

**Appendix B**

**Substantive Law on**  
**Environmentally Compliant**  
**Ship Breaking/Recycling**  
**In the United States**

**Report No. MA-ENV-820-96003-B**  
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## EXECUTIVE SUMMARY

In this report, federal and state environmental laws are reviewed to determine how they may influence ship breaking/recycling within the United States. In addition, certain international agreements and foreign laws are examined to determine whether any of them present impediments to the continued export of Maritime Administration vessels for breaking/recycling. The report is presented in five parts.

Part 1.0 summarizes the key issues found during the review.

Part 2.0 reviews significant federal environmental and safety laws and the federal Occupational Safety and Health Act. Most of the major environmental laws, including those regulating air quality, water quality, and hazardous waste, and the Occupational Safety and Health Act, affect vessel recycling.

Part 3.0 reviews the environmental laws of 10 states. Many states have assumed the enforcement authority of federal law, and those that have not have established parallel state requirements. Therefore, this part does not provide a detailed review of state law but instead identifies the areas where state law differs significantly from federal law in areas affecting vessel recycling.

Part 4.0 reviews the two major international agreements—the Basel Convention and the North American Free Trade Agreement—that could affect ship breaking/recycling.

Part 5.0 reviews the laws of India, China, and Mexico. These three countries have received the large majority of Maritime Administration vessels for breaking/recycling during the past 5 years.

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## 1.0 SUMMARY

Ship breaking/recycling is subject to intensive environmental regulation because of the pollutants present in old vessels, the shipbreaking process, and the location of ship breaking/recycling facilities. Ship breaking/recycling generates hazardous materials and pollutants that are regulated as toxics by virtually all of the major federal and state environmental laws. Ship breaking/recycling facilities performed are located on navigable waters and near wetlands, resources that are subject to special scrutiny under the Clean Water Act (CWA) by the U.S. Environmental Protection Agency (EPA), the U.S. Army Corps of Engineers, and the states.

As a consequence, a wide variety of events trigger many different types of environmental statutes that affect the ship breaking/recycling industry. The generation, transportation, storage and disposal of "hazardous waste" are regulated by the Resource Conservation and Recovery Act (RCRA). Cleanup of "hazardous substances" is regulated by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Yet, one who obtains a RCRA permit may still be required to perform corrective action and clean up abandoned sites. Polychlorinated biphenyls (PCBs) are an anomaly and are not regulated extensively under RCRA but under the Toxic Substances Control Act (TSCA). Nonetheless, PCBs are subject to corrective action under RCRA.

Ship breaking/recycling may produce "hazardous waste" under RCRA, "chemical substances" under TSCA, and "hazardous substances" under CERCLA. A recycling facility may be a "major source" under the Clean Air Act and a "point source" under the Clean Water Act. Under either of those Acts, the components of a facility may be subject to technology-based standards as well as emissions and effluent limitations. Accordingly, many environmental laws affect vessel recycling.

Many of these laws require a permit. Others may not require a permit but may impose stringent requirements. Others may expose a regulated entity to vast liability. Still others may impose civil and even criminal penalties.

The area of criminal penalties deserves special mention. In the Weitzenhoff case, two sewage treatment plant managers were found guilty for knowingly violating the Clean Water Act. Yet, it was not necessary for the government to prove that they knew they had violated their permit or even the Clean Water Act, but only that they knew they were discharging materials. Therefore, facility owners may be subject to criminal penalties for "knowing" violations without actually knowing that they are breaking the law.

Federal regulatory programs are frequently administered by the states. State air quality, water quality, and hazardous waste regulations are generally drafted with a view to the state's satisfying federal statutory requirements and thus being given the right to administer these federal programs. Other programs created by the states reflect concerns that affect ship breaking/recycling. For example, California and several other states have aggressive land use planning requirements that apply to the coastal zone.

There are regulatory impediments to foreign recycling of Maritime Administration (MARAD) vessels. These impediments arise from a variety of domestic and foreign laws, international agreements, and interpretations of those laws and agreements. The current EPA interpretation of TSCA effectively prohibits the export of vessels that may contain PCBs. Domestic laws that may be enacted to implement the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal could impose additional limitations on the export of vessels containing asbestos and other waste.

Mexican law may prohibit the importation of hazardous wastes into Mexico. India requires vessel recyclers to identify the amount of hazardous waste they expect to generate. Recycling operators in India could reasonably require the United States to provide them with the information necessary for them to comply with this requirement.

Treaties, international agreements, and foreign domestic laws currently do not prohibit export of ships to India, China, or Mexico for recycling. Nonetheless, the export to developing countries of ships containing hazardous materials may soon be a thing of the past as worldwide opinion increasingly opposes the practice.

There are no laws that prevent the recycling of U.S. vessels in the United States; however, the complexity and expense of dealing with the morass of environmental and safety requirements can be exhausting, both in terms of time and money. The cost and delay involved in complying can be lessened if facilities plan ahead and coordinate closely with federal and state agencies where possible.

## 2.0 FEDERAL LAWS

### 2.1 FEDERAL WATER POLLUTION CONTROL ACT ("CLEAN WATER ACT") (33 U.S.C. §§ 1251-1387)

#### 2.1.1 Introduction

Ship breaking/recycling facilities routinely handle process water, harbor water and rainwater that accumulates in the bilges of ships. Typically, this water contains oily residues, metals, chemicals used in ship cutting, and other shipboard contaminants. The discharge of any of these wastewaters into either the waters of the United States or publicly owned treatment works (POTW) is regulated under the Clean Water Act. Furthermore, if the ship breaking/recycling facility discharges directly into surface water, the facility owner or operator must obtain a National Pollutant Discharge Elimination System (NPDES) permit under § 402 of the Clean Water Act. If it discharges into a POTW, the facility must comply with EPA's pretreatment standards.

Aside from bilge water and other wastewater, rainwater runoff from a ship breaking/recycling facility will probably require a permit. Scrapyards and salvage yards must obtain a storm water runoff permit, regardless of whether the storm water has come into contact with any equipment or material.

Any construction activity at a ship breaking/recycling facility requiring disposal of dredged or fill material is regulated under § 404 of the Clean Water Act, as is any dredging. These activities require permits which are issued by the Corps of Engineers.

Additionally, certification that a discharge will not violate applicable water quality standards must be obtained from the state or interstate agency having jurisdiction over the waters at the point of discharge. Obtaining this certification can be difficult if the state has defined waters of the state to include wetlands that would be affected by the discharge or if the state has adopted standards more stringent than the minimum standards required under the Clean Water Act.

#### 2.1.2 Direct Discharges

Those who discharge pollutants from a "point source" into waters of the United States are "direct dischargers." "Point source" is broadly defined and includes virtually any identifiable conveyance of a pollutant.<sup>1</sup> "Pollutant" is also broadly defined to include virtually all substances found in a shipyard or ship breaking/recycling facility.

Direct dischargers must obtain an NPDES permit. As a practical matter, an NPDES permit is required for any identifiable conveyance of pollutants to any body of surface water.

EPA is required to establish effluent limitations for point sources that discharge pollutants directly into navigable waters. The Clean Water Act provides a process of several levels of

control applicable to existing categories of point sources. By 1977, the dischargers were required to use the "best practicable technology," and, by 1987, the "best available technology."

### 2.1.3 Indirect Discharges

Those who discharge pollutants into a POTW rather than directly into waters of the United States are called "indirect dischargers." Discharges into a POTW are regulated by pretreatment standards promulgated by EPA and not through an NPDES permit. These pretreatment standards are designed "to prevent the discharge of any pollutant through a POTW, which pollutant interferes with, passes through or otherwise is incompatible with such works." A ship breaking/recycling facility that discharges pollutants into a POTW would be subject to the general pretreatment standards promulgated by EPA and any local limits set by the POTW.

### 2.1.4 Discharges of Dredged and Fill Material

Any construction activities that take place in U.S. waters, including adjacent wetlands, will, under § 404 of the Clean Water Act, require a permit issued by the U.S. Army Corps of Engineers. Because of the location of shipyards and ship breaking/recycling activities, new construction as well as repair of existing facilities could trigger the need for a § 404 permit.

The Corps issues both individual and nationwide permits. Nationwide permits are approved categories of activities listed in the regulations (33 CFR Part 330). Maintenance of dikes and causeways, for example, may take place without the need for an individual permit. The Corps does have the discretion not to allow an activity to proceed under a nationwide permit. Nationwide permits do contain general conditions -- e.g., notification requirements for certain discharges -- as well as permit-specific conditions.

The individual permit process requires an elaborate balancing by the Corps of the factors that the regulations list as comprising the public interest. These factors include: conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife, floodplain values, flood hazards, land use, navigation, shore erosion and accretion, recreational water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, property ownership, and the needs and welfare of the people.<sup>2</sup>

Although it is the Corps that issues or denies the permits, EPA plays an important role, as it may veto a Corps permit action if the discharge would have an unacceptable effect on municipal water supplies, shellfish, fishing areas, wildlife, or recreation area.<sup>3</sup> The permit will be denied if it does not satisfy EPA's § 404(b)(1) guidelines.<sup>4</sup> Under these guidelines, "no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem."<sup>5</sup>

### 2.1.5 Discharges of Storm Water

Dischargers of storm water<sup>6</sup> associated with industrial activity are required to apply for an individual permit,<sup>7</sup> apply for a permit through a group application, or seek coverage under a promulgated storm water general permit.<sup>8</sup> The term *storm water discharge associated with industrial activity* means "the discharge from any conveyance which is used for collecting and conveying storm water and which is directly related to manufacturing, processing or raw materials storage areas at an industrial plant."<sup>9</sup> Facilities involved in the recycling of materials—including metal scrapyards and salvage yards—are specifically listed as facilities engaging in industrial activity.<sup>10</sup> The material, equipment and machinery at such facilities need not have been exposed to storm water to trigger the need for a permit.

### 2.1.6 Oil Pollution Contingency Plan

If a ship breaking/recycling facility includes an oil storage capability, the owners or operators may be required to prepare an oil pollution contingency plan. Facilities are subject to this requirement if they: transfer oil over water to or from vessels; have a capacity of at least 42,000 gallons; lack sufficient secondary containment or are near a sensitive waterway or public drinking water system; or have had a reportable spill of at least 10,000 gallons during the past 5 years.

### 2.1.7 Conclusion

Ship breaking/recycling operations would be required to obtain permits for direct discharges and for stormwater runoff. Indirect discharges would be subject to applicable pretreatment requirements. In all probability, an oil spill contingency plan would be required. Construction activities would probably require a § 404 permit. Certification of consistency with water quality standards would probably be required as well.

## 2.2 CLEAN AIR ACT (42 U.S.C. §§ 7401-7671q)

### 2.2.1 Introduction

Ship breaking/recycling will generate air pollutants subject to regulation under the Clean Air Act. Asbestos, lead, and PCBs are hazardous air pollutants. Asbestos is found in pipe lagging, adhesives, tiles, gaskets, valve packing, electric cable covering, heat shields, putty, acoustic and thermal insulation, and pipe hangers. It can be found in the engine room, on the boat deck, and on the main deck of older vessels. Lead is in the ballast, paint, cable coverings, gaskets, and plumbing joints throughout older ships, from the bilges to the boat deck. PCBs are found in cables, gaskets, paint, and elsewhere throughout older ships. These pollutants can be released into the air when a ship is cut up for recycling.

Other air pollutants that will be generated during ship breaking/recycling include oxides of nitrogen and of sulfur ( $\text{NO}_x$  and  $\text{SO}_x$ ) and particulate matter. Torch cutting, grinding, sawing, grit blasting, and other industrial processes used to cut vessels apart generate large amounts of particulate matter. Solvents used in ship breaking/recycling contain volatile organic compounds (VOCs).

Attainment and maintenance of the primary and secondary National Ambient Air Quality Standards (NAAQS) are the cornerstone of the Clean Air Act. There are NAAQS for ozone, oxides of nitrogen, sulfur dioxide, carbon monoxide, lead, and fine particulate matter ( $\text{PM}_{10}$ ). Primary standards are designed to protect public health with an adequate margin of safety. Secondary standards are designed to prevent any known or anticipated adverse effects of an air pollutant on the public welfare.

Each state is divided into air quality control regions (AQCRs). Depending on whether the NAAQS for a particular pollutant are being met, an AQCR is considered to be in attainment, in nonattainment, or unclassifiable. Areas within an AQCR with air quality better than an NAAQS are further divided into three classes as part of a program for the prevention of significant deterioration (PSD) of air quality. Various controls are set up to try to ensure that the EPA-designated "maximum allowable increases" of pollutants are not exceeded as a result of any new sources in that area.

In addition to programs related to the attainment and maintenance of the NAAQS, the Clean Air Act contains technology-driven programs. Included among these programs are mobile source standards and New Source Performance Standards (NSPS) for stationary sources. The NSPS apply to all new or modified sources for which a standard has been promulgated, and represent the "best technological system of continuous emission reduction." For example, NSPS have been promulgated for certain petroleum storage facilities and fossil-fuel-fired steam generators.

### 2.2.2 Preconstruction Permitting for Major Sources of Air Pollution

Preconstruction permitting and review are required for the construction and operation of new plants or plant modifications that are either a "major stationary source" or a "major emitting facility." A major stationary source is generally defined as any source that emits or has the potential to emit 100 tons or more per year of any air pollutant. A major emitting facility—which triggers preconstruction review in PSD areas—is defined either as any source from the statutory list of over two dozen types of sources<sup>11</sup> that emit, or have the potential to emit, 100 tons per year or more of any air pollutant; or as any other source having the potential to emit 250 tons per year or more of any air pollutant.

Many common products that are used in shipbreaking/recycling, such as solvents and cleaning fluids, produce VOCs through evaporation. Power plants generate  $\text{NO}_x$  and sulfur dioxide ( $\text{SO}_2$ ). Torch cutting, grinding, sawing, grit blasting and other industrial processes used to cut vessels generate  $\text{PM}_{10}$  emissions. These emissions, as well as others, could well cause a ship breaking/recycling facility to be either a major stationary source or a major emitting facility.

### 2.2.2.1 In Nonattainment Areas

Areas that do not meet the NAAQS for a particular pollutant are termed nonattainment areas, and the states must prescribe control measures to bring these areas into compliance. This includes permit requirements prior to construction or operation of new or modified stationary sources. Major new sources must achieve the "lowest achievable emission rate" (LAER), the most stringent emission limitation imposed. Any emission increase from a new source must be offset by a previous decline in total emissions in that area, so that "reasonable further progress" toward attainment of the NAAQS is maintained. State Implementation Plans (SIPs) specify what (and when) annual incremental reductions, representing "reasonable further progress," must be attained.

Facilities that emit VOCs, such as ship breaking/recycling facilities, are subject to greater scrutiny than other facilities in nonattainment areas. They are more likely to qualify as new or modified facilities subject to new-source review. In general, only sources with the potential to emit 100 or more tons per year of a given pollutant have been defined as "major sources" and are subject to new-source review; however, sources emitting as few as 5 tons of VOCs per year can be major sources and be subject to review in some ozone nonattainment areas.

### 2.2.2.2 In Attainment Areas

Areas with air quality that satisfies an NAAQS (attainment areas) are subject to various controls to ensure that the maximum allowable increases of a pollutant are not exceeded as a result of any new sources in that area. In addition, sources in these clean areas must use best available control technology (BACT) to control each pollutant emitted in significant amounts.

### 2.2.3 Additional Requirements Imposed on Sources of Hazardous Air Pollutants

Prior to 1990, EPA had not been regulating as many hazardous air pollutants (HAPs) or as quickly as Congress thought necessary. Consequently, in the Clean Air Act Amendments of 1990, Congress provided a list of 189 HAPs, many of which are present in ships being recycled.

Chromium, manganese, and nickel are present in shipboard metals, and lead and chromium compounds are in the paint. Large amounts of lead and lead alloys are in permanent ballast and rotating shaft bearings. Lead is also found in paint, cable coverings, gaskets, and plumbing joints. Benzene is present in petroleum fuels. Asbestos is found in older ships in thermal and acoustic insulation, as well as in pipe lagging, adhesives, tiles, gaskets, valve packing, electric cable covering, heat shields, putty, and pipe hangers. PCBs are found in cables, gaskets, paint, and elsewhere. These pollutants can be released to the air when a ship is cut up for recycling. The potential to emit 10 tons per year of any one of these substances or 25 tons per year of a combination of them would cause a ship breaking/recycling facility to be classified as a major source of HAPs.

A major source of HAPs may not be constructed, reconstructed, or modified unless the maximum achievable control technology (MACT) is to be used. EPA has added marine vessel loading and unloading operations to the list of major sources to be regulated under § 112 of the Clean Air Act.

Emissions of specific HAPs may be subject to particular emission standards promulgated under § 112. For example, EPA has promulgated an asbestos standard for demolition and renovation of facilities.<sup>12</sup> The standard is drafted in such a way that it appears to be intended for building demolition and renovation. Technically, however, a ship is a "facility." Consequently, depending upon the type, quality, and amount of asbestos involved, this emission standard might also apply to ship breaking/recycling. The asbestos emission standard applicable to asbestos waste disposal might apply as well.<sup>13</sup>

#### 2.2.4 Operating Permits

Operating permits will include all of the facility's Clean Air Act requirements. These permits are patterned after the NPDES permits required under the Clean Water Act. This may be an elusive goal. Typically, there are considerably more sources of air pollution than there are point sources of water pollution at a facility.

Sources requiring operating permits include major sources, sources subject to standards under § 111 or 112 of the Act, and affected sources under the acid rain requirements of title IV. If a ship breaking/recycling facility were a major source or subject to a NSPS or a standard under § 112, dealing with HAPs, an operating permit would be required.

The major provisions of the Clean Air Act, particularly the NAAQS program, new source performance standards (NSPS), and the air toxics programs, are enforced through operating permits, which will contain all emissions requirements. These programs will be administered by the states after they have been approved by EPA. EPA retains veto power over every operating permit.

#### 2.2.5 Conclusions

The centerpiece of the new air toxics program will be national standards for air toxics. These require the use of the MACT. These provisions and the new operating program provisions will likely have a significant effect on ship breaking/recycling operations.

The operating permits may allow some operational flexibility through: permitting the "worst case"; permitting by classes of chemicals; and, permitting in the alternative. The "off-permit" provisions in the regulations allow changes not "addressed or prohibited" by the permit to take place without a permit revision. The source must provide contemporaneous notice of these changes to the state permitting authority and EPA. The source must keep a record of these changes at the facility. Thus, a ship breaking/recycling facility might not need a formal permit revision to emit a pollutant not even mentioned in its permit.

The operating permits rule also allows some emissions trading within a facility. The permitting authority must allow emissions trading among emissions units at a facility, solely for the purpose of complying with a federally enforceable emissions limit accepted by a facility to limit the "potential to emit" and the applicability of the Act.

## **2.3 SOLID WASTE DISPOSAL ACT, AS AMENDED BY RCRA AND THE HAZARDOUS AND SOLID WASTE AMENDMENTS OF 1984 (42 U.S.C. §§ 6901-6992k)**

### **2.3.1 Introduction**

Hazardous waste, subject to regulation under the Resource Conservation and Recovery Act (RCRA), is found throughout ships that are going to be recycled. Asbestos is found in pipe and ventilation lagging, mastic adhesives, gaskets, valve packing, pipe hangers, electrical cable coverings, heat shields, sealing putty, thermal and acoustic insulation, and deck tiles. Lead is found in ballast, paint, batteries, cable gaskets, and plumbing systems. Mercury is found in instruments and gauges, and fluorescent light tubes. Cadmium is found in plated fasteners. Organotins are found in antifouling paint. Ethylene glycol is found in antifreeze, air conditioning and refrigeration systems, gauges, and cooling pumps. Coal tar is found in epoxy in wet spaces. Hazardous wastes generated during vessel storage and recycling may also include solvents, acids, and metals in addition to those mentioned above. Bilge water may contain hazardous waste. It is doubtful that a ship awaiting recycling would meet the requirements imposed on a hazardous waste storage facility, e.g., liners, leachate collection.

RCRA creates a management system designed to ensure that hazardous waste is handled safely from point of generation to final disposal. Hazardous waste generators and transporters must employ management practices and procedures that comply with standards established by EPA, including those designed to ensure the effective operation of the manifest system. Transporters of hazardous waste are also subject to regulations promulgated by the Department of Transportation. Persons who generate over 100 kg/month of hazardous waste must: (1) determine the characteristics of the waste, (2) obtain an EPA identification number, (3) prepare the shipping manifest, (4) package the waste properly, and (5) label the waste for shipment. The generator must maintain copies of the manifests for 3 years and prepare a biennial report to EPA concerning the type and amount of waste generated. A generator may accumulate hazardous waste for no more than 90 days; after that, they are considered a storage facility and subject to RCRA permitting and other requirements.

Owners and operators of treatment, storage or disposal (TSD) facilities are subject to far more exacting requirements than those entities that only generate or transport hazardous waste. Owners and operators of TSD facilities must comply with standards established under § 3004 of RCRA. These standards are implemented through permits issued to owners and operators of TSD facilities.

### 2.3.2 RCRA Permits

The owner or operator of a TSD facility must obtain a RCRA permit. The owner or operator of a TSD facility may operate under interim status without a final permit if: (1) the facility existed on the effective date of statutory or regulatory changes under RCRA that made the facility subject to the RCRA permit requirements; (2) the owner or operator complies with the notification requirement of § 3010 of RCRA, informing EPA or the state of the existence of the facility and the particular waste involved; and (3) the owner or operator submits a RCRA Part A permit application. Interim status is retained until a formal decision to issue or deny the final TSD permit.

Until final permits are issued, TSD facilities must comply with the interim status regulations in 40 CFR Part 265. These regulations include design requirements for storage facilities, separation requirements for incompatible wastes, and security, personnel training, and inspection procedures.

A RCRA permit may not simply be abandoned. To close a TSD facility technically demanding regulatory requirements must be met. As a rule, each TSD unit must be "clean closed," which may require that there are virtually no detectable hazardous constituents left in the surrounding soil and groundwater around the unit.

As originally conceived, RCRA's focus was its regulatory compliance program for ongoing hazardous waste management activities. However, the current RCRA corrective actions program, focuses on cleanup of conditions created in the past. Any facility that needs a RCRA permit, e.g., a TSD facility, is subject to corrective action.

Corrective action is not limited to what takes place at a TSD facility. Corrective action may be required at any solid waste management unit and beyond the facility boundary.

### 2.3.3 Conclusion

Ship breaking/recycling will probably generate hazardous wastes. If, in addition to being a generator, the facility owner treats, stores, or disposes of that waste it will need a RCRA permit and could be required to take corrective action, possibly beyond the facility boundary.

## 2.4 TOXIC SUBSTANCES CONTROL ACT (15 U.S.C. §§ 2601-2671)

### 2.4.1 Introduction

TSCA requires stringent regulation of PCBs and for that reason is highly significant to ship recyclers. PCBs are located throughout older vessels. PCBs are found in electrical cables, ventilation gaskets, pipe hangers, transformers, capacitors, fluorescent light ballasts, paint, lagging adhesive, foam and other insulation, pipe lagging, high temperature aluminum paint,

hydraulic and lube oils, grease, foam adhesive tape, machinery mounts, and various rubber products.

#### 2.4.2 Regulation of PCBs

EPA regulates the disposal of PCBs with concentrations of 50 parts per million (ppm) or greater. The following items on old vessels are presumed by EPA to contain concentrations of PCBs of at least 50 ppm: electrical cables; rubber gaskets; felt gaskets; thermal insulation material (fiberglass, felt, form, cork); transformers; capacitors; electronic equipment with capacitors and transformers inside; voltage regulators; switches; reclosers; bushings; electromagnets; adhesives; tapes; oil (electrical equipment and motors, anchor windlasses, hydraulic systems, leaks and spills); certain machinery and other solid surfaces; oil-based paint; caulking; rubber isolation mounts; foundation mounts; pipe hangers; light ballasts; and any plasticizers.

EPA has issued regulations controlling the disposal of PCBs, including both accidental and intentional releases to the environment. In the event of improper disposal of PCBs in concentrations of 50 ppm or greater (or when material with concentrations now less than 50 ppm got that way through dilution), EPA has the authority under § 17 of TSCA to compel persons to take action to rectify any damage or clean up the resulting contamination.

EPA has established a nationwide policy for PCB spill cleanup that could affect ship breaking/recycling facilities that have improperly disposed of PCBs, which are found throughout old ships. The policy requires cleanup to different levels, depending on spill location, the potential for exposure to residual PCBs (those remaining after cleanup), the concentration of the PCBs initially spilled, and the nature and size of the population potentially at risk of exposure. The policy imposes requirements that are most stringent on areas where there is the greatest potential of direct human exposure, and least stringent where there is little potential for any direct human exposure. EPA is reexamining its PCB disposal policy.

RCRA corrective action authority under § 3004(u) applies to PCBs because they are listed as a hazardous constituent in Appendix VIII to 40 CFR part 261. PCB releases from solid waste management units at permitted RCRA facilities are handled in accordance with the TSCA PCB spill cleanup policy.

### 2.5 OIL POLLUTION ACT OF 1990 (33 U.S.C. §§ 2701-2761)

The Oil Pollution Act, enacted following the grounding of the EXXON VALDEZ in Prince William Sound, Alaska, in 1989, contains new, expanded onshore and offshore facility and vessel oil spill liability provisions. Although these are similar to the scheme in § 311 of the Clean Water Act, the damages that are recoverable by injured parties are much more extensive, e.g., third party economic loss, and the defenses are far more limited. Ship breaking/recycling facilities are onshore facilities that might handle large quantities of fuel oil.

The Act requires evidence of financial responsibility for vessels entering the waters of the United States. Direct action may be brought against the entity providing the guaranty of financial responsibility.

Double hulls are required on new oil tankers, as well as certain other vessels, operating in waters under U.S. jurisdiction.<sup>14</sup> Loan guarantees under the Merchant Marine Act of 1936 are authorized to meet this requirement.

Provisions are made for oil spill planning and response, including strike teams, Coast Guard district response groups, area committees and contingency plans, and vessel and facility response plans. Thus, another layer of contingency planning is added. Moreover, only for very minor spills can the federal government rely entirely on private response efforts.

## **2.6 COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT (42 U.S.C. §§ 9601-9675), ALSO KNOWN AS SUPERFUND; THE EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT OF 1986 (42 U.S.C. §§ 11001-11050)**

### **2.6.1 Introduction**

CERCLA imposes liability and notification requirements upon facilities releasing hazardous substances. Many of these substances are found in older vessels and at ship breaking/recycling facilities: e.g., asbestos; lead; mercury; cadmium; organotins; ethylene glycol; coal tar; and PCBs. A "release" is defined as:

"....any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment (including the abandonment or discarding of barrels, containers, and other closed receptacles containing any hazardous substance or pollutant or contaminant), but excludes (A) any release which results in exposure to persons solely within a workplace, with respect to a claim which such persons may assert against the employer of such persons, (B) emissions from the engine exhaust of a motor vehicle, rolling stock, aircraft, vessel, or pipeline pumping station engine, (C) release of source, byproduct, or special nuclear material from a nuclear incident, as those terms are defined in the Atomic Energy Act of 1954 [42 U.S.C. § 2011 et seq.] if such release is subject to requirements with respect to financial protection established by the Nuclear Regulatory Commission under § 170 of such Act, or, for the purposes of § 9604 of this title or any other response action, any release of source byproduct, or special nuclear material from any processing site designated under § 7912(a)(1) or 7942(a) of this title, and (D) the normal application of fertilizer, 42 U.S.C. § 9601...."

Because of the broad definition of "release," a ship breaking/recycling facility would need to be constantly aware of CERCLA's notification requirements. For example, wind blown asbestos or materials from leaking paint cans could constitute a reportable "release."

## 2.6.2 Outline of Major Provisions

Pursuant to § 104 of CERCLA, EPA may respond to a release or substantial threat of a release of hazardous substances into the environment by: (1) removing or arranging for the removal of hazardous substances; (2) providing for remedial action relating to such hazardous substances; and (3) taking any other response measure consistent with the National Contingency Plan necessary to protect the public health or welfare or the environment.

A "hazardous substance" is any substance designated under particular provisions of the Clean Air Act, the Federal Water Pollution Control Act (Clean Water Act), or the Toxic Substances Control Act for special consideration, and any "hazardous waste" under RCRA. EPA also designates as hazardous those substances that may present a substantial danger to health and the environment and maintains a list of all such "hazardous substances." The person in charge of a facility is required to notify EPA immediately of any release of a hazardous substance in a quantity equal to or exceeding the reportable quantity for that substance.

Responsible parties may be made to pay for remedial action undertaken pursuant to § 104. This liability is imposed if: (1) the defendant falls within one of the four categories of "responsible parties";<sup>15</sup> (2) the hazardous substances are disposed at a "facility";<sup>16</sup> (3) there is a "release" or threatened release of hazardous substances from the facility into the environment; (4) the release causes response costs to be incurred.<sup>17</sup>

The defenses to CERCLA strict liability are: causation solely by an act of God, an act of war, or acts or omissions of a third party other than an employee or agent of the defendant or one whose act or omission occurs in connection with a contractual relationship with the defendant.

The Emergency Planning and the Community Right-to-Know Act ("Emergency Planning Act") was enacted as part of the 1986 CERCLA Amendments but is codified separately. The Act establishes a new list of extremely hazardous substances (EHS). For each EHS there is a threshold planning quantity.

The Emergency Planning Act requires a whole new state and local bureaucracy -- including an emergency response commission -- for the purpose of implementing comprehensive emergency response plans and the emergency planning requirements of the Act. The emergency planning requirements would apply to all ship breaking/recycling facilities that handle at any time an extremely hazardous substance that equals or exceeds the threshold planning quantity.

Each ship breaking/recycling facility that handles a threshold planning quantity of an extremely hazardous substance must so notify the state commission and select a facility emergency coordinator. Whenever there is a release, as defined above, of an extremely hazardous substance the facility must notify the state commission and local committees and provide all of the detailed information required by § 304(b) of the Act. In addition, a

material safety data sheet, an inventory form, and, in some cases, toxic chemical release forms or emissions inventories must be filed and made available to the public.

## 2.7 NATIONAL ENVIRONMENTAL POLICY ACT (42 U.S.C. §§ 4321-4370b)

The National Environmental Policy Act (NEPA) does not apply to a ship breaking/recycling facility as such; however, if the facility seeks approval of a permit from a federal agency, that agency would be subject to NEPA and might be required to prepare an Environmental Impact Statement (EIS). Section 102(2)(c) of NEPA requires that an EIS be prepared for "major federal actions significantly affecting the quality of the human environment."<sup>18</sup> An EIS is not required where the major federal action is not "significant" within the meaning of NEPA.<sup>19</sup>

The substantive issue of whether an agency's action will have a "significant" effect on the environment has traditionally been left to the informed discretion of the agency.<sup>20</sup> The courts will ensure that in deciding this substantive issue, the agency complies with the "procedural duties" imposed by NEPA;<sup>21</sup> once an agency has made a decision subject to NEPA's procedural requirements, however, the only role for a court is to ensure that the agency has considered the environmental consequences.<sup>22</sup>

Social and economic impact alone will not trigger the requirement for an EIS.<sup>23</sup> Nonetheless, if an EIS is otherwise required, social and economic effects should be discussed. NEPA has been applied to projects outside the United States. In *EDF v. Massey*, 986 F.2d 528 (D.C. Cir. 1993), the court applied NEPA's requirements to a National Science Foundation proposal to build a waste disposal incinerator in Antarctica.

In determining whether proposed action would be sufficiently major and significantly affect the environment so as to warrant an EIS, a federal agency must consider the cumulative effect of its actions or decisions. Agencies may create "categorical exclusions" for those categories of actions that do not individually or cumulatively have a significant effect on the human environment.

An EIS is evidence that an agency has considered the reasonably foreseeable environmental effects of a proposed major action before making a decision to take that action. The EIS must include a discussion of: (a) the environmental impacts of the proposed action; (b) the adverse impacts that cannot be avoided should the proposal be implemented; (c) the alternatives to the proposed action; (d) the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity; and, (e) any irreversible and irretrievable commitment of resources involved if the proposed action were implemented.

The EIS must accompany the agency proposal through the agency's review process. The agency must consult with other federal agencies having jurisdiction over or special expertise in the areas of the project's environmental impacts. The EIS should be distributed to federal, state, and local officials with environmental enforcement responsibilities and made available to the public.

## **2.8 SECTION 10 AND SECTION 13 OF THE RIVERS AND HARBORS ACT OF 1899 (33 U.S.C. §§ 403, 407)**

Although for most facilities the Rivers and Harbors Act is largely of historical interest, a ship breaking/recycling facility should be particularly aware of the statute, which could be invoked if a ship were to block a channel or otherwise adversely affect the navigability of a waterway. Section 10 prohibits any obstruction to the navigable capacity of any waters of the United States. It also forbids the excavation or filling of a lake or stream of the United States. Section 13 prohibits the discharge or deposit of refuse into navigable waters of the United States. In 1966 the Supreme Court held that the refuse referred to in § 13 applied to pollution as well as to obstructions to navigation. Thus, ship recyclers would be violating this statute by discarding refuse into navigable waters.

## **2.9 OCCUPATIONAL SAFETY AND HEALTH ACT (29 U.S.C. §§ 651 et seq.)**

In 1970, Congress passed the Occupational Safety and Health Act, which requires that employers protect workers from recognized hazards by making the work environment safe. The Act authorizes the imposition of mandatory occupational safety and health standards that are reasonably necessary and feasible.

Under the Occupational Safety and Health Act, the Occupational Safety and Health Administration ("OSHA") has promulgated standards that apply generally to all employers and standards that apply to specific industries. The standards in Part 1910 of the regulations<sup>24</sup> apply to all employers. Those in Part 1915 of the regulations<sup>25</sup> apply specifically to shipyards.

Shipyards employment includes shipbreaking and related employment. "Shipbreaking" means any breaking down of a vessel's structure for the purpose of scrapping the vessel. This includes the removal of gear, equipment, or any component part of a vessel. "Related employment" means any employment performed incident to or in conjunction with shipbreaking work, e.g., inspection, testing, and employment as a watchman. Employees at dry docks, graving docks, and marine railways would ordinarily be protected by the regulations.<sup>26</sup> A vessel's master, officers, and crew would not be considered employees of the ship breaking/recycling facility.

Section 5(a)(1) of the Act<sup>27</sup> requires employers to furnish a place of employment "free from recognized hazards that are causing or likely to cause death or serious physical harm" to employees. This applies to "recognized hazards" in the workplace that are likely to cause serious physical harm and that may feasibly be eliminated.<sup>28</sup> A recognized hazard is one of which an employer either had or should have had knowledge.<sup>29</sup>

OSHA rules regulate worker exposure to hazardous substances and noise. They also regulate: general working conditions (e.g., housekeeping, illumination, first aid); the use of scaffolds, ladders, and other working surfaces; gear and equipment for rigging and materials handling; ship's machinery and piping systems; and electrical machinery.

OSHA has also promulgated a hazard communication standard, based upon a generalized finding of significant risk. Employers are required to establish a comprehensive hazard communication program, which includes assessing the hazards of chemicals in the workplace, labeling, and other types of warning. Employers must establish training programs that include the methods used to detect the presence or release of a hazardous chemical in the work area and tell employees how to protect themselves from hazards.

OSHA regulations specifically apply to ship breaking/recycling. Furthermore, many of the toxic chemicals found in ship breaking/recycling facilities are specifically regulated by OSHA. These factors, coupled with the vigilance of OSHA inspectors, cause this statute to have a major impact on ship breaking/recycling business decisions.

## **2.10 MARINE PROTECTION, RESEARCH, AND SANCTUARIES ACT (33 U.S.C. 1401-1445), TITLE I KNOWN AS THE OCEAN DUMPING ACT**

Section 101 of the Marine Protection, Research, and Sanctuaries Act (MPRSA) prohibits anyone from transporting from the United States without a permit any material for the purpose of dumping it into ocean waters. Violators are subject to civil and criminal penalties. If the material is to be transported in a vessel or aircraft registered in the United States or flying the United States flag, no one without a permit may transport from any location any material for the purpose of dumping it into ocean waters. The term "material" is broadly defined in § 3 of MPRSA to include "matter of any kind." The term does not include sewage from vessels, and includes oil only to the extent that the oil is taken on board a ship or airplane for purposes of dumping.

Under MPRSA, EPA administers the ocean dumping permit program. Other departments and agencies, however, have some responsibilities as well. The Corps of Engineers reviews activities involving the transportation of dredged material for the purpose of dumping it in ocean waters, pursuant to § 103 of the Act. Various provisions in the Act also provide for consultation between EPA (or the Corps of Engineers, as the case may be) and the Secretary of Transportation and Secretary of Commerce. The Justice Department would also be involved in any judicial proceedings. Activities directly affecting a state's coastal zone must also be consistent with that state's coastal zone management plan.

## **2.11 MARINE MAMMAL PROTECTION ACT (16 U.S.C. §§ 1361 et seq.)**

Shipyard construction related activity that harms or harasses marine mammals is prohibited. The Act generally establishes a moratorium on taking marine mammals and marine mammals' parts. The term *take* includes hunt, harass, capture, or kill, and attempts to hunt, harass, capture or kill any marine mammal. The prohibition has been very broadly construed and caused a portion of the Navy's weapons program to be enjoined. Waivers and "incidental take" permits may be obtained, but with great difficulty.

Administration of this Act is split between the National Marine Fisheries Service of the Department of Commerce and the Fish and Wildlife Service of the Department of the Interior.

There is also, within the executive branch, a Marine Mammal Commission, which makes policy recommendations.

The Act could have a great effect on activities perceived as disturbing marine mammals, as evidenced by the preliminary injunction issued in 1994 barring implementation of a portion of the Navy's weapons testing program. The proscription against harassment of marine mammals may be less broad than it originally was, however, in light of the 1994 amendments to the Act.

## **2.12 ENDANGERED SPECIES ACT (16 U.S.C. §§ 1531 et seq.)**

The Endangered Species Act (ESA) protects species that are listed as threatened or endangered by the Secretary of the Interior pursuant to § 4 of the Act. The Secretary may also list a species' critical habitat. Construction activities at vessel recycling sites that destroy critical habitat or take an endangered species are prohibited. Endangered species that take up residence on vessels or in their vicinity could force delay in recycling. Ospreys and other protected species are routinely discovered in "mothballed" ships.

Section 9 of the Act prohibits the taking of an endangered species and regulations prohibit the taking of a threatened species. The act defines *take* to mean "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." A taking may be authorized by an "incidental take" permit; however, obtaining such a permit requires much time and money. There are civil and criminal penalties for violating the Act.

Section 7 of the Act requires all federal agencies to ensure that any action funded, authorized, or carried out by them will not jeopardize the continued existence of an endangered or threatened species or the adverse modification of designated critical habitat. If agency action may affect a listed species, consultation is required between the particular agency involved and either the Fish and Wildlife Service or the National Marine Fisheries Service, depending on the species. There is an exemption procedure, but exemptions are not readily granted.

## **2.13 COASTAL ZONE MANAGEMENT ACT (16 U.S.C. §§ 1451-1464)**

Under this Act, coastal states submit coastal zone management programs to the Secretary of Commerce for approval. Applicants for permits that would allow activities directly affecting a state's coastal zone must receive certification from the state that the proposed activity would be consistent with the coastal zone management program to the maximum extent practicable. Thus, construction activities by a ship breaking/recycling facility -- which would likely take place in the coastal zone -- requiring a federal permit would also need certification under the Coastal Zone Management Act.

**2.14 NATIONAL HISTORIC PRESERVATION ACT, SECTION 106  
(16 U.S.C. § 470f)**

Under § 106 of the National Historic Preservation Act, the head of every federal agency must take into account the effect of any action by that agency on any site, object, district, building, or structure included or eligible for inclusion in the National Register. Any agency that approved or financed a ship breaking/recycling would have to consult with the Advisory Council on Historic Preservation if the ship was in or eligible for inclusion in the National Register.

**2.15 ATOMIC ENERGY ACT (42 U.S.C. §§ 2011 et seq.)**

The Atomic Energy Act (AEA) regulates source, special nuclear, and by-product material. The possession or use of these materials requires a license from either the Nuclear Regulatory Commission or an agreement state. Recycling the nuclear steamship Savannah would involve materials controlled under the AEA. The AEA does not, however, apply to naturally occurring and accelerator-produced radioactive materials. EPA's authority to control the disposal of these waste materials is found under TSCA, RCRA, and the Clean Air Act.

**2.16 ENERGY SUPPLY AND ENVIRONMENTAL COORDINATION ACT  
(15 U.S.C. §§ 791-798)**

This statute exempts from NEPA action taken under the Clean Air Act. Otherwise, it may contain some vestigial reporting requirements applicable to energy industries; however, it is largely a period piece that was enacted to resurrect the vetoed Energy Emergency Act and promote the use of coal during the Arab oil embargo. Other than its impact on NEPA, this statute does not affect ship breaking/recycling.

**2.17 ENVIRONMENTAL LAWS WHICH WERE REVIEWED WITHOUT FINDING  
ANY NOTABLE IMPACT ON VESSEL RECYCLING ACTIVITIES.**

1. Coastal Wetlands Planning, Protection and Restoration Act - 1990 (16 U.S.C. §§ 3951 - 3956). Provides funds and programs for coastal wetlands restoration.
2. Environmental Quality Improvement Act of 1970 (43 U.S.C. §§ 4371 - 4375). Provides staff and funding for the Council on Environmental Quality.
3. Water Resources Research Act of 1984 (42 U.S.C. §§ 10301 - 10309). Promotes development of adequate fresh water sources.
4. Fish and Wildlife Coordination Act - 1988 (16 U.S.C. §§ 661 - 666c). Authorizes the U.S. Fish and Wildlife Service and the National Marine Fisheries Service to comment on dredge and fill permits requested of the Army Corps of Engineers under the Clean Water Act.

5. Insecticide Act - 1910. Protects farmers from adulterated or ineffective pesticides.
6. Federal Insecticide, Fungicide and Rodenticide Act - 1972, as amended (7 U.S.C. §§ 136 - 136y). Provides for the regulations of pesticides and pesticide containers.
7. Nuclear Waste Policy Act of 1982 (42 U.S.C. §§ 10101 - 10270). Provides for disposal of high-level nuclear waste.
8. Federal Food, Drug and Cosmetic Act (21 U.S.C. §§ 301 et seq.). Regulates foods and drugs for human consumption.
9. Geothermal Energy Research, Development, and Demonstration Act of 1974 (30 U.S.C. §§ 1101 et seq.). Encourages the development of geothermal energy sources.
10. Global Climate Protection Act of 1987 (15 U.S.C. §§ 2901 et seq.).
11. Hazardous Substance Response Revenue Act of 1980 (26 U.S.C. §§ 4611 et seq.). Provides for a tax on petroleum to fund Superfund.
12. Multiple Use Sustained Yield Act of 1980 (16 U.S.C. §§ 528 et seq.). Concerns the management of forests.
13. Noise Control Act of 1972 (42 U.S.C. §§ 4901 et seq.). Provides for the control of noise emissions from products.
14. Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (16 U.S.C. §§ 4701 et seq.). Controls the introduction of nonindigenous species by way of ship's ballast water and sediments.
15. Organo-tin Antifouling Paint Control Act of 1988 (33 U.S.C. §§ 2401 et seq.). Prohibits the application of organo-tin antifouling paint on vessels less than 25 meters in length.
16. Outer Continental Shelf Lands Act Amendments of 1978 (43 U.S.C. §§ 1801 et seq.). Regulates the development of natural gas and oil deposits under the Continental Shelf.
17. Renewable Resource Extension Act of 1978 (16 U.S.C. §§ 1671 et seq.). Regulates forests and range land.
18. Shore Protection Act of 1988 (33 U.S.C. §§ 2601 et seq.). Regulates the transportation of municipal and industrial wastes by vessels.