

Company: BP	Date: 3/22/2006	Time: 08:47:58	Page: 1
Field: SAN JUAN, New Mexico	Co-ordinate(NE) Reference: Well: State Gas Com BF #1M, Grid North		
Site: SEC 16-T29N-R9W	Vertical (TVD) Reference: SITE 5811.0		
Well: State Gas Com BF #1M	Section (VS) Reference: Well (0.00N,0.00E,347.05Azi)		
Wellpath: OH	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
Geo Datum: GRS 1980
Sys Datum: Mean Sea Level

Map Zone: New Mexico, Western Zone
Coordinate System: Well Centre
Geomagnetic Model: bggm2005

Site: SEC 16-T29N-R9W

Surf. 2235/5 1646/E
BH 2577/N 1803/E

Site Position:	Northing:	ft	Latitude:
From: Lease Line	Easting:	ft	Longitude:
Position Uncertainty: 0.00 ft			North Reference: Grid
Ground Level: 5797.00 ft			Grid Convergence: 0.03 deg

Well: State Gas Com BF #1M

Slot Name:

Well Position: +N/-S 0.00 ft	Northing: 2082815.12 ft	Latitude: 36 43 25.949 N
+E/-W 0.00 ft	Easting: 2738705.96 ft	Longitude: 107 46 48.259 W
Position Uncertainty: 0.00 ft		

Wellpath: OH

Current Datum: SITE	Height 5811.00 ft	Drilled From: Surface
Magnetic Data: 2/28/2006		Tie-on Depth: 0.00 ft
Field Strength: 51321 nT		Above System Datum: Mean Sea Level
Vertical Section: Depth From (TVD)	+N/-S	Declination: 10.58 deg
ft	ft	Mag Dip Angle: 63.61 deg
		+E/-W
		Direction
		deg
0.00	0.00	0.00 347.05

Survey Program for Definitive Wellpath

Date: 3/22/2006	Validated: No	Version: 1
Actual From	To	Toolcode
ft	ft	Tool Name
334.00	2758.00	MWD Survey (334.00-2758.00)
2802.00	6828.00	Projected Survey (2802.00-6828)
		MWD ISCWSA
		INC+TREND
		MWD - Standard
		Inclinometer + known azi trend

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
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	TIE LINE
200.03	1.71	274.68	200.00	0.24	-2.98	0.91	0.86	0.86	0.00	9 5/8"
300.00	2.57	274.68	299.90	0.55	-6.70	2.04	0.86	0.86	0.00	kop
334.00	2.86	274.68	333.86	0.68	-8.31	2.52	0.86	0.86	0.00	MWD ISCWSA
364.00	3.26	297.22	363.82	1.13	-9.81	3.30	4.19	1.33	75.13	MWD ISCWSA
395.00	3.46	302.86	394.77	2.04	-11.38	4.54	1.25	0.65	18.19	MWD ISCWSA
426.00	3.46	312.24	425.71	3.18	-12.86	5.98	1.82	0.00	30.26	MWD ISCWSA
456.00	3.77	328.64	455.65	4.63	-14.04	7.66	3.58	1.03	54.67	MWD ISCWSA
487.00	4.46	334.59	486.57	6.59	-15.09	9.80	2.61	2.23	19.19	MWD ISCWSA
517.00	4.88	338.43	516.47	8.83	-16.06	12.20	1.74	1.40	12.80	MWD ISCWSA
548.00	5.52	344.22	547.34	11.49	-16.95	15.00	2.67	2.06	18.68	MWD ISCWSA
578.00	6.22	349.72	577.19	14.48	-17.63	18.06	2.99	2.33	18.33	MWD ISCWSA
609.00	7.31	353.31	607.97	18.09	-18.16	21.70	3.77	3.52	11.58	MWD ISCWSA
639.00	8.30	354.11	637.69	22.14	-18.61	25.75	3.32	3.30	2.67	MWD ISCWSA
670.00	9.27	355.22	668.33	26.85	-19.04	30.44	3.18	3.13	3.58	MWD ISCWSA
701.00	10.22	356.12	698.88	32.08	-19.44	35.63	3.10	3.06	2.90	MWD ISCWSA
732.00	11.15	356.38	729.34	37.82	-19.81	41.30	3.00	3.00	0.84	MWD ISCWSA
762.00	12.48	355.47	758.71	43.95	-20.25	47.37	4.48	4.43	-3.03	MWD ISCWSA
793.00	13.23	354.41	788.93	50.82	-20.86	54.20	2.54	2.42	-3.42	MWD ISCWSA
823.00	13.78	352.84	818.10	57.78	-21.64	61.16	2.20	1.83	-5.23	MWD ISCWSA
853.00	14.11	352.59	847.22	64.95	-22.56	68.35	1.12	1.10	-0.83	MWD ISCWSA
917.00	14.20	352.34	909.27	80.46	-24.61	83.93	0.17	0.14	-0.39	MWD ISCWSA

Company: BP Field: SAN JUAN, New Mexico Site: SEC 16-T29N-R9W Well: State Gas Com BF #1M Wellpath: OH	Date: 3/22/2006 Co-ordinate(NE) Reference: Well: State Gas Com BF #1M, Grid North Vertical (TVD) Reference: SITE 5811.0 Section (VS) Reference: Well (0.00N,0.00E,347.05Azi) Survey Calculation Method: Minimum Curvature	Time: 08:47:58 Page: 2 Db: Sybase
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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
981.00	14.06	352.34	971.34	95.95	-26.69	99.49	0.22	-0.22	0.00	MWD ISCWSA
1045.00	14.19	350.20	1033.40	111.38	-29.07	115.06	0.84	0.20	-3.34	MWD ISCWSA
1107.00	14.58	347.96	1093.46	126.50	-31.99	130.46	1.10	0.63	-3.61	MWD ISCWSA
1112.73	14.63	347.90	1099.00	127.92	-32.29	131.90	0.94	0.91	-0.99	OJO ALAMO
1171.00	15.16	347.35	1155.31	142.55	-35.50	146.88	0.94	0.91	-0.95	MWD ISCWSA
1234.00	15.77	346.26	1216.03	158.90	-39.34	163.68	1.07	0.97	-1.73	MWD ISCWSA
1294.32	16.34	346.12	1274.00	175.10	-43.32	180.35	0.94	0.94	-0.23	KIRTLAND
1298.00	16.37	346.11	1277.53	176.11	-43.57	181.39	0.94	0.94	-0.23	MWD ISCWSA
1361.00	16.22	346.74	1338.00	193.29	-47.72	199.07	0.37	-0.24	1.00	MWD ISCWSA
1424.00	16.38	346.10	1398.47	210.48	-51.87	216.75	0.38	0.25	-1.02	MWD ISCWSA
1488.00	16.19	345.96	1459.90	227.89	-56.20	234.69	0.30	-0.30	-0.22	MWD ISCWSA
1552.00	16.49	345.83	1521.32	245.35	-60.59	252.69	0.47	0.47	-0.20	MWD ISCWSA
1617.00	16.02	345.84	1583.72	262.99	-65.04	270.88	0.72	-0.72	0.02	MWD ISCWSA
1681.00	15.21	347.92	1645.36	279.77	-68.96	288.11	1.54	-1.27	3.25	MWD ISCWSA
1743.00	14.31	347.69	1705.31	295.21	-72.30	303.90	1.45	-1.45	-0.37	MWD ISCWSA
1774.00	14.28	347.46	1735.35	302.68	-73.94	311.55	0.21	-0.10	-0.74	MWD ISCWSA
1806.00	13.40	346.90	1766.42	310.15	-75.64	319.21	2.78	-2.75	-1.75	MWD ISCWSA
1810.71	13.25	347.10	1771.00	311.20	-75.88	320.29	3.34	-3.20	4.18	FRUITLAND
1838.00	12.38	348.33	1797.61	317.12	-77.17	326.35	3.34	-3.19	4.52	MWD ISCWSA
1902.00	12.24	351.58	1860.14	330.55	-79.56	339.97	1.10	-0.22	5.08	MWD ISCWSA
1965.00	12.28	353.03	1921.71	343.80	-81.35	353.29	0.49	0.06	2.30	MWD ISCWSA
2028.00	12.47	350.83	1983.24	357.17	-83.24	366.74	0.81	0.30	-3.49	MWD ISCWSA
2090.00	12.71	351.35	2043.75	370.52	-85.34	380.22	0.43	0.39	0.84	MWD ISCWSA
2102.55	12.55	350.94	2056.00	373.23	-85.76	382.96	1.46	-1.28	-3.23	FRUITLAND COAL
2154.00	11.90	349.17	2106.28	383.96	-87.64	393.83	1.46	-1.26	-3.45	MWD ISCWSA
2220.00	11.06	348.12	2170.96	396.84	-90.22	406.96	1.31	-1.27	-1.59	MWD ISCWSA
2280.00	10.98	347.77	2229.85	408.06	-92.61	418.43	0.17	-0.13	-0.58	MWD ISCWSA
2345.00	10.88	348.47	2293.68	420.12	-95.15	430.75	0.26	-0.15	1.08	MWD ISCWSA
2368.76	11.03	348.84	2317.00	424.54	-96.04	435.27	0.68	0.61	1.55	PICTURED CLIFFS
2376.00	11.07	348.95	2324.11	425.90	-96.30	436.65	0.68	0.61	1.53	MWD ISCWSA
2407.00	10.67	348.14	2354.55	431.63	-97.47	442.50	1.38	-1.29	-2.61	MWD ISCWSA
2471.00	9.34	343.11	2417.58	442.40	-100.19	453.60	2.48	-2.08	-7.86	MWD ISCWSA
2535.00	7.72	344.70	2480.87	451.52	-102.84	463.08	2.56	-2.53	2.48	MWD ISCWSA
2599.00	5.64	349.74	2544.43	458.76	-104.53	470.52	3.37	-3.25	7.87	MWD ISCWSA
2662.00	3.73	350.97	2607.22	463.83	-105.40	475.65	3.04	-3.03	1.95	MWD ISCWSA
2667.79	3.53	350.49	2613.00	464.19	-105.46	476.02	3.54	-3.50	-8.31	LEWIS
2727.00	1.49	338.09	2672.15	466.70	-106.05	478.60	3.54	-3.44	-20.94	MWD ISCWSA
2758.00	1.27	303.49	2703.14	467.27	-106.49	479.25	2.73	-0.71	-111.61	MWD ISCWSA
2767.86	1.17	303.49	2713.00	467.38	-106.66	479.40	1.00	-1.00	0.00	new casing point
2802.00	0.83	303.49	2747.13	467.71	-107.16	479.83	1.00	-1.00	0.00	7"
2885.00	0.00	0.00	2830.13	468.04	-107.66	480.27	1.00	-1.00	0.00	INC+TREND
3898.87	0.00	0.00	3844.00	468.04	-107.66	480.27	0.00	0.00	0.00	CLIFF HOUSE
4122.87	0.00	0.00	4068.00	468.04	-107.66	480.27	0.00	0.00	0.00	MENELEE
4590.87	0.00	0.00	4536.00	468.04	-107.66	480.27	0.00	0.00	0.00	POINT LOOKOUT
5028.87	0.00	0.00	4974.00	468.04	-107.66	480.27	0.00	0.00	0.00	MANCOS
6586.87	0.00	0.00	6532.00	468.04	-107.66	480.27	0.00	0.00	0.00	GREENHORN
6646.87	0.00	0.00	6592.00	468.04	-107.66	480.27	0.00	0.00	0.00	GRANEROS
6700.87	0.00	0.00	6646.00	468.04	-107.66	480.27	0.00	0.00	0.00	TWO WELLS
6788.87	0.00	0.00	6734.00	468.04	-107.66	480.27	0.00	0.00	0.00	PAGUATE
6810.87	0.00	0.00	6756.00	468.04	-107.66	480.27	0.00	0.00	0.00	CUBERO
6828.00	0.00	0.00	6773.13	468.04	-107.66	480.27	0.00	0.00	0.00	4 1/2"

Company: BP Field: SAN JUAN, New Mexico Site: SEC 16-T29N-R9W Well: State Gas Com BF #1M Wellpath: OH	Date: 3/22/2006 Co-ordinate(NE) Reference: Well: State Gas Com BF #1M, Grid North Vertical (TVD) Reference: SITE 5811.0 Section (VS) Reference: Well (0.00N,0.00E,347.05Azi) Survey Calculation Method: Minimum Curvature	Time: 08:47:58 Page: 3 Db: Sybase
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Targets

Name	Description Dip. Dir.	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	← Latitude → Deg Min Sec			← Longitude → Deg Min Sec		
FRUITLAND COAL		2056.00	363.28	-82.03	2083178.37	2738623.94	36	43	29.542 N	107	46	49.264 W
new casing point		2713.00	465.00	-105.00	2083280.08	2738600.97	36	43	30.547 N	107	46	49.546 W
PBHL		7016.00	465.00	-105.00	2083280.08	2738600.97	36	43	30.547 N	107	46	49.546 W
-Circle (Radius: 100)												

Casing Points

MD ft	TVD ft	Diameter in	Hole Size in	Name
200.03	200.00	9.625	12.250	9 5/8"
2802.00	2747.13	7.000	8.500	7"
6828.00	6773.13	4.500	4.500	4 1/2"

Formations

MD ft	TVD ft	Formations	Lithology	Dip Angle deg	Dip Direction deg
1112.73	1099.00	OJO ALAMO		0.00	0.00
1294.32	1274.00	KIRTLAND		0.00	0.00
1810.71	1771.00	FRUITLAND		0.00	0.00
2102.55	2056.00	FRUITLAND COAL		0.00	0.00
2368.76	2317.00	PICTURED CLIFFS		0.00	0.00
2667.79	2613.00	LEWIS		0.00	0.00
3898.87	3844.00	CLIFF HOUSE		0.00	0.00
4122.87	4068.00	MENEFEE		0.00	0.00
4590.87	4536.00	POINT LOOKOUT		0.00	0.00
5028.87	4974.00	MANCOS		0.00	0.00
6586.87	6532.00	GREENHORN		0.00	0.00
6646.87	6592.00	GRANEROS		0.00	0.00
6700.87	6646.00	TWO WELLS		0.00	0.00
6788.87	6734.00	PAGUATE		0.00	0.00
6810.87	6756.00	CUBERO		0.00	0.00
	0.00	L. CUBERO		0.00	0.00
	0.00	ENCINAL CYN		0.00	0.00
	0.00	BURRO CYN		0.00	0.00

Annotation

MD ft	TVD ft	
300.00	299.90	kop
2802.00	2747.13	projected survey
6828.00	6773.13	projected to TD



SDI Job #: 32D0306165
COMPANY: BP
LOCATION: SEC 16-T29N-R9W
RIG NAME: AWS 184
STATE: NEW MEXICO
COUNTY: LA PLATA
WELL NAME: STATE GAS COM BF #1

FIELD: SAN JUAN
Sec-Twn-Rng: SEC 16-T29N-R9W
AFE# & District: MIDLAND

COMMENT

BHA Summary Report for JOB

#	TIME IN - OUT		DEPTHS		Footage		ROP		RPM		FLOW		Incl.		Azimuth		Weight Ranges		
	Time IN	Time Out	Hrs.	IN	OUT	Rotary	Slide	Total	AVG.	Rotary	Slide	Rate	IN	OUT	IN	OUT	SO	PU	RAB
1	05-Mar-06 @ 10:30	08-Mar-06 @ 06:00	67.25	132.0	2808.0	2149.0	414.0	2663.0	45.8	50.9	30.9	344-344	.0	.0	.0	.0	28-50	28-65	28-54
					Hours>	42.18	13.40	55.58				0-65							

BUTTON 3X16
O.D.=8 3/4
Length=1.2

SHOCK SUB
O.D.=6 3/8
Length=7

UBHO
O.D.=6 3/8
Length=3

GAP SUB
O.D.=6 3/8
Length=4.88

CUTTER SUB
O.D.=6 3/8
Length=1.97

MOTOR VW 1.5 7/8
O.D.=6 1/2
Length=19.57

FLOAT SUB
O.D.=6 1/2
Length=2.41

NMDC
O.D.=6 3/8
Length=31.13

NMDC
O.D.=6 3/8
Length=31.15

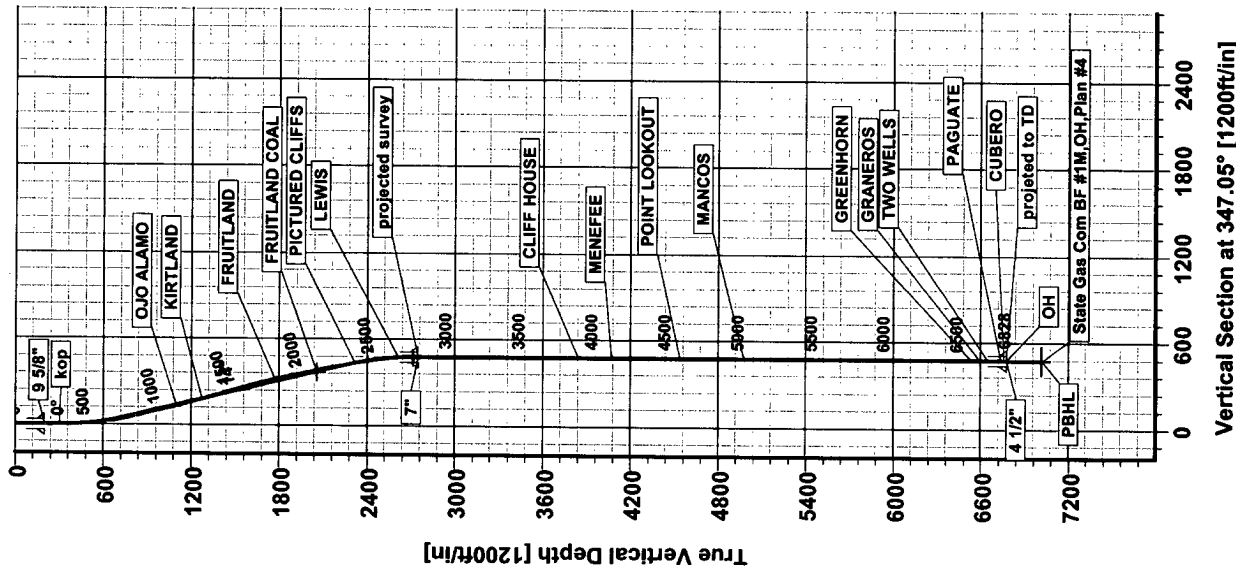




Field: SAN JUAN, New Mexico
Site: SEC 16-T29N-R9W
Well: State Gas Com BF #1M
Wellpath: OH



COMPARISON PLOT

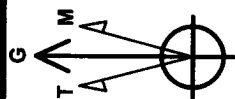


PLANNED

ACTUAL

LEGEND

- State Gas Com BF #1M, OH, Plan #4
- State Gas Com K #1N (actual)
- OH

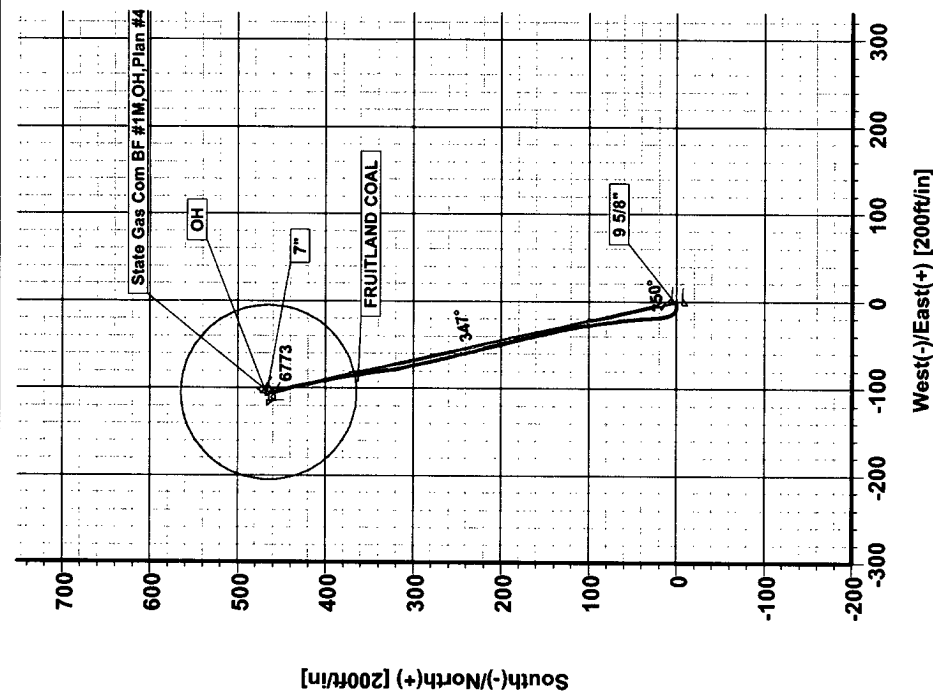


Azimuths to Grid North
True North: -0.03°
Magnetic North: 10.55°

Magnetic Field
Strength: 5132 InT
Dip Angle: 63.61°
Date: 2/28/2006
Model: bggm2005

FORMATION TOP DETAILS

No.	TVDPath	MDPath	Formation
1	1099.00	1112.73	OJO ALAMO
2	1274.00	1294.32	KIRTLAND
3	1771.00	1810.71	FRUITLAND
4	2056.00	2102.55	FRUITLAND COAL
5	2317.00	2368.76	PICTURED CLIFFS
6	2613.00	2667.79	LEWIS
7	3844.00	3898.87	CLIFF HOUSE
8	4068.00	4122.87	MENEFEE
9	4536.00	4590.87	POINT LOOKOUT
10	4974.00	5028.87	MANCOS
11	6532.00	6586.87	GREENHORN
12	6592.00	6646.87	GRANEROS
13	6646.00	6700.87	TWO WELLS
14	6734.00	6788.87	PAGUATE
15	6756.00	6810.87	CUBERO



SURVEY PROGRAM

Date : 3/22/2006 Validated : No Version : 1

Depth Fm	Depth To Survey/Plan	Tool
334.00	2758.00	MWD ISCWSA
2802.00	6828.00	INC+TREND

SITE DETAILS

SEC 16-T29N-R9W
Ground Level: 5797.00
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: bggm2005



Field: SAN JUAN, New Mexico
Site: SEC 16-T29N-R9W
Well: State Gas Com BF #1M
Wellpath: OH



IDA GRAPH - PLANNED VS ACTUAL (INCLINATION, DOGLEG & AZIMUTH)

LEGEND

— State Gas Com BF #1M, OH, Plan #4
— OH

