

NM OIL CONSERVATION
ARTESIA DISTRICT
JUN 06 2016

RECEIVED

Apache Corporation

Eddy County, NM (NAD27 NME)

Grow Federal

#51H

Cedar Lake Federal CA 957H

OH / 1514486

Design: Surveys (Capstar 114)

Standard Survey Report

27 October, 2015

Phoenix Technology Services LP

Survey Report

Company:	Apache Corporation	Local Co-ordinate Reference:	Well #51H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3887.00usft (Capstar 114)
Site:	Crow Federal	MD Reference:	KB @ 3887.00usft (Capstar 114)
Well:	#51H	North Reference:	Grid
Wellbore:	OH / 1514486	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	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	#51H		
Well Position	+N/-S	0.00 usft	Northing:
	+E/-W	0.00 usft	Easting:
Position Uncertainty	0.00 usft	Wellhead Elevation:	
		Latitude:	32° 51' 11.75629 N
		Longitude:	103° 52' 52.01984 W
		Ground Level:	3,876.00 usft

Wellbore	OH / 1514486		
Magnetics	Model Name	Sample Date	Declination
			(°)
	HDGM	10/14/2015	7.60
			Dip Angle
			(°)
			Field Strength
			(nT)
			60.80
			48,571

Design	Surveys (Capstar 114)		
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
			(°)
			81.96

Survey Program	Date 10/27/2015		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
100.00	4,893.00	Scientific Gyro Surveys (OH / 1514486)	NS-GYRO-MS
4,893.00	9,906.00	Phoenix MWD Surveys (OH / 1514486)	PHX+MWD+HDGM
			Description
			North sensing gyrocompassing m/s
			PHX+OWSG 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)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.29	287.61	100.00	0.08	-0.24	-0.23	0.29	0.29	0.00
200.00	0.39	269.89	200.00	0.15	-0.82	-0.79	0.14	0.10	-17.72
300.00	0.71	274.82	299.99	0.20	-1.78	-1.73	0.32	0.32	4.93
400.00	0.95	293.94	399.98	0.59	-3.16	-3.04	0.36	0.24	19.12
500.00	0.96	290.12	499.97	1.22	-4.70	-4.48	0.06	0.01	-3.82
600.00	0.74	288.26	599.96	1.71	-6.10	-5.80	0.22	-0.22	-1.86
700.00	0.63	284.43	699.95	2.05	-7.25	-6.89	0.12	-0.11	-3.83
800.00	0.38	303.34	799.95	2.37	-8.05	-7.64	0.30	-0.25	18.91
900.00	0.26	326.46	899.95	2.74	-8.46	-7.99	0.17	-0.12	23.12

Phoenix Technology Services LP

Survey Report

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Site:	Crow Federal	MD Reference:	KB @ 3887.00usft (Capstar 114)
Well:	#51H	North Reference:	Grid
Wellbore:	OH / 1514486	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)
1,000.00	0.29	101.51	999.94	2.88	-8.33	-7.85	0.51	0.03	135.05
1,100.00	0.44	100.51	1,099.94	2.76	-7.71	-7.25	0.15	0.15	-1.00
1,200.00	1.04	90.46	1,199.93	2.68	-6.42	-5.99	0.61	0.60	-10.05
1,300.00	1.66	89.83	1,299.91	2.68	-4.07	-3.65	0.62	0.62	-0.63
1,400.00	1.85	83.26	1,399.86	2.87	-1.02	-0.61	0.28	0.19	-6.57
1,500.00	1.89	84.16	1,499.81	3.23	2.23	2.66	0.05	0.04	0.90
1,600.00	1.88	87.82	1,599.75	3.46	5.51	5.94	0.12	-0.01	3.66
1,700.00	1.89	85.57	1,699.70	3.65	8.79	9.21	0.07	0.01	-2.25
1,800.00	1.41	87.75	1,799.66	3.82	11.66	12.08	0.48	-0.48	2.18
1,900.00	1.14	83.88	1,899.63	3.98	13.88	14.30	0.28	-0.27	-3.87
2,000.00	0.72	79.07	1,999.62	4.20	15.49	15.92	0.43	-0.42	-4.81
2,100.00	0.54	79.54	2,099.61	4.41	16.57	17.02	0.18	-0.18	0.47
2,200.00	0.45	67.74	2,199.61	4.64	17.39	17.87	0.14	-0.09	-11.80
2,300.00	0.28	14.33	2,299.61	5.03	17.82	18.35	0.36	-0.17	-53.41
2,400.00	0.32	332.02	2,399.60	5.51	17.75	18.34	0.22	0.04	-42.31
2,500.00	0.46	340.74	2,499.60	6.13	17.48	18.17	0.15	0.14	8.72
2,600.00	0.45	333.55	2,599.60	6.87	17.18	17.97	0.06	-0.01	-7.19
2,700.00	0.50	328.70	2,699.60	7.59	16.78	17.67	0.06	0.05	-4.85
2,800.00	0.52	330.91	2,799.59	8.36	16.33	17.34	0.03	0.02	2.21
2,900.00	0.50	335.65	2,899.59	9.15	15.93	17.05	0.05	-0.02	4.74
3,000.00	0.50	316.61	2,999.58	9.87	15.45	16.68	0.17	0.00	-19.04
3,100.00	0.47	335.33	3,099.58	10.56	14.98	16.31	0.16	-0.03	18.72
3,200.00	0.53	327.38	3,199.58	11.32	14.56	16.00	0.09	0.06	-7.95
3,300.00	0.49	321.40	3,299.57	12.04	14.04	15.59	0.07	-0.04	-5.98
3,400.00	0.50	320.35	3,399.57	12.71	13.50	15.14	0.01	0.01	-1.05
3,500.00	0.31	326.71	3,499.57	13.28	13.07	14.80	0.19	-0.19	6.36
3,600.00	0.47	318.30	3,599.56	13.81	12.65	14.45	0.17	0.16	-8.41
3,700.00	0.51	326.22	3,699.56	14.48	12.13	14.03	0.08	0.04	7.92
3,800.00	0.51	331.02	3,799.56	15.24	11.66	13.68	0.04	0.00	4.80
3,900.00	0.44	326.26	3,899.55	15.95	11.24	13.36	0.08	-0.07	-4.76
4,000.00	0.45	329.16	3,999.55	16.61	10.82	13.04	0.02	0.01	2.90
4,100.00	0.51	351.97	4,099.55	17.39	10.56	12.89	0.20	0.06	22.81
4,200.00	0.62	336.15	4,199.54	18.32	10.28	12.74	0.19	0.11	-15.82
4,300.00	0.71	339.27	4,299.54	19.40	9.84	12.45	0.10	0.09	3.12
4,400.00	0.71	344.14	4,399.53	20.57	9.45	12.23	0.06	0.00	4.87
4,500.00	0.83	342.24	4,499.52	21.86	9.06	12.03	0.12	0.12	-1.90
4,600.00	0.74	338.65	4,599.51	23.15	8.60	11.76	0.10	-0.09	-3.59
4,700.00	0.63	356.06	4,699.50	24.30	8.33	11.65	0.23	-0.11	17.41
4,800.00	0.61	14.95	4,799.50	25.36	8.43	11.89	0.20	-0.02	18.89
4,893.00	0.70	27.33	4,892.49	26.34	8.82	12.42	0.18	0.10	13.31
Tie In to Scientific Gyro									
5,076.00	3.20	56.40	5,075.37	30.16	13.59	17.67	1.43	1.37	15.89
First Phoenix MWD Survey									

Phoenix Technology Services LP

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Site:	Crow Federal	MD Reference:	KB @ 3887.00usft (Capstar 114)
Well:	#51H	North Reference:	Grid
Wellbore:	OH / 1514486	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)
5,119.00	7.40	52.00	5,118.18	32.53	16.77	21.16	9.81	9.77	-10.23
5,162.00	12.10	48.40	5,160.55	37.23	22.33	27.31	11.02	10.93	-8.37
5,205.00	17.00	47.80	5,202.15	44.45	30.36	36.28	11.40	11.40	-1.40
5,247.00	22.40	50.00	5,241.68	53.73	41.04	48.16	12.98	12.86	5.24
5,290.00	27.90	51.10	5,280.59	65.32	55.16	63.75	12.84	12.79	2.56
5,332.00	33.30	52.00	5,316.73	78.60	71.91	82.19	12.90	12.86	2.14
5,375.00	38.70	53.50	5,351.50	93.88	92.03	104.25	12.72	12.56	3.49
5,418.00	43.40	54.50	5,383.92	110.46	114.87	129.19	11.04	10.93	2.33
5,460.00	48.00	55.80	5,413.25	127.62	139.54	156.02	11.17	10.95	3.10
5,503.00	52.30	57.20	5,440.80	145.82	167.07	185.82	10.31	10.00	3.26
5,546.00	57.80	57.30	5,465.42	164.88	196.70	217.83	12.79	12.79	0.23
5,589.00	62.60	57.30	5,486.79	185.04	228.09	251.73	11.16	11.16	0.00
5,631.00	67.00	57.40	5,504.66	205.53	260.08	286.27	10.48	10.48	0.24
5,674.00	71.30	57.90	5,519.96	227.03	294.02	322.89	10.06	10.00	1.16
5,717.00	75.30	58.90	5,532.32	248.60	329.10	360.63	9.57	9.30	2.33
5,759.00	79.70	59.40	5,541.41	269.62	364.29	398.42	10.54	10.48	1.19
5,803.00	83.80	59.80	5,547.72	291.65	401.84	438.68	9.36	9.32	0.91
5,846.00	87.80	59.00	5,550.87	313.48	438.75	478.28	9.49	9.30	-1.86
5,888.00	88.70	59.10	5,552.15	335.07	474.75	516.95	2.16	2.14	0.24
6,017.00	88.90	61.50	5,554.85	398.96	586.77	636.80	1.87	0.16	1.86
6,144.00	88.80	64.10	5,557.40	457.00	699.69	756.73	2.05	-0.08	2.05
6,272.00	87.50	67.90	5,561.54	509.02	816.54	879.71	3.14	-1.02	2.97
6,400.00	86.90	72.20	5,567.79	552.63	936.69	1,004.77	3.39	-0.47	3.36
6,528.00	87.00	76.40	5,574.61	587.21	1,059.71	1,131.42	3.28	0.08	3.28
6,656.00	88.30	81.40	5,579.86	611.83	1,185.17	1,259.09	4.03	1.02	3.91
6,784.00	90.20	85.80	5,581.53	626.09	1,312.32	1,386.99	3.74	1.48	3.44
6,911.00	90.30	90.00	5,580.98	630.74	1,439.21	1,513.28	3.31	0.08	3.31
7,039.00	90.60	91.50	5,579.97	629.06	1,567.19	1,639.77	1.20	0.23	1.17
7,167.00	89.70	91.80	5,579.64	625.38	1,695.13	1,765.94	0.74	-0.70	0.23
7,295.00	88.80	92.20	5,581.31	620.91	1,823.04	1,891.97	0.77	-0.70	0.31
7,423.00	87.10	91.10	5,585.89	617.23	1,950.90	2,018.05	1.58	-1.33	-0.86
7,551.00	86.90	90.80	5,592.59	615.11	2,078.71	2,144.31	0.28	-0.16	-0.23
7,679.00	86.80	89.10	5,599.63	615.22	2,206.51	2,270.87	1.33	-0.08	-1.33
7,807.00	89.00	88.80	5,604.32	617.56	2,334.39	2,397.82	1.73	1.72	-0.23
7,936.00	89.60	89.40	5,605.89	619.59	2,463.37	2,525.81	0.66	0.47	0.47
8,064.00	89.80	89.60	5,606.56	620.71	2,591.36	2,652.70	0.22	0.16	0.16
8,192.00	88.50	89.60	5,608.46	621.60	2,719.34	2,779.55	1.02	-1.02	0.00
8,320.00	88.60	90.10	5,611.70	621.94	2,847.30	2,906.30	0.40	0.08	0.39
8,448.00	88.90	90.50	5,614.49	621.27	2,975.27	3,032.91	0.39	0.23	0.31
8,577.00	88.70	89.50	5,617.19	621.27	3,104.24	3,160.62	0.79	-0.16	-0.78
8,705.00	88.90	89.90	5,619.87	621.94	3,232.21	3,287.42	0.35	0.16	0.31
8,832.00	89.10	90.30	5,622.09	621.71	3,359.19	3,413.12	0.35	0.16	0.31
8,960.00	89.60	90.90	5,623.54	620.37	3,487.17	3,539.66	0.61	0.39	0.47
9,088.00	89.70	90.80	5,624.32	618.48	3,615.15	3,666.12	0.11	0.08	-0.08

Phoenix Technology Services LP

Survey Report

Company:	Apache Corporation	Local Co-ordinate Reference:	Well #51H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3887.00usft (Capstar 114)
Site:	Crow Federal	MD Reference:	KB @ 3887.00usft (Capstar 114)
Well:	#51H	North Reference:	Grid
Wellbore:	OH / 1514486	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)
9,216.00	88.30	89.70	5,626.56	617.92	3,743.13	3,792.76	1.39	-1.09	-0.86
9,344.00	88.40	89.70	5,630.24	618.59	3,871.07	3,919.54	0.08	0.08	0.00
9,472.00	88.30	90.00	5,633.93	618.92	3,999.02	4,046.28	0.25	-0.08	0.23
9,600.00	89.20	90.10	5,636.72	618.81	4,126.99	4,172.97	0.71	0.70	0.08
9,728.00	90.50	90.00	5,637.06	618.70	4,254.98	4,299.69	1.02	1.02	-0.08
Final Phoenix MWD Survey									
9,906.00	90.50	90.00	5,635.50	618.70	4,432.98	4,475.94	0.00	0.00	0.00
Projection to TD									

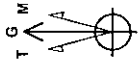
Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
4,893.00	4,892.49	26.34	8.82	Tie In to Scientific Gyro
5,076.00	5,075.37	30.16	13.59	First Phoenix MWD Survey
9,728.00	5,637.06	618.70	4,254.98	Final Phoenix MWD Survey
9,906.00	5,635.50	618.70	4,432.98	Projection to TD

Checked By: _____	Approved By: _____	Date: _____
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EXPLORING WHAT'S POSSIBLE

Project: Eddy County, NM (NAD27 NME)
Site: Crow Federal
Well: #51H
Wellbore: OH / 1514486
Design: Plan # 10-22-15
Rig: Capstar 114



PHOENIX
TECHNOLOGY SERVICES

Asimuth to Grid North
True North: -0.24°
Magnetic North: 7.35°
Magnetic Field
Strength: 4857.13 nT
Dip Angle: 60.80°
Date: 10/14/2015
Model: HDGM

KB @ 3807.00m (Capstar 114)

Ground Level: 3876.00

Wellbore: OH / 1514486

Design: Plan # 10-22-15

Rig: Capstar 114

Well Details

Section Details

Design Target Details

Well Details

Section Details

Design Target Details

Well Details

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Design Target Details

Well Details

Section Details

Design Target Details

Well Details

Section Details

Map System: US State Plane 1927 (Exact solution)

Datum: NAD 1927 (NAUDCON CONUS)

Ellipsoid: Clarke 1866

Zone Name: New Mexico East 3001

Local Origin: Well #51H, Grid North

Latitude: 32° 51' 11.75633 N

Longitude: 103° 52' 52.01984 W

Grid East: 638871.70

Grid North: 674426.60

Scale Factor: 1.000

Ceomagnetic Model: HDGM

Sample Date: 14-Oct-15

Magnetic Declination: 7.80°

Dip Angle from Horizontal: 60.80°

Magnetic Field Strength: 4857.1

To convert a Magnetic Direction to a Grid Direction, Add 7.35°

To convert a True Direction to a Grid Direction, Subtract 0.25°

FORMATION TOP DETAILS

MDPash Formation

4832.22 4932.73 (Yess) Padrock

5401.25 5435.55 Blinbury

DipDir

DipAngle

0.99

81.96

81.96

LEGEND

--- #22H, WB1/Job #131192, Surveys (Capstar 114) VO

--- #47H, OH, Plan #2 08-03-15 VO

--- #48H, WB1, Plan #2 02-11-15 VO

--- #48H, OH, Plan #2 08-03-15 VO

--- #51H, OH / 1514486, Surveys (Capstar 114) VO

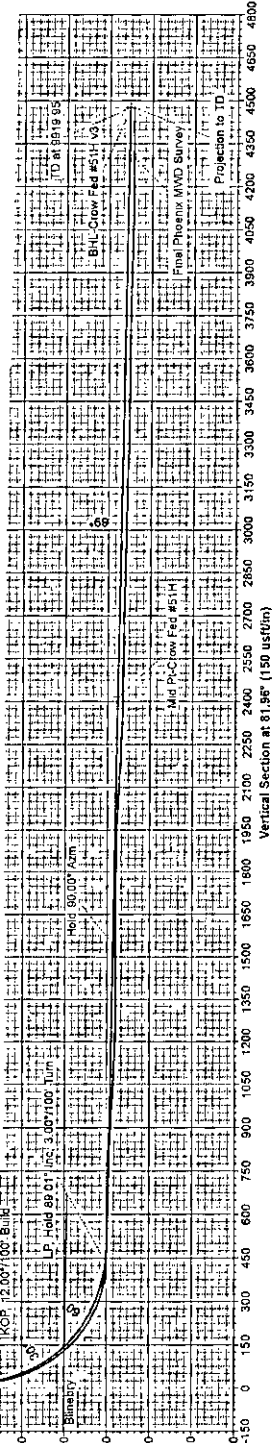
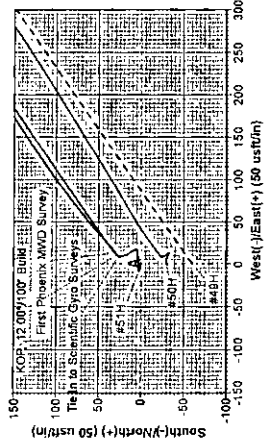
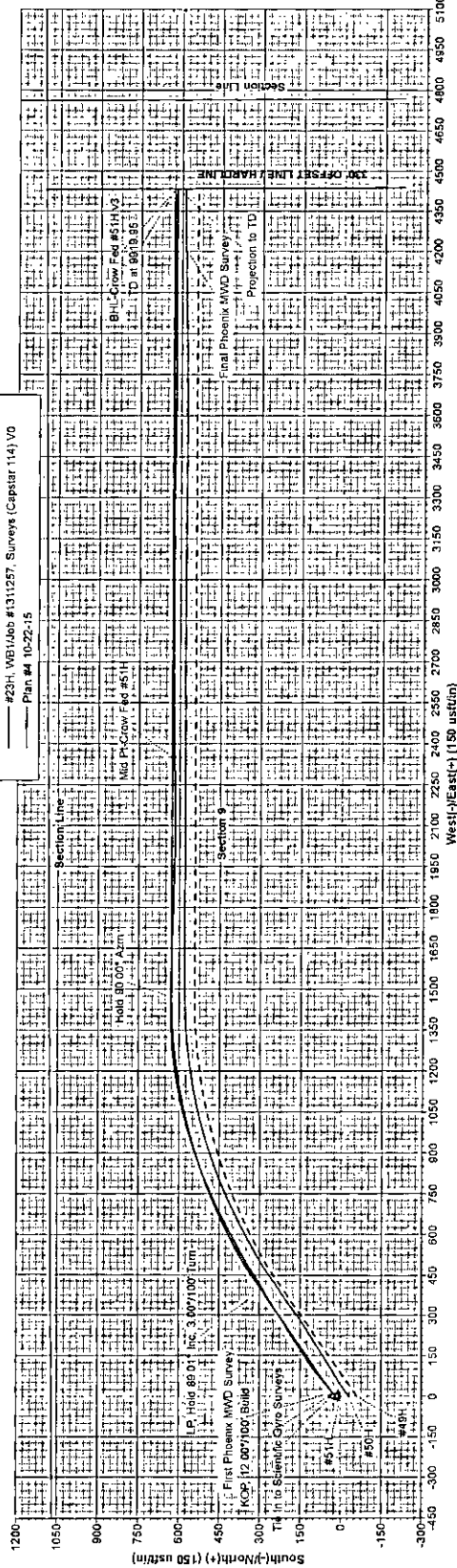
--- #50H, OH / Job #1514408, Surveys (Capstar 114) VO

--- #27H, WB1/Job #131120, Plan #6 04-02-14 VO

--- #46H, WB1, Plan #1 03-17-15 VO

--- #23H, WB1/Job #131257, Surveys (Capstar 114) VO

--- Plan #4 10-22-15



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) 476-1460 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

DAMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-015-43327	Pool Code 96831	Pool Name Cedar Lake; Glorieta - Yeso
Property Code 315935	Property Name Cedar Lake Federat CA	Well Number 951A
OGRID No. 873	Operator Name APACHE CORPORATION	Elevation 3876'

Surface Location

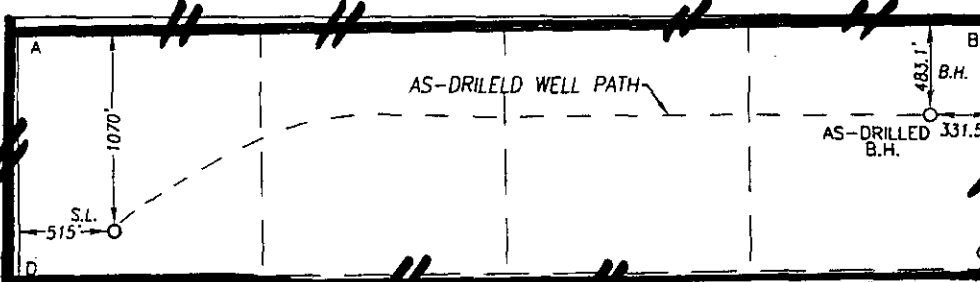
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	9	17-S	31-E		1070	NORTH	515	WEST	EDDY

AS-Drilled 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
A	9	17-S	31-E		483.1	NORTH	331.5	EAST	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



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.

Signature: *Emily Fallis* Date: *5/16/16*
Printed Name: *Emily Fallis*
E-mail Address: *emily.fallis@apachecorp.com*

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.

Date of Survey: *AUGUST 21, 2014*
Signature & Seal of Professional Surveyor:
Ronald J. Eidson
Certificate Number: *3239*
Gary G. Eidson 12641
Ronald J. Eidson 3239
LSL REL W.O.: 15.13.0152 JWSC W.O.: 15.13.1040

GEODETIC COORDINATES
NAD 27 NME
SURFACE LOCATION
Y=674426.6 N
X=638871.7 E
LAT.=32.853266° N
LONG.=103.881117° W
LAT.=32° 51' 12" N
LONG.=103° 52' 52" W

CORNER COORDINATES TABLE
NAD 27 NME

A - Y=675492.7 N, X=638350.7 E
B - Y=675530.4 N, X=643632.5 E
C - Y=674209.2 N, X=643639.5 E
D - Y=674172.6 N, X=638358.2 E

AS-DRILLED
BOTTOM HOLE LOCATION
NAD 27 NME
Y=675045.1 N
X=643303.6 E
LAT.=32.854913° N
LONG.=103.866676° W
LAT.=32° 51' 18" N
LONG.=103° 52' 00" W

CORNER COORDINATES TABLE
NAD 83 NME

A - Y=675556.7 N, X=679529.3 E
B - Y=675594.6 N, X=684811.1 E
C - Y=674273.4 N, X=684818.1 E
D - Y=674236.7 N, X=679536.8 E

AS-DRILLED
BOTTOM HOLE LOCATION
NAD 83 NME
Y=675109.2 N
X=684482.2 E
LAT.=32.855030° N
LONG.=103.867183° W
LAT.=32° 51' 18" N
LONG.=103° 52' 02" W

GEODETIC COORDINATES
NAD 83 NME
SURFACE LOCATION
Y=674490.6 N
X=680050.3 E
LAT.=32.853383° N
LONG.=103.881624° W
LAT.=32° 51' 12" N
LONG.=103° 52' 54" W

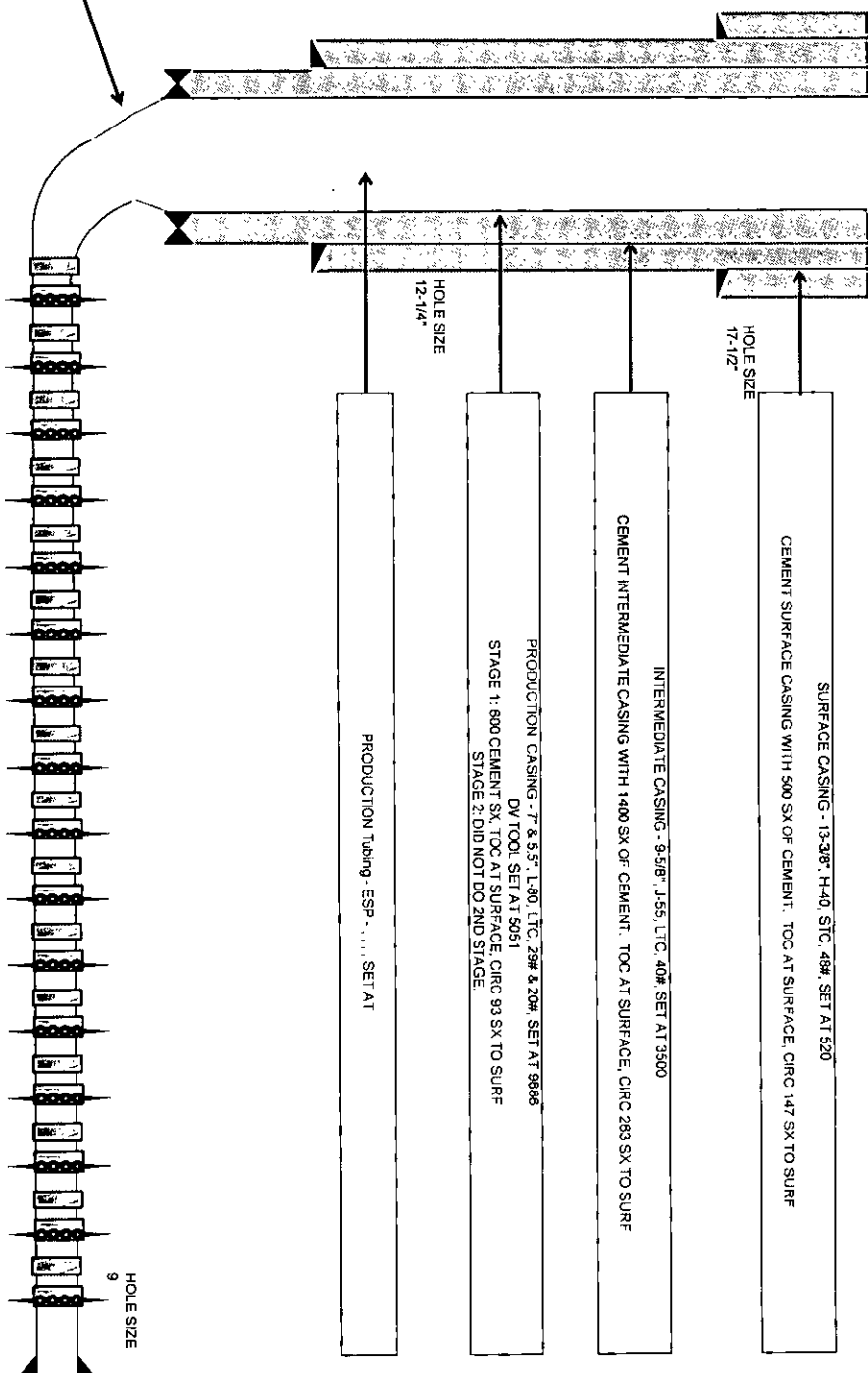
NOTE: AS-DRILLED PATH & BOTTOM HOLE
PLOTTED FROM PHOENIX
TECHNOLOGY SERVICE STANDARD M.W.D.
SURVEY REPORT; OCTOBER 27, 2015

WELL NAME: CROW FEDERAL COM 51H
API: 30-015-43327
SPUD DATE: 10/16/2015
PRODUCING FORMATION: YESO UPPER BLINBERRY
FIELD: CEDAR LAKE (BP)
COUNTY: EDDY
STATE: NEW MEXICO
WORKING INTEREST: 60.00%

SURFACE LOC: 1070' FNL & 515' FWL
SECTION: 9
TOWNSHIP: 17-S
RANGE: 31-E
SURVEY: RONALD J. EDSON
BOTTOM HOLE LOC: 483.1' FNL & 331.5' FEL
SECTION: 9
TOWNSHIP: 17-S
RANGE: 31-E
SURVEY: RONALD J. EDSON
DRILL RIG: CAPSTAR 114
RIG RELEASE: 10/30/2015
KB (ft): 3,987.00
GL (ft): 3,876.00
KBGL DIFF (ft): 11.00
TMD (ft): 9,906.00
TD OF PILOT HOLE (ft): N/A
FC DEPTH (ft): 9,877.00
PBMD (ft): 9,906.00
RDV DEPTH (ft): N/A
CRIO VALVE (ft): N/A
DEEPEST TVD (ft): 5,637.00

TAPERED CASING STRING:
7" 29# L-80 TO X-OVER @ 5,054'
TAPERING TO 5.5" 20# L-80 SET @ 9,888'

KOP (ft): 5,042
LATERAL LENGTH (ft): 4,014
TD OF PILOT HOLE (ft): N/A



PACKERS & SLEEVES
TOP PERF (MD): 5,892
BOTTOM PERF (MD): 9,877

TMD (ft): 9,906
FC DEPTH (ft): 9,877
PBMD (ft): 9,906
RDV DEPTH (ft): N/A
CRIO VALVE (ft): N/A

LAST UPDATED BY: HILARI GOULD
LAST UPDATED: 4/27/2016

COMMENTS:

PACKERS & SLEEVES - 15 STAGES					
TOTAL ACID (bbbl)	TOTAL LTR (bbbl)	TOTAL PROPAGANT (lbs)	MAX WH RATE (bpm)	MAX WH PRESSURE (ps)	
2,891	65,177	2,898,000	93.00	5,575	
PRODUCTION METHOD	LIFT TYPE	SETTING DEPTH			
Pumping	ESP	0			
CROSSOVER SUB @ 5,054'					

STANDARD STIPULATIONS FOR SURFACE INSTALLED PIPELINES

A copy of the Grant and attachments, including stipulations, survey plat(s) and/or map(s), shall be on location during construction. BLM personnel may request to review a copy of your permit during construction to ensure compliance with all stipulations.

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. Holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.
2. Holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, Holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC § 2601 *et seq.* (1982) with regard to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant (see 40 CFR, Part 702-799 and in particular, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193). Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the Authorized Officer concurrent with the filing of the reports to the involved Federal agency or State government.
3. Holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. § 9601, *et seq.* or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, *et seq.*) on the Right-of-Way (unless the release or threatened release is wholly unrelated to activity of the Right-of-Way Holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way Holder on the Right-of-Way. This provision applies without regard to whether a release is caused by Holder, its agent, or unrelated third parties.
4. Holder shall be liable for damage or injury to the United States to the extent provided by 43 CFR Sec. 2883.1-4. Holder shall be held to a standard of strict liability for damage or injury to the United States resulting from pipe rupture, fire, or spills caused or substantially aggravated by any of the following within the right-of-way or permit area:
 - a. Activities of Holder including, but not limited to: construction, operation, maintenance, and termination of the facility;
 - b. Activities of other parties including, but not limited to:
 - (1) Land clearing
 - (2) Earth-disturbing and earth-moving work
 - (3) Blasting
 - (4) Vandalism and sabotage;
 - c. Acts of God.

The maximum limitation for such strict liability damages shall not exceed one million dollars (\$1,000,000) for any one event, and any liability in excess of such amount shall be determined by the ordinary rules of negligence of the jurisdiction in which the damage or injury occurred.

This section shall not impose strict liability for damage or injury resulting primarily from an act of war or

from the negligent acts or omissions of the United States.

5. If, during any phase of the construction, operation, maintenance, or termination of the pipeline, any oil, salt water, or other pollutant should be discharged from the pipeline system, impacting Federal lands, the control and total removal, disposal, and cleaning up of such oil, salt water, or other pollutant, wherever found, shall be the responsibility of Holder, regardless of fault. Upon failure of Holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to repair all damages resulting therefrom, on the Federal lands, the Authorized Officer may take such measures as he/she deems necessary to control and clean up the discharge and restore the area, including, where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of Holder. Such action by the Authorized Officer shall not relieve Holder of any responsibility as provided herein.

6. All construction and maintenance activity shall be confined to the authorized right-of-way width of 20 feet. If the pipeline route follows an existing road or buried pipeline right-of-way, the surface pipeline shall be installed no farther than 10 feet from the edge of the road or buried pipeline right-of-way. If existing surface pipelines prevent this distance, the proposed surface pipeline shall be installed immediately adjacent to the outer surface pipeline. All construction and maintenance activity shall be confined to existing roads or right-of-ways.

7. No blading or clearing of any vegetation shall be allowed unless approved in writing by the Authorized Officer.

8. Holder shall install the pipeline on the surface in such a manner that will minimize suspension of the pipeline across low areas in the terrain. In hummocky or dune areas, the pipeline shall be "snaked" around hummocks and dunes rather than suspended across these features.

9. The pipeline shall be buried with a minimum of 24 inches under all roads, "two-tracks," and trails. Burial of the pipe will continue for 20 feet on each side of each crossing. The condition of the road, upon completion of construction, shall be returned to at least its former state with no bumps or dips remaining in the road surface.

10. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

11. In those areas where erosion control structures are required to stabilize soil conditions, the holder will install such structures as are suitable for the specific soil conditions being encountered and which are in accordance with sound resource management practices.

12. Excluding the pipe, all above-ground structures not subject to safety requirement shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be a color which simulates "Standard Environmental Colors" – **Shale Green**, Munsell Soil Color No. 5Y 4/2; designated by the Rocky Mountain Five State Interagency Committee.

13. The pipeline will be identified by signs at the point of origin and completion of the right-of-way and at all road crossings. At a minimum, signs will state the holder's name, BLM serial number, and the product being transported. Signs will be maintained in a legible condition for the life of the pipeline.

14. The holder shall not use the pipeline route as a road for purposes other than routine maintenance as determined necessary by the Authorized Officer in consultation with the holder. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway.

15. Any cultural and/or paleontological resource (historic or prehistoric site or object) discovered by the

holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the authorized officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the authorized officer. An evaluation of the discovery will be made by the authorized officer to determine appropriate cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the authorized officer after consulting with the holder.

16. The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, powerline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

17. Surface pipelines shall be less than or equal to 4 inches and a working pressure below 125 psi.

18. The BLM, Carlsbad Field Office, will be informed immediately if any subsurface drainage channels, passages, or voids are intersected by laying pipe, and no pipe will be laid in the trench at that point until clearance has been issued by the Authorized Officer. If a void is encountered alignments may be rerouted to avoid the karst feature to avoid or lessen the potential of subsidence or collapse of karst features, toxic or combustible gas buildup, or other possible impacts to cave and karst resources from the buried pipeline. Special restoration stipulations or realignment may be required at such intersections, if any. Leak detection systems, back flow eliminators, and differential pressure shut-off valves may be required to minimize the impacts of leaking or ruptured pipelines. To eliminate these extreme possibilities, regular monitoring is needed to quickly identify leaks for their immediate and proper treatment.