

RULE 37 CASE NO. 0248858
District 03

**APPLICATION OF INDEXGEO & ASSOCIATES, INC., FOR A RULE 37 EXCEPTION TO
DRILL ITS LEYENDECKER LEASE, WELL NO. 1, WILDCAT FIELD, COLORADO
COUNTY, TEXAS**

APPEARANCES:

FOR APPLICANT:

Stanley M. Leventhal

APPLICANT:

Indexgeo & Associates, Inc.

FOR PROTESTANT:

John Quinlan
Charles R. Salmon
Gary M. Guerrieri

PROTESTANT:

Devon Energy Corporation

PROPOSAL FOR DECISION

PROCEDURAL HISTORY

DATE APPLICATION FILED:

August 25, 2006

DATE OF NOTICE OF APPLICATION:

September 11, 2006

DATE OF NOTICE OF HEARING:

November 7, 2006

DATE OF HEARING:

December 14, 2006

HEARD BY:

James M. Doherty, Hearings
Examiner

Donna Chandler, Technical Examiner

DATE TRANSCRIPT DELIVERED:

January 11, 2007

DATE PFD CIRCULATED:

January 19, 2007

STATEMENT OF THE CASE

Indexgeo & Associates, Inc. (“Indexgeo”) requests an exception to Statewide Rule 37 to drill Well No. 1 on its 93.77 acre Leyendecker Lease in the Wildcat Field, Colorado County, Texas. The proposed well would be the first well on the Leyendecker Lease. The Form W-1 filed by Indexgeo sought a permit for the Columbus (Consolidated) Field and the Wildcat Field, but by letter dated November 17, 2006, Indexgeo amended the application to delete the request for a permit for the Columbus (Consolidated) Field.

A plat depicting an outline of Indexgeo’s Leyendecker Lease and the proposed location of Well No. 1 is attached to this proposal for decision as Appendix 1. The well is proposed to be drilled 1,504' from the west interior corner and 188' from the northeast line of the Leyendecker Lease and 3,841' from the west line and 3,974' from the north line of the Tumlinson, J. Survey, A-46, Colorado County, Texas. The proposed completion depth is 2,500'.

A Rule 37 exception permit to drill the proposed well is required because 467'/1,200' well spacing applies to the Wildcat Field, and the proposed well location is only 188' from the northeast line of the Leyendecker Lease. The application is protested by Devon Energy Corporation (“Devon”), which is the operator of the Columbus Fieldwide Unit which offsets the Leyendecker Lease to the northeast, east, and southeast.

POSITIONS OF THE PARTIES

Indexgeo’s proposed well location is based on 2-D seismic bright spot technology. Indexgeo asserts that it is necessary to drill precisely on the seismic line of control, and to drill elsewhere on the Leyendecker Lease would be at the risk of drilling a dry hole. Because drilling on the seismic line of control necessitates a location 188' from the northeast line of the Leyendecker Lease, Indexgeo argues that approval of a Rule 37 exception permit is justified.

Devon asserts that Indexgeo’s own structure map shows that the target sand is present under multiple regular locations on the Leyendecker Lease, and Indexgeo has not established that it is unable to recover its fair share of reserves from a well at a regular location or that drilling a well at the proposed location is necessary to prevent waste of hydrocarbons.

DISCUSSION OF THE EVIDENCE

Indexgeo

In the last 15 years, Indexgeo has drilled 110-120 wells on bright spot seismic anomalies and has completed 68% of these wells. Using the only 2-D seismic data available, Indexgeo believes that it has identified a bright spot anomaly on which it hopes to drill the proposed Leyendecker No. 1. The line of control of this seismic data has a northwest to southeast orientation across the northeastern side of the Leyendecker Lease. Indexgeo says that to drill directly on the line of

control, a location 188' from its northeast lease line is necessary.

It is Indexgeo's interpretation that the target Wildcat reservoir is a stratigraphic channel. Experience with other wells drilled on seismic anomalies has indicated that these channels are relatively narrow, so that deviation from the seismic line of control may risk missing the productive reservoir altogether. One channel reservoir in which Indexgeo drilled two wells proved to be more than 8,000' long and only 400'-500' wide. Indexgeo believes that its experience in drilling its Evans Field Prospect in Lavaca County and the Wooten Sanderson Gas Unit No. 1 well in Colorado County demonstrates the criticality of well location when drilling on seismic anomalies.

Indexgeo drilled a 5,700' Evans Field Prospect well on a seismic line of control, and the well was a dry hole. The Dreyfus Klimitchek No. 6 well was drilled 250' away, and this well produced 200,000 mcf of gas. Logs of these two wells showed that the productive sand was shaled out in the dry hole, but present in the Klimitchek No. 6. In this instance, the bright spot anomaly on which the dry hole was drilled apparently was caused by a tight streak in the producing section. Nonetheless, Indexgeo asserts that this experience shows that a difference of only 250' in well location can result in a dry hole in the case of channel reservoirs.

The Wooten Sanderson Gas Unit No. 1 discovered the Alleyton South Field, about five miles from the Columbus Fieldwide Unit. This well produced over four BCF of gas from a Yegua interval at about 4,700', and the relevant seismic section showed that the well produced from a stratigraphic channel about 400' wide. Moving the well location by about 250' would have missed the channel entirely and resulted in the drilling of a dry hole. Indexgeo stresses the importance of drilling wells in channel reservoirs directly on the seismic line of control and equates this kind of exploration to looking for a needle in a haystack.

From two available seismic lines and subsurface control from one well, which was the only control available, Indexgeo prepared a structure map of the target Wildcat reservoir showing regional southeast dip and a closure at 1,822' subsea covering about 150 acres. Indexgeo believes this is a depletion drive reservoir, as is common with other area reservoirs at comparable depths. As mapped, the target reservoir underlies the central portion of the Leyendecker Lease and extends also to the southwest of the lease and to the east and northeast of the lease onto Devon's Columbus Fieldwide Unit. This structure map shows that both a well at Indexgeo's proposed location and a well at a regular location on the Leyendecker Lease would encounter the target reservoir. Indexgeo believes that its structure map is a realistic depiction of the reservoir, but confesses that the limited control data available makes its structural interpretation uncertain. Indexgeo says that the same control data used to construct its structure map could support flipping the orientation of the target reservoir by 180 degrees.

Indexgeo conceded that the seismic data available does not provide any basis for determining how productive a well at a regular location on the Leyendecker Lease might be. Indexgeo believes that the target sand underlies regular locations on the Lease, but due to the lack of control, there is uncertainty as to how productive a well at a regular location would be. From the available data,

Indexgeo cannot say that a well at a regular location would not be productive in the target Wildcat reservoir, or if such a well were productive, what amount of reserves could be recovered. Indexgeo believes that seismic justification exists for drilling the Leyendecker No. 1 at the proposed location, and the uncertainty involved in drilling elsewhere condemns regular locations on the Leyendecker Lease.

Devon

Devon is the operator of the Columbus Fieldwide Unit that offsets the Leyendecker Lease to the northeast, east, and southeast. Because Indexgeo relies on 2-D seismic data for its contention that there is a need to drill the Leyendecker No. 1 only 188' from Devon's unit line, Devon's geophysicist stressed that a 2-D seismic line of control is not always indicative of the existence of hydrocarbons directly below the line of control. Bright spot technology shows some kind of difference in subsurface rock, and a change in seismic response may be nothing more than the tuning effect of thinning or a tight spot. The seismic response comes back to the surface from a cone shaped area and may indicate a deposit of hydrocarbons nearby, but not necessarily directly beneath the line of control. As evidence of this, Devon points out that the Indexgeo Klimitchek well was drilled on a seismic line of control and was a dry hole. Devon says also that there are other available seismic lines crossing the Leyendecker Lease which would have provided Indexgeo with more control for its structural interpretation.

Devon asserts that there are multiple regular locations on the Leyendecker Lease, and Indexgeo's structure map shows that wells drilled at these locations would be productive in the target Wildcat reservoir. Devon calculates that there are about 19.9 acres on the Leyendecker Lease, all portions of which are 467' or more from the nearest lease line. According to Indexgeo's structure map, no structure would be lost by moving to a regular location on the Leyendecker Lease.

Based on Indexgeo's structure map, Devon does not believe that the seismic line of control on which Indexgeo proposes to drill the Leyendecker No. 1 is the productive limit of the reservoir, but if it were assumed that this is the productive limit, the Leyendecker Lease would contain only 5.95 acres productive in the reservoir. Assuming either a 40-acre radial or 40-acre rectangular drainage pattern around the proposed Leyendecker No. 1, and that the Leyendecker Lease has only 5.95 productive acres, Indexgeo's proposed well would drain a greater amount of Devon's acreage than Indexgeo's. On the other hand, if, as Devon believes, the seismic line of control is not the productive limit of the reservoir, it is Devon's position that there is no legal justification for drilling the proposed well only 188' from Devon's unit line.

Indexgeo estimated that the cost to drill and complete the Leyendecker No. 1 will be \$365,000. Devon calculated that based on a net gas price of \$5.00 per mcf, recovery of 73,040 mcf would be needed to recoup the initial capital cost of drilling and completing the well. Assuming, contrary to Devon's belief and Indexgeo's structure map, that the seismic line of control upon which the well is proposed to be drilled is the productive limit of the reservoir, and that the Leyendecker Lease thus has only 5.95 productive acres northeast of the seismic line, Devon's volumetric calculation is that only 22,313 mcf of gas underlie this 5.95 acres, and Indexgeo would need to recover an additional 50,727 mcf from Devon's unit simply to recoup its initial capital cost of drilling

and completing the well. If there is more productive acreage to the southwest of the seismic line, the well could be expected to recover more reserves from Indexgeo's own lease, but in this case, there would be no need to drill the well as close as 188' to Devon's unit line.

Devon identified four wells within a 10 mile radius of Indexgeo's proposed location that produced dry gas from completion intervals between 1,800' and 2,700'. Drainage area calculations for these wells showed that their drainage areas ranged from 31 acres to 65 acres. The drainage radius for these four wells ranged from 651' to 947'. Devon believes this demonstrates that Indexgeo's proposed well, located only 188' from the lease line, will drain Devon's offset acreage.

Devon asserts that the evidence does not show that Indexgeo is unable to recover its fair share of reserves in the target reservoir from a well drilled at a regular location or that the proposed location is necessary to prevent the waste of hydrocarbons.

EXAMINERS' OPINION

An owner of oil and gas is entitled to an opportunity to recover the reserves underlying his tract, and any denial of that opportunity amounts to confiscation. *Atlantic Refining Co. v. Railroad Commission*, 346 S.W.2d 801 (Tex. 1961); *Imperial American Resources Fund, Inc. v. Railroad Commission*, 557 S.W.2d 280 (Tex. 1977). When the subject tract is capable of supporting a regular location, the applicant for a Rule 37 exception based on confiscation must prove that the proposed irregular location is necessary because of surface or subsurface conditions and that the proposed location is reasonable. To do this, the applicant must show that it is not feasible to recover its fair share of hydrocarbons from regular locations. The applicant's fair share is measured by the amount of currently recoverable reserves under the applicant's tract.

In addition, if a substantial amount of hydrocarbons will be produced by the proposed Rule 37 well that otherwise would ultimately be lost, a permit to drill the well may be justified to prevent waste. *Hawkins v. Texas Co.*, 209 S.W.2d 338, 343 (Tex. 1948). An applicant seeking an exception to Rule 37 based on waste must show that: (1) unusual conditions, different from conditions in adjacent parts of the field, exist under the tract for which the exception is sought; and (2) as a result of these unusual conditions, hydrocarbons will be recovered by the well for which the exception is sought that would not be recovered by any existing well or by an additional well drilled at a regular location; and (3) the amount of otherwise unrecoverable hydrocarbons is substantial.

This case demonstrates the difficulty of proving justification for a Rule 37 exception for the Wildcat Field where there is little or no well control or other comprehensive data available to show the productive limits of the target reservoir or the currently recoverable reserves under the applicant's tract.

To prove that the requested Rule 37 exception is necessary to prevent confiscation, Indexgeo was required to show that a well drilled at a regular location on the Leyendecker Lease would not give Indexgeo an opportunity to recover its fair share of reserves from the target reservoir. Recognizing that Indexgeo's presentation was hindered by the limited amount of control data available, it is nonetheless the case that Indexgeo did not make the proof required to prove that a

Rule 37 exception for the proposed well is necessary to prevent confiscation. Indexgeo did not prove the amount of currently recoverable reserves in the reservoir under the Leyendecker Lease, so there is no basis for quantifying Indexgeo's fair share. Furthermore, Indexgeo did not prove that a well drilled at a regular location on the Leyendecker Lease will not give Indexgeo an opportunity to recover its fair share of reserves from the reservoir, whatever that fair share may be. Indexgeo's own structure maps showed that wells at regular locations on the Leyendecker Lease will encounter the target reservoir, and Indexgeo was unable to say that a well at a regular location would not be productive or quantify the amount of reserves that a well at a regular location might recover.

A 2-D seismic line across the extreme northeastern portion of the Leyendecker Lease may be a perfectly valid reason for Indexgeo's desire to drill a well there, but it says little or nothing about reservoir conditions prevailing beneath regular locations on the Lease. Devon makes the legitimate point that to approve a Rule 37 exception based on the limited amount of seismic data available in this case would furnish an incentive to prospective Rule 37 applicants to obtain seismic data only for areas of their leases proximate to their neighbor's lease line.

Neither did Indexgeo establish that drilling of the Leyendecker No. 1 at the proposed location is necessary to prevent the waste of hydrocarbons. Indexgeo did not prove unusual conditions under the Leyendecker Lease, different from conditions in adjacent parts of the field. Although, Indexgeo believes that the reservoir consists of a stratigraphic channel, its own structure map shows that the channel reservoir extends not only across the Leyendecker Lease but also to the southwest and northeast of the Lease. Furthermore, Indexgeo did not prove that the hydrocarbons that will be recovered by the proposed well cannot be recovered by wells drilled at regular locations.

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

FINDINGS OF FACT

1. At least ten (10) days notice was provided to all persons affected by this application.
2. Indexgeo & Associates, Inc. ("Indexgeo") requests an exception to Statewide Rule 37 to drill its Leyendecker Lease, Well No. 1, in the Wildcat Field, Colorado County, Texas. Although the application as filed also sought to permit Well No. 1 in the Columbus (Consolidated) Field, this field was amended out of the application by Indexgeo letter dated November 17, 2006.
3. The Leyendecker Lease contains 93.77 acres. The proposed Well No. 1 would be a first well on this lease.

4. Indexgeo proposes to drill Well No. 1 on the northeastern portion of the Leyendecker Lease. The proposed location is 1,504' from the west interior corner and 188' from the northeast line of the lease and 3,841' from the west line and 3,974' from the north line of the Tumlinson, J. Survey, A-46, Colorado County, Texas. The proposed completion depth of the well is 2,500'.
5. The Wildcat Field is subject to Statewide Rules providing for minimum lease line spacing of 467' and between well spacing of 1,200'.
6. A Rule 37 exception permit to drill the Leyendecker Lease, Well No. 1 is requested because the proposed well location is 188' from the northeast lease line.
7. The application is protested by Devon Energy Corporation ("Devon"). Devon is the operator of the Columbus Fieldwide Unit which offsets the Leyendecker Lease to the northeast, east, and southeast.
8. It is Indexgeo's interpretation that the target Wildcat reservoir is an accumulation of hydrocarbons in a stratigraphic channel, which may be relatively narrow.
9. The proposed location of Well No. 1 on the Leyendecker Lease is based on a 2-D seismic line crossing the northeastern portion of the Leyendecker Lease. The line of control of this seismic data has a northwest to southeast orientation. The proposed location of Well No. 1 is on the seismic line of control.
10. It has been Indexgeo's experience that when drilling on seismic bright spot technology, drilling directly on the seismic line of control may make the difference between a productive well and a dry hole.
11. Based on two seismic lines and subsurface control from one well, Indexgeo presented, in the form of a structure map, its interpretation of the target Wildcat reservoir underlying the Leyendecker Lease. Indexgeo's structure map showed regional southeast dip and a closure at 1,822' subsea.
12. Indexgeo's structure map showed that the target reservoir covers about 150 acres within the closure at 1,822' subsea and extends across the central portion of the Leyendecker Lease, to the southwest of the lease, and to the east and northeast of the lease onto Devon's Columbus Fieldwide Unit.
13. Because of the limited amount of control data available, Indexgeo's interpretation of the target reservoir is uncertain, and Indexgeo conceded that the same data would support flipping the orientation of the reservoir by 180 degrees.
14. There are about 19.9 acres in the central portion of the Leyendecker Lease, all portions of which are 467' or more from the nearest lease line, where a well could be drilled at a location which is regular under the applicable well spacing rules.

15. Indexgeo's structure map showed that a well drilled at a regular location on the Leyendecker Lease would encounter the target Wildcat reservoir.
16. Indexgeo did not quantify the current recoverable reserves in the target reservoir beneath the Leyendecker Lease.
17. Indexgeo could not quantify the amount of reserves that a well at a regular location on the Leyendecker Lease would produce from the target reservoir.
18. Indexgeo did not establish that any unusual surface or subsurface conditions exist on or under the Leyendecker Lease. Although it is Indexgeo's interpretation that the target reservoir is a stratigraphic channel, its interpretation also shows that this channel underlies not only the central portion of the Leyendecker Lease but also adjacent parts of the field to the southwest, east and northeast.
19. Indexgeo did not establish that the reserves that would be recovered by the proposed well could not be recovered by wells drilled at regular locations.
20. Assuming that there is productive reservoir in the interval targeted by Indexgeo, a well drilled 188' from the northeast line of the Leyendecker Lease most likely would drain hydrocarbons from Devon's adjacent Columbus Fieldwide Unit.

CONCLUSIONS OF LAW

1. Proper notice of hearing was timely issued by the Railroad Commission to appropriate persons legally entitled to notice.
2. All things necessary to the Commission attaining jurisdiction over the subject matter and the parties in this hearing have been performed.
3. Indexgeo & Associates, Inc., did not establish that the granting of a Statewide Rule 37 [16 TEX. ADMIN. CODE §3.37] exception to drill the Leyendecker Lease, Well No. 1, Wildcat Field, Colorado County, Texas, is necessary to prevent confiscation of hydrocarbons or to protect correlative rights.
4. Indexgeo & Associates, Inc., did not establish that the granting of a Statewide Rule 37 [16 TEX. ADMIN. CODE §3.37] exception to drill the Leyendecker Lease, Well No. 1, Wildcat Field, Colorado County, Texas, is necessary to prevent the waste of hydrocarbons.

RECOMMENDATION

The examiners recommend that the Commission deny the application of Indexgeo & Associates, Inc., for an exception to Statewide Rule 37 to drill the Leyendecker Lease, Well No. 1, Wildcat Field, Colorado County, Texas, as provided in the attached final order.

Respectfully submitted,

James M. Doherty
Hearings Examiner

Donna Chandler
Technical Examiner