

DISTRICT I
1825 N. French Dr., Hobbs, N.M. 88240

State of New Mexico
Energy, Minerals & Natural Resources Department

Form C-102
Revised October 12, 2005

DISTRICT II
1301 W. Grand Avenue, Artesia, N.M. 88210

Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

DISTRICT III
1000 Rio Brazos Rd., Aztec, N.M. 87410

OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

*API Number 30-039-30840		*Pool Code 71629	*Pool Name BASIN FRUITLAND COAL
*Property Code 35651	*Property Name CARRACAS 10B		*Well Number 14 H
*OGRID No. 162928	*Operator Name ENERGEN RESOURCES CORPORATION		*Elevation 6196'

¹⁰ Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
I	9	32N	4W	5	1845'	SOUTH	160'	EAST	RIO ARriba

¹¹ Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
J	10	32N	4W	6	1511	SOUTH	1675	EAST	RIO ARriba

*Dedicated Acres 273.08	*Joint or Infill	*Consolidation Code	*Order No.
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NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

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¹⁷ OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner or a compulsory pooling order heretofore entered by the division.

Stephen Byers 11/2/09
Signature Date

Stephen Byers
Printed Name

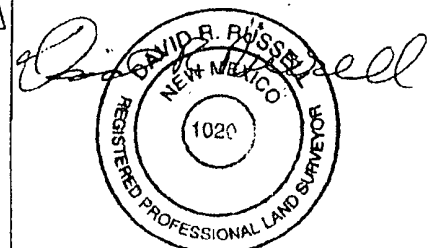
¹⁸ SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

MARCH 2, 2009

Date of Survey

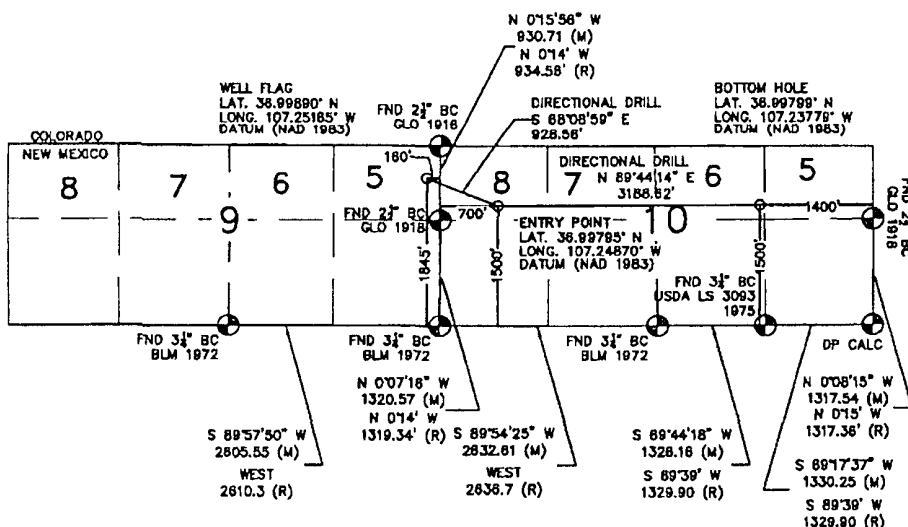
Signature and Seal of Professional Surveyor:



DAVID RUSSELL

Certificate Number

10201



Az

Energen Resources

Rio Arriba County, NM

Sec. 9-T32N-R4W

Carracas 10B #14

Sidetrack #1

Design: Pathfinder MWD and Sperry MWD Survey

Sperry Drilling Services Standard Report

10 June, 2010

Well Coordinates 2,184,434 72 N, 1,347,923 24 E, (36° 59' 56 04" N, 107° 15' 05 94" W)
Ground Level 6,196.00 ft

Local Coordinate Origin

Viewing Datum.

TVDs to System

North Reference

Unit System

Geodetic Scale Factor Applied

Version 2003 16 Build. 43I

Centered on Well Carracas 10B #14

KB @ 6211.00ft (D&J 1)

N

True

API - US Survey Feet - Custom

HALLIBURTON

Design Report for Carracas 10B #14 - Pathfinder MWD and Sperry MWD Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
0 00	0.00	0 00	0 00	0 00	0 00	0 00	0 00
541 00	0 26	182 43	541 00	-1.23	-0 05	0 05	0 05
Surveys from 541.00ft to 3385.00ft are Pathfinder MWD Surveys.							
632 00	0 09	173 63	632 00	-1 50	-0 05	0 07	0 19
722 00	0 09	90 54	722 00	-1 57	0 03	0 16	0 13
813 00	0 09	98 50	813 00	-1 59	0 17	0 30	0 01
902 00	0 09	251 00	902 00	-1 62	0 17	0 31	0 20
992 00	0 09	253 94	992 00	-1 66	0 04	0 18	0 01
1,082 00	0 09	118 39	1,082 00	-1 71	0 03	0 18	0 19
1,172 00	0 00	151 75	1,172.00	-1.75	0 09	0 24	0 10
1,263.00	0 09	46 12	1,263 00	-1 70	0 14	0 29	0 10
1,355 00	0 09	100 84	1,355 00	-1 66	0 27	0 41	0 09
1,450 00	0 09	277 19	1,450 00	-1 67	0 27	0 41	0 19
1,544 00	0 09	88 93	1,544.00	-1 66	0 27	0 41	0 19
1,576 00	0 09	302 86	1,576 00	-1 64	0 27	0 41	0 54
1,607 00	0 79	70 91	1,607 00	-1 56	0 45	0 58	2 74
1,639 00	1 06	66 59	1,638 99	-1 37	0 93	1 05	0 87
1,671 00	1 76	70 08	1,670 98	-1 08	1 67	1 75	2 20
1,703 00	2 73	82 02	1,702 96	-0 81	2 88	2 94	3 35
1,734 00	3 69	100 02	1,733.91	-0 88	4 60	4 65	4 45
1,766 00	4 48	119 32	1,765 83	-1 67	6 70	6 82	4 92
1,798 00	5 45	127 42	1,797 71	-3 21	9 00	9 24	3 73
1,830 00	5 89	132 97	1,829 55	-5 25	11 41	11 81	2 20
1,862 00	6 60	141 23	1,861 36	-7 80	13 76	14 37	3 57
1,894 00	7 03	161 89	1,893 14	-11 10	15 52	16 41	7 73
1,925 00	7 74	182 21	1,923 89	-14 99	16 03	17 24	8 68
1,957 00	9 50	189 97	1,955 53	-19 74	15 49	17 11	6 58
1,989 00	12 13	187 70	1,986 96	-25 68	14 58	16 71	8 32
2,021 00	14 86	182 43	2,018 07	-33 11	13 96	16 72	9 35
2,053.00	17 67	179 59	2,048 79	-42 07	13.82	17 34	9 12
2,085 00	19 87	177 71	2,079 08	-52 36	14 07	18 46	7 13
2,117 00	21 81	177 10	2,108.99	-63 73	14 59	19 94	6 10
2,148 00	23 74	177 96	2,137 57	-75 72	15 10	21 47	6 32
2,180 00	24 71	176 53	2,166 75	-88 84	15.73	23 22	3 54
2,212 00	24 62	172.59	2,195 84	-102.12	17 00	25 61	5 15
2,244 00	24 18	166 95	2,224 98	-115 12	19 34	29 04	7 41
2,275 00	23 83	160.47	2,253 31	-127 21	22 87	33 58	8 57
2,307 00	23.57	154 37	2,282 61	-139 07	27 80	39 50	7 70
2,339 00	24 53	149 20	2,311 84	-150 55	33 96	46 62	7 23
2,370 00	25 24	143 69	2,339 96	-161 40	41 17	54 73	7 82
2,401 00	26 12	139 02	2,367 90	-171 88	49 56	63 98	7 12
2,433 00	27 26	135 08	2,396 49	-182 39	59 36	74 63	6 58
2,465 00	28 14	130 58	2,424 83	-192 49	70 27	86 36	7 09
2,496 00	29 46	128 35	2,452 00	-201 97	81 80	98 65	5 49
2,528 00	30 86	125 83	2,479 66	-211 66	94 63	112 25	5 90
2,560 00	32 18	122 65	2,506.94	-221 06	108.46	126 83	6 63
2,592 00	33 50	119 98	2,533 83	-230 07	123 28	142 37	6 12
2,624.00	35 09	118 07	2,560.27	-238.82	139.05	158 82	6 00
2,655 00	36 67	115 32	2,585 39	-246 97	155 28	175 69	7 28
2,686 00	38 43	113 01	2,609 96	-254 69	172.52	193 52	7 27

Design Report for Carracas 10B #14 - Pathfinder MWD and Sperry MWD Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
2,717.00	40.10	109.86	2,633.97	-261.85	190.78	212.32	8.39
2,749.00	41.59	107.90	2,658.17	-268.62	210.58	232.62	6.14
2,781.00	43.09	106.26	2,681.83	-274.95	231.18	253.69	5.82
2,813.00	45.02	104.11	2,704.83	-280.77	252.65	275.58	7.63
2,845.00	47.04	101.79	2,727.04	-285.92	275.10	298.38	8.19
2,877.00	48.54	100.34	2,748.54	-290.46	298.36	321.94	5.76
2,908.00	50.30	98.72	2,768.71	-294.36	321.57	345.40	6.93
2,940.00	52.06	97.52	2,788.77	-297.87	346.25	370.29	6.23
2,972.00	53.99	96.35	2,808.01	-300.96	371.63	395.84	6.70
3,003.00	55.49	95.59	2,825.91	-303.59	396.81	421.15	5.24
3,035.00	57.60	94.72	2,843.55	-305.99	423.39	447.84	6.97
3,067.00	59.79	94.32	2,860.18	-308.14	450.65	475.18	6.93
3,099.00	61.82	94.09	2,875.78	-310.19	478.51	503.11	6.37
3,131.00	63.66	94.12	2,890.44	-312.22	506.88	531.56	5.75
3,163.00	65.95	94.03	2,904.06	-314.28	535.76	560.51	7.16
3,194.00	67.88	94.09	2,916.22	-316.30	564.20	589.02	6.23
3,226.00	69.73	94.53	2,927.79	-318.54	593.95	618.85	5.92
3,258.00	71.23	95.03	2,938.48	-321.06	624.01	649.01	4.91
3,290.00	73.34	95.57	2,948.21	-323.87	654.36	679.49	6.79
3,321.00	75.18	95.72	2,956.62	-326.81	684.05	709.33	5.95
3,353.00	77.47	94.63	2,964.19	-329.61	715.01	740.42	7.88
3,385.00	80.55	93.58	2,970.29	-331.86	746.34	771.82	10.15
Tie-On to Pathfinder MWD Survey							
3,454.00	90.74	95.56	2,975.52	-337.34	814.83	840.53	15.04
First Sperry MWD Survey of Sidetrack #1 - Interpolated Azimuth							
3,486.00	92.97	96.47	2,974.49	-340.69	846.63	872.50	7.53
Interpolated Azimuth Due to Magnetic Interference 2.74°							
3,521.00	93.52	97.47	2,972.50	-344.93	881.32	907.42	3.26
3,553.00	93.15	92.97	2,970.64	-347.84	915.12	939.36	14.09
3,584.00	91.36	93.12	2,969.42	-349.48	944.06	970.32	5.79
3,616.00	92.84	93.38	2,968.25	-351.29	975.98	1,002.28	4.70
3,648.00	97.25	93.85	2,965.44	-353.30	1,007.79	1,034.14	13.86
3,679.00	97.12	93.32	2,961.56	-355.23	1,038.48	1,064.89	1.75
3,711.00	94.89	92.30	2,958.21	-356.79	1,070.27	1,096.69	7.66
3,742.00	93.34	92.01	2,955.99	-357.95	1,101.16	1,127.58	5.09
3,774.00	92.72	91.18	2,954.30	-358.84	1,133.11	1,159.48	3.23
3,806.00	90.25	90.68	2,953.47	-359.36	1,165.09	1,191.39	7.88
3,838.00	90.12	91.23	2,953.36	-359.89	1,197.08	1,223.32	1.77
3,869.00	92.78	91.59	2,952.58	-360.65	1,228.06	1,254.25	8.66
3,901.00	93.52	92.02	2,950.82	-361.66	1,260.00	1,286.15	2.67
3,933.00	93.40	90.78	2,948.89	-362.44	1,291.93	1,318.03	3.89
3,965.00	93.58	89.51	2,946.94	-362.52	1,323.87	1,349.87	4.00
3,996.00	93.09	88.46	2,945.14	-361.97	1,354.81	1,380.65	3.73
4,028.00	94.14	88.31	2,943.12	-361.07	1,386.73	1,412.38	3.31
4,060.00	91.85	87.72	2,941.45	-359.96	1,418.67	1,444.11	7.39
4,092.00	89.88	87.40	2,940.96	-358.60	1,450.63	1,475.84	6.24
4,123.00	90.25	87.93	2,940.93	-357.34	1,481.61	1,506.60	2.09
4,155.00	91.67	89.33	2,940.39	-356.57	1,513.59	1,538.40	6.23
4,187.00	92.16	89.80	2,939.32	-356.33	1,545.57	1,570.25	2.12
4,218.00	93.71	89.90	2,937.74	-356.25	1,576.53	1,601.09	5.01
4,250.00	94.33	90.37	2,935.49	-356.33	1,608.45	1,632.90	2.43

Design Report for Carracas 10B #14 - Pathfinder MWD and Sperry MWD Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
4,282.00	93.40	90.72	2,933.34	-356.63	1,640.38	1,664.73	3.10
4,313.00	93.96	90.96	2,931.35	-357.08	1,671.31	1,695.59	1.96
4,345.00	94.21	90.91	2,929.07	-357.60	1,703.23	1,727.44	0.80
4,377.00	95.07	90.62	2,926.48	-358.03	1,735.12	1,759.25	2.84
4,409.00	96.38	90.98	2,923.29	-358.47	1,766.95	1,791.01	4.24
4,441.00	96.75	90.97	2,919.63	-359.02	1,798.74	1,822.73	1.16
4,472.00	95.13	90.44	2,916.42	-359.39	1,829.57	1,853.48	5.50
4,504.00	95.50	89.91	2,913.46	-359.49	1,861.43	1,885.23	2.01
4,536.00	96.12	89.76	2,910.22	-359.40	1,893.27	1,916.94	1.99
4,568.00	96.94	89.85	2,906.58	-359.29	1,925.06	1,948.61	2.58
4,600.00	97.00	89.80	2,902.69	-359.20	1,956.82	1,980.25	0.24
4,631.00	95.57	88.84	2,899.30	-358.83	1,987.63	2,010.92	5.55
4,662.00	95.25	88.01	2,896.38	-357.98	2,018.48	2,041.59	2.86
4,693.00	95.32	88.11	2,893.52	-356.94	2,049.33	2,072.24	0.39
4,722.00	95.82	87.93	2,890.71	-355.94	2,078.18	2,100.89	1.83
4,753.00	93.70	87.36	2,888.13	-354.67	2,109.04	2,131.54	7.08
4,784.00	93.08	87.51	2,886.30	-353.28	2,139.96	2,162.23	2.06
4,813.00	93.15	87.38	2,884.73	-351.99	2,168.89	2,190.94	0.51
4,843.00	93.65	87.31	2,882.95	-350.61	2,198.80	2,220.63	1.68
4,873.00	95.01	88.04	2,880.68	-349.39	2,228.69	2,250.31	5.14
4,904.00	95.63	88.30	2,877.81	-348.41	2,259.54	2,280.96	2.17
4,934.00	94.52	88.19	2,875.15	-347.49	2,289.41	2,310.65	3.72
4,964.00	94.69	88.67	2,872.74	-346.67	2,319.30	2,340.36	1.69
4,995.00	93.46	89.33	2,870.54	-346.13	2,350.22	2,371.12	4.50
5,026.00	93.03	89.66	2,868.79	-345.86	2,381.17	2,401.93	1.75
5,055.00	93.46	89.72	2,867.15	-345.70	2,410.12	2,430.77	1.50
5,086.00	93.71	89.80	2,865.21	-345.57	2,441.06	2,461.58	0.85
5,117.00	94.76	90.36	2,862.92	-345.62	2,471.97	2,492.39	3.84
5,147.00	95.38	91.05	2,860.27	-345.98	2,501.85	2,522.19	3.09
5,178.00	94.51	91.29	2,857.59	-346.61	2,532.73	2,553.01	2.91
5,208.00	94.69	91.48	2,855.19	-347.34	2,562.63	2,582.86	0.87
5,238.00	95.57	91.70	2,852.51	-348.17	2,592.49	2,612.69	3.02
5,268.00	95.76	92.31	2,849.54	-349.21	2,622.33	2,642.51	2.12
5,299.00	95.14	91.21	2,846.60	-350.16	2,653.17	2,673.32	4.06
5,320.00	95.44	91.10	2,844.66	-350.58	2,674.08	2,694.19	1.52
5,351.00	95.81	90.93	2,841.63	-351.13	2,704.93	2,724.97	1.31
5,383.00	96.18	90.29	2,838.28	-351.47	2,736.75	2,756.71	2.30
5,414.00	97.69	91.22	2,834.54	-351.87	2,767.52	2,787.40	5.71
5,446.00	99.37	91.43	2,829.79	-352.60	2,799.15	2,818.98	5.29
5,478.00	99.37	91.81	2,824.58	-353.49	2,830.71	2,850.51	1.17
5,510.00	98.12	91.87	2,819.72	-354.51	2,862.33	2,882.09	3.91
5,541.00	98.86	91.78	2,815.14	-355.49	2,892.97	2,912.71	2.40
5,573.00	99.25	90.97	2,810.11	-356.25	2,924.56	2,944.25	2.78
5,605.00	97.44	90.64	2,805.46	-356.69	2,956.22	2,975.83	5.75
5,637.00	95.26	89.82	2,801.92	-356.82	2,988.02	3,007.53	7.27
5,668.00	93.77	89.39	2,799.48	-356.60	3,018.92	3,038.30	5.00
5,700.00	92.29	89.07	2,797.79	-356.17	3,050.87	3,070.10	4.73
5,732.00	91.48	88.98	2,796.74	-355.63	3,082.85	3,101.91	2.55
5,763.00	92.97	89.20	2,795.54	-355.14	3,113.82	3,132.73	4.86
5,795.00	93.64	89.42	2,793.69	-354.75	3,145.77	3,164.53	2.20
5,826.00	94.26	89.73	2,791.56	-354.52	3,176.69	3,195.32	2.24

Design Report for Carracas 10B #14 - Pathfinder MWD and Sperry MWD Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
5,858.00	95.13	89.88	2,788.94	-354.42	3,208.58	3,227.09	2.76
5,890.00	93.34	89.57	2,786.57	-354.26	3,240.50	3,258.87	5.68
5,922.00	95.32	89.64	2,784.16	-354.04	3,272.40	3,290.65	6.19
5,954.00	97.87	89.76	2,780.48	-353.88	3,304.19	3,322.30	7.98
5,985.00	96.69	89.14	2,776.55	-353.58	3,334.94	3,352.91	4.29
6,012.00	96.50	88.68	2,773.45	-353.07	3,361.75	3,379.59	1.83
6,042.00	95.64	88.52	2,770.28	-352.34	3,391.57	3,409.24	2.92
6,073.00	95.01	88.11	2,767.40	-351.43	3,422.43	3,439.91	2.42
6,103.00	95.20	87.96	2,764.73	-350.41	3,452.29	3,469.58	0.81
6,134.00	95.69	87.56	2,761.79	-349.20	3,483.13	3,500.20	2.04
6,164.00	95.88	87.16	2,758.77	-347.83	3,512.94	3,529.79	1.47
6,195.00	94.64	86.98	2,755.93	-346.25	3,543.77	3,560.37	4.04
6,226.00	95.20	87.04	2,753.27	-344.64	3,574.61	3,590.97	1.82
6,256.00	95.63	87.15	2,750.44	-343.13	3,604.44	3,620.56	1.48
6,286.00	94.83	87.01	2,747.70	-341.60	3,634.28	3,650.16	2.71
6,317.00	95.51	86.84	2,744.91	-339.95	3,665.11	3,680.74	2.26
6,348.00	96.32	87.03	2,741.71	-338.30	3,695.90	3,711.28	2.68
6,379.00	97.18	87.66	2,738.07	-336.87	3,726.65	3,741.79	3.43
6,410.00	98.31	88.16	2,733.89	-335.75	3,757.35	3,772.28	3.98
6,436.00	98.42	88.77	2,730.11	-335.06	3,783.06	3,797.85	2.36
6,467.00	99.18	89.12	2,725.37	-334.50	3,813.69	3,828.32	2.69
6,497.00	99.81	89.38	2,720.42	-334.11	3,843.28	3,857.77	2.27
Final Sperry MWD Survey of Sidetrack #1							
6,530.00	99.81	89.38	2,714.80	-333.76	3,875.79	3,890.13	0.00
Survey Projection to TD of Sidetrack #1							

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/-S (ft)	Origin +E/-W (ft)	Start TVD (ft)
Target	Carracas 10B #14_BHL Tgt	94.87	Slot	0.00	0.00	0.00

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
541.00	3,385.00	Pathfinder MWD Surveys	MWD
3,454.00	6,530.00	Sperry Sidetrack #1 MWD Surveys	MWD

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Carracas 10B	0.00	0.00	2,695.00	-345.00	4,049.00	2,184,047.14	1,351,968.38	36° 59' 52.626 N	107° 14' 16.028 W
- actual wellpath misses target center by 174.70ft at 6530.00ft MD (2714.80 TVD, -333.76 N, 3875.79 E)									
- Point									

North Reference Sheet for Sec. 9-T32N-R4W - Carracas 10B #14 - Sidetrack #1

All data is in US Feet unless otherwise stated. Directions and Coordinates are relative to True North Reference.

Vertical Depths are relative to KB @ 6211.00ft (D&J 1). Northing and Easting are relative to Carracas 10B #14.

Coordinate System is US State Plane 1983, New Mexico Central Zone using datum North American Datum 1983, ellipsoid GRS 1980.

Projection method is Transverse Mercator (Gauss-Kruger).

Central Meridian is 106° 15' 0.000 W°, Longitude Origin 0° 0' 0.000 E°, Latitude Origin 0° 0' 0.000 N°.

False Easting 1,640,416.67ft, False Northing 0.00ft, Scale Reduction 0.99999787.

Grid Coordinates of Well 2,184,434.72 ft N, 1,347,923.24 ft E

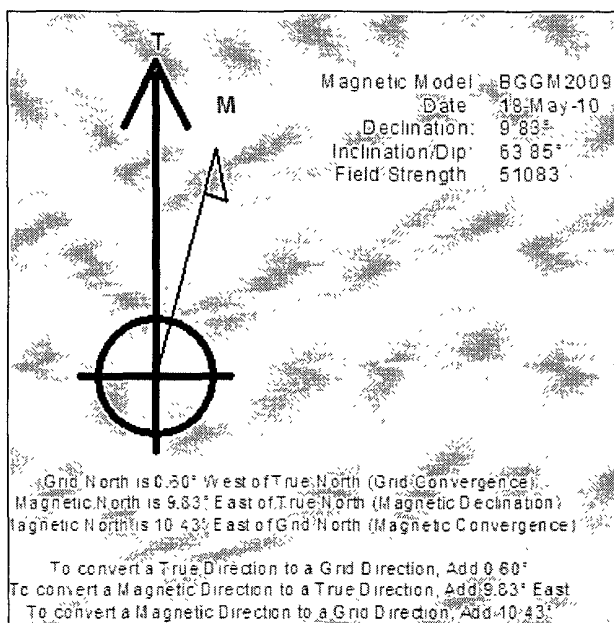
Geographical Coordinates of Well 36° 59' 56.04" N, 107° 15' 05.94" W

Grid Convergence at Surface is -0.60°

Based upon Minimum Curvature type calculations, at a Measured Depth of 6,530.00ft

the Bottom Hole Displacement is 3,890.14ft in the Direction of 94.92° (True)

Magnetic Convergence at surface is -10.43° (18 May 2010, BGGM2009)



Project: Rio Arriba County, NM
Site: Sec. 9-T32N-R4W
Well: Carracas 10B #14

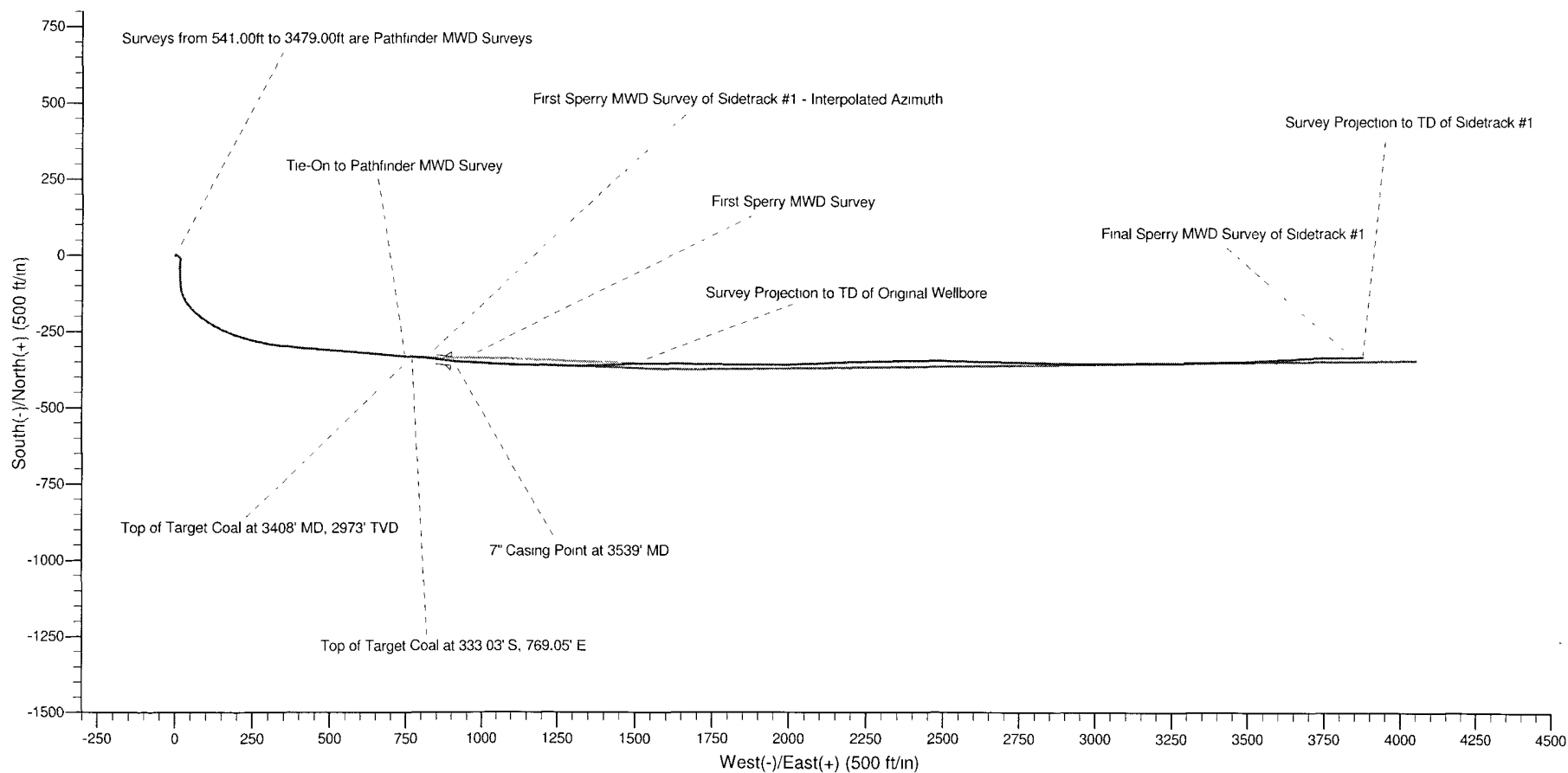
Energen Resources

HALLIBURTON

Sperry Drilling

LEGEND

- Carracas 10B #14, Sidetrack #1, Plan #2 Proposal V0
- Carracas 10B #14, Original Wellbore, Pathfinder MWD and Sperry MWD Survey V0
- Pathfinder MWD and Sperry MWD Survey

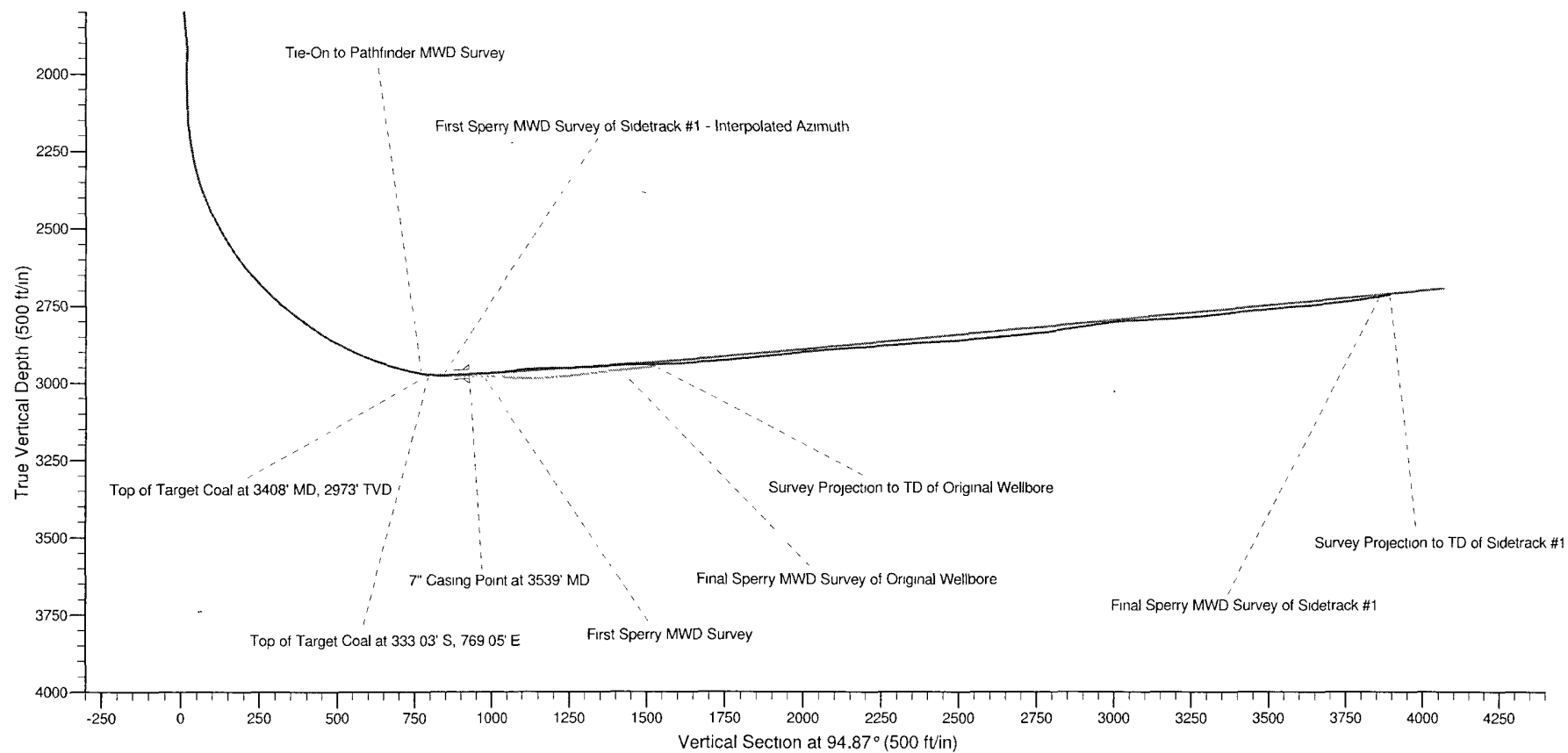


Project: Rio Arriba County, NM
Site: Sec. 9-T32N-R4W
Well: Carracas 10B #14

Energen Resources

HALLIBURTON

Sperry Drilling



LEGEND

- Carracas 10B #14, Sidetrack #1, Plan #2 Proposal V0
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Section 2

Contents: Proposal Data