

Results of Directional Survey

API number:	30-025-40088		
OGRID:		Operator:	YATES PETROLEUM CORPORATION
		Property:	BLACK RAIDER BQK STATE COM # 1H

surface	ULSTR:	M	36	T	24S	R	34E
				330	FSL	660	FWL

BH Loc	ULSTR:	D	36	T	24S	R	34E
13675	MD	9335.2	TVD	399	FNL	622	FWL
				4881	FSL		

Top Perf/OH	ULSTR:	M	36	T	24S	R	34E
9735	MD	9404.6	TVD	945	FSL	675	FWL

Bot Perf/OH	ULSTR:	D	36	T	24S	R	34E
13563	MD	9343.9	TVD	510	FNL	619	FWL
				4770	FSL		

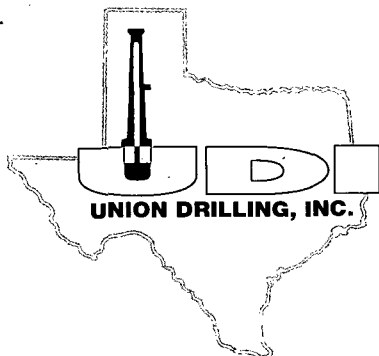
	MD	N/S	E/W	VD
	9716	595.70	14.50	9404.4
TOP PERFS/OH	9735	614.70	14.70	9404.60
	9745	624.70	14.80	9404.70
	13446	4323.20	-43.60	9353.10
BOT PERFS/OH	13563	4439.71	-40.89	9343.86
	13541	4417.80	-41.40	9345.60

NEXT TO LAST	13618	4494.60	-39.70	9340.00
LAST READING	13675	4551.40	-38.10	9335.20
TD	13675	4551.40	-38.10	9335.20

Surface Location	330	FS	660	FW
Projected BHL	4881	FS	622	FW
Location of				
Top Perfs/OH	945	FS	675	FW
Bottom Perfs/OH	4770	FS	619	FW

SUMMARY of Subsurface Locations

Surface Location	M-36-24S-34E	330	FS	660	FW	Vert. Depth
Top Perfs/OH	M-36-24S-34E	945	FS	675	FW	9404.60
Bottom Perfs/OH	D-36-24S-34E	4770	FS	619	FW	9343.86
Projected TD	D-36-24S-34E	4881	FS	622	FW	9335.20



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SUR @ M-36-224s-34e, 330/S & 660/W
BHL @ D-36-24s-34e, 4881/S & 622/W
API # 30-025-40088

Well Name & Number: Black Raider "BOK" State #1H

API Number: 30-025-40088

Location: 330 FSL & 660 FSL, Lot M Sec. 36, Township 24-S, Range 34-E, Lea County, New Mexico

Operator: Yates Petroleum Corporation

Drilling Contractor: Union Drilling, Inc.

The undersigned hereby certifies that he is an authorized representative of the drilling Contractor who drilled the above described well and that deviation survey tests were conducted and he obtained the following results:

RECORD OF INCLINATION

*11. Measured Depth (feet)	12. Course Length (Hundreds of feet)	*13. Angle of Inclination (Degrees)	14. Displacement per Hundred Feet (Sine of Angle X100)	15. Course Displacement (feet)	16. Accumulative Displacement (feet)
250	250	.87	1.52	3.80	3.80
618	368	.3	0.52	1.93	5.72
1725	1107	1	1.75	19.32	25.04
2106	381	.7	1.22	4.65	29.70
3055	949	2.3	4.01	38.09	67.79
4005	950	1.4	2.44	23.21	91.00
4859	854	2.8	4.89	41.73	132.73
5745	886	.7	1.22	10.82	143.56
6315	570	.4	0.70	3.98	147.54
7303	988	.6	1.05	10.35	157.88
7644	341	.2	0.35	1.19	159.07
8572	928	.7	1.22	11.34	170.41
9080	508	.9	1.57	7.98	178.39
DIRECTIONAL					
TOOK OVER					

Drilling Contractor: Union Drilling, Inc.

By: Jim Mayfield
Jim Mayfield

Title: Division Manager

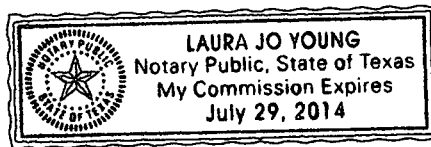
Subscribed and sworn to before me this 14TH Day of November, 2012.

Laura Jo Young
Notary Public

My Commission Expires: July 29, 2014

COUNTY OF TAYLOR)

STATE OF TEXAS)





Job Number: SVMO-120028
 Company: Yates Petroleum Corporation
 Lease/Well: Black Raider "BQK" State 1H
 Location: Lea County, NM
 Rig Name: UDI #223
 RKB: 25'
 G.L. or M.S.L.: GL

State/Country: New Mexico/USA
 Declination: 6.88°
 Grid: East To Grid North
 File name: F:\SURVEY\2012SU-1\YATES\MO\BLACKR-1\1H.SVY
 Date/Time: 25-Oct-12 / 16:04
 Curve Name: Surface - 8767' M.D. (SRG)

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WINSERVE SURVEY CALCULATIONS
 Minimum Curvature Method
 Vertical Section Plane 359.49
 Vertical Section Referenced to Wellhead
 Rectangular Coordinates Referenced to Wellhead

We hereby certify that our survey data from
 Surface MD to 8,767' MD is, to the best of
 our knowledge a true and accurate account of
 the well bore.
 Daniel West 10/25/12
 MS Energy Services Date

SUR @ M-36-224s-34e, 330/S & 660/W
 BHL @ D-36-24s-34e, 4881/S & 622/W
 API # 30-025-40088

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
100.00	.06	15.33	100.00	.05	.01	.05	.05	15.34	.06
200.00	.11	298.07	200.00	.15	-.06	.15	.16	338.69	.11
300.00	.14	239.63	300.00	.13	-.25	.13	.28	297.67	.12
400.00	.20	193.47	400.00	-.10	-.39	-.10	.41	255.47	.14
500.00	.13	229.01	500.00	-.35	-.52	-.34	.62	236.33	.12
600.00	.31	247.21	600.00	-.53	-.85	-.52	1.00	238.42	.19
700.00	.34	211.94	700.00	-.88	-1.26	-.87	1.54	235.03	.20
800.00	.31	236.02	800.00	-1.28	-1.64	-1.27	2.09	231.96	.14
900.00	.43	234.67	899.99	-1.65	-2.17	-1.63	2.73	232.73	.12

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	C L O S U R E		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
1000.00	.40	212.45	999.99	-2.16	-2.67	-2.14	3.43	230.93	.16
1100.00	.32	232.14	1099.99	-2.63	-3.07	-2.60	4.05	229.44	.15
1200.00	.50	230.19	1199.99	-3.08	-3.63	-3.05	4.76	229.67	.18
1300.00	.46	215.18	1299.98	-3.69	-4.20	-3.65	5.59	228.68	.13
1400.00	.27	206.89	1399.98	-4.23	-4.53	-4.19	6.20	227.01	.20
1500.00	.21	253.82	1499.98	-4.49	-4.82	-4.45	6.58	227.02	.20
1600.00	.31	263.92	1599.98	-4.57	-5.26	-4.52	6.97	229.04	.11
1700.00	.30	227.83	1699.98	-4.77	-5.72	-4.72	7.45	230.18	.19
1800.00	.19	241.05	1799.98	-5.03	-6.06	-4.97	7.88	230.33	.12
1900.00	.37	266.08	1899.98	-5.13	-6.53	-5.07	8.31	231.85	.21
2000.00	.63	253.44	1999.97	-5.31	-7.38	-5.24	9.09	234.27	.28
2100.00	.64	245.01	2099.97	-5.70	-8.41	-5.63	10.16	235.87	.09
2200.00	.71	258.58	2199.96	-6.06	-9.53	-5.98	11.29	237.54	.17
2300.00	.96	265.11	2299.95	-6.25	-10.97	-6.16	12.63	240.31	.27
2400.00	1.14	259.94	2399.93	-6.50	-12.78	-6.39	14.34	243.05	.20
2500.00	1.21	267.87	2499.91	-6.71	-14.82	-6.58	16.27	245.63	.18
2600.00	1.54	279.70	2599.88	-6.53	-17.20	-6.37	18.39	249.22	.43
2700.00	2.00	286.98	2699.83	-5.79	-20.19	-5.61	21.00	254.00	.51
2800.00	2.41	290.58	2799.76	-4.54	-23.83	-4.33	24.26	259.21	.43
2900.00	2.42	295.67	2899.67	-2.89	-27.70	-2.64	27.85	264.05	.21
3000.00	2.53	305.45	2999.58	-.69	-31.40	-.41	31.41	268.74	.44
3100.00	2.54	312.88	3099.48	2.10	-34.82	2.40	34.88	273.44	.33
3200.00	2.25	321.90	3199.39	5.15	-37.66	5.48	38.01	277.78	.47
3300.00	1.95	334.25	3299.33	8.22	-39.61	8.58	40.45	281.73	.54
3400.00	1.98	351.45	3399.27	11.47	-40.60	11.83	42.19	285.77	.59
3500.00	2.71	8.05	3499.18	15.51	-40.53	15.87	43.40	290.95	.99
3600.00	3.34	15.11	3599.05	20.67	-39.44	21.02	44.53	297.66	.73
3700.00	2.97	21.11	3698.89	25.90	-37.75	26.23	45.78	304.45	.50
3800.00	2.52	25.29	3798.78	30.30	-35.87	30.62	46.96	310.19	.49

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	C L O S U R E		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
3900.00	1.87	30.76	3898.71	33.69	-34.10	33.99	47.94	314.65	.68
4000.00	1.81	30.36	3998.65	36.46	-32.47	36.74	48.82	318.31	.06
4100.00	1.90	28.54	4098.60	39.28	-30.88	39.55	49.96	321.83	.11
4200.00	2.25	28.62	4198.54	42.45	-29.14	42.71	51.50	325.53	.35
4300.00	2.34	26.29	4298.46	46.01	-27.30	46.25	53.50	329.32	.13
4400.00	2.54	25.88	4398.36	49.83	-25.43	50.06	55.95	332.97	.20
4500.00	3.81	47.36	4498.21	54.08	-22.02	54.27	58.39	337.85	1.72
4600.00	4.15	63.93	4597.97	57.92	-16.32	58.06	60.17	344.26	1.19
4700.00	4.30	75.24	4697.70	60.46	-9.45	60.54	61.20	351.12	.85
4800.00	3.14	77.57	4797.49	62.01	-3.15	62.03	62.09	357.09	1.17
4900.00	3.16	78.60	4897.34	63.14	2.23	63.12	63.18	2.02	.06
5000.00	3.13	81.59	4997.19	64.09	7.63	64.02	64.54	6.79	.17
5100.00	2.50	90.09	5097.07	64.48	12.51	64.37	65.68	10.98	.75
5200.00	2.17	100.65	5196.99	64.13	16.56	63.98	66.23	14.48	.54
5300.00	1.52	106.66	5296.93	63.40	19.69	63.22	66.38	17.25	.68
5400.00	1.37	114.30	5396.90	62.53	22.05	62.33	66.30	19.42	.24
5500.00	.92	134.00	5496.88	61.48	23.71	61.26	65.89	21.09	.59
5600.00	.59	146.67	5596.87	60.49	24.57	60.27	65.29	22.11	.37
5700.00	.48	167.12	5696.87	59.65	24.95	59.43	64.66	22.70	.22
5800.00	.56	174.83	5796.87	58.76	25.09	58.53	63.89	23.12	.11
5900.00	.44	181.08	5896.86	57.88	25.12	57.66	63.10	23.46	.13
6000.00	.51	166.65	5996.86	57.07	25.22	56.84	62.39	23.84	.14
6100.00	.42	150.91	6096.86	56.31	25.50	56.09	61.82	24.36	.16
6200.00	.26	161.24	6196.85	55.78	25.75	55.55	61.44	24.78	.17
6300.00	.28	176.00	6296.85	55.32	25.84	55.09	61.06	25.04	.07
6400.00	.35	169.17	6396.85	54.78	25.92	54.54	60.60	25.32	.08
6500.00	.32	138.76	6496.85	54.27	26.16	54.03	60.24	25.74	.18
6600.00	.13	72.22	6596.85	54.09	26.45	53.85	60.21	26.06	.29
6700.00	.05	282.92	6696.85	54.14	26.52	53.90	60.28	26.10	.17

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	C L O S U R E		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
6800.00	.02	326.03	6796.85	54.16	26.46	53.92	60.28	26.04	.04
6900.00	.19	23.89	6896.85	54.33	26.52	54.09	60.45	26.02	.18
7000.00	.34	343.07	6996.85	54.76	26.50	54.52	60.84	25.82	.23
7100.00	.38	336.48	7096.85	55.35	26.28	55.11	61.27	25.40	.06
7200.00	.40	4.63	7196.84	56.00	26.18	55.77	61.82	25.05	.19
7300.00	.63	16.81	7296.84	56.88	26.37	56.64	62.69	24.87	.25
7400.00	.29	21.21	7396.84	57.64	26.62	57.40	63.49	24.79	.34
7500.00	.30	35.20	7496.83	58.09	26.86	57.85	64.00	24.82	.07
7600.00	.30	4.75	7596.83	58.56	27.03	58.32	64.50	24.78	.16
7700.00	.09	20.40	7696.83	58.90	27.08	58.65	64.82	24.69	.21
7800.00	.06	27.13	7796.83	59.02	27.13	58.77	64.96	24.69	.03
7900.00	.24	197.02	7896.83	58.86	27.09	58.62	64.80	24.72	.30
8000.00	.12	176.46	7996.83	58.56	27.04	58.32	64.50	24.79	.13
8100.00	.48	177.17	8096.83	58.04	27.07	57.79	64.04	25.00	.36
8200.00	.46	209.49	8196.83	57.27	26.89	57.03	63.27	25.15	.26
8300.00	.25	236.34	8296.82	56.80	26.51	56.56	62.68	25.02	.26
8400.00	.68	205.66	8396.82	56.14	26.07	55.91	61.90	24.91	.48
8500.00	.78	222.09	8496.81	55.10	25.36	54.87	60.66	24.71	.23
8600.00	.74	234.17	8596.80	54.22	24.38	54.00	59.45	24.21	.16
8700.00	.75	230.69	8696.80	53.43	23.35	53.22	58.31	23.61	.05
Last Survey Depth Recorded									
8767.00	.92	254.95	8763.79	53.01	22.49	52.81	57.58	22.99	.58

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Yates Petroleum

Lea County, NM (NAD-83)
Black Raider "BQK" State
#1H

OH

SUR @ M-36-224s-34e, 330/S & 660/W
BHL @ D-36-24s-34e, 4881/S & 622/W
API # 30-025-40088

Design: OH

Standard Survey Report

07 November, 2012





Survey Report



Company:	Yates Petroleum	Local Co-ordinate Reference:	Well #1H
Project:	Lea County, NM (NAD-83)	TVD Reference:	RKB @ 3414.0usft (Union 223)
Site:	Black Raider "BQK" State	MD Reference:	RKB @ 3414.0usft (Union 223)
Well:	#1H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Houston R5000 Database

Project:	Lea County, NM (NAD-83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Black Raider "BQK" State			
Site Position:		Northing:	425,897.61 usft	Latitude: 32° 10' 3.526 N
From:	Map	Easting:	820,832.30 usft	Longitude: 103° 25' 48.257 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence: 0.48 °

Well	#1H			
Well Position	+N/-S	0.0 usft	Northing:	425,897.61 usft
	+E/-W	0.0 usft	Easting:	820,832.30 usft
Position Uncertainty	2.0 usft	Wellhead Elevation:	usft	Ground Level: 3,389.0 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	8/28/2012	7.36	60.16	48,518

Design	OH			
Audit Notes:				
Version:	1.0	Phase:	ACTUAL	Tie On Depth: 0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	359.49

Survey Program	Date 11/7/2012			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.0	8,500.0	Survey #1 - MS Gyro (OH)	CB-GYRO-MS	Camera based gyro multishot
8,572.0	13,618.0	Survey #2 - Crescent1 (OH)	MWD	MWD - Standard
13,675.0	13,675.0	Survey #3 - PTB (OH)	MWD	MWD - Standard

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
100.0	0.06	15.33	100.0	0.1	0.0	0.1	0.06	0.06	0.00	
200.0	0.11	298.07	200.0	0.1	-0.1	0.1	0.11	0.05	-77.26	
300.0	0.14	239.63	300.0	0.1	-0.2	0.1	0.12	0.03	-58.44	
400.0	0.20	193.47	400.0	-0.1	-0.4	-0.1	0.14	0.06	-46.16	
500.0	0.13	229.01	500.0	-0.3	-0.5	-0.3	0.12	-0.07	35.54	
600.0	0.31	247.21	600.0	-0.5	-0.9	-0.5	0.19	0.18	18.20	
700.0	0.34	211.94	700.0	-0.9	-1.3	-0.9	0.20	0.03	-35.27	
800.0	0.31	236.02	800.0	-1.3	-1.6	-1.3	0.14	-0.03	24.08	



Survey Report



Company: Yates Petroleum
Project: Lea County, NM (NAD-83)
Site: Black Raider "BQK" State
Well: #1H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well #1H
TVD Reference: RKB @ 3414.0usft (Union 223)
MD Reference: RKB @ 3414.0usft (Union 223)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Houston R5000 Database

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
900.0	0.43	234.67	900.0	-1.7	-2.2	-1.6	0.12	0.12	-1.35
1,000.0	0.40	212.45	1,000.0	-2.2	-2.7	-2.1	0.16	-0.03	-22.22
1,100.0	0.32	232.14	1,100.0	-2.6	-3.1	-2.6	0.15	-0.08	19.69
1,200.0	0.50	230.19	1,200.0	-3.1	-3.6	-3.0	0.18	0.18	-1.95
1,300.0	0.46	215.18	1,300.0	-3.7	-4.2	-3.7	0.13	-0.04	-15.01
1,400.0	0.27	206.89	1,400.0	-4.2	-4.5	-4.2	0.20	-0.19	-8.29
1,500.0	0.21	253.82	1,500.0	-4.5	-4.8	-4.4	0.20	-0.06	46.93
1,600.0	0.31	263.92	1,600.0	-4.6	-5.3	-4.5	0.11	0.10	10.10
1,700.0	0.30	227.83	1,700.0	-4.8	-5.7	-4.7	0.19	-0.01	-36.09
1,800.0	0.19	241.05	1,800.0	-5.0	-6.1	-5.0	0.12	-0.11	13.22
1,900.0	0.37	266.08	1,900.0	-5.1	-6.5	-5.1	0.21	0.18	25.03
2,000.0	0.63	253.44	2,000.0	-5.3	-7.4	-5.2	0.28	0.26	-12.64
2,100.0	0.64	245.01	2,100.0	-5.7	-8.4	-5.6	0.09	0.01	-8.43
2,200.0	0.71	258.58	2,200.0	-6.1	-9.5	-6.0	0.17	0.07	13.57
2,300.0	0.96	265.11	2,299.9	-6.3	-11.0	-6.2	0.27	0.25	6.53
2,400.0	1.14	259.94	2,399.9	-6.5	-12.8	-6.4	0.20	0.18	-5.17
2,500.0	1.21	267.87	2,499.9	-6.7	-14.8	-6.6	0.18	0.07	7.93
2,600.0	1.54	279.70	2,599.9	-6.5	-17.2	-6.4	0.43	0.33	11.83
2,700.0	2.00	286.98	2,699.8	-5.8	-20.2	-5.6	0.51	0.46	7.28
2,800.0	2.41	290.58	2,799.8	-4.5	-23.8	-4.3	0.43	0.41	3.60
2,900.0	2.42	295.67	2,899.7	-2.9	-27.7	-2.6	0.21	0.01	5.09
3,000.0	2.53	305.45	2,999.6	-0.7	-31.4	-0.4	0.44	0.11	9.78
3,024.5	2.53	307.27	3,024.1	-0.1	-32.3	0.2	0.33	-0.01	7.44
Cross into 330' Lease - 3024.5' MD, 3024.1' TVD, 2.53° INC									
3,100.0	2.54	312.88	3,099.5	2.1	-34.8	2.4	0.33	0.02	7.43
3,200.0	2.25	321.90	3,199.4	5.1	-37.7	5.5	0.47	-0.29	9.02
3,300.0	1.95	334.25	3,299.3	8.2	-39.6	8.6	0.54	-0.30	12.35
3,400.0	1.98	351.45	3,399.3	11.5	-40.6	11.8	0.59	0.03	17.20
3,500.0	2.71	8.05	3,499.2	15.5	-40.5	15.9	0.99	0.73	16.60
3,600.0	3.34	15.11	3,599.0	20.7	-39.4	21.0	0.73	0.63	7.06
3,700.0	2.97	21.11	3,698.9	25.9	-37.7	26.2	0.50	-0.37	6.00
3,800.0	2.52	25.29	3,798.8	30.3	-35.9	30.6	0.49	-0.45	4.18
3,900.0	1.87	30.76	3,898.7	33.7	-34.1	34.0	0.68	-0.65	5.47
4,000.0	1.81	30.36	3,998.7	36.5	-32.5	36.7	0.06	-0.06	-0.40
4,100.0	1.90	28.54	4,098.6	39.3	-30.9	39.5	0.11	0.09	-1.82
4,200.0	2.25	28.62	4,198.5	42.5	-29.1	42.7	0.35	0.35	0.08
4,300.0	2.34	26.29	4,298.5	46.0	-27.3	46.2	0.13	0.09	-2.33
4,400.0	2.54	25.88	4,398.4	49.8	-25.4	50.1	0.20	0.20	-0.41
4,500.0	3.81	47.36	4,498.2	54.1	-22.0	54.3	1.72	1.27	21.48
4,600.0	4.15	63.93	4,598.0	57.9	-16.3	58.1	1.19	0.34	16.57
4,700.0	4.30	75.24	4,697.7	60.5	-9.4	60.5	0.85	0.15	11.31
4,800.0	3.14	77.57	4,797.5	62.0	-3.1	62.0	1.17	-1.16	2.33
4,900.0	3.16	78.60	4,897.3	63.1	2.2	63.1	0.06	0.02	1.03



Survey Report



Company: Yates Petroleum
Project: Lea County, NM (NAD-83)
Site: Black Raider "BQK" State
Well: #1H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well #1H
TVD Reference: RKB @ 3414.0usft (Union 223)
MD Reference: RKB @ 3414.0usft (Union 223)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Houston R5000 Database

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,000.0	3.13	81.59	4,997.2	64.1	7.6	64.0	0.17	-0.03	2.99
5,100.0	2.50	90.09	5,097.1	64.5	12.5	64.4	0.75	-0.63	8.50
5,200.0	2.17	100.65	5,197.0	64.1	16.6	64.0	0.54	-0.33	10.56
5,300.0	1.52	106.66	5,296.9	63.4	19.7	63.2	0.68	-0.65	6.01
5,400.0	1.37	114.30	5,396.9	62.5	22.0	62.3	0.24	-0.15	7.64
5,500.0	0.92	134.00	5,496.9	61.5	23.7	61.3	0.59	-0.45	19.70
5,600.0	0.59	146.67	5,596.9	60.5	24.6	60.3	0.37	-0.33	12.67
5,700.0	0.48	167.12	5,696.9	59.7	25.0	59.4	0.22	-0.11	20.45
5,800.0	0.56	174.83	5,796.9	58.8	25.1	58.5	0.11	0.08	7.71
5,900.0	0.44	181.08	5,896.9	57.9	25.1	57.7	0.13	-0.12	6.25
6,000.0	0.51	166.65	5,996.9	57.1	25.2	56.8	0.14	0.07	-14.43
6,100.0	0.42	150.91	6,096.9	56.3	25.5	56.1	0.16	-0.09	-15.74
6,200.0	0.26	161.24	6,196.9	55.8	25.8	55.5	0.17	-0.16	10.33
6,300.0	0.28	176.00	6,296.9	55.3	25.8	55.1	0.07	0.02	14.76
6,400.0	0.35	169.17	6,396.9	54.8	25.9	54.5	0.08	0.07	-6.83
6,500.0	0.32	138.76	6,496.8	54.3	26.2	54.0	0.18	-0.03	-30.41
6,600.0	0.13	72.22	6,596.8	54.1	26.5	53.9	0.29	-0.19	-66.54
6,700.0	0.05	282.92	6,696.8	54.1	26.5	53.9	0.17	-0.08	-149.30
6,800.0	0.02	326.03	6,796.8	54.2	26.5	53.9	0.04	-0.03	43.11
6,900.0	0.19	23.89	6,896.8	54.3	26.5	54.1	0.18	0.17	57.86
7,000.0	0.34	343.07	6,996.8	54.8	26.5	54.5	0.23	0.15	-40.82
7,100.0	0.38	336.48	7,096.8	55.3	26.3	55.1	0.06	0.04	-6.59
7,200.0	0.40	4.63	7,196.8	56.0	26.2	55.8	0.19	0.02	28.15
7,300.0	0.63	16.81	7,296.8	56.9	26.4	56.6	0.25	0.23	12.18
7,400.0	0.29	21.21	7,396.8	57.6	26.6	57.4	0.34	-0.34	4.40
7,500.0	0.30	35.20	7,496.8	58.1	26.9	57.8	0.07	0.01	13.99
7,600.0	0.30	4.75	7,596.8	58.6	27.0	58.3	0.16	0.00	-30.45
7,700.0	0.09	20.40	7,696.8	58.9	27.1	58.7	0.21	-0.21	15.65
7,800.0	0.06	27.13	7,796.8	59.0	27.1	58.8	0.03	-0.03	6.73
7,900.0	0.24	197.02	7,896.8	58.9	27.1	58.6	0.30	0.18	169.89
8,000.0	0.12	176.46	7,996.8	58.6	27.0	58.3	0.13	-0.12	-20.56
8,100.0	0.48	177.17	8,096.8	58.0	27.1	57.8	0.36	0.36	0.71
8,200.0	0.46	209.49	8,196.8	57.3	26.9	57.0	0.26	-0.02	32.32
8,300.0	0.25	236.34	8,296.8	56.8	26.5	56.6	0.26	-0.21	26.85
8,400.0	0.68	205.66	8,396.8	56.1	26.1	55.9	0.48	0.43	-30.68
8,500.0	0.78	222.09	8,496.8	55.1	25.4	54.9	0.23	0.10	16.43
8,572.0	0.70	210.10	8,568.8	54.4	24.8	54.1	0.24	-0.11	-16.65
8,668.0	0.70	228.90	8,664.8	53.5	24.1	53.2	0.24	0.00	19.58
8,763.0	0.90	228.90	8,759.8	52.6	23.1	52.4	0.21	0.21	0.00
8,826.0	0.70	266.70	8,822.8	52.2	22.3	52.0	0.88	-0.32	60.00
8,858.0	1.40	349.10	8,854.8	52.6	22.0	52.4	4.63	2.19	257.50
KOP - 8858.0' MD, 8854.8' TVD, 1.40° INC, 349.10° AZI, 52.4' VS									
8,889.0	3.70	357.40	8,885.7	54.0	21.9	53.8	7.50	7.42	26.77
8,921.0	6.90	1.40	8,917.6	56.9	21.9	56.7	10.06	10.00	12.50



Survey Report



Company: Yates Petroleum
Project: Lea County, NM (NAD-83)
Site: Black Raider "BQK" State
Well: #1H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well #1H
TVD Reference: RKB @ 3414.0usft (Union 223)
MD Reference: RKB @ 3414.0usft (Union 223)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Houston R5000 Database

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,953.0	10.40	2.00	8,949.2	61.8	22.1	61.6	10.94	10.94	1.88
8,984.0	13.70	2.80	8,979.6	68.2	22.4	68.0	10.66	10.65	2.58
9,016.0	16.90	2.80	9,010.4	76.7	22.8	76.4	10.00	10.00	0.00
9,048.0	18.70	2.10	9,040.9	86.4	23.2	86.2	5.66	5.63	-2.19
9,080.0	21.60	0.90	9,070.9	97.4	23.5	97.2	9.15	9.06	-3.75
9,111.0	25.70	358.10	9,099.3	109.9	23.3	109.7	13.71	13.23	-9.03
9,143.0	28.90	357.20	9,127.7	124.5	22.7	124.3	10.08	10.00	-2.81
9,175.0	32.00	357.20	9,155.3	140.7	21.9	140.5	9.69	9.69	0.00
9,206.0	35.20	357.60	9,181.1	157.9	21.2	157.7	10.35	10.32	1.29
9,238.0	39.10	358.40	9,206.6	177.2	20.5	177.0	12.28	12.19	2.50
9,270.0	42.90	358.80	9,230.8	198.2	20.0	198.0	11.90	11.88	1.25
9,301.0	46.30	359.30	9,252.9	219.9	19.6	219.7	11.03	10.97	1.61
9,333.0	48.70	359.50	9,274.5	243.5	19.4	243.3	7.51	7.50	0.63
9,365.0	51.70	359.80	9,295.0	268.1	19.2	267.9	9.40	9.38	0.94
9,396.0	55.60	359.50	9,313.3	293.1	19.1	292.9	12.60	12.58	-0.97
9,428.0	60.50	359.50	9,330.3	320.2	18.8	320.0	15.31	15.31	0.00
9,459.0	64.20	359.30	9,344.6	347.6	18.5	347.5	11.95	11.94	-0.65
9,491.0	67.60	359.10	9,357.7	376.9	18.1	376.7	10.64	10.63	-0.63
9,523.0	70.60	358.40	9,369.1	406.7	17.5	406.6	9.60	9.38	-2.19
9,554.0	74.10	358.60	9,378.5	436.3	16.7	436.1	11.31	11.29	0.65
9,586.0	77.10	359.00	9,386.5	467.2	16.1	467.1	9.45	9.38	1.25
9,618.0	78.80	359.30	9,393.2	498.5	15.6	498.4	5.39	5.31	0.94
9,649.0	80.80	359.10	9,398.6	529.0	15.2	528.9	6.48	6.45	-0.65
9,681.0	85.00	359.30	9,402.6	560.8	14.7	560.6	13.14	13.13	0.63
9,716.0	89.00	0.00	9,404.4	595.7	14.5	595.6	11.60	11.43	2.00
9,745.0	90.00	1.00	9,404.7	624.7	14.8	624.6	4.86	3.44	3.44
EOC - 9745.0' MD, 9404.7' TVD, 90.00° INC, 1.00° AZI, 624.6' VS									
9,748.0	90.10	1.10	9,404.7	627.7	14.8	627.6	4.86	3.44	3.44
9,780.0	90.60	1.10	9,404.5	659.7	15.4	659.6	1.56	1.56	0.00
9,811.0	91.00	1.40	9,404.1	690.7	16.1	690.5	1.61	1.29	0.97
9,906.0	90.10	1.30	9,403.1	785.7	18.4	785.5	0.95	-0.95	-0.11
10,001.0	91.30	1.60	9,402.0	880.6	20.8	880.4	1.30	1.26	0.32
10,096.0	89.70	0.20	9,401.2	975.6	22.2	975.4	2.24	-1.68	-1.47
10,191.0	91.30	1.30	9,400.3	1,070.6	23.5	1,070.3	2.04	1.68	1.16
10,286.0	90.40	0.70	9,398.9	1,165.6	25.1	1,165.3	1.14	-0.95	-0.63
10,381.0	89.70	359.80	9,398.8	1,260.6	25.6	1,260.3	1.20	-0.74	-0.95
10,476.0	89.00	358.60	9,399.9	1,355.6	24.2	1,355.3	1.46	-0.74	-1.26
10,571.0	88.90	358.30	9,401.6	1,450.5	21.7	1,450.3	0.33	-0.11	-0.32
10,666.0	89.40	357.70	9,403.1	1,545.4	18.4	1,545.2	0.82	0.53	-0.63
10,761.0	90.10	357.40	9,403.5	1,640.3	14.3	1,640.2	0.80	0.74	-0.32
10,856.0	91.00	357.70	9,402.6	1,735.3	10.2	1,735.1	1.00	0.95	0.32
10,951.0	91.80	357.90	9,400.2	1,830.2	6.6	1,830.0	0.87	0.84	0.21
11,046.0	92.00	357.20	9,397.1	1,925.0	2.5	1,924.9	0.77	0.21	-0.74



Survey Report



Company: Yates Petroleum
Project: Lea County, NM (NAD-83)
Site: Black Raider "BQK" State
Well: #1H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well #1H
TVD Reference: RKB @ 3414.0usft (Union 223)
MD Reference: RKB @ 3414.0usft (Union 223)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Houston R5000 Database

Survey

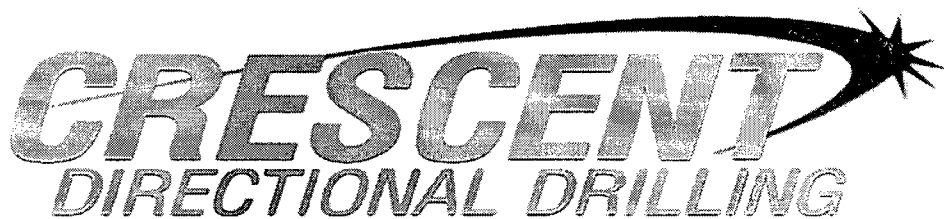
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
11,141.0	91.30	357.90	9,394.4	2,019.9	-1.5	2,019.8	1.04	-0.74	0.74
11,236.0	92.20	358.10	9,391.5	2,114.8	-4.8	2,114.7	0.97	0.95	0.21
11,331.0	91.10	358.30	9,388.7	2,209.7	-7.8	2,209.7	1.18	-1.16	0.21
11,426.0	90.40	358.30	9,387.5	2,304.6	-10.6	2,304.6	0.74	-0.74	0.00
11,521.0	92.20	358.10	9,385.3	2,399.6	-13.6	2,399.6	1.91	1.89	-0.21
11,640.0	92.70	357.90	9,380.2	2,518.4	-17.8	2,518.4	0.45	0.42	-0.17
11,735.0	91.70	358.80	9,376.6	2,613.3	-20.5	2,613.4	1.42	-1.05	0.95
11,830.0	90.30	359.30	9,374.9	2,708.2	-22.1	2,708.3	1.56	-1.47	0.53
11,925.0	89.90	359.50	9,374.8	2,803.2	-23.1	2,803.3	0.47	-0.42	0.21
12,020.0	89.60	359.80	9,375.2	2,898.2	-23.7	2,898.3	0.45	-0.32	0.32
12,115.0	88.70	359.80	9,376.6	2,993.2	-24.0	2,993.3	0.95	-0.95	0.00
12,210.0	89.70	0.00	9,377.9	3,088.2	-24.2	3,088.3	1.07	1.05	0.21
12,304.0	88.70	359.80	9,379.2	3,182.2	-24.3	3,182.3	1.08	-1.06	-0.21
12,399.0	89.00	359.10	9,381.1	3,277.2	-25.2	3,277.3	0.80	0.32	-0.74
12,494.0	89.70	359.30	9,382.2	3,372.2	-26.6	3,372.3	0.77	0.74	0.21
12,589.0	88.70	358.60	9,383.5	3,467.1	-28.3	3,467.3	1.28	-1.05	-0.74
12,684.0	90.10	358.80	9,384.5	3,562.1	-30.5	3,562.2	1.49	1.47	0.21
12,780.0	91.70	358.80	9,383.0	3,658.1	-32.5	3,658.2	1.67	1.67	0.00
12,875.0	91.50	358.80	9,380.4	3,753.0	-34.5	3,753.2	0.21	-0.21	0.00
12,970.0	92.20	359.00	9,377.3	3,847.9	-36.3	3,848.1	0.77	0.74	0.21
13,065.0	92.40	358.40	9,373.5	3,942.8	-38.4	3,943.0	0.67	0.21	-0.63
13,161.0	93.30	358.40	9,368.7	4,038.7	-41.1	4,038.9	0.94	0.94	0.00
13,256.0	92.40	358.60	9,364.0	4,133.5	-43.6	4,133.8	0.97	-0.95	0.21
13,351.0	92.70	359.80	9,359.8	4,228.4	-44.9	4,228.7	1.30	0.32	1.26
13,446.0	95.40	1.80	9,353.1	4,323.2	-43.6	4,323.4	3.53	2.84	2.11
13,541.0	93.60	0.90	9,345.6	4,417.8	-41.4	4,418.0	2.12	-1.89	-0.95
13,618.0	94.80	1.60	9,340.0	4,494.6	-39.7	4,494.8	1.80	1.56	0.91
13,675.0	94.80	1.60	9,335.2	4,551.4	-38.1	4,551.6	0.00	0.00	0.00

BHL - 13675.0' MD, 9335.2' TVD, 94.80° INC, 1.60° AZI, 4551.4' N, -38.1' E, 4551.6' VS

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Comment
3,024.5	3,024.1	-0.1	-32.3	Cross into 330' Lease - 3024.5' MD, 3024.1' TVD, 2.53° INC
8,858.0	8,854.8	52.6	22.0	KOP - 8858.0' MD, 8854.8' TVD, 1.40° INC, 349.10° AZI, 52.4' VS
9,745.0	9,404.7	624.7	14.8	EOC - 9745.0' MD, 9404.7' TVD, 90.00° INC, 1.00° AZI, 624.6' VS
13,675.0	9,335.2	4,551.4	-38.1	BHL - 13675.0' MD, 9335.2' TVD, 94.80° INC, 1.60° AZI, 4551.4' N, -38.1' E, 45

Checked By: _____ Approved By: _____ Date: _____



Yates Petroleum

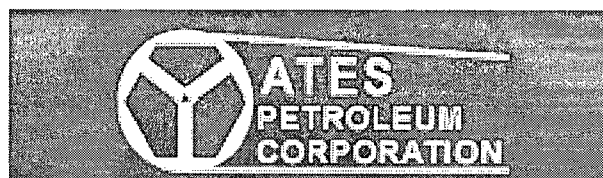
Black Raider BQK State Com #1H

Union #223

Lea County, New Mexico

SUR @ M-36-224s-34e, 330/S & 660/W
BHL @ D-36-24s-34e, 4881/S & 622/W
API # 30-025-40088

Job Number: PB - 12684





Yates Petroleum
Project: Lea County, NM (NAD-83)
Site: Black Raider "BQK" State
Well: #1H
Wellbore: OH
Plan: Plan #6 (#1H/OH)

WELL DETAILS: #1H

Ground Elevation:: 3389.0
RKB Elevation: RKB @ 3414.0usft (Union 223)
Rig Name: Union 223

Surface Hole Location
Northing 425897.61 Easting 820832.30 Latitude 32° 10' 3.526 N Longitude 103° 25' 48.257 W



Azimuths to Grid North
True North: -0.48°
Magnetic North: 6.88°

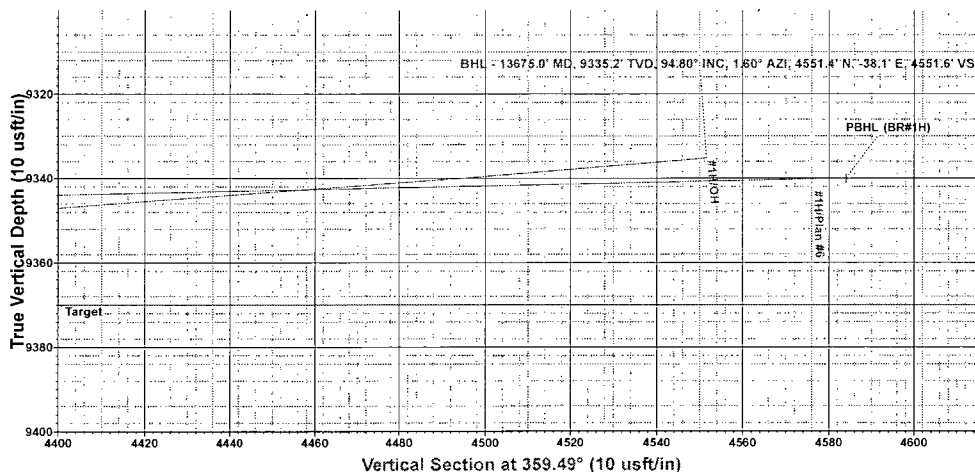
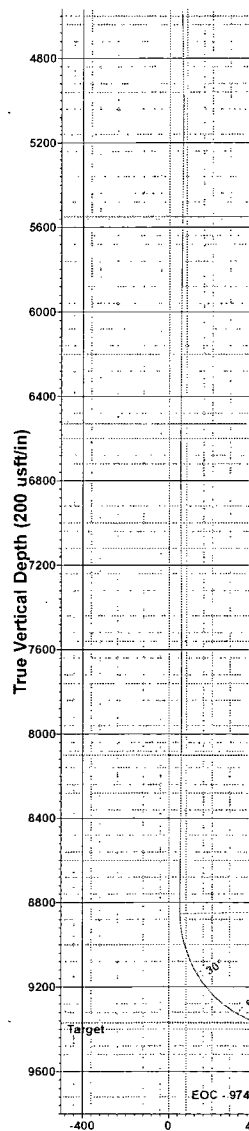
Magnetic Field
Strength: 48518.2snT
Dip Angle: 60.16°
Date: 8/28/2012
Model: IGRF200510

Section Details

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	11046.0	92.00	357.20	9397.1	1925.0	2.5	0.00	0.00	1924.9	
2	11149.2	91.21	359.11	9394.2	2028.1	-0.8	2.00	112.34	2028.0	
3	13705.7	91.21	359.11	9340.0	4583.8	-40.5	0.00	0.00	4584.0	PBHL (BR#1H)

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting
PBHL (BR#1H)	9340.0	4583.8	-40.5	430481.38	820791.77

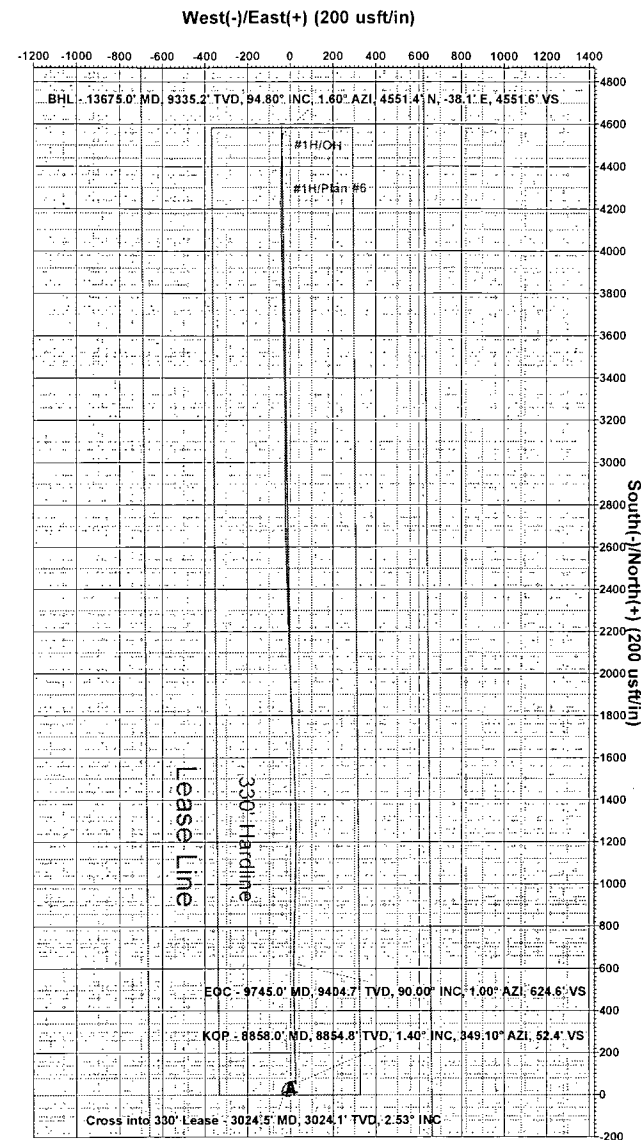


KOP - 8858.0' MD, 8854.8' TVD, 1.40° INC, 349.10° AZI, 52.4° VS

BHL - 13675.0' MD, 9335.2' TVD, 94.80° INC, 1.60° AZI, 4551.4' N, -38.1' E, 4551.6' VS

EOC - 9745.0' MD, 9404.7' TVD, 90.00° INC, 1.00° AZI, 624.6° VS

Vertical Section at 359.49° (200 usft/in)



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
912.0	912.0	Rustler
3660.0	3661.0	Castille
4220.0	4221.5	BOS
5550.0	5553.1	Bell Canyon
6530.0	6533.1	Cherry Canyon
8100.0	8103.2	Brushy Canyon
9370.0	9525.6	Target

PROJECT DETAILS: Lea County, NM (NAD-83)
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone
System Datum: Mean Sea Level
Local North: Grid



Crescent Directional Drilling
7715 West Industrial Ave. Midland, Tx 79706
Phone: 432-618-1135

Plan: Plan #6 (#1H/OH)
Created By: Matt Higgins Date: 9:21, November 07 2012