

6090 Greenwood Plaza Blvd
Englewood, CO 80111
(303) 486-3250

Srt 750/N 1490/E
BHL 663/N 2021/E

NSL



SUB-SURFACE SURVEY CERTIFICATION REPORT

BP
Company

5/13/2002
Date

Lease

Florance 46B
Well Name

San Juan County, NM
County/State

Survey Depths

0 to **2577** ft

Type of Survey

Measurements While Drilling (MWD)

Survey Depths

2577 to **5708** ft

Type of Survey

Projection to TD

Survey Depths

to ft

Type of Survey

Site Supervisor

Greg Johnson

The data submitted in this report conforms to the standards and procedures as set forth by Schlumberger. This report represents a true and correct directional wellbore survey based on original survey data obtained at the well site.


A. Allen Starkey
Account Manager

This document has been subscribed and affirmed, or sworn before me in the county of
Arapahoe in the state of Colorado, this 20th day of May, 2001-2002
Christine J. Wilson My commission expires: 12/12/05

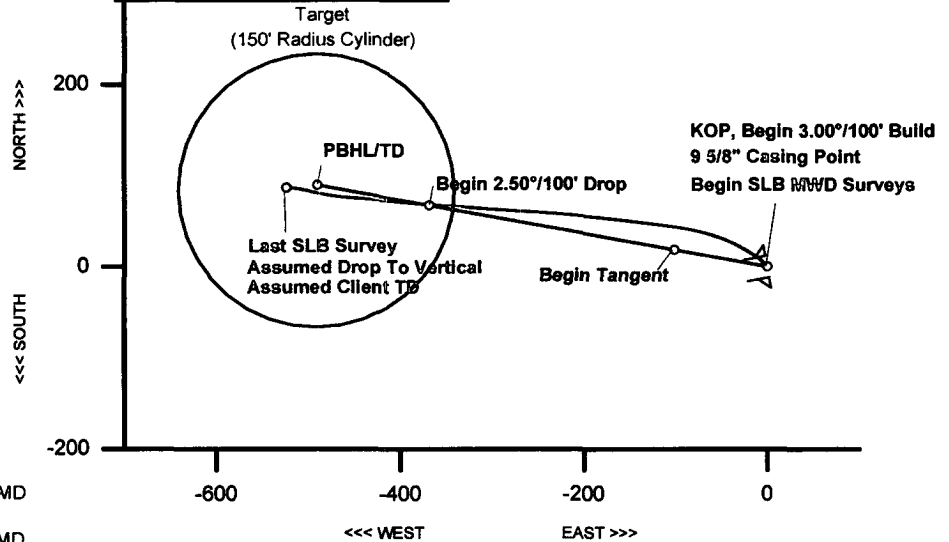
WELL Florance 46B	FIELD San Juan County, New Mexico	RIG Aztec 184
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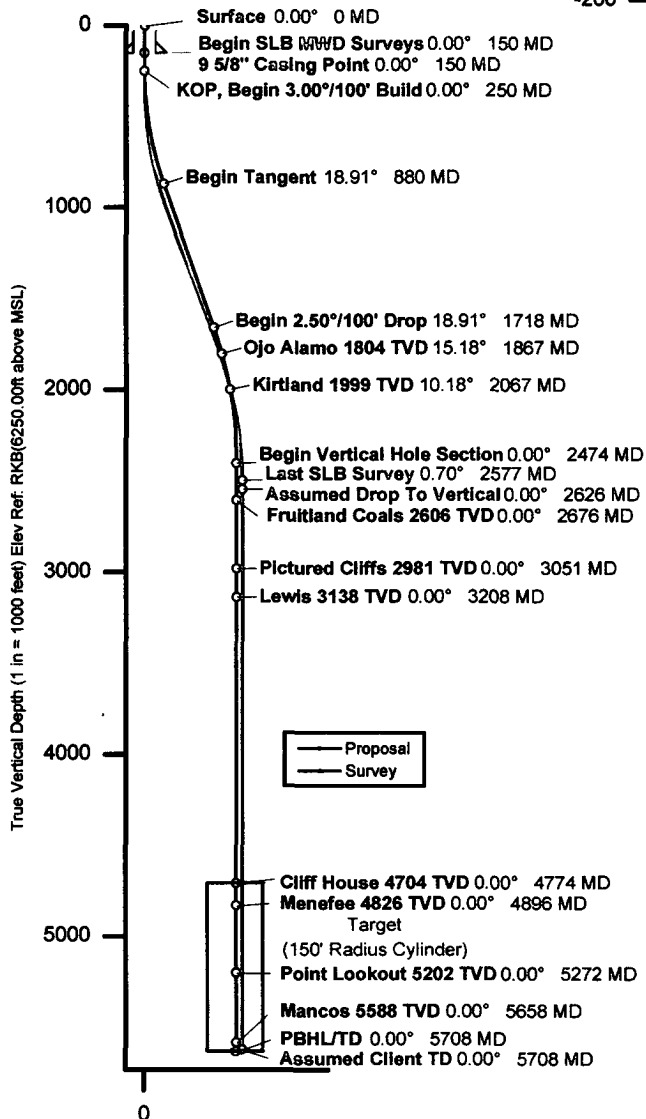
True North

No Certified Plat

PLAN VIEW Scale (1 in = 200 feet)



Vertical Section View



Vertical Section Departure at 280.41 deg from (0.0, 0.0). (1 in = 1000 feet)

Quality Control
Date Drawn: 13-May-2002
Drawn by: John O'Keefe
Checked by: Allen Starkey
Client OK: _____

Survey Report - Standard

Report Date: 13-May-2002 Client: BP, San Juan Performance Unit Field: NM, San Juan County Structure / Slot: BP 29 30N 8W (Florance 46B) No Certified Plat / Florance 46B Well: Florance 46B Borehole: Original Hole UWI / API#: Survey Name / Date: Florance 46B Final Surveys / May 5, 2002 Tort / AHD / DDI / ERD ratio: 51.560° / 1622.52 ft / 4.929 / 0.288 Grid Coordinate System: NAD83 New Mexico State Planes, Western Zone, US Feet Location Lat / Long: Location Grid N/E Y/X: Grid Convergence Angle: Grid Scale Factor:	Survey / DLS Computation Method: Minimum Curvature / Lubinski Vertical Section Azimuth: 280.410° Vertical Section Origin: N 0.000 ft, E 0.000 ft TVD Reference Datum: RKB TVD Reference Elevation: 6250.000 ft relative to MSL Sea Bed / Ground Level Elevation: 6236.000 ft relative to MSL Magnetic Declination: Total Field Strength: Magnetic Dip: Declination Date: Magnetic Declination Model: North Reference: True North Total Corr Mag North -> True North: Local Coordinates Referenced To: Well Head
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Station ID	MD (ft)	Incl (°)	Azim (°)	TVD (ft)	VSec (ft)	N-S (ft)	E-W (ft)	Closure (ft)	at Azim (°)	DLS (°/100ft)	TF (°)
Tie-In	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-79.6 M
Begin SLB MWD Surveys	150.00	0.00	280.41	150.00	0.00	0.00	0.00	0.00	0.00	0.00	79.0 M
	204.00	0.47	79.02	204.00	-0.21	0.04	0.22	0.22	79.02	0.87	67.0 M
	234.00	0.36	66.97	234.00	-0.40	0.10	0.42	0.44	76.44	0.47	-9.0 M
	265.00	0.22	350.97	265.00	-0.46	0.20	0.51	0.54	68.47	1.21	-34.1 M
	296.00	0.62	325.89	296.00	-0.32	0.40	0.40	0.56	45.35	1.39	-51.3 M
	327.00	1.06	308.67	326.99	0.05	0.72	0.08	0.72	6.69	1.62	-45.2 M
	358.00	1.51	314.77	357.99	0.64	1.18	-0.43	1.26	340.01	1.52	-49.3 M
	392.00	2.28	310.74	391.97	1.59	1.94	-1.26	2.31	326.97	2.30	-49.4 M
	423.00	3.06	310.61	422.93	2.84	2.88	-2.36	3.72	320.72	2.52	-47.0 M
	455.00	3.97	312.95	454.87	4.51	4.19	-3.82	5.67	317.69	2.88	-50.2 M

486.00	4.80	309.84	485.78	6.54	5.75	-5.60	8.03	315.79	2.78	-49.2 M
518.00	5.74	310.75	517.65	9.09	7.65	-7.84	10.96	314.33	2.95	-16.9 G
550.00	6.66	308.36	549.46	12.11	9.85	-10.50	14.40	313.16	2.99	-35.4 G
581.00	7.32	304.76	580.23	15.50	12.09	-13.54	18.15	311.78	2.55	-22.8 G
613.00	8.30	301.94	611.93	19.50	14.48	-17.17	22.46	310.13	3.29	-4.9 G
645.00	9.42	301.35	643.55	24.10	17.06	-21.37	27.34	308.61	3.51	-33.3 G
676.00	10.24	298.37	674.09	29.09	19.69	-25.96	32.58	307.18	3.11	-5.8 G
708.00	11.35	297.80	705.53	34.80	22.51	-31.25	38.51	305.77	3.48	-22.9 G
740.00	12.26	296.00	736.85	41.08	25.47	-37.09	44.99	304.48	3.07	-44.1 G
772.00	12.84	293.52	768.09	47.81	28.38	-43.40	51.85	303.18	2.47	-47.3 G
805.00	13.51	290.50	800.22	55.18	31.19	-50.37	59.25	301.77	2.91	-21.6 G
836.00	14.61	288.78	830.29	62.61	33.72	-57.47	66.63	300.40	3.80	-54.4 G
868.00	15.19	285.79	861.21	70.78	36.16	-65.32	74.66	298.97	3.01	-22.9 G
900.00	16.17	284.31	892.02	79.40	38.40	-73.67	83.08	297.53	3.31	-36.0 G
931.00	16.95	282.39	921.74	88.22	40.44	-82.27	91.67	296.17	3.07	-38.3 G
963.00	17.76	280.32	952.28	97.77	42.31	-91.63	100.93	294.79	3.18	-33.1 G
994.00	18.74	278.35	981.72	107.47	43.88	-101.21	110.31	293.44	3.74	-13.3 G
1026.00	19.56	277.77	1011.95	117.96	45.35	-111.60	120.46	292.12	2.63	-52.2 G
1090.00	19.71	277.20	1072.23	139.44	48.15	-132.92	141.38	289.91	0.38	-23.0 G
1153.00	20.10	276.72	1131.46	160.85	50.75	-154.21	162.35	288.22	0.67	-15.6 G
1278.00	21.54	275.63	1248.30	205.15	55.52	-198.38	206.01	285.63	1.19	-180.0 G
1340.00	20.60	275.62	1306.15	227.36	57.70	-220.57	227.99	284.66	1.52	-58.1 G
1436.00	20.99	273.91	1395.90	261.27	60.53	-254.53	261.63	283.38	0.75	-175.9 G
1497.00	19.58	273.61	1453.11	282.28	61.92	-275.63	282.50	282.66	2.32	33.0 G
1592.00	19.96	274.33	1542.52	314.21	64.14	-307.68	314.30	281.78	0.48	-3.9 G
1656.00	20.95	274.14	1602.48	336.45	65.79	-329.99	336.48	281.28	1.55	-176.3 G
1719.00	19.71	273.90	1661.55	358.20	67.33	-351.82	358.21	280.83	1.97	169.9 G
1783.00	19.07	274.25	1721.92	379.32	68.84	-373.02	379.32	280.46	1.02	115.1 G
1815.00	18.99	274.78	1752.17	389.69	69.66	-383.42	389.69	280.30	0.60	159.6 G
1846.00	18.29	275.61	1781.55	399.56	70.56	-393.29	399.56	280.17	2.41	136.6 G
1878.00	18.02	276.44	1811.95	409.50	71.60	-403.20	409.51	280.07	1.17	-147.0 G
1910.00	17.42	275.13	1842.44	419.21	72.58	-412.89	419.22	279.97	2.25	157.8 G

1942.00	16.88	275.89	1873.01	428.61	73.49	-422.28	428.63	279.87	1.83	-160.1 G
1974.00	16.58	275.51	1903.66	437.79	74.41	-431.45	437.82	279.78	1.00	-154.5 G
2006.00	16.00	274.50	1934.37	446.73	75.19	-440.39	446.76	279.69	2.02	-173.1 G
2037.00	14.78	273.92	1964.26	454.91	75.80	-448.59	454.95	279.59	3.97	159.7 G
2069.00	14.00	275.12	1995.26	462.82	76.42	-456.52	462.87	279.50	2.61	142.8 G
2101.00	13.48	276.83	2026.34	470.39	77.21	-464.08	470.46	279.45	2.06	152.6 G
2132.00	12.89	278.21	2056.53	477.45	78.13	-471.09	477.53	279.42	2.16	165.3 G
2164.00	11.74	279.70	2087.79	484.28	79.19	-477.83	484.35	279.41	3.73	169.4 G
2195.00	11.18	280.24	2118.17	490.44	80.26	-483.90	490.51	279.42	1.84	151.5 G
2226.00	10.66	281.78	2148.61	496.31	81.38	-489.66	496.38	279.44	1.92	158.5 G
2258.00	9.81	283.76	2180.10	501.99	82.63	-495.21	502.05	279.47	2.87	-166.7 G
2290.00	8.97	282.48	2211.67	507.20	83.82	-500.29	507.26	279.51	2.70	179.5 G
2321.00	8.00	282.54	2242.33	511.77	84.81	-504.76	511.83	279.54	3.13	-159.0 G
2353.00	7.19	280.03	2274.05	516.00	85.64	-508.90	516.06	279.55	2.73	-159.2 G
2384.00	6.49	277.66	2304.83	519.69	86.21	-512.55	519.75	279.55	2.43	-170.9 G
2416.00	5.44	275.89	2336.66	523.01	86.61	-515.85	523.07	279.53	3.33	168.5 G
2447.00	4.45	278.50	2367.54	525.68	86.94	-518.50	525.74	279.52	3.27	-82.2 M
2478.00	3.21	277.75	2398.47	527.75	87.23	-520.55	527.81	279.51	4.00	-88.6 M
2508.00	2.15	271.36	2428.44	529.14	87.36	-521.95	529.21	279.50	3.67	-102.4 M
2540.00	1.24	257.57	2460.42	530.05	87.30	-522.88	530.12	279.48	3.10	-115.0 M
2577.00	0.70	245.04	2497.42	530.61	87.12	-523.48	530.68	279.45	1.56	-115.0 M
2626.00	0.00	245.04	2546.42	530.85	86.99	-523.75	530.93	279.43	1.43	-115.0 M
5708.00	0.00	245.04	5628.42	530.85	86.99	-523.75	530.93	279.43	0.00	---

Last SLB Survey
Assumed Drop To Vertical

Assumed Client TD

Survey Error Model: Wolff & deWardt 1.0000 sigma

Surveying Programme:

<u>MD From (ft)</u>	<u>MD To (ft)</u>	<u>EOU Freq</u>	<u>Survey Tool Type</u>
0.00	2626.00	Act-Stns	Anadrill MWD
2626.00	5708.00	Act-Stns	Poor Mag