# ADVERSE WEATHER (OFFSHORE)

Procedure

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| Revision | Date | Status | Prepared | Checked | Approved |
|---|---|---|---|---|---|
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| 3 | 02/12/2024 | Issued for use | Tony Martinovich (HSE Advisor) | Roger Bruzzese<br>John Spencer | Paul Cullen (General Manager Offshore Operations) |

## RECORD OF AMENDMENT

| Revision | Section | Amendment |
|---|---|---|
| 0A | Scope | Added standard company statement (on behalf of Sam Bayne) |
| | Table 7-2 & 7-3 | Added bullet point to sections 2.4 in both tables referring to the Offshore Cyclone Management Plan for mandated determination of hydrocarbon production shutdown. (on behalf of Andrew Aiton) |
| | Reference Documents | Reviewed relevance of references, checked reference numbers and links and amended as required by N Lansdell |
| 1 | Reference Documents | Reviewed content of procedure, relevance of references, repaired document links. |
| | Section 3.3.1 | Included reference to Bureau of Meteorology Weatherzone tool that is used offshore for weather tracking |
| | Section 6.2 | Replaced 3-yearly review requirement to as required. Included consideration of Offshore Cyclone Management Plan in any future reviews. |
| | Table 7.2 and 7.3 | Reviewed Lightning Alert & >50kms wind speed instructions for CPF and FPSO and aligned to correct offshore process |
| 2 | Section 8 | Section 8 added: - Adverse Weather Guidance notes now in separate section. It is no longer table within Section 7 ABBREVIATIONS AND DEFINITIONS |
| | Table 7.2 | Reorganised new Section 8 (previously Table 7.2) to list all events and equipment under designated weather levels, rather than having separate breakdowns action under separate types of plant. |
| | Appendix A | Removed Appendix A: General Guidance for Adverse Weather. Added new Appendix A: Offshore Adverse Weather MATRIX with notes, as a quick reference guide. |
| | Section3,3,2 | Removed<br>- Figure 1-1 - Relationship between facility motions<br>Section 3.3.2: Actions upon loss of Weatherzone system notifications / CPF weather radar equipment |
| | Section 3.3.1 | Updated weather forecast web site information. |
| | Various | Removed 'Refer to Lifting Operations Management Specification / Procedures' in several areas and detailed the actual crane operating limits (as per data sheets) |
| 3 | Appendix A | Fixed error in Offshore Adverse Weather Matrix |

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# 1 PURPOSE

The purpose of this Offshore 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, 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:

- High wind speed.
- Sea state.
- Poor visibility.
- Precipitation.
- High temperatures and humidity.
- Electrical Storms; and

This is particularly important during the following activities:

- Working at Height & Working over Water.
- Supply vessel operations.
- Offtake tanker operations.
- Launch and recovery of marine craft.
- Helicopter operations (helideck and flying).
- Lifting operations.
- Personnel transfers (FROG and boat to boat); and
- Diving and ROV operations.

# 2 SCOPE

This procedure shall apply to persons and entities working for or on behalf of INPEX Australia Operations Division (herein referred to as 'Company'), where the Company has a legal obligation and/or authority to introduce and implement Health, Safety and Environmental (HSE) requirements consistent with those required on Company Operational Facilities.

Contractor facilities i.e., MODU's, Flotels etc. shall operate in accordance with their own adverse weather procedures in alignment with Company procedure requirements. All Contractor vessels are required to have Extreme Weather Plans as per the Marine Standard.

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 within the Offshore Cyclone Response Management Plan and are not detailed within this procedure.

# 3 PROCEDURE

## 3.1 General guidance for adverse weather

A weather trigger point is a quantifiable measure of weather conditions or the product of weather conditions, such as wind speed, wave height, roll, temperature, pitch and heave, etc.

During adverse weather the use of trigger points is required to mitigate certain hazards, or limit activities to ensure the safety of personnel and facilities. The trigger points developed in this procedure shall be used by the OIM and Vessel Masters 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 forecast is provided in this procedure.

## 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 'As Low As Reasonably Practicable' (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 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; and
- Have those personnel knowledgeable of the effects of weather conditions on any activity been consulted and have personnel likely to be affected by it been advised?

## 3.3 Weather & oceanographic measurements and forecasts

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

The Technical Authority (TA) for advice on weather forecast/ statistical issues for offshore is detailed within the Technical Authority Register (Execute Stage) document.

### 3.3.1 Weather forecast and weather station equipment.

Access to weather forecasts can be obtained from the following Company intranet location:
BOM Website; http://ssuweb.bom.gov.au/private/login.pl
Login Name: inpex - password xus8xj6h

If unable to access this webpage, contact the Company Logistics Department Marine Advisor for assistance.

The facility and the work parties shall use Bureau of Meteorology (BoM) and Metocean statistical data forecast information and real time weather data local to the work activity for risk assessment purposes.

INPEX Operations maintain a subscription with Weatherzone weather radar to display Bureau of Meteorology data and inputs from an Australia wide lightning detection system that can detect three different types of lightning with three range rings to determine distance at 5km, 15km and 30km displaying the location within an accuracy of 400m.

Local data could include wind, lightning (visual confirmation), weather radar, current and wave and visual observation.

The local weather station at the offshore facilities (CPF and FPSO) monitors the following:

- Instantaneous wind speed and direction: 2-minute mean, 2-minute maximum gusts and 10-minute mean values.
- Cloud height sensor (ceilometer) and horizontal visibility sensor to measure visibility.
- Air temperature, dew point and relative humidity.
- Barometric pressure for the CPF and FPSO at sea level (QNH) and helideck level (QFE); and
- The CPF has a weather radar which has the capability to provide an indication of a weather system approaching from up to 600kms away but does not have the capability to trigger an alarm to warn an operator like Weatherzone.

Offshore floating facilities shall also be equipped with a motion sensor unit to provide the helicopter pilot the following information for helicopter operations:

- Roll value (degrees port and starboard.
- Pitch value (degrees up and down); and
- Heave displacement (vertical metres) and heave velocity (m/sec).

Offshore floating facilities in the vicinity of the CPF may monitor the following information via a weather buoy located in the field:

- Significant wave height Hs (metres).
- Maximum wave height Hmax (metres) Hmax ~ 1.7 x Hs.
- Current speed (m/s); and
- Current direction (degrees).

For the monitoring of facilities riser envelop the following facility motion data may also be used to monitor the surge and sway movements considering the above information from the BOM and weather buoy:

- Surge displacement (forward/aft metres); and
- Sway displacement (port/starboard metres).

## 3.4 Communication

The metocean data is displayed in the Central Control Room (CCR), Heli-admin and ICC. It is the responsibility of the CCR operator to communicate any degradation of the metocean conditions to the OIM.

The CCR operator will also make PA announcements to personnel informing of the weather deterioration and specific controls as advised by supervision. Upon improvement in the weather the CCR operator shall communicate 'all clear'.

## 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 weather forecast should be reviewed at the Facility Daily Pre-Start Meeting so that any precautions required are discussed and necessary arrangements made.

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 becomes hazardous. Where activities are scheduled, or must be performed, which are particularly weather dependant, the pre-planning and the control of work must refer 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.

Working Group toolbox 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 metocean forecasts and measurements are considered when assessing SIMOPS and CONOPS plans 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 introduces 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 areas.

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

## 3.7 Actions upon cyclone alert

When a cyclone alert is issued by the BOM refer to the facility Offshore Cyclone Response Management Plan for further action.

## 3.8 Actions upon adverse weather

For guidance on the impact of adverse weather activities refer to Appendix A - General Guidance for Adverse Weather.

# 4 ROLES AND RESPONSIBILITIES

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

Table 4-1: Key roles and responsibilities.

**Table 4-1: Key roles and responsibilities.**

| ROLES | RESPONSIBILITIES |
|---|---|
| OIM | • The OIM or their delegate will make the decision based on the trigger points detailed within Appendix A.<br>• Ensure that controls are put in place when adverse weather occurs or is forecasted; and<br>• Decide when to provide weather alerts and provide instructions for implementing damage/ risk mitigation plans. |
| Central Control Room Operator | • Monitor the weather conditions and report to the OIM when adverse weather is approaching or is forecasted.<br>• Make PA announcements to advise of adverse weather.<br>• monitor and update weather alert notifications; and<br>• Regularly view updates from the weather services. |
| Team Leads | • Receive and monitor weather alerts. Communicate weather alerts to the respective work group and implement risk mitigation measures; and<br>• Monitor work activities in relation to changing environmental conditions; stop work when appropriate. |
| Helicopter Landing Officer (HLO) | • Liaise with the facility CCR and helicopter pilot.<br>• Monitor the weather conditions and keep the pilot up to date; and<br>• During high wind conditions, it is the responsibility of the HLO to follow specific precautions/ procedures to ensure the safety of personnel on the helideck. |
| Heli Admin | • In conjunction with HLO:<br>- Liaise with helicopter pilot on approach to facility and advise of weather forecast and conditions at site; and<br>- Advise helicopter pilot on heave, pitch and roll of facility. |
| PSV/OSV Vessel Master | • Receive and monitor weather alerts. Communicate weather alerts to the respective work group or working party and implement risk mitigation measures; and<br>• Monitor work activities in relation to changing environmental conditions; stop work when appropriate.<br>• Follow guidance in the Marine Operations Manual |
| Crane Operator (Operations Technician Services) | • For adverse weather conditions the crane operator shall follow the guidance detailed within Company Lifting Guidance documentation. |
| All Personnel | • Follow 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 while completing this procedure; and
- Compliance documents (C) include all standards, regulatory governance, contracts, business rules or policies applicable to this procedure.

**Table 5-1: Reference and compliance documents.**

| DOCUMENT NAME | R | C | DOCUMENT NUMBER |
|---|---|---|---|
| **POLICIES** | | | |
| Environmental Policy | | C | 0000-AH-POL-60002 |
| Health & Safety Policy | | C | 0000-AH-POL-60001 |
| **STANDARDS** | | | |
| Extreme Weather Management Standard | | C | 0000-AH-STD-60053 |
| Aviation Standard | | C | 0000-AG-STD-60003 |
| Marine Standard | | C | 0000-AG-STD-60002 |
| Working Over Water Standard | | C | 0000-AH-STD-60041 |
| **SPECIFICATIONS, MANUALS** | | | |
| Lifting Operations Management Specification | | C | 0000-A0-SPC-60005 |
| Offshore Marine Terminal Handbook Manual | | C | X060-A1-MAN-60002 |
| **PROCEDURES** | | | |
| Offshore Terminal Handbook | | C | X060-A1-MAN-60002 |
| Lifting Operations Management | | | 0000-AG-PRC-60046 |
| **GUIDELINES, PLANS, WORK INSTRUCTIONS, FORMS AND TEMPLATES** | | | |
| Offshore Cyclone Management Plan | | C | X060-AH-PLN-60001 |
| Adverse Weather Announcement Guideline | | C | X060-AH-GLN-70004 |
| Heat Stress Management Guideline | | C | 0000-AH-GLN-60013 |
| CPF Emergency Response Plan | | C | B060-AH-PLN-60001 |
| FPSO Emergency Response Plan | | C | S060-AH-PLN-60001 |
| **EXTERNAL REFERENCES** | | | |
| IMO Code of Safe Practices for the Carriage of Cargoes and Persons by Offshore Vessels | | C | OSV Code 1288E |
| Guideline for Offshore Marine Operations | | C | http://www.g-omo.info/ |
| International Convention for the Safety of Life at Sea (SOLAS), 1974 | R | | http://www.imo.org/en/About/Conventions/ListOfConventions/Pages/International-Convention-for-the-Safety-of-Life-at-Sea-(SOLAS),-1974.aspx |

# 6 MONITOR, REVIEW AND IMPROVE

## 6.1 Monitoring

The Operations Director 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 Operations HSE Manager or delegate is responsible for initiating the review process of this document.

This procedure shall be reviewed as required or after any significant event involving failures in the adverse weather (offshore) process that have relevance to this procedure.

This procedure review shall take into consideration the Offshore Cyclone Management Plan annual reviews.

### External review

No external review process is considered relevant to this procedure.

## 6.3 Improvement

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

# 7 ABBREVIATIONS AND DEFINITIONS

**Table 7-1: Abbreviations and definitions**

| ABBREVIATION/ TERM | DEFINITION |
|---|---|
| ALARP | As Low As Reasonably Practicable |
| 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. |
| Anemometer | An anemometer or wind meter is a device used for measuring wind speed and is a common weather station instrument. |
| BoM | Australian Bureau of Metrology |
| CCR | Central Control Room |
| CPF | Central Processing Facility |
| Company | Any operation or business under the control of INPEX Executive Management in Australia, whether located in Australia or another location (as a branch office), is deemed to be the Company. |
| Currents | Movement of a body of water. Currents have two principal components:<br>• A predictable tidal component caused primarily by astronomical forcing (sun and moon); and<br>• 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.<br>The resulting 'total' current is expressed in terms of a speed and associated direction (towards). |
| DP | Dynamic Positioning<br>DP1 is the most basic standard, with the ability for a ship to automatically hold station. DP2 has redundancy, but DP3 has segregated redundancy that would allow for a more serious failure |
| FPSO | Floating Production Storage and Offloading facility |
| FRC | Fast Rescue Craft |
| 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 inability of the body to dissipate enough heat to remain in thermal equilibrium. |
| HLO | Helicopter Landing Officer |

| ABBREVIATION/ TERM | DEFINITION |
|---|---|
| Maximum Wave Height (Hmax) | The most probable highest wave height in a sample.<br>• For a 20-minute sample Hmax = 1.7 x Hs<br>• For a 3-hour sample Hmax = 1.9 x Hs.<br>The highest individual wave in a sample can vary between 1.5 x Hs and 2.5 x Hs.<br>Where 'Hs' is the significant wave height |
| MWS | Mean Wind Speed.<br>The average speed calculated from a 10-minute sample between succeeding waves.<br>The mean wind speed varies with elevation:<br>V@height = CF x V @100m<br>Where:<br>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) |
| Mean Wave Direction | The main direction from which waves approach. |
| OIM | Offshore Installation Manager |
| Operational Facility | A facility where the Company has a Prevailing Influence Level 1 and the primary purpose is the recovery, processing, storage and offloading of hydrocarbons. |
| Significant Wave Height (Hs) | The standard sea state height parameter equivalent to the average of the highest one third of the waves in a 20-minute sample. Hs is quoted on weather forecasts and displayed offshore in Metocean systems that have wave sensors. Hs refers to the 'total' sea, i.e., local wind/ sea plus swell.<br>For an Hs dominated by the local wind/ sea, wave periods are typically 4 to 7 seconds. For a Hs dominated by swell, wave periods are typically 7 to 10 seconds.<br>In the latter situation, often with low associated wind speeds, operations may be possible at values higher than those indicated for a particular Hs threshold. |
| 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. |
| WMO | World Meteorological Organization |

For general terms please visit the Company Global Glossary (http://intranet/how/inpex-at-business-bms/global-glossary).

# 8 ADVERSE WEATHER GUIDANCE

| TRIGGER | | PRECAUTION | *COMMENT* |
|---|---|---|---|
| **8.1** | **Wind** | | |
| | Areas on the Installation where, in low wind and/or unfavourable wind direction conditions.<br>The air movement is so low that there may not be dispersion of gas in a release situation. | **General operations**<br>• Where low wind speed creates an adverse impact on facility work activities, the risk assessment shall be reviewed and if necessary, the work suspended until the risk assessment has been repeated and additional mitigation employed.<br>• Where necessary delay planned venting until suitable wind conditions exist due to possibility of gas affecting facility.<br>• Review the impact of exhaust fumes on work sites/work activities.<br>• Consider exhaust fume ingestion from vessels on TR air intakes; and<br>• Consider the effects of exhausts on helicopter operations.<br><br>**Offtake: Tanker venting low winds.**<br>• Review Emergency Generators planned and ongoing scopes that may affect facility restart capacity.<br>• Review Confined Entry Scopes where fugitive venting emissions from the offtake tanker may impact.<br>• Cease Offtake Operations until wind strength improves.<br>• Consider impacts on planned helicopter movement. | FPSO: Ref: - to Exhaust Dispersion Study S770-AH-REP-10019 for further details on exhaust fumes on facilities. |

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| | > 13 knots | **FPSO Precaution**<br>• Wind speed > 13 knots and direction from the bow: Review work activities at the following locations during operations of Emergency Generators and forward fire pump generators:<br>  ○ Fwd. starboard pedestal crane cabin (EL 72893)<br>  ○ M01 Chemical tote tank area (EL 67010)<br>  ○ M02 Main Power Generator exhaust access desk (EL 71430)<br>  ○ M02 Access deck (EL 69530)<br>  ○ LQ Laydown area (EL 42500)<br>  ○ Upper turret gantry levels 6 & 7 (EL 73900 and above) | |
| | 20 to 25 knots Mean Wind Speed | **Crane Operations**<br>20 knots Mean Wind Speed<br>• Limitation for personnel transfer (**FROG**) when only **FRC** available.<br>• All personnel to be transferred shall be aware of all weather conditions, transfers shall only proceed if all personnel agree that it is safe to continue.<br>• All personnel transferring area wearing an approved PFD and PLB.<br>• Crane operator must have clear visibility of the pick-up and set down areas.<br><br>**PSV / OSV Operations**<br>• Secure loose items which may be blown onto vessel and advise greater caution to prevent injury to personnel and damage to equipment.<br>• Consider the sea state and risk assess in line with the marine guidelines.<br>• All cargo operations shall be performed in accordance with the IMO Code of Safe Practice for the Carriage of Cargoes and Persons by Offshore Supply Vessels and the Guideline for Offshore Marine Operations.<br><br>**Offtake tanker operations**<br><25knots 10 Minute Average<br>• No limitations to operations.<br>• OIM to discuss operations with Offtake Tanker Master and Pilot, and delay mooring if either party is not in full agreement that it is safe to proceed. | Offshore Terminal Handbook X060-AI-MAN-60002<br><br>All PSV/OSV's to operate in accordance with their own Adverse Weather Procedure as per Marine Standard |

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| | >25 to <30 knots Mean Wind Speed | **Crane Operations**<br>• Maximum limit for personnel transfer (**FROG**) when OSV or PSV is in the field.<br>• Work over water shall not be commenced or if in progress, it shall be suspended.<br><br>**PSV / OSV Operations**<br>• Monitor the movement of cargo transfers to and from the vessel, taking care to ensure that all lifts are carried out with the safety of all personnel in mind, particularly when dealing with wide/broad-sided cargo.<br>• > 25knots the vessel should work on the leeside of the facility. Weatherside working will require the approval of the OIM and Vessel Master.<br>• Maintain a drift off position whilst on leeside of installation.<br>• Crane operator is to take extra care when slewing with the wind, ensuring that the crane braking system can cope with the load and movement of the crane, due to the increased risk to personnel on the supply vessel. Wide/broad-sided cargo will become more difficult to handle. Monitor movement and stability of supply vessel. Deck crews may have trouble handling equipment if in exposed locations.<br>• Consideration should be given to carrying out urgent lifts only.<br>• Restrict the handling of tubular and long baskets.<br><br>**Offtake tanker operations - Restricted**<br>• Restricted no offtake tanker is permitted to moor. An Offtake tanker already moored may continue offtake operations subject to pilot advice and hawser load tension within safe operating limits; and<br>• OIM and vessel Master and Pilot to discuss viability of continuing loading operations. | Refer to Offshore Terminal Handbook X060-AI-MAN-60002 for offtake tanker operational requirements. |

| | | | |
|---|---|---|---|
| | 30-40 Knots (15-20m/s) Mean Wind Speed | **General operations**<br>30 Knots 10 Minute Average<br>• Maximum Wind speed for launch and recovery of FRC for emergency event; and All interested parties agree for the operation in relation to the safe launch and recovery of the FRC i.e., OIM, standby vessel master and FRC working party.<br>• Suspend rope access work in external areas to prevent pendulum effects on rope access technicians.<br>• Cease overboard working due to increased risk of man overboard.<br>• Cease handling sail-like objects, e.g., tarpaulins, scaffold boards due to difficulty in handling such materials.<br>• Suspend scaffold erection and dismantling activities in external areas.<br>• Minimise access via ladders or work at height in exposed locations due to difficulty of climbing.<br>• Ensure loose items are secured and use nets on skips etc. to prevent wind dislodging contents.<br>• Ensure module external doors and container doors are secured to prevent uncontrolled movement.<br>• Review suspending working at height permits, suspend in exposed areas.<br>• Consider restricting access to scaffold in exposed areas, where necessary pull scaffold tag; and<br><br>40 Knots 10 Minute Average<br>• Do not access scaffold and structures in exposed locations due to increased risk of collapse of scaffolding.<br>• Consider the need to lash unsecured topside/ internal cargo, containers or equipment which are likely to move, to reduce the risk of injury to personnel.<br><br>**Crane Operations**<br>35 Knots 10 Minute Average:<br>• This is the maximum wind speed the **Pedestal Cranes** on both the CPF and the FPSO can operate in. | Ref: Liebherr Crane Data Sheets |

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|---|---|---|---|
| | 30-40 Knots (15-20m/s) Mean Wind Speed (continued). | **Helicopter operations**<br>30 Knots 10 Minute Average<br>• Limit for engaging rotors and taxi.<br>• Helicopter Landing Officer (HLO) to monitor conditions on the helideck.<br>• Check helicopter wave off lighting systems (if available) are operational for all wind conditions.<br>• Consider the helideck firefighting capability. Confirm that the monitors will give adequate coverage and consider the ability to:<br>  ○ Handle a charged fire hose.<br>  ○ Lay a foam blanket effectively; and<br>  ○ Stretcher casualties off the helideck.<br>• If refuelling, consider the manual handling of the hose.<br><br>**Offtake tanker operations - Stopped.**<br>>35 Knots 10 Minute Average:<br>• Offtake tankers are NOT permitted to moor.<br>An offtake tanker already moored will be required to disconnect and depart if safe to do so. | Ref: - Offshore Terminal Handbook (X060-A1-MAN-60002) |
| | 50 knots Mean Wind Speed (at Working Area). | **General operations**<br>• Exposed personnel are instructed to stop work, to make their work sites safe and proceed to internal area within facility.<br>• Access to external areas shall be controlled and subject to risk assessment by person in charge. | |

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|---|---|---|---|
| 1.6 | | **Helicopter operations**<br>• HLO to inspect the helideck to assess conditions for the safe movement of passengers. If necessary, additional personnel shall be assigned to helicopter operations. The HLO is to report to the OIM advising on whether to continue handling helicopter flights.<br>• Monitor wind speed regularly, use hand-held anemometer to confirm conditions.<br>• Advise inbound flights and helicopter operator that conditions are deteriorating; and<br>• HLO and pilot to advise all passengers to take due care on the helideck due to high winds.<br>• Refuelling - Consider the wind conditions before carrying out refuelling. Specifically manual handling of the hose in high winds and the firefighting capability shall be considered. | |
| 1.7 | 60 knots Mean Wind Speed (gusts in 10 min sample period). | **Helicopter operations**<br>• Maximum normal Company flying limits.<br>Flying operations in these circumstances shall only be undertaken for emergency purposes after agreement from Helicopter Contractor. Facility in-charge (e.g., OIM), HLO and pilot to review conditions and arrive at a decision whether to continue with flight helideck operations.<br>• Monitor wind speed regularly, use hand-held anemometer to confirm conditions; and<br>• Advise inbound flights and helicopter operator that conditions are deteriorating. | |

| | | | |
|---|---|---|---|
| 1.8 | 75 knots Mean Wind Speed (in a 10 min sample period at helideck). | **Helicopter Operations**<br>• Maximum flying limit, Mandatory closure of the helideck only consideration would be for emergency event or medevac. Fuel endurance would require consideration before any journey. Flying operations may only be considered for emergency situations after consultation with Helicopter Operator, Company Aviation Manager and the OIM.<br>• Advise any incoming flights that the deck is closed and inform the helicopter operator.<br>• Where local wind conditions require the helideck to be closed aviation logistics to be informed; and<br>• Emergency (lifesaving) flights require Company Aviation Manager, Helicopter Provider Manager and OIM authorisation. The ultimate decision on whether to fly rests entirely with the Aircraft Commander (pilot). | Aircraft operators limit. |
| | Unfavourable Wind Direction | **Helicopter Operations**<br>• If gas turbine exhausts are blown towards helideck advise the helicopter pilot. Shutdown helideck only if pilot confirms not safe to land.<br>• Place installation on Alert Status and monitor for gas on the helideck if gas venting from flare is blown towards helideck. Inform helicopter in advance of approach. Temporarily close helideck until vent is under control, gas is dispersed or wind direction changes; and<br>• On FPSO consider the use of the facility thrusters. | |

| 8.2 | Sea State / Wave Height | | |
|---|---|---|---|
| | <2.5m Significant Wave Height | **PSV / OSV Operations**<br>• Liaise with the vessel master to ascertain if it is safe to proceed with cargo handling operations.<br>• Consider the risks of carrying out fast rescue craft or man overboard trials.<br>• Consider securing each lift as it is landed on deck to prevent cargo shift by vessel movement and/or free surface water on deck; and<br>• Pilot transfer from OSV to Offtake Tanker shall be conducted in accordance with the INPEX Working Over Water Procedure X060-AH-PRC-60005.<br><br>**Offtake tanker operations – Terminal Open (no limitations)**<br>• No limitations to operations; and<br>• OIM to discuss operations with Offtake Tanker Master and Pilot and delay if either party is not in full agreement that it is safe to proceed. | |
| | 2.5 to <3.0m Significant Wave Height (Restricted) | **PSV / OSV Operations**<br>• Observe the movement and station-keeping of the supply vessel.<br>• Consider suspending supply vessel operations for vessels without minimum of DP2.<br>• Consider a risk assessment, depending on the operation, allowing for any awkward lifts, potential of cargo damage due to heave and potential effects of sea on hose work.<br><br>**Offtake tanker operations – Restricted**<br>2.5 m significant wave height<br>• Restricted no offtake tanker is permitted to moor. An Offtake tanker already moored may continue offtake operations subject to pilot advice and hawser load tension; and<br>• OIM, Pilot and Offtake Tanker Master to discuss operations and cease loading, and/or release the Offtake Tanker if either party is not in full agreement that it is safe to continue loading or remain moored. | |

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| | 3m Significant Wave Height | **General operations**<br>• Work over water shall not be commenced or if in progress, it shall be suspended.<br>• Limit for routine (non-emergency) deployment of facility **FRC**. The risk of operating and launching the **FRC** increase as significant wave height exceeds 3 metres and mean wind speed exceeds 25 knots or 46 km/h.<br>• Cease overboard working.<br><br>**Crane Operations**<br>• This is the maximum wave height that the **Pedestal Cranes** on both the CPF and the FPSO can operate in.<br>• Suspend personnel transfers using FROG.<br><br>**PSV / OSV Operations**<br>• Risk assessment, by the Offshore Installation Manager (OIM) in liaison with the vessel Master if lift of cargo operations must be carried out. Limitations may be imposed, e.g., emergency, or critical lifts.<br>• Stop weather side working to avoid collision with installation. Weatherside working will require the approval of the OIM and the vessel Master.<br>• Emergency anchor handling activities shall only be carried out at the Master's discretion due to difficulty in retrieving anchor pennants in high waves, and to avoid collision with anchor buoys; and<br>• Consider stopping cargo operations or limit to essential loads or for emergencies only<br><br>**Offtake tanker operations – Closed.**<br>• >3.0m Wave Height - No offtake tanker is permitted to moor.<br>• An offtake tanker already moored will be required to disconnect and depart if safe to do so | Refer to Working Over Water Procedure X060-AH-PRC-60005 and Working at Height Procedure X060-AH-PRC-60009<br><br>Ref: Liebherr Crane Data Sheets |

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| | 3.5 – 4 metres Significant Wave Height | **General operations**<br>• Limit for **emergency** deployment and recovery of CPF **FRC** provided all interested parties agree with launch i.e., OIM, standby vessel master and **FRC** working party.<br><br>**PSV / OSV Operations**<br>• Routine over the side work is to cease, however, over the side work of an emergency nature may continue, providing all interested parties agree i.e., OIM, standby vessel master and working party; and<br>Suspend cargo offloading operations. | |
| | >4.0 metres Significant Wave Height | **General operations**<br>• **FRC** shall not be launched.<br><br>**PSV / OSV Operations**<br>• Remain outside 500m zone. | |
| | >6 metres Significant Wave Height or WMO sea state 6 | **Helicopter Operations**<br>• Maximum normal Company flying limits.<br>Flying operations may only be considered for emergency situations after consultation with Helicopter Operator, Company Aviation Manager, OIM and Offshore Operations GM.<br>• Note: - Sea state 6 on WMO scale is limit of the certification of helicopter flotation devices. Limit provides greater chance of recovery upon ditching. | WMO: see Appendix A for Beaufort wind and sea scale |
| | Cyclonic Imminent Alert | **General operations**<br>• Consider starting emergency generation.<br>Refer to Offshore Cyclone Management Plan for all guidance on shutting down and depressing hydrocarbon production and processing. | Sections: - 5.1.9 Production operations. |
| | Aircraft Operators Weather Criteria Exceeded | • Aircraft operator will suspend helicopter operations in accordance with the limits detailed in the Operations Manual. (Including facility/ vessel motion. | |

| 8.3 | **Facility / Vessel Motion** | | |
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| | Vessel or floating platform motion at 3 degrees amplitude of pitch or roll and nearing aircraft operational limits | **<u>Helicopter flying operations.</u>**<br>• Ensure that the aircraft wheels are securely chocked.<br>• Operations to be conducted within the parameters set by the helicopter operator's manual.<br>• Ensure accurate Pitch/ Roll information is passed to aircraft prior to landing. Continue to monitor limits whilst aircraft is on the helideck.<br>• Extreme caution is to be exercised. Ensure passengers adhere to safe approach arcs to the helicopter and only when cleared by the pilot.<br>• Close the helideck for routine flights; and<br>• Inform incoming flights.<br>• Advise passengers to exercise extreme caution when approaching a low rotor disc aircraft; and<br>• Ensure accurate information is passed on to the pilots, advising them when there is any change in the vessel or floating platform movement. | (Refer Aircraft Operators Manual) |

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| | Pitch > 6 degrees<br>Roll > 7 degrees | **General operations**<br>• Consider start emergency generation.<br>• Consider controlled shutdown of production process to reduce risk.<br>• Monitor fitness of team to execute work activity.<br>• Review risk assessment for planned work activities.<br>• Secure loose objects, container doors and cargo.<br>• Ensure facility crew are briefed on potential of objects to suddenly move; and<br>• FPSO: Consider use and effectives of thrusters to reduce facility movement. | |
| **8.4** | **Heavy Rain & Electrical Storms** | | |
| | Notification of Weather Alerts | When CCR operator is alerted to stormy weather in the vicinity, they log into the Weatherzone site (https://www.weatherzone.com.au) to determine what, if any alerts are imminent | |

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| | Forecast heavy rain | **General operations**<br>• Upon Yellow Alert trigger, prepare exposed work sites to a safe condition and remove/ cover up any exposed electrical equipment.<br>• Ensure bunds and drain boxes are clear of potential pollutants and emptied.<br>• Remove Scupper plugs; and<br>• Close watertight doors and hatches. Review the requirement for crane operations.<br>• Consider the visibility aspect when conducting supply vessel cargo operations.<br>• Where non weatherproof electrical components, i.e., distribution boards, electrical leads, tools, etc. have been exposed to wet weather conditions an electrician shall inspect before re-energisation / use.<br><br>**Crane Operations**<br>• The crane operator is to have a clear view of the supply vessel deck and see the vessel's dogman or signal man.<br>• Unless being directed by radio to perform an on-installation lift, the crane operator should be able to see the dogman/rigger or signal man, deck crew, hook, or load clearly.<br>• Each lift should be visually risk assessed to determine the safest method for lifting, which may include using tag lines. | |
| | **Lightning Blue Alert**<br>15-30km away | **Offtake tanker operations**<br>• When thunderstorms and lightning are in the immediate vicinity of the FPSO and approaching the facility, the FPSO OIM, Pilot and the Offtake Tanker Master will consult and determine if/ when any in progress offtake operations will be suspended; and | |

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| | **Lightning Yellow Alert**<br>5-15kms away. | **General operations**<br>• A YELLOW alert notification shall be issued via the PA to all facility personnel.<br>• Exposed personnel shall be instructed to:<br>  ○ Stop Working at Height activities in exposed areas.<br>  ○ Stop refuelling activities.<br>  ○ Any individual lift in action shall be completed, booms lowered/ retracted as far as practicable, and crane made safe in anticipation for Red alert announcement.<br>  ○ Make exposed work sites safe.<br>  ○ Identify closest sheltered location.<br>  ○ Listen for further announcements.<br><br>**Crane Operations**<br>• Any individual lift in action shall be completed, booms lowered / retracted as far as practicable, and crane made safe in anticipation for 'Red Alert' announcement.<br>• Crane operations and crane maintenance activities must be suspended until the lightning 'all clear' is given. | |
| | **Lightning Red Alert**<br>≤5kms away. | **General operations**<br>• A RED alert notification shall be issued via the PA to all facility personnel.<br>• Exposed personnel shall be instructed to:<br>  ○ Ensure work sites are in a safe condition.<br>  ○ All crane operations are to be ceased and crane booms in a safe position.<br>  ○ Evacuate from exposed positions and proceed to sheltered location.<br>  ○ Listen for further announcements.<br>• If personnel find themselves working in the open when thunderstorms and lightning are observed or are imminent and have not heard any alert announcements, they shall consult CCR immediately and seek further instructions. If personnel are unable to do so or CCR is not contactable, they are to make their work area safe and proceed to a sheltered location immediately.<br>• The monitoring of the lightning shall continue, and updates to personnel shall be provided on a regular basis until the 'all clear' is given.<br>• Any non-exposed work fronts can continue working. | |

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| | **All Clear** –<br>All Alerts Cleared | **General operations**<br>• A 'ALL CLEAR' announcement shall be issued via the PA to all facility personnel.<br>• Any exposed electrical equipment shall be inspected prior to use and a general work area inspection undertaken prior to the commencement of work.<br>• 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.<br>• Crane operations can recommence. | |
| **8.5** | **Visibility** | | |
| | Visibility greater than 2Nm | **Offtake tanker operations – Open (No limitations).**<br>• No limitations to operations if wind and sea state criteria are met; and<br>• OIM, Pilot and Offtake Tanker Master to discuss operations and cease loading, and/or release the Offtake Tanker if either party is not in full agreement that it is safe to continue loading or remain moored. | |
| | Visibility <2Nm | **Offtake tanker operations - Restricted**<br>• No offtake tanker is permitted to moor. An Offtake tanker already moored may continue offtake operations subject to pilot advice and hawser load tension; and<br>• OIM, Pilot and Offtake Tanker Master to discuss operations and cease loading, and/or release the Offtake Tanker if either party is not in full agreement that it is safe to continue loading or remain moored. | |

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| | Minimal (poor) Visibility<br>< 1 Nm | **General operations**<br>• Review all operations where visual contact is essential for safe operation.<br>• Working group to cease if visibility is insufficient to maintain proper observations of the work party working over water.<br>• Confirm functionality of fog horns on facility; and<br>• Cease lifting operations if deck crew are unable to clearly see crane hook.<br>• FRC launch on in Emergency, with OIM sign off.<br><br>**Offtake tanker operations – Closed.**<br>• No offtake tanker is permitted to moor. An offtake tanker already moored will be required to disconnect and depart if safe to do so.<br><br>**PSV / OSV Operations**<br>• Consider stopping cargo handling operations if the PSV deck crew are unable to clearly see the crane operator, due to an increased risk of injury to personnel. | |
| | Visibility < 250m | **PSV / OSV Operations**<br>• A specific assessment between the OIM and the supply vessel master is required before the supply vessel can approach the installation. Without this agreement the supply vessel is to remain outside the 500m zone to avoid possible collision with the installation.<br>• Over the side only on emergency scopes, with specific OIM approval.<br>• The PSV/OSV to maintain a radar watch. | |
| | Visibility <25 -50m | **PSV / OSV Operations**<br>• Remain outside 500m zone and shall not make an approach to avoid a collision with the installation.<br>• No over the side work until visibility improves to >1km.<br>• Maintain radar watch. | |

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| **8.6** | **High Temperature & Humidity** | | |
| 5.1 | High temperature & humidity | Refer to Heat Stress Management Procedure for guidance on management of personnel working in high temperatures. | |
| **8.7** | **Tidal Streams** | | |
| | Strong Currents and tidal stream | **PSV / OSV Operations**<br>• Consider delaying cargo operations if vessel cannot hold station satisfactorily at less 50% power utilisation: and<br>• Be aware of sudden shift in position due to effect of unforeseen currents (soliton). | |

# APPENDIX A: OFFSHORE ADVERSE WEATHER MATRIX

## Offshore Adverse Weather MATRIX

| | | Venting | | | | | Lifting & Manual Handling | | | | | Working @ Height | | | Plant Status | | Housekeeping | | | | | Marine | | | | Helo | | | General | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | CPF/ FPSO | CPF/ FPSO | CPF/ FPSO | CPF/ FPSO | FPSO Only | CPF/ FPSO | CPF/ FPSO | CPF/ FPSO | CPF/ FPSO | CPF/ FPSO | CPF/ FPSO | CPF/ FPSO | CPF/ FPSO | CPF/ FPSO | CPF/ FPSO | CPF/ FPSO | CPF/ FPSO | CPF/ FPSO | CPF/ FPSO | CPF/ FPSO | FPSO Only | FPSO Only | FPSO Only | CPF/ FPSO | CPF/ FPSO | CPF/ FPSO | CPF/ FPSO | CPF/ FPSO | CPF/ FPSO |
| | | Delay planned venting | Assess impact of exhaust fumes on work sites | Consider exhaust fume ingestion from vessels on temporary refuge air intakes | Consider the effects of exhausts on helicopter operators | Review work activities during operations of Emergency Gen and Fwd Fire | Cease Crane and lifting operations | Personnel Transfers using FROG | Launch and recovery of FRC | Scaffold erection and dismantling activities in external areas | Handling sail-like objects, e.g tarpaulins, scaffold boards | Working over the side, working at heights and rope access scopes | Minimise access via ladders or work at height at exposed locations | Access to scaffold in exposed areas (restrict it), consider pulling scaffold | Consider running Emergency Generators | Shutdown of production process | Secure external doors, container doors and cargo | Work in external locations and access to external locations | Secure watertight doors and hatches. Remove facility scupper plugs (if safe to do so) | Make exposed workplaces safe | Workplace & tools inspection prior to re-energisation and work re-start | Offtake Operations (weather limits as per offshore Terminal Handbook) | Ballast Operations | Utilise thrusters | PSV Operations | Limit for engaging rotors and taxi | Ongoing helicopter operations | Helo refuelling | Review risk assessment on issued permits | PA announcement must be made |
| **Wind Speed & Direction** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Areas of **low wind** | | | | | | | | | | | | | | | | | | | | | A3 | | | | | | | | |
| | Unfavourable Wind Direction | | | | | | | | | | | | | | | | | | | | | | | | | | A18 | | | |
| | Wind speed is above 13 knots | | | | | A1 | | A3 | | | | | | | | | | | | | | | | | | | | | | |
| | 20 - 25 knots | | | | | | | A4 | | | | | | | | | | | | | | | | | | | | | | |
| | >25 knots & < 30 knots | | | | | | | A5 | A6 | | | A10 | | | | | | | | | | A8 | | | A16 | | | | | |
| | 30 - 40 knots | | | | | | A22 | A6 | A7 | | | | | A17 | | | | | | | | A9 | | | A6 | | | | | |
| | 50 knots | X | X | X | X | X | X | X | | X | X | X | X | X | | | X | A15 | | | | X | | | X | X | A11 | A11 | | |
| | 60 knots | X | X | X | X | X | X | X | X | X | X | X | X | X | | | X | X | | | | X | | | X | X | A12 | X | | Yes |
| | 75 knots mean wind speed | X | X | X | X | X | X | X | X | X | X | X | X | X | | | X | X | | | | X | | | X | X | A13 | X | | Yes |
| **Sea State** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | <2.5 Sign Wave Height (SWH) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 2.5m & <3.0m SWH | | | | | | | | | | | | | | | | | | | | | A8 | | | | | | | | |
| | 3m - 3.5m SWH | | | | | | A22 | | A6 | | | | | | | | | | | | | A9 | | | A29 | | | | | |
| | 3.5m - 4m SWH | | | | | | X | X | A7 | | | X | | | | | | | | | | X | | | A30 | | | | | |
| | >4.0m SWH | | | | | | X | X | | | | X | | | | | | | | | | X | | | | | | | | Yes |
| | >6m | | | | | | X | X | | | | X | | | | | | | | | | X | | | X | | A12 | | | Yes |
| **Cyclonic Event** | | *Refer to Offshore Cyclone Management Plan (X060-AH-PLN-60001) - Production operations section for ultimate weather limits for when hydrocarbon production and process systems will be depressurised* | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | SWH >8m & Wind Speed >60 knots (ave over 30 mins) | | | | | | A22 | | | | | | | | A19 | A20 | | | | | | | A27 | | | | | | | | Yes |
| **Facility / Vessel Motion** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Pitch or Roll 3 degrees | | | | | | | | | | | | | | | | | | | | | | | | | | A14 | | | |
| | Pitch >6 degrees, Roll 7 degrees | | | | | | | | | | | | | | A19 | A20 | | | | | | | | A28 | | | | | | Yes |
| **Heavy Rain & Electrical Storms** | | *CCR operator when alerted to stormy weather in the vicinity, to log into the weatherzone site (https://www.weatherzone.com.au)* | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Heavy rain 15-5kms (Yellow Alert) | | | | | | B23 | | | | | | | | | | | | | | | | | | | | | | | |
| | Lightning 0-15kms (Blue Alert) | | | | | | | | | | | | | | | | | | | | | A25 | | | | | | | | |
| | Lightning 15-5kms (Yellow Alert) | | | | | | A24 | | | | | | | | | | | | | | | X | | | | | | | | |
| | Lightning ≤5kms (Red Alert) | | | | | | | | | | | X | | | | | | | X | | | X | | | | | | | | |
| **Visibility** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Visibility greater than 2 nat miles | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Visibility less than 2 nat miles | | | | | | | | | | | | | | | | | | | | | A8 | | | | | | | | |
| | Poor (minimal) visibility less than 1 nat mile | | | | | | A23 | | A7 | | | | | | | | | | | | | A9 | | | | | | | | |
| | Visibility less than 250 metres | | | | | | A24 | X | | | | | | | | | | | | | | X | | | | | | | | Yes |
| | Visibility less than 25 - 50 metres | | | | | | X | X | X | | | X | | | | | | | | | | X | | | A26 | | | | | Yes |
| **High Temperature & Humidity** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | High temperature & humidity | *Follow Heat Stress Management Guidelines (Ref: 0000-AH-GLN-60013)* | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Key | |
|---|---|
| | Alert |
| | Conditional |
| | Stop |
| X | As above |

| Offshore Adverse Weather Weather MATRIX- Supporting Notes | |
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| A1 | **Venting:-** Areas on the Installation where, in low wind and/or unfavourable wind direction conditions, the air movement is so low that there may not be dispersion of gas in a release situation.<br>When wind speed is above 13 knots (7 m/s, 25 km/h) and direction from the bow, review work activities at the following locations during operations of Emergency Generators and forward fire pump generators w:<br>* Fwd starboard pedestal crane cabin (EL 72893)<br>* M01 Chemical tote tank area (EL 67010)<br>* M02 Main Power Generator exhaust access desk (EL 71430) * M02 Access deck (EL 69530)<br>* LQ Laydown area (EL 42500)<br>* Upper turret gantry levels 6 & 7 (EL 73900 and above). |
| A2 | **Offtake: Tanker venting low winds.**<br>* Review Emergency Generators both, planned and ongoing scopes that may affect facility restart capacity.<br>* Review Confined Entry Scopes where fugitive venting emissions from the offtake tanker may impact.<br>* Cease Offtake Operations until wind strength improves.<br>* Consider impacts on planned helicopter movement. |
| A3 | Personnel Transfer Limit: 13.61 knots identified as the top of the normal FROG operating range (Ref: Lifting Operations Management Procedure 0000-AG-PRC-60046 Appendix D) . |
| A4 | **Personnel Transfer Limit**: 20 knots (37km/h or 10m/s) limitation when only FRC available |
| A5 | **Personnel Transfer Limit**: 25 knots is the limitation when OSV or PSV is in the field. |
| A6 | **FRC Deployment (Routine) :** Limit for routine use in non-emergency event. |
| A7 | **FRC Deployment: Limit (Emergency event)** :<br>30 knots / 10 minuite average wind speed and 3.5 to 4 Significant Wave Height is the maximum allowable condition for launch and recovery.<br>Involved parties to agree on proposal to launch i.e. OIM, FRC working party and standby vessel master (if arequired). |
| A8 | **Terminal Restricted**:- No offtake tanker is permitted to moor. An Offtake tanker already moored may continue offtake operations subject to pilot advice and hawser load tension; The OIM, Pilot and Offtake Tanker Master to discuss operations and loading. Both patrties must agree that it is safe to keep loading and remain moored or it is to be ceased and vessel released. |
| A9 | **Terminal Closed:** Offtake Tanker is NOT permitted to moor.<br>An Offtake Tanker already moored will be required to disconnect and depart if safe to do so. |
| A10 | **Working @ Height:** Consider suspending working at height permits and rope access. Suspend in exposed areas. |
| A11 | **Helocopter Operations: High Wind Precautions / Checks (50knots):** HLO to inspect the helideck to assess conditions for the safe movement of passengers. If necessary, additional personnel shall be assigned to helicopter operations. The HLO is to report to the OIM advising on whether to continue handling helicopter flights.<br>* Monitor wind speed regularly, use hand-held anemometer to confirm conditions.<br>* Advise inbound flights and helicopter operator that conditions are deteriorating; and<br>* HLO and pilot to advise all passengers to take due care on the helideck due to high winds<br>* Refuelling - Consider the wind conditions before carrying out refuelling. Specifically manual handling of the hose in high winds and the firefighting capability shall be considered. |
| A12 | **Helicopter operations: Maximum normal Company flying limits (60 knots):** Flying operations in these circumstances shall only be undertaken for emergency purposes after agreement from Helicopter Contractor. Facility in-charge (e.g., OIM), HLO and pilot to review conditions and arrive at a decision whether to continue with flight helideck operations.<br>* Monitor wind speed regularly, use hand-held anemometer to confirm conditions; and<br>* Advise inbound flights and helicopter operator that conditions are deteriorating. |
| A13 | **Helicopter operations - Maximum emergency flying limit (70 knots and / or >6m SWH):** Consideration only for an emergency event or medevac. Fuel endurance would require consideration before any journey. Flying operations may only be considered for emergency situations after consultation with Helicopter Contract Company, Company Aviation Manager and |
| A14 | **Helicopter operations - Facility /Vessle motion**<br>* Close the helideck for routine flights<br>* Operations to be conducted within the parameters set by the helicopter operator's manual.<br>* Ensure that the aircraft wheels are securely chocked |
| A15 | **Exposed Locations**:<br>* Exposed personnel are instructed to stop work, to make their work sites safe and proceed to internal area within facility.<br>* Remove or cover electrical equipment<br>* Access to external areas shall be controlled and subject to risk assessment by person in charge. |
| A16 | **Wind Speed**: > 25knots<br>FPSO:- The vessel should work on the leeside of the facility. Weatherside working will require the approval of the OIM and Vessel Master.All PSV/ OSV's to operate in accordance with own develop Adverse Weather Procedure as per Marine Standard |
| A17 | **Wind Speed**:40 Knots 10 Minute Average<br>* Do not access scaffold and structures in exposed locations due to increased risk of collapse of scaffolding.<br>* Consider the need to lash unsecured topside/ internal cargo, containers or equipment which are likely to move, to reduce the risk of injury to personnel |
| A18 | **Wind Direction:** If gas turbine exhausts are blown towards helideck advise the helicopter pilot. Shutdown helideck only if pilot confirms not safe to land.<br>* Place installation on Alert Status and monitor for gas on the helideck if gas venting from flare is blown towards helideck. Inform helicopter in advance of approach. Temporarily close helideck until vent is under control, gas is dispersed or wind direction changes; and<br>* On FPSO consider the use of the facility thrusters. |
| A19 | **Emergency Generator:**<br>Consider runing it to reduce escalation potential risk in periods when primary and secondary escape are not available. |
| A20 | **Production operations: Cyclonic Event**<br>Refer to Offshore Cyclone Management Plan – Production operations section for ultimate weather limits for when hydrocarbon production and process systems will be depressurised. |
| A21 | **Production operations: Pitch >6 deg & Role >7 deg:** Consider controlled shutdown of production process to reduce risk. |
| A22 | **Crane Operation:**<br>At 35 knots wind and/or a significant wave heights of 3 meters, cease pedistal operations on both facilities (3 on FPSO & 2 on CPF). Ref: Crane manufactures specifications "(Data Sheets). |
| A23 | **Crane Operation:**<br>Heavy Rain / Electrical Storms/Visibility: Review all operations where visual contact is essential for safe operation.<br>* Working group to cease if visibility is insufficient to maintain proper observations of the work party working over water.<br>* Confirm functionality of facility fog horns.<br>* Cease lifting operations if deck crew are unable to clearly see crane hook. |
| A24 | **Heavy Rain / Electrical Storms/Visibility**<br>Any individual lift in action shall be completed, booms lowered/ retracted as far as practicable, and crane made safe in anticipation for Red alert announcement.<br>• Crane operations and crane maintenance activities must be suspended until the lightning 'all clear' is given. Ref: Lifting Operations Management Procedure (0000-AG-PRC-60046) |
| A25 | **Heavy Rain / Electrical Storms/Visibility:** When thunderstorms and lightning are in the immediate vicinity of the FPSO and approaching the facility, the FPSO OIM, Pilot and the Offtake Tanker Master will consult and determine if/ when offtake operations will be suspended. Offtake tankers should consider reducing venting through the mast riser and in some close the mast riser valve, during thunderstorm activity. |
| A26 | **Heavy Rain / Electrical Storms/Visibility**<br>* Remain outside 500m zone and shall not make an approach to avoid a collision with the installation.<br>* No over the side work until visibility improves to >1km.<br>* Maintain radar watch. |
| A27 | **Cyclonic Event**<br>* Refer to Offshore Cyclone Management Plan ( X060-AH-PLN-60001<br>* Once a declared cyclone enters the facility 'red' aone (405NM), FPSO ballasting to cyclone draft to be implemented (with reference to loading plans). |
| A28 | **PSV Operations**<br>FPSO: Consider use and effectives of thrusters to reduce facility movement. |
| A29 | **PSV Operations**<br>* Risk assessment, by the Offshore Installation Manager (OIM) in liaison with the vessel Master if lift of cargo operations must be carried out. Limitations may be imposed, e.g., emergency, or critical lifts.<br>* Stop weather side working to avoid collision with installation. Weatherside working will require the approval of the OIM and the vessel Master.<br>* Emergency anchor handling activities shall only be carried out at the Master's discretion due to difficulty in retrieving anchor pennants in high waves, and to avoid collision with anchor buoys; and<br>* Consider stopping cargo operations or limit to essential loads or for emergencies only |
| A30 | **PSV / OSV Operations**<br>* Routine over the side work is to cease, however, over the side work of an emergency nature may continue, providing all interested parties agree i.e., OIM, standby vessel master and working party; and<br>* Suspend cargo offloading operations |

# APPENDIX B: BEAUFORT WIND AND SEA SCALE

| BEAUFORT SCALE NO | DESCRIPTION TERM | WIND SPEED IN KM/H | 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 steaks 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. |

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### Document Identification

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### Delegation of Authority

| From Name | To Name | Date and Time | Action |
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