

R. J. O'BRIEN AND DOWELL, DIVISION OF DOW  
CHEMICAL *v.* LESTER PRIMM AND EDITH PRIMM

5-4261

419 S. W. 2d 323

Opinion delivered October 9, 1967

[Rehearing denied November 6, 1967.]

1. TRIAL—DIRECTION OF VERDICT—WEIGHT & SUFFICIENCY OF EVIDENCE.—A directed verdict for defendant is proper only when there is no substantial evidence from which jurors as reasonable men could possibly find issues for plaintiff.
2. TRIAL—DIRECTION OF VERDICT—HEARING & DETERMINATION.—On defendant's motion for directed verdict, trial judge must give to plaintiff's evidence its highest probative value, taking into account all reasonable inferences that may sensibly be deduced from it, and may grant the motion only if the evidence viewed in that light would be so insubstantial as to require him to set aside a verdict for plaintiff should such a verdict be returned by the jury.
3. NEGLIGENCE—QUESTIONS FOR JURY—TRIAL, JUDGMENT & REVIEW.—Trial court did not err in refusing to direct verdicts for defendants where evidence concerning appellants' use of acid under pressure and intense vibrations in their sand fract operation in their oil well located near salt water disposal pits and appellees' water well could have caused the well water to be

ccmc unfit for consumption and use, presented questions of fact for jury's determination on the issue of negligence.

Appeal from Ouachita Circuit Court, *Melvin Mayfield*, Judge; affirmed.

*D. J. Honeycutt* and *Gaughan & Laney*, for appellant.

*Melvin Chambers*, for appellee.

J. FRED JONES, Justice. This is an appeal by R. J. O'Brien and Dowell, Division of Dow Chemical, from a judgment for damages in the amount of \$4,000.00 rendered by the Ouachita County Circuit Court on a jury verdict in favor of the appellees, Lester and Edith Primm, who were plaintiffs in the trial court.

Appellants contend that verdicts should have been directed for them and designate four points relied on as follows:

"1. The Court erred in not directing verdicts for the defendants at the close of plaintiffs' case and again after plaintiffs were permitted to produce additional testimony and again closed their case.

"2. The Court erred in not directing verdicts for the defendants at the close of all of the testimony and before instructing the jury, and in refusing to enter a verdict for the defendants notwithstanding the verdict of the jury.

"3. The Court erred in not directing verdicts for the defendants inasmuch as there was no substantial evidence of negligence on the part of appellants.

"4. The Court erred in not directing verdicts for the defendants inasmuch as there was no substantial evidence that appellants' acts were the proximate cause of the injuries complained of."

The record reveals the following facts:

In April 1964 appellees owned a forty-acre tract of land in Ouachita County with their home and a tenant house located thereon. Both houses had been supplied, for about eighteen years, with water from a well about thirty feet deep and containing twelve or fourteen feet of good soft water. The appellant, R. J. O'Brien, owned an oil well 550 feet from appellees' water well. The oil well was 2,326 feet deep, and in April 1964, was providing 1.4 barrels of oil per day. Seven hundred feet and four hundred and eighty-five feet, respectively, from appellees' water well, there were two salt water disposal pits which had been in use for a number of years. The evidence is in conflict as to whether the pits were higher or lower in elevation than appellees' water well.

In April 1964, appellants did what is known as a sand fract job on the oil well, and within a week or so following this operation, a change was noted in the quality of the water in appellees' water well, and the quality of the water rapidly deteriorated until it soon became unfit for human consumption.

There was ample evidence presented by appellees that during the eighteen years prior to the sand fract operation, the water in their well had been palatable and wholesome and that within a month following the sand fract operation, the water became unfit for household use, even for bathing and laundry. Aside from the testimony of the appellees and their witnesses as to the change in the appearance and taste of the water, there was evidence that the water killed flowers watered with it; that new galvanized pipe fittings on hot water tanks had been eaten through with rust and acidic-like corrosion in a period of eighteen months. Undated reports of chemical analyses made after the sand fracting job, showed a variation in total dissolved salts from 60,800 ppm with a pH factor of 6.1 to 851 ppm dissolved salts with a pH factor of 4.9.

Chemical analyses presented by appellants from samples taken from the Primm well on December 7, 1964, and December 7, 1965, show changes as follows: chloride from 160 in 1964 to 340 in 1965; sodium 80 to 190; total solids 305 to 613 and pH factors from 6.2 to 6.7.

Although the terms "dissolved salts," "chloride" "sodium," and "total solids" are indefinite terms in relation to the problem here, appellees' undated reports of chemical analyses show a tremendous variation in the chemical contents and acidity of the water, and appellants' reports show that the named chemicals and solids more than doubled within the one year period from December 1964 to December 1965, and during the same period, the relative acidity of the water changed slightly toward alkaline (pH 7 being neutral) from 6.2 to 6.7. The analyses reports introduced by appellees bear no date so we are unable to tell when the water attained its highest relative acidity, but appellants' own expert witness testified that pH 4.9 is a strong acid for human consumption or use.

As a matter of fact, appellants offered expert testimony to the effect that the chemical content of the water in appellees' well was consistent with the chemical content of the salt water disposal pits near his land, so certainly there was ample evidence of damage to appellees' water well to go to the jury at the close of appellees' proof, and there was ample evidence to support the jury verdict on this point.

Appellees' witness, Mr. Hogg, testified that appellees' land had a true market value of \$20,000.00 with good usable water, and \$8,000.00 or \$10,000.00 without usable water. Mr. Honeycutt, a witness for appellants, placed the before and after value at \$12,500.00 and \$11,000.00, or a difference of \$1,500.00 based on the value of the two houses and one acre of ground with each house and \$1,000.00 for drilling a new well.

From this testimony and the testimony of appellees as to their inconvenience in having to haul water for domestic use, together with the testimony of Mr. Hamlin as to the two water strata in the area; one 25 to 30 feet deep and the next 360 feet deep; we are of the opinion that appellees submitted ample competent evidence to go to the jury on the over-all damages, and that there was sufficient evidence to support a jury verdict of \$4,000.00.

We now come to the most important issue; the negligence of appellants and the proximate cause of the damages to appellees.

The appellants produced considerable testimony while using charts or diagrams drawn to scale, apparently showing detailed diagrams of the oil well, including the location of oil bearing sands, perforations, and the location or locations of cement in or around the casing.

As we understand the testimony, the appellees were trying to prove, by circumstantial evidence, that because of the pressure forced into the oil well in the sand fracturing operation, a channeling occurred from the oil well into the water strata of appellees' well thus bringing impurities from the oil well to appellees' water well, and that appellants were negligent in applying the pressure they did apply in bringing this about.

Appellants were attempting to disprove appellees' theory by showing that even with a pressure of 3,500 pounds per square inch, a channeling did not occur as evidenced by no sudden drop in pressure on a pressure gauge at the well-head. And that as a matter of fact a channeling *could not* occur, because of the protective cement around the casing as indicated on the charts.

Apparently the charts were not offered in evidence since they do not appear in the record before us, but

in their use before the jury Mr. Zwahlen, a petroleum engineer for appellant, testified as follows:

“Q. Mr. Zwahlen, I have some diagrams. Are you familiar with that diagram?

A. Yes, I am.

Q. Would you explain it, please?

A. Yes, I will. May I move over here, so possibly the Judge can see?

Q. Mr. Zwahlen, was this drawn under your supervision?

A. This was drawn under my supervision, since I had all the records of what went on. This illustrates the well that we actually fractured up there, the Wesson No. 1, and according to our records the well, of course, was completed according to the State regulations. We had our surface casing set at *this depth* and cemented.

Q. What is that?

A. *This blue line is cement. We explain down here. You may not be able to see it, but cement is solid through here, the surface casing. Of course, this is the outside of the hole and then we drilled on down to our projected depth, which this one was 2,326 was the total depth of our well. Then we ran our production casing, which is 5½ inch casing, to below our producing sand. Then we—Some of you people, I know, being in the oil field know these terms, but I'd like to go on through this. We pumped cement on down around this casing and it comes out around the outside and the top of the cement is shown here. It calculates out that it should be at 925 feet, from the surface to here, and we are perforated down here in the range of 2,150 feet and below, which gives*

us more than 1,000 foot of cemented casing which will protect anything up above us.

\* \* \*

Q. Here's another chart. Do you recognize this chart, Mr. Zwahlen?

A. Yes, I do. We were trying to draw to scale something that we could bring into the Court Room and show to everyone here exactly, as we could, the situation we had out there on the job when we were fracturing and, of course, over here, what we have labeled here, we've taken this information from what we call our electric log. It shows here, starting at the surface down to around 900 feet, we have clays, sand and shales interbedded and this is the upper part. Up in here is where you have, of course, your fresh water. This is our surface casing that we have in here and it's cemented.

Q. Is this the same blue that was on the other?

A. This is the same blue that was on the other. Of course, there's another blue down here. Like I said before, we calculate the cement should come to about 950 feet, so we have all of the cement above this formation that is producing oil and that we did *fract down here*, where we're getting our oil from." (Emphasis supplied.)

One of the links in the chain of circumstances appelles were attempting to forge in support of their theory, was that even though casing and cement were designed to protect against channeling in the oil well under ordinary pumping conditions, vibrations were negligently set in motion by the appellants in their sand fracturing operation, and that the vibrations were of sufficient intensity to loosen the casing and cement in the oil well, thus permitting a channeling to occur under

the pressure necessarily applied in the sand fracturing of oil wells in general, and that *was applied* to appellants' well in particular.

As to the vibrations, Mrs. Primm testified:

"We did feel the vibrations. It seemed like they were just going to blow the ground out from under us."

Mrs. Primm testified that the noise and vibrations from appellants' operation were much worse than from other sand fracturing operations previously done near, and even closer to her house, than appellants' operation.

Appellants were using an old airplane engine without a muffler in their fracturing operation and they admitted it made a lot of noise. Appellants did not deny vibrations in the air during their operation, but attempted to disprove vibrations in the ground by introducing pressure charts or graphs taken at the well-head during the operations and by then demonstrating the sensitivity of the machine mechanism to vibrations artificially induced in the court room. No objection was made to this bit of demonstrative evidence, but the jury had a right to recognize that the sensitive mechanism of the machine was not under 3,500 pounds of pressure per square inch when the demonstration was conducted in the court room.

As to directed verdicts, this court is fully committed to the rule restated as recently as June 5, 1967, when in the case of *St. Louis Southwestern Railway Co. v. Frances W. Farrell, Adm'x*, 242 Ark. 757, 416 S. W. 2d 334, we said:

"\* \* \* A directed verdict for the defendant is proper only when there is no substantial evidence from which the jurors as reasonable men could possibly find the issues for the plaintiff. In such circumstances the trial judge must give to the plaintiff's

evidence its highest probative value, taking into account all reasonable inferences that may sensibly be deduced from it, and may grant the motion only if the evidence viewed in that light would be so insubstantial as to require him to set aside a verdict for the plaintiff should such a verdict be returned by the jury."

The evidence in the record before us does not measure up to the requirements for a directed verdict.

Here the appellees' water well had been producing an abundance of excellent soft and palatable water from a thirty foot depth for a period of eighteen years prior to April 1964. During April 1964, appellants sand fractured their oil well at a depth of 2,150 feet and in doing so they first introduced acid into the well, in an amount and of a kind not shown in the record, but for the purpose of cleaning out the perforations leading from the casing into the oil bearing sand. Appellants then forced an unknown quantity of oil, blended with sand, through the well out into the oil bearing sand under a pressure of 3,500 pounds per square inch. In carrying out this operation, the appellants created a noise with vibrations transmitted either through the air, through the ground, or through both the air and the ground, but in any event of such intensity to vibrate appellees' house which was a distance of 550 feet from appellants' operation.

The record reveals that pH 7 in water analysis is the dividing line, or neutral area, between acidity and alkaline and that pH 4.9 is a strong acid for human use or consumption. The record further reveals that soon after appellants had finished their operation, the water in appellees' well became unfit for consumption and use and showed an acidity content of pH 4.9, subsiding to almost neutral, 6.7 by December 1965, and that as the acidity of appellees' well water diminished, the calcium and chloride contents more than doubled. There is am-

ple evidence that appellees had good well water before the sand fract operation, and that it has been unfit for use since the sand fract operation.

Appellants' oil well, only 550 feet from appellees' water well, contained an undetermined amount of acid. It was the only known source of acid anywhere near appellees' well. This acid was forced out into the earth under tremendous pressure along with, or ahead of, an undetermined amount or volume of fracturing material. There is evidence of tremendous vibrations in connection with this operation and some evidence that the ground under appellees' house vibrated. So giving to the appellees' evidence its highest probative value, and taking into account all reasonable inferences that may be deduced from it, the jury could have reasonably concluded that the high acid content of the water in appellees' well, which had suddenly gone bad following the sand fract operation, was forced into appellees' well along with other impurities, from the only known and nearest source, appellants' oil well.

If the jury accepted appellants' theory that the impurities in appellees' water well came from the salt water disposal pits, the jury could have reasonably concluded that the vibrations from appellants' fracturing operations disturbed the surface of the ground to a depth sufficient to release seepage from the disposal pits into the pure water strata of appellees' well.

We conclude that the trial court did not err in not directing verdicts for the appellants at the close of appellees' case, (*Hawkins v. Missouri Pac.*, 217 Ark. 42, 228 S. W. 2d 642) and we conclude that there was no error in the trial court's failure to direct verdicts for the appellants on the other points relied on in their brief. (*Arkansas State Highway Comm. v. Webster*, 236 Ark. 491, 367 S. W. 2d 233; *Arkansas Louisiana Gas Co. v. Robert C. Wood*, 240 Ark. 948, 403 S. W. 2d 54.)

The judgment of the trial court is affirmed.

BROWN and FOGLEMAN, JJ., dissent.

JOHN A. FOGLEMAN, Justice, dissenting. I respectfully dissent. The case was submitted to the jury on the basis of negligence and the majority opinion indicates that they believe that negligence is the appropriate basis for liability rather than liability without negligence. With this I can agree, as it is not shown that the use being made of appellants' property or the method of operation was such as to invoke the doctrine of strict liability. I agree that the doctrine of *res ipsa loquitar* cannot be applied in a case such as this when injury might have been brought about by either of two speculative theories, for one of which the defendant is not responsible, and neither of which is included or excluded by affirmative evidence. *Oklahoma Gas & Electric Co. v. Frisbie*, 195 Ark. 210, 111 S. W. 2d 550; *Martin v. Arkansas Power & Light Co.*, 204 Ark. 41, 161 S. W. 2d 383; *Williams v. Lauderdale*, 209 Ark. 418, 191 S. W. 2d 455. The evidence must have a substantial probative tendency to show that plaintiff's injury was caused by defendant's negligence to the exclusion of anything else. *Saunders v. Lambert*, 208 Ark. 990, 188 S. W. 2d 633.

As indicated in the majority opinion, the evidence on behalf of appellees was all circumstantial both as to negligence and proximate cause. This is a proper basis for a jury verdict. *Parker v. Marsh*, 221 Ark. 229, 252 S. W. 2d 624; *Superior Forwarding Co. v. Garner*, 236 Ark. 340, 366 S. W. 2d 290. Conjecture cannot be permitted to supply the place of proof, however, and create a conclusive presumption, as this would exclude every other reasonable means which might have caused the injury. *Missouri Pacific R. Co. v. Ross*, 194 Ark. 877, 109 S. W. 2d 1246. The burden was on appellee to show an act of negligence on the part of appellant by substantial testimony and he cannot rely on inferences based on conjecture and speculation. *Glidewell, Administrator v. Arkhola Sand & Gravel Co.*, 212 Ark. 838, 208 S. W. 2d 4.

It seems to me that, as between the salt water pits and the "sand fracturing" operation, the jury could only

speculate as to the cause of damage to appellees. The circumstantial evidence certainly does not exclude the salt water pits as a possible cause, nor do I think it shows negligence on the part of appellants. In *Turner v. Hot Springs Street Railway Co.*, 189 Ark. 894, 75 S. W. 2d 675, a case involving a similar question, this court said:

“\*\*\*And where the testimony leaves the matter uncertain, and shows that any one of a half a dozen things may have brought about the injury, for some of which the employer is responsible and for some of which he is not, it is not for the jury to guess between these half a dozen causes and find that the negligence of the employer was the real cause, when there is no satisfactory foundation in the testimony for that conclusion.”

The acts of negligence upon which appellees rely were (1) use of excessive pressure, (2) failure to place enough protective material above the pressure area, and (3) causing excessive vibrations of the oil well casing.

Evidence of excessive pressure is based almost entirely upon the testimony of appellee Edith Primm that there was more pressure than had been used in sand fracturing other wells near their house. It appeared from cross-examination that she judged pressure by the noise made in the operation. There was no evidence that the amount of pressure used was excessive, nor was there any evidence at all on behalf of appellees as to the second act of negligence. Mrs. Primm also testified that they felt vibrations at the house and it seemed as if they were going to have the ground blown right out from under them. There was expert testimony to show that the vibrations were only in the air.

Jack Robinson, a witness for appellees who has worked in the oil industry, stated that vibrations would loosen casing in an oil well. He also said that when you

have a loose casing, it was possible that fluids would pass up through the channeling and that channeling jobs have been known around pipe in an oil well. John Langley, another witness for appellees, said that vibrations would loosen casing and that channeling, or the movement of material from one formation to another, resulted from pressure. He also said that when the cement was not adequate to protect against such a possibility, the situation could be detected by salt water in the oil formation. Conrad Hamlin, offered as a water well expert by appellees, said that there was a chance that a slush pit 100 feet by 100 feet, 15 feet deep, within 500 feet of Primm's shallow well which has salt water continually discharged into it would pollute the Primm well. There is nothing in the record to show that appellants had anything to do with these pits.

Tom Jordan, a petroleum engineer employed by R. J. O'Brien, stated that the oil well was in all respects in accord with industry standards before the sand fracturing was done. He said the oil producing formation was at 2,150 to 2,200 feet.

Lee Zwahlen, O'Brien's petroleum engineer who designed the sand fracturing job on the well, said that they tested the lines and pump used under pressure and found no cracks or leaks. He also said that the work was done 2,150 feet down in the well. The pressure used was 2,500 pounds per square inch. He added that if the fracturing material had not gone into the oil producing formation it would have come out the top valve. While he said the pump made a lot of noise, he said there was no vibration of the ground. Acid was spotted around the perforations<sup>1</sup> to clean them up. He said that salt water increased from 7% or 8% to 10% after the fracturing. Mr. Zwahlen had heard of channeling jobs and knew what they were, but testified that there was no channeling on this job. He said this would have been impossible with-

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<sup>1</sup>The perforations are at the level of the oil producing strata.

out producing a lot of salt water and that this did not occur.

M. J. Olive, a chemical engineer, supervised the taking and analyzing of samples from the Primm well and the pits near the house. The chemical analysis in each sample was very nearly identical, but the chloride content was naturally much higher in the pits. It was his opinion, based on an on-site inspection and analysis of the water samples, that the concentration of chloride in the Primm water came from the pits by seeping subsurface to the well.

In my opinion this testimony does not meet the requirement for circumstantial evidence to show that the well was affected by the sand fracturing job or that appellant was guilty of any negligence. There was no evidence that there was channeling, no evidence of excessive salt water as a result thereof, and nothing to indicate that any of the material used came from a depth of 2,150 feet through various formations to the level of appellees' well which was 29 feet deep. The chloride content was shown by a letter from a chemist named Faulkner to Primm to be low enough on September 10, 1964, to indicate that no acid got into the well during the fracturing job.

I think that the evidence, given the strongest probative force favoring appellees, only leads to speculation and conjecture as to both negligence and proximate cause which are improper bases for submission of the question to the jury. *Superior Forwarding Co. v. Garner*, 236 Ark. 340, 366 S. W. 2d 290. The burden was on appellees to show by substantial evidence, rather than inferences, speculation and conjecture, a basis upon which a jury might have found some act of negligence on the part of appellants. *Glidewell, Administrator v. Arkhola Sand & Gravel Co.*, 212 Ark. 838, 208 S. W. 2d 4. Nor may a jury capriciously disregard reasonable testimony of witnesses in order to give substance to a fanciful theory. *Missouri Pac. R. Co. v. Ross*, 194 Ark.

877, 109 S. W. 2d 1246. In the latter case the evidence showed that the battered body of appellee's decedent was found on a straight railroad track on which it was customary for pedestrians to walk. There was blood at the scene. There were no footprints and no indication that the body had been dragged. It was shown that deceased had started walking to a destination along the railroad tracks five miles away on the night before his body was found. The railroad company's testimony showed that a lookout was maintained on all trains at all times the deceased could have been on the tracks and that the headlights on the trains gave proper illumination. The language of the court is particularly applicable here:

“\* \* \* If, with the lookout being maintained, physical surroundings and attending conditions were such as to negative any explanation of the tragedy other than the supposition that Ross was walking on or near the track, then we might say the jury was justified in disregarding testimony of appellant's agents as to the measure of care, and such action would not be arbitrary. But no such case has been made out. To admit this would be to say that there is a conclusive presumption that Ross was walking on or near the track, in the glare of a brilliant headlight, and that negligence alone was responsible for the fact that his presence in such place of peril was not discovered. There is no such conclusive presumption. *Such a rule would exclude every other reasonable means which might have caused the tragedy.*” [Emphasis ours]

There are other means which might well have caused this damage in the case before us and the testimony does not exclude them.

I do not find the suggestion that ground vibrations may have caused seepage from the salt water disposal pits convincing. There was no evidence either that this

happened or might have happened. Such a conclusion by the jury could only be speculation.

I am authorized to state that Brown, J., joins in this dissent.

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