Level of automation	Narrative definition (*i.e.,* What does the vehicle do, what does the human driver/occupant do, and when and where do they do it?)
Level 5	*Full Driving Automation:* The sustained and unconditional (*i.e.,* not ODD-specific) performance by an ADS of the entire DDT and DDT fallback without any expectation that a user will respond to a request to intervene.

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DEPARTMENT OF TRANSPORTATION

Federal Motor Carrier Safety Administration

49 CFR Chapter III, Subchapter B

[Docket No. FMCSA–2018–0037]

RIN 2126–AC17

Safe Integration of Automated Driving Systems-Equipped Commercial Motor Vehicles

AGENCY: Federal Motor Carrier Safety Administration (FMCSA), DOT.

ACTION: Advance notice of proposed rulemaking (ANPRM).

SUMMARY: FMCSA requests public comment about Federal Motor Carrier Safety Regulations (FMCSRs) that may need to be amended, revised, or eliminated to facilitate the safe introduction of automated driving systems (ADS) equipped commercial motor vehicles (CMVs) onto our Nation's roadways. In approaching the task of adapting its regulations to accommodate automated vehicle technologies, FMCSA is considering changes to its rules to account for significant differences between human operators and ADS.

DATES: Comments on this document must be received on or before August 26, 2019.

ADDRESSES: You may submit comments identified by Docket Number FMCSA–2018–0037 using any of the following methods:

- *Federal eRulemaking Portal: http://www.regulations.gov.* Follow the online instructions for submitting comments.
- *Mail:* Docket Management Facility, U.S. Department of Transportation, 1200 New Jersey Avenue SE, West Building, Ground Floor, Room W12–140, Washington, DC 20590–0001.
- *Hand Delivery or Courier:* West Building, Ground Floor, Room W12–140, 1200 New Jersey Avenue SE, Washington, DC, between 9 a.m. and 5 p.m. ET, Monday through Friday, except Federal holidays.
- *Fax:* 202–493–2251.
- *Submissions Containing Confidential Business Information (CBI):* Mr. Brian Dahlin, Chief, Regulatory Evaluation Division, 1200 New Jersey Avenue SE, Washington, DC 20590.

To avoid duplication, please use only one of these methods. See the ''Public Participation and Request for Comments'' portion of the **SUPPLEMENTARY INFORMATION** section for instructions on submitting comments, including collection of information comments for the Office of Information and Regulatory Affairs, OMB.

FOR FURTHER INFORMATION CONTACT: Michael Huntley, Division Chief, Vehicle and Roadside Operations, Office of Carrier, Driver, and Vehicle Safety, MC–PSV, Federal Motor Carrier Safety Administration, 1200 New Jersey Avenue SE, Washington, DC 20590–0001 by telephone at (202) 366–9209 or by email, *michael.huntley@dot.gov.* If you have questions on viewing or submitting material to the docket, contact Docket Services, telephone (202) 366–9826.

SUPPLEMENTARY INFORMATION:

I. Public Participation and Request for Comments

A. Submitting Comments

If you submit a comment, please include the docket number for this ANPRM (Docket No. FMCSA–2018–0037), indicate the specific section of this document to which each comment applies, and provide a reason for each suggestion or recommendation. You may submit your comments and material online or by fax, mail, or hand delivery, but please use only one of these means. FMCSA recommends that you include your name and a mailing address, an email address, or a phone number in the body of your document so that FMCSA can contact you if there are questions regarding your submission.

To submit your comment online, go to *http://www.regulations.gov,* put the docket number, FMCSA–2018–0037, in the keyword box, and click ''Search.'' When the new screen appears, click on the ''Comment Now!'' button and type your comment into the text box on the following screen. Choose whether you are submitting your comment as an individual or on behalf of a third party and then submit.

If you submit your comments by mail or hand delivery, submit them in an unbound format, no larger than 8½ by 11 inches, suitable for copying and electronic filing. If you submit comments by mail and would like to know that they reached the facility, please enclose a stamped, self-addressed postcard or envelope.

FMCSA will consider all comments and material received during the comment period and may initiate a proposed rule based on your comments.

Confidential Business Information

The Agency notes that 49 CFR 389.9 provides protection for ''confidential business information'' which includes trade secrets or commercial or financial information that is privileged or confidential, as described in 5 U.S.C. 552(b)(4). Commercial or financial information is considered confidential if it is voluntarily submitted to the Agency and constitutes the type of information not customarily released to the general public. Under the Freedom of Information Act, CBI is eligible for protection from public disclosure. If you have CBI that is relevant or responsive to this ANPRM, it is important that you clearly designate the submitted comments as CBI. Accordingly, please mark each page of your submission as ''confidential'' or ''CBI.'' Submissions designated as CBI and meeting the definition noted above will not be placed in the public docket of this ANPRM.

Submissions containing CBI should be sent to Brian Dahlin, Chief, Regulatory Evaluation Division, 1200 New Jersey Avenue SE, Washington, DC 20590. Any commentary that FMCSA receives which is not specifically designated as CBI will be placed in the public docket for this rulemaking.

FMCSA will consider all comments and material received during the comment period.

B. Viewing Comments and Documents

To view comments, as well as any documents mentioned in this preamble as being available in the docket, go to *http://www.regulations.gov.* Insert the docket number, FMCSA–2018–0037, in the keyword box, and click ''Search.'' Next, click the ''Open Docket Folder'' button and choose the document to review. If you do not have access to the internet, you may view the docket online by visiting the Docket Management Facility in Room W12–140 on the ground floor of the DOT West

Building, 1200 New Jersey Avenue SE, Washington, DC 20590–0001, between 9 a.m. and 5 p.m. ET, Monday through Friday, except Federal holidays.

C. Privacy Act

In accordance with 5 U.S.C. 553(c), DOT solicits comments from the public to better inform its rulemaking process. DOT posts these comments, without edit, including any personal information the commenter provides, to *www.regulations.gov,* as described in the system of records notice (DOT/ALL–14 FDMS), which can be reviewed at *www.dot.gov/privacy.*

II. Abbreviations and Acronyms

ADS Automated Driving Systems
ANPRM Advance Notice of Proposed Rulemaking
CBI Confidential Business Information
CDL Commercial Driver's License
CFR Code of Federal Regulations
CMV Commercial Motor Vehicle
CMVSA Commercial Motor Vehicle Safety Act of 1986
DDT Dynamic Driving Task
DOT U.S. Department of Transportation
E.O. Executive Order
FMCSA Federal Motor Carrier Safety Administration
FMCSRs Federal Motor Carrier Safety Regulations
FMVSSs Federal Motor Vehicle Safety Standards
FR Federal Register
HMRs Hazardous Materials Regulations
HOS Hours of Service
LCV Longer Combination Vehicle
MCA Motor Carrier Act of 1935
MCSA Motor Carrier Safety Act of 1984
MCSAC Motor Carrier Safety Advisory Committee
MCSAP Motor Carrier Safety Assistance Program
NHTSA National Highway Traffic Safety Administration
NIST National Institute of Standards and Technology
ODD Operational Design Domain
OEDR Object and Event Detection and Response
OMB Office of Management and Budget
RFC Request for Comments
RIA Regulatory Impact Analysis
RIN Regulation Identifier Number
SBA Small Business Administration
SDLAs State Driver Licensing Agencies
§ Section symbol
U.S.C. United States Code

III. Legal Basis for the Rulemaking

This ANPRM is based on the general authority of the Motor Carrier Act of 1935 (MCA or 1935 Act) [49 U.S.C. 31502], the Motor Carrier Safety Act of 1984 (MCSA or 1984 Act) [49 U.S.C. 31136], and the Commercial Motor Vehicle Safety Act of 1986 (CMVSA or 1986 Act) [49 U.S.C. chapter 313], as all of those statutes have been amended.

These statutes provide sufficient legal authority for the Secretary to issue regulations on the operation of ADS-equipped CMVs. Further, FMCSA's current regulations, promulgated pursuant to these statutes, do not explicitly require human operators or drivers. Various provisions, therefore, would either have no applicability or would need to be adapted to take into account the differences between ADS-equipped CMVs and more traditional vehicles.

IV. Background

FMCSA is responsible for overseeing the safety of CMVs, their drivers, and their operation in interstate commerce. The Agency works with Federal, State, and local enforcement agencies, the motor carrier industry, and interested stakeholders to reduce crashes, injuries, and fatalities involving large trucks and buses.

The FMCSRs provide rules to support the safe operation of CMVs, as defined in the MCSA (49 CFR 390.5) and the CMVSA (49 CFR 383.5).

On April 24, 2017, FMCSA held a public listening session to solicit information on issues relating to the design, development, testing, and integration of ADS-equipped CMVs (82 FR 18096, April 17, 2017). The listening session provided interested parties an opportunity to share their views and any data or analysis on this topic with Agency representatives. The Agency also invited interested parties to submit written comments by July 17, 2017. A full transcript of the listening session and all written comments are available in public docket FMCSA–2017–0114, at *www.regulations.gov.*

In addition to the public listening session discussed above, FMCSA commissioned the Department's Volpe National Transportation Systems Center (Volpe) to conduct a preliminary review of the FMCSRs to identify regulations that relate to the development and safe introduction of ADS. Volpe's final report is titled ''Review of the Federal Motor Carrier Safety Regulations for Automated Commercial Vehicles: Preliminary Assessment of Interpretation and Enforcement Challenges, Questions, and Gaps,'' report number MCSA–RRT–17–013, August 2017. A copy of the report is available in public docket, FMCSA–2017–0114, at *www.regulations.gov.*

On September 12, 2017, the Department, through the National Highway Traffic Safety Administration (NHTSA), published ''Automated Driving Systems 2.0: A Vision for Safety'' (A Vision for Safety 2.0), adopting the SAE International (SAE) J3016 standard's definitions for Levels of automation. The SAE definitions divide vehicles into Levels based on ''who does what, when.'' Generally:

- *SAE Level 0, No Driving Automation:* The performance by the driver of the entire dynamic driving task (DDT), even when enhanced by active safety systems.
- *SAE Level 1, Driver Assistance:* The sustained and operational design domain (ODD) specific execution by a driving automation system of either the lateral or the longitudinal vehicle motion control subtask of the DDT (but not both simultaneously) with the expectation that the driver performs the remainder of the DDT.
- *SAE Level 2, Partial Driving Automation:* The sustained and ODD-specific execution by a driving automation system of both the lateral and longitudinal vehicle motion control subtasks of the DDT with the expectation that the driver completes the object and event detection and response (OEDR) subtask and supervises the driving automation system.
- *SAE Level 3, Conditional Driving Automation:* The sustained and ODD-specific performance by an ADS of the entire DDT with the expectation that the DDT fallback-ready user is receptive to ADS-issued requests to intervene, as well as to DDT performance-relevant system failures in other vehicle systems, and will respond accordingly.
- *SAE Level 4, High Driving Automation:* The sustained and ODD-specific performance by an ADS of the entire DDT and DDT fallback without any expectation that a user will respond to a request to intervene.
- *SAE Level 5, Full Driving Automation:* The sustained and unconditional (*i.e.,* not ODD-specific) performance by an ADS of the entire DDT and DDT fallback without any expectation that a user will respond to a request to intervene.

Using the SAE Levels described above, the Department generally draws a distinction between Levels 0–2 and 3–5, based on whether the human driver or the automated system is primarily responsible for monitoring the driving environment. For the purposes of this ANPRM, FMCSA's primary focus is SAE Levels 4–5 because it is only at those levels where the ADS can control all aspects of the driving task, without any intervention from a human driver.

On March 26, 2018, FMCSA published ''Request for Comments [RFC] Concerning Federal Motor Carrier Safety Regulations (FMCSRs) Which May Be a Barrier to the Safe Testing and Deployment of Automated Driving Systems-Equipped Commercial Motor Vehicles on Public Roads'' (83 FR 12933). The document solicited public

comments on existing FMCSRs that may need to be updated, modified, or eliminated to facilitate the safe introduction of ADS-equipped CMVs onto our Nation's roadways. Further, FMCSA requested comments on certain FMCSRs likely to be affected as ADS-equipped CMVs appear on our roadways, including regulations concerning hours of service (HOS) and driver fatigue, the use of electronic devices, roadside inspection, and Commercial Driver's License (CDL) requirements. The comment period ended on May 10, 2018. Interested parties can view the comments the Agency received at *www.regulations.gov* (docket number FMCSA–2018–0037).

On June 19, July 12, and August 24, 2018, FMCSA conducted listening sessions that provided members of the public with an opportunity to share their perspectives on ADS. Transcripts of these listening sessions may be found in the docket (FMCSA–2018–0037) for this rulemaking.

V. U.S. DOT Role in Vehicle Automation

As published on October 4, 2018, ''Preparing for the Future of Transportation: Automated Vehicles 3.0,'' (AV 3.0) explains that the Department's role in transportation automation is to ensure the safety and mobility of the traveling public while fostering economic growth. On October 9, 2018, the Department requested public comment on the document (83 FR 50746). The comment period ended on December 3, 2018.

The Federal government will play a significant role in ensuring that automated vehicles can be safely and effectively integrated into the existing transportation system, alongside conventional vehicles, pedestrians, bicyclists, motorcyclists, and other road users.

NHTSA has broad authority over the safety of ADS-equipped vehicles and other automated vehicle technologies. NHTSA has authority to establish Federal safety standards for new motor vehicles that are introduced into interstate commerce in the United States, and to address safety defects determined to exist in motor vehicles or motor vehicle equipment used in the United States. The latter authority focuses on the obligations that Federal law imposes on the manufacturers of motor vehicles and motor vehicle equipment to notify NHTSA of safety defects in those vehicles or vehicle equipment and to remedy the defects, subject to NHTSA's oversight and enforcement authority.

The Department, through FMCSA, regulates the safety of commercial motor carriers operating in interstate commerce, the qualifications and safety of CMV drivers, and the safe operation of commercial trucks and motor coaches. FMCSA is broadly considering whether (and, if necessary, how) to amend its existing regulations to accommodate the integration of ADS into commercial vehicle operations. While some FMCSA regulatory requirements for commercial drivers (such as drug and alcohol testing requirements) have no application to ADS, many of the Agency's current regulations can be readily applied in the context of ADS-equipped CMVs.

In approaching the task of adapting its regulations to accommodate automated vehicle technologies, FMCSA is considering amendments to its rules to account for significant differences between human operators and ADS. The Agency's preliminary approach is to avoid development of an entirely separate set of rules for ADS-equipped CMVs and their operation. The Agency would rely on NHTSA to establish Federal standards, if necessary, applicable to ADS equipment manufacturers (whether of original or aftermarket equipment), while FMCSA would focus on those rules necessary to ensure that motor carriers operating ADS-equipped CMVs have a uniform regulatory framework within which to operate in interstate commerce.

VI. Motor Carrier Safety Advisory Committee (MCSAC)

In 2017, FMCSA requested that its MCSAC [1] provide recommendations to the Agency to assist with policy issues concerning the integration of ADS-equipped CMVs into the commercial fleet. During the MCSAC's June 12–13, 2017, meeting, the Agency requested (Task 17–1) that the group provide recommendations concerning the issues FMCSA should consider in ensuring that the Federal safety regulations provide appropriate standards for the safe operation of ADS-equipped CMVs, from design and development through testing and deployment. Specifically, the MCSAC was asked to consider the application of the following regulatory provisions in title 49, Code of Federal Regulations (CFR), to ADS-equipped CMV operations:

(1) Part 383, Commercial Driver's License Standards; Requirements and Penalties;

(2) Part 391, Qualifications of Drivers and Longer Combination Vehicle (LCV) Driver Instructors;

(3) Sections 392.80 and 392.82, Limiting the Use of Electronic Devices;

(4) Part 395, Hours of Service of Drivers; and

(5) Part 396, Inspection, Repair, and Maintenance.

The MCSAC completed its task during its July 30–31, 2018, meeting. A copy of the MCSAC's final report can be found at: *https://www.fmcsa.dot.gov/advisory-committees/mcsac/mcsac-task-17-1-final-report.*

VII. FMCSA'S Safety Oversight Goals

FMCSA has initiated this rulemaking to ensure that appropriate performance-based safety requirements are in place to support the integration of ADS-equipped CMVs into the U.S. fleets. The Agency believes the private sector will continue to make significant progress in the design, testing, and deployment of ADS technology and that the integration of ADS-equipped vehicles may provide improvements in transportation safety and the efficient movement of freight and passengers.

Generally, FMCSA does not believe there is a need to revise the FMCSRs to accommodate the integration of Levels 1–3 equipment because a licensed CMV operator must be present at the controls of the vehicle at all times. FMCSA's driver-related rules would thus apply. The Agency reminds interstate motor carriers of their responsibility for having safety management controls in place to ensure the safe operation of such ADS-equipped CMVs, in full compliance with the applicable safety requirements. For example, for drivers of CMVs at Levels 1–3 (and obviously at Level 0) the Agency's CDL, controlled substances and alcohol testing, physical qualifications, driver distraction, and HOS rules would be applicable. The Agency, though, may consider guidance and other assistance that could identify best practices for safely operating vehicles with these lower-level systems, as they may present issues not present in more traditional vehicles.

By contrast, revisions to some of the Agency's rules may be needed to address situations in which the ADS technology may have complete control of the CMV under certain circumstances (Level 4) or all circumstances (Level 5). Where ADS technology is operating the vehicle within its ODD, FMCSA expects that the ADS will be capable of safely

[1] The Motor Carrier Safety Advisory Committee (MCSAC) provides advice and recommendations to the Administrator of the Federal Motor Carrier Safety Administration on motor carrier safety programs and motor carrier safety regulations. The MCSAC is composed of up to 20 members appointed by the Administrator for two-year terms and includes representatives of the truck and bus industries, safety advocacy groups, State motor carrier safety enforcement agencies, and labor communities.

maintaining control of the CMV without the need for human intervention and that in the event of a malfunction, the ADS would be designed and equipped to revert to a fail-safe condition. This rulemaking considers what performance-based boundaries are needed to ensure that interstate motor carriers have appropriate safety management controls for the operation of ADS-equipped CMVs.

Operational Design Domains—Vehicle Types and Configurations

As noted in A Vision for Safety 2.0, entities, including operators and developers of ADS-equipped CMVs, are encouraged to define and document the ODD for each ADS available on their vehicle(s) tested or deployed on public roadways, as well as to document the process and procedure for assessment, testing, and validation of ADS functionality within the prescribed ODD. The ODD should describe the specific conditions under which a given ADS or feature is intended to function. The ODD defines where (*e.g.,* what roadway types and speeds) and when (under what conditions, such as day/night, weather limits, etc.) an ADS is designed to operate. At a minimum, the ODD would include the following information:

- Roadway types (interstate, local, etc.) on which the ADS is designed to operate safely;
- Geographic area (city, mountain, desert, etc.);
- Speed range;
- Environmental conditions in which the ADS will operate (weather, daytime/nighttime, etc.); and
- Other domain constraints.

FMCSA expects that motor carriers interested in integrating ADS-equipped CMVs into their fleets would have in-depth discussions with the technology vendors to fully understand the ODD limitations and only utilize Level 4 or 5 capabilities for the conditions for which the vehicle is intended. The Agency seeks to avoid discouraging innovation and technology development and implementation.

In addition, FMCSA requests comments on whether there are CMV types/configurations or cargoes for which fully automated operations should be restricted or prohibited (*e.g.,* hazardous materials, motorcoaches, multi-trailer or longer combination vehicles (LCVs), etc.). If commenters believe the Agency should consider restrictions, please explain why.

VIII. Discussion of Current Safety Rules and the Public Responses to the March 26, 2018, RFC

FMCSA received 98 responses to its March 2018 RFC. The majority of commenters (68) were individuals. Four developers of ADS technology (Embark, Uber, Tesla, and WAYMO) provided comments, along with two insurance organizations (the Property Casualty Insurers Association of America and The Travelers Companies, Inc.), and one trucking company safety director. Other organizations and companies providing comments include the Commercial Vehicle Safety Alliance, Amazon, the National Tank Truck Carriers, Inc., the Small Business in Transportation Coalition, the American Association of Motor Vehicle Administrators, the Ad-Hoc HAV Data Access Coalition, the National Motor Freight Traffic Association, the Community Transportation Association of America, the Competitive Enterprise Institute, the Insurance Institute for Highway Safety—Highway Loss Data Institute, the National School Transportation Association, the MITRE Corporation, the Truck and Engine Manufacturers Association, the Motor and Equipment Manufacturers Association, the Transportation Trades Department of the AFL–CIO, the American Trucking Associations, Securing America's Future Energy, the National Automobile Dealers Association, the Owner-Operator Independent Drivers Association, the Commercial Vehicle Training Association, the Trucking Alliance, Advocates for Highway and Auto Safety, and the Truck Safety Coalition.

Based on public comments received in response to the RFC and during the recent public meetings noted above, FMCSA anticipates that, near-term, Level 4 operations are likely to involve a human driver, either present in the vehicle to facilitate the transition into and out of full automation without stopping, or waiting at a designated location prepared to operate the vehicle for such transitions. Based on FMCSA's preliminary assessment of its safety requirements and the potential of ADS-equipped vehicles, the Agency believes individuals responsible for taking control of an ADS-equipped vehicle on a public road should be subject to the current driver-related rules.

FMCSA is considering a rulemaking regarding the introduction of ADS-equipped CMVs on our Nation's roadways. Below are the major issues commenters raised and FMCSA's responses, as well as other issues applicable to operators of Level 4 ADS-equipped CMVs and how these requirements could be adapted for such vehicles. To assist in development of any regulatory revisions that may be deemed necessary, the Agency requests responses to the following issues and questions. Wherever possible, commenters should provide data in support of their responses.

1. Do the FMCSRs require a human driver?

A Vision for Safety 2.0, issued by NHTSA in September 2017 and focusing on guidance to ADS developers and State governments, included a brief statement from FMCSA which said that, at the time, FMCSA believed that its regulations required that ''a trained commercial driver must be behind the wheel at all times, regardless of any automated driving technologies available on the CMV, unless a petition for a waiver or exemption has been granted.'' However, in the March 2018 RFC, FMCSA stated that it was reconsidering its views on this issue, noting, ''[t]he absence of specific regulatory text requiring a driver be behind the wheel may afford the Agency the flexibility to allow, under existing regulations, ADS to perform the driver's functions in the operational design domain in which the system would be relied upon, without the presence of a trained commercial driver in the driver's seat.''

Some technology companies are developing Level 4 ADS-equipped CMVs to be operated on limited-access highways from exit-to-exit (or on-ramp to off-ramp), with no human operator in the vehicle, and, then, if necessary, operated by a human off these highways. Commenters explained that some shipping companies have distribution centers/warehouses very close to major highways, which makes this ADS operating scenario desirable from a marketing and productivity perspective. Some commenters also stated that a Level 4 ADS-equipped CMV would not operate outside of that ODD without a driver. The technology companies requested that FMCSA issue interpretive guidance or otherwise clarify that the FMCSRs, as written, do not expressly require a human driver at all times. Alternatively, technology companies noted the need for FMCSA to reexamine the definition of ''driver'' in the FMCSRs, specifically as it relates to ADS-equipped CMVs. Many other commenters were opposed to driverless vehicles generally but did not specifically comment regarding whether the current FMCSRs require a human driver at all times.

FMCSA Response: As announced in AV 3.0, the Department will interpret and, consistent with all applicable notice and comment requirements, adapt the definitions of ''driver'' and ''operator'' to recognize that such terms do not refer exclusively to a human, but may include an automated system. Because the regulations do not require the presence of a human driver or operator, FMCSA will interpret its regulations to no longer assume that the CMV driver is always a human or that a human is present onboard a commercial vehicle during its operation, provided that the vehicle is equipped with a Level 4 or Level 5 ADS and is operating within its ODD (in the case of Level 4).

This does not mean that ADS-equipped CMVs operate without FMCSA oversight. Rather, FMCSA is required by statute to prescribe regulations that ensure that CMVs are maintained, equipped, loaded, and operated safely. The Agency, therefore, needs to consider promulgating rules to account for ADS-equipped CMVs, including subjects such as vehicle inspection, repair and maintenance, and other areas that may emerge. In addition, until Level 5 ADS-equipped CMVs are available, human drivers and operators will continue to play a crucial role in the operation of Level 4 ADS-equipped CMVs, as those vehicles can operate without a human only within their ODDs. As such, certain requirements that apply to humans involved in the operation of these vehicles will also need to be revised. Further, FMCSA emphasizes that both the vehicles themselves and entities responsible for the operation of an ADS-equipped CMV in interstate commerce (*i.e.,* motor carriers) remain subject to safety oversight by the Agency, whether a human operates the vehicle or not, and FMCSA retains its authority to take enforcement action if an ADS-equipped CMV is not operated in a safe manner.

Questions: 1.1. How should FMCSA ensure that an ADS-equipped CMV only operates consistent with the ODD for the ADS equipped on the vehicle? 1.2. What are manufacturers' and motor carriers' plans for when and how Levels 4 and 5 ADS-equipped CMVs will become commercially available? 1.3. Should FMCSA consider amending or augmenting the definition of ''driver'' and/or ''operator'' in 49 CFR 390.5 or define a term such as ''ADS driver'' to reduce the potential for misinterpretation of the requirements?

2. Commercial Driver's License (CDL) Endorsements

The March 2018 RFC requested comments on whether FMCSA should require a specific endorsement for human drivers and operators of ADS-equipped CMVs to ensure they (1) understand the capabilities and limitations of the advanced technologies, and (2) know when it is appropriate to rely on automatic, rather than manual, operation. Further, if such an endorsement is required, the Agency requested comment on what types of test(s)—knowledge, skills, or both—should be required to obtain the endorsement, and whether there should be separate endorsements for different types of ADS-equipped CMVs.

Many commenters noted that it is imperative that human drivers and operators of ADS-equipped CMVs fully understand the capabilities and limitations of the advanced technologies that are deployed on vehicles they operate. Some commenters believe that in mixed-use scenarios in which a human may have to take control of a CMV from the ADS, an ADS endorsement should be required for the CDL holder. Given the wide range of technologies and ODDs in which these technologies are able to operate, some commenters expressed concern regarding whether a standardized test could be developed for an ADS CDL endorsement.

FMCSA Response: FMCSA is responsible for the establishment and enforcement of CDL requirements applicable to every person who operates a commercial motor vehicle, as defined in 49 CFR 383.5, in interstate, foreign, or intrastate commerce; to all employers of such persons; and to State Driver License Agencies (SDLAs) that issue CDLs. The Agency believes that any individual who is expected to control the ADS-equipped CMV at any time the vehicle is in operation on a public road must be fully qualified to do so. However, given the way the CDL program is administered by the Agency and the 51 SDLAs, it would be difficult to distinguish between current knowledge and skills requirements and those arguably sufficient for limited Level 4 operations.

In Level 5, the ADS technology is, by definition, capable of performing all driving functions under all conditions. In some operational models, there may be an individual responsible for remotely monitoring multiple CMVs, a scenario that is obviously not covered by the existing CDL regulations. For Level 4, however, the technology would be limited to certain ODDs, which may require the presence of a human prepared to take control as the vehicle approaches the limits of those domains. Preliminarily, the Agency is inclined to maintain the CDL rules, essentially as written, but to clarify that these rules apply to any person who may be relied upon to control any aspect of operation of the ADS-equipped vehicle on a public road.

Under the current rules, the basic CDL requires knowledge and skills tests, with additional testing required to remove certain restrictions or to obtain endorsements. The skills test, or road test, must be given in a representative vehicle. However, ADS technology is advancing rapidly, and there will continue to be a range of approaches to automation. At this time, it would be very difficult to establish uniform knowledge and/or skills tests to adequately assess a CDL holder's understanding of the vehicle's ADS and the specific operating scenarios under which human control may be needed, versus those scenarios where relying solely on the ADS is appropriate. Therefore, it is premature for the Agency to consider proposing rules in this regard. Moreover, it is also difficult at this time to estimate the costs and safety benefits of requiring an ADS endorsement for CDL holders. However, FMCSA agrees that this is a critical issue and, to the extent necessary, will work with stakeholders to provide guidance to ensure that human operators are aware of the technological capabilities of their vehicles.

Questions: 2.1. Should a CDL endorsement be required of individuals operating an ADS-equipped CMV? 2.2. If so, what should be covered in the knowledge and/or skills test associated with an ADS endorsement? 2.3. What would be the impacts on SDLAs? 2.4. Should a driver be required to have specialized training for ADS-equipped CMVs? 2.5. In an operational model that has an individual remotely monitoring multiple CMVs, should the Agency impose limitations on the number of vehicles a remote driver monitors? 2.6. Is there any reason why a dedicated or stand-by remote operator should not be subject to existing driver qualifications?

3. Drivers' Hours of Service (HOS) Rules

Given that the FMCSRs include limitations on the number of hours that a driver may drive during a day and a week to reduce the risk of driver fatigue and fatigue-related crashes, FMCSA requested comments on how drivers' HOS should be recorded if the ADS is relied on to perform some or all of the driving tasks otherwise performed by a human driver.

Commenters stated that the HOS rules should not be applicable for operating scenarios where the ADS technology controls the CMV and there is no human present because there would be no limit on the number of hours the ADS technology could operate the vehicle. However, for scenarios in which a human is needed to operate the vehicle for a portion of a given trip, commenters asked how the HOS rules would apply to the human operator.

FMCSA Response: The FMCSRs include limits on the amount of driving time during a work shift and prohibit individuals from operating CMVs after the individual has accumulated 15 hours of on-duty time (for drivers of passenger-carrying CMVs), or after the 14th hour from the beginning of the work day (for drivers of property-carrying CMVs). Drivers of passenger-carrying vehicles are limited to 10 hours of driving time during the work shift and drivers of property-carrying vehicles to 11 hours of driving time during the work shift.

Drivers of passenger-carrying vehicles must have at least 8, and drivers of property-carrying vehicles at least 10, consecutive hours off-duty at the end of the work shift. Drivers of CMVs are prohibited from driving after accumulating 60 hours of on-duty time within 7 consecutive days (60-hour rule) or 70 hours of on-duty time within 8 consecutive days (70-hour rule). Drivers of property-carrying vehicles, however, may restart weekly calculations at any time after taking 34 consecutive hours off-duty.

The Agency believes, preliminarily, that the basic approach for applying the HOS rules should continue to be used; that is, any time a human is at the controls of an ADS-equipped CMV, either in the driver's seat or operating it remotely, the time should be recorded as on-duty, driving. Any time the human is working without having the responsibility for taking control of the ADS-equipped vehicle (because it is operating in a fully autonomous mode within its intended ODD) should be considered on-duty, not driving. For scenarios in which the human is in a sleeper-berth on a vehicle controlled by ADS technology, the human may record his/her duty status in the same manner as a team driver with hours off-duty in the passenger seat or sleeper-berth time. The Agency welcomes comments on whether these preliminary regulatory approaches are appropriate or whether other structures are preferable.

Questions: 3.1. Should HOS rule changes be considered if ADS technology performs all the driving tasks while a human is on-duty, not driving; off-duty or in the sleeper berth; or physically remote from the CMV? 3.2. Should the HOS requirements apply to both onboard and remote operators? 3.3. If so, how should HOS be recorded when an individual is not physically in control of the vehicle?

4. Medical Qualifications for Human Operators

The FMCSRs include physical qualification standards for humans driving CMVs to ensure that they are medically qualified to do so. In the RFC, FMCSA requested comment on what medical conditions that currently preclude medical qualification (1) could become inapplicable as ADS technology develops, and (2) should not be considered disqualifying for a human driver who is simply monitoring an ADS-equipped CMV.

Several commenters believe FMCSA's current medical requirements for drivers/operators of CMVs should apply when individuals have the responsibility for driving an ADS-equipped CMV. They indicated that for the non-driving tasks (Levels 4–5), further study is needed before considering potential changes to the associated medical requirements.

FMCSA Response: FMCSA's regulations in 49 CFR part 391 include physical qualifications standards for individuals operating CMVs, as defined in 49 CFR 390.5. Such standards were originally established in the late 1930s and have been modified significantly since that time. The Agency also provides advisory criteria for use by healthcare professionals in making the determination whether a driver with certain medical conditions should be issued a medical certificate. Based on FMCSA's preliminary assessment of its safety requirements and the potential of ADS-equipped vehicles, the Agency presently believes individuals responsible for taking control of an ADS-equipped vehicle on a public road should be subject to the current physical qualification standards.

Questions: 4.1. Should some of the physical qualification rules be eliminated or made less stringent for humans remotely monitoring or potentially controlling ADS-equipped CMVs? 4.2. If so, which of the requirements should be less restrictive for human operators who would take control of an ADS-equipped CMV remotely? 4.3. Should the Agency consider less restrictive rules for humans who have the benefit of ADS technology to assist them in controlling the vehicle (*e.g.,* technologies that would enable individuals with limb impairments to operate at a level comparable to individuals without such impairments)?

5. Distracted Driving and Monitoring

The FMCSRs prohibit individuals from texting and using hand-held wireless phones while driving CMVs in interstate commerce. In the RFC, FMCSA requested comment regarding what changes, if any, should be made to the distracted driving regulations for human operators of ADS-equipped CMVs operating in an automated mode.

Some commenters believe changes to regulations would depend on the SAE Level designation of the vehicle, its operational capabilities, and the role of the driver in safe operation. Commenters also believe that if a human is present and responsible for the safe operation of the CMV, current restrictions against distraction should remain in effect.

FMCSA Response: Sections 392.80 and 392.82 of the FMCSRs prohibit individuals from texting and using handheld wireless phones, respectively, while driving CMVs in interstate commerce. A CDL holder, whether operating in interstate, foreign, or intrastate commerce, may also be disqualified for violating State or local laws on texting and use of handheld phones (49 CFR 383.51(c), Table 2, paragraph 10). The regulations do not provide an exception for individuals who are in the driver's seat but have chosen to rely on advanced technologies such as lane departure warning systems, collision avoidance systems, etc. From the above, the requirements related to distracted driving set forth in the FMCSRs apply to human operators of ADS-equipped CMVs, and such operators must remain focused on their duties. While FMCSA is inclined to believe it will remain appropriate to require human operators to comply with all existing regulations concerning distraction while operating ADS-equipped CMVs, the Agency welcomes comments regarding distraction and whether FMCSA should consider amending the rules regarding distraction for cases where an onboard or remote human operator is not actively controlling a Level 4 or 5 ADS-equipped CMV.

Question: 5.1. How should the prohibition against distracted driving (*i.e.,* texting, hand-held cell phone) apply to onboard operators responsible for taking control of the CMV under certain situations, and to remote operators with similar responsibilities?

6. Safe Driving and Drug and Alcohol Testing

FMCSA's controlled substances and alcohol testing requirements in 49 CFR part 382 are intended to prevent crashes and injuries resulting from the misuse of alcohol or use of controlled substances by drivers of CMVs. The rules include requirements for pre-employment drug testing, random alcohol and drug tests, post-crash testing, reasonable suspicion testing, and, for individuals that have tested positive for the misuse of alcohol or use of controlled substances, return-to-duty testing.

Part 392 of the FMCSRs includes requirements for and prohibitions against certain actions of CMV drivers. For example, the rules require drivers to obey the laws, ordinances, and regulations of the jurisdiction in which the CMV is operated and prohibit drivers from operating a CMV while ill or fatigued. Drivers are also prohibited from possessing or being under the influence of drugs or alcohol while on-duty. The regulations also cover matters such as the inspection of cargo and cargo securement devices and systems during trips and procedures for travelling through railroad crossings.

FMCSA did not specifically request comment on these issues in the RFC. However, the Agency believes preliminarily that these rules should continue to apply to any human who is expected to take control of the operation of the ADS-equipped CMV while it is on a public road.

Questions: 6.1. Should FMCSA consider revising its rules to ensure that (1) any human exercising control of an ADS-equipped vehicle must continue to comply with all the rules under Part 392, and (2) a CMV under the control of a Level 4 or Level 5 ADS must satisfy the operational rules? 6.2. For example, should FMCSA require that the ADS be capable of identifying highway-rail grade crossings and stopping the CMV prior to crossing railroad tracks to avoid collisions with trains, or going onto a highway-rail grade crossing without having sufficient space to travel completely through the crossing without stopping? 6.3. For scenarios in which the control of the ADS-equipped CMV alternates, or may alternate, between a human and the technology, should FMCSA require that both the human operator and ADS comply with the applicable operational rules?

7. Inspection, Repair, and Maintenance

The FMCSRs require all CMVs to be systematically inspected, repaired, and maintained, all parts to be in safe and proper operating condition at all times, and each vehicle to pass an inspection at least once every year. In the RFC, FMCSA requested comments regarding how motor carriers will be able to ensure the proper functioning of ADS prior to operating in automated mode, whether motor carrier personnel responsible for maintaining ADS equipment should be required to have a minimum level of training, and what types of malfunctions or damage on an ADS-equipped CMV would be considered an imminent hazard.

Commenters stated that safety rules should require that ADS include self-diagnostic capabilities and reporting for critical subsystems as well as for the full ADS itself. They also believe the Department should establish minimum performance or equipment criteria, and test procedures for self-certification and marking of ADS-equipped vehicles. Commenters also stated that individuals responsible for maintaining the ADS equipment should have minimum training and certification.

FMCSA Response: The FMCSRs include requirements for motor carriers to have systematic inspection, repair and maintenance programs for their CMVs and to maintain certain records documenting the types of maintenance performed. Drivers are required to prepare reports of any defects or deficiencies discovered by or reported to them during the work shift and the motor carrier is responsible for taking appropriate actions after receiving such reports, but before the vehicle is dispatched again.

In addition, a comprehensive inspection of CMVs must be conducted at least once every 12 months based on a checklist provided in Appendix G to the FMCSRs and proof of the annual inspection must be maintained on the CMV.

FMCSA prescribes minimum qualifications for individuals conducting the annual inspection if the inspection is not conducted in accordance with a State inspection program that FMCSA considers comparable to the Federal requirements. FMCSA also prescribes minimum qualifications for motor carrier employees responsible for brake-related inspection, repair and maintenance tasks.

FMCSA believes that motor carriers must have appropriate inspection, repair and maintenance programs to ensure that any ADS-equipped CMVs they dispatch are capable of operating safely. This means the CMV must be capable of performing within its ODD. Recognizing that the advanced safety systems used in Level 4 and 5 ADS-equipped CMVs will rely heavily on advanced software programs that will invariably be subject to periodic updates and revision, it will be critical for motor carriers to establish a system to ensure that all vehicles are using the most up-to-date version of safety-critical software.

FMCSA believes it is appropriate to consider amending part 396 to provide clear guidance to motor carriers dispatching Level 4 and Level 5 ADS-equipped CMVs that would operate on a public road. At a minimum, the Agency believes consideration should be given to require:

- Pre-trip inspections before dispatching ADS-equipped CMVs;
- A means for en route inspection for cargo securement devices to ensure proper tension—currently the driver is required to check the devices, but there may be alternative solutions based on improved technology;
- Post-trip inspection requirements, which may vary depending on the sensors and detectors, to identify mechanical/electrical problems that may or may not be related to the ADS technology;
- Periodic or annual inspection of ADS technology.

Consistent with the current FMCSRs concerning qualifications of individuals conducting the annual inspection of CMVs and brake-related inspection, repair, and maintenance tasks on CMVs, the Agency is considering the adoption of similar requirements for motor carrier personnel responsible for ADS-related inspection, repair and maintenance tasks.

Questions: 7.1. What qualifications should be required of the individual performing the pre-trip inspection? 7.2. What kind of routine or scheduled inspections should be performed and what types of ADS-related maintenance records should be required? 7.3. Should the inspection period be more or less frequent than annual for an ADS-equipped CMV? 7.4. Should inspections be mileage-based or time-based (*e.g.,* 1,000 miles, 3 months or 1,000 hours of operation)? 7.5. Should FMCSA impose general requirements for motor carrier personnel responsible for ADS-related inspection, repair, and maintenance tasks similar to the Agency's brake inspector qualification requirements? 7.6. How could FMCSA ensure that motor carriers apply safety-critical software updates?

8. Roadside Inspections

FMCSA and its State partners conduct roadside inspections of CMVs to identify and remove unsafe drivers and vehicles from service. In the RFC, FMCSA requested comment regarding

how an enforcement official will be able to identify CMVs capable of various levels of automated operation, *i.e.,* should ADS-equipped CMVs be visibly marked to indicate the level of automated operation they are designed to achieve.

Although commenters did not state that ADS-equipped CMVs should be subject to a greater level of scrutiny than CMVs operated by humans during roadside inspections, some believed ADS-equipped CMVs should be marked in a manner visible to enforcement personnel, or have some form of electronic vehicle identification to facilitate inspections. Some commenters believe that ADS-equipped vehicles should have malfunction indicators to identify problems in the event there is a roadside inspection.

FMCSA Response: The FMCSRs include requirements for truck and bus parts and accessories necessary for safe operations on public roads. The requirements are provided under 49 CFR part 393. To the extent there are Federal Motor Vehicle Safety Standards (FMVSSs) under 49 CFR part 571 to cover the safety equipment or features, FMCSA cross-references those NHTSA requirements applicable to the vehicle and equipment manufacturers. Through the cross-reference, FMCSA imposes on the motor carriers the responsibility for maintaining the safety equipment and features that NHTSA required the vehicle manufacturers to install.

Currently, neither the FMVSSs nor the FMCSRs include technical requirements specific to ADS technology. There are no ADS-specific Federal performance standards that manufacturers must satisfy for operation in a fully autonomous mode. However, the Agency expects that ADS technology companies will generally follow the Department's voluntary guidance and conduct thorough safety assessments.

FMCSA believes that certain regulatory requirements should be considered to ensure that motor carriers using ADS-equipped CMVs have clear Federal direction for safe operations, irrespective of manufacturers' voluntary safety assessments. FMCSA expects vehicle manufacturers or ADS technology companies to provide motor carriers with a form of self-certification of the capabilities of the ADS technology, based on completion of the voluntary safety assessment. The certification would enable the motor carrier to understand the ODD limitations of the ADS technology. FMCSA also preliminarily anticipates that Level 4 and 5 ADS-equipped vehicles would be marked to enable identification by Federal and State personnel, if there are no other visible indicators (*e.g.,* the absence of a driver's seat and steering wheel). While marking of vehicles to identify the ADS Level of capability would enable Federal and State personnel, motor carriers and drivers to know which vehicles can operate safely without a human at the controls under certain ODDs (*i.e.,* Level 4), or under any operating conditions (*i.e.,* Level 5), identification of the vehicle-specific ODD would likely need to be conveyed separately, through the self-certification based on the voluntary safety assessment.

Roadside inspectors must be able to verify that ADS components are functioning properly. This could be accomplished through a system validation indicator that allows confirmation that the ADS systems are working to full capacity, or through individual malfunction indicators that would let enforcement officials know that a particular subsystem has a fault or defect and that maintenance is needed. The faults or defects might not be critical to safety but suggest that repairs should be made before the vehicle is dispatched again. Malfunction indicators are a routine requirement under both the FMVSSs and FMCSRs (*e.g.,* the antilock brake system malfunction indicator required under FMVSS Nos. 105 and 121 and section 393.55 of the FMCSRs). FMCSA believes requirements for such indicators should be considered to alert motor carrier maintenance personnel as well as Federal and State enforcement officials whether the ADS is fully operational or in need of repair. Motor carriers would then know whether a human must maintain full control of the vehicle and drive it as if there were no ADS technology, or whether the ADS may be relied on as the manufacturer intended it to be used.

Given the many scenarios an ADS-equipped vehicle may encounter on a public road, FMCSA preliminarily believes it would be appropriate to require that the ADS-equipped vehicle, like a human driver, have a means of detecting emergency vehicles such as police, fire, and rescue, and moving out of the path of first responders, as well as taking appropriate action while driving through work-zones.

In addition to basic safety requirements for ADS technology, the Agency is considering enforcement tolerances that could be used by Federal and State enforcement personnel to identify the levels of non-compliance that would warrant placing an ADS-equipped CMV out of service until the problem is corrected.

FMCSA acknowledges that Federal and State enforcement officials may need further training to identify problems with ADS-equipped CMVs, but it is not the Agency's goal to have these officials be responsible for conducting diagnostic tests of a CMV's ADS. FMCSA would discourage inspectors from delaying the movement of ADS-equipped CMVs unless there are clear indications of safety-critical CMV violations and/or ADS faults or malfunctions. FMCSA would work with the private sector and State safety agencies to develop enforcement tolerances for use in determining whether certain faults or malfunctions warrant placing the ADS-equipped CMV out of service.

Questions: 8.1. Should motor carriers be required to notify FMCSA that they are operating Level 4 or 5 ADS-equipped CMVs? 8.2. If so, how should the carrier notify FMCSA? 8.3. Should FMCSA require markings identifying the ADS Level of a vehicle? 8.4. Should the Agency require motor carriers to utilize ADS-equipped CMVs that have a malfunction indicator? 8.5. Should the Agency require that motor carriers deploying ADS-equipped CMVs ensure the vehicle can pull over in response to Federal and State officials or move out of the way of first-responders? 8.6. How might that be achieved, and at what cost? 8.7. How would roadside enforcement personnel know that a vehicle can no longer operate safely? 8.8. Absent an FMVSS, how could standard indications be provided to enforcement personnel?

9. Cybersecurity

Numerous commenters expressed concerns regarding cybersecurity and hacking of ADS-equipped CMVs and recommended that vehicle data access be protected against hacking through recognized principles of data security by design.

FMCSA Response: ADS technologies depend on an array of electronics, sensors, and computer systems. In advancing these features and exploring the safety benefits of these new vehicle technologies, FMCSA and NHTSA are focused on strong cybersecurity to ensure these systems work as intended and are built to mitigate safety and security risks. To ensure a comprehensive cybersecurity environment, NHTSA has adopted a multi-faceted research approach that leverages the National Institute of Standards and Technology's (NIST) Cybersecurity Framework, and encourages industry to adopt practices that improve the cybersecurity posture

of their vehicles in the U.S.[2] FMCSA will work with NHTSA and the automotive industry to proactively address vehicle cybersecurity challenges and to continuously seek methods to mitigate the associated safety risks.

Questions: 9.1. What types of safety and cargo security risks may be introduced with the integration of ADS-equipped CMVs? 9.2. What types of rules should FMCSA consider to ensure that motor carriers' safety management practices adequately address cybersecurity?

10. Confidentiality of Shared Information

FMCSA acknowledges that companies may be reluctant to share certain proprietary data or information with the Agency. While FMCSA notes that 49 CFR 389.9 provides certain protections for ''confidential business information,'' which includes trade secrets or commercial or financial information that is privileged or confidential, the RFC requested comment regarding what measures original equipment manufacturers and technology developers expect of FMCSA before sharing confidential business information. Additionally, FMCSA requested comments on how the Agency might obtain information sufficient to assess the safety performance of ADS-equipped CMVs without collecting confidential business information.

Several commenters stated that they expect FMCSA to establish standards/regulations concerning access to proprietary safety information regarding certain components that directly relate to safety-sensitive functions. They believe NHTSA, FMCSA, and other DOT agencies should work with the private sector to obtain critical safety-related information that may be proprietary. Commenters also believe that these DOT agencies should seek confidentiality agreements to ensure Federal and State enforcement agencies' access to safety data associated with the performance of ADS systems, while protecting the ADS developers' proprietary information.

FMCSA Response: The Agency has established procedures to protect confidential business information submitted as part of a rulemaking (49 CFR 389.9). Additionally, FMCSA will work with motor carriers, manufacturers, and developers to ensure, to the greatest extent practicable, the protection of sensitive data relating to the design, testing, production, and marketing of ADS or proprietary information submitted in response to an Agency request. Unless required by law, FMCSA will not unilaterally or proactively release confidential business information to the public.

Questions: 10.1. As the development of ADS technology continues, the Agency believes there is a need to learn about the performance limitations of these systems. FMCSA draws a distinction between information about performance limitations (*e.g.,* how well does the ADS keep the vehicle in its lane and under what environmental conditions, etc.) and details about the system design (*e.g.,* the specific types of sensors, or the arrays of sensors and cameras used for input to the central processing unit for the ADS). To what extent do ADS developers believe performance data should be considered proprietary and withheld from the public? 10.2. Are the Agency's current processes under 49 CFR 389.9 for submission and protection of confidential business information in the context of a rulemaking sufficient to allow ADS developers and motor carriers to communicate essential information to the Agency regarding the operation of ADS? 10.3. If not, how should those processes be modified?

IX. Voluntary Consensus Standards

As noted above, FMCSA would like to build upon best practices from the private sector in providing guidance to motor carriers on safe practices for the integration of ADS-equipped CMVs. The Agency would consider use of private sector standards to ensure cost-effective, performance-based safety requirements.

OMB's revised Circular A–119, ''Federal Participation in the Development and Use of Voluntary Consensus Standards and in Conformity Assessment Activities,'' (81 FR 4673), states that ''. . . the effectiveness of the U.S. standards system in enabling innovation depends on continued private sector leadership and engagement.'' Circular A–119 is intended to encourage Federal agencies to benefit from the expertise of the private sector, promote Federal agency participation in standards bodies to support the creation of standards that are useable by Federal agencies, and minimize reliance on government-unique standards or regulations where an existing standard would meet the Federal government's objectives.

One of the primary means that FMCSA uses to fulfill the intent of Circular A–119 is to incorporate by reference certain voluntary standards. For example, under 49 CFR 393.7, Matter incorporated by reference, FMCSA adopted several private-sector standards concerning vehicle safety equipment required on CMVs operated in interstate commerce. Rather than crafting and imposing Federal standards or requirements where voluntary consensus standards were followed by the majority of parties, the Agency adopted the private-sector standards by reference. As a result, the Agency can enforce the referenced standards as part of the FMCSRs. Specific areas where such references are used for regulatory requirements include lamps and reflectors for CMVs that were not subject to NHTSA's FMVSS No. 108 (49 CFR 571.108) and standards for cargo securement devices (*e.g.,* chains, synthetic webbing, wire rope, cordage, etc.). FMCSA thus allowed companies following industry best practices to simply continue operating as usual.

Because of the advances in ADS technology, FMCSA's preferred approach to adopting safety requirements at this time is to rely on the development of consensus standards, whenever practicable. Voluntary standards offer flexibility and responsiveness to the rapid pace of innovation, can encourage investment and bring cost-effective innovation to the market more quickly, and may be validated by private sector conformity assessment and testing protocols. The Department supports the development and continuing evolution of stakeholder-driven voluntary standards, which in many cases can be an effective non-regulatory means to support interoperable integration of technologies into the transportation system. The Department, for example, has already adopted SAE's terminology for automated vehicles, including the levels of automation. The Agency requests public comment on the extent to which the private sector has developed consensus standards that the Agency could reference, if necessary, to ensure motor carriers have appropriate guidance on the safety management practices they should have in place to operate ADS-equipped vehicles safety.

X. Motor Carrier Safety Assistance Programs (MCSAP)

FMCSA is responsible for the administration of the MCSAP, a Federal grant program that provides financial assistance to States to reduce the number and severity of CMV-related crashes and hazardous materials incidents. The goal of the MCSAP is to improve CMV safety through consistent, uniform, and effective CMV safety programs. The MCSAP regulations (49 CFR part 350) include conditions for participation by States and local

[2] *https://www.nhtsa.gov/technology-innovation/vehicle-cybersecurity.*

jurisdictions and promote the adoption and uniform enforcement of State safety rules, regulations, and standards that are compatible with the FMCSRs and the Hazardous Materials Regulations (HMRs) issued by the Pipeline and Hazardous Materials Safety Administration, for both interstate, foreign, and intrastate motor carriers and drivers.

Section 350.331 requires participating States to conduct reviews of their laws and regulations for compatibility with the Federal safety rules and HMRs and to report the results of that review in their Commercial Vehicle Safety Plans. The regulation also requires participating States to amend their laws or regulations to make them compatible with the FMCSRs and/or HMRs within three years of the effective date of any newly enacted regulations.

In the event FMCSA amends the FMCSRs to adopt rules concerning the operation of ADS-equipped CMVs, FMCSA anticipates its State partners would adopt compatible rules. Through this rulemaking, FMCSA discourages States from adopting more stringent rules concerning ADS, which could interfere with interstate commerce.

XI. Questions

1. Do the FMCSRs require a human driver?

1.1. Should FMCSA establish a rule that would prohibit an ADS-equipped CMV from operating outside its designated ODD?

1.2. What are manufacturers' and motor carriers' plans for when and in what way Level 4 and 5 ADS-equipped CMVs will become commercially available?

1.3. Should FMCSA consider amending or augmenting the definition of ''driver'' and/or ''operator'' provided in 49 CFR 390.5 or define a term such as ''ADS driver'' to reduce the potential for misinterpretation of the requirements?

2. Commercial Driver's License (CDL) Endorsements

2.1. Should a CDL endorsement be required of individuals operating an ADS-equipped CMV?

2.2. If so, what should be covered in the knowledge and/or skills test associated with an ADS endorsement?

2.3. What would be the impacts on SDLAs?

2.4. Should a driver be required to have specialized training for ADS-equipped CMVs?

2.5. In an operational model that has an individual remotely monitoring multiple CMVs, should the Agency impose limitations on the number of vehicles a remote driver monitors?

2.6. Should a dedicated or stand-by remote operator be subject to existing driver qualifications?

3. Drivers' Hours of Service (HOS) Rules

3.1. Should HOS rule changes be considered if ADS technology performs all the driving tasks while a human is off-duty or in the sleeper berth, or physically remote from the CMV?

3.2. Should the HOS requirements apply to both onboard and remote operators?

3.3. If so, how should HOS be recorded when an individual is not physically in control of the vehicle?

4. Medical Qualifications for Human Operators

4.1. Should some of the physical qualification rules be eliminated or made less stringent for humans remotely monitoring or potentially controlling ADS-equipped CMVs?

4.2. If so, which of the requirements should be less restrictive for human operators who would take control of an ADS-equipped CMV remotely?

4.3. Should the Agency consider less restrictive rules for humans who have the benefit of ADS technology to assist them in controlling the vehicle (*e.g.,* technologies that would enable individuals with limb impairments to operate at a level comparable to individuals without such impairments)?

5. Distracted Driving and Monitoring

5.1. How should the prohibition against distracted driving apply to onboard operators responsible for taking control of the CMV under certain situations, and to remote operators with similar responsibilities?

6. Safe Driving

6.1. Should FMCSA consider revising its rules to ensure that (1) any human exercising control of an ADS-equipped vehicle must continue to comply with all the rules under Part 392, and (2) a CMV under the control of a Level 4 or Level 5 ADS must satisfy the operational rules?

6.2. For example, should FMCSA require that the ADS be capable of identifying highway-rail grade crossings and stopping the CMV prior to crossing railroad tracks to avoid collisions with trains, or going onto a highway-rail grade crossing without having sufficient space to travel completely through the crossing without stopping?

6.3. For scenarios in which the control of the ADS-equipped CMV alternates, or may alternate, between a human and the technology, should FMCSA require that both the human operator and ADS comply with the applicable operational rules?

7. Inspection, Repair and Maintenance

7.1. If so, what qualifications should be required of the individual performing the inspection?

7.2. What kind of routine or scheduled inspections should be performed and what types of ADS-related maintenance records should be required?

7.3. Should the inspection period be more frequent than annual for an ADS-equipped CMV?

7.4. Should inspections be mileage-based or time-based (*e.g.,* 1,000 miles, 3 months or 1,000 hours of operation)?

7.5. Should FMCSA impose general requirements for motor carrier personnel responsible for ADS-related inspection, repair, and maintenance tasks similar to the Agency's brake inspector qualification requirements?

7.6. How could FMCSA ensure that motor carriers apply available after-market software updates?

8. Roadside Inspections

8.1. Should motor carriers be required to notify FMCSA that they are operating Level 4 or 5 ADS-equipped CMVs?

8.2. If so, how should the carrier notify FMCSA?

8.3. Should FMCSA require markings identifying the ADS Level of a vehicle?

8.4. Should the Agency require motor carriers to utilize ADS-equipped CMVs that have a malfunction indicator?

8.5. Should the Agency require that motor carriers deploying ADS-equipped CMVs ensure the vehicle can pull over in response to Federal and State officials or move out of the way of first-responders?

8.6. How might that be achieved, and at what cost?

8.7. How would roadside enforcement personnel know that a vehicle can no longer operate safely?

8.8. Absent an FMVSS, how could standard indications be provided to enforcement personnel?

9. Cybersecurity

9.1. What types of safety and cargo security risks may be introduced with the integration of ADS-equipped CMVs?

9.2. What types of rules should FMCSA consider to ensure that motor carriers safety management practices adequately address cybersecurity?

10. Confidentiality of Shared Information

10.1. As the development of ADS technology continues, the Agency believes there is a need to learn about

the performance limitations of these systems. FMCSA draws a distinction between information about performance limitations (*e.g.,* how well does the ADS keep the vehicle in its lane and under what environmental conditions, etc.) and details about the system design (*e.g.,* the specific types of sensors, or the arrays of sensors and cameras used for input to the central processing unit for the ADS). To what extent do ADS developers believe performance data should be considered proprietary and withheld from the public?

10.2. Are the Agency's current processes under 49 CFR 389.9 for submission and protection of confidential business information in the context of a rulemaking sufficient to allow ADS developers and motor carriers to communicate essential information to the Agency regarding the operation of ADS?

10.3. If not, how should those processes be modified?

Issued under authority delegated in 49 CFR 1.87.

Dated: May 21, 2019.

Raymond P. Martinez,

Administrator.

[FR Doc. 2019–11038 Filed 5–23–19; 4:15 pm]

BILLING CODE 4910–EX–P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 660

[Docket No. 190409351–9452–01]

RIN 0648–XG972

Fisheries Off West Coast States; Coastal Pelagic Species Fisheries; Annual Specifications

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Proposed rule.

SUMMARY: NMFS proposes to implement annual catch limits and management measures for the northern subpopulation of Pacific sardine (hereafter, Pacific sardine), for the fishing year from July 1, 2019, through June 30, 2020. The proposed action would prohibit most directed commercial fishing for Pacific sardine off the coasts of Washington, Oregon, and California. Pacific sardine harvest would be allowed only in the live bait fishery, minor directed fisheries, as incidental catch in other fisheries, or as authorized under exempted fishing permits. The incidental harvest of Pacific sardine would be limited to 20 percent by weight of all fish per trip when caught with other stocks managed under the Coastal Pelagic Species Fishery Management Plan or up to 2 metric tons when caught with non-Coastal Pelagic Species stocks. The proposed annual catch limit for the 2019–2020 Pacific sardine fishing year is 4,514 metric tons. This proposed rule is intended to conserve and manage the Pacific sardine stock off the U.S. West Coast.

DATES: Comments must be received by June 12, 2019.

ADDRESSES: You may submit comments on this document, identified by NOAA–NMFS–2019–0034, by any of the following methods:

- *Electronic Submissions:* Submit all electronic public comments via the Federal e-Rulemaking Portal. Go to *www.regulations.gov/#!docketDetail;D=NOAA-NMFS-2018-0034,* click the ''Comment Now!'' icon, complete the required fields, and enter or attach your comments.
- *Mail:* Submit written comments to Lynn Massey, Sustainable Fisheries Division, NMFS West Coast Region, 501 W Ocean Blvd., Ste. 4200, Long Beach, CA 90802–4250; Attn: Lynn Massey.

Instructions: Comments sent by any other method, to any other address or individual, or received after the end of the comment period, may not be considered by NMFS. All comments received are a part of the public record and will generally be posted for public viewing on *www.regulations.gov* without change. All personal identifying information (*e.g.,* name, address, etc.), confidential business information, or otherwise sensitive information submitted voluntarily by the sender will be publicly accessible. NMFS will accept anonymous comments (enter ''N/A'' in the required fields if you wish to remain anonymous).

A copy of the report ''Assessment of Pacific Sardine Resource in 2019 for U.S.A. Management in 2019–2020'' is available at *https://www.pcouncil.org/wp-content/uploads/2019/04/E3_Supp_Att1_REVISED_Sardine_Assessment_Update_Review_Draft-full-version-electronic-only-DO-NOT-PRINT.pdf,* and may be obtained from the West Coast Region (see **ADDRESSES**).

FOR FURTHER INFORMATION CONTACT: Lynn Massey, West Coast Region, NMFS, (562) 436–2462, *lynn.massey@noaa.gov.*

SUPPLEMENTARY INFORMATION: NMFS manages the Pacific sardine fishery in the U.S. exclusive economic zone (EEZ) off the Pacific coast (California, Oregon, and Washington) in accordance with the Coastal Pelagic Species (CPS) Fishery Management Plan (FMP). The FMP and its implementing regulations require NMFS to set annual catch levels for the Pacific sardine fishery based on the annual specification framework and control rules in the FMP. These control rules include the harvest guideline (HG) control rule, which, in conjunction with the overfishing limit (OFL) and acceptable biological catch (ABC) rules in the FMP, are used to manage harvest levels for Pacific sardine, in accordance with the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), 16 U.S.C. 1801 *et seq.*

During public meetings each year, the NMFS Southwest Fisheries Science Center (SWFSC) presents the estimated biomass for Pacific sardine to the Pacific Fishery Management Council's (Council) CPS Management Team (Team), the Council's CPS Advisory Subpanel (Subpanel) and the Council's Scientific and Statistical Committee (SSC). The Team, Subpanel and SSC review the biomass and the status of the fishery, and recommend applicable catch limits and additional management measure. Following Council review and public comment, the Council adopts a biomass estimate and recommends catch limits and any in-season accountability measures to NMFS. NMFS publishes annual specifications in the **Federal Register** to establish these catch limits and management measures for each Pacific sardine fishing year. This rule proposes the Council's recommended catch limits for the 2019–2020 fishing year, as well as management measures to ensure that harvest does not exceed those limits, and adoption of an OFL and ABC that take into consideration uncertainty surrounding the current estimate of biomass for Pacific sardine.

Recommended Catch Limits

According to the FMP, the catch limit for the principal commercial fishery is determined using the FMP-specified HG formula. The HG formula in the CPS FMP is HG = [(Biomass-CUTOFF) * FRACTION * DISTRIBUTION] with the parameters described as follows:

1. *Biomass.* The estimated stock biomass of Pacific sardine age one and above. For the 2019–2020 management season, this is 27,547 metric tons (mt).

2. *CUTOFF.* This is the biomass level below which no HG is set. The FMP established this level at 150,000 mt.

3. *DISTRIBUTION.* The average portion of the Pacific sardine biomass