



PHOENIX
TECHNOLOGY SERVICES

January 15, 2016

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 COM #46H
Eddy County, NM
API #30-015-43443
Job No. 1514748

NM OIL CONSERVATION
ARTESIA DISTRICT
FEB 17 2016

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	
Mike Rachal	46H	4,225	9,720	12/15/15	12/19/15	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 5241

Company:	Apache Corporation	Local Co-ordinate Reference:	Well #46H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3770.00usft (Capstar 119)
Site:	NFE Federal COM	MD Reference:	KB @ 3770.00usft (Capstar 119)
Well:	#46H	North Reference:	Grid
Wellbore:	OH / Job #1514748	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	NFE Federal COM		
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	#46H		
Well Position	+N/-S	0.00 usft	Northing: 678,722.90 usft
	+E/-W	0.00 usft	Easting: 628,390.60 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
		Latitude:	32° 51' 54.69595 N
		Longitude:	103° 54' 54.68644 W
		Ground Level:	3,759.00 usft

Wellbore	OH / Job #1514748		
Magnetics	Model Name	Sample Date	Declination (°)
	HDGM	12/11/2015	7.63
			Dip Angle (°) 60.78
			Field Strength (nT) 48,534

Design	Surveys (Capstar 119)		
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 (°) 89.61

Survey Program	Date	1/13/2016			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
98.89	4,167.89	Scientific Gyro Surveys (OH / Job #151474	CB-GYRO-MS	Camera based gyro multishot	
4,225.00	9,827.00	Phoenix MWD Surveys (OH / Job #151474	PHX+MWD+HDGM	PHX+QWSG 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)
4,167.89	0.32	288.05	4,166.43	-37.47	-71.67	-71.92	0.00	0.00	0.00
Tie In to Scientific Gyro Surveys									
4,225.00	0.30	271.40	4,223.54	-37.42	-71.97	-72.22	0.16	-0.04	-29.15
First Phoenix MWD Survey									
4,268.00	1.90	81.10	4,266.53	-37.30	-71.38	-71.63	5.11	3.72	394.65
4,310.00	6.30	79.10	4,308.41	-36.76	-68.42	-68.67	10.48	10.48	-4.76
4,353.00	11.10	79.40	4,350.91	-35.55	-62.04	-62.28	11.16	11.16	0.70
4,395.00	15.80	80.80	4,391.74	-33.89	-52.41	-52.64	11.22	11.19	3.33
4,438.00	20.80	81.20	4,432.56	-31.79	-39.08	-39.30	11.63	11.63	0.93

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Well:	#46H	North Reference:	Grid
Wellbore:	OH / Job #1514748	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)
4,481.00	25.70	83.40	4,472.05	-29.55	-22.28	-22.46	11.57	11.40	5.12
4,523.00	30.20	87.40	4,509.15	-28.02	-2.65	-2.84	11.60	10.71	9.52
4,566.00	34.60	92.80	4,545.45	-28.13	20.36	20.17	12.24	10.23	12.56
4,608.00	39.70	96.20	4,578.92	-30.16	45.63	-45.42	13.09	12.14	8.10
4,651.00	45.50	97.80	4,610.56	-33.73	74.50	74.27	13.72	13.49	3.72
4,694.00	51.60	97.60	4,639.01	-38.04	106.42	106.16	14.19	14.19	-0.47
4,736.00	57.60	96.30	4,663.33	-42.17	140.39	140.10	14.51	14.29	-3.10
4,779.00	62.70	92.60	4,684.73	-45.03	177.56	177.25	14.01	11.86	-8.60
4,821.00	66.70	89.30	4,702.88	-45.64	215.51	215.19	11.88	9.52	-7.86
4,864.00	70.10	88.60	4,718.51	-44.90	255.48	255.16	8.05	7.91	-1.63
4,906.00	74.00	87.80	4,731.45	-43.65	295.40	295.10	9.46	9.29	-1.90
4,949.00	79.80	87.40	4,741.19	-41.89	337.23	336.94	13.52	13.49	-0.93
4,991.00	82.30	87.50	4,747.73	-40.04	378.67	378.39	5.96	5.95	0.24
5,036.00	84.40	88.30	4,752.94	-38.41	423.34	423.07	4.99	4.67	1.78
5,078.00	86.70	88.30	4,756.20	-37.17	465.19	464.93	5.48	5.48	0.00
5,121.00	87.20	88.40	4,758.48	-35.93	508.11	507.86	1.19	1.16	0.23
5,248.00	87.70	88.90	4,764.13	-32.94	634.95	634.71	0.56	0.39	0.39
5,376.00	88.20	89.30	4,768.71	-30.93	762.85	762.62	0.50	0.39	0.31
5,504.00	88.20	90.30	4,772.73	-30.48	890.79	890.56	0.78	0.00	0.78
5,631.00	88.90	90.30	4,775.95	-31.15	1,017.74	1,017.51	0.55	0.55	0.00
5,759.00	89.30	89.10	4,777.96	-30.48	1,145.72	1,145.49	0.99	0.31	-0.94
5,886.00	89.90	87.20	4,778.84	-26.38	1,272.65	1,272.44	1.57	0.47	-1.50
6,014.00	91.40	88.30	4,777.39	-21.35	1,400.53	1,400.36	1.45	1.17	0.86
6,142.00	90.70	89.70	4,775.05	-19.12	1,528.49	1,528.32	1.22	-0.55	1.09
6,269.00	90.10	90.00	4,774.16	-18.79	1,655.49	1,655.32	0.53	-0.47	0.24
6,397.00	89.30	87.70	4,774.83	-16.22	1,783.45	1,783.30	1.90	-0.63	-1.80
6,525.00	87.40	86.80	4,778.52	-10.08	1,911.24	1,911.13	1.64	-1.48	-0.70
6,653.00	88.10	87.30	4,783.54	-3.50	2,038.97	2,038.90	0.67	0.55	0.39
6,781.00	88.90	88.30	4,786.89	1.41	2,166.83	2,166.79	1.00	0.63	0.78
6,909.00	89.70	89.20	4,788.45	4.20	2,294.79	2,294.76	0.94	0.63	0.70
7,037.00	89.10	87.70	4,789.80	7.67	2,422.73	2,422.73	1.26	-0.47	-1.17
7,164.00	88.10	87.70	4,792.90	12.76	2,549.59	2,549.62	0.79	-0.79	0.00
7,292.00	88.20	87.70	4,797.03	17.89	2,677.42	2,677.48	0.08	0.08	0.00
7,420.00	88.90	88.40	4,800.27	22.25	2,805.30	2,805.39	0.77	0.55	0.55
7,547.00	89.30	89.20	4,802.26	24.91	2,932.26	2,932.36	0.70	0.31	0.63
7,675.00	88.20	89.10	4,805.06	26.81	3,060.21	3,060.32	0.86	-0.86	-0.08
7,803.00	88.90	89.90	4,808.30	27.92	3,188.16	3,188.28	0.83	0.55	0.63
7,930.00	89.50	91.20	4,810.07	26.70	3,315.14	3,315.25	1.13	0.47	1.02
8,058.00	87.50	90.50	4,813.42	24.81	3,443.08	3,443.16	1.66	-1.56	-0.55
8,186.00	87.70	91.40	4,818.78	22.68	3,570.94	3,571.02	0.72	0.16	0.70
8,314.00	87.00	89.90	4,824.70	21.23	3,698.79	3,698.85	1.29	-0.55	-1.17
8,442.00	87.40	90.20	4,830.95	21.12	3,826.64	3,826.70	0.39	0.31	0.23
8,570.00	87.20	89.20	4,836.98	21.79	3,954.50	3,954.55	0.80	-0.16	-0.78

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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)	
8,698.00	87.50	89.70	4,842.90	23.02	4,082.35	4,082.41	0.46	0.23	0.39	
8,825.00	88.00	90.30	4,847.88	23.02	4,209.25	4,209.31	0.61	0.39	0.47	
8,953.00	88.10	89.90	4,852.24	22.80	4,337.18	4,337.23	0.32	0.08	-0.31	
9,081.00	88.30	89.80	4,856.26	23.13	4,465.12	4,465.17	0.17	0.16	-0.08	
9,208.00	88.30	90.30	4,860.03	23.02	4,592.06	4,592.11	0.39	0.00	0.39	
9,336.00	88.60	91.20	4,863.49	21.34	4,720.00	4,720.04	0.74	0.23	0.70	
9,464.00	88.30	89.10	4,866.95	21.01	4,847.95	4,847.98	1.66	-0.23	-1.64	
9,592.00	89.10	90.40	4,869.86	21.57	4,975.91	4,975.94	1.19	0.63	1.02	
9,720.00	90.10	91.50	4,870.75	19.45	5,103.88	5,103.90	1.16	0.78	0.86	
Final Phoenix MWD Survey										
9,827.00	90.10	91.50	4,870.56	16.64	5,210.85	5,210.84	0.00	0.00	0.00	
Projection to TD										

Survey Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
4,167.89	4,166.43	-37.47	-71.67	Tie In to Scientific Gyro Surveys	
4,225.00	4,223.54	-37.42	-71.97	First Phoenix MWD Survey	
9,720.00	4,870.75	19.45	5,103.88	Final Phoenix MWD Survey	
9,827.00	4,870.56	16.64	5,210.85	Projection to TD	

Checked By: _____ Approved By: _____ Date: _____

DISTRICT I
1625 N. French Dr., Hobbs, NM 88240
Phone: (505) 393-6161 Fax: (505) 393-0720

DISTRICT II
511 S. First St., Artesia, NM 88210
Phone: (505) 748-1283 Fax: (505) 748-0720

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

DISTRICT IV
1320 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 30-015-43443	Pool Code 96831	Pool Name Cedar Lake; Glorieta - Yeso
Property Code 308724 314794	Property Name NFE FEDERAL COM	Well Number 46H
OGRID No. 873	Operator Name APACHE CORPORATION	Elevation 3759'

Surface Location

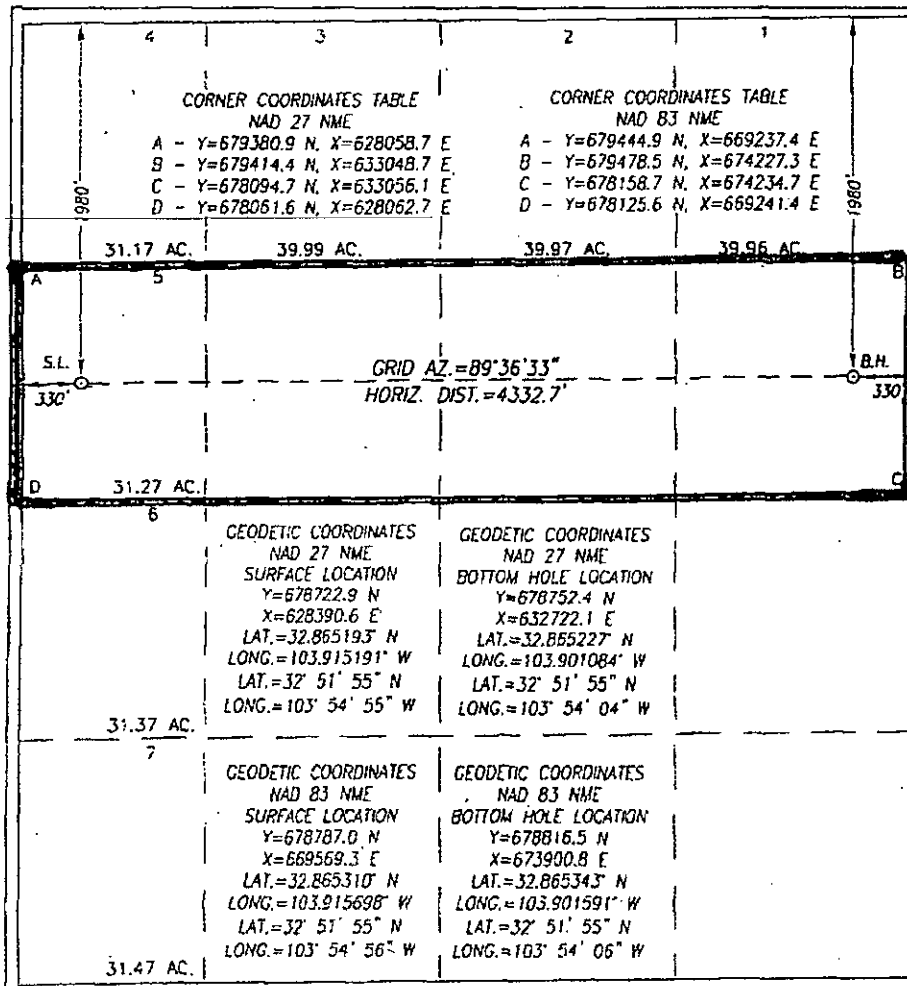
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
5	6	17-S	31-E		1980	NORTH	330	WEST	EDDY

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
H	6	17-S	31-E		1980	NORTH	330	EAST	EDDY

Dedicated Acres 151.27	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 unless 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.

Sorina L Flores 2/4/15
Signature Date

Sorina L Flores
Printed Name

sorina.flores@apachecorp.com
E-mail Address

SURVEYOR CERTIFICATION

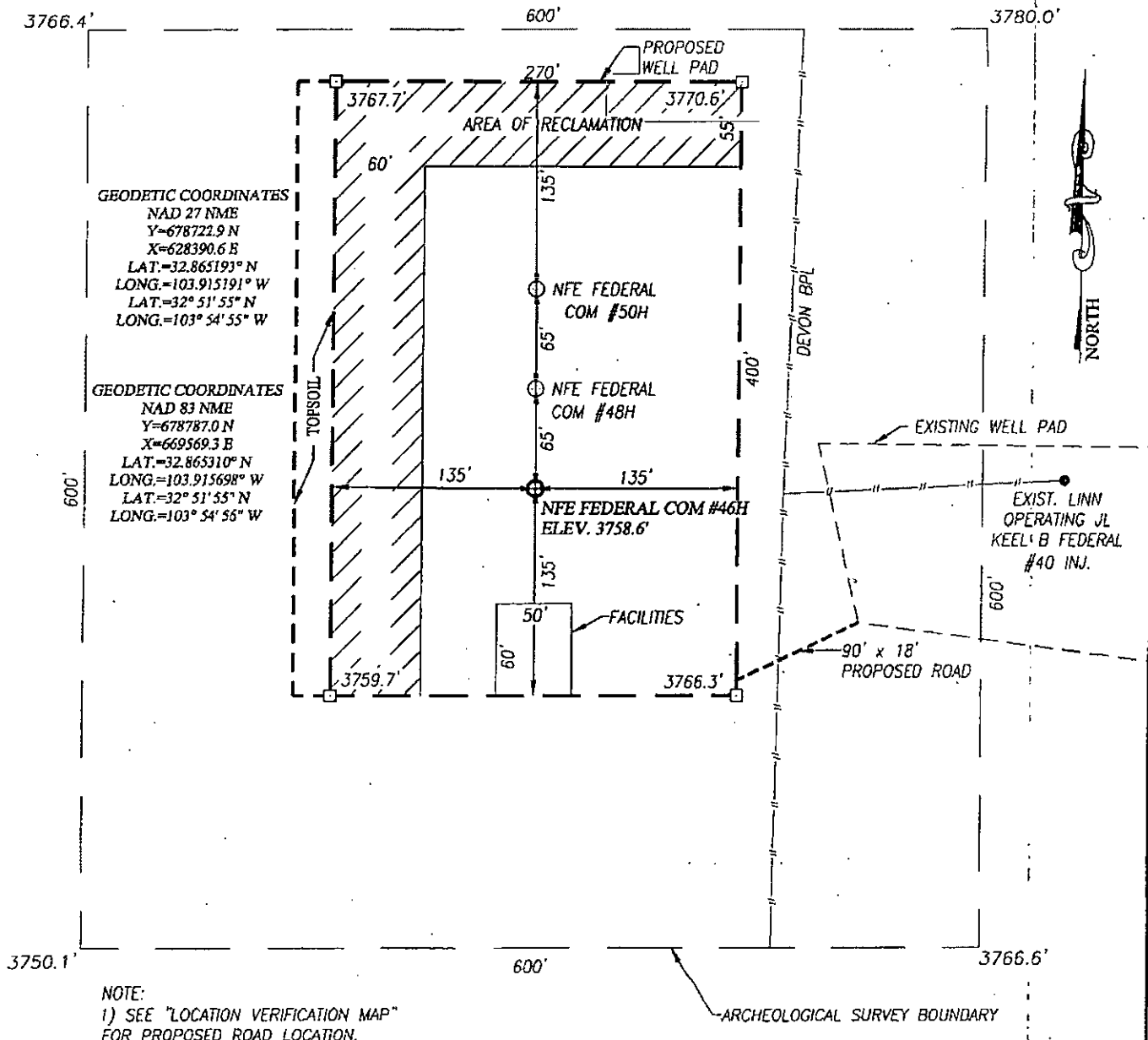
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

JANUARY 6, 2015
Date of Survey
Signature & Seal of Professional Surveyor

Ronald J. Eidson 03/05/2015
Certificate Number
Gary G. Eidson 12641
Ronald J. Eidson 3239

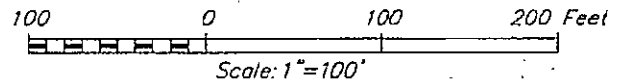
LSL REL W/O 14.11.1414 JWSC W/O 15.13.0282

EXHIBIT #1A



DIRECTIONS TO NFE FEDERAL COM#46H:

FROM THE INTERSECTION OF U.S. HWY. 82 AND CO. RD. 220 (SQUARE LAKE), GO NORTH ON CO. RD. 220 APPROX. 3.7 MILES. TURN RIGHT AND GO NORTHEAST ON LEASE ROAD APPROX. 0.5 MILES. TURN RIGHT AND GO EAST APPROX. 0.2 MILES. THEN CONTINUE ON ROAD SOUTHEAST APPROX. 0.4 MILES. TURN RIGHT AND GO SOUTH APPROX. 0.2 MILES TO EXISTING LINN OPERATING, INJECTION WELL, FROM THE SOUTHWEST CORNER OF THE LOCATION. FOLLOW STAKED ROAD 90 FEET SOUTHWEST TO THIS LOCATION.



APACHE CORPORATION

NFE FEDERAL COM#46H WELL
 LOCATED 1980 FEET FROM THE NORTH LINE
 AND 330 FEET FROM THE WEST LINE OF SECTION 6,
 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: 1/6/15	CAD Date: 1/29/15	Drawn By: ACK
W.O. No.: 15113028	Rev: .	Rel. W.O.: 14111414
		Sheet 1 of 1