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

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

APPLICATION OF CROSS TIMBERS OIL COMPANY FOR A NON-STANDARD SUBSURFACE GAS WELL LOCATION AND SIMULTANEOUS DEDICATION, SAN JUAN COUNTY, NEW MEXICO.

Case No. 12100
Order No. R-_____

ORDER OF THE DIVISION
(Proposed by Cross Timbers Oil Company)

BY THE DIVISION:

This cause 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 _____ day of January, 1999, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS THAT:

(1) Due public notice having been given as required by law, the Division has jurisdiction of this cause and the subject matter hereof.

(2) The applicant, Cross Timbers Oil Company, seeks authority to drill its Ute Indians "A" Well No. 26 at an unorthodox surface location 570 feet from the South line and 1045 feet from the East line of the section, and directionally drill the well to an unorthodox bottomhole location approximately 850 feet from the South line and 1450 feet from the East line (Unit O) of projected Section 2, Township 31 North, Range 14 West, NMPM, San Juan County, New Mexico, to test the Ute Dome-Paradox Gas Pool, Ute Dome-Dakota Gas Pool, and the Morrison formation. Section 2 will be dedicated to the well in the Paradox formation, forming a standard 640-acre gas spacing and proration unit, and the SE¼ of Section 2 will be dedicated to the well in the Dakota and Morrison formations, forming a standard 160-acre gas spacing and proration unit. The applicant also seeks an exception to Division General Rule 104.D(3) to continuously and concurrently produce Ute Dome-Dakota Gas Pool production from the Ute Indians "A" Well No. 26 and from (i) the existing Ute Indians "A" Well No. 20, located at an orthodox 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. 27, to be located at an unorthodox gas well location 2600 feet from the South line and 1000 feet from the East line (Unit I) of Section 2 (the subject of Case No. 12099), and for the simultaneous dedication of all three wells to the SE¼ of Section 2.

(3) The Ute Mountain Ute Tribe (the "Tribe"), the royalty owner in the well unit and all offsetting acreage, appeared at the hearing.

(4) The proposed well is located in the Ute Dome-Paradox Gas Pool and the Ute Dome-Dakota Gas Pool. There is no designated Morrison pool in the area. The Ute Dome-Paradox Gas Pool is spaced on 640 acres under Division Order No. R-46, with wells to be located no closer than 1650 feet to the outer boundary of the well unit and no closer than 330 feet to the center of a section. The Dakota and Morrison intervals are governed by Rule 104.C(3)(a) of the Division's General Rules and Regulations, which requires standard 160-acre gas spacing and proration units, with wells no closer than 790 feet to the outer boundary of the unit, nor closer than 130 feet to a quarter-quarter section line.

(5) The proposed well is located 800 feet closer to the south line, and 200 feet closer to the east line, of the well unit than allowed by Division rules for the Paradox formation. The well will have an orthodox bottomhole location in the Dakota and Morrison formations.

(6) The Tribe is the sole lessor, and the applicant is the sole lessee, of all of Sections 1, 2, 11, and 12, Township 31 North, Range 14 West, NMPM, and thus no interest owner is adversely affected by the unorthodox location or simultaneous dedication.

(7) The applicant presented the following geologic and engineering evidence regarding the Paradox formation:

(a) The Ute Indians "A" Well No. 7, located in Unit F of Section 2, was drilled by Pan American Petroleum Corporation in 1955, and has produced 9.8 BCF of gas from the Paradox formation to date. However, in 1983 production fell suddenly from 600 MCFGPD to 40 MCFGPD. Several workovers failed to substantially increase the producing rate, and the well is currently producing approximately 24 MCF/day. Mechanical problems in the well have left 1.4 BCF of Paradox gas unrecovered in Section 2.

(b) The Paradox formation is approximately 700 feet thick in this area, and is composed mostly of Algal and fossiliferous carbonates deposited in shallow water. The Paradox is subdivided into five members: In ascending order, the Alkali Gulch, Barker Creek, Akah, Desert Creek, and Ismay. All of

these zones are productive in the area. Literature suggests that there is no vertical communication between the zones, because each has a separate gas/water contact.

(c) The Ute Dome feature is a structural high formed at the crest of an asymmetrical, northeast plunging anticline. Steeper dips are found on the southern and eastern sides of the anticline, which forms the edge of the San Juan Basin.

(d) The proposed bottomhole location is on the flexure point between the relatively flat crest of the structure and the steeply dipping south flank. This flexure point should lie in the area of most intense fracturing, which is necessary for good productivity in the Paradox formation.

(e) The Ute Mountain Gas Com "M" No. 1, in Section 11 to the south, encountered 75 feet of thick porous carbonate buildup in the basal Ismay, which is not present in offsetting wells. However, this zone may extend into the SE¼ of Section 2, and as a result the proposed well may test a zone not present in the existing Well No. 7.

(f) The proposed location moves away from the area drained by the existing Well No. 7.

(g) If the proposed well is successfully completed in the Paradox formation, the existing Well No. 7 will be shut-in.

(8) The applicant presented the following engineering and geological testimony and evidence regarding the Dakota and Morrison formations:

(a) Depending on the well's results in the Paradox, the proposed well may be completed in the Dakota and/or Morrison formations.

(b) 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.

(c) The southern portion of the structure is bisected in the Dakota level by several WNW-ESE 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.

(d) Similar fault blocks in the area have proven productive from lower Dakota and Morrison sandstones, but they are wet

when encountered off of localized structures. Thus, a well needs to be structurally high, and the proposed location achieves this objective in the Dakota and Morrison formations.

(e) Two faults bisect the SE¼ of Section 2. The proposed location is within a fault block which is separate from the fault block in which the existing Ute Indians "A" Well No. 20 is located. Thus, the proposed well will have no effect on production from the existing well.

(f) The proposed well will be drilled to test the Morrison formation, which is producing in the Ute Indians "A" Well No. 25, in the SW¼ of Section 2, but not in the Ute Indians "A" Well No. 20.

(g) The Ute Indians "A" Well No. 20 has produced only 133 MMCF of gas since 1981, and is currently producing at a rate of 8 MCF/day. Decline curve analysis shows that the well will ultimately recover 141 MMCF.

(h) Volumetric calculations on the primary sands in the Dakota formation in the SE¼ of Section 2 show the following:

Dakota Sand	OGIP (MMCF)	Recoverable Gas (85% Recovery Factor) (MMCF)
First	405	345
Second	355	302
Third	189	161
Total:	949	808

(i) The engineering data cumulatively indicates that the existing Ute Indians "A" Well No. 20 will not recover all reserves in the SE¼ of Section 2, and that the proposed well will recover additional reserves in the Dakota and Morrison formations.

(9) Applicant requests a drilling window consisting of a 150 foot radius from the proposed bottomhole location, which is reasonable and should be approved.

(10) The unorthodox surface location is due to topographic problems which prevent a well at the proposed bottomhole location. The Bureau of Land Management and the Tribe have approved the surface location for the proposed well.

(11) The evidence and testimony in this case indicates that unless a well is drilled at an unorthodox location in the SE¼ of

Section 2, the Paradox reserves in Section 2, and Dakota and Morrison reserves in the SE¼ of Section 2, will not be recovered, and the interest owners therein will not have the opportunity to produce their fair share of reserves in the reservoir.

(12) Approval of the proposed unorthodox location in the Ute Dome-Paradox Gas Pool, and approval of simultaneous dedication in the Ute Dome-Dakota Gas Pool, will afford the applicant the opportunity to produce its just and equitable share of oil and gas from the subject pool, will prevent economic loss caused by the drilling of unnecessary wells, avoid the augmentation of risk arising from the drilling of an excessive number of wells, and will 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. 26 at an unorthodox surface location 570 feet from the South line and 1045 feet from the East line of Section 2, Township 31 North, Range 14 West, NMPM, San Juan County, New Mexico, to test the Ute Dome-Paradox Gas Pool, Ute Dome-Dakota Gas Pool, and Morrison formation. The bottomhole location in the Paradox formation shall be within a 150 foot radius of a location 850 feet from the South line and 1450 feet from the East line of Section 2.

(2) Section 2 shall be dedicated to the Ute Indians "A" Well No. 26 in the Ute Dome-Paradox Gas Pool. The applicant shall shut-in the Ute Indians "A" Well No. 7 if and when the proposed well is completed as a producing well in the Paradox formation.

(3) In the event the Ute Indians "A" Well No. 26 is completed in the Dakota and/or Morrison formations, the SE¼ of Section 2 shall be simultaneously dedicated to said well, the existing Ute Indians "A" Well No. 20, and the proposed Ute Indians "A" Well No. 27, forming a standard 160-acre gas spacing and proration unit for the Ute Dome-Dakota Gas Pool and in the Morrison formation.

(4) Jurisdiction is hereby 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