

# Controls on hazardous substances contained in weapons systems

Report No. 7/2012

31 May 2012

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31 May 2012

The Minister for the Environment

The Minister of Defence

The Evaluation Division of the Ministry of Defence audits the controls on hazardous substances under the control of the Minister of Defence, pursuant to section 3(6) of the Hazardous Substances and New Organisms Act 1996. The results of such audits are required to be reported to the Minister for the Environment and the Minister of Defence.

I submit the accompanying report of an audit of the controls on hazardous substances under the control of the Minister of Defence that are contained in weapons systems. The Secretary of Defence and the Chief of Defence Force have been provided with copies.

A W Bullock  
A/Deputy Secretary (Evaluation)

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# Contents

Executive summary	iii
Chief of Defence Force response	v
Section 1 Hazardous substances contained in weapons systems	1
Section 2 Observations	11

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# Executive summary

## Introduction

- 1 The Secretary of Defence is required by the Hazardous Substances and New Organisms Act 1996 to audit the controls on hazardous substances under the control of the Minister of Defence. In this report we present our findings on an audit of the controls on hazardous substances contained in NZDF weapons systems (defined as any ammunition, explosive or propellant, and includes any platform designed to carry any combination thereof).

## Key findings

- 2 We have previously reviewed<sup>1</sup> the relationship between the Environmental Protection Authority<sup>2</sup> codes of practice and the NZDF's DFO 53 – *Defence Force Orders for Safe Management of Hazardous Substances*, and found that the objectives of the Act were met. We have ascertained no changes of legislation, regulations or codes of practice have necessitated change to the NZDF's systems.
- 3 We are satisfied that the NZDF codes of practice for hazardous substances controlled by the Minister of Defence and contained in any weapons system continue to meet the requirements of the Hazardous Substances and New Organisms Act.

## Summary

- 4 Although the NZDF is not directly subject to those sections of the Hazardous Substances and New Organisms Act that relate to hazardous substances, it is required to manage hazardous substances to no less a standard than that required of the community at large. CDF is required to develop codes of practice for hazardous substances that meet or conform to the requirements prescribed by regulations made under the Act. CDF has issued DFO 53 – *Defence Force Orders for Safe Management of Hazardous Substances* for that purpose.

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<sup>1</sup> Evaluation Report 4/2004 *Controls on Hazardous Substances contained in Weapons Systems* dated 2 March 2004.

<sup>2</sup> Previously the Environmental Resource Management Authority.

- 5 The NZDF Explosives Safety Committee exercises governance and oversight of explosives safety and management. This committee comprises subject matter experts from each Service, HQ Joint Forces New Zealand, and Defence Logistics Command.
- 6 DFO 53, which was published in 2004, is being reviewed primarily to separate policy direction from procedural guidance. In addition, a new Defence Explosives Ordnance Safety Manual is proposed for the direction of all NZDF bulk and unit ammunition facilities in New Zealand. Completion of a draft of this new manual is expected in early 2013.
- 7 Compliance with requirements to complete internal assessments has been deficient and not all consolidated returns have been forwarded to Defence Logistics Command as required by DFO 53. The Commander Logistics has recognised this and commanders have been reminded that completion and command endorsement of their assessments is mandatory.
- 8 The NZDF has established requirements for approval of explosives test certifiers and handlers that reflect the civil requirements in the Hazardous Substances (Class 1 to 5 Controls) Regulations 2001. All NZDF locations that hold above a specified level of hazardous material must be authorised by an explosives test certifier. Certificates are to be independently approved by a person from another Service. The amalgamation of Service bulk ammunition depots into the Defence Munitions Management Group has changed the availability and relationship of test certifiers. DFO 53 should be reviewed to ensure that appropriate independence is maintained.
- 9 The Defence Munitions Management Group has negotiated an arrangement with the Australian Defence Force which includes conducting independent explosive ordnance safety compliance audits. All NZDF explosive facilities have current test certificates.

#### Recommendation

- 10 It is recommended that the NZDF:
  - a reviews DFO 53, and particularly Chapter 2, Section 8, to ensure recent organisational changes have not adversely affected the ability to have independent review of test certificates for explosives facilities.

# Chief of Defence Force response

## Chief of Defence Force response

- 1 The findings of the audit are agreed. DFO 53 is under review; continuing improvement will address the recommendation made together with all other aspects of the handling of Class 1 (Explosives) hazardous substances.

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# Section 1

## Hazardous substances contained in weapons systems

### Introduction

- 1.1 The Hazardous Substances and New Organisms Act 1996 (the Act) governs the management, handling, transportation and storage of hazardous substances. The Act binds the Crown but makes special provisions for hazardous substances under defence control. Those provisions differ depending on whether or not a hazardous substance is contained in a weapon system (defined as any ammunition, explosive or propellant, and includes any platform designed to carry any combination thereof).
- 1.2 Hazardous substances are classified depending upon their intrinsic properties. Class 1 substances include all explosives, whilst classes 2-9 cover gases; flammable liquids; flammable solids; oxidizing substances and organic peroxides; and toxic, infectious, radio active, corrosive and miscellaneous dangerous substances.
- 1.3 Hazardous substances contained in weapons systems are generally related to ammunition and explosives and thus mostly fall within Class 1.

### Applicability to Defence

- 1.4 The Act replaced several acts such as the Dangerous Goods Act 1974 and the Explosives Act 1957, and established an integrated and performance-based regime for managing hazardous substances.
- 1.5 The Act binds the Crown, except as provided in Section 3:
  3. Act to bind the Crown – (1) Except as provided in subsections (2) to (8) of this section, this Act shall bind the Crown.
  - (2) Subject to subsections (3) to (8) of this section, this Act shall not apply to any substance controlled by the Minister of Defence.
  - (3) The Chief of Defence shall develop codes of practice for hazardous substances controlled by the Minister of Defence and contained in any weapons system.
  - (4) The codes of practice developed under subsection (3)–
    - (a) must –
      - (i) be based on the relevant controls (including any group standard conditions) imposed by the Authority on hazardous substances that have been approved by the Authority (including a deemed approval under section 96E or section 160A) for any purpose under this Act;
    - or

(ii) meet the relevant requirements prescribed by regulations made in accordance with section 75; and

(b) may incorporate or adapt any relevant international code of practice.

(5) The Chief of Defence Force:

(a) must ensure that methods of controlling all hazardous substances not contained in any weapons systems and controlled by the Minister of Defence

(i) are based on the relevant controls (including any group standard conditions) imposed by the Authority on hazardous substances that have been approved by the Authority (including a deemed approval under section 96E or section 160A) for any purpose under this Act; or

(ii) meet the relevant requirements prescribed by regulations made in accordance with section 75; and

(b) may comply with the relevant requirements in paragraph (a) by following the relevant code of practice approved under section 79.

(6) The Secretary of Defence shall audit the controls on hazardous substances under the control of the Minister of Defence in accordance with section 24(2)(e) of the Defence Act 1990, and report the results to the Minister [for the Environment] and the Minister of Defence.

1.6 Although the NZDF is not directly subject to those sections of the Act that relate to hazardous substances, it is required to manage hazardous substances to no less a standard than that required of the community at large. CDF is required to develop codes of practice for hazardous substances that meet or conform to the requirements prescribed by regulations made under the Act. CDF has issued DFO 53 – *Defence Force Orders for Safe Management of Hazardous Substances* for that purpose.

1.7 Regulations made under the Act do not apply to hazardous substances when used in combat or in training for combat, or on a vehicle, ship or aircraft authorised to carry those substances in combat or training for combat. CDF has however directed, through DFO 53, that internal orders relating to combat and training for combat are to comply with DFO 53 to the fullest extent possible.

#### *Audit*

1.8 The Secretary of Defence is required, under s 3(6) of the Act, to audit the controls on hazardous substances under the control of the Minister of Defence. This obligation is performed by the Ministry of Defence's Evaluation Division, which audits the system of controls that is established by the NZDF, to assess the extent to which that system meets the requirements of hazardous substances legislation. The NZDF is responsible for undertaking internal audits to ensure compliance with its prescribed controls.

- 1.9 We previously audited the NZDF's system of control in 2004.<sup>3</sup> At that time we noted that the NZDF had historically followed British military and NATO regulations and code of practice, and that management and control of weapons and explosives was, and could be expected to remain, strong. The NZDF had recently issued DFO 53 as a replacement for most existing Service explosives manuals. DFO 53 provided a comprehensive system of controls based on the principles of the Act. The Services have, since the issue of DFO 53, replaced or updated their internal instructions to conform to the requirements of that manual.

#### NZDF codes of practice

- 1.10 The aim of a Code of Practice is to establish policy for safe management of explosives including importation, transportation, handling, storage, inspection, use and disposal. DFO 53 is the NZDF's Code of Practice for the management of explosives. It incorporates relevant New Zealand legislation and codes of practice issued by the Environmental Protection Authority. The following International Codes of Practice have also been incorporated:
- a NATO AASTP-1 Manual of NATO Safety Principles for the Storage of Military Ammunition and Explosives
  - b International Maritime Dangerous Goods Code
  - c International Air Transport Association rules.
- 1.11 Responsibility for formulating NZDF policy for the management and handling of explosives and for considering changes to DFO 53 is vested in the NZDF Explosives Safety Committee.

#### Finding

- 1.12 We have ascertained no changes of legislation, regulations or codes of practice have necessitated change to the NZDF's policies or systems. We are satisfied that the NZDF codes of practice for hazardous substances controlled by the Minister of Defence and contained in any weapons system continue to meet the requirements of section 3 sub-sections 3 and 4 of the Act.

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<sup>3</sup> Evaluation Report 4/2004 – Controls on hazardous substances contained in weapons systems, 2 March 2004.

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## Section 2

### Observations

#### Introduction

- 2.1 In this section we outline and comment on certain aspects of the arrangements the NZDF maintains to manage the implementation of its responsibilities under the Act.

#### NZDF explosives safety committee

- 2.2 The NZDF Explosives Safety Committee meets annually or as required. Its members include subject matter experts from each Service, HQ Joint Forces New Zealand, and the Defence Logistics Command.
- 2.3 The committee oversees explosive safety compliance with the Act and its regulations. It is responsible for ensuring that NZDF procedures comply with legislation, international codes, and best practice. The committee also oversees the management of explosives held by the NZDF.
- 2.4 The NZDF Explosives Safety Committee performs its functions effectively.

#### *Changes to regulations*

- 2.5 Consultative papers issued by the Environmental Protection Authority, or proposed or enacted legislative changes to the hazardous substances regime may affect the NZDF. The responsible staff officer in HQ Defence Logistics Command monitors and tracks such material and, where necessary, consults with the NZDF Explosives Safety Committee. DFO 53 and single Service publications are amended if necessary.
- 2.6 An effective system is in place to monitor and manage changes that require attention by the NZDF.

#### Review of DFO 53

- 2.7 DFO 53 was published in 2004 and currently comprises three chapters, covering: Introduction (applicable to all classes); Class 1 (explosives); and Classes 2-9 (all other hazardous substances).

- 2.8 The recent formation of a centralised Defence Munitions Management Group within the Defence Logistics Command has led to a review of DFO 53. The revision involves separating out policy direction from procedural instruction. It is intended to evolve DFO 53 from three chapters into two: chapter one—Class 1 (explosives) and chapter two—Classes 2-9. The first draft of this publication is due for completion by the end of July 2012. We could not establish a target date for issue of the revised DFO but were assured it is being given appropriate priority.
- 2.9 The NZDF is preparing a new Defence Explosives Ordnance Safety Manual to complement the policy that will be contained in the revised DFO 53. The Explosives Ordnance Safety Manual will provide operating instructions for the management of NZDF bulk and static ammunition facilities in New Zealand. A draft of this new manual is due for completion in early 2013.
- 2.10 DFO 53 continues to provide a sound and respected body of knowledge and policy for the handling and management of explosive ordnance. We understand that the Environmental Protection Authority utilises aspects of DFO 53.

#### Internal audit and assessment

- 2.11 The NZDF is responsible for auditing compliance with its procedures. Initially there was an expectation that Service internal auditors would carry out this task. Service internal audit functions have since been subsumed into the NZDF Directorate of Risk and Assurance. The requirement for the Services to undertake internal audits has gradually been replaced by a requirement for units to undertake their own internal assessments of their compliance with DFO 53.
- 2.12 The Directorate of Risk and Assurance only undertakes audits of hazardous substances if it determines that the findings and recommendations of any Ministry of Defence evaluation report warrant further investigation. The most recent internal audit relating to hazardous substances was issued by the Directorate of Risk and Assurance in February 2010.<sup>4</sup>

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Internal Audit Report: *The Safe Management of NZDF Hazardous Substances. The Management Reporting on Compliance of Classes 1-9 Annual Internal Assessment.*

- 2.13 Commanding officers must ensure every work area under their command that uses, handles or transports any class of hazardous substances as part of its normal duties completes an internal assessment for Classes 1-9 by 1<sup>st</sup> April annually. Units must forward a copy of each internal assessment for Class 1 substances to the appropriate NZDF Explosives Safety Committee representative. These individual unit assessments are then to be consolidated and forwarded to Defence Logistics Command by 1<sup>st</sup> June each year.
- 2.14 An escalation process is in place for any serious issues identified through the internal assessment process.
- 2.15 In his 2010 report, the Director Risk and Assurance expressed satisfaction with the annual internal assessment reporting and assessed that it provided substantial assurance that DFO 53 was being complied with. In respect to Class 1 substances (explosives) the Director Risk and Assurance reported that the Services had completed the required annual internal assessments in accordance with DFO 53 for the years 2007, 2008 and 2009.
- 2.16 Compliance with the requirement for internal assessments has since declined significantly. In August 2011 the Commander Logistics reminded Services of the requirement to complete internal assessments. In respect to classes 1-9, he noted that
- the level of engagement by commanders during the annual assessment programme was notable this period, as a number of assessments were not submitted or, in some instances submitted without command endorsement.<sup>5</sup>
- 2.17 Service members of the Explosives Safety Committee are required to consolidate and forward their Service's internal assessments to Defence Logistics Command. These returns provide Commander Logistics with the information needed to advise CDF on the status of hazardous substances management.
- 2.18 Over the past three financial years the provision of consolidated internal assessment returns for Class 1 (explosive) substances has been inadequate. Only the Air Force has consistently submitted a return. The Army has not submitted a consolidated return since May 2008 (for FY 2007/2008). The Navy did not submit a return for 2009/10.

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COMLOG Minute 65/20111262/DLC/2 dated August 2011 – DFO 53 – Hazardous Substances Classes 1-9 Compliance Assessment 2011.

- 2.19 Confusion over responsibilities during the development and commencement of the Defence Logistics Command and the Defence Munitions Management Group is apparent. The Navy and the Army were the Services most affected by the changes.
- 2.20 The NZDF needs to ensure that when major organisational changes are being made, clear guidance or instruction is given on changes to responsibility for ongoing reports and returns. This is particularly important in the case of safety-related returns.
- 2.21 In January 2012 commanding officers were directed by Commander Logistics to submit internal assessments for all hazardous substance classes by 1 April 2012.<sup>6</sup>
- 2.22 Internal assessment policies are sound but application of some aspects of those policies has been weak in the last two-three years, particularly in the preparation of consolidated returns from Services.

### Qualifications of responsible personnel

#### *Test certifiers for explosives*

- 2.23 The NZDF approves and appoints its own test certifiers to meet the requirements of s.75 of the Act. NZDF test certifiers have been trained and are authorised to certify explosive storage areas, approve explosive handling activities, and certify explosive handlers. HQ NZDF maintains a register of NZDF test certifiers.
- 2.24 Test certifiers must be revalidated every two years.
- 2.25 There are 49 NZDF Test Certifiers, located in Defence Logistics Command (9); Defence Munitions Management Group (11); Defence Personnel Executive (6); HQ Joint Forces New Zealand (1); various Air Force units (8); and Explosive Ordnance Disposal Squadron (11). Three personnel are deployed.

#### *Explosives handlers*

- 2.26 The NZDF requires that personnel working with explosives in bulk depots be certified as an NZDF Approved Explosive Handler. Explosives handlers must have a working knowledge in basic explosives, a thorough understanding of safety precautions, and proven competency in relevant

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<sup>6</sup> COMLOG Minute 08/2012 1262/DLC/2 dated 25 January 2012 NZDF Hazardous Substances Annual Internal Assessment.

aspects of DFO 53. The NZDF has established the explosives handler requirement as a parallel to the requirement in regulation 13 of the Hazardous Substances (Class 1 to 5 Controls) Regulations 2001 for certain explosives to be under the control of an approved handler.

- 2.27 Approved handlers are revalidated by the NZDF every five years.
- 2.28 The NZDF does not require persons handling or using ammunition or explosives below a designated trigger level to be approved handlers. They must however have had the necessary professional or trade training to ensure they are competent to handle the item.
- 2.29 The NZDF has an effective system for approving personnel required to certify explosives facilities and handle bulk explosives.

#### Certification of explosive facilities

- 2.30 The NZDF requires that those facilities used to store or process explosives must be authorised by an NZDF test certifier for explosives. The NZDF's provisions conform to the requirements of regulation 30 of the Hazardous Substances (Class 1 to 5 Controls) Regulations 2001.
- 2.31 An NZDF Explosive Test Certificate approves the use of a permanent or temporary facility for the storage or processing of explosives. Test certificates are valid for three years unless invalidated by a change in circumstances (e.g. alterations to the facility or adjustments to the authorised explosive limits).
- 2.32 DFO 53 requires that test certificates be verified by a test certifier from another Service and approved by the Service member of the Explosives Safety Committee. The amalgamation of Service bulk ammunition depots into the Defence Munitions Management Group has changed the availability and relationship of test certifiers. Paragraph 2.297 of DFO 53, which requires the use of a certifier from another Service to authorise a test certificate, should be reviewed to ensure that appropriate independence is maintained.
- 2.33 The Defence Munitions Management Group has negotiated an arrangement with the Australian Defence Force that includes the provision of independent explosive ordnance safety compliance audits. These will be carried out by the Australian Defence Force Explosive Ordnance Monitoring Authority against relevant explosives safety policy and procedures.

2.34 All NZDF explosive facilities have current test certificates.

### Conclusion

2.35 The NZDF's codes of practice and systems of control for hazardous substances contained in weapons systems meet or exceed the requirements of regulations made under s.75 of the Act.

2.36 The NZDF needs to review the provisions of DFO 53 relating to independent verification of explosives facilities in the light of recent organisational changes and the formation of the Defence Munitions Management Group.

### Recommendation

2.37 It is recommended that the NZDF:

- a reviews DFO 53, and particularly Chapter 2, Section 8, to ensure recent organisational changes have not adversely affected the ability to have independent review of test certificates for explosives facilities.

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