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District IV  
1220 S. St. Francis Dr., Santa Fe, NM  
87505

State of New Mexico  
Energy, Minerals and Natural Resources

OIL CONSERVATION DIVISION  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

Form C-103  
June 19, 2008

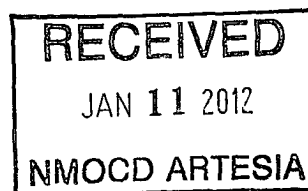
<b>SUNDRY NOTICES AND REPORTS ON WELLS</b> (DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.) 1. Type of Well: <input checked="" type="checkbox"/> Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other		WELL API NO. 30 015 00676
2. Name of Operator APACHE CORPORATION		5. Indicate Type of Lease STATE <input checked="" type="checkbox"/> FEE <input type="checkbox"/>
3. Address of Operator 303 VETERANS AIRPARK LN, STE 3000; MIDLAND, TX 79705		6. State Oil & Gas Lease No.
4. Well Location Unit Letter M : 330 feet from the S line and 990 feet from the W line Section 36 Township 17S Range 27E NMPM County EDDY		7. Lease Name or Unit Agreement Name EMPIRE ABO UNIT H
11. Elevation (Show whether DR, RKB, RT, GR, etc.) 3641' GR		8. Well Number 17 9. OGRID Number 673 10. Pool name or Wildcat EMPIRE ABO

12. Check Appropriate Box to Indicate Nature of Notice, Report or Other Data

<b>NOTICE OF INTENTION TO:</b> PERFORM REMEDIAL WORK <input type="checkbox"/> PLUG AND ABANDON <input type="checkbox"/> TEMPORARILY ABANDON <input type="checkbox"/> CHANGE PLANS <input type="checkbox"/> PULL OR ALTER CASING <input type="checkbox"/> MULTIPLE COMPL <input type="checkbox"/> DOWNHOLE COMMINGLE <input type="checkbox"/>		<b>SUBSEQUENT REPORT OF:</b> REMEDIAL WORK <input type="checkbox"/> ALTERING CASING <input type="checkbox"/> COMMENCE DRILLING OPNS. <input type="checkbox"/> P AND A <input type="checkbox"/> CASING/CEMENT JOB <input type="checkbox"/>	
OTHER: adding ABO parts <input checked="" type="checkbox"/>		OTHER: <input type="checkbox"/>	

13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 1103. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

Apache Corporation plans to perform work on the Empire Abo Unit H #17 as per the attached procedure.



Spud Date: 02/05/1980

Rlg Release Date:

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

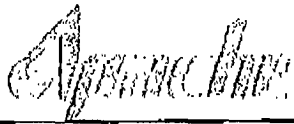
SIGNATURE: Bey Hatfield TITLE: Sr. Staff Regulatory Tech DATE: 01/11/2012

Type or print name: Bey Hatfield E-mail address: beyah.hatfield@apachecorp.com PHONE: 432-816-1806

For State Use Only

APPROVED BY: SR Dack TITLE: Dist # Super DATE: 01/23/2012

Conditions of Approval (if any):



## COMPLETION PROCEDURE

**AFE Number: PA-11-4533**

**Empire Abo Unit H-17**  
 330' PSL & 990' FWL  
 Sec 36, T17S, R27E  
 API: 30-015-00676  
 Empire Abo Unit  
 Eddy County, New Mexico

**KB: 3651' GL: 3641' (KB 10' above GL)**  
**8-5/8" 24 lb/ft K-55 casing set @ 1102'**  
**5-1/2" 9.5 lb/ft K-55 casing set @ 5797'**  
**TD: 5797'; PBD: 5,794'**  
**Perforations at 5707'-84'; 5,650-70'; 5,507'-**  
**5670'**

**Casing: 5-1/2", 14# K-55**  
**ID = 5.012"**  
**Drift = 4.887"**  
**Capacity = 0.0247 BBL/ft**  
**Burst = 4270 psi; 80% = 3416 psi**

**Tubing: 3-1/2", 9.2#, N-80, 8rd, EUE**  
**Capacity = 0.00870 BBL/ft**  
**Burst = 10,160 psi; 80% = 8128 psi**  
**Collapse 10,530 psi; 80% = 8424 psi**  
**Yield 207,220 lbs; 80% = 165,776 lbs**

### Frac Abo Shale formation

1. MIRU pulling unit. Kill well as necessary. Unseat pump. POOH w/ rods and pump. ND wellhead. NU BOP's. Unset TAC POOH w/ production tubing. Unload 3-1/2" 9.2 lb/ft N-55 tbg to be used for workstring.
2. RIH w/ 4-3/4" bit, bit sub, and 5-1/2" casing scraper to 5,510'. Clean out wellbore as necessary. POOH.
3. MIRU wireline. NU lubricator. RIH and set CIBP @ 5,500'. Spot 2 sxs of cement on top of CIBP. Load casing and test CIBP and casing to 3,400 psi.

### **STAGE I**

4. RIH w/ 3-3/8" csg gun or available equivalent perforator and perforate the Abo Shale from 5,330'-32'; 5,380'-82'; 5,430'-32' w/ 4 JSPF 90 degree phasing (24 holes, 6 net ft). (Charge specs: Connex 0.5" diameter BH). Correlate to WELEX radioactivity log dated 2/22/1960. POOH w/ perforator and RD wireline.
5. RIH w/ SN + Baker Hughes R-3 double grip PKR or equivalent on 3-1/2" WS. Spot 150 gallons of 15% acid across perforations. POOH and set PKR just above new perfs ± 5, 280'. Acidize new perfs from 5,330'-5,430' w/ 1000 gallons 15% NEFE acid, dropping 30 ball sealers. Max treating pressure = 8000 psi. Displace to bottom perf with 50 BBLs of flush
6. Release PKR. TIH and knock balls off perfs. TOH and reset PKR at 5,280'. RU swab equipment to recover load and clean well up. RD swab equipment.

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7. ND BOP's. NU frac tree.
  8. Prepare necessary clean 500 bbl frac tanks with water. Have service company test frac water for quality. Prepare necessary tanks for flowback. Spot tanks, sand support, etc. Prep for frac treatment.
  9. MIRU Service Company. NU treesaver. NU and test surface lines to 8,500 psi. Max pressure to be 8,000 psi at surface, set pressure alarms and pop-offs accordingly.
  10. Load hole and establish rate and pressure. Frac the Abo Shale perfs down the 3-1/2" tubing w/ 37.5 klbs 100 mesh and 155 klbs 30/70 resin coated proppant as provided by Service Company. Flush w/ 47 bbls slick water. SD. Shut-in well for minimum 2 hours. ND treesaver. RDMO Service Company.

Target Rate: 40 BPM

Max Pressure: 8,000 psi

11. Open well and flow back well. Recover as much load as possible.
12. ND frac valve and tree. NU BOP's. Kill well as necessary. Release PKR and POOH w/ WS.
13. RIH w/ 4-3/4" bit, bit sub to PBTD. Check for sand fill. Circulate hole clean. POOH.
14. If zone appears productive, run production equipment as directed by Apache Representative. RTP. *If unproductive, prepare well to be PA'd.*
15. RDMOPU. Turn well to tester and obtain well tests. Have chemical representative test fluids and put well on the appropriate chemical maintenance program.

## Apache Corporation – Empire Abo Unit #H-17

## Wellbore Diagram – Proposed

Date : 11/9/2011

API: 30-015-00676

Surface Location R. Taylor



330' FSL & 990' FWL, Unit  
Sec 36, T17S, R27E, Eddy County, NM

## Surface Casing

8-5/8" 24# K-55 @ 1102' w/ 450 sx to surface

4/75: HIC @ 1875'

Sqz'd w/ 375 sxs to surf

4/75: Perf @ 3190'

Sqz'd w/ 375 sxs to HIC @ 1875'

TAC @ TBD'

SN @ TBD'

TBD: Perf Abo @ 5330'-5332'; 5380'-5382'; 5430'-5432' w/ 4 JSPF  
Frac'd w/ 5877 bbl slickwater/Viking. 1500, 192.5# 100 mesh & 20/40  
RC sand

CIBP set @ 5,500

7/02: Perf Abo @ 5507'-16'; 5522'-26'; 5534'-48'; 5568'-5604'; 5616'-  
18'; 5622'-26'; 5633'-40'; 5647'-70' w/ 2 JSPF  
Acidize w/ 5000 gals 15% HCL-NEFE

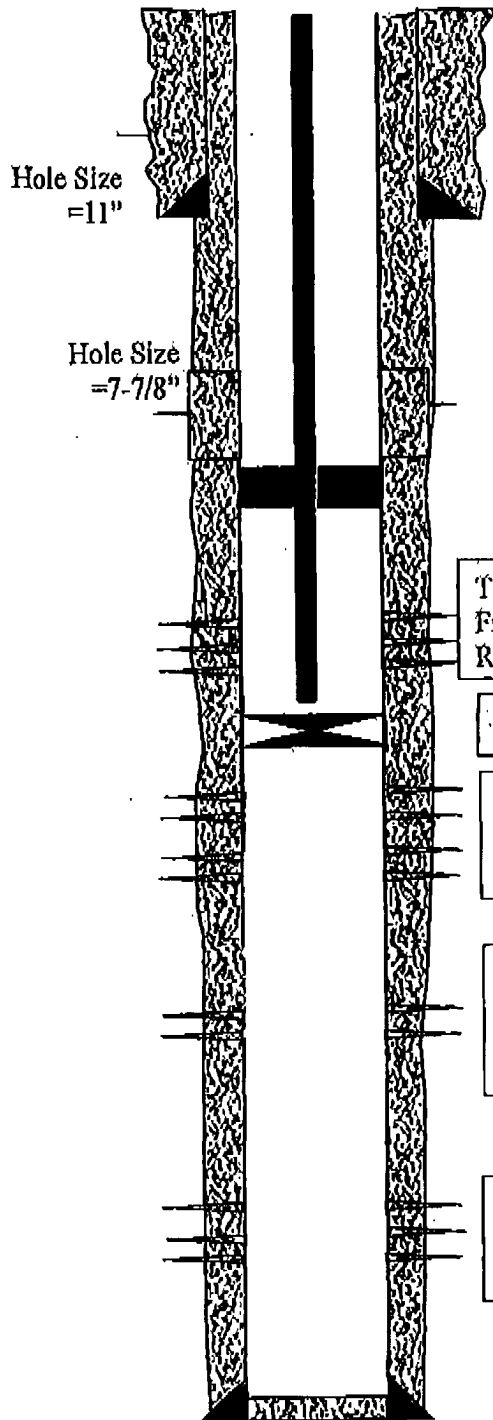
2/60: Perf Abo @ 5650'-5670' w/ 2 JSPF  
Acidized w/ 500 gal 15% reg acid  
5/68: Acidized w/ 2000 gal 15% NEFE  
6/70: Sqz'd w/ 100 sxs cement

6/70: Perf Abo @ 5707'-22'; 5736'-45'; 5775'-84' w/ 2 JSPF  
Acidized w/ 3000 gal 15% LSTNE  
4/75: Acidized w/ 2000 gal HCL-LSTNE

## Production Casing

5-1/2" 14# K-55 @ 5797' w/300 sxs  
TOC @ 2635'

GL=3641'  
KB=3651'  
Spud: 2/5/60



PBTD = 5794'  
TD = 5797'