Southern Ports

Lightning Response Procedure

DOCUMENT CONTROL

Revision Number	Description	Reviewed by	Approved by	Review Date	Issue Date
1	New Procedure	A Niesler	M Cole	21/07/2017	21/07/2017
2	Complete Review	Senior OHS Advisor	Operations and Maintenance Manager	25/06/2020	28/07/2020
3	Complete Review	Operations Superintendent	Operations and Maintenance Manager	06/10/2022	07/10/2022
4	Complete Review	Operations Planner - Shipping	Interim Chief Operating Officer	02/09/2025	02/09/2025

AUDIT

This Procedure shall be reviewed or revised:

- where a Risk Assessment or Audit identifies a need to review
- when legislative changes impact this Procedure
- following a significant incident involving this Procedure
- at least every three years.

Important Summary Points

- Yellow Alert: Where the delay between observing lightning flash and hearing thunder is greater than 30 seconds (10Km):
  - Stop all crane and ship loader operations
  - Note: Berth 3 shiploader – utilise the Emergency Shutdown Protocol and lift the boom clear of the hatch
  - Stop all work at heights and MEWP activities
  - Stop all fuel transfers
  - Personnel in hazardous areas to prepare to relocate to suitable shelter or cease hazardous activities
- **Red Alert**: Where the delay between observing lightning flash and hearing thunder is 30 seconds or less, suspend all of the activities list above and:
  - All personnel immediately seek suitable shelter
  - Remove yourself from hazardous areas and cease hazardous activities,
  - Stop all vessel out-load and in-load operations
  - Await the "All Clear”
- The Shift Superintendent will communicate the Lightning Alerts and the “All Clear” via VHF channel 1.
- Employees shall familiarise themselves with the lightning Alert levels and control actions.
  - If you have concerns regarding the proximity of the lightning and what you should do to respond, contact your supervisor.

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1 PURPOSE

The purpose of this procedure is to provide information on the hazards associated with a lightning storm and to outline the responsibilities and controls in place to mitigate the potential of injury resulting from a lightning strike.

2 SCOPE

This procedure applies to all personnel accessing Southern Ports – Esperance (SP-Esp) including employees, contractors, port users and visitors. If a Contractor or Port User standard exceeds the requirements outlined in this procedure, then that standard may apply once a Risk Assessment (RA) has been undertaken and approved.

Ship's crew undertaking shipboard operations should conduct those operations under the vessel's safety management system.

3 GENERAL INFORMATION

3.1 Lightning Characteristics

During thunderstorms, clouds build up an electrical charge. Lightning is a sudden electrostatic discharge caused by imbalances between storm clouds and the ground or within the clouds. A lightning flash is always accompanied by the sound of thunder. If the flash is far away, the thunder may be inaudible. Light travels faster than sound. Sound travels at approximately 330 metres per second.

Therefore, the time between the lightning flash and the sound of thunder gives an estimate of how close the lightning is. Three seconds represents approximately one kilometre. The risk of being struck by lightning increases when there is less than 30 seconds between the lightning flash and the sound of thunder.

Lightning can cause injuries or death in a number of ways, including:

- Direct strike: when a person is directly struck by lightning.
- Contact voltage: when a person is in direct contact with a conductor that has been struck by lightning, either inside or outside a structure.
- Side flash: when a person is struck by an arc or flash from a conductor carrying a lightning strike near the person.
- Ground current: injuries can occur when standing in the area of a lightning strike as the current can flow through the ground and enter and exit the body through the feet.

Lightning can also travel long distances in electrical conducting materials such as metal wires, fences, pipes, plumbing or other metal surfaces. Metal does not attract lightning but it provides a path for the lightning to follow. Whether inside or outside, contact with metal wires, electrical appliances, pipes, plumbing, landline telephones, windows and doors should be avoided.

3.2 30 - 30 Rule

The 30-30 Rule is an easy way to determine the threat of lightning in your area. The Shift Superintendent will employ the Bureau of Meteorology (BOM) severe weather alerts and the 30 – 30 Rule to determine the alert level at SP-Esp.

Count the seconds between seeing lightning and hearing thunder. When counting, 'count one thousand, two thousand, three thousand' and so on. If this time is less than 30 seconds (10 kilometres) lightning is a threat. Seek shelter immediately.

If you count the number of seconds between the flash of lightning and the sound of thunder, and then divide by 3, you will get the distance in kilometres to the lightning storm. For example: 6 seconds = 2 kilometres, 30 seconds = 10 kilometres and 60 seconds = 20 kilometres.

30 minutes after observing the last lightning flash or hearing the last thunder the area can be considered safe to return to work.

4 PROCEDURE

4.1 Response to Lightning Activity

LIGHTNING ACTIVITY	RESPONSE
Blue Alert Lightning detected within 20 - 40km (> 60 seconds)	The Shift Superintendent, or delegate, shall initiate a Blue Alert on VHF CH 1 to advise all personnel that lightning activity has been detected. Familiarise yourself with the requirements of future lightning alert stages. Prepare to take further action. Identify the nearest safe location (see Section 4, Definitions). Shift Superintendent, or delegate, shall monitor lightning activity.
Yellow Alert Lightning detected within 10 - 20km (30 – 60 seconds)	Where the delay between observing lightning flash and hearing thunder is greater than 30 seconds the Shift Superintendent, or delegate, shall initiate a Yellow Alert on VHF CH 1: Stop all crane and ship loader operations and lower booms where design allows. Note: Berth 3 shiploader – utilise the Emergency Shutdown Protocol and lift the boom clear of the hatch Stop MEWP activities. Stop all fuel transfers. Personnel in other hazardous areas to prepare to relocate to suitable shelter or cease hazardous activities. Familiarise yourself with the requirements of future Lightning Alert stages. Prepare to take further action. Shift Superintendent, or delegate, shall monitor lightning activity.
Red Alert Lightning detected within 0 - 10km (0 – 30 seconds)	The Shift Superintendent, or delegate, shall initiate a Red Alert on VHF CH 1 to initiate the following additional controls: All personnel immediately seek suitable shelter. Remove yourself from hazardous areas and cease hazardous activities (see Section 5. Definitions). Stop all vessel out-load and in-load operations. All personnel immediately seek a safe location (see Section 5. Definitions) and remain in place until the alert is downgraded. Suspend all out-door surface mobile plant with ground engaging tools, for example but not limited to front end loader and excavator operations. Use of wired radios in vehicles or buildings to be kept to a minimum. Shift Superintendent, or delegate, to monitor lightning activity. Await the “All Clear”
All Clear No lightning observed or thunder heard for at least 30 minutes	Shift Superintendent notify personnel of the “All Clear” via VHF CH 1. Return to outdoor activities with caution.

If outside with no time to reach suitable shelter

- Cease hazardous activities.
- Avoid all hazardous locations.
- Stay away from open water.
- Remain inside vehicle or mobile plant.
- Adopt the “Lightning Safety Crouch” (do not lay down).

4.1.1 *Lightning Safety Crouch*

If you feel your skin tingle, your hair stand on end, and you hear crackling noises a strike may be about to happen. If outdoors, immediately remove metal objects and get into the lightning safety crouch, making yourself the smallest target possible and minimising your contact with the ground.

- Crouch down on the balls of your feet with heels touching.
- Lower your head and put your hands on your knees or over your ears.

4.2 Help Someone who is Struck by Lightning

In the event that someone is struck by lightning:

- Initiate an emergency call on VHF Radio Channel 1:
  - PRESS the talk button
  - Call “EMERGENCY, EMERGENCY, EMERGENCY”

Or

  - Phone: 0428 712 111
- When the Shift Superintendent responds:
  - You Reply “This is (YOUR NAME)”
  - State your location
  - State nature of the first aid emergency
- Wait for the information to be repeated back to you and for instruction from the Shift Superintendent. Do not hang up or otherwise stop communication until told to do so.

People who have been struck by lightning do NOT carry an electrical charge and are safe to handle.

- Apply first aid immediately
- Common injuries include burns, wounds and fractures.
- If numerous people have been struck, treat those who are unconscious first.

5 DEFINITIONS

TERM	DEFINITION
All Clear	No Lightning activity detected within 16km, or thunder heard, for at least 30 minutes
Hazardous Activities	Driving Operating earth moving equipment with ground engaging tools Operating mobile plant outdoors Electrical works Plumbing Utilising landline telephones and electronic equipment Utilising mobile telephones and devices whilst outside Crane and MEWP works Refuelling Water based activities (open boats), mooring Ship out loading Container / grab crane operation
Hazardous Locations	Areas on top of buildings or in open structures Conveyor galleries and infrastructure In apex of product sheds Container pads, open berths and parking areas. Cranes and ship loaders Sumps and other pools of water Vicinity of wire fences, overhead wires and fixed rails Vicinity of electrical appliances, landline telephones, plumbing fixtures, and metal or electrically conductive objects Near Window (inside buildings) Open sided machinery Open boats without masts Non-metal topped or open vehicles Ride on lawn mowers and skid steer
Safe Location	Large buildings Offices and control rooms

6 RESPONSIBILITIES

ROLE	RESPONSIBILITY
Managers, Superintendents and Supervisors	Ensure personnel under their control, including contractors, port users and visitors, understand and comply with the requirements of this procedure.
Shift Superintendents	Communicate the applicable lightning proximity alerts and the ‘All Clear to personnel on VHF channel 1
Employees, contractors, port users.	Comply with the requirements of this procedure.
Visitors and escorted contractors	Comply with all reasonable instructions given by your escort.