



EOG Resources - Midland

Eddy County, NM (NAD 83 NME)
(Kirk) Sec12_T-17-S_R-30-E
Kirk Federal Com #1H

OWB

RECEIVED

JUN 17 2019

Design: AWB

DISTRICT II-ARTESIA O.G.D.

Standard Survey Report

05 April, 2019

 **INTREPID**

Company:	EOG-Resources - Midland	Local Co-ordinate Reference:	Well Kirk Federal Com #1H
Project:	Eddy County, NM (NAD-83 NME)	TVD Reference:	KB @ 3761.5usft (Trinidad 436)
Site:	(Kirk) Sec12_T-17-S_R-30-E	MD Reference:	KB @ 3761.5usft (Trinidad 436)
Well:	Kirk Federal Com #1H	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	AWB	Database:	EDM 10_13

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

Site	(Kirk) Sec12_T-17-S_R-30-E		
Site Position:		Northing:	673,435.00 usft
From:	Map	Easting:	664,546.00 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 51' 2.353 N
		Longitude:	103° 55' 55.648 W
		Grid Convergence:	0.22 °

Well	Kirk Federal Com #1H		
Well Position	+N/-S	0.0 usft	Northing:
	+E/-W	0.0 usft	Easting:
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft
		Latitude:	32° 51' 2.056 N
		Longitude:	103° 55' 55.649 W
		Ground Level:	3,745.0 usft

Wellbore	OWB		
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	03/25/19	6.98	60.55	48,085.31487716

Design	AWB		
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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	90.36

Survey Program		Date	04/05/19		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
109.5	426.5	Invictus MWD (OWB)	MWD	MWD - Standard	
473.0	9,158.0	Intrepid MWD (OWB)	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
	109.5	0.50	336.81	109.5	0.4	-0.2	-0.2	0.46	0.46	0.00
	151.5	0.70	124.81	151.5	0.5	0.0	-0.1	2.75	0.48	352.38
	154.5	0.20	233.81	154.5	0.4	0.0	0.0	26.27	-16.67	3,633.33
	186.5	0.50	261.81	186.5	0.4	-0.2	-0.2	1.05	0.94	87.50
	216.9	0.50	213.81	216.9	0.3	-0.4	-0.4	1.34	0.00	-157.89
	248.9	0.40	216.81	248.9	0.1	-0.6	-0.6	0.32	-0.31	9.38
	280.2	0.40	140.81	280.2	-0.1	-0.6	-0.6	1.57	0.00	-242.81
	310.8	0.70	163.81	310.8	-0.4	-0.4	-0.4	1.20	0.98	75.16
	342.4	0.40	161.81	342.4	-0.7	-0.4	-0.4	0.95	-0.95	-6.33

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Well:	Kirk Federal Com #1H	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	AWB	Database:	EDM 10_13

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)
396.5	0.60	190.81	396.5	-1.1	-0.4	-0.3	0.59	0.37	53.60
426.5	0.80	216.81	426.5	-1.4	-0.5	-0.5	1.23	0.67	86.67
TIE ON									
473.0	0.62	325.45	473.0	-1.5	-0.8	-0.8	2.49	-0.39	233.63
661.0	1.93	331.16	660.9	2.1	-3.0	-3.0	0.70	0.70	3.04
849.0	1.93	160.39	848.9	1.9	-3.4	-3.4	2.05	0.00	-90.84
1,039.0	2.07	141.85	1,038.8	-3.8	-0.2	-0.2	0.35	0.07	-9.76
1,227.0	1.80	123.57	1,226.7	-8.1	4.3	4.4	0.36	-0.14	-9.72
1,416.0	1.67	130.95	1,415.6	-11.6	8.9	9.0	0.14	-0.07	3.90
1,605.0	1.14	118.73	1,604.5	-14.3	12.6	12.7	0.32	-0.28	-6.47
1,795.0	0.13	153.89	1,794.5	-15.4	14.4	14.5	0.55	-0.53	18.51
1,983.0	0.09	26.71	1,982.5	-15.4	14.5	14.6	0.11	-0.02	-67.65
2,172.0	0.13	359.03	2,171.5	-15.1	14.6	14.7	0.03	0.02	-14.65
2,361.0	0.18	104.93	2,360.5	-14.9	14.9	15.0	0.13	0.03	56.03
2,550.0	0.75	171.29	2,549.5	-16.2	15.4	15.5	0.37	0.30	35.11
2,738.0	0.40	226.40	2,737.5	-17.9	15.1	15.2	0.33	-0.19	29.31
2,927.0	0.48	230.44	2,926.5	-18.9	14.0	14.1	0.05	0.04	2.14
3,115.0	0.92	183.86	3,114.5	-20.9	13.3	13.4	0.36	0.23	-24.78
3,304.0	0.31	214.45	3,303.5	-22.8	12.9	13.0	0.36	-0.32	16.19
3,455.0	1.05	197.75	3,454.5	-24.5	12.2	12.4	0.50	0.49	-11.06
3,583.0	0.48	196.25	3,582.5	-26.1	11.7	11.9	0.45	-0.45	-1.17
3,771.0	0.48	216.91	3,770.4	-27.5	11.0	11.2	0.09	0.00	10.99
3,960.0	0.48	206.01	3,959.4	-28.8	10.2	10.4	0.05	0.00	-5.77
4,148.0	0.53	214.09	4,147.4	-30.3	9.4	9.6	0.05	0.03	4.30
4,210.0	1.76	90.61	4,209.4	-30.5	10.2	10.3	3.39	1.98	-199.16
4,273.0	6.95	89.64	4,272.2	-30.5	14.9	15.1	8.24	8.24	-1.54
4,336.0	12.35	84.81	4,334.3	-29.9	25.5	25.7	8.66	8.57	-7.67
4,399.0	18.29	91.14	4,395.0	-29.4	42.1	42.3	9.78	9.43	10.05
4,461.0	25.01	97.81	4,452.6	-31.4	64.8	65.0	11.53	10.84	10.76
4,524.0	30.77	96.50	4,508.3	-35.1	94.0	94.3	9.19	9.14	-2.08
4,587.0	35.52	93.68	4,561.0	-38.1	128.3	128.6	7.93	7.54	-4.48
4,650.0	40.79	92.63	4,610.6	-40.2	167.2	167.4	8.43	8.37	-1.67
4,713.0	46.95	90.78	4,656.0	-41.4	210.8	211.1	9.99	9.78	-2.94
4,775.0	51.65	89.03	4,696.4	-41.3	257.8	258.1	7.88	7.58	-2.82
4,838.0	56.26	89.64	4,733.4	-40.8	308.7	309.0	7.36	7.32	0.97
4,901.0	60.00	91.66	4,766.7	-41.4	362.2	362.5	6.53	5.94	3.21
4,964.0	60.75	92.10	4,797.8	-43.2	416.9	417.2	1.34	1.19	0.70
5,027.0	65.98	92.54	4,826.1	-45.5	473.2	473.5	8.33	8.30	0.70
5,090.0	72.31	90.96	4,848.5	-47.2	532.0	532.3	10.32	10.05	-2.51
5,153.0	80.00	88.76	4,863.6	-47.1	593.1	593.4	12.67	12.21	-3.49
5,216.0	88.22	87.53	4,870.0	-45.0	655.7	656.0	13.19	13.05	-1.95
5,247.0	91.30	87.71	4,870.2	-43.8	686.7	686.9	9.95	9.94	0.58
5,279.0	92.22	87.88	4,869.2	-42.5	718.6	718.9	2.92	2.88	0.53

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Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	AWB	Database:	EDM 10_13

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)
5,341.0	93.01	88.15	4,866.3	-40.4	780.5	780.8	1.35	1.27	0.44
5,404.0	93.63	88.41	4,862.7	-38.5	843.4	843.6	1.07	0.98	0.41
5,408.8	93.41	88.37	4,862.4	-38.4	848.2	848.4	4.76	-4.68	-0.84
FTP @ 5408.8' MD, 100' FWL, 529' FSL									
5,467.0	90.68	87.88	4,860.3	-36.4	906.3	906.5	4.76	-4.68	-0.84
5,530.0	90.02	87.53	4,859.9	-33.9	969.3	969.5	1.19	-1.05	-0.56
5,592.0	90.29	87.88	4,859.8	-31.4	1,031.2	1,031.4	0.71	0.44	0.56
5,655.0	89.93	89.47	4,859.7	-30.0	1,094.2	1,094.4	2.59	-0.57	2.52
5,718.0	89.27	89.55	4,860.1	-29.4	1,157.2	1,157.3	1.06	-1.05	0.13
5,781.0	88.18	89.38	4,861.5	-28.9	1,220.2	1,220.3	1.75	-1.73	-0.27
5,844.0	88.79	89.38	4,863.2	-28.2	1,283.1	1,283.3	0.97	0.97	0.00
5,907.0	89.49	89.82	4,864.1	-27.7	1,346.1	1,346.3	1.31	1.11	0.70
5,970.0	89.80	90.17	4,864.5	-27.7	1,409.1	1,409.3	0.74	0.49	0.56
6,033.0	88.09	89.99	4,865.7	-27.8	1,472.1	1,472.3	2.73	-2.71	-0.29
6,095.0	88.88	90.08	4,867.3	-27.9	1,534.1	1,534.2	1.28	1.27	0.15
6,158.0	89.54	90.08	4,868.2	-27.9	1,597.1	1,597.2	1.05	1.05	0.00
6,221.0	90.24	90.43	4,868.3	-28.2	1,660.1	1,660.2	1.24	1.11	0.56
6,283.0	89.27	91.66	4,868.5	-29.4	1,722.1	1,722.2	2.53	-1.56	1.98
6,346.0	90.33	92.10	4,868.8	-31.4	1,785.0	1,785.2	1.82	1.68	0.70
6,409.0	90.68	92.45	4,868.2	-33.9	1,848.0	1,848.2	0.79	0.56	0.56
6,472.0	89.23	91.75	4,868.3	-36.2	1,910.9	1,911.1	2.56	-2.30	-1.11
6,535.0	89.54	91.49	4,868.9	-38.0	1,973.9	1,974.1	0.64	0.49	-0.41
6,598.0	88.04	90.34	4,870.3	-39.0	2,036.9	2,037.1	3.00	-2.38	-1.83
6,661.0	88.97	90.61	4,871.9	-39.5	2,099.9	2,100.1	1.54	1.48	0.43
6,723.0	89.85	90.87	4,872.6	-40.3	2,161.9	2,162.1	1.48	1.42	0.42
6,786.0	90.81	90.87	4,872.2	-41.3	2,224.8	2,225.1	1.52	1.52	0.00
6,849.0	90.02	88.85	4,871.7	-41.1	2,287.8	2,288.1	3.44	-1.25	-3.21
6,912.0	89.80	87.36	4,871.8	-39.1	2,350.8	2,351.0	2.39	-0.35	-2.37
6,974.0	90.59	87.18	4,871.6	-36.1	2,412.7	2,412.9	1.31	1.27	-0.29
7,037.0	89.23	86.83	4,871.7	-32.8	2,475.6	2,475.8	2.23	-2.16	-0.56
7,100.0	89.93	86.92	4,872.2	-29.4	2,538.5	2,538.7	1.12	1.11	0.14
7,163.0	90.59	87.27	4,871.9	-26.2	2,601.5	2,601.6	1.19	1.05	0.56
7,225.0	88.57	87.36	4,872.3	-23.3	2,663.4	2,663.5	3.26	-3.26	0.15
7,287.0	89.36	87.44	4,873.5	-20.5	2,725.3	2,725.4	1.28	1.27	0.13
7,350.0	90.07	87.53	4,873.8	-17.7	2,788.3	2,788.3	1.14	1.13	0.14
7,413.0	90.73	87.97	4,873.3	-15.2	2,851.2	2,851.2	1.26	1.05	0.70
7,476.0	89.41	89.03	4,873.3	-13.6	2,914.2	2,914.2	2.69	-2.10	1.68
7,539.0	89.98	89.38	4,873.6	-12.7	2,977.2	2,977.2	1.06	0.90	0.56
7,602.0	88.44	89.90	4,874.5	-12.3	3,040.2	3,040.2	2.58	-2.44	0.83
7,665.0	88.84	89.64	4,876.0	-12.1	3,103.1	3,103.2	0.76	0.63	-0.41
7,728.0	89.58	89.47	4,876.8	-11.6	3,166.1	3,166.1	1.21	1.17	-0.27
7,791.0	90.15	89.73	4,877.0	-11.1	3,229.1	3,229.1	0.99	0.90	0.41
7,853.0	89.41	90.96	4,877.2	-11.5	3,291.1	3,291.1	2.32	-1.19	1.98
7,916.0	90.33	91.22	4,877.4	-12.7	3,354.1	3,354.1	1.52	1.46	0.41

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Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	AWB	Database:	EDM 10_13

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)
7,980.0	90.90	91.14	4,876.7	-14.0	3,418.1	3,418.1	0.90	0.89	-0.13
8,043.0	91.21	91.40	4,875.5	-15.4	3,481.1	3,481.1	0.64	0.49	0.41
8,106.0	89.10	91.22	4,875.3	-16.9	3,544.1	3,544.1	3.36	-3.35	-0.29
8,169.0	87.87	91.14	4,877.0	-18.2	3,607.0	3,607.1	1.96	-1.95	-0.13
8,232.0	88.57	91.14	4,879.0	-19.4	3,670.0	3,670.0	1.11	1.11	0.00
8,295.0	88.75	90.96	4,880.4	-20.6	3,732.9	3,733.0	0.40	0.29	-0.29
8,358.0	87.56	91.05	4,882.5	-21.7	3,795.9	3,796.0	1.89	-1.89	0.14
8,421.0	88.48	91.05	4,884.6	-22.8	3,858.9	3,858.9	1.46	1.46	0.00
8,484.0	89.19	90.96	4,885.9	-23.9	3,921.8	3,921.9	1.14	1.13	-0.14
8,547.0	86.95	89.73	4,888.0	-24.3	3,984.8	3,984.9	4.06	-3.56	-1.95
8,610.0	87.74	89.47	4,891.0	-23.9	4,047.7	4,047.8	1.32	1.25	-0.41
8,673.0	88.88	89.82	4,892.8	-23.5	4,110.7	4,110.8	1.89	1.81	0.56
8,736.0	89.58	90.08	4,893.7	-23.4	4,173.7	4,173.7	1.19	1.11	0.41
8,799.0	87.78	89.73	4,895.1	-23.3	4,236.7	4,236.7	2.91	-2.86	-0.56
8,861.0	88.70	89.55	4,897.0	-22.9	4,298.6	4,298.7	1.51	1.48	-0.29
8,924.0	89.41	89.64	4,898.1	-22.5	4,361.6	4,361.7	1.14	1.13	0.14
8,987.0	87.69	89.82	4,899.7	-22.2	4,424.6	4,424.7	2.75	-2.73	0.29
9,049.0	88.44	89.73	4,901.8	-21.9	4,486.6	4,486.6	1.22	1.21	-0.15
9,097.0	89.27	89.82	4,902.7	-21.8	4,534.6	4,534.6	1.74	1.73	0.19
LAST SVY									
9,158.0	89.27	89.82	4,903.5	-21.6	4,595.5	4,595.6	0.00	0.00	0.00
PTD @ 9158.0' MD, 112' FEL, 536' FSL									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
VS TARGET (Kirk FC	0.03	269.95	4,871.0	-30.6	2,499.9	673,374.35	667,045.86	32° 51' 1.658 N	103° 55' 26.346 W
- actual wellpath misses target center by 1.3usft at 7061.3usft MD (4872.0 TVD, -31.5 N, 2499.9 E)									
- Rectangle (sides W60.0 H1,900.0 D20.0)									
UMP (Kirk FC #1H) v	0.00	0.00	4,872.0	-32.0	848.0	673,373.00	665,394.00	32° 51' 1.707 N	103° 55' 45.710 W
- actual wellpath misses target center by 11.5usft at 5408.2usft MD (4862.4 TVD, -38.4 N, 847.6 E)									
- Point									
PBHL (Kirk FC #1H) v	-0.94	269.96	4,905.0	-29.0	4,607.0	673,376.00	669,153.00	32° 51' 1.593 N	103° 55' 1.644 W
- actual wellpath misses target center by 13.7usft at 9158.0usft MD (4903.5 TVD, -21.6 N, 4595.5 E)									
- Rectangle (sides W60.0 H2,107.1 D20.0)									

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Site:	(Kirk) Sec12_T-17-S_R-30-E	MD Reference:	KB @ 3761.5usft (Trinidad 436)
Well:	Kirk Federal Com #1H	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	AWB	Database:	EDM 10_13

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
426.5	426.5	-1.4	-0.5	TIE ON
5,408.8	4,862.4	-38.4	848.2	FTP @ 5408.8' MD, 100' FWL, 529' FSL
9,097.0	4,902.7	-21.8	4,534.6	LAST SVY
9,158.0	4,903.5	-21.6	4,595.5	PTD @ 9158.0' MD, 112' FEL, 536' FSL

Checked By: _____ Approved By: _____ Date: _____