



30-015-37046

EOG Resources, Inc.

Eddy County
James Ranch Unit
James Ranch #113H
OH

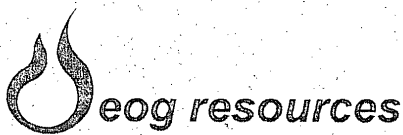
Survey: MWD #1

Pathfinder X & Y Survey Report

20 May, 2009

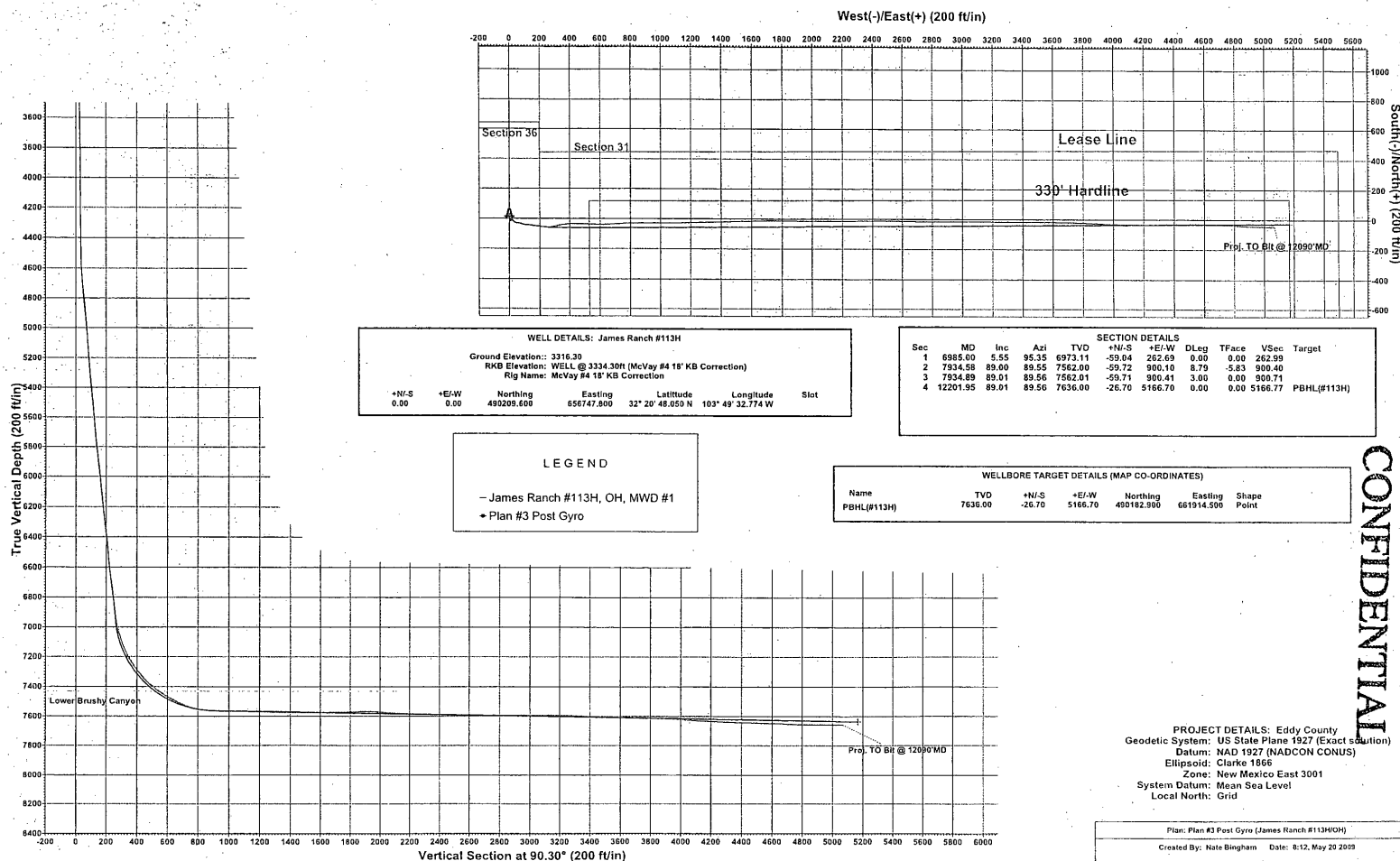
PATHFINDER

CONFIDENTIAL



Azimuths to Grid North
True North: -0.27°
Magnetic North: 7.68°
Magnetic Field
Strength: 48902.7 nT
Dip Angle: 60.32°
Date: 04/30/2009
Model: IGRF200510

PATHFINDER



CONFIDENTIAL

Company:	EOG Resources, Inc.	Local Co-ordinate Reference:	Well James Ranch #113H
Project:	Eddy County	TVD Reference:	WELL @ 3334.30ft (McVay #4 18' KB Correction)
Site:	James Ranch Unit	MD Reference:	WELL @ 3334.30ft (McVay #4 18' KB Correction)
Well:	James Ranch #113H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Midland Database

Project Eddy County			
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site:		James Ranch Unit			
Site Position:		Northing:	488,709.700 ft	Latitude:	32° 20' 33.207 N
From:	Map	Easting:	656,755.200 ft	Longitude:	103° 49' 32.770 W
Position Uncertainty:	0.00 ft	Slot Radius:	"	Grid Convergence:	0.27 °

Well:	James Ranch #113H					
Well Position	+N/-S	0.00 ft	Northing:	490,209.600 ft	Latitude:	32° 20' 48.050 N
	+E/-W	0.00 ft	Easting:	656,747.800 ft	Longitude:	103° 49' 32.774 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	3,316.30 ft

Wellbore:	OH
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	04/30/2009	7.95	60.32	48,903

Design:	OH			
Audit Notes:				
Version:	1.0	Phase:	ACTUAL	Tie On Depth: 6,705.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(ft)	(ft)	(ft)	(°)
	0.00	0.00	0.00	90.30

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North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Midland Database

Survey Program		Date	05/20/2009		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
750.00	6,705.00	Pilot Hole (Pilot Hole)	MWD	MWD - Standard	
6,712.00	12,090.00	MWD #1 (OH)	MWD	MWD - Standard	

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
6,705.00	7.06	95.13	6,694.77	3,360.47	-56.14	232.43	232.72	0.00	490,153.46	656,980.23
6,712.00	6.95	94.92	6,701.72	3,367.42	-56.21	233.28	233.57	1.61	490,153.39	656,981.08
6,837.00	6.16	95.91	6,825.90	3,491.60	-57.55	247.49	247.79	0.64	490,152.05	656,995.29
6,976.00	9.58	84.97	6,963.58	3,629.28	-57.31	266.44	266.73	2.68	490,152.29	657,014.24
7,007.00	12.13	80.95	6,994.02	3,659.72	-56.57	272.22	272.52	8.58	490,153.03	657,020.02
7,038.00	14.42	77.85	7,024.19	3,689.89	-55.24	279.21	279.50	7.73	490,154.36	657,027.01
7,069.00	16.18	77.40	7,054.09	3,719.79	-53.49	287.20	287.48	5.69	490,156.11	657,035.00
7,101.00	18.11	77.06	7,084.67	3,750.37	-51.40	296.40	296.67	6.04	490,158.20	657,044.20
7,132.00	20.31	77.62	7,113.94	3,779.64	-49.17	306.35	306.61	7.12	490,160.43	657,054.15
7,163.00	22.86	77.88	7,142.76	3,808.46	-46.75	317.50	317.74	8.23	490,162.85	657,065.30
7,194.00	25.85	78.68	7,171.00	3,836.70	-44.16	330.01	330.24	9.70	490,165.44	657,077.81
7,226.00	28.40	80.48	7,199.48	3,865.18	-41.53	344.36	344.58	8.37	490,168.07	657,092.16
7,257.00	31.22	82.42	7,226.38	3,892.08	-39.25	359.60	359.80	9.61	490,170.35	657,107.40
7,288.00	33.50	82.63	7,252.56	3,918.26	-37.09	376.05	376.24	7.36	490,172.51	657,123.85
7,320.00	35.35	85.22	7,278.96	3,944.66	-35.19	394.04	394.22	7.37	490,174.41	657,141.84
7,351.00	37.72	88.61	7,303.87	3,969.57	-34.21	412.46	412.63	10.04	490,175.39	657,160.26
7,382.00	40.63	90.35	7,327.90	3,993.60	-34.04	432.04	432.21	10.03	490,175.56	657,179.84
7,414.00	43.70	90.75	7,351.61	4,017.31	-34.25	453.51	453.69	9.63	490,175.35	657,201.31
7,444.00	46.60	91.47	7,372.77	4,038.47	-34.67	474.78	474.95	9.82	490,174.93	657,222.58
7,475.00	49.15	91.73	7,393.56	4,059.26	-35.31	497.76	497.93	8.25	490,174.29	657,245.56
7,507.00	52.23	92.24	7,413.83	4,079.53	-36.17	522.50	522.68	9.70	490,173.43	657,270.30

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Wellbore: OH
Design: OH

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TVD Reference: WELL @ 3334.30ft (McVay #4 18' KB Correction)
MD Reference: WELL @ 3334.30ft (McVay #4 18' KB Correction)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Midland Database

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
7,538.00	54.96	92.69	7,432.23	4,097.93	-37.25	547.42	547.61	8.88	490,172.35	657,295.22
7,569.00	56.89	91.09	7,449.59	4,115.29	-38.09	573.08	573.27	7.55	490,171.51	657,320.88
7,601.00	58.74	90.33	7,466.64	4,132.34	-38.42	600.16	600.36	6.12	490,171.18	657,347.96
7,632.00	60.06	88.70	7,482.42	4,148.12	-38.19	626.84	627.03	6.21	490,171.41	657,374.64
7,663.00	61.82	87.28	7,497.48	4,163.18	-37.24	653.92	654.11	6.95	490,172.36	657,401.72
7,695.00	64.90	87.01	7,511.82	4,177.52	-35.81	682.48	682.66	9.65	490,173.79	657,430.28
7,726.00	67.53	86.73	7,524.33	4,190.03	-34.27	710.81	710.98	8.52	490,175.33	657,458.61
7,757.00	70.87	86.92	7,535.33	4,201.03	-32.66	739.74	739.90	10.79	490,176.94	657,487.54
7,788.00	74.57	87.56	7,544.54	4,210.24	-31.24	769.30	769.45	12.10	490,178.36	657,517.10
7,819.00	78.44	88.05	7,551.77	4,217.47	-30.08	799.42	799.56	12.58	490,179.52	657,547.22
7,913.00	87.14	90.46	7,563.56	4,229.26	-28.89	892.57	892.71	9.60	490,180.71	657,640.37
8,006.00	89.16	89.67	7,566.56	4,232.26	-29.00	985.51	985.65	2.33	490,180.60	657,733.31
8,099.00	89.16	89.56	7,567.93	4,233.63	-28.37	1,078.50	1,078.64	0.12	490,181.23	657,826.30
8,222.00	87.67	88.41	7,571.33	4,237.03	-26.19	1,201.43	1,201.55	1.53	490,183.41	657,949.23
8,345.00	88.37	88.03	7,575.58	4,241.28	-22.38	1,324.30	1,324.40	0.65	490,187.22	658,072.10
8,471.00	90.31	88.87	7,577.03	4,242.73	-18.97	1,450.23	1,450.31	1.68	490,190.63	658,198.03
8,595.00	91.01	87.86	7,575.60	4,241.30	-15.43	1,574.17	1,574.23	0.99	490,194.17	658,321.97
8,719.00	91.89	89.37	7,572.46	4,238.16	-12.43	1,698.09	1,698.13	1.41	490,197.17	658,445.89
8,843.00	91.10	90.85	7,569.23	4,234.93	-12.67	1,822.05	1,822.09	1.35	490,196.93	658,569.85
8,936.00	90.04	91.08	7,568.30	4,234.00	-14.24	1,915.03	1,915.07	1.17	490,195.36	658,662.83
9,029.00	86.00	89.86	7,571.51	4,237.21	-15.00	2,007.95	2,008.00	4.54	490,194.60	658,755.75
9,122.00	86.17	89.93	7,577.86	4,243.56	-14.83	2,100.73	2,100.78	0.20	490,194.77	658,848.53
9,215.00	87.85	89.53	7,582.72	4,248.42	-14.39	2,193.60	2,193.64	1.86	490,195.21	658,941.40
9,308.00	88.37	89.88	7,585.78	4,251.48	-13.92	2,286.55	2,286.59	0.67	490,195.68	659,034.35
9,402.00	87.67	88.77	7,589.03	4,254.73	-12.81	2,380.48	2,380.52	1.40	490,196.79	659,128.28
9,496.00	88.37	89.79	7,592.28	4,257.98	-11.63	2,474.42	2,474.44	1.32	490,197.97	659,222.22
9,589.00	90.40	91.09	7,593.28	4,258.98	-12.34	2,567.40	2,567.43	2.59	490,197.26	659,315.20

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Survey											
MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)	
9,682.00	90.04	90.63	7,592.92	4,258.62	-13.74	2,660.39	2,660.43	0.63	490,195.86	659,408.19	
9,776.00	90.40	90.38	7,592.56	4,258.26	-14.57	2,754.39	2,754.42	0.47	490,195.03	659,502.19	
9,870.00	90.13	89.88	7,592.12	4,257.82	-14.78	2,848.38	2,848.42	0.60	490,194.82	659,596.18	
9,964.00	90.13	89.59	7,591.91	4,257.61	-14.35	2,942.38	2,942.42	0.31	490,195.25	659,690.18	
10,058.00	90.40	89.92	7,591.48	4,257.18	-13.94	3,036.38	3,036.41	0.45	490,195.66	659,784.18	
10,151.00	88.90	90.75	7,592.04	4,257.74	-14.49	3,129.37	3,129.41	1.84	490,195.11	659,877.17	
10,245.00	88.64	91.00	7,594.06	4,259.76	-15.92	3,223.34	3,223.38	0.38	490,193.68	659,971.14	
10,339.00	87.05	90.43	7,597.60	4,263.30	-17.10	3,317.26	3,317.31	1.80	490,192.50	660,065.06	
10,434.00	87.49	90.22	7,602.12	4,267.82	-17.63	3,412.15	3,412.20	0.51	490,191.97	660,159.95	
10,526.00	88.72	90.26	7,605.16	4,270.86	-18.02	3,504.10	3,504.15	1.34	490,191.58	660,251.90	
10,620.00	89.52	90.03	7,606.61	4,272.31	-18.26	3,598.09	3,598.13	0.89	490,191.34	660,345.89	
10,714.00	88.72	90.83	7,608.05	4,273.75	-18.96	3,692.07	3,692.12	1.20	490,190.64	660,439.87	
10,809.00	87.32	92.37	7,611.33	4,277.03	-21.61	3,786.97	3,787.04	2.19	490,187.99	660,534.77	
10,901.00	87.14	92.44	7,615.78	4,281.48	-25.47	3,878.79	3,878.87	0.21	490,184.13	660,626.59	
10,996.00	85.74	91.64	7,621.68	4,287.38	-28.84	3,973.54	3,973.64	1.70	490,180.76	660,721.34	
11,092.00	87.23	92.31	7,627.56	4,293.26	-32.15	4,069.30	4,069.41	1.70	490,177.45	660,817.10	
11,185.00	87.05	90.07	7,632.20	4,297.90	-34.08	4,162.16	4,162.28	2.41	490,175.52	660,909.96	
11,279.00	87.05	88.67	7,637.04	4,302.74	-33.04	4,256.02	4,256.14	1.49	490,176.56	661,003.82	
11,375.00	88.02	88.73	7,641.17	4,306.87	-30.87	4,351.91	4,352.01	1.01	490,178.73	661,099.71	
11,501.00	88.81	89.80	7,644.66	4,310.36	-29.25	4,477.85	4,477.94	1.06	490,180.35	661,225.65	
11,596.00	88.81	91.20	7,646.63	4,312.33	-30.08	4,572.82	4,572.92	1.47	490,179.52	661,320.62	
11,721.00	86.53	92.33	7,651.71	4,317.41	-33.93	4,697.65	4,697.76	2.04	490,175.67	661,445.45	
11,880.00	89.78	92.17	7,656.83	4,322.53	-40.16	4,856.42	4,856.57	2.05	490,169.44	661,604.22	
12,011.00	90.48	91.44	7,656.53	4,322.23	-44.29	4,987.36	4,987.52	0.77	490,165.31	661,735.16	
12,090.00	90.48	91.44	7,655.87	4,321.57	-46.28	5,066.33	5,066.50	0.00	490,163.32	661,814.13	
Proj. TO Bit @ 12090'MD											

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North Reference: Grid
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Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
PBHL(#113H)	0.00	0.00	7,636.00	-26.70	5,166.70	490,182.900	661,914.500	32° 20' 47.540 N	103° 48' 32.549 W
- survey misses by 104.18ft at 12090.00ft MD (7655.87 TVD, -46.28 N, 5066.33 E)									
- Point									

Survey Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
12,090.00	7,655.87	-46.28	5,066.33	Proj. TO Bit @ 12090'MD

Checked By: _____ Approved By: _____ Date: _____

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