MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HĪKINA WHAKATUTUKI

COVERSHEET

Minister	Hon Judith Collins KC	**Portfolio**	Space
Title of Cabinet paper	Outer Space and High-altitude Activities (Licences and Permits) Regulations 2017: Proposed Amendments	**Date to be published**	23 September 2024

List of documents that have been proactively released		
Date	**Title**	**Author**
12 July 2024	Outer Space and High-altitude Activities (Licences and Permits) Regulations 2017: Proposed Amendments	Office of the Minister for Space
12 July 2024	Regulatory Impact Statement: Outer Space and High-altitude Activities (Licences and Permits) Regulations 2017: Proposed Amendments	MBIE
7 August 2024	Outer Space and High-altitude Activities (Licences and Permits) Regulations 2017: Proposed Amendments EXP-24-MIN-0040 Minute	Cabinet Office

Information redacted **YES / NO** *(please select)*

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Some information has been withheld for the reason of Privacy of natural persons.

[In Confidence]

Office of the Minister for Space

Cabinet Economic Policy Committee

Policy proposal to amend the Outer Space and High-altitude Activities (Licences and Permits) Regulations 2017

Proposal

1 This paper seeks policy decisions for an amendment to the Outer Space and High-altitude Activities (Licences and Permits) Regulations 2017 to provide greater clarity on requirements for orbital debris mitigation plans.

Relation to government priorities

2 The proposed amendment aligns with my priorities for the Space portfolio, in particular, ensuring New Zealand has a world class space regulatory regime.

Executive Summary

3 Orbital debris are defunct human-made objects orbiting the Earth. Orbital debris pose a serious risk to other functioning space objects, including satellites that we rely on. Through its space regulatory regime, New Zealand seeks to mitigate the risk of orbital debris generation posed by objects launched into space from New Zealand.

4 Applicants for launch licences and payload permits (payloads are satellites or other objects that are carried on a launch vehicle to outer space) under the Outer Space and High-altitude Activities Act 2017 (OSHAA) must submit an orbital debris mitigation plan (ODMP) that meets the requirements of the Outer Space and High-altitude Activities (Licenses and Permits) Regulations 2017 (the OSHAA Regulations).

5 The OSHAA Regulations require applicants to ‘minimise’ or ‘limit’ orbital debris risks. This broad language has created regulatory uncertainty about what risk thresholds must be met to demonstrate risks have been adequately minimised or limited.

6 I propose amending the ODMP requirements in the Outer Space and High-altitude Activities (Licenses and Permits) Regulations 2017 to:

6.1 provide for greater clarity on acceptable risk thresholds by incorporating internationally accepted technical standards,

6.2 establish a waiver process to consider deviations from the acceptable risk thresholds.

Background

7 To grant a launch licence or payload permit under the Outer Space and High-altitude Activities Act 2017 (OSHAA), I must be satisfied that, among other requirements, the applicant has an orbital debris mitigation plan (ODMP) that meets any prescribed requirements.

8 This requirement seeks to ensure applicants to the OSHAA regulatory regime have mitigated risks that New Zealand's space activities will generate orbital debris. The growing orbital debris population poses serious risks to the space and Earth environments, including a risk of human casualty resulting from the disposal of payloads through re-entering Earth's atmosphere at the end of their useful lifetime.

9 The on-going development of New Zealand's space sector and the provision of critical space-enabled services rely upon orbital debris mitigation efforts to ensure that Earth orbit remains usable.

10 ODMP requirements are set out in the Outer Space and High-altitude Activities (Licences and Permits) Regulations 2017 (the OSHAA Regulations). Regulation 13 requires orbital debris generation risks to be limited or minimised.

Difficulty in interpreting regulatory requirements

11 In 2023, a complex regulatory decision highlighted uncertainty in interpreting the requirement to 'minimise' risks for both the regulator and a regulated party.

12 The ODMP requirements set out in the OSHAA Regulations are supported by published guidance. This guidance encourages applicants to the OSHAA regulatory regime to apply international technical standards for orbital debris mitigation in developing their ODMPs. The guidance lists out acceptable international standards and notes that applicants can nominate alternative equivalent standards.

13 Adherence to international orbital debris mitigation standards provides a pathway for applicants to demonstrate risks have been 'minimised' or 'limited' to an acceptable level. It is common practice for New Zealand regulated parties to use adherence to these standards to demonstrate compliance with regulatory requirements. However, while some of these standards or guidelines contain quantitative risk thresholds, some take a qualitative approach, which creates uncertainty about what risk thresholds should be applied.

14 There are waiver provisions in, or associated with, some of the international standards that are listed in published guidance for use by applicants to demonstrate regulatory requirements have been met. These provisions provide a pathway for possible exemptions from meeting all of the risk thresholds set out in the standards. However, they are specific to the

organisations that have developed the standards, which means they cannot be used by applicants to the OSHAA regulatory regime.

15 The OSHAA Regulations do not currently include a waiver provision for strict compliance with orbital debris mitigation risk thresholds, as no such thresholds are included in the Regulations. However, as recognised standards do contain waiver provisions for deviations from risk thresholds, it is unclear how such deviations should be treated under the OSHAA Regulations.

Analysis

16 I am seeking an amendment to the OSHAA Regulations to address the issues outlined above by:

16.1 providing for greater clarity on acceptable orbital debris risk thresholds,

16.2 creating a waivers process for deviations from the acceptable risk thresholds.

17 Policy development was guided by the purposes of the OSHAA and the additional objectives of limiting orbital debris generation, providing greater regulatory certainty, retaining flexibility in the regulatory regime to the extent possible and aligning with international best practice.

Providing greater clarity on acceptable orbital debris risk thresholds

18 I propose that an orbital debris mitigation plan would be required to comply with one of two international standards that would be specified in the OSHAA Regulations.

19 Both of the standards that I propose including in the OSHAA Regulations include quantitative thresholds for a range of orbital debris risks and therefore provide certainty to applicants around the acceptable level of risk. This removes the uncertainty around what is required to demonstrate risks have been ‘minimised’ and provides applicants with a clear pathway for demonstrating compliance with regulatory requirements.

20 Proposed standards were chosen on the basis that they are sufficient for demonstrating that orbital debris risks have been minimised in line with international best practice.

21 I propose specifying the following standards in the OSHAA Regulations:

Authority	**Standards/Guidelines**
National Aeronautics and Space Administration (NASA)	NASA-STD-8719.14 – NASA Technical Standard

European Space Agency (ESA)	ESSB-ST-U-007 ESA Space Debris Mitigation Requirements. This includes reference to: ESSB-HB-U-002 ESA Space Debris Mitigation Compliance Verification Guidelines (which incorporates ISO standard 24113) and, ESSB-ST-U-004 ESA Re-entry Safety Requirements.

22 ESA and NASA orbital debris mitigation standards are currently recommended for use in the Ministry of Business, Innovation and Employment's (MBIE's) published operator guidance. Each of these standards has an associated freely available software package for demonstrating compliance.

23 Applicants will be required to use the latest versions of each of the specified standards and their associated software verification tools. MBIE will regularly review these standards to ensure they continue to be fit for purpose.

24 The OSHAA allows for overseas authorisations to be recognised as meeting some or all of the criteria for the granting of a launch licence, overseas launch licence, payload permit or overseas payload permit. As a continuation of current practice, applicants with a relevant recognised overseas authorisation will not need to have their ODMPs verified by the regulator.

Addition of waiver provision

25 When recognising orbital debris mitigation standards, the objective is for regulated entities to achieve compliance with all of the risk thresholds set out in the standard they elect to use. However, given the rate of technology development, the emergence of new research regarding the orbital environment and design of space objects, and the time required for international standards and best practice to develop, it may not always be possible for an operator to meet the prescribed risk thresholds within a standard.

26 To account for this, the NASA standard I propose for recognition includes a waiver provision, while ESA sets out a waiver process in its Space Debris Mitigation Policy. In cases where one or more risk thresholds set out in the standards are not met, a waiver may be applied for. However, these waiver processes are not designed for New Zealand's space regulatory regime, as they set out organisation-specific pathways for consideration of a waiver application.

27 The waiver provision included in the OSHAA Regulations would replace the waiver provisions in the standards (or associated policies) with a waiver process that is adapted for the New Zealand space regulatory regime.

28 This new waiver provision would mean that in cases where one or more risk thresholds set out in recognised standards are not met, applicants could apply for a waiver. Granting of a waiver would be at the Minister's discretion and only considered in exceptional circumstances, given the overarching objective that regulated entities achieve compliance with orbital debris mitigation requirements.

29 The NASA and ESA standards each have an associated software package (verification software) that is used to demonstrate compliance with the risk thresholds set out in the standard.

30 NASA and ESA verification software are updated relatively regularly and in response to a variety of factors, including changes in scientific understanding. The orbital debris mitigation standards require that the latest version of the software be used. The standards themselves are also updated, though less frequently.

31 However, as the standards themselves, or the verification software can be updated without public notice, this can pose challenges for applicants using a particular standard or its associated verification software to demonstrate regulatory compliance. For example, the standards or software may update when an applicant is partway through the payload permit application process or after they have gone through extensive development of a spacecraft designed to comply with the risk thresholds in a previous version of the standard.

32 I propose using the waiver provision to also consider, on a case-by-case basis, whether an ODMP which complies with an older version of an accepted standard, or that was produced using an older version of the verification software, could be accepted as meeting regulatory requirements.

33 I propose specifying criteria for consideration of waiver applications in the OSHAA Regulations. The proposed criteria set out below are in line with the purposes of the OSHAA and would be considered alongside any other factors the Minister deems relevant:

33.1 Degree of deviation from risk threshold – consideration of how significant the additional risks are to the public, the Earth, and the space environment.

33.2 Significance of the space mission – consideration of any benefits to humanity at large and to New Zealand, including potential for lives to be saved, importance of potential scientific outcomes and weighing up of potential benefits against risks.

33.3 Feasibility of achieving compliance – consideration of what is required to bring the spacecraft (e.g., launch vehicle stage or satellite) into compliance and what measures have been taken to minimise the risk within the constraints of design and timing (for time sensitive missions).

33.4 Consistency with the purpose of the OSHAA– a waiver should only be granted consistent with the purposes of the OSHAA.

33.5 Recency of any updates to standards or associated software verification tools – in some cases the design of a launch vehicle or payload may have been finalised in accordance with standards or software verification tools at the time, and as a result may not meet some risk thresholds in updated versions.

34 Establishing a waiver provision developed for the OSHAA regulatory regime ensures the waiver process is compatible with the regulatory regime while still maintaining alignment with international practice. While the waiver provisions in recognised standards do not set out specific criteria for consideration of a waiver, MBIE has had discussions with ESA and NASA about factors taken into consideration.

Flexibility in approach to high fidelity assessments

35 In cases where the results of an assessment with verification software show particular risk thresholds are not met, a higher fidelity assessment may be required. NASA and ESA have their own models for carrying out high-fidelity assessments.

36 In addition to recognising the results of NASA and ESA high-fidelity assessments, we propose allowing applicants to nominate an approach to high fidelity assessment with an equivalent level of accuracy to the NASA and ESA methods, for consideration by the Minister. This will provide flexibility for applicants and ensure the most appropriate method of high-fidelity assessment can be used.

Implementation

37 An amendment to the OSHAA Regulations will be progressed according to the timeline set out in the table below.

Milestone/Activity	**Timeframe**
Drafting instructions issued to Parliamentary Counsel Office	August 2024
Draft regulations considered by Cabinet	November 2024
Commencement	December 2024

Financial Implications

38 There are no financial implications associated with this proposal.

Legislative Implications

39 An amendment to the Outer Space and High-altitude Activities (Licences and Permits) Regulations 2017 is required to give rise to the policy recommendations in this paper. Timing for the proposed amendment is set out above.

Impact Analysis

Regulatory Impact Statement

40 The regulatory impact analysis requirements apply to this proposal. A Regulatory Impact Statement is appended to this paper.

41 The attached Regulatory Impact Statement was assessed by the Ministry of Business, Innovation and Employment's Regulatory Impact Assessment Quality Assurance Panel as meeting the quality assurance criteria.

Climate Implications

42 This proposal does not have any climate implications.

Population Implications

43 This proposal does not have any impacts on specific population groups.

Human Rights

44 There are no inconsistencies with the New Zealand Bill of Rights Act 1990 nor the Human Rights Act 1993.

Consultation

External stakeholder consultation on proposed approach

45 Targeted consultation was conducted with potentially impacted stakeholders (current and future launch services providers and payload permit holders). Feedback from these stakeholders showed general agreement with the proposed approach.

46 Stakeholders that provided feedback did not identify any negative impacts of the proposed regulation amendment on their operations.

Communications

47 The amendment to the OSHAA Regulations will be publicised on the Ministry of Business, Innovation and Employment's website, along with an updated operational policy on orbital debris mitigation plan requirements to provide further guidance to applicants.

Proactive Release

48 I propose to proactively release this Cabinet paper and attached Regulatory Impact Statement within 30 business days.

Recommendations

The Minister for Space recommends that the Committee:

1 **agree** that orbital debris mitigation plans must comply with the latest version of one of two international orbital debris mitigation standards to be specified in the Outer Space and High-altitude Activities (Licences and Permits) Regulations 2017:

1.1 NASA-STD-8719.14 – NASA Technical Standard

1.2 ESSB-ST-U-007 ESA Space Debris Mitigation Requirements and referenced guidelines and requirements within ESSB-HB-U-002 ESA Space Debris Mitigation Compliance Verification Guidelines (which incorporates ISO standard 24113) and ESSB-ST-U-004 ESA Re-entry Safety Requirements.

2 **agree** to the establishment of a waiver provision in Outer Space and High-altitude Activities (Licences and Permits) Regulations 2017 allowing for consideration of a waiver in cases where one or more orbital debris risk thresholds is not met.

Authorised for lodgement

Hon Judith Collins KC

Minister for Space

Appendices

Appendix One: Regulatory Impact Statement