

**KEY ISSUES: Confiscation
Failure to Negate Regular Location**

R37 DENIED

February 10, 2000

**District 2
Rule 37 Case No. 0222389**

**APPLICATION OF BARRIER RESOURCES, LLC. FOR AN EXCEPTION TO
STATEWIDE RULE 37 TO DRILL ITS NO. 3 WELL, BOZKA GAS UNIT NO. 1, BOZKA
(1600), BOZKA (2700 FRIO SAND), VIENNA (MIOCENE 2000), HOLYFIELD FAN MAN
SAND (YEGUA), HOLYFIELD FAN MAN SAND (YEGUA 1), HOLYFIELD FAN MAN
SAND (EY-3-A), HOLYFIELD FAN MAN SAND (EY-3-B) AND WILDCAT FIELDS,
LAVACA COUNTY, TEXAS**

APPEARANCES:

FOR APPLICANT:

Larry E. Carlisle - Petroleum Engineer
Mike Grogan - Geologist
Henry Jackson - Field Operations Manager

APPLICANT:

Barrier Resources, LLC.
” “
“ ”

FOR PROTESTANT:

Andrew Gallo - Attorney
Rick Johnston - Consulting Engineer
Ken Stolz - Staff Operations Engineer

PROTESTANT:

Whiting Petroleum Corp.
“ ” “
“ ” “

PROPOSAL FOR DECISION

PROCEDURAL HISTORY

APPLICATION FILED:

August 1, 1999

NOTICE OF HEARING:

September 21, 1999

HEARD BY:

Marshall Enquist - Hearings Examiner
Donna Chandler - Technical Examiner

HEARING DATE :

October 29, 1999

TRANSCRIPT DATE:

December 28, 1999

PFD PREPARED BY:

Mark Helmueller - Hearings Examiner
Donna Chandler - Technical Examiner

PFD CIRCULATION DATE:

February 10, 2000

Statement of the Case

Barrier Resources, LLC. (“Barrier” or “Applicant”), seeks an exception to Statewide Rule 37 to drill Well #3 on the Bozka Gas Unit #1 to the Bozka (1600), Bozka (2700 Frio Sand), Vienna (Miocene 2000), Holyfield Fan Man Sand (Yegua), Holyfield Fan Man Sand (Yegua 1), Holyfield Fan Man Sand (EY-3-A), Holyfield Fan Man Sand (EY-3-B) and Wildcat Fields, Lavaca County, Texas. All the applied for fields are subject to the Statewide Rule 37 spacing requirements of 467 feet minimum spacing to the nearest lease line and 1200 feet minimum spacing between wells. The subject lease is rectangular and locations regular to lease-lines are available. The proposed well would be located 135 feet east of the west lease line.

The Bozka Gas Unit #1 (the “Bozka Lease” or “subject lease”) comprises 352 acres as outlined on the plat attached to the Form W-1 (Application for Permit to Drill, Deepen, Plug Back, or Re-Enter) submitted by Barrier on August 12, 1999. (see Attachment A). The closest well on the Bozka Lease is the Bozka #4. Barrier obtained a permit for the Bozka #4 well on September 13, 1999 subject to Barrier’s representation on the Form W-1 that the Bozka #4 would not be produced concurrently from the Holyfield Fan Man Sand (Yegua 1) and (EY-3-A) Fields with the proposed Bozka #3. Accordingly, the proposed well would not be irregular as to between well spacing, even though it is only 332 feet from the Bozka #4.

Barrier’s application is protested by Whiting Petroleum Corp. (“Whiting” or “Protestant”). Whiting is the operator on the adjacent Haidusek Lease to the west of Barrier’s Bozka Lease. Whiting’s wells are at locations regular to the lease lines.

Barrier’s Position and Evidence

Barrier’s application seeks a Rule 37 exception for seven Commission recognized fields, as well as any Wildcat reservoirs encountered. However, Barrier only submitted evidence for two of the Commission recognized fields, the Holyfield Fan Man Sand (Yegua 1) Field (“Yegua 1 Field”) and the Holyfield Fan Man Sand (EY-3-A) Field (“EY-3-A Field”). Barrier contended that an exception to Rule 37 would prevent drainage by Whiting’s Haidusek Well #2 in the Yegua 1 Field and the Haidusek Well #4 in the EY-3-A Field. Barrier indicated that its primary target was the EY-3-A Field, but that the Yegua 1 Field would be an important secondary objective. Barrier did not claim that it was entitled to a Rule 37 exception in any field due to waste.

The proposed well is located between the western lease line and the Bozka #4 well drilled by Barrier in September 1999. The Bozka #4 well was drilled at a regular location, but reportedly encountered water in both the Yegua 1 and EY-3-A Fields and therefore will not be a productive well in those two fields. Barrier’s geologist testified that the proposed well will encounter the productive sands in both fields at an elevation 10' higher than in the Bozka #4.

EY-3-A

Evidence presented supporting the Rule 37 exception for the EY-3-A Field included a structural map and isopach map representing the original size of the field on the Bozka Lease. The sand pinches out to the north and is bounded to the south by a gas-water contact. Based on this mapping and the reservoir properties of the EY-3-A Field, Barrier calculated original gas in place of 565 MMCF and original recoverable reserves of 452 MMCF of gas beneath the Bozka lease, based on 46 productive acres. Barrier did not estimate the current reserves, but through oral testimony attempted to provide an estimate of the current reserves by subtracting the production of the Bozka #1 well (approximately 360 MMCF) from the calculation of original gas in place. This led to a current recoverable reserve estimate of 164 MMCF beneath the Bozka lease, assuming 80% recovery. Barrier also characterized its estimate as conservative, stating that the original reservoir may have been significantly larger.

Barrier relied on geologic evidence to argue that the characteristics of the sands affect the production from the EY-3-A Field. In this water drive field, applicant claims that lower permeability sands create a higher capillary pressure, allowing wells completed into such sands to outperform wells completed into higher permeability sands. Barrier provided a structural cross section with core data to compare the Haidusek #4 well with the two Bozka wells encountering the EY-3-A Field. The EY-3-A sand in the Bozka #1 and Bozka #4 is much “cleaner” than the EY-3-A found in the Haidusek #2 and Haidusek #4. In the Bozka wells, the permeability is 300-400 millidarcies while permeability is only 70 millidarcies in the Haidusek wells. The “dirtier” sand found in the Haidusek wells is more desirable, according to Barrier, because the lower porosity and permeability prevents water encroachment and premature watering out of production. Barrier claims that the possibility of encountering a lower permeability sand was increased at the exception location because the site would be closer to the wells where lower permeability sand was encountered on the Haidusek lease.

Yegua 1

Barrier also produced a structural map and isopach of the Yegua 1 Field underlying its Bozka lease. The Yegua 1 is bounded to the north by a fault and to the south by a gas-water contact. Barrier claims that a location northeast of the proposed location would be at a much higher risk of missing productive Yegua 1 sand, but produced no evidence to support this increased risk argument.

Barrier estimated original recoverable reserves in the Yegua 1 beneath the Bozka Lease at 281 MMCF, based on an estimated 36 productive acres. However, the isopach map presented, reflects a productive area of only 10-12 acres. Reducing the acreage to 10 acres in the volumetric calculations results in original recoverable gas of only 78 MMCF beneath the Bozka lease. Barrier submitted no evidence to establish the current recoverable reserves underlying its lease for this field, relying only on its calculation of original reserves to support its claimed exception.

Whiting’s Position and Evidence

Whiting is the offset operator of the Haidusek Lease located to the west of Barrier’s Bozka Lease. Whiting currently has two wells in production in the affected fields: the Haidusek #4 which

produces from the EY-3-A Field; and the Haidusek #2 which produces from the Yegua 1 Field. Whiting contends that Barrier's exception location would drain substantial reserves from the Haidusek Lease.

Whiting's petroleum engineer testified that Barrier failed to show that a regular location would not provide Barrier with the opportunity to recover its fair share of any reserves from these fields. Using Barrier's own maps, Whiting showed that a regular location north of the Bozka #4 well would encounter both the EY-3-A and Yegua 1 Fields. Whiting also established that the regular location would encounter elevations approximately 10' higher than the Bozka #4 in both fields.

Whiting also contended that Barrier's calculation of recoverable reserves in each field was both inaccurate and insufficient to support the application. Whiting noted that Rule 37 exceptions can not be predicated on estimates of original reserves alone. Instead an applicant must show that an exception is necessary to allow it to recover reserves currently underlying its property. Whiting further argued that any reserves could be recovered from the regular alternate location it identified.

Examiners' Opinion

The Commission may grant an exception to Rule 37 to prevent confiscation or to prevent waste. Barrier argues it is entitled to an exception to prevent confiscation in the Holyfield Fan Man Sands (Yegua 1) and (EY-3-A) Fields. Barrier submitted no evidence to support its application for an exception in the Bozka (1600), Bozka (2700 Frio Sand), Vienna (Miocene 2000), Holyfield Fan Man Sand (Yegua), Holyfield Fan Man Sand (EY-3-B) and Wildcat Fields. Barrier does not argue that an exception is necessary to prevent waste.

To establish that it is entitled to an exception to Rule 37 to prevent confiscation, an applicant must show that absent the applied for well, it will be denied a reasonable opportunity to recover its fair share of hydrocarbons currently in place under the lease, or its equivalent in kind. The applicant must satisfy a two pronged test: 1) the applicant must show that it is not possible to recover its fair share of hydrocarbons currently in place by drilling a well at a regular location; and 2) the applicant must show that the proposed irregular location is reasonable.

Because Barrier submitted no evidence in support of its application for an exception in the Bozka (1600), Bozka (2700 Frio Sand), Vienna (Miocene 2000), Holyfield Fan Man Sand (Yegua), and Holyfield Fan Man Sand (EY-3-B) Fields, it has failed to establish its entitlement to a Rule 37 exception for any of those fields. Accordingly, the examiners recommend denial of the application for an exception in the Bozka (1600), Bozka (2700 Frio Sand), Vienna (Miocene 2000), Holyfield Fan Man Sand (Yegua), and Holyfield Fan Man Sand (EY-3-B) Fields.

Failure to Negate a Regular Location

It is the basic right of every landowner or lessee to a fair and reasonable chance to recover the oil and gas under his property as recognized by the Texas Supreme Court in *Gulf Land Co. v. Atlantic Refining Co.*, 131 S.W.2d 73, 80 (Tex. 1939). Denial of that fair chance is confiscation within the meaning of Rule 37. *Id.* However, an applicant may not seek a Rule 37 exception to redress past

drainage. *Railroad Commission v. Texas Company*, 298 S.W.2d 666,668 (Tex.Civ.App. Austin - 1957, writ ref'd n.r.e.) Because an application cannot seek redress for past drainage, an applicant must provide evidence that it will not be afforded an opportunity to recover the reserves **currently** in place under its lease - this is its "fair share". A calculation of the current recoverable reserves, when derived from an estimate of the original recoverable reserves in place, generally must take into account all sources of depletion. Estimating an applicant's reserves in a field by subtracting only the applicant's production does not account for drainage from the field by offset wells.

Barrier's calculation of reserves for both the Yegua 1 and EY-3-A Fields ignores the prohibition from seeking redress for past drainage. In the EY-3-A Field Barrier uses the **original** estimated reserves on the Bozka Lease, and then subtracts the recovery from the only producing well on the Bozka Lease to calculate the current recoverable reserves. Barrier made no modification of the original estimated reserves in the Yegua 1 Field, apparently because no well on its Bozka Lease produced from the Yegua 1 Field. However, producing wells on adjacent tracts are completed in the Yegua 1 and EY-3-A Fields. These producing wells have likely drained reserves from the Bozka Lease in both the Yegua 1 and EY-3-A fields. Barrier's evidence fails to address this potential discrepancy. Accordingly, Barrier's estimates do not accurately reflect the **current** reserves and therefore can not be relied upon to support a Rule 37 exception based on confiscation. Without an accurate estimate of current reserves, or "fair share", there is no "benchmark" to measure against to determine whether a regular location will allow an applicant a reasonable opportunity to recover its fair share.

Availability of a Regular Location

Barrier's failure to meet its burden of proof by bringing forward evidence negating a regular location is emphasized by the affirmative evidence in the record that viable regular locations exist on the Bozka Lease. Using Barrier's maps for the Yegua 1 and EY-3-A Fields, protestant Whiting's petroleum engineer identified a regular location within both reservoirs that would encounter the same increased structural elevation as the proposed exception location. This location is north of the Bozka #4 well, but still south of the sealing fault and the sand pinch out line. In response, Barrier argued that it would not drill at a regular location north of its Bozka #4 well due to an increased risk that the well would not encounter a sufficient thickness of productive sands. Barrier also noted increased risk that a northern location would be downthrown by the fault.

Barrier also argues that its proposed location for the Bozka #3 is necessary to encounter a "dirty sand" in the EY-3-A Field, which is necessary to prevent water encroachment. The argument concerning the superiority of "dirty sand" may have some validity. However, Barrier failed to consider the fact that the poorer quality sand will also result in less efficient recovery by the water drive of the reservoir. Use of a lower recovery efficiency will further reduce any current recoverable reserves.

The only geologic evidence Barrier provided that the proposed location would encounter the same type of "dirty sand" as the Haidusek #2 and #4 wells, is the assumption that locating the proposed well closer to the lease line improves its chances of encountering the "dirty sand." However, this assumption is not supported by comparing the sand characteristics of the nearest well. Barrier's own

well, the Bozka #4 is located only 332' from the proposed Bozka #3. The Bozka #4 well has "clean sands." In contrast, the two wells with "dirty sands" are further removed from the proposed location. The Haidusek #2 well is located over 750' from the proposed well. The Haidusek #4 well is even further away, over 2000'. The proposed Bozka #3 well would be closer than the Bozka #4 well to the Haidusek wells. But it is also probable, absent any other evidence on the geologic characteristics of the EY-3-A reservoir, that the geology of the proposed location will be consistent with the "clean sands" of the closest well, the Bozka #4, as opposed to the "dirty sands" of the two Haidusek wells.

Exceptions to Rule 37 are not granted to eliminate risk for an operator, but to provide a reasonable opportunity to recover the oil and gas on an operator's lease. Barrier's own estimates of the location and structure of the Yegua 1 and EY-3-A Fields depict the northern regular location identified by Whiting as within the confines of the reservoir. Barrier was required to produce evidence to rule out any regular locations in order to justify its application for a Rule 37 exception. Barrier failed to produce any such evidence and therefore failed to establish that an exception was necessary to afford it a reasonable opportunity to recover the reserves on its Bozka Lease. In fact, the evidence suggests that a regular location north of the Bozka #4 well would give Barrier a recovery similar to the applied-for location with far less drainage of the offsetting leases.

CONCLUSION

The evidence and legal authority presented establish that Barrier is not entitled to a Rule 37 exception in order to prevent confiscation in the Bozka (1600), Bozka (2700 Frio Sand), Vienna (Miocene 2000), Holyfield Fan Man Sand (Yegua), Holyfield Fan Man Sand (Yegua 1), Holyfield Fan Man Sand (EY-3-A), Holyfield Fan Man Sand (EY-3-B) and Wildcat Fields.

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. At least 10 days notice of this hearing was given to the designated operator, all lessees of record for tracts that have a designated operator, and all owners of unleased mineral interests for each affected tract adjacent to the Bozka Gas Unit No. 1 ("subject lease" and "subject tract") and each tract nearer to the proposed well location than the prescribed minimum distance.
2. The application for an exception to Statewide Rule 37 was originally filed with the Commission by Barrier Resources, LLC. ("Barrier" or "applicant") on Form W-1 (Application to Drill, Deepen, Plug Back or Re-Enter) on August 1, 1999.

3. Barrier Resources, LLC. (“Barrier” or “Applicant”), seeks an exception to Statewide Rule 37 to drill Well #3 on the Bozka Gas Unit No. 1 to the Bozka (1600), Bozka (2700 Frio Sand), Vienna (Miocene 2000), Holyfield Fan Man Sand (Yegua), Holyfield Fan Man Sand (Yegua 1), Holyfield Fan Man Sand (EY-3-A), Holyfield Fan Man Sand (EY-3-B) and Wildcat Fields, Lavaca County, Texas. All affected fields are subject to the Statewide Rule 37 spacing requirements of 467 feet minimum spacing to the nearest lease line and 1200 feet minimum spacing between wells. The subject lease is rectangular and locations regular to lease-lines are available. The proposed well would be located 135 feet from the west unit line.
4. Barrier’s application has been protested by Whiting Petroleum Corporation (“Whiting” or “Protestant”). Whiting is the operator of an offset tract to the west of the subject lease.
5. Barrier only presented evidence in support of its application for the Holyfield Fan Man Sands (Yegua 1), (hereinafter “Yegua 1 Field”) and Holyfield Fan Man Sands (EY-3-A), (hereinafter “EY-3-A Field”) Fields.
6. Barrier submitted no evidence to support its application for an exception in the Bozka (1600), Bozka (2700 Frio Sand), Vienna (Miocene 2000), Holyfield Fan Man Sand (Yegua), Holyfield Fan Man Sand (EY-3-B) or Wildcat Fields.
7. Barrier did not provide an accurate estimate of the current recoverable reserves underlying the subject lease in the Yegua 1 and EY-3-A Fields.
8. The Yegua 1 and EY-3-A Fields are both water drive fields in which production is primarily dependent on structural elevation as opposed to the thickness of the producing sands.
9. A regular location exists on the subject lease at which the height of the structure in the Yegua 1 and EY-3-A Fields is similar to the height of the structure at the applied-for location.
10. Regular locations exist on the subject lease which would give applicant a reasonable opportunity to recover the reserves currently underlying the subject lease from both the Yegua 1 and EY-3-A Fields.

CONCLUSIONS OF LAW

1. Proper notice of hearing was timely given to all persons legally entitled to notice.
2. All things have occurred to give the Commission jurisdiction to decide this matter.
3. Applicant failed to rebut the presumption that a well location regular to lease lines will allow it to recover the reserves currently in place under the subject lease.
4. A well spacing rules exception is not required to give applicant a reasonable opportunity to recover its fair share of hydrocarbons from the Bozka (1600), Bozka (2700 Frio Sand), Vienna

(Miocene 2000), Holyfield Fan Man Sand (Yegua), Holyfield Fan Man Sand (Yegua 1), Holyfield Fan Man Sand (EY-3-A), Holyfield Fan Man Sand (EY-3-B) and Wildcat Fields.

5. An exception to Statewide Rule 37 for a well at the applied for location is not necessary to prevent confiscation.

RECOMMENDATION

The examiners recommend that the subject application be denied in its entirety in accordance with the attached final order.

Respectfully submitted,

Mark J. Helmueller
Hearings Examiner

Donna Chandler
Technical Examiner