

Scientific Drilling
Casper Wyoming

Finder Survey
for

CDX
Durango Colorado

30-045-31180

Job Number : 41F0103009
Well Number : BW Federal 29-29 8 No101
Site Location : San Jaun Co. Col
Latitude : 36.701
Survey Date(s) : 08-JAN-03
S.D.C. personnel : Steve Homer
Calculation Method : Minimum Curvature
Survey Depth Zero : RKB (+12 feet)
Proposal Direction :
Depth Unit : Feet

Comments :
Survey in 2 7/8 tubing

Outrun Survey
CDX

Well number : BW Federal 29-29 8

Date : 08-JAN-03

Measured Depth	Vertical Depth	Vert. Section	Inc Deg	Azimuth Deg	Coordinates		D-leg
-----	-----	-----	-----	-----	Latitude	Departure	/100ft
0.0	0.00	0.0	0.00	0.00	0.00	0.00	0.00
20.0	20.00	-0.0	0.14	233.87	-0.01	-0.02	0.70
50.0	50.00	-0.1	0.21	246.66	-0.06	-0.10	0.26
80.0	80.00	-0.1	0.26	256.83	-0.10	-0.22	0.22
110.0	110.00	-0.1	0.42	264.28	-0.12	-0.39	0.55
140.0	140.00	-0.2	0.52	259.90	-0.16	-0.64	0.36
170.0	170.00	-0.2	0.33	251.97	-0.21	-0.85	0.66
200.0	200.00	-0.3	0.24	229.40	-0.28	-0.98	0.48
230.0	230.00	-0.4	0.25	202.07	-0.38	-1.05	0.38
260.0	260.00	-0.5	0.33	160.87	-0.52	-1.05	0.73
290.0	290.00	-0.6	0.29	125.19	-0.64	-0.96	0.65
330.0	330.00	-0.7	0.22	75.26	-0.68	-0.80	0.56
360.0	360.00	-0.7	0.06	82.72	-0.67	-0.73	0.54
390.0	390.00	-0.7	0.20	215.24	-0.71	-0.75	0.82
410.0	410.00	-0.8	0.40	193.28	-0.80	-0.78	1.14
440.0	439.99	-1.0	0.55	175.84	-1.05	-0.80	0.69
470.0	469.99	-1.3	0.51	155.07	-1.31	-0.73	0.65
500.0	499.99	-1.5	0.32	137.97	-1.50	-0.62	0.75
530.0	529.99	-1.6	0.21	198.23	-1.61	-0.58	0.94
560.0	559.99	-1.8	0.45	207.73	-1.77	-0.65	0.82
590.0	589.99	-2.0	0.61	182.57	-2.03	-0.71	0.93
620.0	619.99	-2.3	0.57	155.05	-2.33	-0.66	0.94
650.0	649.99	-2.5	0.34	147.81	-2.54	-0.55	0.79
680.0	679.99	-2.7	0.21	175.43	-2.67	-0.49	0.61
710.0	709.99	-2.8	0.29	213.46	-2.79	-0.53	0.60
740.0	739.99	-3.0	0.53	216.26	-2.96	-0.66	0.80
770.0	769.98	-3.2	0.57	207.64	-3.21	-0.81	0.31
800.0	799.98	-3.5	0.63	194.88	-3.50	-0.92	0.49
830.0	829.98	-3.8	0.61	187.53	-3.81	-0.98	0.27
860.0	859.98	-4.1	0.64	181.95	-4.14	-1.01	0.23
890.0	889.98	-4.5	0.86	180.37	-4.53	-1.01	0.74
920.0	919.97	-5.0	1.02	184.77	-5.02	-1.04	0.59
950.0	949.97	-5.6	1.12	185.45	-5.58	-1.09	0.34
980.0	979.96	-6.2	1.23	188.39	-6.19	-1.16	0.42
1010.0	1009.95	-6.8	1.26	191.58	-6.83	-1.28	0.26
1040.0	1039.95	-7.5	1.34	193.12	-7.50	-1.42	0.29
1070.0	1069.94	-8.2	1.39	193.86	-8.19	-1.59	0.17
1100.0	1099.93	-8.9	1.41	194.83	-8.90	-1.77	0.09
1130.0	1129.92	-9.6	1.48	193.37	-9.64	-1.96	0.26

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Measured Depth	Vertical Depth	Vert. Section	Inc Deg	Azimuth Deg	Coordinates		D-leg
-----	-----	-----	-----	-----	Latitude	Departure	/100ft
-----	-----	-----	-----	-----	-----	-----	-----
1160.0	1159.91	-10.5	1.75	187.94	-10.47	-2.11	1.03
1190.0	1189.89	-11.4	1.82	188.04	-11.39	-2.24	0.24
1220.0	1219.88	-12.3	1.85	190.30	-12.34	-2.39	0.26
1250.0	1249.86	-13.3	1.89	189.13	-13.31	-2.56	0.19
1280.0	1279.84	-14.3	1.94	190.19	-14.29	-2.73	0.21
1310.0	1309.83	-15.3	1.93	189.35	-15.29	-2.90	0.09
1340.0	1339.81	-16.3	1.95	189.93	-16.29	-3.07	0.09
1370.0	1369.79	-17.3	1.99	192.02	-17.31	-3.26	0.27
1415.0	1414.76	-18.9	2.02	189.91	-18.85	-3.56	0.18
1430.0	1429.76	-19.4	2.05	187.02	-19.38	-3.64	0.71
1460.0	1459.74	-20.4	2.02	185.84	-20.44	-3.76	0.17
1490.0	1489.72	-21.5	1.94	183.96	-21.47	-3.85	0.34
1520.0	1519.70	-22.5	1.88	184.35	-22.47	-3.92	0.21
1550.0	1549.69	-23.4	1.77	180.87	-23.42	-3.97	0.52
1580.0	1579.67	-24.3	1.69	184.12	-24.32	-4.00	0.42
1610.0	1609.66	-25.2	1.62	186.26	-25.19	-4.08	0.31
1640.0	1639.65	-26.0	1.53	189.40	-26.00	-4.19	0.42
1670.0	1669.64	-26.8	1.47	198.27	-26.77	-4.38	0.80
1700.0	1699.63	-27.5	1.58	202.19	-27.51	-4.66	0.51
1730.0	1729.62	-28.3	1.66	206.23	-28.29	-5.01	0.47
1760.0	1759.60	-29.1	1.77	206.17	-29.09	-5.40	0.37
1790.0	1789.59	-29.9	1.85	207.93	-29.93	-5.83	0.32
1820.0	1819.57	-30.8	1.81	208.74	-30.78	-6.29	0.16
1850.0	1849.56	-31.6	1.81	206.58	-31.62	-6.73	0.23
1880.0	1879.54	-32.4	1.67	203.56	-32.44	-7.11	0.56
1910.0	1909.53	-33.2	1.62	201.59	-33.24	-7.45	0.26
1940.0	1939.52	-34.0	1.58	199.78	-34.02	-7.74	0.22
1970.0	1969.51	-34.8	1.46	199.28	-34.77	-8.01	0.40
2000.0	1999.50	-35.5	1.38	203.82	-35.46	-8.28	0.46
2030.0	2029.49	-36.1	1.28	209.10	-36.09	-8.59	0.53
2060.0	2059.48	-36.6	1.24	214.75	-36.64	-8.94	0.43
2090.0	2089.48	-37.1	1.18	220.89	-37.15	-9.32	0.48
2120.0	2119.47	-37.6	1.21	226.85	-37.59	-9.76	0.43
2150.0	2149.46	-38.0	1.22	225.29	-38.04	-10.21	0.11
2180.0	2179.46	-38.5	1.09	228.09	-38.45	-10.65	0.47
2210.0	2209.45	-38.8	1.14	226.80	-38.85	-11.08	0.19
2240.0	2239.45	-39.3	1.22	226.03	-39.27	-11.53	0.27
2270.0	2269.44	-39.7	1.16	229.84	-39.69	-11.99	0.33
2300.0	2299.43	-40.1	1.14	231.87	-40.07	-12.46	0.15

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Measured Depth	Vertical Depth	Vert. Section	Inc Deg	Azimuth Deg	Coordinates		D-leg /100ft
					Latitude	Departure	
2330.0	2329.43	-40.4	1.10	228.48	-40.45	-12.91	0.26
2360.0	2359.42	-40.9	1.24	222.87	-40.87	-13.35	0.60
2390.0	2389.41	-41.4	1.36	225.83	-41.36	-13.82	0.46
2420.0	2419.41	-41.9	1.37	220.91	-41.88	-14.31	0.39
2450.0	2449.40	-42.5	1.49	218.51	-42.45	-14.79	0.45
2480.0	2479.39	-43.1	1.40	213.40	-43.07	-15.24	0.52
2510.0	2509.38	-43.7	1.55	208.01	-43.73	-15.63	0.68
2540.0	2539.37	-44.4	1.44	206.97	-44.42	-15.99	0.38
2570.0	2569.36	-45.1	1.37	205.64	-45.08	-16.32	0.26
2600.0	2599.35	-45.7	1.32	209.05	-45.71	-16.64	0.32
2630.0	2629.34	-46.3	1.14	203.50	-46.28	-16.93	0.72
2660.0	2659.34	-46.8	1.06	190.95	-46.83	-17.10	0.84
2690.0	2689.33	-47.3	1.01	205.98	-47.34	-17.27	0.92
2720.0	2719.33	-47.8	0.95	197.10	-47.82	-17.45	0.54
2750.0	2749.32	-48.3	0.93	197.88	-48.29	-17.60	0.07
2780.0	2779.32	-48.8	0.96	199.63	-48.75	-17.76	0.13
2810.0	2809.31	-49.3	1.17	205.57	-49.27	-17.98	0.79
2870.0	2869.30	-50.4	1.15	204.74	-50.37	-18.50	0.05
2900.0	2899.30	-50.8	0.72	211.01	-50.80	-18.72	1.47
2930.0	2929.30	-51.1	0.64	218.93	-51.09	-18.92	0.41
2960.0	2959.29	-51.3	0.55	224.46	-51.33	-19.13	0.36
2990.0	2989.29	-51.5	0.37	219.01	-51.51	-19.29	0.62

At Bottom Hole Location: Measured Depth
= 2990.0

Horiz. Displ.
= 54.998

Closure Dir.
= 200.530