

## 6.1 Tanks and Bilges

- 6.1.1 Contractor is responsible for the removal of fuel and fluid residue in the vessel's tanks and systems.
- 6.1.2 The Contractor is to ensure that and bilges are cleaned of residue and that all relevant system drain valves have previously been opened to ensure drainage of as much residue as possible.
- 6.1.3 Thereafter, removal of any residue from any tank caused by drain-back from pipework of associated fluid system, cleaning and Hot Work Certification will be the responsibility of the Contractor.
- 6.1.4 The Contractor is to undertake a final clean of all machinery space bilges.

## 7 Material, Procurement, Control and Registration

### 7.1 Contractors' Responsibility for Material Supply

- 7.1.1 Unless otherwise stated within the Refit Specification, the Contractor shall supply all materials. This includes Equipment, Spares, Fixtures, Tools, and Test Equipment, required for the execution of the Specified Work and any agreed Contract variations.

### 7.2 Modification State of Replacement Parts or Equipment

- 7.2.1 The Contractor is to ensure that all exchanged parts and replacement equipment is at least up to the same Modification State as the outgoing item unless the Authority's Authorised Representative gives approval.

### 7.3 Flexible Hoses

- 7.3.1 All flexible hoses fitted by the Contractor are to have the following information legibly printed or stamped onto a durable tally permanently attached to the hose.
  - Local Hose Register Number.
  - Designed Test Pressure.
  - Test Date.
  - Nato Stock Number, if applicable.
  - Batch Number.
  - Place Manufactured.
- 7.3.2 Where the Contract requires the RENEWAL of any item made of non sustainable hard woods (eg. Trims Chockings, etc) the Contractor is to use either a suitable alternative from a sustainable source or a man made material which has a performance equal to hardwood.

### 7.4 No Toxic or Flammable Materials are to be used in New Installations

- 7.4.1 Where the specification calls for the repair, replacement or fitting of new partitions, bulkhead linings, bulkhead insulation, doors, hatches, shutters, furniture or soft furnishings, the materials used in their construction, and their design shall conform fully with the latest approved standards for fire protection and toxicity.



- 7.4.2 Where the specification calls for the repair, replacement or fitting of new spares or equipment (including packing and jointing), the materials used in their construction, and their design shall conform fully with the latest approved standards for fire protection and toxicity.
- 7.4.3 The Contractor shall ensure that this requirement is taken into account for all specification work texts. Proof of approval or conformity is to be provided to the nominated Authority's Authorised Representative, in advance of work commencing, for all materials used. Where equipment is brought in, the Contractor shall ensure type approval is an explicit requirement of any order or enquiry.

## **8 Health and Safety Hazards Including COSHH**

### **8.1 References:**

- a) The Maintenance of Safety in the Workplace - Provision of Safe Systems of Work covering Health and Safety Hazards.
- b) The Control of Substances Hazardous to Health (COSHH)
- c) International Convention for the Prevention of Pollution from Ships (MARPOL)

### **8.2 Health and Safety Hazards**

- 8.2.1 The Contractor is to ensure that all work undertaken is compliant with the Health and Safety requirements mandated in reference a) at para 10.1.
- 8.2.2 The Contractor is to notify the Authority's Authorised Representative of any special health and safety hazards which may be involved in the work to be performed and is to provide to the Authority's Authorised Representative copies of the relevant risk assessments. The Authority's Authorised Representative will notify the Contractor of any special health and safety hazards which may be involved or introduced on site by the MOD. The Contractor is responsible for informing their employees and Sub-Contractors, or any other persons under their control engaged on the work being performed, of hazards identified to the Contractor by the Authority's Authorised Representative and for carrying out the necessary risk assessments. Arrangements are to be made by the Contractor so that persons employed by or controlled by Sub-Contractors, and working on the Contractor's tasks, are adequately informed or instructed or trained, as required, on the hazards and any associated control measures. Details of such notification and instruction are to be copied to the Authority's Authorised Representative.
- 8.2.3 The Contractor is to publish Safe Systems of Work to cover the range of hazards likely to be encountered while undertaking the specified work. These orders are to be agreed with the Authority's Authorised Representative and are to take into account the various materials, potentially injurious to health that may have been used in the construction of the vessel. Typically these include asbestos, lead and lead based paints, Zinc Chromate Primer, erodible anti-fouling paint or other modern anti-fouling paint containing an organic-tin compound used for hull anti-fouling.
- 8.2.4 The Authority's Authorised Representative will monitor the performance of the Contractor in complying with the Statutory Regulations and the other requirements contained within this work list.

### **8.3 Control of Substances Hazardous to Health (COSHH)**



- 8.3.1 The COSHH Regulations require arrangements to control the exposure of Employees to all substances which may affect their health.
- 8.3.2 The substances covered by the COSHH regulations include:
- Substances classified as corrosive, harmful or irritant.
  - Substances for which an occupational exposure standard or maximum exposure limit has been declared.
  - Micro-organisms which create a hazard to health.
  - Dust of any kind in substantial concentrations.
- 8.3.3 Exceptionally, substances covered by other legislation are not included e.g. lead, asbestos and radioactive sources.
- 8.3.4 At the commencement of the conversion the Contractor is to commence the production of a record of the hazardous substances introduced onboard as a result of the Refit Period.
- 8.3.5 On completion of the Refit the Contractor is to update the record and issue 2 copies to the Authority Authorised Representative.
- 8.3.6 The Contractor is to retain one copy for their own records.
- 8.3.7 The supply and return of Halon and Refrigerant Gases are to be in accordance with the Montreal Protocol.
- 8.3.8 If there is any doubt as to the requirements referred to above, the Contractor is to consult the Authority's Authorised Representative.

## 8.4 Welding Burning and Hotwork Routines

- 8.4.1 The Contractor is to ensure that their staff comply with Health and Safety Regulations with regard to work practices involving welding, burning and hot work onboard the Vessel.
- 8.4.2 The Contractor is to publish orders, to the satisfaction of the MOD Representative, setting out the practices and procedures which the Contractor's Staff will follow in order to meet the Health and Safety Regulations.
- 8.4.3 All hot work onboard the Vessel is to be within the control and supervision of an onboard organisation which is to be provided by the Contractor. A log of all hot work activities is to be maintained at all times.
- 8.4.4 When the Vessel is in the Contractor's custody the Authority's Authorised Representative, may stop all hot work should they be dissatisfied with the precautions being taken. They will make their objections known to the Contractor's management, should this occur.
- 8.4.5 The Contractor is responsible for ensuring that a fire sentry attends at all times when welding, burning or hot work is taking place, and to seek out possible points of ignition both around the craftsman and also on the other side of bulkheads, division plates, adjoining compartments, etc.
- 8.4.6 The Contractor is responsible for the provision of the appropriate fire extinguishers and for ensuring that fire sentries provided by the Contractor are fully trained in their use. The fire sentries and fire extinguishers are to be provided in addition to the onboard firefighting equipment.

## 8.5 Reporting of Serious Incidents

- 8.5.1 The Contractor is to inform the Authority's Authorised Representative immediately of any incident which causes damage to any part of the Vessel, or injury to Personnel or which leads to a serious breach of security or safety. Where any incident gives rise to a Special Investigation, a copy of the report is to be forwarded on request to the Authority's Authorised Representative and/or the Quality Assurance Representative.



## 8.6 Environmental Protection

- 8.6.1 The Contractor is to ensure that all relevant MARPOL regulations are adhered to during the Refit period whilst conducting any work involving environmentally hazardous materials. All environmental controls and legislation imposed by the Local Port Authorities are also to be agreed before Refit work commences and adhered to throughout the period of the Refit.

## 9 Asbestos and Other Hazardous Materials

### 9.1 Asbestos Regulations

- 9.1.1 The vessel Repairer shall not supply or fit any CSMS containing asbestos in any form. Where the vessel repairer can not identify any alternative non-asbestos material, then the Authority's Authorised Representative is to be notified who will then issue the necessary instructions.

### 9.2 Thermal and Insulating Materials

- 9.2.1 The contractor is advised that various materials potentially injurious to health may have been used in the construction of the vessel. These include asbestos. Due care should be taken in the working of these materials and safe methods of waste disposal used. An asbestos survey has been completed and the report is available to the contractor (REF 1). Any asbestos removed must be undertaken by a HSE licensed asbestos removal specialist:

Attention is drawn to the serious health hazard associated with work removing thermal and acoustic insulation containing asbestos and the stringent control measures necessary to reduce these hazards, particularly where CROCIDOLITE (BLUE ASBESTOS) or AMOSITE (BROWN ASBESTOS), usually applied in the sprayed form, may have been used for structural insulation during construction of the vessel.

- 9.2.2 Other materials may have been used as well, e.g. ANTHOPHYLITE. Typical areas where the material may remain are the underside of decks, vessel's sides, bulkheads, frames, stringers, beams and girders, funnel casings and ventilation systems.
- 9.2.3 Other forms of thermal insulation, e.g. calcium silicate, containing asbestos may also be found on pipe systems throughout the vessel and in heavy concentrations in the main and auxiliary machinery spaces. This may have been applied by spraying on individual equipments or attached in block or cement form.
- 9.2.4 The contractor shall adhere to all statutory measures for dealing with hazardous material in accordance with Control of Asbestos Regulations 2012, and Health and Safety at Work Act 1974.
- 9.2.5 An up to date Inventory of Hazardous Materials (IHM) will be provided to the contractor prior to RPSD.

## 10 Contract Progress Meetings

### 10.1 Progress Meetings

- 10.1.1 Contract Progress Meetings will be held between the Authority Authorised Representative and the Contractor. These meetings will be chaired by the Authority Authorised Representative. The Contractor is to provide, on request, adequate conference room facilities for these meetings.

A typical agenda for a Progress Meeting is as follows:

- Minutes of the last meeting.
- Matters arising.
- Safety.
- Security.
- Cleanliness.
- Dockside Services and Facilities.
- Drawings, guidance and other information.
- Material.
  - a) MOD Equipment Delivery Programme (EDP).
  - b) Contractor Supply Material (CSM).
- Progress Reports.
  - a) Inspections, tests and trials programme.
- Variation orders.
- Quality.
- Defects – particular items not covered above.
- Review of PMP and remaining upkeep period programme.
- Project status – assessment by the Chairman.
- Any other business.
- Date of next meeting.

- 10.1.2 The Authority's Authorised Representative will arrange the first meeting on or about Preps Period Start Date. This first meeting will be the Take in Hand Meeting. Subsequent Progress Meetings will then be held on a regular basis as determined by the Authority's Authorised Representative.

- 10.1.3 The Contractor is to provide to the Authority's Authorised Representative, at least 24-hours in advance of each Progress Meeting, updated copies of the Key Date Schedule amended to reflect both progress to date and proposed changes to the forward programme. Also, to be provided at this time is expenditure/costing information as required under the contract.

- 10.1.4 The Authority's Authorised Representative will determine attendance at the above meetings.

## **11 Electrical**

### **11.1 Regulatory authorities**

All work carried out is to be in accordance with current Institution of Electrical Engineers (IEE) Regulations for Ships.

### **11.2 Isolation**

A "Locked Off and Tagged Out (LOTO)" system is to be maintained in accordance with the Terms and Conditions applicable to this contract.

### **11.3 Handover of the System**

The Vessel Repairer's attention is drawn to the legislative requirements for work on Medium and High voltage systems.

### **11.4 Inspections**

- 11.4.1 Where new equipment is installed, it shall be presented to the Authority's Authorised Representative before the system or equipment is energised.



- 11.4.2 In addition to the motors being presented for survey, any motor inspected ashore is to be presented to the Accepting authority for inspection when exposed and on functional test before return to the Vessel.

## 11.5 Wiring

- 11.5.1 Unless specifically required by individual requirements elsewhere in this specification, all new cables supplied by the Contractor are to be Ethylene Propylene Rubber (EPR) of Limited Fire Hazard (LFH) Halogen Class D to meet the requirements of BS 6833, IET Regulations for Ships and Classification Society Rules.
- 11.5.2 Where cables are disconnected and retained for re-use, the Contractor is to ensure that all cables are tallied and listed to enable correct re-connection later.
- 11.5.3 All new cabling is to be provided with wrap-around labelling stating the cable number/identification, destination and service.
- 11.5.4 Cable trays and clips made from plastics or other flammable materials are not to be used. Where cable trays and clips are used the possibility of electrolytic action occurring is to be avoided.
- 11.5.5 New runs of conduit are to be secured to welded support brackets over their entire length. Support brackets to be stood at least 50 mm off bulkheads, spaced a maximum of 1 m apart and drilled to take conduit clips.
- 11.5.6 Unless otherwise directed, all new cabling is to utilise existing cable trays, routes and penetrations as far as is practicable.
- 11.5.7 The rated voltage of cables is not to be lower than the nominal voltage of the circuit for which it is to be used.
- 11.5.8 On completion of installation, all electrical work is to be tested in accordance with Section 27 of the IEE Regulations for Ships. A copy of test results is to be passed to the MOD Representative.

## 12 Paint Specification

### 12.1 General Instructions for the Preparation and Application of Paint

**Note:** These instructions are to be read in conjunction with individual specification items, which determine scope of work.

- 12.1.1 All paints to be procured by the Vessel Repairer and must not be subcontracted out to the paint applicator. All paints are to be suitable for use in a marine environment and comply with current regulations. If paint systems are to be touched up, then the Contractor must ensure that the over-coating system is compatible with the existing paint system. All epoxy coatings used as primers are to be Surface Tolerant (ST) and suitable for application over mechanically prepared surfaces and compatible with existing paint schemes where applicable.
- 12.1.2 The following instructions are to be adhered to for the duration of this conversion:
- All paints are to be to the Vessel Repairer's account, except where otherwise stated in this specification.
  - A paint manufacturer is to be chosen such that all of the following instructions and conditions are adhered to, whilst still providing guarantees of quality and performance of all products supplied. All registered paint manufacturers are to be approached.
  - The paint systems chosen are to be of the highest quality marine standard for the application stated and are to comply with all current MARPOL



regulations. The Dry Film Thicknesses (DFT) of paint applied in all areas are to be of the stated thickness required by the Manufacturer for that paint system and for that application.

- The individual Specifications elsewhere in the specification may have specific requirements relating to paint application and must be adhered to accordingly. If no specific requirements are incorporated in individual Specifications, then the relevant standards defined in this general paint specification are to be applied to those individual specifications.
- The paint systems and work details are to be presented to the nominated MOD representative for final approval prior to any work commencing.
- All preparation, including blasting and machine scaling, to be carried out in accordance with the latest standards, using the appropriate and approved method for the area concerned, ie. Blasting to SA 2.5, Machine scaling to ST 3 and Hydro Blast to HB2.5. Upon completion of scaling / blasting, all areas of bare steel to have a surface profile compatible with that required by the paint manufacturer for the system under application, and in any case not finer than 35 to 50 Ra. Where the type of preparation used cannot guarantee such a condition, this to be achieved by other means.
- Areas of paintwork to be coated will be specified in individual specifications elsewhere in this document.
- All painting is to be carried out in accordance with this specification and to the requirements of the Authority's Authorised Representative.
- All Primers used are to be of the Surface Tolerant Two Pack Epoxy Type. All External Greywork is to be finished in Polyurethane.

## 12.2 External Coatings

### 12.2.1 Topsides

The following preparation and re-coating instructions apply:-

- Full Blast to SA2.5/HB2.5.
- One x Full Coat (F/C) of appropriate primer.
- One x F/C of undercoat/tie coat.
- One x F/C of finish coat.
- Repair system / Machine Scale to ST3.
- Two x Touch Up (T/U) of appropriate primer.
- One x F/C of undercoat/tie coat.
- One x F/C of finish coat.
- Finish colour to be to Grey BS 676
- Unless otherwise specified, ALLOW for 3% ST3 preparation.
- All Draught marks and Hull markings are to be re-instated on completion.

### 12.2.2 Bulkheads, Deckheads, Machinery, Equipment, Pipes, Handrails, Stanchions etc.

- Degrease, then high pressure fresh water wash at 3500p.s.i. minimum.
- Full Blast to SA2.5.
- One x F/C of appropriate primer.
- One x F/C of undercoat/tie coat. One x F/C of finish coat.
- Finish colour to be to Grey BS 676.
- Repair system. All bare and damaged areas to be blasted/machine scaled to SA2.5/ST3 and edges to disc to a firm edge and feather.
- Two x T/U coats of appropriate primer.
- One x F/C Undercoat / Tie Coat.