

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 30-039-30482	² Pool Code 71629	³ Pool Name Basin Fruitland Coal
⁴ Property Code 35035	⁵ Property Name Carracas 22A	⁶ Well Number 4
⁷ OGRID No 162928	⁸ Operator Name Energen Resources Corporation	⁹ Elevation 7160'

¹⁰ Surface Location

UL or lot no.	Section	Township	Range	Lot 1dn	Feet from the	North/South line	Feet from the	East/West line	County
B	22	32N	05W		1090	North	1870	East	Rio Arriba

¹¹ Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot 1dn	Feet from the	North/South line	Feet from the	East/West line	County
E	22	32N	05W		1575	North	116	West	Rio Arriba

¹² Dedicated Acres 319.23 W/2	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No R 13119 - NSL	RCVD SEP 9 '05
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OIL CONS. DIV.

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A
2637.83 NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION DIST. 3

¹⁶ 1575' 1190' 1090' 1870' 2586' 7' 11" SHL 52' 22	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 <u>Vicki Donaghey</u> Date <u>09/08/09</u> Printed Name <u>Vicki Donaghey</u>
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 Date of Survey <u>December 8, 2006</u> Signature and Seal of Professional Surveyor Certificate Number	

ROWD SEP 9 '09
OIL CONS. DIV.
DIST. 3

Energen Resources

Rio Arriba County, NM

Sec. 22-T32N-R05W

Carracas 22A #4

Wellbore #1

Design: Actual Field Surveys

Sperry Drilling Services Standard Report

19 August, 2009

Well Coordinates: 2,174,223.63 N, 1,319,934.49 E (36° 58' 12.04" N, 107° 20' 49.49" W)
Ground Level: 7,160 00 ft

Local Coordinate Origin:

Centered on Well Carracas 22A #4

Viewing Datum

RKB @ 7175.00ft (Original Well Elev)

TVDs to System.

N

North Reference:

True

Unit System

API- All

Geodetic Scale Factor Applied

Version: 2003.16 Build: 43I

HALLIBURTON

Project: Rio Arriba County, NM
 Site: Sec. 22-T32N-R05W
 Well: Carracas 22A #4
 Wellbore: Wellbore #1
 Plan: Actual Field Surveys

Energen Resources

HALLIBURTON

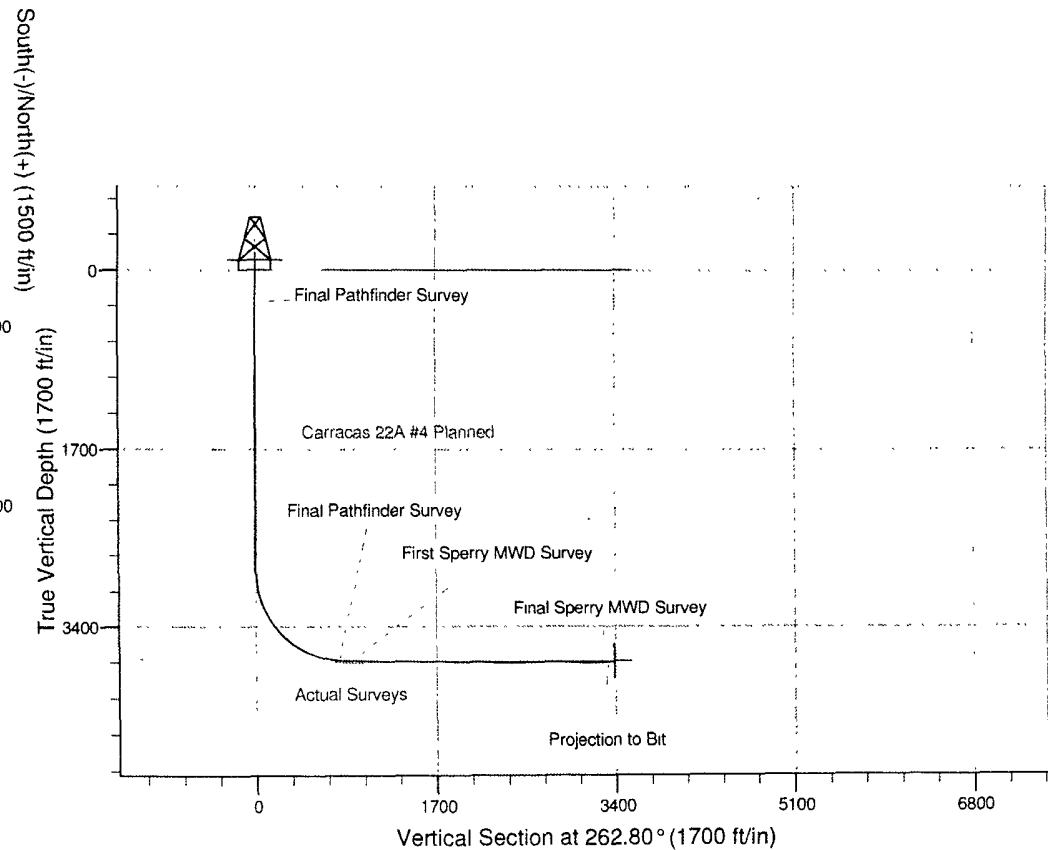
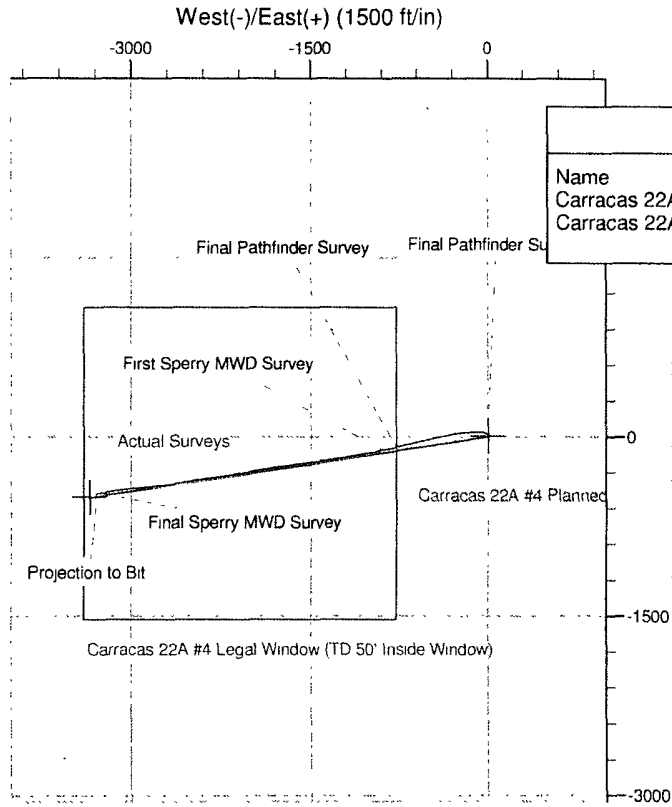
Drilling and Formation
Evaluation

WELL DETAILS: Carracas 22A #4

+N/-S	+E/-W	Northing	Ground Level: Easting	Latitude	Longitude
0.00	0.00	2174223.63	1319934.49	36° 58' 12.036 N	107° 20' 49.488 W

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
Carracas 22A #4 Legal Window	0.00	0.00	0.00	36° 58' 12.036 N	107° 20' 49.488 W	Polygon
Carracas 22A #4 TD Tgt.	3737.00	-511.97	-3345.96	36° 58' 6.972 N	107° 21' 30.718 W	Point



HALLIBURTON**Design Report for Carracas 22A #4 - 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
Carracas 22A #4 Legal Window							
298.00	1.93	136.450	297.94	-3.64	3.46	-2.97	0.65
Final Pathfinder Survey							
389.00	1.06	144.400	388.91	-5.43	5.00	-4.28	0.98
480.00	0.53	151.300	479.90	-6.49	5.70	-4.84	0.59
571.00	0.09	117.350	570.90	-6.89	5.96	-5.05	0.50
662.00	0.18	156.190	661.90	-7.05	6.08	-5.15	0.14
754.00	0.18	130.790	753.90	-7.28	6.25	-5.29	0.09
845.00	0.18	141.940	844.90	-7.48	6.45	-5.46	0.04
936.00	0.35	90.740	935.90	-7.60	6.81	-5.81	0.30
1,028.00	0.35	78.720	1,027.90	-7.55	7.37	-6.37	0.08
1,119.00	0.18	108.620	1,118.90	-7.54	7.78	-6.77	0.23
1,209.00	0.09	43.930	1,208.90	-7.53	7.96	-6.95	0.18
1,299.00	0.53	144.750	1,298.90	-7.82	8.25	-7.20	0.62
1,391.00	0.26	128.860	1,390.89	-8.30	8.66	-7.55	0.31
1,482.00	0.18	39.410	1,481.89	-8.32	8.91	-7.80	0.35
1,573.00	0.18	145.730	1,572.89	-8.33	9.08	-7.97	0.32
1,665.00	0.09	2.760	1,664.89	-8.38	9.17	-8.04	0.28
1,757.00	0.26	339.750	1,756.89	-8.11	9.10	-8.01	0.20
1,851.00	0.26	295.990	1,850.89	-7.81	8.83	-7.78	0.21
1,945.00	0.09	2.850	1,944.89	-7.65	8.64	-7.62	0.25
2,038.00	0.18	337.940	2,037.89	-7.44	8.59	-7.59	0.11
2,131.00	0.18	104.230	2,130.89	-7.34	8.68	-7.69	0.35
2,225.00	0.26	347.250	2,224.89	-7.17	8.77	-7.81	0.40
2,319.00	0.35	355.740	2,318.89	-6.67	8.71	-7.80	0.11
2,412.00	0.35	34.430	2,411.89	-6.16	8.85	-8.00	0.25
2,504.00	0.09	33.820	2,503.89	-5.86	9.04	-8.24	0.28
2,598.00	0.88	23.690	2,597.88	-5.14	9.38	-8.66	0.84
2,691.00	2.55	12.020	2,690.84	-2.46	10.09	-9.71	1.83
2,784.00	3.08	344.400	2,783.73	1.97	9.85	-10.02	1.55
2,814.00	3.25	333.950	2,813.68	3.51	9.26	-9.63	2.00
2,845.00	3.69	323.160	2,844.63	5.09	8.28	-8.85	2.53
2,874.00	4.92	317.030	2,873.54	6.75	6.87	-7.66	4.52
2,905.00	6.24	312.210	2,904.40	8.86	4.72	-5.79	4.51
2,936.00	7.65	308.780	2,935.17	11.28	1.86	-3.26	4.74
2,967.00	9.58	305.090	2,965.82	14.06	-1.86	0.08	6.47
2,997.00	10.99	302.030	2,995.34	17.01	-6.33	4.15	5.04
3,028.00	12.66	299.540	3,025.68	20.25	-11.79	9.16	5.63
3,059.00	14.16	292.850	3,055.83	23.40	-18.24	15.16	6.95
3,091.00	15.48	288.310	3,086.77	26.26	-25.90	22.41	5.49
3,122.00	17.32	283.600	3,116.51	28.64	-34.31	30.45	7.32
3,152.00	19.61	279.220	3,144.96	30.50	-43.62	39.46	8.92
3,183.00	21.19	275.370	3,174.02	31.86	-54.34	49.92	6.68
3,214.00	22.86	272.520	3,202.76	32.65	-65.93	61.32	6.39
3,246.00	24.71	271.130	3,232.04	33.05	-78.83	74.07	6.04
3,276.00	26.38	270.730	3,259.10	33.26	-91.77	86.88	5.60
3,308.00	28.49	269.140	3,287.50	33.24	-106.51	101.50	6.98
3,339.00	30.51	270.030	3,314.48	33.13	-121.77	116.66	6.67
3,370.00	32.98	270.340	3,340.84	33.19	-138.08	132.83	7.99

Design Report for Carracas 22A #4 - Actual Field Surveys

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
3,399.00	34.47	270.470	3,364.96	33.30	-154.18	148.79	5.14
3,429.00	35.53	269.020	3,389.54	33.22	-171.39	165.87	4.49
3,460.00	37.28	267.080	3,414.49	32.59	-189.77	184.19	6.76
3,489.00	39.13	264.910	3,437.27	31.33	-207.66	202.10	7.88
3,518.00	40.80	262.580	3,459.50	29.29	-226.17	220.72	7.73
3,550.00	42.91	260.960	3,483.34	26.23	-247.30	242.06	7.41
3,582.00	45.11	259.320	3,506.35	22.42	-269.20	264.27	7.74
3,613.00	47.57	258.270	3,527.75	18.06	-291.20	286.64	8.30
3,644.00	49.86	258.160	3,548.20	13.30	-314.00	309.86	7.39
3,675.00	52.67	258.010	3,567.60	8.31	-337.66	333.96	9.07
3,707.00	55.66	258.280	3,586.33	2.98	-363.04	359.81	9.37
3,738.00	58.30	258.130	3,603.22	-2.34	-388.48	385.72	8.53
3,769.00	60.94	258.010	3,618.90	-7.86	-414.65	412.37	8.52
3,800.00	63.31	257.450	3,633.39	-13.69	-441.42	439.66	7.81
3,830.00	65.51	257.120	3,646.35	-19.64	-467.81	466.59	7.40
3,861.00	67.88	256.540	3,658.61	-26.13	-495.53	494.90	7.84
3,892.00	69.73	256.680	3,669.82	-32.82	-523.65	523.64	5.98
3,923.00	71.31	256.590	3,680.16	-39.58	-552.08	552.69	5.10
3,953.00	72.72	256.800	3,689.42	-46.15	-579.85	581.06	4.75
3,984.00	74.57	256.870	3,698.15	-52.92	-608.81	610.65	5.97
4,015.00	76.50	256.940	3,705.89	-59.72	-638.05	640.50	6.23
4,046.00	78.70	256.960	3,712.55	-66.56	-667.54	670.62	7.10
4,077.00	80.72	257.000	3,718.09	-73.43	-697.26	700.96	6.52
4,108.00	83.19	257.260	3,722.42	-80.26	-727.18	731.51	8.01
4,138.00	85.65	257.280	3,725.34	-86.84	-756.30	761.22	8.20
4,155.00	86.79	257.250	3,726.46	-90.58	-772.85	778.11	6.71
Final Pathfinder Survey			3,727	-100	-520		
4,270.00	90.06	258.910	3,729.62	-114.32	-885.31	892.65	3.19
First Sperry MWD Survey							
4,302.00	89.81	258.290	3,729.66	-120.65	-916.67	924.57	2.09
4,333.00	89.75	258.350	3,729.78	-126.92	-947.03	955.47	0.27
4,394.00	87.96	258.530	3,731.00	-139.14	-1,006.78	1,016.28	2.95
4,425.00	87.47	259.120	3,732.23	-145.15	-1,037.17	1,047.18	2.47
4,456.00	87.84	260.010	3,733.50	-150.76	-1,067.63	1,078.10	3.11
4,486.00	87.84	259.950	3,734.63	-155.97	-1,097.15	1,108.05	0.20
4,517.00	88.64	260.280	3,735.58	-161.29	-1,127.68	1,139.00	2.79
4,548.00	88.76	260.310	3,736.29	-166.52	-1,158.22	1,169.96	0.40
4,579.00	89.26	260.230	3,736.82	-171.75	-1,188.77	1,200.93	1.63
4,609.00	90.37	260.140	3,736.92	-176.87	-1,218.33	1,230.89	3.71
4,640.00	91.42	260.010	3,736.44	-182.21	-1,248.87	1,261.85	3.41
4,671.00	92.35	260.280	3,735.42	-187.51	-1,279.39	1,292.80	3.12
4,702.00	90.49	261.070	3,734.65	-192.53	-1,309.97	1,323.77	6.52
4,732.00	88.09	261.520	3,735.02	-197.07	-1,339.62	1,353.76	8.14
4,763.00	87.29	261.840	3,736.27	-201.56	-1,370.27	1,384.72	2.78
4,792.00	87.47	262.190	3,737.59	-205.58	-1,398.96	1,413.69	1.36
4,823.00	87.41	262.370	3,738.98	-209.74	-1,429.65	1,444.66	0.61
4,852.00	87.28	262.590	3,740.32	-213.53	-1,458.37	1,473.63	0.88
4,882.00	88.21	262.490	3,741.50	-217.42	-1,488.09	1,503.60	3.12
4,913.00	88.64	262.390	3,742.35	-221.50	-1,518.81	1,534.59	1.42
4,943.00	90.25	261.970	3,742.65	-225.58	-1,548.53	1,564.59	5.55
4,974.00	90.74	261.560	3,742.38	-230.02	-1,579.21	1,595.58	2.06

Design Report for Carracas 22A #4 - Actual Field Surveys

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
5,004.00	92.22	261.280	3,741.60	-234.50	-1,608.86	1,625.56	5.02
5,035.00	92.47	262.020	3,740.33	-238.99	-1,639.50	1,656.53	2.52
5,065.00	91.98	262.030	3,739.17	-243.15	-1,669.19	1,686.50	1.63
5,096.00	90.86	262.700	3,738.40	-247.27	-1,699.91	1,717.49	4.21
5,127.00	88.64	262.580	3,738.54	-251.24	-1,730.65	1,748.49	7.17
5,158.00	86.97	261.860	3,739.72	-255.44	-1,761.34	1,779.46	5.87
5,189.00	87.22	262.250	3,741.29	-259.71	-1,792.00	1,810.42	1.49
5,219.00	87.28	260.140	3,742.73	-264.30	-1,821.61	1,840.37	7.03
5,250.00	87.22	259.640	3,744.22	-269.74	-1,852.10	1,871.30	1.62
5,281.00	87.84	259.810	3,745.56	-275.26	-1,882.57	1,902.22	2.07
5,312.00	88.52	259.890	3,746.54	-280.72	-1,913.07	1,933.17	2.21
5,342.00	88.76	259.900	3,747.25	-285.98	-1,942.60	1,963.12	0.80
5,373.00	89.32	260.230	3,747.77	-291.33	-1,973.13	1,994.08	2.10
5,404.00	90.49	260.330	3,747.82	-296.56	-2,003.68	2,025.05	3.79
5,435.00	91.23	260.190	3,747.36	-301.81	-2,034.23	2,056.02	2.43
5,465.00	91.67	259.920	3,746.60	-306.99	-2,063.77	2,085.97	1.72
5,495.00	89.75	260.410	3,746.23	-312.11	-2,093.33	2,115.94	6.61
5,526.00	88.40	261.490	3,746.73	-316.99	-2,123.94	2,146.91	5.58
5,557.00	87.53	261.310	3,747.83	-321.62	-2,154.57	2,177.88	2.87
5,587.00	86.66	260.500	3,749.35	-326.36	-2,184.15	2,207.83	3.96
5,618.00	87.47	260.160	3,750.94	-331.56	-2,214.67	2,238.76	2.83
5,649.00	87.53	260.470	3,752.29	-336.77	-2,245.20	2,269.70	1.02
5,680.00	88.77	260.560	3,753.29	-341.87	-2,275.76	2,300.66	4.01
5,711.00	90.12	261.420	3,753.59	-346.73	-2,306.37	2,331.64	5.16
5,741.00	89.88	261.640	3,753.59	-351.14	-2,336.05	2,361.63	1.09
5,772.00	90.25	261.610	3,753.56	-355.66	-2,366.72	2,392.63	1.20
5,803.00	91.36	262.190	3,753.12	-360.03	-2,397.40	2,423.62	4.04
5,833.00	91.30	261.780	3,752.42	-364.21	-2,427.10	2,453.61	1.38
5,862.00	91.23	260.730	3,751.78	-368.62	-2,455.76	2,482.59	3.63
5,893.00	91.17	260.320	3,751.13	-373.72	-2,486.33	2,513.56	1.34
5,923.00	91.36	260.170	3,750.47	-378.80	-2,515.89	2,543.52	0.81
5,953.00	92.10	260.160	3,749.57	-383.92	-2,545.43	2,573.48	2.47
5,984.00	91.79	260.060	3,748.51	-389.24	-2,575.95	2,604.42	1.05
6,015.00	91.85	259.940	3,747.53	-394.62	-2,606.47	2,635.37	0.43
6,046.00	91.42	260.510	3,746.65	-399.89	-2,637.01	2,666.33	2.30
6,077.00	89.81	262.150	3,746.31	-404.56	-2,667.65	2,697.31	7.41
6,107.00	88.83	262.590	3,746.67	-408.54	-2,697.38	2,727.31	3.58
6,138.00	89.51	263.230	3,747.12	-412.37	-2,728.14	2,758.31	3.01
6,170.00	91.48	264.160	3,746.84	-415.88	-2,759.94	2,790.30	6.81
6,201.00	91.05	264.290	3,746.16	-419.00	-2,790.78	2,821.28	1.45
6,232.00	89.38	264.370	3,746.04	-422.06	-2,821.62	2,852.27	5.39
6,264.00	88.03	264.470	3,746.76	-425.17	-2,853.46	2,884.25	4.23
6,296.00	87.28	264.380	3,748.07	-428.28	-2,885.28	2,916.21	2.36
6,328.00	86.72	264.380	3,749.75	-431.41	-2,917.09	2,948.15	1.75
6,360.00	87.53	264.660	3,751.35	-434.46	-2,948.90	2,980.10	2.68
6,391.00	87.96	263.610	3,752.57	-437.63	-2,979.71	3,011.06	3.66
6,423.00	87.96	263.510	3,753.71	-441.21	-3,011.49	3,043.04	0.31
6,455.00	87.16	262.870	3,755.07	-445.00	-3,043.24	3,075.01	3.20
6,487.00	87.53	261.810	3,756.56	-449.26	-3,074.92	3,106.98	3.51
6,518.00	90.25	261.430	3,757.16	-453.78	-3,105.58	3,137.96	8.86
6,550.00	93.21	260.940	3,756.19	-458.68	-3,137.18	3,169.93	9.38

Design Report for Carracas 22A #4 - Actual Field Surveys

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
6,582.00	93.21	260.440	3,754.40	-463.85	-3,168.71	3,201.86	1.56
6,614.00	92.65	259.940	3,752.76	-469.30	-3,200.20	3,233.78	2.34
6,646.00	92.84	260.000	3,751.23	-474.86	-3,231.68	3,265.71	0.62
Final Sperry MWD Survey							
6,705.00	92.84	260.000	3,748.31	-485.10	-3,289.71	3,324.56	0.00
Projection to Bit - Carracas 22A #4 TD Tgt.							

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
298.00	297.94	-3.64	3.46	Final Pathfinder Survey
4,155.00	3,726.46	-90.58	-772.85	Final Pathfinder Survey
4,270.00	3,729.62	-114.32	-885.31	First Sperry MWD Survey
6,646.00	3,751.23	-474.86	-3,231.68	Final Sperry MWD Survey
6,705.00	3,748.31	-485.10	-3,289.71	Projection to Bit

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (ft)
				+N/-S (ft)	+E/-W (ft)	
User	No Target (Freehand)	262.803	Slot	0.00	0.00	0.00

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
298.00	4,155.00	Pathfinder surveys	MWD
4,155.00	6,705.00	Sperry MWD Surveys	MWD

Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
Carracas 22A #4 TD T	0.00	0.00	3,737.00	-511.97	-3,345.96	2,173,750.22	1,316,582.80	36° 58' 6.972 N	107° 21' 30.718 W
- actual wellpath misses target center by 63.36ft at 6705.00ft MD (3748.31 TVD, -485.10 N, -3289.71 E)									
- Point									
Carracas 22A #4 Lega	0.00	0.00	0.00	0.00	0.00	2,174,223.63	1,319,934.49	36° 58' 12.036 N	107° 20' 49.488 W
- actual wellpath hits target center									
- Polygon									
Point 1				-3,396.00	1,080.00	2,175,342.68	1,316,551.10		
Point 2				-3,396.00	-1,536.00	2,172,726.81	1,316,520.97		
Point 3				-778.00	-1,536.00	2,172,696.66	1,319,138.84		
Point 4				-778.00	1,080.00	2,175,312.53	1,319,168.97		