

Schlumberger

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



30 045 30756

F-3-29N-8W

Sr. 2215/N 2090/W
2196/N 1414/W

SUB-SURFACE SURVEY CERTIFICATION REPORT

<u>BP</u> Company	<u>4/16/2002</u> Date	
<u>Lease</u>	<u>Florance 28B</u> Well Name	<u>San Juan County, NM</u> County/State
Survey Depths	<u>0</u> to <u>2259</u> ft	
Type of Survey	<u>Measurements While Drilling (MWD)</u>	
Survey Depths	<u>2259</u> to <u>3064</u> ft	
Type of Survey	<u>Totco Surveys</u>	
Survey Depths	<u>3064</u> to <u>5915</u> ft	
Type of Survey	<u>Projection to TD</u>	
Site Supervisor	<u>Greg Johnson</u>	

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.

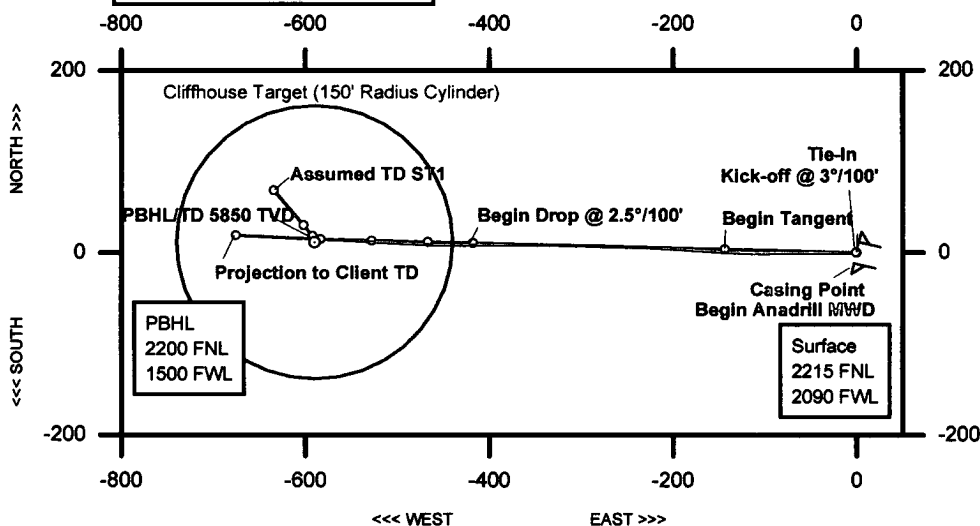
A. Allen Starkey
A. Allen Starkey
Account Manager

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, 2002.

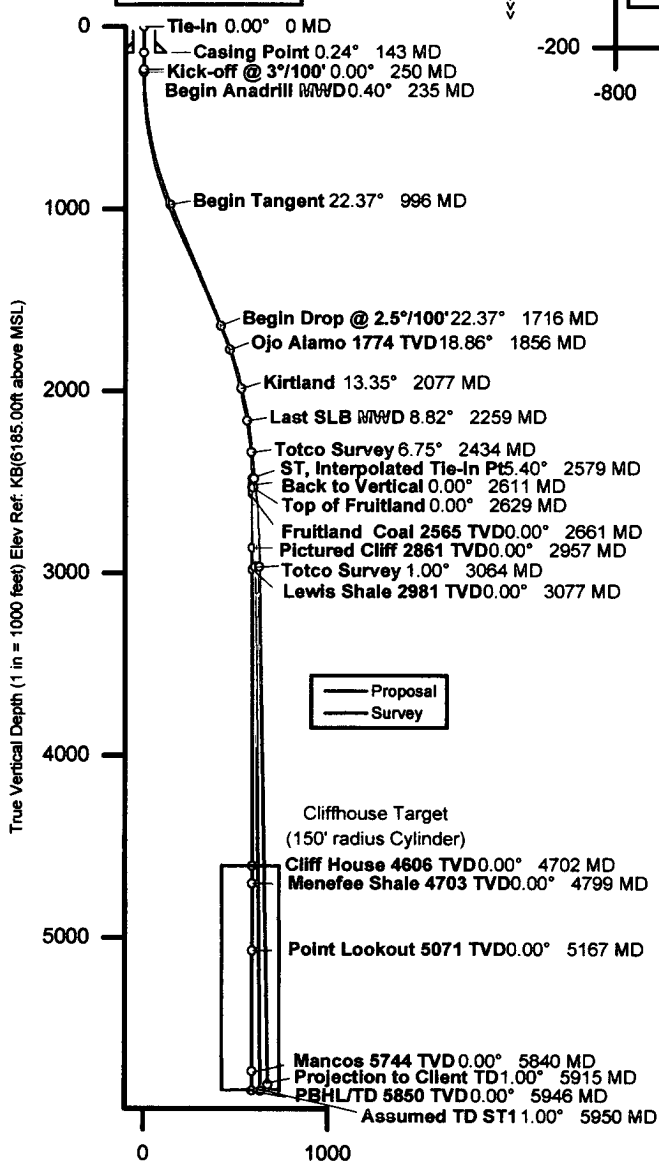
Christine J. Wilson My commission expires: 12/12/05

WELL	FIELD	RIG
Florance 28B	San Juan County, New Mexico	Aztec 184
Magnetic Parameters Model: BGGM 2001 Dip: 63.361° Mag Dec: 11.235° Date: April 15, 2002 FS: 51522.2 nT	Surface Location Lat: N36 31 0.000 Lon: W108 23 0.001 North: 2007835.00 ftUS East: 2561475.60 ftUS Grid Conv: -0.3273° Scale Fact: 0.9999	Plan# : Rev1 05-Feb-02 Slot: Florance 28B Elev Ref: KB(6185.00ft above MSL) Date Drawn: 01:40:21PM 15-Apr-2002

PLAN VIEW Scale (1 in = 200 feet)



Vertical Section View



True North
Tot Corr (E 11.23°)
Mag Dec (E 11.23°)

No Certified Plat

Quality Control
Date Drawn: 15-Apr-2002
Drawn by: John O'Keefe
Checked by: Allen Starkey
Client OK: _____

Survey Report - Standard

Report Date: 15-Apr-2002	Survey / DLS Computation Method: Minimum Curvature / Lubinski
Client: BP	Vertical Section Azimuth: 271.460°
Field: NM, San Juan County	Vertical Section Origin: N 0.000 ft, E 0.000 ft
Structure / Slot: BP 3- 29N-8W (Florance 28B) No Certified Plat / Florance 28B	TVD Reference Datum: KB
Well: Florance 28B	TVD Reference Elevation: 6185.000 ft relative to MSL
Borehole: Original Hole	Sea Bed / Ground Level Elevation: 6171.000 ft relative to MSL
UWI / API#:	Magnetic Declination:
Survey Name / Date: Florance 28B OH Surveys / April 9, 2002	Total Field Strength:
Tort / AHD / DDI / ERD ratio: 50.015° / 676.21 ft / 4.536 / 0.116	Magnetic Dip:
Grid Coordinate System: NAD83 New Mexico State Planes, Western Zone, US Feet	Declination Date:
Location Lat / Long:	Magnetic Declination Model:
Location Grid N/E Y/X:	North Reference: True North
Grid Convergence Angle:	Total Corr Mag North -> True North:
Grid Scale Factor:	Local Coordinates Referenced To: Well Head

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		-76.80 M
Begin Anadrill MWD	235.00	0.40	283.20	235.00	0.80	0.19	-0.80	0.82	283.20	0.17	-83.73 M
	266.00	0.61	276.27	266.00	1.07	0.23	-1.07	1.09	282.16	0.70	-94.34 M
	297.00	1.12	265.66	296.99	1.54	0.23	-1.53	1.55	278.35	1.72	-98.79 M
	328.00	1.79	261.21	327.98	2.32	0.13	-2.31	2.32	273.17	2.19	-97.73 M
	360.00	2.51	262.27	359.96	3.50	-0.04	-3.50	3.50	269.31	2.25	-98.11 M
	392.00	3.27	261.89	391.92	5.09	-0.27	-5.10	5.11	267.02	2.38	-94.81 M
	424.00	4.10	265.19	423.85	7.13	-0.49	-7.14	7.16	266.08	2.68	-93.32 M
	455.00	5.13	266.68	454.75	9.61	-0.66	-9.63	9.66	266.06	3.34	16.00 G
	487.00	6.19	269.48	486.60	12.76	-0.76	-12.79	12.81	266.59	3.42	3.39 G
	519.00	7.28	269.99	518.37	16.51	-0.78	-16.54	16.56	267.31	3.41	1.81 G

551.00	8.28	270.21	550.08	20.84	-0.77	-20.87	20.88	267.89	3.13	0.39 G
583.00	9.21	270.25	581.71	25.71	-0.75	-25.74	25.75	268.33	2.91	1.81 G
615.00	10.35	270.45	613.24	31.14	-0.72	-31.17	31.18	268.68	3.56	-8.57 G
646.00	11.23	269.77	643.69	36.94	-0.71	-36.97	36.98	268.91	2.87	14.59 G
678.00	12.05	270.79	675.03	43.40	-0.67	-43.43	43.44	269.11	2.64	-1.79 G
710.00	12.91	270.67	706.28	50.31	-0.59	-50.34	50.35	269.33	2.69	-13.03 G
741.00	13.71	269.89	736.45	57.45	-0.55	-57.48	57.48	269.45	2.64	-3.24 G
774.00	14.60	269.69	768.44	65.52	-0.58	-65.55	65.55	269.49	2.70	-9.43 G
805.00	15.40	269.19	798.39	73.53	-0.66	-73.57	73.58	269.49	2.61	9.38 G
837.00	16.41	269.78	829.16	82.30	-0.74	-82.34	82.35	269.49	3.20	-5.67 G
869.00	17.31	269.48	859.79	91.57	-0.80	-91.62	91.63	269.50	2.83	0.00 G
900.00	18.48	269.47	889.29	101.09	-0.89	-101.15	101.15	269.50	3.77	19.91 G
932.00	19.40	270.47	919.55	111.48	-0.89	-111.53	111.54	269.54	3.05	18.52 G
964.00	20.59	271.60	949.62	122.42	-0.69	-122.47	122.48	269.68	3.91	21.70 G
996.00	21.71	272.80	979.47	133.96	-0.24	-134.01	134.01	269.90	3.75	26.53 G
1027.00	22.25	273.51	1008.21	145.56	0.40	-145.60	145.60	270.16	1.94	21.24 G
1058.00	22.83	274.09	1036.85	157.43	1.18	-157.45	157.46	270.43	2.00	-14.14 G
1120.00	23.61	273.60	1093.82	181.85	2.82	-181.84	181.86	270.89	1.30	-42.10 G
1216.00	23.88	273.00	1181.70	220.49	5.05	-220.43	220.49	271.31	0.38	-20.83 G
1279.00	24.16	272.74	1239.24	246.13	6.33	-246.05	246.13	271.47	0.48	-162.46 G
1343.00	23.25	272.01	1297.84	271.85	7.40	-271.75	271.85	271.56	1.49	-132.61 G
1437.00	22.65	270.29	1384.40	308.50	8.14	-308.39	308.50	271.51	0.96	16.12 G
1533.00	23.14	270.65	1472.84	345.84	8.45	-345.74	345.84	271.40	0.53	-101.06 G
1627.00	23.08	269.84	1559.29	382.73	8.61	-382.63	382.73	271.29	0.34	-177.55 G
1689.00	22.63	269.79	1616.43	406.80	8.53	-406.71	406.80	271.20	0.73	-68.68 G
1721.00	22.68	269.46	1645.96	419.12	8.45	-419.04	419.13	271.16	0.43	164.04 G
1752.00	21.65	270.26	1674.67	430.81	8.42	-430.74	430.82	271.12	3.46	175.84 G
1784.00	20.45	270.51	1704.53	442.30	8.50	-442.23	442.31	271.10	3.76	163.67 G
1816.00	20.11	270.80	1734.55	453.39	8.62	-453.32	453.40	271.09	1.11	168.62 G
1848.00	18.65	271.72	1764.73	464.01	8.85	-463.93	464.02	271.09	4.66	169.23 G
1880.00	17.22	272.64	1795.18	473.86	9.22	-473.78	473.87	271.12	4.56	171.63 G
1912.00	16.75	272.88	1825.78	483.21	9.67	-483.12	483.21	271.15	1.48	-174.32 G

1944.00	15.69	272.49	1856.51	492.14	10.09	-492.05	492.15	271.18	3.33	165.70 G
1975.00	15.02	273.15	1886.40	500.35	10.50	-500.25	500.36	271.20	2.23	166.71 G
2007.00	14.44	273.70	1917.35	508.48	10.98	-508.37	508.49	271.24	1.86	-173.52 G
2038.00	13.85	273.42	1947.41	516.05	11.45	-515.93	516.06	271.27	1.92	-167.24 G
2068.00	13.53	273.11	1976.56	523.15	11.86	-523.02	523.15	271.30	1.09	-174.71 G
2099.00	12.61	272.72	2006.75	530.16	12.21	-530.02	530.16	271.32	2.98	165.74 G
2131.00	11.89	273.61	2038.02	536.94	12.59	-536.80	536.94	271.34	2.33	169.06 G
2163.00	11.16	274.34	2069.38	543.33	13.03	-543.17	543.33	271.37	2.33	-168.24 G
2195.00	10.35	273.40	2100.82	549.30	13.43	-549.13	549.30	271.40	2.59	-164.77 G
2227.00	9.76	272.45	2132.32	554.88	13.72	-554.71	554.88	271.42	1.92	178.22 G
2259.00	8.82	272.64	2163.90	560.05	13.95	-559.87	560.05	271.43	2.94	180.00 G
2434.00	6.75	272.64	2337.28	583.74	15.04	-583.55	583.74	271.48	1.18	180.00 G
ST, Interpolated Tie-In Pt	5.40	272.64	2481.46	599.09	15.75	-598.88	599.09	271.51	0.93	180.00 G
Totco Survey	1.00	272.64	2965.59	626.15	17.00	-625.92	626.15	271.56	0.91	-87.36 M
Projection to Client TD	1.00	272.64	5816.16	675.89	19.29	-675.62	675.90	271.64	0.00	---

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	2434.00	Act-Stns	Anadrill MWD
2434.00	5915.00	Act-Stns	Poor Mag

Survey Report - Standard

Report Date: 15-Apr-2002	Survey / DLS Computation Method: Minimum Curvature / Lubinski
Client: BP	Vertical Section Azimuth: 271.460°
Field: NM, San Juan County	Vertical Section Origin: N 0.000 ft, E 0.000 ft
Structure / Slot: BP 3- 29N-8W (Florance 28B) No Certified Plat / Florance 28B	TVD Reference Datum: KB
Well: Florance 28B	TVD Reference Elevation: 6185.000 ft relative to MSL
Borehole: Original Hole	Sea Bed / Ground Level Elevation: 6171.000 ft relative to MSL
UWI / API#:	Magnetic Declination:
Survey Name / Date: Florance 28B ST1 Assumed Surveys / April 9, 2002	Total Field Strength:
Tort / AHD / DDI / ERD ratio: 53.691° / 667.76 ft / 4.562 / 0.114	Magnetic Dip:
Grid Coordinate System: NAD83 New Mexico State Planes, Western Zone, US Feet	Declination Date:
Location Lat / Long:	Magnetic Declination Model:
Location Grid N/E Y/X:	North Reference: True North
Grid Convergence Angle:	Total Corr Mag North -> True North:
Grid Scale Factor:	Local Coordinates Referenced To: Well Head

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	2579.00	5.40	320.00	2481.46	599.09	15.75	-598.88	599.09	271.51		180.00 G
Assumption	2629.00	3.00	320.00	2531.33	601.51	18.55	-601.23	601.52	271.77	4.80	-40.00 M
Assumption	3064.00	1.00	320.00	2966.04	611.56	30.18	-610.99	611.74	272.83	0.46	-40.00 M
Assumed TD ST1	5950.00	1.00	320.00	5851.60	644.91	68.77	-643.37	647.03	276.10	0.00	---

Survey Error Model: Wolff & deWardt 1.0000 sigma

Surveying Programme:

MD From (ft)
2579.00

MD To (ft) EOU Freq Survey Tool Type
5950.00 Act-Stns Poor Mag