

Parliament of the Commonwealth of Australia

**SENATE ECONOMICS LEGISLATION COMMITTEE**

**REPORT ON THE SPACE ACTIVITIES AMENDMENT  
BILL 2002**

August 2002

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# Report

## Reference of Bill to Committee

1.1 The Space Activities Amendment Bill 2002 was introduced into the House of Representatives on 20 February 2002 and was passed by that chamber unamended on 28 May 2002. It was introduced into the Senate on 19 June 2002 and is currently at the second reading adjourned stage. As a result of a report by the Selection of Bills Committee, the Senate referred the provisions of the bill to the Economics Legislation Committee on 26 June 2002 with a reporting date of 20 August 2002. The reporting date was subsequently extended to 27 August 2002.

1.2 The Asia Pacific Space Centre (APSC) noted in its submission to the Committee that one of the reasons, listed in the Selection of Bills Committee report for referral was 'to consider the basis for the \$750m cap on liability insurance for the APSC'. The APSC have raised their concerns with the Committee on the inaccuracy of this point.<sup>1</sup> The Committee notes that both the *Space Activities Act 1998* and the proposed Space Activities Amendment Bill 2002 deal with all current commercial space operations and not specifically with the APSC.

## The Committee's Inquiry

1.3 The Committee invited a number of interested parties to make submissions on the Bill. Additionally, the Committee's inquiry was advertised on the Parliament website. The Committee received the following submissions:

- The Department of Industry, Tourism and Resources (ITR)
- Australian Space Industry Chamber of Commerce (ASICC)
- Asia Pacific Space Centre (APSC)
- The Australian Petroleum Production & Exploration Association Limited (APPEA)
- The Western Australian State Government, Department of the Premier and Cabinet

## The Bill

1.4 The Bill makes several amendments to the *Space Activities Act 1998* covering a variety of issues. In the main, the amendments relate to insurance and liabilities for Australian nationals in regard to space launches. These measures include capping the level of insurance required for launches to AUD\$750 million with the Commonwealth accepting liability for up to AUD\$3 billion for third party Australian nationals. This creates a maximum of AUD\$3.75 billion in total coverage.

1.5 Also, the risk minimisation test applied to launches has been strengthened. The onus is now placed on space licence applicants to show that the probability of causing harm to public health and safety is 'as low as reasonably practicable'.<sup>2</sup> The licensing regime,

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1 Submission No. 2, p. 5.

2 Explanatory Memorandum, p. 3.

however, will be less onerous for educational or scientific organisations. The proposed legislation recognises that the activities of such organisations are usually ‘on a one-off basis and do not involve the construction of major infrastructure’.<sup>3</sup>

1.6 The Bill also amends section 8 of the Act to define space as an area beyond 100 km above mean sea level.

## Current Position

1.7 Currently, the Commonwealth has no obligations to Australian nationals under the *United Nations Convention on International Liability for Damage Caused by Space Objects* (the Liability Convention), for damage caused by Australian based launch activities.<sup>4</sup> The Liability Convention only covers damage to other states and their nationals caused by Australian nationals abroad and by objects launched from Australian territory.

1.8 However, the *Space Activities Act 1998* does identify ‘responsible parties’ who must hold a permit for the launch or return of a space object and under the Act are liable for damages to all third parties regardless of nationality.<sup>5</sup> The Act limits the liability to third parties to the Maximum Probable Loss (MPL) which is calculated for each launch. As it stands, the Act requires the ‘responsible parties’ (as defined by section 8 of the Act) to take out insurance for the entire MPL or demonstrate an ability to self-insure for the entire MPL.<sup>6</sup> This calculation takes into account all damage to third parties including consequential economic and environmental damage which is greater than one in ten million.<sup>7</sup>

1.9 Additionally, the insurance cover procured by the responsible party must cover the Commonwealth for claims made by foreign nationals under the Liability Convention.<sup>8</sup>

1.10 The Liability Convention holds the Commonwealth liable for unlimited costs to compensate other States and their nationals, regardless of the MPL.<sup>9</sup> The current effect of the Act limits Australian nationals to claims up to the MPL, but not exceeding that amount,<sup>10</sup> which in some circumstances could be greater than the proposed total of AUD\$3.75 billion.

## Maximum Probable Loss (MPL) Methodology

1.11 The MPL is the calculation that is applied to determine risk and other potential outcomes during the flight of a space vehicle. The calculation is based on probabilities as opposed to possibilities as such events that fall outside a calculation of one in ten million are not sufficiently probable to warrant financial responsibility to cover their consequences.<sup>11</sup>

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3 Explanatory Memorandum, p. 3

4 Submission No. 1, p. 1.

5 Submission No. 1, p. 1.

6 Submission No. 1, p. 1.

7 Submission No. 1, p. 1.

8 Submission No. 1, p. 1.

9 Submission No. 1, p. 1.

10 Submission No. 1, p. 1.

11 *Maximum Probable Loss Methodology*, Commonwealth of Australia Space Licensing and Safety Office, July, 2002, p. 1.



The WA Government notes that the MPL does not require an assessment of the level of damages for events that are deemed to be outside a one in ten million probability. This methodology assumes that a catastrophic event involving a designated or protected facility will not happen, or in fact is uninsurable.<sup>12</sup>

1.12 APPEA noted that various facilities can be afforded a certain safety status under the safety regime. Persons wishing to undertake space activities in Australia are required to meet specific safety standards in regard to these assets, as set out in the Flight Safety Code.<sup>13</sup> APPEA argued that staffed facilities should be assured of the maximum level of protection.<sup>14</sup> The protection of life, in APPEA's view, supports the need for a conservative approach to risk management.<sup>15</sup>

1.13 Loss or damage that has a likelihood of occurring that is equal or greater than one in ten million is considered probable for the purpose of the MPL. The MPL includes all aspects of the flight such as the launch of the vehicle, ending in orbit or the impact or recovery depending on the purpose of the flight. The insurance requirements remain in place for the duration of the flights liability. The calculation determines the greatest potential loss in terms of human casualties and the loss or damage of property which could result from a licensed launch or re-entry.<sup>16</sup> The MPL also makes allowances for consequential and environmental loss.<sup>17</sup> The MPL can be calculated in two distinct ways—the gross bounding approach and the high-value facility approach, whichever is the higher.

### **Gross Bounding Approach**

1.14 The gross bounding approach is calculated by determining the 'maximum probable impact area' and the 'maximum probable casualty value'. The former is defined as an area sufficiently large that the probability of debris falling outside this area is less than one in ten million. The 'maximum probable casualty value' is determined by assessing the debris casualty areas. This value is calculated on the basis of the highest density population within the maximum probable impact area.<sup>18</sup>

### **High-Value Facility Approach**

1.15 The high-value facility approach is based on an engineering and financial assessment of potential damage that may occur to specific high value facilities, such as offshore platforms. Should these facilities not be adequately covered by the loss estimate resulting from the gross bounding approach and face a debris impact probability greater than one in ten million then the facility must be assessed on the high-value facility approach.<sup>19</sup>

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12 Submission No. 5, p. 3.

13 List of Designated and Protected Assets, Commonwealth of Australia, July 2002, p. 1.

14 Submission No. 4, p. 10.

15 Submission No. 4, p. 10.

16 *Maximum Probable Loss Methodology*, Commonwealth of Australia Space Licensing and Safety Office, July 2002, p. 1.

17 *Maximum Probable Loss Methodology*, Commonwealth of Australia Space Licensing and Safety Office, July 2002, p. 10.

18 Submission, No.1, p.4.

19 Submission, No.1, p.5.

1.16 It is important to note that the Regulations require that an event with a probability of more than one in ten million be insured against. Additionally, it is also required that facilities which could sustain catastrophic damage or energy facilities that are susceptible in the event of strike by launch debris be classified as Protected or Designated Assets. This classification ensures that if a catastrophic event is greater than one in ten million, an activity will not be authorised to proceed.<sup>20</sup>

### **Basis for the AUD \$750 million Cap**

1.17 As mentioned earlier, the insurance required to be held by a commercial launch operator is determined by the MPL. The insurance requirements for each individual launch are calculated according to this methodology. The MPL methodology developed for Australian use is unique in that it includes a facility to estimate consequential loss.<sup>21</sup> Consequential losses are indirect losses which include loss of business and profits.<sup>22</sup> The Department of Industry, Tourism and Resources noted in its submission that the inclusion of consequential loss does acknowledge the full range of risks to facilities such as those located in the Timor Gap and North West Shelf. However, the added insurance cost associated with these factors can potentially push launch costs into a range which are beyond international competitive rates. Therefore, according to the Department, a cap of AUD\$750 million will ensure commercial operators have certainty in their potential liability and that launch costs stay internationally competitive.<sup>23</sup>

1.18 The APSC noted in their submission that in fact a reduction in the proposed AUD\$750 million cap is warranted on two main grounds. Firstly, a lower cap would recognise the stringent safety regime currently in place. In support of this they point to the requirements of the Space Licensing and Safety Office which ensure that the risk of an accident exceeding the cap is extremely low. These requirements include avoiding high-value assets under flight paths.<sup>24</sup> Secondly, APSC state that the proposed cap of AUD\$750 million is high when compared to other launch nations, such as France, which has captured the bulk of the market share for commercial space launches and also has the lowest cap on launch operator liability.<sup>25</sup>

<b>Country</b>	<b>Cap on third party liability insurance for launch operators (expressed in USD)<sup>26</sup></b>
Australia	\$405 million
China	\$100 million
France	\$53 million
Japan	\$50 million to \$200 million depending on launch vehicle

20 Submission, No.1, p.3.

21 Submission No. 1, pp. 1-2.

22 *Maximum Probable Loss Methodology*, Commonwealth of Australia Space Licensing and Safety Office, July 2002, p. 10.

23 Submission No. 1, p. 2.

24 Submission No. 2, p. 1.

25 Submission No. 2, p. 7.

26 Submission No. 2, p. 7.

Country	Cap on third party liability insurance for launch operators (expressed in USD) <sup>26</sup>
Russia	\$80 million to \$500 million depending on launch vehicle. Note that 1 vehicle (Zenit) requires up to \$500 million for certain missions but less than \$300 million otherwise and all other Russian vehicles are less than \$300 million.
United States	Not to exceed \$500 million or the maximum insurance available on world markets at a reasonable cost

**Note all figures are expressed in USD with AUD\$1 = USD\$0.54**

1.19 In turning to the overall coverage, APPEA noted that the total of AUD\$3.75 billion would be insufficient to cover the losses incurred in the event of a catastrophic accident.<sup>27</sup> The costs associated with such an accident would include the replacement and or repair of capital equipment, such as floating facilities. Additionally, the cost of loss of market while the facility is replaced or repaired could itself run into the billions in the case of a gas facility.<sup>28</sup> Concerns were also raised by APPEA about the ability of the industry to recapture a lost market after such an accident. This view is based on the assumption that a catastrophic accident resulting from a space vehicle would severely damage the confidence of Australia's gas markets in terms of Australia as a safe and reliable source of supply.<sup>29</sup>

1.20 The importance of maintaining a reputation of being a safe and reliable source of energy was also emphasised by the WA Government. They cited the recent awarding of a AUD\$25 billion liquefied natural gas export contract with China as an example of Australia's international standing.<sup>30</sup>

1.21 APPEA argued that in light of the potentially high costs associated with an accident of this kind commercial launches should be required to insure for maximum possible consequential loss, damage and or injury. This includes environmental damage and economics loss. APPEA stated that insurance to this level would be prohibitive to the space launch industry and this alone highlighted a major flaw in the industry:

The solution adopted by the Government—to cap the liability of the launch companies to \$750 million—artificially lowers the risk borne by the launch companies. It distorts market signals that reflect the real level of risk and shifts the burden of liability on to the taxpayer.<sup>31</sup>

## **Commitment to Insure for up to AUD \$3 billion**

1.22 Currently the Commonwealth is liable and would remain so under its treaty obligations to compensate other States and their nationals for any damage above insured

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27 Submission No. 4, p. 1.

28 Submission No. 4, p. 2.

29 Submission No. 4, p. 2.

30 Submission No. 5, p. 1.

31 Submission No. 4, p. 2.

amounts. The Department pointed out that the current legislation precludes Australian nationals from seeking compensation that would exceed the insured amount.<sup>32</sup>

1.23 The proposed AUD\$3 billion is comparable to the United States model but with the added safety requirements in regard to launches over the Australian continental shelf and mainland. According to the Department, this additional security in conjunction with the overall safety record of the United States in terms of third party claims over the 44 years of space launch suggest that the risk being taken on by the Commonwealth is very low.<sup>33</sup> Moreover, APSC research has identified only five third party claims made resulting from launch activities and all of which were for less than USD\$10 million.<sup>34</sup>

1.24 The Department discussed the conservative nature of AUD\$3 billion cap in its submission. It stated:

The Flight Safety Code under the Regulations will not allow an activity to be authorised to proceed where the probability of that activity causing a catastrophic event is greater than one in ten million. Therefore, given the rigour of the MPL and the inclusion of consequential loss, the provision for the Commonwealth to accept liability up to an amount of \$3 billion over and above the insured amount (which is capped at \$750 million) is, at a multiple of four times the maximum MPL, an extremely conservative safety margin. The amount is also comparable to the liability accepted by the US Government under its licensing regime.<sup>35</sup>

1.25 The APSC also noted in their submission that direct government indemnification of launch operators for third party liability is, without exception, a standard for all launching nations. They too support the view that Australia has a stringent safety regime, particularly noting this in terms of flight paths. They maintain that this is one of the factors which makes the Commonwealth's risk very low in terms of being exposed to a claim that is in excess of the AUD\$3 billion.<sup>36</sup>

1.26 The APSC, however, cited the potential difficulties that the insurance industry would have in covering all the potential risks associated with the launch of a space vehicle.<sup>37</sup> It argued these limits on the capacity of the insurance industry create uncertainty in the launch market and as such require some government involvement. According to the APSC, potential insecurity of the insurance market stems from several factors:

- the space industry is a subset of the aviation insurance industry and the servicing of two industries results in the shifting of resources from one sector to another in pursuit of the best returns; and
- the events of September 11 created an estimated USD\$80 billion in claims and has resulted in the capacity for space launch liability being decreased by a factor of three.<sup>38</sup>

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32 Submission No. 1, p. 2.

33 Submission No. 1, p. 3.

34 Submission No. 2, p. 9.

35 Submission No. 1, p. 3.

36 Submission No. 2, p. 8.

37 Submission No. 2, p. 8.

38 Submission No. 2, p. 8.

1.27 Both ASICC and APSC agreed that the AUD\$3 billion limit for the Commonwealth is conservative in the context of the history of third party claims. Even so, both organisations point out that this limit is out of step with international practice and suggest that the Commonwealth should have unlimited liability:

The proposed limit on the indemnity provided by the Australian government of \$3 billion (USD \$1.62 billion) above the required insurance is the second lowest in the world and will soon be the lowest because the US indemnity is indexed for inflation while Australia's is not. All other nations provide no limits on the indemnity above the required insurance. ASICC submits that the Australian government indemnity should also be without limit consistent with the commercial market leader, France. The risk to government is low as very few third party launch-related claims have been made and all such claims have been below USD \$10 million.<sup>39</sup>

<b>Country</b>	<b>Level of government indemnification of launch operators on third party liability claims exceeding their required insurance (expressed in USD)<sup>40</sup></b>
Australia	Up to \$1.62 billion above required insurance for Australian nationals. No limit for foreign nationals
China	No limit. Covers all claims above the required insurance
France	No limit. Covers all claims above the required insurance
Japan	No limit. Covers all claims above the required insurance
Russia	No limit. Covers all claims above the required insurance
United States	Up to \$1.5 billion above required insurance (indexed for inflation)

1.28 APPEA agreed that the proposed limit for the Commonwealth at AUD\$3 billion for third party claims is low. They also believe that the Commonwealth's liability should be unlimited beyond the operator's insurance cover. This is based on the view that a total cover of AUD\$3.75 billion would not be sufficient cover for every identifiable loss, such as consequential loss, in the event of a catastrophic event. APPEA point out that in some cases the replacement of plant and equipment alone could run into the billions.<sup>41</sup> Further to this the WA Government noted that the Commonwealth under international treaty has an unlimited liability. They state that this is inconsistent with the AUD\$3 billion cap and should be addressed in the form of the Commonwealth assuming unlimited liability.<sup>42</sup> The removal of this inconsistency would remove the concerns that in the event of a major catastrophe the significant damage would not go uncompensated.<sup>43</sup>

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39 Submission No. 3, p. 11.

40 Submission No. 2, p. 9.

41 Submission No. 4, p. 1.

42 Submission No. 5, p. 4.

43 Submission No. 5, p. 5.

### ***Committee's view***

The Committee notes that the proposed limit for the Commonwealth of AUD\$3 billion is low. Nonetheless, it believes that the provisions in the Bill provide adequate safeguards and that the limit is appropriate.

### **Cross-Waiver Issue**

1.29 ASICC and the APSC pointed to cross-waivers, which are standard in all other launching nations, as a means of keeping insurance costs down.<sup>44</sup> APSC argue that a cross-waiver similar to other launching nations should include all parties, such as contractors, subcontractors, payload owners as well as the launch provider. Under such arrangements each party agrees to be responsible for its own losses for a launch and to have no claim on any other party, similar to a no-fault provision.<sup>45</sup> Currently in Australia there are no limitations on first and second parties in regard to this matter. ASICC asserted that the impact of this disadvantages launch providers when compared to nations which require cross-waivers.<sup>46</sup>

1.30 In response to this issue the Department pointed out that the parties involved in space launch activities are not restricted from entering into commercial arrangements concerning the liability for damages suffered. Moreover, the Department referred to section 65 of the Act which already provides powers in this regard, it stated:

The regulations may make provision in relation to the waiver of some or all of the rights of persons connected with a launch or return, and of their employees, contractors and subcontractors, to seek compensation for damage to which this Part applies.<sup>47</sup>

### ***Committee's view***

1.31 The Committee notes the Department's explanation that parties involved in space launch activities are not restricted from entering into commercial arrangements for liability.

### **Application of Indemnity Provisions**

1.32 Concerns were raised in regard to the exposure that commercial launch operators would have under the proposed sub-section 4 of section 69. The submissions received from industry groups indicated that, based on their interpretation of the proposed amendment, launch operators would be exposed to common law actions in tort from foreign nationals. They warn that non-nationals may be more attracted to this option via the Australian courts as opposed to relying on their own government to intervene under the Liability Convention as per section 74 of the Act. They suggested that the term 'Australian nationals' be removed from the proposed amendment. This would give foreign nationals access to the Commonwealth's indemnification in addition to Australian nationals.<sup>48</sup>

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44 Submission No. 3, p. 11.

45 Submission No. 2, p. 11.

46 Submission No. 3, p. 11.

47 Submission No. 1A, p. 2.

48 Submission No. 2, p. 10.

1.33 In response to this the Department notes that under section 69(3) of the Act immunity is offered. They submitted:

The proposed section 69(4) would not affect the liability of the responsible party for the launch, as the responsible party for the launch has the benefit of the legal immunity, under section 69(3)... from liability for damage in excess of ‘the insured amount’.<sup>49</sup>

## **Regulatory Impact Statement**

1.34 Differing views were expressed in the submissions on the need for a Regulatory Impact Statement. The WA Government suggested that a Regulatory Impact Statement may be prudent when considering that the Australian launch industry is relatively untested and that it will be operating in the area of a highly valuable industry.<sup>50</sup> The Department maintained that in their opinion, which was supported by the Office of Regulatory Review, a Regulatory Impact Statement was not required.<sup>51</sup> The ASIC did point out that the history of third party claims in this area were very low which suggests that the statistical probability of a third party claim in excess of the MPL was low.<sup>52</sup>

## **Liability of Launch Operator for Intended Returns**

1.35 The ASIC and the APSC in their submissions stated that under the proposed Bill and Act commercial launch operators are responsible for damages that result from the intended return of payloads which are launched.<sup>53</sup> They pointed out that this liability makes little sense in the case where a commercial operator does not own nor have control over the payload after it has separated from the launch vehicle and in many cases is not even aware the return is taking place.<sup>54</sup> APSC stated that under these circumstances a commercial launch operator has no ability to manage the return and so has no opportunity to manage the liability.<sup>55</sup>

## ***Committee’s view***

1.36 The Committee notes that this aspect of liability is a complex area that could lead to some confusion within the launch industry. The Committee suggests that the Department take a closer look at this area of the proposed legislation and provide a statement explaining clearly who is responsible for loss or damage caused by the return of payloads.

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49 Submission No. 1A, p. 2.

50 Submission No. 5, p. 7.

51 Submission No. 1, p. 6 & Submission No. 3, p. 12..

52 Submission No. 3, p. 11.

53 Submission No. 2, p. 14.

54 Submission No. 2, p. 14.

55 Submission No. 2, p. 14.

## **Recommendation**

1.37 The Committee reports to the Senate that it has considered the provisions of the Space Activities Amendment Bill 2002 and recommends that the Bill proceed.

SENATOR GEORGE BRANDIS  
**Chairman**



## **Additional Comments by Senator Andrew Bartlett Regarding the Report on the Space Activities Amendment Bill 2002**

I express support for the report of the Economics Committee with the following exceptions:

The AUD\$3 billion limit on Commonwealth liability is not supported. Most countries with space programs have no limit on government liability. I believe that should not be a limit on the level of government indemnification of launch operators on third party liability in excess of their required insurance.

I do not support the decision not to prepare a Regulatory Impact Statement. Whilst I accept that the level of risk is extremely low, the extent of liability exposure is extremely high. In the event of a catastrophic event – and the events of September 11 should remind us that probabilities are not accurate predictors of events – the effects of such high exposure need to be examined and assessed.

Andrew Bartlett  
**Australian Democrat Senator for Queensland**



# Appendix 1

## **PUBLIC SUBMISSIONS**

Submission No 1: Department of Industry, Tourism and Resources

Submission No 1A: Department of Industry, Tourism and Resources (Supplementary)

Submission No 2: Asia Pacific Space Centre Pty Limited

Submission No 3: Australian Space Industry Chamber of Commerce

Submission No 4: Australian Petroleum Production and Exploration Association Limited

Submission No 5: WA Government, Department of the Premier and Cabinet