

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

Form C-102
Revised October 12, 2005

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

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-039-30472	² Pool Code 71629	³ Pool Name Basin Fruitland Coal
⁴ Property Code 35657	⁵ Property Name Carracas 17B	⁶ Well Number 1
⁷ OGRID No. 162928	⁸ Operator Name Energen Resources Corporation	⁹ Elevation 7366'

¹⁰ Surface Location

UL or lot no. O	Section 17	Township 32N	Range 04W	Lot Idn 15	Feet from the 645	North/South line South	Feet from the 2055	East/West line East	County Rio Arriba
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¹¹ Bottom Hole Location If Different From Surface

UL or lot no. A	Section 17	Township 32N	Range 04W	Lot Idn 1	Feet from the 160	North/South line North	Feet from the 121	East/West line East	County Rio Arriba
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¹² Dedicated Acres 320 E/2	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No. R-13119
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PCVD OCT 19 '09
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 Vicki Donaghey 10/14/09 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. 06/11/07 Date of Survey Signature and Seal of Professional Surveyer original survey conducted and recorded by: David R. Russell 10201 Certificate Number

RCVD OCT 19 '09
OIL CONS. DIV.
DIST. 3

Energen Resources

Rio Arriba County, NM

Carracas 17B #1

Carracas 17B #1

Wellbore #1

Design: Actual Field Surveys

Sperry Drilling Services Standard Report

19 August, 2009

Well Coordinates: 2,178,051.06 N, 1,340,707.90 E (36° 58' 52.17" N, 107° 16' 34.03" W)
Ground Level 7,366.00 ft

Local Coordinate Origin:

Centered on Well Carracas 17B #1

Viewing Datum.

RKB @ 7381.00ft (RKB)

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 17B #1
 Well: Carracas 17B #1
 Wellbore: Wellbore #1
 Plan: Actual Field Surveys

Energen Resources

HALLIBURTON

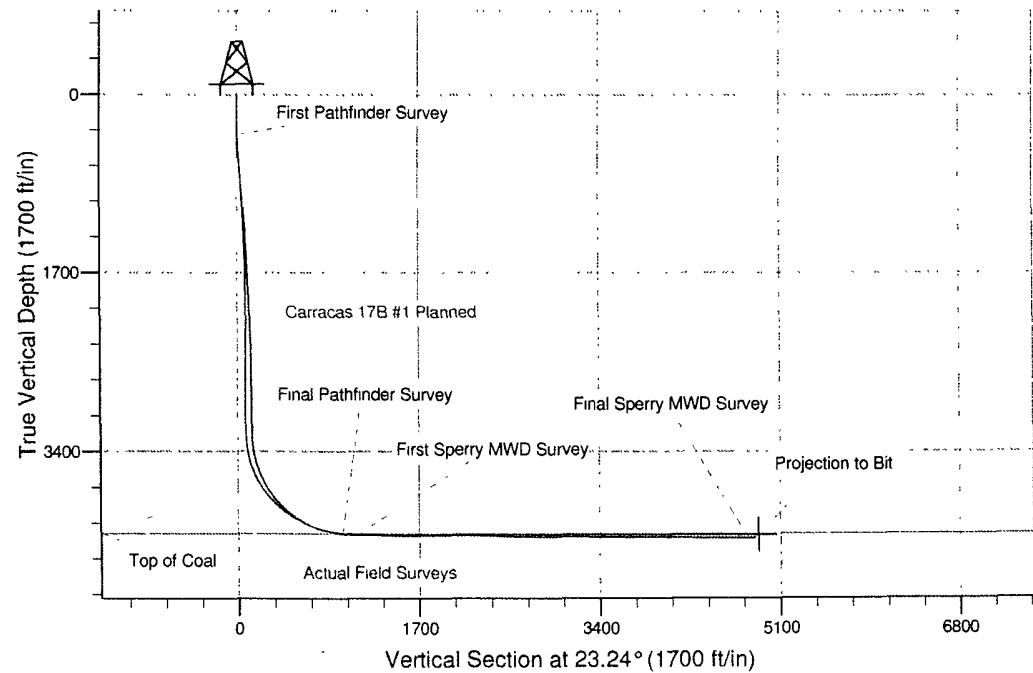
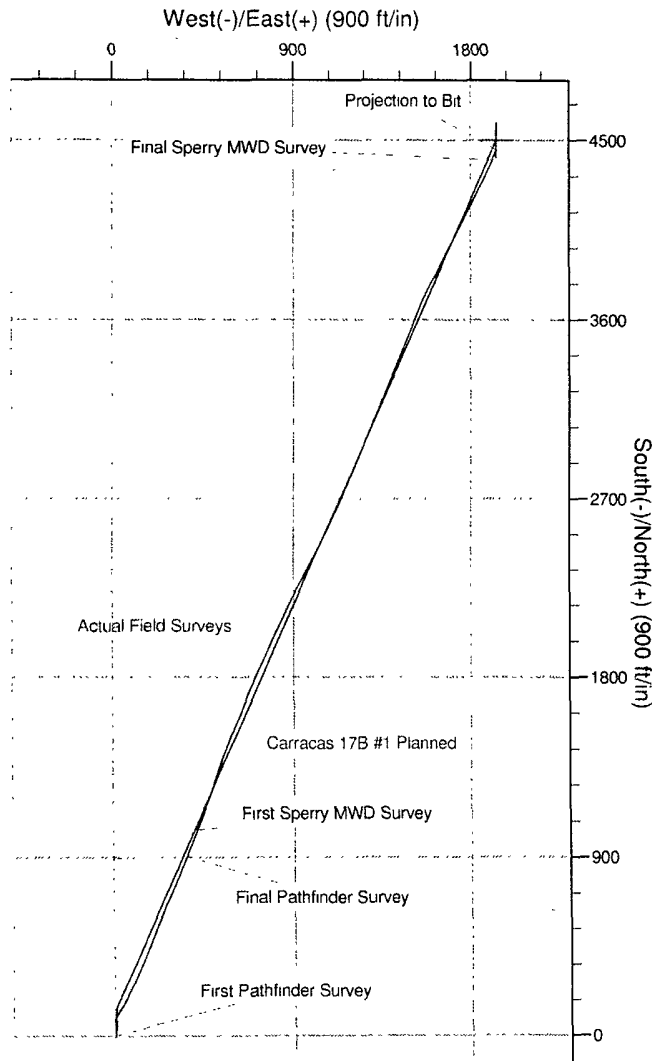
**Drilling and Formation
 Evaluation**

WELL DETAILS: Carracas 17B #1

+N/-S	+E/-W	Northing	Ground Level: Easting	Latitude	Longitude
0.00	0.00	2178051.06	1340707.90	36° 58' 52.166 N	107° 16' 34.032 W

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape Point
Carracas 17B #1	4199.00	4496.98	1930.99	36° 59' 36.629 N	107° 16' 10.230 W	



Design Report for Carracas 17B #1 - Actual Field Surveys

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00
383.00	0.53	32.390	382.99	1.50	0.95	1.75	0.14
First Pathfinder Survey							
414.00	1.67	21.080	413.99	2.04	1.19	2.34	3.73
474.00	4.22	6.920	473.90	5.05	1.77	5.33	4.39
505.00	4.92	5.140	504.81	7.50	2.03	7.69	2.30
534.00	5.10	5.090	533.70	10.02	2.25	10.10	0.62
565.00	5.01	6.890	564.57	12.74	2.54	12.71	0.59
596.00	5.28	7.140	595.45	15.50	2.88	15.38	0.87
626.00	5.19	4.790	625.32	18.22	3.16	17.99	0.78
657.00	5.28	6.000	656.20	21.04	3.43	20.68	0.46
687.00	5.10	8.190	686.07	23.73	3.76	23.29	0.89
718.00	5.28	8.150	716.95	26.51	4.16	26.00	0.58
788.00	5.01	9.210	786.66	32.71	5.10	32.07	0.41
879.00	4.13	6.480	877.37	39.89	6.11	39.06	1.00
971.00	2.37	8.380	969.22	45.06	6.76	44.08	1.92
1,062.00	1.85	10.840	1,060.16	48.37	7.31	47.33	0.58
1,153.00	2.46	8.860	1,151.09	51.74	7.89	50.66	0.68
1,243.00	2.99	4.920	1,240.99	55.99	8.39	54.76	0.62
1,332.00	3.34	3.170	1,329.86	60.89	8.73	59.39	0.41
1,423.00	2.99	2.810	1,420.72	65.91	8.99	64.11	0.39
1,514.00	2.20	9.210	1,511.62	70.00	9.39	68.03	0.92
1,605.00	1.32	8.670	1,602.58	72.76	9.83	70.74	0.97
1,695.00	0.97	15.960	1,692.56	74.52	10.19	72.49	0.42
1,785.00	0.35	37.290	1,782.56	75.47	10.57	73.52	0.73
1,876.00	0.18	77.150	1,873.55	75.72	10.88	73.87	0.27
1,966.00	0.18	15.600	1,963.55	75.89	11.05	74.09	0.20
2,056.00	0.09	10.960	2,053.55	76.10	11.10	74.30	0.10
2,151.00	0.35	156.460	2,148.55	75.90	11.23	74.18	0.45
2,247.00	0.35	200.200	2,244.55	75.36	11.25	73.68	0.27
2,338.00	0.35	215.990	2,335.55	74.87	10.99	73.14	0.11
2,433.00	0.44	200.260	2,430.55	74.30	10.69	72.49	0.15
2,528.00	0.53	237.750	2,525.55	73.72	10.20	71.76	0.34
2,623.00	0.53	235.790	2,620.54	73.24	9.46	71.03	0.02
2,717.00	0.62	305.020	2,714.54	73.29	8.68	70.77	0.70
2,812.00	0.44	319.990	2,809.53	73.86	8.03	71.04	0.24
2,905.00	0.53	340.520	2,902.53	74.54	7.66	71.51	0.21
2,999.00	0.26	346.410	2,996.53	75.16	7.46	72.00	0.29
3,094.00	0.70	257.240	3,091.52	75.24	6.84	71.83	0.78
3,126.00	2.11	275.310	3,123.51	75.25	6.07	71.54	4.56
3,158.00	3.78	287.980	3,155.47	75.63	4.48	71.26	5.57
3,189.00	4.75	302.880	3,186.39	76.64	2.43	71.38	4.73
3,221.00	4.75	323.260	3,218.28	78.42	0.52	72.27	5.25
3,253.00	4.48	346.800	3,250.18	80.70	-0.56	73.93	5.94
3,284.00	4.75	5.810	3,281.08	83.16	-0.70	76.13	4.99
3,315.00	5.63	18.590	3,311.95	85.88	-0.09	78.87	4.67
3,347.00	6.86	26.020	3,343.76	89.08	1.25	82.35	4.59
3,378.00	8.44	29.950	3,374.49	92.72	3.20	86.46	5.37
3,410.00	10.20	31.320	3,406.06	97.17	5.84	91.59	5.54
3,441.00	12.05	32.670	3,436.48	102.24	9.02	97.50	6.03

Design Report for Carracas 17B #1 - Actual Field Surveys

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
3,473.00	13.72	34.300	3,467.67	108.19	12.96	104.52	5.34
3,503.00	15.65	35.480	3,496.69	114.42	17.31	111.97	6.51
3,535.00	17.94	35.770	3,527.32	121.94	22.70	121.00	7.16
3,567.00	20.49	34.840	3,557.54	130.53	28.78	131.30	8.03
3,599.00	22.60	32.580	3,587.30	140.31	35.29	142.85	7.08
3,630.00	24.80	29.310	3,615.69	151.00	41.68	155.20	8.26
3,662.00	26.82	26.460	3,644.49	163.32	48.19	169.08	7.41
3,694.00	29.11	24.800	3,672.76	176.85	54.67	184.07	7.56
3,725.00	31.22	24.860	3,699.56	190.99	61.21	199.64	6.81
3,757.00	32.80	25.080	3,726.69	206.36	68.37	216.60	4.95
3,788.00	34.47	25.460	3,752.50	221.89	75.70	233.76	5.43
3,820.00	36.40	25.460	3,778.57	238.64	83.68	252.30	6.03
3,851.00	38.60	24.870	3,803.16	255.72	91.70	271.15	7.19
3,882.00	40.80	24.300	3,827.01	273.73	99.94	290.95	7.19
3,914.00	42.91	23.850	3,850.85	293.22	108.64	312.30	6.66
3,945.00	44.76	23.550	3,873.21	312.88	117.27	333.77	6.01
3,977.00	46.69	23.750	3,895.55	333.87	126.46	356.68	6.05
4,009.00	48.45	23.910	3,917.13	355.47	136.01	380.29	5.51
4,040.00	49.95	23.740	3,937.39	376.94	145.49	403.76	4.86
4,071.00	51.44	23.250	3,957.03	398.94	155.05	427.75	4.96
4,103.00	52.85	22.250	3,976.66	422.24	164.82	453.01	5.05
4,135.00	54.43	21.520	3,995.63	446.15	174.42	478.77	5.27
4,166.00	56.19	21.770	4,013.28	469.84	183.82	504.25	5.72
4,198.00	57.86	21.660	4,030.69	494.78	193.75	531.08	5.23
4,230.00	59.53	22.130	4,047.32	520.15	203.95	558.42	5.37
4,262.00	61.11	22.260	4,063.16	545.89	214.45	586.21	4.95
4,294.00	62.87	22.270	4,078.19	572.03	225.16	614.46	5.50
4,325.00	64.81	22.280	4,091.86	597.78	235.70	642.28	6.26
4,357.00	67.09	22.560	4,104.90	624.79	246.85	671.50	7.17
4,389.00	69.20	22.790	4,116.81	652.19	258.30	701.19	6.63
4,420.00	71.23	23.070	4,127.30	679.06	269.66	730.36	6.60
4,452.00	73.07	22.970	4,137.11	707.09	281.57	760.82	5.76
4,484.00	75.10	22.940	4,145.89	735.42	293.57	791.59	6.34
4,516.00	76.94	22.750	4,153.62	764.04	305.63	822.64	5.78
4,547.00	78.17	22.490	4,160.30	791.98	317.27	852.91	4.05
4,579.00	80.11	22.490	4,166.33	821.02	329.29	884.33	6.06
4,611.00	81.16	22.500	4,171.53	850.19	341.37	915.90	3.28
4,643.00	81.51	22.400	4,176.35	879.42	353.45	947.53	1.14
4,661.81	82.31	22.206	4,179.00	896.65	360.52	966.15	4.38
Top of Coal							
4,674.00	82.83	22.080	4,180.58	<u>907.85</u>	<u>365.07</u>	978.24	4.38
Final Pathfinder Survey							
4,815.00	88.64	20.900	4,191.06	1,038.63	416.56	1,118.72	4.20
First Sperry MWD Survey							
4,847.00	90.00	21.480	4,191.44	1,068.46	428.12	1,150.70	4.62
4,879.00	90.93	21.280	4,191.18	1,098.26	439.79	1,182.68	2.97
4,910.00	91.36	21.350	4,190.56	1,127.13	451.05	1,213.66	1.41
4,941.00	89.32	20.280	4,190.38	1,156.11	462.07	1,244.63	7.43
4,973.00	87.78	19.040	4,191.19	1,186.23	472.83	1,276.55	6.18
5,004.00	87.28	19.040	4,192.52	1,215.51	482.93	1,307.44	1.61
5,036.00	87.16	18.550	4,194.07	1,245.76	493.23	1,339.31	1.57

4,507.1

Design Report for Carracas 17B #1 - Actual Field Surveys

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
5,068.00	87.66	18.130	4,195.52	1,276.11	503.29	1,371.16	2.04
5,100.00	88.09	18.070	4,196.71	1,306.50	513.23	1,403.01	1.36
5,131.00	88.52	18.070	4,197.62	1,335.96	522.84	1,433.87	1.39
5,163.00	88.95	18.310	4,198.33	1,366.35	532.82	1,465.73	1.54
5,194.00	89.44	20.190	4,198.76	1,395.62	543.04	1,496.65	6.27
5,226.00	89.20	20.170	4,199.14	1,425.65	554.08	1,528.61	0.75
5,256.00	89.26	21.410	4,199.55	1,453.69	564.73	1,558.58	4.14
5,288.00	89.69	22.090	4,199.84	1,483.41	576.59	1,590.56	2.51
5,318.00	89.94	22.810	4,199.94	1,511.14	588.04	1,620.56	2.54
5,349.00	91.17	23.940	4,199.64	1,539.59	600.34	1,651.56	5.39
5,381.00	91.55	23.220	4,198.88	1,568.91	613.14	1,683.55	2.54
5,412.00	91.98	23.230	4,197.92	1,597.39	625.36	1,714.53	1.39
5,444.00	90.49	22.080	4,197.23	1,626.91	637.68	1,746.52	5.88
5,475.00	90.06	21.460	4,197.08	1,655.70	649.18	1,777.51	2.43
5,507.00	90.80	20.580	4,196.84	1,685.57	660.65	1,809.49	3.59
5,539.00	90.99	21.400	4,196.34	1,715.44	672.11	1,841.46	2.63
5,570.00	90.62	23.270	4,195.91	1,744.11	683.89	1,872.45	6.15
5,602.00	90.56	24.320	4,195.58	1,773.39	696.80	1,904.44	3.29
5,634.00	90.55	22.370	4,195.27	1,802.77	709.48	1,936.44	6.09
5,665.00	89.26	24.330	4,195.32	1,831.23	721.77	1,967.44	7.57
5,697.00	88.95	25.240	4,195.82	1,860.27	735.18	1,999.42	3.00
5,729.00	89.07	24.270	4,196.37	1,889.33	748.58	2,031.41	3.05
5,760.00	89.38	24.110	4,196.79	1,917.60	761.28	2,062.40	1.13
5,792.00	89.38	24.090	4,197.14	1,946.81	774.35	2,094.39	0.06
5,824.00	89.81	24.730	4,197.37	1,975.95	787.57	2,126.39	2.41
5,856.00	89.88	25.100	4,197.45	2,004.97	801.05	2,158.37	1.18
5,887.00	89.51	25.490	4,197.62	2,033.00	814.30	2,189.35	1.73
5,919.00	89.69	25.020	4,197.84	2,061.94	827.95	2,221.33	1.57
5,951.00	89.88	24.850	4,197.96	2,090.96	841.44	2,253.32	0.80
5,983.00	90.74	24.680	4,197.79	2,120.01	854.84	2,285.31	2.74
6,014.00	89.32	25.190	4,197.77	2,148.12	867.91	2,316.29	4.87
6,046.00	88.70	25.750	4,198.32	2,177.01	881.67	2,348.26	2.61
6,077.00	87.90	27.410	4,199.24	2,204.72	895.54	2,379.19	5.94
6,108.00	87.96	28.560	4,200.36	2,232.08	910.07	2,410.07	3.71
6,140.00	87.28	27.830	4,201.69	2,260.25	925.18	2,441.92	3.12
6,172.00	87.10	27.830	4,203.26	2,288.52	940.10	2,473.78	0.56
6,204.00	88.02	28.610	4,204.62	2,316.69	955.22	2,505.63	3.77
6,235.00	88.21	28.660	4,205.64	2,343.88	970.07	2,536.47	0.63
6,266.00	88.45	27.560	4,206.55	2,371.21	984.67	2,567.35	3.63
6,298.00	88.58	27.110	4,207.38	2,399.63	999.35	2,599.26	1.46
6,329.00	88.52	26.840	4,208.16	2,427.25	1,013.41	2,630.18	0.89
6,361.00	88.83	26.280	4,208.90	2,455.87	1,027.72	2,662.12	2.00
6,393.00	89.26	26.700	4,209.43	2,484.50	1,041.99	2,694.06	1.88
6,424.00	89.38	26.310	4,209.80	2,512.24	1,055.82	2,725.01	1.32
6,456.00	89.51	24.700	4,210.11	2,541.12	1,069.60	2,756.98	5.05
6,488.00	89.32	24.940	4,210.44	2,570.16	1,083.03	2,788.97	0.96
6,520.00	89.44	24.670	4,210.78	2,599.21	1,096.45	2,820.95	0.92
6,551.00	89.44	24.940	4,211.09	2,627.35	1,109.46	2,851.94	0.87
6,583.00	89.94	24.120	4,211.26	2,656.46	1,122.74	2,883.93	3.00
6,613.00	90.37	23.750	4,211.18	2,683.88	1,134.92	2,913.93	1.89
6,645.00	91.05	23.290	4,210.78	2,713.22	1,147.68	2,945.93	2.57

Design Report for Carracas 17B #1 - Actual Field Surveys

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
6,677.00	91.23	23.380	4,210.15	2,742.59	1,160.36	2,977.92	0.63
6,708.00	91.73	22.660	4,209.35	2,771.12	1,172.48	3,008.91	2.83
6,740.00	90.74	23.070	4,208.66	2,800.59	1,184.91	3,040.90	3.35
6,772.00	90.80	23.330	4,208.23	2,830.00	1,197.51	3,072.90	0.83
6,803.00	89.69	22.630	4,208.09	2,858.54	1,209.61	3,103.90	4.23
6,834.00	89.20	23.380	4,208.39	2,887.08	1,221.73	3,134.89	2.89
6,866.00	90.74	23.310	4,208.41	2,916.46	1,234.41	3,166.89	4.82
6,898.00	90.68	22.450	4,208.01	2,945.94	1,246.85	3,198.89	2.69
6,929.00	88.02	22.830	4,208.37	2,974.54	1,258.78	3,229.88	8.67
6,961.00	87.22	22.470	4,209.69	3,004.05	1,271.09	3,261.85	2.74
6,993.00	87.22	22.090	4,211.25	3,033.62	1,283.21	3,293.81	1.19
7,024.00	88.46	22.470	4,212.41	3,062.29	1,294.96	3,324.78	4.18
7,056.00	89.26	22.100	4,213.05	3,091.89	1,307.09	3,356.77	2.75
7,088.00	89.88	22.140	4,213.29	3,121.54	1,319.14	3,388.77	1.94
7,119.00	90.19	22.020	4,213.27	3,150.26	1,330.79	3,419.76	1.07
7,149.00	90.68	20.660	4,213.04	3,178.20	1,341.71	3,449.74	4.82
7,181.00	89.94	22.650	4,212.87	3,207.94	1,353.51	3,481.73	6.63
7,213.00	89.88	23.020	4,212.92	3,237.44	1,365.93	3,513.73	1.17
7,244.00	88.76	22.710	4,213.29	3,266.00	1,377.98	3,544.72	3.75
7,276.00	88.52	23.270	4,214.05	3,295.45	1,390.47	3,576.71	1.90
7,307.00	89.01	24.110	4,214.72	3,323.83	1,402.92	3,607.70	3.14
7,339.00	89.44	23.680	4,215.15	3,353.08	1,415.88	3,639.70	1.90
7,371.00	89.88	23.280	4,215.34	3,382.43	1,428.63	3,671.70	1.86
7,403.00	90.43	22.810	4,215.25	3,411.88	1,441.16	3,703.70	2.26
7,434.00	91.24	22.360	4,214.80	3,440.50	1,453.06	3,734.69	2.99
7,466.00	91.48	22.510	4,214.04	3,470.07	1,465.27	3,766.68	0.88
7,497.00	90.19	22.530	4,213.59	3,498.70	1,477.15	3,797.67	4.16
7,529.00	89.44	22.400	4,213.69	3,528.27	1,489.37	3,829.67	2.38
7,561.00	89.63	21.940	4,213.95	3,557.90	1,501.45	3,861.66	1.56
7,593.00	89.75	20.670	4,214.13	3,587.72	1,513.07	3,893.64	3.99
7,624.00	90.06	20.580	4,214.18	3,616.73	1,523.99	3,924.61	1.04
7,656.00	90.31	20.640	4,214.07	3,646.68	1,535.26	3,956.58	0.80
7,687.00	89.01	21.380	4,214.26	3,675.62	1,546.37	3,987.55	4.83
7,719.00	88.52	23.600	4,214.95	3,705.18	1,558.61	4,019.54	7.10
7,751.00	87.59	26.030	4,216.03	3,734.20	1,572.03	4,051.51	8.13
7,782.00	87.40	27.470	4,217.39	3,761.86	1,585.97	4,082.42	4.68
7,813.00	88.52	27.540	4,218.49	3,789.34	1,600.28	4,113.31	3.62
7,845.00	89.75	28.010	4,218.98	3,817.64	1,615.19	4,145.21	4.11
7,877.00	90.37	28.700	4,218.94	3,845.81	1,630.38	4,177.08	2.90
7,909.00	88.76	28.290	4,219.19	3,873.93	1,645.65	4,208.94	5.19
7,940.00	88.02	27.890	4,220.06	3,901.26	1,660.24	4,239.82	2.71
7,972.00	88.27	27.580	4,221.09	3,929.57	1,675.13	4,271.70	1.24
8,004.00	88.64	27.590	4,221.96	3,957.93	1,689.94	4,303.60	1.16
8,036.00	89.07	27.230	4,222.59	3,986.33	1,704.67	4,335.51	1.75
8,067.00	89.63	26.880	4,222.95	4,013.93	1,718.77	4,366.44	2.13
8,099.00	90.37	27.080	4,222.95	4,042.45	1,733.28	4,398.37	2.40
8,131.00	91.05	26.890	4,222.55	4,070.96	1,747.80	4,430.30	2.21
8,162.00	91.30	26.410	4,221.91	4,098.66	1,761.70	4,461.24	1.75
8,194.00	89.99	26.810	4,221.55	4,127.27	1,776.04	4,493.18	4.28
8,225.00	88.95	27.690	4,221.84	4,154.83	1,790.23	4,524.10	4.39
8,257.00	89.32	26.720	4,222.32	4,183.29	1,804.86	4,556.02	3.24

Design Report for Carracas 17B #1 - Actual Field Surveys

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
8,289.00	89.63	26.900	4,222.62	4,211.84	1,819.29	4,587.96	1.12
8,320.00	90.00	26.070	4,222.72	4,239.59	1,833.11	4,618.91	2.93
8,352.00	90.25	25.960	4,222.65	4,268.35	1,847.15	4,650.87	0.85
8,384.00	90.86	25.650	4,222.34	4,297.16	1,861.08	4,682.84	2.14
8,416.00	91.61	25.730	4,221.65	4,325.99	1,874.95	4,714.80	2.36
8,447.00	89.88	25.710	4,221.24	4,353.91	1,888.40	4,745.77	5.58
8,478.00	89.38	24.840	4,221.44	4,381.94	1,901.63	4,776.75	3.24
8,500.00	89.45	24.610	4,221.67	4,401.92	1,910.84	4,798.74	1.09
Final Sperry MWD Survey							
8,556.00	89.45	24.610	4,222.21	4,452.84	1,934.15	4,854.72	0.00
Projection to Bit - Carracas 17B #1							

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
383.00	382.99	1.50	0.95	First Pathfinder Survey
4,674.00	4,180.58	907.85	365.07	Final Pathfinder Survey
4,815.00	4,191.06	1,038.63	416.56	First Sperry MWD Survey
8,500.00	4,221.67	4,401.92	1,910.84	Final Sperry MWD Survey
8,556.00	4,222.21	4,452.84	1,934.15	Projection to Bit

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/-S (ft)	Origin +E/-W (ft)	Start TVD (ft)
Target	Carracas 17B #1	23.239	Slot	0.00	0.00	0.00

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
383.00	4,674.00	Pathfinder MWD Surveys	MWD
4,815.00	8,556.00	Sperry MWD Surveys	MWD

Casing Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
4,227.00	4,045.80	Casing point		

Formation Details

Measured Depth (ft)	Vertical Depth (ft)	TVDSS (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,661.81	4,179.00	-3,202.00	Top of Coal		0.000	

Design Report for Carracas 17B #1 - Actual Field Surveys

Targets

Target Name	Dip	Dip							
- hit/miss target	Angle	Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
Carracas 17B #1	0.00	0.00	4,199.00	4,496.98	1,930.99	2,182,526.99	1,342,687.23	36° 59' 36.629 N	107° 16' 10.230 W
- actual wellpath misses target center by 49.97ft at 8556.00ft MD (4222.21 TVD, 4452.84 N, 1934.15 E)									
- Point									