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**DOCUMENT AMENDMENT TABLE**

<b>Version</b>	<b>Prepared By</b>	<b>Date</b>	<b>Amendments</b>
0	Dredging Manager	20 July 2018	First Edition
1	Dredging Manager	14 January 2020	Changed 'UKCM' to 'UKCMS' in line with AMSA's generic description

### Definitions and Abbreviations

The definitions contained within this table will have the following meanings throughout this document in singular, plural or possessive form:

Term	Definition
AUS Charts	Official Charts produced for navigational purposes by the Australian Hydrographic Office.
Harbour Master	An individual appointed under the Port Authority Act to the Position of Harbour Master for a PPA Port.
Hydrographic Survey Standards	PPA Hydrographic Survey Standards and Deliverables. (Latest Version).
Metoccean	Combined meteorological and oceanic conditions.
Operators	All organisations that conduct marine operations in the Ports.
Port	A port operated under the authority and responsibility of the Pilbara Ports Authority.
Standard	The PPA Ports UKC Standards.
Survey Deliverables	The hydrographic survey results and deliverables as specified in the Hydrographic Survey Standards.
System Operators	Operators conducting marine operations under either a SUKC or UKCM System.
System Providers	The organisation that provides a SUKC or UKCM System to the System Operators.

Abbreviations or acronyms will have the following meaning:

Acronym	Definition
AHO	Australian Hydrographic Office
DUKC®	Dynamic Under Keel Clearance®
ENC	Electronic Navigational Chart
ICT	Information & Communications Technology
UKC	Under Keel Clearance
PPA	Pilbara Ports Authority
SOG	Speed Over Ground
SUKC	Static Under Keel Clearance
UKCM	Under Keel Clearance Management

## **1. INTRODUCTION**

In preparation of the Australian Hydrographic Office (AHO) introduction of formally nominating the responsibility of marine operations and functions by means of official notations on the AUS Charts, the Pilbara Ports Authority (PPA) has introduced these Under Keel Clearance (UKC) Standards (“Standards”) to ensure the safety of navigation for all marine operations conducted in its Ports that apply a Static Under Keel Clearance (SUKC) or a Under Keel Clearance Management (UKCM) System protocol, or both.

All Operators that conduct any marine operations in any of the Ports shall strictly adhere to these Standards and ensure that any vessels’ masters and marine pilots transiting the Port as part of their marine operations shall be advised of, and comply with, these Standards.

No Master shall be allowed to navigate a vessel whilst in breach of UKC through PPA’s responsible waters without the Harbour Master’s formal (written) authorisation.

## **2. STATIC UNDER KEEL CLEARANCE (SUKC)**

The Ports’ Harbour Masters have determined the minimum SUKC for their individual Ports a vessel’s master is to adhere to whilst navigating a vessel through PPA’s responsible waters.

Masters of vessels shall strictly adhere to the minimum SUKC imposed by a PPA Ports’ Harbour Masters.

Masters that require an exemption from the minimum imposed SUKC must submit a formal (written) application to the Port’s Harbour Master that includes at a minimum:

- Justification why an exemption is required; and
- A Risk Assessment, if required by the Harbour Master;

On determining the required SUKC for a vessel, the Harbour Master may take into account the following parameters but shall not be limited to:

- A Vessel’s:
  - Dimensions;
  - Cargo;
  - Maneuverability;
  - Speed (squat) and
  - Draft;
- Tug support;
- Aids to Navigation;
- Passage Plan;
- Hydrographic Survey;
- Metocean conditions and
- Local Knowledge.

PPA Ports' SUKC determinations are promulgated in each Port's handbook that are available from these PPA's Websites:

- [Port Hedland Handbook](#)
- [Port of Dampier Handbook](#)
- [Port of Ashburton Handbook](#)

### **3. UNDER KEEL CLEARANCE MANAGEMENT (UKCM) SYSTEM**

Operators of a UKCM System (including DUKC®) shall seek the PPA's approval prior to applying such a System for their marine operations in a PPA Port.

For UKCM Systems already in operation at the time of the promulgation of these Standards, System Operators will conduct the actions and submit the information as required in these Standards within 90 days of the promulgation date of these Standards.

#### **3.1 Deployment of an UKCM System**

PPA has considerable experience in the operation of UKCM Systems. It therefore recommends it is consulted prior to an Operator committing itself to the acquisition or deployment of a UKCM System.

Regardless of any consultation with PPA, prior to the deployment of a UKCM System for marine operations within a Port, the System Operators shall conduct the following actions and provide the PPA with the specified information and data.

##### **3.1.1 Investigations and Modelling**

System Operators shall conduct a thorough meteorological and oceanographic investigation and modelling that addresses all aspects that might have an impact on vessels' behavior, navigable depths and the functioning of the UKCM System including but not limited to:

- Wave and Swell Modelling;
- Prevailing currents;
- Local meteorological and seasonal events (e.g. Cyclones, etc.);
- Tidal regime studies;
- Sedimentation transport;
- Ships Simulator studies; and
- Hydrographic Survey (Clause 4.2).

The resulting reports, including all processed data gathered during the investigations, shall be made available, in acceptable formats, to PPA for evaluation.

##### **3.1.2 System Operation Information**

The System Operators shall provide PPA with all UKCM System information including but not limited to:

- Full details of the System Providers including:
  - Company:
    - ABN/ACN;
    - Directors;
    - Contact details;
    - Quality Assurance certification;
    - Insurances certification;
    - Etc.
- System Manuals;
- Ship simulation results;
- Metocean system:
  - Instrument details (Make, Model, etc.);
  - Position (local and datums);
  - Software;
  - Data transmissions (Methodology, Radio frequencies, etc.);
  - Maintenance/Calibration regime; and
  - Hierarchy of redundancy against instrument and data reception failures.
- Definition of the UKCM System's UKC;
- UKCM's System's UKC determination;
- Minimum UKC under the UKCM System.
- System accuracy;
- System calibration methodology and frequency;
- ICT Requirements for PPA System access; and
- Reference to similar UKCM Systems operating in other ports.

The System Operators shall also provide the PPA with:

- All georeferenced data, ENCs, overlays, etc. applied in their UKCM System and in a common native format acceptable by PPA; and
- Georeferenced drawings of the areas their UKCM System shall be applied to, overlaid on the relevant AUS Charts.

### **3.1.3 System Operations**

During normal operations, the System Operators shall provide PPA with read-only access to the Operator's UKCM System. The System's Information and data PPA will be provided access to will include but is not limited to:

- Transit Plans reports:
  - Preliminary;
  - Approved; and
  - Historic
- 'Real time' Transit Monitoring:

- Chart overlay;
- Position;
- SOG; and
- Transit Breach Occurrences
- Historic UKC Breaches Reports; and
- Metocean Data;

After the required information has been provided to, and evaluated by PPA, the Harbour Master will formally advise the System Operator in writing of the minimum UKC their UKCM System has to apply to their marine operations conducted under their UKCM System.

During a Port emergency, the System Operators shall provide PPA with immediate and unrestricted operational access to the Operator's UKCM System to provide the Harbour Master with all available information and functional interrogation so as to determine the best course of action to address the emergency.

#### **4 HYDROGRAPHIC SURVEYS**

Operators of either a SUKC or UKCM System will conduct hydrographic surveys over their area of marine operations to the standard and at the frequency specified below.

##### **4.1 Survey Frequency**

The System Operators will at a minimum conduct one (1) annual hydrographic survey per calendar year over the Operator's area of marine operations, as determined by the Harbour Master. The Harbour Master may require the Operators to conduct more frequent hydrographic surveys over its area of marine operation, or sections of it as determined by the Harbour Master, in certain circumstances or events, for example but not limited to:

- Meteorological events (e.g. cyclone impacts);
- Local conditions:
  - Currents;
  - Sedimentation transports;
  - Etc.
- Incidents; and
- Historic local knowledge of shallowing.

##### **4.2 Hydrographic Survey Standards**

All hydrographic surveys shall be compliant with the latest version of the Hydrographic Survey Standards.

If an Operator cannot comply with the Hydrographic Survey Standards, it will seek a formal (written) approval for a deviation from these standards from the PPA's Dredging and Survey Manager prior to undertaking any hydrographic survey. Failure to obtain such an approval may lead to a rejection of the Survey Deliverables.



Following the completion of a hydrographic survey, the Operator shall submit all Survey Deliverables to the PPA's Dredging & Survey Manager for evaluation against the Hydrographic Survey Standards. The submission shall include a summary of the minimum navigable depth the Operator is targeting in the Port, or sections thereof.

#### **4.3 Navigable Depth Declarations**

After the Survey Deliverables have been approved, the Harbour Master will evaluate the Survey Deliverables and proceed to declare the minimum navigable depth in a Port, or specific sections thereof. Once completed, the Operator shall be formally advised of the depth declarations by means of a Local Notice to Mariners.

Operators shall only apply the Harbour Master's most recently declared depths to their SUKC or UKCM Systems.

## **5 METOCEAN SYSTEM OPERATION, MAINTENANCE AND CALIBRATIONS**

Meteorological and Oceanographic ("Metocean") conditions are critical parameters to consider whilst ensuring the safety of marine operations particularly when marine operations include the navigation of draft restricted vessels.

The Operator shall submit to PPA details of its Metocean network that supports its SUKC or UKCM System.

### **5.1 Metocean instruments maintenance and calibrations**

Operators shall conduct regular inspections and maintenance of all its metocean equipment but at a minimum interval of 4 months. Inspections and maintenance shall include but not limited to:

- Physical condition inspection;
- Calibration of the instruments' data against an independent data source; and
- A report on the instruments' condition including but not limited to:
  - Location;
  - Photographs;
  - Comparison results against independent data source;
  - Commentary on data accuracy before and after calibrations;
  - Any changes in offsets applied; and
  - Recommendations.

The Metocean instruments' inspection reports shall be submitted to PPA within 30 days of the date of inspection.

## **6 PROCESS OWNER**

The PPA Dredging & Survey Manager has overall responsibility for this procedure.

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