

Scientific Drilling Survey Report

Company: BP	Date: 6/8/2005	Time: 13:33:11	Page: 1
Field: EDDY COUNTY, NM	Co-ordinate(NE) Reference: Well: SAQUARO STATE #28, Grid North		
Site: SEC 28-T18S-R28E	Vertical (TVD) Reference: GL'3542'+25' 3567.0		
Well: SAQUARO STATE #28	Section (VS) Reference: User (0.00N,0.00E,53.32Azi)		
Wellpath: ORIGINAL HOLE	Survey Calculation Method: Minimum Curvature	Db: Sybase	

Field: EDDY COUNTY, NM EDDY COUNTY, NM USA	Map System: US State Plane Coordinate System 1927	Map Zone: New Mexico, Eastern Zone
Geo Datum: NAD27 (Clarke 1866)	Coordinate System: Well Centre	
Sys Datum: Mean Sea Level	Geomagnetic Model: igrf2005	

Site: SEC 28-T18S-R28E

Site Position:	Northing: 624075.500 ft	Latitude: 32 42 56.142 N
From: Map	Easting: 544980.700 ft	Longitude: 104 11 13.505 W
Position Uncertainty: 0.00 ft		North Reference: Grid
Ground Level: 0.00 ft		Grid Convergence: 0.08 deg

Well: SAQUARO STATE #28	Slot Name:
Well Position: +N/-S 0.00 ft	Latitude: 32 42 56.142 N
+E/-W 0.00 ft	Longitude: 104 11 13.505 W
Position Uncertainty: 0.00 ft	

Wellpath: ORIGINAL HOLE	Drilled From: Surface
Current Datum: GL'3542'+25'	Tie-on Depth: 0.00 ft
Magnetic Data: 4/27/2005	Above System Datum: Mean Sea Level
Field Strength: 49495 nT	Declination: 8.62 deg
Vertical Section: Depth From (TVD)	Mag Dip Angle: 60.68 deg
ft	+E/-W
	ft
0.00	0.00
0.00	0.00
0.00	53.32

Survey Program for Definitive Wellpath			Version: 24	
Date: 6/6/2005	Validated: No	Survey	Toolcode	Tool Name
Actual From ft	To ft			
200.00	7720.00	GYRO SURVEY (200.00-7720.00)	CB-GYRO-MS	Camera based gyro multishot
7786.00	10860.00	MWD SURVEY2 (7786.00-10860.00)	MWD ISCWSA	MWD - Standard

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
200.00	0.55	225.93	200.00	-0.67	-0.69	-0.95	0.27	0.27	0.00	CB-GYRO-MS
400.00	1.39	237.29	399.97	-2.65	-3.42	-4.32	0.43	0.42	5.68	CB-GYRO-MS
600.00	1.56	234.60	599.90	-5.53	-7.68	-9.47	0.09	0.08	-1.34	CB-GYRO-MS
800.00	1.63	236.06	799.82	-8.70	-12.26	-15.03	0.04	0.03	0.73	CB-GYRO-MS
1000.00	1.41	233.57	999.75	-11.75	-16.60	-20.33	0.11	-0.11	-1.24	CB-GYRO-MS
1200.00	1.41	232.41	1199.69	-14.71	-20.53	-25.25	0.01	0.00	-0.58	CB-GYRO-MS
1400.00	1.33	237.49	1399.63	-17.46	-24.44	-30.03	0.07	-0.04	2.54	CB-GYRO-MS
1600.00	1.21	245.55	1599.59	-19.58	-28.32	-34.41	0.11	-0.06	4.03	CB-GYRO-MS
1800.00	1.20	251.97	1799.54	-21.10	-32.23	-38.45	0.07	0.00	3.21	CB-GYRO-MS
2000.00	1.29	250.28	1999.49	-22.51	-36.34	-42.59	0.05	0.04	-0.84	CB-GYRO-MS
2200.00	1.36	251.33	2199.44	-24.03	-40.71	-47.00	0.04	0.03	0.52	CB-GYRO-MS
2400.00	1.34	249.20	2399.39	-25.62	-45.14	-51.51	0.03	-0.01	-1.06	CB-GYRO-MS
2600.00	1.22	251.00	2599.34	-27.14	-49.34	-55.79	0.06	-0.06	0.90	CB-GYRO-MS
2800.00	1.30	250.71	2799.29	-28.59	-53.50	-59.98	0.04	0.04	-0.14	CB-GYRO-MS
3000.00	1.40	248.67	2999.23	-30.23	-57.91	-64.50	0.06	0.05	-1.02	CB-GYRO-MS
3100.80	1.33	253.97	3100.00	-31.00	-60.19	-66.79	0.14	-0.07	5.26	8 5/8"
3200.00	1.28	259.67	3199.18	-31.51	-62.39	-68.86	0.14	-0.05	5.75	CB-GYRO-MS
3400.00	1.05	274.04	3399.14	-31.79	-66.41	-72.25	0.19	-0.11	7.18	CB-GYRO-MS
3600.00	0.98	290.24	3599.11	-31.06	-69.85	-74.57	0.15	-0.03	8.10	CB-GYRO-MS
3800.00	0.98	281.32	3799.08	-30.14	-73.13	-76.65	0.08	0.00	-4.46	CB-GYRO-MS
4000.00	0.77	281.45	3999.05	-29.54	-76.12	-78.69	0.11	-0.10	0.06	CB-GYRO-MS

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Scientific Drilling

Survey Report

Company: BP Field: EDDY COUNTY, NM Site: SEC 28-T18S-R28E Well: SAQUARO STATE #28 Wellpath: ORIGINAL HOLE	Date: 6/8/2005 Co-ordinate(NE) Reference: Well: SAQUARO STATE #28, Grid North Vertical (TVD) Reference: GL'3542'+25' 3567.0 Section (VS) Reference: User (0.00N,0.00E,53.32Azi) Survey Calculation Method: Minimum Curvature 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
4200.00	0.69	274.53	4199.04	-29.17	-78.64	-80.49	0.06	-0.04	-3.46	CB-GYRO-MS
4400.00	0.66	259.95	4399.02	-29.28	-80.97	-82.43	0.09	-0.01	-7.29	CB-GYRO-MS
4600.00	0.57	262.78	4599.01	-29.61	-83.09	-84.33	0.05	-0.04	1.41	CB-GYRO-MS
4800.00	0.44	276.09	4799.00	-29.65	-84.85	-85.76	0.09	-0.06	6.65	CB-GYRO-MS
5000.00	0.47	252.18	4999.00	-29.82	-86.39	-87.10	0.10	0.01	-11.95	CB-GYRO-MS
5200.00	0.52	261.23	5198.99	-30.21	-88.07	-88.67	0.05	0.02	4.52	CB-GYRO-MS
5400.00	0.62	241.41	5398.98	-30.86	-89.91	-90.55	0.11	0.05	-9.91	CB-GYRO-MS
5600.00	0.82	187.39	5598.97	-32.80	-91.05	-92.61	0.34	0.10	-27.01	CB-GYRO-MS
5800.00	0.42	203.54	5798.95	-34.89	-91.53	-94.25	0.22	-0.20	8.07	CB-GYRO-MS
6000.00	1.23	55.20	5998.94	-34.34	-90.06	-92.74	0.80	0.40	-74.17	CB-GYRO-MS
6200.00	2.17	58.73	6198.85	-31.15	-85.06	-86.82	0.47	0.47	1.76	CB-GYRO-MS
6400.00	3.19	50.79	6398.63	-25.67	-77.51	-77.49	0.54	0.51	-3.97	CB-GYRO-MS
6600.00	4.23	59.13	6598.21	-18.36	-66.87	-64.59	0.58	0.52	4.17	CB-GYRO-MS
6800.00	5.45	55.18	6797.49	-9.15	-52.74	-47.76	0.63	0.61	-1.97	CB-GYRO-MS
7000.00	6.47	54.83	6996.41	2.76	-35.73	-27.00	0.51	0.51	-0.17	CB-GYRO-MS
7100.00	6.80	55.89	7095.74	9.33	-26.22	-15.46	0.35	0.33	1.06	CB-GYRO-MS
7200.00	7.79	57.37	7194.93	16.30	-15.61	-2.78	1.01	0.99	1.48	CB-GYRO-MS
7300.00	9.01	56.42	7293.86	24.29	-3.38	11.80	1.23	1.22	-0.95	CB-GYRO-MS
7400.00	9.97	62.28	7392.49	32.64	10.81	28.17	1.36	0.96	5.86	CB-GYRO-MS
7500.00	9.23	64.16	7491.09	40.17	25.69	44.60	0.80	-0.74	1.88	CB-GYRO-MS
7600.00	9.64	62.34	7589.73	47.55	40.32	60.74	0.51	0.41	-1.82	CB-GYRO-MS
7700.00	9.47	66.13	7688.35	54.76	55.26	77.03	0.65	-0.17	3.79	CB-GYRO-MS
7720.00	9.63	67.40	7708.07	56.07	58.31	80.26	1.32	0.80	6.35	CB-GYRO-MS
7786.00	9.80	63.30	7773.12	60.72	68.43	91.15	1.08	0.26	-6.21	MWD ISCWSA
7818.00	9.62	63.73	7804.67	63.12	73.26	96.46	0.61	-0.56	1.34	MWD ISCWSA
7850.00	9.76	62.90	7836.21	65.54	78.07	101.76	0.62	0.44	-2.59	MWD ISCWSA
7882.00	9.69	61.79	7867.75	68.05	82.86	107.10	0.63	-0.22	-3.47	MWD ISCWSA
7944.00	8.87	62.94	7928.94	72.69	91.71	116.97	1.36	-1.32	1.85	MWD ISCWSA
7976.00	8.34	63.49	7960.58	74.85	95.99	121.69	1.68	-1.66	1.72	MWD ISCWSA
8007.00	8.66	63.74	7991.24	76.89	100.09	126.20	1.04	1.03	0.81	MWD ISCWSA
8039.00	8.59	63.01	8022.88	79.04	104.38	130.92	0.41	-0.22	-2.28	MWD ISCWSA
8069.00	8.37	65.42	8052.55	80.96	108.36	135.27	1.39	-0.73	8.03	MWD ISCWSA
8101.00	8.68	63.71	8084.19	83.00	112.65	139.92	1.25	0.97	-5.34	MWD ISCWSA
8135.00	8.87	59.93	8117.80	85.45	117.21	145.05	1.79	0.56	-11.12	MWD ISCWSA
8166.00	8.93	57.79	8148.42	87.93	121.32	149.82	1.09	0.19	-6.90	MWD ISCWSA
8198.00	9.57	56.21	8180.01	90.73	125.63	154.95	2.15	2.00	-4.94	MWD ISCWSA
8230.00	10.04	54.90	8211.54	93.82	130.12	160.40	1.63	1.47	-4.09	MWD ISCWSA
8262.00	10.39	53.33	8243.03	97.15	134.72	166.07	1.40	1.09	-4.91	MWD ISCWSA
8326.00	10.85	51.24	8305.94	104.36	144.05	177.86	0.94	0.72	-3.27	MWD ISCWSA
8358.00	10.74	51.88	8337.37	108.09	148.74	183.85	0.51	-0.34	2.00	MWD ISCWSA
8422.00	10.04	52.98	8400.32	115.13	157.89	195.39	1.14	-1.09	1.72	MWD ISCWSA
8454.00	9.80	55.68	8431.84	118.34	162.36	200.90	1.64	-0.75	8.44	MWD ISCWSA
8485.00	9.70	58.35	8462.39	121.20	166.76	206.14	1.49	-0.32	8.61	MWD ISCWSA
8517.00	9.30	62.30	8493.96	123.82	171.35	211.38	2.39	-1.25	12.34	MWD ISCWSA
8548.00	9.46	62.15	8524.54	126.17	175.82	216.37	0.52	0.52	-0.48	MWD ISCWSA
8580.00	10.04	60.77	8556.08	128.76	180.58	221.74	1.95	1.81	-4.31	MWD ISCWSA
8612.00	10.48	58.91	8587.57	131.63	185.50	227.40	1.72	1.37	-5.81	MWD ISCWSA
8642.00	10.53	57.79	8617.06	134.50	190.16	232.85	0.70	0.17	-3.73	MWD ISCWSA
8674.00	11.15	58.39	8648.49	137.68	195.27	238.85	1.97	1.94	1.87	MWD ISCWSA
8705.00	11.28	58.03	8678.90	140.86	200.39	244.85	0.48	0.42	-1.16	MWD ISCWSA
8737.00	10.74	59.51	8710.31	144.03	205.62	250.94	1.90	-1.69	4.62	MWD ISCWSA
8769.00	9.31	58.83	8741.82	146.88	210.40	256.48	4.48	-4.47	-2.12	MWD ISCWSA
8799.00	9.17	54.21	8771.43	149.53	214.42	261.28	2.52	-0.47	-15.40	MWD ISCWSA

Scientific Drilling

Survey Report

Company: BP Field: EDDY COUNTY, NM Site: SEC 28-T18S-R28E Well: SAQUARO STATE #28 Wellpath: ORIGINAL HOLE	Date: 6/8/2005 Co-ordinate(NE) Reference: Vertical (TVD) Reference: Section (VS) Reference: Survey Calculation Method:	Time: 13:33:11 Well: SAQUARO STATE #28, Grid North User: (0.00N,0.00E,53.32Azi) Minimum Curvature Db: Sybase	Page: 3
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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
8831.00	9.34	51.62	8803.02	152.64	218.52	266.43	1.41	0.53	-8.09	MWD ISCWSA
8863.00	10.33	50.52	8834.55	156.07	222.77	271.89	3.15	3.09	-3.44	MWD ISCWSA
8895.00	11.42	51.47	8865.97	159.87	227.47	277.92	3.45	3.41	2.97	MWD ISCWSA
8925.00	12.40	51.71	8895.33	163.72	232.32	284.11	3.27	3.27	0.80	MWD ISCWSA
8956.00	12.93	51.26	8925.57	167.95	237.63	290.90	1.74	1.71	-1.45	MWD ISCWSA
8987.00	13.49	49.93	8955.75	172.45	243.11	297.98	2.06	1.81	-4.29	MWD ISCWSA
9019.00	13.77	48.39	8986.85	177.38	248.81	305.50	1.43	0.87	-4.81	MWD ISCWSA
9051.00	13.46	48.82	9017.95	182.36	254.46	313.01	1.02	-0.97	1.34	MWD ISCWSA
9082.00	13.82	48.36	9048.08	187.20	259.94	320.29	1.21	1.16	-1.48	MWD ISCWSA
9114.00	13.97	49.29	9079.14	192.25	265.73	327.95	0.84	0.47	2.91	MWD ISCWSA
9146.00	14.02	49.13	9110.19	197.31	271.59	335.67	0.20	0.16	-0.50	MWD ISCWSA
9176.00	13.79	48.55	9139.31	202.05	277.02	342.86	0.90	-0.77	-1.93	MWD ISCWSA
9208.00	13.54	49.11	9170.40	207.03	282.71	350.39	0.88	-0.78	1.75	MWD ISCWSA
9240.00	12.94	49.35	9201.55	211.82	288.26	357.70	1.88	-1.87	0.75	MWD ISCWSA
9271.00	12.44	49.63	9231.80	216.24	293.43	364.50	1.63	-1.61	0.90	MWD ISCWSA
9303.00	11.96	50.54	9263.07	220.58	298.62	371.25	1.62	-1.50	2.84	MWD ISCWSA
9335.00	11.79	50.56	9294.39	224.77	303.70	377.83	0.53	-0.53	0.06	MWD ISCWSA
9367.00	11.72	49.26	9325.72	228.96	308.69	384.34	0.86	-0.22	-4.06	MWD ISCWSA
9399.00	11.47	48.25	9357.07	233.20	313.53	390.75	1.01	-0.78	-3.16	MWD ISCWSA
9431.00	11.12	47.46	9388.45	237.41	318.17	396.99	1.20	-1.09	-2.47	MWD ISCWSA
9495.00	10.35	48.11	9451.32	245.42	327.00	408.85	1.22	-1.20	1.02	MWD ISCWSA
9527.00	10.03	47.73	9482.82	249.21	331.20	414.49	1.02	-1.00	-1.19	MWD ISCWSA
9559.00	9.61	47.98	9514.35	252.88	335.25	419.92	1.32	-1.31	0.78	MWD ISCWSA
9591.00	8.98	47.30	9545.93	256.36	339.07	425.06	2.00	-1.97	-2.12	MWD ISCWSA
9622.00	8.72	46.94	9576.56	259.60	342.57	429.80	0.86	-0.84	-1.16	MWD ISCWSA
9653.00	8.65	48.53	9607.21	262.75	346.03	434.46	0.81	-0.23	5.13	MWD ISCWSA
9685.00	8.56	51.19	9638.85	265.84	349.69	439.24	1.28	-0.28	8.31	MWD ISCWSA
9717.00	8.31	54.55	9670.50	268.67	353.43	443.93	1.73	-0.78	10.50	MWD ISCWSA
9749.00	8.18	56.36	9702.17	271.27	357.21	448.52	0.91	-0.41	5.66	MWD ISCWSA
9781.00	7.94	55.44	9733.85	273.79	360.92	453.00	0.85	-0.75	-2.87	MWD ISCWSA
9813.00	7.35	54.96	9765.57	276.22	364.42	457.25	1.85	-1.84	-1.50	MWD ISCWSA
9844.00	7.42	56.30	9796.31	278.47	367.71	461.24	0.60	0.23	4.32	MWD ISCWSA
9876.00	7.46	59.66	9828.04	280.66	371.22	465.36	1.37	0.12	10.50	MWD ISCWSA
9908.00	7.22	59.86	9859.78	282.72	374.75	469.43	0.75	-0.75	0.62	MWD ISCWSA
9940.00	7.09	60.48	9891.53	284.70	378.21	473.38	0.47	-0.41	1.94	MWD ISCWSA
9972.00	7.37	58.48	9923.28	286.75	381.68	477.39	1.18	0.87	-6.25	MWD ISCWSA
10004.00	7.19	59.77	9955.02	288.83	385.16	481.42	0.76	-0.56	4.03	MWD ISCWSA
10036.00	7.25	60.65	9986.76	290.83	388.65	485.41	0.39	0.19	2.75	MWD ISCWSA
10067.00	6.84	58.46	10017.53	292.75	391.92	489.19	1.58	-1.32	-7.06	MWD ISCWSA
10099.00	6.56	57.71	10049.31	294.73	395.09	492.91	0.92	-0.87	-2.34	MWD ISCWSA
10131.00	6.18	57.70	10081.11	296.62	398.09	496.45	1.19	-1.19	-0.03	MWD ISCWSA
10161.00	6.60	56.86	10110.93	298.43	400.90	499.78	1.43	1.40	-2.80	MWD ISCWSA
10223.00	7.14	51.49	10172.48	302.78	406.90	507.19	1.35	0.87	-8.66	MWD ISCWSA
10254.00	6.84	47.61	10203.25	305.22	409.77	510.95	1.80	-0.97	-12.52	MWD ISCWSA
10318.00	6.33	53.15	10266.83	309.91	415.41	518.27	1.27	-0.80	8.66	MWD ISCWSA
10381.00	6.34	57.29	10329.45	313.87	421.12	525.22	0.73	0.02	6.57	MWD ISCWSA
10413.00	6.31	57.31	10361.25	315.77	424.08	528.73	0.09	-0.09	0.06	MWD ISCWSA
10444.00	6.73	60.00	10392.05	317.60	427.09	532.24	1.67	1.35	8.68	MWD ISCWSA
10477.00	6.68	61.31	10424.83	319.49	430.45	536.06	0.49	-0.15	3.97	MWD ISCWSA
10509.00	6.66	60.93	10456.61	321.28	433.70	539.74	0.15	-0.06	-1.19	MWD ISCWSA
10541.00	6.14	58.10	10488.41	323.09	436.78	543.29	1.90	-1.62	-8.84	MWD ISCWSA
10573.00	5.69	53.88	10520.24	324.93	439.51	546.58	1.95	-1.41	-13.19	MWD ISCWSA
10605.00	5.72	50.32	10552.08	326.88	442.02	549.76	1.11	0.09	-11.12	MWD ISCWSA
10636.00	6.18	54.03	10582.91	328.85	444.56	552.97	1.93	1.48	11.97	MWD ISCWSA

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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
10667.00	6.80	51.97	10613.72	330.96	447.36	556.47	2.14	2.00	-6.65	MWD ISCWSA
10699.00	7.08	54.10	10645.48	333.28	450.45	560.34	1.19	0.87	6.66	MWD ISCWSA
10730.00	6.93	53.72	10676.25	335.51	453.50	564.12	0.51	-0.48	-1.23	MWD ISCWSA
10761.00	6.92	53.54	10707.02	337.73	456.51	567.85	0.08	-0.03	-0.58	MWD ISCWSA
10805.00	6.90	53.22	10750.70	340.88	460.76	573.15	0.10	-0.05	-0.73	MWD ISCWSA
10860.00	6.90	53.22	10805.31	344.84	466.05	579.76	0.00	0.00	0.00	Projected to TD

Casing Points

MD ft	TVD ft	Diameter in	Hole Size in	Name
3100.80	3100.00	8.625	11.000	8 5/8"

Annotation

MD ft	TVD ft	
10860.00	10805.31	Projected to TD