



PHOENIX
TECHNOLOGY SERVICES

November 19, 2015

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

NM OIL CONSERVATION
ARTESIA DISTRICT

JAN 19 2016

Dear District 2 - Artesia

RECEIVED

Attention: Regulatory Department

Re: Apache Corporation
Coffee Federal #22D
Eddy County, NM
API #30-015-43366
Job No. 1514537

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	
Mike Miller	22D	3,528	6,378	11/04/15	11/06/15	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,

Claudia Carreon

Claudia Carreon
Operations Administrator

Certified mail receipt number: 7015 0640 0000 9907 5180

Phoenix Technology Services
SURVEY DATA CERTIFICATION



PHOENIX JOB NUMBER

1514537

OPERATOR

Apache

WELL NAME

Coffee Federal #22D

COUNTY & STATE

Eddy County, NM

API WELL NUMBER

30-015-43366

PROPOSED DIRECTION

152.72

TIE-IN DATA						
MEASURED	VERTICAL			N-S	E-W	DATA
DEPTH	DEPTH	INCLIN	AZIMUTH	COORD	COORD	SOURCE
3,419. ft	3,416.54 ft	1.98	46.97	70.83 ft	94.07 ft	Gyro

FIRST	FIRST		
SURVEY	SURVEY		
DATE	DEPTH	INCLIN	AZIMUTH
4-Nov-15	3,528.00 ft	2.30	41.30

SURVEY INSTRUMENT
TYPE
Phoenix MWD

LAST	LAST		
SURVEY	SURVEY		
DATE	DEPTH	INCLIN	AZIMUTH
6-Nov-15	6,378.00 ft	6.30	170.00

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

PROJECTED	PROJECTED		
TD SURVEY	TD SURVEY		
DATE	DEPTH	INCLIN	AZIMUTH
6-Nov-15	6,430.00 ft	6.30	170.00

Mike Miller

PRINT YOUR NAME ABOVE

Mike Miller

SIGN YOUR NAME ABOVE

MAGNETIC DECLINATION OR TOTAL GRID

TOTAL CORRECTION USED	
	7.42
DECLINATION OR GRID	GRID

11/6/2015

TODAY'S DATE

MWD SUPERVISOR 1

Mike Miller

DIRECTIONAL DRILLER 1

Steven Hawkins

MWD SUPERVISOR 2

0

DIRECTIONAL DRILLER 2

0

12329 Cutten Rd., Houston, Texas 777066

(713)337-0600 (Voice), (713)337-0599 (Fax)



NM OIL CONSERVATION
ARTESIA DISTRICT
JAN 19 2016

RECEIVED

Apache Corporation

**Eddy County, NM (NAD27 NME)
Coffee Federal
#22D**

OH / Job #1514537

Design: Surveys (Capstar 119)

Standard Survey Report

07 November, 2015



Company:	Apache Corporation	Local Co-ordinate Reference:	Well #22D
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3743.00usft (TBD)
Site:	Coffee Federal	MD Reference:	KB @ 3743.00usft (TBD)
Well:	#22D	North Reference:	Grid
Wellbore:	OH / Job #1514537	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Capstar 119)	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	Coffee Federal		
Site Position:		Northing:	670,137.60 usft
From:	Map	Easting:	628,912.40 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 50' 29.72294 N
		Longitude:	103° 54' 48.96877 W
		Grid Convergence:	0.23 °

Well	#22D		
Well Position	+N/-S	0.00 usft	Northing: 670,137.60 usft
	+E/-W	0.00 usft	Easting: 628,912.40 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	0.00 usft
		Latitude:	32° 50' 29.72294 N
		Longitude:	103° 54' 48.96877 W
		Ground Level:	3,732.00 usft

Wellbore	OH / Job #1514537		
Magnetics	Model Name	Sample Date	Declination
	HDGM	10/28/2015	7.65
		Dip Angle	60.77
		Field Strength	48,543

Design	Surveys (Capstar 119)		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.00	0.00	0.00
			Direction
			(°)
			152.72

Survey Program	Date 11/7/2015		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
100.00	3,419.00	Phoenix Gyro Surveys (OH / Job #151453	PHX_SPT_GTD
3,528.00	6,430.00	Phoenix MWD Surveys (OH / Job #151453	PHX+MWD+HDGM
			Description
			PHX Continuous north-seeking gyro
			PHX+OWSG MWD + HDGM

Survey									
Measured Depth	Inclination	Azimuth	Vertical Depth	+N/-S	+E/-W	Vertical Section	Dogleg Rate	Build Rate	Turn Rate
(usft)	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(°/100usft)	(°/100usft)	(°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.33	125.05	100.00	-0.17	0.24	0.26	0.33	0.33	0.00
200.00	0.33	272.29	200.00	-0.32	0.18	0.37	0.63	0.00	147.24
300.00	1.13	72.41	299.99	-0.01	0.84	0.39	1.44	0.80	160.12
400.00	2.24	66.97	399.95	1.05	3.57	0.70	1.12	1.11	-5.44
500.00	2.65	59.60	499.86	2.99	7.37	0.72	0.52	0.41	-7.37
600.00	2.29	53.94	599.76	5.33	10.98	0.29	0.43	-0.36	-5.66
700.00	2.43	61.51	699.68	7.52	14.45	-0.06	0.34	0.14	7.57
800.00	2.30	58.74	799.60	9.57	18.03	-0.24	0.17	-0.13	-2.77
900.00	1.98	57.03	899.53	11.55	21.20	-0.55	0.33	-0.32	-1.71

Company:	Apache Corporation	Local Co-ordinate Reference:	Well #22D
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3743.00usft (TBD)
Site:	Coffee Federal	MD Reference:	KB @ 3743.00usft (TBD)
Well:	#22D	North Reference:	Grid
Wellbore:	OH / Job #1514537	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Capstar 119)	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)
1,000.00	2.28	62.77	999.46	13.40	24.42	-0.72	0.37	0.30	5.74
1,100.00	2.10	58.45	1,099.38	15.27	27.75	-0.86	0.24	-0.18	-4.32
1,200.00	2.27	68.47	1,199.31	16.96	31.15	-0.80	0.42	0.17	10.02
1,300.00	2.53	66.25	1,299.22	18.57	35.01	-0.46	0.28	0.26	-2.22
1,400.00	2.37	61.38	1,399.13	20.45	38.85	-0.37	0.26	-0.16	-4.87
1,500.00	2.40	71.25	1,499.05	22.12	42.64	-0.11	0.41	0.03	9.87
1,600.00	1.98	61.18	1,598.97	23.62	46.14	0.15	0.57	-0.42	-10.07
1,700.00	2.22	74.76	1,698.91	24.96	49.52	0.51	0.55	0.24	13.58
1,800.00	2.27	66.86	1,798.83	26.25	53.21	1.06	0.31	0.05	-7.90
1,900.00	1.98	61.78	1,898.76	27.85	56.56	1.17	0.35	-0.29	-5.08
2,000.00	2.20	58.34	1,998.69	29.67	59.71	1.00	0.25	0.22	-3.44
2,100.00	1.91	63.57	2,098.63	31.42	62.84	0.87	0.35	-0.29	5.23
2,200.00	2.27	48.41	2,198.56	33.48	65.81	0.41	0.66	0.36	-15.16
2,300.00	2.33	56.40	2,298.48	35.92	68.99	-0.30	0.33	0.06	7.99
2,400.00	2.44	48.17	2,398.40	38.46	72.27	-1.06	0.36	0.11	-8.23
2,500.00	2.45	40.73	2,498.31	41.50	75.25	-2.40	0.32	0.01	-7.44
2,600.00	2.53	41.69	2,598.21	44.77	78.11	-3.99	0.09	0.08	0.96
2,700.00	2.56	36.47	2,698.11	48.21	80.90	-5.77	0.23	0.03	-5.22
2,800.00	2.36	36.11	2,798.02	51.67	83.44	-7.68	0.20	-0.20	-0.36
2,900.00	2.59	30.99	2,897.93	55.27	85.82	-9.79	0.32	0.23	-5.12
3,000.00	2.55	316.37	2,997.85	58.82	85.45	-13.11	3.11	-0.04	-74.62
3,100.00	2.39	41.46	3,097.79	61.99	85.30	-16.00	3.34	-0.16	85.09
3,200.00	2.43	38.50	3,197.70	65.22	88.00	-17.63	0.13	0.04	-2.96
3,300.00	2.25	50.42	3,297.62	68.13	90.83	-18.92	0.52	-0.18	11.92
3,400.00	1.86	50.46	3,397.55	70.41	93.59	-19.68	0.39	-0.39	0.04
3,419.00	1.98	46.97	3,416.54	70.83	94.07	-19.84	0.88	0.63	-18.37
Tie In to Phoenix Gyro Surveys									
3,528.00	2.30	41.30	3,525.47	73.76	96.89	-21.15	0.35	0.29	-5.20
First Phoenix MWD Survey									
3,613.00	1.50	130.50	3,610.43	74.32	98.86	-20.74	3.21	-0.94	104.94
3,698.00	4.00	182.40	3,695.34	70.63	99.58	-17.13	3.87	2.94	61.06
3,784.00	5.30	181.40	3,781.05	63.66	99.36	-11.04	1.51	1.51	-1.16
3,869.00	6.10	166.00	3,865.64	55.36	100.36	-3.20	2.02	0.94	-18.12
3,954.00	5.90	165.70	3,950.17	46.74	102.53	5.45	0.24	-0.24	-0.35
4,039.00	6.00	164.20	4,034.71	38.23	104.82	14.06	0.22	0.12	-1.76
4,124.00	7.10	166.90	4,119.16	28.84	107.22	23.51	1.34	1.29	3.18
4,210.00	8.80	169.80	4,204.33	17.19	109.59	34.95	2.03	1.98	3.37
4,337.00	8.80	169.80	4,329.83	-1.93	113.03	53.52	0.00	0.00	0.00
4,465.00	8.30	168.60	4,456.41	-20.63	116.59	71.77	0.41	-0.39	-0.94
4,593.00	8.70	167.60	4,583.00	-39.14	120.49	90.01	0.33	0.31	-0.78
4,721.00	8.40	166.90	4,709.58	-57.70	124.69	108.43	0.25	-0.23	-0.55
4,849.00	9.70	179.20	4,836.00	-77.59	126.96	127.15	1.82	1.02	9.61
4,977.00	10.10	170.30	4,962.10	-99.44	129.00	147.50	1.23	0.31	-6.95

Company:	Apache Corporation	Local Co-ordinate Reference:	Well #22D
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3743.00usft (TBD)
Site:	Coffee Federal	MD Reference:	KB @ 3743.00usft (TBD)
Well:	#22D	North Reference:	Grid
Wellbore:	OH / Job #1514537	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Capstar 119)	Database:	Compass 5000 GCR

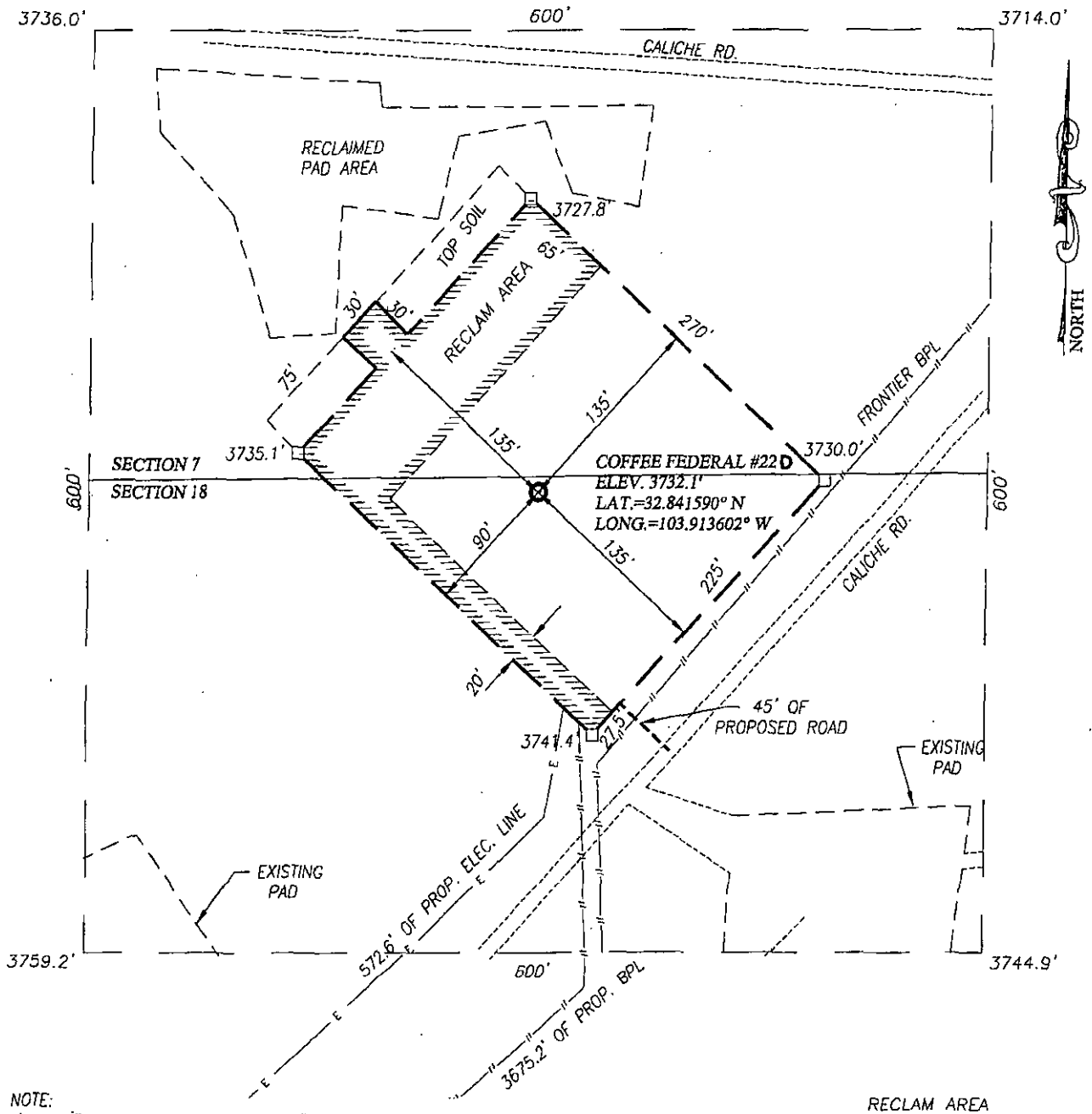
Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,105.00	9.90	170.00	5,088.15	-121.34	132.81	168.71	0.16	-0.16	-0.23
5,233.00	9.60	169.10	5,214.30	-142.65	136.73	189.46	0.26	-0.23	-0.70
5,360.00	9.20	168.10	5,339.60	-162.99	140.83	209.41	0.34	-0.31	-0.79
5,488.00	9.10	167.70	5,465.97	-182.89	145.10	229.05	0.09	-0.08	-0.31
5,615.00	9.10	166.10	5,591.37	-202.45	149.65	248.52	0.20	0.00	-1.26
5,743.00	9.10	168.80	5,717.76	-222.20	154.05	268.10	0.33	0.00	2.11
5,871.00	9.00	174.20	5,844.17	-242.09	157.02	287.14	0.67	-0.08	4.22
5,999.00	8.80	173.90	5,970.63	-261.79	159.08	305.58	0.16	-0.16	-0.23
6,126.00	7.90	171.80	6,096.28	-280.09	161.35	322.89	0.75	-0.71	-1.65
6,254.00	6.90	172.10	6,223.21	-296.41	163.67	338.46	0.78	-0.78	0.23
6,378.00	6.30	170.00	6,346.39	-310.49	165.87	351.98	0.52	-0.48	-1.69
Final Phoenix MWD Survey									
6,430.00	6.30	170.00	6,398.08	-316.11	166.86	357.43	0.00	0.00	0.00
Projection to TD									

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									
BHL (Coffee Fed #22D)	0.00	0.00	6,400.00	-319.90	165.00	669,817.70	629,077.40	32° 50' 26.55099 N	103° 54' 47.04970 W
- actual wellpath misses target center by 4.64usft at 6430.00usft MD (6398.08 TVD, -316.11 N, 166.86 E)									
- Circle (radius 20.00)									

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
3,419.00	3,416.54	70.83	94.07	Tie In to Phoenix Gyro Surveys
3,528.00	3,525.47	73.76	96.89	First Phoenix MWD Survey
6,378.00	6,346.39	-310.49	165.87	Final Phoenix MWD Survey
6,430.00	6,398.08	-316.11	166.86	Projection to TD

Checked By: _____	Approved By: _____	Date: _____
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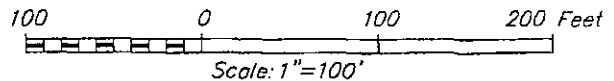
Exhibit # 1C



NOTE:
1) SEE "LOCATION VERIFICATION MAP"
FOR PROPOSED ROAD LOCATION.

DIRECTIONS TO COFFEE FEDERAL #22:

FROM THE INTERSECTION OF U.S. HWY. 82 AND CR. 221 (SKELLY RD.) GO NORTH ON CR. 221 APPROX 1.5 MILES. TURN RIGHT AND GO NORTHEAST ON CALICHE LEASE ROAD APPROX. 0.1 MILE TO PROPOSED ROAD SURVEY, FOLLOW STAKES NW. 45' TO THE LOCATION.



APACHE CORPORATION

COFFEE FEDERAL #22 D
LOCATED 10 FEET FROM THE NORTH LINE
AND 825 FEET FROM THE WEST LINE OF SECTION 18,
TOWNSHIP 17 SOUTH, RANGE 31 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO

PROVIDING SURVEYING SERVICES
SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO HOBBS, N.M. 88240
(575) 393-3117 www.jwsc.biz
TBPLS# 10021000

Survey Date: 7/17/14	CAD Date: 7/21/14	Drawn By: LSL
W.O. No.: 15110201	Rev: .	Rel. W.O.: 14110724

Sheet 1 of 1

