



PHOENIX
TECHNOLOGY SERVICES

August 20, 2015

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

Dear District 2 - Artesia

Attention: Regulatory Department

Re: Apache Corporation
NFE Federal #58H
Eddy County, NM
API #30-015-43088
Job No. 1513674

NM OIL CONSERVATION
ARTESIA DISTRICT

SEP 17 2015

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	
Joe Owens	58H	4,599	9,719	07/06/15	07/10/15	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 5067

Phoenix Technology Services
SURVEY DATA CERTIFICATION



PHOENIX JOB NUMBER

1513674

OPERATOR

Apache

WELL NAME

NFE Federal #58H

COUNTY & STATE

Eddy County, NM

API WELL NUMBER

30-015-43088

PROPOSED DIRECTION

269.88

TIE-IN DATA						
MEASURED	VERTICAL			N-S	E-W	DATA
DEPTH	DEPTH	INCLIN	AZIMUTH	COORD	COORD	SOURCE
4,559.18 ft	4,558.67 ft	0.78	230.66	6.36 N	29.56 E	Gyro Data

FIRST	FIRST		
SURVEY	SURVEY		
DATE	DEPTH	INCLIN	AZIMUTH
6-Jul-15	4,599 ft	1.5	232.7

SURVEY INSTRUMENT
TYPE

Phoenix MWD

LAST	LAST		
SURVEY	SURVEY		
DATE	DEPTH	INCLIN	AZIMUTH
10-Jul-15	9,719 ft	93.8	269.3

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
10-Jul-15	9,785 ft	93.8	269.3

Joe Owens

PRINT YOUR NAME ABOVE

Joe Owens

SIGN YOUR NAME ABOVE

MAGNETIC DECLINATION OR TOTAL GRID

TOTAL CORRECTION USED	7.39
DECLINATION OR GRID	GRID

7/10/2015

TODAY'S DATE

MWD SUPERVISOR 1

Joe Owens

DIRECTIONAL DRILLER 1

Ian Hobbs

MWD SUPERVISOR 2

Clint Gortmaker

DIRECTIONAL DRILLER 2

Hicham Chaara

12329 Cutten Rd.

Houston, Texas 77066

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



Apache Corporation

Eddy County, NM (NAD27 NME)

NFE Federal

#58H

OH / Job #1513674

Survey: Phoenix MWD Survey

Standard Survey Report

11 July, 2015

Survey Report

Company:	Apache Corporation	Local Co-ordinate Reference:	Well #58H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3879.00usft (Capstar 114)
Site:	NFE Federal	MD Reference:	KB @ 3879.00usft (Capstar 114)
Well:	#58H	North Reference:	Grid
Wellbore:	OH / Job #1513674	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	NFE Federal		
Site Position:		Northing:	673,264.70 usft
From:	Map	Easting:	633,303.50 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 51' 0.49036 N
		Longitude:	103° 53' 57.34966 W
		Grid Convergence:	0.24 °

Well	#58H		
Well Position	+N/-S	0.00 usft	Northing: 673,820.50 usft
	+E/-W	0.00 usft	Easting: 638,275.20 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
		Latitude:	32° 51' 5.78410 N
		Longitude:	103° 52' 59.04266 W
		Ground Level:	3,868.00 usft

Wellbore	OH / Job #1513674		
Magnetics	Model Name	Sample Date	Declination (°)
	HDGM	7/5/2015	7.63
			Dip Angle (°) 60.82
			Field Strength (nT) 48,563

Design	Surveys (Capstar 114)		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)
	0.00	0.00	0.00
			Direction (°) 267.88

Survey Program	Date	7/11/2015		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
84.03	4,559.18	Phoenix Gyro Survey (OH / Job #1513674)	PHX_SPT_GTD	PHX Continuous north-seeking gyro
4,599.00	9,785.00	Phoenix MWD Survey (OH / Job #1513674)	PHX+MWD+HDGM	PHX+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)
4,559.18	0.78	230.66	4,558.67	6.36	29.56	-29.78	0.00	0.00	0.00
Tie-on to Phoenix Gyro Survey									
4,599.00	1.50	232.70	4,598.48	5.87	28.94	-29.13	1.81	1.81	5.12
First Phoenix MWD Survey									
4,642.00	6.30	240.50	4,641.37	4.37	26.43	-26.58	11.21	11.16	18.14
4,684.00	11.80	241.50	4,682.83	1.18	20.65	-20.68	13.10	13.10	2.38
4,727.00	17.10	242.80	4,724.46	-3.81	11.16	-11.01	12.35	12.33	3.02
4,770.00	21.90	245.00	4,764.98	-10.09	-1.74	2.11	11.29	11.16	5.12
4,813.00	26.50	248.40	4,804.19	-17.02	-17.94	18.56	11.17	10.70	7.91

Survey Report

Company:	Apache Corporation	Local Co-ordinate Reference:	Well #58H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3879.00usft (Capstar 114)
Site:	NFE Federal	MD Reference:	KB @ 3879.00usft (Capstar 114)
Well:	#58H	North Reference:	Grid
Wellbore:	OH / Job #1513674	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)
4,856.00	30.50	252.00	4,841.98	-23.93	-37.25	38.11	10.12	9.30	8.37
4,898.00	34.60	253.70	4,877.37	-30.57	-58.84	59.93	10.00	9.76	4.05
4,941.00	37.80	255.00	4,912.07	-37.41	-83.29	84.62	7.65	7.44	3.02
4,984.00	42.40	256.60	4,944.95	-44.18	-110.14	111.70	10.96	10.70	3.72
5,026.00	48.50	258.90	4,974.40	-50.50	-139.38	141.15	15.04	14.52	5.48
5,069.00	53.40	259.80	5,001.49	-56.66	-172.19	174.16	11.51	11.40	2.09
5,112.00	58.00	259.90	5,025.71	-62.92	-207.14	209.33	10.70	10.70	0.23
5,154.00	62.90	259.50	5,046.42	-69.45	-243.08	245.48	11.70	11.67	-0.95
5,197.00	67.60	258.80	5,064.42	-76.80	-281.42	284.07	11.03	10.93	-1.63
5,239.00	72.70	258.30	5,078.67	-84.65	-320.12	323.04	12.19	12.14	-1.19
5,282.00	76.50	257.70	5,090.09	-93.27	-360.67	363.87	8.94	8.84	-1.40
5,325.00	81.90	256.30	5,098.14	-102.77	-401.80	405.33	12.96	12.56	-3.26
5,384.00	87.90	255.20	5,103.39	-117.23	-458.74	462.76	10.34	10.17	-1.86
5,427.00	87.30	256.00	5,105.19	-127.91	-500.35	504.74	2.32	-1.40	1.86
5,469.00	86.90	257.40	5,107.31	-137.56	-541.17	545.89	3.46	-0.95	3.33
5,512.00	87.30	258.70	5,109.49	-146.45	-583.18	588.20	3.16	0.93	3.02
5,555.00	87.90	260.30	5,111.29	-154.28	-625.42	630.70	3.97	1.40	3.72
5,597.00	88.90	261.70	5,112.46	-160.85	-666.89	672.38	4.10	2.38	3.33
5,640.00	89.50	263.20	5,113.06	-166.50	-709.51	715.18	3.76	1.40	3.49
5,683.00	89.80	264.80	5,113.33	-170.99	-752.27	758.08	3.79	0.70	3.72
5,726.00	90.50	266.10	5,113.21	-174.40	-795.13	801.04	3.43	1.63	3.02
5,768.00	91.20	267.50	5,112.59	-176.75	-837.06	843.03	3.73	1.67	3.33
5,811.00	91.40	269.50	5,111.61	-177.87	-880.03	886.01	4.67	0.47	4.65
5,854.00	91.50	270.90	5,110.53	-177.72	-923.02	928.96	3.26	0.23	3.26
5,939.00	92.50	270.70	5,107.56	-176.54	-1,007.96	1,013.80	1.20	1.18	-0.24
6,068.00	91.50	269.20	5,103.06	-176.65	-1,136.87	1,142.63	1.40	-0.78	-1.16
6,196.00	93.20	268.70	5,097.81	-178.99	-1,264.74	1,270.50	1.38	1.33	-0.39
6,324.00	89.60	270.00	5,094.68	-180.44	-1,392.67	1,398.39	2.99	-2.81	1.02
6,451.00	91.20	269.80	5,093.80	-180.67	-1,519.66	1,525.31	1.27	1.26	-0.16
6,580.00	90.90	270.40	5,091.43	-180.44	-1,648.64	1,654.19	0.52	-0.23	0.47
6,707.00	90.40	270.40	5,089.99	-179.55	-1,775.63	1,781.06	0.39	-0.39	0.00
6,835.00	91.50	269.70	5,087.87	-179.44	-1,903.61	1,908.94	1.02	0.86	-0.55
6,963.00	91.10	270.40	5,084.96	-179.33	-2,031.57	2,036.82	0.63	-0.31	0.55
7,091.00	90.40	271.10	5,083.29	-177.66	-2,159.55	2,164.64	0.77	-0.55	0.55
7,219.00	89.80	270.90	5,083.07	-175.42	-2,287.53	2,292.45	0.49	-0.47	-0.16
7,347.00	90.10	270.30	5,083.18	-174.08	-2,415.52	2,420.31	0.52	0.23	-0.47
7,475.00	89.80	270.20	5,083.29	-173.52	-2,543.52	2,548.20	0.25	-0.23	-0.08
7,604.00	91.10	269.70	5,082.28	-173.64	-2,672.51	2,677.11	1.08	1.01	-0.39
7,732.00	90.70	269.60	5,080.27	-174.42	-2,800.50	2,805.03	0.32	-0.31	-0.08
7,860.00	90.60	269.40	5,078.81	-175.53	-2,928.48	2,932.97	0.17	-0.08	-0.16
7,988.00	90.30	269.30	5,077.81	-176.99	-3,056.47	3,060.92	0.25	-0.23	-0.08
8,116.00	90.60	268.80	5,076.80	-179.11	-3,184.45	3,188.89	0.46	0.23	-0.39
8,244.00	89.90	269.00	5,076.24	-181.57	-3,312.42	3,316.87	0.57	-0.55	0.16

Survey Report

Company:	Apache Corporation	Local Co-ordinate Reference:	Well #58H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3879.00usft (Capstar 114)
Site:	NFE Federal	MD Reference:	KB @ 3879.00usft (Capstar 114)
Well:	#58H	North Reference:	Grid
Wellbore:	OH / Job #1513674	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)
8,372.00	91.70	268.30	5,074.46	-184.58	-3,440.37	3,444.84	1.51	1.41	-0.55
8,500.00	92.30	270.10	5,069.99	-186.37	-3,568.27	3,572.72	1.48	0.47	1.41
8,628.00	89.20	270.80	5,068.31	-185.36	-3,696.24	3,700.57	2.48	-2.42	0.55
8,756.00	90.80	270.40	5,068.31	-184.02	-3,824.23	3,828.42	1.29	1.25	-0.31
8,885.00	90.50	270.30	5,066.85	-183.23	-3,953.22	3,957.29	0.25	-0.23	-0.08
9,012.00	91.70	270.50	5,064.41	-182.35	-4,080.19	4,084.14	0.96	0.94	0.16
9,140.00	91.50	270.40	5,060.84	-181.34	-4,208.13	4,211.96	0.17	-0.16	-0.08
9,268.00	91.30	269.70	5,057.71	-181.23	-4,336.10	4,339.83	0.57	-0.16	-0.55
9,396.00	91.00	269.80	5,055.14	-181.79	-4,464.07	4,467.74	0.25	-0.23	0.08
9,524.00	91.60	269.70	5,052.24	-182.35	-4,592.03	4,595.64	0.48	0.47	-0.08
9,652.00	93.20	269.20	5,046.88	-183.57	-4,719.91	4,723.47	1.31	1.25	-0.39
9,719.00	93.80	269.30	5,042.79	-184.45	-4,786.78	4,790.33	0.91	0.90	0.15
Final Phoenix MWD Survey									
9,785.00	93.80	269.30	5,038.41	-185.25	-4,852.63	4,856.16	0.00	0.00	0.00
Projection to TD									

Survey Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N-S (usft)	+E-W (usft)	
4,559.18	4,558.67	6.36	29.56	Tie-on to Phoenix Gyro Survey
4,599.00	4,598.48	5.87	28.94	First Phoenix MWD Survey
9,719.00	5,042.79	-184.45	-4,786.78	Final Phoenix MWD Survey
9,785.00	5,038.41	-185.25	-4,852.63	Projection to TD

Checked By: _____ Approved By: _____ Date: _____

DISTRICT I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720

DISTRICT II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720

DISTRICT III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170

DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

Form C-102
Revised August 1, 2011
Submit one copy to appropriate
District Office

AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-015-43088	Pool Code 96831	Pool Name Cedar Lake; Glorieta - Yeso
Property Code 308724	Property Name NFE FEDERAL	Well Number 58H
OGRID No. 873	Operator Name APACHE CORPORATION	Elevation 3867'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
E	9	17-S	31-E		1710	NORTH	10	WEST	EDDY

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
E	8	17-S	31-E		1710	NORTH	330	WEST	EDDY

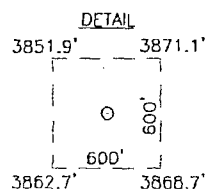
Dedicated Acres 160	Joint or Infill	Consolidation Code	Order No.
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NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

	OPERATOR CERTIFICATION I hereby certify that the information herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division. <i>Sorina L. Flores</i> 6/23/14 Signature Date Sorina L. Flores Printed Name <i>sorina.flores@apachecorp.com</i> E-mail Address
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CORNER COORDINATES TABLE

A - Y=674135.2 N, X=633078.5 E
B - Y=674172.6 N, X=638358.2 E
C - Y=674181.8 N, X=639678.6 E
D - Y=672861.4 N, X=639686.1 E
E - Y=672852.6 N, X=638365.7 E
F - Y=672815.3 N, X=633086.2 E



GEODETIC COORDINATES
NAD 27 NME

SURFACE LOCATION
Y=673783.2 N
X=638370.4 E

LAT.=32.851503° N
LONG.=103.882758° W

LAT.=32° 51' 05" N
LONG.=103° 52' 58" W

BOTTOM HOLE LOCATION
Y=673748.0 N
X=633410.7 E

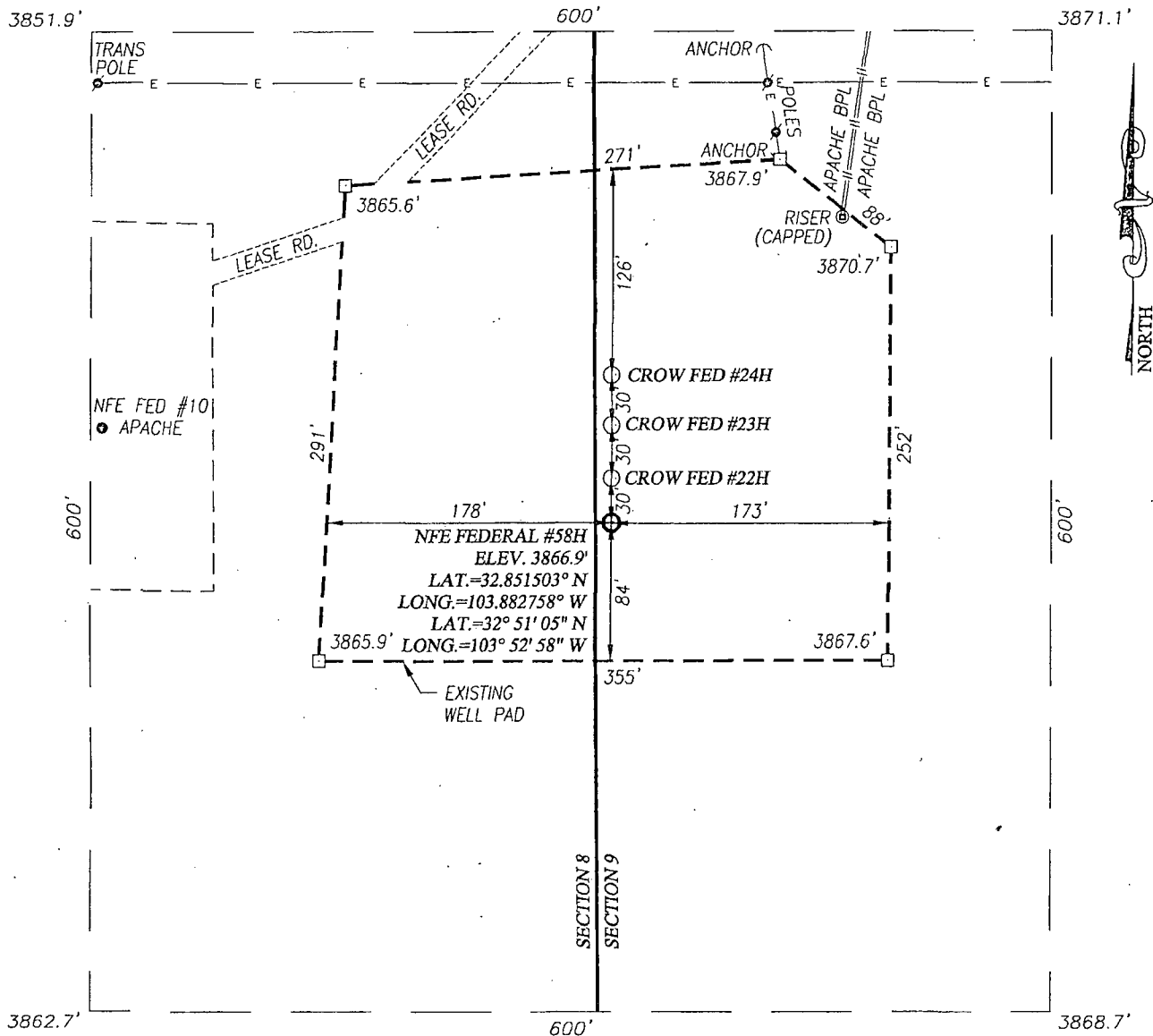
SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

JANUARY 21, 2014

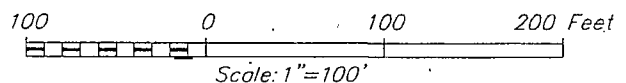
Date of Survey
Signature & Seal of Professional Surveyor:

Ronald J. Eidson
RONALD J. EIDSON
NEW MEXICO
3239
Certificate Number 12641
BKL WSC W.O.: 14.11.0059



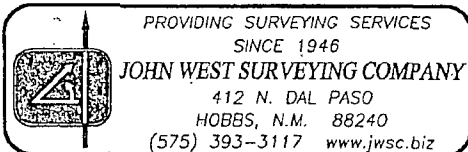
DIRECTIONS TO LOCATION

FROM THE INTERSECTION OF ST. HWY 82 (ARTESIA HWY.) AND CO. RD. 221 (SKELLY RD.) GO NORTH ON SKELLY RD. APPROX. 1.4 MILES; TURN RIGHT AND GO NORTHEAST APPROX. 0.6 MILES; TURN RIGHT AND GO EAST APPROX. 0.6 MILES; TURN LEFT AND GO NORTH APPROX. 0.5 MILES; TURN RIGHT AND GO EAST APPROX. 0.85 MILES; TURN RIGHT AND GO SOUTHEAST APPROX. 0.1 MILES; TURN RIGHT AND GO SOUTHWEST APPROX. 0.15 MILES TO EXISTING CROW FEDERAL #22H, #23H AND #24H WELL PAD. LOCATION IS APPROX. 30 FEET SOUTH OF THE CROW FEDERAL #22H WELL.



APACHE CORPORATION

NFE FEDERAL #58H WELL
 LOCATED 1710 FEET FROM THE NORTH LINE
 AND 10 FEET FROM THE WEST LINE OF SECTION 9,
 TOWNSHIP 17 SOUTH, RANGE 31 EAST, N.M.P.M.,
 EDDY COUNTY, NEW MEXICO



Survey Date: 1/21/14	CAD Date: 2/4/14	Drawn By: BKL
W.O. No.: 14110059	Rev: .	Rel. W.O.: Sheet 1 of 1