

The Montero rolled over, and Garrett Montgomery was killed.

The Montgomerys filed this Complaint on July 8, 2004, alleging that Mitsubishi caused their son's death by "the design and manufacture of a defective motor vehicle and because of Defendants' negligence, carelessness and reckless disregard for the safety of others." Complaint at ¶ 13. Mitsubishi answered the Complaint on August 19, 2004, asserting various affirmative defenses. The parties conducted discovery, including deposing several expert witnesses. Discovery has been completed. Mitsubishi moves for an order excluding the testimony of Mr. Richardson, and Plaintiffs have responded to the Motion,² and Mitsubishi filed a lengthy reply. Oral argument on the Motion was held on April 5, 2006.

FINDINGS OF FACT

1. Mr. Richardson is employed as a principal mechanical engineer for a company called DVExperts. S. Richardson, Curriculum Vitae at 2. Mr. Richardson is a partner in DVExperts International Pty Ltd., a "consultancy specialising in Forensic Engineering, Accident Investigation, Reconstruction, Failure Analysis and Safety Solutions." Id.

2. Mr. Richardson has a bachelor of engineering degree from the Chisholm Institute of Technology (now known as Monash University) in Melbourne, Australia and a master of science degree in military vehicle technology from the Cranfield Institute of Technology, Royal Military College of Science in Shrivenham, United Kingdom. S. Richardson Curriculum Vitae at

9. Mr. Richardson is presently a doctoral candidate at Monash University. Id. The focus of his

² The Court notes that the Plaintiffs attach a 21-page "affidavit" composed by Mr. Richardson which addresses all of the arguments set forth by Mitsubishi. However, although the document was signed by Mr. Richardson, there was no notarial stamp and attestation. Thus, the document attached to the Plaintiffs' response would be termed more properly a "declaration" rather than an affidavit.

research thesis is Roll Over Protections Systems for 4X4 vehicles. Id.

3. In addition to the formal academic degrees he has received, Mr. Richardson has attended several courses regarding traffic crash reconstruction and the biomechanics of injury and vehicle crashworthiness throughout the United States, the United Kingdom and Australia. Id. at 9-10.

4. Among the awards that Mr. Richardson has received throughout his career is an award entitled “Best Post-Graduate Paper presented for ‘Development of a 4X4 Rollover Protective Structure Performance Requirement.’” S. Richardson, Curriculum Vitae at 10.

5. Mr. Richardson has 17 years of professional work experience in the area of “systems engineering methods to the procurement, specifications development, and design of automobile military and mechanical systems for the Australian Army.” S. Richardson Curriculum Vitae at 2. The major projects on which Mr. Richardson has consulted include “analysis of roll-over issues for vehicle fleets . . . development of safety solutions and various incident and crash investigations.” Id.

6. Mr. Richardson’s professional history also includes the design, development and supervision of the manufacture of Roll Over Protection Systems, equipment mountings and safety systems. S. Richardson Curriculum Vitae at 2.

7. In addition to his professional experience, Mr. Richardson states that he has published “national and international technical papers.” S. Richardson Curriculum Vitae at 2.

8. At his deposition, Mr. Richardson stated that he considered his area of expertise to be “vehicle collision analysis . . . specifically looking for faults and analysis within. . . .” and that his educational training and background lies in “vehicle dynamics.” S. Richardson Dep. at

5:4-7; 13-14. He attested that the focus of his studies has been “studying, designing and developing systems for . . . rollover, all vehicles, both in terms of simulation, actual testing, investigation of events and the development of safety systems relating to rollover protection. . . .” S. Richardson Dep. at 5:8-12.

9. Although he drives the vehicles that he is studying and subjectively evaluates them, Mr. Richardson states that he does not classify himself as a test driver who conducts handling tests. S. Richardson Dep. at 15:22-24; 16:3-5. Rather, when conducting formal research on the performance of a particular vehicle, Mr. Richardson uses quantitative test data to analyze the performance of the vehicle. S. Richardson Dep. at 15:24-25; 16:1-2.

10. Mr. Richardson states that his role in this case is to look at “the vehicle handling issues and with respect to how the vehicle has performed and counterpointing that with how it could have performed.” S. Richardson Dep. at 5:19-21. Mr. Richardson was retained specifically to render an opinion about the design of the Mitsubishi Montero Sport with respect to its handling and stability. S. Richardson Dep. at 14-17. Mr. Richardson defines “handling” in general terms as “the way in which the vehicle behaves on the road surface.” S. Richardson Dep. at 42:10-12.

11. Much of the research that Mr. Richardson conducts is not completed through actual testing and crashing of vehicles, but rather through the use of computer simulation models. At his deposition, Mr. Richardson testified that of three computer simulation packages that he uses, he believes a program called HVE was the most appropriate in this case because it is the best program to simulate overall vehicle handling characteristics. S. Richardson Dep. at 23:18-20. Mr. Richardson has not inspected the vehicle involved in this case, and has never inspected

or driven a 2000 Montero Sport. S. Richardson Dep. at 53:4-13.

12. The substance of the methodology applied by Mr. Richardson begins with an International Standards Organization (“ISO”) handling test of a particular vehicle. S. Richardson Affidavit at 13. Mr. Richardson then combines the static stability factor, one method of predicting the rollover propensity, of a vehicle, with the result of the handling test. Id. Mr. Richardson then compares a vehicle’s speed through an ISO handling maneuver at 70% of the vehicle limit of its lateral acceleration and the vehicle’s static stability factor. Id.

13. Mr. Richardson asserts that the methodology he developed is the same that is used by the Victorian Police, the New South Wales Police, the Australian Federal Government Attorney General’s Department and the Australian Federal Government Department of Foreign Affairs. S. Richardson Affidavit at 14.

14. In this case, the first step that Mr. Richardson took in his analysis was, after obtaining the geometry and an “XYZ” coordinate system of the collision scene, to re-construct a collision location in the HVE model. S. Richardson Dep. at 47:5-13.

15. The next step in the process involved identifying the specifications of vehicles which could be entered into the HVE program that could be used to represent the vehicles involved in this collision.³ S. Richardson Dep. at 47:15-17. Mr. Richardson decided that the simulated vehicle that would be most similar to the Mitsubishi Montero Sport 4X4 was the 2002 Toyota 4Runner, and that the Toyota Sedan specifications were most representative of the Toyota Corolla, which was the other vehicle involved in the collision. S. Richardson Dep. at 51:19-22;

³ The HVE program did not contain model variables for either a 2000 Mitsubishi Montero Sport 4X4 or a Toyota Corolla.

S. Richardson Affidavit at 18.

16. The process was finalized by proceeding to a “stage of modeling and iterations in the modeling process, to reproduce the collision events and subsequent roll of the vehicle up to the limit of it impacting into the median barrier.” S. Richardson Dep. at 47:18-25.

17. The computer simulation analysis conducted by Mr. Richardson was designed to evaluate the rollover propensity of vehicles. Based on his analyses in this case, Mr. Richardson’s opinion about a vehicle’s propensity to roll over is that a vehicle “should slide laterally rather than roll over, and if exposed or when driven on the roadway, if they get to sliding on the roadway, they should slide laterally rather than roll over.” S. Richardson Dep. at 52:19-25. Mr. Richardson also opines that the static stability factor of a vehicle is the most critical analytical element in assessing propensity to roll over, and that a vehicle with a static stability factor “in the order of 1.2 or greater” would be necessary for this type of outcome. S. Richardson Dep. at 56:3-13; S. Richardson Affidavit at 17.

CONCLUSIONS OF LAW

18. Federal Rule of Evidence 702, which governs the admissibility of expert testimony, provides:

If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise, if (1) the testimony is based upon sufficient facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods reliably to the facts of the case.

FED. R. EVID. 702.

19. In Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579 (1993), the Supreme Court imposed upon district courts the role of a gatekeeper to “ensure that any and all scientific evidence is not only relevant, but reliable.” ID Sec. Sys. Canada, Inc. v. Checkpoint Sys., Inc., 198 F. Supp. 2d 598, 601-02 (E.D. Pa. 2002) (quoting Daubert, 509 U.S. at 589); see also Schneider v. Fried, 320 F.3d 396, 404 (3d Cir. 2003).

20. When “faced with a proffer of expert scientific testimony . . . the trial judge must determine at the outset, pursuant to Rule 104(a), whether the expert is proposing to testify to (1) scientific knowledge that (2) will assist the trier of fact to understand and determine a fact in issue.” Id. at 602 (quoting Daubert, 509 U.S. at 592).

21. This gatekeeping function of the district court extends beyond scientific testimony to “testimony based on . . . ‘technical’ and ‘other specialized’ knowledge.” Id. (quoting Kumho Tire Co. v. Carmichael, 526 U.S. 137, 141, 119 S. Ct. 1167, 143 L. Ed. 2d 238 (1999)).

22. Federal Rule of Evidence 702, as interpreted in Daubert, provides “three distinct substantive restrictions on the admission of expert testimony: qualifications, reliability and fit.” Elcock v. Kmart Corp., 233 F.3d 734, 741 (3d Cir. 2000). The party offering the expert testimony has the burden of establishing that the proffered testimony meets each of the three requirements by a preponderance of the evidence. ID Sec. Sys. Can., Inc., 198 F. Supp. 2d at 602 (citing Padillas v. Stork-Gamco, Inc., 186 F.3d 412, 418 (3d Cir. 1999)).

Qualifications of Mr. Richardson

23. Mitsubishi first argues that Mr. Richardson’s opinions must be excluded

because he is not qualified to render an opinion regarding the design and stability of the Montero Sport. Mitsubishi specifically argues that (1) Mr. Richardson does not have an educational background in design or handling and stability of production vehicles; (2) Mr. Richardson does not have practical experience in the design or handling and stability of vehicles; and (3) Mr. Richardson's publication history demonstrates that he is not qualified to testify as an expert regarding the design, handling or stability of vehicles.

24. To determine whether the witness is qualified as an expert, requires a witness to have "specialized knowledge" about the area of the proposed testimony. Elcock v. Kmart Corp., 233 F3d 734, 741 (3d Cir. 2000). The basis of such knowledge may include "practical experience as well as academic training and credentials." Id. This requirement has been interpreted liberally to encompass "a broad range of knowledge, skills, and training." Id. (quoting Waldorf v. Shuta, 142 F.3d 601 (3d Cir. 1998)).

25. The Court does not agree with Mitsubishi that Mr. Richardson lacks the education and experience with respect to the design, handling or stability of a vehicle. Mr. Richardson's education, which includes his present studies in a doctoral program, demonstrates that Mr. Richardson has knowledge in the design and workings of roll over protection systems. S. Richardson Curriculum Vitae at 9.

26. Mr. Richardson's work experience also supports his qualifications in this area, as his professional experience includes acting as a consultant to "provide *design*, development, review, validation and specification of vehicle . . . safety systems." S. Richardson Curriculum Vitae at 3 (emphasis added). Mr. Richardson has also acted as

a consultant to the Victoria Police “to support and certify the *design* of the AU Falcon Divisional Van (to minimize the Victorian Police exposure to rollover [crashes]).” S. Richardson Curriculum Vitae at 4 (emphasis added).

27. Because Mr. Richardson has demonstrated professional expertise in the area of the design and examination of roll over protection systems in vehicles, the Court concludes that he is qualified to offer an expert opinion in this case.

Reliability of Mr. Richardson’s Opinions

28. Mitsubishi next argues that Mr. Richardson’s report and testimony should be excluded because his opinions are not reliable. In its papers, Mitsubishi specifically asserts that (1) Mr. Richardson’s defective design criteria has not been accepted in the engineering community; and (2) even if the criteria were accepted, the HVE computer simulation conducted by Mr. Richardson does not reflect the facts of this case because Mr. Richardson utilized entirely different vehicle makes and models in the HVE computer program and did not validate the accuracy of the outcome.

29. The second Daubert prong requires an expert’s testimony to be reliable. Id. When an expert testifies to “scientific knowledge,” the expert’s opinions “must be based on the ‘methods and procedures of science’ rather than on ‘subjective belief or unsupported speculation’; the expert must have ‘good grounds’ for his or her belief.” In re Paoli Railroad Yard Litigation, 35 F.3d 717, 743 (3d Cir. 1994). The Supreme Court has noted that a district court “must have considerable leeway in deciding in a particular case how to go about determining whether particular expert testimony is reliable.” Id. (citing Kumho Tire, 526 U.S. 137 (1999)). That is to say, a trial court should consider the

specific factors identified in Daubert where they are “reasonable measures of the reliability of expert testimony.” Kumho Tire, 526 U.S. at 152.

30. In considering whether there are “good grounds” for an expert’s opinions, and, therefore, whether the opinion meets the reliability requirement, district courts are advised to look at a series of factors, including:

(1) whether a method consists of a testable hypothesis; (2) whether the method has been subject to peer review; (3) the known or potential rate of error; (4) the existence and maintenance of standards controlling the technique’s operation; (5) whether the method is generally accepted; (6) the relationship of the technique to methods which have been established to be reliable; (7) the qualifications of the expert witness testifying based on the methodology; and (8) the non-judicial uses to which the method has been put.

In re Paoli, 35 F.3d at 742 n.8. This list of factors “is non-exclusive and . . . each factor need not be applied in every case.” Elcock, 233 F.3d at 746.⁴

31. Mitsubishi first argues that Mr. Richardson’s opinion is not reliable in this case because there is no governmental entity or automobile manufacturer that has ever adopted the standard that a vehicle rolling over on flat, dry pavement due to tire friction forces alone is *per se* defective.

32. The Court disagrees that Mr. Richardson’s methodology is unacceptable. In his Affidavit, Mr. Richardson provided the names of several Australian local and

⁴ Nonetheless, to the extent the Daubert factors are “reasonable measures of the reliability” of an expert’s testimony, they should be considered by the district court. Elcock v. Kmart Corp., 233 F.3d 734, 746 (3d Cir. 2000).

national governmental agencies that apply the methodology he developed. While the applicability of the methodology by these specific agencies to the manufacture of automobiles for sale in the United States may be a provocative topic for cross-examination at trial, the fact that there are entities that have adopted the Richardson methodology supports a finding of reliability.⁵

33. Mitsubishi next argues that Mr. Richardson's report and testimony is not reliable because the HVE computer simulation model does not reflect the facts and circumstances of this case. Mitsubishi rests its argument with respect to the computer model on four bases: (1) that the use of specifications from a Toyota 4Runner, and not a 2000 Montero Sport, to run the simulation eviscerates the accuracy of the performance of the model vehicle in estimating the way in which a Montero Sport would have handled; (2) that Mr. Richardson used inaccurate tire data on the model vehicle; (3) that Mr. Richardson failed to validate the results of his computer model with any real-world test data; and (4) the Mr. Richardson failed to accurately model the other vehicle involved in the accident. For these reasons, Mitsubishi argues that the outcome of the HVE computer model is inaccurate, unreliable and speculative.

34. The Plaintiffs respond by arguing that Mr. Richardson's development of

⁵ The Court notes that Mitsubishi further questions the reliability of Mr. Richardson's analysis because Mr. Richardson conceded that he did not, in this case, apply the methodology discussed in a paper that Mr. Richardson had previously written, although the paper was cited to in his expert report. Mitsubishi Memorandum at 5. This argument is a bit disingenuous, as Mr. Richardson's reference to the development of a rollover propensity criterion is included in the section of his report entitled "Background," and was not intended to be part of the present analysis. Richardson Report at 9. Mr. Richardson affirms this observation in his Affidavit, in which he states that "the paper was referenced to provide background and history with respect to handling and stability relating to rollover crashes." Richardson Affidavit at 14.

“stock Montero Sport” using specifications from a Toyota 4Runner does not affect the reliability of the outcome because in making his modifications, Mr. Richardson carefully considered inputs that would be qualitatively determinative. Plaintiffs’ Opposition Memorandum at 9. Moreover, because “[t]he aim of the simulation . . . was to identify that a vehicle with the same static stability factor as the 2000 Mitsubishi Montero Sport would conform in performance in this accident event to the same dynamic maneuvers and roll over,” the Plaintiffs assert that the most critical elements of the Montero Sport were captured, and that differences relating to other components of the vehicle, such as tire size, would not have made a critical difference in outcome. Plaintiffs’ Opposition Memorandum at 9-10; Richardson Affidavit at 10.

35. While the use of specifications of a different vehicle altogether may not seem sensible, logical or compelling, the Court must focus on its role in this process – that is, the Court is not to pass judgment on an expert’s choices in selecting data to use in a particular scientific or engineering model, but acts at this juncture as a gatekeeper. As stated above, in that role the Court must assess whether an expert’s testimony is grounded on (1) scientific knowledge that (2) will assist the trier of fact to understand and determine a fact in issue.” Id. at 602 (quoting Daubert, 509 U.S. at 592). The Court may not act as a pre-trial second guesser of any litigants’ appetites for taking risks with experts whose opinions may be based upon, or formed by, preparatory choices that the trial jury ultimately may not find to be sufficiently compelling to accept.

36. In turn, the criteria a court should apply in assessing the reliability of a particular expert’s opinion focus on the method the expert has applied, and whether that

method is grounded on a scientific and/or generally accepted basis. See, e.g., In re Paoli, 35 F.3d at 742 n.8 (outlining criteria to be considered under second prong of Daubert analysis).

37. The challenges that Mitsubishi raises with respect to the nature of the specifications utilized by Mr. Richardson do not, in their essence, attack the *reliability* of the data utilized. Rather, Mitsubishi challenges the *accuracy* of the data utilized. As explained above, the proponents of Mr. Richardson's proposed testimony have met their obligation to show that the methodology or the HVE computer model is sufficiently scientific and acceptable in the engineering community.

38. The matter of the choices that Mr. Richardson made in selecting variables for the model, whether those choices were with respect to the Montero Sport or the other vehicle involved, are not directly relevant to the reliability of the methodology applied, and do not dictate a finding now that Mr. Richardson's conclusions are speculative. Rather, the issue presented is, essentially, whether Mr. Richardson utilized accurate data in developing his model and arriving at his conclusion.

39. Because Mr. Richardson's methodology is acceptable, and because the accuracy of the data utilized in the HVE computer simulation model is a matter that the jury, as fact finder in this case, is capable of considering, there is no basis to exclude Mr. Richardson's report or testimony on grounds that the information is not reliable.

Assistance to the Jury

40. Mitsubishi finally argues that if Mr. Richardson is permitted to testify, his

testimony will prejudice their ability to defend against the Montgomerys' allegations and will confuse the jury.

41. The Court disagrees that Mitsubishi will suffer substantial and irreparable prejudice if Mr. Richardson is permitted to testify in this case. In preparation for this motion, Mitsubishi prepared nearly 30 pages of written documentation, presenting a cogent legal argument, all of which can be duplicated suitably for the jury at trial. The Court is confident that the jury will be able to appreciate the differing approaches of various experts. Mitsubishi's concern with respect to jury confusion is unwarranted.

CONCLUSION

For the reasons discussed above, the Court concludes that Shane Richardson is properly qualified to testify as an engineering expert in this case, that the methodology which Mr. Richardson applied is sufficiently acceptable, and that the accuracy of the data relied upon by Mr. Richardson may be the subject of cross-examination at trial. As such, Mitsubishi's motion to exclude the report and testimony of Shane Richardson will be denied. An appropriate Order follows.

S/Gene E.K. Pratter
Gene E.K. Pratter
United States District Judge

May 11, 2006

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF PENNSYLVANIA**

JAMES MONTGOMERY,	:	CIVIL ACTION
JACQUELINE MONTGOMERY	:	
Plaintiffs,	:	
	:	
vs.	:	
	:	
MITSUBISHI MOTORS CORP.,	:	
MITSUBISHI MOTOR SALES OF	:	
AMERICA, INC. and ANNE STORK	:	
Defendants.	:	NO. 04-3234

ORDER

AND NOW, this 11th day of May, 2006, upon consideration of the Motion in
Limine of Defendants Mitsubishi Motors Corp. and Mitsubishi Motors of North America,
Inc., to Preclude the Testimony of Shane Richardson (Docket No. 44), the response and
rely subsequently filed (Docket Nos. 54, 66), and after oral argument on the Motion, it is
ORDERED that the Motion is **DENIED**.

BY THE COURT:

S/Gene E.K. Pratter
GENE E.K. PRATTER
United States District Judge