

# ENVIRONMENTAL RISK MANAGEMENT AUTHORITY DECISION

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2 September 2010

Amended under s67A of the HSNO Act on 17 September 2012

<b>Application Code</b>	HRC09001
<b>Application Type</b>	To reassess any hazardous substance under section 63A of the Hazardous Substances and New Organisms Act 1996 (“the Act”)
<b>Applicant</b>	The Chief Executive of the Environmental Risk Management Authority
<b>Date Application Received</b>	8 October 2009
<b>Submission Period</b>	8 October 2009 – 23 November 2009
<b>Consideration Date</b>	7 July 2010
<b>Considered by</b>	A Committee of the Authority (“the Committee”)
<b>Purpose of the Application</b>	To seek the modified reassessment of LPG, propane, butane and isobutane (“the substances”).

## 1 Summary of decision

- 1.1 The modified reassessment of the approvals for the substances is **approved**.
- 1.2 In making this decision the Authority has applied the relevant sections of the Act and clauses of the Methodology as detailed in the decision path attached to this decision as **Appendix 1**.

## 2 Application process

- 2.1 The application was lodged by the Chief Executive of the Environmental Risk Management Authority pursuant to section 63(1) following grounds for reassessment having been established under section 62 by the Authority in its decision dated 5 December 2008.
- 2.2 The application was formally received on 8 October 2009 and was publicly notified on 8 October 2009 with submissions closing on 23 November 2009.
  - 2.2.1 Fifteen submissions were received. A summary of submissions was prepared which included the response from the Agency to the submissions.
  - 2.2.2 Five parties initially requested to be heard, but withdrew their requests after their concerns were addressed during discussions with the Agency.

- 2.3 The Agency prepared a Consideration Paper to aid the Committee in its decision making process. The Consideration Paper included the summary of submissions and the Agency’s review of the application. In the Consideration Paper, the Agency proposed a number of variations to the controls on the substances.
- 2.4 The submitters were given the opportunity to comment on the Consideration Paper and the modified controls proposed therein.
- 2.5 No external experts were used in the consideration of this application (clause 17).
- 2.6 The following members of the Authority considered the application: Dr Kieran Elborough (Chair), Dr Val Orchard and Dr Manuka Henare.
- 2.7 The information available to the Committee comprised:
- the application; and
  - the consideration paper (which included all the submissions received on the application).

### **3 Consideration**

#### **Purpose of the application**

- 3.1 To seek the modified reassessment of the substances.

#### **The requirements of section 63A**

- 3.2 According to section 63A(1), a modified reassessment may be carried out where the Authority considers that the reassessment will involve only a specific aspect of the approval and the proposed amendment is not a minor or technical amendment to which section 67A applies.
- 3.3 The Committee considers that—
- (a) a reassessment of the substances under section 63 is not appropriate because the reassessment will involve only a specific aspect of the approvals (i.e. the reassessment will focus on reducing the risks to human health related to the use and storage of the substances); and
  - (b) the amendment is not a “minor in effect” or minor or technical amendment to which section 67A applies.

#### **The requirements of section 63A (6)**

- 3.4 According to section 63A(6), the Authority may approve or decline an application for reassessment under this section, as it considers appropriate, after taking into account:
- (a) all the effects associated with the reassessment; and

- (b) the best international practices and standards for the safe management of hazardous substances.

## **Review of the proposed controls**

3.5 Before the Committee can assess all the effects associated with the reassessment, the Committee must consider whether the proposed controls can be imposed on the substances. According to section 77A(4), before imposing a control under section 77A, the Authority must be satisfied that, against any other specified controls that apply to the substances, the proposed control is more—

- (a) effective in terms of its effect on the management, use and risks of the substances; or
- (b) cost-effective in terms of its effect on the management, use and risks of the substances; or
- (c) likely to achieve its purpose.

### *Use of an odorant or alternative means of leak detection*

3.6 The Fire Service Report into the explosion and fire at the Icepack Coolstore, Tamahere<sup>1</sup> indicated that the loss of life may have been prevented if the LPG that was being used as a refrigerant at the Coolstore had been odorised or if functional leak detection systems were in place.

3.7 The Committee considers that it is necessary to protect people from harm should there be a leak or unintended discharge of the substances that would have the potential to cause a fire or explosion.

3.8 There are a number of controls that apply to the substances via the Hazardous Substances (Class 1 to 5 Controls) Regulations and Schedule 10 of the Hazardous Substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004 that are intended to manage the effects of a leak or unintended discharge of the substances, but these do not prescribe the methods of leak detection.

3.9 The following additional control is proposed for the substances:

The Hazardous Substances (Class 1 to 5 Controls) Regulations 2001 apply to the substances as if the following regulation were inserted immediately after regulation 60:

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<sup>1</sup> The Inquiry into the Explosion and Fire at Icepack Coolstores, Tamahere, on 5 April 2008 (September 2008)

## **60A Use of an odorant or alternative means of leak detection**

- (1) Despite regulation 60, every person in charge of a place where the substances are located must ensure that the substances are:
  - (a) odorised in accordance with NZS 5263:2003 (Gas detection and odorization); or
  - (b) odorised in accordance with a code of practice approved by the Authority under section 78(1) of the Act; or
  - (c) in a place which has a flammable vapour detection system that complies with clauses (2) to (5) below (the FVD system); or
  - (d) in a place that is managed in accordance with a code of practice approved by the Authority under section 78(1) of the Act that sets out an alternative means of leak detection.
- (2) An FVD system must have at least four permanently mounted, continuously operating, detection heads, in locations that will enable the detection heads to detect the presence of escaped gas.
- (3) An FVD system must activate whenever any of the substances are present in the atmosphere at a concentration of 20% or greater of the LEL of that substance.
- (4) If activated, an FVD system must:
  - (a) trigger an automatic alarm that produces a sound of not less than 105 decibels and gives a visual signal; and
  - (b) causes an immediate shutdown of the gas supply, which will then require a manual reset.
- (5) An FVD system must be tested and recalibrated at least every six months.
- (6) The requirements of clauses (1) to (5) above do not apply to a person during manufacture of the substances.

3.10 The Committee considers that the addition of a requirement for odourisation or an appropriate alternative method of leak detection will result in a reduction in the risks to human health associated with the use of the substances and will improve the management of the substances. The Committee considers this means that the proposed control is more effective in terms of its effect on the management, use and risks of the substances and therefore meets the criteria of section 77A(4)(a). Therefore, the proposed control may be imposed.

3.11 The Committee considers that while there may be some additional costs associated with providing a means of leak detection, these costs are not unreasonable and the benefits to human health and safety will outweigh these costs. Therefore, the proposed control should be imposed.

*Use of the substances in refrigeration systems within buildings*

3.12 The Fire Service Report into the explosion and fire at the Icepack Coolstore, Tamahere indicated that the loss of life may have been prevented if the Coolstore had been designed to meet the requirements of best industry practice (e.g. to comply with AS/NZS 1677.2:1998 (Refrigerating Systems Part 2: Safety requirements for fixed applications)).

3.13 The Committee considers that refrigeration systems that use the substances should be designed in such a manner to avoid leaks or unintended discharge of the substances that would have the potential to cause a fire or explosion.

3.14 There are a number of controls that apply to the substances via the Hazardous Substances (Class 1 to 5 Controls) Regulations and Schedule 10 of the Hazardous Substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004 that are intended to reduce the likelihood of a leak of the substances, but these do not specifically refer to any particular standards.

3.15 The following additional control is proposed for the substances:

- (1) A person in charge of a refrigeration system that contains the substances as an integral part of a refrigeration system must ensure that the quantity and the means of containing the substances are in accordance with:
  - (a) Section 2.6 of AS/NZS 1677.2:1998; or
  - (b) a code of practice approved by the Authority under section 78(1) of the Act that sets out the requirements for containing the substances in a refrigeration system.
- (2) Clause (1) does not apply to domestic refrigerators, domestic heat pumps or room air conditioners.

3.16 The Committee considers that the proposed control will result in a reduction of risks, as the additional control will result in improved management and safer use of the substances within refrigeration systems. Compliance with this standard will minimise the likelihood of adverse incidents and hence reduce the potential for harm to people or the environment. The Committee considers this means that the proposed control is more effective in terms of its effect on the management, use and risks of the substances and therefore meets the criteria of section 77A(4)(a). Therefore, the proposed control may be imposed.

3.17 The Committee considers that while there may be some additional costs associated with complying with AS/NZS 1677.2:1998, these costs are not unreasonable and the benefits to human health and safety will outweigh these costs. Therefore, the proposed control should be imposed.

*Lowering the threshold for signage*

- 3.18 The Fire Service Report into the explosion and fire at the Icepack Coolstore, Tamahere indicated that the loss of life may have been prevented if there had been signage on the outside of the Coolstore that indicated that a flammable substance was present within the building.
- 3.19 The Committee considers that where the substances are present inside a building or in a refrigeration machinery room any potential hazard presented by the substances are not immediately obvious. This could present a risk to people entering the building.
- 3.20 Regulation 51 of the Hazardous Substances (Identification) Regulations 2001 and Regulation 42 of the Hazardous Substances (Emergency Management) Regulations 2001 prescribes a requirement for signage for every place where equal to or greater than 250 kg of class 2.1.1A substances are present.
- 3.21 The Committee considers that the existing threshold of 250 kg does not provide sufficient protection to people who enter buildings or machinery rooms that contain the substances.
- 3.22 The following controls are proposed for the substances:

- 3.22.1 Regulation 51(1) of the Hazardous Substances (Identification) Regulations 2001 applies to the substances as if the words:

“the quantities of any hazardous substances of a hazard classification specified in Schedule 3 exceed the amount specified in that schedule for hazardous substances of that classification”

were omitted and the following substituted:

*“greater than 50 kgs of the substances is held within a building, or where any quantity of the substances is held in an integral part of a refrigeration system and the refrigeration system is contained in a machinery room as defined in section 1.4.34 of AS/NZS 1677.2:1998 Refrigerating Systems Part 2: Safety requirements for fixed applications, or any other place where greater than 250 kg of the substances are present”*

- 3.22.2 Regulation 42(1) of the Hazardous Substances (Emergency Management) Regulations 2001 applies to the substances as if the words:

“a quantity of a hazardous substance that is equal to or greater than the quantity specified for hazardous substances of that classification in Schedule 5”

were omitted and the following substituted:

*“greater than 50 kgs of the substances is held within a building, or where any quantity of the substances is held in an integral part of a refrigeration system and the refrigeration system is contained in a machinery room as defined in section 1.4.34 of AS/NZS 1677.2:1998 Refrigerating Systems Part 2: Safety requirements for fixed applications, or any other place where greater than 250 kg of the substances are present”*

- 3.23 The Committee considers that lowering the thresholds for the signage requirements to take effect will result in a reduction to risks to persons entering buildings or machinery rooms where the substances are present, as well as improving the management of the substances while they are being used or stored. This means the proposed control is more effective in terms of its effect on the management, use and risks of the substances and therefore meets the criteria of section 77A(4)(a). Therefore, the proposed control may be imposed.
- 3.24 The Committee notes that some additional costs to industry will be generated as signage will be required at quantities lower than the present threshold limits, but considers that these costs are not unreasonable and will be outweighed by the benefits to health and safety. Therefore, the proposed control should be imposed.

*Confirmation of approved filler at locations*

- 3.25 In the application document, the Agency proposed a control that would require the person in charge of a location, where an approved filler is required, to demonstrate to a test certifier that an approved filler charges the compressed gas container and that the approved filler holds a current test certificate.
- 3.26 The Committee notes that Regulation 59 of the Hazardous Substances (Compressed Gases) Regulations 2004 requires that a person must not charge a compressed gas container with compressed gas unless the person is an approved filler.
- 3.27 The Committee considers that this existing requirement will manage the risks associated with the filling of compressed gas containers and that the proposed control is neither more effective or cost-effective in terms of its effect on the management, use and risks of the substance, nor is the proposed control more likely to achieve its purpose. Therefore, the proposed control should not be imposed.

*Storage and use of the substances indoors*

- 3.28 The Report of Inquiry into the Use of LPG Cylinders in Indoor Situations<sup>2</sup> examined indoor domestic use of LPG cylinders in New Zealand and prevention

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<sup>2</sup> Report of Inquiry into the Use of LPG Cylinders in Indoor Situations (INQ03014) - To ERMA New Zealand, Dr W .S. Wakelin, 9 May 2004.

of gas leakage and misuse of equipment resulting in fires, injury and death. The report indicated that there was no clear guideline to the quantity of LPG able to be stored indoors.

3.29 The Committee considers that the quantities of the substances that are allowed to be used or stored indoors should be restricted to reduce the magnitude of any adverse effects should the substances ignite and that clear guidance on these limits should be available.

3.30 There are no restrictions imposed under HSNO that limit the quantities of these substances that may be stored or used indoors.

3.31 The following additional control is proposed for the substances:

1. A person in charge of a place where the substances are located must ensure that the amount stored or used indoors does not exceed the quantities specified in Table 1 below:

**Table 1: Maximum Quantities of the Substances for Indoor Storage and Use**

<b>Location</b>	<b>Maximum quantity of the substances and size of cylinders</b>
Residential properties comprising: <ul style="list-style-type: none"> <li>• A detached house or single storey attached dwelling; or</li> <li>• Multi-storey attached dwellings, up to and including 3 storeys</li> </ul>	20 kg per dwelling.  Maximum cylinder size: 10 kg substance capacity.
Residential properties comprising: <ul style="list-style-type: none"> <li>• multi-storey attached dwellings of over 3 storeys.</li> </ul>	10 kg per dwelling.  Maximum cylinder size 10 kg substance capacity.
Area of regular habitation (excluding dwellings, factories or warehouses) within buildings with a roof and three or more walls that are <b>not</b> attached to residential or other occupancies; e.g. hotels, bars, restaurants, public buildings, places of worship, shops, offices and laboratories.	10 kg per 10 sq.m of the indoor floor area, up to a maximum total quantity of 100 kg.  Maximum cylinder size 10 kg substance capacity.
Area of regular habitation (excluding dwellings, factories or warehouses) within buildings with a roof and three or more walls that are attached to residential or other occupancies; e.g. hotels, bars, restaurants, public buildings, places of worship, shops, offices and laboratories.	20 kg per premises.  Maximum cylinder size 10 kg substance capacity.
Factories and warehouses	45 kg per 50 sq.m. of the indoor floor area, up to a maximum total quantity of 180 kg per occupancy.

	Maximum cylinder size 45 kg substance capacity.
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3.32 The Committee considers that placing limitations on the quantity of the substances allowed for indoor use or storage will reduce the magnitude of any adverse effects should the substances ignite and would lead to a reduction in risk. This means the proposed control is more effective in terms of its effect on the management, use and risks of the substances and therefore meets the criteria of section 77A(4)(a). Therefore, the proposed control may be imposed.

3.33 The Committee notes that some costs may be incurred by users of the substances who exceed the quantities that will be allowed to be stored or used indoors. The Committee considers that these costs are not unreasonable and that the benefits to human health and safety will outweigh any costs. Therefore, the proposed control should be imposed.

*Adoption of CGA 793 Values*

3.34 In the application document, the Agency proposed the potential adoption of the CGA 793 valve outlet connection for cylinder sizes of 18 kg or less.

3.35 The Committee considers that this proposal should not be considered as part of this reassessment as it is more appropriate that it is addressed during consideration of changes to the Hazardous Substances (Compressed Gases) Regulations.

**Assessment of the effects associated with the modified reassessment of the substances**

3.36 Having considered whether the proposed controls may be imposed on the substances in accordance with section 77A, the Committee is now required to assess the effects associated with the modified reassessment of the substances.

3.37 The Committee considers that the proposed controls in the reassessment will result in a reduction in the risks of the substances to human health. The Committee considers that any additional costs associated with the proposed controls are not unreasonable. The Committee concludes that the benefits of the reassessment will outweigh any costs or risks.

**Best international practices and standards for the safe management of hazardous substances**

3.38 Odourisation of the substances is consistent with best international practice and the proposed method of odourisation will meet the requirements of NZS 5263:2003. AS/NZS 1677.2:1998 is the recognised Australasian standard for management of refrigeration systems. The reduction in the thresholds for

signage and limits on storage and use of the substances indoors are consistent with AS/NZS 1596:2008 (The storage and handling of LP Gas).

- 3.39 The Committee, therefore, considers that the proposed controls are consistent with best international practice and standards for the safe management of hazardous substances.

### **Transitional period for implementation of new controls**

- 3.40 The Committee considers that time must be allowed to communicate the proposed controls and allow users of the substances to implement the proposed controls.
- 3.41 The Committee proposes that a six month 'transitional' period should apply before the proposed controls come into effect (this period commencing on the date of this decision).
- 3.42 The Committee noted that while a six month transitional period was appropriate to allow existing facilities to upgrade to meet the revised requirements, these facilities should be encouraged to comply with these requirements as soon as practicable.

## **4 Decision**

- 4.1 The Committee determines that:
- 4.1.1 the application meets the criteria for consideration under section 63A(1);
  - 4.1.2 it has considered all the effects associated with the reassessment and best international practices and standards for the safe management of hazardous substances in accordance with section 63A(6);
  - 4.1.3 it is satisfied that against the other controls that apply to the substances, the following controls are more effective in terms of their effect on the management, use and risks of the substances (section 77A(4)(a)) and therefore these controls may be imposed in accordance with section 77A(1):
    - 4.1.3.1 The Hazardous Substances (Class 1 to 5 Controls) Regulations 2001 apply to the substances as if the following regulation were inserted immediately after regulation 60:

#### **60A Use of an odorant or alternative means of leak detection**

- (1) Despite regulation 60, every person in charge of a place where the substances are located must ensure that the substances are:

- (a) odorised in accordance with NZS 5263:2003 (Gas detection and odorization); or
  - (b) odorised in accordance with a code of practice approved by the Authority under section 78(1) of the Act; or
  - (c) in a place which has a flammable vapour detection system that complies with clauses (2) to (5) below (the FVD system); or
  - (d) in a place that is managed in accordance with a code of practice approved by the Authority under section 78(1) of the Act that sets out an alternative means of leak detection.
- (2) An FVD system must have at least four permanently mounted, continuously operating, detection heads, in locations that will enable the detection heads to detect the presence of escaped gas.
  - (3) An FVD system must activate whenever any of the substances are present in the atmosphere at a concentration of 20% or greater of the LEL of that substance.
  - (4) If activated, an FVD system must:
    - (a) trigger an automatic alarm that produces a sound of not less than 105 decibels and gives a visual signal; and
    - (b) causes an immediate shutdown of the gas supply, which will then require a manual reset.
  - (5) An FVD system must be tested and recalibrated at least every six months.
  - (6) The requirements of clauses (1) to (5) above do not apply to a person during manufacture of the substances.
- 4.1.3.2 (1) A person in charge of a refrigeration system that contains the substances as an integral part of that refrigeration system must ensure that the quantity and the means of containing the substances are in accordance with:
- (a) Section 2.6 of AS/NZS 1677.2:1998 (Refrigerating Systems Part 2: Safety requirements for fixed applications); or

(b) a code of practice approved by the Authority under section 78(1) of the Act that sets out the requirements for containing the substances in a refrigeration system.

(2) Clause (1) does not apply to domestic refrigerators, domestic heat pumps or room air conditioners.

4.1.3.3 Regulation 51(1) of the Hazardous Substances (Identification) Regulations 2001 applies to the substances as if the words:

“the quantities of any hazardous substances of a hazard classification specified in Schedule 3 exceed the amount specified in that schedule for hazardous substances of that classification”

were omitted and the following substituted:

*“greater than 50 kgs of the substances is held within a building, or where any quantity of the substances is held in an integral part of a refrigeration system and the refrigeration system is contained in a machinery room as defined in section 1.4.34 of AS/NZS 1677.2:1998 Refrigerating Systems Part 2: Safety requirements for fixed applications, or any other place where greater than 250 kg of the substances are present”*

4.1.3.4 Regulation 42(1) of the Hazardous Substances (Emergency Management) Regulations 2001 applies to the substances as if the words:

“a quantity of a hazardous substance that is equal to or greater than the quantity specified for hazardous substances of that classification in Schedule 5”

were omitted and the following substituted:

*“greater than 50 kgs of the substances is held within a building, or where any quantity of the substances is held in an integral part of a refrigeration system and the refrigeration system is contained in a machinery room as defined in section 1.4.34 of AS/NZS 1677.2:1998 Refrigerating Systems Part 2: Safety requirements for fixed applications, or any other place where greater than 250 kg of the substances are present”*

4.1.3.5 A person in charge of a place where the substances are located must ensure that the amount stored or used indoors does not exceed the quantities specified in Table 1 below:

*Table 1: Maximum Quantities of the Substances for Indoor Storage and Use*

<b>Location</b>	<b>Maximum quantity of the substances and size of cylinders</b>
Residential Properties comprising: <ul style="list-style-type: none"> <li>• A detached house or single storey attached dwelling;</li> <li>or</li> <li>• Multi-storey attached dwellings, up to and including 3 storeys</li> </ul>	20 kg per dwelling.  Maximum cylinder size 10 kg.
Residential properties comprising: <ul style="list-style-type: none"> <li>• multi-storey attached dwellings of over 3 storeys.</li> </ul>	10 kg per dwelling.  Maximum cylinder size 10 kg.
Areas of regular habitation (excluding dwellings, factories or warehouses) within buildings with a roof and three or more walls that are <b>not</b> attached to residential or other occupancies; e.g. hotels, bars, restaurants, public buildings, places of worship, shops, offices and laboratories.	10 kg per 10 sq.m of the indoor floor area, up to a maximum total quantity of 100 kg.  Maximum cylinder size 10 kg.
Areas of regular habitation (excluding dwellings, factories or warehouses) within buildings with a roof and three or more walls that are attached to residential or other occupancies; e.g. hotels, bars, restaurants, public buildings, places of worship, shops, offices and laboratories.	20 kg per premises.  Maximum cylinder size 10 kg.
Factories and warehouses	45 kg per 50 sq.m. of the indoor floor area, up to a maximum total quantity of 180 kg per occupancy.

	Maximum cylinder size 45 kg.
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- 4.1.4 this approval (including the controls) will take effect six months from the date of this decision; and
- 4.1.5 the controls listed in **Appendix 2** apply to the substances; and

4.1.6 the modified reassessment of the substances is **approved**.

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Dr Kieran Elborough  
**Chair**

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Date: 2 September 2010

## **Amendment September 2012**

The variations to regulations 51(1) and 42(1) have been amended to clarify the signage requirement for the storage of more than 250 kg of LPG, propane, butane and isobutene as a correction to a technical error under s67A of the HSNO Act.

The above changes have been made in paragraphs 3.22.1, 3.22.2, 4.1.3.3 and 4.1.3.4 on pages 6, 7 and 12 and to the controls EM13 and I29 in tables A2.1 and A2.2 of Appendix 2.

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Helen Atkins

Date:

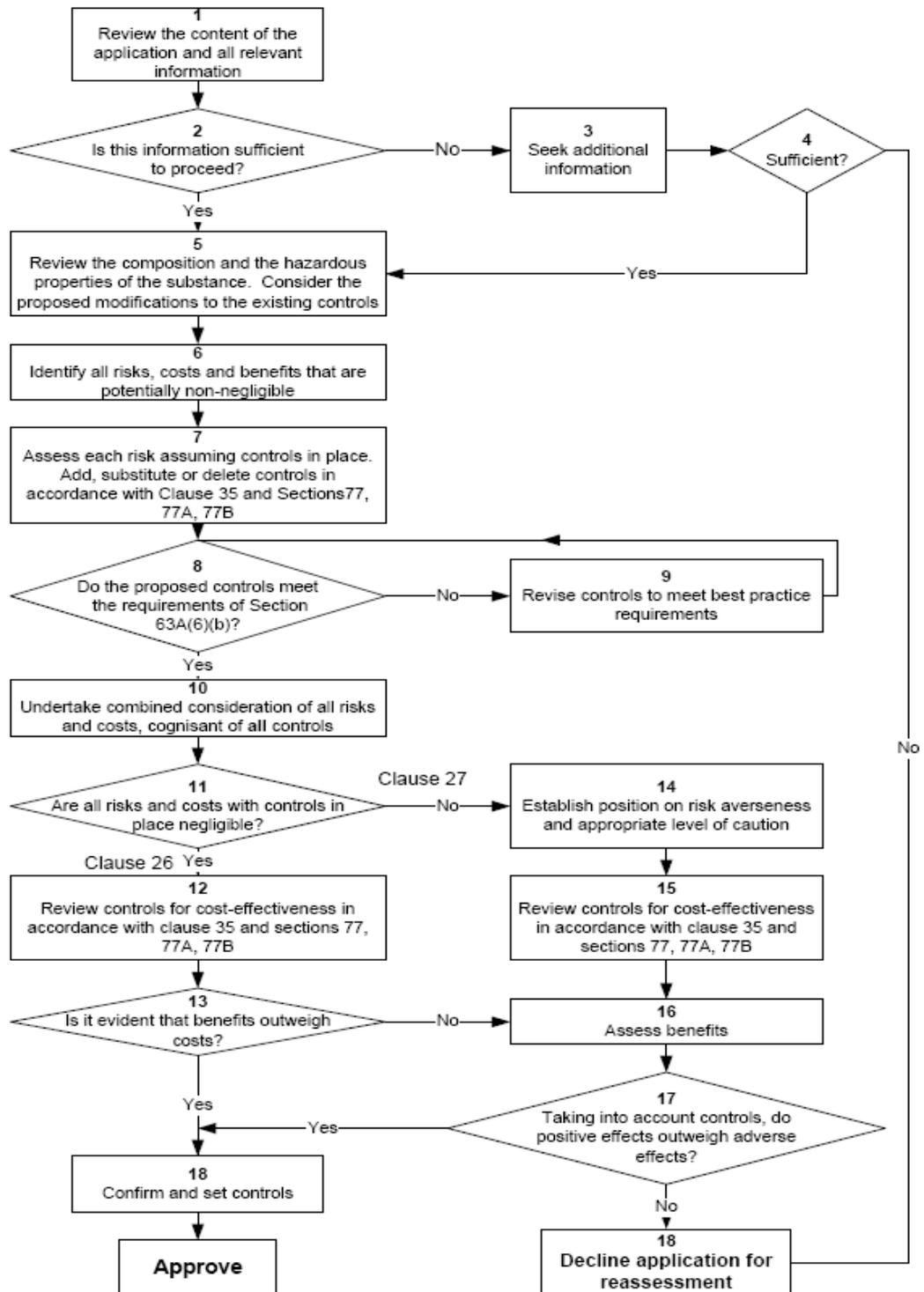
**Chair**

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## Appendix 1: DECISION PATH

### *Decision path for modified reassessment for amendments to hazardous substance approvals: application made and determined under section 63A.*

For proper interpretation of the decision path it is important to work through the flowchart conjunction with the explanatory notes



## APPENDIX 2: Controls for the substances.

**Table A2.1: Controls for LPG (HSR001009) – codes, regulations and variations.**

Control Code <sup>3</sup>	Regulation <sup>4</sup>	Topic	Variations
<b>Hazardous Substances (Classes 1 to 5) Regulations 2001</b>			
F1	7	General test certification requirements for hazardous substance locations	<p>This regulation applies to liquefied petroleum gas as if subclauses (1) and (2) were omitted and the following substituted:</p> <p>(1) <i>Where a test certificate is required for a hazardous substance location comprising up to 300 kg of liquified petroleum gas under Regulation 81 of these regulations, that test certificate must be renewed at intervals of not more than 36 months.</i></p>
F2	8	General public transportation restrictions and requirements for all class 1 to 5 substances	<p>This regulation applies to liquefied petroleum gas as if subclause (2) was replaced by:</p> <p>(2) <i>A person must not carry or convey liquefied petroleum gas on any passenger service vehicle unless the quantity of liquefied petroleum gas is less than or equal to 20 kg.</i></p> <p>(3) <i>A person in charge of a passenger service vehicle used to carry or convey liquefied petroleum gas must ensure that—</i></p> <p>(a) <i>no more than 20 kg of liquefied petroleum gas is carried or conveyed on the vehicle at any one time; and</i></p>

<sup>3</sup> Note: The numbering system used in this column relates to the coding system used in the ERMA New Zealand Controls Matrix. This links the hazard classification categories to the regulatory controls triggered by each category. It is available from the ERMA New Zealand website [www.ermanz.govt.nz/resources](http://www.ermanz.govt.nz/resources) and is also contained in the ERMA New Zealand User Guide to the HSNO Control Regulations.

<sup>4</sup> These Regulations form the controls applicable to this substance. Refer to the cited Regulations for the formal specification, and for definitions and exemptions.

Control Code <sup>3</sup>	Regulation <sup>4</sup>	Topic	Variations
			<p>(b) <i>the liquefied petroleum gas is in 1 or more containers that are stowed in a separate compartment on the vehicle that complies with subclause (4); and</i></p> <p>(c) <i>no other hazardous substance is stored in the compartment with the liquefied petroleum gas; and</i></p> <p>(d) <i>the compartment is labelled with a ‘Class 2 - Flammable Gas’ diamond.</i></p> <p>(4) <i>A compartment that is used to convey liquefied petroleum gas must be—</i></p> <p>(a) <i>adequately ventilated; and</i></p> <p>(b) <i>able to be accessed only from outside the vehicle; and</i></p> <p>(c) <i>made of fire-resistant material; and</i></p> <p>(d) <i>situated in the vehicle so as to provide maximum protection for the liquefied petroleum gas container in the event of an accident.</i></p>
F3	55	General limits on flammable substances	
F4	56	Approved handler/security requirements for certain flammable substances	<p>This regulation applies to liquefied petroleum gas at refuelling outlets as if the item in table 2 of Schedule 3 of the regulations relating to classification 2.1.1.A was replaced by:</p> <p><i>2.1.1.A any amount</i></p> <p>This regulation applies to liquefied petroleum gas at refuelling outlets as if, in regulation 56(1), the words “<i>subject to subclauses (2), (3), and (4)</i>” were inserted before the words</p>

Control Code <sup>3</sup>	Regulation <sup>4</sup>	Topic	Variations
			<p data-bbox="1018 271 1241 304"><i>“Class 2, 3, or 4”.</i></p> <p data-bbox="1018 353 1458 456">The regulations apply to liquefied petroleum gas at refuelling outlets as if regulation 56(2) was replaced by:</p> <p data-bbox="1018 472 1445 607">(2) <i>Liquefied petroleum gas at a refuelling outlet may be handled by a person who is not an approved handler if—</i></p> <ul style="list-style-type: none"> <li data-bbox="1098 622 1437 927">(a) <i>the person has been trained in the hazards associated with the substance and its safe use and handling, including steps to be taken in the event of spillage or other emergency; and</i></li> <li data-bbox="1098 943 1458 1173">(b) <i>an approved handler is available to provide assistance, if necessary, to the person at all times while the substance is being handled by the person.</i></li> </ul> <p data-bbox="1018 1189 1437 1359">(3) <i>A person who is not an approved handler may self service refuel a vehicle with liquefied petroleum gas at a refuelling outlet if—</i></p> <ul style="list-style-type: none"> <li data-bbox="1098 1375 1469 1615">(a) <i>the dispensing nozzle of the liquefied petroleum gas stationary container system cannot be operated until it is connected to the vehicle filling point; and</i></li> <li data-bbox="1098 1630 1458 1830">(b) <i>the dispensing nozzle cannot be disconnected from the vehicle filling point unless the fill trigger is in the off position; and</i></li> <li data-bbox="1098 1845 1469 2011">(c) <i>the liquefied petroleum gas stationary container system is fitted with an emergency shutdown system that complies</i></li> </ul>

Control Code <sup>3</sup>	Regulation <sup>4</sup>	Topic	Variations
			<p><i>with section 9.5.14 of AS/NZS 1596; and</i></p> <p>(d) <i>the dispensing unit is clearly identified as such and displays a clear set of filling instructions; and</i></p> <p>(e) <i>the dispensing hose of the dispensing unit has a self-sealing hose break coupling that complies with section 9.3.3 of AS/NZS 1596; and</i></p> <p>(f) <i>an approved handler is available to provide assistance, if necessary, to the person at all times while the substance is being handled by the person.</i></p> <p>(4) <i>For the purposes of subclause (3)(c), a system that was installed prior to 1 July 1999 complies with paragraph (a) of section 9.5.14 of AS/NZS 1596 if it can be remotely activated.</i></p>
F5	58, 59	Requirements regarding hazardous atmosphere zones for class 2.1.1, 2.1.2 and 3.1 substances	
F6	60-72	Requirements to prevent unintended ignition of class 2.1.1, 2.1.2 and 3.1 substances	<p>These regulations apply to the substances as if the following regulation were inserted immediately after regulation 60:</p> <p><b>60A Use of an odorant or alternative means of leak detection</b></p> <p>(1) <i>Despite regulation 60, every person in charge of a place where the substances are located must ensure that the substances are:</i></p> <p>(a) <i>odorised in accordance with NZS 5263:2003 (Gas detection and odorization); or</i></p> <p>(b) <i>odorised in accordance</i></p>

Control Code <sup>3</sup>	Regulation <sup>4</sup>	Topic	Variations
			<p><i>with a code of practice approved by the Authority under section 78(1) of the Act; or</i></p> <p><i>(c) in a place which has a flammable vapour detection system that complies with clauses (2) to (5) below (the FVD system); or</i></p> <p><i>(d) in a place that is managed in accordance with a code of practice approved by the Authority under section 78(1) of the Act that sets out an alternative means of leak detection.</i></p> <p><i>(2) An FVD system must have at least four permanently mounted, continuously operating, detection heads, in locations that will enable the detection heads to detect the presence of escaped gas.</i></p> <p><i>(3) An FVD system must activate whenever any of the substances are present in the atmosphere at a concentration of 20% or greater of the LEL of that substance.</i></p> <p><i>(4) If activated, an FVD system must:</i></p> <p><i>(a) trigger an automatic alarm that produces a sound of not less than 105 decibels and gives a visual signal; and</i></p> <p><i>(b) causes an immediate shutdown of the gas supply, which will then require a manual reset.</i></p> <p><i>(5) An FVD system must be tested and recalibrated at least every six months.</i></p> <p><i>(6) The requirements of clauses (1) to (5) above do not apply to a person during manufacture of the substances.</i></p>

Control Code <sup>3</sup>	Regulation <sup>4</sup>	Topic	Variations
			<p>Regulation 61 of the Hazardous Substances (Classes 1 to 5 Controls) Regulations 2001:</p> <p><i>Subclauses (3), (4), and (5) of this regulation relating to the control of ignition sources do not apply to a vehicle at the dispensing unit of a refuelling outlet if, when fuel is being delivered to the fuel tank of the vehicle–</i></p> <p>(a) <i>the engine of the vehicle is turned off; and</i></p> <p>(b) <i>no source of ignition is brought within 3 metres of the fuel tank of the vehicle.</i></p>
F11	76	Segregation of incompatible substances	
F12	77	Requirement to establish a hazardous substance locations if flammable substances are present	<p>This regulation applies to liquefied petroleum gas as if in subclause (2), the words “<i>at least 30 working days</i>” were replaced by “<i>at least 5 working days</i>”.</p> <p>This regulation does not apply to liquefied petroleum gas when in non-refillable, threaded or self-sealing cartridges of up to 1,000 ml water capacity manufactured to EN 417 or other approved standards, if the aggregate water capacity of the cartridges at any one place is less than 3,000 litres.</p>
F14	81	Test certification requirements for facilities where class 2.1.1, 2.1.2 or 3.1 substances are present	<p>This regulation applies to these substances as if, at the end of paragraph (g), the expression “.” was replaced by “; and</p> <p>(h) <i>the requirements of Schedule 10 of the Hazardous Substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004 are complied with; and</i></p> <p>(i) <i>the stationary container systems containing the substances comply with:</i></p> <p>(i) <i>the separation requirements specified in Part 5 of Schedule 8</i></p>

Control Code <sup>3</sup>	Regulation <sup>4</sup>	Topic	Variations
			<p><i>of the Hazardous Substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004; and</i></p> <p>(ii) <i>the fire fighting system requirements of Schedule 8 of the Hazardous Substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004; and</i></p> <p>(iii) <i>the requirements relating to plans under clause 81 of Schedule 8 of the Hazardous Substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004; and</i></p> <p>(iv) <i>if the stationary container system contains a vaporiser, the vaporiser complies with clause 55 of Schedule 8 of the Hazardous Substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004.”</i></p> <p><i>Despite Regulation 81, a person in charge of a hazardous substance location where less than 300 kg of the substances are present does not require a current location test certificate if:</i></p> <p>(a) <i>the location has been granted a previous location test certificate in respect of the substances; and</i></p> <p>(b) <i>the location has passed a compliance check in accordance with a code of practice approved by the</i></p>

Control Code <sup>3</sup>	Regulation <sup>4</sup>	Topic	Variations
			<i>Authority under section 78(1) of the Act. ”.</i>
F16	83	Controls on transit depots where flammable substances are present	
<b>Hazardous Substances (Identification) Regulations 2001</b>			
I1	6, 7, 32-35, 36 (1)-(7)	General identification requirements Regulation 6 – Identification duties of suppliers Regulation 7 – Identification duties of persons in charge Regulations 32 and 33 – Accessibility of information Regulations 34, 35, 36(1)-(7) – Comprehensibility, Clarity and Durability of information	
I5	11	Priority identifiers for flammable substances	
I9	18	Secondary identifiers for all hazardous substances	
I13	22	Secondary identifiers for flammable substances	
I19	29-31	Alternative information in certain cases Regulation 29 – Substances in fixed bulk containers or bulk transport containers Regulation 30 – Substances in multiple packaging Regulation 31 – Alternative information when substances are imported	
I21	37-39, 47-50	Documentation required in places of work Regulation 37 – Documentation duties of suppliers Regulation 38 – Documentation duties of persons in charge of places of work Regulation 39 – General content requirements for documentation Regulation 47 – Information not included in approval Regulation 48 – Location and presentation requirements for documentation	

Control Code <sup>3</sup>	Regulation <sup>4</sup>	Topic	Variations
		Regulation 49 – Documentation requirements for vehicles Regulation 50 – Documentation to be supplied on request	
I25	43	Specific documentation requirements for flammable substances	
I29	51, 52	Signage requirements	Regulation 51(1) of the Hazardous Substances (Identification) Regulations 2001 applies to the substances as if the words “the quantities of any hazardous substances of a hazard classification specified in Schedule 3 exceed the amount specified in that schedule for hazardous substances of that classification” were omitted and the following substituted:  <i>“greater than 50 kgs of the substances is held within a building, or where any quantity of the substances is held in an integral part of a refrigeration system and the refrigeration system is contained in a machinery room as defined in section 1.4.34 of AS/NZS 1677.2:1998 Refrigerating Systems Part 2: Safety requirements for fixed applications, or any other place where greater than 250 kg of the substances are present”</i>
<b>Hazardous Substances (Disposal) Regulations 2001</b>			
D2	6	Disposal requirements for flammable substances	
D6	10	Disposal requirements for packages	
D7	11, 12	Disposal information requirements	
D8	13, 14	Disposal documentation requirements	
<b>Hazardous Substances (Emergency Management) Regulations 2001</b>			
EM1	6, 7, 9-11	Level 1 emergency management information: General requirements	
EM8	12-16, 18-20	Level 2 emergency management documentation requirements	
EM9	17	Additional information requirements for flammable	

Control Code <sup>3</sup>	Regulation <sup>4</sup>	Topic	Variations
		oxidising substances and organic peroxides	
EM10	21-24	Fire extinguisher requirements	<p>Regulation 21 applies to the substances as if subclause (1) was omitted and the following substituted:</p> <p><i>“(1) Every place of work must have one fire extinguisher if greater than 50 kg of the substances are present or are likely to be present.</i></p> <p><i>(2) The fire extinguisher may be substituted by a hydrant system incorporating a 20 mm diameter hose, fitted with a spray nozzle and of sufficient length to enable water to be directed to all sides of the tank or tanks.”</i></p>
EM11	25-34	Level 3 emergency management requirements – emergency response plans	
EM13	42	Level 3 emergency management requirements: signage	<p>Regulation 42(1) of the Hazardous Substances (Emergency Management) Regulations 2001 applies to the substances as if the words:</p> <p><i>“a quantity of a hazardous substance that is equal to or greater than the quantity specified for hazardous substances of that classification in Schedule 5”</i></p> <p>were omitted and the following substituted:</p> <p><i>“greater than 50 kgs of the substances is held within a building, or where any quantity of the substances is held in an integral part of a refrigeration system and the refrigeration system is contained in a machinery room as defined in section 1.4.34 of AS/NZS 1677.2:1998 Refrigerating Systems Part 2: Safety requirements for fixed applications, or any other place where greater than 250 kg of the substances are present”</i></p>
<b>Hazardous Substances (Personnel Qualification) Regulations 2001</b>			

Control Code <sup>3</sup>	Regulation <sup>4</sup>	Topic	Variations
AH1	4 -6	Approved handler requirements (including test certificate and qualification requirements)	See F4.
<b>Hazardous Substances (Compressed Gases) Regulations 2004</b>			
The Hazardous Substances (Compressed Gases) Regulations 2004 prescribe a number of controls relating to compressed gases including aerosols and gas cylinders and must be complied with as relevant			
<b>Hazardous Substances (Tank Wagons and Transportable Containers) Regulations 2004</b>			
Regulations 4 to 43 where applicable	The Hazardous Substances (Tank Wagons and Transportable Containers) Regulations 2004 prescribe a number of controls relating to tank wagons and transportable containers and must be complied with as relevant	<p>Regulation 42 applies to road tank wagons containing the substances if the following subclause was inserted after subclause (5):</p> <p>“(6) <i>When a tank wagon with a capacity of 12,000 litres or greater is parked for a period of time greater than one hour, fire fighting facilities must be provided, such facilities must include a spray system capable of delivering water to the exposed surfaces of the tank at a rate of 600 litres per square metre per hour, and equipped with an automatic spray system that—</i></p> <ul style="list-style-type: none"> <li><i>(a) detects fire; and</i></li> <li><i>(b) starts delivering water to the tank; and</i></li> <li><i>(c) can be manually controlled from a safe location,</i></li> </ul> <p><i>provided that if the tank wagon is parked whilst containing liquefied petroleum gas in gaseous form only, a hydrant system equipped with a monitor or equivalent means to direct water to all sides of the tank need only be provided.</i></p> <p>(7) <i>the Authority may vary the requirements of subclause (6)—</i></p> <ul style="list-style-type: none"> <li><i>(a) by approving a code of practice under section 78(1) of the Act; or</i></li> <li><i>(b) upon application by the person in charge of a</i></li> </ul>	

Control Code <sup>3</sup>	Regulation <sup>4</sup>	Topic	Variations
			<p><i>location at which a tank wagon containing the substances is parked.</i></p> <p>(8) <i>when considering whether to grant an application made under (7)(b), the Authority must have regard to—</i></p> <p>(a) <i>the separation distance between the tank wagon and an area of high intensity land use or an area of low intensity land use (as the case may be); and</i></p> <p>(b) <i>any hazards located within the site where the tank wagon is parked; and</i></p> <p>(c) <i>the exposure of the tank wagon to or from any other property; and</i></p> <p>(d) <i>the available water supply; and</i></p> <p>(e) <i>the likely response time and available resources of the local units of the New Zealand Fire Service; and</i></p> <p>(f) <i>any other matter the Authority thinks fit.”</i></p>

<b>Additional controls set under s77A</b>	
<p>Where any term used in these controls is defined in the Hazardous Substances and New Organisms Act 1996, or the Hazardous Substances (Class 1 to 5 Controls) Regulations 2001, the term used in these controls has the meaning given to it in that Act or those Regulations.</p>	
<p>The controls relating to stationary container systems, secondary containment and unintended ignition of flammable substances, as set out in schedules 8, 9, 10 and 12 of the Hazardous Substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004 (Supplement to the New Zealand Gazette, 26 March 2004, No 35, page 767), as amended, shall apply to this substance, notwithstanding clause 1(1) of Schedules 8 and 9 and clause 1 of Schedule 10.</p>	<p>Clause 55(4) of Schedule 8 does not apply to vaporisers using the substances.</p> <p>Clause 91 of Schedule 8 does not apply to stationary container systems containing the substances.</p> <p>Clause 8 of Schedule 10 applies to the substances as if subclause (1) was omitted and the following substituted:</p> <p>“(1) <i>An above ground stationary tank or transportable container or tank wagon that contains the substances and to which this Part</i></p>

*applies, and each transfer point connected to them, must be separated from—*

(a) *an area of high intensity land use by not less than the distance specified in column 2 of the table set out in subclause (3) opposite the capacity of the above ground stationary tank or transportable container or tank wagon specified in column 1 of that table; or*

(b) *an area of low intensity land use by not less than the distance specified in column 3 of the table set out in subclause (3) opposite the capacity of the above ground stationary tank or transportable container or tank wagon specified in column 1 of that table.*

(2) *Notwithstanding subclause (1), a tank fill zone is not required to be separated from the boundary of the controlled zone by more than 15 metres.*

(3) *The table referred to in subclause (1)*

<b>Water capacity of tank or container (litres)</b>	<b>Area of high intensity land use (metres)</b>	<b>Area of low intensity land use (metres)</b>
<b>Column 1</b>	<b>Column 2</b>	<b>Column 3</b>
Up to 500	1.5	1.5
1000	3	2
2000	6	4
5000	8	5
8000	10	6
10000	11	7
15000	14	8
20000	15	9
50000	17	10
100000	20	11
200000	25	12
500000	45	22

Clause 21 of Schedule 10 applies to the substances as if subclause (1) was omitted and the following substituted:

*“(1) An above ground stationary tank or transportable container or tank wagon that contains the substance and to which this Part applies, and each tank fill transfer point connected to them, must be separated from the boundary of a controlled zone by not less than—*

	<p>(a) <i>if the controlled zone abuts an area of high intensity land use, the distance specified in column 2 of the table set out in subclause (3) opposite the capacity of the above ground stationary tank or transportable container or tank wagon specified in column 1 of that table; or</i></p> <p>(b) <i>if the controlled zone abuts an area of low intensity land use, the distance specified in column 3 of the table set out in subclause (3) opposite the capacity of the above ground stationary tank or transportable container or tank wagon specified in column 1 of that table.</i></p> <p>(2) <i>Notwithstanding subclause (1), a tank fill zone is not required to be separated from the boundary of the controlled zone by more than 15 metres.</i></p> <p>(3) <i>The table referred to in subclause (1)</i></p> <table border="1"> <thead> <tr> <th><b>Water capacity of tank or container (litres)</b></th> <th><b>Area of high intensity land use (metres)</b></th> <th><b>Area of low intensity land use (metres)</b></th> </tr> <tr> <th><b>Column 1</b></th> <th><b>Column 2</b></th> <th><b>Column 3</b></th> </tr> </thead> <tbody> <tr> <td>Up to 500</td> <td>1.5</td> <td>1.5</td> </tr> <tr> <td>1000</td> <td>3</td> <td>2</td> </tr> <tr> <td>2000</td> <td>6</td> <td>4</td> </tr> <tr> <td>5000</td> <td>8</td> <td>5</td> </tr> <tr> <td>8000</td> <td>10</td> <td>6</td> </tr> <tr> <td>10000</td> <td>11</td> <td>7</td> </tr> <tr> <td>15000</td> <td>14</td> <td>8</td> </tr> <tr> <td>20000</td> <td>15</td> <td>9</td> </tr> <tr> <td>50000</td> <td>17</td> <td>10</td> </tr> <tr> <td>100000</td> <td>20</td> <td>11</td> </tr> <tr> <td>200000</td> <td>25</td> <td>12</td> </tr> <tr> <td>500000</td> <td>45</td> <td>22</td> </tr> </tbody> </table>	<b>Water capacity of tank or container (litres)</b>	<b>Area of high intensity land use (metres)</b>	<b>Area of low intensity land use (metres)</b>	<b>Column 1</b>	<b>Column 2</b>	<b>Column 3</b>	Up to 500	1.5	1.5	1000	3	2	2000	6	4	5000	8	5	8000	10	6	10000	11	7	15000	14	8	20000	15	9	50000	17	10	100000	20	11	200000	25	12	500000	45	22
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No person may deliver the substances to a hazardous substance location if, after delivery of that substance or those substances, more than 100 kg of those substances will be present at that hazardous substance location, unless that hazardous substance location has a current location test certificate, or has been approved in accordance with a compliance check under a code of practice approved by the Authority under section 78(1) of the Act.

- (1) A person in charge of a refrigeration system that contains the substances as an integral part of that refrigeration system must ensure that the quantity and the means of containing the substances are in accordance with:
- (a) Section 2.6 of AS/NZS 1677.2 1998 (Refrigerating Systems Part 2: Safety requirements for fixed applications); or
  - (b) a code of practice approved by the Authority under section 78(1) of the Act that sets out the

requirements for containing the substances in a refrigeration system.

(2) Clause (1) does not apply to domestic refrigerators, domestic heat pumps or room air conditioners.

A person in charge of a place where the substances are located must ensure that the amount stored or used indoors does not exceed the quantities specified in Table 1 below:

**Table 1: Maximum Quantities of the Substances for Indoor Storage and Use**

Location	Maximum quantity of the substances and size of cylinders
Residential Properties comprising: <ul style="list-style-type: none"> <li>• A detached house or single storey attached dwelling; or</li> <li>• Multi-storey attached dwellings, up to and including 3 storeys</li> </ul>	20 kg per dwelling. Maximum cylinder size 10 kg.
Residential properties comprising: <ul style="list-style-type: none"> <li>• multi-storey attached dwellings of over 3 storeys.</li> </ul>	10 kg per dwelling. Maximum cylinder size 10 kg.
Areas of regular habitation (excluding dwellings, factories or warehouses) within buildings with a roof and three or more walls that are <b>not</b> attached to residential or other occupancies; e.g. hotels, bars, restaurants, public buildings, places of worship, shops, offices and laboratories.	10 kg per 10 sq.m of the indoor floor area, up to a maximum total quantity of 100 kg. Maximum cylinder size 10 kg.
Areas of regular habitation (excluding dwellings, factories or warehouses) within buildings with a roof and three or more walls that are attached to residential or other occupancies; e.g. hotels, bars, restaurants, public buildings, places of worship, shops, offices and laboratories.	20 kg per premises. Maximum cylinder size 10 kg.
Factories and warehouses	45 kg per 50 sq.m. of the indoor floor area, up to a maximum total quantity of 180 kg per occupancy. Maximum cylinder size 45 kg.

**Table A2.2: Controls for Propane (HSR001010), Butane (HSR000989) and Isobutane (HSR001003) – codes, regulations and variations.**

Control Code <sup>5</sup>	Regulation <sup>6</sup>	Topic	Variations
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<sup>5</sup> Note: The numbering system used in this column relates to the coding system used in the ERMA New Zealand Controls Matrix. This links the hazard classification categories to the regulatory controls triggered by each category. It is available from the ERMA New Zealand website [www.ermanz.govt.nz/resources](http://www.ermanz.govt.nz/resources) and is also contained in the ERMA New Zealand User Guide to the HSNO Control Regulations.

<sup>6</sup> These Regulations form the controls applicable to this substance. Refer to the cited Regulations for the formal specification, and for definitions and exemptions.

Control Code <sup>5</sup>	Regulation <sup>6</sup>	Topic	Variations
<b>Hazardous Substances (Classes 1 to 5) Regulations 2001</b>			
F1	7	General test certification requirements for hazardous substance locations	
F2	8	General public transportation restrictions and requirements for all class 1 to 5 substances	
F3	55	General limits on flammable substances	
F4	56	Approved handler/security requirements for certain flammable substances	
F5	58, 59	Requirements regarding hazardous atmosphere zones for class 2.1.1, 2.1.2 and 3.1 substances	
F6	60-72	Requirements to prevent unintended ignition of class 2.1.1, 2.1.2 and 3.1 substances	<p>These regulations apply to the substances as if the following regulation were inserted immediately after regulation 60:</p> <p><b>60A Use of an odorant or alternative means of leak detection</b></p> <p>(1) <i>Despite regulation 60, every person in charge of a place where the substances are located must ensure that the substances are:</i></p> <p>(a) <i>odorised in accordance with NZS 5263:2003 (Gas detection and odorization);</i> <i>or</i></p> <p>(b) <i>odorised in accordance with a code of practice approved by the Authority under section 78(1) of the Act; or</i></p> <p>(c) <i>in a place which has a flammable vapour detection system that complies with clauses (2) to (5) below (the FVD system); or</i></p> <p>(d) <i>in a place that is managed in accordance with a code of practice approved by the Authority under section 78(1) of the Act that sets out an alternative means of</i></p>

Control Code <sup>5</sup>	Regulation <sup>6</sup>	Topic	Variations
			<p><i>leak detection.</i></p> <p>(2) <i>An FVD system must have at least four permanently mounted, continuously operating, detection heads, in locations that will enable the detection heads to detect the presence of escaped gas.</i></p> <p>(3) <i>An FVD system must activate whenever any of the substances are present in the atmosphere at a concentration of 20% or greater of the LEL of that substance.</i></p> <p>(4) <i>If activated, an FVD system must:</i></p> <p>(c) <i>trigger an automatic alarm that produces a sound of not less than 105 decibels and gives a visual signal; and</i></p> <p>(d) <i>causes an immediate shutdown of the gas supply, which will then require a manual reset.</i></p> <p>(5) <i>An FVD system must be tested and recalibrated at least every six months.</i></p> <p>(6) <i>The requirements of clauses (1) to (5) above do not apply to a person during manufacture of the substances.</i></p> <p>Regulation 61 of the Hazardous Substances (Classes 1 to 5 Controls) Regulations 2001:</p> <p><i>Subclauses (3), (4), and (5) of this regulation relating to the control of ignition sources do not apply to a vehicle at the dispensing unit of a refuelling outlet if, when fuel is being delivered to the fuel tank of the vehicle–</i></p> <p>(a) <i>the engine of the vehicle is turned off; and</i></p> <p>(b) <i>no source of ignition is brought within 3 metres of the fuel tank of the vehicle.</i></p>

Control Code <sup>5</sup>	Regulation <sup>6</sup>	Topic	Variations
F11	76	Segregation of incompatible substances	
F12	77	Requirement to establish a hazardous substance locations if flammable substances are present	
F14	81	Test certification requirements for facilities where class 2.1.1, 2.1.2 or 3.1 substances are present	<p>This regulation applies to these substances as if, at the end of paragraph (g), the expression “.” was replaced by “; and</p> <p>(h) <i>the requirements of Schedule 10 of the Hazardous Substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004 are complied with; and</i></p> <p>(i) <i>the stationary container systems containing the substances comply with:</i></p> <p>(i) <i>the separation requirements specified in Part 5 of Schedule 8 of the Hazardous Substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004; and</i></p> <p>(ii) <i>the fire fighting system requirements of Schedule 8 of the Hazardous Substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004; and</i></p> <p>(iii) <i>the requirements relating to plans under clause 81 of Schedule 8 of the Hazardous Substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004; and</i></p> <p>(iv) <i>if the stationary container system contains a vaporiser,</i></p>

Control Code <sup>5</sup>	Regulation <sup>6</sup>	Topic	Variations
			<p><i>the vaporiser complies with clause 55 of Schedule 8 of the Hazardous Substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004.”</i></p> <p><i>Despite Regulation 81, a person in charge of a hazardous substance location where less than 300 kg of the substances are present does not require a current location test certificate if:</i></p> <p>(a) <i>the location has been granted a previous location test certificate in respect of the substances; and</i></p> <p>(b) <i>the location has passed a compliance check in accordance with a code of practice approved by the Authority under section 78(1) of the Act.”.</i></p>
F16	83	Controls on transit depots where flammable substances are present	
<b>Hazardous Substances (Identification) Regulations 2001</b>			
I1	6, 7, 32-35, 36 (1)-(7)	<p>General identification requirements</p> <p>Regulation 6 – Identification duties of suppliers</p> <p>Regulation 7 – Identification duties of persons in charge</p> <p>Regulations 32 and 33 – Accessibility of information</p> <p>Regulations 34, 35, 36(1)-(7) – Comprehensibility, Clarity and Durability of information</p>	
I5	11	Priority identifiers for flammable substances	
I9	18	Secondary identifiers for all hazardous substances	
I13	22	Secondary identifiers for flammable substances	
I19	29-31	<p>Alternative information in certain cases</p> <p>Regulation 29 – Substances in fixed</p>	

Control Code <sup>5</sup>	Regulation <sup>6</sup>	Topic	Variations
		<p>bulk containers or bulk transport containers</p> <p>Regulation 30 – Substances in multiple packaging</p> <p>Regulation 31 – Alternative information when substances are imported</p>	
I21	37-39, 47-50	<p>Documentation required in places of work</p> <p>Regulation 37 – Documentation duties of suppliers</p> <p>Regulation 38 – Documentation duties of persons in charge of places of work</p> <p>Regulation 39 – General content requirements for documentation</p> <p>Regulation 47 – Information not included in approval</p> <p>Regulation 48 – Location and presentation requirements for documentation</p> <p>Regulation 49 – Documentation requirements for vehicles</p> <p>Regulation 50 – Documentation to be supplied on request</p>	
I25	43	Specific documentation requirements for flammable substances	
I29	51, 52	Signage requirements	<p>Regulation 51(1) of the Hazardous Substances (Identification) Regulations 2001 applies to the substances as if the words “the quantities of any hazardous substances of a hazard classification specified in Schedule 3 exceed the amount specified in that schedule for hazardous substances of that classification”</p> <p>were omitted and the following substituted:</p> <p><i>“greater than 50 kgs of the substances is held within a building, or where any quantity of the substances is held in an integral part of a refrigeration system and the refrigeration system is contained in a machinery room as defined in section</i></p>

Control Code <sup>5</sup>	Regulation <sup>6</sup>	Topic	Variations
			<i>1.4.34 of AS/NZS 1677.2:1998 Refrigerating Systems Part 2: Safety requirements for fixed applications, or any other place where greater than 250 kg of the substances are present”</i>
<b>Hazardous Substances (Disposal) Regulations 2001</b>			
D2	6	Disposal requirements for flammable substances	
D6	10	Disposal requirements for packages	
D7	11, 12	Disposal information requirements	
D8	13, 14	Disposal documentation requirements	
<b>Hazardous Substances (Emergency Management) Regulations 2001</b>			
EM1	6, 7, 9-11	Level 1 emergency management information: General requirements	
EM8	12-16, 18-20	Level 2 emergency management documentation requirements	
EM9	17	Additional information requirements for flammable oxidising substances and organic peroxides	
EM10	21-24	Fire extinguisher requirements	Regulation 21 applies to the substances as if subclause (1) was omitted and the following substituted:  “(1) <i>Every place of work must have one fire extinguisher if greater than 50 kg of the substances are present or are likely to be present.</i>  (2) <i>The fire extinguisher may be substituted by a hydrant system incorporating a 20 mm diameter hose, fitted with a spray nozzle and of sufficient length to enable water to be directed to all sides of the tank or tanks.”</i>
EM11	25-34	Level 3 emergency management requirements – emergency response plans	
EM13	42	Level 3 emergency management requirements: signage	Regulation 42(1) of the Hazardous Substances (Emergency Management) Regulations 2001 applies to the substances as if the words:

Control Code <sup>5</sup>	Regulation <sup>6</sup>	Topic	Variations
			<p>“a quantity of a hazardous substance that is equal to or greater than the quantity specified for hazardous substances of that classification in Schedule 5”</p> <p>were omitted and the following substituted:</p> <p><i>“greater than 50 kgs of the substances is held within a building, or where any quantity of the substances is held in an integral part of a refrigeration system and the refrigeration system is contained in a machinery room as defined in section 1.4.34 of AS/NZS 1677.2:1998 Refrigerating Systems Part 2: Safety requirements for fixed applications, or any other place where greater than 250 kg of the substances are present”</i></p>
<b>Hazardous Substances (Personnel Qualification) Regulations 2001</b>			
AH1	4 -6	Approved handler requirements (including test certificate and qualification requirements	See F4.
<b>Hazardous Substances (Compressed Gases) Regulations 2004</b>			
The Hazardous Substances (Compressed Gases) Regulations 2004 prescribe a number of controls relating to compressed gases including aerosols and gas cylinders and must be complied with as relevant			
<b>Hazardous Substances (Tank Wagons and Transportable Containers) Regulations 2004</b>			
Regulations 4 to 43 where applicable	The Hazardous Substances (Tank Wagons and Transportable Containers) Regulations 2004 prescribe a number of controls relating to tank wagons and transportable containers and must be complied with as relevant	Regulation 42 applies to road tank wagons containing the substances if the following subclause was inserted after subclause (5):	<p>“(6) <i>When a tank wagon with a capacity of 12,000 litres or greater is parked for a period of time greater than one hour, fire fighting facilities must be provided, such facilities must include a spray system capable of delivering water to the exposed surfaces of the tank at a rate of 600 litres per square metre per hour, and equipped with an automatic spray system that—</i></p> <p>(a) <i>detects fire; and</i></p> <p>(b) <i>starts delivering water</i></p>

Control Code <sup>5</sup>	Regulation <sup>6</sup>	Topic	Variations
			<p><i>to the tank; and</i></p> <p>(c) <i>can be manually controlled from a safe location,</i></p> <p><i>provided that if the tank wagon is parked whilst containing liquefied petroleum gas in gaseous form only, a hydrant system equipped with a monitor or equivalent means to direct water to all sides of the tank need only be provided.</i></p> <p>(7) <i>the Authority may vary the requirements of subclause (6)—</i></p> <p>(a) <i>by approving a code of practice under section 78(1) of the Act; or</i></p> <p>(b) <i>upon application by the person in charge of a location at which a tank wagon containing the substances is parked.</i></p> <p>(8) <i>when considering whether to grant an application made under (7)(b), the Authority must have regard to—</i></p> <p>(a) <i>the separation distance between the tank wagon and an area of high intensity land use or an area of low intensity land use (as the case may be); and</i></p> <p>(b) <i>any hazards located within the site where the tank wagon is parked; and</i></p> <p>(c) <i>the exposure of the tank wagon to or from any other property; and</i></p> <p>(d) <i>the available water supply; and</i></p> <p>(e) <i>the likely response time and available resources of the local units of the</i></p>

Control Code <sup>5</sup>	Regulation <sup>6</sup>	Topic	Variations
			<p><i>New Zealand Fire Service; and</i></p> <p>(f) <i>any other matter the Authority thinks fit.</i>"</p>

<b>Additional controls set under s77A</b>								
<p>Where any term used in these controls is defined in the Hazardous Substances and New Organisms Act 1996, or the Hazardous Substances (Classes 1 to 5 Controls) Regulations 2001, the term used in these controls has the meaning given to it in that Act or those Regulations.</p>								
<p>The controls relating to stationary container systems, secondary containment and unintended ignition of flammable substances, as set out in schedules 8, 9, 10 and 12 of the Hazardous Substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004 (Supplement to the New Zealand Gazette, 26 March 2004, No 35, page 767), as amended, shall apply to this substance, notwithstanding clause 1(1) of Schedules 8 and 9 and clause 1 of Schedule 10.</p>	<p>Clause 55(4) of Schedule 8 does not apply to vaporisers using the substances.</p> <p>Clause 91 of Schedule 8 does not apply to stationary container systems containing the substances.</p> <p>Clause 8 of Schedule 10 applies to the substances as if subclause (1) was omitted and the following substituted:</p> <p>“(1) <i>An above ground stationary tank or transportable container or tank wagon that contains the substances and to which this Part applies, and each transfer point connected to them, must be separated from—</i></p> <p style="margin-left: 40px;">(a) <i>an area of high intensity land use by not less than the distance specified in column 2 of the table set out in subclause (3) opposite the capacity of the above ground stationary tank or transportable container or tank wagon specified in column 1 of that table; or</i></p> <p style="margin-left: 40px;">(b) <i>an area of low intensity land use by not less than the distance specified in column 3 of the table set out in subclause (3) opposite the capacity of the above ground stationary tank or transportable container or tank wagon specified in column 1 of that table.</i></p> <p>(2) <i>Notwithstanding subclause (1), a tank fill zone is not required to be separated from the boundary of the controlled zone by more than 15 metres.</i></p> <p>(3) <i>The table referred to in subclause (1)</i></p>	<table border="1"> <thead> <tr> <th><b>Water capacity of tank or container (litres)</b></th> <th><b>Area of high intensity land use (metres)</b></th> <th><b>Area of low intensity land use (metres)</b></th> </tr> </thead> <tbody> <tr> <td></td> <td><b>Column 2</b></td> <td><b>Column 3</b></td> </tr> </tbody> </table>	<b>Water capacity of tank or container (litres)</b>	<b>Area of high intensity land use (metres)</b>	<b>Area of low intensity land use (metres)</b>		<b>Column 2</b>	<b>Column 3</b>
<b>Water capacity of tank or container (litres)</b>	<b>Area of high intensity land use (metres)</b>	<b>Area of low intensity land use (metres)</b>						
	<b>Column 2</b>	<b>Column 3</b>						

<b>Column 1</b>		
Up to 500	1.5	1.5
1000	3	2
2000	6	4
5000	8	5
8000	10	6
10000	11	7
15000	14	8
20000	15	9
50000	17	10
100000	20	11
200000	25	12
500000	45	22

Clause 21 of Schedule 10 applies to the substances as if subclause (1) was omitted and the following substituted:

“(1) *An above ground stationary tank or transportable container or tank wagon that contains the substance and to which this Part applies, and each tank fill transfer point connected to them, must be separated from the boundary of a controlled zone by not less than—*

(a) *if the controlled zone abuts an area of high intensity land use, the distance specified in column 2 of the table set out in subclause (3) opposite the capacity of the above ground stationary tank or transportable container or tank wagon specified in column 1 of that table; or*

(b) *if the controlled zone abuts an area of low intensity land use, the distance specified in column 3 of the table set out in subclause (3) opposite the capacity of the above ground stationary tank or transportable container or tank wagon specified in column 1 of that table.*

(2) *Notwithstanding subclause (1), a tank fill zone is not required to be separated from the boundary of the controlled zone by more than 15 metres.*

(3) *The table referred to in subclause (1)*

<b>Water capacity of tank or container (litres)</b>	<b>Area of high intensity land use (metres)</b>	<b>Area of low intensity land use (metres)</b>
<b>Column 1</b>	<b>Column 2</b>	<b>Column 3</b>
Up to 500	1.5	1.5

	1000	3	2
	2000	6	4
	5000	8	5
	8000	10	6
	10000	11	7
	15000	14	8
	20000	15	9
	50000	17	10
	100000	20	11
	200000	25	12
	500000	45	22

No person may deliver the substances to a hazardous substance location if, after delivery of that substance or those substances, more than 100 kg of those substances will be present at that hazardous substance location, unless that hazardous substance location has a current location test certificate, or has been approved in accordance with a compliance check under a code of practice approved by the Authority under section 78(1) of the Act.

- (1) A person in charge of a refrigeration system that contains the substances as an integral part of that refrigeration system must ensure that the quantity and the means of containing the substances are in accordance with:
- (a) Section 2.6 of AS/NZS 1677.2 1998 (Refrigerating Systems Part 2: Safety requirements for fixed applications); or
  - (b) a code of practice approved by the Authority under section 78(1) of the Act that sets out the requirements for containing the substances in a refrigeration system.
- (2) Clause (1) does not apply to domestic refrigerators, domestic heat pumps or room air conditioners.

A person in charge of a place where the substances are located must ensure that the amount stored or used indoors does not exceed the quantities specified in Table 1 below:

**Table 1: Maximum Quantities of the Substances for Indoor Storage and Use**

<b>Location</b>	<b>Maximum quantity of the substances and size of cylinders</b>
Residential Properties comprising: <ul style="list-style-type: none"> <li>• A detached house or single storey attached dwelling; or</li> <li>• Multi-storey attached dwellings, up to and including 3 storeys</li> </ul>	20 kg per dwelling.  Maximum cylinder size 10 kg.
Residential properties comprising: <ul style="list-style-type: none"> <li>• multi-storey attached dwellings of over 3 storeys.</li> </ul>	10 kg per dwelling.  Maximum cylinder size 10 kg.
Areas of regular habitation (excluding dwellings, factories or warehouses) within buildings with a roof and three or more walls that are <b>not</b> attached to residential or other occupancies; e.g. hotels, bars, restaurants, public buildings, places of worship, shops, offices and laboratories.	10 kg per 10 sq.m of the indoor floor area, up to a maximum total quantity of 100 kg.  Maximum cylinder size 10 kg.
Areas of regular habitation (excluding dwellings, factories or warehouses) within	20 kg per premises.

buildings with a roof and three or more walls that are attached to residential or other occupancies; e.g. hotels, bars, restaurants, public buildings, places of worship, shops, offices and laboratories.	Maximum cylinder size 10 kg.
Factories and warehouses	<p>45 kg per 50 sq.m. of the indoor floor area, up to a maximum total quantity of 180 kg per occupancy.</p> <p>Maximum cylinder size 45 kg.</p>