

Schlumberger

6501 S. Fiddler's Green Circle, Suite 400
Greenwood Village, CO 80111
(303) 486-3200

30-045-31197

SUB-SURFACE SURVEY CERTIFICATION REPORT

BP America Inc.

Company

H-24-29N-8W

November 11, 2002

Date

30-045-31197

Lease

Vandewart B 2M

Well Name

San Juan Co., New Mexico

County/State

Survey Depths

270

to

3876 ft

Type of Survey

Measurements While Drilling (MWD)

Survey Depths

ft

Type of Survey

Survey Depths

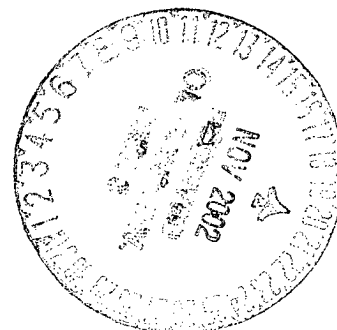
to

ft

Type of Survey

Site Supervisor

B. Glasscock



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.

Allen Starkey

Account Manager

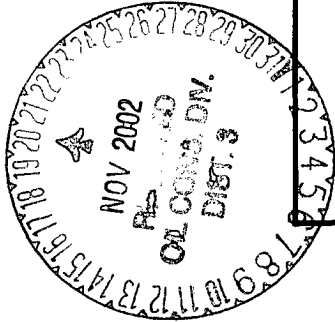
This document has been subscribed and affirmed, or sworn before me in the county of Arapahoe in the state of Colorado, this 13th day of November, 2002

Christine J. Wilson

My commission expires:

12/12/05

Surface 1990/N 1280/E
BHL 1974/N 1953/E



Schlumberger

Survey Report - Geodetic

Report Date: 11-Nov-2002	Survey / DLS Computation Method: Minimum Curvature / Lubinski
Client: BP	Vertical Section Azimuth: 270.000°
Field: NM, San Juan County (NAD 83 WZ)	Vertical Section Origin: N 0.000 ft, E 0.000 ft
Structure / Slot: BP 24 29N 8W (Vandewart B 2M) No Certified Plat / Vandewart B 2M	TVD Reference Datum: RKB
Well: Vandewart B 2M	TVD Reference Elevation: 6935.000 ft relative to MSL
Borehole: Original Hole	Sea Bed / Ground Level Elevation: 6921.000 ft relative to MSL
UWI/API#:	Magnetic Declination: +10.859°
Survey Name / Date: Vandewart B 2M Final Surveys / November 11, 2002	Total Field Strength: 51496.171 nT
Tort / AHID / DD / ERD ratio: 41.036° / 678.98 ft / 4.449 / 0.084	Magnetic Dip: 63.661°
Grid Coordinate System: NAD83 New Mexico State Planes, Western Zone, US Feet	Declination Date: November 11, 2002
Location Lat/Long: N 36 42 48.000, W 107 37 24.000	Magnetic Declination Model: BGGM 2002
Location Grid NE YX: N 2079036.422 ftUS, E 2784642.889 ftUS	North Reference: True North
Grid Convergence Angle: -0.12554091°	Total Corr Mag North -> True North: +10.859°
Grid Scale Factor: 0.99992100	Local Coordinates Referenced To: Well Head

Station ID	MD (ft)	Incl (°)	Azim (°)	TVD (ft)	VSec (ft)	N-S (ft)	E-W (ft)	DLS (°/100ft)	Grid Coordinates			Geographic Coordinates	
									Northing (ftUS)	Eastng (ftUS)		Latitude	Longitude
Tie-In													
Begin SLB MWD Surveys													
	0.00	0.00	0.0	0.00	0.00	0.00	0.00	0.00	2079036.42	2784642.89		N 36 42 48.000	W 107 37 24.000
	270.00	0.15	92.0	270.00	-0.35	-0.01	0.35	0.06	2079036.41	2784643.24		N 36 42 48.000	W 107 37 23.995
	301.00	0.05	115.7	301.00	-0.41	-0.02	0.41	0.34	2079036.40	2784643.29		N 36 42 48.000	W 107 37 23.995
	332.00	0.20	234.0	332.00	-0.37	-0.06	0.37	0.74	2079036.37	2784643.26		N 36 42 47.999	W 107 37 23.995
	363.00	0.63	272.0	363.00	-0.16	-0.08	0.16	1.57	2079036.34	2784643.05		N 36 42 47.999	W 107 37 23.998
	394.00	0.90	274.8	394.00	0.25	-0.06	-0.25	0.88	2079036.36	2784642.64		N 36 42 47.999	W 107 37 24.003
	427.00	1.33	270.0	426.99	0.89	-0.03	-0.89	1.33	2079036.39	2784642.00		N 36 42 48.000	W 107 37 24.010
	459.00	1.80	266.3	458.98	1.77	-0.07	-1.77	1.50	2079036.35	2784641.12		N 36 42 47.999	W 107 37 24.021
	491.00	2.08	265.0	490.96	2.85	-0.15	-2.85	0.89	2079036.27	2784640.04		N 36 42 47.998	W 107 37 24.034
	523.00	2.68	266.5	522.93	4.17	-0.25	-4.17	1.89	2079036.17	2784638.72		N 36 42 47.997	W 107 37 24.051
	554.00	3.25	263.8	553.89	5.77	-0.39	-5.77	1.90	2079036.02	2784637.12		N 36 42 47.996	W 107 37 24.070
	586.00	3.93	264.7	585.83	7.76	-0.59	-7.76	2.13	2079035.82	2784635.13		N 36 42 47.994	W 107 37 24.095
	618.00	4.47	261.7	617.74	10.09	-0.87	-10.09	1.82	2079035.53	2784632.80		N 36 42 47.991	W 107 37 24.123
	650.00	5.15	262.3	649.63	12.75	-1.24	-12.75	2.13	2079035.15	2784630.15		N 36 42 47.988	W 107 37 24.156
	682.00	5.70	261.0	681.48	15.74	-1.68	-15.74	1.76	2079034.71	2784627.16		N 36 42 47.983	W 107 37 24.193
	713.00	6.50	261.1	712.31	18.99	-2.19	-18.99	2.58	2079034.19	2784623.90		N 36 42 47.978	W 107 37 24.233
	745.00	7.35	263.1	744.08	22.81	-2.72	-22.81	2.76	2079033.65	2784620.08		N 36 42 47.973	W 107 37 24.280
	776.00	8.08	262.0	774.79	26.94	-3.26	-26.94	2.40	2079033.10	2784615.96		N 36 42 47.968	W 107 37 24.330

807.00	8.95	263.6	805.45	31.49	-3.83	-31.49	2.90	2079032.52	2784611.41	N 36 42 47.962	W 107 37 24.386
839.00	9.55	264.0	837.04	36.61	-4.39	-36.61	1.89	2079031.96	2784606.29	N 36 42 47.956	W 107 37 24.449
871.00	10.02	264.5	868.57	42.02	-4.93	-42.02	1.49	2079031.40	2784600.88	N 36 42 47.951	W 107 37 24.516
903.00	10.52	263.7	900.06	47.69	-5.52	-47.69	1.63	2079030.80	2784595.21	N 36 42 47.945	W 107 37 24.585
935.00	11.15	265.1	931.49	53.68	-6.10	-53.68	2.14	2079030.20	2784589.23	N 36 42 47.940	W 107 37 24.659
998.00	11.88	267.2	993.22	66.23	-6.93	-66.23	1.34	2079029.34	2784576.68	N 36 42 47.931	W 107 37 24.813
1060.00	12.52	266.3	1053.82	79.31	-7.68	-79.31	1.08	2079028.57	2784563.61	N 36 42 47.924	W 107 37 24.974
1156.00	12.75	267.4	1147.49	100.27	-8.84	-100.27	0.35	2079027.36	2784542.64	N 36 42 47.912	W 107 37 25.231
1250.00	12.98	269.7	1239.13	121.19	-9.36	-121.19	0.60	2079026.80	2784521.73	N 36 42 47.907	W 107 37 25.488
1344.00	12.15	265.5	1330.88	141.61	-10.19	-141.61	1.32	2079025.92	2784501.31	N 36 42 47.899	W 107 37 25.739
1439.00	11.80	267.0	1423.82	161.28	-11.49	-161.28	0.49	2079024.58	2784481.65	N 36 42 47.886	W 107 37 25.980
1534.00	11.60	267.3	1516.84	180.52	-12.46	-180.52	0.22	2079023.57	2784462.41	N 36 42 47.877	W 107 37 26.217
1629.00	12.08	269.7	1609.82	200.00	-12.96	-200.00	0.72	2079023.02	2784442.93	N 36 42 47.872	W 107 37 26.456
1722.00	11.98	271.1	1700.78	219.38	-12.83	-219.38	0.33	2079023.11	2784423.55	N 36 42 47.873	W 107 37 26.694
1782.00	12.45	271.4	1759.42	232.07	-12.56	-232.07	0.79	2079023.36	2784410.86	N 36 42 47.876	W 107 37 26.850
1877.00	12.25	271.6	1852.22	252.38	-12.04	-252.38	0.21	2079023.83	2784390.55	N 36 42 47.881	W 107 37 27.099
1940.00	12.68	269.2	1913.74	265.98	-11.95	-265.98	1.06	2079023.89	2784376.96	N 36 42 47.882	W 107 37 27.266
2035.00	12.38	272.1	2006.48	286.58	-11.73	-286.58	0.73	2079024.07	2784356.36	N 36 42 47.884	W 107 37 27.519
2130.00	12.13	271.3	2099.31	306.74	-11.12	-306.74	0.31	2079024.63	2784336.20	N 36 42 47.890	W 107 37 27.767
2223.00	11.83	272.1	2190.29	326.03	-10.56	-326.03	0.36	2079025.15	2784316.91	N 36 42 47.895	W 107 37 28.004
2318.00	12.50	269.8	2283.15	346.05	-10.24	-346.05	0.87	2079025.42	2784296.89	N 36 42 47.899	W 107 37 28.249
2413.00	12.60	271.6	2375.88	366.68	-9.99	-366.68	0.43	2079025.63	2784276.26	N 36 42 47.901	W 107 37 28.503
2508.00	12.60	273.1	2468.60	387.39	-9.14	-387.39	0.34	2079026.44	2784255.55	N 36 42 47.909	W 107 37 28.757
2602.00	11.78	273.1	2560.48	407.21	-8.06	-407.21	0.87	2079027.47	2784235.73	N 36 42 47.920	W 107 37 29.001
2692.00	12.93	273.9	2648.39	426.43	-6.87	-426.43	1.29	2079028.61	2784216.51	N 36 42 47.932	W 107 37 29.237
2786.00	12.48	270.8	2740.09	447.08	-6.01	-447.08	0.86	2079029.43	2784195.86	N 36 42 47.940	W 107 37 29.490
2849.00	12.10	272.0	2801.65	460.48	-5.68	-460.48	0.72	2079029.73	2784182.46	N 36 42 47.944	W 107 37 29.655
2912.00	12.02	273.1	2863.26	473.63	-5.10	-473.63	0.37	2079030.28	2784169.31	N 36 42 47.949	W 107 37 29.816
2976.00	11.75	272.8	2925.88	486.79	-4.43	-486.79	0.43	2079030.93	2784156.14	N 36 42 47.956	W 107 37 29.978
3070.00	11.25	270.5	3018.00	505.52	-3.88	-505.52	0.72	2079031.43	2784137.42	N 36 42 47.961	W 107 37 30.208
3132.00	10.65	270.2	3078.87	517.30	-3.82	-517.30	0.97	2079031.47	2784125.64	N 36 42 47.962	W 107 37 30.353
3227.00	10.57	270.4	3172.24	534.79	-3.73	-534.79	0.10	2079031.52	2784108.15	N 36 42 47.963	W 107 37 30.568
3320.00	10.75	267.6	3263.64	551.99	-4.03	-551.99	0.58	2079031.18	2784090.96	N 36 42 47.960	W 107 37 30.779
3412.00	11.23	268.7	3353.95	569.52	-4.58	-569.52	0.57	2079030.59	2784073.43	N 36 42 47.954	W 107 37 30.994
3504.00	11.00	265.9	3444.23	587.23	-5.42	-587.23	0.65	2079029.72	2784055.72	N 36 42 47.946	W 107 37 31.212
3600.00	10.02	264.5	3538.61	604.68	-6.87	-604.68	1.05	2079028.23	2784038.28	N 36 42 47.932	W 107 37 31.426
3663.00	9.88	265.0	3600.67	615.52	-7.87	-615.52	0.25	2079027.21	2784027.44	N 36 42 47.922	W 107 37 31.559

	3726.00	10.32	261.8	3662.69	626.49	-9.14	-626.49	1.12	2079025.91	2784016.47	N 36 42 47.909	W 107 37 31.694
Last SLB Surveys	3821.00	10.60	262.9	3756.11	643.58	-11.44	-643.58	0.36	2079023.58	2783999.39	N 36 42 47.887	W 107 37 31.904
Begin Client Assumed Drop	3876.00	10.38	261.5	3810.19	653.50	-12.79	-653.50	0.60	2079022.20	2783989.47	N 36 42 47.873	W 107 37 32.025
Client TD	4135.50	0.00	261.5	4068.28	676.69	-16.24	-676.69	4.00	2079018.70	2783966.29	N 36 42 47.839	W 107 37 32.310
	8120.00	0.00	261.5	8052.78	676.69	-16.24	-676.69	0.00	2079018.70	2783966.29	N 36 42 47.839	W 107 37 32.310

Survey Error Model: Topographic 3-D 19.87% Confidence 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	270.00	Act-Stns	Blind Drilling
270.00	3876.00	Act-Stns	MWD1
3876.00	8120.00	Act-Stns	Blind Drilling



WELL	FIELD	RIG
Vandewart B 2M	San Juan County, New Mexico	Aztec #184
Magnetic Parameters Model: BGGM 2002 Dip: 63.663° Mag Dec: 10.871° Date: September 27, 2002 FS: 51507.3 nT	Surface Location Lat: N36 42 48.000 Lon: W107 37 24.000 North: 2079036.42 ftUS East: 2784642.89 ftUS Grid Conv: 0.1255° Scale Fact: 0.9999	Plan# : Rev1 jok 27-Sep-02 Slot: Vandewart B 2M Elev Ref: RKB(6935.00ft above MSL) Date Drawn: 09:29:39AM 11-Nov-2002

