	32°15'04.596"N	103°50'10.585"W	1.51	
11876.00	90.500	352.700	7950.90	4020.55	4015.69	-199.76	694986.81	455597.60	32°15'05.528"N	103°50'10.724"W	0.42	
11970.00	89.600	352.100	7950.82	4114.28	4108.86	-212.19	694974.38	455690.76	32°15'06.451"N	103°50'10.864"W	1.15	
12065.00	90.200	352.100	7950.98	4208.97	4202.96	-225.25	694961.33	455784.85	32°15'07.382"N	103°50'11.011"W	0.63	
12159.00	90.700	352.900	7950.25	4302.71	4296.15	-237.52	694949.06	455878.04	32°15'08.305"N	103°50'11.149"W	1.00	
12254.00	89.100	352.700	7950.41	4397.48	4390.40	-249.42	694937.15	455972.28	32°15'09.238"N	103°50'11.282"W	1.70	
12349.00	90.300	354.400	7950.91	4492.33	4484.79	-260.09	694926.48	456066.67	32°15'10.173"N	103°50'11.402"W	2.19	
12443.00	90.800	356.200	7950.01	4586.29	4578.47	-267.80	694918.78	456160.34	32°15'11.100"N	103°50'11.486"W	1.99	
12481.00	91.400	357.100	7949.28	4624.28	4616.40	-270.02	694916.56	456198.26	32°15'11.475"N	103°50'11.510"W	2.85	
12531.00	91.400	357.100	7948.06	4674.27	4666.32	-272.54	694914.03	456248.18	32°15'11.969"N	103°50'11.537"W	0.00	Projection to bit

TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
No. 4H PBHL		7960.00	4667.55	-266.53	694920.05	456249.41	32°15'11.981"N	103°50'11.467"W	rectangle

WELLPATH COMPOSITION - Ref Wellbore: No.4H AWB - Ref Wellpath: No.4H AWP

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
0.00	7313.00	Generic gyro - northseeking (Standard)	VES Gyro <100-7313>	No.4H AWB
7313.00	12481.00	NaviTrak (Standard)	BHI MWD NaviTrak <7337-XXXX>	No.4H AWB
12481.00	12531.00	Blind Drilling (std)	Projection to bit	No.4H AWB

devon

Devon Energy

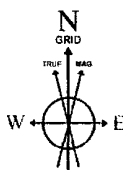
Location Eddy County, NM
Field (Black Jack) Sec 1, T24S, R30E
Facility Black Jack 1 Federal No 4H

Slot No 4H SHL
Well No 4H
Wellbore No 4H PWB

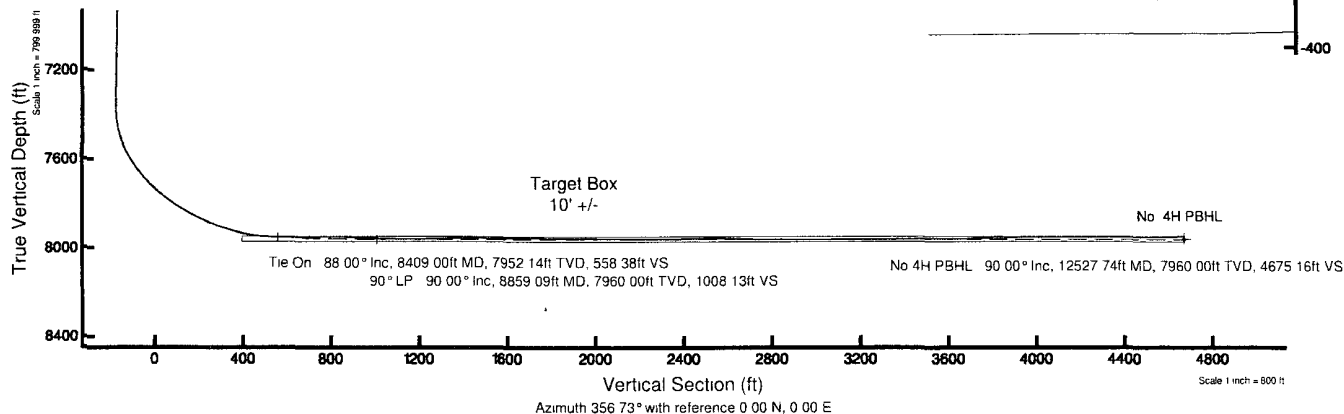
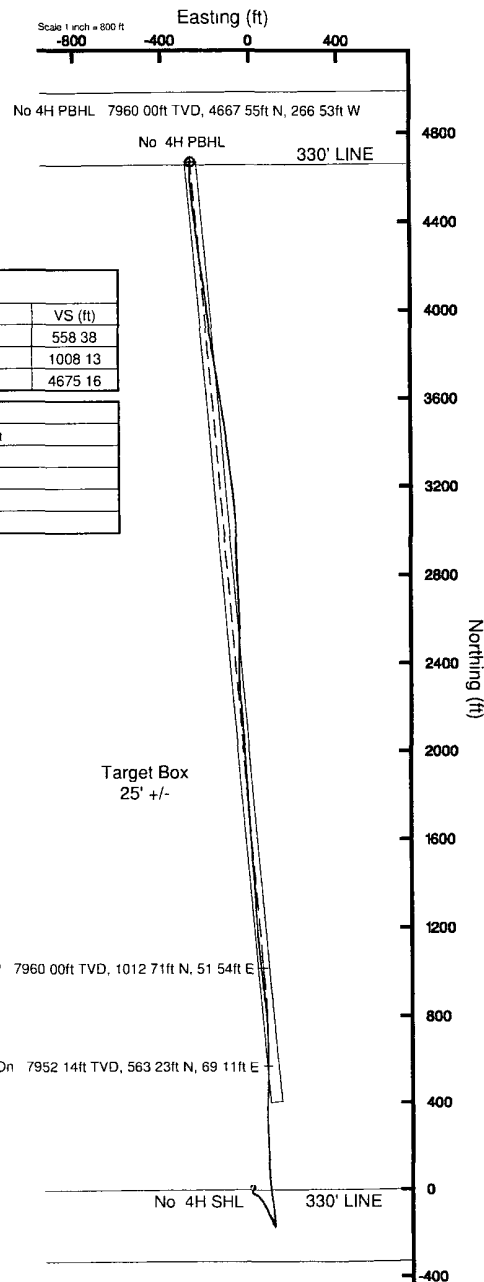
BAKER HUGHES

Well Profile Data								
Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
Tie On	8409 00	88 000	0 500	7952 14	563 23	69 11	0 00	558 38
90° LP	8859 09	90 000	355 026	7960 00	1012 71	51 54	1 29	1008 13
No 4H PBHL	12527 74	90 000	355 026	7960 00	4667 55	-266 53	0 00	4675 16

Plot reference wellpath is Rev-C 0	
True vertical depths are referenced to HP 416 (KB)	Grid System NAD83 / TM New Mexico SP, Eastern Zone (3001), US feet
Measured depths are referenced to HP 416 (KB)	North Reference Grid north
HP 416 (KB) to Mean Sea Level 3508 feet	Scale True distance
Mean Sea Level to Mud line (At Slot: No 4H SHL) -3483 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by genitry on 4/12/2012



BGGM (1945 0 to 2013 0) Dip 60 10° Field 48524 6 nT
Magnetic North is 7.70 degrees East of True North (at 3/15/2012)
Grid North is 0.27 degrees East of True North
To correct azimuth from True to Grid subtract 0.27 degrees
To correct azimuth from Magnetic to Grid add 7.43 degrees
For example if the Magnetic North Azimuth = 90 degs, then the Grid North Azimuth = 90 + 7.43 = 97.43



Azimuth 356 73° with reference 0 00 N, 0 00 E