

March 24, 2008

Rule 37 Case No. 0249662

APPLICATION OF CREST RESOURCES, INC. FOR A RULE 37 AND RULE 38 EXCEPTION FOR ITS DAVIS NO. 361 WELL, STILES RANCH, SOUTH (MORROW, LO), STILES RANCH (GRANITE WASH), STILES RANCH (ATOKA), IVESTER (ATOKA) AND STILES RANCH (MORROW) FIELDS, WHEELER COUNTY, TEXAS.

APPEARANCES:

FOR APPLICANT:

George C. Neale, Attorney
Rock Quinn, Petroleum Landman
Jimmy Hall, Petroleum Geologist
Glenn Hudgens, Petroleum Engineer

APPLICANT:

Crest Resources, Inc.
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FOR PROTESTANT:

Mike McElroy, Attorney
Edwin Wallace, Reservoir Engineer
Douglas Middleton, Geologist

PROTESTANT:

Petro-Hunt, LLC
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FOR PROTESTANT:

Glenn Johnson, Attorney
Randall Maxwell, Regulatory Engineer

PROTESTANT:

Samson Lone Star, LP
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PROPOSAL FOR DECISION

PROCEDURAL HISTORY

APPLICATION FILED:

November 8, 2006

NOTICE OF HEARING:

January 24, 2007

HEARD BY:

Marshall Enquist - Hearings Examiner
Thomas Richter - Technical Examiner
Donna Chandler - Technical Examiner

HEARING DATE :

April 5, 2007

TRANSCRIPT RECEIVED:

April 22, 2007

PFD CIRCULATION DATE:

March 24, 2008

STATEMENT OF THE CASE

Crest Resources, Inc. (“Crest” or “Applicant”), seeks an exception to Statewide Rules 37 and 38 to drill its proposed Well No. 3-61, Davis Lease, Section 61 of Block A-7, H.& G.N. Survey, in the Stiles Ranch, South (Morrow, Lo), Stiles Ranch (Granite Wash), Stiles Ranch (Atoka), Ivester (Atoka) and Stiles Ranch (Morrow), Wheeler County, Texas. The proposed well is 1200 feet east of the west line and 1320 north of the south line of the lease (see attached plat). There are two existing wells on the lease. The proposed location is 2012 feet from the G.C. Davis Well No. 1-61, which is completed in the Stiles Ranch, South (Morrow, Lo) Field and 2033 feet from the G.C. Davis Well No. 2061 which is completed in the Stiles Ranch (Granite Wash) and the Stiles Ranch (Atoka) Fields.

The Stiles Ranch, South (Morrow, Lo) Field has 1867 foot leaseline spacing and 3735 foot between-well spacing on 640 acre units. The Stiles Ranch (Morrow) Field has 1320 foot leaseline spacing and 2640 foot between-well spacing on 640 acre units. The proposed well requires a leaseline spacing exception, between-well spacing exception and density exception in the Stiles Ranch, South (Morrow, Lo) Field. The proposed well requires a leaseline spacing exception in the Stiles Ranch (Morrow) Field.

The remaining fields, the Stiles Ranch (Granite Wash), Stiles Ranch (Atoka) and Ivester (Atoka) have 467 foot leaseline spacing and 1200 foot between-well spacing on 40 acre units. The proposed well is regular in these fields and does not require exceptions to Statewide Rules 37 and 38.

Crest and protestants Petro-Hunt, LLC (“Petro-Hunt”) and Samson Lone Star, LP (“Samson”) are all working interest owners within Section 61, and protestant Samson is an offset to the southwest of Section 61 in Section 57. Crest is the 100% working interest owner in Section 56, directly south of Section 61, but has no working interest in Section 57, directly southwest of Section 61. Crest and Petro-Hunt are both working interest owners in Section 60, which immediately offsets Section 61 to the west. Petro-Hunt and Samson do not object to the proposed well in the Stiles Ranch (Morrow) Field but do object to the well in the Stiles Ranch, South (Morrow, Lo.) Field.

Crest argues that its proposed Davis Well No. 3-61 is necessary to fully recover the available reserves under Section 61. Petro-Hunt and Samson Lone Star disagree, contending that the existing G.C. Davis Well No. 1-61 will recover the reserves in the Stiles Ranch, South (Morrow, Lo) Field, sands “E” and “F”. There is a letter in the file from Chesapeake, which did not appear at the hearing, supporting Crest’s application.

CREST’S POSITION AND EVIDENCE

Crest proposes to drill its Davis Well No. 3-61 in the southwest corner of Section 61, Block 7 of the H.&G.N. Survey. Among other fields, the proposed well will penetrate the Stiles Ranch, South (Morrow, Lo) Field, in particular its “E” and “F” sands. Another well on the same lease and section, the Davis Well No. 1-61, operated by Petro-Hunt, penetrates the same field and sands and is currently the only well producing from that field. The existing Davis Well No.1-61 is 2012 feet from Crest’s proposed well, causing Crest’s proposed Davis Well No. 3-61 well to require a between-well spacing exception. The well also requires a leaseline spacing exception and a density exception.

Crest notes that, at the time drilling this location was still being discussed with Petro-Hunt and Samson, the Stiles Ranch, South (Morrow, Lo) was on Statewide spacing. The rules were 467 foot leaseline spacing, 1200 foot between-well spacing and 40 acre units with a 95/5 allocation formula (95% deliverability and 5% per well). These rules were adopted in 1997. In August of 2006, Petro-Hunt obtained a Final Order from the Commission, after an uncontested hearing, which changed the field rules for the Stiles Ranch, South (Morrow, Lo) Field to 1867 foot leaseline spacing and 3735 leaseline spacing on 640 acre units with a 100% acreage allocation formula. This caused Crest's proposed Well No. 3-61 to be irregular to Well No. 1-61 in this field. Crest offered its Cross-Ex #3 showing the Order and field rules set in 1997. Crest asserts Petro-Hunt amended the rules for the Stiles Ranch, South (Morrow, Lo) Field for no other reason than to obstruct Crest's application for its well. Petro-Hunt was not required to provide notice of the hearing to Crest, because only operators in the field generally get notice of field rule hearings and Petro-Hunt was the only operator in this field..

Crest - The Stiles Ranch, South (Morrow, Lo) Field

Under the current rules for this field, 1867 foot leaseline spacing and 3735 between-well spacing, and given the location of the existing Davis Well No. 1-61, there is no regular location on Section 61 for the proposed Crest well.

Crest believes its proposed location will encounter 20+ feet of sand in the Upper Morrow "E" and 55+ feet of sand in the Upper Morrow "F". Crest represents these two target sands as either channel fills or alluvial fans oriented in a NE-SW direction, dipping down to the SW, trending across Sections 61 and 57. The proposed location is in the area of greatest porosity and permeability of both sands, creating an unusual condition. The southerly productive limit of each sand is defined by a water contact south of Section 61. Crest believes a water contact exists in the "E" Sand at approximately 15,644 feet subsea, defining the southern limit of the reservoir. The water contact was defined by the resistivity log from the Bryant well in Section 57.

Honoring P/Z data available after the Davis No. 1-61 had produced about 15 BCF of gas, Crest estimates that Davis Well No. 1-61 has recoverable reserves available to it of about 20 BCF of gas. At the time of the hearing, the Davis Well No. 1-61 had recovered 17.3 BCF. From decline curve analysis of production from the well, Crest estimated that the Davis Well No. 1-61 will produce an additional 2.6 BCF of gas. This ultimate recovery of 19.9 BCF corresponds very well to the material balance estimate of 20 BCF.

If the highest data points in the P/Z data are honored during the well's early life, it appeared that the well was "seeing" about 32 BCF of recoverable gas. This reservoir volume is in good agreement with Crest's volumetric calculations that about 13.5 BCF of recoverable gas will remain in the reservoir at abandonment of the Davis No. 1-61. Crest notes that the well's recovery of an additional 2.6 BCF over its projected life of 20 more years assumes that the well will not experience mechanical or loading problems.

Crest Exhibit #12 is a decline curve which had been produced by Samson. This curve predicts

an ultimate recovery of about 25 BCF for the Davis No. 1-61 well, assuming hyperbolic decline for almost 100 years before the well reaches its economic limit. Crest submits that this is an unreasonable approach and that exponential decline of production at this point in the well's life is much more accurate. Crest's Cross Examination Exhibit #4 is a volumetric calculation exhibit produced by Petro-Hunt in its August 2006 field rules hearing. It shows Initial Gas In Place for the field of 27.3 BCF. Calculating the remaining recoverable gas in place under Section 61 from this, Crest arrives at a figure of 2.94 BCF, after the Davis Well No. 1-61 is plugged and abandoned.

For the sake of argument, Crest is willing to accept Samson's estimate that the Davis Well No. 1-61 will ultimately recovery 25 BCF of gas. Crest thinks it is unlikely that the Davis Well No. 1-61 will be able to achieve even that recovery. Crest notes that the Davis Well No. 1-61 has been producing since 1982 and has suffered two casing leaks, resulting in decreased production, and is likely to suffer additional casing leaks, further reducing production. Crest also notes that the well is having fluid loading problems, which also tends to reduce the well's EUR. Crest predicts that the Davis Well No. 1-61, due to its casing leak and loading problems, will ultimately produce no more than 19.9 BCF, resulting in the loss of approximately 4 or 5 BCF that would otherwise have been recoverable, using Samson's own figures.

In addition, Crest believes it is misleading to represent the well's future production with a hyperbolic curve, as Petro-Hunt and Samson did. The production decline on a well at this depth with loading problems will not flatten out in a hyperbolic fashion. Therefore, Crest believes an exponential decline curve, with a more precipitous drop, is a better predictor of the wells future recovery than a hyperbolic decline curve.

In support of this position, Crest states that no other well in Wheeler County has made an additional 7.8 BCF after reaching a production rate of 1,100 MCF/day (which the Davis No. 1-61 now produces) and 1670 psi pressure. As examples, Crest presented the decline curves of the Samson Bryant Well No. 1-21 which showed an 12% exponential decline curve in 1988, but had declined to 800 MCF/day in 1999 and then exhibited classic loading behavior after which its production rate dropped very quickly. Similarly, the Samson Mathers Well No. 1-27 exhibited a 15% exponential decline curve, subsequent loading and then a rapidly declining production rate.

As a worst case, Crest points to the volumetric reserves calculations presented by Samson which indicate an original recoverable reserve under Section 61 of 22.72 BCF. Even using this low figure, if the well should ultimately recover only 19.9 BCF, almost 3 BCF would be unrecovered.

Crest does not believe the existing Davis Well No. 1-61 will drain the entirety of Section 61. Crest's calculations show that the Davis Well No.1-61 has currently drained 290 acres and will ultimately drain only 333 acres, roughly half of the 640 acre Section 61. Crest calculates there are 456 productive acres in the "E" sand in Section 61 and 516 productive acres in the "F" sand in Section 61, which means an additional well is necessary to recover the remaining reserves under Section 61.

Crest - The Stiles Ranch (Morrow) Field

Crest's sand isopach maps show that the Stiles Ranch (Morrow) Fields sands "A", "C" and "D" trend NNE to SSW, almost opposite of the trend for the Stiles Ranch, South (Morrow Lo) Field. Although the trends of the two fields differ, Crest's proposed location should intercept both fields at an overlapping point of greatest porosity and net feet of sand.

Crest calculates that there is 11.6 BCF of recoverable gas in place beneath Section 61 in the Stiles Ranch (Morrow) Field in sands "A", "C" and "D". At the proposed location, the Crest's Well No. 3-61 would find 12 feet of "A" sand, 10 feet of "C" sand and 10 feet of "D" sand. A more regular location in this field would throw Crest toward the flanks of the "A" and "C" Sands.

The existing Davis Well No.1-61 is completed only in the "E" and "F" sands of the Stiles Ranch, South (Morrow, Lo) Field. It is not completed in the Stiles Ranch (Morrow) Field lying directly above. Crest's proposed Davis Well No. 3-61 would be the only well completed in the Stiles Ranch(Morrow) Field on Section 61. Crest does not believe perforating the Stiles Ranch (Morrow) in the Davis Well No. 1-61 is prudent, due to the differences in formation pressure. The current completions in the Davis Well No. 1-61 are at a pressure of less than 2,000 psi and completions in the "A", "C" and "D" sands would be at a pressure of 4,800 psi. The pressure differentials would result in cross-flow. Even if this were not the case, Crest's sand isopach maps show that the existing Davis Well No. 1-61 would find only 6 feet of sand in the "A" Sand, 0 feet of sand in the "C" Sand and 1 foot of sand in the "D" Sand.

The E.T Davis Well No. 1 lies in Section 60, the section directly to the west of Section 61, and has made 9.5 BCF from the Stiles Ranch (Morrow) Field. It is perforated in sands "A", "C" and "D", with most of its production from the "A" and "C" sands. Crest believes at least a portion of this production is uncompensated drainage from Section 61. Crest notes that although the royalty and working interest ownerships in Sections 60 and 61 are similar, they are not identical.

At Crest's proposed location, the bottomhole pressures in the Stiles Ranch, South (Morrow, Lo) would be near original pressure, or around 4800 psi, approximately matching the bottomhole pressures in the Stiles Ranch (Morrow), which are also 4800 psi. This would allow recovery from both fields. Crest believes that its proposed location is necessary to prevent uncompensated drainage in the Stiles Ranch (Morrow) Field, "A", "C" and "D" sands by the offsetting E.T. Davis Well No. 1-60 to the northwest.

Crest - The Stiles Ranch (Atoka), Ivester (Atoka) and Stiles Ranch (Granite Wash) Fields

The Stiles Ranch (Atoka), Ivester (Atoka) and Stiles Ranch (Granite Wash) Fields are on Statewide Rules. Crest's proposed Davis Well No. 3-61 is at a regular location under those rules and does not require Statewide Rule 37 or Statewide Rule 38 exceptions in these fields.

Summary

Crest argues that the existing Davis Well No. 1-61 will not effectively drain all the recoverable

reserves in the Stiles Ranch, South (Morrow, Lo) Field beneath Section 61. The proposed well at an exception location will provide a reasonable opportunity to recover the additional reserves in the Stiles Ranch, South (Morrow, Lo) Field, sands "E" and "F". Under the current field rules, due to the presence of the Davis Well No. 1-61, there is no other regular location available in this field on Section 61 for the Crest well. Nor, due to low porosity values, are there regular locations outside Section 61 capable of draining the reserves in this field under Section 61. Crest argues that, absent a Rule 37/38 exception, anywhere from 3 to 5 BCF of gas will remain unrecovered, a significant volume of hydrocarbons.

In addition, the proposed well will recover reserves in place beneath Section 61 in the "A", "C" and "D" sands of the Stiles Ranch (Morrow) Field which cannot be recovered by the existing Davis Well No. 1-61 and which are currently suffering uncompensated drainage from the E.T. Davis Well No. 1 to the northwest. Crest argues that placing the proposed well at a regular location would not effectively drain the remaining reserves in the Stiles Ranch (Morrow) Field beneath Section 61.

Despite concerns raised by the protestants, Crest does not agree that overpressuring is an issue in this field. The protestants assert that Crest's calculations do not take into account the effect of overpressuring and reservoir collapse, leading Crest to arrive at reserve calculations in excess of actual reserves. Crest counters that every well producing in this field is overpressured. Furthermore, reservoir collapse at normal pressure is a Gulf Coast phenomenon, one that takes place in the soft, high porosity rock found along the coast. It does not happen in the hard rock of the deep Anadarko sediments in the Texas panhandle. Here, the gas is not supporting the matrix. Crest also notes that its high side P/Z was calculated after normal pressures were reached, and still showed original gas in place of 37 BCF.

Crest requests the Commission not only approve its permit, but designate acreage to the Davis Well No. 1-61 and Davis Well No. 3-61 in a rough split, resulting in approximately 320 acres assigned to each well. Unless the Commission makes such determination in conjunction with approval of a permit for the Stile Ranch, South (Morrow Lo.) Field, Crest believes that Petro-Hunt, the operator of the Davis No. 1-61, will not file a Form P-15 to reduce the 640 acres currently assigned to the Davis No. 1-61. Unless Petro-Hunt files such P-15, Crest would have no acreage to assign to its proposed well.

SAMSON LONE STAR'S POSITION AND EVIDENCE

Samson Lone Star ("Samson") is an interest owner in the existing Davis Well No. 1-61 which is completed in the "E" and "F" sands of the Stiles Ranch, South (Morrow, Lo) Field.

Samson - The Stiles Ranch, South (Morrow, Lo) Field

Samson Lone Star believes that Crest's location in the Stiles Ranch, South (Morrow, Lo) Field, in the "E" and "F" sands is unnecessary. The existing Davis Well No. 1-61 will drain the remaining recoverable reserves in the "E" and "F" sands. Crest's proposed Davis Well No. 3-61 would merely compete with the DavisWell No. 1-61 and any additional recovery would be minimal at best. Samson suggests that Crest is motivated by the fact that it has sold all but 1% of its interest in the Davis Well No. 1-61.

Samson believes the original gas-in-place, based on P/Z, in the “E” and “F” sands was 22 BCF. Assuming 1,000 psi abandonment, the Davis Well No. 1-61 should recover about 19 BCF. Samson’s volumetric analysis indicates 26 BCF original gas-in-place under Section 61, with recoverable gas of 22.7 BCF. Samson asserts that the current bottomhole pressure is the best data to use and should be given the most weight. Samson also believes the reservoir was initially overpressured and that the early pressure data should be discounted. If a reservoir is overpressured, the pressure actually lifts the overburden and increases porosity within the reservoir. Then, as pressure declines, the reservoir collapses and pore volume decreases. The relevant volume of the reservoir is that existing now, not when it was first discovered. Of the three most common types of reservoir analysis, material balance, volumetric and decline curve, Samson suggests that the most accurate in this case is material balance.

Assuming 12.3% porosity for the “E” sand and 11.2% porosity for the “F” sand, Samson calculates that the existing Davis Well No. 1-61 will drain 550 acres in the “E” sand and 516 acres in the “F” sand, essentially the entirety of productive acreage on Section 61.

Samson - The Stiles Ranch (Morrow) Field

Samson Lone Star does not oppose Crest’s proposed location in the Stiles Ranch (Morrow) Field, “A”, “C” and “D” sands, referred to in the following exchange as the “upper field”:

- Q. (By Mr. Johnson, Attorney representing Samson) Okay, Well, I don’t think Petro Hunt or Samson are protesting you to drill the upper field. Do you understand that?
- A. (By Mr. Hudgens, witness for Crest) You know, I don’t – they entered a protest to our application which included both fields. They have never told me they weren’t protesting those.
- Q. Well, you understand Samson is not protesting the upper field?
- A. You know, that is the first I have heard of it.
- Q. Well, okay. Your attorney hasn’t told you what the discovery provided?
- A. Well, I believe he has. That is something we did not discuss. I agree with that.

Transcript, Vol I, p. 132, lines 22-25 and p. 133, lines 1-10.

Samson - The Stiles Ranch (Atoka), Ivester (Atoka) and Stiles Ranch (Granite Wash) Fields

Samson Lone Star did not oppose Crest’s proposed location for its Davis Well No. 3-61 in the Stiles Ranch (Granite Wash), Stiles Ranch (Atoka) and Ivester (Atoka) Fields. The proposed location is regular in those fields.

PETRO-HUNT’S POSITION AND EVIDENCE

Petro-Hunt is an interest owner in the existing Davis Well No. 1-61 which is completed in the “E” and “F” sands of the Stiles Ranch, South (Morrow, Lo) Field.

Petro-Hunt - Stiles Ranch, South (Morrow, Lo) Field

Petro-Hunt believes Crest's proposed location in the Stiles Ranch, South (Morrow, Lo) Field, in the Upper Morrow "E" and "F" sands is unnecessary. Petro-Hunt believes the existing Davis Well No. 1-61 will drain the remaining recoverable reserves in the "E" and "F" sands. Moreover, Petro-Hunt believes the real purpose of this application is merely to accelerate recovery of reserves from the "E" and "F" sands.

Petro-Hunt also objects to Crest's request that 320 acres each be assigned to the Davis Well No. 1-61 and Crest's proposed Well No. 3-61. Petro-Hunt notes that this hearing was not noticed for such determination.

Generally, Petro-Hunt agrees with Crest's hydrocarbon pore volume map as to orientation and shape. Petro-Hunt does not agree that the reservoir remains uniform down to the gas/water contact. Petro-Hunt believes the reservoir gets tighter to the south, with low porosity and high water saturation in the 70 to 80% range. The formation is wet here because it is tight with a high water saturation due to capillary pressure. According to Petro-Hunt, there is no gas/water contact in the ordinary sense of a movable water leg. As reservoir quality degrades to the south, pore volume decreases, which means the Crest estimates of hydrocarbon pore volume are overly optimistic (inflated). Due to the depositional environment, a winnowing effect creates a shalier environment proximally and distally, with a belt in between of higher porosity. The Davis Well No. 1-61 is in that high porosity belt and is the only well producing in the Stiles Ranch, South (Morrow, Lo) Field. The Davis Well No. 3-64 on Section 64 to the north does find the thin edge of the structure and shows both the "E" and "F" sands, but porosity is below 7%. The Bryant Well No. 1-57 on Section 57 to the southwest is also in the structure, but likewise shows little porosity above the 7% cut-off.

Petro-Hunt also showed that reservoir quality declines to the east and west of the structure. The "E" and "F" sands found in the Davis Well No. 1-61 show a porosity higher than 7%. The "E" and "F" sands are present in the E.T. Davis Well No. 1-60 to the west, but the porosity log is under 7%. Likewise, the "E" and "F" sands are present in the Moore 1-62 to the east, but, again, the porosity is below 7%. The Davis Well No. 1-61 is in the middle of the alluvial structure with the best permeability and porosity, with porosity degrading toward all edges of the structure.

Basically, Petro-Hunt's calculations differ from Crest's due to differences in calculated volumes and measured bottomhole pressures. Crest may have relied on the bottomhole pressures reported on Petro-Hunt's G-10 submissions to the Commission. Petro-Hunt states that its G-10s were not as accurate as they should have been, causing Crest, and even Samson, to overestimate reservoir volume.

Petro-Hunt suggests that the recoverable gas for the Davis Well No. 1-61 well is 19.25 BCF, based on P/Z analysis. Petro-Hunt's volumetric calculations based on mapping indicate initial gas-in-place was 21.3 BCF, and, assuming an abandonment pressure of 1,000 psi, the recoverable gas in Section 61 is 18.5 BCF. Therefore, an additional well is not needed to recover the reserves in place in the "E" and "F" sands beneath Section 61 because the Davis Well No. 1-61 will recover these reserves. Petro-Hunt contends Crest's proposed Davis Well No. 3-61 would be in communication with Well No. 1-61 and recover essentially the same reserves.

Petro-Hunt denies that it was in negotiations with Crest over the drilling of the subject well at the time Petro-Hunt applied for new field rules. There may have been some contacts resulting in the exchange of information going back and forth, but no actual negotiations. Petro-Hunt only sought a change in field rules because it recognized that it had failed to address spacing issues in 1996 and decided it was necessary to do so.

Petro-Hunt - Stiles Ranch (Morrow) Field

Petro-Hunt does not oppose Crest's proposed location in the Stiles Ranch (Morrow) Field, "A", "C" and "D" sands. In regard to the Stiles Ranch (Morrow) Field, "A", "C" and "D" sands, which in this context is the "upper zone", the following exchange took place:

- Q. (By Mr. Neale, Attorney for Crest) You heard Mr. Johnson tell the Railroad Commission yesterday that Samson didn't have any objection to our permit with respect to the upper zone?
- A. (By Mr. Middleton, witness for Petro-Hunt) Yes, I did.
- Q. Do you know what the position of Petro-Hunt is on that subject?
- A. I feel like it's the same. I feel like our only opposition is to the "E" and "F", is to capturing the reserves that our well is going to capture.

Transcript, Vol. II, p. 25, lines 17-25

- Q. (By Mr. Richter) So Petro-Hunt is not really fighting the location of the well. They are just fighting another well, correct?
- A. (By Mr. Middleton) The way I understand it, it's another well that will capture reserves in the zone we are completed in.
- Q. (By Mr. Richter) Okay.
- (Mr. McElroy, Attorney for Petro-Hunt) Mr. Examiner, that is our position as Mr. Middleton has just expressed it and as the examiner has just expressed it.

Transcript, Vol. II, p. 26, lines 16-21

Petro-Hunt - The Stiles Ranch (Atoka), Ivester (Atoka) and Stiles Ranch (Granite Wash) Fields

Petro-Hunt does not oppose Crest's proposed location for its Well No. 3-61 in the Stiles Ranch (Granite Wash), Stiles Ranch (Atoka) and Ivester (Atoka) Fields.

EXAMINERS' OPINION

To establish entitlement to an exception to Statewide Rule 37 to prevent waste, an applicant must demonstrate that: (1) unusual conditions, different from conditions in adjacent parts of the field, exist on the tract for which the exception is sought; and (2) as a result of these conditions, a substantial volume of hydrocarbons will be recovered by the well for which a permit is sought that would not be recovered by any existing well or by additional wells drilled at regular locations.

As to the Stiles Ranch, South (Morrow, Lo) Field, Crest has shown that the depositional environment of the field has created a zone of maximum porosity near the center of the structure, with porosity declining to the west, north and east, and a water contact to the south. The winnowing effect of deposition has created an unusual condition of high porosity at the proposed location which does not exist in adjacent parts of the field. Crest has also shown that the existing Davis Well No. 1-61, with its mechanical problems and loading problems, will not recover all of the recoverable reserves from the field, whether it be 3 BCF as suggested by Samson or 13 BCF as suggested by Crest's study. Either amount is a substantial quantity of hydrocarbons. Crest has also shown that, given the presence of the Davis Well No. 1-61 and the restrictions imposed by the field rules, there is no regular location on the lease for its proposed well. The evidence also shows that no other existing well, even those off-lease, will recover all the recoverable reserves from Section 61. The examiners recommend Crest be granted a Rule 37 exception in the Stiles Ranch, South (Morrow, Lo) Field for its proposed Well No. 3-61 to prevent waste.

To establish entitlement 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 is equivalent in kind. The applicant must satisfy a two-pronged test: 1.) the applicant must show that it will not be afforded a reasonable opportunity 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.

It is the basic right of every landowner or lessee to a fair and reasonable chance to recover the oil and gas under their 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.*

Crest presented a decline curve prepared by Petro-Hunt for an earlier hearing which indicates that the G.C. Davis Well No. 1-61 would ultimately recover 24.7 BCF. Crest also presented a Samson decline curve indicating the G.C. Davis Well No. 1-61 would recover 24.8 BCF. Due to the well's present casing integrity problems (two past casing leaks) and fluid loading problems, plus the fact that it is now on compression, Crest estimates the well will ultimately recover only 19.9 BCF, leaving a substantial quantity of hydrocarbons, almost 5 BCF, unrecovered. Even using the lowest credible figures, the original recoverable reserve in the field was 22.72 BCF, meaning that almost 3 BCF would remain unrecovered if the Davis Well No. 1-61 succeeds in ultimately recovering 19.9 BCF. According to Crest, the existing Davis Well No. 1-61 has produced 17.3 BCF as of the date of the hearing and has currently drained 290 acres and will ultimately drain 333 acres, potentially recovering an additional 2.6 BCF. However, this assumes the well has no more casing leaks and no more loading problems. Crest has shown that the well has already experienced two casing leaks and has been experiencing loading problems.

Crest showed that its proposed location is in the thickest part of the structure (20 + feet of sand in the "E" Sand and 55+ feet of sand in the "F" Sand) in a NE-SW trending zone of highest porosity and permeability. Under the current field rules and considering the location of the existing Davis Well No. 1-61, Crest has no regular location available on the lease. Moving the well to another location would

place the proposed well in an area of lower porosity and permeability, thus depriving Crest of the opportunity to recover its fair share of the reserves in place. Crest has shown that the proposed location is reasonable. The examiners recommend Crest be granted a Rule 37 exception in the Stiles Ranch, South (Morrow, Lo) Field for its proposed Well No. 3-61 to prevent confiscation.

Crest's calculations show that the Davis Well No.1-61 has currently drained 290 acres in the Stiles Ranch, South (Morrow, Lo) Field and will ultimately drain only 333 acres, roughly half of the 640 acre Section 61. Crest calculates there are 456 productive acres in the "E" sand in Section 61 and 516 productive acres in the "F" sand in Section 61, which means an additional well is necessary to recover the remaining reserves under Section 61. The examiners recommend that Crest be granted a Rule 38 exception for the Stiles Ranch, South (Morrow, Lo) Field in Section 61 for its proposed Well No. 3-61.

As to the Stiles Ranch (Morrow) Field, specifically the "A", "C" and "D" sands, Crest's application was unopposed. Crest could have continued to make its case for an exception location in this field in its Rebuttal case, but did not do so once Samson and Petro-Hunt announced their lack of opposition, which they affirmatively stated on the record. Crest is therefore entitled to administrative approval of its application in this field, pursuant to Statewide Rule 37(h)(2)(A). However, because the application involved another field which was protested, the examiners propose to grant the permit in this field through the normal Final Order issued by the Commission.

Even if the application in this field were protested, Crest has shown that the gas-bearing "A", "C" and "D" sands are in the nature of stacked fluvial channels of restricted size. The three stacked channels overlap in maximum sand thickness at the proposed well location, constituting an unusual condition. Although two of these sands, the "A" and "D" are being drained by the E.T. Davis 1-60 to the west, the E.T. Davis 1-60 is not capable of draining all the recoverable reserves in the field. Crest calculates there are 11.6 BCF in recoverable reserves currently in place beneath Section 61 in the Stiles Ranch, (Morrow) Field which will be wasted if not drilled. The existing Davis Well No. 1-61 is not perforated in this field and will not be perforated in this field due to cross-flow problems that may result. Nor is the existing Davis Well No. 1-61 capable of draining the recoverable reserves in this field. Absent a permit to drill this field, Crest will continue to suffer uncompensated drainage from the E.T. Davis 1-60 located to the west and will be unable to recover the existing 11.6 BCF of recoverable reserves remaining in place under Section 61, less the unknown amount drained by the E.T. Davis 1-60. Even if Samson and Petro-Hunt had protested Crest's application in this field, Crest would be entitled to an exception based on prevention of waste.

Even if there had been a protest, Crest has shown that its proposed location is at the location of an overlap of the channel fills in the Stiles Ranch (Morrow) Field, "A", "C" and "D" Sands, where the sands are thickest and have their greatest permeability and porosity. Crest's proposed irregular location will afford it the best opportunity of accessing the remaining recoverable reserves in place under Section 61 in this field. Regular locations for the proposed well in the Stiles Ranch (Morrow) do exist, but a move to a regular or less irregular location to the east would take Crest off-structure or at least to an area of reduced pay thickness, permeability and porosity, resulting in a reduced chance of recovering Crest's fair share of the remaining recoverable reserves in place under Section 61. The remaining

recoverable reserves in the Stiles Ranch (Morrow) Field are estimated to be 11.6 BCF, less small amount drained by the E.T Davis 1-60 to the west. Crest's proposed location is reasonable.

The examiners recommend that Crest be granted a Rule 37 exception based on prevention of waste and confiscation in the Stiles Ranch (Morrow) Field.

Crest seeks a drilling permit for its proposed location in the Stiles Ranch (Granite Wash), Stiles Ranch (Atoka) and Ivester (Atoka) Fields. These fields are on Statewide Rules with 467 foot leaseline spacing and 1200 foot between-well spacing on 40 acre units. The proposed location is regular in these fields as to Statewide Rules 37 and 38. Protestants did not present any evidence opposing the grant of a permit at the proposed location in these fields. The examiners recommend Crest be granted a permit in these fields.

Crest has requested that the examiners apportion acreage between the existing Davis Well No. 1-61 and the proposed Crest Davis Well No. 3-61. The examiners decline to do so. No notice was given that apportionment of acreage would be considered in this hearing. Ideally, apportionment of acreage is an issue the parties negotiate between themselves. If the parties are unable to do so, Crest may request a Commission hearing on the issue.

The examiners believe Crest has proved its case based on prevention of waste and confiscation, and recommend that its application be approved.

Based on the record in these dockets, 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 offset operators, all lessees of record for tracts that have no designated operator, and all owners of record of unleased mineral interests for each affected adjacent tract.
2. Crest Resources, Inc. ("Crest" or "Applicant"), seeks an exception to Statewide Rules 37 and 38 to drill its proposed Davis Lease, Well No. 3-61, in the Stiles Ranch, South (Morrow, Low) Field and the Stiles Ranch (Morrow) Field in Wheeler County. Field rules for the Stiles Ranch, South (Morrow,Low) Field are 1867 foot leaseline spacing, 3735 foot between-well spacing and 640 acre units. Field rules for the Stiles Ranch (Morrow) Field are 1320 foot leaseline spacing, 2640between-wellspacing and 640 acre units.
3. Crest also seeks a permit to drill its proposed Davis Lease, Well No. 3-61 in the Stiles Ranch (Granite Wash), Stiles Ranch (Atoka) and Ivester (Atoka) Fields. These three fields have leaseline spacing of 467 feet and between-well spacing of 1200 feet on 40 acre units.
4. The proposed location of the Davis Well No. 3-61 is 1200 feet east of the west line and 1320 feet north of the south line of the lease. The proposed location of the Davis Well No. 3-61 is

2012 feet from the nearest well on the lease, the Davis Well No. 1-61.

5. The Stiles Ranch, South (Morrow, Lo) Field, “E” and “F” Sands, consists of either channel fills or alluvial fans oriented in a NE-SW direction, dipping down to the SW. The area of greatest permeability and porosity is along the axis of both sands, creating an unusual condition. The southerly productive limit of each sand is defined by a water contact south of Section 61. These sands have been winnowed, with permeability and porosity falling off to the edges of the structures.
6. Crest estimates 13.5 BCF of recoverable gas will remain in the Stiles Ranch, South (Morrow, Lo) Field after the existing Davis Well No. 1-61 is abandoned.
7. Crest estimates the existing Davis Well No. 1-61 will ultimately recover 19.9 BCF of gas, assuming that the well does not experience further casing leaks or loading problems.
8. The Davis Well No. 1-61 has already experienced two casing leaks and is currently experiencing loading problems.
9. The lowest credible estimate of recoverable gas in the Stiles Ranch, South (Morrow, Lo) Field, provided by Samson, is 22.72 BCF. Assuming ultimate recovery of 19.9 BCF of gas by the existing Davis Well No. 1-61, almost 3 BCF would remain unrecovered.
10. The high side and low side estimates of remaining unrecovered reserves in the Stiles Ranch, South (Morrow, Lo) Field at abandonment of the Davis Well No. 1-61, 13.5 BCF and 3 BCF of gas, are substantial quantities of hydrocarbons.
11. The Davis Well No.1-61 has currently drained 290 acres in the Stiles Ranch, South (Morrow, Lo) Field and will ultimately drain only 333 acres, roughly half of the 640 acre Section 61. There are 456 productive acres in the “E” sand in Section 61 and 516 productive acres in the “F” sand in Section 61. An additional well is necessary to recover the remaining reserves under Section 61.
12. Counsel for Samson stated on the record that Samson did not oppose Crest’s application for a Rule 37 exception location in the Stiles Ranch (Morrow) Field, “A”, “C” and “D” Sands.
13. Counsel for Petro-Hunt stated on the record that Petro-Hunt did not oppose Crest’s application for a Rule 37 exception location in the Stiles Ranch (Morrow) Field, “A”, “C” and “D” Sands.
14. Crest showed that the Stiles Ranch (Morrow) Field, “A”, “C” and “D” Sands, trend NNE to SSW and overlap in greatest thickness and porosity at Crest’s proposed location, creating an unusual condition.
15. Crest showed that there is 11.6 BCF of recoverable gas in the Stiles Ranch (Morrow) Field, less

some minimal drainage to the west due to the E.T. Davis Well No. 1, beneath Section 61. This is a substantial quantity of hydrocarbons.

16. The existing Davis Well No. 1-61 cannot recover all the reserves in the Stiles Ranch (Morrow) Field.
17. Due to the field rules in place for the Stiles Ranch, South (Morrow, Lo) Field since 2006 [1867 foot leaseline spacing and 3735 foot between well spacing on 640 acre units], and due to the location of the Davis Well No. 1-61, there is no regular location available for the proposed Crest Davis 3-61.
18. The proposed location of the Crest Davis Well No. 3-61 is along the axis of the depositional system in the Stiles Ranch, South (Morrow, Lo) Field, which is the area of greatest porosity and permeability, and also will access the most net feet of pay in the "E" (20+ feet) and "F" (55+ feet) Sands. This location will afford Crest a fair opportunity to recover the remaining recoverable reserves in place under Section 61 and is reasonable.
19. The proposed location of the Crest Davis Well No. 3-61 in the Stiles Ranch (Morrow) Field is at the location of an overlap of the channel fills in the Stiles Ranch (Morrow) Field, "A", "C" and "D" Sands, where the sands are thickest and have their greatest permeability and porosity. Crest's proposed irregular location will afford it a fair opportunity of accessing the remaining recoverable reserves in place under Section 61 in this field.
20. Regular locations for the proposed well in the Stiles Ranch (Morrow) do exist, but a move to a regular or less irregular location to the east would take Crest off-structure or at least to an area of reduced pay thickness, permeability and porosity, resulting in a significantly reduced chance of recovering Crest's fair share of the remaining recoverable reserves in place under Section 61. Crest's proposed location is reasonable.
21. The proposed location of the Crest Well No. 3-61 is regular in the Stiles Ranch (Granite Wash), Stiles Ranch (Atoka) and Ivester (Atoka) Fields.
22. Amending the acreage assignment of the existing Davis Well No. 1-61 was not within the call of this hearing.

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. An exception to Statewide Rule 37 at Crest's applied-for location is necessary to prevent waste in the Stiles Ranch, South (Morrow, Lo) Field.

4. An exception to Statewide Rule 37 at Crest's applied-for location is necessary to prevent confiscation in the Stiles Ranch, South (Morrow, Lo) Field.
5. An exception to Statewide Rule 38 for Crest's applied-for well is necessary to recover the remaining hydrocarbons in place under Section 61 in the Stiles Ranch, South (Morrow, Lo) Field.
6. There was no protest to Crest's applied-for location in the Stiles Ranch (Morrow) Field. Pursuant to Statewide Rule 37(h)(2)(A), Crest is entitled to administrative approval of its request for an exception location in the Stiles Ranch (Morrow) Field.
7. An exception to Statewide Rule 37 at Crest's applied-for location is necessary to prevent waste in the Stiles Ranch (Morrow) Field.
8. An exception to Statewide Rule 37 at Crest's applied-for location is necessary to prevent confiscation in the Stiles Ranch (Morrow) Field.
9. Crest is entitled to a permit at its applied-for location in the Stiles Ranch (Granite Wash), Stiles Ranch (Atoka) and Ivester (Atoka) Fields.

RECOMMENDATION

Crest Resources, Inc. established that it is entitled to a Rule 37 exception in order to prevent waste and confiscation in the Stiles Ranch, South (Morrow, Lo) Field and Stiles Ranch (Morrow) Field. An exception to Statewide Rule 38 is necessary to enable Crest to recover the remaining recoverable hydrocarbons in place under Section 61. There was no protest to the application of Crest to drill this location in the Stiles Ranch (Morrow), Stiles Ranch (Granite Wash), Stiles Ranch (Atoka) and Ivester (Atoka) Fields. The examiners therefore recommend that the subject application be approved in accordance with the attached final order.

Respectfully submitted,

Marshall Enquist
Hearings Examiner

Donna Chandler
Technical Examiner