

District I

1625 N. French Dr., Hobbs, NM 88240

District II

1301 W. Grand Avenue, Artesia, NM 88210

District III

1000 Rio Brazos Rd., Aztec, NM 87410

District IV

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

State of New Mexico

Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION

1220 South St. Francis Dr.

Santa Fe, NM 87505

Form C-102

Revised October 12, 2005

Submit to Appropriate District Office

State Lease - 4 Copies

Fee Lease - 3 Copies

☒ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-039-30821		² Pool Code 71629		³ Pool Name Basin Fruitland Coal	
⁴ Property Code 37888		⁵ Property Name CARRACAS 9B			⁶ Well Number # 1611
⁷ OGRID No. 162928		⁸ Operator Name ENERGEN RESOURCES CORPORATION			⁹ Elevation 6198'

¹⁰ Surface Location

UL or lot no. L	Section 09	Township 32N	Range 04W	Lot Idn	Feet from the 2043'	North/South line SOUTH	Feet from the 220'	East/West line WEST	County RIO ARriba
--------------------	---------------	-----------------	--------------	---------	------------------------	---------------------------	-----------------------	------------------------	----------------------

¹¹ Bottom Hole Location If Different From Surface

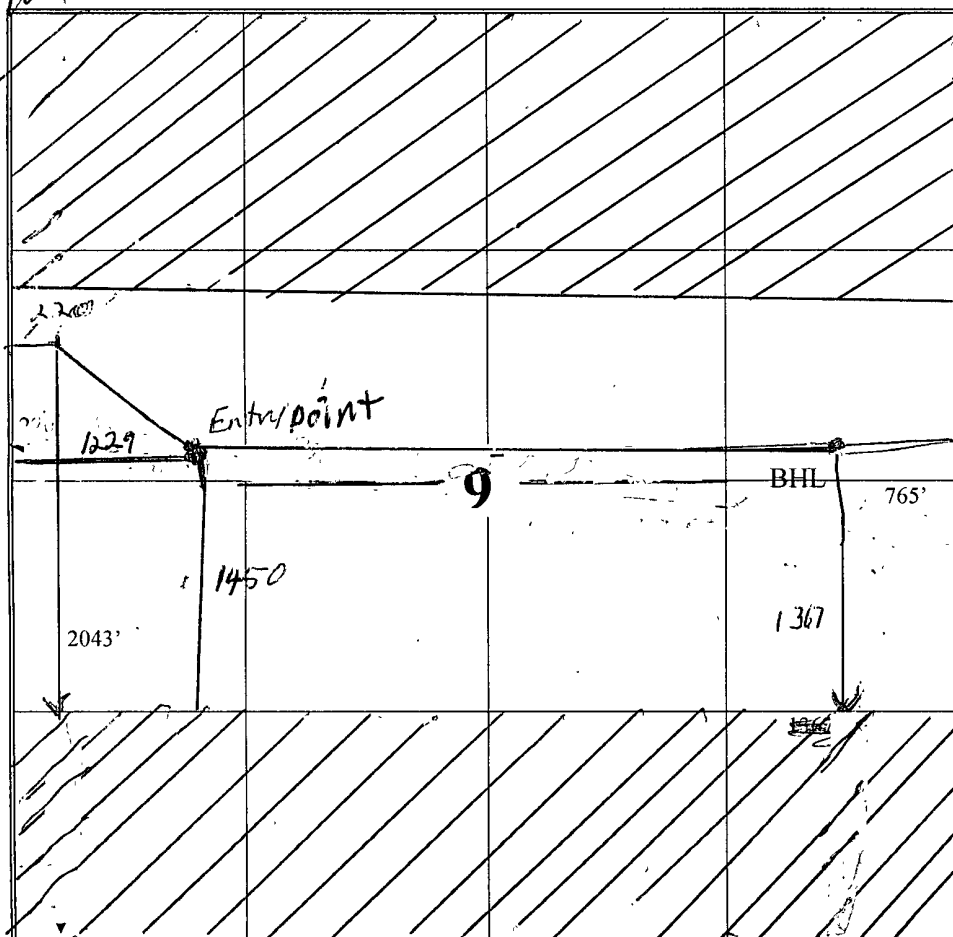
UL or lot no. I	Section 09	Township 32N	Range 04W	Lot Idn	Feet from the 1367'	North/South line SOUTH	Feet from the 765'	East/West line EAST	County RIO ARriba
--------------------	---------------	-----------------	--------------	---------	------------------------	---------------------------	-----------------------	------------------------	----------------------

¹² Dedicated Acres 273.12	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
---	-------------------------------	----------------------------------	-------------------------

RCVD AUG 12 '10
OIL CONS. DIV.

DIST. 3

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.

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 of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division

Signature: Vicki Donaghey Date: 08/10/10

Printed Name: Vicki Donaghey

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.

DECEMBER 4, 2008

Date of Survey

Original Survey Conducted and Recorded By David R. Russell

10201

Certificate Number

RCVD AUG 12 '10
OIL CONS. DIV.
DIST. 3

Energen Resources

Rio Arriba County, NM

Sec. 9-T32N-R4W

Carracas 9B #16

Plan #1

Design: Pathfinder MWD and Sperry MWD Survey

Sperry Drilling Services Standard Report

25 June, 2010

Well Coordinates: 2,184,675.87 N, 1,343,039.77 E (36° 59' 57 91" N, 107° 16' 06.17" W)
Ground Level: 6,198 00 ft

Local Coordinate Origin:	Centered on Well Carracas 9B #16
Viewing Datum:	KB @ 6213.00ft (D & J 1)
TVDs to System:	N
North Reference:	True
Unit System:	API - US Survey Feet - Custom
Geodetic Scale Factor Applied	
Version: 2003.16 Build: 431	

HALLIBURTON

Design Report for Carracas 9B #16 - 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
533.00	4.04	245.30	532.56	-7.85	-17.06	-15.71	0.76
Surveys from 533.00ft to 3714.00ft are Pathfinder MWD Surveys							
623.00	2.37	242.57	622.41	-10.03	-21.60	-19.87	1.86
712.00	0.09	258.57	711.39	-10.89	-23.30	-21.43	2.57
802.00	0.09	354.72	801.39	-10.84	-23.38	-21.51	0.15
892.00	0.09	300.23	891.39	-10.73	-23.44	-21.59	0.09
982.00	0.18	290.56	981.39	-10.65	-23.64	-21.80	0.10
1,072.00	0.01	343.47	1,071.39	-10.59	-23.77	-21.94	0.19
1,163.00	0.18	327.57	1,162.39	-10.46	-23.85	-22.03	0.19
1,254.00	0.26	224.91	1,253.39	-10.49	-24.07	-22.25	0.38
1,345.00	0.18	43.77	1,344.39	-10.53	-24.12	-22.29	0.48
1,437.00	0.26	270.35	1,436.39	-10.42	-24.23	-22.41	0.44
1,526.00	0.18	60.38	1,525.39	-10.35	-24.31	-22.50	0.48
1,587.00	0.26	217.53	1,586.39	-10.41	-24.31	-22.49	0.71
1,618.00	0.79	221.39	1,617.38	-10.63	-24.49	-22.64	1.71
1,650.00	1.58	223.94	1,649.38	-11.11	-24.95	-23.02	2.47
1,681.00	2.55	225.17	1,680.36	-11.91	-25.73	-23.68	3.13
1,713.00	2.99	222.27	1,712.32	-13.03	-26.80	-24.57	1.44
1,744.00	3.17	215.94	1,743.27	-14.32	-27.84	-25.41	1.24
1,776.00	3.34	202.06	1,775.22	-15.90	-28.71	-26.04	2.51
1,808.00	3.69	186.94	1,807.16	-17.79	-29.19	-26.23	3.09
1,840.00	3.87	173.58	1,839.10	-19.88	-29.19	-25.92	2.80
1,871.00	4.13	160.49	1,870.02	-21.97	-28.70	-25.12	3.05
1,903.00	4.31	144.05	1,901.93	-24.03	-27.61	-23.74	3.81
1,935.00	5.10	133.06	1,933.83	-25.98	-25.87	-21.73	3.74
1,967.00	6.33	127.88	1,965.67	-28.03	-23.43	-19.02	4.16
1,999.00	7.65	130.78	1,997.43	-30.51	-20.43	-15.68	4.27
2,031.00	9.06	134.21	2,029.09	-33.65	-17.01	-11.83	4.67
2,063.00	10.38	135.61	2,060.63	-37.47	-13.19	-7.48	4.19
2,093.00	11.70	135.00	2,090.07	-41.55	-9.15	-2.88	4.42
2,125.00	13.19	134.56	2,121.32	-46.41	-4.25	2.68	4.67
2,157.00	14.68	134.03	2,152.38	-51.79	1.27	8.94	4.67
2,189.00	15.92	134.91	2,183.24	-57.71	7.29	15.77	3.94
2,220.00	17.06	135.52	2,212.97	-63.95	13.49	22.83	3.72
2,252.00	18.29	136.23	2,243.46	-70.93	20.25	30.55	3.90
2,284.00	19.96	136.49	2,273.69	-78.52	27.49	38.83	5.23
2,316.00	21.72	135.96	2,303.59	-86.73	35.36	47.84	5.53
2,348.00	23.74	135.44	2,333.11	-95.58	44.00	57.69	6.34
2,380.00	25.94	134.73	2,362.15	-105.10	53.49	68.49	6.94
2,411.00	28.05	134.56	2,389.77	-114.99	63.50	79.86	6.81
2,443.00	29.55	134.73	2,417.81	-125.82	74.47	92.31	4.69
2,475.00	30.95	134.73	2,445.45	-137.16	85.92	105.32	4.37
2,507.00	32.80	133.77	2,472.62	-148.95	98.03	119.04	5.99
2,539.00	35.26	133.24	2,499.14	-161.28	111.02	133.72	7.74
2,569.00	37.02	133.24	2,523.37	-173.40	123.91	148.26	5.87
2,601.00	39.04	134.12	2,548.57	-187.01	138.16	164.38	6.54
2,633.00	41.06	134.47	2,573.07	-201.39	152.90	181.09	6.35
2,665.00	42.56	135.00	2,596.92	-216.41	168.05	198.30	4.82
2,696.00	43.88	135.26	2,619.51	-231.45	183.03	215.34	4.30

Design Report for Carracas 9B #16 - 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)
2,727.00	44.76	135.35	2,641.69	-246.85	198.26	232.69	2.85
2,759.00	45.29	135.00	2,664.30	-262.91	214.22	250.85	1.83
2,791.00	46.17	135.00	2,686.64	-279.11	230.42	269.28	2.75
2,822.00	46.87	134.56	2,707.97	-294.95	246.39	287.42	2.48
2,854.00	47.75	134.21	2,729.67	-311.40	263.20	306.49	2.87
2,886.00	48.80	133.77	2,750.97	-327.99	280.38	325.94	3.44
2,917.00	49.95	132.89	2,771.15	-344.13	297.50	345.26	4.29
2,949.00	51.44	131.04	2,791.42	-360.69	315.91	365.93	6.46
2,981.00	53.11	129.37	2,811.00	-377.02	335.24	387.47	6.65
3,013.00	54.34	127.35	2,829.94	-393.03	355.47	409.85	6.38
3,045.00	55.31	125.15	2,848.37	-408.49	376.56	433.00	6.38
3,076.00	56.81	122.96	2,865.68	-422.88	397.87	456.21	7.60
3,108.00	58.65	121.64	2,882.76	-437.34	420.74	480.97	6.72
3,140.00	59.88	120.41	2,899.12	-451.51	444.31	506.38	5.07
3,171.00	61.20	118.91	2,914.37	-464.87	467.76	531.56	5.99
3,203.00	62.52	117.24	2,929.46	-478.14	492.66	558.15	6.18
3,235.00	63.93	115.75	2,943.87	-490.89	518.23	585.32	6.06
3,267.00	65.33	113.90	2,957.59	-503.02	544.47	613.08	6.81
3,298.00	66.65	112.41	2,970.20	-514.15	570.51	640.48	6.12
3,330.00	67.88	110.74	2,982.57	-525.01	597.95	669.23	6.16
3,362.00	69.29	109.86	2,994.25	-535.34	625.89	698.39	5.10
3,394.00	71.40	108.19	3,005.01	-545.16	654.38	728.02	8.22
3,426.00	73.60	106.70	3,014.64	-554.31	683.49	758.17	8.18
3,457.00	75.62	104.85	3,022.86	-562.43	712.25	787.81	8.69
3,489.00	77.73	102.74	3,030.24	-569.85	742.49	818.82	9.20
3,521.00	78.70	100.54	3,036.78	-576.17	773.17	850.09	7.38
3,553.00	79.14	98.17	3,042.93	-581.27	804.15	881.49	7.40
3,585.00	80.20	95.62	3,048.67	-585.05	835.40	912.96	8.51
3,614.00	81.47	93.79	3,053.29	-587.40	863.93	941.52	7.62
Top of Target Coal (Interpolated Point - Not a Survey Station)							
3,617.00	81.60	93.60	3,053.73	-587.59	866.89	944.48	7.62
3,648.00	83.10	92.55	3,057.85	-589.24	897.57	975.06	5.89
3,679.00	85.21	92.19	3,061.01	-590.51	928.38	1,005.72	6.90
3,714.00	87.85	91.84	3,063.13	-591.74	963.29	1,040.43	7.61
Tie-On to Pathfinder MWD Survey							
3,760.00	88.98	91.93	3,064.40	-593.25	1,009.25	1,086.10	2.47
7" Casing Point (Interpolated Point - Not a Survey Station)							
3,836.00	90.86	92.07	3,064.50	-595.90	1,085.20	1,161.60	2.47
First Sperry MWD Survey							
3,865.00	91.61	92.17	3,063.88	-596.97	1,114.17	1,190.41	2.61
3,895.00	92.10	93.28	3,062.91	-598.40	1,144.12	1,220.24	4.04
3,926.00	91.11	93.80	3,062.04	-600.31	1,175.05	1,251.11	3.61
3,957.00	90.86	94.70	3,061.50	-602.61	1,205.96	1,282.02	3.01
3,986.00	90.93	95.09	3,061.05	-605.08	1,234.85	1,310.96	1.37
4,017.00	90.68	94.69	3,060.62	-607.72	1,265.74	1,341.90	1.52
4,048.00	90.93	94.05	3,060.18	-610.09	1,296.64	1,372.81	2.22
4,079.00	91.48	93.34	3,059.53	-612.08	1,327.57	1,403.69	2.90
4,109.00	92.16	93.56	3,058.58	-613.89	1,357.50	1,433.56	2.38
4,140.00	92.72	93.09	3,057.26	-615.68	1,388.42	1,464.40	2.36
4,170.00	92.96	90.31	3,055.77	-616.57	1,418.37	1,494.15	9.29
4,201.00	90.86	89.04	3,054.74	-616.40	1,449.35	1,524.76	7.92

Design Report for Carracas 9B #16 - 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)
4,232.00	89.94	89.37	3,054.52	-615.97	1,480.35	1,555.35	3.15
4,262.00	89.38	89.44	3,054.70	-615.66	1,510.34	1,584.97	1.88
4,292.00	88.70	88.55	3,055.20	-615.13	1,540.33	1,614.55	3.73
4,323.00	87.96	88.09	3,056.10	-614.22	1,571.31	1,645.05	2.81
4,354.00	89.57	87.39	3,056.77	-613.00	1,602.27	1,675.49	5.66
4,385.00	91.42	88.48	3,056.50	-611.88	1,633.25	1,705.96	6.93
4,415.00	91.48	88.25	3,055.75	-611.03	1,663.23	1,735.48	0.79
4,446.00	90.25	88.36	3,055.28	-610.11	1,694.21	1,765.98	3.98
4,476.00	89.94	88.17	3,055.23	-609.20	1,724.20	1,795.50	1.21
4,506.00	90.25	87.66	3,055.18	-608.11	1,754.18	1,824.99	1.99
4,537.00	89.51	87.58	3,055.24	-606.82	1,785.15	1,855.43	2.40
4,568.00	88.21	87.79	3,055.86	-605.57	1,816.12	1,885.87	4.25
4,598.00	88.52	88.53	3,056.72	-604.61	1,846.09	1,915.36	2.67
4,629.00	89.14	88.72	3,057.35	-603.86	1,877.08	1,945.89	2.09
4,660.00	90.06	88.79	3,057.56	-603.19	1,908.07	1,976.44	2.98
4,691.00	90.31	88.46	3,057.46	-602.45	1,939.06	2,006.98	1.34
4,721.00	90.06	87.73	3,057.37	-601.45	1,969.04	2,036.48	2.57
4,752.00	89.81	88.39	3,057.40	-600.40	2,000.02	2,066.97	2.28
4,783.00	89.44	89.80	3,057.61	-599.91	2,031.02	2,097.55	4.70
4,812.00	89.69	90.41	3,057.83	-599.96	2,060.02	2,126.23	2.27
4,842.00	88.89	91.49	3,058.20	-600.46	2,090.01	2,155.97	4.48
4,873.00	89.07	91.55	3,058.75	-601.28	2,120.99	2,186.73	0.61
4,904.00	89.38	91.79	3,059.17	-602.19	2,151.98	2,217.50	1.26
4,935.00	88.89	92.32	3,059.64	-603.30	2,182.95	2,248.30	2.33
4,965.00	89.07	91.88	3,060.17	-604.40	2,212.93	2,278.11	1.58
4,996.00	88.83	91.18	3,060.74	-605.22	2,243.91	2,308.87	2.39
5,027.00	89.20	90.98	3,061.27	-605.81	2,274.90	2,339.61	1.36
5,057.00	89.94	90.71	3,061.50	-606.25	2,304.90	2,369.34	2.63
5,088.00	89.69	90.16	3,061.60	-606.49	2,335.90	2,400.03	1.95
5,118.00	89.57	89.56	3,061.79	-606.41	2,365.90	2,429.68	2.04
5,148.00	89.32	88.85	3,062.08	-606.00	2,395.89	2,459.28	2.51
5,179.00	88.02	88.42	3,062.80	-605.26	2,426.87	2,489.81	4.42
5,208.00	88.33	88.97	3,063.72	-604.60	2,455.85	2,518.37	2.18
5,240.00	88.83	89.29	3,064.52	-604.11	2,487.84	2,549.93	1.85
5,271.00	89.32	89.34	3,065.02	-603.74	2,518.83	2,580.53	1.59
5,303.00	89.69	89.62	3,065.29	-603.45	2,550.83	2,612.13	1.45
5,334.00	90.12	89.79	3,065.35	-603.29	2,581.83	2,642.76	1.49
5,366.00	90.62	89.72	3,065.14	-603.16	2,613.83	2,674.39	1.58
5,398.00	91.17	90.06	3,064.64	-603.09	2,645.82	2,706.02	2.02
5,429.00	91.85	90.57	3,063.82	-603.26	2,676.81	2,736.69	2.74
5,461.00	91.61	91.37	3,062.86	-603.81	2,708.79	2,768.40	2.61
5,493.00	90.49	92.32	3,062.27	-604.84	2,740.77	2,800.17	4.59
5,525.00	89.88	93.14	3,062.17	-606.36	2,772.73	2,832.01	3.19
5,557.00	90.31	93.67	3,062.11	-608.26	2,804.67	2,863.88	2.13
5,589.00	90.62	93.91	3,061.85	-610.38	2,836.60	2,895.77	1.23
5,620.00	91.11	94.45	3,061.39	-612.64	2,867.52	2,926.68	2.35
5,652.00	91.30	94.48	3,060.71	-615.13	2,899.41	2,958.59	0.60
5,684.00	91.79	94.62	3,059.85	-617.66	2,931.30	2,990.50	1.59
5,715.00	91.48	93.96	3,058.97	-619.98	2,962.20	3,021.40	2.35
5,747.00	89.88	93.03	3,058.59	-621.93	2,994.14	3,053.27	5.78
5,779.00	90.25	93.19	3,058.55	-623.67	3,026.09	3,085.13	1.26

Design Report for Carracas 9B #16 - 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)
5,811.00	90.25	93.38	3,058.41	-625.50	3,058.04	3,117.00	0.59
5,843.00	91.05	93.12	3,058.05	-627.32	3,089.98	3,148.86	2.63
5,875.00	92.04	92.88	3,057.18	-628.99	3,121.93	3,180.70	3.18
5,906.00	92.16	92.86	3,056.05	-630.54	3,152.87	3,211.53	0.39
5,938.00	90.93	92.83	3,055.19	-632.13	3,184.82	3,243.36	3.84
5,969.00	91.85	93.36	3,054.43	-633.80	3,215.76	3,274.21	3.42
6,001.00	92.04	92.95	3,053.35	-635.56	3,247.70	3,306.05	1.41
6,032.00	91.54	92.35	3,052.38	-636.99	3,278.65	3,336.87	2.52
6,064.00	90.68	91.37	3,051.76	-638.03	3,310.62	3,368.65	4.07
6,096.00	90.31	90.58	3,051.48	-638.58	3,342.62	3,400.37	2.73
6,127.00	88.95	88.52	3,051.68	-638.33	3,373.61	3,430.98	7.96
6,159.00	88.03	88.25	3,052.53	-637.43	3,405.59	3,462.47	3.00
6,191.00	89.26	90.10	3,053.28	-636.97	3,437.57	3,494.03	6.94
6,223.00	89.75	90.95	3,053.56	-637.27	3,469.57	3,525.72	3.07
6,255.00	90.62	91.84	3,053.46	-638.04	3,501.56	3,557.47	3.89
6,286.00	91.11	92.01	3,052.99	-639.09	3,532.54	3,588.26	1.67
6,318.00	91.17	91.81	3,052.35	-640.15	3,564.52	3,620.04	0.65
6,349.00	91.29	91.39	3,051.69	-641.02	3,595.50	3,650.81	1.41
6,381.00	91.61	91.90	3,050.88	-641.94	3,627.47	3,682.57	1.88
6,413.00	92.59	92.76	3,049.70	-643.24	3,659.42	3,714.36	4.07
6,445.00	93.46	93.72	3,048.02	-645.04	3,691.33	3,746.18	4.05
6,477.00	93.39	93.44	3,046.10	-647.04	3,723.21	3,778.00	0.90
6,508.00	92.41	91.72	3,044.53	-648.43	3,754.14	3,808.79	6.38
6,572.00	88.77	90.58	3,043.88	-649.71	3,818.11	3,872.25	5.96
6,635.00	88.64	90.47	3,045.30	-650.29	3,881.09	3,934.62	0.27
6,667.00	88.70	90.67	3,046.04	-650.61	3,913.08	3,966.30	0.65
6,698.00	89.07	91.29	3,046.65	-651.14	3,944.07	3,997.02	2.33
6,730.00	89.14	91.97	3,047.15	-652.05	3,976.05	4,028.79	2.14
6,762.00	88.39	92.58	3,047.84	-653.32	4,008.02	4,060.59	3.02
6,793.00	86.79	93.57	3,049.14	-654.98	4,038.94	4,091.42	6.07
6,826.00	87.96	94.22	3,050.65	-657.22	4,071.83	4,124.28	4.05
6,857.00	89.51	94.78	3,051.33	-659.65	4,102.73	4,155.19	5.32
6,921.00	89.63	95.10	3,051.81	-665.16	4,166.49	4,219.06	0.53
6,953.00	90.06	95.22	3,051.90	-668.04	4,198.36	4,251.01	1.40
7,005.00	90.12	95.96	3,051.82	-673.11	4,250.11	4,302.94	1.43
Final Sperry MWD Survey							
7,037.00	90.12	95.96	3,051.75	-676.43	4,281.94	4,334.91	0.00
Survey Projection to TD							

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
533.00	532.56	-7.85	-17.06	Surveys from 533.00ft to 3714.00ft are Pathfinder MWD Surveys
3,614.00	3,053.29	-587.40	863.93	Top of Target Coal (Interpolated Point - Not a Survey Station)
3,714.00	3,063.13	-591.74	963.29	Tie-On to Pathfinder MWD Survey
3,760.00	3,064.40	-593.25	1,009.25	7" Casing Point (Interpolated Point - Not a Survey Station)
3,836.00	3,064.50	-595.90	1,085.20	First Sperry MWD Survey
7,005.00	3,051.82	-673.11	4,250.11	Final Sperry MWD Survey
7,037.00	3,051.75	-676.43	4,281.94	Survey Projection to TD

Design Report for Carracas 9B #16 - Pathfinder MWD and Sperry MWD Survey

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/-S (ft)	Origin +E/-W (ft)	Start TVD (ft)
Target	Carracas 9B #16_BHL Tgt	98.53	Slot	0.00	0.00	0.00

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
533.00	3,714.00	Pathfinder MWD Surveys	MWD
3,836.00	7,037.00	Sperry 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 9B - actual wellpath misses target center by 45.47ft at 3893.26ft MD (3062.97 TVD, -598.30 N, 1142.39 E) - Point	0.00	0.00	3,055.00	-643.00	1,140.00	2,184,020.71	1,344,172.83	36° 59' 51.554 N	107° 15' 52.115 W
Carracas 9B - actual wellpath misses target center by 33.81ft at 7037.00ft MD (3051.75 TVD, -676.43 N, 4281.94 E) - Point	0.00	0.00	3,055.00	-643.00	4,285.86	2,183,987.06	1,347,318.52	36° 59' 51.551 N	107° 15' 13.336 W

North Reference Sheet for Sec. 9-T32N-R4W - Carracas 9B #16 - Plan #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 @ 6213.00ft (D & J 1). Northing and Easting are relative to Carracas 9B #16

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: 1.00000116

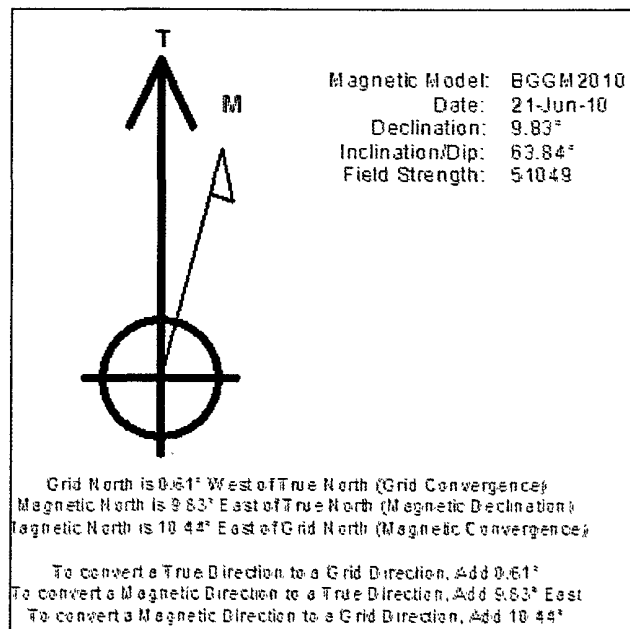
Grid Coordinates of Well: 2,184,675.87 ft N, 1,343,039.77 ft E

Geographical Coordinates of Well: 36° 59' 57.91" N, 107° 16' 06.17" W

Grid Convergence at Surface is: -0.61°

Based upon Minimum Curvature type calculations, at a Measured Depth of 7,037.00ft
the Bottom Hole Displacement is 4,335.04ft in the Direction of 98.98° (True).

Magnetic Convergence at surface is -10 44° (21 June 2010, , BGGM2010)



Project: Rio Arriba County, NM
Site: Sec. 9-T32N-R4W
Well: Carracas 9B #16

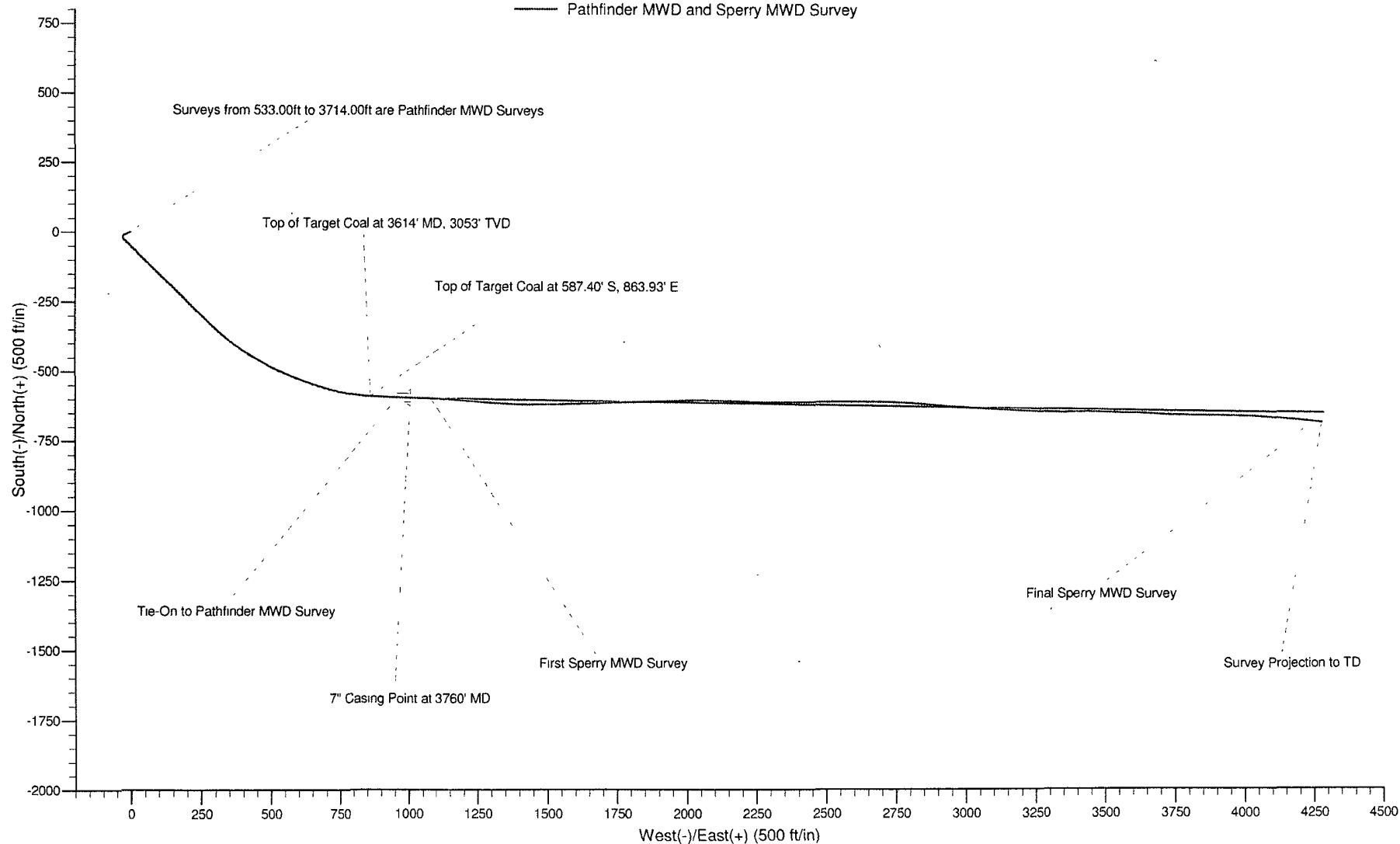
Energen Resources

HALLIBURTON

Sperry Drilling

LEGEND

- Carracas 9B #16, Plan #1, Plan #1 - Rev 1 Proposal V0
- Pathfinder MWD and Sperry MWD Survey

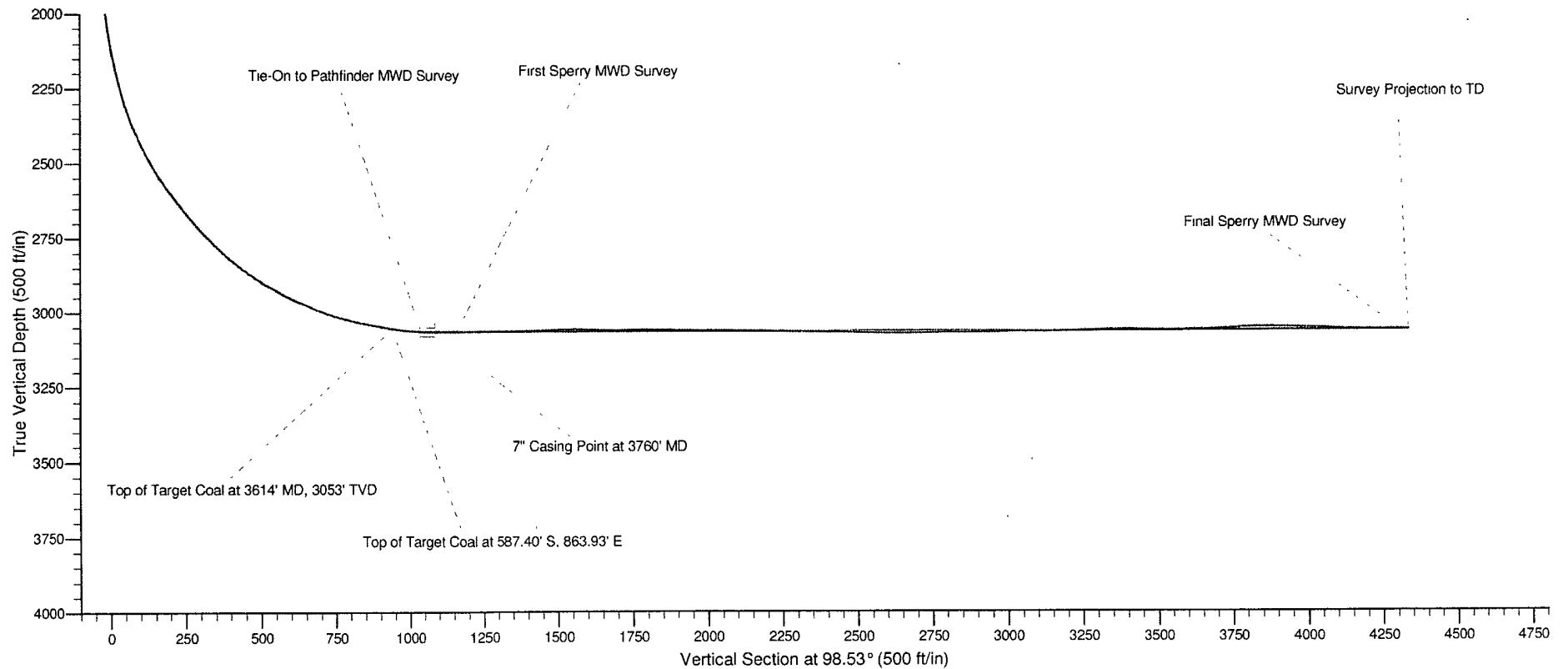


Project: Rio Arriba County, NM
Site: Sec. 9-T32N-R4W
Well: Carracas 9B #16

Energen Resources

HALLIBURTON

Sperry Drilling



LEGEND

- Carracas 9B #16, Plan #1, Plan #1 - Rev 1 Proposal V0
- - - Pathfinder MWD and Sperry MWD Survey