

Halliburton Drilling Systems

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BHL Report

Date: 1/4/96

Time: 11:30 am

Wellpath ID: CEDAR CANYON 22-K OPS

Date Created: 11/27/95

Last Revision: 1/4/96

Calculated using the Minimum Curvature Method

Computed using WIN-CADDS REV2.1.B

Vertical Section Plane: N 75.91 E

Survey Reference: WELLHEAD

Vertical Section Reference: WELLHEAD

Closure Reference: WELLHEAD

TVD Reference: WELLHEAD

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JAN - 6 1996

AMPOLEX USA, INC.
RIO ARriba COUNTY, NM
SEC 22 - T28N - R21W
CEDAR CANYON #22-K
SURVEY

OIL CO. INC.
P.O. BOX 1000
DENVER, CO 80201

Measured Depth	6550.00	(ft)
Inclination	0.40	(deg)
Azimuth	N 40.60 E	(deg)
True Vertical Depth	6528.99	(ft)
Vertical Section	403.20	(ft)
Rectangular Offsets		
North/South	98.14 N	(ft)
East/West	391.07 E	(ft)
Closure Dist & Dir	403.20@ N 75.91 E	(deg)
Dogleg Severity	0.00	(deg/100 ft.)
Build Rate	0.00	(deg/100 ft.)
Walk Rate	0.00	(deg/100 ft.)

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Survey Report

Date: 1/4/96

Time: 11:20 am

Wellpath ID: CEDAR CANYON 22-K OPS

Date Created: 11/27/95

Last Revision: 1/4/96

Calculated using the Minimum Curvature Method

Computed using WIN-CADDS REV2.1.B

Vertical Section Plane: N 75.91 E

Survey Reference: WELLHEAD

Vertical Section Reference: WELLHEAD

Closure Reference: WELLHEAD

TVD Reference: WELLHEAD

AMPOLEX USA, INC.
RIO ARriba COUNTY, NM
SEC 22 - T28N - R21W
CEDAR CANYON #22-K
SURVEY

Measured Depth (ft)	Incl (deg.)	Drift Dir. (deg.)	Course Length (ft)	TVD (ft)	Vertical Section (ft)	T O T A L Rectangular Offsets (ft)		DLS (dg/100ft)
0.00	0.00	N 0.00 E	0.00	0.00	0.00	0.00 N	0.00 E	0.00
'TOTCO' SURVEYS (WITH ASSUMED DIRECTION)								
172.00	1.00	N 62.00 E	172.00	171.99	1.46	0.70 N	1.33 E	0.58
295.00	0.75	N 62.00 E	123.00	294.98	3.28	1.59 N	2.98 E	0.20
459.00	1.75	N 62.00 E	164.00	458.94	6.75	3.27 N	6.14 E	0.61
714.00	2.00	N 62.00 E	255.00	713.80	14.85	7.18 N	13.51 E	0.10
SINGLE SHOT SURVEYS								
988.00	2.50	N 85.00 E	274.00	987.59	25.39	9.95 N	23.68 E	0.37
1263.00	3.50	N 78.00 E	275.00	1262.21	39.70	12.22 N	37.87 E	0.39
1514.00	3.50	N 80.00 E	251.00	1512.74	55.00	15.14 N	52.91 E	0.05
1761.00	4.25	N 85.00 E	247.00	1759.18	71.56	17.25 N	69.45 E	0.33
2008.00	5.00	N 86.00 E	247.00	2005.37	91.20	18.80 N	89.31 E	0.31
2256.00	6.00	N 87.00 E	248.00	2252.23	114.56	20.23 N	113.03 E	0.41
2509.00	6.50	N 83.00 E	253.00	2503.72	141.74	22.66 N	140.45 E	0.26
2758.00	7.75	N 78.00 E	249.00	2750.80	172.51	27.87 N	170.86 E	0.56
3003.00	9.50	N 78.00 E	245.00	2993.02	209.23	35.51 N	206.80 E	0.71
3096.00	9.25	N 78.00 E	93.00	3084.78	224.36	38.66 N	221.62 E	0.27
3189.00	10.00	N 78.00 E	93.00	3176.47	239.90	41.89 N	236.83 E	0.81
START MWD SURVEYS								
3251.00	10.50	N 79.60 E	62.00	3237.48	250.92	44.03 N	247.65 E	0.93
3281.00	10.40	N 78.40 E	30.00	3266.98	256.35	45.07 N	252.99 E	0.80
3312.00	9.90	N 76.50 E	31.00	3297.49	261.81	46.26 N	258.32 E	1.94
3343.00	9.80	N 75.30 E	31.00	3328.04	267.12	47.55 N	263.47 E	0.74

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Survey Report Wellpath ID: CEDAR CANYON 22-K OPS

Measured Depth (ft)	Incl (deg.)	Drift Dir. (deg.)	Course Length (ft)	TVD (ft)	Vertical Section (ft)	T O T A L Rectangular Offsets (ft)		DLS (dg/100ft)
3374.00	9.60	N 75.00 E	31.00	3358.59	272.34	48.89 N	268.52 E	0.67
3406.00	9.70	N 72.30 E	32.00	3390.14	277.70	50.40 N	273.66 E	1.45
3437.00	9.80	N 72.20 E	31.00	3420.69	282.94	52.00 N	278.66 E	0.33
3469.00	9.50	N 74.10 E	32.00	3452.24	288.29	53.55 N	283.79 E	1.37
3501.00	8.40	N 71.50 E	32.00	3483.85	293.26	55.02 N	288.55 E	3.66
3532.00	7.60	N 70.00 E	31.00	3514.55	297.56	56.44 N	292.62 E	2.67
3564.00	7.30	N 68.40 E	32.00	3546.28	301.68	57.91 N	296.50 E	1.14
3596.00	7.10	N 68.00 E	32.00	3578.03	305.66	59.40 N	300.23 E	0.64
3626.00	6.90	N 68.00 E	30.00	3607.80	309.28	60.77 N	303.62 E	0.67
3657.00	6.80	N 69.90 E	31.00	3638.58	312.95	62.10 N	307.07 E	0.80
3689.00	6.10	N 69.80 E	32.00	3670.38	316.52	63.34 N	310.44 E	2.19
3720.00	5.60	N 70.50 E	31.00	3701.22	319.67	64.41 N	313.41 E	1.63
3752.00	5.00	N 65.30 E	32.00	3733.08	322.59	65.51 N	316.15 E	2.40
3783.00	4.70	N 64.10 E	31.00	3763.97	325.16	66.63 N	318.52 E	1.02
3814.00	4.30	N 60.10 E	31.00	3794.87	327.52	67.77 N	320.67 E	1.64
3845.00	3.60	N 59.00 E	31.00	3825.80	329.57	68.85 N	322.51 E	2.27
3877.00	3.30	N 58.00 E	32.00	3857.74	331.41	69.85 N	324.16 E	0.96
3908.00	2.90	N 53.50 E	31.00	3888.70	332.98	70.79 N	325.54 E	1.51
3940.00	2.30	N 50.70 E	32.00	3920.66	334.31	71.68 N	326.69 E	1.92
3971.00	2.50	N 48.20 E	31.00	3951.64	335.47	72.52 N	327.68 E	0.73
4003.00	2.20	N 40.50 E	32.00	3983.61	336.59	73.46 N	328.60 E	1.36
4065.00	0.90	N 39.70 E	62.00	4045.59	337.96	74.74 N	329.68 E	2.10
4096.00	1.00	N 58.30 E	31.00	4076.58	338.41	75.07 N	330.07 E	1.04
4126.00	1.40	N 82.30 E	30.00	4106.58	339.02	75.25 N	330.65 E	2.11
4157.00	1.50	N 73.70 E	31.00	4137.57	339.81	75.42 N	331.42 E	0.77
4189.00	1.20	N 47.80 E	32.00	4169.56	340.52	75.76 N	332.07 E	2.10
4220.00	0.70	N 65.80 E	31.00	4200.55	340.99	76.06 N	332.48 E	1.86
4251.00	0.20	S 41.70 E	31.00	4231.55	341.20	76.09 N	332.69 E	2.15
4283.00	0.40	S 39.50 E	32.00	4263.55	341.28	75.96 N	332.80 E	0.63
4314.00	1.30	S 69.60 E	31.00	4294.55	341.61	75.76 N	333.19 E	3.14
4346.00	1.30	N 84.40 E	32.00	4326.54	342.27	75.67 N	333.90 E	1.83
4377.00	0.70	S 64.30 E	31.00	4357.54	342.77	75.62 N	334.42 E	2.55
4408.00	0.80	S 82.80 E	31.00	4388.53	343.11	75.51 N	334.80 E	0.84
4437.00	1.70	S 69.90 E	29.00	4417.53	343.66	75.34 N	335.41 E	3.23
4469.00	1.80	S 75.70 E	32.00	4449.51	344.49	75.05 N	336.34 E	0.64

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Measured Depth (ft)	Incl (deg.)	Drift Dir. (deg.)	Course Length (ft)	TVD (ft)	Vertical Section (ft)	T O T A L Rectangular Offsets (ft)		DLS (dg/100ft)
4499.00	1.00	S 59.00 E	30.00	4479.50	345.09	74.80 N	337.02 E	2.97
4531.00	1.40	S 75.90 E	32.00	4511.49	345.63	74.56 N	337.64 E	1.66
4561.00	1.40	S 78.70 E	30.00	4541.49	346.29	74.40 N	338.35 E	0.23
4592.00	0.60	N 83.60 E	31.00	4572.48	346.79	74.34 N	338.89 E	2.74
4624.00	0.60	N 68.70 E	32.00	4604.48	347.12	74.42 N	339.21 E	0.49
4655.00	0.90	S 68.70 E	31.00	4635.48	347.48	74.39 N	339.59 E	1.98
4685.00	1.10	N 57.40 E	30.00	4665.47	347.95	74.46 N	340.05 E	3.08
4716.00	1.30	S 86.70 E	31.00	4696.47	348.56	74.60 N	340.65 E	2.46
4747.00	1.80	N 71.00 E	31.00	4727.45	349.39	74.74 N	341.46 E	2.50
4778.00	1.50	N 37.80 E	31.00	4758.44	350.19	75.22 N	342.17 E	3.18
4810.00	1.40	N 56.40 E	32.00	4790.43	350.89	75.77 N	342.75 E	1.50
4842.00	1.90	N 37.50 E	32.00	4822.42	351.67	76.40 N	343.40 E	2.29
4873.00	2.50	N 44.00 E	31.00	4853.40	352.65	77.30 N	344.18 E	2.09
4903.00	2.50	N 42.30 E	30.00	4883.37	353.75	78.25 N	345.08 E	0.25
4934.00	2.40	N 27.40 E	31.00	4914.34	354.74	79.33 N	345.83 E	2.07
4966.00	2.20	N 18.70 E	32.00	4946.31	355.52	80.51 N	346.34 E	1.26
4997.00	1.90	N 18.70 E	31.00	4977.29	356.12	81.56 N	346.69 E	0.97
5029.00	1.10	N 21.00 E	32.00	5009.28	356.58	82.35 N	346.97 E	2.51
5059.00	0.60	N 19.70 W	30.00	5039.28	356.73	82.76 N	347.02 E	2.51
5090.00	0.50	N 53.50 W	31.00	5070.28	356.63	83.00 N	346.86 E	1.08
5121.00	0.40	N 63.50 W	31.00	5101.28	356.46	83.12 N	346.66 E	0.41
5152.00	0.50	N 73.10 W	31.00	5132.28	356.26	83.21 N	346.43 E	0.40
5181.00	0.50	N 55.90 W	29.00	5161.28	356.07	83.32 N	346.20 E	0.52
5213.00	0.40	N 14.60 E	32.00	5193.27	356.03	83.51 N	346.12 E	1.64
5244.00	0.90	N 41.90 E	31.00	5224.27	356.29	83.79 N	346.31 E	1.85
5273.00	1.10	N 44.10 E	29.00	5253.27	356.71	84.16 N	346.65 E	0.70
5304.00	1.20	N 48.50 E	31.00	5284.26	357.25	84.59 N	347.10 E	0.43
5336.00	1.50	N 57.20 E	32.00	5316.25	357.95	85.04 N	347.71 E	1.13
5366.00	2.20	N 55.30 E	30.00	5346.24	358.86	85.58 N	348.51 E	2.34
5397.00	1.50	N 39.60 E	31.00	5377.22	359.74	86.23 N	349.26 E	2.77
5428.00	1.00	N 53.10 E	31.00	5408.21	360.32	86.71 N	349.73 E	1.86
5459.00	0.90	N 52.40 E	31.00	5439.21	360.79	87.02 N	350.14 E	0.32
5490.00	0.50	N 8.40 W	31.00	5470.21	361.03	87.30 N	350.31 E	2.54
5520.00	0.10	N 63.90 W	30.00	5500.21	361.02	87.44 N	350.27 E	1.50
5552.00	0.30	N 61.10 E	32.00	5532.21	361.08	87.49 N	350.32 E	1.15

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Measured Depth (ft)	Incl (deg.)	Drift Dir. (deg.)	Course Length (ft)	TVD (ft)	Vertical Section (ft)	T O T A L Rectangular Offsets (ft)		DLS (dg/100ft)
5584.00	0.80	N 84.70 E	32.00	5564.21	361.38	87.55 N	350.62 E	1.68
5615.00	1.60	N 79.40 E	31.00	5595.20	362.03	87.65 N	351.26 E	2.60
5647.00	1.20	N 54.20 E	32.00	5627.19	362.78	87.93 N	351.97 E	2.27
5679.00	1.00	N 70.60 E	32.00	5659.18	363.37	88.22 N	352.50 E	1.16
5709.00	1.40	N 87.60 E	30.00	5689.18	363.99	88.32 N	353.12 E	1.77
5741.00	1.90	S 74.70 E	32.00	5721.16	364.84	88.20 N	354.02 E	2.21
5772.00	2.10	N 89.70 E	31.00	5752.15	365.84	88.07 N	355.08 E	1.86
5803.00	2.50	S 81.80 E	31.00	5783.12	367.01	87.97 N	356.32 E	1.69
5835.00	2.40	N 80.20 E	32.00	5815.09	368.33	87.99 N	357.67 E	2.41
5866.00	3.30	N 66.70 E	31.00	5846.05	369.86	88.45 N	359.13 E	3.60
5897.00	4.70	N 68.70 E	31.00	5876.98	372.00	89.27 N	361.13 E	4.54
5929.00	5.20	N 72.20 E	32.00	5908.86	374.75	90.19 N	363.73 E	1.82
5961.00	5.10	N 72.30 E	32.00	5940.73	377.61	91.06 N	366.47 E	0.31
5992.00	4.40	N 76.20 E	31.00	5971.62	380.18	91.76 N	368.94 E	2.49
6021.00	3.30	N 77.70 E	29.00	6000.56	382.12	92.21 N	370.83 E	3.81
6052.00	2.90	N 81.00 E	31.00	6031.51	383.80	92.52 N	372.48 E	1.41
6083.00	2.60	N 82.90 E	31.00	6062.48	385.28	92.73 N	373.95 E	1.01
6113.00	2.60	N 87.70 E	30.00	6092.44	386.62	92.84 N	375.31 E	0.73
6145.00	2.90	N 81.00 E	32.00	6124.41	388.13	93.00 N	376.83 E	1.37
6160.00	3.00	N 82.70 E	15.00	6139.39	388.90	93.11 N	377.60 E	0.89
6208.00	3.40	N 81.10 E	48.00	6187.31	391.57	93.49 N	380.25 E	0.85
6239.00	4.40	N 77.10 E	31.00	6218.24	393.67	93.89 N	382.31 E	3.34
6270.00	4.40	N 76.50 E	31.00	6249.15	396.05	94.44 N	384.63 E	0.15
6301.00	3.30	N 72.80 E	31.00	6280.08	398.13	94.98 N	386.64 E	3.64
6333.00	2.20	N 65.50 E	32.00	6312.04	399.65	95.50 N	388.08 E	3.60
6364.00	1.90	N 65.10 E	31.00	6343.02	400.74	95.97 N	389.08 E	0.97
6395.00	1.60	N 45.90 E	31.00	6374.01	401.62	96.49 N	389.86 E	2.11
6426.00	1.30	N 32.40 E	31.00	6405.00	402.25	97.08 N	390.36 E	1.46
6458.00	0.70	N 26.40 E	32.00	6436.99	402.64	97.56 N	390.64 E	1.90
6489.00	0.40	N 40.40 E	31.00	6467.99	402.85	97.82 N	390.80 E	1.05
6510.00	0.40	N 40.60 E	21.00	6488.99	402.97	97.93 N	390.89 E	0.01
PROJECTED ANGLE AND AZIMUTH @ T.D. - 6550' MD								
6550.00	0.40	N 40.60 E	40.00	6528.99	403.20	98.14 N	391.07 E	0.00