

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. TYPE OF WORK DRILL <input type="checkbox"/> DEEPEN <input type="checkbox"/> PLUG BACK <input checked="" type="checkbox"/>			
b. TYPE OF WELL OIL WELL <input type="checkbox"/> GAS WELL <input checked="" type="checkbox"/> OTHER (Shut In) <input type="checkbox"/> SINGLE ZONE <input checked="" type="checkbox"/> MULTIPLE ZONE <input type="checkbox"/>			
2. NAME OF OPERATOR Union Oil Company of California			
3. ADDRESS OF OPERATOR P. O. Box 2620 - Casper, WY 82602-2620			
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.)* At surface 783' FNL & 2310' FWL (SE NE NW) At proposed prod. zone 783' FNL & 2310' FWL			
14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE* 23 miles south of Dulce, New Mexico			
15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line, if any) 783'		16. NO. OF ACRES IN LEASE 2573.36	
18. DISTANCE FROM PROPOSED LOCATION* TO NEAREST WELL, DRILLING, COMPLETED, No Other Well OR APPLIED FOR, ON THIS LEASE, FT. on Lease		19. PROPOSED DEPTH 8090' PBTD	
21. ELEVATIONS (Show whether DF, RT, GR, etc.) 7299' GR		20. ROTARY OR CABLE TOOLS N.A.	
22. APPROX. DATE WORK WILL START* Immediately Upon Approval			
23. PROPOSED CASING AND CEMENTING PROGRAM This action is subject to administrative appeal pursuant to 30 CFR 290.			
SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH
13-3/4"	10-3/4"	32.50#	414'
9-7/8"	7-5/8"	26.40#	6875'
6-3/4"	5-1/2" L	17.00#	6579-7698'
4-3/4"	3-1/2" L	9.30#	7200-8345'

8355' T.D.

Perfs: (See Diagram Attached)

Union Oil Company of California proposes to re-enter Jicarilla Well No. 1-C20, abandon the Dakota perforations, and test the oil potential of the Niobrara "A" and "B" zones.

REASON

Jicarilla Well No. 1-C20 was drilled to 7700' in 1973, and a 5-1/2" liner was hung from 6579'. The Niobrara "C" zone was found to be non-commercial after fracturing with an oil-base fluid. The Niobrara "C" zone was then abandoned with most of the load oil left in the hole. In 1974, the well was deepened to 8355' in the Dakota formation. A 3-1/2" liner was hung from 7200', and the Dakota was fractured and completed at an initial rate of 120 MCFPD. Because of the non-commercial rate, the well has remained shut in since being completed.

(CONTINUED ON ATTACHED SHEET)

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

24. SIGNED R. C. Ladd TITLE District Drilling Supt. DATE 8-1-84

(This space for Federal or State use)

PERMIT NO.

APPROVAL DATE

APPROVED BY M. Miltenbach
CONDITIONS OF APPROVAL, IF ANY:

TITLE

M. MILLENBACH
AREA MANAGER

*See Instructions On Reverse Side

Union Oil Company of California
Jicarilla (C-20) Well No. 1
Rio Arriba County, New Mexico
8-1-84
Pg. 2

PROPOSED PLAN OF PROCEDURE

MIRU pulling unit. Run 2.187" OD gauge ring and junk basket to 8200'. POOH. Load hole with 51 bbls. clean 3% KCl water. Load annulus and pressure to 500 psi for monitoring purposes.

Set 2.187" OD bridge plugs at 8125' and 8100'. Pressure test to 3000 psi. Dump 10 feet of cement on top of plug.

Swab F.L. to 6000'. Perforate the Niobrara "A" zone from 7260-7263' and 7269-7278' and the Niobrara "B" zone from 7310-7321' and 7340-7344', with four 2-1/8" tubing gun shots per foot.

Swab and flow test naturally, monitoring annulus for potential communication at the liner top. If O.K., break down perforations 7260-7344' with 2000 gals. non-acid reactive solution with 1000 scf/bbl. nitrogen, staged with 125 ball sealers. Flow back and clean up immediately.

If additional stimulation is warranted, perform a 10,000 gal. mini-frac at 15 bpm with 45 quality nitrogen foam fluid and run a temperature survey to obtain frac height and verify the treatment is in zone. Frac the Niobrara "A" and "B" zones with 90,600 gals. of 70% quality nitrogen foam fluid with 150,000 lbs. proppant at 15 bpm with surface treating pressure of 6500 psi.

Flow and test to evaluate for installation of production facilities.

Union Oil Company of California
Jicarilla No. 1-C20
Rio Arriba County, New Mexico
10-30-84
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SITP 150 psi/13 hours. SICP 900 psi. Pumped 290 gals. 3% KCl water and caught pressure. F.L. 1176'. Pressured 2-7/8" tubing to 3100 psi; bled to 2900 psi in 5 mins. Bled pressure to zero. Pressured tubing to 3100 psi; bled to 2700 psi in 10 mins. TIH with 2.187", elite, magna-range bridge plug and set at 7450'. Made two runs with cement dump bailer and dumped cement from 7450-7425'. Pressured tubing to 3000 psi; decreased to 2950 psi in 10 mins. SION.

SITP 2700 psi. SICP 900 psi. Pressured tubing to 3100 psi with no bleed off in 1/4 hour. Swabbed F.L. to 5100'. Perforated Niobrara "A" zone from 7260-7263' and 7269-7278', and Niobrara "B" zone from 7310-7321' and 7340-7344' with 4 spf with casing jet. Swabbed 16 bbls. load water, cut 1% solids, with oil rainbow in 4-1/2 hours with some gas while pulling swab run, and then tubing on vacuum. F.L. 4900' to seating nipple at 7200'. S.D. 1 hour and had 300' rise. Made 1 swab run and recovered 1 bbl. water, cut 1% solids and rainbow of oil. Left well open to tank on 8/64" choke.

Tubing dead in a.m. 800 psi on 7-5/8" casing. Tagged F.L. at 6900' (300' rise in 15-1/2 hours). Made one swab run and recovered 1/4 bbl. formation water, cut 7% solids. Pressure tested liner to 6000 psi and annulus to 2000 psi. Treated Niobrara perforations 7260-7344' with 2000 gals. N-VER-SPERSE "A" with additives and 47,500 scf N₂, using 150 - 7/8" ball sealers, at average pressure of 3800 psi at 5 bpm in 2 stages. Displaced to perforations with 25 bbls. 2% KCl water and 25,000 scf N₂ at 3800 psi at 4.9 bpm. ISDP 3000 psi. 2750 psi in 10 mins. 2400 psi in 50 mins. Total load, 72.5 bbls. fluid and 72,500 scf N₂. Flowed and swabbed, recovering 31 bbls. of 72-1/2 bbl. water load. Left well open on 8/64" choke overnight.

No fluid to surface and slight gas blow in a.m. Swabbed 6-1/2 bbls. oil, cut 30% water and 3% B.S. in 2-1/2 hours. Had a slight gas show while pulling swab, then tubing would go on vacuum, with a very slight blow after one hour. S.I.

SITP 1000 psi/20-1/2 hours. Tagged F.L. at 6500' (700' rise/20-1/2 hours). Bled to slight blow/15 mins. Made two swab runs and recovered 2 bbls. oil, cut 30-40% water and 4% B.S. Left well open on 8/64" choke to tanks.

Well blowing very slightly in a.m. Tagged F.L. at 6800'. Swabbed 1 bbl. oil cut 35% water and 1% B.S. in one swab run. Pumped step-rate injection test on Niobrara perforations 7260-7344' with 196 bbls. 2% KCl water. ISDP 2150#. 2002#/1 min. 1749#/5 mins. 1601#/10 mins. 1500#/15 mins. 1400#/22 mins. Calculated closure at 1950# from pressure vs square root of time. Calculated closure of 1980# from pressure vs log of time. Bottom hole fracture pressure 5120#. Bottom hole volume factor for N₂ used was 1510 scf N₂/bbl. of space.

Mini-foam fractured perforations 7260-7344' with 10,000 gals. 45 Quality Super-foam 30 with additives and 1510 scf N₂ at average rate of 10 bpm at 5610 psi. Flushed to perforations with 42 bbls. slick water without N₂. ISDP 2836#. 2415#/10 mins. 2060#/40 mins. Total load - 377-1/2 bbls. water.

Ran Temperature Log from 6700-7438'. Log indicated major exit at Niobrara "B" perforations 7318-7350'. Bled pressure from 1800# to zero/1-1/2 hours and recovered 31 bbls. gelled fluid. Left well open on 10/64" choke overnight.

Recovered 1/2 bbl. water with slight gas blow. Tagged F.L. at 700'. Swabbed 54 bbls. water, cut 29% oil and 1% B.S./5 hours. Left open on 10/64" choke overnight.

No fluid to surface overnight with slight gas blow in a.m. Tagged F.L. at 4000'. Swabbed 16 bbls. oil, cut 40% water/1 hour. Reperforated Niobrara "A" zone from 7260-7263' and 7269-7278' with 2 spf. F.L. 6700' and steady. SICP 1700# with no change.

Treated Niobrara "A" and "B" perforations 7260-7344' with 2000 gals. NARS-201 with 300 gals. 2% KCl water with 150# unibeads, 90° wide-range, and 150# benzoic acid flakes as follows: Pressured annulus to 2300#. Pumped 42 bbls. fluid and hit pressure; 0-3350# at 0 to 4-1/2 bpm. 1st Stage: Pumped 200 gals. 2% KCl water with 100# unibeads and 100# benzoic acid flakes, followed by 1000 gals. NARS-201 at 3350-5050-3554-3600-2400-3700#, at 4.5 to 3 to 1.5 to 4.8 to 3.4 to 5 bpm. 2nd Stage: 100 gals. 2% KCl with 50# unibeads and 50# benzoic acid flakes, followed by 1000 gals. NARS-201 at 3700-4200-3600-4200-3700#, at 5 to 7 to 7.7 to 1.6 to 7.5 bpm. Displaced with 42 bbls. 2% KCl water. ISDP 2043#. 1957#/1 min. 1782#/5 mins. 1604#/10 mins. 1404# in 15 mins. Total cumulative load - 410 bbls. water.

Ran Temperature Survey. Survey indicated fluid exit into "A" zone perforations 7269-7278' and "B" zone perforations 7310-7344'. Pressure bled to zero immediately. Swabbed 18 bbls. load/1 hour and swab line failed. SION.

Had a very weak gas blow in a.m. Repaired line and tagged F.L. at 2400'. Swabbed 61 bbls. water, cut 2% oil and 1-1/2% B.S./7 hours. F.L. 2400-7000' with weak gas blow. Have recovered 79 of 410 bbl. water load. Left well open on 12/64" choke/14 hours.

Flowed 10 bbls. oil, cut 40% water, with weak gas blow in a.m. Flowed 6 bbls. oil, cut 40% water, on 3/4" choke for 1 hour, with weak gas blow. FTP 0#. Tested lines to 7000# and pressured casing annulus to 2500#.

Sandfractured Niobrara perforations 7260-7344' with 43,500 gals. 45 Quality Superfoam 30, 23,925 gals. gelled 2% KCl water with additives, 1510 scf N₂ per bbl. fluid, 12,000# 100-mesh sand, 25,000# 20-40 sand, and Iridium 192 RA material at average rate of 12 bpm at 5500 psi. Screened out with 2#/gal. 20-40 sand on perforations to maximum pressure of 6260#. Displaced sand-foam with 1764 gals. Superfoam. ISDP 5096#. 4047#/1. 3544#/5. 3473#/10. 3450#/15. 3200#/3 hrs. J.C. at 11:20 a.m., 10-21-84. Cumulative load to recover, 884 bbls. water. SDON.

SITP 2600#/19 hrs. Opened well on 11/64" choke. FTP 2400#. Flowed 31 bbls. load water/2-1/2 hours. FTP 2400-2700#. Choke cut out with frac sand. SITP 2800#. 2900#/9 hrs. Opened well on 9/64" positive choke at 6:15 a.m. Flowed 24 bbls. load water/12 hours with some sand to surface. FTP 2900-2000 psi this a.m. Flowed dry gas the first hour, then foamy to slick water the remaining 11 hours.

Flowed 8 bbls. load water/2-1/2 hours on 9/64" choke. FTP 2000#. Changed positive choke to 15/64" choke. SITP 2150#/1 hour. Flowed 121 bbls. load water cut 0-2% oil with some gas/20 hours. FTP 2150 psi to 500 psi & steady last 2 hours.

Flowed 71 bbls. load water cut 4% oil in 24 hours with gas increasing to fair blow on 15/64" choke. FTP 500-350 psi. Recovered no sand last 24 hours.

Flowed 12 bbls. load water, cut 4-11% oil with fair gas blow on 15/64" choke in 6-1/2 hours. FTP 350-250 psi. Opened well on 3/4" choke and bled to very weak blow in 1 hour and recovered one bbl. fluid. Ran swab and tagged solid fluid at 5400'. Pulled swab from the seating nipple on the second run, recovering some fluid with strong gas blow immediately after pulling swab, then decreasing to fair blow. Swabbing. Released pulling unit on 10-25-84. S.D. due to weather.

Will pull tubing and check sand fill as soon as weather permits.

NEW MEXICO OIL CONSERVATION COMMISSION
WELL LOCATION AND ACREAGE DEDICATION PLAT

Form C-102
Supersedes C-128
Effective 1-1-65

All distances must be from the outer boundaries of the Section.

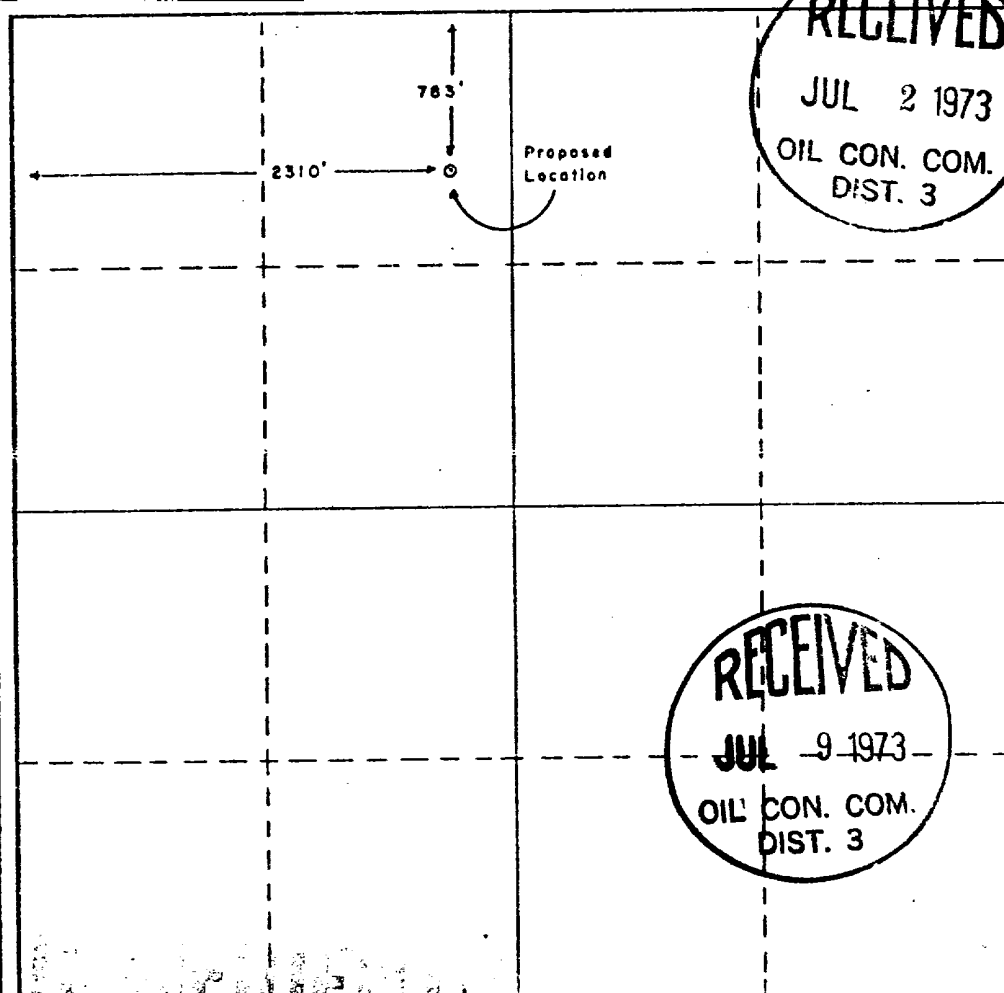
Operator Union Oil Company			Lease Jicarilla		Well No. No. 1 - (C 20)
Unit Letter	Section 20	Township 28 N	Range 1 W	County Rio Arriba	
Actual Footage Location of Well: 783 feet from the North line and 2310 feet from the West line					
Ground Level Elev: 7299	Producing Formation Niobrara		Pool Wildcat	Dedicated Acreage: 40 Acres	

1. Outline the acreage dedicated to the subject well by colored pencil or hatchure marks on the plat below.
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

☐ Yes ☐ No If answer is "yes," type of consolidation _____

If answer is "no," list the owners and tract descriptions which have actually been consolidated on the reverse side of this form if necessary.) _____

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.



CERTIFICATION

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

Name
[Signature]
Position
District Drilling Supt.
Company
Union Oil Company of Calif.
Date
6-21-73

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 knowledge and belief.

Frederick H. Reed
Date Surveyed
May 31, 1973
Registered Professional Engineer and/or Land Surveyor

[Signature]

Certificate No.

3795

0 330 660 990 1320 1650 1980 2310 2640 2970 3300 3630 3960 4290 4620 4950 5280 5610 5940 6270 6600