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Fall/Winter 20/21

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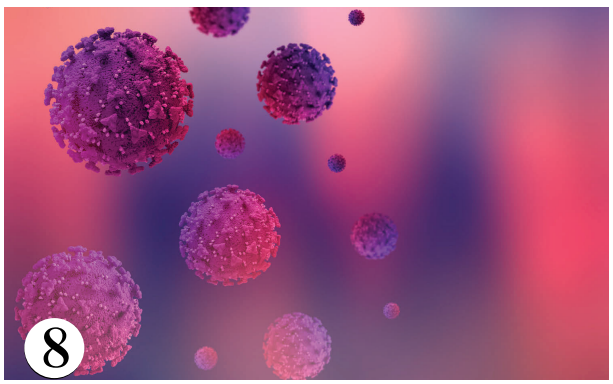

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Fire Burns Down Apartment Complex

Case Synopsis: A building inspector/code enforcement expert was retained on behalf of a landlord's defense regarding an old 1930's high rise building, occupied by 16 tenants, which caught fire, resulting in significant fire damage. The tenants filed a class action lawsuit, accusing the landlord of being a slumlord utilizing a general handyman to maintain the building, which had no central heating for the units that were less than 400 square feet each.

Due to the lack of central heating in the high rise, tenants would often use space heaters to heat their units. One tenant left her space heater on unattended, which resulted in a fire. The fire and smoke quickly spread to other units. Fortunately, all tenants were able to evacuate the building safely, though some were treated for smoke inhalation. The tenants were upset their rent-controlled units, facing the ocean in Southern California, were no longer habitable. The landlord had no desire to repair or restore the building and instead planned to demolish it. The tenants wanted their affordable living units back and pursued litigation.

Expert Analysis: The fire department's arson investigator and other experts could not determine the exact cause of the fire due to the amount of damage in the originating unit. Code violations were present throughout the complex; however, the old building had grandfathered conditions. Only a few minor violations were issued to the landlord.

Expert analysis on behalf of the defendant landlord, concluded that the tenant may have caused the fire due to an excessive use of extension cords and the number of appliances plugged in. The unit was cluttered with trash and debris which burned near the space heater. The City did not pursue any code violations for follow-up enforcement and never prosecuted the landlord for substandard housing, validating further that the landlord should not be held responsible for causing the fire in the class action suit.

Result: The case did not proceed to trial and eventually settled.

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DETERMINING SEATBELT USE

03

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Often, following a vehicular collision, questions arise regarding occupant seatbelt usage. This is especially true when the venue permits the use of a seatbelt defense when determining damages. Frequently, initial information concerning seatbelt use comes from the incident police report, which may be based on what the occupant reported to the investigating officer at the scene or the officer's first-hand observations. In other cases, seatbelt use determination can be based on the post-crash position of the seatbelt or the fact that a seatbelt is retracted post-crash, which would seemingly indicate that the occupant was not wearing the seatbelt at the time of the crash.

Based on numerous vehicle inspections, the post-crash seatbelt position cannot reliably be used to determine if the seatbelt was in use at the time of the crash. There have been several instances where a seatbelt is retracted and functional; however, there are clear signs of occupant crash-loading on the seatbelt system components. In recent years, an increasing number of vehicles involved in crashes have accessible seatbelt usage data stored in the vehicle's event data recorder.

In an effort to better determine the reliability of post-crash seatbelt position when verifying seatbelt usage during a crash, a research project was conducted to investigate vehicle crashes where there was event data recorder (EDR) seatbelt usage information and available post-crash vehicle photographs. Sixty-two vehicles in NHTSA's 2016 Crash Investigation Sampling System (CISS) as well as 171 vehicles from **DJS Associates'** crash investigations were analyzed to compare the EDR-recorded seatbelt usage with the post-crash seatbelt position. The analysis showed that in one-third of the crashes where the EDR indicates the occupant was wearing the seatbelt at the time of the crash, the seatbelt was found in a stowed or retracted position. This supports the reasoning that the post-crash seatbelt position cannot reliably be used to determine if a seatbelt was in use at the time of a crash. The most reliable method to determine seatbelt usage by an occupant in a crash is a proper vehicle inspection to look for evidence of loading by the occupant coupled with an analysis of other available data, including EDR data and medical records.

This study also looked at the correlation between police report seatbelt usage and EDR seatbelt use data. As has been found in other published studies, the analysis showed that 13 percent of the occupants reported by the police as seatbelted did not have their seatbelts fastened based on EDR data.

Scan QR Code to the right with your phone's camera to access "Determination of Seatbelt Use Following a Crash," authored by John Yannaccone, P.E., and published by SAE International

CHEMICAL BURN INJURY OF A TEMPORARY WORKER

Case Synopsis: The plaintiff was assigned by a labor placement agency as a temporary worker with the Meat Packing Facility (MPF). Plaintiff testified that he had a history of learning disabilities and worked primarily as an unskilled or low skilled worker for a variety of warehouse and large box retail operations. Plaintiff was initially placed at the MPF to work in the packing department where he took individual boxes of meat off the conveyor belt and placed them into large boxes on a pallet ready for shipping. After a week or so at that job, he was approached by the floor supervisor to take on a new task in their cleaning operation. The cleaning operation consisted of spraying empty racks, which held the meat while it was being cooked in the ovens. The task required the operator to use a fire hose type setup to spray high pressure water, mixed with an industrial cleaner and disinfectant, to "clean" the racks. The cleaner chemical used at the facility was a highly caustic solution that required identification and understanding of its safety risks, and therefore, proper training and personal protective equipment (PPE) to mitigate those risks. The MPF did not provide the plaintiff with the proper training, as required by Occupational, Safety and Health Administration (OSHA). The plaintiff sustained severe burns to his arms over the course of a few weeks of performing the cleaning operation.

Expert Analysis: OSHA provides the legal requirements that all employers, and as is in this case, co-employers, must ensure the safety of their workers regardless of if that worker is permanent, part-time, temporary or other as defined. In this case, the MPF made the decision to re-direct the plaintiff's job from packing boxes along the production line to cleaning operations. There was no documented evidence that the plaintiff had any prior experience with such tasks, nor was there any testimony, on behalf of the defendant, that they provided him with training for the job. In fact, during testimony, the defense expert specifically stated that they did not have to provide training since the plaintiff was a temporary worker. That is not correct under the OSHA regulation.

The MPF should have conducted a job hazard analysis to fully identify all the risks of that operation, provided the proper training, communication, and PPE to mitigate the risks in order to protect the workers. In addition, the MPF did not have a proper incident / injury management plan or accident investigation follow-up. Their lack of proper incident management most likely exacerbated the plaintiff's injury, as the plaintiff had previously notified them of his arms burning and they failed to instruct him to immediately wash his arms and go directly to the hospital or see a doctor. Additionally, the MPF did not review the PPE provided to the plaintiff nor did they check to see if the plaintiff was wearing the PPE correctly.

Per OSHA regulations, the MPF failed to identify the hazards associated with their cleaning operation and therefore failed to provide the temporary worker with adequate and appropriate training, communication, and PPE, as well as proper and effective follow-up care upon notice of the injury by the temporary worker.

Result: Case Settled for the Plaintiff.

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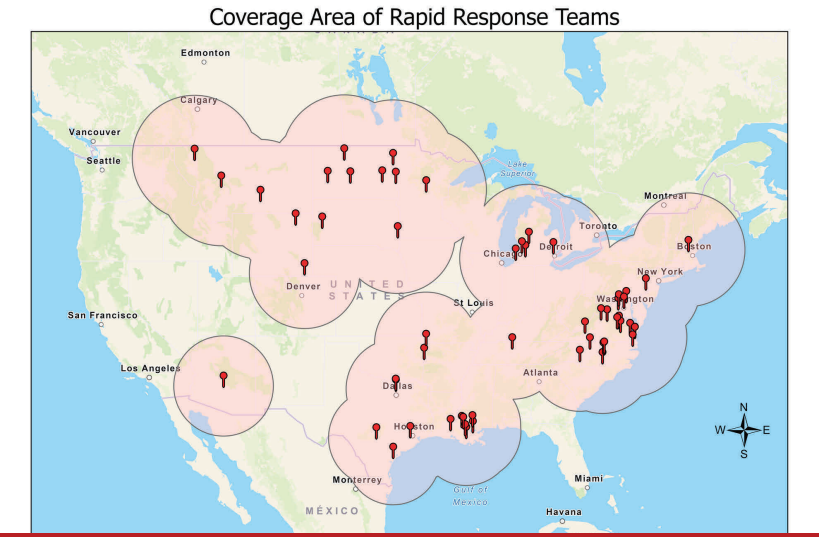
EXPANSION OF DJS RAPID RESPONSE NETWORK



DJS is proud to announce its Nationwide Rapid Response Network! Set to kickoff October 2020, the Network will allow DJS to collect 3D laser scan and Unmanned Aerial System (UAS) data for our clients across the country within 24 hours of an incident occurring. Through our Rapid Response Network, DJS will utilize experienced reality capture technicians with "boots on the ground" throughout the United States. These professionals will capture critical measurements and photographic data utilizing DJS procedure protocols. This data will be processed and analyzed by our in-house Reality Capture team, assuring a consistent product. Stay tuned for more information as our network grows!

Contact Jon Adams, Director of Reality Capture, via email at JWA@forensicDJS.com or via phone at 215-659-2010

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Lauren Latzko
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AUTONOMY IN THE TRUCKING INDUSTRY

Justin P. Schorr, Ph.D., Principal Collision Reconstruction Engineer
President of DJS Associates, Inc.

Fears of automation, which have continued to swirl over the trucking industry in recent years, have suddenly become less of a concern as society has redefined which professions are "essential." Under this new definition, truckers are at the top of the pyramid, while those who looked at trucking jobs with contempt now find themselves in need of their own advice – learn to code. This is one of the reasons that it is important, from time to time, to stop for a moment and take stock of the world as it actually exists.

Autonomous technology is not particularly close to being ready for large-scale public deployment. While there are many reasons for this declaration, for now the focus will be on safety. From a safety perspective, the company with the highest number of miles between collisions (on average) is Waymo – clocking in at just over 50,000 miles between collisions. Compare this with us humans – who, on average, travel over 500,000 miles between collisions. That's right – the reasonably prudent passenger vehicle operator, has a collision rate 10 times less than that of the best autonomous vehicles technology/industry has to offer.

While full, driverless automation seems unachievable, unnecessary, and in many instances unwanted, it is important to keep in mind that its prospects are far-off promises and not near realities. From a "boots on the ground" perspective, there are technologies outside of automation which are permanently changing the transportation landscape as we move forward. Two transformative technologies currently changing the space are data extraction methods and increasingly ubiquitous surveillance video coverage. The catalog of devices from which collision-relevant data can be obtained is rapidly expanding and now includes most personal devices and vehicle infotainment systems. Infotainment systems contain the most detailed and expansive dataset of any device to date including (in some cases) a synchronized logging of vehicle data and device data in conjunction with each other. This data is both incredibly helpful professionally and incredibly disturbing personally as, after confirming the permissions required to sync your phone to a vehicle, the vehicle "downloads" and stores much of the personal information stored on the paired device. The relative size of the available data storage in your vehicle's infotainment system, as compared to your personal device, ensures that it will be extremely difficult, if possible at all, to completely wipe your data from an infotainment system – something the reader may want to keep in mind the next time they are deciding on whether to pair their phone with a rental vehicle.

Advancements in video recording technologies, including those which allow for pervasive coverage from devices with these capabilities, are changing the landscape in their own way. Through increasing numbers of cameras located at an expanding array of locations (ATMs, doorbells, dashcams, private and public surveillance, and more), a coverage network exists and captures recordings of a substantial percentage of collisions. Though some may instinctually believe that the increased availability of data will make liability determinations more cut and dry, this could not be further from the truth. Similar to how the expanded quantity and complexity of the data captured by EDRs meant an increased need for analysis by more proficient engineers – analysis of video data is a complicated process which spans a number of disciplines. That is, while video is objective evidence which can be analyzed, quantified, and explained in plain language with compelling visuals – this process is tedious, complicated, and requires knowledge of everything from physics to lens distortion in order to produce an accurate, understandable end product.

The final device discussed herein is one we are all familiar with – cell phones. While the wealth of data accessible via these devices could fill an entire article, one of the more important discussions involves driver distraction. Absent interior facing cameras, one of the only ways to prove or disprove claims of distraction is through data acquisition from the physical device itself. Here, it is important to point out that on an industry-wide level, interior facing cameras in tractor-trailers would undoubtedly work to the benefit of professional drivers much in the same way as police body cameras, which faced tremendous push-back from police (and rightfully so), yet have worked to the extreme benefit of our officers. Regardless, a post-collision cell phone download does not require an in-vehicle system and is far more private than an inward facing camera, and has the potential to uncover data which details the speed and position of the phone (and subsequently the vehicle the phone was in) immediately prior to and at the time of a collision. With this in mind, and when considering the current climate of "virtue" in corporate America, a pro-active policy with regard to driver distraction (adopting a procedure where all cell phones are sent out for data download after a collision) will reflect extremely well in the eyes of a Jury and may work to combat the widely-held prejudices about "big, bad tractor-trailers." Here, if a pro-active approach to distraction moves the needle 5% (60% liable as opposed to 65%, say), the payout on a $4,500,000 claim is reduced by $225,000. Moreover, this pro-active approach would pay for itself so long as 1 out of 150 (approximately) downloads produced results consistent with the earlier example.

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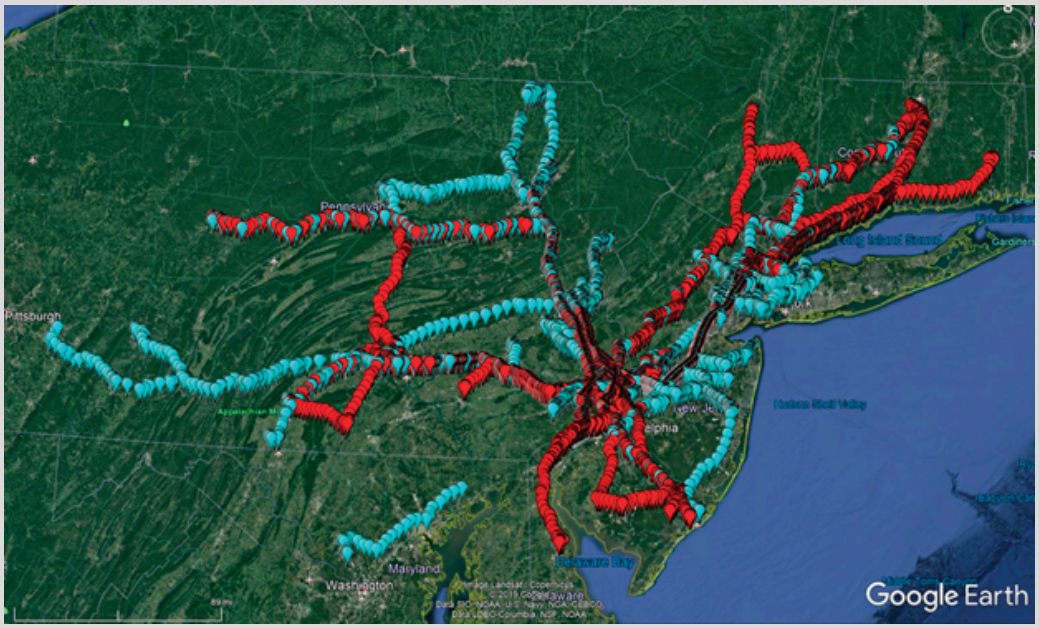
GPS STORAGE: When Is My GPS Storing Data?

Robert Kinder, Jr., MS, Senior Mechanical Engineer
Contact: experts@forensicDJS.com or 215-659-2010

Since the implementation of modern smartphone applications such as Google Maps and Waze, the use of portable GPS devices in passenger vehicles is becoming increasingly rare. While these devices collect dust in glove boxes and garages all over the world, many are still being used in the commercial trucking industry. Many of these users are not aware that data on some devices is stored, even when they are not actively providing route guidance.

As part of an investigation involving a hit and run, a Garmin GPS device was connected to a laptop equipped with readily available consumer level free software. The software was able to view and extract data from past trips including GPS points with time stamps, dating as far back as 2015. The same device was also imaged using a physical "bit by bit" data extraction method with a different forensic extraction software, revealing additional GPS data points as old as 2013. Not only did the recovered data include an extra two years of GPS points, there were additional recovered points throughout the entire usage up to 2019.

GPS points were placed approximately every ten seconds apart. The descriptive information associated with the points included latitude and longitude coordinates, elevation, date, and time. The image below depicts the recovered GPS points. Points colored in red are the additional points recovered by the forensic software that were unavailable to the consumer level software. This phenomenon is explained by the forensic software's ability to extract every bit of data in the memory storage, even if it was considered "deleted."



Deleted Points Recovered Using Forensic Software

Points Recovered Using Traditional Software

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- Driver Assistance Additional Distractions: How Driver Assistance Technologies and Electronic Devices are Affecting the Reconstruction Landscape
- Electronic Data for Investigations: Infotainment & Cellphones-The Dynamic Duo

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Brace Yourself for Data from a Middle Schooler's Cell Phone

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Scan code with your phone camera for quick access to list of supported devices.

Original cell phones had one main function: to provide a wireless bridge for verbal communication between two people. Over a short span of time, cell phones developed more capabilities, allowing users to text their friends, to browse the web, and to produce digital media. Fast forward to 2020, cell phones have transformed into handheld computers that preserve a vast amount of personal information for millions of people worldwide. Many do not realize how much personal data or information is stored on their current phone, or what data may still reside on the phone sitting in the junk drawer in their kitchen.

I recently found my first cell phone in a box in my closet. Remember those photos you took of yourself in middle school? Well, they are still in your old phone (Exhibit A).

I think it is safe to document this picture as my first "selfie," taken while I was sitting at the orthodontist with a fresh set of braces. Metadata1 (Exhibit B) embedded in the picture of the handsome guy to the left shows that the picture was taken at 1:00 in the morning.

I am a night owl now, but 1:00 AM was a bit past my bedtime when the photo was taken. At first glance, one might assume that the time zone needs to be adjusted. The proper time zone would be UTC-5, but even with the date and time adjusted to 8:16:24 PM, 8:00 PM is still pretty late to be at an orthodontist's office. I decided to take a look at the hexadecimal2 data associated with the picture.

This chart (Exhibit C) may look like jargon to the untrained eye, so I've highlighted the important part in black. The bytes3 highlighted below directly translates to 15:16:07 which is military time for 3:16:07 PM. Now 3:00 in the afternoon makes more sense, but where does the later timestamp come from? Turns out, I sent this picture as an attachment to one of my friends that night, thus a new timestamp was created.

This picture was taken on my first cell phone many years ago. I've changed a lot since this picture, for example, I no longer have braces. So, too, have cell phones exponentially changed. Their ever-growing capabilities help to generate more and more personal data to look back on in years to come.

Exhibit A: Handsome Guy

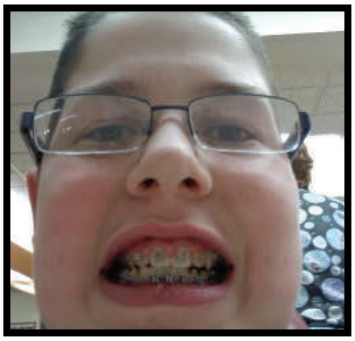

Exhibit B: Metadata1

Name:	0204001516.jpg
Type:	Images
Size (bytes):	29140
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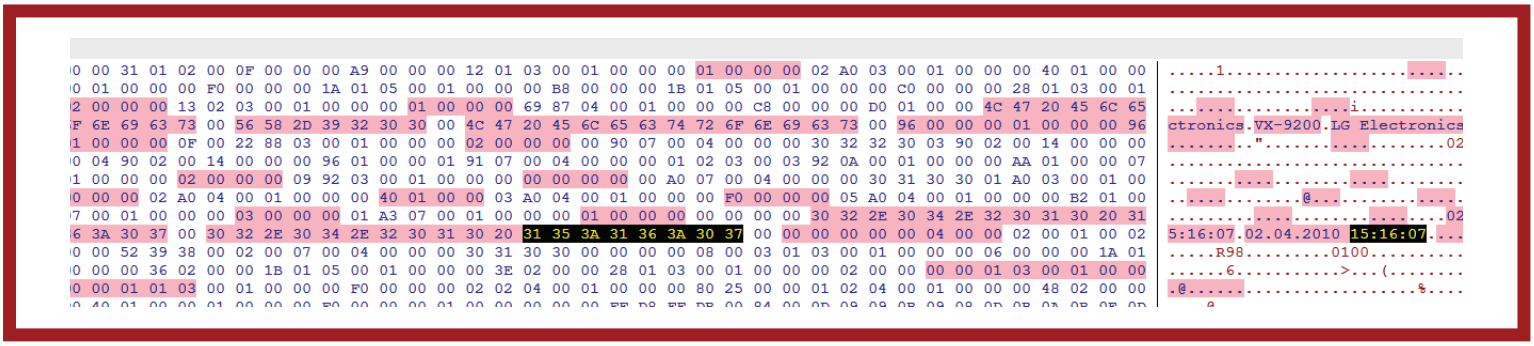
Created:	1:16:24 AM(UTC+0)

Exhibit C: Hexadecimal2 Chart



Utilizing Collision Reconstruction Technology in Premise Liability Matters

Timothy P. Reilly, P.E., Civil Engineer

While sitting at my desk last July at the Civil Engineering firm where I was doing design work, I received a call regarding a forensic position at DJS Associates. When I told my father, he was elated as he and his firm have come to know and respect DJS and their “toys."

What he meant by “toys” was the state-of-the-art equipment used by the DJS field crew and engineers to document sites, vehicles, and other evidence with incredible detail and precision. As a design engineer, my plans often relied on a combination of grainy Google Earth images and a limited set of survey points taken from a traditional survey crew. Access to the full 3D model of the environment when completing tasks such as designing a retrofit of an existing shopping center for ADA compliance would have been extremely helpful in my previous position.

Many of DJS' clients are aware of the amazing things we can do in the world of collision reconstruction with our robust technology, including 3D HDS Laser Scanners and Drones. What some may not realize is that this same technology can be used in additional areas of forensic investigation, such as premise liability. The 3D HDS Laser Scanners, including the Leica RTC, have proven to be invaluable on several trip and fall cases, riparian water rights cases, as well as ADA compliance matters in order to document the scene, and when necessary, render a 3D engineering animation.

When defining a tripping hazard, as a difference in elevation of merely one quarter of an inch, accuracy is a big deal.

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POTHOLE V. MOTORCYCLE

Robert T. Lynch, P.E., Principal Collision Reconstruction Engineer

Case Synopsis: A motorcycle was being operated in broad daylight on a winding, two-lane county road when the operator encountered a series of potholes while traveling around a right curve, resulting in the motorcycle falling to the ground and traveling across the center line into the opposite lane where it collided with an oncoming vehicle. The motorcycle operator sustained injuries and brought suit against the county regarding the roadway condition.

Analysis: The county filled the potholes the following day. However, historical aerial and street view imagery indicated the roadway had been in poor condition for several months, and even years, prior to the incident. In fact, neighbors had complained to the county previously about the condition of the roadway, providing them with notice of the deficiencies. The physical evidence did not indicate that the motorcycle was being operated above the speed limit or even above the advisory speed for the curve at the time of the incident. If the roadway had been free of these deficiencies, the motorcycle operator would have had no difficulty negotiating the curve and the subject incident would not have occurred.

Result: The case went to trial and expert testimony was provided for both sides. Following the 3-week trial, the jury decided in favor of the motorcycle operator, awarding him $2.65 million.

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COVID-19: DRIVING CHANGES IN COMMERCIAL TRUCKING

R. Scott King, BSME, CFEI, Principal Automotive/Mechanical Engineer with DJS Associates, Inc., can be reached via email at experts@forensicDJS.com or via phone at 215-659-2010

Unlike any time in recent history, the COVID-19 crisis has provided a reminder of the extent to which people everywhere rely on the commercial trucking industry for goods and services of all kinds. Despite uncertainty and potential risk to self and family, the personnel comprising that industry have continued their essential jobs to help keep critical supply chains not just functional, but in many business sectors, normal. Moreover, their ability to do so has been aided by accommodations initiated and authorized by the regulatory agency overseeing their industry: The Federal Motor Carrier Safety Administration (FMSCA). Below is a list of some specific actions undertaken by the FMSCA to ensure the commercial trucking industry can continue to provide its critical and essential services:

- Waiver for Expiring Commercial Driver's License and Medical Certificates
- Waiver of Certain Hiring Exceptions Relating to Use of Controlled Substances
- Easing of Certain Hours-of-Service Limitations
- Waiver of 14-Day Waiting Rule for CDL Skills Examination
- Permitting Remote, Out-of-Cab Licensing Examinations
- "Reasonable Flexibility" in Conducting Required Drug and Alcohol Testing
- Off-Site Safety Compliance Audits

Scan code with phone camera for quick access to link below

The apparent, overarching rationale for the above actions is to ensure a sufficient supply of commercial vehicle operators to meet the demand of the goods they transport. Although most of these actions are (or were) temporary, they may become relevant in litigation resulting from crashes and other incidents occurring while active. A current and complete listing of the FMSCA actions, and the details thereof, can be found at https://www.fmcsa.dot.gov/COVID-19.