NM OIL CONSERVATION
OCD Artesia DISTRICT
JUN 11 2015
RECEIVED

Form 3160-4
(August 2007)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB No. 1004-0137
Expires: July 31, 2010

WELL COMPLETION OR RECOMPLETION REPORT AND LOG

5. Lease Serial No. NMLC029395A

1a. Type of Well ☒ Oil Well ☐ Gas Well ☐ Dry ☐ Other
b. Type of Completion ☒ New Well ☐ Work Over ☐ Deepen ☐ Plug Back ☐ Diff. Resvr.
Other

6. If Indian, Allottee or Tribe Name

7. Unit or CA Agreement Name and No.

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

8. Lease Name and Well No.: TONY FEDERAL 54

3. Address: 303 VETERANS AIRPARK LANE SUITE 1000, MIDLAND, TX 79705

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

9. API Well No.: 30-015-42000

4. Location of Well (Report location clearly and in accordance with Federal requirements)*
At surface: NENW Lot C 295FNL 1140FWL Sec 19 T17S R31E Mer
At top prod interval reported below: Sec 19 T17S R31E Mer
At total depth: NESE Lot I 330FNL 990FWL

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

11. Sec., T., R., M., or Block and Survey or Area: Sec 19 T17S R31E Mer

12. County or Parish: EDDY COUNTY

13. State: NM

14. Date Spudded: 04/26/2014

15. Date T.D. Reached: 05/06/2014

16. Date Completed: ☐ D & A ☒ Ready to Prod. 06/10/2014

17. Elevations (DF, KB, RT, GL)*: 3714 GL

18. Total Depth: MD 6412 TVD

19. Plug Back T.D.: MD 6390 TVD

20. Depth Bridge Plug Set: MD TVD

21. Type Electric & Other Mechanical Logs Run (Submit copy of each)
SPEC GR:DENSITY:NUETRON:DUAL LL/MSFL:SONIC:CALIPER

22. Was well cored? ☒ No ☐ Yes (Submit analysis)
Was DST run? ☒ No ☐ Yes (Submit analysis)
Directional Survey? ☐ No ☒ Yes (Submit analysis)

23. Casing and Liner Record *(Report all strings set in well)*

Hole Size	Size/Grade	Wt. (#/ft.)	Top (MD)	Bottom (MD)	Stage Cementer Depth	No. of Sks. & Type of Cement	Slurry Vol. (BBL)	Cement Top*	Amount Pulled
17.500	13.375 H-40	48.0	0	327 287	287	900			
11.000	8.625 J-55	32.0	0	3508		1210			
7.875	5.500 J-55	17.0	0	6410		950			

24. Tubing Record

Size	Depth Set (MD)	Packer Depth (MD)	Size	Depth Set (MD)	Packer Depth (MD)	Size	Depth Set (MD)	Packer Depth (MD)
2.875	6345							

25. Producing Intervals / 26. Perforation Record

Formation	Top	Bottom	Perforated Interval	Size	No. Holes	Perf. Status
A) LOWER BLINEBREY	5730	6290	4570 TO 5029		27	PRODUCING
B) UPPER BLINEBREY	5091	5660	5091 TO 5660		25	PRODUCING
C) PADDOCK/GLORIETA	4570	5029	5730 TO 6290		23	PRODUCING
D)						

27. Acid, Fracture, Treatment, Cement Squeeze, Etc.

Depth Interval	Amount and Type of Material
4570 TO 6290	ACID 313BBL, 10%GEL 304BBL, 20% GEL 12,636 BBL, 16/30 PROPPANT #651,598

28. Production - Interval A

Date First Produced	Test Date	Hours Tested	Test Production	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity	Production Method
06/14/2014	06/21/2014	24	→	110.0	296.0	220.0	38.0		ELECTRIC PUMPING UNIT

Choke Size	Tbg. Press. Flwg. SI	Csg. Press.	24 Hr. Rate	Oil BBL	Gas MCF	Water BBL	Gas:Oil Ratio	Well Status
			→				2691	POW

28a. Production - Interval B

Date First Produced	Test Date	Hours Tested	Test Production	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity	Production Method
			→						

Choke Size	Tbg. Press. Flwg. SI	Csg. Press.	24 Hr. Rate	Oil BBL	Gas MCF	Water BBL	Gas:Oil Ratio	Well Status
			→					

ACCEPTED FOR RECORD
JUN 2 2015
BUREAU OF LAND MANAGEMENT
CARLSBAD FIELD OFFICE

(See Instructions and spaces for additional data on reverse side)
ELECTRONIC SUBMISSION #288218 VERIFIED BY THE BLM WELL INFORMATION SYSTEM
**** OPERATOR-SUBMITTED ** OPERATOR-SUBMITTED ** OPERATOR-SUBMITTED ****

Reclamation
Date: 12/21/14

28b. Production - Interval C

Date First Produced	Test Date	Hours Tested	Test Production →	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity	Production Method

Choke Size	Tbg. Press. Flwg. SI	Csg. Press.	24 Hr. Rate →	Oil BBL	Gas MCF	Water BBL	Gas:Oil Ratio	Well Status

28c. Production - Interval D

Date First Produced	Test Date	Hours Tested	Test Production →	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity	Production Method

Choke Size	Tbg. Press. Flwg. SI	Csg. Press.	24 Hr. Rate →	Oil BBL	Gas MCF	Water BBL	Gas:Oil Ratio	Well Status

29. Disposition of Gas *(Sold, used for fuel, vented, etc.)*
SOLD

30. Summary of Porous Zones (Include Aquifers):

Show all important zones of porosity and contents thereof: Cored intervals and all drill-stem tests, including depth interval tested, cushion used, time tool open, flowing and shut-in pressures and recoveries.

31. Formation (Log) Markers

Formation	Top	Bottom	Descriptions, Contents, etc.	Name	Top Meas. Depth
RUSTLER	247	406	SANDSTONE/ANHYDRITE	RUSTLER	247
TANSIL SALT	406	1254	SALT	TANSIL SALT	406
BOTTOM SALT	1254	1414	SALT	BOTTOM SALT	1254
YATES	1414	1722	SANDSTONE	YATES	1414
SEVEN RIVERS	1722	2333	SANDSTONE/CARBONATE	SEVEN RIVERS	1722
QUEEN	2333	3066	SANDSTONE/CARBONATE	QUEEN	2333
SAN ANDRES	3066	4553	CARBONATE	SAN ANDRES	3066
GLORIETA	4553	4630	SANDSTONE	GLORIETA	4553

32. Additional remarks (include plugging procedure):
PADDOCK 4630 - 5097 DOLOMITE
BLINEBRY 5097 - 6151 DOLOMITE
TUBB 6151 - TD SANDSTONE

33. Circle enclosed attachments:

1. Electrical/Mechanical Logs (1 full set req'd.)
2. Geologic Report
3. DST Report
4. Directional Survey
5. Sundry Notice for plugging and cement verification
6. Core Analysis
7. Other:

34. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records (see attached instructions):

Electronic Submission #288218 Verified by the BLM Well Information System.
For APACHE CORPORATION, sent to the Carlsbad
Committed to AFMSS for processing by DEBORAH HAM on 05/12/2015 ()

Name *(please print)* EMILY FOLLIS Title REGULATORY ANALYST I

Signature (Electronic Submission) Date 01/15/2015

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 fradulent statements or representations as to any matter within its jurisdiction.

**** ORIGINAL ** ORIGINAL ** ORIGINAL ** ORIGINAL ** ORIGINAL ** ORIGINAL ** ORIGINAL ****

Apache Corporation
303 Veterans Airpark Lane, #3000
Midland, TX 79705

API #30-015-42000

UL C Sec 19 T17S, R31E 295' FNL & 1140' FWL

Tony Federal #054
Eddy County, New Mexico

226	2.26	0.50	0.88	1.98	1.98
327	1.01	1.00	1.75	1.77	3.75

NM OIL CONSERVATION
ARTESIA DISTRICT
JUN 11 2015
RECEIVED

Archie Brown - General Manager

The attached instrument was acknowledged before me on the 12th day of May, 2014 by Archie Brown - General Manager, CapStar Drilling, Inc.

Notary Public

JACKI ANN ZENT
Notary Public, State of Texas
My Commission Expires
March 03, 2015

Apache
EXPLORING WHAT'S POSSIBLE

Apache Corporation

Eddy County, NM (NAD27 NME)
Tony Federal
#54

WB1/Job #1410679

Design: Surveys (Capstar 114)

Standard Survey Report

08 May, 2014

PHOENIX
TECHNOLOGY SERVICES

Phoenix Technology Services

Survey Report

Company:	Apache Corporation	**Local Co-ordinate Reference:**	Well #54
Project:	Eddy County, NM (NAD27 NME)	**TVD Reference:**	KB @ 3725.00usft (Capstar 114)
Site:	Tony Federal	**MD Reference:**	KB @ 3725.00usft (Capstar 114)
Well:	#54	**North Reference:**	Grid
Wellbore:	WB1/Job #1410679	**Survey Calculation Method:**	Minimum Curvature
Design:	Surveys (Capstar 114)	**Database:**	GCR DB

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 Tony Federal

Site Position:		**Northing:**	666,516.20 usft	**Latitude:**	32° 49' 53.88921 N
From:	Map	**Easting:**	628,898.80 usft	**Longitude:**	103° 54' 49.29676 W
Position Uncertainty:	0.00 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.23 °

Well #54

Well Position	**+N/-S**	0.00 usft	**Northing:**	664,573.80 usft	**Latitude:**	32° 49' 34.65525 N
	+E/-W	0.00 usft	**Easting:**	629,244.90 usft	**Longitude:**	103° 54' 45.33116 W
Position Uncertainty		0.00 usft	**Wellhead Elevation:**	usft	**Ground Level:**	3,714.00 usft

Wellbore WB1/Job #1410679

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2013	04/15/14	7.56	60.60	48,631

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	256.52

Survey Program **Date** 05/08/14

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.00	200.00	Gyro Surveys (WB1/Job #1410679)	NS-GYRO-MS	North sensing gyrocompassing m/s
300.00	6,410.00	Phoenix MWD Surveys (WB1/Job #14106	MWD	MWD - Standard

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	0.45	30.88	100.00	0.34	0.20	-0.27	0.45	0.45	0.00
200.00	0.95	21.50	199.99	1.45	0.71	-1.02	0.51	0.50	-9.38
300.00	1.96	25.27	299.96	3.76	1.74	-2.57	1.01	1.01	3.77
Tie In to Gyro Surveys									
377.00	2.10	28.90	376.91	6.19	2.98	-4.35	0.25	0.18	4.71
First Phoenix MWD Survey									
465.00	1.30	20.90	464.87	8.53	4.12	-6.00	0.95	-0.91	-9.09
550.00	0.70	15.10	549.86	9.94	4.60	-6.79	0.71	-0.71	-6.82

Company:	Apache Corporation	**Local Co-ordinate Reference:**	Well #54
Project:	Eddy County, NM (NAD27 NME)	**TVD Reference:**	KB @ 3725.00usft (Capstar 114)
Site:	Tony Federal	**MD Reference:**	KB @ 3725.00usft (Capstar 114)
Well:	#54	**North Reference:**	Grid
Wellbore:	WB1/Job #1410679	**Survey Calculation Method:**	Minimum Curvature
Design:	Surveys (Capstar 114)	**Database:**	GCR DB

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)
681.00	0.70	11.00	680.85	11.49	4.96	-7.50	0.04	0.00	-3.13
810.00	1.00	22.10	809.83	13.31	5.53	-8.48	0.26	0.23	8.60
938.00	0.70	344.90	937.82	15.10	5.75	-9.11	0.48	-0.23	-29.06
1,067.00	1.00	289.00	1,066.81	16.23	4.48	-8.14	0.65	0.23	-43.33
1,195.00	1.10	283.80	1,194.79	16.88	2.23	-6.11	0.11	0.08	-4.06
1,323.00	1.70	253.00	1,322.75	16.62	-0.78	-3.12	0.74	0.47	-24.06
1,452.00	1.80	251.10	1,451.69	15.41	-4.52	0.81	0.09	0.08	-1.47
1,580.00	1.80	251.60	1,579.63	14.12	-8.33	4.81	0.01	0.00	0.39
1,708.00	2.10	249.30	1,707.55	12.66	-12.43	9.14	0.24	0.23	-1.80
1,835.00	2.40	250.30	1,834.45	10.94	-17.11	14.09	0.24	0.24	0.79
1,964.00	2.60	253.50	1,963.33	9.20	-22.46	19.70	0.19	0.16	2.48
2,092.00	2.70	259.00	2,091.19	7.80	-28.21	25.61	0.21	0.08	4.30
2,220.00	2.30	254.80	2,219.07	6.55	-33.64	31.19	0.34	-0.31	-3.28
2,349.00	2.10	242.40	2,347.98	4.77	-38.24	36.07	0.40	-0.16	-9.61
2,477.00	1.60	234.80	2,475.91	2.66	-41.78	40.00	0.43	-0.39	-5.94
2,608.00	1.90	237.50	2,606.85	0.44	-45.10	43.76	0.24	0.23	2.06
2,737.00	1.50	236.50	2,735.79	-1.64	-48.31	47.37	0.31	-0.31	-0.78
2,868.00	1.40	232.10	2,866.75	-3.57	-51.01	50.43	0.11	-0.08	-3.36
2,996.00	1.40	230.90	2,994.71	-5.52	-53.45	53.27	0.02	0.00	-0.94
3,125.00	1.60	233.70	3,123.67	-7.58	-56.13	56.35	0.17	0.16	2.17
3,253.00	1.50	233.60	3,251.62	-9.63	-58.92	59.54	0.08	-0.08	-0.08
3,382.00	2.20	226.40	3,380.55	-12.34	-62.07	63.23	0.57	0.54	-5.58
3,453.00	2.40	225.70	3,451.50	-14.32	-64.12	65.69	0.28	0.28	-0.99
3,554.00	2.30	228.10	3,552.41	-17.15	-67.14	69.29	0.14	-0.10	2.38
3,685.00	2.10	282.00	3,683.33	-18.41	-71.45	73.77	1.53	-0.15	41.15
3,813.00	1.60	275.60	3,811.26	-17.75	-75.52	77.57	0.42	-0.39	-5.00
3,942.00	1.60	232.90	3,940.21	-18.66	-78.75	80.93	0.90	0.00	-33.10
4,070.00	1.60	236.00	4,068.16	-20.73	-81.65	84.24	0.07	0.00	2.42
4,198.00	1.60	239.90	4,196.11	-22.63	-84.68	87.62	0.09	0.00	3.05
4,326.00	1.50	240.10	4,324.07	-24.36	-87.68	90.94	0.08	-0.08	0.16
4,454.00	1.60	275.80	4,452.02	-25.01	-90.91	94.24	0.75	0.08	27.89
4,583.00	1.80	274.30	4,580.97	-24.68	-94.72	97.87	0.16	0.16	-1.16
4,711.00	1.50	277.20	4,708.91	-24.32	-98.39	101.35	0.24	-0.23	2.27
4,839.00	2.20	292.10	4,836.85	-23.19	-102.33	104.91	0.66	0.55	11.64
4,967.00	2.20	292.20	4,964.75	-21.33	-106.88	108.91	0.00	0.00	0.08
5,095.00	2.20	268.70	5,092.66	-20.46	-111.61	113.30	0.70	0.00	-18.36
5,223.00	2.20	263.60	5,220.57	-20.79	-116.51	118.14	0.15	0.00	-3.98
5,351.00	1.70	238.20	5,348.49	-22.06	-120.56	122.38	0.77	-0.39	-19.84
5,480.00	1.80	238.00	5,477.43	-24.15	-123.91	126.12	0.08	0.08	-0.16
5,608.00	1.90	242.00	5,605.37	-26.21	-127.48	130.08	0.13	0.08	3.13
5,736.00	2.00	243.60	5,733.29	-28.20	-131.36	134.31	0.09	0.08	1.25
5,865.00	1.80	241.70	5,862.22	-30.16	-135.16	138.47	0.16	-0.16	-1.47
5,993.00	1.90	239.70	5,990.16	-32.18	-138.76	142.44	0.09	0.08	-1.56

Phoenix Technology Services

Survey Report

Company:	Apache Corporation	**Local Co-ordinate Reference:**	Well #54
Project:	Eddy County, NM (NAD27 NME)	**TVD Reference:**	KB @ 3725.00usft (Capstar 114)
Site:	Tony Federal	**MD Reference:**	KB @ 3725.00usft (Capstar 114)
Well:	#54	**North Reference:**	Grid
Wellbore:	WB1/Job #1410679	**Survey Calculation Method:**	Minimum Curvature
Design:	Surveys (Capstar 114)	**Database:**	GCR DB

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)
6,121.00	1.80	243.80	6,118.09	-34.14	-142.40	146.43	0.13	-0.08	3.20
6,250.00	1.90	244.10	6,247.02	-35.97	-146.14	150.50	0.08	0.08	0.23
6,358.00	1.80	250.90	6,354.97	-37.31	-149.35	153.93	0.22	-0.09	6.30
Last Phoenix MWD Survey									
6,410.00	1.80	250.90	6,406.94	-37.84	-150.89	155.56	0.00	0.00	0.00
Projection to TD									

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
300.00	299.96	3.76	1.74	Tie In to Gyro Surveys
377.00	376.91	6.19	2.98	First Phoenix MWD Survey
6,358.00	6,354.97	-37.31	-149.35	Last Phoenix MWD Survey
6,410.00	6,406.94	-37.84	-150.89	Projection to TD

Checked By: _____ Approved By: _____ Date: _____

NM OIL CONSERVATION
ARTESIA DISTRICT
JUN 11 2015
RECEIVED

DISTRICT I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
DISTRICT II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
DISTRICT III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

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

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
30-015-42000	96831	CEDAR LAKE; GLORIETA-YESO

Property Code	Property Name	Well Number
308738	TONY FEDERAL	54

OGRID No.	Operator Name	Elevation
873	APACHE CORPORATION	3714'

Surface Location

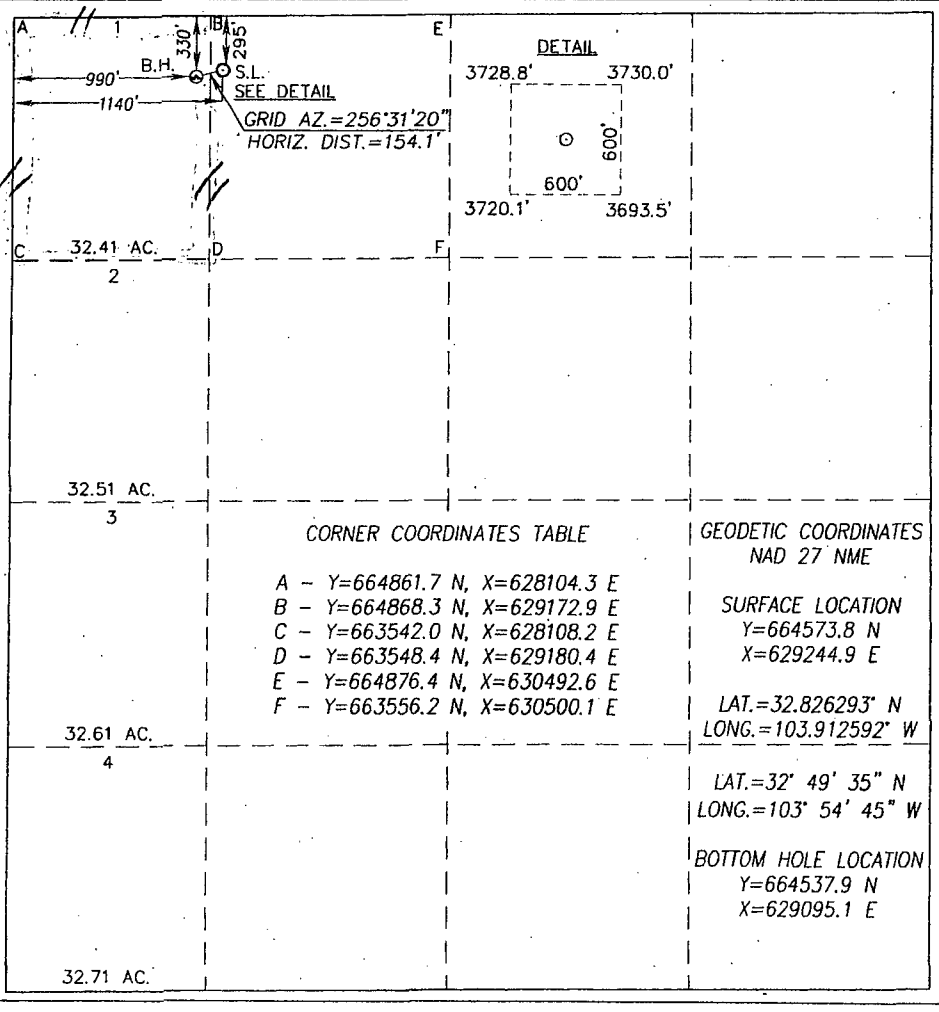
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
C	19	17-S	31-E		295	NORTH	1140	WEST	EDDY

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
1	19	17-S	31-E		330	NORTH	990	WEST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
32.41			

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

A - Y=664861.7 N, X=628104.3 E
B - Y=664868.3 N, X=629172.9 E
C - Y=663542.0 N, X=628108.2 E
D - Y=663548.4 N, X=629180.4 E
E - Y=664876.4 N, X=630492.6 E
F - Y=663556.2 N, X=630500.1 E

GEODETIC COORDINATES
NAD 27 NME

SURFACE LOCATION
Y=664573.8 N
X=629244.9 E

LAT.=32.826293° N
LONG.=103.912592° W

LAT.=32° 49' 35" N
LONG.=103° 54' 45" W

BOTTOM HOLE LOCATION
Y=664537.9 N
X=629095.1 E

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.

Emily Follis 1/12/15
Signature Date

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.

MAY 31, 2012
Date of Survey

Signature & Seal of Professional Surveyor:

GARY G. EIDSON
NEW MEXICO
12641
REGISTERED PROFESSIONAL SURVEYOR
6/5/14

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

AF/ACK REV 1 6/4/14 JWSC W.O.: 12.11.0597

Hydraulic Fracturing Fluid Product Component Information Disclosure

Last Fracture Date:	05/29/2014
State:	New Mexico
County:	Eddy
API Number:	30-015-42000-0000
Operator Name:	Apache Corp
Well Name and Number:	Tony Federal 54
Longitude:	-103.91447
Latitude:	32.82663
Long/Lat Projection:	
Production Type:	Oil
True Vertical Depth (TVD):	6,290
Total Water Volume (gal)*:	514,836

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
Water	Operator	Carrier	Water	7732-18-5	100.00%	84.47732%	
HCl, 10.1 - 15%	Baker Hughes	Acidizing	Hydrochloric Acid	7647-01-0	15.00%	0.25716%	SmartCare Product
Activator, 330 gal tote	Baker Hughes	Activator	Alcohols, C12-14-Secondary, Ethoxylated	84133-50-6	70.00%	0.02937%	
			Methanol	67-56-1	50.00%	0.02098%	
			Polyethylene glycol	25322-68-3	5.00%	0.00210%	
Alpha 125	Baker Hughes	Biocide	Glutaraldehyde	111-30-8	30.00%	0.00711%	SmartCare Product
GBW-5	Baker Hughes	Breaker	Ammonium Persulphate	7727-54-0	100.00%	0.00138%	SmartCare Product
GBW-15L	Baker Hughes	Breaker	Enzyme solution	Trade Secret	100.00%	0.03971%	SmartCare Product
ClayCare	Baker Hughes	Clay Control	Choline Chloride	67-48-1	75.00%	0.03417%	SmartCare Product
			Water	7732-18-5	30.00%	0.01367%	
CI-14	Baker Hughes	Corrosion Inhibitor	Fatty Acids	Trade Secret	10.00%	0.00031%	SmartCare Product
			Methanol	67-56-1	100.00%	0.00314%	
			Olefin	Trade Secret	5.00%	0.00016%	
			Polyoxyalkylenes	Trade Secret	30.00%	0.00094%	
			Propargyl Alcohol	107-19-7	5.00%	0.00016%	
XLW-10A	Baker Hughes	Crosslinker	Ethylene Glycol	107-21-1	25.00%	0.03384%	
			Sodium Hydroxide	1310-73-2	9.00%	0.01218%	
			Sodium Tetraborate	1330-43-4	12.00%	0.01624%	

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
GW-4LDF	Baker Hughes	Gelling Agent	Guar Gum	9000-30-0	60.00%	0.30510%	SmartCare Product
			Hydrotreated Light Distillate	64742-47-8	30.00%	0.15255%	
			Mineral Oil	8042-47-5	70.00%	0.35595%	
			Paraffinic Petroleum Distillate	64742-55-8	30.00%	0.15255%	
Ferrotrol 280L	Baker Hughes	Iron Control	2-Mercaptoethanol	60-24-2	100.00%	0.00705%	
			Ammonium Hydroxide	1336-21-6	5.00%	0.00035%	
			Cupric Chloride	7447-39-4	5.00%	0.00035%	
NE-35, 330 gl tote	Baker Hughes	Non-emulsifier	Propylene Glycol	57-55-6	15.00%	0.01315%	
Sand, Brown, 16/30	Baker Hughes	Proppant	Crystalline Silica (Quartz)	14808-60-7	100.00%	10.10526%	
SiberProp, 16/30	Baker Hughes	Proppant	Quartz (SiO2)	14808-60-7	100.00%	2.23798%	
InFlo 250G, 330 gl tote	Baker Hughes	Surfactant	Methanol	67-56-1	30.00%	0.02437%	
			Mixture of Surfactants	Trade Secret	50.00%	0.04061%	
			Water	7732-18-5	30.00%	0.02437%	
Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.							
			Benzenesulfonic acid, hexadecyl(sulfophenoxy)-, disodium salt	Trade Secret		0.0017538443%	
			Formaldehyde	50-00-0		0.0000313892%	
			Hydrochloric Acid	7647-01-0		0.0000313892%	
			Methanol	67-56-1		0.0000592164%	
			Modified Thiourea Polymer	68527-49-1		0.0002197245%	
			Nonionic glycol ester	Trade Secret		0.0219230535%	
			Sodium lauriminodipropionate	Trade Secret		0.0008769221%	
			Sodium octylimodlpropionate	Trade Secret		0.0026307664%	
			Water	7732-18-5		1.5327322282%	

* 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.