

BLACKWOOD & NICHOLS CO.
A LIMITED PARTNERSHIP
P.O. BOX 1237
DURANGO, COLORADO 81302-1237
(303) 247-0728

October 19, 1993

New Mexico Oil Conservation Division
1000 Rio Brazos Road
Aztec, New Mexico 87410

Re: Northeast Blanco Unit No. 479R
D-20-30N-7W
Rio Arriba County, New Mexico

RECEIVED
OCT 20 1993
OIL CON. DIV.
DIST. 3

To Whom It May Concern:

This is to certify that the attached deviation tests were run while drilling the above well.

Sincerely,

BLACKWOOD & NICHOLS CO.

Al Rector

Al Rector
District Superintendent

AR:avd
Attachment

County of: La Plata
State of: Colorado

Signature: *Linda K. Lovato*

Linda Lovato
Notary Public
Commission Expires 7-25-95

10-19-93
Date

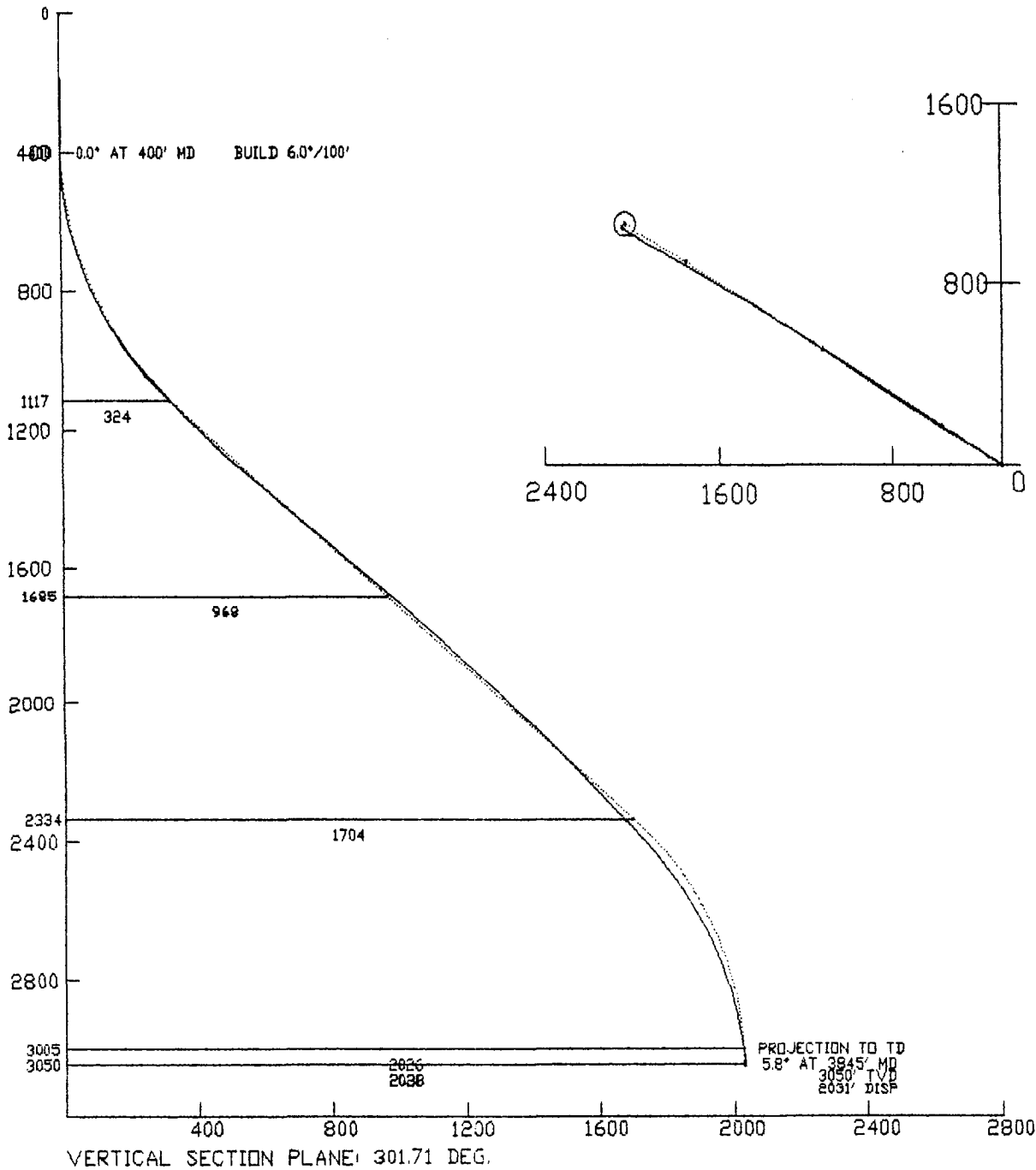
BLACKWOOD & NICHOLS CO., LTD.
N.E. BLANCO UNIT #479-R
SEC 20 T30N R07W
RIO ARRIBA COUNTY, NM

File: Thu Sep 11



VERTICAL SECTION
SCALE: 400 FEET/DIVISION
REFERENCE: WELL HEAD

HORIZONTAL PLAN
SCALE: 800 FEET/DIVISION
REFERENCE: PLATFORM CENTER



Halliburton Drilling Systems

BLACKWOOD & NICHOLS CO., LTD.
N.E. BLANCO UNIT #479-R
SEC 20 T30N R07W
ARRIBA COUNTY, NEW MEXICO

Calculated by Minimum Curvature Method
Vert Sect Plane: 301.71 Deg.

- DIRECTIONAL WELLPLAN -

MEASURED DEPTH (FT)	INCL ANGLE (DEG)	D R I F T DIRECTION (DEG)	COURSE LENGTH (FT)	TRUE VERTICAL DEPTH	T O T A L RECTANGULAR COORDINATES (FT)		VERTICAL SECTION (FT)	BUILD RATE (DG/100')	WALK RATE (DG/100')	DOGLEG SEVERITY (DG/100')
0.00	0.00	0.00	0.00	0.00	0.00 N	0.00 E	0.00	0.00	0.00	0.00
364.00	0.40	343.80	364.00	364.00	1.22 N	0.35 W	0.94	0.11	0.00	0.11
385.00	0.70	318.70	21.00	385.00	1.39 N	0.46 W	1.12	1.43	-119.52	1.80
415.00	1.80	311.00	30.00	414.99	1.83 N	0.94 W	1.76	3.67	-25.67	3.70
446.00	3.50	308.40	31.00	445.95	2.74 N	2.05 W	3.18	5.48	-8.39	5.50
476.00	5.40	304.10	30.00	475.86	4.10 N	3.93 W	5.50	6.33	-14.33	6.43
506.00	7.50	302.40	30.00	505.67	5.94 N	6.75 W	8.87	7.00	-5.67	7.03
536.00	9.20	303.20	30.00	535.35	8.30 N	10.41 W	13.22	5.67	2.67	5.68
567.00	10.60	300.50	31.00	565.89	11.11 N	14.95 W	18.55	4.52	-8.71	4.76
597.00	11.90	299.30	30.00	595.31	14.02 N	20.02 W	24.40	4.33	-4.00	4.40
627.00	13.70	298.40	30.00	624.57	17.23 N	25.84 W	31.04	6.00	-3.00	6.04
657.00	15.70	298.40	30.00	653.58	20.85 N	32.54 W	38.64	6.67	0.00	6.67
687.00	17.70	299.50	30.00	682.32	25.02 N	40.08 W	47.25	6.67	3.67	6.75
717.00	19.50	300.00	30.00	710.75	29.77 N	48.39 W	56.81	6.00	1.67	6.02
746.00	21.50	300.20	29.00	737.91	34.87 N	57.17 W	66.96	6.90	0.69	6.90
776.00	23.10	300.30	30.00	765.67	40.60 N	67.00 W	78.34	5.33	0.33	5.33
806.00	24.60	300.60	30.00	793.10	46.75 N	77.46 W	90.47	5.00	1.00	5.02
836.00	26.10	301.00	30.00	820.21	53.33 N	88.49 W	103.31	5.00	1.33	5.03
867.00	27.90	300.90	31.00	847.83	60.57 N	100.56 W	117.38	5.81	-0.32	5.81
897.00	29.60	300.60	30.00	874.13	67.94 N	112.96 W	131.81	5.67	-1.00	5.69
927.00	31.40	301.00	30.00	899.98	75.74 N	126.04 W	147.04	6.00	1.33	6.04
957.00	33.20	301.30	30.00	925.34	84.03 N	139.76 W	163.06	6.00	1.00	6.02
988.00	35.00	300.80	31.00	951.01	92.99 N	154.65 W	180.44	5.81	-1.61	5.88
1018.00	36.80	300.60	30.00	975.31	101.97 N	169.77 W	198.03	6.00	-0.67	6.01
1048.00	38.60	300.40	30.00	999.04	111.28 N	185.58 W	216.37	6.00	-0.67	6.01
1079.00	40.50	300.60	31.00	1022.95	121.30 N	202.59 W	236.10	6.13	0.65	6.14
1109.00	42.20	301.10	30.00	1045.47	131.47 N	219.60 W	255.92	5.67	1.67	5.77
1139.00	43.70	301.00	30.00	1067.42	142.01 N	237.11 W	276.36	5.00	-0.33	5.01
1200.00	44.80	301.30	61.00	1111.12	154.03 N	273.54 W	318.92	1.80	0.49	1.84
1262.00	45.50	301.50	62.00	1154.84	186.93 N	311.06 W	362.88	1.13	0.32	1.15
1324.00	46.60	301.20	62.00	1197.87	210.15 N	349.18 W	407.51	1.77	-0.48	1.81
1382.00	47.60	301.60	58.00	1237.35	232.29 N	385.44 W	450.00	1.72	0.69	1.80

Survey Ref: Well Head Vert Sect Ref: Well Head
Thu Sep 16 1993 06:08:14

File: BLCK479S.DAT

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Halliburton Drilling Systems

BLACKWOOD & NICHOLS CO., LTD.
N.E. BLANCO UNIT #479-R
SEC 20 T30N R07W
ARRIBA COUNTY, NEW MEXICO

Calculated by Minimum Curvature Method
Vert Sect Plane: 301.71 Deg.

- DIRECTIONAL WELLPLAN -

MEASURED DEPTH (FT)	INCL ANGLE (DEG)	D R I F T DIRECTION (DEG)	COURSE LENGTH (FT)	TRUE VERTICAL DEPTH	T O T A L RECTANGULAR COORDINATES (FT)		VERTICAL SECTION (FT)	BUILD RATE (DG/100')	WALK RATE (DG/100')	DOGLEG SEVERITY (DG/100')
1445.00	49.00	301.80	63.00	1279.26	257.01 N	425.46 W	497.04	2.22	0.32	2.23
1537.00	50.30	301.70	92.00	1338.83	293.90 N	485.08 W	567.15	1.41	-0.11	1.42
1637.00	50.30	301.90	100.00	1402.70	334.44 N	550.47 W	644.09	0.00	0.20	0.15
1728.00	50.10	301.90	91.00	1460.95	371.39 N	609.83 W	714.00	-0.22	0.00	0.22
1819.00	49.90	303.00	91.00	1519.45	408.79 N	668.65 W	783.70	-0.22	1.21	0.95
1913.00	50.10	302.80	94.00	1579.87	447.90 N	729.11 W	855.70	0.21	-0.21	0.27
2007.00	49.90	303.20	94.00	1640.29	487.12 N	789.50 W	927.68	-0.21	0.43	0.39
2070.00	49.90	303.40	63.00	1680.87	513.58 N	829.78 W	975.86	0.00	0.32	0.24
2130.00	49.80	303.70	60.00	1719.56	538.92 N	868.00 W	1021.69	-0.17	0.50	0.42
2195.00	48.90	302.00	65.00	1761.90	565.68 N	909.42 W	1071.00	-1.38	-2.62	2.42
2288.00	48.20	300.40	93.00	1823.47	601.79 N	969.04 W	1140.70	-0.75	-1.72	1.49
2381.00	48.10	300.80	93.00	1885.52	637.05 N	1028.67 W	1209.96	-0.11	0.43	0.34
2413.00	47.70	301.00	32.00	1906.97	649.25 N	1049.04 W	1233.70	-1.25	0.62	1.33
2506.00	47.70	300.90	93.00	1969.56	684.62 N	1108.03 W	1302.48	0.00	-0.11	0.08
2568.00	47.60	300.40	62.00	2011.33	707.98 N	1147.45 W	1348.29	-0.16	-0.81	0.62
2661.00	47.00	298.50	93.00	2074.40	741.59 N	1206.96 W	1416.58	-0.65	-2.04	1.63
2756.00	45.50	299.50	95.00	2140.09	774.85 N	1266.98 W	1485.12	-1.58	1.05	1.75
2817.00	45.60	299.20	61.00	2182.81	796.19 N	1304.94 W	1528.63	0.16	-0.49	0.39
2972.00	44.10	299.40	155.00	2292.69	849.68 N	1400.27 W	1637.84	-0.97	0.13	0.97
3065.00	42.50	298.80	93.00	2360.38	880.71 N	1455.99 W	1701.56	-1.72	-0.65	1.78
3102.00	42.10	300.20	37.00	2387.74	892.97 N	1477.66 W	1726.44	-1.08	3.78	2.77
3119.00	41.80	300.30	17.00	2400.39	898.69 N	1487.48 W	1737.80	-1.76	0.59	1.81
3151.00	41.50	300.80	32.00	2424.30	909.50 N	1505.79 W	1759.06	-0.94	1.56	1.40
3182.00	40.30	300.70	31.00	2447.73	919.88 N	1523.24 W	1779.35	-3.87	-0.32	3.88
3214.00	38.60	300.30	32.00	2472.44	930.20 N	1540.76 W	1799.68	-5.31	-1.25	5.37
3246.00	36.70	300.00	32.00	2497.77	940.02 N	1557.66 W	1819.22	-5.94	-0.94	5.97
3278.00	35.10	300.00	32.00	2523.69	949.40 N	1573.91 W	1837.98	-5.00	0.00	5.00
3308.00	33.50	300.40	30.00	2548.47	957.90 N	1588.52 W	1854.87	-5.33	1.33	5.39
3339.00	32.00	300.60	31.00	2574.55	966.41 N	1602.97 W	1871.64	-4.84	0.65	4.85
3371.00	30.40	300.40	32.00	2601.92	974.83 N	1617.25 W	1888.21	-5.00	-0.63	5.01
3401.00	28.90	300.30	30.00	2627.99	982.32 N	1630.06 W	1903.05	-5.00	-0.33	5.00
3433.00	27.30	300.40	32.00	2656.21	989.94 N	1643.06 W	1918.12	-5.00	0.31	5.00
3465.00	25.50	301.10	32.00	2684.88	997.21 N	1655.29 W	1932.34	-5.63	2.19	5.71

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- DIRECTIONAL WELLPLAN -

MEASURED DEPTH (FT)	INCL ANGLE (DEG)	D R I F T DIRECTION (DEG)	COURSE LENGTH (FT)	TRUE VERTICAL DEPTH	T O T A L RECTANGULAR COORDINATES (FT)	VERTICAL SECTION (FT)	BUILD RATE (DG/100')	WALK RATE (DG/100')	DOGLEG SEVERITY (DG/100')
3497.00	23.90	301.50	32.00	2713.95	1004.16 N 1666.72 W	1945.71	-5.00	1.25	5.03
3527.00	22.30	302.30	30.00	2741.54	1010.37 N 1676.71 W	1957.48	-5.33	2.67	5.43
3559.00	20.40	302.60	32.00	2771.34	1016.62 N 1686.54 W	1969.13	-5.94	0.94	5.95
3590.00	18.60	302.20	31.00	2800.57	1022.17 N 1695.28 W	1979.48	-5.81	-1.29	5.82
3622.00	16.90	302.50	32.00	2831.04	1027.39 N 1703.52 W	1989.23	-5.31	0.94	5.32
3654.00	15.10	302.60	32.00	2861.80	1032.13 N 1710.95 W	1998.05	-5.62	0.31	5.63
3685.00	13.30	302.70	31.00	2891.85	1036.24 N 1717.36 W	2005.66	-5.81	0.32	5.81
3717.00	11.30	302.20	32.00	2923.12	1039.90 N 1723.11 W	2012.47	-6.25	-1.56	6.26
3749.00	9.70	301.50	32.00	2954.58	1042.97 N 1728.06 W	2018.30	-5.00	-2.19	5.02
3780.00	8.40	302.90	31.00	2985.19	1045.57 N 1732.19 W	2023.18	-4.19	4.52	4.25
3800.00	7.60	303.40	20.00	3005.00	1047.09 N 1734.52 W	2025.96	-4.00	2.50	4.02
PROJECTION TO TD									
3845.31	5.79	305.04	45.31	3050.00	1050.05 N 1738.89 W	2031.24	-3.99	3.62	4.02