

Chapter 21

EMERGENCY EVACUATION

The primary consideration in the event of a fire, explosion or other emergency at a terminal will be the safety of personnel. Therefore, the means and method by which personnel can be safely evacuated are of great importance.

This Chapter describes the elements that should be included within a terminal's evacuation plan and provides guidance on options to ensure that a safe and effective means of emergency escape is available.

21.1 General

To ensure the efficient evacuation of personnel in the event of a serious emergency, all terminals should provide adequate evacuation facilities and have an evacuation plan in place.

The evacuation plan will vary from terminal to terminal and will be dependent on the design, location and the availability of equipment. However, in general, the design of the facility should provide at least two escape paths not likely to be involved simultaneously in a fire.

'T' Head Jetties and Finger Piers

Terminal facilities with a shore connection, such as 'T' head jetties and finger piers, have the advantage of providing a means of evacuation by road transport. Some facilities are designed with oil and gas pipelines supported on the underside of the pier. For this type of facility, means of evacuation via water transport may be required unless a second escape path via the shore is provided.

The possible evacuation of tanker personnel should also be considered. The very nature of oil and gas operations does not require a large number of operating personnel to be involved at marine terminals and it is probable that a tanker's crew will outnumber the shore personnel. It may also be possible that maintenance personnel will, on occasions, outnumber operational personnel, and the evacuation plan should recognise and cater for such a contingency.

21.1.1 Tanker Evacuation

There should always be a reciprocal arrangement between the tanker and the terminal in any evacuation plan, and it is important that Masters of all tankers using the facility are apprised of the emergency evacuation arrangements. These arrangements should be discussed at the pre-cargo safety conference and identified during the completion of the Safety Check-List. There may be occasions whereby the safest and most efficient means of evacuation, especially if the tanker is not involved in the emergency, is provided by removing the tanker from the terminal (see Section 20.5).

21.1.2 Non-Essential Personnel

On every occasion, when it is evident that an emergency situation will or may develop into an incident of significant proportions, all personnel not directly involved in remedial or fire-fighting operations should be evacuated at an early stage.

The decision to evacuate all non-essential personnel, including tanker personnel, or to unberth the tanker, should on every occasion be made, after liaison between the tanker, terminal, port authority and the fire brigade at an early stage of any emergency situation. Early evacuation of such personnel will always serve to reduce the overall responsibility for personnel safety, thereby permitting the person in charge to concentrate on the emergency and attend to the needs of those personnel in immediate danger.

The most important and critical elements of every emergency evacuation plan are organisational control and communications, and the resources necessary to support them. Guidance on these essential elements is included in Chapter 20.

21.2 Evacuation and Personnel Escape Routes

21.2.1 Primary and Secondary Escape Routes

Terminal facilities should have at least two separate evacuation routes from all occupied or work areas and from berthed tankers. Escape routes should be located such that, in the event of fire, at least one route provides a safe evacuation path, sufficiently far from the source of probable fire to afford personnel protection during evacuation. Evacuation routes and secondary evacuation routes should be clearly marked, and preferably numbered, in order that precise instructions can be given to personnel to proceed via a designated route and/or disembarkation position.

21.2.2 Protection of Personnel

If escape routes cannot be led clear of sources of probable fire, the route should be protected, where practicable, by fire walls/barriers or heat shields and should afford personnel protection from exposure to burning hydrocarbons on water, on the topside of loading/unloading facilities, or on shore.

Evacuation routes should be designed, and maintained, obstacle free in order to eliminate the need for personnel to jump into the water in order to reach an area of refuge.

Berths and jetties can be difficult to escape from in the event of fire or other emergency. Consequently, careful thought should be given to designing escape routes. Access ways to and from offshore berths and dolphins require special attention as personnel must not be left unattended on isolated dolphins. Moreover, steps or steel ladders are usually required between berths and the water level.

21.2.3 Boat Access

All terminals should be designed or modified to provide adequately for the emergency evacuation of personnel. Particular emphasis should be given to safe disembarkation positions at suitably protected locations. 'T' head jetties and finger piers should provide fixed means for embarking personnel into tugs, boats and other rescue craft, in the event of the shore route being inaccessible.

21.2.4 Availability of Rescue Craft

When evacuation is required to be undertaken by rescue craft, such transport should be alerted at a very early stage of the emergency and be kept as close as possible to the evacuation point, such that they can be on scene rapidly, certainly no later than 15 minutes from initial advice. The mobilisation of all available harbour or terminal rescue craft would also form part of any emergency plan.

Harbour craft and tugs, not under the control of the terminal but available for use in rescue operations, should be identified for use in an emergency. Early warning should be given for the assembly of all craft used for evacuation, which will then be under the control of the person in charge of managing response to the incident.

21.2.5 Life Saving Appliances

Every terminal should be equipped with life saving appliances for use in evacuation and rescue, such as life buoys, personal flotation devices for every person located at the site and, where appropriate, life rafts or life boats. Personal flotation devices should be located in prominent and accessible positions.

Life buoys and life rafts are not suitable for use in evacuation in the case of fire on water. These devices are typically utilised for emergency rescue from water in the case of someone going overboard. However, such life saving equipment may be required under local regulations.

21.3 N/A

21.4 Training and Drills

The effectiveness of evacuation plans will depend upon the training and familiarity of personnel in the use of such plans.

Evacuation drills should be held frequently, typically at least once every three months, and all key and supervisory personnel at the facility should have a thorough knowledge of the evacuation plans. The evacuation plan should be reviewed from time to time, particularly in the light of findings arising from routine drills and exercises.