

Well Spacing Rules Executive Summary

OVERVIEW

Revised Code 1509.24 authorizes the Chief of the Division of Oil and Gas Resources Management (“Division”) with the approval of the Technical Advisory Council on Oil and Gas (“TAC”) to adopt, amend or rescind rules relative to the minimum acreage requirements for drilling units and minimum distances from which a new well may be drilled from boundaries of tracts, drilling units and other wells for the purpose of conserving oil and gas reserves.

OBJECTIVE/SCOPE

The Division proposes to amend the existing well spacing rule by revising the minimum acreage requirements for vertical (conventional) wells and to adopt new provisions relative to the minimum distance requirement from which new horizontal shale (unconventional) wells may be drilled from boundaries of drilling units and other horizontal wells. The standards will be applied statewide. The intent of this rule amendment is to replace the existing acreage requirement with one that is consistent with the minimum setback distance to drilling unit boundaries which will create a drilling unit that is more compact than that which is created under the current rule. The Division believes that both the vertical and horizontal rule changes/additions will result in a more efficient conservation of oil and gas reserves and will continue to protect correlative rights.

BACKGROUND

Administrative Code 1501:9-1-04 is the rule that establishes the spacing and setback requirements for oil and gas wells in Ohio. The rule was introduced in 1965 with the creation of the Division of Oil and Gas and was amended to its present form in 1967.

Compact and contiguous

Substitute Senate Bill 165 was signed into law in 2010 and modified the language of Ohio Revised Code 1509.24(A) to include the statement that “the rules relative to minimum acreage requirements for drilling shall require a drilling unit to be compact and composed of contiguous land.” The ‘contiguous’ provision is addressed in Ohio Revised Code 1509.26 and has always been a requirement for permit application approval. On the other hand, the term ‘compact’ required definition. Using the existing acreage requirements as set forth in Ohio Administrative Code 1501:9-1-04 for wells drilled

vertically or directionally to different depths, the Division considered various possibilities to resolve the compactness issue.

It was during this consideration that the Division proposed to maintain the current minimum distance between wells producing from a common reservoir and to the unit boundaries for ten, twenty and forty acre units. The Division then calculated what those acreages would be if a unit was perfectly circular, the well was in the center and the radius of that circle was the minimum setback to the unit line. In doing so, it was found that the acreage in each case was approximately 50% less than that prescribed by the current rule. The Division believes that by reducing the minimum acreage to 50% of its current value, drilling units will be condensed (i.e., made compact) and conservation will be enhanced by allowing additional resources to be recovered that might not otherwise be recovered.

The Division proposes that Administrative Code 1501:9-1-04(C) Location of wells be amended as follows:

- (1) (a) Upon a tract or drilling unit containing not less than one acre. No change.
- (2) (a) Upon a tract or drilling unit containing not less than five acres.
- (3) (a) Upon a tract or drilling unit containing not less than ten acres.
- (4) (a) Upon a tract or drilling unit containing not less than twenty acres.

Horizontal well spacing

At the time of the 1967 spacing amendment, Ohio was primarily an oil producing state and the General Assembly did not contemplate that oil and gas development would evolve to the extent that it has where wells could be horizontally drilled for thousands of feet in relatively impermeable shale formations that would produce great quantities of natural gas liquids as well as oil and natural gas.

To address this oversight, the General Assembly defined a horizontal well in Amended Substitute Senate Bill 315, which became effective in September 2012. Revised Code 1509.01 (GG) defines a horizontal well as “a well that is drilled for the production of oil or gas in which the wellbore reaches a horizontal or near horizontal position in the Point Pleasant, Utica, or Marcellus formations...” Subsequently, other statutes and rules have been promulgated that specifically address horizontal drilling.

To date, the Division has been addressing horizontal well spacing in the following manner:

Administrative Code 1501:9-1-04(E)(2) states that the chief shall grant an exception (variance) to the spacing rules if an applicant can demonstrate that such an exception will protect correlative rights and/or promote conservation by permitting oil and gas to be produced that otherwise could not be produced.

In August 2012, Atlas Resources LLC (“Atlas”) appeared before the Technical Advisory Council on Oil and Gas (“TAC”) to make a presentation in support of a request to reduce the minimum distance between wells producing from the same formation and were to be drilled in a common drilling unit. The distance requested was a reduction from the current minimum of 1,000 feet to as little as 225 feet but would maintain the required 500 foot minimum distance to the outer unit lines. After considering the presentation and discussion, the TAC unanimously recommended approval of the Atlas proposal. Shortly afterward, Atlas proceeded to permit and drill five wells in a unit that were spaced 440 feet apart.

In November 2013, four horizontal shale producers appeared before the TAC to demonstrate that the state minimum distance to unit boundaries was inadequate with respect to the efficient recovery of oil and gas from wells that were being horizontally drilled and developed in the Point Pleasant shale formation. The purpose of the presentations was to have the Division consider a reduction to the minimum setback distance to unit lines as set forth in Administrative Code 1501:9-1-04(C)(4)(c) which is the 500 foot setback to a unit boundary for wells producing from a depth of greater than 4,000 feet.

In addition to shale reservoir engineering analyses, the presentations included examples of micro seismic monitoring of new and existing wells that showed that the effective drainage areas of hydraulically fractured shale wells did not extend as far as the regulatory setback requirement and resulted in hydrocarbon reserves being stranded that otherwise might be recovered at a lesser setback distance.

Shortly after the TAC hearing, the Division began to receive requests from shale producers asking for an exception to the setback distance to the unit boundary from the heel and/or toe sections of the wellbore that was consistent with the evidence that was presented at the hearing. The Division reviewed the micro seismic information from the TAC hearing and determined that if the borehole was essentially perpendicular to the unit line at the heel/toe, a variance would be granted allowing perforations to be made as close as 150 feet to that line. Requests of this nature could be submitted with supporting documentation and a formal exception to the spacing rule pursuant to Administrative Code 1501:9-1-04(E)(2) would be drafted.

In addition to the heel and toe setback spacing variance requests, shale producers began to request distance reductions along the lateral portion of the borehole. The Division again reviewed the micro seismic information from the TAC hearing and determined that if the borehole was essentially parallel to the unit boundary, a variance would be granted that would allow perforations to be made as close as 350 feet to the unit boundary anywhere along the borehole length provided that the applicant controlled the leases adjoining the unit. Requests of this nature could be submitted with supporting documentation and a formal exception to the spacing rule pursuant to Administrative Code 1501:9-1-04(E)(2) would be drafted.

In March 2014, due to the increasing number of variance requests from operators, the Division began to discuss the need to adopt permanent new rules relative to the spacing requirements of horizontal shale wells as that term is defined in Revised Code 1509.01 (GG). Consideration was given to the scientific presentations that were made to the TAC by Atlas and the other shale operators that supported a setback standard for shale wells that was different from the spacing rules of Administrative Code 1501:9-1-04(C)(4) that were intended for the development of the traditional historically drilled reservoirs in Ohio.

As a result of that consideration, the Division proposes that Administrative Code 1501:9-1-04(C)(5) to (C)(7) be adopted as follows:

(5) The minimum distance to any boundary of the drilling unit for a well drilled in which the wellbore reaches a horizontal or near horizontal position to any formation shall be determined from the take points along the wellbore.

This is a new definition under RC 1509.01. - "Take Point" means any point along a horizontal well where oil, gas or oil and gas may be produced from a reservoir.

(6) (a) No permit shall be issued to drill a horizontal well as defined in R.C. 1509.01 (GG) for the production of oil and gas unless the proposed take points are located:

(i) Except as otherwise provided in paragraph (C)(6)(a)(ii), the perpendicular distance from any take point is not less than four hundred (400) feet from any unit boundary that is approximately parallel to the horizontal well bore.

(ii) The first and last take points are not less than one hundred fifty (150) feet from any drilling unit boundary that is approximately perpendicular to the well bore.

(b) There is no minimum distance between horizontal wells within the same drilling unit. However, if adverse communication between one or more wells occurs in a drilling unit, the chief may require minimum distances between an existing horizontal

well in that drilling unit and a new horizontal well in that drilling unit or between all new horizontal wells in that drilling unit.

(7) The distance from any take point of an as-drilled horizontal well may deviate up to ten percent of the distances specified in paragraph (C)(6)(a) of this rule.

RULE CONSIDERATIONS

The Division prepared these rules after research and considerations that included, but were not limited to, all of the following:

1. Review of other state oil and gas regulations:
The Division evaluated spacing standards of at least 4 other oil and natural gas shale producing states including: Oklahoma, Pennsylvania, Texas, and West Virginia.
2. Consideration of technical presentations before the TAC:
The Division evaluated spacing standards based on presentations made by shale producing operators to the TAC in August 2012 and in November 2013.
3. Consideration was given to an informal affected parties meeting:
The Division held meetings for affected parties on May 14, 2015 and November 5, 2015. The background, history, and proposed spacing changes were explained and discussed with members of industry and trade organizations.
4. At their request, on February 17, 2016, the Division met with representatives of Hess Corporation (“Hess”) to discuss the proposed changes to horizontal well spacing. Hess was in agreement with the 150 foot setback to the unit line for the heel and toe. Hess preferred to maintain the 500 foot distance from the lateral well bore to the unit line unless they had lease control on the opposite side or permission was granted for a lesser distance by the adjacent producer.
5. Consideration of standards for analogous shale plays:
The Eagle Ford shale play in Texas is considered to be very similar to the Utica/Point Pleasant play in Ohio. Spacing in the Eagle Ford is 330 feet along the lateral length and 100 feet to the heel and toe. A 10% box rule is in effect as well.
6. Ohio Revised Code 1509.24 authorizes the Chief, with the approval of the Technical Advisory Council on oil and gas, to adopt, amend or rescind rules relative to the minimum acreage requirements for drilling units and minimum distances from which a new well may be drilled from boundaries of tracts, drilling

units and other wells for the purpose of conserving oil and natural gas reserves. On January 17, 2017 the Division presented the proposed spacing rule changes to the TAC for their consideration and approval. The Division presented its proposal in two parts. The first part proposed to amend the existing minimum acreage requirement for drilling conventional vertical and directional wells. The second proposal was to adopt spacing rules for horizontal shale wells that would increase the recoverable reserves in these types of wells. Over forty industry stakeholders were in attendance at the hearing and many offered positive comments on the proposals.

Ohio Revised Code 1509.38 created the Technical Advisory Council and states that five members constitute a quorum and that no action of the council is valid unless five members concur. Six members of the TAC were present at the hearing. Following the presentations and discussions during the hearing, two separate motions were made to approve the Division proposals. Each motion was approved by a vote of six in favor and none opposed.

RULE ACCOMPLISHMENTS

The proposed well spacing rule accomplishes all of the following:

1. Fulfills Substitute Senate Bill 165 requirement to develop rules relating to compact drilling units.
2. Provides consistent standards for horizontal and vertical well spacing throughout the state.
3. Promotes more efficient recovery of oil and gas resources.
4. Protects correlative rights.
5. Significantly reduces the amount of exception requests from the spacing rule for horizontal shale wells.
6. Reduces mandatory pooling requests for vertical (conventional) wells.