



PHOENIX
TECHNOLOGY SERVICES

October 30, 2019

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 19 Fed Com 110H
Lea County, NM
API #30-025-44237
Job No. 64342

HOBBS OCD

DEC 1 0 2019

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	
Anthony Thigpen	110H	12,393	22,331	10/7/19	10/24/19	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 #: 64342
 Client: ConocoPhillips
 County & State: Lea, NM
 Well: Zia Hills 19 Fed Com 110H
 API No: 30-025-44237
 Proposed Direction: 359.44°

TIE-IN DATA

MD	TVD	INC	AZM	N/-S	E/-W	DATA SOURCE
12340.00 ft	11989.38 ft	85.84°	3.30°	449.79 N	22.12 E	MWD
Data Source Company:						PHX

SURVEY DATA

First Survey Date	First Survey Depth	INC	AZM
7-Oct-19	12,393 ft	82.79°	9.63°

Last Survey Date	Last Survey Depth	INC	AZM
24-Oct-19	22,331 ft	91.13°	359.92°

Survey Instrument Type
Velocity UTX

Projected TD Survey Date	Projected TD Survey Depth	INC	AZM
24-Oct-19	22,365 ft	91.13°	359.92°

CORRECTION INFORMATION

Magnetic Declination Used	6.72	degrees
Grid Convergence Used	0.33	degrees
Total Correction	6.39	degrees

Corrected to True/Grid North
Grid North

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

Anthony Thigpen

Signature

10/24/2019

Date

ConocoPhillips MCBU - Permian-Panhandle Gold Data

Planning - NM East State Zone - 3001

ZIA HILLS 19 110H

ZIA HILLS 19 110H

ST01 / 64342

Survey: Phoenix MWD Surveys

Standard Survey Report

25 October, 2019

ConocoPhillips

Survey Report

Company:	ConocoPhillips MCBU - Permian-Panhandle Gold Data	Local Co-ordinate Reference:	Well ZIA HILLS 19 110H
Project:	Planning - NM East State Zone - 3001	TVD Reference:	RKB @ 3210.00ft (Patterson 256)
Site:	ZIA HILLS 19 110H	MD Reference:	RKB @ 3210.00ft (Patterson 256)
Well:	ZIA HILLS 19 110H	North Reference:	Grid
Wellbore:	ST01 / 64342	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Patterson 256)	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 19 110H				
Site Position:		Northing:	374,653.160 usft	Latitude:	32° 1' 42.743 N
From:	Map	Easting:	690,908.400 usft	Longitude:	103° 43' 2.293 W
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.33 °

Well	ZIA HILLS 19 110H					
Well Position	+N/-S	0.00 ft	Northing:	374,653.160 usft	Latitude:	32° 1' 42.743 N
	+E/-W	0.00 ft	Easting:	690,908.400 usft	Longitude:	103° 43' 2.293 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	3,181.50 ft

Wellbore	ST01 / 64342				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2018	2/4/2019	6.92	59.78	47,670.96464095

Design	Surveys (Patterson 256)				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	12,340.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.00	0.00	0.00	359.44	

Survey Program	Date	10/25/2019		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
120.00	1,050.00	0_ZIA_HILLS_19_110H (OH/ 64260 / 6434	GOOD GYRO	GOOD GYRO
1,315.00	12,340.00	1_ZIA_HILLS_19_110H (OH/ 64260 / 6434	MWD+IFR1+MS_CoP	Fixed:v2:Eagleford, crustal dec + 3-axis corr.
12,393.00	22,365.00	Phoenix MWD Surveys (ST01 / 64342)	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)	Buird Rate (°/100ft)	Turn Rate (°/100ft)
12,340.00	85.84	3.30	11,989.38	449.79	22.12	449.56	0.00	0.00	0.00
Tie In									
12,393.00	82.79	9.63	11,994.63	502.17	28.05	501.87	13.20	-5.75	11.94
First Phoenix MWD Survey - ST01									
12,425.00	85.70	12.67	11,997.84	533.40	34.21	533.04	13.12	9.09	9.50
12,489.00	86.55	11.59	12,002.17	595.82	47.62	595.33	2.14	1.33	-1.69
12,584.00	88.94	4.31	12,005.91	689.77	60.74	689.14	8.06	2.52	-7.66
12,679.00	89.33	0.38	12,007.35	784.66	64.62	783.99	4.16	0.41	-4.14

ConocoPhillips

Survey Report

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Site:	ZIA HILLS 19 110H	MD Reference:	RKB @ 3210.00ft (Patterson 256)
Well:	ZIA HILLS 19 110H	North Reference:	Grid
Wellbore:	ST01 / 64342	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Patterson 256)	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)
12,774.00	89.48	0.62	12,008.33	879.65	65.45	878.97	0.30	0.16	0.25
12,870.00	88.93	359.96	12,009.66	975.64	65.94	974.95	0.89	-0.57	-0.69
12,965.00	91.52	0.96	12,009.29	1,070.62	66.70	1,069.92	2.92	2.73	1.05
13,061.00	88.64	358.81	12,009.16	1,166.61	66.51	1,165.90	3.74	-3.00	-2.24
13,157.00	88.77	352.98	12,011.33	1,262.30	59.64	1,261.65	6.07	0.14	-6.07
13,252.00	88.53	353.84	12,013.57	1,356.64	48.74	1,356.10	0.94	-0.25	0.91
13,348.00	89.79	347.56	12,014.98	1,451.32	33.24	1,450.93	6.67	1.31	-6.54
13,443.00	92.17	346.57	12,013.35	1,543.89	11.98	1,543.70	2.71	2.51	-1.04
13,539.00	93.60	349.59	12,008.52	1,637.69	-7.83	1,637.68	3.48	1.49	3.15
13,634.00	92.88	349.22	12,003.15	1,730.92	-25.26	1,731.08	0.85	-0.76	-0.39
13,667.00	92.75	348.16	12,001.53	1,763.24	-31.73	1,763.46	3.23	-0.39	-3.21
13,761.00	92.44	351.52	11,997.27	1,855.65	-48.29	1,856.04	3.59	-0.33	3.57
13,857.00	92.87	355.02	11,992.82	1,950.87	-59.53	1,951.36	3.67	0.45	3.65
13,953.00	92.59	357.80	11,988.25	2,046.57	-65.53	2,047.11	2.91	-0.29	2.90
14,048.00	92.91	358.74	11,983.69	2,141.41	-68.40	2,141.98	1.04	0.34	0.99
14,144.00	92.70	359.93	11,978.99	2,237.29	-69.51	2,237.86	1.26	-0.22	1.24
14,238.00	92.33	0.86	11,974.87	2,331.20	-68.86	2,331.76	1.06	-0.39	0.99
14,334.00	92.02	0.79	11,971.23	2,427.12	-67.48	2,427.66	0.33	-0.32	-0.07
14,429.00	90.91	1.57	11,968.80	2,522.06	-65.52	2,522.58	1.43	-1.17	0.82
14,525.00	90.38	0.71	11,967.72	2,618.04	-63.61	2,618.53	1.05	-0.55	-0.90
14,620.00	90.04	0.08	11,967.37	2,713.03	-62.96	2,713.52	0.75	-0.36	-0.66
14,716.00	92.01	0.29	11,965.65	2,809.01	-62.65	2,809.49	2.06	2.05	0.22
14,811.00	90.53	0.31	11,963.54	2,903.99	-62.15	2,904.45	1.56	-1.56	0.02
14,907.00	86.87	359.83	11,965.72	2,999.94	-62.03	3,000.41	3.85	-3.81	-0.50
15,002.00	89.35	1.85	11,968.86	3,094.87	-60.64	3,095.32	3.37	2.61	2.13
15,097.00	91.54	1.47	11,968.12	3,189.82	-57.89	3,190.24	2.34	2.31	-0.40
15,192.00	91.21	1.73	11,965.84	3,284.76	-55.24	3,285.14	0.44	-0.35	0.27
15,288.00	87.75	2.23	11,966.71	3,380.68	-51.92	3,381.03	3.64	-3.60	0.52
15,384.00	90.21	3.67	11,968.42	3,476.53	-46.98	3,476.82	2.97	2.56	1.50
15,479.00	89.01	4.87	11,969.06	3,571.26	-39.91	3,571.48	1.79	-1.26	1.26
15,543.00	88.67	3.38	11,970.36	3,635.08	-35.31	3,635.25	2.39	-0.53	-2.33
15,575.00	89.84	3.08	11,970.78	3,667.02	-33.50	3,667.18	3.77	3.66	-0.94
15,670.00	92.44	1.73	11,968.89	3,761.91	-29.52	3,762.02	3.08	2.74	-1.42
15,765.00	90.39	356.75	11,966.54	3,856.84	-30.78	3,856.96	5.67	-2.16	-5.24
15,861.00	89.67	355.17	11,966.49	3,952.60	-37.54	3,952.78	1.81	-0.75	-1.65
15,956.00	89.18	357.29	11,967.44	4,047.38	-43.79	4,047.62	2.29	-0.52	2.23
16,051.00	89.58	359.04	11,968.47	4,142.32	-46.83	4,142.58	1.89	0.42	1.84
16,147.00	89.35	358.91	11,969.37	4,238.30	-48.55	4,238.58	0.28	-0.24	-0.14
16,242.00	88.65	357.19	11,971.03	4,333.23	-51.78	4,333.53	1.95	-0.74	-1.81
16,337.00	88.93	358.10	11,973.03	4,428.13	-55.68	4,428.46	1.00	0.29	0.96
16,433.00	90.50	359.16	11,973.51	4,524.09	-57.98	4,524.44	1.97	1.64	1.10
16,529.00	87.65	358.13	11,975.06	4,620.04	-60.25	4,620.41	3.16	-2.97	-1.07
16,624.00	88.85	358.46	11,977.96	4,714.96	-63.07	4,715.35	1.31	1.26	0.35

ConocoPhillips

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Well:	ZIA HILLS 19 110H	North Reference:	Grid
Wellbore:	ST01 / 64342	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Patterson 256)	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)
16,719.00	88.04	358.40	11,980.54	4,809.88	-65.67	4,810.30	0.85	-0.85	-0.06
16,815.00	88.42	358.21	11,983.50	4,905.80	-68.51	4,906.23	0.44	0.40	-0.20
16,910.00	88.65	358.07	11,985.93	5,000.71	-71.59	5,001.18	0.28	0.24	-0.15
17,006.00	88.58	358.48	11,988.25	5,096.64	-74.48	5,097.13	0.43	-0.07	0.43
17,070.00	88.71	359.42	11,989.77	5,160.61	-75.65	5,161.11	1.48	0.20	1.47
17,198.00	89.47	359.73	11,991.80	5,288.59	-76.60	5,289.09	0.64	0.59	0.24
17,293.00	91.24	1.78	11,991.21	5,383.57	-75.35	5,384.05	2.85	1.86	2.16
17,389.00	91.10	0.72	11,989.25	5,479.53	-73.26	5,479.98	1.11	-0.15	-1.10
17,484.00	90.24	0.00	11,988.14	5,574.52	-72.66	5,574.96	1.18	-0.91	-0.76
17,580.00	89.35	0.15	11,988.48	5,670.52	-72.54	5,670.96	0.94	-0.93	0.16
17,675.00	89.56	0.59	11,989.39	5,765.51	-71.92	5,765.94	0.51	0.22	0.46
17,771.00	89.62	0.30	11,990.07	5,861.51	-71.18	5,861.92	0.31	0.06	-0.30
17,866.00	89.42	0.53	11,990.87	5,956.50	-70.49	5,956.90	0.32	-0.21	0.24
17,961.00	89.49	359.87	11,991.77	6,051.49	-70.16	6,051.89	0.70	0.07	-0.69
18,057.00	89.42	359.41	11,992.69	6,147.49	-70.76	6,147.89	0.48	-0.07	-0.48
18,152.00	89.39	359.49	11,993.67	6,242.48	-71.67	6,242.88	0.09	-0.03	0.08
18,248.00	89.35	359.22	11,994.73	6,338.47	-72.75	6,338.88	0.28	-0.04	-0.28
18,344.00	89.70	359.17	11,995.52	6,434.45	-74.10	6,434.87	0.37	0.36	-0.05
18,439.00	90.55	359.53	11,995.32	6,529.45	-75.18	6,529.87	0.97	0.89	0.38
18,535.00	90.25	358.49	11,994.65	6,625.43	-76.84	6,625.86	1.13	-0.31	-1.08
18,630.00	89.93	357.23	11,994.50	6,720.36	-80.39	6,720.82	1.37	-0.34	-1.33
18,726.00	90.30	356.21	11,994.30	6,816.20	-85.88	6,816.71	1.13	0.39	-1.06
18,820.00	90.48	355.63	11,993.66	6,909.96	-92.57	6,910.53	0.65	0.19	-0.62
18,915.00	89.95	355.49	11,993.31	7,004.67	-99.92	7,005.32	0.58	-0.56	-0.15
19,011.00	89.72	355.66	11,993.58	7,100.39	-107.33	7,101.10	0.30	-0.24	0.18
19,106.00	89.47	355.93	11,994.26	7,195.13	-114.29	7,195.90	0.39	-0.26	0.28
19,202.00	88.70	356.84	11,995.79	7,290.92	-120.34	7,291.75	1.24	-0.80	0.95
19,297.00	88.29	359.82	11,998.28	7,385.84	-123.11	7,386.69	3.17	-0.43	3.14
19,392.00	89.58	3.88	12,000.05	7,480.75	-120.05	7,481.57	4.48	1.36	4.27
19,488.00	90.05	3.14	12,000.36	7,576.57	-114.17	7,577.32	0.91	0.49	-0.77
19,584.00	89.92	2.37	12,000.39	7,672.46	-109.55	7,673.16	0.81	-0.14	-0.80
19,679.00	89.96	2.84	12,000.48	7,767.36	-105.24	7,768.02	0.50	0.04	0.49
19,775.00	89.93	3.26	12,000.58	7,863.22	-100.13	7,863.83	0.44	-0.03	0.44
19,870.00	90.25	1.55	12,000.43	7,958.14	-96.14	7,958.70	1.83	0.34	-1.80
19,966.00	90.05	0.43	12,000.18	8,054.12	-94.48	8,054.66	1.19	-0.21	-1.17
20,062.00	89.81	0.29	12,000.29	8,150.12	-93.88	8,150.65	0.29	-0.25	-0.15
20,157.00	91.10	0.57	11,999.54	8,245.11	-93.17	8,245.63	1.39	1.36	0.29
20,253.00	89.88	359.79	11,998.72	8,341.10	-92.87	8,341.61	1.51	-1.27	-0.81
20,349.00	89.65	359.54	11,999.11	8,437.10	-93.43	8,437.61	0.35	-0.24	-0.26
20,444.00	89.61	359.78	11,999.73	8,532.10	-93.99	8,532.61	0.26	-0.04	0.25
20,540.00	90.88	0.67	11,999.32	8,628.09	-93.61	8,628.60	1.62	1.32	0.93
20,636.00	91.85	1.02	11,997.03	8,724.05	-92.20	8,724.54	1.07	1.01	0.36

ConocoPhillips

Survey Report

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Survey

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20,732.00	92.54	1.26	11,993.35	8,819.96	-90.29	8,820.43	0.76	0.72	0.25
20,827.00	93.08	1.43	11,988.69	8,914.82	-88.06	8,915.26	0.60	0.57	0.18
20,859.00	93.44	1.32	11,986.87	8,946.76	-87.30	8,947.19	1.18	1.13	-0.34
20,923.00	93.80	1.35	11,982.83	9,010.62	-85.81	9,011.03	0.56	0.56	0.05
21,018.00	94.12	358.91	11,976.27	9,105.38	-85.59	9,105.78	2.58	0.34	-2.57
21,113.00	93.79	356.80	11,969.72	9,200.09	-89.14	9,200.52	2.24	-0.35	-2.22
21,208.00	93.22	355.48	11,963.91	9,294.69	-95.52	9,295.18	1.51	-0.60	-1.39
21,239.00	92.28	353.80	11,962.42	9,325.52	-98.42	9,326.03	6.20	-3.03	-5.42
21,336.00	88.74	355.26	11,961.56	9,422.05	-107.66	9,422.66	3.95	-3.65	1.51
21,430.00	89.87	357.43	11,962.70	9,515.85	-113.65	9,516.50	2.60	1.20	2.31
21,526.00	90.27	357.37	11,962.58	9,611.75	-118.01	9,612.44	0.42	0.42	-0.06
21,622.00	90.33	0.54	11,962.08	9,707.72	-119.76	9,708.43	3.30	0.06	3.30
21,718.00	90.76	0.53	11,961.17	9,803.71	-118.86	9,804.40	0.45	0.45	-0.01
21,813.00	90.38	358.89	11,960.22	9,898.70	-119.34	9,899.40	1.77	-0.40	-1.73
21,909.00	90.64	0.42	11,959.37	9,994.69	-119.92	9,995.39	1.62	0.27	1.59
22,005.00	90.24	0.48	11,958.63	10,090.69	-119.17	10,091.37	0.42	-0.42	0.06
22,100.00	91.23	1.38	11,957.41	10,185.66	-117.62	10,186.33	1.41	1.04	0.95
22,196.00	90.95	0.81	11,955.59	10,281.63	-115.79	10,282.27	0.66	-0.29	-0.59
22,290.00	90.47	359.33	11,954.42	10,375.62	-115.68	10,376.25	1.66	-0.51	-1.57
22,331.00	91.13	359.92	11,953.85	10,416.61	-115.95	10,417.25	2.16	1.61	1.44
Final Phoenix MWD Survey - ST01									
22,365.00	91.13	359.92	11,953.18	10,450.60	-115.99	10,451.24	0.00	0.00	0.00
Projection to TD - ST01									

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
2,416.70	2,416.40	4 1/2" x 5"	10-3/4	14-3/4
9,416.50	9,411.46	4 1/2" x 5"	8-5/8	10-5/8

Survey Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
12,340.00	11,989.38	449.79	22.12	Tie In
12,393.00	11,994.63	502.17	28.05	First Phoenix MWD Survey - ST01
22,331.00	11,953.85	10,416.61	-115.95	Final Phoenix MWD Survey - ST01
22,365.00	11,953.18	10,450.60	-115.99	Projection to TD - ST01