



PHOENIX
TECHNOLOGY SERVICES

December 14, 2015

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

NM OIL CONSERVATION
ARTESIA DISTRICT

JAN 19 2016

RECEIVED

Dear District 2 - Artesia

Attention: Regulatory Department

Re: Apache Corporation
Crow Federal #48H
Eddy County, NM
API #30-015-43409
Job No. 1514660

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	48H	4,819	9,666	11/30/15	11/05/15	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 5210

Phoenix Technology Services
SURVEY DATA CERTIFICATION



PHOENIX JOB NUMBER

1514660

OPERATOR

Apache

WELL NAME

Crow Federal #48H

COUNTY & STATE

Eddy County, NM

API WELL NUMBER

30-015-43409

PROPOSED DIRECTION

269.61

TIE-IN DATA						
MEASURED	VERTICAL			N-S	E-W	DATA
DEPTH	DEPTH	INCLIN	AZIMUTH	COORD	COORD	SOURCE
4,740. ft	4,739.61 ft	0.40	299.83	11.40 ft	-14.58 ft	Gyro

FIRST	FIRST		
SURVEY	SURVEY		
DATE	DEPTH	INCLIN	AZIMUTH
30-Nov-15	4,819.00 ft	0.50	299.90

SURVEY INSTRUMENT
TYPE
Phoenix MWD

LAST	LAST		
SURVEY	SURVEY		
DATE	DEPTH	INCLIN	AZIMUTH
5-Dec-15	9,666.00 ft	91.50	269.70

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
5-Dec-15	9,741.00 ft	91.50	269.70

Mike Miller

PRINT YOUR NAME ABOVE

Mike Miller

SIGN YOUR NAME ABOVE

MAGNETIC DECLINATION OR TOTAL GRID

TOTAL CORRECTION USED	
	7.25
DECLINATION OR GRID	GRID

12/5/2015

TODAY'S DATE

MWD SUPERVISOR 1

Mike Miller

DIRECTIONAL DRILLER 1

Steven Hawkins

MWD SUPERVISOR 2

Bill Oehlert

DIRECTIONAL DRILLER 2

Michael Crall



NM OIL CONSERVATION

ARTESIA DISTRICT

JAN 19 2016

RECEIVED

Apache Corporation

Eddy County, NM (NAD27 NME)

Crow Federal

#48H

OH / Job #1514660

Survey: Phoenix MWD Surveys

Standard Survey Report

06 December, 2015





Phoenix Technology Services LP
Survey Report



Company:	Apache Corporation	Local Co-ordinate Reference:	Well #48H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3958.00usft (Capstar 119)
Site:	Crow Federal	MD Reference:	KB @ 3958.00usft (Capstar 119)
Well:	#48H	North Reference:	Grid
Wellbore:	OH / Job #1514660	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	Crow Federal		
Site Position:		Northing:	671,130.90 usft
From:	Map	Easting:	643,906.80 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 50' 38.92796 N
		Longitude:	103° 51' 53.16689 W
		Grid Convergence:	0.25 °

Well	#48H		
Well Position	+N/-S	0.00 usft	Northing:
	+E/-W	0.00 usft	Easting:
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
		Latitude:	32° 51' 17.93529 N
		Longitude:	103° 50' 58.11927 W
		Ground Level:	3,947.00 usft

Wellbore	OH / Job #1514660		
Magnetics	Model Name	Sample Date	Declination
			(°)
	HDGM	11/23/2015	7.52
			Dip Angle
			(°)
			60.83
			Field Strength
			(nT)
			48,578

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
			(°)
			269.61

Survey Program	Date 12/6/2015		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
82.00	4,740.00	Scientific Gyro Surveys (OH / Job #151466	CB-GYRO-MS
4,819.00	9,741.00	Phoenix MWD Surveys (OH / Job #151466	PHX+MWD+HDGM
			Description
			Camera based gyro multishot
			PHX+QWSG MWD + HDGM

Survey										
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Vertical	Dogleg	Build	Turn	
Depth	(°)	(°)	Depth	(usft)	(usft)	Section	Rate	Rate	Rate	
(usft)			(usft)			(usft)	(°/100usft)	(°/100usft)	(°/100usft)	
4,740.00	0.40	299.83	4,739.61	11.40	-14.58	14.50	0.00	0.00	0.00	
Tie In to Scientific Gyro Surveys										
4,819.00	0.50	299.90	4,818.61	11.71	-15.12	15.04	0.13	0.13	0.09	
First Phoenix MWD Survey										
4,861.00	3.10	268.00	4,860.58	11.76	-16.41	16.33	6.40	6.19	-75.95	
4,904.00	7.00	269.40	4,903.41	11.69	-20.20	20.12	9.07	9.07	3.26	
4,946.00	11.30	273.70	4,944.86	11.93	-26.86	26.78	10.36	10.24	10.24	
4,989.00	15.60	274.20	4,986.67	12.63	-36.84	36.75	10.00	10.00	1.16	
5,031.00	20.40	272.90	5,026.61	13.41	-49.79	49.70	11.47	11.43	-3.10	

Company:	Apache Corporation	Local Co-ordinate Reference:	Well #48H
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Site:	Crow Federal	MD Reference:	KB @ 3958.00usft (Capstar 119)
Well:	#48H	North Reference:	Grid
Wellbore:	OH / Job #1514660	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)
5,074.00	24.70	271.40	5,066.31	14.01	-66.26	66.17	10.09	10.00	-3.49
5,116.00	29.20	269.90	5,103.74	14.21	-85.29	85.19	10.84	10.71	-3.57
5,159.00	33.70	268.60	5,140.41	13.90	-107.72	107.62	10.58	10.47	-3.02
5,201.00	38.60	268.50	5,174.32	13.27	-132.48	132.39	11.67	11.67	-0.24
5,244.00	43.60	268.10	5,206.71	12.43	-160.72	160.64	11.64	11.63	-0.93
5,287.00	48.40	267.70	5,236.57	11.29	-191.62	191.54	11.18	11.16	-0.93
5,329.00	53.50	267.90	5,263.02	10.04	-224.21	224.13	12.15	12.14	0.48
5,372.00	60.10	267.60	5,286.56	8.62	-260.14	260.08	15.36	15.35	-0.70
5,414.00	67.90	267.00	5,304.95	6.84	-297.82	297.76	18.62	18.57	-1.43
5,457.00	76.50	267.00	5,318.09	4.70	-338.67	338.63	20.00	20.00	0.00
5,499.00	83.90	267.80	5,325.23	2.83	-379.98	379.95	17.72	17.62	1.90
5,540.00	83.60	267.70	5,329.69	1.23	-420.71	420.69	0.77	-0.73	-0.24
5,582.00	86.70	268.10	5,333.24	-0.31	-462.52	462.51	7.44	7.38	0.95
5,625.00	88.10	268.50	5,335.19	-1.58	-505.46	505.46	3.39	3.26	0.93
5,668.00	88.20	268.50	5,336.58	-2.71	-548.42	548.43	0.23	0.23	0.00
5,795.00	89.90	269.00	5,338.69	-5.48	-675.37	675.39	1.40	1.34	0.39
5,923.00	90.40	268.60	5,338.35	-8.16	-803.34	803.38	0.50	0.39	-0.31
6,050.00	91.40	269.30	5,336.36	-10.48	-930.30	930.35	0.96	0.79	0.55
6,178.00	91.90	269.30	5,332.67	-12.05	-1,058.24	1,058.29	0.39	0.39	0.00
6,306.00	90.80	271.00	5,329.66	-11.71	-1,186.19	1,186.25	1.58	-0.86	1.33
6,434.00	90.60	271.50	5,328.09	-8.92	-1,314.15	1,314.18	0.42	-0.16	0.39
6,476.00	90.30	270.70	5,327.76	-8.11	-1,356.14	1,356.17	2.03	-0.71	-1.90
6,519.00	90.00	270.50	5,327.65	-7.66	-1,399.14	1,399.16	0.84	-0.70	-0.47
6,561.00	89.80	270.80	5,327.72	-7.19	-1,441.14	1,441.15	0.86	-0.48	0.71
6,604.00	89.60	271.20	5,327.95	-6.44	-1,484.13	1,484.14	1.04	-0.47	0.93
6,647.00	89.70	270.70	5,328.21	-5.72	-1,527.12	1,527.13	1.19	0.23	-1.16
6,689.00	90.20	270.80	5,328.25	-5.17	-1,569.12	1,569.12	1.21	1.19	0.24
6,732.00	90.00	270.80	5,328.17	-4.57	-1,612.12	1,612.11	0.47	-0.47	0.00
6,774.00	89.90	270.60	5,328.21	-4.06	-1,654.11	1,654.10	0.53	-0.24	-0.48
6,817.00	90.00	269.20	5,328.25	-4.13	-1,697.11	1,697.10	3.26	0.23	-3.26
6,860.00	89.70	269.00	5,328.36	-4.81	-1,740.11	1,740.10	0.84	-0.70	-0.47
6,902.00	90.10	269.70	5,328.43	-5.29	-1,782.10	1,782.10	1.92	0.95	1.67
6,945.00	91.30	269.70	5,327.91	-5.51	-1,825.10	1,825.09	2.79	2.79	0.00
6,988.00	91.00	269.70	5,327.04	-5.74	-1,868.09	1,868.09	0.70	-0.70	0.00
7,030.00	90.80	269.90	5,326.38	-5.88	-1,910.08	1,910.08	0.67	-0.48	0.48
7,073.00	90.80	270.40	5,325.78	-5.77	-1,953.08	1,953.07	1.16	0.00	1.16
7,115.00	90.80	270.50	5,325.20	-5.44	-1,995.07	1,995.06	0.24	0.00	0.24
7,158.00	90.80	271.00	5,324.60	-4.88	-2,038.07	2,038.05	1.16	0.00	1.16
7,200.00	90.50	270.90	5,324.12	-4.18	-2,080.06	2,080.04	0.75	-0.71	-0.24
7,243.00	90.70	270.90	5,323.67	-3.51	-2,123.05	2,123.02	0.47	0.47	0.00
7,285.00	90.30	269.30	5,323.30	-3.43	-2,165.05	2,165.02	3.93	-0.95	-3.81
7,328.00	90.20	269.20	5,323.12	-4.00	-2,208.04	2,208.02	0.33	-0.23	-0.23
7,370.00	90.40	268.90	5,322.90	-4.69	-2,250.04	2,250.02	0.86	0.48	-0.71



Phoenix Technology Services LP

Survey Report



Company:	Apache Corporation	Local Co-ordinate Reference:	Well #48H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3958.00usft (Capstar 119)
Site:	Crow Federal	MD Reference:	KB @ 3958.00usft (Capstar 119)
Well:	#48H	North Reference:	Grid
Wellbore:	OH / Job #1514660	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)
7,413.00	91.20	268.10	5,322.30	-5.82	-2,293.02	2,293.00	2.63	1.86	-1.86
7,456.00	91.50	268.00	5,321.28	-7.28	-2,335.98	2,335.98	0.74	0.70	-0.23
7,498.00	91.60	268.40	5,320.15	-8.60	-2,377.94	2,377.95	0.98	0.24	0.95
7,541.00	91.60	268.60	5,318.95	-9.72	-2,420.91	2,420.92	0.46	0.00	0.47
7,584.00	91.80	268.50	5,317.67	-10.81	-2,463.88	2,463.90	0.52	0.47	-0.23
7,626.00	92.20	269.10	5,316.21	-11.69	-2,505.84	2,505.87	1.72	0.95	1.43
7,669.00	92.30	269.60	5,314.52	-12.18	-2,548.81	2,548.83	1.18	0.23	1.16
7,711.00	91.50	269.90	5,313.12	-12.36	-2,590.78	2,590.81	2.03	-1.90	0.71
7,754.00	90.90	269.50	5,312.22	-12.59	-2,633.77	2,633.80	1.68	-1.40	-0.93
7,796.00	91.10	269.80	5,311.49	-12.84	-2,675.77	2,675.79	0.86	0.48	0.71
7,839.00	91.40	269.80	5,310.55	-12.99	-2,718.76	2,718.78	0.70	0.70	0.00
7,881.00	91.80	270.20	5,309.38	-12.99	-2,760.74	2,760.76	1.35	0.95	0.95
7,924.00	91.80	270.00	5,308.03	-12.92	-2,803.72	2,803.74	0.46	0.00	-0.47
7,967.00	91.20	269.70	5,306.90	-13.03	-2,846.70	2,846.73	1.56	-1.40	-0.70
8,009.00	90.90	269.30	5,306.13	-13.40	-2,888.69	2,888.72	1.19	-0.71	-0.95
8,052.00	91.30	269.00	5,305.31	-14.03	-2,931.68	2,931.71	1.16	0.93	-0.70
8,095.00	91.50	269.40	5,304.26	-14.64	-2,974.66	2,974.70	1.04	0.47	0.93
8,137.00	91.50	270.10	5,303.16	-14.82	-3,016.65	3,016.68	1.87	0.00	1.67
8,179.00	91.00	270.20	5,302.24	-14.71	-3,058.64	3,058.67	1.21	-1.19	0.24
8,222.00	90.00	270.60	5,301.87	-14.41	-3,101.64	3,101.66	2.50	-2.33	0.93
8,264.00	89.60	270.70	5,302.01	-13.93	-3,143.63	3,143.65	0.88	-0.95	0.24
8,307.00	88.80	270.40	5,302.61	-13.52	-3,186.63	3,186.64	1.99	-1.86	-0.70
8,350.00	88.60	270.50	5,303.59	-13.18	-3,229.61	3,229.63	0.52	-0.47	0.23
8,392.00	88.60	270.20	5,304.62	-12.92	-3,271.60	3,271.61	0.71	0.00	-0.71
8,435.00	88.90	270.70	5,305.55	-12.59	-3,314.59	3,314.60	1.36	0.70	1.16
8,478.00	89.50	270.20	5,306.15	-12.25	-3,357.58	3,357.59	1.82	1.40	-1.16
8,520.00	89.80	269.60	5,306.41	-12.32	-3,399.58	3,399.59	1.60	0.71	-1.43
8,563.00	89.30	269.50	5,306.75	-12.66	-3,442.58	3,442.59	1.19	-1.16	-0.23
8,605.00	89.80	269.20	5,307.08	-13.14	-3,484.57	3,484.58	1.39	1.19	-0.71
8,648.00	90.00	269.10	5,307.15	-13.78	-3,527.57	3,527.58	0.52	0.47	-0.23
8,691.00	90.20	269.40	5,307.08	-14.34	-3,570.57	3,570.58	0.84	0.47	0.70
8,733.00	90.70	268.50	5,306.75	-15.11	-3,612.56	3,612.58	2.45	1.19	-2.14
8,776.00	92.20	268.50	5,305.66	-16.23	-3,655.53	3,655.55	3.49	3.49	0.00
8,818.00	92.20	268.50	5,304.05	-17.33	-3,697.48	3,697.51	0.00	0.00	0.00
8,861.00	93.20	268.50	5,302.02	-18.46	-3,740.42	3,740.46	2.33	2.33	0.00
8,904.00	93.30	268.80	5,299.58	-19.47	-3,783.34	3,783.38	0.73	0.23	0.70
8,946.00	93.10	268.70	5,297.24	-20.38	-3,825.26	3,825.31	0.53	-0.48	-0.24
8,989.00	92.90	268.70	5,294.99	-21.36	-3,868.19	3,868.25	0.47	-0.47	0.00
9,031.00	93.00	269.20	5,292.83	-22.12	-3,910.13	3,910.19	1.21	0.24	1.19
9,074.00	92.70	268.90	5,290.69	-22.84	-3,953.07	3,953.13	0.99	-0.70	-0.70
9,116.00	92.80	268.80	5,288.68	-23.68	-3,995.01	3,995.08	0.34	0.24	-0.24
9,159.00	92.50	268.90	5,286.69	-24.54	-4,037.96	4,038.03	0.74	-0.70	0.23
9,202.00	92.30	269.00	5,284.89	-25.33	-4,080.91	4,080.99	0.52	-0.47	0.23
9,244.00	91.90	268.60	5,283.35	-26.21	-4,122.88	4,122.96	1.35	-0.95	-0.95



Phoenix Technology Services LP
Survey Report



Company:	Apache Corporation	Local Co-ordinate Reference:	Well #48H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3958.00usft (Capstar 119)
Site:	Crow Federal	MD Reference:	KB @ 3958.00usft (Capstar 119)
Well:	#48H	North Reference:	Grid
Wellbore:	OH / Job #1514860	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)
9,287.00	91.80	268.90	5,281.96	-27.14	-4,165.84	4,165.93	0.74	-0.23	0.70
9,330.00	91.40	268.70	5,280.76	-28.04	-4,208.82	4,208.91	1.04	-0.93	-0.47
9,372.00	91.30	268.80	5,279.77	-28.96	-4,250.80	4,250.89	0.34	-0.24	0.24
9,415.00	91.40	268.80	5,278.76	-29.86	-4,293.77	4,293.88	0.23	0.23	0.00
9,457.00	92.20	269.30	5,277.44	-30.56	-4,335.75	4,335.85	2.25	1.90	1.19
9,500.00	92.20	269.30	5,275.79	-31.08	-4,378.71	4,378.82	0.00	0.00	0.00
9,542.00	92.10	269.40	5,274.21	-31.56	-4,420.68	4,420.79	0.34	-0.24	0.24
9,585.00	91.80	269.40	5,272.75	-32.01	-4,463.65	4,463.77	0.70	-0.70	0.00
9,628.00	91.70	269.80	5,271.43	-32.31	-4,506.63	4,506.75	0.96	-0.23	0.93
9,666.00	91.50	269.70	5,270.37	-32.47	-4,544.62	4,544.73	0.59	-0.53	-0.26
Final Phoenix MWD Survey									
9,741.00	91.50	269.70	5,268.41	-32.87	-4,619.59	4,619.71	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)	
4,740.00	4,739.81	11.40	-14.58	Tie In to Scientific Gyro Surveys
4,819.00	4,818.81	11.71	-15.12	First Phoenix MWD Survey
9,666.00	5,270.37	-32.47	-4,544.62	Final Phoenix MWD Survey
9,741.00	5,268.41	-32.87	-4,619.59	Projection to TD

Checked By: _____	Approved By: _____	Date: _____
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NM OIL CONSERVATION
ARTESIA DISTRICT

Form C-102

Revised August 1, 2011

Submit one copy to appropriate District Office

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

DISTRICT II
511 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-0720

DISTRICT III
1000 Rio Bravo Road, Aztec, NM 87416
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

RECEIVED

AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-015-43409	Pool Code 26770	Pool Name Fren; Glorieta - Yeso
Property Code 308711 213404	Property Name CROW FEDERAL COM	Well Number 48H
GRID No. 873	Operator Name APACHE CORPORATION	Elevation 3947'

Surface Location

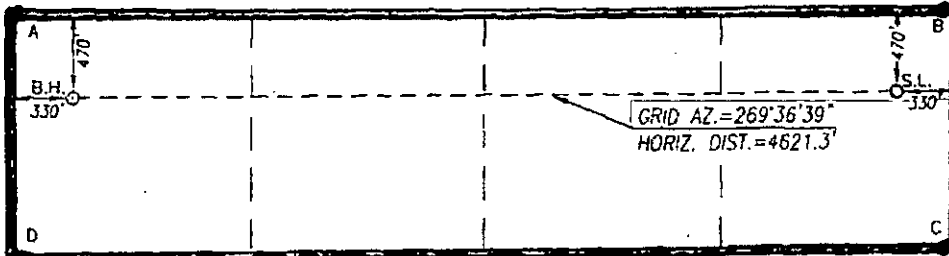
UL or lot No	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	10	17-S	31-E		470	NORTH	330	EAST	EDDY

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
D	10	17-S	31-E		470	NORTH	330	WEST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
160			

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



CORNER COORDINATES TABLE
NAD 27 NME

A - Y=675530.4 N, X=643632.5 E
B - Y=675566.2 N, X=648912.4 E
C - Y=674246.0 N, X=648919.7 E
D - Y=674209.2 N, X=643639.5 E

CORNER COORDINATES TABLE
NAD 83 NME

A - Y=675594.6 N, X=684811.0 E
B - Y=675630.4 N, X=690090.8 E
C - Y=674310.1 N, X=690098.2 E
D - Y=674273.3 N, X=684818.1 E

GEODETIC COORDINATES
NAD 27 NME
BOTTOM HOLE LOCATION
Y=675062.8 N
X=643964.9 E
LAT.=32.854953° N
LONG.=103.864522° W
LAT.=32° 51' 18" N
LONG.=103° 51' 52" W

GEODETIC COORDINATES
NAD 83 NME
BOTTOM HOLE LOCATION
Y=685126.9 N
X=685143.5 E
LAT.=32.855071° N
LONG.=103.865029° W
LAT.=32° 51' 18" N
LONG.=103° 51' 54" W

GEODETIC COORDINATES
NAD 27 NME
SURFACE LOCATION
Y=675094.1 N
X=648585.0 E
LAT.=32.854982° N
LONG.=103.849477° W
LAT.=32° 51' 18" N
LONG.=103° 50' 58" W

GEODETIC COORDINATES
NAD 83 NME
SURFACE LOCATION
Y=675158.3 N
X=689763.5 E
LAT.=32.855100° N
LONG.=103.849984° W
LAT.=32° 51' 18" N
LONG.=103° 51' 00" W

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.

Sorina L Flores 3/10/15
Signature Date

Sorina L Flores
Printed Name

sorina.flores@apache corp. 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 in the best of my belief.

APRIL 2, 2014

Date of Survey
Signature & Seal of Professional Surveyor

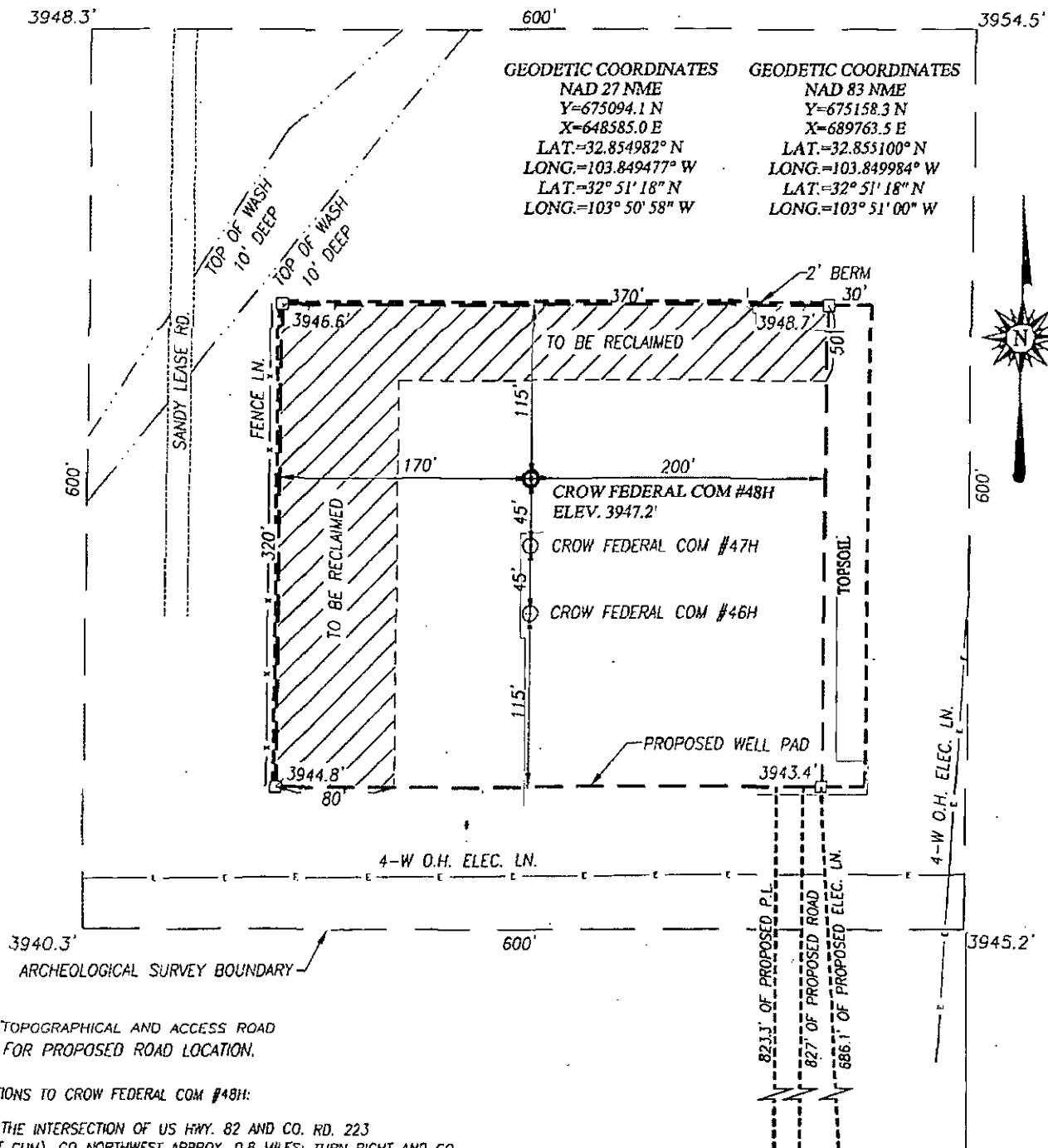


Certificate Number
Ronald J. Eidson 12641
Ronald J. Eidson 3239

ACK REV. 3/11/15

JWSC W.O. 15.13.0536

EXHIBIT #1C



NOTE:

SEE "TOPOGRAPHICAL AND ACCESS ROAD MAP" FOR PROPOSED ROAD LOCATION.

DIRECTIONS TO CROW FEDERAL COM #48H:

FROM THE INTERSECTION OF US HWY. 82 AND CO. RD. 223 (SWEET GUM), GO NORTHWEST APPROX. 0.8 MILES; TURN RIGHT AND GO NORTHEAST APPROX. 100 FEET. TURN LEFT AND GO NORTHEAST APPROX. 0.5 MILES. TURN RIGHT AND GO NORTHEAST APPROX. 0.1 MILE; TURN LEFT AND GO NORTH-NORTHWEST APPROX. 0.1 MILE; TURN RIGHT AND GO NORTHEAST APPROX. 0.15 MILES; TURN LEFT AND GO NORTHWEST APPROX. 0.1 MILE. TURN RIGHT AND GO NORTH APPROX. 0.2 MILES. TURN LEFT AND GO WEST APPROX. 0.15 MILES; TURN RIGHT AND GO NORTH APPROX. 0.2 MILES. TURN RIGHT AND GO NORTHEAST APPROX. 0.1 MILE. TURN LEFT AND GO NORTH APPROX. 0.7 MILES. TURN RIGHT AND GO EAST APPROX. 0.5 MILES. TURN RIGHT AND GO SOUTH APPROX. 0.2 MILES. TURN LEFT AND GO EAST APPROX. 0.8 MILES TO THE EXISTING CROW FEDERAL COM #25H, #26H & #27H WELL PAD. AT THE NORTHEAST CORNER OF THIS WELL PAD, FOLLOW ROAD SURVEY NORTH APPROX. 827 FEET TO THE SOUTHEAST CORNER OF THE LOCATION.

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



APACHE CORPORATION

CROW FEDERAL COM #48H WELL
 LOCATED 470 FEET FROM THE NORTH LINE
 AND 330 FEET FROM THE EAST LINE OF SECTION 10,
 TOWNSHIP 17 SOUTH, RANGE 31 EAST, N.M.P.M.,
 EDDY COUNTY, NEW MEXICO

Survey Date: 4/2/14

CAD Date: 3/5/15

Drawn By: ACK

W.O. No.: 15130336

Rev: 3/11/15

Rel. W.O.: 14110342

Sheet 1 of 1