GOOD PRACTICE GUIDELINES

MAJOR HAZARD FACILITIES: Emergency Planning

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WORKSAFE NEW ZEALAND | MAHI HAUMARU AOTEAROA

This guideline offers advice on how to prepare an emergency plan that meets the requirements of the Health and Safety at Work (Major Hazard Facilities) Regulations 2016.

ACKNOWLEDGEMENTS

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EMERGENCY PLANNING KEY POINTS:

Operators of designated major hazard facilities must prepare and test an emergency plan.

An emergency plan for a designated lower tier major hazard facility may form part of any other management documentation for an emergency.

An emergency plan for a designated upper tier major hazard facility must include specific information detailed in Schedule 3 of the MHF Regulations.

When developing and revising the emergency plan, operators must engage with workers and consult emergency services organisations, local authorities, and operators of nearby major hazard facilities.

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INTRODUCTION

IN THIS SECTION:

This guideline will help an operator plan for an emergency and understand how to minimise the effect of an incident both inside and outside the MHF.

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 emergency plan.

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 lower tier major hazard facility (LTMHF) or upper tier major hazard facility (UTMHF), collectively called major hazard facilities (MHF). You must develop an emergency plan.

1.2 WHAT IS AN EMERGENCY PLAN?

An important element of any system for preventing and responding to major incidents is to establish an MHF-specific emergency plan. Emergency planning seeks to minimise the effect of an incident both inside and outside a MHF, and requires the timely application of defined procedures by people with adequate training and resources. For this to occur, you must develop, document, and test plans and procedures specific to relevant activities at the MHF before an event occurs.

An MHF's emergency plan limits the magnitude and severity of the health and safety consequences of an incident, including all major incidents on-site and off-site. The plan must be appropriate to the hazards and risks of an MHF and specific to that MHF.

An emergency plan may also aim to limit or manage the effects or consequences on property or the environment. Further, emergencies may occur that are not associated with specified hazardous substances, such as those arising from natural events (eg flood or fire). Avoid multiple plans. A single plan facilitates rapid response of emergency personnel and resources, and avoids confusion about which plan to execute in a particular type of emergency. Where there are concentrations of MHFs in an area or complex MHFs, you may need both incident– and area-specific plans.

Emergency plans are an essential part, but only a part, of the total emergency planning framework. The plan needs to be compatible and integrated with relevant statutory emergency management arrangements. In addition, emergency services may have their own plans and procedures for responding to incidents and emergencies.

1.3 HOW YOU CAN USE THIS GUIDELINE

This guideline is for you as an MHF operator, process safety engineers, managers, and workers of MHFs and will help you to prepare and write an emergency plan which specifically addresses identified major incident scenarios for your site. It is for all designated MHFs and is non-industry specific. It also provides advice to help local authorities and emergency services carry out their roles.

By focusing on the elements contained in this guideline, develop an emergency plan that is well-structured, succinct and:

> specific to the MHF and the major incidents identified in the safety assessment
> effectively addresses the consequences of major incidents and other emergencies, both on-site and off-site
> integrated into the SMS
> developed in consultation with workers, emergency services, the local authority, and people likely to be affected by the consequences of a major incident, including neighbouring facilities
> understood by workers, visitors and other people likely to be affected by the consequences of a major incident
> tested, reviewed and updated at appropriate intervals.

For operators of LTMHFs, this guideline will help you to develop the major incident specific information to add to an existing emergency response plan or to create a new emergency plan to cover all potential major incidents.

For operators of UTMHFs, this guideline will help you to develop an emergency plan to cover all potential major incidents, to incorporate the information the MHF Regulations require. It will also enable you to produce a summary of the emergency plan for the safety case.

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.

1.4 HOW THIS GUIDELINE FITS INTO THE SUITE OF GUIDELINES

Figure 1 describes how the suite of major hazard facilities good practice guidelines (GPG) interacts.

This guideline contains advice how to:

> prepare the emergency plan
> engage workers

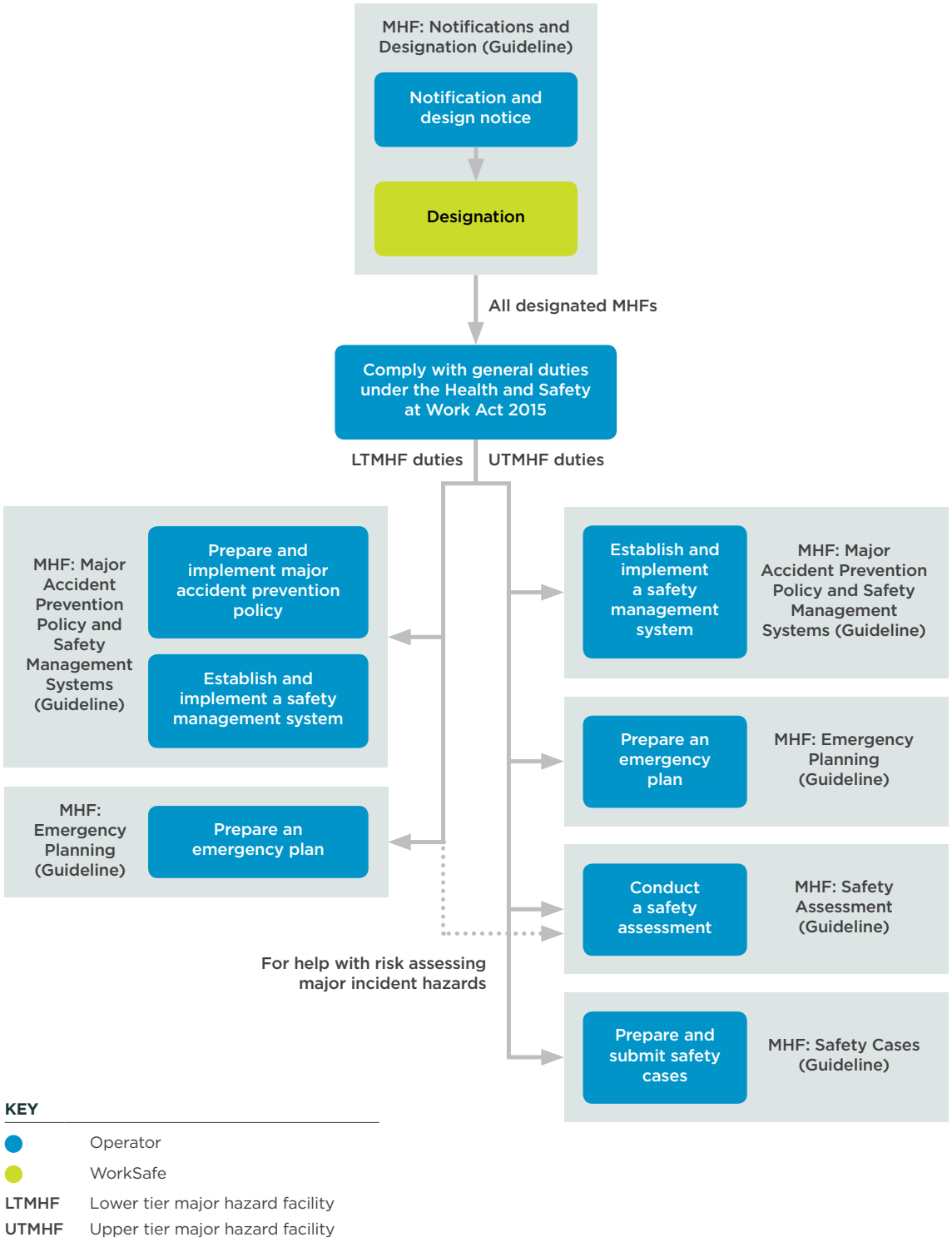

Figure 1: Overview of major hazard facilities guidelines

- consult emergency services, local authorities, and neighbouring facilities
- inform the community
- define the parameters of the emergency plan
- build the emergency management system
- commission the emergency management system
- write the emergency plan
- assemble emergency resources
- develop communication systems
- activate the emergency plan
- maintain the emergency plan.

This guideline forms part of a set of guidance that includes information on:

- Major accident prevention policies
- Notifications and designation
- Safety assessment
- Safety cases
- Safety management systems.

HOW THE EMERGENCY PLAN LINKS TO THE SMS

To remain a living document, the emergency plan must be properly supported and managed. Incorporate it into the SMS to make sure it remains effective. Include measures to promote awareness and understanding of the plan (such as training and education), controls (such as record keeping), and evaluation measures (such as regular monitoring and review).

Emergency management involves a cyclical process of four phases:

- prevention: regulatory, physical, or operational measures to prevent emergencies or mitigate their impact
- preparedness: arrangements to mobilise and deploy all necessary resources and services
- recognition and response: determining an emergency has arisen and what response actions to take, during and immediately after, to minimise its consequences
- recovery: arrangements to restore the MHF to normal as quickly and efficiently as possible and to assist the local community to recover.

Emergency planning plays a key role in this cycle of emergency management, focusing primarily on the phases of preparedness and recognition and response.

Regulation 31 requires operators to prepare an emergency plan that is integrated into the facility's SMS.

HOW THE EMERGENCY PLAN LINKS TO THE SAFETY ASSESSMENT

The emergency plan must effectively address all credible health and safety consequences of a major incident occurring. The plan is MHF-specific and must be specific to the major incident hazards identified in the safety assessment.

The safety assessment will feed directly into emergency planning. So it's vital to make sure it covers all major incidents.

Regulation 31 requires the emergency plan to be specific to the facility and the major incident hazards identified in the safety assessment.

HOW THE EMERGENCY PLAN LINKS TO THE SAFETY CASE

The purpose of a safety case is to demonstrate the operator has controlled all major incident hazards at the UTMHF adequately. The safety case must summarise the emergency plan.

Schedule 7 requires the safety case include a summary of the emergency plan.

1.5 WORKER ENGAGEMENT, PARTICIPATION AND REPRESENTATION PRACTICES

Both you, as the operator, and workers have general health and safety duties of care. Figure 2 shows your twin duties to engage with workers and to have effective worker participation practices.

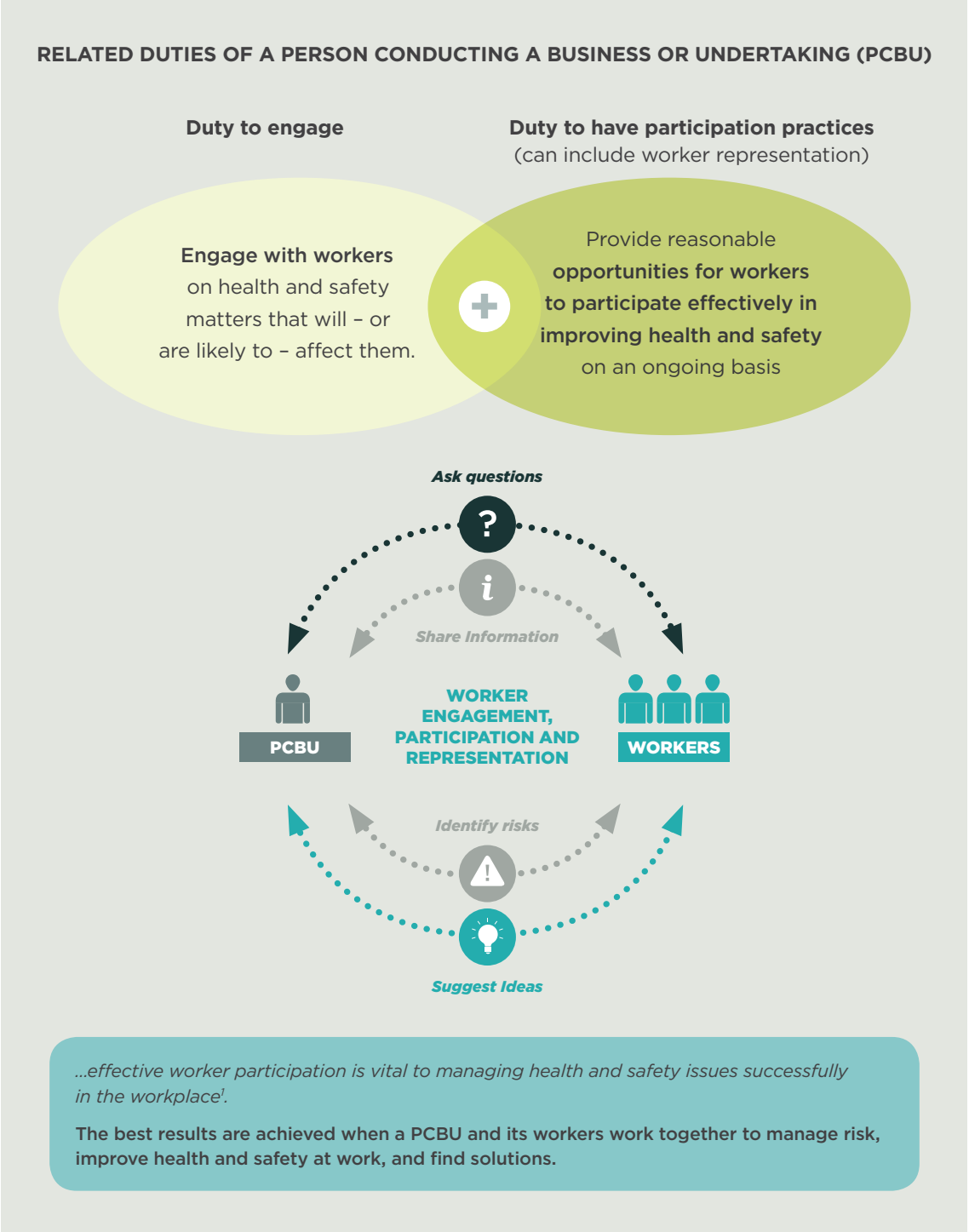

Figure 2: Worker engagement, participation and representation at a glance

[1] The Report of the Independent Taskforce on Workplace Health & Safety: He Korowai Whakaruruhau (2013) http://hstaskforce.govt.nz

For certain duties under the MHF Regulations you must engage with, and make sure there is participation of, workers and any worker representatives who are:

> identifiable at the time

> working, or likely to be working, at the MHF.

These are stronger requirements than the twin duties placed on a person conducting a business or undertaking (PCBU) under HSWA. The set of workers the duties apply to also differ. The twin duties under HSWA only apply to workers who carry out work for the business or undertaking. In comparison, the duties under the MHF Regulations apply to any identifiable worker 'working, or likely to be working,' at the MHF.

For more information, see WorkSafe's GPG *Major Hazard Facilities: Major Accident Prevention Policy and Safety Management Systems* and WorkSafe's GPG *Worker Engagement, Participation and Representation*, the guideline:

> describes a PCBU's two duties:
  - to engage with workers
  - to have effective worker participation practices

> provides practical advice on how to engage on health and safety matters

> describes effective worker participation practices, including representation, with examples.

1.6 EMERGENCY PLANNING PRINCIPLES

The key requirement of an emergency plan is that it is tailored for the MHF. It should be comprehensive and cover the full range of activities that could result in an emergency situation. That includes non-routine activities such as maintenance or construction or abnormal operating conditions. It should be relevant, realistic and sufficiently clear to be understood by all users and reviewers of the plan.

The emergency plan must be integrated with the rest of the SMS. It is important that all aspects of the emergency plan are achievable, workable and agreed to in consultation with workers, emergency services, and other relevant parties. This includes assumptions around actions required, timing, effectiveness of detection methods and decision-making processes. Consider the challenging conditions that may prevail in a real emergency, many of which may make it difficult to achieve ideal responses in practice.

There are requirements for emergency plans in other legislation such as the Health and Safety at Work (General Risk and Workplace Management) Regulations 2016 and the Hazardous Substances (Emergency Management) Regulations 2001. The MHF Regulations build on these and require the emergency plan specifically address major incidents. The purpose is not to have several emergency plans, but to make sure your emergency planning adequately addresses all emergency scenarios and meets the requirements of New Zealand's legislation.

1.7 DEFINING 'EMERGENCY'

When developing your emergency plan, define the circumstances constituting an emergency for your specific operation and activities. Note that an emergency can be initiated by either an on-site event (eg overfill tank, fire on-site) or an external event (eg fire at neighbouring MHF, earthquake, flood). The definition should also identify the types of incidents or circumstances that don't constitute an emergency, and the point at which an emergency ceases and can be de-escalated.

1.8 THE ROLE OF EMERGENCY PLANNING

Emergency planning aims to prepare for and mitigate the impacts of an emergency. Preparedness requires identifying what to prepare for and how to respond. It involves accumulating knowledge and skills, disseminating information about managing potential emergencies, and providing and allocating resources and people to deal with the emergencies identified.

Through emergency planning, workers improve their understanding of the plant, equipment, processes and materials, and their possible impacts in emergency situations. They also develop an understanding of the roles of emergency services organisations and other external agencies that could respond to an emergency. This understanding helps determine the most effective ways of using the MHF's resources, including the development of a management system identifying the functions required to respond automatically to an emergency. It also provides a basis for informed decision-making during the emergency and for effective working relations with external agencies.

02/

PREPARING THE EMERGENCY PLAN

IN THIS SECTION:

Develop the emergency plan so people know how to respond to an emergency in a way that leads to the most effective outcome possible under the circumstances.

The actual writing of the emergency plan requires careful planning. You need to appreciate the hazards and understand possible emergency scenarios, their impacts, and availability of emergency response resources both internal and external to the MHF.

This makes sure the aims, objectives and structure of the plan are clear and realistic and response measures specifically focus on realistic situations.

The plan's coverage should be comprehensive, while keeping the structure as concise, simple and flexible as possible. It should also be dynamic and interactive, and ensure ongoing relevance to the needs of the MHF and all stakeholders by continual monitoring, review and consultation.

Figure 3 outlines a systematic process for preparing an appropriate emergency plan. This systematic process also applies if you're updating an existing emergency response plan to include major incident specific information.

For an LTMHF, the emergency plan can be part of other emergency management documentation, such as that required by the *Health and Safety at Work (General Risk and Workplace Management) Regulations 2016* or the *Hazardous Substances (Emergency Management) Regulations 2001*.

For more information on the requirement for an emergency response plan, see WorkSafe's website www.worksafe.govt.nz or the Hazardous substances website www.hazardoussubstances.govt.nz

2.1 ENGAGING WITH WORKERS

Engage with, and make sure there is participation of, workers and any worker representatives identifiable at the time. Involve workers working or likely to be working when the emergency plan is developed or revised. This requirement makes sure their intimate knowledge of the MHF and its operations is incorporated into developing the emergency plan. It also generates a sense of commitment and ownership. Each person within the organisation has a responsibility to make sure they're capable of fulfilling their role in the event of an emergency.

Workers should be involved in preparing and conducting exercises to test the capability of the plan. After these exercises, provide participants with an opportunity to discuss the problems encountered and suggest possible solutions.

Regulation 31 requires the operator engage with workers while developing and revising the emergency plan.

2.2 CONSULTATION

Consultation is key for an effective emergency plan. Consult for all phases of the planning and revision process. All stakeholders affected by the plan should be consulted to make sure each group knows what to expect of the other. This should include emergency services, the local authority, surrounding community, neighbouring facilities and other government agencies.

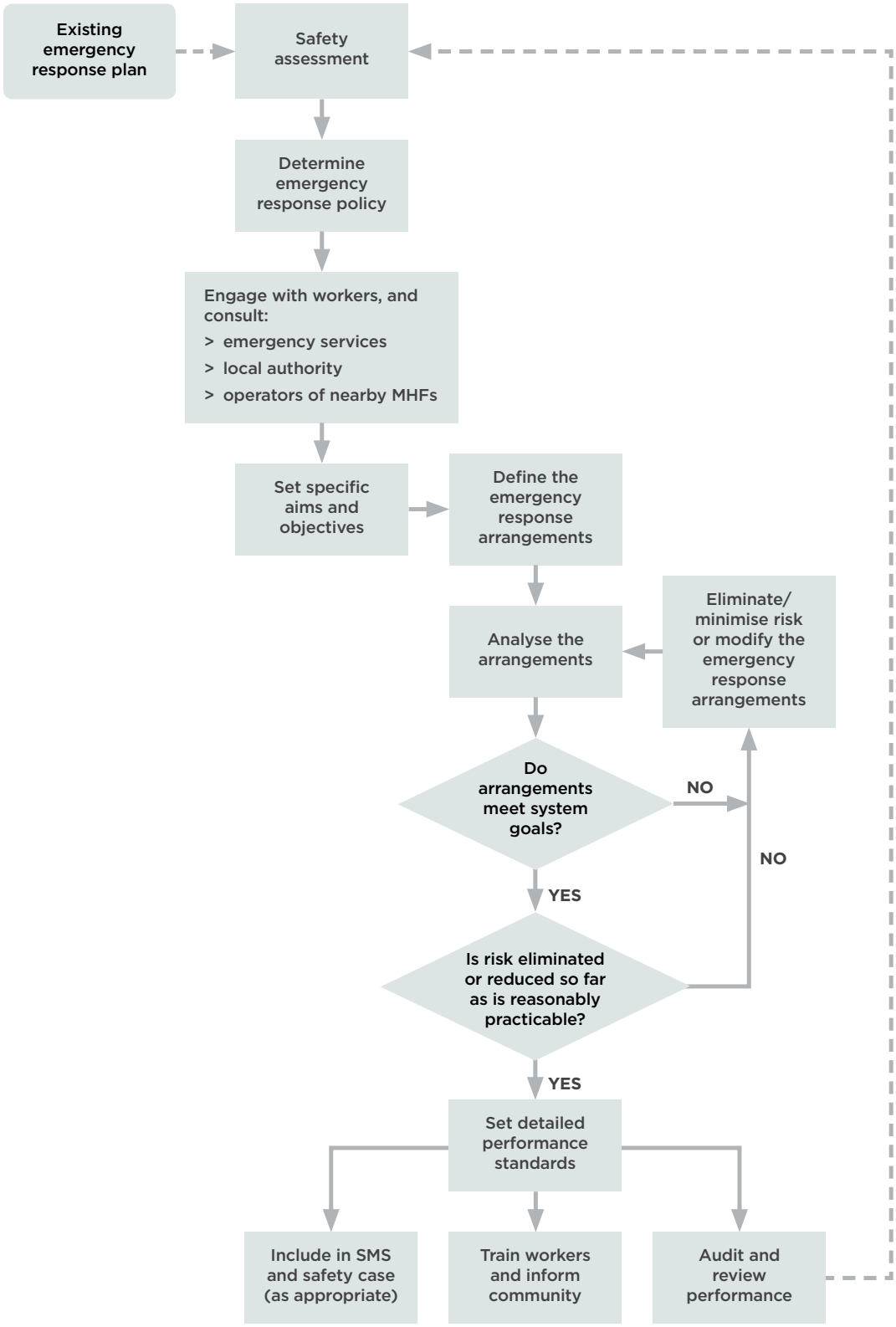

Figure 3: Emergency plan preparation

Consultation ensures you understand the roles, responsibilities, functions, and needs of stakeholders and can accurately incorporate them into the emergency plan. Consult once the plan is implemented so stakeholders can contribute to the testing, monitoring, review, and revision of the plan.

Consultation should:

> be on a proposal not yet fully decided on
> include listening to what others have to say and considering the responses
> be genuine
> be clear on who you consult, about what, in what timescale and for what purpose
> provide enough information to the person being consulted so they can make intelligent and useful responses
> allow enough time for the consultation; build it into project planning. The time allowed depends on the complexity and volume of material and the number of people you consult. For a substantial consultation, at least 30 working days is generally considered adequate
> include keeping an open mind and being ready to change and even start afresh, although there can be a work plan already in mind
> include reaching a decision, after the consultation, that may or may not alter the original proposal and evaluating the process to learn what did and didn't work
> not be a negotiation. Consultation may occur without a consensus, providing all submissions are considered equally and fairly.

Identify key stakeholders in the emergency planning process and develop ongoing relationships with these groups to make sure the consultation is comprehensive. One method of achieving this is by forming an emergency planning working group that includes representatives from all interested parties. While MHF workers can perform much of the development and management of the emergency plan, this working group can help to develop concepts and ideas. They can also confirm that the emergency plan adequately addresses their particular concerns.

For example, representatives may be from:

> regional councils
> local hospitals, district health boards, and St John Ambulance
> local civil defence emergency management offices
> the National Poisons Centre
> the New Zealand Fire Service Hazardous Substances Technical Liaison Committee (HSTLC) and Emergency Services Co-ordinating Committee (ESCC).

Regulation 31 requires the operator consult with the emergency services, the local authority, and operators of nearby facilities while developing and revising the emergency plan.

CONSULTING WITH EMERGENCY SERVICES AND LOCAL AUTHORITIES

Consult emergency services organisations and local authorities throughout the emergency planning process. You must consult:

> emergency services organisations and must make sure the emergency plan addresses any recommendations made, so far as is reasonably practicable
> the local authority about the off-site health and safety consequences of a major incident occurring and consider any recommendations made.

The degree of involvement of government and other agencies in an emergency will depend on the level and potential consequences of the emergency. Consultation can help to define the circumstances when external agencies or other groups need to become

involved. This consultation should also result in a clear understanding by all parties of the roles and responsibilities of each group in an emergency. To formalise this understanding, you may need to establish Memorandum of Understanding (MOU) agreements with the relevant agencies and organisations. These agreements should outline the interactions between the organisations, including details of the assistance to be provided in each instance.

Liaise closely with the relevant local emergency services and local authority, so they can incorporate your emergency response measures into their local/regional plans, and make sure they complement arrangements made for other types of hazards.

Expect emergency services, such as the New Zealand Fire Service (NZFS), to want to know their role in the plan, specifically:

- whether the actions required of the emergency service:
  - are initiated by a 111 call, or activation of a fire alarm system monitored by the NZFS or a security service
  - are achievable in terms of appliances, equipment, worker knowledge and capability
  - are in line with emergency services' policy, procedures, and NZFS's operational instructions
  - will require a regionally or nationally sourced incident management team if the incident is large and/or complex
- the presence of emergency teams or other specialist advisors on the site, their capability, and their roles
- what resources are on-site (eg equipment)
- whether the emergency plan's testing requirements involving the emergency service are achievable.

Emergency services should also be aware of the risk to their personnel. Emergency services personnel responding to an emergency are workers, and workplace exposure standards (WES) apply. Consult the safety data sheets (SDS) for the hazardous substances on-site to find relevant WES, and in many cases, short-term exposure limits (STEL). Base the application of exposure limits and time weighting on analysis of the substances and the specific context of the MHF.

For more information on exposure standards, see WorkSafe's *Workplace Exposure Standards and Biological Exposure Indices* (WES) publication available at www.worksafe.govt.nz

NOTIFYING EMERGENCY PLANS TO THE NEW ZEALAND FIRE SERVICE

Send a copy of all emergency plans to the NZFS. This helps them confirm their role in the plan is achievable, appropriate and in accordance with operational policies.

Send the plans to the relevant Fire Area Commander, for more information see Appendix A: New Zealand fire area offices.

Emergency plans should be specific about what the NZFS's role is. Simply stating 'to contain a spill' or 'to extinguish a fire' is too basic. The NZFS needs to know what their role is in any foreseeable major incident. For example: 'to contain and neutralise a spill of 30,000 litres of 33% hydrochloric acid leaking from a bund into an open yard'.

The Fire Area Commander will respond to you in writing and advise if the plan is outside the role of the NZFS or if it lacks key information upon which a decision can be reached. In either case, make sure the emergency plan addresses any recommendations made, so far as is reasonably practicable.

When you summarise the emergency plan in the safety case consider including any consultation and the response to any recommendations made.

CONSULTING WITH NEIGHBOURING MHFs

You must have an understanding of the potential impacts of an incident on neighbouring operations or storage areas. Consult with surrounding operators to improve everyone's understanding of the scale of potential major incidents. Just as an incident at the MHF could impact neighbouring facilities, an incident next door could cause one at your MHF, or impact it in other ways. Consultation enables you to develop procedures to prevent an incident from escalating. Neighbouring MHFs may also be able to provide resources, including people, to respond to an emergency. Several related types of operation or locality may be involved in this type of cooperative arrangement, often referred to as a mutual-aid group.

CONSULTING WITH THE LOCAL COMMUNITY

You should consult with the local community who could be affected by an emergency. This should identify their needs and address the difficulties they're likely to encounter. Community consultation not only results in a better-prepared community, but it can often lead to an improved understanding and acceptance of the industry by the wider community.

If you're an operator of a UTMHF, you must provide information to the local community and adequately consulting with them will help you do this.

To do this first identify the local community, including those that may have special requirements, such as:

> nearby workplaces
> local mutual-aid groups
> managers of sensitive environmental sites
> places that accommodate large numbers of people (eg commercial or shopping centres, motels and recreational facilities)
> places for members of the community who may be more vulnerable to the consequences of an emergency (eg schools, prisons, child care centres, hospitals and nursing homes).

You need an effective warning system for the local community that could be affected by the emergency. An effective warning system might include alarm bells, a phone ring around, radio or other media alert, or automatic text messaging, etc. Members of the community need to be aware of the action to take when the warning activates.

2.3 PROVIDING INFORMATION TO THE LOCAL COMMUNITY

If you're an operator of a UTMHF, you must provide this information within three months of WorkSafe accepting a safety case. Think about providing information on safety measures and the appropriate response in the case of an emergency without the people having to request it first.

If you're an operator of an LTMHF, you are not required to provide information to the local community, but it may still be beneficial to do so.

You may have identified some information on the surrounding area in the original notification provided to WorkSafe. The safety assessment can identify the maximum consequence zone in which a major incident could affect the health and safety of people. The safety case expands on this to include topological information, demographic information and meteorological data. One purpose of the

safety assessment is so you understand who a major incident could affect. You must inform them all about what to do if a major incident occurs.

Some people who could be affected by a major incident may have specific needs to consider. Key factors may include:

> the time available to people to take appropriate action in the event of a major incident. If a fast response is required, relying on communication by emergency services may not give the best results

> the ability of residents and people to respond. People with restricted mobility (eg nursing homes, hospitals and schools) need more notice and may need to pre-plan. Older style residences are often not suitable for shelter-in-place protection methods.

The extent of the area around the UTMHF in which people's safety could be affected by a major incident will vary for each UTMHF. The area will largely depend on the nature and quantity of specified hazardous substances and the nature of the processes at your UTMHF.

The following examples show some of the relevant considerations in identifying the affected area.

Example 1: Warehouse

The operator of a warehouse in an industrial area storing very toxic specified hazardous substances understood the major incident with off-site impact of concern was a fire. The primary threat was of exposure to toxic combustion products and entrained toxic materials 'raining out' at the edge of the plume.

The operator advised businesses within 100 m of the MHF of the potential for a fire involving a toxic plume and provided them with information on how to shelter-in-place. People would be directed to shelter-in-place as required by the emergency services. In most cases they would see the plume and avoid exposure without direction. A copy of the information was made available online and sent to the local library. The operator also decided to bi-annually letter drop all residences and businesses in the local community.

Example 2: Large manufacturer

A large manufacturer storing specified hazardous substances had identified the maximum consequence zone was 150 m. They had a buffer of 200 m of land which they owned. Theoretically, there was no off-site potential for harm. The operator recognised, however, that any fire or visible emission from the plant caused concern in the local community. They therefore identified the local community to be any dwelling or place within 1 km of the MHF and also within line of sight of the MHF. They included the hazard information in their community engagement program and made the information available online.

Example 3: Bulk chlorine storage

A manufacturing process involving the storage of 50 t of chlorine had been utilised at an industrial location for some years. Chlorine is toxic but can be easily detected and is irritating at very minor levels. Any off-site release would be in the form of a visible cloud travelling at wind speed. Higher wind speeds mean the cloud moves and disperses more quickly. Lower wind speeds mean the cloud stays together but takes longer to migrate.

The operator predicted that anyone able to self-evacuate from a chlorine cloud would do so. Sensitive individuals and those whose mobility is restricted are at a more significant risk of a dose causing serious harm.

The catastrophic failure of the tank could potentially cause a chlorine plume extending kilometres, causing discomfort and inconvenience to thousands of people. Injury would be restricted to those closer to the source and those who have restricted mobility. The risk of this occurring is very low.

The MHF, with the local authorities and the emergency services, divided the surrounding area into zones. The zones are based on modelling and are managed as follows:

> Those within the zone closest to the MHF were briefed on the hazard and can shelter-in-place for significant times. The MHF alerts people within this zone whenever there is an on-site release that may leave the site.

> Emergency services contact the next zone if they need to respond to an incident. Businesses and residences within this zone are the target of a considerable community liaison process involving letter drops and information sessions.

> Emergency services contact the last zone if they need to respond to an incident, but by this time they will be aware of the event from the media and other parties. They are unlikely to be injured. Emergency services, councils and support organisations (such as hospitals etc) are provided with information on the MHF and hazard.

Regulation 66 requires operators of UTMHFs take reasonable steps to provide general information to the local community and local authority.

BENEFITS OF PROVIDING INFORMATION TO THE LOCAL COMMUNITY

An informed community is in a better position to protect itself if a major incident with off-site impact occurs, and this reduces the consequences of the major incident.

There are other benefits in providing information to the local community and local authority. These include:

> an opportunity to provide correct information (or dispel misinformation) to the local community about the MHF and its operations

> assurance to the community that their interests have been, and are being, considered

> a raised awareness of actions the community should take if there is a major incident

> assurance to the community after a major incident that measures are being taken to prevent recurrence

> increased awareness of community concerns

> improved relations and increased trust between you, the local community and local authority.

THE INFORMATION

Providing information to the local community is essential to improve the community's emergency readiness.

Any information for the community should be set out and expressed in a way that is easily understood by people who are not familiar with the MHF and its operations.

The information should be:

> presented in a user-friendly way

> in plain English, avoiding technical terms

> in appropriate community languages

> reviewed and, as necessary, revised if a modification is made to the UTMHF.

The amount and type of information will depend on the MHF, the risks, the potential major incidents and the local community itself. Information can be provided by various means, for example, mail-drops, websites or meetings. The information, for example, information kits, printed shelter-in-place cards, or fact sheets should also consider special provisions for certain groups within the community such as schools, hospitals and aged-care facilities.

General information for the local community and relevant local authority must include:

> name and location of the UTMHF

> name, position and contact details of a contact person who can provide information about the UTMHF. Ideally this should be the person to whom community concerns may be directed and should also include a 24 hour emergency contact number

> a general description of the UTMHF's operations. This should be a straightforward explanation of the activities undertaken at the UTMHF. The description may or may not include details of the hazardous materials used or produced on the site, depending on whether these details are considered to be security-sensitive information. The description should be simple, avoid unnecessary complication, and cover storage, processing and on-site movement of materials

> consistent with the emergency plan, you should provide the community with information on:

  – how you will inform them of a major incident (eg initial off-site warning systems)
  – the role of the emergency services
  – the arrangements for testing warning systems
  – how to recognise the early signs of a major incident in case a timely warning is not given
  – how they will know the major incident is over.

> actions, as specified in the emergency plan for the UTMHF, that members of the local community should take if a major incident occurs. Provide information on the actions the community should or should not take in the event of a major incident. The information should include where to shelter, the steps to take to reduce exposure to hazardous materials, evacuation procedures and encouragement to follow the advice given by the emergency services. Also include advice on telephone use if lines need to be clear for emergency use

> a summary of the safety case. The information provided here should consist of a high-level description of the major incident hazards present and the potential impacts or types of incidents that could occur at the UTMHF relative to those hazards. Although you may have identified several potential major incidents during the safety assessment process, only describe those that make a significant contribution to the overall UTMHF's risk (major risk contributors).

Describe the nature and scale of the consequences of a major incident with information about the potential effects on the population, both immediate and delayed.

WHO TO PROVIDE INFORMATION TO

The 'local community' are the people whose health and safety could be affected by a major incident. For example, you may need to provide the following people with information:

- local residents
- operators of caravan parks, hotels, motels and hostels
- operators of docks, mooring facilities, yachting marinas etc
- sensitive and vulnerable developments such as childcare centres, schools, hospitals, aged-care facilities, detention centres and correctional centres
- the community or public library in the local area surrounding the MHF.

The local authority must be given the general information for the local community. Also inform your local civil defence emergency management office as they could have a role in managing an incident.

Put communication systems in place to make sure the community has information during an incident. It may be helpful to provide details of the television channels or radio station frequencies which broadcast information about the incident.

If you receive a written request from someone who reasonably believes a major incident at the UTMHF may adversely affect their health or safety, you must also provide them with a copy of the information provided to the local community.

2.4 DEFINING THE PLAN'S AIM AND OBJECTIVES

The emergency plan should start with a statement summarising a clear **aim**. This will help focus your emergency plan. The aim should be broad and based on the fundamental reasons for developing a plan.

Examples of aims are:

- to provide a system and resources to deal with all emergencies that could affect people, property and the environment
- to minimise adverse impacts on people, property and the environment
- to make sure you meet the requirements of the MHF Regulations.

The emergency plan's **objectives** specify the results to achieve. They lay the groundwork for defining and setting up the system to manage an emergency. Therefore, the areas the objectives address should be as comprehensive as possible. Establishing priorities will help to define and implement a system to meet the needs of all stakeholders.

Example 4: Objectives

These can include:

- maintaining a high level of preparedness
- responding quickly and efficiently to limit the impacts of an emergency
- managing an emergency until the emergency services arrive and take control
- supporting emergency services with information, knowledge, skills and equipment
- protecting emergency responders, workers and the community from harm.

2.5 DEFINING THE PLAN'S PARAMETERS

Define the parameters that will characterise the framework for developing the plan. These parameters should define the scope of the emergency plan, outline when the plan is activated and deactivated, and identify any limitations.

Consider these parameters:

- potential for emergencies and their characteristics
- hazards identified in the safety assessment

- estimation (for a range of scales of incidents) of the consequences and potential impacts of these hazards on people, property and the environment
- all identified major incidents and all emergencies arising from such incidents
- any assumptions that might influence the system to be developed to manage an emergency.

2.6 EMERGENCY SITUATIONS

Clearly define what constitutes an emergency at the MHF (ie a situation that activates and deactivates the emergency plan).

However, if there is any doubt whether a hazardous situation constitutes an emergency, treat it as an emergency. The following information may help to define an emergency for planning purposes.

Regulation 31 requires immediate implementation of the emergency plan if, a major incident occurs or there is an event at the facility that could reasonably be expected to lead to a major incident.

TYPES OF EMERGENCY

Define emergencies according to type based on the materials and activities involved. The type of emergency will determine the potential impact of the incident on people, property and the environment. Address these issues as you define the hazards.

Types of emergencies include:

- fire (including the generation of toxic combustion products)
- explosion
- spill (of hazardous solids and liquids)
- gas leak (flammable, toxic, asphyxiant, pressurised or refrigerated liquid)
- structural failure
- natural event (eg flood, earthquake, storms, storm tides)
- impact event (road vehicles, railways, aircraft, ships)
- subversive/malicious activities (eg bomb threat, vandalism, sabotage)
- a control has inadvertently introduced an unintentional hazard. For example a dry quench carbon dioxide transforming into carbon monoxide (a flammable and toxic gas) in very high temperature fires
- on-site transport incident.

Consider all types of emergencies for:

- an incident within the MHF
- an incident occurring outside the MHF where a hazardous material is the responsibility of the MHF (eg off-site pipeline, transport, etc)
- secondary events or knock-on effects arising on-site and off-site (eg a flood, a bushfire or an explosion which causes a nearby vessel to fail).

LEVELS OF EMERGENCY

Emergencies can vary in scale. Therefore define different levels of emergency for the MHF, for example on-site and off-site. Some sites may require fewer levels of emergency and more complex sites may require more levels of emergency. Information provided by the safety assessment will help to determine the level of emergency for a particular type of incident. There is not necessarily a direct correlation between the size of an incident and the scale of the emergency.

Example 5: How levels of emergency could be described for an MHF

LOCAL	SITE	EXTERNAL
An emergency where the impacts on people, property and the environment: > are expected to be confined to a specific location within the MHF and no escalation is expected.	An emergency where the impacts on people, property and the environment: > are expected to spread to or affect all parts of the MHF, but not off site.	An emergency where the impacts on people, property and the environment: > are expected to impact both within the MHF and beyond the boundary of the MHF.
Emergency Services may be required	**Emergency Services should be required**	**Emergency Services will be required**
Examples: > ruptured drum in warehouse > leaking flange or seal > small fire in a bag store.	Examples: > minor tank or bund fire > product spill.	Examples: > a bomb threat > large tank bund fire > BLEVE of large liquefied gas storage > toxic gas release > transport incident.

Table 2: Examples of levels of emergency

2.7 EMERGENCY PLAN COVERAGE

PHYSICAL AREAS TO COVER IN THE EMERGENCY PLAN

Define the geographic area over which a large-scale emergency might impact. Estimate this area when you define the risks.

Consider:

> exposure of people

> exposure of sensitive environmental receptors

> all equipment and operations within the boundaries of the MHF

> hazardous materials being transported to or removed from the site that are under the responsibility of the MHF

> any other areas or activities under the control or influence of the MHF that are not on-site and not covered by a separate emergency plan. This could include off-site pipelines supplying raw materials to the MHF and product from the MHF

> areas beyond the boundary of the MHF which an emergency would likely affect.

It is important to identify significant community and environmental features surrounding the MHF. These should include:

> centres where large numbers of people gather, like sporting complexes and function centres

> sensitive land uses like schools, hospitals, childcare facilities, and nursing homes

> sensitive environmental receptors.

Note: While environmental considerations are not part of the MHF Regulations, all hazardous substances can have an environmental impact. Make sure you are aware of your duties under the *Hazardous Substances and New Organisms Act 1996* and *Resource Management Act 1991*.

PEOPLE TO COVER IN THE EMERGENCY PLAN

The people affected by an emergency will be in the physical area the plan covers, as identified above. Estimate the total number of people possibly affected. The significance of their exposures can be estimated in the safety assessment process.

Groups of people to identify may include:

> workers
> visitors
> emergency responders
> people occupying sensitive land use sites who may be more vulnerable to the consequences of a major incident
> people within the local community.

Give special consideration to large groups of people, or those more vulnerable to the consequences of major incidents, when you determine procedures for protecting people from the impacts of an incident.

2.8 ASSUMPTIONS AFFECTING THE EMERGENCY PLAN

The emergency plan will usually be based on assumptions such as the availability of resources and services, and carrying out responses within estimated timeframes. Evaluate these assumptions to develop contingency planning to accommodate an emergency where these assumptions fail.

Examples include:

> increased response times of the emergency services organisations
> unavailability of staff
> failure of services or utilities (eg gas, electricity, water, and telecommunications, and emergency services such as firefighting water and emergency generators)
> overlap between the facility emergency control centre (FECC) and a consequence zone (eg blast radius)
> adverse weather conditions
> inaccessible or inoperable emergency equipment, isolation or safety-critical equipment.

Schedule 3 requires the emergency planning assumptions, including planned emergency measures, to include in the emergency plan for a UTMHF.

2.9 THE EMERGENCY MANAGEMENT SYSTEM

The next stage is to define an emergency management system that is flexible, simple to implement and general in application. Tailor it to meet the needs of your MHF within constraints, such as the resources available. The phases involved are design and commissioning.

DESIGNING THE EMERGENCY MANAGEMENT SYSTEM

The design process should satisfy the aims and objectives of the emergency plan.
The design process provides:

> the resources to support the design, including the response resources
> workers to carry out emergency functions, if reasonably practicable to do so. Workers should not have to enter the hazardous area to gauge the situation
> information, skills and knowledge to enable these workers to manage an emergency

> written emergency procedures
> where information can be physically located. For example, think about keeping information where the emergency services are likely to go (ie the sprinkler pump house, or just inside the main gate in a dedicated box).

The system should:

> reflect expectations about the MHF's role in managing an emergency
> enable immediate and spontaneous response when the alarm is raised. Early detection and intervention are vital to ensuring that a small incident does not escalate to become a major disaster
> be able to operate within a defined short time frame, which is the critical initial period before the emergency services assume control
> support and liaise with the emergency services and other external agencies
> be able to manage smaller emergencies or emergencies with potential for environmental impact, which the emergency services might not need to attend.

Base the system capabilities on the parameters of the emergency plan, such as:

> potential nature and size of an emergency, gained from the safety assessment
> time delay and capability constraints of the emergency services
> hazardous substances of greatest concern to people, property and the environment in emergency situations
> potential for further problems arising from the properties of the hazardous substances, for example ignition sources for flammable gases and vapours.
> the limits of the MHF's physical response capabilities.

Obviously, the scale of the system depends on the hazards associated with the MHF and its resources. An over commitment or under dedication of resources will result in an ineffective system.

This system will share similarities with other management systems. It should include an emergency organisational structure with a chain of command and specified functions workers will carry out. Designate and approve procedures and resources for this system, and provide workers with the necessary information, knowledge and skills to carry out the responsibilities assigned.

EMERGENCY FUNCTIONS

The system should include defined emergency functions which, like emergency planning in general, aim to protect people, property and the environment. The functions should cover all areas of responsibility necessary to manage the types of emergencies identified. Define these functions, considering the MHF's response requirements and capabilities (ie the nature of the operation, the types of emergencies identified and the number of people available).

Emergency functions should address broad areas, such as:

> responding to control the emergency
> limiting the spread and impacts of an emergency on adjoining processes, materials, property and the environment
> protecting the health and safety of all people on-site
> protecting the environment
> alerting people to the emergency and communicating adequately with all stakeholders during the emergency
> assisting emergency services and nearby facilities with control actions to take in the surrounding area
> accessing the right information
> controlling the entire emergency scene and the whole MHF.

Several functions may address these areas. For example, address protecting the safety and health of all people on-site through functions relating to search and rescue, roll call and safeguarding measures such as evacuation.

EMERGENCY RESOURCES

Identify and provide the emergency resources necessary to manage an emergency. This may include:

> the FECC
> the emergency communications system
> public warning systems
> the emergency alarm system
> emergency equipment such as personal protective clothing and first aid equipment and
> the specific emergency resources (see section 3.2).

The emergency plan must include the protective resources available to control an incident. Consider the availability of external resources.

The design and provision of emergency resources should consider:

> safe and accessible location
> ability to be moved to areas as intended (eg neutralising agents)
> suitability for all tasks for which they are provided
> readiness for use and ease of use
> adequacy of estimations of quantities
> provision of adequate quantities.

The safety assessment can help to identify the safety equipment required to respond to the incident. It can also identify appropriate storage locations for this equipment. Identify 'clean' areas; areas outside potential consequence zones. Consider the functioning capabilities of resources for all:

> places (eg the alarm's ability to reach the people to be alerted)
> times (eg at night and out-of-hours) and
> circumstances (eg adverse weather conditions).

It is acceptable to have resources the MHF cannot use but emergency responders can. For example, emergency personnel may read gas detection tubes MHF workers may not be able to reach because of a lack of personal protective equipment (PPE). The MHF could then interpret the results and compare against any known exposure standards.

COMMISSIONING THE EMERGENCY MANAGEMENT SYSTEM

Commissioning a system is the process of ensuring the system functions effectively and according to the intentions of design and implementation. During commissioning, evaluate the system to detect problems that may affect the effectiveness of the emergency plan, including:

> lack of direction
> oversimplifications
> poor understanding of the issues
> inappropriate assumptions.

Commissioning allows you to identify methods for improving the efficiency of the plan.

Commissioning the system might involve:

> validating all procedures as safe, so workers are not exposed to an unacceptable risk while undertaking defined tasks and other activities
> making sure emergency resources and safety equipment are rated for the task
> clearly identifying emergency resources and safety equipment as accessible, available, serviceable, and ready for use
> communications methods and equipment are satisfactory

- testing response times for the MHF and the emergency services, to find out if they're realistic
- providing and making supporting information accessible
- emergency service vehicles have access to the relevant parts of the MHF
- identifying and training the facility emergency controller (FEC) and emergency services organisation personnel
- making sure the plan can be updated easily and the information communicated as appropriate
- key workers knowing and understanding information about the quantities, locations and properties of hazardous materials
- a clear understanding of the different agencies' (eg the local emergency services, especially fire and rescue authorities) roles.

2.10 EMERGENCY ORGANISATIONAL STRUCTURE

The plan needs to include the command structure for managing the on-site response by the planned scheme, including management of the eventual clean-up and restoration. There will be times when senior managers are not available, so include appropriate arrangements for these circumstances. Consider rosters, shift work and work patterns.

Establish positions and assign people to these positions to fulfil the functions identified. Establish expectations, information and resources associated with each function. Have support from the workers assigned to carry out the various functions, and arrange suitable backup for each emergency role. Figure 4 demonstrates a typical emergency response process, but the response will ultimately vary from one incident to another depending on factors like scale.

The emergency plan must provide the following details of the command structure and workforce:

- command structure to be activated in an emergency, including actions to take, who takes them, and how, when and where they will be taken
- details of the person who can clarify the content of the emergency plan if necessary
- contact details of, and the means of contacting, the persons at the MHF responsible for liaising with emergency services
- a list of 24-hour emergency contacts, both internal and external
- arrangements for assisting emergency services and nearby workplaces with control actions taken in the surrounding area.

You may not need to repeat these details in area-specific plans. Consider the differences between the plans and the variation in work at the MHF (ie day/night shift work, or weekday/weekend operation).

The FEC could assume overall responsibility for an emergency, or could relinquish control to emergency services upon their arrival. Confirm the inputs you expect from workers and the emergency services organisations; these could vary from one type of incident to another.

New Zealand emergency services and other agencies involved in emergency management use the Coordinated Incident Management System (CIMS). CIMS is an emergency response system that describes how to:

- co-ordinate, command and control responses to incidents
- structure the incident response
- manage the relationships between different emergency functions.

Your emergency plan should be based on or compatible with CIMS so that emergency services can respond to any emergency without conflict. Appendix B: CIMS response structure offers some detail, and more information is available at www.civildefence.govt.nz

INFORMATION, KNOWLEDGE AND SKILLS

The system should provide access to user-friendly information to assist in managing the emergency. This information should include:

- health, safety and environmental information on hazardous materials, their location and type of containment
- estimates of the consequences and impacts from hazard analysis
- maps and plans
- community information
- information on safety systems and equipment
- emergency contacts
- environmentally sensitive areas.

The system should enable information about the plan to be provided to stakeholders, including people within the local community, workers and visitors.

Train all workers in their roles, responsibilities and duties during an emergency. That includes workers who don't hold a position in the emergency organisational structure; train all workers in evacuation procedures. It is important that key people understand the potential impacts of the hazardous materials associated with the MHF. This allows for informed decision making in the early stages of an emergency and for advice to be provided to the emergency services. This understanding can also be used to set priorities in responding to an incident.

The knowledge of hazardous materials and their impacts may also indicate where to concentrate response efforts. For example, sometimes it may be more appropriate to focus on protecting adjacent operations when expending efforts and resources on an incident you cannot control could pose an unacceptable threat to the safety of the emergency responders.

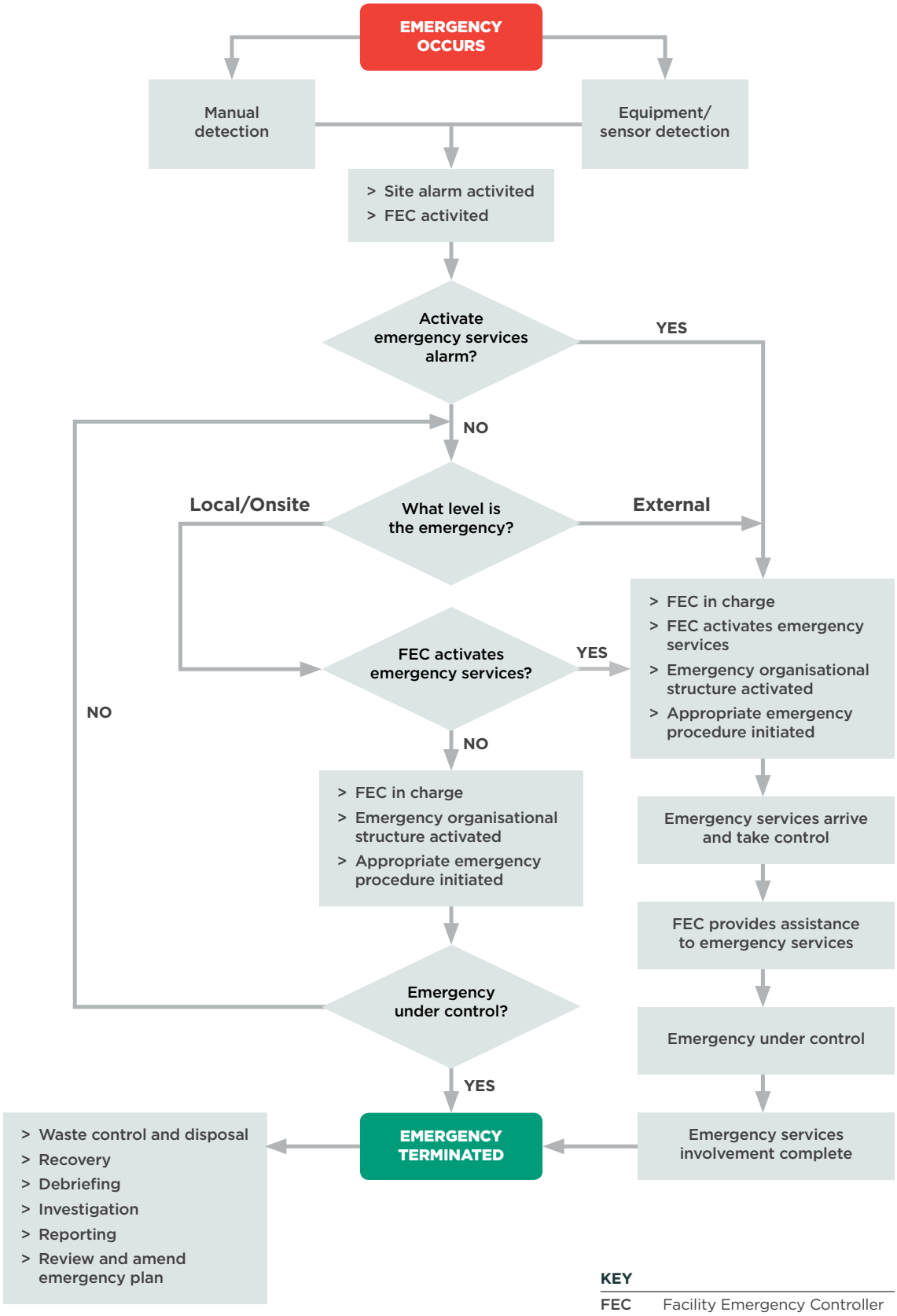

Figure 4: Emergency response flowchart

03/

WRITING THE EMERGENCY PLAN

IN THIS SECTION:

Document a summary of the outputs of the emergency planning process in the emergency plan. The plan should define areas like emergency functions, organisational structure, emergency procedures, resources, reporting, and communication channels, and the type of reporting required by the emergency services.

You must prepare an emergency plan, but the MHF Regulations require different things of operators depending on the facility's designation.

If you're an operator of a UTMHF you must include all matters listed in Schedule 3. This section will help you include the Schedule 3 matters in your plan.

If you're an operator of a LTMHF you should use the matters in Schedule 3 for direction on what to include in your emergency plan. It should be relevant to the risks you've identified in your MHF.

Consider the following matters in your emergency plan:

- plan title and authority, including:
  - the name of the MHF and the operator or occupier
  - the identity, scope and status of the emergency plan
  - preparation details, including the date of preparation and other terms of reference
  - authorisation details (person(s) responsible)
  - contact details
  - document control information.
- table of contents
- aim and objectives of the plan (ensure the body of the plan is consistent with this statement)
- an outline of the levels of emergencies identified
- assumptions underpinning the plan
- the hazards identified as having a significant impact
- natural hazards
- types and levels of emergency
- roles of agencies, groups, industry and the community
- phases when consultation is necessary (eg updating the plan)
- the person designated as the FEC and their knowledge of:
  - the site
  - the materials used
  - the processes
  - the potential impacts of emergencies on people, property and the environment
  - waste control
  - applying the emergency plan.
- the role, responsibilities and duties of the FEC, including arrangements for delegation
- how to identify people who conduct certain emergency functions (eg helmet colours and/or distinctive tabard).

3.1 TAILORING THE EMERGENCY PLAN TO THE MAJOR INCIDENT HAZARDS

The safety assessment will have identified major incident hazards and there should be a clear link between these and the scenarios considered in the emergency plan.

The emergency plan should be simple and provide an effective system for responding to any type or level of emergency. You could adopt a screening technique to produce a representative set of incidents.

One method of achieving this is to:

> eliminate localised incidents that would not need activation of the emergency plan
> consolidate incidents in a similar location, with:
  - similar materials
  - inventories
  - discharge rates
  - discharge locations
  - types of emergency response actions; (but be mindful of impacts, the potential for escalation and the manner in which a release or failure scenario could escalate)
> select one incident to represent each group identified.

In preparing this representative set of incidents, remember emergency planning prepares for events that it is hoped will never happen. Don't just concentrate on the more likely or credible events (eg a small leak from a pipe or failure of a single 200 litre drum). You should also consider extreme events such as the catastrophic failure of a reaction or storage vessel. These events would have a high consequence even though the likelihood is small. Considering a broad range of possibilities will help you develop a system that can respond to any level and type of emergency.

To define the system to manage an emergency, you need an understanding of the actual impact of an incident. If you look at information on the operating conditions, layout, nature of surroundings, and environmental conditions (eg the range of weather conditions possible at the site), you can estimate the:

> rate of release for a hazardous substance
> dispersion of toxic or flammable vapours in the atmosphere
> radiated heat generated by a fire
> blast generated by an explosion and
> concentration of a toxic material in the atmosphere.

Regulation 31 requires the emergency plan to be specific to the facility and the major incident hazards identified in the safety assessment.

3.2 EMERGENCY RESOURCES

Include the key emergency response resources you need to implement the emergency arrangements. Specifically the emergency plan must include:

> on-site emergency resources, including:
  - emergency equipment
  - workers
  - gas detectors
  - wind velocity detectors
  - sand, lime
  - neutralising agents
  - absorbents
  - spill bins and decontamination equipment
  - firefighting equipment
> off-site emergency resources, including arranging for getting more external resources (specific to the likely major incidents) to assist the control of major incidents and major incident hazards.

Schedule 3 requires specific on-site and off-site emergency resources and equipment be included in a UTMHF's emergency plan.

FACILITY EMERGENCY CONTROL CENTRE

Consider whether you need to set up a FECC. A dedicated FECC may not be necessary for smaller facilities that could use existing office amenities.

Nominate the location of the FECC and any alternative. The FECC should be readily accessible and appropriately resourced with all essential documents. Include:

> the emergency plan
> emergency procedures
> copies of SDS
> other relevant safety information.

Location maps and site layout plans, as well as information relating to the relevant hazards and emergency equipment available, should be available in the FECC and distributed to the emergency services.

Equip the FECC with communication equipment for both internal communication and for alerting external stakeholders in the event of an emergency. Include secondary forms of communication like radios in case of phone failure.

Ideally, locate the FECC outside any potential consequence zone. If the consequence zone envelops the centre during an emergency, control operations should proceed to an alternative control centre identified in the plan.

EMERGENCY EQUIPMENT

Show the availability and location of specialised emergency equipment on the site layout plan, to support the functions identified in the plan. Provide details of, and procedures for, access to more equipment from other sources (eg mutual-aid facilities).

Emergency equipment may consist of:

> emergency vehicle(s)
> self-contained breathing apparatus
> firefighting equipment
> containment equipment such as booms, sandbags, vermiculite or sand
> firefighting media (eg foams, extra water supplies)
> neutralising agents
> worker identification (eg helmets and tabards)
> PPE (eg overalls, chemical splash suits, gloves)
> specialist equipment (eg weather and environmental monitoring equipment, gas detectors, emergency power and lighting)
> first aid equipment
> location of service isolation equipment for isolating electricity, gas and steam.

Because emergency equipment is infrequently, if ever, used, damage or deterioration may not be immediately apparent. Include regular checking and maintenance of emergency equipment in the MHF's larger systems for maintenance and inspection. It's also important to make sure the equipment is accessible to those who will be required to use it.

EMERGENCY ALARM SYSTEM

The MHF should have an effective alarm and warning system for all levels of emergency. The emergency plan must include both off-site and on-site warning systems.

Consider including in the plan:

> types of warning device(s) (eg flashing light, siren, distinctive tones)
> location of initiation points and warning devices
> circumstances of initiation or raising the alarm
> differentiating between alarms for different type of emergencies (eg toxic gas versus other emergencies)
> confirmation of initiation of alarm
> the method of establishing there is an emergency and confirming its level

- people authorised to activate the emergency plan after alarm initiation
- alarm indicators for ALERT, EVACUATE and ALL CLEAR (safe to re-enter)
- ability of the external alert alarm to be effective throughout the local community
- method, frequency and recording of testing
- need for backup systems for the alarm
- alarm operations if the MHF is not staffed.

The alarm system must be tested regularly to confirm its intended function. For example, test its ability to warn all relevant people under all operating conditions.

3.3 COMMUNICATION

EMERGENCY COMMUNICATION

Warn people who may be affected by the major incident as soon as practicable of the danger and the safety measures they should take. If the emergency arrangements use the CIMS response structure, the function responsible for public information management can also convey your technical advice on any necessary safety measures people should take.

An MHF's alarm system is not enough to keep the local community informed of a major incident. The responding emergency services may decide to issue widespread public warnings via the media, including radio stations and television channels. As well as using radio or television for communication, notification by telephone or door-to-door visiting is also effective. The responding authority will usually do this. However, it does require some detailed planning to systematically divide the threatened area into sections and to issue warnings, starting with the highest risk zone and proceeding to the lower risk zones.

MAJOR INCIDENT INFORMATION FOR LOCAL COMMUNITY AND LOCAL AUTHORITY

As soon as practicable after a major incident has occurred, you must take all reasonable steps to provide the local community, the local authority (and WorkSafe) with information about the major incident, including:

- a general description of the major incident including the nature of the major incident (fire, explosion etc), details of the hazardous substances involved and the likely consequences and impacts
- the recommended actions the local authority and members of the local community should take to eliminate or minimise risks to health and safety
- following the major incident, a description of the actions you have taken or propose to take to prevent any recurrence of the major incident or the occurrence of a similar major incident.

A full explanation and account of the major incident may only be possible after an exhaustive enquiry. This delay may not satisfy the local community or injured parties. There may also be legal implications to any disclosure. Despite these challenges, it is a shared interest to learn from the major incident in order to prevent recurrence and build community capacity and resilience.

Take reasonable steps to provide the local community and local authority with information and notify:

- the local community. Do this in a manner and using a format that is readily accessible and makes the community aware of the information (eg via the internet or local news media)
- the local authority by means of a notice to the local authority's electronic address and postal address.

You may choose to release information on the facts of the situation as the event unfolds, and provide community updates as the investigation proceeds. It may be advisable to seek professional advice on how to manage public relations while still complying with the MHF Regulations.

Regulation 67 requires operators to notify the local community and local authority in the event of a major incident.

3.4 EMERGENCY PROCEDURES

Emergency procedures are a series of steps that need to be followed when responding to an emergency. When defining these procedures, it is important to recognise the limitations of people in performing tasks, particularly while under extreme stress.

Emergency procedures are generally of two types:

> those relating to the management system (ie general procedures to be adopted regardless of the nature, type and scale of emergency)

> those specific to the types of incidents identified.

Other areas relating to the system that you should address in emergency procedures include:

> raising the alarm

> activating the emergency plan

> notifying the emergency services

> terminating the emergency

> health and safety functions, such as roll call and search and rescue.

Develop procedures for all positions within the emergency organisational structure. In particular, outline the roles, responsibilities and duties involved. Also develop procedures for other workers not involved in the emergency organisational structure.

Schedule 3 requires emergency response procedures and procedures for safe evacuation, control points for utilities, and the control of and decontamination following any incident involving hazardous substances to be included in a UTMHF's emergency plan.

DEVELOPING EMERGENCY PROCEDURES

Specific emergency procedures are an important part of the overall emergency management system. They should be clear, simple, practical and achievable. The detail contained in the procedure will depend upon the characteristics of the MHF. The procedures should describe:

> steps to be undertaken

> precautions

> PPE to be used

> any special conditions

> responsibilities and duties of people undertaking these procedures.

Emergency procedures relating to incidents should consider the properties of the hazardous substances and the potential impacts on people, property and the environment. The safety assessment process will reveal these.

Example 6: Procedures for a spill of corrosive liquid

When developing the steps for an emergency procedure relating to a spill of corrosive liquid, you could consider:

> raising the alarm

> isolating/evacuating the immediate area

> using appropriate protective equipment

> isolating the source of release

> containing the spill

> using absorbents

> waste control and disposal.

3.5 ACTIVATION OF THE PLAN

The plan should indicate:

> roles, responsibilities and duties of workers activating the emergency plan
> circumstances under which it is to be activated
> method of activation (including all designated methods for raising the initial warning and sounding the alarm)
> alert activation level (eg protect in place or evacuation)
> means of alerting all relevant stakeholders (contact details)
> arrangements for activation when the MHF is not staffed (like maintaining a regularly updated list of emergency contact numbers in an Emergency Service Information Package (ESIP). Include this as part of the supporting information)
> secondary communication plans in the event of issues with the primary means (phones down, etc).

INITIAL ADVICE TO THE EMERGENCY SERVICES

Identify the role, responsibilities and duties of the person nominated to advise the emergency services of the emergency. Determine the nature of the initial advice and the information required in consultation with the emergency services organisations. The advice would usually be given by dialling 111 and asking for the relevant emergency service agency (typically Fire).

The information provided should include the following details, where available:

> name and location of the MHF (suburb, street, nearest cross street to relevant site entry)
> number of injured people or casualties and the nature of injuries
> type and scale of emergency, including a brief description
> hazards involved (including details of substances, UN Numbers, names of substances and quantities involved)
> telephone contact number (for any return messages)
> name of person making the call
> any other useful information (eg wind speed and wind direction, a safe approach route, or a safe forward point).

EMERGENCIES WITH POTENTIAL FOR ENVIRONMENTAL IMPACT

Identify the role, responsibilities and duties of the person nominated to notify the relevant agencies of an emergency with potential for environmental impact. Determine the method of notification (eg telephone), the timing of notification (eg during or after the emergency) and the type of information required in consultation with these agencies.

Agencies that should be contacted may include, depending on the circumstances:

> the Environmental Protection Authority
> the local authority
> the relevant port authority.

REPORTING AN EMERGENCY TO OTHER AGENCIES AND GROUPS

This refers to reporting to corporate personnel and government agencies or groups other than the emergency services organisations. The procedures for reporting emergencies and the role, responsibilities and duties of workers reporting should be defined.

Agencies to contact may include, depending on the circumstances:

> local civil defence emergency management offices

> the local District Health Board.

3.6 DEACTIVATING AN EMERGENCY

The plan should outline the procedures and responsibilities for deactivating an emergency. Consider:

> return of control to the FEC by the emergency services organisations

> FEC's declaration the emergency has been terminated.

3.7 MANAGEMENT OF THE PLAN

Include criteria for what is required to manage the plan and how it is to be achieved.

HEALTH, SAFETY AND ENVIRONMENTAL INFORMATION

The plan should identify the locations of, and allow for access to, relevant work health and safety and environmental information to assist with managing the emergency. This may include:

> copies of SDS

> registers and exposure data for people and the environment

> emergency service manifests

> plans

> neutralisation procedures.

Safety information may also include summaries from the safety assessment of the consequences and impacts of potential incidents. Locate this information at a number of sites throughout the MHF (eg the FECC and any incident control points marked on the site layout plans).

LOCATION MAPS

Provide location maps detailing significant MHF and local community features. The location map(s) should include the:

> name of the MHF

> street address of the MHF (including the suburb or town), along with GPS co-ordinates

> site boundaries

> local neighbourhood details (covered by any potential consequence zone)

> main entry

> alternative entrance(s)

> emergency access points

> north point indicator

> distance scale

> location of:

  - alternative water supplies (lakes, creeks, reservoirs, etc)
  - storm water drains adjacent to the site
  - any off-site retention basins and their volume
  - storm water drain outlets, particularly if they enter waterways

> land use including:

  - other MHFs
  - known hazardous substance storage sites
  - residential areas
  - industrial areas
  - vacant lots
  - bush land

> places of possible concentrations of people (eg sports grounds, shopping centres)

> places of special interest in an emergency (eg major infrastructure, hospitals, child care facilities, schools, nursing homes)

> site topography (including slope of land, nearby watercourses and environmentally sensitive sites, drainage systems including access points, etc).

SITE LAYOUT PLANS

The site layout plan should detail significant MHF features, including:

- site boundaries
- roadways, buildings and major tanks (labelled or numbered)
- normal entrances and exits
- emergency access points
- grid references (if applicable)
- electrical supply isolation
- gas supply isolation valves
- town water isolation valves
- storm water drainage points
- on-site retention basins
- open uncovered land that may act as run-off sinks
- any wetlands or other environmentally sensitive areas on the site
- sewage system outlets
- emergency evacuation assembly points
- first aid stations
- north point indicator
- distance scale
- location of relevant emergency plan information and safety information
- site topography (including bunding and site drainage)
- all hazardous materials under control of the MHF
- location of the FECC
- location of emergency resources and equipment, including:
  - neutralising agents
  - absorbents
  - fire water pumps
  - fire water valves
  - booster.

EMERGENCY CONTACT NUMBERS

Provide an easily accessible list of current emergency contact numbers, which may include:

- off-site emergency numbers
- MHF numbers
- key MHF worker details (including job title, local extension and after-hours numbers)
- control rooms or distribution points
- contact details of, and the means of contacting, people at the MHF responsible for liaising with emergency services
- other responsible officers (eg operations manager, production manager)
- government, local authorities and other relevant statutory agencies
- other company offices (eg head office, regional office)
- mutual-aid organisations
- water, gas and electricity supply authorities, and other service supplies (eg telecommunications)
- specialist response services (eg in relation to an oil spill or an emergency concerning a ship in port)
- neighbours, including closely located facilities
- community representatives and other places of special interest (eg schools, hospitals)
- contractors and material and equipment suppliers
- industry organisations and unions
- media liaison organisations.

OTHER SUPPORTING INFORMATION

Identify and provide other information required to support the plan and assist the FEC and emergency services organisations. This may include:

- capacities of primary and secondary containment systems (eg volume available for fire water retention)
- drainage plans covering stormwater, effluent and sewage layout, and access points covering the MHF and nearby areas
- maps and information on the MHF water reticulation system including:
  - firewater mains
  - ring mains layout
  - pumps
  - boosters
  - hydrants
  - hose reel facilities
  - foam supplies
  - sprinkler control systems and
  - hydrants in the near vicinity of the MHF)
- decontamination procedures for exposed workers on-site
- information on the impact of hazardous materials on people, property and the environment
- information on and location of specialised fire suppression and mitigation equipment
- any backup supplies of equipment, materials or services (eg stock of firefighting foam or an uninterruptible power supply)
- conditions that may yield hazardous interactions and uncontrolled reactions
- copies of the emergency plan and other information vital to executing the plan.

04/

MAINTAINING THE EMERGENCY PLAN

IN THIS SECTION:

Develop and maintain support policies and procedures, to make sure the emergency plan works and is up-to-date.

This means:

> raising and maintaining awareness of the emergency plan
> establishing ongoing training and education
> testing and carrying out emergency exercises
> updating the plan as required
> communicating appropriate information to all stakeholders, including the community and emergency services organisations.

Communicate with the local community on an ongoing basis. This makes sure a high level of awareness is maintained. For example, if a MHF provides emergency action material to the local community, local authorities, and neighbouring businesses, make the latest version available online and provide it to new residents in the community.

4.1 TRAINING AND EDUCATION

Induct and educate all people on-site, including visitors, and provide workers with ongoing training. This ensures they have a general awareness of the emergency plan and can undertake their roles and responsibilities in the event of an emergency.

Base training plans on trainees' identified needs and modify them based on evaluations of the training provided.

Areas to cover include:

> general duties, roles and responsibilities under the plan
> functions of the emergency organisational structure
> emergency procedures
> emergency resources.

Training and education should include the use of emergency equipment and a working knowledge of emergency procedures. The training plan should provide access to information for designated workers on the potential impacts of the range of emergencies identified. That is, several key workers at the MHF should have an understanding of what could happen if things do go wrong.

Keep training up-to-date as appropriate, with suitable refresher training. The participation in testing an emergency plan is not solely a training exercise. All those involved in testing emergency plans should have had some previous training to introduce them to their role in an emergency (even if this is only to follow instructions and to go inside). All relevant staff from every shift, in all the relevant organisations, should receive full training in their expected response in the event of an emergency. Make aims and objectives of training clear at the outset. Review and evaluate the effectiveness of the training.

4.2 OPERATIONAL CONTROL

Establish and maintain controls to ensure you can meet the policy, objectives and targets of the emergency plan.

Check:

> emergency resources are accessible, available and fully maintained in a state of operational readiness at all times
> perishables (eg batteries) are serviceable and spares are available
> materials have not expired
> materials that have been used are replaced (eg foam, neutralising agents)
> new staff are issued with emergency PPE.

4.3 NON-ROUTINE PROCESS MANAGEMENT

Consider temporary modifications to the plan when you undertake non-routine activities such as maintenance, construction, operating under abnormal circumstances, and start-up or shut-down. The likelihood of an incident increases during such activities, which can often involve extra workers on-site. Also consider planning for when workers usually on-site are absent. When construction and maintenance is undertaken, there is likely to be an increase in heavy vehicle traffic, and lifting and moving process equipment. Each of these activities introduces potential initiating events not present during normal operation.

During start-up and shut-down procedures, there is a higher potential for human error as workers are undertaking less familiar activities.

4.4 RECORD KEEPING

Records should include:

- all induction plans and ongoing training, including details of workers trained
- desktop simulations and practical exercises at the MHF
- all near misses and incidents at an MHF
- testing of the plan, including the dates of testing, methods, workers responsible and the results of testing
- engagement with workers
- consultation:
  - local community
  - emergency services organisations
  - operators of nearby MHFs
  - agencies and groups
- results of monitoring
- results of audits
- management reviews.

MAKE THE EMERGENCY PLAN AVAILABLE

A copy of the emergency plan must be at the facility and be available to every person who is required to use it. This includes the emergency services consulted with as part of developing the plan.

Regulation 31 requires a copy of the emergency plan be kept at the facility that is readily accessible and the emergency services consulted have access to the emergency plan.

DOCUMENTATION AND DOCUMENTATION CONTROL

Documentation should contain sufficient detail to describe the core elements of the emergency plan. Include directions on where to find more detailed information not included in the plan, such as palm cards for the use of key personnel during an emergency.

The SMS should control the distribution, presentation, revision and accessibility of the plan, and any supporting information like induction material. Ensure that all official copies of the document are the latest version. All superseded copies should be accounted for and filed or disposed of, as appropriate.

Keep records of the emergency plan according to your record management system. The emergency plan is part of an LTMHF's SMS or a UTMHF's SMS and safety case.

Records relating to the LTMHF's MAPP in the SMS must be kept for a minimum of five years and those relating to a safety case, for a minimum of seven years. Emergency plan testing records must be kept for at least two years, but you should keep them for longer, in line with MAPP and safety case records.

Regulation 32 requires documenting the carrying out and results of every test, and keeping the documentation for at least 2 years.

4.5 INVESTIGATION FOLLOWING AN EMERGENCY

Develop policies about investigating emergencies to communicate the lessons learnt. Define the role, responsibilities and duties of workers in relation to investigating incidents. Consider:

- official investigations (eg by the Police, Fire Services, WorkSafe, or Coroner)
- preserving evidence for the investigation
- consultation, including debriefs with:
  - workers
  - the local community
  - emergency services organisations
  - operators of nearby MHFs
  - agencies and groups
- legal responsibilities to notify the authorities
- communicating the findings to stakeholders
- focusing on identifying opportunities to improve the effectiveness of the emergency plan. Including:
  - analysis of causes and contributing factors of the incident
  - steps taken to mitigate the impacts
  - provisions made to prevent a recurrence of the incident
  - effectiveness of existing emergency procedures and lessons learnt
  - all available data useful for assessing possible long-term impacts on workers, the local community and the environment.

4.6 EXERCISES AND TESTING

Test the emergency plan when you first develop it, and then at suitable intervals, so you can identify and correct deficiencies. Testing should indicate:

- people following the emergency plan can cope with the range of incidents that could occur
- conditions that may exist on and off site in the event of an emergency
- the plan would work as proposed:
  - controlling and mitigating the effects of an incident
  - communicating the necessary information
  - initiating measures which lead to the necessary restoration of the environment.

Test the different emergency scenarios identified in the plan. Use the two usual methods of testing, desktop simulations and practical exercises or drills. It's a good idea to test different areas (like on-site and off-site plans) both separately and simultaneously. A practical exercise, or mock incident, involving external agencies is an effective way of testing all or part of the emergency plan.

Testing should consider all components of the plan, including the effectiveness of training. Any changes to the MHF, workers, or emergency plan should prompt testing to make sure the changes have not compromised its effectiveness and still link to the identified major incidents.

Establish a programme of emergency plan tests. These should be prepared jointly and agreed by all parties who take part. Consider joint drills if there are neighbouring MHFs. This produces a high level of confidence in the plan without overburdening you and the other organisations who respond to the emergency.

Test the emergency plan at least every 12 months to demonstrate whether every procedure or action in the plan is workable and effective.

If there is a change to the persons, procedures, or actions specified in the emergency plan, test the plan within three months of the change. This test should demonstrate the

new persons can perform their functions under the plan and each changed procedure or action is workable and effective.

When measuring on-site emergency planning it is useful to use leading indicators. Any lagging indicator would have to be based on the amount of damage/injuries that could occur following a real incident. Possible leading indicators to use in testing and in a real emergency situation could include the percentage of:

> shut-down/isolation systems which functioned to the desired performance standard when tested
> workers who correctly follow a taught process
> workers who take the correct action in the event of an emergency.

Test the emergency plan with a frequency that takes into account the risks from the MHF and the results of previous drills. If poor results are obtained responding to one particular emergency, drill it more frequently.

Regulation 32 requires the emergency plan be tested in accordance with the testing and review provisions of the emergency plan.

4.7 MONITORING AND REVIEW

Monitor and regularly review the emergency plan to ensure its continued suitability and effectiveness. Reviews should include an evaluation of the appropriateness of the aims and objectives of the plan.

You could also review when:

> legislation changes
> technology, equipment, products or activities changes
> any notifiable events occur (any deaths, notifiable injuries or illnesses, or notifiable incident)
> management of change systems impact the emergency plan
> testing identifies shortcomings or omissions
> modifications or alterations occur at the MHF
> type and quantities of hazardous materials on-site change significantly
> changes to surrounding land use impact upon the emergency plan
> changes occur that impact the execution of the plan. These changes could be to resources, safety systems, workers and contact numbers.

ONGOING REVIEW AND REVISION

Review and, as necessary, revise the emergency plan when:

> ongoing review indicates a change or proposed change to the MHF could:
  - create a major incident hazard that had not been previously identified
  - increase the likelihood or a major incident
  - increase the magnitude or severity of the consequences from a major incident
> a control no longer minimises the risk so far as is reasonably practicable
> a new major incident hazard, or risk associated with that hazard, is identified
> the results of consultation with workers indicates that a review is necessary
> a health and safety representative (HSR) requests a review because the HSR reasonably believes that grounds for review exist (which may affect the health and safety of workers)and you have not adequately conducted a review
> there is a change of operator.

Regulation 35 requires the operator review and, as necessary, revise the emergency plan in particular circumstances.

4.8 AUDITING THE EMERGENCY PLAN

As the emergency plan is integrated into the SMS, conduct full audits of the emergency plan on a periodic basis to find out whether it meets the stated aims and objectives, and has been properly implemented and managed. The nature of the MHF and results of previous audits should guide the frequency of audits.

By constant monitoring, review and auditing, the plan will remain a dynamic document, alert to the needs of all stakeholders and responsive to changing circumstances.

05/

APPENDICES

IN THIS SECTION:

5.1 APPENDIX A: NEW ZEALAND FIRE AREA OFFICES

AREA	ADDRESS	PHONE
Muri Whenua	9 Homestead Road Kerikeri Northland	09 4076513
Whangarei/Kaipara	C/o 12 Mansfield Terrace Whangarei 0112	09 4389203
Waitemata	PO Box 300-412 Albany Auckland 0752	09 3545170
Auckland City	PO Box 68646 Auckland 1145	09 3025192
Counties Manukau	PO Box 97945 Manukau 2241	09 2620764
Waikato	PO Box 1343 Hamilton	07 8394996
Eastern Waikato	PO Box 159 Thames 3540	07 8679054
Bay of Plenty Coast	PO Box 341 Tauranga 3140	07 5787099
Central Lakes	PO Box 117 Rotorua	07 3483198
Tairawhiti	PO Box 180 Gisborne	06 8679039
Hawke's Bay	PO Box 4122 Napier 4143	06 8436123
Taranaki	PO Box 747 New Plymouth	06 7573860
Whanganui	PO Box 334 Whanganui 4540	06 3480103
Manawatu	PO Box 688 Palmerston North	06 3578025
Hutt Waiarapa	955-957 High Street Lower Hutt	04 5778380
Wellington	PO Box 19-161 Courtenay Pl Wellington 6021	04 8012140
Tasman Marlborough	PO Box 7003 Nelson 7024	03 5462100
West Coast	PO Box 222 Greymouth 7840	03 7680313
North/Mid Canterbury	PO Box 63 Rolleston	03 3478635
Christchurch	PO Box 13-747 Christchurch 8141	03 3728601
South Canterbury	PO Box 683 Timaru 7940	03 6841200
Central/North Otago	PO Box 2360 Wakitipu 9349 Queenstown	03 4414537
East Otago	PO Box 341 Dunedin	03 4677551
Southland	PO Box 192 Invercargill	03 2184114

5.2 APPENDIX B: COORDINATED INCIDENT MANAGEMENT SYSTEM RESPONSE STRUCTURE

This is an example of a CIMS structure for co-ordinating a response to a major incident[2].

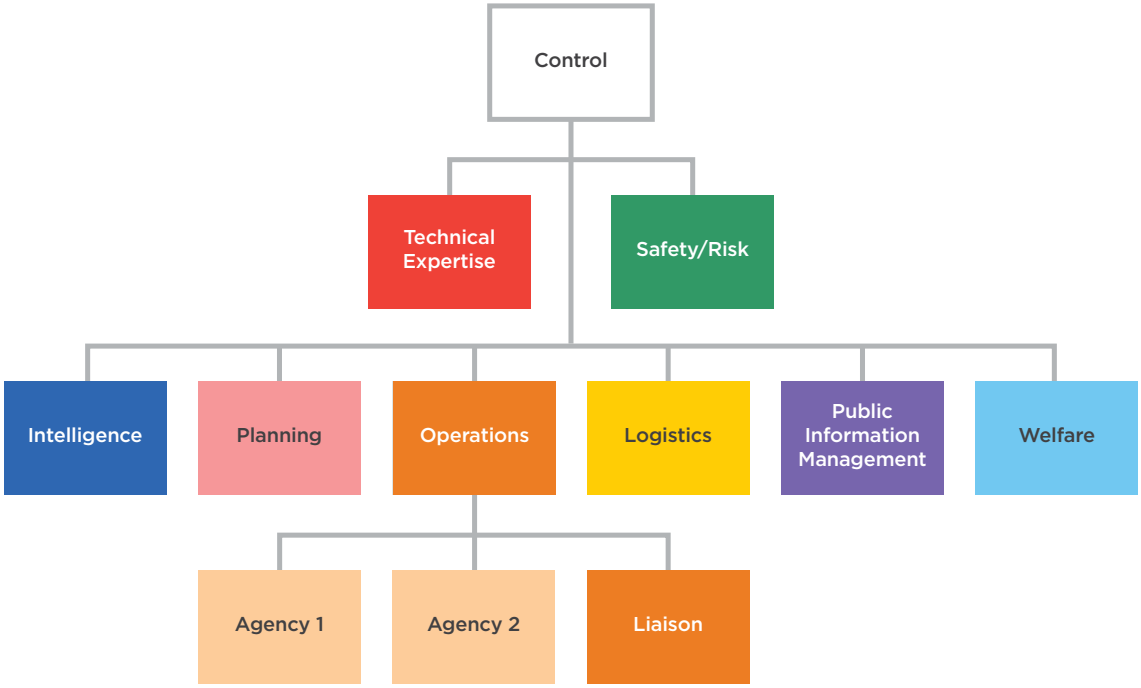

Figure 5: CIMS functions in response to a major incident

CIMS establishes a modular and scalable framework that can be expanded across, down and up dependent on the incident. It may include external integration with the sector (locally, regional and/or national) or with other agencies (Fire, Police, Ambulance, local authorities) at local, regional and national levels.

Table 3 summarises the responsibilities for the main functions that can apply when an incident response becomes protracted or large scale and the CIMS response structure is used.

[2] *The New Zealand Coordinated Incident Management System (CIMS)* The Ministry of Civil Defence and Emergency Management www.civildefence.govt.nz

FUNCTION	RESPONSIBILITES
Control	Co-ordinates and controls the response.
Technical Expertise	Provides specialist advice on aspects of the response. Examples include scientists specialising in the hazard, environmental experts or industrial experts.
Safety/Risk	Monitors safety conditions and advises the Controller on measures to minimise the risks to assigned personnel.
Intelligence	Collects and analyses information and intelligence related to context, impact and consequences; also distributes intelligence outputs.
Planning	Leads planning for response activities and resource needs.
Operations	Provides detailed direction, coordination, and supervision of response elements on behalf of the Controller.
Logistics	Provides personnel, equipment, supplies, facilities, and services to support response activities.
Public Information Management	Develops and delivers messages to the public, directly and through the media, and liaises with the local community if required.
Welfare	Co-ordinates the delivery of emergency welfare services and resources to affected individuals, families/whānau, and communities.

Table 3: CIMS functions

5.3 APPENDIX C: 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.

THE MINISTRY OF CIVIL DEFENCE AND EMERGENCY MANAGEMENT

For information and guidance on the Ministry of Civil Defence and Emergency Management's role in planning for a major incident visit the Ministry's website www.civildefence.govt.nz

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 (UK)

For information and guidance about the UK's Control of Major Accident Hazards (COMAH) regulations visit the Health and Safety Executive's website www.hse.gov.uk

SAFE WORK AUSTRALIA (AUSTRALIA)

For guidance to assist with emergency planning 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 an emergency plan 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:

> *Introduction to the Health and Safety at Work Act 2015*
> *Major Hazard Facilities: Major Accident Prevention Policy and Safety Management Systems*
> *Major Hazard Facilities: Notifications and Designation*
> *Major Hazard Facilities: Safety Assessment*
> *Major Hazard Facilities: Safety Cases*
> *Worker Engagement, Participation and Representation*
> *Workplace Exposure Standards and Biological Exposure Indices*
> *Your Practical Guide to Working With Hazardous Substances.*

Community Engagement in the CDEM Context
The Ministry of Civil Defence and Emergency Management www.civildefence.govt.nz

Emergency Planning for Major Accidents
Health and Safety Executive www.hse.gov.uk

Guidance Note: Emergency Planning at a Major Hazard Facility
WorkSafe Victoria www.worksafe.vic.gov.au

Guide for Major Hazard Facilities: Emergency Plans
Safe Work Australia www.worksafe.vic.gov.au

National Civil Defence Emergency Management Fuel Plan
The Ministry of Civil Defence and Emergency Management www.civildefence.govt.nz

Public Exposure Guidelines
US National Oceanic and Atmospheric Administration Office of Response and Restoration's public exposure guidelines www.response.restoration.noaa.gov

Substance Exposure Limit Register
Environmental Protection Authority www.epa.govt.nz

The New Zealand Coordinated Incident Management System (CIMS)
The Ministry of Civil Defence and Emergency Management www.civildefence.govt.nz

5.4 APPENDIX D: 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.

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