

**STATE OF INDIANA
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL AND GAS**

IN RE: Petition of Riverside Petroleum Indiana, LLC, for an exception to 312 IAC 16-5-1, the General Oil and Gas Well Spacing Rules, and 312 IAC 16-5-2, the General Oil and Gas Drilling Unit Size Rules

PETITION

COMES NOW, Riverside Petroleum Indiana LLC ("*Riverside*") on behalf of itself, respectfully shows the Department of Natural Resources of the State of Indiana (the "*DNR*") the following:

1. Riverside is the holder of legal title to, and is the duly authorized representative of all other owners of contractual or other beneficial interests in certain oil and gas leaseholds covering a majority of the land described in Exhibit A hereto, located in Daviess County, Indiana (the "*Affected Area*").
2. The "*Purpose*" of this petition shall be:
 - a. As allowed by 312 IAC 16-5-3, Riverside herein seeks for a certain exception, applicable only to the New Albany Shale formation (the "*NAS*") underlying the Affected Area, to 312 IAC 16-5-1, the General Oil and Gas Well Spacing Rules, and 312 IAC 16-5-2, the General Oil and Gas Drilling Unit Size Rules, granted by the Final Determination of Acceptance pertaining to Petition DOG-11-2008, attached hereto as Exhibit B, (the "*Existing Exception*") to be rescinded, its purpose no longer being useful and its presence now impeding efficient development of natural gas production in the Affected Area.
 - b. The Existing Exception was, in brief but more fully described in Exhibit B, intended to allow reduced spacing of individual legs of multilateral drainholes of a single drilling unit, and the establishment of three hundred and twenty (320) acre or six hundred and forty (640) acre, more or less, drilling units under specific circumstances.
 - c. Riverside therefor asks, for reasons presented in Paragraph 3 hereof, for direction that future drilling units may, where permitted by oil and gas leases or other agreements with mineral owners within the proposed production unit, be formed by any contiguous grouping of quarter-quarter section (approximately forty (40) acre) units, such that the proposed well bore is at all points no less than three hundred thirty (330) feet from any unleased property boundary, but without other restrictions.
 - d. Riverside further acknowledges that care will be taken in the design of such production units, should this petition be granted, not to so create irregular units which would result in areas of ground becoming unexploitable or stranded purely by reason of being surrounded by production units which do not leave sufficient intervening area to locate a well; should this occur, one or more of the surrounding units will be enlarged to include the otherwise stranded tracts.
 - e. Riverside also acknowledges that this petition, if granted, would not apply to any production units or drilling units established prior to 2014.

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3. Riverside herein respectfully submits to the DNR that said Purpose is supported by regional and geological characteristics and would allow the most efficient and economic recovery of natural gas:

- a. Drilling into the NAS in and near the Affected Area has produced, and continues to produce, commercial quantities of natural gas;
- b. The unique characteristics of the NAS, and its low permeability requires the use of horizontal drainholes to allow Riverside to more efficiently and economically develop this unconventional shale gas resource at and near the Affected Area;
- c. Recent advances in the understanding of the NAS, and in particular its structure, have indicated that many NAS wells would benefit from the following characteristics to ensure maximum effectiveness in draining natural gas resources (please see diagrams in Exhibit C for illustration):
 - i. The ability for the north-most location (surface hole location or bottom hole location) of one well may be to the north of the south-most location of the next well to the north, though off-set to the east or west, so as to access fracture sets that are just too far to be accessed effectively by one well, yet close enough that they would be inside the 330' buffer of a rectangular unit for the other well;
 - ii. Being slightly longer, or substantially shorter, than would be optimal for a 320 acre or 640 acre unit; consequentially, while a slightly longer bore could be accommodated by attaching 40 acre parcels to a 320 acre unit, a substantially shorter bore would leave the remainder of the unit wasted, as it is not possible to cleave off undrained 40 acre tracts at the far end;
 - iii. Further, as strict reading of the Existing Exception (though not the understanding accepted by the DNR, it seems), would require units to be aligned with surveyed section lines, which in many cases would require use of surface locations not to the preference of the developer nor of the landowner, and which would result in some fractures being unexploitable, by reason of being within 330' of a boundary, thereby causing them to be stranded and wasted. Being able to off-set units from surveyed sections, by rather aligning them with 40 acre quarter-quarter sections, would allow materially more efficient drainage of such fractures.

While these resulting units would, in general, be close to 320 acres or 640 acres in area, they would not always be compliant with the rectangular 320 acre or square 640 acre units comprised of contiguous quarter-sections aligned with the section surveys, as required by the Existing Exception.

NOTE: The current understanding of structure is important in two ways – firstly, Riverside has conducted extensive seismic and other studies to understand the structure of the NAS; and, secondly, it has become apparent from analysis of El Paso's wells, that it is of vital importance for a well-bore to be angled above horizontal from the curve to the bottom hole location, so as to allow effective drainage of water – without this, it is not possible to effectively remove pressure from the formation, and gas production will be materially reduced from its potential.

- d. Riverside notes that the above assertion is in contradiction to certain statements made by El Paso in its petition for the Existing Exception (see Exhibit D). While El Paso was correct in its assertion that vertical fractures are a controlling factor in the productivity of a NAS well (Paragraph 3.c of their petition), and that horizontal wells can typically drain between 320 and 640 acres (Paragraph 3.d), new knowledge has shown that properly located single laterals can effectively drain more than 320 acres if structure permits a long enough lateral, while it is sometimes not possible to drill a long enough lateral to

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effectively drain 320 acres (contradicting Paragraph 3.d), as we now believe that structure is of key importance in being able to effectively evacuate water from the well-bore (contradicting Paragraph 5, see below). Ultimately, this disputes the assertion in Paragraph 3.e that the very regular, deterministic nature of the Existing Exception would allow effective development and exploitation of the NAS in the Affected Area.

- e. Paragraph 5 of the El Paso petition states "structure has little impact upon the production of natural gas from the New Albany Shale...". While this is correct to the extent that fractures are the prime driver of potential production, it is also misleading in two important matters. Firstly, in order to relieve the pressure from the formation to allow gas to be produced, water must be effectively evacuated, which is only possible in a toe-up design where the well bore climbs from the heel to the end; this means that the location and orientation of the well must be chosen with careful reference to structure. Secondly, structure indicates or produces compressive, dilative and shear stress regimes in different areas, which in turn controls where fractures occur. The sum of these factors is that structure is of prime importance to the drilling of optimal New Albany Shale wells. Then, since structure may not correlate neatly with section boundaries, flexibility in locating the production units will allow better use to be made of New Albany structures.
- f. Riverside is ready and willing to present to the DNR such further information as may be pertinent or relevant to consideration of the above Purpose, either at or prior to consideration of this petition.
- g. Riverside has not attached any structural map, nor specific examples of proposed units, as these will be determined on a case by case basis as further knowledge is gained.
- h. Riverside represents that, to the best of its knowledge and belief, it would be in the best interest of conservation and the preservation and utilization of petroleum resources to approve the Petition set out above.

Therefore, Riverside asks that, through an informal hearing, the above described Purpose, in particular removal of the Existing Exception, be authorized and established, according to any further terms and conditions as the DNR may impose in its Order therefor.

Respectfully submitted,



Dylan Morgan

Director Operations: Riverside Petroleum Indiana

October 30, 2014 Re-issued November 13, 2014

For notification and correspondence, please contact Riverside as per:

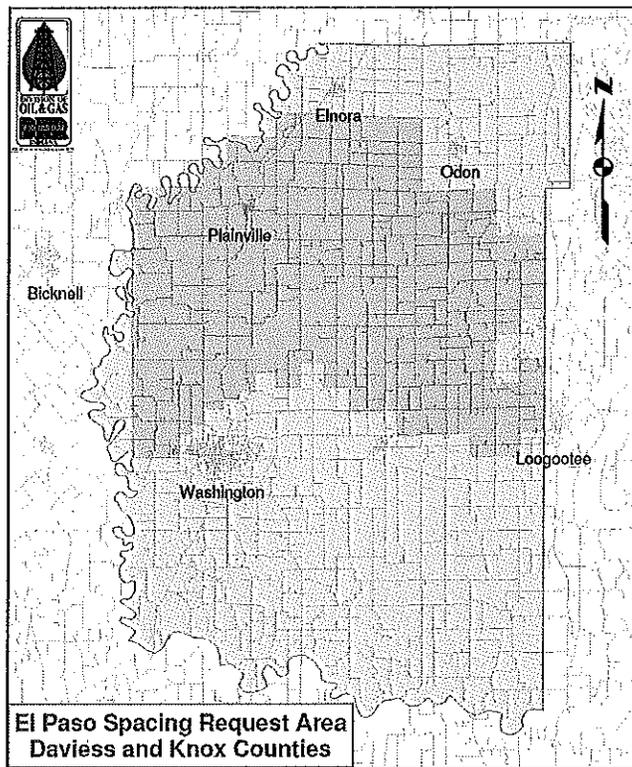
Main officer: 2700 Technology Forest Boulevard, Suite 230
The Woodlands, TX 77381
Tel: 231-313-2763 or 713-589-8810
Email: dylan@riversideoperating.com

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Exhibit A: Description of the Affected Area

The area described in the following table, along with any other areas affected by the decision governing Petition DOG-11-2008 or as amended, constitutes the Affected Area, and the map below (originally presented by El Paso as petitioner of DOG-11-2008) gives an approximate projection of the same.

Township-Range	Sections / Description
T3N R5W	4-9, 11, 14-23, 27, 28
T4N R5W	4-9, 14-34
T3N R6W	1-7, 9-15, 24
T4N R6W	1-36
T5N R6W	19-36
T3N R7W	1-11, 12 N/2 , Fractional NW/4 and SW/4 of 15, 16-21, 29, 30, Locations 185, 189, 191, 241, 243, 258, 269, 271, 272, 274 – 279, 292, 293
T4N R7W	1-36
T5N R7W	25, 26, 34-36



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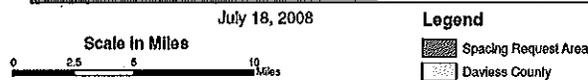


Exhibit B: Copy of Decision with Respect to DOG-11-2008 (the Existing Exception)

**STATE OF INDIANA
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL AND GAS**

AUG 13 2008

FINAL DETERMINATION OF ACCEPTANCE

Petition of El Paso E&P Company, L.P.) Case No.: DOG-11-2008
 For exception to general unit size and well spacing)
 requirements for horizontal New Albany Shale wells in)
 portions of Daviess and Knox Counties.

As provided in 312 IAC 16-5-2, an informal hearing was conducted under 312 16-2-3 and held in this matter commencing at 6:30 P.M. (Eastern) on August 12, 2008, before the Indiana Department of Natural Resources (IDNR), Division of Oil and Gas (Division), at Holiday Inn Express located at 1808 East National Highway, Washington, IN 47501. The purpose of the informal hearing was to consider the Petition for an exception to the well spacing and drilling unit requirements filed by El Paso E&P Company (Petitioner) for the following areas (Petition Area) in Daviess and Knox Counties, Indiana:

Township-Range	Sections and Locations
3N-5W	4 through 9, 11, 14 through 23, 27, 28
4N-5W	4 through 9, 14 through 34
3N-6W	1 through 7, 9 through 15, 24
4N-6W	1 through 36
5N-6W	19 through 36 (Only Section 19 is in Knox County)
3N-7W	1 through 11, North half of 12, Fractional NW/4 and SW/4 of 15, 16 through 21, 29, 30, Location 185, 189, 191, 241, 243, 258, 269, 271, 272, 274, 275 through 279, 292, 293 (Only Section 30 is in Knox County)
4N-7W	1 through 36 (Only Sections 4 through 7, 18, 19, 30 and 31 are in Knox County)
5N-7W	25, 26, 34 through 36 (Only Sections 25, 26, and 34 are in Knox County)

Having reviewed the entire record in this matter, and being duly advised, the Director of the Division of Oil and Gas (Director) makes the following Findings of Fact, Conclusions of Law and Final Determination of Acceptance:

FINDINGS OF FACT

1. Petitioner El Paso is a Limited Partnership whose principal place of business is 1001 Louisiana Street, Houston, Texas 77002. El Paso is authorized to transact business in the State of Indiana.

2. Indiana Code 14-37-3-3 requires the IDNR to regulate the spacing of wells for oil and gas purposes through the establishment of rules providing minimum distances between wells and adjacent properties, and minimum acreage requirements for each well taking into consideration of regional and geological characteristics and factors conducive to the most efficient and economical recovery of oil and gas.
3. 312 IAC 16-5-1 through 312 IAC 16-5-3 contain the rules adopted by IDNR for regulation of well spacing and drilling unit size.
4. 312 IAC 16-5-2 allows the Division Director to grant an exception to the spacing or drilling unit requirements of 312 IAC 16-5-1 and 312 IAC 16-5-2 where the request is supported by unusual regional or geological characteristics and the exception is conducive to the most efficient and economical recovery of oil and gas.
5. Petitioner asserts that it is the holder of legal title to and is the duly authorized representative of various owners of contractual or other beneficial interests in certain oil and gas leaseholds covering a majority of the acreage within the Petition Area.
6. Petitioner proposes to establish horizontal well drilling units for the New Albany Shale formation within the petition area as follows:
 - a. To eliminate standard spacing restrictions between single horizontal drainholes drilled in separate drilling units and between legs of multilateral horizontal drainholes drilled in a single drilling unit, except that no portion of any drainhole shall be located within three hundred thirty (330) feet of any unleased property boundary.
 - b. To establish drilling units containing three hundred twenty (320) acres, more or less, which will be comprised of two (2) contiguous quarter sections of land through which the drainhole traverses, when a single lateral drainhole is drilled.
 - c. To establish drilling units containing six hundred forty (640) acres, more or less, which will be comprised of four (4) contiguous quarter sections of land through which one or more of the horizontal drainholes traverse, when at least two horizontal drainholes, originating from a single wellbore, are drilled.
 - d. Said one hundred sixty (160) acre quarter section drilling unit building blocks shall be established by the rectangular surveying system of the State of Indiana.
 - e. When correction or irregular sections are encountered, a variance shall be allowed so that Petitioner may establish drilling units as close as possible to the acreages set out herein.
 - f. In those portions of the Petition Area that contain divisions of land identified as Locations, which have not been surveyed as part of the rectangular surveying system, all of the land located therein is described in the Petition by its north and south running range lines and its east and west running township lines. The exterior boundary of the resulting sections of land shall be further defined by following said range and township lines to the intersection of these lines. Said sections can be further subdivided into quarter section drilling unit building blocks using this same method. A portion of one or more Location, or all of a Location, may be located within the boundaries of a particular section of land.

7. Petitioner asserts that establishing the proposed horizontal well drilling units is supported by regional and geological characteristics and would allow the most efficient and economic recovery of natural gas as follows:
 - a. Drilling into the New Albany Shale formation in and near the Petition Area has produced commercial quantities of natural gas.
 - b. The unique characteristics of the New Albany Shale formation and its low permeability requires the use of horizontal drainholes to allow the Petitioner to more efficiently and economically develop this unconventional shale gas resource at the Petition Area.
 - c. Drilling horizontal drainholes enhances gas recovery within the New Albany Shale formation by cutting across existing fracture patterns within the formation which are often more vertical than horizontal in nature, thereby facilitating the flow of gas from the shale, to the fractures, to the drainhole.
 - d. Drilling a single horizontal drainhole in the manner described by Petitioner can effectively and economically recover the natural gas resources within a three hundred twenty (320) acre drilling unit and drilling a multilateral horizontal drainhole in the manner described by Petitioner can effectively and economically recover the natural gas resources within a six hundred forty (640) acre drilling unit.
 - e. The proposed exceptions to the General Oil and Gas Well Spacing Rules and General Oil and Gas Well Drilling Unit Size Rules will not result in a loss of resources within the New Albany Shale formation of the Petition Area. The variances will enhance recovery of the natural gas from the low permeability of the New Albany Shale formation.
8. Petitioner attached the following documents to its Petition: Exhibit "A" – Map of Petition Area
9. As required by 312 IAC 16-2-3 (c), notice of the date, time, and place of the informal hearing held at the Holiday Inn Express in Washington, Indiana on August 12, 2008, was published in the Washington Times-Herald newspaper on July 25, 2008, and in the Vincennes Sun-Commercial newspaper on July 25, 2008.
10. The following persons were present at the informal hearing held on August 12, 2008:

<u>Person</u>	<u>Representing</u>
Karen Anspaugh, Zionsville, IN	El Paso
Mike Duncan, Washington, IN	El Paso
Elizabeth R. Williams, Houston, TX	El Paso
Joel Degenstein, Houston, TX	El Paso
Steve Biancardi, Houston, TX	El Paso
Neil McCrary, Petersburg, IN	Self
John D. Divine, Washington, IN	Self
George Mathies, Loogootee, IN	Self

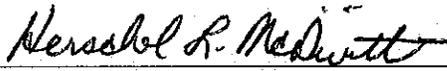
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11. No objections to the Petition were submitted by any persons present at the informal hearing.
12. No objections to the Petition were submitted by any other parties, at any time on or before the date of this Final Determination of Acceptance.
13. Based upon a review of all relevant information, the Petition should be accepted in order to allow the Petitioner to proceed with the efficient and economical development of the proposed drilling units in accordance with the Final Determination of Acceptance.

CONCLUSIONS OF LAW AND FINAL DETERMINATION OF ACCEPTANCE

1. IC 14-37-3-3 and any rules promulgated thereunder apply and are pertinent to the subject matter of the Petition filed herein.
2. There has been full compliance with all notice requirements provided by law, and all interested parties have been afforded an opportunity to be heard.
3. The IDNR and the Division have jurisdiction to hear this matter and authority, as delegated by the Natural Resources Commission, to approve this Petition.
4. The Petition, herein referenced, contains the elements required by law.
5. The well spacing criteria and drilling unit acreage requested by Petitioner are hereby approved within the designated areas in Daviess and Knox Counties in Indiana for purposes of drilling horizontal wells for the production of natural gas from the New Albany Shale formation only.
6. This determination is a final administrative action of the IDNR and, as such, is subject to administrative review under IC 4-21.5-3-7.

August 22, 2008
Dated



Herschel L. McDivitt, Director
Division of Oil and Gas

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**DIVISION OF OIL AND GAS
DEPARTMENT OF NATURAL RESOURCES**

NOTICE OF FINAL DETERMINATION OF ACCEPTANCE

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NOTICE OF RIGHT TO APPEAL

CERTIFICATE OF NOTIFICATION TO AFFECTED PARTIES

Notification is herein provided that on the date indicated below, the Indiana Department of Natural Resources, through the Director of the Division of Oil and Gas, has approved and issued a Final Determination of Acceptance under Administrative Cause No. DOG-11-2008 with respect to a Petition for an exception to the well spacing and drilling unit requirements found in 312 IAC 16-5-1 through 312 IAC 16-5-3 filed by El Paso E&P Company, L.P. (Petitioner). The approval authorizes the Petitioner to establish drilling units of the following sizes for horizontal wells producing natural gas from the New Albany Shale formation within the Petition Area:

- o three hundred twenty (320) acres, more or less, to be comprised of two (2) contiguous quarter sections, when drilling a single lateral drainhole; and
- o six hundred forty (640) acres, more or less, to be comprised of four (4) contiguous quarter sections of land, when drilling at least two (2) horizontal drainholes originating from a single wellbore.

The Petition Area (approximately 178 sq. mi.) is comprised of the following areas in Daviess and Knox Counties in Indiana:

Township-Range	Sections and Locations
3N-5W	4 through 9, 11, 14 through 23, 27, 28
4N-5W	4 through 9, 14 through 34
3N-6W	1 through 7, 9 through 15, 24
4N-6W	1 through 36
5N-6W	19 through 36 (Only Section 19 is in Knox County)
3N-7W	1 through 11, North half of 12, Fractional NW/4 and SW/4 of 15, 16 through 21, 29, 30, Location 185, 189, 191, 241, 243, 258, 269, 271, 272, 274, 275 through 279, 292, 293 (Only Section 30 is in Knox County)
4N-7W	1 through 36 (Only Sections 4 through 7, 18, 19, 30 and 31 are in Knox County)
5N-7W	25, 26, 34 through 36 (Only Sections 25, 26, and 34 are in Knox County)

The terms of the Final Determination of Acceptance are subject to appeal and review under IC 4-21.5-3-7 in a hearing before an Administrative Law Judge. In order to qualify for administrative review, a person must petition for review in writing stating facts that demonstrate

the petitioner is:

- (A) a person to whom the order is specifically directed;
- (B) aggrieved or adversely affected by the order; or
- (C) entitled to review under any law.

In order to be timely, a petition for administrative review must be filed with the Division of Hearings, Natural Resources Commission, Indiana Government Center South, 402 W. Washington St., Rm. W272, Indianapolis, IN 46204 within eighteen (18) days after the mailing date of this notice. If no petition for administrative review is filed within the stated time limit, all terms and conditions contained in the enclosed Final Determination of Acceptance will become final and binding.

I certify that a copy of the referenced Final Determination of Acceptance was sent by First Class Mail on the date indicated below to the following:

Karen J. Anspaugh, Attorney for Petitioner, 49 Boone Village, Suite 168, Zionsville, IN 46077

Elizabeth R. Williams, El Paso E&P Company, L.P., P.O. Box 2511, Houston, TX 77252-2511

Neil A. McCrary, P.O. Box 62, Petersburg, IN 47567

John D. Divine, 361 East 900 North, Washington, IN 47501

George Mathies, 1547 North 1200 East, Loogootee, IN 47553

I further certify that a notice of the approval of the Petition is to be published in the Washington Times-Herald newspaper and in the Vincennes Sun-Commercial newspaper in the earliest possible edition following the date of this Final Determination of Acceptance. The notice will advise interested persons that this determination is subject to appeal and review under IC 4-21.5-3-7 and provide instructions for the timely filing of a petition for administrative review.

August 22, 2008

Date



Herschel L. McDivitt, Director
Division of Oil and Gas

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Exhibit C: Illustrations Supporting the Petition

The diagrams below show

- Quarter-sections in solid, bold outline (blue)
- Quarter-quarter sections in dashed lines (blue)
- Fracture swarms in wide long-dash/short-dash lines (brown)
- Wells as thick arrows (red)
- Production units either as shaded or clear (these alternate in the diagrams)

Figure C.1 illustrates the need of provision 3.c.i of the Petition. We assume here that the structure drops to both the south and the north. This means that the northern fractures must be drilled from the north, while the southern fractures may be drilled from the north; assume that we cannot combine the two units into a stand-up 640 acre unit (for example, one of the units is already larger than 320 acres). If the operator were restricted to rectangular production units of 320 acres, it would be possible to drill only ONE of the fracture swarms: if the unit boundary was placed in the middle of the diagram, it would be possible to drill the northern swarm, but the southern swarm would be less than 330' from the boundary, and so could not be drilled. Conversely, if the boundary were placed at the northern end of the diagram, the southern swarm could be drilled from the south, but the northern swarm would be far down the descending side of the structure, and could not be effectively drilled.

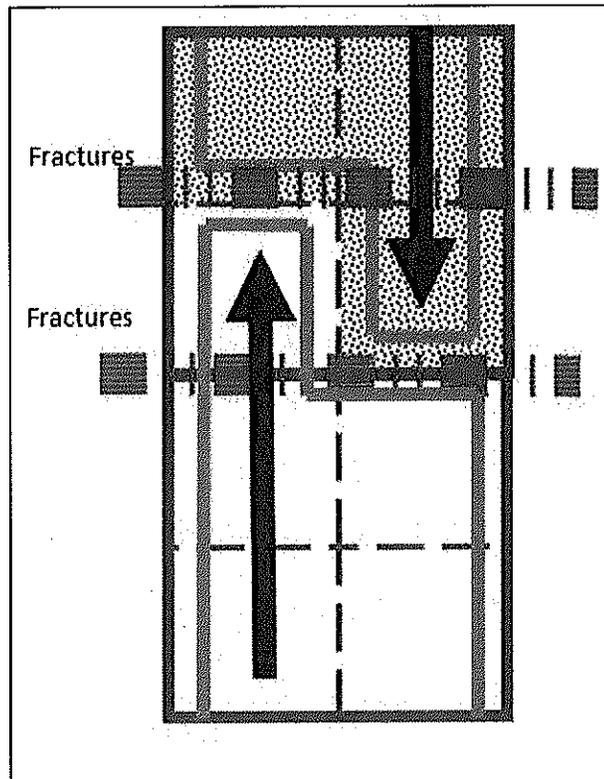


Fig. C.1: Application of irregular units

Figure C.2 demonstrates the value of allowing units smaller than 320 acres, as proposed in provision 3.c.ii of the Petition. In the first diagram, a well is drilled from the only practical surface location (for example, it is at the lowest point on structure, and could not be moved north); it is then drilled southwards, but must stop before it reaches the indicated fracture swarm (there may be other swarms, allowing this to still be a productive well) – for example, lost circulation, a fault, or cresting structure may make the hole undrillable beyond this point. Assume that the production unit cannot be extended to encompass a stand-up 640 acres. If the smallest legal unit were 320 acres, the swarm would be undrillable. However, if the unit can be reduced by 80 acres, this swarm could then be drilled from the south. This flexibility may also facilitate enlarging units into what would be undrilled portions of adjacent units.

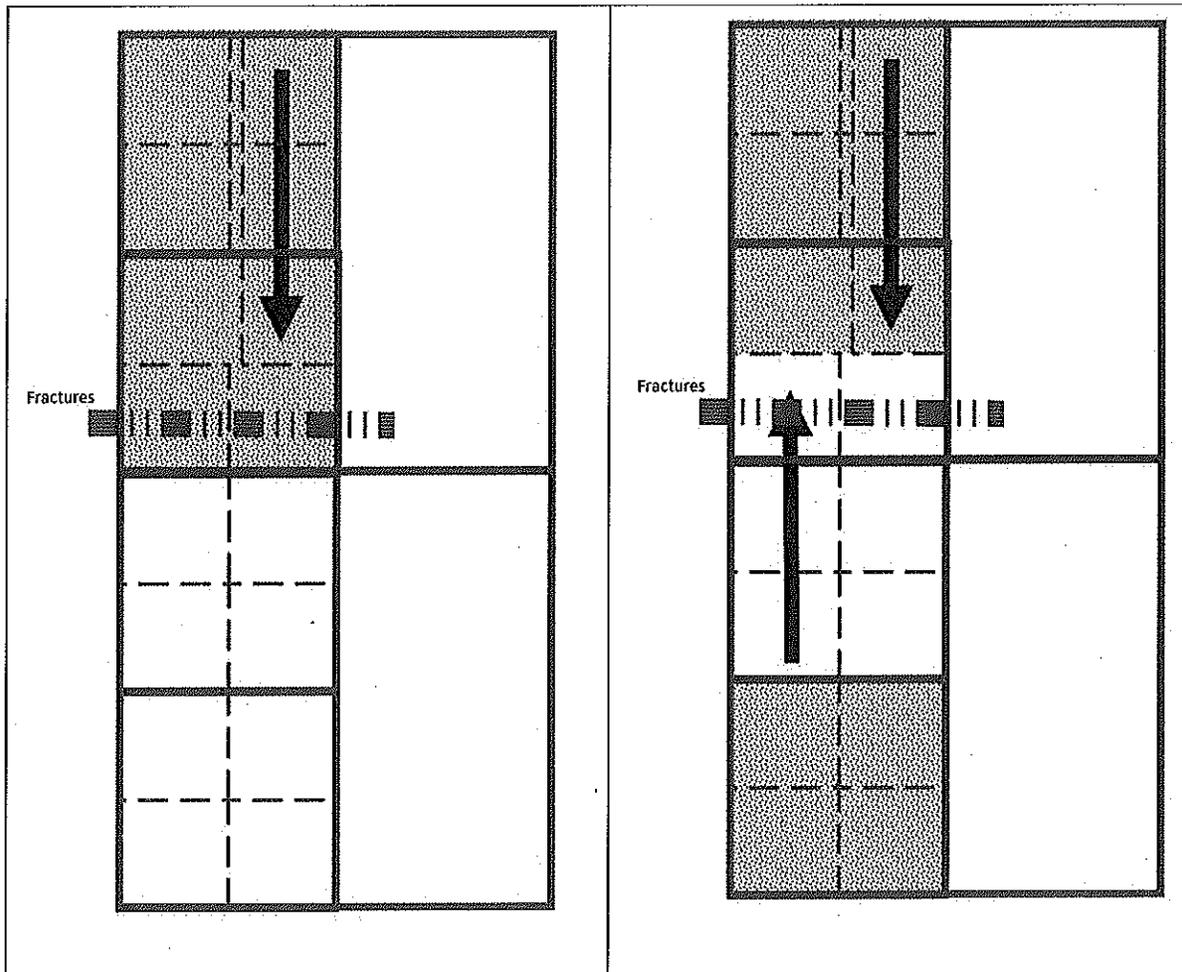


Fig. C.2: Application of smaller units

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Finally, as noted in provision 3.c.iii of the Petition, the Existing Exception strictly requires that production units are aligned with section boundaries, rather than quarter section, or quarter-quarter section boundaries. Consider the scenario in Figure C.3; if the production units had to be aligned with section boundaries, both swarms would be within 330' of the unit boundary, and so would be undrillable. Allowing units to be comprised of any configuration of adjacent quarter-quarter sections would avoid this problem neatly.

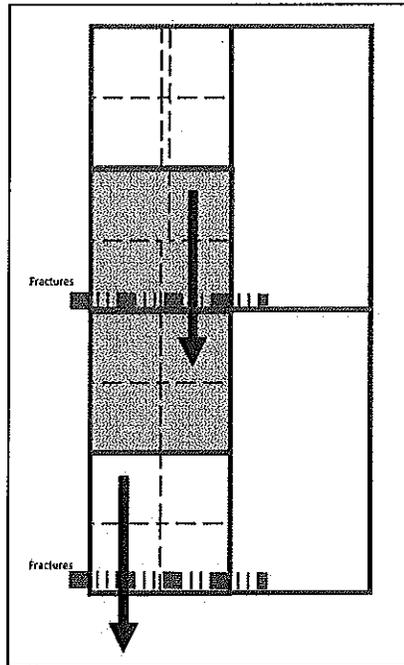


Fig. C.3: Benefits of Allowing Production Units to be Shifted from Sections

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STATE OF INDIANA

BEFORE THE NATURAL RESOURCES COMMISSION
OF THE DEPARTMENT OF NATURAL RESOURCES

IN THE MATTER OF: PETITION OF EL PASO E&P COMPANY, L.P., FOR
AN EXCEPTION TO 312 IAC 16-5-1, THE GENERAL
OIL AND GAS WELL SPACING RULES, AND 312 IAC
16-5-2, THE GENERAL OIL AND GAS DRILLING
UNIT SIZE RULES

PETITION

COMES NOW El Paso E&P Company, L.P., on behalf of itself and other owners of the leasehold interests as set forth below, hereinafter called "Petitioner," by attorney Karen J. Anspaugh, and respectfully shows the Department of Natural Resources of the State of Indiana the following:

- 1. Petitioner is the holder of legal title to and is the duly authorized representative of various owners of contractual or other beneficial interests in certain oil and gas leaseholds covering a majority of the following described land located in Daviess County:

- o Township - Range Description

3N-5W	Sections 4-9, 11, 14-23, 27, 28
4N-5W	Sections 4-9, 14-34
3N-6W	Sections 1-7, 9-15, 24
4N-6W	Sections 1-36
5N-6W	Sections 19-36
3N-7W	Sections 1-11, North Half of Section 12, Fractional NW/4 and SW/4 of Section 15, Section 16-21, 29, 30, Location 185, 189, 191, 241, 243, 258, 269, 271, 272, 274, 275, 276, 277, 278, 279, 292, 293
4N-7W	Sections 1-36
5N-7W	Sections 25, 26, 34-36

Attached hereto and incorporated herein as Exhibit "A" is a map of the area sought to be affected by this Petition, hereinafter referred to as the "Affected Area."

- 2. As allowed by 312 IAC 16-5-3, Petitioner herein seeks an exception, applicable only to the New Albany Shale formation underlying the Affected Area, to 312 IAC 16-5-1, the General Oil and Gas Well Spacing Rules, and 312 IAC 16-5-2, the General Oil and Gas Drilling Unit Size Rules. The variances requested are within the scope of 312 IAC 16-5-3, which does not prescribe minimum distances allowed between wells or maximum acreage allowed in a drilling unit. Said variances are for the following described purposes:

- a) To eliminate standard spacing restrictions between single horizontal drainholes drilled in separate drilling units and between legs of multilateral horizontal drainholes drilled in a single drilling unit, except that no portion of any drainhole shall be located within three hundred thirty (330) feet of any unleased property boundary;
- b) To establish drilling units containing three hundred twenty (320) acres, more or less, for use when a single lateral drainhole is drilled and to establish drilling units containing six hundred forty (640) acres, more or less, for use when at least two horizontal drainholes, originating from a single wellbore, are drilled. Such drilling units shall be established only for horizontal drilling in the New Albany Shale formation in the Affected Area.

Each drilling unit containing three hundred twenty (320) acres, more or less, shall be comprised of two (2) contiguous quarter sections of land through which the drainhole traverses. Each drilling unit containing six hundred forty (640) acres, more or less, shall be comprised of four (4) contiguous quarter sections of land through which one or more of the horizontal drainholes traverse. Said one hundred sixty (160) acre quarter section drilling unit building blocks shall be established by the rectangular surveying system of the State of Indiana. When correction or irregular sections are encountered, a variance shall be allowed so that Petitioner may establish drilling units as close as possible to the acreages set out above.

In those portions of the Affected Area that contain divisions of land identified as Locations, which have not been surveyed as part of the rectangular surveying system, all of the land located therein is described in this Petition by its north and south running range lines and its east and west running township lines. The exterior boundary of the resulting sections of land shall be further defined by following said range and township lines to the intersection of these lines. Said sections can be further subdivided into quarter section drilling unit building blocks using this same method. A portion of one or more Location, or all of a Location, may be located within the boundaries of a particular section of land.

3. Petitioner herein respectfully submits to the Commission that said exceptions are supported by regional and geological characteristics and would allow the most efficient and economic recovery of natural gas:
 - a) Drilling into the New Albany Shale formation in and near the Affected Area has produced commercial quantities of natural gas;
 - b) The unique characteristics of the New Albany Shale formation and its low permeability requires the use of horizontal drainholes to allow the Petitioner to more efficiently and economically develop this unconventional shale gas resource at the Affected Area;

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- c) Drilling horizontal drainholes enhances gas recovery within the New Albany Shale formation by cutting across existing fracture patterns within the formation which are often more vertical than horizontal in nature, thereby facilitating the flow of gas from the shale, to the fractures, to the drainhole;
 - d) Drilling a single horizontal drainhole in the manner described herein can effectively and economically recover the natural gas resources within a three hundred twenty (320) acre drilling unit and drilling a multilateral horizontal drainhole in the manner described herein can effectively and economically recover the natural gas resources within a six hundred forty (640) acre drilling unit.
 - e) The proposed exceptions to the General Oil and Gas Well Spacing Rules and General Oil and Gas Well Drilling Unit Size Rules will not result in a loss of resources within the New Albany Shale formation of the Affected Area. The variances will enhance recovery of the natural gas from the low permeability of the New Albany Shale formation.
4. Petitioner is ready and willing to present to the Commission or its representatives such further and additional information as may be pertinent or relative to consideration of the above described well spacing and unit size variances within the Affected Area, either at or prior to consideration of this Petition.
5. Petitioner has not attached structure maps hereto, as structure has little impact upon the production of natural gas from the New Albany Shale formation. The quantity of natural gas recovered will depend instead upon the existing fracture patterns within the formation.
6. Petitioner represents that to the best of its knowledge and belief, it would be in the best interests of conservation and the preservation and utilization of petroleum resources to approve the exceptions set out in Section 2(a) and 2(b) above.

Therefore, Petitioner prays that, through an informal hearing, the above described exceptions to 312 IAC 16-5-1 and 312 IAC 16-5-2 be authorized and established, according to any further terms and conditions as the Commission may impose in its Order establishing such unit and spacing.

Respectfully submitted,

EL PASO E&P COMPANY, L.P.

By: _____

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For notification purposes:
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Exhibit "A"

