

GUIDELINES FOR MAJOR HAZARD FACILITIES



B - NOTIFICATION AND CLASSIFICATION

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(i) Sections of Act Relevant to Guideline

Dangerous Goods Safety Management Act 2001

PART 4—MAJOR HAZARD FACILITIES

Division 1—Classification of facilities as major hazard facilities

31 Meaning of “major hazard facility” and “possible major hazard facility”

- (1) A “major hazard facility” is a facility that is classified by the chief executive under this division as a major hazard facility.
- (2) A “possible major hazard facility” means either of the following facilities, other than a facility under a declaration under section 32(5)—
- (a) a facility where a hazardous material is stored or handled if the quantity of the material is more than the quantity prescribed under a regulation;
 - (b) a facility that the occupier of the facility intends to use for the storage or handling of a hazardous material if the quantity of the material that is likely to be stored or handled is more than the quantity prescribed under a regulation.

32 Chief executive may classify facility as major hazard facility

- (1) The chief executive may, after consultation with the occupier of a facility, by gazette notice, make a decision under section 33 classifying the facility as a major hazard facility.
- (2) The gazette notice must—
- (1) include a description of the area occupied by the major hazard facility; and
 - (2) indicate in broad terms the reasons for the classification.
- (3) Within 7 days after making the decision, the chief executive must give notice of the decision to the occupier.
- (4) The notice must—
- (a) include the reasons for the decision; and
 - (b) tell the occupier of the occupier’s right of appeal against the decision and how to appeal.

- (5) If the chief executive decides not to make a decision under section 33 classifying the facility as a major hazard facility, the chief executive must declare, by written notice to the occupier of the facility, that the facility as described in the declaration is not a major hazard facility.

33 Grounds for classification

- (1) The chief executive must classify a facility as a major hazard facility if the chief executive is reasonably satisfied that—
- (a) the quantity of hazardous materials stored or handled, or that is likely to be stored or handled, at the facility is more than the quantity prescribed under a regulation; and
 - (b) a hazardous materials emergency at the facility could pose a risk to persons, property or the environment outside the facility.
- (2) Also, the chief executive may classify a facility as a major hazard facility if the chief executive is reasonably satisfied that, having regard to both the following matters, the requirements applying under this Act for major hazard facilities should apply to the facility—
- (a) the potential for a hazardous materials emergency to come into existence at the facility;
 - (b) the extent to which a hazardous materials emergency at the facility would pose a risk to persons, property or the environment.

34 Chief executive may declassify major hazard facility

- (1) The chief executive may, after consultation with the occupier of a major hazard facility, by gazette notice, declassify the facility from its status as a major hazard facility if the chief executive reasonably considers grounds for the classification no longer exist.
- (2) A gazette notice under subsection (1) must—
- (a) include a description of the area occupied by the facility being declassified; and
 - (b) indicate in broad terms the reasons for the declassification.
- (3) The chief executive must, by gazette notice, declassify a facility from its status as a major hazard facility if an appeal against the classification of the facility as a major hazard facility is successful.
- (4) The chief executive must give notice of the declassification to the occupier of the facility.

Division 2—Notification to chief executive about possible major hazard facilities

35 Obligation to notify chief executive of existing possible major hazard facility

- (1) This section applies to a possible major hazard facility that is operational at the commencement of this section.
- (2) The occupier of the facility must notify the chief executive about the facility as required by subsection (3) to allow the chief executive to decide whether the chief executive should classify the facility as a major hazard facility, unless the occupier has a reasonable excuse.

Maximum penalty—200 penalty units.

- (3) Notification under subsection (2) must—
 - (a) be in the approved form; and
 - (b) be given within 3 months after the commencement of this section.

36 Obligation to notify chief executive of new possible major hazard facility

- (1) This section applies to a possible major hazard facility that is not operational at the commencement of this section.
- (2) The occupier of the facility must notify the chief executive about the facility as required by subsection (3) to allow the chief executive to decide whether the chief executive should classify the facility as a major hazard facility, unless the occupier has a reasonable excuse.

Maximum penalty—200 penalty units.

- (3) Notification under subsection (2) must be in the approved form and must—
 - (a) for a facility that starts operations within 12 months after the commencement of this section, be given to the chief executive—
 - (i) if the facility starts operations within 2 months after the commencement—within 7 days after the commencement; or
 - (ii) otherwise—at least 2 months before the facility starts operations; or
 - (b) for a facility that starts operations more than 12 months after the commencement of this section, be given to the chief executive at least 6 months before the facility starts operations.

37 Obligation to notify chief executive of certain upgrades of facilities

- (1) This section applies to a facility, other than a major hazard facility, if there is a change in relation to the facility that involves any of the following—
- (a) the facility becoming a possible major hazard facility;
 - (b) for a facility that is the subject of a declaration under section 32(5)—
 - (i) the quantity of hazardous materials stored or handled, or likely to be stored or handled, at the facility is more than the quantity stated in the declaration;
 - (ii) other hazardous materials, other than materials of the type stated in the declaration, are stored or handled, or likely to be stored or handled, at the facility.
- (2) If a facility is an upgraded facility, the occupier of the facility must notify the chief executive about the facility as required by subsection (3) to allow the chief executive to decide whether the chief executive should classify the facility as a major hazard facility, unless the occupier has a reasonable excuse.

Maximum penalty—200 penalty units.

- (3) Notification under subsection (2) must be in the approved form and must—
- (a) if the facility is upgraded within 12 months after the commencement of this section, be given to the chief executive—
 - (i) if the facility starts operations as an upgraded facility within 2 months after the commencement—within 7 days after the commencement; or
 - (ii) otherwise—at least 2 months before the facility starts operations as an upgraded facility; or
 - (b) if the facility is upgraded more than 12 months after the commencement of this section, be given to the chief executive at least 6 months before the upgraded facility starts operations.

- (4) In this section—

“upgraded facility” means a facility that, as a result of a change in relation to the facility, is a facility of the type to which this section applies.

38 Obligation to notify chief executive of modification to a major hazard facility

Before the occupier of a major hazard facility undertakes modifications of the facility that will significantly alter the risk associated with the facility, the occupier must notify the chief executive about the modifications, unless the occupier has a reasonable excuse.

Maximum penalty—200 penalty units.

39 Obligation to comply with chief executive’s notice requiring information about possible major hazard facility

- (1) This section applies to a facility if the chief executive—
- (a) becomes aware of the presence, including the likely presence, of hazardous materials at the facility; and
 - (b) reasonably considers the facility may be classified as a major hazard facility under section 33.
- (2) The chief executive may, by notice given to the occupier of the facility, require the occupier to notify the chief executive in the approved form, within the time stated in the notice, of stated information about the facility to allow the chief executive to decide whether the chief executive should classify the facility as a major hazard facility.
- (3) The time stated in the notice must not be less than 14 days after the notice is given to the occupier.
- (4) The occupier must comply with the requirement, unless the occupier has a reasonable excuse.

Maximum penalty for subsection (4)—200 penalty units.

PART 9—APPEALS

Division 1—Appeals against classification as a major hazard facility

148 Appeals against chief executive decisions

The occupier of a facility who is aggrieved by a decision of the chief executive to classify the facility as a major hazard facility may appeal against the decision.

(ii) Sections of Regulation Relevant to Guideline

Dangerous Goods Safety Regulation 2001

SCHEDULE 2

HAZARDOUS MATERIALS AND PRESCRIBED QUANTITIES FOR MAJOR HAZARD FACILITIES

1 Prescribed quantity for a hazardous material or for a type, class or category of hazardous material

- (1) The third column of table 1 states the prescribed quantity for the hazardous materials mentioned in columns 1 and 2.
- (2) The third column of table 2 states the prescribed quantity for hazardous materials of the type, class or category mentioned in columns 1 and 2.
- (3) If a hazardous material is mentioned in table 1, the prescribed quantity of the material is that mentioned in table 1, whether or not the material also belongs to a type, class or category mentioned in table 2.
- (4) If a hazardous material is not mentioned in table 1, and the material belongs to a type, class or category mentioned in table 2, the prescribed quantity for that material is the quantity mentioned in table 2 for the type, class or category.
- (5) If a hazardous material is not mentioned in table 1, and the material belongs to more than 1 of the types, classes or categories mentioned in table 2, the prescribed quantity is the quantity applying to the type, class or category which has the lower or lowest prescribed quantity.

2 Calculating prescribed quantity for more than 1 hazardous material

- (1) If there is more than 1 material stored or handled, a prescribed quantity of materials exists if the result of the following aggregation formula exceeds 1:

$$\frac{q_x}{Q_x} + \frac{q_y}{Q_y} + \dots + \frac{q_n}{Q_n}$$

Where—

- $x, y \dots n$ are the materials stored or handled or likely to be stored or handled
- $q_x, q_y \dots q_n$ is the quantity of each material $x, y \dots$ and n stored or handled or likely to be stored or handled in an isolated quantity greater than 2% of its individual prescribed quantity
- $Q_x, Q_y \dots Q_n$ is the individual prescribed quantity of each material $x, y \dots$ and n in tables 1 or 2.

(2) In this section—

“**material**” means—

- (a) a hazardous material mentioned in table 1; or
- (b) hazardous material of a type, class or category mentioned in table 2.

3 How to calculate quantity of material

(1) Each of the following must be included to calculate the quantity of materials stored or handled, or likely to be stored or handled, at a facility—

- (a) the maximum amount of the material normally present in process vessels and interconnecting piping systems;
- (b) the maximum capacity of storage tanks and vessels;
- (c) the maximum quantity of the material that is likely to be present in package storage areas;
- (d) the maximum quantity of materials contained in pipelines outside process areas or the maximum quantity of material that could escape from a pipeline if the pipeline fails.

(2) However, an isolated quantity of a material that does not exceed 2% of its prescribed quantity need not be included.

(3) In this section—

“**material**” means—

- (a) a hazardous material mentioned in table 1; or
- (b) hazardous material of a type, class or category mentioned in table 2.

TABLE 1

Column 1	Column 2	Column 3
MATERIAL	UN Nos INCLUDED UNDER NAME	PRESCRIBED QUANTITY (tonnes)
ACETONE CYANOHYDRIN	1541	20
ACETYLENE	1001	50
ACROLEIN	1092	200
ACRYLONITRILE	1093	200
ALLYL ALCOHOL	1098	20
ALLYLAMINE	2334	200
AMMONIA, ANHYDRIOUS, LIQUIFIED or AMMONIA SOLUTIONS, relative density less than 0.880 at 15 ⁰ C in water, with more than 50 per cent ammonia	1005	200
AMMONIUM NITRATE FERTILISERS	2067 2068 2069 2070	5000

B – Notification and Classification

Column 1	Column 2	Column 3
MATERIAL	UN Nos INCLUDED UNDER NAME	PRESCRIBED QUANTITY (tonnes)
AMMONIUM NITRATE, with not more than 0.2 per cent combustible substances, including any organic substance calculated as carbon, to the exclusion of any other added substance	1942	2500
ARSENIC PENTOXIDE, Arsenic (V) Acid and other salts	1559	10
ARSENIC TRIOXIDE, Arsenious (III) Acid and other salts	1561	0.10
ARSINE	2188	0.01
BROMINE or BROMINE SOLUTIONS	1744	100
CARBON DISULFIDE	1131	200
CHLORINE	1017	25
DIOXINS		0.10
DIPHENYLMETHANE 4,4'-DIISOCYANATE	2489	200
ETHYL NITRATE	--	50

B – Notification and Classification

Column 1	Column 2	Column 3
MATERIAL	UN Nos INCLUDED UNDER NAME	PRESCRIBED QUANTITY (tonnes)
ETHYLENE DIBROMIDE	1605	50
ETHYLENE OXIDE	1040	50
ETHYLENEIMINE	1185	50
FLUORINE	1045	25
FORMALDEHYDE	1198 2209	50
HYDROFLUORIC ACID SOLUTION (greater than 50 per cent)	1790	50
HYDROGEN	1049	50
HYDROGEN CHLORIDE		
- Anhydrous	1050	250
- Refrigerated liquid	2186	250
HYDROGEN CYANIDE	1051 1614	20
HYDROGEN FLUORIDE	1052	50

B – Notification and Classification

Column 1	Column 2	Column 3
MATERIAL	UN Nos INCLUDED UNDER NAME	PRESCRIBED QUANTITY (tonnes)
HYDROGEN SULFIDE	1053	50
LP GASES	1011 1012 1075 1077 1978	200
METHYL BROMIDE	1062	200
METHANE or NATURAL GAS	1971 1972	200
METHYL ISOCYANATE	2480	0.15
OXIDES OF NITROGEN, including nitrous oxide, nitrogen dioxide and nitrogen trioxide	1067 1070 1660 1975 2201 2421	50
OXYGEN	1072 1073	2000

Column 1	Column 2	Column 3
MATERIAL	UN Nos INCLUDED UNDER NAME	PRESCRIBED QUANTITY (tonnes)
PHOSGENE	1076	0.75
PROPYLENEIMINE	1921	200
PROPYLENE OXIDE	1280	50
SODIUM CHLORATE, solid	1495	200
SULFURIC ANHYDRIDE (Alt: SULFUR TRIOXIDE)	1829	75
SULFUR DICHLORIDE	1828	1
SULFUR DIOXIDE, LIQUIFIED	1079	200
TOLUENE DIISOCYANATE	2078	200

Note to Table 1:

The UN Number listed against the named material is given for information only. It does not restrict the meaning of the name, which also applies to materials falling outside the UN Number, for example, because they are too dangerous to be transported or are part of mixtures covered by another UN Number. However, any materials which are covered by the listed UN Numbers must be included in the quantity of the material named.

TABLE 2

Column 1	Column 2	Column 3
MATERIAL	DESCRIPTION	PRESCRIBED QUANTITY (tonnes)
Explosives Materials	• Explosive of class 1.1A	10
	• All other explosives of class 1.1	50
	• Explosives of class 1.2	200
	• Explosives of class 1.3	200
Compressed and liquified gases	• Compressed or liquified gases of class 2.1 or subsidiary risk 2.1	200
	• Liquified gases of subsidiary risk 5	200
	• Compressed or liquified gases which meet the criteria for very toxic in table 4	20
	• Compressed or liquified gases which meet the criteria for toxic in table 4	200

Column 1	Column 2	Column 3
MATERIAL	DESCRIPTION	PRESCRIBED QUANTITY (tonnes)
<p>Flammable materials</p>	<ul style="list-style-type: none"> <li data-bbox="607 499 1149 632">• Liquids which meet the criteria for class 3 packaging group I (Except for crude oil in remote locations) <li data-bbox="607 705 1118 837">• Crude oil in remote locations which meets the criteria for class 3 packaging group I <li data-bbox="607 911 1135 993">• Liquids which meet the criteria for class 3 packaging group II or III <li data-bbox="607 1066 1089 1192">• Liquids with flashpoints <61⁰C kept above their boiling points at ambient conditions <li data-bbox="607 1266 1089 1348">• Materials which meet the criteria for class 4.1 packaging group I <li data-bbox="607 1421 1099 1554">• Spontaneously combustible materials which meet the criteria for class 4.2 packaging group I or II <li data-bbox="607 1627 1118 1814">• Materials which liberate flammable gases or react violently on contact with water which meet the criteria for class 4.3 packaging group I or II 	<p style="text-align: center;">200</p> <p style="text-align: center;">2000</p> <p style="text-align: center;">50 000</p> <p style="text-align: center;">200</p> <p style="text-align: center;">200</p> <p style="text-align: center;">200</p> <p style="text-align: center;">200</p>

B – Notification and Classification

Column 1	Column 2	Column 3
MATERIAL	DESCRIPTION	PRESCRIBED QUANTITY (tonnes)
	<ul style="list-style-type: none">Materials which belong to classes 3 or 8 packaging group I or II which have hazchem codes of 4WE (materials which react violently with water)	500
Oxidising materials	<ul style="list-style-type: none">Oxidising material listed in appendix 5 of the ADG Code (6th edition)Oxidising materials that meet the criteria for class 5.1 packaging group I or II	50 200
Peroxides	<ul style="list-style-type: none">Peroxides which are listed in appendix 5 of the ADG Code (6th edition)Organic peroxides which meet the criteria for class 5.2	50 200
Toxic solids and liquids	<ul style="list-style-type: none">Materials which meet the criteria for very toxic in table 4Materials which meet the criteria for toxic in table 4	20 200

Notes to Table 2:

- (a) The quantities stated for explosives relate to the weight of explosive exclusive of packing, casings and non-explosive components.
- (b) If explosives of different hazard divisions are present in the same area or storage, all of the explosives are taken to be classified under the following table—

TABLE 3—CLASSIFICATION OF EXPLOSIVES WHEN STORED IN THE SAME AREA

Division	1.1	1.2	1.3	1.4	1.5	1.6
1.1A	1.1A	1.1A	1.1A	1.1A	1.1A	1.1A
1.1	1.1	1.1	1.1	1.1	1.1	1.1
1.2	1.1	1.2	1.1	1.2	1.1	1.2
1.3	1.1	1.1	1.3	1.3	1.1	1.3
1.4	1.1	1.2	1.3	1.4	1.5	1.6
1.5	1.1	1.1	1.1	1.5	1.5	1.5
1.6	1.1	1.2	1.3	1.6	1.5	1.6

TABLE 4—CRITERIA FOR TOXICITY FOR TABLE 2

Description	Oral Toxicity LD₅₀ (mg/kg)	Dermal Toxicity LD₅₀ (mg/kg)	Inhalation Toxicity LC₅₀ (mg/L)
Very Toxic	LD ₅₀ ≤5	LD ₅₀ ≤40	LC ₅₀ ≤0.5
Toxic	5<LD ₅₀ ≤50	40<LD ₅₀ ≤200	0.5<LC ₅₀ ≤2

Note to Table 4:

These criteria are under the ADG Code (6 th edition).

1 Introduction

The process of regulation of a facility as a Major Hazard Facility (MHF) under the Dangerous Goods Safety Management Act 2001 (DGSM Act) commences with notification.

Tables 1 and 2 in Schedule 2 of the Dangerous Goods Safety Management Regulation list hazardous materials and a number of dangerous goods classes respectively together with their corresponding prescribed quantities. The occupier of a facility which contains a hazardous material or classification of dangerous goods which is included in these tables in the Regulation and where the quantity at the facility is greater than the prescribed quantity is required to notify the regulatory authority in the approved form (available from the CHEM Services website www.emergency.qld.gov.au/chem).

On receipt of the notification the regulatory authority reviews the information about the facility and where it is reasonably satisfied that the facility meets the classification criteria in the Act it classifies the facility as a MHF. The classification criteria relate to :

- the existence of hazardous materials at the facility;
- the potential for a hazardous materials emergency to occur; and
- the risk which that emergency may pose to people, property and environment.

The notice of classification is published in the Government Gazette. The Act provides an appeal mechanism against this decision.

When a facility is classified as a MHF it takes on the obligations contained in the Act for MHFs. The obligations continue to exist while so ever the facility is classified as a MHF.

2 Legislation Requiring Notification

2.1 Relevant Sections of DGSM Act

Sections 36 and 37 of the DGSM Act require occupiers of facilities, either existing or proposed, where the quantities of specified materials on the premises exceed the prescribed quantities of those materials listed in Schedule 2 of the Dangerous Goods Safety Management Regulation to notify the regulatory authority in the approved form. The prescribed quantities are contained in Tables 1 and 2 of Schedule 2 of the Regulation. Section 38 requires occupiers of existing MHFs to notify the regulatory authority when the facility is modified in such a way the risk pattern is significantly altered.

Section 39 allows the regulatory authority, by notice, to require an occupier to notify in the approved form where hazardous materials are present or likely to be present at a facility and the authority reasonably considers that the facility could be classified as a MHF.

The approved form is included as Attachment 1.

2.2 Conditions Requiring Notification

The legislation requires the occupier to notify the regulatory authority in the approved form when any of the three following conditions exist :

Table 1 of Schedule 2 of the Regulation

Table 1 of Schedule 2 of the Regulation lists 43 hazardous materials with their UN numbers and their individual prescribed quantities. Where the quantity of a material at a facility exceeds the prescribed quantity for that substance, notification is required.

Table 2 of Schedule 2 of the Regulation

Table 2 of Schedule 2 of the Regulation lists a number of dangerous goods classifications and their individual prescribed quantities. The classification of hazardous materials by dangerous goods classes and packing groups is listed in Volume 2 of the Australian Dangerous Goods Code 6th Edition. The prescribed quantity for a hazardous material with a subsidiary classification and packing group is the lower of the prescribed quantities.

Where the quantity of a hazardous material at a facility exceeds the prescribed quantity for its dangerous goods classification, notification is required.

Aggregation Rule in Schedule 2 of the Regulation

Where there is more than one hazardous material or classification of hazardous material at the facility and the quantities of hazardous materials or classifications of hazardous materials are less than the prescribed quantities in Tables 1 and 2, the aggregation formula must be applied. Where the application of the aggregation formula contained in Section 1 of Schedule 2 of the Regulation produces a result exceeding 1, notification is required.

2.3 Timeframe for Notification

The Act provides for different notification periods for MHFs to notify the regulatory authority:

New Facilities - Section 36

For new facilities which are scheduled to commence operations after 7 May 2003, the occupier is required to notify at least 6 months before the facility starts operations.

Upgrade of Facility - Section 37

For a facility which is upgraded in such a manner that it becomes a "possible MHF", the occupier is required to notify at least 6 months before the facility starts operations as an upgraded facility.

Modification of Existing Major Hazards Facility - Section 38

For an existing MHF facility which is modified in a manner which may significantly alter its risk profile (either through hardware change or by deviation from what was outlined in documentation provided to the authority), the occupier is required to notify the regulatory authority about the nature of the modifications.

3 Determination of Quantities for Notification

3.1 General Principal

This section provides guidance as to the methods which an occupier should use to determine the facility's inventory of the hazardous materials listed in Tables 1 and 2 of Schedule 2 of the Regulation for notification purposes. The quantities of hazardous materials present or likely to be present at a facility should comprise the total inventory of the facility e.g. the sum of materials in storage, in the process, in pipelines and contained in internal site transport.

A facility may contain varying quantities of the hazardous materials listed in Schedule 2 of the Regulation. Variations may be caused by any number of factors e.g. supply rates, offtake rates, seasonal variations etc. The quantities used to determine whether notification is required should be the maximum quantities of the hazardous materials stored or handled or likely to be stored or handled at the facility.

An occupier should compile a complete inventory of hazardous materials including classifications of dangerous goods at the facility. The occupier should compare this inventory with the hazardous materials and classifications of dangerous goods contained in Tables 1 and 2 of Schedule 2 of the Regulation to determine if relevant prescribed quantities are exceeded.

3.2 Specific Examples

Chemical Storages and Tank Farms

For chemical storage facilities, the quantity of materials should include the combined maximum capacity of all storage tanks, vessels, containers etc, assuming each to be 100% full rather than at the maximum working quantity. Where the occupier advises that the maximum quantity of a hazardous material at a facility is less than the theoretical capacity of the storage system the occupier must justify that determination.

Chemical Process Plant

For process plants, the quantity calculations should be based on the high-level alarm point in each process vessel, provided control and shutdown systems prevent greater quantities accumulating. The densities of liquids and gases in storage or process equipment vary according to pressure and temperature, and calculations should be based on the worst-case combination for each equipment item within the plant's safe operating envelope of parameters.

Vapour spaces above liquids in process equipment (e.g. in vacuum distillation columns, flash drums, condensers, refrigeration systems etc.) and other such spaces which cannot become filled with liquid, should be assessed on the quantity of vapour.

The inventory of hazardous materials within a processing plant should include the quantities in pipelines up to the isolation valves at the perimeter of the plant.

Pipelines

The site inventory of hazardous materials should include the maximum quantities contained in pipelines outside process areas within a facility's boundary or the largest quantity that could escape following a catastrophic failure of a pipeline, whichever is the larger.

Packaged and Bulk Storages

The maximum quantity of each hazardous material present, or likely to be present, in a packaged store or bulk warehouse should be included in the site inventory.

Solutions and Formulations

Where hazardous materials contained in Table 1 of Schedule 2 of the Regulation are present in a facility in solutions, formulations, mixtures or preparations, the individual quantities of hazardous materials must be determined from solution, formulation, mixture or preparation composition and included in the facility inventory of hazardous materials.

Hazardous Materials in Transit

Hazardous materials in intermediate storage within a facility but in transit by road and rail may be excluded from the assessment of quantities onsite. Similarly, materials transiting a facility by road/rail whilst other goods are being loaded onto or unloaded from a vehicle are excluded from the facility inventory. As a general rule, goods may be excluded if they are present for periods less than 5 days and their presence is not a normal or routine occurrence.

This exclusion is not intended to apply to facilities where, although individual Schedule 2 materials are held only intermittently and for short periods, the aggregate quantity remains significant for extended periods, e.g. a major warehouse. In these cases, averaging of aggregate quantities may be appropriate. In such circumstances the occupier should explain the quantity assessment and calculation methodology including assumptions as part of the notification.

A special case applies to installations such as freight or container holding yards (eg for shipping across a wharf or rail storage yards) where the function of the facility is purely the transiting of containers that are not opened. Classification is not required as long as the unopened containers are moved within 24 hours. Regulators have adopted this approach nationally. Note that this does not remove any requirement to develop procedures and risk assessments for the handling of the goods.

Hazardous Materials in Ships

Hazardous materials contained in ships which are unloading or loading at a facility are not considered to be part of the facility's inventory of hazardous materials. Materials within the facility which are being loaded onto ships or unloaded from ships are considered to be part of the facility inventory of hazardous materials.

Isolated Quantity

Where a hazardous material contained in Tables 1 or 2 of Schedule 2 is present, or likely to be present, in an isolated quantity which is less than 2% of its individual prescribed quantity, that quantity is not considered to be part of the facility inventory of hazardous materials.

3.3 Aggregation Rule

Where a facility stores, handles or processes a number of different hazardous materials which are included in Table 1 or Table 2 of Schedule 2 but with quantities below prescribed quantities, the occupier must apply the aggregation formula specified in Schedule 2 of the Regulation to the quantities of materials present or likely to be present. Where the formula produces a result greater than unity then the occupier is obliged to notify the regulatory authority.

Guide Note 1 - Examples of Aggregation Calculations

Example 1

A facility contains the following inventory of hazardous materials.

Quantity contained in	Chlorine (t)	LPG (t)	Sodium Cyanide (t)
Pipelines	2	2	0
Storage Vessels	10	50	2
Process	2	0	2
Packaged Warehouse	1	0	30
Total	15	52	34
<i>Prescribed Quantity</i>	25	200	200

Because the facility stores three types of material but each is below the corresponding prescribed quantity, the aggregation formula should be applied:

$$\frac{15}{25} + \frac{52}{200} + \frac{34}{200} = 0.6 + 0.26 + 0.17 = 1.03$$

Since the total is more than 1, the occupier has an obligation to notify the regulatory authority.

Example 2

A warehouse stores the following hazardous materials.

	Toluene Diisocyanate	Petrol (Class 3 PG II)	Toluene (Class 3 PG II)	Sodium Permanganate (Class 5.1 PG II)	Sodium Hydrosulfite (Class 4.2 PG II)	Turpentine (Class 3 PG III)
Quantity (t)	20	500	100	50	40	10
<i>Prescribed Quantity (t)</i>	200	50 000	50 000	200	200	50 000

Guide Note 1 - Examples of Aggregation Calculations (cont)

Example 2 (cont)

$$\frac{20}{200} + \frac{500}{50000} + \frac{100}{50000} + \frac{50}{200} + \frac{40}{200} + \frac{10}{50000} =$$

$$0.0100 + 0.0100 + 0.0020 + 0.25 + 0.20 + 0.0002 = 0.4722$$

Since the total is less than 1, the occupier is not obliged to notify the regulatory authority.

Example 3

A facility produces ammonia and ammonium nitrate. The inventory is

Quantity contained in	Ammonia (t)	Ammonium Nitrate * (t)
Pipelines	2	1
Storage Vessels	10	53
Process	2	6
Bulk Storage	120	45
Packaged Warehouse	0	1,546
Total	134	1,651
<i>Prescribed Quantity</i>	<i>200</i>	<i>2,500</i>

* UN 1942

$$\frac{134}{200} + \frac{1651}{2500} = 0.67 + 0.66 = 1.33$$

Since the total is greater than 1, the occupier is obliged to notify the regulatory authority.

3.4 Largest Containment System

In a facility a hazardous material may be present in a number of process systems or storage vessels. The regulatory authority requires information about the largest single system in the facility which contains that hazardous material. The largest single system is that system which if its containment is ruptured, releases the largest quantity of that material in the facility. The system may be a tank, storage vessel, pipeline or a section of process equipment. The limits of the system are determined by the existence of quick acting isolating mechanisms such as automated valves which can be activated by control systems.

The information required includes the quantity of hazardous material in the system, the maximum temperature and pressure of the hazardous material in that system and the location of the system within the facility. Where the system contains a number of hazardous materials the occupier should consult with the regulatory authority as to the level of detail required.

Section 5.3 explains how this information will be used by the regulatory authority.

4 Completion of Notification Form

Notification must occur in the approved form which is available from the regulatory authority and the CHEM Services web page

<http://www.emergency.qld.gov.au/chem/>. This section provides guidance on how the occupier is to complete the approved form.

Section 1 Occupier Details

This information identifies the occupier. The form is structured to allow company reporting rather than individual reporting. In many cases the registered name and address may not be that of the facility.

Section 2 Facility Details

This information locates the facility, its postal address and contact details. The location should be sufficiently detailed to allow the regulatory authority to travel to the facility without further information.

Section 3 Reason for Notification

The occupier should nominate that section of the Dangerous Goods Safety Management Act which occupier considers requires the notification. Where notification is required because of a change in circumstances at the facility e.g. upgrades and modifications, the occupier should nominate the date at which the change is expected to occur.

Section 4 Attachments

The following information is required and should be attached to the Notification Form:

- A brief description of the nature of the facility. The occupier should provide information which characterises the facility including the activities carried out at the facility, its storages and its processes. The occupier should place emphasis in the description on those activities or sections of the facility which are

predominantly involved in the storage and handling of all hazardous materials.

The information should be brief and succinct;

- A scaled facility plan(s) showing the layout of the facility and the location of those systems, which contain hazardous materials, listed in Schedule 2 of the Regulation, as well as any other dangerous goods or combustible liquids which would be required to be listed in the site manifest as defined by Schedule 4 of the Regulation.;
- The location of the system containing the largest quantity of each dangerous good or combustible liquid in the facility and showing the distance from that system to the facility boundaries;
- The number of people including contractors normally located at the facility;
- Details of all incidents and accidents during the previous 10 years, or for the life of the facility where operations have been in existence for less than 10 years, which have adversely affected people, property or the environment outside the facility;
- A scaled map(s) for the area up to 1 km from the facility showing details of the natural and built environment. The information should be sufficiently detailed that the regulatory authority can gain an appreciation of the potential impact which a major accident at the facility may have on people, property and the environment in the areas surrounding the facility. Information about the facility surrounds should include:
 - type of development e.g. residential, commercial, sporting and recreational, light industry, heavy industry, hazardous and noxious industry. Developments of a "sensitive" nature e.g. schools, hospitals, aged or infirm care facilities should be identified;
 - population density;
 - sensitive infrastructures such as water reservoirs and water catchment areas for municipal use; and
 - adjacent areas which in the event of a significant accident at the facility may suffer environmental harm.; and
- An indicative manifest for the site, in a format which would suit the requirements of Schedule 4 of the Regulation. This is not limited to just hazardous materials

from Schedule 2 of the Regulation, but must include all dangerous goods and combustible liquids on site.

- Tables A and B. Guidance for completion of these tables is contained in Section 3 of this Guideline. For materials listed in Schedule 2 of the Regulation, the occupier should use Table A to notify Table 1 materials and Table B for Table 2 materials. The number of significant figures in the reported quantity of each hazardous material should reflect the accuracy of the primary measurements used to determine that quantity.

The occupier should indicate in Section 4 of the Notification Form the information included with the Form as attachments.

Section 5 Provision of Information

The form must be signed by a responsible person at the facility to certify that the information included in the form and attachments is correct.

Section 6 Contact Details

The regulatory authority will direct any requests for clarification or additional details about the notification to the responsible person named in section 5. The form allows for inclusion of the details of a contact person where that person differs from the responsible person.

5 Classification

5.1 Criteria For Classification

The conditions which cause a facility to be classified as a MHF are contained in Section 33 of the Act. Section 33 (1) contains one set of criteria for classification and Section 33(2) contains a second set of criteria for classification.

Section 33(1) requires the regulatory authority to classify a facility as a MHF if it is reasonably satisfied that the facility meets the requirements of 33(1) (a) and (b).

Section 33(2) allows the regulatory authority to classify the facility as a MHF if it is reasonably satisfied that the facility meets the requirements of 33(2) (a) and (b).

Facilities which notify under Section 35, 36 or 37 and pose a risk outside the facility will be classified under Section 33(1). Classification under Section 33(2) occurs where the hazardous material quantities are less than prescribed quantities but, as a result of specific circumstances, a hazardous materials emergency at the facility poses a risk to people, property or the environment.

5.2 Guiding Principal for Risk Evaluation

Risk is a function of two factors, consequence and likelihood. The following equation describes the relationship:

$$\text{Risk} = \text{Consequence} \times \text{Likelihood}$$

The consequences of a major accident can be assessed with a degree of certainty. The extent and magnitude of overpressure from an explosion, heat flux from a fire and the toxic material release can be calculated. The intensity of overpressure and heat flux which can cause injury to people or damage to property and the environment is

known. The effect of toxic materials on people and the environment can be calculated based on the toxicity of the material the exposure time and concentration.

Determination of the likelihood of a major accident at a facility is a much more uncertain process; however if a major accident can occur then the likelihood of occurrence is greater than zero. Referring to the above equation, if the likelihood of a major accident is greater than zero then a risk exists.

The regulatory authority takes the approach that if a major accident at a facility has an offsite impact that may cause injury to people or damage to property or the environment then an offsite risk exists.

5.3 Major Accident Scenario

In a facility a hazardous material may be present in a number of process systems or storage vessels. For the purpose of classification the regulatory authority considers a major accident to be a fire, explosion, release of energy and/or toxic emission arising from the sudden release of the total quantity of a Table 1 or 2 material contained in the largest single system in the facility.

In the notification the occupier lists that facility item (tank, storage vessel, pipeline) which holds the maximum quantity of each of the Table 1 and 2 materials, the quantities contained therein and their location on the site. This information allows the consequences of a major accident to be modelled and any resultant impact outside the boundary fence of the facility to be assessed.

5.4 Criteria for People and Property

The consequences of a major accident will be one or more of the following:

- toxic impact arising from the release into the environment of a toxic substance;
- overpressure impact arising from an explosion; and/or

- heat flux arising from a fire.

Consequences which are considered to constitute an offsite risk are as follows:

- Overpressure of 7 kPa outside the facility boundary arising from an explosion;
- Radiant heat level of 5 kW/m² for 40 seconds outside the facility boundary arising from a fire; and
- Toxic concentrations in the atmosphere exceeding ERPG 2 concentrations outside the facility boundary.

Guide Note 2 - Consequence Criteria

Explosion

An overpressure of 7 kPa causes shattering of glass windows, damage to internal partitions of buildings which can be repaired, a 10% likelihood of injury and no likelihood of fatalities.

Heat Flux

A person exposed to a radiant heat flux of 5 kW/m² suffers pain in 15 to 20 seconds and second degree burns after 30 seconds exposure.

Toxicity

The American Industrial Hygiene Association has developed the Emergency Response Planning Guidelines (ERPGs). ERPG-2 is defined as the maximum airborne concentration below which it is believed nearly all individuals could be exposed for up to one hour without experiencing or developing irreversible or other serious health effects or symptoms that could impair an individual's ability to take protective action.

These criteria are effectively those values quoted in the New South Wales Department of Urban Affairs and Planning, Hazardous Industry Planning Advisory Paper No. 4

"Risk Criteria for Land Use Safety Planning" below which injury to people or damage to property is unlikely.

5.5 Criteria for Environment

Fire and explosion have consequences for people and property. They also have consequences for the environment but usually to a lesser extent. Environmental impact is more likely to occur when, as a consequence of a major accident, material which has a severe immediate or chronic impact on flora and fauna is released into the environment.

The regulatory authority considers the following matters in assessing the environmental risk posed by a facility:

- the type and location of sensitive environmental receptors such as water courses, dams and weirs, aquifers, bird sanctuaries and wet lands that could be affected by a major accident;
- the environmental toxicity of materials which may be released into the environment in the event of a major accident. It is not unusual for material which is not toxic to people to be toxic to some type of flora or fauna; and
- the quantity of environmentally hazardous material which may enter the environment as a consequence of a major accident.

The likely overall environmental impact of a major accident is then assessed taking into consideration the factors mentioned above.

Where an offsite risk to people or property has been established for a facility, it is unlikely that environmental risk will be closely examined for classification purposes from the aspect of MHF safety.

5.6 Consequence Modelling

The regulatory authority will determine the consequences of each of the major accidents at a facility as defined in Section 5.3 and identify any offsite consequences. Where the initial screening does not provide a clear indication that the offsite criteria have been met or exceeded, further modelling (including examination of sensitivities) may be carried out using more sophisticated modelling programmes.

Where the criteria for offsite consequence have been met or exceeded at locations outside the facility's boundary fence or property line an offsite risk is deemed to exist.

Guide Note 3 - Screening Tool

One screening tool that will be used is RMP*Comp (Ver 1.06) which has been developed by the United States Environmental Protection Agency, Chemical Emergency Preparedness and Prevention Office to carry out the modelling calculations for their Risk Management Program. The US EPA have published a manual describing the model - *Risk Management Program Guidance for Offsite Consequences Analysis*. The programme contains relevant information for the majority of materials listed in Schedule 2 of the Regulation. It can be obtained, free, from the web site

<http://www.epa.gov/ceppo/tools/rmp-comp/comp-dwn.html>

The model calculates the endpoint of a major accident impact. The endpoint is the distance a toxic vapour cloud release, heat from a fire, or blast waves from an explosion will travel before dissipating to the point where serious injuries and property damage from short-term exposures are unlikely to occur. The end point is defined by the criteria listed in section 5.3 and 5.4 of this Guideline.

Note that the object of consequence modelling this is just one approach

5.7 Occupier Consultation

Section 32 (1) of the Act requires the regulatory authority to consult with the occupier of a facility before making a decision about classification of the facility as a MHF.

The occupier has the opportunity to respond.

A submission by an occupier addressing offsite risk will be thoroughly reviewed both with respect to assumptions and to models and calculations. Determination of the offsite consequences arising from a major accident as defined by the regulatory authority remains the key to classification.

The units of measurement (eg tonnes, cubic metres) should be noted, as well as their temperature and pressure where appropriate.

6 Communications with Regulatory Authority

The regulatory authority will provide information to the occupier about the notification and classification process. In chronological order this information will include:

- **Acknowledgment by letter of receipt of Notification of Possible Major Hazard Facility Form.**
- **Request for clarification and/or additional Information**
Where the information supplied by the occupier in the notification is considered inadequate or unclear the regulatory authority will request additional information.
- **Preliminary decision to classify a facility**
Where it appears that a facility meets classification criteria the regulatory authority will notify by letter. The occupier will be invited to provide any additional information which will assist the regulatory authority in coming to a final decision on classification.
- **Final decision to classify a facility**
The Act requires that the classification of a facility as a MHF is published in the Government Gazette. The occupier will be notified of the date of the gazettal by letter which will also specify the dates by which the various obligations for MHFs under the Act have to be discharged.
- **Decision not to classify a facility**
Where a decision has been taken not to classify a facility as a MHF the occupier will be notified by letter. No further action is required by the occupier in this matter unless there is a change at the facility which requires further notification.

- **Right of Appeal**

Section 148 of the Act allows the occupier to appeal the decision to classify the facility as a MHF.

7 Summary of Occupier's Requirements

The occupier may use the following as a check list. The occupier of a "possible MHF" is required to:

Tick
Box

- generate a complete inventory of hazardous materials at the facility

- compare the inventory with the materials and dangerous goods classes contained in Schedule 2, Tables 1 and 2 of the Regulation

- notify the regulatory authority in the approved form should
 - any of the facility's inventory of materials in Table 1 or dangerous goods classifications in Table 2 exceeds the relevant prescribed quantity.

OR

- the aggregation number for the facility exceed one

- respond to a notice from the regulatory authority for further information or clarification about the facility by the required date.

8 Further Reading

New South Wales Department of Urban Affairs and Planning

Hazardous Industry Planning Advisory Paper No. 4 (HIPAP No. 4), 1997

Risk Criteria for Land Use Safety Planning

Department of Urban Affairs and Planning, Sydney

ISBN 0 7305 7130 0

9 Attachment 1 – Notification of Possible Major Hazard

Facility Form

It is recommended that prior to completion for notification, the form is downloaded from CHEM Services' website to ensure that the latest version of the form is used.

Form 3: Notification of Possible Major Hazard Facility
 V3. 10-05



This form is for compliance with Sections 35, 36, 37, 39 and 49 of the *Dangerous Goods Safety Management Act 2001*

Completion of this form is necessary for facilities which meet the definition of a possible Major Hazard Facility (MHF) as specified in Section 31 of the Dangerous Goods Safety Management Act 2001 (DGSM Act).

Assistance in completing this form is provided on pages 5 and 6. Note that advisory information is also available from the CHEM Services web page: <http://www.emergency.qld.gov.au/chem/>

Alternatively, the CHEM Services can be contacted on Phone (07) 3247 8444 or Fax (07) 3247 8433

Post the completed form to:	Chemical Hazards and Emergency Management (CHEM) Services Department of Emergency Services GPO Box 1425 BRISBANE, Q 4001
PRIVACY: The information you provide in this notification will be handled in accordance with DES privacy policy. The information will be made available to other government agencies for use in programs associated with protection of community safety, worker safety and the environment. Personal information will not be given to another person or otherwise disclosed without your consent unless required or authorised by law.	

Section 1: Occupier Details
Registered Name:
Trading Name:
ABN:
Registered Address:
Postcode:

Section 2: Details of Premises
Facility Name:
Location / Street Address:
Postcode:
Real Property Description
Lot No.:
Registered Plan No.:
Parish:
Postal Address:
Postcode:
Phone No.:
Fax No.:
Workplace Registration No.:

For Office Use Only	
Date Received:	/ /
File Reference:	
Entered By:	
Date Entered:	/ /

Section 3: Reason for the Notification as a Possible Major Hazard Facility

Indicate the relevant section of the Act: (✓)

- Section 35 : Existing possible major hazard facility
- Section 36 : New possible major hazard facility.
 Expected operational date : _____/_____/_____
- Section 37 : Upgrade to a facility.
 Expected operational date : _____/_____/_____
- Section 39 : Information required by Notice

Section 4: Attachments

Check that the following information is attached to this Notification Form: (✓)

- A brief description of the nature of the facility.
- Scaled facility plan(s) showing the layout of the facility and the location of those systems which contain dangerous goods and combustible liquids.
- The location of the system containing the largest quantity of each dangerous good or combustible liquid in the facility showing the distance from that system to the facility boundaries.
- The number of people (including contractors) normally located at the facility.
- Details of all incidents during the previous 10 years which have had an impact outside the facility boundaries, or for the life of the facility where operations have been in existence for less than 10 years.
- Scaled map(s) for the area up to 1 km from the facility showing details of the natural and built environment.
- Indicative site manifest of all dangerous goods and combustible liquids as stated in Schedule 4 of the Regulation.
- Table A Table B

Section 5: Provision of Information

I certify that the information in, and appended to, this Notification is accurate and correct.

Name:		Position:	
Phone:	Fax:	Email:	
Signature:		Date : ____/____/____	

Section 6: Contact Details
 Provide details of the person who should be contacted about information contained in this form, if different to the above person.

Name:		Position:	
Phone:	Fax:	Email:	

Table A

Hazardous Materials at the Facility that are listed in Table 1 of Schedule 2 of the Regulation

Row No.	Hazardous Material	UN Number	Quantity in Facility (tonnes)	Physical Form	Largest Containment System				Prescribed Quantity	
					Quantity (tonnes)	T (°C)	P (kPa)	Site Plan Reference	(tonnes)	Fraction
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										

Table A Aggregation Total: _____

Table B

Hazardous Materials at the Facility that are listed in Table 2 of Schedule 2 of the Regulation

Row No.	Hazardous Material	Dangerous Goods		Quantity in Facility (tonnes)	Physical Form	Largest Containment System				Prescribed Quantity	
		Class	Packing Group			Quantity (tonnes)	T (°C)	P (kPa)	Site Plan Reference	(tonnes)	Fraction
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											

Table B Aggregation Total: _____

Table A Aggregation Total: _____

Facility Aggregation Total: (A +B) _____

Guidance Information

CHEM Services has published an advisory document, *Guidelines for Major Hazard Facilities – B – Notification and Classification*. It is strongly recommended that this document should be read before attempting to complete the Notification Form. The document also includes a copy of Schedule 2 of the Regulation. Copies of the Guidelines can be obtained on the Internet at the CHEM Services web page: <http://www.emergency.qld.gov.au/chem/>

Attachments to the Notification Form should include the following:

- (a) A brief description of the nature of the facility, including general site activities, storage, production and auxiliary processes. The description should emphasise sections of the facility which involve hazardous materials listed in Tables 1 and 2 of Schedule 2 of the *Dangerous Goods Safety Management Regulation 2001*, as well as any other dangerous goods or combustible liquids on site which should be listed in the site manifest under Schedule 4 of the Regulation.
- (b) Scaled facility plan(s) showing the layout of the facility and the location of those systems (storages, tanks, pipelines, and vessels) which contain hazardous materials listed in Schedule 2 of the Regulation as well as any other dangerous goods or combustible liquids which should be listed on a site manifest under Schedule 4 of the Regulation. Indicative quantities (tonnes or cubic metres) of hazardous materials in the systems should be supplied.
- (c) The location of the system (storages, tanks, pipelines, vessels) which contains the largest quantity of each dangerous good or combustible liquid and showing the distance from that system to the facility boundaries. The quantity (tonnes or cubic metres) of hazardous material in each system should be supplied.
- (d) The number of people (including contractors) normally located at the facility and an indication of their distribution between day work and shift work.
- (e) For an existing facility, details of all incidents that have occurred at the facility during the last ten years which have had an impact outside the boundary of the facility on people, property or the environment. Incidents of a strictly environmental nature such as odour complaints, minor spills, etc. should not be included. For a facility that has been in operation for less than 10 years, include details of all such incidents since the facility commenced operations.
- (f) Scaled map(s) for the area up to 1 km from the facility showing the location of:
 - residences (dwelling places) and the straight line distance from the facility to the nearest residence;
 - industrial premises;
 - commercial premises;
 - kindergartens, preschools or schools;
 - sensitive developments where evacuation of occupants is not simple, e.g. a hospital, aged or infirm person care facility;
 - sensitive environmental areas such as watercourses, wet lands, tidal inlets, National Parks, municipal water supplies etc.; and
 - major infrastructures such as airports, railways, major electrical substations and ports.

Tables A and B of the Notification

Hazardous Materials at the Facility which are listed in Section 2 of the Regulation

Tables 1 and 2 of Schedule 2 of the *Dangerous Goods Safety Management Regulation 2001* list certain hazardous materials with their corresponding prescribed quantities.

Record on Tables A and/or B of this Notification Form all hazardous materials listed in Tables 1 and 2 of Schedule 2 which are present or likely to be present at the facility in a quantity greater than two per cent of the corresponding prescribed quantity. Use Table A for hazardous substances listed in Table 1 of Schedule 2 and Table B for hazardous substances listed in Table 2 of Schedule 2.

For each hazardous material complete all details listed in Table A and/or B. Use the following guide to assist with completion of the Tables.

Column Heading in Table A and B	Comment
Row No.	This is an identifier in the table.
Hazardous Material	Provide the chemical name or, where this is not appropriate, the generic name of the hazardous material.
UN Number	This information is available from the Australian Dangerous Goods Code.
Dangerous Goods Classification	
Quantity in Facility	See Section 3 of <i>Guidelines for Major Hazard Facilities B – Notification and Classification</i> .
Physical Form	Specify the form in which the hazardous material is present e.g. solid, liquid, gas, mixture, formulation, liquified gas under pressure, etc.
Largest Containment System for the Hazardous Material	See Section 5.3 of <i>Guidelines for Major Hazard Facilities B – Notification and Classification</i> . Provide details of the quantity contained within this system and the maximum temperature and pressure of the hazardous material in the system. Indicate the location of this system on the scaled site plan of the facility.
Prescribed Quantity	Obtain this quantity from Table 1 or 2 of Schedule 2 of the Regulation. Express the total quantity at the facility as a fraction of the prescribed quantity.
Aggregate quantity of materials	Where no single hazardous material within the facility exceeds its prescribed quantity listed in the Regulation, apply the aggregation rule using the methodology contained in Schedule 2 of the Regulation and explained in <i>Guidelines for Major Hazard Facilities B – Notification and Classification</i> . Determine the aggregation total for each Table and, at the bottom of Table B, combine the two totals to obtain the total for the facility.