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Requirements of emergency cleanup capabilities for removal company

船舶污染清除单位应急清污能力要求

(English Translation)

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Contents

Foreword

This document is drafted in accordance with the rules given in *the Regulations on the Prevention and Control of Pollution from Ships in the Marine Environment, the "Regulations on Emergency Preparedness and Emergency Response for Ship-Generated Pollution in the Marine Environment, and the implementation Measures for the Management of Agreements on Ship-Generated Pollution Cleanup,* with the specific requirements of *the Regulations on Emergency Preparedness and Emergency Response for Ship-Generated Pollution in the Marine Environment of the People's Republic of China.*

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This document was proposed and prepared by the Ship’s Pollution Prevention Association.

Ship’s Pollution Prevention Association is responsible for the interpretation of this standard.

Requirements of Emergency Cleanup Capabilities for Removal Company

1 Scope

This document specifies the requirements for the emergency cleanup capabilities for ship pollution removal company.

This standard is applicable to ship pollution cleanup units within the scope of the Tianjin Ship Pollution Prevention Association's board of directors, which are equipped with emergency resources, provide ship pollution emergency preparedness services, and assess emergency pollution cleaning capabilities.

2 Normative references

This standard references the clauses in the following documents. For documents referenced with a specific date, only the version with the specified date is applicable to this standard. For documents referenced without a specific date, the latest version (including all amendments) is applicable to this document.

JT/T 465	Oil boom
GB/T18188.1	Oil spill dispersant—Part 1:Technical requirements
JT/T560	Sorbents for ship
JT/T 863	Disc/drum/brush skimmer
JT/T 864	Oil absorbent boom
JT/T 865	Oil spill dispersants spraying device
JT/T 866	Emergency unloading device

3 General Requirements

3.1 The emergency pollution cleaning capability of ship pollution cleanup units should not be less than the requirements of this standard for emergency ships, facilities, equipment, and materials, as well as other relevant requirements. The formulated pollution cleanup operation plan should comply with the requirements for preventing and controlling pollution from ships and related operational activities that pollute the marine environment. The formulated pollution treatment plan should

comply with the relevant national regulations on pollution prevention.

3.2 The emergency ships, facilities, equipment, and materials equipped by ship pollution cleanup units should comply with the relevant provisions of current national and industry standards and pass inspection.

3.3 Ship pollution cleanup units that have signed pollution agreements should be on emergency standby 24 hours a day and be able to provide emergency pollution cleaning services to ships that have signed pollution cleanup agreements in a timely manner.

3.4 Ship pollution cleanup units may adjust some parameters based on the actual situation in their service area to better meet the practical needs of emergency pollution cleaning work.

3.5 The emergency pollution cleaning capability of ship pollution cleanup units mainly includes oil booms, oil recovery machines, oil spill dispersant spray devices, cleaning equipment, oil absorbent materials, oil spill dispersants, emergency unloading devices, temporary storage facilities, pollution treatment, emergency ships, emergency workers, comprehensive support, emergency capabilities for hazardous goods other than oil, pollution cleanup operation plans, pollution treatment plans, emergency plans, emergency preparedness standby, etc.

4 Specific Requirements

4.1 Oil Boom

4.1.1 The requirements for the equipment of oil booms for ship pollution cleanup units are provided in Table 1.

Table 1: Requirements for Equipment of Oil Booms for Ship Pollution Cleanup Units

	Functional Requirements		Special Grade	Grade I	Grade II	Grade III	Grade IV
Oil Boom	Open Water Area (m)	Total Height ≥1500mm	≥3000	≥2000	≥1000	—	—
	Non-Open Water Area (m)	Total Height ≥900mm	≥4500	≥3000	≥1000	≥1000	≥1000
	Shoreline Protection (m)	Total Height ≥600mm	≥6000	≥4000	≥2000	≥1000	≥400
	Fireproof (m)	Total Height ≥900mm	≥600	≥400	≥200	≥200	—

4.1.2 It is necessary to have fixed anchors, ropes, unbuckling devices, and other equipment that are compatible with the oil boom. Inflatable oil booms should be equipped with inflation machines, power stations, and winding machines. Shoreline protection oil booms should be

equipped with water pumps, inflation machines, power stations, etc.

4.1.3 When equipping oil booms, factors such as sea conditions, geographical characteristics, sensitive resources, and emergency response time in the service area should be considered. For areas with relatively calm waters and low flow rates, the relevant requirements for open water oil booms can be appropriately reduced. In areas with higher flow rates or prone to icing, the strength or total height requirements of the oil boom can be increased as needed.

4.1.4 Depending on the characteristics of the applicable waters, if there are more open water oil booms than required by this standard, they can replace the corresponding quantity of non-open water oil booms or shoreline protection oil booms. If there are more non-open water oil booms than required by this standard, they can replace the corresponding quantity of shoreline protection oil booms, except for beach-type oil booms.

4.1.5 Pollution control units should equip the required number of shoreline protection oil booms according to this standard and determine the types and quantities of shoreline protection oil booms suitable for the characteristics of the coastline in the service area. Shoreline protection oil booms should include beach-type oil booms or other oil booms that can be used for dam protection at tidal zones and water-land interfaces. Depending on the possibility of oil spills onshore and the characteristics of the coastline, an appropriate number of beach-type oil booms should be equipped.

4.1.6 In service areas with many oil terminals and oil tankers, pollution control units should consider increasing the equipment of fire-resistant oil booms based on actual conditions.4.1.3 The bunker tanker shall provide calibrated valid bunker tank capacity tables for trim and list correction calculations of the bunker barge.

4.2 Oil Skimmer

4.2.1 The requirements for the equipment of oil skimmers by pollution control units are specified in Table 2.

Table 2 Pollution Control Unit Oil Skimmer Equipment Requirements

Oil Skimmer	Functional Requirements		Special Grade	Grade I	Grade II	Grade III	Grade IV
	Recovery Capacity	High Viscosity	≥450	≥300	≥150	≥30	≥15

	(m3/h)	Medium, Low Viscosity	≥150	≥100	≥100	≥50	≥10

4.2.2 The recovery capacity of an oil skimmer refers to the total amount of oil-water mixture that a single unit or multiple units of oil skimmers can recover per hour. The indicator used to calculate the recovery capacity is the oil recovery rate.

4.2.3 Pollution control units must meet the requirements for recovery capacity and also meet the specific requirements for the type of oil skimmer.

4.2.4 Oil skimmers are divided into high-viscosity oil skimmers and medium-low-viscosity oil skimmers based on the viscosity of the recovered oil, and the two types of oil skimmers cannot be used interchangeably.

4.2.5 High-viscosity oil skimmers should be capable of recovering the following types of oil:

(1) Crude oil with a density greater than or equal to 900 kg/m3 at 15°C.

(2) Fuel oil with a density greater than or equal to 900 kg/m3 at 15°C or a kinematic viscosity greater than or equal to 180 mm2/s at 50°C.

4.2.6 Medium-low-viscosity oil skimmers should be capable of recovering the following types of oil:

(1) Crude oil with a density lower than 900 kg/m3 at 15°C.

(2) Fuel oil with a density lower than 900 kg/m3 at 15°C or a flow viscosity lower than 180 mm2/s at 50°C.

4.2.7 While meeting the recovery capacity requirements, to enhance the emergency oil spill response capability for large-scale incidents, special-grade pollution control units should be equipped with 2 sets of high-viscosity oil skimmers with a recovery capacity of 100 m3/h or more; grade 1 pollution control units should be equipped with 1 set of high-viscosity oil skimmer with a recovery capacity of 100 m3/h or more; grade 2 pollution control units should be equipped with 1 set of high-viscosity oil skimmer with a recovery capacity of 50 m3/h or more.

4.2.8 Oil skimmers should be equipped with an adequate supply of spare parts and tools, and they should be compatible with the vessels they are deployed on. Depending on the characteristics

of the service area, oil skimmers should be adaptable to practical applications such as waterborne debris and ice conditions.

4.3 Oil Spill Dispersant Spraying Equipment

4.3.1 Pollution control units' requirements for the equipment of oil spill dispersant spraying are shown in Table 3.

Table 3 Pollution Control Unit Requirements for Oil Spill Dispersant Spraying Equipment

Oil Spill Dispersant Spraying Equipment (Unit: Units)	Functional Requirements	Special Grade	Grade I	Grade II	Grade III	Grade IV
	Onboard Fixed Type	≥6	≥4	≥2	0	0
	Portable Type	12	8	4	2	1

4.3.2 Onboard fixed-type spraying equipment refers to devices that can be securely installed or placed on a vessel and rely on mechanical power to carry out oil spill dispersant spraying operations. Onboard fixed-type spraying equipment can be equipped on oil spill emergency response vessels or auxiliary vessels.

4.4 Cleaning Equipment

4.4.1 The equipment requirements for cleaning equipment for ship pollution cleanup units are shown in Table 4.

Table 4: Equipment Requirements for Cleaning Equipment in Ship Pollution Cleanup Units

Cleaning Equipment (Units: Sets)	Functional Requirements	Special Grade	Grade I	Grade II	Grade III	Grade IV
	Hot Water	≥6	≥4	≥2	≥1	≥1
	Cold Water	3	2	1	1	1

4.4.2 Cleaning equipment is mainly used to clean the hull of ships, shorelines, rocks, as well as oil booms, oil recovery machines, etc.

4.4.3 The temperature and pressure requirements for cleaning equipment are as follows:

(1) Hot water cleaning equipment should have a temperature of not less than 80°C and a pressure of 8 MPa.

(2) Cold water cleaning equipment should have a pressure of 8 MPa.

4.4.4 For relatively warm regions in the southern part of the country, cold water cleaning equipment can be used to replace an appropriate number of hot water cleaning equipment.

4.5 Oil Absorbent Materials

4.5.1 The requirements for oil absorbent materials for ship pollution cleanup units are shown in Table 5.

Table 5: Requirements for Ship Pollution Cleanup Unit Oil Absorbent Materials

Oil Absorbent Materials	Special Grade	Grade I	Grade II	Grade III	Grade IV
Oil Absorbent Trawl (m)	≥6000	≥4000	≥1000	≥500	≥300
Oil Absorbent Pads (t)	≥18	≥12	≥6	≥3	≥1

4.5.2 The strength of the oil-absorbing boom should meet the requirements of the applicable waters, and its diameter should not be less than 200mm.

4.5.3 Oil-Absorbing Felt

4.5.3.1 The oil absorption weight of the oil-absorbing felt should be more than 10 times its own weight, and the oil retention rate should be above 80%.

4.5.3.2 The shape of the oil-absorbing felt should be suitable for offshore operations and easy to recover.

4.5.4 For ship pollution cleaning units equipped with oil-absorbing ropes and other oil-absorbing materials, according to their performance standards, the oil-absorbing capacity of the oil-absorbing rope can replace the oil-absorbing capacity requirements of the oil-absorbing felt. Other adsorbent materials can be configured according to the absorption rate proportion of the oil-absorbing felt based on their performance.

4.6 Oil Spill Dispersants

4.6.1 See Table 6 for the requirements for oil spill dispersant equipment of ship pollution cleaning units.

Table 6 Equipment Requirements for Oil Spill Dispersants of Ship Pollution Cleaning Units

Conventional Oil Spill Dispersant	Special Grade	Grade I	Grade II	Grade III	Grade IV
(tons)	≥20	≥20	≥10	≥2	≥1

4.6.2 Oil spill dispersants should be products approved by the China Maritime Safety Administration for use in marine oil spill emergency actions. If there are special

requirements for the use of oil spill dispersants, they should be equipped according to the relevant requirements.

4.6.3 For units equipped with concentrated oil spill dispersants, the quantity can be converted to the equivalent amount of conventional oil spill dispersants based on the concentration ratio.

4.6.4 The provision of oil spill dispersants can be managed through production reserves. Ship pollution cleaning units should sign emergency supply agreements with manufacturers or suppliers, ensuring delivery within no more than 24 hours. The proportion of oil spill dispersants kept in production reserve should not exceed 60% of the total quantity required.

4.7 Emergency Unloading Devices

4.7.1 See Table 7 for the equipment requirements of emergency unloading devices for ship pollution cleaning units.

Table 7 Equipment Requirements for Unloading Devices of Ship Pollution Cleaning Units

Total Unloading Capacity (m^3/h)	Special Grade	Grade I	Grade II	Grade III	Grade IV
	≥450	≥300	≥200	≥100	≥25

4.7.2 The emergency unloading capacity refers to the total amount of oil unloaded per hour by a single set or multiple sets of unloading devices.

4.7.3 Emergency unloading pumps should be portable and meet requirements for explosion-proof, chemical corrosion resistance, and impurity prevention.

4.7.4 Super Grade ship pollution cleaning units should be equipped with at least two sets of emergency unloading pumps capable of unloading high-viscosity oil products at 100 m^3/h or more; First Grade units should have at least one set capable of 150 m^3/h or more; Second Grade units should have at least one set capable of 100 m^3/h or more; Third Grade units should have at least one set capable of 50m^3/h or more; Fourth Grade units should have at least one set capable of 15m^3/h or more.

4.8 Temporary Storage Devices

4.8.1 See Table 8 for the requirements for temporary storage device equipment of ship pollution cleaning units.

Table 8 Equipment Requirements for Temporary Storage Devices of Ship Pollution Cleaning Units

Temporary Storage Capacity (m^3)	Special Grade	Grade I	Grade II	Grade III	Grade IV
	≥2400	≥1600	≥1000	≥400	≥100

4.8.2 Temporary storage capacity refers to the total storage volume of devices that can temporarily store pollutants at sea.

4.8.3 Temporary storage devices can come in various forms, such as ships, barges, bags, tanks, barrels, etc., including the cargo hold capacity of oil spill emergency response vessels.

4.9 Pollutant Disposal

4.9.1 See Table 9 for pollutant disposal capacity requirements.

Table 9 Pollutant Disposal Capacity Requirements

	Pollutant Disposal Capacity (tons/day)	Special Grade	Grade I	Grade II	Grade III	Grade IV
Pollutant Disposal	Liquid Pollutant Disposal Capacity	≥150	≥100	≥50	≥20	≥10
	Solid Pollutant Disposal Capacity	≥15	≥10	≥5	≥2	≥1

4.9.2 Pollutant disposal capacity refers to the daily processing tonnage of liquid and solid pollutants or other hazardous cargo.

4.9.3 Liquid pollutants mainly refer to petroleum and oil-contaminated water. Solid pollutants mainly refer to solid waste generated during pollution cleaning operations, such as oil-absorbing materials and garbage.

4.9.4 Pollution disposal devices on land should comply with the current national environmental protection regulations, and the owning units should possess the corresponding qualifications. In cases of ownership through agreements, ship pollution cleaning units should sign a pollutant disposal agreement with the owner or operator of the disposal devices.

4.9.5 The pollutant disposal capacity of oil-water separators installed on oil spill emergency response vessels or auxiliary ships can be considered equivalent to the pollutant disposal capacity required by this standard.

4.10 Ships

4.10.1 Oil Spill Emergency Response Vessels

4.10.1.1 See Table 10 for the equipment requirements of oil spill emergency response vessels for ship pollution cleaning units.

Table 10 Equipment Requirements for Oil Spill Emergency Response Vessels of Ship Pollution Cleaning Units

Oil Spill Emergency Response Vessels	Special Grade	Grade I	Grade II	Grade III	Grade IV
(number of vessels)	≥3	≥2	≥1	—	—

4.10.1.2 Oil spill emergency response vessels should be equipped with surface oil spill recovery devices, oily water storage tanks, oil spill dispersant spraying devices, and can be equipped with emergency unloading devices, as well as a certain number of oil booms, oil-absorbing felts, oil-absorbing booms, oil spill dispersants, and other materials. They should have capabilities for mechanical recovery, elimination, storage, and transfer of surface oil spills, and may also have one or more functions such as oil spill containment, oil-water separation, emergency unloading, material storage, oil spill monitoring, and on-site oil spill emergency command.

4.10.1.3 The barge transportation capacity and recovery storage capacity of oil spill emergency response vessels should be commensurate with their oil spill recovery capacity.

4.10.1.4 Oil spill recovery devices on oil spill emergency response vessels should be able to be fixed to the vessel or suspended/built-in using a crane, and their installation should meet relevant safety requirements such as explosion-proofing.

4.10.1.5 Oil spill emergency response vessels, in addition to oil spill emergency response, can be used for other functions. Their regular sailing area should not leave the service area of the ship pollution cleaning units.

4.10.1.6 Oil spill emergency response vessels should have valid ship inspection certificates and be manned by qualified crew members. Except for Super Grade, the owners and operators of oil spill emergency response vessels of other qualification application units should be the ship pollution cleaning units.

4.10.1.7 Oil spill emergency response vessels should have long-term berthing docks, and the docks should meet the loading and unloading requirements of the vessels.

4.10.1.8 The design speed of oil spill emergency response vessels should not be less than 12 knots, with the capability of operating at speeds below 3 knots, and able to carry out emergency operations such as spraying dispersants, deploying, and recovering oil-absorbing

materials in sea state 4.

4.10.1.9 The sailing area of oil spill emergency response vessels should be commensurate with the service area of the ship pollution cleaning units.

4.10.1.10 The storage capacity of the oily water tanks of oil spill emergency response vessels of Super Grade/First Grade ship pollution cleaning units should not be less than 500 m^3; for Second Grade units, it should not be less than 300 m^3.

4.10.1.11 The containment, recovery, elimination, temporary storage, and other capabilities of oil spill emergency response vessels can replace the capabilities of surface oil spill recovery devices, temporary storage devices, unloading devices, oil spill dispersant spraying devices, oily water treatment devices, etc., as required in this standard.

4.10.2 Auxiliary Vessels

4.10.2.1 See Table 11 for the equipment requirements of auxiliary vessels for ship pollution cleaning units.

Table 11 Equipment Requirements for Auxiliary Vessels of Ship Pollution Cleaning Units

Auxiliary Ships (number of vessels)	Special Grade	Grade I	Grade II	Grade III	Grade IV
	≥12	≥8	≥6	≥3	≥2

4.10.2.2 Auxiliary vessels refer to ships that can be used for deploying oil booms, operating oil recovery machines, spraying oil spill dispersants, deploying and recovering oil-absorbing materials, deploying unloading pumps, temporarily storing oily water, transporting emergency materials and personnel, and monitoring oil spills.

4.10.2.3 For Super Grade/First Grade ship pollution cleaning units equipped with auxiliary vessels, the following principles apply:

(1) Four auxiliary vessels are used to deploy oil booms, with two vessels towing the booms and the other two having sufficient space for storing and deploying them. If an auxiliary vessel can deploy an oil boom alone, other towing vessels are not required, but the total number of auxiliary vessels should not be reduced.

(2) For auxiliary vessels required for deploying oil recovery machines, if two oil spill emergency response vessels have sufficient oil recovery capability, additional auxiliary vessels for deploying oil recovery machines are not needed. If not, other auxiliary vessels can be used for

this purpose.

(3) For auxiliary vessels required for spraying oil spill dispersants, if two oil spill emergency response vessels already have two sets of fixed spraying devices, another two sets can be placed on other auxiliary vessels.

These auxiliary vessels can also be used for deploying and recovering oil-absorbing materials, transporting emergency materials, monitoring oil spills, and temporarily storing oily water.

4.10.2.4 Second Grade ship pollution cleaning units should be equipped with six auxiliary vessels, with the distribution principles following those of the First Grade units, including at least two sets of vessels for deploying oil booms. Third Grade units should have at least one set of vessels for deploying oil booms. The two auxiliary vessels of Fourth Grade units should be capable of all functions corresponding to their capacity.

4.10.2.5 In addition to oil spill emergency response, auxiliary vessels can be used for other functions. The regular sailing area of the vessels should not leave the service area of the ship pollution cleaning units.

4.10.2.6 Auxiliary vessels should have valid ship inspection certificates and be manned by qualified crew members.

4.10.2.7 Ship pollution cleaning units should demonstrate their authority over the emergency dispatch of auxiliary vessels. If fishing boats are used as auxiliary vessels, their number should not exceed 50% of the total number of auxiliary vessels.

4.10.2.8 Auxiliary vessels need to have good maneuverability, stability under low-speed navigation, and a relatively low freeboard, and be able to accommodate a certain number of emergency operation personnel.

4.10.2.9 Auxiliary vessels should have long-term berthing docks, and the berthing docks should meet the loading and unloading requirements of the vessels.

4.11 Emergency Operation Personnel

4.11.1 See Table 12 for the staffing requirements of emergency operation personnel for ship pollution cleaning units.

Table 12 Staffing Requirements for Emergency Operation Personnel of Ship Pollution Cleaning Units

Emergency Operation Personnel	Special Grade	Grade I	Grade II	Grade III	Grade IV
Senior Command (persons)	≥5	≥3	≥3	≥2	≥2
On-site Command (persons)	≥12	≥8	≥6	≥4	≥3
Emergency Operation (persons)	≥60	≥40	≥30	≥20	≥15

4.11.2 The emergency plan should clearly define the responsibilities of emergency operation personnel.

4.11.3 If the number of senior command personnel exceeds the requirements of this standard, they can replace the corresponding number of on-site command personnel. However, the numbers of personnel of different grades cannot be substituted for each other.

4.11.4 Senior command personnel should have the capability to macroscopically control the emergency response to ship pollution incidents, comprehensively assess risks based on the situation, make timely emergency response decisions, and effectively organize and implement them.

4.11.5 On-site command personnel should be able to develop specific cleaning plans based on the strategies of the command organization and the on-site situation, and organize emergency operation personnel to implement them.

4.11.6 Emergency operation personnel should have basic knowledge and skills for emergency response, correctly use emergency equipment and materials, and carry out cleaning operations.

4.11.7 Emergency operation personnel of ship pollution cleaning units should be trained by professional oil spill emergency organizations and obtain training certificates; they should participate in knowledge update training at least once every five years.

4.11.8 For ship pollution cleaning units providing emergency cleaning services to foreign vessels, there should be at least two on-site command personnel capable of communicating in English.

4.12 Comprehensive Support

4.12.1 Emergency Response Time

4.12.1.1 See Table 13 for the emergency response time requirements of ship pollution cleaning units.

Table 13 Emergency Response Time Requirements of Ship Pollution Cleaning Units

Emergency Response Time (hours)	Special Grade	Grade I	Grade II	Grade III	Grade IV
	≥6	≥4	≥4	≥2	≥2

4.12.1.2 Emergency response time includes notification time, preparation time, and arrival time.

4.12.1.3 For Super Grade ship pollution cleaning units, emergency response time refers to the time from receiving the notification to the arrival of the oil spill emergency response vessel and its emergency operation personnel at the oil spill site. For First/Second Grade units, it refers to the time taken for the emergency response vessel and its crew to reach a location 20 nautical miles from its berthing dock after receiving the notification.

4.12.1.4 For Third/Fourth Grade units, emergency response time refers to the time from notification to the arrival of the emergency vessel carrying major recovery and cleaning equipment and personnel to the outer boundary of the port waters serviced by the unit.

4.12.1.5 The service area of ship pollution cleaning units refers to the range of waters that the oil spill emergency response vessels and their emergency operation personnel can reach within the required emergency response time after leaving their long-term berthing docks. For water areas directly accessible from rivers to seas, the emergency response time refers to the range of waters that can be reached from the nearest seaport within the required time after notification.

4.12.1.6 Ship pollution cleaning units should reasonably locate their emergency equipment warehouses to ensure that their main equipment and materials can be delivered within the required response time to the waters within the service area.

4.12.2 Communication Support

Ship pollution cleaning units should have various means of communication and a sufficient number of communication devices to ensure unimpeded communication.

4.12.3 Logistics Support

4.12.3.1 Ship pollution cleaning units should provide support for emergency equipment storage, transportation methods, spare parts for emergency equipment and devices, safety and protection supplies, emergency personnel accommodation, medical aid, etc., to ensure the smooth implementation of emergency actions. The emergency equipment warehouse should be clearly marked, have emergency access, and be equipped with loading and

unloading facilities or vehicles, as well as safety facilities for emergency operations.

4.12.3.2 Ship pollution cleaning units should have sufficient financial support to ensure the expenditure of emergency costs and daily operations.

4.13 Equipment Requirements for First and Second Grade Pollution Cleanup Units Providing Cleaning Agreement Services to Vessels Carrying Bulk Liquid Hazardous Cargo

4.13.1 First and Second Grade pollution cleanup units providing cleaning agreement services to vessels carrying oil-like bulk liquid hazardous cargo should be equipped with oil spill emergency facilities, equipment, and materials as required by this standard.

4.13.2 Pollution cleanup units serving specialized chemical terminals should be equipped with at least 3 tons of chemical absorbent, and for vessels carrying volatile, floating, and toxic hazardous cargoes, chemical absorbents should be provided; for other floating hazardous cargoes, either chemical adsorbents or absorbents can be chosen.

4.13.3 See the China Maritime Safety Administration website for a list of sea-transported hazardous cargoes. The distinction between oil-like and non-oil-like cargoes should be based on the physical and chemical characteristics of the hazardous cargoes.

4.13.4 Depending on the hazard and safety protection requirements of sea-transported hazardous cargoes, appropriate personal protective equipment, portable hazardous substance detection instruments, containment devices, and recovery equipment should be equipped.

4.14 Pollution Cleanup Operation Plan

4.14.1 Ship pollution cleaning units should develop pollution cleanup operation plans based on the environmental characteristics of their service area and the risks of vessels that may sign pollution cleanup agreements in the service area.

4.14.2 When developing a pollution cleanup operation plan, emphasis should be on emergency strategies and technology, and it should be coordinated with the emergency plan. At the same time, consideration should be given to preventing secondary pollution.

4.14.3 The pollution cleanup operation plan should at least include the following:

(1) A general emergency strategy description that suits the characteristics of the unit and its service area;

(2) Emergency plugging, unloading, and other pollution control plans for the main types of vessels

and cargoes served;

(3) Protection plans for major sensitive resources in the service area;

(4) Sea-based pollutant recovery and cleanup plans for different accident scenarios;

(5) Shoreline cleanup plans according to the characteristics of the service area's coastline;

(6) Emergency operation safety plans.

4.15 Pollutant Processing Plan

4.15.1 Ship pollution cleaning units should develop pollutant processing plans based on the needs of emergency response to ship pollution accidents.

4.15.2 When developing a pollutant processing plan, it should be coordinated with the emergency plan. At the same time, consideration should be given to preventing secondary pollution.

4.15.3 The pollutant processing plan should at least include the following:

(1) A general pollutant processing strategy description that complies with the characteristics of the unit and its service area as well as environmental protection requirements;

(2) Temporary storage plans for recovered pollutants;

(3) Pollutant transportation plans;

(4) Cleaning or disposal plans for emergency cleanup vessels, facilities, equipment, and materials;

(5) Shore-based pollutant processing plans.

4.16 Emergency Plan

4.16.1 Emergency plans developed by ship pollution cleaning units should be able to match the risk of ship pollution and the emergency cleanup capability of the unit.

4.16.2 Emergency plans should coordinate with local government emergency plans in terms of accident reporting, identification and protection of sensitive resources, graded response, and post-pollution disposal.

4.16.3 The emergency plan should at least include the following:

(1) Analysis of risk types and sizes;

(2) Identification of sensitive resources and their protection order;

(3) Definition of the emergency organization;

(4) Definition of emergency strategies, management, and control procedures;

(5) Training and drill requirements;

(6) Revision of the emergency plan.

4.16.4 For approved emergency plans, an evaluation should be made of whether the pollution cleanup operation plan, pollutant processing plan, and emergency plan are effectively coordinated.

4.17 Emergency Preparedness and Response

4.17.1 Ship pollution cleaning units should regularly maintain and service emergency vessels, facilities, equipment, and materials to keep them in good condition. After participating in emergency response actions, they should promptly replenish consumed emergency equipment and materials to ensure they have emergency capabilities that match their grade.

4.17.2 Ship pollution cleaning units should maintain records of maintenance and servicing of emergency vessels, facilities, equipment, and materials, emergency drills, emergency preparedness, and emergency response actions.

4.17.3 Ship pollution cleaning units should inform vessels with service agreements about the distribution of emergency standby forces, including emergency vessels, equipment, personnel, and materials.

4.17.4 During the entry and exit of vessels with service agreements, ship pollution cleaning units should maintain clear communication and keep relevant records. At least one emergency response vessel should be on standby near the port area, and other emergency equipment and materials should be ready for use.

4.17.5 If vessels with service agreements are engaged in transshipment or loading and unloading operations of oil or bulk toxic liquid substances, ship pollution cleaning units should, according to the relevant requirements of the "People's Republic of China Regulations on the Prevention and Control of Pollution from Ships and Their Related Operations in Marine Environment," set up oil containment booms for the vessels or take other appropriate alternative measures.

4.17.6 Ship pollution cleaning units should, in collaboration with vessel operators who have signed long-term agreements, select appropriate timing and suitable agreement vessels to conduct joint ship pollution emergency drills.

4.17.7 In the event of a pollution incident involving vessels with service agreements, ship

pollution cleaning units should conduct pollution control and cleanup operations in accordance with relevant national laws and the agreements that have been signed.