
* **KEY ISSUES: Confiscation** *

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* **FINAL ORDER: GRANTED** *

RULE 37 CASE NO. 0220208

**APPLICATION OF SEAGULL ENERGY E&P, INC. FOR AN EXCEPTION TO
STATEWIDE RULE 37 TO DRILL WELL NO. 3, PHILIP IVY GAS UNIT, MIMMS
CREEK (COTTON VALLEY SAND) AND WILDCAT FIELDS, FREESTONE COUNTY,
TEXAS.**

APPEARANCES:

FOR APPLICANT:

Flip Whitworth (Atty.)

Rick Smith

Ben Wilson

William F. Whittington

APPLICANT:

Seagull Energy E&P, Inc.

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FOR PROTESTANTS:

David Gross (Atty.)

David L. Willis

PROTESTANTS:

Valence Operating Company

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PROPOSAL FOR DECISION

PROCEDURAL HISTORY

APPLICATION FILED:

September 2, 1998

NOTICE OF HEARING:

September 30, 1998

DATE CASE HEARD:

October 23, 1998

HEARD BY:

Marshall Enquist, Hearings Examiner

Margaret Allen, Technical Examiner

TRANSCRIPT DATE:

October 28, 1998

PFD CIRCULATION DATE:

January 14, 1999

STATEMENT OF THE CASE

Seagull Energy E&P, Inc. ("Seagull") seeks an exception to Statewide Rule 37 to drill its proposed Well No. 3 on the 681.837 acre Philip Ivy Gas Unit in the Mimms Creek (Cotton Valley Sand) and Wildcat Fields. The application is protested by Valence Operating Company ("Valence"), an offset to the northeast.

The Mimms Creek (Cotton Valley Sand) Field requires spacing of 660 feet from lease lines and 1320 feet between wells on 160 acre units. The applied-for well is regular to lease lines, with a surface location 670 feet south of the north line and 1200 feet east of the west line of the subject lease. A Rule 37 exception is necessary because the applied-for location is 1032 feet NNW of the existing Philip Ivy Gas Unit Well No. 2, a distance less than the required between-well spacing of 1320 feet.

Seagull has drilled its Well Nos. 1 and 2 on the Philip Ivy Gas Unit and has permitted, but not yet drilled, its Well No. 4 at a regular location.

DISCUSSION OF THE EVIDENCE

SEAGULL ENERGY E&P, INC.'S EVIDENCE

Seagull presented two witnesses and 11 exhibits. Rick Smith, a petroleum geologist, sponsored exhibits providing Estimated Ultimate Recoveries (EUR's) for the existing wells within one and a half miles of Seagull's proposed location (Attachment I) and also provided Net Density Porosity (>9% Porosity) Isopach Maps for the Hill "B" and Bossier "C" Sands, the target reservoirs within the Cotton Valley Formation (Attachments II and III).

Ben Wilson, a petroleum engineer, presented decline curves for the Seagull Ivy Well No. 1, Valence Ivy -A- Well No. 1 and the Apache Moody Estate Well No. 2. Wilson estimated 40 BCF of initial gas in place underlying the 681 acre Philip Ivy Unit. Of this, 30.9 BCF is recoverable, assuming a 77% recovery factor and an initial reservoir pressure of 8800 psi with an abandonment pressure of 1500 psi. Because the target sands are over 12,000 feet deep, the wells in this area are expensive, costing about \$1,200,000.

Seagull originally believed that it was necessary to drill areas of greatest net pay to ensure optimum recovery. Pursuant to that belief, and based on the best information available at the time, Seagull drilled its Ivy No. 2 at a location believed to be at the extreme southern edge of an economically justifiable location. The Ivy No. 2 penetrated 105 feet of net pay (101' of Hill "B" and 4' of Bossier "C") and has an EUR of 2.0 BCF. This well seemed to confirm the necessity of drilling the greatest thickness of pay.

Unfortunately, the hypothetical correlation between greater thickness of pay and greater recovery is disproved by the Apache Moody Estate Well No. 2, which is a poor producer even

though it penetrated 92 feet of pay in the Hill "B" Sand. The Apache well has over twice the net pay of the Seagull Ivy No. 1 (with 42 feet of pay) but both wells have similar EURs at approximately 0.5 BCF each.¹ Neither well is expected to pay out.

The contrast between the relatively high EUR of the Seagull Ivy Well No. 2 and the poor EUR of the Apache Moody Estate Well No. 2 demonstrates that there is no direct correlation between the net feet of pay in a well and its ultimate recovery. Seagull believes its porosity isopach maps must be interpreted in conjunction with evidence of areas of better reservoir quality. Due to the scarcity of wells in this part of the field, areas of better reservoir quality are only roughly indicated by the EURs of existing wells.² The EURs of the Seagull Ivy No. 2 and the Valence Ivy No. 1, at 2.0 BCF and 1.4 BCF respectively, suggest that permeabilities and/or porosities are greater to the west of the Apache Moody Estate No. 2 and the Seagull Ivy No. 1.

The applicant presented its case based on confiscation, arguing that a requirement to drill the Seagull Ivy No. 3 at any other location than the one requested will deny it a reasonable opportunity to recover its fair share of the 30.9 BCF of recoverable gas under its lease. Because the target sands are very tight, the existing Seagull Ivy Well Nos. 1 and 2 will together recover only 2.5 BCF of gas, leaving 28.4 BCF in place. Even after Seagull drills its acreage to full density with four wells, it will likely still not have recovered all of the recoverable reserves beneath its Philip Ivy Unit, due to the tightness of the target sands. Seagull argues that the best combination of reservoir thickness and permeability that will allow it to recover the greatest portion of its fair share is found in the NW quarter of the Philip Ivy Gas Unit.

Seagull believes its applied-for location will not affect Valence, its offset to the NW. The applied-for location is over 1,000 feet from any lease line of the Valence Tract and 2300 feet from the Valence well. Assuming radial drainage and factoring in the 1,000 feet to the Valence acreage, the applied-for well would have to drain 72 acres, three and one half times the drainage area (20 acres) normally found in this part of the field, to begin to affect the Valence tract, much less the Valence well.

VALENCE OPERATING COMPANY'S EVIDENCE

Valence did not present any witnesses or exhibits, nor did it present a direct case. Valence participated in the hearing by cross-examining Seagull's witnesses and arguing, through its representative, against the grant of Seagull's requested Rule 37 exception.

¹ The Apache Moody Estate Well No. 2, with 92 feet of net pay, has an EUR of 0.533 BCF. The Seagull Philip Ivy Well No. 1, with 42 feet of net pay, has an EUR of 0.576 BCF.

² Seagull's isopach maps delineate the target reservoirs according to porosities of greater than 9%. However, good porosity does not necessarily imply good permeability. Porosity measures the relative volume of the pore spaces between mineral grains as compared to total rock volume. It measures the capacity of rock to hold oil, gas and water. Permeability is the measure of the resistance offered by rock to the movement of fluid through it. Rock may have high porosity, but if the pore spaces are sealed off from one another, its permeability may be nonexistent.

The protestant argues that Seagull's lack of foresight has created this problem. If the applicant had planned ahead and drilled the Seagull Ivy No. 2 at a location farther south, the requested Ivy No. 3 exception location would be regular as to lease line and between-well spacing and this hearing would not be necessary.

Valence argues that Seagull has based its case on a nebulous concept of "reservoir quality" but has failed to define what it means by reservoir quality. Absent that, Seagull really has no geological basis for its requested location. It is simply trying to get as close as it can to wells with good EURs and Cumulative Recoveries, which is the practice of "close-ology", not geology.

In Valence's view, the case boils down to reasonableness of location. Other locations are available which will provide a reasonable opportunity to Seagull to recover its reserves. The Seagull Ivy No. 3, at a regular location to the east of the applied-for location, would still access the same quantity of net feet of pay.

EXAMINERS' OPINION

Exceptions to Statewide Rule 37 may be granted to prevent waste or protect correlative rights/prevent confiscation. Seagull has based its case upon prevention of confiscation.

To obtain an exception to Statewide Rule 37 to protect correlative rights, the applicant must show; 1.) that it is not possible for the applicant to recover its fair share by placing the well at any regular location; and 2.) that the proposed irregular location is reasonable.

Due to the tight nature of the target reservoirs, it is not possible for Seagull to get its fair share of the 30.9 BCF recoverable reserves under its tract from any single well, or even from the four wells it is entitled to on this unit. Numerous regular locations currently exist on the Seagull Philip Ivy Gas Unit, but all would require moving the requested well location either to the east, in the direction of reduced permeability/porosity, or to the south, in the direction of rapidly thinning net pay.³

Seagull has shown that there are reservoir quality differences within the target sands, with increased quality to the west. Despite Valence's claim that Seagull has failed to define "reservoir quality", it is apparent that Seagull defines it as higher permeability/porosity, as shown by contrasting the EURS and net feet of pay of the local wells.

The uncontradicted evidence in the record indicates the target sands are tight, and that wells

³ The protestant has suggested that Seagull could move its Seagull Ivy No. 3 due east, to a location that would be regular to the Seagull Ivy No. 2. It is true that this location would afford the same number of feet of net pay as the proposed location, but the move east is in the direction of reduced permeability/porosity, which would negatively impact the ultimate recovery of the well. In addition, moving the Seagull Ivy No. 3 east would have a domino effect on the Seagull Ivy No. 4, causing it to be at an irregular location. The Seagull Ivy No. 4 would then have to be moved south to a regular location, causing it to lose 35 feet of pay, negatively impacting that well also.

in this part of the field probably drain only 20 acres (assuming radial drainage, an area with a radius of 526 feet). Because the wells in this part of the field drain such small areas, wells at regular locations on the adjoining Seagull Hill "G" and Ivy "B" Leases will not recover the reserves on the Philip Ivy Gas Unit. Moving Seagull's locations for the Ivy No. 3 and the Ivy No. 4 to the east and south, respectively, would not only deny Seagull a reasonable opportunity to recover its fair share of reserves, but would also deny Seagull any opportunity to drain the reserves under approximately 40 acres in the NW corner of its Philip Ivy Gas Unit, resulting in confiscation (see Attachment IV).

The nearest portion of the Valence lease to the applied-for location of the Seagull Ivy No. 3 is 1,000 feet away, well past the 526 foot drainage radius normal for this area. If the proposed well drains an area in excess of a 660 foot radius, the first lease to be drained will be Seagull's own Hill "G" Lease to the north. The applied-for location is a reasonable location that will not result in harm to the protestant.

Based on the record in this docket, the examiners recommend adoption of the following Findings of Fact and Conclusions of Law.

FINDINGS OF FACT

1. Notice of hearing was given on September 30, 1998, to all designated operators, lessees of record for tracts that have no designated operator, and owners of record of unleased mineral interests for each adjacent tract and each tract nearer to the well than the prescribed minimum lease line spacing distance.
2. All things necessary to the Commission attaining jurisdiction over the subject matter and the parties in this hearing have been performed or have occurred.
3. The applicant, Seagull Energy E&P, Inc., seeks an exception to Statewide Rule 37 to drill Well No. 3 on the Philip Ivy Gas Unit. Applicant proposes to drill its well at a location 670 feet FNL and 1200 feet FWL of the unit, and 670 feet FNL and 810 feet FWL of the survey. Applicant has applied for completion of its proposed well in the Mimms Creek (Cotton Valley Sand) and Wildcat Fields, having spacing rules requiring 660 foot lease line and 1320 foot between-well spacing on 160 acre units and 467 foot lease line and 1200 foot between-well spacing on 40 acre units, respectively.
4. Applicant's Philip Ivy Gas Unit is a tract of regular size and shape, containing 681.837 acres.
5. Applicant's primary objective is the Mimms Creek (Cotton Valley Sand) Field. Applicant would not drill the well with the Wildcat Field as the sole objective.
6. Applicant has an interest in tracts offsetting the unit.

7. The proposed location is regular to lease lines.
8. Wells in this area drain roughly 20 acres, an area, assuming radial drainage, with a radius of 526 feet.
9. The mineral interest owners of the Philip Ivy Gas Unit cannot recover their fair share of recoverable reserves with existing wells, their currently permitted well and any additional well located at a regular location.
10. The Valence Lease is 1,000 feet from the applied-for well location and will not be affected by the applied-for well.
11. Permeability/porosity in the target sands, the Hill "B" and the Bossier "C" within the Cotton Valley Formation is better in the NW quadrant of the Philip Ivy Gas Unit as demonstrated by the higher EURs of the Seagull Ivy No. 2 and the Valence Ivy "A" No. 1, as opposed to the lower EURs of the wells to the east, the Apache Moody Estate No. 2 and the Seagull Ivy No. 1.
12. An exception to the between well spacing rule for the Mimms Creek (Cotton Valley Sand) Field is necessary to give the mineral interest owners of the Philip Ivy Gas Unit a reasonable opportunity to recover their fair share of hydrocarbons in the subject fields underlying the unit.
 - a. There are currently recoverable reserves of 30.9 BCF of gas underlying the 681.837 acre Philip Ivy Gas Unit.
 - b. Without the applied-for exception, these reserves cannot be recovered by the mineral interest owners of the Philip Ivy Gas Unit.

CONCLUSIONS OF LAW

1. Proper notice was timely given to all parties legally entitled to notice.
2. The application on Form W-1 was properly filed.
3. All things have occurred and have been done to give the Commission jurisdiction to decide this matter.
4. The mineral interest owners of the Philip Ivy Gas Unit are entitled to protection from confiscation.
5. An exception to the between-well spacing requirements is necessary to permit drilling the applied-for well.

6. Approval of a permit to drill a well at the proposed location is necessary to give owners of the subject tract a reasonable opportunity to recover their fair share of hydrocarbons in the applied-for fields underlying the tract or the equivalent in kind, thereby preventing confiscation.

RECOMMENDATION

The examiners recommend that Applicant's request for an exception to Statewide Rule 37 for its Philip Ivy Gas Unit, Well No. 3, in the Mimms Creek (Cotton Valley Sand) and Wildcat Fields be granted.

Respectfully submitted,

Marshall F. Enquist
Hearings Examiner

Margaret Allen
Technical Examiner

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