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Submission to Department of Industry Science & Resources on Launch Safety and Insurance

13 October 2000

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1 INTRODUCTION

ASICC is pleased to provide this submission in response to the recent Public Consultation Paper 'Launching Safely Into Space'.

The Australian commercial space launch industry is at a critical stage of development. While the framework established by Parliament in the Space Activities Act was a significant milestone in the establishment of the industry, the regulations that are currently being formulated will establish the operational parameters. Important investment decisions have yet to be made and the detailed obligations set out in the regulations will have a major impact on the commercial viability of the projects.

The industry is vitally interested in the detail of the regulations. We acknowledge the government's obligation to protect the public against the risk of injury and property damage. We urge the government to balance this with the importance of not stifling the establishment of new commercial activity that will earn export income for Australia, create jobs for Australians, showcase our expertise in project management and restore Australia's standing in the international space community.

We believe that this balance can be achieved by establishing a regime that sets a new standard in transparency, simplicity and practicality. This will assist the Australian launch industry to persuade its international customers that there are commercial and operational advantages in launching from Australia.

2 ANALYSIS OF THE IMPACT OF THE PROPOSED REGULATIONS

The Australian launch industry must overcome a considerable number of commercial and regulatory challenges before it can compete in the global market. While the proposed regulations on safety and insurance are based upon sound mathematical methodologies and are comparable with methodologies used in other countries, it is impossible for the launch proponents to assess the feasibility of their proposed launch operations because the data required for the complex mathematical calculations required under the proposed regulations will not be available until all parameters of a proposed launch mission are known. This will depend primarily upon launch customer requirements.

In addition to the submissions in this document on the detail of the proposed regulations, ASICC urges the government, before implementing the regulations, to provide the industry and the public with its own overview of the likely impact of the regulations on proposed launch operations.

In our view it is essential to have an understanding of the practical effect of the proposed risk assessment methodology before the regulations are enacted.

We accept that precise answers to the above questions can only be given when the data is in relation to each mission is known. However, we believe that the Department has sufficient information from launch proponents to enable it to give guidance in broad terms in relation to permissible launch corridors, while maintaining the need for precise risk hazard analysis studies for individual missions.

RECOMMENDATION:

That DISR provide information to the industry and to the public about:

- The size and location of population centres which cannot be within range of a proposed flight path, on any launch scenario.
- The extent to which proposed flight paths over identified population centres must be altered to satisfy the proposed safety calculations.
- The size and location of population centres over which a limited number of overflights per year may be allowed and the likely number of flights that will be permitted.
- The location and/or description of property and other physical assets that are likely to be designated as high value assets for the purpose of the proposed Asset Risk benchmark and the practical impact on proposed flight paths of the existence of such assets.

3 ASSUMPTIONS BEHIND RISK HAZARD ANALYSIS METHODOLOGY

ASICC accepts that the Australian launch industry must observe international standards of safety in its ground and flight operations.

However we question the assumption underlying the CSIRO's recommendation that the casualty expectation benchmark should be orders of magnitude safer than the risk posed by commercial aviation in Australia. This appears to be based upon a comparison of the relative economic impact of the two industries, implying that industries that have a higher impact on the economy can be allowed to operate under less stringent safety standards.

With respect to the CSIRO, we consider that this assumption is simplistic and ignores issues such as the need for Australia to encourage the establishment of new industries and economic activities, even if the economic impact on the country is low in the early stages. It has been accepted in many countries that the benefits of a national space program go well beyond the economic contribution.

Such an approach also assumes that there would be little or no public tolerance for the small risk that may be associated with the development phase of a new industry which, in the case of some of the current proposals, will involve the testing of new launch vehicles.

RECOMMENDATIONS:

- We recommend that the regulations ensure that the calculation of the Casualty Risk Benchmarks should not disadvantage untried launch vehicles.

- Alternatively, we recommend that the regulations ensure that the launch failure rate of an untried launch vehicle is based on an initial failure probability value (P_f) of 0.5 rather than 0.25 as proposed in para 4.7 of the Consultation Paper on Hazard Analysis Methodology for Space Launch Operations.

4 ASSET RISK BENCHMARK

The unfettered power of the Minister to declare certain types of property 'high value assets' is of concern, particularly in the context of legislation that allows authorities to declare natural sites as places of cultural or environmental significance.

Furthermore, the identification and preservation of sites of environmental or cultural significance will be part of the Environmental Impact Studies that all launch proponents have undertaken or will be required to undertake. Where there is a concern about the possible impact on such assets, it is usual to expect that conditions will be attached to the environmental approval designed to protect such assets or sites.

If natural assets covering wide areas must be taken into account in the overflight calculations for launches over either sea or land there is the possibility that certain flight paths will never be able to be used. This outcome is dependent upon a number of variables that are impossible for launch proponents to predict in advance, including the type of assets to be selected by the Minister.

RECOMMENDATION:

- The phrase 'high value assets' concept is capable of dangerously wide application. At the very least the regulations should make it clear that the Asset Risk Benchmark should only apply to buildings and man-made structures that cover a small area and not to natural objects.

5 CALCULATION OF THE MAXIMUM PROBABLE LOSS

The cost of third party insurance will be an important factor in ensuring the competitiveness of Australian launch prices. The proposed methodology for the calculation of the MPL will have a direct impact on those costs.

The MPL is nothing more than a pre-determined figure that represents the required level of third party insurance for each launch. There have been very few third party claims arising from launch accidents and their history to date suggests that the MPL is very unlikely to be reached in the event of an accident resulting in claims, either domestically or internationally.

The MPL insurance proposals set an arbitrary maximum dollar value on casualties at A$5 million per casualty.

The two sources of claims for compensation arising from launch accidents will be intergovernmental claims pursuant to the Liability Convention and claims under Australian law, either pursuant the Space Activities Act or at common law.

While there are no precedents in relation to the calculation of claims under the Liability Convention or the Space Activities Act, the selection of a similar value to that used in the US (US$3 million per casualty) assumes that the very high level of damages awarded by juries for personal injuries in the US courts is likely to apply in Australia as well. We do not believe that this is a correct assumption. Australian courts are more conservative in the levels of compensation awarded for personal injuries and we do not believe that a Claims Commission established pursuant to the Liability Convention would necessarily follow the US courts in quantifying compensation. It is more likely to base compensation at average levels from a number of countries.

We are also concerned that the identification of the probable area of impact in the MPL calculation, assuming a boundary of risk set at 10^{-7}, is based upon an inordinately low level of probability.

RECOMMENDATIONS:

- The Casualty value used in the MPL calculation should be set at no higher than A$3 million per casualty.
- The boundary of risk in determining the probable area of impact for the purpose of the MPL calculation should be set at no higher than 10^{-6}.

6 RELATIVE INSURANCE COSTS

Careful consideration needs to be given to the application of the MPL formula to determine the impact on insurance rates for Australian launches. Under the proposed methodology, this calculation cannot be done until all variables associated with a particular launch, especially the flight path, are known.

If the Australian MPL calculation results in generally higher MPL's than in the US (which has a statutory ceiling of US $500 million), there is a risk that Australian launches will be perceived as financially less competitive.

RECOMMENDATION:

- Applying certain assumptions currently known about Australian launch proposals, DISR should obtain and provide the industry with indicative calculations of likely MPL's, and, if necessary, the MPL formula should be adjusted to ensure that insurance costs for Australian are competitive with similar costs in other countries.