

Scientific Drilling

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MARSHALL & WINSTON

Field: Wildcat

Site: Chaves County, NM

Well: Medlin Federal Com 8 #1H

Wellpath: VH - Job #32K0709287

Survey: 07/30/09

SUR: L-8-15s-31e, 1980/S & 330/W
BHL: I-8-15s-31e, 2017/S & 4951/W
API #30-005-29078

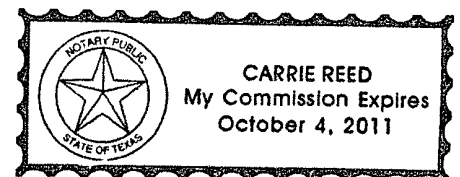
~~CONFIDENTIAL~~

This survey is correct to the best of my knowledge
and is supported by actual field data.

.....Richardson..... Company Representative

Notorized this date 9th of September, 2009.

Carrie Reed
Notary Signature
County of Midland
State of Texas





Scientific
Drilling

Scientific Drilling International Survey Report

Company: MARSHALL & WINSTON
Field: Wildcat
Site: Chaves County, NM
Well: Medlin Federal Com 8 #1H
Wellpath: VH - Job #32K0709287

Date: 08/07/2009 Time: 14:45:17 Page: 1
Co-ordinate(NE) Reference: Site: Chaves County, NM, Grid North
Vertical (TVD) Reference: SITE 0.0
Section (VS) Reference: Well (0.00N,0.00E,90.00Azi)
Survey Calculation Method: Minimum Curvature Db: Sybase

Survey: 07/30/09

Start Date:

07/30/2009

ksrg 0'-8300'

Company: Scientific Drilling Internatio
Tool: KSRG;Keeper Gyro

Engineer:
Tied-to:

Melendez/Williams
From Surface

Survey

MD ft	Incl deg	Azim deg	TVD ft	VS ft	N/S ft	E/W ft	DLS deg/100ft	ClsD ft	ClsA deg
0.00	0.00	359.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.66	254.09	100.00	-0.55	-0.16	-0.55	0.66	0.58	254.09
200.00	0.14	277.58	200.00	-1.23	-0.30	-1.23	0.53	1.26	256.30
300.00	0.24	309.89	299.99	-1.51	-0.15	-1.51	0.14	1.52	264.36
400.00	0.18	338.40	399.99	-1.73	0.13	-1.73	0.12	1.73	274.34
500.00	0.16	332.27	499.99	-1.85	0.40	-1.85	0.03	1.89	282.21
600.00	0.02	2.42	599.99	-1.92	0.54	-1.92	0.14	1.99	285.79
700.00	0.02	354.82	699.99	-1.92	0.58	-1.92	0.00	2.00	286.74
800.00	0.42	343.39	799.99	-2.02	0.95	-2.02	0.40	2.23	295.04
900.00	0.39	2.90	899.99	-2.11	1.64	-2.11	0.14	2.67	307.78
1000.00	0.75	354.85	999.98	-2.15	2.63	-2.15	0.37	3.40	320.68
1100.00	0.63	332.88	1099.98	-2.46	3.77	-2.46	0.29	4.50	326.85
1200.00	0.56	351.63	1199.97	-2.78	4.74	-2.78	0.21	5.50	329.59
1300.00	0.62	329.95	1299.97	-3.13	5.69	-3.13	0.23	6.50	331.24
1400.00	0.51	356.37	1399.96	-3.42	6.61	-3.42	0.28	7.44	332.60
1500.00	0.25	343.69	1499.96	-3.51	7.26	-3.51	0.27	8.07	334.17
1600.00	0.33	345.56	1599.96	-3.65	7.75	-3.65	0.08	8.56	334.79
1700.00	0.48	42.54	1699.96	-3.44	8.34	-3.44	0.41	9.02	337.60
1800.00	0.42	47.76	1799.95	-2.88	8.89	-2.88	0.07	9.35	342.04
1900.00	1.84	66.91	1899.93	-1.13	9.77	-1.13	1.45	9.83	353.38
2000.00	2.13	70.39	1999.87	2.09	11.02	2.09	0.31	11.22	10.76
2100.00	2.25	72.70	2099.80	5.72	12.23	5.72	0.15	13.50	25.07
2200.00	2.04	73.78	2199.73	9.30	13.31	9.30	0.21	16.24	34.95
2300.00	1.70	77.66	2299.68	12.46	14.12	12.46	0.36	18.83	41.42
2400.00	1.48	78.30	2399.64	15.17	14.70	15.17	0.22	21.13	45.91
2500.00	1.18	83.94	2499.61	17.46	15.07	17.46	0.33	23.07	49.20
2600.00	0.92	80.84	2599.59	19.28	15.31	19.28	0.27	24.62	51.55
2700.00	0.70	82.68	2699.58	20.68	15.51	20.68	0.22	25.85	53.12
2800.00	0.64	81.37	2799.58	21.84	15.68	21.84	0.06	26.88	54.33
2900.00	0.61	82.68	2899.57	22.92	15.83	22.92	0.03	27.85	55.37
3000.00	0.35	75.85	2999.57	23.74	15.97	23.74	0.27	28.61	56.07
3100.00	0.48	69.26	3099.56	24.43	16.19	24.43	0.14	29.31	56.46
3200.00	0.37	73.53	3199.56	25.13	16.43	25.13	0.11	30.02	56.82
3300.00	0.61	78.52	3299.56	25.96	16.63	25.96	0.24	30.83	57.36
3400.00	0.67	66.90	3399.55	27.02	16.97	27.02	0.14	31.90	57.88
3500.00	0.53	60.40	3499.55	27.96	17.42	27.96	0.16	32.94	58.07
3600.00	0.51	73.46	3599.54	28.79	17.78	28.79	0.12	33.84	58.30
3700.00	0.42	58.57	3699.54	29.53	18.10	29.53	0.15	34.63	58.50
3800.00	0.45	65.60	3799.54	30.20	18.45	30.20	0.06	35.39	58.58
3900.00	0.38	62.67	3899.53	30.85	18.76	30.85	0.07	36.11	58.69
4000.00	0.32	86.77	3999.53	31.42	18.93	31.42	0.16	36.69	58.93
4100.00	0.30	70.97	4099.53	31.95	19.03	31.95	0.09	37.19	59.22
4200.00	0.43	85.20	4199.53	32.57	19.15	32.57	0.16	37.78	59.55
4300.00	0.37	86.70	4299.53	33.27	19.20	33.27	0.06	38.41	60.01
4400.00	0.33	76.66	4399.52	33.87	19.29	33.87	0.07	38.98	60.34
4500.00	0.40	91.70	4499.52	34.50	19.34	34.50	0.12	39.55	60.72
4600.00	0.36	102.66	4599.52	35.15	19.26	35.15	0.08	40.09	61.28
4700.00	0.35	106.70	4699.52	35.75	19.11	35.75	0.03	40.54	61.88
4800.00	0.39	121.28	4799.51	36.34	18.84	36.34	0.10	40.93	62.59



Scientific
Drilling

Scientific Drilling International Survey Report

Company: MARSHALL & WINSTON
Field: Wildcat
Site: Chaves County, NM
Well: Medlin Federal Com 8 #1H
Wellpath: VH - Job #32K0709287

Date: 08/07/2009 **Time:** 14:45:17 **Page:** 2
Co-ordinate(NE) Reference: Site: Chaves County, NM, Grid North
Vertical (TVD) Reference: SITE 0.0
Section (VS) Reference: Well (0.00N.0.00E.90.00Azi)
Survey Calculation Method: Minimum Curvature **Db:** Sybase

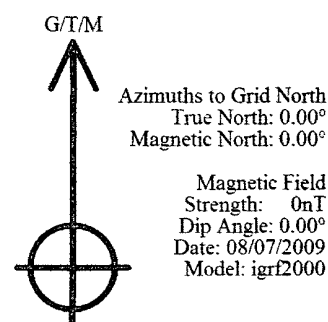
Survey

MD ft	Incl deg	Azim deg	TVD ft	VS ft	N/S ft	E/W ft	DLS deg/100ft	ClsD ft	ClsA deg
4900.00	0.34	104.12	4899.51	36.92	18.59	36.92	0.12	41.33	63.27
5000.00	0.36	124.16	4999.51	37.46	18.34	37.46	0.12	41.71	63.91
5100.00	0.51	132.50	5099.51	38.05	17.87	38.05	0.16	42.04	64.85
5200.00	0.53	140.78	5199.50	38.67	17.21	38.67	0.08	42.33	66.01
5300.00	0.56	129.30	5299.50	39.34	16.54	39.34	0.11	42.68	67.20
5400.00	0.54	133.48	5399.50	40.06	15.91	40.06	0.04	43.10	68.35
5500.00	0.61	159.31	5499.49	40.59	15.08	40.59	0.27	43.30	69.62
5600.00	0.50	157.93	5599.49	40.95	14.18	40.95	0.11	43.33	70.90
5700.00	0.62	162.12	5699.48	41.28	13.26	41.28	0.13	43.35	72.19
5800.00	0.66	170.19	5799.47	41.54	12.18	41.54	0.10	43.29	73.66
5900.00	0.66	182.27	5899.47	41.61	11.04	41.61	0.14	43.05	75.15
6000.00	0.68	186.63	5999.46	41.52	9.87	41.52	0.05	42.68	76.63
6100.00	0.51	184.50	6099.46	41.42	8.84	41.42	0.17	42.35	77.96
6200.00	0.73	197.02	6199.45	41.20	7.79	41.20	0.26	41.93	79.30
6300.00	0.62	193.08	6299.44	40.89	6.65	40.89	0.12	41.43	80.76
6400.00	0.52	197.52	6399.44	40.63	5.69	40.63	0.11	41.03	82.03
6500.00	0.66	201.53	6499.43	40.28	4.72	40.28	0.15	40.56	83.32
6600.00	0.60	211.53	6599.43	39.80	3.74	39.80	0.13	39.97	84.63
6700.00	0.32	218.99	6699.42	39.35	3.08	39.35	0.29	39.47	85.53
6800.00	0.34	222.42	6799.42	38.97	2.64	38.97	0.03	39.06	86.13
6900.00	0.25	231.91	6899.42	38.60	2.29	38.60	0.10	38.67	86.61
7000.00	0.30	222.32	6999.42	38.25	1.96	38.25	0.07	38.30	87.07
7100.00	0.36	216.69	7099.42	37.89	1.51	37.89	0.07	37.92	87.71
7200.00	0.28	200.22	7199.42	37.62	1.03	37.62	0.12	37.63	88.43
7300.00	0.26	163.47	7299.41	37.60	0.58	37.60	0.17	37.60	89.11
7400.00	0.73	118.53	7399.41	38.22	0.06	38.22	0.58	38.22	89.91
7500.00	0.97	116.38	7499.40	39.54	-0.62	39.54	0.24	39.54	90.90
7600.00	1.05	114.18	7599.38	41.13	-1.37	41.13	0.09	41.16	91.91
7700.00	1.17	114.00	7699.37	42.90	-2.16	42.90	0.12	42.96	92.88
7800.00	1.35	118.20	7799.34	44.87	-3.13	44.87	0.20	44.98	93.99
7900.00	1.42	119.76	7899.31	46.99	-4.30	46.99	0.08	47.18	95.23
8000.00	1.64	118.03	7999.28	49.32	-5.59	49.32	0.22	49.64	96.47
8100.00	1.68	131.52	8099.23	51.69	-7.24	51.69	0.39	52.19	97.97
8200.00	1.82	128.73	8199.19	54.02	-9.20	54.02	0.16	54.80	99.67
8300.00	2.42	133.13	8299.12	56.80	-11.64	56.80	0.62	57.98	101.58

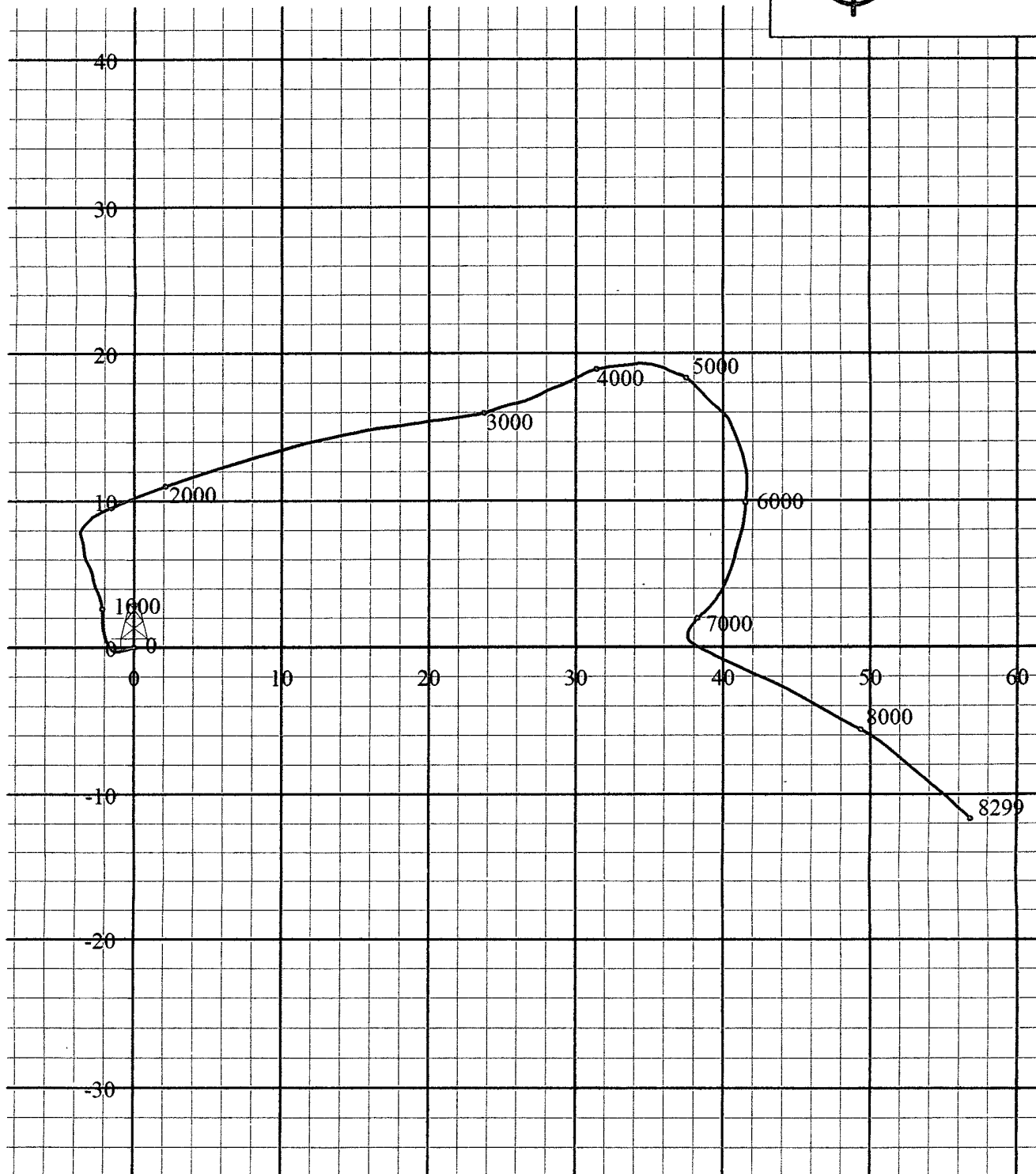


Scientific
Drilling

Field: Wildcat
Site: Chaves County, NM
Well: Medlin Federal Com 8 #1H
Wellpath: VH - Job #32K0709287
Survey: 07/30/09



South(-)/North(+) [10ft/in]



West(-)/East(+) [10ft/in]



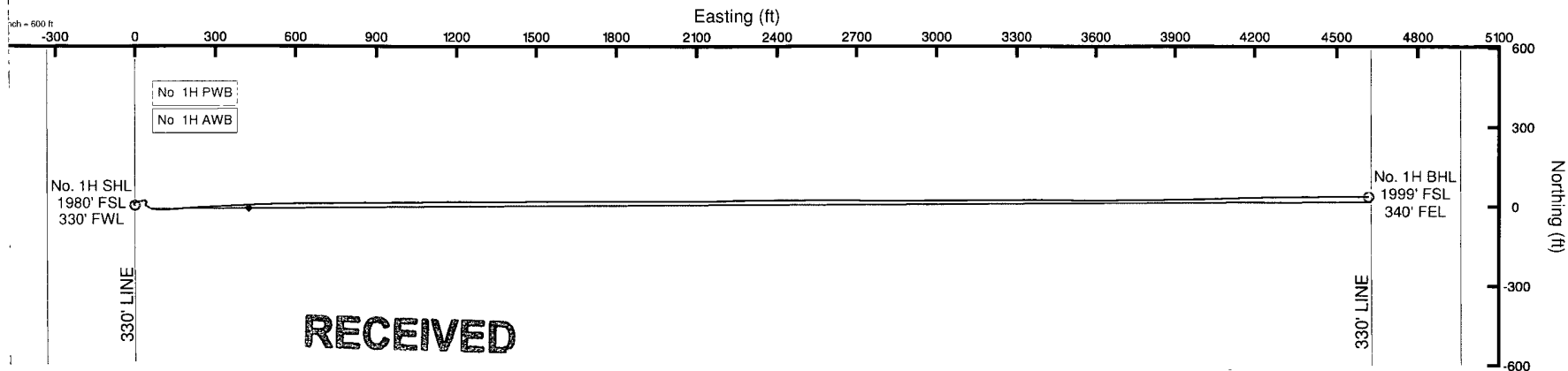
Marshall & Winston, INC

Location Chaves County, NM
Field (Medlin 8) Sec 8, T15S, R31E
Facility Medlin Fed Com 8 No 1H

Slot No 1H SHL
Well No 1H
Wellbore No 1H PWB

Well Profile Data

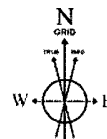
Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (%100ft)	VS (ft)
TIE ON	8300.64	2 430	133 180	8299 76	-11 66	56.82	0.00	56 77
EST KOP	8350 00	2 430	89 623	8349 08	-12.37	58 63	3.65	58 58
END OF CURVE	8910.13	90.000	89 616	8700 02	-9.92	424 78	15 63	424.73
No 1H PWB	13116 07	90.000	89 616	8700 00	18.24	4630 63	0.00	4630 67



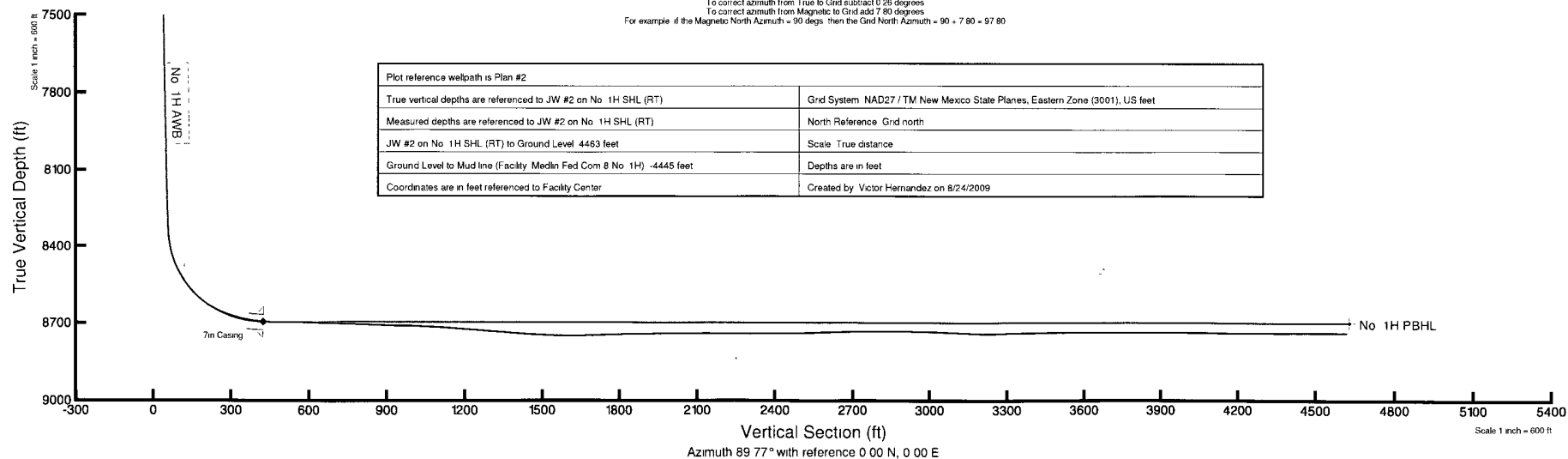
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HOBBSD



BGGM (1945.0 to 2010.0) Dip: 60.95° Field: 48307 nT
Magnetic North is 8.07 degrees East of True North (at 7/21/2009)
Grid North is 0.26 degrees East of True North
To correct azimuth from True to Grid subtract 0.26 degrees
To correct azimuth from Magnetic to Grid add 7.80 degrees
For example if the Magnetic North Azimuth = 90 degs then the Grid North Azimuth = 90 + 7.80 = 97.80



Plot reference wellpath is Plan #2	
True vertical depths are referenced to JW #2 on No 1H SHL (RT)	Grid System NAD27 / TM New Mexico State Planes, Eastern Zone (3001), US feet
Measured depths are referenced to JW #2 on No 1H SHL (RT)	North Reference Grid north
JW #2 on No 1H SHL (RT) to Ground Level 4463 feet	Scale True distance
Ground Level to Mud line (Facility Medlin Fed Com 8 No 1H) -4445 feet	Depths are in feet
Coordinates are in feet referenced to Facility Center	Created by Victor Hernandez on 8/24/2009



Actual Wellpath Report

No. 1H AWP

Page 1 of 10



REFERENCE WELLPATH IDENTIFICATION

Operator	Marshall & Winston, INC	Slot	No. 1H SHL
Area	Chaves County, NM	Well	No. 1H
Field	(Medlin 8) Sec 8, T15S, R31E	Wellbore	No. 1H AWB
Facility	Medlin Fed Com 8 No. 1H		

REPORT SETUP INFORMATION

Projection System	NAD27 / TM New Mexico State Planes, Eastern Zone (3001), US feet	Software System	WellArchitect® 2.0
North Reference	Grid	User	Victor Hernandez
Scale	0.999934	Report Generated	8/24/2009 at 10:41:59 AM
Convergence at slot	0.26° East	Database/Source file	WA_Midland/No. 1H_AWB.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[USft]	Northing[USft]	Latitude	Longitude
Slot Location	0.00	0.00	647799.20	738209.30	33°01'42.489"N	103°51'03.945"W
Facility Reference Pt			647799.20	738209.30	33°01'42.489"N	103°51'03.945"W
Field Reference Pt			647804.30	736889.60	33°01'29.430"N	103°51'03.956"W

WELLPATH DATUM

Calculation method	Minimum curvature	JW #2 on No. 1H SHL (RT) to Facility Vertical Datum	18.00ft
Horizontal Reference Pt	Facility Center	JW #2 on No. 1H SHL (RT) to Ground Level	4463.00ft
Vertical Reference Pt	JW #2 on No. 1H SHL (RT)	Facility Vertical Datum to Mud Line (Facility)	0.00ft
MD Reference Pt	JW #2 on No. 1H SHL (RT)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Ground Level	Section Azimuth	89.77°



Actual Wellpath Report

No. 1H AWP

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INTEQ

REFERENCE WELLPATH IDENTIFICATION			
Operator	Marshall & Winston, INC	Slot	No. 1H SHL
Area	Chaves County, NM	Well	No. 1H
Field	(Medlin 8) Sec 8, T15S, R31E	Wellbore	No. 1H AWP
Facility	Medlin Fed Com 8 No. 1H		

WELLPATH DATA (234 stations)									
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	DLS [°/100ft]
0.00	0.000	254.090	0.00	0.00	0.00	0.00	647799.20	738209.30	0.00
100.00	0.660	254.090	100.00	-0.55	-0.16	-0.55	647798.65	738209.14	0.66
200.00	0.140	277.580	200.00	-1.23	-0.30	-1.23	647797.97	738209.00	0.53
300.00	0.240	309.890	299.99	-1.51	-0.15	-1.51	647797.69	738209.15	0.14
400.00	0.180	338.400	399.99	-1.73	0.13	-1.73	647797.47	738209.43	-0.12
500.00	0.160	332.270	499.99	-1.85	0.40	-1.85	647797.35	738209.70	0.03
600.00	0.020	2.420	599.99	-1.91	0.54	-1.92	647797.28	738209.84	0.14
700.00	0.020	354.820	699.99	-1.91	0.58	-1.92	647797.28	738209.88	0.00
800.00	0.420	343.390	799.99	-2.02	0.95	-2.02	647797.18	738210.25	0.40
900.00	0.390	2.900	899.99	-2.10	1.64	-2.11	647797.09	738210.94	0.14
1000.00	0.750	354.850	999.98	-2.14	2.63	-2.15	647797.05	738211.93	0.37
1100.00	0.630	332.880	1099.98	-2.45	3.77	-2.46	647796.74	738213.07	0.29
1200.00	0.560	351.630	1199.97	-2.76	4.74	-2.78	647796.42	738214.04	0.21
1300.00	0.620	329.950	1299.97	-3.10	5.69	-3.13	647796.07	738214.99	0.23
1400.00	0.510	356.370	1399.96	-3.40	6.61	-3.42	647795.78	738215.91	0.28
1500.00	0.250	343.690	1499.96	-3.49	7.26	-3.51	647795.69	738216.56	0.27
1600.00	0.330	345.560	1599.96	-3.62	7.75	-3.65	647795.55	738217.05	0.08
1700.00	0.480	42.540	1699.96	-3.40	8.34	-3.44	647795.76	738217.64	0.41
1800.00	0.420	47.760	1799.95	-2.85	8.89	-2.88	647796.32	738218.19	0.07
1900.00	1.840	66.910	1899.93	-1.09	9.77	-1.13	647798.07	738219.07	1.45
2000.00	2.130	70.390	1999.87	2.14	11.02	2.09	647801.29	738220.32	0.31
2100.00	2.250	72.700	2099.80	5.77	12.23	5.72	647804.92	738221.53	0.15
2200.00	2.040	73.780	2199.73	9.35	13.31	9.30	647808.50	738222.61	0.21
2300.00	1.700	77.660	2299.68	12.52	14.12	12.46	647811.66	738223.42	0.36
2400.00	1.480	78.300	2399.64	15.23	14.70	15.17	647814.37	738224.00	0.22
2500.00	1.180	83.940	2499.61	17.52	15.07	17.46	647816.66	738224.37	0.33
2600.00	0.920	80.840	2599.59	19.34	15.31	19.28	647818.48	738224.61	0.27
2700.00	0.700	82.680	2699.58	20.74	15.51	20.68	647819.88	738224.81	0.22
2800.00	0.640	81.370	2799.58	21.90	15.68	21.84	647821.03	738224.97	0.06
2900.00	0.610	82.680	2899.57	22.98	15.83	22.92	647822.11	738225.13	0.03

Actual Wellpath Report

No. 1H AWP

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REFERENCE WELLPATH IDENTIFICATION			
Operator	Marshall & Winston, INC	Slot	No. 1H SHL
Area	Chaves County, NM	Well	No. 1H
Field	(Medlin 8) Sec 8, T15S, R31E	Wellbore	No. 1H AWB
Facility	Medlin Fed Com 8 No. 1H		

WELLPATH DATA (234 stations)										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	DLS [°/100ft]	
3000.00	0.350	75.850	2999.57	23.80	15.97	23.74	647822.94	738225.27	0.27	
3100.00	0.480	69.260	3099.56	24.49	16.19	24.43	647823.63	738225.49	0.14	
3200.00	0.370	73.530	3199.56	25.19	16.43	25.13	647824.33	738225.73	0.11	
3300.00	0.610	78.520	3299.56	26.03	16.63	25.96	647825.16	738225.93	0.24	
3400.00	0.670	66.900	3399.55	27.09	16.97	27.02	647826.22	738226.26	0.14	
3500.00	0.530	60.400	3499.55	28.03	17.42	27.96	647827.16	738226.72	0.16	
3600.00	0.510	73.460	3599.54	28.86	17.78	28.79	647827.99	738227.08	0.12	
3700.00	0.420	58.570	3699.54	29.60	18.10	29.53	647828.73	738227.40	0.15	
3800.00	0.450	65.600	3799.54	30.27	18.45	30.20	647829.40	738227.75	0.06	
3900.00	0.380	62.670	3899.53	30.92	18.76	30.85	647830.05	738228.06	0.07	
4000.00	0.320	86.770	3999.53	31.50	18.93	31.42	647830.62	738228.23	0.16	
4100.00	0.300	70.970	4099.53	32.02	19.03	31.95	647831.15	738228.33	0.09	
4200.00	0.430	85.200	4199.53	32.65	19.15	32.57	647831.77	738228.45	0.16	
4300.00	0.370	86.700	4299.53	33.34	19.20	33.27	647832.47	738228.50	0.06	
4400.00	0.330	76.660	4399.52	33.95	19.29	33.87	647833.07	738228.58	0.07	
4500.00	0.400	91.700	4499.52	34.58	19.34	34.50	647833.70	738228.64	0.12	
4600.00	0.360	102.660	4599.52	35.23	19.26	35.15	647834.35	738228.56	0.08	
4700.00	0.350	106.700	4699.52	35.83	19.11	35.75	647834.95	738228.40	0.03	
4800.00	0.390	121.280	4799.51	36.41	18.84	36.34	647835.53	738228.14	0.10	
4900.00	0.340	104.120	4899.51	36.99	18.59	36.92	647836.11	738227.89	0.12	
5000.00	0.360	124.160	4999.51	37.54	18.34	37.46	647836.66	738227.64	0.12	
5100.00	0.510	132.500	5099.51	38.12	17.87	38.05	647837.25	738227.16	0.16	
5200.00	0.530	140.780	5199.50	38.74	17.21	38.67	647837.87	738226.51	0.08	
5300.00	0.560	129.300	5299.50	39.41	16.54	39.34	647838.54	738225.84	0.11	
5400.00	0.540	133.480	5399.50	40.13	15.91	40.06	647839.26	738225.20	0.04	
5500.00	0.610	159.310	5499.49	40.65	15.08	40.59	647839.79	738224.38	0.27	
5600.00	0.500	157.930	5599.49	41.00	14.18	40.95	647840.14	738223.48	0.11	
5700.00	0.620	162.120	5699.48	41.33	13.26	41.28	647840.47	738222.56	0.13	
5800.00	0.660	170.190	5799.47	41.59	12.18	41.54	647840.74	738221.48	0.10	
5900.00	0.660	182.270	5899.47	41.66	11.04	41.61	647840.81	738220.34	0.14	

Actual Wellpath Report

No. 1H AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	Marshall & Winston, INC	Slot	No. 1H SHL
Area	Chaves County, NM	Well	No. 1H
Field	(Medlin 8) Sec 8, T15S, R31E	Wellbore	No. 1H AWP
Facility	Medlin Fed Com 8 No. 1H		

WELLPATH DATA (234 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	DLS [°/100ft]
6000.00	0.680	186.630	5999.46	41.56	9.87	41.52	647840.72	738219.17	0.05
6100.00	0.510	184.500	6099.46	41.45	8.84	41.42	647840.62	738218.14	0.17
6200.00	0.730	197.020	6199.45	41.23	7.79	41.20	647840.40	738217.08	0.26
6300.00	0.620	193.080	6299.44	40.92	6.65	40.89	647840.09	738215.95	0.12
6400.00	0.520	197.520	6399.44	40.65	5.69	40.63	647839.83	738214.99	0.11
6500.00	0.660	201.530	6499.43	40.30	4.72	40.28	647839.48	738214.02	0.15
6600.00	0.600	211.530	6599.43	39.81	3.74	39.80	647838.99	738213.04	0.13
6700.00	0.320	218.990	6699.42	39.36	3.08	39.35	647838.55	738212.38	0.29
6800.00	0.340	222.420	6799.42	38.98	2.64	38.97	647838.17	738211.94	0.03
6900.00	0.250	231.910	6899.42	38.61	2.29	38.60	647837.80	738211.59	0.10
7000.00	0.300	222.320	6999.42	38.26	1.96	38.25	647837.45	738211.26	0.07
7100.00	0.360	216.690	7099.42	37.89	1.51	37.89	647837.09	738210.81	0.07
7200.00	0.280	200.220	7199.42	37.62	1.03	37.62	647836.81	738210.33	0.12
7300.00	0.260	163.470	7299.41	37.60	0.58	37.60	647836.79	738209.88	0.17
7400.00	0.730	118.530	7399.41	38.22	0.06	38.22	647837.42	738209.36	0.58
7500.00	0.970	116.380	7499.40	39.54	-0.62	39.54	647838.74	738208.68	0.24
7600.00	1.050	114.180	7599.38	41.13	-1.37	41.13	647840.33	738207.93	0.09
7700.00	1.170	114.000	7699.37	42.89	-2.16	42.90	647842.10	738207.14	0.12
7800.00	1.350	118.200	7799.34	44.86	-3.13	44.87	647844.07	738206.17	0.20
7900.00	1.420	119.760	7899.31	46.97	-4.30	46.99	647846.18	738205.00	0.08
8000.00	1.640	118.030	7999.28	49.30	-5.59	49.32	647848.52	738203.71	0.22
8100.00	1.680	131.520	8099.23	51.66	-7.24	51.69	647850.88	738202.07	0.39
8200.00	1.820	128.730	8199.19	53.98	-9.20	54.02	647853.22	738200.10	0.16
8300.00	2.420	133.130	8299.12	56.75	-11.64	56.80	647856.00	738197.66	0.62
8300.64	2.430	133.180	8299.76	56.77	-11.66	56.82	647856.02	738197.64	1.60
8336.00	2.430	90.000	8335.09	58.07	-12.17	58.12	647857.31	738197.13	5.06
8385.00	7.400	98.700	8383.89	62.23	-12.65	62.28	647861.47	738196.65	10.23
8416.00	12.500	98.700	8414.42	67.52	-13.46	67.57	647866.77	738195.84	16.45
8447.00	16.900	97.300	8444.40	75.30	-14.54	75.36	647874.56	738194.76	14.24
8478.00	22.000	93.100	8473.62	85.57	-15.42	85.63	647884.83	738193.88	17.05

Actual Wellpath Report

No. 1H AWP

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REFERENCE WELLPATH IDENTIFICATION			
Operator	Marshall & Winston, INC	Slot	No. 1H SHL
Area	Chaves County, NM	Well	No. 1H
Field	(Medlin 8) Sec 8, T15S, R31E	Wellbore	No. 1H AWP
Facility	Medlin Fed Com 8 No. 1H		

WELLPATH DATA (234 stations)									
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	DLS [°/100ft]
8510.00	27.400	90.300	8502.68	98.93	-15.79	98.99	647898.19	738193.51	17.26
8541.00	32.300	87.700	8529.56	114.35	-15.49	114.41	647913.60	738193.81	16.35
8572.00	36.800	85.800	8555.09	131.90	-14.48	131.96	647931.15	738194.82	14.92
8604.00	42.100	84.700	8579.79	152.16	-12.78	152.21	647951.40	738196.52	16.71
8636.00	48.100	84.700	8602.37	174.73	-10.69	174.77	647973.96	738198.61	18.75
8667.00	53.700	85.300	8621.91	198.69	-8.60	198.73	647997.91	738200.70	18.13
8695.00	59.100	86.400	8637.40	221.95	-6.92	221.98	648021.16	738202.38	19.56
8727.00	64.300	87.200	8652.57	250.08	-5.35	250.10	648049.28	738203.95	16.40
8758.00	69.100	87.800	8664.82	278.52	-4.11	278.54	648077.72	738205.19	15.59
8790.00	72.700	87.200	8675.29	308.73	-2.79	308.74	648107.92	738206.51	11.39
8820.00	76.000	86.200	8683.39	337.57	-1.13	337.58	648136.75	738208.17	11.46
8852.00	80.000	86.500	8690.04	368.81	0.86	368.81	648167.98	738210.16	12.53
8883.00	82.500	87.300	8694.75	399.41	2.52	399.40	648198.57	738211.82	8.46
8914.00	85.200	87.200	8698.07	430.20	4.00	430.18	648229.35	738213.30	8.72
8945.00	87.800	87.800	8699.97	461.11	5.35	461.09	648260.26	738214.65	8.61
8976.00	89.800	88.500	8700.62	492.09	6.35	492.07	648291.24	738215.65	6.84
9008.00	90.600	88.300	8700.50	524.08	7.24	524.06	648323.22	738216.54	2.58
9090.00	88.100	89.500	8701.43	606.06	8.81	606.03	648405.19	738218.11	3.38
9121.00	88.500	89.900	8702.35	637.04	8.98	637.01	648436.17	738218.28	1.82
9153.00	88.400	90.100	8703.22	669.03	8.98	669.00	648468.16	738218.28	0.70
9185.00	88.600	89.500	8704.06	701.02	9.09	700.99	648500.14	738218.39	1.98
9217.00	88.300	89.300	8704.92	733.01	9.42	732.98	648532.13	738218.72	1.13
9249.00	87.600	89.500	8706.07	764.99	9.76	764.95	648564.10	738219.06	2.27
9280.00	87.700	89.600	8707.34	795.96	10.00	795.93	648595.07	738219.30	0.46
9312.00	87.500	89.100	8708.68	827.93	10.36	827.90	648627.04	738219.66	1.68
9344.00	87.600	90.200	8710.05	859.90	10.56	859.87	648659.01	738219.86	3.45
9376.00	87.900	90.300	8711.30	891.88	10.42	891.84	648690.98	738219.72	0.99
9408.00	88.000	89.700	8712.45	923.85	10.42	923.82	648722.96	738219.72	1.90
9440.00	88.900	89.700	8713.31	955.84	10.59	955.81	648754.94	738219.89	2.81
9471.00	88.400	89.800	8714.04	986.83	10.72	986.80	648785.93	738220.02	1.64



Actual Wellpath Report

No. 1H AWP

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REFERENCE WELLPATH IDENTIFICATION			
Operator	Marshall & Winston, INC	Slot	No. 1H SHL
Area	Chaves County, NM	Well	No. 1H
Field	(Medlin 8) Sec 8, T15S, R31E	Wellbore	No. 1H AWP
Facility	Medlin Fed Com 8 No. 1H		

WELLPATH DATA (234 stations)									
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	DLS [°/100ft]
9503.00	87.900	89.600	8715.08	1018.82	10.89	1018.78	648817.91	738220.19	1.68
9534.00	87.300	89.100	8716.37	1049.79	11.24	1049.75	648848.88	738220.54	2.52
9566.00	86.600	89.300	8718.08	1081.74	11.69	1081.70	648880.83	738220.99	2.27
9598.00	86.200	89.100	8720.09	1113.68	12.13	1113.64	648912.76	738221.43	1.40
9629.00	85.900	89.400	8722.22	1144.60	12.54	1144.56	648943.68	738221.84	1.37
9661.00	85.700	89.600	8724.57	1176.52	12.82	1176.47	648975.59	738222.12	0.88
9693.00	85.600	90.000	8726.99	1208.42	12.93	1208.38	649007.50	738222.23	1.28
9725.00	85.900	90.500	8729.36	1240.33	12.79	1240.29	649039.41	738222.09	1.82
9756.00	85.500	90.300	8731.69	1271.24	12.57	1271.21	649070.32	738221.87	1.44
9788.00	85.600	90.400	8734.17	1303.15	12.38	1303.11	649102.22	738221.68	0.44
9820.00	85.500	89.500	8736.65	1335.05	12.41	1335.01	649134.12	738221.70	2.82
9852.00	85.200	89.400	8739.25	1366.94	12.71	1366.90	649166.01	738222.01	0.99
9883.00	84.900	89.200	8741.92	1397.83	13.09	1397.79	649196.89	738222.39	1.16
9915.00	86.000	89.800	8744.46	1429.73	13.37	1429.68	649228.79	738222.67	3.91
9947.00	86.700	89.200	8746.50	1461.66	13.65	1461.62	649260.72	738222.95	2.88
9978.00	86.700	89.300	8748.28	1492.61	14.05	1492.56	649291.66	738223.35	0.32
10010.00	88.200	89.500	8749.71	1524.57	14.39	1524.53	649323.63	738223.68	4.73
10042.00	88.700	89.400	8750.57	1556.56	14.69	1556.52	649355.61	738223.99	1.59
10073.00	88.600	89.500	8751.30	1587.55	14.99	1587.51	649386.60	738224.29	0.46
10105.00	89.900	89.600	8751.72	1619.55	15.24	1619.50	649418.59	738224.54	4.07
10136.00	92.200	89.800	8751.15	1650.54	15.40	1650.49	649449.58	738224.70	7.45
10168.00	92.000	89.900	8749.98	1682.52	15.49	1682.47	649481.56	738224.79	0.70
10199.00	92.300	90.200	8748.82	1713.50	15.46	1713.45	649512.53	738224.76	1.37
10231.00	92.100	89.900	8747.59	1745.47	15.43	1745.43	649544.51	738224.73	1.13
10263.00	92.000	89.900	8746.45	1777.45	15.49	1777.41	649576.49	738224.79	0.31
10295.00	91.600	90.200	8745.44	1809.44	15.46	1809.39	649608.47	738224.76	1.56
10326.00	90.900	90.100	8744.76	1840.43	15.38	1840.38	649639.46	738224.68	2.28
10358.00	91.000	90.300	8744.23	1872.42	15.27	1872.38	649671.45	738224.57	0.70
10390.00	90.900	90.500	8743.70	1904.42	15.04	1904.37	649703.44	738224.34	0.70
10421.00	91.300	90.100	8743.11	1935.41	14.88	1935.37	649734.43	738224.18	1.82



Actual Wellpath Report

No. 1H AWP

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REFERENCE WELLPATH IDENTIFICATION			
Operator	Marshall & Winston, INC	Slot	No. 1H SHL
Area	Chaves County, NM	Well	No. 1H
Field	(Medlin 8) Sec 8, T15S, R31E	Wellbore	No. 1H AWP
Facility	Medlin Fed Com 8 No. 1H		

WELLPATH DATA (234 stations)									
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	DLS [°/100ft]
10453.00	90.600	89.300	8742.58	1967.40	15.05	1967.36	649766.43	738224.35	3.32
10485.00	91.000	89.500	8742.13	1999.40	15.38	1999.36	649798.42	738224.68	1.40
10516.00	90.700	90.000	8741.67	2030.40	15.52	2030.35	649829.41	738224.82	1.88
10548.00	89.500	90.300	8741.61	2062.40	15.44	2062.35	649861.41	738224.74	3.87
10580.00	89.600	89.500	8741.87	2094.39	15.49	2094.35	649893.41	738224.79	2.52
10611.00	89.600	89.400	8742.08	2125.39	15.79	2125.35	649924.40	738225.09	0.32
10643.00	89.500	89.200	8742.33	2157.39	16.18	2157.34	649956.40	738225.48	0.70
10675.00	89.800	88.900	8742.53	2189.39	16.71	2189.34	649988.39	738226.01	1.33
10707.00	90.000	87.800	8742.58	2221.38	17.63	2221.33	650020.37	738226.93	3.49
10738.00	90.100	88.300	8742.56	2252.36	18.69	2252.31	650051.35	738227.99	1.64
10770.00	90.000	88.800	8742.53	2284.36	19.50	2284.30	650083.34	738228.80	1.59
10802.00	90.600	89.300	8742.36	2316.35	20.03	2316.29	650115.33	738229.33	2.44
10834.00	90.600	89.600	8742.03	2348.35	20.33	2348.29	650147.33	738229.63	0.94
10865.00	90.600	89.700	8741.70	2379.35	20.52	2379.29	650178.32	738229.82	0.32
10897.00	90.700	89.600	8741.34	2411.35	20.72	2411.28	650210.32	738230.02	0.44
10928.00	90.800	89.400	8740.93	2442.34	20.99	2442.28	650241.31	738230.29	0.72
10960.00	91.100	89.500	8740.40	2474.34	21.30	2474.27	650273.31	738230.60	0.99
10991.00	91.400	89.600	8739.73	2505.33	21.54	2505.27	650304.30	738230.84	1.02
11023.00	91.600	89.900	8738.89	2537.32	21.68	2537.25	650336.28	738230.98	1.13
11055.00	91.600	89.700	8738.00	2569.31	21.79	2569.24	650368.27	738231.09	0.62
11087.00	91.600	89.700	8737.10	2601.29	21.96	2601.23	650400.25	738231.26	0.00
11119.00	91.900	90.200	8736.13	2633.28	21.99	2633.21	650432.23	738231.29	1.82
11151.00	91.500	90.300	8735.18	2665.26	21.85	2665.20	650464.22	738231.15	1.29
11183.00	91.400	90.400	8734.37	2697.25	21.65	2697.19	650496.21	738230.95	0.44
11214.00	91.400	90.600	8733.61	2728.24	21.38	2728.18	650527.19	738230.68	0.64
11246.00	90.800	90.800	8732.99	2760.23	20.99	2760.17	650559.18	738230.29	1.98
11278.00	90.000	90.400	8732.77	2792.23	20.66	2792.17	650591.18	738229.95	2.80
11310.00	89.900	89.800	8732.80	2824.23	20.60	2824.17	650623.17	738229.90	1.90
11341.00	89.900	89.500	8732.85	2855.23	20.79	2855.17	650654.17	738230.09	0.97
11373.00	89.800	89.700	8732.94	2887.23	21.01	2887.16	650686.17	738230.31	0.70

Actual Wellpath Report

No. 1H AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	Marshall & Winston, INC	Slot	No. 1H SHL
Area	Chaves County, NM	Well	No. 1H
Field	(Medlin 8) Sec 8, T15S, R31E	Wellbore	No. 1H AWP
Facility	Medlin Fed Com 8 No. 1H		

WELLPATH DATA (234 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	DLS [°/100ft]
11405.00	89.200	89.700	8733.22	2919.22	21.18	2919.16	650718.16	738230.48	1.87
11436.00	89.000	89.500	8733.70	2950.22	21.40	2950.16	650749.16	738230.70	0.91
11468.00	88.700	89.600	8734.35	2982.21	21.65	2982.15	650781.15	738230.95	0.99
11499.00	88.200	89.700	8735.18	3013.20	21.84	3013.14	650812.13	738231.14	1.64
11531.00	88.000	89.600	8736.24	3045.18	22.03	3045.12	650844.11	738231.33	0.70
11563.00	87.800	89.600	8737.42	3077.16	22.26	3077.10	650876.09	738231.55	0.62
11595.00	87.300	89.700	8738.79	3109.13	22.45	3109.07	650908.06	738231.75	1.59
11627.00	86.500	89.600	8740.52	3141.09	22.65	3141.02	650940.01	738231.95	2.52
11659.00	86.900	89.700	8742.36	3173.03	22.84	3172.97	650971.95	738232.14	1.29
11690.00	88.700	89.800	8743.55	3204.01	22.98	3203.94	651002.93	738232.28	5.82
11722.00	90.700	89.800	8743.72	3236.01	23.09	3235.94	651034.92	738232.39	6.25
11754.00	91.500	89.600	8743.10	3268.00	23.26	3267.93	651066.91	738232.55	2.58
11786.00	91.500	89.700	8742.26	3299.99	23.45	3299.92	651098.90	738232.75	0.31
11817.00	91.500	89.800	8741.45	3330.98	23.59	3330.91	651129.89	738232.89	0.32
11849.00	91.300	90.000	8740.67	3362.97	23.64	3362.90	651161.87	738232.94	0.88
11880.00	91.200	90.100	8739.99	3393.96	23.62	3393.89	651192.86	738232.91	0.46
11912.00	91.300	90.200	8739.30	3425.95	23.53	3425.89	651224.85	738232.83	0.44
11944.00	91.200	90.600	8738.60	3457.94	23.31	3457.88	651256.84	738232.61	1.29
11975.00	90.800	90.900	8738.06	3488.93	22.90	3488.87	651287.83	738232.20	1.61
12007.00	89.900	90.700	8737.86	3520.93	22.46	3520.87	651319.83	738231.75	2.88
12039.00	89.900	90.400	8737.92	3552.92	22.15	3552.86	651351.82	738231.45	0.94
12070.00	90.000	89.900	8737.94	3583.92	22.07	3583.86	651382.82	738231.37	1.64
12102.00	89.900	89.900	8737.97	3615.92	22.12	3615.86	651414.82	738231.42	0.31
12134.00	90.000	89.800	8738.00	3647.92	22.21	3647.86	651446.82	738231.51	0.44
12165.00	90.000	89.300	8738.00	3678.92	22.45	3678.86	651477.81	738231.75	1.61
12197.00	89.900	89.500	8738.03	3710.92	22.79	3710.86	651509.81	738232.08	0.70
12228.00	90.000	89.200	8738.05	3741.92	23.14	3741.86	651540.81	738232.44	1.02
12260.00	89.900	89.600	8738.08	3773.92	23.47	3773.86	651572.80	738232.77	1.29
12292.00	89.900	89.200	8738.14	3805.92	23.81	3805.86	651604.80	738233.11	1.25
12324.00	89.900	89.100	8738.19	3837.92	24.28	3837.85	651636.79	738233.58	0.31



Actual Wellpath Report

No. 1H AWP

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REFERENCE WELLPATH IDENTIFICATION			
Operator	Marshall & Winston, INC	Slot	No. 1H SHL
Area	Chaves County, NM	Well	No. 1H
Field	(Medlin 8) Sec 8, T15S, R31E	Wellbore	No. 1H AWB
Facility	Medlin Fed Com 8 No. 1H		

WELLPATH DATA (234 stations) † = interpolated/extrapolated station									
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	DLS [°/100ft]
12355.00	90.000	88.500	8738.22	3868.91	24.93	3868.85	651667.78	738234.23	1.96
12387.00	89.900	89.000	8738.25	3900.91	25.63	3900.84	651699.77	738234.93	1.59
12418.00	90.000	89.300	8738.28	3931.91	26.09	3931.83	651730.77	738235.39	1.02
12450.00	90.000	89.300	8738.28	3963.91	26.48	3963.83	651762.76	738235.78	0.00
12482.00	90.000	88.700	8738.28	3995.90	27.04	3995.83	651794.76	738236.34	1.87
12514.00	89.900	88.200	8738.30	4027.89	27.90	4027.81	651826.74	738237.20	1.59
12546.00	89.900	88.400	8738.36	4059.88	28.85	4059.80	651858.73	738238.15	0.62
12577.00	89.900	88.200	8738.41	4090.87	29.77	4090.79	651889.71	738239.07	0.65
12609.00	89.900	88.100	8738.47	4122.86	30.81	4122.77	651921.69	738240.10	0.31
12641.00	89.900	88.200	8738.53	4154.85	31.84	4154.75	651953.67	738241.14	0.31
12673.00	89.900	88.500	8738.58	4186.84	32.76	4186.74	651985.66	738242.06	0.94
12704.00	89.900	88.800	8738.64	4217.83	33.49	4217.73	652016.65	738242.79	0.97
12736.00	89.900	89.100	8738.69	4249.83	34.08	4249.73	652048.64	738243.38	0.94
12767.00	89.900	89.300	8738.75	4280.83	34.51	4280.72	652079.63	738243.81	0.65
12799.00	90.000	89.200	8738.77	4312.82	34.93	4312.72	652111.63	738244.23	0.44
12831.00	89.900	89.200	8738.80	4344.82	35.38	4344.72	652143.62	738244.67	0.31
12863.00	90.000	89.100	8738.83	4376.82	35.85	4376.71	652175.62	738245.15	0.44
12894.00	89.900	89.300	8738.86	4407.82	36.28	4407.71	652206.61	738245.58	0.72
12926.00	89.900	89.300	8738.91	4439.82	36.67	4439.71	652238.61	738245.97	0.00
12958.00	90.000	89.600	8738.94	4471.82	36.98	4471.71	652270.60	738246.28	0.99
12990.00	90.000	90.000	8738.94	4503.82	37.09	4503.71	652302.60	738246.39	1.25
13021.00	89.900	90.200	8738.97	4534.82	37.04	4534.71	652333.60	738246.34	0.72
13053.00	89.900	90.000	8739.02	4566.82	36.98	4566.71	652365.60	738246.28	0.62
13107.00†	89.900	90.000	8739.12	4620.82	36.98	4620.71	652419.59	738246.28	0.00



Actual Wellpath Report

No. 1H AWP

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INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	Marshall & Winston, INC	Slot	No. 1H SHL
Area	Chaves County, NM	Well	No. 1H
Field	(Medlin 8) Sec 8, T15S, R31E	Wellbore	No. 1H AWB
Facility	Medlin Fed Com 8 No. 1H		

TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	Shape
No. 1H PBHL		8700.00	18.24	4630.63	652429.52	738227.54	33°01'42.456"N	103°50'09.557"W	point

WELLPATH COMPOSITION Ref Wellbore: No. 1H AWB Ref Wellpath: No. 1H AWP

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
0.00	8300.64	Generic gyro - continuous (Standard)	GYRO	No. 1H AWB
8300.64	9008.00	NaviTrak (Standard)	MWD - 8 3/4 Open Hole (8336 - 9065)	No. 1H AWB
9008.00	13053.00	AutoTrak G3 (Standard)	ATK G3 - 6 1/8 Open Hole (9090 - 13107)	No. 1H AWB
13053.00	13107.00	Blind Drilling (std)	Projection to bit	No. 1H AWB