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STATEMENT OF THE ISSUES

1. Whether the trial court's findings of fact set out in the court's discovery sanctions order were manifestly erroneous, and whether the court abused its discretion under Mississippi Rules of Civil Procedure 37(b), 37(e), Rule 11, and the court's inherent powers, in entering sanctions on the basis of those findings.

2. Whether the trial court acted within its discretion in admitting affidavit testimony from Glen Strong's treating physicians that was cumulative of nearly identical testimony by those same doctors already before the jury. If not, whether any error in the admission of such affidavits was harmless because their substance had already been admitted in the form of those doctors' deposition testimony.

3. Whether the trial court acted within its discretion in admitting testimony by highly-qualified epidemiology and toxicology experts, based on standard, generally-accepted methods, that:

   a) exposure to dioxins and heavy metals is capable of causing multiple myeloma in humans; and

   b) Glen Strong's exposure to dioxins and heavy metals released from the DuPont facility was a substantial factor contributing to his development of multiple myeloma.

4. Whether the trial court correctly refused a jury instruction on the "frequency, regularity, and proximity" of Plaintiffs' exposures, when such language does not reflect the law of Mississippi outside the context of asbestos litigation, and in any event applies only in the context of summary judgment.

5. Whether the trial court acted within its discretion in denying DuPont's motion for remittitur based on evidence of the Strongs' damages, including the pain and suffering and mental anguish associated with development of incurable form of cancer that has required Mr. Strong

to undergo two bone marrow transplants.

6. Whether the trial court acted within its discretion in admitting testimony by the Strongs' air pollution expert, Jim Tarr, describing his personal experience dealing with regulatory agencies and their interaction with corporations with respect to air quality management issues.

7. Whether the trial court acted within its discretion in admitting testimony by expert epidemiologist Richard Clapp relating to the federal government's position with regard to dioxin exposure as a cause of multiple myeloma, based on the Veteran's Administration's review of the scientific evidence.

8. Whether the trial court acted within its discretion in admitting testimony by expert chemist Rod O'Connor regarding the relative toxicity of various forms of dioxin and dioxin-like compounds.

9. Whether the trial court acted within its discretion in admitting testimony by former DuPont employee Victor Hawkins relating to his observations and experiences involving releases of toxic chemicals from the DuPont facility.

STATEMENT REGARDING ORAL ARGUMENT

Appellees Glen and Connie Strong request oral argument. The Strongs agree with DuPont that oral argument may assist the Court in light of both the size of the appellate record and the complex procedural history of the case.

STATEMENT OF THE CASE

I. BACKGROUND

This case is the story of how a corporate decision to turn a blind eye to its own deadly pollution resulted in development of an incurable bone marrow cancer in Glen Strong, which devastated the entire Strong family.

A. Glen Strong and the Devastating Impact of His Multiple Myeloma.

Glen Strong is a former deputy sheriff who worked for the Hancock County Sheriff Department for 20 years before being forced into premature retirement as a result of his cancer in January 1999. Tr. 154:1489-93. At the time of his diagnosis, Mr. Strong had planned to run for the office of Sheriff of Hancock County. Tr. 154:1491. Mr. Strong is married to Connie, his wife of more than 30 years. Tr. 155:1535. They have two daughters, Star (age 25 at time of trial), and Nova (age 15 at trial). Tr. 154:1456-57. Mr. Strong's cancer was diagnosed in 1998, after he had consumed hundreds of pounds of dioxin-contaminated seafood caught from the waters of St. Louis Bay. During the years 1979 to present, Defendant E.I. DuPont de Nemours Corporation ("DuPont") has operated a titanium dioxide refinery in DeLisle, Mississippi in Harrison County, on the edge of St. Louis Bay. Throughout those years of operation, DuPont has released dioxins and heavy metals into the environment surrounding the facility, including releases of thousands of pounds of particulate matter on an annual basis into St. Louis Bay. Tr. 149:666.

Throughout his tenure at the Hancock County Sheriff Department, Mr. Strong and his family lived in the same home in Bay St. Louis, Mississippi, in Hancock County, which was also the home in which Mr. Strong grew up. Tr. 154:1479. That home is approximately five miles from the DuPont DeLisle facility in adjacent Harrison County. *Id.* At the time of trial in August 2005, Mr. Strong was 52 years old. Tr. 154:1479. Mr. Strong is the son of a commercial fisherman, and he grew up eating oysters and other seafood from his father's catches in Louisiana and Mississippi. Tr. 154:1483. Having developed that taste for oysters early, Mr. Strong continued to consume large quantities of oysters and other seafood as an adult. During the years 1980 to 1998, when he was diagnosed with multiple myeloma, Mr. Strong ate oysters five to six times a week. Tr. 155:1518. Those oysters were all caught in St. Louis Bay by Mr. Strong's brother, who owned a commercial oyster boat. *Id.*

Mr. Strong also ate other seafood caught locally from St. Louis Bay. Tr. 155:1520.

At the time of Mr. Strong's diagnosis with multiple myeloma in 1998, at age 45, his doctors informed him that he probably had two to three years left to live. Tr. 154:1496. According to Mr. Strong's treating physicians at M.D. Anderson Medical Center, who specialize in treatment of multiple myeloma, the disease is not curable.[1] After being diagnosed, Mr. Strong experienced paralysis from the waist down from damage caused by tumors to his spinal column, for which he was hospitalized in May 1998. Tr. 154:1497-98. Soon after, he underwent seven weeks of chemotherapy treatment at M.D. Anderson, followed by a few days rest at his home in Bay St. Louis. Tr. 154:1500. He then returned to M.D. Anderson on October 1, 1998, to begin preparing for a bone marrow transplant operation in December, which was a transplant of stem cells grown from Mr. Strong's own bone marrow. *Id.* During the preparation for his transplant over the course of several months, Mr. Strong underwent 24 hour a day chemotherapy. He could not eat or drink as a result of his treatment. Other than a few days rest at home in September 1998, Mr. Strong was continuously in the hospital at M.D. Anderson from August through December 25, 1998. Tr. 154:1500 - 155:1504. During that time he and his wife Connie left their then eight year old daughter Nova with her grandmother. During Mr. Strong's five-month hospital stay in 1998, he and Connie missed both of their daughters' birthdays, Thanksgiving, and Christmas. Tr. 154:1471. During his treatment, Mr. Strong's entire personality changed. Tr. 155:1547. Although he had been a happy person throughout his prior life, he became depressed, easily agitated, and angry. *Id.*

Upon release from M.D. Anderson on Christmas Day 1998, Mr. Strong returned home, only to be forced back to the hospital with uncontrolled bleeding ten days later – first in Gulfport, then

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[1] Pl. Ex. 482 (Depo. of Donna Weber, M.D., played for the jury (Tr. 154:1412), at 45:17 - 46:4).

back again in Houston. Tr. 155:1503. After that problem was controlled, he could again go home. But, from that first transplant in 1998 until September 2000, he was forced to return to M.D. Anderson for checkups every two to four weeks. Tr. 155:1504.

In September 2000, Mr. Strong's oncologist at M.D. Anderson, Dr. Weber, noticed symptoms of amyloidosis, a condition of excessive protein production and secretion often associated with multiple myeloma. Tr. 155:1505. At this point, Mr. Strong was informed that he had only six to nine months to live. *Id.* He asked about the possibility of a second bone marrow transplant, and Dr. Weber told him that no such transplant had been done on a patient with amyloidosis along with multiple myeloma. He asked to consult another multiple myeloma specialist at M.D. Anderson, Dr. Giralt, who told him the same thing. Dr. Giralt also informed Mr. Strong that he would not survive another bone marrow transplant. Nonetheless, Mr. Strong insisted on the operation because it was his only hope, and Dr. Giralt finally agreed to go forward. This time the transplanted bone marrow came from a donor – Mr. Strong's brother Harold. Tr. 155:1506-08. That second bone marrow transplant took place in January 2001, and was followed by 100 consecutive days of chemotherapy. Miraculously, Mr. Strong has survived and his cancer is now in remission following that second bone marrow transplant. However, he still cannot work, and he is still at risk for recurrence of multiple myeloma. Tr. 155:1509; Pl. Ex. 481 (Depo. of Dr. Sergio Giralt at 51:25 - 52:3). He has continued to go to M.D. Anderson for ongoing cancer checkups, which will be required until he dies. Tr. 155:1514. Since his second bone marrow transplant, Mr. Strong has suffered two heart attacks, which are unrelated to his cancer. However, because of Mr. Strong's cancer and its effect on his back and legs, he cannot undertake significant physical exercise, as recommended by his cardiologist. Tr. 155:1515. Dr. Giralt has recommended that Mr. Strong "take it easy." *Id.*

Mr. Strong's cancer-related medical expenses at the time of trial totaled more than $675,000.

Pl. Ex. 485. Since his diagnosis in 1998, Mr. Strong has not had a single pain-free day, and he and his wife have not had intimate relations. Mr. Strong no longer can sleep regularly, as he wakes up approximately every 30 minutes at night. Tr. 155:1525-27.

B. DuPont and the DeLisle Titanium Dioxide Refinery.

DuPont opened its DeLisle, Mississippi operation in 1979, to manufacture titanium dioxide, a pigment used to turn various products white. The manufacturing process involves refining ilmenite ore in a chlorinated process requiring high temperatures. Tr. 150:845-47. During that refining process, various chlorinated by-products are created, including a set of compounds known as dioxins, furans, and polychlorinated biphenyls ("PCBs"), which are all also collectively known as "dioxins and dioxin-like compounds." DuPont's manufacturing process also generates other chemical releases, including carcinogenic heavy metals, such as nickel, arsenic, and chromium.[2] Pl. Ex.473.

DuPont had significant corporate knowledge about the chemical hazards generated by its titanium dioxide operations. According to the testimony of Glen Evers, a former DuPont research and development engineer in the company's corporate offices in Delaware, the company was aware as early as 1975 that PCBs were created and released in the titanium dioxide refining process, and the company learned by 1978 that "massive amounts" of dioxins and PCBs were also generated in a similar refining process. Tr. 154:1402. In 1989, Mr. Evers saw an abstract of a Chinese article that described creation of a significant amount of dioxins in the ilmenite ore chlorination refining process for manufacturing titanium dioxide. Mr. Evers immediately understood the importance of this

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[2] *See generally* Deposition Testimony of DuPont DeLisle Environmental Consultant Linda Bernard, Pl. Ex. 473 (relevant portions read to the jury at Tr. 149:625). For example, Ms. Bernard acknowledges at pages 47-49 of her deposition testimony, that DuPont was aware before commencing operations of the DeLisle facility in 1979 that arsenic, chromium, and a wide variety of other metals would be by-products of the operation.

information to DuPont in relation to the DuPont titanium dioxide plants at DeLisle and elsewhere, and he brought the abstract to the attention of those in charge of those titanium dioxide plants. Tr. 154:1403.

In 1993, DuPont discovered that the finished product itself, titanium dioxide pigment, also contains dioxins, and the company issued explicit directions to its marketing and development personnel to hide this information from the company's customers. Tr. 154:1404-05. By contrast, in 1989 DuPont had actively marketed an alternative chemical process toward the pulp and paper industry on the basis that the process DuPont was peddling would permit the paper industry to reduce hazardous dioxin releases to the environment significantly. Nonetheless, the levels of dioxins released by the paper industry's processes were roughly 10,000 times less than what the company knew was being created by its own titanium dioxide processes. Tr. 154:1396-97. At trial, DuPont declined the opportunity to cross-examine Mr. Evers. Tr. 154:1409.

Based on DuPont's own estimates of dioxins produced by the DeLisle facility, as reported to the United States Environmental Protection Agency as part of the Toxic Release Inventory, the DeLisle facility is the second largest producer of dioxins in the United States. Pl. Ex. 64; 65; 66 (TRI reports); Tr. 155:1636-37. According to the TRI, the largest producer of dioxins in the United States is DuPont's titanium dioxide refinery in Edgemoor, Delaware. The fourth largest producer of dioxins in the United States is DuPont's titanium dioxide refinery in New Johnsonville, Tennessee. *Id.* The dioxins produced by the other 97 highest producers of dioxins in the United States combined, according to the TRI reports, total less than the dioxins produced by DuPont's three titanium dioxide refineries. *Id.*

By no later than 1983, DuPont was aware that exposure to dioxins and dioxin-like compounds were associated with cancer in humans. Pl. Ex. 480 at 112:10 - 112:14 (Depo. of DuPont employee

Leigh Belcher, relevant portions of which were played to the jury, Tr. 154:1381; R.20343). Similarly, DuPont was aware before it opened the DeLisle plant in 1979 that arsenic, nickel, and chromium all cause cancer in humans. Pl. Ex. 479 at 26-31, 36 (Depo. of DuPont toxicologist David Warheit, relevant portions of which were played to the jury (Tr. 154:1380) ; R.18516).

Despite possessing this internal corporate knowledge, DuPont never tested the processing stacks at the DeLisle facility to determine how much dioxin was being released. This was confirmed by the deposition testimony of both DuPont DeLisle plant manager Aldo Morell and DuPont DeLisle environmental consultant Linda Bernard. The relevant videotaped deposition testimony from both witnesses was played for the jury at trial. Tr. 151:934 (playing Aldo Morell deposition excerpt to jury); R. 19909 (Plaintiffs' Second Amended Page and Line Designations of the Deposition of Aldo Morell); Pl. Ex. 474 (Aldo Morell Depo. Tr. at 49:23 - 50:2 ("Q: So sir, it's true, correct, that no stack measurements of dioxin emissions have ever been made at the DeLisle plant, correct? A: I believe that's correct."). *See also* Tr. 149:625 (playing Linda Bernard depo. excerpt to jury); R. 18519 (Linda Bernard Depo. Page and Line Designations); Pl. Ex. 473 (Linda Bernard Depo. Tr. at 199:19 - 200:6). Morell also testified that DuPont could have measured dioxin emissions from its stacks, but it made a deliberate decision not to do so. Pl. Ex. 474 at 255:10 - 255:16.

II. PROCEDURAL HISTORY

This appeal marks the sixth time that DuPont has asked this Court to review this case, and the third time the company has sought review of the trial court's discovery sanctions orders striking certain of its experts.

The Strongs originally filed their claims in December 2002 in the matter of *Govan v. DuPont, et al.*, No. 2002-376-CV12. The *Govan* case involved 37 Plaintiffs alleging various injuries resulting from their exposures to dioxins and heavy metals released by the DuPont facility. At the same time

the *Govan* action was filed, a larger group of approximately 2,200 plaintiffs alleging similar injuries from the same releases at the DeLisle facility filed a separate action in *Lizana v. DuPont, et al.*, No. 2002-377-CV12. DuPont immediately removed both cases to federal court on the basis that the Plaintiffs had allegedly fraudulently joined the two Mississippi resident defendants, Waste Management of Mississippi and Boots Smith. The federal court eventually remanded both the *Govan* and *Lizana* cases in February 2004, after permitting discovery relating to the allegations of fraudulent joinder. As a result of this initial wrongful removal, the *Govan* and *Lizana* cases (including the Strongs' action) sat largely inactive for almost 14 months after they had been filed.[3]

Following this initial removal and remand, the Jones County circuit court entered its initial case management order ("CMO") in July 2004, setting an initial trial date for the first plaintiff's case to go forward on March 30, 2005. That CMO also established a process for narrowing a smaller subset of plaintiffs from the *Govan* and *Lizana* cases who would be subject to certain discovery requirements and eventual identification of initial trial plaintiffs. R.3251. At the outset of discovery, Defendants selected 100 "Questionnaire Plaintiffs," each of whom provided Defendants with answers to a two-page questionnaire that had been agreed upon by the parties. From these 100 Questionnaire Plaintiffs, Defendants then selected 30 "Discovery Plaintiffs" and Plaintiffs selected an additional 10 "Discovery Plaintiffs" from the group of all pending cases. During September and October 2004, the Discovery Plaintiffs were orally deposed and provided answers to interrogatories and requests for production. Among the documents produced were testing results for all Discovery Plaintiffs who had undergone either blood testing and/or whose household dust had been sampled for toxins. On October 1, 2004, Defendants and Plaintiffs' counsel each selected three "Trial Plaintiffs" whose cases

[3] The Strongs' case was formally severed from the *Govan* action in January 2005.

were scheduled to be tried one at a time in six different trials originally planned to occur in 2005 and 2006. R.3251. At this point, when DuPont's own obligations to provide discovery began to ripen, DuPont embarked on a course of conduct that ultimately led to the discovery sanctions about which the company now complains on appeal.

First, DuPont "consistently failed to produce documents or otherwise respond completely and appropriately to written discovery in the absence of a court order following a motion to compel." R.18283 (RE tab 11) at ¶6. Second, DuPont delayed discovery "throughout this litigation," specifically including delaying Plaintiffs' continued efforts to depose DuPont's experts. R. 18282 at ¶3. Specifically, DuPont adopted an unsupported and unintended interpretation of the Court's CMO as a basis for delaying depositions of their own experts, and the company delayed taking the depositions of the Strongs' experts until two months after they were initially offered. *Id.* The trial court found that DuPont's delays in the expert deposition schedule were both unreasonable and calculated. *Id.* Third, DuPont sought and achieved further delay of trial in this case by removing the case to federal court on both a second *and* third occasion, both times on the eve of the scheduled March 30, 2005 trial date.

In both its second and third notices of removal, DuPont again claimed fraudulent joinder of the Mississippi defendants as the basis for federal jurisdiction – the identical jurisdictional ground that had originally been rejected by Judge Pickering in his remand order of February 2004. Indeed, DuPont amended its third notice of removal to assert federal bankruptcy jurisdiction on the basis of the Boots Smith bankruptcy only after the Strongs had filed an emergency motion to remand arguing that no such bankruptcy jurisdiction existed. R.18283 at ¶5. Although the federal court remanded the case yet again, the third removal accomplished DuPont's objective by resulting in a continuance of the Strongs' trial until August 2005. *Id.*

When DuPont removed the case to federal court for the second time, on February 28, 2005, Plaintiffs were scheduled to complete depositions of thirteen DuPont experts and five fact witnesses between February 28 and March 18. Upon receipt of the notice of removal, the Strongs immediately contacted DuPont to insist that the depositions go forward under the auspices of the federal court while the parties litigated the Strongs motion to remand. DuPont refused to agree to the previously-scheduled depositions. By doing so, DuPont "deliberately risked losing its expert and fact witnesses, in light of the fact those witnesses were slated for deposition during the time the case sat in federal court." R. 18286 at ¶16. Rather than agreeing to permit those depositions to go forward in federal court, "[i]nstead, DuPont chose to roll the dice and hope that either the federal judge would delay any remand decision until after the scheduled trial date, or that this Court would grant a motion for continuance." *Id.* According to the trial court, this decision by DuPont "highlighted" the "abusive nature of DuPont's conduct in this case." *Id.*

Moreover, the trial court found that "the totality of circumstances surrounding DuPont's behavior in this case demonstrates a systematic design to abuse the discovery process in an effort to delay the trial of this matter and to deprive Plaintiffs of the opportunity afforded them under the Mississippi rules to discover both the substance and nature of the testimony of DuPont's witnesses and the content of DuPont's discoverable documents." R.18284 at ¶6.

As an initial sanction for DuPont's behavior, the trial court ordered DuPont to produce all of its experts for deposition at the offices of the Strongs' counsel in Dallas, Texas, under a schedule to be dictated by the Strongs. As the trial court explained, "[t]his Court specifically included this unilateral scheduling provision in the Sanctions Order both as punishment for DuPont's prior discovery abuses and other misconduct described above, *and* to avoid further delays in depositions occasioned by additional scheduling excuses that had been advanced by DuPont earlier in the case."

R. 18285 at ¶8. The trial court found that DuPont had reasonable notice of all seventeen depositions noticed by Plaintiffs pursuant to the Court's initial sanctions order entered in May 2005. R. 18285 at ¶9. Nonetheless, nine of DuPont's witnesses failed to appear for their court-ordered depositions. R. 18285 at ¶11. Based on the totality of DuPont's conduct described above, which the trial court found was an "abuse of the discovery process deserving sanctions pursuant to Miss. R. Civ. P. 37(e) and Miss. R. Civ. P. 37(b)(2)(B)," R. 18286 at ¶14, the trial court struck the testimony of the nine DuPont witnesses who failed to appear for their court-ordered depositions. The trial court also found that DuPont was guilty of "deliberate misrepresentations to this Court that independently warrant sanctions under the inherent powers of this Court and Miss. R. Civ. P. 11." [4]

Although the trial court's sanctions order left DuPont with many available listed witnesses, including several designated experts whose testimony would have controverted the heart of the Strongs' claims, DuPont chose not to call any witnesses of its own during the first phase of the trial. DuPont's claim that "there was no medical doctor available to testify at trial on whether dioxins caused Strong's multiple myeloma" (DuPont Br. at 32) is false. Before DuPont's second and third removals to federal court, the Strongs' counsel had already deposed Dr. James Thigpen, an oncologist designated by DuPont to discuss multiple myeloma, who opined during his deposition that Mr. Strong's disease could not have been caused by environmental exposures to any toxins released by DuPont's facility. *See* R.4709 (DuPont's Expert Designation); Thigpen Depo. Tr. at 57; 63–66.[5]

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[4] The grounds for the trial court's finding relating to deliberate misrepresentations to the Court are described at R. 17349 (Plaintiffs' Motion for Sanctions for Non-Appearance of Certain Witnesses at pp. 1-4).

[5] Because Dr. Thigpen's deposition transcript is not part of the original appellate record, the Strongs have today filed a motion to supplement the record to include Dr. Thigpen's deposition transcript.

Similarly, DuPont could have called analytical chemist Dr. Yves Tondeur, who had opined that the so-called "congener profile" of the dioxins found in the Strongs' household dust did not match the "profile" of dioxins released from the DuPont facility, and that any impact of DuPont's dioxins on Mr. Strong was therefore minimal or non-existent. R.4709 (DuPont's Expert Designation). Finally, DuPont had designated a lengthy list of potential fact witnesses and corporate employees, none of whom the company called to testify during the liability and compensatory damages phase of the trial. R. 4692 (DuPont's Designation of Fact Witnesses).

The jury entered a verdict for the Strongs, including compensatory damages of $14 million for Mr. Strong and $1.5 million for Connie Strong's loss of consortium. R. 20450. The trial court determined that sufficient evidence of malice or gross negligence existed to support submission of punitive damages to the jury in a second phase of the trial. The jury could not reach a verdict on punitive damages, and the trial court granted a mistrial with respect to that phase of the trial.[6] The trial court entered judgment on the jury's phase one verdict, plus interest accruing from the date of the verdict. R.21028. This appeal followed.

III. AN OVERVIEW OF PLAINTIFFS' EXPERT TESTIMONY.

A. Dr. Barry Dellinger – Testimony Determining the Extent to Which DuPont's Industrial Processes Create Dioxin Pollution.

Based on the expert testimony presented by the Strongs, the jury determined that exposure to dioxins and heavy metals released from the DuPont DeLisle titanium dioxide facility caused Glen Strong's multiple myeloma. Unfortunately, DuPont never conducted stack sampling to determine whether or how much dioxins were emitted from its titanium dioxide refining processes. To

[6] The weekend after the jury reached its Phase One verdict, Hurricane Katrina intervened to shut down the Jones County courthouse for several weeks. As a result, the punitives phase of the trial in this case followed many weeks after the phase one verdict.

determine whether DuPont's industrial processes create significant amounts of dioxins that would be released in its stack emissions, Plaintiffs retained Dr. Harold B. "Barry" Dellinger, a physical chemist at Louisiana State University in Baton Rouge, Louisiana. Dr. Dellinger's particular area of expertise is the formation of toxic materials, specifically including dioxins and dioxin-like compounds, created by combustion processes. Tr. 150:839-40. For more than 25 years, Dr. Dellinger's research has focused on the creation of toxic combustion products. Much of that work has involved creation of combustion by-products in the laboratory setting, using reactors designed to recreate and simulate a variety of industrial combustion processes. Tr. 150:843-44. Based on that laboratory research, Dr. Dellinger has published approximately 100 articles in the peer-reviewed literature regarding formation of pollutants in dozens of types of industrial combustion processes, such as hazardous waste incinerators. *Id.*

In this case, Dr. Dellinger designed two experimental reactors to simulate the combustion process used during DuPont's titanium dioxide production. He based the design of those reactors on: 1) process diagrams and other information provided by DuPont regarding its titanium dioxide refining process and the source materials used in that process; 2) information about that type of process that is available in the published technical literature; and 3) input from other experts. Tr. 150:844-45; R. 19207 (Dellinger Daubert Affidavit at ¶4). As a result of Dr. Dellinger's work, he discovered that, contrary to DuPont's contention that most of the dioxins generated in its process end up in solid wastes that go into landfills,[7] the vast majority of the dioxins generated in the process actually are in the gaseous phase and are emitted into the atmosphere through DuPont's stacks. *See* R.19207 (Dellinger Affidavit Ex. 2 (Expert Report) at 5 (based on his simulation, concluding that

[7] Pl. Ex. 474, Depo. of Aldo Morell at 253:17 - 253:19.

more than 99 percent of dioxins generated in the DuPont process were associated with the gaseous effluent)). Although DuPont's stacks were fitted with pollution control mechanisms to filter coarse particulate matter, those devices were not designed to catch particles as fine as those to which the dioxins would adhere. Dr. Dellinger testified that, as a result, most of the dioxins created in DuPont's refining process were emitted from its stacks. Tr. 150:853-54.

B. Jim Tarr – Testimony Establishing Where DuPont's Dioxin and Heavy Metals Emissions Traveled.

To determine what happens to dioxin and other particulate emissions released from the DuPont facility, Plaintiffs retained Jim Tarr, an environmental engineer with particular expertise in air pollution control. Mr. Tarr has thirty-three years experience doing a variety of engineering work related to air pollution exposure problems, including development of air dispersion modeling. Tr. 149:630-31. Based on DuPont's own reports of emission rates of particulate matter to the Mississippi Department of Environmental Quality, together with data regarding meteorological activity in the area for certain years and other information, Mr. Tarr modeled the air dispersion and wet deposition of particulate matter released from the DuPont facility. For this purpose, Mr. Tarr used a model approved by the United States Environmental Protection Agency, which is the same air model that DuPont has used in estimating dispersion of pollutants from the DeLisle facility for purposes of permit applications required by the Mississippi Department of Environmental Quality ("MDEQ"). R.19480 (Tarr Affidavit at ¶¶8-10).

Mr. Tarr's modeling demonstrated that substantial amounts of particulate releases from the DuPont facility made their way through the air to the Strongs' residence, and to nearby Bay St. Louis. *See generally* R.19480 [Exhibits 2 and 2A (expert reports) to Affidavit of Jim Tarr]; Tr. 149:651-52; 655-56. Those particulate matter releases necessarily included both dioxins and heavy metals

including arsenic, chromium, and nickel. Tr. 149:667. For example, during the year 1992, Mr. Tarr's modeling determined that more than 9,000 pounds of particulate matter released from the DuPont facility was deposited into Bay St. Louis. Tr. 149:666.

Using the same modeling techniques, Mr. Tarr also modeled air dispersion specifically of dioxin and dioxin-like compounds released from the DuPont DeLisle facility. To determine the emission rates for dioxin and dioxin-like compounds for purposes of this model, Mr. Tarr relied on a DuPont document estimating annual releases of dioxins from its processes. Tr. 149:667-68.[8] As with the model for particulate matter, Mr. Tarr's dioxin model also showed that environmentally significant levels of dioxins were traveling from DuPont to the surrounding environment, including the Strongs' home and Bay St. Louis. Tr. 149:670-76; Pl. Ex. 72 (maps showing isoplethic concentrations of dioxin and dioxin-like compounds). Mr. Tarr also performed an alternative dioxin modeling scenario, based on a smaller, more conservative dioxin emission rate. Even under this more conservative model, dioxin releases from the DuPont plant had a substantial impact on areas including the Strongs' home and the Bay. Tr. 149:677.

C. Rod O'Connor – Testimony Establishing That Household Dust Levels of Dioxins at the Strongs' Home and Other Residences in the Immediate Vicinity of the DuPont Plant Corroborate Mr. Tarr's Modeling Work.

To supplement the evidence of exposure from Mr. Tarr's air modeling work, Dr. Rod O'Connor, a chemist, directed sampling of household dust of a group of plaintiffs in the *Govan* case, including the Strongs. Dr. O'Connor is a recently retired chemistry professor who has more than 30

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[8] This document is Pl. Ex. 146, reflecting an estimate by DuPont consultant Robert Giraud that DuPont's processes (or perhaps only one of those processes) generate 381 grams of dioxin releases per year. *See also* Tr. 149:720 (admitting Pl. Ex. 146 in evidence). Plaintiffs' epidemiologist Dr. Richard Clapp testified that this amount of dioxins into the environment reflects a significant public health risk to the surrounding community. Tr. 151:1004 ("when you're talking about dioxin, [381 grams is] also a large number. A little bit goes a long way with that chemical").

years experience as a teacher and researcher on various college faculties, including 13 years spent as a full professor in the chemistry department at Texas A&M University. Tr. 149:740-41. In an effort to determine an appropriate "background" dioxin level in household dust with which to compare the results for the plaintiffs, Dr. O'Connor also tested homes in a similar rural community in Mississippi where there is no known industrial dioxin source. Dr. O'Connor found that the average background level of dioxin in household dust in Columbia, Mississippi was 20.3 pg/g TEQ, as compared with much higher levels found in the Pass Christian homes surrounding the DuPont facility. *See* Pl. Ex. 429 ("Background Dioxins in House Dusts in Rural Mississippi"). In the Strongs' home, the household dust level was 121 pg/g TEQ, six times higher than the background level measured by Dr. O'Connor in Columbia. Pl. Ex. 113; Tr. 150:767. Dr. O'Connor's article describing his work in determining the background level of dioxins in Columbia was accepted for publication in the scientific literature after undergoing peer review. Tr. 150:781.

After observing that the levels of dioxins in Mr. Strong's household dust were many times higher than the background levels he measured in a comparable rural community in Mississippi, Dr. O'Connor next searched for any other possible sources of dioxin contamination that might have caused those elevated dioxin levels *other than* DuPont's DeLisle facility. Dr. O'Connor looked at the United States Environmental Protection Agency's Toxic Release Inventory to assess whether any other industrial sources of dioxins were nearby. Based on that review, Dr. O'Connor determined that DuPont was the only substantial industrial contributor to the dioxins in the Strongs' home. Tr. 150:780-81. Dr. O'Connor also reviewed information regarding the likely contribution of other background sources of dioxins, including automobile exhaust and backyard burning of trash. Based on data published by the U.S. EPA, Dr. O'Connor determined that more than 265,000 people would have to be burning a particular type of dioxin-rich trash every day of the year in order to generate the

quantities of dioxin Dr. O'Connor found when he conducted sampling on the DuPont DeLisle site. Tr. 150:781. Similarly, Dr. O'Connor found in the published literature that automobile exhaust contributes less than one-tenth of one percent of the dioxins found in the environment. *Id.* In summary, Dr. O'Connor determined to a reasonable degree of scientific certainty that DuPont is the "principal source of dioxins" in the Strongs' home. Tr. 750:782.

During the trial, DuPont asserted that the Strongs' environmental measurements of dioxins were inconsistent with identification of DuPont as a primary contributing source because the "congener profile" or "fingerprint" of different dioxin compounds in the Strongs' home did not match the so-called "profile" of dioxins at DuPont's DeLisle facility. Dr. O'Connor explained to the jury that this argument was scientifically invalid for two reasons: first, based on extensive sampling that Dr. O'Connor conducted at the DuPont DeLisle facility itself, there is no single "fingerprint" of dioxins generated or released by that facility's processing. In the approximately sixty samples that Dr. O'Connor analyzed for dioxins from the DeLisle site, no two of them matched in terms of dioxin "fingerprint." Tr. 150:770. Second, once dioxins are released into the environment and begin to travel through the air, chemical changes occur that alter the congener "profile" or "fingerprint" of any given mixture of dioxins. Tr. 150:771. "You put all this together, it's just not scientifically sensible to consider that you're going to see a fingerprint of that plant coming out that's unique to that plant ... and was the same fingerprint five miles later on. It isn't going to happen." Tr. 150:772.

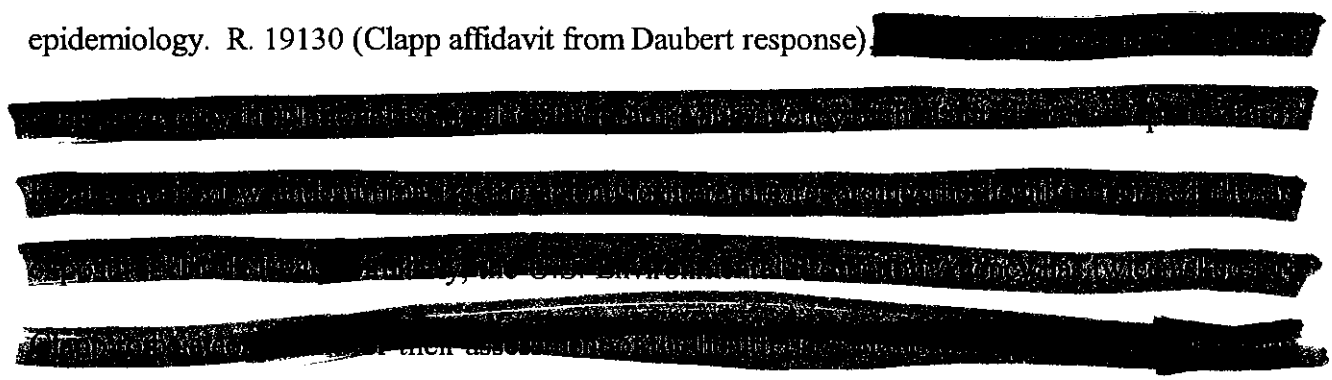
D. Dr. Ralph Elston: Testimony Establishing That DuPont's Releases of Dioxins Have Elevated Dioxin and Heavy Metals Levels in St. Louis Bay and in Local Seafood Caught in the Bay.

Because Glen Strong and other Plaintiffs in the *Govan* and *Lizana* cases regularly consumed local seafood, Plaintiffs retained Dr. Ralph Elston, a marine biologist, to test levels of dioxin and heavy metals in shellfish and sediment in St. Louis Bay. *See* R. 19083, Exh. 2 to Elston Affidavit

(expert report). Dr. Elston found that levels of chromium, arsenic, and nickel in shellfish in St. Louis Bay had increased by 1167%, 404%, and 467% since a 1978 study that had been conducted as a baseline prior to the opening of the DuPont facility in 1979. *Id.* Although dioxin levels in shellfish were not tested as part of that1978 baseline study, Dr. Elston was able to compare the dioxin levels he found with a 1997 published study of dioxin levels in oysters from Southern Mississippi. Dr. Elston found that the levels of dioxin he found in oysters in 2004 was between 1.7 times and 3 times the levels found in the 1997 study. Tr. 152:1108. Because Dr. Elston found that dioxin and heavy metals levels in both sediment and shellfish were highest near the outfall from the DuPont DeLisle plant, and because he could identify no other significant industrial sources of those pollutants into St. Louis Bay, he concluded that the DuPont plant is responsible for the increased levels of those carcinogens in the bay. "[T]here was no other reasonable source that could explain these high levels other than the titanium dioxide refinery." Tr. 152:1128. Dr. Elston's study of dioxin and heavy metals levels in shellfish and sediment conducted for this case was also published in a peer-reviewed scientific journal. Tr. 152:1115-16.

E. Dr. Richard Clapp: "General Causation" Testimony Establishing That Exposure to Dioxin and Dioxin-Like Compounds Are Capable of Causing Multiple Myeloma.

Dr. Richard Clapp is an epidemiologist on the faculty of the School of Public Health at Boston University, with particular expertise in the field of environmental health and environmental epidemiology. R. 19130 (Clapp affidavit from Daubert response).



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As Dr. Clapp testified, the role of an epidemiologist is to study and identify patterns of illness in populations – in the context of environmental epidemiology, this includes assessment of whether exposure to certain chemicals and pollutants increase risk for one or more diseases among the exposed population. Tr. 151:943. Thus, in sharp contrast to most medical doctors, who are trained to identify illness and treat it without regard to its underlying cause, the primary role of epidemiologists is to identify the causes of disease. Tr. 151:944-45. For example, one of Mr. Strong's treating cancer doctors at M.D. Anderson, Dr. Giralt, testified in this case that he would defer to a toxicologist or an epidemiologist as to the cause of Mr. Strong's multiple myeloma. Pl. Ex. 481, Giralt Depo. at 53:14 - 53:19.

Using the generally accepted method of reviewing the available body of published epidemiological literature studying dioxin-exposed populations, Dr. Clapp reached an opinion that the weight of the scientific evidence demonstrates that exposures to dioxin and dioxin-like compounds can cause multiple myeloma specifically, and also can cause all other types of cancer. Tr. 151:962; 973 (multiple myeloma); Tr. 151:958-59 (all forms of cancer). For purposes of reaching that opinion, Dr. Clapp reviewed and relied upon hundreds of articles published in the peer-reviewed scientific literature studying the health effects of dioxin exposure. R.18335-R.18355 (Plaintiffs' Amended Notice of Medical and Scientific Articles Reviewed and Relied Upon by Plaintiffs' Experts) (listing more than 260 articles, book chapters, and other publications specifically relied upon by Dr. Clapp relating to dioxin health effects). Among those articles were many examples of peer-reviewed studies finding a statistically significant association between groups exposed to dioxins and dioxin-contaminated chemicals and an elevated incidence of multiple myeloma. *See, e.g.*, Tr. 151:962-73.

Dr. Clapp also explained to the jury that the United States government, through the Veteran's Administration, administers a compensation program to Vietnam veterans that provides them certain benefits if they have injuries related to exposures to dioxin in the form of Agent Orange, a defoliant used by the United States during the Vietnam War. Based on the Veteran's Administration's view of the weight of the scientific evidence, that agency has determined that dioxin can cause multiple myeloma. As a result, Vietnam veterans who suffer from multiple myeloma receive compensation from the Veteran's Administration program. Tr. 151:960-61.

Dr. Clapp also testified that there is scientific consensus that all of the various 17 congeners (or separate types) of dioxins, furans and PCBs that are collectively referred to as "dioxin and dioxin-like compounds," including all of the chlorinated compounds at issue in this case, cause cancer through the same biological mechanism – disruption of the "Ah receptor" found in cells throughout the body. Tr. 151: 951-52. Among these 17 dioxin-like compounds, the most powerful disruptor of that receptor is usually called "TCDD," also known as 2,3,7,8 tetrachlorodibenzodioxin. However, Dr. Clapp testified that all of the other 16 congeners also cause cancer through the same mechanism. The National Toxicology Program's 11th Report on Carcinogens articulates the consensus view described by Dr. Clapp regarding the common carcinogenic mode of action of all dioxin-like compounds. Pl. Ex. 1. Similarly, the U.S. Environmental Protection Agency shares Dr. Clapp's opinion that all of the 17 congeners that make up the group "dioxin and dioxin-like compounds" are capable of causing cancer. Tr. 952-53.[9]

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[9] Scientists have quantified the relative potency of each of the 17 different congeners of dioxin-like compounds based on their relative tendencies to disrupt the Ah receptor. Through this process, each congener has been assigned a "Toxic Equivalency Factor," or TEF, which describes the toxicity of that compound in relation to the toxicity of TCDD, which has been assigned the TEF value of 1.0. All of the other 16 congeners have been assigned TEF values of 1.0 or less. Through this equivalency system, the overall toxicity of a mixture of dioxin-like compounds, such as the

Dr. Clapp also testified that with respect to dioxins, as with other carcinogens, there is no known safe "threshold" dose of exposure below which dioxins are incapable of causing cancer. Tr. 151: 949. Finally, Dr. Clapp also testified that the dioxin levels found in a sample of Mr. Strong's blood serum were elevated when compared with blood dioxin levels measured in a study of individuals living in Calcasieu Parish, Louisiana. Tr. 151:985-86; 152:1094.[10] Based on his review of that data, Dr. Clapp opined that the elevation in Mr. Strong's blood dioxin levels was most likely the result of exposure to dioxin and dioxin-like compounds released from the DuPont facility. *Id.*

F. Dr. William R. Sawyer: "General Causation" and "Specific Causation"Testimony Establishing Mr. Strong's Dose of Dioxin Attributable to DuPont and Whether Exposure to Dioxins and Heavy Metals Released from the DuPont DeLisle Facility Was a Cause of Mr. Strong's Multiple Myeloma.

Dr. William Sawyer is a Ph.D. toxicologist specifically trained in evaluating the effects of chemical exposures on both groups of people and individuals. Dr. Sawyer has more than 18 years experience specifically making toxic causation determinations in individuals, in contexts including criminal matters involving intentional poisonings, and various civil litigation. Tr. 153:1222. Dr. Sawyer is a fellow with the American Board of Forensic Medicine and the American Board of Forensic Examiners. *Id.* He has published approximately 40 to 50 articles in the peer-reviewed

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Plaintiffs' exposures in this case, can be measured by a "Toxic Equivalency Quotient," or TEQ. Tr. 150:762-64 (testimony by Dr. O'Connor, explaining the TEQ system); Tr. 150:777 (noting that there are 17 congeners of dioxin-like compounds). Most of the references in the record to measurements of dioxin-like compounds in environmental samples (such as house dust) are described in terms of their TEQ value.

[10] On cross-examination of Dr. Clapp, DuPont's counsel raised an issue as to whether the authors of the ATSDR Calcasieu Parish study had counted all of the 17 types of dioxin-like compounds in the blood of those residents, and, if not, whether Dr. Clapp was making an "apples-to-oranges" comparison of the blood data of Mr. Strong and those Louisiana residents. Dr. Clapp testified that, even if certain types of PCBs that Defendants' counsel suggested were not counted in the Louisiana study were also excluded from Mr. Strong's TEQ level, Mr. Strong's blood TEQ level would still be elevated when compared with the Louisiana residents. Tr. 52:1094.

toxicology literature. Tr. 153:1223. Dr. Sawyer's experience as a toxicologist includes five years of service for the New York Department of Public Health. That work included both running a clinical environmental laboratory for the State of New York and also conducting community health assessments in areas where environmental contamination had become a health concern. Tr. 153:1224. Throughout his career, Dr. Sawyer has studied the health effects of chemicals including the dioxin-like compounds and heavy metals at issue in this case. Tr. 153:1225-26. As a toxicologist who is not a medical doctor, Dr. Sawyer does not diagnose disease or recommend treatment for patients. Rather, "[m]y area is determination of cause once the diagnosis is made." Tr. 153:1226.

As an initial step in Dr. Sawyer's causation evaluation of Mr. Strong, he determined Mr. Strong's relevant exposures and dose. Dr. Sawyer gathered and synthesized information from many sources to calculate a total "additional dioxin dose," representing Mr. Strong's dose of dioxin that was specifically released from the DuPont facility, which was additive of Mr. Strong's dioxin dose from all other sources. This synthesis required Dr. Sawyer to make use of all of the above-described test data from Dr. Elston (St. Louis Bay oyster dioxin levels), Dr. O'Connor (Mr. Strong's household dust dioxin levels), and Dr. Clapp (Mr. Strong's blood serum dioxin levels), together with information from Dr. Sawyer's personal interviews with the Strongs regarding Mr. Strong's lifestyle, diet, habits, etc. *See* Pl. Ex. 50 (Environmental and Occupational Exposure Assessment); Pl. Ex. 121 (Blow Up of "Direct Exposure Assessments"); Pl. Ex. 122 (Blow Up of "Indirect Exposure Assessment"). Like Dr. Clapp, Dr. Sawyer also reviewed the medical and scientific literature relating to any possible association between dioxin exposure and multiple myeloma.[11] Finally, Dr. Sawyer

[11] At trial, unlike Dr. Clapp, Dr. Sawyer did not extensively discuss his opinions regarding "general causation," that is, the extent to which exposures to dioxins are capable of causing multiple myeloma in general. Nonetheless, Dr. Sawyer independently reviewed the literature on this subject and reached his own opinion, to a reasonable degree of scientific certainty, that dioxin exposure can

reviewed Mr. Strong's personal and medical histories to apply the generally-accepted method of "differential diagnosis," also known as "differential etiology," to determine whether any other probable causes for Mr. Strong's cancer existed, such as Mr. Strong's smoking history. Tr. 153:1264.

Having determined that: 1) dioxin exposure has been associated with statistically significant increases of multiple myeloma (suffered by Glen Strong); 2) Mr. Strong has been exposed to dioxin from the DuPont facility significantly in excess of background levels; and 3) no other probable cause existed to explain any of those three cancers, Dr. Sawyer concluded that exposure to dioxin released from the DuPont facility was a substantial contributing factor causing Mr. Strong's multiple myeloma. Tr. 153:1263. Importantly, based on Dr. Sawyer's review of the extensive body of epidemiological literature studying the effects of smoking, Dr. Sawyer determined that smoking is not a cause of multiple myeloma. "There are no smoking studies that show an increased prevalence of multiple myeloma." Tr. 153:1263. Dr. Sawyer also concluded that Mr. Strong's exposures to chromium, arsenic, and nickel from the DuPont facility caused gene disruptions that helped promote the carcinogenic process caused by the dioxin exposure. All of Dr. Sawyer's methods used for assessing general and specific causation of Mr. Strong's multiple myeloma have been both tested and generally accepted in the field of toxicology. Tr. 153:1226.

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cause multiple myeloma in humans. Tr. 153:1228; R.19373 (Sawyer Daubert Affidavit).

SUMMARY OF THE ARGUMENT

Because Plaintiffs' causation experts employed sound, generally-accepted methods for reaching their opinions, the trial court acted within its broad discretion in admitting both the general causation testimony of epidemiologist Dr. Richard Clapp and the general causation and specific causation testimony of toxicologist Dr. William Sawyer. Indeed, DuPont fails to challenge or even discuss either causation expert's methodology in any analytical detail.

The trial court also acted within its discretion in entering discovery sanctions against DuPont by striking certain witnesses' testimony. The court's sanctions order was supported by a lengthy recitation of factual findings showing, among other things, "a systematic design to abuse the discovery process in an effort to delay the trial of this matter and to deprive the Plaintiffs of the opportunity afforded to them under the Mississippi rules to discover both the substance and nature of DuPont's witnesses and the content of DuPont's discoverable documents." DuPont has failed to show that any of the trial court's findings are manifestly erroneous, or that the court abused its discretion by entering sanctions on the basis of those findings.

Finally, DuPont has failed to demonstrate that the trial court abused its discretion with respect to any of the various evidentiary rulings or other miscellaneous complaints regarding the court's conduct of the trial.

ARGUMENT

Repeating a consistent pattern that DuPont has followed throughout the course of this litigation, DuPont's arguments in this appeal again seek to blame others for the results of their own misconduct and mistakes. Without arguing that any of the trial court's findings of fact in support of the court's discovery sanctions were manifestly erroneous, DuPont nonetheless suggests that the discovery abuses chronicled in the trial court's findings were somehow the result of an elaborate plan

of entrapment by the Strongs' attorneys and the trial court itself. Similarly, DuPont complains that the trial court's sanctions order crippled its ability to defend itself, while failing to acknowledge that the company made a conscious decision to fail to mount *any* defense at trial. Along the same vein, despite the fact that DuPont's DeLisle facility is the number two producer of dioxins in the United States, topped only by another DuPont titanium dioxide facility, DuPont has no qualms in suggesting that Glen Strong's own elevated dioxin levels are the result of his cigarette smoking. And despite the fact that the record here reflects that no epidemiology study has ever found that smoking elevates the risk of multiple myeloma, DuPont has blamed Mr. Strong's disease on smoking as well. Just as, at trial, DuPont suggested that elevated dioxin levels in seafood and sediment in the nearby St. Louis Bay were the result of backyard burning and automobile exhaust, despite the fact that the DeLisle facility sits on the shores of the Bay and the highest levels of contamination found were at the facility's outfall.

In the trial of Mr. Strong's case, the jury saw through DuPont's efforts to point the finger of blame elsewhere, and that jury rendered a verdict holding DuPont responsible for the misconduct that the record evidence here clearly demonstrates was a cause of Mr. Strong's cancer. Because the trial court committed no error in allowing the jury to hear that evidence, this Court should uphold that jury's decision to hold DuPont accountable.

I. BECAUSE THE TRIAL COURT DID NOT ABUSE ITS DISCRETION IN ADMITTING THE GENERAL AND SPECIFIC CAUSATION TESTIMONY BY DR. CLAPP AND DR. SAWYER, AMPLE EVIDENCE OF CAUSATION EXISTS TO SUPPORT THE JURY'S VERDICT.

Contrary to DuPont's contentions, the record contains ample evidence to support the jury's determination that Mr. Strong's injuries were caused by exposures to carcinogenic materials released from the DuPont facility. DuPont argues that the Strongs failed to present any admissible evidence

of either "general causation" – that exposures to dioxins and heavy metals are capable of causing multiple myeloma generally – or "specific causation" – that Mr. Strong's individual exposures to dioxins and heavy metals released from the DuPont facility were a substantial contributing factor leading to the development of his specific cancer. DuPont Br. at 20-27.

In considering the trial court's denial of a motion for judgment notwithstanding the verdict, this Court must "view the evidence in the light most favorable to the non-moving party and look only to the sufficiency, and not the weight of the evidence." *Wilson v. General Motors Acceptance Corp.*, 833 So.2d 56, 63 (Miss. 2004). Obviously, if the trial court properly admitted the Strongs' expert testimony by Drs. Clapp and Sawyer with respect to causation, then the evidence viewed in its most favorable light to the Strongs clearly supports the jury's verdict. Because the trial court acted well within its broad discretion to admit that expert causation testimony, DuPont's argument regarding the insufficiency of the Strongs' causation evidence fails.

A. Standard of Review.

The standard of review governing the admission or suppression of evidence is abuse of discretion. *Haggerty v. Foster,* 838 So.2d 948, 958 (Miss.2002). The admission of expert testimony is addressed to the sound discretion of the trial judge. *Roberts v. Grafe Auto Co.,* 701 So.2d 1093, 1098 (Miss.1997). Unless the Court concludes that the discretion was arbitrary and clearly erroneous, amounting to an abuse of discretion, that decision will stand. *Id.* (citing *Seal v. Miller,* 605 So.2d 240, 243 (Miss.1992). *See also Poole v. Avara*, 908 So.2d 716, 721 (Miss. 2005) (same).

B. The Trial Court Acted Within Its Discretion In Admitting Plaintiffs' Expert Causation Testimony.

1. Under the modified *Daubert* standard adopted by this Court in *Mississippi Transportation Commission v. McLemore,* the trial court's gatekeeping function is limited to assessing the reliability of expert methodology, rather than second-guessing expert conclusions.

In *Mississippi Transportation Commission v. McLemore*, 863 So.2d 31 (Miss. 2003), this Court replaced the longstanding "Frye" "general acceptance" standard for admissibility of expert testimony with a "modified" version of the "reliability" analysis established in *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993). Under Mississippi Rule of Evidence 702, expert testimony must satisfy a two-pronged test for admissibility: "First, the witness must be qualified by virtue of his or her knowledge, skill, experience or education. Second, the witness's scientific, technical or other specialized knowledge must assist the trier of fact in understanding or deciding a fact in issue." *McLemore*, 863 So.2d at 35 (internal citations omitted). Based on a recent change in the comments to Rule 702, the *McLemore* court determined that the determination of whether expert testimony will "assist the trier of fact" should be assessed using the *Daubert* framework, as modified by subsequent federal decisions.

Under the *Daubert* approach, the trial court acts as a "gatekeeper" to ensure that any expert testimony admitted in evidence is based on opinions and conclusions reached through reliable methods. Critically, however, "[t]he focus of this analysis 'must be solely on principles and methodology, not on the conclusions they generate.'" *McLemore*, 863 So.2d at 36-37 (quoting *Daubert*, 509 U.S. at 595). The essence of the trial court's *Daubert* function is to determine whether the expert's opinion falls within the range of rational scientific discourse – *not* to determine whether the expert's conclusions are either proven or correct – that function still belongs to the jury. Good scientists, like good lawyers, disagree with one another with tremendous frequency. Merely because

two scientists have reached opposite conclusions on the same issue does not mean that either of them used unreliable or unscientific methods to reach their opinions. To the extent an expert conclusion may be weakly supported but still reached through reliable methodological principles, courts should not exclude the evidence. Instead, they should permit the parties to rely on the "traditional and appropriate means" for revealing such weakness to the jury: "[v]igorous cross examination, presentations of contrary evidence, and careful instruction on the burden of proof." *McLemore*, 863 So.2d at 36 (quoting *Daubert*, 509 U.S. at 595-96); *Poole v. Avara*, 908 So.2d 716, 724 (Miss. 2005); *see also Primrose Operating Co. v. National Am. Ins. Co.*, 382 F.3d 546, 562 (5th Cir. 2004) ("It is the role of the adversarial system, not the court, to highlight weak evidence").

In United States Supreme Court Justice Stephen Breyer's introduction to the Federal Judicial Center's REFERENCE MANUAL ON SCIENTIFIC EVIDENCE, he describes the story of a physicist who was asked if a certain scientific paper was wrong. The physicist replied that "That paper isn't good enough to be wrong!" According to Breyer, it is only *this* type of science that trial courts may properly exclude from evidence. Stephen Breyer, *Introduction*, *in* REFERENCE MANUAL ON SCIENTIFIC EVIDENCE 1, 4 (2d ed. 2000).

Contrary to the views of some judges and litigants, application of proper scientific methods does not generate a single correct result. This general truism certainly applies in the area of assessment of causation in a toxic tort case. As the currently-approved draft of the American Law Institute's RESTATEMENT (THIRD) ON TORTS describes:

> scientists report that an evaluation of data and scientific evidence to determine whether an inference of causation is appropriate requires judgment and interpretation. Scientists are subject to their own value judgments and preexisting biases that may affect their view of a body of evidence. There are instances in which although one scientist or group of scientists comes to one conclusion about factual causation, they recognize that another group that comes to a contrary conclusion might still be "reasonable." Judgments about causation may also be affected by the comparative

> costs of errors, as when caution counsels in favor of declaring an uncertain agent toxic because the potential harm it may cause if toxic is so much greater than the benefit foregone if it were permitted to be introduced. Courts, thus, should be cautious about adopting specific "scientific" principles, taken out of context, to formulate bright-line legal rules or conclude that reasonable minds cannot differ about factual causation.

American Law Institute, Proposed Final Draft No.1: Restatement (Third) of Torts: Liability for Physical Harm § 28, comment c, at 484 (May 2005).[12]

Daubert suggested a set of factors for courts to consider when assessing whether a particular expert's methods are reliable. "These factors include whether the theory or technique can be and has been tested; whether it has been subjected to peer review and publication; whether, in respect to a particular technique, there is a high known or potential rate of error; whether there are standards controlling the technique's operation; and whether the theory or technique enjoys general acceptance within a relevant scientific community." *Id.* (citing *Daubert*, 509 U.S. at 592-94). Nonetheless, both the federal courts and this Court have heavily emphasized that those factors cannot properly be applied to all types of expert testimony, and that the admissibility inquiry requires a "flexible approach." "The applicability of these factors depends on the nature of the issue, the expert's particular expertise, and the subject of the testimony." *McLemore*, 863 So.2d at 37 (quoting *Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 151 (1999)).

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[12] At the 2005 annual meeting, the full membership of the ALI approved the Proposed Final Draft No. 1, with respect to section 28, comment c, entitled "Toxic substances and disease," for inclusion in the third Restatement of Torts. *See* "Actions Taken with Respect to Drafts Submitted at the 2005 Annual Meeting," available at: www.ali.org. Because other draft sections of the Third Restatement of Torts have not yet been approved, the full and final version of the Restatement has not yet been published.

2. The trial court acted within its discretion in admitting expert testimony establishing "general causation."

Although DuPont purports to rely on *McLemore* as its basis for arguing that the trial court should have excluded the "general causation" testimony of the Strongs' expert epidemiologist, Dr. Richard Clapp, the company completely fails to apply any meaningful *Daubert* analysis of Dr. Clapp's methods for reaching his opinion. Indeed, DuPont does not argue that Dr. Clapp's method of reviewing the body of published scientific literature relating to the health effects of dioxin exposures is in any way inappropriate or unreliable. Instead, DuPont contends that Dr. Clapp's testimony was inadmissible because the language of the many dioxin studies that he reviewed and relied upon failed to contain words that DuPont attempts to impart with magical significance. [redacted] DuPont Br. at 21. This argument is ridiculous.

[redacted] 151:1024-25. Such language is inconsistent with how the science of epidemiology is practiced, and, "in fact, editors make you take that kind of language out usually." Tr. 152:1083. Searching for such magical causation language in epidemiology studies is a fool's endeavor because the science of epidemiology seeks to determine causation from statistical associations, which are the subject of any given study. "[E]pidemiology cannot objectively prove causation; rather, causation is a judgment for epidemiologists and others interpreting the epidemiologic data." Federal Judicial Center, REFERENCE MANUAL ON SCIENTIFIC EVIDENCE (hereinafter "REFERENCE MANUAL") at 374 (2d ed. 2000). "Almost all genres of research articles in

the medical and behavioral sciences conclude their discussion with qualifying statements such as 'there is still much to be learned.' This is not, as might be assumed, an expression of ignorance, but rather an expression that all scientific fields are open-ended and can progress from their present state ..." *Berry v. CSX Transportation, Inc.*, 709 So.2d 552, 568 n.12 (Fla. Ct. App. 1998).

Rather than searching for magical words, Dr. Clapp properly applied the generally-accepted method of assessing the weight of the available evidence to determine whether dioxins are capable of causing multiple myeloma. In the course of that review, Dr. Clapp considered and applied epidemiologist Sir Austin Bradford Hill's list of "viewpoints" or "factors" for making an inference of causation. R.19130(Clapp Daubert affidavit at ¶10). [redacted] Importantly, however, use of this method in no way ensures that two scientists will reach the same "correct" conclusion about causation:

> Whether an inference of causation based on an association is appropriate is a matter of informed judgment, not scientific methodology, as is a judgment whether a study that finds no association is exonerative or inconclusive. No algorithm exists for applying the Hill guidelines to determine whether an association truly reflects a causal relationship or is spurious. Because the inferential process involves assessing multiple unranked factors, some of which may be more or less appropriate with regard to a specific causal assessment, judgment is required.

American Law Institute, Proposed Final Draft No.1: Restatement (Third) of Torts: Liability for Physical Harm § 28, comment c, at 489 (May 2005) .

Besides failing to criticize Dr. Clapp's methods, DuPont's argument also fails to address in any meaningful way the studies upon which Dr. Clapp relied for his conclusions. According to DuPont, "Clapp reinterpreted isolated studies suggesting weak associations" and "relied on weak studies while ignoring stronger studies that found no relevant associations." DuPont Br. at 21. Nonetheless, DuPont's brief itself contains *no* discussion of either the studies upon which Dr. Clapp

has relied or any other studies. [redacted]

The record here demonstrates that many of the peer-reviewed, published studies upon which Dr. Clapp has relied show that dioxin-exposed individuals are at increased risk for developing multiple myeloma specifically. Tr. 151:962-73. [redacted]

DuPont does not even argue that Dr. *Sawyer's* conclusion regarding general causation should have been excluded by the trial court. Like Dr. Clapp, Dr. Sawyer also reviewed the available body of epidemiology and other scientific evidence to reach his own independent opinions regarding whether dioxins may cause multiple myeloma. Tr. 153:1228; R 19373 (Sawyer Daubert Affidavit). Although DuPont challenges Dr. Sawyer's competence to testify regarding *specific* causation on the basis that he is not a medical doctor, the company does not suggest that a toxicologist is incompetent to reach an opinion on general causation. *See* DuPont Br. at 24 (distinguishing between a toxicologist's competence to testify regarding general and specific causation).

In any event, far more scientific evidence exists in this record to support Dr. Clapp's opinions regarding general causation than existed to support the admission of the expert causation testimony at issue in this Court's decision in *Poole v. Avara*, 908 So.2d 716 (Miss. 2005). In *Poole*, this Court

affirmed the trial court's decision to admit testimony by a medical doctor who opined that a patient's sutures were torn during cardiopulmonary resuscitation, rather than in a different medical procedure. There, the expert could not point to any medical literature showing that CPR is capable of causing the kind of suture tear that he determined occurred in that case. Nonetheless, this Court determined that the expert's testimony should survive scrutiny under the *McLemore* standard:

> Certainly the witnesses' testimony here is not mere conjecture akin to astrology or something of the sort; the testimony is a medical opinion on what caused the suture to tear open. Whether CPR actually tore open the suture is not entirely certain. Requiring that the subject of expert testimony be known to a certainty is not necessary either, however, because, as the *Daubert* Court pointed out, "there are no certainties in science."

Poole, 908 So.2d at 723-24.

3. The trial court acted within its discretion in admitting the specific causation testimony of Dr. Sawyer.

As it did with respect to Dr. Clapp, in arguing against the admissibility of Dr. Sawyer's testimony regarding specific causation, DuPont again fails to discuss or analyze the methods he used in reaching his opinions. DuPont Br. at 22-27. Instead, DuPont insists that Dr. Sawyer lacks competence to testify about specific causation because he is merely a toxicologist, and not a medical doctor. *Id.* at 22-24. Contrary to DuPont's argument, this Court has held on multiple occasions that non-medical doctors may testify regarding medical causation when they have technical knowledge or experience that will assist the trier of fact in understanding the issue. *See General Motors Corp. v. Myles*, 905 So.2d 535, 542-43 (Miss. 2005) (reversing trial court decision to exclude toxicologist's testimony that a driver's intoxication caused a car accident); *Wyeth Laboratories, Inc. v. Fortenberry*, 530 So.2d 688, 690 (Miss. 1988) (affirming trial court's decision to admit expert testimony by a biochemist that a vaccine caused the plaintiff's illness); *Thompson v. Carter*, 518 So.2d 609 (Miss. 1987) (affirming trial court's decision to permit a toxicologist to testify regarding causation). As this

Court stated in *Thompson*, "It is certain and probable that Ph.D. biochemists and toxicologists are at least equally competent to testify as to the cause and effect of chemicals in our environment as medical doctors." 518 So.2d at 614.

DuPont attempts to distinguish *Thompson* on the supposed basis that *Thompson* did not involve evaluation of "specific causation." DuPont Br. at 24. This is simply wrong. Although this Court did not differentiate between "specific causation" and "general causation" in the *Thompson* opinion, from context it is apparent that the plaintiff in that case offered the testimony of a toxicologist to support both general and specific causation in her allegation that a doctor's negligently prescribed drug caused her injuries. [redacted]

DuPont further argues that, because Dr. Sawyer's analysis involved application of a "differential *diagnosis*," and Dr. Sawyer admitted that he did not "diagnose" patients, that he is unqualified to render an opinion. DuPont Br. at 23. This argument is nothing more than semantic smoke and mirrors. Because Dr. Sawyer is not a medical doctor, he does not diagnose patients in the sense of identifying what disease or problems they may have and recommending a course of treatment for that disease. Tr. 153:1226. However, as part of the generally-accepted method for evaluating specific causation in a toxic exposure case, Dr. Sawyer certainly undertook an effort to perform a "differential diagnosis" in the sense that he sought to determine the extent of any contribution to the cause of Mr. Strong's myeloma by other factors besides Mr. Strong's exposures to dioxins and heavy metals from DuPont. Used in this context, "diagnosis" does not refer to identification of disease – which is unquestionably a job for a medical doctor. Indeed, in the context of causation analysis as applied by Dr. Sawyer, "differential diagnosis" is a misnomer:

> Courts frequently refer to the elimination of other known causes for a plaintiff by

> employing the medical terminology of "differential diagnosis." The logic is sound, but the terminology and attribution are not. Assessing whether other causes can be ruled out (or in) as potential causes of a plaintiff's disease can provide probative evidence of specific causation. This technique is more accurately described as a "differential *etiology*."

American Law Institute, Proposed Final Draft No.1: Restatement (Third) of Torts: Liability for Physical Harm § 28, comment c, at 493 (May 2005) (italics added).

In this case, there is no dispute about whether Glen Strong developed multiple myeloma, which is his "diagnosis." The dispute here is about the *cause*, or etiology, of that disease, which is exactly the area of expertise that Dr. Sawyer and other toxicologists are trained to consider. Tr. 153:1226 ("[m]y area is determination of cause once the diagnosis is made"). DuPont's suggestion that Dr. Sawyer's toxicology background renders him unqualified to apply a "differential diagnosis" gets the issue precisely backward. As a toxicologist, Dr. Sawyer is *better* qualified to assess causation than most treating physicians, who undergo very little training about assessing causation. Tr. 151:944-45; Tr. 153:1219.

Finally, DuPont contends that Dr. Sawyer's testimony should have been excluded by the trial court based on alleged "self-contradictions" that rendered the testimony "unworthy of belief." DuPont Br. at 25-27. [redacted] Such arguments were the subject of extensive cross-examination of Dr. Sawyer by defense counsel and arguments in closing, and the jury chose to disregard them. *See* Tr. 153:1330-40 (cross-examination); Tr. 156:1660 (closing argument). Moreover, DuPont has waived any such arguments here by failing to raise them before the trial court as grounds for excluding Dr. Sawyer's testimony. Although DuPont filed a motion to exclude Dr. Sawyer's testimony before the trial, that motion contained no mention of Dr.

Sawyer's opinions regarding cigarette smoking, which is the basis for DuPont's "self-contradictions" argument asserted here. R. 10624 (DuPont's motion to exclude Dr. Sawyer). Under MISS. R. EVID. 103(a)(1), a party waives appellate error by failing to state the "specific ground of objection" in a timely manner. *Oates v. State*, 421 So.2d 1025, 1030 (Miss. 1982).

In any event, Dr. Sawyer's opinion that cigarette smoking was not a substantial factor in Mr. Strong's development of multiple myeloma rests on solid ground. In the hundreds of published epidemiological studies regarding the health effects of smoking, "[t]here are no smoking studies that show an increased prevalence of multiple myeloma." Tr. 153:1263. Moreover, although cigarettes contain an extremely small quantity of dioxin, such amounts are "inconsequential" in relation to dioxin doses received through diet and industrial pollution sources. Tr. 153:1331; 1357-58.

II. THE TRIAL COURT ACTED WITHIN ITS DISCRETION IN SANCTIONING DUPONT FOR ITS DISCOVERY ABUSES.

In August 2005, this Court denied review of DuPont's petition for interlocutory appeal from the trial court's sanctions order striking certain expert witnesses, stating "[t]he Court finds that the trial court granted the motion to strike these witnesses as a sanction for petitioner's prior abuse of the discovery process." R. 20224. This remains just as true today as it was in the summer of 2005.

In *Mississippi Farm Bureau Mutual Insurance Co. v. Parker,* 921 So.2d 260, 265 (Miss. 2005), this Court emphasized that trial judges have extremely broad discretion in the area of assessing sanctions for discovery abuses:

> if parties and attorneys persist in their obstinate refusal to cooperate to the extent that they insist in every case "to let the judge decide," then it is our trial judges, and not this Court, which need to resolve these pre-trial issues. Our trial judges are charged with this responsibility and are in a much better position to resolve all pre-trial issues, including discovery, and it is not, and should not, be part of our mandated appellate review, to resolve such issues. This was not the reason M.R.A.P. 5 was judicially enacted by this Court. Our trial judges are likewise in a much better position to decide which parties and/or lawyers need to be sanctioned for their behavior, and our trial

judges should unhesitatingly exercise this inherent power and authority.

Here, the trial court entered sanctions for a wide variety of discovery abuses chronicled in its sanctions order of August 9, 2005, which incorporates a lengthy list of factual findings in support of the trial court's sanctions. This Court must review the trial court's findings of fact under the highly deferential "manifest error" standard. *Illinois Central R.R. Co. v. Samson*, 799 So.2d 20, 21 (Miss. 2001)("A circuit court judge sitting without a jury is accorded the same deference with regard to his findings as a chancellor, and his findings are safe on appeal where they are supported by substantial, credible, and reasonable evidence."); *see also Mosley v. Mosley*, 784 So.2d 901, 903 (Miss. 2001)("The word 'manifest,' as defined in this context, means 'unmistakable, clear, plain, or indisputable.'") (quoting *Black's Law Dictionary*). The sanctions at issue here were entered as a result of an array of conduct by DuPont, taking place over the course of many months, and "demonstrat[ing] a systematic design to abuse the discovery process in an effort to delay the trial of this matter and to deprive the Plaintiffs of the opportunity afforded to them under the Mississippi rules to discover both the substance and nature of DuPont's witnesses and the content of DuPont's discoverable documents." R. 18284 at ¶6. Unless DuPont can show that the trial court's other factual findings are manifestly erroneous, which the company has clearly failed to do, then this Court lacks any basis for determining that the trial court abused its discretion in entering the sanctions Order of August 9, 2005.

Although the culmination of events leading to the Court's sanctions of August 9, 2005 was the failure of nine DuPont witnesses to appear for their court-ordered depositions, those sanctions are based not only on the non-appearance of those witnesses, but also on a panoply of other discovery abuses, delay tactics, and misrepresentations to the Court by DuPont. Thus, the trial court ordered the August 9, 2005 sanctions not only under its authority vested by Miss. R. Civ. P. 37(b), for

violation of a specific court order, but also under its broad authority to police "abuses" of the discovery process under Miss. R. Civ. P. 37(e), its similarly broad authority to "protect the integrity of its processes" under Miss. R. Civ. P. 11, and its inherent authority to manage both its own docket and the conduct of counsel appearing before the Court. The most relevant findings of the trial court in support of its sanctions are described above in the "Procedural History" section of the Statement of the Case and need not be repeated here. Suffice to say that the trial court found that DuPont had undertaken an intentional course of action over many months that was designed to undermine the discovery process and delay the originally-scheduled trial date for the Strongs' case. Such findings clearly support imposition of drastic sanctions.

DuPont's various excuses for failing to ensure that its witnesses appeared at their court-ordered depositions in no way undercut the trial court's authority to strike the testimony of those witnesses. The trial court expressly gave Plaintiffs' counsel the unilateral authority to schedule those depositions as a *sanction* for DuPont's prior misconduct. Moreover, the trial court specifically found that the unilateral scheduling provision was necessary and appropriate in order "to avoid any further delays in depositions occasioned by additional scheduling excuses similar to those that had been advanced by DuPont earlier in the case." R.18285 at ¶8. DuPont sought to eliminate the scheduling provision of the sanctions order, by filing a request for reconsideration with the trial court and a petition for interlocutory appeal with this Court, both of which were denied. Although the court-ordered scheduling provision thus remained in place, DuPont nonetheless failed to ensure that nine of its witnesses complied with the order. Now, for a second time, DuPont asks this Court to exculpate not only their non-compliance with the first sanctions order, but also all of their other sanctionable conduct, merely on the basis of a wide variety of excuses and DuPont's offer to present the same witnesses for deposition at some other date. Enough is enough. "Our trial judges ... have

a right to expect compliance with their orders, and when parties and/or attorneys fail to adhere to the provisions of these orders, they should be prepared to do so at their own peril." *Bowie v. Montfort Jones Memorial Hosp.*, 861 So.2d 1037 (Miss. 2003).

Finally, this Court should note that DuPont's characterization of the trial court's sanctions as a "death penalty" sanction is vastly overblown. The trial court struck nine witnesses, including eight experts. This left DuPont with a wide variety of available fact witnesses, and several designated experts. For whatever reason, DuPont chose not to call *any* of its own witnesses in its defense during the first phase of the trial. DuPont should not now be entitled to benefit from its own decision to fail to present any defense when that decision was not forced on the company by the trial court.

[redacted]

DuPont's argument that the trial court reversibly erred in admitting the affidavit testimony of Mr. Strong's treating physicians fails because the substance of those doctors' affidavits simply repeats their deposition testimony that was already before the jury. The affidavits of Dr. Sergio Giralt and Dr. Donna Weber stated that they had no opinion regarding the cause of Mr. Strong's multiple myeloma, and that they had not attempted to determine its cause. Pl. Ex. 477 and Pl. Ex. 478. This affidavit testimony was not only consistent with their deposition testimony played to the jury, it was cumulative of that testimony. The only purpose of the affidavits was to collect the most relevant statements of those physicians with respect to causation in a single place, rather than in various spots throughout their depositions.

For example, in the deposition of Dr. Weber, she stated that she had no opinion "as to whether or not dioxin exposure can cause multiple myeloma." Ex. 511-D at 24:9-11. Similarly, Dr. Giralt testified in his deposition that he would defer with respect to causation issues to an

epidemiologist, toxicologist "or persons who have made it their research interest to look into this in ways which are scientifically valid with respect to causation issues." Pl. Ex. 481 at 53:14-54:1. Dr. Giralt also emphasized at his deposition that he had done no research into the causation of multiple myeloma. *Id.* at 54:2 - 54:5.

Because the substance of their affidavits was completely consistent with the doctors' prior deposition testimony, the trial court was within its discretion in admitting the affidavits pursuant to Miss. R. Evid. 804(b)(5), which provides for a hearsay exception based on "equivalent circumstantial guarantees of trustworthiness" as the other hearsay exceptions set out in the rules of evidence. Given that the deposition testimony of Dr. Giralt and Dr. Weber was admissible "former testimony" under Miss. R. Evid. 804(b)(1), and the affidavits corroborated that same testimony, the trial court acted within its discretion in determining that the affidavits had "equivalent circumstantial guarantees of trustworthiness" as if the affidavits had been part of the depositions.

However, even if this Court determines that the affidavit testimony fails to meet all of the requirements of Miss. R. Evid. 804(b)(5) and therefore should have been excluded, DuPont has no basis for contending that any such error was harmful. Under Miss. R. Evid. 103(a), "[e]rror may not be predicated upon a ruling which admits or excludes evidence unless a substantial right of the party is affected...." Improperly admitted testimony that is merely cumulative of properly admitted testimony is not harmful of any substantial right. *See West v. Sanders Clinic for Women, P.A.*, 661 So.2d 714, 720 (Miss. 1995). Here, at worst, the affidavits of Drs. Weber and Giralt were cumulative of their deposition testimony, which already established that they lacked any opinions or expertise with respect to the cause of Mr. Strong's multiple myeloma. Moreover, even if the affidavits had *not* repeated prior deposition testimony, it is difficult to understand how admission of testimony describing the *lack* of an opinion constitutes reversible error.

IV. THE TRIAL COURT ACTED WITHIN ITS DISCRETION WITH RESPECT TO DUPONT'S OTHER COMPLAINTS.

A. Jim Tarr's Testimony Regarding His Experiences with Regulatory Agencies Was Relevant and Admissible.

DuPont complains that the trial court admitted testimony by the Strongs' environmental engineering expert, Jim Tarr, relating to Mr. Tarr's extensive experience over the course of 30 years in working with regulatory agencies and observing the behavior of those agency's employees. The testimony that DuPont now complains was inadmissible "character evidence" under Miss. R. Evid. 404(b) described Mr. Tarr's experience that employees of regulatory agencies can often be intimidated by major corporations, and also noted that, in Mr. Tarr's experience, regulatory agencies rarely know all of the information that is available in a company's internal documents. Tr. 149:682-85.

First, DuPont waived any objection on the basis that Mr. Tarr's testimony constituted improper "character evidence" by failing to point out that specific objection to the trial court at the time of the testimony. DuPont objected to the line of testimony now at issue on the basis that it involved speculation and hypothetical situations. At no point during either Mr. Tarr's testimony or the subsequent motion for mistrial did DuPont's counsel suggest that the testimony was inadmissible under Miss. R. Evid. 404(b) or that the testimony constituted improper "character evidence."

Second, nothing in Mr. Tarr's testimony could be construed as "character evidence" because none of it purported to discuss DuPont specifically or any prior bad acts by DuPont or any of its representatives. If anything, Mr. Tarr was describing "past bad acts" by employees of regulatory agencies in general. He did not accuse DuPont of any past crime or any intentional intimidation or fraud before a regulatory agency. Rather, Mr. Tarr simply opined that, based on his experience, employees of regulatory agencies are intimidated by the mere size and perceived power of a

corporation such as DuPont, and that this intimidation (which does not depend on any improper conduct by the corporation at issue) influences regulatory decision-making. "Absent other grounds to exclude, an expert's testimony is presumptively admissible when relevant and reliable." *McLemore,* 863 So.2d at 39. Mr. Tarr's testimony was clearly relevant to the issue of why any excessive releases by DuPont had not been identified and stopped by regulatory agencies with authority over the DuPont DeLisle facility, and the testimony was reliable in light of Mr. Tarr's extensive experience in dealing with such agencies, and his direct experience as an employee of a regulatory agency. Tr. 149:678-79.

B. The Trial Court Acted Within Its Discretion in Admitting Dr. Clapp's Testimony Regarding the Veteran's Administration's Position as to the Compensability of Multiple Myeloma Claims by Vietnam Veterans Exposed to Dioxin in Agent Orange.

Given the hotly-contested issue of whether dioxin exposure is capable of causing multiple myeloma, DuPont's suggestion that a determination of causation by a federal agency is not relevant to the case is puzzling. Dr. Clapp opined that the Veteran's Administration and/or Congress based its compensability determination on the weight of the available scientific evidence, just as Dr. Clapp himself did, and DuPont has offered no evidence that Dr. Clapp is incorrect. Tr. 151:961-62. Indeed, Dr. Clapp testified that he was consulted by the federal government with respect to its determination to make multiple myeloma a compensable disease under the program. *Id.* Regardless of whether that decision was made by Congress or by the Veteran's Administration, the record here is clear that the government's decision was based on the weight of the scientific evidence, which makes that decision directly relevant to this case.

C. The Trial Court Acted Within Its Discretion in Permitting Dr. O'Connor To Testify Regarding the Relative Toxicity of Various Dioxin-Like Compounds.

The trial court acted well within its discretion in permitting the Strongs' chemist, Dr. Rod O'Connor, to discuss the relative toxicity of various types of dioxins and dioxin-like compounds. In the testimony at issue, Dr. O'Connor explained that all of the various congeners of dioxin-like compounds are toxic, but that some are far more potent than others. Thus, he analogized the most toxic congener, TCDD, to an "atomic bomb," relative to other congeners, which, in that context, would be more akin to "car bombs" or "hand grenades." Tr. 150:831-33. Despite DuPont's complaint to the contrary, this testimony clearly falls within both Dr. O'Connor's designation and his qualifications as a chemist. Dr. O'Connor's designation provides: "Dr. O'Connor will testify regarding Plaintiffs' exposure to chemical carcinogens and toxic contaminants emitted by Defendants, the levels of the chemical carcinogens and toxic contaminants found in Plaintiffs' house dust, soil and water, and any and all other areas set forth in his curriculum vitae. Dr. O'Connor will also comment on and testify regarding the opinions of Defendants' experts." R. 3617 (Plaintiffs' Designation of Expert Witnesses). Testimony describing "the levels of the chemical carcinogens in Plaintiffs' house dust, soil and water" necessarily requires discussion of the relative toxicity of different dioxin-like compounds. Because environmental samples of mixtures of dioxin-like compounds are measured in terms of those compounds' relative toxicities, experts in sampling for such compounds, such as Dr. O'Connor, necessarily must be well-versed in the lexicon of "Toxic Equivalency Factors" and TEQs. *See, e.g.*, Pl. Ex. 113 (setting out the Strongs' household dust dioxin levels in terms of TEQ).

As for the supposedly prejudicial nature of the analogy chosen by Dr. O'Connor to describe the relative toxicity of the various dioxins, he in no way suggested that TCDD exposure is radioactive or explosive. DuPont's suggestion that the jury was incapable of understanding the simple analogy

for purposes of assessing relative toxicity is insulting to the members of the jury.

D. The Trial Court Acted Within Its Discretion in Admitting the Testimony of Former DuPont Employee Victor Hawkins.

Finally, DuPont complains that the trial court abused its discretion in admitting certain testimony by former DuPont employee Victor Hawkins with respect to injuries he incurred at work on occasions that involved a release of toxic chemicals from the facility. Obviously, the import of Mr. Hawkins' testimony was primarily with respect to the fact that such releases of toxic chemicals occurred, rather than any injuries he incurred during those events. Nonetheless, both for context and for purposes of assessing Mr. Hawkins' recollection and credibility, his brief testimony relating to those injuries was relevant. To the extent Mr. Hawkins suffered an injury during an incident involving a toxic release, the jury would be more likely to believe that he recalled the specifics of the incident because of its personal significance to him. Moreover, Mr. Hawkins' testimony regarding preparing for plant inspections was directly relevant to establishing a pattern, practice, or habit of DuPont of avoiding regulatory oversight.

E. The Trial Court Correctly Refused Instruction D-10.

The trial court correctly refused Defendants' proposed jury instruction D-10, which would have improperly injected the "frequency, regularity, and proximity" standard adopted by this Court for summary judgment in asbestos cases into a wholly inapposite context. On review of a decision by the trial court to refuse or grant a jury instruction, this Court examines the instructions as a whole. "Defects in [a] specific instruction do not require reversal where all instructions taken as a whole fairly – although not perfectly – announce the applicable primary rules of law." *Busick v. St. John*, 856 So.2d 304, 310 (Miss. 2003) (quoting *Smith v. Payne*, 839 So.2d 482, 488 (Miss.2002)).

Despite the fact that this Court adopted the "frequency, regularity, and proximity" summary

judgment standard in asbestos cases, that standard does not mandate adoption of a jury instruction in this non-asbestos case. This Court has expressed in *Monsanto v. Hall*, 912 So.2d 134, 137 (Miss. 2005) that the "frequency, regularity, and proximity" standard is to be applied in the limited and specific context of " asbestos litigation cases."

Adoption of DuPont's proposed jury instruction would have created a significant risk of juror confusion with respect to the meaning of "proximity" in the context of this non-asbestos environmental contamination lawsuit. Here, the expert proof established in any number of ways that Mr. Strong was exposed to dioxins and heavy metals from the DuPont facility, in spite of the fact that the facility was more than five miles from his home. Jim Tarr's air modeling, Dr. O'Connor's samples of the Strongs' household dust, Dr. Elston's samples of sediment and oysters in St. Louis Bay, and Mr. Strong's own blood serum all demonstrate that Mr. Strong was exposed to carcinogens released from the DuPont facility. Moreover, testimony by Dr. Clapp and Dr. Sawyer established that there is no safe threshold of exposure below which those carcinogens would not cause cancer. Tr. 151: 949-50 (testimony by Dr. Clapp); Tr. 153:1330 (testimony by Dr. Sawyer). This expert testimony would have satisfied the legal requirements of "frequency, regularity, and proximity" by showing that Mr. Strong was in locations where the dioxins and heavy metals released from the DuPont facility traveled on a regular, daily basis over the course of 19 years before he was diagnosed with cancer. Nonetheless, the use of the term "proximity" in a jury instruction could easily confuse the jury into believing that Mr. Strong needed to be some closer distance to the plant itself, regardless of the expert evidence relating to the transport of DuPont's chemicals through the air and through Mr. Strong's ingestion of contaminated seafood. Given that the expert testimony in this case established that Mr. Strong was exposed to quantities of carcinogens that were sufficient to act as a substantial contributing factor in the development of his cancer, adding a "proximity" instruction would only

confuse the jury and misstate Plaintiffs' legal burden. To the extent that such a standard has any application outside the context of asbestos litigation at all, it should at least be limited to occupational exposures as opposed to environmental exposures. In the environmental context, risk of juror confusion with respect to the meaning of "proximity" would exist in virtually every case.

Even in jurisdictions such as Illinois, which has adopted the *Lohrmann* "frequency, regularity, and proximity" standard for purposes of summary judgment in asbestos cases, the Illinois Supreme Court has refused to apply that standard in other toxic tort contexts. *See Donaldson v. Central Illinois Public Service Co.*, 767 N.E.2d 314, 332 (Ill. 2002), *abrogated on other grounds by In re Commitment of Simons*, 821 N.E.2d 1124 (Ill. 2004) (altering the standard for admissibility of expert testimony in Illinois).

In *Donaldson*, the plaintiff alleged that his neuroblastoma was caused by exposure to toxins released from a coal gasification plant. Defendants urged that a judgment on a jury verdict in favor of the plaintiff should have been overturned on the ground that the plaintiff lacked quantified evidence of exposure, as they claimed would be required by the "frequency, regularity, and proximity" standard applied by Illinois courts in asbestos litigation. The Illinois Supreme Court rejected that contention, and noted that the "frequency, regularity, and proximity" standard is a departure from "traditional concepts of causation." 767 N.E.2d at 332. The court held that application of such a standard in the context of environmental contamination cases would be unfair to litigants, because "[i]n most instances, the details of exposure, including information of exactly when or where exposure occurred, is not available." *Id.*

Illinois courts have also refused to require a *jury instruction* on the "frequency, regularity, and proximity" standard, even in asbestos cases, because that language is intended solely for application in the context of summary judgment. *See Johnson v. Owens-Corning Fiberglas Corp.*, 729 N.E.2d

883, 887 (Ill. Ct. App. 2000). "[G]rafting the frequency, regularity, and proximity test onto jury instructions is likely to confuse, rather than clarify, the concept of proximate cause. " *Id.*

Contrary to DuPont's argument, the Fifth Circuit's decision in *Thompson v. Southern Pacific Transportation Co.*, 809 F. 2d 1167, 1169 (5th Cir. 1987) does not apply here. In that case, the expert testimony was limited to speculation that the plaintiff in that case *might* have been exposed to dioxins. By contrast, here the record evidence clearly establishes that Mr. Strong was exposed to substantial amounts of dioxin on a frequent and regular basis. In any event, the *Thompson* case nowhere addresses the issue of jury instructions.

F. The Trial Court Acted Within Its Discretion in Denying Remittitur.

In light of the devastating impact of Mr. Strong's multiple myeloma on him and his family, the trial court was well within its discretion in denying DuPont's motion for remittitur. "The decision of the trial court [to deny remittitur] must amount to abuse of discretion for this Court to reverse. The jury award will not be set aside unless it is outrageous and unreasonable." *Benchmark Health Care Center, Inc. v. Cain*, 912 So.2d 175, 181 (Miss. Ct. App. 2005) (internal citations omitted).

Here, Glen Strong underwent two bone marrow transplant operations, each requiring months of hospitalization and chemotherapy treatment. His treatment for multiple myeloma transformed his personality and destroyed much of his zest for life. The otherwise tightly-knit Strong family suffered horrible emotional repercussions as the result of Mr. Strong's illness, and both he and his family must always live in fear of the cancer's recurrence.

No reasonable person would accept $14 million to undergo the pain and suffering experienced by Glen Strong. Nor would any reasonable spouse accept $1.5 million to go through Connie Strong's experience. The jury's verdict was neither outrageous nor unreasonable.

CONCLUSION

For all the foregoing reasons, this Court should affirm.

Dated: January 9, 2007

Respectfully Submitted,

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I certify that I have this day forwarded, via postage-paid United States Mail, a photocopy of the ave and foregoing document to:

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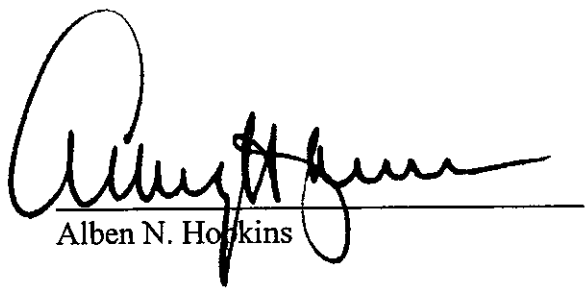
This the 9th day of January, 2007.



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