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| MSA Unit 102 | **QCF Ref: A/507/3385** |
| Title: | **Control Dredging Operations on Domestic Vessels** |
| Level: | **3** |
| Credit value: | **2** |
| Learning outcomes - The learner will: | Assessment criteria - The learner can: |
| 1. Know the regulatory framework within which dredging operations are carried out | 1.1 Explain the content of Maritime & Coastguard Agency (MCA) ‘M’ notices covering dredging operations1.2 Explain the content of the sections of the Maritime & Coastguard Agency Code of Safe Working Practices For Merchant Seamen covering dredging operations1.3 Explain the importance and impact of the Department for Environment and Rural Affairs dredging licence, the United Kingdom Hydrographic Office Standards, the Marine Management Organisation, and other regulations upon dredging operations |
| 2. Know the different types of dredging vessels, machinery and equipment | 2.1 Describe different types of dredging vessels including:* Self-propelled purpose built dredging vessels
* Barges fitted with dredging equipment towed or pushed by other vessels
* Vessels which can be temporarily fitted with dredging equipment for specific tasks
* Vessels, including dumb barges, for receiving dredged material

2.2 Explain different methods of dredging including:* Ploughing
* Jetting
* Grab
* Cutter suction
* Trailer
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| 3. Know the hazards associated specifically with dredging operations | 3.1 Explain how to deal with suspicious objects in dredged material3.2 Explain the hazards posed by obstructions on the sea or river bed3.3 Explain the hazards posed by cables and pipelines on or under the sea or river bed  |
| 4. Know the stability factors to be taken into account when loading and discharging dredged materials, and ballasting | 4.1 Explain the free surface effect on stability of compartments holding dredged materials and water4.2 Explain the effects on stability of suspended objects used in dredging operations4.3 Explain how to manage the stability condition of a vessel when:* Loading dredged materials
* Discharging dredged materials
* Ballasting
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| 5. Know how to prepare the vessel for dredging operations | 5.1 Explain how to draw up a plan for the intended dredging operation5.2 Explain how to implement the plan5.3 Explain how to brief crew members and other personnel on the plan, including each individual’s tasks and responsibilities, prior to commencement of dredging operations5.4 Explain the need for appropriate Personal Protective Equipment to be worn or used by personnel5.5 Explain how to carry out required checks of equipment and machinery prior to each dredging operation |
| 6. Know how to operate dredging machinery and equipment | 6.1 Explain how to operate machinery and equipment used in dredging operations6.2 Explain how to operate control systems used in dredging machinery and equipment6.3 Explain how the operation of machinery and equipment is maintained within specified parameters6.4 Explain the dangers of working with moving machinery and equipment  |
| 7. Know how to control dredging operations | 7.1 Explain that dredging may only be carried out in authorised and licensed areas7.2 Explain how to maintain liaison and communications with Vessel Traffic Services (VTS) and port authorities having jurisdiction in the area being dredged7.3 Explain the signals and actions required by the International Regulations For Prevention Of Collisions At Sea and local requirements applying in the area being dredged7.4 Explain how to monitor the operation of machinery and equipment used in dredging operations7.5 Explain how to monitor the safety of personnel7.6 Explain that dredged material may only be disposed of in accordance with specified requirements and regulations7.7 Explain how to implement contingency and emergency plans |
| 8. Know how to navigate and manoeuvre the vessel safely during dredging operations | 8.1 Explain how to respond correctly to the movements of other vessels including:* preparing to suspend dredging operations
* taking avoiding action if a risk of collision exists

8.2 Explain how to manoeuvre the vessel taking into account any limitations imposed on handling characteristics when the vessel is dredging  |
| **Additional information** |  |
| Additional information about the unit | This unit is designed for study by those working towards meeting the requirements for a BML (Boatmaster Licence) Dredging Endorsement. |
| Unit aim(s) | The aim of the unit is to provide the knowledge underpinning proficiency for controlling dredging operations on domestic vessels, including the requirements for a BML Dredging Endorsement |
| Unit expiry date |  |
| Details of the relationship between the unit and relevant national occupational standards (if appropriate) | MSA Maritime NOS 2012: A01, B14, E11 |
| Details of the relationship between the unit and other standards or curricula (if appropriate) | MCA syllabus for the BML Dredging Endorsement |
| Assessment requirements specified by a sector or regulatory body (if appropriate) | Knowledge will be tested either in writing or orally, (and if the latter subsequently recorded).  |
| Endorsement of the unit by a sector or other appropriate body (if required) | Maritime Skills AllianceMaritime & Coastguard Agency |
| Location of the unit within the subject/sector classification system | Transportation Operations and Maintenance |
| Name of the organisation submitting the unit | SQA, for the Maritime Skills Alliance |
| Availability for use |  |
| Availability for delivery |  |
| Guided Learning Hours | 20 |