

Results of Directional Survey

API number:	30-025-32818		
OGRID:		Operator:	CIMAREX ENERGY CO OF COLORADO
		Property:	MALLON 34 FEDERAL # 16H

surface	ULSTR:	L	34	T	19S	R	34E
			1980	FSL	660	FWL	

BH Loc	ULSTR:	I	34	T	19S	R	34E
			2101	FSL	4939	FWL	

Top Perf/OH	ULSTR:	L	34	T	19S	R	34E
		8239	2052	FSL	702	FWL	

Bot Perf/OH	ULSTR:	I	34	T	19S	R	34E
		14976	2101	FSL	4939	FWL	

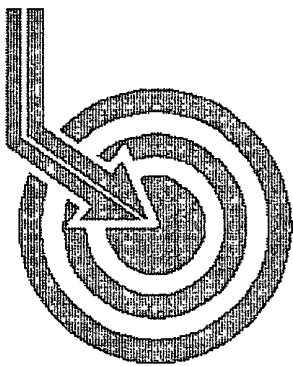
	MD	N/S	E/W	VD
	8200	71.62	42.36	8198.27
TOP PERFS/OH	8239	71.63	42.10	8237.27
	8300	71.64	41.69	8298.27
	14900	121.41	4203.25	10895.12
BOT PERFS/OH	14976	121.15	4279.10	10900.03
	14935	121.29	4238.18	10897.38

NEXT TO LAST	14900	121.41	4203.25	10895.12
LAST READING	14935	121.29	4238.18	10897.38
TD	14976	121.15	4279.10	10900.03

Surface Location	1980	FS	660	FW
Projected BHL	2101	FS	4939	FW
Location of				
Top Perfs/OH	2052	FS	702	FW
Bottom Perfs/OH	2101	FS	4939	FW

SUMMARY of Subsurface Locations

Surface Location	L-34-19S-34E	1980	FS	660	FW	Vert. Depth
Top Perfs/OH	L-34-19S-34E	2052	FS	702	FW	8237.27
Bottom Perfs/OH	I-34-19S-34E	2101	FS	4939	FW	10900.03
Projected TD	I-34-19S-34E	2101	FS	4939	FW	10900.03



Scientific Drilling

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CIMAREX ENERGY

Field: Delaware
Site: ~~Eddy~~ ^{Lea} County, NM
Well: Mallon 34 Federal #16
Wellpath: VH - Job #32K0110009
Survey: 01/06/10

SUR: L-34-19s-34e, 1980/S & 660/W
BHL: I-34-19s-34e, 2101/S & 4939/W
API #30-025-32818

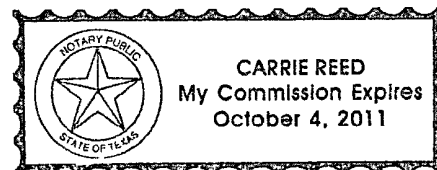
This survey is correct to the best of my knowledge
and is supported by actual field data.

.....Lehman..... Company Representative

Notorized this date 28th of January, 2010.

Carrie Reed

Notary Signature
County of Midland
State of Texas





Scientific Drilling International Survey Report

Company: CIMAREX ENERGY
Field: Delaware
Site: Eddy County, NM
Well: Mallon 34 Federal #16
Wellpath: VH - Job #32K0110009

Date: 01/12/2010 Time: 13:00:03 Page: 1
Co-ordinate(NE) Reference: Site: Eddy County, NM, Grid North
Vertical (TVD) Reference: SITE 0.0
Section (VS) Reference: Well (0.00N,0.00E,45.27Azi)
Survey Calculation Method: Minimum Curvature Db: Sybase

Survey: 01/06/10
KSRG 0'-10200'

Start Date: 01/06/2010

Company: Scientific Drilling Internatio
Tool: Keeper;Keeper Gyro

Engineer: Madrid w/Halliburton
Tied-to: 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	359.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.11	309.36	100.00	-0.01	0.06	-0.07	0.11	0.10	309.36
200.00	0.15	342.66	200.00	0.04	0.25	-0.19	0.08	0.31	322.77
300.00	0.26	354.69	300.00	0.24	0.60	-0.25	0.12	0.65	337.50
400.00	0.21	53.24	400.00	0.57	0.93	-0.12	0.23	0.94	352.57
500.00	0.17	72.82	500.00	0.88	1.09	0.17	0.08	1.10	8.73
600.00	0.15	39.32	600.00	1.15	1.23	0.39	0.09	1.29	17.64
700.00	0.06	69.05	700.00	1.32	1.35	0.52	0.10	1.45	21.17
800.00	0.09	110.33	800.00	1.40	1.34	0.65	0.06	1.49	25.68
900.00	0.02	72.16	900.00	1.45	1.32	0.74	0.08	1.51	29.13
1000.00	0.28	149.09	1000.00	1.41	1.12	0.88	0.28	1.42	38.18
1100.00	0.24	139.94	1100.00	1.33	0.75	1.14	0.06	1.36	56.73
1200.00	0.19	1.42	1200.00	1.44	0.75	1.28	0.40	1.48	59.50
1300.00	0.59	3.10	1299.99	1.94	1.43	1.31	0.40	1.94	42.44
1400.00	0.29	4.40	1399.99	2.51	2.20	1.36	0.30	2.58	31.68
1500.00	0.47	342.20	1499.99	2.89	2.84	1.25	0.23	3.10	23.76
1600.00	0.84	350.15	1599.98	3.49	3.95	1.00	0.38	4.08	14.19
1700.00	0.60	347.19	1699.97	4.19	5.19	0.76	0.24	5.24	8.32
1800.00	0.37	25.61	1799.97	4.77	5.99	0.78	0.39	6.04	7.44
1900.00	0.38	60.75	1899.97	5.39	6.44	1.21	0.23	6.55	10.65
2000.00	0.40	47.23	1999.97	6.06	6.84	1.76	0.09	7.06	14.40
2100.00	0.35	48.32	2099.96	6.72	7.28	2.24	0.05	7.62	17.11
2200.00	0.45	45.64	2199.96	7.41	7.76	2.75	0.10	8.23	19.51
2300.00	0.43	58.15	2299.96	8.17	8.23	3.35	0.10	8.89	22.14
2400.00	0.46	49.47	2399.95	8.94	8.69	3.97	0.07	9.56	24.57
2500.00	0.58	44.75	2499.95	9.84	9.31	4.63	0.13	10.40	26.46
2600.00	0.64	61.97	2599.94	10.89	9.93	5.48	0.19	11.35	28.90
2700.00	1.14	61.04	2699.93	12.38	10.68	6.85	0.50	12.68	32.67
2800.00	1.77	60.28	2799.90	14.83	11.92	9.06	0.63	14.97	37.22
2900.00	2.45	62.13	2899.83	18.36	13.69	12.29	0.68	18.40	41.92
3000.00	2.87	62.17	2999.72	22.81	15.86	16.39	0.42	22.81	45.95
3100.00	2.94	63.15	3099.60	27.64	18.18	20.89	0.09	27.70	48.97
3200.00	3.09	64.73	3199.46	32.62	20.49	25.62	0.17	32.81	51.35
3300.00	3.15	65.42	3299.31	37.74	22.79	30.56	0.07	38.12	53.29
3400.00	2.85	68.18	3399.17	42.61	24.85	35.36	0.33	43.22	54.90
3500.00	2.24	63.85	3499.07	46.76	26.64	39.42	0.64	47.58	55.95
3600.00	1.77	52.06	3599.01	50.14	28.45	42.40	0.62	51.06	56.14
3700.00	1.59	45.62	3698.97	53.06	30.37	44.61	0.26	53.96	55.75
3800.00	1.38	45.93	3798.93	55.65	32.18	46.46	0.21	56.52	55.30
3900.00	1.25	39.28	3898.91	57.94	33.86	48.02	0.20	58.76	54.81
4000.00	1.25	32.77	3998.88	60.09	35.62	49.30	0.14	60.82	54.15
4100.00	1.07	32.22	4098.86	62.07	37.33	50.39	0.18	62.71	53.47
4200.00	1.04	19.85	4198.85	63.80	38.97	51.19	0.23	64.34	52.72
4300.00	1.04	16.12	4298.83	65.41	40.70	51.75	0.07	65.84	51.82
4400.00	1.09	15.70	4398.81	67.03	42.48	52.26	0.05	67.35	50.89
4500.00	1.00	4.93	4498.80	68.52	44.27	52.60	0.22	68.75	49.91
4600.00	0.99	3.80	4598.78	69.83	46.00	52.73	0.02	69.97	48.90
4700.00	0.92	4.20	4698.77	71.09	47.66	52.84	0.07	71.16	47.95
4800.00	0.98	10.89	4798.75	72.40	49.30	53.06	0.13	72.43	47.10



Scientific Drilling International Survey Report

Company: CIMAREX ENERGY
Field: Delaware
Site: Eddy County, NM
Well: Mallon 34 Federal #16
Wellpath: VH - Job #32K0110009

Date: 01/12/2010 Time: 13:00:03 Page: 2
Co-ordinate(NE) Reference: Site: Eddy County, NM, Grid North
Vertical (TVD) Reference: SITE 0.0
Section (VS) Reference: Well (0.00N,0.00E,45.27Azi)
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	0.96	8.54	4898.74	73.77	50.97	53.35	0.04	73.79	46.31
5000.00	0.81	19.08	4998.73	75.08	52.47	53.71	0.22	75.08	45.67
5100.00	0.72	24.45	5098.72	76.30	53.71	54.20	0.11	76.30	45.26
5200.00	0.79	18.79	5198.71	77.51	54.93	54.68	0.10	77.51	44.87
5300.00	0.82	19.96	5298.70	78.77	56.26	55.15	0.03	78.78	44.43
5400.00	0.95	26.92	5398.69	80.20	57.67	55.77	0.17	80.22	44.04
5500.00	1.07	46.26	5498.67	81.92	59.05	56.82	0.36	81.95	43.89
5600.00	1.14	71.07	5598.66	83.75	60.02	58.43	0.48	83.77	44.23
5700.00	1.17	88.67	5698.64	85.39	60.37	60.39	0.35	85.39	45.01
5800.00	1.01	89.09	5798.62	86.77	60.41	62.29	0.16	86.77	45.88
5900.00	1.28	105.66	5898.60	87.96	60.12	64.25	0.42	87.99	46.90
6000.00	1.02	99.98	5998.58	89.02	59.66	66.20	0.28	89.12	47.97
6100.00	0.23	48.72	6098.57	89.74	59.64	67.23	0.89	89.87	48.42
6200.00	0.39	51.83	6198.57	90.27	59.98	67.65	0.16	90.41	48.44
6300.00	0.27	41.08	6298.57	90.85	60.37	68.07	0.13	90.99	48.43
6400.00	0.56	314.58	6398.57	91.08	60.89	67.88	0.61	91.19	48.11
6500.00	1.16	309.74	6498.55	90.97	61.88	66.75	0.60	91.02	47.17
6600.00	1.33	312.27	6598.53	90.82	63.31	65.11	0.18	90.82	45.80
6700.00	1.49	307.88	6698.50	90.59	64.89	63.23	0.19	90.60	44.26
6800.00	1.68	309.34	6798.46	90.27	66.62	61.07	0.19	90.37	42.51
6900.00	1.53	301.54	6898.42	89.80	68.24	58.80	0.26	90.08	40.75
7000.00	1.38	299.00	6998.39	89.15	69.53	56.61	0.16	89.66	39.15
7100.00	1.26	291.94	7098.36	88.37	70.52	54.53	0.20	89.15	37.71
7200.00	1.20	284.76	7198.34	87.41	71.20	52.50	0.17	88.46	36.40
7300.00	1.07	279.40	7298.32	86.33	71.62	50.57	0.17	87.67	35.23
7400.00	0.93	271.84	7398.31	85.22	71.80	48.84	0.19	86.83	34.22
7500.00	0.72	268.33	7498.30	84.21	71.80	47.40	0.22	86.04	33.43
7600.00	0.62	281.57	7598.29	83.45	71.89	46.24	0.18	85.48	32.75
7700.00	0.36	284.28	7698.29	82.98	72.08	45.40	0.26	85.19	32.21
7800.00	0.42	248.16	7798.28	82.48	72.02	44.76	0.25	84.80	31.86
7900.00	0.49	250.84	7898.28	81.76	71.75	44.02	0.07	84.17	31.53
8000.00	0.29	301.78	7998.28	81.32	71.74	43.40	0.38	83.84	31.17
8100.00	0.31	250.72	8098.28	81.01	71.78	42.93	0.26	83.64	30.88
8200.00	0.36	256.81	8198.27	80.50	71.62	42.36	0.06	83.21	30.60
8300.00	0.44	284.34	8298.27	80.04	71.64	41.69	0.21	82.89	30.19
8400.00	0.82	223.14	8398.27	79.12	71.22	40.83	0.72	82.09	29.82
8500.00	0.92	174.45	8498.26	77.90	69.90	40.41	0.72	80.74	30.04
8600.00	1.46	139.24	8598.24	77.31	68.13	41.32	0.88	79.68	31.24
8700.00	1.98	149.84	8698.19	76.78	65.67	43.02	0.61	78.51	33.23
8800.00	2.85	145.73	8798.10	75.90	62.13	45.29	0.89	76.88	36.09
8900.00	3.25	143.82	8897.96	75.02	57.78	48.36	0.41	75.35	39.93
9000.00	2.64	139.92	8997.83	74.42	53.73	51.52	0.64	74.44	43.80
9100.00	1.56	143.99	9097.76	74.02	50.87	53.80	1.09	74.04	46.61
9200.00	1.37	150.92	9197.73	73.49	48.72	55.18	0.26	73.62	48.56
9300.00	0.77	153.02	9297.71	72.97	47.08	56.07	0.60	73.21	49.98
9400.00	0.78	245.56	9397.70	72.12	46.20	55.76	1.12	72.41	50.35
9500.00	1.41	238.38	9497.68	70.29	45.27	54.09	0.64	70.53	50.07
9600.00	1.61	242.40	9597.65	67.75	43.98	51.80	0.23	67.95	49.67
9700.00	1.22	210.22	9697.62	65.38	42.41	50.01	0.87	65.57	49.71
9800.00	0.66	202.88	9797.61	63.82	40.96	49.26	0.57	64.06	50.26
9900.00	0.89	252.49	9897.60	62.59	40.19	48.29	0.68	62.83	50.23
10000.00	0.97	282.02	9997.58	61.44	40.13	46.72	0.48	61.59	49.34



Scientific Drilling International Survey Report

Company: CIMAREX ENERGY
Field: Delaware
Site: Eddy County, NM
Well: Mallon 34 Federal #16
Wellpath: VH - Job #32K0110009

Date: 01/12/2010 **Time:** 13:00:03 **Page:** 3
Co-ordinate(NE) Reference: Site: Eddy County, NM, Grid North
Vertical (TVD) Reference: SITE 0.0
Section (VS) Reference: Well (0.00N,0.00E,45.27Azi)
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
10100.00	1.68	293.93	10097.56	60.44	40.90	44.55	0.76	60.48	47.45
10200.00	1.09	327.70	10197.53	60.11	42.30	42.71	0.98	60.11	45.27



Scientific
Drilling

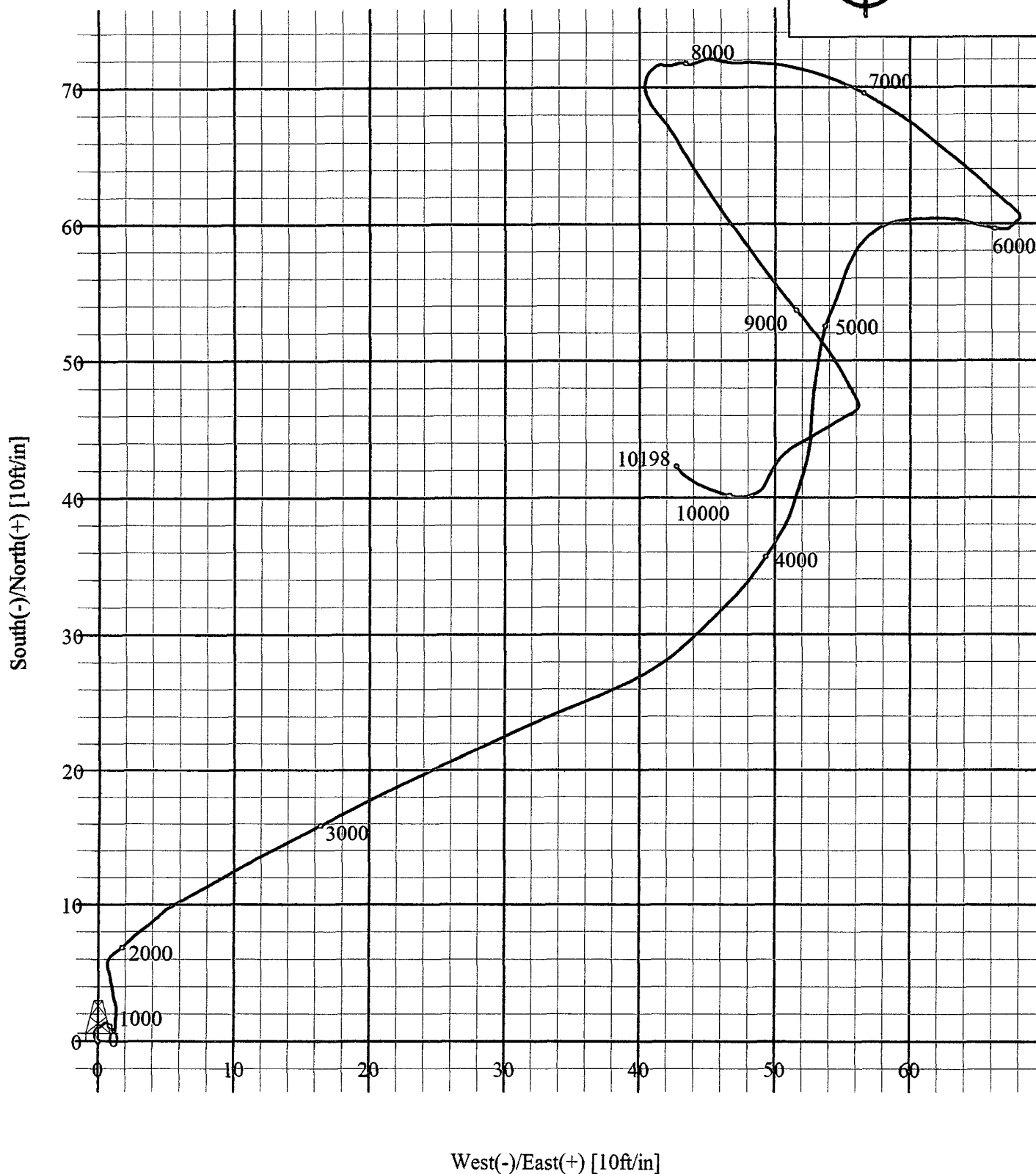
Field: Delaware
Site: Eddy County, NM
Well: Mallon 34 Federal #16
Wellpath: VH - Job #32K0110009
Survey: 01/06/10

G/T/M



Azimuths to Grid North
True North: 0.00°
Magnetic North: 0.00°

Magnetic Field
Strength: 0nT
Dip Angle: 0.00°
Date: 01/12/2010
Model: igrf2000





Cimarex Energy Co.

Location: Lea County, NM
Field: (Mallon) Sec 34, T19S, R34E
Facility: Mallon 34 Fed #16H

Slot: No. 16H SHL
Well: No. 16H
Wellbore: No. 16H PWB



INTEQ

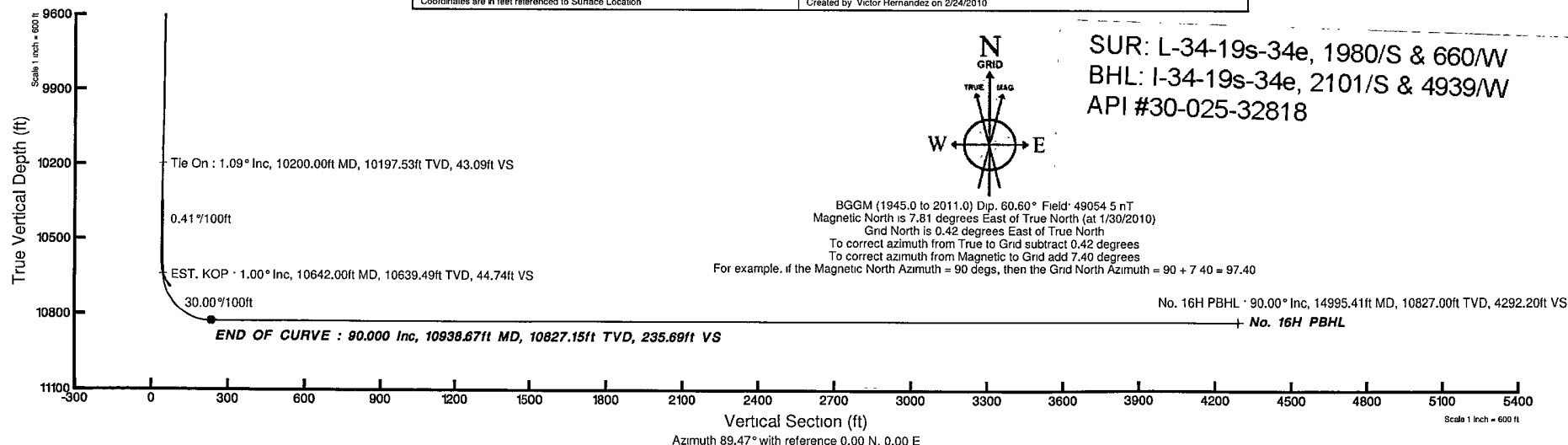
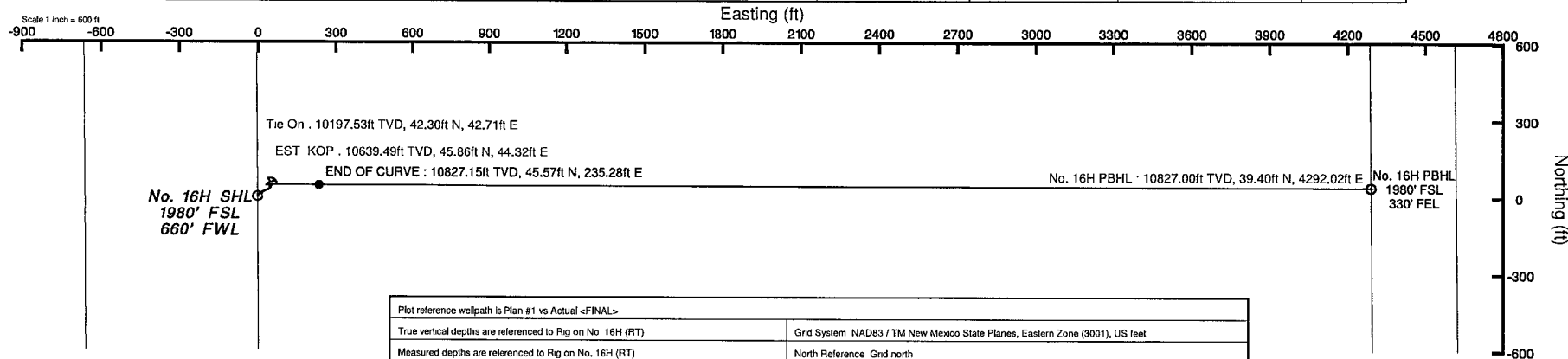
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Well Profile Data

Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (%/100ft)	VS (ft)
Tie On	10200.00	1.090	327.700	10197.53	42.30	42.71	0.00	43.09
EST. KOP	10642.00	1.000	90.000	10639.49	45.86	44.32	0.41	44.74
END OF CURVE	10938.67	90.002	90.087	10827.15	45.57	235.28	30.00	235.69
No. 16H PBHL	14995.41	90.002	90.087	10827.00	39.40	4292.02	0.00	4292.20





Actual Wellpath Report

No. 16H AWP

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HOBBSOCD



INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 16H SHL
Area	Lea County, NM	Well	No. 16H
Field	(Mallon) Sec 34, T19S, R34E	Wellbore	No. 16H AWB
Facility	Mallon 34 Fed No. 16H	Sidetrack from	No. 16 AWB at 10200.00 MD

REPORT SETUP INFORMATION

Projection System	NAD83 / TM New Mexico State Planes, Eastern Zone (3001), US feet	Software System	WellArchitect® 2.0
North Reference	Grid	User	Victor Hernandez
Scale	0.999975	Report Generated	2/24/2010 at 3:23:19 PM
Convergence at slot	0.42° East	Database/Source file	WA_Midland/No._16H_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	781152.90	588315.70	32°36'53.697"N	103°33'16.102"W
Facility Reference Pt			781152.90	588315.70	32°36'53.697"N	103°33'16.102"W
Field Reference Pt			780804.80	586972.60	32°36'40.432"N	103°33'20.286"W

WELLPATH DATUM

Calculation method	Minimum curvature	Rig on No. 16H (RT) to GL	20.00ft
Horizontal Reference Pt	Surface Location	Rig on No. 16H (RT) to Mean Sea Level	3698.00ft
Vertical Reference Pt	Rig on No. 16H (RT)	GL to Mud Line (Facility)	0.00ft
MD Reference Pt	Rig on No. 16H (RT)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	89.47°



Actual Wellpath Report

No. 16H AWP

Page 2 of 6



REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 16H SHL
Area	Lea County, NM	Well	No. 16H
Field	(Mallon) Sec 34, T19S, R34E	Wellbore	No. 16H AWB
Facility	Mallon 34 Fed No. 16H	Sidetrack from	No. 16 AWB at 10200.00 MD

WELLPATH DATA (113 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	DLS [°/100ft]
0.00	0.000	309.360	0.00	0.00	0.00	0.00	781152.90	588315.70	32°36'53.697"N	103°33'16.102"W	0.00
100.00	0.110	309.360	100.00	-0.07	0.06	-0.07	781152.83	588315.76	32°36'53.697"N	103°33'16.103"W	0.11
200.00	0.150	342.660	200.00	-0.19	0.25	-0.19	781152.71	588315.95	32°36'53.699"N	103°33'16.104"W	0.08
300.00	0.260	354.690	300.00	-0.24	0.60	-0.25	781152.65	588316.30	32°36'53.702"N	103°33'16.105"W	0.12
400.00	0.210	53.240	400.00	-0.11	0.93	-0.12	781152.78	588316.63	32°36'53.706"N	103°33'16.103"W	0.23
500.00	0.170	72.820	500.00	0.18	1.09	0.17	781153.07	588316.79	32°36'53.707"N	103°33'16.100"W	0.08
600.00	0.150	39.320	600.00	0.40	1.23	0.39	781153.29	588316.93	32°36'53.709"N	103°33'16.097"W	0.09
700.00	0.060	69.050	700.00	0.54	1.35	0.52	781153.42	588317.05	32°36'53.710"N	103°33'16.095"W	0.10
800.00	0.090	110.330	800.00	0.66	1.34	0.65	781153.55	588317.04	32°36'53.710"N	103°33'16.094"W	0.06
900.00	0.020	72.160	900.00	0.75	1.32	0.74	781153.64	588317.02	32°36'53.710"N	103°33'16.093"W	0.08
1000.00	0.280	149.090	1000.00	0.89	1.12	0.88	781153.78	588316.82	32°36'53.708"N	103°33'16.091"W	0.28
1100.00	0.240	139.940	1100.00	1.15	0.75	1.14	781154.04	588316.45	32°36'53.704"N	103°33'16.088"W	0.06
1200.00	0.190	1.420	1200.00	1.28	0.75	1.28	781154.18	588316.45	32°36'53.704"N	103°33'16.087"W	0.40
1300.00	0.590	3.100	1299.99	1.32	1.43	1.31	781154.21	588317.13	32°36'53.711"N	103°33'16.086"W	0.40
1400.00	0.290	4.400	1399.99	1.38	2.20	1.36	781154.26	588317.90	32°36'53.718"N	103°33'16.086"W	0.30
1500.00	0.470	342.200	1499.99	1.28	2.84	1.25	781154.15	588318.54	32°36'53.725"N	103°33'16.087"W	0.23
1600.00	0.840	350.150	1599.98	1.04	3.95	1.00	781153.90	588319.65	32°36'53.736"N	103°33'16.090"W	0.38
1700.00	0.600	347.190	1699.97	0.81	5.19	0.76	781153.66	588320.89	32°36'53.748"N	103°33'16.092"W	0.24
1800.00	0.370	25.610	1799.97	0.84	5.99	0.78	781153.68	588321.69	32°36'53.756"N	103°33'16.092"W	0.39
1900.00	0.380	60.750	1899.97	1.27	6.44	1.21	781154.11	588322.14	32°36'53.760"N	103°33'16.087"W	0.23
2000.00	0.400	47.230	1999.97	1.82	6.84	1.76	781154.66	588322.54	32°36'53.764"N	103°33'16.081"W	0.09
2100.00	0.350	48.320	2099.96	2.31	7.28	2.24	781155.14	588322.98	32°36'53.768"N	103°33'16.075"W	0.05
2200.00	0.450	45.640	2199.96	2.82	7.76	2.75	781155.65	588323.46	32°36'53.773"N	103°33'16.069"W	0.10
2300.00	0.430	58.150	2299.96	3.43	8.23	3.35	781156.25	588323.93	32°36'53.778"N	103°33'16.062"W	0.10
2400.00	0.460	49.470	2399.95	4.05	8.69	3.97	781156.87	588324.39	32°36'53.782"N	103°33'16.054"W	0.07
2500.00	0.580	44.750	2499.95	4.72	9.31	4.63	781157.53	588325.01	32°36'53.788"N	103°33'16.047"W	0.13
2600.00	0.640	61.970	2599.94	5.58	9.93	5.48	781158.38	588325.63	32°36'53.794"N	103°33'16.037"W	0.19
2700.00	1.140	61.040	2699.93	6.95	10.68	6.85	781159.75	588326.38	32°36'53.802"N	103°33'16.021"W	0.50
2800.00	1.770	60.280	2799.90	9.17	11.92	9.06	781161.96	588327.62	32°36'53.814"N	103°33'15.995"W	0.63
2900.00	2.450	62.130	2899.83	12.42	13.69	12.29	781165.19	588329.39	32°36'53.831"N	103°33'15.957"W	0.68



Actual Wellpath Report

No. 16H AWP

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INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 16H SHL
Area	Lea County, NM	Well	No. 16H
Field	(Mallon) Sec 34, T19S, R34E	Wellbore	No. 16H AWB
Facility	Mallon 34 Fed No. 16H	Sidetrack from	No. 16 AWB at 10200.00 MD

WELLPATH DATA (113 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	DLS [°/100ft]
3000.00	2.870	62.170	2999.72	16.54	15.86	16.39	781169.29	588331.56	32°36'53.852"N	103°33'15.909"W	0.42
3100.00	2.940	63.150	3099.60	21.06	18.18	20.89	781173.79	588333.88	32°36'53.875"N	103°33'15.856"W	0.09
3200.00	3.090	64.730	3199.46	25.81	20.49	25.62	781178.52	588336.19	32°36'53.897"N	103°33'15.800"W	0.17
3300.00	3.150	65.420	3299.31	30.77	22.79	30.56	781183.46	588338.49	32°36'53.920"N	103°33'15.742"W	0.07
3400.00	2.850	68.180	3399.17	35.59	24.85	35.36	781188.26	588340.55	32°36'53.940"N	103°33'15.686"W	0.33
3500.00	2.240	63.850	3499.07	39.67	26.64	39.42	781192.32	588342.34	32°36'53.957"N	103°33'15.638"W	0.64
3600.00	1.770	52.060	3599.01	42.66	28.45	42.40	781195.30	588344.15	32°36'53.975"N	103°33'15.604"W	0.62
3700.00	1.590	45.620	3698.97	44.89	30.37	44.61	781197.51	588346.07	32°36'53.994"N	103°33'15.578"W	0.26
3800.00	1.380	45.930	3798.93	46.76	32.18	46.46	781199.36	588347.88	32°36'54.012"N	103°33'15.556"W	0.21
3900.00	1.250	39.280	3898.91	48.33	33.86	48.02	781200.92	588349.56	32°36'54.028"N	103°33'15.537"W	0.20
4000.00	1.250	32.770	3998.88	49.63	35.62	49.30	781202.20	588351.32	32°36'54.045"N	103°33'15.522"W	0.14
4100.00	1.070	32.220	4098.86	50.73	37.33	50.39	781203.29	588353.03	32°36'54.062"N	103°33'15.509"W	0.18
4200.00	1.040	19.850	4198.85	51.55	38.97	51.19	781204.09	588354.67	32°36'54.078"N	103°33'15.500"W	0.23
4300.00	1.040	16.120	4298.83	52.13	40.70	51.75	781204.65	588356.40	32°36'54.095"N	103°33'15.493"W	0.07
4400.00	1.090	15.700	4398.81	52.65	42.48	52.26	781205.16	588358.18	32°36'54.113"N	103°33'15.487"W	0.05
4500.00	1.000	4.930	4498.80	53.00	44.27	52.60	781205.49	588359.97	32°36'54.131"N	103°33'15.483"W	0.22
4600.00	0.990	3.800	4598.78	53.15	46.00	52.73	781205.63	588361.70	32°36'54.148"N	103°33'15.481"W	0.02
4700.00	0.920	4.200	4698.77	53.28	47.66	52.84	781205.74	588363.36	32°36'54.164"N	103°33'15.480"W	0.07
4800.00	0.980	10.890	4798.75	53.52	49.30	53.06	781205.96	588365.00	32°36'54.180"N	103°33'15.477"W	0.13
4900.00	0.960	8.540	4898.74	53.82	50.97	53.35	781206.25	588366.67	32°36'54.197"N	103°33'15.474"W	0.04
5000.00	0.810	19.080	4998.73	54.19	52.47	53.71	781206.60	588368.17	32°36'54.212"N	103°33'15.469"W	0.22
5100.00	0.720	24.450	5098.72	54.69	53.71	54.20	781207.10	588369.41	32°36'54.224"N	103°33'15.463"W	0.11
5200.00	0.790	18.790	5198.71	55.19	54.93	54.68	781207.58	588370.63	32°36'54.236"N	103°33'15.458"W	0.10
5300.00	0.820	19.960	5298.70	55.66	56.26	55.15	781208.04	588371.96	32°36'54.249"N	103°33'15.452"W	0.03
5400.00	0.950	26.920	5398.69	56.30	57.67	55.77	781208.66	588373.37	32°36'54.263"N	103°33'15.445"W	0.17
5500.00	1.070	46.260	5498.67	57.36	59.05	56.82	781209.71	588374.75	32°36'54.277"N	103°33'15.432"W	0.36
5600.00	1.140	71.070	5598.66	58.98	60.02	58.43	781211.33	588375.72	32°36'54.286"N	103°33'15.413"W	0.48
5700.00	1.170	88.670	5698.64	60.95	60.37	60.39	781213.29	588376.07	32°36'54.289"N	103°33'15.390"W	0.35
5800.00	1.010	89.090	5798.62	62.85	60.41	62.29	781215.19	588376.10	32°36'54.290"N	103°33'15.368"W	0.16
5900.00	1.280	105.660	5898.60	64.80	60.12	64.25	781217.15	588375.82	32°36'54.287"N	103°33'15.345"W	0.42



Actual Wellpath Report

No. 16H AWP

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INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 16H SHL
Area	Lea County, NM	Well	No. 16H
Field	(Mallon) Sec 34, T19S, R34E	Wellbore	No. 16H AWB
Facility	Mallon 34 Fed No. 16H	Sidetrack from	No. 16 AWB at 10200.00 MD

WELLPATH DATA (113 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	DLS [°/100ft]
6000.00	1.020	99.980	5998.58	66.75	59.66	66.20	781219.10	588375.36	32°36'54.282"N	103°33'15.323"W	0.28
6100.00	0.230	48.720	6098.57	67.78	59.64	67.23	781220.13	588375.34	32°36'54.282"N	103°33'15.311"W	0.89
6200.00	0.390	51.830	6198.57	68.20	59.98	67.65	781220.55	588375.68	32°36'54.285"N	103°33'15.306"W	0.16
6300.00	0.270	41.080	6298.57	68.63	60.37	68.07	781220.97	588376.07	32°36'54.289"N	103°33'15.301"W	0.13
6400.00	0.560	314.580	6398.57	68.44	60.89	67.88	781220.78	588376.59	32°36'54.294"N	103°33'15.303"W	0.61
6500.00	1.160	309.740	6498.55	67.32	61.88	66.75	781219.65	588377.58	32°36'54.304"N	103°33'15.316"W	0.60
6600.00	1.330	312.270	6598.53	65.70	63.31	65.11	781218.01	588379.01	32°36'54.318"N	103°33'15.335"W	0.18
6700.00	1.490	307.880	6698.50	63.83	64.89	63.23	781216.13	588380.59	32°36'54.334"N	103°33'15.357"W	0.19
6800.00	1.680	309.340	6798.46	61.68	66.62	61.07	781213.97	588382.32	32°36'54.351"N	103°33'15.382"W	0.19
6900.00	1.530	301.540	6898.42	59.43	68.24	58.80	781211.70	588383.94	32°36'54.367"N	103°33'15.408"W	0.26
7000.00	1.380	299.000	6998.39	57.25	69.53	56.61	781209.51	588385.22	32°36'54.380"N	103°33'15.434"W	0.16
7100.00	1.260	291.940	7098.36	55.18	70.52	54.53	781207.43	588386.22	32°36'54.390"N	103°33'15.458"W	0.20
7200.00	1.200	284.760	7198.34	53.16	71.20	52.50	781205.40	588386.90	32°36'54.397"N	103°33'15.482"W	0.17
7300.00	1.070	279.400	7298.32	51.23	71.62	50.57	781203.47	588387.32	32°36'54.401"N	103°33'15.504"W	0.17
7400.00	0.930	271.840	7398.31	49.50	71.80	48.84	781201.73	588387.49	32°36'54.403"N	103°33'15.525"W	0.19
7500.00	0.720	268.330	7498.30	48.06	71.80	47.40	781200.30	588387.50	32°36'54.404"N	103°33'15.541"W	0.22
7600.00	0.620	281.570	7598.29	46.90	71.89	46.24	781199.14	588387.59	32°36'54.405"N	103°33'15.555"W	0.18
7700.00	0.360	284.280	7698.29	46.07	72.08	45.40	781198.30	588387.78	32°36'54.406"N	103°33'15.565"W	0.26
7800.00	0.420	248.160	7798.28	45.42	72.02	44.76	781197.66	588387.72	32°36'54.406"N	103°33'15.572"W	0.25
7900.00	0.490	250.840	7898.28	44.68	71.75	44.02	781196.91	588387.44	32°36'54.403"N	103°33'15.581"W	0.07
8000.00	0.290	301.780	7998.28	44.06	71.74	43.40	781196.30	588387.44	32°36'54.403"N	103°33'15.588"W	0.38
8100.00	0.310	250.720	8098.28	43.59	71.78	42.93	781195.82	588387.48	32°36'54.404"N	103°33'15.594"W	0.26
8200.00	0.360	256.810	8198.27	43.03	71.62	42.36	781195.26	588387.32	32°36'54.402"N	103°33'15.600"W	0.06
8300.00	0.440	284.340	8298.27	42.35	71.64	41.69	781194.59	588387.34	32°36'54.402"N	103°33'15.608"W	0.21
8400.00	0.820	223.140	8398.27	41.48	71.22	40.83	781193.72	588386.92	32°36'54.398"N	103°33'15.618"W	0.72
8500.00	0.920	174.450	8498.26	41.06	69.90	40.41	781193.31	588385.59	32°36'54.385"N	103°33'15.623"W	0.72
8600.00	1.460	139.240	8598.24	41.95	68.13	41.32	781194.22	588383.83	32°36'54.368"N	103°33'15.613"W	0.88
8700.00	1.980	149.840	8698.19	43.63	65.67	43.02	781195.92	588381.37	32°36'54.343"N	103°33'15.593"W	0.61
8800.00	2.850	145.730	8798.10	45.86	62.13	45.29	781198.19	588377.82	32°36'54.308"N	103°33'15.567"W	0.89
8900.00	3.250	143.820	8897.96	48.90	57.78	48.36	781201.26	588373.48	32°36'54.265"N	103°33'15.531"W	0.41



Actual Wellpath Report

No. 16H AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 16H SHL
Area	Lea County, NM	Well	No. 16H
Field	(Mallon) Sec 34, T19S, R34E	Wellbore	No. 16H AWB
Facility	Mallon 34 Fed No. 16H	Sidetrack from	No. 16 AWB at 10200.00 MD

WELLPATH DATA (113 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	DLS [°/100ft]
9000.00	2.640	139.920	8997.83	52.01	53.73	51.52	781204.42	588369.43	32°36'54.224"N	103°33'15.495"W	0.64
9100.00	1.560	143.990	9097.76	54.27	50.87	53.80	781206.70	588366.57	32°36'54.196"N	103°33'15.468"W	1.09
9200.00	1.370	150.920	9197.73	55.63	48.72	55.18	781208.08	588364.42	32°36'54.175"N	103°33'15.452"W	0.26
9300.00	0.770	153.020	9297.71	56.50	47.08	56.07	781208.97	588362.78	32°36'54.158"N	103°33'15.442"W	0.60
9400.00	0.780	245.560	9397.70	56.18	46.20	55.76	781208.65	588361.90	32°36'54.150"N	103°33'15.446"W	1.12
9500.00	1.410	238.380	9497.68	54.50	45.27	54.09	781206.99	588360.97	32°36'54.141"N	103°33'15.465"W	0.64
9600.00	1.610	242.400	9597.65	52.20	43.98	51.80	781204.69	588359.68	32°36'54.128"N	103°33'15.492"W	0.23
9700.00	1.220	210.220	9697.62	50.40	42.41	50.01	781202.91	588358.10	32°36'54.112"N	103°33'15.513"W	0.87
9800.00	0.660	202.880	9797.61	49.63	40.96	49.26	781202.15	588356.65	32°36'54.098"N	103°33'15.522"W	0.57
9900.00	0.890	252.490	9897.60	48.66	40.19	48.29	781201.19	588355.89	32°36'54.091"N	103°33'15.534"W	0.68
10000.00	0.970	282.020	9997.58	47.09	40.13	46.72	781199.62	588355.83	32°36'54.090"N	103°33'15.552"W	0.48
10100.00	1.680	293.930	10097.56	44.93	40.90	44.55	781197.45	588356.60	32°36'54.098"N	103°33'15.577"W	0.76
10200.00	1.090	327.700	10197.53	43.10	42.30	42.71	781195.60	588358.00	32°36'54.112"N	103°33'15.599"W	0.98
10327.00	1.400	323.000	10324.50	41.54	44.56	41.13	781194.03	588360.26	32°36'54.134"N	103°33'15.617"W	0.26
10391.00	1.700	354.500	10388.48	40.99	46.13	40.57	781193.46	588361.83	32°36'54.150"N	103°33'15.623"W	1.39
10454.00	2.000	339.500	10451.44	40.53	48.09	40.09	781192.99	588363.79	32°36'54.169"N	103°33'15.629"W	0.90
10517.00	2.200	340.900	10514.40	39.77	50.27	39.31	781192.21	588365.96	32°36'54.191"N	103°33'15.638"W	0.33
10611.00	1.600	63.800	10608.36	40.38	52.55	39.90	781192.80	588368.25	32°36'54.214"N	103°33'15.631"W	2.72
10626.00	8.200	81.600	10623.30	41.63	52.80	41.14	781194.04	588368.50	32°36'54.216"N	103°33'15.616"W	44.63
10642.00	17.200	87.600	10638.90	45.13	53.07	44.64	781197.54	588368.76	32°36'54.218"N	103°33'15.575"W	56.78
10655.00	23.000	83.900	10651.10	49.59	53.42	49.09	781201.99	588369.11	32°36'54.221"N	103°33'15.523"W	45.65
10674.00	31.700	83.900	10667.96	58.27	54.34	57.77	781210.66	588370.04	32°36'54.230"N	103°33'15.422"W	45.79
10704.00	38.300	83.900	10692.52	75.38	56.17	74.87	781227.76	588371.87	32°36'54.247"N	103°33'15.222"W	22.00



Actual Wellpath Report

No. 16H AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 16H SHL
Area	Lea County, NM	Well	No. 16H
Field	(Mallon) Sec 34, T19S, R34E	Wellbore	No. 16H AWB
Facility	Mallon 34 Fed No. 16H	Sidetrack from	No. 16 AWB at 10200.00 MD

TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	Shape
No. 16H PBHL		10827.00	39.40	4292.02	785444.80	588355.10	32°36'53.772"N	103°32'25.922"W	point

WELLPATH COMPOSITION

Ref Wellbore: No. 16H AWB Ref Wellpath: No. 16H AWP

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
0.00	10200.00	Generic gyro - continuous (Standard)	GYRO - <100 - 10200>	No. 16 AWB
10200.00	10674.00	NaviTrak (Standard)	MWD - <10327 - 10674>	No. 16H AWB
10674.00	10704.00	Blind Drilling (std)	Projection to bit	No. 16H AWB



Cimarex Energy Co.

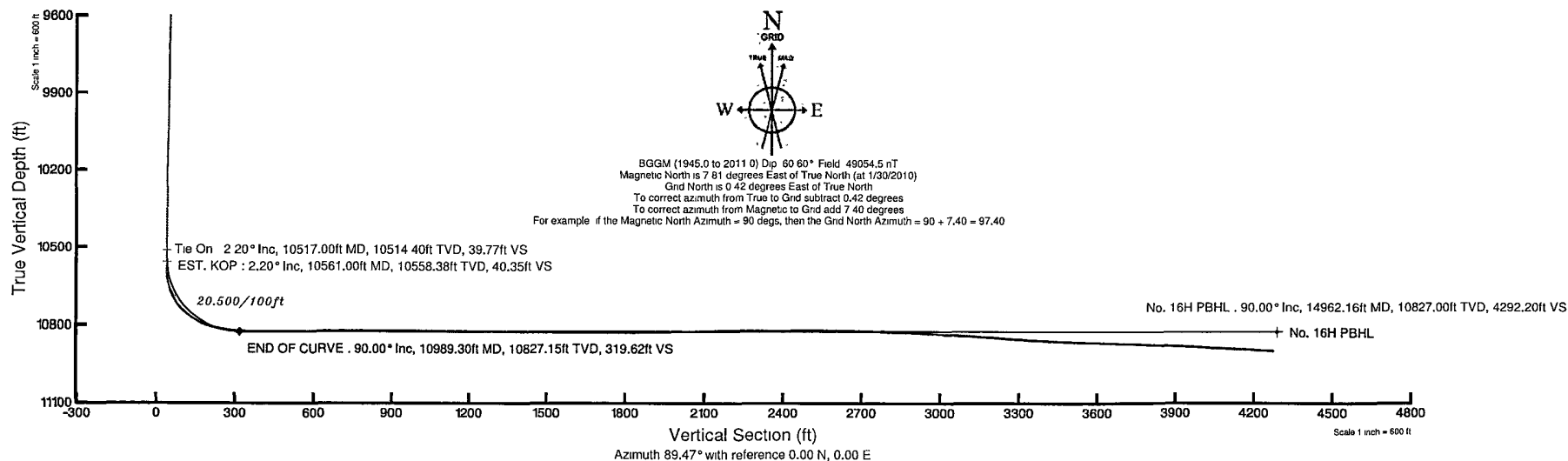
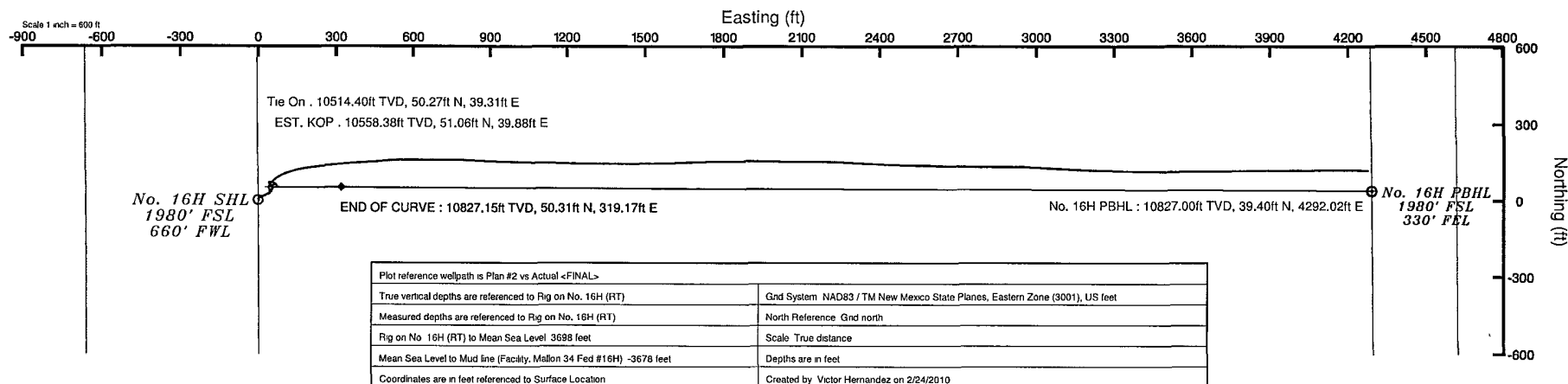
Location: Lea County, NM
Field: (Mallon) Sec 34, T19S, R34E
Facility: Mallon 34 Fed #16H

Slot: No. 16H SHL
Well: No. 16H
Wellbore: No. 16H ST



Well Profile Data

Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (%/100ft)	VS (ft)
Tie On	10517.00	2.200	340.900	10514.40	50.27	39.31	0.33	39.77
EST. KOP	10561.00	2.200	90.100	10558.38	51.06	39.88	8.15	40.35
END OF CURVE	10989.30	90.002	90.157	10827.15	50.31	319.17	20.50	319.62
No. 16H PBHL	14962.16	90.002	90.157	10827.00	39.40	4292.02	0.00	4292.20





Actual Wellpath Report

No. 16H ST AWP

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INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 16H SHL
Area	Lea County, NM	Well	No. 16H
Field	(Mallon) Sec 34, T19S, R34E	Wellbore	No. 16H ST AWB
Facility	Mallon 34 Fed No. 16H	Sidetrack from	No. 16H AWB at 10454.00 MD

REPORT SETUP INFORMATION

Projection System	NAD83 / TM New Mexico State Planes, Eastern Zone (3001), US feet	Software System	WellArchitect® 2.0
North Reference	Grid	User	Victor Hernandez
Scale	0.999975	Report Generated	2/24/2010 at 3:14:15 PM
Convergence at slot	0.42° East	Database/Source file	WA_Midland/No._16H_ST_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	781152.90	588315.70	32°36'53.697"N	103°33'16.102"W
Facility Reference Pt			781152.90	588315.70	32°36'53.697"N	103°33'16.102"W
Field Reference Pt			780804.80	586972.60	32°36'40.432"N	103°33'20.286"W

WELLPATH DATUM

Calculation method	Minimum curvature	Rig on No. 16H (RT) to GL	20.00ft
Horizontal Reference Pt	Surface Location	Rig on No. 16H (RT) to Mean Sea Level	3698.00ft
Vertical Reference Pt	Rig on No. 16H (RT)	GL to Mud Line (Facility)	0.00ft
MD Reference Pt	Rig on No. 16H (RT)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	89.47°



Actual Wellpath Report

No. 16H ST AWP

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INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 16H SHL
Area	Lea County, NM	Well	No. 16H
Field	(Mallon) Sec 34, T19S, R34E	Wellbore	No. 16H ST AWP
Facility	Mallon 34 Fed No. 16H	Sidetrack from	No. 16H AWP at 10454.00 MD

WELLPATH DATA (188 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	DLS [°/100ft]
0.00	0.000	309.360	0.00	0.00	0.00	0.00	781152.90	588315.70	32°36'53.697"N	103°33'16.102"W	0.00
100.00	0.110	309.360	100.00	-0.07	0.06	-0.07	781152.83	588315.76	32°36'53.697"N	103°33'16.103"W	0.11
200.00	0.150	342.660	200.00	-0.19	0.25	-0.19	781152.71	588315.95	32°36'53.699"N	103°33'16.104"W	0.08
300.00	0.260	354.690	300.00	-0.24	0.60	-0.25	781152.65	588316.30	32°36'53.702"N	103°33'16.105"W	0.12
400.00	0.210	53.240	400.00	-0.11	0.93	-0.12	781152.78	588316.63	32°36'53.706"N	103°33'16.103"W	0.23
500.00	0.170	72.820	500.00	0.18	1.09	0.17	781153.07	588316.79	32°36'53.707"N	103°33'16.100"W	0.08
600.00	0.150	39.320	600.00	0.40	1.23	0.39	781153.29	588316.93	32°36'53.709"N	103°33'16.097"W	0.09
700.00	0.060	69.050	700.00	0.54	1.35	0.52	781153.42	588317.05	32°36'53.710"N	103°33'16.095"W	0.10
800.00	0.090	110.330	800.00	0.66	1.34	0.65	781153.55	588317.04	32°36'53.710"N	103°33'16.094"W	0.06
900.00	-0.020	72.160	900.00	0.75	1.32	-0.74	781153.64	588317.02	32°36'53.710"N	103°33'16.093"W	0.08
1000.00	0.280	149.090	1000.00	0.89	1.12	0.88	781153.78	588316.82	32°36'53.708"N	103°33'16.091"W	0.28
1100.00	0.240	139.940	1100.00	1.15	0.75	1.14	781154.04	588316.45	32°36'53.704"N	103°33'16.088"W	0.06
1200.00	0.190	1.420	1200.00	1.28	0.75	1.28	781154.18	588316.45	32°36'53.704"N	103°33'16.087"W	0.40
1300.00	0.590	3.100	1299.99	1.32	1.43	1.31	781154.21	588317.13	32°36'53.711"N	103°33'16.086"W	0.40
1400.00	0.290	74.400	1399.99	1.38	2.20	1.36	781154.26	588317.90	32°36'53.718"N	103°33'16.086"W	0.30
1500.00	0.470	342.200	1499.99	1.28	2.84	1.25	781154.15	588318.54	32°36'53.725"N	103°33'16.087"W	0.23
1600.00	0.840	350.150	1599.98	1.04	3.95	1.00	781153.90	588319.65	32°36'53.736"N	103°33'16.090"W	0.38
1700.00	0.600	347.190	1699.97	0.81	5.19	0.76	781153.66	588320.89	32°36'53.748"N	103°33'16.092"W	0.24
1800.00	0.370	25.610	1799.97	0.84	5.99	0.78	781153.68	588321.69	32°36'53.756"N	103°33'16.092"W	0.39
1900.00	0.380	60.750	1899.97	1.27	6.44	1.21	781154.11	588322.14	32°36'53.760"N	103°33'16.087"W	0.23
2000.00	0.400	47.230	1999.97	1.82	6.84	1.76	781154.66	588322.54	32°36'53.764"N	103°33'16.081"W	0.09
2100.00	0.350	48.320	2099.96	2.31	7.28	2.24	781155.14	588322.98	32°36'53.768"N	103°33'16.075"W	0.05
2200.00	0.450	45.640	2199.96	2.82	7.76	2.75	781155.65	588323.46	32°36'53.773"N	103°33'16.069"W	0.10
2300.00	0.430	58.150	2299.96	3.42	8.23	3.35	781156.25	588323.93	32°36'53.778"N	103°33'16.062"W	0.10
2400.00	0.460	49.470	2399.95	4.05	8.69	3.97	781156.87	588324.39	32°36'53.782"N	103°33'16.054"W	0.07
2500.00	0.580	44.750	2499.95	4.72	9.31	4.63	781157.53	588325.01	32°36'53.788"N	103°33'16.047"W	0.13
2600.00	0.640	61.970	2599.94	5.57	9.93	5.48	781158.38	588325.63	32°36'53.794"N	103°33'16.037"W	0.19
2700.00	1.140	61.040	2699.93	6.94	10.68	6.85	781159.75	588326.38	32°36'53.802"N	103°33'16.021"W	0.50
2800.00	1.770	60.280	2799.90	9.17	11.92	9.06	781161.96	588327.62	32°36'53.814"N	103°33'15.995"W	0.63
2900.00	2.450	62.130	2899.83	12.41	13.69	12.29	781165.19	588329.39	32°36'53.831"N	103°33'15.957"W	0.68



Actual Wellpath Report

No. 16H ST AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 16H SHL
Area	Lea County, NM	Well	No. 16H
Field	(Mallon) Sec 34, T19S, R34E	Wellbore	No. 16H ST AWP
Facility	Mallon 34 Fed No. 16H	Sidetrack from	No. 16H AWP at 10454.00 MD

WELLPATH DATA (188 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	DLS [°/100ft]
3000.00	2.870	62.170	2999.72	16.54	15.86	16.39	781169.29	588331.56	32°36'53.852"N	103°33'15.909"W	0.42
3100.00	2.940	63.150	3099.60	21.06	18.18	20.89	781173.79	588333.88	32°36'53.875"N	103°33'15.856"W	0.09
3200.00	3.090	64.730	3199.46	25.81	20.49	25.62	781178.52	588336.19	32°36'53.897"N	103°33'15.800"W	0.17
3300.00	3.150	65.420	3299.31	30.76	22.79	30.56	781183.46	588338.49	32°36'53.920"N	103°33'15.742"W	0.07
3400.00	2.850	68.180	3399.17	35.59	24.85	35.36	781188.26	588340.55	32°36'53.940"N	103°33'15.686"W	0.33
3500.00	2.240	63.850	3499.07	39.67	26.64	39.42	781192.32	588342.34	32°36'53.957"N	103°33'15.638"W	0.64
3600.00	1.770	52.060	3599.01	42.66	28.45	42.40	781195.30	588344.15	32°36'53.975"N	103°33'15.604"W	0.62
3700.00	1.590	45.620	3698.97	44.88	30.37	44.61	781197.51	588346.07	32°36'53.994"N	103°33'15.578"W	0.26
3800.00	1.380	45.930	3798.93	46.76	32.18	46.46	781199.36	588347.88	32°36'54.012"N	103°33'15.556"W	0.21
3900.00	1.250	39.280	3898.91	48.33	33.86	48.02	781200.92	588349.56	32°36'54.028"N	103°33'15.537"W	0.20
4000.00	1.250	32.770	3998.88	49.63	35.62	49.30	781202.20	588351.32	32°36'54.045"N	103°33'15.522"W	0.14
4100.00	1.070	32.220	4098.86	50.73	37.33	50.39	781203.29	588353.03	32°36'54.062"N	103°33'15.509"W	0.18
4200.00	1.040	19.850	4198.85	51.55	38.97	51.19	781204.09	588354.67	32°36'54.078"N	103°33'15.500"W	0.23
4300.00	1.040	16.120	4298.83	52.13	40.70	51.75	781204.65	588356.40	32°36'54.095"N	103°33'15.493"W	0.07
4400.00	1.090	15.700	4398.81	52.65	42.48	52.26	781205.16	588358.18	32°36'54.113"N	103°33'15.487"W	0.05
4500.00	1.000	4.930	4498.80	53.00	44.27	52.60	781205.49	588359.97	32°36'54.131"N	103°33'15.483"W	0.22
4600.00	0.990	3.800	4598.78	53.15	46.00	52.73	781205.63	588361.70	32°36'54.148"N	103°33'15.481"W	0.02
4700.00	0.920	4.200	4698.77	53.28	47.66	52.84	781205.74	588363.36	32°36'54.164"N	103°33'15.480"W	0.07
4800.00	0.980	10.890	4798.75	53.52	49.30	53.06	781205.96	588365.00	32°36'54.180"N	103°33'15.477"W	0.13
4900.00	0.960	8.540	4898.74	53.82	50.97	53.35	781206.25	588366.67	32°36'54.197"N	103°33'15.474"W	0.04
5000.00	0.810	19.080	4998.73	54.19	52.47	53.71	781206.60	588368.17	32°36'54.212"N	103°33'15.469"W	0.22
5100.00	0.720	24.450	5098.72	54.69	53.71	54.20	781207.10	588369.41	32°36'54.224"N	103°33'15.463"W	0.11
5200.00	0.790	18.790	5198.71	55.18	54.93	54.68	781207.58	588370.63	32°36'54.236"N	103°33'15.458"W	0.10
5300.00	0.820	19.960	5298.70	55.66	56.26	55.15	781208.04	588371.96	32°36'54.249"N	103°33'15.452"W	0.03
5400.00	0.950	26.920	5398.69	56.29	57.67	55.77	781208.66	588373.37	32°36'54.263"N	103°33'15.445"W	0.17
5500.00	1.070	46.260	5498.67	57.35	59.05	56.82	781209.71	588374.75	32°36'54.277"N	103°33'15.432"W	0.36
5600.00	1.140	71.070	5598.66	58.98	60.02	58.43	781211.33	588375.72	32°36'54.286"N	103°33'15.413"W	0.48
5700.00	1.170	88.670	5698.64	60.94	60.37	60.39	781213.29	588376.07	32°36'54.289"N	103°33'15.390"W	0.35
5800.00	1.010	89.090	5798.62	62.85	60.41	62.29	781215.19	588376.10	32°36'54.290"N	103°33'15.368"W	0.16
5900.00	1.280	105.660	5898.60	64.80	60.12	64.25	781217.15	588375.82	32°36'54.287"N	103°33'15.345"W	0.42



Actual Wellpath Report

No. 16H ST AWP

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INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 16H SHL
Area	Lea County, NM	Well	No. 16H
Field	(Mallon) Sec 34, T19S, R34E	Wellbore	No. 16H ST AWP
Facility	Mallon 34 Fed No. 16H	Sidetrack from	No. 16H AWP at 10454.00 MD

WELLPATH DATA (188 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	DLS [°/100ft]
6000.00	1.020	99.980	5998.58	66.75	59.66	66.20	781219.10	588375.36	32°36'54.282"N	103°33'15.323"W	0.28
6100.00	0.230	48.720	6098.57	67.78	59.64	67.23	781220.13	588375.34	32°36'54.282"N	103°33'15.311"W	0.89
6200.00	0.390	51.830	6198.57	68.20	59.98	67.65	781220.55	588375.68	32°36'54.285"N	103°33'15.306"W	0.16
6300.00	0.270	41.080	6298.57	68.62	60.37	68.07	781220.97	588376.07	32°36'54.289"N	103°33'15.301"W	0.13
6400.00	0.560	314.580	6398.57	68.43	60.89	67.88	781220.78	588376.59	32°36'54.294"N	103°33'15.303"W	0.61
6500.00	1.160	309.740	6498.55	67.32	61.88	66.75	781219.65	588377.58	32°36'54.304"N	103°33'15.316"W	0.60
6600.00	1.330	312.270	6598.53	65.69	63.31	65.11	781218.01	588379.01	32°36'54.318"N	103°33'15.335"W	0.18
6700.00	1.490	307.880	6698.50	63.82	64.89	63.23	781216.13	588380.59	32°36'54.334"N	103°33'15.357"W	0.19
6800.00	1.680	309.340	6798.46	61.68	66.62	61.07	781213.97	588382.32	32°36'54.351"N	103°33'15.382"W	0.19
6900.00	1.530	301.540	6898.42	59.42	68.24	58.80	781211.70	588383.94	32°36'54.367"N	103°33'15.408"W	0.26
7000.00	1.380	299.000	6998.39	57.24	69.53	56.61	781209.51	588385.22	32°36'54.380"N	103°33'15.434"W	0.16
7100.00	1.260	291.940	7098.36	55.18	70.52	54.53	781207.43	588386.22	32°36'54.390"N	103°33'15.458"W	0.20
7200.00	1.200	284.760	7198.34	53.15	71.20	52.50	781205.40	588386.90	32°36'54.397"N	103°33'15.482"W	0.17
7300.00	1.070	279.400	7298.32	51.22	71.62	50.57	781203.47	588387.32	32°36'54.401"N	103°33'15.504"W	0.17
7400.00	0.930	271.840	7398.31	49.49	71.80	48.84	781201.73	588387.49	32°36'54.403"N	103°33'15.525"W	0.19
7500.00	0.720	268.330	7498.30	48.05	71.80	47.40	781200.30	588387.50	32°36'54.404"N	103°33'15.541"W	0.22
7600.00	0.620	281.570	7598.29	46.90	71.89	46.24	781199.14	588387.59	32°36'54.405"N	103°33'15.555"W	0.18
7700.00	0.360	284.280	7698.29	46.06	72.08	45.40	781198.30	588387.78	32°36'54.406"N	103°33'15.565"W	0.26
7800.00	0.420	248.160	7798.28	45.42	72.02	44.76	781197.66	588387.72	32°36'54.406"N	103°33'15.572"W	0.25
7900.00	0.490	250.840	7898.28	44.67	71.75	44.02	781196.91	588387.44	32°36'54.403"N	103°33'15.581"W	0.07
8000.00	0.290	301.780	7998.28	44.05	71.74	43.40	781196.30	588387.44	32°36'54.403"N	103°33'15.588"W	0.38
8100.00	0.310	250.720	8098.28	43.58	71.78	42.93	781195.82	588387.48	32°36'54.404"N	103°33'15.594"W	0.26
8200.00	0.360	256.810	8198.27	43.02	71.62	42.36	781195.26	588387.32	32°36'54.402"N	103°33'15.600"W	0.06
8300.00	0.440	284.340	8298.27	42.34	71.64	41.69	781194.59	588387.34	32°36'54.402"N	103°33'15.608"W	0.21
8400.00	0.820	223.140	8398.27	41.48	71.22	40.83	781193.72	588386.92	32°36'54.398"N	103°33'15.618"W	0.72
8500.00	0.920	174.450	8498.26	41.05	69.90	40.41	781193.31	588385.59	32°36'54.385"N	103°33'15.623"W	0.72
8600.00	1.460	139.240	8598.24	41.95	68.13	41.32	781194.22	588383.83	32°36'54.368"N	103°33'15.613"W	0.88
8700.00	1.980	149.840	8698.19	43.62	65.67	43.02	781195.92	588381.37	32°36'54.343"N	103°33'15.593"W	0.61
8800.00	2.850	145.730	8798.10	45.86	62.13	45.29	781198.19	588377.82	32°36'54.308"N	103°33'15.567"W	0.89
8900.00	3.250	143.820	8897.96	48.89	57.78	48.36	781201.26	588373.48	32°36'54.265"N	103°33'15.531"W	0.41



Actual Wellpath Report

No. 16H ST AWP

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INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 16H SHL
Area	Lea County, NM	Well	No. 16H
Field	(Mallon) Sec 34, T19S, R34E	Wellbore	No. 16H ST AWP
Facility	Mallon 34 Fed No. 16H	Sidetrack from	No. 16H AWP at 10454.00 MD

WELLPATH DATA (188 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	DLS [°/100ft]
9000.00	2.640	139.920	8997.83	52.01	53.73	51.52	781204.42	588369.43	32°36'54.224"N	103°33'15.495"W	0.64
9100.00	1.560	143.990	9097.76	54.27	50.87	53.80	781206.70	588366.57	32°36'54.196"N	103°33'15.468"W	1.09
9200.00	1.370	150.920	9197.73	55.63	48.72	55.18	781208.08	588364.42	32°36'54.175"N	103°33'15.452"W	0.26
9300.00	0.770	153.020	9297.71	56.50	47.08	56.07	781208.97	588362.78	32°36'54.158"N	103°33'15.442"W	0.60
9400.00	0.780	245.560	9397.70	56.18	46.20	55.76	781208.65	588361.90	32°36'54.150"N	103°33'15.446"W	1.12
9500.00	1.410	238.380	9497.68	54.50	45.27	54.09	781206.99	588360.97	32°36'54.141"N	103°33'15.465"W	0.64
9600.00	1.610	242.400	9597.65	52.20	43.98	51.80	781204.69	588359.68	32°36'54.128"N	103°33'15.492"W	0.23
9700.00	1.220	210.220	9697.62	50.40	42.41	50.01	781202.91	588358.10	32°36'54.112"N	103°33'15.513"W	0.87
9800.00	0.660	202.880	9797.61	49.63	40.96	49.26	781202.15	588356.65	32°36'54.098"N	103°33'15.522"W	0.57
9900.00	0.890	252.490	9897.60	48.66	40.19	48.29	781201.19	588355.89	32°36'54.091"N	103°33'15.534"W	0.68
10000.00	0.970	282.020	9997.58	47.09	40.13	46.72	781199.62	588355.83	32°36'54.090"N	103°33'15.552"W	0.48
10100.00	1.680	293.930	10097.56	44.93	40.90	44.55	781197.45	588356.60	32°36'54.098"N	103°33'15.577"W	0.76
10200.00	1.090	327.700	10197.53	43.09	42.30	42.71	781195.60	588358.00	32°36'54.112"N	103°33'15.599"W	0.98
10327.00	1.400	323.000	10324.50	41.53	44.56	41.13	781194.03	588360.26	32°36'54.134"N	103°33'15.617"W	0.26
10391.00	1.700	354.500	10388.48	40.99	46.13	40.57	781193.46	588361.83	32°36'54.150"N	103°33'15.623"W	1.39
10454.00	2.000	339.500	10451.44	40.53	48.09	40.09	781192.99	588363.79	32°36'54.169"N	103°33'15.629"W	0.90
10516.00	2.200	340.300	10513.40	39.77	50.23	39.31	781192.21	588365.93	32°36'54.191"N	103°33'15.638"W	0.33
10547.00	1.700	347.200	10544.38	39.48	51.24	39.01	781191.91	588366.93	32°36'54.201"N	103°33'15.641"W	1.78
10579.00	1.100	352.600	10576.38	39.34	52.00	38.86	781191.76	588367.70	32°36'54.208"N	103°33'15.643"W	1.92
10611.00	11.600	37.900	10608.14	41.31	54.85	40.81	781193.71	588370.55	32°36'54.236"N	103°33'15.620"W	33.92
10642.00	22.200	29.100	10637.76	46.15	62.45	45.58	781198.48	588378.15	32°36'54.311"N	103°33'15.563"W	35.08
10674.00	28.300	40.500	10666.71	54.13	73.52	53.46	781206.36	588389.22	32°36'54.420"N	103°33'15.470"W	24.30
10706.00	32.400	52.500	10694.34	65.98	84.52	65.21	781218.10	588400.22	32°36'54.528"N	103°33'15.332"W	22.82
10737.00	39.500	58.900	10719.43	81.13	94.69	80.26	781233.16	588410.39	32°36'54.628"N	103°33'15.155"W	25.89
10769.00	46.600	67.400	10742.82	100.70	104.43	99.75	781252.65	588420.13	32°36'54.723"N	103°33'14.927"W	28.62
10800.00	53.000	70.800	10762.82	122.89	112.84	121.86	781274.76	588428.54	32°36'54.804"N	103°33'14.667"W	22.27
10832.00	59.800	75.600	10780.53	148.47	120.50	147.37	781300.26	588436.19	32°36'54.878"N	103°33'14.369"W	24.64
10863.00	67.900	79.900	10794.19	175.69	126.36	174.54	781327.43	588442.05	32°36'54.934"N	103°33'14.050"W	28.94
10895.00	76.300	82.400	10804.01	205.79	131.02	204.60	781357.49	588446.72	32°36'54.978"N	103°33'13.699"W	27.28
10926.00	78.200	84.000	10810.86	235.84	134.60	234.62	781387.51	588450.30	32°36'55.011"N	103°33'13.347"W	7.93



Actual Wellpath Report

No. 16H ST AWP

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INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 16H SHL
Area	Lea County, NM	Well	No. 16H
Field	(Mallon) Sec 34, T19S, R34E	Wellbore	No. 16H ST AWP
Facility	Mallon 34 Fed No. 16H	Sidetrack from	No. 16H AWP at 10454.00 MD

WELLPATH DATA (188 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	DLS [°/100ft]
10958.00	80.200	83.800	10816.85	267.13	137.94	265.87	781418.76	588453.64	32°36'55.042"N	103°33'12.982"W	6.28
10989.00	83.600	84.700	10821.22	297.68	141.01	296.40	781449.29	588456.71	32°36'55.070"N	103°33'12.624"W	11.34
11021.00	86.000	84.700	10824.12	329.44	143.96	328.13	781481.02	588459.65	32°36'55.097"N	103°33'12.253"W	7.50
11052.00	88.700	85.300	10825.55	360.31	146.66	358.98	781511.87	588462.35	32°36'55.122"N	103°33'11.892"W	8.92
11084.00	90.300	86.400	10825.83	392.24	148.97	390.89	781543.78	588464.67	32°36'55.142"N	103°33'11.519"W	6.07
11115.00	90.000	86.400	10825.75	423.20	150.92	421.83	781574.72	588466.61	32°36'55.159"N	103°33'11.157"W	0.97
11179.00	89.900	85.100	10825.81	487.06	155.66	485.65	781638.54	588471.36	32°36'55.201"N	103°33'10.411"W	2.04
11241.00	90.500	88.100	10825.59	548.98	159.34	547.54	781700.42	588475.03	32°36'55.233"N	103°33'09.687"W	4.93
11305.00	91.000	90.700	10824.75	612.96	160.01	611.52	781764.40	588475.70	32°36'55.235"N	103°33'08.939"W	4.14
11368.00	91.300	90.300	10823.49	675.94	159.46	674.51	781827.39	588475.15	32°36'55.225"N	103°33'08.203"W	0.79
11431.00	91.200	89.200	10822.11	738.92	159.73	737.49	781890.37	588475.43	32°36'55.223"N	103°33'07.466"W	1.75
11494.00	89.700	92.600	10821.62	801.89	158.74	800.47	781953.35	588474.44	32°36'55.209"N	103°33'06.730"W	5.90
11557.00	89.500	92.300	10822.06	864.81	156.05	863.41	782016.29	588471.75	32°36'55.178"N	103°33'05.994"W	0.57
11620.00	89.500	91.800	10822.61	927.74	153.80	926.37	782079.24	588469.49	32°36'55.151"N	103°33'05.259"W	0.79
11683.00	89.400	91.400	10823.21	990.69	152.04	989.34	782142.21	588467.73	32°36'55.129"N	103°33'04.523"W	0.65
11746.00	89.600	91.600	10823.76	1053.65	150.39	1052.31	782205.19	588466.08	32°36'55.108"N	103°33'03.786"W	0.45
11809.00	89.400	91.100	10824.31	1116.61	148.90	1115.29	782268.16	588464.60	32°36'55.089"N	103°33'03.050"W	0.85
11872.00	89.300	91.300	10825.03	1179.58	147.59	1178.28	782331.14	588463.28	32°36'55.071"N	103°33'02.314"W	0.35
11935.00	89.100	91.300	10825.91	1242.54	146.16	1241.25	782394.12	588461.85	32°36'55.052"N	103°33'01.578"W	0.32
11998.00	89.500	90.700	10826.68	1305.52	145.06	1304.24	782457.10	588460.75	32°36'55.037"N	103°33'00.842"W	1.14
12061.00	89.300	90.100	10827.34	1368.50	144.62	1367.23	782520.10	588460.31	32°36'55.028"N	103°33'00.105"W	1.00
12125.00	89.200	89.700	10828.17	1432.50	144.73	1431.23	782584.09	588460.42	32°36'55.024"N	103°32'59.357"W	0.64
12188.00	89.300	89.100	10829.00	1495.49	145.39	1494.22	782647.08	588461.08	32°36'55.026"N	103°32'58.621"W	0.97
12251.00	89.300	88.900	10829.77	1558.48	146.49	1557.21	782710.06	588462.18	32°36'55.033"N	103°32'57.884"W	0.32
12314.00	89.400	87.900	10830.48	1621.47	148.25	1620.18	782773.03	588463.94	32°36'55.045"N	103°32'57.148"W	1.60
12370.00	89.900	87.000	10830.82	1677.43	150.74	1676.12	782828.97	588466.43	32°36'55.066"N	103°32'56.494"W	1.84
12439.00	89.800	88.500	10831.00	1746.40	153.45	1745.06	782897.92	588469.14	32°36'55.088"N	103°32'55.688"W	2.18
12502.00	90.500	89.600	10830.84	1809.39	154.49	1808.05	782960.90	588470.19	32°36'55.094"N	103°32'54.951"W	2.07
12565.00	91.200	89.200	10829.91	1872.39	155.15	1871.04	783023.89	588470.85	32°36'55.095"N	103°32'54.215"W	1.28
12629.00	90.900	90.800	10828.73	1936.37	155.15	1935.03	783087.88	588470.85	32°36'55.091"N	103°32'53.467"W	2.54



Actual Wellpath Report

No. 16H ST AWP

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INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 16H SHL
Area	Lea County, NM	Well	No. 16H
Field	(Mallon) Sec 34, T19S, R34E	Wellbore	No. 16H ST AWP
Facility	Mallon 34 Fed No. 16H	Sidetrack from	No. 16H AWP at 10454.00 MD

WELLPATH DATA (188 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	DLS [°/100ft]
12692.00	91.200	90.700	10827.58	1999.35	154.33	1998.01	783150.86	588470.02	32°36'55.078"N	103°32'52.730"W	0.50
12755.00	91.400	90.100	10826.15	2062.32	153.89	2060.99	783213.84	588469.58	32°36'55.069"N	103°32'51.994"W	1.00
12818.00	91.900	90.000	10824.33	2125.29	153.83	2123.97	783276.81	588469.53	32°36'55.064"N	103°32'51.258"W	0.81
12881.00	91.100	90.600	10822.69	2188.26	153.50	2186.95	783339.79	588469.20	32°36'55.056"N	103°32'50.522"W	1.59
12944.00	90.000	92.600	10822.08	2251.21	151.74	2249.91	783402.75	588467.44	32°36'55.034"N	103°32'49.786"W	3.62
13007.00	89.900	93.100	10822.14	2314.10	148.61	2312.84	783465.67	588464.31	32°36'54.998"N	103°32'49.050"W	0.81
13070.00	90.600	93.200	10821.86	2376.97	145.15	2375.74	783528.57	588460.84	32°36'54.960"N	103°32'48.315"W	1.12
13133.00	91.200	92.200	10820.87	2439.86	142.18	2438.66	783591.49	588457.88	32°36'54.926"N	103°32'47.580"W	1.85
13197.00	90.100	91.500	10820.14	2503.80	140.12	2502.62	783655.45	588455.81	32°36'54.900"N	103°32'46.832"W	2.04
13260.00	89.900	91.100	10820.14	2566.77	138.69	2565.61	783718.44	588454.38	32°36'54.882"N	103°32'46.096"W	0.71
13323.00	87.900	91.900	10821.35	2629.72	137.04	2628.57	783781.40	588452.73	32°36'54.861"N	103°32'45.360"W	3.42
13386.00	87.700	91.300	10823.77	2692.63	135.28	2691.50	783844.32	588450.98	32°36'54.839"N	103°32'44.625"W	1.00
13449.00	87.600	91.000	10826.36	2755.55	134.02	2754.43	783907.26	588449.71	32°36'54.822"N	103°32'43.889"W	0.50
13513.00	87.800	90.200	10828.92	2819.48	133.35	2818.38	783971.20	588449.04	32°36'54.810"N	103°32'43.142"W	1.29
13576.00	88.900	89.500	10830.74	2882.45	133.51	2881.35	784034.17	588449.21	32°36'54.807"N	103°32'42.405"W	2.07
13639.00	88.200	90.900	10832.33	2945.42	133.29	2944.33	784097.15	588448.99	32°36'54.801"N	103°32'41.669"W	2.48
13702.00	86.100	93.600	10835.47	3008.26	130.82	3007.19	784160.01	588446.52	32°36'54.772"N	103°32'40.934"W	5.43
13765.00	86.300	93.100	10839.64	3070.98	127.15	3069.94	784222.76	588442.85	32°36'54.731"N	103°32'40.201"W	0.85
13828.00	86.300	92.800	10843.71	3133.73	123.91	3132.73	784285.54	588439.61	32°36'54.694"N	103°32'39.467"W	0.48
13891.00	86.000	92.100	10847.94	3196.51	121.23	3195.53	784348.34	588436.92	32°36'54.663"N	103°32'38.733"W	1.21
13954.00	86.100	91.500	10852.28	3259.31	119.25	3258.35	784411.16	588434.95	32°36'54.639"N	103°32'37.999"W	0.96
14017.00	86.900	91.600	10856.12	3322.15	117.55	3321.21	784474.02	588433.25	32°36'54.617"N	103°32'37.264"W	1.28
14080.00	87.100	91.100	10859.42	3385.03	116.07	3384.10	784536.91	588431.77	32°36'54.598"N	103°32'36.529"W	0.85
14143.00	87.100	90.400	10862.61	3447.93	115.25	3447.02	784599.82	588430.94	32°36'54.585"N	103°32'35.794"W	1.11
14206.00	87.800	90.000	10865.41	3510.86	115.03	3509.95	784662.76	588430.72	32°36'54.578"N	103°32'35.058"W	1.28
14269.00	88.000	89.600	10867.72	3573.82	115.25	3572.91	784725.71	588430.94	32°36'54.576"N	103°32'34.322"W	0.71
14333.00	88.000	89.900	10869.95	3637.78	115.53	3636.87	784789.67	588431.22	32°36'54.574"N	103°32'33.574"W	0.47
14396.00	87.800	89.000	10872.26	3700.73	116.13	3699.82	784852.62	588431.83	32°36'54.575"N	103°32'32.838"W	1.46
14459.00	87.600	89.100	10874.79	3763.68	117.17	3762.77	784915.56	588432.87	32°36'54.581"N	103°32'32.102"W	0.35
14522.00	87.600	88.700	10877.43	3826.62	118.38	3825.70	784978.49	588434.08	32°36'54.588"N	103°32'31.367"W	0.63



Actual Wellpath Report

No. 16H ST AWP

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INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 16H SHL
Area	Lea County, NM	Well	No. 16H
Field	(Mallon) Sec 34, T19S, R34E	Wellbore	No. 16H ST AWB
Facility	Mallon 34 Fed No. 16H	Sidetrack from	No. 16H AWB at 10454.00 MD

WELLPATH DATA (188 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	DLS [°/100ft]
14585.00	88.100	89.500	10879.79	3889.58	119.37	3888.65	785041.44	588435.07	32°36'54.593"N	103°32'30.631"W	1.50
14648.00	87.200	89.400	10882.37	3952.52	119.98	3951.59	785104.38	588435.67	32°36'54.595"N	103°32'29.895"W	1.44
14712.00	86.700	89.500	10885.78	4016.43	120.59	4015.49	785168.29	588436.29	32°36'54.596"N	103°32'29.147"W	0.80
14775.00	87.900	89.400	10888.75	4079.36	121.19	4078.42	785231.21	588436.89	32°36'54.597"N	103°32'28.412"W	1.91
14838.00	87.000	90.100	10891.55	4142.30	121.47	4141.36	785294.14	588437.16	32°36'54.596"N	103°32'27.676"W	1.81
14900.00	86.400	90.000	10895.12	4204.19	121.41	4203.25	785356.04	588437.11	32°36'54.590"N	103°32'26.952"W	0.98
14935.00	86.200	90.400	10897.38	4239.12	121.29	4238.18	785390.97	588436.99	32°36'54.587"N	103°32'26.544"W	1.28
14976.00	86.200	90.400	10900.09	4280.02	121.01	4279.09	785431.87	588436.70	32°36'54.581"N	103°32'26.066"W	0.00

TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	Shape
No. 16H PBHL		10827.00	39.40	4292.02	785444.80	588355.10	32°36'53.772"N	103°32'25.922"W	point

WELLPATH COMPOSITION

Ref Wellbore: No. 16H ST AWB Ref Wellpath: No. 16H ST AWP

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
0.00	10200.00	Generic gyro - continuous (Standard)	GYRO - <100 - 10200>	No. 16 AWB
10200.00	10454.00	NaviTrak (Standard)	MWD - <10327 - 10674>	No. 16H AWB
10454.00	14935.00	NaviTrak (Standard)	MWD - <10516 - 14935>	No. 16H ST AWB
14935.00	14976.00	Blind Drilling (std)	Projection to bit	No. 16H ST AWB