White paper on

Electronic Logging Devices

Summary, Challenges and Opportunities

Whenever a person's ability to provide support for their families is changed a natural fear results. There are over 3.5 million drivers of commercial motor vehicles (CMV) in the U.S., most of which are required to record all of their activity on paper logs every day. Compensated in one form or another is usually based on what they record on these logs. The Electronic Logging Devices will change the manual logs to an electronic entry which will require substantial technical training and in some cases even reduce the amount that a driver can earn. Change can be hard.

The long anticipated Electronic Logging device (ELD) requirement finally was issued on December 10, 2015, after several delays since April 5, 2010 when the FMCSA last published a Final Rule on EOBRs.

ELDs have been used in the trucking industry since the early 1980s. The capabilities of these units have ranged from a WIFI capable IPADs and IPhones to devices installed on the vehicles which tracks the location (via cell tower or satellite or both). Section 49 CFR 395.16 was created to regulate the standards and performance of these units but on August 8, 2011, the U.S. Court of Appeals for the Seventh Circuit vacated FMCSA's April 2010 Final Rule. This left 49 CFR 395.15, which was first introduced in 1988 as the only regulatory standard in existence and has become outdated and ineffective.

The trucking industry has been particularly adaptable to change over the years. Thousands of progressive carriers have been using ELDs and have discovered significant practical and financial benefits. Even drivers, after some initial anxiety, have discovered that they like the ease and predictability of their lives with the ELDs. However the impact could be significant.

> One of the presenters at the 2015 ATA conference predicted the ELD mandate will have a $50 billion impact on the trucking industry. Roughly 30% of trucking companies are currently using ELDs. When the other 70% are forced to run legal because of the ELDs, it will have a significant impact on the industry. The presenter argued that ELDs will be as big as deregulation.

Although this may be a bit exaggerated, it does correctly project huge changes are expected.

In this paper I will summarize the components of the *expected* Final Rule, the challenges some carriers may face, and the opportunities carriers will find useful. **The benefits of using ELDs will far exceed what the FMCSA describes as their objective**…

> FMCSA estimates that the revised HOS regulations will be beneficial to the trucking industry by reducing fatigue and increasing opportunities for sleep, thereby reducing associated crashes and improving CMV driver health and wellness.
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> However, CMV drivers may violate HOS limits and falsify their paper records of duty status (RODS).(2) Therefore, to increase compliance with HOS regulations, FMCSA proposed the mandatory introduction of electronic logs, also known as electronic HOS recorders (EHSRs) in CMVs
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> Under today's rule, FMCSA estimates 1,844 crashes avoided annually and 26 lives saved annually.

Safety obviously takes priority in the justification for this rule and the DOT's crash estimates listed above may even be conservative. Some studies over the years have indicated that as many as 50% of all crashes may be fatigue related. If it is able to help our highways be safer for everyone it is worth it. It will not prevent all CMV crashes but it no doubt will help.

The future of the trucking industry may include discussions around intermodal and rail partnerships, new vehicle technology including the EPAs emission controls, highway infrastructure and fuel taxes, etc., all of which have merit but nothing will have more impact on our business than the introduction of new management data which will be delivered to us as a bi-product of the ELDs. **The carrier who learns how to best utilize the real time delivery of data produced by ELDs will have a distinct competitive advantage over those who don't.**

Summary of the provisions anticipated to be in the ELD Final Rule

1. Must be installed within 2 years of date of Final Rule for those who were not utilizing an electronic logging device on 12/10/15 and 4 years for those who were.

2. Appendix B to Part 395

   Functional specifications for all electronic logging devices (ELD)

   a. Integral synchronization with the CMV engine* to automatically capture engine power status, vehicle motion status, miles driven, engine hours.
      *For MY 2000 and later, interfacing with engine ECM.
   b. Automated entry of each change of duty status
   c. Present a graph
   d. On-duty driving when vehicle has not been in motion for 5 minutes and the driver has not responded to prompt. No other non-driver entry allowed
   e. ELD time synchronized to UTC

f. Wireless Webservices, Bluetooth 2.1, Email (STMP), or Compliant printout
g. No alteration or erasures of original information
h. Monitor for malfunctions and record

3. All drivers required to log now will be required to use ELDs except as follows:

    a. Short haul drivers are allowed to use time sheets instead of logs to record their hours and therefore will be exempt from this rule. This will present an attractive alternative to ELD logging even if carrier is not now utilizing this exception. It may be beneficial to analyze carriers operation for expanded applicability.

        Short Haul—CDL 100 mile radius driver exempt with conditions (395.1e (1))

        Short Haul--Non-CDL driver 150 mile radius exempt with conditions (395.1e (2))

        Manual logs will be allowed if the driver logs ≤ 8 days in any 30 day period.

    b. Vehicles with a model year prior to 2000.
    c. The towing vehicle in a tow-a-way operation when it is part of the shipment.

4. Except for Nonbusiness passenger, all Motor Coaches must install ELDs

5. Back office edits will be restricted to identification and directing driver to make the edit. Edits must be made to all systems to correct driver errors to ensure accuracy.

6. Harassment Protection—a motor carrier cannot force any driver to drive while fatigued. A mute feature must be installed to prevent interfering with a driver's rest period.

7. Link specific supporting documents to logs. As is required now, management must compare supporting documents to the logs to ensure that the driver recorded his duty status and times accurately. Now the motor carrier must retain the follow records:

    a. Up to 8 supporting documents will be required for every 24 hour period. As with present requirements, these documents must be turned in within 13 days and retained for 6 months.

    b. Documents must consist of the following categories

        - Bills of lading, itineraries, schedules, or equivalent documents that indicate the origin and destination of each trip;
        - Dispatch records, trip records, or equivalent documents;
        - Expense receipts;
        - Electronic mobile communication records, reflecting communications transmitted through a fleet management system (FMS); and
        - Payroll records, settlement sheets, or equivalent documents that indicates payment to a driver.

    c. The eight documents should contain these elements from § 395.11(c)(2)(i):

- Driver name or carrier-assigned identification number, either on the
- document or on another document enabling the carrier to link the
- document to the driver, or the vehicle unit number if that number can be linked to the driver;
- Date;
- Location (including name of nearest city, town, or village); and
- Time.

d. If a driver has to do logs than toll receipts must be kept if applicable

Challenges

This investment will be significant. The Final Rule estimates that the total cost for the ELDs will be in excess of $1.8B. Individual costs may range from $500 to $4000 per vehicle plus a potential monthly service fee depending on the market and what features are selected. Selection of the appropriate device should be a well-organized business decision. Incidentally, to provide greater flexibility for adding new vehicle devices and tools at a later date, many carriers are converting the vehicle to a WIFI hub through which everything is connected.

1. Determine what you want the ELD to do beyond the FMCSA mandate.
    a. Geo fencing for delivery/departure times
    b. Remote engine and speed monitoring
        i. Out of route miles
        ii. Idle time
        iii. MPG
        iv. Engine performance
    c. Safety monitoring (Speed, hard brake, lane departure, following distance, driver scorecard)
    d. Fuel tax reporting (An ELD's record retention period will probably not keep mileage reports for the required 5 year period. These will need to be downloaded and retained in the motor carrier's files)
    e. Installation of cameras (It is shocking what these are revealing about driving habits and skills)
    f. Point of delivery receipts scanned immediately to carrier
    g. Driver email capability
    h. Electronic Daily Vehicle Inspection Reports (DVIR)
    i. Customer service (product temperature, status tracking)
        i. Communicate with TMS for network optimization and predictability
    j. Etc. Since we will have access to real time performance we will be able to customize the output for whatever KPI we will want to manage.

2. Some traditional drivers are already threatening to look for non-trucking jobs. Many of these are either afraid of the technology or are those who are falsifying their logs now.

   Drivers falsify their logs for four main reasons: Increased miles and thus pay, more time at home, poor bookkeeping and writing skills, or bad habits. There are at least five different false log techniques some of which are often used in combination.

   a. Compress miles
   b. Compress hours
   c. Ghost rider
   d. Drive while off duty
   e. Dropped trip

   Since the ELD will record all driving time, the most obvious opportunity for a driver to falsify their ELD records will be designating hours between line one (off duty) and line 4 (on-duty not driving).

   A driver who falsifies their logs can reasonable run 1000 miles extra per week which can translate to almost an extra $500 per week. Time spent at home with family can also be a powerful incentive, possibly increasing home time by 2 days a week.

Although nobody knows for sure how many drivers are regularly falsifying their logs, let's take an educated guess for discussion.

- Local and regional drivers have little to gain by falsifying their logs.
- Private carrier drivers generally make more and are home more often than for hire drivers. Falsification is unlikely.
- Approximately 2.7 million drivers work in the for-hire business of which it is assumed less than 30% (810,000) may be "long-haul" drivers who have the most to gain by falsifying logs.
  - If we assuming 20% of these falsify their logs to conceal miles or hours, we are talking about roughly 160,000 drivers.
  - Since most driver like what they do, most will stay with the industry and learn to adapt to ELDs.
  - Assuming 20% of these 160,000 will leave the industry, the total estimated that may quit driving might be 32000 which is not as significant as some believe. However considering the fact that the most serious issue in the trucking industry right now is a shortage of 50K-100K drivers nationwide, the ELDs will make replacing these drivers even more difficult.

There will be some who quit driving but the turnover will not be as significant as some are saying. We can minimize the impact of losing drivers by training them well on how to utilize the new ELDs.

Drivers will quickly learn how to falsify the new systems. **The ELD will not be able to differentiate from on-duty versus off-duty when the truck is not moving.** Risk taking drivers will try to minimize their on-duty hours in order to maximize their driving time. **Supporting documents which has been specified in the new rule will need to be verified against the driver's status and times.**

3. As with the present EOBRs being used, some models require more back-office edit capabilities than others. The need for a full time editor can be expected for every 60-70 drivers. The same editing capability will be required but with the new rule only the drivers will be able to make the changes. This will require substantial additional driver motivation and follow-up to make sure the ELD always reflects accurate information.
4. Installation on the vehicle may vary from 15 minutes to 1½ hours per unit. Maintenance and installation time should be one of the vendor questions.
5. Driver training will be critical. The one on one in the cab demonstration is the most effective but a 1-2 hour classroom can also be effective. Effective training will pay huge dividends.
6. The purchasing process should include:
    a. Perform a needs assessment—what do you want it to do for you?
    b. Research potential vendors
        i. Ask key questions about performance, installation, technical support and price
    c. Narrow the vendors to the top five. Ask specifically for 3-5 companies who use their product whom you can talk to for a reference checks.
    d. Invite selected vendors in for a presentation and demonstration
    e. Calculate ROI and make management presentation
    f. Ask top two vendors to supply in cab demo units
    g. Make selection at least by July-August 2017 for a full compliance date expected to be December 2017.

Opportunities

1. This is where the fun starts. This is much more than about DOT compliance. There will probably be too much data to keep up on. Vendors will offer support packages to help monitor driver performance. Effective management control will require minimum performance standards and someone will need to analyze the data <u>real time</u>. Data we may want to monitor;

a. Obviously Hours of Service compliance auditing will be required as it is now but the form and manner errors will be eliminated. The ELD most likely will provide internal reports that report on the required performance such as:
    i. The 10 hour break to reset the daily limits
    ii. 11 hours driving, the 30 minute break and the 14 consecutive
    iii. The 34 hour reset
    iv. The 60/70 weekly limits
    v. Note that whatever vendor you choose will have to be able to customize their system for various exceptions (emergency, construction, oil field, personal use, yard time, etc.) and intrastate and Canadian hours. There should be a designation field to choose what jurisdiction and exceptions you want to use.
b. Geo-fencing will be available in most models which will allow the carrier to monitor arrival and departure dates and times. On time delivery has always been a major customer service standard and now we will have real time performance. Take this a step further and envision being able to set check points for driver routing and progress.
c. Point of Delivery (POD) scanning capability will eliminate the flow of paperwork and allow for immediate receipt of delivery to accelerated billing.
d. IFTA and IRP mileage reporting can be done right from the ELD system using GPS to record state borders.
e. Engine performance such as system temperature can help predict a major component failure before it happens. Fuel usage monitoring can quickly identify the out of route miles, long and short term idle time, driver's driving style (quick starts and stops) and obviously real time MPG.
f. Safety monitoring will be real time such as speeding, erratic lane changes, hard braking, and following distance will give alerts to the manager to take immediate action. Several vendors already have driver scorecards which can identify risky behavior.
g. Vehicle Inspection Reports (Pre and Post) can be generated electronically. Inspection components can be bar coded for documentation. Safety defects can be identified and the vehicle can be "red tagged" electronically until an authorized mechanic (with a release code) can verify it has been repaired or does not need to be. Caution: My audits of these units have shown that the drivers often will do a full vehicle inspection in less than 3 minutes and often in less than 30 seconds. This needs to be actively managed now that we have the documentation that an adequate inspection did not happen.

h. Vehicles can be equipped with cameras to view driver performance and interaction with other vehicles. This has been delivering incredible in-cab talking points with the drivers on poor driving habits or weak driving skills. Obviously this footage must be reviewed for "critical events". One of my clients is getting 30 critical events every day on a fleet of less than 150 vehicles. Someone needs to monitor the footage and counsel the drivers on all critical events. This will be a huge time commitment or will be outsourced. If cameras are on the vehicle they will need to be monitored. You can bet that the plaintiff's lawyers will try and demonstrate to the jury that you were negligent not to use this tool.

i. A potentially valuable tool in the future for the drivers is an in-cab WIFI capability in order to send and receive personal emails and conduct web inquiries. Obviously this feature will be restricted to when the vehicle is not in motion. Most phones can do this but with a good WIFI cab connection, personal phones can be eliminated. Work messages will be generated through the ELD.

j. Integration with new or existing Transportation Management Systems (TMS) with the new ELD process will facilitate allocating the optimum resource to the predetermined demand to minimize out of route and empty miles. Real time ETAs and data will allow effective lane by lane analysis. Pre-dispatches can be assigned based on known ETA and Geo Fencing deliveries.

k. Training videos can be transmitted through the ELDs for in cab driver training.

2. Lean Transportation principles will focus on identifying every area of a carrier's business where there might be "waste". Tracking real time performance against company standards or national benchmarks can quickly point out huge potential savings. As more data becomes available, more meaningful benchmarks will emerge. Those who can utilize the data most effectively will acquire a significant competitive advantage. Lane by lane analysis may be a good example. The decision to deadhead to a backhaul versus wait for a closer better revenue load can have huge impact on the bottom line. Manually this decision has too many variables for a quick decision.
3. The above opportunities are not even scratching the surface of the potential derived from electronically monitoring our fleets. New data and reports will continually be evolving into the science of transportation.

Conclusion

The ELD's primary purpose is to help minimize the fatigue risk for drivers. All of us agree that no amount of money can justify an injury or fatality. An accident is pure waste and when compared to your profit margin can wipe out huge chucks of revenue.

Although initially this was viewed by many carriers as a government infringement of privacy and rights, it has the potential to change the entire way we do business. Effective data management will dictate the future of trucking.

For progressive carriers, equipping their vehicles with electronic recording devices is much more valuable as a data management tool than is as a regulatory device. Delays in implementation can be a major lost opportunity. The only caution is that some vendors may struggle with the "functional specifications" of the ELDs. Also it can be expected that dozens of new vendors will surface who may not be capable of delivering the technical support or the level of detail in the data to be able to optimize. An ELD that only provides the minimum DOT requirements would be of limited value. An investment this large and significant deserves a systematic decision process.

The bi-product of a government regulation in this case is an exciting new age for transportation management.

DOT Safety Plus is prepared to answer any questions or assist in any way to help this new rule have a smooth transition.

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