Form 3160-5
(August 2007)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

NMOCD Artesia

FORM APPROVED
OMB NO. 1004-0135
Expires: July 31, 2010

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE - Other instructions on reverse side.

5. Lease Serial No.
NMLC029435A

6. If Indian, Allottee or Tribe Name

7. If Unit or CA/Agreement, Name and/or No.

1. Type of Well
☒ Oil Well ☐ Gas Well ☐ Other

8. Well Name and No.
CEDAR LAKE FEDERAL CA 723H

2. Name of Operator
APACHE CORPORATION
Contact: EMILY FOLLIS
E-Mail: Emily.Follis@apachecorp.com

9. API Well No.
30-015-43362-00-X1

3a. Address
303 VETERANS AIRPARK LANE SUITE 3000
MIDLAND, TX 79705

3b. Phone No. (include area code)
Ph: 432-818-1801

10. Field and Pool, or Exploratory
CEDAR LAKE-GLORIETA-YESO

4. Location of Well *(Footage, Sec., T., R., M., or Survey Description)*
Sec 7 T17S R31E Lot 3 2180FSL 505FWL

11. County or Parish, and State
EDDY COUNTY, NM

12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
☐ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☒ Subsequent Report	☐ Alter Casing	☐ Fracture Treat	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other Production Start-up
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	

13. Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

APACHE COMPLETED THE WELL AS FOLLOWS: RR DATE 11/28/15 TOC@167'

12/17/15 SET ANCHORS, FINAL CUT LOG GR-CNL-CBL MIRU @ LATER DATE
12/28/15 WAITING ON WEATHER
12/29/15 WAITING ON WEATHER TO PASS
12/30/15 FOUND WELL @ 0# LOAD 7" TEST CASING TO 5000# GOOD TEST, MIRU PU & RU, NU BOP/5K SPOOL, RACK & TALLY 6100' J55 TBG PU & RIH W/6" BIT, BS(4) 3-1/2" DC, XO ON TBG, TAG DV TOOL @ 4312'
12/31/15 FOUND WELL @ 0# PU SWVL, NU STRIPPER HD,BRK CIRC, DO DV TOOL, CIRC CLEAN, LD SWVL, ND STRIPPER HD, POH W/BIT, RIH W/4.60" MILL BS(4) 3-1/2" DCS ON BG TAG DEBRIS SUB @ 4583' SI, SDFD
01/01/16 SHUT DOWN FOR HOLIDAY
01/04/16 FOUND WELL @ 0# PU SWVL, NU SWVL, NU STRIPPER HD, BRK CIRC. MILL OUT DEBRIS SUB CIRC CLEAN, POH LD TBG, RD,WOR ND 5K BOP CAP WELL

NM OIL CONSERVATION
ARTESIA DISTRICT
AUG 29 2016
RECEIVED

14. I hereby certify that the foregoing is true and correct.
Electronic Submission #345609 verified by the BLM Well Information System
For APACHE CORPORATION, sent to the Carlsbad
Committed to AFMSS for processing by PRISCILLA PEREZ on 07/25/2016 (16PP1817SE)

Name *(Printed/Typed)* EMILY FOLLIS — Title REGULATORY ANALYST

Signature (Electronic Submission) — Date 07/25/2016

ACCEPTED FOR RECORD
AUG 22 2016
BUREAU OF LAND MANAGEMENT
CARLSBAD FIELD OFFICE

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By — Title — Date

Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Office

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

**** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ****

Apache Corporation
303 Veterans Airpark Lane, #3000
Midland, TX 79705
Original Name
Raven Federal Com #023H
Eddy County, New Mexico

API # 30-015-43362
Sec. 7 T17S R31E
Eddy Co, NMexico
Cedar Lake Fed CA 723H

439	4.39	0.70	1.23	5.38	5.38
779	3.40	0.50	0.88	2.98	8.35
993	2.14	0.40	0.70	1.50	9.85
1249	2.56	0.10	0.18	0.45	10.30
1462	2.13	0.70	1.23	2.61	12.91
1760	2.98	0.50	0.88	2.61	15.52
2059	2.99	0.30	0.53	1.57	17.09
2315	2.56	0.00	0.00	0.00	17.09
2568	2.53	0.00	0.00	0.00	17.09
2867	2.99	0.30	0.53	1.57	18.66
3122	2.55	0.10	0.18	0.45	19.10
3296	1.74	0.20	0.35	0.61	19.71
3462	1.66	0.10	0.18	0.29	20.00
3523	0.61	0.20	0.35	0.21	20.21
3742	2.19	0.60	1.05	2.30	22.51
4041	2.99	1.20	2.10	6.28	28.79
4349	3.08	2.20	3.85	11.86	40.65

Archie Brown - General Manager

The attached instrument was acknowledged before me on the 3rd day of December 2015 by Archie Brown - General Manager, CapStar Drilling, Inc.

Jacki Ann Zent
Notary Public

JACKI ANN ZENT
My Commission Expires
March 3, 2019

Phoenix Technology Services LP

Survey Report

Company:	Apache Corporation	Local Co-ordinate Reference:	Well #23H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3733.00usft (Capstar 114)
Site:	Raven Federal	MD Reference:	KB @ 3733.00usft (Capstar 114)
Well:	#23H	North Reference:	Grid
Wellbore:	OH / Job #1514630	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 Raven Federal

Site Position:		Northing:	673,239.70 usft	Latitude:	32° 51' 0.24298 N
From:	Map	Easting:	633,303.50 usft	Longitude:	103° 53' 57.35087 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.24 °

Well #23H

Well Position	+N/-S	0.00 usft	Northing:	672,324.90 usft	Latitude:	32° 50' 51.37938 N
	+E/-W	0.00 usft	Easting:	628,585.60 usft	Longitude:	103° 54' 52.69762 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	3,722.00 usft

Wellbore OH / Job #1514630

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	10/29/2015	7.65	60.77	48,543

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)	Direction (°)
	0.00	0.00	0.00	89.98

Survey Program Date 11/26/2015

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.00	4,118.00	Phoenix Gyro Surveys (OH / Job #151463	CB-GYRO-MS	Camera based gyro multishot
4,349.00	8,765.00	Phoenix MWD Surveys (OH / Job #15146:	PHX+MWD+HDGM	PHX+OWSG 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)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.21	87.59	100.00	0.01	0.18	0.18	0.21	0.21	0.00
200.00	0.31	172.68	200.00	-0.25	0.40	0.40	0.36	0.10	85.09
300.00	0.48	243.81	300.00	-0.71	0.06	0.06	0.48	0.17	71.13
400.00	0.69	238.18	399.99	-1.21	-0.83	-0.83	0.22	0.21	-5.63
500.00	0.63	235.98	499.99	-1.83	-1.80	-1.80	0.07	-0.06	-2.20
600.00	0.63	230.38	599.98	-2.49	-2.67	-2.68	0.06	0.00	-5.60
700.00	0.51	312.88	699.98	-2.54	-3.42	-3.43	0.76	-0.12	82.50
800.00	0.48	321.12	799.97	-1.91	-4.01	-4.01	0.08	-0.03	8.24
900.00	0.28	334.41	899.97	-1.36	-4.38	-4.38	0.22	-0.20	13.29

Company:	Apache Corporation	Local Co-ordinate Reference:	Well #23H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3733.00usft (Capstar 114)
Site:	Raven Federal	MD Reference:	KB @ 3733.00usft (Capstar 114)
Well:	#23H	North Reference:	Grid
Wellbore:	OH / Job #1514630	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	0.39	5.69	999.97	-0.80	-4.45	-4.45	0.21	0.11	31.28
1,100.00	0.78	44.53	1,099.96	0.02	-3.94	-3.94	0.54	0.39	38.84
1,200.00	0.88	51.99	1,199.95	0.98	-2.86	-2.86	0.15	0.10	7.46
1,300.00	0.95	62.68	1,299.94	1.83	-1.52	-1.52	0.18	0.07	10.69
1,400.00	0.85	82.57	1,399.93	2.31	-0.05	-0.05	0.33	-0.10	19.89
1,500.00	0.72	91.26	1,499.92	2.39	1.32	1.32	0.18	-0.13	8.69
1,600.00	0.57	15.99	1,599.91	2.85	2.08	2.08	0.80	-0.15	-75.27
1,700.00	0.55	331.29	1,699.91	3.75	1.99	1.99	0.43	-0.02	-44.70
1,800.00	0.48	0.54	1,799.91	4.59	1.76	1.76	0.27	-0.07	29.25
1,900.00	0.25	165.92	1,899.90	4.80	1.82	1.82	0.72	-0.23	165.38
2,000.00	0.16	123.68	1,999.90	4.51	1.99	1.99	0.17	-0.09	-42.24
2,100.00	0.26	349.73	2,099.90	4.66	2.06	2.07	0.39	0.10	-133.95
2,200.00	0.27	262.58	2,199.90	4.85	1.79	1.79	0.37	0.01	-87.15
2,300.00	0.15	170.60	2,299.90	4.69	1.58	1.58	0.31	-0.12	-91.98
2,400.00	0.14	39.60	2,399.90	4.65	1.68	1.68	0.26	-0.01	-131.00
2,500.00	0.04	57.34	2,499.90	4.77	1.78	1.79	0.10	-0.10	17.74
2,600.00	0.07	51.45	2,599.90	4.82	1.86	1.86	0.03	0.03	-5.89
2,700.00	0.08	72.01	2,699.90	4.88	1.98	1.98	0.03	0.01	20.56
2,800.00	0.31	198.32	2,799.90	4.65	1.96	1.96	0.36	0.23	126.31
2,900.00	0.09	53.25	2,899.90	4.44	1.93	1.94	0.39	-0.22	-145.07
3,000.00	0.10	258.11	2,999.90	4.47	1.91	1.91	0.19	0.01	-155.14
3,100.00	0.14	159.06	3,099.90	4.34	1.87	1.87	0.18	0.04	-99.05
3,200.00	0.13	286.80	3,199.90	4.25	1.81	1.81	0.24	-0.01	127.74
3,300.00	0.12	98.23	3,299.90	4.27	1.80	1.80	0.25	-0.01	171.43
3,400.00	0.13	348.40	3,399.90	4.37	1.88	1.88	0.20	0.01	-109.83
3,500.00	0.15	264.51	3,499.90	4.47	1.73	1.73	0.19	0.02	-83.89
3,600.00	0.24	332.56	3,599.90	4.64	1.50	1.50	0.23	0.09	68.05
3,700.00	0.59	303.81	3,699.90	5.11	0.98	0.98	0.40	0.35	-28.75
3,800.00	0.51	306.19	3,799.89	5.66	0.19	0.19	0.08	-0.08	2.38
3,900.00	0.81	24.23	3,899.89	6.57	0.12	0.12	0.86	0.30	78.04
4,000.00	0.71	352.72	3,999.88	7.83	0.33	0.34	0.42	-0.10	-31.51
4,118.00	0.73	16.48	4,117.87	9.27	0.45	0.46	0.25	0.02	20.14
Tie In to Phoenix Gyro Surveys									
4,349.00	2.20	84.50	4,348.80	11.11	5.28	5.29	0.88	0.64	29.45
First Phoenix MWD Survey									
4,392.00	8.70	94.40	4,391.58	10.94	9.35	9.36	15.22	15.12	23.02
4,434.00	15.10	92.00	4,432.66	10.51	18.00	18.00	15.28	15.24	-5.71
4,477.00	21.50	92.00	4,473.46	10.03	31.48	31.49	14.88	14.88	0.00
4,520.00	27.00	94.80	4,512.66	8.94	49.10	49.10	13.06	12.79	6.51
4,562.00	32.30	97.10	4,549.14	6.76	69.75	69.75	12.90	12.62	5.48
4,605.00	36.90	98.70	4,584.53	3.38	93.92	93.93	10.90	10.70	3.72
4,648.00	41.20	98.50	4,617.92	-0.67	120.70	120.70	10.00	10.00	-0.47
4,690.00	45.30	99.30	4,648.50	-5.13	149.13	149.13	9.85	9.76	1.90

Company:	Apache Corporation	Local Co-ordinate Reference:	Well #23H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3733.00usft (Capstar 114)
Site:	Raven Federal	MD Reference:	KB @ 3733.00usft (Capstar 114)
Well:	#23H	North Reference:	Grid
Wellbore:	OH / Job #1514630	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)
4,733.00	49.90	99.50	4,677.49	-10.31	180.45	180.44	10.70	10.70	0.47
4,776.00	54.10	98.70	4,703.96	-15.66	213.90	213.89	9.88	9.77	-1.86
4,818.00	59.00	97.80	4,727.10	-20.68	248.57	248.56	11.80	11.67	-2.14
4,861.00	64.30	97.50	4,747.51	-25.72	286.06	286.05	12.34	12.33	-0.70
4,904.00	66.80	97.60	4,765.31	-30.86	324.86	324.85	5.82	5.81	0.23
4,946.00	70.60	98.80	4,780.56	-36.44	363.58	363.57	9.43	9.05	2.86
4,989.00	74.30	99.70	4,793.53	-43.04	404.04	404.03	8.83	8.60	2.09
5,032.00	80.30	99.70	4,802.98	-50.10	445.37	445.35	13.95	13.95	0.00
5,080.00	85.40	98.50	4,808.95	-57.63	492.38	492.36	10.91	10.63	-2.50
5,123.00	87.30	96.60	4,811.69	-63.27	534.92	534.90	6.24	4.42	-4.42
5,251.00	87.40	94.30	4,817.61	-75.41	662.20	662.17	1.80	0.08	-1.80
5,379.00	87.60	92.10	4,823.19	-82.55	789.87	789.84	1.72	0.16	-1.72
5,507.00	87.80	88.40	4,828.33	-83.10	917.74	917.71	2.89	0.16	-2.89
5,635.00	88.80	87.80	4,832.13	-78.86	1,045.61	1,045.58	0.91	0.78	-0.47
5,763.00	87.80	87.50	4,835.92	-73.62	1,173.45	1,173.42	0.82	-0.78	-0.23
5,891.00	87.70	87.10	4,840.95	-67.59	1,301.20	1,301.18	0.32	-0.08	-0.31
6,019.00	89.80	89.30	4,843.74	-63.57	1,429.10	1,429.07	2.38	1.64	1.72
6,147.00	90.30	91.10	4,843.63	-64.02	1,557.09	1,557.07	1.46	0.39	1.41
6,275.00	88.40	90.10	4,845.08	-65.36	1,685.07	1,685.04	1.68	-1.48	-0.78
6,399.00	86.30	88.70	4,850.81	-64.06	1,808.92	1,808.89	2.03	-1.69	-1.13
6,526.00	87.50	87.30	4,857.68	-59.64	1,935.65	1,935.63	1.45	0.94	-1.10
6,655.00	88.60	87.20	4,862.07	-53.45	2,064.42	2,064.40	0.86	0.85	-0.08
6,782.00	89.10	86.50	4,864.62	-46.48	2,191.20	2,191.19	0.68	0.39	-0.55
6,910.00	87.80	87.20	4,868.08	-39.44	2,318.96	2,318.95	1.15	-1.02	0.55
7,038.00	88.60	88.90	4,872.10	-35.09	2,446.82	2,446.81	1.47	0.63	1.33
7,167.00	89.30	89.00	4,874.47	-32.73	2,575.77	2,575.76	0.55	0.54	0.08
7,295.00	89.50	89.00	4,875.81	-30.49	2,703.75	2,703.74	0.16	0.16	0.00
7,422.00	89.20	88.50	4,877.25	-27.72	2,830.71	2,830.70	0.46	-0.24	-0.39
7,550.00	88.60	87.80	4,879.71	-23.59	2,958.62	2,958.61	0.72	-0.47	-0.55
7,678.00	88.30	88.30	4,883.17	-19.24	3,086.49	3,086.49	0.46	-0.23	0.39
7,806.00	87.50	87.70	4,887.86	-14.77	3,214.33	3,214.32	0.78	-0.63	-0.47
7,934.00	87.00	87.60	4,894.00	-9.53	3,342.07	3,342.07	0.40	-0.39	-0.08
8,062.00	88.00	88.30	4,899.58	-4.96	3,469.87	3,469.87	0.95	0.78	0.55
8,190.00	88.20	89.30	4,903.83	-2.28	3,597.77	3,597.77	0.80	0.16	0.78
8,319.00	88.50	89.30	4,907.54	-0.70	3,726.70	3,726.70	0.23	0.23	0.00
8,447.00	87.70	89.10	4,911.78	1.08	3,854.62	3,854.62	0.64	-0.63	-0.16
8,574.00	90.50	92.00	4,913.78	-0.14	3,981.57	3,981.57	3.17	2.20	2.28
8,701.00	88.70	90.90	4,914.67	-3.35	4,108.52	4,108.52	1.66	-1.42	-0.87
Final Phoenix MWD Survey									
8,765.00	88.70	90.90	4,916.12	-4.36	4,172.50	4,172.50	0.00	0.00	0.00
Projection to TD									

Company:	Apache Corporation	**Local Co-ordinate Reference:**	Well #23H
Project:	Eddy County, NM (NAD27 NME)	**TVD Reference:**	KB @ 3733.00usft (Capstar 114)
Site:	Raven Federal	**MD Reference:**	KB @ 3733.00usft (Capstar 114)
Well:	#23H	**North Reference:**	Grid
Wellbore:	OH / Job #1514630	**Survey Calculation Method:**	Minimum Curvature
Design:	Surveys (Capstar 114)	**Database:**	Compass 5000 GCR

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
4,118.00	4,117.87	9.27	0.45	Tie In to Phoenix Gyro Surveys
4,349.00	4,348.80	11.11	5.28	First Phoenix MWD Survey
8,701.00	4,914.67	-3.35	4,108.52	Final Phoenix MWD Survey
8,765.00	4,916.12	-4.36	4,172.50	Projection to TD

Checked By: _____ Approved By: _____ Date: _____

Apache
EXPLORING WHAT'S POSSIBLE

Project: Eddy County, NM (NAD27 NME)
Site: Raven Federal
Well: #23H
Wellbore: OH / Job #1514630
Design: Plan #4 11-21-15
Rig: Capstar 114

PHOENIX TECHNOLOGY SERVICES

Azimuths to Grid North
True North: -0.23°
Magnetic North: 7.42°

Magnetic Field
Strength: 48543.1nT
Dip Angle: 60.77°
Date: 10/26/2015
Model: HDGM

WELL DETAILS

Ground Level: 3722.00

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	672324.90	628585.80	32° 50' 51.37938 N	103° 54' 52.69761 W

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target	Annotation
1	4118.00	0.73	16.46	4117.87	9.27	0.45	0.00	0.00	0.46		Tie In to Phoenix Gyro Surveys
2	4347.50	0.73	16.46	4347.35	12.08	1.26	0.00	0.00	1.29		KOP, 12.00°/100' Build
3	5086.09	88.73	96.70	4823.84	-52.73	463.66	12.00	82.24	463.66		LP, Hold 88.73° Inc, 3.00°/100' Turn
4	5418.82	88.73	86.71	4831.23	-74.21	795.31	3.00	-90.10	795.28		Hold 86.71° Azm
5	8798.89	88.73	86.71	4906.00	1.70	4173.60	0.00	0.00	4173.60	BHL-Raven Fed #23H v2	TD at 8798.89' MD

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
BHL-Raven Fed #23H v2	4906.00 - plan hits target center	1.70	4173.60	672326.60	632759.20	32° 50' 51.22985 N	103° 54' 3.77507 W	Point

FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle	DipDir
287.00	287.00	Rustler		
466.00	466.01	T/Salt		
1334.00	1334.06	B/Salt		
1466.00	1466.05	Yates		
1742.00	1742.09	Seven Rivers		
2349.00	2349.10	Queen		
2746.00	2746.10	Greyburg		
3074.00	3074.10	San Andres		
4559.00	4566.59	Glorieta		
4905.00	4924.52	Yeso (Paddock)		
4924.00	5093.35	Paddock Landing		
4906.00	8798.89	Paddock Toe		

LEGEND

- #22H, OH / Job #1514540, Surveys (Capstar 114) V0
- #1, OH, Actual Surveys V0
- #14H, WB1, Plan #2 04-30-14 V0
- #13H, WB1, Plan #2 04-30-14 V0
- #11H, OH / Job #1310356, Surveys (Basic 44) V0
- #24H, OH, Plan #3 10-23-15 V0
- #19H, WB1/Job #1411705, Surveys (Capstar 114) V0
- #23H, OH / Job #1514630, Surveys (Capstar 114) V0
- #15H, WB1, Plan#2 04-30-14 V0
- #10H, OH / Job #1211217, Surveys (Basic 44) V0
- Plan #4 11-21-15

Map System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone Name: New Mexico East 2001

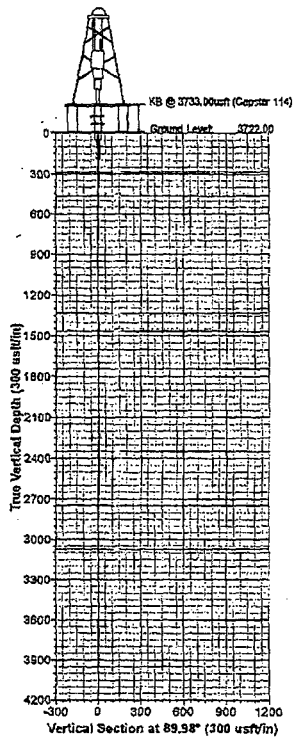
Local Origin: Well #23H, Grid North

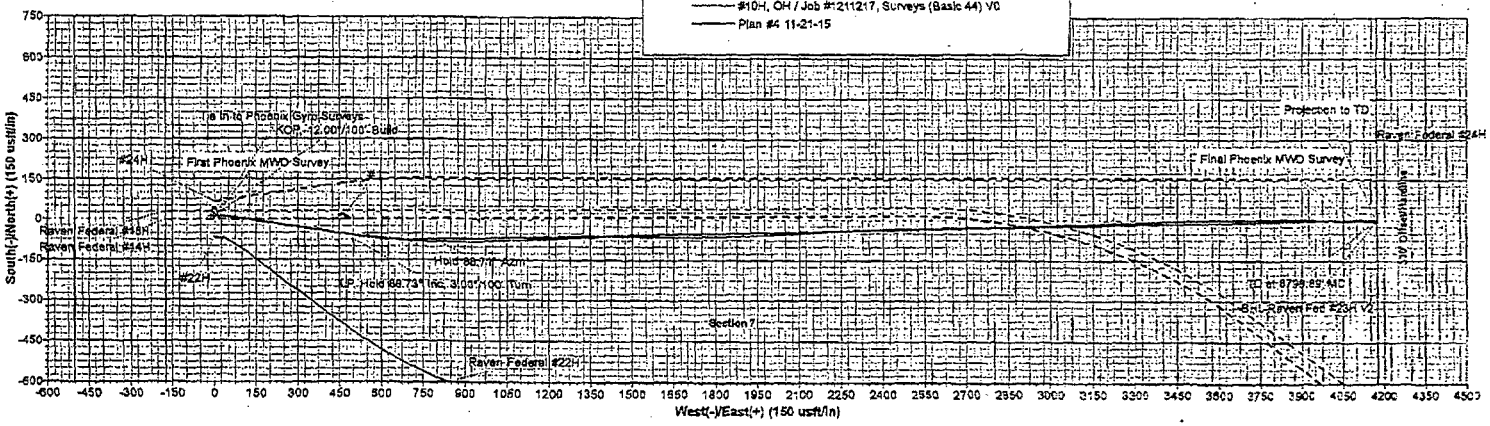
Latitude: 32° 50' 51.37938 N
Longitude: 103° 54' 52.69761 W

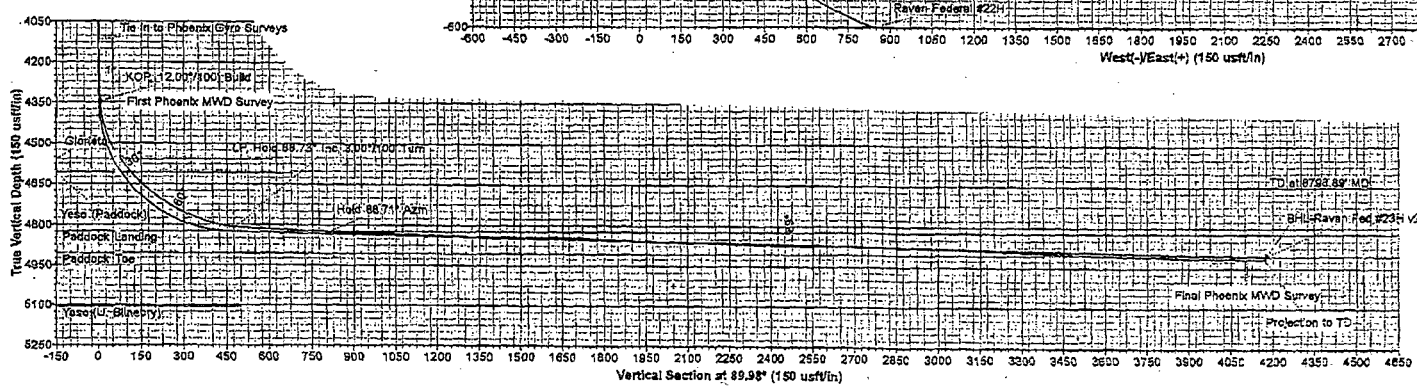
Grid East: 628585.80
Grid North: 672324.90
Scale Factor: 1.0000

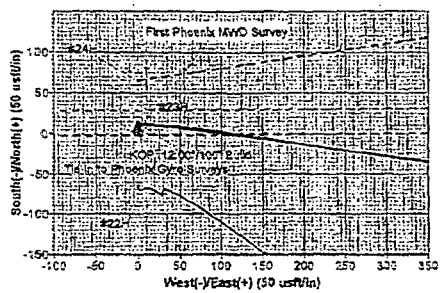
Geomagnetic Model: HDGM
Sample Date: 26-Oct-15
Magnetic Declination: 7.65°
Dip Angle from Horizontal: 60.77°
Magnetic Field Strength: 48543

To convert a Magnetic Direction to a Grid Direction, Add 7.42°
To convert a Magnetic Direction to a True Direction, Add 7.65° East
To convert a True Direction to a Grid Direction, Subtract 0.23°









Created By: Blanca LaCombe Date: 7:13, November 25 2015

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

NM OIL CONSERVATION
ARTESIA DISTRICT
AUG 29 2016
RECEIVED

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
30-015-43362	96831	Cedar Lake; Glorieta-Yeso

Property Code	Property Name	Well Number
315935	Cedar Lake Federal-CA	723H

OGRID No.	Operator Name	Elevation
873	APACHE CORPORATION	3722'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
L	7	17-S	31-E		2180	SOUTH	505	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
I	7	17-S	31-E		2147.5	SOUTH	331	EAST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
151.78			

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

GEODETIC COORDINATES
NAD 83 NME
SURFACE LOCATION
Y= 672388.9 N
X= 669764.3 E
LAT.=32.847723° N
LONG.=103.915146° W
LAT.=32°50'52" N
LONG.=103°54'55" W

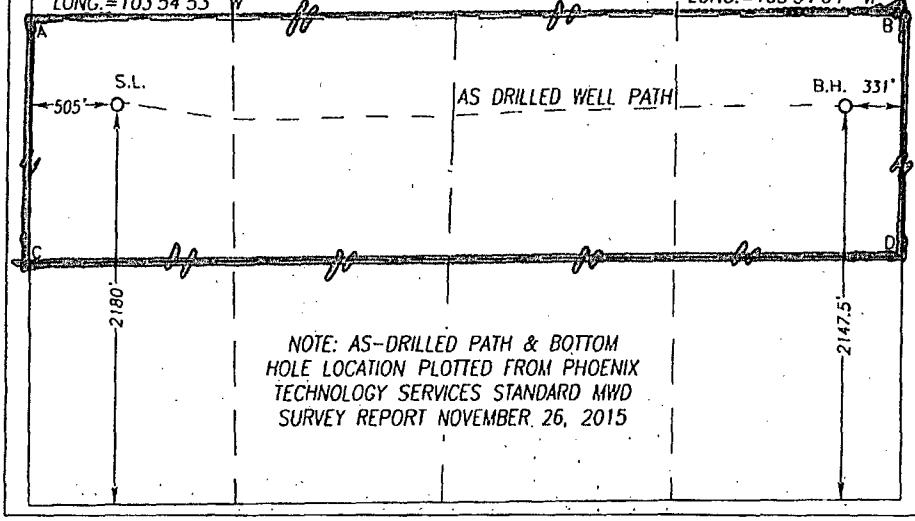
CORNER COORDINATES TABLE
NAD 83 NME
A - Y=672845.7 N, X=669257.9 E
B - Y=672878.9 N, X=674265.0 E
C - Y=671525.9 N, X=669262.1 E
D - Y=671559.1 N, X=674272.6 E

AS-DRILLED
BOTTOM HOLE LOCATION
NAD 83 NME
Y= 672384.5 N
X= 673936.8 E
LAT.=32.847664° N
LONG.=103.901559° W
LAT.=32°50'52" N
LONG.=103°54'06" W

GEODETIC COORDINATES
NAD 27 NME
SURFACE LOCATION
Y= 672324.9 N
X= 628585.6 E
LAT.=32.847606° N
LONG.=103.914638° W
LAT.=32°50'51" N
LONG.=103°54'53" W

CORNER COORDINATES TABLE
NAD 27 NME
A - Y=672781.8 N, X=628079.2 E
B - Y=672814.9 N, X=633086.4 E
C - Y=671462.0 N, X=628083.4 E
D - Y=671495.1 N, X=633093.9 E

AS-DRILLED
BOTTOM HOLE LOCATION
NAD 27 NME
Y= 672320.5 N
X= 632758.1 E
LAT.=32.847547° N
LONG.=103.901052° W
LAT.=32°50'51" N
LONG.=103°54'04" W



NOTE: AS-DRILLED PATH & BOTTOM HOLE LOCATION PLOTTED FROM PHOENIX TECHNOLOGY SERVICES STANDARD MWD SURVEY REPORT NOVEMBER 26, 2015

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 Date 7/25/16

Emily Follis
Printed Name

emily.follis@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.

NOVEMBER 13, 2014
Date of Survey

Signature & Seal of Professional Surveyor:

RONALD J. EIDSON NEW MEXICO 3239 REGISTERED PROFESSIONAL SURVEYOR

12/08/2015

Certificate Number: Gary G. Eidson 12641
Ronald J. Eidson 3239

LSL REL. W.O.: 15.13.1102 JWSC W.O.: 15.13.0012

1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Rd., Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals & Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

NM OIL CONSERVATION
ARTESIA DISTRICT
AUG 29 2016

RECEIVED

Form C-104
Revised August 1, 2011

Submit one copy to appropriate District Office

☐ AMENDED REPORT

I. REQUEST FOR ALLOWABLE AND AUTHORIZATION TO TRANSPORT

[1] Operator name and Address	[2] OGRID Number
Apache Corporation 303 Veterans Airpark Lane Suite 1000 Midland TX 79705	873
	[3] Reason for Filing Code/ Effective Date NW /07/18/16

[4] API Number	[5] Pool Name	[6] Pool Code
30-015-43362	CEDAR LAKE; GLORIETA-YESO	[96831]

[7] Property Code	[8] Property Name	[9] Well Number
[315935]	CEDAR LAKE FEDERAL CA	#723H

II. [10] Surface Location

Ul or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South Line	Feet from the	East/West line	County
L	7	17S	31E	3	2180	SOUTH	505	WEST	EDDY

[11] Bottom Hole Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
I	7	17S	31E		2147.5	SOUTH	331	EAST	EDDY

[12] Lse Code	[13] Producing Method Code	[14] Gas Connection Date	[15] C-129 Permit Number	[16] C-129 Effective Date	[17] C-129 Expiration Date
F	P	07/18/2016			

III. Oil and Gas Transporters

[18] Transporter OGRID	[19] Transporter Name and Address	[20] O/G/W
252293	Holly Energy Pipeline 311 W Quay / PO Box 1360 Artesia NM 88210	O
221115	Frontier Field Services LLC 4200 East Skelly Drive Suite 700 Tulsa OK 74135	G

IV. Well Completion Data

[21] Spud Date	[22] Ready Date	[23] TD	[24] PBTD	[25] Perforations	[26] DHC, MC
11/15/2015	07/18/2016	8765'	8765	5162-8745'	

[27] Hole Size	[28] Casing & Tubing Size	[29] Depth Set	[30] Sacks Cement
17.5	13.375 H40 48#	420'	725 sx Class C
12.25	9.625 J55 40#	3500'	1450 sx Class C
8.5	7 L80 29#/5.5 L80 20#	4315' - 8754'	580 sx Class C
TUBING	2-7/8" J55 6.50	4570'	

V. Well Test Data

[31] Date New Oil	[32] Gas Delivery Date	[33] Test Date	[34] Test Length	[35] Tbg. Pressure	[36] Csg. Pressure
07/18/2016	07/18/2016	07/23/16	24 hrs		
[37] Choke Size	**[38] Oil**	**[39] Water**	**[40] Gas**		**[41] Test Method**
	245	2121	273		P

[42] I hereby certify that the rules of the Oil Conservation Division have been complied with and that the information given above is true and complete to the best of my knowledge and belief.

Signature:

Printed name:
EMILY FOLLIS

Title:
Regulatory Analyst I

E-mail Address:
emily.follis@apachecorp.com

Date:
07/25//2016

Phone:
432-818-1801

OIL CONSERVATION DIVISION

Approved by:

Title:

Approval Date:

Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date:	5/5/2016
State:	New Mexico
County:	Eddy
API Number:	30-015-43362
Operator Name:	Apache
Well Name and Number:	Raven Federal Com 23H
Longitude:	-103.914638
Latitude:	32.847606
Long/Lat Projection:	NAD27
Production Type:	Oil
True Vertical Depth (TVD):	4,867
Total Water Volume (gal)*:	2,366,658

Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
FR-15	C&J	Friction Reducrer	Distillates (petroleum), Hydrotreated lig	64742-47-8	60.00%	0.01336%	
			Polyacrylamide Copolymer	Proprietary	40.00%	0.00891%	
			Surfractant Blend	Proprietary	6.00%	0.00134%	
CI-2	C&J	Corrosion Inhibitor	Methanol	67-56-1	80.00%	0.00000%	
			Fatty Acids	Proprietary	10.00%	0.00000%	
ICA-1	C&J	Iron Control Agent	Trisodium Nitrilotriacetate	5064-31-3	50.00%	0.00824%	
AP-Scale-2	SNF Inc.	Parafin and Scale Additiv	Calcium Chloride	10043-52-4	25.00%	0.00078%	
CI-3	C&J	Corrosion Inhibitor	Ethylene Glycol	107-21-1	40.00%	0.01172%	
			Dimethylformamide	68-12-2	20.00%	0.00586%	
			2-butoxyethanol	111-76-2	15.00%	0.00440%	
			Cinnamaldehyde	104-55-2	15.00%	0.00440%	
			Tar Bases, Quinoline Dervis., Benzyl C	72480-70-7	15.00%	0.00440%	
			1-decanol	112-30-1	5.00%	0.00147%	
			4-nonylphenol, Branched, Ethoxylated	127087-87-0	5.00%	0.00147%	
			1-octanol	111-87-5	2.50%	0.00073%	
			Isopropanol	67-63-0	2.50%	0.00073%	
			Triethyl Phosphate	78-40-0	2.50%	0.00073%	
CS-1	C&J	Clay Stabilizer	Choline Chloride	67-48-1	80.00%	0.00961%	
Aqucar 742	DOW Chemic	Biocidal Product	Glutaraldehyde	111-30-8	42.00%	0.00367%	
			Water	7732-18-5	48.60%	0.00424%	
			Quaternary ammonium compounds, be	68424-85-1	7.50%	0.00066%	
			Ethanol	64-27-5	1.00%	0.00009%	
Ap-Surf-2A	Blentech Corp	Surfractant	Isopropyl Alcohol	67-63-0	45.00%	0.01537%	
HC-15	C&J	Acidizing	Hydrochloric Acid	7647-01-0	15.00%	0.67147%	
100 Mesh	C&J	Proppant	Silica - Crystalline, Quartz	14080-60-7	99.90%	5.86010%	
			Aluminum Oxide	1344-28-1	1.10%	0.06453%	
			Iron Oxide	1309-37-1	0.10%	0.00587%	
			Titanium Dioxide	13463-67-7	0.10%	0.00587%	
40/70 White	C&J	Proppant	Silica - Crystalline, Quartz	14080-60-7	99.90%	2.92513%	
			Aluminum Oxide	1344-28-1	1.10%	0.03221%	
			Iron Oxide	1309-37-1	0.10%	0.00293%	
			Titanium Dioxide	13463-67-7	0.10%	0.00293%	
40/70 Innoprop PLT	US Silica	Proppant	Silica - Crystalline, Quartz	14080-60-7	98.00%	2.83729%	

...ydraulic Fracturing Fluid Composition:

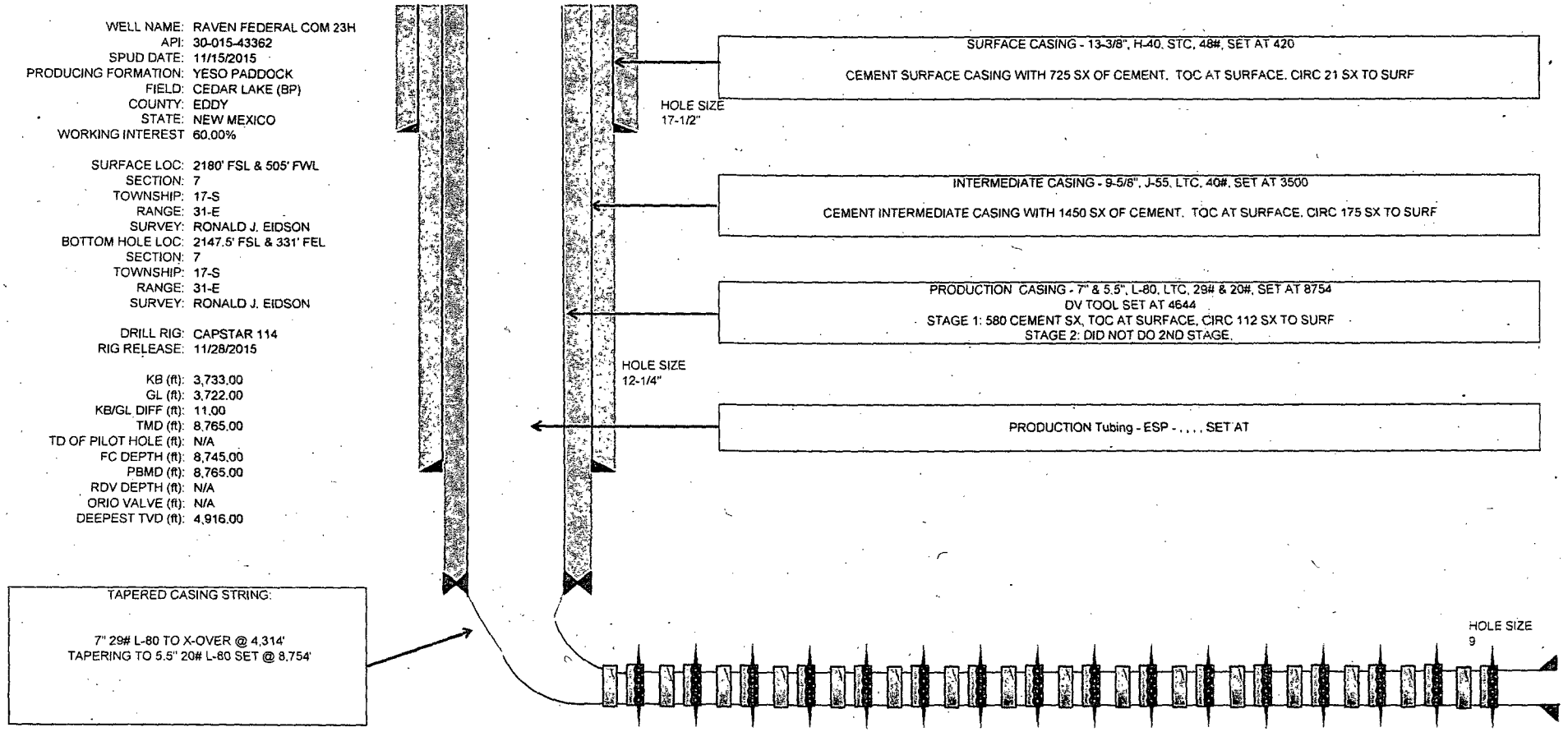
Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
			Polyurethane Resin (cured)	9016-87-9	5.00%	0.14500%	
Water	Apache	Carrier/Base Fluid	Water	7732-18-5	100.00%	83.70822%	

* Total Water Volume sources may include fresh water, produced water, and/or recycled water

** Information is based on the maximum potential for concentration and thus the total may be over 100%

All component information listed was obtained from the supplier's Material Safety Data Sheets (MSDS). As such, the Operator is not responsible for inaccurate and/or incomplete information. Any questions regarding the content of the MSDS should be directed to the supplier who provided it. The Occupational Safety and Health Administration's (OSHA) regulations govern the criteria for the disclosure of this information. Please note that Federal Law protects "proprietary", "trade secret", and "confidential business information" and the criteria for how this information is reported on an MSDS is subject to 29 CFR 1910.1200(i) and Appendix D.

WELL NAME:	RAVEN FEDERAL COM 23H
API:	30-015-43362
SPUD DATE:	11/15/2015
PRODUCING FORMATION:	YESO PADDOCK
FIELD:	CEDAR LAKE (BP)
COUNTY:	EDDY
STATE:	NEW MEXICO
WORKING INTEREST	60.00%
SURFACE LOC:	2180' FSL & 505' FWL
SECTION:	7
TOWNSHIP:	17-S
RANGE:	31-E
SURVEY:	RONALD J. EIDSON
BOTTOM HOLE LOC:	2147.5' FSL & 331' FEL
SECTION:	7
TOWNSHIP:	17-S
RANGE:	31-E
SURVEY:	RONALD J. EIDSON
DRILL RIG:	CAPSTAR 114
RIG RELEASE:	11/28/2015
KB (ft):	3,733.00
GL (ft):	3,722.00
KB/GL DIFF (ft):	11.00
TMD (ft):	8,765.00
TD OF PILOT HOLE (ft):	N/A
FC DEPTH (ft):	8,745.00
PBMD (ft):	8,765.00
RDV DEPTH (ft):	N/A
ORIO VALVE (ft):	N/A
DEEPEST TVD (ft):	4,916.00



KOP (ft):	4,346	**PACKERS & SLEEVES**		TMD (ft):	8,765
LATERAL LENGTH (ft):	3,603	TOP PERF (MD):	5,162	FC DEPTH (ft):	8,745
TD OF PILOT HOLE (ft):	N/A	BOTTOM PERF (MD):	8,745	PBMD (ft):	8,765
				RDV DEPTH (ft):	N/A
				ORIO VALVE (ft):	N/A

COMPLETION: PACKERS & SLEEVES - 14 STAGES

STIMULATON:

TOTAL ACID (bbl)	TOTAL LTR (bbl)	TOTAL PROPPANT (lbs)	MAX WH RATE (bpm)	MAX WH PRESSURE (psi)
2,501	56,345	2,633,775	92.90	5,819

STATUS:

PRODUCTION METHOD	LIFT TYPE	SETTING DEPTH
Pumping	ESP	0

COMMENTS: CROSSOVER SUB @ 4,314'

LAST UPDATED BY: HILLARI GOULD
LAST UPDATED: 4/28/2016