

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

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 30-039-30606		² Pool Code 71629		³ Pool Name Basin Fruitland Coal	
⁴ Property Code 35658		⁵ Property Name Carracas 18B			⁶ Well Number 3
⁷ OGRID No 162928		⁸ Operator Name Energen Resources Corporation			⁹ Elevation 7426'

¹⁰ Surface Location

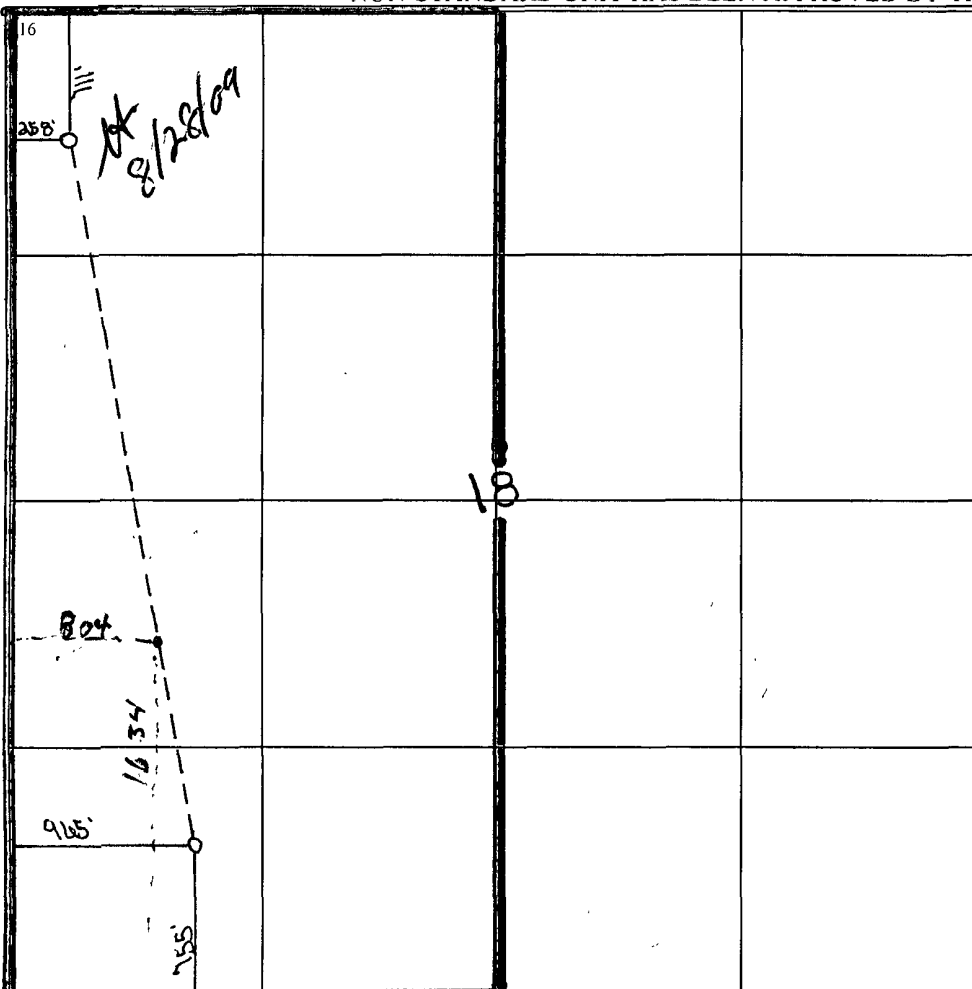
UL or lot no	Section	Township	Range	Lot. Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	18	32N	04W		755	South	965	West	Rio Arriba

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
D	18	32N	04W		711	North	258	West	Rio Arriba

¹² Dedicated Acres 299.72 W/2	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No R-13119	RCVD AUG 28 '09
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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

	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 <i>Vicki Donaghey</i> 08/27/09 Signature Date Vicki Donaghey 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 June 26, 2008 Date of Survey Signature and Seal of Professional Surveyer Original survey conducted and recorded by: David Russell 10301 Certificate Number

RCVD AUG 28 '09
OIL CONS. DIV.
DIST. 3

Energen Resources

Rio Arriba County, NM

Carracas 18B #3

Carracas 18B #3

Wellbore #1

Design: Actual Field Surveys

Sperry Drilling Services Standard Report

14 July, 2009

Well Coordinates: 2,178,252.37 N, 1,333,360.28 E (36° 58' 53 36" N, 107° 18' 04.61" W)
Ground Level: 7,426.00 ft

Local Coordinate Origin.

Centered on Well Carracas 18B #3

Viewing Datum:

RKB @ 7441.0ft (Original Well Elev)

TVDs to System:

N

North Reference:

True

Unit System:

API- Alt

Geodetic Scale Factor Applied

Version: 2003.16 Build. 431

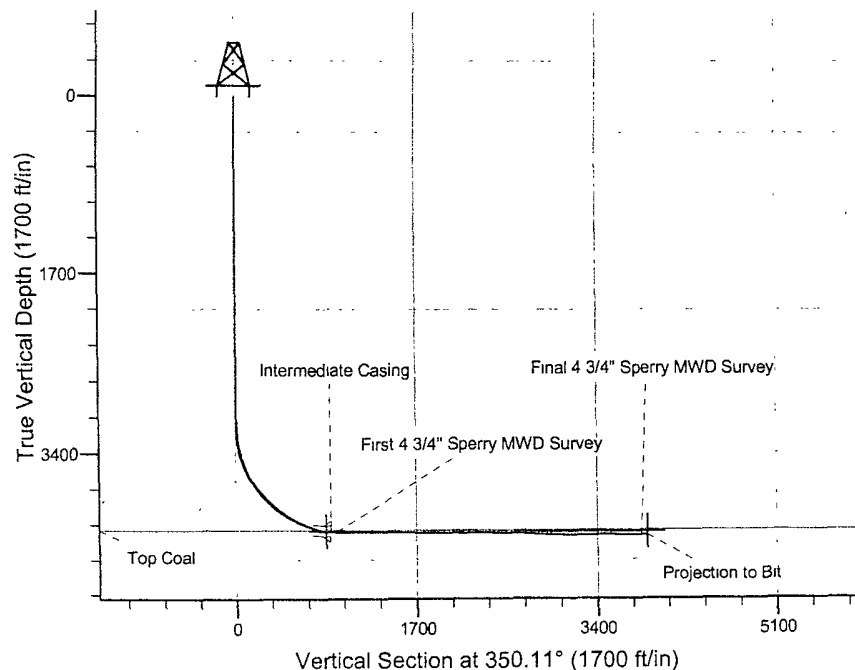
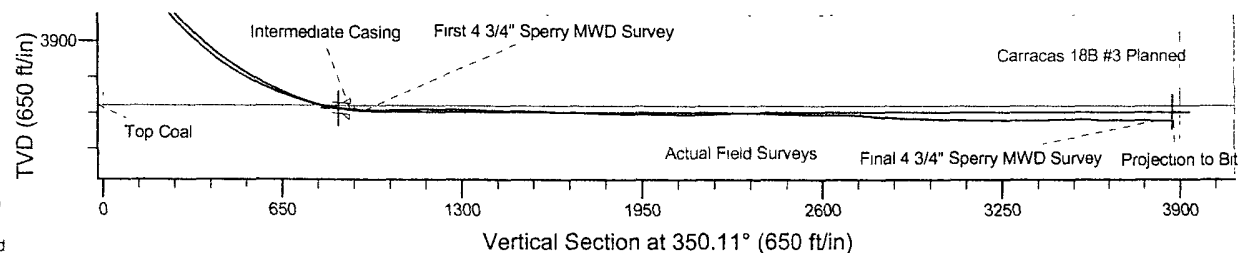
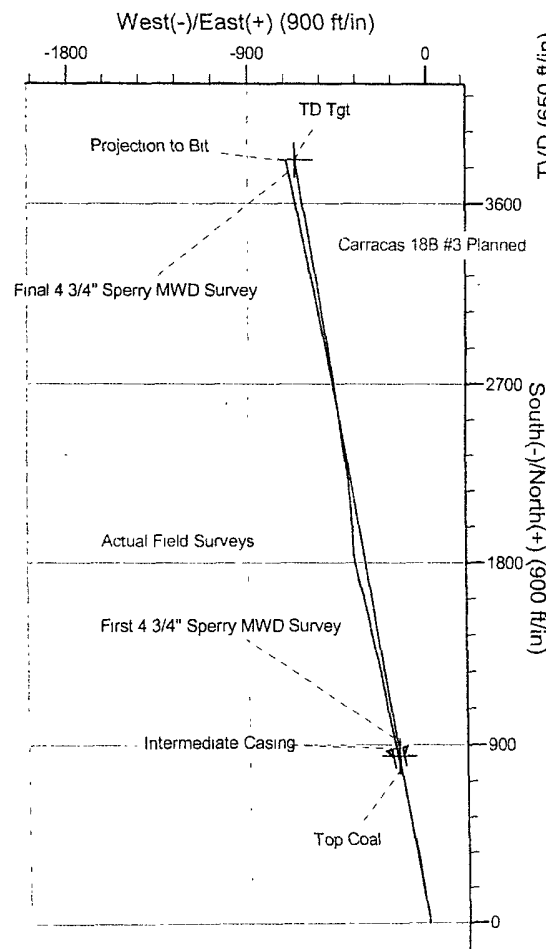
HALLIBURTON

Project: Rio Arriba County, NM
 Site: Carracas 18B #3
 Well: Carracas 18B #3
 Wellbore: Wellbore #1
 Plan: Actual Field Surveys

Energen Resources

HALLIBURTON
 Drilling and Formation
 Evaluation

WELLBORE TARGET DETAILS (LAT/LONG)							WELL DETAILS: Carracas 18B #3				
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape	+N/-S	+E/-W	Northing	Ground Level: 7426.0	
Enter Coal	4145.0	839.1	-147.9	36° 59' 1.661 N	107° 18' 6.431 W	Point	0.0	0.0	2178252.37	Easting	Latitude
TD Tgt.	4157.0	3815.0	-665.0	36° 59' 31.084 N	107° 18' 12.805 W	Point				1333360.28	Longitude
										36° 58' 53.364 N	107° 18' 4.608 W



HALLIBURTON**Design Report for Carracas 18B #3 - Actual Field Surveys**

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
0.0	0.00	0.000	0.0	0.0	0.0	0.0	0.00
274.0	0.44	316.390	274.0	0.8	-0.7	0.9	0.16
First Pathfinder MWD Survey							
364.0	0.18	297.430	364.0	1.1	-1.1	1.2	0.31
456.0	0.00	238.150	456.0	1.1	-1.2	1.3	0.20
548.0	0.26	254.260	548.0	1.1	-1.4	1.3	0.28
639.0	0.26	234.880	639.0	0.9	-1.8	1.2	0.10
731.0	0.09	224.430	731.0	0.7	-2.0	1.1	0.19
819.0	0.18	162.580	819.0	0.6	-2.0	0.9	0.18
913.0	0.26	191.210	913.0	0.2	-2.0	0.6	0.14
1,004.0	0.26	216.650	1,004.0	-0.2	-2.2	0.2	0.13
1,095.0	0.09	139.740	1,095.0	-0.4	-2.3	0.0	0.28
1,186.0	0.09	44.670	1,186.0	-0.4	-2.2	0.0	0.15
1,276.0	2.02	299.590	1,276.0	0.5	-3.5	1.0	2.27
1,366.0	0.79	284.260	1,365.9	1.4	-5.5	2.3	1.42
1,458.0	0.18	144.450	1,457.9	1.4	-6.0	2.4	1.02
1,550.0	0.26	224.300	1,549.9	1.2	-6.1	2.2	0.31
1,642.0	0.09	183.410	1,641.9	0.9	-6.2	2.0	0.22
1,732.0	0.00	269.670	1,731.9	0.9	-6.2	1.9	0.10
1,823.0	0.09	240.530	1,822.9	0.8	-6.3	1.9	0.10
1,916.0	0.09	179.340	1,915.9	0.7	-6.3	1.8	0.10
2,009.0	0.09	94.110	2,008.9	0.6	-6.3	1.7	0.13
2,102.0	0.26	98.140	2,101.9	0.6	-6.0	1.6	0.18
2,195.0	0.18	60.710	2,194.9	0.7	-5.6	1.6	0.17
2,288.0	0.09	351.690	2,287.9	0.8	-5.5	1.7	0.18
2,380.0	0.00	18.890	2,379.9	0.9	-5.5	1.8	0.10
2,473.0	0.26	188.330	2,472.9	0.7	-5.6	1.6	0.28
2,567.0	0.09	135.160	2,566.9	0.4	-5.5	1.3	0.23
2,660.0	0.00	42.720	2,659.9	0.3	-5.5	1.3	0.10
2,753.0	0.09	52.470	2,752.9	0.4	-5.4	1.3	0.10
2,847.0	0.35	36.700	2,846.9	0.7	-5.2	1.5	0.28
2,878.0	0.70	43.730	2,877.9	0.9	-5.0	1.7	1.15
2,909.0	0.97	34.740	2,908.9	1.2	-4.7	2.0	0.97
2,940.0	1.14	26.850	2,939.9	1.7	-4.5	2.5	0.72
2,971.0	1.41	11.700	2,970.9	2.4	-4.2	3.1	1.39
3,001.0	1.58	1.060	3,000.9	3.1	-4.2	3.8	1.08
3,032.0	1.67	356.400	3,031.9	4.0	-4.2	4.7	0.52
3,064.0	1.67	0.800	3,063.9	5.0	-4.2	5.6	0.40
3,095.0	1.85	7.080	3,094.9	5.9	-4.1	6.5	0.85
3,126.0	2.11	9.300	3,125.9	7.0	-4.0	7.5	0.87
3,157.0	2.81	9.780	3,156.8	8.3	-3.8	8.8	2.26
3,187.0	3.87	10.930	3,186.8	10.0	-3.4	10.4	3.54
3,218.0	5.28	11.160	3,217.7	12.4	-3.0	12.7	4.55
3,250.0	6.51	9.010	3,249.5	15.7	-2.4	15.8	3.90
3,281.0	8.18	3.500	3,280.2	19.6	-2.0	19.6	5.84
3,313.0	10.02	357.830	3,311.8	24.6	-2.0	24.6	6.39
3,344.0	11.52	353.010	3,342.3	30.4	-2.4	30.4	5.64
3,375.0	13.19	348.890	3,372.6	37.0	-3.5	37.0	6.09
3,407.0	14.86	347.770	3,403.6	44.5	-5.1	44.8	5.29
3,438.0	16.62	348.140	3,433.5	52.8	-6.8	53.2	5.69

Design Report for Carracas 18B #3 - Actual Field Surveys

Measured Depth- (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
3,469.0	18.47	348.440	3,463.0	61.9	-8.7	62.5	5.97
3,501.0	20.31	348.860	3,493.2	72.3	-10.8	73.1	5.77
3,532.0	22.07	349.580	3,522.1	83.3	-12.9	84.3	5.74
3,563.0	24.09	350.020	3,550.6	95.3	-15.0	96.5	6.54
3,594.0	25.94	351.610	3,578.7	108.2	-17.1	109.6	6.35
3,623.0	27.87	351.460	3,604.6	121.2	-19.1	122.7	6.66
3,654.0	29.99	350.720	3,631.7	136.0	-21.4	137.7	6.94
3,686.0	31.74	350.320	3,659.2	152.2	-24.1	154.1	5.51
3,717.0	33.68	351.060	3,685.3	168.8	-26.8	170.9	6.39
3,748.0	35.35	350.960	3,710.8	186.1	-29.5	188.4	5.39
3,779.0	36.93	351.260	3,735.8	204.2	-32.4	206.7	5.13
3,810.0	38.69	351.210	3,760.3	223.0	-35.3	225.7	5.68
3,842.0	40.80	351.170	3,784.9	243.2	-38.4	246.2	6.59
3,873.0	42.74	351.420	3,808.0	263.6	-41.5	266.8	6.28
3,904.0	44.23	351.090	3,830.5	284.7	-44.8	288.1	4.86
3,935.0	45.99	350.140	3,852.4	306.3	-48.3	310.1	6.08
3,965.0	47.92	349.510	3,872.9	327.9	-52.2	332.0	6.61
3,996.0	49.07	349.420	3,893.4	350.7	-56.5	355.2	3.72
4,027.0	50.47	349.080	3,913.5	374.0	-60.9	378.9	4.59
4,058.0	51.88	349.210	3,932.9	397.7	-65.4	403.0	4.56
4,089.0	53.38	349.050	3,951.7	421.9	-70.1	427.7	4.86
4,120.0	55.13	349.500	3,969.8	446.6	-74.8	452.8	5.77
4,152.0	56.63	349.340	3,987.8	472.7	-79.6	479.3	4.71
4,183.0	57.86	349.340	4,004.5	498.3	-84.4	505.4	3.97
4,215.0	59.53	348.990	4,021.2	525.1	-89.6	532.7	5.30
4,246.0	61.20	349.310	4,036.5	551.6	-94.7	559.7	5.46
4,277.0	62.61	349.460	4,051.1	578.5	-99.7	587.0	4.57
4,340.0	65.60	348.930	4,078.6	634.1	-110.3	643.7	4.81
4,371.0	67.27	348.790	4,091.0	662.0	-115.8	672.1	5.40
4,397.0	68.85	349.060	4,100.7	685.7	-120.4	696.2	6.15
4,428.0	71.23	349.060	4,111.3	714.3	-126.0	725.3	7.68
4,459.0	73.34	349.070	4,120.7	743.3	-131.6	754.8	6.81
4,490.0	76.50	348.770	4,128.8	772.7	-137.3	784.8	10.24
4,500.0	77.52	348.442	4,131.0	782.2	-139.3	794.5	10.71
Top Coal - Top Coal							
4,521.0	79.67	347.760	4,135.2	802.3	-143.5	815.1	10.71
4,550.0	82.75	347.410	4,139.6	830.3	-149.7	843.7	10.69
Final Pathfinder MWD survey							
4,601.0	85.37	346.977	4,144.9	879.8	-160.9	894.4	5.20
Intermediate Casing							
4,654.0	88.09	346.530	4,147.9	931.3	-173.0	947.2	5.20
First 4 3/4" Sperry MWD Survey							
4,685.0	89.75	347.620	4,148.5	961.5	-180.0	978.1	6.41
4,717.0	89.69	348.420	4,148.7	992.8	-186.6	1,010.1	2.51
4,747.0	90.80	348.850	4,148.5	1,022.2	-192.5	1,040.1	3.97
4,779.0	91.30	349.310	4,147.9	1,053.6	-198.6	1,072.1	2.12
4,811.0	92.22	350.170	4,147.0	1,085.1	-204.3	1,104.1	3.93
4,842.0	92.84	349.610	4,145.6	1,115.6	-209.7	1,135.0	2.69
4,874.0	89.63	348.880	4,144.9	1,147.0	-215.7	1,167.0	10.29
4,906.0	88.89	347.790	4,145.3	1,178.4	-222.1	1,199.0	4.12
4,938.0	89.75	348.540	4,145.7	1,209.7	-228.7	1,231.0	3.57

Design Report for Carracas 18B #3 - Actual Field Surveys

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
4,970.0	89.81	349.050	4,145.8	1,241.1	-234.9	1,263.0	1.60
5,002.0	88.95	347.420	4,146.2	1,272.4	-241.4	1,294.9	5.76
5,033.0	88.09	346.650	4,147.0	1,302.6	-248.4	1,325.9	3.72
5,063.0	88.52	346.930	4,147.8	1,331.8	-255.3	1,355.8	1.71
5,094.0	88.27	346.860	4,148.7	1,362.0	-262.3	1,386.8	0.84
5,125.0	88.83	347.030	4,149.5	1,392.1	-269.3	1,417.7	1.89
5,156.0	88.83	347.410	4,150.1	1,422.4	-276.1	1,448.7	1.23
5,186.0	89.88	348.000	4,150.5	1,451.7	-282.5	1,478.6	4.01
5,217.0	88.70	348.220	4,150.9	1,482.0	-288.9	1,509.6	3.87
5,278.0	88.77	347.690	4,152.2	1,541.7	-301.6	1,570.6	0.88
5,309.0	87.47	345.690	4,153.2	1,571.8	-308.8	1,601.5	7.69
5,340.0	87.59	345.430	4,154.6	1,601.8	-316.5	1,632.4	0.92
5,370.0	89.26	345.340	4,155.4	1,630.8	-324.1	1,662.2	5.57
5,400.0	87.90	345.340	4,156.1	1,659.8	-331.6	1,692.1	4.53
5,431.0	88.33	346.210	4,157.1	1,689.9	-339.3	1,723.0	3.13
5,461.0	87.28	346.860	4,158.3	1,719.0	-346.2	1,752.9	4.12
5,492.0	89.07	347.320	4,159.3	1,749.2	-353.2	1,783.9	5.96
5,521.0	89.57	347.500	4,159.6	1,777.5	-359.5	1,812.8	1.83
5,551.0	89.38	349.550	4,159.9	1,806.9	-365.5	1,842.8	6.86
5,581.0	87.96	351.700	4,160.6	1,836.5	-370.3	1,872.8	8.59
5,612.0	88.34	356.060	4,161.6	1,867.3	-373.6	1,903.7	14.11
5,642.0	89.32	357.610	4,162.2	1,897.2	-375.3	1,933.5	6.11
5,673.0	91.11	358.080	4,162.1	1,928.2	-376.5	1,964.2	5.97
5,703.0	90.74	358.680	4,161.6	1,958.2	-377.3	1,993.9	2.35
5,734.0	88.58	357.270	4,161.8	1,989.2	-378.4	2,024.6	8.32
5,765.0	88.21	355.850	4,162.7	2,020.1	-380.3	2,055.4	4.73
5,795.0	88.64	355.760	4,163.5	2,050.0	-382.5	2,085.2	1.46
5,826.0	89.07	355.940	4,164.1	2,080.9	-384.7	2,116.1	1.50
5,887.0	93.03	353.490	4,163.0	2,141.7	-390.3	2,176.9	7.63
5,948.0	93.09	353.750	4,159.7	2,202.2	-397.1	2,237.7	0.44
5,979.0	92.59	352.690	4,158.2	2,232.9	-400.7	2,268.6	3.78
6,010.0	91.17	351.740	4,157.2	2,263.6	-404.9	2,299.5	5.51
6,040.0	89.44	352.250	4,157.0	2,293.3	-409.1	2,329.5	6.01
6,071.0	86.54	352.010	4,158.1	2,324.0	-413.4	2,360.5	9.39
6,102.0	86.91	351.760	4,159.9	2,354.7	-417.7	2,391.4	1.44
6,133.0	87.72	352.480	4,161.3	2,385.3	-422.0	2,422.4	3.49
6,164.0	88.58	352.870	4,162.3	2,416.1	-425.9	2,453.3	3.05
6,195.0	89.20	350.870	4,162.9	2,446.7	-430.3	2,484.3	6.75
6,225.0	89.63	350.910	4,163.2	2,476.4	-435.1	2,514.3	1.44
6,256.0	90.06	351.100	4,163.3	2,507.0	-439.9	2,545.3	1.52
6,287.0	88.64	350.380	4,163.7	2,537.6	-444.9	2,576.3	5.14
6,318.0	88.52	350.030	4,164.4	2,568.1	-450.2	2,607.3	1.19
6,348.0	88.89	349.740	4,165.1	2,597.6	-455.4	2,637.3	1.57
6,379.0	89.88	349.670	4,165.4	2,628.1	-461.0	2,668.3	3.20
6,410.0	90.06	348.810	4,165.5	2,658.6	-466.8	2,699.3	2.83
6,441.0	85.86	348.330	4,166.6	2,689.0	-472.9	2,730.2	13.64
6,472.0	85.05	348.600	4,169.0	2,719.2	-479.1	2,761.1	2.75
6,503.0	85.18	349.140	4,171.7	2,749.5	-485.0	2,792.0	1.79
6,533.0	86.36	348.530	4,173.9	2,778.9	-490.8	2,821.9	4.43
6,563.0	87.10	348.940	4,175.6	2,808.3	-496.7	2,851.8	2.82
6,593.0	87.89	349.300	4,176.9	2,837.7	-502.3	2,881.8	2.89

Design Report for Carracas 18B #3 - Actual Field Surveys

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
6,624.0	88.70	348.690	4,177.8	2,868.1	-508.2	2,912.8	3.27
6,655.0	88.64	348.220	4,178.5	2,898.5	-514.5	2,943.8	1.53
6,686.0	88.15	348.310	4,179.4	2,928.8	-520.8	2,974.7	1.61
6,717.0	88.27	348.230	4,180.4	2,959.2	-527.1	3,005.7	0.47
6,746.0	88.58	347.970	4,181.2	2,987.5	-533.0	3,034.7	1.39
6,776.0	88.95	348.210	4,181.8	3,016.9	-539.2	3,064.6	1.47
6,837.0	89.01	348.090	4,182.9	3,076.6	-551.7	3,125.6	0.22
6,869.0	89.51	347.980	4,183.3	3,107.9	-558.4	3,157.6	1.60
6,901.0	90.12	348.210	4,183.4	3,139.2	-565.0	3,189.6	2.04
6,933.0	89.63	347.590	4,183.5	3,170.5	-571.7	3,221.5	2.47
6,964.0	89.69	347.120	4,183.7	3,200.7	-578.5	3,252.5	1.53
7,027.0	90.25	348.780	4,183.7	3,262.3	-591.6	3,315.5	2.78
7,091.0	90.49	348.780	4,183.3	3,325.1	-604.1	3,379.4	0.37
7,123.0	91.79	347.980	4,182.7	3,356.4	-610.5	3,411.4	4.77
7,155.0	92.77	348.020	4,181.4	3,387.7	-617.2	3,443.4	3.07
7,187.0	91.24	347.880	4,180.3	3,419.0	-623.8	3,475.3	4.80
7,218.0	89.32	348.380	4,180.1	3,449.3	-630.2	3,506.3	6.40
7,250.0	87.90	349.190	4,180.9	3,480.7	-636.4	3,538.3	5.11
7,282.0	87.47	348.490	4,182.2	3,512.1	-642.6	3,570.2	2.57
7,314.0	89.14	349.410	4,183.1	3,543.5	-648.8	3,602.2	5.96
7,345.0	90.80	348.910	4,183.1	3,573.9	-654.6	3,633.2	5.59
7,377.0	90.49	348.390	4,182.8	3,605.3	-660.9	3,665.2	1.89
7,409.0	88.89	347.330	4,183.0	3,636.6	-667.6	3,697.2	6.00
7,441.0	89.44	347.450	4,183.4	3,667.8	-674.6	3,729.1	1.76
7,473.0	89.51	347.160	4,183.7	3,699.0	-681.6	3,761.1	0.93
7,532.0	89.01	347.310	4,184.5	3,756.5	-694.7	3,820.0	0.88
Final 4 3/4" Sperry MWD Survey							
7,582.0	89.01	347.310	4,185.3	3,805.3	-705.7	3,870.0	0.00
TD Tgt.							
7,590.0	89.01	347.310	4,185.5	3,813.1	-707.4	3,877.9	0.00
Projection to Bit							

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
274.0	274.0	0.8	-0.7	First Pathfinder MWD Survey
4,500.0	4,131.0	782.2	-139.3	Top Coal
4,550.0	4,139.6	830.3	-149.7	Final Pathfinder MWD survey
4,654.0	4,147.9	931.3	-173.0	First 4 3/4" Sperry MWD Survey
7,532.0	4,184.5	3,756.5	-694.7	Final 4 3/4" Sperry MWD Survey
7,590.0	4,185.5	3,813.1	-707.4	Projection to Bit

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (ft)
				+N/-S (ft)	+E/-W (ft)	
Target	TD Tgt	350.112	Slot	0.0	0.0	0.0

Design Report for Carracas 18B #3 - Actual Field Surveys

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
274.0	4,611.0	Pathfinder Surveys	MWD
4,654.0	7,590.0	Sperry MWD Surveys	MWD

Casing Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
4,601.0	4,144.9	Intermediate Casing		

Formation Details

Measured Depth (ft)	Vertical Depth (ft)	TVDSS (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,500.0	4,131.0	-3,309.97	Top Coal		0.000	

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
TD Tgt.	0.00	0 00	4,157.0	3,815.0	-665.0	2,182,074.51	1,332,737.43	36° 59' 31.084 N	107° 18' 12.805 W
- actual wellpath misses target center by 50.5ft at 7582.0ft MD (4185.3 TVD, 3805.3 N, -705.7 E)									
- Point									