JRC Rig Move Warranty Survey

(Mobile Offshore Unit Location & Move Warranty Survey)

Code of Practice and Scopes of Work

1) Coverage under this Policy for Mobile Offshore Unit Location Approval and Move activities fulfilling the criteria below is conditional upon:

a) A Marine Warranty Surveyor (MWS) being appointed by the Assured from the following panel *(name of MWS companies to be inserted below)*

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b) For each Activity listed below the specific Marine Warranty Scopes of Work (SOW) as stipulated in the table shall apply consistent with the application criteria:

Following criteria to be reviewed:

Activity	Criteria	Scope of Work (SOW)
1/ Jack-Up Location Approval		
1A - Site Specific Assessment (SSA) or 1B - Jack-Up Location Suitability Assessment	Full SSA required unless ALL of the following can be shown to be true: 1. Site criteria (environmental i.e. waves, wind and current) all fall well within (i.e. no more than 80% of) the limits stated in the Marine Operations Manual 2. Site location is not in a TRS (Tropical Revolving Storm) area 3. Site location 50 year return wind speed is less than 70 knots 4. Soils show no potential concerns with regard to settlement or punch-through 5. Well known geology at the site location	SOW 1
2/ Jack-Up Rig Moves (Wet Tows): - Jacking Down - Tow - Jacking Up	All rig moves (irrespective of duration)	SOW 2
3/ Wet Tows of Semi-Submersible and Submersible (MODUs)/Drill Ships (excluding jack-ups)	Tows, where the original Tow Plan exceeds 72 hrs duration	SOW 3
4/ Dry Tows / Heavy Lift	All activities where the	SOW 4

Vessel (HLV) Transportation of Jack-Up Rigs[i)]/ Semi-Submersible and Submersible MODUs (and other MOUs of similar configuration)	original Tow Plan exceeds 72 hours duration.	
5/Transits of /Semi-Submersible and Submersible MODUs and tender rigs under their own power, other than in respect of self-propelled drill ships.	Exceeding 72 hrs duration where the original Transit Plan exceeds 72 hours duration	To be recommended by MWS on a risk assessed basis and agreed by Contract Leader(s)

Notes:

i) In the case of a dry tow of a jack-up drilling rig, scope of work 2 may also apply with reference to the jacking up and jacking down operations.

c) Issuance of the Certificates of Approval (CoA) by the MWS for each operation as required by the table above and specified in the referenced Scope of Work (SOW) contained herein.

2) It is the duty of the Assured to ensure compliance with all recommendations, requirements or restrictions of the MWS within the specified timescales. In the event of a breach of this duty, Underwriters shall not be liable for any loss, damage, liability or expense arising from or contributed to by such breach.

3) The Marine Warranty Survey shall be conducted in accordance with the Code of Practice (COP) and the SOW contained herein.

4) The cost of the Marine Warranty Survey shall be borne by the Assured.

5) Any expenses incurred to comply with the MWS's recommendations shall be solely at the expense of the Assured.

6) The MWS shall be free to consult with the Underwriters and provide them with any relevant information.

7) Underwriters shall be entitled to receive a copy of any recommendations and/or reports and/or Certificates of Approval directly from the MWS.

Joint Rig Committee Rig Move Marine Warranty Surveyor Code of Practice (COP)

This Code of Practice (CoP) establishes agreed standards for Marine Warranty Surveyors' (MWS) performance while conducting Marine Warranty Surveys for Rig Move Activities and specifies the main activities required to be performed.

It has the following objectives:

To:

- Clarify the role of the MWS.
- Define the function of the Scope of Work (SoW).
- Outline approval criteria for Marine Warranty Surveying activities.
- Establish minimum standards for MWS performance.
- Define lines of communication between Underwriters and the MWS.
- Specify the work required (in tabular format)

Nothing in this document shall relieve any party of any legal obligations existing in the absence of this document. The obligations for the MWS, the Assured and the Underwriters are outlined below:

1 Role of the Marine Warranty Surveyor (MWS)

1.1 The fundamental objective of the MWS is to make reasonable endeavours to ensure that the risks associated with the warranted operations to which a MWS is appointed are reduced to an acceptable level in accordance with best industry practice.

1.2 The MWS shall attend in a timely fashion and provide full information and clear recommendations to the Assured and the Towage or Transportation Contractor.

1.3 The Marine Warranty Surveyor Company shall only appoint personnel who are demonstrably competent, in terms of qualifications and experience, to perform the review/approval activity being undertaken in accordance with the (SoW).

1.4 Notwithstanding the requirements of the SoW, the MWS shall specify recommendations to be met in order to minimise the risk to the insured unit during all phases of the move/transit and to comply with the terms of the warranty.

1.5 The MWS shall be satisfied, so far as possible, that the operations are conducted in accordance with:

- recognised codes of practice for the design, and operation of the type of insured unit
- best industry practice appropriate for the insured unit, equipment and vessels to conduct the operation
- Unit's Marine Operating Manual (except where the MWS recommends otherwise)acceptable levels of manning (this should recognise that the primary method evacuation for those MOU with helidecks must be by helicopter

1.6 The MWS shall ensure that all requirements as per their Warranty Survey Company's relevant guidelines (if applicable) are complied with. In the event that exceptions are to be made, the Contract Leader(s) approval shall be sought prior to issuance of the Certificate of Approval by providing the Contract Leader(s) with the list of exceptions proposed and the potential implication of providing each exception. The Marine Warranty Survey Company shall either use their own guidelines, or recognised industry guidelines.

1.7 The MWS shall review and approve all procedures as detailed in the transportation contractor's manual and MOU Marine Operations Manual (if applicable) and establish that

the key assumptions and procedures in the design are identified and complied with prior to issuance of the Certificate of Approval.

1.8 The MWS shall ensure that a voyage risk assessment is performed, and necessary risk mitigation measures have been put in place. In any event, the MWS shall ensure that the latest version of the International Maritime Organisation (IMO) guidelines for Safe Ocean Towing are followed along with full compliance with the Marine Warranty Surveyor Company guidelines as applicable, to be determined by the MWS.

1.9 The MWS shall advise Contract Leader(s) where the MWS has identified a situation or circumstance that the MWS considers causes the SoW contained herein to need to be revised in order to reduce risks to an acceptable level.

1.10 The MWS shall perform a review of the relevant documentation in accordance with the requirements of Item 1.4 above relating to the proposed operations within the Marine Warranty SoW including (as applicable), but not limited to:

- calculations
- drawings
- procedures
- certificates
- manuals
- relevant reports
- routing plans
- site specific criteria for the region in which the rig is working
- tow route metocean criteria
- Classification status, including results from previous survey, and timing of next
- MOU specific requirements for number of vessels and bollard pull

1.11 The MWS shall carry out suitability surveys of the insured unit, equipment and vessels to conduct the operation prior to each operation, including any required follow up "close out" inspections unless otherwise defined in the SoW contained herein, and shall:

- establish that the relevant items are suitable for the proposed operations;
- make known, in clear terms, in writing to the Assured the recommendations to be implemented prior to commencement of the proposed operations;
- review Meteorological and Oceanographic (metocean) conditions and, where appropriate, incorporate requirements as to metocean conditions in the recommendations in the Certificate(s) of Approval;
- When possible review the data acquisition, test and analysis plans (especially soil testing) for the proposed operations. MWS to advise on adequacy and report concerns to Contract Leader.
- observe and record the preparations for the proposed operations;
- attend and witness critical function tests or relevant assurance tests.
- Review of MOU history and future planned MOU activity at the site location

1.12 Subject to the MWS being satisfied that the objectives and principles outlined in Items 1.1 up to and including 1.11 above have been met, the MWS shall issue a Certificate of Approval. The Certificate of Approval shall clearly identify:

- the operation to be carried out;
- the vessel(s) to be used;
- any recommendations to be satisfied during the period of the proposed operations within the Marine Warranty SoW. Recommendations issued for the Assured's implementation should be targeted to reduce risk to Contract Leader(s) and worded in a clear and explicit manner should be capable of being objectively verified.

1.13 The MWS shall:

- not provide any services to the Assured and/or Operator and/or Main Contractors (s) and/or Sub Contractor (s) that may interfere with the work of the MWS.
- advise the Contract Leader(s) when a confidentiality agreement with the Assured is in place which would preclude the exchange of information or communication with the Contract Leader(s);
- not provide any other services to the Assured and/or Operator and/or Main Contractor(s) and/or Sub Contractor(s) that could present a conflict of interest with the Marine Warranty Work.

1.14 The MWS shall immediately advise the Contract Leader(s), with a copy to the Assured:

- if any Certificate of Approval is withheld; or a Non Conformance Certificate issued;
- if the Assured fails to comply with any recommendations made by the MWS;
- of any proposed changes to relevant key personnel employed by the MWS.

1.15 All equipment and vessels associated with the MOU move activities shall be fully operational and used within their safe working limits, which shall be agreed by the Marine Warranty Surveyor. The MWS shall review certifications and shall confirm that the vessel is fit for the purposes of the intended operation.

1.16 All vessels (including HLV's and transportation barges) shall be IACS (International Association of Classification Societies) Classed and Class maintained for the duration of the operation in question. **The Marine Warranty Surveyor shall agree all outstanding conditions of Class as not being material to the intended operations.** The MWS shall approve limiting metocean criteria, and weather windows for all marine operations. Return periods to be used are 50 years for location approvals, and 10 years for tows.

1.17 It is good practice for the role of the MWS to be independent from the role of the MOU Mover. In situations where this is not the case, the Assured shall provide justification, and seek the agreement of Underwriters prior to commencement of the rig move operation.

2 Role of the Assured

2.1 Once appointed on a particular MOU move operation, the MWS company shall not be changed without the prior agreement of the Contract leaders(s).

2.2 The Assured shall provide reasonable access and transportation facilities to the Warranty Surveyor to allow him to carry out the necessary work.

2.3 The Assured shall provide the MWS with a point of contact for the Contract Leader(s) and an appropriate point of contact in the Assured's organisation to assist with the resolution of queries.

2.4 The Assured shall provide the Contract Leader(s) with the contact details of the MWS within 14 working days following appointment of the same.

2.5 The Assured or appointed broker shall provide the MWS with the contact details of the Contract Leader(s) within 14 working days following appointment of the same.

2.6 The Assured shall ensure MWS participation at all relevant project management meetings, including marine operation Hazards and Operability Study/Hazard Identification Study (HAZOPs/HAZID), contingency planning and assurance/testing plans.

2.7 The Assured shall contract with the MWS directly (without the involvement of any contractor or other intermediary) unless required to enable compliance with the law in the jurisdiction or government regulations.

2.8 The Assured shall formally acknowledge receipt of all recommendations.

2.9 The Assured shall maintain a record of his compliance with, and deviations from, such recommendations.

2.10 The Assured shall obtain written approval from the MWS for any such deviation(s).

3 Role of the Underwriters

3.1 The Panel of Marine Warranty Surveyors is to be agreed by the Contract Leader(s) (lead underwriter(s) on the insurance policy).

Other additions to the Panel shall be required to demonstrate their capability/ experience of similar projects to be agreed by the Contract Leader(s).

3.2 At the request of the MWS, the Contract Leader(s) shall make available:

- relevant applicable policy terms and conditions including, in particular, any warranty provisions or conditions precedent;
- identity and contact details (including telephone, e-mail, fax and out of normal business hours numbers) of the nominated Contract Leader(s) to receive communications from the MWS.

Scope of Work (SOW) 1 A & B

Jack Up Location Approval

The following principles are applicable with the key premise of 'right rig at right location':

- The Jack-up must demonstrate that it has sufficient air gap to safeguard its' operation, requiring a leg penetration assessment, and calculation of site specific environmental data and platform details

- The Jack-up must demonstrate that it has sufficient preload capacity to safeguard its operation. A safety margin is recommended, and should be stated where used by the MWS

- The Jack-up Marine Operating Manual is the latest version and reflects the current rig operating status accounting for any post-construction modifications.

It is emphasized that any loss of station keeping and/or stability could have implications for drilling operations, well integrity and possible loss of containment.

Activity	Review & Approve Procedures/Drawings/ Design Calculations.	Attend	Issue Certificate of Approval
Data Gathering – see also Note 1. **The following minimum data is required for both 1A & 1B** – Geophysical data – Metocean data for the site – Geotechnical data – borehole with adequate site specific soil sampling (to be determined by the MWS) – Bathymetry (including previous spud can depressions/footprints) and debris survey data – Operator location data (assets) – Rig data (including dimensions, capabilities and the RPD (rack phase difference) limit) – Rig / asset interface drawing (if applicable) – The spudcan load and spudcan bearing pressure considering both self-weight and pre-load or pre-drive operations	X		

Activity	Review & Approve Procedures/Drawings/ Design Calculations.	Attend	Issue Certificate of Approval
1 Jack-Up Location Approval The full Scope 1A Site Specific Assessment (SSA) shall be carried out unless **ALL** of the following statements can be shown to be true (as assessed by the MWS) in which case the approach outlined in Scope 1B Suitability Assessment should be adopted]: 1. Site criteria (environmental criteria i.e. waves, wind and current) all fall well within (i.e. no more than 80% of) the limits stated in the Marine Operations Manual 2. Site location is not in a TRS (Tropical Revolving Storm) area 3. Site location 50 year return wind speed is less than 70 knots 4. Soils show no potential concerns with regards to settlement or punch-through 5. Well known geology at the site location A written Suitability Assessment or Site Specific Assessment shall be issued for each location that the jack-up rig is to be sited upon. Storm metocean criteria shall be based on the omni-directional 50 year environmental return period **independent extremes** – both seasonality and directionality can be used with adequate justification. In TRS (tropical revolving storm) area any reduction in return period below 50 years (for manned evacuated response) shall be justified by the Assured and reviewed and agreed by the MWS (but shall not be less than 10 years). [A reduction in return period below 50 years shall be communicated to underwriters.] The Operator should also be advised of the potential impact of spudcans in close proximity to platform piles.	X		X
1A The Site Specific Assessment (SSA) should follow one of the following documents: – ISO 19905-1:2012 Petroleum and Natural Gas Industries – Site Specific Assessment of Mobile Offshore Units – Part 1 Jack-Ups – SNAME T&RB 5-5 Guideline for the Site Specific Assessment of Mobile Jack-Up Units **Soils data collection and interpretation should follow the INSAFE JIP document detailed in note 2. below.**			

Activity	Review & Approve Procedures/Drawings/ Design Calculations.	Attend	Issue Certificate of Approval
Evaluate Jack-up Site Specific integrity (including dynamic response) during both Storm and Operating conditions**).**	X		X
Minimum output for the SSA should include the following elements: – Spudcan penetrations – Reserve leg length – Overturning stability – Foundation bearing and leg sliding – Leg strength – chords and braces – Chock strength – Pinion strength – Hull sidesway (m) Annex G, ISO 19905-1 presents as good industry practice for documenting a SSA			
1B Jack-Up Location Suitability Assessment The rig integrity assessment by comparison of the location with the rig Marine Operating Manual should have the following: – Spudcan penetration (MN v metres), demonstrated on a leg penetration curve – Reserve leg length – Preload capacity – Air-gap adequacy (if the rig is in an open location Additionally the assessment must confirm that the location specific data is less onerous than that used as the design basis in the rig Marine Operating Manual, so that leg, chock and pinion strength is adequate. Further, where leg extraction problems are predicted, a warning should be included as part of the assessment	X		X

X denotes activity to be performed.

Notes:

1. Data gathering shall be in accordance with ISO 19905-1:2012 Petroleum and Natural Gas Industries – Site Specific Assessment of Mobile Offshore Units Part 1 – Jack-Ups, or SNAME T&RB 5-5 Guideline for the Site Specific Assessment of Mobile Jack-Up Units

2. RPS Energy, Improved Guidelines for the Prediction of Geotechnical Performance of Spudcan Foundations During Installation and Removal of Jack-Up Units. InSafe JIP, EOG0574 Rev 1b, 18th November 2010

Scope of Work (SOW) 2:

Wet Tows of Jack-Up Rig (inclusive of Jacking Down & Up)

Activity	Review & Approve Procedures/Drawings/ Design Calculations.	Attend	Issue Certificate of Approval
(A) Jacking Down Operations/Coming Off Location (from commencing jacking down to disengaging legs from the seabed and moving off under tow until outside the 500m zone)	X	X	COA for Jacking Down to be incorporated within Tow COA
– Pre-jacking down readiness – Weather/sea state conditions – Jacking – down operations – Leg extraction and jetting operations – Mooring up operations – Tow commencement – Adequacy of communications – Stability – Manning levels justified – Towline connection			
(B) Rig Move			
General			
Review and agree meteorological criteria for the tow.	X		
Review and agree limiting seastates for all marine operations (10 year return period for the tow over 72 hours i.e. outside of reliable weather forecastable periods).	X		
Review and approve weather forecasting procedures.	X		
Review and approve tow routes, weather windows and safe havens, using SAFETRANS or other transportation software appropriate to the length of tow	X		
Review and approve criteria for tow including bollard pull requirements.	X		
Tug Suitability Survey	X	X	
– Tug (including manoeuvring tugs) suitability survey and approval. – Confirm valid Class certificate, with no outstanding conditions of class – Change of tug shall require reissue of certificate of approval. – Bollard pull test within last 5 years – Towing equipment certificates validity prior to tow – Towing equipment NDT inspection prior to tow – Safety factor of towing systems for anticipated environmental forces – Redundancy of systems – Crew competency proven and valid training records – Communications			

Activity	Review & Approve Procedures/Drawings/ Design Calculations.	Attend	Issue Certificate of Approval
Voyage Manual / Towmaster Instructions	X		
– Pre-voyage Risk Assessment – Route Planning (incl. sea room, safe havens and refuelling) – Clearances – Underkeel, Overhead and Side – Hazard identification – Trim & stability – Ability to withstand environmental forces (wind, wave, current) – Marine Warranty Survey Company derived worst case - 10 year return period for the route. – Weather routing – Confirm that the MODU has a valid Class certification without conditions of class valid loadline certificate – Fuel requirements (contingency) – Communications (Reporting Protocols) – Manning levels justified – Riding crew competency proven and valid training records – Navigational Aids (Navaids) – Confirm seaworthiness and water tightness for the tow			
Contingency Planning for Emergencies	X		
– Bunkering – Line parting – Tug equipment failure – Heavy weather/Storm Approach – Grounding – Collision – Fire and explosion – Damage stability – Water ingress through valves – Structural failure – Key equipment breakdown (critical spares) – Use of and deployment of survival anchor – Riding crew evacuation			
Tow Operation – See Notes 1 & 2	X	X	X Issue C of A for tow commencement Based on receipt of a good weather forecast and including recommendations on weather routing and the possible avoidance of certain sea states.
– Rig Marine Operating Manual & Tow			

Activity	Review & Approve Procedures/Drawings/ Design Calculations.	Attend	Issue Certificate of Approval
Contractor's specific rig move procedures. – Trim and stability manual – Rig Stability during all phases of move, ballasting arrangements Tow equipment – Confirm adequacy of Sea fastenings /Stowing of critical and major moveable items (especially BOPs and Drill Pipe). – Confirm that the position of major moveable equipment and cargo(s) are in accordance with the trim and stability manual – In the case of a long wet tow assess the allowable leg bending moments /leg length and fatigue considerations (see note 1. below) – Confirm seaworthiness and water tightness for tow – Piloting arrangements as applicable – Hook up tugs and commence tow			
(C) Going On Location/Jacking Up Operations (from entering the 500m zone at the location until at final elevated air gap)	X	X	X
– Review Side Scan Sonar/Debris survey by divers or Remote Operated Vehicle (ROV) – Review Pipeline clearances – Review pipeline/riser and well shutdown and blowdown plan during rig moves, with the purpose of minimising risk. – Confirmation of clear sea bed – Approve Pre-Load and Jacking Procedures (individual or simultaneous leg pre-loading) – Approve pre-load sequence – Approve air gap / jack-up draft during pre-loading operation – Periodic inspections for Scouring – Approve leg penetration check proposals prior to and after pre-loading – Review rig positioning tolerances as defined by Oil company – Approve clearances between the rig and existing assets (platforms and pipelines) containing hydrocarbons for the purpose of risk mitigation. Assess for rig move and final position. Make recommendations as necessary. – Monitoring of rack phase differentials			

Activity	Review & Approve Procedures/Drawings/ Design Calculations.	Attend	Issue Certificate of Approval
(RPD) – **PUNCH THROUGH RISK MITIGATION – KEY ACTIVITY REQUIRING CLOSE MONITORING THROUGHOUT THE OPERATION - Confirm leg penetrations during pre-load follow expectations – or follow pre-agreed contingency plans ON AN URGENT BASIS with the Geotechnical consultant.** – Jack-up manoeuvring and positioning within the 500m zone – Adequacy of attending tugs & confirmation of correct tow equipment – Adequacy of anchoring / mooring systems – Approve pre-jacking up preparations (including jacking equipment full function testing) – Confirm adequacy of communications throughout going on location operations – Soft pin and elevate to pre-load condition – Pre-load operations – Jack-up to final elevation – Derrick/drill floor and substructure tie down procedures (prior to commencement of drilling operations in TRS zones) (as per US Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE) document)			

X denotes activity to be performed.

Notes:

1. Make a determination of the allowable leg length to be carried. For Mat units Marine Warranty Surveyor to review Ultrasonic (UT)/non-destructive testing/ inspection of legs in vicinity of leg jacking holes and incorporate into technical assessment. For all independent trussed leg and braced units, MWS to review the results of testing of critical structural areas. Typically, this should include the areas of legs from just below the lower guides to 2 bays above the upper guides, with the legs in any proposed transport condition. The testing should also include the guide connections, and the jack-house connections to the deck.

2. Conduct a study of met-ocean conditions that the MODU is likely to encounter based on the exact route and time of year during the wet towage. Make a determination if the unit is capable of surviving this metocean conditions and remaining in compliance with the approved marine operations manual.

Scope of Work (SOW) 3:

Wet Tows of Semi-Submersibles and Submersible MODUs/ Drill Ships / Tender Rigs excluding jack-ups

Activity	Review & Approve Procedures/Drawings/ Design Calculations.	Attend	Issue Certificate of Approval
(A) General			
Review and agree meteorological criteria for the tow.	X		
Review and agree limiting seastates for all marine operations (10 year return period for the tow if over 72 hours).	X		
Review and approve weather forecasting procedures.	X		
Review and approve tow routes, weather windows and safe havens using SAFETRANS or other transportation software appropriate to the length of tow	X		
Review and approve criteria for tow including bollard pull requirements.	X		
(B) Tug Suitability Survey	X	X	
– Tug (including manoeuvring tugs) suitability survey and approval. – Change of tug shall require reissue of certificate of approval. – Confirm valid Class certificate, with no outstanding conditions of class – Bollard pull test within last 5 years – Towing equipment certificates validity prior to tow – Towing equipment NDT inspection prior to tow – Safety factor of towing systems for anticipated environmental forces – Redundancy of systems – Crew competency proven and valid training records – Communications			
(C) Voyage Manual/Towmaster Instructions	X		
– Pre-voyage Risk Assessment – Route Planning (incl. sea-room, safe havens and refuelling) – Clearances – Underkeel, Overhead and Side – Hazard identification – Ability to withstand environmental loading (wind, wave, current) – Marine Warranty Survey Company derived worst case - 10 year return			

Activity	Review & Approve Procedures/Drawings/ Design Calculations.	Attend	Issue Certificate of Approval
period for the route. – Weather routing – Confirm that the MODU has a valid Class certification without any conditions of class – Loadline certification – Fuel requirements (contingency) – Communications (Reporting Protocols) – Manning levels justified – Riding crew competency proven and valid training records – Navigational Aids (Navaids) – Confirm seaworthiness and water tightness for the tow			
(D) Contingency Planning for Emergencies	X		
– Bunkering – Line parting – Tug equipment failure – Heavy weather – Grounding – Collision – Fire and explosion – Damage stability, – Water ingress through valves – Structural failure – Key equipment breakdown (critical spares) – Use of and deployment of survival anchor – Riding crew evacuation			
(E) Tow Operations – See Note 1	X	X	X Issue C of A for tow commencement based on receipt of a good weather forecast and including recommendations on weather routing and the possible avoidance of certain sea states.

Activity	Review & Approve Procedures/Drawings/ Design Calculations.	Attend	Issue Certificate of Approval
– Rig Marine Operating Manual & Tow Contractor's specific rig move procedures. – Trim and stability manual – Rig Stability during all phases of move, ballasting arrangements (see note 2 below) – Tow equipment – Confirm adequacy of Sea fastenings /Stowing of critical and major moveable items (especially BOPs and Drill Pipe). – Confirm that the position of major moveable equipment and cargo(s) are in accordance with the trim and stability manual – Confirm seaworthiness and water tightness for tow – Piloting arrangements as applicable – Hook up tugs and commence tow			

X denotes activity to be performed.

Notes:

1. Conduct a study of met-ocean conditions that the MOU is likely to encounter based on the exact route and time of year during the wet towage. Make a determination if the unit is capable of surviving the metocean condition and remaining in compliance with the approved Marine Operations Manual.

Scope of Work (SOW) 4:

Dry tows by Barge or HLV Transportation of Jack-up Rigs/Semi-Submersible & Submersible MODUs and other MOUs of similar configuration

Activity	Review & Approve Procedures/Drawings/ Design Calculations.	Attend	Issue Certificate of Approval
(A) General			
Review and agree meteorological criteria for the transportation	X		
Review and agree limiting sea states for all marine operations. (10 year return period criteria for the route)	X		
Review and approve weather forecasting procedures.	X		
Review and approve routes, weather windows and safe havens using SAFETRANS or other transportation software appropriate to the length of tow.	X		
(B) Tug Suitability Survey	X	X	
– Tug (including manoeuvring tugs) suitability survey and approval. – Change of tug shall require reissue of certificate of approval. – Confirm valid Class certificate, with no outstanding conditions of class – Bollard pull test results from within the last 5 years – Towing equipment certificates validity prior to tow – Towing equipment NDT inspection prior to tow – Safety factor of towing systems for anticipated environmental forces – Redundancy of systems – Crew competency proven and valid training records			
(C) Transportation Vessel/ Loading & Unloading Equipment	X	X	
– Confirmation of suitability of Transportation Vessel. – Confirmation that the Transportation Vessel and MODU have a valid IACS Class certificate, and are class maintained (with no conditions of class) and loadline certificate. – Verification of the adequacy and structural strength of the cribbing and sea fastenings – Confirmation good working order of all operational equipment and machinery required for loading and unloading operations (including contingency items)			

Activity	Review & Approve Procedures/Drawings/ Design Calculations.	Attend	Issue Certificate of Approval
– Seaworthiness and water-tight integrity			
(D) Loading and Unloading Operations	X	X	X (for both loading and unloading operations)
– Confirmation that the insured unit(s) have been suitably sea fastened (and that weld checks have been carried out) and that load-on draught has been achieved without excessive heel or trim – Confirmation of suitability of loading and unloading areas in respect of water depths, shelter etc. – Pre-check cribbing is in correct position relative to guide post – Ensure adequacy of guide post and catcher position – Ensure MODU is accurately positioned on cribbing and adequately supported – Ballasting and Deballasting plans and operations – Check MODU leg position is correct for transportation and if appropriate, shimming or chocks are applied – Check final condition of vessel and MODU (seaworthiness and water tightness) for voyage and hence stability – Ensure that water is pumped out of spudcans once the rig has been loaded. – Ensure that the tank conditions for offloading are close to that for when the rig was loaded (or that differences have been taken into account in the procedures) – Certificate of Approval for loading/unloading to be issued on receipt of good weather forecast – Ensure fire main connected from ship to rig and fully operational			
(E) Voyage Manual/Towmaster Instructions	X		
– Pre-voyage Risk Assessment – Route Planning (incl. sea room, safe havens and refuelling) – Clearances – Underkeel, Overhead and Side – Hazard identification – Ability to withstand environmental forces (wind, wave, current) – Marine Warranty Survey Company derived worst case - 10 year return period for			

Activity	Review & Approve Procedures/Drawings/ Design Calculations.	Attend	Issue Certificate of Approval
the route. – Weather routing – Fuel requirements – Communications (Reporting Protocols) – Manning levels justified – Riding crew competency - proven and valid training records – Navaids			
(F) Contingency Planning for Emergencies	X		
– Bunkering – Line parting – Tug equipment failure – Engine failure – Heavy weather – Grounding – Collision – Fire and explosion – Damage stability – Water ingress through valves – Structural failure – Key equipment breakdown (critical spares) – Riding crew evacuation			
(G) **Voyage Commencement** following the review of the items listed below	X	X	X Issue C of A for tow commencement based on the receipt of a good weather forecast and including recommendations on weather routing and the possible avoidance of certain sea states.
– MOU Marine Operating Manual & Tow Transportation Contractor's manual and basic design parameters – Independent Verification of Rig and Transportation Vessel stability during all phases of move (Loadout, voyage and discharge) – Independent verification of Transportation Vessel's motion responses – Independent derivation of the sea fastening and cribbing loads – Confirm that the position of the vessel and cargo(s) are in accordance with the trim and stability manual – Verification that the cribbing layouts are acceptable. This includes a check on the strength of the rig's bottom plating and stiffening – Independent verification that the sea			

Activity	Review & Approve Procedures/Drawings/ Design Calculations.	Attend	Issue Certificate of Approval
fastening design is adequate and that the rig has sufficient capacity at the points that the sea fastening loads are being transferred – Tow equipment – Confirm adequacy of Sea fastening/Stowing of critical and major moveable items on the MOU (especially BOPs and Drill Pipe). – Allowable leg bending moments /leg length and fatigue considerations (see note 1. below) – Confirm seaworthiness and water tightness for the tow – Piloting arrangements as applicable – Hook up tugs and commence tow			

X denotes activity to be performed.

Notes:

1. Make a determination of the allowable leg length to be carried. For Mat units Marine Warranty Surveyor to review Ultrasonic (UT) /non-destructive testing/ inspection of legs in vicinity of leg jacking holes and incorporate into technical assessment. For all independent trussed leg and braced units, MWS to review the results of testing of critical structural areas. Typically, this should include the areas of legs from just below the lower guides to 2 bays above the upper guides, with the legs in any proposed transport condition. The testing should also include the guide connections, the jack-house connections to the deck and connections of the spud-cans to the leg chords.