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# Ballot Vote Sheet

**TO:** The Commission  
Alberta E. Mills, Secretary

**DATE:** December 7, 2022

**THROUGH:** Austin C. Schlick, General Counsel  
Jason K. Levine, Executive Director

**FROM:** Daniel R. Vice, Assistant General Counsel, Regulatory Affairs  
Barbara E. Little, Attorney, Regulatory Affairs

**SUBJECT:** Notice of Availability and Request for Comment: SEA Technical Report – “Study of Debris Penetration of Recreational Off-Highway Vehicle (ROV) Proof-of-Concept (POC) Floorboard Guards”

**BALLOT VOTE DUE:** Tuesday, December 13, 2022

Attached is a draft *Federal Register* notice, announcing the availability of a report from SEA, Ltd., “Study of Debris Penetration of Recreational Off-Highway Vehicle (ROV) Proof-of-Concept (POC) Floorboard Guards.” The report includes test results of POC floorboard guards per the test methods proposed in the Safety Standard for Debris Penetration Hazards notice of proposed rulemaking (NPR), 87 FR 43688 (July 21, 2022). The report also includes results addressing an alternative test method for debris penetration that appears in two draft voluntary standards. The draft *Federal Register* notice describes how the report may be used as part of CPSC’s rulemaking to address debris penetration hazards associated with ROVs and Utility Task/Terrain Vehicles (UTVs), and seeks comment from the public on the report.

Please indicate your vote on the following options:

- I. Approve publication of the attached notice in the *Federal Register*, as drafted.

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Date)

- II. Approve publication of the attached notice in the *Federal Register*, with the specified changes.

\_\_\_\_\_  
\_\_\_\_\_



# Ballot Vote Sheet

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\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Date)

III. Do not approve publication of the attached notice in the *Federal Register*.

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Date)

IV. Take other action specified below.

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\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Date)

Attachment: Draft *Federal Register* Notice of Availability and Request for Comment: "Study of Debris Penetration of Recreational Off-Highway Vehicle (ROV) Proof-of-Concept (POC) Floorboard Guards"

U.S. Consumer Product  
Safety Commission  
4330 East-West Highway  
Bethesda, MD 20814  
[cpsc.gov](http://cpsc.gov)

National Product Testing  
& Evaluation Center  
5 Research Place  
Rockville, MD 20850

Billing Code 6355-01-P

**CONSUMER PRODUCT SAFETY COMMISSION****Docket No. CPSC-2021-0014****Notice of Availability and Request for Comment: “Study of Debris Penetration of Recreational Off-Highway Vehicle (ROV) Proof-of-Concept (POC) Floorboard Guards”****AGENCY:** Consumer Product Safety Commission.**ACTION:** Notice of availability and request for comment.

**SUMMARY:** The U.S. Consumer Product Safety Commission (Commission or CPSC) is announcing the availability of, and seeking comment on, a report from SEA, Ltd. (SEA), “Study of Debris Penetration of Recreational Off-Highway Vehicle (ROV) Proof-of-Concept (POC) Floorboard Guards” (SEA Technical Report). This report is related to CPSC’s notice of proposed rulemaking (NPR) regarding off-highway vehicle debris penetration hazards. CPSC contracted with SEA to perform debris penetration tests on POC floorboard guards per the test methods described in the NPR. The SEA Technical Report also evaluates an alternative test method for debris penetration that is proposed in two draft voluntary standards. The SEA testing evaluates the effectiveness of the test methods in addressing the debris penetration hazard and the feasibility of the proposed requirements in the NPR.

**DATES:** Comments must be received by **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**.

**ADDRESSES:** Submit comments, identified by Docket No. CPSC-2021-0014, by any of the following methods:

*Electronic Submissions:* Submit electronic comments to the Federal eRulemaking Portal at: [www.regulations.gov](http://www.regulations.gov). Follow the instructions for submitting comments. CPSC

typically does not accept comments submitted by electronic mail (e-mail), except as described below. CPSC encourages you to submit electronic comments by using the Federal eRulemaking Portal.

*Mail/hand delivery/courier/confidential Written Submissions:* Submit comments by mail, hand delivery, or courier to: Office of the Secretary, Consumer Product Safety Commission, 4330 East West Highway, Bethesda, MD 20814; telephone: (301) 504-7479. If you wish to submit confidential business information, trade secret information, or other sensitive or protected information that you do not want to be available to the public, you may submit such comments by mail, hand delivery, or courier, or you may email them to: [cpsc-os@cpsc.gov](mailto:cpsc-os@cpsc.gov).

*Instructions:* All submissions must include the agency name and docket number. CPSC may post all comments without change, including any personal identifiers, contact information, or other personal information provided, to [www.regulations.gov](http://www.regulations.gov). Do not submit through this website: confidential business information, trade secret information, or other sensitive or protected information that you do not want to be available to the public. If you wish to submit such information, please submit it according to the instructions for mail/hand delivery/courier/confidential written submissions.

*Docket:* For access to the docket to read background documents or comments received, go to: [www.regulations.gov](http://www.regulations.gov), and insert the docket number, CPSC-2021-0014, into the “Search” box, and follow the prompts.

**FOR FURTHER INFORMATION CONTACT:** Han Lim, Directorate for Engineering Sciences, U.S. Consumer Product Safety Commission, 5 Research Place, Rockville, MD 20850; telephone: (301) 987-2327; email: [hlim@cpsc.gov](mailto:hlim@cpsc.gov).

**SUPPLEMENTARY INFORMATION:**

CPSC is engaged in a rulemaking to address debris penetration hazards associated with ROVs and Utility Task/Terrain Vehicles (UTVs). On July 21, 2022, the Commission published in the *Federal Register* an NPR regarding a Safety Standard for Debris Penetration Hazards, 87 FR 43688.

The NPR proposed test methods to address debris penetration hazards associated with ROVs and UTVs. The Outdoor Power Equipment Institute (OPEI) and Recreational Off-Highway Vehicle Association (ROHVA), two industry groups that represent ROV and UTV manufacturers in the United States, have proposed a different debris penetration test method in two draft voluntary standards.<sup>1</sup> These two draft standards, ANSI/OPEI B71.9-202x and ANSI/ROHVA-1-202x, include a drop test with an impact energy of 355 joules (the “355 J drop test”) that OPEI and ROHVA assert will address the debris penetration hazard.<sup>2</sup> OPEI and ROHVA proposed this test method as an alternative to the NPR test methods. OPEI and ROHVA assert that the energy level used in the 355 J drop test method is based on the OPEI and ROHVA members’ warranty claim and incident data.

CPSC contracted with SEA to perform debris penetration tests on POC floorboard guards per the test methods described in the NPR and the 355 J drop test method in the two draft voluntary standards. The Technical Report, “Study of Debris Penetration of Recreational Off-highway Vehicle (ROV) Proof-of-Concept (POC) Floorboard Guards,” prepared by SEA in October 2022, provides discussion and test results from testing to the proposed requirements in

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<sup>1</sup> OPEI balloted the proposed test on August 3, 2022. ROHVA balloted the proposed test on September 8, 2022.

<sup>2</sup> OPEI included the draft proposed drop test procedure in a comment to the ROV/UTV Debris Penetration NPR (pages 29 to 32 in the PDF attachment): <https://www.regulations.gov/comment/CPSC-2021-0014-0191>. The drop test method involves a 2-inch diameter wood penetrator dowel that strikes an ROV/UTV floorboard surface when an 80-pound weight is dropped onto the dowel from 1 meter. The drop weight is dropped in a guided path using a plastic pipe or other means to allow for vertical free fall.

the NPR, and to the 355 J drop test method proposed in the two draft voluntary standards. SEA conducted this testing to evaluate the feasibility and effectiveness of POC floorboard guards that conform to the proposed requirements in the NPR, as well as to assess the NPR and 355 J drop test methods.

SEA conducted debris penetration tests using full-scale, autonomously driven ROVs. SEA also tested a simulated ROV sled system it previously developed,<sup>3</sup> to evaluate POC floorboard guards' strength and their ability to reduce the debris penetration hazard. Both the sled tests and autonomous ROV were used to simulate an ROV colliding with an embedded tree branch (represented by a wooden dowel).

The sled tests were conducted in accordance with the proposed requirements in the NPR. Specifically, a simulated vehicle was propelled in a straight-line path towards 2-inch and 3-inch diameter wooden dowels at 10, 12, and 14 mph speeds. The report describes how floorboard guards can be designed to prevent debris penetration at 10 mph, as proposed in the NPR. All tests that had POC aluminum floorboard guards that were at least 0.125 inches thick did not have debris penetrations. These POC floorboard guards are thinner than an aftermarket floorboard guard that passed a 10 mph test during the 2021 SEA study, which was 0.170 inch thick. Test results also showed that POC floorboard guards capable of resisting debris penetration at 10 mph were additionally capable of resisting debris penetration at speeds greater than 10 mph. These test results appear to confirm the feasibility of designing floorboard guards that effectively reduce the risk to consumers of debris penetration hazards.

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<sup>3</sup> For background information, the following 2021 SEA report describes the development of the autonomous and sled test methods and debris penetration testing of commercially available aftermarket floorboard guards: <https://www.cpsc.gov/content/Study-of-Debris-Penetration-of-Recreational-Off-Highway-Vehicle-ROV-Floorboards>.

The SEA Technical Report also contains results of sled tests evaluating a commercially available, model year 2022 plastic floorboard that OPEI and ROHVA members indicated conforms to the draft 355 J drop test method. The SEA report compares the impact results at the 355 J energy level per the NPR test condition of a fully loaded vehicle traveling at 10 mph, which is approximately a 10,000 J energy level. The sled speed found to produce an impact energy level equivalent to the 355 J test condition is approximately 2.2 mph. Although no debris penetration of the plastic floorboard occurred at the 2.2 mph test condition, debris penetration did occur at the NPR's 10 mph test condition, as well as at a 6 mph test condition. The 10 mph speed is representative of incidents reviewed by CPSC and SEA staff, and it is reasonable to assume that drivers will operate ROVs and UTVs at these speeds in wooded areas where debris is likely. Thus, the test results indicate that the OPEI/ROHVA proposed 355 J energy drop test method draft requirement does not adequately prevent debris penetration at 10 mph and poses a risk of debris penetration that could cause serious injury or death to ROV and UTV occupants.

The Commission seeks public comment on the SEA Technical Report. The report is available on CPSC's website at: <https://www.cpsc.gov/content/Study-of-Debris-Penetration-of-Recreational-Off-highway-Vehicle-ROV-Proof-of-Concept-POC-Floorboard-Guards>.

Comments must be received by **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**.

Dated:

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Alberta E. Mills, Secretary  
Consumer Product Safety Commission



## Memorandum

**TO:** The Commission  
 Alberta E. Mills, Secretary

**DATE:** December 07, 2022

**THROUGH:** Austin C. Schlick, General Counsel  
 Jason K. Levine, Executive Director  
 DeWane Ray, Deputy Executive Director

**FROM:** Duane Boniface, Assistant Executive Director  
 Office of Hazard Identification and Reduction

Han Lim, Project Manager  
 Directorate for Engineering Sciences

**SUBJECT:** Notice of Availability: SEA Technical Report – “Study of  
 Debris Penetration of Recreational Off-highway Vehicle (ROV)  
 Proof-of-Concept (POC) Floorboard Guards”

### I. INTRODUCTION

CPSC is engaged in an ongoing rulemaking to address debris penetration hazards associated with Recreational Off-Highway Vehicles (ROVs) and Utility Task/Terrain Vehicles (UTVs). On July 21, 2022, the Commission published a Notice of Proposed Rulemaking (NPR) regarding the Safety Standard for Debris Penetration Hazards in the Federal Register, 87 FR 43688.

CPSC contracted with SEA, Ltd. (SEA) to perform debris penetration tests on proof-of-concept (POC) floorboard guards per the test methods described in the NPR. The SEA testing is intended to evaluate the effectiveness of the test methods in addressing the debris penetration

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 Safety Commission**  
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*This memorandum was prepared by the CPSC staff. It has not been reviewed or approved by, and may not necessarily reflect the views of, the Commission.*

hazard and to demonstrate the feasibility of the proposed requirements in the NPR. The SEA Report also evaluated an alternative test method proposed in two draft voluntary standards which purports to mitigate debris penetration of the floorboards with a proposed test based on the energy level generated in collisions with debris (355 J drop test method). The SEA Technical Report demonstrates the feasibility and effectiveness of POC floorboard guards that comply with the proposed requirements in the NPR (with 10,000 J of energy), as well as the inadequacy of the test method proposed in the draft voluntary standards.

## II. DISCUSSION

The NPR proposed test methods to address debris penetration hazards associated with ROVs and UTVs. The Outdoor Power Equipment Institute (OPEI) and Recreational Off-Highway Vehicle Association (ROHVA), two industry groups that represent the ROV and UTV manufacturers in the United States, have proposed a different debris penetration test method in two draft voluntary standards. These two draft standards, ANSI/OPEI B71.9-202x and ANSI/ROHVA-1-202x, proposed the 355 J drop test method to address the debris penetration hazard.<sup>1</sup> This drop test method involves a 2-inch diameter wood penetrator dowel that strikes an ROV/UTV floorboard surface when an 80 lb weight is dropped onto the dowel from 1 meter. The drop weight is dropped in a guided path using a plastic pipe or other means to allow for vertical free fall. OPEI and ROHVA proposed this test method as an alternative to the NPR test method. OPEI and ROHVA assert that the energy level was based on the OPEI and ROHVA members' warranty claim and incident data.

The SEA Technical Report, "Study of Debris Penetration of Recreational Off-highway Vehicle (ROV) Proof-of-Concept (POC) Floorboard Guards," prepared in October 2022, provides discussion and test results from testing to the proposed requirements in the NPR. It also provides discussion and test results using the 355 J drop test method proposed in the two proposed voluntary standards. This testing was conducted by SEA to evaluate the feasibility and effectiveness of the POC floorboard guards that conform to the proposed requirements in the NPR, as well as to assess the "355 J drop test method."

SEA conducted debris penetration tests using full-scale, autonomously driven ROVs. SEA also tested a simulated ROV sled system developed by SEA in fiscal year 2021,<sup>2</sup> to evaluate POC floorboard guards' strength properties and their ability to reduce the debris penetration hazard. Both the sled tests and autonomous ROV simulated an ROV colliding with an embedded tree branch (simulated by a wooden dowel).

The sled tests were conducted in accordance with the proposed requirements in the NPR. Specifically, a simulated test vehicle is propelled in a straight-line path towards 2-inch and 3-inch diameter wooden dowels at 10, 12, and 14 mph speeds. The report describes how

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<sup>1</sup> OPEI included the draft proposed drop test procedure in a comment to the ROV/UTV Debris Penetration NPR (pages 29 to 32 in the PDF attachment): <https://www.regulations.gov/comment/CPSC-2021-0014-0191>. OPEI balloted the proposed test on August 3, 2022. ROHVA balloted the proposed test on September 8, 2022.

<sup>2</sup> For background information, the following 2021 SEA report describes the development of the autonomous and sled test methods and debris penetration testing of commercially available aftermarket floorboard guards: <https://www.cpsc.gov/content/Study-of-Debris-Penetration-of-Recreational-Off-Highway-Vehicle-ROV-Floorboards>.

floorboard guards can be designed to prevent debris penetration at 10 mph, as proposed in the NPR. All tests that had POC aluminum floorboard guards that were at least 0.125 inches thick did not have debris penetrations. These POC floorboard guards are thinner than an aftermarket floorboard guard that passed a 10 mph test during the 2021 SEA study, which was 0.170 inch thick. Test results also showed that POC floorboard guards capable of resisting debris penetration at 10 mph were additionally capable of resisting debris penetration at speeds greater than 10 mph. These test results illustrate the feasibility of designing floorboard guards that effectively reduce the risk of debris penetration hazards to consumers.

The SEA Technical Report also contains test results of sled tests evaluating a commercially available model year 2022 plastic floorboard that OPEI and ROHVA members indicated conforms to the draft 355 J drop test method. The SEA report compares the impact results at the 355 J energy level and at approximately 10,000 J energy level, per the NPR test condition of a fully loaded vehicle traveling at 10 mph. The sled speed found to produce equivalent energy level of impact as the 355 J test condition is approximately 2.2 mph, whereas the speed of the NPR test condition is 10 mph. Although no debris penetration occurred at the 2.2 mph test condition, debris penetration did occur at the NPR 10 mph test condition. Additionally, debris penetration occurred at a 6 mph test condition. The 10 mph speed is representative of incidents reviewed by CPSC and SEA staff, and it is reasonable to assume that drivers will operate ROVs and UTVs at these speeds in wooded areas. Thus, the test results indicate that the OPEI/ROHVA proposed 355 J energy drop test method draft requirement does not adequately prevent debris penetration at 10 mph and poses a risk of debris penetration.

### III. CONCLUSION

The Commission seeks public comment on this SEA Technical Report. The SEA Technical Report may be used as part of record for a final rule to assess the feasibility and effectiveness of POC floorboard guards that comply with the NPR proposed requirements in reducing the debris penetration hazard. Additionally, the report will be used to assess the adequacy of the proposed 355 J energy level in addressing debris penetration hazards associated with ROVs and UTVs. The report also bears on the capability of floorboard guards that comply with the proposed requirements in the NPR to resist debris penetration at speeds greater than 10 mph.

The SEA report is available on the CPSC website at: <https://www.cpsc.gov/content/Study-of-Debris-Penetration-of-Recreational-Off-highway-Vehicle-ROV-Proof-of-Concept-POC-Floorboard-Guards>.