



NM OIL CONSERVATION

ARTESIA DISTRICT

SEP 02 2016

RECEIVED

Apache Corporation

Eddy County, NM (NAD27 NME)

Tony Federal

#57D

OH / Job #1514756

Design: Surveys (Capstar 114)

Standard Survey Report

21 December, 2015

*gyro +
map
survey*



PHOENIX
TECHNOLOGY SERVICES



Phoenix Technology Services LP

Survey Report



Company:	Apache Corporation	Local Co-ordinate Reference:	Well #57D
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3662.00usft (Capstar 114)
Site:	Tony Federal	MD Reference:	KB @ 3662.00usft (Capstar 114)
Well:	#57D	North Reference:	Grid
Wellbore:	OH / Job #1514756	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Capstar 114)	Database:	Compass 5000 GCR

Project	Eddy County, NM (NAD27 NME)		
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	Tony Federal
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Site Position:		Northing:	666,516.20 usft	Latitude:	32° 49' 53.88921 N
From:	Map	Easting:	628,898.80 usft	Longitude:	103° 54' 49.29676 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.23 °

Well	#57D				
Well Position	+N/-S	0.00 usft	Northing:	663,911.20 usft	Latitude: 32° 49' 28.01923 N
	+E/-W	0.00 usft	Easting:	631,247.40 usft	Longitude: 103° 54' 21.89507 W
Position Uncertainty	0.00 usft		Wellhead Elevation:	0.00 usft	Ground Level: 3,651.00 usft

Wellbore	OH / Job #1514756
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	12/10/2015	7.63	60.77	48,532

Design	Surveys (Capstar 114)
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Audit Notes:	
Version:	1.0
Phase:	ACTUAL
Tie On Depth:	0.00

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	266.08

Survey Program		Date	12/21/2015		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.00	3,445.00	Phoenix Gyro Surveys (OH / Job #151475	PHX_SPT_GTD	PHX Continuous north-seeking gyro	
3,540.00	6,445.00	Phoenix MWD Surveys (OH / Job #151475	PHX+MWD+HDGM	PHX+OWSG MWD + HDGM	

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)
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	100.00	0.35	64.06	100.00	0.13	0.27	-0.28	0.35	0.35	0.00
	200.00	0.34	173.63	200.00	-0.03	0.58	-0.58	0.56	-0.01	109.57
	300.00	0.82	136.64	299.99	-0.84	1.11	-1.05	0.59	0.48	-36.99
	400.00	1.63	140.68	399.97	-2.46	2.50	-2.32	0.81	0.81	4.04
	500.00	2.36	131.17	499.91	-4.92	4.95	-4.60	0.80	0.73	-9.51
	600.00	2.00	132.08	599.84	-7.44	7.80	-7.27	0.36	-0.36	0.91
	700.00	2.20	120.82	699.77	-9.60	10.74	-10.06	0.46	0.20	-11.26
	800.00	2.29	120.11	799.69	-11.58	14.12	-13.29	0.09	0.09	-0.71
	900.00	2.52	111.85	899.60	-13.40	17.88	-16.93	0.42	0.23	-8.26



Phoenix Technology Services LP Survey Report



Company:	Apache Corporation	Local Co-ordinate Reference:	Well #57D
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3662.00usft (Capstar 114)
Site:	Tony Federal	MD Reference:	KB @ 3662.00usft (Capstar 114)
Well:	#57D	North Reference:	Grid
Wellbore:	OH / Job #1514756	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Capstar 114)	Database:	Compass 5000 GCR

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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1,000.00	3.45	104.28	999.47	-14.96	22.84	-21.76	1.01	0.93	-7.57
1,100.00	3.62	100.45	1,099.28	-16.28	28.86	-27.68	0.29	0.17	-3.83
1,200.00	3.57	102.68	1,199.08	-17.53	35.00	-33.72	0.15	-0.05	2.23
1,300.00	3.70	103.15	1,298.88	-18.95	41.18	-39.79	0.13	0.13	0.47
1,400.00	3.30	102.89	1,398.69	-20.33	47.13	-45.63	0.40	-0.40	-0.26

1,500.00	3.21	105.31	1,498.53	-21.71	52.64	-51.03	0.16	-0.09	2.42
1,600.00	2.67	104.44	1,598.40	-23.03	57.59	-55.88	0.54	-0.54	-0.87
1,700.00	2.84	102.86	1,698.29	-24.12	62.09	-60.30	0.08	-0.03	-1.58
1,800.00	2.36	105.54	1,798.20	-25.19	66.32	-64.45	0.30	-0.28	2.68
1,900.00	2.18	100.21	1,898.12	-26.08	70.18	-68.23	0.28	-0.18	-5.33

2,000.00	2.07	96.45	1,998.05	-26.62	73.84	-71.85	0.18	-0.11	-3.76
2,100.00	1.79	93.61	2,097.99	-26.92	77.20	-75.18	0.30	-0.28	-2.84
2,200.00	1.67	96.53	2,197.95	-27.18	80.20	-78.16	0.15	-0.12	2.92
2,300.00	1.48	98.72	2,297.91	-27.54	82.93	-80.85	0.20	-0.19	2.19
2,400.00	1.13	104.78	2,397.88	-27.99	85.16	-83.05	0.38	-0.35	6.06

2,500.00	1.20	85.01	2,497.86	-28.15	87.15	-85.03	0.41	0.07	-19.77
2,600.00	1.00	110.11	2,597.85	-28.36	89.02	-86.87	0.52	-0.20	25.10
2,700.00	1.08	109.55	2,697.83	-28.97	90.72	-88.53	0.08	0.08	-0.56
2,800.00	0.91	125.97	2,797.81	-29.76	92.26	-90.01	0.33	-0.17	16.42
2,900.00	0.60	76.39	2,897.81	-30.10	93.41	-91.13	0.69	-0.31	-49.58

3,000.00	0.56	54.19	2,997.80	-29.69	94.31	-92.06	0.23	-0.04	-22.20
3,100.00	0.20	258.83	3,097.80	-29.44	94.54	-92.30	0.75	-0.36	-155.36
3,200.00	0.78	263.14	3,197.80	-29.55	93.69	-91.45	0.58	0.58	4.31
3,300.00	0.91	28.93	3,297.79	-28.94	93.40	-91.20	1.51	0.13	125.79
3,400.00	1.43	16.15	3,397.77	-27.05	94.13	-92.06	0.58	0.52	-12.78

3,445.00	1.57	303.98	3,442.76	-26.16	93.77	-91.77	3.93	0.31	-160.38
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Tie In to Phoenix Gyro Surveys									
3,540.00	1.80	63.20	3,537.74	-24.76	94.03	-92.11	3.06	0.24	125.49

First Phoenix MWD Survey									
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3,668.00	4.30	100.90	3,665.56	-24.76	100.54	-98.61	2.41	1.95	29.45
3,796.00	6.80	124.60	3,792.96	-29.97	111.49	-109.18	2.61	1.95	18.52
3,925.00	8.20	149.40	3,920.89	-42.23	122.46	-119.29	2.71	1.09	19.22

4,010.00	9.30	164.70	4,004.91	-54.08	127.36	-123.36	3.02	1.29	18.00
4,053.00	8.60	177.50	4,047.39	-60.64	128.42	-123.97	4.90	-1.63	29.77
4,096.00	7.30	184.70	4,089.98	-66.58	128.33	-123.48	3.80	-3.02	16.74
4,138.00	6.90	192.60	4,131.66	-71.70	127.56	-122.36	2.51	-0.95	18.81
4,181.00	6.10	206.60	4,174.38	-76.26	125.98	-120.47	4.11	-1.86	32.56

4,223.00	5.00	224.60	4,216.19	-79.56	123.69	-117.96	4.87	-2.62	42.86
4,266.00	5.10	246.90	4,259.02	-81.65	120.62	-114.76	4.54	0.23	51.86
4,308.00	5.80	261.20	4,300.84	-82.70	116.80	-110.88	3.62	1.67	34.05
4,351.00	6.30	270.40	4,343.60	-83.02	112.30	-106.36	2.53	1.16	21.40
4,394.00	7.00	274.70	4,386.31	-82.79	107.33	-101.42	2.00	1.63	10.00

4,436.00	7.00	274.10	4,428.00	-82.39	102.22	-96.35	0.17	0.00	-1.43
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Phoenix Technology Services LP

Survey Report



Company:	Apache Corporation	Local Co-ordinate Reference:	Well #57D
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3662.00usft (Capstar 114)
Site:	Tony Federal	MD Reference:	KB @ 3662.00usft (Capstar 114)
Well:	#57D	North Reference:	Grid
Wellbore:	OH / Job #1514756	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Capstar 114)	Database:	Compass 5000 GCR

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)
4,479.00	7.00	272.80	4,470.68	-82.08	96.99	-91.16	0.37	0.00	-3.02
4,522.00	8.10	275.00	4,513.30	-81.69	91.36	-85.56	2.64	2.56	5.12
4,564.00	9.20	277.10	4,554.82	-81.01	85.08	-79.34	2.72	2.62	5.00
4,607.00	10.30	279.80	4,597.20	-79.94	77.88	-72.23	2.77	2.56	6.28
4,650.00	11.80	281.70	4,639.40	-78.39	69.79	-64.26	3.59	3.49	4.42
4,693.00	13.50	281.80	4,681.38	-76.47	60.57	-55.20	3.95	3.95	0.23
4,735.00	14.00	280.90	4,722.15	-74.51	50.78	-45.57	1.29	1.19	-2.14
4,778.00	14.00	280.40	4,763.88	-72.59	40.58	-35.50	0.28	0.00	-1.16
4,821.00	12.60	279.90	4,805.72	-70.84	30.82	-25.90	3.27	-3.26	-1.16
4,864.00	12.60	280.20	4,847.69	-69.20	21.58	-16.80	0.15	0.00	0.70
4,906.00	12.50	280.20	4,888.68	-67.59	12.60	-7.95	0.24	-0.24	0.00
4,949.00	12.70	280.60	4,930.65	-65.89	3.37	1.14	0.51	0.47	0.93
4,991.00	12.80	280.40	4,971.61	-64.20	-5.74	10.12	0.26	0.24	-0.48
5,034.00	11.80	277.20	5,013.63	-62.79	-14.79	19.05	2.81	-2.33	-7.44
5,077.00	11.70	276.00	5,055.72	-61.79	-23.49	27.65	0.61	-0.23	-2.79
5,119.00	11.70	276.60	5,096.85	-60.85	-31.95	36.04	0.29	0.00	1.43
5,162.00	11.50	276.60	5,138.97	-59.86	-40.54	44.54	0.47	-0.47	0.00
5,205.00	11.30	277.00	5,181.13	-58.85	-48.98	52.89	0.50	-0.47	0.93
5,248.00	11.30	276.50	5,223.29	-57.86	-57.35	61.17	0.23	0.00	-1.16
5,290.00	12.60	278.20	5,264.38	-56.74	-65.97	69.69	3.21	3.10	4.05
5,333.00	12.70	278.50	5,306.34	-55.37	-75.29	78.90	0.28	0.23	0.70
5,460.00	12.20	279.60	5,430.35	-51.07	-102.32	105.58	0.44	-0.39	0.87
5,588.00	11.70	280.00	5,555.58	-46.56	-128.44	131.32	0.40	-0.39	0.31
5,716.00	12.60	278.10	5,680.71	-42.34	-155.04	157.58	0.77	0.70	-1.48
5,844.00	12.40	278.40	5,805.67	-38.37	-182.46	184.66	0.16	-0.16	0.23
5,972.00	11.90	278.60	5,930.81	-34.39	-209.11	210.97	0.39	-0.39	0.16
6,100.00	14.30	274.70	6,055.47	-31.12	-237.92	239.49	2.00	1.88	-3.05
6,228.00	13.50	274.90	6,179.72	-28.55	-268.56	269.88	0.63	-0.63	0.16
6,356.00	12.80	275.30	6,304.36	-25.96	-297.56	298.64	0.55	-0.55	0.31
6,385.00	12.80	275.00	6,332.64	-25.38	-303.96	304.98	0.23	0.00	-1.03
Final Phoenix MWD Survey									
6,445.00	12.80	275.00	6,391.15	-24.23	-317.20	318.12	0.00	0.00	0.00
Projection to TD									

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Comment
3,445.00	3,442.76	-26.16	93.77	Tie In to Phoenix Gyro Surveys
3,540.00	3,537.74	-24.76	94.03	First Phoenix MWD Survey
6,385.00	6,332.64	-25.38	-303.96	Final Phoenix MWD Survey
6,445.00	6,391.15	-24.23	-317.20	Projection to TD



Phoenix Technology Services LP

Survey Report



Company:	Apache Corporation	Local Co-ordinate Reference:	Well #57D
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3662.00usft (Capstar 114)
Site:	Tony Federal	MD Reference:	KB @ 3662.00usft (Capstar 114)
Well:	#57D	North Reference:	Grid
Wellbore:	OH / Job #1514756	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Capstar 114)	Database:	Compass 5000.GCR

Checked By: _____ Approved By: _____ Date: _____

WELL DETAILS							
	+N-S	+E-W	Northing	Ground Level	3651.00	Latitude	Longitude
	0.00	0.00	683911.20	Ending	631247.40	32° 49' 28.01823 N	103° 54' 21.89607 W

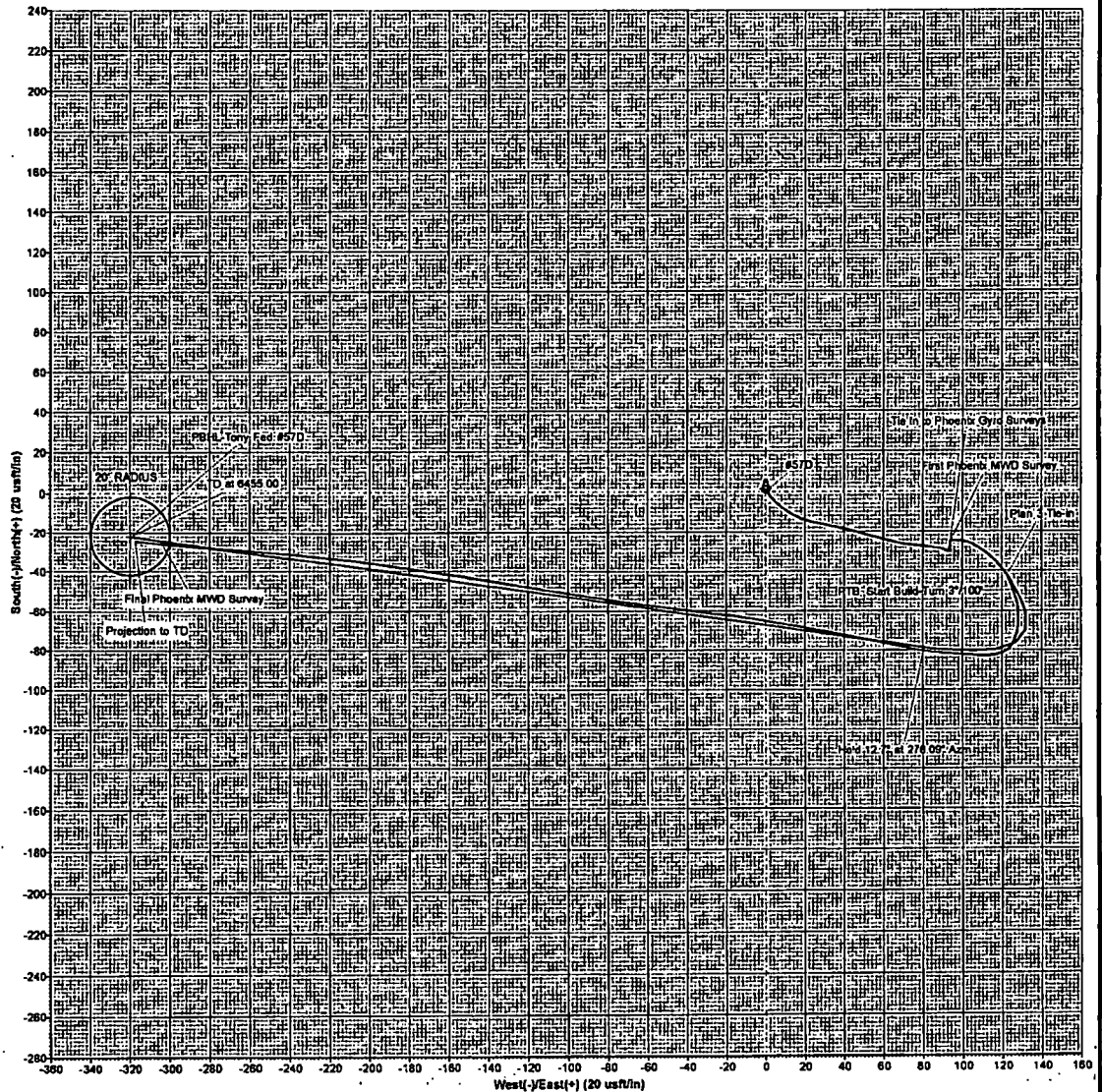
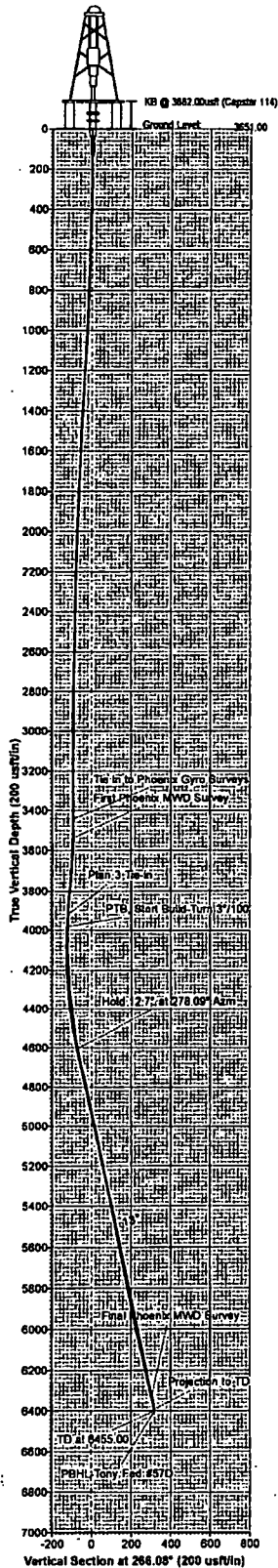
SECTION DETAILS										
Sec	MD	Inc	Adj	TYD	+N-S	+E-W	Diag	TFace	VSec	Target
1	3925.00	8.20	149.40	3920.89	-42.23	127.48	0.00	0.00	-119.29	Plan 3 Tie-in
2	3885.00	8.20	149.40	3880.78	-49.60	128.82	0.00	0.00	-123.13	PTB, Start Bull-Turn 3°/100'
3	4815.00	12.70	278.09	4805.88	-78.83	89.92	3.00	148.05	-78.98	Hold 12.7° at 278.09' Azm
4	6455.00	12.70	278.09	6400.00	-21.90	-319.80	0.00	0.00	320.95	PBHL-Tony Fed #57D TD at 6455.00

DESIGN TARGET DETAILS										
Name	TYD	+N-S	+E-W	Northing	Ending	Latitude	Longitude	Shape		
PBHL-Tony Fed #57D	9400.00	-21.90	-319.80	683888.30	630027.60	32° 49' 27.81530 N	103° 54' 25.64379 W	Circle (Radius: 20.00)	- plan into target center	

FORMATION TOP DETAILS
No formation data is available

Map System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Epscode: Chart 1800
Zone Name: New Mexico East 3001
Local Origin: Well #57D, Grid North
Latitude: 32° 49' 28.01823 N
Longitude: 103° 54' 21.89607 W
Grid East: 631247.40
Grid North: 683911.20
Scale Factor: 1.000
Geomagnetic Model: HDGM
Sample Date: 10-Dec-15
Magnetic Declination: 7.63°
Dip Angle from Horizontal: 60.77°
Magnetic Field Strength: 48532
To convert a Magnetic Direction to a Grid Direction, Add 7.40°
To convert a Magnetic Direction to a True Direction, Add 7.63° East
To convert a True Direction to a Grid Direction, Subtract 0.23°

LEGEND
--- #57D, WB1, Plan #1 04-08-15 V0
--- #57D, OH / Job #1514756, Surveys (Capstar 114) V0
--- Plan 3 12-19-15





PHOENIX

TECHNOLOGY SERVICES USA, INC.

3610 Elkins Road, Midland, Texas 79705 T. 432.684.0057 F. 432.686.7964 www.phxtech.com

Celebrating 20 Years of Focused Solutions

December 17, 2015

Apache Corporation
Attention: Regulatory Department
303 Veterans Airpark Lane, Suite 3000,
Midland, TX 79705

NM OIL CONSERVATION
ARTESIA DISTRICT

SEP 02 2016

RECEIVED

Re: Apache Corporation
Tony Federal #57D
Eddy County, NM
API #30-015-43469
Job No. 1514771

Dear Regulatory Department;

Phoenix Technology Services, Inc. has filed the Survey Data Certification, Surveys, and Lease Plat for the above referenced well with the State of New Mexico Oil Conservation Division – District 2 via certified mail. A copy of the filing is attached for your records.

Name of Surveyor	Drain Hole Number	Surveyed Depths		Dates Performed		Type of Survey
		From	To	Start	End	
Noe Garza	57D	0	3,445	12/16/15	12/16/15	Gyro ✓

Thank you for the opportunity to be of service. Please contact me if you have any questions or require additional information.

Best Regards,

Alicia Marquez
Operations Administrator

**PHOENIX****TECHNOLOGY SERVICES USA, INC.**

3610 Elkins Road, Midland, Texas 79705 T. 432.684.0057 F. 432.686.7964 www.phxtech.com

Celebrating 20 Years of Focused Solutions

December 17, 2015

Oil Conservation Division
State of New Mexico
811 S. First St.
Artesia, New Mexico 88210

NM OIL CONSERVATION
ARTESIA DISTRICT

SEP 02 2016

Dear District 2 - Artesia

RECEIVED

Attention: Regulatory Department

Re: Apache Corporation
Tony Federal #57D
Eddy County, NM
API #30-015-43469
Job No. 1514771

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	
Noe Garza	57D	0	3,445	12/16/15	12/16/15	Gyro

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,

Alicia Marquez
Operations Administrator

gyro



Company: Apache
 Well: Tony Federal # 57 D
 Location: Eddy Co., New Mexico
 Rig: Capstar 114

Job Number: 1514771
 Grid Corr.: -0.23
 Lat: 32.83
 Long: -103.91

Date: 12-16-15
 Calculation Method: Minimum Curvature
 Proposed Azimuth:
 RKB - MSL in feet: Ground
 Tie Into: Surface

Survey Tool Type	Survey Depth (ft)	Inclination (deg)	Azimuth (deg)	Course Length (ft)	True Vertical Depth (ft)	Vertical Section (ft)	Coordinates		Closure		Dogleg Severity (d/100')	Build Rate (d/100')	Walk Rate (d/100')
							N/S (ft)	E/W (ft)	Distance (ft)	Angle (deg)			
Enter Tie-In Survey on Line 10													
FIELD COPY, NON-DEFINITIVE													
TIE IN	0			0	0	0	0	0					
Gyro	100.00	0.35	64.06	100	100.00	0.13	0.13 N	0.27 E	0.31	64.06	0.35	0.35	64.06
	200.00	0.34	173.63	100	200.00	-0.03	0.03 S	0.58 E	0.58	92.72	0.56	-0.01	109.57
	300.00	0.82	136.64	100	299.99	-0.84	0.84 S	1.11 E	1.39	127.30	0.59	0.48	-36.99
	400.00	1.63	140.68	100	399.97	-2.46	2.46 S	2.50 E	3.51	134.59	0.81	0.81	4.04
	500.00	2.36	131.17	100	499.91	-4.92	4.92 S	4.95 E	6.98	134.82	0.80	0.73	-9.51
	600.00	2.00	132.08	100	599.84	-7.44	7.44 S	7.80 E	10.78	133.68	0.36	-0.36	0.91
	700.00	2.20	120.82	100	699.77	-9.60	9.60 S	10.74 E	14.40	131.79	0.46	0.20	-11.26
	800.00	2.29	120.11	100	799.69	-11.58	11.58 S	14.12 E	18.26	129.37	0.09	0.09	-0.71
	900.00	2.52	111.85	100	899.60	-13.40	13.40 S	17.88 E	22.35	126.85	0.42	0.23	-8.26
	1000.00	3.45	104.28	100	999.47	-14.96	14.96 S	22.84 E	27.31	123.23	1.01	0.93	-7.57
	1100.00	3.62	100.45	100	1099.28	-16.28	16.28 S	28.86 E	33.14	119.42	0.29	0.17	-3.83
	1200.00	3.57	102.68	100	1199.08	-17.53	17.53 S	35.00 E	39.15	116.61	0.15	-0.05	2.23
	1300.00	3.70	103.15	100	1298.88	-18.95	18.95 S	41.18 E	45.33	114.71	0.13	0.13	0.47
	1400.00	3.30	102.89	100	1398.69	-20.33	20.33 S	47.13 E	51.33	113.33	0.40	-0.40	-0.26
	1500.00	3.21	105.31	100	1498.53	-21.71	21.71 S	52.64 E	56.94	112.41	0.16	-0.09	2.42
	1600.00	2.67	104.44	100	1598.40	-23.03	23.03 S	57.59 E	62.03	111.79	0.54	-0.54	-0.87
	1700.00	2.64	102.86	100	1698.29	-24.12	24.12 S	62.09 E	66.61	111.23	0.08	-0.03	-1.58
	1800.00	2.36	105.54	100	1798.20	-25.19	25.19 S	66.32 E	70.94	110.79	0.30	-0.28	2.68
	1900.00	2.18	100.21	100	1898.12	-26.08	26.08 S	70.18 E	74.87	110.38	0.28	-0.18	-5.33
	2000.00	2.07	96.45	100	1998.05	-26.62	26.62 S	73.84 E	78.49	109.82	0.18	-0.11	-3.76
	2100.00	1.79	93.61	100	2097.99	-26.92	26.92 S	77.20 E	81.76	109.22	0.30	-0.28	-2.84
	2200.00	1.67	96.53	100	2197.95	-27.18	27.18 S	80.20 E	84.68	108.72	0.15	-0.12	2.92
	2300.00	1.48	98.72	100	2297.91	-27.54	27.54 S	82.93 E	87.38	108.37	0.20	-0.19	2.19
	2400.00	1.13	104.78	100	2397.88	-27.99	27.99 S	85.16 E	89.64	108.19	0.38	-0.35	6.06
	2500.00	1.20	85.01	100	2497.86	-28.15	28.15 S	87.15 E	91.59	107.90	0.41	0.07	-19.77
	2600.00	1.00	110.11	100	2597.85	-28.36	28.36 S	89.02 E	93.43	107.67	0.52	-0.20	25.10
	2700.00	1.08	109.55	100	2697.83	-28.97	28.97 S	90.72 E	95.24	107.71	0.08	0.08	-0.56



Company: Apache
 Well: Tony Federal # 57 D
 Location: Eddy Co., New Mexico
 Rig: Capstar 114

Job Number: 1514771
 Grid Corr.: -0.23
 Lat: 32.83
 Long: -103.91

Calculation Method: Minimum Curvature
 Proposed Azimuth:
 RKB - MSL in feet: Ground
 Tie Into: Surface

Survey Tool Type	Survey Depth (ft)	Inclina- tion (deg)	Azimuth (deg)	Course Length (ft)	True Vertical Depth (ft)	Vertical Section (ft)	Coordinates		Closure		Dogleg Severity (d/100')	Build Rate (d/100')	Walk Rate (d/100')
							N/S (ft)	E/W (ft)	Distance (ft)	Angle (deg)			
	2800.00	0.91	125.97	100	2797.81	-29.76	29.76 S	92.26 E	96.94	107.88	0.33	-0.17	16.42
	2900.00	0.60	76.39	100	2897.81	-30.10	30.10 S	93.41 E	98.14	107.86	0.69	-0.31	-49.58
	3000.00	0.56	54.19	100	2997.80	-29.69	29.69 S	94.31 E	98.87	107.47	0.23	-0.04	-22.20
	3100.00	0.20	258.83	100	3097.80	-29.44	29.44 S	94.54 E	99.01	107.30	0.75	-0.36	204.64
	3200.00	0.78	263.14	100	3197.80	-29.55	29.55 S	93.69 E	98.24	107.51	0.58	0.58	4.31
	3300.00	0.91	28.93	100	3297.79	-28.94	28.94 S	93.40 E	97.78	107.22	1.51	0.13	-234.21
	3400.00	1.43	16.15	100	3397.77	-27.05	27.05 S	94.13 E	97.94	106.03	0.58	0.52	-12.78
	3445.00	1.57	303.98	45	3442.76	-26.16	26.16 S	93.77 E	97.36	105.59	3.93	0.31	639.62

NM OIL CONSERVATION

ARTESIA DISTRICT

SEP 02 2016

RECEIVED

SURVEY CERTIFICATION FORM



3610 Elkins Road Midland, TX 79705 t:432-684-0057 f:432-686-7964

Company: Apache

Job #: 1514771

Well Name: Tony Federal 57 D

County/State: Eddy Co., New Mexico

Survey Instrument Type: North Seek Rate Gyro ✓

API #: 30-015-43469

TIE-IN DATA

Measure Depth (ft)	Vertical Depth (ft)	Inclination (°)	Azimuth (°)	N-S Coordinates	E-W Coordinates	Data Source
0	0	0	0	0	0	Surface

First Survey

Date	Depth (ft)	Inclination (°)	Azimuth (°)
2015-12-16	0	0	0

Last Survey

Date	Depth (ft)	Inclination (°)	Azimuth (°)
2015-12-16	3445	1.57	303.98

Projected TD Survey

Date	Depth (ft)	Inclination (°)	Azimuth (°)
0	0	0	0

Grid Correction
-0.23

Gyro Operator: Phoenix Technology Services USA Inc

Gyro Supervisor: Jaime Stephenson

To the best of my knowledge I certify this survey data to be correct and true

Date:

12-16-15

Print Name: Noe Garza

Signature: