

Dangerous Goods Transport Incident Management Strategy

Costco Warehouse and Distribution Centre
Lot 4A, Oakdale South Industrial Estate, Horsley Park

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1 Introduction

1.1 Overview

Ason Group has been commissioned by Goodman Property Services (Aust.) Pty Ltd to prepare an incident management strategy (the Strategy) in response to the Secretary's Environmental Assessment Requirements (SEARs) for the project at Lot 4A Oakdale South, Horsley Park. Reference is made to the following documents in the preparation of this strategy:

- *Dangerous Goods (Road and Rail Transport) Regulation 2014*
- National Transport Commission, *Australian Code for the Transport of Dangerous Goods by Road & Rail*, December 2015
- U.S. Department of Transport, *2012 Emergency Response Guidebook (ERG2012)*, dated 2012
- National Road Transport Commission, *Guidelines for the Preparation of a Transport Emergency Response Plan (GPTERP)*, dated 2003

1.2 Purpose

The purpose of this Strategy is to document the overarching goals and measures envisaged to manage incidents involving the transport of Dangerous Goods (**DGs**). It is not intended to act as a detailed Transport Emergency Response Plan (**TERP**) noting that numerous TERPs may be required to reflect the varying nature of Dangerous Goods to be stored on-site. Furthermore, each freight company or "prime contractor" may adopt varying TERPs depending on the procedures and policies of each respective company.

1.3 Objectives

The objectives for any Dangerous Goods incident management plan are outlined in the GPTERP which states:

- To minimise any adverse effects on people, damage to property or harm to the environment in a transport emergency;
- To facilitate a rapid and effective emergency response and recovery;
- To provide assistance to emergency and security services; and
- To communicate vital information to all relevant persons involved in the transport emergency (both internal personnel and external agencies) with a minimum of delay.

1.4 Nature of Dangerous Goods Transported

The warehouse would included the storage of the following Dangerous Goods:

- Class 2.1 (aerosols)
- Class 3 (flammable liquids)
- Class 8 (corrosive substances)
- Class 9 (miscellaneous dangerous substances)

2 Legislative Requirements

Clause 152 of the Dangerous Goods (Road and Rail Transport) Regulation 2014 legislation states:

“A prime contractor or rail operator must not transport a placard load if the prime contractor or rail operator does not have an emergency plan for the transport of the goods”

“A person must not consign a placard load for transport if the person does not have an emergency plan for the transport of the goods”

2.1 Roles and Responsibilities

The legislation also outlines a numerous duties and responsibilities in relation emergencies generally which are summarised below:

2.1.1 Vehicle Driver

The driver of the road vehicle must:

- (a) notify the prime contractor, the Competent Authority and the police or fire service of the incident as soon as practicable, and
- (b) provide any reasonable assistance required by an authorised officer or an officer of an emergency service to deal with the situation.

2.1.2 Prime contractor's duties—food or food packaging

If an incident involving a vehicle transporting dangerous goods results in the leakage, spillage or accidental escape of the dangerous goods, or in a fire or explosion and there is food or food packaging in the vicinity of the incident that is within the control of a prime contractor or rail operator, then:

- The prime contractor must ensure that the food or food packaging is not transported from the site of the incident unless the Competent Authority has given permission to the prime contractor to transport the food or food packaging from the site. The definition of “permission” in this case is included within the legislation in Part 14 Division 1 Clause 149.

The prime contractor is to inform the Competent Authority if a vehicle transporting dangerous goods is involved in an incident resulting in a dangerous situation. Notification should occur as soon as practicable after becoming aware of the incident and include the following details about the incident:

- where the incident occurred,
- the time and date of the incident,
- the nature of the incident,
- the dangerous goods being transported when the incident occurred,
- any other details that the Competent Authority may require.

Not later than 21 days after the day on which the incident occurs, the prime contractor or rail operator must give to the Competent Authority a written report about the incident stating the following:

- where the incident occurred,
- the time and date of the incident,
- the nature of the incident,
- what the driver believes to be the likely cause of the incident,
- what the prime contractor believes to be the likely cause of the incident,
- the dangerous goods being transported when the incident occurred,
- the measures taken to control any leak, spill or accidental escape of dangerous goods and any fire or explosion arising out of the incident,
- the measures taken after the incident in relation to the dangerous goods involved in the incident.

3 Road Transport of Dangerous Goods Requirements

3.1 General Provisions

The following provides a summary of the general requirements outlined in the *Australian Code for the Transport of Dangerous Goods by Road and Rail*:

Dangerous goods must not be offered for transport unless:

- (a) the goods have been properly classified, packed, marked, labelled and described on a dangerous goods transport document; and ☐
- (b) the goods are in a fit condition for transport as required by this Code, and no dangerous residue of the dangerous goods adheres to the outside of the package. ☐

Dangerous goods must not be transported unless: ☐

- (a) cargo transport units have been appropriately marked, labelled and placarded; and
- (b) cargo transport units are otherwise in a condition for transport as required. ☐

If a cargo transport unit, pressure drum, MEGC or IBC is marked with notations indicating how it should be handled in the transport of dangerous goods, it must be handled in accordance with those notations.

3.2 Special Provisions for Class 2 Dangerous Goods

Aerosols transported for the purposes of reprocessing or disposal must only be transported in well-ventilated cargo transport units as described below. ☐ Furthermore, Class 2 Dangerous Goods must not be stowed near heat sources.

If liquefied gas is transported in a cylinder fitted with a pressure relief device and the venting of the liquid would create a risk greater than the venting of the gas, the cylinder must be stowed so that the pressure relief device communicates with the vapour space.

When transporting gases in cylinders, the main cylinder valve must always be shut and any regulator removed prior to loading.

3.2.1 Ventilation

The following dangerous goods must not be transported in a placard load unless the cargo transport unit or compartment in which they are transported is ventilated to prevent the build-up of vapours that are likely to increase risk:

- dangerous goods [other than aerosols (UN 1950) and gas cartridges (UN 2037)] of Division 2.1 or 2.3, or subsidiary risk of 2.1; or ☐
- liquefied oxygen.

- The ventilation must produce a flow of air that circulates throughout the unit or compartment, in particular through the highest and lowest parts of the unit or compartment, and must provide for the air to be released from the unit or compartment after it has circulated. However, the requirements in the previous sentence do not apply in the case of a shipping container that is being used:
 - (a) to import those goods if appropriate measures are taken to check for vapours before the container is opened, and to be able to deal, when the container is opened, with any build-up of vapours that may have occurred; and ☐
 - (b) to export those goods if the container will be accepted for carriage by sea or air without needing to comply with those requirements

3.3 Procedures During Road Transport

Drivers are to adhere to the procedures outlined in Part 13 of the *Australian Code for the Transport of Dangerous Goods by Road & Rail*. An extract of the relevant section is included in **Appendix A**.

3.4 Road Transport Route Selection

Routes for road vehicles transporting Dangerous Goods should be pre- planned, whenever possible and to the extent practicable, having regard for the following:

- minimise the risk of personal injury or harm to the environment or property during the journey.
- avoid heavily populated or environmentally sensitive areas, congested crossings, tunnels, narrow streets, alleys, or sites where there may be, a concentration of people.

A road vehicle transporting Dangerous Goods must observe any requirements or restrictions on the selection of routes or times of travel which have been determined by relevant Authorities, if applicable.

While it is not always practicable to pre-plan in detail the route of a courier or local pick-up or delivery vehicle, the driver should nonetheless be made aware of any areas to avoid in localities where travel is anticipated.

4 Transport Emergency Response Plan Preparation

As outlined in Section 2 above, an Emergency Plan will be required prior to the transport of any Dangerous Goods. It is expected that such plans will be prepared by prime contractors involved in the transport of Dangerous Goods to/from the Site.

Reference should be made to the Guidelines for the Preparation of a Transport Emergency Response Plan **Appendix B** when preparing these Emergency Plans.

Unless outlined in a TERP applicable to specific loads or Dangerous Goods, it is expected that the emergency response plans would, as a minimum, be in accordance with the Guides specified within the *2012 Emergency Response Guidebook* or *HB76: 2010 Dangerous Goods – Initial Emergency Response Guide*. Relevant Guides (from ERG2012) applicable to the Dangerous Goods to be transport to/from the site is included in **Appendix C**. These Guides have been modified to reflect emergency contact information (Triple Zero | 000) relevant to Australian jurisdictions.

This is not an exhaustive list and selection of the most appropriate Guide(s) from the 2012 Emergency Response Guidebook or HB 76 shall be the responsibility of the prime contractor, depending on the nature of goods transported.

In the event of a discrepancy between these Guides or HB76, the requirements of HB76 shall prevail.

4.1 Plan Activation

4.1.1 Internal Alerting Mechanism

The altering mechanism for each TERP shall be stated explicitly within each plan.

Generally, the plan(s) will become 'active' upon knowledge (or suspicion of) an incident during transport of the Dangerous Goods which could (or potentially) pose a risk to safety, damage to property or harm the environment.

4.1.2 Situation Appraisal

A checklist for collation of relevant information in relation to an Incident is included in **Appendix D**.

4.1.3 Authority and Resources Mobilisation

Authorities shall be notified in the event of any Incident, in accordance with applicable TERPs.

Generally, this will involve NSW Police in the role of emergency coordinator and the NSW Fire Brigade as the combatant authority. Fire Brigade, Environmental Protection Agency (EPA) personnel may be required for the clean-up phase of an Incident.

4.2 Response Tasks

4.2.1 External Alerting Mechanism

In the event of an emergency, contact Emergency Services (Police, Fire and Ambulance) by calling Triple Zero (000) immediately.

NSW Police shall be notified under any circumstance in which any of the following has the potential to occur:

- injury to persons or damage to property
- unplanned or emergency traffic management around the incident area is required
- emergency situations generally

NSW Fire Brigade shall be notified in the event of:

- an emergency situation
- serious spills

NSW Police, as the coordinating authority, shall notify other relevant authorities as required.

4.2.2 Emergency Action / Containment / Clean-up

Emergency actions, containment and required clean-up processes shall be outlined in respective TERPs when developed. Generally, the response shall be undertaken in the following steps:

1) Alert Phase

Notification of prime contractor management and necessary Authorities, as required.

2) Response Phase

Dispatch of necessary Emergency Services, technical advisors and preliminary assessment of the incident. This include isolation and containment of the area.

3) Remedial Response Phase

Detailed assessment of the incident and carry out control and remedial measures, as required.

Further resources will be requested, as necessary.

4) Disposal

Arrange and supervision of the disposal of any hazardous or contaminated materials.

5) Rehabilitation

If necessary, undertake further rehabilitation of the affected area(s) to minimise the hazard.

6) Follow-up

Investigate the cause and evaluate the incident response.

4.3 Resources

4.3.1 Contact List

A detailed contact list shall be prepared as part of the final TERP(s) once the details of key internal team members are known.

4.3.2 Communications

Mobile phones will generally be used as the primary means of communication during an emergency.

Care should be taken in the use of communication (or other electrical) devices in close proximity of explosive or flammable materials.

4.3.3 Equipment and Materials

All vehicles transporting Dangerous Goods with a placard must be equipped with:

- Fire extinguishers (multiple may be required depending on nature and size of loads); and □
- At least three portable warning devices that comply with AS 3790 and are clean and in good condition;
- Personal protective equipment and safety equipment that is clean, suitable for the purpose and in a serviceable condition; and
- A copy of relevant Australian Standards and other Emergency Response Guides, as applicable:
 - *HB 76:2010, Dangerous Goods - Initial Emergency Response Guide*
 - *AS 1678, Emergency procedure guide - Transport Series*
 - *AS 1678.0.0.001-2004, Emergency procedure guide - Transport - - Vehicle fire*
 - *AS 1678.2A1-2004, Emergency procedure guide - Transport - Group text EPG for Class 2 substances - Flammable, compressed gas*

A list of Personal Protective Equipment required by the Australian Code for the Transport of Dangerous Goods by Road or Rail (Edition 7.4) is outlined below for each relevant Class of Dangerous Goods.

Class 2.1 (aerosols)

- Gas detector suitable for detecting LP Gas, in accordance with AS1596, where a vehicle is transporting unodourised LP Gas
- Gas tight goggles or full face shield, as appropriate. (If goods are carried in a receptacle with a capacity greater than 500 litres, or the goods are cryogenic liquids)
- Thermally insulated gloves or gauntlets
- Electric torch complying with AS60079.11 (or other recognised Code)

Class 3 (flammable liquids)

- Eye wash kit of at least 250mL filled and ready for use
- Chemically resistant gloves or gauntlets
- Electric torch complying with AS60079.11 (or other recognised Code)

Class 8 (corrosive substances)

- Respiratory protection equipment for escape purposes.
(The minimum requirement is air supplied short term breathing apparatus suitable for escape purposes, except when, even in an emergency, the dangerous goods will not give rise to harmful vapours, gases or dust. Note that where a driver attends to the loading or transfer of goods, SCBA with a duration of greater than 15 minutes may be required by other (e.g. health and safety) legislation.)
- Gas tight goggles or full face shield, as appropriate
- Eye wash kit of at least 250mL filled and ready for use
- Chemically resistant gloves or gauntlets
- Chemically resistant suit or coveralls
- Chemically resistant boots
- Any electric torch

Class 9 (miscellaneous dangerous goods)

- Eye wash kit of at least 250mL filled and ready for use
- Chemically resistant gloves or gauntlets
- Thermally insulated gloves or gauntlets are also required where goods are elevated temperature substances or dry ice.
- Any electric torch

4.3.4 Personnel

Appropriate personnel and resources shall be allocated in response to specific incidents.

When allocating personnel and resources, consideration should be given to the type of Dangerous Goods being transported (which may influence size of isolation or evacuation areas required), location (e.g. is the emergency or spill located at or near an intersection such that additional Traffic Control resources may be required) and likely during of incident response.

4.3.5 Media

Emergency Services personnel are to act as the designated media contact at the site of an emergency.

4.4 Preparedness

4.4.1 Hazard Analysis and Risk Assessment

Reference should be made to the Hazard Assessment, prepared by separately which provides a hazard and risk assessment.

4.4.2 Training & Exercises

Simulated and/or practical training and exercises should be undertaken regularly to ensure relevant key persons are familiar with the actions required in the event of an incident. It is recommended that these be undertaken annually prior to the review and update of the TERP so that any “lessons learnt” can be incorporated into the new plan in a pro-active manner.

Input involving external bodies such as vehicle contractors and Emergency Services would also be beneficial.

4.4.3 Maintenance of Response Equipment

All emergency response equipment shall be appropriately maintained in a serviceable condition.

4.4.4 Investigative Follow-up

For serious incidents, an investigation shall be undertaken by each relevant authority using standard procedures.

For minor incidents not requiring intervention by Emergency Services, an internal investigation shall be undertaken to determine the cause of the incident, review the effectiveness of response actions and attempt to identify potential improvements to the TERP, where necessary.

4.4.5 Updating

This plan shall be reviewed and updated, as required, on an annual basis.

Furthermore, any necessary changes to the plan deemed necessary following investigation of any incidents should be made as a matter of urgency and the plan redistributed to relevant parties.

4.4.6 Plan Availability and Distribution

This plan should be made available to all persons with responsibilities under this plan, including:

- NSW Police
- NSW Fire Brigade
- NSW Environmental Protection Agency
- Roads and Maritime Service - Traffic Management Centre
- Warehouse Management
- Management of Freight / Transport Companies
- Individual Drivers

5 Conclusion

Incident management in relation to the transport of Dangerous Goods will be satisfactorily addressed through documented policies and procedures, as required by law. This will involve the preparation of detailed Transport Emergency Response Plans (TERPs) by future freight contractors and tenants storing Dangerous Goods. These plans require detailed information including contact numbers for prime contractor management which are not available during the current stage of development planning.

Appendix A

Australian Code for the Transport of Dangerous Goods by Road & Rail



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PART 13: PROCEDURES DURING ROAD TRANSPORT

CHAPTER 13.1 - PROCEDURES DURING TRANSPORT

13.1.1 APPLICATION

This Chapter applies only to road vehicles transporting a placard load of dangerous goods.

13.1.2 BREAKDOWNS

13.1.2.1 General Measures

If a road vehicle transporting dangerous goods is disabled on a road or street, or has stopped and constitutes a traffic hazard, other road users must be alerted by:

(a) if:

- (i) the battery has not been disconnected to prevent danger and there are flashing hazard lights on the vehicle—turning the hazard lights on and leaving them on while the vehicle is stopped; or
- (ii) the battery has not been disconnected to prevent danger and there are no flashing hazard lights on the vehicle—turning the parking lights on and leaving them on while the vehicle is stopped; and

(b) placing a portable warning device in a manner required by 13.1.2.2

13.1.2.2 Placement of portable warning triangles

The portable warning triangles must be placed as follows:

(a) if the speed limit for the road is 80 kilometres per hour or more:

- (i) 1 triangle at least 200 metres, but not over 250 metres, behind the vehicle; and
- (ii) if the vehicle is on a one-way or divided road, 1 triangle between the triangle required by paragraph (i) and the vehicle; and
- (iii) if the vehicle is not on a one-way road or divided road, 1 triangle at least 200 metres, but not over 250 metres, in front of the vehicle or fallen load; and
- (iv) 1 triangle at the side of the vehicle closer to traffic;

(b) if the speed limit for the road is less than 80 kilometres per hour:

- (i) 1 triangle at least 50 metres, but not over 150 metres, behind the vehicle; and
- (ii) if the vehicle is on a one-way or divided road, 1 triangle between the triangle required by paragraph (i) and the vehicle; and
- (iii) if the vehicle is not on a one-way road or divided road, 1 triangle at least 50 metres, but not over 150 metres, in front of the vehicle or fallen load; and
- (iv) 1 triangle at the side of the vehicle closer to traffic.

NOTE: Regulation 13.1.1 of the Model Subordinate Law provides that a driver who complies with an Australian Road Rule requiring the placement of portable warning triangles does not need to comply with the requirements in Part 13 with respect to portable warning devices.

13.1.3 GENERAL PRECAUTIONS DURING TRANSPORT

13.1.3.1 Passengers

No person apart from the following may ride in the cabin of a road vehicle transporting dangerous goods:

- (a) an authorised officer, police officer or officer of an emergency service, or a person authorised to ride in the vehicle by such a person; or
- (b) an employee of, or other person authorised to ride in the vehicle by, the owner of the vehicle or the prime contractor.

13.1.3.2 Parking requirements

13.1.3.2.1 On parking a road vehicle transporting dangerous goods:

- (a) the parking brake must be fully applied; and
- (b) if the vehicle is powered by a compression ignition engine, the vehicle must not be parked in gear unless:
 - (i) the vehicle is fitted with a device to prevent the engine from starting if the vehicle moves; and
 - (ii) the device is engaged.

13.1.3.2.2 *Where a vehicle may be parked*

13.1.3.2.2.1 A road vehicle transporting dangerous goods must not be parked or left standing:

- (a) in a built-up area with public access; or
- (b) within 15 metres of any building in which there is or is likely to be a concentration of people (other than a building on premises where the vehicle is loaded or unloaded); or
- (c) at any other place in which there is or is likely to be a concentration of people; or
- (d) within 8 metres of another vehicle which is transporting placarded dangerous goods.

13.1.3.2.2.2 Despite 13.1.3.2.2.1, a vehicle may be parked or left standing in circumstances mentioned in 13.1.3.2.2.1 if:

- (a) it is reasonably necessary to do so:
 - (i) for the purpose of loading or unloading dangerous goods onto or from the vehicle; or
 - (ii) because the vehicle has broken down; or
 - (iii) because of a dangerous situation involving the vehicle; or
 - (iv) to comply with the requirement of any law; or
 - (v) for a brief rest or refreshment break; or
 - (vi) for the normal operation of the vehicle, such as a bitumen spray vehicle; andthe vehicle is not parked or left standing for any longer than is necessary and the dangerous goods are kept secure; or
- (b) the Competent Authority or other local, State or Territory authority responsible for regulating the use or parking of vehicles has

PART 13: PROCEDURES DURING ROAD TRANSPORT

approved the place as a place in which vehicles transporting dangerous goods may be parked or left standing.

- 13.1.3.2.2.3 A vehicle transporting dangerous goods of Division 2.1 or Class 3, 4 or 5 or with a Subsidiary Risk of 2.1, 3, 4 or 5 must not be parked or left standing within 15 metres of a naked flame.
- 13.1.3.2.2.4 13.1.3.2.2.1(d) does not apply to a road vehicle transporting dangerous goods that is parked or left standing in an area to which there is no public access.
- 13.1.3.2.2.5 Despite 13.1.3.2.2.1, a vehicle carrying BATTERIES, WET, FILLED WITH ACID, electric storage (UN 2794) of Packing Group III that each have a gross mass of 65kg or less, and that together have a gross mass of 5000 kg or less, may:
- (a) park in a public place if:
 - (i) in the case of an enclosed vehicle, the load area is locked; or
 - (ii) in the case of a tray-sided vehicle, the load is covered, or the vehicle is supervised; and
 - (b) be garaged in a residential area if:
 - (i) in the case of an enclosed vehicle, the load area is locked; or
 - (ii) in the case of a tray-sided vehicle, the garage is locked.
- 13.1.3.2.2.6 However, 13.1.3.2.2.5 only applies if the transport documentation for the load states the number of batteries in the load, and if that number is adjusted after each delivery so that it accurately states the number of batteries in the load at all times.

13.1.3.3 Unloading the vehicle⁹⁰

Other than for transfer to another vehicle or to another mode of transport, dangerous goods must not be unloaded from a road vehicle unless:

- (a) the consignee, or a person acting on the consignee's behalf, is present and receives the goods; or
- (b) if the driver, prime contractor or consignor has agreed with the consignee for the goods to be unloaded into a secure place, the goods are unloaded into that place.

13.1.3.4 Detaching a trailer from a prime mover or combination road vehicle

A trailer containing dangerous goods must not be detached from a prime mover or a combination road vehicle other than:

- (a) at a vehicle marshalling area, designated by a local, State or Territory authority, where the loading and unloading of goods is permitted; or
- (b) at a transport depot designed for the loading and unloading of goods; or

⁹⁰ The Regulations may allow for unloading in emergency situations.

- (c) for the purposes of immediate exchange of trailers between prime movers or combination road vehicles, provided this is carried out off road and security is maintained; or
- (d) in an emergency requiring the trailer to be detached in the interests of safety; or
- (e) in the event of the vehicle becoming disabled on a road or street.

13.1.3.5 Operation of burners

- 13.1.3.5.1 Except as provided in 13.1.3.5.2. where a road tank vehicle is equipped with a burner to heat the load, the burner must not be operated when the vehicle is moving.
- 13.1.3.5.2 Burners may be operated on moving bitumen tankers if done in accordance with AS 2809.5, however the burner on a spray vehicle must not be operated when the vehicle is spraying bitumen.

13.1.4 ROUTES

- 13.1.4.1 Routes for road vehicles transporting dangerous goods must be pre-planned whenever possible to the extent practicable, taking into account the factors in this Section⁹¹.
- 13.1.4.2 Routes should be selected to minimise the risk of personal injury or harm to the environment or property during the journey.
- 13.1.4.3 Routes should wherever practicable avoid heavily populated or environmentally sensitive areas, congested crossings, tunnels, narrow streets, alleys, or sites where there may be, a concentration of people.
- 13.1.4.4 A road vehicle transporting dangerous goods must observe any requirements or restrictions on the selection of routes or times of travel which have been determined by the Competent Authority.

⁹¹ While it is not always practicable to pre-plan in detail the route of a courier or local pick-up or delivery vehicle, the driver should nonetheless be made aware of any areas to avoid in localities where travel is anticipated.

APPENDICES

APPENDIX A: GOODS TOO DANGEROUS TO BE TRANSPORTED

- A 1** Appendix A lists a number of substances and articles which are considered to be **goods too dangerous to be transported**.
- A 2** If an entry in this Appendix includes the expression '**N.E.S.**', it refers to goods not **elsewhere specified**. In those cases, the goods named in this entry are also named in one or more entries in the Dangerous Goods Lists in Chapter 3.2. An entry in the Dangerous Goods Lists describes goods of that name that may be transported. For example, it may be possible to transport a substance in compliance with this Code after mixing it with diluents, stabilisers, inhibitors, desensitisers, phlegmatisers, solvents, wetting agents or adulterants, as specified in the Dangerous Goods List, to overcome the instability inherent in the goods. The entry in this Appendix refers to goods that do not meet the description specified in the Dangerous Goods Lists and any associated Special Provisions in Chapter 3.3.
- A 3** The list in this Appendix is not an exhaustive listing of goods too dangerous to be transported (see 3.1.1.3).
- A 4** Under Regulation 1.6.1(2)(a), the Competent Authority may determine that other goods are to be classified as goods too dangerous to be transported, or that goods listed in this Appendix are not too dangerous to be transported.
- A 5** Some State and Territory legislation, that embodies the principles of the NOHSC National Standard on the Storage and Handling of Dangerous Goods, makes reference to this list and assigns a label or placard to these goods, for use when they are kept or handled on premises. The use of that label/placard is not authorised by this Code for transport purposes.

List of some goods too dangerous to be transported

Acetyl acetone peroxide, N.E.S.	Benzene diazonium nitrate, N.E.S.
Acetyl benzoyl peroxide, N.E.S.	Benzene-1,3-disulfohydrazide, N.E.S.
Acetyl cyclohexane sulfonyl peroxide, N.E.S.	Benzene triozone
Acetylene (liquefied)	Benzoxidiazoles, N.E.S.
Acetylene silver nitrate	Benzoyl azide
Acetyl hydroperoxide, N.E.S. (Alt: Peracetic acid)	Biphenyl triozone
Acetyl peroxide, N.E.S.	2,2-Bis-(<i>tert</i> -butylperoxy) butane, N.E.S.
Acraldehyde, N.E.S. (Alt: Acrolein)	1,1-Bis-(<i>tert</i> -butylperoxy) cyclohexane, N.E.S.
Acroleic acid, N.E.S. (Alt: Acrylic acid)	2,2-Bis-(4,4-di- <i>tert</i> -butylperoxy cyclohexyl) propane, N.E.S.
Acrolein dimer, N.E.S.	Bis-(2-methylbenzoyl) peroxide, N.E.S.
Acrolein, N.E.S.	Bis-(3,5,5-trimethyl-1,2-dioxolanyl-3)peroxide, N.E.S.
Acrylaldehyde, N.E.S. (Alt: Acrolein)	Bromine azide
Acryldehyde, N.E.S.	4-Bromo-1,2-dinitrobenzene
Acrylic acid, N.E.S.	Bromosilane
Acrylic acid isobutyl ester, N.E.S. (Alt: Isobutyl acrylate)	Butadienes, N.E.S.
Acrylic aldehyde, N.E.S. (Alt: Acrolein)	1,2,4-Butanetriol trinitrate
Acrylonitrile, N.E.S.	2-Butenal, N.E.S. (Alt: Crotonaldehyde)
Allyl aldehyde, N.E.S. (Alt: Acrolein)	Butene oxide, N.E.S. (Alt: 1,2-Butylene oxide)
Aluminium dross, wet or hot	<i>tert</i> -Butoxycarbonyl azide
Ammonium azide	<i>n</i> -Butoxyethylene, N.E.S. (Alt: Butyl vinyl ether)
Ammonium bromate	Butyl acrylate, N.E.S.
Ammonium chlorate	1,2-Butylene oxide, N.E.S.
Ammonium fulminate	<i>tert</i> -Butyl hydroperoxide, N.E.S.
Ammonium nitrate, N.E.S.	<i>tert</i> -Butyl peracetate, N.E.S.
Ammonium nitrite	<i>tert</i> -Butyl perdiethylacetate and <i>tert</i> -Butyl perbenzoate mixtures, N.E.S.
Ammonium permanganate	<i>tert</i> -Butyl perisobutyrate, N.E.S.
Ammonium picrate, N.E.S.	<i>tert</i> -Butyl peroxyacetate, N.E.S.
Ammonium salt and a chlorate, mixtures of	<i>tert</i> -Butyl peroxybutyl fumarate, N.E.S.
Ammonium salt and a nitrite, mixtures of	<i>tert</i> -Butyl peroxycrotonate, N.E.S. (Alt: <i>tert</i> -Butyl percrotonate)
<i>tert</i> -Amyl hydroperoxide, N.E.S.	<i>n</i> -Butyl peroxydicarbonate, N.E.S. (Alt: <i>n</i> -Butyl perdicarbonate, and Di- <i>n</i> -butylperoxydicarbonate)
<i>tert</i> -Amyl perdecanoate, N.E.S.	<i>tert</i> -Butyl peroxyisobutyrate, N.E.S. (Alt: <i>tert</i> -Butyl perisobutyrate)
<i>tert</i> -Amyl peroxyacetate, N.E.S.	<i>tert</i> -Butyl peroxyisopropylcarbonate, N.E.S.
<i>tert</i> -Amyl peroxybenzoate, N.E.S.	1-(2- <i>tert</i> -Butylperoxy isopropyl)-3-isopropenylbenzene, N.E.S.
<i>tert</i> -Amyl peroxyneodecanoate, N.E.S.	<i>tert</i> -Butyl peroxyneohexanoate, N.E.S.
<i>tert</i> -Amyl peroxyisobutyrate, N.E.S.	<i>tert</i> -Butyl peroxyisobutyrate, N.E.S. (Alt: <i>tert</i> -Butyl perisobutyrate)
Antimony sulfide and chlorate, mixtures of	<i>tert</i> -Butyl peroxyisopropylcarbonate, N.E.S.
Arsenic sulfide and chlorate, mixtures of	
Ascaridole	
Azaurolic acid (salts of), N.E.S.	
Azidodithiocarbonic acid	
Azidoethyl nitrate	
Azido guanidine picrate, N.E.S.	
5-Azido-1-hydroxy tetrazole	
Azido hydroxy tetrazole (mercury and silver salts)	
3-Azido-1,2-propylene glycol dinitrate	
Azirdine, N.E.S. (Alt: Ethyleneimine)	
Azotetrazole, N.E.S.	
Barium azide, N.E.S.	
Benzene diazonium chloride, N.E.S.	

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Chloral, anhydrous, N.E.S.	1,1-Di-(4- <i>tert</i> -butylperoxy)cyclohexane, N.E.S.
Chloric acid, N.E.S.	(Alt: 1,1-Bis-(4- <i>tert</i> -butylperoxy)cyclohexane)
Chlorine azide	Di- <i>n</i> -butylperoxydicarbonate, N.E.S.
Chlorine cyanide, N.E.S. (Alt: Cyanogen chloride)	Di-(<i>tert</i> -butylperoxy) phthalate, N.E.S.
Chlorine dioxide	2,2-Di-(<i>tert</i> -butylperoxy)propane, N.E.S.
Chloroacetone, N.E.S.	Dichloroacetylene, N.E.S.
<i>p</i> -Chlorobenzoyl peroxide, N.E.S.	<i>N,N'</i> -Dichloroazodicarbonamidine (salts of), N.E.S.
2-Chlorobutadiene-1,3, N.E.S. (Alt: Chloroprene)	Di-4-chlorobenzoyl peroxide, N.E.S.
3-Chloroperoxybenzoic acid, N.E.S.	(Alt: <i>p</i> -Chlorobenzoyl peroxide)
Chloroprene, N.E.S.	Dichloroethyl sulfide
Chlorotrifluoroethylene, N.E.S. (Alt: Trifluorochloroethylene)	2,2-Di-(4,4-di(<i>tert</i> -butylperoxy)cyclohexyl)propane, N.E.S.
Cinnamene, N.E.S. (Alt: Styrene monomer)	Di-2,4-dichlorobenzoyl peroxide, N.E.S.
Cinnamol, N.E.S. (Alt: Styrene monomer)	Diethanol nitrosamine dinitrate, N.E.S.
Coal briquettes, hot	Diethylene glycol dinitrate
Coke, hot	Diethylgold bromide
Copper acetylide	Diethyl perdicarbonate, N.E.S.
Copper amine azide	Diethyl peroxydicarbonate, N.E.S.
Copper tetramine nitrate	(Alt: Diethyl pericarbonate)
Crotonaldehyde, N.E.S.	2,2-Dihydroperoxy propane, N.E.S.
Cumyl hydroperoxide, N.E.S.	1,8-Dihydroxy-2,4,5,7-tetranitroanthraquinone (Chrysamminic acid)
Cumyl peroxyneodecanoate, N.E.S.	Di-(1-hydroxytetrazole), N.E.S.
Cumyl peroxyneoheptanoate, N.E.S.	Diiodoacetylene
Cumyl peroxy-pivalate, N.E.S.	Diisobutyl peroxide, N.E.S. (Alt: Isobutyl peroxide)
Cyanogen chloride, N.E.S.	Diisopropylbenzene hydroperoxide, N.E.S.
Cyanuric triazide	Di-(2-methylbenzoyl) peroxide, N.E.S.
Cyclohexanone peroxide, N.E.S.	2,5-Dimethyl-2,5-di-(<i>tert</i> -butylperoxy)hexyne-3, N.E.S.
Cyclotetramethylene tetranitramine, N.E.S. (Alt: HMX)	2,5-Dimethyl-2,5-dihydroperoxyhexane, N.E.S.
Cyclotrimethylene trinitramine, N.E.S. (Alt: RDX or Cyclonite)	3,5-Dimethyl-3,5-dihydroxydioxolane-1,2, N.E.S.
Diacetone alcohol peroxides, N.E.S.	2,5-Dimethyl-2,5-di-(3,5,5-trimethylhexanoylperoxy)hexane, N.E.S.
Diacetyl peroxide, N.E.S. (Alt: Acetyl peroxide)	Dimethyleneimine, N.E.S. (Alt: Ethyleneimine)
1,1-Di-(<i>tert</i> -amylperoxy)cyclohexane, N.E.S.	2,5-Dimethylhexane-2,5-dihydroperoxide, N.E.S.
<i>p</i> -Diazidobenzene	(Alt: 2,5-Dimethyl-2,5-dihydroperoxy hexane)
1,1-Diazidoethane	1,1-Dimethyl-3-hydroxybutyl peroxyneoheptanoate, N.E.S.
1,1'-Diazidoethane	Di-(1-naphthoyl) peroxide
1,2'-Diazidoethane	Di-(2-neodecanoylperoxyisopropyl) benzene, N.E.S.
1,1'-Diazoaminonaphthalene	Dinitro-7,8-dimethylglycoluril, N.E.S.
Diazoaminotetrazole, N.E.S.	1,3-Dinitro-5,5-dimethyl hydantoin
Diazodinitrophenol, N.E.S.	1,3-Dinitro-4,5-dinitrosobenzene
Diazodiphenylmethane	1,1-Dinitroethane, N.E.S.
Diazonium nitrates, N.E.S.	1,2-Dinitroethane
Diazonium perchlorates, N.E.S.	
1,3-Diazopropane	
Dibenzyl perdicarbonate, N.E.S.	
Dibenzyl peroxydicarbonate, N.E.S.	
Dibromoacetylene	
Di- <i>tert</i> -butyl peroxyazolate, N.E.S.	
2,2-Di-(<i>tert</i> -butylperoxy) butane, N.E.S. (Alt: 2,2-Bis-(<i>tert</i> -butylperoxy) butane)	

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Dinitroglycoluril	Formaldehyde, gaseous
Dinitromethane	2-Formyl-3,4-dihydro-2H-pyran, N.E.S. (Alt: Acrolein dimer)
Dinitropropylene glycol	Fulminate of mercury, N.E.S.
2,4-Dinitroresorcinol (heavy metal salts of), N.E.S.	Fulminating gold
4,6-Dinitroresorcinol (heavy metal salts of), N.E.S.	Fulminating platinum
Dinitroresorcinols, N.E.S.	Fulminating silver
3,5-Dinitrosalicylic acid (lead salt), N.E.S.	Fulminic acid
Dinitrosobenzylamidine and salts of, N.E.S.	Galactan trinitrate
<i>N,N</i> -Dinitroso- <i>N,N'</i> - dimethylterephthalamide, N.E.S.	Galactsan trinitrate
<i>N,N'</i> -Dinitrosopentamethylenetetramine, N.E.S.	Glycerol-1,3-dinitrate
2,2-Dinitrostilbene	Glycerol monogluconate trinitrate
1,4-Dinitro-1,1,4,4- tetramethylolbutanetetranitrate, N.E.S.	Glycerol monolactate trinitrate
2,4-Dinitro-1,3,5-trimethylbenzene	Guanyl nitrosaminoguanilydene hydrazine, N.E.S.
Di-(β -nitroxyethyl) ammonium nitrate	Guanyl nitrosaminoguanyl tetrazine
α,α'-Di-(nitroxy) methylether	Hafnium metal powder, N.E.S., having a particle size less than 3 micrometres if mechanically produced or 10 micrometres if chemically produced
1,9-Dinitroxy pentamethylene-2,4,6,8- tetramine, N.E.S.	Hexamethylene triperoxide diamine, N.E.S.
Diperoxy azelaic acid, N.E.S.	Hexamethylol benzene hexanitrate
Diperoxy dodecane diacid, N.E.S.	Hexanitroazoxy benzene
Dipropionyl peroxide, N.E.S. (Alt: Propionyl peroxide)	2,2',4,4',6,6'-Hexanitro-3,3'- dihydroxyazobenzene, N.E.S.
Distearyl perdicarbonate, N.E.S.	2,2',3',4,4',6-Hexanitrodiphenylamine, N.E.S.
Distearyl peroxydicarbonate, N.E.S. (Alt: Distearyl perdicarbonate)	2,3',4,4',6,6'-p-Hexanitrodiphenylether
Di-(3,5,5-trimethyl-1,2-dioxolanyl-3) peroxide, N.E.S.	<i>N,N'</i> -(Hexanitrodiphenyl) ethylene dinitramine, N.E.S.
Di-(3,5,5-trimethylhexanoyl) peroxide, N.E.S.	Hexanitrodiphenyl urea
Divinyl, N.E.S. (Alt: Butadienes)	Hexanitroethane
Divinyl ether, N.E.S.	Hexanitrooxanilide
Divinyl oxide, N.E.S. (Alt: Divinyl ether)	HMX, N.E.S.
2,6-Epoxy-5-hexenal, N.E.S. (Alt: Acrolein dimer)	Hydrazine azide
Ethanolamine dinitrate	Hydrazine chlorate
Ethyl acrylate, N.E.S.	Hydrazine dicarbonic acid diazide
Ethyl 3,3-di-(<i>tert</i> -amylperoxy)butyrate, N.E.S.	Hydrazine perchlorate
Ethylene diamine diperchlorate	Hydrazine selenate
Ethylene glycol dinitrate	Hydrocyanic acid, anhydrous, N.E.S.
Ethyleneimine, N.E.S.	Hydrogen cyanide, anhydrous, N.E.S.
Ethyl hydroperoxide	Hydrogen peroxide, concentrations greater than 60% hydrogen peroxide, N.E.S.
Ethyl methacrylate, N.E.S.	Hydroxylamine iodide
Ethyl methyl ketone peroxide(s), N.E.S.	Hyponitrous acid
Ethyl nitrate	Ignition element for lighter, containing pyrophoric liquid
Ethyl nitrite	Initiating explosives, N.E.S.
Ethyl perchlorate	Inositol hexanitrate, N.E.S.
Ethyl propenoate, N.E.S. (Alt: Ethyl acrylate)	Inulin trinitrate, N.E.S.
Flammable mixture of dangerous goods of Division 2.1 or sub-risk 2.1 with oxygen, nitrous oxide or air	Iodine azide, N.E.S.
	Iodoxy compounds, N.E.S.
	Iridium nitratopentamine iridium nitrate
	Isobutyl acrylate, N.E.S.
	Isobutyl methacrylate, N.E.S.

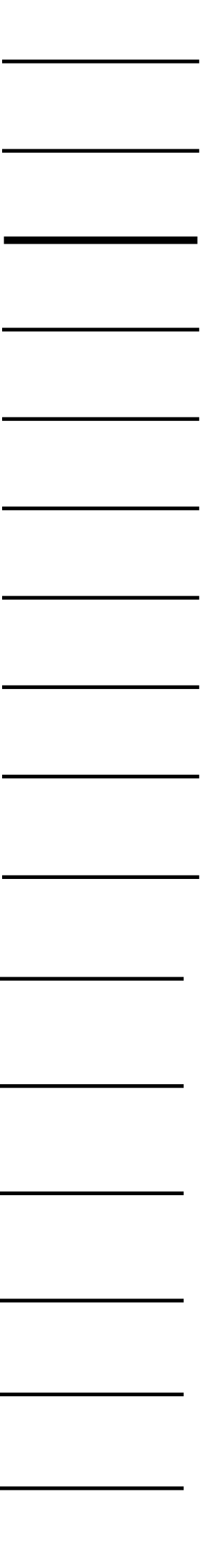
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Isobutyl methyl ketone peroxide, N.E.S.	Methylvinylbenzenes, N.E.S. (Alt: Vinyl toluenes)
Isobutyryl peroxide, N.E.S.	Monochloroacetone, N.E.S.
Isoprene, N.E.S.	Naphthalene diozonide
Isopropyl sec-butyl peroxydicarbonate + Di-sec-butyl peroxydicarbonate + Di-isopropyl peroxydicarbonate, N.E.S.	Naphthylamine perchlorate
Isopropylcumyl hydroperoxide, N.E.S. (Alt: Diisopropylbenzene hydroperoxide)	Nickel picrate
Isothiocyanic acid	Nitrated paper (unstable)
Lead azide, N.E.S.	Nitrates of diazonium compounds
Lead mononitroresorcinat, N.E.S.	<i>N</i> -Nitroaniline
Lead picrate, N.E.S.	<i>m</i> -Nitrobenzene diazonium perchlorate
Lead styphnate, N.E.S.	Nitrocellulose, N.E.S.
Lead 2,4,6-trinitroresorcinat, N.E.S.	Nitrocotton, N.E.S.
Lighters (cigarettes) containing pyrophoric liquid	6-Nitro-4-diazotoluene-3-sulfonic acid, N.E.S.
Magnesium dross, wet or hot	Nitroethyl nitrate
Mannitan tetranitrate	Nitroethylene polymer
Mercurous azide	Nitrogen trichloride
Mercury acetylide	Nitrogen triiodide
Mercury iodide aquabasic ammonobasic (Iodide of Millon's base)	Nitrogen triiodide monoamine
Mercury nitride	Nitroglycerin, liquid, N.E.S.
Mercury oxycyanide, N.E.S.	Nitroguanidine, N.E.S.
Methacrylic acid, N.E.S.	Nitroguanidine nitrate
Methazoic acid	1-Nitro hydantoin
Methyl acetylene/propadiene, mixtures, N.E.S.	Nitroisobutanetriol trinitrate
β -Methyl acrolein, N.E.S. (Alt: Crotonaldehyde)	Nitromannite, N.E.S.
Methyl acrylate, N.E.S.	<i>N</i> -Nitro- <i>N</i> -methylglycolamide nitrate
Methylamine dinitramine and dry salts thereof	2-Nitro-2-methylpropanol nitrate
Methylamine nitroform	<i>m</i> -Nitrophenyldinitro methane
Methylamine perchlorate, N.E.S.	Nitrostarch, N.E.S.
Methyl-1,3-butadiene, N.E.S. (Alt: Isoprene)	Nitrosugars, N.E.S.
Methylcyclohexanone peroxide(s), N.E.S.	Octogen, N.E.S.
Methyldichloroarsine	1,7-Octadiene-3,5-diyne-1,8-dimethoxy-9- octadecynoic acid
Methylene glycol dinitrate	Organic peroxide type A, liquid
Methyl ethyl ketone peroxide(s), N.E.S.	Organic peroxide type A, solid
α -Methylglucoside tetranitrate	Pentaerythrite tetranitrate, N.E.S.
α -Methylglycerol trinitrate	Pentaerythritol tetranitrate, N.E.S.
Methyl isobutyl ketone peroxide(s), N.E.S.	Pentanitroaniline, N.E.S.
Methyl methacrylate monomer, N.E.S.	Peracetic acid, N.E.S.
Methyl nitramine, metal salts of	Perchloric acid, N.E.S.
Methyl nitrate	Peroxyacetic acid, N.E.S.
Methyl nitrite	PETN, N.E.S.
Methyl picric acid, heavy metal salts of	<i>m</i> -Phenylene diaminediperchlorate, N.E.S.
Methylpropyl acrylate, N.E.S. (Alt: Isobutyl acrylate)	Phenylethylene, N.E.S. (Alt: Styrene monomer)
Methylstyrenes, <i>ortho</i> -, <i>meta</i> -, <i>para</i> -, N.E.S.	Phosphorus (white or red) and a chlorate, mixtures of
Methyl trimethylol methane trinitrate	Picric acid, N.E.S.
	Potassium carbonyl
	2-Propenal, N.E.S. (Alt: Acrolein)
	Propenenitrile, N.E.S. (Alt: Acrylonitrile)
	Propenoic acid, N.E.S. (Alt: Acrylic acid)
	Propionyl peroxide, N.E.S.
	Propylene aldehyde, N.E.S. (Alt: Crotonaldehyde)
	Propyleneimine, N.E.S.

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Pyridine perchlorate	2,4,4-Trimethylpentyl-2-peroxyneodecanoate, N.E.S.
Quebrachitol pentanitrate	1,3,5-Trimethyl-2,4,6-trinitrobenzene
Selenium nitride	Trinitroacetic acid, N.E.S.
Self-reactive liquid type A	Trinitroacetoneitrile
Self-reactive solid type A	Trinitroamine cobalt
Shaped charges (commercial) containing more than 220g of explosives	Trinitrobenzene, N.E.S.
Silver acetylide, N.E.S.	Trinitrobenzoic acid, N.E.S.
Silver azide, N.E.S.	2,4,6-Trinitro-1,3-diazobenzene
Silver chlorate, N.E.S.	Trinitroethanol
Silver chlorite, N.E.S.	Trinitroethylnitrate
Silver fulminate, N.E.S.	Trinitromethane
Silver oxalate, N.E.S.	1,3,5-Trinitronaphthalene
Silver perchlorate	Trinitrophenol, N.E.S. (Alt: Picric acid)
Silver picrate, N.E.S.	2,4,6-Trinitrophenyl guanidine, N.E.S.
Sodium dinitro- <i>o</i> -cresolate, N.E.S.	2,4,6-Trinitrophenyl nitramine
Sodium picramate, N.E.S.	2,4,6-Trinitrophenyl trimethylol methyl nitramine trinitrate, N.E.S.
Sodium picryl peroxide	2,4,6-Trinitroso-3-methyl nitraminoanisole
Sodium tetranitride	Trinitrotetramine cobalt nitrate
Styrene, monomer, N.E.S.	2,4,6-Trinitro-1,3,5-triazido benzene, N.E.S.
Sucrose octanitrate, N.E.S.	Tri-(β -nitroxyethyl) ammonium nitrate
Sulfur and chlorate, loose mixtures of	Tris-bis-bifluoroamino diethoxy propane (TVOPA)
Sulfur trioxide, N.E.S.	Urea nitrate, N.E.S.
Sulfuric anhydride, N.E.S. (Alt: Sulfur trioxide)	Vinyl acetate, N.E.S.
Tetraazido benzene quinone	Vinyl benzene, N.E.S. (Alt: Styrene, monomer)
Tetrachloromethyl perchlorate	Vinyl bromide, N.E.S.
Tetraethylammonium perchlorate, N.E.S.	Vinyl- <i>n</i> -butylether, N.E.S. (Alt: Vinyl butylether)
Tetrafluorohydrazine	Vinyl butyrate, N.E.S.
Tetrahydrofuran, N.E.S.	Vinyl chloride, N.E.S.
Tetramethylene diperoxide dicarbamide	Vinyl cyanide, N.E.S. (Alt: Acrylonitrile)
Tetranitrodiglycerin	Vinyl ether, N.E.S. (Alt: Divinyl ether)
2,3,4,6-Tetranitrophenol	Vinyl ethyl ether, N.E.S.
2,3,4,6-Tetranitrophenyl methyl nitramine	Vinyl fluoride, N.E.S.
2,3,4,6-Tetranitrophenylnitramine	Vinylidene, N.E.S.
Tetranitroresorcinol, N.E.S.	Vinyl isobutylether, N.E.S.
2,3,5,6-Tetranitroso-1,4-dinitrobenzene	Vinyl methyl ether, N.E.S.
2,3,5,6-Tetranitroso nitrobenzene, N.E.S.	Vinyl nitrate polymer
Tetrazine, N.E.S.	Vinyl pyridines, N.E.S.
Tetrazolylazide, N.E.S.	Vinyl toluenes, mixed isomers, N.E.S.
Titanium dichloride	Vinyl trichlorosilane, N.E.S.
Tolyethylenes, mixed isomers, N.E.S. (Alt: Vinyl toluenes)	<i>p</i> -Xylyl diazide
Trichloroacetaldehyde, anhydrous, N.E.S. (Alt: Chloral)	Zirconium picramate, N.E.S.
Trichloroacetic aldehyde, anhydrous, N.E.S. (Alt: Chloral)	
Trichloromethyl perchlorate	
Trifluorochloroethylene, N.E.S.	
Trifluoromonochloroethylene, N.E.S.	
Triformoxime trinitrate	
Trimethylene glycol diperchlorate	
Trimethylol nitromethane trinitrate	
2,2,4-Trimethylpentyl-2-peroxyphenoxy acetate, N.E.S.	

Appendix B



GUIDELINES FOR THE PREPARATION OF A TRANSPORT EMERGENCY RESPONSE PLAN

Endorsed by ACTDG

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INTRODUCTION

A Transport Emergency Response Plan (TERP) is required to meet the requirements of Regulation 14.5 of the Road Transport Reform (Dangerous Goods) Regulations (C'wlth) 1997 (the Regulations), and Rule 14.5 of the Rail (Dangerous Goods) Rules (the Rail Rules). A well constructed TERP could prevent a minor incident from becoming a disaster, save lives, prevent injuries, and minimise damage to property and the environment.

AIM

This guide is aimed at assisting in the preparation of a TERP, and is not meant to cover all the topics to be addressed in every conceivable planning situation, nor must all the topics covered in the guide be addressed in every TERP prepared. The document is what its title indicates – a guide – to be used as needed when preparing the plan.

OBJECTIVES OF A TRANSPORT EMERGENCY RESPONSE PLAN

- To minimise any adverse effects on people, damage to property or harm to the environment in a transport emergency;
- To facilitate a rapid and effective emergency response and recovery;
- To provide assistance to emergency and security services; and
- To communicate vital information to all relevant persons involved in the transport emergency (both internal personnel and external agencies) with a minimum of delay.

PLANNING

A TERP prepares for the unexpected by identifying response mechanisms to a variety of potential crises arising from the transport of dangerous goods. It outlines the necessary resources, personnel, and logistics which allow for a prompt, coordinated, and rational approach to a transport incident. The plan must contain sufficient detail to enable those involved in the response to effectively carry out their duties. The plan should also take in to consideration requirements specified in 14.6 and 14.7 of the Regulations and Rail Rules.

Every plan should have a stated policy, purpose, and organisational structure, geographic scope, and contain details of the classes of dangerous goods and mode of transport.

A finished plan does not ensure readiness. Continual appraisal using table-top and simulation exercises, plus regular updating of equipment, contact lists, and training of personnel will improve the capability to successfully respond to transport emergency situations. Liaison with emergency and, where relevant, security services in the planning phase is a critical element in the development of the plan. This may include communication with emergency and/or security services along the transport route.

PLAN ELEMENTS

The following elements should be considered when preparing a Transport Emergency Response Plan. They are grouped under four major headings: PLAN ACTIVATION, RESPONSE TASKS, RESOURCES, and PREPAREDNESS.

I PLAN ACTIVATION

1. INTERNAL ALERTING MECHANISM

The plan should describe how transport emergency calls are processed within the organisation and how appropriate response personnel in a position of authority will activate and implement the plan. (This section should be brief, one page or less, easily found on the cover or first page of the plan, and be simple so as to minimise the number of calls to be made.)

2. SITUATION APPRAISAL

A checklist should be developed for recording essential information about the incident to facilitate decision making; date, time, location, nature of the incident, likely or possible causes of the incident (such as collision with another vehicle or object, equipment failure, sabotage or attack), injuries, type of container involved, placard, label, and manifest details, weather conditions, terrain, personnel on site, amounts of dangerous goods and other materials involved, etc. Answers to some questions may be unknown, but a comprehensive checklist will assist in gathering as much information as possible during the initial call.

The situation appraisal will define the critical issues at hand, allow the plan activators to set priorities regarding preventative and corrective strategies, and choose the response required to protect lives, property, and the environment in an effective manner.

3. **AUTHORITY AND RESOURCES MOBILISATION**

The plan should identify specific positions within an organisation (preferably by name) and their scope of authority. These could include the person in charge within the organisation, the chain of command, technical and medical advisors and their areas of expertise, on-scene authority for organisation, spokesperson(s) including public relations and media person, who will be responsible for requesting outside assistance.

II. **RESPONSE TASKS**

1. **EXTERNAL ALERTING MECHANISM**

The plan must describe how and when the organisation will alert external parties such as emergency services, fire authorities, police, security services, environment protection authorities, competent authorities, road authorities and outside contractors.

2. **EMERGENCY ACTION / CONTAINMENT / CLEANUP**

Appropriate measures should be described for each material to be handled in a manner which will minimise danger and the impact on the environment including initial emergency action, containment, recovery and cleanup. The location, capability, and limitations of equipment to be used should be described.

III. **RESOURCES**

1. **CONTACT LIST**

The plan should contain an accurate, up-to-date telephone roster for emergencies which may include individuals within the organisation, regulatory contacts, containment and cleanup equipment contractors, technical specialists, public health and environment protection authorities including alternates and respective telephone / facsimile numbers. (The contact list may be included as an annex to the TERP to facilitate updating.)

2. **COMMUNICATIONS**

The plan should describe the communication network to be used and provide clear operational procedures for the use of mobile phones, radios and other communication devices.

3. **LOGISTIC SUPPORT**

The plan should describe the movement of people and equipment to and from the emergency site. This becomes an important aspect if the transport incident occurs in a remote location.

4. **EQUIPMENT AND MATERIALS**

An inventory of emergency response equipment, a detailed list of specific resources and items of equipment available from within the organisation, and externally, should be maintained. If outside contractors are to be utilised, the personnel and equipment and their expertise and capabilities should be evaluated in advance.

5. **PERSONNEL**

The plan should designate response personnel, and describe their duties. Each person must be fully aware of his or her role.

6. **MEDIA**

The press will often be present at an emergency. A designated media contact will serve to assist in relaying important information between the organisation and the media.

IV. **PREPAREDNESS**

1. **HAZARD ANALYSIS AND RISK ASSESSMENT**

Multiple plans may be required depending on a hazard analysis of possible scenarios.

2. **TRAINING**

Training should provide the capability for rapid and competent response, vital to success in an emergency situation. An emergency situation often provides an unfamiliar, emotional and hostile working environment for the responders. Anyone with little training or experience will have difficulty dealing effectively with the incident. All personnel who have an active role in the plan must be trained in the key aspects of the plan.

3. **EXERCISES**

Table-top and simulation exercises allow the plan to be scrutinised under conditions which approximate an actual incident. Assessment can be done in stages whereby one specific aspect of the plan is evaluated at a time. After each stage has been reviewed, a full scale scenario can be introduced. Having completed “in-house” full scale incident scenarios, interaction with external agencies such as consignors, prime contractors and the emergency services can be beneficial in evaluating the overall plan.

4. **MAINTENANCE OF RESPONSE EQUIPMENT**

The plan should show schedules for preventative maintenance of relevant equipment listed in the plan. The plan should also show the system by which the maintenance schedules are met.

5. **INVESTIGATIVE FOLLOW UP**

When an organisation has dealt with an incident, the overall response should be evaluated to determine the effectiveness of the plan. The TERP should then be updated and modified as necessary.

6. **UPDATING**

A nominated individual should be responsible for updating the plan (including contact telephone numbers) and informing all plan holders of any changes. This is particularly important where information gathering / situation appraisal is carried out by an external contracted emergency response provider. A record of plan amendments should be maintained. The plan should be updated at least annually.

7. **PLAN AVAILABILITY AND DISTRIBUTION**

The plan should include a listing of all recipients, their names, addresses and title. All staff who have responsibilities within the emergency plan should have access to the plan.

Appendix C

Appendix C1 – Guides 118, 121 and 123 (Class 2.1 Dangerous Goods)

EMERGENCY RESPONSE GUIDE (118)

POTENTIAL HAZARDS

FIRE OR EXPLOSION

- EXTREMELY FLAMMABLE. ☐
- May be ignited by heat, sparks or flames. ☐
- May form explosive mixtures with air. ☐
- Vapours from liquefied gas are initially heavier than air and spread along ground. ☐
- Vapours may travel to source of ignition and flash back. ☐
- Some of these materials may react violently with water. ☐
- Cylinders exposed to fire may vent and release flammable gas through pressure relief devices. ☐
- Containers may explode when heated. ☐
- Ruptured cylinders may rocket. ☐

☐ HEALTH

- May cause toxic effects if inhaled. ☐
- Vapours are extremely irritating. ☐
- Contact with gas or liquefied gas may cause burns, severe injury and/or frostbite. ☐
- Fire will produce irritating, corrosive and/or toxic gases. ☐
- Runoff from fire control may cause pollution. ☐

PUBLIC SAFETY

- **CALL EMERGENCY RESPONSE Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.** ☐
- As an immediate precautionary measure, isolate spill or leak area for at least 100 meters in all directions. ☐
- Keep unauthorized personnel away. ☐
- Stay upwind. ☐
- Many gases are heavier than air and will spread along ground and collect in low or confined areas ☐ (sewers, basements, tanks). ☐
- Keep out of low areas. ☐
- Ventilate closed spaces before entering. ☐

PROTECTIVE CLOTHING ☐

- Wear positive pressure self-contained breathing apparatus (SCBA). ☐
- Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide ☐ little or no thermal protection. ☐
- Structural fire fighters' protective clothing provides limited protection in re situations ONLY; it is not ☐ effective in spill situations where direct contact with the substance is possible. ☐

EVACUATION

Large Spill ☐

- Consider initial downwind evacuation for at least 800 meters.

Fire

- If tank, rail car or tank truck is involved in a fire, ISOLATE for 1600 meters in all directions; also, consider initial evacuation for 1600 meters in all directions.

EMERGENCY RESPONSE

FIRE

- **DO NOT EXTINGUISH A LEAKING GAS FIRE UNLESS LEAK CAN BE STOPPED.**

Small Fire ☐

- Dry chemical or CO₂. ☐

Large Fire

- Water spray, fog or regular foam. ☐
- Move containers from fire area if you can do it without risk. ☐
- Damaged cylinders should be handled only by specialists.

Fire involving Tanks ☐

- Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. ☐
- Cool containers with flooding quantities of water until well after fire is out. ☐
- Do not direct water at source of leak or safety devices; icing may occur. ☐
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. ☐
- ALWAYS stay away from tanks engulfed in fire.

SPILL OR LEAK

- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). ☐
- All equipment used when handling the product must be grounded. ☐
- Fully encapsulating, vapour protective clothing should be worn for spills and leaks with no fire. ☐
- Do not touch or walk through spilled material. ☐
- Stop leak if you can do it without risk. ☐
- If possible, turn leaking containers so that gas escapes rather than liquid. ☐
- Use water spray to reduce vapours or divert vapour cloud drift. Avoid allowing water runoff to contact spilled material. ☐
- Do not direct water at spill or source of leak. ☐
- Isolate area until gas has dispersed.

FIRST AID

- Move victim to fresh air. ☐
- **CALL TRIPLE ZERO (000)** or emergency medical service. ☐
- Give artificial respiration if victim is not breathing. ☐
- **Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial ☐respiration with the aid of a pocket mask equipped with a one-way valve or other proper ☐respiratory medical device.** ☐
- Administer oxygen if breathing is difficult. ☐
- Remove and isolate contaminated clothing and shoes. ☐
- In case of contact with liquefied gas, thaw frosted parts with lukewarm water. ☐
- In case of burns, immediately cool affected skin for as long as possible with cold water. Do not remove ☐clothing if adhering to skin. ☐
- Keep victim warm and quiet. ☐
- Keep victim under observation. ☐
- Effects of contact or inhalation may be delayed. ☐
- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect ☐themselves. ☐

EMERGENCY RESPONSE GUIDE (121)

POTENTIAL HAZARDS

HEALTH

- Vapours may cause dizziness or asphyxiation without warning. ☐
- Vapours from liquefied gas are initially heavier than air and spread along ground. ☐

☐ FIRE OR EXPLOSION

- **Non- flammable gases.** ☐
- Containers may explode when heated. ☐
- Ruptured cylinders may rocket. ☐

PUBLIC SAFETY

- **CALL EMERGENCY RESPONSE Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.** ☐
- As an immediate precautionary measure, isolate spill or leak area for at least 100 meters in all directions. ☐
- Keep unauthorized personnel away. ☐
- Stay upwind. ☐
- Many gases are heavier than air and will spread along ground and collect in low or confined areas ☐(sewers, basements, tanks). ☐
- Keep out of low areas. ☐
- Ventilate closed spaces before entering. ☐

PROTECTIVE CLOTHING ☐

- Wear positive pressure self-contained breathing apparatus (SCBA). ☐
- Structural fire fighters' protective clothing provides limited protection in re situations ONLY; it is not ☐effective in spill situations where direct contact with the substance is possible. ☐

EVACUATION

Large Spill ☐

- Consider initial downwind evacuation for at least 100 meters.

Fire

- If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters in all directions; also, consider initial evacuation for 800 meters in all directions.

EMERGENCY RESPONSE

FIRE

- Use extinguishing agent suitable for type of surrounding fire. ☐
- Move containers from fire area if you can do it without risk. ☐
- Damaged cylinders should be handled only by specialists. ☐

Fire Involving Tanks

- Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. ☐
- Cool containers with flooding quantities of water until well after fire is out. ☐
- Do not direct water at source of leak or safety devices; icing may occur. ☐
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- ALWAYS stay away from tanks engulfed in fire.

SPILL OR LEAK

- Do not touch or walk through spilled material. ☐
- Stop leak if you can do it without risk. ☐
- Use water spray to reduce vapours or divert vapour cloud drift. Avoid allowing water runoff to contact spilled material. ☐
- Do not direct water at spill or source of leak. ☐
- If possible, turn leaking containers so that gas escapes rather than liquid. ☐
- Prevent entry into waterways, sewers, basement or confined areas.
- Allow substance to evaporate.
- Ventilate the area

FIRST AID

- Move victim to fresh air. ☐
- **CALL TRIPLE ZERO (000)** or emergency medical service. ☐
- Give artificial respiration if victim is not breathing. ☐
- Administer oxygen if breathing is difficult. ☐
- Keep victim warm and quiet. ☐
- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. ☐

EMERGENCY RESPONSE GUIDE (123)

POTENTIAL HAZARDS

HEALTH

- **TOXIC; may be fatal if inhaled or absorbed through skin.** ☐
- Vapours may be irritating. ☐
- Contact with gas or liquefied gas may cause burns, severe injury and/or frostbite. ☐
- Fire will produce irritating, corrosive and/or toxic gases. ☐
- Runoff from fire control may cause pollution. ☐

☒ FIRE OR EXPLOSION

- Some may burn but none ignite readily. ☐
- Vapours from liquefied gas are initially heavier than air and spread along ground. ☐
- Cylinders exposed to fire may vent and release toxic and/or corrosive gas through pressure relief ☐ devices. ☐
- Containers may explode when heated. ☐
- Ruptured cylinders may rocket. ☐

PUBLIC SAFETY

- **CALL EMERGENCY RESPONSE Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.** ☐
- As an immediate precautionary measure, isolate spill or leak area for at least 100 meters in all directions. ☐
- Keep unauthorized personnel away. ☐
- Stay upwind. ☐
- Many gases are heavier than air and will spread along ground and collect in low or confined areas ☐ (sewers, basements, tanks). ☐
- Keep out of low areas. ☐
- Ventilate closed spaces before entering. ☐

PROTECTIVE CLOTHING ☐

- Wear positive pressure self-contained breathing apparatus (SCBA). ☐
- Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide ☐ little or no thermal protection. ☐
- Structural fire fighters' protective clothing provides limited protection in fire situations ONLY; it is not ☐ effective in spill situations where direct contact with the substance is possible. ☐

EVACUATION

Spill ☐

- See Table 1 - Initial Isolation and Protective Action Distances for highlighted materials. For non- highlighted materials, increase, in the downwind direction, as necessary, the isolation distance shown under "PUBLIC SAFETY".

Fire

- If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters in all directions; also, consider initial evacuation for 800 meters in all directions.

EMERGENCY RESPONSE

FIRE

Small Fire

- Dry chemical or CO₂.

Large Fire

- Water spray, fog or regular foam. ☐
- Do not get water inside containers. ☐
- Move containers from fire area if you can do it without risk. ☐
- Damaged cylinders should be handled only by specialists. ☐

Fire Involving Tanks

- Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. ☐
- Cool containers with flooding quantities of water until well after fire is out. ☐
- Do not direct water at source of leak or safety devices; icing may occur. ☐
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- ALWAYS stay away from tanks engulfed in fire.

SPILL OR LEAK

- Fully encapsulating, vapor protective clothing should be worn for spills and leaks with no re. ☐
- Do not touch or walk through spilled material. ☐
- Stop leak if you can do it without risk. ☐
- If possible, turn leaking containers so that gas escapes rather than liquid. ☐
- Prevent entry into waterways, sewers, basements or confined areas. ☐
- Use water spray to reduce vapours or divert vapour cloud drift. Avoid allowing water runoff to contact spilled material. ☐
- Do not direct water at spill or source of leak. ☐
- Isolate area until gas has dispersed. ☐

FIRST AID

- Move victim to fresh air. ☐
- **CALL TRIPLE ZERO (000)** or emergency medical service. ☐
- Give artificial respiration if victim is not breathing. ☐
- **Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.** ☐
- Administer oxygen if breathing is difficult. ☐
- Remove and isolate contaminated clothing and shoes. ☐
- In case of contact with liquefied gas, thaw frosted parts with lukewarm water. ☐
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes. ☐
- Keep victim warm and quiet. ☐
- Keep victim under observation. ☐
- Effects of contact or inhalation may be delayed. ☐
- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. ☐

Appendix C2 – Guide 127 (Flammable Liquids)

EMERGENCY RESPONSE GUIDE (127)

POTENTIAL HAZARDS

FIRE OR EXPLOSION

- **HIGHLY FLAMMABLE: Will be easily ignited by heat, sparks or flames.** ☐
- Vapors may form explosive mixtures with air. ☐
- Vapors may travel to source of ignition and flash back. ☐
- Most vapors are heavier than air. They will spread along ground and collect in low or confined areas ☐ (sewers, basements, tanks). ☐
- Vapor explosion hazard indoors, outdoors or in sewers. ☐
- Those substances designated with a (P) may polymerize explosively when heated or involved in a fire. ☐
- Runoff to sewer may create fire or explosion hazard. ☐
- Containers may explode when heated. ☐
- Many liquids are lighter than water. ☐

HEALTH

- Inhalation or contact with material may irritate or burn skin and eyes. ☐
- Fire may produce irritating, corrosive and/or toxic gases. ☐
- Vapors may cause dizziness or suffocation. ☐
- Runoff from re control may cause pollution. ☐

PUBLIC SAFETY

- **CALL EMERGENCY RESPONSE Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.** ☐
- As an immediate precautionary measure, isolate spill or leak area for at least 50 meters in all directions. ☐
- Keep unauthorized personnel away. ☐
- Stay upwind. ☐
- Keep out of low areas. ☐
- Ventilate closed spaces before entering. ☐

PROTECTIVE CLOTHING ☐

- Wear positive pressure self-contained breathing apparatus (SCBA). ☐
- Structural fire fighters' protective clothing provides limited protection in fire situations ONLY; it is not ☐ effective in spill situations where direct contact with the substance is possible. ☐

EVACUATION

Large Spill ☐

- Consider initial downwind evacuation for at least 300 meters. ☐

Fire

- If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters in all directions; also, consider initial evacuation for 800 meters in all directions.

EMERGENCY RESPONSE

FIRE

CAUTION: All these products have a very low flash point: Use of water spray when fighting fire may be inefficient.

Small Fire

- Dry chemical, CO₂. or alcohol resistant foam.

Large Fire

- Water spray, fog or alcohol resistant foam. ☐
- **Do not use straight streams.** ☐
- Move containers from fire area if you can do it without risk. ☐

Fire Involving Tanks

- Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. ☐
- Cool containers with flooding quantities of water until well after fire is out. ☐
- Do not direct water at source of leak or safety devices; icing may occur. ☐
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- ALWAYS stay away from tanks engulfed in fire.
- For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from ☐area and let fire burn. ☐

SPILL OR LEAK

- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). ☐
- All equipment used when handling the product must be grounded. ☐
- Do not touch or walk through spilled material. ☐
- Stop leak if you can do it without risk. ☐
- Prevent entry into waterways, sewers, basements or confined areas. ☐
- A vapour suppressing foam may be used to reduce vapours. ☐
- Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. ☐
- Use clean non-sparking tools to collect absorbed material.

Large Spill ☐

- Dike far ahead of liquid spill for later disposal. ☐
- Water spray may reduce vapour; but may not prevent ignition in closed spaces. ☐

FIRST AID

- Move victim to fresh air. ☐
- **CALL TRIPLE ZERO (000)** or emergency medical service. ☐
- Give artificial respiration if victim is not breathing. ☐
- Administer oxygen if breathing is difficult. ☐
- Remove and isolate contaminated clothing and shoes. ☐
- In case of contact with liquefied gas, thaw frosted parts with lukewarm water. ☐
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 ☐minutes. ☐
- Wash skin with soap and water. ☐
- In case of burns, immediately cool affected skin for as long as possible with cold water. Do not remove ☐clothing if adhering to skin. ☐
- Keep victim warm and quiet. ☐
- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect ☐themselves ☐

Appendix C3 – Guide 153 (Corrosive Substances)

EMERGENCY RESPONSE GUIDE (153)

POTENTIAL HAZARDS

HEALTH

- **TOXIC**; inhalation, ingestion or skin contact with material may cause severe injury or death. ☐
- Contact with molten substance may cause severe burns to skin and eyes. ☐
- Avoid any skin contact. ☐
- Effects of contact or inhalation may be delayed. ☐
- Fire may produce irritating, corrosive and/or toxic gases. ☐
- Runoff from fire control or dilution water may be corrosive and/or toxic and cause pollution. ☐

☐ FIRE OR EXPLOSION

- Combustible material: may burn but does not ignite readily. ☐
- When heated, vapours may form explosive mixtures with air: indoors, outdoors and sewers explosion ☐ hazards. ☐
- Those substances designated with a (P) may polymerize explosively when heated or involved in a fire. ☐
- Contact with metals may evolve flammable hydrogen gas. ☐
- Containers may explode when heated. ☐
- Runoff may pollute waterways. ☐
- Substance may be transported in a molten form. ☐

PUBLIC SAFETY

- **CALL EMERGENCY RESPONSE Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.** ☐
- As an immediate precautionary measure, isolate spill or leak area in all directions for at least 50 meters for liquids and at least 25 meters for solids. ☐
- Keep unauthorized personnel away. ☐
- Stay upwind. ☐
- Keep out of low areas. ☐
- Ventilate enclosed areas. ☐

PROTECTIVE CLOTHING ☐

- Wear positive pressure self-contained breathing apparatus (SCBA). ☐
- Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide ☐ little or no thermal protection. ☐
- Structural fire fighters' protective clothing provides limited protection in fire situations ONLY; it is not ☐ effective in spill situations where direct contact with the substance is possible. ☐

EVACUATION

Spill ☐

- See Table 1 - Initial Isolation and Protective Action Distances for highlighted materials. For non- highlighted materials, increase, in the downwind direction, as necessary, the isolation distance shown under "PUBLIC SAFETY".

Fire

- If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters in all directions; also, consider initial evacuation for 800 meters in all directions.

EMERGENCY RESPONSE

FIRE

Small Fire

- Dry chemical, CO₂ or water spray.

Large Fire

- Dry chemical, CO₂, alcohol-resistant foam or water spray. ☐
- Move containers from the area if you can do it without risk. ☐
- Dike fire-control water for later disposal; do not scatter the material. ☐

Fire Involving Tanks

- Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. ☐
- Do not get water inside containers. ☐
- Cool containers with flooding quantities of water until well after fire is out. ☐
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. ☐
- ALWAYS stay away from tanks engulfed in fire. ☐

SPILL OR LEAK

- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). ☐
- Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. ☐
- Stop leak if you can do it without risk. ☐
- Prevent entry into waterways, sewers, basements or confined areas. ☐
- Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. ☐
- DO NOT GET WATER INSIDE CONTAINERS. ☐

FIRST AID

- Move victim to fresh air. ☐
- **CALL TRIPLE ZERO (000)** or emergency medical service. ☐
- Give artificial respiration if victim is not breathing. ☐
- **Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial ☐respiration with the aid of a pocket mask equipped with a one-way valve or other proper ☐respiratory medical device.** ☐
- Administer oxygen if breathing is difficult. ☐
- Remove and isolate contaminated clothing and shoes. ☐
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 ☐minutes. ☐
- For minor skin contact, avoid spreading material on unaffected skin. ☐
- Keep victim warm and quiet. ☐
- Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed. ☐
- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect ☐themselves ☐

Appendix C4 – Guide 171 (Miscellaneous Dangerous Goods)

EMERGENCY RESPONSE GUIDE (171)

POTENTIAL HAZARDS

FIRE OR EXPLOSION

- Some may burn but none ignite readily. ☐
- Containers may explode when heated. ☐
- Some may be transported hot. ☐

☐ HEALTH

- Inhalation of material may be harmful. ☐
- Contact may cause burns to skin and eyes. ☐
- Inhalation of Asbestos dust may have a damaging effect on the lungs. ☐
- Fire may produce irritating, corrosive and/or toxic gases. ☐
- Some liquids produce vapours that may cause dizziness or suffocation. ☐
- Runoff from fire control may cause pollution. ☐

PUBLIC SAFETY

- **CALL EMERGENCY RESPONSE Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.** ☐
- As an immediate precautionary measure, isolate spill or leak area in all directions for at least 50 meters for liquids and at least 25 meters for solids. ☐
- Keep unauthorized personnel away. ☐
- Stay upwind. ☐

PROTECTIVE CLOTHING ☐

- Wear positive pressure self-contained breathing apparatus (SCBA). ☐
- Structural fire fighters' protective clothing provides limited protection. ☐

EVACUATION

Spill ☐

- See Table 1 - Initial Isolation and Protective Action Distances for highlighted materials. For non- highlighted materials, increase, in the downwind direction, as necessary, the isolation distance shown under "PUBLIC SAFETY".

Fire

- If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters in all directions; also, consider initial evacuation for 800 meters in all directions.

EMERGENCY RESPONSE

FIRE

Small Fire

- Dry chemical, CO₂ or water spray or regular foam.

Large Fire

- Water spray, fog or regular foam. ☐
- Do not scatter spilled material with high pressure water streams. ☐
- Move containers from fire area if you can do it without risk. ☐
- Dike fire-control water for later disposal. ☐

Fire Involving Tanks

- Cool containers with flooding quantities of water until well after fire is out. ☐
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. ☐
- ALWAYS stay away from tanks engulfed in fire. ☐

SPILL OR LEAK

- Do not touch or walk through spilled material. ☐
- Stop leak if you can do it without risk. ☐
- Prevent dust cloud. ☐
- Avoid inhalation of asbestos dust. ☐

Small Dry Spill

- With clean shovel place material into clean, dry container and cover loosely; move containers from spill area.

Small Spill

- Take up with sand or other non-combustible absorbent material and place into containers for later disposal.

Large Spill

- Dike far ahead of liquid spill for later disposal. ☐
- Cover powder spill with plastic sheet or tarp to minimize spreading. ☐
- Prevent entry into waterways, sewers, basements or confined areas. ☐

FIRST AID

- Move victim to fresh air. ☐
- **CALL TRIPLE ZERO (000)** or emergency medical service. ☐
- Give artificial respiration if victim is not breathing. ☐
- Administer oxygen if breathing is difficult. ☐
- Remove and isolate contaminated clothing and shoes. ☐
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes. ☐
- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. ☐

INTRODUCTION TO GREEN TABLES - INITIAL ISOLATION AND PROTECTIVE ACTION DISTANCES

Table 1 - Initial Isolation and Protective Action Distances suggests distances useful to protect people from vapors resulting from spills involving dangerous goods that are considered toxic by inhalation (TIH). This list includes certain chemical warfare agents and materials that produce toxic gases upon contact with water. Table 1 provides first responders with initial guidance until technically qualified emergency response personnel are available.

The **Initial Isolation Zone** defines an area SURROUNDING the incident in which persons may be exposed to dangerous (upwind) and life threatening (downwind) concentrations of material. The **Protective Action Zone** defines an area DOWNWIND from the incident in which persons may become incapacitated and unable to take protective action and/or incur serious or irreversible health effects. Table 1 provides specific guidance for small and large spills occurring day or night.

Adjusting distances for a specific incident involves many interdependent variables and should be made only by personnel technically qualified to make such adjustments. For this reason, no precise guidance can be provided in this document to aid in adjusting the table distances; however, general guidance follows.

Factors That May Change the Protective Action Distances

The orange-bordered guide for a material clearly indicates under the section EVACUATION – Fire, the evacuation distance required to protect against fragmentation hazard of a large container. If the material becomes involved in a **FIRE**, the toxic hazard may be less than the fire or explosion hazard. In these cases, the **Fire** hazard distance should be used.

Initial isolation and protective action distances in this guidebook are derived from historical data on transportation incidents and the use of statistical models. For worst-case scenarios involving the instantaneous release of the entire contents of a package (e.g., as a result of terrorism, sabotage or catastrophic accident) the distances may increase substantially. For such events, doubling of the initial isolation and protective action distances is appropriate in absence of other information.

If more than one tank car containing TIH materials involved in the incident is leaking, LARGE SPILL distances may need to be increased.

For a material with a protective action distance of 11.0+ km (7.0+ miles), the actual distance can be larger in certain atmospheric conditions. If the dangerous goods vapor plume is channeled in a valley or between many tall buildings, distances may be larger than shown in Table 1 due to less mixing of the plume with the atmosphere. Daytime spills in regions with known strong inversions or snow cover, or occurring near sunset, may require an increase of the protective action distance because airborne contaminants mix and disperse more slowly and may travel much farther downwind. In such cases, the nighttime protective action distance may be more appropriate. In addition, protective action distances may be larger for liquid spills when either the material or outdoor temperature exceeds 30°C (86°F).

Materials which react with water to produce large amounts of toxic gases are included in Table 1 - Initial Isolation and Protective Action Distances. Note that some water-reactive materials (WRM) which are also TIH (e.g., Bromine trifluoride (1746), Thionyl chloride (1836), etc.) produce additional TIH materials when spilled in water. For these materials, two entries are provided in Table 1 - Initial Isolation and Protective Action Distances (i.e., for spills on land and for spills in water). **If it is not clear whether the spill is on land or in water, or in cases where the spill occurs both on land and in water, choose the larger Protective Action Distance.**

Following Table 1, **Table 2 – Water-Reactive Materials Which Produce Toxic Gases** lists materials that produce large amounts of Toxic Inhalation Hazard gases (TIH) when spilled in water as well as the toxic gases that are produced when spilled in water.

When a water-reactive TIH producing material is spilled into a river or stream, the source of the toxic gas may move with the current and stretch from the spill point downstream for a substantial distance.

Finally, **Table 3** lists Initial Isolation and Protective Action Distances for Toxic Inhalation Hazard materials that may be more commonly encountered.

The selected materials are:

- Ammonia, anhydrous (UN1005)
- Chlorine (UN1017)
- Ethylene oxide (UN1040)
- Hydrogen chloride (UN1050) and Hydrogen chloride, refrigerated liquid (UN2186)
- Hydrogen fluoride (UN1052)
- Sulfur dioxide/Sulphur dioxide (UN1079)

The materials are presented in alphabetical order and provide Initial Isolation and Protective Action Distances for large spills (more than 208 liters or 55 US gallons) involving different container types (therefore different volume capacities) for day time and night time situations and for different wind speeds.

PROTECTIVE ACTION DECISION FACTORS TO CONSIDER

The choice of protective actions for a given situation depends on a number of factors. For some cases, evacuation may be the best option; in others, sheltering in-place may be the best course. Sometimes, these two actions may be used in combination. In any emergency, officials need to quickly give the public instructions. The public will need continuing information and instructions while being evacuated or sheltered in-place.

Proper evaluation of the factors listed below will determine the effectiveness of evacuation or in-place protection (shelter in-place). The importance of these factors can vary with emergency conditions. In specific emergencies, other factors may need to be identified and considered as well. This list indicates what kind of information may be needed to make the initial decision.

The Dangerous Goods

- Degree of health hazard
- Chemical and physical properties
- Amount involved
- Containment/control of release
- Rate of vapor movement

The Population Threatened

- Location
- Number of people
- Time available to evacuate or shelter in-place
- Ability to control evacuation or shelter in-place
- Building types and availability
- Special institutions or populations, e.g., nursing homes, hospitals, prisons

Weather Conditions

- Effect on vapor and cloud movement
- Potential for change
- Effect on evacuation or shelter in-place

PROTECTIVE ACTIONS

Protective Actions are those steps taken to preserve the health and safety of emergency responders and the public during an incident involving releases of dangerous goods. Table 1 - Initial Isolation and Protective Action Distances (green-bordered pages) predicts the size of downwind areas which could be affected by a cloud of toxic gas. People in this area should be evacuated and/or sheltered in-place inside buildings.

Isolate Hazard Area and Deny Entry means to keep everybody away from the area if they are not directly involved in emergency response operations. Unprotected emergency responders should not be allowed to enter the isolation zone. This "isolation" task is done first to establish control over the area of operations. This is the first step for any protective actions that may follow. See Table 1 - Initial Isolation and Protective Action Distances (green-bordered pages) for more detailed information on specific materials.

Evacuate means to move all people from a threatened area to a safer place. To perform an evacuation, there must be enough time for people to be warned, to get ready, and to leave an area. If there is enough time, evacuation is the best protective action. Begin evacuating people nearby and those outdoors in direct view of the scene. When additional help arrives, expand the area to be evacuated downwind and crosswind to at least the extent recommended in this guidebook. Even after people move to the distances recommended, they may not be completely safe from harm. They should not be permitted to congregate at such distances. Send evacuees to a definite place, by a specific route, far enough away so they will not have to be moved again if the wind shifts.

Shelter In-Place means people should seek shelter inside a building and remain inside until the danger passes. **Sheltering in-place is used when evacuating the public would cause greater risk than staying where they are, or when an evacuation cannot be performed.** Direct the people inside to **close all doors and windows** and to **shut off all ventilating, heating and cooling systems.** In-place protection (shelter in-place) may not be the best option if (a) the vapors are flammable; (b) if it will take a long time for the gas to clear the area; or (c) if buildings cannot be closed tightly. Vehicles can offer some protection for a short period if the windows are closed and the ventilating systems are shut off. Vehicles are not as effective as buildings for in-place protection.

It is vital to maintain communications with competent persons inside the building so that they are advised about changing conditions. **Persons protected-in-place should be warned to stay far from windows** because of the danger from glass and projected metal fragments in a fire and/or explosion.

Every dangerous goods incident is different. Each will have special problems and concerns. Action to protect the public must be selected carefully. These pages can help with **initial** decisions on how to protect the public. Officials must continue to gather information and monitor the situation until the threat is removed.

BACKGROUND ON TABLE 1 - INITIAL ISOLATION AND PROTECTIVE ACTION DISTANCES

Initial Isolation and Protective Action Distances in this guidebook were determined for small and large spills occurring during day or night. The overall analysis was statistical in nature and utilized state-of-the-art emission rate and dispersion models; statistical release data from the U.S. DOT HMIS (Hazardous Materials Information System) database; meteorological observations from over 120 locations in United States, Canada and Mexico; and the most current toxicological exposure guidelines.

For each chemical, thousands of hypothetical releases were modeled to account for the statistical variation in both release amount and atmospheric conditions. Based on this statistical sample, the 90th percentile Protective Action Distance for each chemical and category was selected to appear in the Table. A brief description of the analysis is provided below. A detailed report outlining the methodology and data used in the generation of the Initial Isolation and Protective Action Distances may be obtained from the U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration.

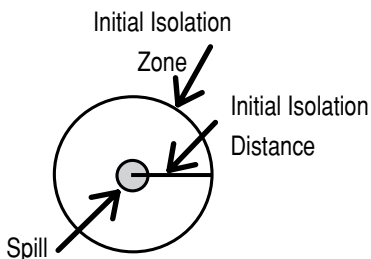
Release amounts and emission rates into the atmosphere were statistically modeled based on (1) data from the U.S. DOT HMIS database; (2) container types and sizes authorized for transport as specified in 49 CFR §172.101 and Part 173; (3) physical properties of the individual materials, and (4) atmospheric data from a historical database. The emission model calculated the release of vapor due to evaporation of pools on the ground, direct release of vapors from the container, or a combination of both, as would occur for liquefied gases which can flash to form both a vapor/aerosol mixture and an evaporating pool. In addition, the emission model also calculated the emission of toxic vapor by-products generated from spilling water-reactive materials in water. Spills that involve releases of approximately 208 liters for liquids (55 US gallons) and 300 kg for solids (660 pounds) or less are considered Small Spills, while spills that involve greater quantities are considered Large Spills. An exception to this is certain chemical warfare agents where Small Spills include releases up to 2 kg (4.4 lbs), and Large Spills include releases up to 25 kg (55 lbs). These agents are BZ, CX, GA, GB, GD, GF, HD, HL, HN1, HN2, HN3, L and VX.

Downwind dispersion of the vapor was estimated for each case modeled. Atmospheric parameters affecting the dispersion, and the emission rate, were selected in a statistical fashion from a database containing hourly meteorological data from 120 cities in the United States, Canada and Mexico. The dispersion calculation accounted for the time dependent emission rate from the source as well as the density of the vapor plume (i.e., heavy gas effects). Since atmospheric mixing is less effective at dispersing vapor plumes during nighttime, day and night were separated in the analysis. In Table 1, "Day" refers to time periods after sunrise and before sunset, while "Night" includes all hours between sunset and sunrise.

Toxicological short-term exposure guidelines for the materials were applied to determine the downwind distance to which persons may become incapacitated and unable to take protective action or may incur serious health effects after a once-in-a-lifetime, or rare, exposure. When available, toxicological exposure guidelines were chosen from AEGL-2 or ERPG-2 emergency response guidelines, with AEGL-2 values being the first choice. For materials that do not have AEGL-2 or ERPG-2 values, emergency response guidelines estimated from lethal concentration limits derived from animal studies were used, as recommended by an independent panel of toxicological experts from industry and academia.

HOW TO USE TABLE 1 - INITIAL ISOLATION AND PROTECTIVE ACTION DISTANCES

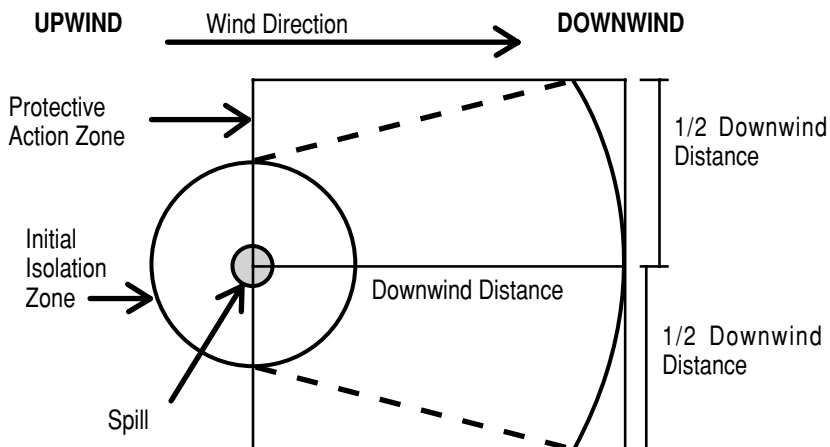
- (1) The responder should already have:
 - Identified the material by its ID Number and Name; (if an ID Number cannot be found, use the Name of Material index in the blue-bordered pages to locate that number.)
 - Found the three-digit guide for that material in order to consult the emergency actions recommended jointly with this table;
 - **Noted the wind direction.**
- (2) Look in Table 1 (the green-bordered pages) for the ID Number and Name of the Material involved in the incident. Some ID Numbers have more than one shipping name listed—look for the specific name of the material. (If the shipping name is not known and Table 1 lists more than one name for the same ID Number, use the entry with the largest protective action distances.)
- (3) Determine if the incident involves a SMALL or LARGE spill and if DAY or NIGHT. Generally, a SMALL SPILL is one which involves a single, small package (e.g., a drum containing up to approximately 208 liters (55 US gallons)), a small cylinder, or a small leak from a large package. A LARGE SPILL is one which involves a spill from a large package, or multiple spills from many small packages. DAY is any time after sunrise and before sunset. NIGHT is any time between sunset and sunrise.
- (4) Look up the INITIAL ISOLATION DISTANCE. Direct all persons to move, in a crosswind direction, away from the spill to the distance specified—in meters and feet.



- (5) Look up the initial PROTECTIVE ACTION DISTANCE shown in Table 1. For a given material, spill size, and whether day or night, Table 1 gives the downwind distance—in kilometers and miles—for which protective actions should be considered. For practical purposes, the Protective Action Zone (i.e., the area in which people are at risk of harmful exposure) is a square, whose length and width are the same as the downwind distance shown in Table 1.

- (6) Initiate Protective Actions to the extent possible, beginning with those closest to the spill site and working away from the site in the downwind direction. When a water-reactive TIH producing material is spilled into a river or stream, the source of the toxic gas may move with the current or stretch from the spill point downstream for a substantial distance.

The shape of the area in which protective actions should be taken (the Protective Action Zone) is shown in this figure. The spill is located at the center of the small circle. The larger circle represents the INITIAL ISOLATION zone around the spill.



NOTE 1: See "Introduction To Green Tables – Initial Isolation And Protective Action Distances" under "Factors That May Change the Protective Action Distances" (page 285)

NOTE 2: See Table 2 – Water-Reactive Materials which Produce Toxic Gases for the list of gases produced when these materials are spilled in water.

Call the emergency response telephone number listed on the shipping paper or the appropriate response agency as soon as possible for additional information on the material, safety precautions and mitigation procedures.

TABLE 1 - INITIAL ISOLATION AND PROTECTIVE ACTION DISTANCES

			SMALL SPILLS (From a small package or small leak from a large package)				LARGE SPILLS (From a large package or from many small packages)			
ID No.	Guide	NAME OF MATERIAL	First ISOLATE in all Directions		Then PROTECT persons Downwind during-		ISOLATE in all Directions Meters (Feet)	Then PROTECT persons Downwind during-		
			Meters (Feet)	Kilometers (Miles)	DAY Kilometers (Miles)	NIGHT Kilometers (Miles)				
1005 *	125	Ammonia, anhydrous	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	150 m (500 ft)	0.8 km (0.5 mi)	2.0 km (1.3 mi)		
1005 *	125	Anhydrous ammonia								
1008	125	Boron trifluoride	30 m (100 ft)	0.1 km (0.1 mi)	0.5 km (0.4 mi)	300 m (1000 ft)	1.7 km (1.1 mi)	4.8 km (3.0 mi)		
1008	125	Boron trifluoride, compressed								
1016	119	Carbon monoxide	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	200 m (600 ft)	1.2 km (0.8 mi)	4.8 km (3.0 mi)		
1016	119	Carbon monoxide, compressed								
1017 *	124	Chlorine	60 m (200 ft)	0.4 km (0.2 mi)	1.5 km (1.0 mi)	500 m (1500 ft)	3.0 km (1.9 mi)	7.9 km (4.9 mi)		
1023	119	Coal gas	60 m (200 ft)	0.2 km (0.1 mi)	0.2 km (0.1 mi)	100 m (300 ft)	0.4 km (0.2 mi)	0.5 km (0.3 mi)		
1023	119	Coal gas, compressed								
1026	119	Cyanogen	30 m (100 ft)	0.1 km (0.1 mi)	0.5 km (0.3 mi)	60 m (200 ft)	0.4 km (0.2 mi)	1.7 km (1.0 mi)		
1026	119	Cyanogen gas								
1040 *	119P	Ethylene oxide	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	150 m (500 ft)	0.9 km (0.5 mi)	2.0 km (1.3 mi)		
1040 *	119P	Ethylene oxide with Nitrogen								
1045	124	Fluorine	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	100 m (300 ft)	0.5 km (0.3 mi)	2.3 km (1.4 mi)		
1045	124	Fluorine, compressed								
1048	125	Hydrogen bromide, anhydrous	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	200 m (600 ft)	1.2 km (0.8 mi)	3.9 km (2.4 mi)		
1050 *	125	Hydrogen chloride, anhydrous	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	60 m (200 ft)	0.3 km (0.2 mi)	1.3 km (0.8 mi)		
1051	117	AC (when used as a weapon)	60 m (200 ft)	0.3 km (0.2 mi)	1.0 km (0.6 mi)	1000 m (3000 ft)	3.7 km (2.3 mi)	8.4 km (5.3 mi)		

1051	117	Hydrocyanic acid, aqueous solutions, with more than 20% Hydrogen cyanide	60 m (200 ft)	0.2 km (0.1 mi)	0.6 km (0.4 mi)	400 m (1250 ft)	1.4 km (0.9 mi)	3.8 km (2.4 mi)
1051	117	Hydrogen cyanide, anhydrous, stabilized						
1051	117	Hydrogen cyanide, stabilized						
1052 *	125	Hydrogen fluoride, anhydrous	30 m (100 ft)	0.1 km (0.1 mi)	0.5 km (0.3 mi)	300 m (1000 ft)	1.5 km (0.9 mi)	3.2 km (2.0 mi)
1053	117	Hydrogen sulfide	30 m (100 ft)	0.1 km (0.1 mi)	0.4 km (0.3 mi)	300 m (1000 ft)	1.7 km (1.0 mi)	5.6 km (3.5 mi)
1053	117	Hydrogen sulphide						
1062	123	Methyl bromide	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.2 mi)	100 m (300 ft)	0.6 km (0.4 mi)	1.9 km (1.2 mi)
1064	117	Methyl mercaptan	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	150 m (500 ft)	1.0 km (0.7 mi)	3.2 km (2.0 mi)
1067	124	Dinitrogen tetroxide	30 m (100 ft)	0.1 km (0.1 mi)	0.4 km (0.2 mi)	300 m (1000 ft)	1.1 km (0.7 mi)	2.7 km (1.7 mi)
1067	124	Nitrogen dioxide						
1069	125	Nitrosyl chloride	30 m (100 ft)	0.2 km (0.2 mi)	1.1 km (0.7 mi)	600 m (2000 ft)	3.6 km (2.3 mi)	9.5 km (5.9 mi)
1071	119	Oil gas	60 m (200 ft)	0.2 km (0.1 mi)	0.2 km (0.1 mi)	100 m (300 ft)	0.4 km (0.2 mi)	0.5 km (0.3 mi)
1071	119	Oil gas, compressed						
1076	125	CG (when used as a weapon)	150 m (500 ft)	0.8 km (0.5 mi)	3.2 km (2.0 mi)	1000 m (3000 ft)	7.5 km (4.7 mi)	11.0+ km (7.0+ mi)
1076	125	Diphosgene	30 m (100 ft)	0.2 km (0.1 mi)	0.2 km (0.1 mi)	30 m (100 ft)	0.3 km (0.2 mi)	0.5 km (0.3 mi)
1076	125	DP (when used as a weapon)	30 m (100 ft)	0.2 km (0.1 mi)	0.7 km (0.4 mi)	200 m (600 ft)	1.0 km (0.7 mi)	2.4 km (1.5 mi)
1076	125	Phosgene	100 m (300 ft)	0.6 km (0.4 mi)	2.7 km (1.7 mi)	500 m (1500 ft)	3.1 km (1.9 mi)	10.8 km (6.7 mi)
1079 *	125	Sulfur dioxide	100 m (300 ft)	0.7 km (0.4 mi)	2.8 km (1.7 mi)	1000 m (3000 ft)	5.6 km (3.5 mi)	11.0+ km (7.0+ mi)
1079 *	125	Sulphur dioxide						
1082	119P	Trifluorochloroethylene, stabilized	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	60 m (200 ft)	0.4 km (0.3 mi)	0.9 km (0.6 mi)
1092	131P	Acrolein, stabilized	150 m (500 ft)	1.4 km (0.9 mi)	4.0 km (2.5 mi)	800 m (2500 ft)	9.3 km (5.8 mi)	11.0+ km (7.0+ mi)
1098	131	Allyl alcohol	30 m (100 ft)	0.1 km (0.1 mi)	0.1 km (0.1 mi)	60 m (200 ft)	0.3 km (0.2 mi)	0.5 km (0.3 mi)

"+" means distance can be larger in certain atmospheric conditions

* PLEASE ALSO CONSULT TABLE 3 FOR THIS MATERIAL

TABLE 1 - INITIAL ISOLATION AND PROTECTIVE ACTION DISTANCES

			SMALL SPILLS (From a small package or small leak from a large package)				LARGE SPILLS (From a large package or from many small packages)			
ID No.	Guide	NAME OF MATERIAL	ISOLATE First in all Directions		PROTECT Then persons Downwind during-		ISOLATE First in all Directions		PROTECT Then persons Downwind during-	
			Meters (Feet)	Kilometers (Miles)	DAY Kilometers (Miles)	NIGHT Kilometers (Miles)	Meters (Feet)	Kilometers (Miles)	DAY Kilometers (Miles)	NIGHT Kilometers (Miles)
1135	131	Ethylene chlorohydrin	30 m (100 ft)	0.1 km (0.1 mi)	0.1 km (0.1 mi)	0.1 km (0.1 mi)	60 m (200 ft)	0.3 km (0.2 mi)	0.4 km (0.3 mi)	
1143	131P	Crotonaldehyde	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	0.1 km (0.1 mi)	60 m (200 ft)	0.5 km (0.3 mi)	1.0 km (0.6 mi)	
1143	131P	Crotonaldehyde, stabilized	30 m (100 ft)	0.1 km (0.1 mi)			60 m (200 ft)	0.6 km (0.4 mi)	1.9 km (1.2 mi)	
1162	155	Dimethyldichlorosilane (when spilled in water)	30 m (100 ft)	0.2 km (0.1 mi)	0.5 km (0.4 mi)	0.2 km (0.2 mi)	100 m (300 ft)	1.1 km (0.7 mi)	2.2 km (1.4 mi)	
1163	131	1,1-Dimethylhydrazine	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	0.1 km (0.1 mi)	60 m (200 ft)	0.4 km (0.2 mi)	0.6 km (0.4 mi)	
1163	131	Dimethylhydrazine, unsymmetrical	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	0.2 km (0.2 mi)	60 m (200 ft)	0.7 km (0.5 mi)	2.2 km (1.4 mi)	
1182	155	Ethyl chloroformate	30 m (100 ft)	0.2 km (0.1 mi)	0.5 km (0.3 mi)	0.2 km (0.2 mi)	100 m (300 ft)	1.0 km (0.6 mi)	2.0 km (1.3 mi)	
1183	139	Ethyldichlorosilane (when spilled in water)	30 m (100 ft)	0.2 km (0.1 mi)	0.7 km (0.5 mi)	0.2 km (0.2 mi)	200 m (600 ft)	2.1 km (1.3 mi)	6.3 km (3.9 mi)	
1185	131P	Ethyleneimine, stabilized	30 m (100 ft)	0.2 km (0.1 mi)	0.6 km (0.4 mi)	0.2 km (0.2 mi)	150 m (500 ft)	1.1 km (0.7 mi)	2.3 km (1.4 mi)	
1196	155	Ethyltrichlorosilane (when spilled in water)	30 m (100 ft)	0.3 km (0.2 mi)	1.1 km (0.7 mi)	0.3 km (0.2 mi)	200 m (600 ft)	2.2 km (1.4 mi)	4.6 km (2.9 mi)	
1238	155	Methyl chloroformate	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	0.1 km (0.1 mi)	60 m (200 ft)	0.8 km (0.5 mi)	2.5 km (1.6 mi)	
1239	131	Methyl chloromethyl ether	30 m (100 ft)	0.3 km (0.2 mi)	0.6 km (0.4 mi)	0.3 km (0.2 mi)	100 m (300 ft)	1.4 km (0.9 mi)	2.3 km (1.4 mi)	
1242	139	Methyldichlorosilane (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	0.1 km (0.1 mi)	100 m (300 ft)	0.9 km (0.6 mi)	2.6 km (1.7 mi)	
1244	131	Methylhydrazine	30 m (100 ft)	0.3 km (0.2 mi)	0.6 km (0.4 mi)	0.3 km (0.2 mi)	100 m (300 ft)	0.9 km (0.6 mi)	2.6 km (1.7 mi)	
1250	155	Methyltrichlorosilane (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	0.1 km (0.1 mi)	100 m (300 ft)	0.9 km (0.6 mi)	2.6 km (1.7 mi)	

1251	131P	Methyl vinyl ketone, stabilized	100 m (300 ft)	0.3 km (0.2 mi)	0.8 km (0.5 mi)	800 m (2500 ft)	1.5 km (1.0 mi)	3.0 km (1.9 mi)
1259	131	Nickel carbonyl	100 m (300 ft)	1.4 km (0.9 mi)	5.4 km (3.4 mi)	1000 m (3000 ft)	11.0+ km (7.0+ mi)	11.0+ km (7.0+ mi)
1295	139	Trichlorosilane (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	60 m (200 ft)	0.7 km (0.4 mi)	2.2 km (1.4 mi)
1298	155	Trimethylchlorosilane (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	60 m (200 ft)	0.6 km (0.4 mi)	1.6 km (1.0 mi)
1305	155P	Vinyltrichlorosilane (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.2 mi)	60 m (200 ft)	0.6 km (0.4 mi)	2.0 km (1.3 mi)
1305	155P	Vinyltrichlorosilane, stabilized (when spilled in water)						
1340	139	Phosphorus pentasulfide, free from yellow and white Phosphorus (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	60 m (200 ft)	0.4 km (0.2 mi)	1.4 km (0.9 mi)
1340	139	Phosphorus pentasulphide, free from yellow and white Phosphorus (when spilled in water)						
1360	139	Calcium phosphide (when spilled in water)	30 m (100 ft)	0.2 km (0.1 mi)	0.7 km (0.4 mi)	300 m (1000 ft)	1.1 km (0.7 mi)	3.8 km (2.4 mi)
1380	135	Pentaborane	60 m (200 ft)	0.6 km (0.4 mi)	2.0 km (1.2 mi)	200 m (600 ft)	2.7 km (1.7 mi)	8.2 km (5.1 mi)
1384	135	Sodium dithionite (when spilled in water)	30 m (100 ft)	0.2 km (0.1 mi)	0.6 km (0.4 mi)	60 m (200 ft)	0.8 km (0.5 mi)	2.7 km (1.7 mi)
1384	135	Sodium hydrosulfite (when spilled in water)						
1384	135	Sodium hydrosulphite (when spilled in water)						
1397	139	Aluminum phosphide (when spilled in water)	60 m (200 ft)	0.2 km (0.2 mi)	0.9 km (0.6 mi)	500 m (1500 ft)	2.1 km (1.3 mi)	7.5 km (4.7 mi)

"+" means distance can be larger in certain atmospheric conditions

TABLE 1 - INITIAL ISOLATION AND PROTECTIVE ACTION DISTANCES

		SMALL SPILLS				LARGE SPILLS			
		(From a small package or small leak from a large package)		(From a large package or from many small packages)					
ID No.	Guide	NAME OF MATERIAL	First ISOLATE in all Directions Meters (Feet)	Then PROTECT persons Downwind during-		First ISOLATE in all Directions Meters (Feet)	Then PROTECT persons Downwind during-		
				DAY Kilometers (Miles)	NIGHT Kilometers (Miles)		DAY Kilometers (Miles)	NIGHT Kilometers (Miles)	
1419	139	Magnesium aluminum phosphide (when spilled in water)	60 m (200 ft)	0.2 km (0.1 mi)	0.9 km (0.5 mi)	500 m (1500 ft)	1.9 km (1.2 mi)	6.5 km (4.1 mi)	
1432	139	Sodium phosphide (when spilled in water)	30 m (100 ft)	0.2 km (0.1 mi)	0.6 km (0.4 mi)	400 m (1250 ft)	1.4 km (0.9 mi)	4.2 km (2.6 mi)	
1510	143	Tetranitromethane	30 m (100 ft)	0.2 km (0.2 mi)	0.4 km (0.2 mi)	60 m (200 ft)	0.5 km (0.4 mi)	1.0 km (0.6 mi)	
1541	155	Acetone cyanohydrin, stabilized (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.1 km (0.1 mi)	100 m (300 ft)	0.3 km (0.2 mi)	1.0 km (0.7 mi)	
1556	152	MD (when used as a weapon)	300 m (1000 ft)	1.6 km (1.0 mi)	4.3 km (2.7 mi)	1000 m (3000 ft)	11.0+ km (7.0+ mi)	11.0+ km (7.0+ mi)	
1556	152	Methyldichloroarsine	100 m (300 ft)	1.4 km (0.9 mi)	2.2 km (1.4 mi)	300 m (1000 ft)	3.8 km (2.4 mi)	6.9 km (4.3 mi)	
1556	152	PD (when used as a weapon)	60 m (200 ft)	0.4 km (0.3 mi)	0.4 km (0.3 mi)	300 m (1000 ft)	1.6 km (1.0 mi)	1.6 km (1.0 mi)	
1560	157	Arsenic chloride	30 m (100 ft)	0.2 km (0.1 mi)	0.3 km (0.2 mi)	100 m (300 ft)	1.0 km (0.6 mi)	1.6 km (1.0 mi)	
1560	157	Arsenic trichloride	30 m (100 ft)	0.2 km (0.1 mi)	0.3 km (0.2 mi)	100 m (300 ft)	1.0 km (0.6 mi)	1.6 km (1.0 mi)	
1569	131	Bromoacetone	30 m (100 ft)	0.4 km (0.3 mi)	1.2 km (0.8 mi)	150 m (500 ft)	1.9 km (1.2 mi)	3.6 km (2.3 mi)	
1580	154	Chloropicrin	30 m (100 ft)	0.4 km (0.3 mi)	1.0 km (0.6 mi)	150 m (500 ft)	1.6 km (1.0 mi)	3.1 km (1.9 mi)	
1581	123	Chloropicrin and Methyl bromide mixture	30 m (100 ft)	0.1 km (0.1 mi)	0.6 km (0.4 mi)	300 m (1000 ft)	2.1 km (1.3 mi)	5.9 km (3.7 mi)	
1581	123	Methyl bromide and Chloropicrin mixture							

1582	119	Chloropicrin and Methyl chloride mixture	30 m (100 ft)	0.1 km (0.1 mi)	0.4 km (0.3 mi)	60 m (200 ft)	0.4 km (0.2 mi)	1.7 km (1.1 mi)
1582	119	Methyl chloride and Chloropicrin mixture						
1583	154	Chloropicrin mixture, n.o.s.	30 m (100 ft)	0.4 km (0.3 mi)	1.0 km (0.6 mi)	150 m (500 ft)	1.6 km (1.0 mi)	3.1 km (1.9 mi)
1589	125	CK (when used as a weapon)	150 m (500 ft)	1.0 km (0.6 mi)	3.8 km (2.4 mi)	800 m (2500 ft)	5.7 km (3.6 mi)	11.0+ km (7.0+ mi)
1589	125	Cyanogen chloride, stabilized	100 m (300 ft)	0.5 km (0.3 mi)	2.2 km (1.4 mi)	400 m (1250 ft)	2.6 km (1.7 mi)	8.6 km (5.4 mi)
1595	156	Dimethyl sulfate	30 m (100 ft)	0.2 km (0.1 mi)	0.2 km (0.1 mi)	60 m (200 ft)	0.5 km (0.3 mi)	0.8 km (0.5 mi)
1595	156	Dimethyl sulphate						
1605	154	Ethylene dibromide	30 m (100 ft)	0.1 km (0.1 mi)	0.1 km (0.1 mi)	30 m (100 ft)	0.2 km (0.1 mi)	0.2 km (0.1 mi)
1612	123	Hexaethyl tetraphosphate and compressed gas mixture	100 m (300 ft)	0.8 km (0.5 mi)	2.7 km (1.7 mi)	400 m (1250 ft)	3.5 km (2.2 mi)	8.1 km (5.1 mi)
1613	154	Hydrocyanic acid, aqueous solution, with not more than 20% Hydrogen cyanide	60 m (200 ft)	0.2 km (0.1 mi)	0.2 km (0.1 mi)	150 m (500 ft)	0.5 km (0.3 mi)	1.3 km (0.8 mi)
1613	154	Hydrogen cyanide, aqueous solution, with not more than 20% Hydrogen cyanide						
1614	152	Hydrogen cyanide, stabilized (absorbed)	60 m (200 ft)	0.2 km (0.1 mi)	0.7 km (0.4 mi)	150 m (500 ft)	0.5 km (0.4 mi)	1.7 km (1.1 mi)
1647	151	Ethylene dibromide and Methyl bromide mixture, liquid	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.2 mi)	100 m (300 ft)	0.6 km (0.4 mi)	1.9 km (1.2 mi)
1647	151	Methyl bromide and Ethylene dibromide mixture, liquid						
1660	124	Nitric oxide	30 m (100 ft)	0.1 km (0.1 mi)	0.6 km (0.4 mi)	100 m (300 ft)	0.6 km (0.4 mi)	2.3 km (1.5 mi)
1660	124	Nitric oxide, compressed						
1670	157	Perchloromethyl mercaptan	30 m (100 ft)	0.2 km (0.2 mi)	0.4 km (0.2 mi)	100 m (300 ft)	0.7 km (0.5 mi)	1.3 km (0.8 mi)

"+" means distance can be larger in certain atmospheric conditions

TABLE 1 - INITIAL ISOLATION AND PROTECTIVE ACTION DISTANCES

		SMALL SPILLS				LARGE SPILLS			
		(From a small package or small leak from a large package)		Then		(From a large package or from many small packages)		Then	
ID No.	Guide	NAME OF MATERIAL	ISOLATE in all Directions Meters (Feet)	PROTECT persons Downwind during-		ISOLATE in all Directions Meters (Feet)	PROTECT persons Downwind during-		NIGHT Kilometers (Miles)
				DAY Kilometers (Miles)	NIGHT Kilometers (Miles)		DAY Kilometers (Miles)	NIGHT Kilometers (Miles)	
1680	157	Potassium cyanide (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	100 m (300 ft)	0.3 km (0.2 mi)	1.2 km (0.8 mi)	
1680	157	Potassium cyanide, solid (when spilled in water)							
1689	157	Sodium cyanide (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	100 m (300 ft)	0.4 km (0.2 mi)	1.4 km (0.9 mi)	
1689	157	Sodium cyanide, solid (when spilled in water)							
1694	159	CA (when used as a weapon)	30 m (100 ft)	0.1 km (0.1 mi)	0.4 km (0.3 mi)	100 m (300 ft)	0.5 km (0.4 mi)	2.6 km (1.6 mi)	
1695	131	Chloroacetone, stabilized	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	60 m (200 ft)	0.4 km (0.3 mi)	0.8 km (0.5 mi)	
1697	153	CN (when used as a weapon)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	60 m (200 ft)	0.3 km (0.2 mi)	1.2 km (0.8 mi)	
1698	154	Adamsite (when used as a weapon)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	60 m (200 ft)	0.3 km (0.2 mi)	1.4 km (0.9 mi)	
1698	154	DM (when used as a weapon)							
1699	151	DA (when used as a weapon)	30 m (100 ft)	0.2 km (0.1 mi)	0.8 km (0.5 mi)	300 m (1000 ft)	1.9 km (1.2 mi)	7.5 km (4.7 mi)	
1716	156	Acetyl bromide (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	60 m (200 ft)	0.5 km (0.3 mi)	1.3 km (0.8 mi)	
1717	155	Acetyl chloride (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	100 m (300 ft)	1.0 km (0.6 mi)	2.8 km (1.7 mi)	
1722	155	Allyl chloroformate	100 m (300 ft)	0.4 km (0.2 mi)	0.9 km (0.6 mi)	400 m (1250 ft)	1.5 km (1.0 mi)	3.0 km (1.9 mi)	
1722	155	Allyl chloroformate							

1724	155	Allyltrichlorosilane, stabilized (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.2 mi)	60 m (200 ft)	0.6 km (0.4 mi)	1.9 km (1.2 mi)
1725	137	Aluminum bromide, anhydrous (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.1 km (0.1 mi)	30 m (100 ft)	0.2 km (0.1 mi)	0.6 km (0.4 mi)
1726	137	Aluminum chloride, anhydrous (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	60 m (200 ft)	0.6 km (0.4 mi)	2.2 km (1.4 mi)
1728	155	Amyltrichlorosilane (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.2 mi)	60 m (200 ft)	0.6 km (0.4 mi)	1.9 km (1.2 mi)
1732	157	Antimony pentafluoride (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.5 km (0.3 mi)	150 m (500 ft)	1.2 km (0.7 mi)	4.2 km (2.6 mi)
1741	125	Boron trichloride (when spilled on land)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	100 m (300 ft)	0.6 km (0.4 mi)	1.4 km (0.9 mi)
1741	125	Boron trichloride (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.5 km (0.3 mi)	100 m (300 ft)	1.3 km (0.8 mi)	3.8 km (2.4 mi)
1744	154	Bromine	60 m (200 ft)	0.6 km (0.4 mi)	1.9 km (1.2 mi)	300 m (1000 ft)	2.8 km (1.8 mi)	6.5 km (4.0 mi)
1744	154	Bromine, solution						
1744	154	Bromine, solution (Inhalation Hazard Zone A)						
1744	154	Bromine, solution (Inhalation Hazard Zone B)	60 m (200 ft)	0.5 km (0.3 mi)	1.3 km (0.8 mi)	150 m (500 ft)	1.8 km (1.1 mi)	4.2 km (2.6 mi)
1745	144	Bromine pentafluoride (when spilled on land)	30 m (100 ft)	0.4 km (0.2 mi)	1.4 km (0.9 mi)	200 m (600 ft)	2.3 km (1.4 mi)	5.1 km (3.2 mi)
1745	144	Bromine pentafluoride (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.6 km (0.4 mi)	150 m (500 ft)	1.2 km (0.8 mi)	4.4 km (2.7 mi)
1746	144	Bromine trifluoride (when spilled on land)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	30 m (100 ft)	0.3 km (0.2 mi)	0.5 km (0.4 mi)
1746	144	Bromine trifluoride (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.5 km (0.3 mi)	100 m (300 ft)	1.1 km (0.7 mi)	4.1 km (2.5 mi)

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TABLE 1 - INITIAL ISOLATION AND PROTECTIVE ACTION DISTANCES

		SMALL SPILLS				LARGE SPILLS			
		(From a small package or small leak from a large package)		Then		(From a large package or from many small packages)		Then	
ID No.	Guide	NAME OF MATERIAL	ISOLATE in all Directions Meters (Feet)	PROTECT persons Downwind during-		ISOLATE in all Directions Meters (Feet)	PROTECT persons Downwind during-		NIGHT Kilometers (Miles)
				DAY Kilometers (Miles)	NIGHT Kilometers (Miles)		DAY Kilometers (Miles)	NIGHT Kilometers (Miles)	
1747	155	Butyltrichlorosilane (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.2 mi)	60 m (200 ft)	0.6 km (0.4 mi)	1.8 km (1.1 mi)	
1749	124	Chlorine trifluoride	60 m (200 ft)	0.3 km (0.2 mi)	1.2 km (0.8 mi)	300 m (1000 ft)	1.5 km (0.9 mi)	4.6 km (2.9 mi)	
1752	156	Chloroacetyl chloride (when spilled on land)	30 m (100 ft)	0.3 km (0.2 mi)	0.6 km (0.4 mi)	100 m (300 ft)	1.2 km (0.8 mi)	2.3 km (1.4 mi)	
1752	156	Chloroacetyl chloride (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.1 km (0.1 mi)	30 m (100 ft)	0.3 km (0.2 mi)	0.9 km (0.6 mi)	
1753	156	Chlorophenyltrichlorosilane (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.1 km (0.1 mi)	30 m (100 ft)	0.3 km (0.2 mi)	1.0 km (0.7 mi)	
1754	137	Chlorosulfonic acid (when spilled on land)	30 m (100 ft)	0.1 km (0.1 mi)	0.1 km (0.1 mi)	30 m (100 ft)	0.3 km (0.2 mi)	0.4 km (0.2 mi)	
1754	137	Chlorosulfonic acid (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	60 m (200 ft)	0.7 km (0.5 mi)	2.5 km (1.5 mi)	
1754	137	Chlorosulfonic acid and Sulfur trioxide mixture (when spilled on land)	100 m (300 ft)	0.4 km (0.2 mi)	0.9 km (0.5 mi)	400 m (1250 ft)	2.9 km (1.8 mi)	5.7 km (3.5 mi)	
1754	137	Chlorosulfonic acid and Sulfur trioxide mixture (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	60 m (200 ft)	0.7 km (0.5 mi)	2.5 km (1.5 mi)	
1754	137	Chlorosulphonic acid (when spilled on land)	30 m (100 ft)	0.1 km (0.1 mi)	0.1 km (0.1 mi)	30 m (100 ft)	0.3 km (0.2 mi)	0.4 km (0.2 mi)	

1754	137	Chlorosulphonic acid (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	60 m (200 ft)	0.7 km (0.5 mi)	2.5 km (1.5 mi)
1754	137	Chlorosulphonic acid and Sulphur trioxide mixture (when spilled on land)	100 m (300 ft)	0.4 km (0.2 mi)	0.9 km (0.5 mi)	400 m (1250 ft)	2.9 km (1.8 mi)	5.7 km (3.5 mi)
1754	137	Chlorosulphonic acid and Sulphur trioxide mixture (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	60 m (200 ft)	0.7 km (0.5 mi)	2.5 km (1.5 mi)
1754	137	Sulfur trioxide and Chlorosulfonic acid mixture (when spilled on land)	100 m (300 ft)	0.4 km (0.2 mi)	0.9 km (0.5 mi)	400 m (1250 ft)	2.9 km (1.8 mi)	5.7 km (3.5 mi)
1754	137	Sulfur trioxide and Chlorosulfonic acid mixture (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	60 m (200 ft)	0.7 km (0.5 mi)	2.5 km (1.5 mi)
1754	137	Sulphur trioxide and Chlorosulphonic acid mixture (when spilled on land)	100 m (300 ft)	0.4 km (0.2 mi)	0.9 km (0.5 mi)	400 m (1250 ft)	2.9 km (1.8 mi)	5.7 km (3.5 mi)
1754	137	Sulphur trioxide and Chlorosulphonic acid mixture (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	60 m (200 ft)	0.7 km (0.5 mi)	2.5 km (1.5 mi)
1758	137	Chromium oxychloride (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.1 km (0.1 mi)	30 m (100 ft)	0.2 km (0.2 mi)	0.8 km (0.5 mi)
1762	156	Cyclohexenyltrichlorosilane (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	30 m (100 ft)	0.4 km (0.3 mi)	1.4 km (0.9 mi)
1763	156	Cyclohexyltrichlorosilane (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	30 m (100 ft)	0.4 km (0.3 mi)	1.4 km (0.9 mi)

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TABLE 1 - INITIAL ISOLATION AND PROTECTIVE ACTION DISTANCES

			SMALL SPILLS (From a small package or small leak from a large package)				LARGE SPILLS (From a large package or from many small packages)			
ID No.	Guide	NAME OF MATERIAL	First ISOLATE in all Directions		Then PROTECT persons Downwind during-		First ISOLATE in all Directions		Then PROTECT persons Downwind during-	
			Meters (Feet)	Kilometers (Miles)	DAY	NIGHT	Meters (Feet)	Kilometers (Miles)	DAY	NIGHT
1765	156	Dichloroacetyl chloride (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.1 km (0.1 mi)		30 m (100 ft)	0.3 km (0.2 mi)	1.0 km (0.6 mi)	
1766	156	Dichlorophenyltrichlorosilane (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.2 mi)		60 m (200 ft)	0.6 km (0.4 mi)	2.1 km (1.3 mi)	
1767	155	Diethylchlorosilane (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.1 km (0.1 mi)		30 m (100 ft)	0.4 km (0.3 mi)	1.1 km (0.7 mi)	
1769	156	Diphenyldichlorosilane (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)		30 m (100 ft)	0.4 km (0.3 mi)	1.3 km (0.8 mi)	
1771	156	Dodecyltrichlorosilane (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)		60 m (200 ft)	0.5 km (0.3 mi)	1.4 km (0.9 mi)	
1777	137	Fluorosulfonic acid (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.1 km (0.1 mi)		30 m (100 ft)	0.2 km (0.2 mi)	0.8 km (0.5 mi)	
1777	137	Fluorosulphonic acid (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.1 km (0.1 mi)		30 m (100 ft)	0.2 km (0.2 mi)	0.8 km (0.5 mi)	
1781	156	Hexadecyltrichlorosilane (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.1 km (0.1 mi)		30 m (100 ft)	0.2 km (0.2 mi)	0.7 km (0.4 mi)	
1784	156	Hexyltrichlorosilane (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)		60 m (200 ft)	0.5 km (0.3 mi)	1.5 km (0.9 mi)	
1799	156	Nonyltrichlorosilane (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)		60 m (200 ft)	0.5 km (0.3 mi)	1.6 km (1.0 mi)	
1800	156	Octadecyltrichlorosilane (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)		60 m (200 ft)	0.5 km (0.3 mi)	1.5 km (1.0 mi)	

1801	156	Oxytrichlorosilane (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	60 m (200 ft)	0.5 km (0.3 mi)	1.6 km (1.0 mi)
1804	156	Phenyltrichlorosilane (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	60 m (200 ft)	0.5 km (0.3 mi)	1.5 km (1.0 mi)
1806	137	Phosphorus pentachloride (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.2 mi)	30 m (100 ft)	0.4 km (0.3 mi)	1.5 km (0.9 mi)
1808	137	Phosphorus tribromide (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.4 km (0.2 mi)	60 m (200 ft)	0.6 km (0.4 mi)	2.0 km (1.2 mi)
1809	137	Phosphorus trichloride (when spilled on land)	30 m (100 ft)	0.2 km (0.1 mi)	0.5 km (0.3 mi)	100 m (300 ft)	1.0 km (0.6 mi)	2.2 km (1.4 mi)
1809	137	Phosphorus trichloride (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	60 m (200 ft)	0.8 km (0.5 mi)	2.5 km (1.6 mi)
1810	137	Phosphorus oxychloride (when spilled on land)	30 m (100 ft)	0.3 km (0.2 mi)	0.7 km (0.4 mi)	100 m (300 ft)	1.2 km (0.7 mi)	2.2 km (1.4 mi)
1810	137	Phosphorus oxychloride (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	60 m (200 ft)	0.7 km (0.4 mi)	2.3 km (1.4 mi)
1815	132	Propionyl chloride (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.1 km (0.1 mi)	30 m (100 ft)	0.3 km (0.2 mi)	0.8 km (0.5 mi)
1816	155	Propyltrichlorosilane (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	60 m (200 ft)	0.6 km (0.4 mi)	2.0 km (1.3 mi)
1818	157	Silicon tetrachloride (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	100 m (300 ft)	0.9 km (0.6 mi)	2.8 km (1.7 mi)
1828	137	Sulfur chlorides (when spilled on land)	30 m (100 ft)	0.1 km (0.1 mi)	0.1 km (0.1 mi)	60 m (200 ft)	0.3 km (0.2 mi)	0.5 km (0.3 mi)
1828	137	Sulfur chlorides (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	30 m (100 ft)	0.4 km (0.2 mi)	1.2 km (0.8 mi)
1828	137	Sulphur chlorides (when spilled on land)	30 m (100 ft)	0.1 km (0.1 mi)	0.1 km (0.1 mi)	60 m (200 ft)	0.3 km (0.2 mi)	0.5 km (0.3 mi)

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ID No.	Guide	NAME OF MATERIAL	First ISOLATE in all Directions		Then PROTECT persons Downwind during-		First ISOLATE in all Directions		Then PROTECT persons Downwind during-	
			Meters (Feet)	Kilometers (Miles)	DAY Kilometers (Miles)	NIGHT Kilometers (Miles)	Meters (Feet)	DAY Kilometers (Miles)	NIGHT Kilometers (Miles)	
1828	137	Sulphur chlorides (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)		30 m (100 ft)	0.4 km (0.2 mi)	1.2 km (0.8 mi)	
1829	137	Sulfur trioxide, stabilized	100 m (300 ft)	0.4 km (0.2 mi)	0.9 km (0.5 mi)		400 m (1250 ft)	2.9 km (1.8 mi)	5.7 km (3.5 mi)	
1829	137	Sulphur trioxide, stabilized								
1831	137	Sulfuric acid, fuming	100 m (300 ft)	0.4 km (0.2 mi)	0.9 km (0.5 mi)		400 m (1250 ft)	2.9 km (1.8 mi)	5.7 km (3.5 mi)	
1831	137	Sulfuric acid, fuming, with not less than 30% free Sulfur trioxide								
1831	137	Sulphuric acid, fuming								
1831	137	Sulphuric acid, fuming, with not less than 30% free Sulphur trioxide								
1834	137	Sulfuryl chloride (when spilled on land)	30 m (100 ft)	0.2 km (0.1 mi)	0.5 km (0.4 mi)		100 m (300 ft)	0.9 km (0.6 mi)	2.0 km (1.3 mi)	
1834	137	Sulfuryl chloride (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)		60 m (200 ft)	0.5 km (0.3 mi)	1.8 km (1.1 mi)	
1834	137	Sulphuryl chloride (when spilled on land)	30 m (100 ft)	0.2 km (0.1 mi)	0.5 km (0.4 mi)		100 m (300 ft)	0.9 km (0.6 mi)	2.0 km (1.3 mi)	
1834	137	Sulphuryl chloride (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)		60 m (200 ft)	0.5 km (0.3 mi)	1.8 km (1.1 mi)	
1836	137	Thionyl chloride (when spilled on land)	30 m (100 ft)	0.2 km (0.2 mi)	0.7 km (0.5 mi)		100 m (300 ft)	0.9 km (0.6 mi)	1.9 km (1.2 mi)	

1836	137	Thionyl chloride (when spilled in water)	100 m (300 ft)	1.1 km (0.7 mi)	3.0 km (1.9 mi)	800 m (2500 ft)	9.9 km (6.2 mi)	11.0+ km (7.0+ mi)
1838	137	Titanium tetrachloride (when spilled on land)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	30 m (100 ft)	0.4 km (0.3 mi)	0.7 km (0.4 mi)
1838	137	Titanium tetrachloride (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	60 m (200 ft)	0.5 km (0.3 mi)	1.8 km (1.1 mi)
1859	125	Silicon tetrafluoride, compressed	30 m (100 ft)	0.2 km (0.1 mi)	0.8 km (0.5 mi)	100 m (300 ft)	0.6 km (0.4 mi)	2.5 km (1.6 mi)
1892	151	ED (when used as a weapon)	150 m (500 ft)	2.0 km (1.2 mi)	2.9 km (1.8 mi)	1000 m (3000 ft)	10.4 km (6.5 mi)	11.0+ km (7.0+ mi)
1892	151	Ethylchloroarsine	150 m (500 ft)	1.5 km (1.0 mi)	2.4 km (1.5 mi)	500 m (1500 ft)	5.2 km (3.3 mi)	10.2 km (6.1 mi)
1898	156	Acetyl iodide (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.2 mi)	60 m (200 ft)	0.5 km (0.3 mi)	1.1 km (0.7 mi)
1911	119	Diborane	60 m (200 ft)	0.3 km (0.2 mi)	1.0 km (0.7 mi)	200 m (600 ft)	1.3 km (0.8 mi)	3.9 km (2.5 mi)
1923	135	Calcium dithionite (when spilled in water)	30 m (100 ft)	0.2 km (0.1 mi)	0.7 km (0.4 mi)	60 m (200 ft)	0.8 km (0.5 mi)	2.8 km (1.7 mi)
1923	135	Calcium hydrosulfite (when spilled in water)						
1923	135	Calcium hydrosulphite (when spilled in water)						
1929	135	Potassium dithionite (when spilled in water)	30 m (100 ft)	0.2 km (0.1 mi)	0.6 km (0.4 mi)	60 m (200 ft)	0.7 km (0.4 mi)	2.5 km (1.5 mi)
1929	135	Potassium hydrosulfite (when spilled in water)						
1929	135	Potassium hydrosulphite (when spilled in water)						

"+" means distance can be larger in certain atmospheric conditions

TABLE 1 - INITIAL ISOLATION AND PROTECTIVE ACTION DISTANCES

		SMALL SPILLS				LARGE SPILLS			
		(From a small package or small leak from a large package)		(From a large package or from many small packages)					
ID No.	Guide	NAME OF MATERIAL	First Isolate in all Directions Meters (Feet)	Then Protect persons Downwind during-		First Isolate in all Directions Meters (Feet)	Then Protect persons Downwind during-		NIGHT Kilometers (Miles)
				DAY Kilometers (Miles)	NIGHT Kilometers (Miles)		DAY Kilometers (Miles)	NIGHT Kilometers (Miles)	
1931	171	Zinc dithionite (when spilled in water)	30 m (100 ft)	0.2 km (0.1 mi)	0.6 km (0.4 mi)	60 m (200 ft)	0.7 km (0.5 mi)	2.5 km (1.6 mi)	
1931	171	Zinc hydrosulfite (when spilled in water)							
1931	171	Zinc hydrosulphite (when spilled in water)							
1953	119	Compressed gas, flammable, poisonous, n.o.s. (Inhalation Hazard Zone A)	100 m (300 ft)	0.5 km (0.3 mi)	2.2 km (1.4 mi)	600 m (2000 ft)	2.6 km (1.7 mi)	8.6 km (5.4 mi)	
1953	119	Compressed gas, flammable, poisonous, n.o.s. (Inhalation Hazard Zone B)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	300 m (1000 ft)	1.3 km (0.8 mi)	3.5 km (2.2 mi)	
1953	119	Compressed gas, flammable, poisonous, n.o.s. (Inhalation Hazard Zone C)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	200 m (600 ft)	1.0 km (0.7 mi)	3.2 km (2.0 mi)	
1953	119	Compressed gas, flammable, poisonous, n.o.s. (Inhalation Hazard Zone D)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	200 m (600 ft)	0.8 km (0.5 mi)	2.0 km (1.3 mi)	
1953	119	Compressed gas, flammable; toxic, n.o.s. (Inhalation Hazard Zone A)	100 m (300 ft)	0.5 km (0.3 mi)	2.2 km (1.4 mi)	600 m (2000 ft)	2.6 km (1.7 mi)	8.6 km (5.4 mi)	
1953	119	Compressed gas, flammable; toxic, n.o.s. (Inhalation Hazard Zone B)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	300 m (1000 ft)	1.3 km (0.8 mi)	3.5 km (2.2 mi)	

1953	119	Compressed gas, flammable, toxic, n.o.s. (Inhalation Hazard Zone C)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	200 m (600 ft)	1.0 km (0.7 mi)	3.2 km (2.0 mi)
1953	119	Compressed gas, flammable, toxic, n.o.s. (Inhalation Hazard Zone D)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	200 m (600 ft)	0.8 km (0.5 mi)	2.0 km (1.3 mi)
1953	119	Compressed gas, poisonous, flammable, n.o.s.	100 m (300 ft)	0.5 km (0.3 mi)	2.2 km (1.4 mi)	600 m (2000 ft)	2.6 km (1.7 mi)	8.6 km (5.4 mi)
1953	119	Compressed gas, poisonous, flammable, n.o.s. (Inhalation Hazard Zone A)						
1953	119	Compressed gas, poisonous, flammable, n.o.s. (Inhalation Hazard Zone B)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	300 m (1000 ft)	1.3 km (0.8 mi)	3.5 km (2.2 mi)
1953	119	Compressed gas, poisonous, flammable, n.o.s. (Inhalation Hazard Zone C)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	200 m (600 ft)	1.0 km (0.7 mi)	3.2 km (2.0 mi)
1953	119	Compressed gas, poisonous, flammable, n.o.s. (Inhalation Hazard Zone D)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	200 m (600 ft)	0.8 km (0.5 mi)	2.0 km (1.3 mi)
1953	119	Compressed gas, toxic, flammable, n.o.s.	100 m (300 ft)	0.5 km (0.3 mi)	2.2 km (1.4 mi)	600 m (2000 ft)	2.6 km (1.7 mi)	8.6 km (5.4 mi)
1953	119	Compressed gas, toxic, flammable, n.o.s. (Inhalation Hazard Zone A)						
1953	119	Compressed gas, toxic, flammable, n.o.s. (Inhalation Hazard Zone B)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	300 m (1000 ft)	1.3 km (0.8 mi)	3.5 km (2.2 mi)
1953	119	Compressed gas, toxic, flammable, n.o.s. (Inhalation Hazard Zone C)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	200 m (600 ft)	1.0 km (0.7 mi)	3.2 km (2.0 mi)

"+" means distance can be larger in certain atmospheric conditions

TABLE 1 - INITIAL ISOLATION AND PROTECTIVE ACTION DISTANCES

SMALL SPILLS (From a small package or small leak from a large package)			LARGE SPILLS (From a large package or from many small packages)					
ID No.	Guide	NAME OF MATERIAL	First	Then		First	Then	
			ISOLATE in all Directions Meters (Feet)	PROTECT persons Downwind during- DAY Kilometers (Miles)	NIGHT Kilometers (Miles)	ISOLATE in all Directions Meters (Feet)	PROTECT persons Downwind during- DAY Kilometers (Miles)	NIGHT Kilometers (Miles)
1953	119	Compressed gas, toxic, flammable, n.o.s. (Inhalation Hazard Zone D)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	200 m (600 ft)	0.8 km (0.5 mi)	2.0 km (1.3 mi)
1955	123	Compressed gas, poisonous, n.o.s.	100 m (300 ft)	0.5 km (0.3 mi)	2.2 km (1.4 mi)	600 m (2000 ft)	3.5 km (2.2 mi)	9.4 km (5.9 mi)
1955	123	Compressed gas, poisonous, n.o.s. (Inhalation Hazard Zone A)						
1955	123	Compressed gas, poisonous, n.o.s. (Inhalation Hazard Zone B)	30 m (100 ft)	0.2 km (0.1 mi)	0.8 km (0.5 mi)	300 m (1000 ft)	1.5 km (0.9 mi)	4.6 km (2.9 mi)
1955	123	Compressed gas, poisonous, n.o.s. (Inhalation Hazard Zone C)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	150 m (500 ft)	0.9 km (0.6 mi)	2.8 km (1.7 mi)
1955	123	Compressed gas, poisonous, n.o.s. (Inhalation Hazard Zone D)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	150 m (500 ft)	0.8 km (0.5 mi)	2.0 km (1.3 mi)
1955	123	Compressed gas, toxic, n.o.s.	100 m (300 ft)	0.5 km (0.3 mi)	2.2 km (1.4 mi)	600 m (2000 ft)	3.5 km (2.2 mi)	9.4 km (5.9 mi)
1955	123	Compressed gas, toxic, n.o.s. (Inhalation Hazard Zone A)						
1955	123	Compressed gas, toxic, n.o.s. (Inhalation Hazard Zone B)	30 m (100 ft)	0.2 km (0.1 mi)	0.8 km (0.5 mi)	300 m (1000 ft)	1.5 km (0.9 mi)	4.6 km (2.9 mi)
1955	123	Compressed gas, toxic, n.o.s. (Inhalation Hazard Zone C)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	150 m (500 ft)	0.9 km (0.6 mi)	2.8 km (1.7 mi)

1955	123	Compressed gas, toxic, n.o.s. (Inhalation Hazard Zone D)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	150 m (500 ft)	0.8 km (0.5 mi)	2.0 km (1.3 mi)
1955	123	Organic phosphate compound mixed with compressed gas	100 m (300 ft)	0.9 km (0.6 mi)	2.6 km (1.6 mi)	500 m (1500 ft)	3.9 km (2.4 mi)	9.4 km (5.9 mi)
1955	123	Organic phosphate mixed with compressed gas						
1955	123	Organic phosphorus compound mixed with compressed gas						
1967	123	Insecticide gas, poisonous, n.o.s.	100 m (300 ft)	0.9 km (0.6 mi)	2.6 km (1.6 mi)	500 m (1500 ft)	3.9 km (2.4 mi)	9.4 km (5.9 mi)
1967	123	Insecticide gas, toxic, n.o.s.						
1967	123	Parathion and compressed gas mixture						
1975	124	Dinitrogen tetroxide and Nitric oxide mixture	30 m (100 ft)	0.1 km (0.1 mi)	0.6 km (0.4 mi)	100 m (300 ft)	0.6 km (0.4 mi)	2.3 km (1.5 mi)
1975	124	Nitric oxide and Dinitrogen tetroxide mixture						
1975	124	Nitric oxide and Nitrogen dioxide mixture						
1975	124	Nitric oxide and Nitrogen tetroxide mixture						
1975	124	Nitrogen dioxide and Nitric oxide mixture						
1975	124	Nitrogen tetroxide and Nitric oxide mixture						
1994	131	Iron pentacarbonyl	100 m (300 ft)	0.9 km (0.6 mi)	2.1 km (1.3 mi)	400 m (1250 ft)	4.8 km (3.0 mi)	8.3 km (5.2 mi)
2004	135	Magnesium diamide (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.5 km (0.3 mi)	100 m (300 ft)	0.7 km (0.5 mi)	2.4 km (1.5 mi)
2011	139	Magnesium phosphide (when spilled in water)	60 m (200 ft)	0.2 km (0.1 mi)	0.8 km (0.5 mi)	500 m (1500 ft)	1.8 km (1.1 mi)	6.0 km (3.8 mi)

"+" means distance can be larger in certain atmospheric conditions

TABLE 1 - INITIAL ISOLATION AND PROTECTIVE ACTION DISTANCES

		SMALL SPILLS				LARGE SPILLS			
		(From a small package or small leak from a large package)		Then		(From a large package or from many small packages)		Then	
ID No.	Guide	NAME OF MATERIAL	ISOLATE in all Directions Meters (Feet)	PROTECT persons Downwind during-		ISOLATE in all Directions Meters (Feet)	PROTECT persons Downwind during-		NIGHT Kilometers (Miles)
				DAY Kilometers (Miles)	NIGHT Kilometers (Miles)		DAY Kilometers (Miles)	NIGHT Kilometers (Miles)	
2012	139	Potassium phosphide (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.6 km (0.4 mi)	300 m (1000 ft)	1.2 km (0.8 mi)	4.0 km (2.5 mi)	
2013	139	Strontium phosphide (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.6 km (0.4 mi)	300 m (1000 ft)	1.2 km (0.7 mi)	3.8 km (2.4 mi)	
2032	157	Nitric acid, fuming	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	150 m (500 ft)	0.5 km (0.3 mi)	1.1 km (0.7 mi)	
2032	157	Nitric acid, red fuming	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	150 m (500 ft)	0.5 km (0.3 mi)	1.1 km (0.7 mi)	
2186 *	125	Hydrogen chloride, refrigerated liquid	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	300 m (1000 ft)	2.0 km (1.3 mi)	7.6 km (4.7 mi)	
2188	119	Arsine	150 m (500 ft)	1.0 km (0.6 mi)	4.0 km (2.5 mi)	1000 m (3000 ft)	5.8 km (3.6 mi)	11.0+ km (7.0+ mi)	
2188	119	SA (when used as a weapon)	300 m (1000 ft)	1.9 km (1.2 mi)	5.7 km (3.6 mi)	1000 m (3000 ft)	8.9 km (5.6 mi)	11.0+ km (7.0+ mi)	
2189	119	Dichlorosilane	30 m (100 ft)	0.1 km (0.1 mi)	0.4 km (0.2 mi)	200 m (600 ft)	1.2 km (0.8 mi)	2.9 km (1.8 mi)	
2190	124	Oxygen difluoride	200 m (600 ft)	0.4 km (0.3 mi)	2.1 km (1.3 mi)	1000 m (3000 ft)	2.2 km (1.4 mi)	8.6 km (5.4 mi)	
2190	124	Oxygen difluoride, compressed	200 m (600 ft)	0.4 km (0.3 mi)	2.1 km (1.3 mi)	1000 m (3000 ft)	2.2 km (1.4 mi)	8.6 km (5.4 mi)	
2191	123	Sulfuryl fluoride	30 m (100 ft)	0.1 km (0.1 mi)	0.5 km (0.3 mi)	300 m (1000 ft)	1.9 km (1.2 mi)	5.1 km (3.2 mi)	
2191	123	Sulphuryl fluoride	30 m (100 ft)	0.1 km (0.1 mi)	0.5 km (0.3 mi)	300 m (1000 ft)	1.9 km (1.2 mi)	5.1 km (3.2 mi)	
2192	119	Germane	150 m (500 ft)	0.8 km (0.5 mi)	3.2 km (2.0 mi)	800 m (2500 ft)	4.4 km (2.7 mi)	10.6 km (6.6 mi)	
2194	125	Selenium hexafluoride	200 m (600 ft)	1.1 km (0.7 mi)	3.7 km (2.3 mi)	800 m (2500 ft)	5.0 km (3.1 mi)	11.0+ km (7.0+ mi)	
2195	125	Tellurium hexafluoride	200 m (600 ft)	1.2 km (0.7 mi)	4.4 km (2.8 mi)	1000 m (3000 ft)	6.7 km (4.2 mi)	11.0+ km (7.0+ mi)	
2196	125	Tungsten hexafluoride	30 m (100 ft)	0.2 km (0.1 mi)	0.8 km (0.5 mi)	150 m (500 ft)	0.9 km (0.6 mi)	3.1 km (2.0 mi)	
2197	125	Hydrogen iodide, anhydrous	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	150 m (500 ft)	0.9 km (0.6 mi)	2.8 km (1.7 mi)	

2198	125	Phosphorus pentafluoride	30 m (100 ft)	0.2 km (0.1 mi)	0.8 km (0.5 mi)	150 m (500 ft)	0.9 km (0.5 mi)	3.3 km (2.0 mi)
2198	125	Phosphorus pentafluoride, compressed						
2199	119	Phosphine	60 m (200 ft)	0.2 km (0.2 mi)	1.0 km (0.7 mi)	400 m (1250 ft)	1.3 km (0.8 mi)	4.1 km (2.5 mi)
2202	117	Hydrogen selenide, anhydrous	200 m (600 ft)	1.1 km (0.7 mi)	4.9 km (3.1 mi)	1000 m (3000 ft)	8.5 km (5.3 mi)	11.0+ km (7.0+ mi)
2204	119	Carbonyl sulfide	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	300 m (1000 ft)	1.3 km (0.8 mi)	3.5 km (2.2 mi)
2204	119	Carbonyl sulphide						
2232	153	Chloroacetaldehyde	30 m (100 ft)	0.2 km (0.1 mi)	0.4 km (0.2 mi)	60 m (200 ft)	0.7 km (0.5 mi)	1.3 km (0.8 mi)
2232	153	2-Chloroethanal						
2308	157	Nitrosylsulfuric acid (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.4 km (0.3 mi)	300 m (1000 ft)	0.9 km (0.6 mi)	2.5 km (1.6 mi)
2308	157	Nitrosylsulfuric acid, liquid						
2308	157	(when spilled in water)						
2308	157	Nitrosylsulfuric acid, solid						
2308	157	(when spilled in water)						
2308	157	Nitrosylsulphuric acid						
2308	157	(when spilled in water)						
2308	157	Nitrosylsulphuric acid, liquid						
2308	157	(when spilled in water)						
2308	157	Nitrosylsulphuric acid, solid						
2308	157	(when spilled in water)						
2334	131	Allylamine	30 m (100 ft)	0.2 km (0.1 mi)	0.6 km (0.4 mi)	150 m (500 ft)	1.5 km (0.9 mi)	2.8 km (1.7 mi)
2337	131	Phenyl mercaptan	30 m (100 ft)	0.1 km (0.1 mi)	0.1 km (0.1 mi)	30 m (100 ft)	0.3 km (0.2 mi)	0.5 km (0.3 mi)
2353	132	Butyl chloride (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.1 km (0.1 mi)	30 m (100 ft)	0.4 km (0.2 mi)	1.0 km (0.6 mi)
2382	131	1,2-Dimethylhydrazine	30 m (100 ft)	0.2 km (0.1 mi)	0.4 km (0.2 mi)	60 m (200 ft)	0.8 km (0.5 mi)	1.5 km (1.0 mi)
2382	131	Dimethylhydrazine, symmetrical						

"+" means distance can be larger in certain atmospheric conditions

* PLEASE ALSO CONSULT TABLE 3 FOR THIS MATERIAL

TABLE 1 - INITIAL ISOLATION AND PROTECTIVE ACTION DISTANCES

		SMALL SPILLS				LARGE SPILLS			
		(From a small package or small leak from a large package)		Then		(From a large package or from many small packages)		Then	
ID No.	Guide	NAME OF MATERIAL	ISOLATE in all Directions Meters (Feet)	PROTECT persons Downwind during-		ISOLATE in all Directions Meters (Feet)	PROTECT persons Downwind during-		
				DAY Kilometers (Miles)	NIGHT Kilometers (Miles)		DAY Kilometers (Miles)	NIGHT Kilometers (Miles)	
2395	132	Isobutryl chloride (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.1 km (0.1 mi)	30 m (100 ft)	0.2 km (0.2 mi)	0.6 km (0.4 mi)	
2407	155	Isopropyl chloroformate	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.2 mi)	60 m (200 ft)	0.5 km (0.3 mi)	1.0 km (0.6 mi)	
2417	125	Carbonyl fluoride	100 m (300 ft)	0.6 km (0.4 mi)	2.3 km (1.4 mi)	600 m (2000 ft)	3.7 km (2.3 mi)	8.0 km (5.0 mi)	
2417	125	Carbonyl fluoride, compressed							
2418	125	Sulfur tetrafluoride	100 m (300 ft)	0.5 km (0.4 mi)	2.6 km (1.6 mi)	600 m (2000 ft)	3.5 km (2.2 mi)	9.4 km (5.9 mi)	
2418	125	Sulphur tetrafluoride							
2420	125	Hexafluoroacetone	60 m (200 ft)	0.3 km (0.2 mi)	1.4 km (0.9 mi)	1000 m (3000 ft)	7.6 km (4.7 mi)	11.0+ km (7.0+ mi)	
2421	124	Nitrogen trioxide	60 m (200 ft)	0.4 km (0.3 mi)	1.8 km (1.1 mi)	300 m (1000 ft)	1.9 km (1.2 mi)	6.7 km (4.2 mi)	
2434	156	Dibenzylchlorosilane (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.1 km (0.1 mi)	30 m (100 ft)	0.2 km (0.1 mi)	0.6 km (0.4 mi)	
2435	156	Ethylphenyldichlorosilane (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.1 km (0.1 mi)	30 m (100 ft)	0.4 km (0.2 mi)	1.1 km (0.7 mi)	
2437	156	Methylphenyldichlorosilane (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	30 m (100 ft)	0.4 km (0.3 mi)	1.4 km (0.9 mi)	
2438	132	Trimethylacetyl chloride	30 m (100 ft)	0.3 km (0.2 mi)	0.6 km (0.4 mi)	100 m (300 ft)	1.2 km (0.8 mi)	2.1 km (1.3 mi)	
2442	156	Trichloroacetyl chloride	30 m (100 ft)	0.2 km (0.1 mi)	0.3 km (0.2 mi)	60 m (200 ft)	0.6 km (0.4 mi)	1.2 km (0.8 mi)	
2474	157	Thiophosgene	60 m (200 ft)	0.7 km (0.4 mi)	2.0 km (1.2 mi)	300 m (1000 ft)	2.7 km (1.7 mi)	5.5 km (3.4 mi)	
2477	131	Methyl isothiocyanate	30 m (100 ft)	0.1 km (0.1 mi)	0.1 km (0.1 mi)	30 m (100 ft)	0.2 km (0.2 mi)	0.4 km (0.2 mi)	
2480	155	Methyl isocyanate	150 m (500 ft)	1.7 km (1.1 mi)	5.8 km (3.6 mi)	1000 m (3000 ft)	11.0+ km (7.0+ mi)	11.0+ km (7.0+ mi)	

TABLE 1 - INITIAL ISOLATION AND PROTECTIVE ACTION DISTANCES

		SMALL SPILLS				LARGE SPILLS			
		(From a small package or small leak from a large package)		(From a large package or from many small packages)					
ID No.	Guide	NAME OF MATERIAL	ISOLATE First in all Directions Meters (Feet)	PROTECT Then persons Downwind during-		ISOLATE First in all Directions Meters (Feet)	PROTECT Then persons Downwind during-		
				DAY Kilometers (Miles)	NIGHT Kilometers (Miles)		DAY Kilometers (Miles)	NIGHT Kilometers (Miles)	
2691	137	Phosphorus pentabromide (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	30 m (100 ft)	0.3 km (0.2 mi)	1.0 km (0.6 mi)	
2692	157	Boron tribromide (when spilled on land)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	30 m (100 ft)	0.3 km (0.2 mi)	0.7 km (0.4 mi)	
2692	157	Boron tribromide (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.4 km (0.3 mi)	60 m (200 ft)	0.8 km (0.5 mi)	2.5 km (1.6 mi)	
2740	155	n-Propyl chloroformate	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	60 m (200 ft)	0.6 km (0.4 mi)	1.1 km (0.7 mi)	
2742	155	sec-Butyl chloroformate	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	30 m (100 ft)	0.4 km (0.3 mi)	0.6 km (0.4 mi)	
2742	155	Isobutyl chloroformate	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	30 m (100 ft)	0.3 km (0.2 mi)	0.5 km (0.3 mi)	
2743	155	n-Butyl chloroformate	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	30 m (100 ft)	0.4 km (0.2 mi)	0.5 km (0.4 mi)	
2806	138	Lithium nitride (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.5 km (0.3 mi)	60 m (200 ft)	0.6 km (0.4 mi)	2.1 km (1.3 mi)	
2810	153	Buzz (when used as a weapon)	60 m (200 ft)	0.4 km (0.2 mi)	1.7 km (1.1 mi)	400 m (1250 ft)	2.2 km (1.4 mi)	8.1 km (5.0 mi)	
2810	153	BZ (when used as a weapon)							
2810	153	CS (when used as a weapon)	30 m (100 ft)	0.1 km (0.1 mi)	0.6 km (0.4 mi)	100 m (300 ft)	0.4 km (0.3 mi)	1.9 km (1.2 mi)	
2810	153	DC (when used as a weapon)	30 m (100 ft)	0.1 km (0.1 mi)	0.6 km (0.4 mi)	60 m (200 ft)	0.4 km (0.3 mi)	1.8 km (1.1 mi)	
2810	153	GA (when used as a weapon)	30 m (100 ft)	0.2 km (0.1 mi)	0.2 km (0.1 mi)	100 m (300 ft)	0.5 km (0.4 mi)	0.6 km (0.4 mi)	
2810	153	GB (when used as a weapon)	60 m (200 ft)	0.4 km (0.3 mi)	1.1 km (0.7 mi)	400 m (1250 ft)	2.1 km (1.3 mi)	4.9 km (3.0 mi)	
2810	153	GD (when used as a weapon)	60 m (200 ft)	0.4 km (0.3 mi)	0.7 km (0.5 mi)	300 m (1000 ft)	1.8 km (1.1 mi)	2.7 km (1.7 mi)	

2810	153	GF (when used as a weapon)	30 m (100 ft)	0.2 km (0.2 mi)	0.3 km (0.2 mi)	150 m (500 ft)	0.8 km (0.5 mi)	1.0 km (0.6 mi)
2810	153	H (when used as a weapon)	30 m (100 ft)	0.1 km (0.1 mi)	0.1 km (0.1 mi)	60 m (200 ft)	0.3 km (0.2 mi)	0.4 km (0.3 mi)
2810	153	HD (when used as a weapon)						
2810	153	HL (when used as a weapon)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	100 m (300 ft)	0.5 km (0.3 mi)	1.0 km (0.6 mi)
2810	153	HN-1 (when used as a weapon)	60 m (200 ft)	0.3 km (0.2 mi)	0.5 km (0.3 mi)	200 m (600 ft)	1.1 km (0.7 mi)	1.8 km (1.1 mi)
2810	153	HN-2 (when used as a weapon)	60 m (200 ft)	0.3 km (0.2 mi)	0.6 km (0.4 mi)	300 m (1000 ft)	1.3 km (0.8 mi)	2.1 km (1.3 mi)
2810	153	HN-3 (when used as a weapon)	30 m (100 ft)	0.1 km (0.1 mi)	0.1 km (0.1 mi)	60 m (200 ft)	0.3 km (0.2 mi)	0.3 km (0.2 mi)
2810	153	L (Lewisite) (when used as a weapon)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	100 m (300 ft)	0.5 km (0.3 mi)	1.0 km (0.6 mi)
2810	153	Lewisite (when used as a weapon)						
2810	153	Mustard (when used as a weapon)	30 m (100 ft)	0.1 km (0.1 mi)	0.1 km (0.1 mi)	60 m (200 ft)	0.3 km (0.2 mi)	0.4 km (0.3 mi)
2810	153	Mustard Lewisite (when used as a weapon)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	100 m (300 ft)	0.5 km (0.3 mi)	1.0 km (0.6 mi)
2810	153	Poisonous liquid, n.o.s.	60 m (200 ft)	0.4 km (0.3 mi)	1.3 km (0.8 mi)	200 m (600 ft)	2.3 km (1.4 mi)	5.1 km (3.2 mi)
2810	153	Poisonous liquid, n.o.s. (Inhalation Hazard Zone A)						
2810	153	Poisonous liquid, n.o.s. (Inhalation Hazard Zone B)	30 m (100 ft)	0.2 km (0.1 mi)	0.2 km (0.1 mi)	60 m (200 ft)	0.5 km (0.3 mi)	0.7 km (0.5 mi)
2810	153	Poisonous liquid, organic, n.o.s.	30 m (100 ft)	0.3 km (0.2 mi)	1.1 km (0.7 mi)	300 m (1000 ft)	1.8 km (1.1 mi)	4.5 km (2.8 mi)
2810	153	Poisonous liquid, organic, n.o.s. (Inhalation Hazard Zone A)						
2810	153	Poisonous liquid, organic, n.o.s. (Inhalation Hazard Zone B)	30 m (100 ft)	0.2 km (0.1 mi)	0.2 km (0.1 mi)	60 m (200 ft)	0.5 km (0.3 mi)	0.7 km (0.5 mi)

"+" means distance can be larger in certain atmospheric conditions

TABLE 1 - INITIAL ISOLATION AND PROTECTIVE ACTION DISTANCES

		SMALL SPILLS				LARGE SPILLS			
		(From a small package or small leak from a large package)		Then		(From a large package or from many small packages)		Then	
ID No.	Guide	NAME OF MATERIAL	ISOLATE in all Directions Meters (Feet)	PROTECT persons Downwind during- DAY Kilometers (Miles)	NIGHT Kilometers (Miles)	ISOLATE in all Directions Meters (Feet)	PROTECT persons Downwind during- DAY Kilometers (Miles)	NIGHT Kilometers (Miles)	
2810	153	Sarin (when used as a weapon)	60 m (200 ft)	0.4 km (0.3 mi)	1.1 km (0.7 mi)	400 m (1250 ft)	2.1 km (1.3 mi)	4.9 km (3.0 mi)	
2810	153	Soman (when used as a weapon)	60 m (200 ft)	0.4 km (0.3 mi)	0.7 km (0.5 mi)	300 m (1000 ft)	1.8 km (1.1 mi)	2.7 km (1.7 mi)	
2810	153	Tabun (when used as a weapon)	30 m (100 ft)	0.2 km (0.1 mi)	0.2 km (0.1 mi)	100 m (300 ft)	0.5 km (0.4 mi)	0.6 km (0.4 mi)	
2810	153	Thickened GD (when used as a weapon)	60 m (200 ft)	0.4 km (0.3 mi)	0.7 km (0.5 mi)	300 m (1000 ft)	1.8 km (1.1 mi)	2.7 km (1.7 mi)	
2810	153	Toxic liquid, n.o.s.	60 m (200 ft)	0.4 km (0.3 mi)	1.3 km (0.8 mi)	200 m (600 ft)	2.3 km (1.4 mi)	5.1 km (3.2 mi)	
2810	153	Toxic liquid, n.o.s. (Inhalation Hazard Zone A)							
2810	153	Toxic liquid, n.o.s. (Inhalation Hazard Zone B)	30 m (100 ft)	0.2 km (0.1 mi)	0.2 km (0.1 mi)	60 m (200 ft)	0.5 km (0.3 mi)	0.7 km (0.5 mi)	
2810	153	Toxic liquid, organic, n.o.s.	30 m (100 ft)	0.3 km (0.2 mi)	1.1 km (0.7 mi)	300 m (1000 ft)	1.8 km (1.1 mi)	4.5 km (2.8 mi)	
2810	153	Toxic liquid, organic, n.o.s. (Inhalation Hazard Zone A)							
2810	153	Toxic liquid, organic, n.o.s. (Inhalation Hazard Zone B)	30 m (100 ft)	0.2 km (0.1 mi)	0.2 km (0.1 mi)	60 m (200 ft)	0.5 km (0.3 mi)	0.7 km (0.5 mi)	
2810	153	VX (when used as a weapon)	30 m (100 ft)	0.1 km (0.1 mi)	0.1 km (0.1 mi)	60 m (200 ft)	0.4 km (0.2 mi)	0.3 km (0.2 mi)	
2811	154	CX (when used as a weapon)	60 m (200 ft)	0.2 km (0.2 mi)	1.1 km (0.7 mi)	200 m (600 ft)	1.2 km (0.7 mi)	5.1 km (3.2 mi)	
2826	155	Ethyl chloroformate	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	30 m (100 ft)	0.4 km (0.3 mi)	0.7 km (0.4 mi)	

2845	135	Ethyl phosphonous dichloride, anhydrous	30 m (100 ft)	0.3 km (0.2 mi)	0.8 km (0.5 mi)	150 m (500 ft)	1.5 km (0.9 mi)	2.8 km (1.7 mi)
2845	135	Methyl phosphonous dichloride	30 m (100 ft)	0.4 km (0.3 mi)	1.2 km (0.8 mi)	200 m (600 ft)	2.3 km (1.4 mi)	4.3 km (2.7 mi)
2901	124	Bromine chloride	60 m (200 ft)	0.3 km (0.2 mi)	1.1 km (0.7 mi)	400 m (1250 ft)	2.5 km (1.5 mi)	6.7 km (4.2 mi)
2927	154	Ethyl phosphonothioic dichloride, anhydrous	30 m (100 ft)	0.1 km (0.1 mi)	0.1 km (0.1 mi)	30 m (100 ft)	0.2 km (0.1 mi)	0.2 km (0.1 mi)
2927	154	Ethyl phosphorodichloridate	30 m (100 ft)	0.1 km (0.1 mi)	0.1 km (0.1 mi)	30 m (100 ft)	0.2 km (0.1 mi)	0.2 km (0.1 mi)
2927	154	Poisonous liquid, corrosive, n.o.s.	60 m (200 ft)	0.4 km (0.2 mi)	0.9 km (0.6 mi)	200 m (600 ft)	1.5 km (1.0 mi)	3.0 km (1.9 mi)
2927	154	Poisonous liquid, corrosive, n.o.s. (Inhalation Hazard Zone A)						
2927	154	Poisonous liquid, corrosive, n.o.s. (Inhalation Hazard Zone B)	30 m (100 ft)	0.2 km (0.1 mi)	0.2 km (0.1 mi)	30 m (100 ft)	0.4 km (0.3 mi)	0.7 km (0.4 mi)
2927	154	Poisonous liquid, corrosive, organic, n.o.s.	60 m (200 ft)	0.3 km (0.2 mi)	0.8 km (0.5 mi)	300 m (1000 ft)	1.5 km (1.0 mi)	3.0 km (1.9 mi)
2927	154	Poisonous liquid, corrosive, organic, n.o.s. (Inhalation Hazard Zone A)						
2927	154	Poisonous liquid, corrosive, organic, n.o.s. (Inhalation Hazard Zone B)	30 m (100 ft)	0.2 km (0.1 mi)	0.2 km (0.1 mi)	30 m (100 ft)	0.4 km (0.3 mi)	0.6 km (0.4 mi)
2927	154	Toxic liquid, corrosive, n.o.s.	60 m (200 ft)	0.4 km (0.2 mi)	0.9 km (0.6 mi)	200 m (600 ft)	1.5 km (1.0 mi)	3.0 km (1.9 mi)
2927	154	Toxic liquid, corrosive, n.o.s. (Inhalation Hazard Zone A)						
2927	154	Toxic liquid, corrosive, n.o.s. (Inhalation Hazard Zone B)	30 m (100 ft)	0.2 km (0.1 mi)	0.2 km (0.1 mi)	30 m (100 ft)	0.4 km (0.3 mi)	0.7 km (0.4 mi)

"+" means distance can be larger in certain atmospheric conditions

TABLE 1 - INITIAL ISOLATION AND PROTECTIVE ACTION DISTANCES

			SMALL SPILLS (From a small package or small leak from a large package)				LARGE SPILLS (From a large package or from many small packages)			
ID No.	Guide	NAME OF MATERIAL	First		Then		First		Then	
			ISOLATE in all Directions		PROTECT persons Downwind during-		ISOLATE in all Directions		PROTECT persons Downwind during-	
			Meters	(Feet)	DAY Kilometers (Miles)	NIGHT Kilometers (Miles)	Meters	(Feet)	DAY Kilometers (Miles)	NIGHT Kilometers (Miles)
2927	154	Toxic liquid, corrosive, organic, n.o.s.	60 m	(200 ft)	0.3 km (0.2 mi)	0.8 km (0.5 mi)	300 m	(1000 ft)	1.5 km (1.0 mi)	3.0 km (1.9 mi)
2927	154	Toxic liquid, corrosive, organic, n.o.s. (Inhalation Hazard Zone A)								
2927	154	Toxic liquid, corrosive, organic, n.o.s. (Inhalation Hazard Zone B)	30 m	(100 ft)	0.2 km (0.1 mi)	0.2 km (0.1 mi)	30 m	(100 ft)	0.4 km (0.3 mi)	0.6 km (0.4 mi)
2929	131	Poisonous liquid, flammable, n.o.s.	60 m	(200 ft)	0.8 km (0.5 mi)	1.7 km (1.1 mi)	300 m	(1000 ft)	4.0 km (2.5 mi)	6.5 km (4.1 mi)
2929	131	Poisonous liquid, flammable, n.o.s. (Inhalation Hazard Zone A)								
2929	131	Poisonous liquid, flammable, n.o.s. (Inhalation Hazard Zone B)	30 m	(100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	60 m	(200 ft)	0.5 km (0.3 mi)	0.7 km (0.5 mi)
2929	131	Poisonous liquid, flammable, organic, n.o.s.	30 m	(100 ft)	0.4 km (0.3 mi)	1.2 km (0.8 mi)	200 m	(600 ft)	2.2 km (1.4 mi)	4.6 km (2.9 mi)
2929	131	Poisonous liquid, flammable, organic, n.o.s. (Inhalation Hazard Zone A)								
2929	131	Poisonous liquid, flammable, organic, n.o.s. (Inhalation Hazard Zone B)	30 m	(100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	60 m	(200 ft)	0.5 km (0.3 mi)	0.7 km (0.5 mi)

TABLE 1 - INITIAL ISOLATION AND PROTECTIVE ACTION DISTANCES

SMALL SPILLS (From a small package or small leak from a large package)			LARGE SPILLS (From a large package or from many small packages)						
ID No.	Guide	NAME OF MATERIAL	First		Then		ISOLATE in all Directions Meters (Feet)	PROTECT persons Downwind during-	
			ISOLATE Meters (Feet)	DAY Kilometers (Miles)	DAY Kilometers (Miles)	NIGHT Kilometers (Miles)			
2985	155	Chlorosilanes, flammable, corrosive, n.o.s. (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	60 m (200 ft)	0.5 km (0.3 mi)	1.6 km (1.0 mi)	
2985	155	Chlorosilanes, n.o.s. (when spilled in water)							
2986	155	Chlorosilanes, corrosive, flammable, n.o.s. (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	60 m (200 ft)	0.5 km (0.3 mi)	1.6 km (1.0 mi)	
2986	155	Chlorosilanes, n.o.s. (when spilled in water)							
2987	156	Chlorosilanes, corrosive, n.o.s. (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	60 m (200 ft)	0.5 km (0.3 mi)	1.6 km (1.0 mi)	
2987	156	Chlorosilanes, n.o.s. (when spilled in water)							
2988	139	Chlorosilanes, n.o.s. (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	60 m (200 ft)	0.5 km (0.3 mi)	1.6 km (1.0 mi)	
2988	139	Chlorosilanes, water-reactive, flammable, corrosive, n.o.s. (when spilled in water)							
3023	131	2-Methyl-2-heptanethiol	30 m (100 ft)	0.2 km (0.1 mi)	0.2 km (0.2 mi)	60 m (200 ft)	0.5 km (0.3 mi)	0.9 km (0.5 mi)	
3023	131	tert-Octyl mercaptan							
3048	157	Aluminum phosphide pesticide (when spilled in water)	60 m (200 ft)	0.2 km (0.2 mi)	0.9 km (0.6 mi)	500 m (1500 ft)	2.1 km (1.3 mi)	7.4 km (4.6 mi)	

3049	138	Metal alkyl halides, water-reactive, n.o.s. (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	60 m (200 ft)	0.4 km (0.3 mi)	1.3 km (0.8 mi)	
3049	138	Metal aryl halides, water-reactive, n.o.s. (when spilled in water)							
3052	135	Aluminum alkyl halides (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	60 m (200 ft)	0.4 km (0.3 mi)	1.3 km (0.8 mi)	
3052	135	Aluminum alkyl halides, liquid (when spilled in water)							
3052	135	Aluminum alkyl halides, solid (when spilled in water)							
3057	125	Trifluoroacetyl chloride	30 m (100 ft)	0.2 km (0.1 mi)	1.0 km (0.6 mi)	800 m (2500 ft)	4.2 km (2.7 mi)	11.0+ km (7.0+ mi)	
3079	131P	Methacrylonitrile, stabilized	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	60 m (200 ft)	0.4 km (0.3 mi)	0.8 km (0.5 mi)	
3083	124	Perchloryl fluoride	30 m (100 ft)	0.1 km (0.1 mi)	0.6 km (0.4 mi)	400 m (1250 ft)	2.5 km (1.6 mi)	7.7 km (4.8 mi)	
3122	142	Poisonous liquid, oxidizing, n.o.s.	30 m (100 ft)	0.4 km (0.2 mi)	1.4 km (0.9 mi)	200 m (600 ft)	2.3 km (1.4 mi)	5.1 km (3.2 mi)	
3122	142	Poisonous liquid, oxidizing, n.o.s. (Inhalation Hazard Zone A)							
3122	142	Poisonous liquid, oxidizing, n.o.s. (Inhalation Hazard Zone B)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	60 m (200 ft)	0.5 km (0.4 mi)	1.0 km (0.6 mi)	
3122	142	Toxic liquid, oxidizing, n.o.s.	30 m (100 ft)	0.4 km (0.2 mi)	1.4 km (0.9 mi)	200 m (600 ft)	2.3 km (1.4 mi)	5.1 km (3.2 mi)	
3122	142	Toxic liquid, oxidizing, n.o.s. (Inhalation Hazard Zone A)							
3122	142	Toxic liquid, oxidizing, n.o.s. (Inhalation Hazard Zone B)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	60 m (200 ft)	0.5 km (0.4 mi)	1.0 km (0.6 mi)	

"+" means distance can be larger in certain atmospheric conditions

TABLE 1 - INITIAL ISOLATION AND PROTECTIVE ACTION DISTANCES

		SMALL SPILLS (From a small package or small leak from a large package) First Then ISOLATE PROTECT in all Directions persons Downwind during- Meters (Feet) Kilometers (Miles) Kilometers (Miles)				LARGE SPILLS (From a large package or from many small packages) First Then ISOLATE PROTECT in all Directions persons Downwind during- Meters (Feet) Kilometers (Miles) Kilometers (Miles)			
ID No.	Guide	NAME OF MATERIAL	Meters (Feet)	Kilometers (Miles)	DAY Kilometers (Miles)	NIGHT Kilometers (Miles)	Meters (Feet)	DAY Kilometers (Miles)	NIGHT Kilometers (Miles)
3123	139	Poisonous liquid, water-reactive, n.o.s.	60 m (200 ft)	0.4 km (0.3 mi)	1.3 km (0.8 mi)		200 m (600 ft)	2.3 km (1.4 mi)	5.1 km (3.2 mi)
3123	139	Poisonous liquid, water-reactive, n.o.s. (Inhalation Hazard Zone A)							
3123	139	Poisonous liquid, water-reactive, n.o.s. (Inhalation Hazard Zone B)	30 m (100 ft)	0.2 km (0.1 mi)	0.2 km (0.1 mi)		60 m (200 ft)	0.5 km (0.3 mi)	0.7 km (0.5 mi)
3123	139	Poisonous liquid, which in contact with water emits flammable gases, n.o.s.	60 m (200 ft)	0.4 km (0.3 mi)	1.3 km (0.8 mi)		200 m (600 ft)	2.3 km (1.4 mi)	5.1 km (3.2 mi)
3123	139	Poisonous liquid, which in contact with water emits flammable gases, n.o.s. (Inhalation Hazard Zone A)							
3123	139	Poisonous liquid, which in contact with water emits flammable gases, n.o.s. (Inhalation Hazard Zone B)	30 m (100 ft)	0.2 km (0.1 mi)	0.2 km (0.1 mi)		60 m (200 ft)	0.5 km (0.3 mi)	0.7 km (0.5 mi)
3123	139	Toxic liquid, water-reactive, n.o.s.	60 m (200 ft)	0.4 km (0.3 mi)	1.3 km (0.8 mi)		200 m (600 ft)	2.3 km (1.4 mi)	5.1 km (3.2 mi)
3123	139	Toxic liquid, water-reactive, n.o.s. (Inhalation Hazard Zone A)							

3123	139	Toxic liquid, water-reactive, n.o.s. (Inhalation Hazard Zone B)	30 m (100 ft)	0.2 km (0.1 mi)	0.2 km (0.1 mi)	60 m (200 ft)	0.5 km (0.3 mi)	0.7 km (0.5 mi)
3123	139	Toxic liquid, which in contact with water emits flammable gases, n.o.s.	60 m (200 ft)	0.4 km (0.3 mi)	1.3 km (0.8 mi)	200 m (600 ft)	2.3 km (1.4 mi)	5.1 km (3.2 mi)
3123	139	Toxic liquid, which in contact with water emits flammable gases, n.o.s. (Inhalation Hazard Zone A)						
3123	139	Toxic liquid, which in contact with water emits flammable gases, n.o.s. (Inhalation Hazard Zone B)	30 m (100 ft)	0.2 km (0.1 mi)	0.2 km (0.1 mi)	60 m (200 ft)	0.5 km (0.3 mi)	0.7 km (0.5 mi)
3160	119	Liquefied gas, poisonous, flammable, n.o.s.	100 m (300 ft)	0.5 km (0.3 mi)	2.2 km (1.4 mi)	600 m (2000 ft)	2.6 km (1.7 mi)	8.6 km (5.4 mi)
3160	119	Liquefied gas, poisonous, flammable, n.o.s. (Inhalation Hazard Zone A)						
3160	119	Liquefied gas, poisonous, flammable, n.o.s. (Inhalation Hazard Zone B)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	300 m (1000 ft)	1.3 km (0.8 mi)	3.5 km (2.2 mi)
3160	119	Liquefied gas, poisonous, flammable, n.o.s. (Inhalation Hazard Zone C)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	200 m (600 ft)	1.0 km (0.7 mi)	3.2 km (2.0 mi)
3160	119	Liquefied gas, poisonous, flammable, n.o.s. (Inhalation Hazard Zone D)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	200 m (600 ft)	0.8 km (0.5 mi)	2.0 km (1.3 mi)

"+" means distance can be larger in certain atmospheric conditions

TABLE 1 - INITIAL ISOLATION AND PROTECTIVE ACTION DISTANCES

			SMALL SPILLS (From a small package or small leak from a large package)				LARGE SPILLS (From a large package or from many small packages)			
ID No.	Guide	NAME OF MATERIAL	First		Then		ISOLATE in all Directions Meters (Feet)	ISOLATE in all Directions Meters (Feet)	Then	
			ISOLATE in all Directions Meters (Feet)	ISOLATE in all Directions Meters (Feet)	PROTECT persons Downwind during- DAY Kilometers (Miles)	PROTECT persons Downwind during- NIGHT Kilometers (Miles)				
3160	119	Liquefied gas, toxic, flammable, n.o.s.	100 m (300 ft)	0.5 km (0.3 mi)	2.2 km (1.4 mi)		600 m (2000 ft)	2.6 km (1.7 mi)	8.6 km (5.4 mi)	
3160	119	Liquefied gas, toxic, flammable, n.o.s. (Inhalation Hazard Zone A)								
3160	119	Liquefied gas, toxic, flammable, n.o.s. (Inhalation Hazard Zone B)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)		300 m (1000 ft)	1.3 km (0.8 mi)	3.5 km (2.2 mi)	
3160	119	Liquefied gas, toxic, flammable, n.o.s. (Inhalation Hazard Zone C)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)		200 m (600 ft)	1.0 km (0.7 mi)	3.2 km (2.0 mi)	
3160	119	Liquefied gas, toxic, flammable, n.o.s. (Inhalation Hazard Zone D)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)		200 m (600 ft)	0.8 km (0.5 mi)	2.0 km (1.3 mi)	
3162	123	Liquefied gas, poisonous, n.o.s.	100 m (300 ft)	0.5 km (0.3 mi)	2.2 km (1.4 mi)		600 m (2000 ft)	3.5 km (2.2 mi)	9.4 km (5.9 mi)	
3162	123	Liquefied gas, poisonous, n.o.s. (Inhalation Hazard Zone A)								
3162	123	Liquefied gas, poisonous, n.o.s. (Inhalation Hazard Zone B)	30 m (100 ft)	0.2 km (0.1 mi)	0.8 km (0.5 mi)		300 m (1000 ft)	1.5 km (0.9 mi)	4.6 km (2.9 mi)	
3162	123	Liquefied gas, poisonous, n.o.s. (Inhalation Hazard Zone C)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)		150 m (500 ft)	0.9 km (0.6 mi)	2.8 km (1.7 mi)	
3162	123	Liquefied gas, poisonous, n.o.s. (Inhalation Hazard Zone D)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)		150 m (500 ft)	0.8 km (0.5 mi)	2.0 km (1.3 mi)	

TABLE 1 - INITIAL ISOLATION AND PROTECTIVE ACTION DISTANCES

		SMALL SPILLS				LARGE SPILLS			
		(From a small package or small leak from a large package)		Then		(From a large package or from many small packages)		Then	
ID No.	Guide	NAME OF MATERIAL	ISOLATE in all Directions Meters (Feet)	DAY Kilometers (Miles)	NIGHT Kilometers (Miles)	ISOLATE in all Directions Meters (Feet)	DAY Kilometers (Miles)	NIGHT Kilometers (Miles)	PROTECT persons Downwind during- DAY Kilometers (Miles)
3278	151	Organophosphorus compound, liquid, poisonous, n.o.s.	30 m (100 ft)	0.4 km (0.3 mi)	1.2 km (0.8 mi)	200 m (600 ft)	2.3 km (1.4 mi)	4.3 km (2.7 mi)	
3278	151	Organophosphorus compound, liquid, toxic, n.o.s.							
3278	151	Organophosphorus compound, poisonous, liquid, n.o.s.							
3278	151	Organophosphorus compound, poisonous, n.o.s.							
3278	151	Organophosphorus compound, toxic, liquid, n.o.s.							
3278	151	Organophosphorus compound, toxic, n.o.s.							
3279	131	Organophosphorus compound, poisonous, flammable, n.o.s.	30 m (100 ft)	0.4 km (0.3 mi)	1.2 km (0.8 mi)	200 m (600 ft)	2.3 km (1.4 mi)	4.3 km (2.7 mi)	
3279	131	Organophosphorus compound, toxic, flammable, n.o.s.							
3280	151	Organoarsenic compound, liquid, n.o.s.	30 m (100 ft)	0.2 km (0.1 mi)	0.8 km (0.5 mi)	150 m (500 ft)	1.8 km (1.1 mi)	4.5 km (2.8 mi)	
3280	151	Organoarsenic compound, n.o.s.							
3281	151	Metal carbonyls, liquid, n.o.s.	100 m (300 ft)	1.4 km (0.9 mi)	5.4 km (3.4 mi)	1000 m (3000 ft)	11.0+ km (7.0+ mi)	11.0+ km (7.0+ mi)	
3281	151	Metal carbonyls, n.o.s.							

3287	151	Poisonous liquid, inorganic, n.o.s.	60 m (200 ft)	0.6 km (0.4 mi)	2.0 km (1.2 mi)	300 m (1000 ft)	2.8 km (1.8 mi)	6.5 km (4.0 mi)
3287	151	Poisonous liquid, inorganic, n.o.s. (Inhalation Hazard Zone A)	30 m (100 ft)	0.2 km (0.1 mi)	0.3 km (0.2 mi)	100 m (300 ft)	1.0 km (0.6 mi)	1.6 km (1.0 mi)
3287	151	Poisonous liquid, inorganic, n.o.s. (Inhalation Hazard Zone B)	60 m (200 ft)	0.6 km (0.4 mi)	2.0 km (1.2 mi)	300 m (1000 ft)	2.8 km (1.8 mi)	6.5 km (4.0 mi)
3287	151	Toxic liquid, inorganic, n.o.s. (Inhalation Hazard Zone A)	30 m (100 ft)	0.2 km (0.1 mi)	0.3 km (0.2 mi)	100 m (300 ft)	1.0 km (0.6 mi)	1.6 km (1.0 mi)
3289	154	Poisonous liquid, corrosive, inorganic, n.o.s.	30 m (100 ft)	0.4 km (0.2 mi)	1.4 km (0.9 mi)	200 m (600 ft)	2.3 km (1.4 mi)	5.1 km (3.2 mi)
3289	154	Poisonous liquid, corrosive, inorganic, n.o.s. (Inhalation Hazard Zone A)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	100 m (300 ft)	0.5 km (0.3 mi)	1.1 km (0.7 mi)
3289	154	Toxic liquid, corrosive, inorganic, n.o.s. (Inhalation Hazard Zone B)	30 m (100 ft)	0.4 km (0.2 mi)	1.4 km (0.9 mi)	200 m (600 ft)	2.3 km (1.4 mi)	5.1 km (3.2 mi)
3289	154	Toxic liquid, corrosive, inorganic, n.o.s. (Inhalation Hazard Zone A)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	100 m (300 ft)	0.5 km (0.3 mi)	1.1 km (0.7 mi)

"+" means distance can be larger in certain atmospheric conditions

TABLE 1 - INITIAL ISOLATION AND PROTECTIVE ACTION DISTANCES

		SMALL SPILLS				LARGE SPILLS			
		(From a small package or small leak from a large package)		Then		(From a large package or from many small packages)		Then	
ID No.	Guide	NAME OF MATERIAL	ISOLATE First in all Directions Meters (Feet)	PROTECT persons Downwind during-		ISOLATE First in all Directions Meters (Feet)	PROTECT persons Downwind during-		NIGHT Kilometers (Miles)
				DAY Kilometers (Miles)	NIGHT Kilometers (Miles)		DAY Kilometers (Miles)	NIGHT Kilometers (Miles)	
3294	131	Hydrogen cyanide, solution in alcohol, with not more than 45% Hydrogen cyanide	60 m (200 ft)	0.2 km (0.1 mi)	0.4 km (0.2 mi)	200 m (600 ft)	0.7 km (0.4 mi)	2.0 km (1.2 mi)	
3300	119P	Carbon dioxide and Ethylene oxide mixture, with more than 87% Ethylene oxide	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	150 m (500 ft)	0.9 km (0.5 mi)	2.0 km (1.3 mi)	
3300	119P	Ethylene oxide and Carbon dioxide mixture, with more than 87% Ethylene oxide							
3303	124	Compressed gas, poisonous, oxidizing, n.o.s.	60 m (200 ft)	0.4 km (0.3 mi)	2.1 km (1.3 mi)	600 m (2000 ft)	2.6 km (1.7 mi)	8.6 km (5.4 mi)	
3303	124	Compressed gas, poisonous, oxidizing, n.o.s. (Inhalation Hazard Zone A)							
3303	124	Compressed gas, poisonous, oxidizing, n.o.s. (Inhalation Hazard Zone B)	60 m (200 ft)	0.3 km (0.2 mi)	1.1 km (0.7 mi)	400 m (1250 ft)	2.5 km (1.5 mi)	6.7 km (4.2 mi)	
3303	124	Compressed gas, poisonous, oxidizing, n.o.s. (Inhalation Hazard Zone C)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	200 m (600 ft)	0.9 km (0.6 mi)	2.8 km (1.7 mi)	
3303	124	Compressed gas, poisonous, oxidizing, n.o.s. (Inhalation Hazard Zone D)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	200 m (600 ft)	0.7 km (0.4 mi)	2.0 km (1.3 mi)	

3303	124	Compressed gas, toxic, oxidizing, n.o.s.	60 m (200 ft)	0.4 km (0.3 mi)	2.1 km (1.3 mi)	600 m (2000 ft)	2.6 km (1.7 mi)	8.6 km (5.4 mi)	
3303	124	Compressed gas, toxic, oxidizing, n.o.s. (Inhalation Hazard Zone A)	60 m (200 ft)	0.3 km (0.2 mi)	1.1 km (0.7 mi)	400 m (1250 ft)	2.5 km (1.5 mi)	6.7 km (4.2 mi)	
3303	124	Compressed gas, toxic, oxidizing, n.o.s. (Inhalation Hazard Zone B)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	200 m (600 ft)	0.9 km (0.6 mi)	2.8 km (1.7 mi)	
3303	124	Compressed gas, toxic, oxidizing, n.o.s. (Inhalation Hazard Zone C)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	200 m (600 ft)	0.7 km (0.4 mi)	2.0 km (1.3 mi)	
3304	123	Compressed gas, poisonous, corrosive, n.o.s. (Inhalation Hazard Zone D)	100 m (300 ft)	0.5 km (0.4 mi)	2.6 km (1.6 mi)	600 m (2000 ft)	3.5 km (2.2 mi)	9.4 km (5.9 mi)	
3304	123	Compressed gas, poisonous, corrosive, n.o.s. (Inhalation Hazard Zone A)	60 m (200 ft)	0.3 km (0.2 mi)	1.2 km (0.8 mi)	300 m (1000 ft)	1.5 km (0.9 mi)	4.6 km (2.9 mi)	
3304	123	Compressed gas, poisonous, corrosive, n.o.s. (Inhalation Hazard Zone B)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	150 m (500 ft)	0.9 km (0.6 mi)	2.8 km (1.7 mi)	
3304	123	Compressed gas, poisonous, corrosive, n.o.s. (Inhalation Hazard Zone D)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	150 m (500 ft)	0.8 km (0.5 mi)	2.0 km (1.3 mi)	

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TABLE 1 - INITIAL ISOLATION AND PROTECTIVE ACTION DISTANCES

		SMALL SPILLS				LARGE SPILLS			
		(From a small package or small leak from a large package)		Then		(From a large package or from many small packages)		Then	
ID No.	Guide	NAME OF MATERIAL	ISOLATE in all Directions Meters (Feet)	DAY Kilometers (Miles)	NIGHT Kilometers (Miles)	ISOLATE in all Directions Meters (Feet)	DAY Kilometers (Miles)	NIGHT Kilometers (Miles)	
3304	123	Compressed gas, toxic, corrosive, n.o.s.	100 m (300 ft)	0.5 km (0.4 mi)	2.6 km (1.6 mi)	600 m (2000 ft)	3.5 km (2.2 mi)	9.4 km (5.9 mi)	
3304	123	Compressed gas, toxic, corrosive, n.o.s. (Inhalation Hazard Zone A)							
3304	123	Compressed gas, toxic, corrosive, n.o.s. (Inhalation Hazard Zone B)	60 m (200 ft)	0.3 km (0.2 mi)	1.2 km (0.8 mi)	300 m (1000 ft)	1.5 km (0.9 mi)	4.6 km (2.9 mi)	
3304	123	Compressed gas, toxic, corrosive, n.o.s. (Inhalation Hazard Zone C)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	150 m (500 ft)	0.9 km (0.6 mi)	2.8 km (1.7 mi)	
3304	123	Compressed gas, toxic, corrosive, n.o.s. (Inhalation Hazard Zone D)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	150 m (500 ft)	0.8 km (0.5 mi)	2.0 km (1.3 mi)	
3305	119	Compressed gas, poisonous, flammable, corrosive, n.o.s.	100 m (300 ft)	0.5 km (0.4 mi)	2.6 km (1.6 mi)	600 m (2000 ft)	3.5 km (2.2 mi)	9.4 km (5.9 mi)	
3305	119	Compressed gas, poisonous, flammable, corrosive, n.o.s. (Inhalation Hazard Zone A)							
3305	119	Compressed gas, poisonous, flammable, corrosive, n.o.s. (Inhalation Hazard Zone B)	60 m (200 ft)	0.3 km (0.2 mi)	1.2 km (0.8 mi)	300 m (1000 ft)	1.5 km (0.9 mi)	4.6 km (2.9 mi)	

3305	119	Compressed gas, poisonous, flammable, corrosive, n.o.s. (Inhalation Hazard Zone C)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	200 m (600 ft)	0.9 km (0.6 mi)	2.8 km (1.7 mi)
3305	119	Compressed gas, poisonous, flammable, corrosive, n.o.s. (Inhalation Hazard Zone D)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	200 m (600 ft)	0.8 km (0.5 mi)	2.0 km (1.3 mi)
3305	119	Compressed gas, toxic, flammable, corrosive, n.o.s. (Inhalation Hazard Zone A)	100 m (300 ft)	0.5 km (0.4 mi)	2.6 km (1.6 mi)	600 m (2000 ft)	3.5 km (2.2 mi)	9.4 km (5.9 mi)
3305	119	Compressed gas, toxic, flammable, corrosive, n.o.s. (Inhalation Hazard Zone B)	60 m (200 ft)	0.3 km (0.2 mi)	1.2 km (0.8 mi)	300 m (1000 ft)	1.5 km (0.9 mi)	4.6 km (2.9 mi)
3305	119	Compressed gas, toxic, flammable, corrosive, n.o.s. (Inhalation Hazard Zone C)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	200 m (600 ft)	0.9 km (0.6 mi)	2.8 km (1.7 mi)
3305	119	Compressed gas, toxic, flammable, corrosive, n.o.s. (Inhalation Hazard Zone D)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	200 m (600 ft)	0.8 km (0.5 mi)	2.0 km (1.3 mi)
3306	124	Compressed gas, poisonous, oxidizing, corrosive, n.o.s. (Inhalation Hazard Zone D)	100 m (300 ft)	0.5 km (0.4 mi)	2.6 km (1.6 mi)	600 m (2000 ft)	3.5 km (2.2 mi)	9.4 km (5.9 mi)
3306	124	Compressed gas, poisonous, oxidizing, corrosive, n.o.s. (Inhalation Hazard Zone A)	60 m (200 ft)	0.3 km (0.2 mi)	1.1 km (0.7 mi)	400 m (1250 ft)	2.5 km (1.5 mi)	6.7 km (4.2 mi)
3306	124	Compressed gas, poisonous, oxidizing, corrosive, n.o.s. (Inhalation Hazard Zone B)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	200 m (600 ft)	0.9 km (0.6 mi)	2.8 km (1.7 mi)

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TABLE 1 - INITIAL ISOLATION AND PROTECTIVE ACTION DISTANCES

		SMALL SPILLS				LARGE SPILLS			
		(From a small package or small leak from a large package)		Then		(From a large package or from many small packages)		Then	
ID No.	Guide	NAME OF MATERIAL	ISOLATE First in all Directions Meters (Feet)	PROTECT persons Downwind during-		ISOLATE First in all Directions Meters (Feet)	PROTECT persons Downwind during-		NIGHT Kilometers (Miles)
				DAY Kilometers (Miles)	NIGHT Kilometers (Miles)		DAY Kilometers (Miles)	NIGHT Kilometers (Miles)	
3306	124	Compressed gas, poisonous, oxidizing, corrosive, n.o.s. (Inhalation Hazard Zone D)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	200 m (600 ft)	0.8 km (0.5 mi)	2.0 km (1.3 mi)	
3306	124	Compressed gas, toxic, oxidizing, corrosive, n.o.s.	100 m (300 ft)	0.5 km (0.4 mi)	2.6 km (1.6 mi)	600 m (2000 ft)	3.5 km (2.2 mi)	9.4 km (5.9 mi)	
3306	124	Compressed gas, toxic, oxidizing, corrosive, n.o.s. (Inhalation Hazard Zone A)							
3306	124	Compressed gas, toxic, oxidizing, corrosive, n.o.s. (Inhalation Hazard Zone B)	60 m (200 ft)	0.3 km (0.2 mi)	1.1 km (0.7 mi)	400 m (1250 ft)	2.5 km (1.5 mi)	6.7 km (4.2 mi)	
3306	124	Compressed gas, toxic, oxidizing, corrosive, n.o.s. (Inhalation Hazard Zone C)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	200 m (600 ft)	0.9 km (0.6 mi)	2.8 km (1.7 mi)	
3306	124	Compressed gas, toxic, oxidizing, corrosive, n.o.s. (Inhalation Hazard Zone D)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	200 m (600 ft)	0.8 km (0.5 mi)	2.0 km (1.3 mi)	
3307	124	Liquefied gas, poisonous, oxidizing, n.o.s.	60 m (200 ft)	0.4 km (0.3 mi)	2.1 km (1.3 mi)	600 m (2000 ft)	2.6 km (1.7 mi)	8.6 km (5.4 mi)	
3307	124	Liquefied gas, poisonous, oxidizing, n.o.s. (Inhalation Hazard Zone A)							

3307	124	Liquefied gas, poisonous, oxidizing, n.o.s. (Inhalation Hazard Zone B)	60 m (200 ft)	0.3 km (0.2 mi)	1.1 km (0.7 mi)	400 m (1250 ft)	2.5 km (1.5 mi)	6.7 km (4.2 mi)
3307	124	Liquefied gas, poisonous, oxidizing, n.o.s. (Inhalation Hazard Zone C)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	200 m (600 ft)	0.9 km (0.6 mi)	2.8 km (1.7 mi)
3307	124	Liquefied gas, poisonous, oxidizing, n.o.s. (Inhalation Hazard Zone D)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	200 m (600 ft)	0.7 km (0.4 mi)	2.0 km (1.3 mi)
3307	124	Liquefied gas, toxic, oxidizing, n.o.s.	60 m (200 ft)	0.4 km (0.3 mi)	2.1 km (1.3 mi)	600 m (2000 ft)	2.6 km (1.7 mi)	8.6 km (5.4 mi)
3307	124	Liquefied gas, toxic, oxidizing, n.o.s. (Inhalation Hazard Zone A)	60 m (200 ft)	0.3 km (0.2 mi)	1.1 km (0.7 mi)	400 m (1250 ft)	2.5 km (1.5 mi)	6.7 km (4.2 mi)
3307	124	Liquefied gas, toxic, oxidizing, n.o.s. (Inhalation Hazard Zone B)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	200 m (600 ft)	0.9 km (0.6 mi)	2.8 km (1.7 mi)
3307	124	Liquefied gas, toxic, oxidizing, n.o.s. (Inhalation Hazard Zone C)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	200 m (600 ft)	0.7 km (0.4 mi)	2.0 km (1.3 mi)
3308	123	Liquefied gas, poisonous, corrosive, n.o.s.	100 m (300 ft)	0.5 km (0.4 mi)	2.6 km (1.6 mi)	600 m (2000 ft)	3.5 km (2.2 mi)	9.4 km (5.9 mi)
3308	123	Liquefied gas, poisonous, corrosive, n.o.s. (Inhalation Hazard Zone A)						

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		SMALL SPILLS				LARGE SPILLS			
		(From a small package or small leak from a large package)		(From a large package or from many small packages)					
ID No.	Guide	NAME OF MATERIAL	First ISOLATE in all Directions Meters (Feet)	Then PROTECT persons Downwind during-		First ISOLATE in all Directions Meters (Feet)	Then PROTECT persons Downwind during-		
				DAY Kilometers (Miles)	NIGHT Kilometers (Miles)		DAY Kilometers (Miles)	NIGHT Kilometers (Miles)	
3308	123	Liquefied gas, poisonous, corrosive, n.o.s. (Inhalation Hazard Zone B)	60 m (200 ft)	0.3 km (0.2 mi)	1.2 km (0.8 mi)	300 m (1000 ft)	1.5 km (0.9 mi)	4.6 km (2.9 mi)	
3308	123	Liquefied gas, poisonous, corrosive, n.o.s. (Inhalation Hazard Zone C)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	150 m (500 ft)	0.9 km (0.6 mi)	2.8 km (1.7 mi)	
3308	123	Liquefied gas, poisonous, corrosive, n.o.s. (Inhalation Hazard Zone D)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	150 m (500 ft)	0.8 km (0.5 mi)	2.0 km (1.3 mi)	
3308	123	Liquefied gas, toxic, corrosive, n.o.s. (Inhalation Hazard Zone A)	100 m (300 ft)	0.5 km (0.4 mi)	2.6 km (1.6 mi)	600 m (2000 ft)	3.5 km (2.2 mi)	9.4 km (5.9 mi)	
3308	123	Liquefied gas, toxic, corrosive, n.o.s. (Inhalation Hazard Zone B)	60 m (200 ft)	0.3 km (0.2 mi)	1.2 km (0.8 mi)	300 m (1000 ft)	1.5 km (0.9 mi)	4.6 km (2.9 mi)	
3308	123	Liquefied gas, toxic, corrosive, n.o.s. (Inhalation Hazard Zone C)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	150 m (500 ft)	0.9 km (0.6 mi)	2.8 km (1.7 mi)	
3308	123	Liquefied gas, toxic, corrosive, n.o.s. (Inhalation Hazard Zone D)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	150 m (500 ft)	0.8 km (0.5 mi)	2.0 km (1.3 mi)	

3309	119	Liquefied gas, poisonous, flammable, corrosive, n.o.s.	100 m (300 ft)	0.5 km (0.4 mi)	2.6 km (1.6 mi)	600 m (2000 ft)	3.5 km (2.2 mi)	9.4 km (5.9 mi)
3309	119	Liquefied gas, poisonous, flammable, corrosive, n.o.s. (Inhalation Hazard Zone A)	60 m (200 ft)	0.3 km (0.2 mi)	1.2 km (0.8 mi)	300 m (1000 ft)	1.5 km (0.9 mi)	4.6 km (2.9 mi)
3309	119	Liquefied gas, poisonous, flammable, corrosive, n.o.s. (Inhalation Hazard Zone B)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	200 m (600 ft)	0.9 km (0.6 mi)	2.8 km (1.7 mi)
3309	119	Liquefied gas, poisonous, flammable, corrosive, n.o.s. (Inhalation Hazard Zone C)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	200 m (600 ft)	0.8 km (0.5 mi)	2.0 km (1.3 mi)
3309	119	Liquefied gas, toxic, flammable, corrosive, n.o.s. (Inhalation Hazard Zone D)	100 m (300 ft)	0.5 km (0.4 mi)	2.6 km (1.6 mi)	600 m (2000 ft)	3.5 km (2.2 mi)	9.4 km (5.9 mi)
3309	119	Liquefied gas, toxic, flammable, corrosive, n.o.s. (Inhalation Hazard Zone A)	60 m (200 ft)	0.3 km (0.2 mi)	1.2 km (0.8 mi)	300 m (1000 ft)	1.5 km (0.9 mi)	4.6 km (2.9 mi)
3309	119	Liquefied gas, toxic, flammable, corrosive, n.o.s. (Inhalation Hazard Zone B)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	200 m (600 ft)	0.9 km (0.6 mi)	2.8 km (1.7 mi)
3309	119	Liquefied gas, toxic, flammable, corrosive, n.o.s. (Inhalation Hazard Zone C)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	200 m (600 ft)	0.8 km (0.5 mi)	2.0 km (1.3 mi)

"+" means distance can be larger in certain atmospheric conditions

TABLE 1 - INITIAL ISOLATION AND PROTECTIVE ACTION DISTANCES

			SMALL SPILLS				LARGE SPILLS			
			(From a small package or small leak from a large package)				(From a large package or from many small packages)			
ID No.	Guide	NAME OF MATERIAL	First		Then		First		Then	
			ISOLATE in all Directions	PROTECT persons Downwind during-	ISOLATE in all Directions	PROTECT persons Downwind during-	ISOLATE in all Directions	PROTECT persons Downwind during-		
			Meters (Feet)	DAY Kilometers (Miles)	NIGHT Kilometers (Miles)		Meters (Feet)	DAY Kilometers (Miles)	NIGHT Kilometers (Miles)	
3310	124	Liquefied gas, poisonous, oxidizing, corrosive, n.o.s.	100 m (300 ft)	0.5 km (0.4 mi)	2.6 km (1.6 mi)		600 m (2000 ft)	3.5 km (2.2 mi)	9.4 km (5.9 mi)	
3310	124	Liquefied gas, poisonous, oxidizing, corrosive, n.o.s. (Inhalation Hazard Zone A)								
3310	124	Liquefied gas, poisonous, oxidizing, corrosive, n.o.s. (Inhalation Hazard Zone B)	60 m (200 ft)	0.3 km (0.2 mi)	1.1 km (0.7 mi)		400 m (1250 ft)	2.5 km (1.5 mi)	6.7 km (4.2 mi)	
3310	124	Liquefied gas, poisonous, oxidizing, corrosive, n.o.s. (Inhalation Hazard Zone C)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)		200 m (600 ft)	0.9 km (0.6 mi)	2.8 km (1.7 mi)	
3310	124	Liquefied gas, poisonous, oxidizing, corrosive, n.o.s. (Inhalation Hazard Zone D)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)		200 m (600 ft)	0.8 km (0.5 mi)	2.0 km (1.3 mi)	
3310	124	Liquefied gas, toxic, oxidizing, corrosive, n.o.s.	100 m (300 ft)	0.5 km (0.4 mi)	2.6 km (1.6 mi)		600 m (2000 ft)	3.5 km (2.2 mi)	9.4 km (5.9 mi)	
3310	124	Liquefied gas, toxic, oxidizing, corrosive, n.o.s. (Inhalation Hazard Zone A)								
3310	124	Liquefied gas, toxic, oxidizing, corrosive, n.o.s. (Inhalation Hazard Zone B)	60 m (200 ft)	0.3 km (0.2 mi)	1.1 km (0.7 mi)		400 m (1250 ft)	2.5 km (1.5 mi)	6.7 km (4.2 mi)	

3310	124	Liquefied gas, toxic, oxidizing, corrosive, n.o.s. (Inhalation Hazard Zone C)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	200 m (600 ft)	0.9 km (0.6 mi)	2.8 km (1.7 mi)
3310	124	Liquefied gas, toxic, oxidizing, corrosive, n.o.s. (Inhalation Hazard Zone D)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	200 m (600 ft)	0.8 km (0.5 mi)	2.0 km (1.3 mi)
3318	125	Ammonia solution, with more than 50% Ammonia	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	150 m (500 ft)	0.8 km (0.5 mi)	2.0 km (1.3 mi)
3355	119	Insecticide gas, poisonous, flammable, n.o.s.	100 m (300 ft)	0.5 km (0.3 mi)	2.2 km (1.4 mi)	600 m (2000 ft)	2.6 km (1.7 mi)	8.6 km (5.4 mi)
3355	119	Insecticide gas, poisonous, flammable, n.o.s. (Inhalation Hazard Zone A)						
3355	119	Insecticide gas, poisonous, flammable, n.o.s. (Inhalation Hazard Zone B)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	300 m (1000 ft)	1.3 km (0.8 mi)	3.5 km (2.2 mi)
3355	119	Insecticide gas, poisonous, flammable, n.o.s. (Inhalation Hazard Zone C)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	200 m (600 ft)	1.0 km (0.7 mi)	3.2 km (2.0 mi)
3355	119	Insecticide gas, poisonous, flammable, n.o.s. (Inhalation Hazard Zone D)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	200 m (600 ft)	0.8 km (0.5 mi)	2.0 km (1.3 mi)
3355	119	Insecticide gas, toxic, flammable, n.o.s.	100 m (300 ft)	0.5 km (0.3 mi)	2.2 km (1.4 mi)	600 m (2000 ft)	2.6 km (1.7 mi)	8.6 km (5.4 mi)
3355	119	Insecticide gas, toxic, flammable, n.o.s. (Inhalation Hazard Zone A)						
3355	119	Insecticide gas, toxic, flammable, n.o.s. (Inhalation Hazard Zone B)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	300 m (1000 ft)	1.3 km (0.8 mi)	3.5 km (2.2 mi)

"+" means distance can be larger in certain atmospheric conditions

TABLE 1 - INITIAL ISOLATION AND PROTECTIVE ACTION DISTANCES

		SMALL SPILLS				LARGE SPILLS			
		(From a small package or small leak from a large package)		Then		(From a large package or from many small packages)		Then	
ID No.	Guide	NAME OF MATERIAL	ISOLATE in all Directions Meters (Feet)	DAY Kilometers (Miles)	NIGHT Kilometers (Miles)	ISOLATE in all Directions Meters (Feet)	DAY Kilometers (Miles)	NIGHT Kilometers (Miles)	
3355	119	Insecticide gas, toxic, flammable, n.o.s. (Inhalation Hazard Zone C)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	200 m (600 ft)	1.0 km (0.7 mi)	3.2 km (2.0 mi)	
3355	119	Insecticide gas, toxic, flammable, n.o.s. (Inhalation Hazard Zone D)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	200 m (600 ft)	0.8 km (0.5 mi)	2.0 km (1.3 mi)	
3361	156	Chlorosilanes, poisonous, corrosive, n.o.s. (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	60 m (200 ft)	0.5 km (0.3 mi)	1.6 km (1.0 mi)	
3361	156	Chlorosilanes, toxic, corrosive, n.o.s. (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	60 m (200 ft)	0.5 km (0.3 mi)	1.6 km (1.0 mi)	
3362	155	Chlorosilanes, poisonous, corrosive, flammable, n.o.s. (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	60 m (200 ft)	0.5 km (0.3 mi)	1.6 km (1.0 mi)	
3362	155	Chlorosilanes, toxic, corrosive, flammable, n.o.s. (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	60 m (200 ft)	0.5 km (0.3 mi)	1.6 km (1.0 mi)	
3381	151	Poisonous by inhalation liquid, n.o.s. (Inhalation Hazard Zone A)	60 m (200 ft)	0.4 km (0.3 mi)	1.3 km (0.8 mi)	200 m (600 ft)	2.3 km (1.4 mi)	5.1 km (3.2 mi)	
3381	151	Toxic by inhalation liquid, n.o.s. (Inhalation Hazard Zone A)	60 m (200 ft)	0.4 km (0.3 mi)	1.3 km (0.8 mi)	200 m (600 ft)	2.3 km (1.4 mi)	5.1 km (3.2 mi)	

3382	151	Poisonous by inhalation liquid, n.o.s. (Inhalation Hazard Zone B)	30 m (100 ft)	0.2 km (0.1 mi)	0.2 km (0.1 mi)	60 m (200 ft)	0.5 km (0.3 mi)	0.7 km (0.5 mi)
3382	151	Toxic by inhalation liquid, n.o.s. (Inhalation Hazard Zone B)						
3383	131	Poisonous by inhalation liquid, flammable, n.o.s. (Inhalation Hazard Zone A)	60 m (200 ft)	0.8 km (0.5 mi)	1.7 km (1.1 mi)	300 m (1000 ft)	4.0 km (2.5 mi)	6.5 km (4.1 mi)
3383	131	Toxic by inhalation liquid, flammable, n.o.s. (Inhalation Hazard Zone A)						
3384	131	Poisonous by inhalation liquid, flammable, n.o.s. (Inhalation Hazard Zone B)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	60 m (200 ft)	0.5 km (0.3 mi)	0.7 km (0.5 mi)
3384	131	Toxic by inhalation liquid, flammable, n.o.s. (Inhalation Hazard Zone B)						
3385	139	Poisonous by inhalation liquid, water-reactive, n.o.s. (Inhalation Hazard Zone A)	60 m (200 ft)	0.4 km (0.3 mi)	1.3 km (0.8 mi)	200 m (600 ft)	2.3 km (1.4 mi)	5.1 km (3.2 mi)
3385	139	Toxic by inhalation liquid, water-reactive, n.o.s. (Inhalation Hazard Zone A)						
3386	139	Poisonous by inhalation liquid, water-reactive, n.o.s. (Inhalation Hazard Zone B)	30 m (100 ft)	0.2 km (0.1 mi)	0.2 km (0.1 mi)	60 m (200 ft)	0.5 km (0.3 mi)	0.7 km (0.5 mi)
3386	139	Toxic by inhalation liquid, water-reactive, n.o.s. (Inhalation Hazard Zone B)						

"+" means distance can be larger in certain atmospheric conditions

TABLE 1 - INITIAL ISOLATION AND PROTECTIVE ACTION DISTANCES

			SMALL SPILLS (From a small package or small leak from a large package)				LARGE SPILLS (From a large package or from many small packages)			
ID No.	Guide	NAME OF MATERIAL	First		Then		First		Then	
			ISOLATE in all Directions Meters (Feet)	PROTECT persons Downwind during- DAY Kilometers (Miles)	NIGHT Kilometers (Miles)	ISOLATE in all Directions Meters (Feet)	PROTECT persons Downwind during- DAY Kilometers (Miles)	NIGHT Kilometers (Miles)		
3387	142	Poisonous by inhalation liquid, oxidizing, n.o.s. (Inhalation Hazard Zone A)	30 m (100 ft)	0.4 km (0.2 mi)	1.4 km (0.9 mi)		200 m (600 ft)	2.3 km (1.4 mi)	5.1 km (3.2 mi)	
3387	142	Toxic by inhalation liquid, oxidizing, n.o.s. (Inhalation Hazard Zone A)								
3388	142	Poisonous by inhalation liquid, oxidizing, n.o.s. (Inhalation Hazard Zone B)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)		60 m (200 ft)	0.5 km (0.4 mi)	1.0 km (0.6 mi)	
3388	142	Toxic by inhalation liquid, oxidizing, n.o.s. (Inhalation Hazard Zone B)								
3389	154	Poisonous by inhalation liquid, corrosive, n.o.s. (Inhalation Hazard Zone A)	60 m (200 ft)	0.4 km (0.2 mi)	0.9 km (0.6 mi)		200 m (600 ft)	1.5 km (1.0 mi)	3.0 km (1.9 mi)	
3389	154	Toxic by inhalation liquid, corrosive, n.o.s. (Inhalation Hazard Zone A)								
3390	154	Poisonous by inhalation liquid, corrosive, n.o.s. (Inhalation Hazard Zone B)	30 m (100 ft)	0.2 km (0.1 mi)	0.2 km (0.1 mi)		30 m (100 ft)	0.4 km (0.3 mi)	0.7 km (0.4 mi)	
3390	154	Toxic by inhalation liquid, corrosive, n.o.s. (Inhalation Hazard Zone B)								

3456	157	Nitrosylsulfuric acid, solid (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.5 km (0.3 mi)	200 m (600 ft)	0.7 km (0.5 mi)	2.5 km (1.6 mi)
3456	157	Nitrosylsulphuric acid, solid (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	60 m (200 ft)	0.4 km (0.3 mi)	1.3 km (0.8 mi)
3461	135	Aluminum alkyl halides, solid (when spilled in water)	60 m (200 ft)	0.8 km (0.5 mi)	1.7 km (1.1 mi)	300 m (1000 ft)	4.0 km (2.5 mi)	6.5 km (4.1 mi)
3488	131	Poisonous by inhalation liquid, flammable, corrosive, n.o.s. (Inhalation Hazard Zone A)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	60 m (200 ft)	0.5 km (0.3 mi)	0.7 km (0.5 mi)
3488	131	Toxic by inhalation liquid, flammable, corrosive, n.o.s. (Inhalation Hazard Zone A)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	60 m (200 ft)	0.5 km (0.3 mi)	0.7 km (0.5 mi)
3489	131	Poisonous by inhalation liquid, flammable, corrosive, n.o.s. (Inhalation Hazard Zone B)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	60 m (200 ft)	0.5 km (0.3 mi)	0.7 km (0.5 mi)
3489	131	Toxic by inhalation liquid, flammable, corrosive, n.o.s. (Inhalation Hazard Zone B)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	60 m (200 ft)	0.5 km (0.3 mi)	0.7 km (0.5 mi)
3490	155	Poisonous by inhalation liquid, water-reactive, flammable, n.o.s. (Inhalation Hazard Zone A)	60 m (200 ft)	0.8 km (0.5 mi)	1.7 km (1.1 mi)	300 m (1000 ft)	4.0 km (2.5 mi)	6.5 km (4.1 mi)
3490	155	Toxic by inhalation liquid, water- reactive, flammable, n.o.s. (Inhalation Hazard Zone A)	60 m (200 ft)	0.8 km (0.5 mi)	1.7 km (1.1 mi)	300 m (1000 ft)	4.0 km (2.5 mi)	6.5 km (4.1 mi)
3491	155	Poisonous by inhalation liquid, water-reactive, flammable, n.o.s. (Inhalation Hazard Zone B)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	60 m (200 ft)	0.5 km (0.3 mi)	0.7 km (0.5 mi)
3491	155	Toxic by inhalation liquid, water- reactive, flammable, n.o.s. (Inhalation Hazard Zone B)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	60 m (200 ft)	0.5 km (0.3 mi)	0.7 km (0.5 mi)

"+" means distance can be larger in certain atmospheric conditions

TABLE 1 - INITIAL ISOLATION AND PROTECTIVE ACTION DISTANCES

			SMALL SPILLS				LARGE SPILLS			
			(From a small package or small leak from a large package)		(From a large package or from many small packages)					
ID No.	Guide	NAME OF MATERIAL	First ISOLATE in all Directions		Then PROTECT persons Downwind during-		First ISOLATE in all Directions		Then PROTECT persons Downwind during-	
			Meters (Feet)	Kilometers (Miles)	DAY	NIGHT	Meters (Feet)	Kilometers (Miles)	DAY	NIGHT
3492	131	Poisonous by inhalation liquid, corrosive, flammable, n.o.s. (Inhalation Hazard Zone A)	60 m (200 ft)	0.8 km (0.5 mi)	1.7 km (1.1 mi)		300 m (1000 ft)	4.0 km (2.5 mi)	6.5 km (4.1 mi)	
3492	131	Toxic by inhalation liquid, corrosive, flammable, n.o.s. (Inhalation Hazard Zone A)								
3493	131	Poisonous by inhalation liquid, corrosive, flammable, n.o.s. (Inhalation Hazard Zone B)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)		60 m (200 ft)	0.5 km (0.3 mi)	0.7 km (0.5 mi)	
3493	131	Toxic by inhalation liquid, corrosive, flammable, n.o.s. (Inhalation Hazard Zone B)								
3494	131	Petroleum sour crude oil, flammable, toxic	30 m (100 ft)	0.2 km (0.1 mi)	0.2 km (0.1 mi)		60 m (200 ft)	0.5 km (0.3 mi)	0.7 km (0.5 mi)	
9191	143	Chlorine dioxide, hydrate, frozen (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.1 km (0.1 mi)		30 m (100 ft)	0.2 km (0.2 mi)	0.6 km (0.4 mi)	
9202	168	Carbon monoxide, refrigerated liquid (cryogenic liquid)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)		200 m (600 ft)	1.2 km (0.8 mi)	4.8 km (3.0 mi)	
9206	137	Methyl phosphonic dichloride	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)		30 m (100 ft)	0.4 km (0.3 mi)	0.6 km (0.4 mi)	
9263	156	Chloropivaloyl chloride	30 m (100 ft)	0.1 km (0.1 mi)	0.1 km (0.1 mi)		30 m (100 ft)	0.3 km (0.2 mi)	0.3 km (0.2 mi)	
9264	151	3,5-Dichloro-2,4,6-trifluoropyridine	30 m (100 ft)	0.1 km (0.1 mi)	0.1 km (0.1 mi)		30 m (100 ft)	0.3 km (0.2 mi)	0.3 km (0.2 mi)	

9269	132	Trimethoxysilane	30 m (100 ft)	0.2 km (0.1 mi)	0.5 km (0.3 mi)	100 m (300 ft)	0.9 km (0.6 mi)	1.9 km (1.2 mi)
See Next Page for Table of Water-Reactive Materials Which Produce Toxic Gases								

"+" means distance can be larger in certain atmospheric conditions

HOW TO USE TABLE 2 – WATER-REACTIVE MATERIALS WHICH PRODUCE TOXIC GASES

Table 2 lists materials which produce large amounts of Toxic Inhalation Hazard (TIH) gases when spilled in water and identifies the TIH gases produced.

The materials are listed by ID number order.

These Water Reactive materials are easily identified in Table 1 as their name is immediately followed by **(when spilled in water)**.

Note: Some Water Reactive materials are also TIH materials themselves (e.g., Bromine trifluoride (1746), Thionyl chloride (1836), etc.). In these instances, two entries are provided in **Table 1** for land-based and water-based spills. If the Water Reactive material **is NOT** a TIH and this material **is NOT** spilled in water, **Table 1** and **Table 2** do not apply and safety distances will be found within the appropriate orange guide.

TABLE2 - WATER-REACTIVE MATERIALS WHICH PRODUCE TOXIC GASES

**Materials Which Produce Large Amounts of Toxic-by-Inhalation (TIH) Gas(es)
When Spilled in Water**

ID No.	Guide No.	Name of Material	TIH Gas(es) Produced
1162	155	Dimethyldichlorosilane	HCl
1183	139	Ethyldichlorosilane	HCl
1196	155	Ethyltrichlorosilane	HCl
1242	139	Methyldichlorosilane	HCl
1250	155	Methyltrichlorosilane	HCl
1295	139	Trichlorosilane	HCl
1298	155	Trimethylchlorosilane	HCl
1305	155P	Vinyltrichlorosilane	HCl
1305	155P	Vinyltrichlorosilane, stabilized	HCl
1340	139	Phosphorus pentasulfide, free from yellow and white Phosphorus	H ₂ S
1340	139	Phosphorus pentasulphide, free from yellow and white Phosphorus	H ₂ S
1360	139	Calcium phosphide	PH ₃
1384	135	Sodium dithionite	H ₂ S SO ₂
1384	135	Sodium hydrosulfite	H ₂ S SO ₂
1384	135	Sodium hydrosulphite	H ₂ S SO ₂
1397	139	Aluminum phosphide	PH ₃
1419	139	Magnesium aluminum phosphide	PH ₃
1432	139	Sodium phosphide	PH ₃
1541	155	Acetone cyanohydrin, stabilized	HCN
1680	157	Potassium cyanide	HCN
1680	157	Potassium cyanide, solid	HCN
1689	157	Sodium cyanide	HCN
1689	157	Sodium cyanide, solid	HCN

Chemical Symbols for TIH Gases:

Br ₂	Bromine	HF	Hydrogen fluoride	NO ₂	Nitrogen dioxide
Cl ₂	Chlorine	HI	Hydrogen iodide	PH ₃	Phosphine
HBr	Hydrogen bromide	H ₂ S	Hydrogen sulfide	SO ₂	Sulfur dioxide
HCl	Hydrogen chloride	H ₂ S	Hydrogen sulphide	SO ₂	Sulphur dioxide
HCN	Hydrogen cyanide	NH ₃	Ammonia		

TABLE2 - WATER-REACTIVE MATERIALS WHICH PRODUCE TOXIC GASES

Materials Which Produce Large Amounts of Toxic-by-Inhalation (TIH) Gas(es) When Spilled in Water

ID No.	Guide No.	Name of Material	TIH Gas(es) Produced
1716	156	Acetyl bromide	HBr
1717	155	Acetyl chloride	HCl
1724	155	Allyltrichlorosilane, stabilized	HCl
1725	137	Aluminum bromide, anhydrous	HBr
1726	137	Aluminum chloride, anhydrous	HCl
1728	155	Amyltrichlorosilane	HCl
1732	157	Antimony pentafluoride	HF
1741	125	Boron trichloride	HCl
1745	144	Bromine pentafluoride	HF Br ₂
1746	144	Bromine trifluoride	HF Br ₂
1747	155	Butyltrichlorosilane	HCl
1752	156	Chloroacetyl chloride	HCl
1753	156	Chlorophenyltrichlorosilane	HCl
1754	137	Chlorosulfonic acid	HCl
1754	137	Chlorosulfonic acid and Sulfur trioxide mixture	HCl
1754	137	Chlorosulphonic acid	HCl
1754	137	Chlorosulphonic acid and Sulphur trioxide mixture	HCl
1754	137	Sulfur trioxide and Chlorosulfonic acid	HCl
1754	137	Sulphur trioxide and Chlorosulphonic acid	HCl
1758	137	Chromium oxychloride	HCl
1762	156	Cyclohexenyltrichlorosilane	HCl
1763	156	Cyclohexyltrichlorosilane	HCl
1765	156	Dichloroacetyl chloride	HCl

Chemical Symbols for TIH Gases:

Br ₂	Bromine	HF	Hydrogen fluoride	NO ₂	Nitrogen dioxide
Cl ₂	Chlorine	HI	Hydrogen iodide	PH ₃	Phosphine
HBr	Hydrogen bromide	H ₂ S	Hydrogen sulfide	SO ₂	Sulfur dioxide
HCl	Hydrogen chloride	H ₂ S	Hydrogen sulphide	SO ₂	Sulphur dioxide
HCN	Hydrogen cyanide	NH ₃	Ammonia		

TABLE2 - WATER-REACTIVE MATERIALS WHICH PRODUCE TOXIC GASES

**Materials Which Produce Large Amounts of Toxic-by-Inhalation (TIH) Gas(es)
When Spilled in Water**

ID No.	Guide No.	Name of Material	TIH Gas(es) Produced
1766	156	Dichlorophenyltrichlorosilane	HCl
1767	155	Diethyldichlorosilane	HCl
1769	156	Dipenyldichlorosilane	HCl
1771	156	Dodecyltrichlorosilane	HCl
1777	137	Fluorosulfonic acid	HF
1777	137	Fluorosulphonic acid	HF
1781	156	Hexadecyltrichlorosilane	HCl
1784	156	Hexyltrichlorosilane	HCl
1799	156	Nonyltrichlorosilane	HCl
1800	156	Octadecyltrichlorosilane	HCl
1801	156	Octyltrichlorosilane	HCl
1804	156	Phenyltrichlorosilane	HCl
1806	137	Phosphorus pentachloride	HCl
1808	137	Phosphorus tribromide	HBr
1809	137	Phosphorus trichloride	HCl
1810	137	Phosphorus oxychloride	HCl
1815	132	Propionyl chloride	HCl
1816	155	Propyltrichlorosilane	HCl
1818	157	Silicon tetrachloride	HCl
1828	137	Sulfur chlorides	HCl SO ₂ H ₂ S
1828	137	Sulphur chlorides	HCl SO ₂ H ₂ S
1834	137	Sulfuryl chloride	HCl
1834	137	Sulphuryl chloride	HCl

Chemical Symbols for TIH Gases:

Br ₂	Bromine	HF	Hydrogen fluoride	NO ₂	Nitrogen dioxide
Cl ₂	Chlorine	HI	Hydrogen iodide	PH ₃	Phosphine
HBr	Hydrogen bromide	H ₂ S	Hydrogen sulfide	SO ₂	Sulfur dioxide
HCl	Hydrogen chloride	H ₂ S	Hydrogen sulphide	SO ₂	Sulphur dioxide
HCN	Hydrogen cyanide	NH ₃	Ammonia		

TABLE2 - WATER-REACTIVE MATERIALS WHICH PRODUCE TOXIC GASES

Materials Which Produce Large Amounts of Toxic-by-Inhalation (TIH) Gas(es) When Spilled in Water

ID No.	Guide No.	Name of Material	TIH Gas(es) Produced
1836	137	Thionyl chloride	HCl SO ₂
1838	137	Titanium tetrachloride	HCl
1898	156	Acetyl iodide	HI
1923	135	Calcium dithionite	H ₂ S SO ₂
1923	135	Calcium hydrosulfite	H ₂ S SO ₂
1923	135	Calcium hydrosulphite	H ₂ S SO ₂
1929	135	Potassium dithionite	H ₂ S SO ₂
1929	135	Potassium hydrosulfite	H ₂ S SO ₂
1929	135	Potassium hydrosulphite	H ₂ S SO ₂
1931	171	Zinc dithionite	H ₂ S SO ₂
1931	171	Zinc hydrosulfite	H ₂ S SO ₂
1931	171	Zinc hydrosulphite	H ₂ S SO ₂
2004	135	Magnesium diamide	NH ₃
2011	139	Magnesium phosphide	PH ₃
2012	139	Potassium phosphide	PH ₃
2013	139	Strontium phosphide	PH ₃
2308	157	Nitrosylsulfuric acid	NO ₂
2308	157	Nitrosylsulfuric acid, liquid	NO ₂
2308	157	Nitrosylsulfuric acid, solid	NO ₂
2308	157	Nitrosylsulphuric acid	NO ₂
2308	157	Nitrosylsulphuric acid, liquid	NO ₂
2308	157	Nitrosylsulphuric acid, solid	NO ₂
2353	132	Butyl chloride	HCl

Chemical Symbols for TIH Gases:

Br ₂	Bromine	HF	Hydrogen fluoride	NO ₂	Nitrogen dioxide
Cl ₂	Chlorine	HI	Hydrogen iodide	PH ₃	Phosphine
HBr	Hydrogen bromide	H ₂ S	Hydrogen sulfide	SO ₂	Sulfur dioxide
HCl	Hydrogen chloride	H ₂ S	Hydrogen sulphide	SO ₂	Sulphur dioxide
HCN	Hydrogen cyanide	NH ₃	Ammonia		

TABLE2 - WATER-REACTIVE MATERIALS WHICH PRODUCE TOXIC GASES

**Materials Which Produce Large Amounts of Toxic-by-Inhalation (TIH) Gas(es)
When Spilled in Water**

ID No.	Guide No.	Name of Material	TIH Gas(es) Produced
2395	132	Isobutryl chloride	HCl
2434	156	Dibenzylchlorosilane	HCl
2435	156	Ethylphenylchlorosilane	HCl
2437	156	Methylphenylchlorosilane	HCl
2495	144	Iodine pentafluoride	HF
2691	137	Phosphorus pentabromide	HBr
2692	157	Boron tribromide	HBr
2806	138	Lithium nitride	NH ₃
2977	166	Radioactive material, Uranium hexafluoride, fissile	HF
2977	166	Uranium hexafluoride, fissile containing more than 1% Uranium-235	HF
2978	166	Radioactive material, Uranium hexafluoride	HF
2978	166	Uranium hexafluoride	HF
2978	166	Uranium hexafluoride, non fissile or fissile-excepted	HF
2985	155	Chlorosilanes, flammable, corrosive, n.o.s	HCl
2985	155	Chlorosilanes, n.o.s	HCl
2986	155	Chlorosilanes, corrosive, flammable, n.o.s	HCl
2986	155	Chlorosilanes, n.o.s	HCl
2987	156	Chlorosilanes, corrosive, n.o.s	HCl
2987	156	Chlorosilanes, n.o.s	HCl
2988	139	Chlorosilanes, n.o.s	HCl
2988	139	Chlorosilanes, water-reactive, flammable, corrosive, n.o.s.	HCl
3048	157	Aluminum phosphide pesticide	PH ₃

Chemical Symbols for TIH Gases:

Br ₂	Bromine	HF	Hydrogen fluoride	NO ₂	Nitrogen dioxide
Cl ₂	Chlorine	HI	Hydrogen iodide	PH ₃	Phosphine
HBr	Hydrogen bromide	H ₂ S	Hydrogen sulfide	SO ₂	Sulfur dioxide
HCl	Hydrogen chloride	H ₂ S	Hydrogen sulphide	SO ₂	Sulphur dioxide
HCN	Hydrogen cyanide	NH ₃	Ammonia		

TABLE2 - WATER-REACTIVE MATERIALS WHICH PRODUCE TOXIC GASES

Materials Which Produce Large Amounts of Toxic-by-Inhalation (TIH) Gas(es) When Spilled in Water

ID No.	Guide No.	Name of Material	TIH Gas(es) Produced
3049	138	Metal alkyl halides, water-reactive, n.o.s	HCl
3049	138	Metal aryl halides, water-reactive, n.o.s	HCl
3052	135	Aluminum alkyl halide	HCl
3052	135	Aluminum alkyl halides, liquid	HCl
3052	135	Aluminum alkyl halides, solid	HCl
3361	156	Chlorosilanes, poisonous, corrosive, n.o.s.	HCl
3361	156	Chlorosilanes, toxic, corrosive, n.o.s.	HCl
3362	155	Chlorosilanes, poisonous, corrosive, flammable, n.o.s.	HCl
3362	155	Chlorosilanes, toxic, corrosive, flammable, n.o.s.	HCl
3456	157	Nitrosylsulfuric acid, solid	NO ₂
3456	157	Nitrosylsulphuric acid, solid	NO ₂
3461	135	Aluminum alkyl halides, solid	HCl
9191	143	Chlorine dioxide, hydrate, frozen	Cl ₂

Chemical Symbols for TIH Gases:

Br ₂	Bromine	HF	Hydrogen fluoride	NO ₂	Nitrogen dioxide
Cl ₂	Chlorine	HI	Hydrogen iodide	PH ₃	Phosphine
HBr	Hydrogen bromide	H ₂ S	Hydrogen sulfide	SO ₂	Sulfur dioxide
HCl	Hydrogen chloride	H ₂ S	Hydrogen sulphide	SO ₂	Sulphur dioxide
HCN	Hydrogen cyanide	NH ₃	Ammonia		

NOTES

HOW TO USE TABLE 3 – INITIAL ISOLATION AND PROTECTIVE ACTION DISTANCES FOR DIFFERENT QUANTITIES OF SIX COMMON TIH GASES

Table 3 lists Toxic Inhalation Hazard materials that may be more commonly encountered.

The selected materials are:

- Ammonia (UN1005)
- Chlorine (UN1017)
- Ethylene oxide (UN1040)
- Hydrogen chloride (UN1050) and Hydrogen chloride, refrigerated liquid (UN2186)
- Hydrogen fluoride (UN1052)
- Sulfur dioxide/Sulphur dioxide (UN1079)

The materials are presented in alphabetical order and provide Initial Isolation and Protective Action Distances for large spills (more than 208 liters or 55 US gallons) involving different container types (therefore different volume capacities) for day time and night time situations and different wind speeds.

TABLE 3 - INITIAL ISOLATION AND PROTECTIVE ACTION DISTANCES FOR DIFFERENT QUANTITIES OF SIX COMMON TIH GASES

		UN1005 Ammonia, anhydrous: Large Spills							
TRANSPORT CONTAINER	First ISOLATE in all Directions	Then PROTECT persons Downwind during							
		DAY				NIGHT			
		Low wind (< 6 mph = < 10 km/h)		Moderate wind (6-12 mph = 10 - 20 km/h)		High wind (> 12 mph = > 20 km/h)		Low wind (< 6 mph = < 10 km/h)	
		Meters (Feet)	Km (Miles)	Km (Miles)	Km (Miles)	Km (Miles)	Km (Miles)	Km (Miles)	Km (Miles)
Rail tank car	300 (1000)	2.3 (1.4)	1.3 (0.8)	1.0 (0.6)	6.3 (3.9)	2.6 (1.6)	1.3 (0.8)		
Highway tank truck or trailer	125 (400)	1.0 (0.6)	0.5 (0.3)	0.3 (0.2)	2.6 (1.6)	0.8 (0.5)	0.5 (0.3)		
Agricultural nurse tank	60 (200)	0.6 (0.4)	0.3 (0.2)	0.3 (0.2)	1.5 (0.9)	0.5 (0.3)	0.3 (0.2)		
Multiple small cylinders	30 (100)	0.3 (0.2)	0.2 (0.1)	0.2 (0.1)	0.8 (0.5)	0.3 (0.2)	0.2 (0.1)		
		UN1017 Chlorine: Large Spills							
Rail tank car	1000 (3000)	11+ (7+)	9.0 (5.6)	5.5 (3.4)	11+ (7+)	11+ (7+)	7.1 (4.4)		
Highway tank truck or trailer	1000 (3000)	10.6 (6.6)	3.5 (2.2)	2.9 (1.8)	11+ (7+)	5.5 (3.4)	4.2 (2.6)		
Multiple ton cylinders	400 (1250)	4.0 (2.5)	1.5 (0.9)	1.1 (0.7)	7.9 (4.9)	2.7 (1.7)	1.5 (0.9)		
Multiple small cylinders or single ton cylinder	250 (800)	2.6 (1.6)	1.0 (0.6)	0.8 (0.5)	5.6 (3.5)	1.8 (1.1)	0.8 (0.5)		

"+" means distance can be larger in certain atmospheric conditions

UN1040 Ethylene oxide: Large Spills		Then PROTECT persons Downwind during							
TRANSPORT CONTAINER	First ISOLATE in all Directions	DAY				NIGHT			
		Meters (Feet)	Low wind (< 6 mph = < 10 km/h)	Moderate wind (6-12 mph = 10 - 20 km/h)	High wind (> 12 mph = > 20 km/h)	Low wind (< 6 mph = < 10 km/h)	Moderate wind (6-12 mph = 10 - 20 km/h)	High wind (> 12 mph = > 20 km/h)	
Rail tank car	200 (600)	1.4 (0.9)	0.8 (0.5)	0.6 (0.4)	4.0 (2.5)	1.4 (0.9)	0.8 (0.5)	0.5 (0.3)	
Highway tank truck or trailer	100 (300)	0.8 (0.5)	0.5 (0.3)	0.3 (0.2)	2.1 (1.3)	0.6 (0.4)	0.5 (0.3)		
Multiple small cylinders or single ton cylinder	30 (100)	0.3 (0.2)	0.2 (0.1)	0.2 (0.1)	0.8 (0.5)	0.3 (0.2)	0.2 (0.1)		
UN1050 Hydrogen chloride: Large Spills UN2186 Hydrogen chloride, refrigerated liquid: Large Spills									
Rail tank car	600 (2000)	6.1 (3.8)	2.3 (1.4)	1.8 (1.1)	11+ (7+)	4.0 (2.5)	2.6 (1.6)		
Highway tank truck or trailer	300 (1000)	3.1 (1.9)	1.1 (0.7)	0.8 (0.5)	7.4 (4.6)	2.1 (1.3)	1.0 (0.6)		
Multiple ton cylinders	60 (200)	0.6 (0.4)	0.3 (0.2)	0.2 (0.1)	1.8 (1.1)	0.3 (0.2)	0.2 (0.1)		
Multiple small cylinders or single ton cylinder	45 (150)	0.5 (0.3)	0.2 (0.1)	0.2 (0.1)	1.5 (0.9)	0.3 (0.2)	0.2 (0.1)		

UN1052 Hydrogen fluoride: Large Spills									
TRANSPORT CONTAINER	First ISOLATE in all Directions	Then PROTECT persons Downwind during							
		DAY				NIGHT			
		Low wind (< 6 mph = < 10 km/h)	Moderate wind (6-12 mph = 10 - 20 km/h)	High wind (> 12 mph = > 20 km/h)	Low wind (< 6 mph = < 10 km/h)	Moderate wind (6-12 mph = 10 - 20 km/h)	High wind (> 12 mph = > 20 km/h)		
		Km (Miles)	Km (Miles)	Km (Miles)	Km (Miles)	Km (Miles)	Km (Miles)		
Rail tank car	400 (1250)	3.2 (2.0)	1.9 (1.2)	1.6 (1.0)	7.9 (4.9)	3.1 (1.9)	1.9 (1.2)		
Highway tank truck or trailer	210 (700)	1.9 (1.2)	1.0 (0.6)	0.8 (0.5)	3.9 (2.4)	1.6 (1.0)	1.0 (0.6)		
Multiple small cylinders or single ton cylinder	100 (300)	0.8 (0.5)	0.3 (0.2)	0.3 (0.2)	1.6 (1.0)	0.5 (0.3)	0.3 (0.2)		
UN1079 Sulfur dioxide/Sulphur dioxide: Large Spills									
Rail tank car	1000 (3000)	11+ (7+)	11+ (7+)	7.6 (4.7)	11+ (7+)	11+ (7+)	10.8 (6.7)		
Highway tank truck or trailer	1000 (3000)	11+ (7+)	7.6 (4.7)	5.1 (3.2)	11+ (7+)	10 (6.2)	6.1 (3.8)		
Multiple ton cylinders	600 (2000)	7.1 (4.4)	2.7 (1.7)	1.9 (1.2)	10.5 (6.5)	4.7 (2.9)	2.9 (1.8)		
Multiple small cylinders or single ton cylinder	300 (1000)	5.3 (3.3)	1.6 (1.0)	1.1 (0.7)	7.9 (4.9)	2.7 (1.7)	1.5 (0.9)		

"+" means distance can be larger in certain atmospheric conditions

Appendix D

Situation / Response Checklist

Please ensure you note the following details:

Location of incident,

Time and date of the incident,

Nature of the incident,

Cause of the incident (according to Driver)

Likely cause of the incident (according to prime contractor)

Nature dangerous goods being transported when the incident occurred, including:

Dangerous Goods classification

Quantity of materials being transported

Measures taken to control any leak, spill or accidental escape of dangerous goods and any fire or explosion arising out of the incident,

Measures taken after the incident in relation to the dangerous goods involved in the incident.