

BEFORE THE CORPORATION COMMISSION
OF THE STATE OF OKLAHOMA

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CORPORATION COMMISSION
OF OKLAHOMA

<u>APPLICANT:</u>	PAYNE EXPLORATION COMPANY)	
)	
<u>RELIEF SOUGHT:</u>	DRILLING AND SPACING UNITS (HORIZONTAL UNIT))	CAUSE CD NO. 201102236
)	
<u>LAND COVERED:</u>	W/2 OF SECTION 36, TOWNSHIP 17 NORTH, RANGE 5 WEST, KINGFISHER COUNTY, OKLAHOMA)	
)	
<u>APPLICANT:</u>	HUSKY VENTURES, INC.)	
)	
<u>RELIEF SOUGHT:</u>	HORIZONTAL WELL DRILLING AND SPACING UNITS)	CAUSE CD NO. 201102570
)	
<u>LEGAL DESCRIPTION:</u>	SECTION 36, TOWNSHIP 17 NORTH, RANGE 5 WEST, KINGFISHER COUNTY, OKLAHOMA)	
)	

REPORT OF THE OIL AND GAS APPELLATE REFEREE

These Causes came on for hearing before Susan R. Osburn, Administrative Law Judge for the Corporation Commission of the State of Oklahoma, on the 20th and 21st day of July, 2011, at 8:30 a.m. in the Commission's Courtroom, Jim Thorpe Building, Oklahoma City, Oklahoma, pursuant to notice given as required by law and the rules of the Commission for the purpose of taking testimony and reporting to the Commission.

APPEARANCES: Richard A. Grimes, attorney, appeared on behalf of applicant, Payne Exploration Company ("Payne"); Karl F. Hirsch, attorney, appeared on behalf of Husky Ventures, Inc. ("Husky"); and Jim Hamilton, Assistant General Counsel for the Conservation Division, filed notice of appearance for the Oklahoma Corporation Commission.

The Administrative Law Judge ("ALJ") filed her Report of the Administrative Law Judge on the 23rd day of August, 2011, to which Exceptions were timely filed and proper notice given of the setting of the Exceptions.

The Appellate argument concerning the Oral Exceptions was referred to **Patricia D. MacGuigan**, Oil and Gas Appellate Referee ("Referee"), on the 19th day of September, 2011. After considering the arguments of counsel and the record contained within these Causes, the Referee finds as follows:

STATEMENT OF THE CASE

HUSKY APPEALS the ALJ's recommendation that the application of Payne seeking a drilling and spacing unit (horizontal unit) in the W/2 of Section 36, T17N, R5W, Kingfisher County, Oklahoma for a 320-acre horizontal unit for the Mississippi, Woodford and Hunton common sources of supply be granted. Husky also appeals the ALJ's recommendation that the application of Husky seeking horizontal spacing on a 640-acre basis for Section 36, T17N, R5W, Kingfisher County, Oklahoma for the Hunton common source of supply be denied.

CD 201102236 is the application of Payne seeking 320 acre drilling and spacing authority for a horizontal unit in the W/2 of Section 36 for the Mississippi, Woodford and Hunton common sources of supply and is in opposition to the application of Husky in CD 201102570 which seeks horizontal spacing on a 640-acre basis for Section 36 for the Hunton common source of supply. Each side presented technical testimony in support of their applications and it was noted that there was currently Mississippi Lime spacing and production from Section 36 and that Payne seeks to have their requested horizontal drilling and spacing unit exist concurrently with the existing nonhorizontal drilling and spacing unit.

HUSKY TAKES THE POSITION:

- (1) The ALJ's Report is contrary to the law and contrary to the facts and the evidence presented in this case.
- (2) The ALJ's Report fails to achieve the goals of the State of Oklahoma and the Oklahoma Corporation Commission for the prevention of waste and the protection of correlative rights.
- (3) The ALJ appears to base her recommendation upon the low porosity of the Hunton common source of supply. However, all of the witnesses testified

that production was by way of fractures in the Hunton, not by the porosity. Husky presented the only geologist to testify at the hearing and he stated the fractures extended beyond a 320-acre unit. His testimony was uncontroverted.

(4) The ALJ accepted the drainage calculations of the engineer on behalf of Payne. The engineer used a bottomhole pressure ("BHP") that he testified was obtained through BHP tests. However, there was evidence presented that those pressures could not be accurate because several of the wells producing from the reservoir could still flow after several months of production and the pressure used by Payne's engineer would not have been sufficient to lift the fluids from the hole and allow the wells to flow.

(5) The ALJ failed to recognize the evidence of the adverse affect of drilling wells on a 320-acre basis. There was testimony that after an offset well was fracture-stimulated, the producing wells would eventually regain their before-frac oil production rates and almost regain their before-frac gas production rates. However, she failed to recognize the testimony that the decline in those rates was affected by the offset production and the wells' production would decline at a faster rate on a 320-acre basis than on a 640-acre basis. She also failed to recognize the evidence presented of the water issue with the Bridal and William wells that clearly showed that fluid was being exchanged between wellbores one-half mile apart.

(6) Husky therefore respectfully requests its Application requesting a 640-acre drilling and spacing unit for the Hunton common source of supply underlying Section 36 be granted and the Application of Payne requesting a 320-acre drilling and spacing unit for the Hunton common source of supply underlying the W/2 of Section 36 be denied. Husky requests the recommendation of the Administrative Law Judge be reversed and for further relief as the Commission may deem just and proper.

THE ALJ FOUND:

(1) After taking into consideration all the facts, circumstances, evidence and testimony presented in these causes, it was the recommendation of the ALJ that the application of Payne seeking 320 acre horizontal spacing for the Mississippi, Woodford and Hunton for the W/2 of Section 36 be granted and that the application of Husky seeking horizontal spacing on a 640 acre basis for all of Section 36 for the Hunton be denied. The evidence in the record showed that the Hunton is a thick oil producing reservoir and both sides agree that horizontal well development is the form most efficient for developing reserves here as opposed to vertical wells. With low porosity, low permeability and production occurring through the fracture systems, both Payne and Husky believe that for efficient development and to avoid waste, development should

be by horizontal drilling rather than by vertical drilling. However Husky has denied through its testimony that there is limited drainage in the Hunton and their position is that one oil well in the Hunton in this low porosity, low permeability, thick reservoir will drain 640 acres. The ALJ is not persuaded that this is the case.

(2) It is the opinion of the ALJ that the position Payne has taken is more reasonable for development of the Hunton as well as for the Mississippi and Woodford here. While Payne admits it will probably take more than one horizontal well to develop the reserves in a 320 acre unit, their geologist cautioned that they would need to see the results of their first well in the unit before they could identify how many wells might be needed to develop their proposed 320 acre unit.

(3) While Husky questions the initial BHP used by Payne in their engineering calculation, the ALJ notes that the pressure Payne used is based on two actual nearby BHP tests rather than on calculations on BHP's in the area from Skinner wells. Also, there was some dispute on the record regarding the amount of porosity in the Hunton, but the ALJ noted that whether it is less than 3% or whether it averages 4.2% or more, the Hunton is productive enough in this area, through a long lateral, to generate competitive development. Further, it is hard to imagine that the porosity holding the oil would be so limited, yet generate enough production from such limited porosity to drain 640 acres.

(4) As to the impact of offset fracture treatments, the record indicated that these wells tend to recover about the same production level in the oil as it was before the offset fracture treatment, and even the gas returns to almost the same level. The impact is immediate and then recovery of production occurs. Therefore the ALJ does not find there is sufficient evidence to support ongoing long-term impact from fracture treatments in offset 320-acre units.

(5) The ALJ also finds little significance in the argument about the orientation of the natural fracs. Generally the fracture systems run east-west and operators in the Hunton in this general area orient their wells more or less north-south. Both Payne and Husky have proposed more or less north-south wellbores here. It is the opinion of the ALJ that Payne's proposed development is both reasonable and supported by the evidence and it is also consistent with the majority of the Hunton development to the south.

(6) As to the Mississippi and Woodford, it is the opinion of the ALJ that they should be spaced on the 320 acre horizontal basis also, that experience in the general area and in other parts of Oklahoma show that both are good candidates for horizontal development. Since Payne owns 100% of the

Mississippi vertical well producing in the southern part of their 320 acre proposed unit, and they want the horizontal Mississippi spacing, there is no impediment to the Mississippi horizontal spacing here.

(7) It is therefore the recommendation of the ALJ that Payne's application be granted and that Husky's application be denied.

POSITIONS OF THE PARTIES

HUSKY

1) **Karl F. Hirsch**, attorney, appearing on behalf of Husky, appeals the ALJ's recommendation granting Payne's application for the establishment of a 320-acre drilling and spacing unit for horizontal wells covering the W/2 of Section 36 in CD 201102236 and denying Husky's competing spacing application requesting a 640-acre horizontal well drilling and spacing unit for all of Section 36 in CD 201102570. Payne's application requested spacing for the Hunton, Mississippi and Woodford and Husky's application requested spacing for the Hunton only, but this was not an issue in the case. The majority of the testimony and evidence was with respect to the Hunton common source of supply, with the Mississippian and Woodford simply mentioned by Payne as prospective for horizontal wells, and with no objection from Husky.

2) The Hunton produces from fractures, not based upon its porosity, with the ALJ stating as much in her report, but continuing on to say that she is not persuaded that one well in the Hunton, a low porosity, low permeability, thick reservoir, will drain 640 acres. The ALJ states that it is difficult to imagine that the porosity holding the oil would be so limited yet generate enough production to drain 640 acres. The ALJ's conclusion is that the spacing should be 320-acre units rather than 640-acre units because it seems unlikely that a reservoir with three or four percent porosity can drain 640 acres. Husky takes the position that this would be correct but for the fractures. Therefore, the issue in this case is whether the fractures in this reservoir connect that pore space in a distance that will allow it to drain 640 acres. Husky states that porosity is still important because production comes out of the pore space, but it is the connection of those pore spaces through fractures that affects drainage, not the porosity.

3) The engineer for Payne used the entire thickness of the Hunton, 156 feet, in his calculations, even though the engineer for Payne and an engineer and a geologist that testified for Husky all agreed that there were parts of that

reservoir that had zero porosity. Husky takes the position that height is one of the most important aspects of an engineering calculation. Height directly correlates to the area of drainage because it cuts down on the size of the reservoir. Husky takes the position that by using 156 feet, the engineer created an artificially thick reservoir that will not drain an area as far away from the wellbore. By contrast, Husky's engineer used a thickness of 40 feet. We are producing through fractures, not through the porosity.

4) Husky takes the position that the engineer for Payne cannot be correct in stating that it may take up to six wells to drain the 320 acres. A half section is 2640 feet and if you divide that by six, you get 440 feet. Each well will produce 220 feet on each side of each wellbore. Husky states that there are fractures that extend over a mile, and an engineer for Husky calculated the drainage on the Olin well, where only half of the wellbore is being fraced, at 271 acres. If the whole wellbore had been fraced, that number would double to approximately 542 acres. The engineer also used the Robinson well, which is only 320 acres and has a well next to it on each 320 and is showing the effects of drilling in each 320, as evidence that well is restricted because of offset competition. Husky states that there is no question that these wells are in communication, as the Robinson well was affected by fracs from the Rising and the Edna. The question is whether the effect was simply a fracture effect. The geologist for Husky testified that the fractures in this particular Hunton, as shown by the formation imaging log, showed these fractures to be open fractures, where the rock had been fractured and stayed open so the proppant could go much further into these fractures. Husky states that there was testimony presented that at least two-thirds of the distances of those fractures are going to contribute hydrocarbons, and that there is no question of an effect beyond 320 acres.

5) Husky also mentions the Farland, which was affected by the Bilger well. Some parts of the Farland area are much more than 320 acres away but show the effect across half section lines. Payne's engineer stated that while there is immediate effect on the production in those wells, they come back and so there is no effect on production. Husky states that the only well that the Payne engineer talked about was the Rising well, and oil did come back, but the gas did not come back. The witness for Husky stated oil does come back, gas does not come back all the way, and the decline curve will be greater. There is evidence of communication between the wells and thus drainage competition between the two wells.

6) Husky states that the ALJ did not mention the Bridal and Williams wells in her conclusion, which according to Husky is where the real effect of the sharing of fluids between the wells is. The Bridal well was only producing water when it was completed, while the Williams well was producing more water than normal. After Husky plugged a couple of Mississippi wells on the

Bridal lease they saw an immediate affect on both of those wells, with the Bridal well starting to produce oil and gas and the Williams well's production increasing. Husky takes the position that this is positive evidence of communication between these producing wells.

7) Husky concludes that based on engineering reports and porosities of the area, the Payne engineering study is not correct. The Bridal and Williams evidence which was not considered or mentioned in the ALJ's recommendation would bring about a completely different result.

PAYNE

1) **Richard A. Grimes**, attorney, appeared on behalf of Payne, requesting that the recommendations of the ALJ granting Payne 320-acre spacing be upheld. Payne states that most of the surrounding horizontal development has been predicated upon applications filed by these two companies, and that fourteen of the applications were for 320-acre units, just as Payne is seeking here. The only other 640-acre application was sought by Husky because they wanted to drill two Skinner laterals, and those laterals would be drilled in different directions within the 640. However, Husky never drilled them, and rather only drilled one lateral in the Hunton. Besides that, there are fourteen 320-acre units and one 480-acre unit established.

2) Payne states that according to Husky's own admission, the reason Husky filed for 640-acre spacing in the present cause was because Husky failed to reach an agreement with Payne to trade acreage in Section 36 to the north. Payne states that three weeks before the date of hearing the protest, Husky hired Fletcher Lewis, and that the 40-foot drainage calculations that he used in one of the wells was predicated upon an isopach that he prepared on a scratch pad and which was not submitted as an exhibit. As to drainage calculations on the other well, Mr. Lewis used 20 feet, and Payne takes the position that there was no explanation given why the drainage calculation on one well was 40 feet and the other one was 20 feet.

3) Payne agrees with the witnesses who noted that fracturing is the primary reservoir function here for production. The log sections provided on Hunton wells show approximately 150 feet or a little more of Hunton, and all of the witnesses testified that throughout that 150 feet there would be fracturing. Within that 150 feet there will be the potential for production not driven primarily upon porosity, but driven upon fractures. Payne takes the position that Mr. Lewis' calculations approach this as if it were Western Oklahoma Red

Fork Sand, using a net pay calculation of 20 or 40 feet to reach the conclusion that each well will drain over 500 acres.

4) The Olin well in the W/2 of Section 20 received a lot of discussion and Husky placed a lot of emphasis on it. Payne states that no answer was given by Husky for why the Hancock well, still proposed but not yet drilled, (Exhibit 3) would be necessary if a well can drain 640 acres. Payne states that upon questioning, Husky took the position that if they drained 640 acres, it might be drained from the E/2 of Section 19, which is not spaced. However, upon Payne's questioning whether they would respace the Olin to avoid unnecessarily draining those people without sharing, Husky responded they would not do that.

5) Payne states that when you frac a well, the farther the frac fluids go east to west the less drainage effect there is, due in part because frac fluids and proppant are heavy and they drop. Frac length does not equate to drainage area. This is the reason for all of the 320 acre units, because you can't effectively drain an area, even if the frac fluids initially extended out into an area that would incorporate an adjacent tract or unit. Bottomhole pressure is also a significant factor, and Payne states that they had bottomhole pressure tests on two different wells that were very comparable in results, and which were rejected by Mr. Lewis because of the effect it would have upon his drainage calculation.

6) Payne states that Husky's geologist, Greg McDonald, was asked regarding the geological significance of lateral placement in a 640 acre unit and that Mr. McDonald stated there was no great significance. Payne takes the position that this location was selected in order to affect both 320s.

7) Payne takes the position that the ALJ knew that fracturing is the key, and that the reason she pointed out porosity was because Mr. Lewis made it the issue by using the Western Oklahoma volumetric method and by his attempt to eliminate porosity. Everybody admitted that the porosity and permeability from a typical volumetric standpoint was low, and the ALJ was doing nothing more than referencing what everybody else said.

8) Mr. Lewis was asked if his position was that any area of the reservoir with 2 percent porosity but with fractures would not contribute. He said it would be some, but not at a 15 percent recovery factor. Mr. Lewis agreed that he gave that portion of the reservoir no credit, and that if he did give credit for such portions of the reservoir, the thickness as shown on his Exhibit 12 would go up, reducing the size of the drainage area that he calculated. Mr. Lewis was asked about where he had obtained his 20-foot calculation for the Olin well. Mr. Lewis said it was predominantly from the Section 20 Rising Hirzell well, and stated that he had looked at a number of logs in the area and had done a

net isopach on scratch paper and that was where he got the 20 foot from the Olin. For the Robinson well net pay Mr. Lewis used a number of wells, including the Nellie well since the Nellie well was closer to the Olin well than to the Robinson well. When asked why the Nellie wasn't used for the Olin net feet of pay since it was closer, Mr. Lewis said he did look at it for his scratch isopach, and by his method the Olin had one-half the net feet of pay as the Robinson did, and he agreed that if the Olin had 40 feet of net pay the drainage area would decrease, but not by one-half.

RESPONSE OF HUSKY

1) Husky states that the record does not reflect Payne's assertion that 640-acre spacing was filed in Section 36 because Payne wouldn't make a trade of acreage. Husky states that the report reflects that the discussion was as to why 320s were filed in Section 24, not why 640s were filed in Section 36.

2) Husky states that the reason Mr. McDonald, the geologist, said geologically it didn't make any difference if the wellbore was placed somewhere else, was because structurally it could be anyplace in the unit and also because the thickness of the unit, the isopach, it could be anyplace in the unit. The reason the horizontal well was put in the middle of Section 36 is because they think it is going to drain 640 acres. The reason Husky recommended the horizontal be shaped in the manner proposed is because the evidence was that fractures run northeast-southeast, not directly east-west, and the horizontal would be drilled at an angle to capture the most fractures.

3) Husky takes the position that Mr. Lewis' engineering reports followed the same methodology that was used by the Payne engineer. The porosity is where the oil and gas is, but the fractures are what produces the oil and gas. Husky's position is that there is no evidence to support Payne's statement that the farther the fractures go the less distance it drains. Husky also states that with every well they learn something, and the Williams and the Bridal well water incident did not occur when this other 320 spacing was going on. It occurred after and helped solidify the understanding that this reservoir does in fact drain a larger area than 320 acres.

CONCLUSIONS

The Referee finds the Report of the Administrative Law Judge should be affirmed.

1) The Referee finds that the ALJ's determination to grant the Payne application for 320-acre drilling and spacing authority for a horizontal unit for the Mississippi, Woodford and Hunton common sources of supply in the W/2 of Section 36 to be supported by the weight of the evidence, by law and free of reversible error. Therefore, the ALJ's Report should be affirmed. The ALJ has written a well-reasoned report setting forth her conclusions and recommendations based on the evidence presented before her. The ALJ is the trier of fact and observes the demeanor of the witnesses, assesses their credibility, and assigns the appropriate weight to their opinions. *Grison Oil Corp. v. Corporation Commission*, 99 P.2d 134 (Okl. 1940).

2) The Referee notes that in making the determination the ALJ weighed the expert opinions presented before her and found the Payne's opinions to be worth greater weight. The Commission must follow the procedure set forth in *Haymaker v. Oklahoma Corporation Commission*, 731 P.2d 1008 (Ok1.App. 1986) wherein the Court stated:

Proper appraisal of the expert testimony requires observance of the following benchmark principle approved in *Downs v. Longfellow Corp.*, 351 P.2d 999 (Okl. 1960):

"The reasons given in support of the opinions [of an expert witness] rather than the abstract opinions are of importance, and the opinion is of no greater value than the reasons given in its support. If no rational basis for the opinion appears, or if the facts from which the opinion was derived do not justify it, the opinion is of no probative force, and it does not constitute evidence sufficient to...sustain a finding or verdict."

The ALJ followed the above procedure in determining which expert opinion was worthy of greater weight. The ALJ simply found that the Payne expert opinion was based upon a more rational basis than that of the Husky experts.

3) 52 O.S. Section 87.1 provides in relevant part:

(a) To prevent or to assist in preventing the various types of waste of oil or gas prohibited by statute, or any of said wastes, or to protect or assist in protecting the correlative rights of interested parties, the Corporation Commission, upon a proper application and notice given as hereinafter provided, and after a hearing as provided in said notice, shall have the power to establish well spacing and drilling units of specified and approximately uniform size and shape covering any common source of supply, or prospective common source of supply, of oil or gas within the State of Oklahoma;...

* * *

(c) In establishing a well spacing or drilling unit for a common source of supply thereunder, the acreage to be embraced within each unit...and the shape thereof shall be determined by the Commission from the evidence introduced at the hearing, and the following facts, among other things, shall be material:

(1) The lands embraced in the actual or prospective common source of supply; (2) the plan of well spacing then being employed or contemplated in said source of supply; (3) the depth at which production from said common source of supply has been or is expected to be found; (4) the nature and character of the producing or prospective producing formation or formations; and (5) any other available geological or scientific data pertaining to said actual or prospective source of supply which

may be of probative value to said Commission in determining the proper spacing and well drilling unit therefor, with due and relative allowance for the correlative rights and obligations of the producers and royalty owners interested therein.

4) The evidence reflected that most of the surrounding horizontal development has been predicated upon applications filed by Payne and Husky and that 14 of the applications were for 320 acre units and one 480 acre unit was established. There is only one other 640 acre application which was sought for the Skinner formation.

5) Both Payne and Husky agree that fracturing is the primary reservoir function here for horizontal production. The log exhibits show that the Hunton is approximately 150 feet and the evidence was that there would be fracturing throughout that 150 feet. The ALJ found as to the impact of offset fracture treatments that the record indicated that these wells tend to recover about the same production level in the oil as it was before the offset fracture treatment. Therefore, the ALJ found that there was not sufficient evidence to support ongoing long term impact from fracture treatments in offset 320 acre units.

6) Bottom hole pressure was also a factor. Payne's evidence was that they had BHP tests on two different wells that were comparable in results and nearby rather than on the calculations by Husky on BHPs in the area from Skinner wells.

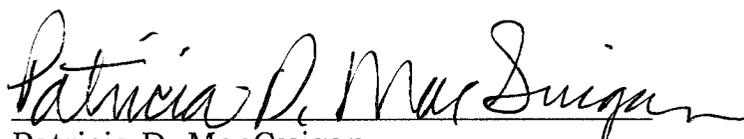
7) The ALJ addresses Husky's evidence and opinions in her recommendations and conclusions and found them lacking. Upon review, the Referee can find no reason to vary that determination. The ALJ determined the Payne relief would better accomplish the prevention of waste and protection of correlative rights. As stated in *Winter v. Corporation Com'n of State of Oklahoma*, 660 P.2d 145 (Okl.App. 1983):

...Having been given a choice of remedies, it is incumbent upon the Commission to use the remedy which will best prevent waste and protect correlative rights....

The Referee finds that there is substantial evidence showing that the prevention of waste and protection of correlative rights will be better accomplished by the granting of the Payne relief rather than the Husky relief. The weight of the evidence also determines that the Payne application will best

result in orderly development and best comport with the intent of the Legislature in enacting the Spacing Law. When one considers the previous development of the Hunton in this area the Referee believes that the best choice that can be made at this time is to grant the Payne application for the 320 acre horizontal spacing for the Mississippi, Woodford and Hunton for the W/2 of Section 36, and the application of Husky seeking horizontal spacing on a 640 acre basis for all of Section 36 for the Hunton be denied.

RESPECTFULLY SUBMITTED THIS 30th day of September, 2011.


Patricia D. MacGuigan
OIL & GAS APPELLATE REFEREE

PM:ac

xc: Commissioner Murphy
Commissioner Cloud
Commissioner Anthony
Jim Hamilton
Richard A. Grimes
Karl F. Hirsch
ALJ Susan R. Osburn
Office of General Counsel
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