

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENTSubmit 8 FOR Tribal
Interest, 7 for BLM*
(Other Instructions on
reverse side)FORM APPROVED
Budget Bureau No. 1004-0136
Expires: February 28, 1995

DEC 17 1998

APPLICATION FOR PERMIT TO DRILL OR DEEPEN

1a. Type of Work

DRILL ☒DEEPEN ☐

1b. TYPE OF WELL

OIL WELL ☐GAS WELL ☒OTHER ☐Single ☒Multiple ☐

Zone

Zone

2. NAME OF OPERATOR

Cross Timbers Operating Company

3. ADDRESS AND TELEPHONE NO.

6001 Highway 64 Farmington, NM 87401

4. LOCATION OF WELL (Report location clearly and in accordance with any State regulations)

At Surface:

2600' FSL - 1000' FEL

At proposed prod. zone>

14. DISTANCE IN MILES AND DIRECTIONS FROM NEAREST TOWN OR POST OFFICE

Approximately 6.4 miles to La Plata New Mexico. Please see attached Surface Use Program for further details.

15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. Unit line, if any.)

1000'

18. DISTANCE FROM PROPOSED* LOCATION TO DEEPEST WELL, DRILLING, COMPLETED OR APPLIED FOR, ON THIS LEASE, FT.

1020'

16. NO. OF ACRES IN LEASE

19. PROPOSED DEPTH

17. NO. OF ACRES ASSIGNED TO THIS WELL

21. ELEVATIONS (Show whether DF, RT, GR, etc.)

6100' GL

22. APPROX. DATE WORK WILL START*

12/98

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	GRADE, SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
8-3/4"	J-55, 7"	20#	300'	75-sx
6-1/4"	J-55, 4-1/4"	10.5#	2600'	625-sx

Surface 7", 20#, J-55, STC casing at 300'

75 sx Class "B" cement w/ 2 % CaCl₂ & 1/4 lbs Celloflake (15.6 ppg, 1.19 cu.ft./sx, & 5.19 gal/sx wtr.).

Production 4-1/2", 10.5#, J-55, STC casing at 2,600'

Lead 525 sx of 50:50 Pozmix/Class "H" cement w/ 6% (1 and 1/4 pps Celloflake (13.6 ppg, 1.34 cu.ft./sx)

Tail 100 sx of Class "H" cement w/ 0.3% FL-52, & 0.5% CD-32 (16.2 ppg, 1.09 cu.ft./sx)

Remarks: Use 20% excess over volume calculated from open hole logs to bring cement to the surface.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen, 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 measure- and true and vertical depths. Give blowout preventer program, if any.

24.

SIGNED:

TITLE Gary

Markestad, P.E. VP Production

DATE: 12/15/98

(This space for Federal or State office use)

Permit Number:

Application approval does not warrant or certify that the applicant holds legal title to those lands in the subject lease which would entitle the applicant to conduct operations thereon.

CONDITIONS OF APPROVAL, IF ANY

APPROVED BY

Ilyse K. Auringer

Approval Date:

SEE ATTACHED
CONDITIONS OF APPROVALAPPROVED FOR A PERIOD
NOT TO EXCEED 1 YEAR.

TITLE

MINERALS STAFF CHIEF

DATE

MAR 1 1999

Title 18 U.S.C. Section 1001, makes 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 or any matter within its jurisdiction.

* See instruction on Reverse Side

R-11131 (E)

APPLICATION FOR PERMIT TO DRILL

For the Proposed

**UTE INDIANS A #27 WELL PAD,
PIPELINE AND ACCESS ROAD**

UTE MOUNTAIN UTE LANDS
SAN JUAN COUNTY, NEW MEXICO

Ute Dome Dakota Well

Submitted to BLM Durango District Office on December 16, 1998
Submitted to Bureau of Indian Affairs – Towaoc, CO by mail 12/16/98

On Behalf of:

CROSS TIMBERS OPERATING COMPANY

2700 Farmington Avenue, Bldg. K, Ste. 1
Farmington, New Mexico
505-324-1090

Prepared By:

Trigon-Sheehan, LLC

4100 E. Main Street
Farmington, New Mexico
505-325-1266

RECEIVED
MAR - 5 1999
OIL CON. DIV.
P.L. 3

RMOC

District I
PO Box 1980, Hobbs, NM 88241-1980

District II
PO Drawer 00, Artesia, NM 88211-0719

District III
1000 Rio Brazos Rd., Aztec, NM 87410

District IV
PO Box 2088, Santa Fe, NM 87504-2088

State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

Form C-102
Revised February 21, 1994
Instructions on back
Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

*API Number 30-045-29863	*Pool Code 86720	*Pool Name UTE DOME DAKOTA
*Property Code 22645	*Property Name UTE INDIANS A	*Well Number 27
*OGRID No. 167067	*Operator Name CROSS TIMBERS OPERATING COMPANY	*Elevation 6100'

10 Surface Location

UL or lot no. I	Section 2	Township 31N	Range 14W	Lot Idn	Feet from the 2600	North/South line SOUTH	Feet from the 1000	East/West line EAST	County SAN JUAN
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11 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
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12 Dedicated Acres 160 AC.	13 Joint or Infill	14 Consolidation Code	15 Order No.
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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

16	5280.00'	17 OPERATOR CERTIFICATION
4	3	I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.
2	1	Signature Gary L. Markestad
1323.96'	1323.96'	Printed Name Vice-President / Production
1320.00'	1320.00'	Title
1320.00'	1320.00'	Date
2640.00'	2640.00'	18 SURVEYOR CERTIFICATION
RECEIVED MAR - 5 1999 OIL CON. DIV. DIST. 3	2600'	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.
5280'	5280'	OCTOBER 22, 1998
		Date of Survey
		Signature and Seal
		NEALE C. EDWARDS NEW MEXICO 6857
		6857
		Certificate Number

UTE INDIANS A #27
CROSS TIMBERS OPERATING COMPANY
SURFACE USE PROGRAM
SAN JUAN COUNTY, NM
Ute Dome Dakota Well
2600' FSL – 1000' FEL
Section 2, Township 31 North, Range 14 West

1. EXISTING ROADS:

Start in La Plata, New Mexico, and drive west on Barker Dome Road 5.4 miles. The road will fork, taking the southerly fork off the main road, drive approximately 0.9 miles. The new access road takes off to the right with the proposed Ute Indians A #27 will be directly adjacent to the road on your right. Please also consult the attached Exhibit 1.

2. ACCESS ROADS TO BE CONSTRUCTED and ONSITE STIPULATIONS:

Approximately 300' of new access is needed for this well. On existing roads appropriate measures will be taken to prevent erosion and runoff in the form of culverts or other measures. New roads will be maintained and low water crossings will be used for wash crossings as needed. All roads will be crowned in such a manner that water will not settle on the road. The roads are approximately sixteen feet in width and will be prepared adequately to carry anticipated loads.

Pits will be shortened on the southern end by 10'. Pits will be lined with 8-10 ml reinforced poly-liner. Divert drainages around on the north end.

3. LOCATION OF EXISTING WELLS:

See Attached Exhibit 2.

4. LOCATION OF EXISTING AND/OR PROPOSED FACILITIES IF WELL IS PRODUCTIVE: (Cut and Fill Diagram and Pipeline Survey)

See attached Exhibit 3.

5. LOCATION AND TYPE OF WATER SUPPLY:

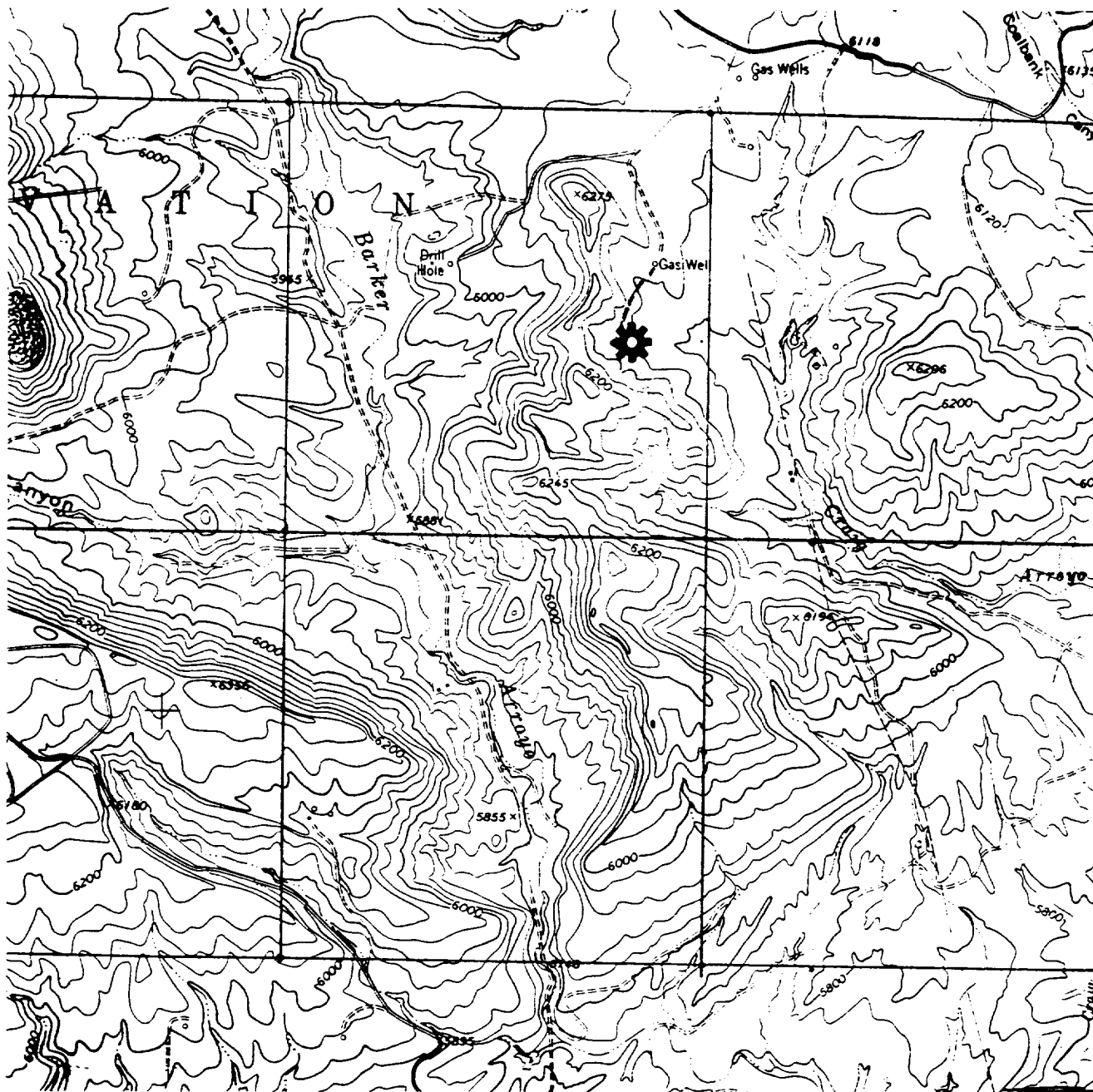
Water to be used for drilling purposes will be transported by a commercial approved contractor such as SUNCO Trucking Company or Three Rivers Trucking Company. Existing roads or approved new access roads will be used to haul the water to the new drill location.

CROSS TIMBERS OPERATING COMPANY

UTE INDIANS A #27

2600' FSL- 1000' FEL, Sec. 2, T31N-R14W

Proposed Ute Dome Dakota Well

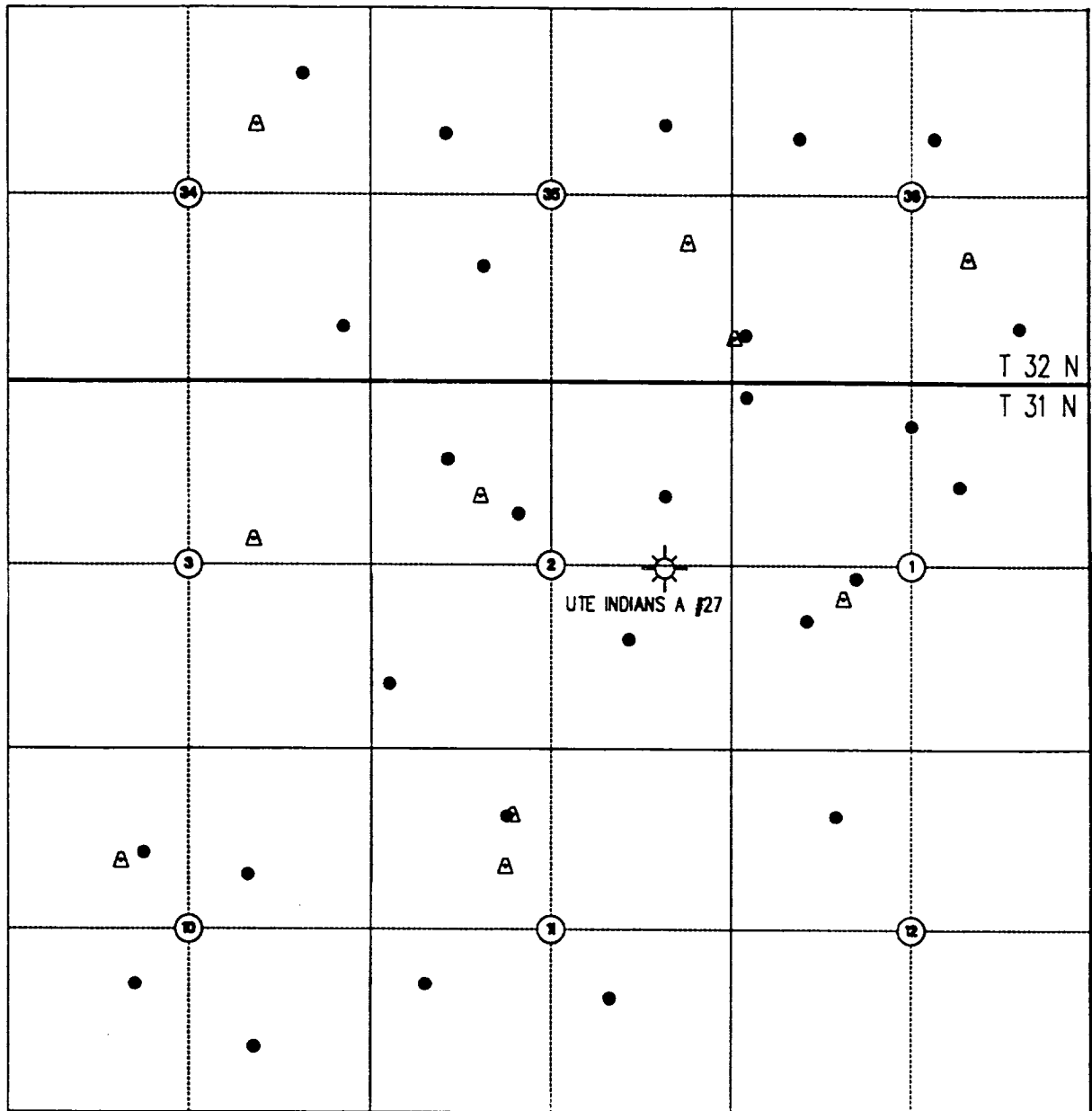


USGS Purgatory Canyon, New Mexico, CO // 7.5' Series // Scale 1:24000

UTE INDIANS A #27

UTE DOME DAKOTA
EXISTING ADJACENT GAS WELLS WITHIN A 1 MILE RADIUS

SEC. 2, T 31 N, R 14 W
SAN JUAN COUNTY, NEW MEXICO



LEGEND

- BASIN DAKOTA FORMATION
- △ PARADOX FORMATION
- ☀ UTE INDIANS A #27



SCALE : N/A

REVISION:

DRAWN BY: J. COLEMAN

DATE DRAWN: 12/8/98

FILE NAME: UTE-A#27ADJ

CLIENT



**Cross Timbers
Operating Company**

PREPARED BY

TRIGON SHEEHAN
ENGINEERS & CONSTRUCTORS

7. FORMATION TOPS:

Formation	Subsea Depth	Well Depth
Point Lookout Ss.	+5600'	416'
Mancos Sh.	+5250'	766'
Gallup	+4260'	1756'
Greenhorn Ls.	+3857'	2159'
Normal Fault	+3855'	2161'
Graneros Sh.	+3809'	2207'
First Dakota Ss.	+3740'	2276'
Second Dakota Ss.	+3703'	2313'
Third Dakota Ss.	+3679'	2337'
Lower Dakota Ss.	+3610'	2406'
Burro Canyon Ss.	+3550'	2466'
First Morrison Ss.	+3480'	2536'
TD	+3316'	2600'

8. COMPANY PERSONNEL:

Name	Title	Office Phone	Home Phone
Gary Burch	Project Geologist	817-882-7273	817-572-4431
Barry Voigt	Reservoir Engineer	817-870-8462	817-540-2092
Mark Gosch	Drilling Engineer	915-682-8873	915-689-4338
Bobby Smith	Operations Manager	915-682-8873	915-689-8839
Boogie Ames	Drilling Supervisor	505-320-8435 local cellular 915-556-7403 cellular	806-894-8073
Don Read	Drilling Consultant	505-320-8435 local cellular 505-760-9013 cellular	505-276-8530

3. **WELLHEAD:**

Casinghead Larkin Fig 92 (or equivalent) 4,000 psig test (2,000 psig WP) 8-5/8" 8rd pin on bottom and 2,000 psig WP 10-3/4" API Modified 8rd thread on top (\$650).

Tubinghead Larkin Model 612, 3000 psig WP, 4-1/2", 8rd box on bottom and 7-1/16", 3000 psig WP, flanged top, with a 4-1/2" bell nipple.

4. **CEMENT PROGRAM:**

A. Surface 7", 20#, J-55, STC casing at 300'.

75 sx Class "B" cement w/ 2 % CaCl, & 1/4 pps Celloflake (15.6 ppg, 1.19 cu.ft./sx, & 5.19 gal/sx wtr.).

C. Production 4-1/2", 10.5#, J-55, STC casing at 2,600'

Lead 525 sx of 50:50 Pozmix/Class "H" cement w/ 6% Gel and 1/4 pps Celloflake (13.6 ppg, 1.34 cu.ft./sx)

Tail 100 sx of Class "H" cement w/ 0.3% FL-52, & 0.5% CD-32 (16.2 ppg, 1.09 cu.ft./sx)

Remarks: Use 20% excess over volume calculated from open hole logs to bring cement to the surface.

5. **DRILLING HAZARDS:**

H2S or other Poisonous Gases - Hydrogen sulfide has been present in most wells drilled in this area and is anticipated in this well below surface casing.

Abnormal Pressures -No overpressured zones are known to exist in this area.

Lost Circulation -Lost circulation is anticipated below the surface casing and can be controlled with conventional lost circulation materials added to the mud system while drilling the well. This is not known to be a significant problem to drilling in this area.

6. **LOGGING PROGRAM:**

Mud Logger One man logging unit, on at 2,100'.
Catch 10' samples from 2,100' to 2,600' (TD). Send 1 set of dry samples to CTOC in Ft. Worth.

Open Hole Company to be determined by Geologist.

Resistivity

Array Induction/GR/SP/Cal

Bottom of Surface Casing to TD.

Porosity

CNL/LDT/GR/Cal/Pe

1,700' - 2,600'(TD)

①
RECEIVED
FEB 16 1999

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

OIL CON. DIV.
DIV. 3

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
DIVISION FOR THE PURPOSE OF
CONSIDERING:

CASE NO. 12099
Order No. R-11131

APPLICATION OF CROSS TIMBERS OIL COMPANY FOR AN UNORTHODOX
GAS WELL LOCATION AND SIMULTANEOUS DEDICATION, SAN JUAN
COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This case came on for hearing at 8:15 a.m. on December 17, 1998, at Santa Fe, New Mexico, before Examiner David R. Catanach.

NOW, on this 5th day of February, 1999, the Division Director, having considered the testimony, the record and the recommendations of the Examiner, and being fully advised,

FINDS THAT:

(1) Due public notice has been given and the Division has jurisdiction of this case and its subject matter.

(2) Cases No. 12098, 12099 and 12100 were consolidated at the time of the hearing for the purpose of testimony.

(3) The applicant, Cross Timbers Oil Company (Cross Timbers), seeks authorization to drill its Ute Indians "A" Well No. 27 to test both the Dakota and Morrison formations, Ute Dome-Dakota and Wildcat-Morrison Pools, at an unorthodox gas well location for both intervals 2600 feet from the South line and 1000 feet from the East line (Unit I) of Section 2, Township 31 North, Range 14 West, as projected into the unsurveyed Ute Mountain Indian Reservation. The SE/4 of Section 2 is to be dedicated to the well forming a standard 160-acre gas spacing and proration unit for both intervals.

(4) The applicant further seeks an exception to Division Rule 104.D.(3) to continuously and concurrently produce from the Ute Dome-Dakota Gas Pool through the proposed Ute Indians "A" Well No. 27 and through: (i) its existing Ute Indians "A" Well No. 20 (API No. 30-045-24605) located at a standard gas well location 1580 feet from the South line and 1520 feet from the East line (Unit J) of Section 2; and (ii) the proposed Ute Indians "A" Well No. 26, which is to be directionally drilled from a surface location 570 feet from the South line and 1045 feet from the East line (Unit P) of Section 2 to a standard bottomhole

gas well location within a drilling window bounded by lines 790 and 1190 feet from the South line and 1450 and 1850 feet from the East line (Unit O) of Section 2 (being the subject of Case No. 12100). The applicant further seeks to dedicate all three wells to the existing 160-acre gas spacing and proration unit comprising the SE/4 of Section 2.

(5) Representatives of the Ute Mountain Ute Indian Tribe, the surface and royalty interest owner within the SE/4 of Section 2, appeared at the hearing and cross examined Cross Timber's witnesses primarily regarding the necessity of drilling additional wells on this gas proration unit.

(6) The proposed wells and spacing unit are located within the Ute Dome-Dakota Gas Pool, which is currently governed by Division Rule 104.C.(3), which requires standard 160-acre gas spacing and proration units with wells to be located no closer than 790 feet from the outer boundary of the spacing unit nor closer than 130 feet from any quarter-quarter section line or subdivision inner boundary.

(7) The proposed wells and spacing unit are not located within the boundaries of an existing Morrison pool. Pursuant to Rule 104.B.(2), the spacing and well location requirements for a wildcat gas well are identical to those described in Finding No. (6) above.

(8) Rule No. 104.D.(3) currently states that "Unless otherwise permitted by special pool rules or authorized after notice and hearing, only one well per spacing unit is permitted in non-prorated pools."

(9) According to applicant's evidence and testimony, the primary target within the Ute Indians "A" Well No. 26 is the Paradox formation, Ute Dome-Paradox Pool. It intends to complete this well in the Dakota and/or Morrison formations only if the Paradox formation is non-productive or at a later time when the Paradox formation is depleted within the well.

(10) The applicant presented geologic evidence and testimony indicating that:

- a) the Ute Dome field is located on a broad semi-circular structure on the edge of the Four Corners Platform. On the southeast side of the structure, the stratigraphic section dips steeply to the southeast into the San Juan Basin;

- b) the southern portion of the structure is bisected in the Dakota formation by several west/northwest to east/southeast trending faults. Vertical displacement along the faults can reach 250 feet, and the faults act as permeability barriers. The faults often form four-way structural closures, which trap hydrocarbons migrating upward from mature source rocks;
 - c) similar fault blocks in the area have proven productive from lower Dakota and Morrison sandstones, but they are typically wet when encountered off of localized structures;
 - d) the SE/4 of Section 2 is traversed by two west/northwest to east/southeast trending faults. The faults are generally located within the northern and mid section of the SE/4. The faults effectively segregate the SE/4 into three separate fault blocks within the Dakota formation;
 - e) the existing Ute Indians "A" Well No. 20 is located within the mid-section fault block, while the proposed Ute Indians "A" Wells No. 27 and 26 are proposed to be located within the northern and southern fault blocks, respectively;
 - f) the proposed unorthodox location is necessary in order to locate the Ute Indians "A" Well No. 27 at a high structural position within the Dakota northern fault block; and
 - g) there is currently no Morrison production within the SE/4 of Section 2; therefore, the Ute Indians "A" Well No. 27 will effectively test for Morrison production within this proration unit.
- (11) The applicant presented engineering evidence and testimony indicating that:
- a) the Ute Indians "A" Well No. 20 has produced only 133 MMCF of gas since 1981 and is currently producing at a rate of approximately 8 MCFG per day. Decline curve analysis shows that the well will ultimately recover only 141 MMCF of gas;
 - b) volumetric gas reserve calculations for the primary producing sands in the Dakota formation within the SE/4 of Section 2 are as follows:

<u>Dakota Sand</u>	<u>OGIP (MMCF)</u>	<u>Recoverable Gas (85 % Recovery Factor)</u>
First	405	345
Second	355	302
Third	189	161

- c) there are remaining gas reserves within the Dakota northern and southern fault blocks that are not likely to be recovered by the existing Ute Indians "A" Well No. 20.

(12) The geologic and engineering evidence presented in this case demonstrates that the drilling of the Ute Indians "A" Well No. 27 and the ultimate completion or recompletion of the Ute Indians "A" Well No. 26 to the Dakota formation is necessary in order to effectively and efficiently recover the remaining gas reserves within the SE/4 of Section 2, which will not otherwise be recovered by the existing Ute Indians "A" Well No. 20.

(13) The proposed unorthodox gas well location is necessary in order to penetrate the Dakota formation at a structurally advantageous position within the northern fault block.

(14) The applicant currently operates all the affected offset acreage.

(15) Approval of the proposed unorthodox gas well location and simultaneous dedication will afford the applicant the opportunity to produce the remaining gas reserves underlying the SE/4 of Section 2, which may otherwise not be recovered, and will otherwise prevent waste and protect correlative rights.

IT IS THEREFORE ORDERED THAT:

(1) The applicant, Cross Timbers Oil Company, is hereby authorized to drill its Ute Indians "A" Well No. 27 to test both the Dakota and Morrison formations, Ute Dome-Dakota and Wildcat-Morrison Pools, at an unorthodox gas well location for both intervals 2600 feet from the South line and 1000 feet from the East line (Unit I) of Section 2, Township 31 North, Range 14 West, as projected into the unsurveyed Ute Mountain Indian Reservation.

(2) The applicant is further authorized to simultaneously dedicate the SE/4 of Section 2 in the Ute Dome-Dakota Gas Pool to the Ute Indians "A" Well No. 27 and to: (i) its existing Ute Indians "A" Well No. 20 (API No. 30-045-24605) located at a standard gas well location 1580 feet from the South line and 1520 feet from the East line (Unit J) of Section 2; and (ii) the proposed Ute Indians "A" Well No. 26, which is to be directionally

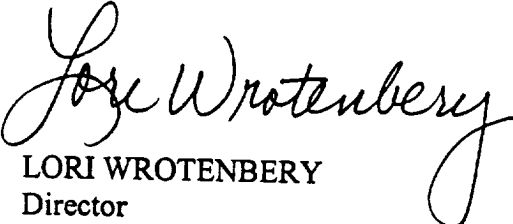
CASE NO. 12099
Order No. R-11131
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drilled from a surface location 570 feet from the South line and 1045 feet from the East line (Unit P) of Section 2 to a standard bottomhole gas well location within a drilling window bounded by lines 790 and 1190 feet from the South line and 1450 and 1850 feet from the East line (Unit O) of Section 2. The applicant is further authorized to continuously and concurrently produce the Ute Indians "A" Wells No. 27, 20 and 26 in the Ute Dome-Dakota Gas Pool.

(3) Jurisdiction of this case is retained for the entry of such further orders as the Division may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION


LORI WROTENBERY
Director

S E A L