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## **Fatal Forklift Accident**

Thomas J. Cocchiola, PE, CSP

**Case Synopsis:** Agricultural company specializing in poultry production typically subcontracts certain low-skilled, labor intensive jobs performed at poultry farms. Company owns several rough terrain forklifts specially designed and built for the job. The forklifts are made available to qualified subcontractors under normal contract terms and conditions. Subcontractors are responsible for providing a trained forklift operator, as well as a crew of workers, for each assignment. Accident occurred when a forklift operator working for a subcontractor ran over a farmer while handling a load and traveling in reverse. Forklift operator did not see the farmer walk behind the forklift into the path of travel. Farmer was unable to avoid the moving forklift; was crushed and fatally injured by one of the rear forklift tires.

**Expert Analysis:** Engineering analysis was conducted to determine whether the rough terrain forklift was equipped with necessary safety devices. Inspection of the forklift and review of specifications showed it was equipped with safety devices that included a functional back up alarm, lights, and a rear view mirror. The inspection also demonstrated the back up alarm provided a loud, audible signal when the transmission is shifted into reverse. Accordingly, the back up alarm alerted workers before forklift movement and during reverse operation. Additionally, the forklift operator compartment provided an unobstructed view to operators when traveling in reverse. The rear view mirror and forklift lights enhanced visibility. Engineering analysis concluded that the rough terrain forklift involved in the accident exceeded the requirements of applicable safety codes (OSHA) and standards (ASME B56.6). Analysis also demonstrated that the accident was not caused by any forklift deficiencies or inadequacies. Accident occurred as a result of operator and/or worker error.

**Result:** The case was resolved prior to trial.

## **Gas Explosion**

Richard T. Hughes, PE

**Case Synopsis:** Middle-aged lady, socialite and realtor in her community, moved into her new 3,000 square foot home in a new upper class neighborhood. She was in her house for about a month when she noticed a strange perfume smell emanating from her basement. She contacted her plumber who started down the basement and acknowledged the smell. He asked her to turn on a light. When she did, the entire dwelling explodes violently, sending the house over 100 feet in all directions, killing the plumber instantly and burning the face off the homeowner.

**Expert Analysis:** At first glance it appears like a classic natural gas explosion; yet, the gas company and a team of experts rule this out immediately. The injured lady was brought a sample of natural gas and she emphatically stated this was not the smell but rather a fruity perfume smell. The neighborhood was less than 5 years old and it was tied to the public sewer system. A manhole was located in the back yard of the house and the basement had floor drains, which ran to the sewer line and ultimately to the manhole. An inspection of the manhole revealed that the lid was caulked shut. Further discovery revealed that the reason it was caulked shut was due to complaints from the neighborhood of sewer gas. The Municipal Authority, in an attempt to eliminate the complaints sealed the lid thus thinking it would eliminate the problem. As part of their remedial measure the Authority installed a perfume ball in the manhole before caulking it shut. When this product was brought to the victim, the expression on her face was immediate. While sewer systems produce some smells of hydrogen sulfide and some pockets of methane, it was obvious that in this instance it was a more serious problem. The cause of the explosion was determined to be the lack of slope on the sewer lines which caused significant levels of sewage sludge to build up in the lines and generate the methane gases. The lines were improperly designed by an engineer and had no provision for self-scouring.

**Result:** Multi-million dollar settlement reached for the families of the plumber and the homeowner.

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### Articles and Seminars

Joy S. Falk, Director

### Experts/Research/Exhibits

Joanne M. Troppello

### High-Definition Surveying and Investigations

Terry W. Myers

### Animations

Hugh Borbidge, BSME

## ***Customer Injured While Loading Vehicle at Roofing Supply Company***

Robert P. Jasinski, Consultant

**Case Synopsis:** Plaintiff placed an order that consisted of four rolls of roofing paper and a container of roofing cement. Once the order was placed, he proceeded in his pickup to the loading dock ramp, where he parked his truck at the base of the ramp, with the bed facing the bottom of the ramp. The forklift operator retrieved the plaintiff's order from the warehouse and proceeded through the loading door onto the ramp in a forks-first direction. Once on the ramp, he stopped the forklift, set the parking brake, and got off the forklift, leaving the forks in a raised position of approximately two to three feet, and pointing down the ramp. After exiting the forklift, the operator proceeded to walk towards the plaintiff to assist with loading. It was then that he noticed the forklift began to move and called out to the plaintiff, "watch out!" Plaintiff, having turned to face the bed of his truck to place the first roll in the bed, was struck from behind with a fork in the right inside thigh, below the buttocks, causing a serious injury.

**Expert Analysis:** Ramps present known hazards to forklift operation. Forklift manufacturers, safety professionals, and trained forklift operators recognize this to be true. The operator indicated that he set the parking brake prior to exiting the forklift, but the holding power of the parking brake was not adequate to keep the truck from rolling, because the brake was out of adjustment. Additionally, OSHA regulations requiring the wheels of the forklift to be blocked while parked on a ramp were not adhered to, and the forks of the truck were left in the raised position, which increased the likelihood of pedestrian injury. The operator also failed to operate on the ramp as mandated by the regulation, which required him to travel backwards, down the ramp, with the load upgrade. Operation in this manner would have required the plaintiff's pickup to be parked away from the bottom of the ramp, and the pickup loaded on a level area, thereby reducing the possibility of the forklift rolling. As a trained forklift operator, the forklift driver should have inspected the truck each day before using it. There was no indication that he did a forklift pre-shift inspection on the day of the accident, which would have included a parking brake check. Inadequate operator training, operator negligence and disregard for proper operating procedures resulted in the injury to the plaintiff.

**Result:** Case settled prior to trial.

### ***Seminars: Past, Present and Future...***

January 2008: Steven M. Schorr, PE and Hugh Borbidge, BSME "**High-Definition Surveying-Laser Scanning Technology for Scene Investigation, Reconstruction and Animation.**" PA County and State Detectives Association. (York, PA)

February 2008: Steven M. Schorr, PE "**Pre-Trial and Trial Strategies for Handling Auto Injury Cases: New Technologies for Accident Investigation and Reconstruction.**" New Jersey ICLE. (New Brunswick/Fairfield, NJ)

March 2008: Steven M. Schorr, PE and Hugh Borbidge, BSME "**Forensic Uses for High-Definition Surveying.**" International Association of Forensic & Security Metrology. (Houston, TX)

March 2008: R. Scott King, BSME "**Common Mechanical Defects That May Lead to Truck Accidents.**" Prominent Pennsylvania Law Firm. (Harrisburg, PA)

March 2008: Steven M. Schorr, PE "**Technology in the Courtroom.**" Travelers Trial School. (Windsor, CT)

April 2008: Steven M. Schorr, PE "**Accident Reconstruction and the MIST Case.**" CNA Insurance. (Reading, PA)

April 2008: Steven M. Schorr, PE, R. Scott King, BSME, Ronald Tomasetti, CDS "**Trucks, Trucks and Only Trucks: Anatomy of Tractor-Trailer Accidents.**" Virginia ICLE. (Fairfax, VA)

April 2008: Steven M. Schorr, PE "**Analysis of Vehicular Collisions Utilizing the Latest Technology.**" Arizona State Bar Association. (Flagstaff, AZ)

May 2008: Steven M. Schorr, PE "**Analysis of Vehicular Collisions Utilizing the Latest Technology.**" North Dakota Association for Justice. (Fargo, ND)

September 2008: R. Scott King, BSME "**2008 Important Updates: Event Data Recorder Technology in Passenger Cars and Commercial Vehicles.**" International Association Special Investigation Units. (Atlanta, GA)

## ***From PC-Crash to Real-Feel Animation,*** Hugh Borbidge, BSME and Curt Beloy, BSME

Animations can look great, but are they accurate? Can a vehicle really travel **that** fast? Can a tractor-trailer really execute **that** turn? Do two cars really rotate like **that** after colliding into one another? To make sure the vehicle movements are accurate and to make the animations realistic, engineers use a combination of software including PC-Crash and 3D Studio Max.

PC-Crash is a physics-based analysis program. Inside the PC-Crash program is a large database of vehicles. The database includes models of vehicles from many different manufacturers. Once a vehicle model is loaded into the program, the user can specify and customize physical characteristics such as weight distribution, dimensions, suspension parameters, frame stiffness, cargo and occupant weights, and additional axles or trailers. Roadways are surveyed and the data can be imported into the program to give the vehicles an accurate 3-D roadway profile over which they can travel. The physics models in the PC-Crash program will accurately simulate the movement of the vehicles based on the input parameters. To make the output from the PC-Crash program more "realistic", engineers use 3D Studio Max; a powerful modeling and animation tool which can create "photo-realistic" objects. 3D Studio Max can move objects however, the movement is not based on physics. Combining the two software programs allows for the best of both worlds, a realistic looking animation that is dynamically correct.

***Case Example:*** A 2005 Toyota Camry is traveling at 15 mph while attempting a typical right hand turn. ***The purpose of the animation is to provide the viewer an accurate representation of the movement of the vehicle through the turn.*** Within PC Crash, vehicle parameters such as width, length, wheelbase, weight, center of gravity and suspension characteristics are inputted. For this example, a range of speeds and acceleration rates are assigned to the vehicle. The geometry of the roadway defined the path of the vehicle. The PC-Crash analysis using the real-world data describes the motion of the Camry. The output shows the vehicle moving with its wheels rolling and the front wheels steering. Although accurate, the vehicle is very basic looking and the environment is very plain. There are no trees, bushes, houses, signs or anything else that would create a realistic environment. To enhance the realism of the accurate model, the PC-Crash defined motion of the Camry is transformed into a "motion" file. In this case, the "motion" contains five objects, a chassis and four wheels. Each of these objects will have six variables for every split second. These variables are its position along the X, Y and Z axes and its rotation is defined about the X, Y and Z axes. This amounts to tens of thousands of pieces of information for the duration of this simple turn. 3D Studio Max is used along with the real-world data to create a realistic Toyota Camry and a realistic environment. The vehicle can be modeled from a high-definition survey (HDS) laser scan, using manufacturer's specifications or purchased from a 3D model bank. The environment can be modeled from an (HDS) laser scan or a total station survey. The realistic Camry is placed within the modeled 3D environment that now includes texture, lights, shadows and depth. When the "motion" file is added the Camry will move exactly the way it did in PC-Crash. Once the 3D environment is created the Toyota Camry movement can be viewed from anywhere within the environment including the driver's view, a pedestrian's view, or the view from an oncoming car. ***This very basic example shows what can be done with the right software and know-how. Everything from site inspection data to engineering analysis to animation techniques are utilized to create the visually pleasing and accurate simulation.***

## ***Construction Industry Product Analysis***

Stanley D. Pulz, M.A. CSP, PE

***Case Synopsis:*** Carpenter, working for a specialty construction contractor, was injured when an unsecured prefabricated concrete panel approximately five feet high, five feet wide and five and one half inches thick fell on him while he was working on a roadway construction site project. Plaintiff's complaint stated that the lack of an on-product warning sign, warning specialty construction contractors that the unsecured concrete panel could tip over, was the proximate cause of the accident.

***Expert Analysis:*** Review of the facts as described in the discovery process and review of the deposition testimonies and witness statements was performed. Research was conducted on applicable occupational safety standards associated with construction safety and a safety/human factors engineering analysis associated with product warnings was performed.

***Result:*** Trial resulted in a defense verdict.

## **Who's the Driver?** Steven M. Schorr, PE

**Case Synopsis:** Northbound (NB) van occupied by three young males lost control on a two-lane, two-way roadway, crossed the centerline, and collided with a passenger vehicle traveling southbound (SB). Collision occurred in the SB lane. When the police arrived, the passenger vehicle was found off to the right (to the west) of its proper lane with two, severely injured, female occupants. **The van was found on the east side of the roadway, with no occupants.** Two of the male occupants of the van were walking around the scene when the police arrived. One of the male occupants was found severely injured, along the shoulder of the NB lane. **The two relatively uninjured males told the police that all of the males had been drinking and that the van belonged to one of the UNINJURED males. They also told the police that the SEVERELY INJURED male was the operator of the van.** Several weeks after the collision, making an unexpected recovery from his severe injuries, the male accused of being the van operator was interviewed. He acknowledged that the vehicle was not his and although he had driven the van in the past, he had no recollection of driving it that night. In fact, he had no memory of any of the events of the night of the collision. The DA's office, based on statements of the **UNINJURED males**, a determination that a sandal found by the police on the turn signal lever attached to the steering column belonged to the **SEVERELY INJURED male**, and on a report from an alleged biomechanical expert, charged the **SEVERELY INJURED male** with DUI, as well as other offenses.

**Expert Analysis:** DJS Associates was asked to evaluate this data and perform an engineering analysis of the physical evidence in an attempt to determine who was driving the van. The reconstruction engineer performed an analysis based on the tire marks, vehicle damage, debris, and points of rest of the vehicles. The analysis established the angle of the collision between the vehicles, speeds of the vehicles, and post-impact movements of the vehicles. The reconstruction engineer established that the laws of physics defined that occupants within the vehicle would move in a direction equal and opposite to the impact force acting on the vehicle. Utilizing the reconstruction of the van movement, the path of the each occupant of the van was tracked, including the manner in which each occupant was ejected from the van. This analysis was compared to the point of rest of the severely injured male, as well as to the testified points of rest of the other male occupants. Biomechanical expert reviewed the occupant movements as defined by the reconstruction. Biomechanical analysis matched the actual injuries of each male to the expected injury patterns for the occupant positions defined in the reconstruction. **The combined analysis determined that the SEVERELY INJURED male was, in fact, the right front passenger, and not the operator of the van as had been reported to the police by the other two male occupants.**

While the expert report utilized by the DA's office contained no reconstruction analysis, it did set forth the theory that the location of the sandal was the "smoking gun" as to the identity of the driver. Biomechanical analysis of the DA's expert report established that the position and orientation of the sandal would not be consistent with coming from a driver who was being ejected from the vehicle. Though there was no "proof," the positioning and orientation of the sandal was consistent with someone having placed it on the turn signal lever after the vehicle came to rest.

**Result:** Jury concluded that the **SEVERELY INJURED** male was not the driver of the van.

### **Brain Teaser**

Duffy loved potato chips almost as much as he loved his tea. The problem was when he had large family gatherings, all the kids would devour his snacks before he could. His marble game worked for a while, but his trick was soon found out. So, Duffy came up with another way to keep the snacks for himself and yet make it seem as though he wasn't the greedy snack hog he was. Duffy took two large bowls, one wood and one plastic, and placed them up high so that the kids couldn't see the contents. He then said, "One is full and the other is empty. You get whatever is in the bowl you pick. You can pick only once, but you must decipher my clues and explain to me which bowl you think has the chips and why. And no random guessing allowed."

He then gave them these clues:

- 1.** The polyester shirt I'm wearing.
- 2.** A cotton shirt in my closet.
- 3.** A hollow cardboard toilet paper roll.
- 4.** This plastic cup I'm drinking my tea from.
- 5.** The acrylic socks I'm wearing.
- 6.** An empty paper lunch bag.

**What do the clues have in common with each other and the bowls?**

**Tractor-Trailer Rollover Reconstruction,** James R. Schmidt, Jr., BSME

**Case Synopsis:** A loaded tractor-trailer (T/T) is exiting a 55 mph interstate highway. The exit ramp curves sharply to the right and is signed with multiple 20 mph advisory speed plates. Once into the curve, the T/T begins to leave heavy left side tire marks. Shortly thereafter, the trailer rolls over to the left, and subsequently yanks the tractor over. The Plaintiff (T/T operator) is seriously injured during the occurrence, alleging a load shift caused the rollover.

**Expert Analysis:** Inspection of the site and the T/T were performed, including download of data stored in the tractor's engine control module (ECM). The physical evidence, including the point of rest of the T/T, was plotted on the scale site survey drawing of the sharply curved exit ramp. The point of rollover was plotted based upon the physical evidence. A record stored in the ECM data was found to be related to the occurrence. The data was plotted on the scale site survey drawing. The ECM was consistent with the physical evidence and defined that the T/T was traveling at a speed around 40 mph at the time it entered the curve of the ramp, after having already passed one 20 mph advisory speed plate, and while passing a second. The analysis found that given the loaded condition of the T/T, the trailer will begin to rollover on this ramp (given its radius) at a speed of about 30 to 35 mph. Whether a load shift happened prior to the occurrence can not be ruled out; however, once the T/T rolled over, its load had clearly shifted.

**Result:** The analysis of this somewhat "classic" rollover scenario indicated that while the load shift could have exacerbated rollover dynamics, excessive speed around a sharp curve was what resulted in this rollover. That is, regardless of any load shift, the T/T would have rolled over due to excessive speed alone.

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## **Hotel Drowning, Tom Griffiths, Ed.D.**

Jury trial was conducted during the summer of 2007 to determine negligence, if any, in a near double-drowning case in a hotel pool located in Milwaukee, Wisconsin. This family owned and operated hotel was composed of two large, separate buildings with two completely separate swimming pools. Newer building had an all shallow water pool with a maximum depth of five feet while the older building maintained an older, deeper pool with a deep end containing nine feet of water. Both swimming pools were typical "Swim at Your Own Risk" facilities with "No Lifeguard on Duty."

While in Milwaukee for a family reunion, a husband and wife with four children looked forward to using the swimming pools over the weekend. Although the safer, all shallow water pool was located in the same building as their rooms, when the mother and oldest daughter left the hotel room for a hair appointment, the father (a non-swimmer) took the remaining three children, (ages one, two and seven) to the older, deeper pool, even though they were aware of the safer shallow water pool. **It must be emphasized that all four family members were non-swimmers.** Both pools had aggressive warnings about adult supervision and swimming at your own risk. Additionally, both pool rooms required a room key to disengage the locked swimming pool door. The group of four non-swimmers entered the swimming pool room and a short time later, the two young sisters were observed, by a group of house-keepers, unsupervised, sitting on the steps leading into the shallow end of the pool. When the house-keepers entered the pool and picked up the young girls preventing them from entering the pools, they noticed an additional two people lying on the bottom of the deep end. They immediately called the front desk, who in turn radioed the owner and the manager on duty. Both men arrived quickly, dove into the deep water and recovered both the unconscious father and son from a depth of nine feet. After aggressive resuscitative efforts by both the hotel staff and the paramedics arriving at the scene, the father died but the son recovered fully.

**Plaintiff argued that the hotel and staff were negligent in a variety of areas:** **1.** Inadequate signage failed to adequately warn guests about deep water. **2.** Surveillance camera would have assisted hotel staff to spot the submerged victims in a more timely fashion. **3.** Automated External Defibrillator (AED) on the pool deck would have helped to save the father. **4.** Hotel staff should have been certified in CPR and AED. **5.** Emergency phone required by the Department of Health was missing.

**Defense argued that the hotel and staff were not negligent:** **1.** The pool signage was more than adequate and exceeded the standard of care in this case. **2.** Manager on duty was recently certified as a Pool Operator which was not required by the State. **3.** Hotel owner was very knowledgeable and concerned about swimming pool safety. He continually reminded all staff to check the pools during their rounds, which they did. **4.** Surveillance cameras usually document and memorialize pool drownings rather than prevent them. **5.** While AEDs, emergency phones and CPR certification are all commendable, in this particular case, they would not have made a difference. **6.** Non-swimming father acted unreasonably by subjecting his three young children to a deep water pool, particularly when an all shallow water pool was available. **7.** Hotel staff did in fact rescue three out of the four family members.

The jury verdict favored the defense on all counts of negligence.

### **\*\* New Seminars \*\***

#### ***Analysis of Vehicular Collisions Utilizing the Latest Technology:***

It's Available to Everyone Do You Know About It?

***Aquatics Safety Seminar with Tom Griffiths:*** Beaches, Pools, Lifeguards and the Seven Deadly Sins

***2008 Important Updates:*** Event Data Recording Technology in Passenger Cars and Commercial Vehicles

***Driver Human Factors and Accident Reconstruction:*** Working with the Experts

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***And the Walls Came Tumbling Down:*** Building Collapses, Roof Failures and General Inspections

***Motor Carrier Accident Investigations:*** Emerging Trends and New Technology from the  
Tractor-Trailer and Accident Reconstruction Consultants

### **What Went Wrong?**

Ronald E. Tomasetti, CDS

**Case Synopsis:** Tractor-trailer driver, headed southbound on I-81, experienced a left front steering tire failure. His vehicle crossed the median and struck two vehicles headed northbound, resulting in two fatalities and injuries to five other individuals. Pennsylvania State Police were not able to take a statement from the tractor-trailer driver for several hours after the incident because of a language barrier (driver unable to speak English) and until an interpreter was available. The tractor-trailer driver's log book was not up-to-date and he had no current medical card with him.

**Experts Analysis:** Expert inspected the motor carrier's driver qualification file and found several Federal Motor Carrier Safety Regulation violations. The motor carrier did not comply with 391.11 "General qualifications of drivers." Federal regulations require that the driver:

**(1)** can read and speak the English language sufficiently to converse with the general public, to understand highway traffic signs and signals in the English language, to respond to official inquiries, and to make entries on reports and records;

**(2)** can, by reason of experience, training, or both, safely operate the type of commercial motor vehicle he/she drives; and

**(3)** is physically qualified to drive a commercial motor vehicle." The motor carrier had no files or records documenting the driver's physical qualifications, pre-employment drug and alcohol testing, employment history, or qualifications to operate a commercial motor vehicle. The motor carrier did not keep accurate records concerning the driver's hours-of-service (driving and work hours). Instead, the motor carrier dispatched according to availability of the driver or loads to be shipped. Maintenance records were non-existent and the MCSAP inspection conducted by Pennsylvania State Police discovered that a recap tire was used on the left front steering tire.

**Result:** Analysis favorable to plaintiff; case settled.

### **Hotel Fire-Wrongful Death Case**

R. Britton Colbert, CHA

**Case Synopsis:** A fire occurred during a power outage at a 100-year old inn located in Virginia. The inn had no back-up power source, including the absence of power to run the property's telephone service. The loss of power prompted the use of candles, oil lamps and fires in the fireplaces, as the incident occurred in November. All food and beverage service was completed by candle light. All remaining staff left the inn at approximately midnight and encouraged the few remaining guests to blow out the candles and be certain the fire screens were in place. The inn remained without power and without any employee or manager on duty. The few remaining guests retired to the second floor of the inn. At approximately 2:30 AM, a very fast fire ignited directly below the inn's sleeping quarters. Two hotel guests died from the unattended and out-of-control fire.

**Expert Analysis:** Hotel industry standards and hotel guests expect a safe and secure lodging facility, regardless of size or age of the facility. It is common hotel operating practices to routinely inspect, check and be certain that all smoke detectors, fire extinguishers, pull-box systems, evacuation plans, flashlights and alternative escape routes are present, clearly identified, operative and accessible to guests and employees, and that a lodging facility is not without management supervision 24/7. None of these customary hotel operating practices were present at the subject inn. It was the consultant's assignment to review all of the documents and present each of the hotel industry standards which were breached causing the two deaths of hotel guests. Fire and police reports, photographs, depositions, statements, fire consultant reports and other independent findings were examined as part of the discovery and opinion formulation process.

**Result:** Case settled a week before trial. Inn has since been rebuilt with all current fire and other life safety systems.

### **Licensors Wins Licensing Fees: Defendant Fails to Effectively Test Market and Launch New Product,** Don E. Smith, Consultant

**Case Synopsis:** Plaintiff licensed a particular technology to manufacture a special type of plastic for use in the construction of pleasure boats. Plaintiff alleges that licensee did not properly manufacture or effectively market the product. Plaintiff sued defendant for termination of license and for payment of royalties.

**Expert Analysis:** A thorough review of case documents and independent market research, as well as expert testimony was very important in securing a jury verdict in favor of the plaintiff, as follows:

**1. Defendant failed to properly test market the product.** Defendant conducted limited application tests in Canada during the winter, not in the summer with exposure to the direct sun. Defendant actively sold this product and, even though they had test market failures, continued to sell the product without a strong UV exposure caution. The boat manufacturer's customers had serious field failures and the product secured a bad reputation in the market.

**2. To quantify the defendant's failures, plaintiff's expert defined the size of the target market, sales and share.** This information, combined with information secured by telephone interviewing key boat manufacturers, plaintiff's expert was able to quantify the lost sales opportunity, as well as quantify the licensing fees due the plaintiff.

**Result:** Jury awarded favorable judgment for the plaintiff.

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**Fatal Car Fire**, R. Scott King, BSME

**Case Synopsis:** Woman entered her older model Ford vehicle and started the engine. A few minutes later, witnesses reported hearing prolonged engine racing, followed by smoke and flames within and around the vehicle. Upon arrival, fire-fighters discovered the woman's body seated in the driver's seat. Autopsy results revealed the woman suffered a fatal stroke and her family theorized it occurred after the fire. The family brought suit against the manufacturer and the used car dealer that sold the vehicle several months before the incident.

**Expert Analysis:** Plaintiff's expert examined the vehicle, suspecting at first a possible ignition switch failure. Upon disassembling the switch, however, all parties realized the switch did not malfunction and did not cause the fire. Although absent any physical evidence, plaintiff's expert subsequently rendered opinions indicating the fire was the result of improperly treated high-voltage spark plug wires. Physical evidence and other data led defense experts elsewhere. Specifically, defense engineers identified unusual heat blistering and discoloration on the vehicle undercarriage immediately above the entire exhaust system. This evidence was thought to be consistent with the extreme exhaust temperatures that accompany prolonged engine racing. Further, the engine throttle plate was found "frozen" in the full-throttle position, consistent with the witness statements of prolonged racing and exhaust heat. Finally, the experts located a woman's right shoe beneath the pedals. When placed atop the accelerator pedal, the experts noted a remarkable "clean" area on the adjacent carpeting.

**Result:** It became readily apparent that the woman's right foot had held the accelerator pedal fully applied before and during the fire. The defense engineers concluded the fire was the result of prolonged, no-load engine racing and helped produce results favorable to both defendants.

**Analysis of Flood Causation**, James I. Scheiner, PE

**Case Synopsis:** Flood caused significant property damage to a community along a stream. Community took legal action against mining company who had cleared a 36-acre site upstream prior to the flood. Community alleged that striping of the site significantly contributed to the magnitude of the flood.

**Expert Analysis:** The 36-acre cleared area represented only about one percent of the stream's 3,648-acre watershed. The development complied with all state and local laws, regulations and ordinances. Holding ponds performed as designed, without any breach. Using fine-grained storm data gained from Doppler radar imagery, it was determined that the intensity of the storm was severe. Substantially more rain fell in a six-hour period (up to 7.1 inches) on this locality than the 100-year, 24-hour flood event (5.68 inches). The sole cause of the community flood was the unprecedented rainfall event.

**Result:** Hydraulic and hydrologic analysis enabled defendant to satisfactorily settle the case prior to trial.

**For More Information:**

Call: 800-332-6273 or 215-659-2010

Joy S. Falk, Director

**Forensic Engineering Services**

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