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Overview of ship recycling in the UK

Guidance

February 2007

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2 INTRODUCTION

1.1 Guidance Overview

1.1.1 In March 2005, the Department for Environment, Food and Rural Affairs commissioned a consultancy, BMT Defence Services Limited, to undertake a study of ship recycling capability in the UK. The findings of this study form the basis of this guidance report.

1.1.2 The purpose of this report is to provide an overview of the technical and regulatory requirements to operate ship recycling facilities in the UK. In addition, a non-exhaustive list of potential sources of assistance, including funding, for those wishing to engage in the industry is provided.

1.1.3 It should be noted that this report provides only a general overview of the main technical and regulatory requirements to operate ship recycling facilities. This is by no means an exhaustive list and any site operators intending to engage in ship recycling activities are strongly recommended to take their own advice from relevant professionals on all legal and regulatory as well as technical aspects.

1.1.4 The report is divided into three sections.

Technical Requirements

1.1.5 The first section provides information on the main technical aspects which should be considered when preparing a site to undertake ship recycling activities. These include site, staff, equipment and infrastructure requirements. In addition, requirements at each stage of the ship recycling process are outlined, including preparation of the ship for recycling, the dismantling process and the management of waste resulting from the activity.

Regulatory Requirements

1.1.6 The regulatory section considers the issue of ship recycling in the international policy context and proceeds to investigate domestic regulatory requirements to operate facilities in the UK. This section provides information on the regulatory requirements applicable to the development and operation of ship recycling facilities, with focus on the consents, permits and licences required for such facilities, and the situation where vessels are imported into and exported from the UK for recycling.

Possible Assistance and Funding Streams

1.1.7 The final section outlines possible sources of European, national, regional and local assistance, including funding, potentially available

for the development of recycling capacity in the UK. Procedures and eligibility criteria associated with the various funding streams are also provided.

1.2 Requirement for UK Ship Recycling Capability

Background

1.2.1 Following the import of four decommissioned US naval vessels by Able UK in 2003, the subsequent Ballard (Defra) and Environment Agency reviews, and the Environment, Food and Rural Affairs (EFRA) Committee's report on 'Dismantling Defunct Ships in the UK' , it was recognised that clear guidance for the dismantling of vessels in the UK is required. It was highlighted that both ship owners and ship recyclers need guidance on the regulatory regimes relevant to ship recycling in the UK and information on any assistance available to stakeholders involved in the recycling process.

1.2.2 It is estimated that the International Maritime Organization's (IMO) decision to phase-out single hulled tankers by 2015 will result in 400 EU flagged vessels requiring disposal . The ship recycling industry is predominantly based in Asia, particularly South Asia, where there is concern that adequate health, safety and environmental standards are not being met. The DNV/Appledore Reports produced in 2001 and 2003 covered the European-wide scene reporting that there are currently few quality ship recycling facilities in Europe that can compete economically on the scale of Asia.

1.2.3 There is a need to clearly define and identify current and potential ship recycling capacity in the UK that complies with applicable legislation and regulatory regimes, ensuring that these activities are conducted in a safe and sustainable manner.

1.2.4 There is an assumption that if a facility can build a ship, it is feasible for it to dismantle it. However, it is the public perception of the ship 'breaking' industry as an environmentally unfriendly and unsafe business that evokes controversy. With forethought and a nurtured image, a new ship 'recycling' business in the UK could be an acknowledged industry, providing that site infrastructure, local regulation and environmental management procedures are adopted with a cost structure attractive to commercial ship owners.

1.2.5 In order to develop a sustainable ship recycling industry within the UK, there will need to be a long term supply of ships that require dismantling, together with the demand for reusable and recycled materials. There is also a need to address key environmental and safety related issues.

1.3 Sources of Vessels for Recycling

Commercial Vessels

1.3.1 Once a commercial ship owner makes the decision to dispose of a ship, a Ship Broker is normally employed to either sell the vessel for further trading, or if it is not economically viable for re-use, to sell it onto a Cash Buyer Intermediary. They would in turn source and sell the vessel onto a ship recycler, who then becomes the legal owner of the vessel. This process is illustrated in Figure 1.1 below.

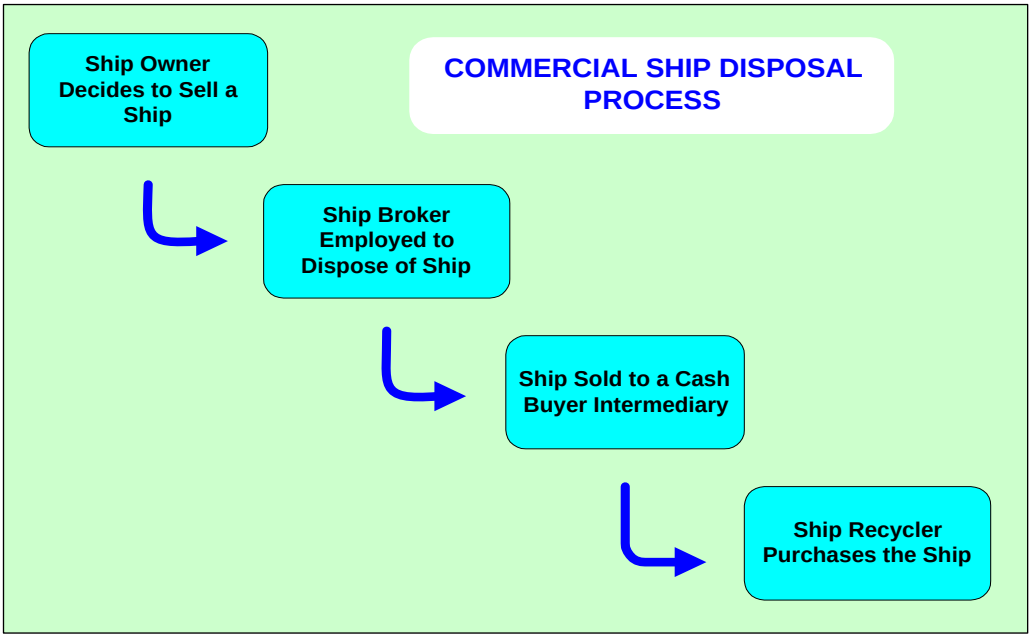

Figure 1.1 The Commercial Ship Disposal Process

Government Owned Vessels

1.3.2 Naval vessels constitute the majority of vessels that are classed as Government-owned, although there are numerous other fisheries, research and patrol vessels which are owned by other UK Government agencies. For naval vessels owned by the Ministry of Defence (MoD), the decision to dispose of a ship is made by the relevant MoD authorities in consultation with the Disposal Services Agency (DSA). Assuming the vessel is not sold to another government or country for use as a warship, it is directed to storage under the care of the Disposal and Reserve Ships Organisation (DRSO), normally at Her Majesty's Naval Base (HMNB) in Portsmouth. The vessel is then placed on a Commercial List for sale either as a commercial/private vessel or for dismantling.

1.3.3 Upon handover to DRSO, the vessel undergoes a preparatory phase whereby useful military items are removed (see section 2.8.11 for further information) and will remain in DRSO's custody in a safe state of preservation until it is sold.

Oil and Gas Structures

1.3.4 On a global basis, there are over 6,250 offshore oil and gas installations, which will require decommissioning in the near future - 4,000 in the Gulf of Mexico, 950 in Asia, 700 in the Middle East and 600 in the North Sea and North Atlantic .

1.3.5 Approximately 470 structures that are currently extracting oil and gas from the UK Continental Shelf will need to be decommissioned . These structures range from subsea equipment fixed to the ocean floor, to massive platforms used for deeper (200m) sections of the North Sea constructed to withstand harsh weather environments.

1.3.6 There are many similarities between major ship recycling operations and the dismantling of large oil and gas structures, for example:

a. Dismantling the topsides will have to be undertaken using a combination of cold and hot cutting techniques;

b. The site to be used to dismantle the structure would likely require a near-identical set of regulatory consents/permits compared to a ship recycling facility;

c. The process governing the recycling will be similar, as well as the resultant materials requiring recycling.

1.3.7 The recent decommissioning proposal for the North West Hutton facilities by BP Exploration provides a useful insight into the likely volume of material to be managed by a recycling facility. From this structure and associated facilities alone, there are approximately 30,000 tonnes of material (primarily steel and iron) that need to be considered during the decommissioning programme. The topside represents the majority of the material at 20,000 tonnes and is largely steel, in addition to minor quantities of wood, glass and plastic that could be recycled without pre-treatment.

2 TECHNICAL REQUIREMENTS FOR SHIP RECYCLING

It should be noted that this section provides only a general overview of the main technical requirements to operate ship recycling facilities. This is by no means an exhaustive list and any site operators intending to engage in ship recycling activities should take their own advice from relevant professionals on all technical aspects.

2.1 Facility Size, Layout and Location

2.1.1 Although there is already a number of existing ship dismantlers of various sizes in the UK, current or past shipyards could potentially make good candidates for operation as ship recycling facilities. Alternatively, in line with Government policy, existing brown field sites could be used for those wishing to enter the industry. This is providing the cost balance has been addressed between the capital investment required to build a compliant facility and the number and size of vessels available for recycling in the longer term, together with a commercial need for recyclable materials of comparable prices.

2.1.2 Whether an existing or a potential site, it is important that a recycling facility has the capability to recycle the ships it purchases in compliance with UK legislation and the relevant international conventions. In particular, it would be necessary to have regard for, and where necessary comply with, the relevant guidelines developed by International Labour Organization (ILO) on Safety and Health in Ship Breaking , the Basel Convention Technical Guidelines for the Environmentally Sound Management of the Full and Partial Dismantling of Ships and the IMO Ship Recycling Guidelines .

Facility Size and Layout

2.1.3 The general layout of a site will depend on its geographical location, site size, existing infrastructure and neighbouring sites. The size of a facility is dependant on the number of vessels it can process simultaneously. Whilst there is no recognised standard for sizing ship recycling facilities, the following criteria have been adopted for the purpose of this guidance:

SMALL FACILITY	MEDIUM FACILITY	LARGE FACILITY
Process <10 ships with a:	**Process 10–20 ships with a:**	**Process >20 ships with a:**
Ship Length <100m	Ship Length >100m to <200m	Ship Length >200m
Ship Draft < 4m	Ship Draft > 4m to < 6m	Ship Draft > 6m
Annual tonnage of:	**Annual tonnage of:**	**Annual tonnage of:**
< 10,000 Light Displacement Tonnes	10,000 to 65,000 Light Displacement Tonnes	> 65,000 Light Displacement Tonnes
Site area of:	**Site area of:**	**Site area of:**
< 5 Hectares	5 to 50 Hectares	> 50 Hectares

Table 2.1 Indicative Criteria for Sizing a Recycling Facility

2.1.4 Although general sizing criteria have been offered, it must be noted that docking and berthing facilities need also be considered. For example, a single dock may be able to process either one large vessel or three smaller ones. Therefore, care must be taken when considering the scale of an operation. However, the general size of the facility will largely depend on access of vessels from the sea, the space available to hold and process ships and the accommodation of site infrastructure.

2.1.5 The layout of a site will depend on the configuration of an existing facility or the topography of a brown field site. Figure 2.1 below illustrates the general layout for a medium sized ship recycling facility that is able to process between two to four frigate sized ships. As illustrated, two ships are in transit in the wet berth, whilst the other is in the dry dock. The illustration is not definitive or to scale, but serves to present the general layout concept.

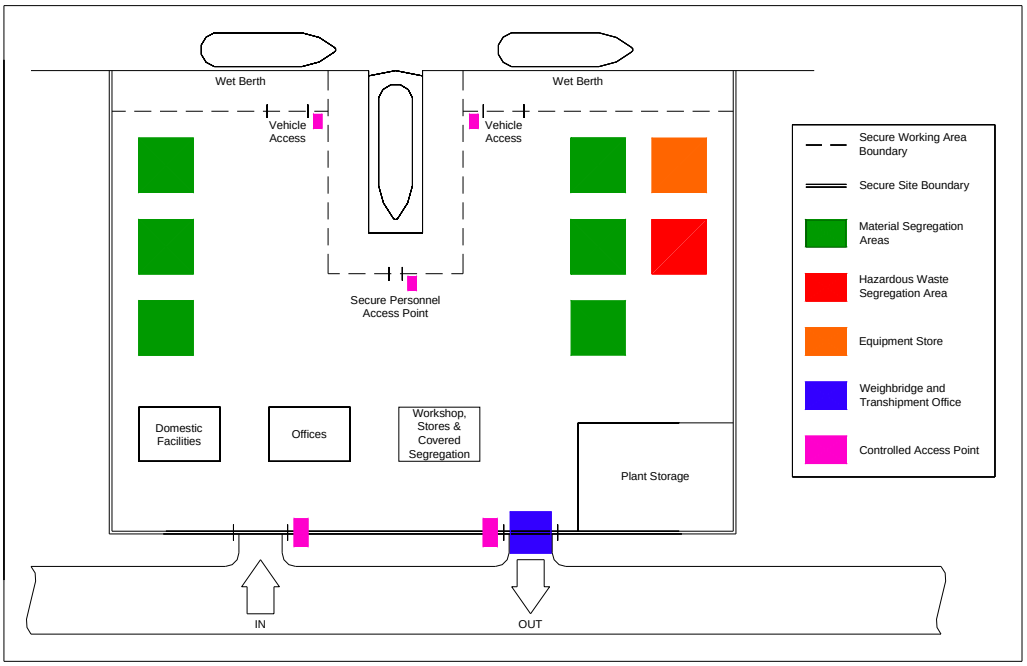

Figure 2.1 Indicative General Layout of a Medium Sized Ship Recycling Facility

Facility Location

2.1.6 In order for operators to engage in ship recycling, the geographical location must be suitable for the scale of operation. A larger site would ideally be located on the coast close to shipping route access. This type of facility would be suitable to process larger commercial vessels.

2.1.7 Smaller facilities could operate either on the coast or beyond the estuarine point providing access and environmental conditions prevail. This type of facility is suited to processing smaller ships such as fishing vessels.

2.1.8 In order to be effective, existing and potential ship recycling sites are to have access from the sea. This access must have sufficient depth of water to allow appropriately sized vessels to be brought safely into a wet berth or direct to a dry dock with no obstructions such as low lying bridges or narrow waterways.

2.1.9 The local road infrastructure is to be considered when locating a recycling facility. In the case of a new construction, or significant reconstruction of an established site, the ability of the road links to handle the construction traffic must be assessed. When the facility is in operation, the recovered materials will need to be transported off site for further use. Even a recycling process will generate waste that cannot be reused; this will need to be transported to either a hazardous or non-hazardous waste processing or disposal facility.

2.1.10 A rail and sea haulage link near the facility would be advantageous for transporting recycled goods and waste as it greatly reduces the road transport load. It also provides ready access to foreign markets where recovered scrap metal prices tend to be higher.

2.1.11 The existing development surrounding the site must also be considered. The facility must not impact on or pollute neighbouring sites, cause an adverse visual intrusion, or odour or noise related nuisance.

2.1.12 A facility must not adversely impact on sensitive environmental designated areas. Table 2.2 below presents a list of designated areas (definitions of these designated areas are available at Annex A). It must be noted that location near a designated area would not necessarily prohibit a site's operation, but would require appropriate environmental management and mitigation procedures if otherwise acceptable. The constraints each type of designation would impose will vary, and intending operators should refer to the relevant national and local guidance on how they are applied.

DESIGNATED AREAS
Site of Special Scientific Interest (SSSI)
Blue Flag award scheme designation
World Heritage Site
Areas of Outstanding Natural Beauty AONB/NSA
Ramsar Site (Wetlands)
National Park
National Nature Reserve
Designated Monuments
Environmentally Sensitive Areas
Heritage Coast
Ancient Woodland
Special Protection Areas (SPA)
Special Area of Conservation (SAC)
Green Belt
Local Environment Agency Plans (LEAP)
National Forest
Woodland Trust Sites
Listed or archaeological sites
Doorstep Greens

Table 2.2 Designated Areas

2.1.13 As with any commercial enterprise, when considering a potential recycling site, the socio-economic conditions must also be taken into account. It would be expected that any potential or existing facility will bring economic benefit to an area, offering direct and indirect employment to the local population. However, as noted in Table 2.3, direct employment may be limited and would depend on a regular throughput of vessels.

2.2 Docking Conditions for Dismantling Ships

2.2.1 There are various options for the location of a ship recycling facility. Once a ship comes alongside in the facility, there must be adequate, stable and safe moorings whilst it is waiting for, or being subjected to, preparation prior to dismantling.

2.2.2 Preferably, a ship would enter a recycling facility and be placed directly into a wet berth to undergo the preliminary work, removing the top super structure down to the hull. It would reside at this mooring until a dry dock becomes available for the final disassembly down to the keel. However, not all sites are necessarily set up this way and may have a large dry dock facility as illustrated in Able UK's facility in Figure 2.2 below.

Figure 2.2 Dry Dock at Able UK[1]

2.2.3 Once the vessel is in its final stages of being dismantled from the top of the hull down, it must be maintained in a stable condition. There are various docking options for the final dismantling of a ship including the following:

a. Dry Dock;

b. Floating Dry Dock or Flat Top Barge;

c. Slipway;

d. Wet Berth;

e. Beach or River Bank.

[1] Courtesy of Able UK.

Dry Dock

2.2.4 A dry dock is the preferred option to dismantle a ship with it sitting either on blocks or on its hull. A dry dock can facilitate the control of accidental spillage and provide land access around the whole ship.

2.2.5 It is normal for a dry dock to have some water running into it from land drainage, leakage from dock gates, rain water or any spillage from the ship. This effluent is to be continually pumped out and stored ready for treatment[2] on or off site. Standby or fixed cleanup facilities are to be available for the treatment or removal of effluent in the event of an accidental spillage.

2.2.6 Those potential recycling facilities that have enclosed wet berthing facilities but have no dry dock may wish to invest in the modification of a wet berth into a dry dock, depending on the ship dismantling method adopted.

Floating Dry Dock or Flat Top Barge

2.2.7 Floating dry dock or flat top barge are structures that are submersible. The ship is positioned over the submerged dry dock/barge and the water pumped out until the ship is clear of the water. As an added measure, a cofferdam could be placed around the ship to contain any accidental spillage. Floating dry dock structures may be susceptible to damage during the dismantling operation and will require constant management.

Slipway

2.2.8 A slipway is a sloping concrete hard standing leading from above high water mark to a depth where the ship is floated off the cradle and launched. For the purposes of dismantling, the ship will be hauled up the slipway. Once in place, the ship is dismantled internally and the hull cut down. Management procedures are to be in place to ensure the ship remains in a stable condition during disassembly and that any contamination is contained.

Wet Berth

2.2.9 Within a wet berth, the ship is moored alongside at the quay whilst being dismantled. This option can be used to remove the internal components of the hull but care must be taken over the ship's stability as major items are removed. Management procedures are to be in place to ensure the ship remains in a stable condition during disassembly. Once the internal items are removed, the vessel would need to be moved out of the water to strip the hull. This can lead to

[2] The effluent from a dry dock may not need to be treated if pollution precaution principles are taken and the run-off is not contaminated. This applies to natural seepage from dock gates and storm and rain water.

further problems of control and stability. A Synchro Lift can be used to remove the vessel from the water to a suitable work area.

Beach or River Bank

2.2.10 Grounding a vessel on a beach or a river bank is the least desirable option in terms of environmental management and site safety. A ship is grounded at high water and dried out at low tide and is therefore dismantled both in and out of the water depending on the tidal range. The beaching option presents the least control for spillage of contaminants for both liquid and solid wastes. It is this lack of control that leads to the unacceptable image of this technique.

2.2.11 In practice, vessels grounded on a beach or a river bank for the purpose of dismantling will not gain the necessary planning permission, waste management licence or any other relevant consents in the UK. This option has been included in this guidance for completeness.

2.3 Docking Size Requirements

2.3.1 The space requirements for docking and dismantling ships are largely dependent on the type of ships the facility wishes to dismantle and what infrastructure it already has in place. For those sites that were previously ship builders, suitable dock facilities and slipways may still be available. Assuming a recycling site has an existing dry dock, the limiting factor will be the width of the dock's gate, which should include a one metre (1m) clearance either side of the ship as it is towed/hauled through the gate.

2.3.2 The following example is for illustration purposes only and presents the size of dock required to dismantle the hull of a Royal Navy Frigate. If a vessel with an overall length of 150m, beam of 18m and a draft of 5m was to be dismantled, the facility would need a dry dock with an overall length of 154m, a breath of 22m and a draft of 7m. The calculation assumes a 2m gap between the dock wall and the hull is sufficient space to dismantle a ship. It also assumes a 2m allowance below the ship's hull for appropriate keel blocks and shores.

2.3.3 If cranes are required to assist in the dismantling of a ship, extra clearance will be required. A further 2m must be added to the draft to accommodate the bow dome, if fitted, and propeller. Figure 2.3 below illustrates the general dry docking requirement for an individual ship.

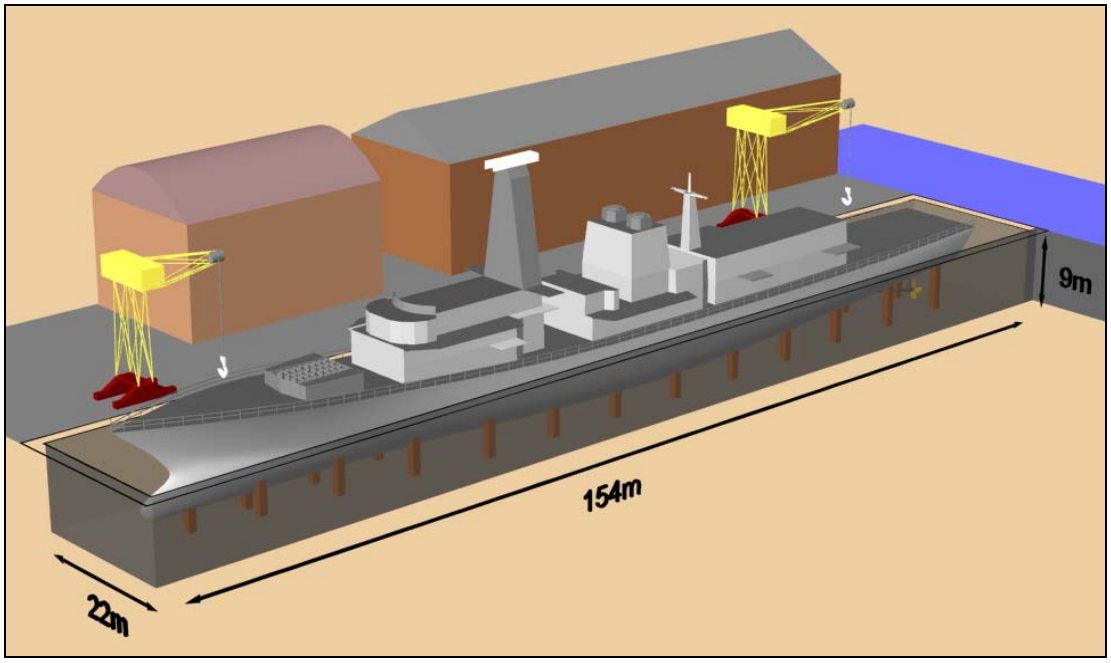

Figure 2.3 General Dry Docking Requirements for a Frigate

2.3.4 Current recycling techniques do not always include docking a ship on keel blocks but allowing it to sit on the dock's bottom. It is important the vessel remains stable throughout the whole dismantling process and the decision for this will need to be made and included in the ship recycling plan (see section 2.9.1 for further details).

2.4 Facilities on Site Required to Recycle Ships

Site Security

2.4.1 There is a requirement for site and perimeter security. The facility must have safe and secure access from the landside through a controlled system of access. There are to be additional controls in place for those staff who are actually involved in dismantling the ship and this is best achieved by monitoring access to the ship.

Site Storage and Workshop Facilities

2.4.2 During the ship dismantling process, valuable or reusable equipment from the ship will need to be catalogued and safely stored as it is removed. Examples of these equipments may include the ship's prime mover, generators, valves, pipework, furnishing, instrumentation, etc.

2.4.3 As the ship is prepared for dismantling, all solid and liquid waste must be removed and safely stored or taken directly off-site using licensed contractors. If stored on site, appropriately sized bunded holding tank storage facilities will be required for liquid waste such as black and grey water, fuel and oils.

2.4.4 Hazardous wastes removed from a ship will require separate, marked compounds.

2.4.5 A site workshop will be required to strip down recycled equipment further, to make general repairs or conduct maintenance on the site's equipment.

Office Facilities

2.4.6 The site will require an office that contains site management, company commercial staff and from where the operations can be controlled, permits issued and the ship's drawings can be displayed. Office space will also be required for the control of store facilities.

Staff Facilities

2.4.7 The site will require appropriately sized staff facilities which should meet the requirements of the Workplace (Health, Safety and Welfare) Regulations 1992. These should include sufficient sanitary and washing facilities, including showers and restrooms, and a first aid point.

2.4.8 The facility should also include individual storage of Personal Protective Equipment (PPE) for staff (see sections 2.5.4 and 3.5.55 for PPE requirements), changing rooms and lockable personal cupboards. Facilities for taking breaks should be available. In the event of a spillage incident, the facility should consider the diversion and storage, and possible treatment of laundry and washing water containing high concentrations of contaminants.

2.4.9 Additional facilities will need to be provided in certain circumstances e.g. when work with asbestos or lead is being carried out.

2.5 Site Health, Safety and Environmental Requirements

2.5.1 Any site wishing to engage in this industry would have to demonstrate high standards of Health, Safety and Environmental management.

Health and Safety Management

2.5.2 The Director of a company should be responsible for employee's health and safety. The work activities are covered by the Health and Safety at Work etc. Act 1974 and the Management of Health and Safety at Work Regulations 1999. The Act requires employers to ensure, so far as is reasonably practicable, the health and safety of their employees, other people at work and members of the public who may be affected by their work. Employers should have a health and safety policy and ensure that employees understand the health and safety systems that are in place. The Management Regulations require employers to plan,

control, organise, monitor and review their work. To do this it will be necessary to:

a. assess the risks associated with the work and to identify the control measures necessary to reduce these risks. This risk assessment process is central to all planning for health and safety;

b. have access to competent health and safety advice, in most cases, a site health and safety manager;

c. provide health and safety information and training to employees;

d. have arrangements to deal with serious and imminent danger; and,

e. cooperate in health and safety matters with others who may share the workplace.

2.5.3 All new employees at the site must attend a company induction course, which must include a safety brief. All visitors to the site should also attend a safety brief. There must be controlled and safe access to the site, and to and from the vessel(s) being dismantled. The site must also provide safe and rapid access for the emergency services.

2.5.4 Where workers are exposed to hazardous substances as a result of their work, the Control of Substances Hazardous to Health Regulations (COSHH) 2002 make it a legal duty to assess the health risks involved and to prevent or else adequately control it. If, and only if, exposure to hazardous substances cannot be adequately controlled, then suitable personal protective equipment (PPE) should be provided. This could include:

a. respirators to protect against dusts, vapours and gases;

b. protective clothing such as overalls, boots, gloves;

c. eye protection.

2.5.5 The correct type of PPE needs to be selected. Users need to know why it has to be worn, how it is worn and what maintenance checks need to be carried out.

2.5.6 In addition to PPE required by the Personal Protective Equipment at Work Regulations 1992, additional legislation may require the provision of other equipment such as hard hats and hearing protection.

2.5.7 The range of health and safety legislation which may be applicable to ship recycling is outlined in section 3.5.

Environmental Management

2.5.8 Environmental management on site is required to operate in accordance with planning permission and/or other relevant consents. Depending on the circumstances, it is possible that an Environmental Impact Assessment (EIA) will be required before a site has permission to operate as a ship recycling facility (refer to section 3.4 for further details). If required, it is likely an EIA will have been conducted by a multi-disciplined team of environmental scientists and engineers. The resulting Environmental Statement (ES) from the EIA process should be submitted with the planning application.

2.5.9 An EIA should list potential environmental impacts associated with the complete operation of the site's activities. It should also consider the scope for mitigation measures towards compliance with legislation and environmental management. These are likely to be reflected in the conditions attached to planning permission, waste management licences and pollution control authorisations. Generally, the following environmental aspects of ship dismantling will need to be managed:

a. Liquid waste control, including hazardous waste;

b. Solid waste control, including hazardous waste;

c. Visual intrusion from ship dismantling;

d. Noise and odour control;

e. Air pollution;

f. Light pollution;

g. Flora and fauna protection (see list of designations in Table 2.2 and definitions at Annex A);

h. Transportation to and from the site;

i. Emission control from engines, generators and cutting equipment.

2.5.10 The EIA should identify any substances identified under Water Framework Directive as priority or priority hazardous substances that may be present and set out proposals to ensure that the objectives of Water Framework Directive are fully met.

2.5.11 Although not mandatory, it is advisable for a ship recycling facility to implement an Environmental Management System (EMS), similar to the ISO 14001 Standard. Apart from identifying operational cost saving measures, implementing an EMS and publishing an Environmental Policy is recommended best practice. The implementation of an EMS

enables effective environmental management of the site and better identification of, and response to, routine legislation.

2.5.12 The general requirements of an EMS in accordance with the requirements of ISO 14001 include:

a. Formal identification of environmental aspects;

b. Formal identification of legislation and standards;

c. Identification of environmental objectives and targets;

d. Identification of resources, roles, responsibility and authority;

e. The requirement for competence training and awareness;

f. Production of documented procedures;

g. Control of documented procedures;

h. Operational control of environmental management;

i. Emergency preparedness and response;

j. Auditing and review.

2.5.13 The EMS would generally be set up by suitably qualified persons and be subject to an independent audit. If the EMS requires certification to ISO 14001, it would be audited and certified by an accredited body, who would periodically conduct a review to maintain the certification. The maintenance of the EMS would be the responsibility of a nominated competent site officer.

2.6 Staff Required to Operate a Ship Recycling Facility

2.6.1 Table 2.3 provides an estimate of the type and number of staff required to dismantle a vessel of 2,500 - 5,000 tonnes in an established recycling facility, not including shift staff and subcontractors. The actual numbers of staff will depend on the size of the facility, the number of ships being dismantled and the time allocated for the dismantling process.

2.6.2 The management staff would not necessarily be dedicated to a single ship recycling project. The staff may either be permanent or contracted for a specific task. Within the dedicated project team, it is advisable to have first aid trained staff, a store person, security and clerical staff, who may service more than one project at anyone time.

GRADE	STAFF TYPE	STAFF NUMBER
MANAGEMENT:	Project Manager	1
	Health, Safety and Environmental Manager	1
	Quality Assurance Manager	1
	Human Resource Manager	1
	Competent Waste Manager	1
TECH SPECIALISTS:	Professional Engineers	2
	Demolition Engineer	1
SUPERVISORY:	Project Foremen	1
	Store Person	1
TECH AND SUPPORT:	Clerical Staff	2
	Welders and Gas Cutter Operators (double as Fire Watchers)	4
	Mechanics	2
	Electricians	2
	Plant Operators (2 plants)	2
	Crane Operators (2 cranes)	2
	Forklift Operators	3
	Support Store Person	2
	Security Staff	4
	Labourer Staff	6
TOTAL STAFF		**39**

Table 2.3 Indicative Staff Required to Dismantle a Ship

2.7 Equipment Requirements for Ship Recycling

2.7.1 The equipment required to dismantle a ship would depend on the operational requirements and the amount of investment a site owner is willing to make. Table 2.4 illustrates the equipment required to dismantle a ship.

EQUIPMENT	REQUIREMENT
Fixed and Mobile Cranes	To lift the sections of dismantled ship onto the ground or clear of the ship.
Spider Grabs/Magnetic Lifts	Suspended from the cranes to lift the steel sections to the storage area.
Lifting Gear	Slings, winches, chain blocks and ropes to remove machinery from the vessel.
Mechanical Movers	Either tracked or all terrain vehicles that support hydraulic arms to operate the hydraulic shears.
Hydraulic Shears and Gas Burning Equipment	To cut the metal.
Forklift and Dumper Trucks	To transport dismantled parts from the ship to their designated storage area.
Magnet	To check ferrous or non-ferrous metal.
Gas Detectors and Oxygen Meters	To ensure the atmosphere within a space does not contain elevated levels of dangerous gases.
Transformers	To provide 110V supply from 240v or 415v main.
Portable Air Fans and Trunking	To supply air to confined spaces or during localised burning extract fumes.
Temporary Lighting and Hand Lamps	Lighting for safe passage around a ship once power has been shut down.
Hand Tools and communication equipment	Hammers, hacksaws, punchers and spanners to dismantle items and radios for communication.
Sounding Tape	To sound the oil cargo and ballast tanks (measure depth of liquid).
General Service Pumps with Suction and Discharge Hoses	For the pumping liquids from tanks and bilges.
Oil booms and Oil Dispersant	Part of emergency kit in case of oil spill.
Oil Skimmers	For removing oil from the surface of water.
Fire Fighting Equipment	For emergency use for workers.
First Aid Kits	For emergency use for workers.
Protective Clothing and Equipment	Personal Protective Equipment for staff conducting specific tasks.
Breathing Apparatus Sets	For entering contaminated spaces in emergency.
Clean Fuel and Oils	For site vehicle maintenance.

Table 2.4 Indicative Equipment Required for Dismantling a Ship

2.8 Preparation of the Ship Prior to Recycling

The IMO Green Passport

2.8.1 The International Maritime Organization (IMO) adopted guidelines on ship recycling in 2003 which provide advice to all stakeholders in the recycling process. The Guidelines refer to the use of a Green Passport, which is designed to document all potentially hazardous materials known to be on board a ship.

2.8.2 The production of the Green Passport should ideally begin during the construction phase of a ship and should list potentially hazardous materials found within the makeup of the ship and its equipment and systems. Once the construction is complete, the Green Passport should be maintained throughout the ship's operating life.

2.8.3 Successive owners of the ship should maintain the Green Passport and incorporate into it subsequent design and equipment changes. When a vessel comes to the end of its life, the Green Passport should be passed onto to the recycling facility.

2.8.4 Under the scheme, the Green Passport should contain the following information:

a. The name of the State whose flag the ship is entitled to fly;

b. The date on which the ship was registered with that State;

c. The date on which the ship ceased to be registered with that State;

d. The ship's identification number (IMO number), if relevant;

e. The hull number on new-building delivery, if relevant;

f. The name and type of the ship;

g. The port at which the ship was registered;

h. The name of the ship owner and its address;

i. The name of all classification society(ies) with which the ship is classed;

j. The ship's main particulars (Length overall (LOA), Breadth (Moulded), Depth (Moulded), Light Ship Weight);

k. Shipbuilders name and address.

2.8.5 A key part of the Green Passport is a shipboard inventory containing known and potentially hazardous materials. This will include the

locations and the approximate quantity or volume of these materials. The inventory is split into the three parts, which include:

a. Part 1 - Potentially hazardous materials in the ship's structure and equipment;

b. Part 2 - Operationally generated wastes;

c. Part 3 - Stores.

2.8.6 Care must be taken in identifying hazardous materials in and on a ship. Documentary records may be missing or inaccurate, particularly as to the type and quantity of hazard. It will often be necessary to have surveys undertaken prior to commencing dismantling activities.

Preparation of Commercial Vessels

2.8.7 Commercial vessels are delivered to the recycling site in one of two configurations: either as a dead ship with no high energy systems functioning; or fully functioning under their own power with the generators on line and pumps in working order.

2.8.8 It is anticipated that when the crew disembark, fuel and stores will remain on board. Therefore, unless documentary evidence exists, it should be assumed the following hazardous substances may be onboard (non-exhaustive):

a. Fuel from bunkers and lines;

b. Lead and TBT/TPT based paint systems;

c. Lubricating and hydraulic oils;

d. Phenol foam lagging and combustible plastics;

e. Refrigerants from air conditioning and refrigeration systems and halons;

f. Asbestos (dependant on the age of the ship);

g. PCBs (dependant on the age of the ship);

h. Solid wastes from settlement tanks;

i. Contaminated bilge water;

j. Sewage and grey water;

k. Residual cargo contents;

l. Ballast water and sediments;

m. Frozen food stuff.

2.8.9 How the ship is delivered to the recycling facility would depend upon the purchase contract between the ship recycler and the ship owner/cash intermediary. It is more cost effective for the ship to be delivered under power to the facility by the ship owner/cash intermediary who has the manpower, fuel, insurance and statutory certificates in place to operate the ship.

2.8.10 If the ship has been laid up prior to disposal, it is likely that it will have been towed to the facility. In this scenario, it is probable that the statutory certificates will have expired and the ship will have to be issued with a loadline exemption certificate (see section 3.6.20). It must also be surveyed to ensure that it is in a fit condition to undergo a delivery voyage.

Preparation of MoD Vessels

2.8.11 It is normal for a warship to be de-commissioned at a Naval Base, where classified equipment and hazardous items would be removed. If any hazardous substances could not be removed immediately they would be declared accordingly. It is typical for the following items to be removed:

a. Armaments and ammunition;

b. Navigation equipment;

c. Communication equipment;

d. Combat Systems equipment;

e. Electronic Warfare equipment;

f. Sonar equipment;

g. Signature reduction items;

h. Sewage;

i. All foodstuffs and perishable stores;

j. Medical stores;

k. Refrigerant gases and Halons (Montreal Protocol substances);

l. All radioactive items.

2.8.12 It is unlikely that a MoD owned ship would be able to move using its own propulsion to a recycling facility. Therefore, the same towing arrangements and certification would be required as for a 'dead' commercial ship, whereby the ship would have to be issued with a loadline exemption certificate and be prepared for an unmanned tow. It would also need to be surveyed to ensure that it was in a fit condition to undergo the delivery voyage.

2.9 The Ship Dismantling Process

Ship Recycling Plan

2.9.1 The IMO has published guidelines on the preparation of a Ship Recycling Plan to ensure occupational health and safety and environmental issues are addressed during the dismantling process and that wastes arising from ships are properly identified and handled.

2.9.2 A ship recycling plan must be produced by a professionally competent body or person. It should take into account details contained in the Green Passport (refer to section 2.8.1 for further details) and any technical advice from the shipbuilder and owner. The plan must include, but may not be limited to:

a. Details of the ship, where it came from with details of certification and ownership (from the Green Passport);

b. Details of any previous advice from the ship owner or builder, if available;

c. Details of surveys to be conducted;

d. Detailed project plan;

e. Detailed human resource plan;

f. Details of when and where the ship is to be located during each phase of disassembly;

g. Detailed dismantling process to be adopted;

h. Details of equipment to be used to dismantle the ship;

i. Detailed stability plan for each phase;

j. A list of major equipment to be removed for reuse;

k. Details of where removed equipment is to be stored;

l. Details for cleaning compartments, pipework and tanks;

m. An overall Waste Management Plan;

n. A Risk Assessment for each phase;

o. A Health, Safety and Environmental Assessment.

2.9.3 Depending on the ship's material state on arrival, the ship recycling plan will need to be further updated to reflect the results of the surveys.

Phase 1 - Preliminary Work Whilst the Vessel is in a Wet Berth

2.9.4 Placing a ship directly into a dry dock will tie up the dock for potentially a long period of time, therefore it is more economical to part dismantle the ship in a wet berth (if available). Before any dismantling takes place, an extensive inspection should be made of the vessel to establish:

a. The amount of liquids and pollutants onboard and their position on the ship;

b. That the drawings of the vessel reflect current configuration;

c. How the areas of possible pollution will safely be dealt with regarding access;

d. Removal, storage and transfer to a licensed waste contractor.

2.9.5 It is usual to remove all the oil, sewage and ballast water at an early stage of the operation. The condition of the ship's pumps and pipework needs to be determined as to whether they can be used or not. When using the ship's pumps, there is usually a quantity of the total oil capacity that cannot be extracted. This oil should be removed by portable pumps with the tanks eventually cleaned manually. If the ship's equipment is not available, then larger portable pumps and hoses are to be used to remove the bulk of liquids. Once liquids are removed, the tanks are to be steam cleaned with the effluent collected. The oil removed in this process will be classified as hazardous waste. It is probable that the ballast water and the liquid used to clean the tanks will be also.

2.9.6 During internal dismantling, strict adherence must be made to the regulations regarding safe access to confined spaces and that gas is monitored from any residue such as leaking pipes, decaying organics or torches from the gas cutting equipment.

2.9.7 The materials taken from the ship are placed in their own storage area, whether re-usable, hazardous or non-hazardous. The amount and type of material is to be closely monitored to ensure it is accounted for

and taken to the correct collection point, regardless of whether it is to be re-used or sold on.

Phase 2 - Dismantling Work Whilst the Vessel is in a Wet Berth

2.9.8 Whilst the ship is in wet berth, it is generally accepted that it will be dismantled top down, depending on the manpower available and safe working procedures.

2.9.9 Once internal items have been removed, the superstructure can be taken away. This is physically removed in either a controlled manner using a crane, or where safe, allowed to fall under gravity to be cut-up further into manageable sizes.

2.9.10 The upper structure will be removed down to the main upper deck level. Once the upper deck is exposed, all re-useable auxiliary machinery items, such as generators, can be lifted out of the vessel. The deck level is slowly dismantled exposing the inner hull, where the ship can be dismantled safely deck by deck, removing furnishings, internal bulkheads, pipework, cabling and tanks en route.

2.9.11 The separated materials taken from the ship are placed in their own storage area, as defined in their waste or re-usable group. The amount and type of material is to be closely monitored to ensure it is accounted for and taken to the correct storage or collection point.

2.9.12 In order to ensure the dismantling process is controlled and retains a positive environmental image, it is important that at the end of each phase, or at an appropriate time, the work area and ship is kept in a clean state with spills or residue cleaned up and fallen debris removed from on or around the vessel.

Phase 3 - Dismantling in Dry Dock

2.9.13 Once the ship is stripped down to its hull, it can be moved to a dry dock using hawsers and capstans. The hull can either sit on the dock floor or on purpose built softwood keel blocks and braced using shores. Once in place, the hull is then stripped of its anti-fouling paint using a blasting technique. Anti-fouling paints may contain Tributyltin (TBT) and if so, washings are to be collected and stored for further treatment (see section 2.10.12 for further information). The ship is then dismantled down to the tank top level where the shafting and engine room equipment is removed. At this point the stern shaft can also be removed.

2.9.14 The keel is the final section of the ship to be dismantled, however this may contain hard ballast such as concrete, which will need to be broken down using appropriate equipment and can be salvaged for re-use as aggregate.

2.9.15 The flow chart in Figure 2.4 illustrates the basic ship dismantling process.

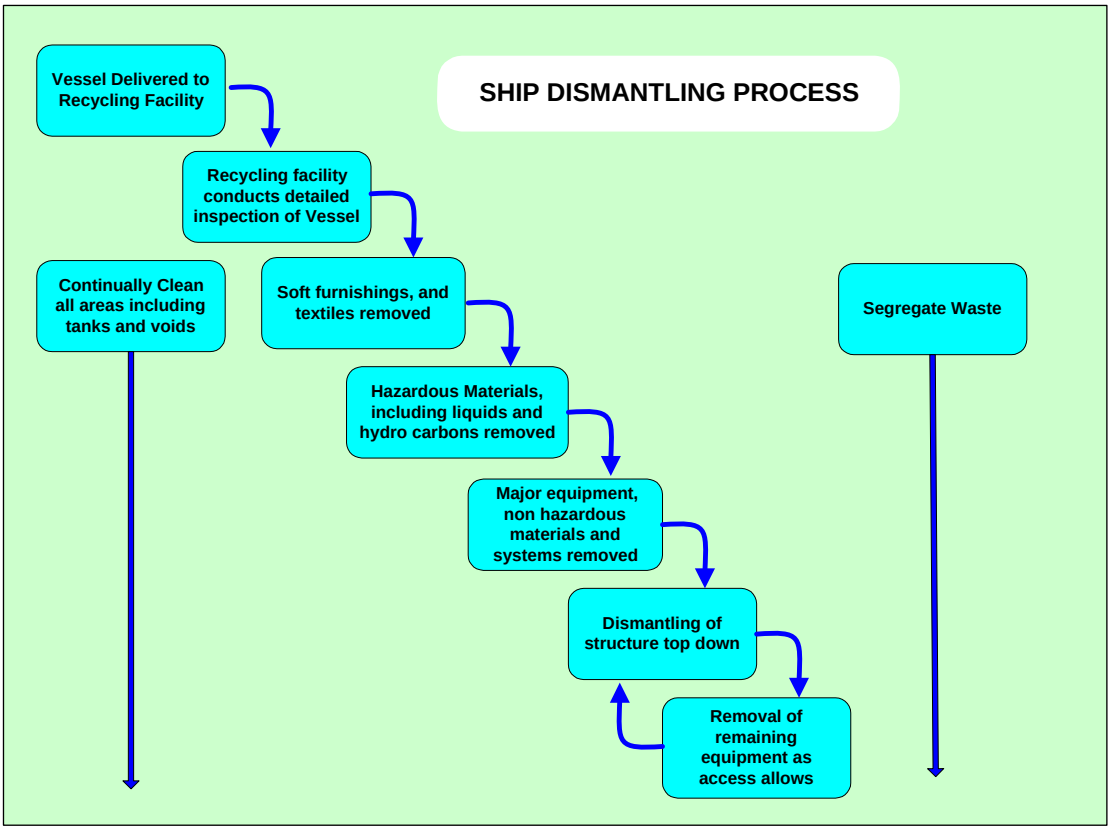

Figure 2.4 Basic Ship Dismantling Process

2.10 Storage of Dismantled Materials

2.10.1 The materials removed from the dismantled ship should be separated and stored in appropriate allocated areas. Chapter 3 outlines the regulations applicable to each waste stream, whereas the section below gives a non-exhaustive overview of the storage conditions for materials.

Oil and Fuels

2.10.2 Residue oil and fuels must be stored in separate bunded storage tanks, which are to be compliant with the Oil Storage Regulations (The Control of Pollution (Oil Storage) (England) Regulations 2001 and the Water Environment (Oil Storage) (Scotland) Regulations 2006) or removed from the site by licensed contractors using appropriate tankers. These are classified as hazardous waste.

Wood and Plastics

2.10.3 Wood and plastics are to be stored in separate storage containers preferably undercover.

Steel

2.10.4 Various grades of steel should be segregated into different areas. Stainless steel is to be separated from standard steel. All the separated steels should be stored in containers or piles ready for removal from the site.

Non-Ferrous Metals

2.10.5 Various types of materials such as copper, brass, lead, zinc and aluminium should be stored in separate containers, preferably undercover.

Wire Cabling

2.10.6 It is good practice for the plastic sheath of wire cabling to be removed. The wire would need to be collected together in one area ready to be sorted into copper and non-copper. The wire should be stripped either on site, or at a facility where the plastic coating will be removed and safely recovered and stored, and the copper recycled.

Waste Electrical and Electronic Equipment (WEEE)

2.10.7 The EC Directive on Waste Electrical and Electronic Equipment aims to reduce the quantity of waste from electrical and electronic equipment and increase its re-use, recovery and recycling to target levels. It also sets out treatment requirements for WEEE to remove the hazardous components. The WEEE Regulations, transposing the Directive in UK law, came into force on 2 January 2007. Equipment that is not built in, e.g. a PC or TV, would be covered and subject to the producer responsibility requirements of the WEEE Directive. However, equipment that is part of another type of equipment not covered by the WEEE Directive (e.g. a ship) is itself not within the scope of the WEEE Directive. Examples of this are installed lighting or built in radios/GPS equipment etc. .

2.10.8 Some WEEE may be classified as hazardous. For example, electrical circuit boards taken from remaining electrical and electronic equipment which contain hazardous materials (such as beryllium coated components, mercury switches, PCB capacitors, etc.) are to be separated and stored undercover as hazardous waste.

Chemicals

2.10.9 Different chemicals need to be identified as acids or alkalis and stored separately. These will generally be classified as hazardous wastes and each container will need to be safely stored to prevent spillage in a lockable compound with appropriate eg secondary, containment and

impervious surfaces to reduce the risk of causing pollution from any spills.

Asbestos

2.10.10 Asbestos has to be removed and handled by a licensed contractor in accordance with HSE asbestos regulations (see Chapter 3). This will involve a three stage containment area with air monitoring whilst the asbestos is being removed. The removed asbestos is to be double bagged and stored safely ready for off site transportation to a licensed landfill site.

Refrigerants and halons

2.10.11 Any remaining refrigerants from the chill plants or air-conditioning systems, or halons from redundant fire-fighting systems that have not been removed during the preparatory phase, must be recovered and destroyed in an environmentally safe manner. Recovery of ozone depleting substances (ODS) must be done by a qualified technician, in order to ensure all practicable measures are taken to prevent and minimise leakages in line with EC Regulation 2037/2000 on Substances that Deplete the Ozone Layer. Once recovered, ODS must be stored at a licensed facility before being destroyed. Further information and guidance on the regulation can be obtained from Defra's Global Atmosphere Division. Guidance on alternatives to halons can be found at http://www.dti.gov.uk/access/att/pdf.

Paints

2.10.12 If the paint on the ship's hull contains Tributyltin (TBT) 0.25% w/w it is classified as hazardous. If the paint contains triethyl- or trimethyl-tin, the threshold is decreased to 0.1% w/w. Such paints should be removed using a blasting technique before disassembly. The washings from this process will need to be stored and handled as hazardous waste. This is similar for chromate and lead based paints found on the internal structure of the ship, where the lead or chromate compound present is greater than 0.1% w/w.

Re-useable Items

2.10.13 The value of re-useable items largely depends upon their condition. Therefore, these items will have to be stored in an appropriate place. Water susceptible items should be stored in a covered dry store, whist items such as anchors, chains and lifeboats can be stored in designated open areas.

2.11 Waste Transportation from the Site

2.11.1 The transportation of hazardous wastes from the site will be subject to legislation applicable to the classification, packaging, labelling and transportation of dangerous goods (see Chapter 3 for further details). Once the various waste streams have been removed from the vessel and placed into short term storage, there is an eventual requirement to remove them off site to either a designated landfill site or appropriate treatment facility.

2.11.2 Whenever hazardous waste is removed from any premises for disposal or recovery, a consignment note must be completed and accompany the waste in accordance with the Hazardous Waste Regulations 2005 or the Special Waste Regulations 1996 (as amended). Further guidance on consignment notes can be found on the Environment Agency website at: http://www.environment-agency.gov.uk/subjects/waste/ or for Scotland on SEPA's website at: http://www.sepa.org.uk/pdf/guidance/waste/consigning_special_waste.pdf.

2.11.3 If hazardous waste in packages or drums is to be transported by road, it must be packaged and labelled in accordance with transportation legislation with a requirement to conduct an assessment of the waste, so that hazardous constituents and their properties can be identified. From the assessment, the outer layer of each package must display a label to alert handlers to the presence of a dangerous substance and this is to consist of:

a. A hazard warning diamond;
b. A carriage label giving the proper shipping name and United Nations (UN) number, details of which are given in the Approved Carriage List.

2.11.4 Under legislation, there is also a requirement for vehicle placards with documentation to be carried and safety precautions to be adhered to by the vehicle operator. Additional regulations apply to radioactive materials and explosives. It should be noted that transport regulations are very detailed and waste carriers should obtain copies of the official Health and Safety Executive guidance documents (see http://www.hse.gov.uk/cdg/manual/regenvirnment.htm).

2.11.5 Before the waste leaves the site, it should be weighed using a weighbridge and logged with the transport office. It must be noted that the site has a legal Duty of Care to ensure hazardous waste is consigned in accordance with the Hazardous Waste Regulations 2005/Special Waste Regulations 1996 (as amended). The producer of the hazardous waste must keep a copy of each consignment note for three years.

3 REGULATORY REQUIREMENTS FOR SHIP RECYCLING

It should be noted that this section provides only a general overview of the main regulatory requirements to operate ship recycling facilities. This is by no means an exhaustive list and any site operators intending to engage in ship recycling activities should take their own advice from relevant professionals on all legal and regulatory aspects.

3.1 Background

3.1.1 This chapter provides an overview of the type and nature of regulatory permits, licences and consents (both marine and terrestrial) required for the legal operation of a UK ship recycling facility.

3.1.2 The regulatory regime for the land-sea interface is necessarily thorough and this guidance does not negate the need for specific legal advice. Given the complexities of the regulatory regimes, it is strongly advised that those wishing to recycle vessels engage with relevant regulators at the earliest stage possible.

Regulatory Roadmap

3.1.3 For quick guidance, illustrations of the interpreted regulatory framework have been produced in the form of road maps in figures 3.1 and 3.2 below, for:

a. A site operator wishing to develop a ship recycling facility;

b. A site operator currently conducting ship recycling operations, assuming all necessary permissions, licences and other consents are in place.

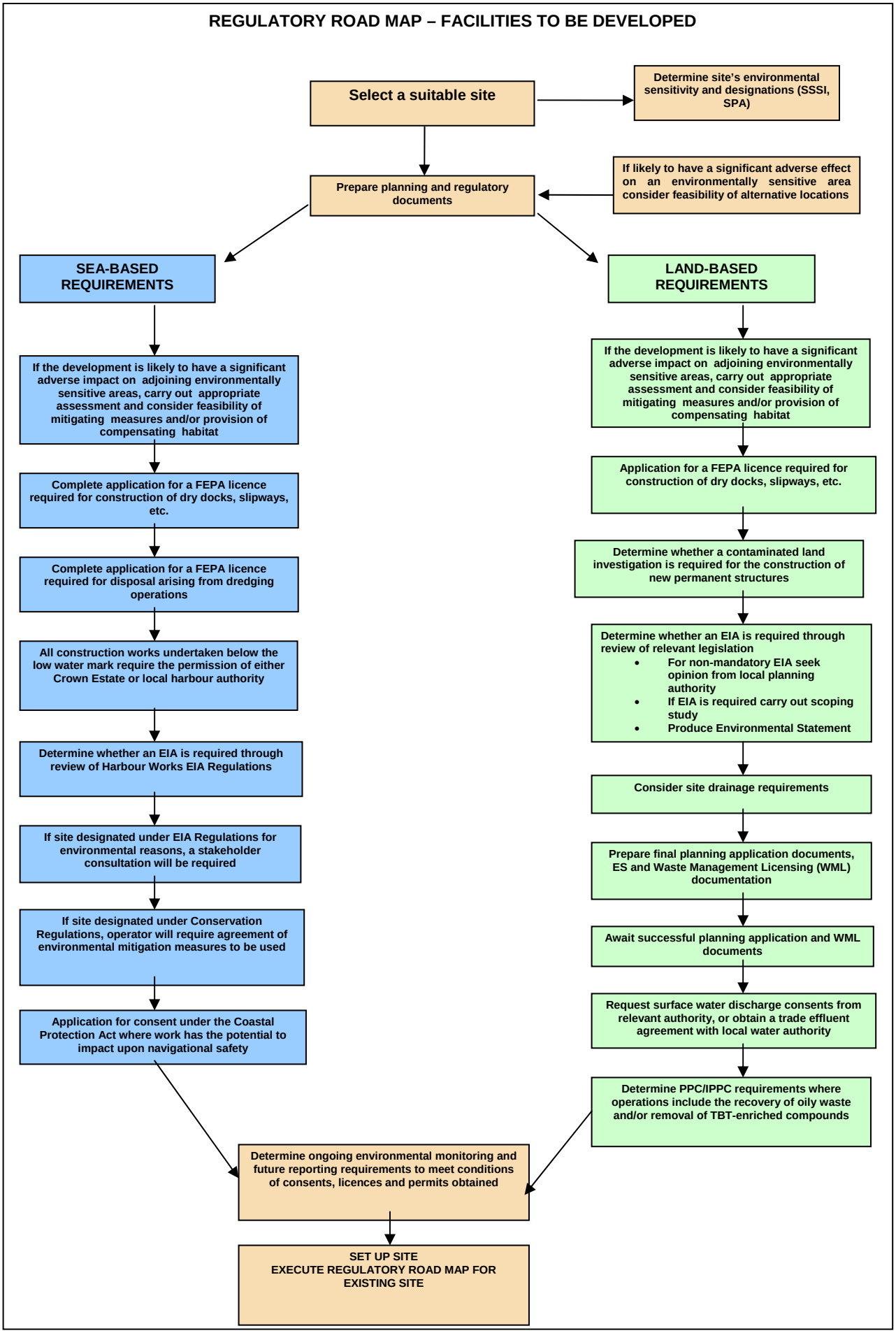

Figure 3.1 Regulatory Road Map for operators wishing to develop a ship recycling facility

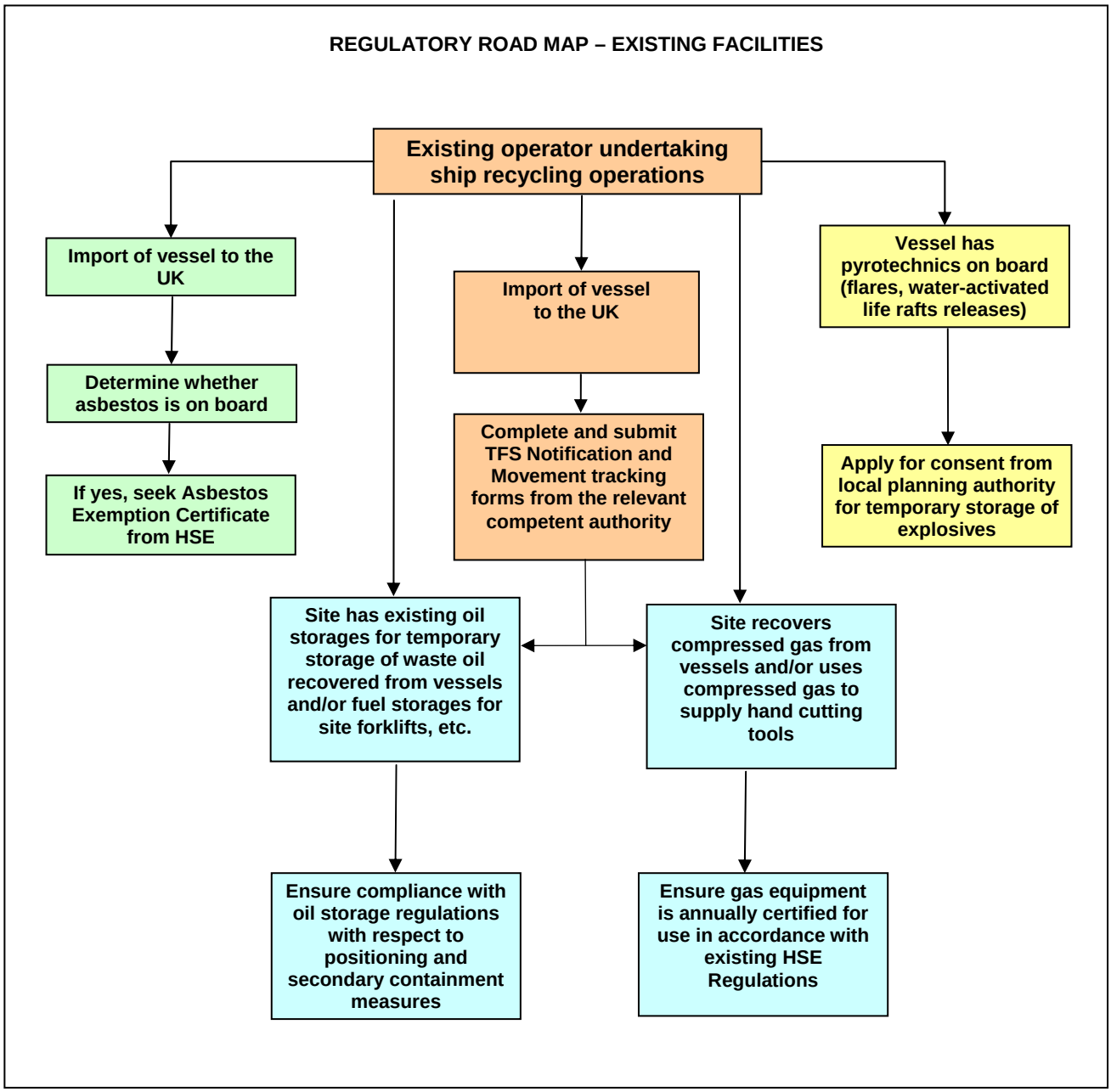

Figure 3.2 Regulatory Road Map for Operators currently recycling ships*

*Assuming all basic planning, waste and pollution control consents are in place.

3.1.4 The remainder of this chapter aims to provide an overview of the type and nature of current regulatory permits and consents required for the legal operation of a UK ship recycling facility. This includes an overview of the international policy context, followed by:

a. Regulatory overview of development of ship recycling facilities (including seaward and landward developments);

b. Regulatory overview of ship recycling activities (including Site Health and Safety requirements);

c. Import and export of vessels into and from the UK for recycling.

3.2 International policy context

3.2.1 The issue of ship dismantling has been the focus of intense discussions within the International Maritime Organization (IMO), the International Labour Organization (ILO) and the United Nations Basel Convention on the transboundary movement of hazardous wastes and their disposal, for many years. The UK is a Party to or Member of each of these organisations.

3.2.2 Each of these fora has its own terms: the IMO uses ship 'recycling'; the ILO 'breaking' and the Basel Convention 'dismantling'. Each has also produced its own set of guidelines on ship recycling (see below). More recently, a Joint Working Group on ship scrapping has brought the three organizations together to discuss the issue of ship recycling to ensure coordination of ongoing work.

International Maritime Organization

3.2.3 The IMO considers the issue of ship recycling through its Marine Environment Protection Committee (MEPC). MEPC developed the IMO Guidelines on Ship Recycling, which provide good practice guidance to ship owners for the design, operation and recycling phases of a ship's life. The guidelines are intended for use by ship owners but also provide guidance to other stakeholders in the recycling process.

International Labour Organization

3.2.4 The ILO focuses on the safety and health of the workforce and, in particular, the need for international standards to be adhered to in facilities in Less Economically Developed Countries (LEDC). The ILO has developed safe-work guidance for ship recycling and has produced advice particularly aimed at those yards where recycling work is undertaken after a vessel has been beached .

UN Basel Convention

3.2.5 The Basel Convention works under the auspices of the United Nations Environment Programme (UNEP) and provides a framework for the control of transboundary movements of hazardous wastes and the minimisation of hazardous waste generation. The Convention is based upon the principles of prior informed consent and environmentally sound management. Due to the presence of potentially hazardous waste in vessels, there has been considerable discussion as to whether the Convention applies to movements of end-of-life ships and, if so, what impact this has on ship recycling (termed 'dismantling' by Basel). The Basel Convention has also issued technical guidelines on ship dismantling .

3.3 Regulatory overviews

3.3.1 A wide range of legislation is relevant to the activity of ship recycling in the UK. For ease, the regulatory overview is presented in two sections: (A) legislation relevant to the development of ship recycling facilities; and (B) the ship recycling activities themselves. Nevertheless, there are overlaps: for example, planning permission and a relevant Environmental Impact Assessment may be needed for the development of a facility, e.g. construction works, and also for operation of the facility, e.g. to undertake ship recycling on-site.

3.3.2 It is strongly recommended that any commercial operators considering establishing and operating ship recycling facilities seek professional planning and environmental advice, not only from regulators but also from experienced consultants.

3.3.3 A summary of relevant sea-based and land-based legislation is presented in Tables 3.2 and 3.3 respectively (at the end of this Chapter).

Regulatory bodies in the UK

3.3.4 Environmental legislation in the UK is regulated by the various competent authorities that exercise authority within England, Wales, Scotland and Northern Ireland. The terms used within this section of the report have been taken from the Construction Industry Research and Information Association and are summarised in Table 3.1 below.

BODY	ENGLAND	WALES	SCOTLAND	NORTHERN IRELAND
Environment Agency	Environment Agency	Environment Agency	Scottish Environment Protection Agency (SEPA)	Environment and Heritage Service Northern Ireland (EHSNI)
Conservation Agency	English Nature (Natural England from 2006)	Countryside Council for Wales (CCW)	Scottish Natural Heritage (SNH)	EHSNI
Environment Department	Department for Environment Food and Rural Affairs (Defra)	Welsh Assembly Government	The Scottish Executive Rural Affairs Department	Department of the Environment (DOE)
Department for Local Government	Department for Communities and Local Government	Welsh Assembly Government	The Scottish Executive	Department of Agriculture and Rural Development Northern Ireland (DARNI)

Table 3.1 Competent Authority Terms

3.3.5 Further information concerning the regulatory requirements for each of these geographical areas can be found at: www.environment-agency.gov.uk/netregs/.

3.4 A - Regulatory overview of development of ship recycling facilities

Seaward Development

3.4.1 Where development or construction works are required on the seaward side of a facility, a variety of sea-based permits and consents are required. The law in this area is complex and there are variations for enclosed harbours and bays.

Planning Permission for Seaward Development

3.4.2 Planning permission will be required for coastal works and generally extends to the Mean Low Water Mark (MLWM) but also includes solid structures beyond, such as harbour walls. It does not, however, extend to piers under which water can pass. If there is any doubt as to whether planning permission is required, the intending site operator should contact the local planning authority.

3.4.3 At the planning stage, the recycling facility's operational permits and licences must be considered. Due to the nature of the waste materials

involved, a Waste Management Licence (WML) will be required. Appropriate authorisation/consent from the Environment Agency/SEPA to discharge to the sea or from the Water Authority to discharge to the sewer may also be required, depending on the method of operation. To avoid delay, these applications should run concurrent with the planning application and be based on the same environmental information.

3.4.4 Applications that are in conformity with local authority development plans should be approved unless there are 'material considerations' in the proposed development that suggest otherwise.

3.4.5 Further information on planning permission requirements is available in section 3.4.17.

FEPA Licences

3.4.6 Food and Environment Protection Act 1985, (as amended), (FEPA) licences are administered by the Marine Consents and Environment Unit (MCEU) of Defra (for England and Wales), the Scottish Executive Environment and Rural Affairs Department (for Scotland) and Department of the Environment (for Northern Ireland).

3.4.7 FEPA covers the loading of, and deposit from, UK vessels anywhere in the sea for the purpose of depositing substances or articles therein, and the deposit of substances or articles from a foreign vessel in UK controlled waters. It also covers the scuttling of UK vessels anywhere in the sea and the scuttling of any vessel in UK waters. A FEPA licence controls the following types of works relevant to a ship recycling facility:

a. Construction works, which include new harbours and marinas, marine structures and piers, outfalls, pontoons and jetties, land reclamation and flood defences sea walls;

b. Waste disposal at sea such as material derived from dredging operations.

3.4.8 When considering a FEPA application the licensing authority will have regard to the need to:

a. protect the marine environment and the living resources which it supports and human health;

b. prevent interference with legitimate uses of the sea;

c. minimise any nuisance, noise or odours arising from the disposal of waste; and,

d. to such other matters as the authority considers relevant e.g. the principles of sustainable development.

3.4.9 MCEU takes advice from the Centre for Environment, Fisheries and Aquaculture Science (CEFAS) and the Marine Fisheries Agency. This will have full regard to any accompanying Environment Statement or additional data that may be required in support of the application. Depending upon the type of works to be undertaken, more than one FEPA licence may be required.

Crown Estate and Local Harbour Permissions

3.4.10 Any construction operations undertaken below the MLWM on seabed under Crown Estate control will require the permission of the Crown Estate. Details of the proposed construction programme will need to be provided during the FEPA application phase. For land that is not under the control of the Crown Estate, permission is to be sought from the local harbour authority.

Coast Protection Act Consent

3.4.11 The prime purpose of the Coast Protection Act (CPA) 1949 is to prevent encroachment of the sea onto land and to maintain navigational safety. The limits of the CPA extend out to 12 nautical miles (although the Continental Shelf Act 1989 extended CPA for points a and c below to any part of the seabed in designated areas outside the territorial waters). The written consent of the regulatory authority will be required where an activity or construction work could pose a danger to navigational safety, or have a bearing upon structures that form coastline protection. The types of works that will require consent under the CPA include:

a. The construction, alteration or improvement of any works on, under or over any part of the seashore/bed lying below the level of mean high water springs;

b. The deposit of any object or materials below the level of mean high water springs;

c. The removal of any object or materials from the seashore/bed below the level of mean high water springs (e.g. dredging).

3.4.12 Provisions of the CPA are primarily concerned with ensuring that marine works are undertaken in accordance with any conditions laid down in the consent to minimise any obstructions or danger to navigation. A CPA consent application will therefore, typically, be submitted alongside a FEPA application.

3.4.13 CPA consents are administered by the Marine Consents and Environment Unit (MCEU) of Defra (for England and Wales). Further

advice and contact details for FEPA and CPA can be found on the Marine Consents and Environment Unit website at http://www.mceu.gov.uk.

3.4.14 The UK Government is exploring options for reviewing and streamlining the current licensing system for marine activities and developments through a forthcoming draft Marine Bill. The licensing regimes that are being considered include those currently operated through the FEPA and CPA

Work in Rivers consents

3.4.15 Responsibility for flood defence matters now rests with the Environment Agency (in England and Wales). It is essential that anyone who intends carrying out works in, over, under or near a watercourse or flood defences (including sea defences), contacts the Agency to obtain any necessary consents before starting the work. The reason for this is to ensure that any works do not endanger life or property by increasing the risk of flooding or cause harm to the water environment. Scottish local authorities deal with flood defence work itself while SEPA makes assessments of flood risk and provides flood warnings.

3.4.16 In Scotland, engineering or building works in rivers, lochs or wetlands require authorisation by SEPA under the Water Environment (Controlled Activities) Regulations 2005. It is essential that anyone who intends on carrying out engineering or building works in or near such waters contacts SEPA to obtain any necessary authorisation before starting the work. The Regulations will not apply to engineering works in coastal and transitional (estuarine) waters as existing FEPA controls will continue to apply. Further information is available at: http://www.netregs.gov.uk/netregs/275207/1192205/?version=1%26lang=_e

The Conservation (Natural Habitats) Regulations

3.4.17 Conservation Regulation requirements apply to seaward developments and are detailed in the following Landward Development section.

Landward Development

3.4.18 The main regulatory requirement for a ship recycling operator wishing to carry out development on a site is planning permission covering the types of activity to be conducted at the site.

3.4.19 It is also appropriate at this time to consider, and apply for, the appropriate operating permits and licences, such as a Waste Management Licence or Wastewater Discharge Consents as described in section 3.5.

Planning Permission for Landward Development

3.4.20 UK planning legislation refers to the use of land, any building, erection or any other structure erected or made on, in or under any land, including the land the building is situated on with respect (where relevant) to its physical presence and its purpose of operation.

3.4.21 The planning system within England includes:

a. National planning guidance, which includes planning guidance associated with waste management and pollution control. Planning Policy Statements (PPS) 9: Biodiversity and Geological Conservation, PPS10: Planning for Sustainable Waste Management and PPS23: Planning and Pollution Control, are particularly relevant. Further information is available at: http://www.communities.gov.uk/index.asp?id=1143803;

b. Development plans produced by regional and local authorities that set out policies and national considerations for how prospective development should be handled (Plan-led system);

c. Individual applications for development/land use, which are determined by local authorities or by the Secretary of State (currently the First Secretary of State, i.e. the Deputy Prime Minister in England), or in Scotland and Wales by the devolved administrations, on call in or on appeal if refused by the local authority.

3.4.22 The planning system in Scotland includes a National Planning Framework, Scottish Planning Policies (SPPs) and their predecessor National Planning Policy Guidelines (NPPGs) and development plans comprising structure and local plans. The Planning etc (Scotland) Bill, currently at amendments stage with the Scottish Parliament, aims to place the next National Planning Framework on a statutory footing and provide for strategic development plans and local development plans. NPPG 13 – Coastal Planning is particularly relevant: http://www.scotland.gov.uk/Publications/1997/08/nppg13-coastal

3.4.23 It is essential that valid planning permissions or a certificate of Lawful Use of Development are in force for the present use of the site. Further planning applications would have to be made if the proposed use of the site is not within its present permitted use. Failure to have the correct permissions in place could result in enforcement action, involving orders to cease operations, dismantle structures and re-instate sites to previous conditions.

3.4.24 Site operators currently undertaking ship recycling activities would need to have planning permission under the Town and Country Planning Act (1990) for the proposed use of the site and any additional infrastructure development not benefiting from existing permissions or

permitted development rights. Due to the nature of the infrastructure required for ship recycling facilities, planning applications in most cases are likely to need a supporting Environmental Impact Assessment (see section 3.4.32).

Hazardous Substances Planning Consent

3.4.25 Hazardous installations have a number of definitions: the first is that in the Control of Major Accident Hazard Regulations 1999 and applies where a dangerous substance as listed in Schedule 1 Column 1 of the Regulations is present in a quantity equal to or exceeding the entry for that substance. Additional requirements fall on an establishment where the quantity is also in excess of that listed in column 3 of the Schedule.

3.4.26 The second is a derivative of the first and is taken from The Planning (Hazardous Substances) Regulations 1992 (as amended by The Planning (Control of Major Accident Hazards) Regulations 1999). Again, a hazardous installation is defined by the presence of a substance at or above the threshold quantity.

3.4.27 This is broadly the same in Scotland under the Town and Country Planning (Hazardous Substances) (Scotland) Regulations 1993.

3.4.28 The HSE is a statutory consultee on all hazardous substances consent applications. The first is on the siting of new hazardous installations and the primary control is under the Health and Safety at Work etc. Act 1974 via the Control of Major Accident Hazard Regulations 1999 (COMAH). These require operators to submit a pre-construction safety report to HSE before construction can begin. Operators must also apply for a hazardous substances consent from the hazardous substance authority (HSA - usually the planning authority). On application, the HSA is required to consult HSE as to the advisability or otherwise of the location of the installation. HSE will then advise on the residual risk that still remains when all reasonably practicable steps have been taken to ensure safety. HSE's role is purely advisory: it is for the HSA to take into account other economic or social factors that should be considered. If the consent is granted, HSE notifies to the planning authority, a zone around the installation which must be consulted on any further developments such as housing, shops, schools, hospitals, etc.

3.4.29 Enforcement of COMAH is the responsibility of the competent authority (EA/SEPA & HSE). Enforcement of The Planning (Hazardous Substances) Act 1990 and its Regulations 1992 are the responsibility of the appropriate hazardous substances authority.

Lawful Development Certificates

3.4.30 Lawful Development Certificates (LDCs) were introduced in 1991 through the Town and Country Planning Act 1990. A successful

application results in a statutory document that confirms the development, which includes a use, operation or activity, is lawful for planning control purposes on the dates specified. A person or site operator has the right to submit an application to clarify the lawfulness of development. An LDC does not necessarily provide cover for future uses if a site is to be expanded and developed. Professional planning advice as to whether an additional permission is required should be obtained.

3.4.31 The local planning authority can issue LDCs for one or more of the following reasons:

a. The use began more than 10 years ago;

b. The use began within the last 10 years as a result of a change in its use that did not require planning permission, and there has not been a change of use requiring planning permission within the last 10 years;

c. Any operations were substantially completed more than four years ago;

d. The use of a building (or part) as a single dwelling house began more than four years ago.

<u>European EIA Directive 85/337/EEC and amending Directive 97/11/EC</u>

3.4.32 The two European Directives concerning Environmental Impact Assessment (EIA) describe the types of project that should be subjected to the EIA process and provide details of the procedures to be adopted. By means of a systematic methodology, an EIA provides an assessment of a project's likely significant environmental effects. This helps to ensure that the importance of the predicted effects and the scope for reducing them are properly understood by the public and the relevant competent authority before it makes its decision.

3.4.33 The environmental aspects together with the management and mitigation of potential impacts of a project must always be evaluated in the EIA. These processes are listed in Annex I of Directive 85/337/EEC.

3.4.34 The Directive distinguishes between two types of development, listed in Annex I and Annex II to the Directive. Annex I lists types of development for which an EIA is mandatory, and Annex II lists types of development, which are likely to have significant environmental effects. If a development falls under Annex II, the developer may either:

a. Seek an opinion from the competent body (usually the Local Planning Authority) as to whether an EIA is required; or

b. Voluntarily undertake an EIA.

3.4.35 As major port schemes are included within Annex I, they are projects for which an EIA is mandatory. Other harbour works, marina development, land reclamation and certain coastal defence works fall within Annex II.

3.4.36 Typically, the requirements of the EIA Directive and the Habitat Regulations are combined in the production of an 'Environmental Statement', which contains the results of all required assessments.

EIA Planning Requirements

3.4.37 The European EIA Directive 85/337/EEC and amending Directive 97/11/EC have been fully transposed into UK legislation.

3.4.38 In England and Wales, the land-based EIA planning requirement is contained within the Town and Country Planning (England and Wales) Regulations 1999. In Scotland, the Environmental Impact Assessment (Scotland) Regulations 1999 Part II Town and Country Planning (as amended by the Environmental Impact Assessment (Scotland) Amendment Regulations 2002) apply. In Northern Ireland, the Planning (Environmental Impact Assessment) Regulations (Northern Ireland) 1999 are applicable.

3.4.39 As previously outlined, Environmental Impact Assessment (EIA) is the process by which the impacts of a proposed development on all aspects of the receiving environment are identified and assessed. Where a requirement for an EIA has been identified, this is to be undertaken in parallel with the planning application. An Environmental Statement (ES) is the formal report, containing the results of the studies, surveys, consultations and assessments undertaken during the EIA. The purpose of these is to:

a. Describe the nature of the existing environment;

b. Identify the effects of the proposed development, taking account of local environmental sensitivities, the characteristics of the proposal, and the concerns of interested parties;

c. Evaluate the extent and significance of these effects;

d. Identify measures to be taken to avoid or mitigate significant effects; and

e. Identify opportunities to enhance or otherwise benefit the existing environment through the proposed works.

3.4.40 An important aspect of the EIA is the consultation process. National regulatory agencies and local authorities identified as relevant to the

project are to be contacted during the stakeholder consultation stage. Typically, they would be consulted for their general comments, concerns and items which they would wish to see included into the document. The EIA does not include details concerning site operator's health and safety procedures and usually applies to the site in question and its proposed use and the additional development required, not the specific vessels that are to be dismantled. However, a general indication of the environmental issues arising from the material content of the vessels likely to be dismantled would be an essential component of the ES.

European Habitats Directive

3.4.41 In 1992, the European Community adopted Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (EC Habitats Directive). The Habitats Directive is a major European initiative that aims to contribute to the protection of biodiversity through the conservation of natural habitats, wild plants and animals. Through adoption of the Habitats Directive, the Community also addresses its obligations as a signatory of the Convention on Biological Diversity, as well as the Convention on the Conservation of European Wildlife and Natural Habitats (the Bern Convention).

3.4.42 The provisions of the Directive require Member States to introduce a range of measures including the identification and protection of sites of Community importance (the Natura 2000 network); the protection of species listed in the Annexes; to undertake surveillance of habitats and species; and to produce a report every six years on the implementation of the Directive. The Natura 2000 network is a combination of Special Areas for Conservation (SAC) identified in line with obligations contained in the Habitats Directive, and Special Protection Areas (SPA) identified for birds under the EC Wild Birds Directive (79/409/EEC).

3.4.43 In the UK, the Directive has been transposed into national laws primarily by means of the Conservation (Natural Habitats, & c.) Regulations 1994 (as amended), and the Conservation (Natural Habitats, & c.) Regulations (Northern Ireland) 1995; these are generally known as the 'Habitat Regulations'.

3.4.44 Under Article 6 of the Habitats Directive, which is transposed for certain regimes by Part IV of the Habitat Regulations, an 'appropriate assessment' needs to be undertaken in respect of any plan or project that is likely to have a 'significant effect' upon a European Site, alone or in combination with other plans or projects. European Sites include SACs, candidate SACs and SPAs. In policy terms, potential SPAs receive a similar level of protection.

3.4.45 In light of the conclusions of the appropriate assessment, only if it can be ascertained that a plan or project does not have an adverse affect

on the integrity of a European Site may authorisation be granted. Where this can not be ascertained, it may only proceed if it can be shown that there are no alternative solutions, and that there are imperative reasons of overriding public interest. In this event, any necessary compensatory measures must be taken to ensure the integrity of the Natura 2000 network.

3.4.46 A glossary of designated areas is available at Annex A.

The Conservation (Natural Habitats) Regulations

3.4.47 As outlined above, the Conservation (Natural Habitats) Regulations transpose Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (EC Habitats Directive) into UK legislation.

3.4.48 Where landward and seaward construction works are to be undertaken within an area protected under the Conservation Regulations, the Wildlife and Countryside Act 1981, The Nature Conservation Act (Scotland) 2004 or The Environment and Heritage Service (Northern Ireland) 1995, the competent authority must determine if there is a potential for environmental impacts to occur.

3.4.49 Where a potential for environmental impact is identified, a statutory consultation process must be undertaken with national conservation agencies prior to a decision being made. Consents may be given on the basis of agreed mitigation measures to reduce detrimental impacts to the conservation site. Ways in which impacts may be mitigated include either a change of site location, specific periods when constructions works are permitted and a replacement of conservation land. For example, where a development will permanently remove a habitat area, this may need to be 'replaced' using land nearby as a compensating habitat.

Contaminated Land

3.4.50 Local authorities may have included existing ship yards/recycling facilities during their internal process of identifying contaminated land within their geographical boundaries, which is a requirement under Part IIA of the Environmental Protection Act 1990. As a result, some intrusive site investigations may have been completed to assess underlying soil and groundwater quality. This existing environmental information could be used to support (in part) a future planning application in the form of proving that the site is free from soil contamination (if applicable).

3.4.51 Due to the nature of the ship recycling industry, land contamination within some sites may be a potential issue. Land contamination is stated to be a 'material planning consideration' and an operator wishing

to upgrade their site would have to submit a contaminated land survey in conjunction with the planning application (plus other documents).

3.4.52 The requirements for a contaminated land survey will be identified by the local planning authority on the basis that there is a reasonable likelihood of historical operations having an impact upon underlying soil and groundwater quality. Government policy is set out in Planning Policy Statement 23 (Annex 2: Planning and Contaminated Land), ODPM, November 2004. In Scotland it is set out in planning advice note 33, development of contaminated land, revised 2000 Planning advice note 51, planning and environmental protection, 1997.

3.4.53 It is good practice to submit the proposed contaminated land survey prior to undertaking the work, to ensure that the authority is satisfied that the investigation has been correctly designed with respect to intrusive sample locations and the types of analysis to be tested for. Note that in England and Wales any soil tested during this contaminated land survey should, ideally, be tested using a Monitoring Certification Scheme (MCERTS) approved laboratory. Although this is not a direct requirement at this time, it is good practice to use MCERTS approved laboratories because the soil data can then be provided to the Environment Agency for any related regulatory requirements. In Scotland, data should be generated using methods that are fit for purpose and under full quality control.

3.4.54 Remediation of contaminated land may be required as a condition or prerequisite to obtaining planning permission for the site. Such remediation may itself require a licence from the Environment Agency/SEPA if it involves waste management activity (e.g. in-situ treatment) or activity licensable under The Water Environment (Controlled Activities) (Scotland) Regulations 2005 or PPC.

3.4.55 Useful publications can be found on Defra's Contaminated Land website (http://www.defra.gov.uk/environment/land/contaminated/pubs.htm) including Model Procedures for Management of Land Affected by Contamination (CLR11) and Industry Profiles on 'Engineering Works: Shipbuilding, repair and shipbreaking' and 'Dockyards and Dockland'.

3.5 B - Regulatory overview of ship recycling activities

3.5.1 There are a number of permits and licences that are required for the operation of a ship recycling facility and with respect to the wastes arising from the dismantling process.

Overview of Waste Management

What is 'waste'?

3.5.2 Article 1(a) of the Waste Framework Directive provides that: 'waste' is '..any substance or object……which the holder discards or intends or is required to discard.'

3.5.3 There is no definitive list of what is and is not waste. Whether or not a substance is discarded as waste, and when waste ceases to be waste, are matters that must be determined on the facts of the case and the interpretation of the law is a matter for the Courts. It rests, in the first place, with the producer or holder of a substance to decide whether it is being discarded as waste and the Environment Agency is responsible, as a 'competent authority', for the enforcement of waste management controls in England and Wales.

3.5.4 The European Court of Justice (ECJ) has issued several judgments on the interpretation of the definition of waste and the meaning of 'discard'. ECJ judgments are binding on Member States and their competent authorities. A summary of ECJ judgments on the interpretation of the definition of waste is provided on Defra's website. In March 2004, the European Commission published a dossier on key environmental judgments by the ECJ which is available at http://europa.eu.int/comm/environment/law/leading_cases_en.pdf.

3.5.5 Wastes arising from the dismantling process must be dealt with in accordance with relevant legislation which sets out controls for specific waste management operations, e.g. landfill; controls for specific waste types, e.g. hazardous waste; and for the import and export of waste.

Permitting of Ship Recycling Facilities

3.5.6 Sites recycling ships will need to be suitably licensed or permitted for that purpose. Generally it is expected that most sites would be licensed under the Waste Management Licensing regime as ship dismantling is primarily a metal recycling/reclamation recovery activity. Nevertheless, there might be some sites for which a Pollution Prevention Control permit is appropriate. The permitting requirements of sites wishing to recycle ships will be considered and assessed on a case-by-case basis.

Waste Management Licensing

3.5.7 Article 9 and 10 of the Waste Framework Directive require that any establishment or undertaking which carries out the disposal or recovery of waste, must obtain a permit from the competent authority.

3.5.8 These requirements are met for recovery activities primarily through the Waste Management Licensing Regulations 1994 in England and Wales (see section 3.5.9). However, some waste management activities fall within the scope of the Integrated Pollution Prevention and Control Directive which sets controls for certain industrial activities (see section 3.5.15).

3.5.9 A Waste Management Licence (WML) is a legal document, issued under Section 36 of the Environmental Protection Act 1990, with more detailed provisions being contained within the Waste Management Licensing Regulations 1994. It represents a site licence for the deposit, recovery or disposal of controlled waste in or on land.

3.5.10 The majority of ship recycling facilities will require a WML (although a Pollution Prevention Control permit may instead be appropriate) and it is illegal to operate a site without one. The temporary storage within a dock of a ship awaiting dismantling will generally require a WML. There are two types of WML:

a. A site licence authorising the deposit, recovery or disposal of controlled waste in or on land;

b. A mobile plant licence authorising the recovery or disposal of controlled waste using certain types of mobile plant but the mobile plant for which a licence can be granted is prescribed and unlikely to be applicable for ship dismantling.

3.5.11 A completed WML application form can be submitted in parallel with a planning application. Once submitted, the competent authority has the right to grant or refuse an application for a WML and is required to consult with the local planning authority and the Health and Safety Executive (HSE), so that they are aware of what is happening in their area and can check existing planning permission.

3.5.12 A WML licence has conditions to make sure that the authorised activities do not cause pollution to the environment, harm to human health or serious detriment to local amenities. Once the relevant regulatory authority has issued a site licence, neither the activities nor the area of land may be changed unless a new licence is issued.

3.5.13 In order for a site operator to apply for a WML, a variety of information needs to be submitted to the relevant regulatory authority. That authority will be able to advise you of the information it needs to be able to determine your application, but generally this will include:

a. The type and volume of both hazardous and non-hazardous waste to be temporarily stored for off-site recycling and/or recovery including a brief description of the site's operation;

b. A working plan, which should include details as to the way in which vessels are to be dismantled, site contingency plans, a site plan indicating the position, types and volume of waste storages, location of liquid storages, and how the drainage system interacts with the site;

c. Details of previous criminal convictions of the site owner, company directors or registered companies or other relevant persons (part of the fit and proper person test[3]);

d. Sufficient information for a credit check to be undertaken on the site owner or registered company (part of the fit and proper person test);

e. A technical, process-specific Environmental Risk Assessment (ERA) to ensure that nearby receptors such as sensitive habitats/controlled waters are identified and suitably protected using appropriate technologies; and

f. Confirmation that the responsible person operating the site (or management) is technically competent as tested by Waste Management Industry Training and Advisory Board (WAMITAB) (part of the fit and proper person test).

3.5.14 Within the WML application, the site operator needs to include details concerning the requirement for surface or ground water discharge consents/abstractions (see section 3.5.42) and whether the site is covered by additional sets of regulations, such as Integrated Pollution Prevention and Control (IPPC). Depending upon the circumstances, the competent authority will impose conditions for the site operator to undertake environmental monitoring during their ongoing operations. This could include, for example, regular sampling and analysis of groundwater, nearby surface water, surface water discharges released via an interceptor and soil quality tests.

Integrated Pollution Prevention and Control

3.5.15 Processes and facilities covered by the Directive include: the disposal of waste by landfill; waste treatment and storage facilities that dispose of >10 tonnes of hazardous waste per day; certain facilities that dispose of >50 tonnes of non-hazardous waste per day and some hazardous waste recovery operations that treat >10 tonnes of hazardous waste per day. As stated above, ship recycling will usually be a recovery activity and would require a WML. However, if other activities occur at the site, for example, > 10 tonnes of hazardous waste is disposed of on site a PPC permit would be needed for those activities. A PPC permit may also be required if the operator was to remove TBT (anti fouling) coating from the ships.

3.5.16 The IPPC regime introduces the concept of Best Available Techniques ("BAT") to environmental regulations. Operators must use the BAT to control pollution from their industrial activities. The aim of the Best Available Techniques is to prevent, and where that is not practicable, to

[3] The three components of the fit and proper person test are consideration of (i) any relevant offences, (ii) technical competence, and (iii) financial provision.

reduce to acceptable levels, pollution to air, land and water from industrial activities.

3.5.17 The Directive is implemented in England and Wales through the Pollution Prevention Control Regulations (England and Wales) 2000. In Scotland, the equivalent legislation is the Pollution Prevention and Control (Scotland) Regulations 2000. To simplify regulation, PPC permits will generally incorporate permit requirements for implementing aspects of other Directives including the Waste Framework Directive, Hazardous Waste Directive, Waste Oils Directive, PCB Directive, etc.

3.5.18 In the longer term, Defra's Environmental Permitting Programme team is looking at how to combine the Pollution Prevention and Control (PPC) and waste licensing systems into a common permitting and compliance framework. This will deliver a modernised permitting system, in line with EU requirements, sound environmental policy and the Government's principles of good regulation.

Duty of Care

3.5.19 The Duty of Care applies to anyone who produces, imports, carries, keeps, treats or disposes of controlled waste (defined as commercial, industrial and household wastes, including hazardous/special wastes) or acts as a waste broker in this respect. It places a responsibility on the holder of waste to ensure its safe and proper disposal or recovery, even after it has been passed on to another party such as a waste contractor, scrap metal merchant, recycler, local council or skip hire company. The Duty of Care has no time limit, and extends until the waste has either been finally and properly disposed of or fully recovered.

3.5.20 The 'duty' requires that all reasonable measures are taken to:

a. Prevent anyone keeping, depositing, disposing of or recovering 'controlled waste' without a waste management licence or an exemption from the need for a licence.

b. Stop materials escaping from the producer's control or the control of anyone else by packaging it appropriately and robustly.

c. Ensure that waste is only transferred to an authorised person.

d. Ensure that the waste being transferred is accompanied by a written description that will enable anyone receiving it to dispose of it or handle it in accordance with his or her own Duty of Care.

3.5.21 Further information is available at:
http://www.netregs.gov.uk/netregs/275207/275430/?version=1%26lang=_e

Hazardous Waste Regulations

3.5.22 Hazardous wastes are so called because they present a short, medium or long term hazard to human health and/or the environment. Examples of wastes classed as hazardous include:

a. All oil with the exception of edible oil;

b. Chemical process wastes;

c. Some contaminated land; and

d. Asbestos.

3.5.23 The European Waste Catalogue 2002 (EWC 2002) lists all wastes (grouped according to generic industry or process). This has been implemented in England, Wales and Northern Ireland by the List of Waste Regulations 2005 (LoWR). Any waste classified as hazardous in the EWC is special waste in Scotland. Every waste can be classified as either a hazardous waste or a non-hazardous waste. A waste is so classified by reference to a six-digit code or codes (i.e. a waste may be described by more than one code) from the EWC. A hazardous waste is one whose six-digit code is marked in the EWC with an asterisk (*). Some wastes are classed as "hazardous" outright (absolute entries), but others may be hazardous or non-hazardous depending on the concentrations of dangerous substances present. Guidance on assessing hazardous properties can be found on the Environment Agency's web site at:
http://www.environment-agency.gov.uk/business/444217/590750/590821/502174/496498/?lang=_e

and on SEPA's web-site at:

http://www.sepa.org.uk/guidance/waste/swan/index.htm

3.5.24 In the course of ship recycling operations, it is likely that large quantities of a wide range of wastes will be recovered. In summary, a site operator producing waste (including hazardous waste) as part of their operations:

a. Has a statutory Duty of Care to ensure waste is recovered/disposed of properly;

b. Has a Duty of Care if transporting waste;

c. Is responsible for the recovery/disposal of hazardous waste within permit (licence) conditions, to minimise risk to human and environmental health.

3.5.25 In England and Wales, the Hazardous Waste Regulations (HWR) replaced the Special Waste Regulations in July 2005. The regulations streamline the procedures for the tracking and management of this type of waste. One of the changes made has been the introduction of a requirement to notify the Environment Agency of premises producing hazardous waste. In Scotland, the Special Waste Amendment (Scotland) Regulations 2004 have amended the definition of 'special waste' to align it with that in the Hazardous Waste Directive.

3.5.26 In Northern Ireland, the Special Waste Regulations (Northern Ireland) 1998 have been replaced by the Hazardous Waste Regulations (Northern Ireland) 2005. The new regulations replace the term 'special waste' with 'Hazardous Waste' and make changes to procedures for businesses that produce, handle, store, treat or dispose of such wastes.

3.5.27 The Environment Agency (or equivalent competent authority) regulates various aspects of waste through the waste management regime, to:

a. Minimise hazardous waste generation;

b. Regulate the cradle-to-grave system of tracking waste movements;

c. Impose licenses and check sites, to ensure that the producers are able to receive specified wastes;

d. Provide information to local authorities, to support the production of strategic waste management plans.

3.5.28 Local Authorities may provide collection facilities for some hazardous wastes, such as oil and paint, and produce strategic waste management plans and administer the planning process for new waste facilities.

3.5.29 Further information concerning the regulatory controls and the site operator's legal responsibility in relation to hazardous waste can be found at: http://www.netregs.gov.uk/netregs/mgmt_guidelines/1409205/?version=1&lang=_e; www.hazardouswaste.org.uk; http://www.defra.gov.uk/environment/waste/special/index.htm; and www.environment-agency.gov.uk/newrulesonwaste.

Landfill of hazardous wastes

3.5.30 The EC Landfill Directive (1999/31/EC) introduced from 16 July 2004 a prohibition on the co-disposal of hazardous and non-hazardous waste and a requirement for the pre-treatment of all hazardous waste going to landfill. Hazardous wastes can now only be disposed of in a dedicated

hazardous waste landfill, or if stable and non-reactive, in a separate cell in a non-hazardous landfill.

3.5.31 It also introduced the use of waste acceptance criteria (WAC). The major implication to ship recycling operators is that any hazardous waste they produce within the site that is identified to be sent to landfill must meet the specific terms of the WAC. Consequently, it will be essential for businesses to describe or 'characterise' their waste in order to determine whether it can meet the waste acceptance criteria and what can be done to minimise it, ease its recovery or ensure its safe disposal. Additional treatment of the waste may also be required prior to landfill.

3.5.32 The Directive's requirements have been transposed in England and Wales through the UK through the Landfill (England and Wales) Regulations 2002 (as amended). In Scotland, the Landfill (Scotland) Regulations 2003 (as amended) and the Criteria and Procedures of the Acceptance of Waste at Landfills (Scotland) Direction 2005 transpose the Directive's requirements.

Municipal and sewage waste

3.5.33 It is expected that not all vessels arriving at UK recycling facilities will be towed and that some will operate under their own power during a 'final voyage'. Consequently, the crew onboard will have (albeit limited) quantities of municipal and sewage waste. Under the Merchant Shipping and Fishing Vessels (Port Waste Reception Facilities) Regulations 2003, port facilities that are accepting vessels, even for recycling purposes, must provide sufficient facilities to deal with the waste types accepted. Consequently, provision will have to be made to accept both municipal and sewage waste from vessels before they are dismantled. The Maritime and Coastguard Agency should be contacted for further information.

Oil Storage

3.5.34 In order to satisfy the requirements of the Oil Storage (England and Wales) Regulations 2000 and the Water Environment (Oil Storage) (Scotland) Regulations 2006, a variety of factors must be taken into consideration by the site operator for all temporary and permanent oil storages. It is likely that ship recycling facilities will require a number of oil storage tanks for various types of oil (mineral oil, oily water, etc.) recovered from the ship. In addition, some 'clean' oil storage tanks required by the site will also be covered by these regulations.

3.5.35 Factors to be addressed include: the general positioning of tanks with respect to the potential damage to nearby environmental receptors (watercourse, borehole); protection from vehicle collision; the type of containment strategy used (typically concrete bund); the capacity and permeability of bund material (concrete is standard, brick construction

is not advised); the positioning and type of tank gauges used; connecting underground pipework; and the type and position of the vent pipes.

Handling of Asbestos Waste

3.5.36 The Asbestos (Licensing) (Amendment) Regulations 1998 generally ban anyone from carrying out work with asbestos insulation or asbestos coating or asbestos insulating board unless they hold (or work for someone who holds) a licence granted by the HSE . This requirement includes the removal of asbestos during the dismamtling of a ship.

3.5.37 Asbestos waste, defined as containing more than 0.1% w/w asbestos in the waste, is subject to the waste management controls set out in the Hazardous Waste Regulations 2005 or the Special Waste Regulations 1996, as amended, in Scotland. These Regulations require the waste to be consigned to a site which is licensed/permitted to accept asbestos waste. This is enforced by the Environment Agency in England and Wales and SEPA in Scotland. Whatever type of waste container (for example, plastic sacks) is used, it is important to emphasise that the container should be:

a. made of a material which in normal handling is strong enough to contain the waste and which takes account, if necessary, of materials in the waste sharp enough to cause punctures;

b. capable of being readily decontaminated before leaving the work area;

c. kept secure on site until sent for disposal for example in a locked skip;

d. properly labelled.

3.5.38 Asbestos is disposed of via landfill and is classified as hazardous waste.

Handling of Wastes Containing PCB or PCT

3.5.39 The consignment of PCB (polychlorinated biphenyl) and PCT (polychlorinated terphenyl) comes under the new Hazardous Waste Regulations 2005, where the waste material contains 50ppm or more. Where necessary, site operators will need, under the provisions of their Waste Management Licence, to provide temporary storage for this hazardous waste prior to licensed disposal.

Radioactive Storage

3.5.40 The Radioactive Substances Act 1993 requires those storing and using radioactive materials to register with the Environment Agency (in England and Wales and SEPA (in Scotland), and those disposing of radioactive waste or accumulating it for subsequent disposal to be authorized. Local authorities are supplied with copies of registration applications and any authorization certificates to dispose of radioactive waste. Guidance is available on the Environment Agency website at http://www.netregs.gov.uk/netregs/275207/275487/?lang=_e.

Ozone Depleting Substances

3.5.41 EC Regulation 2037/2000 on Substances that Deplete the Ozone Layer entered into force in October 2000. It implements the Montreal Protocol, although the phase-out schedule under the Regulation has been accelerated in order for Member States to phase out ozone depleting substances earlier. Under this Regulation, halon fire protection systems and fire extinguishers must have been decommissioned by 31st December 2003, except for a small number of critical uses as listed in annex VII of the Regulation. It is illegal to use or possess halon. Halon should be recovered and destroyed in an environmentally sound manner ensuring emissions are minimized (see section 2.10.11 for further details).

Surface and Groundwater Discharge Consents

3.5.42 Ship recycling facilities are likely to generate potentially contaminated volumes of trade effluent from wash-down operations and rainwater falling onto land. Depending upon the hazardous nature of this material and the volumes generated, effluent could be either discharged to foul sewer, groundwater (via soakaways) or surface water (via an interceptor) following any appropriate treatment required. Depending upon the specific circumstances, consent from the local water and sewerage undertaker is required (for discharges to sewer) and/or a surface water or groundwater discharge consent is required from the local regulator's office (the Environment Agency in England and Wales, SEPA in Scotland, EHSNI in Northern Ireland).

3.5.43 Discharges to surface water within England and Wales are legislated under the provisions of the Water Resources Act 1991 (as amended by the Environment Act 1995) and will incorporate requirements of other Directives such as the Water Framework Directive, etc. The site operator is responsible for obtaining a surface water or groundwater discharge consent. In the event that effluent is discharged to foul sewer, a trade effluent agreement is required with the local water and sewerage undertaker under the Water Industry Act 1991.

3.5.44 The physical boundary covered by the Water Resources Act 1991 is up to 3 miles from the MLWM. Consequently, site operators will need to ensure that vessels temporarily stored alongside a wet berth facility do not pollute controlled waters.

3.5.45 In Scotland, any activities liable to cause pollution of the water environment are required to be authorised under the Water Environment (Controlled Activities) (Scotland) Regulations 2005. Appropriate authorisation will be required where effluent or surface water (rain water) is discharged to the water environment (i.e. river, sea or groundwater). In the event that effluent is discharged to foul sewer, a trade effluent consent is required with Scottish Water under the Sewerage (Scotland) Act 1968. Abstraction of water from rivers, groundwater or coastal water will require authorisation from SEPA under the Water Environment (Controlled Activities) (Scotland) Regulations 2005.

3.5.46 Wash-water containing TBT taken from the ship's hull cannot be discharged to the environment. The application of TBT-based compounds was banned throughout Europe in 2003.

3.5.47 Under current legislation, shipyards that wish to remove paints containing TBT from vessels over 25m require authorisation under the IPC regulations. Vessels with TBT coatings on their hulls must be identified and either treated to remove the contamination or removed from site for treatment by a specialist waste carrier.

Pollution Prevention Guidelines

3.5.48 Of particular importance is the Environment Agency and SEPA's Pollution Prevention Guidelines (PPG) as these have been produced specifically for the current regulatory context. Copies of relevant PPGs of particular relevance to ship recycling yards have been summarised in Table 3.6 as listed on the Environment Agency's website .

Industry Codes of Practice

3.5.49 A number of ship recycling codes of practice have been produced which aim to establish environmentally sound and safe working techniques and conditions within ship recycling yards. Codes of practice have, for example, been produced by both Marisec and US Environmental Protection Agency (USEPA) .

3.5.50 Several environmental guidance documents have also been produced by UK regulators in order to promote environmentally sound management. Some of these guidance documents are relevant to the ship recycling industry and describe 'best practice' in which site operators can implement UK environmental legislation, and include:

a. PPGs produced jointly by the EA and SEPA (see Table 3.6);

b. Merchant Shipping Notices produced by the Maritime and Coastguard Agency (see www.mcga.gov.uk for more details);

c. Coastal and marine environmental site guide, produced by CIRIA (2003) (see http://www.ciria.org/acatalog/C584.html for more details).

Site Health and Safety

3.5.51 It is important that on-site health and safety of employees is managed properly. There is a range of health and safety legislation which will apply to the ship recycling process and detailed guidance can be obtained from the Health and Safety Executive. Some of the key regulations are listed below.

Management of Health and Safety at Work Regulations 1999

3.5.52 These regulations require employers to plan, control, organise, monitor and review their work. To do this they should:

a. Assess the risk associated with the work;

b. Have access to competent health and safety advice;

c. Provide health and safety information and training to employees;

d. Have arrangements to deal with serious and imminent danger;

e. Co-operate in health and safety matters with others who share the workplace.

3.5.53 Further information concerning the management of health and safety at work can be found at http://www.hse.gov.uk/pubns/manindex.htm.

Control of Substances Hazardous to Health (COSHH) Regulations 2002

3.5.54 These regulations require employers to assess the risks to health from chemicals and decide what controls are needed. Further information on these regulations can be found at www.coshh-essentials.org.uk/.

The Personal Protective Equipment at Work Regulations 1992

3.5.55 The main requirement of these regulations is that personal protective equipment (PPE) is to be supplied and used at work wherever there are risks to health and safety that cannot be adequately controlled in other ways. The regulations also require that PPE:

a. Is properly assessed before use to ensure that it is suitable;

b. Is maintained and stored properly;

c. Is provided with instructions on how to use safely;

d. Is used correctly by employees.

3.5.56 Further information can be found at www.hse.gov.uk/pubns/indg174.pdf.

The Provision and Use of Work Equipment Regulations 1998

3.5.57 The regulations require risks to people's health and safety, from equipment that they use at work, to be prevented or controlled. Equipment provided for use at work should be:

a. Suitable for the intended use;

b. Safe for use, maintained in a safe condition and, in certain circumstances, inspected to ensure this remains the case;

c. Used only by people who have received adequate information, instruction and training;

d. Accompanied by suitable safety measures, e.g. protective devices, markings, warnings.

3.5.58 Further information can be found at www.hse.gov.uk/pubns/indg291.pdf.

The Lifting Operations and Lifting Equipment Regulations 1998

3.5.59 These regulations aim to reduce risk to people's health and safety from lifting equipment provided for use at work. Such equipment should be:

a. Strong and stable enough for the particular use and marked to indicate safe working loads;

b. Positioned and installed to minimise any risks;

c. Used safely i.e. the work is planned, organised and performed by competent people;

d. Subject to ongoing thorough examination and where appropriate, inspection by competent people.

3.5.60 Further information can be found at www.hse.gov.uk/pubns/indg290.pdf.

Control of Major Accident Hazards (COMAH) Regulations 1999

3.5.61 Control of Major Accident Hazards (COMAH) Regulations 1999 apply primarily to the chemical industry, but may apply to ship recycling through storage activities and explosives.

3.5.62 Under the COMAH Regulations, an Amendment Directive broadening Seveso II for the COMAH Regulations was implemented in July 2005. The Amendment Directive has amended the Control of Major Accident Hazard Regulations 1999 through a set of new regulations.

3.5.63 With respect to ship recycling operations, the most significant COMAH implications arise from issues associated with petroleum products, a reduction in threshold for substances dangerous to the environment and administrative provisions for establishments that are covered by the COMAH Regulations. Companies must notify if they manufacture, store or transport dangerous substances (e.g. asbestos) and explosives in excess of threshold quantities specified in the Amendment Regulations.

3.5.64 More information concerning the COMAH Regulations can be found at: http://www.hse.gov.uk/comah/.

Working with Asbestos

3.5.65 Apart from a few limited exemptions, the Asbestos (Licensing) Regulations 1983 prohibit contractors working on asbestos insulation, asbestos coating or asbestos insulating board unless they have a licence issued by HSE. This is specialist work and there is a requirement under the regulations to notify the work to the HSE (see section 3.5.36).

3.5.66 The Control of Asbestos at Work Regulations 2002 place a duty on employers to prevent the exposure of employees to asbestos, or to reduce exposure to the lowest reasonably practicable level. Before any work with asbestos is carried out an assessment of the likely exposure should be made. The assessment should include a description of the precautions to be taken to control dust release and to protect workers and others who may be affected by the work.

Working with Lead

3.5.67 The Control of Lead at Work Regulations 1998 require employers to assess the risk to employees of their exposure to lead at work, and to take steps to prevent or adequately control exposure. If the assessment shows that exposure to lead is likely to be significant then specific controls, such as issuing protective clothing, carrying out air monitoring and medical surveillance, must be introduced.

Storage of Explosives

3.5.68 The Manufacture and Storage of Explosives Regulations 2005 came into force in April 2005. Ship recycling operators may have need to temporarily store quantities of pyrotechnic material associated with

emergency flares and the automatic release of life-rafts, commonly found on ships.

The main aspects of the regulations are as follows:

a. Anyone storing explosives must take appropriate measures to prevent fire or explosion, to limit the extent of any fire or explosion should one occur and protect persons in the event of a fire or explosion;

b. In most cases a separation distance must be maintained between the explosives building and neighbouring inhabited buildings. This is intended to ensure that risks to those living or working in the area are kept to an acceptable level. If there is development in this separation zone then the quantity of explosives kept must be reduced; and

c. With certain exceptions, a licence is required for the manufacture or storage of explosives. HSE licenses manufacturing activities because of the greater risks involved. HSE also licenses larger explosives storage facilities. In most cases, stores holding less than two tonnes of explosives are either licensed or registered by the local authority or the police.

3.5.69 Further information can be obtained from the HSE.

Gas Cylinder Certificates

3.5.70 Ship recycling operators are likely to have a number of gas cylinder stores for operation of hand-held cutting tools and for the recovery of gaseous material from the ship. Site operators who either own or fill gas cylinders must, as required by the Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2004, ensure that they have been examined and certified at specific intervals by a competent authority.

3.6 C - Import and Export of vessels into and from the UK for Ship Recycling

3.6.1 Where an end-of-life vessel falls within the definition of waste, the transfrontier shipment of waste controls will apply. The point at which a ship becomes waste for the purposes of control by the Waste Shipments Regulation (WSR) within the EU (see section 3.6.7) must be determined in accordance with the definition of waste set out in the Waste Framework Directive as interpreted by the European Court of Justice. Further guidance on the definition of waste can be sought from the Environment Agency (in England and Wales). SEPA has produced guidance on the definition of waste. This can be viewed at: http://www.sepa.org.uk/pdf/guidance/waste/is_it_waste.pdf.

3.6.2 The transfrontier shipment of waste controls (often abbreviated to TFS) govern the shipment of wastes across national boundaries. Controls on the transfrontier movement of waste are complex and advice should be sought from the relevant competent authority at an early stage. These controls are relevant not only to ships that are waste but also to any exports of waste arising from the dismantling process.

3.6.3 As over ninety percent of a ship is recycled through the metals recovered, ship dismantling is considered to be a recovery operation, thus the proximity principle, whereby wastes should be managed as close to the source of their arising as possible, does not apply to movements of ships.

UN Basel Convention

3.6.4 The legislation governing imports and exports of waste into and out of the UK is complex. The UN Basel Convention on transboundary movements of waste and their disposal sets the overall framework. The Convention is based on the principle of environmentally sound management of wastes. It has a system of controls based on prior informed consent.

3.6.5 In 1995 the Basel 'ban' amendment was adopted. This ban prohibits the export of hazardous waste from OECD countries to non-OECD countries regardless of whether the waste is destined for disposal or recovery. While this amendment has not entered into force in its own right, it is implemented in the EU through the Waste Shipments Regulation.

OECD Decision

3.6.6 The OECD Decision of C(2001)107/FINAL applies controls to the transboundary movements of wastes destined for recovery operations between OECD members. Article 11 of the Basel Convention allows Parties and non-Parties to enter into other agreements on transboundary movements of waste provided they deliver the environmentally sound management of the wastes. The OECD Decision is one such multilateral agreement. The provisions of the Convention and the OECD Decision are implemented in the EU through Council Regulation (EEC) No 259/93 on the supervision and control of shipments of waste within, into and out of the European Community (the Waste Shipments Regulation). This Regulation is replaced by Regulation (EC) No.1013/2006 on shipments of waste from 12 July 2007.

Waste Shipments Regulation (WSR)

3.6.7 The WSR implements the provisions of the Basel Convention and the OECD Decision in the EU. It sets out the controls that apply to wastes movements within, into and out of the EU. The control system is based on prior informed consent. It requires notification, where appropriate to competent authorities of dispatch, destination and transit, using a notification document (similar to a consignment note). The regulation also requires shipments of hazardous waste to be covered by a financial guarantee.

3.6.8 The competent authorities in the UK are as follows: Environment Agency in England and Wales, Scottish Environment Protection Agency in Scotland and the Environment and Heritage Service of the Department of the Environment in Northern Ireland.

3.6.9 The controls that apply to a shipment of waste depend on: (i) whether its movement requires prior informed consent ('notifiable ' waste) or; (ii) no such consent is required ('non-notifiable' waste) .

3.6.10 The Waste Shipments Regulation transposes an amendment to the Basel Convention (the 'Basel ban') whereby notifiable waste must not be exported from OECD countries to non-OECD countries. The WSR further prohibits the export of non-notifiable waste for disposal outside the Community.

3.6.11 Non-notifiable wastes can usually be exported to other EU Member States for recovery under commercial controls. Shipments to some of the new Member States are subject to more stringent controls.

3.6.12 Shipments from Member States to non-OECD countries of non-notifiable waste for recovery/recycling/re-use may be banned, subject to hazardous waste control procedures, or excluded from control of the WSR, according to the wishes of the importing country. The relevant controls are set out in Commission Regulation No. 1547/1999 (as amended) and Council Regulation No. 1420/1999 (as amended). The Regulations, commonly known as the "Green List Regulations", are to be replaced by a single Commission Regulation in 2007.

3.6.13 Operators wishing to import or export any waste are strongly advised to contact the relevant competent authority.

The Transfrontier Shipment of Waste Regulations 1994

3.6.14 The WSR is directly applicable in the UK. The Transfrontier Shipment of Waste Regulations 1994 support implementation of the WSR in the UK by designating the competent authorities for Great Britain and Northern Ireland and providing detailed rules for the transmission of notifications and the provision of financial guarantees. They also

provide for enforcement powers, criminal offences and penalties . These Regulations are to be replaced by the Transfrontier Shipment of Waste Regulations 2007 from 12 July 2007.

UK Plan for Exports and Imports of Waste

3.6.15 In addition to the WSR and the TFS Regulations 1994, the UK has a statutory/binding policy document, the United Kingdom Management Plan for Exports and Imports of Waste (the Plan).

3.6.16 The Plan, which relates to the whole of the UK, sets out the Governments policies on exports out of and imports into the UK. It sets out the statutory/binding UK policy on the import and export of waste. It is UK Government policy that generally no waste can be exported from the UK for disposal.

Revision of TFS legislation

3.6.17 Following changes to the OECD Decision in 2001, it was recognised that the WSR needed to be revised to ensure that these changes were implemented within the Community. The revised Regulation (Council Regulation (EC) No 1013/2006[4] will enter into force in July 2007.

3.6.18 The TFS Regulation and the UK Plan are currently being revised, primarily to reflect the changes to the Waste Shipments Regulation although the opportunity is also being taken to update these pieces of legislation, which have been in force since 1994 and 1996 respectively. The revised TFS Regulation must come into force on the date of application of the revised WSR and the revised Plan is expected to come into force at approximately the same time.

Asbestos Exemption Certificates

3.6.19 The import of a vessel originating outside of the UK containing crude, fibre, powder, flake or waste asbestos and any product containing asbestos is subject to the 1999 amendment to the Asbestos (Prohibition) Regulations. Any site operator wishing to import a ship from outside the UK containing such material will therefore require an exemption certificate issued by HSE, permitting the ship's importation.

Loadline Exemption Certificates

3.6.20 Ships that are towed into a UK recycling facility will require a loadline exemption certificate. This is usually issued by the vessel's class State. In the event that the vessel is UK-flagged, under the Merchant Shipping (Load Line) Regulations 1998, the MCA has the authority to issue a loadline exemption certificate.

[4] OJL 190/1

Storage of vessels

3.6.21 Vessels stored at ship recycling facilities prior to dismantling are likely to be classified as waste. Thus the appropriate permissions must be in place before any such vessel can be stored; operators should seek advice from the relevant regulator (the Environment Agency in England and Wales).

LEGISLATIVE SOURCE	REGULATORY BODY	DESCRIPTION OF REQUIREMENT	TYPE OF REQUIREMENTS
Food and Environmental Protection Act 1985 (as amended)	Marine Consents and Environment Unit (Defra) (England & Wales) Scottish Executive Environment and Rural Affairs Department (Scotland) Department of the Environment (Northern Ireland)	Where construction operations are to be undertaken and material deposited into UK waters (any area submerged at mean high water springs) or under the seabed, a licence from MCEU (Defra) will be required. Activities covered by this legislation include the construction of a dry dock, dock gates, bund facility or dredging operations. Note that more than one licence may be needed for various types of operations.	Licence
Crown Estate Commissioners Permission	Crown Estate	Any construction operations undertaken upon areas under Crown control which is positioned below the low water line requires the permission of the Crown Estate. Land which is positioned within a port is likely to be under the control of the local port authority (see Harbour Act 1964 legislation).	Permission
Harbours Act 1964 The Harbour Works (Environmental Impact Assessment) Regulations 1999 and 2000		The Harbours Act provides local port authorities with planning and development controls for land which is not covered by the Crown Estate. The Harbour works EIA Regulations state that where a site operator proposes to undertake marine works of any kind, review of this legislation is necessary to determine whether an EIA is required for land which is either under the local port authorities control or that of the Crown Estate.	Local Harbour Permission and/or EIA Document
Coastal Protection Act 1949 (Section 34, 35)	Marine Consents and Environment Unit (Defra) (England & Wales) Scottish Executive Environment and Rural Affairs Department (for Scotland) Department of the Environment (for Northern Ireland)	Some marine works may require consent under this legislation to prevent encroachment of the sea onto land and to maintain navigational safety. Within the jurisdiction of a harbour, the Harbour Works EIA Regulations still apply.	Consent

Table 3.2 Summary of Relevant Sea-based UK Legislation for development of ship recycling facilities

LEGISLATIVE SOURCE	REGULATORY BODY	DESCRIPTION OF REQUIREMENT	TYPE OF REQUIREMENTS
Work in Rivers consents / authorisation Water Environment (Controlled Activities) (Scotland) Regulations 2005 – engineering works in or near rivers	Environment Agency (England & Wales) Scottish Environment Protection Agency (Scotland) The Environment and Heritage Service (Northern Ireland)	Anyone who intends carrying out works in, over, under or near a watercourse or, in England, flood defences (including sea defences), must contact the competent authority to obtain the necessary consent / authorisation before commencing the work.	Consent / authorisation
The Conservation (Natural Habitats, &c.) Regulations 1994 The Nature Conservation (Scotland) Act 2004 The Conservation (Nature Habitats, etc.) Regulations (Northern Ireland) 1995 Wildlife and Countryside Act 1981 (as amended)	Any competent authority authorising or carrying out activities affecting SACs, SPAs or SSSIs (ASSIs in Northern Ireland). English Nature (England) Countryside Council for Wales (Wales) Scottish Natural Heritage (Scotland) The Environment and Heritage Service (Northern Ireland)	This legislation is designed to enforce the control of land, and ensure that the nature conservation interest of designated sites is taken into appropriate account in deciding whether and how to grant consents affecting such sites. Consequently, where the position of existing or potential ship recycling facilities overlie (or are adjacent to) designated land, consents may be refused or additional environmental impact assessments or monitoring requirements may be imposed during construction or operation by the relevant authority depending upon whether the proposed works have an impact on the reason for the original conservation designation.	Environmental Statement

Table 3.2 Summary of Relevant Sea-based UK Legislation for development of ship recycling facilities (Continued)

LEGISLATIVE SOURCE	REGULATORY BODY	DESCRIPTION OF REQUIREMENT	TYPE OF REQUIREMENTS
Town and Country Planning Act 1990; Town and Country Planning (Scotland) Act 1997 Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999 The Environmental Impact Assessment (Scotland) Regulations 1999	Local Planning Authority	Planning permission must be obtained for all structures present within the existing site. In the event that the existing class (usage) of a site will change by upgrading to a ship recycling facility, then further planning permission is required. A contaminated land survey may be required for future developments and submitted to the local planning authority. Some site owners may hold a Certificate of Lawful Use or Development as part of their planning permissions. If an EIA is required, it should be undertaken in parallel with the planning application.	Documented Permission Environmental Statement (if required)
Health and Safety at Work etc Act 1974 via the Control of Major Accident Hazard Regulations 1999	Health and Safety Executive (HSE) Hazardous Substances Authority (usually the planning authority)	Operators must submit a pre-construction safety report to HSE before construction of hazardous installations can begin. Operators must also apply for a hazardous substances consent from the hazardous substances authority.	Safety report Consent
The Conservation (Natural Habitats, &c.) Regulations 1994 The Nature Conservation (Scotland) Act 2004 The Conservation (Nature Habitats, etc.) Regulations (Northern Ireland) 1995 Wildlife and Countryside Act 1981 (as amended)	Any competent authority authorising or carrying out activities affecting SACs, SPAs or SSSIs (ASSIs in Northern Ireland). English Nature (England) Countryside Council for Wales (Wales) Scottish Natural Heritage (Scotland) The Environment and Heritage Service (Northern Ireland)	This legislation is designed to enforce the control of land, and ensure that the nature conservation interest of designated sites is taken into appropriate account in deciding whether and how to grant consents affecting such sites. Consequently, where the position of existing or potential ship recycling facilities overlie (or are adjacent to) designated land, consents may be refused or additional environmental impact assessments or monitoring requirements may be imposed during construction or operation by the relevant authority depending upon whether the proposed works have an impact on the reason for the original conservation designation.	Environmental Statement

Table 3.3 Summary of Relevant Land-based UK Legislation for development of ship recycling facilities

LEGISLATIVE SOURCE	REGULATORY BODY	DESCRIPTION OF REQUIREMENT	TYPE OF REQUIREMENTS
Environmental Protection Act 1990 Waste Management Licensing Regulations 1994 (as amended) Waste Management Licensing Regulations (Northern Ireland) 2003	Environment Agency (England & Wales) Scottish Environment Protection Agency (Scotland) The Environment and Heritage Service (Northern Ireland)	A waste management licence (WML) will be required for all site operators undertaking land-based ship recycling operations; this is issued by the competent authority. This legislation also captures the disposal of dredging material at sea with the MCEU being the competent authority. (There may be a requirement for site operators to undertake a contaminated land investigation under the requirements of Part IIA of Environmental Protection Act 1990, under the direction of the relevant local authority.)	WML Document
Hazardous Waste Regulations 2005 in England, Wales and Northern Ireland Special Waste Regulations 1996 (as amended)	Environment Agency (England & Wales) Scottish Environment Protection Agency (Scotland) The Environment and Heritage Service (Northern Ireland)	Producers of hazardous waste must notify their premises to the relevant authority (n.b. there is an exemption for waste arising on a ship, but not for the dismantling of a ship); Producers must not mix hazardous waste with non-hazardous waste or materials which are not waste unless they hold a suitable waste permit which allows this; when hazardous waste is removed from the premises, the consignment procedure must be followed; the site must maintain records and registers to identify all dealings with hazardous waste.	WML Document
Landfill (England and Wales) Regulations 2002 (as amended) Landfill (Scotland) Regulations 2003 (as amended) Landfill Regulations (Northern Ireland) 2003 (as amended)	Environment Agency (England & Wales) Scottish Environment Protection Agency (Scotland) The Environment and Heritage Service (Northern Ireland)	Prohibits the co-disposal of hazardous and non-hazardous waste and requires pre-treatment of all hazardous waste going to landfill. Any hazardous waste that is to be landfilled must meet the specific terms of the Waste Acceptance Criteria (WAC)	Compliance
Merchant Shipping and Fishing Vessels (Port Waste Reception Facilities) Regulations 2003	Maritime and Coastguard Agency	It is expected that not all vessels arriving at UK recycling facilities will be towed and that some will operate under their own power during a 'final voyage'. Consequently, the crew onboard will have (albeit limited) quantities of municipal and sewage waste. Under this legislation, port facilities that are accepting vessels (even for recycling purposes), must provide sufficient facilities to deal with the waste types accepted. Consequently, provision will have to be made to accept both municipal and sewage waste from vessels before they are scrapped for subsequent disposal.	Approved Port Waste Management Plan or compliance through contractual arrangements

Table 3.4 Summary of Relevant Legislation applicable to ship recycling activities

LEGISLATIVE SOURCE	REGULATORY BODY	DESCRIPTION OF REQUIREMENT	TYPE OF REQUIREMENTS
Control of Pollution (Oil Storage) (England) Regulations 2000 Water Environment (Oil Storage) (Scotland) Regulations 2006	Environment Agency (England & Wales) Scottish Environment Protection Agency (Scotland) Due to be introduced into: The Environment and Heritage Service (Northern Ireland)	All storages of both 'clean' and waste oil will need to comply with the provisions of the Oil Storage Regulations.	Compliance
Asbestos (Licensing) (Amendment) Regulations 1998 See also Hazardous Waste Regulations 2005	HSE	Generally ban anyone from carrying out work with asbestos insulation or asbestos coating or asbestos insulating board unless they hold (or work for someone who holds) a licence granted by the HSE.	Licence
Integrated Pollution Control Regulations 1991 Pollution Prevention and Control (England & Wales) Regulations 2000 Pollution Prevention and Control (Scotland) Regulations 2000 Pollution Prevention and Control Regulations (Northern Ireland) 2003	Environment Agency (England & Wales) Scottish Environment Protection Agency (Scotland) Note: there is currently no legislation currently for Northern Ireland	Any site operator undertaking the removal of TBT-enriched coatings from the hull of a vessel will require the site to be given a pollution prevention and control permit for this specific operation. The storage of more than 10 tonnes per day of waste oils also requires a PPC permit.	Permit
Radioactive Substances Act 1993	Environment Agency (England & Wales) Scottish Environment Protection Agency (Scotland)The Environment and Heritage Service (Northern Ireland)	Requires those storing and using radioactive materials to register with the competent authority.	Registration
EC Regulation 2037/2000 on Substances that Deplete the Ozone Layer	Defra (Global Atmosphere Division)	It is illegal to use or possess halon, except for a small number of critical uses as listed in annex VII of the Regulation.	Compliance

Table 3.4 Summary of Relevant Legislation applicable to ship recycling activities (Continued)

LEGISLATIVE SOURCE	REGULATORY BODY	DESCRIPTION OF REQUIREMENT	TYPE OF REQUIREMENTS
Water Resources Act 1991 (England & Wales) (as amended by the Environment Act 1995) Water Environment (Controlled Activities) (Scotland) Regulations 2005 Water (Northern Ireland) Order 1999 Water Industry Act 1991	Environment Agency (England & Wales) Scottish Environment Protection Agency (Scotland) The Environment and Heritage Service (Northern Ireland) Water and Sewerage Undertakers	Surface water discharge consent may be required, depending upon the activities carried out on the site and the physical characteristics of the site. Some sites may hold a Trade Effluent Agreement with the local sewage authority. Pollution prevention controls will be required to ensure compliance with the Water Resources Act 1991 whilst vessels are docked and also for all land-based activities. The Environment Agency (EA) is responsible for issuing discharge consents and regulating / enforcing discharges under the Water Resources Act 1991 (as amended). In Scotland, SEPA is responsible for granting authorisation under the Water Environment (Controlled Activities) (Scotland) Regulations 2005. Anyone wishing to make a discharge into a 'controlled water', in Scotland, the 'water environment', which is defined as rivers, estuaries, coastal waters (within 3 miles from land) and groundwaters, must make an application to the EA / SEPA for consent / authorisation to discharge. If minded to grant the consent, the EA / SEPA will impose certain conditions to the consent which will ensure that there is no deterioration to the receiving waters. Anyone seeking advice/guidance about the process should contact the EA / SEPA.	Consent / authorisation
Water Environment (Controlled Activities) (Scotland) Regulations 2005	Scottish Environment Protection Agency (Scotland)	Abstraction of water from rivers, groundwater or coastal water will require authorisation from SEPA.	Authorisation
Management of Health and Safety at Work Regulations 1999	HSE	Require employers to plan, control, organise, monitor and review their work.	Compliance
Control of Substances Hazardous to Health (COSHH) Regulations 2002	HSE	Require employers to assess the risks to health from chemicals and decide what controls are needed.	Compliance
Personal Protective Equipment at Work Regulations 1992	HSE	Require that personal protective equipment (PPE) be supplied and used at work wherever there are risks to health and safety that cannot be adequately controlled in other ways.	Compliance
Provision and Use of Work Equipment Regulations 1998	HSE	Require risk to people's health and safety from equipment that they use at work to be prevented or controlled.	Compliance

Table 3.4 Summary of Relevant Legislation applicable to ship recycling activities (Continued)

LEGISLATIVE SOURCE	REGULATORY BODY	DESCRIPTION OF REQUIREMENT	TYPE OF REQUIREMENTS
Lifting Operations and Lifting Equipment Regulations 1998	HSE	Require risk to people's health and safety from lifting equipment be reduced.	Compliance
Control of Major Accident Hazards (COMAH) 1999 and COMAH (Amendment) Regulations 2005	Health & Safety Executive and Environment Agency (England & Wales) Health & Safety Executive and Scottish Environment Protection Agency (Scotland) Health & Safety Executive and Environment and Heritage Service (Northern Ireland)	To prevent and mitigate effects on people and the environment of those major incidents involving dangerous substances. Companies must notify if they manufacture, store or transport dangerous substances (e.g. asbestos) and explosives in excess of threshold quantities specified in the Amendment Regulations.	Notification
Control of Asbestos at Work Regulations 2002	HSE	Place a duty on employers to prevent the exposure of employees to asbestos, or reduce exposure to the lowest reasonably practicable level.	Assessment
Control of Lead at Work Regulations 1998	HSE	Require employers to assess the risk to employees of their exposure to lead at work, and to take steps to prevent or adequately control exposure.	Compliance
Manufacture and Storage of Explosives Regulations 2005	HSE Local Authority or Police	A licence is required for the manufacture or storage of explosives.	Licence
Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2004	Department for Transport	Site operators who own or fill gas cylinders must ensure that they have been examined and certified at specific intervals by a competent authority.	Certification

Table 3.4 Summary of Relevant Legislation applicable to ship recycling activities (Continued)

LEGISLATIVE SOURCE	REGULATORY BODY	DESCRIPTION OF REQUIREMENT	TYPE OF REQUIREMENTS
The Transfrontier Shipment of Waste Regulations 1994 (transposes the Waste Shipments Regulation in the UK)	Environment Agency (England & Wales) Scottish Environment Protection Agency (Scotland) 26 District Councils (Northern Ireland)	Site operators wishing to import (or export) waste into (from) the UK will need to complete a Notification and Movement tracking form from the competent authority.	Notification and Movement tracking form
Asbestos (Prohibition) Regulations 1992 (as amended)	HSE	An exemption certificate may be required to import a vessel originating outside of the UK which contains asbestos.	Certificate
The Merchant Shipping (Load Line) Regulations 1998	Maritime and Coastguard Agency	A loadline exemption certificate is required for vessels entering the shipyard under tow and is typically the responsibility of the ship owner, not the site operator.	Certificate

Table 3.5 Summary of Relevant Legislation applicable to the Import and Export of Vessels into/from the UK

POLLUTION PREVENTION GUIDELINE	APPLICABILITY	SUMMARY
PPG2 - Above Ground Oil Storage Tanks	Ship recycling facilities will require permanent storages of petrol and diesel to power mobile machinery within the yard, in addition to the storage of waste oil and oily water which will be sent for off-site disposal.	Provides guidance to site operators for implementation of the Oil Storage Regulations 2001.
PPG5 - Works in, near or liable to affect watercourses	Existing and potential ship recycling yards will have to undertake various types of construction work within the immediate waterfront area to begin (or expand) their operations.	Guidance provides information where construction works are to be undertaken close to surface water. Details include the type of facilities required to deal with the disposal of silty trade effluent, arrangements where pumping of groundwater is required during construction works, and for the stockpiling of loose material. The guidance also covers (in brief detail) the storage and handling arrangements for fuels and chemicals.
PPG8 - Safe storage & disposal used oils	Operators of ship recycling facilities will require the temporary storage of used oils recovered from vessels.	Guidance provides the legislative context in which used oils should be stored and disposed of.
PPG14 - Marinas and Craft	It is anticipated that a proportion of vessels will arrive at the recycling facility under their own power and will therefore need marina-type facilities to deal with sewage, waste oil and municipal waste.	Describes contingency plan arrangements for oil and fuel spills, ways in which waste oil should be stored, and sewage disposal arrangements.
PPG21 - Pollution incident response planning	Guidance is for industrial sites in general, which do not have a statutory duty to provide such plans under Control of Major Accident Hazards (COMAH) and Pollution Prevention and Control (England and Wales) Regulations 2000 ('the PPC Regulations'), (as amended).	Provides details concerning the development of contingency plans for the management of run-off water generated in the event of a fire or major spillages of potentially hazardous substances. Guidance suggests that operators consider generating a list of important contacts, provide a site drainage plan so that potential pollutant pathways can be shut off. Site operators should also file details concerning the hazardous or toxic nature of raw products that they store. Such information is typically contained within Material Safety Data Sheets (MSDS) produced by manufactures of industrial products.
PPG26 - Storage and Handling Drums and Intermediate Bulk Containers	Ship recycling facilities will need to store quantities of lubricating oil, hydraulic oil, degreasing agents and releasing oil, most of which will be delivered and stored in drums and Industrial Bulk Containers (IBC's) located within the site's boundaries.	Guidance provides details concerning the storage of potentially hazardous material within drums and IBC's, referencing the Control of Substances Hazardous to Health Regulations 1999 (COSHH) and the Chemicals (Hazard Information and Packaging for Supply) Regulations 1994 (as amended). These regulations are primarily concerned with occupational Health & Safety and have not been considered further in this report.

Table 3.6 Summary of Relevant UK Regulator Pollution Prevention Guidelines

4 POSSIBLE ASSISTANCE AND FUNDING STREAMS

It should be noted that this chapter provides only a general overview of the main sources of assistance and funding potentially available to existing or future ship recycling facility operators. This is by no means an exhaustive list. Those applying for funding should note that the receipt of funding does not entitle site operators to operate without the full set of applicable regulatory requirements.

4.1 Introduction

4.1.1 This chapter outlines possible sources of EU, national, regional and local assistance and funding that could be applied for by an existing or future ship recycling operator in the UK. This includes the procedures and eligibility criteria associated with the funding streams, funding amounts and any constraints with the funding mechanisms. Table 4.1 at the end of this chapter provides a summary of assistance and funding available in the UK.

4.2 European Union Funding

4.2.1 The European Commission imposes controls and limits on the amounts of financial support available from the public sector to benefit private enterprises, so as to minimise distortions to competition between companies in member states. State Aid is provided by central, regional or local authorities, or other public or private bodies and eligibility depends on the type of fund and region. For further information on State Aid see http://www.dti.gov.uk/ccp/stateaid/links.htm.

4.3 Sources of National and Regional Funding

Regional Development Agencies

4.3.1 The aim of Regional Development Agencies (RDAs) is to co-ordinate regional economic development and regeneration, enable the regions to improve their relative competitiveness and reduce the imbalance that exists within and between regions. RDAs have delegated responsibility to offer grants within specific limits, and there has been a number of RDA and Department of Trade and Industry (DTI) organised workshops and conferences aimed at increasing awareness of such grants. The size of grants offered by RDA is limited with respect to their financial value; above this limit DTI approval is needed. For further information on RDAs see http://www.consumer.gov.uk/rda/info/.

4.3.2 Those potential ship recycling operators seeking assistance will need to discuss potential funding arrangements with their local RDA. Within England, the following RDAs covering coastal sites are currently in place:

a. Northwest Development Agency (NWDA) www.nwda.co.uk;

b. Yorkshire Forward (YF) www.yorkshire-forward.com;

c. One North East (ONE) www.onenortheast.co.uk;

d. East of England Development Agency (EEDA) www.eeda.org.uk;

e. East Midlands Development Agency (EMDA) www.emda.org.uk;

f. South East England Development Agency (SEEDA) www.seeda.co.uk;

g. South West Regional Development Agency (SWRDA) www.southwestrda.org.uk;

h. London Development Agency (LDA) www.lda.gov.uk.

4.3.3 The Devolved Administrations of Scotland, Wales and Northern Ireland each have their own financial support programmes. These currently are:

a. Scottish Enterprise (SE) www.scottish-enterprise.com and Highlands and Islands Enterprise www.hie.co.uk;

b. Welsh Development Agency (WDA) www.wda.co.uk;

c. Department of Enterprise, Trade and Investment - Northern Ireland www.detini.gov.uk.

4.3.4 The respective RDAs and Devolved Administrations identified above can assist in the preparation of funding application forms, provide direction upon general funding arrangements and may, where appropriate, assist in the clustering of businesses associated with ship recycling activities.

Department for Trade and Industry Programme

4.3.5 The DTI's Technology Strategy Board is made up senior business representatives that identify technology priorities for growth of the UK economy.

4.3.6 In response to the Technology Strategy, the Technology Programme is part of the Government's Science and Innovation 10 year framework (2004–2014) and has an aim to identify new and emerging technologies critical to future business success, into which Government funding and activities can be directed. This Programme offers grant funding for businesses wishing to develop new technologies and products/processes within various areas.

4.3.7 The Programme is delivered through open competitions for funding using two DTI business support products: Collaborative Research and Development and Knowledge Transfer Networks. Each spring and autumn, businesses are able to compete for funding using these support products. The next call for funding is planned for the end of November 2005/April 2006 and grants are approved on a case by case basis. It is possible that activities relevant to ship recycling operations may be included.

4.4 Selective Finance for Investment in England (SFI)

4.4.1 The Selective Finance for Investment in England (SFI) is a discretionary grant scheme available to Assisted Areas of England to help generate investment in projects that lead to long term improvements in productivity, skills and employment.

4.4.2 Under SFI, the following criteria must be considered:

a. A minimum threshold for applications of £10,000 has been introduced;

b. Applicants must prove that Government grant assistance is necessary for the project to proceed;

c. The applicant cannot be committed to the investment prior to receiving an award of grant;

d. An element of capital expenditure on fixed assets such as property or plant and machinery is required;

e. Under the Aid for Job Creation criteria, should a project have minimal capital expenditure but will create new employment, the first two years salary costs of newly created positions can be considered as eligible project expenditure;

f. For applications for over £100,000 of grant funding, applicants must create or safeguard employment. The quality of jobs will also be taken into consideration with the majority of jobs being created expected to be at National Vocational Qualification (NVQ) level 2 and above;

g. Projects must be fundable, viable and appropriate;

h. The overall quality of the project being considered will be assessed and regional/national benefits will be considered.

4.4.3 The Assisted Areas of England have been split into two Tiers. This is illustrated in Figure 4.1, showing Tier 1 (as Article 87 (3)(a)) and Tier 2 (as Article 87 (3)(c)).

4.4.4 The principal Tier 1 areas of England are Merseyside, South Yorkshire, Cornwall and the Isles of Scilly and have grant assistance of up to 35 per cent available. Tier 2 areas, where assistance is limited to a maximum of 20 per cent, include many other parts of England such as the northeast and northwest of England, parts of London, the East Midlands and the southeast of England. Some Small to Medium sized Enterprises (SMEs) may be entitled to a supplement in addition to the above tiered limits. The Assisted Areas of the UK will be reviewed during 2006. Grant applications should be submitted to the applicable RDAs.

4.4.5 Similar Regional Selective Assistance grants are available in the Devolved Administrations (see web addresses in section 4.3.3).

Figure 4.1 SFI Assisted Areas Map for England

4.5 Innovation Assistance

4.5.1 There are a number of schemes in the UK for companies seeking innovative assistance for product or process developments. The relevance to potential ship recycling operators lies in the requirement for innovative ways in which to process various waste types that arise from vessels. The major types of innovative assistance grants available are identified below.

England

4.5.2 A range of Innovation Assistance grants are available depending upon the nature of the project. For ship recycling operators, any application is likely to fall within a 'Micro Project'. This is a simple, low-cost development project, lasting no longer than 12 months. The result of the project should be a simple prototype of a novel or innovative product or process. Grants of up to £20,000 are available to businesses with fewer than 10 employees.

4.5.3 Alternatively, a 'Research Project' may be of relevance where planned research is undertaken lasting between 6 to 18 months. Under the heading of a Research Project, up to 70 per cent of project costs can be funded to investigate the technical and commercial feasibility of an innovative technology by individuals and small firms to a maximum of £75,000. This is available to businesses with less than 50 employees.

Scotland

4.5.4 SMART:Scotland helps SMEs improve their competitiveness by developing new, innovative and commercially viable products or processes that benefit the national economy. It is applied for competitively and is open to individuals planning to start a new business, and to existing small independent firms and groups with less than 50 employees. Entries are assessed internally by the Scottish Executive. Applicants can receive funding of up to 75 per cent of the cost of carrying out a technical and commercial feasibility study, which lasts between 6 and 18 months. The maximum award for this grant is £50,000.

4.5.5 The SPUR programme is designed to assist and encourage SMEs to undertake highly innovative research and technical development. SPUR grants assist SMEs to develop new products and processes, involving a significant technological advance for the specific UK industry or sector, up to pre-production prototype stage. Awards can be made to independent businesses and groups with less than 250 employees. A fixed grant level of 35 per cent of eligible costs, up to a maximum of £150,000, may be offered to projects of between 6 months and 3 years in duration. Minimum eligible projects costs of £75,000 must be involved.

4.5.6 Companies with less than 250 employees are eligible to apply for SPURPlus funding, providing projects have duration of between 6 months and 3 years. Eligible costs include all costs properly incurred and defrayed on the Research and Development projects including: labour; overheads; materials; consultancy fees; sub-contract charges; fees for trials and testing; preparing draft operating service and maintenance manuals; intellectual property costs; market assessment; training; and the net cost of capital equipment.

4.5.7 If a company is applying for support, the project must have eligible project costs of at least £1 million. Assistance is available up to £500,000 at 35 per cent of eligible costs to support development up to pre-production prototype stage.

Wales

4.5.8 SMART:Cymru is a R&D scheme to assist new product and process development. It is a comprehensive, pan-Wales service from the Welsh Development Agency (WDA) that provides easy access to funding and a range of skills and expertise. Applicants can access expert advice and financial support through the scheme. Under the scheme there are four phases, which include:

a. Phase 1 – Feasibility Minimum cost £5,000 funding 75 per cent up to £15,000;

b. Phase 2 – Industrial research Minimum cost £30,000 funding 60 per cent up to £60,000;

c. Phase 3 – Pre-competitive development Minimum cost £60,000 funding 35 per cent up to £200,000;

d. Phase 4 – exploitation Minimum cost £5,000 funding 50 per cent up to £20,000.

4.5.9 This grant scheme offers the possibility of progressive funding and support for all four phases of new product or process development and is most relevant to ship recycling through processes used to remove/treat waste.

Northern Ireland

4.5.10 There are a number of initiatives available to companies undertaking R&D projects in Northern Ireland.

4.5.11 'Compete' aims to help companies become more competitive by providing support for developing innovative market-led products and manufacturing processes. The delivery of this scheme aims to provide opportunities for businesses to plan projects in some detail and present a complete proposal to Invest NI. Support is at a rate of up to 50 per cent of eligible costs to a maximum of £15,000. The scheme has two parts, which include:

4.5.12 Under Phase I, a business is to plan the project in detail and present a complete proposal to Invest NI. Support is at a rate of up to 50 per cent of eligible costs to a maximum of £15,000;

4.5.13 Under Phase II, support at this stage is up to 40 per cent of eligible costs to a maximum of £250,000 (less any Phase I support).

4.5.14 The SMART award scheme is available in Northern Ireland and aims to help small businesses develop new products and processes to improve their competitiveness. The programme supports individuals and SMEs to conduct technical and commercial feasibility studies over a 6-18 month period. The awards are set at 75 per cent of the first £60,000 of eligible costs up to a maximum level of £45,000. One-third is paid immediately and the remainder is normally paid quarterly against claims submitted.

4.5.15 For smaller projects, the Smart Micro programme offers grant assistance of up to £10,000 to help fund the development of low-cost prototypes of products or processes, which involve technical advance and/or novelty.

4.5.16 The Product/Process Development (PPD) programme aims to support smaller Northern Ireland businesses developing new market-led products and/or more efficient manufacturing or production processes. A grant of up to 40 per cent will be considered on eligible project costs and these may include: market/technical research; in-house costs (labour, production, technical, design); consultancy; sub-contract; intellectual property (patents, trademarks etc); materials (consumed during the production of a prototype or during tests/trials); and trials and testing.

4.5.17 The grant is dependent on the nature of the company and the eligible costs. The maximum assistance available for this type of project is £35,000.

4.6 Local Authority Grants

4.6.1 Local authorities may offer grants to attract new businesses that will enhance the social-economic environment through the development of local shipyard facilities and their contribution to urban regeneration. Within this potential source of funding, local port authorities are included and may, in some cases, have funds available. Where port authorities do not themselves have any funds available, they may be able to add their support to a local business requesting financial support from a local authority.

4.6.2 In some circumstances, the local authority may also be the landowner. Consequently, there can be a direct economic benefit from regeneration within a site through rent, in addition to wider social/economic benefits.

4.7 Waste and Resources Action Programme (WRAP)

4.7.1 The Waste and Resources Action Programme (WRAP) was set up as a not-for-profit limited company by guarantee of Defra, the DTI and the devolved administrations of Scotland, Wales and Northern Ireland.

WRAP's mission is to accelerate resource efficiency by creating efficient markets for recycled materials and products, whilst removing barriers to waste minimisation, re-use and recycling. WRAP only looks after specific types of materials, including batteries, rubber, wood, glass and plastic.

4.7.2 WRAP could only assist ship recycling operators in reviewing a business plan and providing comment on potential funding streams.

TYPE OF FUNDING	CRITERIA	VALUE OF FUNDING	APPLICATION BODY
European funding through State Aid	Eligibility depends on type of fund and region.	Variable	Via Central Government and/or the Regional Development Agencies. For further information see http://www.dti.gov.uk/ccp/stateaid/links.htm
Department of Trade and Industry's Technology Programme	Project applications are assessed against: relevance to the open competition; potential economic benefits; risks of the project; quality of project's organisation and strength of the management team.	On a case-by-case basis.	Department of Trade and Industry Application forms and further information available at: www.dti.gov.uk/technologyprogramme
England			
Selective Finance for Investment in England	Open to Assisted Areas of England that are in need for investment, and create new or secure existing jobs. Eligibility criteria based on: location; grant necessity; creation of new jobs; viability; project quality and benefit to the area.	Discretionary grant between £10,000 and £100,000 depending on Tier Area. Project minimum value £10,000.	Regional Development Agency Further information and application form available at: http://www.advantagewm.co.uk/downloads/sfi-financial-appendices.pdf
Innovative Assistance - Micro Project	Developing low-cost prototypes of new products or processes - involving technical advances and/or novelty to companies of fewer than 10 employees.	£20,000	Regional Development Agency Further information and application form available at: http://www.dti.gov.uk/r-d
Innovative Assistance - Research project	Applicants should be individuals or businesses, with fewer than 50 employees worldwide.	Projects grants awarded for 60-70% of total eligible costs, up to a maximum of £75,000.	Regional Development Agency Further information and application form available at: http://www.dti.gov.uk/r-d

Table 4.1 Summary of Available Funding

TYPE OF FUNDING	CRITERIA	VALUE OF FUNDING	APPLICATION BODY
Innovative Assistance Scotland			
SMART	A competition open to individuals planning to start a new business and to existing small independent firms and groups with less than 50 employees. Entries are assessed by the Scottish Executive.	75% of the cost of carrying out a technical and commercial feasibility study lasting between 6 and 18 months. The maximum award is £50,000.	Regional Development Agency Further information and application form available at: http://www.scotland.gov.uk/Topics/Business-Industry/support/16879/6780
SPUR	SPUR grants assist SMEs to develop new products and processes involving a significant technological advance for the UK industry or sector concerned, up to pre-production prototype stage. Awards can be made to independent businesses and groups with less than 250 employees.	A fixed grant level of 35% of eligible costs, up to a maximum grant of £150,000 may be offered to projects of between 6 months and 3 years in duration, which involve eligible projects costs of at least £75,000.	Regional Development Agency Further information and application form available at: http://www.scotland.gov.uk/Topics/Business-Industry/support/16879/6780
SPURplus	Companies with less than 250 employees are eligible to apply for SPURPlus funding and projects must be between 6 months and 3 years in duration.	Project costs of at least £1 million. Assistance of up to £500,000 at 35% of eligible costs is available to support development up to pre-production prototype stage	Regional Development Agency Further information and application form available at: http://www.scotland.gov.uk/Topics/Business-Industry/support/16879/6780

Table 4.1 Summary of Available Funding (Continued)

TYPE OF FUNDING	CRITERIA	VALUE OF FUNDING	APPLICATION BODY
Innovative Assistance Wales			
SMARTCymru	An intention to demonstrate the creation and exploitation of technologically innovative products and processes. Also need to show a commitment to carrying out the research and development within Wales.	Phase 1 – Feasibility Minimum cost £5,000 funding 75% up to £15,000 Phase 2 – Industrial research Minimum cost £30,000 funding 60% up to £60,000 Phase 3 – Pre-competitive development Minimum cost £60,000 funding 35% up to £200,000 Phase 4 – exploitation Minimum cost £5,000 funding 50% up to £20,000	Welsh Development Agency Further details and application forms available at: http://www.wda.co.uk/index.cfm/technology_and_innovation/smartcymru/en5990
Innovative Assistance Northern Ireland			
Compete	'Compete' aims to help local companies become more competitive by providing support for developing innovative market-led products and manufacturing processes. 'Compete' is open to Northern Ireland businesses engaged in manufacturing - or about to engage in manufacturing, and to internationally tradable service businesses.	Phase I, eligible costs to a maximum of £15,000. Phase II, eligible costs to a maximum of £250,000 (less any phase I support).	Invest Northern Ireland Andy Reilly E-mail: andy.reilly@investni.com Tel: 028 9069 8765

Table 4.1 Summary of Available Funding (Continued)

TYPE OF FUNDING	CRITERIA	VALUE OF FUNDING	APPLICATION BODY
Innovative Assistance Northern Ireland			
Product and Process Development (PPD)	PPD helps SMEs with: market/technical research; in-house costs; consultancy; sub-contract; intellectual property; materials; and trials and testing. Expertise is available within Invest NI to assist companies to draw up a project plan.	A grant of up to 40% project costs with a maximum not exceeding £35,000.	Invest Northern Ireland John McAleavey, Technical Team E-mail: john.mcaleavey@investni.com Tel: 028 9069 8810
SMART	The programme supports individuals and small firms to carry out technical and commercial feasibility studies over a 6-18 month period.	A grant of up to 75% on the first £60,000 of eligible costs up to a maximum level of £45,000.	Invest Northern Ireland Paul Malcomson E-mail: paul.malcomson@investni.com Tel: 028 9069 8836

Table 4.1 Summary of Available Funding (Continued)

ANNEX A – Glossary of Designated Areas

TERM	DETAILS
Ramsar Sites	Ramsar sites are wetlands of international importance designated under the Ramsar Convention (Convention on Wetlands of International Importance especially as Waterfowl Habitat). The Ramsar Convention, signed in Ramsar, Iran, in 1971, is an intergovernmental treaty which provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources.
Doorstep Greens (England)	The Doorstep Greens initiative provides new or renovated areas of public open space close to people's homes that could be enjoyed permanently by the local community. The initiative is a joint Countryside Agency and New Opportunities Fund project aimed at targeting communities who experience disadvantage and where regeneration of the local environment and outdoor recreation provision is sorely needed. They could be small or large, and in urban or rural locations.
Heritage Coasts (England and Wales)	Heritage coasts are managed so that their natural beauty is conserved and, where appropriate, the accessibility for visitors is improved.
Green Belt	Areas of Green Belt are regions of countryside surrounding built up areas and are designed to prevent the unrestricted growth of urban sprawl.
Blue Flag	The Blue Flag is an eco-label awarded to beaches and marinas in 29 countries across Europe, South Africa and the Caribbean, which is owned and run by the Foundation for Environmental Education (FEE). The Blue Flag rewards beaches/marinas through strict criteria dealing with water quality, environmental education and information, environmental management, and safety and other services.
World Heritage Site	(UNESCO), the United Nations Educational, Scientific and Cultural Organisation seeks to encourage the identification, protection and preservation of cultural and natural heritage around the world considered to be of outstanding value to humanity by designating sites a 'World Heritage site'.
Sites of Special Scientific Interest (SSSI)	SSSIs are areas of land which in the opinion of the relevant country conservation agency are of special interest by reason of any of its flora, fauna, geological or physiographical features. In England and Wales, SSSIs are notified under section 28 of the Wildlife and Countryside Act 1981 (as amended). Protection provided under the WCA 1981 with controls applying to owners and occupiers of SSSI land and any public body or statutory body carrying out or authorising operations affecting SSSIs. SSSIs are also protected through the planning regime. In Scotland SSSIs are designated and protected under the Nature Conservation (Scotland) Act 2004. In Northern Ireland there are ASSI's.
Areas of Outstanding Natural Beauty (AONB)	An AONB is designated for its landscape and scenic beauty. This means that an AONB is not necessarily an area of high nature conservation value. With a few exceptions, no such authorities or powers exist for AONBs at this moment in time. AONBs are designated by the Countryside Agency, in

TERM	DETAILS
	England, and the Countryside Council for Wales in Wales. The Scottish equivalent of an AONB is a National Scenic Area (NSA), designated by Scottish Natural Heritage.
National Park (NP)	National Parks in the UK are areas which were mostly set aside by the state because of their outstanding value in terms of natural beauty, ecological, archaeological, geological and other features, and recreational value. There are ten such parks in England and Wales each run by its own National Parks Authority.
National Nature Reserve (NNR)	National Nature Reserves (NNRs) are places where wildlife takes priority, established to protect the most important areas of wildlife habitat and geological formations in Britain, and as places for scientific research.
Designated Monuments (Northern Ireland)	Historic Monuments are relics of a cultural heritage extending back in time for 9000 years which are protected by the Historic Monuments and Archaeological Objects (NI) Order 1995 (successor to many Acts since 1882), which are managed by the Environment and Heritage Service.
Environmentally Sensitive Areas (ESA)	The Environmentally Sensitive Areas (ESA)Scheme was introduced in 1987 to offer incentives to encourage farmers to adopt agricultural practices which would safeguard and enhance parts of the country of particularly high landscape, wildlife or historic value. The scheme is to be replaced by the new Environmental Stewardship Scheme in 2005.
Special Protection Areas (SPA)	The EC Directive on the Conservation of Wild Birds (79/409/EEC) requires member states to safeguard the habitats of migratory birds and certain particularly threatened birds. This includes the designation of SPAs. SPAs (as with SACs) have a stronger protection than SSSIs, and sites may be designated as both. Further information on SPAs can be found on the JNCC website at http://www.jncc.gov.uk
Special Areas of Conservation (SAC)	SACs are sites of Community importance, protected under the EC Habitats Directive. Almost all UK SACs are also underpinned by national conservation laws affecting SSSIs (although SSSIs usually do not extend beyond low tide and SACs can). In planning law, SACs are effectively afforded the highest possible protection. The SAC designation process for terrestrial sites is almost complete. New SACs are likely to be concentrated in marine areas. Further information on SACs can be found on the JNCC website at http://www.jncc.gov.uk.
Ancient Woodland	Ancient woods are those where there is believed to have been continuous woodland cover since at least 1600 AD. Ancient woods over two hectares in size are recorded in Ancient Woodland Inventories (AWIs), compiled by the Nature Conservancy Council in England, Scotland and Wales and maintained by its successor organisations in those countries. The AWIs have helped increase awareness of the importance of ancient woodland and have become an important tool for policy makers and planners, which is supported by the UK Biodiversity Action Plan.

TERM	DETAILS
Local Environment Agency Plans (LEAP)	Local Environment Agency Plans are prepared by the Environmental Agency which deal with the strategic planning of Environment Agency interests, including flood defence, water resources, conservation, fisheries, pollution, waste regulation, integrated pollution control and water and air quality issues.
National Forest	Community Forests are the product of a partnership between the Countryside Agency, the Forestry Commission, local authorities and other local and national organisations. The Community Forest Partnerships work together to deliver a comprehensive package of urban, economic and social regeneration.
Woodland Trust Sites	The Woodland Trust is the UK's leading charity dedicated solely to the protection of Britain's native woodland heritage. The Woodland Trust aim to protect and manage woodlands for both local people and wildlife. Since being founded in 1972 the Woodland Trust care for and protect over 1000 sites covering 17,500 hectares (43,000 acres). This includes nationally and internationally important sites as well as small urban and village woods.
Listed or archaeological sites	Where remains are scheduled under the provisions of the Ancient Monuments and Archaeological Areas Act 1979, the consent of the Secretary of State for Culture, Media and Sport is needed before works may proceed. (In Scotland, the permission of Scottish Ministers is needed through Historic Scotland.) Where buildings are listed, listed building consent will be required for their total or substantial demolition and may be required for their alteration. Where buildings are situated in a conservation area, Conservation Area Consent will be required in most cases where demolition is proposed