

Final

Scientific Drilling Survey Report

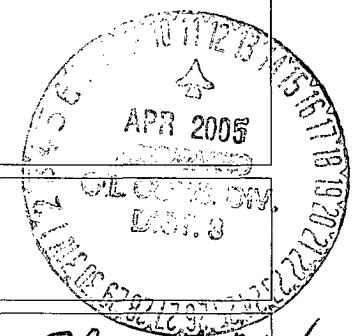
Company: BP	Date: 3/17/2005	Time: 11:18:08	Page: 1
Field: SAN JUAN, New Mexico	Co-ordinate(NE) Reference:	Site: SEC28-T31N-R10W, Grid North	
Site: SEC28-T31N-R10W	Vertical (TVD) Reference:	AGL=6122+KB=14' 6136.0	
Well: ATLANTIC ALS #2M	Section (VS) Reference:	Well (0.00N,0.00E,242.89Azi)	
Wellpath: ORIGINAL WELL	Survey Calculation Method:	Minimum Curvature	Db: Sybase

Field: SAN JUAN, New Mexico SAN JUAN COUNTY, NEW MEXICO USA	Map System: US State Plane Coordinate System 1983	Map Zone: New Mexico, Western Zone
Geo Datum: GRS 1980	Sys Datum: Mean Sea Level	Coordinate System: Site Centre
		Geomagnetic Model: igrf2005

Site: SEC28-T31N-R10W	SAN JUAN NEW MEXICO		
Site Position: From: Geographic	Northing: 2135102.392 ft	Latitude: 36 52 3.000 N	
Position Uncertainty: 0.00 ft	Easting: 2708472.366 ft	Longitude: 107 52 59.988 W	
Ground Level: 6122.00 ft		North Reference: Grid	
		Grid Convergence: -0.03 deg	

SA

Well: ATLANTIC ALS #2M	Slot Name:	
API 30-045-32512		
Well Position: +N-S 0.00 ft	Northing: 2135102.392 ft	Latitude: 36 52 3.000 N
+E-W 0.00 ft	Easting: 2708472.366 ft	Longitude: 107 52 59.988 W
Position Uncertainty: 0.00 ft		



SR 2000/N 106/E
BHL 2192/N 104/E

Wellpath: ORIGINAL WELL	Drilled From: Surface	
Current Datum: AGL=6122+KB=14'	Tie-on Depth: 0.00 ft	
Magnetic Data: 2/24/2005	Above System Datum: Mean Sea Level	
Field Strength: 51477 nT	Declination: 10.72 deg	
Vertical Section: Depth From (TVD) ft	Mag Dip Angle: 63.70 deg	
	+N-S ft	Direction deg
0.00	0.00	242.89

Survey Program for Definitive Wellpath			Version: 3
Date: 3/17/2005	Validated: No	Actual From To ft	Toolcode
0.00	2416.00	MWD survey (0.00-2416.00)	MWD ISCWSA
3070.00	7486.00	Customer suggested survey (3070.00-7486.00)	BLIND
			MWD - Standard Blind drilling

MD ft	Incl deg	Azim deg	TVD ft	+N-S ft	+E-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	TIE LINE
180.00	0.00	0.00	180.00	0.00	0.00	0.00	0.00	0.00	0.00	MWD ISCWSA
200.00	0.73	3.90	200.00	0.13	0.01	-0.07	3.67	3.67	0.00	9 5/8"
229.00	1.80	3.90	228.99	0.77	0.05	-0.40	3.67	3.67	0.00	MWD ISCWSA
259.00	1.70	356.40	258.98	1.68	0.06	-0.82	0.83	-0.33	-25.00	MWD ISCWSA
289.00	1.90	336.70	288.96	2.58	-0.17	-1.03	2.16	0.67	-65.67	MWD ISCWSA
320.00	2.50	314.00	319.94	3.52	-0.86	-0.84	3.38	1.94	-73.23	MWD ISCWSA
350.00	3.40	302.30	349.90	4.45	-2.08	-0.18	3.59	3.00	-39.00	MWD ISCWSA
380.00	4.40	291.80	379.83	5.36	-3.90	1.03	4.08	3.33	-35.00	MWD ISCWSA
411.00	5.20	284.00	410.72	6.14	-6.37	2.87	3.32	2.58	-25.16	MWD ISCWSA
440.00	6.00	280.00	439.58	6.72	-9.14	5.07	3.07	2.76	-13.79	MWD ISCWSA
470.00	6.50	275.00	469.41	7.14	-12.37	7.76	2.46	1.67	-16.67	MWD ISCWSA
500.00	7.20	268.00	499.19	7.22	-15.94	10.90	3.63	2.33	-23.33	MWD ISCWSA
530.00	8.00	261.00	528.93	6.83	-19.88	14.59	4.07	2.67	-23.33	MWD ISCWSA
560.00	8.80	260.00	558.61	6.11	-24.21	18.76	2.71	2.67	-3.33	MWD ISCWSA
590.00	9.50	255.00	588.23	5.07	-28.86	23.38	3.53	2.33	-16.67	MWD ISCWSA
620.00	9.70	249.00	617.81	3.52	-33.61	28.31	3.40	0.67	-20.00	MWD ISCWSA
679.00	10.60	245.00	675.88	-0.56	-43.17	38.68	1.94	1.53	-6.78	MWD ISCWSA
738.00	10.90	244.00	733.85	-5.29	-53.10	49.68	0.60	0.51	-1.69	MWD ISCWSA
769.00	10.90	244.00	764.29	-7.86	-58.37	55.54	0.00	0.00	0.00	MWD ISCWSA
829.00	11.60	235.00	823.14	-13.81	-68.41	67.19	3.15	1.17	-15.00	MWD ISCWSA
890.00	11.30	231.00	882.93	-21.09	-78.08	79.11	1.39	-0.49	-6.56	MWD ISCWSA
949.00	11.40	226.00	940.77	-28.78	-86.76	90.35	1.68	0.17	-8.47	MWD ISCWSA
1073.00	11.10	220.00	1062.40	-46.44	-103.25	113.07	0.97	-0.24	-4.84	MWD ISCWSA
1104.00	10.90	224.00	1092.83	-50.83	-107.21	118.59	2.54	-0.65	12.90	MWD ISCWSA

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30-045-32512

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Field: SAN JUAN, New Mexico	Co-ordinate(NE) Reference:	Site: SEC28-T31N-R10W, Grid North	
Site: SEC28-T31N-R10W	Vertical (TVD) Reference:	AGL=6122+KB=14' 6136.0	
Well: ATLANTIC A LS #2M	Section (VS) Reference:	Well (0.00N,0.00E,242.89Azi)	
Wellpath: ORIGINAL WELL	Survey Calculation Method:	Minimum Curvature	Db: Sybase

Survey

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
1200.00	10.70	229.00	1187.17	-63.10	-120.05	135.61	1.31	0.62	6.25	MWD ISCWSA
1231.00	10.70	232.00	1217.63	-66.76	-124.49	141.23	1.80	0.00	9.68	MWD ISCWSA
1262.00	11.10	237.00	1248.07	-70.15	-129.26	147.03	3.31	1.29	16.13	MWD ISCWSA
1357.00	12.50	241.00	1341.06	-80.12	-145.92	166.40	1.71	1.47	4.21	MWD ISCWSA
1419.00	12.30	242.00	1401.62	-86.47	-157.62	179.71	0.47	-0.32	1.61	MWD ISCWSA
1450.00	11.50	241.00	1431.95	-89.52	-163.24	186.10	2.66	-2.58	-3.23	MWD ISCWSA
1480.00	11.60	242.00	1461.34	-92.39	-168.52	192.10	0.75	0.33	3.33	MWD ISCWSA
1504.16	11.75	241.61	1485.00	-94.70	-172.83	196.99	0.70	0.62	-1.60	OJO ALAMO
1544.00	12.00	241.00	1523.99	-98.63	-180.02	205.19	0.70	0.63	-1.54	MWD ISCWSA
1608.00	11.60	243.00	1586.64	-104.78	-191.57	218.27	0.89	-0.62	3.12	MWD ISCWSA
1625.72	11.49	243.55	1604.00	-106.38	-194.74	221.82	0.88	-0.63	3.10	KIRTLAND
1640.00	11.40	244.00	1618.00	-107.63	-197.28	224.65	0.88	-0.62	3.15	MWD ISCWSA
1672.00	11.60	244.00	1649.35	-110.42	-203.01	231.03	0.62	0.62	0.00	MWD ISCWSA
1735.00	11.40	247.00	1711.09	-115.63	-214.44	243.57	1.00	-0.32	4.76	MWD ISCWSA
1768.00	10.90	246.00	1743.47	-118.18	-220.29	249.94	1.62	-1.52	-3.03	MWD ISCWSA
1799.00	11.20	247.00	1773.89	-120.55	-225.74	255.87	1.15	0.97	3.23	MWD ISCWSA
1862.00	11.20	245.00	1835.69	-125.52	-236.92	268.09	0.62	0.00	-3.17	MWD ISCWSA
1926.00	11.60	243.00	1898.43	-131.07	-248.28	280.73	0.88	0.62	-3.12	MWD ISCWSA
1989.00	11.30	245.00	1960.18	-136.55	-259.52	293.24	0.79	-0.48	3.17	MWD ISCWSA
2053.00	10.70	245.00	2023.00	-141.72	-270.59	305.44	0.94	-0.94	0.00	MWD ISCWSA
2116.00	10.00	244.00	2084.97	-146.58	-280.81	316.75	1.15	-1.11	-1.59	MWD ISCWSA
2180.00	9.80	244.00	2148.02	-151.41	-290.70	327.75	0.31	-0.31	0.00	MWD ISCWSA
2244.00	9.00	247.00	2211.16	-155.75	-300.20	338.19	1.47	-1.25	4.69	MWD ISCWSA
2308.00	9.10	250.00	2274.36	-159.44	-309.56	348.21	0.75	0.16	4.69	MWD ISCWSA
2371.00	9.00	247.00	2336.58	-163.07	-318.78	358.07	0.77	-0.16	-4.76	MWD ISCWSA
2416.00	9.00	247.00	2381.03	-165.82	-325.26	365.09	0.00	0.00	0.00	Released MWD
2458.47	8.58	247.00	2423.00	-168.35	-331.23	371.56	1.00	-1.00	0.00	FRUITLAND
2618.95	6.97	247.00	2582.00	-176.83	-351.21	393.21	1.00	-1.00	0.00	FRUITLAND COAL
2839.12	4.77	247.00	2801.00	-185.63	-371.94	415.66	1.00	-1.00	0.00	PICTURED CLIFFS
2943.41	3.73	247.00	2905.00	-188.65	-379.05	423.37	1.00	-1.00	0.00	LEWIS
3070.00	2.46	247.00	3031.41	-191.32	-385.33	430.18	1.00	-1.00	0.00	7"
3152.00	0.00	0.00	3113.38	-192.01	-386.95	431.94	3.00	-3.00	0.00	BLIND
4381.62	0.00	0.00	4343.00	-192.01	-386.95	431.94	0.00	0.00	0.00	CLIFF HOUSE
4695.62	0.00	0.00	4657.00	-192.01	-386.95	431.94	0.00	0.00	0.00	MENEFFEE
5110.62	0.00	0.00	5072.00	-192.01	-386.95	431.94	0.00	0.00	0.00	POINT LOOK OUT
5475.62	0.00	0.00	5437.00	-192.01	-386.95	431.94	0.00	0.00	0.00	MANCOS
7136.62	0.00	0.00	7098.00	-192.01	-386.95	431.94	0.00	0.00	0.00	GREENHORN
7186.62	0.00	0.00	7148.00	-192.01	-386.95	431.94	0.00	0.00	0.00	GRANEROS
7240.62	0.00	0.00	7202.00	-192.01	-386.95	431.94	0.00	0.00	0.00	TWO WELLS
7326.62	0.00	0.00	7288.00	-192.01	-386.95	431.94	0.00	0.00	0.00	PAGUATE
7361.62	0.00	0.00	7323.00	-192.01	-386.95	431.94	0.00	0.00	0.00	CUBERO
7394.62	0.00	0.00	7356.00	-192.01	-386.95	431.94	0.00	0.00	0.00	L.CUBERO
7438.62	0.00	0.00	7400.00	-192.01	-386.95	431.94	0.00	0.00	0.00	ENCINAL CYN
7486.00	0.00	0.00	7447.38	-192.01	-386.95	431.94	0.00	0.00	0.00	BLIND

Casing Points

MD ft	TVD ft	Diameter in	Hole Size in	Name
200.00	200.00	9.625	12.250	9 5/8"
3070.00	3031.41	7.000	8.500	7"

Formations

MD ft	TVD ft	Formations	Lithology	Dip Angle deg	Dip Direction deg
1504.16	1485.00	OJO ALAMO		0.00	0.00
1625.72	1604.00	KIRTLAND		0.00	0.00
2458.47	2423.00	FRUITLAND		0.00	0.00
2618.95	2582.00	FRUITLAND COAL		0.00	0.00
2839.12	2801.00	PICTURED CLIFFS		0.00	0.00

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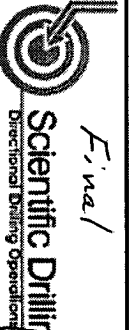
Company: BP	Date: 3/17/2005	Time: 11:18:08	Page: 3
Field: SAN JUAN, New Mexico	Co-ordinate(NE) Reference:	Site: SEC28-T31N-R10W, Grid North	
Site: SEC28-T31N-R10W	Vertical (TVD) Reference:	AGL=6122+KB=14' 6136.0	
Well: ATLANTIC A LS #2M	Section (VS) Reference:	Well (0.00N,0.00E,242.89Azi)	
Wellpath: ORIGINAL WELL	Survey Calculation Method:	Minimum Curvature	Db: Sybase

Formations

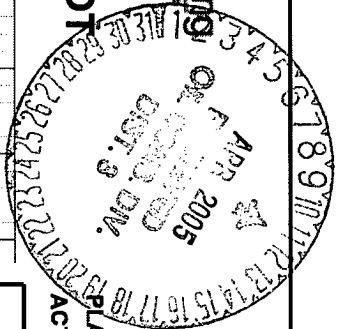
MD ft	TVD ft	Formations	Lithology	Dip Angle deg	Dip Direction deg
2943.41	2905.00	LEWIS		0.00	0.00
4381.62	4343.00	CLIFF HOUSE		0.00	0.00
4695.62	4657.00	MENEFEE		0.00	0.00
5110.62	5072.00	POINT LOOK OUT		0.00	0.00
5475.62	5437.00	MANCOS		0.00	0.00
7136.62	7098.00	GREENHORN		0.00	0.00
7186.62	7148.00	GRANEROS		0.00	0.00
7240.62	7202.00	TWO WELLS		0.00	0.00
7326.62	7288.00	PAGUATE		0.00	0.00
7361.62	7323.00	CUBERO		0.00	0.00
7394.62	7356.00	L.CUBERO		0.00	0.00
7438.62	7400.00	ENCINAL CYN		0.00	0.00

Annotation

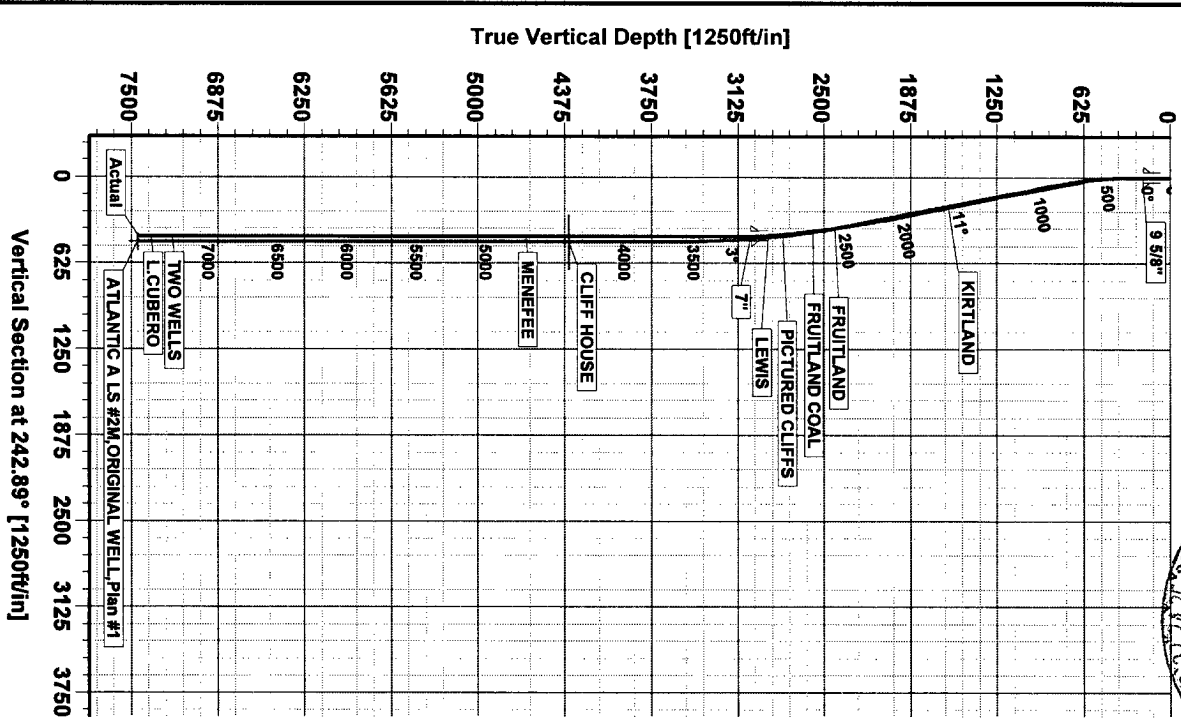
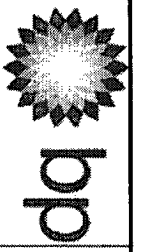
MD ft	TVD ft	
2416.00	2381.03	Released MWD



COMPARISON PLOT



Field: **SAN JUAN, New Mexico**
 Site: **SEC28-T31N-R10W**
 Well: **ATLANTIC A LS #2M** 30-045-32512
 Wellpath: **ORIGINAL WELL**



PLANNED
 ACTUAL

LEGEND
 ATLANTIC A LS #2M, ORIGINAL WELL, Plan #1
 Actual

Magnetic Field
 Strength: 51477nT
 Dip Angle: 63.70°
 Date: 2/24/2005
 Model: igrf2005

Azimuths to Grid North
 True North: 0.03°
 Magnetic North: 10.75°

FORMATION TOP DETAILS

No.	TVD Path	M D Path	Formation
1	1485.00	1504.16	OJO ALAMO
2	1604.00	1625.72	KIRTLAND
3	2423.00	2458.47	FRUITLAND
4	2582.00	2618.95	FRUITLAND COAL
5	2801.00	2839.12	PICTURED CLIFFS
6	2905.00	2943.41	LEWIS
7	4343.00	4381.62	CLIFF HOUSE
8	4657.00	4695.62	MENELEE
9	5072.00	5110.62	POINT LOOK OUT
10	5437.00	5475.62	MANCOS
11	7098.00	7136.62	GREENHORN
12	7148.00	7186.62	GRANEROS
13	7240.00	7240.62	TWO WELLS
14	7288.00	7326.62	PAGUATE
15	7323.00	7361.62	CUBERO
16	7356.00	7394.62	L. CUBERO
17	7400.00	7438.62	ENCINAL CYN

Date: 3/17/2005 Validated: No Version: 3

SURVEY PROGRAM
 Depth Frm Depth To Survey/Plan
 0.00 2416.00 MWD survey
 3070.00 7486.00 Customer suggested survey

TOOL
 MWD ISCWSA
 BLIND

SITE DETAILS
 SEC28-T31N-R10W
 SAN JUA N EW MEXICO
 Site Centre Latitude: 36°57'03.000N
 Longitude: 107°52'59.988W
 Ground Level: 6122.00
 Positional Uncertainty: 0.00
 Convergence: -0.03

FIELD DETAILS
 SAN JUAN, New Mexico
 SAN JUAN COUNTY, NEW MEXICO
 USA
 Geodetic System: US State Plane Coordinate System 1983
 Ellipsoid: GRS 1980
 Zone: New Mexico, Western Zone
 Magnetic Model: igrf2005

