HSWA

GOOD PRACTICE GUIDELINES

MAJOR HAZARD FACILITIES: Notifications and Designation

MAY 2017

New Zealand Government

WORKSAFE NEW ZEALAND | MAHI HAUMARU AOTEAROA

This guideline offers advice on the design notice, the process of notification, and WorkSafe New Zealand's designation under the Health and Safety at Work (Major Hazard Facilities) Regulations 2016.

ACKNOWLEDGEMENTS

In recognition of the valuable contribution made towards the development of this guideline, WorkSafe New Zealand (WorkSafe) would like to thank the members of the guidance group and those who provided input and feedback during reviews and consultation.

WorkSafe would also like to acknowledge Safe Work Australia and WorkSafe Victoria for providing information used to develop this guideline.

NOTIFICATIONS AND DESIGNATION KEY POINTS:

Operators of facilities or proposed facilities must notify WorkSafe of specified hazardous substances that are present, or likely to be present.

Operators of proposed facilities must also submit a design notice and continue to notify WorkSafe of any material change up to the time of the safety case submission.

Identify the operator and facility's area before identifying what to include in the calculation.

The MHF Regulations provide the specified hazardous substances (Schedule 2) and the methods for calculating their threshold quantities.

TABLE OF CONTENTS

TABLES

FIGURES

01/

INTRODUCTION

IN THIS SECTION:

This guideline will help an operator of a facility or proposed facility with the process of notification, calculation of hazardous substances, and designation by WorkSafe. They will help a proposed facility that may exceed the upper threshold with the design notice.

1.1 PURPOSE AND SCOPE OF THIS GUIDELINE

The Health and Safety at Work (Major Hazard Facilities) Regulations 2016 (the MHF Regulations) identify the facilities to which the MHF Regulations apply. The status of a facility depends on the types and quantities of specified hazardous substances present or likely to be present, among other factors.

Table 1 presents an overview of the different types of facility and the corresponding obligations imposed by the MHF Regulations. The focus of this guideline is on the notification and designation process and the design notice.

DUTIES	EXISTING FACILITY	PROPOSED FACILITY	DESIGNATED LOWER TIER MAJOR HAZARD FACILITY	DESIGNATED UPPER TIER MAJOR HAZARD FACILITY
Notification	✓	✓		
Design notice (For a proposed facility that may exceed the upper threshold only)		✓		
Major accident prevention policy (MAPP)			✓	
Safety management system (SMS)			✓	✓
Emergency plan			✓	✓
Safety assessment			✓	✓
Safety case				✓

Table 1: Overview of duties under the MHF Regulations

This guideline is relevant to you if you're an operator of a facility or proposed facility who must notify WorkSafe of specified hazardous substances that are present, or likely to be present, at the facility.

Based on the notified information, WorkSafe will decide whether the facility or proposed facility is a lower tier major hazard facility (LTMHF), an upper tier major hazard facility (UTMHF), or neither an LTMHF or UTMHF. WorkSafe may designate an LTMHF as a UTMHF following a review of the facility; this is a special case. LTMHFs and UTMHFs are collectively called major hazard facilities (MHFs).

This guideline is also relevant to you if you're an operator of a proposed facility that may exceed the upper threshold which is required to submit a design notice.

This guideline will help you:

> provide prompt notification with a calculation of the maximum quantity of specified hazardous substances present or likely to be present at the facility
> supply all the required information in the notification to support the calculation, and allow for correct identification of an MHF and consideration of any designation review
> provide the design notice with all the required information to tie design milestones to the safety case development.

1.2 HOW YOU CAN USE THIS GUIDELINE

This guideline is the first of five guidelines to support you fulfilling your duties under the MHF Regulations. It applies to all operators required to meet the notification and design notice obligations.

Coloured boxes summarise sections of the MHF Regulations or the Health and Safety at Work Act 2015 (HSWA).

Grey boxes contain examples. These expand on the content of the section and help in providing further clarification.

Figure 1 describes how the suite of major hazard facilities good practice guidelines (GPG) interacts. This guideline forms part of a suite of guidance that includes information on:

> Emergency planning
> Major accident prevention policies
> Safety assessment
> Safety cases
> Safety management systems

HOW NOTIFICATION AND DESIGNATION FIT INTO THE LARGER MHF REGIME

All operators of facilities and proposed facilities at which specified hazardous substances are present or likely to be present over the specified threshold must notify WorkSafe.

WorkSafe will then decide if your facility or proposed facility is an LTMHF, UTMHF or neither an LTMHF or UTMHF. WorkSafe must then designate the facility as appropriate.

All operators of MHFs must develop a safety management system (SMS)and an emergency plan. Operators of LTMHFs must develop and implement a major accident prevention policy (MAPP) and carry out a proportionate safety assessment of the major incident hazards. Operators of UTMHFs must also carry out a safety assessment and prepare a safety case.

The operator must prepare an SMS that is the primary means of ensuring the MHF's safe operation. The safety assessment and emergency plan should be integrated parts of the SMS. Their review and improvement processes enable you to understand the impact of the system and any changes on the safety of the MHF and its controls.

If you're an operator of a UTMHF you have an extra duty to develop and submit safety cases. The purpose of a safety case is to show that you have adequate major incident controls in place.

There is a natural progression from the information required in notification, to the more detailed content of an SMS and safety case.

Carrying out your duties under the MHF Regulations can start even earlier if you're the operator of a proposed facility. Along with notification, operators of proposed facilities likely to equal or exceed the upper threshold quantity must submit a design notice. This provides specific information on the proposed facility's chosen design concept.

These connections between the different requirements means you should consider the resources such as time, training and experience of workers to commit to the regime, to ensure consistency.

Part 5 of the MHF Regulations details the requirements of design notices and safety cases.

1.3 HOW THIS GUIDELINE FITS INTO THE SUITE OF GUIDELINES

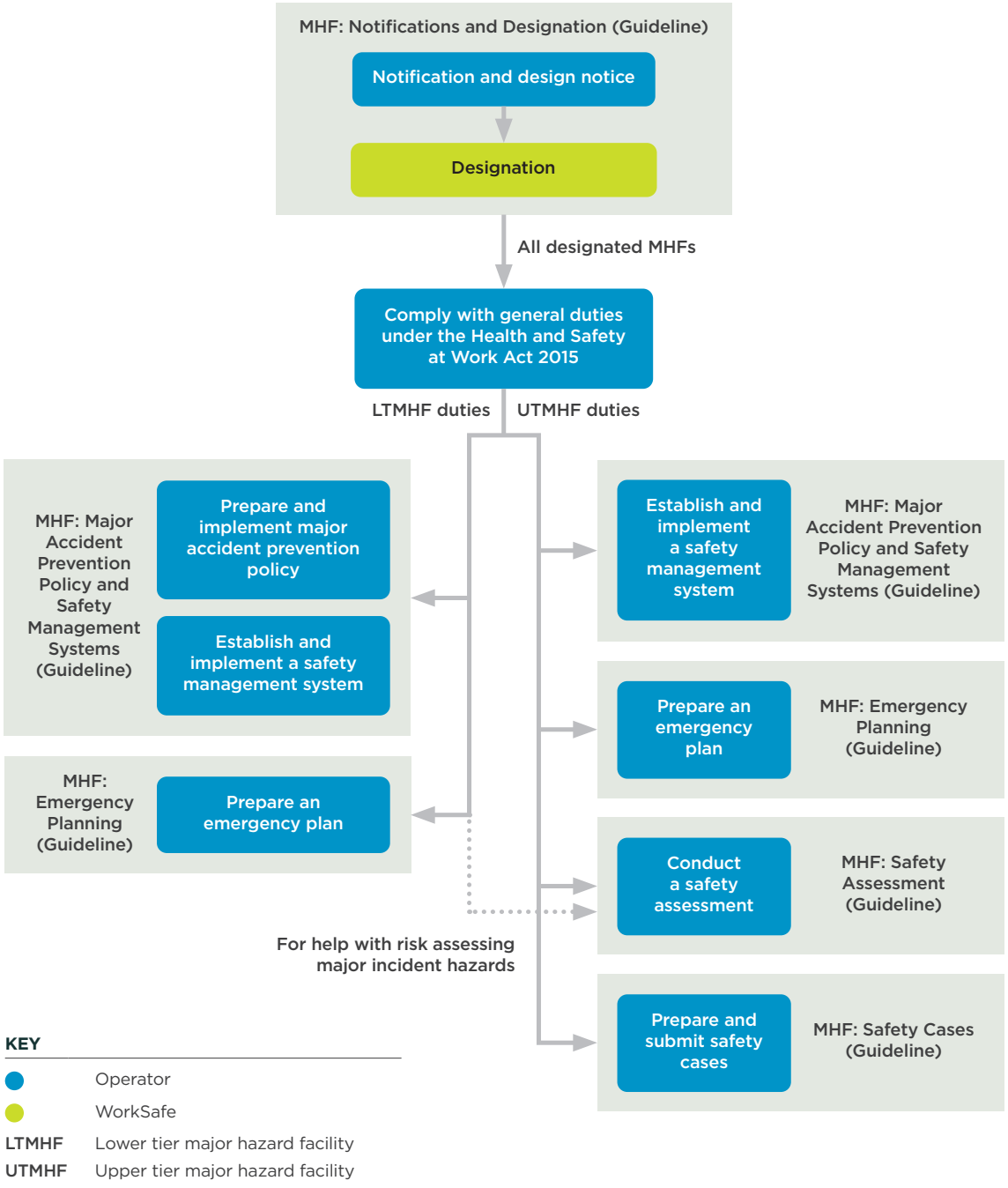

Figure 1: Overview of major hazard facilities guidelines

1.4 EXCLUSIONS TO THE MHF REGULATIONS

Where there are similar requirements in place in other regulations, the MHF Regulations do not apply. The exclusions are:

- An installation under the Health and Safety at Work (Petroleum Exploration and Extraction) Regulations 2016.
- A mining operation under the Health and Safety at Work (Mining Operations and Quarrying Operations) Regulations 2016.
- A pipeline under the Health and Safety in Employment (Pipelines) Regulations 1999 (the Pipelines Regulations).
- Transit depots, defined in the Hazardous Substances (Classes 1 to 5 Controls) Regulations 2001.
- Designated transfer zones, defined in the Hazardous Substances (Classes 1 to 5 Controls) Regulations 2001.
- A facility operated by the Armed Forces where munitions are stored.
- Transport of specified hazardous substances by road, rail, internal waterways, sea, or air to a facility, including:
  - loading substances onto other types of transport
  - unloading substances from other types of transport
  - transporting substances to and from other types of transport
  - loading, unloading, and transport that is carried out at any place, including, but without limit, at docks, wharves, and marshalling yards.

For more information see section 3.5.

WORKSAFE'S ABILITY TO EXEMPT

As well as the specific exclusions to the MHF Regulations, WorkSafe has the power to exempt any person or class of person from a provision in regulations under Section 220 of HSWA.

To grant an exemption WorkSafe must be aware the MHF Regulations apply. Notify WorkSafe before applying for an exemption. When granting exemptions, WorkSafe will consider, among other things, the risk of a major incident occurring on-site and the inherent properties of the specified hazardous substances. The level of management on-site may not be a deciding factor, as this is subject to change.

Regulation 25 sets out the requirements that apply when WorkSafe is considering granting an exemption.

1.5 COMMUNICATE EARLY WITH WORKSAFE

Establishing an early relationship with WorkSafe may help streamline the designation process. Early communication should enable you to discuss with WorkSafe any questions you may have. This could clarify any uncertainty, intent, interpretation, or your future duties after carrying out the notification process.

02/

NOTIFICATION

IN THIS SECTION:

Notification is when you inform WorkSafe that specified hazardous substances at your facility or proposed facility are present, or likely to be present, in quantities equal to or exceeding the lower threshold quantity.

The intent of notification is to make WorkSafe aware of all potential MHFs. Figure 2 shows this process in detail.

Note: In this guideline all threshold quantities are in tonnes (t) and classifications are per the *Globally Harmonized System of Classification and Labelling of Chemicals* (GHS) fifth revised edition.

2.1 WHEN TO NOTIFY?

EXISTING FACILITIES

You must notify WorkSafe if you have specified hazardous substances present or likely to be present in a quantity equal to or exceeding the lower threshold quantity. Do this as soon as practicable (but no more than three months) after you become aware the facility has met or exceeded the lower threshold quantity or, if WorkSafe agrees, within a longer period.

Regulation 11A makes it clear that you cannot operate a facility with specified hazardous substances present or likely to be present in a quantity equal to or exceeding the lower threshold quantity until the facility is designated. An existing facility can continue to operate once WorkSafe receives notification.

Monitor the lower threshold quantity of specified hazardous substances to make sure you notify WorkSafe in the time required by the MHF Regulations.

WorkSafe may agree to a delayed notification if you can satisfy WorkSafe there is a reasonable excuse for the delay. However, don't take this for granted; discuss this with WorkSafe well before the three-month timeframe expires.

Regulation 12 describes when operators of existing facilities must notify WorkSafe.

Example 1: Notification of a facility

A facility holds 150 t of LPG in bulk and cylinders. LPG is a named substance in table 2 of Schedule 2. It has a lower threshold quantity of 50 t and an upper threshold quantity of 200 t. The operator must notify. After notifying, WorkSafe will decide the facility is an LTMHF as the facility holds an amount above the lower threshold quantity. The operator will then be responsible for developing a MAPP, a proportionate safety assessment, SMS, and emergency plan.

PROPOSED FACILITIES

You must notify WorkSafe, as soon as practicable, if you have specified hazardous substances likely to be present in a quantity equal to or exceeding the lower threshold quantity, before:

> there is any change in an existing workplace due to which it becomes a facility

> you enter into any contract to construct or purchase the facility.

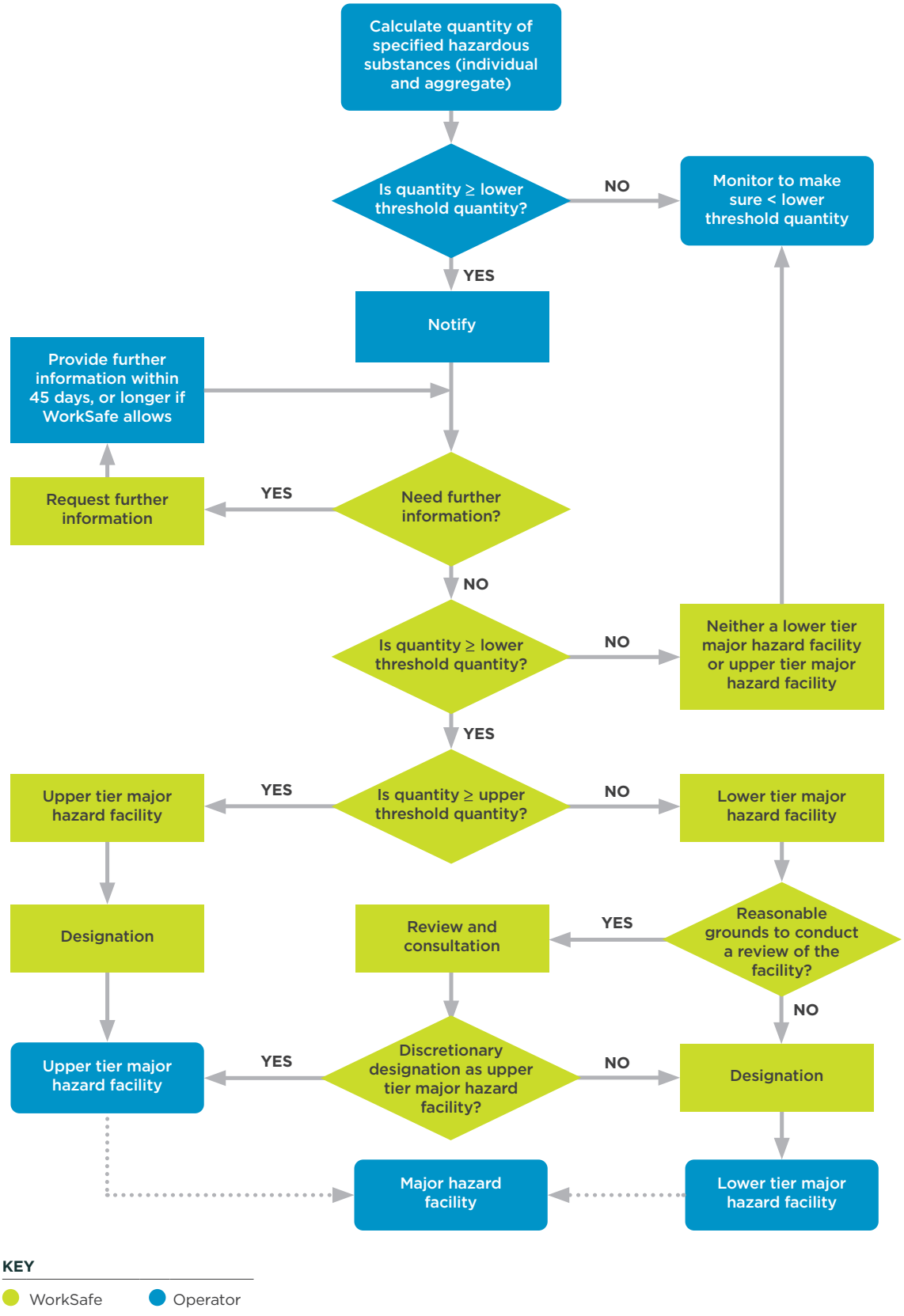

Figure 2: Notification and designation flow diagram

A PROPOSED FACILITY LIKELY TO EQUAL OR EXCEED THE UPPER THRESHOLD QUANTITY

If you're the operator of a proposed facility that expects to have specified hazardous substances equal to or exceeding the upper threshold quantity, you should notify as above in sufficient time to comply with the MHF Regulations.

This means submitting a notification to WorkSafe for designation and submitting an initial design notice (see section 5), and submitting more detailed and additional design notice information up to the time you submit the safety case to WorkSafe.

You should include in the notification the:

> earliest date the proposed facility may exceed the upper threshold quantities

> earliest date for introduction of specified hazardous substances

> earliest date for proposed operation, as this is subject to having an accepted safety case.

Regulation 13 describes when operators of proposed facilities must notify WorkSafe.

Example 2: Notification of a proposed facility likely to equal or exceed the upper threshold quantity

A proposed LPG terminal is to be built to a capacity of 300 t. The LPG upper threshold quantity is 200 t. The operator should notify with sufficient time to work through the designation process with WorkSafe, and submit a design notice during the design phase of its development and tell WorkSafe about any changes. It is in everybody's interests that the proposed facility be designated before charging the vessels with LPG.

PROPOSED CHANGE IN OPERATOR

If you are the proposed new operator of a facility, you must notify WorkSafe as soon as practicable after becoming aware of the likely change in operator, and by 2 months before the date on which you intend to begin operating the facility.

Make sure the notification only includes information about the change in operator and what has changed since the previous notification.

WorkSafe will treat this notification as a notification for an existing facility. WorkSafe may decide to conduct a review if the notification reveals, or if WorkSafe reasonably suspects, the operator may not be a suitable person to operate the facility.

WorkSafe must assess the notification to determine whether it should request a revised safety case under Regulation 53. For more information on the review and revision of a safety case, see WorkSafe's GPG *Major Hazard Facilities: Safety Cases*.

Regulation 17 requires a notification to WorkSafe of a proposed change in operator.

2.2 WHAT INFORMATION DO I NEED TO PROVIDE IN THE NOTIFICATION?

The information in the notification will vary according to the facility. In general, more information may be needed for a petroleum or chemical processing facility handling a wide range of hazardous substances and less for a facility handling fewer hazardous substances. Any notification must include the information in Regulation 14.

To notify, please use WorkSafe's electronic *Major Hazard Facility Notification* form, available at: www.worksafe.govt.nz

WorkSafe may request further information about the facility. This can include information about the use or proposed use of specified hazardous substances and the physical condition of the facility, including the facility's state of repair. You have 45 days to provide this further information or any longer period specified by WorkSafe.

Regulation 14 lists the information needed in the notification to WorkSafe. Regulation 15 allows WorkSafe to request further information.

2.3 WORKSAFE'S REVIEW INTO THE SUITABILITY OF THE OPERATOR

WorkSafe may decide to conduct a review into the suitability of an operator. WorkSafe must decide whether to conduct this review within a month of receiving the notification. WorkSafe must give written notice to the operator (or contact person identified in the notification) outlining its intention to commence a review and the reasons. WorkSafe must also invite the operator to make a submission.

WorkSafe must complete the review within three months of receiving a submission and during this time will consult any interested parties, including government agencies that have a related regulatory role.

If WorkSafe decides on reasonable grounds that the operator of a facility or proposed facility is unlikely to meet their obligations under the MHF Regulations, WorkSafe must, by notice in writing, prohibit the person from acting as the operator.

WorkSafe will give the operator a certificate as soon as practicable after the decision. The certificate will explain the reasons for the decision, and that the decision takes effect immediately.

Regulation 18 sets out what must happen if WorkSafe decides to conduct a review into the suitability of the operator. Regulation 21 sets out the certificate and effect of the final decision on the suitability of the operator.

2.4 WHAT HAPPENS AFTER NOTIFICATION OF A FACILITY?

WorkSafe will assess the notification and decide based on the quantity of specified hazardous substances that are present or likely to be present. WorkSafe will then advise you of its decision that the facility is:

- an LTMHF (with specified hazardous substances equal to or exceeding the lower threshold quantity but not equal to or exceeding the upper threshold quantity)
- a UTMHF (with specified hazardous substances equal to or exceeding the upper threshold quantity)
- neither an LTMHF nor a UTMHF (with specified hazardous substances less than the lower threshold quantity).

This leads to three potential situations:

1. **The facility or proposed facility is an LTMHF which WorkSafe may designate as a UTMHF.**

   You must monitor the quantities of specified hazardous substances and re-notify WorkSafe if the quantity of specified hazardous substances increases. You must develop a MAPP, SMS and an emergency plan. WorkSafe may also designate your LTMHF as a UTMHF following a review.

2. **The facility or proposed facility is a UTMHF which WorkSafe must designate as a UTMHF.**

   You must develop a safety assessment, SMS, emergency plan, and submit a safety case.

   For more information on designation, see section 4.

3. **The facility or proposed facility is neither an LTMHF nor UTMHF.**

   The workplace must continue to monitor the quantities of specified hazardous substances and re-notify WorkSafe when the previous quantity notified increases or is likely to increase. A workplace that is neither an LTMHF nor a UTMHF is still subject to the requirements of HSWA and regulations, including those around hazardous substances.

2.5 RE-NOTIFYING IF THE PREVIOUS QUANTITY NOTIFIED INCREASES OR IS LIKELY TO INCREASE

WorkSafe expects:

> operators of previously notified facilities and proposed facilities that were neither an LTMHF or UTMHF to re-notify when the previous quantity notified increases or is likely to increase.

> operators of LTMHFs to re-notify when the previous quantity notified increases or is likely to increase if the facility has:

- not been reviewed, or
- been reviewed and not designated a UTMHF.

Regulation 24 sets out when re-notification must happen when the previous quantity notified increases or is likely to increase.

2.6 NOTIFYING CERTAIN CHANGES TO THE MHF

You must notify WorkSafe, as soon as practicable after becoming aware of the obligation, if a purpose or use of any specified hazardous substance at the facility changes in a way that has the effect of changing the facility from one type of MHF to another type of MHF. For example you start mixing or blending activities at a facility that previously only stored specified hazardous substances.

Tell WorkSafe if you reduce quantities of specified hazardous substances below any of the threshold quantities as this may affect the annual levy that you must pay.

Regulation 74 requires operators to notify WorkSafe if a purpose or use of any specified hazardous substance at the facility changes in a way that has the effect of changing from one type of MHF to another type of MHF.

03/

CALCULATING THE MAXIMUM QUANTITY OF SPECIFIED HAZARDOUS SUBSTANCES

IN THIS SECTION:

Include all specified hazardous substances present or likely to be present at the facility when you calculate the maximum quantity.

3.1 IDENTIFYING THE OPERATOR AND THE FACILITY

Identify the operator and facility before you identify what to include in the calculations. For example, should you include the contents of one warehouse or more, all the tanks in the tank farm, or only those the business or undertaking controls?

Usually the identities of the operator and facility are clear. The operator is the company or person conducting a business or undertaking (PCBU) who manages or controls the facility and has the power to shut it down. The facility may be a warehouse, storage facility or set of processing units and supporting infrastructure located on a particular parcel of land.

Sometimes it's harder to identify the operator or facility. Joint ownership, satellite locations, sites separated by roads, site interdependency and legal site boundaries may complicate matters. This makes it harder to calculate the aggregate quantity of specified hazardous substances and who holds the obligation. WorkSafe can help in these cases. Do not subdivide a site to avoid designation as an MHF.

THE OPERATOR

You are the operator if you manage or control a facility and are the PCBU who has day-to-day control over the operation. This usually includes the specified hazardous substances present on-site and how they're used.

The power to shut down the whole facility means the PCBU can make the facility safe if required. Therefore, as the operator, you're normally present on-site and able to respond to operational interruptions that may require a shutdown such as scheduled maintenance shutdowns.

If more than one PCBU manages or controls the facility and has the power to shut down the whole facility, the operator must be nominated. Include this nomination in the notification.

Regulation 10 defines an operator and clarifies how to nominate an operator when there is more than one PCBU in control of all or part of the facility.

Example 3: One company's tank is on another company's premises

An LPG tank owned, maintained and refilled on request by Gas Company Ltd is located on a site run by one of their customers, Chemical4U Ltd. Chemical4U Ltd workers have received training on how to shut down the tank and operate the emergency deluge system. Chemical4U Ltd dictates the amount of LPG used in their on-site processes. Gas Co Ltd has no staff permanently on-site.

Both Gas Co Ltd and Chemical4U Ltd are PCBUs with some control over the tank. Both companies need to discuss who is the operator under the MHF Regulations, considering who has control of the facility and the power to shut it down. In this case it appears that Chemical4U Ltd is likely to be the operator as they are on-site and can respond to any operational interruptions or emergency situations that may arise. This does not mean that Gas Co Ltd do not have any duties; they should work with Chemical 4U Ltd to ensure they have the information needed to comply with the MHF Regulations.

Example 4: Two separate companies own a facility and its assets

Both Company A and Company B own a facility and its assets. Companies A and B engage a third company; Company C, to run the facility on their behalf. Who is the operator in this case?

Company C is on-site and manages the facility on a day-to-day basis. Company C can respond to conditions at the facility and shut it down if required. Company C is likely to be nominated as the operator in this case.

THE FACILITY

The definition 'facility' uses a general term 'area'. This includes anything found in one area, as long as it is under the control of the same person. You cannot split one site into two by putting up a fence in the middle. If you control an area each side of a structure it is one facility.

However, if the two sites are separated by a site under the control of another PCBU then they are two separate facilities.

Example 5: Bulk tanks and processing plant separated by a carpark

An operator has a processing plant and bulk storage tanks in the same area, with a car park between the two. This is one facility.

Example 6: Bulk tanks and processing plant separated by another PCBU

An operator has a processing plant and bulk storage tanks in the same area, with a separate business owned and operated by another PCBU between them. As the area between is not controlled by the same operator, the processing plant and bulk tanks are two separate facilities.

3.2 THRESHOLD CALCULATIONS

If there is a single hazardous substance q_x, with threshold quantity Q_x, notify if the quantity of the specified hazardous substance equals or exceeds the threshold quantity that is the ratio: $q_x/Q_x \geq 1$.

WHAT IF NO SINGLE SPECIFIED HAZARDOUS SUBSTANCE EQUALS OR EXCEEDS THE THRESHOLD QUANTITY?

Use the following calculations from Regulation 28 where no individual specified hazardous substance is present in a quantity equal to or exceeding the relevant threshold quantities to comply.

CALCULATING THE LOWER THRESHOLD QUANTITY

You must notify and the facility will be an LTMHF if the following sum is greater than or equal to 1:

$q_1/Q_{L1} + q_2/Q_{L2} + q_3/Q_{L3} + q_4/Q_{L4} + q_5/Q_{L5} + ...$

Where:

q_x is the quantity of specified hazardous substance x (or category of specified hazardous substances x) falling within table 1 or table 2 of Schedule 2.

Q_{Lx} is the relevant quantity for specified hazardous substance x or category x from column 4 of table 1 or from column 3 of table 2 of Schedule 2.

CALCULATING THE UPPER THRESHOLD QUANTITY

You must notify and the facility will be a UTMHF if the following sum is greater than or equal to 1:

$q_1/Q_{U1} + q_2/Q_{Q2} + q_3/Q_{U3} + q_4/Q_{U4} + q_5/Q_{U5} + ...$

Where:

q_x is the quantity of specified hazardous substance x (or category of specified hazardous substances x) falling within table 1 or table 2 of Schedule 2.

Q_{UX} is the relevant quantity for specified hazardous substance x or category x from column 5 of table 1 or from column 4 of table 2 of Schedule 2.

Example 7: Aggregate quantity calculations

A facility stores 10 t of hydrogen and 45 t of flammable liquids (category 1). The upper thresholds for the two hazardous substances are both 50 t. Because the facility stores two specified hazardous substances but each is below the corresponding upper threshold quantity, they must apply the aggregation formula:

Sum of $q_x/Q_{U1} + q_2/Q_{U2} + ...$
$10/50 + 45/50 = 0.2 + 0.9 = 1.1$

As the ratio is more than 1, the operator must notify and WorkSafe will decide the facility is a UTMHF.

CALCULATING HEALTH HAZARDS, PHYSICAL HAZARDS AND OTHER HAZARDS

For health hazards (section H of table 1) you must add quantities of specified hazardous substances under H1 to H3 to those listed in table 2 that fall within:

- acute toxicity category 1, 2, or 3 (inhalation route)
- category 1; substances that produce specific, non-lethal target organ toxicity arising from a single exposure (STOT SE).

For physical hazards (section P of table 1) you must add quantities of specified hazardous substances under P1 to P8 to those listed in table 2 that are:

- explosives
- flammable gases
- flammable aerosols
- oxidising gases
- flammable liquids
- self-reactive substances and mixtures
- organic peroxides
- pyrophoric liquids and solids
- oxidising liquids and solids.

For other hazards (section O of table 1) you must only add quantities of specified hazardous substances within the same sub-categories O1, O2, or O3. The hazard of the three sub-categories is fundamentally distinct, so there is no reason to add the section O categories together.

Part 3 of the MHF Regulations provides the categories and names of specified hazardous substances (as set out in Schedule 2) and the methods of calculating threshold quantities of specified hazardous substances.

Example 8: Various threshold calculations

The operator of the facility from Example 1 with 150 t of LPG wishes to expand the facility to store additional hazardous substances. Depending on the substances and the quantities to be stored, this may change the designation of the facility. The following examples demonstrate the effect of different options and how the threshold calculations of Regulation 28 work.

1. **Addition of a named substance with a physical hazard**
   The facility is to be expanded to store gasoline in a 10 million litre tank (7,200 t). Gasoline is a named substance (as a petroleum product) with a lower threshold of 2,500 t and an upper threshold of 25,000 t. The operator uses Regulation 28 to see if the facility is a UTMHF. As both of the substances have flammable properties they add them together:
   150/200 + 7,200/25,000 = 0.75 + 0.288 = 1.038

   As the sum is greater than 1 the facility will be a UTMHF.

2. **Addition of a named substance with a health hazard**
   The facility will be expanded to store 220 t of hydrogen chloride. Hydrogen chloride is a named substance with a lower threshold quantity of 25 t and an upper threshold quantity of 250 t. The operator re-notifies WorkSafe before accepting the additional stock. Hydrogen chloride is an acute toxic material and falls under Regulation 28(3)(a) for health hazards, whereas LPG, as a flammable gas, falls under Regulation 28(3)(b) for physical hazards. The quantities are not added together. Therefore the facility remains an LTMHF, as the quantity of each substance is less than the upper threshold quantity.

3. **Addition of a named substance with both health and physical hazards**
   The facility is to be expanded to store 40 t of anhydrous ammonia. Ammonia is a named substance with a lower threshold quantity of 50 t and an upper threshold quantity of 200 t. The operator re-notifies WorkSafe before accepting the additional stock. Ammonia is both an acute toxic under Regulation 28(3)(a) and a flammable gas under Regulation 28(3)(b). The calculation for health hazards is based on ammonia alone as LPG is not toxic. The quantity of ammonia is less than the lower threshold quantity so the facility is not a MHF based on health hazards. However, LPG is flammable but not toxic, so the quantities of LPG and ammonia are added together under Regulation 28(3)(a) for physical hazards:
   150/200 + 40/200 = 0.75 + 0.2 = 0.95

   As the sum is less than 1, WorkSafe decides the facility remains an LTMHF.

4. **Addition of multiple substances with both health and physical hazards**
   The facility will be expanded to store 220 t of hydrogen chloride and 40 t of ammonia. In this case the acute toxic properties of ammonia and hydrogen chloride need to be considered and Regulation 28(3)(a) for health hazards applied:
   220/250 + 40/200 = 0.88 + 0.2 = 1.08

   As the sum is greater than 1, WorkSafe decides the facility is a UTMHF. The operator is now responsible for developing a safety assessment, SMS, emergency plan and safety case for the UTMHF.

5. **Addition of multiple substances with health and other hazards**
   The facility is to be further expanded to store 50 t of substance A and 70 t of substance B. Substance A 'reacts violently in contact with water' and has a hazard statement of EUH014. Substance A is categorised within hazard category O1 and also falls within the health category H2. Substance B is classified as a substance that 'emits flammable gas when in contact with water' and is classified within hazard category O2.

   The lower thresholds for O1 and O2 are both 100 t. Substance A and substance B fall within different sub-categories of the 'Other' hazard category (O1 and O2) so they are treated independently and not added together under Regulation 28(3)(c):
   Substance A (O1): 50/100 = 0.5
   Substance B (O2): 70/100 = 0.7

   The introduction of substances A and B has not changed the results of the calculation in relation to the 'Other' hazard category. However, substance A also falls within health category H2 (6.1C substances that are acutely toxic) and should be included in the health hazard calculation:
   220/250 + 40/200 + 50/200 = 0.88 + 0.2 + 0.25 = 1.33

   As the sum is greater than 1, WorkSafe will decide the facility will be a UTMHF. The operator is now going to be responsible for developing a safety assessment, SMS, emergency plan and safety case for the UTMHF.

3.3 IDENTIFYING TABLE 1 OR 2 HAZARDOUS SUBSTANCES AND THRESHOLD QUANTITIES

Tables 1 and 2 of Schedule 2 of the MHF Regulations set out threshold quantities for all specified hazardous substances. Schedule 2 divides the specified hazardous substances into two groups – categories of hazardous substances (table 1) and named hazardous substances (table 2) – and shows the upper and lower threshold quantities for each category or named hazardous substance.

Table 1 includes hazard categories for groups of specified hazardous substances defined by substance classifications under the Hazardous Substances and New Organisms Act 1996 (HSNO) and the Hazardous Substances (Classification) Regulations 2001. The GHS classifications are for information purposes only.

Where a named hazardous substance listed in table 2 also falls within a category in table 1, use the threshold quantities in table 2. This means if a substance appears as a named hazardous substance in table 2, the thresholds for the named hazardous substance in table 2 take precedence over any thresholds in table 1 applicable to the hazardous substance.

Appendix A: Inventory calculation scenario, Example 8, and Example 11 also demonstrate how to calculate the ratio for a named hazardous substance exhibiting multiple hazard categories in table 1 by using anhydrous ammonia, which has both physical and health hazards.

Example 9: Table 2 precedence

Gasoline is a flammable liquid and would fall under hazard category P5a of table 1. This category has a lower threshold quantity of 10 t and an upper threshold quantity of 50 t. However, gasoline is also listed as a petroleum product in table 2. This category has a lower threshold quantity of 2,500 t and an upper threshold quantity of 25,000 t. As gasoline is listed in table 2, use table 2 thresholds in the calculation.

Some hazardous substances may appear to have properties corresponding to two or more of the categories in table 1, in this case use the lower or lowest relevant threshold quantities.

Example 10: Two or more categories: lowest threshold quantity applies

In table 1, formaldehyde solution, >37%<90% aqueous solution with >10% methanol, is a hazard category P5c, category 3 flammable liquid. This category has a lower threshold quantity of 5,000 t and an upper threshold quantity of 50,000 t. It is also a category H2, category 2, acute toxic material. This category has a lower threshold quantity of 50 t and an upper threshold quantity of 200 t. In this case use the lower threshold quantity of category H2 in the calculation.

Note that if there are also other specified hazardous substances on-site with physical hazard properties, formaldehyde solution must also be included in the aggregate calculation for physical hazards with the higher P5c thresholds of 5,000 t and 50,000 t.

Where a facility contains various specified hazardous substances, assess each separately against their health and physical hazard properties. It does not matter how these are stored; they can be packaged or in bulk.

Example 11: Multiple substances with multiple hazard categories

A facility holds four specified hazardous substances plus a range (up to 50 t) of other hazardous substances as follows:

SPECIFIED HAZARDOUS SUBSTANCES	INVENTORY (t)	UPPER THRESHOLD QUANTITY (t)	INVENTORY/THRESHOLD RATIO		
			HEALTH HAZARDS	PHYSICAL HAZARDS	OTHER HAZARDS
Toluene diisocyanate ***(Named substance, acute toxic, category 1)***	4	100	0.04	–	–
Sodium chlorate ***(P8, oxidising solid category 2)***	40	200	–	0.20	–
Formaldehyde (conc >90%) ***(Named substance. Both an acute toxic category 1, and a flammable liquid category 3)***	12	50	0.24*	0.24*	–
Chlorine ***(Named substance. Both an acute toxic category 1, and an oxidising gas)***	15	25	0.60*	0.60*	–
O1, 4.3A-Solids that emit flammable gas when in contact with water: high hazard, meets criteria for hazard statement EUH014	80	100	–	–	0.8
O2, 4.3A-Solids that emit flammable gas when in contact with water: high hazard, criteria (b)	50	100	–	–	0.5
Hazardous substances not shown in Schedule 2 ***(not specified hazardous substances)***	50	–	–	–	–
Total ratio	–	–	0.88	1.04	0.8**

Table 2: Calculating the upper threshold quantity with multiple substances

Determine whether the substances have health or physical hazards. The quantity ratios for each category are then added separately. If the aggregate for either category is equal to or exceeding 1 the facility will be a UTMHF. This facility would be a UTMHF because it has an aggregate for the substances exhibiting physical hazards exceeding 1.0.

* For the named substances the ratio will appear under both health and physical hazards as the substance exhibits both hazards. The ratio is the same in both cases as the threshold is fixed for a named substance and does not differentiate between health and physical hazard categories.

** For specified hazardous substances within different sub-categories of the other hazard categories (O1, O2, and O3), the aggregation rule doesn't apply.

CLASSIFYING WASTE

To classify waste you must assign it to the most analogous category or named specified hazardous substance falling within the scope of the MHF Regulations. It is important to recognise that your stock of waste material may vary depending on the types of waste material at the facility at any particular time. Section 3.4 helps to clarify this for facilities holding a range of specified hazardous substances.

MIXTURES AND SOLUTIONS

All mixtures and solutions must be approved substances under HSNO. This can be either as a single substance or under a group standard.

MIXTURES

If a percentage composition or other description is specifically given, the mixture either must be an approved substance under HSNO, or assigned to a group standard under HSNO. Use its classification under HSNO.

SOLUTIONS

The solution must be an approved substance under HSNO, or assigned to a group standard under HSNO. Use its classification under HSNO. If there is no specific approval under HSNO for the solution, use the approval for the solid substance.

CALCULATING SUBSTANCE QUANTITIES WITHIN MIXTURES AND SOLUTIONS

Mixtures or solutions in processes do not need a HSNO classification. However, you need to include them when calculating the maximum quantity of specified hazardous substances. Self-classify mixtures and solutions in processes and assign them to the most analogous category or named hazardous substance in Schedule 2 of the MHF Regulations.

For more information on approvals and group standards for hazardous substances, see the Environmental Protection Authority's website: www.epa.govt.nz

Example 12: Solutions

Anhydrous ammonia is a named substance in table 2. Approved under HSNO it has both physical and health hazard properties. If ammonia is made into an aqueous solution it is no longer a named substance. Then you must use generic categories in table 1. To determine which hazard category the solution belongs to, use the approval under HSNO. For an aqueous solution >50% the HSNO approval classifies the solution as a flammable gas category 2, and an acute toxic material category 4. As acute toxic category 4 is not covered by table 1, use the flammable gas hazard category P2 for the calculation.

Example 13: Mixtures

1. A facility has a gas stream of methane (natural gas). Methane is a named substance in table 2, as natural gas, with a lower threshold quantity of 50 t and an upper threshold quantity of 200 t. If the total mass of gas in the pipework and vessels is 20 t, then the quantity of methane is 20 t which is under the lower threshold. This would mean the facility is not an MHF (assuming no other specified hazardous substances were present).

2. The gas stream composition changes and now the facility has a gas stream of 50% methane and 50% nitrogen by mass. Gas mixtures can be classified under the compressed gas group standards. A 50% mixture of methane in nitrogen fits under the flammable gas group standard HSR002532. Therefore the entire gas stream is P2 flammable gas category 1 and the entire gas stream is included in the threshold calculation. The flammable gas category is used, which has a lower threshold quantity of 10 t and an upper threshold quantity of 50 t. If the total mass of gas in the pipework and vessels is 20 t, then the quantity of P2 flammable gas is 20 t. This means the facility is an LTMHF (assuming no other specified hazardous substances are present).
3. If the gas stream is a mixture of 10% methane and 90% nitrogen, the mixture is classified under the compressed gas group standards as a non-hazardous gas HSR002533. The gas stream is non-hazardous and can be excluded from the threshold calculation. This means the facility is not a MHF (assuming no other specified hazardous substances are present).

3.4 WHAT ARE 'MAXIMUM QUANTITIES PRESENT OR LIKELY TO BE PRESENT'?

A hazardous substance is 'likely to be present' if it is credible or foreseeable the hazardous substance will be present. To work out what is and what is not likely to be present, consider the maximum quantity of all specified hazardous substances that may be present at the facility at the same time.

Compare the maximum quantity of specified hazardous substances present or likely to be present at the facility with the lower and upper threshold quantity. Consider all quantities at the facility, including materials in storage, materials in process vessels and interconnecting pipe work, materials in pipelines and materials in internal site transport.

MAXIMUM PROCESS VESSEL AND STORAGE TANK CAPACITY

The quantity calculations must consider the maximum capacity of the vessel. The densities of liquids and gases may vary according to temperature and pressure, and you should base calculations on the credible worst case combination of each equipment item within the plant's safe operating window of parameters.

Assess the quantity of vapour where vapour spaces above the liquid in process equipment (eg in vacuum distillation columns, flash drums, condensers and refrigeration systems) and other spaces cannot become filled with liquid. However, consider the possible unintentional overfilling with liquid which adds to the quantity present at any one time.

Don't double count quantities if they can only exist in one place at a time. A vessel can only be filled with other materials already present on-site.

Example 14: Maximum process vessel capacity

1. A storage tank on-site is filled via a batch process from a process vessel also on-site. When the storage tank is full the material is unloaded into tankers and removed from site. The material is either in the process vessel or the storage tank. The product cannot be in two places at once, so exclude the capacity of the process vessel from the threshold calculation.

2. Road tankers arrive on-site to fill a site tank which is already factored into the inventory. The road tanker is on-site only because the site tank needs to be refilled and has the capacity for this. Therefore the capacity of the road tanker does not need to be included in the threshold calculation. The specified hazardous substances cannot be in both the road tanker and the site tank, so only include the capacity of the site tank.
3. A storage tank is filled from an on-site chemical processing unit that produces a specified hazardous substance from non-specified feed materials. There is a possibility the storage tank may be overfilled with specified hazardous substances that were not present elsewhere on-site. Use the maximum volume of the storage tank in the calculation.

The maximum capacity for liquid storage in tanks is the tank volume, not the safe fill level, overflow level, or maximum fill level.

The maximum capacity of gas stored in vessels is the water capacity of the vessels. This is stamped on the nameplate. Calculate the tonnage using the applicable density.

When calculating density make sure to use the correct specific gravity, then convert it into tonnes based on the standard temperatures and pressures for your site-specific storage. Make sure to record the assumptions you use to calculate the maximum quantity present or likely to be present.

Carefully consider the potential contents of a tank. Where a tank is physically isolated and out of service, with no plan to bring it back into service, exclude the tank quantity from the quantity calculation. However, you must physically isolate the tank so it is not possible to unintentionally fill it. If you plan to bring the tank back into use with a specified hazardous substance, notify WorkSafe under Regulation 24 or 52.

Example 15: Potential contents of a tank: mixed use

A tank terminal has three 10,000 t tanks that can contain gasoline (25,000 t upper threshold quantity, as a petroleum product). The terminal chooses to use two for gasoline and one for caustic soda (which is not a specified hazardous substance).

Unless there is a permanent barrier in place to guarantee that gasoline could not be put into the third tank, assume at some time it might be used for gasoline. The maximum storage capacity is therefore for all tanks full, that is 30,000 t. This exceeds the upper threshold quantity, so this facility is a UTMHF even if only two tanks (20,000 t) normally have gasoline in them.

This situation arises because the quantity used in the calculation needs to consider the maximum capacity of all storage tanks even though the third tank is not usually filled with gasoline.

The terminal could modify the arrangement to ensure the third tank is not used for gasoline, and remove it from the calculation. This requires a combination of engineering and administrative controls. It must not be possible to fill the tank by any connection to the other tanks. If the controls were ever removed a revised safety case may need to be submitted.

Similarly, include the capacity of a third tank that is used as standby or spare tank in the threshold calculation unless it's physically isolated from the process. There should be robust change procedures to make sure the third tank cannot be brought back into service until tank 1 or 2 is out of service and isolated from the process.

MAXIMUM CAPACITY OF PIPELINES AND PIPING

The MHF Regulations exclude pipelines covered by the Pipelines Regulations such as distribution and reticulation systems. However, consider the maximum quantity of specified hazardous substances that would, in the event of a failure, escape from a pipeline that is connected to the facility but is outside the facility boundary. This requires consideration of the maximum line pressure for gases and the location of the nearest emergency shutdown devices to the boundary.

Also consider quantities of material contained in piping within the facility when determining the maximum quantity present or likely to be present.

Example 16: Storage tank filled from a pipeline

A storage tank is filled from a pipeline from an external facility. Even if the tank is normally filled only to 50% capacity, there is a possibility that it may be overfilled with specified hazardous substances that were not present elsewhere on-site. Therefore, include the maximum capacity of the tank and the pipeline (to the nearest isolation valve off site) in the threshold calculation.

MAXIMUM QUANTITY OF SPECIFIED HAZARDOUS SUBSTANCES LOADED OR UNLOADED

Include the maximum quantity of specified hazardous substances loaded into or onto, or unloaded from, vehicles, trailers, rolling stock and ships that are from time to time present at the facility in the course of the facility's operations.

If it is normal practice to have two or three road or rail tankers sitting overnight most days of the week, consider this as normal storage rather than being associated with transport and include them in the calculation.

MAXIMUM STORAGE AREA CAPACITY

Storage areas hold transportable containers, such as bags, drums, intermediate bulk containers, gas cylinders and smaller retail containers, or have a stockpile of bulk material. Estimate the quantity of specified hazardous substances likely to be present at a storage area on a case by case basis. The calculation includes the maximum capacity of a storage area dedicated for normally empty transportable containers (eg returned cylinders). It is unrealistic that all normally empty containers will be full, but consider remaining residue, or the possibility of several empty containers returning full.

Calculate the maximum storage area capacity on the physical size of the storage area. This may be unrealistic where the facility has a large warehouse or an open storage yard but uses only small parts for the storage of specified hazardous substances. In this case, you may justify a maximum quantity present or likely to be present that is less than the theoretical capacity. You will need to show you have controls in place to make sure you can't exceed the maximum quantity stated.

Example 17: Storage area partially used for specified hazardous substances

A large agricultural warehouse stores pesticides, veterinary products and general merchandise. The warehouse operator must identify all specified hazardous substances stored or likely to be stored at the warehouse. They must establish the maximum amount of each that may be stored at any one time and compare them against the thresholds both individually and in aggregate. This operator must notify WorkSafe as the lower tier ratio exceeds 1 and the upper tier ratio equals 1.

SPECIFIED HAZARDOUS SUBSTANCES	MAXIMUM QUANTITY LIKELY TO BE PRESENT (t)	LOWER THRESHOLD QUANTITY (t)	UPPER THRESHOLD QUANTITY (t)	INVENTORY/ THRESHOLD RATIO	
				LT	UT
Paraquat ***(H1, acute toxic, category 1)***	4	5	20	0.8	0.2
Lambda-cyhalothrin ***(H1, acute toxic, category 1)***	4	5	20	0.8	0.2
Pesticides ***(H2, acute toxic, categories 2 & 3)***	100	50	220	2	0.5
Total ratio	–	–	–	3.6	1.0

Table 3: Calculating an inventory of specified hazardous substance

SEASONALITY

If the aggregate quantity of specified hazardous substances stocked is equal to or exceeding 1 and the business or undertaking is seasonal, calculate the aggregate quantity for each of the seasons. If each seasonal aggregate is always less than 1, you must explain how you prevent stock quantities from one season merging into the next season and increasing the aggregate value. WorkSafe may consider this information in deciding whether the facility is to be an LTMHF or UTMHF.

Example 18: Seasonal facility

The facility in Example 17 calculates the aggregate quantity for each of the seasons. Lambda-cyhalothrin is used for insect control, whereas paraquat is used for weed control. The two specified hazardous substances are used at different times of the year. The 'normal' upper tier ratio at any time of the year would be about 0.7.

The operator will need to include the seasonal information in the notification to WorkSafe. The seasonality of storage is a relevant factor for WorkSafe when deciding if the warehouse is an LTMHF or UTMHF.

The warehouse described in Example 18 exceeds the upper threshold quantity for a short period of time, and this is primarily the result of seasonal demand for the specified hazardous substances. The operator needs to notify WorkSafe including the information about the seasonal nature of the facility's product holding. This helps WorkSafe to decide whether to designate the facility a UTMHF. Unless the operator can demonstrate quantities of specified hazardous substances can be maintained below the upper threshold, the warehouse will be designated a UTMHF.

Example 19: A seasonal facility storing fireworks

If a facility stores fireworks in quantities over the lower threshold WorkSafe will designate it either an LTMHF or UTMHF, even if it stores fireworks for only a few weeks of the year. The operator would need to re-notify and be re-designated as a MHF every year before it started operating if the facility moved every year. The operator would not have to do this if the facility is a transit depot.

FACILITIES HOLDING A RANGE OF SPECIFIED HAZARDOUS SUBSTANCES

Many facilities hold a range of specified hazardous substances. The range of hazardous substances present may vary, with some hazardous substances in constant quantities, some present continuously (but in different quantities depending on the operation) and others present intermittently. In such cases, base the calculation on the **highest** aggregate quantity present or likely to be present at any one time.

Example 20: A range of hazardous substances

Long-term operating records show that a facility normally stores 500 t of X and 200 t of Y, but for short periods stores, or is likely to store, 500 t of X, 50 t of Y and 200 t of Z.

The aggregate must be calculated for the two periods separately, and the higher value will apply. If a facility is above the lower threshold quantity, all of the specified hazardous substances must be reported in the notification. If there are currently no records (ie for a proposed facility) notify the maximum quantity that may be present.

3.5 WHEN CAN I EXCLUDE QUANTITIES?

Exclude specified hazardous substances if they are held solely in a transit depot or a designated transfer zone. This allows for where there is a roadside transport parking area (or similar), or road or rail terminal, holding goods for short periods before loading or after unloading.

Storage of hazardous substances in bulk storage tanks at docks, wharves, or marshalling yards, are not exempt. Include the maximum storage capacity of these tanks when you notify.

TRANSPORT

The MHF Regulations do not apply to the transport of specified hazardous substance to a facility by road, rail, internal waterways, sea or air. This exclusion also applies to loading and unloading the substances at docks, wharves, or marshalling yards. This is to exclude specified hazardous substances passing through a facility that will not remain at the facility. The exclusion does not apply if the goods are loaded or unloaded at the facility as the start or end point of their transport.

Example 21: Regular storage that cannot be excluded

> A major warehouse acts as a short-term store of 100 t of sodium cyanide (20 t upper threshold quantity) every month. This facility's operator must notify and will be designated as a UTMHF. Despite the short duration, the material present is committed into storage at the warehouse which is an activity not directly related to transport.

> In a facility there are a number of both full and empty road tankers regularly parked overnight. It does not matter whether the tankers are usually full or empty because if a tanker is in-service, it could be full and therefore the quantity likely to be present must be considered.

TRANSIT DEPOT

Substances in transit and awaiting delivery to their final destination are held at transit depots, which are not subject to the MHF Regulations.

Transit depots are permanent places designed to hold hazardous substances in containers that remain unopened.

This could include circumstances where substances are awaiting customs clearance or are awaiting transfer to a different mode of transport. Substances at transit depots are not held for sale or supply.

Exclude specified hazardous substances if all the following apply:

> packages (such as transport containers and tankers) of the substances are not opened on-site

> substances are held for:
  - more than two hours if they are tracked substances
  - more than 18 hours if they are not tracked substances
  - no more than three days, in any case.

For more information see WorkSafe's fact sheet *Hazardous Substances in Transit Depots* available at: www.worksafe.govt.nz

DESIGNATED TRANSFER ZONE

Designated transfer zones are not subject to the MHF Regulations. A designated transfer zone is used and required to be designated for the movement of class 1 hazardous substances[1] transferring from one type of transport to another where the movement requires handling of packages or containers.

A designated transfer zone is not:

> roll-on roll-off operations in which a vehicle or trailer with its load drives or is driven on to or into another means of transport for the duration of a journey

> a hazardous substance location

> a designated use zone.

[1] This refers to class 1 hazardous substances approved under HSNO.

3.6 EXCLUDING ISOLATED QUANTITIES – THE 'LESS THAN 2%' RULE

You can exclude isolated quantities of less than 2% of the relevant upper threshold quantity of a specified hazardous substance from the aggregate quantity threshold. This allows exclusion of a specified hazardous substance held in quantities sufficiently small and separated from other more significant quantities that it cannot, on its own, initiate a major incident at the facility. That is, any incident involving the isolated quantity cannot affect other quantities and escalate into a major incident.

The quantity must be less than 2% of the relevant upper threshold quantity to be excluded. A quantity of a hazardous substance may not initiate a major incident if:

> the maximum effect radius of an incident involving the substance cannot impact other hazardous substances and cause a major incident (eg knock-on effect)

> its location means that a loss of containment of the substance is unlikely to result in a serious risk to the health or safety of people

> it can be isolated sufficiently during process shutdown so the release is limited to that isolated quantity at that location. This requires the shutdown be automatic and rapid, and to isolate the equipment from other hazardous substances in the system.

Depending on the specified hazardous substance, storage may be sufficiently isolated if it is in a separate compound, behind a fire-rated barrier or in a transport container. In the notification, justify why isolated quantities have been excluded from aggregation. Compliance with a relevant standard may be acceptable, but review it in the context of potentially initiating or contributing to a major incident.

Exclusions apply only when you calculate the aggregate quantity. If a facility is an MHF despite these exclusions, the requirements of the MHF Regulations apply to **ALL** specified hazardous substances that can cause or contribute to a major incident. That includes those excluded from the threshold calculations.

Regulation 29 describes the exclusion of an isolated quantity of a specified hazardous substance in calculating the quantity of specified hazardous substances.

Example 22: Isolated small quantities

A facility has two large tanks containing a total of 195 t of LPG and two small tanks each containing 3 t of LPG (see Figure 3).

Both small tanks can be excluded under the less than 2% rule because each tank is less than 2 per cent of the LPG upper threshold quantity (200 t) segregated from each other such that a loss of containment at one vessel will not affect any other located where it is very unlikely to expose a person to a risk to health and safety.

The result is the relevant quantity is only 195 t even though the total quantity of LPG is 201 t. Therefore WorkSafe will not automatically decide the facility is a UTMHF. The operator must still notify WorkSafe because the quantity exceeds the lower threshold quantity and WorkSafe will designate the facility an LTMHF. In the notification, the operator should justify exclusion of the two small tanks from the aggregation.

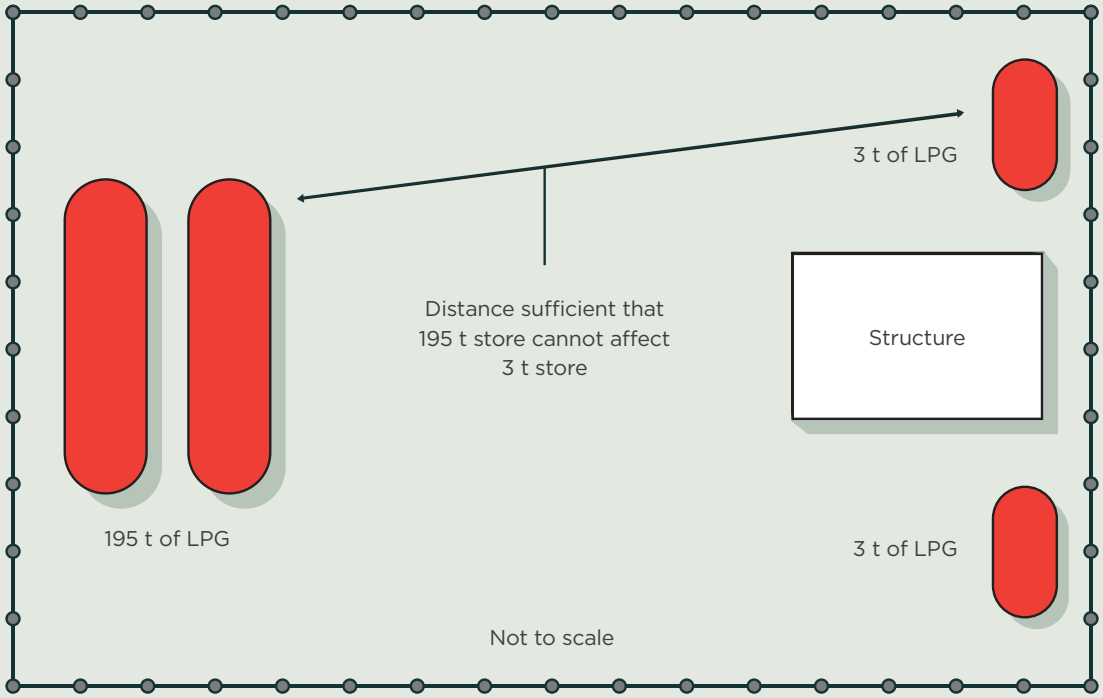

Figure 3: Facility with isolated small quantities

Note: The remaining quantity of 195 t is sufficiently close to the upper threshold quantity that WorkSafe could decide to designate the facility as a UTMHF if other factors apply (see section 4.3).

Example 23: Facility without isolated small quantities

A facility has two large tanks containing 198 t of LPG and a small tank containing 4 t of LPG (see Figure 4).

The small tank is 2 per cent of the upper threshold quantity (200 t) and is located where it may initiate a major incident involving the large tanks. The 2 per cent rule does not apply as the 4 t tank is not less than 2%, so the operator must include it in the calculation. Since the total amount of LPG is 202 t, and the upper threshold quantity is 200 t, the operator must notify WorkSafe, and WorkSafe will designate the facility a UTMHF.

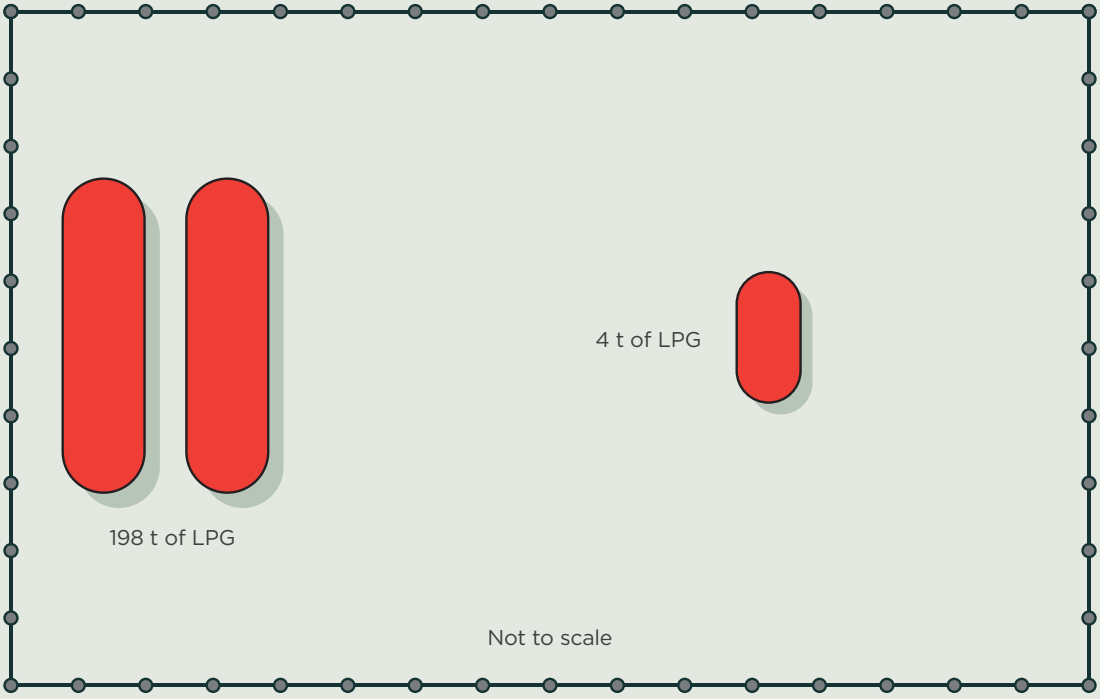

Figure 4: Facility without an isolated small quantity

04/

DESIGNATION

IN THIS SECTION:

WorkSafe will designate facilities that notify with specified hazardous substances present or likely to be present that equal or exceed the lower threshold quantity as MHFs.

4.1 MANDATORY DESIGNATION

WorkSafe will decide the facility is an LTMHF and must designate the facility as an LTMHF if the quantity of specified hazardous substances present or likely to be present is:

> equal to or exceeding the lower threshold quantity
> not equal to or exceeding the upper threshold quantity.

WorkSafe will decide the facility is a UTMHF if the quantity of specified hazardous substances present or likely to be present is equal to or exceeding the upper threshold quantity.

4.2 DISCRETIONARY DESIGNATION

An LTMHF may be the subject of a review if it holds at least the lower threshold quantity but less than the upper threshold quantity. This review could mean WorkSafe designates the facility as a UTMHF. If on completion of the review, WorkSafe considers there is increased potential for a major incident to occur, WorkSafe may designate the facility as a UTMHF.

The review may only be conducted if WorkSafe has reasonable grounds to believe there is increased potential for a major incident to occur at the facility. The review may be triggered by information supplied during notification. Other relevant sources of information might include:

> applications for planning permits or amendments
> reports of an incident involving specified hazardous substances at the facility
> direct communication by independent parties.

Regulation 20 allows WorkSafe to designate an LTMHF as a UTMHF after a review of the facility.

4.3 WORKSAFE'S REVIEW OF A FACILITY

WorkSafe must give a written notice to you (or the nominated contact person in the notification) of its intention to commence a review and the reasons for the review. WorkSafe must also invite you to make a submission.

WorkSafe will consider whether there is increased potential for a major incident to occur at the LTMHF by considering:

> **The quantity or combination of specified hazardous substances present or likely to be present at the facility.** WorkSafe will consider a review for those LTMHFs where the quantity of specified hazardous substances is close to the upper threshold quantity. For example, a review is likely if inherently unstable or mutually incompatible specified hazardous substances are present in significant quantities, and increase the potential for a major incident to occur.

- **The type of activities within the facility involving the specified hazardous substances.** WorkSafe is more likely to review the LTMHF if the activities conducted at the LTMHF are in some way intrinsically of higher hazard. Examples include activities involving processes that:
  - have the potential to generate hazardous by-products (eg of extreme toxicity).
  - involve extremes of temperature or pressure.
  - are complex, requiring advanced engineering controls to ensure safety.
- **The land use and other activities in the area surrounding the facility**. There could be potentially higher consequences of an incident where the surrounding area:
  - is a high-density residential area.
  - contains one or more neighbouring facilities which could escalate a major incident.
  - contains sensitive populations such as hospitals, schools, and other places where the public congregate.
- **Any other relevant matter.** This will be decided on a case by case basis.

During the review, WorkSafe must consider your submission and consult with interested parties, including representatives at the LTMHF, emergency services, and the local authority. WorkSafe will consider any submissions and consultation and decide whether to designate an LTMHF as a UTMHF.

Regulation 16 sets out the review procedure that must be followed.

4.4 CONDITIONS ON DESIGNATION

When WorkSafe designates an LTMHF or UTMHF, they may impose reasonably appropriate conditions on the designation. WorkSafe may also impose one or more of these specific conditions:

- additional controls to be implemented in relation to the work or activities at the MHF
- the recording or keeping of additional information
- the provision of additional information, training, and instruction to additional persons or classes of persons
- the provision of additional information to WorkSafe
- if the operator is any other person, the qualifications or duties, or both, of any officer of the operator.

You must comply with any imposed conditions.

Regulation 22 allows WorkSafe to impose conditions on designations of MHFs.

4.5 PUBLIC INFORMATION

WorkSafe must maintain a record on an internet site of information relating to every designated LTMHF and UTMHF. Once the facility has been designated as an MHF, WorkSafe will provide you with an electronic form to complete.

Regulation 68 lists the information that WorkSafe must provide to the public.

4.6 FEES AND ANNUAL LEVIES

If you operate a designated MHF, you must pay WorkSafe the relevant annual levy.

The operator of a proposed facility is not required to pay an annual levy until specified hazardous substances are for the first time present at the facility in a quantity that is equal to or exceeding the lower threshold quantity.

To enable the correct levy to be paid, as an operator of a proposed facility, you must notify WorkSafe, when specified hazardous substances are for the first time present at the facility in a quantity that is equal to or exceeding the lower threshold quantity. The notification must specify the date on which the quantity of specified hazardous substances present at the facility is equal to or exceeds the lower threshold quantity.

Table 4 specifies the relevant annual levy that you must pay with GST. The levy is due on 1 July of each year and must be paid by 1 August of each year, except in the first year of operation as a designated MHF. WorkSafe may, on an operator's request, extend the time by which you must pay an annual levy.

MHF TYPE	ANNUAL LEVY ($)	NEW SAFETY CASE FEES		REVISED SAFETY CASE FEES	
		Fee ($)	Discounted fee for each additional facility ($)	Fee ($)	Discounted fee for each additional facility ($)
LTMHF – Type 1	12,500	–	–	–	–
LTMHF – Type 2	15,000	–	–	–	–
LTMHF – Type 3	18,000	–	–	–	–
UTMHF – Type 1	23,000	45,000	36,000	20,000	16,000
UTMHF – Type 2	28,000	56,000	44,800	25,000	20,000
UTMHF – Type 3	34,000	67,000	54,000	30,000	24,000

Table 4: Fees and levies (excluding GST)

If the facility is designated a UTMHF, you must pay the relevant fee for WorkSafe to assess the safety case. Table 4 specifies the relevant fees that you must pay with GST.

If you operate more than one UTMHF under substantially the same SMS the:

> full fee[2] for a new or revised safety case applies to one of those MHFs; and

> discounted fee applies to each additional MHF.

[2] The full fee applies to the MHF which has the highest fee for a new or revised safety case.

Example 24: Type 3 UTMHF

An operator operates one or more type 3 UTMHFs under substantially the same SMS. The full fee for a new or revised safety case applies to one of the type 3 UTMHFs, and the discounted fees apply to the other type 3 UTMHFs.

Example 25: Type 2 and type 1 UTMHFs

An operator operates two type 2 and two type 1 UTMHFs under substantially the same SMS. The full fee for a new or revised safety case applies to one of the type 2 UTMHFs as this type has the higher fee, and the discounted fees apply to the other type 2 and both type 1 UTMHFs.

For more information on the review and revision of a safety case, see WorkSafe's GPG *Major Hazard Facilities: Safety Cases*.

05/

DESIGN NOTICE

IN THIS SECTION:

The design notice starts communication between you, the operator, and WorkSafe before the design of a proposed facility where upper threshold quantities may be present is completed. This allows inherent safety to be considered early in the design process. It allows early identification of potential difficulties with accepting the safety case.

A design notice provides WorkSafe with a broad overview of the proposed facility's design, design process, and intended use. It shows WorkSafe how the chosen design concept eliminates or minimises the risks associated with each major incident hazard so far as is reasonably practicable. For example, facility layout, equipment configurations, and technology choices may be reasonably practicable to implement at the design stage, but more difficult once the facility has been built.

Communicate with WorkSafe about your intention to construct a facility. You can do this as early as the feasibility study or conceptual design. Early contact ensures:

- improved safety outcomes (since decisions at the early stages, such as choice of technology or site layout, can have a major effect on the eventual risk profile of a facility)
- an ongoing relationship with WorkSafe's High Hazards Unit MHF team
- early discussion on the legislative requirements and the benefit of WorkSafe's knowledge from its observations on other projects, such as critical timing of formal notices
- discussion and advice on approaches for developing the safety case alongside other development work in the project
- other local government and central government agencies can also be notified
- WorkSafe is aware of any resource consent process about the MHF undertaken by the local authority.

5.1 WHO NEEDS TO SUBMIT A DESIGN NOTICE?

A PROPOSED FACILITY

You must submit a design notice before completing the design of a proposed facility where specified hazardous substances equal to or exceeding the upper threshold quantity may be present. Later in the process, you must also notify WorkSafe for designation purposes, see section 2.

Example 24: Proposed facilities that need to submit a design notice

- Where an operator proposes to build a new facility that may hold specified hazardous substances in a quantity equal to or exceeding the upper threshold quantity on a greenfield site.
- Where the operator of an existing warehouse operation, previously classified as neither an LTMHF nor UTMHF, decides to add 110 kg of arsenic trioxide to their inventory that has an upper threshold quantity of 0.1 t (100 kg), the warehouse will exceed the upper threshold quantity. The warehouse must submit a design notice and notification, and the operator should notify before they accept the additional stock.

> A proposed chemical manufacturing UTMHF should notify and submit a design notice during the design stage of its development and keep WorkSafe informed of changes. These changes may include decisions on layout, inventory, number of workers, organisational structure, etc.

EXEMPTION FROM SUBMITTING A DESIGN NOTICE

If you're an operator of an existing designated UTMHF, you're not required to submit a design notice when modifying the UTMHF. This is covered by the requirement to review documents instead.

If you propose to modify your existing UTMHF, you should review your safety assessment, emergency plan, SMS, and safety case to make sure they are still current. If not, they must be revised.

Regulation 41 details the situation when the safety assessment, emergency plan, SMS, and safety case are required to be reviewed instead of submitting a design notice.

Example 25: Review documents instead of giving design notice

A resin manufacturer designated as a UTMHF decides to install additional reactors to increase capacity. A design notice is not required, but the operator should review the SMS, safety assessment, and emergency plan and revise them to allow for the modification.

The operator should review and revise the accepted safety case, if it doesn't currently allow for installing additional reactors. This is because the operator must (as applicable) operate, modify, maintain, recommission, or decommission the UTMHF in a manner that is consistent with the accepted safety case and any conditions or limitations imposed by WorkSafe.

5.2 WHAT INFORMATION DO I NEED TO PROVIDE IN THE DESIGN NOTICE?

The design notice must contain the information required in Schedule 6, but only to the extent that can be reasonably expected at the time the design notice is first submitted to WorkSafe.

You must continue to notify WorkSafe of any material change to any matter described in the design notice up to the time of the safety case submission.

5.3 WHEN DO I NEED TO SUBMIT A DESIGN NOTICE?

Submit the design notice to WorkSafe as soon as practicable:

> after selecting a design concept

> before making a final investment decision

> before commencing development of a detailed design.

Sending the notice to WorkSafe before the design is complete allows design alterations to occur when it's most cost effective for you.

Early notification of the proposed facility's design enables WorkSafe to point out any matters that may create difficulties with accepting your safety case if those matters are not resolved in the detailed design, construction, or commissioning stages. It allows discussion on ways to achieve inherent safety through the design process.

Regulation 40 requires the operator to submit a design notice as soon as practicable after they select a design concept and before they make a final investment decision or commence development of a detailed design.

Example 26: Potential difficulties with accepting the safety case

> A proposed facility is to be built next to other facilities or proposed facilities. The cumulative effect of the risk profiles is unacceptable to WorkSafe. The operator has not adequately considered inherent or passive controls that can easily be included at the design stage, but may be difficult once the facility is built.

> A proposed facility will be built close to a sensitive land use, such as a hospital or prison. If the risk profiles extend onto this sensitive land use, this will create a difficulty with accepting the safety case. More controls will be needed to minimise the magnitude and severity of major incidents.

> A proposed facility will use an acutely toxic substance as part of the production process. For example, the operator proposes to make polycarbonates using phosgene as an intermediate raw material. As phosgene is highly toxic, the operator should use diphenyl carbonate instead.

> An area of high occupancy, such as a control room, will be within a zone of overpressure at the facility that will cause injury to the occupants.

5.4 WHAT HAPPENS AFTER SUBMITTING A DESIGN NOTICE?

WorkSafe expects that milestones and scheduling within the design notice will be firmly tied to safety case project milestones. For example, the safety case development should be done with process design to select appropriate controls rather than for this work to be conducted independently.

The design notice should start the communication with WorkSafe that continues throughout the period between the design notice and the safety case submission. WorkSafe must indicate in writing any matters which, if not taken into account in the detailed design, construction or commissioning stages may create difficulties with accepting the safety case.

Regulation 42 details the obligations of WorkSafe on receipt of a design notice.

APPENDICES

IN THIS SECTION:

APPENDIX A: INVENTORY CALCULATION SCENARIO

This scenario demonstrates some of the steps you could use to calculate your own inventory of specified hazardous substances. This scenario uses a fictitious facility with three specified hazardous substances.

Step 1: Identify all specified hazardous substances.

Step 2: Identify all the specified hazardous substances HSNO classifications using the Environmental Protection Authority website: www.epa.govt.nz

Step 3: For each specified hazardous substance determine whether it's a:

> named hazardous substance listed in table 2, and if it also falls within the hazard categories in table 1

> specified hazardous substance that falls within a hazard category in table 1.

Step 4: Determine the lower threshold quantities (Q_{Lx}) and upper threshold quantities (Q_{Ux}) for each specified hazardous substance.

> For a named hazardous substance listed in table 2, and also falling within the hazard categories in table 1, use the threshold quantities in table 2.

> For a specified hazardous substance that appears to have properties corresponding to two or more of the categories in table 1, use the lower or lowest relevant threshold quantities.

Table 4 covers steps 1 to 4.

SPECIFIED HAZARDOUS SUBSTANCES	HSNO CLASSIFICATION	HAZARD CATEGORY OR NAMED	LOWER THRESHOLD QUANTITY (t) (Q_{Lx})	UPPER THRESHOLD QUANTITY (t) (Q_{Ux})
Methyl Bromide	2.1.1B, 6.1B (All), 6.1B (I), 6.1C (O), 6.6B, 6.8B, 6.9A (All), 8.2C, 8.3A, 9.1A (All), 9.1A (F), 9.2A, 9.3B, 9.4A	P2	10	50
		H2	50	200
Anhydrous Ammonia	2.1.1B, 6.1C (All), 6.1C (I), 8.2B, 8.3A, 9.1A (All), 9.1A (F), 9.1D (C)	Named	50	200
Chloropicrin	6.1A (All), 6.1A (I), 6.1B (D), 6.1B (O), 6.5A, 6.5B, 6.9A (All), 6.9A (I), 6.9A (O), 8.2C, 8.3A, 9.1A (A), 9.1A (All), 9.1A (C), 9.1A (F), 9.2B, 9.3A	H1	5	20

Table 5: The facility's specified hazardous substances

Step 5: Determine the locations of the specified hazardous substances likely to be present in the facility.

Step 6: Determine the maximum quantities likely to be present.

Step 7: Calculate the inventory of specified hazardous substances and any assumptions made when calculating the inventory (eg these could include applying the 'less than 2% rule' or including trucks parked overnight as regularly storage).

Table 5 covers steps 5 to 7.

LOCATIONS	INFORMATION	MAXIMUM QUANTITY LIKELY TO BE PRESENT (units)	INVENTORY (t)	ASSUMPTIONS AND DESIGN NOTES/ CALCULATIONS
Truck bulk delivery (Chloropicrin)	10 t (per truck)	1 (truck)	0	> Would only be at the facility to refill existing storage capacity. > Quantity excluded to avoid double counting.
Feed line (Methyl Bromide)	Measured to nearest isolation point	0.05 (t)	0.05	> Pipeline's design determines this amount could escape during emergency shutdown before isolation.
Bulk Vessel T-001 (Methyl Bromide)	Design max 40,000 litres	X (t)	69.2	> Maximum storage tank capacity (water capacity of vessel – stamped on nameplate). > Calculated specific gravity (liquid) of 1.73.
Bulk Vessel T-002 (Chloropicrin)	Design max 10,000 litres	X (t)	16.4	> Maximum storage tank capacity. > Calculated specific gravity (liquid) of 1.64.
Bulk Vessel T-003 (Anhydrous Ammonia)	Design max 10,000 litres	X (t)	6.2	> Maximum storage tank capacity. > Calculated specific gravity (liquid) of 0.62.

Table 6: The facility's inventory considerations

Step 8: Using the inventory, calculate the inventory/threshold ratios for lower tier and upper tier thresholds for all relevant hazard categories (health, physical, O1, O2, O3). Some named substances exhibit two types of hazard categories, for these substances the ratio you calculate for both hazard categories will be the same. This is because a named substance's thresholds, in table 2 of Schedule 2, don't differentiate between the different types of hazard categories.

Step 9: Add together the inventory/threshold ratios, then look at the totals of the inventory/ threshold ratios – if any are over 1 then notify WorkSafe.

Table 6 and Table 7 cover steps 8 and 9 using two alternative methods.

SPECIFIED HAZARDOUS SUBSTANCES	INVENTORY (from table 5)	HAZARD CATEGORY OR NAMED	LOWER THRESHOLD QUANTITY (t) (Q_{Lx})	UPPER THRESHOLD QUANTITY (t) (Q_{Ux})	INVENTORY/THRESHOLD RATIO					
					HEALTH HAZARDS		PHYSICAL HAZARDS		OTHER HAZARDS	
					LT	UT	LT	UT	LT	UT
Methyl Bromide	0.05 + 69.2 = 69.25	P2	10	50	–	–	6.925	1.385	–	–
		H2	50	200	1.385	0.346	–	–	–	–
Ammonia (Anhydrous)	6.2	Named	50	200	0.124	0.031	0.124	0.031	–	–
Chloropicrin	16.4	H1	5	20	3.28	0.82	–	–	–	–
Totals	–	–	–	–	4.789	1.197	7.049	1.416	–	–

Table 7: Calculating the quantity of specified hazardous substances (option 1)

HAZARD CATEGORY	CALCULATE THE LOWER THRESHOLD QUANTITY	CALCULATE THE UPPER THRESHOLD QUANTITY
Health	Sum of $q_1/Q_{L1} + q_2/Q_{L2} + q_3/Q_{L3} + q_4/Q_{L4} + q_5/Q_{L5} + \ldots$	Sum of $q_1/Q_{U1} + q_2/Q_{U2} + q_3/Q_{U3} + q_4/Q_{U4} + q_5/Q_{U5} + \ldots$
	69.25/50 + 6.2/50 + 16.4/5 = 4.789	**69.25/200 + 6.2/200 + 16.4/20 = 1.197**
Physical	Sum of $q_1/Q_{L1} + q_2/Q_{L2} + q_3/Q_{L3} + q_4/Q_{L4} + q_5/Q_{L5} + \ldots$	Sum of $q_1/Q_{U1} + q_2/Q_{U2} + q_3/Q_{U3} + q_4/Q_{U4} + q_5/Q_{U5} + \ldots$
	69.25/10 + 6.2/50 = 7.049	**69.25/50 + 6.2/200 = 1.416**
Other	Sum of $q_1/Q_{L1} + q_2/Q_{L2} + q_3/Q_{L3} + q_4/Q_{L4} + q_5/Q_{L5} + \ldots$	Sum of $q_1/Q_{U1} + q_2/Q_{U2} + q_3/Q_{U3} + q_4/Q_{U4} + q_5/Q_{U5} + \ldots$
	–	–

Table 8: Calculating the quantity of specified hazardous substances (option 2)

Result: In this scenario the facility will be a UTMHF based on the health and physical hazard categories of its specified hazardous substances.

APPENDIX B: MORE INFORMATION

NEW ZEALAND

ENVIRONMENTAL PROTECTION AUTHORITY

For information about how to manage hazardous substances visit the Environmental Protection Authority's website: www.epa.govt.nz or call 0800 376 234.

NEW ZEALAND LEGISLATION

To access all legislation including Acts and regulations visit the New Zealand Legislation website: www.legislation.govt.nz

YOUR LOCAL COUNCIL

Your council might have additional rules that need to be met. Check with your local council for specific rules that apply in your region.

INTERNATIONAL

EUROPEAN COMMISSION (EUROPE)

For information and guidance from the European commission's Major Accident Hazards Bureau visit their website minerva.jrc.ec.europa.eu/publications

HEALTH AND SAFETY EXECUTIVE (HSE) (UK)

For information and guidance about the UK's Control of Major Accident Hazards (COMAH) Regulations visit the HSE's website: www.hse.gov.uk

SAFE WORK AUSTRALIA (AUSTRALIA)

For guidance to assist with preparing an effective safety case that meets Australia's Work Health and Safety Regulations visit Safe Work Australia's website: www.safeworkaustralia.gov.au

WORKSAFE VICTORIA (AUSTRALIA)

For guidance to assist with preparing a safety case for a MHF visit WorkSafe Victoria's website: www.worksafe.vic.gov.au

FURTHER READING

For information and guidance about health and safety or to contact the High Hazard Unit visit WorkSafe's website: www.worksafe.govt.nz or call 0800 030 040.

Related WorkSafe publications:

> *Hazardous Substances in Transit Depots*
> *Introduction to the Health and Safety at Work Act 2015*
> *Major Hazard Facilities: Emergency Planning*
> *Major Hazard Facilities: Major Accident Prevention Policy and Safety Management Systems*
> *Major Hazard Facilities: Safety Assessment*
> *Major Hazard Facilities: Safety Cases.*

Guidance Note: Information for Persons Intending to Operate an MHF
WorkSafe Victoria: www.worksafe.vic.gov.au

Guidance Note: Notification and Registration of a Major Hazard Facility
WorkSafe Victoria: www.worksafe.vic.gov.au

Guidance Note: Determination Process for a Major Hazard Facility
WorkSafe Victoria: www.worksafe.vic.gov.au

Guide for Major Hazard Facilities – Notification and Determination
Safe Work Australia: www.safeworkaustralia.gov.au

APPENDIX C: GLOSSARY

TERM	BRIEF EXPLANATION
Accepted safety case	A safety case which WorkSafe has accepted under Regulation 48.
Amended safety case	If WorkSafe has initially rejected a safety case or revised safety case under Regulation 48, an operator may amend the safety case and resubmit it for acceptance. This is an amended safety case.
Change or proposed change at a MHF	Defined in the MHF Regulations. It means a change or proposed change of any kind, including: > a change to any plant, structure, process, hazardous substance or other substance used in a process, (including the introduction of new plant, new structure, new process or new hazardous substance) > a change to the quantity of specified hazardous substances that are present or likely to be present at the facility > a change to the operation, or the nature of the operation, of the facility > a change to the facility's SMS > an organisational change at the facility (including a change in its senior management).
Control	A measure to eliminate or minimise, so far as is reasonably practicable, the risk of a major incident occurring; or to minimise so far as is reasonably practicable, the magnitude or severity of a major incident, as described in Regulation 30.
Critical operating parameters	The upper or lower performance limits of any equipment, process or procedure, compliance with which is necessary to avoid a major incident.
Designated transfer zones	Defined in Regulation 11 of the Hazardous Substances (Classes 1 to 5 Controls) Regulations 2001.
Designation	A formal decision made by WorkSafe that a facility is or will be either an LTMHF or an UTMHF for the purposes of the MHF Regulations.
Emergency	An incident at a MHF requiring activation of the emergency plan.
Environmental Protection Authority (EPA)	A government agency responsible for certain regulatory functions concerning New Zealand's environmental management.
Facility	Defined in the MHF Regulations, means the whole area under the control of the same person where specified hazardous substances are present in 1 or more places. Two or more areas under the control of the same person and separated only by a road, railway, inland waterway, pipeline, or other structure are treated as 1 whole area for the purposes of this definition.
Facility emergency control centre (FECC)	An area where designated personnel co-ordinate information, develop strategies for addressing the media and government agencies, handle logistical support for the response team, and perform management functions. A centralised support facility allows emergency managers and staff to contend with incident issues more effectively.
Facility emergency controller (FEC)	The person in charge of managing an emergency for the facility and has overall responsibility for all functions performed by facility personnel during an emergency.
Failure of a control	This means if the control: > is a positive action or event: the non-occurrence or the defective occurrence of that action or event > consists of a limitation on an operational activity, process or procedure: the breach of that limitation.

TERM	BRIEF EXPLANATION
GHS	The Globally Harmonized System of Classification and Labelling of Chemicals, Fifth revised edition, published by the United Nations.
Greenfield	An area of land, or some other undeveloped site earmarked for commercial development.
Hazard	A situation or thing that could harm someone, and includes a person's behaviour. For example, an unguarded machine, hazardous substances etc.
Hazard identification	The systematic and comprehensive process of identifying hazards.
Isolated quantity	Defined in the MHF Regulations, means a quantity of a hazardous substance where its location at the facility is such that it cannot on its own initiate a major incident elsewhere at the facility.
Knock-on effects	Secondary events (such as toxic releases) triggered by a primary event (such as an explosion), resulting in an increase in consequences or in the area of an impact zone over the initial event.
Local authority	A territorial authority within the meaning of section 5(1) of the Local Government Act 2002.
Local community	This is defined in the MHF Regulations as: (a) meaning, at a minimum, all persons within a 1 km radius of any point on the perimeter of a MHF, and (b) including all persons in an area which might be affected by a major incident occurring at a MHF. The words 'at a minimum' mean the 1 km radius does not mark the extent of the definition. Paragraph (b) may extend the scope of the definition well beyond 1 km in some circumstances.
Lower threshold quantity	Defined in the MHF Regulations, the quantity specified in column 4 of table 1 or column 3 of table 2 of Schedule 2, and calculated in accordance with Part 3 of the MHF Regulations.
Lower tier major hazard facility (LTMHF)	Defined in the MHF Regulations, a facility that WorkSafe has designated as an LTMHF.
Major hazard facility (MHF)	Defined in the MHF Regulations, a facility that WorkSafe has designated as an LTMHF or a UTMHF.
Major incident	Defined in the MHF Regulations as an uncontrolled event at a MHF that involves, or potentially involves, specified hazardous substances, and exposes multiple persons to a serious risk to their health and safety (including a risk of death) arising from an immediate or imminent exposure to: > 1 or more of those substances as a result of the event > the direct or indirect effects of the event.
Major incident hazard	Defined in the MHF Regulations, a hazard that has the potential to cause a major incident.
Major incident pathway	The process or sequence by which the major incident hazard develops into a major incident. Depending on the incident process model adopted, this includes how the initiators, contributing factors, enabling conditions, system failures and mechanisms come together into the incident.

TERM	BRIEF EXPLANATION
Near miss	A situation where a worker or any other person is exposed to a serious risk to their health and safety, even if no harm was incurred.
Notifiable event	This is defined in HSWA as: > the death of a person > a notifiable injury or illness > a notifiable incident.
Notifiable incident	Defined in HSWA, generally an incident that exposes workers or other people to a serious risk to health or safety. It must be reported to WorkSafe, or the relevant designated agency.
Notification	The notification to WorkSafe required by MHF Regulations 12, 13, and 17. Notification is required if specified hazardous substances are present or likely to be present at a facility in a quantity equal to or exceeding the lower threshold quantity or if there is a proposed new operator.
Off site	Defined in the MHF Regulations, this means not on site.
Officer	Defined in HSWA, in summary it means a person that exercises significant influence over the PCBU's management. For example, the CEO, a director, or a partner in a partnership.
On site	Defined in the MHF Regulations, this means at or in a facility.
Operator	Defined in the MHF Regulations, the PCBU who manages or controls a facility or a proposed facility, and has the power to direct the whole facility be shut down.
Person conducting a business or undertaking (PCBU)	Defined in HSWA, generally any legal person running a business or undertaking. For example, includes a limited liability company, partnership, trust, incorporated society, etc.
Pipeline	Defined in Regulation 2 of the Health and Safety in Employment (Pipelines) Regulations 1999.
Proposed facility	Defined in the MHF Regulations. It is an existing workplace that is to become a facility or a facility that is to be built in the future.
Qualitative risk assessment	A relative measure of risk based on ranking or separation into descriptive categories such as low, medium, high.
Quantitative risk assessment	The use of data to determine risk. Requires calculations of two components of risk; the consequence of the hazard, and the likelihood that the hazard will occur.
Risk	The likelihood of a specific level of harm occurring from a hazard.
Risk assessment	This involves considering what could happen if someone is exposed to a hazard and the likelihood of it happening.
Safety assessment	Defined in the MHF Regulations, the general process by which the operator of a MHF systematically and comprehensively investigates and analyses all aspects of risks (including decisions around which controls to implement) to health and safety associated with all major incidents that could occur in the course of the operation of the MHF.
Safety case	Defined in the MHF Regulations, generally a written presentation of the technical, management and operational information covering the hazards and risks that may lead to a major incident at a UTMHF, and their control. It provides justification for the measures taken to ensure the safe operation of the facility.

TERM	BRIEF EXPLANATION
Safety management system (SMS)	Defined in the MHF Regulations, generally a comprehensive integrated system for managing all aspects of risk control at a MHF and used by the operator as the primary means of ensuring safe operation of the MHF.
Safety-critical element	Defined in the MHF Regulations, means any part of a facility or its plant (including a computer program): > that has the purpose of preventing, or limiting the effect of, a major incident; and > the failure of which could cause or contribute substantially to a major incident.
Specified hazardous substances	Defined in the MHF Regulations, these are table 1 or 2 hazardous substances.
Structure	Defined in HSWA, means anything that is constructed, whether fixed, moveable, temporary, or permanent; including: > buildings, masts, towers, frameworks, pipelines, quarries, bridges, and underground works (including shafts or tunnels) > any component of a structure > part of a structure.
Table 1	The table of categories of hazardous substances in Schedule 2 of the MHF Regulations.
Table 1 or 2 hazardous substance	Defined in the MHF Regulations, this means: > hazardous substances specified in column 1 of table 2 of Schedule 2 > categories of hazardous substances referred to in column 1 of table 1 of Schedule 2.
Table 2	The table of named hazardous substances in Schedule 2 of the MHF Regulations.
Threshold quantity	Defined in the MHF Regulations, means the lower threshold quantity or the upper threshold quantity.
Transit depot	Defined in Regulation 3 of the Hazardous Substances (Classes 1 to 5 Controls) Regulations 2001.
Union	Is an organisation that supports its membership by advocating on their behalf. The Employment Relations Act 2000 gives employees the freedom to join unions and bargain collectively without discrimination. Workers can choose whether or not to join a union. A union is entitled to represent members' employment interests, including health and safety matters.
Upper threshold quantity	Defined in the MHF Regulations, means the quantity specified in column 5 of table 1 or column 4 of table 2 of Schedule 2, and calculated in accordance with Part 3 of the MHF Regulations.
Upper tier major hazard facility (UTMHF)	Defined in the MHF Regulations, means a facility that WorkSafe has designated as a UTMHF.
Worker	Defined in HSWA, generally a person who carries out work in any capacity for a PCBU. It covers almost all working relationships, including employees, contractors, sub-contractors, and volunteer workers.

TERM	BRIEF EXPLANATION
Worker representative	In relation to a worker, means: > the health and safety representative for the worker > a union representing the worker > any other person the worker authorises to represent them (eg community or church leaders, lawyers, occupational physicians, nurses, respected members of ethnic communities). Workers can ask a worker representative to raise health and safety issues with a PCBU on their behalf.
Workplace	Defined in HSWA, generally a place where work is carried out for a PCBU, including any place where a worker goes, or is likely to be, while at work.

DISCLAIMER

WorkSafe New Zealand has made every effort to ensure the information contained in this publication is reliable, but makes no guarantee of its completeness. WorkSafe may change the contents of this guideline at any time without notice.

This document is a guideline only. It should not be used as a substitute for legislation or legal advice. WorkSafe is not responsible for the results of any action taken on the basis of information in this document, or for any errors or omissions.

ISBN: 978-0-908336-35-7 (online)

Published: July 2016 Amended: May 2017

PO Box 165, Wellington 6140, New Zealand

www.worksafe.govt.nz

WSNZ_2253_JAN 20

WorkSafe New Zealand
Level 6
86 Customhouse Quay
PO Box 165
Wellington 6140

Phone: +64 4 897 7699
Fax: +64 4 415 4015
0800 030 040
www.worksafe.govt.nz
@WorkSafeNZ

ISBN: 978-0-908336-35-7 (online)

New Zealand Government

WORKSAFE NEW ZEALAND | MAHI HAUMARU AOTEAROA