



Adverse Weather Procedure (Onshore)

PRC - Procedure

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RECORD OF AMENDMENT

Revision	Section	Amendment
0A	Scope	Added standard company terms
N Lansdell	Full Document	Update of all formatting
	Abbreviations	Added operational facility
	Company Global Glossary	Added updated Company Global Glossary
	Table 3.1	Removed - A corded telephone (land line) shall not be used;
0A	3.8.1	Added reference to system procedure.
Dom Boyle	Table 3.1	Additional updates to wording and two paragraphs added below.
1	3.10.1	Updated wording in Offtake tankers
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	4.3.3	Weather forecast and weather station equipment section updated to reflect current weather equipment available in the CCR
	4.3.4	Added details of Bureau of Meteorology
	4.8.2	Added the Lightning Shelters and Safe Locations map
	4.8.3	Added information about Permanent and temporary buildings
	Table 1	Added details around maritime operations during the yellow alert stage and visual displays as a means of alerts for office workers.
Dom Boyle 3	Full Document	Changed any ref from PTLs to OTLs
	4.3.2	Updated Weatherzone details
	4.3.3	Updated to reflect display in the CCR
	4.3.4	Updated BOM details
	4.8.2	Added new section regards risk assessment and requirements during red alert for ship let go's

Revision	Section	Amendment
	4.8.3- Fig 1	Was previously 4.8.2. Replaced map to reflect current site shelters/muster points.
	4.9	Section on ILNG Heat index
	4.11	Added Muster Section
	Table 1	Added new line in red alert that allows OTL to better manage Ship Let go when in red alert
	7	Swapped GM to Production Manager and HSE Manager to Onshore HSE TL
Chloe Ajisafe 4	Table 1	Added new line in red alert that states - Recommended to wear eye protection glasses that are close fitting with a wraparound design and that blocks at least 99% of the UV radiation spectrum when worn. - Recommended to wear hearing protection ear plugs or earmuffs that provide noise reduction when worn.
Tom Abraham 5	Full document	Correction numbering of sections.
	3.3.1	Updated Weatherzone details, meteorological instrument details and BoM website access details
	3.4	Section on loss of meteorological equipment
	3.5	Activity planning section
	3.6	Work activity execution section
	3.8.1	Lightning alert notification section
	3.8.2	Maritime operations section
	3.11	Lightning alert table
	5	Reference and compliance documents
	7	Abbreviations and Definitions
	Appendix A	General activities onshore table

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1 PURPOSE

The purpose of this Onshore Adverse Weather Procedure is to provide guidance and instruction on the processes to be followed when performing activities during periods of adverse weather which may affect people, equipment or facilities. The objective is to ensure that hazards or risks have been identified and assessed, and control mechanisms have been put in place to maintain safety.

This procedure has been developed in accordance with the Company Extreme Weather Management Standard. The implementation of this procedure will ensure the risks of work undertaken during adverse weather conditions will be As Low As Reasonably Practicable (ALARP).

For the definition of adverse weather refer to [Section 7](#). Adverse weather conditions include those associated with one or more of the following:

- winds
- sea state
- poor visibility
- precipitation
- high temperatures and humidity
- electrical storms.

This is particularly important during the following activities, but is not limited to:

- working over water
- offtake tanker operations
- lifting operations.

2 SCOPE

This procedure shall apply to persons and entities working for or on behalf of the Company where the Company has legal obligation and/or authority to introduce and implement Health Safety and Environment (HSE) requirements consistent with those required on Company property.

This procedure details the approach to be adopted at operating locations to ensure that a safe system of work is maintained during adverse weather.

This procedure does not cover the trigger points and required responses in relation to tropical lows and cyclones; these are detailed in the NT Extreme Weather (Cyclone) Management Plan and are not detailed in this procedure.

3 PROCEDURE

3.1 General guidance for adverse weather

A trigger point is a quantifiable measure of weather conditions or the product of weather conditions. During adverse weather the use of trigger points is required to mitigate certain precautions or limit activities to ensure the safety of personnel and facilities. The trigger points developed in this procedure shall be used by the Operations Team Lead (OTL) at their discretion to alert personnel and make decisions to stop certain activities.

Site specific guidance and trigger points on the actions required when adverse weather is forecasted is provided in Appendix A – General Guidance for Adverse Weather.

3.2 Risk assessment

Before starting any work, the workgroup shall conduct risk assessments to identify the hazards and control measures to mitigate the risk level of the work to ALARP. Reference should be made to the Company Integrated Safe System of Work (ISSoW), Risk Assessment and Step Back 5 x 5 procedures.

3.2.1 Control of risk

The following points should be considered, as deemed appropriate, through the risk assessment process for any activity that poses a risk to personnel or equipment in relation to adverse weather working:

- Is the work location current or forecast weather likely to make the activity more hazardous?
- If deterioration in weather conditions is expected, are additional precautions necessary or can the activity be delayed or suspended?
- Will the proposed provision of additional safeguards provide robust mitigation against or control any additional hazards from the weather?
- Have those personnel knowledgeable of the effects of weather conditions on any particular activity been consulted and have personnel likely to be affected by it been advised?

3.3 Weather and oceanographic measurements and forecasts

The ability to take action to minimise the risks of adverse weather depends on accurate and timely weather forecasts, actual real time weather data local to the work activity location and statistical data to enable potential weather windows to be identified.

3.3.1 Weather forecast and weather station equipment

Access to weather forecasts can be obtained from the following Company sources.

Weatherzone

Weatherzone is the ILNG preferred service provider and software that provides real time weather data for end users. The interface is user friendly and provides an array of functionality, including a dashboard, storm tracker and tropical cyclone and detailed forecast tabs. Of particular interest and relative to this procedure are the very useful planning tools:

- Storm Tracker – used to monitor and manage lightning alerts

- Detailed Forecast – provides specific data sets on thunderstorm, rainfall and high wind risks and the likelihood of occurrence in a given period.

For updated weather and live cyclone tracking use the below log on details:

URL: <https://dashboard.weatherzone.com.au/>

User: user@inpex.com.au

Pass: inpexweather99

If unable to access this webpage, contact the ILNG HSE team for assistance.

Meteorological instruments at ILNG

The meteorological instruments maintained at ILNG are located at the Jetty LIR. The instruments feed back to the CCR and consist of the following:

- Rain Gauge
Measure of rain over a period of time and intensity of rain
- Anemometer
Instantaneous wind speed and direction: 2-minute mean, 2-minute maximum gusts and 10-minute mean values
- Barometer
Barometric reading for lower pressure readings and early warning for cyclones
- Temperate Gauge
Air temperature and relative humidity.

The above details are displayed within the CCR on a large display board.

Bureau of Meteorology

The BOM website for INPEX-specific locations is updated annually and is available for all personnel working on INPEX assets. A new log on is sent to the respective INPEX site contacts.

Additional general weather information is available from <http://www.bom.gov.au/>.

The facility and the work parties shall use these information sources and the site's real time weather data for site-based activity risk assessment purposes as required.

Note: To obtain the current BOM log in details contact the ILNG HSE team for assistance.

3.4 Actions upon loss of weather forecast/local meteorological equipment

On loss of the ILNG meteorological equipment/data, alternative real time data sources should be sought. All work activities at the location shall be reviewed and, where necessary, additional precautions taken (including stopping or delaying the activity) commensurate with the risk and quality/reliability of the alternate data source or pre failure conditions.

When no meteorological monitoring is available, personnel are advised to apply the 30/30 rule described in AS/NZS 1768:2021. Count the interval between observing the flash of lightning and hearing the bang of thunder. Sound takes approximately 3 seconds to travel a kilometre. By dividing the time interval by three, the approximate distance in kilometres is determined. An interval of 30 seconds or less constitutes a Red Alert and the observer should seek shelter. In the absence of Doppler radar and lighting sensor array data, once in shelter an observer is advised to remain in that location for a period of 30 minutes after the last thunder is heard.

Communication of weather conditions

The CCR operator may make PAGA announcements (excluding lightning) to personnel informing of the weather deterioration and specific controls as advised by the on duty OTL.

Upon improvement in the weather the CCR operator will communicate the all clear.

Lightning management will be monitored and calls made by security from the security control room by PAGA/TETRA advising of the status. Refer to 3.7.1.

Refer to the Company Onshore Terminal Regulations (L930-AW-MAN-60001) for information on weather restrictions for vessel-related activities whilst alongside.

3.5 Activity planning

Weather conditions are most likely to affect external work, or work which involves the movement of personnel, equipment or materials in external areas. The control of work activities is the direct responsibility of supervisors (all levels) at the location. The weather forecast should be reviewed at the Production Managers Daily Meeting (or other applicable meetings) so that any precautions which are required are discussed and necessary arrangements put in hand.

When deteriorating weather has been forecast, forward planning shall include actions to secure the workplace, equipment etc. and shall commence in good time to achieve the required degree of security prior to the weather deteriorating to a point where this activity itself becomes hazardous. Where activities are scheduled or have to be performed which are particularly weather dependant, the pre-planning and the control of work must make reference to the prevailing weather and the predicted weather development. Limiting weather parameters when work should be suspended or contingency plans put into action must be defined.

Where applicable activities are planned to be carried out on facilities, an assessment of risks associated with adverse weather must be conducted. These shall be assessed on a case-by-case basis and risk controls applied, as applicable.

Working group tool box talks shall include prompts to ensure that weather conditions are considered, and specify an action if weather is deteriorating.

The Site Authority is responsible for ensuring that local forecasts and measurements are taken into account when assessing SIMOPS/CONOPS plans (if applicable) during the daily ISSoW meeting.

3.6 Work activity execution

During work execution it is the responsibility of the Permit Holder and the work party to ensure that if deteriorating weather conditions introduce new hazards, the work site is made safe and the activity is stopped until appropriate additional mitigation measures have been taken.

Prior to commencing any work during or after adverse conditions, the working group shall organise an inspection of the work area by the Area Authority/Supervisor and or an HSE Advisor.

When a work area is deemed safe by the inspection parties, the working group is to be informed that it is safe to undertake work in the specified inspected work area. The work group is to conduct a step back 5 x 5 on return to the area.

Refer to Appendix A: General guidance for adverse weather

(Guidance A) General Activities Onshore

3.7 Adverse weather (cyclone)

When a cyclone alert is issued by the BOM, refer to the NT Extreme Weather (Cyclone Management Plan) - L060-AH-PLN-60003 and Ichthys LNG Cyclone Preparedness Work Instruction - L060-AH-WIN-60001.

3.8 Adverse weather (lightning)

Lightning is classified as adverse weather and is the discharge produced when voltage difference between ground or water and atmospheric electrical charge is large enough (several hundred million volts) to overcome the insulating effect of the air. Strikes can occur within the cloud, between clouds, or between cloud and ground or water. Thunder is the sound produced by lightning.

3.8.1 Lightning alert notification

The Onshore ILNG facility has a dedicated lightning detection system. For a full list of actions relevant to the alert system please refer to Table 1 Lightning alert action.

It is expected that, during the wet season, task risk assessments take into consideration lightning events. Tasks that are undertaken in the open (open ground or on the top of structures) or using cranes, et cetera, where there is no inherent lightning protection, shall stop under Red Alert.

Following a task risk assessment, increased measures may be applied by any contractor but parameters shall never fall lower than the company's minimum Red Alert requirements as prescribed in the Red Alert table (table 1).

3.8.2 Maritime operations

When the mooring crew is committed to the dolphins during berthing or let go activities, the CCR Operator (or delegated authority) responsible for loading must maintain strict monitoring of Weatherzone. The delegated authority must:

- monitor any building or existing storms that may enter the terminal's alert thresholds
- advise OTL, Marine Pilot and INPEX mooring crew if an adverse weather event path is deemed to be "approaching site" or "passing site" and the distance
- advise OTL, Marine Pilot and INPEX mooring crew of any changes to the situation or path which is likely to impact the safety of the mooring crew.

Procedural steps for an approaching storm <15 km:

- Delegated authority to establish communication with the Marine Pilot via VHF 88 and advise an "approaching storm" has been observed on Weatherzone within 15 km and that mooring operations will cease at 10 km.
- Mooring crew to request Pilot to check ship's radar, input from Darwin Port Control Tower and provide guidance to support CCR information from Weatherzone as storm approaches.
- Pilot to advise the mooring crew on the predicted and weather conditions as the operation progresses.
- CCR and OTL to check Weatherzone and to analyse the thunderstorm (lightning) tracking system (updated every 6 minutes).
- Once storm enters the Red Alert threshold, operations must cease regardless if the storm is deemed to be "approaching site", "passing site" or "moving away" from site.

The mooring crew is to notify all relevant stakeholders and proceed to and remain in shelter until advised it is clear.

3.8.3 Lightning shelters and safe locations

If personnel are caught out in the open when a lightning storm occurs, the main priority is to seek a place of shelter. Lightning and musters shelters are strategically located throughout the operational site (as below). See Figure 2.

Should individuals be caught outside during a lightning alert they are to make their way to the nearest lightning shelter.

If it is not possible to seek shelter, personnel may seek to place themselves into the lightning position shown in Figure 1.



The only thing touching the ground should be the balls of your feet. Touch the heels of your feet together.

Figure 1 Typical lightning position



Figure 2 Field locations of lightning safe shelters and muster shelters

3.9 Adverse weather (high heat)

The ILNG Heat Index Alert system monitors ILNG's thermal conditions in real time to alert personnel to conditions that significantly increase the likelihood of a heat-related illness occurring.

A Heat Index is a calculation that factors in both temperature and humidity. This provides a more representative and consistent metric for assessing thermal conditions than just temperature alone. Once the heat index rises above 50°C, a site wide email alert is sent to all personnel. The aim of the alert is to increase worker and supervisor awareness of the changing conditions and provides recommendations to help manage the heat stress risk. The alert is sent only once per shift to avoid excessive alerts being sent.

The Heat Index threshold of 50°C was selected based on an internal review that showed that previous ILNG heat-related illnesses all occurred when the heat index was above 50°C.

The ILNG heat index has been created in PI Vision, which can be viewed using the link below. Temperature data is collected from the weather station and multiple HVAC inlets across site. The benefit of having multiple temperature sensors is it provides a better average temperature across ILNG and also provides redundancy if a temperature sensor fails: <https://pivision-onshore.inpex.com.au/PIVision/#/Displays/14919/ILNG-Heat-Index>

3.10 Permanent and temporary buildings

All permanent buildings and structures (inclusive of modules) within the ILNG facility are deemed safe locations and classified as suitable for lightning shelters in accordance with the Australian Standards, the INPEX Earthing and Lightning Philosophy (L780-AE-PHI-0003) and applicable lightning studies.

All structures and buildings are protected by one or all of the following methods:

- area protected by metallic part with down conductor
- area protected by earthed steel structure - no air terminals and no down conductors
- area protected by additional air termination.

All temporary buildings are to be installed as per Australian Standards for Lightning Protection AS/NZS 1768-2007, as referenced in the Earthing and Lightning Philosophy L780-AE-PHI-0003 document, with appropriate inspection and compliance systems in place for assurance.

3.11 Musters

During any adverse weather situation and/or if anyone is taking shelter in a lightning shelter and a muster call is initiated, then the muster process will take precedence and the normal muster process is to be followed.

Should individuals need to move from a lightning safe shelter/building to a muster shelter they should select the shortest and safest route to get to the muster point by use of bitumen roads and hug existing structures if possible.

Lightning monitoring personnel are to cease making any further lightning calls and follow their normal muster process.

The on duty OTL/IC will take control of the emergency situation and consider, where applicable, the current lightning status as part of the overall management of the emergency.

During the muster/emergency the respective lightning monitoring personnel can update the CCR/IC as the lightning phases change.

Once the emergency all clear has sounded, the lightning monitoring personnel will continue with the lightning alert calls.

Table 1 Lightning alert action

MINIMISING THE POSSIBILITY OF HARM BY LIGHTNING STRIKES – REQUIRED ACTIONS AS PER ALERT STATUS		
	Alert Type	Response Action
1	Green Alert Lightning activity detected within a 20-40 km radius	- Green Alert issued to site via PAGA, TETRA radio, visual displays and telephone system. - Consider alternatives prior to commencing tasks which require a longer lead time to make the work areas safe in the advent of a red alert.
2	Yellow Alert Lightning activity detected within a 10-20 km radius	- Yellow Alert issued to site via PAGA, TETRA radio, visual displays and telephone system. - Management/Supervision shall instruct the working parties to take measures to make work areas safe. - Personnel working in open/unprotected areas shall identify closest lightning shelter/building and prepare to move. - All cranes shall stop working and have their booms lowered or retracted as far as possible, taking into consideration the crane location. - All surface refuelling operations shall stop. - Maritime operations will assess current activities and conduct appropriate and specific assessments.
3	Red Alert Lightning Activity detected within a 10k m radius	- Red Alert issued to site via PAGA, TETRA radio, visual displays and telephone system. - All outdoor exposed site activities shall stop and be safely shut down if required. - All personnel in safe locations including within facility structures shall continue working. - Vehicles may pick up and set down passengers and personnel can make their way to vehicles or buildings as long as the shortest possible route from vehicle to place of shelter is used. - Vehicles may enter and exit the site as required. - Recommended to wear eye protection glasses that are close fitting with a wraparound design and that block at least 99% of the UV radiation spectrum when worn. - Recommended to wear hearing protection ear plugs or earmuffs that provide noise reduction when worn.
4	All Clear (lightning has passed)	- All clear alert issued to site via PAGA, TETRA radio, visual displays and telephone system. - Initiate a restart meeting (where applicable), review site for changed environmental conditions and inspect equipment for damage or unsafe conditions.

3.12 Crane operations

Operating cranes with suspended loads during adverse weather conditions can pose a significant risk and needs to be assessed on a case-by-case basis based on:

- weather forecast
- wind direction
- visibility (especially during hours of darkness)
- type of lifting operation
- the type of crane
- the mass of the load
- the shape of the load.

Crane operations shall be suspended after making the load safe in the event of loss of radio contact, poor visibility due to fog or heavy rain, lightning in the proximity of the installation or other weather conditions which could expose persons to danger or have an adverse effect on the integrity of the equipment.

It is a requirement to clearly identify and communicate the weather parameters for each work location and individual crane set-up to the working group.

Refer to the Company Lifting Operations Management Specification and associated procedures on crane safety-related measures for lifting operations at offshore and onshore facilities.

Refer to Appendix A: General guidance for adverse weather.

(Guidance B) Crane Operations Onshore

3.13 Marine operations

3.13.1 Offtake tankers

For transfer operations related to Offtake Tanker/Marine Operations refer to Terminal Regulations Manual for weather limitations.

4 ROLES AND RESPONSIBILITIES

The key roles and associated responsibilities for activities covered by this procedure are summarised below.

Table 2 Key roles and responsibilities

ROLES	RESPONSIBILITIES
Production Manager for Onshore	- The General Manager for Onshore has the responsibility for the health and safety of all persons in the facility. For day-to-day operations the responsibility is delegated to the Production Manager, ensuring that proper controls are put in place when adverse weather occurs or is forecasted. - Make decisions for the provision of weather alerts and provide instructions for implementing damage/risk mitigation plans.
Central Control Room (CCR) Operator and or Security Control Operator	- Monitor the weather conditions and report to the facility person-in-charge (e.g. Operations Team Lead) when adverse weather is approaching or is forecasted. - Make PA announcements to advise all personnel of adverse weather. - Continuously monitor and update weather alert notifications. - Collect regular updates from the weather services.
Team Leads	- Receive and monitor weather alerts. Communicate weather alerts to the respective work group or working party and implement risk mitigation measures. - Monitor work activities in relation to changing environmental conditions; stop work when appropriate.
Crane Operator	- Prior to commencing lifting operations, assess the prevailing and forecasted weather conditions. Lifting operations shall not commence if the weather or environmental conditions are likely to jeopardise the safety of the activity. - Stop lifting operations and suspend until such time as control measures have been introduced to minimise or eliminate potential risks. - When crane operations have been suspended due to adverse weather, the crane operator has the responsibility to only resume operations when fully satisfied that conditions have improved to within the safe operating parameters particular to the crane in use.
All Personnel	It is the responsibility of all personnel onsite to carry out their activities in line with this procedure.

5 REFERENCE AND COMPLIANCE DOCUMENTS

The documents listed below are relevant to the execution of this procedure.

- Reference documents (R) are documents referred to in the course of completing this procedure.
- Compliance documents (C) include all standards, regulatory governance, contracts, business rules or policies applicable to this procedure.

Table 3 Reference and compliance documents

DOCUMENT NAME	R	C	DOCUMENT NUMBER
Policies			
Environmental Policy		C	0000-AH-POL-70000
Health and Safety Policy		C	0000-AH-POL-70000
Security Policy		C	0000-AH-POL-70000
Standards			
Permit to Work Standard		C	0000-AH-STD-60023
Extreme Weather Management Standard		C	0000-AH-STD-60053
Marine Standard		C	0000-AG-STD-60002
HSE Hazard & Risk Management Standard		C	0000-AH-STD-60003
Working Over Water Standard		C	0000-AH-STD-60041
Procedures			
Job Hazard Analysis Procedure		C	0000-AH-PRC-60011
Confined Spaces Procedure		C	X060-AH-PRC-60008
INPEX Integrated Safe System of Work (ISSoW) Manual		C	X060-A1-MAN-60004
Step Back 5 x 5 Procedure		C	0000-AH-PRC-60009
Lifting Operations Management Procedure		C	0000-AG-PRC-60046
Guidelines, Work Instructions, Forms and Templates			
Lifting Operations Management Specification		C	0000-A0-SPC-60005
Onshore - Terminal Regulations Manual		C	L930-AW-MAN-60001
INPEX Risk Matrix Template		C	0000-A0-TPL-60003

DOCUMENT NAME	R	C	DOCUMENT NUMBER
NT Extreme Weather (Cyclone) Management Plan	R		L060-AH-PLN-60003
Reference Legislation and AS/NZ Standards			
Australian Standard – Lightning Protection		C	AS/NZS 1768-2021
IMO Code of Safe Practices for the Carriage of Cargoes and Persons by Offshore Vessels		C	OSV Code 1288E
Cranes, Hoists & Winches – Safe Use General Requirements		C	AS 2550.1-2011
International Convention for the Safety of Life at Sea (SOLAS), 1974	R		https://www.imo.org/en/about/conventions/pages/international-convention-for-the-safety-of-life-at-sea-(solas),-1974.aspx

6 MONITOR, REVIEW AND IMPROVE

6.1 Monitoring

The Production Manager or their delegate is accountable for monitoring the performance of this procedure through regular internal reviews and self-assessments.

6.2 Review

Internal review

The Onshore HSE Team Lead is responsible for initiating the review process for this document.

This procedure must be reviewed at least every 3 years or after any significant event involving failures in the Adverse Weather (Onshore) process that have relevance to this procedure.

External review

No external review process is considered relevant to this procedure.

6.3 Metrics

Metrics for this procedure have not been considered.

6.4 Improvement

Improvements to the processes described in this procedure will be identified through regular reviews by the Production Manager or their delegate and through feedback from stakeholders.

7 ABBREVIATIONS AND DEFINITIONS

Table 4 Abbreviations and definitions

ABBREVIATION/ TERM	DEFINITION
Adverse Weather	Meteorological or oceanographic conditions which may affect people, equipment or facilities to such an extent that precautionary measures must be taken to maintain a safe system of work or to safeguard facilities.
ALARP	As Low As Reasonably Practicable
Anemometer	An anemometer or wind meter is a device used for measuring wind speed and is a common weather station instrument.
Approaching Site	If the formation continues its current path, it will cross within the Red Alert threshold. Under these conditions personnel are to be afforded reasonable time to make their workplace safe and to move to shelter before the Red Alert is issued.
BoM	Australian Bureau of Metrology
Company	Any operation or business under the control of INPEX Executive Management in Australia, whether located in Australia or another location (such as a branch office), is deemed to be the Company.
CONOPS	Concurrent Operations
CCR	Central Control Room
Currents	Currents have two principal components: • a predictable tidal component caused primarily by astronomical forcing (sun and moon) • a residual component related to meteorological and oceanographic conditions, which is usually not predictable. This is sometimes referred to as a surge current, particularly during storms. The resulting 'total' current is expressed in terms of a speed and associated direction (towards).
Dynamic Risk Assessment	A rapid thought process where a person considers all known facts, hazards and safety considerations and makes an informed rapid decision. This decision and actions are monitored and updated based on further information as it is available.
Gust Wind Speed	A sudden strong rush of wind. The highest gust speed over a 3-second period within a 10-minute mean. The 3-second gust is on average a factor of 1.3 times the 10-minute mean.
Heat Stress	The burden or load of heat that must be dissipated if the body is to remain in thermal equilibrium.

ABBREVIATION/ TERM	DEFINITION
Heat Strain	Is the body's overall response resulting from heat stress. These responses are focused on removing excess heat from the body.
Mean Wind Speed	The average speed calculated from a 10-minute sample between succeeding waves. The mean wind speed varies with elevation: $V_{@height} = CF \times V_{@100m}$ Where; CF is the correction factor (CF at 80m is 0.97, 50m is 0.92, 30m is 0.86, 20m is 0.82 and 10m is 0.74)
MOB	Man Overboard
Moving Away from Site	The cloud formation is moving away from the site. Under this condition we mitigate our risk of exposure to positive CG lightning (which predominantly occurs in the wake of a thunder cell path) by maintaining a Red Alert until the thunder cell is more than 10 km away.
Operational Facility	A facility where the company has a Prevailing Influence Level 1 and the primary purpose is the recovery, processing and storage and offloading of hydrocarbons.
Passing Site	If the cloud formation continues its current path it will not cross within the Red Alert threshold. Under these conditions we seek to avoid unnecessary work stoppages because lightning may never reach the site.
SIMOPS	Simultaneous Operations
Site-Specific Weather Limits	These are weather parameters which have been established for particular locations, vessels or equipment, e.g. cranes, by reference to operating manuals, manufacturers' instructions, equipment, vessels or installation design codes.
Trigger Point	A trigger point is a quantifiable measure of weather condition(s), e.g. wind strength, wave height, rainfall in millimetres and sea level.
Variation of Wind Speed with Height	Wind speed generally decreases vertically from the 100 m level to the standard reference level of 10 m.

APPENDIX A: GENERAL GUIDANCE FOR ADVERSE WEATHER

		GUIDANCE
General	Activities Onshore	A
Crane Ops	Onshore	B

Guidance A – General activities Onshore

TRIGGER		PRECAUTION	COMMENT
1	Wind		
1.1	25 Knots (46km/h) Mean Wind Speed at Working Area	- Secure loose items and use nets on skips etc. to prevent wind dislodging contents. - Cease rope access work to prevent pendulum effects upon rope access technicians. - Cease handling sail-like objects e.g. tarpaulins/scaffold boards, due to difficulty in handling such material. - Minimise access via ladders or work at heights due to difficulty of climbing in exposed locations. - Advise greater caution in toolbox talks, including the effects of windage on foul weather clothing. - Secure container doors to prevent uncontrolled movement.	
1.2	40 Knots (74 km/h) Mean Wind Speed at Working Area	- Do not access scaffold structures in exposed locations due to increased risk of collapse of scaffolding. - Consider emergency response scenarios for the effects of wind on emergency equipment, e.g. effect on water spray patterns.	
1.3	50 Knots (92.5 km/h) Mean Wind Speed at Working Lvl	- Advise personnel to avoid wind affected areas to prevent injury to personnel. - Cease work as required.	

TRIGGER		PRECAUTION	COMMENT
2	Electrical Storm		
2.1	Lightning	At the ILNG facility an alert system is in place to warn personnel of pending lightning storms. The alert system gives personnel sufficient warning to prepare and take appropriate action to ensure safety of personnel and assets. Guidance is provided in section 3.8.1 and table 1 above.	Reference taken from AS 1768, 2021, "Lightning Protection", Technical Committee EL - 024, Sydney, Australia and industry benchmark review September 2025, JKC Lightning Alert Methodology and Offshore Procedure comparison.
3	Sea State		
3.1	Severe Sea State Forecast	Restrict access to wave affected areas until conditions improve due to potential for wave damage.	Relevant to jetty location.
4	Poor Visibility		
4.1	Poor Visibility	- Review all operations where visual contact is essential for safe operation. - Working group to cease if visibility is insufficient to maintain proper observations of the work party working over water.	For Onshore this would be relevant for activities on the jetty.
5	Precipitation		
5.1	Forecast heavy precipitation	All external water proofing devices in full working order to protect electrical devices from water ingress.	
5.2	Heavy precipitation	Where non-weatherproof electrical components, i.e. distribution boards, electrical leads, tools, etc., have been exposed to wet weather conditions the work group shall have an electrician inspect all exposed electrical equipment.	

TRIGGER		PRECAUTION	COMMENT
6	High Temperature & Humidity		
6.1	High temperature & humidity	Refer to Heat Stress Management Procedure for guidance on management of personnel working in high temperatures.	Darwin Wet season – October – April has a very high humidity factor to consider.
7	Working Over Water		
7.1	Visibility	Work to cease if visibility is insufficient to maintain proper watch over the working party.	
7.2	Working at Height whilst working over water	All work over water that requires person(s) to work at height shall also comply with the Company Working at Height Procedure requirements.	WAH Procedure X060-AH-PRC-60009

Guidance B – Crane operations Onshore

TRIGGER		PRECAUTIONS	COMMENT
1	WIND		
1.1	Wind speeds less than 10 m/s (36 km/h)	To ensure the stability of a mobile crane in windy conditions, the following factors should be addressed: - Is a Lifting Plan in place which also takes into account weather conditions? - Assess whether the load can be handled safely in wind gusts. - Can hazardous cargo be handled safely? - Where the crane is lifting close to its rated capacity, wind speed is a critical factor as the safety margin is lower and wind can more easily impact on the crane's stability. - Where the lift is a non-standard lift with a suspended load or large surface area to be undertaken in windy conditions, a competent person should provide written advice on safe lifting conditions (for example, a lower maximum wind speed than that identified by the manufacturer may need to be applied).	Information listed in this table is taken from 0000-AG-PRC-60046 Lifting Operations Management Worksite Procedure
1.2	Strong wind warning for winds greater than 10 m/s (36 km/h)	To ensure the stability of a mobile crane in strong wind conditions, the following factors should be addressed: - Stop crane operations if above this limit and apply storm brakes. - In the event of strong wind, all crane booms shall be laid down and adequately secured.	
1.3	Requirement for suspended workbox activities	Persons working in a suspended workbox shall not continue to work in the suspended workbox if the wind speeds exceed 7 m/s (25 km/h), or if electrical storms or other adverse weather conditions occur that could affect the safety of personnel. See Australian Standard AS 2550.1:2011, Cranes, hoists and winches—Safe use—General requirements (Section 6.19.3).	

TRIGGER		PRECAUTIONS	COMMENTS
2	LIGHTNING		
2.1	Lightning in vicinity	When lightning is detected 30 km away or closer, all cranes must stop working and have their booms lowered or retracted as far as possible, taking into consideration the crane location, configuration and the original equipment manufacturer's instructions regarding lightning shutdown.	
3	HEAVY RAIN		
3.1	Heavy rain conditions	Minimise crane movements to essential use only due to the increased risk of incidents.	
4	VISIBILITY CONDITIONS		
4.1	Fog, mist or dust causing reduced visibility	Where adverse weather conditions such as fog, mist and wind causing dust have an adverse effect on visibility or the communications system, the crane shall be placed out of service until conditions improve to such an extent that a dangerous situation no longer exists.	
5	TIDAL MOVEMENTS		
5.1	Jetty to vessel transfers	The Vessel Master/Pilot shall have the final decision for all activities on the vessel depending on weather or vessel conditions.	Pilot transfer from shore side.

APPENDIX B: BEAUFORT WIND AND SEA SCALE

BEAUFORT SCALE NUMBER	DESCRIPTION TERM	WIND SPEED KM/H	IN	WAVE HEIGHT IN M	SEA CONDITIONS	LAND CONDITION
0	Calm	<1		0	Flat, sea like a mirror	Calm, smoke rises vertically
1-3	Light winds	1-19		0.1-1	Ripple without crests, small wavelets crests of glassy appearance, large wavelets, crest begin to break	Wind felt on face, leaves rustle, ordinary vanes moved by wind
4	Moderate winds	20-29		1-2	Small waves with breaking crests. Fairly frequent whitecaps.	Raises dust and loose paper; small branches begin to move
5	Fresh winds	30-39		2-3	Moderate waves of some length. Many whitecaps. Small amounts of spray.	Small leaves in trees begin to sway. Crested wavelets form on inland waters
6	Strong winds	40-50		3-4	Long waves begin to form. White foam crests are very frequent. Some airborne spray is present.	Large branches in motion. Whistling heard in overhead wires. Umbrella use becomes difficult. Empty plastic bins tip over.
7	Near gale	51-62		4-5.5	Sea heaps up. Some foam from breaking waves is blown into streaks along wind direction. Moderate amounts of airborne spray	Whole trees in motion. Effort needed to walk against the wind
8	Gale	63-75		5.5-7.5	Moderately high waves with breaking crest forming spindrift. Well-marked streaks of foam are blown along wind direction. Considerable airborne spray.	Some twigs broken from trees. Cars veer on road. Progress on foot is seriously impeded
9	Strong gale	76-87		7-10	High waves whose crests sometimes roll over. Dense foam is blown along wind direction. Large amounts of airborne spray may begin to reduce visibility.	Some branches break off trees and some small trees blow over. Construction temporary signs and barricades blow over. Slight structural damage occurs - roofing dislodged
10	Storm	88-102		9-12.5	Very high waves with overhanging crests. Large patches of foam from wave crests give the sea a white appearance. Considerable tumbling of waves with heavy impact. Large amounts of airborne spray reduce visibility.	Seldom experienced. Inland trees uprooted. Considerable structural damage
11	Violent storm	103-117		11.5-16	Exceptionally high waves, very large patches of foam, driven before the wind, cover much of the sea surface. Very large amounts of airborne spray severely reducing visibility.	Widespread vegetation and structural damage likely.
12	Hurricane/ Cyclone	≥118		≥14	Huge waves. Sea is completely white with foam and spray. Air is filled with driving spray, greatly reducing visibility	Severe widespread damage to vegetation and structures. Debris and unsecured objects are hurled about.