

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

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

**CASE NO. 11745
Order No. R-10815**

**APPLICATION OF BURLINGTON RESOURCES OIL & GAS COMPANY TO
AMEND DIVISION RULES 104.B AND 104.C TO ESTABLISH 640-ACRE
SPACING, INCLUDING WELL LOCATION REQUIREMENTS FOR GAS
PRODUCTION BELOW THE BASE OF THE DAKOTA FORMATION IN SAN
JUAN, SANDOVAL AND MCKINLEY COUNTIES, NEW MEXICO**

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on March 19, 1997, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission".

NOW, on this 5th day of June, 1997, the Commission, a quorum being present, having considered the record and being fully advised in the premises,

FINDS THAT:

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

(2) On March 19, 1997, the Commission commenced a public hearing based upon the application of Burlington Resources Oil and Gas Company ("Burlington") to consider modifications to Division General Rule 104 which currently provides for 160-acre gas spacing and proration units in the San Juan Basin of New Mexico.

(3) Burlington seeks to allow for 640-acre proration and spacing units, including modification of well location requirements, for deep gas wells in the San Juan Basin by amending Rule 104.B(2)(a) and Rule 104.C(3)(a) and adopting a new Rule 104.B(2)(b) and Rule 104.C(3)(b).

(4) Burlington proposes that:

- (a) the vertical limits of the affected area would be defined as all gas formations below the base of the Cretaceous period (below the Dakota formation); and
- (b) the horizontal limits of the affected area would be defined as within the surface outcrop of the Pictured Cliffs formation.

(5) Burlington presented geologic, land and petroleum engineering evidence which demonstrated that the current 160-acre gas spacing unit size for deep gas has discouraged efforts to develop the deep gas in the San Juan Basin because:

- (a) deep gas wells drain more than 160-acres;
- (b) a 160-acre unit does not provide sufficient gas-in-place to economically justify the drilling and completing of deep gas wells which currently cost in excess of two million dollars to drill and complete;
- (c) operators do not want to assume the risk of either (a) drilling a deep gas well on 160-acre spacing only to have the owners in the adjoining 160-acre drill another deep gas well which is not necessary in order to drain the area or (b) pooling the adjoining tracts into a 640-acre unit after the well is drilled only to have the adjoining owners avoid assuming any of the risk of drilling the deep gas well;
- (d) due to the diversity of ownership, it is extremely difficult to consolidate 640-acres into a voluntary spacing unit for the drilling of wildcat and development deep gas wells;
- (e) royalty interests cannot voluntarily or involuntarily pool their interests for spacing units larger than 160 acres and therefore cannot share in production from wells capable of draining 640 acres; and
- (f) compulsory pooling is available only for spacing units consistent with the well spacing adopted by the Division which is currently limited to 160 acres.

(6) All parties appearing before the Commission support modifying current Rule 104 to provide for 640-acre "deep gas" spacing.

(7) Amoco Producing Company appeared in support of 640-acre deep gas spacing but requested that this modification include provision for obtaining 640-acre spacing, after notice and hearing, on a temporary basis prior to drilling the well and for an area not to exceed nine sections and then requiring another hearing after the well was completed in order to determine actual drainage areas and adopt "final" spacing units.

(8) Burlington opposed Amoco's request on the grounds that such a complicated procedure would lead to the drilling of unnecessary wells and would discourage deep gas drilling because the participating working interest owners would have to assume the risk of uncertain "final spacing".

(9) The Commission finds that Rule 104 should be modified on a permanent basis to provide for 640-acre gas spacing units, including modified well location requirements for the deep gas formations of the San Juan Basin for the following reasons:

- (a) On December 1, 1950, the Commission revised its Rules and Regulations including amending Rule 104 to designate 160-acre gas well spacing for San Juan, Rio Arriba and Sandoval Counties, New Mexico, with well locations 990 feet to the outer boundary.
- (b) Burlington has developed Barker Creek-Barker Dome and Alkali Gulch areas on 640-acre spacing and has projected similar geologic and reservoir engineering data for the deeper formations underlying the subject area of San Juan Basin.
- (c) The "deep gas" reservoirs from the base of the Dakota formation to the base of the Pennsylvanian formation in the San Juan Basin have not been effectively explored because operators have generally confined exploration to the shallow, less risky Cretaceous gas reservoirs.
- (d) The current rules have discouraged "deep gas" well exploration because an operator is required to risk the drilling of a deep gas well on 160-acre spacing with the "hope" that larger spacing units can be obtained after production is encountered.

- (e) The Pennsylvanian-aged strata in the San Juan Basin lie much deeper than in the Baker Dome, Alkali Gulch and Ute Dome pools. As a result, anticipated pressure in reservoirs below the base of the Dakota formation are projected to be high enough to enable one well per 640 acres to efficiently drain the reservoir with adequate porosity and permeability.
- (f) Drilling wells according to the current 160-acre gas spacing rules would result in economic and physical waste. The impact on the surface, including topographic, geologic and archeological concerns will also be reduced under 640-acre gas spacing rules which include well locations not closer than 1200 to the outer boundary, 130 feet to a quarter line or closer than 10 feet to any quarter-quarter line.
- (g) Wells drilled to formations below the base of the Dakota formation are "high-risk" and "high-cost" ventures. Establishment of 640-acre gas spacing will encourage deep exploration by allowing the formation of 640 acre compulsory pooling units.
- (h) By making this modification permanent, it will create the opportunity for operators to drill these high risk wells and obtain reservoir data from which to determine if "infill" drilling may be appropriate at some future time.
- (i) The requested modification of Rule 104 should be made on a permanent basis which still affords any operator the opportunity to petition the Division to grant exceptions to General Rule 104 for the creation of individual pools with their own unique special rules and regulations when and where appropriate.
- (j) The amendments of Rule 104 as set forth in Exhibit "A", will prevent the economic loss caused by the drilling of unnecessary wells, will avoid the risks associated with the drilling of an excessive number of wells, will increase the opportunity to drill for "deep gas" by the consolidation of tracts into larger spacing units and will otherwise prevent waste and protect correlative rights.
- (k) The vertical limits subjected to 640 acre gas spacing should be the interval below the base of the Cretaceous period (below the Dakota formation); and the horizontal limits of the affected area should be the area within the surface outcrop of the Pictured Cliffs formation as shown on Exhibit "B".

(10) There exists a substantial opportunity for operators in the San Juan Basin to commence a significant exploration efforts to explore the deeper gas potential in the San Juan Basin and adoption of 640-acre deep gas spacing will encourage this exploration effort.

(11) The Commission further **FINDS that:**

- (a) the adoption of these amendments to Rule 104 will provide a more flexible method for the timely and efficient drilling of deep gas wells while providing for the orderly and proper regulations of well locations and spacing units thereby protecting correlative rights and preventing waste;
- (b) the adoption of these amendments to Rule 104 will prevent waste of valuable hydrocarbons, the drilling of unnecessary wells and the protection of the correlative rights of the owners of that production.

IT IS THEREFORE ORDERED THAT:

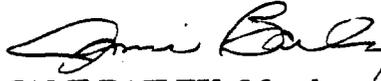
(1) Division Rule 104 is hereby amended to conform to the rule changes hereby adopted by the Commission and as set forth on Exhibit "A" attached hereto and made part of this order.

(2) Rule 104 as amended shall be effective on the date of its publications in the New Mexico Register.

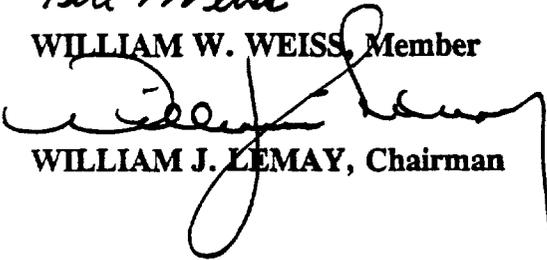
(3) Jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION


JAMI BAILEY, Member


WILLIAM W. WEISS, Member


WILLIAM J. LEMAY, Chairman

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EXHIBIT "A"

For wildcat wells - Rule 104.B(2)

(a) **Shallow Wildcat Gas Wells.** In San Juan, Rio Arriba, Sandoval and McKinley Counties, a wildcat well which is projected to a gas-producing horizon in a formation younger than the Dakota formation, or in the Dakota formation, which was created and defined by the Division after March 1, 1997, shall be located on a designated drilling tract consisting of 160 contiguous surface acres, more or less, substantially in the form of a square which is a quarter section, being a legal subdivision of the U.S. Public Land Survey, and shall be located not closer than 790 feet to any outer boundary of the tract nor closer than 130 feet to any quarter-quarter section line or subdivision inner boundary.

(b) **Deep Wildcat Gas Wells.**

In San Juan, Rio Arriba, Sandoval and McKinley Counties, a wildcat well which is projected to a gas-producing formation in a formation older than the Dakota formation (below the base of the Cretaceous period) and

(i) located **within** the surface outcrop of the Pictured Cliffs formations (i.e., the "San Juan Basin") shall be located on a designated drilling tract consisting of 640 contiguous surface acres, more or less, substantially in the form of a square which is a section, being a legal subdivision of the U.S. Public Land Survey, and shall be located not closer than 1200 feet to any outer boundary of the tract nor closer than 130 feet to any quarter section line nor closer than 10 feet to any quarter-quarter section line or subdivision inner boundary; or

(ii) located **outside** the surface outcrop of the Pictured Cliffs formations (i.e., the "San Juan Basin") shall be located on a designated drilling tract consisting of 160 contiguous surface acres, more or less, substantially in the form of a square which is a section, being a legal subdivision of the U.S. Public Land Survey, and shall be located not closer than 790 feet to any outer boundary of the tract nor closer than 130 feet to any quarter section line, quarter-quarter section line or subdivision inner boundary.

(c) Current Rules 104.B(2)(b), (c) and (d) shall be renumbered as Rule 104.B(2) (c), (d) and (e) respectively.

For Development Wells - Rule 104.C(3)

- (a) **Shallow Gas Wells.** Unless otherwise provided in special pool rules, each development well for a defined gas pool in a formation younger than the Dakota formation, or in the Dakota formation, which was created and defined by the Division after March 1, 1997, shall be located on a designated drilling tract consisting of 160 contiguous surface acres, more or less, substantially in the form of a square which is a quarter section, being a legal subdivision of the U.S. Public Land Survey, and shall be located not closer than 790 feet to any outer boundary of the tract nor closer than 130 feet to any quarter-quarter section line or subdivision inner boundary.

- (b) **Deep Gas Wells.** Unless otherwise provided in special pool rules, each development well for a defined gas pool in a formation older than the Dakota formation (below the base of the Cretaceous period) and
 - (i) is located within the surface outcrop of the Pictured Cliffs formations (i.e., the "San Juan Basin") which pool was created and defined by the Division after June 1, 1997, shall be located on a designated drilling tract consisting of 640 contiguous surface acres, more or less, substantially in the form of a square which is a section, being a legal subdivision of the U.S. Public Land Survey, and shall be located not closer than 1200 feet to any outer boundary of the tract nor closer than 130 feet to any quarter section line nor closer than 10 feet to any quarter-quarter section line or subdivision inner boundary; or

 - (ii) is located outside the surface outcrop of the Pictured Cliffs formations (i.e., the "San Juan Basin") which pool was created and defined by the Division after June 1, 1997, shall be located on a designated drilling tract consisting of 160 contiguous surface acres, more or less, substantially in the form of a square which is a section, being a legal subdivision of the U.S. Public Land Survey, and shall be located not closer than 790 feet to any outer boundary of the tract nor closer than 130 feet to any quarter section line, quarter-quarter section line or subdivision inner boundary.

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EXHIBIT "B"

640-Acre Deep Gas Acreage Boundary
(Pictured Cliffs Pool Outline)

TOWNSHIP	RANGE	SECTION
21 North	2 West	1 - 24, 26 - 33
21 North	3 West - 5 West	All
21 North	6 West	All
21 North	7 West	1 - 18, 23 - 25
22 North	1 West	4 - 9, 17 - 20, 30, 31
22 North	2 West - 7 West	All
22 North	8 West	1 - 30, 34 - 36
22 North	9 West	1 - 18, 23 - 25
23 North	1 West	5 - 8, 17 - 20, 29 - 32
23 North	2 West - 9 West	All
23 North	10 West	1 - 17, 21 - 26
23 North	11 West	1 - 6, 9 - 13
24 North	1 West	2 - 10, 14 - 20, 24 - 32
24 North	2 West - 14 West	All
25 North	1 West	1 - 11, 14 - 23, 24 - 35
25 North	2 West - 14 West	All
26 North	1 West - 14 West	All
27 North	1 West	7 - 10, 15 - 22, 27 - 34
27 North	2 West - 14 West	All
28 North	1 West	4 - 9, 16 - 21, 28 - 34
28 North	2 West - 14 West	All
29 North	1 West	4 - 9, 16 - 21, 28 - 34
29 North	2 West - 13 West	All
29 North	14 West	1 - 4, 8 - 17, 19 - 36
30 North	1 West	5 - 8, 17 - 20, 24 - 32
30 North	2 West - 13 West	All
30 North	14 West	1 - 4, 9 - 16, 21 - 27, 33 - 36
31 North	2 West - 12 West	All
31 North	13 West	1, 12 - 14, 21 - 36
31 North	14 West	25, 26, 34 - 36
32 North	2 West	12 - 22, 28 - 34
32 North	3 West - 11 West	All
32 North	12 West	10 - 15, 21 - 29, 31 - 36