

DATE <u>4/29/2014</u>	SUSPENSE	ENGINEER	LOGGED IN <u>4/29/2014</u>	TYPE <u>NSL</u>	APP NO. <u>PMAM1411943845</u>
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ABOVE THIS LINE FOR DIVISION USE ONLY

NEW MEXICO OIL CONSERVATION DIVISION

- Engineering Bureau -

1220 South St. Francis Drive, Santa Fe, NM 87505



ADMINISTRATIVE APPLICATION CHECKLIST

THIS CHECKLIST IS MANDATORY FOR ALL ADMINISTRATIVE APPLICATIONS FOR EXCEPTIONS TO DIVISION RULES AND REGULATIONS WHICH REQUIRE PROCESSING AT THE DIVISION LEVEL IN SANTA FE

Application Acronyms:

[NSL-Non-Standard Location] [NSP-Non-Standard Proration Unit] [SD-Simultaneous Dedication]
 [DHC-Downhole Commingling] [CTB-Lease Commingling] [PLC-Pool/Lease Commingling]
 [PC-Pool Commingling] [OLS - Off-Lease Storage] [OLM-Off-Lease Measurement]
 [WFX-Waterflood Expansion] [PMX-Pressure Maintenance Expansion]
 [SWD-Salt Water Disposal] [IPI-Injection Pressure Increase]
 [EOR-Qualified Enhanced Oil Recovery Certification] [PPR-Positive Production Response]

- [1] **TYPE OF APPLICATION** - Check Those Which Apply for [A] - NSL
- [A] Location - Spacing Unit - Simultaneous Dedication - Apache Corporation
☒ NSL ☐ NSP ☐ SD 873
- Check One Only for [B] or [C] Well
- [B] Commingling - Storage - Measurement Tony Feder 1451
☐ DHC ☐ CTB ☐ PLC ☐ PC ☐ OLS ☐ OLM 30-015-41990
- [C] Injection - Disposal - Pressure Increase - Enhanced Oil Recovery Pool
☐ WFX ☐ PMX ☐ SWD ☐ IPI ☐ EOR ☐ PPR - Cedar Lake
- [D] Other: Specify Glorieta yes 96831
- [2] **NOTIFICATION REQUIRED TO:** - Check Those Which Apply, or ☒ Does Not Apply
- [A] ☐ Working, Royalty or Overriding Royalty Interest Owners
- [B] ☐ Offset Operators, Leaseholders or Surface Owner
- [C] ☐ Application is One Which Requires Published Legal Notice
- [D] ☐ Notification and/or Concurrent Approval by BLM or SLO
 U.S. Bureau of Land Management - Commissioner of Public Lands, State Land Office
- [E] ☐ For all of the above, Proof of Notification or Publication is Attached, and/or,
- [F] ☐ Waivers are Attached
- [3] **SUBMIT ACCURATE AND COMPLETE INFORMATION REQUIRED TO PROCESS THE TYPE OF APPLICATION INDICATED ABOVE.**

[4] **CERTIFICATION:** I hereby certify that the information submitted with this application for administrative approval is **accurate** and **complete** to the best of my knowledge. I also understand that **no action** will be taken on this application until the required information and notifications are submitted to the Division.

Note: Statement must be completed by an individual with managerial and/or supervisory capacity.

David Catanach
Print or Type Name

David Catanach
Signature

Agent for Apache Corporation
Title

4/29/14
Date

drcatanach@netscape.com
E-Mail Address

April 29, 2014

Hand Delivered

New Mexico Oil Conservation Division
1220 S. St. Francis Drive
Santa Fe, New Mexico 87505

Attention: Ms. Jami Bailey, CPG
Division Director

Re: Application for Unorthodox Well Location
Tony Federal No. 51
API No. (30-015-41990)
Surface Location: 1340' FSL & 2220' FWL (Unit K)
Bottomhole Location: 990' FSL & 2210' FWL (Unit N)
Section 18, T-17 South, R-31 East, NMPM,
Eddy County, New Mexico

Dear Ms. Bailey:

Pursuant to Division Rule 19.15.15.13, Apache Corporation ("Apache") respectfully requests administrative approval of an unorthodox oil well location for its proposed Tony Federal No. 51. This well will be drilled as a development oil well in the Cedar Lake Glorieta-Yeso Pool (96831).

The proposed Tony Federal No. 51 will be dedicated to an existing 40-acre oil spacing and proration unit in the Cedar Lake Glorieta-Yeso Pool comprising the SE/4 SW/4 of Section 18. This unit is currently dedicated to Apache's existing Tony Federal No. 1 (API No. 30-015-30381) located at a standard well location 330 feet from the South line and 2056 feet from the West line.

The Cedar Lake Glorieta-Yeso Pool is currently governed by Division Rule 19.19.15.9 which requires standard 40-acre oil spacing and proration units with wells to be located no closer than 330 feet to the outer boundary of the spacing unit.

The proposed unorthodox location is necessary in order to avoid numerous surface obstructions within the SE/4 SW/4 of Section 18, including well pads, lease roads, electric lines and pipelines.

As a result of Section 18 being irregular, the bottomhole location of the Tony Federal No. 51 is only 176 feet from the eastern boundary of its spacing unit (See attached C-102).

The affected offset tracts are the NW/4 SE/4 and SW/4 SE/4 of Section 18, Township 17 South, Range 31 East. These offset 40-acre tracts are currently being developed in the Cedar Lake Glorieta-Yeso Pool by Apache Corporation. Please note that the working interest ownership between Unit N (Drill Tract) and the two affected offset 40-acre tracts is common. Consequently, notice of this application is not required to any party.

Attached is a Form C-102 showing the proposed well, spacing unit and other existing wells in the spacing unit. Also attached is a vicinity map.

In summary, approval of the application will provide Apache Corporation the opportunity to recover additional oil and gas reserves from the Cedar Lake Glorieta-Yeso Pool underlying the SE/4 SW/4 of Section 18 that may otherwise not be recovered by the existing wells, thereby preventing waste, and will not violate correlative rights.

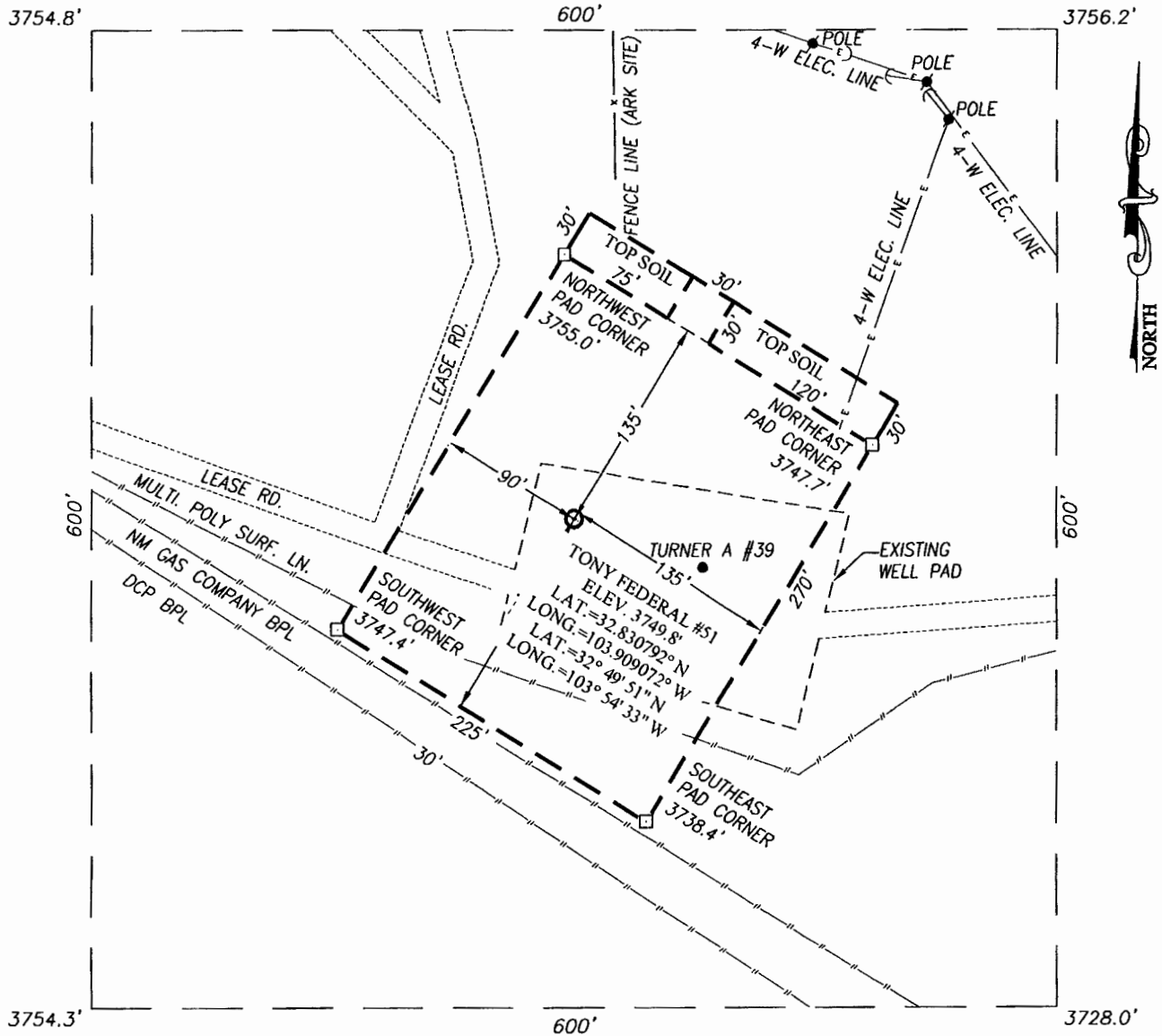
If you should have any questions, please call me at (505) 690-9453.

Sincerely,



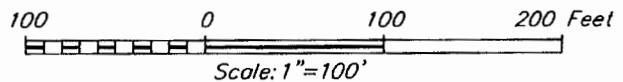
David Catanach, Agent
Apache Corporation
303 Veterans Airpark Lane
Suite 3000
Midland, Texas 79705

Xc: OCD-Artesia



DIRECTIONS TO LOCATION

FROM THE INTERSECTION OF U.S. HWY. #82 AND CO. RD. #221 (SKELLY), GO NORTH APPROX. 0.8 MILES. TURN RIGHT AND GO EAST APPROX. 0.3 MILES. VEER LEFT AND GO EAST APPROX. 537 FEET TO WELL PAD.



APACHE CORPORATION

TONY FEDERAL #51 WELL
LOCATED 1340 FEET FROM THE SOUTH LINE
AND 2220 FEET FROM THE WEST LINE OF SECTION 18,
TOWNSHIP 17 SOUTH, RANGE 31 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO

Survey Date: 2/18/13	CAD Date: 2/21/13	Drawn By: ACR
W.O. No.: 13110144	Rev: 3/06/13	Rel. W.O.: 12110593
Sheet 1 of 1		

PROVIDING SURVEYING SERVICES
SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117 www.jwsc.biz

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, 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 Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-102
Revised July 16, 2010
Submit one copy to appropriate
District Office
☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-015-41990	Pool Code 96831	Pool Name Cedar Lake Glorieta-Yeso Pool
Property Code 308738	Property Name Tony Federal	Well Number 51
OGRID No. 873	Operator Name Apache Corporation	Elevation 3750'

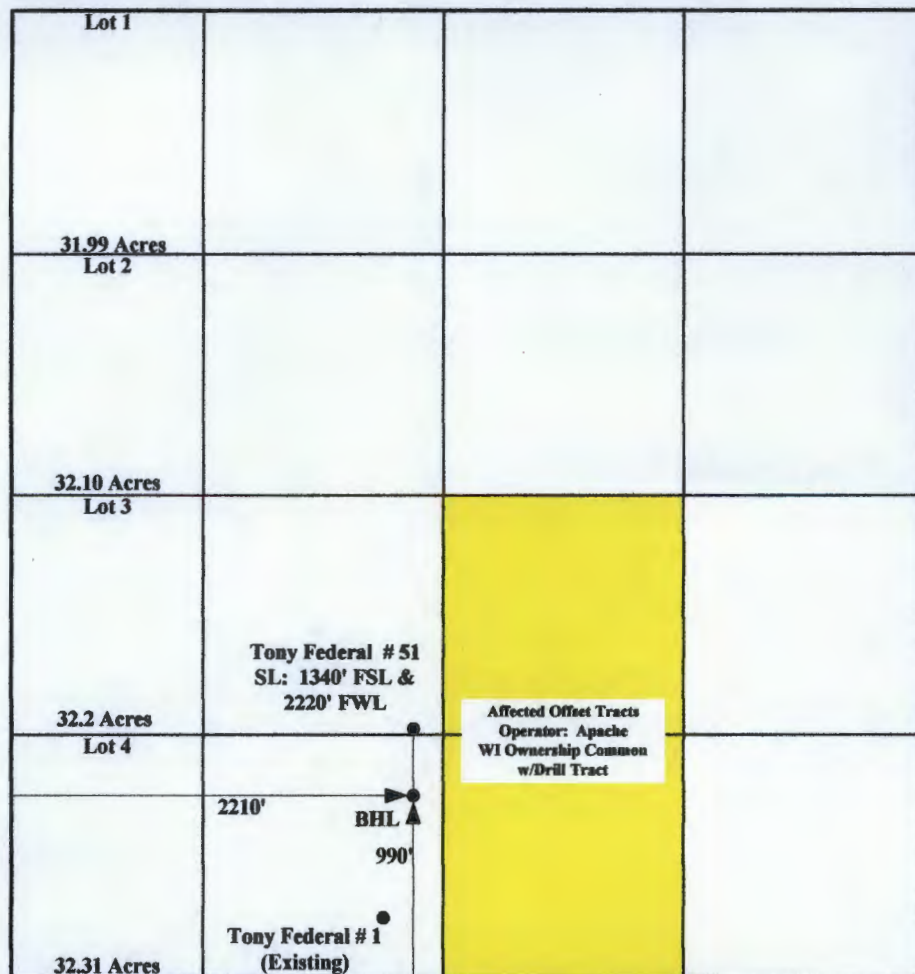
Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
K	18	17 South	31 East		1340	South	2220	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
N	18	17 South	31 East		990	South	2210	West	Eddy
Dedicated Acres 40	Joint or Infill	Consolidate Code	Order No.						

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 contained 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 bottomhole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the Division.

Signature _____ Date _____

Printed Name _____

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.

Date of Survey _____

Signature and Seal of Professional Surveyor: _____

Certificate Number _____

Lot 4 = 32.31 Acres:
Lot Dimensions: 1320' High x 1066' Wide

McMillan, Michael, EMNRD

From: David Catanach <drcatanach@netscape.com>
Sent: Wednesday, April 30, 2014 9:25 AM
To: McMillan, Michael, EMNRD
Subject: Fwd: FW: Tony federal #51 apache Eddy Co.
Attachments: FW: Tony federal #51 apache Eddy Co.

Michael,

Attached is the response to your inquiry regarding the Tony Federal No. 51 from Apache's drilling engineer.

This information indicates that this well will be drilled as a build and hold directional well. The perforated interval within the Glorieta-Yeso interval is not known at this point because the well has not yet been drilled.

The well will penetrate:

1. The Glorieta formation at a well location 1119' FSL & 2214' FWL
2. The Yeso formation at a well location 1115' FSL & 2214' FWL
3. T.D. at a well location 990' FSL & 2210' FWL

As a result of this information, it appears that the well will now affect **an additional offset tract**, the NE/4 SW/4 (Unit K) of Section 18. On this tract, Apache currently operates the Tony Federal Wells No. 10, 17, 42 and 51 in the Cedar Lake Glorieta-Yeso Pool. Please note that the working interest ownership between the drill tract (SE/4 SW/4) and the new affected offset tract (NE/4 SW/4) is common. Consequently, no additional notice would be required.

Please let me know if this is sufficient information to process this application. If you need anything else, please let me know.

Thanks,

David

McMillan, Michael, EMNRD

From: McMillan, Michael, EMNRD
Sent: Tuesday, April 29, 2014 11:52 AM
To: David Catanach
Cc: Goetze, Phillip, EMNRD
Subject: Tony federal #51 apache Eddy Co.

David:

I need a letter from either a geologist or engineer (hopefully someone who can do simple math) that states where the top and bottom of the perforations will be. This well crosses two units, so without that information, I cannot definitively say that it is a directional well.

Thank You

Michael A. McMillan

Engineering and Geological Services Bureau, Oil Conservation Division
1220 South St. Francis Dr., Santa Fe NM 87505
O: 505.476.3448 F. 505.476.3462

ATS-14-242

Form 3160-3
(March 2012)

OCD Artesia

FORM APPROVED
OMB No. 1004-0137
Expires October 31, 2014

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. NMLC-029395A
1b. Type of Well: <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other <input checked="" type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		6. If Indian, Allottee or Tribe Name
2. Name of Operator APACHE CORPORATION		7. If Unit or CA Agreement, Name and No.
3a. Address 303 VETERANS AIRPARK LN #1000 MIDLAND, TX 79705		8. Lease Name and Well No. TONY FEDERAL #51 <308738>
3b. Phone No. (include area code) 432-818-1167		9. API Well No. 41990 30-015-
4. Location of Well (Report location clearly and in accordance with any State requirements.)* At surface 1340' FSL & 2220' FWL UL: K At proposed prod. zone 990' FSL & 2210' FWL UL: N		10. Field and Pool, or Exploratory CEDAR LAKE; GLORIETA-YESO <96831>
14. Distance in miles and direction from nearest town or post office* APPROX 4 MILES EAST OF LOCO HILLS, NM		11. Sec., T. R. M. or Blk. and Survey or Area SEC: 18 T17S R31E
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 990'	16. No. of acres in lease 609.43 ACRES	12. County or Parish EDDY
17. Spacing Unit dedicated to this well 40 ACRES	18. Distance from proposed location* to nearest well, drilling, completed, ~ 90' applied for, on this lease, ft.	13. State NM
19. Proposed Depth TVD: 6400' MD: 6412'	20. BLM/BIA Bond No. on file BLM-CO-1463 NATIONWIDE / NMB000736	
21. Elevations (Show whether DF, KDB, RT, GL, etc.) GL: 3750'	22. Approximate date work will start* As Soon As Approved	23. Estimated duration ~ 10 DAYS

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, must be attached to this form:

- Well plat certified by a registered surveyor.
- A Drilling Plan.
- A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office).
- Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
- Operator certification
- Such other site specific information and/or plans as may be required by the BLM.

25. Signature <i>Sorina L Flores</i>	Name (Printed/Typed) SORINA L. FLORES	Date 11/21/13
Title SUPV OF DRILLING SERVICES		
Approved by (Signature) <i>/s/ STEPHEN J. CAFFEY</i>	Name (Printed/Typed)	Date JAN 17 2014
Title FIELD MANAGER	Office CARLSBAD FIELD OFFICE	

Application approval 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.
Conditions of approval, if any, are attached.

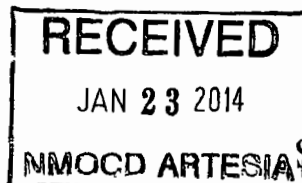
APPROVAL FOR TWO YEARS

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.

(Continued on page 2)

*(Instructions on page 2)

Roswell Controlled Water Basin



Approval Subject to General Requirements
& Special Stipulations Attached

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

WELL DETAILS

+N-S	+E-W	North	East	Latitude	Longitude
0.00	0.00	686215.00	630319.50	32° 49' 50.85298 N	103° 54' 32.65061 W

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N-S	+E-W	Dlog	TFace	VFace	Target	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
2	1300.00	0.00	0.00	1300.00	0.00	0.00	0.00	0.00	0.00		KOP, 2"100' Build
3	1500.28	4.01	181.46	1500.12	-7.00	-0.18	2.00	181.46	7.00		EDC, Hold 4.01" Inc, 181.46° Azm
4	6412.16	4.01	181.46	6400.00	-350.00	-8.90	0.00	0.00	350.11	PSHL-Tony Fed #51	TD at 6412.16

DESIGN TARGET DETAILS

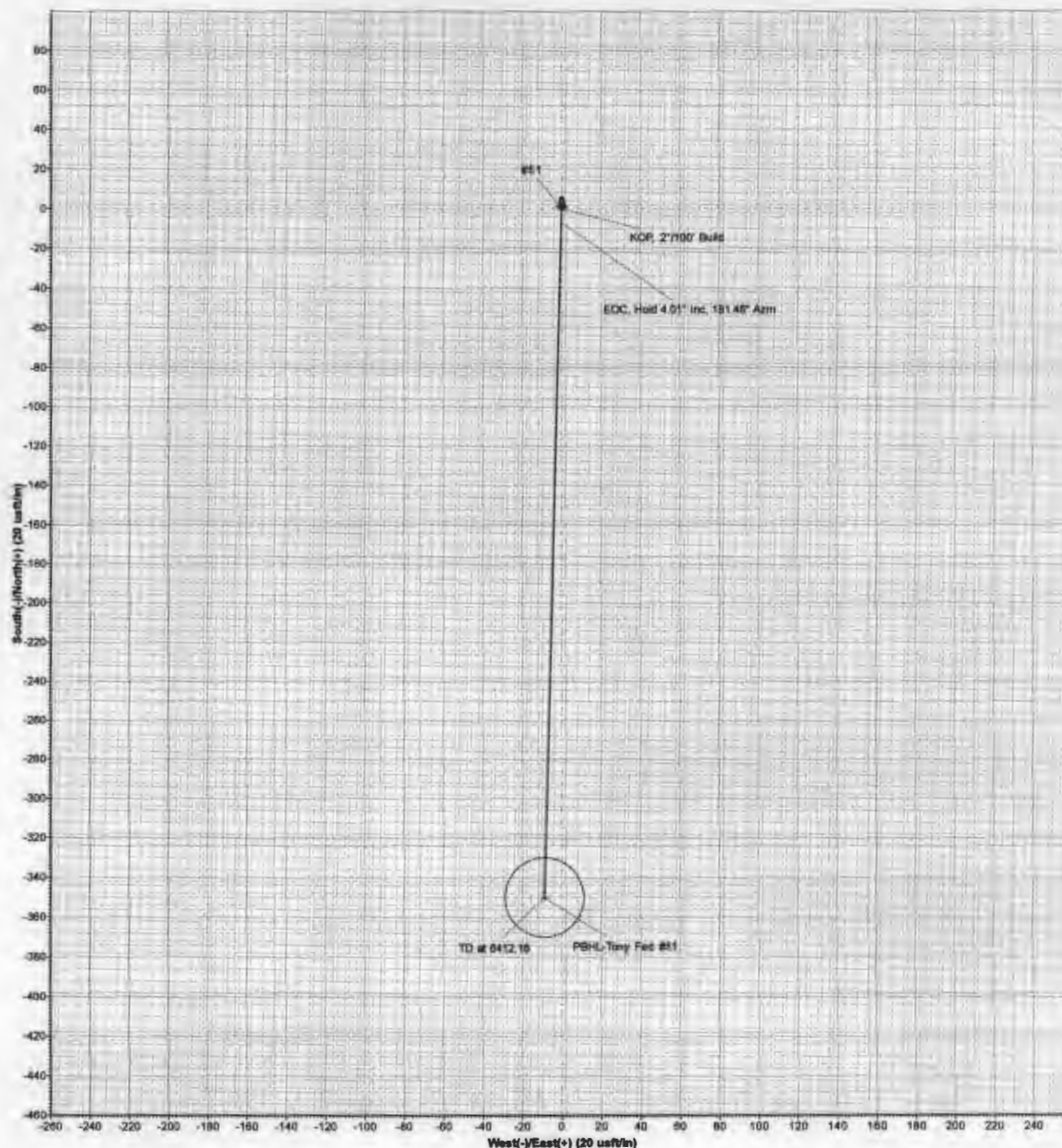
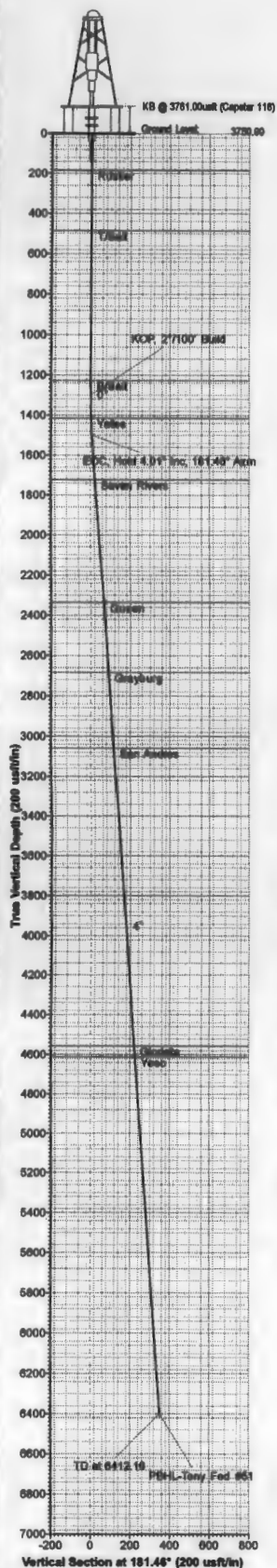
Name	TVD	+N-S	+E-W	North	East	Latitude	Longitude	Shape
PSHL-Tony Fed #51	6400.00	-350.00	-8.90	685865.00	630310.60	32° 49' 47.39671 N	103° 54' 32.78138 W	Circle (Radius: 20.00)

FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle	DipDir
185.00	185.00	Rustler	0.00	181.46
486.00	486.00	T/Salt	0.00	181.46
1227.00	1227.00	B/Salt	0.00	181.46
1414.00	1414.00	Yates	0.00	181.46
1724.00	1724.00	Seven Rivers	0.00	181.46
2335.00	2337.21	Quana	0.00	181.46
2963.00	2966.06	Grayburg	0.00	181.46
3059.00	3062.96	San Andres	0.00	181.46
4558.00	4563.65	Gloria	0.00	181.46
4612.00	4619.78	Yeso	0.00	181.46

LEGEND

— Plan #1 04-17-14





Apache Corporation

Eddy County, NM (NAD27 NME)

Tony Federal

#51

WB1/Job #1410678

Plan: Plan #1 04-17-14

Standard Planning Report

24 April, 2014





Phoenix Technology Services

Planning Report



Database: GCR DB
Company: Apache Corporation
Project: Eddy County, NM (NAD27 NME)
Site: Tony Federal
Well: #51
Wellbore: WB1/Job #1410678
Design: Plan #1 04-17-14

Local Co-ordinate Reference: Well #51
TVD Reference: KB @ 3761.00usft (Capstar 118)
MD Reference: KB @ 3761.00usft (Capstar 118)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

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

Well	#51		
Well Position	+N/-S	-301.20 usft	Northing: 666,215.00 usft
	+E/-W	1,420.70 usft	Easting: 630,319.50 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	3,750.00 usft
		Latitude:	32° 49' 50.85266 N
		Longitude:	103° 54' 32.66061 W
		Ground Level:	

Wellbore	WB1/Job #1410678		
Magnetics	Model Name	Sample Date	Declination
	BGGM2013	04/15/14	(°)
			7.56
			Dip Angle
			(°)
			60.61
			Field Strength
			(nT)
			48,634

Design	Plan #1 04-17-14		
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth: 0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.00	0.00	0.00
			Direction
			(°)
			181.46

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,500.28	4.01	181.46	1,500.12	-7.00	-0.18	2.00	2.00	-89.15	181.46	
6,412.16	4.01	181.46	6,400.00	-350.00	-8.90	0.00	0.00	0.00	0.00	PBHL-Tony Fed #51

Database: GCR DB
Company: Apache Corporation
Project: Eddy County, NM (NAD27 NME)
Site: Tony Federal
Well: #51
Wellbore: WB1/Job #1410678
Design: Plan #1 04-17-14

Local Co-ordinate Reference: Well #51
TVD Reference: KB @ 3761.00usft (Capstar 118)
MD Reference: KB @ 3761.00usft (Capstar 118)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned 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
185.00	0.00	0.00	185.00	0.00	0.00	0.00	0.00	0.00	0.00
Rustler									
486.00	0.00	0.00	486.00	0.00	0.00	0.00	0.00	0.00	0.00
T/Salt									
1,227.00	0.00	0.00	1,227.00	0.00	0.00	0.00	0.00	0.00	0.00
B/Salt									
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
KOP, 2°/100' Build									
1,400.00	2.00	181.46	1,399.98	-1.74	-0.04	1.75	2.00	2.00	0.00
1,414.03	2.28	181.46	1,414.00	-2.27	-0.06	2.27	2.00	2.00	0.00
Yates									
1,500.00	4.00	181.46	1,499.84	-6.98	-0.18	6.98	2.00	2.00	0.00
1,500.28	4.01	181.46	1,500.12	-7.00	-0.18	7.00	2.00	2.00	0.00
EOC, Hold 4.01° Inc, 181.46° Azm									
1,600.00	4.01	181.46	1,599.59	-13.96	-0.35	13.96	0.00	0.00	0.00
1,700.00	4.01	181.46	1,699.35	-20.94	-0.53	20.95	0.00	0.00	0.00
1,724.71	4.01	181.46	1,724.00	-22.67	-0.58	22.68	0.00	0.00	0.00
Seven Rivers									
1,800.00	4.01	181.46	1,799.10	-27.93	-0.71	27.93	0.00	0.00	0.00
1,900.00	4.01	181.46	1,898.86	-34.91	-0.89	34.92	0.00	0.00	0.00
2,000.00	4.01	181.46	1,998.62	-41.89	-1.07	41.91	0.00	0.00	0.00
2,100.00	4.01	181.46	2,098.37	-48.88	-1.24	48.89	0.00	0.00	0.00
2,200.00	4.01	181.46	2,198.13	-55.86	-1.42	55.88	0.00	0.00	0.00
2,300.00	4.01	181.46	2,297.88	-62.84	-1.60	62.86	0.00	0.00	0.00
2,337.21	4.01	181.46	2,335.00	-65.44	-1.66	65.46	0.00	0.00	0.00
Queen									
2,400.00	4.01	181.46	2,397.64	-69.82	-1.78	69.85	0.00	0.00	0.00
2,500.00	4.01	181.46	2,497.39	-76.81	-1.95	76.83	0.00	0.00	0.00
2,600.00	4.01	181.46	2,597.15	-83.79	-2.13	83.82	0.00	0.00	0.00
2,686.06	4.01	181.46	2,683.00	-89.80	-2.28	89.83	0.00	0.00	0.00
Grayburg									
2,700.00	4.01	181.46	2,696.91	-90.77	-2.31	90.80	0.00	0.00	0.00
2,800.00	4.01	181.46	2,796.66	-97.76	-2.49	97.79	0.00	0.00	0.00
2,900.00	4.01	181.46	2,896.42	-104.74	-2.66	104.77	0.00	0.00	0.00
3,000.00	4.01	181.46	2,996.17	-111.72	-2.84	111.76	0.00	0.00	0.00
3,062.98	4.01	181.46	3,059.00	-116.12	-2.95	116.16	0.00	0.00	0.00
San Andres									
3,100.00	4.01	181.46	3,095.93	-118.71	-3.02	118.75	0.00	0.00	0.00
3,200.00	4.01	181.46	3,195.68	-125.69	-3.20	125.73	0.00	0.00	0.00
3,300.00	4.01	181.46	3,295.44	-132.67	-3.37	132.72	0.00	0.00	0.00
3,400.00	4.01	181.46	3,395.20	-139.66	-3.55	139.70	0.00	0.00	0.00
3,500.00	4.01	181.46	3,494.95	-146.64	-3.73	146.69	0.00	0.00	0.00
3,600.00	4.01	181.46	3,594.71	-153.62	-3.91	153.67	0.00	0.00	0.00
3,700.00	4.01	181.46	3,694.46	-160.61	-4.08	160.66	0.00	0.00	0.00
3,800.00	4.01	181.46	3,794.22	-167.59	-4.26	167.64	0.00	0.00	0.00
3,900.00	4.01	181.46	3,893.97	-174.57	-4.44	174.63	0.00	0.00	0.00
4,000.00	4.01	181.46	3,993.73	-181.56	-4.62	181.61	0.00	0.00	0.00
4,100.00	4.01	181.46	4,093.49	-188.54	-4.79	188.60	0.00	0.00	0.00
4,200.00	4.01	181.46	4,193.24	-195.52	-4.97	195.58	0.00	0.00	0.00
4,300.00	4.01	181.46	4,293.00	-202.50	-5.15	202.57	0.00	0.00	0.00
4,400.00	4.01	181.46	4,392.75	-209.49	-5.33	209.56	0.00	0.00	0.00
4,500.00	4.01	181.46	4,492.51	-216.47	-5.50	216.54	0.00	0.00	0.00

Database:	GCR DB	Local Co-ordinate Reference:	Well #51
Company:	Apache Corporation	TVD Reference:	KB @ 3761.00usft (Capstar 118)
Project:	Eddy County, NM (NAD27 NME)	MD Reference:	KB @ 3761.00usft (Capstar 118)
Site:	Tony Federal	North Reference:	Grid
Well:	#51	Survey Calculation Method:	Minimum Curvature
Wellbore:	WB1/Job #1410678		
Design:	Plan #1 04-17-14		

Planned 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)
4,563.65	4.01	181.46	4,556.00	-220.92	-5.62	220.99	0.00	0.00	0.00
Glorieta									
4,600.00	4.01	181.46	4,592.27	-223.45	-5.68	223.53	0.00	0.00	0.00
4,619.78	4.01	181.46	4,612.00	-224.84	-5.72	224.91	0.00	0.00	0.00
Yeso									
4,700.00	4.01	181.46	4,692.02	-230.44	-5.86	230.51	0.00	0.00	0.00
4,800.00	4.01	181.46	4,791.78	-237.42	-6.04	237.50	0.00	0.00	0.00
4,900.00	4.01	181.46	4,891.53	-244.40	-6.21	244.48	0.00	0.00	0.00
5,000.00	4.01	181.46	4,991.29	-251.39	-6.39	251.47	0.00	0.00	0.00
5,100.00	4.01	181.46	5,091.04	-258.37	-6.57	258.45	0.00	0.00	0.00
5,200.00	4.01	181.46	5,190.80	-265.35	-6.75	265.44	0.00	0.00	0.00
5,300.00	4.01	181.46	5,290.56	-272.34	-6.93	272.42	0.00	0.00	0.00
5,400.00	4.01	181.46	5,390.31	-279.32	-7.10	279.41	0.00	0.00	0.00
5,500.00	4.01	181.46	5,490.07	-286.30	-7.28	286.39	0.00	0.00	0.00
5,600.00	4.01	181.46	5,589.82	-293.29	-7.46	293.38	0.00	0.00	0.00
5,700.00	4.01	181.46	5,689.58	-300.27	-7.64	300.37	0.00	0.00	0.00
5,800.00	4.01	181.46	5,789.33	-307.25	-7.81	307.35	0.00	0.00	0.00
5,900.00	4.01	181.46	5,889.09	-314.23	-7.99	314.34	0.00	0.00	0.00
6,000.00	4.01	181.46	5,988.85	-321.22	-8.17	321.32	0.00	0.00	0.00
6,100.00	4.01	181.46	6,088.60	-328.20	-8.35	328.31	0.00	0.00	0.00
6,200.00	4.01	181.46	6,188.36	-335.18	-8.52	335.29	0.00	0.00	0.00
6,300.00	4.01	181.46	6,288.11	-342.17	-8.70	342.28	0.00	0.00	0.00
6,400.00	4.01	181.46	6,387.87	-349.15	-8.88	349.26	0.00	0.00	0.00
6,412.16	4.01	181.46	6,400.00	-350.00	-8.90	350.11	0.00	0.00	0.00
TD at 6412.16									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
PBHL-Tony Fed #51	0.00	0.00	6,400.00	-350.00	-8.90	665,865.00	630,310.60	32° 49' 47.38971 N	103° 54' 32.78138 W
- plan hits target center									
- Circle (radius 20.00)									

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
185.00	195.00	Rustler		0.00	181.46
486.00	496.00	T/Salt		0.00	181.46
1,227.00	1,237.00	B/Salt		0.00	181.46
1,414.03	1,424.00	Yates		0.00	181.46
1,724.71	1,734.00	Seven Rivers		0.00	181.46
2,337.21	2,345.00	Queen		0.00	181.46
2,686.06	2,693.00	Grayburg		0.00	181.46
3,062.98	3,069.00	San Andres		0.00	181.46
4,563.65	4,566.00	Glorieta		0.00	181.46
4,619.78	4,622.00	Yeso		0.00	181.46



Phoenix Technology Services

Planning Report



Database: GCR DB
Company: Apache Corporation
Project: Eddy County, NM (NAD27 NME)
Site: Tony Federal
Well: #51
Wellbore: WB1/Job #1410678
Design: Plan #1 04-17-14

Local Co-ordinate Reference: Well #51
TVD Reference: KB @ 3761.00usft (Capstar 118)
MD Reference: KB @ 3761.00usft (Capstar 118)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,300.00	1,300.00	0.00	0.00	KOP, 2°/100' Build
1,500.28	1,500.12	-7.00	-0.18	EOC, Hold 4.01° Inc, 181.46° Azm
6,412.16	6,400.00	-350.00	-8.90	TD at 6412.16