Form 3160-5
(August 2007)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

OCD 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.
NMLC029435B

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.
NFE FEDERAL 31H

2. Name of Operator
APACHE CORPORATION
Contact: SORINA FLORES
E-Mail: sorina.flores@apachecorp.com

9. API Well No.
30-015-41671-00-X1

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

3b. Phone No. (include area code)
Ph: 432-818-1167

10. Field and Pool, or Exploratory
CEDAR LAKE

4. Location of Well *(Footage, Sec., T., R., M., or Survey Description)*
Sec 7 T17S R31E NESE 1430FSL 432FEL
32.845574 N Lat, 103.901377 W Lon

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 Change to Original A PD
	☐ 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.)

need directional plan. requested 1+ months ago.

BLM-CO-1463 NATIONWIDE / NMB000736

Apache proposes to change the csg/cmt for the NFE Federal #31H as follows:

CSG PROGRAM:

HOLE	DEPTH	OD CSG	WT	GRADE	COLLAR	DESIGN	COLLAPSE	BURST	TENSION
MW						Rating/SF	Rating/SF	Rating/SF	
17-1/2"	0-450'	13-3/8"	48#	H40	STC	8.8ppg	770psi	1730psi	322000lbs
3.592		5.49						17.22	
12-1/4"	0-3500'	9-5/8"	36#	J55	STC	9.8ppg	2020psi	3520psi	394000lbs
1.134		1.45						3.68	
8-3/4"	0-4568'	7"	29#	L80	LTC	9.3ppg	7020psi	8160psi	587000lbs

NM OIL CONSERVATION
ARTESIA DISTRICT
DEC 30 2014
RECEIVED

Accepted for record
NMOCD 1/5/2015

14. I hereby certify that the foregoing is true and correct.

Electronic Submission #251848 verified by the BLM Well Information System
For APACHE CORPORATION, sent to the Carlsbad
Committed to AFMSS for processing by JENNIFER MASON on 10/24/2014 (15JAM0049SE)

Name *(Printed/Typed)* SORINA FLORES — Title SUBMITTING CONTACT

Signature (Electronic Submission) — Date 07/07/2014

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By — Title — Date 12/19/14

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

DENIED

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 ****

Additional data for EC transaction #251848 that would not fit on the form

32. Additional remarks, continued

(vert) 3.10 3.70 4.43
8-3/4" 4568-5166' 5-1/2" 20# L80 LTC 9.3ppg 8466psi 9190psi 416000lbs
(curve) (4950 TVD) 3.39 3.08 4.03
7-7/8" 5166-10167' 5-1/2" 20# L80 LTC 9.3ppg 8794psi 9190psi 416000lbs
(lat.) (4980' TVD) 1.79 1.87 2.05

*Calculated Safety Factors based on:
Burst: Full evacuation of annulus & csg filled with mud
Collapse: Mud in annulus & full evacuation of csg
Tension: Annulus & csg filled with mud

Production csg will be a tapered string w/7" csg f/surf to KOP(cmtd through a stage tool f/ KOP to 2500'), uncemented 5-1/2" csg f/ KOP to LP, & uncemented 5-1/2" csg with packers & sleeves f/ LP to TD to isolate San Andres & Glorieta formations, two hydraulic-set open hole packers will be placed in 5-1/2" csg & set 50' above & 50' below the top of Glorieta formation.

CMT PROGRAM:
Surf (TOC-Surf) 100% excess cmt; cmt with:
Single Slurry: 520sx CL C w/2% CaCL2(14.8wt, 1.34yld, 6.31 gal wtr/sk)
Comp Strengths: 12hr - 1270psi 24hr - 2029psi
*If lost circ is encountered while drlg 17-1/2" hole, operator may pmp 200sx Cl C Thixotropic cmt(14.4wt, 1.55yld, 6.65 gal wtr/sk) ahead of cmt slurry shown above. If cmt does not circ to surf, appropriate BLM office shall be notified. The TOC shall be determined by a method approved by BLM. Operator will propose a remediation method & request BLM approval

Interm (TOC-surf) 50% excess cmt; cmt with:
Lead: 700sx 35/65 Poz C w/6% gel+5% Salt (12.9wt, 1.92yld, 9.92 gal wtr/sk)
Comp Strengths: 12hr - 820psi 24hr - 1189psi
Tail: 290sx Cl C(14.8wt, 1.33yld, 6.31 gal wtr/sk)
Comp Strengths: 12hr - 1120psi 24hr - 2106psi
*If water flow is encountered, operator may use a DVT in 9-5/8" Interm csg & operator may place an ECP below DVT. Operator may also set csg slips before cmtg. Assuming DVT is set at 1800', the following cmt would be used:
1st stage: 630sx Cl C(14.8wt, 1.33yld, 6.31 gal wtr/sK) 50% excess cmt
2nd stage: 670sx Cl C (14.8wt, 1.33yld, 6.31 gal wtr/sk) 50% excess cmt. If a DVT is set at a different depth, cmt volumes will be adjusted accordingly.

Prod (TOC: ~2500' f/surf) 35% excess cmt; cmt with:
Lead:110sx 35/65 Poz C W/6% Gel+5% Salt (12.6wt, 2.06yld, 10.95 gal wtr/sk)
Comp Strengths: 12hr - 317psi 24hr - 500psi
Tail:160sx TXI Lighweight w/1.3% Salt+0.3% Retarder(13.0wt,1.48yld,7.58 gal wtr/sk) Comp Strengths: 12hr - 1100psi 24hr - 1755psi
*If operator chooses to run fluid caliper, above cmt volumes may be revised based on fluid caliper measurement.

**** PLEASE SEE ATTACHMENT FOR ADDITIONAL SUNDRY INFORMATION; ADDITIONAL INFORMATION DID NOT FIT ONLINE*****

DRILLING PLAN: BLM COMPLIANCE
(Supplement to BLM 3160-3)

APACHE CORPORATION (OGRID: 873) NFE FEDERAL #31H

Lease #: NMLC-029435B Projected TVD: ~4980' MD: ~10167' GL: 3718'
SL: 1430' FSL & 432' FEL UL: I SEC: 7 BHL: 1430' FSL & 330' FWL UL: I SEC: 8
T17S R31E EDDY COUNTY, NEW MEXICO

1. GEOLOGIC NAME OF SURFACE FORMATION: Eolian/Piedmond Alluvial Deposits

2. ESTIMATED TOPS OF GEOLOGICAL MARKERS & DEPTHS OF ANTICIPATED FRESH WATER, OIL OR GAS:

Quaternary Aeolian	Surf	San Andres	3096'
Rustler	256'	Glorieta	4589'
Top of Salt	496'	Yeso (Paddock)	4647' (Oil)
Base of Salt	1316'	Yeso (U. Blinebry)	5135'
Yates	1501'		
Queen	2397'	TD	TVD: 4980' MD: 10167'

Avg Depth to Ground Water: ~91'

All fresh water and prospectively valuable minerals, as described by BLM, encountered during drilling, will be recorded by depth and adequately protected. All oil and gas shows within zones of correlative rights will be tested to determine commercial potential. The surface fresh water sands will be protected by setting 13-3/8" surface casing at 400' and circulating cement to surface. All intervals will be isolated by setting a 7" and 5-1/2" tapered production casing string at TD and cementing as shown below.

3. CASING PROGRAM: All casing is new & API approved

HOLE SIZE	DEPTH	OD CASING	WEIGHT	GRADE	COLLAR	DESIGN MW	COLLAPSE Rating/SF*	BURST Rating/SF*	TENSION Rating/SF*
17-1/2"	0' – 450'	13-3/8"	48#	H-40	STC	8.8 ppg	770 psi 3.592	1730 psi 5.49	322000 lbs 17.22
12-1/4"	0' - 3500'	9-5/8"	36#	J-55	STC	9.8 ppg	2020 psi 1.134	3520 psi 1.45	394000 lbs 3.68
8-3/4" (vertical)	0' – 4568' (4568' TVD)	7"	29#	L-80	LTC	9.3 ppg	7020 psi 3.10	8160 psi 3.70	587000 lbs 4.43
8-3/4" (curve)	4568' - 5166' (4950' TVD)	5-1/2"	20#	L-80	LTC	9.3 ppg	8466 psi 3.39	9190 psi 3.08	416000 lbs 4.03
7-7/8" (lateral)	5166' - 10167' (4980' TVD)	5-1/2"	20#	L-80	LTC	9.3 ppg	8794 psi 1.79	9190 psi 1.87	416000 lbs 2.05

*Calculated Safety Factors based on:
Burst: Full evacuation of annulus and casing filled with mud
Collapse: Mud in annulus and full evacuation of casing
Tension: Annulus and casing filled with mud

Production casing will be a tapered string with 7" casing from surface to KOP (cemented through a stage tool from KOP to 2500'), uncemented 5-1/2" casing from KOP to LP, and uncemented 5-1/2" casing with packers and sleeves from LP to TD. To isolate the San Andres and Glorieta formations, two hydraulic-set open hole packers will be placed in the 5-1/2" casing and set 50' above and 50' below the top of the Glorieta formation.

4. CEMENT PROGRAM:

A. Surface (TOC – Surface) **100% excess cmt Cmt with:**

Single Slurry: 520 sx Class C w/2% CaCl2 *(14.8 wt, 1.34 yld, 6.31 gal wtr/sk)*
*Compressive Strengths : **12 hr** – 1270 psi **24 hr** – 2029 psi*

If lost circulation is encountered while drilling the 17-1/2" hole, operator may pump 200 sx Class C thixotropic cement *(14.4 wt, 1.55 yld, 6.65 gal wtr/sk)* ahead of the cement slurry shown above.
If cmt does not circulate to surface, the appropriate BLM office shall be notified. The TOC shall be determined by a method approved by BLM. Operator will propose a remediation method and request BLM approval.

B. Intermediate (TOC – Surface) **50% excess cmt **. Cmt with:

Lead: 700 sx 35/65 Poz C w/6% Gel + 5% Salt (12.9 wt, 1.92 yld, 9.92 gal wtr/sk)
Compressive Strengths: 12 hr – 820 psi 24 hr – 1189 psi

Tail: 290 sx Class C (14.8 wt, 1.33 yld, 6.31 gal wtr/sk)
Compressive Strengths: 12 hr – 1120 psi 24 hr – 2106 psi

If a water flow is encountered, operator may use a DV tool in the 9-5/8" intermediate casing and operator may place an ECP below the DV tool. Operator may also set casing slips before cementing. Assuming a DV tool is set at 1800', the following cement would be used: 1st Stage 630 sx Class C (14.8 wt, 1.33 yld, 6.31 gal wtr/sk) 50% excess cement 2nd Stage 670 sx Class C (14.8 wt, 1.33 yld, 6.31 gal wtr/sk) 50% excess cement If a DV tool is set at a different depth, cement volumes will be adjusted accordingly.

C. Production (TOC: ~2500' from Surface) **35% excess cmt Cmt with:**

Lead: 110 sx 35-65 Poz C w/6% Gel + 5% Salt (12.6 wt, 2.06 yld, 10.95 gal wtr/sk)

Compressive Strengths: 12 hr – 317 psi 24 hr – 500 psi

Tail: 160 sx TXI Lightweight w/1.3% Salt + 0.3% Retarder (13.0 wt, 1.48 yld , 7.58 gal wtr/sk)

Compressive Strengths: 12 hr – 1100 psi 24 psi – 1755 psi

If operator chooses to run a fluid caliper, the above cement volumes may be revised based on fluid caliper measurement.

5. PROPOSED CONTROL EQUIPMENT

"EXHIBIT 3" shows a 13-5/8" 3M psi WP BOP consisting of an annular bag type preventer. This BOP will be nippled up on the 13-3/8" surface casing head and tested to 2000psi using a test plug. After the 9-5/8" intermediate casing is set & cemented, an 11" 3M BOP consisting of an annular bag type preventer, middle pipe rams and bottom blind rams will be installed and utilized continuously until TD is reached *("EXHIBIT 3A")*. That BOP will be tested at 2000 psi; maximum surface pressure is not expected to exceed 2000 psi. BHP is calculated to be approximately 2408 psi at TD & 2408 psi at the deepest point in the lateral. All BOPs and associated equipment will be tested per BLM *Drilling Operations Order #2*. The BOPs will be operated and checked each 24 hour period and blind rams will be operated and checked when the drill pipe is out of the hole. Function tests will be documented on the daily driller's log. *"EXHIBIT 3 & 3A"* also show a 3M psi choke manifold with a 3" blow down line. Full opening stabbing valve and kelly cock will be on the derrick floor in case of need. No abnormal pressures or temperatures are expected in this well. No nearby wells have encountered any well control problems.

6. AUXILIARY WELL CONTROL EQUIPMENT / MONITORING EQUIPMENT:

13-5/8" 3000 psi annular preventer (3M BOP/BOPE to be used as a 2M system)
11" 3000 psi double BOP (blind & pipe rams) and annular preventer (3M BOP/BOPE to be used as a 2M system)
4-1/2" x 3000 psi kelly valve
13-5/8" or 11" x 3000 psi mud cross – H2S detector on production hole
Gate-type safety valve – 3" choke line from BOP to manifold
2" adjustable chokes – 3" blow down line
Fill up line per BLM *Onshore Order #2*

7. PROPOSED MUD CIRCULATION SYSTEM: (CLOSED LOOP SYSTEM)

INTERVAL	MUD WEIGHT (ppg)	VISCOSITY (sec/qt)	FLUID LOSS (cc)	MUD TYPE
0' – 450'	8.3 – 8.8	28 – 36	NC	FW
450' - 3500'	9.6 – 9.8	28 – 29	NC	Brine
3500' – 4568'	9.0 – 9.8	28 – 29	NC	Brine/Cut Brine
4568' – 10167'	9.0 – 9.3	28 – 29	NC	Cut Brine

** Visual mud monitoring equipment shall be in place to detect volume changes. A mud test shall be performed every 24 hours after mudding up to determine density, viscosity, gel strength, filtration, and pH. The necessary mud products for weight addition and fluid loss control will be on location at all times.

8. LOGGING, CORING & TESTING PROGRAM:

A. No cores, DSTs, or open hole logs are planned at this time.
B. Mudloggers from 4200' to TD.
C. Additional testing will be initiated subsequent to setting the 7" and 5-1/2" tapered production casing string. Specific intervals will be targeted based on geological sample shows.

9. POTENTIAL HAZARDS:

No abnormal pressures or temperatures are anticipated. In the event abnormal pressures are encountered, the proposed mud program will be modified to increase the mud-weight. There is known presence of H2S in this area. If H2S is encountered the operator will comply with the provisions of BLM *Onshore Oil & Gas Order #6*. All personnel will be familiar with all aspects of safe operation of equipment being used to drill this well. Estimated maximum BHP: 2408 psi and estimated BHT: 115° F.

10. ANTICIPATED STARTING DATE AND DURATION OF OPERATIONS:

Road and location construction will begin after BLM has approved APD. Anticipated spud date will be after BLM approval and as soon as an appropriate rig is available. Move in operations and drilling is expected to take approximately 20 days. If production casing is run, an additional 90 days will be needed to complete the well and construct surface facilities and/or lay flow lines in order to place the well on production.

11. OTHER FACETS OF OPERATION:

After running casing, cased hole Gamma Ray, Neutron Collar logs will be run from TD back to all possible productive zones. The Cedar Lake; Glorieta-Yeso formation will be stimulated in order to establish production. The well will be tested and potentialed as an oil well.