

I. Report



NEW MEXICO ENERGY, MINERALS
& NATURAL RESOURCES DEPARTMENT

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MEMORANDUM

TO: Lori Wrotenbery - NMOCD Director and Chairman of the New Mexico Oil
Conservation Commission
Jami Bailey - Member, New Mexico Oil Conservation Commission
William J. LeMay - Member, New Mexico Oil Conservation Commission

FROM: Michael E. Stogner, Chief Hearing Examiner/Engineer *M.E.S.*

SUBJECT: Final Report of the Rule 104 Work Group/Suggested Rule Changes for the New
Mexico Oil Conservation Commission to consider at its Hearing in Case 12119.

DATE: January 14, 1999

This report, containing recommended changes to Division Rule 104, comes a little over one year after this work groups initial meeting. This report is designed to stimulate discussions between the industry, the Division, mineral interest owners, and the public and can serve as the cornerstone for the order that this Commission will ultimately issue. Any further action or steps to change Rule 104 should be at the direction of this Commission.

Other considerations taken into account in the preparation of this report include: (i) comments and concerns expressed by the industry representatives; (ii) comments taken from the "Industry Speaks OCD Listens forums" held around the state over the last few years; (iii) formal and informal insights, opinions, comments, and conclusions by Division and industry personnel concerning the numerous applications that are submitted to the Division for exceptions to these rules; (iv) and from directives established by the Department and the Division to streamline government and to identify and correct those administrative processes considered to be antiquated and cumbersome.

These recommendations are submitted in two parts, the first prepared by me include those changes and efforts to rewrite the well spacing, location, and classification and acreage requirements found in Rules 104.A, B, and C. Mr. Rick Foppiano with OXY USA, INC. in Houston, Texas prepared the second part, which include changes on the remaining portions of Rule 104. I have elected to include his report as it was submitted to me for several reasons: (i) the clear and concise manner that Mr. Foppiano's reporting style conveys; and (ii) since this was a group effort I felt it best that his version be presented directly.

I have also included several historical and informative documents that can be referenced to help explain the evolution of New Mexico's spacing and well location requirements.

PART I:

RULE 104.A

This portion of Rule 104 that concerns the classification of wells as wildcat or development are to remain unchanged.

RULES 104.B and C

In order to clarify and streamline the rules themselves the old subheadings of Rule 104.B: "Acreage and Well Location Requirements for Wildcats" and Rule 104.C: "Acreage and Well Location Requirements for Development Wells" have been relabeled as Rule 104.B: "Acreage and Well Location Requirements for Oil Wells" and Rule 104.C: "Acreage and Well Location Requirements for Gas Wells". I have also included graphical representations that show current and proposed acreage dedications and well spacing requirements mentioned in this report.

640-ACRE SPACING:

The rules for deep gas wells in the San Juan Basin, as promulgated and established by and set forth in Division Order No. R-10815, issued in Case No. 11745 and dated June 5, 1997 should remain unchanged at this time.

320-ACRE AND 160-ACRE SPACING:

Common to both: It is proposed to all but eliminate the internal offset requirements that currently exist in both cases: (i) 320-acre deep gas in the southeast requires wells to be 330 feet from any internal quarter-quarter section or subdivision inner boundary; (ii) 160-acre spacing outside of the San Juan Basin also requires wells to be 330 feet from any internal quarter-quarter section or subdivision inner boundary; and (iii) it is required for wells subject to 160-acre spacing in the San Juan Basin to be 130 feet from any internal quarter-quarter section or subdivision inner boundary.

Background: this internal offset rule was initiated at a time when exploration for gas reserves, usually found in deeper horizons, was commencing with earnest in southeast New Mexico (see Division Order No. R-238, issued in Case No. 226 and dated December 29, 1952). The easier shallower oil producing horizons had, for the most part, already been discovered and producing. To encourage continued exploration of both oil and gas reserves, this internal offset requirement was initiated. Requiring a well drilled in either a 320-acre or 160-acre unit to be 330 feet from an internal quarter-quarter section, the 40-acre oil spacing rule for wells to be located no closer than 330 feet from a 40-acre unit would be honored at such time as the well drilled to a deeper gas-bearing horizon were eventually plugged back to a shallower oil-bearing formation or if the intended gas producing horizon either turned out to be an oil producer or later classified as oil. In the San Juan Basin where gas not

oil is the prevalent resource, this situation is rare. Oil pools being fewer in number have, again for the most part, been mapped by production or their extent has been determined from nearby gas well logs. Leases in the San Juan Basin are usually larger in size than those in southeast New Mexico and usually follow along section lines. Therefore 130 feet was chosen as a more tolerant distance for this internal setback (see Orders No. R-397, issued in Case No. 598 on December 17, 1953, and R-855, issued in Case No. 1104 and dated August 10, 1956).

Today, most oil and gas exploration and/or development in the state is independent of the other and often by different operators. Further, the prolific gas-bearing and oil-bearing areas, both vertical and horizontal, have been established. Our district offices through experience usually know, even in the rank wildcat areas, what areas and in what formations, oil or gas is likely to be present. Finally, I have been assured time and again that all operators when placing a well that may encounter multiple producing horizons have researched and are aware of the applicable rules governing each horizon and would not locate a well that purposely encroaches upon off-setting acreage without good cause. This rule has outlived its purpose and usefulness and should be eliminated at this time. By providing the operator a larger area in which to locate his wellbore, many applications for unorthodox locations will no longer be necessary. This streamline effort will serve to save money and time for both the operator and for the Division. A rule will remain in place and notice will be required in those instances where a deeper well is plugged back into a shallower oil-bearing zone at an unorthodox oil well location. Should an operator of a well that is located as close as 10 feet to someone else's 40-acre or where the mineral royalty interest are different and where there is no logical excuse or solution to accept such an occurrence, the operator must accept the consequences.

Further, it will be necessary to identify all of the old deep gas pools in southeast New Mexico that were initially established on (by way of the applicable statewide rules at the time) and remained spaced on (under the current provisions) 160-acre units (see Orders No. R-2707, issued in Case No. 3044 on May 25, 1964, and R-5113, issued in Case No. 5569 on October 28, 1975). Once identified these pools should all be placed under a single set of provisions or special pool rules that will mirror the rules currently governing them. This will aid in keeping them separated from all other deep gas pools that are spaced on 320-acre units and will assure that they are not overlooked (as is often the case now). The treatment of these old deep gas pools will remain separated, as was the intent, since the amended Rule 104 will incorporate the phrase, "unless otherwise provided in special pool rules", in several places.

320-acre spacing for deep gas wells in southeast New Mexico:

The Current Rule provides that in southeast New Mexico, a gas well projected to the Wolfcamp formation and deeper is to be dedicated to a 320 acre gas spacing unit with the well located not closer than 660 feet to the side boundary nor closer than 1650 feet to the end boundary. **Further**, well density in unprorated gas pools limits each unit to only one well. For years, the Division's practice, except in certain special circumstances, has been to deny more than one gas well per unit in non-prorated gas pools (see Division Memorandums dated July 27, 1988 and August 3, 1990). This practice was formally adopted as a rule in June, 1997 by Order No. R-10533.

Basis for these rules: There are four fundamental regulatory tools used by the Division to enforce New Mexico's oil & gas conservation statutes: (a) well locations, (b) size of spacing units, (c) number of wells per unit and (d) producing allowables. A portion of the current Rule 104.B sets the "statewide" standard for well locations which governs well locations except when superseded by special pool rules.

The objective is to require wells that are centrally located within their spacing units so they drain their own units' reserves and not those of offsetting spacing units. Although the Division requires that 320 acres be dedicated to a deep gas well, most such wells are not subject to production limits unless they are located in one of the few remaining pools being prorated. Without this one well rule, operators could drill more than one well per unit which would circumvent well density and allow them to drain more than their share of recoverable gas in violation of Section 70-2-33(H) NMSA 1979.

Problems: When New Mexico's deep gas reservoirs ("pools") were being discovered and developed, this rule was appropriate for the "deep gas" spacing unit (320 acres). Now that most of New Mexico's deep gas pools are in advanced stages of exploitation, the Division continues to see more and more applications seeking exceptions from the "standard" well location rule and based upon hundreds of Division's Examiner hearings and administrative applications for non-standard gas well locations and many approvals granting simultaneous dedication, the industry has repeatedly demonstrated over the last ten years that few deep gas wells drain more than 160 acres and that wells are often dedicated to 320-acre unit which contain a substantial portion of non-productive acreage.

Proposed solution: It is recommended that Rule 104 be changed so that deep gas wells can be located not closer than 660 feet to any quarter section line and that each 320-acre unit be allowed one and only one "infill" well so long as the infill well is located in the adjacent 160-acres from the original well.

Reasons:

- (i) Because deep gas wells seldom actually drain 320 acres, the concern about offset drainage has not often been demonstrated to be a real problem.
- (ii) Allowing an optional infill well on a 320-acre unit will substantially increase the opportunity in New Mexico to improve recovery of gas and to immediately increase production and state income.
- (iii) Using 660-foot setbacks to any quarter section provides a uniform opportunity for all operators to locate wells equal distances from a common boundary. This, in conjunction with infill drilling, will allow operators a better opportunity to locate wells at optimum locations in Pennsylvanian channel depositional systems.
- (iv) Reducing the well location setback will eliminate a substantial

volume of the current administrative caseload and speed up the approval process for operators to drill their wells.

(v) Waste is prevented by allowing operators greater flexibility to locate wells in the best positions in the reservoirs thereby substantially reducing the risks of dry holes and increasing the likelihood of obtaining production that might otherwise not be achieved.

(vi) Giving all operators the same footage opportunity and the ability to infill drill protects correlative rights. Because deep gas wells seldom actually drain 320 acres, the concern about offset drainage has not often been demonstrated to be a real problem.

Implementation: Because there are a number of pools with special rules and regulations, it will be necessary to set hearings to require the operators in those pools to appear and show cause why their special pool rules should not be amended to conform to this statewide rule change, or in the alternative, to "freeze" the current boundaries of these pools.

160-Acre Spacing in the San Juan Basin:

Requires 790-foot offsets to the outer boundary of a unit. Elsewhere in the state (shallow gas wells in southeast New Mexico and everywhere outside of the San Juan Basin) well locations can be a minimum of 660 feet to the unit line.

It is therefore recommended that the outer setback requirements for wells spaced on 160-acre units statewide be standardized to reflect 660. Many applications filed on wells in the San Juan Basin area could be eliminated by this change. It would be less confusing and will serve to standardize our rules and streamline the process.

40-ACRE OIL SPACING (included for discussion ONLY): I am proposing at this time that the set back requirements for oil wells be changed from 330 feet from the outer boundary of a 40-acre unit to 220 feet. This was only mentioned in passing at the group session but never truly discussed. This reflects only my idea and is being mentioned here for discussion purposes only. This change serves to increase the drilling window for 40-acre units thereby eliminating the necessity for many unorthodox location requests due to topography. At first glance the issue of drainage appears to be greatly affected, this may not be the case however. Rule 505 establishes production allowables for oil wells based on depth. Consider, for example, a 7500-foot oil well that is 330 feet from a 40-acre unit line, it is allowed to produce at a rate not to exceed 187 barrels of oil per day. In reality the average rate of production for most oil wells in New Mexico falls far below this allowed rate. In fact a very large percentage of oil wells in New Mexico are classified as stripper wells. If one compares in this example the affected offset drainage allowed a non-marginal well with a marginal rate there is no adverse affect to the offsetting acreage. Correlative rights will still be protected since the offset operator will be allowed

the opportunity to drill equal distance to its neighbor. The reason for 220 feet is that this number like 330 feet is a derivative of 5280 feet, or one mile. 220 feet equals $1/24^{\text{th}}$ of a mile. 330 feet is $1/16^{\text{th}}$ of a mile. Its for less than half of 330 feet and is slightly more than 100 feet. In order to permit New Mexico's oil producers the ability to deplete the remaining reserves in the most efficient and effective manner, I feel this is an item that does indeed streamline the administrative process and warrants further investigation and serious consideration.

PART II:

RULES 104.D, E, F, G, H

Most of the changes proposed for the remaining parts of Rule 104 are for clarification purposes and to make adjustments for the above-described changes to 104.B and C. The following is a short synopsis of the major changes that are being proposed here.

- (1) An exception to the infill drilling limitation of one well or two wells [Rule 104.D(3)], whichever is applicable, would no longer require a hearing.
- (2) Language is included that serves to “tighten” the requirements for non-standard location applications. This results in the relaxation of the setback requirements as previously discussed and any further encroachment should not be allowed unless absolutely necessary.
- (3) Even though another committee will propose changes to the notice requirements, certain committee members, myself, and other industry representatives at large felt that comments here are necessary in presenting a full overall and comprehensive review of the 104 Rules to all concerned as opposed to separating the topics. There are two proposals presented here: (i) providing notice to working interests owners in the “common operator” scenario; and (ii) the creation of an alternative to direct notice to all affected parties when it is unduly burdensome or expensive.
 - (a) The common operator scenario occurs when an operator encroaches upon a spacing unit that they also operate. In many instances the leases are different. The proposal presented here would require an operator to notify the other working interests in the adjacent affected property. This will serve to assure the protection of correlative rights and does not present any undue burden on the applicant since they would have a record of this interest.
 - (b) When the notice requirements are found to be unduly burdensome or just too expensive as is often the case inside city limits where there are numerous working interest with very small percentages, an alternate notification by publication would be permissible.

A more detailed account of the suggested changes to 104.D, F, F, G, and H are presented within the body of the proposed amendments as presented.

CONCLUSIONS:

FINAL OBSERVATION

Since January 1, 1997, I have processed approximately 580 applications of which 550 were approved. I received objections from offset operators in only 21 applications. It is obvious that neither the industry nor the Division considers the current rule necessary.

DISCLAIMER

Finally, these changes as presented do not necessarily reflect the opinion of any one single individual, nor does it reflect the work group's majority opinion or even the work group's opinion. These changes are a culmination of suggestions and should serve as a guide to those that will form the basis for this Commission to ultimately decide which changes are needed and appropriate in the time remaining before these valuable yet diminishing reserves are fully and completely depleted. Further review and much more discussion is needed to assure that any changes to Rule 104 best serve New Mexico's oil and gas industry of the 21st Century: (i) in protecting correlative rights; (ii) the best interest of conservation; (iii) in the prevention of waste; and (iv) in truly preventing unnecessary wells from being drilled.