



EOG Resources - Midland

Eddy County, NM (NAD 83 NME)
(Kirk) Sec12_T-17-S_R-30-E
Kirk Federal Com #2H

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DISTRICT/ARTESIAO.C.D.

OWB

Design: AWB

Standard Survey Report

27 March, 2019

INTREPID

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well Kirk Federal Com #2H
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 #2H	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		
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Site Position:		Northing:	673,435.00 usft	Latitude:	32° 51' 2.353 N
From:	Map	Easting:	664,546.00 usft	Longitude:	103° 55' 55.648 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.22 °

Well	Kirk Federal Com #2H		
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Well Position	+N/-S	0.0 usft	Northing:	673,435.00 usft	Latitude:	32° 51' 2.353 N
	+E/-W	0.0 usft	Easting:	664,546.00 usft	Longitude:	103° 55' 55.648 W
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft	Ground Level:	3,745.0 usft	

Wellbore	OWB		
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	03/12/19	6.98	60.55	48,089.05297760

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	80.82

Survey Program		Date 03/27/19		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
107.5	407.5	Invictus MWD (OWB)	MWD	MWD - Standard
472.0	9,250.0	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
	107.5	0.30	123.81	107.5	-0.2	0.2	0.2	0.28	0.28	0.00
	120.5	0.30	125.81	120.5	-0.2	0.3	0.3	0.08	0.00	15.38
	153.5	0.50	115.81	153.5	-0.3	0.5	0.4	0.64	0.61	-30.30
	183.5	0.50	104.81	183.5	-0.4	0.7	0.7	0.32	0.00	-36.67
	215.5	0.50	154.81	215.5	-0.6	0.9	0.8	1.32	0.00	156.25
	246.5	0.40	115.81	246.5	-0.7	1.1	1.0	1.02	-0.32	-125.81
	277.5	0.50	117.81	277.5	-0.8	1.3	1.1	0.33	0.32	6.45
	340.5	0.70	184.81	340.5	-1.4	1.5	1.3	1.08	0.32	106.35
	407.5	0.50	264.81	407.5	-1.8	1.2	0.9	1.17	-0.30	119.40

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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)
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TIE ON

472.0	1.14	264.89	472.0	-1.9	0.3	0.0	0.99	0.99	0.12
660.0	1.63	259.89	659.9	-2.5	-4.2	-4.6	0.27	0.26	-2.66
840.0	1.01	266.56	839.9	-3.1	-8.3	-8.7	0.35	-0.34	3.71
1,028.0	0.75	292.93	1,027.9	-2.7	-11.1	-11.4	0.25	-0.14	14.03
1,217.0	0.09	195.99	1,216.9	-2.3	-12.3	-12.5	0.41	-0.35	-51.29
1,406.0	0.35	107.39	1,405.8	-2.6	-11.8	-12.1	0.19	0.14	-46.88
1,595.0	0.09	221.92	1,594.8	-2.9	-11.3	-11.7	0.21	-0.14	60.60
1,783.0	0.35	170.15	1,782.8	-3.6	-11.3	-11.8	0.16	0.14	-27.54
1,972.0	0.40	228.86	1,971.8	-4.6	-11.7	-12.3	0.20	0.03	31.06
2,161.0	0.22	207.85	2,160.8	-5.4	-12.4	-13.1	0.11	-0.10	-11.12
2,350.0	0.13	350.76	2,349.8	-5.5	-12.6	-13.3	0.18	-0.05	75.61
2,539.0	0.31	4.04	2,538.8	-4.7	-12.6	-13.2	0.10	0.10	7.03
2,602.0	0.22	1.87	2,601.8	-4.5	-12.6	-13.1	0.14	-0.14	-3.44
2,665.0	0.44	320.88	2,664.8	-4.2	-12.7	-13.2	0.49	0.35	-65.06
2,728.0	0.40	344.88	2,727.8	-3.8	-12.9	-13.4	0.28	-0.06	38.10
2,791.0	0.79	13.00	2,790.8	-3.1	-12.9	-13.2	0.76	0.62	44.63
2,855.0	1.36	18.71	2,854.8	-2.0	-12.6	-12.7	0.91	0.89	8.92
2,917.0	2.42	15.29	2,916.8	0.0	-12.0	-11.8	1.72	1.71	-5.52
2,980.0	3.25	23.46	2,979.7	2.9	-10.9	-10.3	1.46	1.32	12.97
3,043.0	3.12	21.88	3,042.6	6.1	-9.6	-8.5	0.25	-0.21	-2.51
3,106.0	3.16	21.09	3,105.5	9.4	-8.3	-6.7	0.09	0.06	-1.25
3,169.0	2.95	22.76	3,168.4	12.5	-7.1	-5.0	0.36	-0.33	2.65
3,231.0	2.86	21.97	3,230.3	15.4	-5.9	-3.3	0.16	-0.15	-1.27
3,294.0	2.68	17.13	3,293.3	18.2	-4.8	-1.9	0.47	-0.29	-7.68
3,357.0	2.81	20.30	3,356.2	21.1	-3.9	-0.5	0.32	0.21	5.03
3,441.0	2.59	24.16	3,440.1	24.8	-2.4	1.6	0.34	-0.26	4.60
3,566.0	2.24	23.90	3,565.0	29.6	-0.2	4.5	0.28	-0.28	-0.21
3,629.0	3.78	26.01	3,627.9	32.6	1.2	6.4	2.45	2.44	3.35
3,660.0	6.95	32.42	3,658.8	35.1	2.6	8.2	10.39	10.23	20.68
3,692.0	9.32	33.30	3,690.4	38.9	5.1	11.2	7.42	7.41	2.75
3,723.0	11.69	34.97	3,720.9	43.5	8.3	15.1	7.71	7.65	5.39
3,755.0	13.45	31.90	3,752.2	49.4	12.1	19.8	5.88	5.50	-9.59
3,786.0	15.21	26.18	3,782.2	56.1	15.8	24.5	7.28	5.68	-18.45
3,817.0	16.97	19.68	3,812.0	64.0	19.1	29.1	8.12	5.68	-20.97
3,848.0	19.65	14.93	3,841.4	73.3	22.0	33.4	9.89	8.65	-15.32
3,880.0	22.77	12.65	3,871.2	84.5	24.7	37.9	10.08	9.75	-7.13
3,943.0	29.32	12.12	3,927.8	111.5	30.6	48.0	10.40	10.40	-0.84
4,006.0	33.98	14.93	3,981.4	143.6	38.4	60.8	7.76	7.40	4.46
4,069.0	38.55	16.08	4,032.2	179.5	48.4	76.4	7.33	7.25	1.83
4,132.0	43.87	16.60	4,079.6	219.3	60.1	94.3	8.46	8.44	0.83
4,194.0	48.66	16.69	4,122.4	262.2	72.9	113.8	7.73	7.73	0.15
4,257.0	52.57	15.99	4,162.4	309.0	86.6	134.8	6.27	6.21	-1.11

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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)
4,320.0	53.67	16.16	4,200.2	357.4	100.6	156.3	1.76	1.75	0.27
4,383.0	54.42	16.25	4,237.2	406.4	114.8	178.1	1.20	1.19	0.14
4,446.0	54.20	17.31	4,274.0	455.3	129.6	200.5	1.41	-0.35	1.68
4,509.0	51.34	23.02	4,312.1	502.4	146.8	225.0	8.52	-4.54	9.06
4,571.0	47.74	27.85	4,352.3	545.0	167.0	251.8	8.29	-5.81	7.79
4,634.0	45.45	31.02	4,395.6	584.9	189.5	280.3	5.15	-3.63	5.03
4,697.0	44.35	38.40	4,440.3	621.4	214.7	311.1	8.45	-1.75	11.71
4,760.0	43.96	47.63	4,485.5	653.4	244.6	345.7	10.22	-0.62	14.65
4,823.0	45.10	56.42	4,530.5	680.5	279.4	384.3	9.95	1.81	13.95
4,886.0	45.14	65.38	4,575.0	702.2	318.3	426.2	10.07	0.06	14.22
4,948.0	46.81	72.94	4,618.1	718.0	359.9	469.8	9.17	2.69	12.19
5,011.0	50.07	79.36	4,659.9	729.2	405.6	516.7	9.21	5.17	10.19
5,074.0	54.51	85.77	4,698.5	735.5	455.0	566.5	10.69	7.05	10.17
5,137.0	58.55	90.61	4,733.2	737.2	507.5	618.6	9.06	6.41	7.68
5,200.0	60.66	91.40	4,765.1	736.2	561.8	672.1	3.52	3.35	1.25
5,263.0	64.53	92.63	4,794.1	734.2	617.7	726.9	6.38	6.14	1.95
5,326.0	71.34	93.77	4,817.7	730.9	676.0	783.9	10.94	10.81	1.81
5,390.0	79.25	92.98	4,834.0	727.3	737.7	844.3	12.42	12.36	-1.23
5,452.0	87.52	92.37	4,841.1	724.4	799.2	904.5	13.37	13.34	-0.98
5,498.5	89.30	92.56	4,842.4	722.4	845.6	950.0	3.85	3.83	0.41
FTP @ 5498.5' MD, 100' FWL, 1327' FNL									
5,515.0	89.93	92.63	4,842.5	721.7	862.1	966.2	3.85	3.83	0.41
5,578.0	90.64	89.82	4,842.2	720.4	925.1	1,028.1	4.60	1.13	-4.46
5,641.0	90.77	87.27	4,841.4	722.0	988.1	1,090.6	4.05	0.21	-4.05
5,704.0	91.60	86.83	4,840.1	725.2	1,051.0	1,153.2	1.49	1.32	-0.70
5,767.0	90.99	87.18	4,838.7	728.5	1,113.9	1,215.8	1.12	-0.97	0.56
5,830.0	90.11	87.09	4,838.1	731.6	1,176.8	1,278.4	1.40	-1.40	-0.14
5,893.0	89.85	85.86	4,838.1	735.5	1,239.7	1,341.1	2.00	-0.41	-1.95
5,956.0	88.88	85.95	4,838.8	740.0	1,302.5	1,403.8	1.55	-1.54	0.14
6,019.0	88.13	87.18	4,840.5	743.8	1,365.3	1,466.5	2.29	-1.19	1.95
6,082.0	88.88	87.71	4,842.1	746.6	1,428.3	1,529.1	1.46	1.19	0.84
6,145.0	87.21	89.38	4,844.2	748.2	1,491.2	1,591.4	3.75	-2.65	2.65
6,208.0	88.18	89.11	4,846.8	749.0	1,554.1	1,653.7	1.60	1.54	-0.43
6,271.0	89.23	88.85	4,848.2	750.1	1,617.1	1,716.1	1.72	1.67	-0.41
6,334.0	90.42	88.67	4,848.4	751.5	1,680.1	1,778.5	1.91	1.89	-0.29
6,397.0	91.25	88.85	4,847.5	752.9	1,743.1	1,840.8	1.35	1.32	0.29
6,459.0	90.68	89.99	4,846.4	753.5	1,805.1	1,902.1	2.06	-0.92	1.84
6,522.0	91.03	90.78	4,845.5	753.1	1,868.1	1,964.3	1.37	0.56	1.25
6,585.0	88.84	91.66	4,845.6	751.7	1,931.0	2,026.2	3.75	-3.48	1.40
6,648.0	89.63	91.75	4,846.4	749.9	1,994.0	2,088.1	1.26	1.25	0.14
6,711.0	88.35	91.84	4,847.5	747.9	2,057.0	2,149.9	2.04	-2.03	0.14
6,773.0	88.00	90.96	4,849.5	746.4	2,118.9	2,210.8	1.53	-0.56	-1.42
6,837.0	89.27	90.87	4,851.0	745.3	2,182.9	2,273.8	1.99	1.98	-0.14
6,900.0	90.07	91.14	4,851.4	744.2	2,245.9	2,335.8	1.34	1.27	0.43

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6,963.0	88.18	91.49	4,852.3	742.8	2,308.8	2,397.8	3.05	-3.00	0.56
7,026.0	89.23	91.49	4,853.8	741.2	2,371.8	2,459.7	1.67	1.67	0.00
7,088.0	90.15	91.66	4,854.1	739.4	2,433.8	2,520.6	1.51	1.48	0.27
7,151.0	88.84	91.05	4,854.7	738.0	2,496.8	2,582.5	2.29	-2.08	-0.97
7,214.0	89.89	90.96	4,855.4	736.9	2,559.7	2,644.5	1.67	1.67	-0.14
7,277.0	89.49	89.82	4,855.7	736.4	2,622.7	2,706.6	1.92	-0.63	-1.81
7,340.0	90.24	90.08	4,855.8	736.5	2,685.7	2,768.8	1.26	1.19	0.41
7,403.0	88.79	89.20	4,856.4	736.9	2,748.7	2,831.1	2.69	-2.30	-1.40
7,466.0	90.20	89.38	4,856.9	737.7	2,811.7	2,893.4	2.26	2.24	0.29
7,529.0	91.03	89.64	4,856.3	738.2	2,874.7	2,955.7	1.38	1.32	0.41
7,592.0	88.84	88.50	4,856.3	739.2	2,937.7	3,018.0	3.92	-3.48	-1.81
7,656.0	89.49	88.23	4,857.3	741.0	3,001.7	3,081.4	1.10	1.02	-0.42
7,719.0	89.98	88.41	4,857.5	742.9	3,064.6	3,143.9	0.83	0.78	0.29
7,782.0	87.38	88.50	4,859.0	744.6	3,127.6	3,206.3	4.13	-4.13	0.14
7,845.0	88.40	88.32	4,861.3	746.3	3,190.5	3,268.7	1.64	1.62	-0.29
7,907.0	89.27	88.67	4,862.6	748.0	3,252.5	3,330.2	1.51	1.40	0.56
7,970.0	87.25	89.29	4,864.5	749.1	3,315.5	3,392.5	3.35	-3.21	0.98
8,033.0	88.62	89.47	4,866.8	749.8	3,378.4	3,454.7	2.19	2.17	0.29
8,096.0	88.40	89.20	4,868.4	750.5	3,441.4	3,517.0	0.55	-0.35	-0.43
8,159.0	87.82	88.94	4,870.5	751.5	3,504.3	3,579.3	1.01	-0.92	-0.41
8,222.0	87.56	89.73	4,873.0	752.3	3,567.3	3,641.6	1.32	-0.41	1.25
8,285.0	87.60	90.70	4,875.7	752.0	3,630.2	3,703.7	1.54	0.06	1.54
8,348.0	88.79	90.70	4,877.7	751.2	3,693.2	3,765.7	1.89	1.89	0.00
8,411.0	90.02	90.70	4,878.3	750.5	3,756.2	3,827.8	1.95	1.95	0.00
8,490.0	89.67	89.55	4,878.5	750.3	3,835.2	3,905.8	1.52	-0.44	-1.46
8,553.0	87.78	90.34	4,879.9	750.4	3,898.2	3,967.9	3.25	-3.00	1.25
8,615.0	86.29	90.61	4,883.1	749.9	3,960.1	4,029.0	2.44	-2.40	0.44
8,678.0	86.90	90.43	4,886.9	749.3	4,023.0	4,091.0	1.01	0.97	-0.29
8,741.0	87.65	90.26	4,889.9	748.9	4,085.9	4,153.0	1.22	1.19	-0.27
8,804.0	88.13	90.34	4,892.2	748.6	4,148.8	4,215.1	0.77	0.76	0.13
8,867.0	86.46	90.43	4,895.2	748.1	4,211.8	4,277.2	2.65	-2.65	0.14
8,930.0	87.21	90.70	4,898.6	747.5	4,274.7	4,339.2	1.27	1.19	0.43
8,993.0	88.00	90.34	4,901.3	747.0	4,337.6	4,401.2	1.38	1.25	-0.57
9,055.0	88.75	90.26	4,903.0	746.6	4,399.6	4,462.4	1.22	1.21	-0.13
9,118.0	86.64	90.26	4,905.6	746.3	4,462.5	4,524.4	3.35	-3.35	0.00
9,181.0	87.38	90.34	4,908.9	746.0	4,525.4	4,586.5	1.18	1.17	0.13
9,190.0	87.38	90.34	4,909.3	746.0	4,534.4	4,595.4	0.00	0.00	0.00
LAST SVY									
9,250.0	87.38	90.34	4,912.0	745.6	4,594.4	4,654.5	0.00	0.00	0.00
PTD @ 9250.0' MD, 111' FEL, 1307' FNL									

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well Kirk Federal Com #2H
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 #2H	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	AWB	Database:	EDM 10_13

Design Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
- Shape									
VS TARGET (Kirk FC	0.04	270.01	4,848.0	740.8	2,412.7	674,175.81	666,958.74	32° 51' 9.591 N	103° 55' 27.330 W
- actual wellpath misses target center by 6.1usft at 7066.9usft MD (4854.1 TVD, 740.1 N, 2412.7 E)									
- Rectangle (sides W60.0 H1,600.0 D20.0)									
UMP (Kirk FC #2H)	0.00	0.00	4,849.0	741.0	846.0	674,176.00	665,392.00	32° 51' 9.653 N	103° 55' 45.697 W
- actual wellpath misses target center by 19.7usft at 5498.3usft MD (4842.4 TVD, 722.5 N, 845.4 E)									
- Point									
PBHL (Kirk FC #2H)	-0.85	269.92	4,880.0	744.0	4,605.0	674,179.00	669,151.00	32° 51' 9.538 N	103° 55' 1.631 W
- actual wellpath misses target center by 33.8usft at 9250.0usft MD (4912.0 TVD, 745.6 N, 4594.4 E)									
- Rectangle (sides W60.0 H2,165.0 D20.0)									

Design Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(usft)	(usft)	+N/-S (usft)	+E/-W (usft)	
407.5	407.5	-1.8	1.2	TIE ON
5,498.5	4,842.4	722.4	845.6	FTP @ 5498.5' MD, 100' FWL, 1327' FNL
9,190.0	4,909.3	746.0	4,534.4	LAST SVY
9,250.0	4,912.0	745.6	4,594.4	PTD @ 9250.0' MD, 111' FEL, 1307' FNL

Checked By: _____ Approved By: _____ Date: _____