



PHOENIX
TECHNOLOGY SERVICES

30-025-45716

January 30, 2020

Oil Conservation Division
State of New Mexico
1625 N. French Drive
District 1 - Hobbs
Hobbs, New Mexico 88240

Attention: Regulatory Department

Re: Conoco Phillips
Zia Hills 20 Federal Com 107H
Lea County, NM
API #30-025-45716
Job No. 64794

HOBBS OCD

MAR 02 2020

RECEIVED

Enclosed please find the Survey Data Certification, and the original Plat and one copy of the Survey Report performed on the above referenced well by Phoenix Technology Services, Inc. (P-5 No. 664171). Other information required by your office is as follows:

Name & Title of Surveyor	Drain Hole Number	Surveyed Depths		Dates Performed		Type of Survey
		From	To	Start	End	
Nathan Tatum	107H	1,311	21,427	8/25/19	12/9/19	MWD

A certified plat on which the bottom hole location is oriented both to the surface location and to the lease lines (or unit lines in case of pooling) is attached to the survey report. If any other information is required, please contact the undersigned at the letterhead address and phone number.

Best Regards,

Brittany Carley

Brittany Carley
Operations Administrator

SURVEY DATA CERTIFICATION



PHOENIX
TECHNOLOGY SERVICES

Job #: 64794
Client: Conoco Phillips
County & State: Lea, New Mexico
Well: Zia Hills 20 Federal Com 107H
API No: 30-025-45716
Proposed Direction: 179.37°

TIE-IN DATA

MD	TVD	INC	AZM	N/-S	E/-W	DATA SOURCE
1111.00 ft	1110.94 ft	0.61°	270.93°	6.5 S	8.12 W	Velocity
Data Source Company:						Phoenix Technology

SURVEY DATA

First Survey Date	First Survey Depth	INC	AZM
25-Aug-19	1,311 ft	0.96°	294.47°

Last Survey Date	Last Survey Depth	INC	AZM
9-Dec-19	21,427 ft	89.98°	179.19°

Survey Instrument Type
Velocity

Projected TD Survey Date	Projected TD Survey Depth	INC	AZM
9-Dec-19	21,460 ft	89.98°	179.19°

CORRECTION INFORMATION

Magnetic Declination Used	6.74 degrees
Grid Convergence Used	0.34 degrees

Corrected to True/Grid North
Grid North

Total Correction	6.40 degrees
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Nathan Tatum

TO THE BEST OF MY KNOWLEDGE, I
CERTIFY THIS SURVEY DATA TO BE TRUE
AND CORRECT.

Signature

12/9/2019

Date

ConocoPhillips MCBU - Permian-Panhandle Gold Data

Planning - NM East State Zone - 3001

ZIA HILLS 20 FEDERAL COM 107H

ZIA HILLS 20 FEDERAL COM 107H

OH / 64794

Survey: Phoenix MWD Survey

Standard Survey Report

10 December, 2019

ConocoPhillips

Survey Report

Company:	ConocoPhillips MCBU - Permian-Panhandle Gold Data	Local Co-ordinate Reference:	Well ZIA HILLS 20 FEDERAL COM 107H
Project:	Planning - NM East State Zone - 3001	TVD Reference:	KB @ 3185.00ft (Nabors 894)
Site:	ZIA HILLS 20 FEDERAL COM 107H	MD Reference:	KB @ 3185.00ft (Nabors 894)
Well:	ZIA HILLS 20 FEDERAL COM 107H	North Reference:	Grid
Wellbore:	OH / 64794	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Nabors 894)	Database:	EDT 14 Central Planning

Project	Planning - NM East State Zone - 3001, Permian Basin - New Mexico - East/South East, Planning Project for Permian wells in NM Zone 3001		
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		Using geodetic scale factor

Site		ZIA HILLS 20 FEDERAL COM 107H			
Site Position:		Northing:	374,418.960 usft	Latitude:	32° 1' 40.022 N
From:	Map	Easting:	697,919.940 usft	Longitude:	103° 41' 40.863 W
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.34 °

Well	ZIA HILLS 20 FEDERAL COM 107H					
Well Position	+N/-S	0.00 ft	Northing:	374,418.960 usft	Latitude:	32° 1' 40.022 N
	+E/-W	0.00 ft	Easting:	697,919.940 usft	Longitude:	103° 41' 40.863 W
Position Uncertainty		2.00 ft	Wellhead Elevation:	ft	Ground Level:	3,154.50 ft

Wellbore	OH / 64794				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2018	6/19/2019	6.87	59.77	47,632.87281495

Design	Surveys (Nabors 894)				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.00	0.00	0.00	179.37	

Survey Program	Date 12/10/2019				
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
147.40	1,111.00	VES Gyro Survey (OH / 64794)	NS-GYRO-MS	North sensing gyrocompassing m/s	
1,211.00	21,460.00	Phoenix MWD Survey (OH / 64794)	MWD+IFR1+MS_CoP	Fixed:v2:Eagleford, crustal dec + 3-axis corr.	

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
1,111.00	0.61	270.93	1,110.94	-6.50	-8.12	6.41	0.00	0.00	0.00	
Tie In										
1,311.00	0.96	294.47	1,310.92	-5.79	-10.71	5.67	0.23	0.18	11.77	
First Phoenix MWD Survey										
1,403.00	0.53	237.95	1,402.91	-5.69	-11.77	5.56	0.87	-0.47	-61.43	
1,497.00	1.37	176.43	1,496.90	-7.04	-12.07	6.91	1.29	0.89	-65.45	
1,591.00	1.50	175.48	1,590.87	-9.39	-11.90	9.26	0.14	0.14	-1.01	
1,685.00	1.17	171.82	1,684.85	-11.57	-11.67	11.44	0.36	-0.35	-3.89	
1,778.00	1.17	175.99	1,777.83	-13.46	-11.47	13.33	0.09	0.00	4.48	

ConocoPhillips

Survey Report

Company:	ConocoPhillips MCBU - Permian-Panhandle Gold Data	Local Co-ordinate Reference:	Well ZIA HILLS 20 FEDERAL COM 107H
Project:	Planning - NM East State Zone - 3001	TVD Reference:	KB @ 3185.00ft (Nabors 894)
Site:	ZIA HILLS 20 FEDERAL COM 107H	MD Reference:	KB @ 3185.00ft (Nabors 894)
Well:	ZIA HILLS 20 FEDERAL COM 107H	North Reference:	Grid
Wellbore:	OH / 64794	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Nabors 894)	Database:	EDT 14 Central Planning

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
1,873.00	1.16	174.50	1,872.81	-15.38	-11.31	15.25	0.03	-0.01	-1.57
1,967.00	0.82	143.98	1,966.80	-16.87	-10.82	16.75	0.66	-0.36	-32.47
2,062.00	1.10	109.68	2,061.78	-17.73	-9.56	17.62	0.66	0.29	-36.11
2,155.00	0.95	54.09	2,154.77	-17.58	-8.10	17.49	1.04	-0.16	-59.77
2,250.00	1.94	24.44	2,249.74	-15.65	-6.79	15.57	1.27	1.04	-31.21
2,343.00	1.35	35.22	2,342.70	-13.32	-5.51	13.26	0.71	-0.63	11.59
2,437.00	1.23	36.59	2,436.68	-11.61	-4.27	11.56	0.13	-0.13	1.46
2,532.00	1.06	35.77	2,531.66	-10.08	-3.15	10.04	0.18	-0.18	-0.86
2,626.00	0.68	34.85	2,625.65	-8.91	-2.32	8.89	0.40	-0.40	-0.98
2,721.00	0.61	35.07	2,720.64	-8.04	-1.71	8.02	0.07	-0.07	0.23
2,816.00	0.42	32.09	2,815.64	-7.33	-1.24	7.31	0.20	-0.20	-3.14
2,911.00	0.28	13.33	2,910.64	-6.81	-1.00	6.80	0.19	-0.15	-19.75
3,005.00	0.18	321.43	3,004.63	-6.47	-1.04	6.46	0.23	-0.11	-55.21
3,099.00	0.02	13.13	3,098.63	-6.34	-1.12	6.32	0.18	-0.17	55.00
3,193.00	0.24	38.47	3,192.63	-6.17	-1.00	6.15	0.24	0.23	26.96
3,288.00	0.78	56.39	3,287.63	-5.65	-0.34	5.65	0.59	0.57	18.86
3,382.00	1.42	55.13	3,381.61	-4.63	1.15	4.64	0.68	0.68	-1.34
3,477.00	1.21	16.74	3,476.59	-3.00	2.41	3.03	0.93	-0.22	-40.41
3,571.00	1.75	330.25	3,570.56	-0.80	1.98	0.82	1.35	0.57	-49.46
3,666.00	1.30	337.09	3,665.53	1.45	0.84	-1.44	0.51	-0.47	7.20
3,760.00	0.63	43.75	3,759.52	2.81	0.78	-2.80	1.28	-0.71	70.91
3,853.00	0.26	233.09	3,852.51	3.05	0.97	-3.04	0.95	-0.40	-183.51
3,948.00	1.76	223.81	3,947.50	1.87	-0.21	-1.87	1.58	1.58	-9.77
4,042.00	1.93	189.69	4,041.45	-0.74	-1.48	0.72	1.16	0.18	-36.30
4,137.00	2.34	171.10	4,136.39	-4.23	-1.45	4.21	0.84	0.43	-19.57
4,230.00	1.82	193.97	4,229.33	-7.54	-1.51	7.52	1.04	-0.56	24.59
4,325.00	1.72	261.58	4,324.29	-9.21	-3.29	9.17	2.07	-0.11	71.17
4,419.00	1.62	263.26	4,418.25	-9.57	-6.00	9.51	0.12	-0.11	1.79
4,513.00	1.44	265.17	4,512.22	-9.83	-8.50	9.74	0.20	-0.19	2.03
4,608.00	1.41	272.72	4,607.19	-9.87	-10.85	9.75	0.20	-0.03	7.95
4,702.00	1.34	270.08	4,701.16	-9.82	-13.11	9.67	0.10	-0.07	-2.81
4,796.00	1.31	275.02	4,795.13	-9.72	-15.28	9.55	0.13	-0.03	5.26
4,890.00	0.96	303.01	4,889.12	-9.20	-17.01	9.01	0.69	-0.37	29.78
4,984.00	1.16	14.21	4,983.10	-7.85	-17.44	7.66	1.32	0.21	75.74
5,079.00	1.10	14.92	5,078.09	-6.03	-16.96	5.85	0.06	-0.06	0.75
5,174.00	1.11	14.40	5,173.07	-4.26	-16.50	4.08	0.01	0.01	-0.55
5,269.00	1.12	16.09	5,268.05	-2.48	-16.01	2.30	0.04	0.01	1.78
5,363.00	1.12	12.71	5,362.03	-0.70	-15.56	0.53	0.07	0.00	-3.60
5,457.00	1.17	14.86	5,456.01	1.12	-15.11	-1.29	0.07	0.05	2.29
5,551.00	0.81	36.02	5,550.00	2.59	-14.47	-2.75	0.54	-0.38	22.51
5,646.00	0.87	106.47	5,644.99	2.93	-13.39	-3.07	1.02	0.06	74.16
5,740.00	1.07	107.92	5,738.98	2.46	-11.87	-2.59	0.21	0.21	1.54
5,834.00	0.98	102.39	5,832.96	2.01	-10.25	-2.13	0.14	-0.10	-5.88

ConocoPhillips

Survey Report

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Wellbore:	OH / 64794	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Nabors 894)	Database:	EDT 14 Central Planning

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
5,928.00	1.01	106.92	5,926.95	1.60	-8.67	-1.69	0.09	0.03	4.82
6,023.00	0.93	110.57	6,021.94	1.08	-7.15	-1.16	0.11	-0.08	3.84
6,117.00	1.01	117.36	6,115.92	0.44	-5.70	-0.50	0.15	0.09	7.22
6,211.00	1.06	123.82	6,209.91	-0.43	-4.24	0.38	0.13	0.05	6.87
6,305.00	1.12	126.61	6,303.89	-1.46	-2.78	1.43	0.09	0.06	2.97
6,400.00	1.17	128.83	6,398.87	-2.62	-1.28	2.61	0.07	0.05	2.34
6,494.00	1.07	130.10	6,492.85	-3.79	0.14	3.79	0.11	-0.11	1.35
6,589.00	1.02	130.55	6,587.84	-4.91	1.46	4.93	0.05	-0.05	0.47
6,683.00	0.72	190.61	6,681.83	-6.04	1.99	6.06	0.97	-0.32	63.89
6,777.00	1.63	246.30	6,775.81	-7.15	0.66	7.16	1.45	0.97	59.24
6,872.00	1.83	247.56	6,870.77	-8.28	-1.98	8.25	0.21	0.21	1.33
6,966.00	1.82	248.16	6,964.72	-9.40	-4.76	9.35	0.02	-0.01	0.64
7,061.00	1.79	253.55	7,059.67	-10.38	-7.58	10.30	0.18	-0.03	5.67
7,155.00	1.91	254.76	7,153.62	-11.21	-10.50	11.10	0.13	0.13	1.29
7,250.00	1.22	239.13	7,248.59	-12.15	-12.89	12.00	0.85	-0.73	-16.45
7,345.00	0.76	186.88	7,343.57	-13.29	-13.84	13.14	1.02	-0.48	-55.00
7,439.00	0.89	189.75	7,437.56	-14.63	-14.04	14.48	0.15	0.14	3.05
7,533.00	0.48	195.61	7,531.56	-15.73	-14.27	15.57	0.44	-0.44	6.23
7,626.00	0.37	104.99	7,624.56	-16.18	-14.08	16.03	0.66	-0.12	-97.44
7,720.00	1.27	77.69	7,718.55	-16.04	-12.77	15.90	1.02	0.96	-29.04
7,814.00	1.87	75.54	7,812.51	-15.43	-10.27	15.32	0.64	0.64	-2.29
7,908.00	3.32	67.07	7,906.41	-13.99	-6.27	13.92	1.59	1.54	-9.01
8,003.00	4.14	61.91	8,001.21	-11.30	-0.72	11.29	0.93	0.86	-5.43
8,097.00	4.12	63.12	8,094.96	-8.18	5.29	8.24	0.10	-0.02	1.29
8,191.00	3.64	63.82	8,188.75	-5.34	10.98	5.46	0.51	-0.51	0.74
8,286.00	3.25	66.16	8,283.58	-2.92	16.15	3.09	0.44	-0.41	2.46
8,381.00	3.57	66.48	8,378.41	-0.65	21.32	0.88	0.34	0.34	0.34
8,474.00	3.19	63.63	8,471.25	1.66	26.30	-1.37	0.45	-0.41	-3.06
8,568.00	2.59	56.71	8,565.13	3.98	30.42	-3.65	0.74	-0.64	-7.36
8,663.00	2.95	39.95	8,660.02	7.04	33.78	-6.66	0.93	0.38	-17.64
8,758.00	3.50	26.39	8,754.87	11.51	36.64	-11.10	0.99	0.58	-14.27
8,851.00	1.77	11.93	8,847.77	15.46	38.20	-15.04	1.98	-1.86	-15.55
8,946.00	1.42	342.73	8,942.73	18.02	38.15	-17.60	0.92	-0.37	-30.74
9,038.00	1.15	349.49	9,034.71	20.01	37.64	-19.60	0.34	-0.29	7.35
9,131.00	0.23	325.20	9,127.70	21.08	37.37	-20.67	1.02	-0.99	-26.12
9,225.00	0.46	273.20	9,221.70	21.26	36.88	-20.85	0.39	0.24	-55.32
9,319.00	0.60	260.17	9,315.70	21.20	36.02	-20.80	0.20	0.15	-13.86
9,412.00	0.82	139.31	9,408.69	20.61	35.98	-20.21	1.33	0.24	-129.96
9,506.00	2.68	130.10	9,502.64	18.68	38.10	-18.26	1.99	1.98	-9.80
9,600.00	2.40	129.75	9,596.55	16.01	41.29	-15.55	0.30	-0.30	-0.37
9,694.00	1.43	128.04	9,690.50	14.03	43.73	-13.55	1.03	-1.03	-1.82
9,788.00	0.78	157.92	9,784.48	12.71	44.89	-12.22	0.90	-0.69	31.79

ConocoPhillips

Survey Report

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Design:	Surveys (Nabors 894)	Database:	EDT 14 Central Planning

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
9,883.00	0.51	182.64	9,879.47	11.69	45.11	-11.19	0.40	-0.28	26.02
9,977.00	0.44	242.04	9,973.47	11.10	44.78	-10.61	0.50	-0.07	63.19
10,071.00	0.47	282.76	10,067.47	11.02	44.08	-10.53	0.34	0.03	43.32
10,166.00	0.63	288.24	10,162.47	11.27	43.21	-10.79	0.18	0.17	5.77
10,261.00	0.74	284.20	10,257.46	11.58	42.12	-11.12	0.13	0.12	-4.25
10,355.00	0.82	262.68	10,351.45	11.65	40.86	-11.20	0.32	0.09	-22.89
10,450.00	0.93	264.27	10,446.44	11.48	39.42	-11.05	0.12	0.12	1.67
10,544.00	0.44	287.71	10,540.43	11.52	38.32	-11.09	0.59	-0.52	24.94
10,638.00	0.32	356.22	10,634.43	11.89	37.95	-11.47	0.47	-0.13	72.88
10,731.00	0.25	1.84	10,727.43	12.35	37.94	-11.93	0.08	-0.08	6.04
10,826.00	0.35	348.95	10,822.43	12.84	37.89	-12.42	0.13	0.11	-13.57
10,931.00	0.56	161.52	10,927.43	12.67	38.00	-12.25	0.86	0.20	164.35
10,978.00	4.05	161.25	10,974.38	10.88	38.60	-10.45	7.43	7.43	-0.57
11,023.00	7.67	165.85	11,019.14	6.46	39.85	-6.02	8.11	8.04	10.22
11,070.00	12.72	169.65	11,065.38	-1.68	41.55	2.13	10.83	10.74	8.09
11,117.00	17.60	169.62	11,110.73	-13.76	43.76	14.24	10.38	10.38	-0.06
11,164.00	21.80	171.23	11,154.97	-29.38	46.37	29.89	9.01	8.94	3.43
11,211.00	25.51	173.81	11,198.02	-48.08	48.79	48.61	8.19	7.89	5.49
11,258.00	28.20	176.74	11,239.95	-69.23	50.51	69.78	6.38	5.72	6.23
11,306.00	29.77	178.80	11,281.93	-92.47	51.41	93.03	3.88	3.27	4.29
11,353.00	31.20	179.66	11,322.44	-116.31	51.73	116.87	3.18	3.04	1.83
11,400.00	32.55	180.20	11,362.35	-141.13	51.75	141.69	2.94	2.87	1.15
11,447.00	34.84	179.46	11,401.45	-167.20	51.84	167.76	4.95	4.87	-1.57
11,495.00	38.25	178.79	11,440.01	-195.77	52.28	196.34	7.15	7.10	-1.40
11,542.00	40.67	178.63	11,476.29	-225.64	52.95	226.20	5.15	5.15	-0.34
11,588.00	44.21	178.83	11,510.23	-256.66	53.64	257.24	7.70	7.70	0.43
11,648.00	47.83	179.78	11,551.89	-289.83	54.15	300.41	6.14	6.03	1.58
11,737.00	53.22	179.74	11,608.45	-368.50	54.44	369.08	6.06	6.06	-0.04
11,767.00	56.36	179.11	11,625.75	-393.01	54.69	393.59	10.61	10.47	-2.10
11,798.00	58.27	179.60	11,642.49	-419.10	54.98	419.68	6.30	6.16	1.58
11,829.00	60.42	179.92	11,658.29	-445.76	55.09	446.34	6.99	6.94	1.03
11,859.00	63.80	179.73	11,672.32	-472.27	55.17	472.85	11.28	11.27	-0.63
11,891.00	68.23	180.12	11,685.33	-501.50	55.21	502.08	13.89	13.84	1.22
11,922.00	72.19	179.79	11,695.82	-530.67	55.23	531.24	12.81	12.77	-1.06
11,953.00	74.85	180.50	11,704.61	-560.39	55.16	560.96	8.86	8.58	2.29
11,984.00	76.43	179.77	11,712.30	-590.42	55.09	590.99	5.58	5.10	-2.35
12,015.00	78.35	179.92	11,719.07	-620.67	55.17	621.24	6.21	6.19	0.48
12,048.00	80.19	180.17	11,724.84	-651.13	55.15	651.69	5.99	5.94	0.81
12,077.00	82.24	180.78	11,729.58	-681.76	54.89	682.32	6.89	6.61	1.97
12,108.00	85.41	180.24	11,732.91	-712.58	54.62	713.13	10.37	10.23	-1.74
12,140.00	88.28	180.36	11,734.67	-744.52	54.45	745.08	8.98	8.97	0.38
12,233.00	91.19	179.17	11,735.10	-837.51	54.83	838.06	3.38	3.13	-1.28
12,265.00	92.21	178.95	11,734.15	-869.49	55.36	870.05	3.26	3.19	-0.69

ConocoPhillips

Survey Report

Company:	ConocoPhillips MCBU - Permian-Panhandle Gold Data	Local Co-ordinate Reference:	Well ZIA HILLS 20 FEDERAL COM 107H
Project:	Planning - NM East State Zone - 3001	TVD Reference:	KB @ 3185.00ft (Nabors 894)
Site:	ZIA HILLS 20 FEDERAL COM 107H	MD Reference:	KB @ 3185.00ft (Nabors 894)
Well:	ZIA HILLS 20 FEDERAL COM 107H	North Reference:	Grid
Wellbore:	OH / 64794	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Nabors 894)	Database:	EDT 14 Central Planning

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Bulld Rate (°/100ft)	Turn Rate (°/100ft)
12,360.00	91.55	180.97	11,731.03	-964.43	55.42	964.99	2.24	-0.69	2.13
12,454.00	90.98	181.03	11,728.96	-1,058.40	53.78	1,058.92	0.61	-0.61	0.06
12,549.00	89.88	179.29	11,728.25	-1,153.39	53.52	1,153.91	2.17	-1.16	-1.83
12,642.00	89.88	179.14	11,728.44	-1,246.38	54.79	1,246.91	0.16	0.00	-0.16
12,737.00	89.25	179.10	11,729.16	-1,341.37	56.25	1,341.90	0.66	-0.66	-0.04
12,831.00	89.30	179.90	11,730.35	-1,435.35	57.07	1,435.89	0.85	0.05	0.85
12,924.00	88.73	179.93	11,731.95	-1,528.34	57.21	1,528.88	0.61	-0.61	0.03
13,019.00	88.22	180.04	11,734.48	-1,623.31	57.23	1,623.84	0.55	-0.54	0.12
13,113.00	88.00	180.17	11,737.58	-1,717.25	57.06	1,717.78	0.27	-0.23	0.14
13,207.00	87.60	179.97	11,741.19	-1,811.18	56.95	1,811.70	0.48	-0.43	-0.21
13,295.00	91.07	179.14	11,742.21	-1,899.16	57.63	1,899.88	4.05	3.94	-0.94
13,390.00	90.76	178.63	11,740.69	-1,994.13	59.48	1,994.86	0.63	-0.33	-0.54
13,485.00	90.73	178.77	11,739.46	-2,089.10	61.63	2,089.65	0.15	-0.03	0.15
13,578.00	90.81	179.04	11,738.21	-2,182.07	63.41	2,182.64	0.30	0.09	0.29
13,672.00	91.16	178.26	11,736.59	-2,276.05	64.80	2,276.62	0.44	0.37	0.23
13,766.00	90.48	178.22	11,735.25	-2,370.01	66.87	2,370.61	1.32	-0.72	-1.11
13,860.00	89.82	178.36	11,735.00	-2,463.97	69.68	2,464.59	0.72	-0.70	0.15
13,955.00	89.67	178.05	11,735.42	-2,558.92	72.65	2,559.57	0.36	-0.16	-0.33
14,049.00	89.81	180.06	11,735.85	-2,652.91	74.20	2,653.56	2.14	0.15	2.14
14,142.00	89.79	180.05	11,736.17	-2,745.90	74.11	2,746.55	0.02	-0.02	-0.01
14,237.00	89.78	180.19	11,736.53	-2,840.90	73.91	2,841.55	0.15	-0.01	0.15
14,331.00	89.72	180.02	11,736.94	-2,934.90	73.74	2,935.54	0.19	-0.06	-0.18
14,430.00	89.79	181.02	11,737.36	-3,033.90	72.84	3,034.51	1.01	0.07	1.01
14,524.00	89.76	181.04	11,737.73	-3,127.88	71.15	3,128.47	0.04	-0.03	0.02
14,618.00	89.81	180.21	11,738.09	-3,221.87	70.13	3,222.45	0.88	0.05	-0.88
14,711.00	89.72	180.35	11,738.47	-3,314.87	69.67	3,315.44	0.18	-0.10	0.15
14,805.00	90.13	179.06	11,738.59	-3,408.87	70.16	3,409.43	1.44	0.44	-1.37
14,898.00	89.75	177.95	11,738.69	-3,501.84	72.58	3,502.42	1.26	-0.41	-1.19
14,993.00	89.62	177.66	11,739.21	-3,596.76	76.22	3,597.38	0.33	-0.14	-0.31
15,087.00	89.39	178.96	11,740.02	-3,690.72	78.99	3,691.36	1.40	-0.24	1.38
15,181.00	89.79	180.88	11,740.69	-3,784.71	79.13	3,785.35	2.09	0.43	2.04
15,274.00	89.78	180.39	11,741.04	-3,877.70	78.09	3,878.33	0.53	-0.01	-0.53
15,368.00	89.79	181.29	11,741.40	-3,971.69	76.72	3,972.30	0.96	0.01	0.96
15,462.00	89.82	181.28	11,741.72	-4,065.67	74.61	4,066.24	0.03	0.03	-0.01
15,557.00	89.98	179.60	11,741.88	-4,160.66	73.88	4,161.22	1.78	0.17	-1.77
15,651.00	89.72	178.17	11,742.13	-4,254.64	75.71	4,255.22	1.55	-0.28	-1.52
15,745.00	89.75	178.32	11,742.56	-4,348.60	78.59	4,349.20	0.16	0.03	0.16
15,839.00	89.81	178.02	11,742.92	-4,442.55	81.59	4,443.18	0.33	0.06	-0.32
15,933.00	89.73	177.69	11,743.30	-4,536.48	85.11	4,537.14	0.36	-0.09	-0.35
16,027.00	89.61	179.00	11,743.84	-4,630.44	87.82	4,631.12	1.40	-0.13	1.39
16,122.00	89.79	180.25	11,744.34	-4,725.43	88.44	4,726.12	1.33	0.19	1.32
16,215.00	89.67	179.72	11,744.78	-4,818.43	88.47	4,819.11	0.58	-0.13	-0.57

ConocoPhillips

Survey Report

Company:	ConocoPhillips MCBU - Permian-Panhandle Gold Data	Local Co-ordinate Reference:	Well ZIA HILLS 20 FEDERAL COM 107H
Project:	Planning - NM East State Zone - 3001	TVD Reference:	KB @ 3185.00ft (Nabors 894)
Site:	ZIA HILLS 20 FEDERAL COM 107H	MD Reference:	KB @ 3185.00ft (Nabors 894)
Well:	ZIA HILLS 20 FEDERAL COM 107H	North Reference:	Grid
Wellbore:	OH / 64794	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Nabors 894)	Database:	EDT 14 Central Planning

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
16,309.00	89.72	180.07	11,745.28	-4,912.43	88.64	4,913.11	0.38	0.05	0.37
16,403.00	89.56	179.76	11,745.87	-5,006.43	88.78	5,007.10	0.37	-0.17	-0.33
16,497.00	89.81	180.08	11,746.39	-5,100.43	88.91	5,101.09	0.43	0.27	0.34
16,591.00	89.65	180.48	11,746.83	-5,194.42	88.45	5,195.08	0.46	-0.17	0.43
16,686.00	89.65	180.76	11,747.41	-5,289.42	87.42	5,290.06	0.29	0.00	0.29
16,779.00	90.05	181.14	11,747.65	-5,382.40	85.88	5,383.02	0.59	0.43	0.41
16,874.00	90.33	180.47	11,747.34	-5,477.39	84.55	5,477.99	0.76	0.29	-0.71
16,968.00	90.33	179.81	11,746.80	-5,571.39	84.32	5,571.98	0.70	0.00	-0.70
17,062.00	90.32	179.52	11,746.26	-5,665.39	84.87	5,665.98	0.31	-0.01	-0.31
17,156.00	90.28	180.44	11,745.77	-5,759.38	84.90	5,759.97	0.98	-0.04	0.98
17,250.00	90.27	179.90	11,745.32	-5,853.38	84.62	5,853.96	0.57	-0.01	-0.57
17,344.00	90.21	180.02	11,744.93	-5,947.38	84.69	5,947.95	0.14	-0.06	0.13
17,439.00	90.18	180.20	11,744.60	-6,042.38	84.50	6,042.94	0.19	-0.03	0.19
17,534.00	90.18	178.71	11,744.30	-6,137.37	85.41	6,137.94	1.57	0.00	-1.57
17,628.00	90.21	178.48	11,743.98	-6,231.34	87.71	6,231.93	0.25	0.03	-0.24
17,721.00	90.28	178.77	11,743.59	-6,324.32	89.94	6,324.92	0.32	0.08	0.31
17,815.00	89.78	178.45	11,743.54	-6,418.29	92.22	6,418.91	0.63	-0.53	-0.34
17,909.00	89.59	178.83	11,744.05	-6,512.26	94.46	6,512.90	0.45	-0.20	0.40
18,003.00	88.90	179.23	11,745.29	-6,606.24	96.05	6,606.89	0.85	-0.73	0.43
18,097.00	88.96	178.96	11,747.05	-6,700.21	97.53	6,700.88	0.29	0.06	-0.29
18,191.00	89.16	178.74	11,748.59	-6,794.18	99.42	6,794.86	0.32	0.21	-0.23
18,286.00	90.13	178.23	11,749.18	-6,889.14	101.93	6,889.85	1.15	1.02	-0.54
18,380.00	90.15	178.37	11,748.95	-6,983.10	104.72	6,983.83	0.15	0.02	0.15
18,473.00	90.08	178.86	11,748.76	-7,076.07	106.97	7,076.82	0.53	-0.08	0.53
18,567.00	89.89	178.83	11,748.79	-7,170.05	108.86	7,170.82	0.20	-0.20	-0.03
18,662.00	89.78	178.45	11,749.06	-7,265.03	111.11	7,265.81	0.42	-0.12	-0.40
18,756.00	89.92	179.39	11,749.31	-7,359.01	112.89	7,359.80	1.01	0.15	1.00
18,851.00	90.25	180.09	11,749.17	-7,454.01	113.32	7,454.80	0.81	0.35	0.74
18,945.00	90.70	179.68	11,748.39	-7,548.00	113.51	7,548.79	0.65	0.48	-0.44
19,040.00	90.22	179.82	11,747.62	-7,643.00	113.92	7,643.79	0.53	-0.51	0.15
19,134.00	90.16	179.19	11,747.31	-7,736.99	114.73	7,737.79	0.67	-0.06	-0.87
19,228.00	90.21	179.81	11,747.01	-7,830.99	115.55	7,831.79	0.66	0.05	0.66
19,322.00	90.27	179.90	11,746.61	-7,924.99	115.79	7,925.78	0.12	0.06	0.10
19,416.00	90.24	179.87	11,746.20	-8,018.99	115.98	8,019.78	0.05	-0.03	-0.03
19,510.00	90.19	180.18	11,745.84	-8,112.99	115.94	8,113.77	0.33	-0.05	0.33
19,604.00	90.21	180.12	11,745.52	-8,206.98	115.69	8,207.76	0.07	0.02	-0.06
19,698.00	90.22	180.04	11,745.16	-8,300.98	115.56	8,301.75	0.09	0.01	-0.09
19,791.00	90.16	179.42	11,744.85	-8,393.98	116.00	8,394.75	0.67	-0.06	-0.67
19,885.00	90.24	179.94	11,744.53	-8,487.98	116.52	8,488.75	0.56	0.09	0.55
19,980.00	90.18	179.64	11,744.18	-8,582.98	116.87	8,583.74	0.32	-0.06	-0.32
20,075.00	90.27	179.31	11,743.80	-8,677.97	117.74	8,678.74	0.36	0.09	-0.35
20,169.00	89.50	180.05	11,743.99	-8,771.97	118.27	8,772.74	1.14	-0.82	0.79
20,262.00	89.70	180.03	11,744.64	-8,864.97	118.20	8,865.73	0.22	0.22	-0.02

ConocoPhillips

Survey Report

Company:	ConocoPhillips MCBU - Permian-Panhandle Gold Data	Local Co-ordinate Reference:	Well ZIA HILLS 20 FEDERAL COM 107H
Project:	Planning - NM East State Zone - 3001	TVD Reference:	KB @ 3185.00ft (Nabors 894)
Site:	ZIA HILLS 20 FEDERAL COM 107H	MD Reference:	KB @ 3185.00ft (Nabors 894)
Well:	ZIA HILLS 20 FEDERAL COM 107H	North Reference:	Grid
Wellbore:	OH / 64794	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Nabors 894)	Database:	EDT 14 Central Planning

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N-S (ft)	+E-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
20,355.00	89.72	180.25	11,745.11	-8,957.97	117.98	8,958.72	0.24	0.02	0.24
20,450.00	89.68	179.76	11,745.61	-9,052.96	117.97	9,053.71	0.52	-0.04	-0.52
20,544.00	89.72	179.43	11,746.10	-9,146.96	118.63	9,147.71	0.35	0.04	-0.35
20,637.00	89.75	179.95	11,746.53	-9,239.96	119.14	9,240.71	0.56	0.03	0.56
20,732.00	89.62	179.70	11,747.06	-9,334.96	119.43	9,335.70	0.30	-0.14	-0.26
20,825.00	89.72	180.03	11,747.59	-9,427.95	119.64	9,428.70	0.37	0.11	0.35
20,919.00	89.64	179.52	11,748.12	-9,521.95	120.01	9,522.70	0.55	-0.09	-0.54
21,014.00	89.64	179.25	11,748.71	-9,616.94	121.03	9,617.69	0.28	0.00	-0.28
21,107.00	89.76	179.78	11,749.20	-9,709.94	121.82	9,710.69	0.58	0.13	0.57
21,202.00	89.78	180.02	11,749.58	-9,804.94	121.99	9,805.69	0.25	0.02	0.25
21,296.00	89.75	179.50	11,749.97	-9,898.94	122.38	9,899.68	0.55	-0.03	-0.55
21,427.00	89.98	179.19	11,750.27	-10,029.93	123.88	10,030.69	0.29	0.18	-0.24
Final Phoenix MWD Survey									
21,460.00	89.98	179.19	11,750.28	-10,062.93	124.34	10,063.69	0.00	0.00	0.00
Projection to TD									

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
1,200.07	1,200.00	13 3/8" Casing	13-3/8	17-1/2
12,130.00	11,734.29	9 5/8" Casing	9-5/8	12-1/4
21,353.01	11,750.17	5 1/2" Casing	5-1/2	8-1/2

Survey Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N-S (ft)	+E-W (ft)	
1,111.00	1,110.94	-6.50	-8.12	Tie In
1,311.00	1,310.92	-5.79	-10.71	First Phoenix MWD Survey
21,427.00	11,750.27	-10,029.93	123.88	Final Phoenix MWD Survey
21,460.00	11,750.28	-10,062.93	124.34	Projection to TD