UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF MISSISSIPPI
SOUTHERN DIVISION

ROBERT R. GAGNÉ **PLAINTIFF**

VS. **CIVIL ACTION NO.:1:06-CV-0711—LTS-RHW**

STATE FARM FIRE AND CASUALTY COMPANY, EXPONENT, INC., et al. **DEFENDANTS**

PLAINTIFF'S RESPONSE IN OPPOSITION TO DEFENDANT STATE FARM FIRE AND CASUALTY COMPANY'S MOTION TO EXCLUDE EXPERT TESTIMONY OF NEIL HALL [DOC. 456]

COMES NOW, Plaintiff Robert R. Gagné, and files his response and memorandum brief opposing State Farm's Motion to Exclude Plaintiff's Expert Neil Hall.

CLAIM BACKGROUND AND STATE FARM'S JUDICIAL ESTOPPEL ARGUMENT

Robert Gagné purchased both a homeowner's policy and flood insurance policy on his home and its contents through his State Farm agent. The flood policy was a standard federal flood insurance policy issued and administered by State Farm under FEMA's Write Your Own program. When Gagné's home was destroyed by Hurricane Katrina, he promptly contacted State Farm and reported the loss. In reporting this loss, he did not make any representations that any part of his home was destroyed or damaged by flood or by storm surge. He simply reported the loss and requested that State Farm send an adjuster out. (See Deposition of Robert Gagné June 6, 2007 in this case attached in its entirety as Exhibit A at p. 27, 58).

State Farm's adjuster made a decision to pay Gagné the limits of the federal flood policy even though Gagné did not make any statement as to how his home was destroyed by the hurricane and even though he was not asked to submit a sworn proof of loss or a claim form

stating the cause of the loss. The adjustor took this action before receiving any information on the engineers inspection, which she had ordered because she lacked the expertise to determine whether his damages were caused by wind or surge and needed the assistance of an engineer to evaluate the cause of Gagné's loss. (See Deposition of Rachel Savoy, June 17, 2008 attached in its entirety as Exhibit B at 110-111; Exh. A at 61).

When State Farm's adjuster, Rachel Savoy, contacted Gagné about the flood payment, Gagné balked. He questioned her as to what was going on and why State Farm was offering flood payments before there had been a chance to complete the investigation on causation of the loss. She assured Gagné that no causation determination had been made and cutting a flood check was just a way to quickly get him some of the money that would be due to him under one of the policies he had purchased through State Farm without having to wait for a determination of the cause of the loss. Savoy assured Gagné that accepting the check would not affect his claim under the State Farm homeowner's policy. She represented to Gagné that once an investigation and determination of the cause of the loss had been made, the money Gagné received would be allocated to the appropriate policy by State Farm and the remaining funds due would be paid from the appropriate policy. Gagné relied on these representations when he accepted the check, particularly the representation that accepting the check would not be used against him in handling his claim under his homeowner's policy. (Exh. A at 61-62; ; Exh. B at 110-111 and see excerpt from Robert Gagné's July 21, 2008 Deposition at 30-32 attached as Exhibit C).

Rachel Savoy distinctly remembers Gagné being concerned about accepting the flood insurance payments when the checks were issued and whether it would have any affect on his

homeowner's claim. She remembers him questioning her as to whether accepting the flood payments would affect his homeowners claim for wind damage. While she does not remember exactly what she said, she does remember that Gagné asked if accepting the flood check meant that he was conceding that his losses were not caused by wind. She remembers telling him that he would not be conceding the causation issue. She also remembers assuring him that accepting payment under one cause of loss does not mean that you are saying you are not entitled to payment under a different cause of loss and also that accepting payment under one cause of loss on one policy does not preclude payment under a different policy under a different cause of loss. (Exh. B at 147-148).

Furthermore, Gagné requested a proof of loss form on which to formally present his claim as to the cause of the loss, but State Farm refused to send the form stating in its letter and activity log that "State Farm is not requiring the completion of a Sworn Proof of Loss for your homeowners claim" and "proof of loss not required" (See Homeowner's Claim File Documents Bates Stamped 100040, 100229, 100332 and 100334 attached hereto collectively as Exhibit D).

These facts are considerably different from the facts in the cases State Farm relies upon for its argument that Gagné should be precluded by judicial estoppel or judicial admission from offering Neil Hall's testimony because Hall's opinion that Gagné's home was destroyed by wind prior to the arrival of the storm surge is inconsistent with Gagné's acceptance of flood insurance benefits. For the reasons outlined in MEMORANDUM in Support re: First MOTION Rule on Effect of Cashing NFIP Check Under Circumstances of the Case [Doc 465] the facts of this case do not satisfy the requirements for a judicial admission or for judicial estoppel and should not preclude Gagné from presenting evidence as to the actual time and cause of destruction of his

home even if that evidence tends to show that the entire home was destroyed by wind prior to the storm surge reaching his property or reaching the level of the living space of his home.

Hall and the Engineer Reviewing and Concurring in His Work and Opinions Are Qualified Experts Regarding the Opinions Hall Has Expressed in This Case

Hall holds degrees in architecture, landscape architecture, systems and safety management, as well as an International Program for Port Planning and Management diploma and a doctorate in urban planning. Through his landscape architecture education and experience, he has also gained a knowledge of trees, windbreaks, and how trees behave in windstorms. His landscape architecture degree included studies in geology, geography, hydrology, underwater and surface water conditions, forestry, and environmental planning and design in response to forces of nature. It specifically included studies of hurricane damage in coastal areas. Meteorology was an aspect of all of the subjects covered. In addition to this meteorology training, Hall has also taken many of the courses that the National Weather Service offers to its employees, including Fujita and Enhanced Fujita scale courses. Hall's NWS coursework is exactly the same training NWS uses to certify its employees on the Enhanced Fujita scale. The only difference between Hall's completion of the courses and NWS employees' completion of the courses is that only NWS employees receive certification upon completion of the course.[1] (Exh. E at 26-33, 37-38; and See Hall CV at 1-4 attached hereto in its entirety as Exhibit H).

Hall's systems and safety management degree covers study in engineering and aerospace and included courses that count toward a masters degree in civil engineering. His urban planning

1. Because State Farm's attorneys had already gone through depositions of Neil Hall in a number of other cases, they did not fully explore his qualifications and some of the bases for his opinions in this case. Thus, Plaintiff will cite at times to Hall's depositions in other cases. His deposition in the *Espinosa v. Nationwide Mutual Fire Ins. Co.,* No. 1:06-cv-00896-LTS-RHW (S.D. Miss) case is attached hereto in its entirety as Exhibit E. His deposition in Krafft-Patrick v. State Farm, Civ. No. A240r-2006-140 (Circuit Court Harrison County, Mississippi) is attached hereto in its entirety as Exhibit F. His deposition in the present case is attached hereto in its entirety as Exhibit G.

degree focused on infrastructure, maintenance and repair engineering. (Exh. E at 29-34).

Hall has served as an officer in both the Army and Navy engineer corps. He is a designated wind engineer for the Texas Department of Insurance, and a wind investigator for the U.S. Department of Energy[2]. He is a member of the American Society of Civil Engineers, the Roof Consultants Institute, the ASCE/SEI Standards Committee for Structural Condition Assessment and Rehabilitation of Existing Buildings (publisher of the *Guideline for Structural Condition Assessment of Existing Buildings* and the *Guideline for Condition Assessment of the Building Envelope),* and FEMA's Building Performance Appraisal Team for Hurricane Georges. He has inspected more than 300 buildings and structures damaged by hail, windstorms, hurricanes, tornados and severe floods. He has been accepted as an expert witness by state and federal courts in the areas of architecture, civil structure engineering and other engineering and architectural areas. He has also served as an expert witness on damage caused by hurricanes or windstorms in at least 29 cases along the Gulf Coast and the Florida Atlantic Coast. (Exh. H at pp. 1-4; ; Exh. E at 26-35 ; Also See Hall Report dated March 28, 2008 attached hereto in its entirety as Exhibit I).

Hall has presented several conference programs, including an AIA national convention and a convention for the Florida Windstorm Association, studying the effects of hurricanes on structures. These presentations focused on field investigation to determine whether damage resulted from wind or flood, including use of the Enhanced Fujita scale (Exh. E at 41-42).

2. While it is true that Hall does not have formal degrees or formal training in wind engineering, these credentials back up his claims to have expertise in wind engineering. It does not matter under *Daubert* that much of his knowledge of wind engineering comes from self-study and experience. Exh. F at 20. Under F.R.E. 702, a witness may qualify as an expert by knowledge, skill, experience, training or education. These methods of qualification are disjunctive. An expert may qualify by any one of these means and is not required to have particular degrees or education. *Friendship Heights Assoc. v. Vlastimil Koubek*, 785 F.2d 1154 (4th Cir. 1986); *Kumho Tire Co. v. Carmichael*, 119 S.Ct. 1167, 1178 (1999) (stating that "no one denies that an expert might draw a conclusion from a set of observations based on extensive and specialized experience.")

Hall is licensed as an architect in Florida and Pennsylvania and as a professional engineer in Texas and Minnesota. When he took the professional engineers exam in Minnesota, he submitted the transcript of all his coursework. While he did not attend an ABET certified engineering school, the Minnesota Board reviewed his educational transcripts and found that his coursework was the equivalent of having obtained a degree in engineering from an ABET certified school. His five year architectural degree also included all the engineering course work required for a four year degree in engineering. He is in the process of obtaining reciprocal licensing as an architect and engineer in Louisiana and Mississippi and other states. Because he has not yet completed the licensing process in Mississippi, his work in evaluating Hurricane Katrina losses, including his evaluation of the Gagné residence, is being done under the supervision of, and is being reviewed by Jim Moore, an engineer licensed in Mississippi. (Exh. G at 111-125; Exh. E at 22, 26-27, 30, 34-36).

Jim Moore is a professional engineer licensed in Mississippi with more than 30 years of experience including sixteen years in insurance claims engineering assessments. He is a reliability engineer who formerly worked for the Stennis Space Center and now specializes in post-investigative evidence reviews and peer reviews. Moore and Hall worked out a method of review that would be similar to the NFPA-921 standard for quality control and reliability of fire investigation reports. Moore thoroughly reviews each of Hall's reports and the supporting documentation and evidence. He reviews Hall's reasoning to make sure appropriate inductive and deductive reasoning is in accordance with proper scientific method. He also reviews Hall's methodology, his application of engineering principles and his conclusions. He has signed a review of Hall's report for this case. (Exh. G at 149-150; Exh. E at 22, 35-36, 195-203; Exh. I).

Hall's Data and Methods Are Sufficiently Reliable to be Admitted under Daubert/Kuhmo

Hall's Report and Deposition

Experts are not required to establish scientific certainty or any particular level of certainty for their opinions to be admissible under *Daubert v. Merrell Dow Pharmaceuticals, Inc.,* 509 U.S. 579 (1993). It is only necessary for the opinion be sufficiently reliable to have a tendency to make the existence of any fact of consequence more probable or less probable than it would be without the expert opinion. See *Tug Danielle M. Bouchard v. Oryx Energy Co.*, 2001 U.S. Dist. LEXIS 9164 (E.D. La. June 25, 2001) Hall's report section on investigative methodology defines his use of the phrase "most likely scenario" as equivalent to a reasonable degree of professional engineering certainty. In his deposition, he recognized the differences between the use of the word certainty in various contexts and explained that his level of certainty in regard to the opinions expressed in this case were well above 50 %, falling somewhere in the range of 60% to 80%, well above the level of certainty needed to be admissible. Thus, his opinions are expressed in an admissible manner. (Exh. I at. 1; Exh. G at 90-91).

Weather Conditions and Data

State Farm criticizes Hall's use of weather data on two bases. First it claims Hall lacks the meteorological expertise to determine the accuracy or validity of the data he relied upon from Accuweather. Second, State Farm claims that Hall's conclusions are not based on reliable data because he has used widely varying data for homes located very near each other in the area of South Diamondhead, where Gagné's home is located.

Hall's weather conditions synopsis contains several types of information which he considered: 1) a description of Hurricane Katrina, including large scale wind gusts which is

fairly similar across all of Katrina's coastal impact area used as an analysis starting point based on generally available meteorological data; 2) the Stennis hindcast maps, reports and information covering the general area where the subject property is located and which have been accepted by this court as meeting the *Daubert*[3] reliability standards; and 3) a revised ADCIRC model specific to the Gagné property prepared by Accuweather. As his report explains, the three levels of data became available at different times with each newer round of data being more accurate and more refined to specific locations. (Exh. I at. 2-3). Accuweather data has been found to be the type of data reasonably relied upon by engineering experts in the field and upon which they may rely in forming their opinions. See *Weiss v. Allstate Ins. Co.*, 512 F. Supp. 2d 463 (ED La 2007).

In his deposition in this case, Hall explained that his reports for the Beckham, Espinosa, Goodfellow, and Willis homes on Poki Place were done at different times when different types of weather data were available and that some had not been updated when newer more accurate data became available either because the case settled or the client did not obtain updated weather data or seek an updated report from some reason unknown to Hall. In each case, he based his analysis at the time of his report on the best available data at the time from either privately obtained meteorological reports provided by the client or from publicly available data. Although he has updated some reports at the time of depositions and later, there have been cases which have either settled or where the newer data would have shown even greater lag times between the wind and surge than his original opinions and merely reinforced his opinions where he has not gone back and updated the analysis. (Exh. G at 257-270).

3. Hall testified that AccuWeather data used in his later reports like the Espinosa and Gagne reports are actually more accurate and reliable than the early Stennis hindcasts used in his earlier reports and accepted by this court as sufficient reliable to withstand *Daubert* challenges. The AccuWeather data used updated and more accurate ADCIRC data, was far more narrowly site specific, and was also reviewed by an expert meteorologist for applicability to a much narrow area than the earlier data. (Exh. E at 103-104, Exh. G at 257-270, Exh. I at 2-3).

Thus, these variations do not undermine either the validity of his methodology or his conclusions. They are at most criticisms of the bases for Hall's opinions. Questions relating to the bases and sources relied upon by an expert in forming his opinion affect the weight to be assigned that opinion rather than its admissibility and should be left for the jury's consideration. *United States v. 14.38 Acres of Land, More or Less, Situated in Leflore County, Mississippi,* 80 F.3d 1074, 1077 (5th Cir. 1996)(quoting *Viterbo v. Dow Chemical Co.*, 826 F.2d 420, 422 (5th Cir. 1987)); see also *Transcontinental Gas Pipeline Corp. v. Societe d'Exploration Section du Solitaire, S.A.*, 2007 U.S. Dist. LEXIS 67691, 2007 WL 2712936 (E.D. La. Sept. 13, 2007).

Site Data and The Construction of the Gagné Home

State Farm is critical of the information from Hall concerning the construction of Gagné's home because Hall did not obtain the building plans for the house or determine the extent of use of hurricane resistant features in the construction of the home, the number or spacing of the rafters, the nailing pattern, how the porch was constructed, or the ceiling height. State Farm is also critical of Hall for not doing specific calculations based on such items of the ability of the house to withstand certain wind speeds. State Farm claims that instead, Hall started with a presumption that wind caused the damage and set out to cherry pick data to support that conclusion and in doing so evaluated the house as if it were standard construction when it was in fact in the upper band of construction.

On the contrary, State Farm has done the cherry picking here. It leaves out all the information that Hall did obtain from Gagné and a site inspection prior to doing his analysis. Hall had a description of the roof and the vinyl sheathing from Gagné which turned out to be very similar to what the builder testified about. (Exh. G at 201, 213). He had the remains of

some PVC plumbing from a bathroom on the lower level and the remains of some of the brick veneer. He had the remains of the foundation, piles, and floor supports from which he could tell there had been two-by-twelve support beams notched into a square timber piles with two by ten or two by eight floor joists above the support beams. He also found some of the support beams in the remains. Approximately two dozen hurricane clips but no hurricane straps remained. Of the clips that remained, most had three nail holes each but only two nails in each clip. Given what he found in the remains, it appeared that if there had been hurricane straps holding the house to the pile foundation, at least some would have remained. Since the builder only testified about straps in the roofing and not at the bottom, Hall agreed with his original conclusion that there were no hurricane straps, and that there were only the clips with two nails, instead of three nails each, holding the house to the piles. He had the remains of the piers which still had the claimed hurricane clips attached to them, usually with only two nails in each instead of the three they were designed for, but no hurricane straps. (Exh. G at 96-97, 211, 214-215). He had photographs of the house showing the porch configuration. The wide open porches on both the north and south sides would have been weak points susceptible to wind damage and early failure regardless of how well they were constructed. (Exh. I at p. 3; Exh. G at 201, 213, 214, 216).

It is true that Hall did not have the building plans or the builder's testimony when he did his initial analysis. However, he did read the builder's deposition later and go back and compare it to his assumptions about construction based upon what he had been told by Mr. Gagné and what he had determined from his own inspection of the remains. He found nothing in the builder's testimony indicating that he had placed the home in an inferior construction band to what it actually was as State Farm implies in its argument. To the contrary, after comparing the

testimony, Hall found that he had placed the home in a higher band of hurricane resistant construction than the builder had.

> Not knowing how it was built in my report, I said that they may be missing, due to the date of construction (1997)., some hurricane-resistant features, but not knowing that, I'm going to assume that it has the hurricane-resistant features and I assigned the building as expected construction and not lower bound construction.
>
> The National Weather Service considers expected construction as meaning residential International Code 2003. ... But if he met '97 standard, and expected is 2003, and I gave him credit for 2003, then I covered the fact -- I covered my ignorance by giving credit for the strength of construction as if it was built in 2003. ... (The builder). opined he built it to '97 standard. I gave him credit to building it to 2003 standard. So in my analysis, I assumed the building was built better than he said it was in his deposition. (Exh. G at 209:5 to 210:13).

State Farm is also critical of the lack of calculations for specific force resistence ability of this particular structure, the force exerted by specific wind speeds on this structure, and the force that would be exerted by specific water speeds and depths on this structure in Hall's analysis and opinions. This criticism assumes that there is one and only one valid methodology for determining information relevant to the causation of economic damage to this structure. Hall explained a series of reasons why he did not perform such calculations including: 1) the calculations are of no use in determining whether damage was caused by wind or water where the levels of wind and water were at some point during the storm at a level high enough to cause failure of the structure; 2) there were insufficient remains of the structure for him to make accurate determinations based on the structure itself or sufficient information to make such calculations; 3) the client employed several experts to address causation from various angles and his assignment was not the analysis based on those calculations; 4) he reviewed such calculations made by others and their conclusions to determine if they were consistent with his analysis and conclusions or were based on data he disagreed with; 5) such calculations may be useful in

determining the load factor of various forces but they are not sufficient to determine the resistive ability of the structure to meet the load per square inch or foot exerted by wind or water under the conditions of a specific storm; and 6) reports he had seen using such calculations were based on software designed for 1999 building codes which would not have yielded accurate results for a home built in 1997 or for communities and areas either using the 1997 code like most of Mississippi at the time of Katrina or with no building codes as was the case for Diamondhead at the time.

Most importantly, Hall explained that the software models using calculations based on steady straight line winds of very short duration are simply not realistically applicable to the hurricane force winds which pound a structure for hours during a real hurricane. These hurricane software models also fail to account for turbulence and dynamic load, which occur during a real hurricane. The shortcomings of such calculations, software and modeling for accounting for actual hurricane wind loads have been raised in hearings before Congress. Even more importantly, such calculations are not relevant to Enhanced Fujita Scale correlations of damage to general ranges of wind speed which are based on the structural characteristics of numerous buildings in specific categories of construction. They do not use calculations for a single building. Thus, in regard to the reliability of his methodology and opinions, it is only necessary to determine if he placed the Gagne house in a class at least as hurricane resistant as its actual building characteristic. (Exh. G at 86, 216-222).

State Farm criticizes the manner in which Hall used the NFPA-921 standard for quality control and reliability of fire investigation reports, claiming that Hall should not have started with the presumption that wind caused the damage. However, this mischaracterizes Hall's

testimony. Hall explained that he used the word presumption in the sense of having picked a hypothesis to test and that there is a loop in the flow chart for this particular methodology. Where there is a loop in an analysis flowchart, it does not matter where you start on the loop as long as you consider everything in the loop before exiting it. Thus, it does not matter whether you start with a hypothesis and then collect the data or start with data collection and then form the first hypothesis. What matters is that you collect the available site data and analyze it for both the possibility of wind damage and the possibility of surge damage. Furthermore, Hall testified that he did in fact collect some data before forming a hypothesis because of the other work he had already done in this small neighborhood.

> If you wanted to be really technical, I do collect data and analyze it before I develop a hypothesis. But if I had been in that same neighborhood before, and I've collected enough data for that area that I'm confident that I'm going to gain nothing new on the data collection, site-specific, I might lead with the hypothesis, but then do a follow-up data collection, and I'm not done with the analysis until I do everything.
>
> If you note on Figure 4.3, there's a do loop. They might start with data collection, develop a hypothesis, test the hypothesis, it returns to data collection. And you keep doing that until you are satisfied with your conclusion. ...It doesn't matter where you jump in on that do loop, as long as you don't jump out until you've finished your analysis.
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> ... In this particular case, I started with the presumption that there was substantial damage due to wind. ... I started with a hypothesis.
>
> Q. Well, I'm reading your testimony off the screen down there, and it says, just a moment ago, "In this particular case, I started with the presumption that there was substantial damage due to wind." That's what you said just a minute ago.
>
> A. I'll stick by it. I don't think I misspoke. I just want to be careful that there's more than one meaning of "presumption," my use of the word "presumption" in developing a hypothesis. ... What I did do, is I had a presumption of wind, because I only had two causes, wind or flood, unlike a fire investigation, which might have scores to hundreds of causes. So the presumption you have to avoid in fire investigation is don't zero in on one particular cause --
>
> Q. Right.
>
> A. -- when you have to look at hundreds.
>
> Q. How about zeroing in on one when you have to look at two?
>
> A. But it doesn't matter because you have a research hypothesis and a null

> hypothesis. No matter which one you identify as the research hypothesis and which one you identify as the null hypothesis, you still go to the process of investigating them both exactly the same.
>
> If you are down to wind and flood, in Katrina, as a starting point, you can just flip a coin because before you are done, you have to do the diligence of looking at them both equally. It doesn't matter which one you start with to do the investigation. ... But if there's only two causes, wind or flood, and I include both of them in my investigation ... I am guaranteed to look at the cause because it's either wind or flood and I'm going to look at them both.

(Exh. G at 78: 8 - 84:20).

As with State Farm's criticisms of the weather data Hall used in forming his opinions, these criticisms go to the assumptions and factual bases which Hall relied upon. These are matters for vigorous cross examination and go to the weight and credibility of his opinions which are matters for the jury to decide. They do not render his opinions unreliable and inadmissible. See *14.38 Acres of Land, More or Less, Situated in Leflore County, Mississippi,* supra, *Viterbo,* supra, and *Transcontinental Gas Pipeline Corp. v. Societe d'Exploration Section du Solitaire, S.A.*, supra.

Use of Fujita and Enhanced Fujita Scale Wind Speed Damage Correlation for Wind Storms

State Farm argues that Hall's use of the Fijuita scales is suspect because Hall chose to use a scale designed for tornados instead of the Saffir-Simpson Scale which State Farm considers to be more appropriate because State Farm claims it was designed for hurricanes. What State Farm leaves out of its argument is that the Saffir-Simpson Scale was designed to predict prior to the event the level of damage a hurricane is likely to do on a large scale wide path in order to help plan pre-storm actions to minimize loss of life and property. Its limitations as a predictor of actual destructiveness of a hurricane have long been known and have provoked an increasing call for alternatives in recent years as it failed woefully to predict the damage potential of Hurricanes

Katrina, Rita, Gustav, and even Ike which was the 3rd costliest storm in U.S. history but only a Category 2 storm on the Saffir-Simpson Scale.

Unlike the Fujita scales, the Saffir Simpson scale was not designed to and does not take into account the damage caused to individual buildings by either hurricane winds or winds of any kind. The Fujita scales were designed to and do take into account the effects of storm winds on individual buildings of specific levels of resistive construction. The Saffir Simpson scale also averages out winds over large areas and does not account for wind variations between small locations such as individual houses within the same vicinity which result not from the construction of the house but the variations in wind within the hurricane itself. Thus, whether the winds come from hurricanes or tornados, when the question is the level of wind in a specific small location or the effect of wind on a specific structure, the Fujita scales are focused on more relevant information than the Saffir Simpson scale. (Exh. F at 95-96; Exh. E at 97-98; and see Powell, Mark D.; Reinhold, Timothy A., *Tropical Cyclone Destructive Potential by Integrated Kinetic Energy*. Bulletin of the American Meteorological Society, Apr 2007, Vol. 88 Issue 4, p513-526 attached hereto in its entirety as Exhibit J; and Eric Berger, *Ike's Destruction Points Way to New Warnings*, Houston Chronicle, November 29, 2008 attached hereto in its entirely as Exhibit K).

Scientists have used damage patterns to determine windstorm wind speeds for more than 50 years. More work, particularly in the earlier years, was done in determining wind speeds from tornado damage than other types of windstorms as a matter of necessity. It is very difficult to get measuring devices into a tornado to get readings without the instruments being destroyed. That problem led to the general use of the Fujita scale, which has been used by scientists for

many years to correlate wind speed with windstorm damage, to estimate tornado wind speeds.

Dr. Fujita's 1971 paper on the original Fujita scale was titled "Proposed Characterization of Tornadoes and Hurricanes by Area and Intensity," which was appropriate since he created the scale to provide a way to compare mesoscale windstorms and his research was based on correlations of wind speed in both hurricanes and tornadoes to observe damage which he then correlated with the Beaufort Scale used for estimating hurricane wind speeds.[4] Thus, the original Fujita scale for correlating wind speed with building damage was based on hurricane wind speed research.

The Fujita scale has been subjected to considerable testing by researchers and has a known error rate.[5] According to the National Weather Service, when it has been possible to actually measure tornado wind speeds, the original Fujita scale has proved to be amazingly accurate. As more was learned from the original Fujita scale over the years, better wind resistant building techniques developed. By 1992, Fujita recognized considering construction differences would improve the scale. The Texas Tech Wind Science and Engineering Research Center assembled a team of meteorologists, engineers, statisticians and insurance professionals to determine how the scale could be improved to provide better consistency in ratings. That team's work resulted in the 2004 Center publication by Dr. Kishor Mehta of the Enhanced Fujita Scale.

The new Enhanced Fujita scale, used by Hall, and adopted by the National Weather Service, is not a completely new tool or theory. It updates the original damage factors to account for differentiation in construction quality, particularly more wind resistant construction in later

4. Daniel McCarthy, Joseph Schaefer and Roger Edwards, NOAA/NWS Storm Prediction Center, Norman, OK, "What Are We Doing with (or to) the F-Scale?" (attached hereto in its entirely as Exhibit L).

5. M.D. Powell, and S.H. Houston, and T. A. Reinhold, Hurricane Andrew's landfall in South Florida. Part II: Surface wind fields and potential real-time applications. *Weather Forecasting*, 11, 329-349, 340 (1996) (attached hereto in its entirely as Exhibit M).

years as building codes changed, and damage to items other than buildings. This improved its accuracy for modern wind speed damage correlations.[6] Thus, the Enhanced Fujita Scale is now widely accepted as a more accurate and updated version of the scientifically valid, original Fujita Scale for correlating wind speed to damage.

While the Enhanced Fujita Scale is often referred to for tornado wind speeds, researchers have pointed out post storm investigatory research demonstrates the correlation between the visual appearance of building damage and wind speed - is not unique to the type of windstorm. Research shows hurricanes, tornados, downbursts, thunderstorms, and extratropical cyclone damage data can be aggregated together in assessing building vulnerability to damage according to wind speed.[7] Hall has pointed out publications of statements by several expert wind engineer researchers demonstrating wind engineers have long recognized that buildings have the same sort of response to wind damage in tornadoes and in hurricanes and supporting the Fujita scale's correlation of wind and damage to hurricanes as well as tornados. (Exh. E at 166-167).

Further, scientists[8] have repeatedly used the Fujita scale after hurricanes to determine actual wind speed at landfall in specific locations where there were no direct wind speed measurements during the storm. Fujita scales were used to develop wind speed/damage maps and document damage from Hurricane Andrew's two eyewall passages over Florida's coastline.[9]

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6. *Id.*; see also James R. McDonald, "T. Theodore Fujita: His Contribution to Tornado Knowledge through Damage Documentation and the Fujita Scale" ***Bulletin of the American Meteorological Society***; Jan2001, Vol. 82 Issue 1, p 63-72 (Attached hereto in its entirety as Exhibit N).

7. J. Arn Womble and Kishor C. Mehta, "Assessment of Windstorm Damage in the United States," Second International Workshop on Remote Sensing for Post-Disaster Response, October 7-8, 2004, Newport Beach, CA (Attached hereto in its entirety as Exhibit O); see also McDonald, supra (Exhibit N).

8. The field of studying the correlation between wind speed and windstorm property damage is not confined to civil engineering. Meteorologists, engineers, statisticians, and even insurance adjusters worked together to develop more accurate models used across all these fields. See McCarthy, et al, supra. (Exhibit L).

9. Wakimoto, Roger M. & Black, Peter G., "Damage Survey of Hurricane Andrew and Its Relationship to the Eyewall," Bulletin of the American Meteorological Society, vol. 75, Issue 2, pp.189-202 (Feb. 1994)(Attached hereto in its entirety as Exhibit P).

Scientists conducting that survey stated the Fujita techniques/scales, originally adopted for estimating tornado wind speeds, "have proven to be particularly useful in defining the surface wind field during landfall of a hurricane based on the direction of tree fall and structural damage" as well as in estimating peak wind speeds accompanying the hurricane. This study points out the wind speeds recorded at specific locations by anemometers during actual landfall (relied upon by insurers opposing use of the Fujita or Enhanced Fujita scales) have to be viewed with caution as the equipment suffers from over speeding at the velocities recorded during peak hurricane winds and limitations from the highest hurricane wind gust speeds exceeding their maximum design. Thus, the wind speeds estimated with Fujita scale techniques were viewed as the more accurate speeds. But even without taking into account these limitations on anemometers, the wind speeds calculated from the Fujita scale/techniques showed strong agreement with actual wind speeds measurements where available.[10]

Engineers have used the Fujita techniques/scale for more than thirty years to assess wind damage to homes. Over time, they came to adjust somewhat the original Fujita scale as they recognized considerably lower speed winds could cause the higher levels of damage Fujita associated with higher wind speeds..[11] This supports Hall's opinion that damage attributable to a given range of tornado wind speeds in the enhanced Fujita scale will occur in hurricanes at lesser wind speeds. Thus, it is clear the Fujita technique has been an accepted, tested and verified method used by scientific experts in diverse fields of meteorology, engineering, and other scientific branches as a means of correlating actual wind speed maximums in specific locations following a hurricane and the resulting building damage. Although the Enhanced Fujita Scale is

10. *Id.*

11. Timothy P. Marshall, William F. Bunting, James D. Weithorn, "Procedure for Assessing Wind Damage to Wood-framed Residences" (Attached hereto in its entirely as Exhibit Q); Powell, et al, supra (Exhibit M).

comparatively new, the kinds of changes made, and the reasons for the changes, make the Enhanced Fujita scale and Hall's use of it to correlate wind speeds associated with the area of the Gagné home with the likely damage caused by the wind - more accurate, not less accurate.

State Farm implies there is no precedent for using the Enhanced Fujita scale the way Hall uses it to determine causation of loss. However, Hall has identified at least one other engineer, Giddings Emery, using it in the same way. He has also identified two meteorologists using it in the same way. (See Excerpt from Hall's Deposition in *Illing vs State Farm, 1:06cv513* attached hereto as Exhibit R at 44). Plaintiff's counsel has also located through research at least one other meteorologist who has apparently been permitted to testify as an expert using this theory in at least one case.[12] Moreover, even if Hall cannot name others using Fujita scales the way he does, he has named other researchers using it in other ways on hurricanes and the literature in Exhibits J through Q clearly demonstrate the correlations between wind speed and damage types in the Fujita scales are widely used by scientists across multiple disciplines.

What Hall did was take verified wind gust speeds for the area where the Gagné home was located from NOAA based data calculated by Accuweather and correlate it with the scientifically verified data as to the damage that can be caused by a single three second gust at a particular speed from the Enhanced Fujita Scale. Used in this manner, the Enhanced Fujita Scale provides a very conservative estimate of the wind damage that would have been caused to the Gagné home prior to the arrival of the water because it assumes the home would be subjected to only a single, 3-second gust at a particular speed. However, in reality, the data for the general area

12. In *Vantage View, Inc. v. QBE Ins. Corp.,* 2008 U.S. Dist. LEXIS 67017 (SD Fla Sept. 3, 2008) the Court excluded the testimony of Dr. Lee E. Branscome using the Enhanced Fujita scale to estimate the damage that could be expected at a given location based on wind speed because the opinions were not timely disclosed. Although the court did not reach the *Daubert* issue in that case, reference is made to the fact that the opposing party "was familiar with Dr. Branscome's testimony based on his testimony in a prior case" which implies that he was permitted to testify as an expert to the same kind of opinions Hall is offering in this case.

shows the Gagné home and others in that vicinity were subjected to ongoing pounding by hurricane force winds for several hours with not one but multiple gusts at the higher speed range. That pounding and exposure to multiple gusts would result in progressive weakening of the structure with the later gusts causing greater damage than the correlating wind speed shown on the Enhanced Fujita scale. (Exh. I at 5; Exh. G at 193, 221; Exh. E at 204-207).

When Hall was asked about publications on his use of the Enhanced Fujita Scale, he began by pointing out that the newness of the Enhanced Fujita scale limits both publications and the amount of use by others on hurricanes. However, in just the last 18 months, he testified it has been used in a variety of ways to correlate hurricane wind speeds and hurricane damage. He gave the names of several scientists, including some at Texas Tech and a Rimkus engineer, who have recognized the validity of applying it to hurricanes and not just tornados. One of these researchers does not agree with Hall's specific use of the Enhanced Fujita Scale in hurricane litigation, but all the scientists he mentioned recognize its correlations between wind speed and damage patterns are valid for both hurricanes and tornados. (Exh. E at 161-163; Exh. G at 28-30, Exh. ; Exh. F at 96-103 and also see Exhibit 7 to the Hall Deposition in Gagné attached hereto as Exhibit S).

When questioned about his knowledge of others using the Enhanced Fujita Scale in analyzing damage to individual homes in litigation, he did say that he had seen analysis done by some experts for insurance companies which applied the enhanced scale by moving out from the site at issue until they found some structure that remained standing and then singling out one aspect of the structure which was damaged in a particular way and concluding based on that one piece of damage alone that one particular building that remained showed the wind damage to the

property being evaluated was limited to that suffered by the building that remained. For example, these engineers would move out 10 or 12 houses from the subject property until they found one with some loose shingles or siding removed, look up the correlating wind speed in the enhanced Fujita scale for that damage and then conclude that was the maximum wind the subject property was exposed to and therefore the damage sustained by the house 10 or 12 houses away was the type of wind damage sustained by the subject house.

Hall pointed at the fallacy in that approach which focuses on a single piece of evidence from the subject property and applies a tautology which always results in the subject property sustaining the same damage as the single other surviving property considered. Instead, Hall looks at all the surrounding damage to see if it validates the wind speeds he obtained from weather data through AccuWeather. Finding the surrounding damage as a whole under the Enhanced Fujita Scale validates the wind speeds reported for the specific site by AccuWeather provides a check point of reliability so he can then work from the AccuWeather speeds for a specific location using the Enhanced Fujita Scale to determine the likelihood of the level of wind damage at the specific location. Hall further compensates for limitations in the Enhanced Fujita Scale analysis, such as subjectivity, by selecting the more conservative value when two or more values are possible. For example, in order to remove any possible subjectivity bias even where he really believes a house was probably constructed without hurricane resistant features, he assumes the house had such features and uses the values from a higher, rather than a lower, band of construction. If he has a weather report which states the presence of tornadic activity which is not backed up by actual observation of witnesses, he uses the lower wind gust speeds instead of the higher tornado speeds from the weather data in applying the Enhanced Fujita scale. Such

choices assure that his opinions based on the Enhanced Fujita Scale will always be at the lower range of supportable wind speed damage (which favors the insurer) in comparison to others who might make different subjective choices for the same property. (Exh. E at 169-174).

Peer Review of Hall's Report

Jim Moore's review of Hall's report supports the reliability of his methods in a similar manner to the peer review of publications. Moore's review goes beyond a mere discussion with another engineer. Moore must sign off on the report as the engineer licensed by Mississippi responsible for the engineering work and opinion. Moore and Hall worked out a method of review that would be similar to the NFPA-921 standard for quality control and reliability of fire investigation reports. Moore thoroughly reviews each of Hall's reports and the supporting documentation and evidence. He reviews Hall's reasoning to make sure his inductive and deductive reasoning is in accordance with reliable scientific method. He also reviews Hall's methodology, application of engineering principles and conclusions. Just as with peer review of academic publications, in order to obtain Moore's agreement with the report and receive his signature on the report, Hall must make the changes suggested or provide Moore with additional data, explanation or justification for his position and then get Moore's agreement if Hall does not want to make the suggested change. For example, Moore would have put more emphasis in the Espinosa report on the Dennis report's description of tree damage from "tornado-like winds," but Hall persuaded Moore that this portion of the Dennis report should be left out because Hall could not tell if this particular reference in the Dennis report referred to the Espinosa property or not and at the time of the report, they did not have an expert meteorologist report specific to the Espinosa property documenting tornadic winds on that property. (Exh. E at 195-203).

The purpose of peer review is to improve the probability that substantive errors in the methodology will be detected. See *Daubert*, 509 U.S. at 593. Moore's review served that purpose. Moreover, the review by the coalition of scientists and experts from many disciplines whose revision of the original Fujita scale became the Enhanced Fujita scale is precisely the kind of peer review *Daubert* was speaking of. Thus, the sources Hall relied on in using the Enhanced Fujita scale for the correlation between wind speed and damage have been subject to peer review.

CONCLUSION

The role of the court under *Daubert* is "to make certain that an expert, whether basing testimony upon professional studies or personal experience, employs in the courtroom the same level of intellectual rigor that characterizes the practice of an expert in the relevant field." *Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 152 (1999). This court has repeatedly held that opinions based on eyewitness reports and the kind of weather data supplied by AccuWeather showing the property would have been structurally damaged or destroyed by wind hours before the data shows any storm surge waters would have reached the property are reliable. See *Tejedor v. Nationwide Fire & Cas. Co.*, NO.1:05-CV-679 LTS-RHW , 2007 U.S. Dist. LEXIS 3179 (S.D. Miss Jan. 16, 2007); *Broussard v. Nationwide Fire & Cas. Co.*, NO.1:06CV006 LTS-RHW, 2006 U.S. Dist. LEXIS 94136, (S.D. Miss. Dec. 28, 2006); *Killeen v. Nationwide Fire & Cas. Co.*, NO.1:06CV649 LTS-RHW , 2007 U.S. Dist. LEXIS 43720, (S.D. Miss. June 14, 2007).

To prohibit Hall from testifying based on the Enhanced Fujita Scale when the scientific evidence shows it is a more accurate version of the original Fujita Scale which has been used by researchers to calculate hurricane speeds in environmental and other studies for years would

likewise turn *Daubert* on its head. *Daubert* differs from the *Frye* test of general acceptance precisely because good science should not be tossed out solely because the theory has not previously been used in a particular way for a sufficient period to reach general acceptance. It was intended to provide an alternate means to general acceptance so that new theories and new applications of scientific theories would not be thrown out solely because of an unusual or innovative application or for lack of published literature or studies on a particular use or issue.

The research using the original Fujita Scale and the research behind the Enhanced Fujita Scale demonstrates that the correlation between wind speed and damage in these scales is not only reliable, but it is used by scientists across multiple disciplines in a wide variety of situations needing a reliable means of correlating wind speed and damage. The Fujita Scale has been subjected to both practical use and scientific testing for accuracy in connection with many hurricanes including Hurricane Andrew. Correlations of this type are mathematical equations. Any mathematical equation can be used to determine any one of the variables from the others. It doesn't become less reliable because it is worked in one direction instead of another. Thus, Hall's use of the Enhanced Fujita Scale to determine damage from wind speed instead of wind speed from damage does not make his opinions unreliable. The research shows the correlations in the original Fujita Scale are reliable. The changes in the Enhanced Fujita Scale were made by a coalition of engineers, meteorologists and representatives from the insurance industry to address areas that could be made more reliable based on past research. Thus, the Enhanced Fujita Scale is more reliable than the previously accepted Fujita scale.

Hall's methodology and his report and opinions pass the *Daubert/Kumho* test. The points raised by State Farm may provide material for vigorous cross examination and reason for State

Farm's experts to disagree with him, but they do not indicate the kind of unreliability that justifies exclusion of his testimony. See *Stevens v. State Farm*, NO.1:06-CV-175 LTS-RHW, (S.D. Miss July 5, 2007 attached hereto as Exhibit T).

Contrary to State Farm's assertions, Hall has extensive experience and qualifications in forensic engineering. He also has training, experience, and knowledge gained in a variety of ways in a variety of fields which qualify him to analyze hurricane damage to structures and to testify to those opinions as an expert under FRE 702.

Accordingly, State Farm's motion should be denied.

RESPECTFULLY SUBMITTED, this 27th day of December, 2008.

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CERTIFICATE OF SERVICE

COMES NOW the Plaintiff, Robert R. Gagné, by and through counsel, who hereby certifies that I filed the foregoing ***Plaintiff's Response in Opposition to Defendant State Farm Fire and Casualty Company's Motion to Exclude Expert Testimony of Neil Hall*** with the Clerk of the Court using the ECF system which will send notification of such filing to the following ECF participants:

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THIS, the 27th day of December, 2008.

By: /S/ Jesse B. Hearin, III
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