

northerly airport property line located easterly of Pinewald-Keswick Road.

The County of Ocean also requests the release of real property totaling 19.26 acres in addition to the granting of an access easement right of way on same parcels for use as spoil storage area and a dog park. Parcel 3 (Highway Department Spoil Area) consists of 16.52 acres located within the Township of Lacey. The parcel consists of a rectangular parcel 1200 feet long by 600 feet wide adjacent and at right angles to the Lacey Township line. The east corner of the parcel is located 145 feet southeast of the centerline of the existing sand entry road to the spoil area. Parcel 4 (Dog Park) consists of 2.74 acres located within the Township of Berkeley. The perimeter of this parcel is located 10 feet outside of the existing dog park fence line. The south line of the parcel is 20 feet north of the centerline of the existing airport access road pavement. As shown on the Airport Layout Plan (ALP), the above describe properties do not serve an aeronautical purpose and are not needed for airport development.

No AIP funds were used to purchase the parcels to be released. All of the parcels were acquired through either condemnation or fee simple purchase with County funds. The ALP will be updated to show the new airport property boundary. The airport property will be released to the County and will remain County owned.

Any person may inspect the request by appointment at the FAA office address listed above. Interested persons are invited to comment on the proposed lease. All comments will be considered by the FAA to the extent practicable.

Issued in Camp Hill, Pennsylvania, February 28, 2014.

**Lori K. Pagnanelli,**

*Manager, Harrisburg Airports District Office.*

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**BILLING CODE 4910-13-P**

## DEPARTMENT OF TRANSPORTATION

### Federal Aviation Administration

#### Waiver of Autonomous Reentry Restriction for a Reentry Vehicle

**AGENCY:** Office of Commercial Space Transportation; Federal Aviation Administration (FAA), DOT.

**ACTION:** Notice of waiver.

**SUMMARY:** This notice concerns three petitions for waiver related to the launch and reentry of an Orion Multi-Purpose Crew Vehicle. In the first of these petitions, United Launch Alliance

(ULA) requested a waiver of the FAA's requirement that the expected number of casualties for a launch not exceed 0.00003 casualties ( $E_c \leq 30 \times 10^{-6}$ ) from debris. For the second and third petitions, Lockheed Martin (Lockheed) requested waivers of the FAA's regulatory requirements that (1) the expected number of casualties for the entire mission, including launch and reentry, not exceed  $30 \times 10^{-6}$  casualties from debris; and (2) an operator only initiate reentry of a reentry vehicle by command. The FAA elects to consider all three petitions together because all three involve the same essential facts and risk analyses. The FAA grants all three petitions.

**FOR FURTHER INFORMATION CONTACT:** For technical questions concerning this waiver, contact Charles P. Brinkman, Aerospace Engineer, AST-200, Office of Commercial Space Transportation (AST), Federal Aviation Administration, 800 Independence Avenue SW., Washington, DC 20591; telephone (202) 267-7715; email: [phil.brinkman@faa.gov](mailto:phil.brinkman@faa.gov). For legal questions concerning this waiver, contact Laura Montgomery, Manager, Space Law Branch (AGC-250), Regulations Division, Office of the Chief Counsel, Federal Aviation Administration, 800 Independence Avenue SW., Washington, DC 20591; telephone (202) 267-3150; email: [laura.montgomery@faa.gov](mailto:laura.montgomery@faa.gov).

#### SUPPLEMENTARY INFORMATION:

##### Background

Lockheed and ULA are private commercial space flight companies. Lockheed entered into a contract with the National Aeronautics and Space Administration (NASA) to provide the first orbital flight test for NASA's Orion Multi-Purpose Crew Vehicle Program. Lockheed has contracted with ULA to provide launch services for the mission.

The FAA is responsible for licensing, in relevant part, the launch of a launch vehicle and the reentry of a reentry vehicle, under authority granted to the Secretary of Transportation by 51 USC Subtitle V, chapter 509 (Chapter 509), and delegated to the FAA's Administrator and Associate Administrator for Commercial Space Transportation.

The mission at issue in this notice is Orion Exploration Flight Test 1, launching from Cape Canaveral Air Force Station in Florida. The mission tests the Orion Multi-Purpose Crew Vehicle in an uncrewed, limited-capability configuration, and serves as a stepping stone towards a crew-capable vehicle that would enable human exploration missions beyond Earth

orbit. The mission is comprised of a launch, which is conducted by ULA, and a reentry, which is conducted by Lockheed. The launch vehicle is ULA's Delta IV Heavy launch vehicle, which consists of a Common Booster Core (CBC) as the first stage with two additional strap-on CBCs and a Delta IV Cryogenic Second Stage (DCSS). The first burn of the DCSS places the Orion and the DCSS in orbit, and a second DCSS burn places the Orion into a highly elliptical, negative-perigee trajectory, to simulate the thermal conditions and high reentry speeds the module would experience returning from missions beyond Earth orbit. After separating from the DCSS, the Orion module reenters over the eastern Pacific Ocean, splashing down 231 nautical miles west of Baja California, Mexico.

Section 417.107(b)(1) of Title 14 of the Code of Federal Regulations (14 CFR) prohibits the launch of a launch vehicle if the expected casualty ( $E_c$ ) for the flight exceeds  $30 \times 10^{-6}$  for, in relevant part, impacting inert and explosive debris (debris). On February 27, 2014, ULA petitioned for a waiver because the launch has a debris risk of  $163 \times 10^{-6}$ .

Section 435.35 establishes acceptable risk for reentry vehicles, and requires operators to comply with §§ 431.35(a) and 431.35(b)(1)(i),<sup>1</sup> which in turn prohibit an  $E_c$  for debris in excess of  $30 \times 10^{-6}$ , for both launch and reentry combined. On February 27, 2014, Lockheed also petitioned for a waiver because the mission has a combined risk of  $164 \times 10^{-6}$ .

Section 431.43(e) requires any reusable launch vehicle (RLV) that enters Earth orbit to be operated such that the vehicle operator can monitor and verify the status of safety critical systems before enabling reentry. This section also prohibits operators from designing a system to reenter autonomously. On February 27, 2014, Lockheed requested a waiver from this prohibition.

#### Waiver Criteria

Chapter 509 allows the FAA to waive a license requirement if the waiver (1) will not jeopardize public health and safety, and safety of property; (2) is in the public interest; and (3) will not jeopardize national security and foreign policy interests of the United States. 51 U.S.C. 50905(b)(3); 14 CFR 404.5(b).

##### A. Sixty Day Requirement

Section 404.3(b)(5) requires that a petition for waiver be submitted at least

<sup>1</sup> Although the module is a reentry vehicle and not a reusable launch vehicle, 14 CFR 435.33 incorporates and applies § 431.43 to all reentry vehicles.

sixty days before the proposed effective date of the waiver, which in this case would be March 8, 2014, the date by which the FAA must make its licensing determination. This section also provides that a petition may be submitted late for good cause.

Here, ULA and Lockheed submitted their waiver petitions on February 27, 2014, less than sixty days before the statutory deadline for the FAA's license determination. However, both launch operators have shared drafts of their petitions with the FAA, thus providing the FAA with sufficiently early access to the information to review the information in a timely fashion. Accordingly, the FAA is able to find good cause.

#### B. Public Health and Safety, and Safety of Property

For the purposes of clarity, the FAA's analysis of public health and safety, and the safety of property, is broken down into subsections reflecting the various issues raised by the risk waivers and autonomous reentry waivers, respectively.

##### 1. Launch and Mission Risk

Although the FAA's regulations prohibit debris risk in excess of  $30 \times 10^{-6}$ , a waiver is warranted in this case because the United States Government's experience conducting other space missions with risk in excess of  $100 \times 10^{-6}$  demonstrates that the risks of this mission are consistent with the public health and safety, and the safety of property. ULA and Lockheed provided risk analyses for both launch and reentry, respectively, but it was the FAA who calculated the total mission risk for debris as  $165 \times 10^{-6}$ . That number may be broken down as follows:

- $20 \times 10^{-6}$  from launch, with approximately  $10 \times 10^{-6}$  attributable to local area risk and approximately  $10 \times 10^{-6}$  attributable to overflight (downrange) risk;
- $143 \times 10^{-6}$  from random and off-target reentry of the DCSS during the second DCSS burn;
- $<1 \times 10^{-6}$  for reentry of the Orion module

The United States Government has repeatedly accepted risk for government launches in excess of the FAA's  $30 \times 10^{-6}$  and in excess of  $100 \times 10^{-6}$ , without negative consequences for safety. For example, the current  $E_c$  requirement for government launches from U.S. National Test Ranges is  $1 \times 10^{-4}$  (equal to  $100 \times 10^{-6}$ ), encompassing all risk from debris, toxics, and overpressure. See Air Force Instruction 91-217, *Space Safety and*

*Mishap Prevention Program* (2010). Moreover, the Space Shuttle used a debris risk criterion of  $200 \times 10^{-6}$  for launch risk to the public. See NASA's Implementation Plan for Space Shuttle Return to Flight and Beyond, Vol. 1 Final Edition, at 2-39 (May 15, 2007). And, in 2005, the U.S. Air Force approved a government launch of a Titan where the risk ranged from  $145$  to  $317 \times 10^{-6}$ . Dept. of the Air Force Memorandum, Overflight Risk Exceedance Waiver for Titan IV B-30 Mission (Apr. 4, 2005).

Additionally, in 2012, the FAA granted a waiver to SpaceX under similar circumstances. *Waiver of Acceptable Risk Restriction for Launch and Reentry*, Notice of Waiver, 77 FR 24556 (Apr. 24, 2012). SpaceX's 2012 mission was also NASA-sponsored; involved a test of the company's reentry vehicle, the Dragon module; and posed an estimated total mission risk from debris of between 98 and  $121 \times 10^{-6}$ . *Id.*

ULA's launch risk of  $163 \times 10^{-6}$  is less than the risk approved for these government systems. Accordingly, granting a waiver of §§ 417.107(b)(1) and 431.35(b)(1)(i) in this case does not jeopardize the public health and safety, or the safety of property.

##### 2. Safety of Autonomous Reentry Waiver

Because Orion's reentry system allows Lockheed to identify anomalies or other non-compliant conditions, a waiver allowing autonomous reentry in this instance would not jeopardize the public health and safety, or the safety of property. In 1999, in the preamble to the reentry-rule NPRM, the FAA expressed concern that autonomous reentry was not adequately safe. *Commercial Space Transportation Reusable Launch Vehicle and Reentry Licensing Regulations*, Notice of Proposed Rulemaking, 64 FR 19626, 19645 (Apr. 21, 1999). The FAA was specifically concerned about the possibility that anomalies or other non-compliant conditions occurring in then-existing technology would not be identified prior to an autonomous reentry initiation. *Id.* By requiring the capability for human intervention, however, the FAA did not intend to permanently foreclose the use of autonomous systems or autonomous decision-making. In fact, the agency expressly acknowledged that safer autonomous systems were feasible, and that greater levels of confidence in a particular system could cause the agency to change its position. *Commercial Space Transportation Reusable Launch Vehicle and Reentry Licensing Regulations*, Final Rule, 65 FR 56618, 56641 (Sept. 19, 2000). Despite

its concerns, the FAA retained the authority to waive the autonomous reentry restriction. *Id.* Lockheed's proposed approach to reentry addresses the concerns underlying the FAA's regulatory requirements. Under Lockheed's proposed plan, Lockheed would use two means of detecting anomalies and non-compliant conditions. Lockheed's Flight Control Team can monitor and control the module, and the Orion module monitors itself real-time.

ULA's proven DCSS system propels the module to a targeted reentry location over 200 miles into the Pacific Ocean. In a nominal reentry, the Orion module waits for the DCSS to signal that the module is at its pre-determined time for separation, the DCSS thrusters are inhibited, and the vehicle is operating within pre-determined state vector rate requirements. The Orion then autonomously commands its separation from the DCSS and activates the module's propulsion system. Each string of Orion thrusters is capable of providing closed-loop attitude control in the pitch, yaw, and roll axes, as well as translational delta-velocity. Given the trajectory and landing location chosen for the mission, however, combined with the limited thrust performance capability of the module's individual thrusters and limited total onboard propellant, the module does not have the propulsive capability to move its impact point over land following DCSS separation.

While the module is in flight, Lockheed's Flight Control Team is capable of receiving and monitoring real-time vehicle telemetry transmissions. By doing so, the team will be able to detect anomalies and non-compliant conditions. In the event the Flight Control Team detects an off-nominal condition, the team can send several pre-approved contingency commands to the module to mitigate loss of vehicle and protect public safety. In the event a communications failure causes the Flight Control Team to lose direct insight into the raw health-and-status telemetry data, the module has the ability to autonomously guide itself to its pre-determined landing site. This autonomous capability allows the module to safely reenter, descend, land, and safe itself post-splashdown—even after a communications failure with the ground.

In addition to the systems already described, the Orion module itself has the ability to identify anomalies or other non-compliant conditions. Orion has the ability to monitor its safety-critical systems in real-time. It has a space-grade vehicle management computer

with redundant flight control modules. It has the ability to check the validity of its data by reviewing—using built-in channel selection criteria—data received from redundant sensors. The redundant sensors include redundant GPS receiver antennas and redundant, space-grade inertial measurement units.

Also playing an instrumental role in the FAA's ability to grant a waiver is the fact that Orion is equipped with a number of mitigating features. First, Orion has a "cold-restart" capability and self-checking pair processors to maintain proper vehicle commanding after any unexpected power cycle, radiation upset, or other off-nominal event that would require an automatic restart of the module's computing system. Also, Orion's computing system has fail-silent functionality to prevent off-nominal corrupted or inadvertent vehicle commanding. Finally, Orion has two independent and redundant propulsion strings, which ensure that even if one fails the propulsion system will still perform the planned reentry.

#### C. Public Interest

The FAA looks to its enabling statute to determine how Congress has defined the public interest. The FAA, through AST, implements the agency's statutory mandate to encourage the development of commercial space capabilities and the continuous improvement of the safety of launch vehicles designed to carry passengers. 51 U.S.C. 50901(b).

ULA and Lockheed's petitions to waive the FAA's risk and reentry restrictions are consistent with the public interest because the test flight is necessary to the development of NASA's human-missions capability beyond Earth orbit.

#### D. National Security and Foreign Policy Interests

The FAA has not identified any national security or foreign policy implications associated with granting this waiver.

#### Summary and Conclusion

The FAA determines that the waivers associated with this mission will not jeopardize public health and safety or safety of property. In addition, the waivers are in the public interest because they accomplish the goals of Chapter 509 and do not unduly increase risk to the public. Finally, they will not jeopardize national security and foreign policy interests of the United States. The FAA therefore waives the requirements of 14 CFR 417.107(b)(1) and 431.35(b)(1)(i) for launch and mission risk, respectively, and of 14 CFR 431.43(e) for a commanded reentry.

Issued in Washington, DC, on February 28, 2014.

**Kenneth Wong,**

*Licensing and Evaluation Division Manager.*

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## DEPARTMENT OF TRANSPORTATION

### Federal Motor Carrier Safety Administration

[Docket No. FMCSA-2013-0312]

#### Agency Information Collection Activities; Revision of a Currently-Approved Information Collection Request: Training Certification for Drivers of Longer Combination Vehicles

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

**ACTION:** Notice and request for comments.

**SUMMARY:** In accordance with the Paperwork Reduction Act of 1995, FMCSA announces its plan to submit the Information Collection Request (ICR) described below to the Office of Management and Budget (OMB) for approval and invites public comment. FMCSA requests approval to revise the ICR entitled "Training Certification for Drivers of Longer Combination Vehicles (LCVs)," due to a change in the estimated number of annual responses. This ICR relates to Agency requirements for driver certification to operate LCVs that motor carriers must satisfy before permitting their drivers to operate LCVs. Motor carriers, upon inquiry by authorized Federal, State or local officials, must produce an LCV driver-training certificate for each of their LCV drivers.

**DATES:** Please send your comments by April 9, 2014. OMB must receive your comments by this date in order to act on the ICR.

**ADDRESSES:** All comments should reference Federal Docket Management System (FDMS) Docket Number FMCSA-2013-0312. Interested persons are invited to submit written comments on the proposed information collection to the Office of Information and Regulatory Affairs, Office of Management and Budget. Comments should be addressed to the attention of the Desk Officer, Department of Transportation/Federal Motor Carrier Safety Administration, and sent via electronic mail to [oira\\_submission@omb.eop.gov](mailto:oira_submission@omb.eop.gov), or faxed to (202) 395-6974, or mailed to the Office of Information and Regulatory Affairs, Office of Management and Budget,

Docket Library, Room 10102, 725 17th Street NW., Washington, DC 20503.

**FOR FURTHER INFORMATION CONTACT:** Mr. Thomas Yager, Chief, Driver and Carrier Operations Division, Department of Transportation, Federal Motor Carrier Safety Administration, West Building 6th Floor, 1200 New Jersey Avenue SE., Washington, DC 20590. Telephone: 202-366-4325; email [tom.yager@dot.gov](mailto:tom.yager@dot.gov). Office hours are from 9 a.m. to 5 p.m., Monday through Friday, except Federal Holidays.

#### SUPPLEMENTARY INFORMATION:

*Title:* Training Certification for Drivers of LCVs.

*OMB Control Number:* 2126-0026.

*Type of Request:* Revision of a currently-approved information collection.

*Respondents:* Drivers who complete LCV training each year, current LCV drivers who submit their LCV Driver-Training Certificate to prospective employers, and employers (motor carriers) that receive and maintain copies of their drivers' LCV Driver-Training Certificates.

*Estimated Number of Respondents:* 50,880, consisting of 940 newly certified LCV drivers plus 24,500 currently certified LCV drivers plus 25,440 motor carriers employing LCV drivers.

*Estimated Time per Response:* 10 minutes for preparation of LCV Driver-Training Certificates for drivers who successfully complete the LCV training, and 10 minutes for activities associated with the LCV Driver-Training Certificate during the hiring process.

*Expiration Date:* March 31, 2014.

*Frequency of Response:* On occasion.

*Estimated Total Annual Burden:* 4,240 hours. The total number of drivers who will be subjected to these requirements each year is 25,440, consisting of 940 newly certified LCV drivers, and 24,500 currently certified LCV drivers obtaining new employment. The total annual information collection burden is approximately 4,240 hours, consisting of 157 hours for preparation of LCV Driver-Training Certificates [940 drivers successfully completing LCV driver training × 10 minutes ÷ 60 minutes/hour] and 4,083 hours for requirements related to the hiring of LCV drivers [24,500 LCV drivers obtaining new employment × 10 minutes ÷ 60 minutes/hour].

*Background:* An LCV is any combination of a truck-tractor and two or more semi-trailers or trailers that operates on the National System of Interstate and Defense Highways (according to 23 CFR 658.5) and has a gross vehicle weight greater than 80,000 pounds. To enhance the safety of LCV