

Pre-cleaning Technologies and Third Party Inspection of Green Ship-dismantling 绿色拆船预清理和第三方监理

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1. Purpose of and Basis for the Pre-cleaning 预清理目的和依据

1.1 Purpose 目的

Ship-dismantling industry is an integral part of the recycling economy, also known as the boat recycling industry. Dismantling hulk is needed not only to protect the seas, rivers, lakes and other water bodies, but also to get many available supplies so as to save a lot of mineral resources. Hulks contain or carry a variety of wastes, especially hazardous wastes, dangerous chemicals, garbage, etc. Improper handling will do harm to the environment, safety and the health of the operational staff. Before hot work on hulks, pre-cleaning procedures and methods are needed for proper disposal of these substances to protect the environment and staff health, as well as to get all kinds of quality resources from dismantling.

1.2 Basis 依据

In China, hulk dismantling is required to comply with state laws and regulations as well as the relevant international conventions and norms in the ship-dismantling industry, including :

- The Solid Waste Pollution Prevention
- Regulations on Prevention of Ship-dismantling Environmental Pollution
- Control of the Trans-boundary Movement of Hazardous Wastes and their Disposal of the Basel Convention
- Technical Guidelines on the Environmentally Sound Management of the Hulk Full and Partial Dismantling (the Basel Convention on Ship Recycling Guidelines)
- 2009 Hong Kong International Convention on the Safe and Decontaminated Ship Recycling (the Hong Kong ship Recycling Convention), and so on

2 Scope and Related Definitions of Pre-cleaning 预清理范围和相关定义

2.1 Scope of Application 适用范围

The Technical Guidelines include pre-cleaning purpose, basis, object and scope, the basic principles of the pre-cleaning, pre-cleaning preparation, categorization in pre-cleaning, pre-cleaning supervision and management and so on in the green ship-dismantling.

The Guidelines are applicable to all ship-dismantling companies in People's Republic of China, for the pre-cleaning of hulks imported according to the Environmental Protection Control Standards for Imported Solid Waste Used as Raw Materials -- Ships and Other Floating Structures for Dismantlement.

•2.2 Definition 定义

The Technical Guidelines adopt the following definitions:

Green Ship-dismantling: the establishment of environmental friendly, safe and healthy concepts, which shall standardize the behaviors in the dismantling process, so as to ensure production safety, prevent environmental pollution and protect human health, and to realize the recovery of useful substances and decontamination of harmful substances, for the sustainable development of the ship-dismantling industry.

Pre-cleaning: removal of hazardous substances (such as dangerous chemicals, hazardous wastes, garbage, etc.) and other movables and proper disposal of them according to requirements before hot work on dismantling hulks.

Third-party Supervision: stationing of appointed or hired representatives by the shipyard or ship owner in the recycling facility to supervise that the recycling facility is dismantling hulks according to the relevant provisions of green ship recycling. Third-party supervision agency is a supervisory body independent of the recycling facility or ship-dismantling company.

3 Principles of Pre-cleaning 预清理原则

The basic principles of the pre-cleaning in the green ship-dismantling are as follows:

- (1) Sound planning & sufficient preparation
- (2) Categorized cleaning and specialized disposal
- (3) Orderly operation and guaranteed quality
- (4) Environmental protection plus safety and health
- (5) clarified responsibilities plus reward and punishment

4 Pre-cleaning objects in Ship-dismantling & Preparation 拆船预清理对象范围和准备

4.1 Pre-cleaning objects in Ship-dismantling 拆船预清理对象范围

Ship-dismantling pre-cleaning objects include the following categories:

- (1) garbage, such as old clothes, footwear, pillows, quilts, remnants of food and food, packaging waste, etc.
- (2) residue after loading cargo, such as chemicals, remaining oil in tanks, etc.
- (3) oil and oily waste, such as cabin sludge oil, residual oil in pipelines or containers,

- (4) other hazardous or dangerous wastes besides oily wastes, such as asbestos and asbestos-containing waste, glass fibers, refrigerants, , PCBs-containing wastes, etc.
- (5) dangerous chemicals, such as high-pressure gas or airtight containers, flares, paint, etc.
- (6) other non-hazardous waste, such as wire and cable, ceramics, cement, Styrofoam, etc.
- (7) other removable items, such as household appliances, tools and equipments.

4.2 Preparation for the Pre-cleaning in Ship-dismantling

拆船预清理的准备

(1) The recycling facility or company should consult with and learn from the ship-owner the following information before taking the hulk:

(2) Inspection and Quarantine procedures on the hulk must be completed as required,

(3) Before the pre-cleaning, the recycling facility or company should identify, count and label all hazardous substances according to the list of hazardous substances.

- (4) Before the pre-cleaning, the ship-dismantling facility should map out a work plan,
- (5) Before pre-cleaning, it is required that all participating staff members go through training and safety education, the contracts signing for a professional pre-cleaning service be completed
- (6) Before the pre-cleaning, a contingency plan for unexpected environmental pollution incidents and safety accidents should be in place,

5 Pre-cleaning Categorization Requirements

预清理分类操作要求

5.1 Asbestos Waste

5.2 Waste oil and Oily Wastewater

5.3 Freon Refrigerants (CFCs)

5.4 Waste Polychlorinated Biphenyls (PCBs) Containing

5.5 Waste Containing Hazardous Heavy Metals

5.6 Dangerous Chemicals

5.7 Garbage

5.8 Other Common Solid Waste

6 Supervision and Management of Pre-cleaning 预清理的监督管理

(1) All recycling facilities and companies with the title of Green Ship-dismantling Enterprise should pay close attention to pre-cleaning and team up a leading panel for this task.

(2) In light of the list of hazardous substances and the inventory records made after boarding the ship, a pre-cleaning work plan should be mapped out and hot work for dismantling the ship should take place after the pre-cleaning is deemed qualifying.

(3) The recycling facility or company can hire a third-party supervision agency for managing the daily operation of pre-cleaning, to do on-site inspections of whether the operators adopt the proper health precautions, follow the proper dismantling procedures and take the proper treatment measures, and to correct illegal or incorrect operations.

(4) The hazardous wastes and dangerous chemicals from the pre-cleaning should be transferred for decontamination as soon as possible, and in principle, their storage in recycling facility or company should be no more than one year.

7. Environmental Pollution Prevention Responsibilities of the Third Party Supervision Organization

绿色拆船第三方监理

7.1 Purpose 目的

The third party supervision is essential to enter into Chinese green ship-dismantling industry that satisfies sustainable development of Chinese green ship-dismantling industry, promotes the improvement of operating capability, and is a great significant connection with world. Chinese ship-dismantling companies increasingly increase the safety and environmental awareness, improve the management level, and increase investment in complete set of environmental protection equipment by doing business with the world's major ship owners and the third party supervision institutions who will get recognition from them.

7.2 Responsibility 职责

7.2.1 A third party supervision organization is an independent supervisory body directly designated (or hired) by the ship owner to station at the recycling factory to supervise green recycling activities. During the ship-dismantling process, the third party supervision organization stays independent from the recycling company to supervise whether the recycling company implements relevant requirements of green ship-dismantling. The working hours of the third party supervision organization is in sync with that of the ship-dismantling company, and all costs incurred in the supervision process shall be borne by the organization itself.

7.2.2 The supervisory responsibility of the third party supervision organization is to review the *Green Ship-dismantling Plan*. The ship-dismantling company formulate a *Green Ship-dismantling Plan* in accordance with *Green Ship-dismantling General Guidelines* and *Hong Kong Convention*, and the third party supervision organization should firstly review the *Green Ship-dismantling Plan* to see whether it complies with the previously mentioned two regulations

7.2.3 Contents to be reviewed include:上述二项法规审定的内容包括

1.The dismantling completion date in the *Green Ship-dismantling Plan* should be consistent with the dismantling completion date in the *Ship Purchasing Contract*;

2.*Regulations and Contingency Plan* related to the *Green Ship-dismantling Plan* should be in line with the *Green Ship-dismantling Plan*.

3.Whether the pre-cleaning procedure in the *Green Ship-dismantling Plan* complies with *Guideline for Pre-cleaning in Green Ship-dismantling*;

4.Whether the dismantling plan and techniques in the *Green Ship-dismantling Plan* complies with requirements of green ship-dismantling.

7.2.4 The third party supervision organization supervises the implementation of the *Green Ship-dismantling Plan*. 第三方监理监督执行《绿色拆船计划》

1. Inspect the site, to see whether the pre-treatment of dismantling is in line with requirements of production safety, environmental protection and safety of personnel.

2. Inspect the site, to see whether the pre-cleaning of the dismantling conforms to *Guideline for Pre-cleaning in Green Ship-dismantling*,

3. Check whether the operating staff are wearing the stipulated protective suits and labor protection appliances correctly, whether they are all properly certified,

4. Supervise the dismantling procedure and techniques throughout the dismantling process to ensure that all devices, tools and cranes have gone through previous check

5. Check whether *Weekly Work Report* and *Work Plan for Next Week* are in line with the *Green Ship-dismantling Plan*.

7.2.5 Work after Dismantling 拆船完毕后的工作

1. Clean the site after dismantling to make it clean and tidy, ready for the next dismantling;
2. Check, repair and maintain the devices and tools used in the dismantling for the next dismantling.
3. Supervise the disposal of dismantled hazardous wastes. Keep a good record of the amount and flow of dismantled valuable materials like waste steel, waste nonferrous metal and marine equipment, store, transfer and treat them in a safe manner;
4. Check the flow of dismantled materials;
5. Compile the *Green Ship-dismantling Completion Report* along with the ship-dismantling company.

8. Personnel Health Protection Requirements

人员健康保障要求

8.1 Ship-dismantling operating staff should be equipped with labor protection appliances, including suits, gloves, shoes and hats, masks, goggles and washing products. 从事拆船作业的工人应配备劳动保护用品，包括服装、手套、鞋帽、口罩、眼保护镜和洗涤用品等。

1. There should be a clinic in the ship-dismantling factory with commonly used medicine.
2. The ship-dismantling company should develop contingency measures to provide first aid when employees get hurt in an accident.
3. The ship-dismantling company should organize employees to receive physical check once a year.

8.2 Health Protection Requirements for Personnel Dismantling Wastes Containing Asbestos 对从事含石棉废物拆除工人的健康保障要求

- 1.The dismantling of wastes containing asbestos should be carried out by specialists who have been trained for it.
- 2.During the removal process, staff should wear proper breathing masks, disposable protective suits, gloves, rubber boots and other protective appliances.
- 3.There should be dedicated bathrooms for the personnel to wash themselves after removing wastes containing asbestos.
- 4.Asbestos dismantling staff should receive lung X-ray check every half year.

8.3 Health Protection Requirements for Cutting Operators对从事切割工人的健康保障要求

1. Cutting operators should wear safety helmets, protective masks, goggles and other protection appliances.

2. Cutting operators should operate upwind. When they have to operate in the tank, they should keep good ventilation and use protective devices when necessary.

3. The ship-dismantling company should test the blood and urine of its cutting operators every half year. If the lead content exceeds $60\mu\text{g}/\text{ml}$ in the blood or $100\mu\text{g}/\text{ml}$ in the urine, the operator should be removed from the position to avoid lead poisoning.

4. If the metal cutting is in a closed or semi-closed space, there must be mechanical ventilation or respirators, and operating personnel outside and inside must stay in touch; equip fire extinguishing appliances; avoid long-time exposure to toxic gas by operating personnel.

8.4 Prevention of and Response to Health Contingencies 人员健康应急事故的预防和反应

1.The ship-dismantling company must formulate personnel health contingency plans, including incident report, self-rescue, emergency relief, medical security and preventing damage to the health of more personnel.

2.All operating personnel with the ship-dismantling company should receive training regarding emergency measures. Personnel that have not been properly trained are not allowed to undertake dismantling work.

3.The ship-dismantling company should prepare necessary health contingency supplies and devices, and store these supplies and devices at easy accessible sites.

4.The ship-dismantling company should be able to organize self-rescue, help and relief in case of personnel health contingencies and prevent the incident from escalating.