

## **Economics**

National Radioactive Waste Management Amendment (Site Specification, Community Fund and Other Measures) Bill 2020 [Provisions] – 30 June 2020

### **ANSWER TO QUESTION ON NOTICE**

Department of Defence

**Topic:** Senate Economics Legislation Committee - 06 July 2020 – Q6 - Explosive Ordnance Storage Area - Brockman

**Question reference number:** 6

**Senator/Member:** Slade Brockman

**Type of question:** Written

**Date set by the committee for the return of answer:** 31 July 2020

#### **Question:**

1. What safety consideration are in place with respect to the location and design of the Explosive Ordnance Storage area in relation to danger from air crash and/or ordnance accidental disconnection/release from an aircraft or unmanned aerial systems.
2. What is the buffer set around the Explosive Ordnance Storage Area in respect to a worst case accident or interference (either air or other)?
3. Noting the 2002 Risk Assessment in the document “Impact on Australian Defence Organisation Operations of Locating the National Radioactive Waste Repository at Site 52A within the Woomera Prohibited Areas at Woomera. South Australia” Chapter 5.0 - in relation to weapon impact, how does this risk compare to the risk of like airborne assets striking the Explosive Ordnance Storage Area?

#### **Answer:**

1. The location and design of Explosive Ordnance storage and handling areas are determined in Defence policy eDEOP101 Department of Defence Explosive Regulations, which are based on the North Atlantic Treaty Organization (NATO) munitions safety standards and the two principles of:
  - a. Reducing likelihood by protecting the Explosive Ordnance from hazards and threats that are generally known to initiate the Explosive Ordnance, and
  - b. Reducing the consequence should an explosion occur, by separation of the Explosive Ordnance storage and handling areas from other facilities, areas of congregation, infrastructure and utilities based on the protection of people and assets.

Under the policy, Defence's primary mitigation (from the perspective of the storage area) with regard to the risk of air crash and/or ordnance accidentally disconnecting from an aircraft or unmanned aerial system, is the application of a vertical safety zone above the Explosive Ordnance area. The policy requires a notification to aviation operators of the site, with the requirement that the area is not to be over flown. Defence policy also requires all permanent or long-term Explosive Ordnance structures to not be sited within the approach or departure zones for either fixed or rotary wing aircraft.

The ADF has strict procedures for flight over sensitive areas, with particular consideration for missions that conduct the carriage of ordnance. In the case of Explosive Ordnance Storage Areas, the hierarchy of controls relating to physically separating the source of harm via separation distances during site selection significantly reduces the risk exposure. Further, coupled with regulatory requirements for the design, certification and management, ADF aircraft (including Unmanned Aircraft Systems) apply strict engineering controls to avoid accidental release of explosive ordnance. The safe carriage of ordnance is a requirement for regulatory certification of the aircraft. Management of the risk of flight over or near sensitive areas is conducted by operational commanders and is subject to a range of considerations, including the type of flight being conducted and weather. Risks are reduced so far as reasonably practicable in accordance with the requirements of the Workplace Health and Safety Act. The effective management of risk is an integral part of all Defence activities and this includes the requirement to eliminate risks to health and safety so far as is reasonably practicable (SFARP). Given the risk controls in place, the risk of an ADF aircraft crashing or inadvertently dropping ordnance into Explosive Ordnance Storage Areas is considered to be very low.

2. Defence facilities are not specifically designed to withstand an aircraft crash or direct weapon strike, however, the facility may provide some protection depending upon the facility, aircraft and/or weapon type. In the event the Explosive Ordnance within a facility is initiated, the prime siting criteria is to ensure it is 'separated' from other vulnerable infrastructure. The separation distances set for the Explosive Ordnance storage and handling areas are derived from Defence policy eDEOP101, as described in the answer for Question 1. The separation distances at Woomera are specific to each of the Explosive Ordnance storage and handling facilities, based on the type and quantity of Explosives Ordnance stored and the purpose of other existing facilities. The largest separation distance at Woomera between an Explosive Ordnance storage and handling area to other assets is 518 metres.

3. The risk associated with weapon impact to the National Radioactive Waste Management Facility on Site 52A in 2002 report is not directly comparable to the risk associated with like airborne assets striking the Explosive Ordnance Storage Area in the vicinity of RAAF Base Woomera.

As identified in the 2002 report, "The negative publicity that would result from a weapon impact either on or in close proximity to the NRWR is viewed by Defence as a significant issue. In line with this, Defence has recommended that a weapon impact on the NRWR be classified as falling into the 'disastrous' category. Since the Aviation Risk Management Policy equates any consequence of "critical" or higher to that of a fatality (or multiple fatalities where the consequence is defined as "disastrous") it is not unreasonable to apply the same probability thresholds for such consequences to that of a fatality. Using the ARPANSA guidance ... the acceptable threshold for occurrence of such an event or consequence is  $1 \times 10^{-5}$  per annum. This means that Defence would potentially violate its own risk

management policy if the NRWR was located within an area where the probability of a weapon impact was greater than  $1 \times 10^{-5}$  per annum and hence would be required to cease operations in the area.” There is also risk of indirect weapons impact through fragmentation which might result in undetected breaching of the facility and radioactive leakage.

The risk associated with like airborne assets striking the Explosive Ordnance Storage Area in the vicinity of RAAF Base Woomera is mitigated so far as reasonably practicable in accordance with Defence’s Workplace Health and Safety obligations. The consequence of a weapon impact on a National Radioactive Waste Management Facility is not the same as a like airborne asset striking the Explosive Ordnance Storage Area. Assuming in both cases the impact of the vehicle results in a disastrous event, the impact at the Explosive Ordnance Storage Area could be contained and remediated more rapidly and effectively than the impact at the National Radioactive Waste Management Facility.