HASLIN

Adverse Weather Procedure

SEQ-PR-015

Document Revision Control

Document History			
Revision	Description of Amendments	Reviewed By	Date
4	Update to Haslin's new branding	Jeremy Wallis – HSEQ Manager	01/09/2016
5	Update Hot and cold Temperature procedure to Adverse Weather	Jeremy Wallis – HSEQ Manager	15/11/2021
6	Amend requirements for exposure to lightning, high winds, and cold environments. Remove section relating to high temperature	Tony Cartwright	15/11/2023
7	Removal of Bushfire section	Iain Johnston	02/02/2024

Document Approval			
Revision	Approved By	Signature	Date
7	Tim Kelly		02/02/2024

Review Panel	
Name	Position
Iain Johnston	Quality Manager
Tim Kelly	Business Development Manager
Kate Pollock	QLD Regional Safety Manager
Tony Cartwright	NSW Regional Safety Manager

Table of Contents:

1 Purpose

The purpose of this procedure is to describe measures to prepare for, and respond to adverse weather conditions.

2 Scope

This procedure applies to all persons undertaking work on a site or workplace controlled by Haslin Constructions.

3 References

- DMIRS (2018) Fact Sheet – Lightning and Outdoor Work
- Bureau of Meteorology: Preparation and safety during thunderstorms
- Zimmermann, C. Cooper, M.A. Holle R.L. (2002) Lightning Safety Guidelines, Annals of Emergency Medicine 39(6)

4 Definitions

Nil

5 Legal Requirements

- State-based Work Health and Safety Act
- State-based Work Health and Safety Regulation

6 Procedure

6.1 Lightning

Lightning is one of the most dangerous and frequently encountered weather hazards in Australia. It is estimated there are 6 - 10 deaths and over 100 severe injuries caused by lightning every year (DMIRS 2018).

The likelihood that personnel will be trapped in the open during a lightning event is reduced by actively monitoring the weather. Site personnel will continually monitor prevailing and forecast weather conditions to identify and detect approaching lightning activity.

Lightning warning systems can be fixed, portable or handheld electronic equipment. An easy-to-use, free and effective tool is the “My Lightning Tracker” app. The My Lightning Tracker has several features including:

- Establishing zones around your location that trigger notification when a lightning strike is detected within that zone.
- Providing distance from site and time of lightning strike

Electronic systems for detecting and monitoring lightning are not infallible and as such workers should also monitor their work environment for approaching storm systems and lightning activity by sight and hearing.

6.1.1 Lightning Trigger Action Response

Lightning alert levels are determined by proximity of lightning activity. The alert levels from lowest to highest are:

Blue Alert	Lightning within 40km
Yellow Alert	Lightning within 20km
Red Alert	Lightning within 10km
All Clear	Lo lightning detected with 40km for a period of 30 minutes

Alert levels downgrade after 30 minutes with no lightning activity being detected within the designated range and an "All-Clear" is issued when no lightning has been detected within 40km for a period of 30 minutes.

Where My Lightning Tracker or other electronic means of detection are not available, the alert level must be manually calculated using, using the 30/30 rule.

6.1.2 30/30 Rule

The rule of thumb is that every 3 seconds of delay between a flash to thunder, equates to a distance of 1 kilometre, so when there is a 30 second flash-to-thunder time interval, the lightning activity is approximately 10 km away.

The 30/30 rule states that if it takes less than 30 seconds to hear thunder after seeing a flash of lightening, then lightening is near enough to pose a threat which would trigger a Red Alert and you must go indoors for 30 minutes. If during this time lightning is again observed, contrary to the 30/30 rule, the 30 minutes will start again.

If you cannot see the lightning, just hearing the thunder is reason to seek further instruction from the Site Supervisor. Office-based personnel with access to a computer or handheld device will be able to provide information as to the proximity of the approaching storm.

6.1.3 Responding to Alert Levels

Blue Alert

- The Site Superintendent / Supervisor will communicate the blue alert condition to all site personnel via UHF radio notifying of the approaching lightning activity
- All site personnel to maintain heightened vigilance and ensure readiness to make safe their work area and proceed to an assembly area
- A nominated person (normally the Safety Coordinator) will continue monitoring the lightning tracker and provide regular updates to the Site Superintendent / Supervisor

Yellow Alert

- The Site Superintendent / Supervisor will communicate the yellow alert condition and related instructions to all site personnel
- All crane and excavator operations must cease – crane booms retracted and lowered, loads lowered to the ground, excavator ground engaging tools lowered to the ground, earthing chains deployed on all cranes and concrete pump booms
- All truck loading / unloading operations must cease
- All large rubber-tyred mobile equipment i.e., all-terrain dump trucks, front-end loaders must park up in a low-lying area that is at least 300m from an assembly area. Mobile equipment should be parked nose-to-tail wherever possible in circumstances where multiple vehicles are parking in the same area
- All work activities occurring in elevated locations, or on elevated structures or equipment e.g., scaffold, EWP, etc., or in confined spaces must cease and persons involved in those activities removed from those locations
- All loose materials and equipment to be secured, container doors closed, portable generators shut down
- All personnel involved begin moving to assembly areas in accordance with the instructions of the Site Superintendent / Supervisor e.g., site offices, crib shed, etc.
- The Site Superintendent / Supervisor will keep all site personnel updated via UHF radio of the approaching lightning activity, ensuring persons have sufficient time to return to assembly areas
- All site personnel to maintain heightened vigilance and ensure readiness to take shelter

- The nominated person (normally the Safety Coordinator) will continue monitoring the lightning tracker and provide regular updates to the Site Superintendent / Supervisor

Red Alert

- The Site Superintendent / Supervisor will communicate the red alert condition and instruct all site personnel to immediately return to assembly areas e.g., site offices, crib shed, etc.
- All site personnel to assemble and remain in site offices, crib shed, etc., until the red alert is downgraded
- When taking shelter inside a site building:
  - Avoid contact with conductors such as wiring, pipes, metallic materials and water
  - Keep clear of windows
  - Avoid contact with external surfaces and walls
- In circumstances where persons are unable to return to the assembly area, shelter should be taken in the cabin of a light vehicle or mobile equipment. Light vehicle drivers and mobile equipment operators should:
  - Park in the open, away from trees
  - Turn the engine off and remain in the cabin
  - Avoid using hard-wired equipment within the vehicle e.g., UHF radio, etc., until the red alert is downgraded
- A nominated person (normally the Safety Coordinator) will continue monitoring the lightning tracker and provide regular updates to the Site Superintendent / Supervisor
- Emergency response can still occur during red alert condition

All Clear

- The Site Superintendent / Supervisor will declare and communicate an all clear condition
- Prior to recommencement of works following the declaration of an all clear condition or downgrading from yellow to blue, workers must inspect their work area, vehicles and equipment to ensure that it is safe to recommence

6.1.4 Caught Outdoors during Red Alert

If you are unable to reach shelter (site building, light vehicle or mobile equipment) follow these rules:

- Do not stand underneath trees, towers, power lines, power poles, etc.
- Do not stand near wire fences, metal pipes, rails or other potential conductors
- Do not stand near open water ponds, puddles, water courses, dams, tanks
- Do not hold anything metallic, carbon fibre, fibreglass or other potential conductors
- Head for a low-lying location and crouch down on the balls of your feet with your feet close together. Keep your hands on your knees and lower your head. Make yourself the smallest target possible and minimise your contact with the ground. Do not lie on the ground
- If with a group, ensure there are several meters between individuals

6.1.5 Responding to Lightning Strikes

- Person
  - Provide first aid (DRSABCD)
  - Call 000

- Light vehicle
  - Visually inspect the vehicle for physical damage
  - Test the operational functions (the vehicle could have incurred damage to electrical systems or components)
  - Do not operate if a defect that may impact safe operation is identified

- Mobile plant
  - Visually inspect the mobile equipment for physical damage, paying particular attention to the tyres
  - If there is any visible damage likely to have been caused by a lightning strike or the tyre is hot or there are signs of smoke, immediately notify the Site Superintendent / Supervisor and establish a 300m exclusion zone around the mobile equipment
  - The exclusion zone should remain in place until a competent tyre fitter has conducted an inspection of the tyre
  - Test the operational functions (the mobile equipment could have incurred damage to electrical systems or components)
  - Do not operate if a defect that may impact safe operation is identified
- Site building
  - Visually inspect the site building for physical damage
  - Look for signs of heating or fire (the site building could have incurred damage to electrical systems or components and flammable material may have been ignited)
  - Do not occupy the site building if a defect that may impact safe operation is identified

6.2 Cold Environments

- Discuss forecast weather conditions daily at the pre-start meeting
- Monitor temperature and environmental conditions
- Provide protection from wind and rain wherever possible
- Monitor workers physical condition especially if exposed for prolonged periods
- Consider work-rest/rotation regimes

6.3 Hot Environments

- Discuss forecast weather conditions daily at the pre-start meeting
- Monitor temperature and environmental conditions
- Provide protection from heat and Sun wherever possible
- Provide adequate supply of cool drinking water and Ice
- Monitor workers physical condition especially if exposed for prolonged periods
- Consider work-rest/rotation regimes

6.4 High Winds

- Discuss forecast weather conditions daily at the pre-start meeting
- Monitor wind speed and environmental conditions
- Ensure temporary structures and structures under construction are adequately braced or otherwise supported in accordance with wind loading design
- Ensure any temporary fencing arrangements are adequately braced or otherwise supported in accordance with wind loading design
- Secure all loose items, materials and signage
- Only operate cranes in accordance with the individual crane's wind rating and load characteristics
- Only operate elevating work platforms or other hoists in accordance with the manufacturer's specifications

6.5 Cyclones

Cyclones are low pressure storm systems that form over warm tropical waters in the Southern Hemisphere, commonly between November and April. They are characterised by well-defined clockwise wind circulations and a 'circular eye' in the centre. The eye is surrounded by a dense ring of cloud, known as the eye wall, which marks the belt of strongest

winds and heaviest rainfall. Cyclones can last from a few days up to two or three weeks and may exhibit erratic paths in any direction, including sharp turns and loops.

The severity of a tropical cyclone is described in categories related to the zone of maximum winds. The following table summarises the five (5) cyclone severity categories, as outline by the Bureau of Meteorology (BOM).

Category	Max. Gusts (km/h)	Typical Effects
1 (tropical cyclone)	90 – 125 (gales)	Negligible house damage. Damage to some crops, trees and caravans. Craft may drag moorings.
2 (tropical cyclone)	125 – 164 (destructive)	Minor house damage. Significant damage to signs, trees and caravans. Heavy damage to some crops. Risk of power failure. Craft may break moorings.
3 (severe tropical cyclone)	165 – 224 (very destructive winds)	Some roof and structural damage. Some caravans destroyed. Power failures likely.
4 (severe tropical cyclone)	225 – 279 (very destructive winds)	Significant roofing loss and structural damage. Many caravans destroyed and blown away. Dangerous airborne debris. Widespread power failures.
5 (severe tropical cyclone)	> 280 (very destructive winds)	Extremely dangerous with widespread destruction.

6.5.1 When is a Severe Weather Warning Issued?

A Severe Weather Waring is issued when severe weather is expected to affect land-based communities within 6-24hrs.

6.5.2 How often is a Severe Weather Warning issued?

While the threat remains, a severe weather warning will usually be issued every six hours, however the more frequent warnings may be issued in some serious circumstances.

6.5.3 What information is included in the Severe Weather Warning?

Severe Weather Warnings can contain the following information:

- Standard Emergency Warning Signal (SEWS) - sounded only for the most serious events
- List of severe weather phenomena expected in the warning area
- Threat area
- Warning issue time
- (Usually) Description of weather pattern, including forecast developments of significant weather systems
- Description of the threat
- Action statements
- Advice of next issue time

The following table outlines the actions to be taken in periods of Sever weather or in the lead up to a possible cyclone.

Item	Role	Responsibility
	Ensure that Haslin staff, sub-contractors and employees are aware of their individual roles, responsibilities and compliance in relation to the Project Safety Management Plan and Severe Weather & Emergency Evacuation Plan	Project Manager
	Project Establishment Phase	
1	Purchase ropes, plastic sheets, masking tape etc. Ensure suitable plant and machinery is available for site including water carts, dewatering pumps, earthmoving machinery (sufficient to make fire breaks, open up dammed sections of embankment and re-cut drainage and waterways).	Project Safety Manager Project Engineer
2	Audit site in regard to environmental controls e.g.: silt fences etc.	Project Manager/Project Engineer Environment Manager
3	Check surrounds and engage a contractor if trees or grounds (overhanging branches / weeds, etc.) require attention. Fire breaks may need to be established around the site area.	Project Manager
4	Check structural fixings on buildings and ensure existing and any new buildings are secured in a proper manner. All site buildings are to be secured with cyclone rated anchor bolts or chained down and anchored with concrete blocks	Project Manager Project Engineer
	Severe Weather Watch Phase (Over 48hr Prior)	
1	Update and issue lists of staff addresses and contact phone numbers.	Project Manager Project Engineer
2	Consideration to pre-booking water pumps, chainsaws etc. from supplier for post severe weather clean up.	Project Site Supervisor Project Engineer
3	Complete SEQ-CL-059 Site Preparation Checklist	Project Site Supervisor
4	Check with staff, sub-contractors and employees that they are aware of phase and are implementing their plans.	Project Manager Project Engineer
5	Check worksite areas for loose objects and check structural fixings on site buildings.	Project Manager Project Site Supervisor Project Engineer

Severe Weather Warning Phase (48hr-24hr Prior)		
1	Check with staff, sub-contractors and employees that they are aware of phase and are implementing their plans	Project Manager
2	Physically check sub-contractors and work site for any additional problems and fix or advise recommendations. Sub-contractors/site employees rectify.	Project Manager Project Site Supervisor Project Engineer
3	If severe weather threat is likely to be of significant magnitude (see Table 1) move important paper files to the secure dry location (e.g. shipping container) and take steps to protect office equipment with plastic sheeting as deemed appropriate to perceived risk. Laptops to be taken offsite and stored securely.	Project Manager Project Engineer
Severe Weather Shutdown Phase (24hr –12hr Prior)		
1	Inform staff, sub-contractors/employees of shutdown phase.	Project Manager Project Site Supervisor Project Engineer
2	Check that site/s has been made safe. Report to Head Offices and Client.	Project Manager Project Engineer Project Site Supervisor
3	Inform Head Offices and Client that worksite and/or office is about to be vacated.	Project Manager
4	Ensure disconnection of computers, copier and internet system from walls.	Project Manager
5	Send staff/sub-contractors/employees home and ensure all staff have the current contact list.	Project Manager Project Engineer
6	Close/lock all windows and doors.	Project Manager Project site supervisor
7	Advise Head Offices and Client that the site/s and/or office are secure and all personnel have vacated site/s and/or office.	Project Manager
8	In the event that the severe weather has/is likely to hit during nonworking hours employees/sub-contractors are advised to listen to local radio stations for updates and keep in contact with their respective managers.	Project Manager/Supervisor All site employees/ subcontractors

After the Event (When Safe)		
1	Inspection of site and office.	Project Manager Project Site Supervisor Project Engineer
2	Contact staff/sub-contractors/employees about re-opening work site.	Project Manager Project Site Supervisor Project Engineer
3	Discussions with sub-contractors/employees about their restart.	Project Manager Project Site Supervisor Project Engineer
4	Co-ordination of clean up, repairs and resumption of work.	Project Safety Manager Project Site Supervisor Project Engineer
5	Complete damage assessment and send to Head Office	Project Manager Project Site Supervisor Project Engineer
6	Review Emergency Evacuation and Project Safety Management Plans	Project Manager

7 Training

Nil

8 Relevant Templates, Forms and Checklists

SEQ-CL-059 Site Preparation Checklist

SEQ-TP-037 Emergency Evacuation Plan